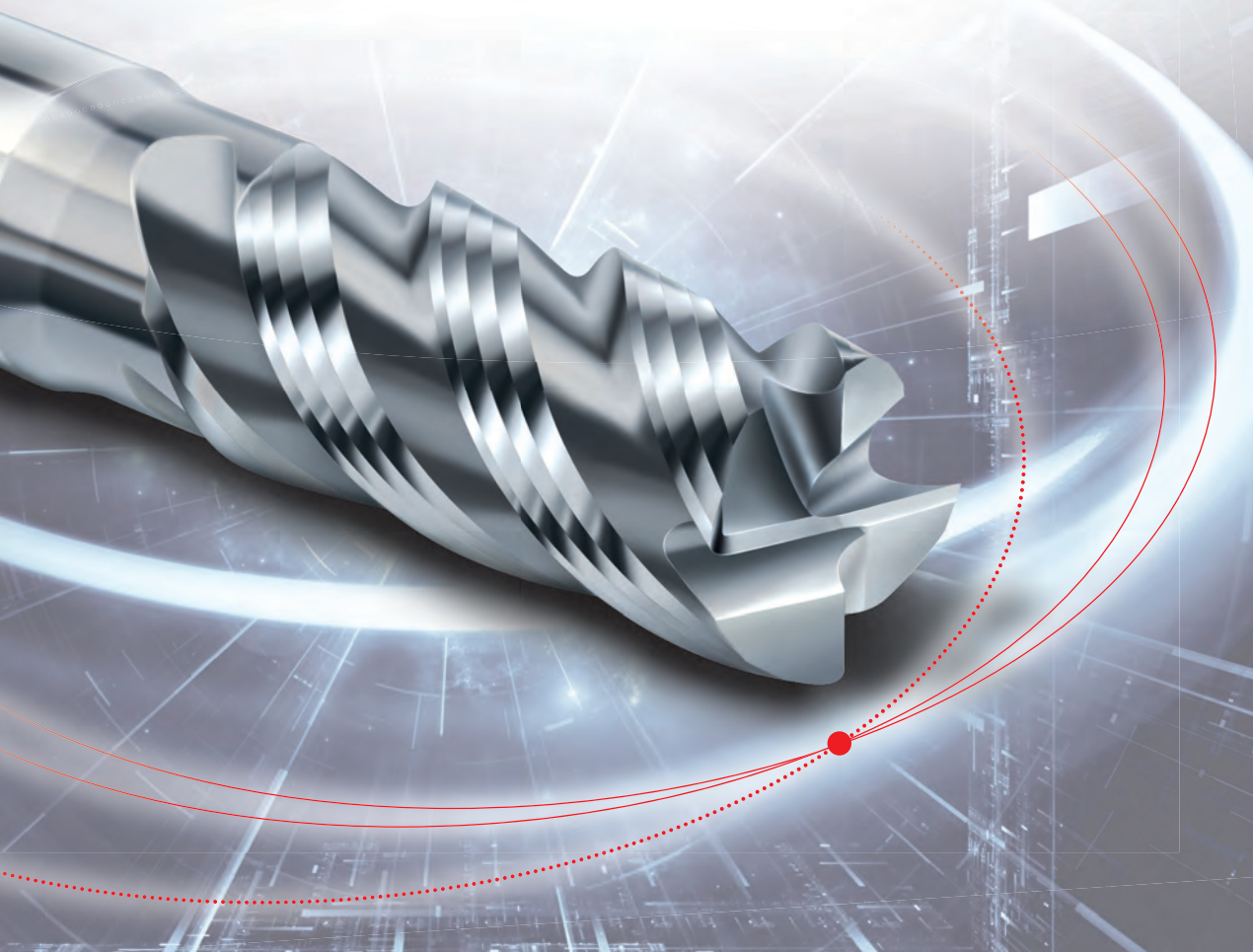
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passion for precision

High-performance milling tools





User-friendly representation of the tools and the associated application data.

High-performance milling tools
for greater efficiency

Secure a competitive advantage

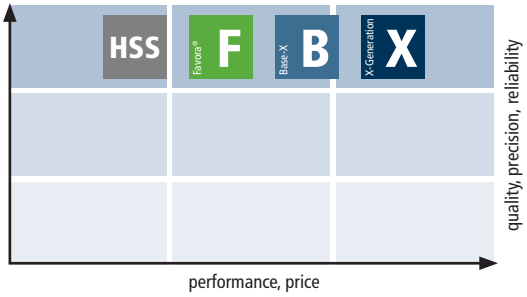
The comprehensive FRAISA range of high-performance milling tools guarantees greater productivity, and hence lower costs. And it does so at an optimised price-performance ratio. With our tools and our range of services, we thereby secure a competitive advantage for our customers in a fiercely contested market. This is our claim.

Tried-and-tested solutions and innovations in a single catalogue

The new FRAISA catalogue not only introduces the wide variety of our range in a clear manner, but also once again contains a whole series of innovative new products. For example the new AX-RV end mill for efficiently machining aluminium alloys, or the new ZX end mill for use on highly heat-resistant and difficult-to-cut materials. A complete catalogue of milling tools for machining modern composite materials (CFRP) perfectly complements the range of carbide milling tools. In addition, the performance of this range of tried-and-tested carbide cutters is further increased by applying the high-performance **FRAISA Polychrom** hard coating.

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In the new catalogue, you will find the right milling tool in the right quality and at the right price. Our product range is precisely tailored to your requirements. We produce different performance ratings to cover the full range of requests and requirements: from the cheapest but technically optimised product line, all the way up to our FRAISA X-Generation for the highest performance and precision.



X-Generation – for highest performance and precision

Base-X – for universal use

Favora® – inexpensive and technically perfect

HSS – the cost-effective alternative

Quick orders, quick deliveries

Simply order, and delivery will be made the next day. Benefit from the largest range of milling tools in the industry. You can also order from our e-shop, at **www.fraisa.com.**



You can also use the order function from our e-shop.

Our service
for your success



ToolExpert for safe tool use

As usual, in our catalogue you will find a clear and helpful presentation of all the cutting data for our tools. This is made even easier using our cutting data software application, ToolExpert, which is continuously being expanded with new products and application areas. Virtually all materials have now been included in the material database of ToolExpert, together with the associated application parameters. The software is easy to understand, simple to operate, and can be used directly without special training.

Your competent advisor on the PC

Use the new version of ToolExpert as a competent advisor when starting a new application. It's both simple and free. ToolExpert can be downloaded from the FRAISA homepage at **www.fraisa.com**.

Local customer service

Our range of services relating to tool applications offers additional benefits that will literally pay off for you:

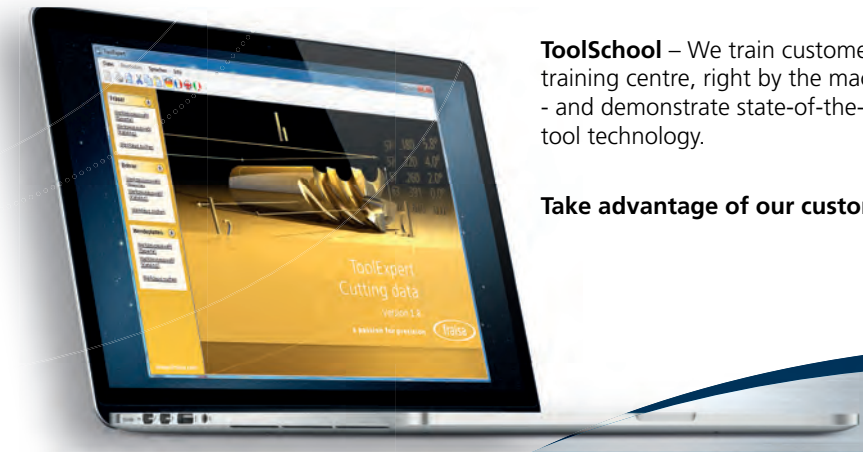
ToolCare® – The new tool management system generates reliability, guarantees transparency, saves time and reduces costs. With ToolCare®, the tools utilised in the production facility can be stored in a clearly organised manner, and efficiently managed.

ToolService – We recondition all of your cutting tools using state-of-the-art grinding technology in our service centre.

ConcepTool – We adapt our tools to meet your specific needs. For example, we can combine a number of standard tools to produce a tailor-made custom tool.

ToolSchool – We train customers in our training centre, right by the machines - and demonstrate state-of-the-art cutting tool technology.

Take advantage of our customer service!



Replaces 2011/12 and New tools 2013



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End milling tools for 3D machining 307 – 505 II

End milling tools for aluminium and copper 507 – 569 III

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End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Normal version

N° 5227 / 5327 d1 3 – 20		X-Generation	X	HM MG10	45°	Rm <850-1300	Inox Stainless		21
N° 15227 / 15327 d1 3 – 20		X-Generation	X	HM MG10	45°	Rm <850-1100	Inox Stainless		23
N° 15205 / 15305 d1 3 – 20		X-Generation	X	HM MG10	45°	Rm <850-1300	Inox Stainless		25
N° 15200 / 15300 d1 6 – 20		X-Generation	X	HM MG10	45°	Rm <850-1300	Inox Stainless		27
N° 15222 / 15322 d1 4 – 20		X-Generation	X	HM MG10	45°	Rm 850-1500	HRC 48-56	Ti Titanium	29
N° 5258 / 5358 d1 5 – 16		X-Generation	X	HM MG10	45°	Rm 1300-1500	HRC 48-60		31
N° 5214 / 5314 d1 3 – 16		X-Generation	X	HM MG10	45°	Inox Stainless			33
N° 8700 / 8800 new! d1 3 – 20		X-Generation	X	HM X10	r	Ni-/Mn- Alloys			35
N° 8705 / 8805 new! d1 6 – 20		X-Generation	X	HM X10	r	Ni-/Mn- Alloys			37
N° 15233 / 15333 d1 3 – 20		X-Generation	X	HM MG10	45°	Rm <850-1300			39
N° 15234 / 15334 d1 3 – 20		X-Generation	X	HM MG10	45°	Rm <850-1100	Inox Stainless		41
N° 15207 / 15307 d1 4 – 20		Base-X	B	HM MG10	45°	Rm <850-1300	Inox Stainless	Ti Titanium	43
N° 5240 / 5340 d1 2.0 – 20.0		Base-X	B	HM MG10	45°	Rm <850-1100			45
N° 5255 / 5355 d1 3 – 20		Base-X	B	HM MG10	45°	Rm <850-1100	Inox Stainless	Ti Titanium	47
N° 5230 / 5330 d1 2.0 – 25.0		Base-X	B	HM MG10	45°	Rm <850-1100			49

End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Normal version

N° 5231 / 5331 d1 3 – 20 	Base-X **B**	**HM MG10**	45°	**Rm** <850-1300			53
N° 5200 / 5300 d1 2.0 – 20.0 	Base-X **B**	**HM MG10**	45°	**Rm** <850-1100			55
N° 45217 / 45317 d1 3 – 20 	Favora® **F**	**HM**	45°	**Rm** <850-1100	**Inox** Stainless		57
N° 45340 d1 3 – 20 	Favora® **F**	**HM**	45°	**Rm** <850-1100			59
N° 45333 d1 3 – 20 	Favora® **F**	**HM**	45°	**Rm** <850-1100	**Inox** Stainless		61
N° 45330 d1 3 – 20 	Favora® **F**	**HM**	45°	**Rm** <850-1100			63
N° 0110 d1 1.0 – 40.0 	**HSS**	**HSS-E Co8**	90°	**Rm** <850-1100			65
N° 0115 d1 6 – 25 	**HSS**	**HSS PM/F**	90°	**Rm** <850	**Inox** Stainless	**Ti** Titanium	69
N° 0780 d1 1.0 – 25.0 	**HSS**	**HSS-E Co8**	90°	**Rm** <850-1100			71
N° 0770 d1 1.0 – 20.0 	**HSS**	**HSS-E Co8**	90°	**Rm** <850-1100			75

End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Normal version with neck

N° 5225 / 5325 d1 3 – 20 	X-Generation X	HM MG10	45°	Rm <850-1300	Inox Stainless		77
N° 15252 / 15352 new! d1 3 – 20 	X-Generation X	HM MG10	45°	Rm <850-1300	Inox Stainless		79
N° 15202 / 15302 d1 6 – 20 	X-Generation X	HM MG10	45°	Rm <850-1300	Inox Stainless		81
N° 15242 / 15342 d1 4 – 20 	X-Generation X	HM MG10	45°	Rm 850-1500	Ti Titanium		83
N° 5248 / 5348 d1 3 – 25 	X-Generation X	HM MG10	45°	Rm 1300-1500	HRC 48-60		85
N° 5244 / 5344 d1 3 – 20 	X-Generation X	HM XT	45°	HRC 48 - >60			87
N° 5218 / 5318 d1 3 – 20 	X-Generation X	HM MG10	45°	Inox Stainless			89
N° 5215 / 5315 d1 3 – 16 	X-Generation X	HM MG10	45°	Inox Stainless			91
N° 0580 d1 4 – 25 	HSS	HSS PM/F	45°	Rm <850-1100	Inox Stainless		93

Medium length version

N° 15223 / 15323 d1 4 – 20 	X-Generation X	HM MG10		Rm 850-1500	HRC 48-56	Ti Titanium	95
N° 15208 / 15308 new! d1 4 – 20 	Base-X B	HM MG10	45°	Rm <850-1300	Inox Stainless	Ti Titanium	97
N° 15243 / 15343 d1 2.0 – 25.0 	Base-X B	HM MG10	45°	Rm <850-1100			99
N° 5332 d1 2.0 – 20.0 	Base-X B	HM MG10	45°	Rm <850-1100			101
N° 0190 d1 5 – 32 	HSS	HSS-E Co8	90°	Rm <850-1100			103

End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Medium length version with neck

N° 15225 / 15325 d1 6 – 16 	X-Generation X	HM MG10	45°	**Rm** <850-1300			105
N° 15253 / 15353 new! d1 6 – 20 	X-Generation X	HM MG10	45°	**Rm** <850-1300			107
N° 15259 / 15359 new! d1 4 – 16 	X-Generation X	HM MG10	45°	**Rm** 850-1500	**Ti** Titanium		109
N° 5251 / 5351 d1 6 – 20 	X-Generation X	HM MG10	45°	**Rm** 1300-1500	**HRC** 48-60		111
N° 5219 / 5319 d1 6 – 16 	X-Generation X	HM MG10	45°	**Inox** Stainless			113
N° 15299 / 15399 d1 3 – 16 	X-Generation X	HM MG10	45°	**Rm** <850-1300			115
N° 15294 / 15394 new! d1 3 – 16 	X-Generation X	HM MG10	45°	**Rm** <850-1100	**Inox** Stainless		117
N° 5333 d1 3 – 16 	Base-X B	HM MG10	45°	**Rm** <850-1100			119

End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Long version

N° 15245 / 15345 — d1 6 – 20



Base-X B	HM MG10	45°	Rm <850-1100				121
HSS	HSS-E Co8	90°	Rm <850-1100				123
HSS	HSS-E Co8	90°	Rm <850-1100				125

N° 0200 — d1 2.0 – 40.0



N° 0270 — d1 2.0 – 20.0



Long version with neck

N° 5393 — d1 3 – 16



Base-X B	HM MG10	45°	Rm <850-1100				127

Extra-long version

N° 15247 / 15347 — d1 6 – 20.0



Base-X B	HM MG10	45°	Rm <850-1100				129

Short version

N° 5229 / 5329 — d1 3 – 16



X-Generation X	HM MG10	45°	Rm <850-1100	Inox Stainless			131

N° 5249 / 5349 — d1 1.0 – 16.0



X-Generation X	HM MG10	45°	Rm 1300-1500	HRC 48-60			133

N° 5213 / 5313 — d1 3 – 16



X-Generation X	HM MG10	45°	Inox Stainless				135

N° 5026 / 5036 — d1 1.5 – 10.0



Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless			137

N° 5400 — d1 1.0 – 6.0



Base-X B	HM MG10	45°	Rm <850-1100				139

N° 0700 — d1 1.0 – 25.0



HSS	HSS-E Co8	90°	Rm <850-1100				141

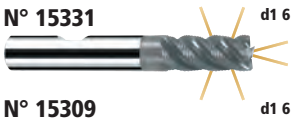
End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, with corner radius

Normal version

N° 15226 / 15326 	d1 3 – 20 r 0.5, 1.0, 1.5, 2.0, 2.5, 4.0	X-Generation	**X**	**HM MG10**		**Rm** <850-1300			145
N° 15268 / 15368 	d1 4 – 20 r 0.5, 1.0, 1.5, 2.0, 2.5, 4.0	X-Generation	**X**	**HM MG10**		**Rm** 850-1500	**HRC** 48-56	**Ti** Titanium	149
N° 5259 / 5359 	d1 3 – 16 r 0.2, 0.5	X-Generation	**X**	**HM MG10**		**Rm** 1300-1500	**HRC** 48-60		153
N° 15257 / 15357 	d1 6 – 20 r 1.0, 2.0	X-Generation	**X**	**HM MG10**		**Rm** 1300-1500	**HRC** 48-60		155
N° 15212 / 15312 	d1 6 – 16 r 0.5, 1.0, 1.5	X-Generation	**X**	**HM MG10**		**Inox** Stainless			157
N° 8720 / 8820 new! 	d1 6 – 20 r 0.4, 0.5, 0.8, 1.0, 1.5, 2.0, 2.5, 4.0	X-Generation	**X**	**HM X10**		**Ni-/Mn-** Alloys			159
N° 5234 / 5334 	d1 3 – 12 r 0.2, 0.5	Base-X	**B**	**HM MG10**		**Rm** <850-1100			163
N° 45219 / 45319 	d1 3 – 20 r 0.2, 0.5, 0.8, 1.0, 1.5, 2.0, 2.5, 4.0	Favora®	**F**	**HM**		**Rm** <850-1100	**Inox** Stainless		165

End milling tools for steel, stainless steel, titanium and nickel
Profiled, cylindrical

Normal version

N° 5279 / 5379	d1 6 – 20		X-Generation X	HM XR	45°	Rm <850-1300			171
N° 15379	d1 6 – 20		X-Generation X	HM XR	45°	Rm <850-1300			173
N° 15331	d1 6 – 20		X-Generation X	HM XR	45°	Rm <850-1300			175
N° 15309	d1 6 – 20		X-Generation X	HM XR	45°	Inox Stainless			177
N° 15236 / 15336	d1 3 – 20		Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		179
N° 45371	d1 3 – 20		Favora® F	HM	45°	Rm <850-1100			181
N° 0619	d1 5 – 25		HSS	HSS PM/F	45°	Rm 850-1300			183
N° 0540	d1 6 – 25		HSS	HSS PM/F	45°	Rm <850-1300	Inox Stainless		185
N° 0610	d1 5 – 40		HSS	HSS-E Co8	45°	Rm <850-1100			187
N° 0609	d1 6 – 32		HSS	HSS-E Co8	45°	Rm <850-1100	Inox Stainless		191
N° 0695	d1 8 – 32		HSS	HSS-E Co8	45°	Rm <850-1100	Inox Stainless		193

End milling tools for steel, stainless steel, titanium and nickel
Profiled, cylindrical

Medium length version

N° 5173 d1 6 – 20



N° 15238 / 15338 new! d1 6 – 20



N° 0659 d1 6 – 25



N° 0650 d1 5 – 32



X-Generation X	HM XR	45°	Rm <850-1300			195
Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		197
HSS	HSS PM/F	45°	Rm 850-1300			199
HSS	HSS-E Co8	45°	Rm <850-1100			201

Medium length version with neck

N° 5174 d1 6 – 20



N° 15304 d1 6 – 20



N° 15239 / 15339 new! d1 6 – 20



X-Generation X	HM XR	45°	Rm <850-1300			203
X-Generation X	HM XR	45°	Inox Stainless			205
Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		207

End milling tools for steel, stainless steel, titanium and nickel
Profiled, cylindrical

Short version

N° 5176 d1 10 – 20



X-Generation X	HM XR	45°	Rm <850-1300			209

N° 0640 d1 5 – 32



HSS	HSS-E Co8	45°	Rm <850-1100			211

Long version

N° 15248 / 15348 new! d1 6 – 20



Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		213

N° 0665 d1 5 – 40



HSS	HSS-E Co8	45°	Rm <850-1100			215

Extra-long version with neck

N° 0621 d1 6 – 25



HSS	HSS PM/F	45°	Rm 850-1300			217

End milling tools for steel, stainless steel, titanium and nickel
Finishing, cylindrical

Normal version

N° 15250 d1 3 – 20



X-Generation X	HM XA	45°	Rm 850-1500	HRC 48-60	Inox Stainless	219

N° 5266 / 5366 d1 3 – 20



X-Generation X	HM XA	45°	HRC 48- >60			221

N° 5260 / 5360 d1 6 – 20



Base-X B	HM MG10	45°	Rm 850-1300			223

N° 45360 d1 6 – 20



Favora® F	HM	45°	Rm 850-1300			225

Medium length version

N° 15251 d1 6 – 20



X-Generation X	HM XA	45°	Rm 850-1500	HRC 48-60	Inox Stainless	227

N° 15266 / 15366 d1 6 – 20



X-Generation X	HM XA	45°	HRC 48- >60			229

N° 5265 d1 6 – 20



Base-X B	HM MG10	45°	Rm 850-1300			231

N° 45362 d1 6 – 20



Favora® F	HM	45°	Rm 850-1300			233

Long version

N° 5268 d1 10 – 25



Base-X B	HM MG10	45°	Rm 850-1300			235

End milling tools for steel, stainless steel, titanium and nickel
Micro, cylindrical

Shank ø 6mm

N° 6502 new! d1 1.0 – 3.0



N° 6504 new! d1 1.0 – 3.0



N° 6506 new! d1 1.0 – 3.0



X-Generation X	3xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		237
X-Generation X	5xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		239
X-Generation X	8xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		241

Shank ø 3mm

N° 15711 d1 0.2 – 3.0



N° 45709 d1 0.1 – 2.9



N° 5712 d1 0.2 – 3.0



N° 5722 d1 0.5 – 3.0



N° 5710 / 45710 d1 0.3 – 3.0



N° 45713 d1 0.4 – 2.9



N° 15752 d1 0.5 – 3.0



N° 5714 d1 0.5 – 3.0



N° 5724 d1 0.5 – 3.0



N° 15754 d1 0.5 – 3.0



X-Generation X	1xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		243
Favora® F	1.5xd	90°	Rm <850	Inox Stainless	CuZn Gold Pl		245
Base-X B	3xd	45°	Rm <850-1500	Inox Stainless	Ti Titanium		249
X-Generation X	3xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		251
Favora® F	3xd	90°	Rm <850-1100				253
Favora® F	3xd	90°	Rm <850	Inox Stainless	CuZn Gold Pl		257
Base-X B	3xd	90°	Rm <850-1500	Inox Stainless	Ti Titanium		261
Base-X B	5xd	45°	Rm <850-1500	Inox Stainless	Ti Titanium		263
X-Generation X	5xd	45°	Rm 850-1500	HRC 48-60	Ti Titanium		265
Base-X B	5xd	90°	Rm <850-1500	Inox Stainless	Ti Titanium		267

End milling tools for steel, stainless steel, titanium and nickel
Micro, cylindrical

Shank ø 3mm

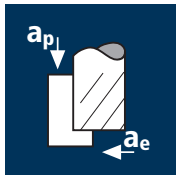
N° 5716 d1 0.5 – 3.0 	Base-X	**B**	**8xd**	45°	**Rm** <850-1500	**Inox** Stainless	**Ti** Titanium	269
N° 5726 d1 0.5 – 3.0 	X-Generation	**X**	**8xd**	45°	**Rm** 850-1500	**HRC** 48-60	**Ti** Titanium	271
N° 5717 d1 0.5 – 3.0 	Base-X	**B**	**10xd**	45°	**Rm** <850-1500	**Inox** Stainless	**Ti** Titanium	273
N° 5721 d1 1.0 – 3.0 	Base-X	**B**	**12xd**	45°	**Rm** <850-1300			275
N° 5723 d1 1.0 – 3.0 	Base-X	**B**	**15xd**	45°	**Rm** <850-1300			277
N° 15725 d1 1.0 – 3.0 	Base-X	**B**	**20xd**	45°	**Rm** <850-1100			279

End milling tools for steel, stainless steel, titanium and nickel
Smooth-edged, cylindrical

Short-shank version

N° 15232 	d1 1.5 – 10.0	Base-X B	HM MG10	90°	Rm <850-1100	Inox Stainless		281
N° 5236 / 5336 	d1 1.5 – 10.0	Base-X B	HM MG10	90°	Rm <850-1100	Inox Stainless		285
N° 5339 	d1 3 – 10	Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		287
N° 5335 	d1 2 – 10	Base-X B	HM MG10	45°	Rm <850-1100	Inox Stainless		289
N° 5336 / 45336 	d1 1.5 – 10.0	Favora® F	HM	90°	Rm <850-1100	Inox Stainless		291
N° 45339 	d1 3 – 10	Favora® F	HM	45°	Rm <850-1100	Inox Stainless		293
N° 45335 	d1 2 – 10	Favora® F	HM	45°	Rm <850-1100	Inox Stainless		295
N° 0400 	d1 1.0 – 20.0	HSS	HSS PM/F	90°	Rm <850			297
N° 0410 	d1 2.0 – 20.0	HSS	HSS PM/F	90°	Rm <850			301
N° 5237 / 5337 	d1 3 – 10	Base-X B	HM MG10	90°	Rm <850-1300	Inox Stainless		303
N° 5338 	d1 3 – 10	Base-X B	HM MG10	45°	Rm <850-1300	Inox Stainless		305

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	200	0.020	4.5	1.2	21220	1700	9.0
	4	4	200	0.025	6.0	1.6	15915	1590	15.5
	5	4	200	0.035	7.5	2.0	12735	1785	27.0
	6	4	200	0.040	9.0	2.4	10610	1700	36.5
	8	4	200	0.055	12.0	3.2	7960	1750	67.0
	10	4	200	0.070	15.0	4.0	6365	1780	107.0
	12	4	200	0.075	18.0	4.8	5305	1590	137.5
	16	4	200	0.100	24.0	6.4	3980	1590	244.0
	20	4	200	0.130	30.0	8.0	3185	1655	397.0
Steel 850 - 1100 N/mm²	3	4	150	0.020	4.5	1.2	15915	1275	7.0
	4	4	150	0.025	6.0	1.6	11935	1195	11.5
	5	4	150	0.035	7.5	2.0	9550	1335	20.0
	6	4	150	0.040	9.0	2.4	7960	1275	27.5
	8	4	150	0.055	12.0	3.2	5970	1315	50.5
	10	4	150	0.070	15.0	4.0	4775	1335	80.0
	12	4	150	0.075	18.0	4.8	3980	1195	103.0
	16	4	150	0.100	24.0	6.4	2985	1195	183.5
	20	4	150	0.130	30.0	8.0	2385	1240	297.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	80	0.020	4.5	1.2	8490	680	3.5
	4	4	80	0.025	6.0	1.6	6365	635	6.0
	5	4	80	0.030	7.5	2.0	5095	610	9.0
	6	4	80	0.040	9.0	2.4	4245	680	14.5
	8	4	80	0.050	12.0	3.2	3185	635	24.5
	10	4	80	0.065	15.0	4.0	2545	660	39.5
	12	4	80	0.075	18.0	4.8	2120	635	55.0
	16	4	80	0.095	24.0	6.4	1590	605	93.0
	20	4	80	0.120	30.0	8.0	1275	610	146.5
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.015	4.5	1.2	7425	445	2.5
	4	4	70	0.020	6.0	1.6	5570	445	4.5
	5	4	70	0.020	7.5	2.0	4455	355	5.5
	6	4	70	0.030	9.0	2.4	3715	445	9.5
	8	4	70	0.035	12.0	3.2	2785	390	15.0
	10	4	70	0.045	15.0	4.0	2230	400	24.0
	12	4	70	0.055	18.0	4.8	1855	410	35.5
	16	4	70	0.065	24.0	6.4	1395	365	56.0
	20	4	70	0.085	30.0	8.0	1115	380	91.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	180	0.015	3	3	19100	1145	10.5
	4	4	180	0.020	4	4	14325	1145	18.5
	5	4	180	0.030	5	5	11460	1375	34.5
	6	4	180	0.035	6	6	9550	1335	48.0
	8	4	180	0.045	8	8	7160	1290	82.5
	10	4	180	0.055	10	10	5730	1260	126.0
	12	4	180	0.060	12	12	4775	1145	165.0
	16	4	180	0.075	8	16	3580	1075	137.5
	20	4	180	0.095	10	20	2865	1090	218.0
Steel 850 - 1100 N/mm²	3	4	120	0.015	3	3	12735	765	7.0
	4	4	120	0.020	4	4	9550	765	12.0
	5	4	120	0.030	5	5	7640	915	23.0
	6	4	120	0.035	6	6	6365	890	32.0
	8	4	120	0.045	8	8	4775	860	55.0
	10	4	120	0.055	10	10	3820	840	84.0
	12	4	120	0.060	12	12	3185	765	110.0
	16	4	120	0.075	8	16	2385	715	91.5
	20	4	120	0.095	10	20	1910	725	145.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	60	0.015	3	3	6365	380	3.5
	4	4	60	0.020	4	4	4775	380	6.0
	5	4	60	0.030	5	5	3820	460	11.5
	6	4	60	0.035	6	6	3185	445	16.0
	8	4	60	0.045	8	8	2385	430	27.5
	10	4	60	0.055	10	10	1910	420	42.0
	12	4	60	0.060	12	12	1590	380	54.5
	16	4	60	0.075	8	16	1195	360	46.0
	20	4	60	0.095	10	20	955	365	73.0
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.010	3	3	5305	210	2.0
	4	4	50	0.015	4	4	3980	240	4.0
	5	4	50	0.025	5	5	3185	320	8.0
	6	4	50	0.030	6	6	2655	320	11.5
	8	4	50	0.035	8	8	1990	280	18.0
	10	4	50	0.045	10	10	1590	285	28.5
	12	4	50	0.050	12	12	1325	265	38.0
	16	4	50	0.060	8	16	995	240	30.5
	20	4	50	0.075	10	20	795	240	48.0

Cylindrical end mills NX-NV

Smooth-edged, normal version

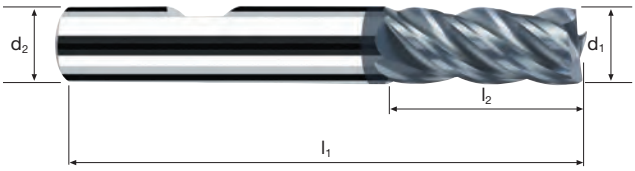
HSS | Favora® | Base-X | X-Generation X

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

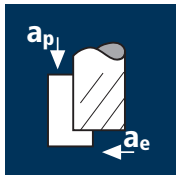
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** | Article-N°. **5327** | ø-Code **.180**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	α	z	POLYCHROM P5327	POLYCHROM P5227
.180	3	6	57	8	0.10	6.0°	4		●
.220	4	6	57	11	0.10	4.0°	4		●
.260	5	6	57	13	0.15	2.0°	4		●
.300	6	6	57	13	0.15	0.0°	4		●
.391	8	8	63	19	0.15	0.0°	4		●
.450	10	10	72	22	0.20	0.0°	4		●
.501	12	12	83	26	0.20	0.0°	4		●
.610	16	16	92	32	0.20	0.0°	4		●
.682	20	20	104	38	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	80	0.010	5.4	1.4	8490	340	2.5
	4	4	80	0.015	7.2	1.8	6365	380	5.0
	5	4	80	0.020	9.0	2.3	5095	410	8.5
	6	4	80	0.020	10.8	2.7	4245	340	10.0
	8	4	80	0.030	14.4	3.6	3185	380	19.5
	10	4	80	0.035	18.0	4.5	2545	355	29.0
	12	4	80	0.045	21.6	5.4	2120	380	44.5
	16	4	80	0.055	28.8	6.4	1590	350	64.5
	20	4	80	0.070	36.0	8.0	1275	355	102.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	40	0.010	5.4	1.4	4245	170	1.0
	4	4	40	0.015	7.2	1.8	3185	190	2.5
	5	4	40	0.020	9.0	2.3	2545	205	4.0
	6	4	40	0.020	10.8	2.7	2120	170	5.0
	8	4	40	0.030	14.4	3.6	1590	190	10.0
	10	4	40	0.035	18.0	4.5	1275	180	14.5
	12	4	40	0.045	21.6	5.4	1060	190	22.0
	16	4	40	0.055	28.8	6.4	795	175	32.5
	20	4	40	0.070	36.0	8.0	635	180	52.0
Heat resistant steel [17-4 PH]	3	4	25	0.010	5.4	1.4	2655	105	1.0
	4	4	25	0.010	7.2	1.8	1990	80	1.0
	5	4	25	0.015	9.0	2.3	1590	95	2.0
	6	4	25	0.015	10.8	2.7	1325	80	2.5
	8	4	25	0.020	14.4	3.6	995	80	4.0
	10	4	25	0.025	18.0	4.5	795	80	6.5
	12	4	25	0.030	21.6	5.4	665	80	9.5
	16	4	25	0.040	28.8	6.4	495	80	14.5
	20	4	25	0.055	36.0	8.0	400	90	26.0
Nickel base alloys prec.-hard. [Inconel 718]	3	4	15	0.008	5.4	1.4	1590	50	0.4
	4	4	15	0.010	7.2	1.8	1195	50	0.6
	5	4	15	0.014	9.0	2.3	955	55	1.1
	6	4	15	0.016	10.8	2.7	795	50	1.5
	8	4	15	0.022	14.4	3.6	595	50	2.6
	10	4	15	0.026	18.0	4.5	475	50	4.0
	12	4	15	0.032	21.6	5.4	400	50	5.8
	16	4	15	0.042	28.8	6.4	300	50	9.2
	20	4	15	0.052	36.0	8.0	240	50	14.4

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	60	0.010	2.4	3	6365	255	2.0
	4	4	60	0.015	3.2	4	4775	285	3.5
	5	4	60	0.015	4.0	5	3820	230	4.5
	6	4	60	0.020	4.8	6	3185	255	7.5
	8	4	60	0.025	6.4	8	2385	240	12.5
	10	4	60	0.030	8.0	10	1910	230	18.5
	12	4	60	0.040	9.6	12	1590	255	29.5
	16	4	60	0.050	12.8	16	1195	240	49.0
	20	4	60	0.065	16.0	20	955	250	80.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	30	0.010	2.4	3	3185	125	1.0
	4	4	30	0.015	3.2	4	2385	145	2.0
	5	4	30	0.015	4.0	5	1910	115	2.5
	6	4	30	0.020	4.8	6	1590	125	3.5
	8	4	30	0.025	6.4	8	1195	120	6.0
	10	4	30	0.030	8.0	10	955	115	9.0
	12	4	30	0.040	9.6	12	795	125	14.5
	16	4	30	0.050	12.8	16	595	120	24.5
	20	4	30	0.065	16.0	20	475	125	40.0
Heat resistant steel [17-4 PH]	3	4	20	0.005	2.4	3	2120	40	0.5
	4	4	20	0.010	3.2	4	1590	65	1.0
	5	4	20	0.010	4.0	5	1275	50	1.0
	6	4	20	0.015	4.8	6	1060	65	2.0
	8	4	20	0.020	6.4	8	795	65	3.5
	10	4	20	0.025	8.0	10	635	65	5.0
	12	4	20	0.030	9.6	12	530	65	7.5
	16	4	20	0.040	12.8	16	400	65	13.5
	20	4	20	0.045	16.0	20	320	60	19.0
Nickel base alloys prec.-hard. [Inconel 718]	3	4	10	0.005	2.4	3	1060	20	0.1
	4	4	10	0.010	3.2	4	795	30	0.4
	5	4	10	0.010	4.0	5	635	25	0.5
	6	4	10	0.015	4.8	6	530	30	0.9
	8	4	10	0.020	6.4	8	400	30	1.5
	10	4	10	0.025	8.0	10	320	30	2.4
	12	4	10	0.030	9.6	12	265	30	3.5
	16	4	10	0.040	12.8	16	200	30	6.1
	20	4	10	0.045	16.0	20	160	30	9.6

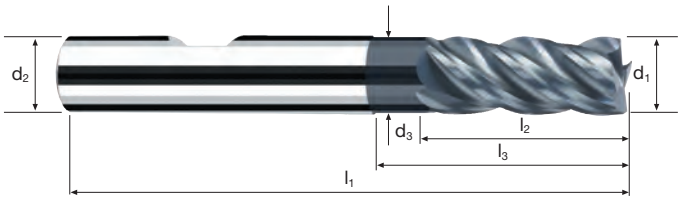
Cylindrical end mills NV

Smooth-edged, normal version with short neck

HM MG10 | λ 40° γ 10°

45°

Vario



Roughing

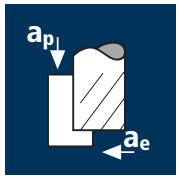
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15327** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	POLYCHROM P15327	POLYCHROM P15227
.180	3	6	2.8	57	8	14	0.10	4.5°	4		●
.220	4	6	3.7	57	11	16	0.10	3.0°	4		●
.260	5	6	4.6	57	13	18	0.15	1.5°	4		●
.300	6	6	5.5	57	13	20	0.15	0.0°	4		●
.391	8	8	7.4	63	19	26	0.15	0.0°	4		●
.450	10	10	9.2	72	22	31	0.20	0.0°	4		●
.501	12	12	11.0	83	26	37	0.20	0.0°	4		●
.610	16	16	15.0	92	32	43	0.20	0.0°	4		●
.682	20	20	19.0	104	38	53	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	200	0.020	4.5	1.2	21220	1700	9.0
	4	4	200	0.025	6.0	1.6	15915	1590	15.5
	5	4	200	0.035	7.5	2.0	12735	1785	27.0
	6	4	200	0.040	9.0	2.4	10610	1700	36.5
	8	4	200	0.055	12.0	3.2	7960	1750	67.0
	10	4	200	0.070	15.0	4.0	6365	1780	107.0
	12	4	200	0.075	18.0	4.8	5305	1590	137.5
	16	4	200	0.100	24.0	6.4	3980	1590	244.0
	20	4	200	0.130	30.0	8.0	3185	1655	397.0
Steel 850 - 1100 N/mm²	3	4	150	0.020	4.5	1.2	15915	1275	7.0
	4	4	150	0.025	6.0	1.6	11935	1195	11.5
	5	4	150	0.035	7.5	2.0	9550	1335	20.0
	6	4	150	0.040	9.0	2.4	7960	1275	27.5
	8	4	150	0.055	12.0	3.2	5970	1315	50.5
	10	4	150	0.070	15.0	4.0	4775	1335	80.0
	12	4	150	0.075	18.0	4.8	3980	1195	103.0
	16	4	150	0.100	24.0	6.4	2985	1195	183.5
	20	4	150	0.130	30.0	8.0	2385	1240	297.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	80	0.020	4.5	1.2	8490	680	3.5
	4	4	80	0.025	6.0	1.6	6365	635	6.0
	5	4	80	0.030	7.5	2.0	5095	610	9.0
	6	4	80	0.040	9.0	2.4	4245	680	14.5
	8	4	80	0.050	12.0	3.2	3185	635	24.5
	10	4	80	0.065	15.0	4.0	2545	660	39.5
	12	4	80	0.075	18.0	4.8	2120	635	55.0
	16	4	80	0.095	24.0	6.4	1590	605	93.0
	20	4	80	0.120	30.0	8.0	1275	610	146.5
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.015	4.5	1.2	7425	445	2.5
	4	4	70	0.020	6.0	1.6	5570	445	4.5
	5	4	70	0.020	7.5	2.0	4455	355	5.5
	6	4	70	0.030	9.0	2.4	3715	445	9.5
	8	4	70	0.035	12.0	3.2	2785	390	15.0
	10	4	70	0.045	15.0	4.0	2230	400	24.0
	12	4	70	0.055	18.0	4.8	1855	410	35.5
	16	4	70	0.065	24.0	6.4	1395	365	56.0
	20	4	70	0.085	30.0	8.0	1115	380	91.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	180	0.015	3	3	19100	1145	10.5
	4	4	180	0.020	4	4	14325	1145	18.5
	5	4	180	0.030	5	5	11460	1375	34.5
	6	4	180	0.035	6	6	9550	1335	48.0
	8	4	180	0.045	8	8	7160	1290	82.5
	10	4	180	0.055	10	10	5730	1260	126.0
	12	4	180	0.060	12	12	4775	1145	165.0
	16	4	180	0.075	8	16	3580	1075	137.5
	20	4	180	0.095	10	20	2865	1090	218.0
Steel 850 - 1100 N/mm²	3	4	120	0.015	3	3	12735	765	7.0
	4	4	120	0.020	4	4	9550	765	12.0
	5	4	120	0.030	5	5	7640	915	23.0
	6	4	120	0.035	6	6	6365	890	32.0
	8	4	120	0.045	8	8	4775	860	55.0
	10	4	120	0.055	10	10	3820	840	84.0
	12	4	120	0.060	12	12	3185	765	110.0
	16	4	120	0.075	8	16	2385	715	91.5
	20	4	120	0.095	10	20	1910	725	145.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	60	0.015	3	3	6365	380	3.5
	4	4	60	0.020	4	4	4775	380	6.0
	5	4	60	0.030	5	5	3820	460	11.5
	6	4	60	0.035	6	6	3185	445	16.0
	8	4	60	0.045	8	8	2385	430	27.5
	10	4	60	0.055	10	10	1910	420	42.0
	12	4	60	0.060	12	12	1590	380	54.5
	16	4	60	0.075	8	16	1195	360	46.0
	20	4	60	0.095	10	20	955	365	73.0
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.010	3	3	5305	210	2.0
	4	4	50	0.015	4	4	3980	240	4.0
	5	4	50	0.025	5	5	3185	320	8.0
	6	4	50	0.030	6	6	2655	320	11.5
	8	4	50	0.035	8	8	1990	280	18.0
	10	4	50	0.045	10	10	1590	285	28.5
	12	4	50	0.050	12	12	1325	265	38.0
	16	4	50	0.060	8	16	995	240	30.5
	20	4	50	0.075	10	20	795	240	48.0

Cylindrical end mills NX-NV

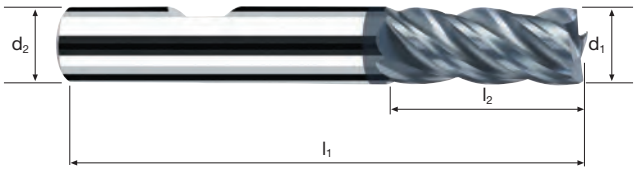
Smooth-edged, normal version

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

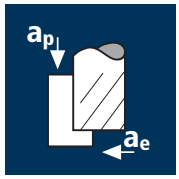
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys

Example: **Order-N°.** Coating **P** Article-N°. **15305** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P15305	POLYCHROM P15205
.180	3	6	57	8	0.10	6.0°	4		●
.220	4	6	57	11	0.10	4.0°	4		●
.260	5	6	57	13	0.15	2.0°	4		●
.300	6	6	57	13	0.15	0.0°	4		●
.391	8	8	63	19	0.15	0.0°	4		●
.450	10	10	72	22	0.20	0.0°	4		●
.501	12	12	83	26	0.20	0.0°	4		●
.610	16	16	92	32	0.20	0.0°	4		●
.682	20	20	104	38	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	210	0.030	9.0	2.1	11140	1335	25.0
	8	4	210	0.040	12.0	2.8	8355	1335	45.0
	10	4	210	0.050	15.0	3.5	6685	1335	70.0
	12	4	210	0.055	18.0	4.2	5570	1225	92.5
	16	4	210	0.070	24.0	5.6	4180	1170	157.0
	20	4	210	0.090	30.0	7.0	3340	1200	252.0
Steel 850 - 1100 N/mm²	6	4	160	0.030	9.0	2.1	8490	1020	19.5
	8	4	160	0.040	12.0	2.8	6365	1020	34.5
	10	4	160	0.050	15.0	3.5	5095	1020	53.5
	12	4	160	0.055	18.0	4.2	4245	935	70.5
	16	4	160	0.070	24.0	5.6	3185	890	119.5
	20	4	160	0.090	30.0	7.0	2545	915	192.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	90	0.030	9.0	2.1	4775	575	11.0
	8	4	90	0.035	12.0	2.8	3580	500	17.0
	10	4	90	0.045	15.0	3.5	2865	515	27.0
	12	4	90	0.055	18.0	4.2	2385	525	39.5
	16	4	90	0.065	24.0	5.6	1790	465	62.5
	20	4	90	0.085	30.0	7.0	1430	485	102.0
Stainless steel [Cr-Ni/1.4301]	6	4	80	0.020	9.0	2.1	4245	340	6.5
	8	4	80	0.025	12.0	2.8	3185	320	11.0
	10	4	80	0.030	15.0	3.5	2545	305	16.0
	12	4	80	0.040	18.0	4.2	2120	340	25.5
	16	4	80	0.045	24.0	5.6	1590	285	38.5
	20	4	80	0.060	30.0	7.0	1275	305	64.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	190	0.025	5.4	6	10080	1010	32.5
	8	4	190	0.030	7.2	8	7560	905	52.0
	10	4	190	0.040	9.0	10	6050	970	87.5
	12	4	190	0.040	10.8	12	5040	805	104.5
	16	4	190	0.055	14.4	16	3780	830	191.0
	20	4	190	0.065	10.0	20	3025	785	157.0
Steel 850 - 1100 N/mm²	6	4	130	0.025	5.4	6	6895	690	22.5
	8	4	130	0.030	7.2	8	5175	620	35.5
	10	4	130	0.040	9.0	10	4140	660	59.5
	12	4	130	0.040	10.8	12	3450	550	71.5
	16	4	130	0.055	14.4	16	2585	570	131.5
	20	4	130	0.065	10.0	20	2070	540	108.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	70	0.025	5.4	6	3715	370	12.0
	8	4	70	0.030	7.2	8	2785	335	19.5
	10	4	70	0.040	9.0	10	2230	355	32.0
	12	4	70	0.040	10.8	12	1855	295	38.0
	16	4	70	0.055	14.4	16	1395	305	70.5
	20	4	70	0.065	10.0	20	1115	290	58.0
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.020	5.4	6	3185	255	8.5
	8	4	60	0.025	7.2	8	2385	240	14.0
	10	4	60	0.030	9.0	10	1910	230	20.5
	12	4	60	0.035	10.8	12	1590	225	29.0
	16	4	60	0.040	14.4	16	1195	190	44.0
	20	4	60	0.055	10.0	20	955	210	42.0

Cylindrical end mills NX-NV

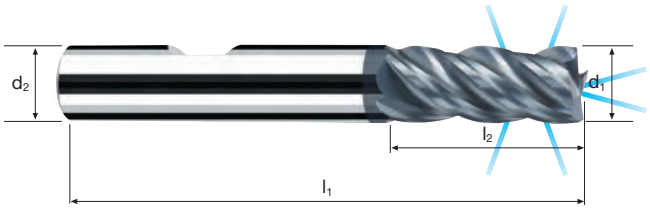
Smooth-edged, normal version, with integral air / cooling channel

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

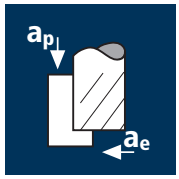
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys

Example: **Order-N°.** Coating **P** | Article-N°. **15300** | ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	POLYCHROM P15300	POLYCHROM P15200
.300	6	6	57	13	0.15	4		●
.391	8	8	63	19	0.15	4		●
.450	10	10	72	22	0.20	4		●
.501	12	12	83	26	0.20	4		●
.610	16	16	92	32	0.20	4		●
.682	20	20	104	38	0.20	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	4	4	160	0.025	6.0	1.6	12735	1275	12.0
	5	4	160	0.035	7.5	2.0	10185	1425	21.5
	6	4	160	0.040	9.0	2.4	8490	1360	29.5
	8	4	160	0.055	12.0	3.2	6365	1400	54.0
	10	4	160	0.065	15.0	4.0	5095	1325	79.5
	12	4	160	0.080	18.0	4.8	4245	1360	117.5
	16	4	160	0.090	24.0	6.4	3185	1145	176.0
	20	4	160	0.110	30.0	8.0	2545	1120	269.0
Steel 1100 - 1300 N/mm²	4	4	120	0.025	6.0	1.6	9550	955	9.0
	5	4	120	0.035	7.5	2.0	7640	1070	16.0
	6	4	120	0.040	9.0	2.4	6365	1020	22.0
	8	4	120	0.055	12.0	3.2	4775	1050	40.5
	10	4	120	0.065	15.0	4.0	3820	995	59.5
	12	4	120	0.080	18.0	4.8	3185	1020	88.0
	16	4	120	0.090	24.0	6.4	2385	860	132.0
	20	4	120	0.110	30.0	8.0	1910	840	201.5
Hardened tool steel 52 - 56 HRC	4	4	60	0.015	6.0	1.6	4775	285	2.5
	5	4	60	0.020	7.5	2.0	3820	305	4.5
	6	4	60	0.020	9.0	2.4	3185	255	5.5
	8	4	60	0.030	12.0	3.2	2385	285	11.0
	10	4	60	0.035	15.0	4.0	1910	265	16.0
	12	4	60	0.040	18.0	4.8	1590	255	22.0
	16	4	60	0.050	24.0	6.4	1195	240	37.0
	20	4	60	0.060	30.0	8.0	955	230	55.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	50	0.015	6.0	1.6	3980	240	2.5
	5	4	50	0.020	7.5	2.0	3185	255	4.0
	6	4	50	0.020	9.0	2.4	2655	210	4.5
	8	4	50	0.030	12.0	3.2	1990	240	9.0
	10	4	50	0.035	15.0	4.0	1590	225	13.5
	12	4	50	0.040	18.0	4.8	1325	210	18.0
	16	4	50	0.050	24.0	6.4	995	200	30.5
	20	4	50	0.060	30.0	8.0	795	190	45.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	4	4	130	0.020	5.0	4	10345	830	16.5
	5	4	130	0.025	6.3	5	8275	830	26.0
	6	4	130	0.025	7.5	6	6895	690	31.0
	8	4	130	0.035	10.0	8	5175	725	58.0
	10	4	130	0.045	12.5	10	4140	745	93.0
	12	4	130	0.055	15.0	12	3450	760	137.0
	16	4	130	0.065	20.0	16	2585	670	214.5
	20	4	130	0.080	25.0	20	2070	660	330.0
Steel 1100 - 1300 N/mm²	4	4	100	0.020	5.0	4	7960	635	12.5
	5	4	100	0.025	6.3	5	6365	635	20.0
	6	4	100	0.025	7.5	6	5305	530	24.0
	8	4	100	0.035	10.0	8	3980	555	44.5
	10	4	100	0.045	12.5	10	3185	575	72.0
	12	4	100	0.055	15.0	12	2655	585	105.5
	16	4	100	0.065	20.0	16	1990	515	165.0
	20	4	100	0.080	25.0	20	1590	510	255.0
Hardened tool steel 52 - 56 HRC	4	4	40	0.015	4.0	4	3185	190	3.0
	5	4	40	0.015	5.0	5	2545	155	4.0
	6	4	40	0.020	6.0	6	2120	170	6.0
	8	4	40	0.025	8.0	8	1590	160	10.0
	10	4	40	0.030	10.0	10	1275	155	15.5
	12	4	40	0.040	12.0	12	1060	170	24.5
	16	4	40	0.045	16.0	16	795	145	37.0
	20	4	40	0.055	20.0	20	635	140	56.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	40	0.015	5.0	4	3185	190	4.0
	5	4	40	0.015	6.3	5	2545	155	5.0
	6	4	40	0.020	7.5	6	2120	170	7.5
	8	4	40	0.025	10.0	8	1590	160	13.0
	10	4	40	0.030	12.5	10	1275	155	19.5
	12	4	40	0.040	15.0	12	1060	170	30.5
	16	4	40	0.045	20.0	16	795	145	46.5
	20	4	40	0.055	25.0	20	635	140	70.0

Cylindrical end mills NX-NVD

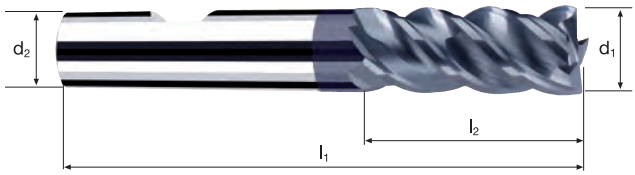
Smooth-edged, normal version

HM MG10

λ 45° γ -10°

45°

Vario



Roughing

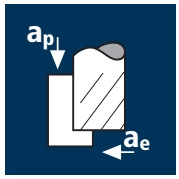
Finishing

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60			Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **15322** ø-Code **.220**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P15322	P15222
.220	4	6	57	8	0.10	4.5°	4		●
.260	5	6	57	10	0.15	2.5°	4		●
.300	6	6	57	12	0.15	0.0°	4		●
.391	8	8	63	19	0.15	0.0°	4		●
.450	10	10	72	23	0.20	0.0°	4		●
.501	12	12	83	27	0.20	0.0°	4		●
.610	16	16	92	32	0.20	0.0°	4		●
.682	20	20	104	39	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	5	4	120	0.040	7.5	0.7	7640	1220	6.5
	6	4	120	0.050	9.0	0.9	6365	1275	10.5
	8	4	120	0.065	12.0	1.2	4775	1240	18.0
	10	4	120	0.085	15.0	1.5	3820	1300	29.5
	12	4	120	0.100	18.0	1.8	3185	1275	41.5
	16	4	120	0.135	24.0	2.4	2385	1290	74.5
Hardened tool steel 48 - 52 HRC	5	4	80	0.030	7.5	0.7	5095	610	3.0
	6	4	80	0.035	9.0	0.9	4245	595	5.0
	8	4	80	0.045	12.0	1.2	3185	575	8.5
	10	4	80	0.055	15.0	1.5	2545	560	12.5
	12	4	80	0.065	18.0	1.8	2120	550	18.0
	16	4	80	0.090	24.0	2.4	1590	570	33.0
Hardened tool steel 52 - 56 HRC	5	4	60	0.025	7.5	0.7	3820	380	2.0
	6	4	60	0.025	9.0	0.9	3185	320	2.5
	8	4	60	0.035	12.0	1.2	2385	335	5.0
	10	4	60	0.045	15.0	1.5	1910	345	8.0
	12	4	60	0.055	18.0	1.8	1590	350	11.5
	16	4	60	0.075	24.0	2.4	1195	360	20.5
Hardened tool steel 56 - 60 HRC	5	4	30	0.015	7.5	0.7	1910	115	0.5
	6	4	30	0.020	9.0	0.9	1590	127	1.0
	8	4	30	0.025	12.0	1.2	1195	120	1.5
	10	4	30	0.035	15.0	1.5	955	134	3.0
	12	4	30	0.040	18.0	1.8	795	127	4.0
	16	4	30	0.055	24.0	2.4	595	131	7.5

Application



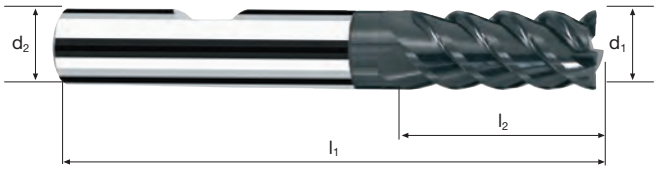
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	5	4	100	0.035	2.5	5	6365	890	11.0
	6	4	100	0.040	3.0	6	5305	850	15.5
	8	4	100	0.055	4.0	8	3980	875	28.0
	10	4	100	0.065	5.0	10	3185	830	41.5
	12	4	100	0.080	6.0	12	2655	850	61.0
	16	4	100	0.105	4.0	16	1990	835	53.5
Hardened tool steel 48 - 52 HRC	5	4	60	0.025	2.5	5	3820	380	5.0
	6	4	60	0.030	3.0	6	3185	380	7.0
	8	4	60	0.040	4.0	8	2385	380	12.0
	10	4	60	0.050	5.0	10	1910	380	19.0
	12	4	60	0.060	6.0	12	1590	380	27.5
	16	4	60	0.080	4.0	16	1195	380	24.5
Hardened tool steel 52 - 56 HRC	5	4	40	0.020	2.5	5	2545	205	2.5
	6	4	40	0.025	3.0	6	2120	210	4.0
	8	4	40	0.030	4.0	8	1590	190	6.0
	10	4	40	0.040	5.0	10	1275	205	10.5
	12	4	40	0.050	6.0	12	1060	210	15.0
	16	4	40	0.065	4.0	16	795	205	13.0
Hardened tool steel 56 - 60 HRC	5	4	20	0.014	2.5	5	1275	71	1.0
	6	4	20	0.017	3.0	6	1060	72	1.5
	8	4	20	0.023	4.0	8	795	73	2.5
	10	4	20	0.029	5.0	10	635	74	3.5
	12	4	20	0.034	6.0	12	530	72	5.0
	16	4	20	0.046	4.0	16	400	74	4.5

Cylindrical end mills HX-N

Smooth-edged, normal version

HM MG10 | **λ 55° γ -10°**

45°



Roughing

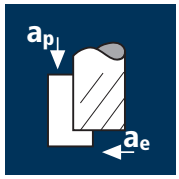
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **5358** | ø-Code **.260**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5358 / P5258	DURO-S D5358 / D5258
.260	5	6	57	13	0.15	2.0°	4	●	●
.300	6	6	57	13	0.15	0.0°	4	●	●
.391	8	8	63	19	0.15	0.0°	4	●	●
.450	10	10	72	22	0.20	0.0°	4	●	●
.501	12	12	83	26	0.20	0.0°	4	●	●
.610	16	16	92	32	0.20	0.0°	4	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	80	0.015	4.5	1.2	8490	510	3.0
	4	4	80	0.020	6.0	1.6	6365	510	5.0
	5	4	80	0.025	7.5	2.0	5095	510	7.5
	6	4	80	0.025	9.0	2.4	4245	425	9.0
	8	4	80	0.035	12.0	3.2	3185	445	17.0
	10	4	80	0.045	15.0	4.0	2545	460	27.5
	12	4	80	0.050	18.0	4.8	2120	425	36.5
	16	4	80	0.075	24.0	3.2	1590	475	36.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	40	0.015	4.5	1.2	4245	255	1.5
	4	4	40	0.020	6.0	1.6	3185	255	2.5
	5	4	40	0.025	7.5	2.0	2545	255	4.0
	6	4	40	0.025	9.0	2.4	2120	210	4.5
	8	4	40	0.035	12.0	3.2	1590	225	8.5
	10	4	40	0.045	15.0	4.0	1275	230	14.0
	12	4	40	0.050	18.0	4.8	1060	210	18.0
	16	4	40	0.075	24.0	3.2	795	240	18.5
Heat resistant steel [17-4 PH]	3	4	25	0.010	4.5	1.2	2655	105	0.5
	4	4	25	0.015	6.0	1.6	1990	120	1.0
	5	4	25	0.020	7.5	2.0	1590	125	2.0
	6	4	25	0.020	9.0	2.4	1325	105	2.5
	8	4	25	0.030	12.0	3.2	995	120	4.5
	10	4	25	0.035	15.0	4.0	795	110	6.5
	12	4	25	0.040	18.0	4.8	665	105	9.0
	16	4	25	0.060	24.0	3.2	495	120	9.0
Nickel base alloys prec.-hard. [Inconel 718]	3	4	15	0.010	4.5	1.2	1590	65	0.5
	4	4	15	0.015	6.0	1.6	1195	70	0.5
	5	4	15	0.020	7.5	2.0	955	75	1.0
	6	4	15	0.020	9.0	2.4	795	65	1.5
	8	4	15	0.030	12.0	3.2	595	70	2.5
	10	4	15	0.035	15.0	4.0	475	65	4.0
	12	4	15	0.040	18.0	4.8	400	65	5.5
	16	4	15	0.060	24.0	3.2	300	70	5.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	60	0.015	1.5	3	6365	380	1.5
	4	4	60	0.020	2.0	4	4775	380	3.0
	5	4	60	0.025	2.5	5	3820	380	5.0
	6	4	60	0.030	3.0	6	3185	380	7.0
	8	4	60	0.040	4.0	8	2385	380	12.0
	10	4	60	0.055	5.0	10	1910	420	21.0
	12	4	60	0.055	6.0	12	1590	350	25.0
	16	4	60	0.085	4.0	16	1195	405	26.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	30	0.015	1.5	3	3185	190	1.0
	4	4	30	0.020	2.0	4	2385	190	1.5
	5	4	30	0.025	2.5	5	1910	190	2.5
	6	4	30	0.030	3.0	6	1590	190	3.5
	8	4	30	0.040	4.0	8	1195	190	6.0
	10	4	30	0.055	5.0	10	955	210	10.5
	12	4	30	0.055	6.0	12	795	175	12.5
	16	4	30	0.085	4.0	16	595	200	13.0
Heat resistant steel [17-4 PH]	3	4	20	0.015	1.5	3	2120	125	0.5
	4	4	20	0.020	2.0	4	1590	125	1.0
	5	4	20	0.025	2.5	5	1275	130	1.5
	6	4	20	0.025	3.0	6	1060	105	2.0
	8	4	20	0.035	4.0	8	795	110	3.5
	10	4	20	0.045	5.0	10	635	115	6.0
	12	4	20	0.050	6.0	12	530	105	7.5
	16	4	20	0.075	4.0	16	400	120	7.5
Nickel base alloys prec.-hard. [Inconel 718]	3	4	10	0.015	1.5	3	1060	65	0.5
	4	4	10	0.020	2.0	4	795	65	0.5
	5	4	10	0.025	2.5	5	635	65	1.0
	6	4	10	0.025	3.0	6	530	55	1.0
	8	4	10	0.035	4.0	8	400	55	2.0
	10	4	10	0.045	5.0	10	320	60	3.0
	12	4	10	0.050	6.0	12	265	55	4.0
	16	4	10	0.075	4.0	16	200	60	4.0

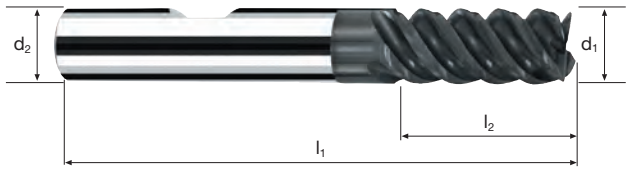
Cylindrical end mills SX-N

Smooth-edged, normal version

HM
MG10

λ **55°**
γ **15°**

45°



Roughing

Finishing

Rm < 850

Rm 850-1100

Inox Stainless

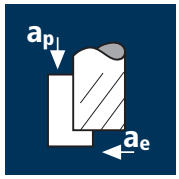
Ti Titanium

Nickel-Alloys
Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **5314** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5314	POLYCHROM P5214
.180	3	6	57	8	0.10	6.0°	4		●
.220	4	6	57	11	0.10	4.0°	4		●
.260	5	6	57	13	0.15	2.0°	4		●
.300	6	6	57	13	0.15	0.0°	4		●
.391	8	8	63	19	0.15	0.0°	4		●
.450	10	10	72	22	0.20	0.0°	4		●
.501	12	12	83	26	0.20	0.0°	4		●
.610	16	16	92	32	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	3	4	35	0.010	5.4	1.8	3715	150	1.5
	4	4	35	0.015	7.2	2.4	2785	165	2.9
	5	4	35	0.020	9.0	3.0	2230	180	4.9
	6	4	35	0.020	10.8	3.6	1855	150	5.8
	8	4	35	0.030	14.4	4.8	1395	165	11.4
	10	4	35	0.035	18.0	6.0	1115	155	16.7
	12	4	35	0.045	21.6	7.2	930	165	25.7
	16	4	35	0.050	28.8	9.6	695	140	38.7
	20	4	35	0.060	36.0	12.0	555	135	58.3
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	3	4	25	0.010	5.4	1.8	2655	105	1.0
	4	4	25	0.010	7.2	2.4	1990	80	1.4
	5	4	25	0.015	9.0	3.0	1590	95	2.6
	6	4	25	0.015	10.8	3.6	1325	80	3.1
	8	4	25	0.025	14.4	4.8	995	100	6.9
	10	4	25	0.030	18.0	6.0	795	95	10.3
	12	4	25	0.035	21.6	7.2	665	95	14.8
	16	4	25	0.040	28.8	9.6	495	80	22.1
	20	4	25	0.050	36.0	12.0	400	80	34.6
Manganese steel Mn >5% [1.3964 / Nitronic] [1.3401 / X120Mn12]	3	4	40	0.010	5.4	1.8	4245	170	1.7
	4	4	40	0.015	7.2	2.4	3185	190	3.3
	5	4	40	0.020	9.0	3.0	2545	205	5.5
	6	4	40	0.020	10.8	3.6	2120	170	6.6
	8	4	40	0.030	14.4	4.8	1590	190	13.1
	10	4	40	0.035	18.0	6.0	1275	180	19.4
	12	4	40	0.045	21.6	7.2	1060	190	29.5
	16	4	40	0.050	28.8	9.6	795	160	44.2
	20	4	40	0.060	36.0	12.0	635	150	64.8
Heat resistant steel [17-4 PH] [Duplex]	3	4	50	0.015	5.4	1.8	5305	320	3.1
	4	4	50	0.020	7.2	2.4	3980	320	5.5
	5	4	50	0.030	9.0	3.0	3185	380	10.3
	6	4	50	0.035	10.8	3.6	2655	370	14.4
	8	4	50	0.045	14.4	4.8	1990	360	24.9
	10	4	50	0.055	18.0	6.0	1590	350	37.8
	12	4	50	0.065	21.6	7.2	1325	345	53.7
	16	4	50	0.070	28.8	9.6	995	280	77.4
	20	4	50	0.085	36.0	12.0	795	270	116.6



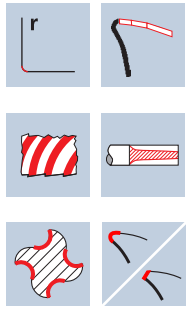
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	3	4	80	0.010	5.4	1.8	8490	340	3.3
	4	4	80	0.015	7.2	2.4	6365	380	6.6
	5	4	80	0.020	9.0	3.0	5095	410	11.1
	6	4	80	0.020	10.8	3.6	4245	340	13.2
	8	4	80	0.030	14.4	4.8	3185	380	26.3
	10	4	80	0.035	18.0	6.0	2545	355	38.3
	12	4	80	0.045	21.6	7.2	2120	380	59.1
	16	4	80	0.050	28.8	9.6	1590	320	88.5
	20	4	80	0.060	36.0	12.0	1275	305	131.8
Titanium alloys >300 HB [Ti6Al4V]	3	4	60	0.010	5.4	1.8	6365	255	2.5
	4	4	60	0.015	7.2	2.4	4775	285	4.9
	5	4	60	0.015	9.0	3.0	3820	230	6.2
	6	4	60	0.020	10.8	3.6	3185	255	9.9
	8	4	60	0.025	14.4	4.8	2385	240	16.6
	10	4	60	0.035	18.0	6.0	1910	265	28.6
	12	4	60	0.040	21.6	7.2	1590	255	39.7
	16	4	60	0.045	28.8	9.6	1195	215	59.4
	20	4	60	0.055	36.0	12.0	955	210	90.7
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	3	4	25	0.010	4.2	3	2655	105	1.3
	4	4	25	0.010	5.6	4	1990	80	1.8
	5	4	25	0.015	7.0	5	1590	95	3.3
	6	4	25	0.015	8.4	6	1325	80	4.0
	8	4	25	0.025	11.2	8	995	100	9.0
	10	4	25	0.030	14.0	10	795	95	13.3
	12	4	25	0.035	16.8	12	665	95	19.2
	16	4	25	0.040	22.4	16	495	80	28.7
	20	4	25	0.050	28.0	20	400	80	44.8
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	3	4	20	0.005	4.2	3	2120	40	0.5
	4	4	20	0.010	5.6	4	1590	65	1.5
	5	4	20	0.010	7.0	5	1275	50	1.8
	6	4	20	0.015	8.4	6	1060	65	3.3
	8	4	20	0.020	11.2	8	795	65	5.8
	10	4	20	0.020	14.0	10	635	50	7.0
	12	4	20	0.025	16.8	12	530	55	11.1
	16	4	20	0.030	22.4	16	400	50	17.9
	20	4	20	0.040	28.0	20	320	50	28.0

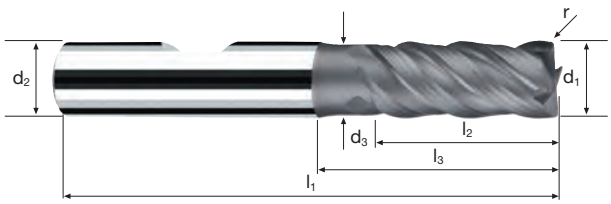
Cylindrical end mills ZX-NV

Smooth-edged, normal version with short neck

HM X10

λ **40°**
γ **5°**





new!

Roughing

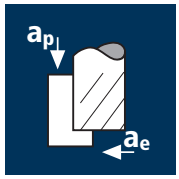
Finishing

Inox Stainless | **Ti** Titanium | **Nickel-Alloys Mangan-Steels HSS**

Example: **Order-N°.** Coating **P** Article-N°. **8800** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r	α	z	POLYCHROM P8800	POLYCHROM P8700
.180	3	6	2.8	57	8	14	0.10	4.5°	4		●
.220	4	6	3.7	57	11	16	0.10	3.0°	4		●
.260	5	6	4.6	57	13	18	0.15	1.5°	4		●
.300	6	6	5.5	57	13	20	0.15	0.0°	4		●
.391	8	8	7.4	63	19	26	0.15	0.0°	4		●
.450	10	10	9.2	72	22	31	0.20	0.0°	4		●
.501	12	12	11.0	83	26	37	0.20	0.0°	4		●
.610	16	16	15.0	92	32	43	0.20	0.0°	4		●
.682	20	20	19.0	104	38	53	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	6	5	45	0.020	10.8	1.2	2385	240	3.1
	8	5	45	0.030	14.4	1.6	1790	270	6.2
	10	5	45	0.035	18.0	2.0	1430	250	9.0
	12	5	45	0.045	21.6	2.4	1195	270	14.0
	16	5	45	0.050	28.8	3.2	895	225	20.7
	20	5	45	0.060	36.0	4.0	715	215	31.0
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	6	5	30	0.015	10.8	1.2	1590	120	1.6
	8	5	30	0.025	14.4	1.6	1195	150	3.5
	10	5	30	0.030	18.0	2.0	955	145	5.2
	12	5	30	0.035	21.6	2.4	795	140	7.3
	16	5	30	0.040	28.8	3.2	595	120	11.1
	20	5	30	0.050	36.0	4.0	475	120	17.3
Manganese steel Mn >5% [1.3964 / Nitronic] [1.3401 / X120Mn12]	6	5	50	0.020	10.8	1.2	2655	265	3.4
	8	5	50	0.030	14.4	1.6	1990	300	6.9
	10	5	50	0.035	18.0	2.0	1590	280	10.1
	12	5	50	0.045	21.6	2.4	1325	300	15.6
	16	5	50	0.050	28.8	3.2	995	250	23.0
	20	5	50	0.060	36.0	4.0	795	240	34.6
Heat resistant steel [17-4 PH] [Duplex]	6	5	60	0.035	10.8	1.2	3185	555	7.2
	8	5	60	0.045	14.4	1.6	2385	535	12.3
	10	5	60	0.055	18.0	2.0	1910	525	18.9
	12	5	60	0.065	21.6	2.4	1590	515	26.7
	16	5	60	0.070	28.8	3.2	1195	420	38.7
	20	5	60	0.085	36.0	4.0	955	405	58.3

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	6	5	90	0.020	10.8	1.2	4775	480	6.2
	8	5	90	0.030	14.4	1.6	3580	535	12.3
	10	5	90	0.035	18.0	2.0	2865	500	18.0
	12	5	90	0.045	21.6	2.4	2385	535	27.7
	16	5	90	0.050	28.8	3.2	1790	450	41.5
	20	5	90	0.060	36.0	4.0	1430	430	61.9
Titanium alloys >300 HB [Ti6Al4V]	6	5	70	0.020	10.8	1.2	3715	370	4.8
	8	5	70	0.025	14.4	1.6	2785	350	8.1
	10	5	70	0.035	18.0	2.0	2230	390	14.0
	12	5	70	0.040	21.6	2.4	1855	370	19.2
	16	5	70	0.045	28.8	3.2	1395	315	29.0
	20	5	70	0.055	36.0	4.0	1115	305	43.9

Cylindrical end mills ZX-NV5

Smooth-edged, normal version with short neck

HM X10

λ **40°**
γ **5°**



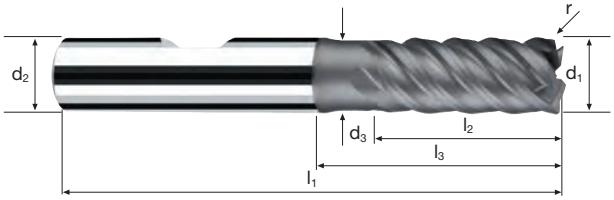












new!

Roughing

Finishing

Inox Stainless

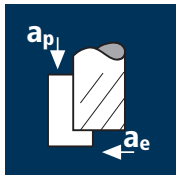
Ti Titanium

Nickel-Alloys
Mangan-Steels
HSS

Example: **Order-N°.** Coating **P** Article-N°. **8805** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r	z	POLYCHROM P8805	POLYCHROM P8705
.300	6	6	5.5	57	13	20	0.15	5		●
.391	8	8	7.4	63	19	26	0.15	5		●
.450	10	10	9.2	72	22	31	0.20	5		●
.501	12	12	11.0	83	26	37	0.20	5		●
.610	16	16	15.0	92	32	43	0.20	5		●
.682	20	20	19.0	104	38	53	0.20	5		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	200	0.015	4.5	1.4	21220	955	6.0
	4	3	200	0.015	6.0	1.8	15915	715	7.5
	5	3	200	0.020	7.5	2.3	12735	765	13.0
	6	3	200	0.040	9.0	2.7	10610	1275	31.0
	8	3	200	0.050	12.0	3.6	7960	1195	51.5
	10	3	200	0.065	15.0	4.5	6365	1240	83.5
	12	3	200	0.075	18.0	5.4	5305	1195	116.0
	16	3	200	0.100	24.0	7.2	3980	1195	206.5
	20	3	200	0.125	30.0	9.0	3185	1195	322.5
Steel 850 - 1100 N/mm²	3	3	150	0.015	4.5	1.4	15915	715	4.5
	4	3	150	0.015	6.0	1.8	11935	535	6.0
	5	3	150	0.020	7.5	2.3	9550	575	9.5
	6	3	150	0.040	9.0	2.7	7960	955	23.0
	8	3	150	0.050	12.0	3.6	5970	895	38.5
	10	3	150	0.065	15.0	4.5	4775	930	63.0
	12	3	150	0.075	18.0	5.4	3980	895	87.0
	16	3	150	0.100	24.0	7.2	2985	895	154.5
	20	3	150	0.125	30.0	9.0	2385	895	241.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	3	80	0.010	4.5	1.4	8490	255	1.5
	4	3	80	0.015	6.0	1.8	6365	285	3.0
	5	3	80	0.015	7.5	2.3	5095	230	4.0
	6	3	80	0.035	9.0	2.7	4245	445	11.0
	8	3	80	0.045	12.0	3.6	3185	430	18.5
	10	3	80	0.055	15.0	4.5	2545	420	28.5
	12	3	80	0.065	18.0	5.4	2120	415	40.5
	16	3	80	0.085	24.0	7.2	1590	405	70.0
	20	3	80	0.110	30.0	9.0	1275	420	113.5
Stainless steel [Cr-Ni/1.4301]	3	3	70	0.010	4.5	1.4	7425	225	1.5
	4	3	70	0.010	6.0	1.8	5570	165	2.0
	5	3	70	0.010	7.5	2.3	4455	135	2.5
	6	3	70	0.030	9.0	2.7	3715	335	8.0
	8	3	70	0.035	12.0	3.6	2785	290	12.5
	10	3	70	0.045	15.0	4.5	2230	300	20.5
	12	3	70	0.050	18.0	5.4	1855	280	27.0
	16	3	70	0.070	24.0	7.2	1395	295	51.0
	20	3	70	0.090	30.0	9.0	1115	300	81.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	180	0.015	4.5	3	19100	860	11.5
	4	3	180	0.015	6.0	4	14325	645	15.5
	5	3	180	0.025	7.5	5	11460	860	32.5
	6	3	180	0.030	9.0	6	9550	860	46.5
	8	3	180	0.040	12.0	8	7160	860	82.5
	10	3	180	0.050	15.0	10	5730	860	129.0
	12	3	180	0.060	18.0	12	4775	860	186.0
	16	3	180	0.080	16.0	16	3580	860	220.0
	20	3	180	0.100	20.0	20	2865	860	344.0
Steel 850 - 1100 N/mm²	3	3	120	0.015	4.5	3	12735	575	8.0
	4	3	120	0.015	6.0	4	9550	430	10.5
	5	3	120	0.025	7.5	5	7640	575	21.5
	6	3	120	0.030	9.0	6	6365	575	31.0
	8	3	120	0.040	12.0	8	4775	575	55.0
	10	3	120	0.050	15.0	10	3820	575	86.5
	12	3	120	0.060	18.0	12	3185	575	124.0
	16	3	120	0.080	16.0	16	2385	570	146.0
	20	3	120	0.100	20.0	20	1910	575	230.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	3	60	0.010	4.5	3	6365	190	2.5
	4	3	60	0.015	6.0	4	4775	215	5.0
	5	3	60	0.015	7.5	5	3820	170	6.5
	6	3	60	0.030	9.0	6	3185	285	15.5
	8	3	60	0.040	12.0	8	2385	285	27.5
	10	3	60	0.050	15.0	10	1910	285	43.0
	12	3	60	0.060	18.0	12	1590	285	61.5
	16	3	60	0.080	16.0	16	1195	285	73.0
	20	3	60	0.100	20.0	20	955	285	114.0
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	4.5	3	5305	160	2.0
	4	3	50	0.010	6.0	4	3980	120	3.0
	5	3	50	0.010	7.5	5	3185	95	3.5
	6	3	50	0.025	9.0	6	2655	200	11.0
	8	3	50	0.030	12.0	8	1990	180	17.5
	10	3	50	0.040	15.0	10	1590	190	28.5
	12	3	50	0.050	18.0	12	1325	200	43.0
	16	3	50	0.065	16.0	16	995	195	50.0
	20	3	50	0.080	20.0	20	795	190	76.0

Cylindrical end mills NV3

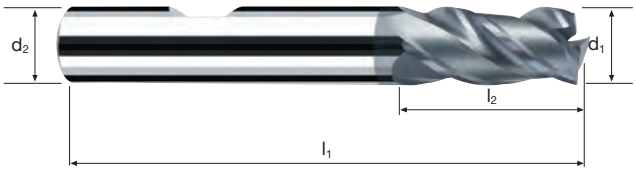
Smooth-edged, normal version

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

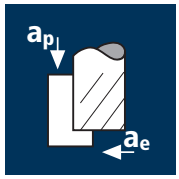
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **15333** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P15333	POLYCHROM P15233
.180	3	6	57	7	0.10	6.0°	3		●
.220	4	6	57	8	0.10	4.5°	3		●
.260	5	6	57	10	0.15	2.5°	3		●
.300	6	6	57	10	0.15	0.0°	3		●
.391	8	8	63	16	0.15	0.0°	3		●
.450	10	10	72	19	0.20	0.0°	3		●
.501	12	12	83	22	0.20	0.0°	3		●
.610	16	16	92	26	0.20	0.0°	3		●
.682	20	20	104	32	0.20	0.0°	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	80	0.010	4.5	2.1	8490	255	2.5
	4	3	80	0.015	6.0	2.8	6365	285	5.0
	5	3	80	0.020	7.5	3.5	5095	305	8.0
	6	3	80	0.020	9.0	4.2	4245	255	9.5
	8	3	80	0.030	12.0	5.6	3185	285	19.0
	10	3	80	0.035	15.0	7.0	2545	265	28.0
	12	3	80	0.045	18.0	8.4	2120	285	43.0
	16	3	80	0.055	24.0	9.6	1590	260	60.0
	20	3	80	0.070	30.0	12.0	1275	270	97.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	40	0.010	4.5	2.1	4245	125	1.0
	4	3	40	0.015	6.0	2.8	3185	145	2.5
	5	3	40	0.020	7.5	3.5	2545	155	4.0
	6	3	40	0.020	9.0	4.2	2120	125	4.5
	8	3	40	0.030	12.0	5.6	1590	145	9.5
	10	3	40	0.035	15.0	7.0	1275	135	14.0
	12	3	40	0.045	18.0	8.4	1060	145	22.0
	16	3	40	0.055	24.0	9.6	795	130	30.0
	20	3	40	0.070	30.0	12.0	635	135	48.5
Heat resistant steel [17-4 PH]	3	3	25	0.010	4.5	2.1	2655	80	1.0
	4	3	25	0.010	6.0	2.8	1990	60	1.0
	5	3	25	0.015	7.5	3.5	1590	70	2.0
	6	3	25	0.015	9.0	4.2	1325	60	2.5
	8	3	25	0.020	12.0	5.6	995	60	4.0
	10	3	25	0.025	15.0	7.0	795	60	6.5
	12	3	25	0.030	18.0	8.4	665	60	9.0
	16	3	25	0.040	24.0	9.6	495	60	14.0
	20	3	25	0.055	30.0	12.0	400	65	23.5
Nickel base alloys prec.-hard. [Inconel 718]	3	3	15	0.010	4.5	2.1	1590	50	0.5
	4	3	15	0.010	6.0	2.8	1195	35	0.5
	5	3	15	0.015	7.5	3.5	955	45	1.0
	6	3	15	0.015	9.0	4.2	795	35	1.5
	8	3	15	0.020	12.0	5.6	595	35	2.5
	10	3	15	0.025	15.0	7.0	475	35	3.5
	12	3	15	0.030	18.0	8.4	400	35	5.5
	16	3	15	0.040	24.0	9.6	300	35	8.0
	20	3	15	0.055	30.0	12.0	240	40	14.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.010	4.8	3	6365	190	2.5
	4	3	60	0.015	6.4	4	4775	215	5.5
	5	3	60	0.015	8.0	5	3820	170	7.0
	6	3	60	0.020	9.6	6	3185	190	11.0
	8	3	60	0.025	12.8	8	2385	180	18.5
	10	3	60	0.030	16.0	10	1910	170	27.0
	12	3	60	0.040	19.2	12	1590	190	44.0
	16	3	60	0.050	22.4	16	1195	180	64.5
	20	3	60	0.065	28.0	20	955	185	103.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	30	0.010	4.8	3	3185	95	1.5
	4	3	30	0.015	6.4	4	2385	105	2.5
	5	3	30	0.015	8.0	5	1910	85	3.5
	6	3	30	0.020	9.6	6	1590	95	5.5
	8	3	30	0.025	12.8	8	1195	90	9.0
	10	3	30	0.030	16.0	10	955	85	13.5
	12	3	30	0.040	19.2	12	795	95	22.0
	16	3	30	0.050	22.4	16	595	90	32.5
	20	3	30	0.065	28.0	20	475	95	53.0
Heat resistant steel [17-4 PH]	3	3	20	0.005	4.8	3	2120	30	0.5
	4	3	20	0.010	6.4	4	1590	50	1.5
	5	3	20	0.010	8.0	5	1275	40	1.5
	6	3	20	0.015	9.6	6	1060	50	3.0
	8	3	20	0.020	12.8	8	795	50	5.0
	10	3	20	0.025	16.0	10	635	50	8.0
	12	3	20	0.030	19.2	12	530	50	11.5
	16	3	20	0.040	22.4	16	400	50	18.0
	20	3	20	0.045	28.0	20	320	45	25.0
Nickel base alloys prec.-hard. [Inconel 718]	3	3	10	0.005	4.8	3	1060	15	0.2
	4	3	10	0.010	6.4	4	795	25	0.5
	5	3	10	0.010	8.0	5	635	20	1.0
	6	3	10	0.015	9.6	6	530	25	1.5
	8	3	10	0.020	12.8	8	400	25	2.5
	10	3	10	0.025	16.0	10	320	25	4.0
	12	3	10	0.030	19.2	12	265	25	6.0
	16	3	10	0.040	22.4	16	200	25	9.0
	20	3	10	0.045	28.0	20	160	20	11.0

Cylindrical end mills NV3

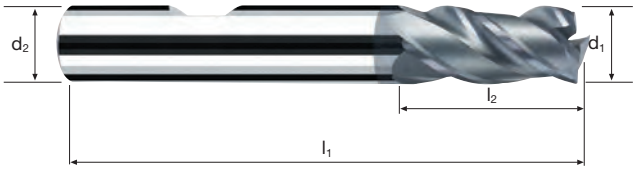
Smooth-edged, normal version

HM
MG10

λ **40°**
γ **10°**

45°

Vario



Roughing

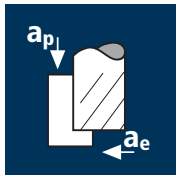
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15334** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	α	z	POLYCHROM P15334	POLYCHROM P15234
.180	3	6	57	7	0.10	6.0°	3		●
.220	4	6	57	8	0.10	4.5°	3		●
.260	5	6	57	10	0.15	2.5°	3		●
.300	6	6	57	10	0.15	0.0°	3		●
.391	8	8	63	16	0.15	0.0°	3		●
.450	10	10	72	19	0.20	0.0°	3		●
.501	12	12	83	22	0.20	0.0°	3		●
.610	16	16	92	26	0.20	0.0°	3		●
.682	20	20	104	32	0.20	0.0°	3		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
4	4	190	0.025	6.0	1.6	15120	1510	14.5
5	4	190	0.030	7.5	2.0	12095	1450	22.0
6	4	190	0.040	9.0	2.4	10080	1615	35.0
8	4	190	0.050	12.0	3.2	7560	1510	58.0
10	4	190	0.065	15.0	4.0	6050	1575	94.5
12	4	190	0.075	18.0	4.8	5040	1510	130.5
16	4	190	0.085	24.0	6.4	3780	1285	197.5
20	4	190	0.105	30.0	8.0	3025	1270	305.0
Steel 850 - 1100 N/mm²								
4	4	150	0.025	6.0	1.6	11935	1195	11.5
5	4	150	0.030	7.5	2.0	9550	1145	17.0
6	4	150	0.040	9.0	2.4	7960	1275	27.5
8	4	150	0.050	12.0	3.2	5970	1195	46.0
10	4	150	0.065	15.0	4.0	4775	1240	74.5
12	4	150	0.075	18.0	4.8	3980	1195	103.0
16	4	150	0.085	24.0	6.4	2985	1015	156.0
20	4	150	0.105	30.0	8.0	2385	1000	240.0
Cold work tool steel (12% Cr) high alloyed [1.2379]								
4	4	80	0.025	6.0	1.6	6365	635	6.0
5	4	80	0.030	7.5	2.0	5095	610	9.0
6	4	80	0.035	9.0	2.4	4245	595	13.0
8	4	80	0.045	12.0	3.2	3185	575	22.0
10	4	80	0.060	15.0	4.0	2545	610	36.5
12	4	80	0.070	18.0	4.8	2120	595	51.5
16	4	80	0.080	24.0	6.4	1590	510	78.5
20	4	80	0.100	30.0	8.0	1275	510	122.5
Stainless steel [Cr-Ni/1.4301]								
4	4	65	0.020	6.0	1.6	5175	415	4.0
5	4	65	0.020	7.5	2.0	4140	330	5.0
6	4	65	0.025	9.0	2.4	3450	345	7.5
8	4	65	0.030	12.0	3.2	2585	310	12.0
10	4	65	0.040	15.0	4.0	2070	330	20.0
12	4	65	0.050	18.0	4.8	1725	345	30.0
16	4	65	0.055	24.0	6.4	1295	285	44.0
20	4	65	0.070	30.0	8.0	1035	290	69.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
4	4	170	0.020	4.4	4	13530	1080	19.0
5	4	170	0.025	5.5	5	10825	1085	30.0
6	4	170	0.025	6.6	6	9020	900	35.5
8	4	170	0.035	8.8	8	6765	945	66.5
10	4	170	0.045	11.0	10	5410	975	107.5
12	4	170	0.055	13.2	12	4510	990	157.0
16	4	170	0.065	16.0	16	3380	880	225.5
20	4	170	0.080	20.0	20	2705	865	346.0
Steel 850 - 1100 N/mm²								
4	4	120	0.020	4.4	4	9550	765	13.5
5	4	120	0.025	5.5	5	7640	765	21.0
6	4	120	0.025	6.6	6	6365	635	25.0
8	4	120	0.035	8.8	8	4775	670	47.0
10	4	120	0.045	11.0	10	3820	690	76.0
12	4	120	0.055	13.2	12	3185	700	111.0
16	4	120	0.065	16.0	16	2385	620	158.5
20	4	120	0.080	20.0	20	1910	610	244.0
Cold work tool steel (12% Cr) high alloyed [1.2379]								
4	4	60	0.015	4.4	4	4775	285	5.0
5	4	60	0.020	5.5	5	3820	305	8.5
6	4	60	0.025	6.6	6	3185	320	12.5
8	4	60	0.035	8.8	8	2385	335	23.5
10	4	60	0.045	11.0	10	1910	345	38.0
12	4	60	0.050	13.2	12	1590	320	50.5
16	4	60	0.060	16.0	16	1195	285	73.0
20	4	60	0.075	20.0	20	955	285	114.0
Stainless steel [Cr-Ni/1.4301]								
4	4	45	0.010	4.4	4	3580	145	2.5
5	4	45	0.015	5.5	5	2865	170	4.5
6	4	45	0.020	6.6	6	2385	190	7.5
8	4	45	0.030	8.8	8	1790	215	15.0
10	4	45	0.035	11.0	10	1430	200	22.0
12	4	45	0.040	13.2	12	1195	190	30.0
16	4	45	0.050	16.0	16	895	180	46.0
20	4	45	0.060	20.0	20	715	170	68.0

Cylindrical end mills NB-NVD

Smooth-edged, normal version

HM
MG10

λ **45°**
γ **5°**

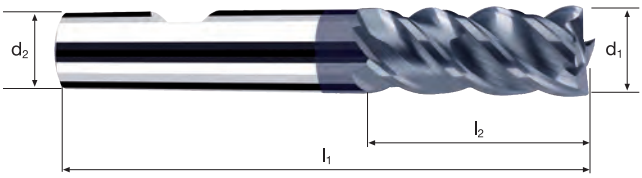












Roughing



Finishing

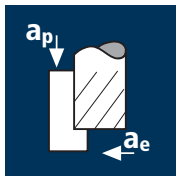


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **15307** ø-Code **.220**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	α	z	POLYCHROM P15307	POLYCHROM P15207
.220	4	6	57	8	0.10	4.5°	4	●	
.260	5	6	57	10	0.15	2.5°	4	●	
.300	6	6	57	12	0.15	0.0°	4	●	
.391	8	8	63	19	0.15	0.0°	4	●	
.450	10	10	72	23	0.20	0.0°	4	●	
.501	12	12	83	27	0.20	0.0°	4	●	
.610	16	16	92	32	0.20	0.0°	4	●	
.682	20	20	104	39	0.20	0.0°	4	●	

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	3	4	170	0.010	4.5	0.3	18040	720
	4	4	170	0.015	6.0	0.4	13530	810
	5	4	170	0.015	7.5	0.5	10825	650
	6	4	170	0.020	9.0	0.6	9020	720
	8	4	170	0.025	12.0	0.8	6765	675
	10	4	170	0.035	15.0	1.0	5410	755
	12	4	170	0.040	18.0	1.2	4510	720
	16	4	170	0.055	24.0	1.6	3380	745
	20	4	170	0.065	30.0	2.0	2705	705
Steel 850 - 1100 N/mm²	3	4	110	0.010	4.5	0.3	11670	465
	4	4	110	0.015	6.0	0.4	8755	525
	5	4	110	0.015	7.5	0.5	7005	420
	6	4	110	0.020	9.0	0.6	5835	465
	8	4	110	0.025	12.0	0.8	4375	440
	10	4	110	0.035	15.0	1.0	3500	490
	12	4	110	0.040	18.0	1.2	2920	465
	16	4	110	0.055	24.0	1.6	2190	480
	20	4	110	0.065	30.0	2.0	1750	455
Steel 1100 - 1300 N/mm²	3	4	80	0.010	4.5	0.3	8490	340
	4	4	80	0.015	6.0	0.4	6365	380
	5	4	80	0.015	7.5	0.5	5095	305
	6	4	80	0.020	9.0	0.6	4245	340
	8	4	80	0.025	12.0	0.8	3185	320
	10	4	80	0.035	15.0	1.0	2545	355
	12	4	80	0.040	18.0	1.2	2120	340
	16	4	80	0.055	24.0	1.6	1590	350
	20	4	80	0.065	30.0	2.0	1275	330
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.010	4.5	0.3	7425	295
	4	4	70	0.015	6.0	0.4	5570	335
	5	4	70	0.015	7.5	0.5	4455	265
	6	4	70	0.020	9.0	0.6	3715	295
	8	4	70	0.025	12.0	0.8	2785	280
	10	4	70	0.035	15.0	1.0	2230	310
	12	4	70	0.040	18.0	1.2	1855	295
	16	4	70	0.055	24.0	1.6	1395	305
	20	4	70	0.065	30.0	2.0	1115	290

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	3	4	130	0.010	4.5	0.3	13795	550
	4	4	130	0.015	6.0	0.4	10345	620
	5	4	130	0.015	7.5	0.5	8275	495
	6	4	130	0.020	9.0	0.6	6895	550
	8	4	130	0.025	12.0	0.8	5175	520
	10	4	130	0.035	15.0	1.0	4140	580
	12	4	130	0.040	18.0	1.2	3450	550
	16	4	130	0.055	24.0	1.6	2585	570
	20	4	130	0.065	30.0	2.0	2070	540
Unalloyed copper	3	4	230	0.010	4.5	0.3	24405	975
	4	4	230	0.015	6.0	0.4	18305	1100
	5	4	230	0.015	7.5	0.5	14645	880
	6	4	230	0.020	9.0	0.6	12200	975
	8	4	230	0.025	12.0	0.8	9150	915
	10	4	230	0.035	15.0	1.0	7320	1025
	12	4	230	0.040	18.0	1.2	6100	975
	16	4	230	0.055	24.0	1.6	4575	1005
	20	4	230	0.065	30.0	2.0	3660	950
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	4	80	0.010	4.5	0.3	8490	340
	4	4	80	0.015	6.0	0.4	6365	380
	5	4	80	0.015	7.5	0.5	5095	305
	6	4	80	0.020	9.0	0.6	4245	340
	8	4	80	0.025	12.0	0.8	3185	320
	10	4	80	0.035	15.0	1.0	2545	355
	12	4	80	0.040	18.0	1.2	2120	340
	16	4	80	0.055	24.0	1.6	1590	350
	20	4	80	0.065	30.0	2.0	1275	330
Heat resistant steel [17-4 PH]	3	4	40	0.010	4.5	0.3	4245	170
	4	4	40	0.015	6.0	0.4	3185	190
	5	4	40	0.015	7.5	0.5	2545	155
	6	4	40	0.020	9.0	0.6	2120	170
	8	4	40	0.025	12.0	0.8	1590	160
	10	4	40	0.035	15.0	1.0	1275	180
	12	4	40	0.040	18.0	1.2	1060	170
	16	4	40	0.055	24.0	1.6	795	175
	20	4	40	0.065	30.0	2.0	635	165

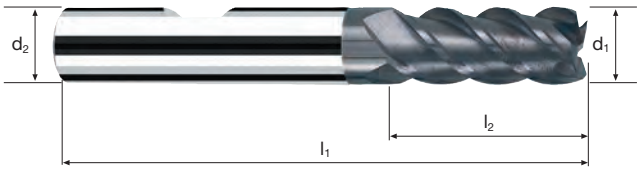
Cylindrical end mills

Smooth-edged, normal version

HM
MG10

λ 45°
γ 15°

45°



Roughing

Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Copper**

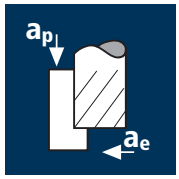
new!

Example: **Order-N°.** Coating **P** Article-N°. **5340** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z		POLYCHROM P5340	P5240
.140	2.0	6	54	7	0.10	7.5°	4			●
.160	2.5	6	54	8	0.10	6.5°	4			●
.178*	3.0	3	45	8	0.10	0.0°	4			●
.180	3.0	6	57	8	0.10	6.0°	4			●
.218*	4.0	4	50	11	0.10	0.0°	4			●
.220	4.0	6	57	11	0.10	3.5°	4			●
.258*	5.0	5	50	13	0.15	0.0°	4			●
.260	5.0	6	57	13	0.15	2.0°	4			●
.300	6.0	6	57	13	0.15	0.0°	4			●
.331	7.0	8	63	16	0.15	1.5°	4			●
.391	8.0	8	63	19	0.15	0.0°	4			●
.420	9.0	10	72	19	0.20	1.5°	4			●
.450	10.0	10	72	22	0.20	0.0°	4			●
.501	12.0	12	83	26	0.20	0.0°	4			●
.570	14.0	14	83	26	0.20	0.0°	4			●
.610	16.0	16	92	32	0.20	0.0°	4			●
.640	18.0	18	92	32	0.20	0.0°	4			●
.682	20.0	20	104	38	0.20	0.0°	4			●

* without clamping flat only

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	4	4	170	0.015	6.0	1.0	13530	810
	6	4	170	0.020	9.0	1.5	9020	720
	8	4	170	0.025	12.0	2.0	6765	675
	10	4	170	0.035	15.0	2.5	5410	755
	12	4	170	0.040	18.0	3.0	4510	720
	14	4	170	0.045	21.0	3.5	3865	695
	16	4	170	0.055	24.0	4.0	3380	745
	18	4	170	0.060	27.0	4.5	3005	720
	20	4	170	0.065	30.0	5.0	2705	705
Steel 850 - 1100 N/mm²	4	4	110	0.015	6.0	1.0	8755	525
	6	4	110	0.020	9.0	1.5	5835	465
	8	4	110	0.025	12.0	2.0	4375	440
	10	4	110	0.035	15.0	2.5	3500	490
	12	4	110	0.040	18.0	3.0	2920	465
	14	4	110	0.045	21.0	3.5	2500	450
	16	4	110	0.055	24.0	4.0	2190	480
	18	4	110	0.060	27.0	4.5	1945	465
	20	4	110	0.065	30.0	5.0	1750	455
Steel 1100 - 1300 N/mm²	4	4	80	0.015	6.0	0.4	6365	380
	6	4	80	0.020	9.0	0.6	4245	340
	8	4	80	0.025	12.0	0.8	3185	320
	10	4	80	0.035	15.0	1.0	2545	355
	12	4	80	0.040	18.0	1.2	2120	340
	14	4	80	0.045	21.0	1.4	1820	330
	16	4	80	0.055	24.0	1.6	1590	350
	18	4	80	0.060	27.0	1.8	1415	340
	20	4	80	0.065	30.0	2.0	1275	330
Cold work t. st. (12% Cr), high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	4	4	70	0.015	6.0	1.0	5570	335
	6	4	70	0.020	9.0	1.5	3715	295
	8	4	70	0.025	12.0	2.0	2785	280
	10	4	70	0.035	15.0	2.5	2230	310
	12	4	70	0.040	18.0	3.0	1855	295
	14	4	70	0.045	21.0	3.5	1590	285
	16	4	70	0.055	24.0	4.0	1395	305
	18	4	70	0.060	27.0	4.5	1240	300
	20	4	70	0.065	30.0	5.0	1115	290

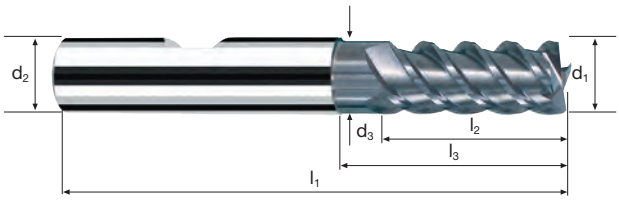
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	4	4	130	0.015	6.0	1.0	10345	620
	6	4	130	0.020	9.0	1.5	6895	550
	8	4	130	0.025	12.0	2.0	5175	520
	10	4	130	0.035	15.0	2.5	4140	580
	12	4	130	0.040	18.0	3.0	3450	550
	14	4	130	0.045	21.0	3.5	2955	530
	16	4	130	0.055	24.0	4.0	2585	570
	18	4	130	0.060	27.0	4.5	2300	550
	20	4	130	0.065	30.0	5.0	2070	540
Unalloyed copper	4	4	230	0.015	6.0	1.0	18305	1100
	6	4	230	0.020	9.0	1.5	12200	975
	8	4	230	0.025	12.0	2.0	9150	915
	10	4	230	0.035	15.0	2.5	7320	1025
	12	4	230	0.040	18.0	3.0	6100	975
	14	4	230	0.045	21.0	3.5	5230	940
	16	4	230	0.055	24.0	4.0	4575	1005
	18	4	230	0.060	27.0	4.5	4065	975
	20	4	230	0.065	30.0	5.0	3660	950
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	4	4	80	0.015	6.0	1.0	6365	380
	6	4	80	0.020	9.0	1.5	4245	340
	8	4	80	0.025	12.0	2.0	3185	320
	10	4	80	0.035	15.0	2.5	2545	355
	12	4	80	0.040	18.0	3.0	2120	340
	14	4	80	0.045	21.0	3.5	1820	330
	16	4	80	0.055	24.0	4.0	1590	350
	18	4	80	0.060	27.0	4.5	1415	340
	20	4	80	0.065	30.0	5.0	1275	330
Heat resistant steel [17-4 PH]	4	4	40	0.015	6.0	1.0	3185	190
	6	4	40	0.020	9.0	1.5	2120	170
	8	4	40	0.025	12.0	2.0	1590	160
	10	4	40	0.035	15.0	2.5	1275	180
	12	4	40	0.040	18.0	3.0	1060	170
	14	4	40	0.045	21.0	3.5	910	165
	16	4	40	0.055	24.0	4.0	795	175
	18	4	40	0.060	27.0	4.5	705	170
	20	4	40	0.065	30.0	5.0	635	165

Cylindrical end mills

Smooth-edged, normal version with short neck

HM MG10 | λ 55° γ 15°

45°



Roughing

Finishing

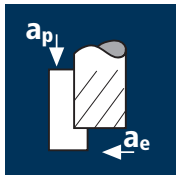
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Gold / Platinum**

Example: **Order-N°.** Coating **P** Article-N°. **5355** ø-Code **.180**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	new! POLYCHROM P5355 P5255	new! TRIBO T5355 T5255
new!	.180	3	6	2.8	57	8	14	0.10	4.5°	4	●	●
new!	.220	4	6	3.7	57	11	16	0.10	3.0°	4	●	●
new!	.260	5	6	4.6	57	13	18	0.15	1.5°	4	●	●
	.300	6	6	5.5	57	13	20	0.15	0.0°	4	●	●
	.331*	7	8	-	63	16	-	0.15	1.5°	4	●	●
	.391	8	8	7.4	63	19	26	0.15	0.0°	4	●	●
	.420*	9	10	-	72	19	-	0.20	1.5°	4	●	●
	.450	10	10	9.2	72	22	31	0.20	0.0°	4	●	●
	.470*	11	12	-	83	26	-	0.20	1.0°	4	●	●
	.501	12	12	11.0	83	26	37	0.20	0.0°	4	●	●
	.570	14	14	13.0	83	26	37	0.20	0.0°	4	●	●
	.610	16	16	15.0	92	32	43	0.20	0.0°	4	●	●
	.640	18	18	17.9	92	32	43	0.20	0.0°	4	●	●
	.682	20	20	19.0	104	38	53	0.20	0.0°	4	●	●

* without short neck only

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2.0	3	120	0.005	3.0	0.2	19100	285	0.2
	2.5	3	120	0.010	3.8	0.3	15280	460	0.4
	3.0	3	120	0.010	4.5	0.3	12735	380	0.5
	3.5	3	120	0.010	5.3	0.4	10915	325	0.6
	4.0	3	120	0.015	6.0	0.4	9550	430	1.0
	5.0	3	120	0.015	7.5	0.5	7640	345	1.3
	6.0	3	120	0.020	9.0	0.6	6365	380	2.1
	7.0	3	120	0.025	10.5	0.7	5455	410	3.0
	8.0	3	120	0.025	12.0	0.8	4775	360	3.5
Steel 850 - 1100 N/mm²	2.0	3	80	0.005	3.0	0.2	12735	190	0.1
	2.5	3	80	0.010	3.8	0.3	10185	305	0.3
	3.0	3	80	0.010	4.5	0.3	8490	255	0.3
	3.5	3	80	0.010	5.3	0.4	7275	220	0.4
	4.0	3	80	0.015	6.0	0.4	6365	285	0.7
	5.0	3	80	0.015	7.5	0.5	5095	230	0.9
	6.0	3	80	0.020	9.0	0.6	4245	255	1.4
	7.0	3	80	0.025	10.5	0.7	3640	275	2.0
	8.0	3	80	0.025	12.0	0.8	3185	240	2.3
Stainless steel [Cr-Ni/1.4301]	2.0	3	60	0.005	3.0	0.2	9550	145	0.1
	2.5	3	60	0.010	3.8	0.3	7640	230	0.2
	3.0	3	60	0.010	4.5	0.3	6365	190	0.3
	3.5	3	60	0.010	5.3	0.4	5455	165	0.3
	4.0	3	60	0.015	6.0	0.4	4775	215	0.5
	5.0	3	60	0.015	7.5	0.5	3820	170	0.6
	6.0	3	60	0.020	9.0	0.6	3185	190	1.0
	7.0	3	60	0.025	10.5	0.7	2730	205	1.5
	8.0	3	60	0.025	12.0	0.8	2385	180	1.7
Cast iron (lamellar / spheroidal)	2.0	3	160	0.005	3.0	0.2	25465	380	0.2
	2.5	3	160	0.010	3.8	0.3	20370	610	0.6
	3.0	3	160	0.010	4.5	0.3	16975	510	0.7
	3.5	3	160	0.010	5.3	0.4	14550	435	0.8
	4.0	3	160	0.015	6.0	0.4	12735	575	1.4
	5.0	3	160	0.015	7.5	0.5	10185	460	1.7
	6.0	3	160	0.020	9.0	0.6	8490	510	2.8
	7.0	3	160	0.025	10.5	0.7	7275	545	4.0
	8.0	3	160	0.025	12.0	0.8	6365	475	4.6

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2.0	3	100	0.005	1.0	2	15915	240	0.5
	2.5	3	100	0.005	1.3	3	12735	190	0.5
	3.0	3	100	0.010	1.5	3	10610	320	1.5
	3.5	3	100	0.010	1.8	4	9095	275	1.5
	4.0	3	100	0.010	2.0	4	7960	240	2.0
	5.0	3	100	0.015	2.5	5	6365	285	3.5
	6.0	3	100	0.015	3.0	6	5305	240	4.5
	7.0	3	100	0.020	3.5	7	4545	275	6.5
	8.0	3	100	0.020	4.0	8	3980	240	7.5
Steel 850 - 1100 N/mm²	2.0	3	70	0.005	1.0	2	11140	165	0.5
	2.5	3	70	0.005	1.3	3	8915	135	0.5
	3.0	3	70	0.010	1.5	3	7425	225	1.0
	3.5	3	70	0.010	1.8	4	6365	190	1.0
	4.0	3	70	0.010	2.0	4	5570	165	1.5
	5.0	3	70	0.015	2.5	5	4455	200	2.5
	6.0	3	70	0.015	3.0	6	3715	165	3.0
	7.0	3	70	0.020	3.5	7	3185	190	4.5
	8.0	3	70	0.020	4.0	8	2785	165	5.5
Stainless steel [Cr-Ni/1.4301]	2.0	3	40	0.005	1.0	2	6365	95	0.2
	2.5	3	40	0.005	1.3	3	5095	75	0.2
	3.0	3	40	0.010	1.5	3	4245	125	0.5
	3.5	3	40	0.010	1.8	4	3640	110	0.5
	4.0	3	40	0.010	2.0	4	3185	95	1.0
	5.0	3	40	0.015	2.5	5	2545	115	1.5
	6.0	3	40	0.015	3.0	6	2120	95	1.5
	7.0	3	40	0.020	3.5	7	1820	110	2.5
	8.0	3	40	0.020	4.0	8	1590	95	3.0
Cast iron (lamellar / spheroidal)	2.0	3	120	0.005	1.0	2	19100	285	0.5
	2.5	3	120	0.010	1.3	3	15280	460	1.5
	3.0	3	120	0.010	1.5	3	12735	380	1.5
	3.5	3	120	0.010	1.8	4	10915	325	2.0
	4.0	3	120	0.010	2.0	4	9550	285	2.5
	5.0	3	120	0.015	2.5	5	7640	345	4.5
	6.0	3	120	0.020	3.0	6	6365	380	7.0
	7.0	3	120	0.020	3.5	7	5455	325	8.0
	8.0	3	120	0.025	4.0	8	4775	360	11.5

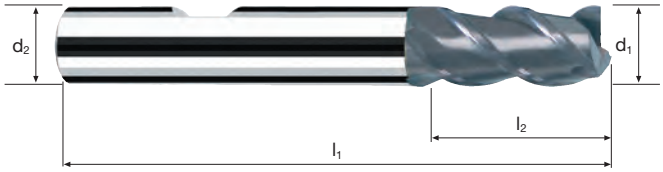
Cylindrical end mills

Smooth-edged, normal version

HM
MG10

λ **45°**
γ **15°**

45°



Roughing

Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Copper**

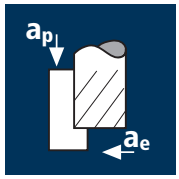
new!

Example: **Order-N°.** Coating **P** Article-N°. **5330** ø-Code **.138**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	5330	POLYCHROM P5330
								5230	P5230
.138*	2.0	2.0	42	6	0.10	0.0°	3	●	●
.140	2.0	6.0	54	6	0.10	8.0°	3	●	●
.158*	2.5	2.5	42	7	0.10	0.0°	3	●	●
.160	2.5	6.0	54	6	0.10	7.5°	3	●	●
.178*	3.0	3.0	45	7	0.10	0.0°	3	●	●
.180	3.0	6.0	57	7	0.10	6.0°	3	●	●
.198*	3.5	3.5	50	7	0.10	0.0°	3	●	●
.200	3.5	6.0	57	7	0.10	5.5°	3	●	●
.218*	4.0	4.0	50	8	0.10	0.0°	3	●	●
.220	4.0	6.0	57	8	0.10	4.5°	3	●	●
.238*	4.5	4.5	50	8	0.15	0.0°	3	●	●
.240	4.5	6.0	57	8	0.10	3.5°	3	●	●
.258*	5.0	5.0	50	10	0.15	0.0°	3	●	●
.260	5.0	6.0	57	10	0.15	2.5°	3	●	●
.278*	5.5	5.5	57	10	0.15	0.0°	3	●	●
.280	5.5	6.0	57	10	0.15	1.5°	3	●	●
.300	6.0	6.0	57	10	0.15	0.0°	3	●	●
.322	6.5	8.0	63	13	0.15	2.5°	3	●	●
.331	7.0	8.0	63	13	0.15	2.0°	3	●	●
.362	7.5	8.0	63	16	0.15	1.0°	3	●	●
.391	8.0	8.0	63	16	0.15	0.0°	3	●	●

* without clamping flat only

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	9	3	120	0.030	13.5	0.9	4245	380	4.5
	10	3	120	0.035	15.0	1.0	3820	400	6.0
	12	3	120	0.040	18.0	1.2	3185	380	8.0
	14	3	120	0.045	21.0	1.4	2730	370	11.0
	16	3	120	0.055	24.0	1.6	2385	395	15.0
	18	3	120	0.060	27.0	1.8	2120	380	18.5
	20	3	120	0.065	30.0	2.0	1910	370	22.0
	22	3	120	0.075	33.0	2.2	1735	390	28.5
	25	3	120	0.085	37.5	2.5	1530	390	36.5
Steel 850 - 1100 N/mm²	9	3	80	0.030	13.5	0.9	2830	255	3.0
	10	3	80	0.035	15.0	1.0	2545	265	4.0
	12	3	80	0.040	18.0	1.2	2120	255	5.5
	14	3	80	0.045	21.0	1.4	1820	245	7.0
	16	3	80	0.055	24.0	1.6	1590	260	10.0
	18	3	80	0.060	27.0	1.8	1415	255	12.5
	20	3	80	0.065	30.0	2.0	1275	250	15.0
	22	3	80	0.075	33.0	2.2	1160	260	19.0
	25	3	80	0.085	37.5	2.5	1020	260	24.5
Stainless steel [Cr-Ni/1.4301]	9	3	60	0.030	13.5	0.9	2120	190	2.5
	10	3	60	0.035	15.0	1.0	1910	200	3.0
	12	3	60	0.040	18.0	1.2	1590	190	4.0
	14	3	60	0.045	21.0	1.4	1365	185	5.5
	16	3	60	0.055	24.0	1.6	1195	195	7.5
	18	3	60	0.060	27.0	1.8	1060	190	9.0
	20	3	60	0.065	30.0	2.0	955	185	11.0
	22	3	60	0.075	33.0	2.2	870	195	14.0
	25	3	60	0.085	37.5	2.5	765	195	18.5
Cast iron (lamellar / spheroidal)	9	3	160	0.030	13.5	0.9	5660	510	6.0
	10	3	160	0.035	15.0	1.0	5095	535	8.0
	12	3	160	0.040	18.0	1.2	4245	510	11.0
	14	3	160	0.045	21.0	1.4	3640	490	14.5
	16	3	160	0.055	24.0	1.6	3185	525	20.0
	18	3	160	0.060	27.0	1.8	2830	510	25.0
	20	3	160	0.065	30.0	2.0	2545	495	29.5
	22	3	160	0.075	33.0	2.2	2315	520	38.0
	25	3	160	0.085	37.5	2.5	2035	520	49.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	9	3	100	0.025	4.5	9	3535	265	10.5
	10	3	100	0.030	5.0	10	3185	285	14.5
	12	3	100	0.035	6.0	12	2655	280	20.0
	14	3	100	0.040	7.0	14	2275	275	27.0
	16	3	100	0.045	8.0	16	1990	270	34.5
	18	3	100	0.050	9.0	18	1770	265	43.0
	20	3	100	0.055	10.0	20	1590	260	52.0
	22	3	100	0.060	11.0	22	1445	260	63.0
	25	3	100	0.070	12.5	25	1275	270	84.5
Steel 850 - 1100 N/mm²	9	3	70	0.025	4.5	9	2475	185	7.5
	10	3	70	0.025	5.0	10	2230	165	8.5
	12	3	70	0.030	6.0	12	1855	165	12.0
	14	3	70	0.035	7.0	14	1590	165	16.0
	16	3	70	0.040	8.0	16	1395	165	21.0
	18	3	70	0.045	9.0	18	1240	165	26.5
	20	3	70	0.050	10.0	20	1115	165	33.0
	22	3	70	0.055	11.0	22	1015	165	40.0
	25	3	70	0.065	12.5	25	890	175	54.5
Stainless steel [Cr-Ni/1.4301]	9	3	40	0.025	4.5	9	1415	105	4.5
	10	3	40	0.025	5.0	10	1275	95	5.0
	12	3	40	0.030	6.0	12	1060	95	7.0
	14	3	40	0.035	7.0	14	910	95	9.5
	16	3	40	0.040	8.0	16	795	95	12.0
	18	3	40	0.045	9.0	18	705	95	15.5
	20	3	40	0.050	10.0	20	635	95	19.0
	22	3	40	0.055	11.0	22	580	95	23.0
	25	3	40	0.065	12.5	25.0	510	100	31.5
Cast iron (lamellar / spheroidal)	9	3	120	0.030	4.5	9	4245	380	15.5
	10	3	120	0.030	5.0	10	3820	345	17.5
	12	3	120	0.035	6.0	12	3185	335	24.0
	14	3	120	0.045	7.0	14	2730	370	36.5
	16	3	120	0.050	8.0	16	2385	360	46.0
	18	3	120	0.055	9.0	18	2120	350	56.5
	20	3	120	0.060	10.0	20	1910	345	69.0
	22	3	120	0.065	11.0	22	1735	340	82.5
	25	3	120	0.075	12.5	25	1530	345	108.0

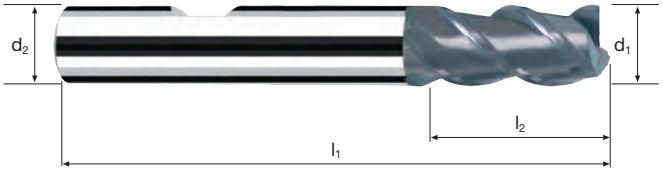
Cylindrical end mills

Smooth-edged, normal version

HM
MG10

λ **45°**
γ **15°**

45°



Roughing

Finishing

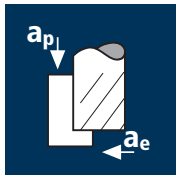
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** | Article-N°. **5330** | ø-Code **.410**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	5330	POLYCHROM P5330
								5230	P5230
.410	8.5	10.0	72	16	0.20	2.5°	3	●	●
.420	9.0	10.0	72	16	0.20	1.5°	3	●	●
.430	9.5	10.0	72	19	0.20	1.0°	3	●	●
.450	10.0	10.0	72	19	0.20	0.0°	3	●	●
.470	11.0	12.0	83	22	0.20	1.5°	3	●	●
.501	12.0	12.0	83	22	0.20	0.0°	3	●	●
.540	13.0	14.0	83	22	0.20	1.5°	3	●	●
.570	14.0	14.0	83	22	0.20	0.0°	3	●	●
.581	15.0	16.0	92	26	0.20	1.0°	3	●	●
.610	16.0	16.0	92	26	0.20	0.0°	3	●	●
.640	18.0	18.0	92	26	0.20	0.0°	3	●	●
.682	20.0	20.0	104	32	0.20	0.0°	3	●	●
.710	22.0	20.0	104	38	0.25	0.0°	3	●	●
.772	25.0	25.0	121	45	0.25	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	180	0.010	4.5	1.4	19100	575	3.5
	4	3	180	0.015	6.0	1.8	14325	645	7.0
	5	3	180	0.015	7.5	2.3	11460	515	8.5
	6	3	180	0.035	9.0	2.7	9550	1005	24.5
	8	3	180	0.045	12.0	3.6	7160	965	41.5
	10	3	180	0.055	15.0	4.5	5730	945	64.0
	12	3	180	0.065	18.0	5.4	4775	930	90.5
	16	3	180	0.085	24.0	7.2	3580	915	158.0
	20	3	180	0.110	30.0	9.0	2865	945	255.0
Steel 850 - 1100 N/mm²	3	3	120	0.010	4.5	1.4	12735	380	2.5
	4	3	120	0.015	6.0	1.8	9550	430	4.5
	5	3	120	0.015	7.5	2.3	7640	345	6.0
	6	3	120	0.035	9.0	2.7	6365	670	16.5
	8	3	120	0.045	12.0	3.6	4775	645	28.0
	10	3	120	0.055	15.0	4.5	3820	630	42.5
	12	3	120	0.065	18.0	5.4	3185	620	60.5
	16	3	120	0.085	24.0	7.2	2385	610	105.5
	20	3	120	0.110	30.0	9.0	1910	630	170.0
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.005	4.5	1.4	6365	95	0.5
	4	3	60	0.010	6.0	1.8	4775	145	1.5
	5	3	60	0.010	7.5	2.3	3820	115	2.0
	6	3	60	0.025	9.0	2.7	3185	240	6.0
	8	3	60	0.030	12.0	3.6	2385	215	9.5
	10	3	60	0.040	15.0	4.5	1910	230	15.5
	12	3	60	0.045	18.0	5.4	1590	215	21.0
	16	3	60	0.060	24.0	7.2	1195	215	37.0
	20	3	60	0.075	30.0	9.0	955	215	58.0
Cast iron (lamellar / spheroidal)	3	3	180	0.010	4.5	1.4	19100	575	3.5
	4	3	180	0.015	6.0	1.8	14325	645	7.0
	5	3	180	0.015	7.5	2.3	11460	515	8.5
	6	3	180	0.035	9.0	2.7	9550	1005	24.5
	8	3	180	0.045	12.0	3.6	7160	965	41.5
	10	3	180	0.055	15.0	4.5	5730	945	64.0
	12	3	180	0.065	18.0	5.4	4775	930	90.5
	16	3	180	0.085	24.0	7.2	3580	915	158.0
	20	3	180	0.110	30.0	9.0	2865	945	255.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	160	0.010	4.5	3	16975	510	7.0
	4	3	160	0.015	6.0	4	12735	575	14.0
	5	3	160	0.020	7.5	5	10185	610	23.0
	6	3	160	0.025	9.0	6	8490	635	34.5
	8	3	160	0.035	12.0	8	6365	670	64.5
	10	3	160	0.040	15.0	10	5095	610	91.5
	12	3	160	0.050	18.0	12	4245	635	137.0
	16	3	160	0.065	16.0	16	3185	620	158.5
	20	3	160	0.085	20.0	20	2545	650	260.0
Steel 850 - 1100 N/mm²	3	3	100	0.010	4.5	3	10610	320	4.5
	4	3	100	0.015	6.0	4	7960	360	8.5
	5	3	100	0.020	7.5	5	6365	380	14.5
	6	3	100	0.025	9.0	6	5305	400	21.5
	8	3	100	0.035	12.0	8	3980	420	40.5
	10	3	100	0.040	15.0	10	3185	380	57.0
	12	3	100	0.050	18.0	12	2655	400	86.5
	16	3	100	0.065	16.0	16	1990	390	100.0
	20	3	100	0.085	20.0	20	1590	405	162.0
Stainless steel [Cr-Ni/1.4301]	3	3	40	0.005	4.5	3	4245	65	1.0
	4	3	40	0.010	6.0	4	3185	95	2.5
	5	3	40	0.015	7.5	5	2545	115	4.5
	6	3	40	0.020	9.0	6	2120	125	7.0
	8	3	40	0.025	12.0	8	1590	120	11.5
	10	3	40	0.030	15.0	10	1275	115	17.5
	12	3	40	0.035	18.0	12	1060	110	24.0
	16	3	40	0.045	16.0	16	795	105	27.0
	20	3	40	0.060	20.0	20	635	115	46.0
Cast iron (lamellar / spheroidal)	3	3	160	0.010	4.5	3	16975	510	7.0
	4	3	160	0.010	6.0	4	12735	380	9.0
	5	3	160	0.015	7.5	5	10185	460	17.5
	6	3	160	0.025	9.0	6	8490	635	34.5
	8	3	160	0.035	12.0	8	6365	670	64.5
	10	3	160	0.045	15.0	10	5095	690	103.5
	12	3	160	0.055	18.0	12	4245	700	151.0
	16	3	160	0.075	16.0	16	3185	715	183.0
	20	3	160	0.090	20.0	20	2545	685	274.0

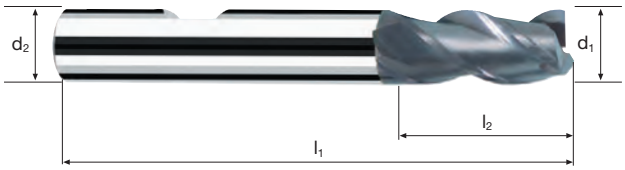
Cylindrical end mills

Smooth-edged, normal version

HM
MG10

λ **40°**
γ **5°**

45°



Roughing

Finishing

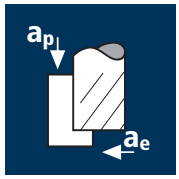
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G)**

Example: **Order-N°.** Coating **P** Article-N°. **5331** ø-Code **.180**

new!

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5331	P5231
.180	3	6	57	7	0.10	6.0°	3		●
.220	4	6	57	8	0.10	4.5°	3		●
.260	5	6	57	10	0.15	2.5°	3		●
.300	6	6	57	10	0.15	0.0°	3		●
.391	8	8	63	16	0.15	0.0°	3		●
.450	10	10	72	19	0.20	0.0°	3		●
.501	12	12	83	22	0.20	0.0°	3		●
.610	16	16	92	26	0.20	0.0°	3		●
.682	20	20	104	32	0.20	0.0°	3		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	2	120	0.010	3	1.4	12735	255	1.0
4	2	120	0.015	4	1.8	9550	285	2.0
5	2	120	0.020	5	2.3	7640	305	3.5
6	2	120	0.025	6	2.7	6365	320	5.0
8	2	120	0.030	8	3.6	4775	285	8.0
10	2	120	0.040	10	4.5	3820	305	13.5
12	2	120	0.050	12	5.4	3185	320	20.5
16	2	120	0.065	16	7.2	2385	310	35.5
20	2	120	0.080	20	9.0	1910	305	55.0
Steel 850 - 1100 N/mm²								
3	2	80	0.010	3	1.4	8490	170	0.5
4	2	80	0.015	4	1.8	6365	190	1.5
5	2	80	0.020	5	2.3	5095	205	2.5
6	2	80	0.020	6	2.7	4245	170	3.0
8	2	80	0.030	8	3.6	3185	190	5.5
10	2	80	0.035	10	4.5	2545	180	8.0
12	2	80	0.045	12	5.4	2120	190	12.5
16	2	80	0.060	16	7.2	1590	190	22.0
20	2	80	0.070	20	9.0	1275	180	32.5
Stainless steel [Cr-Ni/1.4301]								
3	2	60	0.010	3	1.4	6365	125	0.5
4	2	60	0.015	4	1.8	4775	145	1.0
5	2	60	0.020	5	2.3	3820	155	1.5
6	2	60	0.020	6	2.7	3185	125	2.0
8	2	60	0.030	8	3.6	2385	145	4.0
10	2	60	0.035	10	4.5	1910	135	6.0
12	2	60	0.045	12	5.4	1590	145	9.5
16	2	60	0.060	16	7.2	1195	145	16.5
20	2	60	0.070	20	9.0	955	135	24.5
Cast iron (lamellar / spheroidal)								
3	2	160	0.015	3	1.4	16975	510	2.0
4	2	160	0.020	4	1.8	12735	510	3.5
5	2	160	0.020	5	2.3	10185	405	4.5
6	2	160	0.025	6	2.7	8490	425	7.0
8	2	160	0.035	8	3.6	6365	445	13.0
10	2	160	0.045	10	4.5	5095	460	20.5
12	2	160	0.055	12	5.4	4245	465	30.0
16	2	160	0.070	16	7.2	3185	445	51.5
20	2	160	0.090	20	9.0	2545	460	83.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	2	100	0.010	1.5	3	10610	210	1.0
4	2	100	0.010	2.0	4	7960	160	1.5
5	2	100	0.015	2.5	5	6365	190	2.5
6	2	100	0.015	3.0	6	5305	160	3.0
8	2	100	0.020	4.0	8	3980	160	5.0
10	2	100	0.030	5.0	10	3185	190	9.5
12	2	100	0.035	6.0	12	2655	185	13.5
16	2	100	0.045	8.0	16	1990	180	23.0
20	2	100	0.055	10.0	20	1590	175	35.0
Steel 850 - 1100 N/mm²								
3	2	70	0.010	1.5	3	7425	150	0.5
4	2	70	0.010	2.0	4	5570	110	1.0
5	2	70	0.015	2.5	5	4455	135	1.5
6	2	70	0.015	3.0	6	3715	110	2.0
8	2	70	0.020	4.0	8	2785	110	3.5
10	2	70	0.025	5.0	10	2230	110	5.5
12	2	70	0.030	6.0	12	1855	110	8.0
16	2	70	0.040	8.0	16	1395	110	14.0
20	2	70	0.050	10.0	20	1115	110	22.0
Stainless steel [Cr-Ni/1.4301]								
3	2	40	0.010	1.5	3	4245	85	0.5
4	2	40	0.010	2.0	4	3185	65	0.5
5	2	40	0.015	2.5	5	2545	75	1.0
6	2	40	0.015	3.0	6	2120	65	1.0
8	2	40	0.020	4.0	8	1590	65	2.0
10	2	40	0.025	5.0	10	1275	65	3.5
12	2	40	0.030	6.0	12	1060	65	4.5
16	2	40	0.040	8.0	16	795	65	8.5
20	2	40	0.050	10.0	20	635	65	13.0
Cast iron (lamellar / spheroidal)								
3	2	120	0.010	1.5	3	12735	255	1.0
4	2	120	0.010	2.0	4	9550	190	1.5
5	2	120	0.015	2.5	5	7640	230	3.0
6	2	120	0.020	3.0	6	6365	255	4.5
8	2	120	0.025	4.0	8	4775	240	7.5
10	2	120	0.030	5.0	10	3820	230	11.5
12	2	120	0.035	6.0	12	3185	225	16.0
16	2	120	0.050	8.0	16	2385	240	30.5
20	2	120	0.060	10.0	20	1910	230	46.0

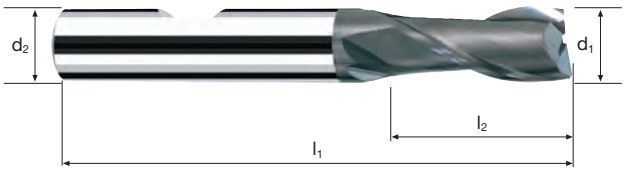
Cylindrical end mills

Smooth-edged, normal version

HM
MG10

λ **30°**
γ **12°**

45°



Roughing

Finishing

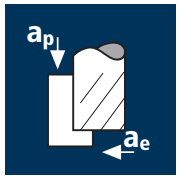
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G)** **Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5300** ø-Code **.138**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5300	POLYCHROM P5200
.138*	2.0	2.0	42	6	0.10	0.0°	2		●
.140	2.0	6.0	54	6	0.10	8.0°	2		●
.158*	2.5	2.5	42	7	0.10	0.0°	2		●
.160	2.5	6.0	54	6	0.10	7.5°	2		●
.178*	3.0	3.0	45	7	0.10	0.0°	2		●
.180	3.0	6.0	57	7	0.10	6.0°	2		●
.200	3.5	6.0	57	7	0.10	5.5°	2		●
.218*	4.0	4.0	50	8	0.10	0.0°	2		●
.220	4.0	6.0	57	8	0.10	4.5°	2		●
.240	4.5	6.0	57	8	0.15	3.5°	2		●
.258*	5.0	5.0	50	10	0.15	0.0°	2		●
.260	5.0	6.0	57	10	0.15	2.5°	2		●
.280	5.5	6.0	57	10	0.15	1.5°	2		●
.300	6.0	6.0	57	10	0.15	0.0°	2		●
.331	7.0	8.0	63	13	0.15	2.0°	2		●
.391	8.0	8.0	63	16	0.15	0.0°	2		●
.420	9.0	10.0	72	16	0.20	1.5°	2		●
.450	10.0	10.0	72	19	0.20	0.0°	2		●
.501	12.0	12.0	83	22	0.20	0.0°	2		●
.610	16.0	16.0	92	26	0.20	0.0°	2		●
.682	20.0	20.0	104	32	0.20	0.0°	2		●

* without clamping flat only

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	3	4	180	0.015	4.5	1.2	19100	1145	6.0
		4	4	180	0.020	6.0	1.6	14325	1145	11.0
		5	4	180	0.025	7.5	2.0	11460	1145	17.0
		6	4	180	0.030	9.0	2.4	9550	1145	24.5
		8	4	180	0.040	12.0	3.2	7160	1145	44.0
		10	4	180	0.050	15.0	4.0	5730	1145	68.5
		12	4	180	0.060	18.0	4.8	4775	1145	99.0
		16	4	180	0.075	24.0	6.4	3580	1075	165.0
		20	4	180	0.095	30.0	8.0	2865	1090	261.5
	Steel 850 - 1100 N/mm²	3	4	130	0.015	4.5	1.2	13795	830	4.5
		4	4	130	0.020	6.0	1.6	10345	830	8.0
		5	4	130	0.025	7.5	2.0	8275	830	12.5
		6	4	130	0.030	9.0	2.4	6895	825	18.0
		8	4	130	0.040	12.0	3.2	5175	830	32.0
		10	4	130	0.050	15.0	4.0	4140	830	50.0
		12	4	130	0.060	18.0	4.8	3450	830	71.5
		16	4	130	0.075	24.0	6.4	2585	775	119.0
		20	4	130	0.095	30.0	8.0	2070	785	188.5
	Stainless steel [Cr-Ni/1.4301]	3	4	60	0.010	4.5	1.2	6365	255	1.5
		4	4	60	0.015	6.0	1.6	4775	285	2.5
		5	4	60	0.020	7.5	2.0	3820	305	4.5
		6	4	60	0.025	9.0	2.4	3185	320	7.0
		8	4	60	0.030	12.0	3.2	2385	285	11.0
		10	4	60	0.040	15.0	4.0	1910	305	18.5
		12	4	60	0.050	18.0	4.8	1590	320	27.5
		16	4	60	0.060	24.0	6.4	1195	285	44.0
		20	4	60	0.075	30.0	8.0	955	285	68.5
	Cast iron (lamellar / spheroidal)	3	4	160	0.015	4.5	1.2	16975	1020	5.5
		4	4	160	0.020	6.0	1.6	12735	1020	10.0
		5	4	160	0.030	7.5	2.0	10185	1220	18.5
		6	4	160	0.035	9.0	2.4	8490	1190	25.5
		8	4	160	0.045	12.0	3.2	6365	1145	44.0
		10	4	160	0.055	15.0	4.0	5095	1120	67.0
		12	4	160	0.065	18.0	4.8	4245	1105	95.5
		16	4	160	0.085	24.0	6.4	3185	1085	166.5
		20	4	160	0.105	30.0	8.0	2545	1070	257.0

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	3	4	160	0.010	3.0	3	16975	680	6.0
		4	4	160	0.015	4.0	4	12735	765	12.0
		5	4	160	0.020	5.0	5	10185	815	20.5
		6	4	160	0.025	6.0	6	8490	850	30.5
		8	4	160	0.030	8.0	8	6365	765	49.0
		10	4	160	0.040	10.0	10	5095	815	81.5
		12	4	160	0.045	12.0	12	4245	765	110.0
		16	4	160	0.055	8.0	16	3185	700	89.5
		20	4	160	0.070	10.0	20	2545	715	143.0
	Steel 850 - 1100 N/mm²	3	4	110	0.010	3.0	3	11670	465	4.0
		4	4	110	0.015	4.0	4	8755	525	8.5
		5	4	110	0.020	5.0	5	7005	560	14.0
		6	4	110	0.025	6.0	6	5835	585	21.0
		8	4	110	0.030	8.0	8	4375	525	33.5
		10	4	110	0.040	10.0	10	3500	560	56.0
		12	4	110	0.045	12.0	12	2920	525	75.5
		16	4	110	0.055	8.0	16	2190	480	61.5
		20	4	110	0.070	10.0	20	1750	490	98.0
	Stainless steel [Cr-Ni/1.4301]	3	4	45	0.010	2.1	3	4775	190	1.0
		4	4	45	0.010	2.8	4	3580	145	1.5
		5	4	45	0.015	3.5	5	2865	170	3.0
		6	4	45	0.020	4.2	6	2385	190	5.0
		8	4	45	0.025	8.0	8	1790	180	11.5
		10	4	45	0.030	10.0	10	1430	170	17.0
		12	4	45	0.040	12.0	12	1195	190	27.5
		16	4	45	0.045	8.0	16	895	160	20.5
		20	4	45	0.055	10.0	20	715	155	31.0
	Cast iron (lamellar / spheroidal)	3	4	145	0.010	3.0	3	15385	615	5.5
		4	4	145	0.015	4.0	4	11540	690	11.0
		5	4	145	0.025	5.0	5	9230	925	23.0
		6	4	145	0.025	6.0	6	7695	770	27.5
		8	4	145	0.035	8.0	8	5770	810	52.0
		10	4	145	0.040	10.0	10	4615	740	74.0
		12	4	145	0.050	12.0	12	3845	770	111.0
		16	4	145	0.065	8.0	16	2885	750	96.0
		20	4	145	0.080	10.0	20	2310	740	148.0

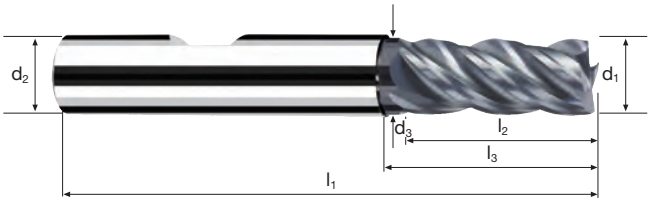
Cylindrical end mills NF-NV

Smooth-edged, normal version with short neck

HM | λ 40° γ 6°

45°

Vario



Roughing

Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel Alloys**

new!

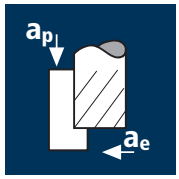
Example: **Order-N°.** Coating **P** Article-N°. **45317** ø-Code **.178**

new!

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P45317	POLYCHROM P45217
.178*	3	3	-	45	8	-	0.10	0.0°	4		●
.180	3	6	2.8	57	8	14	0.10	4.5°	4		●
.218*	4	4	-	50	11	-	0.10	0.0°	4		●
.220	4	6	3.7	57	11	16	0.10	3.0°	4		●
.258*	5	5	-	50	13	-	0.15	0.0°	4		●
.260	5	6	4.6	57	13	18	0.15	1.5°	4		●
.300	6	6	5.5	57	13	20	0.15	0.0°	4		●
.391	8	8	7.4	63	19	26	0.15	0.0°	4		●
.450	10	10	9.2	72	22	31	0.20	0.0°	4		●
.501	12	12	11.0	83	26	37	0.20	0.0°	4		●
.610	16	16	15.0	92	32	43	0.20	0.0°	4		●
.682	20	20	19.0	104	38	53	0.20	0.0°	4		●

* without clamping flat only, without short neck

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	3	4	160	0.010	4.5	0.25	16975	680
	4	4	160	0.015	6.0	0.30	12735	765
	5	4	160	0.015	7.5	0.40	10185	610
	6	4	160	0.020	9.0	0.50	8490	680
	8	4	160	0.025	12.0	0.65	6365	635
	10	4	160	0.035	15.0	0.80	5095	715
	12	4	160	0.040	18.0	0.95	4245	680
	16	4	160	0.055	24.0	1.30	3185	700
	20	4	160	0.065	30.0	1.60	2545	660
Steel 850 - 1100 N/mm²	3	4	100	0.010	4.5	0.25	10610	425
	4	4	100	0.015	6.0	0.30	7960	480
	5	4	100	0.015	7.5	0.40	6365	380
	6	4	100	0.020	9.0	0.50	5305	425
	8	4	100	0.025	12.0	0.65	3980	400
	10	4	100	0.035	15.0	0.80	3185	445
	12	4	100	0.040	18.0	0.95	2655	425
	16	4	100	0.055	24.0	1.30	1990	440
	20	4	100	0.065	30.0	1.60	1590	415
Steel 1100 - 1300 N/mm²	3	4	70	0.010	4.5	0.25	7425	295
	4	4	70	0.015	6.0	0.30	5570	335
	5	4	70	0.015	7.5	0.40	4455	265
	6	4	70	0.020	9.0	0.50	3715	295
	8	4	70	0.025	12.0	0.65	2785	280
	10	4	70	0.035	15.0	0.80	2230	310
	12	4	70	0.040	18.0	0.95	1855	295
	16	4	70	0.055	24.0	1.30	1395	305
	20	4	70	0.065	30.0	1.60	1115	290
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.010	4.5	0.25	7425	295
	4	4	70	0.015	6.0	0.30	5570	335
	5	4	70	0.015	7.5	0.40	4455	265
	6	4	70	0.020	9.0	0.50	3715	295
	8	4	70	0.025	12.0	0.65	2785	280
	10	4	70	0.035	15.0	0.80	2230	310
	12	4	70	0.040	18.0	0.95	1855	295
	16	4	70	0.055	24.0	1.30	1395	305
	20	4	70	0.065	30.0	1.60	1115	290

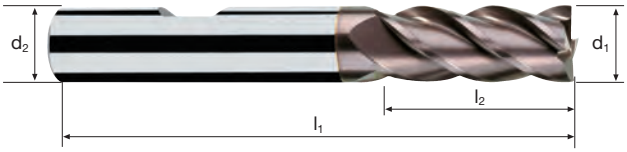
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	3	4	120	0.010	5	0.25	12735	510
	4	4	120	0.015	6	0.30	9550	575
	5	4	120	0.015	8	0.40	7640	460
	6	4	120	0.020	9	0.50	6365	510
	8	4	120	0.025	12	0.65	4775	480
	10	4	120	0.035	15	0.80	3820	535
	12	4	120	0.040	18	0.95	3185	510
	16	4	120	0.055	24	1.30	2385	525
	20	4	120	0.065	30	1.60	1910	495
Unalloyed copper	3	4	180	0.010	5	0.25	19100	765
	4	4	180	0.015	6	0.30	14325	860
	5	4	180	0.015	8	0.40	11460	690
	6	4	180	0.020	9	0.50	9550	765
	8	4	180	0.025	12	0.65	7160	715
	10	4	180	0.035	15	0.80	5730	800
	12	4	180	0.040	18	0.95	4775	765
	16	4	180	0.055	24	1.30	3580	790
	20	4	180	0.065	30	1.60	2865	745
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	4	70	0.010	5	0.25	7425	295
	4	4	70	0.015	6	0.30	5570	335
	5	4	70	0.015	8	0.40	4455	265
	6	4	70	0.020	9	0.50	3715	295
	8	4	70	0.025	12	0.65	2785	280
	10	4	70	0.035	15	0.80	2230	310
	12	4	70	0.040	18	0.95	1855	295
	16	4	70	0.055	24	1.30	1395	305
	20	4	70	0.065	30	1.60	1115	290
Heat resistant steel [17-4 PH]	3	4	35	0.010	5	0.25	3715	150
	4	4	35	0.015	6	0.30	2785	165
	5	4	35	0.015	8	0.40	2230	135
	6	4	35	0.020	9	0.50	1855	150
	8	4	35	0.025	12	0.65	1395	140
	10	4	35	0.035	15	0.80	1115	155
	12	4	35	0.040	18	0.95	930	150
	16	4	35	0.055	24	1.30	695	155
	20	4	35	0.065	30	1.60	555	145

Cylindrical end mills

Smooth-edged, normal version

HM | λ **40°** γ **12°**

45°



Roughing

Finishing

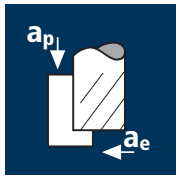
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Copper**

Example: **Order-N°.** Coating **U** Article-N°. **45340** ø-Code **.178**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	UNICUT-4X U45340
.178*	3	3	45	8	0.10	4	●
.218*	4	4	50	11	0.10	4	●
.258*	5	5	50	13	0.15	4	●
.300	6	6	57	13	0.15	4	●
.391	8	8	63	19	0.15	4	●
.450	10	10	72	22	0.20	4	●
.501	12	12	83	26	0.20	4	●
.610	16	16	92	32	0.20	4	●
.682	20	20	104	38	0.20	4	●

* without clamping flat only

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	160	0.010	4.5	2.0	16975	510	4.5
	4	3	160	0.015	6.0	2.6	12735	575	9.0
	5	3	160	0.020	7.5	3.3	10185	610	15.0
	6	3	160	0.020	9.0	3.9	8490	510	18.0
	8	3	160	0.030	12.0	5.2	6365	575	36.0
	10	3	160	0.035	15.0	6.5	5095	535	52.0
	12	3	160	0.045	18.0	7.8	4245	575	80.5
	16	3	160	0.055	24.0	8.8	3185	525	111.0
	20	3	160	0.070	30.0	11.0	2545	535	176.5
Steel 850 - 1100 N/mm²	3	3	120	0.010	4.5	2.0	12735	380	3.5
	4	3	120	0.015	6.0	2.6	9550	430	6.5
	5	3	120	0.020	7.5	3.3	7640	460	11.0
	6	3	120	0.020	9.0	3.9	6365	380	13.5
	8	3	120	0.030	12.0	5.2	4775	430	27.0
	10	3	120	0.035	15.0	6.5	3820	400	39.0
	12	3	120	0.045	18.0	7.8	3185	430	60.5
	16	3	120	0.055	24.0	8.8	2385	395	83.5
	20	3	120	0.070	30.0	11.0	1910	400	132.0
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.010	4.5	2.0	6365	190	1.5
	4	3	60	0.010	6.0	2.6	4775	145	2.5
	5	3	60	0.015	7.5	3.3	3820	170	4.0
	6	3	60	0.015	9.0	3.9	3185	145	5.0
	8	3	60	0.020	12.0	5.2	2385	145	9.0
	10	3	60	0.025	15.0	6.5	1910	145	14.0
	12	3	60	0.030	18.0	7.8	1590	145	20.5
	16	3	60	0.040	24.0	8.8	1195	145	30.5
	20	3	60	0.055	30.0	11.0	955	160	53.0
Cast iron (lamellar / spheroidal)	3	3	140	0.010	4.5	2.0	14855	445	4.0
	4	3	140	0.015	6.0	2.6	11140	500	8.0
	5	3	140	0.020	7.5	3.3	8915	535	13.0
	6	3	140	0.020	9.0	3.9	7425	445	15.5
	8	3	140	0.030	12.0	5.2	5570	500	31.0
	10	3	140	0.035	15.0	6.5	4455	470	46.0
	12	3	140	0.045	18.0	7.8	3715	500	70.0
	16	3	140	0.055	24.0	8.8	2785	460	97.0
	20	3	140	0.070	30.0	11.0	2230	470	155.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	140	0.010	4.2	3	14855	445	5.5
	4	3	140	0.015	5.6	4	11140	500	11.0
	5	3	140	0.015	7.0	5	8915	400	14.0
	6	3	140	0.020	8.4	6	7425	445	22.5
	8	3	140	0.025	11.2	8	5570	420	37.5
	10	3	140	0.030	14.0	10	4455	400	56.0
	12	3	140	0.040	16.8	12	3715	445	89.5
	16	3	140	0.050	19.2	16	2785	420	129.0
	20	3	140	0.065	24.0	20	2230	435	209.0
Steel 850 - 1100 N/mm²	3	3	100	0.010	4.2	3	10610	320	4.0
	4	3	100	0.015	5.6	4	7960	360	8.0
	5	3	100	0.015	7.0	5	6365	285	10.0
	6	3	100	0.020	8.4	6	5305	320	16.0
	8	3	100	0.025	11.2	8	3980	300	27.0
	10	3	100	0.030	14.0	10	3185	285	40.0
	12	3	100	0.040	16.8	12	2655	320	64.5
	16	3	100	0.050	19.2	16	1990	300	92.0
	20	3	100	0.065	24.0	20	1590	310	149.0
Stainless steel [Cr-Ni/1.4301]	3	3	45	0.005	4.2	3	4775	70	1.0
	4	3	45	0.010	5.6	4	3580	105	2.5
	5	3	45	0.010	7.0	5	2865	85	3.0
	6	3	45	0.015	8.4	6	2385	105	5.5
	8	3	45	0.020	11.2	8	1790	105	9.5
	10	3	45	0.025	14.0	10	1430	105	14.5
	12	3	45	0.030	16.8	12	1195	110	22.0
	16	3	45	0.040	19.2	16	895	105	32.5
	20	3	45	0.045	24.0	20	715	95	45.5
Cast iron (lamellar / spheroidal)	3	3	125	0.010	4.2	3	13265	400	5.0
	4	3	125	0.015	5.6	4	9945	450	10.0
	5	3	125	0.015	7.0	5	7960	360	12.5
	6	3	125	0.020	8.4	6	6630	400	20.0
	8	3	125	0.025	11.2	8	4975	375	33.5
	10	3	125	0.030	14.0	10	3980	360	50.5
	12	3	125	0.040	16.8	12	3315	400	80.5
	16	3	125	0.050	19.2	16	2485	375	115.0
	20	3	125	0.065	24.0	20	1990	390	187.0

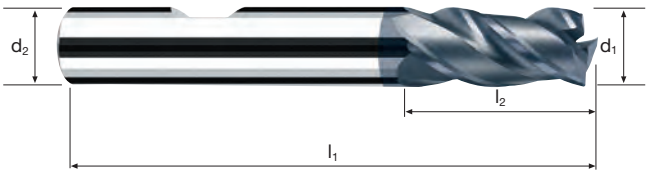
Cylindrical end mills NF-NV3

Smooth-edged, normal version

HM | λ 40° γ 6°

45°

Vario



Roughing

Finishing

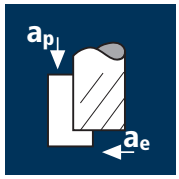
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel Alloys**

new!

Example: **Order-N°.** Coating **P** Article-N°. **45333** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P45333
.180	3	6	57	7	0.10	6.0°	3	●
.220	4	6	57	8	0.10	4.5°	3	●
.260	5	6	57	10	0.15	2.5°	3	●
.300	6	6	57	10	0.15	0.0°	3	●
.391	8	8	63	16	0.15	0.0°	3	●
.450	10	10	72	19	0.20	0.0°	3	●
.501	12	12	83	22	0.20	0.0°	3	●
.610	16	16	92	26	0.20	0.0°	3	●
.682	20	20	104	32	0.20	0.0°	3	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	110	0.010	3.0	0.3	11670	350	0.5
4	3	110	0.015	4.0	0.4	8755	395	0.5
5	3	110	0.015	5.0	0.5	7005	315	1.0
6	3	110	0.020	6.0	0.6	5835	350	1.5
8	3	110	0.025	8.0	0.8	4375	330	2.0
10	3	110	0.035	10.0	1.0	3500	370	3.5
12	3	110	0.040	12.0	1.2	2920	350	5.0
16	3	110	0.055	16.0	1.6	2190	360	9.0
20	3	110	0.065	20.0	2.0	1750	340	13.5
Steel 850 - 1100 N/mm²								
3	3	70	0.010	3.0	0.3	7425	225	0.0
4	3	70	0.015	4.0	0.4	5570	250	0.5
5	3	70	0.015	5.0	0.5	4455	200	0.5
6	3	70	0.020	6.0	0.6	3715	225	1.0
8	3	70	0.025	8.0	0.8	2785	210	1.5
10	3	70	0.035	10.0	1.0	2230	235	2.5
12	3	70	0.040	12.0	1.2	1855	225	3.0
16	3	70	0.055	16.0	1.6	1395	230	6.0
20	3	70	0.065	20.0	2.0	1115	215	8.5
Stainless steel [Cr-Ni/1.4301]								
3	3	50	0.010	3.0	0.3	5305	160	0.0
4	3	50	0.015	4.0	0.4	3980	180	0.5
5	3	50	0.015	5.0	0.5	3185	145	0.5
6	3	50	0.020	6.0	0.6	2655	160	0.5
8	3	50	0.025	8.0	0.8	1990	150	1.0
10	3	50	0.035	10.0	1.0	1590	165	1.5
12	3	50	0.040	12.0	1.2	1325	160	2.5
16	3	50	0.055	16.0	1.6	995	165	4.0
20	3	50	0.065	20.0	2.0	795	155	6.0
Cast iron (lamellar / spheroidal)								
3	3	150	0.010	3.0	0.3	15915	475	0.5
4	3	150	0.015	4.0	0.4	11935	535	1.0
5	3	150	0.015	5.0	0.5	9550	430	1.0
6	3	150	0.020	6.0	0.6	7960	480	1.5
8	3	150	0.025	8.0	0.8	5970	450	3.0
10	3	150	0.035	10.0	1.0	4775	500	5.0
12	3	150	0.040	12.0	1.2	3980	480	7.0
16	3	150	0.055	16.0	1.6	2985	495	12.5
20	3	150	0.065	20.0	2.0	2385	465	18.5

Application



Material

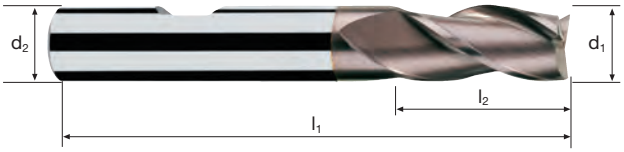
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	90	0.010	0.6	3	9550	285	0.5
4	3	90	0.010	0.8	4	7160	215	0.5
5	3	90	0.015	1.0	5	5730	260	1.5
6	3	90	0.015	1.2	6	4775	215	1.5
8	3	90	0.020	1.6	8	3580	215	3.0
10	3	90	0.030	2.0	10	2865	260	5.0
12	3	90	0.035	2.4	12	2385	250	7.0
16	3	90	0.045	3.2	16	1790	240	12.5
20	3	90	0.055	4.0	20	1430	235	19.0
Steel 850 - 1100 N/mm²								
3	3	60	0.010	0.6	3	6365	190	0.5
4	3	60	0.010	0.8	4	4775	145	0.5
5	3	60	0.015	1.0	5	3820	170	1.0
6	3	60	0.015	1.2	6	3185	145	1.0
8	3	60	0.020	1.6	8	2385	145	2.0
10	3	60	0.025	2.0	10	1910	145	3.0
12	3	60	0.030	2.4	12	1590	145	4.0
16	3	60	0.040	3.2	16	1195	145	7.5
20	3	60	0.050	4.0	20	955	145	11.5
Stainless steel [Cr-Ni/1.4301]								
3	3	35	0.010	0.6	3	3715	110	0.0
4	3	35	0.010	0.8	4	2785	85	0.5
5	3	35	0.015	1.0	5	2230	100	0.5
6	3	35	0.020	1.2	6	1855	110	1.0
8	3	35	0.025	1.6	8	1395	105	1.5
10	3	35	0.030	2.0	10	1115	100	2.0
12	3	35	0.035	2.4	12	930	100	3.0
16	3	35	0.050	3.2	16	695	105	5.5
20	3	35	0.060	4.0	20	555	100	8.0
Cast iron (lamellar / spheroidal)								
3	3	110	0.010	0.6	3	11670	350	0.5
4	3	110	0.010	0.8	4	8755	265	1.0
5	3	110	0.015	1.0	5	7005	315	1.5
6	3	110	0.015	1.2	6	5835	265	2.0
8	3	110	0.020	1.6	8	4375	265	3.5
10	3	110	0.025	2.0	10	3500	265	5.5
12	3	110	0.030	2.4	12	2920	265	7.5
16	3	110	0.040	3.2	16	2190	265	13.5
20	3	110	0.050	4.0	20	1750	265	21.0

Cylindrical end mills

Smooth-edged, normal version

HM | λ **35°** γ **12°**

45°



Roughing

Finishing

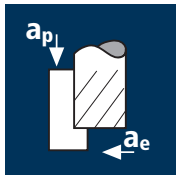
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **45330** ø-Code **.178**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	UNICUT-4X U45330
.178*	3	3	45	7	0.10	3	●
.218*	4	4	50	8	0.10	3	●
.258*	5	5	50	10	0.15	3	●
.300	6	6	57	10	0.15	3	●
.391	8	8	63	16	0.15	3	●
.450	10	10	72	19	0.20	3	●
.501	12	12	83	22	0.20	3	●
.610	16	16	92	26	0.20	3	●
.682	20	20	104	32	0.20	3	●

* without clamping flat only

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	4	65	0.005	3	0.05	10345	205
	4	4	65	0.010	6	0.10	5175	205
	5	4	65	0.015	8	0.15	4140	250
	6	4	65	0.015	9	0.15	3450	205
	8	4	65	0.025	12	0.20	2585	260
	10	4	65	0.030	15	0.25	2070	250
	12	4	65	0.035	18	0.30	1725	240
	16	4	65	0.045	24	0.40	1295	235
	20	4	65	0.055	30	0.50	1035	230
Steel 850 - 1100 N/mm²	2	4	54	0.005	3	0.05	8595	170
	4	4	54	0.010	6	0.10	4295	170
	5	4	54	0.015	8	0.15	3440	205
	6	4	54	0.015	9	0.15	2865	170
	8	4	54	0.025	12	0.20	2150	215
	10	4	54	0.030	15	0.25	1720	205
	12	4	54	0.035	18	0.30	1430	200
	16	4	54	0.045	24	0.40	1075	195
	20	4	54	0.055	30	0.50	860	190
Steel 1100 - 1300 N/mm²	2	4	42	0.005	3	0.05	6685	135
	4	4	42	0.010	6	0.10	3340	135
	5	4	42	0.015	8	0.15	2675	160
	6	4	42	0.015	9	0.15	2230	135
	8	4	42	0.025	12	0.20	1670	165
	10	4	42	0.030	15	0.25	1335	160
	12	4	42	0.035	18	0.30	1115	155
	16	4	42	0.045	24	0.40	835	150
	20	4	42	0.055	30	0.50	670	145
Cold work tool steel (12% Cr), high alloyed [1.2379]	2	4	30	0.005	3	0.05	4775	95
	4	4	30	0.010	6	0.10	2385	95
	5	4	30	0.015	8	0.15	1910	115
	6	4	30	0.015	9	0.15	1590	95
	8	4	30	0.025	12	0.20	1195	120
	10	4	30	0.030	15	0.25	955	115
	12	4	30	0.035	18	0.30	795	110
	16	4	30	0.045	24	0.40	595	105
	20	4	30	0.055	30	0.50	475	105

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	2	4	50	0.005	3	0.05	7960	160
	4	4	50	0.010	6	0.10	3980	160
	5	4	50	0.015	8	0.15	3185	190
	6	4	50	0.015	9	0.15	2655	160
	8	4	50	0.025	12	0.20	1990	200
	10	4	50	0.030	15	0.25	1590	190
	12	4	50	0.035	18	0.30	1325	185
	16	4	50	0.045	24	0.40	995	180
	20	4	50	0.055	30	0.50	795	175
Stainless steel [Cr-Ni/1.4301]	2	4	26	0.005	3	0.05	4140	85
	4	4	26	0.010	6	0.10	2070	85
	5	4	26	0.015	8	0.15	1655	100
	6	4	26	0.015	9	0.15	1380	85
	8	4	26	0.025	12	0.20	1035	105
	10	4	26	0.030	15	0.25	830	100
	12	4	26	0.035	18	0.30	690	95
	16	4	26	0.045	24	0.40	515	95
	20	4	26	0.055	30	0.50	415	90
Unalloyed copper	2	4	80	0.005	3	0.05	12735	255
	4	4	80	0.010	6	0.10	6365	255
	5	4	80	0.015	8	0.15	5095	305
	6	4	80	0.015	9	0.15	4245	255
	8	4	80	0.025	12	0.20	3185	320
	10	4	80	0.030	15	0.25	2545	305
	12	4	80	0.035	18	0.30	2120	295
	16	4	80	0.045	24	0.40	1590	285
	20	4	80	0.055	30	0.50	1275	280
Wrought aluminium alloys Si < 6%	2	4	100	0.005	3	0.05	15915	320
	4	4	100	0.010	6	0.10	7960	320
	5	4	100	0.015	8	0.15	6365	380
	6	4	100	0.015	9	0.15	5305	320
	8	4	100	0.025	12	0.20	3980	400
	10	4	100	0.030	15	0.25	3185	380
	12	4	100	0.035	18	0.30	2655	370
	16	4	100	0.045	24	0.40	1990	360
	20	4	100	0.055	30	0.50	1590	350

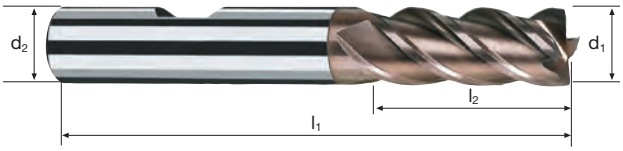
Cylindrical end mills

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 40° γ 15°**

90°



Roughing

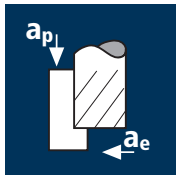
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0110** ø-Code **.100**

ø Code	d_1 k8	d_2 h6	l_1	l_2	α	z		UNICUT-4X U0110
.100	1.0	6	49	5	3.0°	4		●
.120	1.5	6	50	6	3.0°	4		●
.140	2.0	6	51	7	2.5°	4		●
.160	2.5	6	52	8	2.0°	4		●
.180	3.0	6	52	8	2.0°	4		●
.200	3.5	6	54	10	1.5°	4		●
.220	4.0	6	55	11	1.5°	4		●
.240	4.5	6	55	11	1.0°	4		●
.260	5.0	6	57	13	1.0°	4		●
.280	5.5	6	57	13	1.0°	4		●
.300	6.0	6	57	13	0.0°	4		●
.342	7.0	10	66	16	1.5°	4		●
.391	8.0	8	63	19	0.0°	4		●
.420	9.0	10	69	19	0.5°	4		●
.450	10.0	10	72	22	0.0°	4		●
.470	11.0	12	79	22	0.5°	4		●
.501	12.0	12	83	26	0.0°	4		●
.570	14.0	12	83	26	0.0°	4		●
.581	15.0	12	83	26	0.0°	4		●
.610	16.0	16	92	32	0.0°	4		●
.640	18.0	16	92	32	0.0°	4		●
.682	20.0	20	104	38	0.0°	4		●
.690	21.0	20	104	38	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	22	4	65	0.065	33	0.55	940	245
	24	4	65	0.070	36	0.60	860	240
	25	4	65	0.070	38	0.65	830	230
	28	6	65	0.080	42	0.70	740	355
	30	6	65	0.085	45	0.75	690	350
	32	6	65	0.090	48	0.80	645	350
	36	6	65	0.105	54	0.90	575	360
	40	6	65	0.115	60	1.00	515	355
Steel 850 - 1100 N/mm²	22	4	54	0.065	33	0.55	780	205
	24	4	54	0.070	36	0.60	715	200
	25	4	54	0.070	38	0.65	690	195
	28	6	54	0.080	42	0.70	615	295
	30	6	54	0.085	45	0.75	575	295
	32	6	54	0.090	48	0.80	535	290
	36	6	54	0.105	54	0.90	475	300
	40	6	54	0.115	60	1.00	430	295
Steel 1100 - 1300 N/mm²	22	4	42	0.065	33	0.55	610	160
	24	4	42	0.070	36	0.60	555	155
	25	4	42	0.070	38	0.65	535	150
	28	6	42	0.080	42	0.70	475	230
	30	6	42	0.085	45	0.75	445	225
	32	6	42	0.090	48	0.80	420	225
	36	6	42	0.105	54	0.90	370	235
	40	6	42	0.115	60	1.00	335	230
Cold work tool steel (12% Cr), high alloyed [1.2379]	22	4	30	0.065	33	0.55	435	115
	24	4	30	0.070	36	0.60	400	110
	25	4	30	0.070	38	0.65	380	105
	28	6	30	0.080	42	0.70	340	165
	30	6	30	0.085	45	0.75	320	165
	32	6	30	0.090	48	0.80	300	160
	36	6	30	0.105	54	0.90	265	165
	40	6	30	0.115	60	1.00	240	165

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	22	4	50	0.065	33	0.55	725	190
	24	4	50	0.070	36	0.60	665	185
	25	4	50	0.070	38	0.65	635	180
	28	6	50	0.080	42	0.70	570	275
	30	6	50	0.085	45	0.75	530	270
	32	6	50	0.090	48	0.80	495	265
	36	6	50	0.105	54	0.90	440	275
	40	6	50	0.115	60	1.00	400	275
Stainless steel [Cr-Ni/1.4301]	22	4	26	0.065	33	0.55	375	100
	24	4	26	0.070	36	0.60	345	95
	25	4	26	0.070	38	0.65	330	90
	28	6	26	0.080	42	0.70	295	140
	30	6	26	0.085	45	0.75	275	140
	32	6	26	0.090	48	0.80	260	140
	36	6	26	0.105	54	0.90	230	145
	40	6	26	0.115	60	1.00	205	140
Unalloyed copper	22	4	80	0.065	33	0.55	1160	300
	24	4	80	0.070	36	0.60	1060	295
	25	4	80	0.070	38	0.65	1020	285
	28	6	80	0.080	42	0.70	910	435
	30	6	80	0.085	45	0.75	850	435
	32	6	80	0.090	48	0.80	795	430
	36	6	80	0.105	54	0.90	705	445
	40	6	80	0.115	60	1.00	635	440
Wrought aluminium alloys Si < 6%	22	4	100	0.065	33	0.55	1445	375
	24	4	100	0.070	36	0.60	1325	370
	25	4	100	0.070	38	0.65	1275	355
	28	6	100	0.080	42	0.70	1135	545
	30	6	100	0.085	45	0.75	1060	540
	32	6	100	0.090	48	0.80	995	535
	36	6	100	0.105	54	0.90	885	560
	40	6	100	0.115	60	1.00	795	550

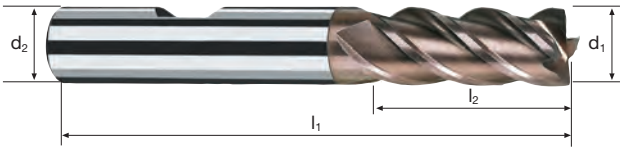
Cylindrical end mills

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 40° γ 15°**

90°



Roughing

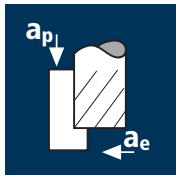
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0110** ø-Code **.710**

ø Code	d1 k8	d2 h6	l1	l2	α	z	UNICUT-4X U0110
.710	22.0	20	104	38	0.0°	4	●
.741	24.0	20	111	45	0.0°	4	●
.772	25.0	25	121	45	0.0°	4	●
.800	28.0	25	121	45	0.0°	6	●
.810	30.0	25	121	45	0.0°	6	●
.832	32.0	32	133	53	0.0°	6	●
.860	36.0	32	133	53	0.0°	6	●
.881	40.0	32	143	63	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Stainless steel [Cr-Ni/1.4301] U	6	4	29	0.015	9	0.15	1540	90
	8	4	29	0.025	12	0.20	1155	115
	10	4	29	0.030	15	0.25	925	110
	12	4	29	0.035	18	0.30	770	110
	14	4	29	0.040	21	0.35	660	105
	16	4	29	0.045	24	0.40	575	105
	18	4	29	0.050	27	0.45	515	105
	20	4	29	0.055	30	0.50	460	100
	25	6	29	0.070	38	0.65	370	155
Stainless steel [Cr-Ni-Mo-.../1.4571] U	6	4	23	0.015	9	0.15	1220	75
	8	4	23	0.025	12	0.20	915	90
	10	4	23	0.030	15	0.25	730	90
	12	4	23	0.035	18	0.30	610	85
	14	4	23	0.040	21	0.35	525	85
	16	4	23	0.045	24	0.40	460	85
	18	4	23	0.050	27	0.45	405	80
	20	4	23	0.055	30	0.50	365	80
	25	6	23	0.070	38	0.65	295	125
Titanium alloys >300 HB [Ti6Al4V] U	6	4	26	0.015	9	0.15	1380	85
	8	4	26	0.025	12	0.20	1035	105
	10	4	26	0.030	15	0.25	830	100
	12	4	26	0.035	18	0.30	690	95
	14	4	26	0.040	21	0.35	590	95
	16	4	26	0.045	24	0.40	515	95
	18	4	26	0.050	27	0.45	460	90
	20	4	26	0.055	30	0.50	415	90
	25	6	26	0.070	38	0.65	330	140
Titanium alloys up to 300 HB [Ti5Al2.5Sn] U	6	4	37	0.015	9	0.15	1965	120
	8	4	37	0.025	12	0.20	1470	145
	10	4	37	0.030	15	0.25	1180	140
	12	4	37	0.035	18	0.30	980	135
	14	4	37	0.040	21	0.35	840	135
	16	4	37	0.045	24	0.40	735	130
	18	4	37	0.050	27	0.45	655	130
	20	4	37	0.055	30	0.50	590	130
	25	6	37	0.070	38	0.65	470	195

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm² U	6	4	50	0.015	9	0.15	2655	160
	8	4	50	0.025	12	0.20	1990	200
	10	4	50	0.030	15	0.25	1590	190
	12	4	50	0.035	18	0.30	1325	185
	14	4	50	0.040	21	0.35	1135	180
	16	4	50	0.045	24	0.40	995	180
	18	4	50	0.050	27	0.45	885	175
	20	4	50	0.055	30	0.50	795	175
	25	6	50	0.070	38	0.65	635	265
Steel 850 - 1100 N/mm² U	6	4	40	0.015	9	0.15	2120	125
	8	4	40	0.025	12	0.20	1590	160
	10	4	40	0.030	15	0.25	1275	155
	12	4	40	0.035	18	0.30	1060	150
	14	4	40	0.040	21	0.35	910	145
	16	4	40	0.045	24	0.40	795	145
	18	4	40	0.050	27	0.45	705	140
	20	4	40	0.055	30	0.50	635	140
	25	6	40	0.070	38	0.65	510	215
Unalloyed copper U	6	4	80	0.015	9	0.15	4245	255
	8	4	80	0.025	12	0.20	3185	320
	10	4	80	0.030	15	0.25	2545	305
	12	4	80	0.035	18	0.30	2120	295
	14	4	80	0.040	21	0.35	1820	290
	16	4	80	0.045	24	0.40	1590	285
	18	4	80	0.050	27	0.45	1415	285
	20	4	80	0.055	30	0.50	1275	280
	25	6	80	0.070	38	0.65	1020	430
Wrought aluminium alloys Si < 6% U	6	4	100	0.015	9	0.15	5305	320
	8	4	100	0.025	12	0.20	3980	400
	10	4	100	0.030	15	0.25	3185	380
	12	4	100	0.035	18	0.30	2655	370
	14	4	100	0.040	21	0.35	2275	365
	16	4	100	0.045	24	0.40	1990	360
	18	4	100	0.050	27	0.45	1770	355
	20	4	100	0.055	30	0.50	1590	350
	25	6	100	0.070	38	0.65	1275	535

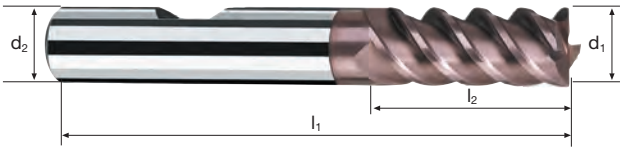
Cylindrical end mills

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation

HSS PM/F | **λ 55° γ 15°**

90°



Roughing

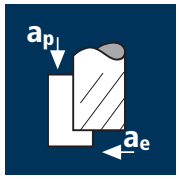
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **0115** | ø-Code **.300**

ø Code	d_1 k8	d_2 h6	l_1	l_2	α	z	UNICUT-4X U0115
.300	6	6	57	13	0.0°	4	●
.402	8	10	69	19	2.5°	4	●
.450	10	10	72	22	0.0°	4	●
.501	12	12	83	26	0.0°	4	●
.570	14	12	83	26	0.0°	4	●
.610	16	16	92	32	0.0°	4	●
.640	18	16	92	32	0.0°	4	●
.682	20	20	104	38	0.0°	4	●
.772	25	25	121	45	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	64	0.005	3.0	0.2	10185	155	0.1
	3	3	64	0.010	4.5	0.2	6790	205	0.2
	4	3	64	0.010	6.0	0.3	5095	155	0.3
	5	3	64	0.015	7.5	0.4	4075	185	0.5
	6	3	64	0.020	9.0	0.4	3395	205	0.7
	8	3	64	0.025	12.0	0.6	2545	190	1.3
	10	3	64	0.030	15.0	0.7	2035	185	1.9
	12	3	64	0.045	18.0	0.9	1700	230	3.5
	16	3	64	0.060	24.0	1.1	1275	230	6.1
Steel 850 - 1100 N/mm²	2	3	52	0.005	3.0	0.2	8275	125	0.1
	3	3	52	0.010	4.5	0.2	5520	165	0.1
	4	3	52	0.010	6.0	0.3	4140	125	0.2
	5	3	52	0.015	7.5	0.4	3310	150	0.4
	6	3	52	0.020	9.0	0.4	2760	165	0.6
	8	3	52	0.025	12.0	0.6	2070	155	1.0
	10	3	52	0.030	15.0	0.7	1655	150	1.6
	12	3	52	0.045	18.0	0.9	1380	185	2.8
	16	3	52	0.060	24.0	1.1	1035	185	4.9
Stainless steel [Cr-Ni/1.4301]	2	3	26	0.005	3.0	0.2	4140	60	0.1
	3	3	26	0.010	4.5	0.2	2760	85	0.1
	4	3	26	0.010	6.0	0.3	2070	60	0.1
	5	3	26	0.015	7.5	0.4	1655	75	0.2
	6	3	26	0.020	9.0	0.4	1380	85	0.3
	8	3	26	0.025	12.0	0.6	1035	80	0.5
	10	3	26	0.030	15.0	0.7	830	75	0.8
	12	3	26	0.045	18.0	0.9	690	95	1.5
	16	3	26	0.060	24.0	1.1	515	95	2.5
Cast iron (lamellar / spheroidal)	2	3	45	0.005	3.0	0.2	7160	105	0.1
	3	3	45	0.010	4.5	0.2	4775	145	0.1
	4	3	45	0.010	6.0	0.3	3580	105	0.2
	5	3	45	0.015	7.5	0.4	2865	130	0.3
	6	3	45	0.020	9.0	0.4	2385	145	0.5
	8	3	45	0.025	12.0	0.6	1790	135	0.9
	10	3	45	0.030	15.0	0.7	1430	130	1.4
	12	3	45	0.045	18.0	0.9	1195	160	2.4
	16	3	45	0.060	24.0	1.1	895	160	4.2

Application



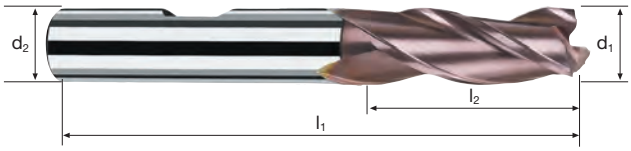
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	60	0.005	1.0	2	9550	145	0.3
	3	3	60	0.010	1.5	3	6365	190	0.9
	4	3	60	0.010	2.0	4	4775	145	1.2
	5	3	60	0.015	2.5	5	3820	170	2.1
	6	3	60	0.020	3.0	6	3185	190	3.4
	8	3	60	0.025	4.0	8	2385	180	5.8
	10	3	60	0.030	5.0	10	1910	170	8.5
	12	3	60	0.045	6.0	12	1590	215	15.5
	16	3	60	0.065	8.0	16	1195	235	30.1
Steel 850 - 1100 N/mm²	2	3	50	0.005	1.0	2	7960	120	0.2
	3	3	50	0.010	1.5	3	5305	160	0.7
	4	3	50	0.010	2.0	4	3980	120	1.0
	5	3	50	0.015	2.5	5	3185	145	1.8
	6	3	50	0.020	3.0	6	2655	160	2.9
	8	3	50	0.025	4.0	8	1990	150	4.8
	10	3	50	0.030	5.0	10	1590	145	7.3
	12	3	50	0.045	6.0	12	1325	180	13.0
	16	3	50	0.065	8.0	16	995	195	25.0
Stainless steel [Cr-Ni/1.4301]	2	3	23	0.005	1.0	2	3660	55	0.1
	3	3	23	0.010	1.5	3	2440	75	0.3
	4	3	23	0.010	2.0	4	1830	55	0.4
	5	3	23	0.015	2.5	5	1465	65	0.8
	6	3	23	0.020	3.0	6	1220	75	1.4
	8	3	23	0.025	4.0	8	915	70	2.2
	10	3	23	0.030	5.0	10	730	65	3.3
	12	3	23	0.045	6.0	12	610	80	5.8
	16	3	23	0.065	8.0	16	460	90	11.5
Cast iron (lamellar / spheroidal)	2	3	40	0.005	1.0	2	6365	95	0.2
	3	3	40	0.010	1.5	3	4245	125	0.6
	4	3	40	0.010	2.0	4	3185	95	0.8
	5	3	40	0.015	2.5	5	2545	115	1.4
	6	3	40	0.020	3.0	6	2120	125	2.3
	8	3	40	0.025	4.0	8	1590	120	3.8
	10	3	40	0.030	5.0	10	1275	115	5.8
	12	3	40	0.045	6.0	12	1060	145	10.4
	16	3	40	0.065	8.0	16	795	155	19.8

Cylindrical end mills

Smooth-edged, normal version

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

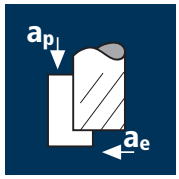
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless		**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0780** ø-Code **.100**

ø Code	d_1 f8	d_2 h6	l_1	l_2	α	z		UNICUT-4X U0780
.100	1.0	6	49	5	10.5°	3		●
.120	1.5	6	50	6	10.0°	3		●
.140	2.0	6	51	7	8.5°	3		●
.160	2.5	6	52	8	6.5°	3		●
.180	3.0	6	52	8	6.0°	3		●
.200	3.5	6	54	10	4.5°	3		●
.220	4.0	6	55	11	3.5°	3		●
.240	4.5	6	55	11	2.5°	3		●
.260	5.0	6	57	13	1.5°	3		●
.280	5.5	6	57	13	1.0°	3		●
.300	6.0	6	57	13	0.0°	3		●
.322	6.5	10	66	16	4.0°	3		●
.342	7.0	10	66	16	3.5°	3		●
.391	8.0	8	63	19	0.0°	3		●
.402	8.0	10	69	19	2.5°	3		●
.420	9.0	10	69	19	1.5°	3		●
.450	10.0	10	72	22	0.0°	3		●
.470	11.0	12	79	22	1.0°	3		●
.501	12.0	12	83	26	0.0°	3		●
.540	13.0	12	83	26	0.0°	3		●
.570	14.0	12	83	26	0.0°	3		●
.581	15.0	12	83	26	0.0°	3		●
.610	16.0	16	92	32	0.0°	3		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	18	3	64	0.070	27.0	1.3	1130	235	8.0
	20	3	64	0.080	30.0	1.4	1020	245	10.5
	22	3	64	0.085	33.0	1.6	925	235	12.0
	25	3	64	0.100	37.5	1.8	815	245	16.0
Steel 850 - 1100 N/mm²	18	3	52	0.070	27.0	1.3	920	195	6.5
	20	3	52	0.080	30.0	1.4	830	200	8.5
	22	3	52	0.085	33.0	1.6	750	190	9.5
	25	3	52	0.100	37.5	1.8	660	200	13.0
Stainless steel [Cr-Ni/1.4301]	18	3	26	0.070	27.0	1.3	460	95	3.0
	20	3	26	0.080	30.0	1.4	415	100	4.0
	22	3	26	0.085	33.0	1.6	375	95	5.0
	25	3	26	0.100	37.5	1.8	330	100	6.5
Cast iron (lamellar / spheroidal)	18	3	45	0.070	27.0	1.3	795	165	5.5
	20	3	45	0.080	30.0	1.4	715	170	7.0
	22	3	45	0.085	33.0	1.6	650	165	8.5
	25	3	45	0.100	37.5	1.8	575	175	11.5

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	18	3	60	0.070	9.0	18	1060	225	36.5
	20	3	60	0.080	10.0	20	955	230	46.0
	22	3	60	0.085	11.0	22	870	220	53.0
	25	3	60	0.100	12.5	25	765	230	72.0
Steel 850 - 1100 N/mm²	18	3	50	0.070	9.0	18	885	185	30.0
	20	3	50	0.080	10.0	20	795	190	38.0
	22	3	50	0.085	11.0	22	725	185	45.0
	25	3	50	0.100	12.5	25	635	190	59.5
Stainless steel [Cr-Ni/1.4301]	18	3	23	0.070	9.0	18	405	85	14.0
	20	3	23	0.080	10.0	20	365	90	18.0
	22	3	23	0.085	11.0	22	335	85	20.5
	25	3	23	0.100	12.5	25	295	90	28.0
Cast iron (lamellar / spheroidal)	18	3	40	0.070	9.0	18	705	150	24.5
	20	3	40	0.080	10.0	20	635	150	30.0
	22	3	40	0.085	11.0	22	580	150	36.5
	25	3	40	0.100	12.5	25	510	155	48.5

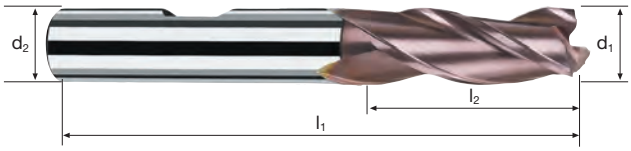
Cylindrical end mills

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

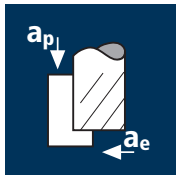
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0780** ø-Code **.640**

ø Code	d1 f8	d2 h6	l1	l2	α	z	UNICUT-4X U0780
.640	18.0	16	92	32	0.0°	3	●
.671	20.0	16	98	38	0.0°	3	●
.682	20.0	20	104	38	0.0°	3	●
.710	22.0	20	104	38	0.0°	3	●
.772	25.0	25	121	45	0.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	2	60	0.010	2.0	0.5	9550	190	0.2
	3	2	60	0.015	3.0	0.8	6365	190	0.4
	5	2	60	0.020	5.0	1.3	3820	155	1.0
	6	2	60	0.025	6.0	1.5	3185	160	1.4
	8	2	60	0.035	8.0	2.0	2385	165	2.6
	10	2	60	0.045	10.0	2.5	1910	170	4.3
	12	2	60	0.065	12.0	3.0	1590	205	7.4
	16	2	60	0.090	16.0	4.0	1195	215	13.8
	20	2	60	0.110	20.0	5.0	955	210	21.0
Steel 850 - 1100 N/mm²	2	2	48	0.010	2.0	0.5	7640	155	0.2
	3	2	48	0.015	3.0	0.8	5095	155	0.3
	5	2	48	0.020	5.0	1.3	3055	120	0.8
	6	2	48	0.025	6.0	1.5	2545	125	1.1
	8	2	48	0.035	8.0	2.0	1910	135	2.2
	10	2	48	0.045	10.0	2.5	1530	140	3.5
	12	2	48	0.065	12.0	3.0	1275	165	5.9
	16	2	48	0.090	16.0	4.0	955	170	10.9
	20	2	48	0.110	20.0	5.0	765	170	17.0
Stainless steel [Cr-Ni/1.4301]	2	2	25	0.010	2.0	0.5	3980	80	0.1
	3	2	25	0.015	3.0	0.8	2655	80	0.2
	5	2	25	0.020	5.0	1.3	1590	65	0.4
	6	2	25	0.025	6.0	1.5	1325	65	0.6
	8	2	25	0.035	8.0	2.0	995	70	1.1
	10	2	25	0.045	10.0	2.5	795	70	1.8
	12	2	25	0.065	12.0	3.0	665	85	3.1
	16	2	25	0.090	16.0	4.0	495	90	5.8
	20	2	25	0.110	20.0	5.0	400	90	9.0
Cast iron (lamellar / spheroidal)	2	2	42	0.010	2.0	0.5	6685	135	0.1
	3	2	42	0.015	3.0	0.8	4455	135	0.3
	5	2	42	0.020	5.0	1.3	2675	105	0.7
	6	2	42	0.025	6.0	1.5	2230	110	1.0
	8	2	42	0.035	8.0	2.0	1670	115	1.8
	10	2	42	0.045	10.0	2.5	1335	120	3.0
	12	2	42	0.065	12.0	3.0	1115	145	5.2
	16	2	42	0.090	16.0	4.0	835	150	9.6
	20	2	42	0.110	20.0	5.0	670	145	14.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	2	55	0.005	0.8	2	8755	90	0.1
	3	2	55	0.010	1.2	3	5835	115	0.4
	5	2	55	0.015	2.0	5	3500	105	1.1
	6	2	55	0.020	2.4	6	2920	115	1.7
	8	2	55	0.025	3.2	8	2190	110	2.8
	10	2	55	0.035	4.0	10	1750	125	5.0
	12	2	55	0.055	4.8	12	1460	160	9.2
	16	2	55	0.070	6.4	16	1095	155	15.9
	20	2	55	0.090	8.0	20	875	160	25.6
Steel 850 - 1100 N/mm²	2	2	45	0.005	0.8	2	7160	70	0.1
	3	2	45	0.010	1.2	3	4775	95	0.3
	5	2	45	0.015	2.0	5	2865	85	0.9
	6	2	45	0.020	2.4	6	2385	95	1.4
	8	2	45	0.025	3.2	8	1790	90	2.3
	10	2	45	0.035	4.0	10	1430	100	4.0
	12	2	45	0.055	4.8	12	1195	130	7.5
	16	2	45	0.070	6.4	16	895	125	12.8
	20	2	45	0.090	8.0	20	715	130	20.8
Stainless steel [Cr-Ni/1.4301]	2	2	22	0.005	0.8	2	3500	35	0.1
	3	2	22	0.010	1.2	3	2335	45	0.2
	5	2	22	0.015	2.0	5	1400	40	0.4
	6	2	22	0.020	2.4	6	1165	45	0.6
	8	2	22	0.025	3.2	8	875	45	1.2
	10	2	22	0.035	4.0	10	700	50	2.0
	12	2	22	0.055	4.8	12	585	65	3.7
	16	2	22	0.070	6.4	16	440	60	6.1
	20	2	22	0.090	8.0	20	350	65	10.4
Cast iron (lamellar / spheroidal)	2	2	36	0.005	0.8	2	5730	55	0.1
	3	2	36	0.010	1.2	3	3820	75	0.3
	5	2	36	0.015	2.0	5	2290	70	0.7
	6	2	36	0.020	2.4	6	1910	75	1.1
	8	2	36	0.025	3.2	8	1430	70	1.8
	10	2	36	0.035	4.0	10	1145	80	3.2
	12	2	36	0.055	4.8	12	955	105	6.0
	16	2	36	0.070	6.4	16	715	100	10.2
	20	2	36	0.090	8.0	20	575	105	16.8

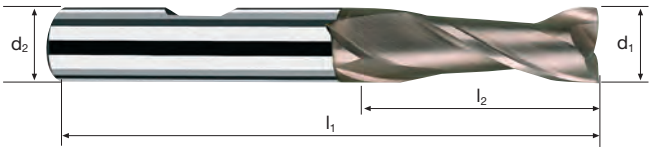
Cylindrical end mills

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

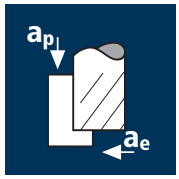
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless		**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **0770** | ø-Code **.100**

ø Code	d_1 f8	d_2 h6	l_1	l_2	α	z	UNICUT-4X U0770
.100	1.0	6	49	5	11.5°	2	●
.120	1.5	6	50	6	10.0°	2	●
.140	2.0	6	51	7	8.5°	2	●
.160	2.5	6	52	8	6.5°	2	●
.180	3.0	6	52	8	6.0°	2	●
.220	4.0	6	55	11	3.5°	2	●
.260	5.0	6	57	13	1.5°	2	●
.300	6.0	6	57	13	0.0°	2	●
.391	8.0	8	63	19	0.0°	2	●
.450	10.0	10	72	22	0.0°	2	●
.501	12.0	12	83	26	0.0°	2	●
.570	14.0	12	83	26	0.0°	2	●
.610	16.0	16	92	32	0.0°	2	●
.682	20.0	20	104	38	0.0°	2	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	4	200	0.020	3	1.4	21220	1700	7.0
4	4	200	0.030	4	1.8	15915	1910	14.0
5	4	200	0.040	5	2.3	12735	2040	23.0
6	4	200	0.050	6	2.7	10610	2120	34.5
8	4	200	0.065	8	3.6	7960	2070	59.5
10	4	200	0.080	10	4.5	6365	2035	91.5
12	4	200	0.095	12	5.4	5305	2015	130.5
16	4	200	0.125	16	7.2	3980	1990	229.0
20	4	200	0.155	20	9.0	3185	1975	355.5
Steel 850 - 1100 N/mm²								
3	4	150	0.020	3	1.4	15915	1275	5.0
4	4	150	0.030	4	1.8	11935	1430	10.5
5	4	150	0.040	5	2.3	9550	1530	17.0
6	4	150	0.050	6	2.7	7960	1590	26.0
8	4	150	0.065	8	3.6	5970	1550	44.5
10	4	150	0.080	10	4.5	4775	1530	69.0
12	4	150	0.095	12	5.4	3980	1510	98.0
16	4	150	0.125	16	7.2	2985	1495	172.0
20	4	150	0.155	20	9.0	2385	1480	266.5
Cold work tool steel (12% Cr), high alloyed [1.2379]								
3	4	80	0.020	3	1.4	8490	680	3.0
4	4	80	0.030	4	1.8	6365	765	5.5
5	4	80	0.035	5	2.3	5095	715	8.0
6	4	80	0.045	6	2.7	4245	765	12.5
8	4	80	0.060	8	3.6	3185	765	22.0
10	4	80	0.070	10	4.5	2545	715	32.0
12	4	80	0.085	12	5.4	2120	720	46.5
16	4	80	0.110	16	7.2	1590	700	80.5
20	4	80	0.140	20	9.0	1275	715	128.5
Stainless steel [Cr-Ni/1.4301]								
3	4	70	0.015	3	1.4	7425	445	2.0
4	4	70	0.020	4	1.8	5570	445	3.0
5	4	70	0.025	5	2.3	4455	445	5.0
6	4	70	0.030	6	2.7	3715	445	7.0
8	4	70	0.040	8	3.6	2785	445	13.0
10	4	70	0.050	10	4.5	2230	445	20.0
12	4	70	0.060	12	5.4	1855	445	29.0
16	4	70	0.075	16	7.2	1395	420	48.5
20	4	70	0.100	20	9.0	1115	445	80.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	4	180	0.015	2.4	3	19100	1145	8.0
4	4	180	0.020	3.2	4	14325	1145	14.5
5	4	180	0.030	4.0	5	11460	1375	27.5
6	4	180	0.040	4.8	6	9550	1530	44.0
8	4	180	0.050	6.4	8	7160	1430	73.0
10	4	180	0.065	8.0	10	5730	1490	119.0
12	4	180	0.075	9.6	12	4775	1435	165.5
16	4	180	0.075	8.0	16	3580	1075	137.5
20	4	180	0.095	10.0	20	2865	1090	218.0
Steel 850 - 1100 N/mm²								
3	4	120	0.015	2.4	3	12735	765	5.5
4	4	120	0.020	3.2	4	9550	765	10.0
5	4	120	0.030	4.0	5	7640	915	18.5
6	4	120	0.040	4.8	6	6365	1020	29.5
8	4	120	0.050	6.4	8	4775	955	49.0
10	4	120	0.065	8.0	10	3820	995	79.5
12	4	120	0.075	9.6	12	3185	955	110.0
16	4	120	0.075	8.0	16	2385	715	91.5
20	4	120	0.095	10.0	20	1910	725	145.0
Cold work tool steel (12% Cr), high alloyed [1.2379]								
3	4	60	0.015	2.4	3	6365	380	2.5
4	4	60	0.020	3.2	4	4775	380	5.0
5	4	60	0.030	4.0	5	3820	460	9.0
6	4	60	0.035	4.8	6	3185	445	13.0
8	4	60	0.045	6.4	8	2385	430	22.0
10	4	60	0.055	8.0	10	1910	420	33.5
12	4	60	0.060	9.6	12	1590	380	44.0
16	4	60	0.075	8.0	16	1195	360	46.0
20	4	60	0.095	10.0	20	955	365	73.0
Stainless steel [Cr-Ni/1.4301]								
3	4	50	0.015	2.4	3	5305	320	2.5
4	4	50	0.020	3.2	4	3980	320	4.0
5	4	50	0.025	4.0	5	3185	320	6.5
6	4	50	0.030	4.8	6	2655	320	9.0
8	4	50	0.040	6.4	8	1990	320	16.5
10	4	50	0.050	8.0	10	1590	320	25.5
12	4	50	0.055	9.6	12	1325	290	33.5
16	4	50	0.070	8.0	16	995	280	36.0
20	4	50	0.085	10.0	20	795	270	54.0

Cylindrical end mills NX-V

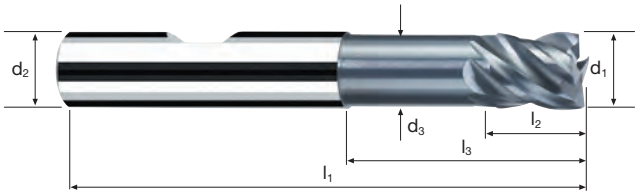
Smooth-edged, normal version with neck

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

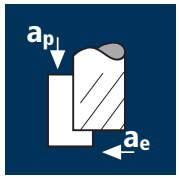
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **5325** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	POLYCHROM P5325	POLYCHROM P5225
.180	3	6	2.8	57	4	14	0.10	4.5°	4		●
.220	4	6	3.7	57	5	16	0.10	3.0°	4		●
.260	5	6	4.6	57	6	18	0.15	1.5°	4		●
.300	6	6	5.5	57	7	20	0.15	0.0°	4		●
.391	8	8	7.4	63	9	26	0.15	0.0°	4		●
.450	10	10	9.2	72	11	31	0.20	0.0°	4		●
.501	12	12	11.0	83	13	37	0.20	0.0°	4		●
.610	16	16	15.0	92	17	43	0.20	0.0°	4		●
.682	20	20	19.0	104	21	53	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	200	0.020	3	1.4	21220	1700	7.0
	4	4	200	0.030	4	1.8	15915	1910	14.0
	5	4	200	0.040	5	2.3	12735	2040	23.0
	6	4	200	0.050	6	2.7	10610	2120	34.5
	8	4	200	0.065	8	3.6	7960	2070	59.5
	10	4	200	0.080	10	4.5	6365	2035	91.5
	12	4	200	0.095	12	5.4	5305	2015	130.5
	16	4	200	0.125	16	7.2	3980	1990	229.0
	20	4	200	0.155	20	9.0	3185	1975	355.5
Steel 850 - 1100 N/mm²	3	4	150	0.020	3	1.4	15915	1275	5.0
	4	4	150	0.030	4	1.8	11935	1430	10.5
	5	4	150	0.040	5	2.3	9550	1530	17.0
	6	4	150	0.050	6	2.7	7960	1590	26.0
	8	4	150	0.065	8	3.6	5970	1550	44.5
	10	4	150	0.080	10	4.5	4775	1530	69.0
	12	4	150	0.095	12	5.4	3980	1510	98.0
	16	4	150	0.125	16	7.2	2985	1495	172.0
	20	4	150	0.155	20	9.0	2385	1480	266.5
Cold work tool steel (12% Cr) high alloyed [1.2379]	3	4	80	0.020	3	1.4	8490	680	3.0
	4	4	80	0.030	4	1.8	6365	765	5.5
	5	4	80	0.035	5	2.3	5095	715	8.0
	6	4	80	0.045	6	2.7	4245	765	12.5
	8	4	80	0.060	8	3.6	3185	765	22.0
	10	4	80	0.070	10	4.5	2545	715	32.0
	12	4	80	0.085	12	5.4	2120	720	46.5
	16	4	80	0.110	16	7.2	1590	700	80.5
	20	4	80	0.140	20	9.0	1275	715	128.5
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.015	3	1.4	7425	445	2.0
	4	4	70	0.020	4	1.8	5570	445	3.0
	5	4	70	0.025	5	2.3	4455	445	5.0
	6	4	70	0.030	6	2.7	3715	445	7.0
	8	4	70	0.040	8	3.6	2785	445	13.0
	10	4	70	0.050	10	4.5	2230	445	20.0
	12	4	70	0.060	12	5.4	1855	445	29.0
	16	4	70	0.075	16	7.2	1395	420	48.5
	20	4	70	0.100	20	9.0	1115	445	80.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	180	0.015	2.4	3	19100	1145	8.0
	4	4	180	0.020	3.2	4	14325	1145	14.5
	5	4	180	0.030	4.0	5	11460	1375	27.5
	6	4	180	0.040	4.8	6	9550	1530	44.0
	8	4	180	0.050	6.4	8	7160	1430	73.0
	10	4	180	0.065	8.0	10	5730	1490	119.0
	12	4	180	0.075	9.6	12	4775	1435	165.5
	16	4	180	0.075	8.0	16	3580	1075	137.5
	20	4	180	0.095	10.0	20	2865	1090	218.0
Steel 850 - 1100 N/mm²	3	4	120	0.015	2.4	3	12735	765	5.5
	4	4	120	0.020	3.2	4	9550	765	10.0
	5	4	120	0.030	4.0	5	7640	915	18.5
	6	4	120	0.040	4.8	6	6365	1020	29.5
	8	4	120	0.050	6.4	8	4775	955	49.0
	10	4	120	0.065	8.0	10	3820	995	79.5
	12	4	120	0.075	9.6	12	3185	955	110.0
	16	4	120	0.075	8.0	16	2385	715	91.5
	20	4	120	0.095	10.0	20	1910	725	145.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	3	4	60	0.015	2.4	3	6365	380	2.5
	4	4	60	0.020	3.2	4	4775	380	5.0
	5	4	60	0.030	4.0	5	3820	460	9.0
	6	4	60	0.035	4.8	6	3185	445	13.0
	8	4	60	0.045	6.4	8	2385	430	22.0
	10	4	60	0.055	8.0	10	1910	420	33.5
	12	4	60	0.060	9.6	12	1590	380	44.0
	16	4	60	0.075	8.0	16	1195	360	46.0
	20	4	60	0.095	10.0	20	955	365	73.0
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.015	2.4	3	5305	320	2.5
	4	4	50	0.020	3.2	4	3980	320	4.0
	5	4	50	0.025	4.0	5	3185	320	6.5
	6	4	50	0.030	4.8	6	2655	320	9.0
	8	4	50	0.040	6.4	8	1990	320	16.5
	10	4	50	0.050	8.0	10	1590	320	25.5
	12	4	50	0.055	9.6	12	1325	290	33.5
	16	4	50	0.070	8.0	16	995	280	36.0
	20	4	50	0.085	10.0	20	795	270	54.0

Cylindrical end mills NX-V

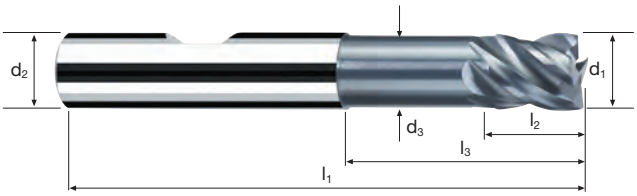
Smooth-edged, normal version with neck

HM
MG10

λ **40°**
γ **0°**

45°

Vario



new!

Roughing

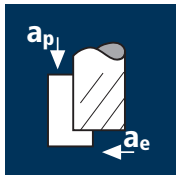
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** — Coating **P** | Article-N°. **15352** | ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	POLYCHROM P15352	POLYCHROM P15252
.180	3	6	2.8	57	4	14	0.10	4.5°	4		●
.220	4	6	3.7	57	5	16	0.10	3.0°	4		●
.260	5	6	4.6	57	6	18	0.15	1.5°	4		●
.300	6	6	5.5	57	7	20	0.15	0.0°	4		●
.391	8	8	7.4	63	9	26	0.15	0.0°	4		●
.450	10	10	9.2	72	11	31	0.20	0.0°	4		●
.501	12	12	11.0	83	13	37	0.20	0.0°	4		●
.610	16	16	15.0	92	17	43	0.20	0.0°	4		●
.682	20	20	19.0	104	21	53	0.20	0.0°	4		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	210	0.035	6	2.4	11140	1560	22.5
8	4	210	0.045	8	3.2	8355	1505	38.5
10	4	210	0.055	10	4.0	6685	1470	59.0
12	4	210	0.065	12	4.8	5570	1450	83.5
16	4	210	0.090	16	6.4	4180	1505	154.0
20	4	210	0.110	20	8.0	3340	1470	235.0
Steel 850 - 1100 N/mm²								
6	4	160	0.035	6	2.4	8490	1190	17.0
8	4	160	0.045	8	3.2	6365	1145	29.5
10	4	160	0.055	10	4.0	5095	1120	45.0
12	4	160	0.065	12	4.8	4245	1105	63.5
16	4	160	0.090	16	6.4	3185	1145	117.0
20	4	160	0.110	20	8.0	2545	1120	179.0
Cold work tool steel (12% Cr), high alloyed [1.2379]								
6	4	90	0.030	6	2.4	4775	575	8.5
8	4	90	0.040	8	3.2	3580	575	14.5
10	4	90	0.050	10	4.0	2865	575	23.0
12	4	90	0.060	12	4.8	2385	570	33.0
16	4	90	0.075	16	6.4	1790	535	55.0
20	4	90	0.100	20	8.0	1430	570	91.0
Stainless steel [Cr-Ni/1.4301]								
6	4	80	0.020	6	2.4	4245	340	5.0
8	4	80	0.030	8	3.2	3185	380	9.5
10	4	80	0.035	10	4.0	2545	355	14.0
12	4	80	0.040	12	4.8	2120	340	19.5
16	4	80	0.055	16	6.4	1590	350	36.0
20	4	80	0.070	20	8.0	1275	355	57.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	190	0.030	4.2	6	10080	1210	30.5
8	4	190	0.035	5.6	8	7560	1060	47.5
10	4	190	0.045	7.0	10	6050	1090	76.5
12	4	190	0.055	8.4	12	5040	1110	112.0
16	4	190	0.055	11.2	16	3780	830	148.5
20	4	190	0.065	9.0	20	3025	785	141.5
Steel 850 - 1100 N/mm²								
6	4	130	0.030	4.2	6	6895	825	21.0
8	4	130	0.035	5.6	8	5175	725	32.5
10	4	130	0.045	7.0	10	4140	745	52.0
12	4	130	0.055	8.4	12	3450	760	76.5
16	4	130	0.055	11.2	16	2585	570	102.0
20	4	130	0.065	9.0	20	2070	540	97.0
Cold work tool steel (12% Cr), high alloyed [1.2379]								
6	4	70	0.025	4.2	6	3715	370	9.5
8	4	70	0.030	5.6	8	2785	335	15.0
10	4	70	0.040	7.0	10	2230	355	25.0
12	4	70	0.040	8.4	12	1855	295	29.5
16	4	70	0.055	11.2	16	1395	305	54.5
20	4	70	0.065	9.0	20	1115	290	52.0
Stainless steel [Cr-Ni/1.4301]								
6	4	60	0.020	4.2	6	3185	255	6.5
8	4	60	0.030	5.6	8	2385	285	13.0
10	4	60	0.035	7.0	10	1910	265	18.5
12	4	60	0.040	8.4	12	1590	255	25.5
16	4	60	0.050	11.2	16	1195	240	43.0
20	4	60	0.060	9.0	20	955	230	41.5

Cylindrical end mills NX-V

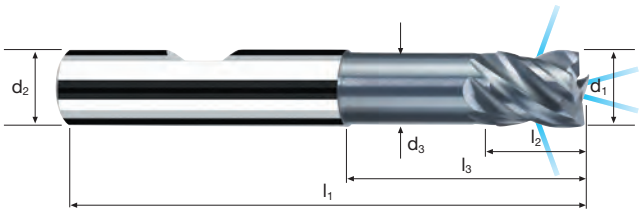
Smooth-edged, normal version with neck, with integral air / cooling channel

HM
MG10

λ **40°**
γ **0°**

45°

Vario



Roughing

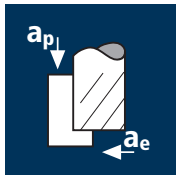
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **15302** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P15302	POLYCHROM P15202
.300	6	6	5.5	57	7	20	0.15	4		●
.391	8	8	7.4	63	9	26	0.15	4		●
.450	10	10	9.2	72	11	31	0.20	4		●
.501	12	12	11.0	83	13	37	0.20	4		●
.610	16	16	15.0	92	17	43	0.20	4		●
.682	20	20	19.0	104	21	53	0.20	4		●

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel 850 - 1100 N/mm²								
4	4	160	0.025	4	2.6	12735	1275	13.5
5	4	160	0.035	5	3.3	10185	1425	23.0
6	4	160	0.040	6	3.9	8490	1360	32.0
8	4	160	0.055	8	5.2	6365	1400	58.0
10	4	160	0.065	10	6.5	5095	1325	86.0
12	4	160	0.080	12	7.8	4245	1360	127.5
16	4	160	0.090	16	10.4	3185	1145	190.5
20	4	160	0.110	20	13.0	2545	1120	291.0
Steel 1100 - 1300 N/mm²								
4	4	120	0.025	4	2.6	9550	955	10.0
5	4	120	0.035	5	3.3	7640	1070	17.5
6	4	120	0.040	6	3.9	6365	1020	24.0
8	4	120	0.055	8	5.2	4775	1050	43.5
10	4	120	0.065	10	6.5	3820	995	64.5
12	4	120	0.080	12	7.8	3185	1020	95.5
16	4	120	0.090	16	10.4	2385	860	143.0
20	4	120	0.110	20	13.0	1910	840	218.5
Steel 1300 - 1500 N/mm²								
4	4	90	0.025	4	2.6	7160	715	7.5
5	4	90	0.030	5	3.3	5730	690	11.0
6	4	90	0.035	6	3.9	4775	670	15.5
8	4	90	0.045	8	5.2	3580	645	27.0
10	4	90	0.060	10	6.5	2865	690	45.0
12	4	90	0.070	12	7.8	2385	670	62.5
16	4	90	0.080	16	10.4	1790	575	95.5
20	4	90	0.100	20	13.0	1430	570	148.0
Titanium alloys >300 HB [Ti6Al4V]								
4	4	40	0.015	4	2.6	3185	190	2.0
5	4	40	0.020	5	3.3	2545	205	3.5
6	4	40	0.020	6	3.9	2120	170	4.0
8	4	40	0.025	8	5.2	1590	160	6.5
10	4	40	0.035	10	6.5	1275	180	11.5
12	4	40	0.040	12	7.8	1060	170	16.0
16	4	40	0.050	16	10.4	795	160	26.5
20	4	40	0.060	20	13.0	635	150	39.0

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel 850 - 1100 N/mm²								
4	4	130	0.020	3.6	4	10345	830	12.0
5	4	130	0.025	4.5	5	8275	830	18.5
6	4	130	0.035	5.4	6	6895	965	31.5
8	4	130	0.045	7.2	8	5175	930	53.5
10	4	130	0.055	9.0	10	4140	910	82.0
12	4	130	0.065	10.8	12	3450	895	116.0
16	4	130	0.075	12.8	16	2585	775	158.5
20	4	130	0.095	16.0	20	2070	785	251.0
Steel 1100 - 1300 N/mm²								
4	4	100	0.020	3.6	4	7960	635	9.0
5	4	100	0.025	4.5	5	6365	635	14.5
6	4	100	0.035	5.4	6	5305	745	24.0
8	4	100	0.045	7.2	8	3980	715	41.0
10	4	100	0.055	9.0	10	3185	700	63.0
12	4	100	0.065	10.8	12	2655	690	89.5
16	4	100	0.075	12.8	16	1990	595	122.0
20	4	100	0.095	16.0	20	1590	605	193.5
Steel 1300 - 1500 N/mm²								
4	4	70	0.020	3.6	4	5570	445	6.5
5	4	70	0.025	4.5	5	4455	445	10.0
6	4	70	0.030	5.4	6	3715	445	14.5
8	4	70	0.040	7.2	8	2785	445	25.5
10	4	70	0.050	9.0	10	2230	445	40.0
12	4	70	0.060	10.8	12	1855	445	57.5
16	4	70	0.070	12.8	16	1395	390	80.0
20	4	70	0.085	16.0	20	1115	380	121.5
Titanium alloys >300 HB [Ti6Al4V]								
4	4	30	0.015	3.6	4	2385	145	2.0
5	4	30	0.020	4.5	5	1910	155	3.5
6	4	30	0.020	5.4	6	1590	125	4.0
8	4	30	0.030	7.2	8	1195	145	8.5
10	4	30	0.035	9.0	10	955	135	12.0
12	4	30	0.040	10.8	12	795	125	16.0
16	4	30	0.050	12.8	16	595	120	24.5
20	4	30	0.060	16.0	20	475	115	37.0

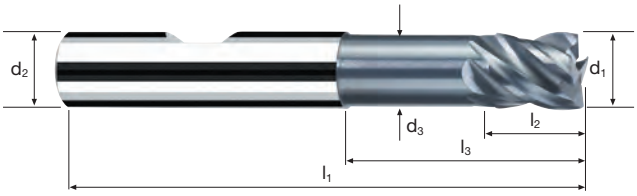
Cylindrical end mills NX-VD

Smooth-edged, normal version with neck

HM MG10 | λ 45° γ -10°

45°

Vario



Roughing

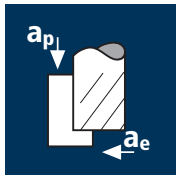
Finishing

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56				Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** Article-N°. **15342** ø-Code **.220**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P15342	P15242
.220	4	6	3.7	57	6	16	0.10	3.0°	4		●
.260	5	6	4.6	57	8	18	0.15	1.5°	4		●
.300	6	6	5.5	57	9	20	0.15	0.0°	4		●
.391	8	8	7.4	63	12	26	0.15	0.0°	4		●
.450	10	10	9.2	72	15	31	0.20	0.0°	4		●
.501	12	12	11.0	83	18	37	0.20	0.0°	4		●
.610	16	16	15.0	92	24	43	0.20	0.0°	4		●
.682	20	20	19.0	104	30	53	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	3	4	120	0.025	3	1.8	12735	1275	7.0
	4	4	120	0.035	4	2.4	9550	1335	13.0
	5	4	120	0.040	5	3.0	7640	1220	18.5
	6	4	120	0.050	6	3.6	6365	1275	27.5
	8	4	120	0.065	8	4.8	4775	1240	47.5
	10	4	120	0.085	10	6.0	3820	1300	78.0
	12	4	120	0.100	12	7.2	3185	1275	110.0
	16	4	120	0.135	16	4.0	2385	1290	82.5
	20	4	120	0.165	20	5.0	1910	1260	126.0
Hardened tool steel 48 - 52 HRC	3	4	80	0.015	3	1.8	8490	510	3.0
	4	4	80	0.020	4	2.4	6365	510	5.0
	5	4	80	0.030	5	3.0	5095	610	9.0
	6	4	80	0.035	6	3.6	4245	595	13.0
	8	4	80	0.045	8	4.8	3185	575	22.0
	10	4	80	0.055	10	6.0	2545	560	33.5
	12	4	80	0.065	12	7.2	2120	550	47.5
	16	4	80	0.090	16	4.0	1590	570	36.5
	20	4	80	0.110	20	5.0	1275	560	56.0
Hardened tool steel 52 - 56 HRC	3	4	60	0.015	3	1.8	6365	380	2.0
	4	4	60	0.020	4	2.4	4775	380	3.5
	5	4	60	0.025	5	3.0	3820	380	5.5
	6	4	60	0.025	6	3.6	3185	320	7.0
	8	4	60	0.035	8	4.8	2385	335	13.0
	10	4	60	0.045	10	6.0	1910	345	20.5
	12	4	60	0.055	12	3.0	1590	350	12.5
	16	4	60	0.075	16	4.0	1195	360	23.0
	20	4	60	0.090	20	5.0	955	345	34.5
Hardened tool steel 56 - 60 HRC	3	4	30	0.010	3	1.8	3185	127	0.5
	4	4	30	0.015	4	2.4	2385	143	1.5
	5	4	30	0.015	5	3.0	1910	115	1.5
	6	4	30	0.020	6	3.6	1590	127	2.5
	8	4	30	0.025	8	4.8	1195	120	4.5
	10	4	30	0.035	10	6.0	955	134	8.0
	12	4	30	0.040	12	3.0	795	127	4.5
	16	4	30	0.055	16	4.0	595	131	8.5
	20	4	30	0.065	20	5.0	475	124	12.5

Application



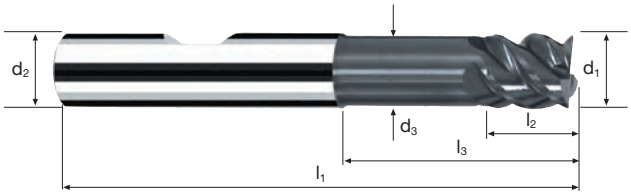
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	3	4	100	0.020	1.5	3	10610	850	4.0
	4	4	100	0.025	2.0	4	7960	795	6.5
	5	4	100	0.035	2.5	5	6365	890	11.0
	6	4	100	0.040	3.0	6	5305	850	15.5
	8	4	100	0.055	4.0	8	3980	875	28.0
	10	4	100	0.065	5.0	10	3185	830	41.5
	12	4	100	0.080	6.0	12	2655	850	61.0
	16	4	100	0.105	4.0	16	1990	835	53.5
	20	4	100	0.135	5.0	20	1590	860	86.0
Hardened tool steel 48 - 52 HRC	3	4	60	0.015	1.5	3	6365	380	1.5
	4	4	60	0.020	2.0	4	4775	380	3.0
	5	4	60	0.025	2.5	5	3820	380	5.0
	6	4	60	0.030	3.0	6	3185	380	7.0
	8	4	60	0.040	4.0	8	2385	380	12.0
	10	4	60	0.050	5.0	10	1910	380	19.0
	12	4	60	0.060	6.0	12	1590	380	27.5
	16	4	60	0.080	4.0	16	1195	380	24.5
	20	4	60	0.100	5.0	20	955	380	38.0
Hardened tool steel 52 - 56 HRC	3	4	40	0.010	1.5	3	4245	170	1.0
	4	4	40	0.015	2.0	4	3185	190	1.5
	5	4	40	0.020	2.5	5	2545	205	2.5
	6	4	40	0.025	3.0	6	2120	210	4.0
	8	4	40	0.030	4.0	8	1590	190	6.0
	10	4	40	0.040	5.0	10	1275	205	10.5
	12	4	40	0.050	6.0	12	1060	210	15.0
	16	4	40	0.065	4.0	16	795	205	13.0
	20	4	40	0.080	5.0	20	635	205	20.5
Hardened tool steel 56 - 60 HRC	3	4	20	0.009	1.5	3	2120	76	0.3
	4	4	20	0.011	2.0	4	1590	70	0.5
	5	4	20	0.014	2.5	5	1275	71	1.0
	6	4	20	0.017	3.0	6	1060	72	1.5
	8	4	20	0.023	4.0	8	795	73	2.5
	10	4	20	0.029	5.0	10	635	74	3.5
	12	4	20	0.034	6.0	12	530	72	5.0
	16	4	20	0.046	4.0	16	400	74	4.5
	20	4	20	0.057	5.0	20	320	73	7.5

Cylindrical end mills HX

Smooth-edged, normal version with neck

HM MG10 | λ 55° γ -10°

45°



Roughing

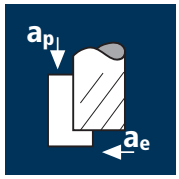
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **5348** | ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P5348 / P5248	DURO-S D5348 / D5248
.180	3	6	2.8	57	4	14	0.10	4.5°	4	●	●
.220	4	6	3.7	57	5	16	0.10	3.0°	4	●	●
.260	5	6	4.6	57	6	18	0.15	1.5°	4	●	●
.300	6	6	5.5	57	7	20	0.15	0.0°	4	●	●
.391	8	8	7.4	63	9	26	0.15	0.0°	4	●	●
.450	10	10	9.2	72	11	31	0.20	0.0°	4	●	●
.501	12	12	11.0	83	13	37	0.20	0.0°	4	●	●
.610	16	16	15.0	92	17	43	0.20	0.0°	4	●	●
.682	20	20	19.0	104	21	53	0.20	0.0°	4	●	●
.772	25	25	24.0	121	26	64	0.25	0.0°	4	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 48 - 52 HRC	3	4	90	0.020	3	1.2	9550	765	3.0
	4	4	90	0.025	4	1.6	7160	715	4.5
	5	4	90	0.030	5	2.0	5730	690	7.0
	6	4	90	0.040	6	2.4	4775	765	11.0
	8	4	90	0.050	8	3.2	3580	715	18.5
	10	4	90	0.065	10	4.0	2865	745	30.0
	12	4	90	0.075	12	4.8	2385	715	41.0
	16	4	90	0.100	16	4.0	1790	715	46.0
	20	4	90	0.125	20	5.0	1430	715	71.5
Hardened tool steel 52 - 56 HRC	3	4	70	0.015	3	1.2	7425	445	1.5
	4	4	70	0.020	4	1.6	5570	445	3.0
	5	4	70	0.030	5	2.0	4455	535	5.5
	6	4	70	0.035	6	2.4	3715	520	7.5
	8	4	70	0.045	8	3.2	2785	500	13.0
	10	4	70	0.055	10	4.0	2230	490	19.5
	12	4	70	0.065	12	3.0	1855	480	17.5
	16	4	70	0.090	16	4.0	1395	500	32.0
	20	4	70	0.110	20	5.0	1115	490	49.0
Hardened tool steel 56 - 60 HRC	3	4	35	0.015	3	1.2	3715	225	1.0
	4	4	35	0.020	4	1.6	2785	225	1.5
	5	4	35	0.025	5	2.0	2230	225	2.5
	6	4	35	0.025	6	2.4	1855	185	2.5
	8	4	35	0.035	8	3.2	1395	195	5.0
	10	4	35	0.045	10	4.0	1115	200	8.0
	12	4	35	0.055	12	3.0	930	205	7.5
	16	4	35	0.075	16	4.0	695	210	13.5
	20	4	35	0.090	20	5.0	555	200	20.0
Hardened tool steel > 60 HRC	3	4	25	0.010	3	1.2	2655	106	0.5
	4	4	25	0.010	4	1.6	1990	80	0.5
	5	4	25	0.015	5	2.0	1590	95	1.0
	6	4	25	0.015	6	2.4	1325	80	1.0
	8	4	25	0.025	8	3.2	995	100	2.5
	10	4	25	0.030	10	4.0	795	95	4.0
	12	4	25	0.035	12	3.0	665	93	3.5
	16	4	25	0.045	16	4.0	495	89	5.5
	20	4	25	0.055	20	5.0	400	88	9.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 48 - 52 HRC	3	4	70	0.015	1.5	3	7425	445	2.0
	4	4	70	0.020	2.0	4	5570	445	3.5
	5	4	70	0.030	2.5	5	4455	535	6.5
	6	4	70	0.035	3.0	6	3715	520	9.5
	8	4	70	0.045	4.0	8	2785	500	16.0
	10	4	70	0.055	5.0	10	2230	490	24.5
	12	4	70	0.065	6.0	12	1855	480	34.5
	16	4	70	0.090	4.0	16	1395	500	32.0
	20	4	70	0.110	5.0	20	1115	490	49.0
Hardened tool steel 52 - 56 HRC	3	4	50	0.015	1.5	3	5305	320	1.5
	4	4	50	0.020	2.0	4	3980	320	2.5
	5	4	50	0.025	2.5	5	3185	320	4.0
	6	4	50	0.025	3.0	6	2655	265	5.0
	8	4	50	0.035	4.0	8	1990	280	9.0
	12	4	50	0.055	6.0	12	1325	290	21.0
	16	4	50	0.075	4.0	16	995	300	19.0
	20	4	50	0.090	5.0	20	795	285	28.5
Hardened tool steel 56 - 60 HRC	3	4	30	0.010	1.5	3	3185	125	0.5
	4	4	30	0.013	2.0	4	2385	125	1.0
	5	4	30	0.017	2.5	5	1910	130	1.5
	6	4	30	0.020	3.0	6	1590	125	2.5
	8	4	30	0.027	4.0	8	1195	130	4.0
	10	4	30	0.033	5.0	10	955	125	6.5
	12	4	30	0.040	6.0	12	795	125	9.0
	16	4	30	0.053	4.0	16	595	125	8.0
	20	4	30	0.067	5.0	20	475	125	12.5
Hardened tool steel > 60 HRC	3	4	20	0.008	1.5	3	2120	68	0.5
	4	4	20	0.011	2.0	4	1590	70	0.5
	5	4	20	0.013	2.5	5	1275	66	1.0
	6	4	20	0.016	3.0	6	1060	68	1.0
	8	4	20	0.021	4.0	8	795	67	2.0
	10	4	20	0.026	5.0	10	635	66	3.5
	12	4	20	0.032	6.0	12	530	68	5.0
	16	4	20	0.042	4.0	16	400	67	4.5
	20	4	20	0.053	5.0	20	320	68	7.0

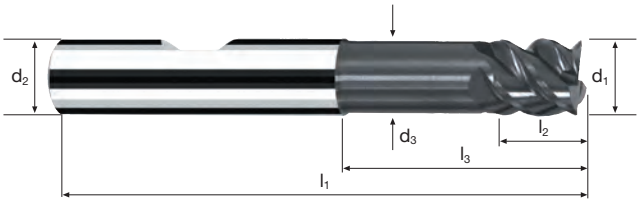
Cylindrical end mills HX-H

Smooth-edged, normal version with neck

HSS | Favora® | Base-X | X-Generation X

HM XT | λ 55° γ-10°

45°



Roughing

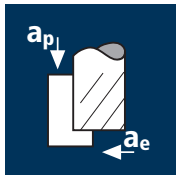
Finishing

			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS

Example: **Order-N°.** Coating **D** | Article-N°. **5344** | ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	DURO-S D5344	DURO-S D5244
.180	3	6	2.8	57	4	14	0.10	4.5°	4		●
.220	4	6	3.7	57	5	16	0.10	3.0°	4		●
.260	5	6	4.6	57	6	18	0.15	1.5°	4		●
.300	6	6	5.5	57	7	20	0.15	0.0°	4		●
.391	8	8	7.4	63	9	26	0.15	0.0°	4		●
.450	10	10	9.2	72	11	31	0.20	0.0°	4		●
.501	12	12	11.0	83	13	37	0.20	0.0°	4		●
.610	16	16	15.0	92	17	43	0.20	0.0°	4		●
.682	20	20	19.0	104	21	53	0.20	0.0°	4		●

Application



Material	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	80	0.015	3	1.2	8490	510	2.0
	4	4	80	0.020	4	1.6	6365	510	3.5
	5	4	80	0.025	5	2.0	5095	510	5.0
	6	4	80	0.030	6	2.4	4245	510	7.5
	8	4	80	0.040	8	3.2	3185	510	13.0
	10	4	80	0.055	10	4.0	2545	560	22.5
	12	4	80	0.065	12	4.8	2120	550	31.5
	16	4	80	0.085	16	4.0	1590	540	34.5
	20	4	80	0.090	20	5.0	1275	460	46.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	40	0.015	3	1.2	4245	255	1.0
	4	4	40	0.020	4	1.6	3185	255	1.5
	5	4	40	0.025	5	2.0	2545	255	2.5
	6	4	40	0.030	6	2.4	2120	255	3.5
	8	4	40	0.040	8	3.2	1590	255	6.5
	10	4	40	0.055	10	4.0	1275	280	11.0
	12	4	40	0.065	12	4.8	1060	275	16.0
	16	4	40	0.085	16	4.0	795	270	17.5
	20	4	40	0.090	20	5.0	635	230	23.0
Heat resistant steel [17-4 PH]	3	4	25	0.015	3	1.2	2655	160	0.5
	4	4	25	0.020	4	1.6	1990	160	1.0
	5	4	25	0.025	5	2.0	1590	160	1.5
	6	4	25	0.030	6	2.4	1325	160	2.5
	8	4	25	0.035	8	3.2	995	140	3.5
	10	4	25	0.045	10	4.0	795	145	6.0
	12	4	25	0.050	12	4.8	665	135	8.0
	16	4	25	0.065	16	4.0	495	130	8.5
	20	4	25	0.085	20	5.0	400	135	13.5
Nickel base alloys prec.-hard. [Inconel 718]	3	4	15	0.015	3	1.2	1590	95	0.5
	4	4	15	0.020	4	1.6	1195	95	0.5
	5	4	15	0.025	5	2.0	955	95	1.0
	6	4	15	0.030	6	2.4	795	95	1.5
	8	4	15	0.035	8	3.2	595	85	2.0
	10	4	15	0.045	10	4.0	475	85	3.5
	12	4	15	0.050	12	4.8	400	80	4.5
	16	4	15	0.065	16	4.0	300	80	5.0
	20	4	15	0.085	20	5.0	240	80	8.0

Application



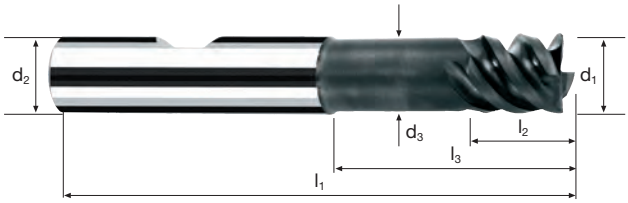
Material	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	60	0.015	2.3	3	6365	380	2.5
	4	4	60	0.020	3.0	4	4775	380	4.5
	5	4	60	0.025	3.8	5	3820	380	7.0
	6	4	60	0.030	4.5	6	3185	380	10.5
	8	4	60	0.040	6.0	8	2385	380	18.0
	10	4	60	0.055	7.5	10	1910	420	31.5
	12	4	60	0.055	9.0	12	1590	350	38.0
	16	4	60	0.085	8.0	16	1195	405	52.0
	20	4	60	0.105	10.0	20	955	400	80.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	30	0.015	2.3	3	3185	190	1.5
	4	4	30	0.020	3.0	4	2385	190	2.5
	5	4	30	0.025	3.8	5	1910	190	3.5
	6	4	30	0.030	4.5	6	1590	190	5.0
	8	4	30	0.040	6.0	8	1195	190	9.0
	10	4	30	0.055	7.5	10	955	210	16.0
	12	4	30	0.065	9.0	12	795	205	22.0
	16	4	30	0.085	8.0	16	595	200	25.5
	20	4	30	0.105	10.0	20	475	200	40.0
Heat resistant steel [17-4 PH]	3	4	20	0.015	2.3	3	2120	125	1.0
	4	4	20	0.020	3.0	4	1590	125	1.5
	5	4	20	0.025	3.8	5	1275	130	2.5
	6	4	20	0.030	4.5	6	1060	125	3.5
	8	4	20	0.035	6.0	8	795	110	5.5
	10	4	20	0.045	7.5	10	635	115	8.5
	12	4	20	0.050	9.0	12	530	105	11.5
	16	4	20	0.070	8.0	16	400	110	14.0
	20	4	20	0.090	10.0	20	320	115	23.0
Nickel base alloys prec.-hard. [Inconel 718]	3	4	10	0.015	2.3	3	1060	65	0.5
	4	4	10	0.020	3.0	4	795	65	1.0
	5	4	10	0.025	3.8	5	635	65	1.0
	6	4	10	0.030	4.5	6	530	65	2.0
	8	4	10	0.035	6.0	8	400	55	2.5
	10	4	10	0.045	7.5	10	320	60	4.5
	12	4	10	0.050	9.0	12	265	55	6.0
	16	4	10	0.070	8.0	16	200	55	7.0
	20	4	10	0.090	10.0	20	160	60	12.0

Cylindrical end mills SX

Smooth-edged, normal version with neck

HM MG10 | λ 55° γ 15°

45°



Roughing

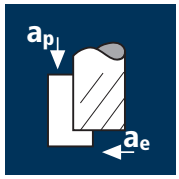
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5318** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P5318	POLYCHROM P5218
.180	3	6	2.8	57	4	14	0.10	4.5°	4		●
.220	4	6	3.7	57	5	16	0.10	3.0°	4		●
.260	5	6	4.6	57	6	18	0.15	1.5°	4		●
.300	6	6	5.5	57	7	20	0.15	0.0°	4		●
.391	8	8	7.4	63	9	26	0.15	0.0°	4		●
.450	10	10	9.2	72	11	31	0.20	0.0°	4		●
.501	12	12	11.0	83	13	37	0.20	0.0°	4		●
.610	16	16	15.0	92	17	43	0.20	0.0°	4		●
.682	20	20	19.0	104	21	53	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	80	0.015	3	1.2	8490	380	1.5
	4	3	80	0.020	4	1.6	6365	380	2.5
	5	3	80	0.025	5	2.0	5095	380	4.0
	6	3	80	0.030	6	2.4	4245	380	5.5
	8	3	80	0.040	8	3.2	3185	380	9.5
	10	3	80	0.055	10	4.0	2545	420	17.0
	12	3	80	0.065	12	4.8	2120	415	24.0
	16	3	80	0.085	16	4.0	1590	405	26.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	40	0.015	3	1.2	4245	190	0.5
	4	3	40	0.020	4	1.6	3185	190	1.0
	5	3	40	0.025	5	2.0	2545	190	2.0
	6	3	40	0.030	6	2.4	2120	190	2.5
	8	3	40	0.040	8	3.2	1590	190	5.0
	10	3	40	0.055	10	4.0	1275	210	8.5
	12	3	40	0.065	12	4.8	1060	205	12.0
	16	3	40	0.085	16	4.0	795	205	13.0
Heat resistant steel [17-4 PH]	3	3	25	0.015	3	1.2	2655	120	0.5
	4	3	25	0.020	4	1.6	1990	120	1.0
	5	3	25	0.025	5	2.0	1590	120	1.0
	6	3	25	0.030	6	2.4	1325	120	1.5
	8	3	25	0.035	8	3.2	995	105	2.5
	10	3	25	0.045	10	4.0	795	105	4.0
	12	3	25	0.050	12	4.8	665	100	6.0
	16	3	25	0.060	16	4.0	495	90	6.0
Nickel base alloys prec.-hard. [Inconel 718]	3	3	15	0.015	3	1.2	1590	70	0.5
	4	3	15	0.020	4	1.6	1195	70	0.5
	5	3	15	0.025	5	2.0	955	70	0.5
	6	3	15	0.030	6	2.4	795	70	1.0
	8	3	15	0.035	8	3.2	595	60	1.5
	10	3	15	0.045	10	4.0	475	65	2.5
	12	3	15	0.050	12	4.8	400	60	3.5
	16	3	15	0.060	16	4.0	300	55	3.5

Application



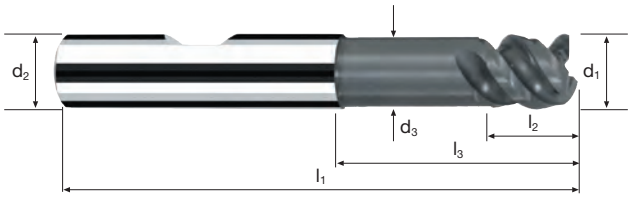
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.015	1.5	3	6365	285	1.5
	4	3	60	0.020	2.0	4	4775	285	2.5
	5	3	60	0.025	2.5	5	3820	285	3.5
	6	3	60	0.030	3.0	6	3185	285	5.0
	8	3	60	0.040	4.0	8	2385	285	9.0
	10	3	60	0.055	5.0	10	1910	315	16.0
	12	3	60	0.065	6.0	12	1590	310	22.5
	16	3	60	0.085	4.0	16	1195	305	19.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	30	0.015	1.5	3	3185	145	0.5
	4	3	30	0.020	2.0	4	2385	145	1.0
	5	3	30	0.025	2.5	5	1910	145	2.0
	6	3	30	0.030	3.0	6	1590	145	2.5
	8	3	30	0.040	4.0	8	1195	145	4.5
	10	3	30	0.055	5.0	10	955	160	8.0
	12	3	30	0.065	6.0	12	795	155	11.0
	16	3	30	0.085	4.0	16	595	150	9.5
Heat resistant steel [17-4 PH]	3	3	20	0.015	1.5	3	2120	95	0.5
	4	3	20	0.020	2.0	4	1590	95	1.0
	5	3	20	0.025	2.5	5	1275	95	1.0
	6	3	20	0.030	3.0	6	1060	95	1.5
	8	3	20	0.035	4.0	8	795	85	2.5
	10	3	20	0.045	5.0	10	635	85	4.5
	12	3	20	0.050	6.0	12	530	80	6.0
	16	3	20	0.060	4.0	16	400	70	4.5
Nickel base alloys prec.-hard. [Inconel 718]	3	3	10	0.015	1.5	3	1060	50	0.2
	4	3	10	0.020	2.0	4	795	50	0.5
	5	3	10	0.025	2.5	5	635	50	0.5
	6	3	10	0.030	3.0	6	530	50	1.0
	8	3	10	0.035	4.0	8	400	40	1.5
	10	3	10	0.045	5.0	10	320	45	2.5
	12	3	10	0.050	6.0	12	265	40	3.0
	16	3	10	0.060	4.0	16	200	35	2.0

Cylindrical end mills SX-3

Smooth-edged, normal version with neck

HM MG10 | λ 55° γ 15°

45°



Roughing

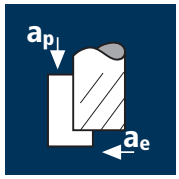
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5315** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P5315	POLYCHROM P5215
.180	3	6	2.8	57	4	14	0.10	4.5°	3		●
.220	4	6	3.7	57	5	16	0.10	3.0°	3		●
.260	5	6	4.6	57	6	18	0.15	1.5°	3		●
.300	6	6	5.5	57	7	20	0.15	0.0°	3		●
.391	8	8	7.4	63	9	26	0.15	0.0°	3		●
.450	10	10	9.2	72	11	31	0.20	0.0°	3		●
.501	12	12	11.0	83	13	37	0.20	0.0°	3		●
.610	16	16	15.0	92	17	43	0.20	0.0°	3		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	4	4	28	0.035	4	2.2	2230	310	2.5
	5	4	28	0.045	5	2.8	1785	320	4.5
	6	4	28	0.050	6	3.3	1485	295	6.0
	8	4	28	0.070	8	4.4	1115	310	11.0
	10	4	28	0.085	10	5.5	890	305	17.0
	12	4	28	0.105	12	6.6	745	315	25.0
	16	4	28	0.125	16	8.8	555	280	39.5
	20	4	28	0.155	20	11.0	445	275	60.5
	25	4	28	0.180	25	13.8	355	255	87.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	4	4	22	0.035	4	2.2	1750	245	2.0
	5	4	22	0.045	5	2.8	1400	250	3.5
	6	4	22	0.050	6	3.3	1165	235	4.5
	8	4	22	0.070	8	4.4	875	245	8.5
	10	4	22	0.085	10	5.5	700	240	13.0
	12	4	22	0.105	12	6.6	585	245	19.5
	16	4	22	0.125	16	8.8	440	220	31.0
	20	4	22	0.155	20	11.0	350	215	47.5
	25	4	22	0.180	25	13.8	280	200	69.0
Heat resistant steel [17-4 PH]	4	4	12	0.035	4	2.2	955	135	1.0
	5	4	12	0.045	5	2.8	765	140	2.0
	6	4	12	0.050	6	3.3	635	125	2.5
	8	4	12	0.070	8	4.4	475	135	5.0
	10	4	12	0.085	10	5.5	380	130	7.0
	12	4	12	0.105	12	6.6	320	135	10.5
	16	4	12	0.125	16	8.8	240	120	17.0
	20	4	12	0.155	20	11.0	190	120	26.5
	25	4	12	0.180	25	13.8	155	110	38.0
Nickel base alloys prec.-hard. [Inconel 718]	4	4	7	0.030	4	2.2	555	65	0.5
	5	4	7	0.035	5	2.8	445	60	1.0
	6	4	7	0.040	6	3.3	370	60	1.0
	8	4	7	0.055	8	4.4	280	60	2.0
	10	4	7	0.070	10	5.5	225	65	3.5
	12	4	7	0.085	12	6.6	185	65	5.0
	16	4	7	0.100	16	8.8	140	55	7.5
	20	4	7	0.125	20	11.0	110	55	12.0
	25	4	7	0.145	25	13.8	90	50	17.0

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	4	4	25	0.025	2	4	1990	200	1.5
	5	4	25	0.035	3	5	1590	225	3.0
	6	4	25	0.040	3	6	1325	210	4.0
	8	4	25	0.055	4	8	995	220	7.0
	10	4	25	0.065	5	10	795	205	10.5
	12	4	25	0.080	6	12	665	215	15.5
	16	4	25	0.095	8	16	495	190	24.5
	20	4	25	0.115	10	20	400	185	37.0
	25	4	25	0.135	13	25	320	175	54.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	4	4	20	0.025	2	4	1590	160	1.5
	5	4	20	0.035	3	5	1275	180	2.5
	6	4	20	0.040	3	6	1060	170	3.0
	8	4	20	0.055	4	8	795	175	5.5
	10	4	20	0.065	5	10	635	165	8.5
	12	4	20	0.080	6	12	530	170	12.0
	16	4	20	0.095	8	16	400	150	19.0
	20	4	20	0.115	10	20	320	145	29.0
	25	4	20	0.135	13	25	255	140	44.0
Heat resistant steel [17-4 PH]	4	4	10	0.025	2	4	795	80	0.5
	5	4	10	0.035	3	5	635	90	1.0
	6	4	10	0.040	3	6	530	85	1.5
	8	4	10	0.055	4	8	400	90	3.0
	10	4	10	0.065	5	10	320	85	4.5
	12	4	10	0.080	6	12	265	85	6.0
	16	4	10	0.095	8	16	200	75	9.5
	20	4	10	0.115	10	20	160	75	15.0
	25	4	10	0.135	13	25	125	70	22.0
Nickel base alloys prec.-hard. [Inconel 718]	4	4	7	0.025	2	4	555	55	0.5
	5	4	7	0.025	3	5	445	45	0.5
	6	4	7	0.030	3	6	370	45	1.0
	8	4	7	0.040	4	8	280	45	1.5
	10	4	7	0.055	5	10	225	50	2.5
	12	4	7	0.065	6	12	185	50	3.5
	16	4	7	0.075	8	16	140	40	5.0
	20	4	7	0.095	10	20	110	40	8.0
	25	4	7	0.110	13	25	90	40	12.5

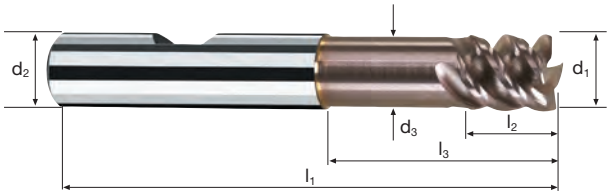
Cylindrical end mills Supracut SNC

Smooth-edged, normal version with neck

HSS | Favora® | Base-X | X-Generation

HSS PM/F | λ 55° γ 15°

45°



Roughing

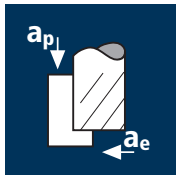
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys**

Example: **Order-N°.** Coating **U** Article-N°. **0580** ø-Code **.220**

ø Code	d_1 k8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	UNICUT-4X U0580
.220	4	6	3.7	57	5	16	0.10	1.5°	4	●
.260	5	6	4.6	57	6	18	0.15	1.0°	4	●
.300	6	6	5.5	57	7	20	0.15	0.0°	4	●
.391	8	8	7.4	63	9	26	0.15	0.0°	4	●
.450	10	10	9.2	72	11	31	0.20	0.0°	4	●
.501	12	12	11.0	83	13	37	0.20	0.0°	4	●
.610	16	16	15.0	92	17	43	0.20	0.0°	4	●
.682	20	20	19.0	104	21	53	0.20	0.0°	4	●
.772	25	25	24.0	121	26	64	0.25	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm²	4	4	120	0.025	7.2	0.8	9550	955	5.5
	5	4	120	0.035	9.0	1.0	7640	1070	9.5
	6	4	120	0.040	10.8	1.2	6365	1020	13.0
	8	4	120	0.055	14.4	1.6	4775	1050	24.0
	10	4	120	0.065	18.0	2.0	3820	995	36.0
	12	4	120	0.080	21.6	2.4	3185	1020	53.0
	16	4	120	0.090	28.8	3.2	2385	860	79.5
	20	4	120	0.110	36.0	4.0	1910	840	121.0
Steel 1300 - 1500 N/mm²	4	4	90	0.025	7.2	0.8	7160	715	4.0
	5	4	90	0.030	9.0	1.0	5730	690	6.0
	6	4	90	0.035	10.8	1.2	4775	670	8.5
	8	4	90	0.045	14.4	1.6	3580	645	15.0
	10	4	90	0.060	18.0	2.0	2865	690	25.0
	12	4	90	0.070	21.6	2.4	2385	670	34.5
	16	4	90	0.080	28.8	3.2	1790	575	53.0
	20	4	90	0.100	36.0	4.0	1430	570	82.0
Steel 1500 - 1800 N/mm²	4	4	70	0.020	7.2	0.8	5570	445	2.5
	5	4	70	0.025	9.0	1.0	4455	445	4.0
	6	4	70	0.025	10.8	1.2	3715	370	5.0
	8	4	70	0.035	14.4	1.6	2785	390	9.0
	10	4	70	0.045	18.0	2.0	2230	400	14.5
	12	4	70	0.055	21.6	2.4	1855	410	21.5
	16	4	70	0.065	28.8	3.2	1395	365	33.5
	20	4	70	0.080	36.0	4.0	1115	355	51.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	40	0.015	7.2	0.8	3185	190	1.0
	5	4	40	0.020	9.0	1.0	2545	205	2.0
	6	4	40	0.020	10.8	1.2	2120	170	2.0
	8	4	40	0.030	14.4	1.6	1590	190	4.5
	10	4	40	0.035	18.0	2.0	1275	180	6.5
	12	4	40	0.045	21.6	2.4	1060	190	10.0
	16	4	40	0.050	28.8	3.2	795	160	14.5
	20	4	40	0.065	36.0	4.0	635	165	24.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm²	4	4	100	0.015	6.0	4	7960	480	11.5
	5	4	100	0.015	7.5	5	6365	380	14.5
	6	4	100	0.020	9.0	6	5305	425	23.0
	8	4	100	0.025	12.0	8	3980	400	38.5
	10	4	100	0.035	15.0	10	3185	445	67.0
	12	4	100	0.040	18.0	12	2655	425	92.0
	16	4	100	0.050	24.0	16	1990	400	153.5
	20	4	100	0.060	30.0	20	1590	380	228.0
Steel 1300 - 1500 N/mm²	4	4	70	0.010	6.0	4	5570	225	5.5
	5	4	70	0.015	7.5	5	4455	265	10.0
	6	4	70	0.020	9.0	6	3715	295	16.0
	8	4	70	0.025	12.0	8	2785	280	27.0
	10	4	70	0.030	15.0	10	2230	270	40.5
	12	4	70	0.035	18.0	12	1855	260	56.0
	16	4	70	0.045	24.0	16	1395	250	96.0
	20	4	70	0.055	30.0	20	1115	245	147.0
Steel 1500 - 1800 N/mm²	4	4	50	0.010	6.0	4	3980	160	4.0
	5	4	50	0.015	7.5	5	3185	190	7.0
	6	4	50	0.020	9.0	6	2655	210	11.5
	8	4	50	0.025	12.0	8	1990	200	19.0
	10	4	50	0.030	15.0	10	1590	190	28.5
	12	4	50	0.035	18.0	12	1325	185	40.0
	16	4	50	0.045	24.0	16	995	180	69.0
	20	4	50	0.055	30.0	20	795	175	105.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	30	0.005	6.0	4	2385	50	1.0
	5	4	30	0.010	7.5	5	1910	75	3.0
	6	4	30	0.015	9.0	6	1590	95	5.0
	8	4	30	0.020	12.0	8	1195	95	9.0
	10	4	30	0.020	15.0	10	955	75	11.5
	12	4	30	0.025	18.0	12	795	80	17.5
	16	4	30	0.030	24.0	16	595	70	27.0
	20	4	30	0.040	30.0	20	475	75	45.0

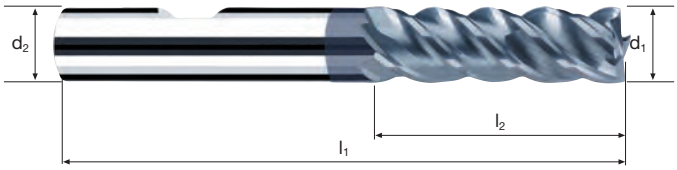
Cylindrical end mills NX-NVD

Smooth-edged, medium length version

HM MG10 | **λ 45° γ -10°**

45°

Vario



Roughing

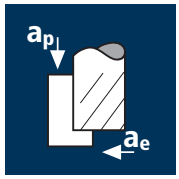
Finishing

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60			Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **15323** ø-Code **.220**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P15323	POLYCHROM P15223
.220	4	6	63	13	0.10	3.5°	4		●
.260	5	6	63	16	0.15	1.5°	4		●
.300	6	6	63	21	0.15	0.0°	4		●
.391	8	8	72	31	0.15	0.0°	4		●
.450	10	10	84	37	0.20	0.0°	4		●
.501	12	12	97	44	0.20	0.0°	4		●
.610	16	16	108	53	0.20	0.0°	4		●
.682	20	20	122	62	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	4	4	190	0.025	7.2	0.8	15120	1510	8.5
	5	4	190	0.030	9.0	1.0	12095	1450	13.0
	6	4	190	0.040	10.8	1.2	10080	1615	21.0
	8	4	190	0.050	14.4	1.6	7560	1510	35.0
	10	4	190	0.065	18.0	2.0	6050	1575	56.5
	12	4	190	0.075	21.6	2.4	5040	1510	78.5
	16	4	190	0.085	28.8	3.2	3780	1285	118.5
	20	4	190	0.105	36.0	4.0	3025	1270	183.0
Steel 850 - 1100 N/mm²	4	4	150	0.025	7.2	0.8	11935	1195	7.0
	5	4	150	0.030	9.0	1.0	9550	1145	10.5
	6	4	150	0.040	10.8	1.2	7960	1275	16.5
	8	4	150	0.050	14.4	1.6	5970	1195	27.5
	10	4	150	0.065	18.0	2.0	4775	1240	44.5
	12	4	150	0.075	21.6	2.4	3980	1195	62.0
	16	4	150	0.085	28.8	3.2	2985	1015	93.5
	20	4	150	0.105	36.0	4.0	2385	1000	144.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	4	4	80	0.025	7.2	0.8	6365	635	3.5
	5	4	80	0.030	9.0	1.0	5095	610	5.5
	6	4	80	0.035	10.8	1.2	4245	595	7.5
	8	4	80	0.045	14.4	1.6	3185	575	13.0
	10	4	80	0.060	18.0	2.0	2545	610	22.0
	12	4	80	0.070	21.6	2.4	2120	595	31.0
	16	4	80	0.080	28.8	3.2	1590	510	47.0
	20	4	80	0.100	36.0	4.0	1275	510	73.5
Stainless steel [Cr-Ni/1.4301]	4	4	65	0.020	7.2	0.8	5175	415	2.5
	5	4	65	0.020	9.0	1.0	4140	330	3.0
	6	4	65	0.025	10.8	1.2	3450	345	4.5
	8	4	65	0.030	14.4	1.6	2585	310	7.0
	10	4	65	0.040	18.0	2.0	2070	330	12.0
	12	4	65	0.050	21.6	2.4	1725	345	18.0
	16	4	65	0.055	28.8	3.2	1295	285	26.5
	20	4	65	0.070	36.0	4.0	1035	290	42.0

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	4	4	170	0.015	5.4	4	13530	810	17.5
	5	4	170	0.015	6.8	5	10825	650	22.0
	6	4	170	0.020	8.1	6	9020	720	35.0
	8	4	170	0.025	10.8	8	6765	675	58.5
	10	4	170	0.035	13.5	10	5410	755	102.0
	12	4	170	0.040	16.2	12	4510	720	140.0
	16	4	170	0.050	19.2	16	3380	675	207.5
	20	4	170	0.060	24.0	20	2705	650	312.0
Steel 850 - 1100 N/mm²	4	4	120	0.015	5.4	4	9550	575	12.5
	5	4	120	0.015	6.8	5	7640	460	15.5
	6	4	120	0.020	8.1	6	6365	510	25.0
	8	4	120	0.025	10.8	8	4775	480	41.5
	10	4	120	0.035	13.5	10	3820	535	72.0
	12	4	120	0.040	16.2	12	3185	510	99.0
	16	4	120	0.050	19.2	16	2385	475	146.0
	20	4	120	0.060	24.0	20	1910	460	221.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	4	4	60	0.010	5.4	4	4775	190	4.0
	5	4	60	0.015	6.8	5	3820	230	8.0
	6	4	60	0.020	8.1	6	3185	255	12.5
	8	4	60	0.025	10.8	8	2385	240	20.5
	10	4	60	0.030	13.5	10	1910	230	31.0
	12	4	60	0.035	16.2	12	1590	225	43.5
	16	4	60	0.045	19.2	16	1195	215	66.0
	20	4	60	0.055	24.0	20	955	210	101.0
Stainless steel [Cr-Ni/1.4301]	4	4	45	0.010	5.4	4	3580	145	3.0
	5	4	45	0.010	6.8	5	2865	115	4.0
	6	4	45	0.015	8.1	6	2385	145	7.0
	8	4	45	0.020	10.8	8	1790	145	12.5
	10	4	45	0.025	13.5	10	1430	145	19.5
	12	4	45	0.030	16.2	12	1195	145	28.0
	16	4	45	0.035	19.2	16	895	125	38.5
	20	4	45	0.045	24.0	20	715	130	62.5

Cylindrical end mills NB-NVD

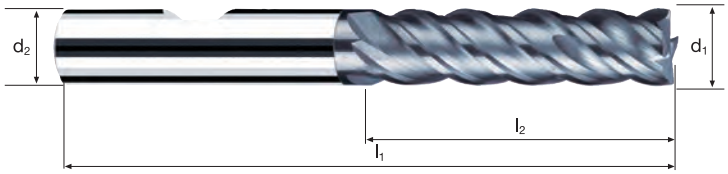
Smooth-edged, medium length version

HM
MG10

λ 45°
γ 5°

45°

Vario



new!

Roughing

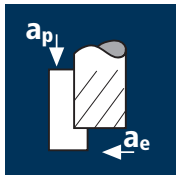
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **15308** ø-Code **.220**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	α	z	POLYCHROM P15308	POLYCHROM P15208
.220	4	6	63	13	0.10	3.5°	4		●
.260	5	6	63	16	0.15	1.5°	4		●
.300	6	6	63	21	0.15	0.0°	4		●
.391	8	8	72	31	0.15	0.0°	4		●
.450	10	10	84	37	0.20	0.0°	4		●
.501	12	12	97	44	0.20	0.0°	4		●
.610	16	16	108	53	0.20	0.0°	4		●
.682	20	20	122	62	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	4	140	0.005	4	0.2	22280	445
	3	4	140	0.010	6	0.2	14855	595
	4	4	140	0.010	8	0.3	11140	445
	6	4	140	0.015	12	0.5	7425	445
	8	4	140	0.025	16	0.6	5570	555
	10	4	140	0.030	20	0.8	4455	535
	12	4	140	0.035	24	1.0	3715	520
	16	4	140	0.045	32	1.3	2785	500
	20	4	140	0.055	40	1.6	2230	490
Steel 850 - 1100 N/mm²	2	4	90	0.005	4	0.2	14325	285
	3	4	90	0.010	6	0.2	9550	380
	4	4	90	0.010	8	0.3	7160	285
	6	4	90	0.015	12	0.5	4775	285
	8	4	90	0.025	16	0.6	3580	360
	10	4	90	0.030	20	0.8	2865	345
	12	4	90	0.035	24	1.0	2385	335
	16	4	90	0.045	32	1.3	1790	320
	20	4	90	0.055	40	1.6	1430	315
Steel 1100 - 1300 N/mm²	2	4	65	0.005	4	0.2	10345	205
	3	4	65	0.010	6	0.2	6895	275
	4	4	65	0.010	8	0.3	5175	205
	6	4	65	0.015	12	0.5	3450	205
	8	4	65	0.025	16	0.6	2585	260
	10	4	65	0.030	20	0.8	2070	250
	12	4	65	0.035	24	1.0	1725	240
	16	4	65	0.045	32	1.3	1295	235
	20	4	65	0.055	40	1.6	1035	230
Stainless steel [Cr-Ni/1.4301]	2	4	55	0.005	4	0.2	8755	175
	3	4	55	0.010	6	0.2	5835	235
	4	4	55	0.010	8	0.3	4375	175
	6	4	55	0.015	12	0.5	2920	175
	8	4	55	0.025	16	0.6	2190	220
	10	4	55	0.030	20	0.8	1750	210
	12	4	55	0.035	24	1.0	1460	205
	16	4	55	0.045	32	1.3	1095	195
	20	4	55	0.055	40	1.6	875	195

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	2	4	100	0.005	4	0.2	15915	320
	3	4	100	0.010	6	0.2	10610	425
	4	4	100	0.010	8	0.3	7960	320
	6	4	100	0.015	12	0.5	5305	320
	8	4	100	0.025	16	0.6	3980	400
	10	4	100	0.030	20	0.8	3185	380
	12	4	100	0.035	24	1.0	2655	370
	16	4	100	0.045	32	1.3	1990	360
	20	4	100	0.055	40	1.6	1590	350
Unalloyed copper	2	4	180	0.005	4	0.2	28650	575
	3	4	180	0.010	6	0.2	19100	765
	4	4	180	0.010	8	0.3	14325	575
	6	4	180	0.015	12	0.5	9550	575
	8	4	180	0.025	16	0.6	7160	715
	10	4	180	0.030	20	0.8	5730	690
	12	4	180	0.035	24	1.0	4775	670
	16	4	180	0.045	32	1.3	3580	645
	20	4	180	0.055	40	1.6	2865	630
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	4	65	0.005	4	0.2	10345	205
	3	4	65	0.010	6	0.2	6895	275
	4	4	65	0.010	8	0.3	5175	205
	6	4	65	0.015	12	0.5	3450	205
	8	4	65	0.025	16	0.6	2585	260
	10	4	65	0.030	20	0.8	2070	250
	12	4	65	0.035	24	1.0	1725	240
	16	4	65	0.045	32	1.3	1295	235
	20	4	65	0.055	40	1.6	1035	230
Heat resistant steel [17-4 PH]	2	4	30	0.005	4	0.2	4775	95
	3	4	30	0.010	6	0.2	3185	125
	4	4	30	0.010	8	0.3	2385	95
	6	4	30	0.015	12	0.5	1590	95
	8	4	30	0.025	16	0.6	1195	120
	10	4	30	0.030	20	0.8	955	115
	12	4	30	0.035	24	1.0	795	110
	16	4	30	0.045	32	1.3	595	105
	20	4	30	0.055	40	1.6	475	105

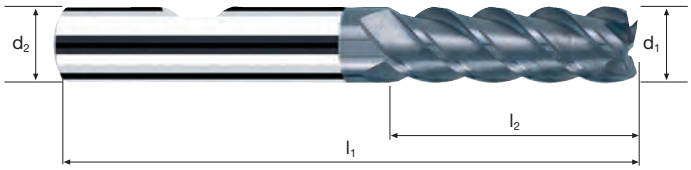
Cylindrical end mills

Smooth-edged, medium length version

HM
MG10

λ **45°**
γ **15°**





Roughing



Finishing



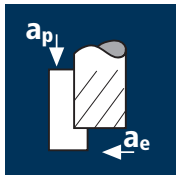
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **15343** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P15343	POLYCHROM P15243
.140	2.0	6	63	12	0.10	6.0°	4		●
.160	2.5	6	63	13	0.10	5.0°	4		●
.180	3.0	6	63	14	0.10	4.5°	4		●
.220	4.0	6	63	17	0.10	3.0°	4		●
.260	5.0	6	63	19	0.15	1.5°	4		●
.300	6.0	6	63	19	0.15	0.0°	4		●
.391	8.0	8	72	28	0.15	0.0°	4		●
.450	10.0	10	84	34	0.20	0.0°	4		●
.501	12.0	12	97	40	0.20	0.0°	4		●
.610	16.0	16	108	48	0.20	0.0°	4		●
.682	20.0	20	122	56	0.20	0.0°	4		●
.772	25.0	25	144	70	0.25	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	120	0.005	5.0	0.1	19100	285
	3	3	120	0.010	7.5	0.2	12735	380
	4	3	120	0.010	10.0	0.2	9550	285
	6	3	120	0.015	15.0	0.3	6365	285
	8	3	120	0.020	20.0	0.4	4775	285
	10	3	120	0.025	25.0	0.5	3820	285
	12	3	120	0.030	30.0	0.6	3185	285
	16	3	120	0.040	40.0	0.8	2385	285
	20	3	120	0.050	50.0	1.0	1910	285
Steel 850 - 1100 N/mm²	2	3	80	0.005	5.0	0.1	12735	190
	3	3	80	0.010	7.5	0.2	8490	255
	4	3	80	0.010	10.0	0.2	6365	190
	6	3	80	0.015	15.0	0.3	4245	190
	8	3	80	0.020	20.0	0.4	3185	190
	10	3	80	0.025	25.0	0.5	2545	190
	12	3	80	0.030	30.0	0.6	2120	190
	16	3	80	0.040	40.0	0.8	1590	190
	20	3	80	0.050	50.0	1.0	1275	190
Cast iron (lamellar / spheroidal)	2	3	160	0.005	5.0	0.1	25465	380
	3	3	160	0.010	7.5	0.2	16975	510
	4	3	160	0.010	10.0	0.2	12735	380
	6	3	160	0.015	15.0	0.3	8490	380
	8	3	160	0.020	20.0	0.4	6365	380
	10	3	160	0.025	25.0	0.5	5095	380
	12	3	160	0.030	30.0	0.6	4245	380
	16	3	160	0.040	40.0	0.8	3185	380
	20	3	160	0.050	50.0	1.0	2545	380
Stainless steel [Cr-Ni/1.4301]	2	3	50	0.005	5.0	0.1	7960	120
	3	3	50	0.010	7.5	0.2	5305	160
	4	3	50	0.010	10.0	0.2	3980	120
	6	3	50	0.015	15.0	0.3	2655	120
	8	3	50	0.020	20.0	0.4	1990	120
	10	3	50	0.025	25.0	0.5	1590	120
	12	3	50	0.030	30.0	0.6	1325	120
	16	3	50	0.040	40.0	0.8	995	120
	20	3	50	0.050	50.0	1.0	795	120

Application



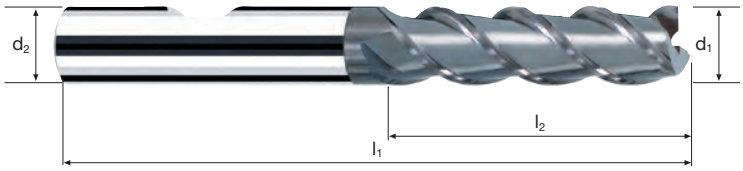
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	100	0.005	0.4	2	15915	240	0.2
	3	3	100	0.005	0.6	3	10610	160	0.3
	4	3	100	0.010	0.8	4	7960	240	0.8
	6	3	100	0.010	1.2	6	5305	160	1.2
	8	3	100	0.015	1.6	8	3980	180	2.3
	10	3	100	0.020	2.0	10	3185	190	3.8
	12	3	100	0.025	2.4	12	2655	200	5.8
	16	3	100	0.030	3.2	16	1990	180	9.2
	20	3	100	0.040	4.0	20	1590	190	15.2
Steel 850 - 1100 N/mm²	2	3	70	0.005	0.4	2	11140	165	0.1
	3	3	70	0.005	0.6	3	7425	110	0.2
	4	3	70	0.005	0.8	4	5570	85	0.3
	6	3	70	0.010	1.2	6	3715	110	0.8
	8	3	70	0.015	1.6	8	2785	125	1.6
	10	3	70	0.020	2.0	10	2230	135	2.7
	12	3	70	0.020	2.4	12	1855	110	3.2
	16	3	70	0.030	3.2	16	1395	125	6.4
	20	3	70	0.040	4.0	20	1115	135	10.8
Cast iron (lamellar / spheroidal)	2	3	120	0.005	0.4	2	19100	285	0.2
	3	3	120	0.005	0.6	3	12735	190	0.3
	4	3	120	0.010	0.8	4	9550	285	0.9
	6	3	120	0.015	1.2	6	6365	285	2.1
	8	3	120	0.020	1.6	8	4775	285	3.6
	10	3	120	0.020	2.0	10	3820	230	4.6
	12	3	120	0.025	2.4	12	3185	240	6.9
	16	3	120	0.035	3.2	16	2385	250	12.8
	20	3	120	0.040	4.0	20	1910	230	18.4
Stainless steel [Cr-Ni/1.4301]	2	3	35	0.005	0.4	2	5570	85	0.1
	3	3	35	0.005	0.6	3	3715	55	0.1
	4	3	35	0.005	0.8	4	2785	40	0.1
	6	3	35	0.010	1.2	6	1855	55	0.4
	8	3	35	0.015	1.6	8	1395	65	0.8
	10	3	35	0.020	2.0	10	1115	65	1.3
	12	3	35	0.020	2.4	12	930	55	1.6
	16	3	35	0.030	3.2	16	695	65	3.3
	20	3	35	0.040	4.0	20	555	65	5.2

Cylindrical end mills

Smooth-edged, medium length version

HM MG10 | **λ 45° γ 15°**

45°



Roughing

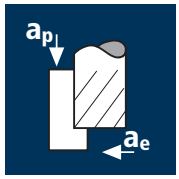
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Copper**

new!

	Example: **Order-N°.**	Coating **P**	Article-N°. **5332**	ø-Code **.140**					**5332**	**POLYCHROM P5332**
ø Code	**d_1** e8	**d_2** h6		**l_1**	**l_2**	**45°**	**α**	**z**		
.140	2.0	6		63	12	0.10	6.0°	3	●	●
.160	2.5	6		63	13	0.10	5.0°	3	●	●
.180	3.0	6		63	14	0.10	4.5°	3	●	●
.220	4.0	6		63	17	0.10	3.0°	3	●	●
.260	5.0	6		63	19	0.15	1.5°	3	●	●
.300	6.0	6		63	19	0.15	0.0°	3	●	●
.331	7.0	8		72	24	0.15	1.5°	3	●	●
.391	8.0	8		72	28	0.15	0.0°	3	●	●
.420	9.0	10		84	28	0.20	1.0°	3	●	●
.450	10.0	10		84	34	0.20	0.0°	3	●	●
.501	12.0	12		97	40	0.20	0.0°	3	●	●
.610	16.0	16		108	48	0.20	0.0°	3	●	●
.682	20.0	20		122	56	0.20	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	6	4	44	0.015	15	0.10	2335	140
	8	4	44	0.020	20	0.15	1750	140
	10	4	44	0.020	25	0.20	1400	110
	12	4	44	0.025	30	0.25	1165	115
	16	4	44	0.035	40	0.30	875	125
	20	4	44	0.045	50	0.40	700	125
	25	4	44	0.055	63	0.50	560	125
	30	6	44	0.065	75	0.60	465	180
	32	6	44	0.070	80	0.65	440	185
Steel 850 - 1100 N/mm²	6	4	36	0.015	15	0.10	1910	115
	8	4	36	0.020	20	0.15	1430	115
	10	4	36	0.020	25	0.20	1145	90
	12	4	36	0.025	30	0.25	955	95
	16	4	36	0.035	40	0.30	715	100
	20	4	36	0.045	50	0.40	575	105
	25	4	36	0.055	63	0.50	460	100
	30	6	36	0.065	75	0.60	380	150
	32	6	36	0.070	80	0.65	360	150
Steel 1100 - 1300 N/mm²	6	4	30	0.015	15	0.10	1590	95
	8	4	30	0.020	20	0.15	1195	95
	10	4	30	0.020	25	0.20	955	75
	12	4	30	0.025	30	0.25	795	80
	16	4	30	0.035	40	0.30	595	85
	20	4	30	0.045	50	0.40	475	85
	25	4	30	0.055	63	0.50	380	85
	30	6	30	0.065	75	0.60	320	125
	32	6	30	0.070	80	0.65	300	125
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	25	0.015	15	0.10	1325	80
	8	4	25	0.020	20	0.15	995	80
	10	4	25	0.020	25	0.20	795	65
	12	4	25	0.025	30	0.25	665	65
	16	4	25	0.035	40	0.30	495	70
	20	4	25	0.045	50	0.40	400	70
	25	4	25	0.055	63	0.50	320	70
	30	6	25	0.065	75	0.60	265	105
	32	6	25	0.070	80	0.65	250	105

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	6	4	34	0.015	15	0.10	1805	110
	8	4	34	0.020	20	0.15	1355	110
	10	4	34	0.020	25	0.20	1080	85
	12	4	34	0.025	30	0.25	900	90
	16	4	34	0.035	40	0.30	675	95
	20	4	34	0.045	50	0.40	540	95
	25	4	34	0.055	63	0.50	435	95
	30	6	34	0.065	75	0.60	360	140
	32	6	34	0.070	80	0.65	340	145
Stainless steel [Cr-Ni/1.4301]	6	4	18	0.015	15	0.10	955	55
	8	4	18	0.020	20	0.15	715	55
	10	4	18	0.020	25	0.20	575	45
	12	4	18	0.025	30	0.25	475	50
	16	4	18	0.035	40	0.30	360	50
	20	4	18	0.045	50	0.40	285	50
	25	4	18	0.055	63	0.50	230	50
	30	6	18	0.065	75	0.60	190	75
	32	6	18	0.070	80	0.65	180	75
Unalloyed copper	6	4	60	0.015	15	0.10	3185	190
	8	4	60	0.020	20	0.15	2385	190
	10	4	60	0.020	25	0.20	1910	155
	12	4	60	0.025	30	0.25	1590	160
	16	4	60	0.035	40	0.30	1195	165
	20	4	60	0.045	50	0.40	955	170
	25	4	60	0.055	63	0.50	765	170
	30	6	60	0.065	75	0.60	635	250
	32	6	60	0.070	80	0.65	595	250
Wrought aluminium alloys Si < 6%	6	4	70	0.015	15	0.10	3715	225
	8	4	70	0.020	20	0.15	2785	225
	10	4	70	0.020	25	0.20	2230	180
	12	4	70	0.025	30	0.25	1855	185
	16	4	70	0.035	40	0.30	1395	195
	20	4	70	0.045	50	0.40	1115	200
	25	4	70	0.055	63	0.50	890	195
	30	6	70	0.065	75	0.60	745	290
	32	6	70	0.070	80	0.65	695	290

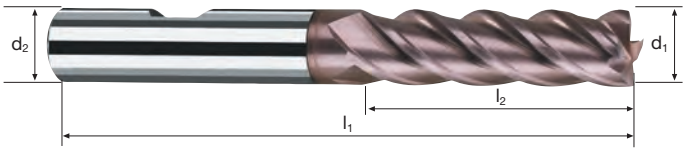
Cylindrical end mills

Smooth-edged, medium length version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 40° γ 15°**

90°



Roughing

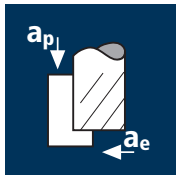
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0190** ø-Code **.260**

ø Code	d1 e8	d2 h6	l1	l2	α	z	UNICUT-4X U0190
.260	5	6	63	19	1.5°	4	●
.300	6	6	63	19	0.0°	4	●
.402	8	10	78	28	2.0°	4	●
.450	10	10	84	34	0.0°	4	●
.501	12	12	97	40	0.0°	4	●
.570	14	12	97	40	0.0°	4	●
.610	16	16	108	48	0.0°	4	●
.640	18	16	108	48	0.0°	4	●
.682	20	20	122	56	0.0°	4	●
.710	22	20	122	56	0.0°	4	●
.772	25	25	144	68	0.0°	4	●
.810	30	25	144	68	0.0°	6	●
.832	32	32	160	80	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	200	0.050	6	1.8	10610	2120	23.0
	8	4	200	0.065	8	2.4	7960	2070	39.5
	10	4	200	0.080	10	3.0	6365	2035	61.0
	12	4	200	0.095	12	3.6	5305	2015	87.0
	16	4	200	0.125	16	3.2	3980	1990	102.0
Steel 850 - 1100 N/mm²	6	4	150	0.050	6	1.8	7960	1590	17.0
	8	4	150	0.065	8	2.4	5970	1550	30.0
	10	4	150	0.080	10	3.0	4775	1530	46.0
	12	4	150	0.095	12	3.6	3980	1510	65.0
	16	4	150	0.125	16	3.2	2985	1495	76.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	80	0.045	6	1.8	4245	765	8.5
	8	4	80	0.060	8	2.4	3185	765	14.5
	10	4	80	0.070	10	3.0	2545	715	21.5
	12	4	80	0.085	12	3.6	2120	720	31.0
	16	4	80	0.110	16	3.2	1590	700	36.0
Stainless steel [Cr-Ni/1.4301]	6	4	70	0.035	6	1.8	3715	520	5.5
	8	4	70	0.050	8	2.4	2785	555	10.5
	10	4	70	0.055	10	3.0	2230	490	14.5
	12	4	70	0.070	12	3.6	1855	520	22.5
	16	4	70	0.090	16	3.2	1395	500	25.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.040	4.2	6	9550	1530	38.5
	8	4	180	0.050	5.6	8	7160	1430	64.0
	10	4	180	0.065	7.0	10	5730	1490	104.5
	12	4	180	0.075	8.4	12	4775	1435	144.5
	16	4	180	0.075	6.4	16	3580	1075	110.0
Steel 850 - 1100 N/mm²	6	4	120	0.040	4.2	6	6365	1020	25.5
	8	4	120	0.050	5.6	8	4775	955	43.0
	10	4	120	0.065	7.0	10	3820	995	69.5
	12	4	120	0.075	8.4	12	3185	955	96.5
	16	4	120	0.075	6.4	16	2385	715	73.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	60	0.035	4.2	6	3185	445	11.0
	8	4	60	0.045	5.6	8	2385	430	19.5
	10	4	60	0.055	7.0	10	1910	420	29.5
	12	4	60	0.060	8.4	12	1590	380	38.5
	16	4	60	0.075	6.4	16	1195	360	37.0
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.030	4.2	6	2655	320	8.0
	8	4	50	0.035	5.6	8	1990	280	12.5
	10	4	50	0.045	7.0	10	1590	285	20.0
	12	4	50	0.050	8.4	12	1325	265	26.5
	16	4	50	0.060	6.4	16	995	240	24.5

Cylindrical end mills NX-V

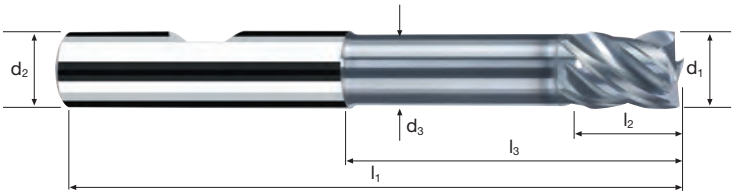
Smooth-edged, medium length version with neck

HM
MG10

λ **40°**
γ **0°**

45°

Vario



Roughing

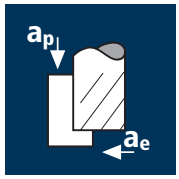
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15325** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z		POLYCHROM P15325	P15225
.300	6	6	5.5	70	7	33	0.15	4			●
.391	8	8	7.4	80	9	43	0.15	4			●
.450	10	10	9.2	84	11	43	0.20	4			●
.501	12	12	11.0	97	13	51	0.20	4			●
.610	16	16	15.0	115	17	66	0.20	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	200	0.050	6	1.8	10610	2120	23.0
	8	4	200	0.065	8	2.4	7960	2070	39.5
	10	4	200	0.080	10	3.0	6365	2035	61.0
	12	4	200	0.095	12	3.6	5305	2015	87.0
	16	4	200	0.125	16	3.2	3980	1990	102.0
	20	4	200	0.145	20	4.0	3185	1845	147.5
Steel 850 - 1100 N/mm²	6	4	150	0.050	6	1.8	7960	1590	17.0
	8	4	150	0.065	8	2.4	5970	1550	30.0
	10	4	150	0.080	10	3.0	4775	1530	46.0
	12	4	150	0.095	12	3.6	3980	1510	65.0
	16	4	150	0.125	16	3.2	2985	1495	76.5
	20	4	150	0.145	20	4.0	2385	1385	111.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	6	4	80	0.045	6	1.8	4245	765	8.5
	8	4	80	0.060	8	2.4	3185	765	14.5
	10	4	80	0.070	10	3.0	2545	715	21.5
	12	4	80	0.085	12	3.6	2120	720	31.0
	16	4	80	0.110	16	3.2	1590	700	36.0
	20	4	80	0.130	20	4.0	1275	665	53.0
Stainless steel [Cr-Ni/1.4301]	6	4	70	0.035	6	1.8	3715	520	5.5
	8	4	70	0.050	8	2.4	2785	555	10.5
	10	4	70	0.055	10	3.0	2230	490	14.5
	12	4	70	0.070	12	3.6	1855	520	22.5
	16	4	70	0.090	16	3.2	1395	500	25.5
	20	4	70	0.105	20	4.0	1115	470	37.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.040	4.2	6	9550	1530	38.5
	8	4	180	0.050	5.6	8	7160	1430	64.0
	10	4	180	0.065	7.0	10	5730	1490	104.5
	12	4	180	0.075	8.4	12	4775	1435	144.5
	16	4	180	0.075	6.4	16	3580	1075	110.0
	20	4	180	0.080	8.0	20	2865	915	146.5
Steel 850 - 1100 N/mm²	6	4	120	0.040	4.2	6	6365	1020	25.5
	8	4	120	0.050	5.6	8	4775	955	43.0
	10	4	120	0.065	7.0	10	3820	995	69.5
	12	4	120	0.075	8.4	12	3185	955	96.5
	16	4	120	0.075	6.4	16	2385	715	73.0
	20	4	120	0.080	8.0	20	1910	610	97.5
Cold work tool steel (12% Cr) high alloyed [1.2379]	6	4	60	0.035	4.2	6	3185	445	11.0
	8	4	60	0.045	5.6	8	2385	430	19.5
	10	4	60	0.055	7.0	10	1910	420	29.5
	12	4	60	0.060	8.4	12	1590	380	38.5
	16	4	60	0.075	6.4	16	1195	360	37.0
	20	4	60	0.080	8.0	20	955	305	49.0
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.030	4.2	6	2655	320	8.0
	8	4	50	0.035	5.6	8	1990	280	12.5
	10	4	50	0.045	7.0	10	1590	285	20.0
	12	4	50	0.050	8.4	12	1325	265	26.5
	16	4	50	0.060	6.4	16	995	240	24.5
	20	4	50	0.065	8.0	20	795	205	33.0

Cylindrical end mills NX-V

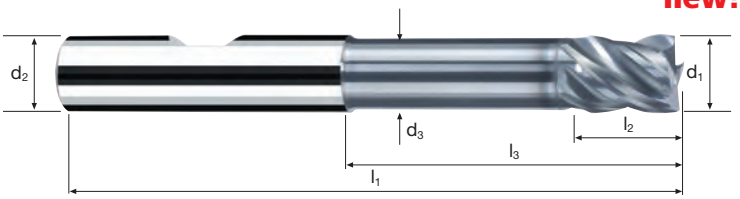
Smooth-edged, medium length version with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 0°

45°

Vario



Roughing

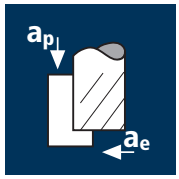
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15353** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P15353	POLYCHROM P15253
.300	6	6	5.5	63	7	26	0.15	4		●
.391	8	8	7.4	72	9	35	0.15	4		●
.450	10	10	9.2	84	11	43	0.20	4		●
.501	12	12	11.0	97	13	51	0.20	4		●
.610	16	16	15.0	108	17	59	0.20	4		●
.682	20	20	19.0	122	21	71	0.20	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	4	4	160	0.025	4	1.8	12735	1275	9.0
	5	4	160	0.035	5	2.3	10185	1425	16.0
	6	4	160	0.040	6	2.7	8490	1360	22.0
	8	4	160	0.055	8	3.6	6365	1400	40.5
	10	4	160	0.065	10	4.5	5095	1325	59.5
	12	4	160	0.080	12	5.4	4245	1360	88.0
	16	4	160	0.090	16	7.2	3185	1145	132.0
Steel 1100 - 1300 N/mm²	4	4	120	0.025	4	1.8	9550	955	7.0
	5	4	120	0.035	5	2.3	7640	1070	12.0
	6	4	120	0.040	6	2.7	6365	1020	16.5
	8	4	120	0.055	8	3.6	4775	1050	30.0
	10	4	120	0.065	10	4.5	3820	995	45.0
	12	4	120	0.080	12	5.4	3185	1020	66.0
	16	4	120	0.090	16	7.2	2385	860	99.0
Steel 1300 - 1500 N/mm²	4	4	90	0.025	4	1.8	7160	715	5.0
	5	4	90	0.030	5	2.3	5730	690	8.0
	6	4	90	0.035	6	2.7	4775	670	11.0
	8	4	90	0.045	8	3.6	3580	645	18.5
	10	4	90	0.060	10	4.5	2865	690	31.0
	12	4	90	0.070	12	5.4	2385	670	43.5
	16	4	90	0.080	16	7.2	1790	575	66.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	40	0.015	4	1.8	3185	190	1.5
	5	4	40	0.020	5	2.3	2545	205	2.5
	6	4	40	0.020	6	2.7	2120	170	3.0
	8	4	40	0.025	8	3.6	1590	160	4.5
	10	4	40	0.035	10	4.5	1275	180	8.0
	12	4	40	0.040	12	5.4	1060	170	11.0
	16	4	40	0.050	16	7.2	795	160	18.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	4	4	130	0.020	3.2	4	10345	830	10.5
	5	4	130	0.025	4.0	5	8275	830	16.5
	6	4	130	0.035	4.8	6	6895	965	28.0
	8	4	130	0.045	6.4	8	5175	930	47.5
	10	4	130	0.055	8.0	10	4140	910	73.0
	12	4	130	0.065	9.6	12	3450	895	103.0
	16	4	130	0.075	11.2	16	2585	775	139.0
Steel 1100 - 1300 N/mm²	4	4	100	0.020	3.2	4	7960	635	8.0
	5	4	100	0.025	4.0	5	6365	635	12.5
	6	4	100	0.035	4.8	6	5305	745	21.5
	8	4	100	0.045	6.4	8	3980	715	36.5
	10	4	100	0.055	8.0	10	3185	700	56.0
	12	4	100	0.065	9.6	12	2655	690	79.5
	16	4	100	0.075	11.2	16	1990	595	106.5
Steel 1300 - 1500 N/mm²	4	4	70	0.020	3.2	4	5570	445	5.5
	5	4	70	0.025	4.0	5	4455	445	9.0
	6	4	70	0.030	4.8	6	3715	445	13.0
	8	4	70	0.040	6.4	8	2785	445	23.0
	10	4	70	0.050	8.0	10	2230	445	35.5
	12	4	70	0.060	9.6	12	1855	445	51.5
	16	4	70	0.070	11.2	16	1395	390	70.0
Titanium alloys >300 HB [Ti6Al4V]	4	4	30	0.015	3.2	4	2385	145	2.0
	5	4	30	0.015	4.0	5	1910	115	2.5
	6	4	30	0.020	4.8	6	1590	125	3.5
	8	4	30	0.025	6.4	8	1195	120	6.0
	10	4	30	0.035	8.0	10	955	135	11.0
	12	4	30	0.040	9.6	12	795	125	14.5
	16	4	30	0.045	11.2	16	595	105	19.0

Cylindrical end mills NX-VD

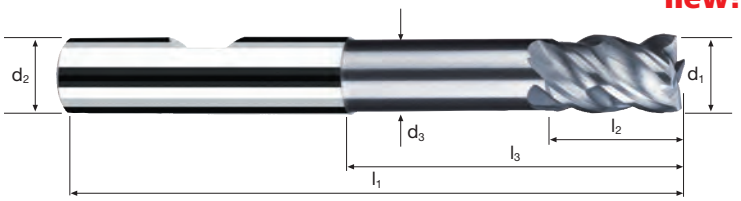
Smooth-edged, medium length version with neck

HM MG10 | **λ 45° γ-10°**

45°

Vario

new!



Roughing

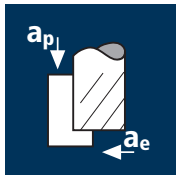
Finishing

	Rm 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56				**Ti** Titanium	**GG(G)**

Example: **Order-N°.** Coating **P** Article-N°. **15359** ø-Code **.220**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	POLYCHROM P15359	POLYCHROM P15259
.220	4	6	3.7	63	6	22	0.10	2.5°	4		●
.260	5	6	4.6	63	8	24	0.15	1.5°	4		●
.300	6	6	5.5	63	9	26	0.15	0.0°	4		●
.391	8	8	7.4	72	12	35	0.15	0.0°	4		●
.450	10	10	9.2	84	15	43	0.20	0.0°	4		●
.501	12	12	11.0	97	18	51	0.20	0.0°	4		●
.610	16	16	15.0	108	24	59	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Hardened tool steel 42 - 48 HRC	6	4	120	0.045	6	2.4	6365	1145	16.5
	8	4	120	0.060	8	3.2	4775	1145	29.5
	10	4	120	0.075	10	4.0	3820	1145	46.0
	12	4	120	0.090	12	4.8	3185	1145	66.0
	16	4	120	0.120	16	3.2	2385	1145	58.5
	20	4	120	0.150	20	4.0	1910	1145	91.5
Hardened tool steel 48 - 52 HRC	6	4	80	0.030	6	2.4	4245	510	7.5
	8	4	80	0.040	8	3.2	3185	510	13.0
	10	4	80	0.050	10	4.0	2545	510	20.5
	12	4	80	0.060	12	4.8	2120	510	29.5
	16	4	80	0.080	16	3.2	1590	510	26.0
	20	4	80	0.100	20	4.0	1275	510	41.0
Hardened tool steel 52 - 56 HRC	6	4	60	0.025	6	2.4	3185	320	4.5
	8	4	60	0.035	8	3.2	2385	335	8.5
	10	4	60	0.040	10	4.0	1910	305	12.0
	12	4	60	0.050	12	4.8	1590	320	18.5
	16	4	60	0.065	16	3.2	1195	310	16.0
	20	4	60	0.080	20	4.0	955	305	24.5
Hardened tool steel 56 - 60 HRC	6	4	30	0.020	6	2.4	1590	127	2.0
	8	4	30	0.025	8	3.2	1195	120	3.0
	10	4	30	0.030	10	4.0	955	115	4.5
	12	4	30	0.035	12	4.8	795	111	6.5
	16	4	30	0.050	16	3.2	595	119	6.0
	20	4	30	0.060	20	4.0	475	114	9.0

Application



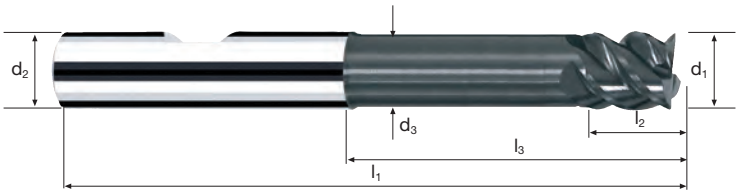
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Hardened tool steel 42 - 48 HRC	6	4	100	0.035	2.4	6	5305	745	10.5
	8	4	100	0.050	3.2	8	3980	795	20.5
	10	4	100	0.060	4.0	10	3185	765	30.5
	12	4	100	0.070	4.8	12	2655	745	43.0
	16	4	100	0.095	3.2	16	1990	755	38.5
	20	4	100	0.120	4.0	20	1590	765	61.0
Hardened tool steel 48 - 52 HRC	6	4	60	0.025	2.4	6	3185	320	4.5
	8	4	60	0.035	3.2	8	2385	335	8.5
	10	4	60	0.045	4.0	10	1910	345	14.0
	12	4	60	0.055	4.8	12	1590	350	20.0
	16	4	60	0.070	3.2	16	1195	335	17.0
	20	4	60	0.090	4.0	20	955	345	27.5
Hardened tool steel 52 - 56 HRC	6	4	40	0.020	2.4	6	2120	170	2.5
	8	4	40	0.030	3.2	8	1590	190	5.0
	10	4	40	0.035	4.0	10	1275	180	7.0
	12	4	40	0.045	4.8	12	1060	190	11.0
	16	4	40	0.060	3.2	16	795	190	9.5
	20	4	40	0.070	4.0	20	635	180	14.5
Hardened tool steel 56 - 60 HRC	6	4	20	0.015	2.4	6	1060	64	1.0
	8	4	20	0.021	3.2	8	795	67	1.5
	10	4	20	0.026	4.0	10	635	66	2.5
	12	4	20	0.031	4.8	12	530	66	4.0
	16	4	20	0.041	3.2	16	400	66	3.5
	20	4	20	0.051	4.0	20	320	65	5.0

Cylindrical end mills HX

Smooth-edged, medium length version with neck

HM MG10 | λ 55° γ -10°

45°



Roughing

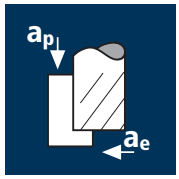
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **5351** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P5351 / P5251	DURO-S D5351 / D5251
.300	6	6	5.5	70	7	33	0.15	4	●	●
.391	8	8	7.4	80	9	43	0.15	4	●	●
.450	10	10	9.2	84	11	43	0.20	4	●	●
.501	12	12	11.0	97	13	51	0.20	4	●	●
.610	16	16	15.0	115	17	66	0.20	4	●	●
.682	20	20	19.0	130	21	79	0.20	4	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	80	0.030	6	1.8	4245	510	5.5
	8	4	80	0.040	8	2.4	3185	510	10.0
	10	4	80	0.055	10	3.0	2545	560	17.0
	12	4	80	0.060	12	3.6	2120	510	22.0
	16	4	80	0.085	16	2.4	1590	540	20.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	40	0.030	6	1.8	2120	255	3.0
	8	4	40	0.040	8	2.4	1590	255	5.0
	10	4	40	0.055	10	3.0	1275	280	8.5
	12	4	40	0.060	12	3.6	1060	255	11.0
	16	4	40	0.085	16	2.4	795	270	10.5
Heat resistant steel [17-4 PH]	6	4	25	0.030	6	1.8	1325	160	1.5
	8	4	25	0.035	8	2.4	995	140	2.5
	10	4	25	0.045	10	3.0	795	145	4.5
	12	4	25	0.050	12	3.6	665	135	6.0
	16	4	25	0.060	16	2.4	495	120	4.5
Nickel base alloys prec.-hard. [Inconel 718]	6	4	15	0.030	6	1.8	795	95	1.0
	8	4	15	0.035	8	2.4	595	85	1.5
	10	4	15	0.045	10	3.0	475	85	2.5
	12	4	15	0.050	12	3.6	400	80	3.5
	16	4	15	0.060	16	2.4	300	70	2.5

Application

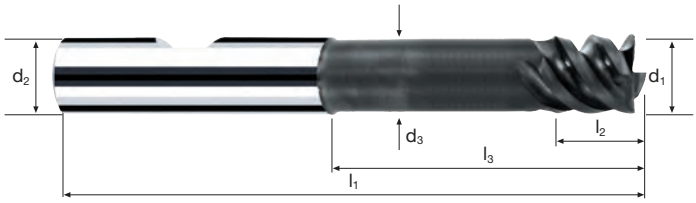


Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.030	1.5	6	3185	380	3.5
	8	4	60	0.040	2.0	8	2385	380	6.0
	10	4	60	0.055	2.5	10	1910	420	10.5
	12	4	60	0.065	3.0	12	1590	415	15.0
	16	4	60	0.085	2.4	16	1195	405	15.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	30	0.030	1.5	6	1590	190	1.5
	8	4	30	0.040	2.0	8	1195	190	3.0
	10	4	30	0.055	2.5	10	955	210	5.5
	12	4	30	0.065	3.0	12	795	205	7.5
	16	4	30	0.085	2.4	16	595	200	7.5
Heat resistant steel [17-4 PH]	6	4	20	0.030	1.5	6	1060	125	1.0
	8	4	20	0.035	2.0	8	795	110	2.0
	10	4	20	0.045	2.5	10	635	115	3.0
	12	4	20	0.050	3.0	12	530	105	4.0
	16	4	20	0.060	2.4	16	400	95	3.5
Nickel base alloys prec.-hard. [Inconel 718]	6	4	10	0.030	1.5	6	530	65	0.5
	8	4	10	0.035	2.0	8	400	55	1.0
	10	4	10	0.045	2.5	10	320	60	1.5
	12	4	10	0.050	3.0	12	265	55	2.0
	16	4	10	0.060	2.4	16	200	50	2.0

Cylindrical end mills SX

Smooth-edged, medium length version with neck

HM MG10 | λ 55° γ 15°



Roughing

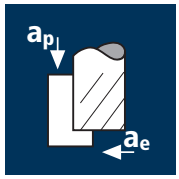
Finishing

Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5319** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P5319	POLYCHROM P5219
.300	6	6	5.5	70	7	33	0.15	4		●
.391	8	8	7.4	80	9	43	0.15	4		●
.450	10	10	9.2	84	11	43	0.20	4		●
.501	12	12	11.0	97	13	51	0.20	4		●
.610	16	16	15.0	115	17	66	0.20	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	200	0.015	4.5	1.2	21220	955	5.0
	4	3	200	0.015	6.0	1.6	15915	715	7.0
	5	3	200	0.020	7.5	2.0	12735	765	11.5
	6	3	200	0.040	9.0	2.4	10610	1275	27.5
	8	3	200	0.050	12.0	3.2	7960	1195	46.0
	10	3	200	0.065	15.0	4.0	6365	1240	74.5
	12	3	200	0.075	18.0	4.8	5305	1195	103.0
	16	3	200	0.085	24.0	6.4	3980	1015	156.0
Steel 850 - 1100 N/mm²	3	3	150	0.015	4.5	1.2	15915	715	4.0
	4	3	150	0.015	6.0	1.6	11935	535	5.0
	5	3	150	0.020	7.5	2.0	9550	575	8.5
	6	3	150	0.040	9.0	2.4	7960	955	20.5
	8	3	150	0.050	12.0	3.2	5970	895	34.5
	10	3	150	0.065	15.0	4.0	4775	930	56.0
	12	3	150	0.075	18.0	4.8	3980	895	77.5
	16	3	150	0.085	24.0	6.4	2985	760	116.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	3	80	0.010	4.5	1.2	8490	255	1.5
	4	3	80	0.015	6.0	1.6	6365	285	2.5
	5	3	80	0.015	7.5	2.0	5095	230	3.5
	6	3	80	0.035	9.0	2.4	4245	445	9.5
	8	3	80	0.045	12.0	3.2	3185	430	16.5
	10	3	80	0.055	15.0	4.0	2545	420	25.0
	12	3	80	0.065	18.0	4.8	2120	415	36.0
	16	3	80	0.075	24.0	6.4	1590	360	55.5
Stainless steel [Cr-Ni/1.4301]	3	3	70	0.010	4.5	1.2	7425	225	1.0
	4	3	70	0.010	6.0	1.6	5570	165	1.5
	5	3	70	0.010	7.5	2.0	4455	135	2.0
	6	3	70	0.030	9.0	2.4	3715	335	7.0
	8	3	70	0.035	12.0	3.2	2785	290	11.0
	10	3	70	0.045	15.0	4.0	2230	300	18.0
	12	3	70	0.050	18.0	4.8	1855	280	24.0
	16	3	70	0.060	24.0	6.4	1395	250	38.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	180	0.015	4.2	3	19100	860	11.0
	4	3	180	0.015	5.6	4	14325	645	14.5
	5	3	180	0.025	7.0	5	11460	860	30.0
	6	3	180	0.030	8.4	6	9550	860	43.5
	8	3	180	0.040	11.2	8	7160	860	77.0
	10	3	180	0.050	14.0	10	5730	860	120.5
	12	3	180	0.060	16.8	12	4775	860	173.5
	16	3	180	0.070	14.4	16	3580	750	173.0
Steel 850 - 1100 N/mm²	3	3	120	0.015	4.2	3	12735	575	7.0
	4	3	120	0.015	5.6	4	9550	430	9.5
	5	3	120	0.025	7.0	5	7640	575	20.0
	6	3	120	0.030	8.4	6	6365	575	29.0
	8	3	120	0.040	11.2	8	4775	575	51.5
	10	3	120	0.050	14.0	10	3820	575	80.5
	12	3	120	0.060	16.8	12	3185	575	116.0
	16	3	120	0.070	14.4	16	2385	500	115.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	3	60	0.010	4.2	3	6365	190	2.5
	4	3	60	0.015	5.6	4	4775	215	5.0
	5	3	60	0.015	7.0	5	3820	170	6.0
	6	3	60	0.030	8.4	6	3185	285	14.5
	8	3	60	0.040	11.2	8	2385	285	25.5
	10	3	60	0.050	14.0	10	1910	285	40.0
	12	3	60	0.060	16.8	12	1590	285	57.5
	16	3	60	0.070	14.4	16	1195	250	57.5
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	4.2	3	5305	160	2.0
	4	3	50	0.010	5.6	4	3980	120	2.5
	5	3	50	0.010	7.0	5	3185	95	3.5
	6	3	50	0.025	8.4	6	2655	200	10.0
	8	3	50	0.030	11.2	8	1990	180	16.0
	10	3	50	0.040	14.0	10	1590	190	26.5
	12	3	50	0.050	16.8	12	1325	200	40.5
	16	3	50	0.055	14.4	16	995	165	38.0

Cylindrical end mills NV3

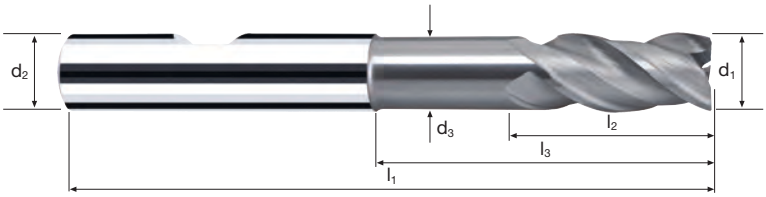
Smooth-edged, medium length version with neck

HM MG10

λ 40°
γ 0°

45°

Vario



Roughing

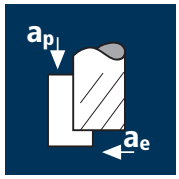
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **15399** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P15399	POLYCHROM P15299
.180	3	6	2.8	63	8	20	0.10	3.5°	3		●
.220	4	6	3.7	63	11	22	0.10	2.5°	3		●
.260	5	6	4.6	63	13	24	0.15	1.5°	3		●
.300	6	6	5.5	63	13	26	0.15	0.0°	3		●
.391	8	8	7.4	72	19	35	0.15	0.0°	3		●
.450	10	10	9.2	84	22	43	0.20	0.0°	3		●
.501	12	12	11.0	97	26	51	0.20	0.0°	3		●
new! .610	16	16	15.0	108	32	59	0.20	0.0°	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	80	0.010	4.5	2.0	8490	255	2.0
	4	3	80	0.015	6.0	2.6	6365	285	4.5
	5	3	80	0.020	7.5	3.3	5095	305	7.5
	6	3	80	0.020	9.0	3.9	4245	255	9.0
	8	3	80	0.030	12.0	5.2	3185	285	18.0
	10	3	80	0.035	15.0	6.5	2545	265	26.0
	12	3	80	0.045	18.0	7.8	2120	285	40.0
	16	3	80	0.055	24.0	8.8	1590	260	55.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	40	0.010	4.5	2.0	4245	125	1.0
	4	3	40	0.015	6.0	2.6	3185	145	2.5
	5	3	40	0.020	7.5	3.3	2545	155	4.0
	6	3	40	0.020	9.0	3.9	2120	125	4.5
	8	3	40	0.030	12.0	5.2	1590	145	9.0
	10	3	40	0.035	15.0	6.5	1275	135	13.0
	12	3	40	0.045	18.0	7.8	1060	145	20.5
	16	3	40	0.055	24.0	8.8	795	130	27.5
Heat resistant steel [17-4 PH]	3	3	25	0.010	4.5	2.0	2655	80	0.5
	4	3	25	0.010	6.0	2.6	1990	60	1.0
	5	3	25	0.015	7.5	3.3	1590	70	1.5
	6	3	25	0.015	9.0	3.9	1325	60	2.0
	8	3	25	0.020	12.0	5.2	995	60	3.5
	10	3	25	0.025	15.0	6.5	795	60	6.0
	12	3	25	0.030	18.0	7.8	665	60	8.5
	16	3	25	0.040	24.0	8.8	495	60	12.5
Nickel-based alloys prec.-hard. [Inconel 718]	3	3	15	0.010	4.5	2.0	1590	50	0.5
	4	3	15	0.010	6.0	2.6	1195	35	0.5
	5	3	15	0.015	7.5	3.3	955	45	1.0
	6	3	15	0.015	9.0	3.9	795	35	1.0
	8	3	15	0.020	12.0	5.2	595	35	2.0
	10	3	15	0.025	15.0	6.5	475	35	3.5
	12	3	15	0.030	18.0	7.8	400	35	5.0
	16	3	15	0.040	24.0	8.8	300	35	7.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.010	4.5	3	6365	190	2.5
	4	3	60	0.015	6.0	4	4775	215	5.0
	5	3	60	0.015	7.5	5	3820	170	6.5
	6	3	60	0.020	9.0	6	3185	190	10.5
	8	3	60	0.025	12.0	8	2385	180	17.5
	10	3	60	0.030	15.0	10	1910	170	25.5
	12	3	60	0.040	18.0	12	1590	190	41.0
	16	3	60	0.050	20.8	16	1195	180	60.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	3	30	0.010	4.5	3	3185	95	1.5
	4	3	30	0.015	6.0	4	2385	105	2.5
	5	3	30	0.015	7.5	5	1910	85	3.0
	6	3	30	0.020	9.0	6	1590	95	5.0
	8	3	30	0.025	12.0	8	1195	90	8.5
	10	3	30	0.030	15.0	10	955	85	13.0
	12	3	30	0.040	18.0	12	795	95	20.5
	16	3	30	0.050	20.8	16	595	90	30.0
Heat resistant steel [17-4 PH]	3	3	20	0.005	4.5	3	2120	30	0.5
	4	3	20	0.010	6.0	4	1590	50	1.0
	5	3	20	0.010	7.5	5	1275	40	1.5
	6	3	20	0.015	9.0	6	1060	50	2.5
	8	3	20	0.020	12.0	8	795	50	5.0
	10	3	20	0.025	15.0	10	635	50	7.5
	12	3	20	0.030	18.0	12	530	50	11.0
	16	3	20	0.040	20.8	16	400	50	16.5
Nickel-based alloys prec.-hard. [Inconel 718]	3	3	10	0.005	4.5	3	1060	15	0.2
	4	3	10	0.010	6.0	4	795	25	0.5
	5	3	10	0.010	7.5	5	635	20	1.0
	6	3	10	0.015	9.0	6	530	25	1.5
	8	3	10	0.020	12.0	8	400	25	2.5
	10	3	10	0.025	15.0	10	320	25	4.0
	12	3	10	0.030	18.0	12	265	25	5.5
	16	3	10	0.040	20.8	16	200	25	8.5

Cylindrical end mills NV3

Smooth-edged, medium length version with neck

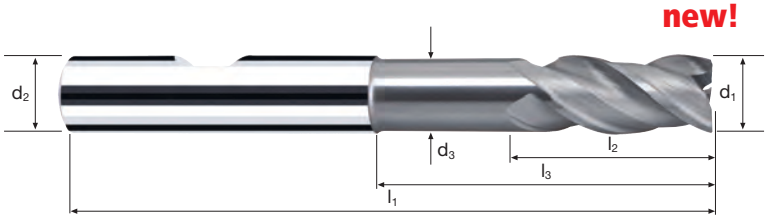
HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 10°

45°

Vario

new!



Roughing

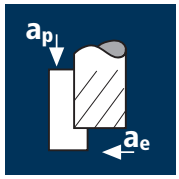
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15394** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P15394	POLYCHROM P15294
.180	3	6	2.8	63	8	20	0.10	3.5°	3		●
.220	4	6	3.7	63	11	22	0.10	2.5°	3		●
.260	5	6	4.6	63	13	24	0.15	1.5°	3		●
.300	6	6	5.5	63	13	26	0.15	0.0°	3		●
.391	8	8	7.4	72	19	35	0.15	0.0°	3		●
.450	10	10	9.2	84	22	43	0.20	0.0°	3		●
.501	12	12	11.0	97	26	51	0.20	0.0°	3		●
.610	16	16	15.0	108	32	59	0.20	0.0°	3		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]
Steel < 850 N/mm²	3	3	120	0.010	4.5	0.2	12735	380
	4	3	120	0.010	6.0	0.2	9550	285
	5	3	120	0.015	7.5	0.3	7640	345
	6	3	120	0.015	9.0	0.3	6365	285
	8	3	120	0.020	12.0	0.4	4775	285
	10	3	120	0.025	15.0	0.5	3820	285
	12	3	120	0.030	18.0	0.6	3185	285
	16	3	120	0.040	24.0	0.8	2385	285
Steel 850 - 1100 N/mm²	3	3	80	0.010	4.5	0.2	8490	255
	4	3	80	0.010	6.0	0.2	6365	190
	5	3	80	0.015	7.5	0.3	5095	230
	6	3	80	0.015	9.0	0.3	4245	190
	8	3	80	0.020	12.0	0.4	3185	190
	10	3	80	0.025	15.0	0.5	2545	190
	12	3	80	0.030	18.0	0.6	2120	190
	16	3	80	0.040	24.0	0.8	1590	190
Cast iron (lamellar / spheroidal)	3	3	160	0.010	4.5	0.2	16975	510
	4	3	160	0.010	6.0	0.2	12735	380
	5	3	160	0.015	7.5	0.3	10185	460
	6	3	160	0.015	9.0	0.3	8490	380
	8	3	160	0.020	12.0	0.4	6365	380
	10	3	160	0.025	15.0	0.5	5095	380
	12	3	160	0.030	18.0	0.6	4245	380
	16	3	160	0.040	24.0	0.8	3185	380
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	4.5	0.2	5305	160
	4	3	50	0.010	6.0	0.2	3980	120
	5	3	50	0.015	7.5	0.3	3185	145
	6	3	50	0.015	9.0	0.3	2655	120
	8	3	50	0.020	12.0	0.4	1990	120
	10	3	50	0.025	15.0	0.5	1590	120
	12	3	50	0.030	18.0	0.6	1325	120
	16	3	50	0.040	24.0	0.8	995	120

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	100	0.005	0.6	3	10610	160	0.3
	4	3	100	0.010	0.8	4	7960	240	0.8
	5	3	100	0.010	1.0	5	6365	190	1.0
	6	3	100	0.010	1.2	6	5305	160	1.2
	8	3	100	0.015	1.6	8	3980	180	2.3
	10	3	100	0.020	2.0	10	3185	190	3.8
	12	3	100	0.025	2.4	12	2655	200	5.8
	16	3	100	0.030	3.2	16	1990	180	9.2
Steel 850 - 1100 N/mm²	3	3	70	0.005	0.6	3	7425	110	0.2
	4	3	70	0.005	0.8	4	5570	85	0.3
	5	3	70	0.010	1.0	5	4455	135	0.7
	6	3	70	0.010	1.2	6	3715	110	0.8
	8	3	70	0.015	1.6	8	2785	125	1.6
	10	3	70	0.020	2.0	10	2230	135	2.7
	12	3	70	0.020	2.4	12	1855	110	3.2
	16	3	70	0.030	3.2	16	1395	125	6.4
Cast iron (lamellar / spheroidal)	3	3	120	0.005	0.6	3	12735	190	0.3
	4	3	120	0.010	0.8	4	9550	285	0.9
	5	3	120	0.010	1.0	5	7640	230	1.2
	6	3	120	0.015	1.2	6	6365	285	2.1
	8	3	120	0.020	1.6	8	4775	285	3.6
	10	3	120	0.020	2.0	10	3820	230	4.6
	12	3	120	0.025	2.4	12	3185	240	6.9
	16	3	120	0.035	3.2	16	2385	250	12.8
Stainless steel [Cr-Ni/1.4301]	3	3	35	0.005	0.6	3	3715	55	0.1
	4	3	35	0.005	0.8	4	2785	40	0.1
	5	3	35	0.010	1.0	5	2230	65	0.3
	6	3	35	0.010	1.2	6	1855	55	0.4
	8	3	35	0.015	1.6	8	1395	65	0.8
	10	3	35	0.020	2.0	10	1115	65	1.3
	12	3	35	0.020	2.4	12	930	55	1.6
	16	3	35	0.030	3.2	16	695	65	3.3

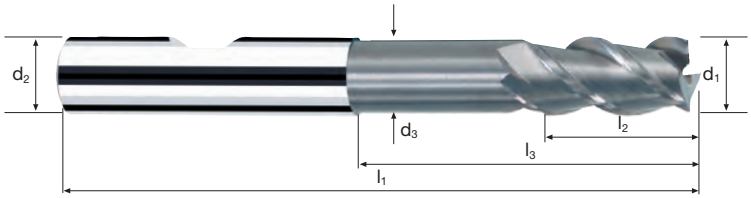
Cylindrical end mills

Smooth-edged, medium length version with neck

HM
MG10

λ **45°**
γ **15°**

45°



Roughing

Finishing

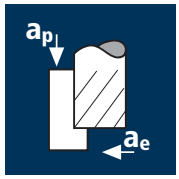
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless		**GG(G) Copper**

Example: **Order-N°.** Coating **P** Article-N°. **5333** ø-Code **.180**

new!

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	5333	POLYCHROM P5333
.180	3	6	2.8	63	8	14	0.10	4.5°	3	●	●
.220	4	6	3.7	63	11	16	0.10	3.0°	3	●	●
.260	5	6	4.6	63	13	18	0.15	1.5°	3	●	●
.300	6	6	5.5	63	13	26	0.15	0.0°	3	●	●
.391	8	8	7.4	72	19	35	0.15	0.0°	3	●	●
.450	10	10	9.2	84	22	43	0.20	0.0°	3	●	●
.501	12	12	11.0	97	26	51	0.20	0.0°	3	●	●
.610	16	16	15.0	108	32	59	0.20	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	6	4	80	0.015	15	0.4	4245	255
	8	4	80	0.020	20	0.5	3185	255
	10	4	80	0.025	25	0.6	2545	255
	12	4	80	0.030	30	0.7	2120	255
	16	4	80	0.040	40	1.0	1590	255
	20	4	80	0.050	50	1.2	1275	255
Steel 850 - 1100 N/mm²	6	4	55	0.015	15	0.4	2920	175
	8	4	55	0.020	20	0.5	2190	175
	10	4	55	0.025	25	0.6	1750	175
	12	4	55	0.030	30	0.7	1460	175
	16	4	55	0.040	40	1.0	1095	175
	20	4	55	0.050	50	1.2	875	175
Steel 1100 - 1300 N/mm²	6	4	40	0.015	15	0.4	2120	125
	8	4	40	0.020	20	0.5	1590	125
	10	4	40	0.025	25	0.6	1275	130
	12	4	40	0.030	30	0.7	1060	125
	16	4	40	0.040	40	1.0	795	125
	20	4	40	0.050	50	1.2	635	125
Stainless steel [Cr-Ni/1.4301]	6	4	35	0.015	15	0.4	1855	110
	8	4	35	0.020	20	0.5	1395	110
	10	4	35	0.025	25	0.6	1115	110
	12	4	35	0.030	30	0.7	930	110
	16	4	35	0.040	40	1.0	695	110
	20	4	35	0.050	50	1.2	555	110

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	6	4	65	0.015	15	0.4	3450	205
	8	4	65	0.020	20	0.5	2585	205
	10	4	65	0.025	25	0.6	2070	205
	12	4	65	0.030	30	0.7	1725	205
	16	4	65	0.040	40	1.0	1295	205
	20	4	65	0.050	50	1.2	1035	205
Unalloyed copper	6	4	110	0.015	15	0.4	5835	350
	8	4	110	0.020	20	0.5	4375	350
	10	4	110	0.025	25	0.6	3500	350
	12	4	110	0.030	30	0.7	2920	350
	16	4	110	0.040	40	1.0	2190	350
	20	4	110	0.050	50	1.2	1750	350
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	6	4	40	0.015	15	0.4	2120	125
	8	4	40	0.020	20	0.5	1590	125
	10	4	40	0.025	25	0.6	1275	130
	12	4	40	0.030	30	0.7	1060	125
	16	4	40	0.040	40	1.0	795	125
	20	4	40	0.050	50	1.2	635	125
Heat resistant steel [17-4 PH]	6	4	20	0.015	15	0.4	1060	65
	8	4	20	0.020	20	0.5	795	65
	10	4	20	0.025	25	0.6	635	65
	12	4	20	0.030	30	0.7	530	65
	16	4	20	0.040	40	1.0	400	65
	20	4	20	0.050	50	1.2	320	65

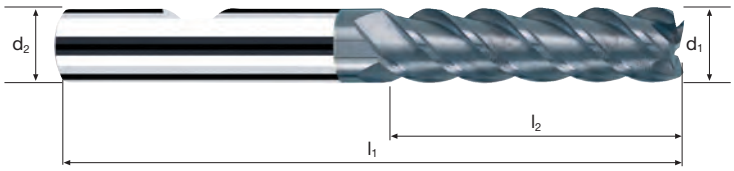
Cylindrical end mills

Smooth-edged, long version

HM
MG10

λ **45°**
γ **15°**

45°



Roughing

Finishing

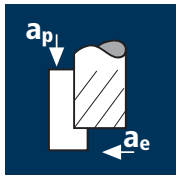
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **15345** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z		POLYCHROM P15345	P15245
.300	6	6	70	26	0.15	4		●	
.391	8	8	80	36	0.15	4		●	
.450	10	10	100	45	0.20	4		●	
.501	12	12	110	53	0.20	4		●	
.610	16	16	123	63	0.20	4		●	
.682	20	20	141	75	0.20	4		●	

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	4	4	32	0.005	11	0.05	2545	50
	6	4	32	0.010	17	0.10	1700	70
	8	4	32	0.015	22	0.10	1275	75
	10	4	32	0.020	28	0.15	1020	80
	12	4	32	0.020	34	0.20	850	70
	16	4	32	0.030	45	0.25	635	75
	20	4	32	0.035	56	0.30	510	70
	30	6	32	0.055	84	0.45	340	110
	40	6	32	0.075	112	0.60	255	115
Steel 850 - 1100 N/mm²	4	4	25	0.005	11	0.05	1990	40
	6	4	25	0.010	17	0.10	1325	55
	8	4	25	0.015	22	0.10	995	60
	10	4	25	0.020	28	0.15	795	65
	12	4	25	0.020	34	0.20	665	55
	16	4	25	0.030	45	0.25	495	60
	20	4	25	0.035	56	0.30	400	55
	30	6	25	0.055	84	0.45	265	85
	40	6	25	0.075	112	0.60	200	90
Steel 1100 - 1300 N/mm²	4	4	20	0.005	11	0.05	1590	30
	6	4	20	0.010	17	0.10	1060	40
	8	4	20	0.015	22	0.10	795	50
	10	4	20	0.020	28	0.15	635	50
	12	4	20	0.020	34	0.20	530	40
	16	4	20	0.030	45	0.25	400	50
	20	4	20	0.035	56	0.30	320	45
	30	6	20	0.055	84	0.45	210	70
	40	6	20	0.075	112	0.60	160	70
Cold work tool steel (12% Cr), high alloyed [1.2379]	4	4	18	0.005	11	0.05	1430	30
	6	4	18	0.010	17	0.10	955	40
	8	4	18	0.015	22	0.10	715	45
	10	4	18	0.020	28	0.15	575	45
	12	4	18	0.020	34	0.20	475	40
	16	4	18	0.030	45	0.25	360	45
	20	4	18	0.035	56	0.30	285	40
	30	6	18	0.055	84	0.45	190	65
	40	6	18	0.075	112	0.60	145	65

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	4	4	24	0.005	11	0.05	1910	40
	6	4	24	0.010	17	0.10	1275	50
	8	4	24	0.015	22	0.10	955	55
	10	4	24	0.020	28	0.15	765	60
	12	4	24	0.020	34	0.20	635	50
	16	4	24	0.030	45	0.25	475	55
	20	4	24	0.035	56	0.30	380	55
	30	6	24	0.055	84	0.45	255	85
	40	6	24	0.075	112	0.60	190	85
Stainless steel [Cr-Ni/1.4301]	4	4	15	0.005	11	0.05	1195	25
	6	4	15	0.010	17	0.10	795	30
	8	4	15	0.015	22	0.10	595	35
	10	4	15	0.020	28	0.15	475	40
	12	4	15	0.020	34	0.20	400	30
	16	4	15	0.030	45	0.25	300	35
	20	4	15	0.035	56	0.30	240	35
	30	6	15	0.055	84	0.45	160	55
	40	6	15	0.075	112	0.60	120	55
Unalloyed copper	4	4	40	0.005	11	0.05	3185	65
	6	4	40	0.010	17	0.10	2120	85
	8	4	40	0.015	22	0.10	1590	95
	10	4	40	0.020	28	0.15	1275	100
	12	4	40	0.020	34	0.20	1060	85
	16	4	40	0.030	45	0.25	795	95
	20	4	40	0.035	56	0.30	635	90
	30	6	40	0.055	84	0.45	425	140
	40	6	40	0.075	112	0.60	320	145
Wrought aluminium alloys Si < 6%	4	4	50	0.005	11	0.05	3980	80
	6	4	50	0.010	17	0.10	2655	105
	8	4	50	0.015	22	0.10	1990	120
	10	4	50	0.020	28	0.15	1590	125
	12	4	50	0.020	34	0.20	1325	105
	16	4	50	0.030	45	0.25	995	120
	20	4	50	0.035	56	0.30	795	110
	30	6	50	0.055	84	0.45	530	175
	40	6	50	0.075	112	0.60	400	180

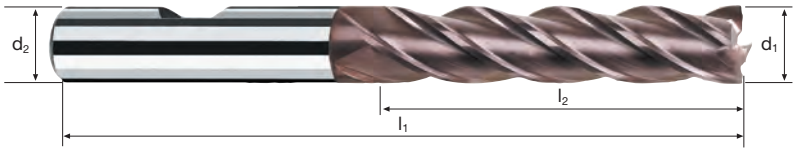
Cylindrical end mills

Smooth-edged, long version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 35° γ 15°**

90°



Roughing

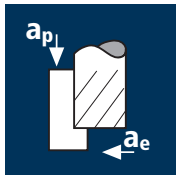
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **0200** | ø-Code **.140**

ø Code	d_1 k8	d_2 h6	l_1	l_2	α	z		UNICUT-4X U0200
.140	2.0	6	54	10	7.0°	4		●
.160	2.5	6	56	12	5.5°	4		●
.180	3.0	6	56	12	4.5°	4		●
.220	4.0	6	63	19	2.5°	4		●
.260	5.0	6	68	24	1.0°	4		●
.300	6.0	6	68	24	0.0°	4		●
.391	8.0	8	82	38	0.0°	4		●
.450	10.0	10	95	45	0.0°	4		●
.501	12.0	12	110	53	0.0°	4		●
.570	14.0	12	110	53	0.0°	4		●
.610	16.0	16	123	63	0.0°	4		●
.640	18.0	16	123	63	0.0°	4		●
.682	20.0	20	141	75	0.0°	4		●
.772	25.0	25	166	90	0.0°	4		●
.810	30.0	25	166	90	0.0°	6		●
.832	32.0	32	186	106	0.0°	6		●
.860	36.0	32	186	106	0.0°	6		●
.881	40.0	32	205	125	0.0°	6		●
.892	40.0	40	217	125	0.0°	6		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	34	0.005	7.0	0.05	5410	80
	4	3	34	0.005	14.0	0.10	2705	40
	5	3	34	0.005	17.5	0.10	2165	30
	6	3	34	0.010	21.0	0.10	1805	55
	8	3	34	0.010	28.0	0.15	1355	40
	10	3	34	0.015	35.0	0.20	1080	50
	12	3	34	0.015	42.0	0.25	900	40
	16	3	34	0.020	56.0	0.30	675	40
	20	3	34	0.025	70.0	0.40	540	40
Steel 850 - 1100 N/mm²	2	3	22	0.005	7.0	0.05	3500	55
	4	3	22	0.005	14.0	0.10	1750	25
	5	3	22	0.005	17.5	0.10	1400	20
	6	3	22	0.010	21.0	0.10	1165	35
	8	3	22	0.010	28.0	0.15	875	25
	10	3	22	0.015	35.0	0.20	700	30
	12	3	22	0.015	42.0	0.25	585	25
	16	3	22	0.020	56.0	0.30	440	25
	20	3	22	0.025	70.0	0.40	350	25
Cast iron (lamellar / spheroidal)	2	3	20	0.005	7.0	0.05	3185	50
	4	3	20	0.005	14.0	0.10	1590	25
	5	3	20	0.005	17.5	0.10	1275	20
	6	3	20	0.010	21.0	0.10	1060	30
	8	3	20	0.010	28.0	0.15	795	25
	10	3	20	0.015	35.0	0.20	635	30
	12	3	20	0.015	42.0	0.25	530	25
	16	3	20	0.020	56.0	0.30	400	25
	20	3	20	0.025	70.0	0.40	320	25
Stainless steel [Cr-Ni/1.4301]	2	3	15	0.005	7.0	0.05	2385	35
	4	3	15	0.005	14.0	0.10	1195	20
	5	3	15	0.005	17.5	0.10	955	15
	6	3	15	0.010	21.0	0.10	795	25
	8	3	15	0.010	28.0	0.15	595	20
	10	3	15	0.015	35.0	0.20	475	20
	12	3	15	0.015	42.0	0.25	400	20
	16	3	15	0.020	56.0	0.30	300	20
	20	3	15	0.025	70.0	0.40	240	20

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Stainless steel [Cr-Ni-Mo-.../1.4571]	2	3	12	0.005	7.0	0.05	1910	30
	4	3	12	0.005	14.0	0.10	955	15
	5	3	12	0.005	17.5	0.10	765	10
	6	3	12	0.010	21.0	0.10	635	20
	8	3	12	0.010	28.0	0.15	475	15
	10	3	12	0.015	35.0	0.20	380	15
	12	3	12	0.015	42.0	0.25	320	15
	16	3	12	0.020	56.0	0.30	240	15
	20	3	12	0.025	70.0	0.40	190	15
Unalloyed copper	2	3	40	0.005	7.0	0.05	6365	95
	4	3	40	0.005	14.0	0.10	3185	50
	5	3	40	0.005	17.5	0.10	2545	40
	6	3	40	0.010	21.0	0.10	2120	65
	8	3	40	0.010	28.0	0.15	1590	50
	10	3	40	0.015	35.0	0.20	1275	55
	12	3	40	0.015	42.0	0.25	1060	50
	16	3	40	0.020	56.0	0.30	795	50
	20	3	40	0.025	70.0	0.40	635	50
Wrought aluminium alloys Si < 6%	2	3	50	0.005	7.0	0.05	7960	120
	4	3	50	0.005	14.0	0.10	3980	60
	5	3	50	0.005	17.5	0.10	3185	50
	6	3	50	0.010	21.0	0.10	2655	80
	8	3	50	0.010	28.0	0.15	1990	60
	10	3	50	0.015	35.0	0.20	1590	70
	12	3	50	0.015	42.0	0.25	1325	60
	16	3	50	0.020	56.0	0.30	995	60
	20	3	50	0.025	70.0	0.40	795	60

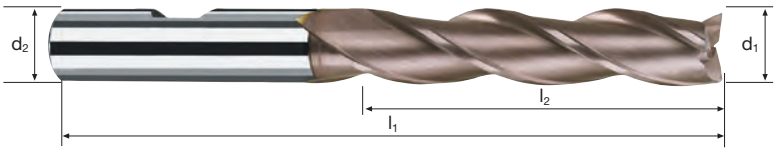
Cylindrical end mills

Smooth-edged, long version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

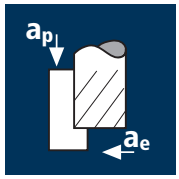
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0270** ø-Code **.140**

ø Code	d_1 k8	d_2 h6	l_1	l_2	α	z		UNICUT-4X U0270
.140	2.0	6	54	10	7.0°	3		●
.160	2.5	6	56	12	5.5°	3		●
.180	3.0	6	56	12	4.5°	3		●
.200	3.5	6	59	15	3.5°	3		●
.220	4.0	6	63	19	2.5°	3		●
.260	5.0	6	68	24	1.0°	3		●
.300	6.0	6	68	24	0.0°	3		●
.391	8.0	8	82	38	0.0°	3		●
.450	10.0	10	95	45	0.0°	3		●
.501	12.0	12	110	53	0.0°	3		●
.570	14.0	12	110	53	0.0°	3		●
.610	16.0	16	123	63	0.0°	3		●
.640	18.0	16	123	63	0.0°	3		●
.682	20.0	20	141	75	0.0°	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	120	0.010	4.5	0.1	12735	380	0.1
	4	3	120	0.010	6.0	0.1	9550	285	0.2
	5	3	120	0.015	7.5	0.1	7640	345	0.3
	6	3	120	0.015	9.0	0.2	6365	285	0.4
	8	3	120	0.020	12.0	0.2	4775	285	0.7
	10	3	120	0.025	15.0	0.3	3820	285	1.1
	12	3	120	0.030	18.0	0.3	3185	285	1.5
	16	3	120	0.040	24.0	0.4	2385	285	2.7
Steel 850 - 1100 N/mm²	3	3	80	0.010	4.5	0.1	8490	255	0.1
	4	3	80	0.010	6.0	0.1	6365	190	0.1
	5	3	80	0.015	7.5	0.1	5095	230	0.0
	6	3	80	0.015	9.0	0.2	4245	190	0.5
	8	3	80	0.020	12.0	0.2	3185	190	0.5
	10	3	80	0.025	15.0	0.3	2545	190	0.5
	12	3	80	0.030	18.0	0.3	2120	190	1.0
	16	3	80	0.040	24.0	0.4	1590	190	2.0
Cast iron (lamellar / spheroidal)	3	3	160	0.010	4.5	0.1	16975	510	0.2
	4	3	160	0.010	6.0	0.1	12735	380	0.2
	5	3	160	0.015	7.5	0.1	10185	460	0.4
	6	3	160	0.015	9.0	0.2	8490	380	0.5
	8	3	160	0.020	12.0	0.2	6365	380	0.9
	10	3	160	0.025	15.0	0.3	5095	380	1.4
	12	3	160	0.030	18.0	0.3	4245	380	2.1
	16	3	160	0.040	24.0	0.4	3185	380	3.6
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	4.5	0.1	5305	160	0.1
	4	3	50	0.010	6.0	0.1	3980	120	0.1
	5	3	50	0.015	7.5	0.1	3185	145	0.1
	6	3	50	0.015	9.0	0.2	2655	120	0.2
	8	3	50	0.020	12.0	0.2	1990	120	0.3
	10	3	50	0.025	15.0	0.3	1590	120	0.5
	12	3	50	0.030	18.0	0.3	1325	120	0.6
	16	3	50	0.040	24.0	0.4	995	120	1.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	100	0.005	0.3	3	10610	160	0.1
	4	3	100	0.010	0.4	4	7960	240	0.4
	5	3	100	0.010	0.5	5	6365	190	0.5
	6	3	100	0.010	0.6	6	5305	160	0.6
	8	3	100	0.015	0.8	8	3980	180	1.2
	10	3	100	0.020	1.0	10	3185	190	1.9
	12	3	100	0.025	1.2	12	2655	200	2.9
	16	3	100	0.030	1.6	16	1990	180	4.6
Steel 850 - 1100 N/mm²	3	3	70	0.005	0.3	3	7425	110	0.1
	4	3	70	0.005	0.4	4	5570	85	0.1
	5	3	70	0.010	0.5	5	4455	135	0.3
	6	3	70	0.010	0.6	6	3715	110	0.4
	8	3	70	0.015	0.8	8	2785	125	0.8
	10	3	70	0.020	1.0	10	2230	135	1.4
	12	3	70	0.020	1.2	12	1855	110	1.6
	16	3	70	0.030	1.6	16	1395	125	3.2
Cast iron (lamellar / spheroidal)	3	3	120	0.005	0.3	3	12735	190	0.2
	4	3	120	0.010	0.4	4	9550	285	0.5
	5	3	120	0.010	0.5	5	7640	230	0.6
	6	3	120	0.015	0.6	6	6365	285	1.0
	8	3	120	0.020	0.8	8	4775	285	1.8
	10	3	120	0.020	1.0	10	3820	230	2.3
	12	3	120	0.025	1.2	12	3185	240	3.5
	16	3	120	0.035	1.6	16	2385	250	6.4
Stainless steel [Cr-Ni/1.4301]	3	3	35	0.005	0.3	3	3715	55	0.1
	4	3	35	0.005	0.4	4	2785	40	0.1
	5	3	35	0.010	0.5	5	2230	65	0.2
	6	3	35	0.010	0.6	6	1855	55	0.2
	8	3	35	0.015	0.8	8	1395	65	0.4
	10	3	35	0.020	1.0	10	1115	65	0.7
	12	3	35	0.020	1.2	12	930	55	0.8
	16	3	35	0.030	1.6	16	695	65	1.7

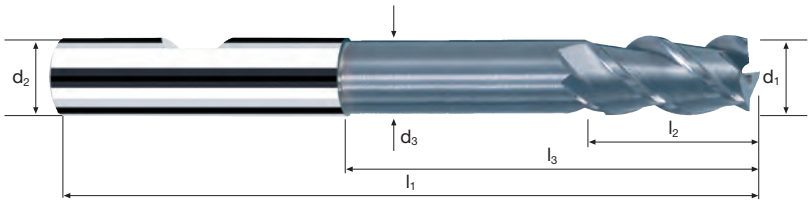
Cylindrical end mills

Smooth-edged, long version with neck

HM
MG10

λ **45°**
γ **15°**

45°



Roughing

Finishing

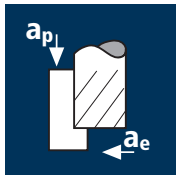
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless		**GG(G) Copper**

Example: **Order-N°.** Coating **P** | Article-N°. **5393** | ø-Code **.180**

new!

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	POLYCHROM **P5393**
.180	3	6	2.8	70	8	16	0.10	4.0°	3	●
.220	4	6	3.7	70	11	18	0.10	3.0°	3	●
.260	5	6	4.6	70	13	21	0.15	1.5°	3	●
.300	6	6	5.5	70	13	33	0.15	0.0°	3	●
.391	8	8	7.4	90	19	53	0.15	0.0°	3	●
.450	10	10	9.2	100	22	59	0.20	0.0°	3	●
.501	12	12	11.0	110	26	64	0.20	0.0°	3	●
.610	16	16	15.0	123	32	74	0.20	0.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	6	4	30	0.010	18	0.1	1590	65
	8	4	30	0.015	24	0.2	1195	70
	10	4	30	0.020	30	0.2	955	75
	12	4	30	0.025	36	0.2	795	80
	16	4	30	0.030	48	0.3	595	70
	20	4	30	0.040	60	0.4	475	75
Steel 850 - 1100 N/mm²	6	4	30	0.010	18	0.1	1590	65
	8	4	30	0.015	24	0.2	1195	70
	10	4	30	0.020	30	0.2	955	75
	12	4	30	0.025	36	0.2	795	80
	16	4	30	0.030	48	0.3	595	70
	20	4	30	0.040	60	0.4	475	75
Steel 1100 - 1300 N/mm²	6	4	20	0.010	18	0.1	1060	40
	8	4	20	0.015	24	0.2	795	50
	10	4	20	0.020	30	0.2	635	50
	12	4	20	0.025	36	0.2	530	55
	16	4	20	0.030	48	0.3	400	50
	20	4	20	0.040	60	0.4	320	50
Stainless steel [Cr-Ni/1.4301]	6	4	18	0.010	18	0.1	955	40
	8	4	18	0.015	24	0.2	715	45
	10	4	18	0.020	30	0.2	575	45
	12	4	18	0.025	36	0.2	475	50
	16	4	18	0.030	48	0.3	360	45
	20	4	18	0.040	60	0.4	285	45

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	6	4	30	0.010	18	0.1	1590	65
	8	4	30	0.015	24	0.2	1195	70
	10	4	30	0.020	30	0.2	955	75
	12	4	30	0.025	36	0.2	795	80
	16	4	30	0.030	48	0.3	595	70
	20	4	30	0.040	60	0.4	475	75
Unalloyed copper	6	4	30	0.010	18	0.1	1590	65
	8	4	30	0.015	24	0.2	1195	70
	10	4	30	0.020	30	0.2	955	75
	12	4	30	0.025	36	0.2	795	80
	16	4	30	0.030	48	0.3	595	70
	20	4	30	0.040	60	0.4	475	75
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	6	4	20	0.010	18	0.1	1060	40
	8	4	20	0.015	24	0.2	795	50
	10	4	20	0.020	30	0.2	635	50
	12	4	20	0.025	36	0.2	530	55
	16	4	20	0.030	48	0.3	400	50
	20	4	20	0.040	60	0.4	320	50
Heat resistant steel [17-4 PH]	6	4	15	0.010	18	0.1	795	30
	8	4	15	0.015	24	0.2	595	35
	10	4	15	0.020	30	0.2	475	40
	12	4	15	0.025	36	0.2	400	40
	16	4	15	0.030	48	0.3	300	35
	20	4	15	0.040	60	0.4	240	40

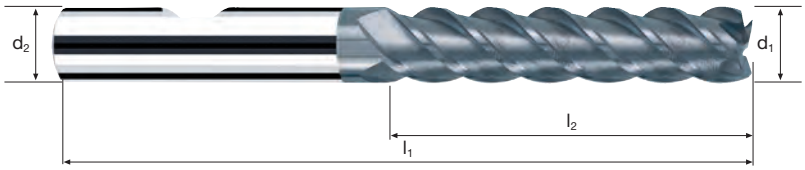
Cylindrical end mills

Smooth-edged, extra-long version

HM
MG10

λ **45°**
γ **15°**





Roughing



Finishing



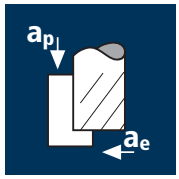
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **15347** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z		POLYCHROM
								P15347
								P15247
.300	6	6	75	31	0.15	4		●
.391	8	8	90	45	0.15	4		●
.450	10	10	100	52	0.20	4		●
.501	12	12	120	69	0.20	4		●
.610	16	16	135	75	0.20	4		●
.682	20	20	166	100	0.20	4		●

Application



Material	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	200	0.020	3	1.4	21220	1700	7.0
	4	4	200	0.025	4	1.8	15915	1590	11.5
	5	4	200	0.035	5	2.3	12735	1785	20.0
	6	4	200	0.040	6	2.7	10610	1700	27.5
	8	4	200	0.055	8	3.6	7960	1750	50.5
	10	4	200	0.070	10	4.5	6365	1780	80.0
	12	4	200	0.075	12	5.4	5305	1590	103.0
	16	4	200	0.100	16	4.0	3980	1590	102.0
Steel 850 - 1100 N/mm²	3	4	150	0.020	3	1.4	15915	1275	5.0
	4	4	150	0.025	4	1.8	11935	1195	8.5
	5	4	150	0.035	5	2.3	9550	1335	15.0
	6	4	150	0.040	6	2.7	7960	1275	20.5
	8	4	150	0.055	8	3.6	5970	1315	38.0
	10	4	150	0.070	10	4.5	4775	1335	60.0
	12	4	150	0.075	12	5.4	3980	1195	77.5
	16	4	150	0.100	16	4.0	2985	1195	76.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	80	0.020	3	1.4	8490	680	3.0
	4	4	80	0.025	4	1.8	6365	635	4.5
	5	4	80	0.030	5	2.3	5095	610	7.0
	6	4	80	0.040	6	2.7	4245	680	11.0
	8	4	80	0.050	8	3.6	3185	635	18.5
	10	4	80	0.065	10	4.5	2545	660	29.5
	12	4	80	0.075	12	5.4	2120	635	41.0
	16	4	80	0.095	16	4.0	1590	605	38.5
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.015	3	1.4	7425	445	2.0
	4	4	70	0.020	4	1.8	5570	445	3.0
	5	4	70	0.020	5	2.3	4455	355	4.0
	6	4	70	0.030	6	2.7	3715	445	7.0
	8	4	70	0.035	8	3.6	2785	390	11.0
	10	4	70	0.045	10	4.5	2230	400	18.0
	12	4	70	0.055	12	5.4	1855	410	26.5
	16	4	70	0.065	16	4.0	1395	365	23.5

Application



Material	d_1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	180	0.015	2.4	3	19100	1145	8.0
	4	4	180	0.020	3.2	4	14325	1145	14.5
	5	4	180	0.030	4.0	5	11460	1375	27.5
	6	4	180	0.035	4.8	6	9550	1335	38.5
	8	4	180	0.045	6.4	8	7160	1290	66.0
	10	4	180	0.055	8.0	10	5730	1260	101.0
	12	4	180	0.060	9.6	12	4775	1145	132.0
	16	4	180	0.075	6.4	16	3580	1075	110.0
Steel 850 - 1100 N/mm²	3	4	120	0.015	2.4	3	12735	765	5.5
	4	4	120	0.020	3.2	4	9550	765	10.0
	5	4	120	0.030	4.0	5	7640	915	18.5
	6	4	120	0.035	4.8	6	6365	890	25.5
	8	4	120	0.045	6.4	8	4775	860	44.0
	10	4	120	0.055	8.0	10	3820	840	67.0
	12	4	120	0.060	9.6	12	3185	765	88.0
	16	4	120	0.075	6.4	16	2385	715	73.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	60	0.015	2.4	3	6365	380	2.5
	4	4	60	0.020	3.2	4	4775	380	5.0
	5	4	60	0.030	4.0	5	3820	460	9.0
	6	4	60	0.035	4.8	6	3185	445	13.0
	8	4	60	0.045	6.4	8	2385	430	22.0
	10	4	60	0.055	8.0	10	1910	420	33.5
	12	4	60	0.060	9.6	12	1590	380	44.0
	16	4	60	0.075	6.4	16	1195	360	37.0
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.010	2.4	3	5305	210	1.5
	4	4	50	0.015	3.2	4	3980	240	3.0
	5	4	50	0.025	4.0	5	3185	320	6.5
	6	4	50	0.030	4.8	6	2655	320	9.0
	8	4	50	0.035	6.4	8	1990	280	14.5
	10	4	50	0.045	8.0	10	1590	285	23.0
	12	4	50	0.050	9.6	12	1325	265	30.5
	16	4	50	0.060	6.4	16	995	240	24.5

Cylindrical end mills Cut-V

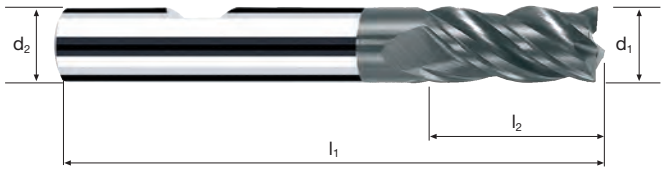
Smooth-edged, short version

HM
MG10

λ 40°
γ 0°

45°

Vario



Roughing

Finishing

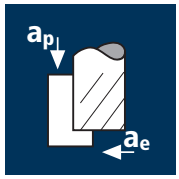
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys

Example: **Order-N°.** Coating **P** | Article-N°. **5329** | ø-Code **.180**

new!

	ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5329	POLYCHROM P5229
new!	.180	3	6	50	6	0.10	7.0°	4		●
new!	.220	4	6	50	8	0.10	4.5°	4		●
new!	.260	5	6	50	9	0.15	2.5°	4		●
	.300	6	6	50	10	0.15	0.0°	4		●
	.391	8	8	54	13	0.15	0.0°	4		●
	.450	10	10	63	16	0.20	0.0°	4		●
	.501	12	12	73	19	0.20	0.0°	4		●
	.610	16	16	82	25	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	2	3	120	0.020	2	1.2	19100	1145	2.5
	3	4	120	0.030	3	1.8	12735	1530	8.5
	4	4	120	0.035	4	2.4	9550	1335	13.0
	5	4	120	0.045	5	3.0	7640	1375	20.5
	6	4	120	0.055	6	1.5	6365	1400	12.5
	8	4	120	0.075	8	4.8	4775	1435	55.0
	10	4	120	0.090	10	6.0	3820	1375	82.5
	12	4	120	0.110	12	7.2	3185	1400	121.0
	16	4	120	0.145	16	4.0	2385	1385	88.5
Hardened tool steel 48 - 52 HRC	2	3	80	0.010	2	1.2	12735	380	1.0
	3	4	80	0.020	3	1.8	8490	680	3.5
	4	4	80	0.025	4	2.4	6365	635	6.0
	5	4	80	0.030	5	3.0	5095	610	9.0
	6	4	80	0.035	6	1.5	4245	595	5.5
	8	4	80	0.050	8	4.8	3185	635	24.5
	10	4	80	0.060	10	6.0	2545	610	36.5
	12	4	80	0.075	12	7.2	2120	635	55.0
	16	4	80	0.100	16	4.0	1590	635	40.5
Hardened tool steel 52 - 56 HRC	2	3	60	0.010	2	1.2	9550	285	.5
	3	4	60	0.015	3	1.8	6365	380	2.0
	4	4	60	0.020	4	2.4	4775	380	3.5
	5	4	60	0.025	5	3.0	3820	380	5.5
	6	4	60	0.030	6	1.5	3185	380	3.5
	8	4	60	0.040	8	4.8	2385	380	14.5
	10	4	60	0.050	10	6.0	1910	380	23.0
	12	4	60	0.060	12	7.2	1590	380	33.0
	16	4	60	0.080	16	4.0	1195	380	24.5
Hardened tool steel 56 - 60 HRC	2	3	30	0.005	2	1.2	4775	70	0.2
	3	4	30	0.010	3	1.8	3185	125	0.5
	4	4	30	0.015	4	2.4	2385	145	1.5
	5	4	30	0.020	5	3.0	1910	155	2.5
	6	4	30	0.020	6	1.5	1590	125	1.0
	8	4	30	0.030	8	4.8	1195	145	5.5
	10	4	30	0.035	10	6.0	955	135	8.0
	12	4	30	0.045	12	7.2	795	145	12.5
	16	4	30	0.060	16	4.0	595	145	9.5

Application



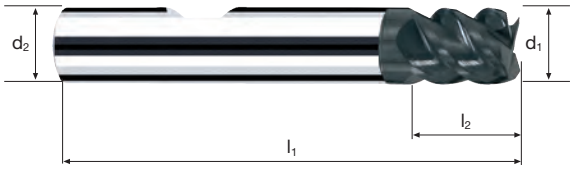
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	2	3	100	0.015	1.0	2	15915	715	1.5
	3	4	100	0.020	1.5	3	10610	850	4.0
	4	4	100	0.030	2.0	4	7960	955	7.5
	5	4	100	0.035	2.5	5	6365	890	11.0
	6	4	100	0.045	3.0	6	5305	955	17.0
	8	4	100	0.060	4.0	8	3980	955	30.5
	10	4	100	0.075	5.0	10	3185	955	48.0
	12	4	100	0.090	6.0	12	2655	955	69.0
	16	4	100	0.115	4.0	16	1990	915	58.5
Hardened tool steel 48 - 52 HRC	2	3	60	0.010	1.0	2	9550	285	.5
	3	4	60	0.015	1.5	3	6365	380	1.5
	4	4	60	0.020	2.0	4	4775	380	3.0
	5	4	60	0.030	2.5	5	3820	460	6.0
	6	4	60	0.035	3.0	6	3185	445	8.0
	8	4	60	0.045	4.0	8	2385	430	14.0
	10	4	60	0.055	5.0	10	1910	420	21.0
	12	4	60	0.065	6.0	12	1590	415	30.0
	16	4	60	0.090	4.0	16	1195	430	27.5
Hardened tool steel 52 - 56 HRC	2	3	40	0.010	1.0	2	6365	190	0.5
	3	4	40	0.015	1.5	3	4245	255	1.0
	4	4	40	0.020	2.0	4	3185	255	2.0
	5	4	40	0.020	2.5	5	2545	205	2.5
	6	4	40	0.025	3.0	6	2120	210	4.0
	8	4	40	0.035	4.0	8	1590	225	7.0
	10	4	40	0.045	5.0	10	1275	230	11.5
	12	4	40	0.055	6.0	12	1060	235	17.0
	16	4	40	0.070	4.0	16	795	225	14.5
Hardened tool steel 56 - 60 HRC	2	3	20	0.006	1.0	2	3185	55	0.1
	3	4	20	0.009	1.5	3	2120	75	0.5
	4	4	20	0.013	2.0	4	1590	85	0.5
	5	4	20	0.016	2.5	5	1275	80	1.0
	6	4	20	0.019	3.0	6	1060	80	1.5
	8	4	20	0.025	4.0	8	795	80	2.5
	10	4	20	0.031	5.0	10	635	80	4.0
	12	4	20	0.038	6.0	12	530	80	6.0
	16	4	20	0.050	4.0	16	400	80	5.0

Cylindrical end mills HX

Smooth-edged, short version

HM MG10 | **λ 55° γ-10°**

45°



Roughing

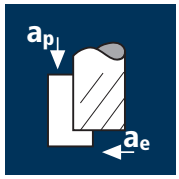
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **5349** | ø-Code **.100**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5349 / P5249	DURO-S D5349 / D5249
.100	1.0	6	50	1.0	0.07	13.0°	3	●	●
.108	1.2	6	50	1.2	0.07	12.5°	3	●	●
.120	1.5	6	50	1.5	0.07	12.0°	3	●	●
.140	2.0	6	50	2.0	0.10	11.0°	3	●	●
.148	2.2	6	50	2.2	0.10	10.0°	3	●	●
.160	2.5	6	50	2.5	0.10	9.5°	3	●	●
.180	3.0	6	50	3.0	0.10	8.5°	4	●	●
.220	4.0	6	54	4.0	0.10	6.5°	4	●	●
.260	5.0	6	54	5.0	0.15	3.5°	4	●	●
.300	6.0	6	54	7.0	0.15	0.0°	4	●	●
.391	8.0	8	58	9.0	0.15	0.0°	4	●	●
.450	10.0	10	66	11.0	0.20	0.0°	4	●	●
.501	12.0	12	73	13.0	0.20	0.0°	4	●	●
.610	16.0	16	82	17.0	0.20	0.0°	4	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	80	0.015	3	1.8	8490	510	3.0
	4	4	80	0.020	4	2.4	6365	510	5.0
	5	4	80	0.025	5	3.0	5095	510	7.5
	6	4	80	0.030	6	3.6	4245	510	11.0
	8	4	80	0.040	8	4.8	3185	510	19.5
	10	4	80	0.050	10	6.0	2545	510	30.5
	12	4	80	0.060	12	7.2	2120	510	44.0
	16	4	80	0.075	16	6.4	1590	475	48.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	40	0.015	3	1.8	4245	255	1.5
	4	4	40	0.020	4	2.4	3185	255	2.5
	5	4	40	0.025	5	3.0	2545	255	4.0
	6	4	40	0.030	6	3.6	2120	255	5.5
	8	4	40	0.040	8	4.8	1590	255	10.0
	10	4	40	0.050	10	6.0	1275	255	15.5
	12	4	40	0.060	12	7.2	1060	255	22.0
	16	4	40	0.075	16	6.4	795	240	24.5
Heat resistant steel [17-4 PH]	3	4	25	0.015	3	1.8	2655	160	1.0
	4	4	25	0.020	4	2.4	1990	160	1.5
	5	4	25	0.025	5	3.0	1590	160	2.5
	6	4	25	0.030	6	3.6	1325	160	3.5
	8	4	25	0.035	8	4.8	995	140	5.5
	10	4	25	0.045	10	6.0	795	145	8.5
	12	4	25	0.050	12	7.2	665	135	11.5
	16	4	25	0.060	16	6.4	495	120	12.5
Nickel base alloys prec.-hard. [Inconel 718]	3	4	15	0.015	3	1.8	1590	95	0.5
	4	4	15	0.020	4	2.4	1195	95	1.0
	5	4	15	0.025	5	3.0	955	95	1.5
	6	4	15	0.030	6	3.6	795	95	2.0
	8	4	15	0.035	8	4.8	595	85	3.5
	10	4	15	0.045	10	6.0	475	85	5.0
	12	4	15	0.050	12	7.2	400	80	7.0
	16	4	15	0.060	16	6.4	300	70	7.0

Application



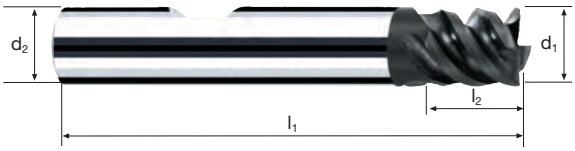
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	3	4	60	0.015	2.1	3	6365	380	2.5
	4	4	60	0.020	2.8	4	4775	380	4.5
	5	4	60	0.025	3.5	5	3820	380	6.5
	6	4	60	0.030	4.2	6	3185	380	9.5
	8	4	60	0.040	5.6	8	2385	380	17.0
	10	4	60	0.045	7.0	10	1910	345	24.0
	12	4	60	0.045	8.4	12	1590	285	28.5
	16	4	60	0.065	6.4	16	1195	310	31.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	4	30	0.015	2.1	3	3185	190	1.0
	4	4	30	0.020	2.8	4	2385	190	2.0
	5	4	30	0.025	3.5	5	1910	190	3.5
	6	4	30	0.030	4.2	6	1590	190	5.0
	8	4	30	0.040	5.6	8	1195	190	8.5
	10	4	30	0.045	7.0	10	955	170	12.0
	12	4	30	0.045	8.4	12	795	145	14.5
	16	4	30	0.065	6.4	16	595	155	16.0
Heat resistant steel [17-4 PH]	3	4	20	0.015	2.1	3	2120	125	1.0
	4	4	20	0.020	2.8	4	1590	125	1.5
	5	4	20	0.025	3.5	5	1275	130	2.5
	6	4	20	0.030	4.2	6	1060	125	3.0
	8	4	20	0.035	5.6	8	795	110	5.0
	10	4	20	0.045	7.0	10	635	115	8.0
	12	4	20	0.045	8.4	12	530	95	9.5
	16	4	20	0.060	6.4	16	400	95	9.5
Nickel base alloys prec.-hard. [Inconel 718]	3	4	10	0.015	2.1	3	1060	65	0.5
	4	4	10	0.020	2.8	4	795	65	0.5
	5	4	10	0.025	3.5	5	635	65	1.0
	6	4	10	0.030	4.2	6	530	65	1.5
	8	4	10	0.035	5.6	8	400	55	2.5
	10	4	10	0.045	7.0	10	320	60	4.0
	12	4	10	0.045	8.4	12	265	50	5.0
	16	4	10	0.060	6.4	16	200	50	5.0

Cylindrical end mills SX

Smooth-edged, short version

HM MG10 | λ 55° γ 15°

45°



Roughing

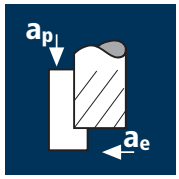
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5313** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5313	POLYCHROM P5213
.180	3	6	50	3	0.10	8.5°	4		●
.220	4	6	54	4	0.10	6.5°	4		●
.260	5	6	54	5	0.15	3.5°	4		●
.300	6	6	54	7	0.15	0.0°	4		●
.391	8	8	58	9	0.15	0.0°	4		●
.450	10	10	66	11	0.20	0.0°	4		●
.501	12	12	73	13	0.20	0.0°	4		●
.610	16	16	82	17	0.20	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	1.5	3	180	0.010	1.8	0.2	38200	1145
	2.0	3	180	0.015	2.4	0.2	28650	1290
	2.5	3	180	0.015	3.0	0.3	22920	1030
	3.0	3	180	0.020	3.6	0.3	19100	1145
	4.0	3	180	0.025	4.8	0.4	14325	1075
	5.0	3	180	0.035	6.0	0.5	11460	1205
	6.0	3	180	0.040	7.2	0.6	9550	1145
	8.0	3	180	0.055	9.6	0.8	7160	1180
	10.0	3	180	0.065	12.0	1.0	5730	1115
Steel 850 - 1100 N/mm²	1.5	3	140	0.010	1.8	0.2	29710	890
	2.0	3	140	0.015	2.4	0.2	22280	1005
	2.5	3	140	0.015	3.0	0.3	17825	800
	3.0	3	140	0.020	3.6	0.3	14855	890
	4.0	3	140	0.025	4.8	0.4	11140	835
	5.0	3	140	0.035	6.0	0.5	8915	935
	6.0	3	140	0.040	7.2	0.6	7425	890
	8.0	3	140	0.050	9.6	0.8	5570	835
	10.0	3	140	0.060	12.0	1.0	4455	800
Titanium alloys >300 HB [Ti6Al4V]	1.5	3	40	0.005	1.8	0.2	8490	125
	2.0	3	40	0.010	2.4	0.2	6365	190
	2.5	3	40	0.010	3.0	0.3	5095	155
	3.0	3	40	0.010	3.6	0.3	4245	125
	4.0	3	40	0.015	4.8	0.4	3185	145
	5.0	3	40	0.020	6.0	0.5	2545	155
	6.0	3	40	0.020	7.2	0.6	2120	125
	8.0	3	40	0.030	9.6	0.8	1590	145
	10.0	3	40	0.035	12.0	1.0	1275	135
Stainless steel [Cr-Ni/1.4301]	1.5	3	60	0.005	1.8	0.2	12735	190
	2.0	3	60	0.010	2.4	0.2	9550	285
	2.5	3	60	0.010	3.0	0.3	7640	230
	3.0	3	60	0.015	3.6	0.3	6365	285
	4.0	3	60	0.020	4.8	0.4	4775	285
	5.0	3	60	0.025	6.0	0.5	3820	285
	6.0	3	60	0.030	7.2	0.6	3185	285
	8.0	3	60	0.040	9.6	0.8	2385	285
	10.0	3	60	0.045	12.0	1.0	1910	260

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	1.5	3	150	0.010	0.6	1.5	31830	955	1.0
	2.0	3	150	0.010	0.8	2.0	23875	715	1.0
	2.5	3	150	0.015	1.0	2.5	19100	860	2.0
	3.0	3	150	0.015	1.2	3.0	15915	715	2.5
	4.0	3	150	0.020	1.6	4.0	11935	715	4.5
	5.0	3	150	0.030	2.0	5.0	9550	860	8.5
	6.0	3	150	0.035	2.4	6.0	7960	835	12.0
	8.0	3	150	0.045	3.2	8.0	5970	805	20.5
	10.0	3	150	0.055	4.0	10.0	4775	790	31.5
Steel 850 - 1100 N/mm²	1.5	3	100	0.010	0.6	1.5	21220	635	0.5
	2.0	3	100	0.010	0.8	2.0	15915	475	1.0
	2.5	3	100	0.015	1.0	2.5	12735	575	1.5
	3.0	3	100	0.015	1.2	3.0	10610	475	1.5
	4.0	3	100	0.020	1.6	4.0	7960	480	3.0
	5.0	3	100	0.030	2.0	5.0	6365	575	6.0
	6.0	3	100	0.035	2.4	6.0	5305	555	8.0
	8.0	3	100	0.045	3.2	8.0	3980	535	13.5
	10.0	3	100	0.050	4.0	10.0	3185	480	19.0
Titanium alloys >300 HB [Ti6Al4V]	1.5	3	30	0.005	0.6	1.5	6365	95	0.0
	2.0	3	30	0.005	0.8	2.0	4775	70	0.0
	2.5	3	30	0.010	1.0	2.5	3820	115	0.5
	3.0	3	30	0.010	1.2	3.0	3185	95	0.5
	4.0	3	30	0.010	1.6	4.0	2385	70	0.5
	5.0	3	30	0.015	2.0	5.0	1910	85	1.0
	6.0	3	30	0.020	2.4	6.0	1590	95	1.5
	8.0	3	30	0.025	3.2	8.0	1195	90	2.5
	10.0	3	30	0.030	4.0	10.0	955	85	3.5
Stainless steel [Cr-Ni/1.4301]	1.5	3	40	0.005	0.6	1.5	8490	125	0.0
	2.0	3	40	0.005	0.8	2.0	6365	95	0.0
	2.5	3	40	0.010	1.0	2.5	5095	155	0.5
	3.0	3	40	0.010	1.2	3.0	4245	125	0.5
	4.0	3	40	0.015	1.6	4.0	3185	145	1.0
	5.0	3	40	0.020	2.0	5.0	2545	155	1.5
	6.0	3	40	0.025	2.4	6.0	2120	160	2.5
	8.0	3	40	0.030	3.2	8.0	1590	145	3.5
	10.0	3	40	0.040	4.0	10.0	1275	155	6.0

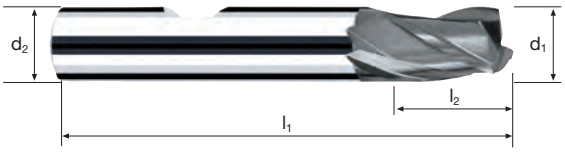
Cylindrical end mills

Smooth-edged, short version

HM
MG10

λ **30°**
γ **12°**

90°



Roughing

Finishing

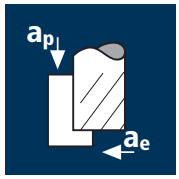
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **5036** ø-Code **.120**

new!

ø Code	d1 e8	d2 h6	l1	l2	α	z	POLYCHROM P5036	TRIBO T5036 / T5026
.120	1.5	6	50	5	9.0°	3	●	●
.140	2.0	6	50	5	8.5°	3	●	●
.160	2.5	6	50	5	8.0°	3	●	●
.180	3.0	6	50	6	6.5°	3	●	●
.200	3.5	6	50	8	5.0°	3	●	●
.220	4.0	6	50	8	4.5°	3	●	●
.240	4.5	6	50	8	3.5°	3	●	●
.260	5.0	6	50	9	2.5°	3	●	●
.300	6.0	6	50	10	0.0°	3	●	●
.331	7.0	8	54	10	2.5°	3	●	●
.391	8.0	8	54	12	0.0°	3	●	●
.420	9.0	10	63	12	2.0°	3	●	●
.450	10.0	10	63	13	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	1	2	120	0.005	1	0.45	38200	380
	2	2	120	0.010	2	0.90	19100	380
	3	2	120	0.010	3	1.35	12735	255
	4	2	120	0.015	4	1.80	9550	285
	5	2	120	0.020	5	2.25	7640	305
	6	2	120	0.025	6	2.70	6365	320
Steel 850 - 1100 N/mm²	1	2	80	0.005	1	0.45	25465	255
	2	2	80	0.005	2	0.90	12735	125
	3	2	80	0.010	3	1.35	8490	170
	4	2	80	0.015	4	1.80	6365	190
	5	2	80	0.020	5	2.25	5095	205
	6	2	80	0.020	6	2.70	4245	170
Cast iron (lamellar / spheroidal)	1	2	160	0.005	1	0.45	50930	510
	2	2	160	0.010	2	0.90	25465	510
	3	2	160	0.015	3	1.35	16975	510
	4	2	160	0.020	4	1.80	12735	510
	5	2	160	0.020	5	2.25	10185	405
	6	2	160	0.025	6	2.70	8490	425
Stainless steel [Cr-Ni/1.4301]	1	2	40	0.005	1	0.45	12735	125
	2	2	40	0.005	2	0.90	6365	65
	3	2	40	0.010	3	1.35	4245	85
	4	2	40	0.015	4	1.80	3185	95
	5	2	40	0.020	5	2.25	2545	100
	6	2	40	0.020	6	2.70	2120	85

Application



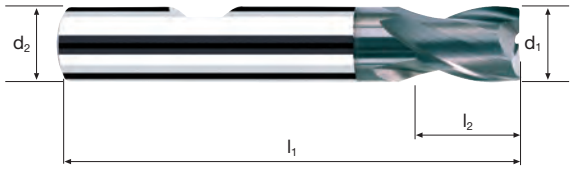
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	1	2	100	0.005	0.5	1	31830	320
	2	2	100	0.005	1.0	2	15915	160
	3	2	100	0.010	1.5	3	10610	210
	4	2	100	0.010	2.0	4	7960	160
	5	2	100	0.015	2.5	5	6365	190
	6	2	100	0.015	3.0	6	5305	160
Steel 850 - 1100 N/mm²	1	2	70	0.005	0.5	1	22280	225
	2	2	70	0.005	1.0	2	11140	110
	3	2	70	0.010	1.5	3	7425	150
	4	2	70	0.010	2.0	4	5570	110
	5	2	70	0.015	2.5	5	4455	135
	6	2	70	0.015	3.0	6	3715	110
Cast iron (lamellar / spheroidal)	1	2	120	0.005	0.5	1	38200	380
	2	2	120	0.005	1.0	2	19100	190
	3	2	120	0.010	1.5	3	12735	255
	4	2	120	0.010	2.0	4	9550	190
	5	2	120	0.015	2.5	5	7640	230
	6	2	120	0.020	3.0	6	6365	255
Stainless steel [Cr-Ni/1.4301]	1	2	30	0.005	0.5	1	9550	95
	2	2	30	0.005	1.0	2	4775	50
	3	2	30	0.010	1.5	3	3185	65
	4	2	30	0.010	2.0	4	2385	50
	5	2	30	0.015	2.5	5	1910	55
	6	2	30	0.015	3.0	6	1590	50

Cylindrical end mills

Smooth-edged, short version

HM MG10 | **λ 30° γ 12°**

45°



Roughing

Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless		**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** | Article-N°. **5400** | ø-Code **.100**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	α	z		POLYCHROM **P5400**
.100	1.0	6	50	3	0.07	11.0°	2		●
.120	1.5	6	50	3	0.07	10.5°	2		●
.140	2.0	6	50	3	0.10	10.0°	2		●
.160	2.5	6	50	3	0.10	9.5°	2		●
.180	3.0	6	50	4	0.10	8.0°	2		●
.220	4.0	6	54	5	0.10	5.5°	2		●
.260	5.0	6	54	6	0.15	3.0°	2		●
.300	6.0	6	54	7	0.15	0.0°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	1.0	2	44	0.002	0.5	1.0	14005	55
	2.0	2	44	0.004	1.0	2.0	7005	55
	3.0	2	44	0.006	1.5	3.0	4670	55
	4.0	2	44	0.008	2.0	4.0	3500	55
	5.0	2	44	0.012	2.5	5.0	2800	65
	6.0	2	44	0.014	3.0	6.0	2335	65
	8.0	2	44	0.018	4.0	8.0	1750	65
	9.0	2	44	0.020	4.5	9.0	1555	60
	10.0	2	44	0.022	5.0	10.0	1400	60
Steel 850 - 1100 N/mm²	1.0	2	36	0.002	0.5	1.0	11460	45
	2.0	2	36	0.004	1.0	2.0	5730	45
	3.0	2	36	0.006	1.5	3.0	3820	45
	4.0	2	36	0.008	2.0	4.0	2865	45
	5.0	2	36	0.012	2.5	5.0	2290	55
	6.0	2	36	0.014	3.0	6.0	1910	55
	8.0	2	36	0.018	4.0	8.0	1430	50
	9.0	2	36	0.020	4.5	9.0	1275	50
	10.0	2	36	0.022	5.0	10.0	1145	50
Steel 1100 - 1300 N/mm²	1.0	2	28	0.002	0.5	1.0	8915	35
	2.0	2	28	0.004	1.0	2.0	4455	35
	3.0	2	28	0.006	1.5	3.0	2970	35
	4.0	2	28	0.008	2.0	4.0	2230	35
	5.0	2	28	0.012	2.5	5.0	1785	45
	6.0	2	28	0.014	3.0	6.0	1485	40
	8.0	2	28	0.018	4.0	8.0	1115	40
	9.0	2	28	0.020	4.5	9.0	990	40
	10.0	2	28	0.022	5.0	10.0	890	40
Cold work tool steel (12% Cr), high alloyed [1.2379]	1.0	2	25	0.002	0.5	1.0	7960	30
	2.0	2	25	0.004	1.0	2.0	3980	30
	3.0	2	25	0.006	1.5	3.0	2655	30
	4.0	2	25	0.008	2.0	4.0	1990	30
	5.0	2	25	0.012	2.5	5.0	1590	40
	6.0	2	25	0.014	3.0	6.0	1325	35
	8.0	2	25	0.018	4.0	8.0	995	35
	9.0	2	25	0.020	4.5	9.0	885	35
	10.0	2	25	0.022	5.0	10.0	795	35

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	1.0	2	34	0.002	0.5	1.0	10825	45
	2.0	2	34	0.004	1.0	2.0	5410	45
	3.0	2	34	0.006	1.5	3.0	3610	45
	4.0	2	34	0.008	2.0	4.0	2705	45
	5.0	2	34	0.012	2.5	5.0	2165	50
	6.0	2	34	0.014	3.0	6.0	1805	50
	8.0	2	34	0.018	4.0	8.0	1355	50
	9.0	2	34	0.020	4.5	9.0	1205	50
	10.0	2	34	0.022	5.0	10.0	1080	50
Stainless steel [Cr-Ni/1.4301]	1.0	2	18	0.002	0.5	1.0	5730	25
	2.0	2	18	0.004	1.0	2.0	2865	25
	3.0	2	18	0.006	1.5	3.0	1910	25
	4.0	2	18	0.008	2.0	4.0	1430	25
	5.0	2	18	0.012	2.5	5.0	1145	25
	6.0	2	18	0.014	3.0	6.0	955	25
	8.0	2	18	0.018	4.0	8.0	715	25
	9.0	2	18	0.020	4.5	9.0	635	25
	10.0	2	18	0.022	5.0	10.0	575	25
Unalloyed copper	1.0	2	80	0.002	0.5	1.0	25465	100
	2.0	2	80	0.004	1.0	2.0	12735	100
	3.0	2	80	0.006	1.5	3.0	8490	100
	4.0	2	80	0.008	2.0	4.0	6365	100
	5.0	2	80	0.012	2.5	5.0	5095	120
	6.0	2	80	0.014	3.0	6.0	4245	120
	8.0	2	80	0.018	4.0	8.0	3185	115
	9.0	2	80	0.020	4.5	9.0	2830	115
	10.0	2	80	0.022	5.0	10.0	2545	110
Wrought aluminium alloys Si < 6%	1.0	2	100	0.002	0.5	1.0	31830	125
	2.0	2	100	0.004	1.0	2.0	15915	125
	3.0	2	100	0.006	1.5	3.0	10610	125
	4.0	2	100	0.008	2.0	4.0	7960	125
	5.0	2	100	0.012	2.5	5.0	6365	155
	6.0	2	100	0.014	3.0	6.0	5305	150
	8.0	2	100	0.018	4.0	8.0	3980	145
	9.0	2	100	0.020	4.5	9.0	3535	140
	10.0	2	100	0.022	5.0	10.0	3185	140

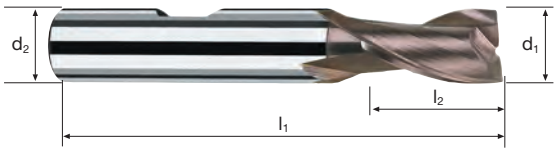
Cylindrical end mills

Smooth-edged, short version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0700** ø-Code **.100**

ø Code	d1 h8	d2 h6	l1	l2	α	z		UNICUT-4X U0700
.100	1.0	6	47	3	14.0°	2		●
.120	1.5	6	47	3	13.0°	2		●
.140*	2.0	6	48	4	11.0°	2		●
.160	2.5	6	49	5	8.0°	2		●
.180*	3.0	6	49	5	7.0°	2		●
.200	3.5	6	50	6	5.5°	2		●
.220*	4.0	6	51	7	4.0°	2		●
.240	4.5	6	51	7	3.0°	2		●
.260*	5.0	6	52	8	2.0°	2		●
.280	5.5	6	52	8	1.0°	2		●
.300*	6.0	6	52	8	0.0°	2		●
.322	6.5	10	60	10	5.5°	2		●
.331	7.0	8	54	10	2.0°	2		●
.362	7.5	10	60	10	4.0°	2		●
.391*	8.0	8	55	11	0.0°	2		●
.410	8.5	10	61	11	2.5°	2		●
.420	9.0	10	61	11	1.5°	2		●
.440	9.7	10	63	13	0.0°	2		●
.450*	10.0	10	63	13	0.0°	2		●

* d1 tolerance for keyway P9

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	11.0	2	44	0.024	5.5	11.0	1275	60
	12.0	2	44	0.026	6.0	12.0	1165	60
	13.0	2	44	0.028	6.5	13.0	1075	60
	14.0	2	44	0.032	7.0	14.0	1000	65
	16.0	2	44	0.036	8.0	16.0	875	65
	18.0	2	44	0.040	9.0	18.0	780	60
	20.0	2	44	0.044	10.0	20.0	700	60
	22.0	2	44	0.048	11.0	22.0	635	60
	25.0	2	44	0.056	12.5	25.0	560	65
Steel 850 - 1100 N/mm²	11.0	2	36	0.024	5.5	11.0	1040	50
	12.0	2	36	0.026	6.0	12.0	955	50
	13.0	2	36	0.028	6.5	13.0	880	50
	14.0	2	36	0.032	7.0	14.0	820	50
	16.0	2	36	0.036	8.0	16.0	715	50
	18.0	2	36	0.040	9.0	18.0	635	50
	20.0	2	36	0.044	10.0	20.0	575	50
	22.0	2	36	0.048	11.0	22.0	520	50
	25.0	2	36	0.056	12.5	25.0	460	50
Steel 1100 - 1300 N/mm²	11.0	2	28	0.024	5.5	11.0	810	40
	12.0	2	28	0.026	6.0	12.0	745	40
	13.0	2	28	0.028	6.5	13.0	685	40
	14.0	2	28	0.032	7.0	14.0	635	40
	16.0	2	28	0.036	8.0	16.0	555	40
	18.0	2	28	0.040	9.0	18.0	495	40
	20.0	2	28	0.044	10.0	20.0	445	40
	22.0	2	28	0.048	11.0	22.0	405	40
	25.0	2	28	0.056	12.5	25.0	355	40
Cold work tool steel (12% Cr), high alloyed [1.2379]	11.0	2	25	0.024	5.5	11.0	725	35
	12.0	2	25	0.026	6.0	12.0	665	35
	13.0	2	25	0.028	6.5	13.0	610	35
	14.0	2	25	0.032	7.0	14.0	570	35
	16.0	2	25	0.036	8.0	16.0	495	35
	18.0	2	25	0.040	9.0	18.0	440	35
	20.0	2	25	0.044	10.0	20.0	400	35
	22.0	2	25	0.048	11.0	22.0	360	35
	25.0	2	25	0.056	12.5	25.0	320	35

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	11.0	2	34	0.024	5.5	11.0	985	45
	12.0	2	34	0.026	6.0	12.0	900	45
	13.0	2	34	0.028	6.5	13.0	835	45
	14.0	2	34	0.032	7.0	14.0	775	50
	16.0	2	34	0.036	8.0	16.0	675	50
	18.0	2	34	0.040	9.0	18.0	600	50
	20.0	2	34	0.044	10.0	20.0	540	50
	22.0	2	34	0.048	11.0	22.0	490	45
	25.0	2	34	0.056	12.5	25.0	435	50
Stainless steel [Cr-Ni/1.4301]	11.0	2	18	0.024	5.5	11.0	520	25
	12.0	2	18	0.026	6.0	12.0	475	25
	13.0	2	18	0.028	6.5	13.0	440	25
	14.0	2	18	0.032	7.0	14.0	410	25
	16.0	2	18	0.036	8.0	16.0	360	25
	18.0	2	18	0.040	9.0	18.0	320	25
	20.0	2	18	0.044	10.0	20.0	285	25
	22.0	2	18	0.048	11.0	22.0	260	25
	25.0	2	18	0.056	12.5	25.0	230	25
Unalloyed copper	11.0	2	80	0.024	5.5	11.0	2315	110
	12.0	2	80	0.026	6.0	12.0	2120	110
	13.0	2	80	0.028	6.5	13.0	1960	110
	14.0	2	80	0.032	7.0	14.0	1820	115
	16.0	2	80	0.036	8.0	16.0	1590	115
	18.0	2	80	0.040	9.0	18.0	1415	115
	20.0	2	80	0.044	10.0	20.0	1275	110
	22.0	2	80	0.048	11.0	22.0	1160	110
	25.0	2	80	0.056	12.5	25.0	1020	115
Wrought aluminium alloys Si < 6%	11.0	2	100	0.024	5.5	11.0	2895	140
	12.0	2	100	0.026	6.0	12.0	2655	140
	13.0	2	100	0.028	6.5	13.0	2450	135
	14.0	2	100	0.032	7.0	14.0	2275	145
	16.0	2	100	0.036	8.0	16.0	1990	145
	18.0	2	100	0.040	9.0	18.0	1770	140
	20.0	2	100	0.044	10.0	20.0	1590	140
	22.0	2	100	0.048	11.0	22.0	1445	140
	25.0	2	100	0.056	12.5	25.0	1275	145

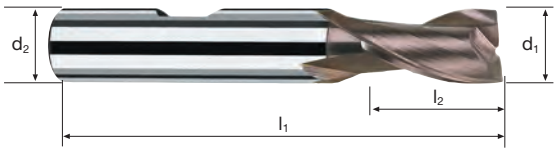
Cylindrical end mills

Smooth-edged, short version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 15°**

90°



Roughing

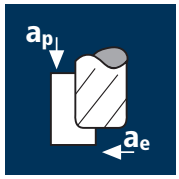
Finishing

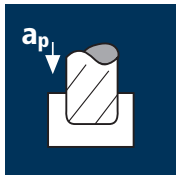
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **0700** | ø-Code **.460**

ø Code	d_1 h8	d_2 h6	l_1	l_2	α	z	UNICUT-4X U0700
.460	10.5	12	70	13	2.0°	2	●
.470	11.0	12	70	13	1.5°	2	●
.501 *	12.0	12	73	16	0.0°	2	●
.540	13.0	12	73	16	0.0°	2	●
.570 *	14.0	12	73	16	0.0°	2	●
.581	15.0	12	73	16	0.0°	2	●
.610 *	16.0	16	79	19	0.0°	2	●
.620	17.0	16	79	19	0.0°	2	●
.640 *	18.0	16	79	19	0.0°	2	●
.650	19.0	16	79	19	0.0°	2	●
.682 *	20.0	20	88	22	0.0°	2	●
.710 *	22.0	20	88	22	0.0°	2	●
.772 *	25.0	25	102	26	0.0°	2	●

* d_1 tolerance for keyway P9

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	3	4	200	0.020	4.5	1.2	21220	1700	9.0
		4	4	200	0.025	6.0	1.6	15915	1590	15.5
		5	4	200	0.035	7.5	2.0	12735	1785	27.0
		6	4	200	0.040	9.0	2.4	10610	1700	36.5
		8	4	200	0.055	12.0	3.2	7960	1750	67.0
		10	4	200	0.070	15.0	4.0	6365	1780	107.0
		12	4	200	0.075	18.0	4.8	5305	1590	137.5
		16	4	200	0.100	24.0	6.4	3980	1590	244.0
		20	4	200	0.130	30.0	8.0	3185	1655	397.0
	Steel 850 - 1100 N/mm²	3	4	150	0.020	4.5	1.2	15915	1275	7.0
		4	4	150	0.025	6.0	1.6	11935	1195	11.5
		5	4	150	0.035	7.5	2.0	9550	1335	20.0
		6	4	150	0.040	9.0	2.4	7960	1275	27.5
		8	4	150	0.055	12.0	3.2	5970	1315	50.5
		10	4	150	0.070	15.0	4.0	4775	1335	80.0
		12	4	150	0.075	18.0	4.8	3980	1195	103.0
		16	4	150	0.100	24.0	6.4	2985	1195	183.5
		20	4	150	0.130	30.0	8.0	2385	1240	297.5
	Cold work tool steel (12% Cr) high alloyed [1.2379]	3	4	80	0.020	4.5	1.2	8490	680	3.5
		4	4	80	0.025	6.0	1.6	6365	635	6.0
		5	4	80	0.030	7.5	2.0	5095	610	9.0
		6	4	80	0.040	9.0	2.4	4245	680	14.5
		8	4	80	0.050	12.0	3.2	3185	635	24.5
		10	4	80	0.065	15.0	4.0	2545	660	39.5
		12	4	80	0.075	18.0	4.8	2120	635	55.0
		16	4	80	0.095	24.0	6.4	1590	605	93.0
		20	4	80	0.120	30.0	8.0	1275	610	146.5
	Stainless steel [Cr-Ni/1.4301]	3	4	70	0.015	4.5	1.2	7425	445	2.5
		4	4	70	0.020	6.0	1.6	5570	445	4.5
		5	4	70	0.020	7.5	2.0	4455	355	5.5
		6	4	70	0.030	9.0	2.4	3715	445	9.5
		8	4	70	0.035	12.0	3.2	2785	390	15.0
		10	4	70	0.045	15.0	4.0	2230	400	24.0
		12	4	70	0.055	18.0	4.8	1855	410	35.5
		16	4	70	0.065	24.0	6.4	1395	365	56.0
		20	4	70	0.085	30.0	8.0	1115	380	91.0

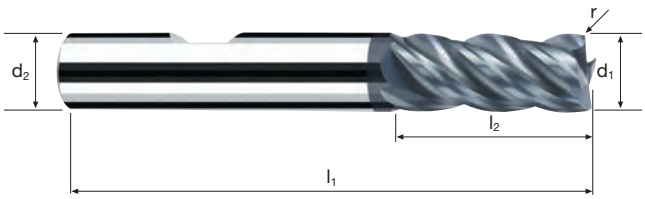
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	3	4	180	0.015	3	3	19100	1145	10.5
		4	4	180	0.020	4	4	14325	1145	18.5
		5	4	180	0.030	5	5	11460	1375	34.5
		6	4	180	0.035	6	6	9550	1335	48.0
		8	4	180	0.045	8	8	7160	1290	82.5
		10	4	180	0.055	10	10	5730	1260	126.0
		12	4	180	0.060	12	12	4775	1145	165.0
		16	4	180	0.075	8	16	3580	1075	137.5
		20	4	180	0.095	10	20	2865	1090	218.0
	Steel 850 - 1100 N/mm²	3	4	120	0.015	3	3	12735	765	7.0
		4	4	120	0.020	4	4	9550	765	12.0
		5	4	120	0.030	5	5	7640	915	23.0
		6	4	120	0.035	6	6	6365	890	32.0
		8	4	120	0.045	8	8	4775	860	55.0
		10	4	120	0.055	10	10	3820	840	84.0
		12	4	120	0.060	12	12	3185	765	110.0
		16	4	120	0.075	8	16	2385	715	91.5
		20	4	120	0.095	10	20	1910	725	145.0
	Cold work tool steel (12% Cr) high alloyed [1.2379]	3	4	60	0.015	3	3	6365	380	3.5
		4	4	60	0.020	4	4	4775	380	6.0
		5	4	60	0.030	5	5	3820	460	11.5
		6	4	60	0.035	6	6	3185	445	16.0
		8	4	60	0.045	8	8	2385	430	27.5
		10	4	60	0.055	10	10	1910	420	42.0
		12	4	60	0.060	12	12	1590	380	54.5
		16	4	60	0.075	8	16	1195	360	46.0
		20	4	60	0.095	10	20	955	365	73.0
	Stainless steel [Cr-Ni/1.4301]	3	4	50	0.010	3	3	5305	210	2.0
		4	4	50	0.015	4	4	3980	240	4.0
		5	4	50	0.025	5	5	3185	320	8.0
		6	4	50	0.030	6	6	2655	320	11.5
		8	4	50	0.035	8	8	1990	280	18.0
		10	4	50	0.045	10	10	1590	285	28.5
		12	4	50	0.050	12	12	1325	265	38.0
		16	4	50	0.060	8	16	995	240	30.5
		20	4	50	0.075	10	20	795	240	48.0

Corner radius end mills NX-RNV

Smooth-edged, normal version

HM MG10 | λ 40° γ 0°

Vario



Roughing

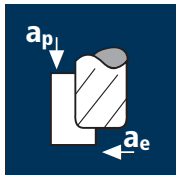
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys

Example: **Order-N°.** Coating **P** Article-N°. **15326** ø-Code **.180**

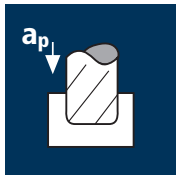
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z	POLYCHROM P15326	POLYCHROM P15226
.180	3	6	57	8	0.5	6.0°	4		●
.220	4	6	57	11	0.5	4.0°	4		●
.260	5	6	57	13	0.5	2.0°	4		●
.300	6	6	57	13	0.5	0.0°	4		●
.388	8	8	63	19	0.5	0.0°	4		●
.448	10	10	72	22	0.5	0.0°	4		●
.498	12	12	83	26	0.5	0.0°	4		●
.302	6	6	57	13	1.0	0.0°	4		●
.391	8	8	63	19	1.0	0.0°	4		●
.450	10	10	72	22	1.0	0.0°	4		●
.501	12	12	83	26	1.0	0.0°	4		●
.608	16	16	92	32	1.0	0.0°	4		●
.680	20	20	104	38	1.0	0.0°	4		●
.453	10	10	72	22	1.5	0.0°	4		●
.503	12	12	83	26	1.5	0.0°	4		●
.610	16	16	92	32	1.5	0.0°	4		●
.505	12	12	83	26	2.0	0.0°	4		●
.611	16	16	92	32	2.0	0.0°	4		●
.683	20	20	104	38	2.0	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	200	0.070	15.0	4.0	6365	1780	107.0
	12	4	200	0.075	18.0	4.8	5305	1590	137.5
	16	4	200	0.100	24.0	6.4	3980	1590	244.0
	20	4	200	0.130	30.0	8.0	3185	1655	397.0
Steel 850 - 1100 N/mm²	10	4	150	0.070	15.0	4.0	4775	1335	80.0
	12	4	150	0.075	18.0	4.8	3980	1195	103.0
	16	4	150	0.100	24.0	6.4	2985	1195	183.5
	20	4	150	0.130	30.0	8.0	2385	1240	297.5
Cold work tool steel (12% Cr) high alloyed [1.2379]	10	4	80	0.065	15.0	4.0	2545	660	39.5
	12	4	80	0.075	18.0	4.8	2120	635	55.0
	16	4	80	0.095	24.0	6.4	1590	605	93.0
	20	4	80	0.120	30.0	8.0	1275	610	146.5
Stainless steel [Cr-Ni/1.4301]	10	4	70	0.045	15.0	4.0	2230	400	24.0
	12	4	70	0.055	18.0	4.8	1855	410	35.5
	16	4	70	0.065	24.0	6.4	1395	365	56.0
	20	4	70	0.085	30.0	8.0	1115	380	91.0

Application



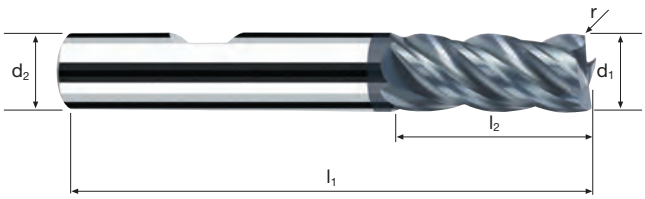
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	180	0.055	10	10	5730	1260	126.0
	12	4	180	0.060	12	12	4775	1145	165.0
	16	4	180	0.075	8	16	3580	1075	137.5
	20	4	180	0.095	10	20	2865	1090	218.0
Steel 850 - 1100 N/mm²	10	4	120	0.055	10	10	3820	840	84.0
	12	4	120	0.060	12	12	3185	765	110.0
	16	4	120	0.075	8	16	2385	715	91.5
	20	4	120	0.095	10	20	1910	725	145.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	10	4	60	0.055	10	10	1910	420	42.0
	12	4	60	0.060	12	12	1590	380	54.5
	16	4	60	0.075	8	16	1195	360	46.0
	20	4	60	0.095	10	20	955	365	73.0
Stainless steel [Cr-Ni/1.4301]	10	4	50	0.045	10	10	1590	285	28.5
	12	4	50	0.050	12	12	1325	265	38.0
	16	4	50	0.060	8	16	995	240	30.5
	20	4	50	0.075	10	20	795	240	48.0

Corner radius end mills NX-RNV

Smooth-edged, normal version

HM MG10 | λ 40° γ 0°

Vario



Roughing

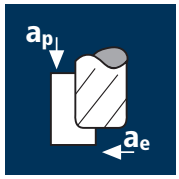
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel Nickel-Alloys

Example: **Order-N°.** Coating **P** | Article-N°. **15326** | ø-Code **.457**

ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z	POLYCHROM P15326	POLYCHROM P15226
.457	10	10	72	22	2.5	0.0°	4	●	
.506	12	12	83	26	2.5	0.0°	4	●	
.612	16	16	92	32	2.5	0.0°	4	●	
.684	20	20	104	38	2.5	0.0°	4	●	
.508	12	12	83	26	4.0	0.0°	4	●	
.614	16	16	92	32	4.0	0.0°	4	●	
.686	20	20	104	38	4.0	0.0°	4	●	

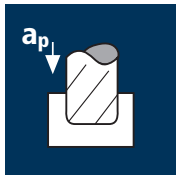
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²								
4	4	160	0.025	6.0	1.6	12735	1275	12.0
5	4	160	0.035	7.5	2.0	10185	1425	21.5
6	4	160	0.040	9.0	2.4	8490	1360	29.5
8	4	160	0.055	12.0	3.2	6365	1400	54.0
10	4	160	0.065	15.0	4.0	5095	1325	79.5
12	4	160	0.080	18.0	4.8	4245	1360	117.5
16	4	160	0.090	24.0	6.4	3185	1145	176.0
20	4	160	0.110	30.0	8.0	2545	1120	269.0
Steel 1100 - 1300 N/mm²								
4	4	120	0.025	6.0	1.6	9550	955	9.0
5	4	120	0.035	7.5	2.0	7640	1070	16.0
6	4	120	0.040	9.0	2.4	6365	1020	22.0
8	4	120	0.055	12.0	3.2	4775	1050	40.5
10	4	120	0.065	15.0	4.0	3820	995	59.5
12	4	120	0.080	18.0	4.8	3185	1020	88.0
16	4	120	0.090	24.0	6.4	2385	860	132.0
20	4	120	0.110	30.0	8.0	1910	840	201.5
Steel 1300 - 1500 N/mm²								
4	4	90	0.025	6.0	1.6	7160	715	7.0
5	4	90	0.030	7.5	2.0	5730	690	10.5
6	4	90	0.035	9.0	2.4	4775	670	14.5
8	4	90	0.045	12.0	3.2	3580	645	25.0
10	4	90	0.060	15.0	4.0	2865	690	41.5
12	4	90	0.070	18.0	4.8	2385	670	58.0
16	4	90	0.080	24.0	6.4	1790	575	88.5
20	4	90	0.100	30.0	8.0	1430	570	137.0
Titanium alloys >300 HB [Ti6Al4V]								
4	4	40	0.015	6.0	1.6	3185	190	2.0
5	4	40	0.020	7.5	2.0	2545	205	3.0
6	4	40	0.020	9.0	2.4	2120	170	3.5
8	4	40	0.025	12.0	3.2	1590	160	6.0
10	4	40	0.035	15.0	4.0	1275	180	11.0
12	4	40	0.040	18.0	4.8	1060	170	14.5
16	4	40	0.050	24.0	6.4	795	160	24.5
20	4	40	0.060	30.0	8.0	635	150	36.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²								
4	4	130	0.020	5.0	4	10345	830	16.5
5	4	130	0.025	6.3	5	8275	830	26.0
6	4	130	0.025	7.5	6	6895	690	31.0
8	4	130	0.035	10.0	8	5175	725	58.0
10	4	130	0.045	12.5	10	4140	745	93.0
12	4	130	0.055	15.0	12	3450	760	137.0
16	4	130	0.065	20.0	16	2585	670	214.5
20	4	130	0.080	25.0	20	2070	660	330.0
Steel 1100 - 1300 N/mm²								
4	4	100	0.020	5.0	4	7960	635	12.5
5	4	100	0.025	6.3	5	6365	635	20.0
6	4	100	0.025	7.5	6	5305	530	24.0
8	4	100	0.035	10.0	8	3980	555	44.5
10	4	100	0.045	12.5	10	3185	575	72.0
12	4	100	0.055	15.0	12	2655	585	105.5
16	4	100	0.065	20.0	16	1990	515	165.0
20	4	100	0.080	25.0	20	1590	510	255.0
Steel 1300 - 1500 N/mm²								
4	4	70	0.015	5.0	4	5570	335	6.5
5	4	70	0.020	6.3	5	4455	355	11.0
6	4	70	0.025	7.5	6	3715	370	16.5
8	4	70	0.030	10.0	8	2785	335	27.0
10	4	70	0.040	12.5	10	2230	355	44.5
12	4	70	0.050	15.0	12	1855	370	66.5
16	4	70	0.055	20.0	16	1395	305	97.5
20	4	70	0.070	25.0	20	1115	310	155.0
Titanium alloys >300 HB [Ti6Al4V]								
4	4	30	0.010	5.0	4	2385	95	2.0
5	4	30	0.015	6.3	5	1910	115	3.5
6	4	30	0.020	7.5	6	1590	125	5.5
8	4	30	0.025	10.0	8	1195	120	9.5
10	4	30	0.030	12.5	10	955	115	14.5
12	4	30	0.040	15.0	12	795	125	22.5
16	4	30	0.045	20.0	16	595	105	33.5
20	4	30	0.055	25.0	20	475	105	52.5

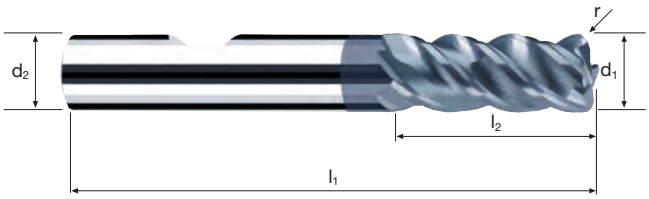
Corner radius end mills NX-RNVD

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 45° γ -10°

Vario



Roughing

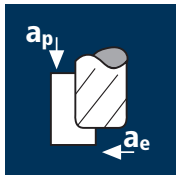
Finishing

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60			Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** Article-N°. **15368** ø-Code **.220**

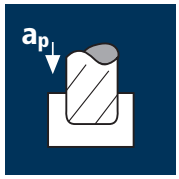
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z		POLYCHROM P15368	POLYCHROM P15268
.220	4	6	57	8	0.5	4.5°	4			●
.260	5	6	57	10	0.5	2.5°	4			●
.300	6	6	57	12	0.5	0.0°	4			●
.388	8	8	63	19	0.5	0.0°	4			●
.448	10	10	72	23	0.5	0.0°	4			●
.498	12	12	83	27	0.5	0.0°	4			●
.302	6	6	57	12	1.0	0.0°	4			●
.391	8	8	63	19	1.0	0.0°	4			●
.450	10	10	72	23	1.0	0.0°	4			●
.501	12	12	83	27	1.0	0.0°	4			●
.608	16	16	92	32	1.0	0.0°	4			●
.680	20	20	104	39	1.0	0.0°	4			●
.453	10	10	72	23	1.5	0.0°	4			●
.503	12	12	83	27	1.5	0.0°	4			●
.610	16	16	92	32	1.5	0.0°	4			●
.505	12	12	83	27	2.0	0.0°	4			●
.611	16	16	92	32	2.0	0.0°	4			●
.683	20	20	104	39	2.0	0.0°	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	10	4	160	0.065	15.0	4.0	5095	1325	79.5
	12	4	160	0.080	18.0	4.8	4245	1360	117.5
	16	4	160	0.090	24.0	6.4	3185	1145	176.0
	20	4	160	0.110	30.0	8.0	2545	1120	269.0
Steel 1100 - 1300 N/mm²	10	4	120	0.065	15.0	4.0	3820	995	59.5
	12	4	120	0.080	18.0	4.8	3185	1020	88.0
	16	4	120	0.090	24.0	6.4	2385	860	132.0
	20	4	120	0.110	30.0	8.0	1910	840	201.5
Steel 1300 - 1500 N/mm²	10	4	90	0.060	15.0	4.0	2865	690	41.5
	12	4	90	0.070	18.0	4.8	2385	670	58.0
	16	4	90	0.080	24.0	6.4	1790	575	88.5
	20	4	90	0.100	30.0	8.0	1430	570	137.0
Titanium alloys >300 HB [Ti6Al4V]	10	4	40	0.035	15.0	4.0	1275	180	11.0
	12	4	40	0.040	18.0	4.8	1060	170	14.5
	16	4	40	0.050	24.0	6.4	795	160	24.5
	20	4	40	0.060	30.0	8.0	635	150	36.0

Application



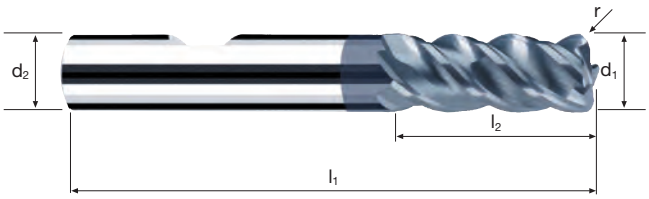
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	10	4	130	0.045	12.5	10	4140	745	93.0
	12	4	130	0.055	15.0	12	3450	760	137.0
	16	4	130	0.065	20.0	16	2585	670	214.5
	20	4	130	0.080	25.0	20	2070	660	330.0
Steel 1100 - 1300 N/mm²	10	4	100	0.045	12.5	10	3185	575	72.0
	12	4	100	0.055	15.0	12	2655	585	105.5
	16	4	100	0.065	20.0	16	1990	515	165.0
	20	4	100	0.080	25.0	20	1590	510	255.0
Steel 1300 - 1500 N/mm²	10	4	70	0.040	12.5	10	2230	355	44.5
	12	4	70	0.050	15.0	12	1855	370	66.5
	16	4	70	0.055	20.0	16	1395	305	97.5
	20	4	70	0.070	25.0	20	1115	310	155.0
Titanium alloys >300 HB [Ti6Al4V]	10	4	30	0.030	12.5	10	955	115	14.5
	12	4	30	0.040	15.0	12	795	125	22.5
	16	4	30	0.045	20.0	16	595	105	33.5
	20	4	30	0.055	25.0	20	475	105	52.5

Corner radius end mills NX-RNVD

Smooth-edged, normal version

HM MG10 | λ 45° γ-10°

Vario



Roughing

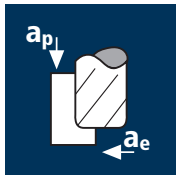
Finishing

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60			Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **15368** | ø-Code **.457**

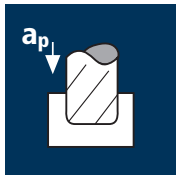
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z		POLYCHROM P15368	POLYCHROM P15268
.457	10	10	72	23	2.5	0.0°	4			●
.506	12	12	83	27	2.5	0.0°	4			●
.612	16	16	92	32	2.5	0.0°	4			●
.684	20	20	104	39	2.5	0.0°	4			●
.508	12	12	83	27	4.0	0.0°	4			●
.614	16	16	92	32	4.0	0.0°	4			●
.686	20	20	104	39	4.0	0.0°	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	3	4	120	0.025	4.5	0.45	12735	1275	2.5
	4	4	120	0.035	6.0	0.60	9550	1335	5.0
	5	4	120	0.040	7.5	0.75	7640	1220	7.0
	6	4	120	0.050	9.0	0.90	6365	1275	10.5
	8	4	120	0.065	12.0	1.20	4775	1240	18.0
	10	4	120	0.085	15.0	1.50	3820	1300	29.5
	12	4	120	0.100	18.0	1.80	3185	1275	41.5
	16	4	120	0.135	24.0	2.40	2385	1290	74.5
Hardened tool steel 48 - 52 HRC	3	4	80	0.015	4.5	0.45	8490	510	1.0
	4	4	80	0.020	6.0	0.60	6365	510	2.0
	5	4	80	0.030	7.5	0.75	5095	610	3.5
	6	4	80	0.035	9.0	0.90	4245	595	5.0
	8	4	80	0.045	12.0	1.20	3185	575	8.5
	10	4	80	0.055	15.0	1.50	2545	560	12.5
	12	4	80	0.065	18.0	1.80	2120	550	18.0
	16	4	80	0.090	24.0	2.40	1590	570	33.0
Hardened tool steel 52 - 56 HRC	3	4	60	0.015	4.5	0.45	6365	380	1.0
	4	4	60	0.020	6.0	0.60	4775	380	1.5
	5	4	60	0.025	7.5	0.75	3820	380	2.0
	6	4	60	0.025	9.0	0.90	3185	320	2.5
	8	4	60	0.035	12.0	1.20	2385	335	5.0
	10	4	60	0.045	15.0	1.50	1910	345	8.0
	12	4	60	0.055	18.0	1.80	1590	350	11.5
	16	4	60	0.075	24.0	2.40	1195	360	20.5
Hardened tool steel 56 - 60 HRC	3	4	30	0.010	4.5	0.45	3185	127	0.3
	4	4	30	0.015	6.0	0.60	2385	143	0.5
	5	4	30	0.015	7.5	0.75	1910	115	0.5
	6	4	30	0.020	9.0	0.90	1590	127	1.0
	8	4	30	0.025	12.0	1.20	1195	120	1.5
	10	4	30	0.035	15.0	1.50	955	134	3.0
	12	4	30	0.040	18.0	1.80	795	127	4.0
	16	4	30	0.055	24.0	2.40	595	131	7.5

Application



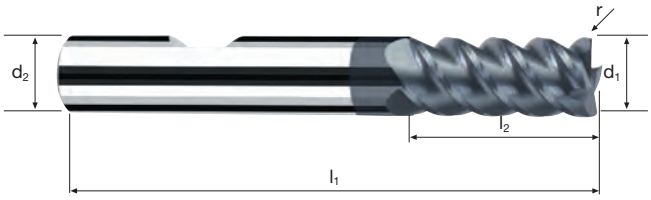
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	3	4	100	0.020	1.5	3	10610	850	4.0
	4	4	100	0.025	2.0	4	7960	795	6.5
	5	4	100	0.035	2.5	5	6365	890	11.0
	6	4	100	0.040	3.0	6	5305	850	15.5
	8	4	100	0.055	4.0	8	3980	875	28.0
	10	4	100	0.065	5.0	10	3185	830	41.5
	12	4	100	0.080	6.0	12	2655	850	61.0
	16	4	100	0.105	4.0	16	1990	835	53.5
Hardened tool steel 48 - 52 HRC	3	4	60	0.015	1.5	3	6365	380	1.5
	4	4	60	0.020	2.0	4	4775	380	3.0
	5	4	60	0.025	2.5	5	3820	380	5.0
	6	4	60	0.030	3.0	6	3185	380	7.0
	8	4	60	0.040	4.0	8	2385	380	12.0
	10	4	60	0.050	5.0	10	1910	380	19.0
	12	4	60	0.060	6.0	12	1590	380	27.5
	16	4	60	0.080	4.0	16	1195	380	24.5
Hardened tool steel 52 - 56 HRC	3	4	40	0.010	1.5	3	4245	170	1.0
	4	4	40	0.015	2.0	4	3185	190	1.5
	5	4	40	0.020	2.5	5	2545	205	2.5
	6	4	40	0.025	3.0	6	2120	210	4.0
	8	4	40	0.030	4.0	8	1590	190	6.0
	10	4	40	0.040	5.0	10	1275	205	10.5
	12	4	40	0.050	6.0	12	1060	210	15.0
	16	4	40	0.065	4.0	16	795	205	13.0
Hardened tool steel 56 - 60 HRC	3	4	20	0.009	1.5	3	2120	76	0.3
	4	4	20	0.011	2.0	4	1590	70	0.5
	5	4	20	0.014	2.5	5	1275	71	1.0
	6	4	20	0.017	3.0	6	1060	72	1.5
	8	4	20	0.023	4.0	8	795	73	2.5
	10	4	20	0.029	5.0	10	635	74	3.5
	12	4	20	0.034	6.0	12	530	72	5.0
	16	4	20	0.046	4.0	16	400	74	4.5

Corner radius end mills HX-RN

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | **λ 55° γ-10°**



Roughing

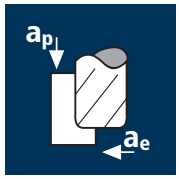
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **5359** | ø-Code **.178**

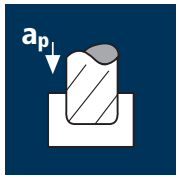
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z	POLYCHROM P5359 / P5259	DURO-S D5359 / D5259
.178	3	6	57	8	0.2	6.0°	4	●	●
.218	4	6	57	11	0.2	4.0°	4	●	●
.258	5	6	57	13	0.2	2.0°	4	●	●
.297	6	6	57	13	0.2	0.0°	4	●	●
.388	8	8	63	19	0.2	0.0°	4	●	●
.445	10	10	72	22	0.2	0.0°	4	●	●
.496	12	12	83	26	0.2	0.0°	4	●	●
.605	16	16	92	32	0.2	0.0°	4	●	●
.180	3	6	57	8	0.5	6.0°	4	●	●
.220	4	6	57	11	0.5	4.0°	4	●	●
.260	5	6	57	13	0.5	2.0°	4	●	●
.300	6	6	57	13	0.5	0.0°	4	●	●
.391	8	8	63	19	0.5	0.0°	4	●	●
.450	10	10	72	22	0.5	0.0°	4	●	●
.501	12	12	83	26	0.5	0.0°	4	●	●
.610	16	16	92	32	0.5	0.0°	4	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	6	4	120	0.050	9	0.9	6365	1275	10.5
	8	4	120	0.065	12	1.2	4775	1240	18.0
	10	4	120	0.085	15	1.5	3820	1300	29.5
	12	4	120	0.100	18	1.8	3185	1275	41.5
	16	4	120	0.135	24	2.4	2385	1290	74.5
	20	4	120	0.165	30	3.0	1910	1260	113.5
Hardened tool steel 48 - 52 HRC	6	4	80	0.035	9	0.9	4245	595	5.0
	8	4	80	0.045	12	1.2	3185	575	8.5
	10	4	80	0.055	15	1.5	2545	560	12.5
	12	4	80	0.065	18	1.8	2120	550	18.0
	16	4	80	0.090	24	2.4	1590	570	33.0
	20	4	80	0.110	30	3.0	1275	560	50.5
Hardened tool steel 52 - 56 HRC	6	4	60	0.025	9	0.9	3185	320	2.5
	8	4	60	0.035	12	1.2	2385	335	5.0
	10	4	60	0.045	15	1.5	1910	345	8.0
	12	4	60	0.055	18	1.8	1590	350	11.5
	16	4	60	0.075	24	2.4	1195	360	20.5
	20	4	60	0.090	30	3.0	955	345	31.0
Hardened tool steel 56 - 60 HRC	6	4	30	0.020	9	0.9	1590	127	1.0
	8	4	30	0.025	12	1.2	1195	120	1.7
	10	4	30	0.035	15	1.5	955	134	3.0
	12	4	30	0.040	18	1.8	795	127	4.0
	16	4	30	0.055	24	2.4	595	131	7.5
	20	4	30	0.065	30	3.0	475	124	11.0

Application



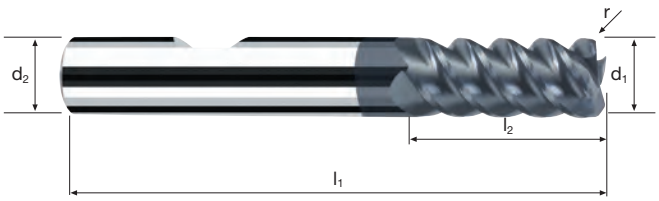
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	6	4	100	0.040	3	6	5305	850	15.5
	8	4	100	0.055	4	8	3980	875	28.0
	10	4	100	0.065	5	10	3185	830	41.5
	12	4	100	0.080	6	12	2655	850	61.0
	16	4	100	0.105	4	16	1990	835	53.5
	20	4	100	0.135	5	20	1590	860	86.0
Hardened tool steel 48 - 52 HRC	6	4	80	0.030	3	6	4245	510	9.0
	8	4	80	0.040	4	8	3185	510	16.5
	10	4	80	0.050	5	10	2545	510	25.5
	12	4	80	0.060	6	12	2120	510	36.5
	16	4	80	0.080	4	16	1590	510	32.5
	20	4	80	0.100	5	20	1275	510	51.0
Hardened tool steel 52 - 56 HRC	6	4	40	0.025	3	6	2120	210	4.0
	8	4	40	0.030	4	8	1590	190	6.0
	10	4	40	0.040	5	10	1275	205	10.5
	12	4	40	0.050	6	12	1060	210	15.0
	16	4	40	0.065	4	16	795	205	13.0
	20	4	40	0.080	5	20	635	205	20.5
Hardened tool steel 56 - 60 HRC	6	4	20	0.017	3	6	1060	72	1.3
	8	4	20	0.023	4	8	795	73	2.5
	10	4	20	0.029	5	10	635	74	3.5
	12	4	20	0.034	6	12	530	72	5.0
	16	4	20	0.046	4	16	400	74	4.5
	20	4	20	0.057	5	20	320	73	7.5

Corner radius end mills HX-RN

Smooth-edged, normal version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | **λ 55° γ-10°**



Roughing

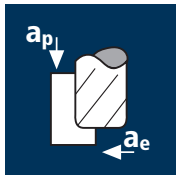
Finishing

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **P** | Article-N°. **15357** | ø-Code **.302**

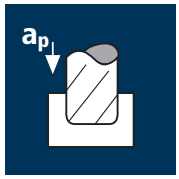
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	z		POLYCHROM P15357	POLYCHROM P15257
.302	6	6	57	13	1.0	4			●
.391	8	8	63	19	1.0	4			●
.450	10	10	72	22	1.0	4			●
.501	12	12	83	26	1.0	4			●
.608	16	16	92	32	1.0	4			●
.680	20	20	104	38	1.0	4			●
.306	6	6	57	13	2.0	4			●
.395	8	8	63	19	2.0	4			●
.455	10	10	72	22	2.0	4			●
.505	12	12	83	26	2.0	4			●
.611	16	16	92	32	2.0	4			●
.683	20	20	104	38	2.0	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	80	0.025	9	2.4	4245	425	9.0
	8	4	80	0.035	12	3.2	3185	445	17.0
	10	4	80	0.045	15	4.0	2545	460	27.5
	12	4	80	0.050	18	4.8	2120	425	36.5
	16	4	80	0.075	24	3.2	1590	475	36.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	40	0.025	9	2.4	2120	210	4.5
	8	4	40	0.035	12	3.2	1590	225	8.5
	10	4	40	0.045	15	4.0	1275	230	14.0
	12	4	40	0.050	18	4.8	1060	210	18.0
	16	4	40	0.075	24	3.2	795	240	18.5
Heat resistant steel [17-4 PH]	6	4	25	0.020	9	2.4	1325	105	2.5
	8	4	25	0.030	12	3.2	995	120	4.5
	10	4	25	0.035	15	4.0	795	110	6.5
	12	4	25	0.040	18	4.8	665	105	9.0
	16	4	25	0.060	24	3.2	495	120	9.0
Nickel base alloys prec.-hard. [Inconel 718]	6	4	15	0.020	9	2.4	795	65	1.5
	8	4	15	0.030	12	3.2	595	70	2.5
	10	4	15	0.035	15	4.0	475	65	4.0
	12	4	15	0.040	18	4.8	400	65	5.5
	16	4	15	0.060	24	3.2	300	70	5.5

Application

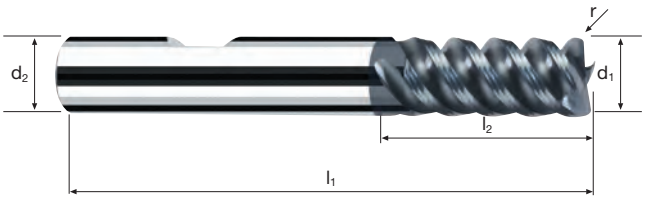


Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.030	3	6	3185	380	7.0
	8	4	60	0.040	4	8	2385	380	12.0
	10	4	60	0.055	5	10	1910	420	21.0
	12	4	60	0.055	6	12	1590	350	25.0
	16	4	60	0.085	4	16	1195	405	26.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	30	0.030	3	6	1590	190	3.5
	8	4	30	0.040	4	8	1195	190	6.0
	10	4	30	0.055	5	10	955	210	10.5
	12	4	30	0.055	6	12	795	175	12.5
	16	4	30	0.085	4	16	595	200	13.0
Heat resistant steel [17-4 PH]	6	4	20	0.025	3	6	1060	105	2.0
	8	4	20	0.035	4	8	795	110	3.5
	10	4	20	0.045	5	10	635	115	6.0
	12	4	20	0.050	6	12	530	105	7.5
	16	4	20	0.075	4	16	400	120	7.5
Nickel base alloys prec.-hard. [Inconel 718]	6	4	10	0.025	3	6	530	55	1.0
	8	4	10	0.035	4	8	400	55	2.0
	10	4	10	0.045	5	10	320	60	3.0
	12	4	10	0.050	6	12	265	55	4.0
	16	4	10	0.075	4	16	200	60	4.0

Corner radius end mills SX-RN

Smooth-edged, normal version

HM MG10 | λ 55° γ 15°



Roughing

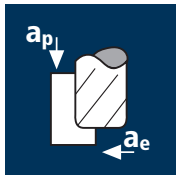
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys Tool Steel**

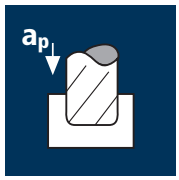
Example: **Order-N°.** Coating **P** Article-N°. **15312** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	r 0/+0.03	z	POLYCHROM P15312	P15212
.300	6	6	57	13	0.5	4		●
.388	8	8	63	19	0.5	4		●
.448	10	10	72	22	0.5	4		●
.498	12	12	83	26	0.5	4		●
.606	16	16	92	32	0.5	4		●
.302	6	6	57	13	1.0	4		●
.391	8	8	63	19	1.0	4		●
.450	10	10	72	22	1.0	4		●
.501	12	12	83	26	1.0	4		●
.608	16	16	92	32	1.0	4		●
.304	6	6	57	13	1.5	4		●
.393	8	8	63	19	1.5	4		●
.453	10	10	72	22	1.5	4		●
.503	12	12	83	26	1.5	4		●
.610	16	16	92	32	1.5	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	3	4	35	0.010	5.4	1.4	3715	150	1.1
	4	4	35	0.015	7.2	1.8	2785	165	2.1
	5	4	35	0.020	9.0	2.3	2230	180	3.6
	6	4	35	0.020	10.8	2.7	1855	150	4.4
	8	4	35	0.030	14.4	3.6	1395	165	8.6
	10	4	35	0.035	18.0	4.5	1115	155	12.6
	12	4	35	0.045	21.6	5.4	930	165	19.2
	16	4	35	0.050	28.8	7.2	695	140	29.0
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	3	4	25	0.010	5.4	1.4	2655	105	0.8
	4	4	25	0.010	7.2	1.8	1990	80	1.0
	5	4	25	0.015	9.0	2.3	1590	95	1.9
	6	4	25	0.015	10.8	2.7	1325	80	2.3
	8	4	25	0.025	14.4	3.6	995	100	5.2
	10	4	25	0.030	18.0	4.5	795	95	7.7
	12	4	25	0.035	21.6	5.4	665	95	11.1
	16	4	25	0.040	28.8	7.2	495	80	16.6
Manganese steel Mn >5% [1.3964 / Nitronic] [1.3401 / X120Mn12]	3	4	40	0.010	5.4	1.4	4245	170	1.2
	4	4	40	0.015	7.2	1.8	3185	190	2.5
	5	4	40	0.020	9.0	2.3	2545	205	4.2
	6	4	40	0.020	10.8	2.7	2120	170	5.0
	8	4	40	0.030	14.4	3.6	1590	190	9.8
	10	4	40	0.035	18.0	4.5	1275	180	14.6
	12	4	40	0.045	21.6	5.4	1060	190	22.2
	16	4	40	0.050	28.8	7.2	795	160	33.2
Heat resistant steel [17-4 PH] [Duplex]	3	4	50	0.015	5.4	1.4	5305	320	2.3
	4	4	50	0.020	7.2	1.8	3980	320	4.1
	5	4	50	0.030	9.0	2.3	3185	380	7.7
	6	4	50	0.035	10.8	2.7	2655	370	10.8
	8	4	50	0.045	14.4	3.6	1990	360	18.7
	10	4	50	0.055	18.0	4.5	1590	350	28.4
	12	4	50	0.065	21.6	5.4	1325	345	40.2
	16	4	50	0.070	28.8	7.2	995	280	58.1



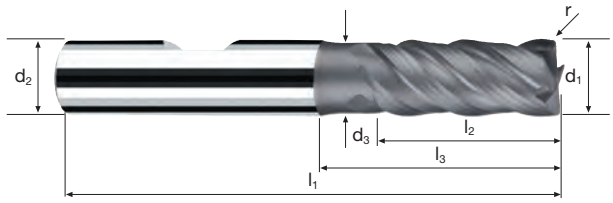
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	3	4	80	0.010	5.4	1.4	8490	340	2.5
	4	4	80	0.015	7.2	1.8	6365	380	4.9
	5	4	80	0.020	9.0	2.3	5095	410	8.3
	6	4	80	0.020	10.8	2.7	4245	340	9.9
	8	4	80	0.030	14.4	3.6	3185	380	19.7
	10	4	80	0.035	18.0	4.5	2545	355	28.8
	12	4	80	0.045	21.6	5.4	2120	380	44.3
	16	4	80	0.050	28.8	7.2	1590	320	66.4
Titanium alloys >300 HB [Ti6Al4V]	3	4	60	0.010	5.4	1.4	6365	255	1.9
	4	4	60	0.015	7.2	1.8	4775	285	3.7
	5	4	60	0.015	9.0	2.3	3820	230	4.7
	6	4	60	0.020	10.8	2.7	3185	255	7.4
	8	4	60	0.025	14.4	3.6	2385	240	12.4
	10	4	60	0.035	18.0	4.5	1910	265	21.5
	12	4	60	0.040	21.6	5.4	1590	255	29.7
	16	4	60	0.045	28.8	7.2	1195	215	44.6
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	3	4	25	0.010	3.8	3.0	2655	105	1.2
	4	4	25	0.010	5.0	4.0	1990	80	1.6
	5	4	25	0.015	6.3	5.0	1590	95	3.0
	6	4	25	0.015	7.5	6.0	1325	80	3.6
	8	4	25	0.025	10.0	8.0	995	100	8.0
	10	4	25	0.030	12.5	10.0	795	95	11.9
	12	4	25	0.035	15.0	12.0	665	95	17.1
	16	4	25	0.040	20.0	16.0	495	80	25.6
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	3	4	20	0.005	3.8	3.0	2120	40	0.5
	4	4	20	0.010	5.0	4.0	1590	65	1.3
	5	4	20	0.010	6.3	5.0	1275	50	1.6
	6	4	20	0.015	7.5	6.0	1060	65	2.9
	8	4	20	0.020	10.0	8.0	795	65	5.2
	10	4	20	0.020	12.5	10.0	635	50	6.3
	12	4	20	0.025	15.0	12.0	530	55	9.9
	16	4	20	0.030	20.0	16.0	400	50	16.0

Corner radius end mills ZX-RNV

Smooth-edged, normal version with short neck

HM X10

λ 40°
γ 5°



new!

Roughing

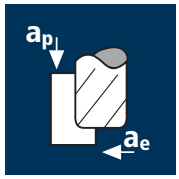
Finishing

Inox Stainless | **Ti** Titanium | **Nickel-Alloys Mangan-Steels HSS**

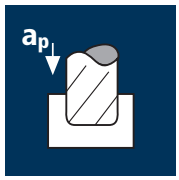
Example: **Order-N°.** Coating **P** Article-N°. **8820** ø-Code **.299**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P8820	POLYCHROM P8720
.299	6	6	5.5	57	13	20	0.4	0.0°	4		●
.387	8	8	7.4	63	19	26	0.4	0.0°	4		●
.447	10	10	9.2	72	22	31	0.4	0.0°	4		●
.497	12	12	11.0	83	26	37	0.4	0.0°	4		●
.180	3	6	2.8	57	8	14	0.5	4.5°	4		●
.220	4	6	3.7	57	11	16	0.5	3.0°	4		●
.260	5	6	4.6	57	13	18	0.5	1.5°	4		●
.300	6	6	5.5	57	13	20	0.5	0.0°	4		●
.388	8	8	7.4	63	19	26	0.5	0.0°	4		●
.448	10	10	9.2	72	22	31	0.5	0.0°	4		●
.498	12	12	11.0	83	26	37	0.5	0.0°	4		●
.301	6	6	5.5	57	13	20	0.8	0.0°	4		●
.389	8	8	7.4	63	19	26	0.8	0.0°	4		●
.449	10	10	9.2	72	22	31	0.8	0.0°	4		●
.499	12	12	11.0	83	26	37	0.8	0.0°	4		●
.607	16	16	15.0	92	32	43	0.8	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	6	4	35	0.020	10.8	2.4	1855	150	3.9
	8	4	35	0.025	14.4	3.2	1395	140	6.5
	10	4	35	0.030	18.0	4.0	1115	135	9.7
	12	4	35	0.040	21.6	4.8	930	150	15.6
	16	4	35	0.045	28.8	6.4	695	125	23.0
	20	4	35	0.055	36.0	8.0	555	120	34.6
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	6	4	25	0.015	10.8	2.4	1325	80	2.1
	8	4	25	0.020	14.4	3.2	995	80	3.7
	10	4	25	0.025	18.0	4.0	795	80	5.8
	12	4	25	0.030	21.6	4.8	665	80	8.3
	16	4	25	0.035	28.8	6.4	495	70	12.9
	20	4	25	0.045	36.0	8.0	400	70	20.2
Manganese steel Mn >5% [1.3964 / Nitronic] [1.3401 / X120Mn12]	6	4	40	0.020	10.8	2.4	2120	170	4.4
	8	4	40	0.025	14.4	3.2	1590	160	7.4
	10	4	40	0.030	18.0	4.0	1275	155	11.2
	12	4	40	0.040	21.6	4.8	1060	170	17.6
	16	4	40	0.045	28.8	6.4	795	145	26.7
	20	4	40	0.055	36.0	8.0	635	140	40.3
Heat resistant steel [17-4 PH] [Duplex]	6	4	50	0.030	10.8	2.4	2655	320	8.3
	8	4	50	0.040	14.4	3.2	1990	320	14.7
	10	4	50	0.050	18.0	4.0	1590	320	23.0
	12	4	50	0.060	21.6	4.8	1325	320	33.2
	16	4	50	0.065	28.8	6.4	995	260	47.9
	20	4	50	0.080	36.0	8.0	795	255	73.4



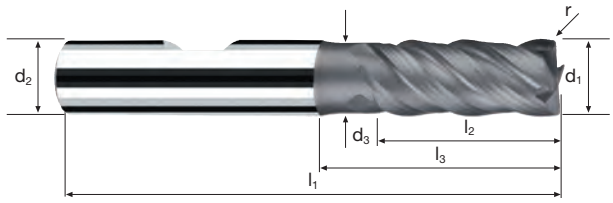
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	6	4	80	0.020	10.8	2.4	4245	340	8.8
	8	4	80	0.025	14.4	3.2	3185	320	14.7
	10	4	80	0.030	18.0	4.0	2545	305	22.0
	12	4	80	0.040	21.6	4.8	2120	340	35.3
	16	4	80	0.045	28.8	6.4	1590	285	52.5
	20	4	80	0.055	36.0	8.0	1275	280	80.6
Titanium alloys >300 HB [Ti6Al4V]	6	4	60	0.020	10.8	2.4	3185	255	6.6
	8	4	60	0.025	14.4	3.2	2385	240	11.1
	10	4	60	0.030	18.0	4.0	1910	230	16.6
	12	4	60	0.035	21.6	4.8	1590	225	23.3
	16	4	60	0.040	28.8	6.4	1195	190	35.0
	20	4	60	0.050	36.0	8.0	955	190	54.7
Nickel-based alloys annealed Rm <1000 N/mm² [Inconel 718]	6	4	25	0.015	7.2	6.0	1325	80	3.5
	8	4	25	0.020	9.6	8.0	995	80	6.1
	10	4	25	0.025	12.0	10.0	795	80	9.6
	12	4	25	0.030	14.4	12.0	665	80	13.8
	16	4	25	0.035	19.2	16.0	495	70	21.5
	20	4	25	0.045	24.0	20.0	400	70	33.6
Nickel-based alloys precipitation hardened Rm >1000 N/mm² [Inconel 718]	6	4	20	0.010	7.2	6.0	1060	40	1.7
	8	4	20	0.015	9.6	8.0	795	50	3.8
	10	4	20	0.020	12.0	10.0	635	50	6.0
	12	4	20	0.025	14.4	12.0	530	55	9.5
	16	4	20	0.030	19.2	16.0	400	50	15.4
	20	4	20	0.035	24.0	20.0	320	45	21.6

Corner radius end mills ZX-RNV

Smooth-edged, normal version with short neck

HSS | Favora® | Base-X | X-Generation X

HM XT | λ 40° γ 5°



new!

Roughing

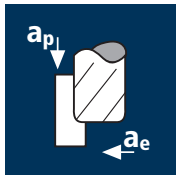
Finishing

Inox Stainless | **Ti** Titanium | **Nickel-Alloys Mangan-Steels HSS**

Example: **Order-N°.** Coating **P** Article-N°. **8820** ø-Code **.302**

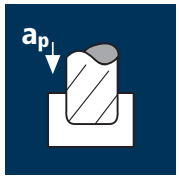
ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	α	z	POLYCHROM P8820	POLYCHROM P8720
.302	6	6	5.5	57	13	20	1.0	0.0°	4		●
.391	8	8	7.4	63	19	26	1.0	0.0°	4		●
.450	10	10	9.2	72	22	31	1.0	0.0°	4		●
.501	12	12	11.0	83	26	37	1.0	0.0°	4		●
.608	16	16	15.0	92	32	43	1.0	0.0°	4		●
.680	20	20	19.0	104	38	53	1.0	0.0°	4		●
.453	10	10	9.2	72	22	31	1.5	0.0°	4		●
.503	12	12	11.0	83	26	37	1.5	0.0°	4		●
.610	16	16	15.0	92	32	43.0	1.5	0.0°	4		●
.505	12	12	11.0	83	26	37.0	2.0	0.0°	4		●
.611	16	16	15.0	92	32	43.0	2.0	0.0°	4		●
.683	20	20	19.0	104	38	53.0	2.0	0.0°	4		●
.457	10	10	9.2	72	22	31.0	2.5	0.0°	4		●
.506	12	12	11.0	83	26	37.0	2.5	0.0°	4		●
.612	16	16	15.0	92	32	43.0	2.5	0.0°	4		●
.684	20	20	19.0	104	38	53.0	2.5	0.0°	4		●
.508	12	12	11.0	83	26	37.0	4.0	0.0°	4		●
.614	16	16	15.0	92	32	43.0	4.0	0.0°	4		●
.686	20	20	19.0	104	38.0	53.0	4.0	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	120	0.010	4.5	0.3	12735	380	0.5
	4	3	120	0.015	6.0	0.4	9550	430	1.0
	5	3	120	0.015	7.5	0.5	7640	345	1.5
	6	3	120	0.020	9.0	0.6	6365	380	2.0
	8	3	120	0.025	12.0	0.8	4775	360	3.5
	10	3	120	0.035	15.0	1.0	3820	400	6.0
	12	3	120	0.040	18.0	1.2	3185	380	8.0
Steel 850 - 1100 N/mm²	3	3	80	0.010	4.5	0.3	8490	255	0.5
	4	3	80	0.015	6.0	0.4	6365	285	0.5
	5	3	80	0.015	7.5	0.5	5095	230	1.0
	6	3	80	0.020	9.0	0.6	4245	255	1.5
	8	3	80	0.025	12.0	0.8	3185	240	2.5
	10	3	80	0.035	15.0	1.0	2545	265	4.0
	12	3	80	0.040	18.0	1.2	2120	255	5.5
Cast iron (lamellar / spheroidal)	3	3	160	0.010	4.5	0.3	16975	510	0.5
	4	3	160	0.015	6.0	0.4	12735	575	1.5
	5	3	160	0.015	7.5	0.5	10185	460	1.5
	6	3	160	0.020	9.0	0.6	8490	510	3.0
	8	3	160	0.025	12.0	0.8	6365	475	4.5
	10	3	160	0.035	15.0	1.0	5095	535	8.0
	12	3	160	0.040	18.0	1.2	4245	510	11.0
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	4.5	0.3	5305	160	0.2
	4	3	50	0.015	6.0	0.4	3980	180	0.5
	5	3	50	0.015	7.5	0.5	3185	145	0.5
	6	3	50	0.020	9.0	0.6	2655	160	1.0
	8	3	50	0.025	12.0	0.8	1990	150	1.5
	10	3	50	0.035	15.0	1.0	1590	165	2.5
	12	3	50	0.040	18.0	1.2	1325	160	3.5

Application

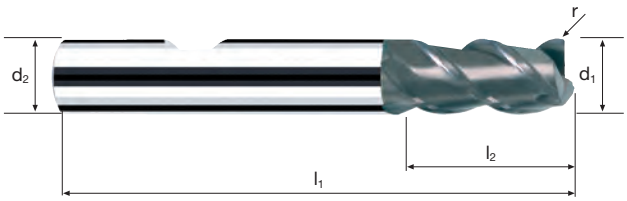


Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	100	0.010	1.5	3	10610	320	1.5
	4	3	100	0.010	2.0	4	7960	240	2.0
	5	3	100	0.015	2.5	5	6365	285	3.5
	6	3	100	0.015	3.0	6	5305	240	4.5
	8	3	100	0.020	4.0	8	3980	240	7.5
	10	3	100	0.030	5.0	10	3185	285	14.5
	12	3	100	0.035	6.0	12	2655	280	20.0
Steel 850 - 1100 N/mm²	3	3	70	0.010	1.5	3	7425	225	1.0
	4	3	70	0.010	2.0	4	5570	165	1.5
	5	3	70	0.015	2.5	5	4455	200	2.5
	6	3	70	0.015	3.0	6	3715	165	3.0
	8	3	70	0.020	4.0	8	2785	165	5.5
	10	3	70	0.025	5.0	10	2230	165	8.5
	12	3	70	0.030	6.0	12	1855	165	12.0
Cast iron (lamellar / spheroidal)	3	3	120	0.010	1.5	3	12735	380	1.5
	4	3	120	0.010	2.0	4	9550	285	2.5
	5	3	120	0.015	2.5	5	7640	345	4.5
	6	3	120	0.020	3.0	6	6365	380	7.0
	8	3	120	0.025	4.0	8	4775	360	11.5
	10	3	120	0.030	5.0	10	3820	345	17.5
	12	3	120	0.035	6.0	12	3185	335	24.0
Stainless steel [Cr-Ni/1.4301]	3	3	35	0.010	1.5	3	3715	110	0.5
	4	3	35	0.010	2.0	4	2785	85	0.5
	5	3	35	0.015	2.5	5	2230	100	1.5
	6	3	35	0.015	3.0	6	1855	85	1.5
	8	3	35	0.020	4.0	8	1395	85	2.5
	10	3	35	0.025	5.0	10	1115	85	4.5
	12	3	35	0.030	6.0	12	930	85	6.0

Corner radius end mills

Smooth-edged, normal version

HM MG10 | **λ 45° γ 15°**



Roughing

Finishing

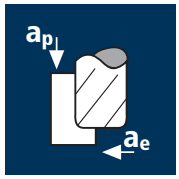
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5334** ø-Code **.178**

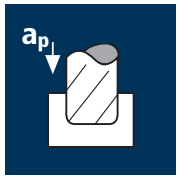
ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z		POLYCHROM P5334	P5234
.178	3	6	57	7	0.2	6.0°	3			●
.218	4	6	57	8	0.2	4.5°	3			●
.258	5	6	57	10	0.2	2.5°	3			●
.297	6	6	57	10	0.2	0.0°	3			●
.388	8	8	63	16	0.2	0.0°	3			●
.445	10	10	72	19	0.2	0.0°	3			●
.496	12	12	83	22	0.2	0.0°	3			●
.180	3	6	57	7	0.5	6.0°	3			●
.220	4	6	57	8	0.5	4.5°	3			●
.260	5	6	57	10	0.5	2.5°	3			●
.300	6	6	57	10	0.5	0.0°	3			●
.391	8	8	63	16	0.5	0.0°	3			●
.450	10	10	72	19	0.5	0.0°	3			●
.501	12	12	83	22	0.5	0.0°	3			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	180	0.015	4.5	1.2	19100	1145	6.0
	4	4	180	0.020	6.0	1.6	14325	1145	11.0
	5	4	180	0.025	7.5	2.0	11460	1145	17.0
	6	4	180	0.030	9.0	2.4	9550	1145	24.5
	8	4	180	0.040	12.0	3.2	7160	1145	44.0
	10	4	180	0.050	15.0	4.0	5730	1145	68.5
	12	4	180	0.060	18.0	4.8	4775	1145	99.0
Steel 850 - 1100 N/mm²	3	4	130	0.015	4.5	1.2	13795	830	4.5
	4	4	130	0.020	6.0	1.6	10345	830	8.0
	5	4	130	0.025	7.5	2.0	8275	830	12.5
	6	4	130	0.030	9.0	2.4	6895	825	18.0
	8	4	130	0.040	12.0	3.2	5175	830	32.0
	10	4	130	0.050	15.0	4.0	4140	830	50.0
	12	4	130	0.060	18.0	4.8	3450	830	71.5
Stainless steel [Cr-Ni/1.4301]	3	4	60	0.010	4.5	1.2	6365	255	1.5
	4	4	60	0.015	6.0	1.6	4775	285	2.5
	5	4	60	0.020	7.5	2.0	3820	305	4.5
	6	4	60	0.025	9.0	2.4	3185	320	7.0
	8	4	60	0.030	12.0	3.2	2385	285	11.0
	10	4	60	0.040	15.0	4.0	1910	305	18.5
	12	4	60	0.050	18.0	4.8	1590	320	27.5
Cast iron (lamellar / spheroidal)	3	4	160	0.015	4.5	1.2	16975	1020	5.5
	4	4	160	0.020	6.0	1.6	12735	1020	10.0
	5	4	160	0.030	7.5	2.0	10185	1220	18.5
	6	4	160	0.035	9.0	2.4	8490	1190	25.5
	8	4	160	0.045	12.0	3.2	6365	1145	44.0
	10	4	160	0.055	15.0	4.0	5095	1120	67.0
	12	4	160	0.065	18.0	4.8	4245	1105	95.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	4	160	0.010	3.0	3	16975	680	6.0
	4	4	160	0.015	4.0	4	12735	765	12.0
	5	4	160	0.020	5.0	5	10185	815	20.5
	6	4	160	0.025	6.0	6	8490	850	30.5
	8	4	160	0.030	8.0	8	6365	765	49.0
	10	4	160	0.040	10.0	10	5095	815	81.5
	12	4	160	0.045	12.0	12	4245	765	110.0
Steel 850 - 1100 N/mm²	3	4	110	0.010	3.0	3	11670	465	4.0
	4	4	110	0.015	4.0	4	8755	525	8.5
	5	4	110	0.020	5.0	5	7005	560	14.0
	6	4	110	0.025	6.0	6	5835	585	21.0
	8	4	110	0.030	8.0	8	4375	525	33.5
	10	4	110	0.040	10.0	10	3500	560	56.0
	12	4	110	0.045	12.0	12	2920	525	75.5
Stainless steel [Cr-Ni/1.4301]	3	4	45	0.010	2.1	3	4775	190	1.0
	4	4	45	0.010	2.8	4	3580	145	1.5
	5	4	45	0.015	3.5	5	2865	170	3.0
	6	4	45	0.020	4.2	6	2385	190	5.0
	8	4	45	0.025	8.0	8	1790	180	11.5
	10	4	45	0.030	10.0	10	1430	170	17.0
	12	4	45	0.040	12.0	12	1195	190	27.5
Cast iron (lamellar / spheroidal)	3	4	145	0.010	3.0	3	15385	615	5.5
	4	4	145	0.015	4.0	4	11540	690	11.0
	5	4	145	0.025	5.0	5	9230	925	23.0
	6	4	145	0.025	6.0	6	7695	770	27.5
	8	4	145	0.035	8.0	8	5770	810	52.0
	10	4	145	0.040	10.0	10	4615	740	74.0
	12	4	145	0.050	12.0	12	3845	770	111.0

Corner radius end mills NF-RNV

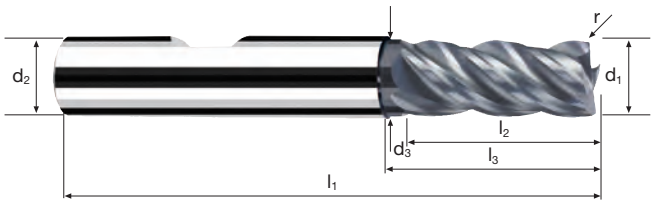
Smooth-edged, normal version with short neck

HSS Favora® F Base-X X-Generation

HM

λ 40°
γ 6°

Vario



Roughing

Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel-Alloys**

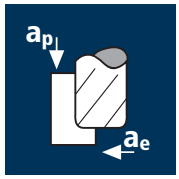
new!

Example: **Order-N°.** Coating **P** Article-N°. **45319** ø-Code **.178**

new!

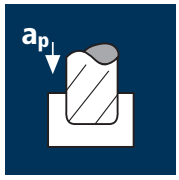
ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P45319	POLYCHROM P45219
.178	3	6	2.8	57	8	14	0.2	4.5°	4		●
.218	4	6	3.7	57	11	16	0.2	3.0°	4		●
.258	5	6	4.6	57	13	18	0.2	1.5°	4		●
.297	6	6	5.5	57	13	20	0.2	0.0°	4		●
.385	8	8	7.4	63	19	26	0.2	0.0°	4		●
.445	10	10	9.2	72	22	31	0.2	0.0°	4		●
.496	12	12	11.0	83	26	37	0.2	0.0°	4		●
.180	3	6	2.8	57	8	14	0.5	4.5°	4		●
.220	4	6	3.7	57	11	16	0.5	3.0°	4		●
.260	5	6	4.6	57	13	18	0.5	1.5°	4		●
.300	6	6	5.5	57	13	20	0.5	0.0°	4		●
.388	8	8	7.4	63	19	26	0.5	0.0°	4		●
.448	10	10	9.2	72	22	31	0.5	0.0°	4		●
.498	12	12	11.0	83	26	37	0.5	0.0°	4		●
.301	6	6	5.5	57	13	20	0.8	0.0°	4		●
.389	8	8	7.4	63	19	26	0.8	0.0°	4		●
.449	10	10	9.2	72	22	31	0.8	0.0°	4		●
.499	12	12	11.0	83	26	37	0.8	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.030	9.0	2.4	9550	1145	24.5
	8	4	180	0.040	12.0	3.2	7160	1145	44.0
	10	4	180	0.050	15.0	4.0	5730	1145	68.5
	12	4	180	0.060	18.0	4.8	4775	1145	99.0
	16	4	180	0.075	24.0	6.4	3580	1075	165.0
	20	4	180	0.095	30.0	8.0	2865	1090	261.5
Steel 850 - 1100 N/mm²	6	4	130	0.030	9.0	2.4	6895	825	18.0
	8	4	130	0.040	12.0	3.2	5175	830	32.0
	10	4	130	0.050	15.0	4.0	4140	830	50.0
	12	4	130	0.060	18.0	4.8	3450	830	71.5
	16	4	130	0.075	24.0	6.4	2585	775	119.0
	20	4	130	0.095	30.0	8.0	2070	785	188.5
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.025	9.0	2.4	3185	320	7.0
	8	4	60	0.030	12.0	3.2	2385	285	11.0
	10	4	60	0.040	15.0	4.0	1910	305	18.5
	12	4	60	0.050	18.0	4.8	1590	320	27.5
	16	4	60	0.060	24.0	6.4	1195	285	44.0
	20	4	60	0.075	30.0	8.0	955	285	68.5
Cast iron (lamellar / spheroidal)	6	4	160	0.035	9.0	2.4	8490	1190	25.5
	8	4	160	0.045	12.0	3.2	6365	1145	44.0
	10	4	160	0.055	15.0	4.0	5095	1120	67.0
	12	4	160	0.065	18.0	4.8	4245	1105	95.5
	16	4	160	0.085	24.0	6.4	3185	1085	166.5
	20	4	160	0.105	30.0	8.0	2545	1070	257.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	160	0.025	6.0	6	8490	850	30.5
	8	4	160	0.030	8.0	8	6365	765	49.0
	10	4	160	0.040	10.0	10	5095	815	81.5
	12	4	160	0.045	12.0	12	4245	765	110.0
	16	4	160	0.055	8.0	16	3185	700	89.5
	20	4	160	0.070	10.0	20	2545	715	143.0
Steel 850 - 1100 N/mm²	6	4	110	0.025	6.0	6	5835	585	21.0
	8	4	110	0.030	8.0	8	4375	525	33.5
	10	4	110	0.040	10.0	10	3500	560	56.0
	12	4	110	0.045	12.0	12	2920	525	75.5
	16	4	110	0.055	8.0	16	2190	480	61.5
	20	4	110	0.070	10.0	20	1750	490	98.0
Stainless steel [Cr-Ni/1.4301]	6	4	45	0.020	4.2	6	2385	190	5.0
	8	4	45	0.025	8.0	8	1790	180	11.5
	10	4	45	0.030	10.0	10	1430	170	17.0
	12	4	45	0.040	12.0	12	1195	190	27.5
	16	4	45	0.045	8.0	16	895	160	20.5
	20	4	45	0.055	10.0	20	715	155	31.0
Cast iron (lamellar / spheroidal)	6	4	145	0.025	6.0	6	7695	770	27.5
	8	4	145	0.035	8.0	8	5770	810	52.0
	10	4	145	0.040	10.0	10	4615	740	74.0
	12	4	145	0.050	12.0	12	3845	770	111.0
	16	4	145	0.065	8.0	16	2885	750	96.0
	20	4	145	0.080	10.0	20	2310	740	148.0

Corner radius end mills NF-RNV

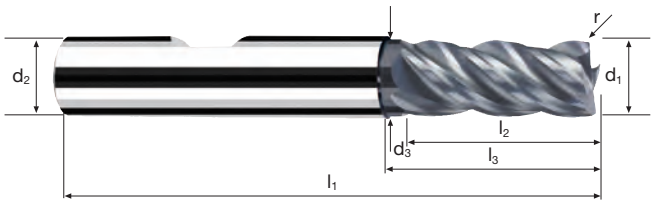
Smooth-edged, normal version with short neck

HSS Favora® F Base-X X-Generation

HM

λ 40°
γ 6°

Vario



Roughing

Finishing

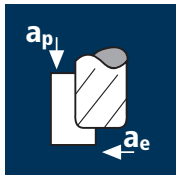
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel-Alloys**

new!

Example: **Order-N°.** Coating **P** Article-N°. **45319** ø-Code **.302**

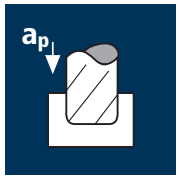
ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P45319	new! P45219
.302	6	6	5.5	57	13	20	1.0	0.0°	4		●
.391	8	8	7.4	63	19	26	1.0	0.0°	4		●
.450	10	10	9.2	72	22	31	1.0	0.0°	4		●
.501	12	12	11.0	83	26	37	1.0	0.0°	4		●
.608	16	16	15.0	92	32	43	1.0	0.0°	4		●
.680	20	20	19.0	104	38	53	1.0	0.0°	4		●
.453	10	10	9.2	72	22	31	1.5	0.0°	4		●
.503	12	12	11.0	83	26	37	1.5	0.0°	4		●
.610	16	16	15.0	92	32	43	1.5	0.0°	4		●
.505	12	12	11.0	83	26	37	2.0	0.0°	4		●
.611	16	16	15.0	92	32	43	2.0	0.0°	4		●
.683	20	20	19.0	104	38	53	2.0	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	180	0.050	15.0	4.0	5730	1145	68.5
	12	4	180	0.060	18.0	4.8	4775	1145	99.0
	16	4	180	0.075	24.0	6.4	3580	1075	165.0
	20	4	180	0.095	30.0	8.0	2865	1090	261.5
Steel 850 - 1100 N/mm²	10	4	130	0.050	15.0	4.0	4140	830	50.0
	12	4	130	0.060	18.0	4.8	3450	830	71.5
	16	4	130	0.075	24.0	6.4	2585	775	119.0
	20	4	130	0.095	30.0	8.0	2070	785	188.5
Stainless steel [Cr-Ni/1.4301]	10	4	60	0.040	15.0	4.0	1910	305	18.5
	12	4	60	0.050	18.0	4.8	1590	320	27.5
	16	4	60	0.060	24.0	6.4	1195	285	44.0
	20	4	60	0.075	30.0	8.0	955	285	68.5
Cast iron (lamellar / spheroidal)	10	4	160	0.055	15.0	4.0	5095	1120	67.0
	12	4	160	0.065	18.0	4.8	4245	1105	95.5
	16	4	160	0.085	24.0	6.4	3185	1085	166.5
	20	4	160	0.105	30.0	8.0	2545	1070	257.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	160	0.040	10.0	10	5095	815	81.5
	12	4	160	0.045	12.0	12	4245	765	110.0
	16	4	160	0.055	8.0	16	3185	700	89.5
	20	4	160	0.070	10.0	20	2545	715	143.0
Steel 850 - 1100 N/mm²	10	4	110	0.040	10.0	10	3500	560	56.0
	12	4	110	0.045	12.0	12	2920	525	75.5
	16	4	110	0.055	8.0	16	2190	480	61.5
	20	4	110	0.070	10.0	20	1750	490	98.0
Stainless steel [Cr-Ni/1.4301]	10	4	45	0.030	10.0	10	1430	170	17.0
	12	4	45	0.040	12.0	12	1195	190	27.5
	16	4	45	0.045	8.0	16	895	160	20.5
	20	4	45	0.055	10.0	20	715	155	31.0
Cast iron (lamellar / spheroidal)	10	4	145	0.040	10.0	10	4615	740	74.0
	12	4	145	0.050	12.0	12	3845	770	111.0
	16	4	145	0.065	8.0	16	2885	750	96.0
	20	4	145	0.080	10.0	20	2310	740	148.0

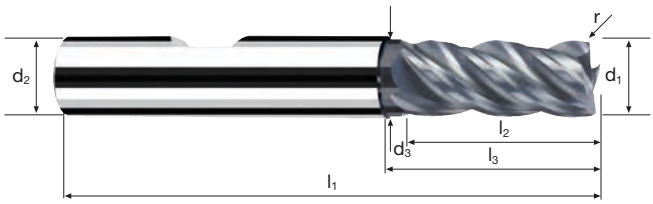
Corner radius end mills NF-RNV

Smooth-edged, normal version with short neck

HM

λ 40°
γ 6°

Vario



Roughing

Finishing

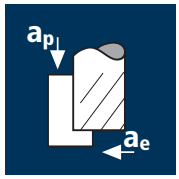
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

new!

Example: **Order-N°.** Coating **P** Article-N°. **45319** ø-Code **.457**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P45319	P45219
.457	10	10	9.2	72	22	31	2.5	0.0°	4		●
.506	12	12	11.0	83	26	37	2.5	0.0°	4		●
.612	16	16	15.0	92	32	43	2.5	0.0°	4		●
.684	20	20	19.0	104	38	53	2.5	0.0°	4		●
.508	12	12	11.0	83	26	37	4.0	0.0°	4		●
.614	16	16	15.0	92	32	43	4.0	0.0°	4		●
.686	20	20	19.0	104	38	53	4.0	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.025	9	3.6	9550	955	31.0
	8	4	180	0.030	12	4.8	7160	860	49.5
	10	4	180	0.050	15	6.0	5730	1145	103.0
	12	4	180	0.055	18	7.2	4775	1050	136.0
	16	4	180	0.055	24	9.6	3580	790	182.0
	16	6	180	0.050	24	9.6	3580	1075	247.5
	20	4	180	0.060	30	12.0	2865	690	248.5
	20	6	180	0.055	30	12.0	2865	945	340.0
Steel 850 - 1100 N/mm²	6	4	150	0.025	9	3.6	7960	795	26.0
	8	4	150	0.030	12	4.8	5970	715	41.0
	10	4	150	0.050	15	6.0	4775	955	86.0
	12	4	150	0.055	18	7.2	3980	875	113.5
	16	4	150	0.055	24	9.6	2985	655	151.0
	16	6	150	0.050	24	9.6	2985	895	206.0
	20	4	150	0.060	30	12.0	2385	570	205.0
	20	6	150	0.055	30	12.0	2385	785	282.5
Steel 1100 - 1300 N/mm²	6	4	120	0.025	9	3.6	6365	635	20.5
	8	4	120	0.030	12	4.8	4775	575	33.0
	10	4	120	0.050	15	6.0	3820	765	69.0
	12	4	120	0.055	18	7.2	3185	700	90.5
	16	4	120	0.055	24	9.6	2385	525	121.0
	16	6	120	0.050	24	9.6	2385	715	164.5
	20	4	120	0.060	30	12.0	1910	460	165.5
	20	6	120	0.055	30	12.0	1910	630	227.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	6	4	80	0.025	9	3.6	4245	425	14.0
	8	4	80	0.030	12	4.8	3185	380	22.0
	10	4	80	0.050	15	6.0	2545	510	46.0
	12	4	80	0.055	18	7.2	2120	465	60.5
	16	4	80	0.055	24	9.6	1590	350	80.5
	16	6	80	0.050	24	9.6	1590	475	109.5
	20	4	80	0.060	30	12.0	1275	305	110.0
	20	6	80	0.055	30	12.0	1275	420	151.0

Application

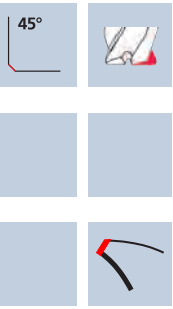


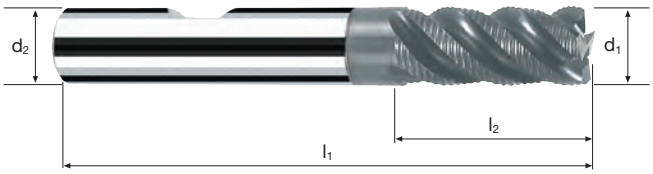
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.025	9	6	7960	795	43.0
	8	4	150	0.030	12	8	5970	715	68.5
	10	4	150	0.050	15	10	4775	955	143.5
	12	4	150	0.055	18	12	3980	875	189.0
	16	4	150	0.055	24	16	2985	655	251.5
	20	4	150	0.060	30	20	2385	570	342.0
Steel 850 - 1100 N/mm²	6	4	100	0.020	9	6	5305	425	23.0
	8	4	100	0.025	12	8	3980	400	38.5
	10	4	100	0.030	15	10	3185	380	57.0
	12	4	100	0.040	18	12	2655	425	92.0
	16	4	100	0.050	24	16	1990	400	153.5
	20	4	100	0.055	30	20	1590	350	210.0
Steel 1100 - 1300 N/mm²	6	4	80	0.020	9	6	4245	340	18.5
	8	4	80	0.025	12	8	3185	320	30.5
	10	4	80	0.030	15	10	2545	305	46.0
	12	4	80	0.040	18	12	2120	340	73.5
	16	4	80	0.050	24	16	1590	320	123.0
	20	4	80	0.055	30	20	1275	280	168.0
Cold work tool steel (12% Cr) high alloyed [1.2379]	6	4	60	0.020	9	6	3185	255	14.0
	8	4	60	0.025	12	8	2385	240	23.0
	10	4	60	0.030	15	10	1910	230	34.5
	12	4	60	0.040	18	12	1590	255	55.0
	16	4	60	0.050	24	16	1195	240	92.0
	20	4	60	0.055	30	20	955	210	126.0

Cylindrical end mills NX-FP

Profiled, normal version

HM XR | λ **45°** γ **0°**





Roughing

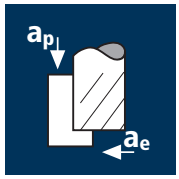
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5379** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	POLYCHROM P5379	POLYCHROM P5279
.300	6	6	57	13	0.35	4		●
.391	8	8	63	19	0.45	4		●
.450	10	10	72	22	0.60	4		●
.501	12	12	83	26	0.60	4		●
.608	16	16	92	32	0.70	4		●
.610	16	16	92	32	0.70	6		●
.680	20	20	104	38	0.70	4		●
.682	20	20	104	38	0.70	6		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.025	9	3.3	9550	955	28.5
	8	4	180	0.030	12	4.4	7160	860	45.5
	10	4	180	0.050	15	5.5	5730	1145	94.5
	12	4	180	0.055	18	6.6	4775	1050	124.5
	16	4	180	0.055	24	8.8	3580	790	167.0
	16	6	180	0.050	24	8.8	3580	1075	227.0
	20	4	180	0.060	30	11.0	2865	690	227.5
	20	6	180	0.055	30	11.0	2865	945	312.0
Steel 850 - 1100 N/mm²	6	4	150	0.025	9	3.3	7960	795	23.5
	8	4	150	0.030	12	4.4	5970	715	38.0
	10	4	150	0.050	15	5.5	4775	955	79.0
	12	4	150	0.055	18	6.6	3980	875	104.0
	16	4	150	0.055	24	8.8	2985	655	138.5
	16	6	150	0.050	24	8.8	2985	895	189.0
	20	4	150	0.060	30	11.0	2385	570	188.0
	20	6	150	0.055	30	11.0	2385	785	259.0
Steel 1100 - 1300 N/mm²	6	4	120	0.025	9	3.3	6365	635	19.0
	8	4	120	0.030	12	4.4	4775	575	30.5
	10	4	120	0.050	15	5.5	3820	765	63.0
	12	4	120	0.055	18	6.6	3185	700	83.0
	16	4	120	0.055	24	8.8	2385	525	111.0
	16	6	120	0.050	24	8.8	2385	715	151.0
	20	4	120	0.060	30	11.0	1910	460	152.0
	20	6	120	0.055	30	11.0	1910	630	208.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	80	0.025	9	3.3	4245	425	12.5
	8	4	80	0.030	12	4.4	3185	380	20.0
	10	4	80	0.050	15	5.5	2545	510	42.0
	12	4	80	0.055	18	6.6	2120	465	55.0
	16	4	80	0.055	24	8.8	1590	350	74.0
	16	6	80	0.050	24	8.8	1590	475	100.5
	20	4	80	0.060	30	11.0	1275	305	100.5
	20	6	80	0.055	30	11.0	1275	420	138.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.025	8.4	6	7960	795	40.0
	8	4	150	0.030	11.2	8	5970	715	64.0
	10	4	150	0.050	14.0	10	4775	955	133.5
	12	4	150	0.055	16.8	12	3980	875	176.5
	16	4	150	0.055	22.4	16	2985	655	235.0
	20	4	150	0.060	28.0	20	2385	570	319.0
Steel 850 - 1100 N/mm²	6	4	100	0.020	8.4	6	5305	425	21.5
	8	4	100	0.025	11.2	8	3980	400	36.0
	10	4	100	0.030	14.0	10	3185	380	53.0
	12	4	100	0.040	16.8	12	2655	425	85.5
	16	4	100	0.050	22.4	16	1990	400	143.5
	20	4	100	0.055	28.0	20	1590	350	196.0
Steel 1100 - 1300 N/mm²	6	4	80	0.020	8.4	6	4245	340	17.0
	8	4	80	0.025	11.2	8	3185	320	28.5
	10	4	80	0.030	14.0	10	2545	305	42.5
	12	4	80	0.040	16.8	12	2120	340	68.5
	16	4	80	0.050	22.4	16	1590	320	114.5
	20	4	80	0.055	28.0	20	1275	280	157.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	60	0.020	8.4	6	3185	255	13.0
	8	4	60	0.025	11.2	8	2385	240	21.5
	10	4	60	0.030	14.0	10	1910	230	32.0
	12	4	60	0.040	16.8	12	1590	255	51.5
	16	4	60	0.050	22.4	16	1195	240	86.0
	20	4	60	0.055	28.0	20	955	210	117.5

Cylindrical end mills NX-FP

Profiled, normal version with short neck

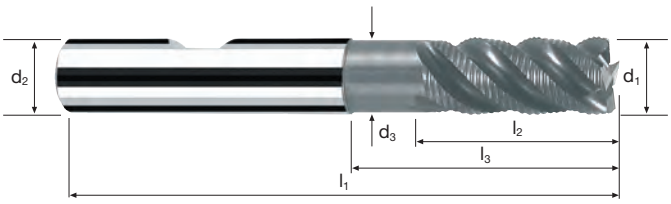
HSS | Favora® | Base-X | X-Generation X

HM XR

λ 45°
γ 0°









Roughing

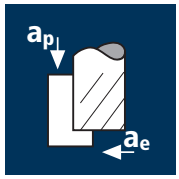
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15379** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	z	POLYCHROM P15379
.300	6	6	5.5	57	13	20	0.35	4	●
.391	8	8	7.4	63	19	26	0.45	4	●
.450	10	10	9.2	72	22	31	0.60	4	●
.501	12	12	11.0	83	26	37	0.60	4	●
.608	16	16	15.0	92	32	43	0.70	4	●
.610	16	16	15.0	92	32	43	0.70	6	●
.680	20	20	19.0	104	38	53	0.70	4	●
.682	20	20	19.0	104	38	53	0.70	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	200	0.020	9.0	2.7	10610	850	20.5
	8	4	200	0.030	12.0	3.6	7960	955	41.5
	10	4	200	0.040	15.0	4.5	6365	1020	69.0
	12	4	200	0.045	18.0	5.4	5305	955	93.0
	16	4	200	0.050	24.0	7.2	3980	795	137.5
	20	4	200	0.055	30.0	9.0	3185	700	189.0
Steel 850 - 1100 N/mm²	6	4	160	0.020	9.0	2.7	8490	680	16.5
	8	4	160	0.030	12.0	3.6	6365	765	33.0
	10	4	160	0.040	15.0	4.5	5095	815	55.0
	12	4	160	0.045	18.0	5.4	4245	765	74.5
	16	4	160	0.050	24.0	7.2	3185	635	109.5
	20	4	160	0.055	30.0	9.0	2545	560	151.0
Steel 1100 - 1300 N/mm²	6	4	130	0.020	9.0	2.7	6895	550	13.5
	8	4	130	0.030	12.0	3.6	5175	620	27.0
	10	4	130	0.040	15.0	4.5	4140	660	44.5
	12	4	130	0.045	18.0	5.4	3450	620	60.5
	16	4	130	0.050	24.0	7.2	2585	515	89.0
	20	4	130	0.055	30.0	9.0	2070	455	123.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	90	0.020	9.0	2.7	4775	380	9.0
	8	4	90	0.030	12.0	3.6	3580	430	18.5
	10	4	90	0.040	15.0	4.5	2865	460	31.0
	12	4	90	0.045	18.0	5.4	2385	430	42.0
	16	4	90	0.050	24.0	7.2	1790	360	62.0
	20	4	90	0.055	30.0	9.0	1430	315	85.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	160	0.020	6.0	6	8490	680	24.5
	8	4	160	0.025	8.0	8	6365	635	40.5
	10	4	160	0.035	10.0	10	5095	715	71.5
	12	4	160	0.040	12.0	12	4245	680	98.0
	16	4	160	0.045	16.0	16	3185	575	147.0
	20	4	160	0.050	20.0	20	2545	510	204.0
Steel 850 - 1100 N/mm²	6	4	110	0.020	5.4	6	5835	465	15.0
	8	4	110	0.025	7.2	8	4375	440	25.5
	10	4	110	0.035	9.0	10	3500	490	44.0
	12	4	110	0.040	10.8	12	2920	465	60.5
	16	4	110	0.045	14.4	16	2190	395	91.0
	20	4	110	0.050	18.0	20	1750	350	126.0
Steel 1100 - 1300 N/mm²	6	4	90	0.020	5.4	6	4775	380	12.5
	8	4	90	0.025	7.2	8	3580	360	20.5
	10	4	90	0.035	9.0	10	2865	400	36.0
	12	4	90	0.040	10.8	12	2385	380	49.0
	16	4	90	0.045	14.4	16	1790	320	73.5
	20	4	90	0.050	18.0	20	1430	285	102.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	70	0.020	5.4	6	3715	295	9.5
	8	4	70	0.025	7.2	8	2785	280	16.0
	10	4	70	0.035	9.0	10	2230	310	28.0
	12	4	70	0.040	10.8	12	1855	295	38.0
	16	4	70	0.045	14.4	16	1395	250	57.5
	20	4	70	0.050	18.0	20	1115	225	81.0

Cylindrical end mills NX-FP

Profiled, normal version, with integral air channel

HM XR | λ 45° γ 0°



Roughing

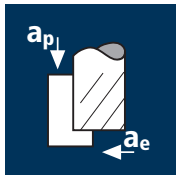
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **15331** | ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z		POLYCHROM P15331
.300	6	6	57	13	0.35	4		●
.391	8	8	63	19	0.45	4		●
.450	10	10	72	22	0.60	4		●
.501	12	12	83	26	0.60	4		●
.608	16	16	92	32	0.70	4		●
.680	20	20	104	38	0.70	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	70	0.015	10.8	3.6	3715	225	8.5
	8	4	70	0.020	14.4	4.8	2785	225	15.5
	10	4	70	0.025	18.0	6.0	2230	225	24.5
	12	4	70	0.030	21.6	7.2	1855	225	35.0
	16	4	70	0.035	28.8	9.6	1395	195	54.0
	20	4	70	0.045	36.0	12.0	1115	200	86.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	60	0.015	10.8	3.6	3185	190	7.5
	8	4	60	0.020	14.4	4.8	2385	190	13.0
	10	4	60	0.025	18.0	6.0	1910	190	20.5
	12	4	60	0.030	21.6	7.2	1590	190	29.5
	16	4	60	0.035	28.8	9.6	1195	165	45.5
	20	4	60	0.045	36.0	12.0	955	170	73.5
Heat resistant steel [17-4 PH]	6	4	25	0.010	10.8	3.6	1325	55	2.0
	8	4	25	0.015	14.4	4.8	995	60	4.0
	10	4	25	0.020	18.0	6.0	795	65	7.0
	12	4	25	0.025	21.6	7.2	665	65	10.0
	16	4	25	0.030	28.8	9.6	495	60	16.5
	20	4	25	0.045	36.0	12.0	400	70	30.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.015	9	6	2655	160	8.5
	8	4	50	0.020	12	8	1990	160	15.5
	10	4	50	0.020	15	10	1590	125	19.0
	12	4	50	0.025	18	12	1325	135	29.0
	16	4	50	0.035	24	16	995	140	54.0
	20	4	50	0.040	30	20	795	125	75.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	40	0.015	9	6	2120	125	7.0
	8	4	40	0.020	12	8	1590	125	12.0
	10	4	40	0.020	15	10	1275	100	15.0
	12	4	40	0.025	18	12	1060	105	22.5
	16	4	40	0.035	24	16	795	110	42.0
	20	4	40	0.040	30	20	635	100	60.0
Heat resistant steel [17-4 PH]	6	4	20	0.010	9	6	1060	40	2.0
	8	4	20	0.015	12	8	795	50	5.0
	10	4	20	0.020	15	10	635	50	7.5
	12	4	20	0.020	18	12	530	40	8.5
	16	4	20	0.030	24	16	400	50	19.0
	20	4	20	0.035	30	20	320	45	27.0

Cylindrical end mills SX-FP

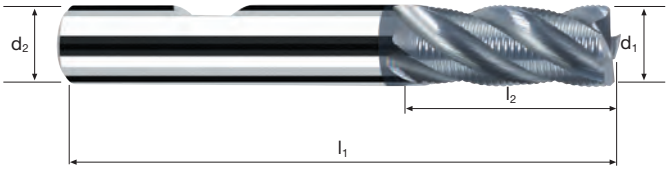
Profiled, normal version

HSS | Favora® | Base-X | X-Generation X

HM XR

λ **35°**
γ **0°**

45°



Roughing

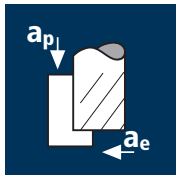
Finishing

Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15309** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z	POLYCHROM **P15309**
.300	6	6	57	13	0.35	4	●
.391	8	8	63	19	0.45	4	●
.450	10	10	72	22	0.60	4	●
.501	12	12	83	26	0.60	4	●
.610	16	16	92	32	0.70	4	●
.682	20	20	104	38	0.70	4	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	180	0.015	3.6	1.8	19100	860	5.5
4	3	180	0.020	4.8	2.4	14325	860	10.0
5	4	180	0.025	6.0	3.0	11460	1145	20.5
6	4	180	0.030	7.2	3.6	9550	1145	29.5
8	4	180	0.040	9.6	4.8	7160	1145	53.0
10	4	180	0.050	12.0	6.0	5730	1145	82.5
12	4	180	0.055	14.4	7.2	4775	1050	109.0
16	4	180	0.055	19.2	9.6	3580	790	145.5
20	4	180	0.060	24.0	12.0	2865	690	198.5
Steel 850 - 1100 N/mm²								
3	3	130	0.015	3.6	1.8	13795	620	4.0
4	3	130	0.020	4.8	2.4	10345	620	7.0
5	4	130	0.025	6.0	3.0	8275	830	15.0
6	4	130	0.030	7.2	3.6	6895	825	21.5
8	4	130	0.040	9.6	4.8	5175	830	38.0
10	4	130	0.050	12.0	6.0	4140	830	60.0
12	4	130	0.055	14.4	7.2	3450	760	79.0
16	4	130	0.055	19.2	9.6	2585	570	105.0
20	4	130	0.060	24.0	12.0	2070	495	142.5
Titanium alloys >300 HB [Ti6Al4V]								
3	3	45	0.010	3.6	1.8	4775	145	1.0
4	3	45	0.015	4.8	2.4	3580	160	2.0
5	4	45	0.020	6.0	3.0	2865	230	4.0
6	4	45	0.025	7.2	3.6	2385	240	6.0
8	4	45	0.030	9.6	4.8	1790	215	10.0
10	4	45	0.040	12.0	6.0	1430	230	16.5
12	4	45	0.045	14.4	7.2	1195	215	22.5
16	4	45	0.045	19.2	9.6	895	160	29.5
20	4	45	0.050	24.0	12.0	715	145	42.0
Stainless steel [Cr-Ni/1.4301]								
3	3	60	0.010	3.6	1.8	6365	190	1.0
4	3	60	0.015	4.8	2.4	4775	215	2.5
5	4	60	0.020	6.0	3.0	3820	305	5.5
6	4	60	0.025	7.2	3.6	3185	320	8.5
8	4	60	0.030	9.6	4.8	2385	285	13.0
10	4	60	0.040	12.0	6.0	1910	305	22.0
12	4	60	0.045	14.4	7.2	1590	285	29.5
16	4	60	0.045	19.2	9.6	1195	215	39.5
20	4	60	0.050	24.0	12.0	955	190	54.5

Application



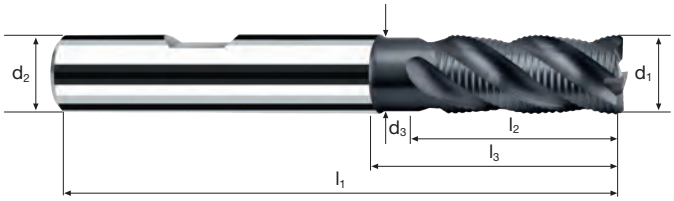
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	150	0.015	3.0	3	15915	715	6.5
4	3	150	0.020	4.0	4	11935	715	11.5
5	4	150	0.025	5.0	5	9550	955	24.0
6	4	150	0.030	6.0	6	7960	955	34.5
8	4	150	0.040	8.0	8	5970	955	61.0
10	4	150	0.050	10.0	10	4775	955	95.5
12	4	150	0.055	12.0	12	3980	875	126.0
16	4	150	0.055	16.0	16	2985	655	167.5
20	4	150	0.060	20.0	20	2385	570	228.0
Steel 850 - 1100 N/mm²								
3	3	80	0.015	3.0	3	8490	380	3.5
4	3	80	0.020	4.0	4	6365	380	6.0
5	4	80	0.025	5.0	5	5095	510	13.0
6	4	80	0.030	6.0	6	4245	510	18.5
8	4	80	0.040	8.0	8	3185	510	32.5
10	4	80	0.050	10.0	10	2545	510	51.0
12	4	80	0.055	12.0	12	2120	465	67.0
16	4	80	0.055	16.0	16	1590	350	89.5
20	4	80	0.060	20.0	20	1275	305	122.0
Titanium alloys >300 HB [Ti6Al4V]								
3	3	35	0.010	3.0	3	3715	110	1.0
4	3	35	0.015	4.0	4	2785	125	2.0
5	4	35	0.020	5.0	5	2230	180	4.5
6	4	35	0.025	6.0	6	1855	185	6.5
8	4	35	0.030	8.0	8	1395	165	10.5
10	4	35	0.040	10.0	10	1115	180	18.0
12	4	35	0.045	12.0	12	930	165	24.0
16	4	35	0.045	16.0	16	695	125	32.0
20	4	35	0.050	20.0	20	555	110	44.0
Stainless steel [Cr-Ni/1.4301]								
3	3	50	0.010	3.0	3	5305	160	1.5
4	3	50	0.015	4.0	4	3980	180	3.0
5	4	50	0.020	5.0	5	3185	255	6.5
6	4	50	0.025	6.0	6	2655	265	9.5
8	4	50	0.030	8.0	8	1990	240	15.5
10	4	50	0.040	10.0	10	1590	255	25.5
12	4	50	0.045	12.0	12	1325	240	34.5
16	4	50	0.045	16.0	16	995	180	46.0
20	4	50	0.050	20.0	20	795	160	64.0

Cylindrical end mills NB-RP SupraCarb®

Profiled, normal version with short neck

HM MG10 | λ 38° γ 0°



Roughing

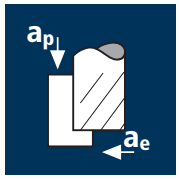
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15336** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	α	z	POLYCHROM P15336	POLYCHROM P15236
.180	3	6	2.8	57	8	14	0.25	4.5°	3		●
.220	4	6	3.7	57	11	16	0.30	3.0°	3		●
.260	5	6	4.6	57	13	18	0.35	1.5°	4		●
.300	6	6	5.5	57	13	20	0.35	0.0°	4		●
.391	8	8	7.4	63	19	26	0.45	0.0°	4		●
.450	10	10	9.2	72	22	31	0.60	0.0°	4		●
.501	12	12	11.0	83	26	37	0.60	0.0°	4		●
new! .570	14	14	13.0	83	26	37	0.60	0.0°	4		●
.610	16	16	15.0	92	32	43	0.70	0.0°	4		●
.612	16	16	15.0	92	32	43	0.70	0.0°	6		●
new! .640	18	18	17.0	92	32	43	0.70	0.0°	4		●
.682	20	20	19.0	104	38	53	0.70	0.0°	4		●
.684	20	20	19.0	104	38	53	0.70	0.0°	6		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	180	0.015	3.6	1.8	19100	860	5.5
4	3	180	0.020	4.8	2.4	14325	860	10.0
5	4	180	0.025	6.0	3.0	11460	1145	20.5
6	4	180	0.030	7.2	3.6	9550	1145	29.5
8	4	180	0.040	9.6	4.8	7160	1145	53.0
10	4	180	0.050	12.0	6.0	5730	1145	82.5
12	4	180	0.055	14.4	7.2	4775	1050	109.0
16	4	180	0.055	19.2	9.6	3580	790	145.5
20	4	180	0.060	24.0	12.0	2865	690	198.5
Steel 850 - 1100 N/mm²								
3	3	130	0.015	3.6	1.8	13795	620	4.0
4	3	130	0.020	4.8	2.4	10345	620	7.0
5	4	130	0.025	6.0	3.0	8275	830	15.0
6	4	130	0.030	7.2	3.6	6895	825	21.5
8	4	130	0.040	9.6	4.8	5175	830	38.0
10	4	130	0.050	12.0	6.0	4140	830	60.0
12	4	130	0.055	14.4	7.2	3450	760	79.0
16	4	130	0.055	19.2	9.6	2585	570	105.0
20	4	130	0.060	24.0	12.0	2070	495	142.5
Titanium alloys >300 HB [Ti6Al4V]								
3	3	45	0.010	3.6	1.8	4775	145	1.0
4	3	45	0.015	4.8	2.4	3580	160	2.0
5	4	45	0.020	6.0	3.0	2865	230	4.0
6	4	45	0.025	7.2	3.6	2385	240	6.0
8	4	45	0.030	9.6	4.8	1790	215	10.0
10	4	45	0.040	12.0	6.0	1430	230	16.5
12	4	45	0.045	14.4	7.2	1195	215	22.5
16	4	45	0.045	19.2	9.6	895	160	29.5
20	4	45	0.050	24.0	12.0	715	145	42.0
Stainless steel [Cr-Ni/1.4301]								
3	3	55	0.010	3.6	1.8	5835	175	1.0
4	3	55	0.015	4.8	2.4	4375	195	2.0
5	4	55	0.020	6.0	3.0	3500	280	5.0
6	4	55	0.025	7.2	3.6	2920	290	7.5
8	4	55	0.030	9.6	4.8	2190	265	12.0
10	4	55	0.040	12.0	6.0	1750	280	20.0
12	4	55	0.045	14.4	7.2	1460	265	27.5
16	4	55	0.045	19.2	9.6	1095	195	36.0
20	4	55	0.050	24.0	12.0	875	175	50.5

Application



Material

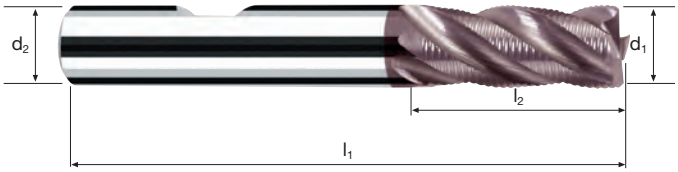
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
3	3	150	0.015	3.0	3	15915	715	6.5
4	3	150	0.020	4.0	4	11935	715	11.5
5	4	150	0.025	5.0	5	9550	955	24.0
6	4	150	0.030	6.0	6	7960	955	34.5
8	4	150	0.040	8.0	8	5970	955	61.0
10	4	150	0.050	10.0	10	4775	955	95.5
12	4	150	0.055	12.0	12	3980	875	126.0
16	4	150	0.055	16.0	16	2985	655	167.5
20	4	150	0.060	20.0	20	2385	570	228.0
Steel 850 - 1100 N/mm²								
3	3	80	0.015	3.0	3	8490	380	3.5
4	3	80	0.020	4.0	4	6365	380	6.0
5	4	80	0.025	5.0	5	5095	510	13.0
6	4	80	0.030	6.0	6	4245	510	18.5
8	4	80	0.040	8.0	8	3185	510	32.5
10	4	80	0.050	10.0	10	2545	510	51.0
12	4	80	0.055	12.0	12	2120	465	67.0
16	4	80	0.055	16.0	16	1590	350	89.5
20	4	80	0.060	20.0	20	1275	305	122.0
Titanium alloys >300 HB [Ti6Al4V]								
3	3	35	0.010	3.0	3	3715	110	1.0
4	3	35	0.015	4.0	4	2785	125	2.0
5	4	35	0.020	5.0	5	2230	180	4.5
6	4	35	0.025	6.0	6	1855	185	6.5
8	4	35	0.030	8.0	8	1395	165	10.5
10	4	35	0.040	10.0	10	1115	180	18.0
12	4	35	0.045	12.0	12	930	165	24.0
16	4	35	0.045	16.0	16	695	125	32.0
20	4	35	0.050	20.0	20	555	110	44.0
Stainless steel [Cr-Ni/1.4301]								
3	3	45	0.010	3.0	3	4775	145	1.5
4	3	45	0.015	4.0	4	3580	160	2.5
5	4	45	0.020	5.0	5	2865	230	6.0
6	4	45	0.025	6.0	6	2385	240	8.5
8	4	45	0.030	8.0	8	1790	215	14.0
10	4	45	0.040	10.0	10	1430	230	23.0
12	4	45	0.045	12.0	12	1195	215	31.0
16	4	45	0.045	16.0	16	895	160	41.0
20	4	45	0.050	20.0	20	715	145	58.0

Cylindrical end mills NF-RP

Profiled, normal version

HM | λ 38° γ 0°

45°



Roughing

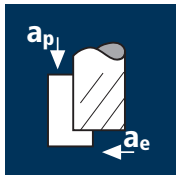
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **45371** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	UNICUT-4X U45371
.180	3	6	57	8	0.25	6.0°	3	●
.220	4	6	57	11	0.30	4.0°	3	●
.260	5	6	57	13	0.35	2.0°	4	●
.300	6	6	57	13	0.35	0.0°	4	●
.391	8	8	63	19	0.45	0.0°	4	●
.450	10	10	72	22	0.60	0.0°	4	●
.501	12	12	83	26	0.60	0.0°	4	●
.610	16	16	92	32	0.70	0.0°	4	●
.612	16	16	92	32	0.70	0.0°	6	●
.682	20	20	104	38	0.70	0.0°	4	●
.684	20	20	104	38	0.70	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	5	4	55	0.025	5	2.3	3500	350	4.0
	6	4	55	0.030	6	2.7	2920	350	5.5
	8	4	55	0.040	8	3.6	2190	350	10.0
	10	4	55	0.050	10	4.5	1750	350	16.0
	12	4	55	0.080	12	5.4	1460	465	30.0
	16	4	55	0.105	16	7.2	1095	460	53.0
	20	4	55	0.130	20	9.0	875	455	82.0
	22	4	55	0.145	22	9.9	795	460	100.0
	25	4	55	0.165	25	11.3	700	460	129.5
Steel 1100 - 1300 N/mm²	5	4	42	0.025	5	2.3	2675	270	3.0
	6	4	42	0.030	6	2.7	2230	270	4.5
	8	4	42	0.040	8	3.6	1670	265	7.5
	10	4	42	0.050	10	4.5	1335	265	12.0
	12	4	42	0.080	12	5.4	1115	355	23.0
	16	4	42	0.105	16	7.2	835	350	40.5
	20	4	42	0.130	20	9.0	670	350	63.0
	22	4	42	0.145	22	9.9	610	355	77.5
	25	4	42	0.165	25	11.3	535	355	100.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	5	4	25	0.025	5	2.3	1590	160	2.0
	6	4	25	0.030	6	2.7	1325	160	2.5
	8	4	25	0.040	8	3.6	995	160	4.5
	10	4	25	0.050	10	4.5	795	160	7.0
	12	4	25	0.080	12	5.4	665	215	14.0
	16	4	25	0.105	16	7.2	495	210	24.0
	20	4	25	0.130	20	9.0	400	210	38.0
	22	4	25	0.145	22	9.9	360	210	45.5
	25	4	25	0.165	25	11.3	320	210	59.0
Cast iron (lamellar / spheroidal)	5	4	47	0.025	5	2.3	2990	300	3.5
	6	4	47	0.030	6	2.7	2495	300	5.0
	8	4	47	0.040	8	3.6	1870	300	8.5
	10	4	47	0.050	10	4.5	1495	300	13.5
	12	4	47	0.080	12	5.4	1245	400	26.0
	16	4	47	0.105	16	7.2	935	395	45.5
	20	4	47	0.130	20	9.0	750	390	70.0
	22	4	47	0.145	22	9.9	680	395	86.0
	25	4	47	0.165	25	11.3	600	395	111.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	5	4	53	0.020	5	5	3375	270	7.0
	6	4	53	0.020	6	6	2810	225	8.0
	8	4	53	0.030	8	8	2110	255	16.5
	10	4	53	0.035	10	10	1685	235	23.5
	12	4	53	0.060	12	12	1405	335	48.0
	16	4	53	0.080	16	16	1055	340	87.0
	20	4	53	0.100	20	20	845	340	136.0
	22	4	53	0.110	22	22	765	335	162.0
	25	4	53	0.125	25	25	675	340	212.5
Steel 1100 - 1300 N/mm²	5	4	40	0.020	5	5	2545	205	5.0
	6	4	40	0.020	6	6	2120	170	6.0
	8	4	40	0.030	8	8	1590	190	12.0
	10	4	40	0.035	10	10	1275	180	18.0
	12	4	40	0.060	12	12	1060	255	36.5
	16	4	40	0.080	16	16	795	255	65.5
	20	4	40	0.100	20	20	635	255	102.0
	22	4	40	0.110	22	22	580	255	123.5
	25	4	40	0.125	25	25	510	255	159.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	5	4	22	0.020	5	5	1400	110	3.0
	6	4	22	0.020	6	6	1165	95	3.5
	8	4	22	0.030	8	8	875	105	6.5
	10	4	22	0.035	10	10	700	100	10.0
	12	4	22	0.060	12	12	585	140	20.0
	16	4	22	0.080	16	16	440	140	36.0
	20	4	22	0.100	20	20	350	140	56.0
	22	4	22	0.110	22	22	320	140	68.0
	25	4	22	0.125	25	25	280	140	87.5
Cast iron (lamellar / spheroidal)	5	4	42	0.020	5	5	2675	215	5.5
	6	4	42	0.020	6	6	2230	180	6.5
	8	4	42	0.030	8	8	1670	200	13.0
	10	4	42	0.035	10	10	1335	185	18.5
	12	4	42	0.060	12	12	1115	270	39.0
	16	4	42	0.080	16	16	835	265	68.0
	20	4	42	0.100	20	20	670	270	108.0
	22	4	42	0.110	22	22	610	270	130.5
	25	4	42	0.125	25	25	535	270	169.0

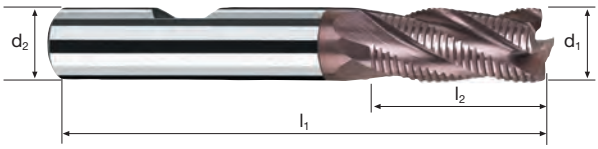
Cylindrical end mills Supracut

Profiled NRC, normal version

HSS | Favora® | Base-X | X-Generation

HSS PM/F | **λ 30° γ 12°**

45°



Roughing

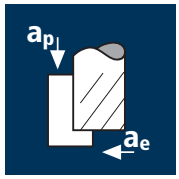
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0619** ø-Code **.260**

ø Code	d1 k8	d2 h6	l1	l2	45°	α	z	UNICUT-4X U0619
.260	5	6	57	13	0.40	1.5°	4	●
.300	6	6	57	13	0.40	0.0°	4	●
.331	7	8	60	16	0.40	1.5°	4	●
.391	8	8	63	19	0.40	0.0°	4	●
.402	8	10	69	19	0.40	2.5°	4	●
.420	9	10	69	19	0.40	1.5°	4	●
.450	10	10	72	22	0.40	0.0°	4	●
.470	11	12	79	22	0.40	1.0°	4	●
.501	12	12	83	26	0.40	0.0°	4	●
.570	14	12	83	26	0.40	0.0°	4	●
.610	16	16	92	32	0.50	0.0°	4	●
.640	18	16	92	32	0.50	0.0°	4	●
.682	20	20	104	38	0.50	0.0°	4	●
.710	22	20	104	38	0.70	0.0°	4	●
.772	25	25	121	45	0.70	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	68	0.030	9.0	2	3610	435	9.5
	8	4	68	0.040	12.0	3	2705	435	16.5
	10	4	68	0.050	15.0	4	2165	435	26.0
	12	4	68	0.080	18.0	5	1805	580	50.0
	16	4	68	0.105	24.0	6	1355	570	87.5
	20	4	68	0.130	30.0	8	1080	560	134.5
	25	4	68	0.165	37.5	10	865	570	214.0
Steel 850 - 1100 N/mm²	6	4	52	0.030	9.0	2	2760	330	7.0
	8	4	52	0.040	12.0	3	2070	330	12.5
	10	4	52	0.050	15.0	4	1655	330	20.0
	12	4	52	0.080	18.0	5	1380	440	38.0
	16	4	52	0.105	24.0	6	1035	435	67.0
	20	4	52	0.130	30.0	8	830	430	103.0
	25	4	52	0.165	37.5	10	660	435	163.0
Steel 1100 - 1300 N/mm²	6	4	40	0.030	9.0	2	2120	255	5.5
	8	4	40	0.040	12.0	3	1590	255	10.0
	10	4	40	0.050	15.0	4	1275	255	15.5
	12	4	40	0.080	18.0	5	1060	340	29.5
	16	4	40	0.105	24.0	6	795	335	51.5
	20	4	40	0.130	30.0	8	635	330	79.0
	25	4	40	0.165	37.5	10	510	335	125.5
Stainless steel [Cr-Ni/1.4301]	6	4	30	0.030	9.0	2	1590	190	4.0
	8	4	30	0.040	12.0	3	1195	190	7.5
	10	4	30	0.050	15.0	4	955	190	11.5
	12	4	30	0.080	18.0	5	795	255	22.0
	16	4	30	0.105	24.0	6	595	250	38.5
	20	4	30	0.130	30.0	8	475	245	59.0
	25	4	30	0.165	37.5	10	380	250	94.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	62	0.020	6	6	3290	265	9.5
	8	4	62	0.030	8	8	2465	295	19.0
	10	4	62	0.035	10	10	1975	275	27.5
	12	4	62	0.060	12	12	1645	395	57.0
	16	4	62	0.080	16	16	1235	395	101.0
	20	4	62	0.100	20	20	985	395	158.0
	25	4	62	0.125	25	25	790	395	247.0
Steel 850 - 1100 N/mm²	6	4	50	0.020	6	6	2655	210	7.5
	8	4	50	0.030	8	8	1990	240	15.5
	10	4	50	0.035	10	10	1590	225	22.5
	12	4	50	0.060	12	12	1325	320	46.0
	16	4	50	0.080	16	16	995	320	82.0
	20	4	50	0.100	20	20	795	320	128.0
	25	4	50	0.125	25	25	635	320	200.0
Steel 1100 - 1300 N/mm²	6	4	37	0.020	6	6	1965	155	5.5
	8	4	37	0.030	8	8	1470	175	11.0
	10	4	37	0.035	10	10	1180	165	16.5
	12	4	37	0.060	12	12	980	235	34.0
	16	4	37	0.080	16	16	735	235	60.0
	20	4	37	0.100	20	20	590	235	94.0
	25	4	37	0.125	25	25	470	235	147.0
Stainless steel [Cr-Ni/1.4301]	6	4	25	0.020	6	6	1325	105	4.0
	8	4	25	0.030	8	8	995	120	7.5
	10	4	25	0.035	10	10	795	110	11.0
	12	4	25	0.060	12	12	665	160	23.0
	16	4	25	0.080	16	16	495	160	41.0
	20	4	25	0.100	20	20	400	160	64.0
	25	4	25	0.125	25	25	320	160	100.0

Cylindrical end mills Supracut FP

Profiled, normal version

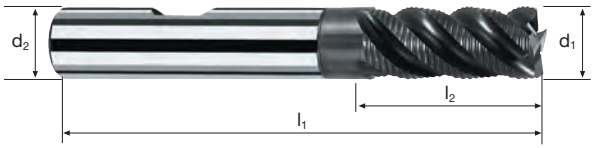
HSS | Favora® | Base-X | X-Generation

HSS PM/F

λ **45°**
γ **2°**







Roughing

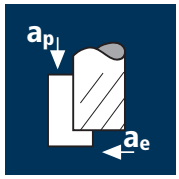
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless

Example: **Order-N°.** Coating **P** Article-N°. **0540** ø-Code **.300**

ø Code	d1 k8	d2 h6	l1	l2	45°	z	POLYCHROM P0540
.300	6	6	57	13	0.35	4	●
.391	8	8	63	19	0.45	4	●
.450	10	10	72	22	0.60	4	●
.501	12	12	83	26	0.60	4	●
.610	16	16	92	32	0.70	4	●
.682	20	20	104	38	0.70	4	●
.772	25	25	121	45	0.85	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	5	3	60	0.025	5	2.0	3820	285	3.0
	6	3	60	0.025	6	2.4	3185	240	3.5
	8	4	60	0.035	8	3.2	2385	335	8.5
	10	4	60	0.045	10	4.0	1910	345	14.0
	12	4	60	0.070	12	4.8	1590	445	25.5
	16	4	60	0.095	16	6.4	1195	455	46.5
	20	4	60	0.115	20	8.0	955	440	70.5
	22	4	60	0.130	22	8.8	870	450	87.0
	25	4	60	0.145	25	10.0	765	445	111.5
Steel 850 - 1100 N/mm²	5	3	48	0.025	5	2.0	3055	230	2.5
	6	3	48	0.025	6	2.4	2545	190	2.5
	8	4	48	0.035	8	3.2	1910	265	7.0
	10	4	48	0.045	10	4.0	1530	275	11.0
	12	4	48	0.070	12	4.8	1275	355	20.5
	16	4	48	0.095	16	6.4	955	365	37.5
	20	4	48	0.115	20	8.0	765	350	56.0
	22	4	48	0.130	22	8.8	695	360	69.5
	25	4	48	0.145	25	10.0	610	355	89.0
Stainless steel [Cr-Ni/1.4301]	5	3	25	0.025	5	2.0	1590	120	1.0
	6	3	25	0.025	6	2.4	1325	100	1.5
	8	4	25	0.035	8	3.2	995	140	3.5
	10	4	25	0.045	10	4.0	795	145	6.0
	12	4	25	0.070	12	4.8	665	185	10.5
	16	4	25	0.095	16	6.4	495	190	19.5
	20	4	25	0.115	20	8.0	400	185	29.5
	22	4	25	0.130	22	8.8	360	185	36.0
	25	4	25	0.145	25	10.0	320	185	46.5
Cast iron (lamellar / spheroidal)	5	3	42	0.025	5	2.0	2675	200	2.0
	6	3	42	0.025	6	2.4	2230	165	2.5
	8	4	42	0.035	8	3.2	1670	235	6.0
	10	4	42	0.045	10	4.0	1335	240	9.5
	12	4	42	0.070	12	4.8	1115	310	18.0
	16	4	42	0.095	16	6.4	835	315	32.5
	20	4	42	0.115	20	8.0	670	310	49.5
	22	4	42	0.130	22	8.8	610	315	61.0
	25	4	42	0.145	25	10.0	535	310	77.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	5	3	55	0.015	5	5	3500	160	4.0
	6	3	55	0.020	6	6	2920	175	6.5
	8	4	55	0.025	8	8	2190	220	14.0
	10	4	55	0.035	10	10	1750	245	24.5
	12	4	55	0.055	12	12	1460	320	46.0
	16	4	55	0.070	16	16	1095	305	78.0
	20	4	55	0.090	20	20	875	315	126.0
	22	4	55	0.095	22	22	795	300	145.0
	25	4	55	0.110	25	25	700	310	194.0
Steel 850 - 1100 N/mm²	5	3	45	0.015	5	5	2865	130	3.5
	6	3	45	0.020	6	6	2385	145	5.0
	8	4	45	0.025	8	8	1790	180	11.5
	10	4	45	0.035	10	10	1430	200	20.0
	12	4	45	0.055	12	12	1195	265	38.0
	16	4	45	0.070	16	16	895	250	64.0
	20	4	45	0.090	20	20	715	255	102.0
	22	4	45	0.095	22	22	650	245	118.5
	25	4	45	0.110	25	25	575	255	159.5
Stainless steel [Cr-Ni/1.4301]	5	3	22	0.015	5	5	1400	65	1.5
	6	3	22	0.020	6	6	1165	70	2.5
	8	4	22	0.025	8	8	875	90	6.0
	10	4	22	0.035	10	10	700	100	10.0
	12	4	22	0.055	12	12	585	130	18.5
	16	4	22	0.070	16	16	440	125	32.0
	20	4	22	0.090	20	20	350	125	50.0
	22	4	22	0.095	22	22	320	120	58.0
	25	4	22	0.110	25	25	280	125	78.0
Cast iron (lamellar / spheroidal)	5	3	36	0.015	5	5	2290	105	2.5
	6	3	36	0.020	6	6	1910	115	4.0
	8	4	36	0.025	8	8	1430	145	9.5
	10	4	36	0.035	10	10	1145	160	16.0
	12	4	36	0.055	12	12	955	210	30.0
	16	4	36	0.070	16	16	715	200	51.0
	20	4	36	0.090	20	20	575	205	82.0
	22	4	36	0.095	22	22	520	200	97.0
	25	4	36	0.110	25	25	460	200	125.0

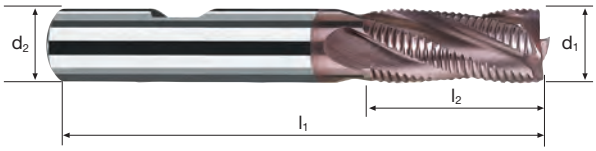
Cylindrical end mills

Profiled NRF, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 25° γ 10°**

45°



Roughing

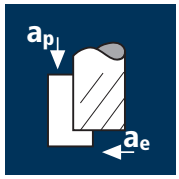
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0610** ø-Code **.260**

ø Code	d1 k12	d2 h6	l1	l2	45°	α	z	UNICUT-4X U0610
.260	5	6	57	13	0.40	1.0°	3	●
.300	6	6	57	13	0.40	0.0°	3	●
.342	7	10	66	16	0.40	3.5°	3	●
.391	8	8	63	19	0.40	0.0°	4	●
.402	8	10	69	19	0.40	2.5°	4	●
.420	9	10	69	19	0.40	1.5°	4	●
.450	10	10	72	22	0.40	0.0°	4	●
.470	11	12	79	22	0.40	1.0°	4	●
.501	12	12	83	26	0.40	0.0°	4	●
.540	13	12	83	26	0.40	0.0°	4	●
.570	14	12	83	26	0.40	0.0°	4	●
.581	15	12	83	26	0.50	0.0°	4	●
.610	16	16	92	32	0.50	0.0°	4	●
.640	18	16	92	32	0.50	0.0°	4	●
.671	20	16	98	38	0.50	0.0°	4	●
.682	20	20	104	38	0.50	0.0°	4	●
.710	22	20	104	38	0.70	0.0°	4	●
.741	24	20	111	45	0.70	0.0°	4	●
.761	25	20	111	45	0.70	0.0°	4	●
.772	25	25	121	45	0.70	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	28	6	60	0.115	28	11.2	680	470	147.5
	30	6	60	0.120	30	12.0	635	455	164.0
	32	6	60	0.130	32	12.8	595	465	190.5
	36	6	60	0.145	36	14.4	530	460	238.5
	40	6	60	0.160	40	16.0	475	455	291.0
Steel 850 - 1100 N/mm²	28	6	48	0.115	28	11.2	545	375	117.5
	30	6	48	0.120	30	12.0	510	365	131.5
	32	6	48	0.130	32	12.8	475	370	151.5
	36	6	48	0.145	36	14.4	425	370	192.0
	40	6	48	0.160	40	16.0	380	365	233.5
Stainless steel [Cr-Ni/1.4301]	28	6	25	0.115	28	11.2	285	195	61.0
	30	6	25	0.120	30	12.0	265	190	68.5
	32	6	25	0.130	32	12.8	250	195	80.0
	36	6	25	0.145	36	14.4	220	190	98.5
	40	6	25	0.160	40	16.0	200	190	121.5
Cast iron (lamellar / spheroidal)	28	6	42	0.115	28	11.2	475	330	103.5
	30	6	42	0.120	30	12.0	445	320	115.0
	32	6	42	0.130	32	12.8	420	330	135.0
	36	6	42	0.145	36	14.4	370	320	166.0
	40	6	42	0.160	40	16.0	335	320	205.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	28	6	55	0.085	28	28	625	320	251.0
	30	6	55	0.090	30	30	585	315	283.5
	32	6	55	0.095	32	32	545	310	317.5
	36	6	55	0.105	36	36	485	305	395.5
	40	6	55	0.120	40	40	440	315	504.0
Steel 850 - 1100 N/mm²	28	6	45	0.085	28	28	510	260	204.0
	30	6	45	0.090	30	30	475	255	229.5
	32	6	45	0.095	32	32	450	255	261.0
	36	6	45	0.105	36	36	400	250	324.0
	40	6	45	0.120	40	40	360	260	416.0
Stainless steel [Cr-Ni/1.4301]	28	6	22	0.085	28	28	250	130	102.0
	30	6	22	0.090	30	30	235	125	112.5
	32	6	22	0.095	32	32	220	125	128.0
	36	6	22	0.105	36	36	195	125	162.0
	40	6	22	0.120	40	40	175	125	200.0
Cast iron (lamellar / spheroidal)	28	6	36	0.085	28	28	410	210	164.5
	30	6	36	0.090	30	30	380	205	184.5
	32	6	36	0.095	32	32	360	205	210.0
	36	6	36	0.105	36	36	320	200	259.0
	40	6	36	0.120	40	40	285	205	328.0

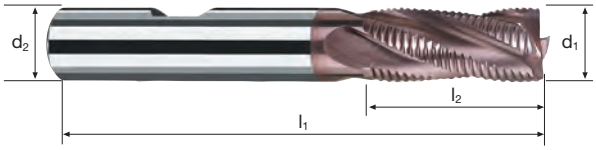
Cylindrical end mills

Profiled NRF, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 25° γ 10°**

45°



Roughing

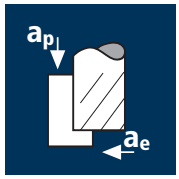
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	GG(G)

Example: **Order-N°.** Coating **U** | Article-N°. **0610** | ø-Code **.800**

ø Code	d_1 k12	d_2 h6	l_1	l_2	45°	α	z	UNICUT-4X U0610
.800	28	25	121	45	0.70	0.0°	6	●
.810	30	25	121	45	0.70	0.0°	6	●
.832	32	32	133	53	0.70	0.0°	6	●
.860	36	32	133	53	0.90	0.0°	6	●
.881	40	32	143	63	0.90	0.0°	6	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	64	0.025	6	2.4	3395	340	5.0
8	4	64	0.035	8	3.2	2545	355	9.0
10	4	64	0.045	10	4.0	2035	365	14.5
12	4	64	0.070	12	4.8	1700	475	27.5
16	4	64	0.095	16	6.4	1275	485	49.5
18	4	64	0.105	18	7.2	1130	475	61.5
20	4	64	0.115	20	8.0	1020	470	75.0
25	6	64	0.145	25	10.0	815	710	177.5
32	7	64	0.130	32	12.8	635	580	237.5
Steel 850 - 1100 N/mm²								
6	4	52	0.025	6	2.4	2760	275	4.0
8	4	52	0.035	8	3.2	2070	290	7.5
10	4	52	0.045	10	4.0	1655	300	12.0
12	4	52	0.070	12	4.8	1380	385	22.0
16	4	52	0.095	16	6.4	1035	395	40.5
18	4	52	0.105	18	7.2	920	385	50.0
20	4	52	0.115	20	8.0	830	380	61.0
25	6	52	0.145	25	10.0	660	575	144.0
32	7	52	0.130	32	12.8	515	470	192.5
Stainless steel [Cr-Ni/1.4301]								
6	4	26	0.025	6	2.4	1380	140	2.0
8	4	26	0.035	8	3.2	1035	145	3.5
10	4	26	0.045	10	4.0	830	150	6.0
12	4	26	0.070	12	4.8	690	195	11.0
16	4	26	0.095	16	6.4	515	195	20.0
18	4	26	0.105	18	7.2	460	195	25.5
20	4	26	0.115	20	8.0	415	190	30.5
25	6	26	0.145	25	10.0	330	285	71.5
32	7	26	0.130	32	12.8	260	235	96.5
Stainless steel [Cr-Ni-Mo-.../1.4571]								
6	4	22	0.025	6	2.4	1165	115	1.5
8	4	22	0.035	8	3.2	875	125	3.0
10	4	22	0.045	10	4.0	700	125	5.0
12	4	22	0.070	12	4.8	585	165	9.5
16	4	22	0.095	16	6.4	440	165	17.0
18	4	22	0.105	18	7.2	390	165	21.5
20	4	22	0.115	20	8.0	350	160	25.5
25	6	22	0.145	25	10.0	280	245	61.5
32	7	22	0.130	32	12.8	220	200	82.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	58	0.020	6	6	3075	245	9.0
8	4	58	0.025	8	8	2310	230	14.5
10	4	58	0.035	10	10	1845	260	26.0
12	4	58	0.055	12	12	1540	340	49.0
16	4	58	0.070	16	16	1155	325	83.0
18	4	58	0.080	18	18	1025	330	107.0
20	4	58	0.090	20	20	925	335	134.0
25	6	58	0.110	25	25	740	490	306.5
32	7	58	0.095	32	32	575	380	389.0
Steel 850 - 1100 N/mm²								
6	4	48	0.020	6	6	2545	205	7.5
8	4	48	0.025	8	8	1910	190	12.0
10	4	48	0.035	10	10	1530	215	21.5
12	4	48	0.055	12	12	1275	280	40.5
16	4	48	0.070	16	16	955	265	68.0
18	4	48	0.080	18	18	850	270	87.5
20	4	48	0.090	20	20	765	275	110.0
25	6	48	0.110	25	25	610	405	253.0
32	7	48	0.095	32	32	475	315	322.5
Stainless steel [Cr-Ni/1.4301]								
6	4	23	0.020	6	6	1220	100	3.5
8	4	23	0.025	8	8	915	90	6.0
10	4	23	0.035	10	10	730	100	10.0
12	4	23	0.055	12	12	610	135	19.5
16	4	23	0.070	16	16	460	130	33.5
18	4	23	0.080	18	18	405	130	42.0
20	4	23	0.090	20	20	365	130	52.0
25	6	23	0.110	25	25	295	195	122.0
32	7	23	0.095	32	32	230	155	158.5
Stainless steel [Cr-Ni-Mo-.../1.4571]								
6	4	20	0.020	6	6	1060	85	3.0
8	4	20	0.025	8	8	795	80	5.0
10	4	20	0.035	10	10	635	90	9.0
12	4	20	0.055	12	12	530	115	16.5
16	4	20	0.070	16	16	400	110	28.0
18	4	20	0.080	18	18	355	115	37.5
20	4	20	0.090	20	20	320	115	46.0
25	6	20	0.110	25	25	255	170	106.5
32	7	20	0.095	32	32	200	135	138.0

Cylindrical end mills

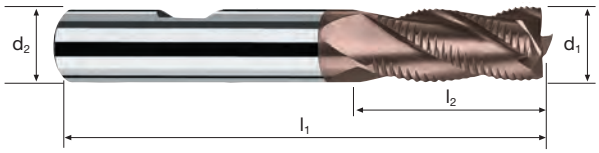
Profiled NRF, normal version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8

λ 30° γ 12°

45°



Roughing

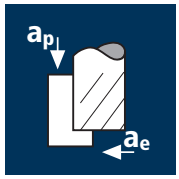
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0609** ø-Code **.300**

ø Code	d1 k12	d2 h6	l1	l2	45°	α	z	UNICUT-4X U0609
.300	6	6	57	13	0.40	0.0°	4	●
.342	7	10	66	16	0.40	3.0°	4	●
.402	8	10	69	19	0.40	2.5°	4	●
.420	9	10	69	19	0.40	1.5°	4	●
.450	10	10	72	22	0.40	0.0°	4	●
.470	11	12	79	22	0.40	1.0°	4	●
.501	12	12	83	26	0.40	0.0°	4	●
.540	13	12	83	26	0.40	0.0°	4	●
.570	14	12	83	26	0.40	0.0°	4	●
.592	15	16	86	26	0.50	1.0°	4	●
.610	16	16	92	32	0.50	0.0°	4	●
.640	18	16	92	32	0.50	0.0°	4	●
.682	20	20	104	38	0.50	0.0°	4	●
.686	20	20	104	38	0.50	0.0°	6	●
.710	22	20	104	38	0.70	0.0°	6	●
.772	25	25	121	45	0.70	0.0°	6	●
.832	32	32	133	53	0.70	0.0°	7	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
8	4	65	0.035	8	3.2	2585	360	9.0
10	4	65	0.045	10	4.0	2070	375	15.0
12	4	65	0.070	12	4.8	1725	485	28.0
16	4	65	0.095	16	6.4	1295	490	50.0
20	4	65	0.115	20	8.0	1035	475	76.0
25	6	65	0.145	25	10.0	830	720	180.0
32	7	65	0.130	32	12.8	645	585	239.5
Steel 850 - 1100 N/mm²								
8	4	54	0.035	8	3.2	2150	300	7.5
10	4	54	0.045	10	4.0	1720	310	12.5
12	4	54	0.070	12	4.8	1430	400	23.0
16	4	54	0.095	16	6.4	1075	410	42.0
20	4	54	0.115	20	8.0	860	395	63.0
25	6	54	0.145	25	10.0	690	600	150.0
32	7	54	0.130	32	12.8	535	485	198.5
Stainless steel [Cr-Ni/1.4301]								
8	4	28	0.035	8	3.2	1115	155	4.0
10	4	28	0.045	10	4.0	890	160	6.5
12	4	28	0.070	12	4.8	745	210	12.0
16	4	28	0.095	16	6.4	555	210	21.5
20	4	28	0.115	20	8.0	445	205	33.0
25	6	28	0.145	25	10.0	355	310	77.5
32	7	28	0.130	32	12.8	280	255	104.5
Stainless steel [Cr-Ni-Mo-.../1.4571]								
8	4	22	0.035	8	3.2	875	125	3.0
10	4	22	0.045	10	4.0	700	125	5.0
12	4	22	0.070	12	4.8	585	165	9.5
16	4	22	0.095	16	6.4	440	165	17.0
20	4	22	0.115	20	8.0	350	160	25.5
25	6	22	0.145	25	10.0	280	245	61.5
32	7	22	0.130	32	12.8	220	200	82.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
8	4	60	0.025	8	8	2385	240	15.5
10	4	60	0.035	10	10	1910	265	26.5
12	4	60	0.055	12	12	1590	350	50.5
16	4	60	0.070	16	16	1195	335	86.0
20	4	60	0.090	20	20	955	345	138.0
25	6	60	0.110	25	25	765	505	315.5
32	7	60	0.095	32	32	595	395	404.5
Steel 850 - 1100 N/mm²								
8	4	50	0.025	8	8	1990	200	13.0
10	4	50	0.035	10	10	1590	225	22.5
12	4	50	0.055	12	12	1325	290	42.0
16	4	50	0.070	16	16	995	280	71.5
20	4	50	0.090	20	20	795	285	114.0
25	6	50	0.110	25	25	635	420	262.5
32	7	50	0.095	32	32	495	330	338.0
Stainless steel [Cr-Ni/1.4301]								
8	4	25	0.025	8	8	995	100	6.5
10	4	25	0.035	10	10	795	110	11.0
12	4	25	0.055	12	12	665	145	21.0
16	4	25	0.070	16	16	495	140	36.0
20	4	25	0.090	20	20	400	145	58.0
25	6	25	0.110	25	25	320	210	131.5
32	7	25	0.095	32	32	250	165	169.0
Stainless steel [Cr-Ni-Mo-.../1.4571]								
8	4	20	0.025	8	8	795	80	5.0
10	4	20	0.035	10	10	635	90	9.0
12	4	20	0.055	12	12	530	115	16.5
16	4	20	0.070	16	16	400	110	28.0
20	4	20	0.090	20	20	320	115	46.0
25	6	20	0.110	25	25	255	170	106.5
32	7	20	0.095	32	32	200	135	138.0

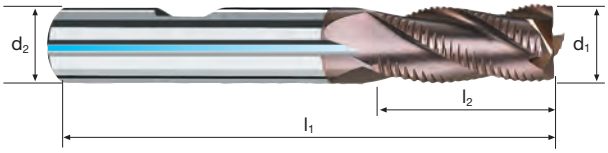
Cylindrical end mills

Profiled NRF, normal version, Pericool

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 30° γ 12°**

45°



Roughing

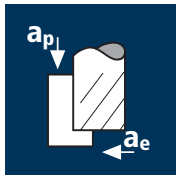
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0695** ø-Code **.402**

ø Code	d1 k12	d2 h6	l1	l2	45°	α	z	UNICUT-4X U0695
.402	8	10	69	19	0.40	1.0°	4	●
.450	10	10	72	22	0.40	0.0°	4	●
.501	12	12	83	26	0.40	0.0°	4	●
.610	16	16	92	32	0.50	0.0°	4	●
.682	20	20	104	38	0.50	0.0°	4	●
.772	25	25	121	45	0.70	0.0°	6	●
.832	32	32	133	53	0.70	0.0°	7	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	180	0.030	12	1.2	9550	1145	16.5
8	4	180	0.040	16	1.6	7160	1145	29.5
10	4	180	0.055	20	2.0	5730	1260	50.5
12	4	180	0.065	24	2.4	4775	1240	71.5
16	4	180	0.070	32	3.2	3580	1000	102.5
20	4	180	0.075	40	4.0	2865	860	137.5
Steel 850 - 1100 N/mm²								
6	4	150	0.030	12	1.2	7960	955	14.0
8	4	150	0.040	16	1.6	5970	955	24.5
10	4	150	0.055	20	2.0	4775	1050	42.0
12	4	150	0.065	24	2.4	3980	1035	59.5
16	4	150	0.070	32	3.2	2985	835	85.5
20	4	150	0.075	40	4.0	2385	715	114.5
Steel 1100 - 1300 N/mm²								
6	4	120	0.030	12	1.2	6365	765	11.0
8	4	120	0.040	16	1.6	4775	765	19.5
10	4	120	0.055	20	2.0	3820	840	33.5
12	4	120	0.065	24	2.4	3185	830	48.0
16	4	120	0.070	32	3.2	2385	670	68.5
20	4	120	0.075	40	4.0	1910	575	92.0
Cold work tool steel (12% Cr), high alloyed [1.2379]								
6	4	80	0.030	12	1.2	4245	510	7.5
8	4	80	0.040	16	1.6	3185	510	13.0
10	4	80	0.055	20	2.0	2545	560	22.5
12	4	80	0.065	24	2.4	2120	550	31.5
16	4	80	0.070	32	3.2	1590	445	45.5
20	4	80	0.075	40	4.0	1275	385	61.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
6	4	150	0.020	4.2	6	7960	635	16.0
8	4	150	0.025	5.6	8	5970	595	26.5
10	4	150	0.035	7.0	10	4775	670	47.0
12	4	150	0.040	8.4	12	3980	635	64.0
16	4	150	0.050	11.2	16	2985	595	106.5
20	4	150	0.050	14.0	20	2385	475	133.0
Steel 850 - 1100 N/mm²								
6	4	100	0.020	4.2	6	5305	425	10.5
8	4	100	0.025	5.6	8	3980	400	18.0
10	4	100	0.035	7.0	10	3185	445	31.0
12	4	100	0.040	8.4	12	2655	425	43.0
16	4	100	0.050	11.2	16	1990	400	71.5
20	4	100	0.050	14.0	20	1590	320	89.5
Steel 1100 - 1300 N/mm²								
6	4	80	0.020	4.2	6	4245	340	8.5
8	4	80	0.025	5.6	8	3185	320	14.5
10	4	80	0.035	7.0	10	2545	355	25.0
12	4	80	0.040	8.4	12	2120	340	34.5
16	4	80	0.050	11.2	16	1590	320	57.5
20	4	80	0.050	14.0	20	1275	255	71.5
Cold work tool steel (12% Cr), high alloyed [1.2379]								
6	4	60	0.020	4.2	6	3185	255	6.5
8	4	60	0.025	5.6	8	2385	240	11.0
10	4	60	0.035	7.0	10	1910	265	18.5
12	4	60	0.040	8.4	12	1590	255	25.5
16	4	60	0.050	11.2	16	1195	240	43.0
20	4	60	0.050	14.0	20	955	190	53.0

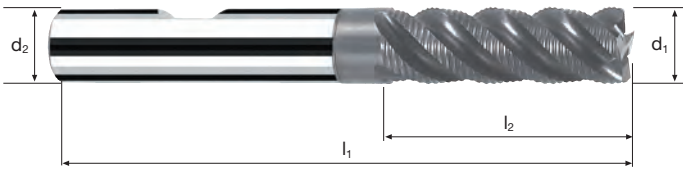
Cylindrical end mills NX-FP

Profiled, medium length version

HM XR

λ 45°
γ 0°







Roughing



Finishing

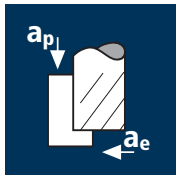


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G) Tool Steel

Example: **Order-N°.** Coating **P** | Article-N°. **5173** | ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z		POLYCHROM P5173
.300	6	6	63	19	0.35	4		●
.391	8	8	72	28	0.45	4		●
.450	10	10	84	34	0.60	4		●
.501	12	12	97	40	0.60	4		●
.610	16	16	108	48	0.70	4		●
.682	20	20	122	56	0.70	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.035	9.6	1.2	9550	1335	15.5
	8	4	180	0.045	12.8	1.6	7160	1290	26.5
	10	4	180	0.060	16.0	2.0	5730	1375	44.0
	12	4	180	0.070	19.2	2.4	4775	1335	61.5
	16	4	180	0.075	25.6	3.2	3580	1075	88.0
	20	4	180	0.080	32.0	4.0	2865	915	117.0
Steel 850 - 1100 N/mm²	6	4	130	0.035	9.6	1.2	6895	965	11.0
	8	4	130	0.045	12.8	1.6	5175	930	19.0
	10	4	130	0.060	16.0	2.0	4140	995	32.0
	12	4	130	0.070	19.2	2.4	3450	965	44.5
	16	4	130	0.075	25.6	3.2	2585	775	63.5
	20	4	130	0.080	32.0	4.0	2070	660	84.5
Titanium alloys >300 HB [Ti6Al4V]	6	4	45	0.025	9.6	1.2	2385	240	3.0
	8	4	45	0.035	12.8	1.6	1790	250	5.0
	10	4	45	0.045	16.0	2.0	1430	255	8.0
	12	4	45	0.055	19.2	2.4	1195	265	12.0
	16	4	45	0.060	25.6	3.2	895	215	17.5
	20	4	45	0.065	32.0	4.0	715	185	23.5
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.025	9.6	1.2	3185	320	3.5
	8	4	60	0.035	12.8	1.6	2385	335	7.0
	10	4	60	0.045	16.0	2.0	1910	345	11.0
	12	4	60	0.055	19.2	2.4	1590	350	16.0
	16	4	60	0.060	25.6	3.2	1195	285	23.5
	20	4	60	0.065	32.0	4.0	955	250	32.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.030	3.3	6	7960	955	19.0
	8	4	150	0.040	4.4	8	5970	955	33.5
	10	4	150	0.050	5.5	10	4775	955	52.5
	12	4	150	0.055	6.6	12	3980	875	69.5
	16	4	150	0.055	8.8	16	2985	655	92.0
	20	4	150	0.060	11.0	20	2385	570	125.5
Steel 850 - 1100 N/mm²	6	4	80	0.030	3.3	6	4245	510	10.0
	8	4	80	0.040	4.4	8	3185	510	18.0
	10	4	80	0.050	5.5	10	2545	510	28.0
	12	4	80	0.055	6.6	12	2120	465	37.0
	16	4	80	0.055	8.8	16	1590	350	49.5
	20	4	80	0.060	11.0	20	1275	305	67.0
Titanium alloys >300 HB [Ti6Al4V]	6	4	35	0.025	3.3	6	1855	185	3.5
	8	4	35	0.030	4.4	8	1395	165	6.0
	10	4	35	0.040	5.5	10	1115	180	10.0
	12	4	35	0.045	6.6	12	930	165	13.0
	16	4	35	0.045	8.8	16	695	125	17.5
	20	4	35	0.050	11.0	20	555	110	24.0
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.025	3.3	6	2655	265	5.0
	8	4	50	0.030	4.4	8	1990	240	8.5
	10	4	50	0.040	5.5	10	1590	255	14.0
	12	4	50	0.045	6.6	12	1325	240	19.0
	16	4	50	0.045	8.8	16	995	180	25.5
	20	4	50	0.050	11.0	20	795	160	35.0

Cylindrical end mills NB-RP SupraCarb®

Profiled, medium length version

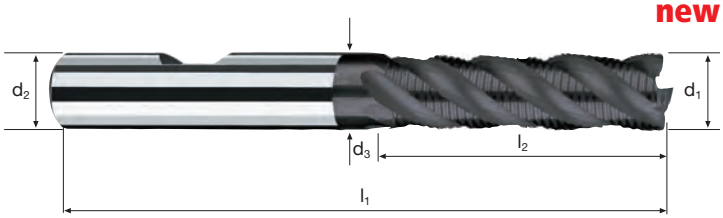
HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10

λ **38°**
γ **0°**

45°





new!

Roughing

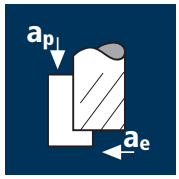
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15338** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	POLYCHROM P15338	POLYCHROM P15238
.300	6	6	63	19	0.35	4		●
.391	8	8	72	28	0.45	4		●
.450	10	10	84	34	0.60	4		●
.501	12	12	97	40	0.60	4		●
.610	16	16	108	48	0.70	4		●
.682	20	20	122	56	0.70	4		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	38	0.025	12	1.5	2015	200	3.5
	8	4	38	0.030	16	2.0	1510	180	6.0
	10	4	38	0.040	20	2.5	1210	195	10.0
	12	4	38	0.060	24	3.0	1010	240	17.5
	16	4	38	0.085	32	4.0	755	255	32.5
	20	4	38	0.105	40	5.0	605	255	51.0
	25	4	38	0.130	50	6.3	485	250	78.0
Steel 1100 - 1300 N/mm²	6	4	30	0.025	12	1.5	1590	160	3.0
	8	4	30	0.030	16	2.0	1195	145	4.5
	10	4	30	0.040	20	2.5	955	155	8.0
	12	4	30	0.060	24	3.0	795	190	13.5
	16	4	30	0.085	32	4.0	595	200	25.5
	20	4	30	0.105	40	5.0	475	200	40.0
	25	4	30	0.130	50	6.3	380	200	62.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	24	0.025	12	1.5	1275	130	2.5
	8	4	24	0.030	16	2.0	955	115	3.5
	10	4	24	0.040	20	2.5	765	120	6.0
	12	4	24	0.060	24	3.0	635	150	11.0
	16	4	24	0.085	32	4.0	475	160	20.5
	20	4	24	0.105	40	5.0	380	160	32.0
	25	4	24	0.130	50	6.3	305	160	50.0
Cast iron (lamellar / spheroidal)	6	4	34	0.025	12	1.5	1805	180	3.0
	8	4	34	0.030	16	2.0	1355	165	5.5
	10	4	34	0.040	20	2.5	1080	175	9.0
	12	4	34	0.060	24	3.0	900	215	15.5
	16	4	34	0.085	32	4.0	675	230	29.5
	20	4	34	0.105	40	5.0	540	225	45.0
	25	4	34	0.130	50	6.3	435	225	70.5

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	35	0.020	4	6	1855	150	4.0
	8	4	35	0.030	6	8	1395	165	7.5
	10	4	35	0.035	7	10	1115	155	11.0
	12	4	35	0.060	8	12	930	225	22.5
	16	4	35	0.080	11	16	695	220	39.5
	20	4	35	0.100	14	20	555	220	61.5
	25	4	35	0.125	18	25	445	225	98.5
Steel 1100 - 1300 N/mm²	6	4	25	0.020	4	6	1325	105	2.5
	8	4	25	0.030	6	8	995	120	5.5
	10	4	25	0.035	7	10	795	110	7.5
	12	4	25	0.060	8	12	665	160	16.0
	16	4	25	0.080	11	16	495	160	28.5
	20	4	25	0.100	14	20	400	160	45.0
	25	4	25	0.125	18	25	320	160	70.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	18	0.020	4	6	955	75	2.0
	8	4	18	0.030	6	8	715	85	4.0
	10	4	18	0.035	7	10	575	80	5.5
	12	4	18	0.060	8	12	475	115	11.5
	16	4	18	0.080	11	16	360	115	20.5
	20	4	18	0.100	14	20	285	115	32.0
	25	4	18	0.125	18	25	230	115	50.5
Cast iron (lamellar / spheroidal)	6	4	29	0.020	4	6	1540	125	3.0
	8	4	29	0.030	6	8	1155	140	6.5
	10	4	29	0.035	7	10	925	130	9.0
	12	4	29	0.060	8	12	770	185	18.5
	16	4	29	0.080	11	16	575	185	33.0
	20	4	29	0.100	14	20	460	185	52.0
	25	4	29	0.125	18	25	370	185	81.0

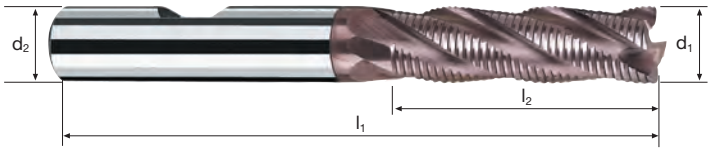
Cylindrical end mills Supracut

Profiled NRC, medium length version

HSS Favora® Base-X X-Generation

HSS PM/F | **λ 30° γ 12°**

45°



Roughing

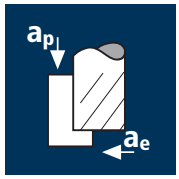
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0659** ø-Code **.300**

ø Code	d1 k8	d2 h6	l1	l2	45°	z	UNICUT-4X U0659
.300	6	6	63	19	0.40	4	●
.402	8	10	78	28	0.40	4	●
.450	10	10	84	34	0.40	4	●
.501	12	12	97	40	0.40	4	●
.610	16	16	108	48	0.50	4	●
.682	20	20	122	56	0.50	4	●
.772	25	25	144	68	0.70	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	3	36	0.020	12	1.5	1910	115	2.0
	8	4	36	0.030	16	2.0	1430	170	5.5
	10	4	36	0.035	20	2.5	1145	160	8.0
	12	4	36	0.055	24	3.0	955	210	15.0
	16	4	36	0.075	32	4.0	715	215	27.5
	20	4	36	0.095	40	5.0	575	220	44.0
	25	4	36	0.115	50	6.3	460	210	65.5
	30	6	36	0.095	60	7.5	380	215	97.0
	32	6	36	0.105	64	8.0	360	225	115.0
Steel 850 - 1100 N/mm²	6	3	30	0.020	12	1.5	1590	95	1.5
	8	4	30	0.030	16	2.0	1195	145	4.5
	10	4	30	0.035	20	2.5	955	135	7.0
	12	4	30	0.055	24	3.0	795	175	12.5
	16	4	30	0.075	32	4.0	595	180	23.0
	20	4	30	0.095	40	5.0	475	180	36.0
	25	4	30	0.115	50	6.3	380	175	54.5
	30	6	30	0.095	60	7.5	320	180	81.0
	32	6	30	0.105	64	8.0	300	190	97.5
Stainless steel [Cr-Ni/1.4301]	6	3	15	0.020	12	1.5	795	50	1.0
	8	4	15	0.030	16	2.0	595	70	2.0
	10	4	15	0.035	20	2.5	475	65	3.5
	12	4	15	0.055	24	3.0	400	90	6.5
	16	4	15	0.075	32	4.0	300	90	11.5
	20	4	15	0.095	40	5.0	240	90	18.0
	25	4	15	0.115	50	6.3	190	85	26.5
	30	6	15	0.095	60	7.5	160	90	40.5
	32	6	15	0.105	64	8.0	150	95	48.5
Cast iron (lamellar / spheroidal)	6	3	28	0.020	12	1.5	1485	90	1.5
	8	4	28	0.030	16	2.0	1115	135	4.5
	10	4	28	0.035	20	2.5	890	125	6.5
	12	4	28	0.055	24	3.0	745	165	12.0
	16	4	28	0.075	32	4.0	555	165	21.0
	20	4	28	0.095	40	5.0	445	170	34.0
	25	4	28	0.115	50	6.3	355	165	51.5
	30	6	28	0.095	60	7.5	295	170	76.5
	32	6	28	0.105	64	8.0	280	175	89.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	3	30	0.020	4.2	6	1590	95	2.5
	8	4	30	0.025	5.6	8	1195	120	5.5
	10	4	30	0.035	7.0	10	955	135	9.5
	12	4	30	0.055	8.4	12	795	175	17.5
	16	4	30	0.070	11.2	16	595	165	29.5
	20	4	30	0.090	14.0	20	475	170	47.5
	25	4	30	0.110	17.5	25	380	165	72.0
	30	6	30	0.090	21.0	30	320	175	110.5
	32	6	30	0.095	22.4	32	300	170	122.0
Steel 850 - 1100 N/mm²	6	3	26	0.020	4.2	6	1380	85	2.0
	8	4	26	0.025	5.6	8	1035	105	4.5
	10	4	26	0.035	7.0	10	830	115	8.0
	12	4	26	0.055	8.4	12	690	150	15.0
	16	4	26	0.070	11.2	16	515	145	26.0
	20	4	26	0.090	14.0	20	415	150	42.0
	25	4	26	0.110	17.5	25	330	145	63.5
	30	6	26	0.090	21.0	30	275	150	94.5
	32	6	26	0.095	22.4	32	260	150	107.5
Stainless steel [Cr-Ni/1.4301]	6	3	14	0.020	4.2	6	745	45	1.0
	8	4	14	0.025	5.6	8	555	55	2.5
	10	4	14	0.035	7.0	10	445	60	4.0
	12	4	14	0.055	8.4	12	370	80	8.0
	16	4	14	0.070	11.2	16	280	80	14.5
	20	4	14	0.090	14.0	20	225	80	22.5
	25	4	14	0.110	17.5	25	180	80	35.0
	30	6	14	0.090	21.0	30	150	80	50.5
	32	6	14	0.095	22.4	32	140	80	57.5
Cast iron (lamellar / spheroidal)	6	3	22	0.020	4.2	6	1165	70	2.0
	8	4	22	0.025	5.6	8	875	90	4.0
	10	4	22	0.035	7.0	10	700	100	7.0
	12	4	22	0.055	8.4	12	585	130	13.0
	16	4	22	0.070	11.2	16	440	125	22.5
	20	4	22	0.090	14.0	20	350	125	35.0
	25	4	22	0.110	17.5	25	280	125	54.5
	30	6	22	0.090	21.0	30	235	125	79.0
	32	6	22	0.095	22.4	32	220	125	89.5

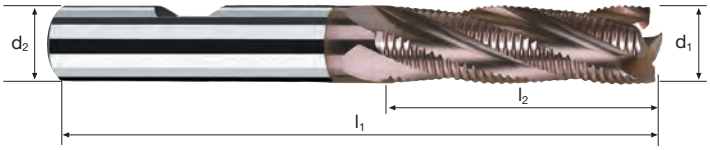
Cylindrical end mills

Profiled NRF, medium length version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 25° γ 10°**

45°



Roughing

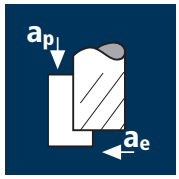
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0650** ø-Code **.260**

ø Code	d1 k12	d2 h6	l1	l2	45°	α	z	UNICUT-4X U0650
.260	5	6	63	19	0.40	1.5°	3	●
.300	6	6	63	19	0.40	0.0°	3	●
.402	8	10	78	28	0.40	2.0°	4	●
.450	10	10	84	34	0.40	0.0°	4	●
.501	12	12	97	40	0.40	0.0°	4	●
.570	14	12	97	40	0.40	0.0°	4	●
.610	16	16	108	48	0.50	0.0°	4	●
.640	18	16	108	48	0.50	0.0°	4	●
.682	20	20	122	56	0.50	0.0°	4	●
.710	22	20	122	56	0.70	0.0°	4	●
.772	25	25	144	68	0.70	0.0°	4	●
.800	28	25	144	68	0.70	0.0°	6	●
.810	30	25	144	68	0.70	0.0°	6	●
.832	32	32	160	80	0.70	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.030	9	1.8	9550	1145	18.5
	8	4	180	0.040	12	2.4	7160	1145	33.0
	10	4	180	0.055	15	3.0	5730	1260	56.5
	12	4	180	0.065	18	3.6	4775	1240	80.5
	16	4	180	0.070	24	4.8	3580	1000	115.0
	20	4	180	0.075	30	6.0	2865	860	155.0
Steel 850 - 1100 N/mm²	6	4	150	0.030	9	1.8	7960	955	15.5
	8	4	150	0.040	12	2.4	5970	955	27.5
	10	4	150	0.055	15	3.0	4775	1050	47.5
	12	4	150	0.065	18	3.6	3980	1035	67.0
	16	4	150	0.070	24	4.8	2985	835	96.0
	20	4	150	0.075	30	6.0	2385	715	128.5
Steel 1100 - 1300 N/mm²	6	4	120	0.030	9	1.8	6365	765	12.5
	8	4	120	0.040	12	2.4	4775	765	22.0
	10	4	120	0.055	15	3.0	3820	840	38.0
	12	4	120	0.065	18	3.6	3185	830	54.0
	16	4	120	0.070	24	4.8	2385	670	77.0
	20	4	120	0.075	30	6.0	1910	575	103.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	80	0.030	9	1.8	4245	510	8.5
	8	4	80	0.040	12	2.4	3185	510	14.5
	10	4	80	0.055	15	3.0	2545	560	25.0
	12	4	80	0.065	18	3.6	2120	550	35.5
	16	4	80	0.070	24	4.8	1590	445	51.5
	20	4	80	0.075	30	6.0	1275	385	69.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.025	4.8	6	7960	795	23.0
	8	4	150	0.030	6.4	8	5970	715	36.5
	10	4	150	0.040	8.0	10	4775	765	61.0
	12	4	150	0.050	9.6	12	3980	795	91.5
	16	4	150	0.060	12.8	16	2985	715	146.5
	20	4	150	0.060	16.0	20	2385	570	182.5
Steel 850 - 1100 N/mm²	6	4	100	0.020	4.8	6	5305	425	12.0
	8	4	100	0.025	6.4	8	3980	400	20.5
	10	4	100	0.035	8.0	10	3185	445	35.5
	12	4	100	0.040	9.6	12	2655	425	49.0
	16	4	100	0.050	12.8	16	1990	400	82.0
	20	4	100	0.050	16.0	20	1590	320	102.5
Steel 1100 - 1300 N/mm²	6	4	80	0.020	4.8	6	4245	340	10.0
	8	4	80	0.025	6.4	8	3185	320	16.5
	10	4	80	0.035	8.0	10	2545	355	28.5
	12	4	80	0.040	9.6	12	2120	340	39.0
	16	4	80	0.050	12.8	16	1590	320	65.5
	20	4	80	0.050	16.0	20	1275	255	81.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	60	0.020	4.8	6	3185	255	7.5
	8	4	60	0.025	6.4	8	2385	240	12.5
	10	4	60	0.035	8.0	10	1910	265	21.0
	12	4	60	0.040	9.6	12	1590	255	29.5
	16	4	60	0.050	12.8	16	1195	240	49.0
	20	4	60	0.050	16.0	20	955	190	61.0

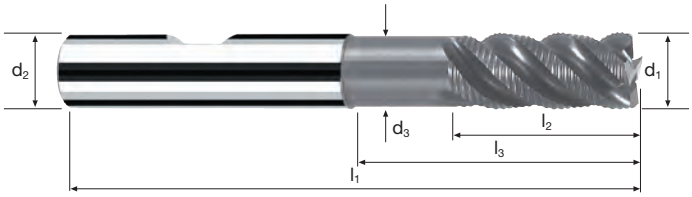
Cylindrical end mills NX-FP

Profiled, medium length version with neck

HM
XR

λ **45°**
γ **0°**







Roughing

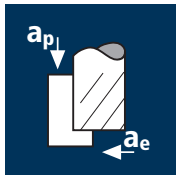
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** | Article-N°. **5174** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P5174
.300	6	6	5.5	63	13	26	0.35	4	●
.391	8	8	7.4	72	19	35	0.45	4	●
.450	10	10	9.2	84	22	43	0.60	4	●
.501	12	12	11.0	97	26	51	0.60	4	●
.610	16	16	15.0	108	32	59	0.70	4	●
.682	20	20	19.0	122	38	71	0.70	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	70	0.015	10.8	3.3	3715	225	8.0
	8	4	70	0.020	14.4	4.4	2785	225	14.5
	10	4	70	0.020	18.0	5.5	2230	180	18.0
	12	4	70	0.025	21.6	6.6	1855	185	26.5
	16	4	70	0.030	28.8	8.8	1395	165	42.0
	20	4	70	0.040	36.0	11.0	1115	180	71.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	60	0.015	10.8	3.3	3185	190	7.0
	8	4	60	0.020	14.4	4.4	2385	190	12.0
	10	4	60	0.020	18.0	5.5	1910	155	15.5
	12	4	60	0.025	21.6	6.6	1590	160	23.0
	16	4	60	0.030	28.8	8.8	1195	145	36.5
	20	4	60	0.040	36.0	11.0	955	155	61.5
Heat resistant steel [17-4 PH]	6	4	25	0.010	10.8	3.3	1325	55	2.0
	8	4	25	0.015	14.4	4.4	995	60	4.0
	10	4	25	0.020	18.0	5.5	795	65	6.5
	12	4	25	0.020	21.6	6.6	665	55	8.0
	16	4	25	0.030	28.8	8.8	495	60	15.0
	20	4	25	0.035	36.0	11.0	400	55	22.0

Application



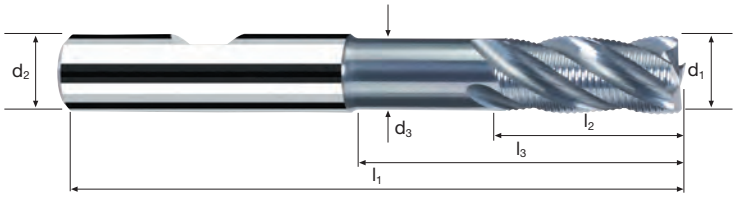
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.015	6	6	2655	160	6.0
	8	4	50	0.020	8	8	1990	160	10.0
	10	4	50	0.020	10	10	1590	125	12.5
	12	4	50	0.025	12	12	1325	135	19.5
	16	4	50	0.035	16	16	995	140	36.0
	20	4	50	0.045	20	20	795	145	58.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	4	40	0.015	6	6	2120	125	4.5
	8	4	40	0.020	8	8	1590	125	8.0
	10	4	40	0.020	10	10	1275	100	10.0
	12	4	40	0.025	12	12	1060	105	15.0
	16	4	40	0.035	16	16	795	110	28.0
	20	4	40	0.045	20	20	635	115	46.0
Heat resistant steel [17-4 PH]	6	4	15	0.010	6	6	795	30	1.0
	8	4	15	0.015	8	8	595	35	2.0
	10	4	15	0.020	10	10	475	40	4.0
	12	4	15	0.025	12	12	400	40	6.0
	16	4	15	0.030	16	16	300	35	9.0
	20	4	15	0.040	20	20	240	40	16.0

Cylindrical end mills SX-FP

Profiled, medium length version with neck

HM XR | λ 35° γ 0°

45°



Roughing

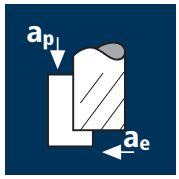
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15304** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z	POLYCHROM P15304
.300	6	6	5.5	63	13	26	0.35	4	●
.391	8	8	7.4	72	19	35	0.45	4	●
.450	10	10	9.2	84	22	43	0.60	4	●
.501	12	12	11.0	97	26	51	0.60	4	●
.610	16	16	15.0	108	32	59	0.70	4	●
.682	20	20	19.0	122	38	71	0.70	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.035	7.2	1.8	9550	1335	17.5
	8	4	180	0.045	9.6	2.4	7160	1290	29.5
	10	4	180	0.060	12.0	3.0	5730	1375	49.5
	12	4	180	0.070	14.4	3.6	4775	1335	69.0
	16	4	180	0.075	19.2	4.8	3580	1075	99.0
	20	4	180	0.080	24.0	6.0	2865	915	132.0
Steel 850 - 1100 N/mm²	6	4	130	0.035	7.2	1.8	6895	965	12.5
	8	4	130	0.045	9.6	2.4	5175	930	21.5
	10	4	130	0.060	12.0	3.0	4140	995	36.0
	12	4	130	0.070	14.4	3.6	3450	965	50.0
	16	4	130	0.075	19.2	4.8	2585	775	71.5
	20	4	130	0.080	24.0	6.0	2070	660	95.0
Titanium alloys >300 HB [Ti6Al4V]	6	4	45	0.025	7.2	1.8	2385	240	3.0
	8	4	45	0.035	9.6	2.4	1790	250	6.0
	10	4	45	0.045	12.0	3.0	1430	255	9.0
	12	4	45	0.055	14.4	3.6	1195	265	13.5
	16	4	45	0.060	19.2	4.8	895	215	20.0
	20	4	45	0.065	24.0	6.0	715	185	26.5
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.025	7.2	1.8	3185	320	4.0
	8	4	60	0.035	9.6	2.4	2385	335	7.5
	10	4	60	0.045	12.0	3.0	1910	345	12.5
	12	4	60	0.055	14.4	3.6	1590	350	18.0
	16	4	60	0.060	19.2	4.8	1195	285	26.5
	20	4	60	0.065	24.0	6.0	955	250	36.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.030	3.6	6	7960	955	20.5
	8	4	150	0.040	4.8	8	5970	955	36.5
	10	4	150	0.050	6.0	10	4775	955	57.5
	12	4	150	0.055	7.2	12	3980	875	75.5
	16	4	150	0.055	9.6	16	2985	655	100.5
	20	4	150	0.060	12.0	20	2385	570	137.0
Steel 850 - 1100 N/mm²	6	4	80	0.030	3.6	6	4245	510	11.0
	8	4	80	0.040	4.8	8	3185	510	19.5
	10	4	80	0.050	6.0	10	2545	510	30.5
	12	4	80	0.055	7.2	12	2120	465	40.0
	16	4	80	0.055	9.6	16	1590	350	54.0
	20	4	80	0.060	12.0	20	1275	305	73.0
Titanium alloys >300 HB [Ti6Al4V]	6	4	35	0.025	3.6	6	1855	185	4.0
	8	4	35	0.030	4.8	8	1395	165	6.5
	10	4	35	0.040	6.0	10	1115	180	11.0
	12	4	35	0.045	7.2	12	930	165	14.5
	16	4	35	0.045	9.6	16	695	125	19.0
	20	4	35	0.050	12.0	20	555	110	26.5
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.025	3.6	6	2655	265	5.5
	8	4	50	0.030	4.8	8	1990	240	9.0
	10	4	50	0.040	6.0	10	1590	255	15.5
	12	4	50	0.045	7.2	12	1325	240	20.5
	16	4	50	0.045	9.6	16	995	180	27.5
	20	4	50	0.050	12.0	20	795	160	38.5

Cylindrical end mills NB-RP SupraCarb®

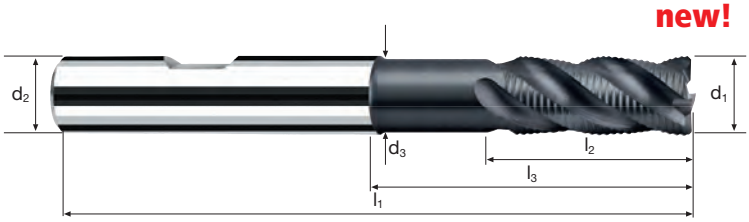
Profiled, medium length version with neck

HM
MG10

λ **38°**
γ **0°**

45°

new!



Roughing

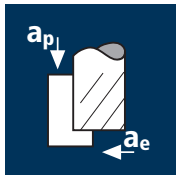
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15339** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z		POLYCHROM P15339	P15239
.300	6	6	5.5	63	13	26	0.35	4			●
.391	8	8	7.4	72	19	35	0.45	4			●
.450	10	10	9.2	84	22	43	0.60	4			●
.501	12	12	11.0	97	26	51	0.60	4			●
.610	16	16	15.0	108	32	59	0.70	4			●
.682	20	20	19.0	122	38	71	0.70	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	180	0.050	10	8.0	5730	1145	91.5
	12	4	180	0.060	12	9.6	4775	1145	132.0
	16	4	180	0.065	16	12.8	3580	930	190.5
	20	4	180	0.080	20	16.0	2865	915	293.0
Steel 850 - 1100 N/mm²	10	4	150	0.050	10	8.0	4775	955	76.5
	12	4	150	0.060	12	9.6	3980	955	110.0
	16	4	150	0.065	16	12.8	2985	775	158.5
	20	4	150	0.080	20	16.0	2385	765	245.0
Steel 1100 - 1300 N/mm²	10	4	120	0.050	10	8.0	3820	765	61.0
	12	4	120	0.055	12	9.6	3185	700	80.5
	16	4	120	0.050	16	12.8	2385	475	97.5
	20	4	120	0.060	20	16.0	1910	460	147.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	10	4	80	0.050	10	8.0	2545	510	41.0
	12	4	80	0.055	12	9.6	2120	465	53.5
	16	4	80	0.050	16	12.8	1590	320	65.5
	20	4	80	0.060	20	16.0	1275	305	97.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	10	4	150	0.050	10	10	4775	955	95.5
	12	4	150	0.050	12	12	3980	795	114.5
	16	4	150	0.055	16	16	2985	655	167.5
	20	4	150	0.060	20	20	2385	570	228.0
Steel 850 - 1100 N/mm²	10	4	100	0.050	10	10	3185	635	63.5
	12	4	100	0.050	12	12	2655	530	76.5
	16	4	100	0.055	16	16	1990	440	112.5
	20	4	100	0.060	20	20	1590	380	152.0
Steel 1100 - 1300 N/mm²	10	4	80	0.050	10	10	2545	510	51.0
	12	4	80	0.050	12	12	2120	425	61.0
	16	4	80	0.055	16	16	1590	350	89.5
	20	4	80	0.060	20	20	1275	305	122.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	10	4	60	0.050	10	10	1910	380	38.0
	12	4	60	0.050	12	12	1590	320	46.0
	16	4	60	0.055	16	16	1195	265	68.0
	20	4	60	0.060	20	20	955	230	92.0

Cylindrical end mills NX-FP

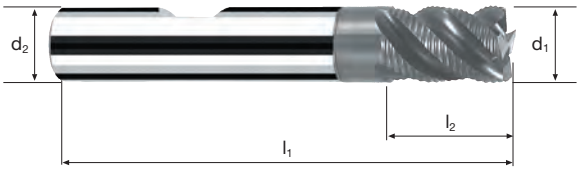
Profiled, short version

HM XR

λ **45°**
γ **0°**









Roughing



Finishing



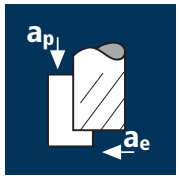
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5176** ø-Code **.450**



ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z	POLYCHROM **P5176**
.450	10	10	66	14	0.60	4	●
.501	12	12	73	16	0.60	4	●
.610	16	16	82	22	0.70	4	●
.682	20	20	92	26	0.70	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	5	3	60	0.025	5	2.0	3820	285	3.0
	6	3	60	0.030	6	2.4	3185	285	4.0
	8	4	60	0.045	8	3.2	2385	430	11.0
	10	4	60	0.055	10	4.0	1910	420	17.0
	12	4	60	0.085	12	4.8	1590	540	31.0
	16	4	60	0.110	16	6.4	1195	525	54.0
	20	4	60	0.140	20	8.0	955	535	85.5
	25	4	60	0.175	25	10.0	765	535	134.0
	32	6	60	0.155	32	12.8	595	555	227.5
Steel 850 - 1100 N/mm²	5	3	48	0.025	5	2.0	3055	230	2.5
	6	3	48	0.030	6	2.4	2545	230	3.5
	8	4	48	0.045	8	3.2	1910	345	9.0
	10	4	48	0.055	10	4.0	1530	335	13.5
	12	4	48	0.085	12	4.8	1275	435	25.0
	16	4	48	0.110	16	6.4	955	420	43.0
	20	4	48	0.140	20	8.0	765	430	69.0
	25	4	48	0.175	25	10.0	610	425	106.5
	32	6	48	0.155	32	12.8	475	440	180.0
Stainless steel [Cr-Ni/1.4301]	5	3	25	0.025	5	2.0	1590	120	1.0
	6	3	25	0.030	6	2.4	1325	120	1.5
	8	4	25	0.045	8	3.2	995	180	4.5
	10	4	25	0.055	10	4.0	795	175	7.0
	12	4	25	0.085	12	4.8	665	225	13.0
	16	4	25	0.110	16	6.4	495	220	22.5
	20	4	25	0.140	20	8.0	400	225	36.0
	25	4	25	0.175	25	10.0	320	225	56.5
	32	6	25	0.155	32	12.8	250	230	94.0
Cast iron (lamellar / spheroidal)	5	3	42	0.025	5	2.0	2675	200	2.0
	6	3	42	0.030	6	2.4	2230	200	3.0
	8	4	42	0.045	8	3.2	1670	300	7.5
	10	4	42	0.055	10	4.0	1335	295	12.0
	12	4	42	0.085	12	4.8	1115	380	22.0
	16	4	42	0.110	16	6.4	835	365	37.5
	20	4	42	0.140	20	8.0	670	375	60.0
	25	4	42	0.175	25	10.0	535	375	94.0
	32	6	42	0.155	32	12.8	420	390	159.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	5	3	55	0.020	5.0	5	3500	210	5.5
	6	3	55	0.025	6.0	6	2920	220	8.0
	8	4	55	0.030	8.0	8	2190	265	17.0
	10	4	55	0.040	10.0	10	1750	280	28.0
	12	4	55	0.065	12.0	12	1460	380	54.5
	16	4	55	0.085	16.0	16	1095	370	94.5
	20	4	55	0.105	20.0	20	875	370	148.0
	25	4	55	0.130	25.0	25	700	365	228.0
	32	6	55	0.115	32.0	32	545	375	384.0
Steel 850 - 1100 N/mm²	5	3	45	0.020	5.0	5	2865	170	4.5
	6	3	45	0.025	6.0	6	2385	180	6.5
	8	4	45	0.030	8.0	8	1790	215	14.0
	10	4	45	0.040	10.0	10	1430	230	23.0
	12	4	45	0.065	12.0	12	1195	310	44.5
	16	4	45	0.085	16.0	16	895	305	78.0
	20	4	45	0.105	20.0	20	715	300	120.0
	25	4	45	0.130	25.0	25	575	300	187.5
	32	6	45	0.115	32.0	32	450	310	317.5
Stainless steel [Cr-Ni/1.4301]	5	3	22	0.020	5.0	5	1400	85	2.0
	6	3	22	0.025	6.0	6	1165	85	3.0
	8	4	22	0.030	8.0	8	875	105	6.5
	10	4	22	0.040	10.0	10	700	110	11.0
	12	4	22	0.065	12.0	12	585	150	21.5
	16	4	22	0.085	16.0	16	440	150	38.5
	20	4	22	0.105	20.0	20	350	145	58.0
	25	4	22	0.130	25.0	25	280	145	90.5
	32	6	22	0.115	32.0	32	220	150	153.5
Cast iron (lamellar / spheroidal)	5	3	36	0.020	5.0	5	2290	135	3.5
	6	3	36	0.025	6.0	6	1910	145	5.0
	8	4	36	0.030	8.0	8	1430	170	11.0
	10	4	36	0.040	10.0	10	1145	185	18.5
	12	4	36	0.065	12.0	12	955	250	36.0
	16	4	36	0.085	16.0	16	715	245	62.5
	20	4	36	0.105	20.0	20	575	240	96.0
	25	4	36	0.130	25.0	25	460	240	150.0
	32	6	36	0.115	32.0	32	360	250	256.0

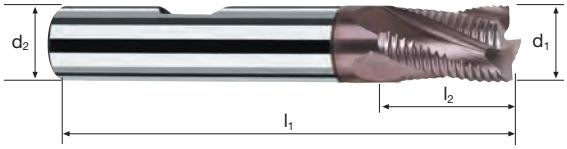
Cylindrical end mills

Profiled NRF, short version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 25° γ 10°**

45°



Roughing

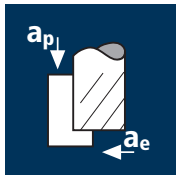
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0640** ø-Code **.260**

ø Code	d_1 k12	d_2 h6	l_1	l_2	45°	α	z	UNICUT-4X U0640
.260	5	6	52	8	0.40	2.0°	3	●
.300	6	6	52	8	0.40	0.0°	3	●
.391	8	8	55	11	0.40	0.0°	4	●
.450	10	10	63	13	0.40	0.0°	4	●
.501	12	12	73	16	0.40	0.0°	4	●
.610	16	16	79	19	0.50	0.0°	4	●
.682	20	20	88	22	0.50	0.0°	4	●
.772	25	25	102	26	0.70	0.0°	4	●
.832	32	32	112	32	0.70	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	180	0.030	7.2	1.5	9550	1145	12.5
	8	4	180	0.040	9.6	2.0	7160	1145	22.0
	10	4	180	0.055	12.0	2.5	5730	1260	38.0
	12	4	180	0.065	14.4	3.0	4775	1240	53.5
	16	4	180	0.070	19.2	4.0	3580	1000	77.0
	20	4	180	0.075	24.0	5.0	2865	860	103.0
Steel 850 - 1100 N/mm²	6	4	130	0.030	7.2	1.5	6895	825	9.0
	8	4	130	0.040	9.6	2.0	5175	830	16.0
	10	4	130	0.055	12.0	2.5	4140	910	27.5
	12	4	130	0.065	14.4	3.0	3450	895	38.5
	16	4	130	0.070	19.2	4.0	2585	725	55.5
	20	4	130	0.075	24.0	5.0	2070	620	74.5
Titanium alloys >300 HB [Ti6Al4V]	6	4	45	0.025	7.2	1.5	2385	240	2.5
	8	4	45	0.035	9.6	2.0	1790	250	5.0
	10	4	45	0.045	12.0	2.5	1430	255	7.5
	12	4	45	0.055	14.4	3.0	1195	265	11.5
	16	4	45	0.060	19.2	4.0	895	215	16.5
	20	4	45	0.065	24.0	5.0	715	185	22.0
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.025	7.2	1.5	3185	320	3.5
	8	4	60	0.035	9.6	2.0	2385	335	6.5
	10	4	60	0.045	12.0	2.5	1910	345	10.5
	12	4	60	0.055	14.4	3.0	1590	350	15.0
	16	4	60	0.060	19.2	4.0	1195	285	22.0
	20	4	60	0.065	24.0	5.0	955	250	30.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	4	150	0.025	3.0	6	7960	795	14.5
	8	4	150	0.035	4.0	8	5970	835	26.5
	10	4	150	0.045	5.0	10	4775	860	43.0
	12	4	150	0.050	6.0	12	3980	795	57.0
	16	4	150	0.050	8.0	16	2985	595	76.0
	20	4	150	0.055	10.0	20	2385	525	105.0
Steel 850 - 1100 N/mm²	6	4	80	0.025	3.0	6	4245	425	7.5
	8	4	80	0.035	4.0	8	3185	445	14.0
	10	4	80	0.045	5.0	10	2545	460	23.0
	12	4	80	0.050	6.0	12	2120	425	30.5
	16	4	80	0.050	8.0	16	1590	320	41.0
	20	4	80	0.055	10.0	20	1275	280	56.0
Titanium alloys >300 HB [Ti6Al4V]	6	4	35	0.020	3.0	6	1855	150	2.5
	8	4	35	0.030	4.0	8	1395	165	5.5
	10	4	35	0.035	5.0	10	1115	155	8.0
	12	4	35	0.040	6.0	12	930	150	11.0
	16	4	35	0.040	8.0	16	695	110	14.0
	20	4	35	0.045	10.0	20	555	100	20.0
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.020	3.0	6	2655	210	4.0
	8	4	50	0.030	4.0	8	1990	240	7.5
	10	4	50	0.035	5.0	10	1590	225	11.5
	12	4	50	0.040	6.0	12	1325	210	15.0
	16	4	50	0.040	8.0	16	995	160	20.5
	20	4	50	0.045	10.0	20	795	145	29.0

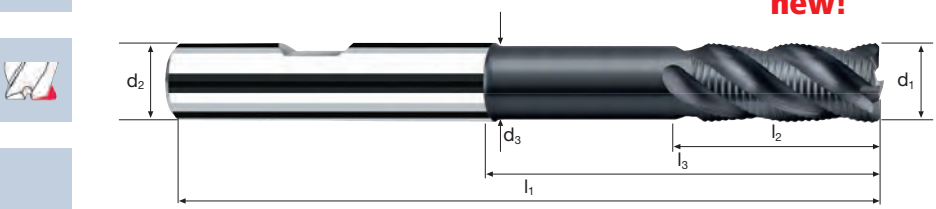
Cylindrical end mills NB-RP SupraCarb®

Profiled, long version with neck

HSS | Favora® | Base-X | **B** | X-Generation

HM MG10 | λ 38° γ 0°

45°



Roughing

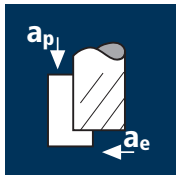
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **15348** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	45°	z		POLYCHROM P15348	P15248
.300	6	6	5.5	70	13	33	0.35	4			●
.391	8	8	7.4	80	19	43	0.45	4			●
.450	10	10	9.2	100	22	59	0.60	4			●
.501	12	12	11.0	110	26	64	0.60	4			●
.610	16	16	15.0	123	32	74	0.70	4			●
.682	20	20	19.0	141	38	90	0.70	4			●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	3	28	0.020	15	2.4	1485	90	3.0
	8	4	28	0.030	20	3.2	1115	135	8.5
	10	4	28	0.035	25	4.0	890	125	12.5
	12	4	28	0.055	30	4.8	745	165	24.0
	16	4	28	0.075	40	6.4	555	165	42.0
	20	4	28	0.095	50	8.0	445	170	68.0
	25	4	28	0.115	63	10.0	355	165	103.0
	32	6	28	0.105	80	12.8	280	175	179.0
	40	6	28	0.130	100	16.0	225	175	280.0
Steel 850 - 1100 N/mm²	6	3	22	0.020	15	2.4	1165	70	2.5
	8	4	22	0.030	20	3.2	875	105	6.5
	10	4	22	0.035	25	4.0	700	100	10.0
	12	4	22	0.055	30	4.8	585	130	18.5
	16	4	22	0.075	40	6.4	440	130	33.5
	20	4	22	0.095	50	8.0	350	135	54.0
	25	4	22	0.115	63	10.0	280	130	81.5
	32	6	22	0.105	80	12.8	220	140	143.5
	40	6	22	0.130	100	16.0	175	135	216.0
Stainless steel [Cr-Ni/1.4301]	6	3	11	0.020	15	2.4	585	35	1.5
	8	4	11	0.030	20	3.2	440	55	3.5
	10	4	11	0.035	25	4.0	350	50	5.0
	12	4	11	0.055	30	4.8	290	65	9.5
	16	4	11	0.075	40	6.4	220	65	16.5
	20	4	11	0.095	50	8.0	175	65	26.0
	25	4	11	0.115	63	10.0	140	65	40.5
	32	6	11	0.105	80	12.8	110	70	71.5
	40	6	11	0.130	100	16.0	90	70	112.0
Cast iron (lamellar / spheroidal)	6	3	20	0.020	15	2.4	1060	65	2.5
	8	4	20	0.030	20	3.2	795	95	6.0
	10	4	20	0.035	25	4.0	635	90	9.0
	12	4	20	0.055	30	4.8	530	115	16.5
	16	4	20	0.075	40	6.4	400	120	30.5
	20	4	20	0.095	50	8.0	320	120	48.0
	25	4	20	0.115	63	10.0	255	115	72.0
	32	6	20	0.105	80	12.8	200	125	128.0
	40	6	20	0.130	100	16.0	160	125	200.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	6	3	25	0.020	3.0	6	1325	80	1.5
	8	4	25	0.025	4.0	8	995	100	3.0
	10	4	25	0.035	5.0	10	795	110	5.5
	12	4	25	0.055	6.0	12	665	145	10.5
	16	4	25	0.070	8.0	16	495	140	18.0
	20	4	25	0.090	10.0	20	400	145	29.0
	25	4	25	0.110	12.5	25	320	140	44.0
	32	6	25	0.095	16.0	32	250	145	74.0
	40	6	25	0.120	20.0	40	200	145	116.0
Steel 850 - 1100 N/mm²	6	3	18	0.020	3.0	6	955	55	1.0
	8	4	18	0.025	4.0	8	715	70	2.0
	10	4	18	0.035	5.0	10	575	80	4.0
	12	4	18	0.055	6.0	12	475	105	7.5
	16	4	18	0.070	8.0	16	360	100	13.0
	20	4	18	0.090	10.0	20	285	105	21.0
	25	4	18	0.110	12.5	25	230	100	31.5
	32	6	18	0.095	16.0	32	180	105	54.0
	40	6	18	0.120	20.0	40	145	105	84.0
Stainless steel [Cr-Ni/1.4301]	6	3	10	0.020	3.0	6	530	30	0.5
	8	4	10	0.025	4.0	8	400	40	1.5
	10	4	10	0.035	5.0	10	320	45	2.5
	12	4	10	0.055	6.0	12	265	60	4.5
	16	4	10	0.070	8.0	16	200	55	7.0
	20	4	10	0.090	10.0	20	160	60	12.0
	25	4	10	0.110	12.5	25	125	55	17.0
	32	6	10	0.095	16.0	32	100	55	28.0
	40	6	10	0.120	20.0	40	80	60	48.0
Cast iron (lamellar / spheroidal)	6	3	16	0.020	3.0	6	850	50	1.0
	8	4	16	0.025	4.0	8	635	65	2.0
	10	4	16	0.035	5.0	10	510	70	3.5
	12	4	16	0.055	6.0	12	425	95	7.0
	16	4	16	0.070	8.0	16	320	90	11.5
	20	4	16	0.090	10.0	20	255	90	18.0
	25	4	16	0.110	12.5	25	205	90	28.0
	32	6	16	0.095	16.0	32	160	90	46.0
	40	6	16	0.120	20.0	40	125	90	72.0

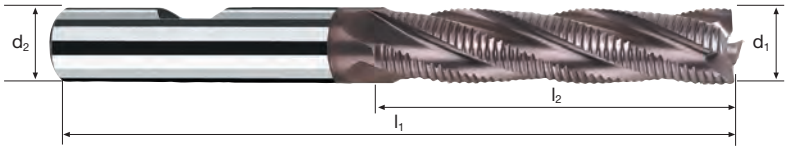
Cylindrical end mills

Profiled NRF, long version

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | **λ 25° γ 10°**

45°



Roughing

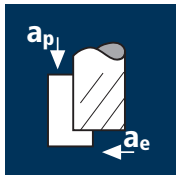
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0665** ø-Code **.260**

ø Code	d_1 k12	d_2 h6	l_1	l_2	45°	α	z	UNICUT-4X U0665
.260	5	6	68	24	0.40	1.0°	3	●
.300	6	6	68	24	0.40	0.0°	3	●
.342	7	10	80	30	0.40	2.5°	3	●
.391	8	8	82	38	0.40	0.0°	4	●
.402	8	10	88	38	0.40	1.0°	4	●
.420	9	10	88	38	0.40	0.0°	4	●
.450	10	10	95	45	0.40	0.0°	4	●
.470	11	12	102	45	0.40	0.0°	4	●
.501	12	12	110	53	0.40	0.0°	4	●
.540	13	12	110	53	0.40	0.0°	4	●
.570	14	12	110	53	0.40	0.0°	4	●
.610	16	16	123	63	0.50	0.0°	4	●
.640	18	16	123	63	0.50	0.0°	4	●
.682	20	20	141	75	0.50	0.0°	4	●
.710	22	20	141	75	0.70	0.0°	4	●
.772	25	25	166	90	0.70	0.0°	4	●
.800	28	25	166	90	0.70	0.0°	6	●
.810	30	25	166	90	0.70	0.0°	6	●
.832	32	32	186	106	0.70	0.0°	6	●
.860	36	32	186	106	0.90	0.0°	6	●
.892	40	40	217	125	0.90	0.0°	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	27	0.015	6	1.2	1430	85	0.5
	8	4	27	0.020	8	1.6	1075	85	1.0
	10	4	27	0.025	10	2.0	860	85	1.5
	12	4	27	0.035	12	2.4	715	100	3.0
	16	4	27	0.050	16	3.2	535	105	5.5
	20	4	27	0.060	20	4.0	430	105	8.5
	25	4	27	0.080	25	5.0	345	110	14.0
Steel 1100 - 1300 N/mm²	6	4	22	0.015	6	1.2	1165	70	0.5
	8	4	22	0.020	8	1.6	875	70	1.0
	10	4	22	0.025	10	2.0	700	70	1.5
	12	4	22	0.035	12	2.4	585	80	2.5
	16	4	22	0.050	16	3.2	440	90	4.5
	20	4	22	0.060	20	4.0	350	85	7.0
	25	4	22	0.080	25	5.0	280	90	11.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	16	0.015	6	1.2	850	50	0.5
	8	4	16	0.020	8	1.6	635	50	0.5
	10	4	16	0.025	10	2.0	510	50	1.0
	12	4	16	0.035	12	2.4	425	60	1.5
	16	4	16	0.050	16	3.2	320	65	3.5
	20	4	16	0.060	20	4.0	255	60	5.0
	25	4	16	0.080	25	5.0	205	65	8.0
Cast iron (lamellar / spheroidal)	6	4	24	0.015	6	1.2	1275	75	0.5
	8	4	24	0.020	8	1.6	955	75	1.0
	10	4	24	0.025	10	2.0	765	75	1.5
	12	4	24	0.035	12	2.4	635	90	2.5
	16	4	24	0.050	16	3.2	475	95	5.0
	20	4	24	0.060	20	4.0	380	90	7.0
	25	4	24	0.080	25	5.0	305	100	12.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	24	0.020	3	6	1275	100	2.0
	8	4	24	0.025	4	8	955	95	3.0
	10	4	24	0.030	5	10	765	90	4.5
	12	4	24	0.045	6	12	635	115	8.5
	16	4	24	0.065	8	16	475	125	16.0
	20	4	24	0.080	10	20	380	120	24.0
	25	4	24	0.100	13	25	305	120	37.5
Steel 1100 - 1300 N/mm²	6	4	20	0.020	3	6	1060	85	1.5
	8	4	20	0.025	4	8	795	80	2.5
	10	4	20	0.030	5	10	635	75	4.0
	12	4	20	0.045	6	12	530	95	7.0
	16	4	20	0.065	8	16	400	105	13.5
	20	4	20	0.080	10	20	320	100	20.0
	25	4	20	0.100	13	25	255	100	31.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	6	4	14	0.020	3	6	745	60	1.0
	8	4	14	0.025	4	8	555	55	2.0
	10	4	14	0.030	5	10	445	55	3.0
	12	4	14	0.045	6	12	370	65	4.5
	16	4	14	0.065	8	16	280	75	9.5
	20	4	14	0.080	10	20	225	70	14.0
	25	4	14	0.100	13	25	180	70	22.0
Cast iron (lamellar / spheroidal)	6	4	21	0.020	3	6	1115	90	1.5
	8	4	21	0.025	4	8	835	85	2.5
	10	4	21	0.030	5	10	670	80	4.0
	12	4	21	0.045	6	12	555	100	7.0
	16	4	21	0.065	8	16	420	110	14.0
	20	4	21	0.080	10	20	335	105	21.0
	25	4	21	0.100	13	25	265	105	33.0

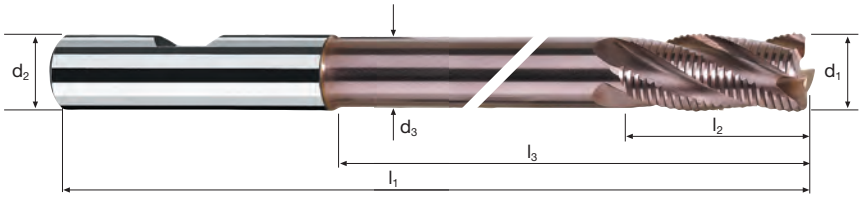
Cylindrical end mills Supracut

Profiled NRC, extra-long version with neck

HSS | Favora® | Base-X | X-Generation

HSS PM/F | **λ 30° γ 12°**

45°



Roughing

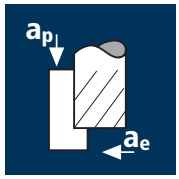
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **GG(G)**

Example: **Order-N°.** Coating **U** Article-N°. **0621** ø-Code **.300**

ø Code	d1 k8	d2 h6	d3	l1	l2	l3	45°	z	UNICUT-4X U0621
.300	6	6	5.5	81	13	44	0.40	4	●
.391	8	8	7.4	101	19	64	0.40	4	●
.450	10	10	9.2	117	22	76	0.40	4	●
.501	12	12	11.0	136	26	90	0.40	4	●
.610	16	16	14.5	155	32	106	0.50	4	●
.682	20	20	18.0	179	38	128	0.50	4	●
.772	25	25	23.0	211	45	154	0.70	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	3	5	180	0.010	5	0.05	19100	955
	4	5	180	0.010	6	0.05	14325	715
	5	5	180	0.015	8	0.05	11460	860
	6	5	180	0.015	9	0.10	9550	715
	8	7	180	0.025	12	0.10	7160	1255
	10	7	180	0.030	15	0.10	5730	1205
	12	7	180	0.035	18	0.10	4775	1170
	16	7	180	0.045	24	0.20	3580	1130
	20	7	180	0.055	30	0.20	2865	1105
Steel 1100 - 1300 N/mm²	3	5	150	0.010	5	0.05	15915	795
	4	5	150	0.010	6	0.05	11935	595
	5	5	150	0.015	8	0.05	9550	715
	6	5	150	0.015	9	0.10	7960	595
	8	7	150	0.025	12	0.10	5970	1045
	10	7	150	0.030	15	0.10	4775	1005
	12	7	150	0.035	18	0.10	3980	975
	16	7	150	0.045	24	0.20	2985	940
	20	7	150	0.055	30	0.20	2385	920
Hardened tool steel 52 - 56 HRC	3	5	120	0.008	5	0.05	12735	510
	4	5	120	0.010	6	0.05	9550	480
	5	5	120	0.012	8	0.05	7640	460
	6	5	120	0.016	9	0.10	6365	510
	8	7	120	0.020	12	0.10	4775	670
	10	7	120	0.026	15	0.10	3820	695
	12	7	120	0.030	18	0.10	3185	670
	16	7	120	0.040	24	0.20	2385	670
	20	7	120	0.050	30	0.20	1910	670
Hardened tool steel 56 - 60 HRC	3	5	100	0.008	5	0.05	10610	425
	4	5	100	0.010	6	0.05	7960	400
	5	5	100	0.012	8	0.05	6365	380
	6	5	100	0.016	9	0.10	5305	425
	8	7	100	0.020	12	0.10	3980	555
	10	7	100	0.026	15	0.10	3185	580
	12	7	100	0.030	18	0.10	2655	560
	16	7	100	0.040	24	0.20	1990	555
	20	7	100	0.050	30	0.20	1590	555

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Wrought aluminium Si < 6%	3	5	450	0.010	5	0.05	47750	2390
	4	5	450	0.010	6	0.05	35810	1790
	5	5	450	0.015	8	0.05	28650	2150
	6	5	450	0.015	9	0.10	23875	1790
	8	7	450	0.025	12	0.10	17905	3135
	10	7	450	0.030	15	0.10	14325	3010
	12	7	450	0.035	18	0.10	11935	2925
	16	7	450	0.045	24	0.20	8955	2820
	20	7	450	0.055	30	0.20	7160	2755
Cast iron (lamellar / spheroidal)	3	5	180	0.010	5	0.05	19100	955
	4	5	180	0.010	6	0.05	14325	715
	5	5	180	0.015	8	0.05	11460	860
	6	5	180	0.015	9	0.10	9550	715
	8	7	180	0.025	12	0.10	7160	1255
	10	7	180	0.030	15	0.10	5730	1205
	12	7	180	0.035	18	0.10	4775	1170
	16	7	180	0.045	24	0.20	3580	1130
	20	7	180	0.055	30	0.20	2865	1105
Titanium alloys >300 HB [Ti6Al4V]	3	5	70	0.010	5	0.05	7425	370
	4	5	70	0.010	6	0.05	5570	280
	5	5	70	0.015	8	0.05	4455	335
	6	5	70	0.015	9	0.10	3715	280
	8	7	70	0.025	12	0.10	2785	485
	10	7	70	0.030	15	0.10	2230	470
	12	7	70	0.035	18	0.10	1855	455
	16	7	70	0.045	24	0.20	1395	440
	20	7	70	0.055	30	0.20	1115	430
Stainless steel [Cr-Ni-Mo-.../1.4571]	3	5	80	0.010	5	0.05	8490	425
	4	5	80	0.010	6	0.05	6365	320
	5	5	80	0.015	8	0.05	5095	380
	6	5	80	0.015	9	0.10	4245	320
	8	7	80	0.025	12	0.10	3185	555
	10	7	80	0.030	15	0.10	2545	535
	12	7	80	0.035	18	0.10	2120	520
	16	7	80	0.045	24	0.20	1590	500
	20	7	80	0.055	30	0.20	1275	490

Cylindrical end mills Multicut XF

Finishing, normal version

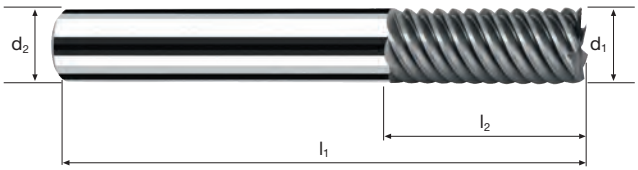
HSS | Favora® | Base-X | X-Generation X

HM XA

λ 65°
γ 8°

45°

h5



Roughing

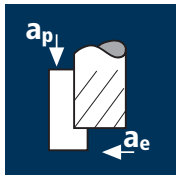
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	GG(G) Tool Steel Aluminium

Example: **Order-N°.** Coating **P** Article-N°. **15250** ø-Code **.180**

ø Code	d1 e8	d2 h5	l1	l2	45°	α	z	POLYCHROM P15250
.180	3	6	57	8	-	6.0°	5	●
.220	4	6	57	11	-	4.0°	5	●
.260	5	6	57	13	-	2.0°	5	●
.300	6	6	57	13	0.15	0.0°	5	●
.391	8	8	63	19	0.15	0.0°	7	●
.450	10	10	72	22	0.20	0.0°	7	●
.501	12	12	83	26	0.20	0.0°	7	●
.610	16	16	92	32	0.20	0.0°	7	●
.682	20	20	104	38	0.20	0.0°	7	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Hardened tool steel 48 - 52 HRC	3	4	150	0.008	4.5	0.1	15915	510
	4	4	150	0.010	6.0	0.1	11935	475
	5	5	150	0.014	7.5	0.1	9550	670
	6	6	150	0.016	9.0	0.1	7960	765
	8	6	150	0.022	12.0	0.1	5970	790
	10	6	150	0.028	15.0	0.1	4775	800
	12	6	150	0.032	18.0	0.1	3980	765
	16	6	150	0.044	24.0	0.2	2985	790
	20	8	150	0.054	30.0	0.2	2385	1030
Hardened tool steel 52 - 56 HRC	3	4	120	0.008	4.5	0.1	12735	410
	4	4	120	0.010	6.0	0.1	9550	380
	5	5	120	0.014	7.5	0.1	7640	535
	6	6	120	0.016	9.0	0.1	6365	610
	8	6	120	0.022	12.0	0.1	4775	630
	10	6	120	0.028	15.0	0.1	3820	640
	12	6	120	0.032	18.0	0.1	3185	610
	16	6	120	0.044	24.0	0.2	2385	630
	20	8	120	0.054	30.0	0.2	1910	825
Hardened tool steel 56 - 60 HRC	3	4	100	0.008	4.5	0.1	10610	340
	4	4	100	0.010	6.0	0.1	7960	320
	5	5	100	0.014	7.5	0.1	6365	445
	6	6	100	0.016	9.0	0.1	5305	510
	8	6	100	0.022	12.0	0.1	3980	525
	10	6	100	0.028	15.0	0.1	3185	535
	12	6	100	0.032	18.0	0.1	2655	510
	16	6	100	0.044	24.0	0.2	1990	525
	20	8	100	0.054	30.0	0.2	1590	685
Hardened tool steel > 60 HRC	3	4	80	0.008	4.5	0.1	8490	270
	4	4	80	0.010	6.0	0.1	6365	255
	5	5	80	0.012	7.5	0.1	5095	305
	6	6	80	0.016	9.0	0.1	4245	410
	8	6	80	0.020	12.0	0.1	3185	380
	10	6	80	0.026	15.0	0.1	2545	395
	12	6	80	0.030	18.0	0.1	2120	380
	16	6	80	0.040	24.0	0.2	1590	380
	20	8	80	0.050	30.0	0.2	1275	510

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
High speed steel, hardened	3	4	50	0.008	4.5	0.1	5305	170
	4	4	50	0.010	6.0	0.1	3980	160
	5	5	50	0.012	7.5	0.1	3185	190
	6	6	50	0.016	9.0	0.1	2655	255
	8	6	50	0.020	12.0	0.1	1990	240
	10	6	50	0.026	15.0	0.1	1590	250
	12	6	50	0.030	18.0	0.1	1325	240
	16	6	50	0.040	24.0	0.2	995	240
	20	8	50	0.050	30.0	0.2	795	320
Cast iron (lamellar / spheroidal)	3	4	220	0.008	4.5	0.1	23345	745
	4	4	220	0.010	6.0	0.1	17510	700
	5	5	220	0.014	7.5	0.1	14005	980
	6	6	220	0.016	9.0	0.1	11670	1120
	8	6	220	0.022	12.0	0.1	8755	1155
	10	6	220	0.028	15.0	0.1	7005	1175
	12	6	220	0.032	18.0	0.1	5835	1120
	16	6	220	0.044	24.0	0.2	4375	1155
	20	8	220	0.054	30.0	0.2	3500	1510

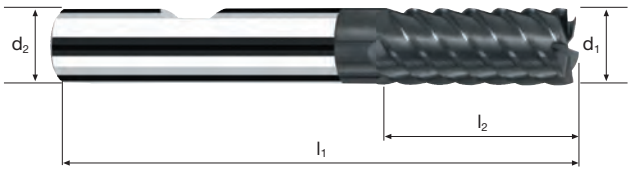
Cylindrical end mills Multicut HX-H

Finishing, normal version

HSS | Favora® | Base-X | X-Generation X

HM XA | **λ 55° γ-10°**

45°



Roughing

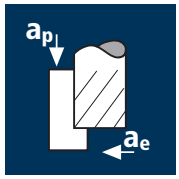
Finishing

HRC 48-56 | **HRC 56-60** | **HRC > 60** | **HSS GG(G)**

Example: **Order-N°.** Coating **D** Article-N°. **5366** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	DURO-S D5366	DURO-S D5266
.180	3	6	57	8	0.10	6.0°	4		●
.220	4	6	57	11	0.10	4.0°	4		●
.260	5	6	57	13	0.15	2.0°	5		●
.300	6	6	57	13	0.15	0.0°	6		●
.391	8	8	63	19	0.15	0.0°	6		●
.450	10	10	72	22	0.20	0.0°	6		●
.501	12	12	83	26	0.20	0.0°	6		●
.610	16	16	92	32	0.20	0.0°	6		●
.682	20	20	104	38	0.20	0.0°	8		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	6	6	140	0.015	9	0.1	7425	670
	8	6	140	0.025	12	0.1	5570	835
	10	6	140	0.030	15	0.1	4455	800
	12	6	140	0.035	18	0.1	3715	780
	16	8	140	0.045	24	0.2	2785	1005
	20	10	140	0.055	30	0.2	2230	1225
Steel 1100 - 1300 N/mm²	6	6	120	0.015	9	0.1	6365	575
	8	6	120	0.025	12	0.1	4775	715
	10	6	120	0.030	15	0.1	3820	690
	12	6	120	0.035	18	0.1	3185	670
	16	8	120	0.045	24	0.2	2385	860
	20	10	120	0.055	30	0.2	1910	1050
Steel 1300 - 1500 N/mm²	6	6	80	0.016	9	0.1	4245	410
	8	6	80	0.020	12	0.1	3185	380
	10	6	80	0.026	15	0.1	2545	395
	12	6	80	0.030	18	0.1	2120	380
	16	8	80	0.040	24	0.2	1590	510
	20	10	80	0.050	30	0.2	1275	640
Cast iron (lamellar / spheroidal)	6	6	140	0.015	9	0.1	7425	670
	8	6	140	0.025	12	0.1	5570	835
	10	6	140	0.030	15	0.1	4455	800
	12	6	140	0.035	18	0.1	3715	780
	16	8	140	0.045	24	0.2	2785	1005
	20	10	140	0.055	30	0.2	2230	1225

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Titanium alloys >300 HB [Ti6Al4V]	6	6	60	0.015	9	0.1	3185	285
	8	6	60	0.025	12	0.1	2385	360
	10	6	60	0.030	15	0.1	1910	345
	12	6	60	0.035	18	0.1	1590	335
	16	8	60	0.045	24	0.2	1195	430
	20	10	60	0.055	30	0.2	955	525
Unalloyed copper	6	6	200	0.015	9	0.1	10610	955
	8	6	200	0.025	12	0.1	7960	1195
	10	6	200	0.030	15	0.1	6365	1145
	12	6	200	0.035	18	0.1	5305	1115
	16	8	200	0.045	24	0.2	3980	1435
	20	10	200	0.055	30	0.2	3185	1750

Cylindrical end mills Multicut N

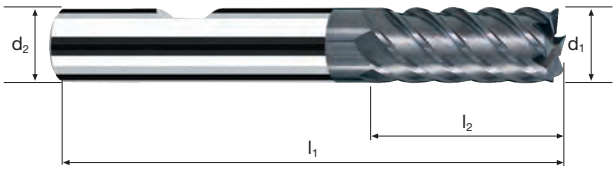
Finishing, normal version

HSS Favora® Base-X **B** X-Generation

HM
MG10

λ **45°**
γ **8°**

45°



Roughing

Finishing

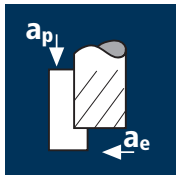
	Rm 850-1100	**Rm** 1100-1300	**Rm** 1300-1500					**Ti** Titanium	**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5360** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z		POLYCHROM **P5360**	**P5260**
.300	6	6	57	13	0.15	6		●	
.391	8	8	63	19	0.15	6		●	
.450	10	10	72	22	0.20	6		●	
.501	12	12	83	26	0.20	6		●	
.610	16	16	92	32	0.20	8		●	
.682	20	20	104	38	0.20	10		●	

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	6	6	120	0.016	9	0.1	6365	610
	8	6	120	0.020	12	0.1	4775	575
	10	6	120	0.026	15	0.1	3820	595
	12	6	120	0.030	18	0.1	3185	575
	16	6	120	0.040	24	0.2	2385	570
	20	6	120	0.050	30	0.2	1910	575
Steel 1100 - 1300 N/mm²	6	6	100	0.016	9	0.1	5305	510
	8	6	100	0.020	12	0.1	3980	480
	10	6	100	0.026	15	0.1	3185	495
	12	6	100	0.030	18	0.1	2655	480
	16	6	100	0.040	24	0.2	1990	480
	20	6	100	0.050	30	0.2	1590	475
Cast iron (lamellar / spheroidal)	6	6	120	0.016	9	0.1	6365	610
	8	6	120	0.020	12	0.1	4775	575
	10	6	120	0.026	15	0.1	3820	595
	12	6	120	0.030	18	0.1	3185	575
	16	6	120	0.040	24	0.2	2385	570
	20	6	120	0.050	30	0.2	1910	575
Titanium alloys >300 HB [Ti6Al4V]	6	6	50	0.016	9	0.1	2655	255
	8	6	50	0.020	12	0.1	1990	240
	10	6	50	0.026	15	0.1	1590	250
	12	6	50	0.030	18	0.1	1325	240
	16	6	50	0.040	24	0.2	995	240
	20	6	50	0.050	30	0.2	795	240

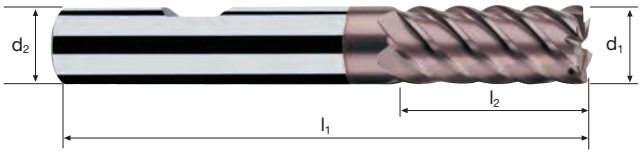
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Unalloyed copper	6	6	180	0.016	9	0.1	9550	915
	8	6	180	0.020	12	0.1	7160	860
	10	6	180	0.026	15	0.1	5730	895
	12	6	180	0.030	18	0.1	4775	860
	16	6	180	0.040	24	0.2	3580	860
	20	6	180	0.050	30	0.2	2865	860

Cylindrical end mills

Finishing, normal version

HM | λ **45°** γ **8°**

45°



Roughing

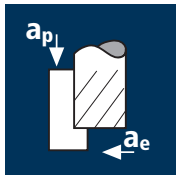
Finishing

	Rm 850-1100	**Rm** 1100-1300						**Ti** Titanium	**GG(G) Copper**

Example: **Order-N°.** Coating **U** Article-N°. **45360** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z	UNICUT-4X U45360
.300	6	6	57	13	0.15	6	●
.391	8	8	63	19	0.15	6	●
.450	10	10	72	22	0.20	6	●
.501	12	12	83	26	0.20	6	●
.610	16	16	92	32	0.20	6	●
.682	20	20	104	38	0.20	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	6	5	150	0.015	15	0.15	7960	595
	8	7	150	0.025	20	0.15	5970	1045
	10	7	150	0.030	25	0.15	4775	1005
	12	7	150	0.035	30	0.15	3980	975
	16	7	150	0.045	40	0.25	2985	940
	20	7	150	0.055	50	0.25	2385	920
Steel 1100 - 1300 N/mm²	6	5	120	0.015	15	0.15	6365	475
	8	7	120	0.025	20	0.15	4775	835
	10	7	120	0.030	25	0.15	3820	800
	12	7	120	0.035	30	0.15	3185	780
	16	7	120	0.045	40	0.25	2385	750
	20	7	120	0.055	50	0.25	1910	735
Hardened tool steel 52 - 56 HRC	6	5	100	0.016	15	0.15	5305	425
	8	7	100	0.020	20	0.15	3980	555
	10	7	100	0.026	25	0.15	3185	580
	12	7	100	0.030	30	0.15	2655	560
	16	7	100	0.040	40	0.25	1990	555
	20	7	100	0.050	50	0.25	1590	555
Hardened tool steel 56 - 60 HRC	6	5	80	0.016	15	0.15	4245	340
	8	7	80	0.020	20	0.15	3185	445
	10	7	80	0.026	25	0.15	2545	465
	12	7	80	0.030	30	0.15	2120	445
	16	7	80	0.040	40	0.25	1590	445
	20	7	80	0.050	50	0.25	1275	445

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Wrought aluminium Si < 6%	6	5	360	0.015	15	0.15	19100	1435
	8	7	360	0.025	20	0.15	14325	2505
	10	7	360	0.030	25	0.15	11460	2405
	12	7	360	0.035	30	0.15	9550	2340
	16	7	360	0.045	40	0.25	7160	2255
	20	7	360	0.055	50	0.25	5730	2205
Cast iron (lamellar / spheroidal)	6	5	150	0.015	15	0.15	7960	595
	8	7	150	0.025	20	0.15	5970	1045
	10	7	150	0.030	25	0.15	4775	1005
	12	7	150	0.035	30	0.15	3980	975
	16	7	150	0.045	40	0.25	2985	940
	20	7	150	0.055	50	0.25	2385	920
Titanium alloys >300 HB [Ti6Al4V]	6	5	60	0.015	15	0.15	3185	240
	8	7	60	0.025	20	0.15	2385	415
	10	7	60	0.030	25	0.15	1910	400
	12	7	60	0.035	30	0.15	1590	390
	16	7	60	0.045	40	0.25	1195	375
	20	7	60	0.055	50	0.25	955	370
Stainless steel [Cr-Ni-Mo-.../1.4571]	6	5	70	0.015	15	0.15	3715	280
	8	7	70	0.025	20	0.15	2785	485
	10	7	70	0.030	25	0.15	2230	470
	12	7	70	0.035	30	0.15	1855	455
	16	7	70	0.045	40	0.25	1395	440
	20	7	70	0.055	50	0.25	1115	430

Cylindrical end mills Multicut XF

Finishing, medium length version

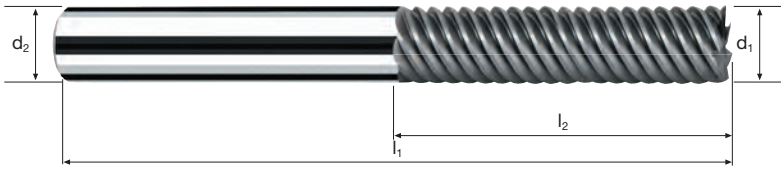
HSS | Favora® | Base-X | X-Generation X

HM XA

λ 65°
γ 8°

45°

h5



Roughing

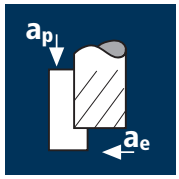
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	GG(G) Tool Steel Aluminium

Example: **Order-N°.** Coating **P** Article-N°. **15251** ø-Code **.300**

ø Code	d1 e8	d2 h5	l1	l2	45°	z	POLYCHROM P15251
.300	6	6	63	19	0.15	5	●
.391	8	8	72	28	0.15	7	●
.450	10	10	84	34	0.20	7	●
.501	12	12	97	40	0.20	7	●
.610	16	16	108	48	0.20	7	●
.682	20	20	122	56	0.20	7	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Hardened tool steel 48 -52 HRC	6	6	120	0.016	15	0.15	6365	610
	8	6	120	0.022	20	0.15	4775	630
	10	6	120	0.028	25	0.15	3820	640
	12	6	120	0.032	30	0.15	3185	610
	16	6	120	0.044	40	0.25	2385	630
	20	8	120	0.054	50	0.25	1910	825
Hardened tool steel 52 - 56 HRC	6	6	100	0.016	15	0.15	5305	510
	8	6	100	0.022	20	0.15	3980	525
	10	6	100	0.028	25	0.15	3185	535
	12	6	100	0.032	30	0.15	2655	510
	16	6	100	0.044	40	0.25	1990	525
	20	8	100	0.054	50	0.25	1590	685
Hardened tool steel 56 - 60 HRC	6	6	80	0.016	15	0.15	4245	410
	8	6	80	0.022	20	0.15	3185	420
	10	6	80	0.028	25	0.15	2545	430
	12	6	80	0.032	30	0.15	2120	405
	16	6	80	0.044	40	0.25	1590	420
	20	8	80	0.054	50	0.25	1275	550
Hardened tool steel > 60 HRC	6	6	50	0.016	15	0.15	2655	255
	8	6	50	0.020	20	0.15	1990	240
	10	6	50	0.026	25	0.15	1590	250
	12	6	50	0.030	30	0.15	1325	240
	16	6	50	0.040	40	0.25	995	240
	20	8	50	0.050	50	0.25	795	320

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
High speed steel, hardened	6	6	40	0.016	15	0.15	2120	205
	8	6	40	0.020	20	0.15	1590	190
	10	6	40	0.026	25	0.15	1275	200
	12	6	40	0.030	30	0.15	1060	190
	16	6	40	0.040	40	0.25	795	190
	20	8	40	0.050	50	0.25	635	255
Cast iron (lamellar / spheroidal)	6	6	180	0.016	15	0.15	9550	915
	8	6	180	0.022	20	0.15	7160	945
	10	6	180	0.028	25	0.15	5730	965
	12	6	180	0.032	30	0.15	4775	915
	16	6	180	0.044	40	0.25	3580	945
	20	8	180	0.054	50	0.25	2865	1240

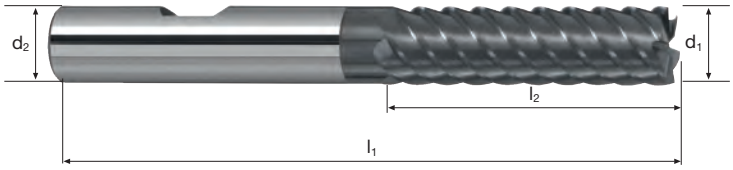
Cylindrical end mills Multicut HX-H

Finishing, medium length version

HSS | Favora® | Base-X | X-Generation X

HM XA | **λ 55° γ-10°**

45°



Roughing

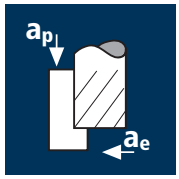
Finishing

HRC 48-56 | **HRC 56-60** | **HRC > 60** | **HSS GG(G)**

Example: **Order-N°.** Coating **D** Article-N°. **15366** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	DURO-S D15366	DURO-S D15266
.300	6	6	63	19	0.15	6		●
.391	8	8	72	28	0.15	6		●
.450	10	10	84	34	0.20	6		●
.501	12	12	97	40	0.20	6		●
.610	16	16	108	48	0.20	6		●
.682	20	20	122	56	0.20	8		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	6	6	120	0.015	15	0.15	6365	575
	8	6	120	0.025	20	0.15	4775	715
	10	6	120	0.030	25	0.15	3820	690
	12	6	120	0.035	30	0.15	3185	670
	16	8	120	0.045	40	0.25	2385	860
	20	10	120	0.055	50	0.25	1910	1050
Steel 1100 - 1300 N/mm²	6	6	100	0.015	15	0.15	5305	475
	8	6	100	0.025	20	0.15	3980	595
	10	6	100	0.030	25	0.15	3185	575
	12	6	100	0.035	30	0.15	2655	560
	16	8	100	0.045	40	0.25	1990	715
	20	10	100	0.055	50	0.25	1590	875
Steel 1300 - 1500 N/mm²	6	6	60	0.016	15	0.15	3185	305
	8	6	60	0.020	20	0.15	2385	285
	10	6	60	0.026	25	0.15	1910	300
	12	6	60	0.030	30	0.15	1590	285
	16	8	60	0.040	40	0.25	1195	380
	20	10	60	0.050	50	0.25	955	480
Cast iron (lamellar / spheroidal)	6	6	120	0.015	15	0.15	6365	575
	8	6	120	0.025	20	0.15	4775	715
	10	6	120	0.030	25	0.15	3820	690
	12	6	120	0.035	30	0.15	3185	670
	16	8	120	0.045	40	0.25	2385	860
	20	10	120	0.055	50	0.25	1910	1050

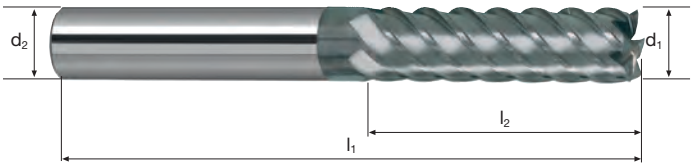
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Titanium alloys >300 HB [Ti6Al4V]	6	6	50	0.015	15	0.15	2655	240
	8	6	50	0.025	20	0.15	1990	300
	10	6	50	0.030	25	0.15	1590	285
	12	6	50	0.035	30	0.15	1325	280
	16	8	50	0.045	40	0.25	995	360
	20	10	50	0.055	50	0.25	795	435
Unalloyed copper	6	6	160	0.015	15	0.15	8490	765
	8	6	160	0.025	20	0.15	6365	955
	10	6	160	0.030	25	0.15	5095	915
	12	6	160	0.035	30	0.15	4245	890
	16	8	160	0.045	40	0.25	3185	1145
	20	10	160	0.055	50	0.25	2545	1400

Cylindrical end mills Multicut N

Finishing, medium length version

HM MG10 | λ **45°** γ **8°**

45°



Roughing

Finishing

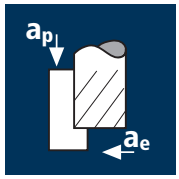
	Rm 850-1100	**Rm** 1100-1300	**Rm** 1300-1500					**Ti** Titanium	**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5265** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z		POLYCHROM P5265
.300	6	6	63	19	0.15	6		●
.391	8	8	72	28	0.15	6		●
.450	10	10	84	34	0.20	6		●
.501	12	12	97	40	0.20	6		●
.610	16	16	108	48	0.20	8		●
.682	20	20	122	56	0.20	10		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	6	6	100	0.016	15	0.15	5305	510
	8	6	100	0.020	20	0.15	3980	480
	10	6	100	0.026	25	0.15	3185	495
	12	6	100	0.030	30	0.15	2655	480
	16	6	100	0.040	40	0.25	1990	480
	20	6	100	0.050	50	0.25	1590	475
Steel 1100 - 1300 N/mm²	6	6	80	0.016	15	0.15	4245	410
	8	6	80	0.020	20	0.15	3185	380
	10	6	80	0.026	25	0.15	2545	395
	12	6	80	0.030	30	0.15	2120	380
	16	6	80	0.040	40	0.25	1590	380
	20	6	80	0.050	50	0.25	1275	385
Cast iron (lamellar / spheroidal)	6	6	100	0.016	15	0.15	5305	510
	8	6	100	0.020	20	0.15	3980	480
	10	6	100	0.026	25	0.15	3185	495
	12	6	100	0.030	30	0.15	2655	480
	16	6	100	0.040	40	0.25	1990	480
	20	6	100	0.050	50	0.25	1590	475
Titanium alloys >300 HB [Ti6Al4V]	6	6	40	0.016	15	0.15	2120	205
	8	6	40	0.020	20	0.15	1590	190
	10	6	40	0.026	25	0.15	1275	200
	12	6	40	0.030	30	0.15	1060	190
	16	6	40	0.040	40	0.25	795	190
	20	6	40	0.050	50	0.25	635	190

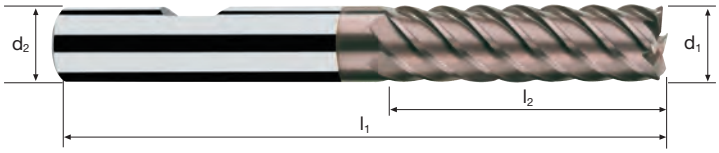
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Unalloyed copper	6	6	150	0.016	15	0.15	7960	765
	8	6	150	0.020	20	0.15	5970	715
	10	6	150	0.026	25	0.15	4775	745
	12	6	150	0.030	30	0.15	3980	715
	16	6	150	0.040	40	0.25	2985	715
	20	6	150	0.050	50	0.25	2385	715

Cylindrical end mills

Finishing, medium length version

HSS Favora® F Base-X X-Generation

HM	λ 45° γ 8°
45°	



Roughing

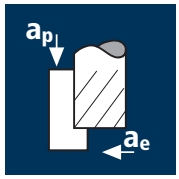
Finishing

	Rm 850-1100	Rm 1100-1300						Ti Titanium	GG(G) Copper

Example: **Order-N°.** Coating **U** Article-N°. **45362** ø-Code **.300**

ø Code	d1 e8	d2 h6	l1	l2	45°	z	UNICUT-4X U45362
.300	6	6	63	19	0.15	6	●
.391	8	8	72	28	0.15	6	●
.450	10	10	84	34	0.20	6	●
.501	12	12	97	40	0.20	6	●
.610	16	16	108	48	0.20	6	●
.682	20	20	122	56	0.20	6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel 850 - 1100 N/mm²	10	6	30	0.026	40	0.15	955	150
	12	6	30	0.030	48	0.15	795	145
	16	8	30	0.040	64	0.25	595	190
	20	10	30	0.050	80	0.25	475	240
	25	12	30	0.062	100	0.25	380	285
Steel 1100 - 1300 N/mm²	10	6	20	0.026	40	0.15	635	100
	12	6	20	0.030	48	0.15	530	95
	16	8	20	0.040	64	0.25	400	130
	20	10	20	0.050	80	0.25	320	160
	25	12	20	0.062	100	0.25	255	190
Cast iron (lamellar / spheroidal)	10	6	30	0.026	40	0.15	955	150
	12	6	30	0.030	48	0.15	795	145
	16	8	30	0.040	64	0.25	595	190
	20	10	30	0.050	80	0.25	475	240
	25	12	30	0.062	100	0.25	380	285
Titanium alloys >300 HB [Ti6Al4V]	10	6	20	0.026	40	0.15	635	100
	12	6	20	0.030	48	0.15	530	95
	16	8	20	0.040	64	0.25	400	130
	20	10	20	0.050	80	0.25	320	160
	25	12	20	0.062	100	0.25	255	190

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Unalloyed copper	10	6	30	0.026	40	0.15	955	150
	12	6	30	0.030	48	0.15	795	145
	16	8	30	0.040	64	0.25	595	190
	20	10	30	0.050	80	0.25	475	240
	25	12	30	0.062	100	0.25	380	285

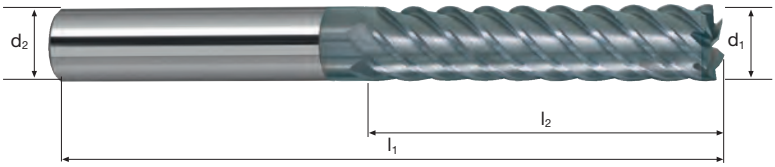
Cylindrical end mills Multicut N

Finishing, long version

HM
MG10

λ **45°**
γ **8°**

45°



Roughing

Finishing

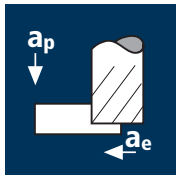
	Rm 850-1100	**Rm** 1100-1300						**Ti** Titanium	**GG(G) Copper**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5268** ø-Code **.450**

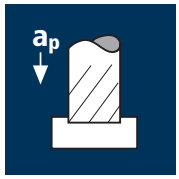
ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z		POLYCHROM **P5268**
.450	10	10	100	45	0.20	6		●
.501	12	12	110	53	0.20	6		●
.610	16	16	123	63	0.20	8		●
.615	16	16	135	80	0.20	8		●
.682	20	20	141	75	0.20	10		●
.685	20	20	166	100	0.20	10		●
.688	20	20	191	125	0.20	10		●
.772	25	25	255	175	0.25	12		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.025	0.06	0.20	44565	2230	27.0
	1.2	2	140	0.030	0.07	0.24	37135	2230	37.5
	1.5	2	140	0.040	0.09	0.30	29710	2375	64.0
	2.0	2	140	0.050	0.12	0.40	22280	2230	107.0
	2.5	2	140	0.065	0.15	0.50	17825	2315	173.5
	3.0	2	140	0.075	0.18	0.60	14855	2230	241.0
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.06	0.20	38200	1835	22.0
	1.2	2	120	0.028	0.07	0.24	31830	1780	30.0
	1.5	2	120	0.038	0.09	0.30	25465	1935	52.0
	2.0	2	120	0.048	0.12	0.40	19100	1835	88.0
	2.5	2	120	0.062	0.15	0.50	15280	1895	142.0
	3.0	2	120	0.072	0.18	0.60	12735	1835	198.0
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.06	0.20	31830	1400	17.0
	1.2	2	100	0.026	0.07	0.24	26525	1380	23.0
	1.5	2	100	0.036	0.09	0.30	21220	1530	41.5
	2.0	2	100	0.044	0.12	0.40	15915	1400	67.0
	2.5	2	100	0.058	0.15	0.50	12735	1475	110.5
	3.0	2	100	0.066	0.18	0.60	10610	1400	151.0
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.06	0.20	19100	765	9.0
	1.2	2	60	0.024	0.07	0.24	15915	765	13.0
	1.5	2	60	0.032	0.09	0.30	12735	815	22.0
	2.0	2	60	0.040	0.12	0.40	9550	765	36.5
	2.5	2	60	0.052	0.15	0.50	7640	795	59.5
	3.0	2	60	0.060	0.18	0.60	6365	765	82.5

Application



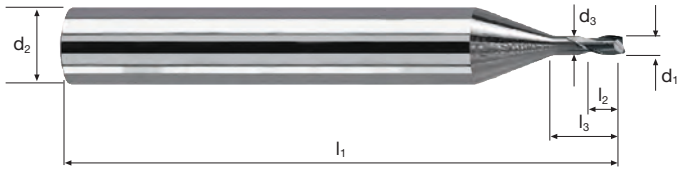
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	120	0.020	0.10	1.0	38200	1530	153.0
	1.2	2	120	0.025	0.12	1.2	31830	1590	229.0
	1.5	2	120	0.035	0.15	1.5	25465	1785	401.5
	2.0	2	120	0.045	0.20	2.0	19100	1720	688.0
	2.5	2	120	0.055	0.25	2.5	15280	1680	1050.0
	3.0	2	120	0.065	0.30	3.0	12735	1655	1489.5
Hardened tool steel 48 - 52 HRC	1.0	2	100	0.020	0.10	1.0	31830	1275	127.5
	1.2	2	100	0.024	0.12	1.2	26525	1275	183.5
	1.5	2	100	0.034	0.15	1.5	21220	1445	325.0
	2.0	2	100	0.042	0.20	2.0	15915	1335	534.0
	2.5	2	100	0.052	0.25	2.5	12735	1325	828.0
	3.0	2	100	0.062	0.30	3.0	10610	1315	1183.5
Hardened tool steel 52 - 56 HRC	1.0	2	80	0.018	0.10	1.0	25465	915	91.5
	1.2	2	80	0.022	0.12	1.2	21220	935	134.5
	1.5	2	80	0.030	0.15	1.5	16975	1020	229.5
	2.0	2	80	0.040	0.20	2.0	12735	1020	408.0
	2.5	2	80	0.048	0.25	2.5	10185	980	612.5
	3.0	2	80	0.058	0.30	3.0	8490	985	886.5
Hardened tool steel 56 - 60 HRC	1.0	2	40	0.016	0.10	1.0	12735	410	41.0
	1.2	2	40	0.020	0.12	1.2	10610	425	61.0
	1.5	2	40	0.028	0.15	1.5	8490	475	107.0
	2.0	2	40	0.036	0.20	2.0	6365	460	184.0
	2.5	2	40	0.044	0.25	2.5	5095	450	281.5
	3.0	2	40	0.052	0.30	3.0	4245	440	396.0

Cylindrical end mills MicroX

Shank Ø 6mm, cylindrical neck, 3xd

HM XA | **λ 25° γ-10°**

45°



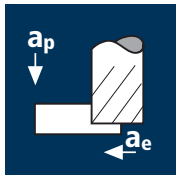
new!

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60	**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Copper**

Example: **Order-N°.** Coating **X** Article-N°. **6502** ø-Code **.100**

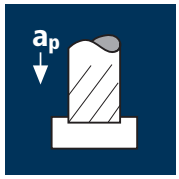
ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	45°	α	z	X-AL	X6502
.100	1.0	6	0.95	57	1.0	3.0	0.07	11.5°	2		●
.108	1.2	6	1.10	57	1.2	3.6	0.07	11.0°	2		●
.120	1.5	6	1.40	57	1.5	4.5	0.07	10.0°	2		●
.140	2.0	6	1.90	57	2.0	6.0	0.10	8.5°	2		●
.160	2.5	6	2.30	57	2.5	7.5	0.10	7.5°	2		●
.180	3.0	6	2.80	57	3.0	9.0	0.10	6.0°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.025	0.06	0.20	44565	2230	27.0
	1.2	2	140	0.030	0.07	0.24	37135	2230	37.5
	1.5	2	140	0.040	0.08	0.30	29710	2375	57.0
	2.0	2	140	0.050	0.11	0.40	22280	2230	98.0
	2.5	2	140	0.065	0.14	0.50	17825	2315	162.0
	3.0	2	140	0.075	0.17	0.60	14855	2230	227.5
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.06	0.20	38200	1835	22.0
	1.2	2	120	0.028	0.07	0.24	31830	1780	30.0
	1.5	2	120	0.038	0.08	0.30	25465	1935	46.5
	2.0	2	120	0.048	0.11	0.40	19100	1835	80.5
	2.5	2	120	0.062	0.14	0.50	15280	1895	132.5
	3.0	2	120	0.072	0.17	0.60	12735	1835	187.0
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.06	0.20	31830	1400	17.0
	1.2	2	100	0.026	0.07	0.24	26525	1380	23.0
	1.5	2	100	0.036	0.08	0.30	21220	1530	36.5
	2.0	2	100	0.044	0.11	0.40	15915	1400	61.5
	2.5	2	100	0.058	0.14	0.50	12735	1475	103.5
	3.0	2	100	0.066	0.17	0.60	10610	1400	143.0
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.06	0.20	19100	765	9.0
	1.2	2	60	0.024	0.07	0.24	15915	765	13.0
	1.5	2	60	0.032	0.08	0.30	12735	815	19.5
	2.0	2	60	0.040	0.11	0.40	9550	765	33.5
	2.5	2	60	0.052	0.14	0.50	7640	795	55.5
	3.0	2	60	0.060	0.17	0.60	6365	765	78.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	120	0.020	0.08	1.0	38200	1530	122.5
	1.2	2	120	0.025	0.10	1.2	31830	1590	191.0
	1.5	2	120	0.035	0.12	1.5	25465	1785	321.5
	2.0	2	120	0.045	0.16	2.0	19100	1720	550.5
	2.5	2	120	0.055	0.20	2.5	15280	1680	840.0
	3.0	2	120	0.065	0.24	3.0	12735	1655	1191.5
Hardened tool steel 48 - 52 HRC	1.0	2	100	0.020	0.08	1.0	31830	1275	102.0
	1.2	2	100	0.024	0.10	1.2	26525	1275	153.0
	1.5	2	100	0.034	0.12	1.5	21220	1445	260.0
	2.0	2	100	0.042	0.16	2.0	15915	1335	427.0
	2.5	2	100	0.052	0.20	2.5	12735	1325	662.5
	3.0	2	100	0.062	0.24	3.0	10610	1315	947.0
Hardened tool steel 52 - 56 HRC	1.0	2	80	0.018	0.08	1.0	25465	915	73.0
	1.2	2	80	0.022	0.10	1.2	21220	935	112.0
	1.5	2	80	0.030	0.12	1.5	16975	1020	183.5
	2.0	2	80	0.040	0.16	2.0	12735	1020	326.5
	2.5	2	80	0.048	0.20	2.5	10185	980	490.0
	3.0	2	80	0.058	0.24	3.0	8490	985	709.0
Hardened tool steel 56 - 60 HRC	1.0	2	40	0.016	0.08	1.0	12735	410	33.0
	1.2	2	40	0.020	0.10	1.2	10610	425	51.0
	1.5	2	40	0.028	0.12	1.5	8490	475	85.5
	2.0	2	40	0.036	0.16	2.0	6365	460	147.0
	2.5	2	40	0.044	0.20	2.5	5095	450	225.0
	3.0	2	40	0.052	0.24	3.0	4245	440	317.0

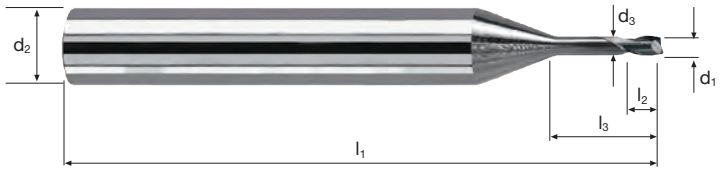
Cylindrical end mills MicroX

Shank Ø 6mm, cylindrical neck, 5xd

HM XA

λ 25° γ-10°

45°

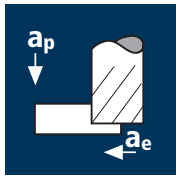


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** Article-N°. **6504** ø-Code **.100**

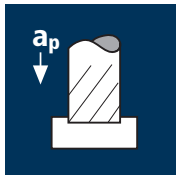
ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	45°	α	z	X-AL	X6504
.100	1.0	6	0.95	57	1.0	5.0	0.07	10.0°	2		●
.108	1.2	6	1.10	57	1.2	6.0	0.07	9.5°	2		●
.120	1.5	6	1.40	61	1.5	7.5	0.07	8.5°	2		●
.140	2.0	6	1.90	61	2.0	10.0	0.10	7.0°	2		●
.160	2.5	6	2.30	61	2.5	12.5	0.10	5.5°	2		●
.180	3.0	6	2.80	66	3.0	15.0	0.10	4.5°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.025	0.05	0.18	44565	2230	20.0
	1.2	2	140	0.030	0.05	0.22	37135	2230	24.5
	1.5	2	140	0.040	0.07	0.27	29710	2375	45.0
	2.0	2	140	0.050	0.09	0.36	22280	2230	72.5
	2.5	2	140	0.065	0.11	0.45	17825	2315	114.5
	3.0	2	140	0.075	0.14	0.54	14855	2230	168.5
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.05	0.18	38200	1835	16.5
	1.2	2	120	0.028	0.05	0.22	31830	1780	19.5
	1.5	2	120	0.038	0.07	0.27	25465	1935	36.5
	2.0	2	120	0.048	0.09	0.36	19100	1835	59.5
	2.5	2	120	0.062	0.11	0.45	15280	1895	94.0
	3.0	2	120	0.072	0.14	0.54	12735	1835	138.5
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.05	0.18	31830	1400	12.5
	1.2	2	100	0.026	0.05	0.22	26525	1380	15.0
	1.5	2	100	0.036	0.07	0.27	21220	1530	29.0
	2.0	2	100	0.044	0.09	0.36	15915	1400	45.5
	2.5	2	100	0.058	0.11	0.45	12735	1475	73.0
	3.0	2	100	0.066	0.14	0.54	10610	1400	106.0
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.05	0.18	19100	765	7.0
	1.2	2	60	0.024	0.05	0.22	15915	765	8.5
	1.5	2	60	0.032	0.07	0.27	12735	815	15.5
	2.0	2	60	0.040	0.09	0.36	9550	765	25.0
	2.5	2	60	0.052	0.11	0.45	7640	795	39.5
	3.0	2	60	0.060	0.14	0.54	6365	765	58.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	1.0	2	120	0.020	0.05	1.0	38200	1530	76.5
	1.2	2	120	0.025	0.06	1.2	31830	1590	114.5
	1.5	2	120	0.035	0.08	1.5	25465	1785	214.0
	2.0	2	120	0.045	0.10	2.0	19100	1720	344.0
	2.5	2	120	0.055	0.13	2.5	15280	1680	546.0
	3.0	2	120	0.065	0.15	3.0	12735	1655	744.5
Hardened tool steel 48 - 52 HRC	1.0	2	100	0.020	0.05	1.0	31830	1275	64.0
	1.2	2	100	0.024	0.06	1.2	26525	1275	92.0
	1.5	2	100	0.034	0.08	1.5	21220	1445	173.5
	2.0	2	100	0.042	0.10	2.0	15915	1335	267.0
	2.5	2	100	0.052	0.13	2.5	12735	1325	430.5
	3.0	2	100	0.062	0.15	3.0	10610	1315	591.5
Hardened tool steel 52 - 56 HRC	1.0	2	80	0.018	0.05	1.0	25465	915	46.0
	1.2	2	80	0.022	0.06	1.2	21220	935	67.5
	1.5	2	80	0.030	0.08	1.5	16975	1020	122.5
	2.0	2	80	0.040	0.10	2.0	12735	1020	204.0
	2.5	2	80	0.048	0.13	2.5	10185	980	318.5
	3.0	2	80	0.058	0.15	3.0	8490	985	443.0
Hardened tool steel 56 - 60 HRC	1.0	2	40	0.016	0.05	1.0	12735	410	20.5
	1.2	2	40	0.020	0.06	1.2	10610	425	30.5
	1.5	2	40	0.028	0.08	1.5	8490	475	57.0
	2.0	2	40	0.036	0.10	2.0	6365	460	92.0
	2.5	2	40	0.044	0.13	2.5	5095	450	146.5
	3.0	2	40	0.052	0.15	3.0	4245	440	198.0

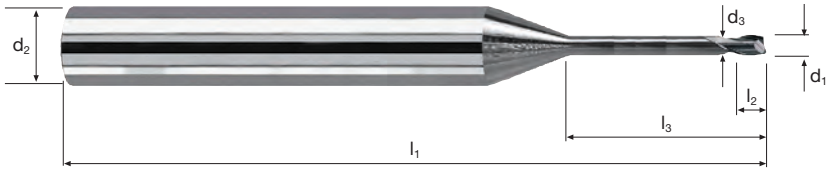
Cylindrical end mills MicroX

Shank Ø 6mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation X

HM XA | **λ 25° γ-10°**

45°

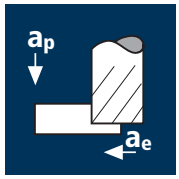


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6506** | ø-Code **.100**

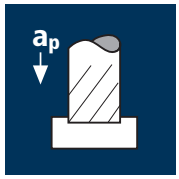
ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	45°	α	z	X-AL X6506
.100	1.0	6	0.95	61	1.0	8.0	0.07	8.5°	2	●
.108	1.2	6	1.10	61	1.2	9.6	0.07	7.5°	2	●
.120	1.5	6	1.40	61	1.5	12.0	0.07	6.5°	2	●
.140	2.0	6	1.90	66	2.0	16.0	0.10	5.0°	2	●
.160	2.5	6	2.30	69	2.5	20.0	0.10	4.0°	2	●
.180	3.0	6	2.80	75	3.0	24.0	0.10	3.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.2	2	140	0.005	0.01	0.04	60000	600	0.0
	0.5	2	140	0.015	0.03	0.10	60000	1800	5.5
	0.8	2	140	0.020	0.05	0.16	55705	2230	18.0
	1.0	2	140	0.025	0.06	0.20	44565	2230	27.0
	1.2	2	140	0.030	0.07	0.24	37135	2230	37.5
	1.5	2	140	0.040	0.09	0.30	29710	2375	64.0
	2.0	2	140	0.050	0.12	0.40	22280	2230	107.0
	2.5	2	140	0.065	0.15	0.50	17825	2315	173.5
	3.0	2	140	0.075	0.18	0.60	14855	2230	241.0
Hardened tool steel 48 - 52 HRC	0.2	2	120	0.004	0.01	0.04	60000	480	0.0
	0.5	2	120	0.014	0.03	0.10	60000	1680	5.0
	0.8	2	120	0.020	0.05	0.16	47750	1910	15.5
	1.0	2	120	0.024	0.06	0.20	38200	1835	22.0
	1.2	2	120	0.028	0.07	0.24	31830	1780	30.0
	1.5	2	120	0.038	0.09	0.30	25465	1935	52.0
	2.0	2	120	0.048	0.12	0.40	19100	1835	88.0
	2.5	2	120	0.062	0.15	0.50	15280	1895	142.0
	3.0	2	120	0.072	0.18	0.60	12735	1835	198.0
Hardened tool steel 52 - 56 HRC	0.2	2	100	0.004	0.01	0.04	60000	480	0.0
	0.5	2	100	0.014	0.03	0.10	60000	1680	5.0
	0.8	2	100	0.018	0.05	0.16	39790	1430	11.5
	1.0	2	100	0.022	0.06	0.20	31830	1400	17.0
	1.2	2	100	0.026	0.07	0.24	26525	1380	23.0
	1.5	2	100	0.036	0.09	0.30	21220	1530	41.5
	2.0	2	100	0.044	0.12	0.40	15915	1400	67.0
	2.5	2	100	0.058	0.15	0.50	12735	1475	110.5
	3.0	2	100	0.066	0.18	0.60	10610	1400	151.0
Hardened tool steel 56 - 60 HRC	0.2	2	60	0.004	0.01	0.04	60000	480	0.0
	0.5	2	60	0.012	0.03	0.10	38200	915	2.5
	0.8	2	60	0.016	0.05	0.16	23875	765	6.0
	1.0	2	60	0.020	0.06	0.20	19100	765	9.0
	1.2	2	60	0.024	0.07	0.24	15915	765	13.0
	1.5	2	60	0.032	0.09	0.30	12735	815	22.0
	2.0	2	60	0.040	0.12	0.40	9550	765	36.5
	2.5	2	60	0.052	0.15	0.50	7640	795	59.5
	3.0	2	60	0.060	0.18	0.60	6365	765	82.5

Application



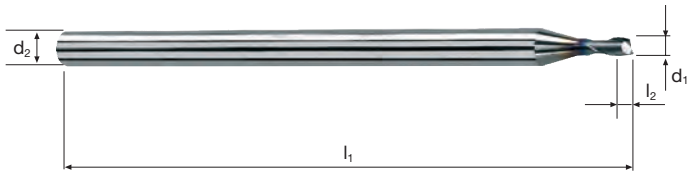
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.2	2	120	0.005	0.02	0.2	60000	600	2.5
	0.5	2	120	0.010	0.06	0.5	60000	1200	36.0
	0.8	2	120	0.020	0.09	0.8	47750	1910	137.5
	1.0	2	120	0.020	0.11	1.0	38200	1530	168.5
	1.2	2	120	0.025	0.13	1.2	31830	1590	248.0
	1.5	2	120	0.035	0.17	1.5	25465	1785	455.0
	2.0	2	120	0.045	0.22	2.0	19100	1720	757.0
	2.5	2	120	0.055	0.28	2.5	15280	1680	1176.0
	3.0	2	120	0.065	0.33	3.0	12735	1655	1638.5
Hardened tool steel 48 - 52 HRC	0.2	2	100	0.004	0.02	0.2	60000	480	2.0
	0.5	2	100	0.010	0.06	0.5	60000	1200	36.0
	0.8	2	100	0.020	0.09	0.8	39790	1590	114.5
	1.0	2	100	0.020	0.11	1.0	31830	1275	140.5
	1.2	2	100	0.024	0.13	1.2	26525	1275	199.0
	1.5	2	100	0.034	0.17	1.5	21220	1445	368.5
	2.0	2	100	0.042	0.22	2.0	15915	1335	587.5
	2.5	2	100	0.052	0.28	2.5	12735	1325	927.5
	3.0	2	100	0.062	0.33	3.0	10610	1315	1302.0
Hardened tool steel 52 - 56 HRC	0.2	2	80	0.004	0.02	0.2	60000	480	2.0
	0.5	2	80	0.008	0.06	0.5	50930	815	24.5
	0.8	2	80	0.018	0.09	0.8	31830	1145	82.5
	1.0	2	80	0.018	0.11	1.0	25465	915	100.5
	1.2	2	80	0.022	0.13	1.2	21220	935	146.0
	1.5	2	80	0.030	0.17	1.5	16975	1020	260.0
	2.0	2	80	0.040	0.22	2.0	12735	1020	449.0
	2.5	2	80	0.048	0.28	2.5	10185	980	686.0
	3.0	2	80	0.058	0.33	3.0	8490	985	975.0
Hardened tool steel 56 - 60 HRC	0.2	2	40	0.004	0.02	0.2	60000	480	2.0
	0.5	2	40	0.008	0.06	0.5	25465	405	12.0
	0.8	2	40	0.016	0.09	0.8	15915	510	36.5
	1.0	2	40	0.016	0.11	1.0	12735	410	45.0
	1.2	2	40	0.020	0.13	1.2	10610	425	66.5
	1.5	2	40	0.028	0.17	1.5	8490	475	121.0
	2.0	2	40	0.036	0.22	2.0	6365	460	202.5
	2.5	2	40	0.044	0.28	2.5	5095	450	315.0
	3.0	2	40	0.052	0.33	3.0	4245	440	435.5

Cylindrical end mills Microcut-C1H

Shank Ø 3mm, 1xd

HM XA | **λ 25° γ-10°**

45°

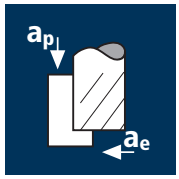


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **15711** ø-Code **.020**

ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	45°	α	z	DURO-S D15711
.020	0.2	3	40	0.24	-	14.5°	2	●
.030	0.3	3	40	0.36	-	14.0°	2	●
.040	0.4	3	40	0.48	-	14.0°	2	●
.050	0.5	3	40	0.60	-	13.5°	2	●
.060	0.6	3	40	0.72	-	13.0°	2	●
.080	0.8	3	40	0.96	-	12.5°	2	●
.100	1.0	3	50	1.20	0.07	11.5°	2	●
.108	1.2	3	50	1.40	0.07	10.5°	2	●
.120	1.5	3	50	1.80	0.07	9.5°	2	●
.140	2.0	3	50	2.40	0.10	7.0°	2	●
.160	2.5	3	50	3.00	0.10	4.0°	2	●
.180	3.0	3	50	3.60	0.10	0.0°	2	●

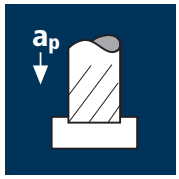
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
0.2	2	180	0.002	0.20	0.04	60000	240	2.0
0.4	2	180	0.004	0.40	0.08	60000	480	15.5
0.6	2	180	0.008	0.60	0.12	60000	960	69.0
0.8	2	180	0.010	0.80	0.16	60000	1200	153.5
1.0	2	180	0.012	1.00	0.20	57295	1375	275.0
1.2	2	180	0.014	1.20	0.24	47750	1335	384.5
1.5	2	180	0.018	1.50	0.30	38200	1375	618.5
1.8	2	180	0.022	1.80	0.36	31830	1400	907.0
2.0	2	180	0.024	2.00	0.40	28650	1375	1100.0
Short-chipping brass CuZn								
0.2	2	190	0.002	0.20	0.04	60000	240	2.0
0.4	2	190	0.004	0.40	0.08	60000	480	15.5
0.6	2	190	0.008	0.60	0.12	60000	960	69.0
0.8	2	190	0.012	0.80	0.16	60000	1440	184.5
1.0	2	190	0.014	1.00	0.20	60000	1680	336.0
1.2	2	190	0.016	1.20	0.24	50400	1615	465.0
1.5	2	190	0.020	1.50	0.30	40320	1615	726.5
1.8	2	190	0.024	1.80	0.36	33600	1615	1046.5
2.0	2	190	0.026	2.00	0.40	30240	1570	1256.0
Stainless steel [Cr-Ni/1.4301]								
0.2	2	70	0.002	0.20	0.04	60000	240	2.0
0.4	2	70	0.004	0.40	0.08	55705	445	14.0
0.6	2	70	0.006	0.60	0.12	37135	445	32.0
0.8	2	70	0.008	0.80	0.16	27855	445	57.0
1.0	2	70	0.010	1.00	0.20	22280	445	89.0
1.2	2	70	0.012	1.20	0.24	18570	445	128.0
1.5	2	70	0.014	1.50	0.30	14855	415	186.5
1.8	2	70	0.018	1.80	0.36	12380	445	288.5
2.0	2	70	0.020	2.00	0.40	11140	445	356.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.2	2	50	0.002	0.20	0.04	60000	240	2.0
0.4	2	50	0.002	0.40	0.08	39790	160	5.0
0.6	2	50	0.006	0.60	0.12	26525	320	23.0
0.8	2	50	0.008	0.80	0.16	19895	320	41.0
1.0	2	50	0.008	1.00	0.20	15915	255	51.0
1.2	2	50	0.010	1.20	0.24	13265	265	76.5
1.5	2	50	0.012	1.50	0.30	10610	255	114.5
1.8	2	50	0.016	1.80	0.36	8840	285	184.5
2.0	2	50	0.016	2.00	0.40	7960	255	204.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
0.2	2	160	0.002	0.04	0.2	60000	240	2.0
0.4	2	160	0.004	0.08	0.4	60000	480	15.5
0.6	2	160	0.006	0.12	0.6	60000	720	52.0
0.8	2	160	0.008	0.16	0.8	60000	960	123.0
1.0	2	160	0.012	0.20	1.0	50930	1220	244.0
1.2	2	160	0.014	0.24	1.2	42445	1190	342.5
1.5	2	160	0.016	0.30	1.5	33955	1085	488.0
1.8	2	160	0.020	0.36	1.8	28295	1130	732.0
2.0	2	160	0.022	0.40	2.0	25465	1120	896.0
Short-chipping brass CuZn								
0.2	2	170	0.002	0.04	0.2	60000	240	2.0
0.4	2	170	0.004	0.08	0.4	60000	480	15.5
0.6	2	170	0.006	0.12	0.6	60000	720	52.0
0.8	2	170	0.008	0.16	0.8	60000	960	123.0
1.0	2	170	0.012	0.20	1.0	54115	1300	260.0
1.2	2	170	0.014	0.24	1.2	45095	1265	364.5
1.5	2	170	0.016	0.30	1.5	36075	1155	520.0
1.8	2	170	0.022	0.36	1.8	30065	1325	858.5
2.0	2	170	0.024	0.40	2.0	27055	1300	1040.0
Stainless steel [Cr-Ni/1.4301]								
0.2	2	60	0.002	0.04	0.2	60000	240	2.0
0.4	2	60	0.004	0.08	0.4	47750	380	12.0
0.6	2	60	0.006	0.12	0.6	31830	380	27.5
0.8	2	60	0.008	0.16	0.8	23875	380	48.5
1.0	2	60	0.010	0.20	1.0	19100	380	76.0
1.2	2	60	0.012	0.24	1.2	15915	380	109.5
1.5	2	60	0.014	0.30	1.5	12735	355	159.5
1.8	2	60	0.018	0.36	1.8	10610	380	246.0
2.0	2	60	0.020	0.40	2.0	9550	380	304.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.2	2	40	0.002	0.04	0.2	60000	240	2.0
0.4	2	40	0.004	0.08	0.4	31830	255	8.0
0.6	2	40	0.004	0.12	0.6	21220	170	12.0
0.8	2	40	0.006	0.16	0.8	15915	190	24.5
1.0	2	40	0.010	0.20	1.0	12735	255	51.0
1.2	2	40	0.012	0.24	1.2	10610	255	73.5
1.5	2	40	0.012	0.30	1.5	8490	205	92.0
1.8	2	40	0.016	0.36	1.8	7075	225	146.0
2.0	2	40	0.018	0.40	2.0	6365	230	184.0

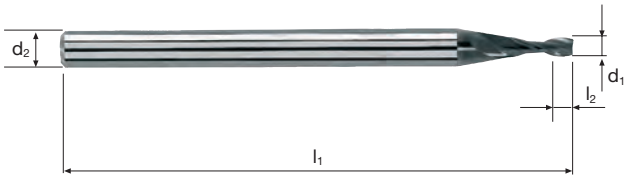
Cylindrical end mills Micro C1.5

Shank ø 3mm, 1.5xd

HSS Favora® F Base-X X-Generation

HM | λ **30°** γ **8°**

90°

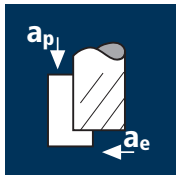


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **CuZn Brass Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **45709** ø-Code **.010**

ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	α	z	MICRO 45709	MICRO M45709
.010	0.10	3	40	0.15	14.5°	2	●	●
.015	0.15	3	40	0.23	14.5°	2	●	●
.020	0.20	3	40	0.30	14.5°	2	●	●
.025	0.25	3	40	0.38	14.0°	2	●	●
.030	0.30	3	40	0.45	14.0°	2	●	●
.040	0.40	3	40	0.60	13.5°	2	●	●
.050	0.50	3	40	0.75	13.0°	2	●	●
.060	0.60	3	40	0.90	12.5°	2	●	●
.070	0.70	3	40	1.05	12.5°	2	●	●
.080	0.80	3	40	1.20	12.0°	2	●	●
.090	0.90	3	40	1.35	11.5°	2	●	●
.100	1.00	3	40	1.50	11.0°	2	●	●
.104	1.10	3	40	1.65	10.5°	2	●	●
.108	1.20	3	40	1.80	10.0°	2	●	●
.112	1.30	3	40	1.95	9.5°	2	●	●
.116	1.40	3	40	2.10	9.0°	2	●	●
.120	1.50	3	40	2.25	8.5°	2	●	●
.123	1.60	3	40	2.40	8.0°	2	●	●
.126	1.70	3	40	2.55	7.5°	2	●	●
.130	1.80	3	40	2.70	7.0°	2	●	●
.135	1.90	3	40	2.85	6.5°	2	●	●
.140	2.00	3	40	3.00	6.0°	2	●	●

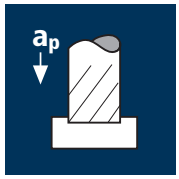
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
2.1	2	180	0.024	2.10	0.42	27285	1310	1155.5
2.2	2	180	0.026	2.20	0.44	26045	1355	1311.5
2.3	2	180	0.028	2.30	0.46	24910	1395	1476.0
2.4	2	180	0.028	2.40	0.48	23875	1335	1538.0
2.5	2	180	0.030	2.50	0.50	22920	1375	1719.0
3.0	2	180	0.036	3.00	0.60	19100	1375	2475.0
Short-chipping brass CuZn								
2.1	2	190	0.026	2.10	0.42	28800	1500	1323.0
2.2	2	190	0.028	2.20	0.44	27490	1540	1490.5
2.3	2	190	0.030	2.30	0.46	26295	1580	1671.5
2.4	2	190	0.030	2.40	0.48	25200	1510	1739.5
2.5	2	190	0.034	2.50	0.50	24190	1645	2056.5
3.0	2	190	0.040	3.00	0.60	20160	1615	2907.0
Stainless steel [Cr-Ni/1.4301]								
2.1	2	70	0.020	2.10	0.42	10610	425	375.0
2.2	2	70	0.020	2.20	0.44	10130	405	392.0
2.3	2	70	0.022	2.30	0.46	9690	425	449.5
2.4	2	70	0.022	2.40	0.48	9285	410	472.5
2.5	2	70	0.024	2.50	0.50	8915	430	537.5
3.0	2	70	0.028	3.00	0.60	7425	415	747.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
2.1	2	50	0.016	2.10	0.42	7580	245	216.0
2.2	2	50	0.018	2.20	0.44	7235	260	251.5
2.3	2	50	0.020	2.30	0.46	6920	275	291.0
2.4	2	50	0.020	2.40	0.48	6630	265	305.5
2.5	2	50	0.022	2.50	0.50	6365	280	350.0
3.0	2	50	0.026	3.00	0.60	5305	275	495.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
2.1	2	160	0.024	0.42	2.1	24255	1165	1027.5
2.2	2	160	0.024	0.44	2.2	23150	1110	1074.5
2.3	2	160	0.026	0.46	2.3	22145	1150	1216.5
2.4	2	160	0.026	0.48	2.4	21220	1105	1273.0
2.5	2	160	0.028	0.50	2.5	20370	1140	1425.0
3.0	2	160	0.034	0.60	3.0	16975	1155	2079.0
Short-chipping brass CuZn								
2.1	2	170	0.026	0.42	2.1	25770	1340	1182.0
2.2	2	170	0.026	0.44	2.2	24595	1280	1239.0
2.3	2	170	0.028	0.46	2.3	23530	1320	1396.5
2.4	2	170	0.028	0.48	2.4	22550	1265	1457.5
2.5	2	170	0.030	0.50	2.5	21645	1300	1625.0
3.0	2	170	0.036	0.60	3.0	18040	1300	2340.0
Stainless steel [Cr-Ni/1.4301]								
2.1	2	60	0.022	0.42	2.1	9095	400	353.0
2.2	2	60	0.022	0.44	2.2	8680	380	368.0
2.3	2	60	0.022	0.46	2.3	8305	365	386.0
2.4	2	60	0.022	0.48	2.4	7960	350	403.0
2.5	2	60	0.024	0.50	2.5	7640	365	456.5
3.0	2	60	0.030	0.60	3.0	6365	380	684.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
2.1	2	40	0.020	0.42	2.1	6065	245	216.0
2.2	2	40	0.020	0.44	2.2	5790	230	222.5
2.3	2	40	0.020	0.46	2.3	5535	220	233.0
2.4	2	40	0.020	0.48	2.4	5305	210	242.0
2.5	2	40	0.022	0.50	2.5	5095	225	281.5
3.0	2	40	0.028	0.60	3.0	4245	240	432.0

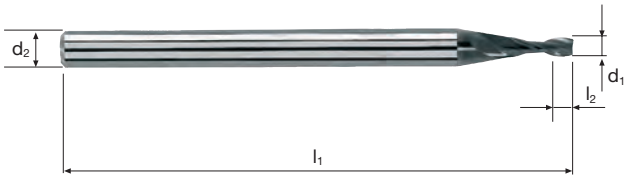
Cylindrical end mills Micro C1.5

Shank ø 3mm, 1.5xd

HSS Favora® F Base-X X-Generation

HM | λ **30°** γ **8°**

90°

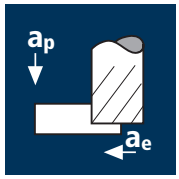


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**CuZn Brass Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **45709** ø-Code **.143**

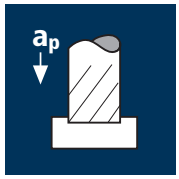
ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	α	z	45709	MICRO M45709
.143	2.10	3	40	3.15	5.5°	2	●	●
.146	2.20	3	40	3.30	5.0°	2	●	●
.150	2.30	3	40	3.45	4.5°	2	●	●
.155	2.40	3	40	3.60	4.0°	2	●	●
.160	2.50	3	40	3.75	3.0°	2	●	●
.165	2.60	3	45	3.90	2.5°	2	●	●
.170	2.70	3	45	4.05	2.0°	2	●	●
.172	2.80	3	45	4.20	1.5°	2	●	●
.176	2.90	3	45	4.35	1.0°	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.2	2	180	0.004	0.16	0.03	60000	480	2.5
	0.5	2	180	0.012	0.40	0.08	60000	1440	46.0
	0.8	2	180	0.018	0.64	0.12	60000	2160	166.0
	1.0	2	180	0.022	0.80	0.15	57295	2520	302.5
	1.2	2	180	0.026	0.96	0.18	47750	2485	429.5
	1.5	2	180	0.034	1.20	0.23	38200	2600	717.5
	2.0	2	180	0.044	1.60	0.30	28650	2520	1209.5
	2.5	2	180	0.056	2.00	0.38	22920	2565	1949.5
	3.0	2	180	0.066	2.40	0.45	19100	2520	2721.5
Steel 1100 - 1300 N/mm²	0.2	2	160	0.004	0.16	0.03	60000	480	2.5
	0.5	2	160	0.010	0.40	0.08	60000	1200	38.5
	0.8	2	160	0.016	0.64	0.12	60000	1920	147.5
	1.0	2	160	0.020	0.80	0.15	50930	2035	244.0
	1.2	2	160	0.024	0.96	0.18	42445	2035	351.5
	1.5	2	160	0.030	1.20	0.23	33955	2035	561.5
	2.0	2	160	0.040	1.60	0.30	25465	2035	977.0
	2.5	2	160	0.050	2.00	0.38	20370	2035	1546.5
	3.0	2	160	0.060	2.40	0.45	16975	2035	2198.0
Stainless steel [Cr-Ni/1.4301]	0.2	2	80	0.004	0.16	0.03	60000	480	2.5
	0.5	2	80	0.010	0.40	0.08	50930	1020	32.5
	0.8	2	80	0.014	0.64	0.12	31830	890	68.5
	1.0	2	80	0.018	0.80	0.15	25465	915	110.0
	1.2	2	80	0.020	0.96	0.18	21220	850	147.0
	1.5	2	80	0.028	1.20	0.23	16975	950	262.0
	2.0	2	80	0.036	1.60	0.30	12735	915	439.0
	2.5	2	80	0.044	2.00	0.38	10185	895	680.0
	3.0	2	80	0.052	2.40	0.45	8490	885	956.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.2	2	60	0.002	0.16	0.03	60000	240	1.0
	0.5	2	60	0.008	0.40	0.08	38200	610	19.5
	0.8	2	60	0.012	0.64	0.12	23875	575	44.0
	1.0	2	60	0.016	0.80	0.15	19100	610	73.0
	1.2	2	60	0.018	0.96	0.18	15915	575	99.5
	1.5	2	60	0.024	1.20	0.23	12735	610	168.5
	2.0	2	60	0.030	1.60	0.30	9550	575	276.0
	2.5	2	60	0.040	2.00	0.38	7640	610	463.5
	3.0	2	60	0.046	2.40	0.45	6365	585	632.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.2	2	160	0.004	0.02	0.2	60000	480	2.0
	0.5	2	160	0.010	0.06	0.5	60000	1200	36.0
	0.8	2	160	0.014	0.10	0.8	60000	1680	134.5
	1.0	2	160	0.018	0.12	1.0	50930	1835	220.0
	1.2	2	160	0.022	0.14	1.2	42445	1870	314.0
	1.5	2	160	0.028	0.18	1.5	33955	1900	513.0
	2.0	2	160	0.036	0.24	2.0	25465	1835	881.0
	2.5	2	160	0.046	0.30	2.5	20370	1875	1406.5
	3.0	2	160	0.054	0.36	3.0	16975	1835	1982.0
Steel 1100 - 1300 N/mm²	0.2	2	140	0.004	0.02	0.2	60000	480	2.0
	0.5	2	140	0.010	0.06	0.5	60000	1200	36.0
	0.8	2	140	0.014	0.10	0.8	55705	1560	125.0
	1.0	2	140	0.018	0.12	1.0	44565	1605	192.5
	1.2	2	140	0.020	0.14	1.2	37135	1485	249.5
	1.5	2	140	0.026	0.18	1.5	29710	1545	417.0
	2.0	2	140	0.034	0.24	2.0	22280	1515	727.0
	2.5	2	140	0.044	0.30	2.5	17825	1570	1177.5
	3.0	2	140	0.052	0.36	3.0	14855	1545	1668.5
Stainless steel [Cr-Ni/1.4301]	0.2	2	70	0.004	0.02	0.2	60000	480	2.0
	0.5	2	70	0.008	0.06	0.5	44565	715	21.5
	0.8	2	70	0.012	0.10	0.8	27855	670	53.5
	1.0	2	70	0.016	0.12	1.0	22280	715	86.0
	1.2	2	70	0.020	0.14	1.2	18570	745	125.0
	1.5	2	70	0.024	0.18	1.5	14855	715	193.0
	2.0	2	70	0.032	0.24	2.0	11140	715	343.0
	2.5	2	70	0.040	0.30	2.5	8915	715	536.5
	3.0	2	70	0.048	0.36	3.0	7425	715	772.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.2	2	50	0.004	0.02	0.2	60000	480	2.0
	0.5	2	50	0.008	0.06	0.5	31830	510	15.5
	0.8	2	50	0.012	0.10	0.8	19895	475	38.0
	1.0	2	50	0.014	0.12	1.0	15915	445	53.5
	1.2	2	50	0.018	0.14	1.2	13265	480	80.5
	1.5	2	50	0.022	0.18	1.5	10610	465	125.5
	2.0	2	50	0.028	0.24	2.0	7960	445	213.5
	2.5	2	50	0.036	0.30	2.5	6365	460	345.0
	3.0	2	50	0.044	0.36	3.0	5305	465	502.0

Cylindrical end mills Microcut-C3

Shank Ø 3mm, cylindrical neck, 3xd

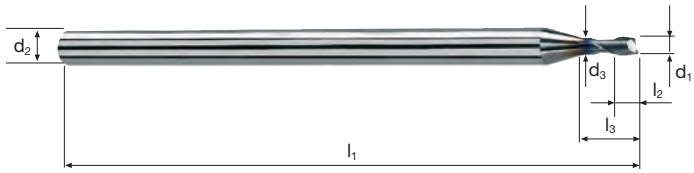
HSS | Favora® | Base-X | **B** | X-Generation

I

HM Micro

λ 25°
γ 6°

45°

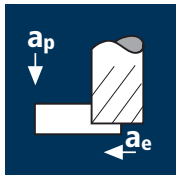


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5712** ø-Code **.020**

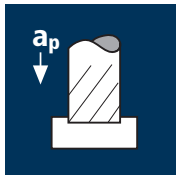
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO M5712
.020	0.2	3	0.18	40	0.24	0.6	-	9.5°	2	●
.030	0.3	3	0.25	40	0.36	0.9	-	9.0°	2	●
.040	0.4	3	0.35	40	0.48	1.2	-	9.0°	2	●
.050	0.5	3	0.45	40	0.60	1.5	-	11.5°	2	●
.060	0.6	3	0.55	40	0.72	1.8	-	11.0°	2	●
.080	0.8	3	0.75	40	0.96	2.4	-	10.0°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.07	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.07	7.5°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.07	6.0°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.10	4.0°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.10	2.0°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.015	0.03	0.10	60000	1800	5.5
	0.6	2	140	0.015	0.03	0.12	60000	1800	6.5
	0.8	2	140	0.020	0.04	0.16	55705	2230	14.5
	1.0	2	140	0.025	0.06	0.20	44565	2230	27.0
	1.2	2	140	0.030	0.07	0.24	37135	2230	37.5
	1.5	2	140	0.040	0.08	0.30	29710	2375	57.0
	2.0	2	140	0.050	0.11	0.40	22280	2230	98.0
	2.5	2	140	0.065	0.14	0.50	17825	2315	162.0
	3.0	2	140	0.075	0.17	0.60	14855	2230	227.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.014	0.03	0.10	60000	1680	5.0
	0.6	2	120	0.014	0.03	0.12	60000	1680	6.0
	0.8	2	120	0.020	0.04	0.16	47750	1910	12.0
	1.0	2	120	0.024	0.06	0.20	38200	1835	22.0
	1.2	2	120	0.028	0.07	0.24	31830	1780	30.0
	1.5	2	120	0.038	0.08	0.30	25465	1935	46.5
	2.0	2	120	0.048	0.11	0.40	19100	1835	80.5
	2.5	2	120	0.062	0.14	0.50	15280	1895	132.5
	3.0	2	120	0.072	0.17	0.60	12735	1835	187.0
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	60000	1680	5.0
	0.6	2	100	0.014	0.03	0.12	53055	1485	5.5
	0.8	2	100	0.018	0.04	0.16	39790	1430	9.0
	1.0	2	100	0.022	0.06	0.20	31830	1400	17.0
	1.2	2	100	0.026	0.07	0.24	26525	1380	23.0
	1.5	2	100	0.036	0.08	0.30	21220	1530	36.5
	2.0	2	100	0.044	0.11	0.40	15915	1400	61.5
	2.5	2	100	0.058	0.14	0.50	12735	1475	103.5
	3.0	2	100	0.066	0.17	0.60	10610	1400	143.0
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	38200	915	2.5
	0.6	2	60	0.012	0.03	0.12	31830	765	3.0
	0.8	2	60	0.016	0.04	0.16	23875	765	5.0
	1.0	2	60	0.020	0.06	0.20	19100	765	9.0
	1.2	2	60	0.024	0.07	0.24	15915	765	13.0
	1.5	2	60	0.032	0.08	0.30	12735	815	19.5
	2.0	2	60	0.040	0.11	0.40	9550	765	33.5
	2.5	2	60	0.052	0.14	0.50	7640	795	55.5
	3.0	2	60	0.060	0.17	0.60	6365	765	78.0

Application



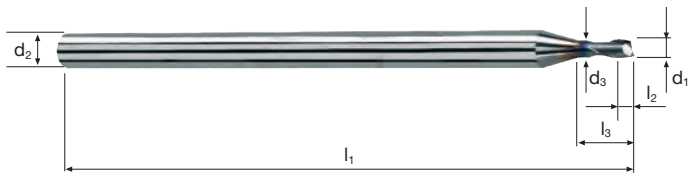
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	120	0.010	0.05	0.5	60000	1200	30.0
	0.6	2	120	0.015	0.05	0.6	60000	1800	54.0
	0.8	2	120	0.020	0.07	0.8	47750	1910	107.0
	1.0	2	120	0.020	0.09	1.0	38200	1530	137.5
	1.2	2	120	0.025	0.11	1.2	31830	1590	210.0
	1.5	2	120	0.035	0.14	1.5	25465	1785	375.0
	2.0	2	120	0.045	0.18	2.0	19100	1720	619.0
	2.5	2	120	0.055	0.23	2.5	15280	1680	966.0
	3.0	2	120	0.065	0.27	3.0	12735	1655	1340.5
Hardened tool steel 48 - 52 HRC	0.5	2	100	0.010	0.05	0.5	60000	1200	30.0
	0.6	2	100	0.014	0.05	0.6	53055	1485	44.5
	0.8	2	100	0.020	0.07	0.8	39790	1590	89.0
	1.0	2	100	0.020	0.09	1.0	31830	1275	115.0
	1.2	2	100	0.024	0.11	1.2	26525	1275	168.5
	1.5	2	100	0.034	0.14	1.5	21220	1445	303.5
	2.0	2	100	0.042	0.18	2.0	15915	1335	480.5
	2.5	2	100	0.052	0.23	2.5	12735	1325	762.0
	3.0	2	100	0.062	0.27	3.0	10610	1315	1065.0
Hardened tool steel 52 - 56 HRC	0.5	2	80	0.008	0.05	0.5	50930	815	20.5
	0.6	2	80	0.014	0.05	0.6	42445	1190	35.5
	0.8	2	80	0.018	0.07	0.8	31830	1145	64.0
	1.0	2	80	0.018	0.09	1.0	25465	915	82.5
	1.2	2	80	0.022	0.11	1.2	21220	935	123.5
	1.5	2	80	0.030	0.14	1.5	16975	1020	214.0
	2.0	2	80	0.040	0.18	2.0	12735	1020	367.0
	2.5	2	80	0.048	0.23	2.5	10185	980	563.5
	3.0	2	80	0.058	0.27	3.0	8490	985	798.0
Hardened tool steel 56 - 60 HRC	0.5	2	40	0.008	0.05	0.5	25465	405	10.0
	0.6	2	40	0.012	0.05	0.6	21220	510	15.5
	0.8	2	40	0.016	0.07	0.8	15915	510	28.5
	1.0	2	40	0.016	0.09	1.0	12735	410	37.0
	1.2	2	40	0.020	0.11	1.2	10610	425	56.0
	1.5	2	40	0.028	0.14	1.5	8490	475	100.0
	2.0	2	40	0.036	0.18	2.0	6365	460	165.5
	2.5	2	40	0.044	0.23	2.5	5095	450	259.0
	3.0	2	40	0.052	0.27	3.0	4245	440	356.5

Cylindrical end mills Microcut-C3H

Shank Ø 3mm, cylindrical neck, 3xd

HM XA | **λ 25° γ-10°**

45°

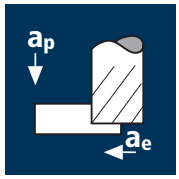


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5722** ø-Code **.050**

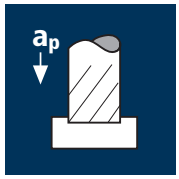
ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	DURO-S D5722
.050	0.5	3	0.45	40	0.60	1.5	-	11.5°	2	●
.060	0.6	3	0.55	40	0.72	1.8	-	11.0°	2	●
.080	0.8	3	0.75	40	0.96	2.4	-	10.0°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.07	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.07	7.5°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.07	6.0°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.10	4.0°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.10	2.0°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²	0.3	2	180	0.006	0.24	0.05	60000	720	8.5
	0.5	2	180	0.010	0.40	0.08	60000	1200	38.5
	0.6	2	180	0.010	0.48	0.09	60000	1200	52.0
	0.8	2	180	0.014	0.64	0.12	60000	1680	129.0
	1.0	2	180	0.018	0.80	0.15	57295	2065	248.0
	1.2	2	180	0.022	0.96	0.18	47750	2100	363.0
	1.5	2	180	0.028	1.20	0.23	38200	2140	590.5
	1.8	2	180	0.032	1.44	0.27	31830	2035	791.0
	2.0	2	180	0.036	1.60	0.30	28650	2065	991.0
Steel 850 - 1100 N/mm²	0.3	2	160	0.006	0.24	0.05	60000	720	8.5
	0.5	2	160	0.010	0.40	0.08	60000	1200	38.5
	0.6	2	160	0.010	0.48	0.09	60000	1200	52.0
	0.8	2	160	0.012	0.64	0.12	60000	1440	110.5
	1.0	2	160	0.016	0.80	0.15	50930	1630	195.5
	1.2	2	160	0.020	0.96	0.18	42445	1700	294.0
	1.5	2	160	0.026	1.20	0.23	33955	1765	487.0
	1.8	2	160	0.028	1.44	0.27	28295	1585	616.0
	2.0	2	160	0.032	1.60	0.30	25465	1630	782.5
Stainless steel [Cr-Ni/1.4301]	0.3	2	70	0.004	0.24	0.05	60000	480	6.0
	0.5	2	70	0.008	0.40	0.08	44565	715	23.0
	0.6	2	70	0.008	0.48	0.09	37135	595	25.5
	0.8	2	70	0.012	0.64	0.12	27855	670	51.5
	1.0	2	70	0.014	0.80	0.15	22280	625	75.0
	1.2	2	70	0.018	0.96	0.18	18570	670	116.0
	1.5	2	70	0.022	1.20	0.23	14855	655	181.0
	1.8	2	70	0.026	1.44	0.27	12380	645	251.0
	2.0	2	70	0.028	1.60	0.30	11140	625	300.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.3	2	50	0.004	0.24	0.05	53055	425	5.0
	0.5	2	50	0.008	0.40	0.08	31830	510	16.5
	0.6	2	50	0.008	0.48	0.09	26525	425	18.5
	0.8	2	50	0.010	0.64	0.12	19895	400	30.5
	1.0	2	50	0.012	0.80	0.15	15915	380	45.5
	1.2	2	50	0.016	0.96	0.18	13265	425	73.5
	1.5	2	50	0.020	1.20	0.23	10610	425	117.5
	1.8	2	50	0.022	1.44	0.27	8840	390	151.5
	2.0	2	50	0.026	1.60	0.30	7960	415	199.0

Application



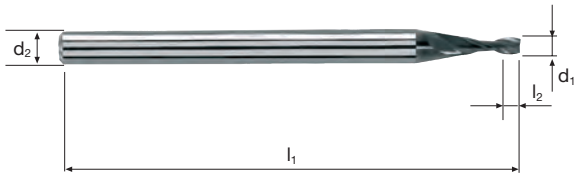
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²	0.3	2	160	0.006	0.04	0.3	60000	720	8.5
	0.5	2	160	0.008	0.06	0.5	60000	960	29.0
	0.6	2	160	0.010	0.07	0.6	60000	1200	50.5
	0.8	2	160	0.014	0.10	0.8	60000	1680	134.5
	1.0	2	160	0.016	0.12	1.0	50930	1630	195.5
	1.2	2	160	0.020	0.14	1.2	42445	1700	285.5
	1.5	2	160	0.026	0.18	1.5	33955	1765	476.5
	1.8	2	160	0.030	0.22	1.8	28295	1700	673.0
	2.0	2	160	0.034	0.24	2.0	25465	1730	830.5
Steel 850 - 1100 N/mm²	0.3	2	140	0.006	0.04	0.3	60000	720	8.5
	0.5	2	140	0.008	0.06	0.5	60000	960	29.0
	0.6	2	140	0.010	0.07	0.6	60000	1200	50.5
	0.8	2	140	0.014	0.10	0.8	55705	1560	125.0
	1.0	2	140	0.016	0.12	1.0	44565	1425	171.0
	1.2	2	140	0.020	0.14	1.2	37135	1485	249.5
	1.5	2	140	0.024	0.18	1.5	29710	1425	385.0
	1.8	2	140	0.028	0.22	1.8	24760	1385	548.5
	2.0	2	140	0.032	0.24	2.0	22280	1425	684.0
Stainless steel [Cr-Ni/1.4301]	0.3	2	60	0.006	0.04	0.3	60000	720	8.5
	0.5	2	60	0.008	0.06	0.5	38200	610	18.5
	0.6	2	60	0.008	0.07	0.6	31830	510	21.5
	0.8	2	60	0.012	0.10	0.8	23875	575	46.0
	1.0	2	60	0.014	0.12	1.0	19100	535	64.0
	1.2	2	60	0.018	0.14	1.2	15915	575	96.5
	1.5	2	60	0.022	0.18	1.5	12735	560	151.0
	1.8	2	60	0.026	0.22	1.8	10610	550	218.0
	2.0	2	60	0.030	0.24	2.0	9550	575	276.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.3	2	40	0.004	0.04	0.3	42445	340	4.0
	0.5	2	40	0.006	0.06	0.5	25465	305	9.0
	0.6	2	40	0.008	0.07	0.6	21220	340	14.5
	0.8	2	40	0.012	0.10	0.8	15915	380	30.5
	1.0	2	40	0.012	0.12	1.0	12735	305	36.5
	1.2	2	40	0.016	0.14	1.2	10610	340	57.0
	1.5	2	40	0.020	0.18	1.5	8490	340	92.0
	1.8	2	40	0.024	0.22	1.8	7075	340	134.5
	2.0	2	40	0.028	0.24	2.0	6365	355	170.5

Cylindrical end mills

Shank Ø 3mm, 3xd

HM | λ **30°** γ **12°**

90°

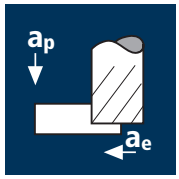


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **Copper Aluminium**

Example: **Order-N°.** Coating **M** Article-N°. **45710** ø-Code **.030**

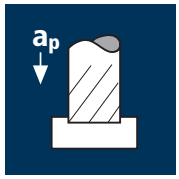
ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	α	z	5710	MICRO M45710
.030	0.3	3	40	1.0	9.0°	2	●	●
.040	0.4	3	40	1.0	9.0°	2	●	●
.050	0.5	3	40	1.5	8.5°	2	●	●
.060	0.6	3	40	1.5	8.5°	2	●	●
.070	0.7	3	40	2.0	8.0°	2	●	●
.080	0.8	3	40	2.0	8.0°	2	●	●
.090	0.9	3	40	2.5	7.5°	2	●	●
.100	1.0	3	40	3.0	7.0°	2	●	●
.104	1.1	3	40	3.0	6.5°	2	●	●
.108	1.2	3	40	4.0	6.0°	2	●	●
.112	1.3	3	40	4.0	5.5°	2	●	●
.116	1.4	3	40	4.0	5.5°	2	●	●
.120	1.5	3	40	4.0	5.5°	2	●	●
.123	1.6	3	40	5.0	4.5°	2	●	●
.126	1.7	3	40	5.0	5.5°	2	●	●
.130	1.8	3	40	5.0	5.5°	2	●	●
.135	1.9	3	40	5.0	5.0°	2	●	●
.140	2.0	3	40	5.0	4.5°	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²	2.1	2	180	0.038	1.68	0.32	27285	2075	1115.5
	2.2	2	180	0.040	1.76	0.33	26045	2085	1211.0
	2.3	2	180	0.042	1.84	0.35	24910	2090	1346.0
	2.4	2	180	0.044	1.92	0.36	23875	2100	1451.5
	2.5	2	180	0.046	2.00	0.38	22920	2110	1603.5
	3.0	2	180	0.054	2.40	0.45	19100	2065	2230.0
Steel 850 - 1100 N/mm²	2.1	2	160	0.034	1.68	0.32	24255	1650	887.0
	2.2	2	160	0.036	1.76	0.33	23150	1665	967.0
	2.3	2	160	0.038	1.84	0.35	22145	1685	1085.0
	2.4	2	160	0.040	1.92	0.36	21220	1700	1175.0
	2.5	2	160	0.042	2.00	0.38	20370	1710	1299.5
	3.0	2	160	0.048	2.40	0.45	16975	1630	1760.5
Stainless steel [Cr-Ni/1.4301]	2.1	2	70	0.030	1.68	0.32	10610	635	341.5
	2.2	2	70	0.032	1.76	0.33	10130	650	377.5
	2.3	2	70	0.034	1.84	0.35	9690	660	425.0
	2.4	2	70	0.036	1.92	0.36	9285	670	463.0
	2.5	2	70	0.036	2.00	0.38	8915	640	486.5
	3.0	2	70	0.044	2.40	0.45	7425	655	707.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2.1	2	50	0.026	1.68	0.32	7580	395	212.5
	2.2	2	50	0.028	1.76	0.33	7235	405	235.0
	2.3	2	50	0.030	1.84	0.35	6920	415	267.5
	2.4	2	50	0.030	1.92	0.36	6630	400	276.5
	2.5	2	50	0.032	2.00	0.38	6365	405	308.0
	3.0	2	50	0.038	2.40	0.45	5305	405	437.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²	2.1	2	160	0.036	0.25	2.1	24255	1745	916.0
	2.2	2	160	0.036	0.26	2.2	23150	1665	952.5
	2.3	2	160	0.038	0.28	2.3	22145	1685	1085.0
	2.4	2	160	0.040	0.29	2.4	21220	1700	1183.0
	2.5	2	160	0.042	0.30	2.5	20370	1710	1282.5
	3.0	2	160	0.050	0.36	3.0	16975	1700	1836.0
Steel 850 - 1100 N/mm²	2.1	2	140	0.034	0.25	2.1	21220	1445	758.5
	2.2	2	140	0.034	0.26	2.2	20255	1375	786.5
	2.3	2	140	0.036	0.28	2.3	19375	1395	898.5
	2.4	2	140	0.038	0.29	2.4	18570	1410	981.5
	2.5	2	140	0.040	0.30	2.5	17825	1425	1069.0
	3.0	2	140	0.048	0.36	3.0	14855	1425	1539.0
Stainless steel [Cr-Ni/1.4301]	2.1	2	60	0.032	0.25	2.1	9095	580	304.5
	2.2	2	60	0.032	0.26	2.2	8680	555	317.5
	2.3	2	60	0.034	0.28	2.3	8305	565	364.0
	2.4	2	60	0.036	0.29	2.4	7960	575	400.0
	2.5	2	60	0.036	0.30	2.5	7640	550	412.5
	3.0	2	60	0.044	0.36	3.0	6365	560	605.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2.1	2	40	0.028	0.25	2.1	6065	340	178.5
	2.2	2	40	0.028	0.26	2.2	5790	325	186.0
	2.3	2	40	0.030	0.28	2.3	5535	330	212.5
	2.4	2	40	0.032	0.29	2.4	5305	340	236.5
	2.5	2	40	0.034	0.30	2.5	5095	345	259.0
	3.0	2	40	0.040	0.36	3.0	4245	340	367.0

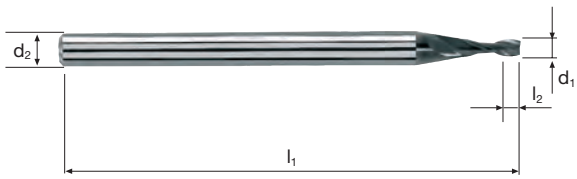
Cylindrical end mills

Shank Ø 3mm, 3xd

HM

λ **30°**
γ **12°**

90°

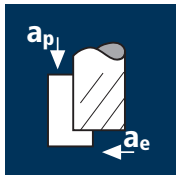


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**Copper Aluminium**

Example: **Order-N°.** Coating **M** Article-N°. **45710** ø-Code **.143**

ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	α	z		MICRO
							5710	**M45710**
.143	2.1	3	40	6.0	4.0°	2	●	●
.146	2.2	3	40	6.0	3.5°	2	●	●
.150	2.3	3	40	6.0	3.0°	2	●	●
.155	2.4	3	40	6.0	2.5°	2	●	●
.160	2.5	3	40	7.0	2.0°	2	●	●
.180	3.0	4	44	10.0	2.5°	2	●	●

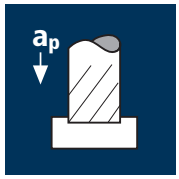
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
0.4	3	180	0.004	0.48	0.04	60000	720	14.0
0.6	3	180	0.008	0.72	0.06	60000	1440	62.0
0.8	3	180	0.010	0.96	0.08	60000	1800	138.0
1.0	3	180	0.012	1.20	0.10	57295	2065	248.0
1.2	3	180	0.014	1.44	0.12	47750	2005	346.5
1.4	3	180	0.016	1.68	0.14	40925	1965	462.0
1.6	3	180	0.018	1.92	0.16	35810	1935	594.5
1.8	3	180	0.022	2.16	0.18	31830	2100	816.5
2.0	3	180	0.024	2.40	0.20	28650	2065	991.0
Short-chipping brass CuZn								
0.4	3	190	0.004	0.48	0.04	60000	720	14.0
0.6	3	190	0.008	0.72	0.06	60000	1440	62.0
0.8	3	190	0.012	0.96	0.08	60000	2160	166.0
1.0	3	190	0.014	1.20	0.10	60000	2520	302.5
1.2	3	190	0.016	1.44	0.12	50400	2420	418.0
1.4	3	190	0.018	1.68	0.14	43200	2335	549.0
1.6	3	190	0.020	1.92	0.16	37800	2270	697.5
1.8	3	190	0.024	2.16	0.18	33600	2420	941.0
2.0	3	190	0.026	2.40	0.20	30240	2360	1133.0
Stainless steel [Cr-Ni/1.4301]								
0.4	3	70	0.004	0.48	0.04	55705	670	13.0
0.6	3	70	0.006	0.72	0.06	37135	670	29.0
0.8	3	70	0.008	0.96	0.08	27855	670	51.5
1.0	3	70	0.010	1.20	0.10	22280	670	80.5
1.2	3	70	0.012	1.44	0.12	18570	670	116.0
1.4	3	70	0.012	1.68	0.14	15915	575	135.0
1.6	3	70	0.014	1.92	0.16	13925	585	179.5
1.8	3	70	0.018	2.16	0.18	12380	670	260.5
2.0	3	70	0.020	2.40	0.20	11140	670	321.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.4	3	50	0.002	0.48	0.04	39790	240	4.5
0.6	3	50	0.006	0.72	0.06	26525	475	20.5
0.8	3	50	0.008	0.96	0.08	19895	475	36.5
1.0	3	50	0.008	1.20	0.10	15915	380	45.5
1.2	3	50	0.010	1.44	0.12	13265	400	69.0
1.4	3	50	0.012	1.68	0.14	11370	410	96.5
1.6	3	50	0.012	1.92	0.16	9945	360	110.5
1.8	3	50	0.016	2.16	0.18	8840	425	165.0
2.0	3	50	0.016	2.40	0.20	7960	380	182.5

Application



Material

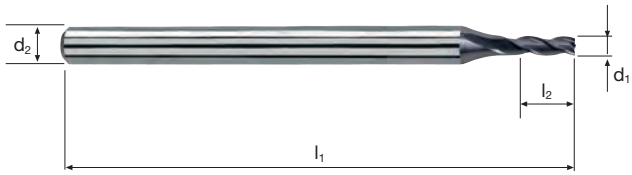
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
0.4	3	160	0.004	0.05	0.4	60000	720	14.5
0.6	3	160	0.006	0.07	0.6	60000	1080	45.5
0.8	3	160	0.008	0.10	0.8	60000	1440	115.0
1.0	3	160	0.012	0.12	1.0	50930	1835	220.0
1.2	3	160	0.014	0.14	1.2	42445	1785	300.0
1.4	3	160	0.016	0.17	1.4	36380	1745	415.5
1.6	3	160	0.018	0.19	1.6	31830	1720	523.0
1.8	3	160	0.020	0.22	1.8	28295	1700	673.0
2.0	3	160	0.022	0.24	2.0	25465	1680	806.5
Short-chipping brass CuZn								
0.4	3	170	0.004	0.05	0.4	60000	720	14.5
0.6	3	170	0.006	0.07	0.6	60000	1080	45.5
0.8	3	170	0.008	0.10	0.8	60000	1440	115.0
1.0	3	170	0.012	0.12	1.0	54115	1950	234.0
1.2	3	170	0.014	0.14	1.2	45095	1895	318.5
1.4	3	170	0.016	0.17	1.4	38655	1855	441.5
1.6	3	170	0.018	0.19	1.6	33820	1825	555.0
1.8	3	170	0.022	0.22	1.8	30065	1985	786.0
2.0	3	170	0.024	0.24	2.0	27055	1950	936.0
Stainless steel [Cr-Ni/1.4301]								
0.4	3	60	0.004	0.05	0.4	47750	575	11.5
0.6	3	60	0.006	0.07	0.6	31830	575	24.0
0.8	3	60	0.008	0.10	0.8	23875	575	46.0
1.0	3	60	0.010	0.12	1.0	19100	575	69.0
1.2	3	60	0.012	0.14	1.2	15915	575	96.5
1.4	3	60	0.014	0.17	1.4	13640	575	137.0
1.6	3	60	0.016	0.19	1.6	11935	575	175.0
1.8	3	60	0.018	0.22	1.8	10610	575	227.5
2.0	3	60	0.020	0.24	2.0	9550	575	276.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.4	3	40	0.004	0.05	0.4	31830	380	7.5
0.6	3	40	0.004	0.07	0.6	21220	255	10.5
0.8	3	40	0.006	0.10	0.8	15915	285	23.0
1.0	3	40	0.010	0.12	1.0	12735	380	45.5
1.2	3	40	0.012	0.14	1.2	10610	380	64.0
1.4	3	40	0.012	0.17	1.4	9095	325	77.5
1.6	3	40	0.014	0.19	1.6	7960	335	102.0
1.8	3	40	0.016	0.22	1.8	7075	340	134.5
2.0	3	40	0.018	0.24	2.0	6365	345	165.5

Cylindrical end mills Micro C3

Shank ø 3mm, 3xd

HM | λ **30°** γ **8°**

90°

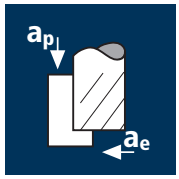


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **CuZn Brass Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **45713** ø-Code **.040**

ø Code	d1 ±0.01	d2 h6	l1	l2	α	z	45713	MICRO M45713
.040	0.40	3	40	1.2	12.5°	3	●	●
.050	0.50	3	40	1.5	11.5°	3	●	●
.060	0.60	3	40	1.8	11.0°	3	●	●
.070	0.70	3	40	2.1	10.5°	3	●	●
.080	0.80	3	40	2.4	10.0°	3	●	●
.090	0.90	3	40	2.7	9.0°	3	●	●
.100	1.00	3	40	3.0	8.5°	3	●	●
.104	1.10	3	40	3.3	8.0°	3	●	●
.108	1.20	3	40	3.6	7.5°	3	●	●
.112	1.30	3	40	3.9	7.0°	3	●	●
.116	1.40	3	40	4.2	6.5°	3	●	●
.120	1.50	3	40	4.5	6.0°	3	●	●
.123	1.60	3	40	4.8	5.5°	3	●	●
.126	1.70	3	40	5.1	5.0°	3	●	●
.130	1.80	3	40	5.4	4.5°	3	●	●
.135	1.90	3	40	5.7	4.5°	3	●	●
.140	2.00	3	40	6.0	4.0°	3	●	●

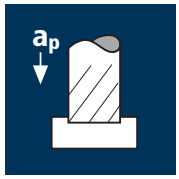
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
2.1	3	180	0.024	2.52	0.21	27285	1965	1040.0
2.2	3	180	0.026	2.64	0.22	26045	2030	1179.0
2.3	3	180	0.028	2.76	0.23	24910	2090	1326.5
2.4	3	180	0.028	2.88	0.24	23875	2005	1386.0
2.5	3	180	0.030	3.00	0.25	22920	2065	1549.0
3.0	3	180	0.036	3.60	0.30	19100	2065	2230.0
Short-chipping brass CuZn								
2.1	3	190	0.026	2.52	0.21	28800	2245	1188.0
2.2	3	190	0.028	2.64	0.22	27490	2310	1341.5
2.3	3	190	0.030	2.76	0.23	26295	2365	1501.5
2.4	3	190	0.030	2.88	0.24	25200	2270	1569.0
2.5	3	190	0.034	3.00	0.25	24190	2465	1849.0
3.0	3	190	0.040	3.60	0.30	20160	2420	2613.5
Stainless steel [Cr-Ni/1.4301]								
2.1	3	70	0.020	2.52	0.21	10610	635	336.0
2.2	3	70	0.020	2.64	0.22	10130	610	354.5
2.3	3	70	0.022	2.76	0.23	9690	640	406.5
2.4	3	70	0.022	2.88	0.24	9285	615	425.0
2.5	3	70	0.024	3.00	0.25	8915	640	480.0
3.0	3	70	0.028	3.60	0.30	7425	625	675.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
2.1	3	50	0.016	2.52	0.21	7580	365	193.0
2.2	3	50	0.018	2.64	0.22	7235	390	226.5
2.3	3	50	0.020	2.76	0.23	6920	415	263.5
2.4	3	50	0.020	2.88	0.24	6630	400	276.5
2.5	3	50	0.022	3.00	0.25	6365	420	315.0
3.0	3	50	0.026	3.60	0.30	5305	415	448.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel < 850 N/mm²								
2.1	3	160	0.024	0.25	2.1	24255	1745	916.0
2.2	3	160	0.024	0.26	2.2	23150	1665	952.5
2.3	3	160	0.026	0.28	2.3	22145	1725	1111.0
2.4	3	160	0.026	0.29	2.4	21220	1655	1152.0
2.5	3	160	0.028	0.30	2.5	20370	1710	1282.5
3.0	3	160	0.034	0.36	3.0	16975	1730	1868.5
Short-chipping brass CuZn								
2.1	3	170	0.026	0.25	2.1	25770	2010	1055.5
2.2	3	170	0.026	0.26	2.2	24595	1920	1098.0
2.3	3	170	0.028	0.28	2.3	23530	1975	1272.0
2.4	3	170	0.028	0.29	2.4	22550	1895	1319.0
2.5	3	170	0.030	0.30	2.5	21645	1950	1462.5
3.0	3	170	0.036	0.36	3.0	18040	1950	2106.0
Stainless steel [Cr-Ni/1.4301]								
2.1	3	60	0.022	0.25	2.1	9095	600	315.0
2.2	3	60	0.022	0.26	2.2	8680	575	329.0
2.3	3	60	0.022	0.28	2.3	8305	550	354.0
2.4	3	60	0.022	0.29	2.4	7960	525	365.5
2.5	3	60	0.024	0.30	2.5	7640	550	412.5
3.0	3	60	0.030	0.36	3.0	6365	575	621.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
2.1	3	40	0.020	0.25	2.1	6065	365	191.5
2.2	3	40	0.020	0.26	2.2	5790	345	197.5
2.3	3	40	0.020	0.28	2.3	5535	330	212.5
2.4	3	40	0.020	0.29	2.4	5305	320	222.5
2.5	3	40	0.022	0.30	2.5	5095	335	251.5
3.0	3	40	0.028	0.36	3.0	4245	355	383.5

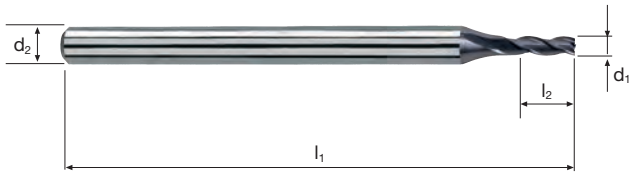
Cylindrical end mills Micro C3

Shank ø 3mm, 3xd

HSS Favora® F Base-X X-Generation

HM | λ **30°** γ **8°**

90°

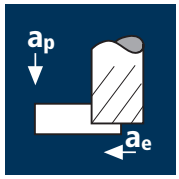


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **CuZn Brass Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **45713** ø-Code **.143**

ø Code	d1 ±0.01	d2 h6	l1	l2	α	z	45713	MICRO M45713
.143	2.10	3	40	6.3	3.5°	3	●	●
.146	2.20	3	40	6.6	3.0°	3	●	●
.150	2.30	3	40	6.9	2.5°	3	●	●
.155	2.40	3	40	7.2	2.5°	3	●	●
.160	2.50	3	40	7.5	2.0°	3	●	●
.165	2.60	3	45	7.8	1.5°	3	●	●
.170	2.70	3	45	8.1	1.0°	3	●	●
.172	2.80	3	45	8.4	1.0°	3	●	●
.176	2.90	3	45	8.7	0.5°	3	●	●

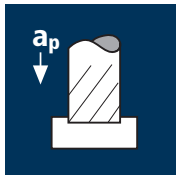
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Stainless steel [Cr-Ni/1.4301]								
0.5	3	80	0.010	0.40	0.08	50930	1530	49.0
0.6	3	80	0.012	0.48	0.09	42445	1530	66.0
0.8	3	80	0.016	0.64	0.12	31830	1530	117.5
1.0	3	80	0.020	0.80	0.15	25465	1530	183.5
1.2	3	80	0.024	0.96	0.18	21220	1530	264.5
1.5	3	80	0.030	1.20	0.23	16975	1530	422.5
2.0	3	80	0.040	1.60	0.30	12735	1530	734.5
2.5	3	80	0.050	2.00	0.38	10185	1530	1163.0
3.0	3	80	0.060	2.40	0.45	8490	1530	1652.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.5	3	50	0.008	0.40	0.08	31830	765	24.5
0.6	3	50	0.010	0.48	0.09	26525	795	34.5
0.8	3	50	0.012	0.64	0.12	19895	715	55.0
1.0	3	50	0.016	0.80	0.15	15915	765	92.0
1.2	3	50	0.020	0.96	0.18	13265	795	137.5
1.5	3	50	0.024	1.20	0.23	10610	765	211.0
2.0	3	50	0.032	1.60	0.30	7960	765	367.0
2.5	3	50	0.040	2.00	0.38	6365	765	581.5
3.0	3	50	0.048	2.40	0.45	5305	765	826.0
Gold								
0.5	3	180	0.012	0.40	0.08	60000	2160	69.0
0.6	3	180	0.014	0.48	0.09	60000	2520	109.0
0.8	3	180	0.020	0.64	0.12	60000	3600	276.5
1.0	3	180	0.024	0.80	0.15	57295	4125	495.0
1.2	3	180	0.028	0.96	0.18	47750	4010	693.0
1.5	3	180	0.036	1.20	0.23	38200	4125	1138.5
2.0	3	180	0.048	1.60	0.30	28650	4125	1980.0
2.5	3	180	0.060	2.00	0.38	22920	4125	3135.0
3.0	3	180	0.072	2.40	0.45	19100	4125	4455.0
Steel 850 - 1300 N/mm²								
0.5	3	120	0.010	0.40	0.08	60000	1800	57.5
0.6	3	120	0.012	0.48	0.09	60000	2160	93.5
0.8	3	120	0.016	0.64	0.12	47750	2290	176.0
1.0	3	120	0.020	0.80	0.15	38200	2290	275.0
1.2	3	120	0.024	0.96	0.18	31830	2290	395.5
1.5	3	120	0.030	1.20	0.23	25465	2290	632.0
2.0	3	120	0.040	1.60	0.30	19100	2290	1099.0
2.5	3	120	0.050	2.00	0.38	15280	2290	1740.5
3.0	3	120	0.060	2.40	0.45	12735	2290	2473.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Stainless steel [Cr-Ni/1.4301]								
0.5	3	60	0.008	0.06	0.5	38200	915	27.5
0.6	3	60	0.008	0.07	0.6	31830	765	32.0
0.8	3	60	0.012	0.10	0.8	23875	860	69.0
1.0	3	60	0.014	0.12	1.0	19100	800	96.0
1.2	3	60	0.018	0.14	1.2	15915	860	144.5
1.5	3	60	0.022	0.18	1.5	12735	840	227.0
2.0	3	60	0.028	0.24	2.0	9550	800	384.0
2.5	3	60	0.036	0.30	2.5	7640	825	619.0
3.0	3	60	0.042	0.36	3.0	6365	800	864.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.5	3	40	0.006	0.06	0.5	25465	460	14.0
0.6	3	40	0.006	0.07	0.6	21220	380	16.0
0.8	3	40	0.010	0.10	0.8	15915	475	38.0
1.0	3	40	0.012	0.12	1.0	12735	460	55.0
1.2	3	40	0.014	0.14	1.2	10610	445	75.0
1.5	3	40	0.018	0.18	1.5	8490	460	124.0
2.0	3	40	0.022	0.24	2.0	6365	420	201.5
2.5	3	40	0.028	0.30	2.5	5095	430	322.5
3.0	3	40	0.034	0.36	3.0	4245	435	470.0
Gold								
0.5	3	160	0.010	0.06	0.5	60000	1800	54.0
0.6	3	160	0.010	0.07	0.6	60000	1800	75.5
0.8	3	160	0.014	0.10	0.8	60000	2520	201.5
1.0	3	160	0.016	0.12	1.0	50930	2445	293.5
1.2	3	160	0.022	0.14	1.2	42445	2800	470.5
1.5	3	160	0.026	0.18	1.5	33955	2650	715.5
2.0	3	160	0.034	0.24	2.0	25465	2595	1245.5
2.5	3	160	0.044	0.30	2.5	20370	2690	2017.5
3.0	3	160	0.050	0.36	3.0	16975	2545	2748.5
Steel 850 - 1300 N/mm²								
0.5	3	100	0.008	0.06	0.5	60000	1440	43.0
0.6	3	100	0.008	0.07	0.6	53055	1275	53.5
0.8	3	100	0.012	0.10	0.8	39790	1430	114.5
1.0	3	100	0.014	0.12	1.0	31830	1335	160.0
1.2	3	100	0.018	0.14	1.2	26525	1430	240.0
1.5	3	100	0.022	0.18	1.5	21220	1400	378.0
2.0	3	100	0.028	0.24	2.0	15915	1335	641.0
2.5	3	100	0.036	0.30	2.5	12735	1375	1031.5
3.0	3	100	0.042	0.36	3.0	10610	1335	1442.0

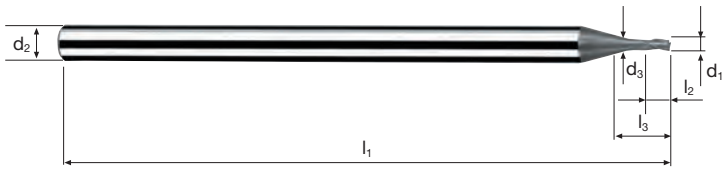
Cylindrical end mills Microcut-C3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

HM XA | **λ 25° γ-10°**

90°

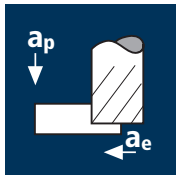


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **15752** ø-Code **.050**

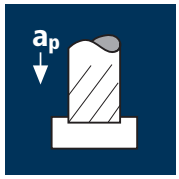
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	α	z	MICRO M15752
.050	0.5	3	0.45	40	0.60	1.5	11.5°	3	●
.060	0.6	3	0.55	40	0.72	1.8	11.0°	3	●
.080	0.8	3	0.75	40	0.96	2.4	10.0°	3	●
.100	1.0	3	0.95	50	1.20	3.0	8.5°	3	●
.108	1.2	3	1.10	50	1.44	3.6	7.5°	3	●
.120	1.5	3	1.40	60	1.80	4.5	6.0°	3	●
.140	2.0	3	1.90	60	2.40	6.0	4.0°	3	●
.160	2.5	3	2.30	60	3.00	7.5	2.0°	3	●
.180	3.0	3	2.80	60	3.60	9.0	0.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.5	2	180	0.012	0.40	0.07	60000	1440	40.5
	0.6	2	180	0.014	0.48	0.08	60000	1680	64.5
	0.8	2	180	0.018	0.64	0.10	60000	2160	138.0
	1.0	2	180	0.022	0.80	0.13	57295	2520	262.0
	1.2	2	180	0.026	0.96	0.16	47750	2485	381.5
	1.5	2	180	0.034	1.20	0.20	38200	2600	624.0
	2.0	2	180	0.044	1.60	0.26	28650	2520	1048.5
	2.5	2	180	0.056	2.00	0.33	22920	2565	1693.0
	3.0	2	180	0.066	2.40	0.39	19100	2520	2358.5
Steel 1100 - 1300 N/mm²	0.5	2	160	0.010	0.40	0.07	60000	1200	33.5
	0.6	2	160	0.012	0.48	0.08	60000	1440	55.5
	0.8	2	160	0.016	0.64	0.10	60000	1920	123.0
	1.0	2	160	0.020	0.80	0.13	50930	2035	211.5
	1.2	2	160	0.024	0.96	0.16	42445	2035	312.5
	1.5	2	160	0.030	1.20	0.20	33955	2035	488.5
	2.0	2	160	0.040	1.60	0.26	25465	2035	846.5
	2.5	2	160	0.050	2.00	0.33	20370	2035	1343.0
	3.0	2	160	0.060	2.40	0.39	16975	2035	1905.0
Stainless steel [Cr-Ni/1.4301]	0.5	2	80	0.010	0.40	0.07	50930	1020	28.5
	0.6	2	80	0.012	0.48	0.08	42445	1020	39.0
	0.8	2	80	0.014	0.64	0.10	31830	890	57.0
	1.0	2	80	0.018	0.80	0.13	25465	915	95.0
	1.2	2	80	0.020	0.96	0.16	21220	850	130.5
	1.5	2	80	0.028	1.20	0.20	16975	950	228.0
	2.0	2	80	0.036	1.60	0.26	12735	915	380.5
	2.5	2	80	0.044	2.00	0.33	10185	895	590.5
	3.0	2	80	0.052	2.40	0.39	8490	885	828.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	60	0.008	0.40	0.07	38200	610	17.0
	0.6	2	60	0.010	0.48	0.08	31830	635	24.5
	0.8	2	60	0.012	0.64	0.10	23875	575	37.0
	1.0	2	60	0.016	0.80	0.13	19100	610	63.5
	1.2	2	60	0.018	0.96	0.16	15915	575	88.5
	1.5	2	60	0.024	1.20	0.20	12735	610	146.5
	2.0	2	60	0.030	1.60	0.26	9550	575	239.0
	2.5	2	60	0.040	2.00	0.33	7640	610	402.5
	3.0	2	60	0.046	2.40	0.39	6365	585	547.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.5	2	160	0.010	0.06	0.5	60000	1200	36.0
	0.6	2	160	0.010	0.07	0.6	60000	1200	50.5
	0.8	2	160	0.014	0.09	0.8	60000	1680	121.0
	1.0	2	160	0.018	0.11	1.0	50930	1835	202.0
	1.2	2	160	0.022	0.13	1.2	42445	1870	291.5
	1.5	2	160	0.028	0.17	1.5	33955	1900	484.5
	2.0	2	160	0.036	0.22	2.0	25465	1835	807.5
	2.5	2	160	0.046	0.28	2.5	20370	1875	1312.5
	3.0	2	160	0.054	0.33	3.0	16975	1835	1816.5
Steel 1100 - 1300 N/mm²	0.5	2	140	0.010	0.06	0.5	60000	1200	36.0
	0.6	2	140	0.010	0.07	0.6	60000	1200	50.5
	0.8	2	140	0.014	0.09	0.8	55705	1560	112.5
	1.0	2	140	0.018	0.11	1.0	44565	1605	176.5
	1.2	2	140	0.020	0.13	1.2	37135	1485	231.5
	1.5	2	140	0.026	0.17	1.5	29710	1545	394.0
	2.0	2	140	0.034	0.22	2.0	22280	1515	666.5
	2.5	2	140	0.044	0.28	2.5	17825	1570	1099.0
	3.0	2	140	0.052	0.33	3.0	14855	1545	1529.5
Stainless steel [Cr-Ni/1.4301]	0.5	2	70	0.008	0.06	0.5	44565	715	21.5
	0.6	2	70	0.008	0.07	0.6	37135	595	25.0
	0.8	2	70	0.012	0.09	0.8	27855	670	48.0
	1.0	2	70	0.016	0.11	1.0	22280	715	78.5
	1.2	2	70	0.020	0.13	1.2	18570	745	116.0
	1.5	2	70	0.024	0.17	1.5	14855	715	182.5
	2.0	2	70	0.032	0.22	2.0	11140	715	314.5
	2.5	2	70	0.040	0.28	2.5	8915	715	500.5
	3.0	2	70	0.048	0.33	3.0	7425	715	708.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	50	0.008	0.06	0.5	31830	510	15.5
	0.6	2	50	0.008	0.07	0.6	26525	425	18.0
	0.8	2	50	0.012	0.09	0.8	19895	475	34.0
	1.0	2	50	0.014	0.11	1.0	15915	445	49.0
	1.2	2	50	0.018	0.13	1.2	13265	480	75.0
	1.5	2	50	0.022	0.17	1.5	10610	465	118.5
	2.0	2	50	0.028	0.22	2.0	7960	445	196.0
	2.5	2	50	0.036	0.28	2.5	6365	460	322.0
	3.0	2	50	0.044	0.33	3.0	5305	465	460.5

Cylindrical end mills Microcut-C5

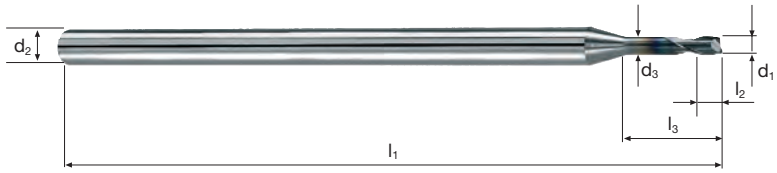
Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

I

HM Micro | λ 25° γ 6°

45°

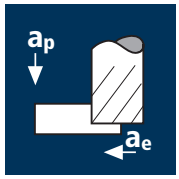


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5714** | ø-Code **.050**

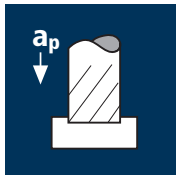
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO M5714
.050	0.5	3	0.45	40	0.60	2.5	-	10.0°	2	●
.060	0.6	3	0.55	40	0.72	3.0	-	9.5°	2	●
.070	0.7	3	0.65	40	0.84	3.5	-	8.5°	2	●
.080	0.8	3	0.75	40	0.96	4.0	-	8.0°	2	●
.090	0.9	3	0.85	40	1.08	4.5	-	7.5°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.07	7.0°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.07	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.07	4.5°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.07	3.5°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.10	2.5°	2	●
.152	2.3	3	2.10	50	2.76	11.5	0.10	2.0°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.10	1.5°	2	●
.172	2.8	3	2.60	50	3.36	14.0	0.10	0.5°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.015	0.03	0.10	60000	1800	5.5
	0.6	2	140	0.015	0.03	0.12	60000	1800	6.5
	0.8	2	140	0.020	0.04	0.16	55705	2230	14.5
	1.0	2	140	0.025	0.05	0.20	44565	2230	22.5
	1.2	2	140	0.030	0.06	0.24	37135	2230	32.0
	1.5	2	140	0.040	0.08	0.30	29710	2375	57.0
	2.0	2	140	0.050	0.10	0.40	22280	2230	89.0
	2.5	2	140	0.065	0.13	0.50	17825	2315	150.5
	3.0	2	140	0.075	0.15	0.60	14855	2230	200.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.014	0.03	0.10	60000	1680	5.0
	0.6	2	120	0.014	0.03	0.12	60000	1680	6.0
	0.8	2	120	0.020	0.04	0.16	47750	1910	12.0
	1.0	2	120	0.024	0.05	0.20	38200	1835	18.5
	1.2	2	120	0.028	0.06	0.24	31830	1780	25.5
	1.5	2	120	0.038	0.08	0.30	25465	1935	46.5
	2.0	2	120	0.048	0.10	0.40	19100	1835	73.5
	2.5	2	120	0.062	0.13	0.50	15280	1895	123.0
	3.0	2	120	0.072	0.15	0.60	12735	1835	165.0
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	60000	1680	5.0
	0.6	2	100	0.014	0.03	0.12	53055	1485	5.5
	0.8	2	100	0.018	0.04	0.16	39790	1430	9.0
	1.0	2	100	0.022	0.05	0.20	31830	1400	14.0
	1.2	2	100	0.026	0.06	0.24	26525	1380	20.0
	1.5	2	100	0.036	0.08	0.30	21220	1530	36.5
	2.0	2	100	0.044	0.10	0.40	15915	1400	56.0
	2.5	2	100	0.058	0.13	0.50	12735	1475	96.0
	3.0	2	100	0.066	0.15	0.60	10610	1400	126.0
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	38200	915	2.5
	0.6	2	60	0.012	0.03	0.12	31830	765	3.0
	0.8	2	60	0.016	0.04	0.16	23875	765	5.0
	1.0	2	60	0.020	0.05	0.20	19100	765	7.5
	1.2	2	60	0.024	0.06	0.24	15915	765	11.0
	1.5	2	60	0.032	0.08	0.30	12735	815	19.5
	2.0	2	60	0.040	0.10	0.40	9550	765	30.5
	2.5	2	60	0.052	0.13	0.50	7640	795	51.5
	3.0	2	60	0.060	0.15	0.60	6365	765	69.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	120	0.010	0.04	0.5	60000	1200	24.0
	0.6	2	120	0.015	0.04	0.6	60000	1800	43.0
	0.8	2	120	0.020	0.06	0.8	47750	1910	91.5
	1.0	2	120	0.020	0.07	1.0	38200	1530	107.0
	1.2	2	120	0.025	0.08	1.2	31830	1590	152.5
	1.5	2	120	0.035	0.11	1.5	25465	1785	294.5
	2.0	2	120	0.045	0.14	2.0	19100	1720	481.5
	2.5	2	120	0.055	0.18	2.5	15280	1680	756.0
	3.0	2	120	0.065	0.21	3.0	12735	1655	1042.5
Hardened tool steel 48 - 52 HRC	0.5	2	100	0.010	0.04	0.5	60000	1200	24.0
	0.6	2	100	0.014	0.04	0.6	53055	1485	35.5
	0.8	2	100	0.020	0.06	0.8	39790	1590	76.5
	1.0	2	100	0.020	0.07	1.0	31830	1275	89.5
	1.2	2	100	0.024	0.08	1.2	26525	1275	122.5
	1.5	2	100	0.034	0.11	1.5	21220	1445	238.5
	2.0	2	100	0.042	0.14	2.0	15915	1335	374.0
	2.5	2	100	0.052	0.18	2.5	12735	1325	596.0
	3.0	2	100	0.062	0.21	3.0	10610	1315	828.5
Hardened tool steel 52 - 56 HRC	0.5	2	80	0.008	0.04	0.5	50930	815	16.5
	0.6	2	80	0.014	0.04	0.6	42445	1190	28.5
	0.8	2	80	0.018	0.06	0.8	31830	1145	55.0
	1.0	2	80	0.018	0.07	1.0	25465	915	64.0
	1.2	2	80	0.022	0.08	1.2	21220	935	90.0
	1.5	2	80	0.030	0.11	1.5	16975	1020	168.5
	2.0	2	80	0.040	0.14	2.0	12735	1020	285.5
	2.5	2	80	0.048	0.18	2.5	10185	980	441.0
	3.0	2	80	0.058	0.21	3.0	8490	985	620.5
Hardened tool steel 56 - 60 HRC	0.5	2	40	0.008	0.04	0.5	25465	405	8.0
	0.6	2	40	0.012	0.04	0.6	21220	510	12.0
	0.8	2	40	0.016	0.06	0.8	15915	510	24.5
	1.0	2	40	0.016	0.07	1.0	12735	410	28.5
	1.2	2	40	0.020	0.08	1.2	10610	425	41.0
	1.5	2	40	0.028	0.11	1.5	8490	475	78.5
	2.0	2	40	0.036	0.14	2.0	6365	460	129.0
	2.5	2	40	0.044	0.18	2.5	5095	450	202.5
	3.0	2	40	0.052	0.21	3.0	4245	440	277.0

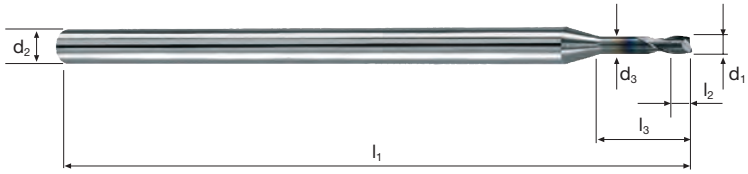
Cylindrical end mills Microcut-C5H

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | X-Generation X

HM XA | **λ 25° γ-10°**

45°

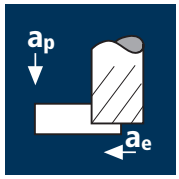


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60		**Ti** Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5724** ø-Code **.050**

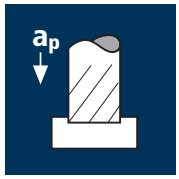
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	DURO-S D5724
.050	0.5	3	0.45	40	0.60	2.5	-	10.0°	2	●
.060	0.6	3	0.55	40	0.72	3.0	-	9.5°	2	●
.070	0.7	3	0.65	40	0.84	3.5	-	8.5°	2	●
.080	0.8	3	0.75	40	0.96	4.0	-	8.0°	2	●
.090	0.9	3	0.85	40	1.08	4.5	-	7.5°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.07	7.0°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.07	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.07	4.5°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.07	3.5°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.10	2.5°	2	●
.152	2.3	3	2.10	50	2.76	11.5	0.10	2.0°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.10	1.5°	2	●
.172	2.8	3	2.60	50	3.36	14.0	0.10	0.5°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Stainless steel [Cr-Ni/1.4301]	0.5	3	80	0.010	0.40	0.07	50930	1530	43.0
	0.6	3	80	0.010	0.48	0.08	42445	1275	49.0
	0.8	3	80	0.014	0.64	0.10	31830	1335	85.5
	1.0	3	80	0.018	0.80	0.13	25465	1375	143.0
	1.2	3	80	0.022	0.96	0.16	21220	1400	215.0
	1.5	3	80	0.028	1.20	0.20	16975	1425	342.0
	2.0	3	80	0.036	1.60	0.26	12735	1375	572.0
	2.5	3	80	0.046	2.00	0.33	10185	1405	927.5
	3.0	3	80	0.054	2.40	0.39	8490	1375	1287.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	3	50	0.008	0.40	0.07	31830	765	21.5
	0.6	3	50	0.008	0.48	0.08	26525	635	24.5
	0.8	3	50	0.012	0.64	0.10	19895	715	46.0
	1.0	3	50	0.014	0.80	0.13	15915	670	69.5
	1.2	3	50	0.018	0.96	0.16	13265	715	110.0
	1.5	3	50	0.022	1.20	0.20	10610	700	168.0
	2.0	3	50	0.028	1.60	0.26	7960	670	278.5
	2.5	3	50	0.036	2.00	0.33	6365	685	452.0
	3.0	3	50	0.044	2.40	0.39	5305	700	655.0
Gold	0.5	3	180	0.012	0.40	0.07	60000	2160	60.5
	0.6	3	180	0.012	0.48	0.08	60000	2160	83.0
	0.8	3	180	0.016	0.64	0.10	60000	2880	184.5
	1.0	3	180	0.022	0.80	0.13	57295	3780	393.0
	1.2	3	180	0.026	0.96	0.16	47750	3725	572.0
	1.5	3	180	0.034	1.20	0.20	38200	3895	935.0
	2.0	3	180	0.044	1.60	0.26	28650	3780	1572.5
	2.5	3	180	0.056	2.00	0.33	22920	3850	2541.0
	3.0	3	180	0.064	2.40	0.39	19100	3665	3430.5
Steel 850 - 1300 N/mm²	0.5	3	120	0.010	0.40	0.07	60000	1800	50.5
	0.6	3	120	0.010	0.48	0.08	60000	1800	69.0
	0.8	3	120	0.014	0.64	0.10	47750	2005	128.5
	1.0	3	120	0.018	0.80	0.13	38200	2065	215.0
	1.2	3	120	0.022	0.96	0.16	31830	2100	322.5
	1.5	3	120	0.028	1.20	0.20	25465	2140	513.5
	2.0	3	120	0.036	1.60	0.26	19100	2065	859.0
	2.5	3	120	0.046	2.00	0.33	15280	2110	1392.5
	3.0	3	120	0.054	2.40	0.39	12735	2065	1933.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Stainless steel [Cr-Ni/1.4301]	0.5	3	60	0.006	0.05	0.5	38200	690	17.5
	0.6	3	60	0.008	0.06	0.6	31830	765	27.5
	0.8	3	60	0.010	0.08	0.8	23875	715	46.0
	1.0	3	60	0.014	0.10	1.0	19100	800	80.0
	1.2	3	60	0.016	0.12	1.2	15915	765	110.0
	1.5	3	60	0.020	0.15	1.5	12735	765	172.0
	2.0	3	60	0.026	0.20	2.0	9550	745	298.0
	2.5	3	60	0.034	0.25	2.5	7640	780	487.5
	3.0	3	60	0.040	0.30	3.0	6365	765	688.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	3	40	0.004	0.05	0.5	25465	305	7.5
	0.6	3	40	0.006	0.06	0.6	21220	380	13.5
	0.8	3	40	0.008	0.08	0.8	15915	380	24.5
	1.0	3	40	0.012	0.10	1.0	12735	460	46.0
	1.2	3	40	0.012	0.12	1.2	10610	380	54.5
	1.5	3	40	0.016	0.15	1.5	8490	410	92.0
	2.0	3	40	0.020	0.20	2.0	6365	380	152.0
	2.5	3	40	0.028	0.25	2.5	5095	430	269.0
	3.0	3	40	0.032	0.30	3.0	4245	410	369.0
Gold	0.5	3	160	0.008	0.05	0.5	60000	1440	36.0
	0.6	3	160	0.010	0.06	0.6	60000	1800	65.0
	0.8	3	160	0.012	0.08	0.8	60000	2160	138.0
	1.0	3	160	0.016	0.10	1.0	50930	2445	244.5
	1.2	3	160	0.020	0.12	1.2	42445	2545	366.5
	1.5	3	160	0.024	0.15	1.5	33955	2445	550.0
	2.0	3	160	0.032	0.20	2.0	25465	2445	978.0
	2.5	3	160	0.040	0.25	2.5	20370	2445	1528.0
	3.0	3	160	0.048	0.30	3.0	16975	2445	2200.5
Steel 850 - 1300 N/mm²	0.5	3	100	0.006	0.05	0.5	60000	1080	27.0
	0.6	3	100	0.008	0.06	0.6	53055	1275	46.0
	0.8	3	100	0.010	0.08	0.8	39790	1195	76.5
	1.0	3	100	0.014	0.10	1.0	31830	1335	133.5
	1.2	3	100	0.016	0.12	1.2	26525	1275	183.5
	1.5	3	100	0.020	0.15	1.5	21220	1275	287.0
	2.0	3	100	0.026	0.20	2.0	15915	1240	496.0
	2.5	3	100	0.034	0.25	2.5	12735	1300	812.5
	3.0	3	100	0.040	0.30	3.0	10610	1275	1147.5

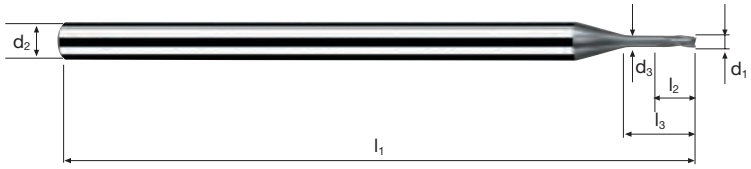
Cylindrical end mills Microcut-C5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

HM XA | **λ 25° γ-10°**

90°

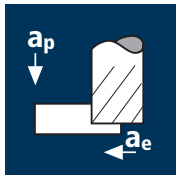


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **15754** ø-Code **.050**

ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	α	z	MICRO **M15754**
.050	0.5	3	0.45	40	0.60	2.5	10.0°	3	●
.060	0.6	3	0.55	40	0.72	3.0	9.5°	3	●
.080	0.8	3	0.75	40	0.96	4.0	8.0°	3	●
.100	1.0	3	0.95	50	1.20	5.0	7.0°	3	●
.108	1.2	3	1.10	50	1.44	6.0	5.5°	3	●
.120	1.5	3	1.40	60	1.80	7.5	4.5°	3	●
.140	2.0	3	1.90	60	2.40	10.0	2.5°	3	●
.160	2.5	3	2.30	60	3.00	12.5	1.5°	3	●
.180	3.0	3	2.80	60	3.60	15.0	0.0°	3	●

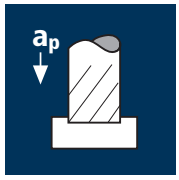
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²								
0.5	2	180	0.012	0.30	0.06	60000	1440	26.0
0.6	2	180	0.014	0.36	0.07	60000	1680	42.5
0.8	2	180	0.018	0.48	0.09	60000	2160	93.5
1.0	2	180	0.022	0.60	0.11	57295	2520	166.5
1.2	2	180	0.026	0.72	0.13	47750	2485	232.5
1.5	2	180	0.034	0.90	0.17	38200	2600	398.0
2.0	2	180	0.044	1.20	0.22	28650	2520	665.5
2.5	2	180	0.056	1.50	0.28	22920	2565	1077.5
3.0	2	180	0.066	1.80	0.33	19100	2520	1497.0
Steel 1100 - 1300 N/mm²								
0.5	2	160	0.010	0.30	0.06	60000	1200	21.5
0.6	2	160	0.012	0.36	0.07	60000	1440	36.5
0.8	2	160	0.016	0.48	0.09	60000	1920	83.0
1.0	2	160	0.020	0.60	0.11	50930	2035	134.5
1.2	2	160	0.024	0.72	0.13	42445	2035	190.5
1.5	2	160	0.030	0.90	0.17	33955	2035	311.5
2.0	2	160	0.040	1.20	0.22	25465	2035	537.0
2.5	2	160	0.050	1.50	0.28	20370	2035	854.5
3.0	2	160	0.060	1.80	0.33	16975	2035	1209.0
Stainless steel [Cr-Ni/1.4301]								
0.5	2	80	0.010	0.30	0.06	50930	1020	18.5
0.6	2	80	0.012	0.36	0.07	42445	1020	25.5
0.8	2	80	0.014	0.48	0.09	31830	890	38.5
1.0	2	80	0.018	0.60	0.11	25465	915	60.5
1.2	2	80	0.020	0.72	0.13	21220	850	79.5
1.5	2	80	0.028	0.90	0.17	16975	950	145.5
2.0	2	80	0.036	1.20	0.22	12735	915	241.5
2.5	2	80	0.044	1.50	0.28	10185	895	376.0
3.0	2	80	0.052	1.80	0.33	8490	885	525.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.5	2	60	0.008	0.30	0.06	38200	610	11.0
0.6	2	60	0.010	0.36	0.07	31830	635	16.0
0.8	2	60	0.012	0.48	0.09	23875	575	25.0
1.0	2	60	0.016	0.60	0.11	19100	610	40.5
1.2	2	60	0.018	0.72	0.13	15915	575	54.0
1.5	2	60	0.024	0.90	0.17	12735	610	93.5
2.0	2	60	0.030	1.20	0.22	9550	575	152.0
2.5	2	60	0.040	1.50	0.28	7640	610	256.0
3.0	2	60	0.046	1.80	0.33	6365	585	347.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²								
0.5	2	160	0.010	0.05	0.5	60000	1200	30.0
0.6	2	160	0.010	0.06	0.6	60000	1200	43.0
0.8	2	160	0.014	0.08	0.8	60000	1680	107.5
1.0	2	160	0.018	0.10	1.0	50930	1835	183.5
1.2	2	160	0.022	0.12	1.2	42445	1870	269.5
1.5	2	160	0.028	0.15	1.5	33955	1900	427.5
2.0	2	160	0.036	0.20	2.0	25465	1835	734.0
2.5	2	160	0.046	0.25	2.5	20370	1875	1172.0
3.0	2	160	0.054	0.30	3.0	16975	1835	1651.5
Steel 1100 - 1300 N/mm²								
0.5	2	140	0.010	0.05	0.5	60000	1200	30.0
0.6	2	140	0.010	0.06	0.6	60000	1200	43.0
0.8	2	140	0.014	0.08	0.8	55705	1560	100.0
1.0	2	140	0.018	0.10	1.0	44565	1605	160.5
1.2	2	140	0.020	0.12	1.2	37135	1485	214.0
1.5	2	140	0.026	0.15	1.5	29710	1545	347.5
2.0	2	140	0.034	0.20	2.0	22280	1515	606.0
2.5	2	140	0.044	0.25	2.5	17825	1570	981.5
3.0	2	140	0.052	0.30	3.0	14855	1545	1390.5
Stainless steel [Cr-Ni/1.4301]								
0.5	2	70	0.008	0.05	0.5	44565	715	18.0
0.6	2	70	0.008	0.06	0.6	37135	595	21.5
0.8	2	70	0.012	0.08	0.8	27855	670	43.0
1.0	2	70	0.016	0.10	1.0	22280	715	71.5
1.2	2	70	0.020	0.12	1.2	18570	745	107.5
1.5	2	70	0.024	0.15	1.5	14855	715	161.0
2.0	2	70	0.032	0.20	2.0	11140	715	286.0
2.5	2	70	0.040	0.25	2.5	8915	715	447.0
3.0	2	70	0.048	0.30	3.0	7425	715	643.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]								
0.5	2	50	0.008	0.05	0.5	31830	510	13.0
0.6	2	50	0.008	0.06	0.6	26525	425	15.5
0.8	2	50	0.012	0.08	0.8	19895	475	30.5
1.0	2	50	0.014	0.10	1.0	15915	445	44.5
1.2	2	50	0.018	0.12	1.2	13265	480	69.0
1.5	2	50	0.022	0.15	1.5	10610	465	104.5
2.0	2	50	0.028	0.20	2.0	7960	445	178.0
2.5	2	50	0.036	0.25	2.5	6365	460	287.5
3.0	2	50	0.044	0.30	3.0	5305	465	418.5

Cylindrical end mills Microcut-C8

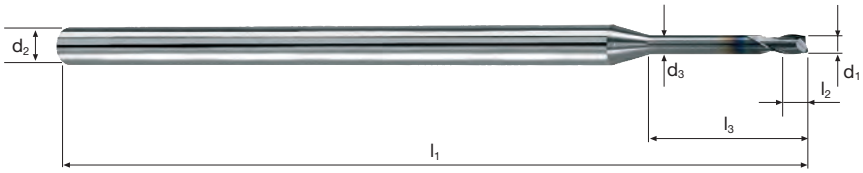
Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro

λ 25°
γ 6°

45°

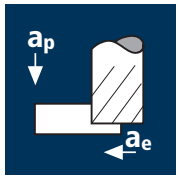


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5716** ø-Code **.050**

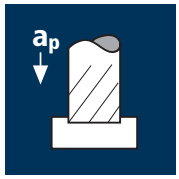
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO M5716
.050	0.5	3	0.45	40	0.60	4.0	-	8.5°	2	●
.060	0.6	3	0.55	40	0.72	4.8	-	7.5°	2	●
.080	0.8	3	0.75	40	0.96	6.4	-	6.0°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.07	5.0°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.07	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.07	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.10	2.0°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.10	1.0°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.015	0.02	0.09	60000	1800	3.0
	0.6	2	140	0.015	0.02	0.11	60000	1800	4.0
	0.8	2	140	0.020	0.03	0.14	55705	2230	9.5
	1.0	2	140	0.025	0.04	0.18	44565	2230	16.0
	1.2	2	140	0.030	0.05	0.22	37135	2230	24.5
	1.5	2	140	0.040	0.06	0.27	29710	2375	38.5
	2.0	2	140	0.050	0.08	0.36	22280	2230	64.0
	2.5	2	140	0.065	0.10	0.45	17825	2315	104.0
	3.0	2	140	0.075	0.12	0.54	14855	2230	144.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.014	0.02	0.09	60000	1680	3.0
	0.6	2	120	0.014	0.02	0.11	60000	1680	3.5
	0.8	2	120	0.020	0.03	0.14	47750	1910	8.0
	1.0	2	120	0.024	0.04	0.18	38200	1835	13.0
	1.2	2	120	0.028	0.05	0.22	31830	1780	19.5
	1.5	2	120	0.038	0.06	0.27	25465	1935	31.5
	2.0	2	120	0.048	0.08	0.36	19100	1835	53.0
	2.5	2	120	0.062	0.10	0.45	15280	1895	85.5
	3.0	2	120	0.072	0.12	0.54	12735	1835	119.0
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.02	0.09	60000	1680	3.0
	0.6	2	100	0.014	0.02	0.11	53055	1485	3.5
	0.8	2	100	0.018	0.03	0.14	39790	1430	6.0
	1.0	2	100	0.022	0.04	0.18	31830	1400	10.0
	1.2	2	100	0.026	0.05	0.22	26525	1380	15.0
	1.5	2	100	0.036	0.06	0.27	21220	1530	25.0
	2.0	2	100	0.044	0.08	0.36	15915	1400	40.5
	2.5	2	100	0.058	0.10	0.45	12735	1475	66.5
	3.0	2	100	0.066	0.12	0.54	10610	1400	90.5
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.02	0.09	38200	915	1.5
	0.6	2	60	0.012	0.02	0.11	31830	765	1.5
	0.8	2	60	0.016	0.03	0.14	23875	765	3.0
	1.0	2	60	0.020	0.04	0.18	19100	765	5.5
	1.2	2	60	0.024	0.05	0.22	15915	765	8.5
	1.5	2	60	0.032	0.06	0.27	12735	815	13.0
	2.0	2	60	0.040	0.08	0.36	9550	765	22.0
	2.5	2	60	0.052	0.10	0.45	7640	795	36.0
	3.0	2	60	0.060	0.12	0.54	6365	765	49.5

Application



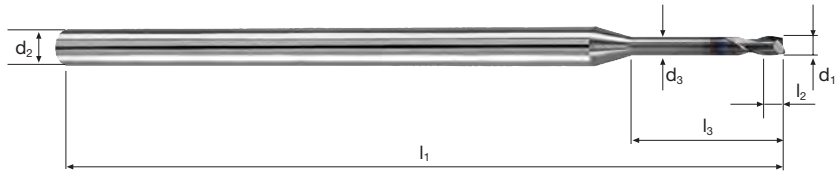
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	120	0.010	0.02	0.5	60000	1200	12.0
	0.6	2	120	0.015	0.02	0.6	60000	1800	21.5
	0.8	2	120	0.020	0.03	0.8	47750	1910	46.0
	1.0	2	120	0.020	0.04	1.0	38200	1530	61.0
	1.2	2	120	0.025	0.05	1.2	31830	1590	95.5
	1.5	2	120	0.035	0.06	1.5	25465	1785	160.5
	2.0	2	120	0.045	0.08	2.0	19100	1720	275.0
	2.5	2	120	0.055	0.10	2.5	15280	1680	420.0
	3.0	2	120	0.065	0.12	3.0	12735	1655	596.0
Hardened tool steel 48 - 52 HRC	0.5	2	100	0.010	0.02	0.5	60000	1200	12.0
	0.6	2	100	0.014	0.02	0.6	53055	1485	18.0
	0.8	2	100	0.020	0.03	0.8	39790	1590	38.0
	1.0	2	100	0.020	0.04	1.0	31830	1275	51.0
	1.2	2	100	0.024	0.05	1.2	26525	1275	76.5
	1.5	2	100	0.034	0.06	1.5	21220	1445	130.0
	2.0	2	100	0.042	0.08	2.0	15915	1335	213.5
	2.5	2	100	0.052	0.10	2.5	12735	1325	331.5
	3.0	2	100	0.062	0.12	3.0	10610	1315	473.5
Hardened tool steel 52 - 56 HRC	0.5	2	80	0.008	0.02	0.5	50930	815	8.0
	0.6	2	80	0.014	0.02	0.6	42445	1190	14.5
	0.8	2	80	0.018	0.03	0.8	31830	1145	27.5
	1.0	2	80	0.018	0.04	1.0	25465	915	36.5
	1.2	2	80	0.022	0.05	1.2	21220	935	56.0
	1.5	2	80	0.030	0.06	1.5	16975	1020	92.0
	2.0	2	80	0.040	0.08	2.0	12735	1020	163.0
	2.5	2	80	0.048	0.10	2.5	10185	980	245.0
	3.0	2	80	0.058	0.12	3.0	8490	985	354.5
Hardened tool steel 56 - 60 HRC	0.5	2	40	0.008	0.02	0.5	25465	405	4.0
	0.6	2	40	0.012	0.02	0.6	21220	510	6.0
	0.8	2	40	0.016	0.03	0.8	15915	510	12.0
	1.0	2	40	0.016	0.04	1.0	12735	410	16.5
	1.2	2	40	0.020	0.05	1.2	10610	425	25.5
	1.5	2	40	0.028	0.06	1.5	8490	475	43.0
	2.0	2	40	0.036	0.08	2.0	6365	460	73.5
	2.5	2	40	0.044	0.10	2.5	5095	450	112.5
	3.0	2	40	0.052	0.12	3.0	4245	440	158.5

Cylindrical end mills Microcut-C8H

Shank Ø 3mm, cylindrical neck, 8xd

HM XA | **λ 25° γ-10°**

45°

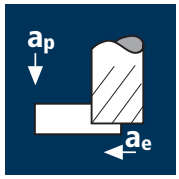


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5726** ø-Code **.050**

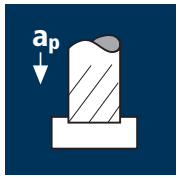
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	DURO-S D5726
.050	0.5	3	0.45	40	0.60	4.0	-	8.5°	2	●
.060	0.6	3	0.55	40	0.72	4.8	-	7.5°	2	●
.080	0.8	3	0.75	40	0.96	6.4	-	6.0°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.07	5.0°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.07	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.07	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.10	2.0°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.10	1.0°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.5	2	180	0.012	0.25	0.06	60000	1440	21.5
	0.6	2	180	0.014	0.30	0.07	60000	1680	35.5
	0.8	2	180	0.018	0.40	0.09	60000	2160	78.0
	1.0	2	180	0.022	0.50	0.11	57295	2520	138.5
	1.2	2	180	0.026	0.60	0.13	47750	2485	194.0
	1.5	2	180	0.034	0.75	0.17	38200	2600	331.5
	2.0	2	180	0.044	1.00	0.22	28650	2520	554.5
	2.5	2	180	0.056	1.25	0.28	22920	2565	898.0
	3.0	2	180	0.066	1.50	0.33	19100	2520	1247.5
Steel 1100 - 1300 N/mm²	0.5	2	160	0.010	0.25	0.06	60000	1200	18.0
	0.6	2	160	0.012	0.30	0.07	60000	1440	30.0
	0.8	2	160	0.016	0.40	0.09	60000	1920	69.0
	1.0	2	160	0.020	0.50	0.11	50930	2035	112.0
	1.2	2	160	0.024	0.60	0.13	42445	2035	158.5
	1.5	2	160	0.030	0.75	0.17	33955	2035	259.5
	2.0	2	160	0.040	1.00	0.22	25465	2035	447.5
	2.5	2	160	0.050	1.25	0.28	20370	2035	712.5
	3.0	2	160	0.060	1.50	0.33	16975	2035	1007.5
Stainless steel [Cr-Ni/1.4301]	0.5	2	80	0.010	0.25	0.06	50930	1020	15.5
	0.6	2	80	0.012	0.30	0.07	42445	1020	21.5
	0.8	2	80	0.014	0.40	0.09	31830	890	32.0
	1.0	2	80	0.018	0.50	0.11	25465	915	50.5
	1.2	2	80	0.020	0.60	0.13	21220	850	66.5
	1.5	2	80	0.028	0.75	0.17	16975	950	121.0
	2.0	2	80	0.036	1.00	0.22	12735	915	201.5
	2.5	2	80	0.044	1.25	0.28	10185	895	313.5
	3.0	2	80	0.052	1.50	0.33	8490	885	438.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	60	0.008	0.25	0.06	38200	610	9.0
	0.6	2	60	0.010	0.30	0.07	31830	635	13.5
	0.8	2	60	0.012	0.40	0.09	23875	575	20.5
	1.0	2	60	0.016	0.50	0.11	19100	610	33.5
	1.2	2	60	0.018	0.60	0.13	15915	575	45.0
	1.5	2	60	0.024	0.75	0.17	12735	610	78.0
	2.0	2	60	0.030	1.00	0.22	9550	575	126.5
	2.5	2	60	0.040	1.25	0.28	7640	610	213.5
	3.0	2	60	0.046	1.50	0.33	6365	585	289.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	0.5	2	160	0.010	0.04	0.5	60000	1200	24.0
	0.6	2	160	0.010	0.05	0.6	60000	1200	36.0
	0.8	2	160	0.014	0.06	0.8	60000	1680	80.5
	1.0	2	160	0.018	0.08	1.0	50930	1835	147.0
	1.2	2	160	0.022	0.10	1.2	42445	1870	224.5
	1.5	2	160	0.028	0.12	1.5	33955	1900	342.0
	2.0	2	160	0.036	0.16	2.0	25465	1835	587.0
	2.5	2	160	0.046	0.20	2.5	20370	1875	937.5
	3.0	2	160	0.054	0.24	3.0	16975	1835	1321.0
Steel 1100 - 1300 N/mm²	0.5	2	140	0.010	0.04	0.5	60000	1200	24.0
	0.6	2	140	0.010	0.05	0.6	60000	1200	36.0
	0.8	2	140	0.014	0.06	0.8	55705	1560	75.0
	1.0	2	140	0.018	0.08	1.0	44565	1605	128.5
	1.2	2	140	0.020	0.10	1.2	37135	1485	178.0
	1.5	2	140	0.026	0.12	1.5	29710	1545	278.0
	2.0	2	140	0.034	0.16	2.0	22280	1515	485.0
	2.5	2	140	0.044	0.20	2.5	17825	1570	785.0
	3.0	2	140	0.052	0.24	3.0	14855	1545	1112.5
Stainless steel [Cr-Ni/1.4301]	0.5	2	70	0.008	0.04	0.5	44565	715	14.5
	0.6	2	70	0.008	0.05	0.6	37135	595	18.0
	0.8	2	70	0.012	0.06	0.8	27855	670	32.0
	1.0	2	70	0.016	0.08	1.0	22280	715	57.0
	1.2	2	70	0.020	0.10	1.2	18570	745	89.5
	1.5	2	70	0.024	0.12	1.5	14855	715	128.5
	2.0	2	70	0.032	0.16	2.0	11140	715	229.0
	2.5	2	70	0.040	0.20	2.5	8915	715	357.5
	3.0	2	70	0.048	0.24	3.0	7425	715	515.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	50	0.008	0.04	0.5	31830	510	10.0
	0.6	2	50	0.008	0.05	0.6	26525	425	13.0
	0.8	2	50	0.012	0.06	0.8	19895	475	23.0
	1.0	2	50	0.014	0.08	1.0	15915	445	35.5
	1.2	2	50	0.018	0.10	1.2	13265	480	57.5
	1.5	2	50	0.022	0.12	1.5	10610	465	83.5
	2.0	2	50	0.028	0.16	2.0	7960	445	142.5
	2.5	2	50	0.036	0.20	2.5	6365	460	230.0
	3.0	2	50	0.044	0.24	3.0	5305	465	335.0

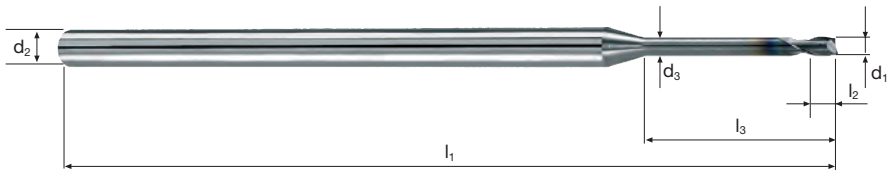
Cylindrical end mills Microcut-C10

Shank Ø 3mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°

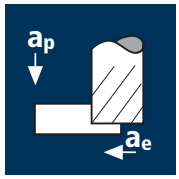


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5717** ø-Code **.050**

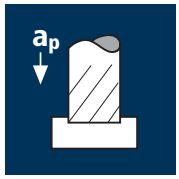
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO M5717
.050	0.5	3	0.45	40	0.60	5.0	-	7.5°	2	●
.060	0.6	3	0.55	40	0.72	6.0	-	7.0°	2	●
.080	0.8	3	0.75	40	0.96	8.0	-	5.5°	2	●
.100	1.0	3	0.95	50	1.20	10.0	0.07	4.5°	2	●
.108	1.2	3	1.10	50	1.44	12.0	0.07	3.5°	2	●
.120	1.5	3	1.40	60	1.80	15.0	0.07	2.5°	2	●
.140	2.0	3	1.90	60	2.40	20.0	0.10	1.5°	2	●
.160	2.5	3	2.30	60	3.00	25.0	0.10	1.0°	2	●
.180	3.0	3	2.80	60	3.60	30.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	180	0.022	0.40	0.09	57295	2520	90.5
	1.2	2	180	0.026	0.48	0.11	47750	2485	131.0
	1.5	2	180	0.034	0.60	0.14	38200	2600	218.5
	2.0	2	180	0.044	0.80	0.18	28650	2520	363.0
	2.5	2	180	0.056	1.00	0.23	22920	2565	590.0
	3.0	2	180	0.066	1.20	0.27	19100	2520	816.5
Steel 1100 - 1300 N/mm²	1.0	2	160	0.020	0.40	0.09	50930	2035	73.5
	1.2	2	160	0.024	0.48	0.11	42445	2035	107.5
	1.5	2	160	0.030	0.60	0.14	33955	2035	171.0
	2.0	2	160	0.040	0.80	0.18	25465	2035	293.0
	2.5	2	160	0.050	1.00	0.23	20370	2035	468.0
	3.0	2	160	0.060	1.20	0.27	16975	2035	659.5
Stainless steel [Cr-Ni/1.4301]	1.0	2	80	0.018	0.40	0.09	25465	915	33.0
	1.2	2	80	0.020	0.48	0.11	21220	850	45.0
	1.5	2	80	0.028	0.60	0.14	16975	950	80.0
	2.0	2	80	0.036	0.80	0.18	12735	915	132.0
	2.5	2	80	0.044	1.00	0.23	10185	895	206.0
	3.0	2	80	0.052	1.20	0.27	8490	885	286.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	60	0.016	0.40	0.09	19100	610	22.0
	1.2	2	60	0.018	0.48	0.11	15915	575	30.5
	1.5	2	60	0.024	0.60	0.14	12735	610	51.0
	2.0	2	60	0.030	0.80	0.18	9550	575	83.0
	2.5	2	60	0.040	1.00	0.23	7640	610	140.5
	3.0	2	60	0.046	1.20	0.27	6365	585	189.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	160	0.018	0.06	1.0	50930	1835	110.0
	1.2	2	160	0.022	0.07	1.2	42445	1870	157.0
	1.5	2	160	0.028	0.09	1.5	33955	1900	256.5
	2.0	2	160	0.036	0.12	2.0	25465	1835	440.5
	2.5	2	160	0.046	0.15	2.5	20370	1875	703.0
	3.0	2	160	0.054	0.18	3.0	16975	1835	991.0
Steel 1100 - 1300 N/mm²	1.0	2	140	0.018	0.06	1.0	44565	1605	96.5
	1.2	2	140	0.020	0.07	1.2	37135	1485	124.5
	1.5	2	140	0.026	0.09	1.5	29710	1545	208.5
	2.0	2	140	0.034	0.12	2.0	22280	1515	363.5
	2.5	2	140	0.044	0.15	2.5	17825	1570	589.0
	3.0	2	140	0.052	0.18	3.0	14855	1545	834.5
Stainless steel [Cr-Ni/1.4301]	1.0	2	70	0.016	0.06	1.0	22280	715	43.0
	1.2	2	70	0.020	0.07	1.2	18570	745	62.5
	1.5	2	70	0.024	0.09	1.5	14855	715	96.5
	2.0	2	70	0.032	0.12	2.0	11140	715	171.5
	2.5	2	70	0.040	0.15	2.5	8915	715	268.0
	3.0	2	70	0.048	0.18	3.0	7425	715	386.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	50	0.014	0.06	1.0	15915	445	26.5
	1.2	2	50	0.018	0.07	1.2	13265	480	40.5
	1.5	2	50	0.022	0.09	1.5	10610	465	63.0
	2.0	2	50	0.028	0.12	2.0	7960	445	107.0
	2.5	2	50	0.036	0.15	2.5	6365	460	172.5
	3.0	2	50	0.044	0.18	3.0	5305	465	251.0

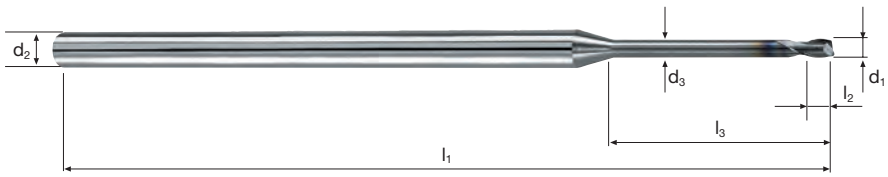
Cylindrical end mills Microcut-C12

Shank Ø 3mm, cylindrical neck, 12xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°

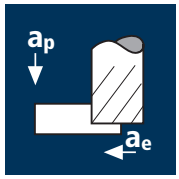


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5721** ø-Code **.100**

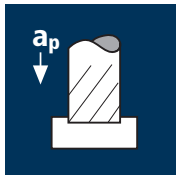
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO **M5721**
.100	1.0	3	0.95	50	1.20	12.0	0.07	4.0°	2	●
.108	1.2	3	1.10	60	1.44	14.4	0.07	3.0°	2	●
.120	1.5	3	1.40	60	1.80	18.0	0.07	2.5°	2	●
.140	2.0	3	1.90	60	2.40	24.0	0.10	1.5°	2	●
.160	2.5	3	2.30	70	3.00	30.0	0.10	0.5°	2	●
.180	3.0	3	2.80	70	3.60	36.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	180	0.018	0.30	0.09	57295	2065	56.0
	1.2	2	180	0.022	0.36	0.11	47750	2100	83.0
	1.5	2	180	0.028	0.45	0.14	38200	2140	135.0
	2.0	2	180	0.036	0.60	0.18	28650	2065	223.0
	2.5	2	180	0.046	0.75	0.23	22920	2110	364.0
	3.0	2	180	0.054	0.90	0.27	19100	2065	502.0
Steel 1100 - 1300 N/mm²	1.0	2	160	0.016	0.30	0.09	50930	1630	44.0
	1.2	2	160	0.020	0.36	0.11	42445	1700	67.5
	1.5	2	160	0.026	0.45	0.14	33955	1765	111.0
	2.0	2	160	0.032	0.60	0.18	25465	1630	176.0
	2.5	2	160	0.042	0.75	0.23	20370	1710	295.0
	3.0	2	160	0.048	0.90	0.27	16975	1630	396.0
Stainless steel [Cr-Ni/1.4301]	1.0	2	80	0.014	0.30	0.09	25465	715	19.5
	1.2	2	80	0.018	0.36	0.11	21220	765	30.5
	1.5	2	80	0.022	0.45	0.14	16975	745	47.0
	2.0	2	80	0.028	0.60	0.18	12735	715	77.0
	2.5	2	80	0.036	0.75	0.23	10185	735	127.0
	3.0	2	80	0.044	0.90	0.27	8490	745	181.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	60	0.012	0.30	0.09	19100	460	12.5
	1.2	2	60	0.016	0.36	0.11	15915	510	20.0
	1.5	2	60	0.020	0.45	0.14	12735	510	32.0
	2.0	2	60	0.026	0.60	0.18	9550	495	53.5
	2.5	2	60	0.032	0.75	0.23	7640	490	84.5
	3.0	2	60	0.038	0.90	0.27	6365	485	118.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	160	0.016	0.04	1.0	50930	1630	65.0
	1.2	2	160	0.018	0.05	1.2	42445	1530	92.0
	1.5	2	160	0.024	0.06	1.5	33955	1630	146.5
	2.0	2	160	0.030	0.08	2.0	25465	1530	245.0
	2.5	2	160	0.038	0.10	2.5	20370	1550	387.5
	3.0	2	160	0.046	0.12	3.0	16975	1560	561.5
Steel 1100 - 1300 N/mm²	1.0	2	140	0.016	0.04	1.0	44565	1425	57.0
	1.2	2	140	0.018	0.05	1.2	37135	1335	80.0
	1.5	2	140	0.022	0.06	1.5	29710	1305	117.5
	2.0	2	140	0.028	0.08	2.0	22280	1250	200.0
	2.5	2	140	0.036	0.10	2.5	17825	1285	321.5
	3.0	2	140	0.044	0.12	3.0	14855	1305	470.0
Stainless steel [Cr-Ni/1.4301]	1.0	2	70	0.014	0.04	1.0	22280	625	25.0
	1.2	2	70	0.016	0.05	1.2	18570	595	35.5
	1.5	2	70	0.022	0.06	1.5	14855	655	59.0
	2.0	2	70	0.026	0.08	2.0	11140	580	93.0
	2.5	2	70	0.034	0.10	2.5	8915	605	151.5
	3.0	2	70	0.040	0.12	3.0	7425	595	214.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	50	0.012	0.04	1.0	15915	380	15.0
	1.2	2	50	0.014	0.05	1.2	13265	370	22.0
	1.5	2	50	0.020	0.06	1.5	10610	425	38.5
	2.0	2	50	0.024	0.08	2.0	7960	380	61.0
	2.5	2	50	0.030	0.10	2.5	6365	380	95.0
	3.0	2	50	0.036	0.12	3.0	5305	380	137.0

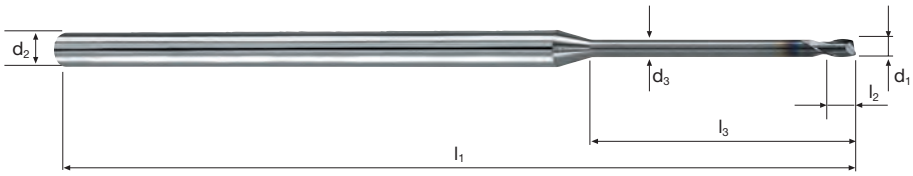
Cylindrical end mills Microcut-C15

Shank Ø 3mm, cylindrical neck, 15xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°

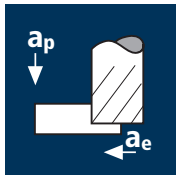


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5723** | ø-Code **.100**

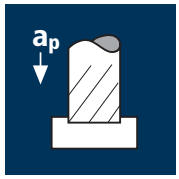
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	MICRO **M5723**
.100	1.0	3	0.95	60	1.20	15.0	0.07	3.5°	2	●
.108	1.2	3	1.10	60	1.44	18.0	0.07	2.5°	2	●
.120	1.5	3	1.40	70	1.80	22.5	0.07	2.0°	2	●
.140	2.0	3	1.90	70	2.40	30.0	0.10	1.0°	2	●
.160	2.5	3	2.30	70	3.00	37.5	0.10	0.5°	2	●
.180	3.0	3	2.80	80	3.60	45.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	180	0.018	0.20	0.07	57295	2065	29.0
	1.2	2	180	0.022	0.24	0.08	47750	2100	40.5
	1.5	2	180	0.028	0.30	0.11	38200	2140	70.5
	2.0	2	180	0.036	0.40	0.14	28650	2065	115.5
	2.5	2	180	0.046	0.50	0.18	22920	2110	190.0
	3.0	2	180	0.054	0.60	0.21	19100	2065	260.0
Steel 1100 - 1300 N/mm²	1.0	2	160	0.016	0.20	0.07	50930	1630	23.0
	1.2	2	160	0.020	0.24	0.08	42445	1700	32.5
	1.5	2	160	0.026	0.30	0.11	33955	1765	58.0
	2.0	2	160	0.032	0.40	0.14	25465	1630	91.5
	2.5	2	160	0.042	0.50	0.18	20370	1710	154.0
	3.0	2	160	0.048	0.60	0.21	16975	1630	205.5
Stainless steel [Cr-Ni/1.4301]	1.0	2	80	0.014	0.20	0.07	25465	715	10.0
	1.2	2	80	0.018	0.24	0.08	21220	765	14.5
	1.5	2	80	0.022	0.30	0.11	16975	745	24.5
	2.0	2	80	0.028	0.40	0.14	12735	715	40.0
	2.5	2	80	0.036	0.50	0.18	10185	735	66.0
	3.0	2	80	0.044	0.60	0.21	8490	745	94.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	60	0.012	0.20	0.07	19100	460	6.5
	1.2	2	60	0.016	0.24	0.08	15915	510	10.0
	1.5	2	60	0.020	0.30	0.11	12735	510	17.0
	2.0	2	60	0.026	0.40	0.14	9550	495	27.5
	2.5	2	60	0.032	0.50	0.18	7640	490	44.0
	3.0	2	60	0.038	0.60	0.21	6365	485	61.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²	1.0	2	160	0.016	0.03	1.0	50930	1630	49.0
	1.2	2	160	0.018	0.04	1.2	42445	1530	73.5
	1.5	2	160	0.024	0.05	1.5	33955	1630	122.5
	2.0	2	160	0.030	0.06	2.0	25465	1530	183.5
	2.5	2	160	0.038	0.08	2.5	20370	1550	310.0
	3.0	2	160	0.046	0.09	3.0	16975	1560	421.0
Steel 1100 - 1300 N/mm²	1.0	2	140	0.016	0.03	1.0	44565	1425	43.0
	1.2	2	140	0.018	0.04	1.2	37135	1335	64.0
	1.5	2	140	0.022	0.05	1.5	29710	1305	98.0
	2.0	2	140	0.028	0.06	2.0	22280	1250	150.0
	2.5	2	140	0.036	0.08	2.5	17825	1285	257.0
	3.0	2	140	0.044	0.09	3.0	14855	1305	352.5
Stainless steel [Cr-Ni/1.4301]	1.0	2	70	0.014	0.03	1.0	22280	625	19.0
	1.2	2	70	0.016	0.04	1.2	18570	595	28.5
	1.5	2	70	0.022	0.05	1.5	14855	655	49.0
	2.0	2	70	0.026	0.06	2.0	11140	580	69.5
	2.5	2	70	0.034	0.08	2.5	8915	605	121.0
	3.0	2	70	0.040	0.09	3.0	7425	595	160.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1.0	2	50	0.012	0.03	1.0	15915	380	11.5
	1.2	2	50	0.014	0.04	1.2	13265	370	18.0
	1.5	2	50	0.020	0.05	1.5	10610	425	32.0
	2.0	2	50	0.024	0.06	2.0	7960	380	45.5
	2.5	2	50	0.030	0.08	2.5	6365	380	76.0
	3.0	2	50	0.036	0.09	3.0	5305	380	102.5

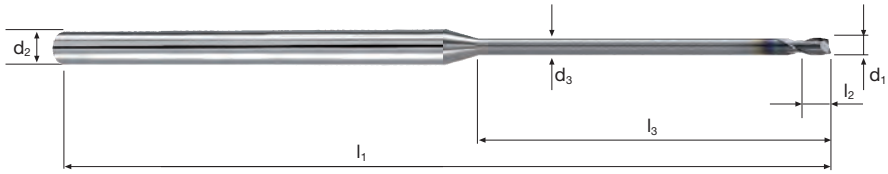
Cylindrical end mills Microcut-C20

Shank Ø 3mm, cylindrical neck, 20xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°

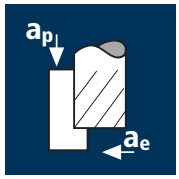


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **15725** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	MICRO M15725
.100	1.0	3	0.95	60	1.20	20.0	0.07	2.5°	2	●
.108	1.2	3	1.10	60	1.44	24.0	0.07	2.0°	2	●
.120	1.5	3	1.40	70	1.80	30.0	0.07	1.5°	2	●
.140	2.0	3	1.90	80	2.40	40.0	0.10	1.0°	2	●
.160	2.5	3	2.30	80	3.00	50.0	0.10	0.5°	2	●
.180	3.0	3	2.80	90	3.60	60.0	0.10	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	120	0.005	2	0.3	19100	285
	3	3	120	0.010	3	0.5	12735	380
	4	3	120	0.015	4	0.6	9550	430
	5	3	120	0.015	5	0.8	7640	345
	6	3	120	0.020	6	0.9	6365	380
	8	3	120	0.025	8	1.2	4775	360
	10	3	120	0.035	10	1.5	3820	400
Steel 850 - 1100 N/mm²	2	3	80	0.005	2	0.3	12735	190
	3	3	80	0.010	3	0.5	8490	255
	4	3	80	0.015	4	0.6	6365	285
	5	3	80	0.015	5	0.8	5095	230
	6	3	80	0.020	6	0.9	4245	255
	8	3	80	0.025	8	1.2	3185	240
	10	3	80	0.035	10	1.5	2545	265
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	3	50	0.005	2	0.3	7960	120
	3	3	50	0.010	3	0.5	5305	160
	4	3	50	0.015	4	0.6	3980	180
	5	3	50	0.015	5	0.8	3185	145
	6	3	50	0.020	6	0.9	2655	160
	8	3	50	0.025	8	1.2	1990	150
	10	3	50	0.035	10	1.5	1590	165
Stainless steel [Cr-Ni/1.4301]	2	3	60	0.005	2	0.3	9550	145
	3	3	60	0.010	3	0.5	6365	190
	4	3	60	0.015	4	0.6	4775	215
	5	3	60	0.015	5	0.8	3820	170
	6	3	60	0.020	6	0.9	3185	190
	8	3	60	0.025	8	1.2	2385	180
	10	3	60	0.035	10	1.5	1910	200

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	100	0.005	1.6	2	15915	240	1.0
	3	3	100	0.010	2.4	3	10610	320	2.5
	4	3	100	0.010	3.2	4	7960	240	3.0
	5	3	100	0.015	4.0	5	6365	285	5.5
	6	3	100	0.015	4.8	6	5305	240	7.0
	8	3	100	0.020	6.4	8	3980	240	12.5
	10	3	100	0.030	8.0	10	3185	285	23.0
Steel 850 - 1100 N/mm²	2	3	70	0.005	1.6	2	11140	165	0.5
	3	3	70	0.010	2.4	3	7425	225	1.5
	4	3	70	0.010	3.2	4	5570	165	2.0
	5	3	70	0.015	4.0	5	4455	200	4.0
	6	3	70	0.015	4.8	6	3715	165	5.0
	8	3	70	0.020	6.4	8	2785	165	8.5
	10	3	70	0.025	8.0	10	2230	165	13.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	3	35	0.005	1.6	2	5570	85	0.3
	3	3	35	0.010	2.4	3	3715	110	1.0
	4	3	35	0.010	3.2	4	2785	85	1.0
	5	3	35	0.015	4.0	5	2230	100	2.0
	6	3	35	0.015	4.8	6	1855	85	2.5
	8	3	35	0.020	6.4	8	1395	85	4.5
	10	3	35	0.025	8.0	10	1115	85	7.0
Stainless steel [Cr-Ni/1.4301]	2	3	40	0.005	1.6	2	6365	95	0.3
	3	3	40	0.010	2.4	3	4245	125	1.0
	4	3	40	0.010	3.2	4	3185	95	1.0
	5	3	40	0.015	4.0	5	2545	115	2.5
	6	3	40	0.015	4.8	6	2120	95	2.5
	8	3	40	0.020	6.4	8	1590	95	5.0
	10	3	40	0.025	8.0	10	1275	95	7.5

Cylindrical end mills Cut-X V

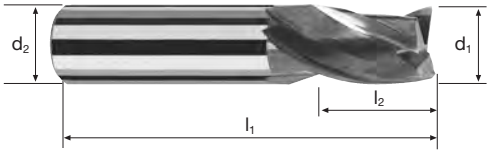
Smooth-edged, short-shank version

HM
MG10

λ **30°**
γ **12°**

90°

Vario



Roughing

Finishing

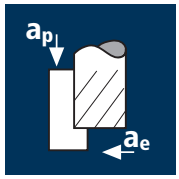
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys** **Copper** **Gold / Platinum**

Example: **Order-N°.** Coating **P** Article-N°. **15232** ø-Code **.120**

new!

ø Code	d1 e8	d2 h6	l1	l2	α	z	POLYCHROM P15232	TRIBO T15232
.120	1.5	6	38	3	11.5°	3	●	●
.140	2.0	6	38	3	11.0°	3	●	●
.160	2.5	6	38	3	10.0°	3	●	●
.180	3.0	6	38	4	8.0°	3	●	●
.200	3.5	6	38	4	7.0°	3	●	●
.220	4.0	6	38	5	5.5°	3	●	●
.240	4.5	6	38	5	4.5°	3	●	●
.260	5.0	6	38	6	3.0°	3	●	●
.300	6.0	6	38	7	0.0°	3	●	●
.391	8.0	8	41	9	0.0°	3	●	●
.450	10.0	10	48	11	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	60	0.005	2	0.2	9550	145
	3	3	60	0.010	3	0.3	6365	190
	4	3	60	0.015	4	0.4	4775	215
	5	3	60	0.015	5	0.5	3820	170
	6	3	60	0.020	6	0.6	3185	190
	8	3	60	0.025	8	0.8	2385	180
	10	3	60	0.035	10	1.0	1910	200
Short-chipping brass CuZn	2	3	140	0.005	2	0.2	22280	335
	3	3	140	0.010	3	0.3	14855	445
	4	3	140	0.020	4	0.4	11140	670
	5	3	140	0.020	5	0.5	8915	535
	6	3	140	0.025	6	0.6	7425	555
	8	3	140	0.030	8	0.8	5570	500
	10	3	140	0.040	10	1.0	4455	535
Gold	2	3	160	0.005	2	0.2	25465	380
	3	3	160	0.010	3	0.3	16975	510
	4	3	160	0.020	4	0.4	12735	765
	5	3	160	0.020	5	0.5	10185	610
	6	3	160	0.025	6	0.6	8490	635
	8	3	160	0.030	8	0.8	6365	575
	10	3	160	0.040	10	1.0	5095	610
Wrought aluminium alloys Si < 6%	2	3	250	0.005	2	0.2	39790	595
	3	3	250	0.010	3	0.3	26525	795
	4	3	250	0.015	4	0.4	19895	895
	5	3	250	0.020	5	0.5	15915	955
	6	3	250	0.025	6	0.6	13265	995
	8	3	250	0.030	8	0.8	9945	895
	10	3	250	0.040	10	1.0	7960	955

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	50	0.005	1.0	2	7960	120	0.0
	3	3	50	0.010	1.5	3	5305	160	0.5
	4	3	50	0.010	2.0	4	3980	120	1.0
	5	3	50	0.015	2.5	5	3185	145	2.0
	6	3	50	0.015	3.0	6	2655	120	2.0
	8	3	50	0.020	4.0	8	1990	120	4.0
	10	3	50	0.030	5.0	10	1590	145	7.5
Short-chipping brass CuZn	2	3	120	0.005	1.0	2	19100	285	0.5
	3	3	120	0.010	1.5	3	12735	380	1.5
	4	3	120	0.010	2.0	4	9550	285	2.5
	5	3	120	0.015	2.5	5	7640	345	4.5
	6	3	120	0.015	3.0	6	6365	285	5.0
	8	3	120	0.025	4.0	8	4775	360	11.5
	10	3	120	0.035	5.0	10	3820	400	20.0
Gold	2	3	140	0.005	1.0	2	22280	335	0.7
	3	3	140	0.010	1.5	3	14855	445	2.0
	4	3	140	0.010	2.0	4	11140	335	2.5
	5	3	140	0.015	2.5	5	8915	400	5.0
	6	3	140	0.015	3.0	6	7425	335	6.0
	8	3	140	0.025	4.0	8	5570	420	13.5
	10	3	140	0.035	5.0	10	4455	470	23.5
Wrought aluminium alloys Si < 6%	2	3	200	0.005	1.0	2	31830	475	1.0
	3	3	200	0.010	1.5	3	21220	635	3.0
	4	3	200	0.010	2.0	4	15915	475	4.0
	5	3	200	0.015	2.5	5	12735	575	7.0
	6	3	200	0.015	3.0	6	10610	475	8.5
	8	3	200	0.025	4.0	8	7960	595	19.0
	10	3	200	0.035	5.0	10	6365	670	33.5

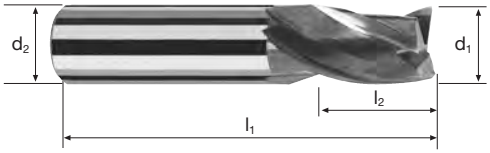
Cylindrical end mills Cut-X V

Smooth-edged, short-shank version

HM MG10 | λ 30° γ 12°

90°

Vario



Roughing

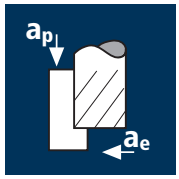
Finishing

Rm < 850 | **Rm** 850-1100 | **Aluminium Copper / CuZn Brass Gold**

Example: **Order-N°.** Coating **15232** Article-N°. ø-Code **.120**

ø Code	d1 e8	d2 h6	l1	l2	α	z	15232	
.120	1.5	6	38	3	11.5°	3	●	
.140	2.0	6	38	3	11.0°	3	●	
.160	2.5	6	38	3	10.0°	3	●	
.180	3.0	6	38	4	8.0°	3	●	
.200	3.5	6	38	4	7.0°	3	●	
.220	4.0	6	38	5	5.5°	3	●	
.240	4.5	6	38	5	4.5°	3	●	
.260	5.0	6	38	6	3.0°	3	●	
.300	6.0	6	38	7	0.0°	3	●	
.391	8.0	8	41	9	0.0°	3	●	
.450	10.0	10	48	11	0.0°	3	●	

Application



Material

Steel
< 850 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
2	3	120	0.005	2	0.2	19100	285	
3	3	120	0.010	3	0.3	12735	380	
4	3	120	0.015	4	0.4	9550	430	
5	3	120	0.015	5	0.5	7640	345	
6	3	120	0.020	6	0.6	6365	380	
8	3	120	0.025	8	0.8	4775	360	
10	3	120	0.035	10	1.0	3820	400	

Steel
850 - 1100 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
2	3	80	0.005	2	0.2	12735	190	
3	3	80	0.010	3	0.3	8490	255	
4	3	80	0.015	4	0.4	6365	285	
5	3	80	0.015	5	0.5	5095	230	
6	3	80	0.020	6	0.6	4245	255	
8	3	80	0.025	8	0.8	3185	240	
10	3	80	0.035	10	1.0	2545	265	

Titanium alloys
up to 300 HB
[Ti5Al2.5Sn]

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
2	3	50	0.005	2	0.2	7960	120	
3	3	50	0.010	3	0.3	5305	160	
4	3	50	0.015	4	0.4	3980	180	
5	3	50	0.015	5	0.5	3185	145	
6	3	50	0.020	6	0.6	2655	160	
8	3	50	0.025	8	0.8	1990	150	
10	3	50	0.035	10	1.0	1590	165	

Stainless steel
[Cr-Ni/1.4301]

T P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
2	3	60	0.005	2	0.2	9550	145	
3	3	60	0.010	3	0.3	6365	190	
4	3	60	0.015	4	0.4	4775	215	
5	3	60	0.015	5	0.5	3820	170	
6	3	60	0.020	6	0.6	3185	190	
8	3	60	0.025	8	0.8	2385	180	
10	3	60	0.035	10	1.0	1910	200	

Application



Material

Steel
< 850 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
2	3	100	0.005	1.0	2	15915	240	0.5
3	3	100	0.010	1.5	3	10610	320	1.5
4	3	100	0.010	2.0	4	7960	240	2.0
5	3	100	0.015	2.5	5	6365	285	3.5
6	3	100	0.015	3.0	6	5305	240	4.5
8	3	100	0.020	4.0	8	3980	240	7.5
10	3	100	0.030	5.0	10	3185	285	14.5

Steel
850 - 1100 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
2	3	70	0.005	1.0	2	11140	165	0.5
3	3	70	0.010	1.5	3	7425	225	1.0
4	3	70	0.010	2.0	4	5570	165	1.5
5	3	70	0.015	2.5	5	4455	200	2.5
6	3	70	0.015	3.0	6	3715	165	3.0
8	3	70	0.020	4.0	8	2785	165	5.5
10	3	70	0.025	5.0	10	2230	165	8.5

Titanium alloys
up to 300 HB
[Ti5Al2.5Sn]

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
2	3	35	0.005	1.0	2	5570	85	0.2
3	3	35	0.010	1.5	3	3715	110	0.5
4	3	35	0.010	2.0	4	2785	85	0.5
5	3	35	0.015	2.5	5	2230	100	1.5
6	3	35	0.015	3.0	6	1855	85	1.5
8	3	35	0.020	4.0	8	1395	85	2.5
10	3	35	0.025	5.0	10	1115	85	4.5

Stainless steel
[Cr-Ni/1.4301]

T P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
2	3	40	0.005	1.0	2	6365	95	0.2
3	3	40	0.010	1.5	3	4245	125	0.5
4	3	40	0.010	2.0	4	3185	95	1.0
5	3	40	0.015	2.5	5	2545	115	1.5
6	3	40	0.015	3.0	6	2120	95	1.5
8	3	40	0.020	4.0	8	1590	95	3.0
10	3	40	0.025	5.0	10	1275	95	5.0

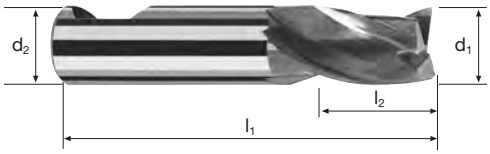
Cylindrical end mills Cut-X

Smooth-edged, short-shank version

HM
MG10

λ **30°**
γ **12°**

90°



Roughing

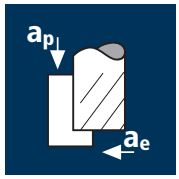
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **5336** ø-Code **.120**

ø Code	d_1 e8	d_2 h6	l_1	l_2	α	z	POLYCHROM P5336	TRIBO T5336 / T5236
.120	1.5	6	38	3	11.5°	3	●	●
.140	2.0	6	38	3	11.0°	3	●	●
.160	2.5	6	38	3	10.0°	3	●	●
.180	3.0	6	38	4	8.0°	3	●	●
.200	3.5	6	38	4	7.0°	3	●	●
.220	4.0	6	38	5	5.5°	3	●	●
.240	4.5	6	38	5	4.5°	3	●	●
.260	5.0	6	38	6	3.0°	3	●	●
.300	6.0	6	38	7	0.0°	3	●	●
.331	7.0	8	41	8	2.5°	3	●	●
.391	8.0	8	41	9	0.0°	3	●	●
.420	9.0	10	48	10	2.5°	3	●	●
.450	10.0	10	48	11	0.0°	3	●	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]
Steel < 850 N/mm²	3	3	120	0.010	3	0.3	12735	380
	4	3	120	0.015	4	0.4	9550	430
	5	3	120	0.015	5	0.5	7640	345
	6	3	120	0.020	6	0.6	6365	380
	8	3	120	0.025	8	0.8	4775	360
	10	3	120	0.035	10	1.0	3820	400
Steel 850 - 1100 N/mm²	3	3	80	0.010	3	0.3	8490	255
	4	3	80	0.015	4	0.4	6365	285
	5	3	80	0.015	5	0.5	5095	230
	6	3	80	0.020	6	0.6	4245	255
	8	3	80	0.025	8	0.8	3185	240
	10	3	80	0.035	10	1.0	2545	265
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	3	50	0.010	3	0.3	5305	160
	4	3	50	0.015	4	0.4	3980	180
	5	3	50	0.015	5	0.5	3185	145
	6	3	50	0.020	6	0.6	2655	160
	8	3	50	0.025	8	0.8	1990	150
	10	3	50	0.035	10	1.0	1590	165
Stainless steel [Cr-Ni/1.4301]	3	3	60	0.010	3	0.3	6365	190
	4	3	60	0.015	4	0.4	4775	215
	5	3	60	0.015	5	0.5	3820	170
	6	3	60	0.020	6	0.6	3185	190
	8	3	60	0.025	8	0.8	2385	180
	10	3	60	0.035	10	1.0	1910	200

Application



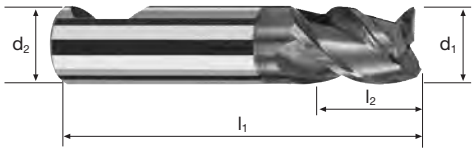
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	100	0.010	1.5	3	10610	320	1.5
	4	3	100	0.010	2.0	4	7960	240	2.0
	5	3	100	0.015	2.5	5	6365	285	3.5
	6	3	100	0.015	3.0	6	5305	240	4.5
	8	3	100	0.020	4.0	8	3980	240	7.5
	10	3	100	0.030	5.0	10	3185	285	14.5
Steel 850 - 1100 N/mm²	3	3	70	0.010	1.5	3	7425	225	1.0
	4	3	70	0.010	2.0	4	5570	165	1.5
	5	3	70	0.015	2.5	5	4455	200	2.5
	6	3	70	0.015	3.0	6	3715	165	3.0
	8	3	70	0.020	4.0	8	2785	165	5.5
	10	3	70	0.025	5.0	10	2230	165	8.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	3	35	0.010	1.5	3	3715	110	0.5
	4	3	35	0.010	2.0	4	2785	85	0.5
	5	3	35	0.015	2.5	5	2230	100	1.5
	6	3	35	0.015	3.0	6	1855	85	1.5
	8	3	35	0.020	4.0	8	1395	85	2.5
	10	3	35	0.025	5.0	10	1115	85	4.5
Stainless steel [Cr-Ni/1.4301]	3	3	40	0.010	1.5	3	4245	125	0.6
	4	3	40	0.010	2.0	4	3185	95	1.0
	5	3	40	0.015	2.5	5	2545	115	1.5
	6	3	40	0.015	3.0	6	2120	95	1.5
	8	3	40	0.020	4.0	8	1590	95	3.0
	10	3	40	0.025	5.0	10	1275	95	5.0

Cylindrical end mills Cut-X 45

Smooth-edged, short-shank version

HM MG10 | **λ 45° γ 12°**

45°



Roughing

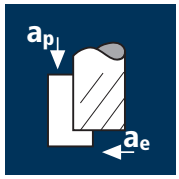
Finishing

Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **5339** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5339	TRIBO T5339
.180	3	6	38	4	0.10	8.0°	3	●	●
.220	4	6	38	5	0.10	5.5°	3	●	●
.260	5	6	38	6	0.15	3.0°	3	●	●
.300	6	6	38	7	0.15	0.0°	3	●	●
.391	8	8	41	9	0.15	0.0°	3	●	●
.450	10	10	48	11	0.20	0.0°	3	●	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]
Steel < 850 N/mm²	2	3	120	0.005	2	0.2	19100	285
	3	3	120	0.010	3	0.3	12735	380
	4	3	120	0.015	4	0.4	9550	430
	5	3	120	0.015	5	0.5	7640	345
	6	3	120	0.020	6	0.6	6365	380
	8	3	120	0.025	8	0.8	4775	360
	10	3	120	0.035	10	1.0	3820	400
Steel 850 - 1100 N/mm²	2	3	80	0.005	2	0.2	12735	190
	3	3	80	0.010	3	0.3	8490	255
	4	3	80	0.015	4	0.4	6365	285
	5	3	80	0.015	5	0.5	5095	230
	6	3	80	0.020	6	0.6	4245	255
	8	3	80	0.025	8	0.8	3185	240
	10	3	80	0.035	10	1.0	2545	265
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	3	50	0.005	2	0.2	7960	120
	3	3	50	0.010	3	0.3	5305	160
	4	3	50	0.015	4	0.4	3980	180
	5	3	50	0.015	5	0.5	3185	145
	6	3	50	0.020	6	0.6	2655	160
	8	3	50	0.025	8	0.8	1990	150
	10	3	50	0.035	10	1.0	1590	165
Stainless steel [Cr-Ni/1.4301]	2	3	60	0.005	2	0.2	9550	145
	3	3	60	0.010	3	0.3	6365	190
	4	3	60	0.015	4	0.4	4775	215
	5	3	60	0.015	5	0.5	3820	170
	6	3	60	0.020	6	0.6	3185	190
	8	3	60	0.025	8	0.8	2385	180
	10	3	60	0.035	10	1.0	1910	200

Application



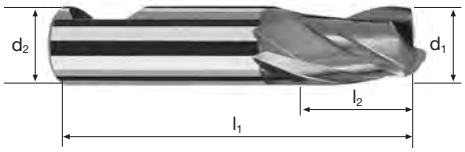
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	100	0.005	1.0	2	15915	240	0.5
	3	3	100	0.010	1.5	3	10610	320	1.5
	4	3	100	0.010	2.0	4	7960	240	2.0
	5	3	100	0.015	2.5	5	6365	285	3.5
	6	3	100	0.015	3.0	6	5305	240	4.5
	8	3	100	0.020	4.0	8	3980	240	7.5
	10	3	100	0.030	5.0	10	3185	285	14.5
Steel 850 - 1100 N/mm²	2	3	70	0.005	1.0	2	11140	165	0.5
	3	3	70	0.010	1.5	3	7425	225	1.0
	4	3	70	0.010	2.0	4	5570	165	1.5
	5	3	70	0.015	2.5	5	4455	200	2.5
	6	3	70	0.015	3.0	6	3715	165	3.0
	8	3	70	0.020	4.0	8	2785	165	5.5
	10	3	70	0.025	5.0	10	2230	165	8.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	3	35	0.005	1.0	2	5570	85	0.2
	3	3	35	0.010	1.5	3	3715	110	0.5
	4	3	35	0.010	2.0	4	2785	85	0.5
	5	3	35	0.015	2.5	5	2230	100	1.5
	6	3	35	0.015	3.0	6	1855	85	1.5
	8	3	35	0.020	4.0	8	1395	85	2.5
	10	3	35	0.025	5.0	10	1115	85	4.5
Stainless steel [Cr-Ni/1.4301]	2	3	40	0.005	1.0	2	6365	95	0.2
	3	3	40	0.010	1.5	3	4245	125	0.5
	4	3	40	0.010	2.0	4	3185	95	1.0
	5	3	40	0.015	2.5	5	2545	115	1.5
	6	3	40	0.015	3.0	6	2120	95	1.5
	8	3	40	0.020	4.0	8	1590	95	3.0
	10	3	40	0.025	5.0	10	1275	95	5.0

Cylindrical end mills Cut-X

Smooth-edged, short-shank version

HM MG10 | **λ 30° γ 12°**

45°



Roughing

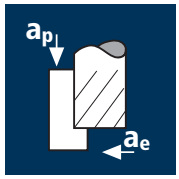
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **5335** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5335	TRIBO T5335
.140	2	6	38	3	0.10	11.0°	3	●	●
.180	3	6	38	4	0.10	8.0°	3	●	●
.220	4	6	38	5	0.10	5.5°	3	●	●
.260	5	6	38	6	0.15	3.0°	3	●	●
.300	6	6	38	7	0.15	0.0°	3	●	●
.391	8	8	41	9	0.15	0.0°	3	●	●
.450	10	10	48	11	0.20	0.0°	3	●	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]
Steel < 850 N/mm²	2	3	110	0.005	2	0.1	17510	265
	3	3	110	0.010	3	0.2	11670	350
	4	3	110	0.015	4	0.2	8755	395
	5	3	110	0.015	5	0.3	7005	315
	6	3	110	0.020	6	0.3	5835	350
	7	3	110	0.025	7	0.4	5000	375
	8	3	110	0.025	8	0.4	4375	330
	10	3	110	0.035	10	0.5	3500	370
Steel 850 - 1100 N/mm²	2	3	70	0.005	2	0.1	11140	165
	3	3	70	0.010	3	0.2	7425	225
	4	3	70	0.015	4	0.2	5570	250
	5	3	70	0.015	5	0.3	4455	200
	6	3	70	0.020	6	0.3	3715	225
	7	3	70	0.025	7	0.4	3185	240
	8	3	70	0.025	8	0.4	2785	210
	10	3	70	0.035	10	0.5	2230	235
Gold	2	3	160	0.005	2	0.1	25465	380
	3	3	160	0.010	3	0.2	16975	510
	4	3	160	0.015	4	0.2	12735	575
	5	3	160	0.015	5	0.3	10185	460
	6	3	160	0.020	6	0.3	8490	510
	7	3	160	0.025	7	0.4	7275	545
	8	3	160	0.025	8	0.4	6365	475
	10	3	150	0.035	10	0.5	4775	500
Stainless steel [Cr-Ni/1.4301]	2	3	50	0.005	2	0.1	7960	120
	3	3	50	0.010	3	0.2	5305	160
	4	3	50	0.015	4	0.2	3980	180
	5	3	50	0.015	5	0.3	3185	145
	6	3	50	0.020	6	0.3	2655	160
	7	3	50	0.025	7	0.4	2275	170
	8	3	50	0.025	8	0.4	1990	150
	10	3	50	0.035	10	0.5	1590	165

Application



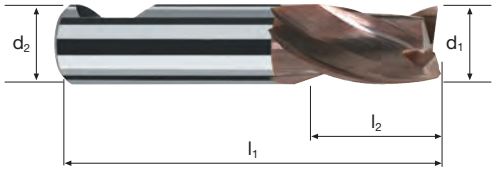
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	90	0.005	0.8	2	14325	215	0.5
	3	3	90	0.010	1.2	3	9550	285	1.0
	4	3	90	0.010	1.6	4	7160	215	1.5
	5	3	90	0.015	2.0	5	5730	260	2.5
	6	3	90	0.015	2.4	6	4775	215	3.0
	7	3	90	0.020	2.8	7	4095	245	5.0
	8	3	90	0.020	3.2	8	3580	215	5.5
	10	3	90	0.030	4.0	10	2865	260	10.5
Steel 850 - 1100 N/mm²	2	3	60	0.005	0.8	2	9550	145	0.2
	3	3	60	0.010	1.2	3	6365	190	0.5
	4	3	60	0.010	1.6	4	4775	145	1.0
	5	3	60	0.015	2.0	5	3820	170	1.5
	6	3	60	0.015	2.4	6	3185	145	2.0
	7	3	60	0.020	2.8	7	2730	165	3.0
	8	3	60	0.020	3.2	8	2385	145	3.5
	10	3	60	0.025	4.0	10	1910	145	6.0
Gold	2	3	140	0.005	0.8	2	22280	335	0.5
	3	3	140	0.010	1.2	3	14855	445	1.5
	4	3	140	0.010	1.6	4	11140	335	2.0
	5	3	140	0.015	2.0	5	8915	400	4.0
	6	3	140	0.020	2.4	6	7425	445	6.5
	7	3	140	0.020	2.8	7	6365	380	7.5
	8	3	140	0.025	3.2	8	5570	420	11.0
	10	3	110	0.030	4.0	10	3500	315	12.5
Stainless steel [Cr-Ni/1.4301]	2	3	35	0.005	0.8	2	5570	85	0.1
	3	3	35	0.010	1.2	3	3715	110	0.5
	4	3	35	0.010	1.6	4	2785	85	0.5
	5	3	35	0.015	2.0	5	2230	100	1.0
	6	3	35	0.015	2.4	6	1855	85	1.0
	7	3	35	0.020	2.8	7	1590	95	2.0
	8	3	35	0.020	3.2	8	1395	85	2.0
	10	3	35	0.025	4.0	10	1115	85	3.5

Cylindrical end mills

Smooth-edged, short-shank version

HSS Favora® F Base-X X-Generation

HM	λ 30° γ 12°
90°	



Roughing

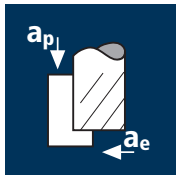
Finishing

Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		Aluminium Copper Gold / Platinum

Example: **Order-N°.** Coating **U** Article-N°. **45336** ø-Code **.120**

ø Code	d1 e8	d2 h6	l1	l2	α	z	5336 / 5236	UNICUT-4X U45336
.120	1.5	6	38	3	11.5°	3	●	●
.140	2.0	6	38	3	11.0°	3	●	●
.160	2.5	6	38	3	10.0°	3	●	●
.180	3.0	6	38	4	8.0°	3	●	●
.200	3.5	6	38	4	7.0°	3	●	●
.220	4.0	6	38	5	5.5°	3	●	●
.240	4.5	6	38	5	4.5°	3	●	●
.260	5.0	6	38	6	3.0°	3	●	●
.300	6.0	6	38	7	0.0°	3	●	●
.331	7.0	8	41	8	2.5°	3	●	●
.391	8.0	8	41	9	0.0°	3	●	●
.420	9.0	10	48	10	2.5°	3	●	●
.450	10.0	10	48	11	0.0°	3	●	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]
Steel < 850 N/mm²	3	3	110	0.010	3	0.2	11670	350
	4	3	110	0.015	4	0.3	8755	395
	5	3	110	0.015	5	0.4	7005	315
	6	3	110	0.020	6	0.5	5835	350
	8	3	110	0.025	8	0.6	4375	330
	10	3	110	0.035	10	0.8	3500	370
Steel 850 - 1100 N/mm²	3	3	70	0.010	3	0.2	7425	225
	4	3	70	0.015	4	0.3	5570	250
	5	3	70	0.015	5	0.4	4455	200
	6	3	70	0.020	6	0.5	3715	225
	8	3	70	0.025	8	0.6	2785	210
	10	3	70	0.035	10	0.8	2230	235
Unalloyed copper	3	3	180	0.010	3	0.2	19100	575
	4	3	180	0.015	4	0.3	14325	645
	5	3	180	0.015	5	0.4	11460	515
	6	3	180	0.020	6	0.5	9550	575
	8	3	180	0.025	8	0.6	7160	535
	10	3	180	0.035	10	0.8	5730	600
Stainless steel [Cr-Ni/1.4301]	3	3	50	0.010	3	0.2	5305	160
	4	3	50	0.015	4	0.3	3980	180
	5	3	50	0.015	5	0.4	3185	145
	6	3	50	0.020	6	0.5	2655	160
	8	3	50	0.025	8	0.6	1990	150
	10	3	50	0.035	10	0.8	1590	165

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	3	3	90	0.010	1.4	3	9550	285	1.0
	4	3	90	0.010	1.8	4	7160	215	1.5
	5	3	90	0.015	2.3	5	5730	260	3.0
	6	3	90	0.015	2.7	6	4775	215	3.5
	8	3	90	0.020	3.6	8	3580	215	6.0
	10	3	90	0.030	4.5	10	2865	260	11.5
Steel 850 - 1100 N/mm²	3	3	60	0.010	1.4	3	6365	190	1.0
	4	3	60	0.010	1.8	4	4775	145	1.0
	5	3	60	0.015	2.3	5	3820	170	2.0
	6	3	60	0.015	2.7	6	3185	145	2.5
	8	3	60	0.020	3.6	8	2385	145	4.0
	10	3	60	0.025	4.5	10	1910	145	6.5
Unalloyed copper	3	3	160	0.010	1.4	3	16975	510	2.0
	4	3	160	0.010	1.8	4	12735	380	2.5
	5	3	160	0.015	2.3	5	10185	460	5.5
	6	3	160	0.020	2.7	6	8490	510	8.5
	8	3	160	0.025	3.6	8	6365	475	13.5
	10	3	160	0.030	4.5	10	5095	460	20.5
Stainless steel [Cr-Ni/1.4301]	3	3	35	0.010	1.4	3	3715	110	0.5
	4	3	35	0.010	1.8	4	2785	85	0.5
	5	3	35	0.015	2.3	5	2230	100	1.0
	6	3	35	0.015	2.7	6	1855	85	1.5
	8	3	35	0.020	3.6	8	1395	85	2.5
	10	3	35	0.025	4.5	10	1115	85	4.0

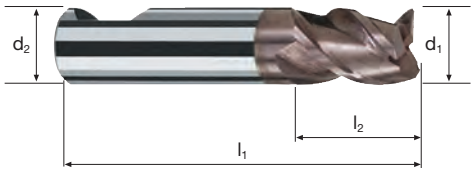
Cylindrical end mills

Smooth-edged, short-shank version

HSS Favora® F Base-X X-Generation

HM | λ **45°** γ **12°**

45°



Roughing

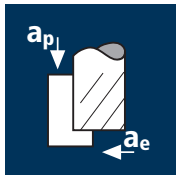
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Copper**

Example: **Order-N°.** Coating **U** Article-N°. **45339** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	UNICUT-4X U45339
.180	3	6	38	4	0.10	8.0°	3	●
.220	4	6	38	5	0.10	5.5°	3	●
.260	5	6	38	6	0.15	3.0°	3	●
.300	6	6	38	7	0.15	0.0°	3	●
.391	8	8	41	9	0.15	0.0°	3	●
.450	10	10	48	11	0.20	0.0°	3	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
Steel < 850 N/mm²								
2	3	110	0.005	2	0.2	17510	265	
3	3	110	0.010	3	0.2	11670	350	
4	3	110	0.015	4	0.3	8755	395	
5	3	110	0.015	5	0.4	7005	315	
6	3	110	0.020	6	0.5	5835	350	
8	3	110	0.025	8	0.6	4375	330	
10	3	110	0.035	10	0.8	3500	370	
Steel 850 - 1100 N/mm²								
2	3	70	0.005	2	0.2	11140	165	
3	3	70	0.010	3	0.2	7425	225	
4	3	70	0.015	4	0.3	5570	250	
5	3	70	0.015	5	0.4	4455	200	
6	3	70	0.020	6	0.5	3715	225	
8	3	70	0.025	8	0.6	2785	210	
10	3	70	0.035	10	0.8	2230	235	
Unalloyed copper								
2	3	180	0.005	2	0.2	28650	430	
3	3	180	0.010	3	0.2	19100	575	
4	3	180	0.015	4	0.3	14325	645	
5	3	180	0.015	5	0.4	11460	515	
6	3	180	0.020	6	0.5	9550	575	
8	3	180	0.025	8	0.6	7160	535	
10	3	180	0.035	10	0.8	5730	600	
Stainless steel [Cr-Ni/1.4301]								
2	3	50	0.005	2	0.2	7960	120	
3	3	50	0.010	3	0.2	5305	160	
4	3	50	0.015	4	0.3	3980	180	
5	3	50	0.015	5	0.4	3185	145	
6	3	50	0.020	6	0.5	2655	160	
8	3	50	0.025	8	0.6	1990	150	
10	3	50	0.035	10	0.8	1590	165	

Application



Material

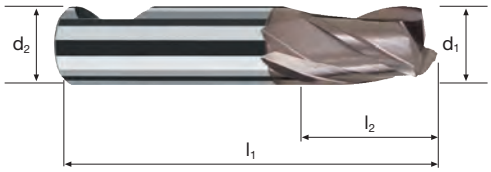
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²								
2	3	90	0.005	0.9	2	14325	215	0.5
3	3	90	0.010	1.4	3	9550	285	1.0
4	3	90	0.010	1.8	4	7160	215	1.5
5	3	90	0.015	2.3	5	5730	260	3.0
6	3	90	0.015	2.7	6	4775	215	3.5
8	3	90	0.020	3.6	8	3580	215	6.0
10	3	90	0.030	4.5	10	2865	260	11.5
Steel 850 - 1100 N/mm²								
2	3	60	0.005	0.9	2	9550	145	0.5
3	3	60	0.010	1.4	3	6365	190	1.0
4	3	60	0.010	1.8	4	4775	145	1.0
5	3	60	0.015	2.3	5	3820	170	2.0
6	3	60	0.015	2.7	6	3185	145	2.5
8	3	60	0.020	3.6	8	2385	145	4.0
10	3	60	0.025	4.5	10	1910	145	6.5
Unalloyed copper								
2	3	160	0.005	0.9	2	25465	380	0.5
3	3	160	0.010	1.4	3	16975	510	2.0
4	3	160	0.010	1.8	4	12735	380	2.5
5	3	160	0.015	2.3	5	10185	460	5.0
6	3	160	0.020	2.7	6	8490	510	8.5
8	3	160	0.025	3.6	8	6365	475	13.5
10	3	160	0.030	4.5	10	5095	460	20.5
Stainless steel [Cr-Ni/1.4301]								
2	3	35	0.005	0.9	2	5570	85	0.2
3	3	35	0.010	1.4	3	3715	110	0.5
4	3	35	0.010	1.8	4	2785	85	0.5
5	3	35	0.015	2.3	5	2230	100	1.0
6	3	35	0.015	2.7	6	1855	85	1.5
8	3	35	0.020	3.6	8	1395	85	2.5
10	3	35	0.025	4.5	10	1115	85	4.0

Cylindrical end mills

Smooth-edged, short-shank version

HM | λ **30°** γ **12°**

45°



Roughing

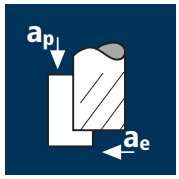
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Copper**

Example: **Order-N°.** Coating **U** Article-N°. **45335** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	UNICUT-4X U45335
.140	2	6	38	3	0.10	11.0°	3	●
.180	3	6	38	4	0.10	8.0°	3	●
.220	4	6	38	5	0.10	5.5°	3	●
.260	5	6	38	6	0.15	3.0°	3	●
.300	6	6	38	7	0.15	0.0°	3	●
.391	8	8	41	9	0.15	0.0°	3	●
.450	10	10	48	11	0.20	0.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	1.0	3	60	0.005	1.0	0.1	19100	285
	2.0	3	60	0.010	2.0	0.2	9550	285
	2.5	3	60	0.010	2.5	0.3	7640	230
	3.0	3	60	0.010	3.0	0.3	6365	190
	4.0	3	60	0.015	4.0	0.4	4775	215
	5.0	3	60	0.020	5.0	0.5	3820	230
	5.5	3	60	0.020	5.5	0.6	3475	210
	6.0	3	60	0.025	6.0	0.6	3185	240
	7.0	3	60	0.030	7.0	0.7	2730	245
Steel 850 - 1100 N/mm²	1.0	3	48	0.005	1.0	0.1	15280	230
	2.0	3	48	0.010	2.0	0.2	7640	230
	2.5	3	48	0.010	2.5	0.3	6110	185
	3.0	3	48	0.010	3.0	0.3	5095	155
	4.0	3	48	0.015	4.0	0.4	3820	170
	5.0	3	48	0.020	5.0	0.5	3055	185
	5.5	3	48	0.020	5.5	0.6	2780	165
	6.0	3	48	0.025	6.0	0.6	2545	190
	7.0	3	48	0.030	7.0	0.7	2185	195
Stainless steel [Cr-Ni/1.4301]	1.0	3	25	0.005	1.0	0.1	7960	120
	2.0	3	25	0.010	2.0	0.2	3980	120
	2.5	3	25	0.010	2.5	0.3	3185	95
	3.0	3	25	0.010	3.0	0.3	2655	80
	4.0	3	25	0.015	4.0	0.4	1990	90
	5.0	3	25	0.020	5.0	0.5	1590	95
	5.5	3	25	0.020	5.5	0.6	1445	85
	6.0	3	25	0.025	6.0	0.6	1325	100
	7.0	3	25	0.030	7.0	0.7	1135	100
Stainless steel [Cr-Ni-Mo-.../1.4571]	1.0	3	22	0.005	1.0	0.1	7005	105
	2.0	3	22	0.010	2.0	0.2	3500	105
	2.5	3	22	0.010	2.5	0.3	2800	85
	3.0	3	22	0.010	3.0	0.3	2335	70
	4.0	3	22	0.015	4.0	0.4	1750	80
	5.0	3	22	0.020	5.0	0.5	1400	85
	5.5	3	22	0.020	5.5	0.6	1275	75
	6.0	3	22	0.025	6.0	0.6	1165	85
	7.0	3	22	0.030	7.0	0.7	1000	90

Application



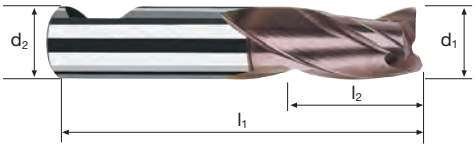
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	1.0	3	55	0.005	0.6	1.0	17510	265	0.2
	2.0	3	55	0.010	1.0	2.0	8755	265	0.5
	2.5	3	55	0.010	1.3	2.5	7005	210	0.5
	3.0	3	55	0.010	1.5	3.0	5835	175	1.0
	4.0	3	55	0.015	2.0	4.0	4375	195	1.5
	5.0	3	55	0.020	2.5	5.0	3500	210	2.5
	5.5	3	55	0.020	2.8	5.5	3185	190	3.0
	6.0	3	55	0.025	3.0	6.0	2920	220	4.0
	7.0	3	55	0.030	3.5	7.0	2500	225	5.5
Steel 850 - 1100 N/mm²	1.0	3	45	0.005	0.6	1.0	14325	215	0.1
	2.0	3	45	0.010	1.0	2.0	7160	215	0.5
	2.5	3	45	0.010	1.3	2.5	5730	170	0.5
	3.0	3	45	0.010	1.5	3.0	4775	145	0.5
	4.0	3	45	0.015	2.0	4.0	3580	160	1.5
	5.0	3	45	0.020	2.5	5.0	2865	170	2.0
	5.5	3	45	0.020	2.8	5.5	2605	155	2.5
	6.0	3	45	0.025	3.0	6.0	2385	180	3.0
	7.0	3	45	0.030	3.5	7.0	2045	185	4.5
Stainless steel [Cr-Ni/1.4301]	1.0	3	22	0.005	0.6	1.0	7005	105	0.1
	2.0	3	22	0.010	1.0	2.0	3500	105	0.2
	2.5	3	22	0.010	1.3	2.5	2800	85	0.5
	3.0	3	22	0.010	1.5	3.0	2335	70	0.5
	4.0	3	22	0.015	2.0	4.0	1750	80	0.5
	5.0	3	22	0.020	2.5	5.0	1400	85	1.0
	5.5	3	22	0.020	2.8	5.5	1275	75	1.0
	6.0	3	22	0.025	3.0	6.0	1165	85	1.5
	7.0	3	22	0.030	3.5	7.0	1000	90	2.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	1.0	3	20	0.005	0.6	1.0	6365	95	0.1
	2.0	3	20	0.010	1.0	2.0	3185	95	0.2
	2.5	3	20	0.010	1.3	2.5	2545	75	0.2
	3.0	3	20	0.010	1.5	3.0	2120	65	0.5
	4.0	3	20	0.015	2.0	4.0	1590	70	0.5
	5.0	3	20	0.020	2.5	5.0	1275	75	1.0
	5.5	3	20	0.020	2.8	5.5	1160	70	1.0
	6.0	3	20	0.025	3.0	6.0	1060	80	1.5
	7.0	3	20	0.030	3.5	7.0	910	80	2.0

Cylindrical end mills

Smooth-edged, short-shank version

HSS PM/F | **λ 30° γ 15°**

90°



Roughing

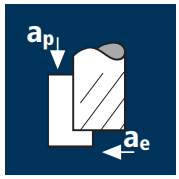
Finishing

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0400** ø-Code **.100**

ø Code	d1 f8	d2 h6	l1	l2	α	z	UNICUT-4X U0400
.100	1.00	6	34	3	14.0°	3	●
.120	1.50	6	34	3	13.0°	3	●
.130	1.80	6	35	4	11.5°	3	●
.140	2.00	6	35	4	11.0°	3	●
.150	2.30	6	36	5	9.0°	3	●
.160	2.50	6	36	5	8.5°	3	●
.170	2.80	6	36	5	8.0°	3	●
.180	3.00	6	36	5	7.5°	3	●
.190	3.30	6	37	6	6.0°	3	●
.200	3.50	6	37	6	5.5°	3	●
.210	3.80	6	38	7	4.5°	3	●
.220	4.00	6	38	7	4.5°	3	●
.230	4.30	6	38	7	3.5°	3	●
.240	4.50	6	38	7	3.5°	3	●
.250	4.80	6	39	8	2.5°	3	●
.260	5.00	6	39	8	2.0°	3	●
.270	5.30	6	39	8	1.5°	3	●
.280	5.50	6	39	8	1.0°	3	●
.290	5.75	6	39	8	0.0°	3	●
.300	6.00	6	39	8	0.0°	3	●
.311	6.50	8	42	10	2.5°	3	●
.331	7.00	8	42	10	2.0°	3	●
.351	7.50	8	42	10	1.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	8.0	3	60	0.030	8.0	0.8	2385	215
	8.5	3	60	0.035	8.5	0.9	2245	235
	9.0	3	60	0.035	9.0	0.9	2120	225
	9.5	3	60	0.040	9.5	1.0	2010	240
	10.0	3	60	0.040	10.0	1.0	1910	230
	12.0	3	60	0.050	12.0	1.2	1590	240
	16.0	3	60	0.065	16.0	1.6	1195	235
	20.0	3	60	0.080	20.0	2.0	955	230
Steel 850 - 1100 N/mm²	8.0	3	48	0.030	8.0	0.8	1910	170
	8.5	3	48	0.035	8.5	0.9	1800	190
	9.0	3	48	0.035	9.0	0.9	1700	180
	9.5	3	48	0.040	9.5	1.0	1610	195
	10.0	3	48	0.040	10.0	1.0	1530	185
	12.0	3	48	0.050	12.0	1.2	1275	190
	16.0	3	48	0.065	16.0	1.6	955	185
	20.0	3	48	0.080	20.0	2.0	765	185
Stainless steel [Cr-Ni/1.4301]	8.0	3	25	0.030	8.0	0.8	995	90
	8.5	3	25	0.035	8.5	0.9	935	100
	9.0	3	25	0.035	9.0	0.9	885	95
	9.5	3	25	0.040	9.5	1.0	840	100
	10.0	3	25	0.040	10.0	1.0	795	95
	12.0	3	25	0.050	12.0	1.2	665	100
	16.0	3	25	0.065	16.0	1.6	495	95
	20.0	3	25	0.080	20.0	2.0	400	95
Stainless steel [Cr-Ni-Mo-.../1.4571]	8.0	3	22	0.030	8.0	0.8	875	80
	8.5	3	22	0.035	8.5	0.9	825	85
	9.0	3	22	0.035	9.0	0.9	780	80
	9.5	3	22	0.040	9.5	1.0	735	90
	10.0	3	22	0.040	10.0	1.0	700	85
	12.0	3	22	0.050	12.0	1.2	585	90
	16.0	3	22	0.065	16.0	1.6	440	85
	20.0	3	22	0.080	20.0	2.0	350	85

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	8.0	3	55	0.030	4.0	8.0	2190	195	6.0
	8.5	3	55	0.035	4.3	8.5	2060	215	8.0
	9.0	3	55	0.035	4.5	9.0	1945	205	8.5
	9.5	3	55	0.040	4.8	9.5	1845	220	10.0
	10.0	3	55	0.040	5.0	10.0	1750	210	10.5
	12.0	3	55	0.050	6.0	12.0	1460	220	16.0
	16.0	3	55	0.065	8.0	16.0	1095	215	27.5
	20.0	3	55	0.080	10.0	20.0	875	210	42.0
Steel 850 - 1100 N/mm²	8.0	3	45	0.030	4.0	8.0	1790	160	5.0
	8.5	3	45	0.035	4.3	8.5	1685	175	6.5
	9.0	3	45	0.035	4.5	9.0	1590	165	6.5
	9.5	3	45	0.040	4.8	9.5	1510	180	8.0
	10.0	3	45	0.040	5.0	10.0	1430	170	8.5
	12.0	3	45	0.050	6.0	12.0	1195	180	13.0
	16.0	3	45	0.065	8.0	16.0	895	175	22.5
	20.0	3	45	0.080	10.0	20.0	715	170	34.0
Stainless steel [Cr-Ni/1.4301]	8.0	3	22	0.030	4.0	8.0	875	80	2.5
	8.5	3	22	0.035	4.3	8.5	825	85	3.0
	9.0	3	22	0.035	4.5	9.0	780	80	3.0
	9.5	3	22	0.040	4.8	9.5	735	90	4.0
	10.0	3	22	0.040	5.0	10.0	700	85	4.5
	12.0	3	22	0.050	6.0	12.0	585	90	6.5
	16.0	3	22	0.065	8.0	16.0	440	85	11.0
	20.0	3	22	0.080	10.0	20.0	350	85	17.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	8.0	3	20	0.030	4.0	8.0	795	70	2.2
	8.5	3	20	0.035	4.3	8.5	750	80	3.0
	9.0	3	20	0.035	4.5	9.0	705	75	3.0
	9.5	3	20	0.040	4.8	9.5	670	80	3.5
	10.0	3	20	0.040	5.0	10.0	635	75	4.0
	12.0	3	20	0.050	6.0	12.0	530	80	6.0
	16.0	3	20	0.065	8.0	16.0	400	80	10.0
	20.0	3	20	0.080	10.0	20.0	320	75	15.0

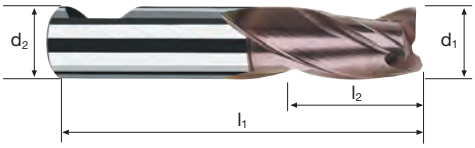
Cylindrical end mills

Smooth-edged, short-shank version

HSS Favora® Base-X X-Generation

HSS PM/F | **λ 30° γ 15°**

90°



Roughing

Finishing

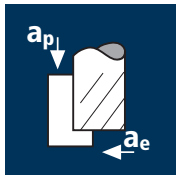
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0400** ø-Code **.391**

ø Code	d1 f8	d2 h6	l1	l2	α	z	UNICUT-4X U0400
.391	8.00	8	43	11	0.0°	3	●
.410	8.50	10	48	11	2.5°	3	●
.420	9.00	10	48	11	1.5°	3	●
.430	9.50	10	48	11	1.0°	3	●
.450	10.00	10	50	13	0.0°	3	●
.501*	12.00	12	73	16	0.0°	3	●
.610*	16.00	16	79	19	0.0°	3	●
.682*	20.00	20	88	22	0.0°	3	●

* Normal-shank version

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	60	0.005	3	0.2	9550	145
	3	3	60	0.010	5	0.3	6365	190
	5	3	60	0.015	8	0.5	3820	170
	6	3	60	0.020	9	0.6	3185	190
	8	3	60	0.025	12	0.8	2385	180
	10	3	60	0.035	15	1.0	1910	200
	12	3	60	0.040	18	1.2	1590	190
	16	3	60	0.055	24	1.6	1195	195
	20	3	60	0.065	30	2.0	955	185
Steel 850 - 1100 N/mm²	2	3	48	0.005	3	0.2	7640	115
	3	3	48	0.010	5	0.3	5095	155
	5	3	48	0.015	8	0.5	3055	135
	6	3	48	0.020	9	0.6	2545	155
	8	3	48	0.025	12	0.8	1910	145
	10	3	48	0.035	15	1.0	1530	160
	12	3	48	0.040	18	1.2	1275	155
	16	3	48	0.055	24	1.6	955	160
	20	3	48	0.065	30	2.0	765	150
Stainless steel [Cr-Ni/1.4301]	2	3	25	0.005	3	0.2	3980	60
	3	3	25	0.010	5	0.3	2655	80
	5	3	25	0.015	8	0.5	1590	70
	6	3	25	0.020	9	0.6	1325	80
	8	3	25	0.025	12	0.8	995	75
	10	3	25	0.035	15	1.0	795	85
	12	3	25	0.040	18	1.2	665	80
	16	3	25	0.055	24	1.6	495	80
	20	3	25	0.065	30	2.0	400	80
Stainless steel [Cr-Ni-Mo-.../1.4571]	2	3	22	0.005	3	0.2	3500	55
	3	3	22	0.010	5	0.3	2335	70
	5	3	22	0.015	8	0.5	1400	65
	6	3	22	0.020	9	0.6	1165	70
	8	3	22	0.025	12	0.8	875	65
	10	3	22	0.035	15	1.0	700	75
	12	3	22	0.040	18	1.2	585	70
	16	3	22	0.055	24	1.6	440	75
	20	3	22	0.065	30	2.0	350	70

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	2	3	55	0.005	1.0	2	8755	130	0.5
	3	3	55	0.010	1.5	3	5835	175	1.0
	5	3	55	0.015	2.5	5	3500	160	2.0
	6	3	55	0.015	3.0	6	2920	130	2.5
	8	3	55	0.025	4.0	8	2190	165	5.5
	10	3	55	0.030	5.0	10	1750	160	8.0
	12	3	55	0.035	6.0	12	1460	155	11.0
	16	3	55	0.045	8.0	16	1095	150	19.0
	20	3	55	0.055	10.0	20	875	145	29.0
Steel 850 - 1100 N/mm²	2	3	45	0.005	1.0	2	7160	105	0.2
	3	3	45	0.010	1.5	3	4775	145	0.5
	5	3	45	0.015	2.5	5	2865	130	1.5
	6	3	45	0.015	3.0	6	2385	105	2.0
	8	3	45	0.025	4.0	8	1790	135	4.5
	10	3	45	0.030	5.0	10	1430	130	6.5
	12	3	45	0.035	6.0	12	1195	125	9.0
	16	3	45	0.045	8.0	16	895	120	15.5
	20	3	45	0.055	10.0	20	715	120	24.0
Stainless steel [Cr-Ni/1.4301]	2	3	22	0.005	1.0	2	3500	55	0.1
	3	3	22	0.010	1.5	3	2335	70	0.5
	5	3	22	0.015	2.5	5	1400	65	1.0
	6	3	22	0.015	3.0	6	1165	50	1.0
	8	3	22	0.025	4.0	8	875	65	2.0
	10	3	22	0.030	5.0	10	700	65	3.5
	12	3	22	0.035	6.0	12	585	60	4.5
	16	3	22	0.045	8.0	16	440	60	7.5
	20	3	22	0.055	10.0	20	350	60	12.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	2	3	20	0.005	1.0	2	3185	50	0.1
	3	3	20	0.010	1.5	3	2120	65	0.5
	5	3	20	0.015	2.5	5	1275	55	0.5
	6	3	20	0.015	3.0	6	1060	50	1.0
	8	3	20	0.025	4.0	8	795	60	2.0
	10	3	20	0.030	5.0	10	635	55	3.0
	12	3	20	0.035	6.0	12	530	55	4.0
	16	3	20	0.045	8.0	16	400	55	7.0
	20	3	20	0.055	10.0	20	320	55	11.0

Cylindrical end mills

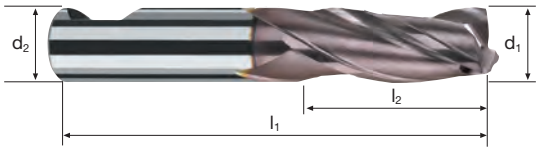
Smooth-edged, short-shank version

HSS | Favora® | Base-X | X-Generation

HSS PM/F

λ 30°
γ 15°

90°



Roughing

Finishing

Rm < 850

Rm 850-1100

Inox Stainless

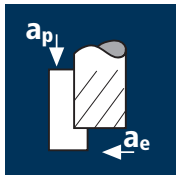
Copper

Example: **Order-N°.** Coating **U** Article-N°. **0410** ø-Code **.140**

ø Code	d1 f8	d2 h6	l1	l2	α	z	UNICUT-4X U0410
.140	2.0	6	38	7	8.5°	3	●
.160	2.5	6	39	8	7.0°	3	●
.180	3.0	6	39	8	6.0°	3	●
.200	3.5	6	41	10	4.5°	3	●
.220	4.0	6	42	11	3.5°	3	●
.240	4.5	6	42	11	2.5°	3	●
.260	5.0	6	44	13	1.5°	3	●
.280	5.5	6	44	13	1.0°	3	●
.300	6.0	6	44	13	0.0°	3	●
.311	6.5	8	48	16	2.0°	3	●
.331	7.0	8	48	16	1.5°	3	●
.351	7.5	8	48	16	1.0°	3	●
.391	8.0	8	51	19	0.0°	3	●
.410	8.5	10	56	19	2.0°	3	●
.420	9.0	10	56	19	1.5°	3	●
.430	9.5	10	56	19	1.0°	3	●
.450	10.0	10	59	22	0.0°	3	●
.501*	12.0	12	83	26	0.0°	3	●
.610*	16.0	16	92	32	0.0°	3	●
.682*	20.0	20	104	38	0.0°	3	●

* Normal-shank version

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	3	4	170	0.010	3	0.2	18040	720
	4	4	170	0.010	4	0.2	13530	540
	5	4	170	0.015	5	0.3	10825	650
	6	6	170	0.015	6	0.3	9020	810
	8	6	170	0.025	8	0.4	6765	1015
	10	6	170	0.030	10	0.5	5410	975
Steel 850 - 1100 N/mm²	3	4	110	0.010	3	0.2	11670	465
	4	4	110	0.010	4	0.2	8755	350
	5	4	110	0.015	5	0.3	7005	420
	6	6	110	0.015	6	0.3	5835	525
	8	6	110	0.025	8	0.4	4375	655
	10	6	110	0.030	10	0.5	3500	630
Steel 1100 - 1300 N/mm²	3	4	80	0.010	3	0.2	8490	340
	4	4	80	0.010	4	0.2	6365	255
	5	4	80	0.015	5	0.3	5095	305
	6	6	80	0.015	6	0.3	4245	380
	8	6	80	0.025	8	0.4	3185	480
	10	6	80	0.030	10	0.5	2545	460
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.010	3	0.2	7425	295
	4	4	70	0.010	4	0.2	5570	225
	5	4	70	0.015	5	0.3	4455	265
	6	6	70	0.015	6	0.3	3715	335
	8	6	70	0.025	8	0.4	2785	420
	10	6	70	0.030	10	0.5	2230	400

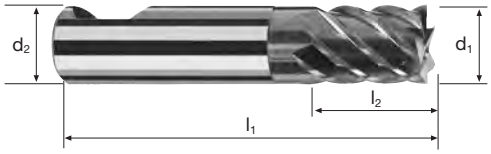
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	3	4	130	0.010	3	0.2	13795	550
	4	4	130	0.010	4	0.2	10345	415
	5	4	130	0.015	5	0.3	8275	495
	6	6	130	0.015	6	0.3	6895	620
	8	6	130	0.025	8	0.4	5175	775
	10	6	130	0.030	10	0.5	4140	745
Cold work tool steel (12% Cr) high alloyed [1.2379]	3	4	75	0.010	3	0.2	7960	320
	4	4	75	0.010	4	0.2	5970	240
	5	4	75	0.015	5	0.3	4775	285
	6	6	75	0.015	6	0.3	3980	360
	8	6	75	0.025	8	0.4	2985	450
	10	6	75	0.030	10	0.5	2385	430
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	4	80	0.010	3	0.2	8490	340
	4	4	80	0.010	4	0.2	6365	255
	5	4	80	0.015	5	0.3	5095	305
	6	6	80	0.015	6	0.3	4245	380
	8	6	80	0.025	8	0.4	3185	480
	10	6	80	0.030	10	0.5	2545	460
Heat resistant steel [17-4 PH]	3	4	40	0.010	3	0.2	4245	170
	4	4	40	0.010	4	0.2	3185	125
	5	4	40	0.015	5	0.3	2545	155
	6	6	40	0.015	6	0.3	2120	190
	8	6	40	0.025	8	0.4	1590	240
	10	6	40	0.030	10	0.5	1275	230

Cylindrical end mills Cut-X multi

Finishing, short-shank version

HM MG10 | **λ 45° γ 10°**

90°



Roughing

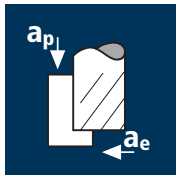
Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5337** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	α	z	POLYCHROM P5337	TRIBO T5337 / T5237
.180	3	6	38	4	8.0°	4	●	●
.220	4	6	38	5	5.5°	4	●	●
.260	5	6	38	6	3.0°	4	●	●
.300	6	6	38	7	0.0°	6	●	●
.391	8	8	41	9	0.0°	6	●	●
.450	10	10	48	11	0.0°	6	●	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]
Steel < 850 N/mm²	3	4	170	0.010	3	0.2	18040	720
	4	4	170	0.010	4	0.2	13530	540
	5	4	170	0.015	5	0.3	10825	650
	6	6	170	0.015	6	0.3	9020	810
	8	6	170	0.025	8	0.4	6765	1015
	10	6	170	0.030	10	0.5	5410	975
Steel 850 - 1100 N/mm²	3	4	110	0.010	3	0.2	11670	465
	4	4	110	0.010	4	0.2	8755	350
	5	4	110	0.015	5	0.3	7005	420
	6	6	110	0.015	6	0.3	5835	525
	8	6	110	0.025	8	0.4	4375	655
	10	6	110	0.030	10	0.5	3500	630
Steel 1100 - 1300 N/mm²	3	4	80	0.010	3	0.2	8490	340
	4	4	80	0.010	4	0.2	6365	255
	5	4	80	0.015	5	0.3	5095	305
	6	6	80	0.015	6	0.3	4245	380
	8	6	80	0.025	8	0.4	3185	480
	10	6	80	0.030	10	0.5	2545	460
Stainless steel [Cr-Ni/1.4301]	3	4	70	0.010	3	0.2	7425	295
	4	4	70	0.010	4	0.2	5570	225
	5	4	70	0.015	5	0.3	4455	265
	6	6	70	0.015	6	0.3	3715	335
	8	6	70	0.025	8	0.4	2785	420
	10	6	70	0.030	10	0.5	2230	400

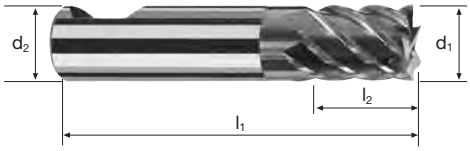
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]
Cast iron (lamellar / spheroidal)	3	4	130	0.010	3	0.2	13795	550
	4	4	130	0.010	4	0.2	10345	415
	5	4	130	0.015	5	0.3	8275	495
	6	6	130	0.015	6	0.3	6895	620
	8	6	130	0.025	8	0.4	5175	775
	10	6	130	0.030	10	0.5	4140	745
Cold work tool steel (12% Cr), high alloyed [1.2379]	3	4	75	0.010	3	0.2	7960	320
	4	4	75	0.010	4	0.2	5970	240
	5	4	75	0.015	5	0.3	4775	285
	6	6	75	0.015	6	0.3	3980	360
	8	6	75	0.025	8	0.4	2985	450
	10	6	75	0.030	10	0.5	2385	430
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	3	4	80	0.010	3	0.2	8490	340
	4	4	80	0.010	4	0.2	6365	255
	5	4	80	0.015	5	0.3	5095	305
	6	6	80	0.015	6	0.3	4245	380
	8	6	80	0.025	8	0.4	3185	480
	10	6	80	0.030	10	0.5	2545	460
Heat resistant steel [17-4 PH]	3	4	40	0.010	3	0.2	4245	170
	4	4	40	0.010	4	0.2	3185	125
	5	4	40	0.015	5	0.3	2545	155
	6	6	40	0.015	6	0.3	2120	190
	8	6	40	0.025	8	0.4	1590	240
	10	6	40	0.030	10	0.5	1275	230

Cylindrical end mills Cut-X multi

Finishing, short-shank version

HM MG10 | **λ 45° γ 10°**

45°



Roughing

Finishing

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel**

Example: **Order-N°.** Coating **P** Article-N°. **5338** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	POLYCHROM P5338	TRIBO T5338
.180	3	6	38	4	0.10	8.0°	4	●	●
.220	4	6	38	5	0.10	5.5°	4	●	●
.260	5	6	38	6	0.15	3.0°	4	●	●
.300	6	6	38	7	0.15	0.0°	6	●	●
.391	8	8	41	9	0.15	0.0°	6	●	●
.450	10	10	48	11	0.20	0.0°	6	●	●


fraisa

End milling tools for 3D machining
Ball nose

Assortment list

Ball nose end mills CARBIDE/CBN 316 - 323

Corner radius end mills CARBIDE/CBN 324 - 329

Tolerance r ±0.005

N° 7420		d1 1 – 12	X-Generation X	HM XT	3xd	Rm 1100-1500	HRC 48-60	331
N° 7400		d1 1 – 12	X-Generation X	HM XA	3xd	Rm 1100-1500	HRC 48- >60	333
N° 7460	new!	d1 6 – 12	X-Generation X	HM XA	3xd	Rm 1100-1500	HRC 48- >60	335
N° 7424		d1 1 – 12	X-Generation X	HM XT	6xd	Rm 1100-1500	HRC 48-60	337
N° 7404		d1 1 – 12	X-Generation X	HM XA	6xd	Rm 1100-1500	HRC 48- >60	339
N° 7464	new!	d1 6 – 12	X-Generation X	HM XA	6xd	Rm 1100-1500	HRC 48- >60	341
N° 7428		d1 1 – 12	X-Generation X	HM XT	9xd	Rm 1100-1500	HRC 48-60	343
N° 7408		d1 1 – 12	X-Generation X	HM XA	9xd	Rm 1100-1500	HRC 48- >60	345

Tolerance r ±0.01

N° 7450	new!	d1 3 – 12	X-Generation X	HM XT	3xd	Rm 1300-1500	HRC 48-60	347
N° 7454	new!	d1 3 – 12	X-Generation X	HM XT	6xd	Rm 1300-1500	HRC 48-60	349
N° 7458	new!	d1 3 – 12	X-Generation X	HM XT	9xd	Rm 1300-1500	HRC 48-60	351

End milling tools for 3D machining
Ball nose

Tolerance r js8 (±)

N° 5100 d1 1.0 – 12.0 	X-Generation X	HM XA	3xd	Rm 1300-1500	HRC 48- >60			353
N° 5140 d1 6 – 12 	X-Generation X	HM XA	3xd	Rm 1300-1500	HRC 48- >60			355

Tolerance r f8 (-/-)

N° 5286 d1 1.0 – 16.0 	Base-X B	HM Plus	3xd	Rm 1100-1500	HRC 48-56			357
N° 5220 d1 4 – 16 	Base-X B	HM MG10	3xd	Rm 850-1500				359
N° 7540 new! d1 1 – 12 	Base-X B	HM MG10	3xd	Inox Stainless				361
N° 5290 d1 2 – 20 	Base-X B	HM MG10	3xd	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast		363
N° 45298 d1 3 – 12 	Favora® F	HM	3xd	Rm 850-1300				365
N° 5288 d1 1 – 16 	Base-X B	HM Plus	3xd	Rm 1100-1500	HRC 48-56			367
N° 5222 d1 4 – 12 	Base-X B	HM MG10	3xd	Rm 850-1500				369
N° 7544 new! d1 1 – 12 	Base-X B	HM MG10	6xd	Inox Stainless				371
N° 5292 d1 3 – 16 	Base-X B	HM MG10	3xd	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast		373
N° 5289 d1 3 – 12 	Base-X B	HM MG10	5xd	Rm 1100-1500	HRC 48-56			375

HSS

N° 0830 d1 1.0 – 12.0 	HSS	HSS-E Co8		Rm <850-1100				377
N° 0800 d1 3 – 20 	HSS	HSS-E Co8		Rm <850-1100				379

End milling tools for 3D machining
Corner radius

Tolerance r 0/+0.015

N° 7100 new! 	d1 2 – 12 r 0.2, 0.5, 1.0, 2.0	X-Generation X	HM XT	3xd	Rm 1300-1500	HRC 48-60		381
N° 7200 	d1 2 – 12 r 0.5, 1.0	X-Generation X	HM XT	3xd	Rm 1300-1500	HRC 48- >60		385
N° 7104 new! 	d1 2 – 12 r 0.2, 0.5, 1.0, 2.0	X-Generation X	HM XT	6xd	Rm 1300-1500	HRC 48-60		387
N° 7204 	d1 2 – 12 r 0.5, 1.0	X-Generation X	HM XT	6xd	Rm 1300-1500	HRC 48- >60		391

End milling tools for 3D machining
Corner radius

Tolerance r 0/+0.03

N° 5253 / 5353		**d1 6 – 16** **r 1.0**	X-Generation **X**	**HM MG10**	**3xd**	**Rm** 1300-1500	**HRC** 48-60		393
N° 5254 / 5354		**d1 8 – 16** **r 1.5**	X-Generation **X**	**HM MG10**	**3xd**	**Rm** 1300-1500	**HRC** 48-60		395
N° 5256 / 5356		**d1 6 – 16** **r 1.5, 2.0, 2.5, 3.0, 3.5, 4.0**	X-Generation **X**	**HM MG10**	**3xd**	**Rm** 1300-1500	**HRC** 48-60		397
N° 5267 / 5367		**d1 6 – 16** **r 1.0**	X-Generation **X**	**HM XT**	**3xd**	**HRC** 48- >60			399
N° 5250		**d1 3 – 16** **r 0.5, 0.8, 1.0, 1.5**	X-Generation **X**	**HM MG10**	**3xd**	**Rm** <850-1300			401
N° 5245 / 5345		**d1 6 – 16** **r 1.0, 1.5, 2.0**	Base-X **B**	**HM MG10**	**3xd**	**Rm** <850-1100			403
N° 5246 / 5346		**d1 6 – 16** **r 1.5, 2.0, 2.5, 3.0, 4.0**	Base-X **B**	**HM MG10**	**3xd**	**Rm** <850-1100			405
N° 7340 **new!**		**d1 2 – 12** **r 0.2, 0.5, 1.0**	Base-X **B**	**HM MG10**	**3xd**	**Rm** <850	**Inox** Stainless		407
N° 5257 / 5357		**d1 6 – 16** **r 1.5, 2.0, 2.5, 3.0, 3.5**	X-Generation **X**	**HM MG10**	**5xd**	**Rm** 1300-1500	**HRC** 48-60		411
N° 5252		**d1 6 – 16** **r 0.8, 1.0, 1.5**	X-Generation **X**	**HM MG10**	**5xd**	**Rm** <850-1300			413
N° 7344 **new!**		**d1 2 – 12** **r 0.2, 0.5, 1.0**	Base-X **B**	**HM MG10**	**6xd**	**Rm** <850	**Inox** Stainless		415

End milling tools for 3D machining
HFC

Cylindrical neck

N° 7600	d1 3 – 16		X-Generation X	HM XT	3xd	Rm 850-1500	HRC 48- >60		419
N° 7620	new! d1 6 – 12		X-Generation X	HM XT	3xd	Rm 1100-1500	HRC 48-60		421
N° 7604	d1 3 – 16		X-Generation X	HM XT	6xd	Rm 850-1500	HRC 48- >60		423
N° 7624	new! d1 6 – 12		X-Generation X	HM XT	6xd	Rm 1100-1500	HRC 48-60		425
N° 7608	d1 3 – 16		X-Generation X	HM XT	9xd	Rm 850-1500	HRC 48- >60		427

Conical neck

N° 7658	new! d1 3 – 12		X-Generation X	HM XT	9xd	Rm 850-1500	HRC 48- >60		429

End milling tools for 3D machining
CBN

Ball nose

N° 31700



d1 4 – 12

X-Generation X | CBN | 3xd | HRC 56- >60 | | | 431

Corner radius

N° 31420



d1 4 – 12

r 0.5

X-Generation X | CBN | 3xd | HRC 56- >60 | | | 433

N° 31410



d1 4 – 12

r 1.0 - 3.0 (r = 0.25 x d_1)

X-Generation X | CBN | 3xd | HRC 56- >60 | | | 435

End milling tools for 3D machining
Micro with ball nose

Shank Ø 6mm

N° 6562 d1 0.2 – 3.0	X-Generation	X	HM XA	3xd	Rm 850-1500	HRC 48-60	Inox / Ti	437
N° 6564 d1 0.5 – 3.0	X-Generation	X	HM XA	5xd	Rm 850-1500	HRC 48-60	Inox / Ti	439
N° 6566 d1 0.5 – 3.0	X-Generation	X	HM XA	8xd	Rm 850-1500	HRC 48-60	Inox / Ti	441
N° 6568 d1 0.5 – 3.0	X-Generation	X	HM XA	10xd	Rm 850-1500	HRC 48-60	Inox / Ti	443
N° 6766 d1 0.5 – 3.0	X-Generation	X	HM XA	8xd	Rm 850-1500	HRC 48-60	Inox / Ti	445
N° 6768 d1 0.5 – 3.0	X-Generation	X	HM XA	10xd	Rm 850-1500	HRC 48-60	Inox / Ti	447
N° 6770 d1 0.5 – 3.0	X-Generation	X	HM XA	12xd	Rm 850-1500	HRC 48-60	Inox / Ti	449
N° 6772 d1 0.5 – 3.0	X-Generation	X	HM XA	15xd	Rm 850-1500	HRC 48-60	Inox / Ti	451

End milling tools for 3D machining
Micro with ball nose

Shank Ø 3mm

N° 15781	d1 0.2 – 3.0		X-Generation X	HM XA	1xd	Rm 1100-1500	HRC 48-60		453
N° 5782	d1 0.2 – 3.0		Base-X B	HM Micro	3xd	Rm <850-1300	Inox Stainless	Ti Titanium	455
N° 5792	d1 0.5 – 3.0		X-Generation X	HM XA	3xd	Rm 1100-1500	HRC 48-60		457
N° 45785	d1 0.3 – 3.0		Fawora® F	HM	3xd	Rm <850-1100			459
N° 5784	d1 0.5 – 3.0		Base-X B	HM Micro	5xd	Rm <850-1300	Inox Stainless	Ti Titanium	461
N° 5794	d1 0.5 – 3.0		X-Generation X	HM XA	5xd	Rm 1100-1500	HRC 48-60		463
N° 5786	d1 0.5 – 3.0		Base-X B	HM Micro	8xd	Rm <850-1300	Inox Stainless	Ti Titanium	465
N° 5796	d1 0.5 – 3.0		X-Generation X	HM XA	8xd	Rm 1100-1500	HRC 48-60		467
N° 5787	d1 0.5 – 3.0		Base-X B	HM Micro	10xd	Rm <850-1300			469
N° 5791	d1 1.0 – 3.0		Base-X B	HM Micro	12xd	Rm <850-1300			471
N° 5793	d1 1.0 – 3.0		Base-X B	HM Micro	15xd	Rm <850-1300			473
N° 15795	d1 1.0 – 3.0		Base-X B	HM Micro	20xd	Rm <850-1100			475
N° 5788	d1 0.5 – 3.0		Base-X B	HM Micro	2xd	Rm <850-1300	Inox Stainless	Ti Titanium	477

End milling tools for 3D machining
Micro with corner radius

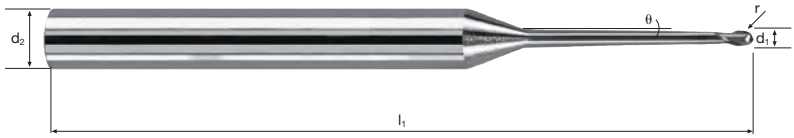
Shank Ø 6mm

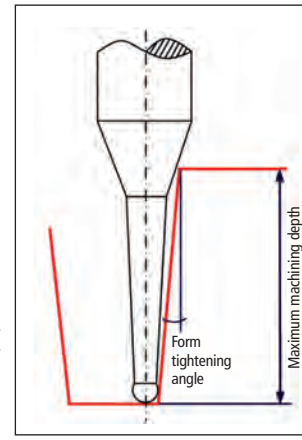
N° 6532 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	3xd	Rm 850-1500	HRC 48-60	Inox / Ti	479
N° 6534 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	5xd	Rm 850-1500	HRC 48-60	Inox / Ti	481
N° 6536 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	8xd	Rm 850-1500	HRC 48-60	Inox / Ti	483
N° 6736 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	8xd	Rm 850-1500	HRC 48-60	Inox / Ti	485
N° 6738 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	10xd	Rm 850-1500	HRC 48-60	Inox / Ti	487
N° 6740 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	12xd	Rm 850-1500	HRC 48-60	Inox / Ti	489
N° 6742 d1 0.5 – 3.0 r 0.1, 0.2, 0.5	X-Generation	X	HM XA	15xd	Rm 850-1500	HRC 48-60	Inox / Ti	491

Shank Ø 3mm

N° 15751 d1 1.0 – 3.0 r 0.2	X-Generation	X	HM XA	1xd	Rm 1100-1500	HRC 48-60		493
N° 5752 d1 1.0 – 3.0 r 0.2	Base-X	B	HM Micro	3xd	Rm <850-1300	Inox Stainless	Ti Titanium	495
N° 5762 d1 1.0 – 3.0 r 0.2	X-Generation	X	HM XA	3xd	Rm 1100-1500	HRC 48-60		497
N° 5754 d1 1.0 – 3.0 r 0.2	Base-X	B	HM Micro	5xd	Rm <850-1300	Inox Stainless	Ti Titanium	499
N° 5764 d1 1.0 – 3.0 r 0.2	X-Generation	X	HM XA	5xd	Rm 1100-1500	HRC 48-60		501
N° 5756 d1 1.0 – 3.0 r 0.2	Base-X	B	HM Micro	8xd	Rm <850-1300	Inox Stainless	Ti Titanium	503
N° 5766 d1 1.0 – 3.0 r 0.2	X-Generation	X	HM XA	8xd	Rm 1100-1500	HRC 48-60		505

Assortment list for ball nose end mills CARBIDE/CBN





Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.2	3	40	2	0.10	0°	0.14	0.15	0.15	0.16	0.18	D15781020	453
	3	40	2	0.10	0°	0.56	0.59	0.62	0.70	0.79	M5782020	455
	6	57	2	0.10	0°	0.56	0.59	0.62	0.70	0.79	X6562020	437
0.3	3	40	2	0.15	0°	0.26	0.27	0.28	0.29	0.31	D15781030	453
	3	40	2	0.15	0°	0.90	0.94	0.99	1.11	1.26	M45785030	459
	3	40	2	0.15	0°	0.94	0.99	1.04	1.16	1.32	M5782030	455
	6	57	2	0.15	0°	0.94	0.99	1.04	1.16	1.32	X6562030	437
0.4	3	40	2	0.20	0°	0.38	0.39	0.40	0.42	0.45	D15781040	453
	3	40	2	0.20	0°	0.90	0.94	0.99	1.10	1.24	M45785040	459
	3	40	2	0.20	0°	1.24	1.30	1.37	1.53	1.73	M5782040	455
	6	57	2	0.20	0°	1.24	1.30	1.37	1.53	1.73	X6562040	437
0.5	3	40	2	0.25	0°	0.50	0.51	0.53	0.55	0.59	D15781050	453
	3	40	2	0.25	0°	1.40	1.47	1.54	1.71	1.93	M45785050	459
	3	40	2	0.25	0°	1.49	1.54	1.59	1.70	1.82	D5792050	457
	3	40	2	0.25	0°	1.49	1.54	1.59	1.70	1.82	M5782050	455
	6	57	2	0.25	0°	1.49	1.54	1.59	1.70	1.82	X6562050	437
	3	60	2	0.25	0°	1.37	1.70	2.36	6.77	-	M5788050	477
	3	40	2	0.25	0°	2.49	2.57	2.66	2.85	3.07	D5794050	463
	3	40	2	0.25	0°	2.49	2.57	2.66	2.85	3.07	M5784050	461
	6	57	2	0.25	0°	2.49	2.57	2.66	2.85	3.07	X6564050	439
	6	57	2	0.25	0.9°	1.92	3.91	4.04	4.33	4.67	X6766050	445
	3	40	2	0.25	0°	3.99	4.12	4.26	4.57	4.93	D5796050	467
	3	40	2	0.25	0°	3.99	4.12	4.26	4.57	4.93	M5786050	465
	6	57	2	0.25	0°	3.99	4.12	4.26	4.57	4.93	X6566050	441
	6	57	2	0.25	0.9°	1.92	4.17	5.04	5.41	5.84	X6768050	447
	3	40	2	0.25	0°	4.99	5.16	5.33	5.72	6.17	M5787050	469
	6	57	2	0.25	0°	4.99	5.16	5.33	5.72	6.17	X6568050	443
	6	57	2	0.25	0.9°	1.92	4.13	6.05	6.49	7.01	X6770050	449
	6	61	2	0.25	0.9°	1.92	4.13	7.56	8.12	8.77	X6772050	451
0.6	3	40	2	0.30	0°	0.62	0.63	0.65	0.68	0.72	D15781060	453
	3	40	2	0.30	0°	1.40	1.46	1.53	1.70	1.91	M45785060	459
	3	40	2	0.30	0°	1.79	1.85	1.90	2.03	2.18	D5792060	457
	3	40	2	0.30	0°	1.79	1.85	1.90	2.03	2.18	M5782060	455
	6	57	2	0.30	0°	1.79	1.85	1.90	2.03	2.18	X6562060	437
	3	60	2	0.30	0°	1.57	1.94	2.66	7.58	-	M5788060	477
	3	40	2	0.30	0°	2.99	3.09	3.19	3.41	3.67	D5794060	463
	3	40	2	0.30	0°	2.99	3.09	3.19	3.41	3.67	M5784060	461
	6	57	2	0.30	0°	2.99	3.09	3.19	3.41	3.67	X6564060	439

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.6	6	57	2	0.30	0.9°	2.02	4.29	4.85	5.19	5.60	X6766060	445
	3	40	2	0.30	0°	4.79	4.95	5.11	5.48	5.91	D5796060	467
	3	40	2	0.30	0°	4.79	4.95	5.11	5.48	5.91	M5786060	465
	6	57	2	0.30	0°	4.79	4.95	5.11	5.48	5.91	X6566060	441
	6	57	2	0.30	0.9°	2.02	4.29	6.05	6.49	7.01	X6768060	447
	3	40	2	0.30	0°	5.99	6.19	6.40	6.86	7.40	M5787060	469
	6	57	2	0.30	0°	5.99	6.19	6.40	6.86	7.40	X6568060	443
0.7	3	40	2	0.35	0°	1.90	1.99	2.08	2.31	2.60	M45785070	459
	3	60	2	0.35	0°	1.77	2.18	3.72	8.38	-	M5788070	477
	3	40	2	0.35	0°	3.49	3.60	3.72	3.98	4.28	D5794070	463
	3	40	2	0.35	0°	3.49	3.60	3.72	3.98	4.28	M5784070	461
0.8	3	40	2	0.40	0°	0.86	0.88	0.90	0.94	1.00	D15781080	453
	3	40	2	0.40	0°	1.90	1.98	2.08	2.30	2.58	M45785080	459
	3	40	2	0.40	0°	2.39	2.46	2.54	2.71	2.91	D5792080	457
	3	40	2	0.40	0°	2.39	2.46	2.54	2.71	2.91	M5782080	455
	6	57	2	0.40	0°	2.39	2.46	2.54	2.71	2.91	X6562080	437
	3	60	2	0.40	0°	1.97	2.42	3.26	9.18	-	M5788080	477
	3	40	2	0.40	0°	3.99	4.12	4.25	4.55	4.89	D5794080	463
	3	40	2	0.40	0°	3.99	4.12	4.25	4.55	4.89	M5784080	461
	6	57	2	0.40	0°	3.99	4.12	4.25	4.55	4.89	X6564080	439
	6	57	2	0.40	0.9°	2.17	4.50	6.46	6.92	7.46	X6766080	445
	3	40	2	0.40	0°	6.39	6.60	6.82	7.31	7.88	D5796080	467
	3	40	2	0.40	0°	6.39	6.60	6.82	7.31	7.88	M5786080	465
	6	57	2	0.40	0°	6.39	6.60	6.82	7.31	7.88	X6566080	441
	6	61	2	0.40	0.9°	2.17	4.50	8.07	8.65	9.33	X6768080	447
	3	40	2	0.40	0°	7.99	8.25	8.53	9.15	9.87	M5787080	469
	6	61	2	0.40	0°	7.99	8.25	8.53	9.15	9.87	X6568080	443
	6	61	2	0.40	0.9°	2.17	4.50	9.68	10.39	11.21	X6770080	449
	6	66	2	0.40	0.9°	2.17	4.50	12.10	12.98	14.01	X6772080	451
0.9	3	40	2	0.45	0°	2.40	2.51	2.63	2.91	3.27	M45785090	459
	3	40	2	0.45	0°	4.49	4.63	4.78	5.12	5.50	D5794090	463
	3	40	2	0.45	0°	4.49	4.63	4.78	5.12	5.50	M5784090	461
1.0	3	40	2	0.50	0°	0.90	0.92	0.93	0.98	1.03	P5286100	357
	3	60	2	0.50	0°	0.90	0.92	0.93	0.98	1.03	P5288100	367
	3	50	2	0.50	0°	1.10	1.12	1.15	1.21	1.27	D15781100	453
	6	57	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	D5100100	353
	3	50	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	D5792100	457
	3	50	2	0.50	0°	2.99	3.08	3.17	3.38	3.17	M5782100	455
	6	57	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	P7540100	361
	6	57	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	X6562100	437
	6	57	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	X7400100	333
	6	57	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	X7420100	331
	3	40	2	0.50	0°	2.90	3.03	3.18	3.52	3.96	M45785100	459
	3	60	2	0.50	0°	2.37	2.89	3.86	10.79	-	M5788100	477
	3	50	2	0.50	0°	4.99	5.15	5.31	5.68	6.11	D5794100	463
	3	50	2	0.50	0°	4.99	5.15	5.31	5.68	6.11	M5784100	461
	6	57	2	0.50	0°	4.99	5.15	5.31	5.68	6.11	X6564100	439
	6	66	2	0.50	0°	5.99	6.18	6.38	6.83	7.36	P7544100	371
	6	66	2	0.50	0°	5.99	6.18	6.38	6.83	7.36	X7404100	339
	6	66	2	0.50	0°	5.99	6.18	6.38	6.83	7.36	X7424100	337
	6	61	2	0.50	0.9°	2.32	4.71	8.07	8.65	9.32	X6766100	445
	3	50	2	0.50	0°	7.99	8.25	8.52	9.13	9.84	D5796100	467
	3	50	2	0.50	0°	7.99	8.25	8.52	9.13	9.84	M5786100	465
	6	61	2	0.50	0°	7.99	8.25	8.52	9.13	9.84	X6566100	441
	6	69	2	0.50	0°	8.99	9.28	9.59	10.28	11.09	X7408100	345
	6	69	2	0.50	0°	8.99	9.28	9.59	10.28	11.09	X7428100	343
	6	61	2	0.50	0.9°	2.32	4.71	10.09	10.81	11.66	X6768100	447

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
1.0	3	50	2	0.50	0°	9.99	10.32	10.66	11.43	12.33	M5787100	469
	6	61	2	0.50	0°	9.99	10.32	10.66	11.43	12.33	X6568100	443
	6	66	2	0.50	0.9°	2.32	4.71	12.10	12.98	14.00	X6770100	449
	3	50	2	0.50	0°	11.99	12.38	12.80	13.73	14.81	M5791100	471
	6	66	2	0.50	0.9°	2.32	4.71	15.12	16.23	17.51	X6772100	451
	3	60	2	0.50	0°	14.99	15.49	16.01	17.18	18.55	M5793100	473
	3	60	2	0.50	0°	19.99	20.65	21.36	22.93	-	M15795100	475
1.2	3	50	2	0.60	0°	1.30	1.33	1.36	1.42	1.50	D15781108	453
	3	50	2	0.60	0°	3.69	3.79	3.91	4.17	4.47	D5792108	457
	3	50	2	0.60	0°	3.69	3.79	3.91	4.17	4.47	M5782108	455
	6	57	2	0.60	0°	3.69	3.79	3.91	4.17	4.47	X6562108	437
	3	40	2	0.60	0°	3.90	4.08	4.27	4.74	5.35	M45785108	459
	3	60	2	0.60	0°	2.77	3.37	4.46	12.39	-	M5788108	477
	3	50	2	0.60	0°	6.09	6.28	6.48	6.93	7.45	D5794108	463
	3	50	2	0.60	0°	6.09	6.28	6.48	6.93	7.45	M5784108	461
	6	57	2	0.60	0°	6.09	6.28	6.48	6.93	7.45	X6564108	439
	6	61	2	0.60	0.9°	4.13	8.68	9.79	10.49	11.30	X6766108	445
	3	50	2	0.60	0°	9.69	10.00	10.33	11.07	11.92	D5796108	467
	3	50	2	0.60	0°	9.69	10.00	10.33	11.07	11.92	M5786108	465
	6	61	2	0.60	0°	9.69	10.00	10.33	11.07	11.92	X6566108	441
	6	66	2	0.60	0.9°	4.13	8.67	12.21	13.09	14.11	X6768108	447
	3	50	2	0.60	0°	12.09	12.48	12.89	13.82	14.91	M5787108	469
	6	66	2	0.60	0°	12.09	12.48	12.89	13.82	14.91	X6568108	443
	6	66	2	0.60	0.9°	4.13	8.68	14.62	15.68	16.92	X6770108	449
	3	60	2	0.60	0°	14.49	14.96	15.46	16.58	-	M5791108	471
	6	69	2	0.60	0.9°	4.13	8.68	18.25	19.58	21.13	X6772108	451
	3	60	2	0.60	0°	18.09	18.68	19.31	20.72	-	M5793108	473
	3	60	2	0.60	0°	24.09	24.88	25.73	-	-	M15795108	475
1.5	3	50	2	0.75	0°	1.70	1.74	1.77	1.86	1.96	D15781120	453
	3	40	2	0.75	0°	1.90	1.94	1.99	2.09	2.21	P5286120	357
	3	40	2	0.75	0°	3.90	4.07	4.26	4.71	5.28	M45785120	459
	6	57	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	D5100120	353
	3	50	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	D5792120	457
	3	50	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	M5782120	455
	6	57	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	X6562120	437
	3	60	2	0.75	0°	3.37	4.08	5.36	14.80	-	M5788120	477
	3	50	2	0.75	0°	7.59	7.82	8.07	8.63	9.28	D5794120	463
	3	50	2	0.75	0°	7.59	7.82	8.07	8.63	9.28	M5784120	461
	6	61	2	0.75	0°	7.59	7.82	8.07	8.63	9.28	X6564120	439
	6	61	2	0.75	0.9°	4.33	8.94	12.21	13.08	14.09	X6766120	445
	3	60	2	0.75	0°	12.09	12.47	12.88	13.80	14.87	D5796120	467
	3	60	2	0.75	0°	12.09	12.47	12.88	13.80	14.87	M5786120	465
	6	61	2	0.75	0°	12.09	12.47	12.88	13.80	14.87	X6566120	441
	6	66	2	0.75	0.9°	4.33	8.94	15.23	16.33	17.60	X6768120	447
	3	60	2	0.75	0°	15.09	15.57	16.09	17.25	-	M5787120	469
	6	66	2	0.75	0°	15.09	15.57	16.09	17.25	18.60	X6568120	443
	6	69	2	0.75	0.9°	4.33	8.94	18.25	19.57	21.11	X6770120	449
	3	60	2	0.75	0°	18.09	18.67	19.30	20.70	-	M5791120	471
	6	75	2	0.75	0.9°	4.33	8.94	22.78	24.44	26.38	X6772120	451
	3	70	2	0.75	0°	22.59	23.33	24.12	-	-	M5793120	473
	3	70	2	0.75	0°	30.09	31.09	32.14	-	-	M15795120	475
1.8	3	40	2	0.90	0°	4.90	5.00	5.11	5.34	5.59	M45785130	459
	3	50	2	0.90	0°	9.09	9.37	9.67	10.33	11.11	D5794132	463
	3	50	2	0.90	0°	9.09	9.37	9.67	10.33	11.11	M5784132	461
2.0	3	50	2	1.00	0°	2.30	2.35	2.40	2.51	2.65	D15781140	453
	3	40	2	1.00	0°	2.40	2.45	2.51	2.63	2.77	P5286138	357
	3	60	2	1.00	0°	2.40	2.45	2.51	2.63	2.77	P5288138	367

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
2.0	3	40	2	1.00	0°	4.90	5.00	5.10	5.33	5.58	M45785140	459
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	C5290140	363
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	D5100140	353
	3	50	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	D5792140	457
	3	50	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	M5782140	455
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	P5286140	357
	6	75	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	P5288140	367
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	P7540140	361
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	X6562140	437
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	X7400140	333
	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	X7420140	331
	3	50	2	1.00	0°	10.09	10.40	10.73	11.47	-	D5794140	463
	3	50	2	1.00	0°	10.09	10.40	10.73	11.47	-	M5784140	461
	6	61	2	1.00	0°	10.09	10.40	10.73	11.47	12.33	X6564140	439
	3	60	2	1.00	0°	4.76	6.73	12.78	-	-	M5788140	477
	6	66	2	1.00	0°	12.09	12.46	12.87	13.77	14.81	P7544140	371
	6	66	2	1.00	0°	12.09	12.46	12.87	13.77	14.81	X7404140	339
	6	66	2	1.00	0°	12.09	12.46	12.87	13.77	14.81	X7424140	337
	6	66	2	1.00	0.9°	4.73	9.53	16.25	17.40	18.74	X6766140	445
	3	60	2	1.00	0°	16.09	16.60	17.15	-	-	D5796140	467
	3	60	2	1.00	0°	16.09	16.60	17.15	-	-	M5786140	465
	6	66	2	1.00	0°	16.09	16.60	17.15	18.37	19.79	X6566140	441
	6	69	2	1.00	0°	18.09	18.67	19.29	20.67	22.27	X7408140	345
	6	69	2	1.00	0°	18.09	18.67	19.29	20.67	22.27	X7428140	343
	6	69	2	1.00	0.9°	4.73	9.53	20.27	21.73	23.42	X6768140	447
	3	60	2	1.00	0°	20.09	20.73	21.42	-	-	M5787140	469
	6	69	2	1.00	0°	20.09	20.73	21.42	22.96	24.76	X6568140	443
	6	75	2	1.00	0.9°	4.73	9.53	24.30	26.06	28.10	X6770140	449
	3	60	2	1.00	0°	24.09	24.87	25.70	-	-	M5791140	471
	6	80	2	1.00	0.9°	4.73	9.53	30.34	32.55	35.12	X6772140	451
	3	70	2	1.00	0°	30.09	31.07	-	-	-	M5793140	473
	3	80	2	1.00	0°	40.09	41.41	-	-	-	M15795140	475
2.3	6	57	2	1.15	0°	7.17	7.38	7.60	8.09	8.67	X6562152	437
	3	50	2	1.15	0°	11.77	12.13	12.52	-	-	D5794152	463
	3	50	2	1.15	0°	11.77	12.13	12.52	-	-	M5784152	461
	6	61	2	1.15	0°	11.77	12.13	12.52	13.38	14.39	X6564152	439
2.5	3	50	2	1.25	0°	2.90	2.96	3.02	3.17	3.33	D15781160	453
	3	40	2	1.25	0°	6.90	7.04	7.19	7.51	-	M45785160	459
	6	57	2	1.25	0°	7.77	8.00	8.24	8.77	9.39	D5100160	353
	3	50	2	1.25	0°	7.77	8.00	8.24	-	-	D5792160	457
	3	50	2	1.25	0°	7.77	8.00	8.24	-	-	M5782160	455
	6	57	2	1.25	0°	7.77	8.00	8.24	8.77	9.39	X6562160	437
	3	50	2	1.25	0°	12.77	13.17	13.58	-	-	D5794160	463
	3	50	2	1.25	0°	12.77	13.17	13.58	-	-	M5784160	461
	6	61	2	1.25	0°	12.77	13.17	13.58	14.52	15.61	X6564160	439
	6	69	2	1.25	0.9°	8.37	17.39	20.48	21.94	23.63	X6766160	445
	6	69	2	1.25	0°	20.27	20.92	21.61	23.14	24.93	X6566160	441
	6	75	2	1.25	0.9°	8.37	17.39	25.52	27.35	29.48	X6768160	447
	6	75	2	1.25	0°	25.27	26.09	26.96	28.89	31.15	X6568160	443
	6	80	2	1.25	0.9°	8.37	17.39	30.55	32.76	35.33	X6770160	449
	6	87	2	1.25	0.9°	8.37	17.39	38.11	40.88	44.11	X6772160	451
	3	60	2	1.25	0°	20.27	20.92	-	-	-	D5796160	467
	3	60	2	1.25	0°	20.27	20.92	-	-	-	M5786160	465
	3	60	2	1.25	0°	25.27	26.09	-	-	-	M5787160	469
	3	70	2	1.25	0°	30.27	-	-	-	-	M5791160	471
	3	70	2	1.25	0°	37.77	-	-	-	-	M5793160	473
	3	80	2	1.25	0°	50.27	-	-	-	-	M15795160	475

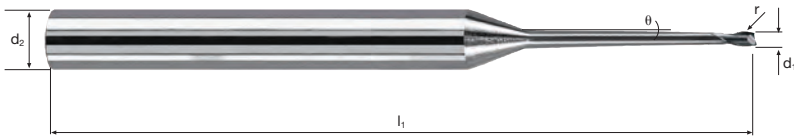
Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
2.8	6	57	2	1.40	0°	8.67	8.92	9.19	9.78	10.48	X6562172	437
	6	61	2	1.40	0°	14.27	14.71	15.18	16.22	17.44	X6564172	439
	3	50	2	1.40	0°	14.27	-	-	-	-	D5794172	463
	3	50	2	1.40	0°	14.27	-	-	-	-	M5784172	461
3.0	6	57	2	1.50	0°	3.90	3.98	4.08	4.28	4.52	U45298180	365
	6	75	2	1.50	0°	8.27	8.51	8.75	9.31	9.95	C5292180	373
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	C5290180	363
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	D5100180	353
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	P5286180	357
	6	75	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	P5288180	367
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	P7540180	361
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	X6562180	437
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	X7400180	333
	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	X7420180	331
	6	57	4	1.50	0°	9.27	9.54	9.82	10.46	11.20	X7450180	347
	4	44	2	1.50	0°	9.90	10.11	10.33	10.81	-	M45785180	459
	6	66	2	1.50	0°	15.27	15.74	16.24	17.36	18.66	X6564180	439
	6	66	2	1.50	0°	18.27	18.84	19.45	20.81	22.39	P7544180	371
	6	66	2	1.50	0°	18.27	18.84	19.45	20.81	22.39	X7404180	339
	6	66	2	1.50	0°	18.27	18.84	19.45	20.81	22.39	X7424180	337
	6	66	4	1.50	0°	18.27	18.84	19.45	20.81	22.39	X7454180	349
	6	75	2	1.50	0.9°	8.77	17.98	24.52	26.26	28.28	X6766180	445
	6	90	2	1.50	0°	24.27	25.04	25.87	27.71	29.84	P5289180	375
	6	75	2	1.50	0°	24.27	25.04	25.87	27.71	29.84	X6566180	441
	6	75	2	1.50	0°	27.27	28.14	29.08	31.15	-	X7408180	345
	6	75	2	1.50	0°	27.27	28.14	29.08	31.15	-	X7428180	343
	6	75	4	1.50	0°	27.27	28.14	29.08	31.15	-	X7458180	351
	6	75	2	1.50	0.9°	8.77	17.98	30.56	32.75	-	X6768180	447
	6	80	2	1.50	0°	30.27	31.25	32.29	34.60	-	X6568180	443
	6	87	2	1.50	0.9°	8.77	17.98	36.60	39.25	-	X6770180	449
	6	100	2	1.50	0.9°	8.77	17.98	45.67	-	-	X6772180	451
	3	50	2	1.50	0°	3.50	-	-	-	-	D15781180	453
	3	40	2	1.50	0°	3.90	-	-	-	-	P5286178	357
	3	60	2	1.50	0°	3.90	-	-	-	-	P5288178	367
	3	60	2	1.50	0°	5.90	-	-	-	-	M5788180	477
	3	50	2	1.50	0°	8.90	-	-	-	-	D5792180	457
	3	50	2	1.50	0°	8.90	-	-	-	-	M5782180	455
	3	50	2	1.50	0°	14.90	-	-	-	-	D5794180	463
	3	50	2	1.50	0°	14.90	-	-	-	-	M5784180	461
	3	60	2	1.50	0°	23.90	-	-	-	-	D5796180	467
	3	60	2	1.50	0°	23.90	-	-	-	-	M5786180	465
	3	60	2	1.50	0°	29.90	-	-	-	-	M5787180	469
	3	70	2	1.50	0°	35.90	-	-	-	-	M5791180	471
	3	80	2	1.50	0°	44.90	-	-	-	-	M5793180	473
	3	90	2	1.50	0°	59.90	-	-	-	-	M15795180	475
4.0	6	57	2	2.00	0°	4.90	5.00	5.11	5.35	5.64	U45298220	365
	6	57	2	2.00	0°	12.27	12.62	13.00	13.83	14.81	D5100220	353
	6	75	2	2.00	0°	12.27	12.62	13.00	13.83	14.81	P5222220	369
	6	57	2	2.00	0°	12.27	12.62	13.00	13.83	14.81	P7540220	361
	6	57	2	2.00	0°	12.27	12.62	13.00	13.83	14.81	X7400220	333
	6	57	2	2.00	0°	12.27	12.62	13.00	13.83	14.81	X7420220	331
	6	57	4	2.00	0°	12.27	12.62	13.00	13.83	14.81	X7450220	347
	6	80	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	31700220	431
	6	57	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	C5290220	363
	6	75	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	C5292220	373
	6	57	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	P5220220	359
	6	57	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	P5286220	357

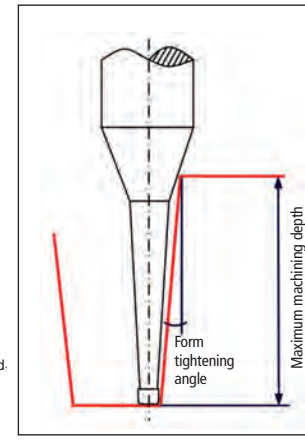
Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
4.0	6	75	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	P5288220	367
	6	69	2	2.00	0°	24.46	25.22	26.03	27.85	-	P7544220	371
	6	69	2	2.00	0°	24.46	25.22	26.03	27.85	-	X7404220	339
	6	69	2	2.00	0°	24.46	25.22	26.03	27.85	-	X7424220	337
	6	69	4	2.00	0°	24.46	25.22	26.03	27.85	-	X7454220	349
	6	90	2	2.00	0°	27.46	28.32	29.24	-	-	P5289220	375
	6	80	2	2.00	0°	36.46	37.62	38.87	-	-	X7408220	345
	6	80	2	2.00	0°	36.46	37.62	38.87	-	-	X7428220	343
	6	80	4	2.00	0°	36.46	37.62	38.87	-	-	X7458220	351
5.0	6	57	2	2.50	0°	5.90	6.02	6.15	6.43	6.77	U45298260	365
	6	80	2	2.50	0°	15.65	16.09	16.57	-	-	31700260	431
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	C5290260	363
	6	80	2	2.50	0°	15.65	16.09	16.57	-	-	C5292260	373
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	D5100260	353
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	P5220260	359
	6	80	2	2.50	0°	15.65	16.09	16.57	-	-	P5222260	369
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	P5286260	357
	6	80	2	2.50	0°	15.65	16.09	16.57	-	-	P5288260	367
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	P7540260	361
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	X7400260	333
	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	X7420260	331
	6	57	4	2.50	0°	15.65	16.09	16.57	-	-	X7450260	347
	6	75	2	2.50	0°	30.65	31.60	-	-	-	P7544260	371
	6	75	2	2.50	0°	30.65	31.60	-	-	-	X7404260	339
	6	75	2	2.50	0°	30.65	31.60	-	-	-	X7424260	337
	6	75	4	2.50	0°	30.65	31.60	-	-	-	X7454260	349
	6	110	2	2.50	0°	45.65	47.10	-	-	-	P5289260	375
	6	87	2	2.50	0°	45.65	47.10	-	-	-	X7408260	345
	6	87	2	2.50	0°	45.65	47.10	-	-	-	X7428260	343
	6	87	4	2.50	0°	45.65	47.10	-	-	-	X7458260	351
6.0	6	57	2	3.00	0°	6.90	-	-	-	-	U45298300	365
	6	80	2	3.00	0°	19.90	-	-	-	-	31700300	431
	6	57	2	3.00	0°	19.90	-	-	-	-	C5290300	363
	6	80	2	3.00	0°	19.90	-	-	-	-	C5292300	373
	6	57	2	3.00	0°	19.90	-	-	-	-	D5100300	353
	6	80	4	3.00	0°	19.90	-	-	-	-	D5140300	355
	6	57	2	3.00	0°	19.90	-	-	-	-	P5220300	359
	6	80	2	3.00	0°	19.90	-	-	-	-	P5222300	369
	6	57	2	3.00	0°	19.90	-	-	-	-	P5286300	357
	6	80	2	3.00	0°	19.90	-	-	-	-	P5288300	367
	6	57	2	3.00	0°	19.90	-	-	-	-	P7540300	361
	6	57	2	3.00	0°	19.90	-	-	-	-	X7400300	333
	6	57	2	3.00	0°	19.90	-	-	-	-	X7420300	331
	6	57	4	3.00	0°	19.90	-	-	-	-	X7450300	347
	6	57	8	3.00	0°	19.90	-	-	-	-	X7460300	335
	6	80	2	3.00	0°	42.90	-	-	-	-	P7544300	371
	6	80	2	3.00	0°	42.90	-	-	-	-	X7404300	339
	6	80	2	3.00	0°	42.90	-	-	-	-	X7424300	337
	6	80	4	3.00	0°	42.90	-	-	-	-	X7454300	349
	6	80	8	3.00	0°	42.90	-	-	-	-	X7464300	341
	6	110	2	3.00	0°	49.90	-	-	-	-	P5289300	375
	6	100	2	3.00	0°	62.90	-	-	-	-	X7408300	345
	6	100	2	3.00	0°	62.90	-	-	-	-	X7428300	343
	6	100	4	3.00	0°	62.90	-	-	-	-	X7458300	351
8.0	8	63	2	4.00	0°	8.90	-	-	-	-	U45298391	365
	8	100	2	4.00	0°	25.90	-	-	-	-	31700391	431
	8	63	2	4.00	0°	25.90	-	-	-	-	C5290391	363

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
8.0	8	90	2	4.00	0°	25.90	-	-	-	-	C5292391	373
	8	63	2	4.00	0°	25.90	-	-	-	-	D5100391	353
	8	90	4	4.00	0°	25.90	-	-	-	-	D5140391	355
	8	63	2	4.00	0°	25.90	-	-	-	-	P5220391	359
	8	90	2	4.00	0°	25.90	-	-	-	-	P5222391	369
	8	63	2	4.00	0°	25.90	-	-	-	-	P5286391	357
	8	90	2	4.00	0°	25.90	-	-	-	-	P5288391	367
	8	63	2	4.00	0°	25.90	-	-	-	-	P7540391	361
	8	63	2	4.00	0°	25.90	-	-	-	-	X7400391	333
	8	63	2	4.00	0°	25.90	-	-	-	-	X7420391	331
	8	63	4	4.00	0°	25.90	-	-	-	-	X7450391	347
	8	63	10	4.00	0°	25.90	-	-	-	-	X7460391	335
	8	110	2	4.00	0°	45.90	-	-	-	-	P5289391	375
	8	90	2	4.00	0°	52.90	-	-	-	-	P7544391	371
	8	90	2	4.00	0°	52.90	-	-	-	-	X7404391	339
	8	90	2	4.00	0°	52.90	-	-	-	-	X7424391	337
	8	90	4	4.00	0°	52.90	-	-	-	-	X7454391	349
	8	90	10	4.00	0°	52.90	-	-	-	-	X7464391	341
	8	120	2	4.00	0°	82.90	-	-	-	-	X7408391	345
	8	120	2	4.00	0°	82.90	-	-	-	-	X7428391	343
	8	120	4	4.00	0°	82.90	-	-	-	-	X7458391	351
10.0	10	72	2	5.00	0°	10.90	-	-	-	-	U45298450	365
	10	100	2	5.00	0°	30.90	-	-	-	-	31700450	431
	10	72	2	5.00	0°	30.90	-	-	-	-	C5290450	363
	10	100	2	5.00	0°	30.90	-	-	-	-	C5292450	373
	10	72	2	5.00	0°	30.90	-	-	-	-	D5100450	353
	10	100	4	5.00	0°	30.90	-	-	-	-	D5140450	355
	10	72	2	5.00	0°	30.90	-	-	-	-	P5220450	359
	10	100	2	5.00	0°	30.90	-	-	-	-	P5222450	369
	10	72	2	5.00	0°	30.90	-	-	-	-	P5286450	357
	10	100	2	5.00	0°	30.90	-	-	-	-	P5288450	367
	10	72	2	5.00	0°	30.90	-	-	-	-	P7540450	361
	10	72	2	5.00	0°	30.90	-	-	-	-	X7400450	333
	10	72	2	5.00	0°	30.90	-	-	-	-	X7420450	331
	10	72	4	5.00	0°	30.90	-	-	-	-	X7450450	347
	10	72	12	5.00	0°	30.90	-	-	-	-	X7460450	335
	10	130	2	5.00	0°	60.90	-	-	-	-	P5289450	375
	10	105	2	5.00	0°	63.90	-	-	-	-	P7544450	371
	10	105	2	5.00	0°	63.90	-	-	-	-	X7404450	339
	10	105	2	5.00	0°	63.90	-	-	-	-	X7424450	337
	10	105	4	5.00	0°	63.90	-	-	-	-	X7454450	349
	10	105	12	5.00	0°	63.90	-	-	-	-	X7464450	341
	10	135	2	5.00	0°	93.90	-	-	-	-	X7408450	345
	10	135	2	5.00	0°	93.90	-	-	-	-	X7428450	343
	10	135	4	5.00	0°	93.90	-	-	-	-	X7458450	351
12.0	12	83	2	6.00	0°	11.90	-	-	-	-	U45298501	365
	12	120	2	6.00	0°	36.90	-	-	-	-	31700501	431
	12	83	2	6.00	0°	36.90	-	-	-	-	C5290501	363
	12	120	2	6.00	0°	36.90	-	-	-	-	C5292501	373
	12	83	2	6.00	0°	36.90	-	-	-	-	D5100501	353
	12	120	4	6.00	0°	36.90	-	-	-	-	D5140501	355
	12	83	2	6.00	0°	36.90	-	-	-	-	P5220501	359
	12	120	2	6.00	0°	36.90	-	-	-	-	P5222501	369
	12	83	2	6.00	0°	36.90	-	-	-	-	P5286501	357
	12	120	2	6.00	0°	36.90	-	-	-	-	P5288501	367
	12	83	2	6.00	0°	36.90	-	-	-	-	P7540501	361
	12	83	2	6.00	0°	36.90	-	-	-	-	X7400501	333

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
12.0	12	83	2	6.00	0°	36.90	-	-	-	-	X7420501	331
	12	83	4	6.00	0°	36.90	-	-	-	-	X7450501	347
	12	83	16	6.00	0°	36.90	-	-	-	-	X7460501	335
	12	140	2	6.00	0°	56.90	-	-	-	-	P5289501	375
	12	120	2	6.00	0°	73.90	-	-	-	-	P7544501	371
	12	120	2	6.00	0°	73.90	-	-	-	-	X7404501	339
	12	120	2	6.00	0°	73.90	-	-	-	-	X7424501	337
	12	120	4	6.00	0°	73.90	-	-	-	-	X7454501	349
	12	120	16	6.00	0°	73.90	-	-	-	-	X7464501	341
	12	160	2	6.00	0°	113.90	-	-	-	-	X7408501	345
	12	160	2	6.00	0°	113.90	-	-	-	-	X7428501	343
	12	160	4	6.00	0°	113.90	-	-	-	-	X7458501	351
16.0	16	92	2	8.00	0°	42.90	-	-	-	-	C5290610	363
	16	140	2	8.00	0°	42.90	-	-	-	-	C5292610	373
	16	92	2	8.00	0°	42.90	-	-	-	-	P5220610	359
	16	92	2	8.00	0°	42.90	-	-	-	-	P5286610	357
	16	140	2	8.00	0°	42.90	-	-	-	-	P5288610	367
20.0	20	104	2	10.00	0°	52.90	-	-	-	-	C5290682	363

Assortment list for corner radius end mills CARBIDE/CBN





Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.5	6	57	2	0.10	0°	1.49	1.54	1.60	1.72	1.86	X6532050	479
	6	57	2	0.10	0°	2.49	2.58	2.67	2.87	3.10	X6534050	481
	6	57	2	0.10	0.9°	1.92	3.91	4.05	4.35	4.70	X6736050	485
	6	57	2	0.10	0°	3.99	4.13	4.27	4.59	4.97	X6536050	483
	6	57	2	0.10	0.9°	1.92	4.31	5.05	5.43	5.88	X6738050	487
	6	57	2	0.10	0.9°	1.92	4.31	6.06	6.52	7.04	X6740050	489
	6	61	2	0.10	0.9°	1.92	4.31	7.57	8.14	8.80	X6742050	491
0.8	6	57	2	0.10	0°	2.39	2.47	2.56	2.75	2.98	X6532080	479
	6	57	2	0.10	0°	3.99	4.13	4.27	4.59	4.97	X6534080	481
	6	57	2	0.10	0.9°	2.17	4.87	6.48	6.97	7.53	X6736080	485
	6	57	2	0.10	0°	6.39	6.61	6.84	7.35	7.95	X6536080	483
	6	61	2	0.10	0.9°	2.17	4.87	8.09	8.70	9.40	X6738080	487
	6	61	2	0.10	0.9°	2.17	4.87	9.70	10.43	11.28	X6740080	489
	6	66	2	0.10	0.9°	2.17	4.87	12.12	13.03	14.09	X6742080	491
1.0	3	50	2	0.20	0°	1.10	1.13	1.17	1.25	1.34	D15751100	493
	3	50	2	0.20	0°	2.99	3.09	3.20	3.43	3.70	D5762100	497
	3	50	2	0.20	0°	2.99	3.09	3.20	3.43	3.70	M5752100	495
	6	57	2	0.20	0°	2.99	3.09	3.20	3.43	3.70	X6532100	479
	3	50	2	0.20	0°	4.99	5.16	5.33	5.73	6.18	D5764100	501
	3	50	2	0.20	0°	4.99	5.16	5.33	5.73	6.18	M5754100	499
	6	57	2	0.20	0°	4.99	5.16	5.33	5.73	6.18	X6534100	481
	6	61	2	0.20	0.9°	2.32	5.09	8.09	8.69	9.39	X6736100	485
	3	50	2	0.20	0°	7.99	8.26	8.54	9.18	9.91	D5766100	505
	3	50	2	0.20	0°	7.99	8.26	8.54	9.18	9.91	M5756100	503
	6	61	2	0.20	0°	7.99	8.26	8.54	9.18	9.91	X6536100	483
	6	61	2	0.20	0.9°	2.32	5.09	10.11	10.86	11.73	X6738100	487
	6	66	2	0.20	0.9°	2.32	5.09	12.12	13.02	14.07	X6740100	489
	6	66	2	0.20	0.9°	2.32	5.09	15.14	16.27	17.58	X6742100	491
1.2	3	50	2	0.20	0°	1.34	1.38	1.43	1.53	1.64	D15751108	493
	3	50	2	0.20	0°	3.69	3.81	3.94	4.23	4.56	D5762108	497
	3	50	2	0.20	0°	3.69	3.81	3.94	4.23	4.56	M5752108	495
	6	57	2	0.20	0°	3.69	3.81	3.94	4.23	4.56	X6532108	479
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	D5764108	501
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	M5754108	499
	6	57	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	X6534108	481
	6	61	2	0.20	0.9°	4.13	9.17	9.82	10.55	11.40	X6736108	485
	3	50	2	0.20	0°	9.69	10.01	10.36	11.12	12.02	D5766108	505
	3	50	2	0.20	0°	9.69	10.01	10.36	11.12	12.02	M5756108	503

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
1.2	6	61	2	0.20	0°	9.69	10.01	10.36	11.12	12.02	X6536108	483
	6	66	2	0.20	0.9°	4.13	9.17	12.26	13.15	14.20	X6738108	487
	6	66	2	0.20	0.9°	4.13	9.17	14.65	15.74	17.01	X6740108	489
	6	69	2	0.20	0.9°	4.13	9.17	18.28	19.64	21.23	X6742108	491
1.5	3	50	2	0.20	0°	1.70	1.75	1.81	1.94	2.09	D15751120	493
	3	50	2	0.20	0°	4.59	4.74	4.90	5.26	5.68	D5762120	497
	3	50	2	0.20	0°	4.59	4.74	4.90	5.26	5.68	M5752120	495
	6	57	2	0.20	0°	4.59	4.74	4.90	5.26	5.68	X6532120	479
	3	50	2	0.20	0°	7.59	7.84	8.11	8.71	9.41	D5764120	501
	3	50	2	0.20	0°	7.59	7.84	8.11	8.71	9.41	M5754120	499
	6	61	2	0.20	0°	7.59	7.84	8.11	8.71	9.41	X6534120	481
	6	61	2	0.20	0.9°	4.33	9.62	12.25	13.16	14.22	X6736120	485
	3	60	2	0.20	0°	12.09	12.49	12.92	13.88	-	D5766120	505
	3	60	2	0.20	0°	12.09	12.49	12.92	13.88	-	M5756120	503
	6	61	2	0.20	0°	12.09	12.49	12.92	13.88	15.00	X6536120	483
	6	66	2	0.20	0.9°	4.33	9.62	15.27	16.41	17.73	X6738120	487
	6	69	2	0.20	0.9°	4.33	9.62	18.29	19.65	21.24	X6740120	489
	6	75	2	0.20	0.9°	4.33	9.62	22.82	24.52	26.51	X6742120	491
2.0	3	50	2	0.20	0°	2.30	2.37	2.45	2.63	2.84	D15751140	493
	6	80	2	0.50	0.9°	4.73	10.15	3.38	32.63	35.24	X6742145	491
	6	57	4	0.50	0°	6.09	6.28	6.48	6.94	7.47	P7340140	407
	6	57	2	0.50	0°	6.09	6.28	6.48	6.94	7.47	X6532145	479
	6	57	4	0.50	0°	6.09	6.28	6.48	6.94	7.47	X7100140	381
	6	57	4	0.50	0°	6.09	6.28	6.48	6.94	7.47	X7200140	385
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	D5762140	497
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	M5752140	495
	6	57	4	0.20	0°	6.09	6.29	6.50	6.98	7.54	P7340138	407
	6	57	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	X6532140	479
	6	57	4	0.20	0°	6.09	6.29	6.50	6.98	7.54	X7100138	381
	6	61	2	0.50	0°	10.09	10.41	10.76	11.54	12.45	X6534145	481
	3	50	2	0.20	0°	10.09	10.42	10.78	11.58	-	D5764140	501
	3	50	2	0.20	0°	10.09	10.42	10.78	11.58	-	M5754140	499
	6	61	2	0.20	0°	10.09	10.42	10.78	11.58	12.52	X6534140	481
	6	66	4	0.50	0°	12.09	12.48	12.90	13.84	14.93	P7344140	415
	6	66	4	0.50	0°	12.09	12.48	12.90	13.84	14.93	X7104140	387
	6	66	4	0.50	0°	12.09	12.48	12.90	13.84	14.93	X7204140	391
	6	66	4	0.20	0°	12.09	12.49	12.92	13.88	15.00	P7344138	415
	6	66	4	0.20	0°	12.09	12.49	12.92	13.88	15.00	X7104138	387
	6	66	2	0.50	0.9°	4.73	10.15	16.28	17.47	18.86	X6736145	485
	6	66	2	0.20	0.9°	4.73	10.52	16.30	17.51	18.93	X6736140	485
	6	66	2	0.50	0°	16.09	16.62	17.18	18.44	19.90	X6536145	483
	3	60	2	0.20	0°	16.09	16.63	17.20	-	-	D5766140	505
	3	60	2	0.20	0°	16.09	16.63	17.20	-	-	M5756140	503
	6	66	2	0.20	0°	16.09	16.63	17.20	18.48	19.98	X6536140	483
	6	69	2	0.50	0.9°	4.73	10.15	20.31	21.80	23.54	X6738145	487
	6	69	2	0.20	0.9°	4.73	10.52	20.33	21.85	23.61	X6738140	487
	6	75	2	0.50	0.9°	4.73	10.15	24.34	26.13	28.22	X6740145	489
	6	75	2	0.20	0.9°	4.73	10.52	24.36	26.18	28.29	X6740140	489
	6	80	2	0.20	0.9°	4.73	10.52	30.40	32.67	35.31	X6742140	491
2.5	3	50	2	0.20	0°	2.90	2.99	3.10	3.32	3.58	D15751160	493
	6	57	2	0.50	0°	7.77	8.02	8.29	8.88	9.57	X6532165	479
	3	50	2	0.20	0°	7.77	8.03	8.31	-	-	D5762160	497
	3	50	2	0.20	0°	7.77	8.03	8.31	-	-	M5752160	495
	6	57	2	0.20	0°	7.77	8.03	8.31	8.92	9.64	X6532160	479
	6	61	2	0.50	0°	12.77	13.19	13.64	14.63	15.79	X6534165	481
	3	50	2	0.20	0°	12.77	13.20	13.66	-	-	D5764160	501
	3	50	2	0.20	0°	12.77	13.20	13.66	-	-	M5754160	499

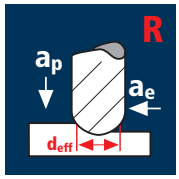
Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
2.5	6	61	2	0.20	0°	12.77	13.20	13.66	14.67	15.86	X6534160	481
	6	69	2	0.20	0.9°	8.37	18.70	20.53	22.09	23.88	X6736160	485
	6	69	2	0.50	0.9°	8.37	18.32	20.54	22.05	23.80	X6736165	485
	6	69	2	0.50	0°	20.27	20.94	21.66	23.25	25.11	X6536165	483
	6	69	2	0.20	0°	20.27	20.95	21.68	23.30	25.18	X6536160	483
	6	75	2	0.50	0.9°	8.37	18.32	25.57	27.46	29.66	X6738165	487
	6	75	2	0.20	0.9°	8.37	18.70	25.59	27.50	29.73	X6738160	487
	6	80	2	0.50	0.9°	8.37	18.32	30.60	32.87	35.51	X6740165	489
	6	80	2	0.20	0.9°	8.37	18.70	30.63	32.92	35.58	X6740160	489
	6	87	2	0.50	0.9°	8.37	18.32	38.16	40.99	-	X6742165	491
	6	87	2	0.20	0.9°	8.37	18.70	38.18	41.03	-	X6742160	491
	3	60	2	0.20	0°	20.27	20.95	-	-	-	D5766160	505
	3	60	2	0.20	0°	20.27	20.95	-	-	-	M5756160	503
3.0	6	57	4	0.50	0°	9.27	9.57	9.89	10.60	11.43	P7340180	407
	6	57	2	0.50	0°	9.27	9.57	9.89	10.60	11.43	X6532185	479
	6	57	4	0.50	0°	9.27	9.57	9.89	10.60	11.43	X7100180	381
	6	57	4	0.50	0°	9.27	9.57	9.89	10.60	11.43	X7200180	385
	6	57	4	0.20	0°	9.27	9.58	9.91	10.65	11.51	P7340178	407
	6	57	2	0.20	0°	9.27	9.58	9.91	10.65	11.51	X6532180	479
	6	57	4	0.20	0°	9.27	9.58	9.91	10.65	11.51	X7100178	381
	6	57	4	0.50	0°	14.27	14.74	15.24	16.35	17.65	P5250180	401
	6	66	2	0.50	0°	15.27	15.77	16.31	17.50	18.89	X6534185	481
	6	66	2	0.20	0°	15.27	15.78	16.33	17.55	18.96	X6534180	481
	6	66	4	0.50	0°	18.27	18.88	19.52	20.95	22.62	P7344180	415
	6	66	4	0.50	0°	18.27	18.88	19.52	20.95	22.62	X7104180	387
	6	66	4	0.50	0°	18.27	18.88	19.52	20.95	22.62	X7204180	391
	6	66	4	0.20	0°	18.27	18.89	19.54	21.00	22.69	P7344178	415
	6	66	4	0.20	0°	18.27	18.89	19.54	21.00	22.69	X7104178	387
	6	75	2	0.50	0.9°	8.77	19.22	24.59	26.40	28.51	X6736185	485
	6	75	2	0.20	0.9°	8.77	19.60	24.61	26.45	28.59	X6736180	485
	6	75	2	0.50	0°	24.27	25.08	25.94	27.85	-	X6536185	483
	6	75	2	0.20	0°	24.27	25.09	25.96	28.90	-	X6536180	483
	6	75	2	0.50	0.9°	8.77	19.22	30.63	32.90	-	X6738185	487
	6	75	2	0.20	0.9°	8.77	19.60	30.65	32.94	-	X6738180	487
	6	87	2	0.50	0.9°	8.77	19.22	36.67	39.39	-	X6740185	489
	6	87	2	0.20	0.9°	8.77	19.60	36.69	39.44	-	X6740180	489
	6	100	2	0.50	0.9°	8.77	19.22	45.74	-	-	X6742185	491
	6	100	2	0.20	0.9°	8.77	19.60	45.76	-	-	X6742180	491
	3	50	2	0.20	0°	3.50	-	-	-	-	D15751180	493
	3	50	2	0.20	0°	8.90	-	-	-	-	D5762180	497
	3	50	2	0.20	0°	8.90	-	-	-	-	M5752180	495
	3	50	2	0.20	0°	14.90	-	-	-	-	D5764180	501
	3	50	2	0.20	0°	14.90	-	-	-	-	M5754180	499
	3	60	2	0.20	0°	23.90	-	-	-	-	D5766180	505
	3	60	2	0.20	0°	23.90	-	-	-	-	M5756180	503
4.0	6	80	2	1.00	0°	12.46	12.85	13.27	14.20	15.28	31410220	435
	6	57	4	1.00	0°	12.46	12.85	13.27	14.20	15.28	P7340222	409
	6	57	4	1.00	0°	12.46	12.85	13.27	14.20	15.28	X7100222	383
	6	57	4	1.00	0°	12.46	12.85	13.27	14.20	15.28	X7200218	385
	6	80	2	0.50	0°	12.46	12.87	13.30	14.27	15.40	31420220	433
	6	57	4	0.50	0°	12.46	12.87	13.30	14.27	15.40	P7340220	407
	6	57	4	0.50	0°	12.46	12.87	13.30	14.27	15.40	X7100220	381
	6	57	4	0.50	0°	12.46	12.87	13.30	14.27	15.40	X7200220	385
	6	57	4	0.20	0°	12.46	12.88	13.32	14.31	15.47	P7340218	407
	6	57	4	0.20	0°	12.46	12.88	13.32	14.31	15.47	X7100218	381
	6	57	4	0.50	0°	16.46	17.00	17.58	18.87	-	P5250220	401
	6	69	4	1.00	0°	24.46	25.25	26.10	27.99	-	P7344222	417

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
4.0	6	69	4	1.00	0°	24.46	25.25	26.10	27.99	30.20	X7104222	389
	6	69	4	1.00	0°	24.46	25.25	26.10	27.99	30.20	X7204218	391
	6	69	4	0.50	0°	24.46	25.27	26.14	28.07	-	P7344220	415
	6	69	4	0.50	0°	24.46	25.27	26.14	28.07	-	X7104220	387
	6	69	4	0.50	0°	24.46	25.27	26.14	28.07	-	X7204220	391
	6	69	4	0.20	0°	24.46	25.28	26.16	28.11	-	P7344218	415
	6	69	4	0.20	0°	24.46	25.28	26.16	28.11	-	X7104218	387
5.0	6	80	2	1.25	0°	15.65	16.14	16.66	-	-	31410260	435
	6	57	4	1.00	0°	15.65	16.14	16.67	-	-	P7340262	409
	6	57	4	1.00	0°	15.65	16.14	16.67	17.86	19.24	X7100262	383
	6	57	4	1.00	0°	15.65	16.14	16.67	17.86	19.24	X7200258	385
	6	80	2	0.50	0°	15.65	16.16	16.71	-	-	31420260	433
	6	57	4	0.50	0°	15.65	16.16	16.71	-	-	P7340260	407
	6	57	4	0.50	0°	15.65	16.16	16.71	17.93	19.36	X7100260	381
	6	57	4	0.50	0°	15.65	16.16	16.71	17.93	19.36	X7200260	385
	6	57	4	0.20	0°	15.65	16.17	16.73	-	-	P7340258	407
	6	57	4	0.20	0°	15.65	16.17	16.73	-	-	X7100258	381
	6	57	4	0.50	0°	18.65	19.26	19.92	-	-	P5250260	401
	6	75	4	0.20	0°	30.65	31.68	-	-	-	P7344258	415
	6	75	4	0.50	0°	30.65	31.67	-	-	-	P7344260	415
	6	75	4	1.00	0°	30.65	31.65	-	-	-	P7344262	417
	6	75	4	0.20	0°	30.65	31.68	-	-	-	X7104258	387
	6	75	4	0.50	0°	30.65	31.67	-	-	-	X7104260	387
	6	75	4	1.00	0°	30.65	31.65	-	-	-	X7104262	389
	6	75	4	1.00	0°	30.65	31.65	-	-	-	X7204258	391
	6	75	4	0.50	0°	30.65	31.67	-	-	-	X7204260	391
6.0	6	57	4	1.00	0°	19.90	-	-	-	-	5353300	393
	6	80	2	1.50	0°	19.90	-	-	-	-	31410300	435
	6	80	2	0.50	0°	19.90	-	-	-	-	31420300	433
	6	57	4	1.50	0°	19.90	-	-	-	-	D5356300	397
	6	57	4	1.00	0°	19.90	-	-	-	-	D5367300	399
	6	57	6	0.50	0°	19.90	-	-	-	-	P5250297	401
	6	57	6	0.80	0°	19.90	-	-	-	-	P5250300	401
	6	57	4	1.00	0°	19.90	-	-	-	-	P5345300	403
	6	57	4	1.50	0°	19.90	-	-	-	-	P5346300	405
	6	57	4	0.20	0°	19.90	-	-	-	-	P7340297	407
	6	57	4	0.50	0°	19.90	-	-	-	-	P7340300	407
	6	57	4	1.00	0°	19.90	-	-	-	-	P7340302	409
	6	57	4	0.20	0°	19.90	-	-	-	-	X7100297	381
	6	57	4	0.50	0°	19.90	-	-	-	-	X7100300	381
	6	57	4	1.00	0°	19.90	-	-	-	-	X7100302	383
	6	57	4	1.00	0°	19.90	-	-	-	-	X7200293	385
	6	57	4	0.50	0°	19.90	-	-	-	-	X7200295	385
	6	57	6	1.00	0°	19.90	-	-	-	-	X7200297	385
	6	57	6	0.50	0°	19.90	-	-	-	-	X7200300	385
	6	70	4	1.50	0°	32.90	-	-	-	-	5357300	411
	6	70	4	0.80	0°	32.90	-	-	-	-	P5252300	413
	6	80	4	0.20	0°	42.90	-	-	-	-	P7344297	415
	6	80	4	0.50	0°	42.90	-	-	-	-	P7344300	415
	6	80	4	1.00	0°	42.90	-	-	-	-	P7344302	417
	6	80	4	0.20	0°	42.90	-	-	-	-	X7104297	387
	6	80	4	0.50	0°	42.90	-	-	-	-	X7104300	387
	6	80	4	1.00	0°	42.90	-	-	-	-	X7104302	389
	6	80	4	1.00	0°	42.90	-	-	-	-	X7204293	391
	6	80	4	0.50	0°	42.90	-	-	-	-	X7204295	391
	6	80	6	1.00	0°	42.90	-	-	-	-	X7204297	391
	6	80	6	0.50	0°	42.90	-	-	-	-	X7204300	391

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
8.0	8	63	4	1.00	0°	25.90	-	-	-	-	5353391	393
	8	100	2	2.00	0°	25.90	-	-	-	-	31410391	435
	8	100	2	0.50	0°	25.90	-	-	-	-	31420391	433
	8	63	4	1.50	0°	25.90	-	-	-	-	D5354391	395
	8	63	4	2.00	0°	25.90	-	-	-	-	D5356391	397
	8	63	4	1.00	0°	25.90	-	-	-	-	D5367391	399
	8	63	6	0.50	0°	25.90	-	-	-	-	P5250388	401
	8	63	6	1.00	0°	25.90	-	-	-	-	P5250391	401
	8	63	4	1.00	0°	25.90	-	-	-	-	P5345391	403
	8	63	4	2.00	0°	25.90	-	-	-	-	P5346391	405
	8	63	4	0.20	0°	25.90	-	-	-	-	P7340385	407
	8	63	4	0.50	0°	25.90	-	-	-	-	P7340388	407
	8	63	4	1.00	0°	25.90	-	-	-	-	P7340391	409
	8	63	4	0.20	0°	25.90	-	-	-	-	X7100385	381
	8	63	4	0.50	0°	25.90	-	-	-	-	X7100388	381
	8	63	4	1.00	0°	25.90	-	-	-	-	X7100391	383
	8	63	4	2.00	0°	25.90	-	-	-	-	X7100395	383
	8	63	4	1.00	0°	25.90	-	-	-	-	X7200384	385
	8	63	4	0.50	0°	25.90	-	-	-	-	X7200386	385
	8	63	6	1.00	0°	25.90	-	-	-	-	X7200388	385
	8	63	6	0.50	0°	25.90	-	-	-	-	X7200391	385
	8	80	4	2.00	0°	42.90	-	-	-	-	5357391	411
	8	80	4	1.00	0°	42.90	-	-	-	-	P5252391	413
	8	90	4	0.20	0°	52.90	-	-	-	-	P7344385	415
	8	90	4	0.50	0°	52.90	-	-	-	-	P7344388	415
	8	90	4	1.00	0°	52.90	-	-	-	-	P7344391	417
	8	90	4	0.20	0°	52.90	-	-	-	-	X7104385	387
	8	90	4	0.50	0°	52.90	-	-	-	-	X7104388	387
	8	90	4	1.00	0°	52.90	-	-	-	-	X7104391	389
	8	90	4	2.00	0°	52.90	-	-	-	-	X7104395	389
	8	90	4	1.00	0°	52.90	-	-	-	-	X7204384	391
	8	90	4	0.50	0°	52.90	-	-	-	-	X7204386	391
	8	90	6	1.00	0°	52.90	-	-	-	-	X7204388	391
	8	90	6	0.50	0°	52.90	-	-	-	-	X7204391	391
10.0	10	72	4	1.00	0°	30.90	-	-	-	-	5353450	393
	10	100	2	2.50	0°	30.90	-	-	-	-	31410450	435
	10	100	2	0.50	0°	30.90	-	-	-	-	31420450	433
	10	72	4	1.50	0°	30.90	-	-	-	-	D5354450	395
	10	72	4	2.50	0°	30.90	-	-	-	-	D5356450	397
	10	72	4	1.00	0°	30.90	-	-	-	-	D5367450	399
	10	72	6	0.50	0°	30.90	-	-	-	-	P5250445	401
	10	72	6	1.00	0°	30.90	-	-	-	-	P5250450	401
	10	72	4	1.50	0°	30.90	-	-	-	-	P5345450	403
	10	72	4	2.50	0°	30.90	-	-	-	-	P5346450	405
	10	72	4	0.20	0°	30.90	-	-	-	-	P7340445	407
	10	72	4	0.50	0°	30.90	-	-	-	-	P7340448	407
	10	72	4	1.00	0°	30.90	-	-	-	-	P7340450	409
	10	72	4	0.20	0°	30.90	-	-	-	-	X7100445	381
	10	72	4	0.50	0°	30.90	-	-	-	-	X7100448	381
	10	72	4	1.00	0°	30.90	-	-	-	-	X7100450	383
	10	72	4	2.00	0°	30.90	-	-	-	-	X7100455	383
	10	72	4	1.00	0°	30.90	-	-	-	-	X7200435	385
	10	72	4	0.50	0°	30.90	-	-	-	-	X7200440	385
	10	72	6	1.00	0°	30.90	-	-	-	-	X7200445	385
	10	72	6	0.50	0°	30.90	-	-	-	-	X7200450	385
	10	84	4	2.50	0°	42.90	-	-	-	-	5357450	411
	10	84	4	1.00	0°	42.90	-	-	-	-	P5252450	413

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
10.0	10	105	4	0.20	0°	63.90	-	-	-	-	P7344445	415
	10	105	4	0.50	0°	63.90	-	-	-	-	P7344448	415
	10	105	4	1.00	0°	63.90	-	-	-	-	P7344450	417
	10	105	4	0.20	0°	63.90	-	-	-	-	X7104445	387
	10	105	4	0.50	0°	63.90	-	-	-	-	X7104448	387
	10	105	4	1.00	0°	63.90	-	-	-	-	X7104450	389
	10	105	4	2.00	0°	63.90	-	-	-	-	X7104455	389
	10	105	4	1.00	0°	63.90	-	-	-	-	X7204435	391
	10	105	4	0.50	0°	63.90	-	-	-	-	X7204440	391
	10	105	6	1.00	0°	63.90	-	-	-	-	X7204445	391
	10	105	6	0.50	0°	63.90	-	-	-	-	X7204450	391
12.0	12	83	4	1.00	0°	36.90	-	-	-	-	5353501	393
	12	120	2	3.00	0°	36.90	-	-	-	-	31410501	435
	12	120	2	0.50	0°	36.90	-	-	-	-	31420501	433
	12	83	4	1.50	0°	36.90	-	-	-	-	D5354501	395
	12	83	4	3.00	0°	36.90	-	-	-	-	D5356501	397
	12	83	4	1.00	0°	36.90	-	-	-	-	D5367501	399
	12	83	6	0.50	0°	36.90	-	-	-	-	P5250496	401
	12	83	6	1.50	0°	36.90	-	-	-	-	P5250501	401
	12	83	4	1.50	0°	36.90	-	-	-	-	P5345501	403
	12	83	4	3.00	0°	36.90	-	-	-	-	P5346501	405
	12	83	4	0.20	0°	36.90	-	-	-	-	P7340496	407
	12	83	4	0.50	0°	36.90	-	-	-	-	P7340498	407
	12	83	4	1.00	0°	36.90	-	-	-	-	P7340501	409
	12	83	4	0.20	0°	36.90	-	-	-	-	X7100496	381
	12	83	4	0.50	0°	36.90	-	-	-	-	X7100498	381
	12	83	4	1.00	0°	36.90	-	-	-	-	X7100501	383
	12	83	4	2.00	0°	36.90	-	-	-	-	X7100505	383
	12	83	4	1.00	0°	36.90	-	-	-	-	X7200486	385
	12	83	4	0.50	0°	36.90	-	-	-	-	X7200491	385
	12	83	6	1.00	0°	36.90	-	-	-	-	X7200496	385
	12	83	6	0.50	0°	36.90	-	-	-	-	X7200501	385
	12	97	4	3.00	0°	50.90	-	-	-	-	5357501	411
	12	97	6	1.50	0°	50.90	-	-	-	-	P5252501	413
	12	120	4	0.20	0°	73.90	-	-	-	-	P7344496	415
	12	120	4	0.50	0°	73.90	-	-	-	-	P7344498	415
	12	120	4	1.00	0°	73.90	-	-	-	-	P7344501	417
	12	120	4	0.20	0°	73.90	-	-	-	-	X7104496	387
	12	120	4	0.50	0°	73.90	-	-	-	-	X7104498	387
	12	120	4	1.00	0°	73.90	-	-	-	-	X7104501	389
	12	120	4	2.00	0°	73.90	-	-	-	-	X7104505	389
	12	120	4	1.00	0°	73.90	-	-	-	-	X7204486	391
	12	120	4	0.50	0°	73.90	-	-	-	-	X7204491	391
	12	120	6	1.00	0°	73.90	-	-	-	-	X7204496	391
	12	120	6	0.50	0°	73.90	-	-	-	-	X7204501	391
16.0	16	92	4	1.00	0°	42.90	-	-	-	-	5353610	393
	16	92	4	1.50	0°	42.90	-	-	-	-	D5354610	395
	16	92	4	2.50	0°	42.90	-	-	-	-	D5356605	397
	16	92	4	3.50	0°	42.90	-	-	-	-	D5356610	397
	16	92	4	4.00	0°	42.90	-	-	-	-	D5356615	397
	16	92	4	1.00	0°	42.90	-	-	-	-	D5367610	399
	16	92	6	1.50	0°	42.90	-	-	-	-	P5250610	401
	16	92	4	2.00	0°	42.90	-	-	-	-	P5345610	403
	16	92	4	4.00	0°	42.90	-	-	-	-	P5346610	405
	16	115	4	3.50	0°	65.90	-	-	-	-	5357610	411
	16	115	6	1.50	0°	65.90	-	-	-	-	P5252610	413

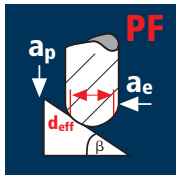
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC									
1	2	160	0.040	0.18	0.40	0.77	60000	4800	0.35
2	2	160	0.065	0.35	0.80	1.52	33505	4355	1.20
3	2	160	0.075	0.53	1.20	2.29	22240	3335	2.10
4	2	160	0.090	0.70	1.60	3.04	16755	3015	3.40
5	2	160	0.100	0.88	2.00	3.81	13370	2675	4.70
6	2	160	0.110	1.26	2.40	4.89	10415	2290	6.90
8	2	160	0.125	1.68	3.20	6.52	7810	1955	10.50
10	2	160	0.145	2.10	4.00	8.15	6250	1810	15.20
12	2	160	0.150	2.52	4.80	9.78	5210	1565	18.95
Hardened tool steel 48 - 52 HRC									
1	2	130	0.035	0.18	0.40	0.77	53740	3760	0.25
2	2	130	0.060	0.35	0.80	1.52	27225	3265	0.90
3	2	130	0.070	0.53	1.20	2.29	18070	2530	1.60
4	2	130	0.085	0.70	1.60	3.04	13610	2315	2.60
5	2	130	0.090	0.88	2.00	3.81	10860	1955	3.45
6	2	130	0.100	1.26	2.40	4.89	8460	1690	5.10
8	2	130	0.115	1.68	3.20	6.52	6345	1460	7.85
10	2	130	0.135	2.10	4.00	8.15	5075	1370	11.50
12	2	130	0.140	2.52	4.80	9.78	4230	1185	14.35
Hardened tool steel 52 - 56 HRC									
1	2	110	0.035	0.18	0.40	0.77	45475	3185	0.25
2	2	110	0.055	0.35	0.80	1.52	23035	2535	0.70
3	2	110	0.065	0.53	1.20	2.29	15290	1990	1.25
4	2	110	0.075	0.70	1.60	3.04	11520	1730	1.95
5	2	110	0.085	0.88	2.00	3.81	9190	1560	2.75
6	2	110	0.095	1.26	2.40	4.89	7160	1360	4.10
8	2	110	0.105	1.68	3.20	6.52	5370	1130	6.05
10	2	110	0.125	2.10	4.00	8.15	4295	1075	9.05
12	2	110	0.130	2.52	4.80	9.78	3580	930	11.25
Hardened tool steel 56 - 60 HRC									
1	2	50	0.015	0.14	0.30	0.69	23065	690	0.05
2	2	50	0.025	0.27	0.60	1.37	11615	580	0.10
3	2	50	0.030	0.41	0.90	2.06	7725	465	0.15
4	2	50	0.035	0.42	0.96	2.45	6495	455	0.20
5	2	50	0.040	0.53	0.90	3.08	5170	415	0.20
6	2	50	0.045	0.76	0.72	3.99	3990	360	0.20
8	2	50	0.050	1.01	0.96	5.31	2995	300	0.30
10	2	50	0.060	1.26	1.20	6.64	2395	285	0.45
12	2	50	0.060	1.51	1.44	7.96	2000	240	0.50

Application



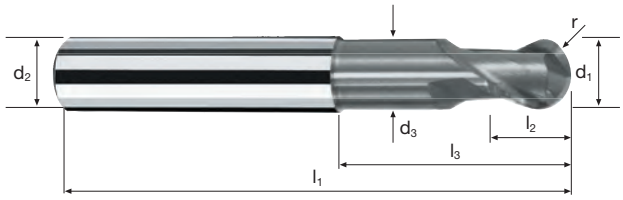
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	200	0.055	0.12	0.12	1.00	60000	6600	45
2	2	200	0.095	0.24	0.24	1.99	31990	6080	45
3	2	200	0.105	0.36	0.36	2.99	21290	4470	45
4	2	200	0.125	0.48	0.48	3.99	15955	3990	45
5	2	200	0.140	0.60	0.60	4.98	12785	3580	45
6	2	200	0.155	0.72	0.72	5.98	10645	3300	45
8	2	200	0.170	0.96	0.96	7.98	7980	2715	45
10	2	200	0.200	1.20	1.20	9.97	6385	2555	45
12	2	200	0.210	1.44	1.44	11.96	5325	2235	45
Hardened tool steel 48 - 52 HRC									
1	2	160	0.050	0.12	0.12	1.00	50930	5095	45
2	2	160	0.085	0.24	0.24	1.99	25595	4350	45
3	2	160	0.095	0.36	0.36	2.99	17035	3235	45
4	2	160	0.115	0.48	0.48	3.99	12765	2935	45
5	2	160	0.130	0.60	0.60	4.98	10225	2660	45
6	2	160	0.145	0.72	0.72	5.98	8515	2470	45
8	2	160	0.155	0.96	0.96	7.98	6380	1980	45
10	2	160	0.185	1.20	1.20	9.97	5110	1890	45
12	2	160	0.195	1.44	1.44	11.96	4260	1660	45
Hardened tool steel 52 - 56 HRC									
1	2	120	0.045	0.12	0.12	1.00	38200	3440	45
2	2	120	0.080	0.24	0.24	1.99	19195	3070	45
3	2	120	0.090	0.36	0.36	2.99	12775	2300	45
4	2	120	0.105	0.48	0.48	3.99	9575	2010	45
5	2	120	0.120	0.60	0.60	4.98	7670	1840	45
6	2	120	0.130	0.72	0.72	5.98	6390	1660	45
8	2	120	0.145	0.96	0.96	7.98	4785	1390	45
10	2	120	0.170	1.20	1.20	9.97	3830	1300	45
12	2	120	0.180	1.44	1.44	11.96	3195	1150	45
Hardened tool steel 56 - 60 HRC									
1	2	90	0.040	0.07	0.07	0.97	29535	2365	45
2	2	90	0.070	0.14	0.14	1.94	14765	2065	45
3	2	90	0.080	0.22	0.22	2.92	9810	1570	45
4	2	90	0.095	0.29	0.29	3.89	7365	1400	45
5	2	90	0.105	0.36	0.36	4.85	5905	1240	45
6	2	90	0.115	0.43	0.43	5.82	4920	1130	45
8	2	90	0.130	0.58	0.58	7.77	3685	960	45
10	2	90	0.150	0.72	0.72	9.71	2950	885	45
12	2	90	0.160	0.86	0.86	11.65	2460	785	45

Ball nose end mills Sphero-XR

Tolerance r ±0.005, 3xd

HM XT	λ 30° γ-10°



	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

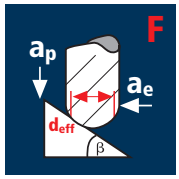
Example: **Order-N°.** Coating **X** | Article-N°. **7420** | ø-Code **.100**

ø Code	d1 *	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X7420
.100	1	6	0.95	57	1.5	3	0.5	11.8°	2		●
.140	2	6	1.90	57	3.0	6	1.0	9.0°	2		●
.180	3	6	2.80	57	4.0	9	1.5	6.4°	2		●
.220	4	6	3.70	57	5.0	12	2.0	4.0°	2		●
.260	5	6	4.60	57	6.0	15	2.5	2.0°	2		●
.300	6	6	5.50	57	7.0	20	3.0	0.0°	2		●
.391	8	8	7.40	63	9.0	26	4.0	0.0°	2		●
.450	10	10	9.20	72	11.0	31	5.0	0.0°	2		●
.501	12	12	11.00	83	13.0	37	6.0	0.0°	2		●

*** Tolerance of the cutting diameter**

d1	Tolerance
< 6	0/-0.010
≥ 6	0/-0.015

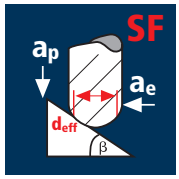
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	300	0.030	0.05	0.05	0.94	60000	3600	45
2	2	300	0.035	0.07	0.07	1.84	51900	3635	45
3	2	300	0.040	0.10	0.10	2.74	34850	2790	45
4	2	300	0.070	0.12	0.12	3.62	26380	3695	45
5	2	300	0.080	0.15	0.15	4.53	21080	3375	45
6	2	300	0.085	0.15	0.15	5.36	17815	3030	45
8	2	300	0.095	0.17	0.17	7.05	13545	2575	45
10	2	300	0.100	0.20	0.20	8.77	10890	2180	45
12	2	300	0.105	0.25	0.25	10.56	9045	1900	45
Hardened tool steel 48 - 52 HRC									
1	2	250	0.030	0.05	0.05	0.94	60000	3600	45
2	2	250	0.035	0.07	0.07	1.84	43250	3030	45
3	2	250	0.040	0.10	0.10	2.74	29045	2325	45
4	2	250	0.065	0.12	0.12	3.62	21985	2860	45
5	2	250	0.075	0.15	0.15	4.53	17565	2635	45
6	2	250	0.080	0.15	0.15	5.36	14845	2375	45
8	2	250	0.090	0.17	0.17	7.05	11290	2030	45
10	2	250	0.095	0.20	0.20	8.77	9075	1725	45
12	2	250	0.100	0.25	0.25	10.56	7535	1505	45
Hardened tool steel 52 - 56 HRC									
1	2	200	0.025	0.05	0.05	0.94	60000	3000	45
2	2	200	0.030	0.07	0.07	1.84	34600	2075	45
3	2	200	0.035	0.10	0.10	2.74	23235	1625	45
4	2	200	0.065	0.12	0.12	3.62	17585	2285	45
5	2	200	0.070	0.15	0.15	4.53	14055	1970	45
6	2	200	0.075	0.15	0.15	5.36	11880	1780	45
8	2	200	0.085	0.17	0.17	7.05	9030	1535	45
10	2	200	0.090	0.20	0.20	8.77	7260	1305	45
12	2	200	0.095	0.25	0.25	10.56	6030	1145	45
Hardened tool steel 56 - 60 HRC									
1	2	150	0.025	0.05	0.05	0.94	50795	2540	45
2	2	150	0.030	0.07	0.07	1.84	25950	1555	45
3	2	150	0.035	0.10	0.10	2.74	17425	1220	45
4	2	150	0.060	0.12	0.12	3.62	13190	1585	45
5	2	150	0.070	0.15	0.15	4.53	10540	1475	45
6	2	150	0.070	0.15	0.15	5.36	8910	1245	45
8	2	150	0.080	0.17	0.17	7.05	6775	1085	45
10	2	150	0.085	0.20	0.20	8.77	5445	925	45
12	2	150	0.090	0.25	0.25	10.56	4520	815	45

Application



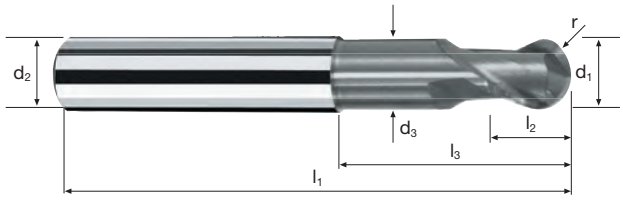
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	400	0.025	0.02	0.02	0.88	60000	3000	45
2	2	400	0.030	0.02	0.02	1.67	60000	3600	45
3	2	400	0.035	0.03	0.03	2.50	50930	3565	45
4	2	400	0.050	0.03	0.03	3.27	38940	3895	45
5	2	400	0.055	0.03	0.03	4.04	31515	3465	45
6	2	400	0.060	0.03	0.03	4.80	26525	3185	45
8	2	400	0.065	0.03	0.03	6.31	20180	2625	45
10	2	400	0.070	0.04	0.04	7.91	16095	2255	45
12	2	400	0.075	0.04	0.04	9.41	13530	2030	45
Hardened tool steel 48 - 52 HRC									
1	2	350	0.025	0.02	0.02	0.88	60000	3000	45
2	2	350	0.030	0.02	0.02	1.67	60000	3600	45
3	2	350	0.035	0.03	0.03	2.50	44565	3120	45
4	2	350	0.050	0.03	0.03	3.27	34070	3405	45
5	2	350	0.050	0.03	0.03	4.04	27575	2760	45
6	2	350	0.055	0.03	0.03	4.80	23210	2555	45
8	2	350	0.060	0.03	0.03	6.31	17655	2120	45
10	2	350	0.065	0.04	0.04	7.91	14085	1830	45
12	2	350	0.070	0.04	0.04	9.41	11840	1660	45
Hardened tool steel 52 - 56 HRC									
1	2	280	0.025	0.02	0.02	0.88	60000	3000	45
2	2	280	0.025	0.02	0.02	1.67	53370	2670	45
3	2	280	0.030	0.03	0.03	2.50	35650	2140	45
4	2	280	0.045	0.03	0.03	3.27	27255	2455	45
5	2	280	0.050	0.03	0.03	4.04	22060	2205	45
6	2	280	0.055	0.03	0.03	4.80	18570	2045	45
8	2	280	0.060	0.03	0.03	6.31	14125	1695	45
10	2	280	0.065	0.04	0.04	7.91	11270	1465	45
12	2	280	0.070	0.04	0.04	9.41	9470	1325	45
Hardened tool steel 56 - 60 HRC									
1	2	180	0.020	0.02	0.02	0.88	60000	2400	45
2	2	180	0.025	0.02	0.02	1.67	34310	1715	45
3	2	180	0.030	0.03	0.03	2.50	22920	1375	45
4	2	180	0.045	0.03	0.03	3.27	17520	1575	45
5	2	180	0.045	0.03	0.03	4.04	14185	1275	45
6	2	180	0.050	0.03	0.03	4.80	11935	1195	45
8	2	180	0.055	0.03	0.03	6.31	9080	1000	45
10	2	180	0.060	0.04	0.04	7.91	7245	870	45
12	2	180	0.065	0.04	0.04	9.41	6090	790	45

Ball nose end mills Sphero-XF

Tolerance r ±0.005, 3xd

HM XA	λ 30° γ-10°

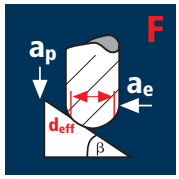


Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Ti Titanium	Copper

Example: **Order-N°.** Coating **X** | Article-N°. **7400** | ø-Code **.100**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X7400
.100	1	6	0.95	57	1.5	3	0.5	11.8°	2		●
.140	2	6	1.90	57	3.0	6	1.0	9.0°	2		●
.180	3	6	2.80	57	4.0	9	1.5	6.4°	2		●
.220	4	6	3.70	57	5.0	12	2.0	4.0°	2		●
.260	5	6	4.60	57	6.0	15	2.5	2.0°	2		●
.300	6	6	5.50	57	7.0	20	3.0	0.0°	2		●
.391	8	8	7.40	63	9.0	26	4.0	0.0°	2		●
.450	10	10	9.20	72	11.0	31	5.0	0.0°	2		●
.501	12	12	11.00	83	13.0	37	6.0	0.0°	2		●

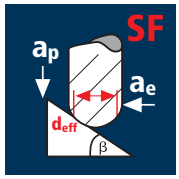
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
6	8	300	0.055	0.12	0.12	5.26	18155	7990	45
8	10	300	0.060	0.14	0.14	6.94	13760	8255	45
10	12	300	0.065	0.16	0.16	8.62	11080	8640	45
12	16	300	0.070	0.18	0.18	10.29	9280	10395	45
Hardened tool steel 48 - 52 HRC									
6	8	250	0.050	0.12	0.12	5.26	15130	6050	45
8	10	250	0.055	0.14	0.14	6.94	11465	6305	45
10	12	250	0.060	0.16	0.16	8.62	9230	6645	45
12	16	250	0.065	0.18	0.18	10.29	7735	8045	45
Hardened tool steel 52 - 56 HRC									
6	8	200	0.050	0.12	0.12	5.26	12105	4840	45
8	10	200	0.055	0.14	0.14	6.94	9175	5045	45
10	12	200	0.060	0.16	0.16	8.62	7385	5315	45
12	16	200	0.065	0.18	0.18	10.29	6185	6430	45
Hardened tool steel 56 - 60 HRC									
6	8	150	0.045	0.12	0.12	5.26	9080	3270	45
8	10	150	0.050	0.14	0.14	6.94	6880	3440	45
10	12	150	0.055	0.16	0.16	8.62	5540	3655	45
12	16	150	0.060	0.18	0.18	10.29	4640	4455	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
6	8	400	0.030	0.03	0.03	4.80	26525	6365	45
8	10	400	0.035	0.03	0.03	6.31	20180	7065	45
10	12	400	0.035	0.04	0.04	7.91	16095	6760	45
12	16	400	0.040	0.04	0.04	9.41	13530	8660	45
Hardened tool steel 48 - 52 HRC									
6	8	350	0.030	0.03	0.03	4.80	23210	5570	45
8	10	350	0.035	0.03	0.03	6.31	17655	6180	45
10	12	350	0.035	0.04	0.04	7.91	14085	5915	45
12	16	350	0.040	0.04	0.04	9.41	11840	7580	45
Hardened tool steel 52 - 56 HRC									
6	8	280	0.025	0.03	0.03	4.80	18570	3715	45
8	10	280	0.030	0.03	0.03	6.31	14125	4240	45
10	12	280	0.030	0.04	0.04	7.91	11270	4055	45
12	16	280	0.035	0.04	0.04	9.41	9470	5305	45
Hardened tool steel 56 - 60 HRC									
6	8	180	0.025	0.03	0.03	4.80	11935	2385	45
8	10	180	0.030	0.03	0.03	6.31	9080	2725	45
10	12	180	0.030	0.04	0.04	7.91	7245	2610	45
12	16	180	0.035	0.04	0.04	9.41	6090	3410	45

Ball nose end mills Sphero-XF Multi

Tolerance r ±0.005, 3xd

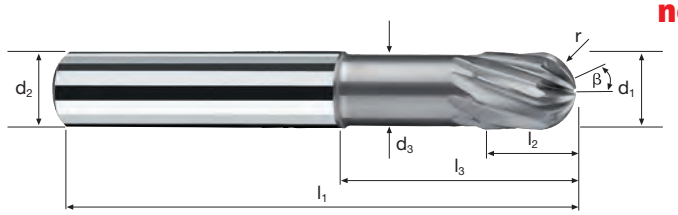
HM XA | λ 30° γ -10°

h5

d1

r

F



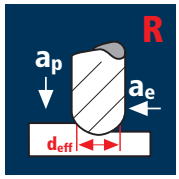
new!

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	Copper

Example: **Order-N°.** Coating **X** | Article-N°. **7460** | ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	β	z	X-AL
										X7460
.300	6	6	5.5	57	7	20	3.0	25°	8	●
.391	8	8	7.4	63	9	26	4.0	25°	10	●
.450	10	10	9.2	72	11	31	5.0	25°	12	●
.501	12	12	11.0	83	13	37	6.0	25°	16	●

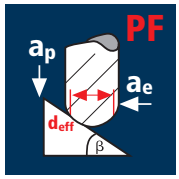
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC									
1	2	160	0.040	0.13	0.30	0.67	60000	4800	0.20
2	2	160	0.065	0.26	0.60	1.35	37725	4905	0.75
3	2	160	0.075	0.39	0.90	2.02	25215	3780	1.35
4	2	160	0.090	0.52	1.20	2.69	18935	3410	2.15
5	2	160	0.100	0.65	1.50	3.36	15160	3030	2.95
6	2	160	0.110	1.02	1.80	4.51	11295	2485	4.55
8	2	160	0.125	1.36	2.40	6.01	8475	2120	6.90
10	2	160	0.145	1.70	3.00	7.51	6780	1965	10.00
12	2	160	0.150	2.04	3.60	9.02	5645	1695	12.45
Hardened tool steel 48 - 52 HRC									
1	2	130	0.035	0.13	0.30	0.67	60000	4200	0.15
2	2	130	0.060	0.26	0.60	1.35	30655	3680	0.55
3	2	130	0.070	0.39	0.90	2.02	20485	2870	1.00
4	2	130	0.085	0.52	1.20	2.69	15385	2615	1.65
5	2	130	0.090	0.65	1.50	3.36	12315	2215	2.15
6	2	130	0.100	1.02	1.80	4.51	9175	1835	3.35
8	2	130	0.115	1.36	2.40	6.01	6885	1585	5.15
10	2	130	0.135	1.70	3.00	7.51	5510	1490	7.60
12	2	130	0.140	2.04	3.60	9.02	4590	1285	9.45
Hardened tool steel 52 - 56 HRC									
1	2	110	0.035	0.13	0.30	0.67	52260	3660	0.15
2	2	110	0.055	0.26	0.60	1.35	25935	2855	0.45
3	2	110	0.065	0.39	0.90	2.02	17335	2255	0.80
4	2	110	0.075	0.52	1.20	2.69	13015	1950	1.20
5	2	110	0.085	0.65	1.50	3.36	10420	1770	1.75
6	2	110	0.095	1.02	1.80	4.51	7765	1475	2.70
8	2	110	0.105	1.36	2.40	6.01	5825	1225	4.00
10	2	110	0.125	1.70	3.00	7.51	4660	1165	5.95
12	2	110	0.130	2.04	3.60	9.02	3880	1010	7.40
Hardened tool steel 56 - 60 HRC									
1	2	50	0.015	0.10	0.23	0.60	26525	795	0.00
2	2	50	0.025	0.20	0.45	1.20	13265	665	0.05
3	2	50	0.030	0.30	0.68	1.80	8840	530	0.10
4	2	50	0.035	0.31	0.72	2.14	7435	520	0.10
5	2	50	0.040	0.39	0.67	2.68	5940	475	0.10
6	2	50	0.045	0.61	0.54	3.63	4385	395	0.15
8	2	50	0.050	0.82	0.72	4.85	3280	330	0.20
10	2	50	0.060	1.02	0.90	6.05	2630	315	0.30
12	2	50	0.060	1.22	1.08	7.25	2195	265	0.35

Application



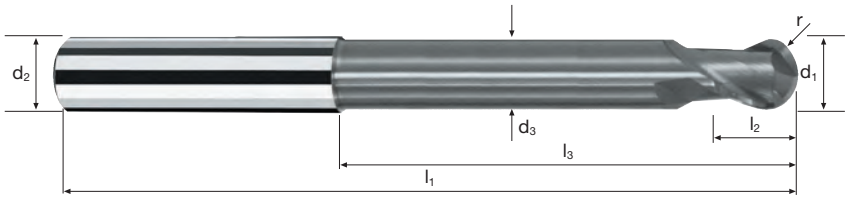
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	200	0.055	0.10	0.10	0.99	60000	6600	45
2	2	200	0.095	0.20	0.20	1.98	32155	6110	45
3	2	200	0.105	0.30	0.30	2.97	21435	4500	45
4	2	200	0.125	0.40	0.40	3.96	16075	4020	45
5	2	200	0.140	0.50	0.50	4.95	12860	3600	45
6	2	200	0.155	0.60	0.60	5.94	10720	3325	45
8	2	200	0.170	0.80	0.80	7.92	8040	2735	45
10	2	200	0.200	1.00	1.00	9.90	6430	2570	45
12	2	200	0.210	1.20	1.20	11.88	5360	2250	45
Hardened tool steel 48 - 52 HRC									
1	2	160	0.050	0.10	0.10	0.99	51445	5145	45
2	2	160	0.085	0.20	0.20	1.98	25725	4375	45
3	2	160	0.095	0.30	0.30	2.97	17150	3260	45
4	2	160	0.115	0.40	0.40	3.96	12860	2960	45
5	2	160	0.130	0.50	0.50	4.95	10290	2675	45
6	2	160	0.145	0.60	0.60	5.94	8575	2485	45
8	2	160	0.155	0.80	0.80	7.92	6430	1995	45
10	2	160	0.185	1.00	1.00	9.90	5145	1905	45
12	2	160	0.195	1.20	1.20	11.88	4285	1670	45
Hardened tool steel 52 - 56 HRC									
1	2	120	0.045	0.10	0.10	0.99	38585	3475	45
2	2	120	0.080	0.20	0.20	1.98	19290	3085	45
3	2	120	0.090	0.30	0.30	2.97	12860	2315	45
4	2	120	0.105	0.40	0.40	3.96	9645	2025	45
5	2	120	0.120	0.50	0.50	4.95	7715	1850	45
6	2	120	0.130	0.60	0.60	5.94	6430	1670	45
8	2	120	0.145	0.80	0.80	7.92	4825	1400	45
10	2	120	0.170	1.00	1.00	9.90	3860	1310	45
12	2	120	0.180	1.20	1.20	11.88	3215	1155	45
Hardened tool steel 56 - 60 HRC									
1	2	90	0.040	0.06	0.06	0.96	29840	2385	45
2	2	90	0.070	0.12	0.12	1.92	14920	2090	45
3	2	90	0.080	0.18	0.18	2.87	9980	1595	45
4	2	90	0.095	0.24	0.24	3.83	7480	1420	45
5	2	90	0.105	0.30	0.30	4.79	5980	1255	45
6	2	90	0.115	0.36	0.36	5.75	4980	1145	45
8	2	90	0.130	0.48	0.48	7.66	3740	970	45
10	2	90	0.150	0.60	0.60	9.58	2990	895	45
12	2	90	0.160	0.72	0.72	11.50	2490	795	45

Ball nose end mills Sphero-XR

Tolerance r ±0.005, 6xd

HM XT	λ 30° γ-10°



	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

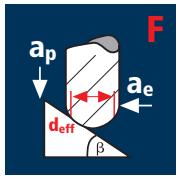
Example: **Order-N°.** Coating **X** | Article-N°. **7424** | ø-Code **.100**

ø Code	d1 *	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X7424
.100	1	6	0.95	66	1.5	6	0.5	9.5°	2		●
.140	2	6	1.90	66	3.0	12	1.0	6.1°	2		●
.180	3	6	2.80	66	4.0	18	1.5	3.9°	2		●
.220	4	6	3.70	69	5.0	24	2.0	2.2°	2		●
.260	5	6	4.60	75	6.0	30	2.5	1.0°	2		●
.300	6	6	5.50	80	7.0	43	3.0	0.0°	2		●
.391	8	8	7.40	90	9.0	53	4.0	0.0°	2		●
.450	10	10	9.20	105	11.0	64	5.0	0.0°	2		●
.501	12	12	11.00	120	13.0	74	6.0	0.0°	2		●

*** Tolerance of the cutting diameter**

d1	Tolerance
< 6	0/-0.010
≥ 6	0/-0.015

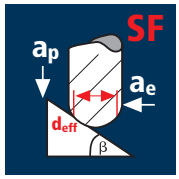
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	300	0.030	0.05	0.05	0.94	60000	3600	45
2	2	300	0.035	0.07	0.07	1.84	51900	3635	45
3	2	300	0.040	0.10	0.10	2.74	34850	2790	45
4	2	300	0.070	0.12	0.12	3.62	26380	3695	45
5	2	300	0.080	0.15	0.15	4.53	21080	3375	45
6	2	300	0.085	0.15	0.15	5.36	17815	3030	45
8	2	300	0.095	0.17	0.17	7.05	13545	2575	45
10	2	300	0.100	0.20	0.20	8.77	10890	2180	45
12	2	300	0.105	0.25	0.25	10.56	9045	1900	45
Hardened tool steel 48 - 52 HRC									
1	2	250	0.030	0.05	0.05	0.94	60000	3600	45
2	2	250	0.035	0.07	0.07	1.84	43250	3030	45
3	2	250	0.040	0.10	0.10	2.74	29045	2325	45
4	2	250	0.065	0.12	0.12	3.62	21985	2860	45
5	2	250	0.075	0.15	0.15	4.53	17565	2635	45
6	2	250	0.080	0.15	0.15	5.36	14845	2375	45
8	2	250	0.090	0.17	0.17	7.05	11290	2030	45
10	2	250	0.095	0.20	0.20	8.77	9075	1725	45
12	2	250	0.100	0.25	0.25	10.56	7535	1505	45
Hardened tool steel 52 - 56 HRC									
1	2	200	0.025	0.05	0.05	0.94	60000	3000	45
2	2	200	0.030	0.07	0.07	1.84	34600	2075	45
3	2	200	0.035	0.10	0.10	2.74	23235	1625	45
4	2	200	0.065	0.12	0.12	3.62	17585	2285	45
5	2	200	0.070	0.15	0.15	4.53	14055	1970	45
6	2	200	0.075	0.15	0.15	5.36	11880	1780	45
8	2	200	0.085	0.17	0.17	7.05	9030	1535	45
10	2	200	0.090	0.20	0.20	8.77	7260	1305	45
12	2	200	0.095	0.25	0.25	10.56	6030	1145	45
Hardened tool steel 56 - 60 HRC									
1	2	150	0.025	0.05	0.05	0.94	50795	2540	45
2	2	150	0.030	0.07	0.07	1.84	25950	1555	45
3	2	150	0.035	0.10	0.10	2.74	17425	1220	45
4	2	150	0.060	0.12	0.12	3.62	13190	1585	45
5	2	150	0.070	0.15	0.15	4.53	10540	1475	45
6	2	150	0.070	0.15	0.15	5.36	8910	1245	45
8	2	150	0.080	0.17	0.17	7.05	6775	1085	45
10	2	150	0.085	0.20	0.20	8.77	5445	925	45
12	2	150	0.090	0.25	0.25	10.56	4520	815	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	400	0.025	0.02	0.02	0.88	60000	3000	45
2	2	400	0.030	0.02	0.02	1.67	60000	3600	45
3	2	400	0.035	0.03	0.03	2.50	50930	3565	45
4	2	400	0.050	0.03	0.03	3.27	38940	3895	45
5	2	400	0.055	0.03	0.03	4.04	31515	3465	45
6	2	400	0.060	0.03	0.03	4.80	26525	3185	45
8	2	400	0.065	0.03	0.03	6.31	20180	2625	45
10	2	400	0.070	0.04	0.04	7.91	16095	2255	45
12	2	400	0.075	0.04	0.04	9.41	13530	2030	45
Hardened tool steel 48 - 52 HRC									
1	2	350	0.025	0.02	0.02	0.88	60000	3000	45
2	2	350	0.030	0.02	0.02	1.67	60000	3600	45
3	2	350	0.035	0.03	0.03	2.50	44565	3120	45
4	2	350	0.050	0.03	0.03	3.27	34070	3405	45
5	2	350	0.050	0.03	0.03	4.04	27575	2760	45
6	2	350	0.055	0.03	0.03	4.80	23210	2555	45
8	2	350	0.060	0.03	0.03	6.31	17655	2120	45
10	2	350	0.065	0.04	0.04	7.91	14085	1830	45
12	2	350	0.070	0.04	0.04	9.41	11840	1660	45
Hardened tool steel 52 - 56 HRC									
1	2	280	0.025	0.02	0.02	0.88	60000	3000	45
2	2	280	0.025	0.02	0.02	1.67	53370	2670	45
3	2	280	0.030	0.03	0.03	2.50	35650	2140	45
4	2	280	0.045	0.03	0.03	3.27	27255	2455	45
5	2	280	0.050	0.03	0.03	4.04	22060	2205	45
6	2	280	0.055	0.03	0.03	4.80	18570	2045	45
8	2	280	0.060	0.03	0.03	6.31	14125	1695	45
10	2	280	0.065	0.04	0.04	7.91	11270	1465	45
12	2	280	0.070	0.04	0.04	9.41	9470	1325	45
Hardened tool steel 56 - 60 HRC									
1	2	180	0.020	0.02	0.02	0.88	60000	2400	45
2	2	180	0.025	0.02	0.02	1.67	34310	1715	45
3	2	180	0.030	0.03	0.03	2.50	22920	1375	45
4	2	180	0.045	0.03	0.03	3.27	17520	1575	45
5	2	180	0.045	0.03	0.03	4.04	14185	1275	45
6	2	180	0.050	0.03	0.03	4.80	11935	1195	45
8	2	180	0.055	0.03	0.03	6.31	9080	1000	45
10	2	180	0.060	0.04	0.04	7.91	7245	870	45
12	2	180	0.065	0.04	0.04	9.41	6090	790	45

Ball nose end mills Sphero-XF

Tolerance r ±0.005, 6xd

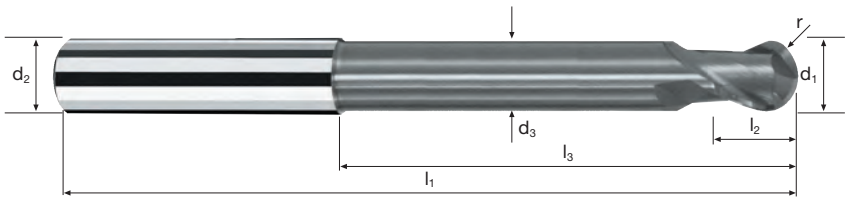
HM XA | λ 30° γ -10°

h5

d1

r

F

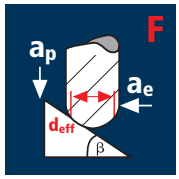


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	Copper

Example: **Order-N°.** Coating **X** Article-N°. **7404** ø-Code **.100**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X7404
.100	1	6	0.95	66	1.5	6	0.5	9.5°	2		●
.140	2	6	1.90	66	3.0	12	1.0	6.1°	2		●
.180	3	6	2.80	66	4.0	18	1.5	3.9°	2		●
.220	4	6	3.70	69	5.0	24	2.0	2.2°	2		●
.260	5	6	4.60	75	6.0	30	2.5	1.0°	2		●
.300	6	6	5.50	80	7.0	43	3.0	0.0°	2		●
.391	8	8	7.40	90	9.0	53	4.0	0.0°	2		●
.450	10	10	9.20	105	11.0	64	5.0	0.0°	2		●
.501	12	12	11.00	120	13.0	74	6.0	0.0°	2		●

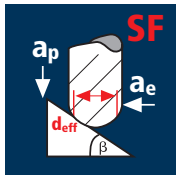
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
6	8	300	0.055	0.12	0.12	5.26	18155	7990	45
8	10	300	0.060	0.14	0.14	6.94	13760	8255	45
10	12	300	0.065	0.16	0.16	8.62	11080	8640	45
12	16	300	0.070	0.18	0.18	10.29	9280	10395	45
Hardened tool steel 48 - 52 HRC									
6	8	250	0.050	0.12	0.12	5.26	15130	6050	45
8	10	250	0.055	0.14	0.14	6.94	11465	6305	45
10	12	250	0.060	0.16	0.16	8.62	9230	6645	45
12	16	250	0.065	0.18	0.18	10.29	7735	8045	45
Hardened tool steel 52 - 56 HRC									
6	8	200	0.050	0.12	0.12	5.26	12105	4840	45
8	10	200	0.055	0.14	0.14	6.94	9175	5045	45
10	12	200	0.060	0.16	0.16	8.62	7385	5315	45
12	16	200	0.065	0.18	0.18	10.29	6185	6430	45
Hardened tool steel 56 - 60 HRC									
6	8	150	0.045	0.12	0.12	5.26	9080	3270	45
8	10	150	0.050	0.14	0.14	6.94	6880	3440	45
10	12	150	0.055	0.16	0.16	8.62	5540	3655	45
12	16	150	0.060	0.18	0.18	10.29	4640	4455	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
6	8	400	0.030	0.03	0.03	4.80	26525	6365	45
8	10	400	0.035	0.03	0.03	6.31	20180	7065	45
10	12	400	0.035	0.04	0.04	7.91	16095	6760	45
12	16	400	0.040	0.04	0.04	9.41	13530	8660	45
Hardened tool steel 48 - 52 HRC									
6	8	350	0.030	0.03	0.03	4.80	23210	5570	45
8	10	350	0.035	0.03	0.03	6.31	17655	6180	45
10	12	350	0.035	0.04	0.04	7.91	14085	5915	45
12	16	350	0.040	0.04	0.04	9.41	11840	7580	45
Hardened tool steel 52 - 56 HRC									
6	8	280	0.025	0.03	0.03	4.80	18570	3715	45
8	10	280	0.030	0.03	0.03	6.31	14125	4240	45
10	12	280	0.030	0.04	0.04	7.91	11270	4055	45
12	16	280	0.035	0.04	0.04	9.41	9470	5305	45
Hardened tool steel 56 - 60 HRC									
6	8	180	0.025	0.03	0.03	4.80	11935	2385	45
8	10	180	0.030	0.03	0.03	6.31	9080	2725	45
10	12	180	0.030	0.04	0.04	7.91	7245	2610	45
12	16	180	0.035	0.04	0.04	9.41	6090	3410	45

Ball nose end mills Sphero-XF Multi

Tolerance r ±0.005, 6xd

HM XA | λ 30° γ -10°

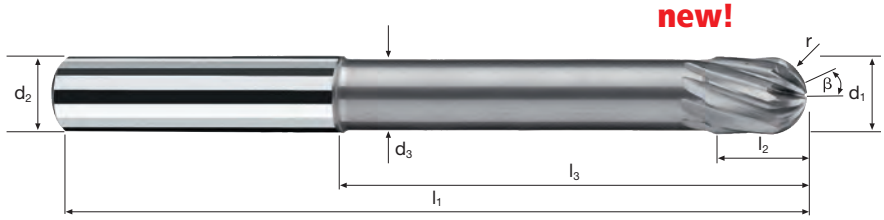
h5

d1

r

F

new!

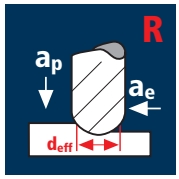


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	Copper

Example: **Order-N°.** Coating **X** | Article-N°. **7464** | ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	β	z		X-AL
											X7464
.300	6	6	5.5	80	7	43	3.0	25°	8		●
.391	8	8	7.4	90	9	53	4.0	25°	10		●
.450	10	10	9.2	105	11	64	5.0	25°	12		●
.501	12	12	11.0	120	13	74	6.0	25°	16		●

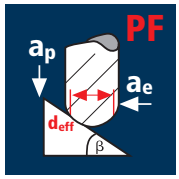
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC									
1	2	140	0.035	0.10	0.20	0.60	60000	4200	0.10
2	2	140	0.055	0.20	0.40	1.20	37135	4085	0.35
3	2	140	0.065	0.30	0.60	1.80	24760	3220	0.60
4	2	140	0.080	0.40	0.80	2.40	18570	2970	0.95
5	2	140	0.090	0.50	1.00	3.00	14855	2675	1.35
6	2	140	0.100	0.84	1.20	4.16	10715	2145	2.15
8	2	140	0.115	1.12	1.60	5.55	8030	1845	3.30
10	2	140	0.135	1.40	2.00	6.94	6420	1735	4.85
12	2	140	0.140	1.68	2.40	8.33	5350	1500	6.05
Hardened tool steel 48 - 52 HRC									
1	2	110	0.030	0.10	0.20	0.60	58360	3500	0.05
2	2	110	0.050	0.20	0.40	1.20	29180	2920	0.25
3	2	110	0.060	0.30	0.60	1.80	19455	2335	0.40
4	2	110	0.075	0.40	0.80	2.40	14590	2190	0.70
5	2	110	0.085	0.50	1.00	3.00	11670	1985	1.00
6	2	110	0.090	0.84	1.20	4.16	8415	1515	1.55
8	2	110	0.105	1.12	1.60	5.55	6310	1325	2.35
10	2	110	0.125	1.40	2.00	6.94	5045	1260	3.55
12	2	110	0.130	1.68	2.40	8.33	4205	1095	4.40
Hardened tool steel 52 - 56 HRC									
1	2	90	0.030	0.10	0.20	0.60	47750	2865	0.05
2	2	90	0.045	0.20	0.40	1.20	23875	2150	0.15
3	2	90	0.055	0.30	0.60	1.80	15915	1750	0.30
4	2	90	0.070	0.40	0.80	2.40	11935	1670	0.55
5	2	90	0.075	0.50	1.00	3.00	9550	1435	0.70
6	2	90	0.085	0.84	1.20	4.16	6885	1170	1.20
8	2	90	0.100	1.12	1.60	5.55	5160	1030	1.85
10	2	90	0.115	1.40	2.00	6.94	4130	950	2.65
12	2	90	0.120	1.68	2.40	8.33	3440	825	3.35
Hardened tool steel 56 - 60 HRC									
1	2	40	0.015	0.08	0.15	0.54	23580	705	0.00
2	2	40	0.020	0.16	0.30	1.09	11680	465	0.00
3	2	40	0.025	0.23	0.45	1.60	7960	400	0.05
4	2	40	0.030	0.24	0.48	1.90	6700	400	0.05
5	2	40	0.035	0.30	0.45	2.37	5370	375	0.05
6	2	40	0.040	0.50	0.36	3.32	3835	305	0.05
8	2	40	0.045	0.67	0.48	4.43	2875	260	0.10
10	2	40	0.055	0.84	0.60	5.55	2295	250	0.15
12	2	40	0.055	1.01	0.72	6.66	1910	210	0.15

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	160	0.050	0.08	0.08	0.98	51970	5195	45
2	2	160	0.080	0.16	0.16	1.96	25985	4160	45
3	2	160	0.090	0.24	0.24	2.93	17385	3130	45
4	2	160	0.105	0.32	0.32	3.91	13025	2735	45
5	2	160	0.120	0.40	0.40	4.89	10415	2500	45
6	2	160	0.130	0.48	0.48	5.87	8675	2255	45
8	2	160	0.150	0.64	0.64	7.82	6515	1955	45
10	2	160	0.170	0.80	0.80	9.78	5210	1770	45
12	2	160	0.180	0.96	0.96	11.73	4340	1560	45
Hardened tool steel 48 - 52 HRC									
1	2	120	0.045	0.08	0.08	0.98	38980	3510	45
2	2	120	0.075	0.16	0.16	1.96	19490	2925	45
3	2	120	0.085	0.24	0.24	2.93	13035	2215	45
4	2	120	0.095	0.32	0.32	3.91	9770	1855	45
5	2	120	0.110	0.40	0.40	4.89	7810	1720	45
6	2	120	0.120	0.48	0.48	5.87	6505	1560	45
8	2	120	0.140	0.64	0.64	7.82	4885	1370	45
10	2	120	0.155	0.80	0.80	9.78	3905	1210	45
12	2	120	0.165	0.96	0.96	11.73	3255	1075	45
Hardened tool steel 52 - 56 HRC									
1	2	100	0.045	0.08	0.08	0.98	32480	2925	45
2	2	100	0.070	0.16	0.16	1.96	16240	2275	45
3	2	100	0.075	0.24	0.24	2.93	10865	1630	45
4	2	100	0.090	0.32	0.32	3.91	8140	1465	45
5	2	100	0.100	0.40	0.40	4.89	6510	1300	45
6	2	100	0.110	0.48	0.48	5.87	5425	1195	45
8	2	100	0.130	0.64	0.64	7.82	4070	1060	45
10	2	100	0.145	0.80	0.80	9.78	3255	945	45
12	2	100	0.155	0.96	0.96	11.73	2715	840	45
Hardened tool steel 56 - 60 HRC									
1	2	60	0.040	0.05	0.05	0.94	20320	1625	45
2	2	60	0.060	0.10	0.10	1.89	10105	1215	45
3	2	60	0.070	0.14	0.14	2.82	6775	950	45
4	2	60	0.080	0.19	0.19	3.76	5080	815	45
5	2	60	0.090	0.24	0.24	4.71	4055	730	45
6	2	60	0.100	0.29	0.29	5.65	3380	675	45
8	2	60	0.115	0.38	0.38	7.53	2535	585	45
10	2	60	0.130	0.48	0.48	9.42	2030	530	45
12	2	60	0.135	0.58	0.58	11.30	1690	455	45

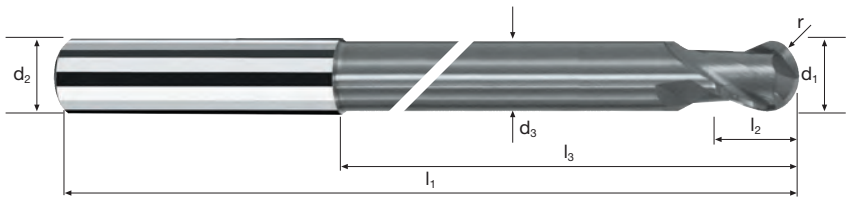
Ball nose end mills Sphero-XR

Tolerance r ±0.005, 9xd

HSS | Favora® | Base-X | X-Generation X

II

HM XT	λ 30° γ -10°



	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

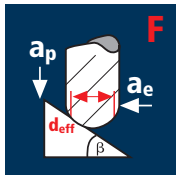
Example: **Order-N°.** Coating **X** Article-N°. **7428** ø-Code **.100**

ø Code	d1 *	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL / X7428
.100	1	6	0.95	69	1.5	9	0.5	8.0°	2	●
.140	2	6	1.90	69	3.0	18	1.0	4.7°	2	●
.180	3	6	2.80	75	4.0	27	1.5	2.8°	2	●
.220	4	6	3.70	80	5.0	36	2.0	1.5°	2	●
.260	5	6	4.60	87	6.0	45	2.5	0.7°	2	●
.300	6	6	5.50	100	7.0	63	3.0	0.0°	2	●
.391	8	8	7.40	120	9.0	83	4.0	0.0°	2	●
.450	10	10	9.20	135	11.0	94	5.0	0.0°	2	●
.501	12	12	11.00	160	13.0	114	6.0	0.0°	2	●

*** Tolerance of the cutting diameter**

d1	Tolerance
< 6	0/-0.010
≥ 6	0/-0.015

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	220	0.025	0.05	0.05	0.94	60000	3000	45
2	2	220	0.030	0.07	0.07	1.84	38060	2285	45
3	2	220	0.035	0.10	0.10	2.74	25560	1790	45
4	2	220	0.060	0.12	0.12	3.62	19345	2320	45
5	2	220	0.065	0.15	0.15	4.53	15460	2010	45
6	2	220	0.070	0.15	0.15	5.36	13065	1830	45
8	2	220	0.080	0.17	0.17	7.05	9935	1590	45
10	2	220	0.085	0.20	0.20	8.77	7985	1355	45
12	2	220	0.090	0.25	0.25	10.56	6630	1195	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	180	0.025	0.05	0.05	0.94	60000	3000	45
2	2	180	0.030	0.07	0.07	1.84	31140	1870	45
3	2	180	0.035	0.10	0.10	2.74	20910	1465	45
4	2	180	0.055	0.12	0.12	3.62	15830	1740	45
5	2	180	0.060	0.15	0.15	4.53	12650	1520	45
6	2	180	0.065	0.15	0.15	5.36	10690	1390	45
8	2	180	0.075	0.17	0.17	7.05	8125	1220	45
10	2	180	0.080	0.20	0.20	8.77	6535	1045	45
12	2	180	0.085	0.25	0.25	10.56	5425	920	45

Hardened tool steel 52 - 56 HRC

X

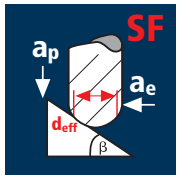
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	140	0.025	0.05	0.05	0.94	47410	2370	45
2	2	140	0.025	0.07	0.07	1.84	24220	1210	45
3	2	140	0.030	0.10	0.10	2.74	16265	975	45
4	2	140	0.055	0.12	0.12	3.62	12310	1355	45
5	2	140	0.060	0.15	0.15	4.53	9840	1180	45
6	2	140	0.065	0.15	0.15	5.36	8315	1080	45
8	2	140	0.070	0.17	0.17	7.05	6320	885	45
10	2	140	0.075	0.20	0.20	8.77	5080	760	45
12	2	140	0.080	0.25	0.25	10.56	4220	675	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	100	0.020	0.05	0.05	0.94	33865	1355	45
2	2	100	0.025	0.07	0.07	1.84	17300	865	45
3	2	100	0.030	0.10	0.10	2.74	11615	695	45
4	2	100	0.050	0.12	0.12	3.62	8795	880	45
5	2	100	0.055	0.15	0.15	4.53	7025	775	45
6	2	100	0.060	0.15	0.15	5.36	5940	715	45
8	2	100	0.070	0.17	0.17	7.05	4515	630	45
10	2	100	0.070	0.20	0.20	8.77	3630	510	45
12	2	100	0.075	0.25	0.25	10.56	3015	450	45

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	300	0.020	0.02	0.02	0.88	60000	2400	45
2	2	300	0.025	0.02	0.02	1.67	57185	2860	45
3	2	300	0.025	0.03	0.03	2.50	38200	1910	45
4	2	300	0.040	0.03	0.03	3.27	29205	2335	45
5	2	300	0.045	0.03	0.03	4.04	23640	2130	45
6	2	300	0.050	0.03	0.03	4.80	19895	1990	45
8	2	300	0.055	0.03	0.03	6.31	15135	1665	45
10	2	300	0.055	0.04	0.04	7.91	12075	1330	45
12	2	300	0.060	0.04	0.04	9.41	10150	1220	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	260	0.020	0.02	0.02	0.88	60000	2400	45
2	2	260	0.025	0.02	0.02	1.67	49560	2480	45
3	2	260	0.025	0.03	0.03	2.50	33105	1655	45
4	2	260	0.040	0.03	0.03	3.27	25310	2025	45
5	2	260	0.045	0.03	0.03	4.04	20485	1845	45
6	2	260	0.050	0.03	0.03	4.80	17240	1725	45
8	2	260	0.050	0.03	0.03	6.31	13115	1310	45
10	2	260	0.050	0.04	0.04	7.91	10465	1045	45
12	2	260	0.055	0.04	0.04	9.41	8795	965	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	200	0.020	0.02	0.02	0.88	60000	2400	45
2	2	200	0.025	0.02	0.02	1.67	38120	1905	45
3	2	200	0.025	0.03	0.03	2.50	25465	1275	45
4	2	200	0.035	0.03	0.03	3.27	19470	1365	45
5	2	200	0.040	0.03	0.03	4.04	15760	1260	45
6	2	200	0.045	0.03	0.03	4.80	13265	1195	45
8	2	200	0.050	0.03	0.03	6.31	10090	1010	45
10	2	200	0.050	0.04	0.04	7.91	8050	805	45
12	2	200	0.055	0.04	0.04	9.41	6765	745	45

Hardened tool steel 56 - 60 HRC

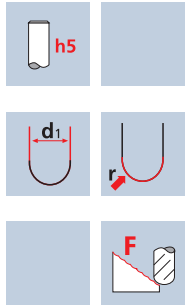
X

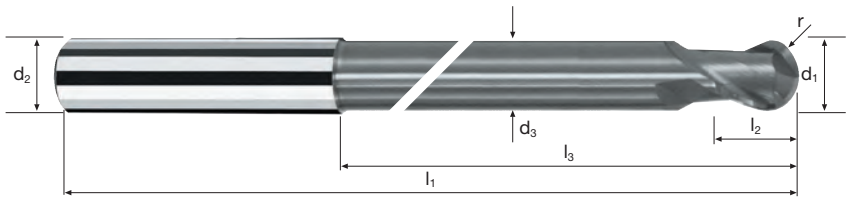
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	120	0.015	0.02	0.02	0.88	43405	1300	45
2	2	120	0.020	0.02	0.02	1.67	22875	915	45
3	2	120	0.020	0.03	0.03	2.50	15280	610	45
4	2	120	0.035	0.03	0.03	3.27	11680	820	45
5	2	120	0.040	0.03	0.03	4.04	9455	755	45
6	2	120	0.045	0.03	0.03	4.80	7960	715	45
8	2	120	0.045	0.03	0.03	6.31	6055	545	45
10	2	120	0.045	0.04	0.04	7.91	4830	435	45
12	2	120	0.050	0.04	0.04	9.41	4060	405	45

Ball nose end mills Sphero-XF

Tolerance r ±0.005, 9xd

HM XA	λ 30° γ -10°

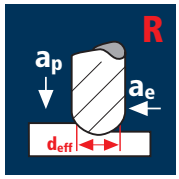


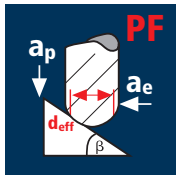


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	Copper

Example: **Order-N°.** Coating **X** Article-N°. **7408** ø-Code **.100**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL
										X7408
.100	1	6	0.95	69	1.5	9	0.5	8.0°	2	●
.140	2	6	1.90	69	3.0	18	1.0	4.7°	2	●
.180	3	6	2.80	75	4.0	27	1.5	2.8°	2	●
.220	4	6	3.70	80	5.0	36	2.0	1.5°	2	●
.260	5	6	4.60	87	6.0	45	2.5	0.7°	2	●
.300	6	6	5.50	100	7.0	63	3.0	0.0°	2	●
.391	8	8	7.40	120	9.0	83	4.0	0.0°	2	●
.450	10	10	9.20	135	11.0	94	5.0	0.0°	2	●
.501	12	12	11.00	160	13.0	114	6.0	0.0°	2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	3	4	160	0.050	0.53	1.20	2.29	22240	4450	2.85
		4	4	160	0.060	0.70	1.60	3.04	16755	4020	4.50
		5	4	160	0.065	0.88	2.00	3.81	13370	3475	6.10
		6	4	160	0.070	1.26	2.40	4.89	10415	2915	8.80
		8	4	160	0.080	1.68	3.20	6.52	7810	2500	13.45
		10	4	160	0.095	2.10	4.00	8.15	6250	2375	19.95
		12	4	160	0.100	2.52	4.80	9.78	5210	2085	25.20
	Hardened tool steel 48 - 52 HRC	3	4	130	0.045	0.53	1.20	2.29	18070	3255	2.05
		4	4	130	0.055	0.70	1.60	3.04	13610	2995	3.35
		5	4	130	0.060	0.88	2.00	3.81	10860	2605	4.60
		6	4	130	0.065	1.05	2.40	4.56	9075	2360	5.95
		8	4	130	0.075	1.40	3.20	6.08	6805	2040	9.15
		10	4	130	0.085	2.10	4.00	8.15	5075	1725	14.50
		12	4	130	0.090	2.52	4.80	9.78	4230	1525	18.45
	Hardened tool steel 52 - 56 HRC	3	4	110	0.045	0.53	1.20	2.29	15290	2750	1.75
		4	4	110	0.050	0.70	1.60	3.04	11520	2305	2.60
		5	4	110	0.055	0.88	2.00	3.81	9190	2020	3.55
		6	4	110	0.060	1.05	2.40	4.56	7680	1845	4.65
		8	4	110	0.070	1.40	3.20	6.08	5760	1615	7.25
		10	4	110	0.080	2.10	4.00	8.15	4295	1375	11.55
		12	4	110	0.085	2.52	4.80	9.78	3580	1215	14.70
	Hardened tool steel 56 - 60 HRC	3	4	50	0.020	0.41	0.90	2.06	7725	620	0.25
		4	4	50	0.025	0.55	1.20	2.75	5790	580	0.40
		5	4	50	0.025	0.69	1.50	3.45	4615	460	0.50
		6	4	50	0.030	0.76	1.44	3.99	3990	480	0.55
		8	4	50	0.030	1.01	1.44	5.31	2995	360	0.50
		10	4	50	0.040	1.26	1.20	6.64	2395	385	0.60
		12	4	50	0.040	1.51	1.44	7.96	2000	320	0.70

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Hardened tool steel 42 - 48 HRC	3	4	200	0.070	0.33	0.33	2.98	21365	5980	45
		4	4	200	0.080	0.44	0.44	3.98	15995	5120	45
		5	4	200	0.090	0.55	0.55	4.97	12810	4610	45
		6	4	200	0.100	0.66	0.66	5.96	10680	4270	45
		8	4	200	0.110	0.88	0.88	7.95	8010	3525	45
		10	4	200	0.130	1.10	1.10	9.94	6405	3330	45
		12	4	200	0.135	1.32	1.32	11.93	5335	2880	45
	Hardened tool steel 48 - 52 HRC	3	4	160	0.065	0.33	0.33	2.98	17090	4445	45
		4	4	160	0.075	0.44	0.44	3.98	12795	3840	45
		5	4	160	0.085	0.55	0.55	4.97	10250	3485	45
		6	4	160	0.090	0.66	0.66	5.96	8545	3075	45
		8	4	160	0.100	0.88	0.88	7.95	6405	2560	45
		10	4	160	0.120	1.10	1.10	9.94	5125	2460	45
		12	4	160	0.125	1.32	1.32	11.93	4270	2135	45
	Hardened tool steel 52 - 56 HRC	3	4	120	0.060	0.33	0.33	2.98	12820	3075	45
		4	4	120	0.070	0.44	0.44	3.98	9600	2690	45
		5	4	120	0.075	0.55	0.55	4.97	7685	2305	45
		6	4	120	0.085	0.66	0.66	5.96	6410	2180	45
		8	4	120	0.095	0.88	0.88	7.95	4805	1825	45
		10	4	120	0.110	1.10	1.10	9.94	3845	1690	45
		12	4	120	0.115	1.32	1.32	11.93	3200	1470	45
	Hardened tool steel 56 - 60 HRC	3	4	90	0.055	0.20	0.20	2.90	9880	2175	45
		4	4	90	0.060	0.26	0.26	3.86	7420	1780	45
		5	4	90	0.070	0.33	0.33	4.82	5945	1665	45
		6	4	90	0.075	0.40	0.40	5.79	4950	1485	45
		8	4	90	0.085	0.53	0.53	7.72	3710	1260	45
		10	4	90	0.100	0.66	0.66	9.65	2970	1190	45
		12	4	90	0.100	0.79	0.79	11.58	2475	990	45

Ball nose end mills Sphero-XR4

Tolerance r ±0.01, 3xd

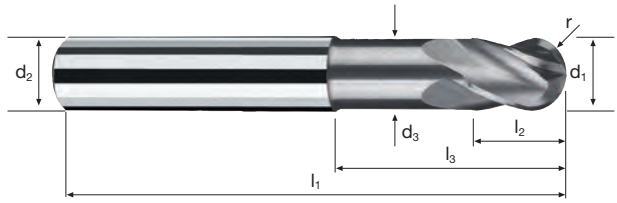
HSS | Favora® | Base-X | X-Generation X

II

HM XT | λ 30° γ-10°

h5

R



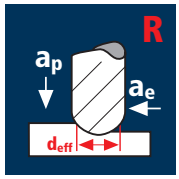
new!

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Example: **Order-N°.** Coating **X** | Article-N°. **7450** | ø-Code **.180**

ø Code	d1 0/-0.02	d2 h5	d3	l1	l2	l3	r ±0.01	α	z		X-AL
											X7450
.180	3	6	2.8	57	4	9	1.5	6.4°	4		●
.220	4	6	3.7	57	5	12	2.0	4.0°	4		●
.260	5	6	4.6	57	6	15	2.5	2.0°	4		●
.300	6	6	5.5	57	7	20	3.0	0.0°	4		●
.391	8	8	7.4	63	9	26	4.0	0.0°	4		●
.450	10	10	9.2	72	11	31	5.0	0.0°	4		●
.501	12	12	11.0	83	13	37	6.0	0.0°	4		●

Application



Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	160	0.050	0.39	0.90	2.02	25215	5045	1.75
4	4	160	0.060	0.52	1.20	2.69	18935	4545	2.85
5	4	160	0.065	0.65	1.50	3.36	15160	3940	3.85
6	4	160	0.070	1.02	1.80	4.51	11295	3165	5.80
8	4	160	0.080	1.36	2.40	6.01	8475	2710	8.85
10	4	160	0.095	1.70	3.00	7.51	6780	2575	13.15
12	4	160	0.100	2.04	3.60	9.02	5645	2260	16.60

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	130	0.045	0.39	0.90	2.02	20485	3685	1.30
4	4	130	0.055	0.52	1.20	2.69	15385	3385	2.10
5	4	130	0.060	0.65	1.50	3.36	12315	2955	2.90
6	4	130	0.065	0.78	1.80	4.04	10245	2665	3.75
8	4	130	0.075	1.04	2.40	5.38	7690	2305	5.75
10	4	130	0.085	1.70	3.00	7.51	5510	1875	9.55
12	4	130	0.090	2.04	3.60	9.02	4590	1650	12.10

Hardened tool steel 52 - 56 HRC



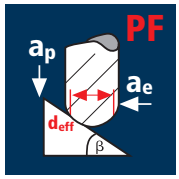
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	110	0.045	0.39	0.90	2.02	17335	3120	1.10
4	4	110	0.050	0.52	1.20	2.69	13015	2605	1.65
5	4	110	0.055	0.65	1.50	3.36	10420	2290	2.25
6	4	110	0.060	0.78	1.80	4.04	8665	2080	2.90
8	4	110	0.070	1.04	2.40	5.38	6510	1825	4.55
10	4	110	0.080	1.70	3.00	7.51	4660	1490	7.60
12	4	110	0.085	2.04	3.60	9.02	3880	1320	9.70

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	50	0.020	0.30	0.68	1.80	8840	705	0.15
4	4	50	0.025	0.41	0.90	2.43	6550	655	0.25
5	4	50	0.025	0.51	1.13	3.03	5255	525	0.30
6	4	50	0.030	0.61	1.08	3.63	4385	525	0.35
8	4	50	0.030	0.82	1.08	4.85	3280	395	0.35
10	4	50	0.040	1.02	0.90	6.05	2630	420	0.40
12	4	50	0.040	1.22	1.08	7.25	2195	350	0.45

Application



Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	200	0.070	0.27	0.27	2.95	21580	6040	45
4	4	200	0.080	0.36	0.36	3.94	16160	5170	45
5	4	200	0.090	0.45	0.45	4.92	12940	4660	45
6	4	200	0.100	0.54	0.54	5.91	10770	4310	45
8	4	200	0.110	0.72	0.72	7.88	8080	3555	45
10	4	200	0.130	0.90	0.90	9.85	6465	3360	45
12	4	200	0.135	1.08	1.08	11.81	5390	2910	45

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	160	0.065	0.27	0.27	2.95	17265	4490	45
4	4	160	0.075	0.36	0.36	3.94	12925	3880	45
5	4	160	0.085	0.45	0.45	4.92	10350	3520	45
6	4	160	0.090	0.54	0.54	5.91	8620	3105	45
8	4	160	0.100	0.72	0.72	7.88	6465	2585	45
10	4	160	0.120	0.90	0.90	9.85	5170	2480	45
12	4	160	0.125	1.08	1.08	11.81	4315	2160	45

Hardened tool steel 52 - 56 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	120	0.060	0.27	0.27	2.95	12950	3110	45
4	4	120	0.070	0.36	0.36	3.94	9695	2715	45
5	4	120	0.075	0.45	0.45	4.92	7765	2330	45
6	4	120	0.085	0.54	0.54	5.91	6465	2200	45
8	4	120	0.095	0.72	0.72	7.88	4850	1845	45
10	4	120	0.110	0.90	0.90	9.85	3880	1705	45
12	4	120	0.115	1.08	1.08	11.81	3235	1490	45

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	90	0.055	0.16	0.16	2.85	10050	2210	45
4	4	90	0.060	0.22	0.22	3.81	7520	1805	45
5	4	90	0.070	0.27	0.27	4.75	6030	1690	45
6	4	90	0.075	0.32	0.32	5.70	5025	1510	45
8	4	90	0.085	0.43	0.43	7.60	3770	1280	45
10	4	90	0.100	0.54	0.54	9.50	3015	1205	45
12	4	90	0.100	0.65	0.65	11.41	2510	1005	45

Ball nose end mills Sphero-XR4

Tolerance r ±0.01, 6xd

HSS | Favora® | Base-X | X-Generation X

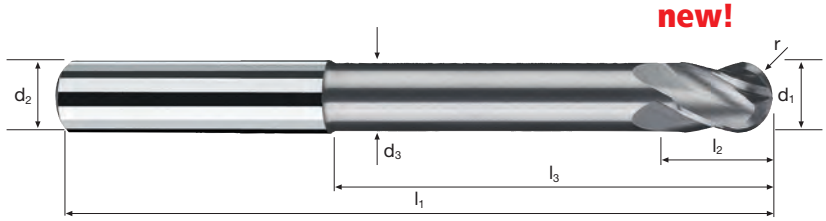
II

HM XT | λ 30° γ-10°

h5

R

new!

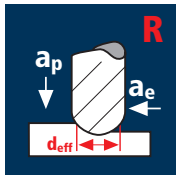


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Example: **Order-N°.** Coating **X** | Article-N°. **7454** | ø-Code **.180**

ø Code	d1 0/-0.02	d2 h5	d3	l1	l2	l3	r ±0.01	α	z	X-AL	X7454
.180	3	6	2.8	66	4	18	1.5	3.9°	4		●
.220	4	6	3.7	69	5	24	2.0	2.2°	4		●
.260	5	6	4.6	75	6	30	2.5	1.0°	4		●
.300	6	6	5.5	80	7	43	3.0	0.0°	4		●
.391	8	8	7.4	90	9	53	4.0	0.0°	4		●
.450	10	10	9.2	105	11	64	5.0	0.0°	4		●
.501	12	12	11.0	120	13	74	6.0	0.0°	4		●

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	140	0.045	0.30	0.60	1.80	24760	4455	0.80
4	4	140	0.050	0.40	0.80	2.40	18570	3715	1.20
5	4	140	0.060	0.50	1.00	3.00	14855	3565	1.80
6	4	140	0.065	0.84	1.20	4.16	10715	2785	2.80
8	4	140	0.075	1.12	1.60	5.55	8030	2410	4.30
10	4	140	0.085	1.40	2.00	6.94	6420	2185	6.10
12	4	140	0.090	1.68	2.40	8.33	5350	1925	7.75

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	110	0.040	0.30	0.60	1.80	19455	3115	0.55
4	4	110	0.045	0.40	0.80	2.40	14590	2625	0.85
5	4	110	0.055	0.50	1.00	3.00	11670	2565	1.30
6	4	110	0.060	0.60	1.20	3.60	9725	2335	1.70
8	4	110	0.070	0.80	1.60	4.80	7295	2045	2.60
10	4	110	0.080	1.40	2.00	6.94	5045	1615	4.50
12	4	110	0.085	1.68	2.40	8.33	4205	1430	5.75

Hardened tool steel 52 - 56 HRC

X

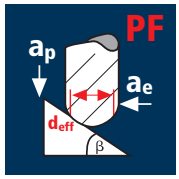
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	90	0.040	0.30	0.60	1.80	15915	2545	0.45
4	4	90	0.045	0.40	0.80	2.40	11935	2150	0.70
5	4	90	0.050	0.50	1.00	3.00	9550	1910	0.95
6	4	90	0.055	0.60	1.20	3.60	7960	1750	1.25
8	4	90	0.065	0.80	1.60	4.80	5970	1550	2.00
10	4	90	0.070	1.40	2.00	6.94	4130	1155	3.25
12	4	90	0.075	1.68	2.40	8.33	3440	1030	4.15

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	4	40	0.020	0.23	0.45	1.60	7960	635	0.05
4	4	40	0.020	0.31	0.60	2.14	5950	475	0.10
5	4	40	0.025	0.39	0.75	2.68	4750	475	0.15
6	4	40	0.025	0.50	0.72	3.32	3835	385	0.15
8	4	40	0.030	0.67	0.72	4.43	2875	345	0.15
10	4	40	0.035	0.84	0.60	5.55	2295	320	0.15
12	4	40	0.035	1.01	0.72	6.66	1910	265	0.20

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	160	0.060	0.21	0.21	2.91	17500	4200	45
4	4	160	0.070	0.28	0.28	3.88	13125	3675	45
5	4	160	0.080	0.35	0.35	4.84	10525	3370	45
6	4	160	0.085	0.42	0.42	5.81	8765	2980	45
8	4	160	0.095	0.56	0.56	7.75	6570	2495	45
10	4	160	0.110	0.70	0.70	9.69	5255	2310	45
12	4	160	0.115	0.84	0.84	11.63	4380	2015	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	120	0.055	0.21	0.21	2.91	13125	2890	45
4	4	120	0.065	0.28	0.28	3.88	9845	2560	45
5	4	120	0.075	0.35	0.35	4.84	7890	2365	45
6	4	120	0.080	0.42	0.42	5.81	6575	2105	45
8	4	120	0.085	0.56	0.56	7.75	4930	1675	45
10	4	120	0.100	0.70	0.70	9.69	3940	1575	45
12	4	120	0.105	0.84	0.84	11.63	3285	1380	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	100	0.050	0.21	0.21	2.91	10940	2190	45
4	4	100	0.060	0.28	0.28	3.88	8205	1970	45
5	4	100	0.070	0.35	0.35	4.84	6575	1840	45
6	4	100	0.070	0.42	0.42	5.81	5480	1535	45
8	4	100	0.080	0.56	0.56	7.75	4105	1315	45
10	4	100	0.095	0.70	0.70	9.69	3285	1250	45
12	4	100	0.100	0.84	0.84	11.63	2735	1095	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	60	0.045	0.13	0.13	2.80	6820	1230	45
4	4	60	0.055	0.17	0.17	3.73	5120	1125	45
5	4	60	0.060	0.21	0.21	4.66	4100	985	45
6	4	60	0.065	0.25	0.25	5.58	3425	890	45
8	4	60	0.070	0.34	0.34	7.46	2560	715	45
10	4	60	0.085	0.42	0.42	9.31	2050	695	45
12	4	60	0.085	0.50	0.50	11.17	1710	580	45

Ball nose end mills Sphero-XR4

Tolerance r ±0.01, 9xd

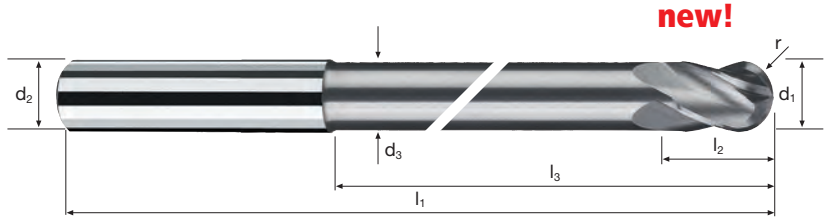
HSS | Favora® | Base-X | X-Generation X

II

HM XT | λ 30° γ-10°

h5

R

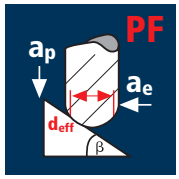


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Example: **Order-N°.** Coating **X** | Article-N°. **7458** | ø-Code **.180**

ø Code	d1 0/-0.02	d2 h5	d3	l1	l2	l3	r ±0.01	α	z	X-AL	X7458
.180	3	6	2.8	75	4	27	1.5	2.8°	4		●
.220	4	6	3.7	80	5	36	2.0	1.5°	4		●
.260	5	6	4.6	87	6	45	2.5	0.7°	4		●
.300	6	6	5.5	100	7	63	3.0	0.0°	4		●
.391	8	8	7.4	120	9	83	4.0	0.0°	4		●
.450	10	10	9.2	135	11	94	5.0	0.0°	4		●
.501	12	12	11.0	160	13	114	6.0	0.0°	4		●

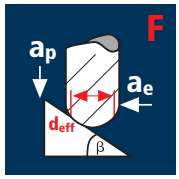
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	180	0.040	0.10	0.10	0.99	57875	4630	45
2	2	180	0.065	0.20	0.20	1.98	28940	3760	45
3	2	180	0.075	0.30	0.30	2.97	19290	2895	45
4	2	180	0.090	0.40	0.40	3.96	14470	2605	45
6	2	180	0.110	0.60	0.60	5.94	9645	2120	45
8	2	180	0.125	0.80	0.80	7.92	7235	1810	45
10	2	180	0.145	1.00	1.00	9.90	5790	1680	45
12	2	180	0.150	1.20	1.20	11.88	4825	1450	45
Hardened tool steel 48 - 52 HRC									
1	2	150	0.035	0.10	0.10	0.99	48230	3375	45
2	2	150	0.060	0.20	0.20	1.98	24115	2895	45
3	2	150	0.070	0.30	0.30	2.97	16075	2250	45
4	2	150	0.085	0.40	0.40	3.96	12060	2050	45
6	2	150	0.100	0.60	0.60	5.94	8040	1610	45
8	2	150	0.115	0.80	0.80	7.92	6030	1385	45
10	2	150	0.135	1.00	1.00	9.90	4825	1305	45
12	2	150	0.140	1.20	1.20	11.88	4020	1125	45
Hardened tool steel 52 - 56 HRC									
1	2	110	0.035	0.10	0.10	0.99	35370	2475	45
2	2	110	0.055	0.20	0.20	1.98	17685	1945	45
3	2	110	0.065	0.30	0.30	2.97	11790	1535	45
4	2	110	0.075	0.40	0.40	3.96	8840	1325	45
6	2	110	0.095	0.60	0.60	5.94	5895	1120	45
8	2	110	0.105	0.80	0.80	7.92	4420	930	45
10	2	110	0.125	1.00	1.00	9.90	3535	885	45
12	2	110	0.130	1.20	1.20	11.88	2945	765	45
Hardened tool steel 56 - 60 HRC									
1	2	80	0.030	0.06	0.06	0.96	26525	1590	45
2	2	80	0.050	0.12	0.12	1.92	13265	1325	45
3	2	80	0.055	0.18	0.18	2.87	8875	975	45
4	2	80	0.070	0.24	0.24	3.83	6650	930	45
6	2	80	0.085	0.36	0.36	5.75	4430	755	45
8	2	80	0.095	0.48	0.48	7.66	3325	630	45
10	2	80	0.110	0.60	0.60	9.58	2660	585	45
12	2	80	0.115	0.72	0.72	11.50	2215	510	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
1	2	280	0.025	0.05	0.05	0.94	60000	3000	45
2	2	280	0.030	0.07	0.07	1.84	48440	2905	45
3	2	280	0.035	0.10	0.10	2.74	32530	2275	45
4	2	280	0.055	0.12	0.12	3.62	24620	2710	45
6	2	280	0.065	0.15	0.15	5.36	16630	2160	45
8	2	280	0.075	0.17	0.17	7.05	12640	1895	45
10	2	280	0.080	0.20	0.20	8.77	10165	1625	45
12	2	280	0.085	0.25	0.25	10.56	8440	1435	45
Hardened tool steel 48 - 52 HRC									
1	2	220	0.025	0.05	0.05	0.94	60000	3000	45
2	2	220	0.030	0.07	0.07	1.84	38060	2285	45
3	2	220	0.035	0.10	0.10	2.74	25560	1790	45
4	2	220	0.050	0.12	0.12	3.62	19345	1935	45
6	2	220	0.060	0.15	0.15	5.36	13065	1570	45
8	2	220	0.070	0.17	0.17	7.05	9935	1390	45
10	2	220	0.075	0.20	0.20	8.77	7985	1200	45
12	2	220	0.080	0.25	0.25	10.56	6630	1060	45
Hardened tool steel 52 - 56 HRC									
1	2	180	0.025	0.05	0.05	0.94	60000	3000	45
2	2	180	0.025	0.07	0.07	1.84	31140	1555	45
3	2	180	0.030	0.10	0.10	2.74	20910	1255	45
4	2	180	0.050	0.12	0.12	3.62	15830	1585	45
6	2	180	0.060	0.15	0.15	5.36	10690	1285	45
8	2	180	0.070	0.17	0.17	7.05	8125	1140	45
10	2	180	0.070	0.20	0.20	8.77	6535	915	45
12	2	180	0.075	0.25	0.25	10.56	5425	815	45
Hardened tool steel 56 - 60 HRC									
1	2	120	0.020	0.05	0.05	0.94	40635	1625	45
2	2	120	0.025	0.07	0.07	1.84	20760	1040	45
3	2	120	0.030	0.10	0.10	2.74	13940	835	45
4	2	120	0.045	0.12	0.12	3.62	10550	950	45
6	2	120	0.055	0.15	0.15	5.36	7125	785	45
8	2	120	0.065	0.17	0.17	7.05	5420	705	45
10	2	120	0.070	0.20	0.20	8.77	4355	610	45
12	2	120	0.070	0.25	0.25	10.56	3615	505	45

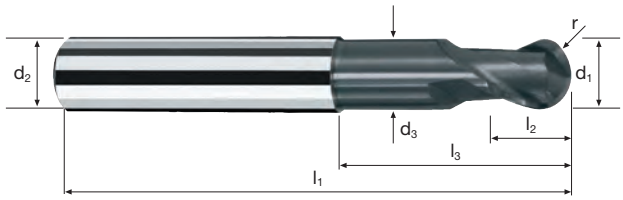
Ball nose end mills HX-S

Tolerance r js8 (±), 3xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA	λ 30° γ-10°



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Example: **Order-N°.** Coating **D** Article-N°. **5100** ø-Code **.100**

ø Code	d1 ±	d2 h6	d3	l1	l2	l3	r js8	α	z	DURO-S D5100
.100	1.0	6	0.95	57	1.5	3.0	0.50	11.8°	2	●
.120	1.5	6	1.40	57	2.0	4.5	0.75	10.3°	2	●
.140	2.0	6	1.90	57	3.0	6.0	1.00	9.0°	2	●
.160	2.5	6	2.30	57	3.5	7.5	1.25	7.6°	2	●
.180	3.0	6	2.80	57	4.0	9.0	1.50	6.4°	2	●
.220	4.0	6	3.70	57	5.0	12.0	2.00	4.0°	2	●
.260	5.0	6	4.60	57	6.0	15.0	2.50	2.0°	2	●
.300	6.0	6	5.50	57	7.0	20.0	3.00	0.0°	2	●
.391	8.0	8	7.40	63	9.0	26.0	4.00	0.0°	2	●
.450	10.0	10	9.20	72	11.0	31.0	5.00	0.0°	2	●
.501	12.0	12	11.00	83	13.0	37.0	6.00	0.0°	2	●

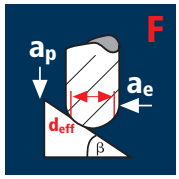
CNC Radius R

d1	r	Radius js8 Minimum	Radius js8 Maximum	R
1.0	0.50	**0.493**	**0.507**	**0.500**
1.5	0.75	**0.743**	**0.757**	**0.750**
2.0	1.00	**0.993**	**1.007**	**1.000**
2.5	1.25	**1.243**	**1.257**	**1.250**
3.0	1.50	**1.493**	**1.507**	**1.500**
4.0	2.00	**1.993**	**2.007**	**2.000**
5.0	2.50	**2.493**	**2.507**	**2.500**

CNC Radius R

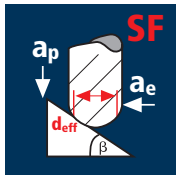
d1	r	Radius js8 Minimum	Radius js8 Maximum	R
6.0	3.00	**2.993**	**3.007**	**3.000**
8.0	4.00	**3.991**	**4.009**	**4.000**
10.0	5.00	**4.991**	**5.009**	**5.000**
12.0	6.00	**5.991**	**6.009**	**6.000**

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	6	4	250	0.070	0.15	0.15	5.36	14845	4155	45
	8	4	250	0.080	0.17	0.17	7.05	11290	3615	45
	10	4	250	0.085	0.20	0.20	8.77	9075	3085	45
	12	4	250	0.090	0.25	0.25	10.56	7535	2715	45
Hardened tool steel 48 - 52 HRC	6	4	200	0.065	0.15	0.15	5.36	11880	3090	45
	8	4	200	0.075	0.17	0.17	7.05	9030	2710	45
	10	4	200	0.080	0.20	0.20	8.77	7260	2325	45
	12	4	200	0.085	0.25	0.25	10.56	6030	2050	45
Hardened tool steel 52 - 56 HRC	6	4	160	0.065	0.15	0.15	5.36	9500	2470	45
	8	4	160	0.070	0.17	0.17	7.05	7225	2025	45
	10	4	160	0.075	0.20	0.20	8.77	5805	1740	45
	12	4	160	0.080	0.25	0.25	10.56	4825	1545	45
Hardened tool steel 56 - 60 HRC	6	4	100	0.060	0.15	0.15	5.36	5940	1425	45
	8	4	100	0.070	0.17	0.17	7.05	4515	1265	45
	10	4	100	0.070	0.20	0.20	8.77	3630	1015	45
	12	4	100	0.075	0.25	0.25	10.56	3015	905	45

Application

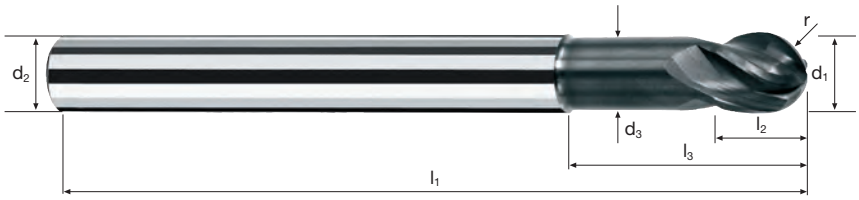


Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	6	4	350	0.050	0.03	0.03	4.80	23210	4640	45
	8	4	350	0.055	0.03	0.03	6.31	17655	3885	45
	10	4	350	0.055	0.04	0.04	7.91	14085	3100	45
	12	4	350	0.060	0.04	0.04	9.41	11840	2840	45
Hardened tool steel 48 - 52 HRC	6	4	300	0.050	0.03	0.03	4.80	19895	3980	45
	8	4	300	0.050	0.03	0.03	6.31	15135	3025	45
	10	4	300	0.050	0.04	0.04	7.91	12075	2415	45
	12	4	300	0.055	0.04	0.04	9.41	10150	2235	45
Hardened tool steel 52 - 56 HRC	6	4	250	0.045	0.03	0.03	4.80	16580	2985	45
	8	4	250	0.050	0.03	0.03	6.31	12610	2520	45
	10	4	250	0.050	0.04	0.04	7.91	10060	2010	45
	12	4	250	0.055	0.04	0.04	9.41	8455	1860	45
Hardened tool steel 56 - 60 HRC	6	4	150	0.045	0.03	0.03	4.80	9945	1790	45
	8	4	150	0.045	0.03	0.03	6.31	7565	1360	45
	10	4	150	0.045	0.04	0.04	7.91	6035	1085	45
	12	4	150	0.050	0.04	0.04	9.41	5075	1015	45

Ball nose end mills HX-S4

Tolerance r js8 (±), 3xd

HM XA | **λ 30° γ-10°**



		Rm 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60			**GG(G)**

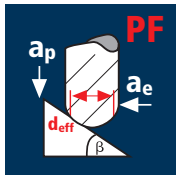
Example: **Order-N°.** Coating **D** Article-N°. **5140** ø-Code **.300**

ø Code	d1 ±	d2 h6	d3	l1	l2	l3	r js8	z	DURO-S D5140
.300	6	6	5.5	80	7	20	3.0	4	●
.391	8	8	7.4	90	9	26	4.0	4	●
.450	10	10	9.2	100	11	31	5.0	4	●
.501	12	12	11.0	120	13	37	6.0	4	●

CNC Radius R

d1	r	Tolerance js8		Radius Minimum	Radius Maximum	**R**
6	3.0	-0.007	+0.007	**2.993**	**3.007**	**3.000**
8	4.0	-0.009	+0.009	**3.991**	**4.009**	**4.000**
10	5.0			**4.991**	**5.009**	**5.000**
12	6.0			**5.991**	**6.009**	**6.000**

Application



Material

Steel
1100 - 1300 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	180	0.040	0.10	0.10	0.99	57875	4630	45
2	2	180	0.065	0.20	0.20	1.98	28940	3760	45
3	2	180	0.075	0.30	0.30	2.97	19290	2895	45
4	2	180	0.090	0.40	0.40	3.96	14470	2605	45
6	2	180	0.110	0.60	0.60	5.94	9645	2120	45
8	2	180	0.125	0.80	0.80	7.92	7235	1810	45
10	2	180	0.145	1.00	1.00	9.90	5790	1680	45
12	2	180	0.150	1.20	1.20	11.88	4825	1450	45
16	2	180	0.180	1.60	1.60	15.84	3615	1300	45

Hardened tool steel
42 - 48 HRC

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	160	0.035	0.10	0.10	0.99	51445	3600	45
2	2	160	0.060	0.20	0.20	1.98	25725	3085	45
3	2	160	0.070	0.30	0.30	2.97	17150	2400	45
4	2	160	0.085	0.40	0.40	3.96	12860	2185	45
6	2	160	0.100	0.60	0.60	5.94	8575	1715	45
8	2	160	0.115	0.80	0.80	7.92	6430	1480	45
10	2	160	0.135	1.00	1.00	9.90	5145	1390	45
12	2	160	0.140	1.20	1.20	11.88	4285	1200	45
16	2	160	0.165	1.60	1.60	15.84	3215	1060	45

Hardened tool steel
48 - 52 HRC

P

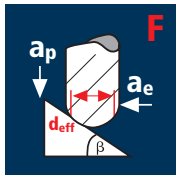
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	140	0.035	0.10	0.10	0.99	45015	3150	45
2	2	140	0.055	0.20	0.20	1.98	22505	2475	45
3	2	140	0.065	0.30	0.30	2.97	15005	1950	45
4	2	140	0.075	0.40	0.40	3.96	11255	1690	45
6	2	140	0.095	0.60	0.60	5.94	7500	1425	45
8	2	140	0.105	0.80	0.80	7.92	5625	1180	45
10	2	140	0.125	1.00	1.00	9.90	4500	1125	45
12	2	140	0.130	1.20	1.20	11.88	3750	975	45
16	2	140	0.155	1.60	1.60	15.84	2815	875	45

Hardened tool steel
52 - 56 HRC

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	100	0.030	0.10	0.10	0.99	32155	1930	45
2	2	100	0.050	0.20	0.20	1.98	16075	1610	45
3	2	100	0.060	0.30	0.30	2.97	10720	1285	45
4	2	100	0.070	0.40	0.40	3.96	8040	1125	45
6	2	100	0.090	0.60	0.60	5.94	5360	965	45
8	2	100	0.100	0.80	0.80	7.92	4020	805	45
10	2	100	0.115	1.00	1.00	9.90	3215	740	45
12	2	100	0.120	1.20	1.20	11.88	2680	645	45
16	2	100	0.145	1.60	1.60	15.84	2010	585	45

Application



Material

Steel
1100 - 1300 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	280	0.025	0.05	0.05	0.94	60000	3000	45
2	2	280	0.030	0.07	0.07	1.84	48440	2905	45
3	2	280	0.035	0.10	0.10	2.74	32530	2275	45
4	2	280	0.055	0.12	0.12	3.62	24620	2710	45
6	2	280	0.065	0.15	0.15	5.36	16630	2160	45
8	2	280	0.075	0.17	0.17	7.05	12640	1895	45
10	2	280	0.080	0.20	0.20	8.77	10165	1625	45
12	2	280	0.085	0.25	0.25	10.56	8440	1435	45
16	2	280	0.100	0.28	0.28	13.88	6420	1285	45

Hardened tool steel
42 - 48 HRC

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	250	0.025	0.05	0.05	0.94	60000	3000	45
2	2	250	0.030	0.07	0.07	1.84	43250	2595	45
3	2	250	0.035	0.10	0.10	2.74	29045	2035	45
4	2	250	0.050	0.12	0.12	3.62	21985	2200	45
6	2	250	0.060	0.15	0.15	5.36	14845	1780	45
8	2	250	0.070	0.17	0.17	7.05	11290	1580	45
10	2	250	0.075	0.20	0.20	8.77	9075	1360	45
12	2	250	0.080	0.25	0.25	10.56	7535	1205	45
16	2	250	0.095	0.28	0.28	13.88	5735	1090	45

Hardened tool steel
48 - 52 HRC

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	200	0.025	0.05	0.05	0.94	60000	3000	45
2	2	200	0.025	0.07	0.07	1.84	34600	1730	45
3	2	200	0.030	0.10	0.10	2.74	23235	1395	45
4	2	200	0.050	0.12	0.12	3.62	17585	1760	45
6	2	200	0.060	0.15	0.15	5.36	11880	1425	45
8	2	200	0.070	0.17	0.17	7.05	9030	1265	45
10	2	200	0.070	0.20	0.20	8.77	7260	1015	45
12	2	200	0.075	0.25	0.25	10.56	6030	905	45
16	2	200	0.090	0.28	0.28	13.88	4585	825	45

Hardened tool steel
52 - 56 HRC

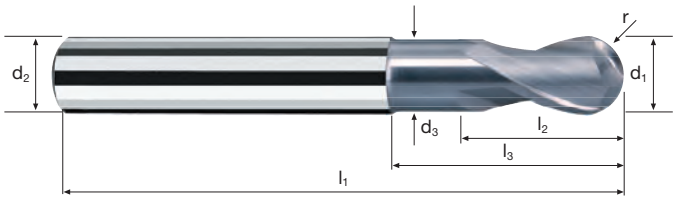
P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
1	2	150	0.020	0.05	0.05	0.94	50795	2030	45
2	2	150	0.025	0.07	0.07	1.84	25950	1300	45
3	2	150	0.030	0.10	0.10	2.74	17425	1045	45
4	2	150	0.045	0.12	0.12	3.62	13190	1185	45
6	2	150	0.055	0.15	0.15	5.36	8910	980	45
8	2	150	0.065	0.17	0.17	7.05	6775	880	45
10	2	150	0.070	0.20	0.20	8.77	5445	760	45
12	2	150	0.070	0.25	0.25	10.56	4520	635	45
16	2	150	0.085	0.28	0.28	13.88	3440	585	45

Ball nose end mills Sphericut

Tolerance r f8 (-/-), 3xd

HM Plus | **λ 30° γ-10°**



Rm 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**GG(G)**

Example: **Order-N°.** Coating **P** | Article-N°. **5286** | ø-Code **.100**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM P5286
.100	1.0	3	-	40	1.0	-	0.50	13.2°	2	●
.120	1.5	3	-	40	2.0	-	0.75	10.4°	2	●
.138	2.0	3	-	40	2.5	-	1.00	8.3°	2	●
.140	2.0	6	1.9	57	3.0	6	1.00	9.0°	2	●
.178	3.0	3	-	40	4.0	-	1.50	0.0°	2	●
.180	3.0	6	2.8	57	4.0	9	1.50	6.4°	2	●
.220	4.0	6	3.7	57	5.0	12	2.00	4.0°	2	●
.260	5.0	6	4.6	57	6.0	15	2.50	2.0°	2	●
.300	6.0	6	5.5	57	7.0	20	3.00	0.0°	2	●
.391	8.0	8	7.4	63	9.0	26	4.00	0.0°	2	●
.450	10.0	10	9.2	72	11.0	31	5.00	0.0°	2	●
.501	12.0	12	11.0	83	13.0	37	6.00	0.0°	2	●
.610	16.0	16	15.0	92	17.0	43	8.00	0.0°	2	●

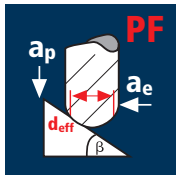
CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
1.0	0.50	**0.480**	**0.494**	**0.487**
1.5	0.75	**0.730**	**0.744**	**0.737**
2.0	1.00	**0.980**	**0.994**	**0.987**
3.0	1.50	**1.480**	**1.494**	**1.487**
4.0	2.00	**1.980**	**1.994**	**1.987**
5.0	2.50	**2.480**	**2.494**	**2.487**

CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
6.0	3.00	**2.980**	**2.994**	**2.987**
8.0	4.00	**3.972**	**3.990**	**3.981**
10.0	5.00	**4.972**	**4.990**	**4.981**
12.0	6.00	**5.972**	**5.990**	**5.981**
16.0	8.00	**7.965**	**7.987**	**7.976**

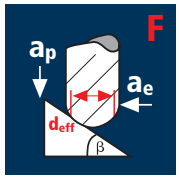
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
4	2	220	0.090	0.40	0.40	3.96	17685	3185	45
5	2	220	0.100	0.50	0.50	4.95	14150	2830	45
6	2	220	0.110	0.60	0.60	5.94	11790	2595	45
8	2	220	0.125	0.80	0.80	7.92	8840	2210	45
10	2	220	0.145	1.00	1.00	9.90	7075	2050	45
12	2	220	0.150	1.20	1.20	11.88	5895	1770	45
16	2	220	0.180	1.60	1.60	15.84	4420	1590	45
Steel 1100 - 1300 N/mm²									
4	2	180	0.085	0.40	0.40	3.96	14470	2460	45
5	2	180	0.090	0.50	0.50	4.95	11575	2085	45
6	2	180	0.100	0.60	0.60	5.94	9645	1930	45
8	2	180	0.115	0.80	0.80	7.92	7235	1665	45
10	2	180	0.135	1.00	1.00	9.90	5790	1565	45
12	2	180	0.140	1.20	1.20	11.88	4825	1350	45
16	2	180	0.165	1.60	1.60	15.84	3615	1195	45
Steel 1300 - 1500 N/mm²									
4	2	160	0.075	0.40	0.40	3.96	12860	1930	45
5	2	160	0.085	0.50	0.50	4.95	10290	1750	45
6	2	160	0.095	0.60	0.60	5.94	8575	1630	45
8	2	160	0.105	0.80	0.80	7.92	6430	1350	45
10	2	160	0.125	1.00	1.00	9.90	5145	1285	45
12	2	160	0.130	1.20	1.20	11.88	4285	1115	45
16	2	160	0.155	1.60	1.60	15.84	3215	995	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	2	100	0.070	0.32	0.32	3.91	8140	1140	45
5	2	100	0.080	0.40	0.40	4.89	6510	1040	45
6	2	100	0.090	0.48	0.48	5.87	5425	975	45
8	2	100	0.100	0.64	0.64	7.82	4070	815	45
10	2	100	0.115	0.80	0.80	9.78	3255	750	45
12	2	100	0.120	0.96	0.96	11.73	2715	650	45
16	2	100	0.145	1.28	1.28	15.64	2035	590	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
4	2	320	0.055	0.12	0.12	3.62	28140	3095	45
5	2	320	0.060	0.13	0.13	4.48	22735	2730	45
6	2	320	0.065	0.15	0.15	5.36	19005	2470	45
8	2	320	0.075	0.17	0.17	7.05	14450	2170	45
10	2	320	0.080	0.20	0.20	8.77	11615	1860	45
12	2	320	0.085	0.25	0.25	10.56	9645	1640	45
16	2	320	0.100	0.28	0.28	13.88	7340	1470	45
Steel 1100 - 1300 N/mm²									
4	2	280	0.050	0.12	0.12	3.62	24620	2460	45
5	2	280	0.055	0.13	0.13	4.48	19895	2190	45
6	2	280	0.060	0.15	0.15	5.36	16630	1995	45
8	2	280	0.070	0.17	0.17	7.05	12640	1770	45
10	2	280	0.075	0.20	0.20	8.77	10165	1525	45
12	2	280	0.080	0.25	0.25	10.56	8440	1350	45
16	2	280	0.095	0.28	0.28	13.88	6420	1220	45
Steel 1300 - 1500 N/mm²									
4	2	250	0.050	0.12	0.12	3.62	21985	2200	45
5	2	250	0.055	0.13	0.13	4.48	17765	1955	45
6	2	250	0.060	0.15	0.15	5.36	14845	1780	45
8	2	250	0.070	0.17	0.17	7.05	11290	1580	45
10	2	250	0.070	0.20	0.20	8.77	9075	1270	45
12	2	250	0.075	0.25	0.25	10.56	7535	1130	45
16	2	250	0.090	0.28	0.28	13.88	5735	1030	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	2	120	0.045	0.10	0.10	3.57	10700	965	45
5	2	120	0.050	0.11	0.11	4.42	8640	865	45
6	2	120	0.055	0.13	0.13	5.29	7220	795	45
8	2	120	0.065	0.15	0.15	6.98	5475	710	45
10	2	120	0.070	0.18	0.18	8.70	4390	615	45
12	2	120	0.070	0.22	0.22	10.45	3655	510	45
16	2	120	0.085	0.25	0.25	13.77	2775	470	45

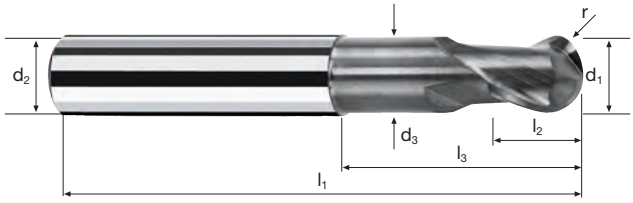
Ball nose end mills

Tolerance r f8 (-/-), 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10	λ 30° γ 5°



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless		GG(G)

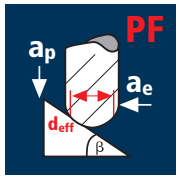
Example: **Order-N°.** Coating **P** Article-N°. **5220** ø-Code **.220**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM P5220
.220	4	6	3.7	57	5	12	2.0	4.0°	2	●
.260	5	6	4.6	57	6	15	2.5	2.0°	2	●
.300	6	6	5.5	57	7	20	3.0	0.0°	2	●
.391	8	8	7.4	63	9	26	4.0	0.0°	2	●
.450	10	10	9.2	72	11	31	5.0	0.0°	2	●
.501	12	12	11.0	83	13	37	6.0	0.0°	2	●
.610	16	16	15.0	92	17	43	8.0	0.0°	2	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	R
4	2.0	-0.006	-0.020	**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**
16	8.0	-0.013	-0.035	**7.965**	**7.987**	**7.976**

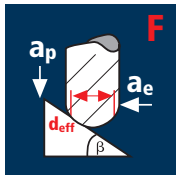
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
1	2	100	0.030	0.11	0.11	0.99	32155	1930	45
2	2	100	0.055	0.22	0.22	1.99	15995	1760	45
3	2	100	0.060	0.33	0.33	2.98	10680	1280	45
4	2	100	0.070	0.44	0.44	3.98	8000	1120	45
5	2	100	0.080	0.55	0.55	4.97	6405	1025	45
6	2	100	0.085	0.66	0.66	5.96	5340	910	45
8	2	100	0.100	0.88	0.88	7.95	4005	800	45
10	2	100	0.115	1.10	1.10	9.94	3200	735	45
12	2	100	0.120	1.32	1.32	11.93	2670	640	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
1	2	90	0.030	0.11	0.11	0.99	28940	1735	45
2	2	90	0.050	0.22	0.22	1.99	14395	1440	45
3	2	90	0.055	0.33	0.33	2.98	9615	1060	45
4	2	90	0.065	0.44	0.44	3.98	7200	935	45
5	2	90	0.075	0.55	0.55	4.97	5765	865	45
6	2	90	0.080	0.66	0.66	5.96	4805	770	45
8	2	90	0.090	0.88	0.88	7.95	3605	650	45
10	2	90	0.105	1.10	1.10	9.94	2880	605	45
12	2	90	0.110	1.32	1.32	11.93	2400	530	45
Heat resistant steel [17-4 PH]									
1	2	60	0.025	0.11	0.11	0.99	19290	965	45
2	2	60	0.045	0.22	0.22	1.99	9600	865	45
3	2	60	0.050	0.33	0.33	2.98	6410	640	45
4	2	60	0.060	0.44	0.44	3.98	4800	575	45
5	2	60	0.070	0.55	0.55	4.97	3845	540	45
6	2	60	0.070	0.66	0.66	5.96	3205	450	45
8	2	60	0.085	0.88	0.88	7.95	2400	410	45
10	2	60	0.100	1.10	1.10	9.94	1920	385	45
12	2	60	0.100	1.32	1.32	11.93	1600	320	45
Steel < 850 N/mm²									
1	2	240	0.040	0.12	0.12	1.00	60000	4800	45
2	2	240	0.070	0.24	0.24	1.99	38390	5375	45
3	2	240	0.080	0.36	0.36	2.99	25550	4090	45
4	2	240	0.090	0.48	0.48	3.99	19145	3445	45
5	2	240	0.105	0.60	0.60	4.98	15340	3220	45
6	2	240	0.110	0.72	0.72	5.98	12775	2810	45
8	2	240	0.130	0.96	0.96	7.98	9575	2490	45
10	2	240	0.150	1.20	1.20	9.97	7665	2300	45
12	2	240	0.155	1.44	1.44	11.96	6390	1980	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
1	2	140	0.025	0.05	0.05	0.94	47410	2370	45
2	2	140	0.030	0.07	0.07	1.84	24220	1455	45
3	2	140	0.035	0.09	0.09	2.72	16385	1145	45
4	2	140	0.055	0.11	0.11	3.60	12380	1360	45
5	2	140	0.060	0.13	0.13	4.48	9945	1195	45
6	2	140	0.065	0.15	0.15	5.36	8315	1080	45
8	2	140	0.075	0.17	0.17	7.05	6320	950	45
10	2	140	0.080	0.20	0.20	8.77	5080	815	45
12	2	140	0.085	0.25	0.25	10.56	4220	715	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
1	2	125	0.025	0.05	0.05	0.94	42330	2115	45
2	2	125	0.030	0.07	0.07	1.84	21625	1300	45
3	2	125	0.035	0.09	0.09	2.72	14630	1025	45
4	2	125	0.050	0.11	0.11	3.60	11055	1105	45
5	2	125	0.055	0.13	0.13	4.48	8880	975	45
6	2	125	0.060	0.15	0.15	5.36	7425	890	45
8	2	125	0.070	0.17	0.17	7.05	5645	790	45
10	2	125	0.075	0.20	0.20	8.77	4535	680	45
12	2	125	0.080	0.25	0.25	10.56	3770	605	45
Heat resistant steel [17-4 PH]									
1	2	70	0.025	0.05	0.05	0.94	23705	1185	45
2	2	70	0.025	0.07	0.07	1.84	12110	605	45
3	2	70	0.030	0.09	0.09	2.72	8190	490	45
4	2	70	0.050	0.11	0.11	3.60	6190	620	45
5	2	70	0.055	0.13	0.13	4.48	4975	545	45
6	2	70	0.060	0.15	0.15	5.36	4155	500	45
8	2	70	0.070	0.17	0.17	7.05	3160	440	45
10	2	70	0.070	0.20	0.20	8.77	2540	355	45
12	2	70	0.075	0.25	0.25	10.56	2110	315	45
Steel < 850 N/mm²									
1	2	360	0.030	0.05	0.05	0.94	60000	3600	45
2	2	360	0.035	0.07	0.07	1.84	60000	4200	45
3	2	360	0.040	0.09	0.09	2.72	42130	3370	45
4	2	360	0.065	0.11	0.11	3.60	31830	4140	45
5	2	360	0.070	0.13	0.13	4.48	25580	3580	45
6	2	360	0.080	0.15	0.15	5.36	21380	3420	45
8	2	360	0.090	0.17	0.17	7.05	16255	2925	45
10	2	360	0.095	0.20	0.20	8.77	13065	2480	45
12	2	360	0.100	0.25	0.25	10.56	10850	2170	45

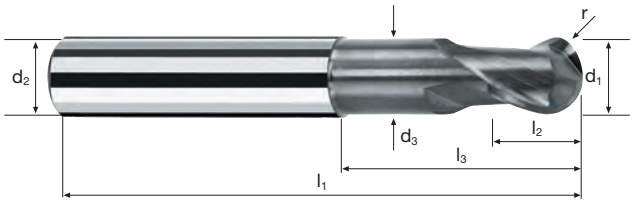
Ball nose end mills Sphero-SB

Tolerance r f8 (-/-), 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | λ 30° γ 0°



new!

Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Tool Steel**

Example: **Order-N°.** Coating **P** | Article-N°. **7540** | ø-Code **.100**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM **P7540**
.100	1	6	0.95	57	1.5	3	0.5	11.8°	2	●
.140	2	6	1.90	57	3.0	6	1.0	9.0°	2	●
.180	3	6	2.80	57	4.0	9	1.5	6.4°	2	●
.220	4	6	3.70	57	5.0	12	2.0	4.0°	2	●
.260	5	6	4.60	57	6.0	15	2.5	2.0°	2	●
.300	6	6	5.50	57	7.0	20	3.0	0.0°	2	●
.391	8	8	7.40	63	9.0	26	4.0	0.0°	2	●
.450	10	10	9.20	72	11.0	31	5.0	0.0°	2	●
.501	12	12	11.00	83	13.0	37	6.0	0.0°	2	●

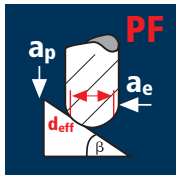
CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
1	0.5	**0.480**	**0.494**	**0.487**
2	1.0	**0.980**	**0.994**	**0.987**
3	1.5	**1.480**	**1.494**	**1.487**
4	2.0	**1.980**	**1.994**	**1.987**
5	2.5	**2.480**	**2.494**	**2.487**
6	3.0	**2.980**	**2.994**	**2.987**

CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
8	4.0	**3.972**	**3.990**	**3.981**
10	5.0	**4.972**	**4.990**	**4.981**
12	6.0	**5.972**	**5.990**	**5.981**

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	650	0.065	0.30	0.30	2.00	60000	7800	45
3	2	650	0.075	0.45	0.45	3.00	60000	9000	45
4	2	650	0.090	0.60	0.60	4.00	51725	9310	45
5	2	650	0.090	0.75	0.75	5.00	41380	7450	45
6	2	650	0.090	0.90	0.90	6.00	34485	6205	45
8	2	650	0.115	1.20	1.20	8.00	25865	5950	45
10	2	650	0.125	1.50	1.50	10.00	20690	5175	45
12	2	650	0.135	1.80	1.80	12.00	17240	4655	45
16	2	650	0.160	2.40	2.40	16.00	12930	4140	45

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	500	0.060	0.30	0.30	2.00	60000	7200	45
3	2	500	0.070	0.45	0.45	3.00	53055	7430	45
4	2	500	0.080	0.60	0.60	4.00	39790	6365	45
5	2	500	0.080	0.75	0.75	5.00	31830	5095	45
6	2	500	0.080	0.90	0.90	6.00	26525	4245	45
8	2	500	0.105	1.20	1.20	8.00	19895	4180	45
10	2	500	0.115	1.50	1.50	10.00	15915	3660	45
12	2	500	0.120	1.80	1.80	12.00	13265	3185	45
16	2	500	0.145	2.40	2.40	16.00	9945	2885	45

Thermoplastics

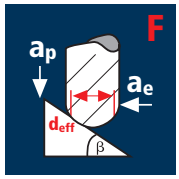
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	1000	0.065	0.30	0.30	2.00	60000	7800	45
3	2	1000	0.075	0.45	0.45	3.00	60000	9000	45
4	2	1000	0.090	0.60	0.60	4.00	60000	10800	45
5	2	1000	0.090	0.75	0.75	5.00	60000	10800	45
6	2	1000	0.090	0.90	0.90	6.00	53055	9550	45
8	2	1000	0.115	1.20	1.20	8.00	39790	9150	45
10	2	1000	0.125	1.50	1.50	10.00	31830	7960	45
12	2	1000	0.135	1.80	1.80	12.00	26525	7160	45
16	2	1000	0.160	2.40	2.40	16.00	19895	6365	45

Cast aluminium Si 6%-15%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	450	0.045	0.30	0.30	2.00	60000	5400	45
3	2	450	0.055	0.45	0.45	3.00	47750	5255	45
4	2	450	0.065	0.60	0.60	4.00	35810	4655	45
5	2	450	0.065	0.75	0.75	5.00	28650	3725	45
6	2	450	0.065	0.90	0.90	6.00	23875	3105	45
8	2	450	0.080	1.20	1.20	8.00	17905	2865	45
10	2	450	0.090	1.50	1.50	10.00	14325	2580	45
12	2	450	0.095	1.80	1.80	12.00	11935	2270	45
16	2	450	0.110	2.40	2.40	16.00	8955	1970	45

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	900	0.035	0.12	0.12	1.92	60000	4200	45
3	2	900	0.040	0.15	0.15	2.83	60000	4800	45
4	2	900	0.055	0.17	0.17	3.73	60000	6600	45
5	2	900	0.055	0.20	0.20	4.64	60000	6600	45
6	2	900	0.055	0.22	0.22	5.53	51805	5700	45
8	2	900	0.065	0.24	0.24	7.25	39515	5135	45
10	2	900	0.070	0.27	0.27	8.98	31905	4465	45
12	2	900	0.075	0.30	0.30	10.71	26750	4015	45
16	2	900	0.090	0.34	0.34	14.10	20320	3660	45

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	650	0.030	0.12	0.12	1.92	60000	3600	45
3	2	650	0.035	0.15	0.15	2.83	60000	4200	45
4	2	650	0.050	0.17	0.17	3.73	55470	5545	45
5	2	650	0.050	0.20	0.20	4.64	44590	4460	45
6	2	650	0.050	0.22	0.22	5.53	37415	3740	45
8	2	650	0.060	0.24	0.24	7.25	28540	3425	45
10	2	650	0.065	0.27	0.27	8.98	23040	2995	45
12	2	650	0.070	0.30	0.30	10.71	19320	2705	45
16	2	650	0.080	0.34	0.34	14.10	14675	2350	45

Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	1200	0.035	0.12	0.12	1.92	60000	4200	45
3	2	1200	0.040	0.15	0.15	2.83	60000	4800	45
4	2	1200	0.055	0.17	0.17	3.73	60000	6600	45
5	2	1200	0.055	0.20	0.20	4.64	60000	6600	45
6	2	1200	0.055	0.22	0.22	5.53	60000	6600	45
8	2	1200	0.065	0.24	0.24	7.25	52685	6850	45
10	2	1200	0.070	0.27	0.27	8.98	42535	5955	45
12	2	1200	0.075	0.30	0.30	10.71	35665	5350	45
16	2	1200	0.090	0.34	0.34	14.10	27090	4875	45

Cast aluminium Si 6%-15%

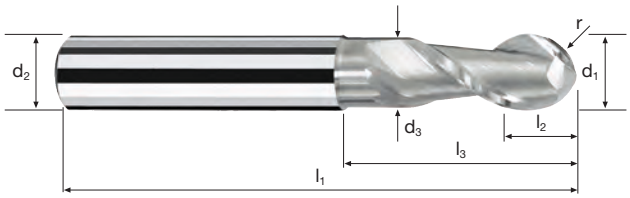
C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	2	550	0.025	0.12	0.12	1.92	60000	3000	45
3	2	550	0.030	0.15	0.15	2.83	60000	3600	45
4	2	550	0.040	0.17	0.17	3.73	46935	3755	45
5	2	550	0.040	0.20	0.20	4.64	37730	3020	45
6	2	550	0.040	0.22	0.22	5.53	31660	2535	45
8	2	550	0.045	0.24	0.24	7.25	24150	2175	45
10	2	550	0.050	0.27	0.27	8.98	19495	1950	45
12	2	550	0.055	0.30	0.30	10.71	16345	1800	45
16	2	550	0.065	0.34	0.34	14.10	12415	1615	45

Ball nose end mills Sphericut-Alu

Tolerance r f8 (-/-), 3xd

HM MG10 | **λ 40° γ 20°**



Rm < 850			**Al** Aluminium > 99%	**Al** Aluminium Alloy	**Al** Aluminium Cast		**Cu** Copper	**Plastic** Thermoplast	

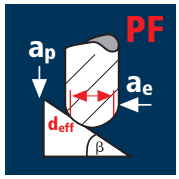
Example: **Order-N°.** Coating **C** | Article-N°. **5290** | ø-Code **.140**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	5290	CELERO C5290
.140	2	6	1.9	57	4	6	1.0	9.0°	2	●	●
.180	3	6	2.8	57	6	9	1.5	6.4°	2	●	●
.220	4	6	3.7	57	8	12	2.0	4.0°	2	●	●
.260	5	6	4.6	57	10	15	2.5	1.9°	2	●	●
.300	6	6	5.5	57	12	20	3.0	0.0°	2	●	●
.391	8	8	7.4	63	16	26	4.0	0.0°	2	●	●
.450	10	10	9.2	72	20	31	5.0	0.0°	2	●	●
.501	12	12	11.0	83	24	37	6.0	0.0°	2	●	●
.610	16	16	15.0	92	32	43	8.0	0.0°	2	●	●
.682	20	20	19.0	104	40	53	10.0	0.0°	2	●	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	R
2	1.0	-0.006	-0.020	**0.980**	**0.994**	**0.987**
3	1.5			**1.480**	**1.494**	**1.487**
4	2.0			**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**
16	8.0	-0.013	-0.035	**7.965**	**7.987**	**7.976**
20	10.0			**9.965**	**9.987**	**9.976**

Application



Material

Steel
850 - 1100 N/mm²

U

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	200	0.070	0.24	0.24	2.93	21730	3040	45
4	2	200	0.080	0.32	0.32	3.91	16280	2605	45
5	2	200	0.090	0.40	0.40	4.89	13020	2345	45
6	2	200	0.100	0.48	0.48	5.87	10845	2170	45
8	2	200	0.110	0.64	0.64	7.82	8140	1790	45
10	2	200	0.130	0.80	0.80	9.78	6510	1695	45
12	2	200	0.135	0.96	0.96	11.73	5425	1465	45

Steel
1100 - 1300 N/mm²

U

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	160	0.065	0.24	0.24	2.93	17385	2260	45
4	2	160	0.075	0.32	0.32	3.91	13025	1955	45
5	2	160	0.085	0.40	0.40	4.89	10415	1770	45
6	2	160	0.090	0.48	0.48	5.87	8675	1560	45
8	2	160	0.100	0.64	0.64	7.82	6515	1305	45
10	2	160	0.120	0.80	0.80	9.78	5210	1250	45
12	2	160	0.125	0.96	0.96	11.73	4340	1085	45

Steel
1300 - 1500 N/mm²

U

U

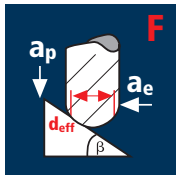
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	140	0.060	0.24	0.24	2.93	15210	1825	45
4	2	140	0.070	0.32	0.32	3.91	11400	1595	45
5	2	140	0.075	0.40	0.40	4.89	9115	1365	45
6	2	140	0.085	0.48	0.48	5.87	7590	1290	45
8	2	140	0.095	0.64	0.64	7.82	5700	1085	45
10	2	140	0.110	0.80	0.80	9.78	4555	1000	45
12	2	140	0.115	0.96	0.96	11.73	3800	875	45

Steel
1500 - 1800 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	80	0.055	0.19	0.19	2.89	8810	970	45
4	2	80	0.065	0.26	0.26	3.86	6595	855	45
5	2	80	0.070	0.32	0.32	4.81	5295	740	45
6	2	80	0.080	0.38	0.38	5.77	4415	705	45
8	2	80	0.090	0.51	0.51	7.70	3305	595	45
10	2	80	0.105	0.64	0.64	9.63	2645	555	45
12	2	80	0.110	0.77	0.77	11.55	2205	485	45

Application



Material

Steel
850 - 1100 N/mm²

U

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	300	0.025	0.10	0.10	2.74	34850	1745	45
4	2	300	0.050	0.12	0.12	3.62	26380	2640	45
5	2	300	0.055	0.13	0.13	4.48	21315	2345	45
6	2	300	0.060	0.15	0.15	5.36	17815	2140	45
8	2	300	0.065	0.17	0.17	7.05	13545	1760	45
10	2	300	0.070	0.20	0.20	8.77	10890	1525	45
12	2	300	0.075	0.25	0.25	10.56	9045	1355	45

Steel
1100 - 1300 N/mm²

U

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	260	0.025	0.10	0.10	2.74	30205	1510	45
4	2	260	0.050	0.12	0.12	3.62	22865	2285	45
5	2	260	0.050	0.13	0.13	4.48	18475	1850	45
6	2	260	0.055	0.15	0.15	5.36	15440	1700	45
8	2	260	0.060	0.17	0.17	7.05	11740	1410	45
10	2	260	0.065	0.20	0.20	8.77	9435	1225	45
12	2	260	0.070	0.25	0.25	10.56	7835	1095	45

Steel
1300 - 1500 N/mm²

U

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	200	0.025	0.10	0.10	2.74	23235	1160	45
4	2	200	0.045	0.12	0.12	3.62	17585	1585	45
5	2	200	0.050	0.13	0.13	4.48	14210	1420	45
6	2	200	0.055	0.15	0.15	5.36	11880	1305	45
8	2	200	0.060	0.17	0.17	7.05	9030	1085	45
10	2	200	0.065	0.20	0.20	8.77	7260	945	45
12	2	200	0.070	0.25	0.25	10.56	6030	845	45

Steel
1500 - 1800 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	100	0.020	0.08	0.08	2.69	11835	475	45
4	2	100	0.045	0.10	0.10	3.57	8915	800	45
5	2	100	0.045	0.11	0.11	4.42	7200	650	45
6	2	100	0.050	0.13	0.13	5.29	6015	600	45
8	2	100	0.055	0.15	0.15	6.98	4560	500	45
10	2	100	0.060	0.18	0.18	8.70	3660	440	45
12	2	100	0.065	0.22	0.22	10.45	3045	395	45

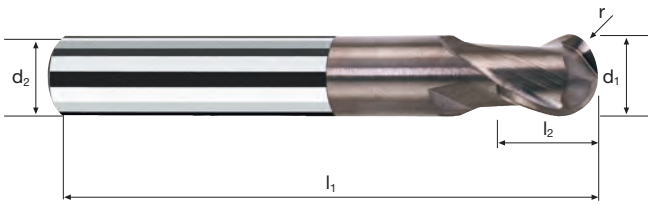
Ball nose end mills

Tolerance r f8 (-/-), 3xd

HSS Favora® F Base-X X-Generation

II

HM	λ 30° γ-10°



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

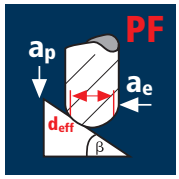
Example: **Order-N°.** Coating **U** Article-N°. **45298** ø-Code **.180**

ø Code	d1 e8	d2 h6	l1	l2	r f8	α	z	UNICUT-4X U45298
.180	3	6	57	4	1.5	10.4°	2	●
.220	4	6	57	5	2.0	8.3°	2	●
.260	5	6	57	6	2.5	5.3°	2	●
.300	6	6	57	7	3.0	0.0°	2	●
.391	8	8	63	9	4.0	0.0°	2	●
.450	10	10	72	11	5.0	0.0°	2	●
.501	12	12	83	12	6.0	0.0°	2	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	R
3	1.5	-0.006	-0.020	**1.480**	**1.494**	**1.487**
4	2.0			**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**

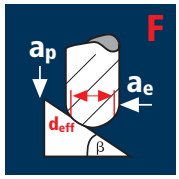
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm²									
1	2	180	0.035	0.08	0.08	0.98	58465	4095	45
2	2	180	0.060	0.16	0.16	1.96	29235	3510	45
3	2	180	0.070	0.24	0.24	2.93	19555	2740	45
4	2	180	0.080	0.32	0.32	3.91	14655	2345	45
6	2	180	0.100	0.48	0.48	5.87	9760	1950	45
8	2	180	0.110	0.64	0.64	7.82	7325	1610	45
10	2	180	0.130	0.80	0.80	9.78	5860	1525	45
12	2	180	0.135	0.96	0.96	11.73	4885	1320	45
16	2	180	0.160	1.28	1.28	15.64	3665	1175	45
Hardened tool steel 42 - 48 HRC									
1	2	160	0.030	0.08	0.08	0.98	51970	3120	45
2	2	160	0.055	0.16	0.16	1.96	25985	2860	45
3	2	160	0.065	0.24	0.24	2.93	17385	2260	45
4	2	160	0.075	0.32	0.32	3.91	13025	1955	45
6	2	160	0.090	0.48	0.48	5.87	8675	1560	45
8	2	160	0.100	0.64	0.64	7.82	6515	1305	45
10	2	160	0.120	0.80	0.80	9.78	5210	1250	45
12	2	160	0.125	0.96	0.96	11.73	4340	1085	45
16	2	160	0.145	1.28	1.28	15.64	3255	945	45
Hardened tool steel 48 - 52 HRC									
1	2	140	0.030	0.08	0.08	0.98	45475	2730	45
2	2	140	0.050	0.16	0.16	1.96	22735	2275	45
3	2	140	0.060	0.24	0.24	2.93	15210	1825	45
4	2	140	0.070	0.32	0.32	3.91	11400	1595	45
6	2	140	0.085	0.48	0.48	5.87	7590	1290	45
8	2	140	0.095	0.64	0.64	7.82	5700	1085	45
10	2	140	0.110	0.80	0.80	9.78	4555	1000	45
12	2	140	0.115	0.96	0.96	11.73	3800	875	45
16	2	140	0.135	1.28	1.28	15.64	2850	770	45
Hardened tool steel 52 - 56 HRC									
1	2	100	0.030	0.08	0.08	0.98	32480	1950	45
2	2	100	0.050	0.16	0.16	1.96	16240	1625	45
3	2	100	0.055	0.24	0.24	2.93	10865	1195	45
4	2	100	0.065	0.32	0.32	3.91	8140	1060	45
6	2	100	0.080	0.48	0.48	5.87	5425	870	45
8	2	100	0.090	0.64	0.64	7.82	4070	735	45
10	2	100	0.105	0.80	0.80	9.78	3255	685	45
12	2	100	0.110	0.96	0.96	11.73	2715	595	45
16	2	100	0.130	1.28	1.28	15.64	2035	530	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm²									
1	2	280	0.025	0.04	0.04	0.93	60000	3000	45
2	2	280	0.030	0.06	0.06	1.81	49245	2955	45
3	2	280	0.030	0.09	0.09	2.72	32770	1965	45
4	2	280	0.050	0.11	0.11	3.60	24760	2475	45
6	2	280	0.060	0.13	0.13	5.29	16850	2020	45
8	2	280	0.065	0.15	0.15	6.98	12770	1660	45
10	2	280	0.070	0.18	0.18	8.70	10245	1435	45
12	2	280	0.075	0.22	0.22	10.45	8530	1280	45
16	2	280	0.090	0.25	0.25	13.77	6475	1165	45
Hardened tool steel 42 - 48 HRC									
1	2	250	0.025	0.04	0.04	0.93	60000	3000	45
2	2	250	0.030	0.06	0.06	1.81	43965	2640	45
3	2	250	0.030	0.09	0.09	2.72	29255	1755	45
4	2	250	0.050	0.11	0.11	3.60	22105	2210	45
6	2	250	0.055	0.13	0.13	5.29	15045	1655	45
8	2	250	0.060	0.15	0.15	6.98	11400	1370	45
10	2	250	0.065	0.18	0.18	8.70	9145	1190	45
12	2	250	0.070	0.22	0.22	10.45	7615	1065	45
16	2	250	0.085	0.25	0.25	13.77	5780	985	45
Hardened tool steel 48 - 52 HRC									
1	2	200	0.025	0.04	0.04	0.93	60000	3000	45
2	2	200	0.025	0.06	0.06	1.81	35175	1760	45
3	2	200	0.025	0.09	0.09	2.72	23405	1170	45
4	2	200	0.045	0.11	0.11	3.60	17685	1590	45
6	2	200	0.055	0.13	0.13	5.29	12035	1325	45
8	2	200	0.060	0.15	0.15	6.98	9120	1095	45
10	2	200	0.065	0.18	0.18	8.70	7320	950	45
12	2	200	0.070	0.22	0.22	10.45	6090	855	45
16	2	200	0.080	0.25	0.25	13.77	4625	740	45
Hardened tool steel 52 - 56 HRC									
1	2	150	0.020	0.04	0.04	0.93	51340	2055	45
2	2	150	0.025	0.06	0.06	1.81	26380	1320	45
3	2	150	0.025	0.09	0.09	2.72	17555	880	45
4	2	150	0.045	0.11	0.11	3.60	13265	1195	45
6	2	150	0.050	0.13	0.13	5.29	9025	905	45
8	2	150	0.055	0.15	0.15	6.98	6840	750	45
10	2	150	0.060	0.18	0.18	8.70	5490	660	45
12	2	150	0.065	0.22	0.22	10.45	4570	595	45
16	2	150	0.075	0.25	0.25	13.77	3470	520	45

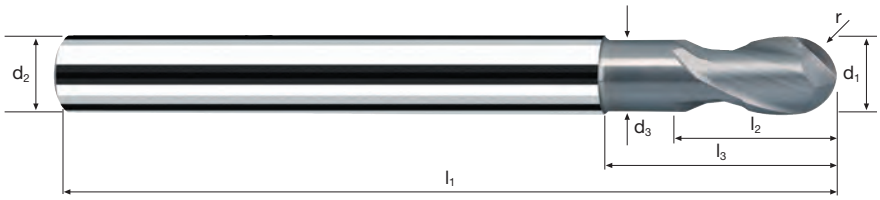
Ball nose end mills Sphericut

Tolerance r f8 (-/-), 3xd

HSS Favora® Base-X **B** X-Generation

II

HM Plus | λ 30° γ-10°



		Rm 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60				**GG(G)**

new!

Example: **Order-N°.** Coating **P** Article-N°. **5288** ø-Code **.100**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM P5288
.100	1	3	-	60	1.0	-	0.5	13.2°	2	●
.138	2	3	-	60	2.5	-	1.0	8.3°	2	●
.140	2	6	1.9	75	3.0	6	1.0	9.0°	2	●
.178	3	3	-	60	4.0	-	1.5	0.0°	2	●
.180	3	6	2.8	75	4.0	9	1.5	6.4°	2	●
.220	4	6	3.7	75	5.0	12	2.0	4.0°	2	●
.260	5	6	4.6	80	6.0	15	2.5	2.0°	2	●
.300	6	6	5.5	80	7.0	20	3.0	0.0°	2	●
.391	8	8	7.4	90	9.0	26	4.0	0.0°	2	●
.450	10	10	9.2	100	11.0	31	5.0	0.0°	2	●
.501	12	12	11.0	120	13.0	37	6.0	0.0°	2	●
.610	16	16	15.0	140	17.0	43	8.0	0.0°	2	●

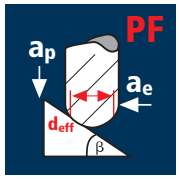
CNC Radius R

d1	r	Radius f8 Minimum	Maximum	R
1	0.5	**0.480**	**0.494**	**0.487**
2	1.0	**0.980**	**0.994**	**0.987**
3	1.5	**1.480**	**1.494**	**1.487**
4	2.0	**1.980**	**1.994**	**1.987**
5	2.5	**2.480**	**2.494**	**2.487**
6	3.0	**2.980**	**2.994**	**2.987**

CNC Radius R

d1	r	Radius f8 Minimum	Maximum	R
8	4.0	**3.972**	**3.990**	**3.981**
10	5.0	**4.972**	**4.990**	**4.981**
12	6.0	**5.972**	**5.990**	**5.981**
16	8.0	**7.965**	**7.987**	**7.976**

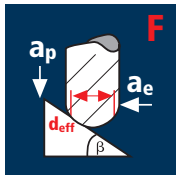
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
4	2	220	0.080	0.32	0.32	3.91	17910	2865	45
5	2	220	0.090	0.40	0.40	4.89	14320	2580	45
6	2	220	0.100	0.48	0.48	5.87	11930	2385	45
8	2	220	0.110	0.64	0.64	7.82	8955	1970	45
10	2	220	0.130	0.80	0.80	9.78	7160	1860	45
12	2	220	0.135	0.96	0.96	11.73	5970	1610	45
Steel 1100 - 1300 N/mm²									
4	2	180	0.075	0.32	0.32	3.91	14655	2200	45
5	2	180	0.085	0.40	0.40	4.89	11715	1990	45
6	2	180	0.090	0.48	0.48	5.87	9760	1755	45
8	2	180	0.100	0.64	0.64	7.82	7325	1465	45
10	2	180	0.120	0.80	0.80	9.78	5860	1405	45
12	2	180	0.125	0.96	0.96	11.73	4885	1220	45
Steel 1300 - 1500 N/mm²									
4	2	160	0.070	0.32	0.32	3.91	13025	1825	45
5	2	160	0.075	0.40	0.40	4.89	10415	1560	45
6	2	160	0.085	0.48	0.48	5.87	8675	1475	45
8	2	160	0.095	0.64	0.64	7.82	6515	1240	45
10	2	160	0.110	0.80	0.80	9.78	5210	1145	45
12	2	160	0.115	0.96	0.96	11.73	4340	1000	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	2	100	0.065	0.26	0.26	3.86	8245	1070	45
5	2	100	0.070	0.32	0.32	4.81	6620	925	45
6	2	100	0.080	0.38	0.38	5.77	5515	880	45
8	2	100	0.090	0.51	0.51	7.70	4135	745	45
10	2	100	0.105	0.64	0.64	9.63	3305	695	45
12	2	100	0.110	0.77	0.77	11.55	2755	605	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
4	2	320	0.050	0.10	0.10	3.57	28535	2855	45
5	2	320	0.055	0.11	0.11	4.42	23045	2535	45
6	2	320	0.060	0.13	0.13	5.29	19255	2310	45
8	2	320	0.065	0.15	0.15	6.98	14595	1895	45
10	2	320	0.070	0.18	0.18	8.70	11710	1640	45
12	2	320	0.075	0.22	0.22	10.45	9750	1465	45
Steel 1100 - 1300 N/mm²									
4	2	280	0.050	0.10	0.10	3.57	24965	2495	45
5	2	280	0.050	0.11	0.11	4.42	20165	2015	45
6	2	280	0.055	0.13	0.13	5.29	16850	1855	45
8	2	280	0.060	0.15	0.15	6.98	12770	1530	45
10	2	280	0.065	0.18	0.18	8.70	10245	1330	45
12	2	280	0.070	0.22	0.22	10.45	8530	1195	45
Steel 1300 - 1500 N/mm²									
4	2	250	0.045	0.10	0.10	3.57	22290	2005	45
5	2	250	0.050	0.11	0.11	4.42	18005	1800	45
6	2	250	0.055	0.13	0.13	5.29	15045	1655	45
8	2	250	0.060	0.15	0.15	6.98	11400	1370	45
10	2	250	0.065	0.18	0.18	8.70	9145	1190	45
12	2	250	0.070	0.22	0.22	10.45	7615	1065	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	2	120	0.045	0.10	0.10	3.57	10700	965	45
5	2	120	0.045	0.11	0.11	4.42	8640	780	45
6	2	120	0.050	0.13	0.13	5.29	7220	720	45
8	2	120	0.055	0.15	0.15	6.98	5475	600	45
10	2	120	0.060	0.18	0.18	8.70	4390	525	45
12	2	120	0.065	0.22	0.22	10.45	3655	475	45

Ball nose end mills

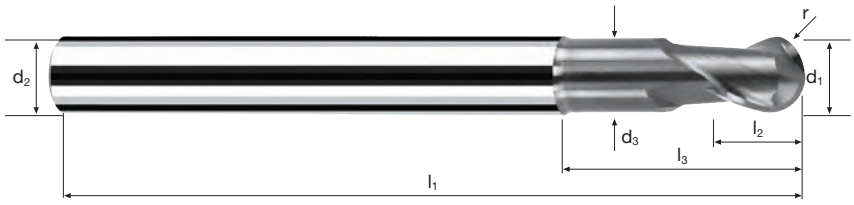
Tolerance r f8 (-/-), 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM
MG10

λ **30°**
γ **5°**



Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless		**GG(G)**

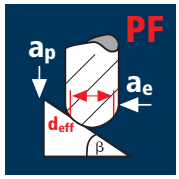
Example: **Order-N°.** Coating **P** Article-N°. **5222** ø-Code **.220**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM P5222
.220	4	6	3.7	75	5	12	2.0	4.0°	2	●
.260	5	6	4.6	80	6	15	2.5	2.0°	2	●
.300	6	6	5.5	80	7	20	3.0	0.0°	2	●
.391	8	8	7.4	90	9	26	4.0	0.0°	2	●
.450	10	10	9.2	100	11	31	5.0	0.0°	2	●
.501	12	12	11.0	120	13	37	6.0	0.0°	2	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	**R**
4	2.0	-0.006	-0.020	**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**

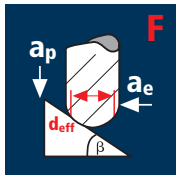
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
1	2	100	0.030	0.08	0.08	0.98	32480	1950	45
2	2	100	0.045	0.16	0.16	1.96	16240	1460	45
3	2	100	0.055	0.24	0.24	2.93	10865	1195	45
4	2	100	0.060	0.32	0.32	3.91	8140	975	45
5	2	100	0.070	0.40	0.40	4.89	6510	910	45
6	2	100	0.075	0.48	0.48	5.87	5425	815	45
8	2	100	0.085	0.64	0.64	7.82	4070	690	45
10	2	100	0.100	0.80	0.80	9.78	3255	650	45
12	2	100	0.105	0.96	0.96	11.73	2715	570	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
1	2	90	0.030	0.08	0.08	0.98	29235	1755	45
2	2	90	0.040	0.16	0.16	1.96	14615	1170	45
3	2	90	0.050	0.24	0.24	2.93	9780	980	45
4	2	90	0.055	0.32	0.32	3.91	7325	805	45
5	2	90	0.065	0.40	0.40	4.89	5860	760	45
6	2	90	0.070	0.48	0.48	5.87	4880	685	45
8	2	90	0.080	0.64	0.64	7.82	3665	585	45
10	2	90	0.090	0.80	0.80	9.78	2930	525	45
12	2	90	0.095	0.96	0.96	11.73	2440	465	45
Heat resistant steel [17-4 PH]									
1	2	60	0.025	0.08	0.08	0.98	19490	975	45
2	2	60	0.040	0.16	0.16	1.96	9745	780	45
3	2	60	0.045	0.24	0.24	2.93	6520	585	45
4	2	60	0.050	0.32	0.32	3.91	4885	490	45
5	2	60	0.060	0.40	0.40	4.89	3905	470	45
6	2	60	0.065	0.48	0.48	5.87	3255	425	45
8	2	60	0.070	0.64	0.64	7.82	2440	340	45
10	2	60	0.085	0.80	0.80	9.78	1955	330	45
12	2	60	0.090	0.96	0.96	11.73	1630	295	45
Steel < 850 N/mm²									
1	2	240	0.040	0.09	0.09	0.98	60000	4800	45
2	2	240	0.060	0.17	0.17	1.96	38980	4680	45
3	2	240	0.070	0.26	0.26	2.95	25895	3625	45
4	2	240	0.080	0.35	0.35	3.93	19440	3110	45
5	2	240	0.090	0.44	0.44	4.92	15530	2795	45
6	2	240	0.100	0.52	0.52	5.89	12970	2595	45
8	2	240	0.110	0.70	0.70	7.86	9720	2140	45
10	2	240	0.130	0.87	0.87	9.83	7770	2020	45
12	2	240	0.135	1.05	1.05	11.80	6475	1750	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
1	2	140	0.025	0.05	0.05	0.94	47410	2370	45
2	2	140	0.030	0.07	0.07	1.84	24220	1455	45
3	2	140	0.030	0.09	0.09	2.72	16385	985	45
4	2	140	0.050	0.11	0.11	3.60	12380	1240	45
5	2	140	0.055	0.13	0.13	4.48	9945	1095	45
6	2	140	0.060	0.15	0.15	5.36	8315	1000	45
8	2	140	0.065	0.17	0.17	7.05	6320	820	45
10	2	140	0.070	0.20	0.20	8.77	5080	710	45
12	2	140	0.075	0.25	0.25	10.56	4220	635	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
1	2	125	0.025	0.05	0.05	0.94	42330	2115	45
2	2	125	0.030	0.07	0.07	1.84	21625	1300	45
3	2	125	0.030	0.09	0.09	2.72	14630	880	45
4	2	125	0.050	0.11	0.11	3.60	11055	1105	45
5	2	125	0.050	0.13	0.13	4.48	8880	890	45
6	2	125	0.055	0.15	0.15	5.36	7425	815	45
8	2	125	0.060	0.17	0.17	7.05	5645	675	45
10	2	125	0.065	0.20	0.20	8.77	4535	590	45
12	2	125	0.070	0.25	0.25	10.56	3770	530	45
Heat resistant steel [17-4 PH]									
1	2	70	0.025	0.05	0.05	0.94	23705	1185	45
2	2	70	0.025	0.07	0.07	1.84	12110	605	45
3	2	70	0.025	0.09	0.09	2.72	8190	410	45
4	2	70	0.045	0.11	0.11	3.60	6190	555	45
5	2	70	0.050	0.13	0.13	4.48	4975	500	45
6	2	70	0.055	0.15	0.15	5.36	4155	455	45
8	2	70	0.060	0.17	0.17	7.05	3160	380	45
10	2	70	0.065	0.20	0.20	8.77	2540	330	45
12	2	70	0.070	0.25	0.25	10.56	2110	295	45
Steel < 850 N/mm²									
1	2	360	0.030	0.05	0.05	0.94	60000	3600	45
2	2	360	0.035	0.07	0.07	1.84	60000	4200	45
3	2	360	0.035	0.09	0.09	2.72	42130	2950	45
4	2	360	0.060	0.11	0.11	3.60	31830	3820	45
5	2	360	0.065	0.13	0.13	4.48	25580	3325	45
6	2	360	0.070	0.15	0.15	5.36	21380	2995	45
8	2	360	0.080	0.17	0.17	7.05	16255	2600	45
10	2	360	0.085	0.20	0.20	8.77	13065	2220	45
12	2	360	0.090	0.25	0.25	10.56	10850	1955	45

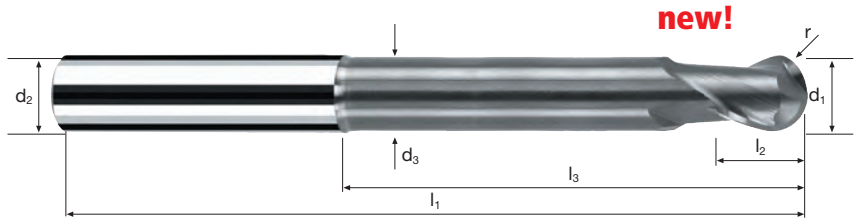
Ball nose end mills Sphero-SB

Tolerance r f8 (-/-), 6xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | λ **30°** γ **0°**



Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Tool Steel**

Example: **Order-N°.** Coating **P** | Article-N°. **7544** | ø-Code **.100**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	POLYCHROM **P7544**
.100	1	6	0.95	66	1.5	6	0.5	9.5°	2	●
.140	2	6	1.90	66	3.0	12	1.0	6.1°	2	●
.180	3	6	2.80	66	4.0	18	1.5	3.9°	2	●
.220	4	6	3.70	69	5.0	24	2.0	2.2°	2	●
.260	5	6	4.60	75	6.0	30	2.5	1.0°	2	●
.300	6	6	5.50	80	7.0	43	3.0	0.0°	2	●
.391	8	8	7.40	90	9.0	53	4.0	0.0°	2	●
.450	10	10	9.20	105	11.0	64	5.0	0.0°	2	●
.501	12	12	11.00	120	13.0	74	6.0	0.0°	2	●

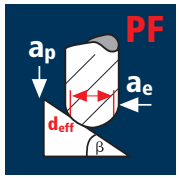
CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
1	0.5	**0.480**	**0.494**	**0.487**
2	1.0	**0.980**	**0.994**	**0.987**
3	1.5	**1.480**	**1.494**	**1.487**
4	2.0	**1.980**	**1.994**	**1.987**
5	2.5	**2.480**	**2.494**	**2.487**
6	3.0	**2.980**	**2.994**	**2.987**

CNC Radius R

d1	r	Radius f8 Minimum	Radius f8 Maximum	R
8	4.0	**3.972**	**3.990**	**3.981**
10	5.0	**4.972**	**4.990**	**4.981**
12	6.0	**5.972**	**5.990**	**5.981**

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	500	0.090	0.36	0.36	2.99	53230	9580	45
4	2	500	0.090	0.48	0.48	3.99	39890	7180	45
5	2	500	0.100	0.60	0.60	4.98	31960	6390	45
6	2	500	0.100	0.72	0.72	5.98	26615	5325	45
8	2	500	0.110	0.96	0.96	7.98	19945	4390	45
10	2	500	0.130	1.20	1.20	9.97	15965	4150	45
12	2	500	0.135	1.44	1.44	11.96	13310	3595	45
16	2	500	0.160	1.92	1.92	15.95	9980	3195	45

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	350	0.080	0.36	0.36	2.99	37260	5960	45
4	2	350	0.080	0.48	0.48	3.99	27925	4470	45
5	2	350	0.090	0.60	0.60	4.98	22370	4025	45
6	2	350	0.090	0.72	0.72	5.98	18630	3355	45
8	2	350	0.100	0.96	0.96	7.98	13960	2790	45
10	2	350	0.115	1.20	1.20	9.97	11175	2570	45
12	2	350	0.120	1.44	1.44	11.96	9315	2235	45
16	2	350	0.145	1.92	1.92	15.95	6985	2025	45

Thermoplastics

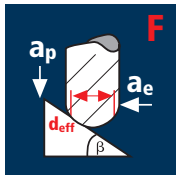
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	800	0.090	0.36	0.36	2.99	60000	10800	45
4	2	800	0.090	0.48	0.48	3.99	60000	10800	45
5	2	800	0.100	0.60	0.60	4.98	51135	10225	45
6	2	800	0.100	0.72	0.72	5.98	42585	8515	45
8	2	800	0.110	0.96	0.96	7.98	31910	7020	45
10	2	800	0.130	1.20	1.20	9.97	25540	6640	45
12	2	800	0.135	1.44	1.44	11.96	21290	5750	45
16	2	800	0.160	1.92	1.92	15.95	15965	5110	45

Cast aluminium Si 6%-15%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	300	0.065	0.36	0.36	2.99	31940	4150	45
4	2	300	0.065	0.48	0.48	3.99	23935	3110	45
5	2	300	0.070	0.60	0.60	4.98	19175	2685	45
6	2	300	0.070	0.72	0.72	5.98	15970	2235	45
8	2	300	0.075	0.96	0.96	7.98	11965	1795	45
10	2	300	0.090	1.20	1.20	9.97	9580	1725	45
12	2	300	0.095	1.44	1.44	11.96	7985	1515	45
16	2	300	0.110	1.92	1.92	15.95	5985	1315	45

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	700	0.050	0.12	0.12	2.78	60000	6000	45
4	2	700	0.045	0.15	0.15	3.69	60000	5400	45
5	2	700	0.070	0.17	0.17	4.58	48650	6810	45
6	2	700	0.065	0.20	0.20	5.48	40660	5285	45
8	2	700	0.075	0.22	0.22	7.20	30950	4645	45
10	2	700	0.080	0.24	0.24	8.90	25035	4005	45
12	2	700	0.085	0.27	0.27	10.62	20980	3565	45
16	2	700	0.100	0.30	0.30	13.96	15960	3190	45

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	500	0.045	0.12	0.12	2.78	57250	5155	45
4	2	500	0.040	0.15	0.15	3.69	43135	3450	45
5	2	500	0.065	0.17	0.17	4.58	34750	4520	45
6	2	500	0.060	0.20	0.20	5.48	29045	3485	45
8	2	500	0.070	0.22	0.22	7.20	22105	3095	45
10	2	500	0.070	0.24	0.24	8.90	17885	2505	45
12	2	500	0.075	0.27	0.27	10.62	14985	2250	45
16	2	500	0.090	0.30	0.30	13.96	11400	2050	45

Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	900	0.050	0.12	0.12	2.78	60000	6000	45
4	2	900	0.045	0.15	0.15	3.69	60000	5400	45
5	2	900	0.070	0.17	0.17	4.58	60000	8400	45
6	2	900	0.065	0.20	0.20	5.48	52280	6795	45
8	2	900	0.075	0.22	0.22	7.20	39790	5970	45
10	2	900	0.080	0.24	0.24	8.90	32190	5150	45
12	2	900	0.085	0.27	0.27	10.62	26975	4585	45
16	2	900	0.100	0.30	0.30	13.96	20520	4105	45

Cast aluminium Si 6%-15%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	2	400	0.035	0.12	0.12	2.78	45800	3205	45
4	2	400	0.030	0.15	0.15	3.69	34505	2070	45
5	2	400	0.050	0.17	0.17	4.58	27800	2780	45
6	2	400	0.045	0.20	0.20	5.48	23235	2090	45
8	2	400	0.055	0.22	0.22	7.20	17685	1945	45
10	2	400	0.055	0.24	0.24	8.90	14305	1575	45
12	2	400	0.060	0.27	0.27	10.62	11990	1440	45
16	2	400	0.070	0.30	0.30	13.96	9120	1275	45

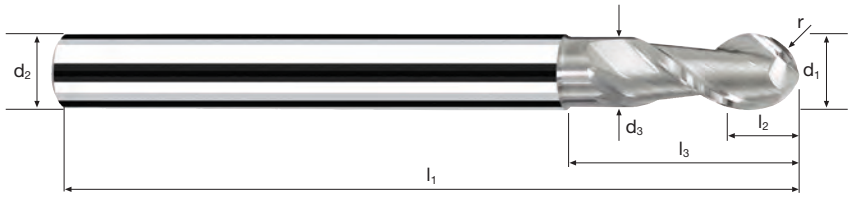
Ball nose end mills Sphericut-Alu

Tolerance r f8 (-/-), 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10	λ 40° γ 20°



Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

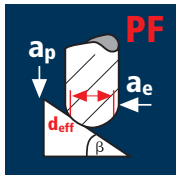
Example: **Order-N°.** Coating **C** | Article-N°. **5292** | ø-Code **.180**

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	CELERO C5292
.180	3	6	2.8	75	6	9	1.5	6.4°	2	●
.220	4	6	3.7	75	8	12	2.0	4.0°	2	●
.260	5	6	4.6	80	10	15	2.5	1.9°	2	●
.300	6	6	5.5	80	12	20	3.0	0.0°	2	●
.391	8	8	7.4	90	16	26	4.0	0.0°	2	●
.450	10	10	9.2	100	20	31	5.0	0.0°	2	●
.501	12	12	11.0	120	24	37	6.0	0.0°	2	●
.610	16	16	15.0	140	32	43	8.0	0.0°	2	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	R
3	1.5	-0.006	-0.020	**1.480**	**1.494**	**1.487**
4	2.0			**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**
16	8.0	-0.013	-0.035	**7.965**	**7.987**	**7.976**

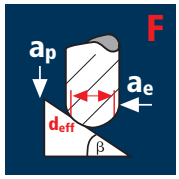
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm²									
3	2	160	0.060	0.18	0.18	2.87	17745	2130	45
4	2	160	0.070	0.24	0.24	3.83	13300	1860	45
5	2	160	0.080	0.30	0.30	4.79	10635	1700	45
6	2	160	0.085	0.36	0.36	5.75	8860	1505	45
8	2	160	0.100	0.48	0.48	7.66	6650	1330	45
10	2	160	0.115	0.60	0.60	9.58	5315	1220	45
12	2	160	0.120	0.72	0.72	11.50	4430	1065	45
Hardened tool steel 42 - 48 HRC									
3	2	140	0.055	0.18	0.18	2.87	15530	1710	45
4	2	140	0.065	0.24	0.24	3.83	11635	1515	45
5	2	140	0.075	0.30	0.30	4.79	9305	1395	45
6	2	140	0.080	0.36	0.36	5.75	7750	1240	45
8	2	140	0.090	0.48	0.48	7.66	5820	1050	45
10	2	140	0.105	0.60	0.60	9.58	4650	975	45
12	2	140	0.110	0.72	0.72	11.50	3875	855	45
Hardened tool steel 48 - 52 HRC									
3	2	120	0.050	0.18	0.18	2.87	13310	1330	45
4	2	120	0.060	0.24	0.24	3.83	9975	1195	45
5	2	120	0.070	0.30	0.30	4.79	7975	1115	45
6	2	120	0.070	0.36	0.36	5.75	6645	930	45
8	2	120	0.085	0.48	0.48	7.66	4985	845	45
10	2	120	0.100	0.60	0.60	9.58	3985	795	45
12	2	120	0.100	0.72	0.72	11.50	3320	665	45
Hardened tool steel 52 - 56 HRC									
3	2	80	0.050	0.18	0.18	2.87	8875	890	45
4	2	80	0.055	0.24	0.24	3.83	6650	730	45
5	2	80	0.065	0.30	0.30	4.79	5315	690	45
6	2	80	0.070	0.36	0.36	5.75	4430	620	45
8	2	80	0.080	0.48	0.48	7.66	3325	530	45
10	2	80	0.090	0.60	0.60	9.58	2660	480	45
12	2	80	0.095	0.72	0.72	11.50	2215	420	45

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm²									
3	2	250	0.025	0.04	0.04	2.55	31210	1560	45
4	2	250	0.045	0.06	0.06	3.43	23200	2090	45
5	2	250	0.045	0.09	0.09	4.35	18295	1645	45
6	2	250	0.045	0.11	0.11	5.23	15215	1370	45
8	2	250	0.050	0.13	0.13	6.90	11535	1155	45
10	2	250	0.055	0.15	0.15	8.58	9275	1020	45
12	2	250	0.060	0.18	0.18	10.29	7735	930	45
Hardened tool steel 42 - 48 HRC									
3	2	220	0.025	0.04	0.04	2.55	27465	1375	45
4	2	220	0.045	0.06	0.06	3.43	20415	1835	45
5	2	220	0.045	0.09	0.09	4.35	16100	1450	45
6	2	220	0.045	0.11	0.11	5.23	13390	1205	45
8	2	220	0.050	0.13	0.13	6.90	10150	1015	45
10	2	220	0.050	0.15	0.15	8.58	8160	815	45
12	2	220	0.055	0.18	0.18	10.29	6805	750	45
Hardened tool steel 48 - 52 HRC									
3	2	180	0.025	0.04	0.04	2.55	22470	1125	45
4	2	180	0.040	0.06	0.06	3.43	16705	1335	45
5	2	180	0.040	0.09	0.09	4.35	13170	1055	45
6	2	180	0.040	0.11	0.11	5.23	10955	875	45
8	2	180	0.045	0.13	0.13	6.90	8305	745	45
10	2	180	0.050	0.15	0.15	8.58	6680	670	45
12	2	180	0.055	0.18	0.18	10.29	5570	615	45
Hardened tool steel 52 - 56 HRC									
3	2	120	0.020	0.04	0.04	2.55	14980	600	45
4	2	120	0.040	0.06	0.06	3.43	11135	890	45
5	2	120	0.040	0.09	0.09	4.35	8780	700	45
6	2	120	0.040	0.11	0.11	5.23	7305	585	45
8	2	120	0.045	0.13	0.13	6.90	5535	500	45
10	2	120	0.045	0.15	0.15	8.58	4450	400	45
12	2	120	0.050	0.18	0.18	10.29	3710	370	45

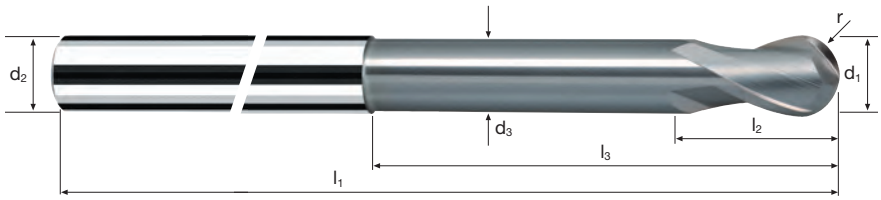
Ball nose end mills Sphericut

Tolerance r f8 (-/-), 5xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | **λ 30° γ-10°**



Rm 1100-1300 | **Rm** 1300-1500 | **HRC** 48-56 | **HRC** 56-60 | **GG(G)**

new!

POLYCHROM

Example: **Order-N°.** Coating **P** Article-N°. **5289** ø-Code **.180**

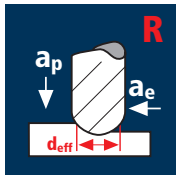
P5289

ø Code	d1 -/-	d2 h6	d3	l1	l2	l3	r f8	α	z	
.180	3	6	2.8	90	4	24	1.5	3.1°	2	●
.220	4	6	3.7	90	5	27	2.0	2.0°	2	●
.260	5	6	4.6	110	6	45	2.5	0.7°	2	●
.300	6	6	5.5	110	7	50	3.0	0.0°	2	●
.391	8	8	7.4	110	9	46	4.0	0.0°	2	●
.450	10	10	9.2	130	11	61	5.0	0.0°	2	●
.501	12	12	11.0	140	13	57	6.0	0.0°	2	●

CNC Radius R

d1	r	Tolerance f8		Radius Minimum	Radius Maximum	**R**
3	1.5	-0.006	-0.020	**1.480**	**1.494**	**1.487**
4	2.0			**1.980**	**1.994**	**1.987**
5	2.5			**2.480**	**2.494**	**2.487**
6	3.0			**2.980**	**2.994**	**2.987**
8	4.0	-0.010	-0.028	**3.972**	**3.990**	**3.981**
10	5.0			**4.972**	**4.990**	**4.981**
12	6.0			**5.972**	**5.990**	**5.981**

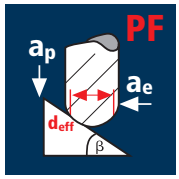
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²									
1	2	55	0.025	0.12	0.05	0.65	26935	1345	0.01
2	2	55	0.045	0.24	0.10	1.30	13465	1210	0.03
3	2	55	0.060	0.36	0.15	1.95	8980	1080	0.06
4	2	55	0.075	0.48	0.20	2.60	6735	1010	0.10
6	2	55	0.090	0.72	0.30	3.90	4490	810	0.15
8	2	55	0.115	0.96	0.40	5.20	3365	775	0.30
10	2	55	0.125	1.20	0.50	6.50	2695	675	0.40
12	2	55	0.120	1.44	0.60	7.80	2245	540	0.45
Steel 850 - 1100 N/mm²									
1	2	42	0.020	0.12	0.05	0.65	20570	825	0.00
2	2	42	0.040	0.24	0.10	1.30	10285	825	0.02
3	2	42	0.050	0.36	0.15	1.95	6855	685	0.04
4	2	42	0.065	0.48	0.20	2.60	5140	670	0.05
6	2	42	0.075	0.72	0.30	3.90	3430	515	0.10
8	2	42	0.100	0.96	0.40	5.20	2570	515	0.20
10	2	42	0.105	1.20	0.50	6.50	2055	430	0.25
12	2	42	0.100	1.44	0.60	7.80	1715	345	0.30
Steel 1100 - 1300 N/mm²									
1	2	34	0.020	0.12	0.05	0.65	16650	665	0.00
2	2	34	0.030	0.24	0.10	1.30	8325	500	0.01
3	2	34	0.040	0.36	0.15	1.95	5550	445	0.02
4	2	34	0.055	0.48	0.20	2.60	4165	460	0.05
6	2	34	0.065	0.72	0.30	3.90	2775	360	0.10
8	2	34	0.080	0.96	0.40	5.20	2080	335	0.15
10	2	34	0.090	1.20	0.50	6.50	1665	300	0.20
12	2	34	0.085	1.44	0.60	7.80	1390	235	0.20
Stainless steel [Cr-Ni/1.4301]									
1	2	25	0.010	0.09	0.08	0.57	13960	280	0.00
2	2	25	0.020	0.19	0.15	1.17	6800	270	0.01
3	2	25	0.025	0.28	0.23	1.75	4545	225	0.01
4	2	25	0.030	0.29	0.24	2.07	3845	230	0.00
6	2	25	0.035	0.43	0.27	3.10	2565	180	0.00
8	2	25	0.045	0.58	0.24	4.15	1920	175	0.00
10	2	25	0.050	0.72	0.30	5.17	1540	155	0.05
12	2	25	0.050	0.86	0.36	6.19	1285	130	0.05

Application



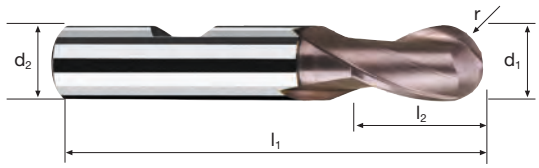
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel < 850 N/mm²									
1	2	60	0.030	0.05	0.05	0.94	20320	1220	45
2	2	60	0.045	0.10	0.10	1.89	10105	910	45
3	2	60	0.055	0.15	0.15	2.83	6750	745	45
4	2	60	0.060	0.20	0.20	3.78	5055	605	45
6	2	60	0.085	0.30	0.30	5.67	3370	575	45
8	2	60	0.100	0.40	0.40	7.56	2525	505	45
10	2	60	0.110	0.50	0.50	9.45	2020	445	45
12	2	60	0.120	0.60	0.60	11.34	1685	405	45
Steel 850 - 1100 N/mm²									
1	2	48	0.025	0.05	0.05	0.94	16255	815	45
2	2	48	0.040	0.10	0.10	1.89	8085	645	45
3	2	48	0.045	0.15	0.15	2.83	5400	485	45
4	2	48	0.050	0.20	0.20	3.78	4040	405	45
6	2	48	0.070	0.30	0.30	5.67	2695	375	45
8	2	48	0.085	0.40	0.40	7.56	2020	345	45
10	2	48	0.095	0.50	0.50	9.45	1615	305	45
12	2	48	0.100	0.60	0.60	11.34	1345	270	45
Steel 1100 - 1300 N/mm²									
1	2	38	0.025	0.05	0.05	0.94	12870	645	45
2	2	38	0.035	0.10	0.10	1.89	6400	450	45
3	2	38	0.040	0.15	0.15	2.83	4275	340	45
4	2	38	0.045	0.20	0.20	3.78	3200	290	45
6	2	38	0.065	0.30	0.30	5.67	2135	280	45
8	2	38	0.075	0.40	0.40	7.56	1600	240	45
10	2	38	0.085	0.50	0.50	9.45	1280	220	45
12	2	38	0.090	0.60	0.60	11.34	1065	190	45
Stainless steel [Cr-Ni/1.4301]									
1	2	30	0.015	0.03	0.03	0.91	10495	315	45
2	2	30	0.025	0.06	0.06	1.81	5275	265	45
3	2	30	0.030	0.09	0.09	2.72	3510	210	45
4	2	30	0.030	0.12	0.12	3.62	2640	160	45
6	2	30	0.045	0.18	0.18	5.44	1755	160	45
8	2	30	0.050	0.24	0.24	7.25	1315	130	45
10	2	30	0.055	0.30	0.30	9.06	1055	115	45
12	2	30	0.060	0.36	0.36	10.87	880	105	45

Ball nose end mills

Tolerance r h9 (0/-)

HSS-E Co8 | **λ 35° γ 15°**

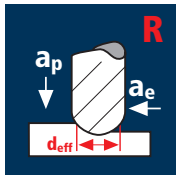


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless

Example: **Order-N°.** Coating **U** Article-N°. **0830** ø-Code **.100**

ø Code	d1 h8	d2 h6	l1	l2	r h9	α	z	UNICUT-4X U0830
.100	1.0	6	47	3	0.50	14.5°	2	●
.120	1.5	6	47	3	0.75	14.0°	2	●
.140	2.0	6	48	4	1.00	12.5°	2	●
.180	3.0	6	49	5	1.50	8.0°	2	●
.220	4.0	6	51	7	2.00	5.0°	2	●
.260	5.0	6	52	8	2.50	2.5°	2	●
.300	6.0	6	52	8	3.00	0.0°	2	●
.391	8.0	8	55	11	4.00	0.0°	2	●
.450	10.0	10	63	13	5.00	0.0°	2	●
.501	12.0	12	73	16	6.00	0.0°	2	●

Application



Material

Steel < 850 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	3	55	0.060	0.30	0.12	1.80	9725	1750	0.06
4	3	55	0.075	0.40	0.16	2.40	7295	1640	0.10
6	4	55	0.090	0.60	0.24	3.60	4865	1750	0.25
8	4	55	0.115	0.80	0.32	4.80	3645	1675	0.45
10	4	55	0.125	1.00	0.40	6.00	2920	1460	0.60
12	4	55	0.120	1.20	0.48	7.20	2430	1165	0.65
16	4	55	0.135	1.60	0.64	9.60	1825	985	1.00
20	4	55	0.145	2.00	0.80	12.00	1460	845	1.35

Steel 850 - 1100 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	3	42	0.050	0.30	0.12	1.80	7425	1115	0.04
4	3	42	0.065	0.40	0.16	2.40	5570	1085	0.07
6	4	42	0.075	0.60	0.24	3.60	3715	1115	0.16
8	4	42	0.100	0.80	0.32	4.80	2785	1115	0.30
10	4	42	0.105	1.00	0.40	6.00	2230	935	0.35
12	4	42	0.100	1.20	0.48	7.20	1855	740	0.45
16	4	42	0.115	1.60	0.64	9.60	1395	640	0.65
20	4	42	0.125	2.00	0.80	12.00	1115	560	0.90

Steel 1100 - 1300 N/mm²

U

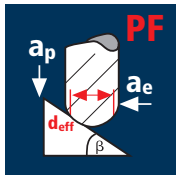
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	3	34	0.040	0.30	0.12	1.80	6015	720	0.03
4	3	34	0.055	0.40	0.16	2.40	4510	745	0.05
6	4	34	0.065	0.60	0.24	3.60	3005	780	0.11
8	4	34	0.080	0.80	0.32	4.80	2255	720	0.20
10	4	34	0.090	1.00	0.40	6.00	1805	650	0.25
12	4	34	0.085	1.20	0.48	7.20	1505	510	0.30
16	4	34	0.095	1.60	0.64	9.60	1125	430	0.45
20	4	34	0.100	2.00	0.80	12.00	900	360	0.60

Stainless steel [Cr-Ni/1.4301]

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	3	25	0.025	0.23	0.18	1.60	4975	375	0.02
4	3	25	0.030	0.31	0.24	2.14	3720	335	0.02
6	4	25	0.035	0.47	0.36	3.22	2470	345	0.06
8	4	25	0.045	0.48	0.38	3.80	2095	375	0.05
10	4	25	0.050	0.60	0.36	4.75	1675	335	0.05
12	4	25	0.050	0.72	0.29	5.70	1395	280	0.05
16	4	25	0.055	0.96	0.38	7.60	1045	230	0.10
20	4	25	0.060	1.20	0.48	9.50	840	200	0.10

Application



Material

Steel < 850 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	3	60	0.055	0.11	0.11	2.76	6920	1140	45
4	3	60	0.060	0.14	0.14	3.67	5205	935	45
6	4	60	0.085	0.21	0.21	5.51	3465	1180	45
8	4	60	0.100	0.28	0.28	7.34	2600	1040	45
10	4	60	0.110	0.35	0.35	9.18	2080	915	45
12	4	60	0.120	0.42	0.42	11.01	1735	835	45
16	4	60	0.140	0.56	0.56	14.68	1300	730	45
20	4	60	0.155	0.70	0.70	18.35	1040	645	45

Steel 850 - 1100 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	3	48	0.045	0.11	0.11	2.76	5535	745	45
4	3	48	0.050	0.14	0.14	3.67	4165	625	45
6	4	48	0.070	0.21	0.21	5.51	2775	775	45
8	4	48	0.085	0.28	0.28	7.34	2080	705	45
10	4	48	0.095	0.35	0.35	9.18	1665	635	45
12	4	48	0.100	0.42	0.42	11.01	1390	555	45
16	4	48	0.120	0.56	0.56	14.68	1040	500	45
20	4	48	0.130	0.70	0.70	18.35	835	435	45

Steel 1100 - 1300 N/mm²

U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	3	38	0.040	0.11	0.11	2.76	4385	525	45
4	3	38	0.045	0.14	0.14	3.67	3295	445	45
6	4	38	0.065	0.21	0.21	5.51	2195	570	45
8	4	38	0.075	0.28	0.28	7.34	1650	495	45
10	4	38	0.085	0.35	0.35	9.18	1320	450	45
12	4	38	0.090	0.42	0.42	11.01	1100	395	45
16	4	38	0.105	0.56	0.56	14.68	825	345	45
20	4	38	0.115	0.70	0.70	18.35	660	305	45

Stainless steel [Cr-Ni/1.4301]

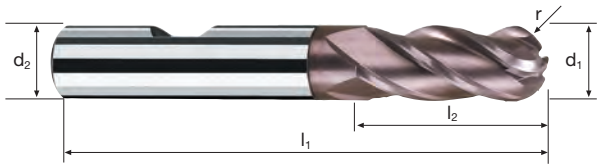
U

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	3	30	0.030	0.07	0.07	2.66	3590	325	45
4	3	30	0.030	0.08	0.08	3.51	2720	245	45
6	4	30	0.045	0.13	0.13	5.29	1805	325	45
8	4	30	0.050	0.17	0.17	7.05	1355	270	45
10	4	30	0.055	0.21	0.21	8.80	1085	240	45
12	4	30	0.060	0.25	0.25	10.56	905	215	45
16	4	30	0.070	0.34	0.34	14.10	675	190	45
20	4	30	0.080	0.42	0.42	17.60	545	175	45

Ball nose end mills

Tolerance r k8 (0/+)

HSS-E Co8 | λ **35°** γ **15°**

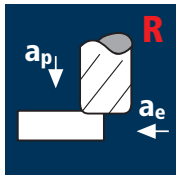


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless

Example: **Order-N°.** Coating **U** Article-N°. **0800** ø-Code **.180**

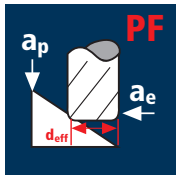
ø Code	d1 k8	d2 h6	l1	l2	r k8	α	z	UNICUT-4X U0800
.180	3	6	52	8	1.5	2.0°	3	●
.220	4	6	55	11	2.0	1.5°	3	●
.260	5	6	57	13	2.5	1.0°	3	●
.300	6	6	57	13	3.0	0.0°	4	●
.331	7	8	60	16	3.5	1.0°	4	●
.391	8	8	63	19	4.0	0.0°	4	●
.450	10	10	72	22	5.0	0.0°	4	●
.501	12	12	83	26	6.0	0.0°	4	●
.610	16	16	92	32	8.0	0.0°	4	●
.682	20	20	104	38	10.0	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	2	4	180	0.030	0.60	1.20	28650	3440	r=0.5
	3	4	180	0.045	0.60	1.80	19100	3440	r=0.5
	4	4	180	0.050	0.60	2.40	14325	2865	r=0.5
	5	4	180	0.055	0.60	3.00	11460	2520	r=0.5
	6	4	180	0.060	0.60	3.60	9550	2290	r=0.5
	8	4	180	0.075	0.60	4.80	7160	2150	r=0.5
	10	4	180	0.095	0.60	6.00	5730	2175	r=0.5
	12	4	180	0.115	0.60	7.20	4775	2195	r=0.5
Hardened tool steel 48 - 52 HRC	2	4	140	0.025	0.60	1.20	22280	2230	r=0.5
	3	4	140	0.040	0.60	1.80	14855	2375	r=0.5
	4	4	140	0.045	0.60	2.40	11140	2005	r=0.5
	5	4	140	0.050	0.60	3.00	8915	1785	r=0.5
	6	4	140	0.055	0.60	3.60	7425	1635	r=0.5
	8	4	140	0.070	0.60	4.80	5570	1560	r=0.5
	10	4	140	0.085	0.60	6.00	4455	1515	r=0.5
	12	4	140	0.105	0.60	7.20	3715	1560	r=0.5
Hardened tool steel 52 - 56 HRC	2	4	100	0.025	0.60	1.20	15915	1590	r=0.5
	3	4	100	0.035	0.60	1.80	10610	1485	r=0.5
	4	4	100	0.040	0.60	2.40	7960	1275	r=0.5
	5	4	100	0.045	0.60	3.00	6365	1145	r=0.5
	6	4	100	0.050	0.60	3.60	5305	1060	r=0.5
	8	4	100	0.060	0.60	4.80	3980	955	r=0.5
	10	4	100	0.080	0.60	6.00	3185	1020	r=0.5
	12	4	100	0.095	0.60	7.20	2655	1010	r=0.5
Hardened tool steel 56 - 60 HRC	2	4	70	0.015	0.60	0.80	11140	670	r=0.5
	3	4	70	0.025	0.60	1.20	7425	745	r=0.5
	4	4	70	0.030	0.60	1.60	5570	670	r=0.5
	5	4	70	0.030	0.60	2.00	4455	535	r=0.5
	6	4	70	0.035	0.60	2.40	3715	520	r=0.5
	8	4	70	0.045	0.60	3.20	2785	500	r=0.5
	10	4	70	0.055	0.60	4.00	2230	490	r=0.5
	12	4	70	0.065	0.60	4.80	1855	480	r=0.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	2	4	360	0.045	0.10	0.10	1.99	57585	10365	45
	3	4	360	0.065	0.12	0.12	3.00	38200	9930	45
	4	4	360	0.085	0.12	0.12	4.00	28650	9740	45
	5	4	360	0.100	0.16	0.16	5.00	22920	9170	45
	6	4	360	0.135	0.18	0.18	6.00	19100	10315	45
	8	4	360	0.150	0.20	0.20	7.99	14340	8605	45
	10	4	360	0.200	0.24	0.24	9.97	11495	9195	45
	12	4	360	0.170	0.26	0.26	11.96	9580	6515	45
Hardened tool steel 48 - 52 HRC	2	4	250	0.045	0.10	0.10	1.99	39990	7200	45
	3	4	250	0.060	0.12	0.12	3.00	26525	6365	45
	4	4	250	0.080	0.12	0.12	4.00	19895	6365	45
	5	4	250	0.095	0.16	0.16	5.00	15915	6050	45
	6	4	250	0.130	0.18	0.18	6.00	13265	6900	45
	8	4	250	0.145	0.20	0.20	7.99	9960	5775	45
	10	4	250	0.190	0.24	0.24	9.97	7980	6065	45
	12	4	250	0.160	0.26	0.26	11.96	6655	4260	45
Hardened tool steel 52 - 56 HRC	2	4	180	0.040	0.10	0.10	1.99	28795	4605	45
	3	4	180	0.055	0.12	0.12	3.00	19100	4200	45
	4	4	180	0.075	0.12	0.12	4.00	14325	4300	45
	5	4	180	0.085	0.16	0.16	5.00	11460	3895	45
	6	4	180	0.115	0.18	0.18	6.00	9550	4395	45
	8	4	180	0.130	0.20	0.20	7.99	7170	3730	45
	10	4	180	0.170	0.24	0.24	9.97	5745	3905	45
	12	4	180	0.145	0.26	0.26	11.96	4790	2780	45
Hardened tool steel 56 - 60 HRC	2	4	100	0.025	0.10	0.10	1.99	15995	1600	45
	3	4	100	0.035	0.12	0.12	3.00	10610	1485	45
	4	4	100	0.045	0.12	0.12	4.00	7960	1435	45
	5	4	100	0.050	0.16	0.16	5.00	6365	1275	45
	6	4	100	0.070	0.18	0.18	6.00	5305	1485	45
	8	4	100	0.075	0.20	0.20	7.99	3985	1195	45
	10	4	100	0.100	0.24	0.24	9.97	3195	1280	45
	12	4	100	0.085	0.26	0.26	11.96	2660	905	45

Corner radius end mills Toro-X

Tolerance r 0/+0.015, 3xd

HM XT

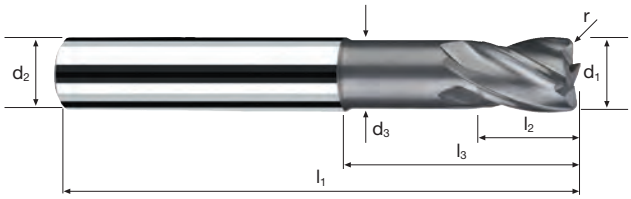
λ 30°
γ -5°

h5

d1

r

R



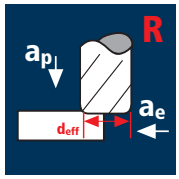
new!

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7100** | ø-Code **.138**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL	X7100
.138	2	6	1.9	57	3	6	0.2	8.5°	4		●
.178	3	6	2.8	57	4	9	0.2	5.8°	4		●
.218	4	6	3.7	57	5	12	0.2	3.6°	4		●
.258	5	6	4.6	57	6	15	0.2	1.7°	4		●
.297	6	6	5.5	57	7	20	0.2	0.0°	4		●
.385	8	8	7.4	63	9	26	0.2	0.0°	4		●
.445	10	10	9.2	72	11	31	0.2	0.0°	4		●
.496	12	12	11.0	83	13	37	0.2	0.0°	4		●
.140	2	6	1.9	57	3	6	0.5	8.7°	4		●
.180	3	6	2.8	57	4	9	0.5	6.0°	4		●
.220	4	6	3.7	57	5	12	0.5	3.7°	4		●
.260	5	6	4.6	57	6	15	0.5	1.7°	4		●
.300	6	6	5.5	57	7	20	0.5	0.0°	4		●
.388	8	8	7.4	63	9	26	0.5	0.0°	4		●
.448	10	10	9.2	72	11	31	0.5	0.0°	4		●
.498	12	12	11.0	83	13	37	0.5	0.0°	4		●

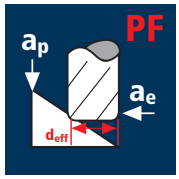
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC									
4	4	200	0.055	0.60	2.40	3.83	16620	3655	r=1.0
5	4	200	0.060	0.60	3.00	4.83	13180	3165	r=1.0
6	4	200	0.065	0.60	3.60	5.83	10920	2840	r=1.0
8	4	200	0.080	0.60	4.80	7.83	8130	2600	r=1.0
10	4	200	0.105	0.60	6.00	9.83	6475	2720	r=1.0
12	4	200	0.125	0.60	7.20	11.83	5380	2690	r=1.0
Hardened tool steel 48 - 52 HRC									
4	4	160	0.050	0.60	2.40	3.83	13300	2660	r=1.0
5	4	160	0.055	0.60	3.00	4.83	10545	2320	r=1.0
6	4	160	0.060	0.60	3.60	5.83	8735	2095	r=1.0
8	4	160	0.070	0.60	4.80	7.83	6505	1820	r=1.0
10	4	160	0.095	0.60	6.00	9.83	5180	1970	r=1.0
12	4	160	0.115	0.60	7.20	11.83	4305	1980	r=1.0
Hardened tool steel 52 - 56 HRC									
4	4	150	0.045	0.60	2.40	3.83	12465	2245	r=1.0
5	4	150	0.050	0.60	3.00	4.83	9885	1975	r=1.0
6	4	150	0.055	0.60	3.60	5.83	8190	1800	r=1.0
8	4	150	0.065	0.60	4.80	7.83	6100	1585	r=1.0
10	4	150	0.085	0.60	6.00	9.83	4855	1650	r=1.0
12	4	150	0.105	0.60	7.20	11.83	4035	1695	r=1.0
Hardened tool steel 56 - 60 HRC									
4	4	70	0.030	0.60	1.60	3.83	5820	700	r=1.0
5	4	70	0.035	0.60	2.00	4.83	4615	645	r=1.0
6	4	70	0.040	0.60	2.40	5.83	3820	610	r=1.0
8	4	70	0.045	0.60	3.20	7.83	2845	510	r=1.0
10	4	70	0.060	0.60	4.00	9.83	2265	545	r=1.0
12	4	70	0.075	0.60	4.80	11.83	1885	565	r=1.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
4	4	300	0.065	0.18	0.18	3.97	24055	6255	45
5	4	300	0.075	0.24	0.24	4.99	19135	5740	45
6	4	300	0.090	0.27	0.27	6.00	15915	5730	45
8	4	300	0.125	0.30	0.30	8.00	11935	5970	45
10	4	300	0.145	0.36	0.36	9.99	9560	5545	45
12	4	300	0.170	0.39	0.39	11.98	7970	5420	45
Hardened tool steel 48 - 52 HRC									
4	4	220	0.060	0.18	0.18	3.97	17640	4235	45
5	4	220	0.070	0.24	0.24	4.99	14035	3930	45
6	4	220	0.085	0.27	0.27	6.00	11670	3970	45
8	4	220	0.120	0.30	0.30	8.00	8755	4200	45
10	4	220	0.140	0.36	0.36	9.99	7010	3925	45
12	4	220	0.160	0.39	0.39	11.98	5845	3740	45
Hardened tool steel 52 - 56 HRC									
4	4	160	0.055	0.18	0.18	3.97	12830	2825	45
5	4	160	0.065	0.24	0.24	4.99	10205	2655	45
6	4	160	0.075	0.27	0.27	6.00	8490	2545	45
8	4	160	0.110	0.30	0.30	8.00	6365	2800	45
10	4	160	0.125	0.36	0.36	9.99	5100	2550	45
12	4	160	0.145	0.39	0.39	11.98	4250	2465	45
Hardened tool steel 56 - 60 HRC									
4	4	80	0.035	0.18	0.18	3.97	6415	900	45
5	4	80	0.040	0.24	0.24	4.99	5105	815	45
6	4	80	0.045	0.27	0.27	6.00	4245	765	45
8	4	80	0.065	0.30	0.30	8.00	3185	830	45
10	4	80	0.075	0.36	0.36	9.99	2550	765	45
12	4	80	0.085	0.39	0.39	11.98	2125	725	45

Corner radius end mills Toro-X

Tolerance r 0/+0.015, 3xd

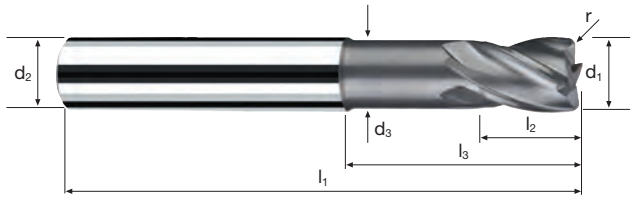
HM XT | λ 30° γ -5°

h5

d1

r

R



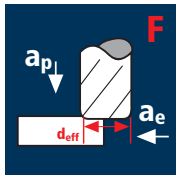
new!

		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7100** | ø-Code **.222**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL	X7100
.222	4	6	3.7	57	5	12	1.0	3.8°	4		●
.262	5	6	4.6	57	6	15	1.0	1.8°	4		●
.302	6	6	5.5	57	7	20	1.0	0.0°	4		●
.391	8	8	7.4	63	9	26	1.0	0.0°	4		●
.450	10	10	9.2	72	11	31	1.0	0.0°	4		●
.501	12	12	11.0	83	13	37	1.0	0.0°	4		●
.395	8	8	7.4	63	9	26	2.0	0.0°	4		●
.455	10	10	9.2	72	11	31	2.0	0.0°	4		●
.505	12	12	11.0	83	13	37	2.0	0.0°	4		●

Application



Material

Hardened tool steel 48 - 52 HRC

X X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	150	0.020	0.05	0.70	1.44	33160	2655	r=0.5
3	4	150	0.025	0.05	1.05	2.44	19570	1955	r=0.5
4	4	150	0.030	0.06	1.40	3.47	13760	1650	r=0.5
5	4	150	0.035	0.06	1.75	4.47	10680	1495	r=0.5
6	6	150	0.040	0.08	2.10	5.54	8620	2070	r=0.5
8	6	150	0.045	0.08	2.80	7.54	6335	1710	r=0.5
10	6	150	0.050	0.10	3.50	9.60	4975	1495	r=0.5
12	6	150	0.055	0.10	4.20	11.60	4115	1360	r=0.5

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	120	0.020	0.05	0.70	1.44	26525	2120	r=0.5
3	4	120	0.025	0.05	1.05	2.44	15655	1565	r=0.5
4	4	120	0.030	0.06	1.40	3.47	11010	1320	r=0.5
5	4	120	0.035	0.06	1.75	4.47	8545	1195	r=0.5
6	6	120	0.040	0.08	2.10	5.54	6895	1655	r=0.5
8	6	120	0.045	0.08	2.80	7.54	5065	1370	r=0.5
10	6	120	0.050	0.10	3.50	9.60	3980	1195	r=0.5
12	6	120	0.055	0.10	4.20	11.60	3295	1085	r=0.5

Hardened tool steel 56 - 60 HRC

X

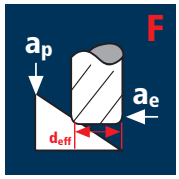
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	80	0.015	0.05	0.70	1.44	17685	1060	r=0.5
3	4	80	0.020	0.05	1.05	2.44	10435	835	r=0.5
4	4	80	0.025	0.06	1.40	3.47	7340	735	r=0.5
5	4	80	0.030	0.06	1.75	4.47	5695	685	r=0.5
6	6	80	0.030	0.08	2.10	5.54	4595	825	r=0.5
8	6	80	0.035	0.08	2.80	7.54	3375	710	r=0.5
10	6	80	0.040	0.10	3.50	9.60	2655	635	r=0.5
12	6	80	0.045	0.10	4.20	11.60	2195	595	r=0.5

Hardened tool steel > 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	40	0.015	0.05	0.70	1.44	8840	530	r=0.5
3	4	40	0.020	0.05	1.05	2.44	5220	420	r=0.5
4	4	40	0.025	0.06	1.40	3.47	3670	365	r=0.5
5	4	40	0.030	0.06	1.75	4.47	2850	340	r=0.5
6	6	40	0.030	0.08	2.10	5.54	2300	415	r=0.5
8	6	40	0.035	0.08	2.80	7.54	1690	355	r=0.5
10	6	40	0.040	0.10	3.50	9.60	1325	320	r=0.5
12	6	40	0.045	0.10	4.20	11.60	1100	295	r=0.5

Application



Material

Hardened tool steel 48 - 52 HRC

X X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	300	0.020	0.05	0.05	1.94	49225	3940	45
3	4	300	0.025	0.05	0.05	2.94	32480	3250	45
4	4	300	0.030	0.06	0.06	3.96	24115	2895	45
5	4	300	0.035	0.06	0.06	4.96	19255	2695	45
6	6	300	0.040	0.08	0.08	5.98	15970	3835	45
8	6	300	0.045	0.08	0.08	7.98	11965	3230	45
10	6	300	0.050	0.10	0.10	9.99	9560	2870	45
12	6	300	0.055	0.10	0.10	11.99	7965	2630	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	250	0.020	0.05	0.05	1.94	41020	3280	45
3	4	250	0.025	0.05	0.05	2.94	27070	2705	45
4	4	250	0.030	0.06	0.06	3.96	20095	2410	45
5	4	250	0.035	0.06	0.06	4.96	16045	2245	45
6	6	250	0.040	0.08	0.08	5.98	13310	3195	45
8	6	250	0.045	0.08	0.08	7.98	9970	2690	45
10	6	250	0.050	0.10	0.10	9.99	7965	2390	45
12	6	250	0.050	0.10	0.10	11.99	6635	1990	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	180	0.015	0.05	0.05	1.94	29535	1770	45
3	4	180	0.020	0.05	0.05	2.94	19490	1560	45
4	4	180	0.025	0.06	0.06	3.96	14470	1445	45
5	4	180	0.030	0.06	0.06	4.96	11550	1385	45
6	6	180	0.035	0.08	0.08	5.98	9580	2010	45
8	6	180	0.040	0.08	0.08	7.98	7180	1725	45
10	6	180	0.045	0.10	0.10	9.99	5735	1550	45
12	6	180	0.045	0.10	0.10	11.99	4780	1290	45

Hardened tool steel > 60 HRC

X

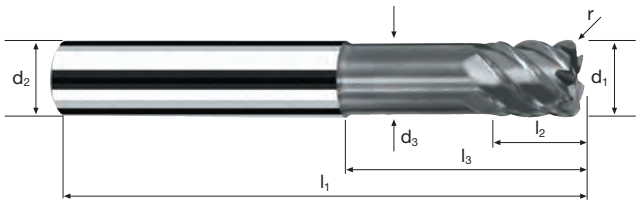
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	100	0.010	0.05	0.05	1.94	16410	655	45
3	4	100	0.015	0.05	0.05	2.94	10825	650	45
4	4	100	0.015	0.06	0.06	3.96	8040	480	45
5	4	100	0.020	0.06	0.06	4.96	6420	515	45
6	6	100	0.020	0.08	0.08	5.98	5325	640	45
8	6	100	0.025	0.08	0.08	7.98	3990	600	45
10	6	100	0.025	0.10	0.10	9.99	3185	480	45
12	6	100	0.030	0.10	0.10	11.99	2655	480	45

Corner radius end mills XSpeed

Tolerance r 0/+0.015, 3xd

HM XT

λ 55°
γ -10°

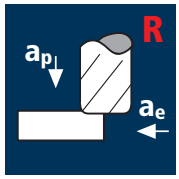


Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Ti Titanium	HSS

Example: **Order-N°.** Coating **X** Article-N°. **7200** ø-Code **.140**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL	X7200
.140	2	6	1.9	57	3	6	0.5	8.7°	4		●
.180	3	6	2.8	57	4	9	0.5	6.0°	4		●
.220	4	6	3.7	57	5	12	0.5	3.7°	4		●
.260	5	6	4.6	57	6	15	0.5	1.7°	4		●
.295	6	6	5.5	57	7	20	0.5	0.0°	4		●
.300	6	6	5.5	57	7	20	0.5	0.0°	6		●
.386	8	8	7.4	63	9	26	0.5	0.0°	4		●
.391	8	8	7.4	63	9	26	0.5	0.0°	6		●
.440	10	10	9.2	72	11	31	0.5	0.0°	4		●
.450	10	10	9.2	72	11	31	0.5	0.0°	6		●
.491	12	12	11.0	83	13	37	0.5	0.0°	4		●
.501	12	12	11.0	83	13	37	0.5	0.0°	6		●
.218	4	6	3.7	57	5	12	1.0	3.8°	4		●
.258	5	6	4.6	57	6	15	1.0	1.8°	4		●
.293	6	6	5.5	57	7	20	1.0	0.0°	4		●
.297	6	6	5.5	57	7	20	1.0	0.0°	6		●
.384	8	8	7.4	63	9	26	1.0	0.0°	4		●
.388	8	8	7.4	63	9	26	1.0	0.0°	6		●
.435	10	10	9.2	72	11	31	1.0	0.0°	4		●
.445	10	10	9.2	72	11	31	1.0	0.0°	6		●
.486	12	12	11.0	83	13	37	1.0	0.0°	4		●
.496	12	12	11.0	83	13	37	1.0	0.0°	6		●

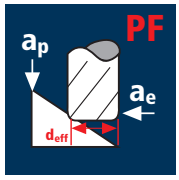
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC								
2	4	180	0.025	0.60	0.80	28650	2865	r=0.5
3	4	180	0.035	0.60	1.20	19100	2675	r=0.5
4	4	180	0.045	0.60	1.60	14325	2580	r=0.5
5	4	180	0.045	0.60	2.00	11460	2065	r=0.5
6	4	180	0.050	0.60	2.40	9550	1910	r=0.5
8	4	180	0.060	0.60	3.20	7160	1720	r=0.5
10	4	180	0.080	0.60	4.00	5730	1835	r=0.5
12	4	180	0.095	0.60	4.80	4775	1815	r=0.5
Hardened tool steel 48 - 52 HRC								
2	4	140	0.025	0.60	0.80	22280	2230	r=0.5
3	4	140	0.030	0.60	1.20	14855	1785	r=0.5
4	4	140	0.040	0.60	1.60	11140	1780	r=0.5
5	4	140	0.040	0.60	2.00	8915	1425	r=0.5
6	4	140	0.045	0.60	2.40	7425	1335	r=0.5
8	4	140	0.055	0.60	3.20	5570	1225	r=0.5
10	4	140	0.070	0.60	4.00	4455	1245	r=0.5
12	4	140	0.085	0.60	4.80	3715	1265	r=0.5
Hardened tool steel 52 - 56 HRC								
2	4	100	0.020	0.60	0.80	15915	1275	r=0.5
3	4	100	0.030	0.60	1.20	10610	1275	r=0.5
4	4	100	0.035	0.60	1.60	7960	1115	r=0.5
5	4	100	0.035	0.60	2.00	6365	890	r=0.5
6	4	100	0.040	0.60	2.40	5305	850	r=0.5
8	4	100	0.050	0.60	3.20	3980	795	r=0.5
10	4	100	0.065	0.60	4.00	3185	830	r=0.5
12	4	100	0.080	0.60	4.80	2655	850	r=0.5
Hardened tool steel 56 - 60 HRC								
2	4	70	0.015	0.60	0.80	11140	670	r=0.5
3	4	70	0.020	0.60	1.20	7425	595	r=0.5
4	4	70	0.025	0.60	1.60	5570	555	r=0.5
5	4	70	0.025	0.60	2.00	4455	445	r=0.5
6	4	70	0.030	0.60	2.40	3715	445	r=0.5
8	4	70	0.035	0.60	3.20	2785	390	r=0.5
10	4	70	0.045	0.60	4.00	2230	400	r=0.5
12	4	70	0.055	0.60	4.80	1855	410	r=0.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
2	4	360	0.045	0.10	0.10	1.99	57585	10365	45
3	4	360	0.065	0.12	0.12	3.00	38200	9930	45
4	4	360	0.085	0.12	0.12	4.00	28650	9740	45
5	4	360	0.100	0.16	0.16	5.00	22920	9170	45
6	4	360	0.135	0.18	0.18	6.00	19100	10315	45
8	4	360	0.150	0.20	0.20	7.99	14340	8605	45
10	4	360	0.200	0.24	0.24	9.97	11495	9195	45
12	4	360	0.170	0.26	0.26	11.96	9580	6515	45
Hardened tool steel 48 - 52 HRC									
2	4	250	0.045	0.10	0.10	1.99	39990	7200	45
3	4	250	0.060	0.12	0.12	3.00	26525	6365	45
4	4	250	0.080	0.12	0.12	4.00	19895	6365	45
5	4	250	0.095	0.16	0.16	5.00	15915	6050	45
6	4	250	0.130	0.18	0.18	6.00	13265	6900	45
8	4	250	0.145	0.20	0.20	7.99	9960	5775	45
10	4	250	0.190	0.24	0.24	9.97	7980	6065	45
12	4	250	0.160	0.26	0.26	11.96	6655	4260	45
Hardened tool steel 52 - 56 HRC									
2	4	180	0.040	0.10	0.10	1.99	28795	4605	45
3	4	180	0.055	0.12	0.12	3.00	19100	4200	45
4	4	180	0.075	0.12	0.12	4.00	14325	4300	45
5	4	180	0.085	0.16	0.16	5.00	11460	3895	45
6	4	180	0.115	0.18	0.18	6.00	9550	4395	45
8	4	180	0.130	0.20	0.20	7.99	7170	3730	45
10	4	180	0.170	0.24	0.24	9.97	5745	3905	45
12	4	180	0.145	0.26	0.26	11.96	4790	2780	45
Hardened tool steel 56 - 60 HRC									
2	4	100	0.025	0.10	0.10	1.99	15995	1600	45
3	4	100	0.035	0.12	0.12	3.00	10610	1485	45
4	4	100	0.045	0.12	0.12	4.00	7960	1435	45
5	4	100	0.050	0.16	0.16	5.00	6365	1275	45
6	4	100	0.070	0.18	0.18	6.00	5305	1485	45
8	4	100	0.075	0.20	0.20	7.99	3985	1195	45
10	4	100	0.100	0.24	0.24	9.97	3195	1280	45
12	4	100	0.085	0.26	0.26	11.96	2660	905	45

Corner radius end mills Toro-X

Tolerance r 0/+0.015, 6xd

HM
XT

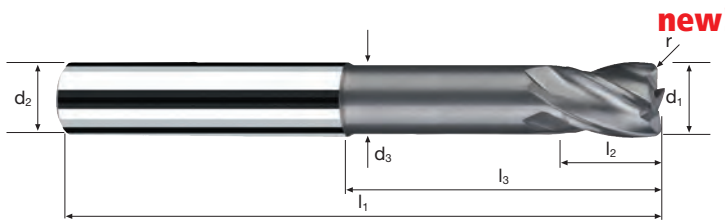
λ 30°
γ -5°

h5

d1

r

R

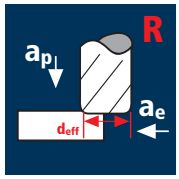


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7104** | ø-Code **.138**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL	X7104
.138	2	6	1.9	66	3	12	0.2	5.9°	4		●
.178	3	6	2.8	66	4	18	0.2	3.7°	4		●
.218	4	6	3.7	69	5	24	0.2	2.1°	4		●
.258	5	6	4.6	75	6	30	0.2	0.9°	4		●
.297	6	6	5.5	80	7	43	0.2	0.0°	4		●
.385	8	8	7.4	90	9	53	0.2	0.0°	4		●
.445	10	10	9.2	105	11	64	0.2	0.0°	4		●
.496	12	12	11.0	120	13	74	0.2	0.0°	4		●
.140	2	6	1.9	66	3	12	0.5	6.0°	4		●
.180	3	6	2.8	66	4	18	0.5	3.7°	4		●
.220	4	6	3.7	69	5	24	0.5	2.1°	4		●
.260	5	6	4.6	75	6	30	0.5	0.9°	4		●
.300	6	6	5.5	80	7	43	0.5	0.0°	4		●
.388	8	8	7.4	90	9	53	0.5	0.0°	4		●
.448	10	10	9.2	105	11	64	0.5	0.0°	4		●
.498	12	12	11.0	120	13	74	0.5	0.0°	4		●

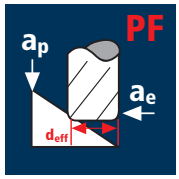
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC									
4	4	200	0.045	0.60	2.40	3.83	16620	2990	r=1.0
5	4	200	0.050	0.60	3.00	4.83	13180	2635	r=1.0
6	4	200	0.055	0.60	3.60	5.83	10920	2400	r=1.0
8	4	200	0.070	0.60	4.80	7.83	8130	2275	r=1.0
10	4	200	0.090	0.60	6.00	9.83	6475	2330	r=1.0
12	4	200	0.105	0.60	7.20	11.83	5380	2260	r=1.0
Hardened tool steel 48 - 52 HRC									
4	4	160	0.040	0.60	2.40	3.83	13300	2130	r=1.0
5	4	160	0.045	0.60	3.00	4.83	10545	1900	r=1.0
6	4	160	0.050	0.60	3.60	5.83	8735	1745	r=1.0
8	4	160	0.065	0.60	4.80	7.83	6505	1690	r=1.0
10	4	160	0.080	0.60	6.00	9.83	5180	1660	r=1.0
12	4	160	0.095	0.60	7.20	11.83	4305	1635	r=1.0
Hardened tool steel 52 - 56 HRC									
4	4	150	0.035	0.60	2.40	3.83	12465	1745	r=1.0
5	4	150	0.040	0.60	3.00	4.83	9885	1580	r=1.0
6	4	150	0.045	0.60	3.60	5.83	8190	1475	r=1.0
8	4	150	0.055	0.60	4.80	7.83	6100	1340	r=1.0
10	4	150	0.075	0.60	6.00	9.83	4855	1455	r=1.0
12	4	150	0.085	0.60	7.20	11.83	4035	1370	r=1.0
Hardened tool steel 56 - 60 HRC									
4	4	70	0.025	0.60	1.60	3.83	5820	580	r=1.0
5	4	70	0.030	0.60	2.00	4.83	4615	555	r=1.0
6	4	70	0.030	0.60	2.40	5.83	3820	460	r=1.0
8	4	70	0.040	0.60	3.20	7.83	2845	455	r=1.0
10	4	70	0.050	0.60	4.00	9.83	2265	455	r=1.0
12	4	70	0.060	0.60	4.80	11.83	1885	450	r=1.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
4	4	300	0.065	0.18	0.18	3.97	24055	6255	45
5	4	300	0.075	0.24	0.24	4.99	19135	5740	45
6	4	300	0.090	0.27	0.27	6.00	15915	5730	45
8	4	300	0.125	0.30	0.30	8.00	11935	5970	45
10	4	300	0.145	0.36	0.36	9.99	9560	5545	45
12	4	300	0.170	0.39	0.39	11.98	7970	5420	45
Hardened tool steel 48 - 52 HRC									
4	4	220	0.060	0.18	0.18	3.97	17640	4235	45
5	4	220	0.070	0.24	0.24	4.99	14035	3930	45
6	4	220	0.085	0.27	0.27	6.00	11670	3970	45
8	4	220	0.120	0.30	0.30	8.00	8755	4200	45
10	4	220	0.140	0.36	0.36	9.99	7010	3925	45
12	4	220	0.160	0.39	0.39	11.98	5845	3740	45
Hardened tool steel 52 - 56 HRC									
4	4	160	0.055	0.18	0.18	3.97	12830	2825	45
5	4	160	0.065	0.24	0.24	4.99	10205	2655	45
6	4	160	0.075	0.27	0.27	6.00	8490	2545	45
8	4	160	0.110	0.30	0.30	8.00	6365	2800	45
10	4	160	0.125	0.36	0.36	9.99	5100	2550	45
12	4	160	0.145	0.39	0.39	11.98	4250	2465	45
Hardened tool steel 56 - 60 HRC									
4	4	80	0.035	0.18	0.18	3.97	6415	900	45
5	4	80	0.040	0.24	0.24	4.99	5105	815	45
6	4	80	0.045	0.27	0.27	6.00	4245	765	45
8	4	80	0.065	0.30	0.30	8.00	3185	830	45
10	4	80	0.075	0.36	0.36	9.99	2550	765	45
12	4	80	0.085	0.39	0.39	11.98	2125	725	45

Corner radius end mills Toro-X

Tolerance r 0/+0.015, 6xd

HM
XT

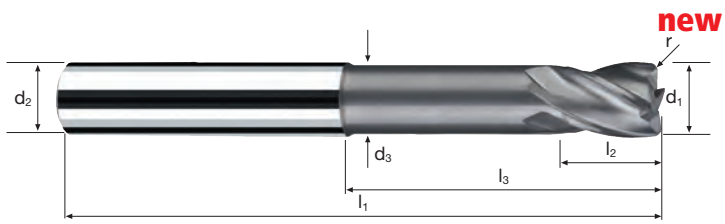
λ 30°
γ -5°

h5

d1

r

R

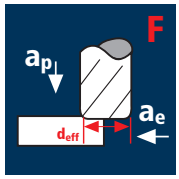


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7104** | ø-Code **.222**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL **X7104**
.222	4	6	3.7	69	5	24	1.0	2.1°	4	●
.262	5	6	4.6	75	6	30	1.0	1.0°	4	●
.302	6	6	5.5	80	7	43	1.0	0.0°	4	●
.391	8	8	7.4	90	9	53	1.0	0.0°	4	●
.450	10	10	9.2	105	11	64	1.0	0.0°	4	●
.501	12	12	11.0	120	13	74	1.0	0.0°	4	●
.395	8	8	7.4	90	9	53	2.0	0.0°	4	●
.455	10	10	9.2	105	11	64	2.0	0.0°	4	●
.505	12	12	11.0	120	13	74	2.0	0.0°	4	●

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	150	0.020	0.05	0.44	1.44	33160	2655	r=0.5
3	4	150	0.025	0.05	0.66	2.44	19570	1955	r=0.5
4	4	150	0.030	0.06	0.88	3.47	13760	1650	r=0.5
5	4	150	0.030	0.06	1.10	4.47	10680	1280	r=0.5
6	6	150	0.035	0.08	1.32	5.54	8620	1810	r=0.5
8	6	150	0.040	0.08	1.76	7.54	6335	1520	r=0.5
10	6	150	0.045	0.10	2.20	9.60	4975	1345	r=0.5
12	6	150	0.050	0.10	2.64	11.60	4115	1235	r=0.5

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	120	0.020	0.05	0.44	1.44	26525	2120	r=0.5
3	4	120	0.025	0.05	0.66	2.44	15655	1565	r=0.5
4	4	120	0.030	0.06	0.88	3.47	11010	1320	r=0.5
5	4	120	0.030	0.06	1.10	4.47	8545	1025	r=0.5
6	6	120	0.035	0.08	1.32	5.54	6895	1450	r=0.5
8	6	120	0.040	0.08	1.76	7.54	5065	1215	r=0.5
10	6	120	0.045	0.10	2.20	9.60	3980	1075	r=0.5
12	6	120	0.050	0.10	2.64	11.60	3295	990	r=0.5

Hardened tool steel 56 - 60 HRC

X

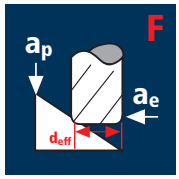
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	80	0.015	0.05	0.44	1.44	17685	1060	r=0.5
3	4	80	0.020	0.05	0.66	2.44	10435	835	r=0.5
4	4	80	0.025	0.06	0.88	3.47	7340	735	r=0.5
5	4	80	0.025	0.06	1.10	4.47	5695	570	r=0.5
6	6	80	0.030	0.08	1.32	5.54	4595	825	r=0.5
8	6	80	0.030	0.08	1.76	7.54	3375	610	r=0.5
10	6	80	0.035	0.10	2.20	9.60	2655	560	r=0.5
12	6	80	0.040	0.10	2.64	11.60	2195	525	r=0.5

Hardened tool steel > 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
2	4	40	0.015	0.05	0.44	1.44	8840	530	r=0.5
3	4	40	0.020	0.05	0.66	2.44	5220	420	r=0.5
4	4	40	0.025	0.06	0.88	3.47	3670	365	r=0.5
5	4	40	0.025	0.06	1.10	4.47	2850	285	r=0.5
6	6	40	0.030	0.08	1.32	5.54	2300	415	r=0.5
8	6	40	0.030	0.08	1.76	7.54	1690	305	r=0.5
10	6	40	0.035	0.10	2.20	9.60	1325	280	r=0.5
12	6	40	0.040	0.10	2.64	11.60	1100	265	r=0.5

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	300	0.020	0.05	0.05	1.94	49225	3940	45
3	4	300	0.025	0.05	0.05	2.94	32480	3250	45
4	4	300	0.030	0.06	0.06	3.96	24115	2895	45
5	4	300	0.035	0.06	0.06	4.96	19255	2695	45
6	6	300	0.040	0.08	0.08	5.98	15970	3835	45
8	6	300	0.045	0.08	0.08	7.98	11965	3230	45
10	6	300	0.050	0.10	0.10	9.99	9560	2870	45
12	6	300	0.055	0.10	0.10	11.99	7965	2630	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	250	0.020	0.05	0.05	1.94	41020	3280	45
3	4	250	0.025	0.05	0.05	2.94	27070	2705	45
4	4	250	0.030	0.06	0.06	3.96	20095	2410	45
5	4	250	0.035	0.06	0.06	4.96	16045	2245	45
6	6	250	0.040	0.08	0.08	5.98	13310	3195	45
8	6	250	0.045	0.08	0.08	7.98	9970	2690	45
10	6	250	0.050	0.10	0.10	9.99	7965	2390	45
12	6	250	0.050	0.10	0.10	11.99	6635	1990	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	180	0.015	0.05	0.05	1.94	29535	1770	45
3	4	180	0.020	0.05	0.05	2.94	19490	1560	45
4	4	180	0.025	0.06	0.06	3.96	14470	1445	45
5	4	180	0.030	0.06	0.06	4.96	11550	1385	45
6	6	180	0.035	0.08	0.08	5.98	9580	2010	45
8	6	180	0.040	0.08	0.08	7.98	7180	1725	45
10	6	180	0.045	0.10	0.10	9.99	5735	1550	45
12	6	180	0.045	0.10	0.10	11.99	4780	1290	45

Hardened tool steel > 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
2	4	100	0.010	0.05	0.05	1.94	16410	655	45
3	4	100	0.015	0.05	0.05	2.94	10825	650	45
4	4	100	0.015	0.06	0.06	3.96	8040	480	45
5	4	100	0.020	0.06	0.06	4.96	6420	515	45
6	6	100	0.020	0.08	0.08	5.98	5325	640	45
8	6	100	0.025	0.08	0.08	7.98	3990	600	45
10	6	100	0.025	0.10	0.10	9.99	3185	480	45
12	6	100	0.030	0.10	0.10	11.99	2655	480	45

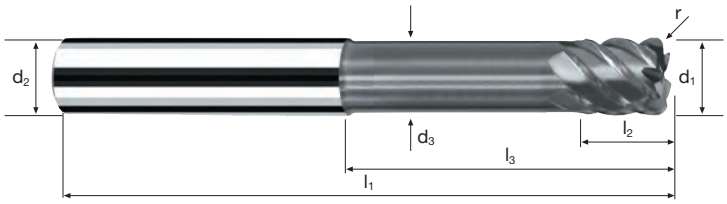
Corner radius end mills XSpeed

Tolerance r 0/+0.015, 6xd

HSS | Favora® | Base-X | X-Generation X

II

HM XT	λ 55° γ-10°

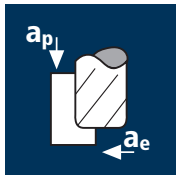


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS

Example: **Order-N°.** Coating **X** Article-N°. **7204** ø-Code **.140**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	X-AL	X7204
.140	2	6	1.9	66	3	12	0.5	6.0°	4		●
.180	3	6	2.8	66	4	18	0.5	3.7°	4		●
.220	4	6	3.7	69	5	24	0.5	2.1°	4		●
.260	5	6	4.6	75	6	30	0.5	0.9°	4		●
.295	6	6	5.5	80	7	43	0.5	0.0°	4		●
.300	6	6	5.5	80	7	43	0.5	0.0°	6		●
.386	8	8	7.4	90	9	53	0.5	0.0°	4		●
.391	8	8	7.4	90	9	53	0.5	0.0°	6		●
.440	10	10	9.2	105	11	64	0.5	0.0°	4		●
.450	10	10	9.2	105	11	64	0.5	0.0°	6		●
.491	12	12	11.0	120	13	74	0.5	0.0°	4		●
.501	12	12	11.0	120	13	74	0.5	0.0°	6		●
.218	4	6	3.7	69	5	24	1.0	2.1°	4		●
.258	5	6	4.6	75	6	30	1.0	1.0°	4		●
.293	6	6	5.5	80	7	43	1.0	0.0°	4		●
.297	6	6	5.5	80	7	43	1.0	0.0°	6		●
.384	8	8	7.4	90	9	53	1.0	0.0°	4		●
.388	8	8	7.4	90	9	53	1.0	0.0°	6		●
.435	10	10	9.2	105	11	64	1.0	0.0°	4		●
.445	10	10	9.2	105	11	64	1.0	0.0°	6		●
.486	12	12	11.0	120	13	74	1.0	0.0°	4		●
.496	12	12	11.0	120	13	74	1.0	0.0°	6		●

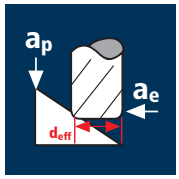
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm²								
6	4	150	0.050	6	3.6	7960	1590	34.5
8	4	150	0.065	8	4.8	5970	1550	59.5
10	4	150	0.085	10	6.0	4775	1625	97.5
12	4	150	0.100	12	7.2	3980	1590	137.5
16	4	150	0.135	16	6.4	2985	1610	165.0
Hardened tool steel 42 - 48 HRC								
6	4	120	0.035	6	3.6	6365	890	19.0
8	4	120	0.045	8	4.8	4775	860	33.0
10	4	120	0.055	10	6.0	3820	840	50.5
12	4	120	0.065	12	7.2	3185	830	71.5
16	4	120	0.090	16	6.4	2385	860	88.0
Hardened tool steel 48 - 52 HRC								
6	4	80	0.025	6	3.6	4245	425	9.0
8	4	80	0.035	8	4.8	3185	445	17.0
10	4	80	0.045	10	6.0	2545	460	27.5
12	4	80	0.055	12	7.2	2120	465	40.0
16	4	80	0.075	16	6.4	1590	475	48.5
Hardened tool steel 52 - 56 HRC								
6	4	60	0.020	6	3.6	3185	255	5.5
8	4	60	0.025	8	4.8	2385	239	9.0
10	4	60	0.035	10	6.0	1910	267	16.0
12	4	60	0.040	12	7.2	1590	254	22.0
16	4	60	0.055	16	6.4	1195	263	27.0

Application



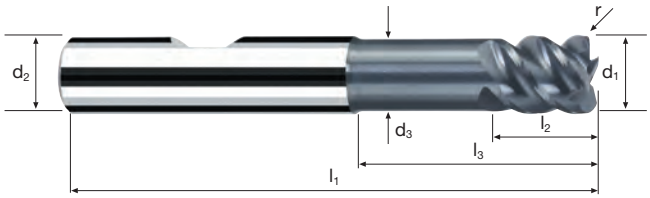
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm²									
6	4	280	0.060	0.90	0.90	5.55	16060	3855	45
8	4	280	0.075	1.20	1.20	7.10	12555	3765	45
10	4	280	0.095	1.50	1.50	8.52	10460	3975	45
12	4	280	0.120	1.80	1.80	9.72	9170	4400	45
16	4	280	0.145	2.00	2.00	12.59	7080	4105	45
Hardened tool steel 42 - 48 HRC									
6	4	200	0.050	0.90	0.90	5.55	11470	2295	45
8	4	200	0.065	1.20	1.20	7.10	8965	2330	45
10	4	200	0.080	1.50	1.50	8.52	7470	2390	45
12	4	200	0.100	1.80	1.80	9.72	6550	2620	45
16	4	200	0.125	2.00	2.00	12.59	5055	2530	45
Hardened tool steel 48 - 52 HRC									
6	4	140	0.035	0.90	0.90	5.55	8030	1125	45
8	4	140	0.045	1.20	1.20	7.10	6275	1130	45
10	4	140	0.055	1.50	1.50	8.52	5230	1150	45
12	4	140	0.070	1.80	1.80	9.72	4585	1285	45
16	4	140	0.085	2.00	2.00	12.59	3540	1205	45
Hardened tool steel 52 - 56 HRC									
6	4	100	0.030	0.90	0.90	5.55	5735	690	45
8	4	100	0.040	1.20	1.20	7.10	4485	720	45
10	4	100	0.050	1.50	1.50	8.52	3735	745	45
12	4	100	0.060	1.80	1.80	9.72	3275	785	45
16	4	100	0.075	2.00	2.00	12.59	2530	760	45

Corner radius end mills HX-R

Tolerance r 0/+0.03, 3xd

HM MG10 | **λ 55° γ-10°**

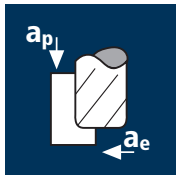


		Rm 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60		**Ti** Titanium	**GG(G)**

Example: **Order-N°.** Coating **P** | Article-N°. **5353** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	POLYCHROM P5353 / P5253	DURO-S D5353 / D5253
.300	6	6	5.5	57	7	20	1.0	4	●	●
.391	8	8	7.4	63	9	26	1.0	4	●	●
.450	10	10	9.2	72	11	31	1.0	4	●	●
.501	12	12	11.0	83	13	37	1.0	4	●	●
.610	16	16	15.0	92	17	43	1.0	4	●	●

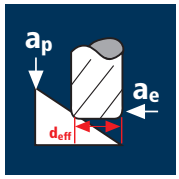
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm² D D								
8	4	150	0.065	8	4.8	5970	1550	59.5
10	4	150	0.085	10	6.0	4775	1625	97.5
12	4	150	0.100	12	7.2	3980	1590	137.5
16	4	150	0.135	16	6.4	2985	1610	165.0
Hardened tool steel 42 - 48 HRC D								
8	4	120	0.045	8	4.8	4775	860	33.0
10	4	120	0.055	10	6.0	3820	840	50.5
12	4	120	0.065	12	7.2	3185	830	71.5
16	4	120	0.090	16	6.4	2385	860	88.0
Hardened tool steel 48 - 52 HRC D								
8	4	80	0.035	8	4.8	3185	445	17.0
10	4	80	0.045	10	6.0	2545	460	27.5
12	4	80	0.055	12	7.2	2120	465	40.0
16	4	80	0.075	16	6.4	1590	475	48.5
Hardened tool steel 52 - 56 HRC D								
8	4	60	0.025	8	4.8	2385	239	9.0
10	4	60	0.035	10	6.0	1910	267	16.0
12	4	60	0.040	12	7.2	1590	254	22.0
16	4	60	0.055	16	6.4	1195	263	27.0

Application



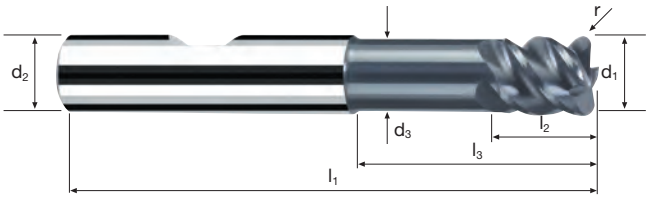
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 1100 - 1300 N/mm² D D									
8	4	280	0.075	1.50	1.50	7.12	12520	3755	45
10	4	280	0.085	1.80	1.80	8.65	10305	3505	45
12	4	280	0.110	2.00	2.00	10.29	8660	3810	45
16	4	280	0.150	2.40	2.40	13.42	6640	3985	45
Hardened tool steel 42 - 48 HRC D									
8	4	200	0.065	1.50	1.50	7.12	8940	2325	45
10	4	200	0.070	1.80	1.80	8.65	7360	2060	45
12	4	200	0.095	2.00	2.00	10.29	6185	2350	45
16	4	200	0.130	2.40	2.40	13.42	4745	2465	45
Hardened tool steel 48 - 52 HRC D									
8	4	140	0.045	1.50	1.50	7.12	6260	1125	45
10	4	140	0.050	1.80	1.80	8.65	5150	1030	45
12	4	140	0.065	2.00	2.00	10.29	4330	1125	45
16	4	140	0.090	2.40	2.40	13.42	3320	1195	45
Hardened tool steel 52 - 56 HRC D									
8	4	100	0.040	1.50	1.50	7.12	4470	715	45
10	4	100	0.045	1.80	1.80	8.65	3680	660	45
12	4	100	0.055	2.00	2.00	10.29	3095	680	45
16	4	100	0.075	2.40	2.40	13.42	2370	710	45

Corner radius end mills HX-R

Tolerance r 0/+0.03, 3xd

HM MG10	λ 55° γ-10°

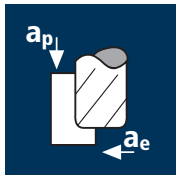


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **D** Article-N°. **5354** ø-Code **.391**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z		DURO-S D5354	DURO-S D5254
.391	8	8	7.4	63	9	26	1.5	4			●
.450	10	10	9.2	72	11	31	1.5	4			●
.501	12	12	11.0	83	13	37	1.5	4			●
.610	16	16	15.0	92	17	43	1.5	4			●

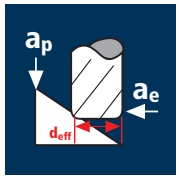
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm²								
6	4	150	0.050	6	3.6	7960	1590	34.5
8	4	150	0.065	8	4.8	5970	1550	59.5
10	4	150	0.085	10	6.0	4775	1625	97.5
12	4	150	0.100	12	7.2	3980	1590	137.5
16	4	150	0.135	16	6.4	2985	1610	165.0
Hardened tool steel 42 - 48 HRC								
6	4	120	0.035	6	3.6	6365	890	19.0
8	4	120	0.045	8	4.8	4775	860	33.0
10	4	120	0.055	10	6.0	3820	840	50.5
12	4	120	0.065	12	7.2	3185	830	71.5
16	4	120	0.090	16	6.4	2385	860	88.0
Hardened tool steel 48 - 52 HRC								
6	4	80	0.025	6	3.6	4245	425	9.0
8	4	80	0.035	8	4.8	3185	445	17.0
10	4	80	0.045	10	6.0	2545	460	27.5
12	4	80	0.055	12	7.2	2120	465	40.0
16	4	80	0.075	16	6.4	1590	475	48.5
Hardened tool steel 52 - 56 HRC								
6	4	60	0.020	6	3.6	3185	255	5.5
8	4	60	0.025	8	4.8	2385	239	9.0
10	4	60	0.035	10	6.0	1910	267	16.0
12	4	60	0.040	12	7.2	1590	254	22.0
16	4	60	0.055	16	6.4	1195	263	27.0

Application



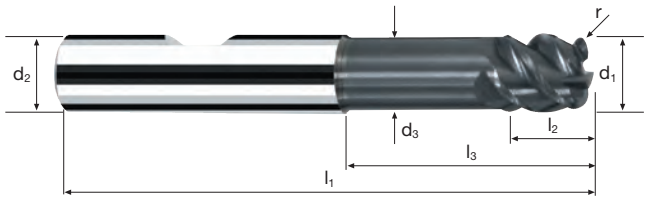
Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 1100 - 1300 N/mm²									
6	4	280	0.055	1.20	1.20	5.50	16205	3565	45
8	4	280	0.065	1.80	1.80	7.10	12555	3265	45
10	4	280	0.085	2.00	2.00	9.17	9720	3305	45
12	4	280	0.100	2.40	2.40	11.01	8095	3240	45
16	4	280	0.125	2.80	2.80	14.84	6005	3005	45
Hardened tool steel 42 - 48 HRC									
6	4	200	0.045	1.20	1.20	5.50	11575	2085	45
8	4	200	0.055	1.50	1.50	7.45	8545	1880	45
10	4	200	0.070	1.80	1.80	9.38	6785	1900	45
12	4	200	0.085	2.00	2.00	11.41	5580	1895	45
16	4	200	0.105	2.40	2.40	15.25	4175	1755	45
Hardened tool steel 48 - 52 HRC									
6	4	140	0.035	1.20	1.20	5.50	8105	1135	45
8	4	140	0.040	1.50	1.50	7.45	5980	955	45
10	4	140	0.050	1.80	1.80	9.38	4750	950	45
12	4	140	0.060	2.00	2.00	11.41	3905	935	45
16	4	140	0.075	2.40	2.40	15.25	2920	875	45
Hardened tool steel 52 - 56 HRC									
6	4	100	0.030	1.20	1.20	5.50	5790	695	45
8	4	100	0.035	1.50	1.50	7.45	4275	600	45
10	4	100	0.045	1.80	1.80	9.38	3395	610	45
12	4	100	0.050	2.00	2.00	11.41	2790	560	45
16	4	100	0.065	2.40	2.40	15.25	2085	540	45

Corner radius end mills HX-R

Tolerance r 0/+0.03, 3xd

HM MG10	λ 55° γ-10°

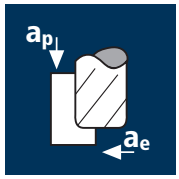


		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Example: **Order-N°.** Coating **D** Article-N°. **5356** ø-Code **.300**

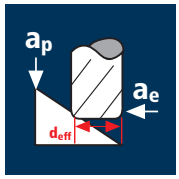
									DURO-S	
									D5356	
									D5256	
ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	z		
.300	6	6	5.5	57	7	20	1.5	4	●	
.391	8	8	7.4	63	9	26	2.0	4	●	
.450	10	10	9.2	72	11	31	2.5	4	●	
.501	12	12	11.0	83	13	37	3.0	4	●	
.605	16	16	15.0	92	17	43	2.5	4	●	
.610	16	16	15.0	92	17	43	3.5	4	●	
.615	16	16	15.0	92	17	43	4.0	4	●	

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	6	4	90	0.040	6	2.4	4775	765	11.0
	8	4	90	0.050	8	3.2	3580	715	18.5
	10	4	90	0.065	10	4.0	2865	745	30.0
	12	4	90	0.075	12	4.8	2385	715	41.0
	16	4	90	0.100	16	4.0	1790	715	46.0
Hardened tool steel 48 - 52 HRC	6	4	70	0.035	6	2.4	3715	520	7.5
	8	4	70	0.045	8	3.2	2785	500	13.0
	10	4	70	0.055	10	4.0	2230	490	19.5
	12	4	70	0.065	12	4.8	1855	480	27.5
	16	4	70	0.090	16	4.0	1395	500	32.0
Hardened tool steel 52 - 56 HRC	6	4	35	0.025	6	2.4	1855	185	2.5
	8	4	35	0.035	8	3.2	1395	195	5.0
	10	4	35	0.045	10	4.0	1115	200	8.0
	12	4	35	0.055	12	4.8	930	205	12.0
	16	4	35	0.075	16	4.0	695	210	13.5
Hardened tool steel 56 - 60 HRC	6	4	25	0.015	6	2.4	1325	80	1.0
	8	4	25	0.025	8	3.2	995	100	2.5
	10	4	25	0.030	10	4.0	795	95	4.0
	12	4	25	0.035	12	4.8	665	93	5.5
	16	4	25	0.045	16	4.0	495	89	5.5

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Hardened tool steel 42 - 48 HRC	6	4	250	0.050	0.30	0.30	6.00	13265	2655	45
	8	4	250	0.060	0.35	0.35	7.99	9960	2390	45
	10	4	250	0.070	0.40	0.40	9.98	7975	2235	45
	12	4	250	0.080	0.45	0.45	11.96	6655	2130	45
	16	4	250	0.100	0.50	0.50	15.93	4995	2000	45
Hardened tool steel 48 - 52 HRC	6	4	180	0.045	0.30	0.30	6.00	9550	1720	45
	8	4	180	0.050	0.35	0.35	7.99	7170	1435	45
	10	4	180	0.060	0.40	0.40	9.98	5740	1380	45
	12	4	180	0.070	0.45	0.45	11.96	4790	1340	45
	16	4	180	0.085	0.50	0.50	15.93	3595	1220	45
Hardened tool steel 52 - 56 HRC	6	4	140	0.030	0.30	0.30	6.00	7425	890	45
	8	4	140	0.035	0.35	0.35	7.99	5580	780	45
	10	4	140	0.040	0.40	0.40	9.98	4465	715	45
	12	4	140	0.050	0.45	0.45	11.96	3725	745	45
	16	4	140	0.060	0.50	0.50	15.93	2800	670	45
Hardened tool steel 56 - 60 HRC	6	4	100	0.025	0.30	0.30	6.00	5305	530	45
	8	4	100	0.030	0.35	0.35	7.99	3985	480	45
	10	4	100	0.035	0.40	0.40	9.98	3190	445	45
	12	4	100	0.040	0.45	0.45	11.96	2660	425	45
	16	4	100	0.050	0.50	0.50	15.93	2000	400	45

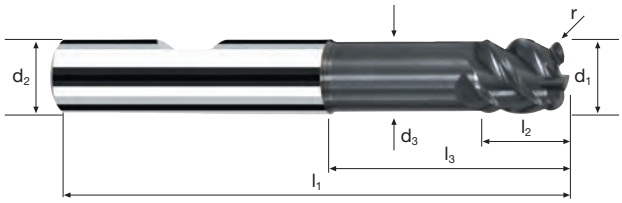
Corner radius end mills HX-RH

Tolerance r 0/+0.03, 3xd

HSS | Favora® | Base-X | X-Generation X

II

HM XT	λ 55° γ-10°

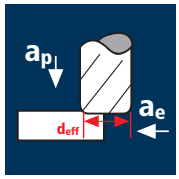


			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS

Example: **Order-N°.** Coating **D** Article-N°. **5367** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z		DURO-S D5367	DURO-S D5267
.300	6	6	5.5	57	7	20	1.0	4			●
.391	8	8	7.4	63	9	26	1.0	4			●
.450	10	10	9.2	72	11	31	1.0	4			●
.501	12	12	11.0	83	13	37	1.0	4			●
.610	16	16	15.0	92	17	43	1.0	4			●

Application



Material

Steel
< 850 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
3	4	200	0.040	0.15	0.90	2.71	23490	3760	r=0.5
4	4	200	0.050	0.18	1.20	3.77	16885	3375	r=0.5
5	4	200	0.055	0.20	1.50	4.80	13265	2920	r=0.5
6	6	200	0.060	0.22	1.80	5.83	10920	3930	r=0.5
8	6	200	0.075	0.25	2.40	7.87	8090	3640	r=0.5
10	6	200	0.090	0.28	3.00	9.90	6430	3470	r=0.5
12	6	200	0.110	0.30	3.60	11.92	5340	3525	r=0.5
16	6	200	0.120	0.65	4.80	15.47	4115	2965	r=1.5

Steel
850 - 1100 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
3	4	180	0.040	0.15	0.90	2.71	21145	3385	r=0.5
4	4	180	0.050	0.18	1.20	3.77	15200	3040	r=0.5
5	4	180	0.050	0.20	1.50	4.80	11935	2385	r=0.5
6	6	180	0.055	0.22	1.80	5.83	9830	3245	r=0.5
8	6	180	0.070	0.25	2.40	7.87	7280	3060	r=0.5
10	6	180	0.085	0.28	3.00	9.90	5790	2955	r=0.5
12	6	180	0.105	0.30	3.60	11.92	4805	3025	r=0.5
16	6	180	0.115	0.65	4.80	15.47	3705	2555	r=1.5

Steel
1100 - 1300 N/mm²

P

P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
3	4	150	0.035	0.15	0.90	2.71	17620	2465	r=0.5
4	4	150	0.045	0.18	1.20	3.77	12665	2280	r=0.5
5	4	150	0.050	0.20	1.50	4.80	9945	1990	r=0.5
6	6	150	0.055	0.22	1.80	5.83	8190	2705	r=0.5
8	6	150	0.065	0.25	2.40	7.87	6065	2365	r=0.5
10	6	150	0.080	0.28	3.00	9.90	4825	2315	r=0.5
12	6	150	0.095	0.30	3.60	11.92	4005	2285	r=0.5
16	6	150	0.105	0.65	4.80	15.47	3085	1945	r=1.5

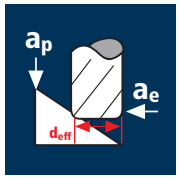
Steel
1300 - 1500 N/mm²

P

P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
3	4	120	0.030	0.15	0.90	2.71	14095	1690	r=0.5
4	4	120	0.040	0.18	1.20	3.77	10130	1620	r=0.5
5	4	120	0.045	0.20	1.50	4.80	7960	1435	r=0.5
6	6	120	0.050	0.22	1.80	5.83	6550	1965	r=0.5
8	6	120	0.060	0.25	2.40	7.87	4855	1750	r=0.5
10	6	120	0.070	0.28	3.00	9.90	3860	1620	r=0.5
12	6	120	0.090	0.30	3.60	11.92	3205	1730	r=0.5
16	6	120	0.095	0.65	4.80	15.47	2470	1410	r=1.5

Application



Material

Steel
< 850 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	420	0.065	0.12	0.12	3.00	44565	11585	45
4	4	420	0.085	0.12	0.12	4.00	33425	11365	45
5	4	420	0.100	0.16	0.16	5.00	26740	10695	45
6	6	420	0.120	0.18	0.18	6.00	22280	16040	45
8	6	420	0.150	0.20	0.20	7.99	16735	15060	45
10	6	420	0.185	0.24	0.24	9.97	13410	14885	45
12	6	420	0.190	0.28	0.28	11.95	11190	12755	45
16	6	420	0.230	0.30	0.30	15.97	8370	11550	45

Steel
850 - 1100 N/mm²

P

P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	360	0.060	0.12	0.12	3.00	38200	9170	45
4	4	360	0.080	0.12	0.12	4.00	28650	9170	45
5	4	360	0.095	0.16	0.16	5.00	22920	8710	45
6	6	360	0.115	0.18	0.18	6.00	19100	13180	45
8	6	360	0.145	0.20	0.20	7.99	14340	12475	45
10	6	360	0.175	0.24	0.24	9.97	11495	12070	45
12	6	360	0.180	0.28	0.28	11.95	9590	10355	45
16	6	360	0.220	0.30	0.30	15.97	7175	9470	45

Steel
1100 - 1300 N/mm²

P

P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	320	0.055	0.12	0.12	3.00	33955	7470	45
4	4	320	0.075	0.12	0.12	4.00	25465	7640	45
5	4	320	0.090	0.16	0.16	5.00	20370	7335	45
6	6	320	0.105	0.18	0.18	6.00	16975	10695	45
8	6	320	0.130	0.20	0.20	7.99	12750	9945	45
10	6	320	0.165	0.24	0.24	9.97	10215	10115	45
12	6	320	0.165	0.28	0.28	11.95	8525	8440	45
16	6	320	0.200	0.30	0.30	15.97	6380	7655	45

Steel
1300 - 1500 N/mm²

P

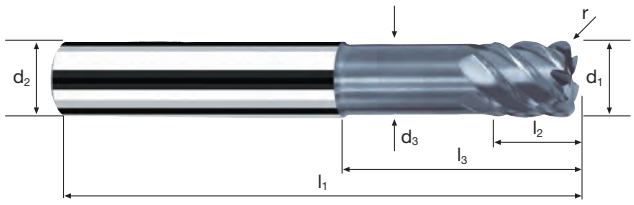
P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
3	4	280	0.050	0.12	0.12	3.00	29710	5940	45
4	4	280	0.070	0.12	0.12	4.00	22280	6240	45
5	4	280	0.080	0.16	0.16	5.00	17825	5705	45
6	6	280	0.095	0.18	0.18	6.00	14855	8465	45
8	6	280	0.120	0.20	0.20	7.99	11155	8030	45
10	6	280	0.150	0.24	0.24	9.97	8940	8045	45
12	6	280	0.150	0.28	0.28	11.95	7460	6715	45
16	6	280	0.185	0.30	0.30	15.97	5580	6195	45

Corner radius end mills Multispeed

Tolerance r 0/+0.03, 3xd

HM MG10 | λ 45° γ 5°



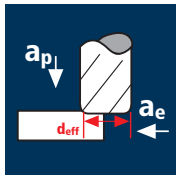
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

new!

Example: **Order-N°.** Coating **P** Article-N°. **5250** ø-Code **.180**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P5250
.180	3	6	2.8	57	4	14	0.5	4.4°	4	●
.220	4	6	3.7	57	5	16	0.5	2.9°	4	●
.260	5	6	4.6	57	6	18	0.5	1.5°	4	●
.297	6	6	5.5	57	7	20	0.5	0.0°	6	●
.388	8	8	7.4	63	9	26	0.5	0.0°	6	●
.445	10	10	9.2	72	11	31	0.5	0.0°	6	●
.496	12	12	11.0	83	13	37	0.5	0.0°	6	●
.300	6	6	5.5	57	7	20	0.8	0.0°	6	●
.391	8	8	7.4	63	9	26	1.0	0.0°	6	●
.450	10	10	9.2	72	11	31	1.0	0.0°	6	●
.501	12	12	11.0	83	13	37	1.5	0.0°	6	●
.610	16	16	15.0	92	17	43	1.5	0.0°	6	●

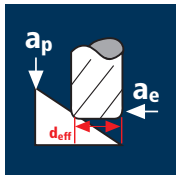
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Steel < 850 N/mm²									
6	4	200	0.055	0.35	1.20	5.52	11535	2540	r=1.0
8	4	200	0.065	0.45	1.60	7.67	8300	2160	r=1.0
10	4	200	0.075	0.85	2.00	9.70	6565	1970	r=1.5
12	4	200	0.085	1.00	2.40	11.83	5380	1830	r=1.5
16	4	200	0.105	1.25	3.20	15.71	4050	1700	r=2.0
Steel 850 - 1100 N/mm²									
6	4	180	0.050	0.35	1.20	5.52	10380	2075	r=1.0
8	4	180	0.060	0.45	1.60	7.67	7470	1795	r=1.0
10	4	180	0.070	0.85	2.00	9.70	5905	1655	r=1.5
12	4	180	0.075	1.00	2.40	11.83	4845	1455	r=1.5
16	4	180	0.095	1.25	3.20	15.71	3645	1385	r=2.0
Stainless steel [Cr-Ni/1.4301]									
6	4	80	0.040	0.35	1.20	5.52	4615	740	r=1.0
8	4	80	0.045	0.45	1.60	7.67	3320	600	r=1.0
10	4	80	0.055	0.85	2.00	9.70	2625	580	r=1.5
12	4	80	0.060	1.00	2.40	11.83	2155	515	r=1.5
16	4	80	0.075	1.25	3.20	15.71	1620	485	r=2.0
Titanium alloys >300 HB [Ti6Al4V]									
6	4	70	0.035	0.35	1.20	5.52	4035	565	r=1.0
8	4	70	0.040	0.45	1.60	7.67	2905	465	r=1.0
10	4	70	0.045	0.85	2.00	9.70	2295	415	r=1.5
12	4	70	0.050	1.00	2.40	11.83	1885	375	r=1.5
16	4	70	0.065	1.25	3.20	15.71	1420	370	r=2.0

Application



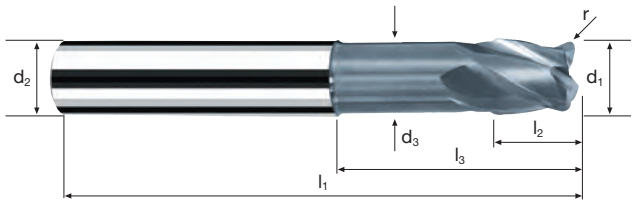
Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel < 850 N/mm²									
6	4	380	0.130	0.18	0.18	5.97	20260	10535	45
8	4	380	0.175	0.20	0.20	7.98	15160	10610	45
10	4	380	0.200	0.24	0.24	9.93	12180	9745	45
12	4	380	0.240	0.28	0.28	11.96	10115	9710	45
16	4	380	0.295	0.30	0.30	15.89	7610	8980	45
Steel 850 - 1100 N/mm²									
6	4	300	0.125	0.18	0.18	5.97	15995	8000	45
8	4	300	0.165	0.20	0.20	7.98	11965	7895	45
10	4	300	0.190	0.24	0.24	9.93	9615	7305	45
12	4	300	0.230	0.28	0.28	11.96	7985	7345	45
16	4	300	0.280	0.30	0.30	15.89	6010	6730	45
Stainless steel [Cr-Ni/1.4301]									
6	4	140	0.090	0.18	0.18	5.97	7465	2685	45
8	4	140	0.125	0.20	0.20	7.98	5585	2795	45
10	4	140	0.140	0.24	0.24	9.93	4490	2515	45
12	4	140	0.170	0.28	0.28	11.96	3725	2535	45
16	4	140	0.205	0.30	0.30	15.89	2805	2300	45
Titanium alloys >300 HB [Ti6Al4V]									
6	4	120	0.065	0.18	0.18	5.97	6400	1665	45
8	4	120	0.090	0.20	0.20	7.98	4785	1725	45
10	4	120	0.100	0.24	0.24	9.93	3845	1540	45
12	4	120	0.120	0.28	0.28	11.96	3195	1535	45
16	4	120	0.150	0.30	0.30	15.89	2405	1445	45

Corner radius end mills Steelspeed

Tolerance r 0/+0.03, 3xd

HM MG10 | **λ 30° γ 12°**



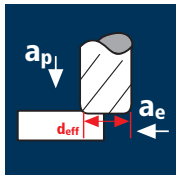
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G)**

new!

Example: **Order-N°.** Coating **P** | Article-N°. **5245** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	POLYCHROM P5345	POLYCHROM P5245
.300	6	6	5.5	57	7	20	1.0	4		●
.391	8	8	7.4	63	9	26	1.0	4		●
.450	10	10	9.2	72	11	31	1.5	4		●
.501	12	12	11.0	83	13	37	1.5	4		●
.610	16	16	15.0	92	17	43	2.0	4		●

Application



Material

Steel
< 850 N/mm²

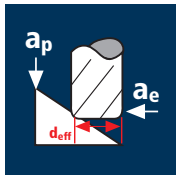
Steel
850 - 1100 N/mm²

Stainless steel
[Cr-Ni/1.4301]

Titanium alloys
>300 HB
[Ti6Al4V]

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
6	4	200	0.050	0.55	1.20	5.32	11965	2395	r=1.5
8	4	200	0.060	0.65	1.60	6.95	9160	2200	r=2.0
10	4	200	0.070	1.05	2.00	9.07	7020	1965	r=2.5
12	4	200	0.080	1.20	2.40	10.80	5895	1885	r=3.0
16	4	200	0.100	1.45	3.20	14.16	4495	1800	r=4.0
6	4	180	0.045	0.55	1.20	5.32	10770	1940	r=1.5
8	4	180	0.055	0.65	1.60	6.95	8245	1815	r=2.0
10	4	180	0.065	1.05	2.00	9.07	6315	1640	r=2.5
12	4	180	0.070	1.20	2.40	10.80	5305	1485	r=3.0
16	4	180	0.090	1.45	3.20	14.16	4045	1455	r=4.0
6	4	80	0.035	0.55	1.20	5.32	4785	670	r=1.5
8	4	80	0.040	0.65	1.60	6.95	3665	585	r=2.0
10	4	80	0.050	1.05	2.00	9.07	2810	560	r=2.5
12	4	80	0.055	1.20	2.40	10.80	2360	520	r=3.0
16	4	80	0.070	1.45	3.20	14.16	1800	505	r=4.0
6	4	70	0.030	0.55	1.20	5.32	4190	505	r=1.5
8	4	70	0.035	0.65	1.60	6.95	3205	450	r=2.0
10	4	70	0.040	1.05	2.00	9.07	2455	395	r=2.5
12	4	70	0.050	1.20	2.40	10.80	2065	415	r=3.0
16	4	70	0.060	1.45	3.20	14.16	1575	380	r=4.0

Application



Material

Steel
< 850 N/mm²

Steel
850 - 1100 N/mm²

Stainless steel
[Cr-Ni/1.4301]

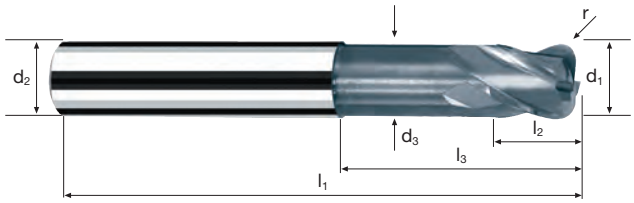
Titanium alloys
>300 HB
[Ti6Al4V]

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	4	380	0.120	0.25	0.25	5.94	20365	9775	45
8	4	380	0.160	0.30	0.30	7.89	15330	9810	45
10	4	380	0.185	0.34	0.34	9.83	12305	9105	45
12	4	380	0.220	0.38	0.38	11.77	10275	9040	45
16	4	380	0.275	0.40	0.40	15.56	7775	8555	45
6	4	300	0.115	0.25	0.25	5.94	16075	7395	45
8	4	300	0.150	0.30	0.30	7.89	12105	7265	45
10	4	300	0.175	0.34	0.34	9.83	9715	6800	45
12	4	300	0.210	0.38	0.38	11.77	8115	6815	45
16	4	300	0.260	0.40	0.40	15.56	6135	6380	45
6	4	140	0.085	0.25	0.25	5.94	7500	2550	45
8	4	140	0.110	0.30	0.30	7.89	5650	2485	45
10	4	140	0.130	0.34	0.34	9.83	4535	2360	45
12	4	140	0.155	0.38	0.38	11.77	3785	2345	45
16	4	140	0.195	0.40	0.40	15.56	2865	2235	45
6	4	120	0.060	0.25	0.25	5.94	6430	1545	45
8	4	120	0.080	0.30	0.30	7.89	4840	1550	45
10	4	120	0.095	0.34	0.34	9.83	3885	1475	45
12	4	120	0.110	0.38	0.38	11.77	3245	1430	45
16	4	120	0.140	0.40	0.40	15.56	2455	1375	45

Corner radius end mills Steelspeed G

Tolerance r 0/+0.03, 3xd

HM MG10 | λ **30°** γ **5°**



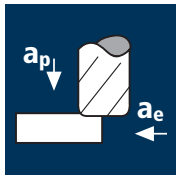
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Example: **Order-N°.** Coating **P** Article-N°. **5246** ø-Code **.300**

new!

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	POLYCHROM P5346	P5246
.300	6	6	5.5	57	7	20	1.5	4		●
.391	8	8	7.4	63	9	26	2.0	4		●
.450	10	10	9.2	72	11	31	2.5	4		●
.501	12	12	11.0	83	13	37	3.0	4		●
.610	16	16	15.0	92	17	43	4.0	4		●

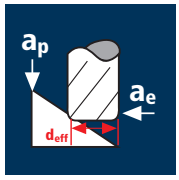
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Stainless steel [Cr-Ni/1.4301]								
2	4	80	0.015	0.60	1.20	12730	765	r=0.5
3	4	80	0.025	0.60	1.80	8490	850	r=0.5
4	4	80	0.035	0.60	2.40	6365	890	r=0.5
5	4	80	0.040	0.60	3.00	5095	815	r=0.5
6	4	80	0.050	0.60	3.60	4245	850	r=0.5
8	4	80	0.065	0.60	4.80	3185	830	r=0.5
10	4	80	0.085	0.60	6.00	2545	865	r=0.5
12	4	80	0.100	0.60	7.20	2120	850	r=0.5
Stainless steel [Cr-Ni-Mo-.../1.4571]								
2	4	70	0.015	0.60	1.20	11140	670	r=0.5
3	4	70	0.025	0.60	1.80	7425	745	r=0.5
4	4	70	0.030	0.60	2.40	5570	670	r=0.5
5	4	70	0.035	0.60	3.00	4455	625	r=0.5
6	4	70	0.045	0.60	3.60	3715	670	r=0.5
8	4	70	0.060	0.60	4.80	2785	670	r=0.5
10	4	70	0.075	0.60	6.00	2230	670	r=0.5
12	4	70	0.090	0.60	7.20	1855	670	r=0.5
Heat resistant steel [17-4 PH]								
2	4	50	0.010	0.60	1.20	7960	320	r=0.5
3	4	50	0.020	0.60	1.80	5305	425	r=0.5
4	4	50	0.025	0.60	2.40	3980	400	r=0.5
5	4	50	0.030	0.60	3.00	3185	380	r=0.5
6	4	50	0.035	0.60	3.60	2655	370	r=0.5
8	4	50	0.045	0.60	4.80	1990	360	r=0.5
10	4	50	0.060	0.60	6.00	1590	380	r=0.5
12	4	50	0.070	0.60	7.20	1325	370	r=0.5
Steel < 850 N/mm²								
2	4	180	0.020	0.60	1.20	28650	2290	r=0.5
3	4	180	0.035	0.60	1.80	19100	2675	r=0.5
4	4	180	0.045	0.60	2.40	14325	2580	r=0.5
5	4	180	0.050	0.60	3.00	11460	2290	r=0.5
6	4	180	0.065	0.60	3.60	9550	2485	r=0.5
8	4	180	0.085	0.60	4.80	7160	2435	r=0.5
10	4	180	0.110	0.60	6.00	5730	2520	r=0.5
12	4	180	0.130	0.60	7.20	4775	2485	r=0.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
2	4	160	0.030	0.10	0.10	1.99	25595	3070	45
3	4	160	0.050	0.12	0.12	3.00	16975	3395	45
4	4	160	0.070	0.12	0.12	4.00	12735	3565	45
5	4	160	0.080	0.16	0.16	5.00	10185	3260	45
6	4	160	0.100	0.18	0.18	6.00	8490	3395	45
8	4	160	0.130	0.20	0.20	7.99	6375	3315	45
10	4	160	0.170	0.24	0.24	9.97	5110	3475	45
12	4	160	0.200	0.26	0.26	11.96	4260	3410	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
2	4	140	0.030	0.10	0.10	1.99	22395	2685	45
3	4	140	0.050	0.12	0.12	3.00	14855	2970	45
4	4	140	0.060	0.12	0.12	4.00	11140	2675	45
5	4	140	0.070	0.16	0.16	5.00	8915	2495	45
6	4	140	0.090	0.18	0.18	6.00	7425	2675	45
8	4	140	0.120	0.20	0.20	7.99	5580	2680	45
10	4	140	0.150	0.24	0.24	9.97	4470	2680	45
12	4	140	0.180	0.26	0.26	11.96	3725	2680	45
Heat resistant steel [17-4 PH]									
2	4	110	0.020	0.10	0.10	1.99	17595	1410	45
3	4	110	0.040	0.12	0.12	3.00	11670	1865	45
4	4	110	0.050	0.12	0.12	4.00	8755	1750	45
5	4	110	0.060	0.16	0.16	5.00	7005	1680	45
6	4	110	0.070	0.18	0.18	6.00	5835	1635	45
8	4	110	0.090	0.20	0.20	7.99	4380	1575	45
10	4	110	0.120	0.24	0.24	9.97	3510	1685	45
12	4	110	0.140	0.26	0.26	11.96	2930	1640	45
Steel < 850 N/mm²									
2	4	400	0.040	0.10	0.10	1.99	60000	9600	45
3	4	400	0.070	0.12	0.12	3.00	42445	11885	45
4	4	400	0.090	0.12	0.12	4.00	31830	11460	45
5	4	400	0.100	0.16	0.16	5.00	25465	10185	45
6	4	400	0.130	0.18	0.18	6.00	21220	11035	45
8	4	400	0.170	0.20	0.20	7.99	15935	10835	45
10	4	400	0.220	0.24	0.24	9.97	12770	11240	45
12	4	400	0.260	0.26	0.26	11.96	10645	11070	45

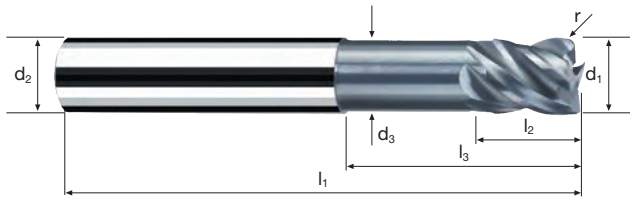
Corner radius end mills Toro-SB

Tolerance r 0/+0.03, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | λ 40° γ 5°



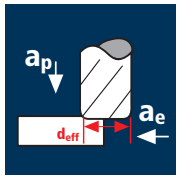
new!

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **7340** ø-Code **.138**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P7340
.138	2	6	1.9	57	3	6	0.2	8.5°	4	●
.178	3	6	2.8	57	4	9	0.2	5.8°	4	●
.218	4	6	3.7	57	5	12	0.2	3.6°	4	●
.258	5	6	4.6	57	6	15	0.2	1.7°	4	●
.297	6	6	5.5	57	7	20	0.2	0.0°	4	●
.385	8	8	7.4	63	9	26	0.2	0.0°	4	●
.445	10	10	9.2	72	11	31	0.2	0.0°	4	●
.496	12	12	11.0	83	13	37	0.2	0.0°	4	●
.140	2	6	1.9	57	3	6	0.5	8.7°	4	●
.180	3	6	2.8	57	4	9	0.5	6.0°	4	●
.220	4	6	3.7	57	5	12	0.5	3.7°	4	●
.260	5	6	4.6	57	6	15	0.5	1.7°	4	●
.300	6	6	5.5	57	7	20	0.5	0.0°	4	●
.388	8	8	7.4	63	9	26	0.5	0.0°	4	●
.448	10	10	9.2	72	11	31	0.5	0.0°	4	●
.498	12	12	11.0	83	13	37	0.5	0.0°	4	●

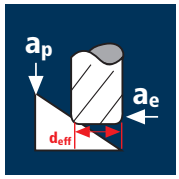
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	r [mm]
Stainless steel [Cr-Ni/1.4301]									
4	4	100	0.035	0.60	2.40	3.83	8310	1165	r=1.0
5	4	100	0.045	0.60	3.00	4.83	6590	1185	r=1.0
6	4	100	0.055	0.60	3.60	5.83	5460	1200	r=1.0
8	4	100	0.075	0.60	4.80	7.83	4065	1220	r=1.0
10	4	100	0.090	0.60	6.00	9.83	3240	1165	r=1.0
12	4	100	0.110	0.60	7.20	11.83	2690	1185	r=1.0
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	4	80	0.030	0.60	2.40	3.83	6650	800	r=1.0
5	4	80	0.040	0.60	3.00	4.83	5270	845	r=1.0
6	4	80	0.050	0.60	3.60	5.83	4370	875	r=1.0
8	4	80	0.070	0.60	4.80	7.83	3250	910	r=1.0
10	4	80	0.080	0.60	6.00	9.83	2590	830	r=1.0
12	4	80	0.100	0.60	7.20	11.83	2155	860	r=1.0
Heat resistant steel [17-4 PH]									
4	4	55	0.025	0.60	2.40	3.83	4570	455	r=1.0
5	4	55	0.030	0.60	3.00	4.83	3625	435	r=1.0
6	4	55	0.040	0.60	3.60	5.83	3005	480	r=1.0
8	4	55	0.055	0.60	4.80	7.83	2235	490	r=1.0
10	4	55	0.065	0.60	6.00	9.83	1780	465	r=1.0
12	4	55	0.075	0.60	7.20	11.83	1480	445	r=1.0
Steel < 850 N/mm²									
4	4	200	0.045	0.60	2.40	3.83	16620	2990	r=1.0
5	4	200	0.060	0.60	3.00	4.83	13180	3165	r=1.0
6	4	200	0.070	0.60	3.60	5.83	10920	3060	r=1.0
8	4	200	0.100	0.60	4.80	7.83	8130	3250	r=1.0
10	4	200	0.115	0.60	6.00	9.83	6475	2980	r=1.0
12	4	200	0.145	0.60	7.20	11.83	5380	3120	r=1.0

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
4	4	160	0.070	0.18	0.18	3.97	12830	3590	45
5	4	160	0.090	0.24	0.24	4.99	10205	3675	45
6	4	160	0.110	0.27	0.27	6.00	8490	3735	45
8	4	160	0.150	0.30	0.30	8.00	6365	3820	45
10	4	160	0.180	0.36	0.36	9.99	5100	3670	45
12	4	160	0.220	0.39	0.39	11.98	4250	3740	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	4	140	0.060	0.18	0.18	3.97	11225	2695	45
5	4	140	0.080	0.24	0.24	4.99	8930	2860	45
6	4	140	0.100	0.27	0.27	6.00	7425	2970	45
8	4	140	0.140	0.30	0.30	8.00	5570	3120	45
10	4	140	0.160	0.36	0.36	9.99	4460	2855	45
12	4	140	0.200	0.39	0.39	11.98	3720	2975	45
Heat resistant steel [17-4 PH]									
4	4	110	0.050	0.18	0.18	3.97	8820	1765	45
5	4	110	0.060	0.24	0.24	4.99	7015	1685	45
6	4	110	0.080	0.27	0.27	6.00	5835	1865	45
8	4	110	0.110	0.30	0.30	8.00	4375	1925	45
10	4	110	0.130	0.36	0.36	9.99	3505	1825	45
12	4	110	0.150	0.39	0.39	11.98	2925	1755	45
Steel < 850 N/mm²									
4	4	400	0.090	0.18	0.18	3.97	32070	11545	45
5	4	400	0.120	0.24	0.24	4.99	25515	12245	45
6	4	400	0.140	0.27	0.27	6.00	21220	11885	45
8	4	400	0.200	0.30	0.30	8.00	15915	12730	45
10	4	400	0.230	0.36	0.36	9.99	12745	11725	45
12	4	400	0.290	0.39	0.39	11.98	10630	12330	45

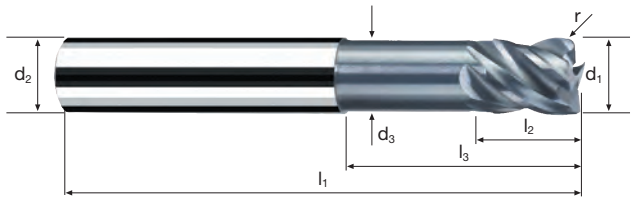
Corner radius end mills Toro-SB

Tolerance r 0/+0.03, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | λ 40° γ 5°



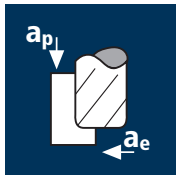
new!

Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **7340** ø-Code **.222**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P7340
.222	4	6	3.7	57	5	12	1.0	3.8°	4	●
.262	5	6	4.6	57	6	15	1.0	1.8°	4	●
.302	6	6	5.5	57	7	20	1.0	0.0°	4	●
.391	8	8	7.4	63	9	26	1.0	0.0°	4	●
.450	10	10	9.2	72	11	31	1.0	0.0°	4	●
.501	12	12	11.0	83	13	37	1.0	0.0°	4	●

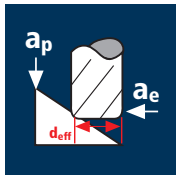
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel 1100 - 1300 N/mm²								
6	4	120	0.050	6	2.4	6365	1275	18.5
8	4	120	0.065	8	3.2	4775	1240	31.5
10	4	120	0.085	10	4.0	3820	1300	52.0
12	4	120	0.100	12	4.8	3185	1275	73.5
16	4	120	0.135	16	3.2	2385	1290	66.0
Hardened tool steel 42 - 48 HRC								
6	4	80	0.035	6	2.4	4245	595	8.5
8	4	80	0.045	8	3.2	3185	575	14.5
10	4	80	0.055	10	4.0	2545	560	22.5
12	4	80	0.065	12	4.8	2120	550	31.5
16	4	80	0.090	16	3.2	1590	570	29.0
Hardened tool steel 48 - 52 HRC								
6	4	60	0.025	6	2.4	3185	320	4.5
8	4	60	0.035	8	3.2	2385	335	8.5
10	4	60	0.045	10	4.0	1910	345	14.0
12	4	60	0.055	12	4.8	1590	350	20.0
16	4	60	0.075	16	3.2	1195	360	18.5
Hardened tool steel 52 - 56 HRC								
6	4	30	0.020	6	2.4	1590	127	2.0
8	4	30	0.025	8	3.2	1195	120	3.0
10	4	30	0.035	10	4.0	955	134	5.5
12	4	30	0.040	12	4.8	795	127	7.5
16	4	30	0.055	16	3.2	595	131	6.5

Application



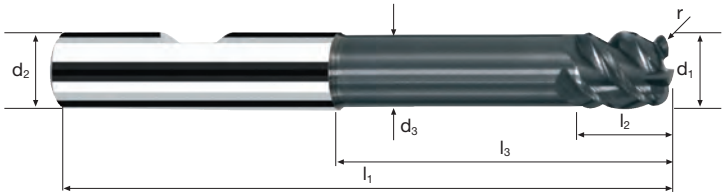
Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 1100 - 1300 N/mm²									
6	4	250	0.055	0.90	0.90	5.79	13745	3025	45
8	4	250	0.065	1.50	1.50	7.45	10680	2775	45
10	4	250	0.085	1.70	1.70	9.48	8395	2855	45
12	4	250	0.100	2.00	2.00	11.41	6975	2790	45
16	4	250	0.125	2.40	2.40	15.25	5220	2610	45
Hardened tool steel 2 - 48 HRC									
6	4	180	0.045	1.20	1.20	5.50	10420	1875	45
8	4	180	0.055	1.50	1.50	7.45	7690	1690	45
10	4	180	0.070	1.80	1.80	9.38	6110	1710	45
12	4	180	0.085	2.00	2.00	11.41	5020	1705	45
16	4	180	0.105	2.40	2.40	15.25	3755	1575	45
Hardened tool steel 48 - 52 HRC									
6	4	120	0.035	1.20	1.20	5.50	6945	970	45
8	4	120	0.040	1.50	1.50	7.45	5125	820	45
10	4	120	0.050	1.80	1.80	9.38	4070	815	45
12	4	120	0.060	2.00	2.00	11.41	3350	805	45
16	4	120	0.075	2.40	2.40	15.25	2505	750	45
Hardened tool steel 52 - 56 HRC									
6	4	80	0.030	1.20	1.20	5.50	4630	555	45
8	4	80	0.035	1.50	1.50	7.45	3420	480	45
10	4	80	0.045	1.80	1.80	9.38	2715	490	45
12	4	80	0.050	2.00	2.00	11.41	2230	445	45
16	4	80	0.065	2.40	2.40	15.25	1670	435	45

Corner radius end mills HX-R

Tolerance r 0/+0.03, 5xd

HM MG10 | **λ 55° γ-10°**

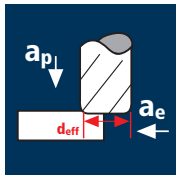


		Rm 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60		**Ti** Titanium	**GG(G)**

Example: **Order-N°.** Coating **P** | Article-N°. **5357** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	POLYCHROM P5357 / P5257	DURO-S D5357 / D5257
.300	6	6	5.5	70	7	33	1.5	4	●	●
.391	8	8	7.4	80	9	43	2.0	4	●	●
.450	10	10	9.2	84	11	43	2.5	4	●	●
.501	12	12	11.0	97	13	51	3.0	4	●	●
.610	16	16	15.0	115	17	66	3.5	4	●	●

Application



Material

Steel
< 850 N/mm²

P
P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
6	6	200	0.050	0.15	1.32	5.33	11945	3585	r=0.8
8	6	200	0.065	0.18	1.76	7.14	8915	3475	r=1.0
10	6	200	0.080	0.20	2.20	9.20	6920	3320	r=1.0
12	6	200	0.090	0.22	2.64	10.56	6030	3255	r=1.5
16	6	200	0.115	0.25	3.52	14.66	4345	3000	r=1.5

Steel
850 - 1100 N/mm²

P
P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
6	6	180	0.050	0.15	1.32	5.33	10750	3225	r=0.8
8	6	180	0.060	0.18	1.76	7.14	8025	2890	r=1.0
10	6	180	0.075	0.20	2.20	9.20	6230	2805	r=1.0
12	6	180	0.085	0.22	2.64	10.56	5425	2765	r=1.5
16	6	180	0.110	0.25	3.52	14.66	3910	2580	r=1.5

Steel
1100 - 1300 N/mm²

P
P D

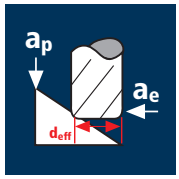
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
6	6	150	0.045	0.15	1.32	5.33	8960	2420	r=0.8
8	6	150	0.055	0.18	1.76	7.14	6685	2205	r=1.0
10	6	150	0.070	0.20	2.20	9.20	5190	2180	r=1.0
12	6	150	0.080	0.22	2.64	10.56	4520	2170	r=1.5
16	6	150	0.100	0.25	3.52	14.66	3255	1955	r=1.5

Steel
1300 - 1500 N/mm²

P
P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
6	6	120	0.040	0.15	1.32	5.33	7165	1720	r=0.8
8	6	120	0.050	0.18	1.76	7.14	5350	1605	r=1.0
10	6	120	0.065	0.20	2.20	9.20	4150	1620	r=1.0
12	6	120	0.070	0.22	2.64	10.56	3615	1520	r=1.5
16	6	120	0.090	0.25	3.52	14.66	2605	1405	r=1.5

Application



Material

Steel
< 850 N/mm²

P
P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	6	420	0.110	0.16	0.16	5.98	22355	14755	45
8	6	420	0.140	0.18	0.18	7.97	16775	14090	45
10	6	420	0.165	0.20	0.20	9.98	13395	13260	45
12	6	420	0.175	0.24	0.24	11.93	11205	11765	45
16	6	420	0.215	0.28	0.28	15.96	8375	10805	45

Steel
850 - 1100 N/mm²

P
P

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	6	360	0.105	0.16	0.16	5.98	19165	12075	45
8	6	360	0.135	0.18	0.18	7.97	14380	11650	45
10	6	360	0.155	0.20	0.20	9.98	11480	10675	45
12	6	360	0.165	0.24	0.24	11.93	9605	9510	45
16	6	360	0.205	0.28	0.28	15.96	7180	8830	45

Steel
1100 - 1300 N/mm²

P
P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	6	320	0.095	0.16	0.16	5.98	17035	9710	45
8	6	320	0.125	0.18	0.18	7.97	12780	9585	45
10	6	320	0.145	0.20	0.20	9.98	10205	8880	45
12	6	320	0.155	0.24	0.24	11.93	8540	7940	45
16	6	320	0.190	0.28	0.28	15.96	6380	7275	45

Steel
1300 - 1500 N/mm²

P
P D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	6	280	0.090	0.16	0.16	5.98	14905	8050	45
8	6	280	0.110	0.18	0.18	7.97	11185	7380	45
10	6	280	0.130	0.20	0.20	9.98	8930	6965	45
12	6	280	0.140	0.24	0.24	11.93	7470	6275	45
16	6	280	0.170	0.28	0.28	15.96	5585	5695	45

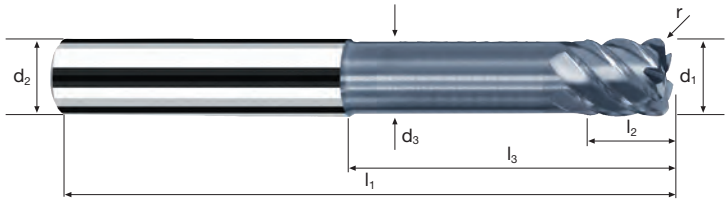
Corner radius end mills Multispeed

Tolerance r 0/+0.03, 5xd

HSS | Favora® | Base-X | X-Generation X

II

HM MG10	λ 45° γ 5°



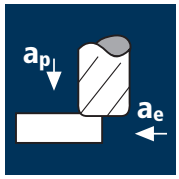
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

new!

Example: **Order-N°.** Coating **P** Article-N°. **5252** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z		POLYCHROM P5252
.300	6	6	5.5	70	7	33	0.8	4		●
.391	8	8	7.4	80	9	43	1.0	4		●
.450	10	10	9.2	84	11	43	1.0	4		●
.501	12	12	11.0	97	13	51	1.5	6		●
.610	16	16	15.0	115	17	66	1.5	6		●

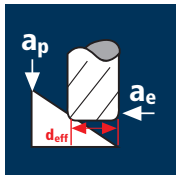
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Stainless steel [Cr-Ni/1.4301]								
2	4	80	0.015	0.60	0.80	12730	765	r=0.5
3	4	80	0.020	0.60	1.20	8490	680	r=0.5
4	4	80	0.030	0.60	1.60	6365	765	r=0.5
5	4	80	0.035	0.60	2.00	5095	715	r=0.5
6	4	80	0.045	0.60	2.40	4245	765	r=0.5
8	4	80	0.055	0.60	3.20	3185	700	r=0.5
10	4	80	0.070	0.60	4.00	2545	715	r=0.5
12	4	80	0.085	0.60	4.80	2120	720	r=0.5
Stainless steel [Cr-Ni-Mo-.../1.4571]								
2	4	70	0.015	0.60	0.80	11140	670	r=0.5
3	4	70	0.020	0.60	1.20	7425	595	r=0.5
4	4	70	0.025	0.60	1.60	5570	555	r=0.5
5	4	70	0.030	0.60	2.00	4455	535	r=0.5
6	4	70	0.040	0.60	2.40	3715	595	r=0.5
8	4	70	0.050	0.60	3.20	2785	555	r=0.5
10	4	70	0.065	0.60	4.00	2230	580	r=0.5
12	4	70	0.075	0.60	4.80	1855	555	r=0.5
Heat resistant steel [17-4 PH]								
2	4	50	0.010	0.60	0.80	7960	320	r=0.5
3	4	50	0.015	0.60	1.20	5305	320	r=0.5
4	4	50	0.020	0.60	1.60	3980	320	r=0.5
5	4	50	0.025	0.60	2.00	3185	320	r=0.5
6	4	50	0.030	0.60	2.40	2655	320	r=0.5
8	4	50	0.040	0.60	3.20	1990	320	r=0.5
10	4	50	0.050	0.60	4.00	1590	320	r=0.5
12	4	50	0.060	0.60	4.80	1325	320	r=0.5
Steel < 850 N/mm²								
2	4	180	0.020	0.60	0.80	28650	2290	r=0.5
3	4	180	0.025	0.60	1.20	19100	1910	r=0.5
4	4	180	0.040	0.60	1.60	14325	2290	r=0.5
5	4	180	0.045	0.60	2.00	11460	2065	r=0.5
6	4	180	0.060	0.60	2.40	9550	2290	r=0.5
8	4	180	0.070	0.60	3.20	7160	2005	r=0.5
10	4	180	0.090	0.60	4.00	5730	2065	r=0.5
12	4	180	0.110	0.60	4.80	4775	2100	r=0.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
2	4	160	0.030	0.10	0.10	1.99	25595	3070	45
3	4	160	0.040	0.12	0.12	3.00	16975	2715	45
4	4	160	0.060	0.12	0.12	4.00	12735	3055	45
5	4	160	0.070	0.16	0.16	5.00	10185	2850	45
6	4	160	0.090	0.18	0.18	6.00	8490	3055	45
8	4	160	0.110	0.20	0.20	7.99	6375	2805	45
10	4	160	0.140	0.24	0.24	9.97	5110	2860	45
12	4	160	0.170	0.26	0.26	11.96	4260	2895	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
2	4	140	0.030	0.10	0.10	1.99	22395	2685	45
3	4	140	0.040	0.12	0.12	3.00	14855	2375	45
4	4	140	0.050	0.12	0.12	4.00	11140	2230	45
5	4	140	0.060	0.16	0.16	5.00	8915	2140	45
6	4	140	0.080	0.18	0.18	6.00	7425	2375	45
8	4	140	0.100	0.20	0.20	7.99	5580	2230	45
10	4	140	0.130	0.24	0.24	9.97	4470	2325	45
12	4	140	0.150	0.26	0.26	11.96	3725	2235	45
Heat resistant steel [17-4 PH]									
2	4	110	0.020	0.10	0.10	1.99	17595	1410	45
3	4	110	0.030	0.12	0.12	3.00	11670	1400	45
4	4	110	0.040	0.12	0.12	4.00	8755	1400	45
5	4	110	0.050	0.16	0.16	5.00	7005	1400	45
6	4	110	0.060	0.18	0.18	6.00	5835	1400	45
8	4	110	0.080	0.20	0.20	7.99	4380	1400	45
10	4	110	0.100	0.24	0.24	9.97	3510	1405	45
12	4	110	0.120	0.26	0.26	11.96	2930	1405	45
Steel < 850 N/mm²									
2	4	400	0.040	0.10	0.10	1.99	60000	9600	45
3	4	400	0.050	0.12	0.12	3.00	42445	8490	45
4	4	400	0.080	0.12	0.12	4.00	31830	10185	45
5	4	400	0.090	0.16	0.16	5.00	25465	9165	45
6	4	400	0.120	0.18	0.18	6.00	21220	10185	45
8	4	400	0.140	0.20	0.20	7.99	15935	8925	45
10	4	400	0.180	0.24	0.24	9.97	12770	9195	45
12	4	400	0.220	0.26	0.26	11.96	10645	9370	45

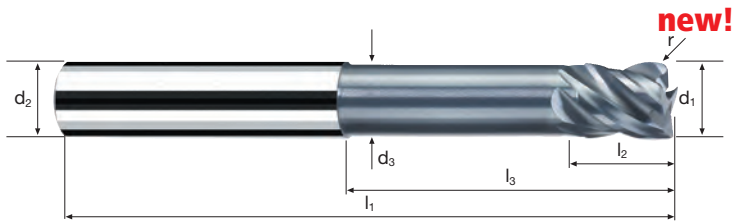
Corner radius end mills Toro-SB

Tolerance r 0/+0.03, 6xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10	λ 40° γ 5°

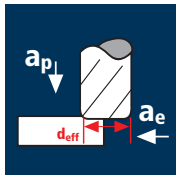


Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **7344** ø-Code **.138**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	α	z	POLYCHROM P7344
.138	2	6	1.9	66	3	12	0.2	5.9°	4	●
.178	3	6	2.8	66	4	18	0.2	3.7°	4	●
.218	4	6	3.7	69	5	24	0.2	2.1°	4	●
.258	5	6	4.6	75	6	30	0.2	0.9°	4	●
.297	6	6	5.5	80	7	43	0.2	0.0°	4	●
.385	8	8	7.4	90	9	53	0.2	0.0°	4	●
.445	10	10	9.2	105	11	64	0.2	0.0°	4	●
.496	12	12	11.0	120	13	74	0.2	0.0°	4	●
.140	2	6	1.9	66	3	12	0.5	6.0°	4	●
.180	3	6	2.8	66	4	18	0.5	3.7°	4	●
.220	4	6	3.7	69	5	24	0.5	2.1°	4	●
.260	5	6	4.6	75	6	30	0.5	0.9°	4	●
.300	6	6	5.5	80	7	43	0.5	0.0°	4	●
.388	8	8	7.4	90	9	53	0.5	0.0°	4	●
.448	10	10	9.2	105	11	64	0.5	0.0°	4	●
.498	12	12	11.0	120	13	74	0.5	0.0°	4	●

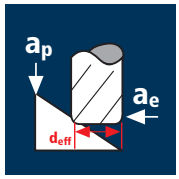
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	r [mm]
Stainless steel [Cr-Ni/1.4301]									
4	4	100	0.030	0.60	1.60	3.83	8310	995	r=1.0
5	4	100	0.040	0.60	2.00	4.83	6590	1055	r=1.0
6	4	100	0.045	0.60	2.40	5.83	5460	985	r=1.0
8	4	100	0.060	0.60	3.20	7.83	4065	975	r=1.0
10	4	100	0.080	0.60	4.00	9.83	3240	1035	r=1.0
12	4	100	0.095	0.60	4.80	11.83	2690	1020	r=1.0
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	4	80	0.025	0.60	1.60	3.83	6650	665	r=1.0
5	4	80	0.035	0.60	2.00	4.83	5270	740	r=1.0
6	4	80	0.040	0.60	2.40	5.83	4370	700	r=1.0
8	4	80	0.055	0.60	3.20	7.83	3250	715	r=1.0
10	4	80	0.070	0.60	4.00	9.83	2590	725	r=1.0
12	4	80	0.085	0.60	4.80	11.83	2155	735	r=1.0
Heat resistant steel [17-4 PH]									
4	4	55	0.020	0.60	1.60	3.83	4570	365	r=1.0
5	4	55	0.030	0.60	2.00	4.83	3625	435	r=1.0
6	4	55	0.030	0.60	2.40	5.83	3005	360	r=1.0
8	4	55	0.040	0.60	3.20	7.83	2235	360	r=1.0
10	4	55	0.055	0.60	4.00	9.83	1780	390	r=1.0
12	4	55	0.065	0.60	4.80	11.83	1480	385	r=1.0
Steel < 850 N/mm²									
4	4	200	0.040	0.60	1.60	3.83	16620	2660	r=1.0
5	4	200	0.050	0.60	2.00	4.83	13180	2635	r=1.0
6	4	200	0.060	0.60	2.40	5.83	10920	2620	r=1.0
8	4	200	0.080	0.60	3.20	7.83	8130	2600	r=1.0
10	4	200	0.105	0.60	4.00	9.83	6475	2720	r=1.0
12	4	200	0.125	0.60	4.80	11.83	5380	2690	r=1.0

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Stainless steel [Cr-Ni/1.4301]									
4	4	160	0.060	0.18	0.18	3.97	12830	3080	45
5	4	160	0.080	0.24	0.24	4.99	10205	3265	45
6	4	160	0.090	0.27	0.27	6.00	8490	3055	45
8	4	160	0.120	0.30	0.30	8.00	6365	3055	45
10	4	160	0.160	0.36	0.36	9.99	5100	3265	45
12	4	160	0.190	0.39	0.39	11.98	4250	3230	45
Stainless steel [Cr-Ni-Mo-.../1.4571]									
4	4	140	0.050	0.18	0.18	3.97	11225	2245	45
5	4	140	0.070	0.24	0.24	4.99	8930	2500	45
6	4	140	0.080	0.27	0.27	6.00	7425	2375	45
8	4	140	0.110	0.30	0.30	8.00	5570	2450	45
10	4	140	0.140	0.36	0.36	9.99	4460	2500	45
12	4	140	0.170	0.39	0.39	11.98	3720	2530	45
Heat resistant steel [17-4 PH]									
4	4	110	0.040	0.18	0.18	3.97	8820	1410	45
5	4	110	0.060	0.24	0.24	4.99	7015	1685	45
6	4	110	0.060	0.27	0.27	6.00	5835	1400	45
8	4	110	0.080	0.30	0.30	8.00	4375	1400	45
10	4	110	0.110	0.36	0.36	9.99	3505	1540	45
12	4	110	0.130	0.39	0.39	11.98	2925	1520	45
Steel < 850 N/mm²									
4	4	400	0.080	0.18	0.18	3.97	32070	10260	45
5	4	400	0.100	0.24	0.24	4.99	25515	10205	45
6	4	400	0.120	0.27	0.27	6.00	21220	10185	45
8	4	400	0.160	0.30	0.30	8.00	15915	10185	45
10	4	400	0.210	0.36	0.36	9.99	12745	10705	45
12	4	400	0.250	0.39	0.39	11.98	10630	10630	45

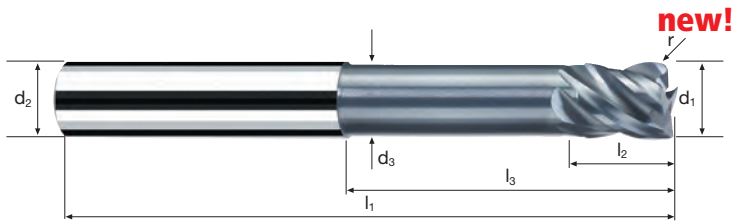
Corner radius end mills Toro-SB

Tolerance r 0/+0.03, 6xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM MG10 | λ **40°** γ **5°**

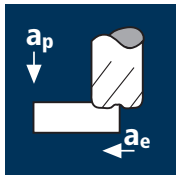


Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **GG(G) Tool Steel Nickel-Alloys**

Example: **Order-N°.** Coating **P** Article-N°. **7344** ø-Code **.222**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	POLYCHROM P7344
.222	4	6	3.7	69	5	24	1.0	2.1°	4	●
.262	5	6	4.6	75	6	30	1.0	1.0°	4	●
.302	6	6	5.5	80	7	43	1.0	0.0°	4	●
.391	8	8	7.4	90	9	53	1.0	0.0°	4	●
.450	10	10	9.2	105	11	64	1.0	0.0°	4	●
.501	12	12	11.0	120	13	74	1.0	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	3	4	250	0.200	0.08	1.80	26525	21220	3.05
	4	4	250	0.265	0.12	2.40	19895	21090	6.05
	5	4	250	0.335	0.16	3.00	15915	21325	10.25
	6	4	250	0.400	0.20	3.60	13265	21225	15.30
	8	4	250	0.535	0.25	4.80	9945	21280	25.55
	10	4	250	0.665	0.32	6.00	7960	21175	40.65
	12	4	250	0.800	0.40	7.20	6630	21215	61.10
	16	4	250	1.065	0.48	9.60	4975	21195	97.65
Steel 1100 - 1300 N/mm²	3	4	220	0.170	0.08	1.80	23345	15875	2.30
	4	4	220	0.225	0.12	2.40	17510	15760	4.55
	5	4	220	0.285	0.16	3.00	14005	15965	7.65
	6	4	220	0.340	0.20	3.60	11670	15870	11.45
	8	4	220	0.455	0.25	4.80	8755	15935	19.10
	10	4	220	0.565	0.32	6.00	7005	15830	30.40
	12	4	220	0.680	0.40	7.20	5835	15870	45.70
	16	4	220	0.905	0.48	9.60	4375	15840	73.00
Steel 1300 - 1500 N/mm²	3	4	200	0.155	0.07	1.80	21220	13155	1.65
	4	4	200	0.205	0.11	2.40	15915	13050	3.45
	5	4	200	0.260	0.14	3.00	12735	13245	5.55
	6	4	200	0.310	0.18	3.60	10610	13155	8.50
	8	4	200	0.415	0.23	4.80	7960	13215	14.60
	10	4	200	0.520	0.29	6.00	6365	13240	23.05
	12	4	200	0.625	0.36	7.20	5305	13265	34.40
	16	4	200	0.830	0.43	9.60	3980	13215	54.55
Hardened tool steel 48 - 52 HRC	3	4	180	0.120	0.06	1.80	19100	9170	1.00
	4	4	180	0.160	0.10	2.40	14325	9170	2.20
	5	4	180	0.200	0.13	3.00	11460	9170	3.60
	6	4	180	0.240	0.16	3.60	9550	9170	5.30
	8	4	180	0.320	0.20	4.80	7160	9165	8.80
	10	4	180	0.400	0.26	6.00	5730	9170	14.30
	12	4	180	0.480	0.32	7.20	4775	9170	21.15
	16	4	180	0.640	0.38	9.60	3580	9165	33.45

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	3	4	160	0.090	0.06	1.80	16975	6110	0.65
	4	4	160	0.120	0.08	2.40	12735	6115	1.15
	5	4	160	0.150	0.11	3.00	10185	6110	2.00
	6	4	160	0.180	0.14	3.60	8490	6115	3.10
	8	4	160	0.240	0.18	4.80	6365	6110	5.30
	10	4	160	0.300	0.22	6.00	5095	6115	8.05
	12	4	160	0.360	0.28	7.20	4245	6115	12.35
	16	4	160	0.480	0.34	9.60	3185	6115	19.95
Hardened tool steel 56 - 60 HRC	3	4	140	0.055	0.05	1.80	14855	3270	0.30
	4	4	140	0.075	0.08	2.40	11140	3340	0.65
	5	4	140	0.095	0.10	3.00	8915	3390	1.00
	6	4	140	0.110	0.13	3.60	7425	3265	1.55
	8	4	140	0.150	0.16	4.80	5570	3340	2.55
	10	4	140	0.185	0.21	6.00	4455	3295	4.15
	12	4	140	0.225	0.26	7.20	3715	3345	6.25
	16	4	140	0.300	0.31	9.60	2785	3340	9.95
Hardened tool steel > 60 HRC	3	4	80	0.045	0.05	1.80	8490	1530	0.15
	4	4	80	0.060	0.07	2.40	6365	1530	0.25
	5	4	80	0.075	0.10	3.00	5095	1530	0.45
	6	4	80	0.090	0.12	3.60	4245	1530	0.65
	8	4	80	0.120	0.15	4.80	3185	1530	1.10
	10	4	80	0.145	0.19	6.00	2545	1475	1.70
	12	4	80	0.175	0.24	7.20	2120	1485	2.55
	16	4	80	0.235	0.29	9.60	1590	1495	4.15
Cast iron (lamellar / spheroidal)	3	4	250	0.200	0.08	1.80	26525	21220	3.05
	4	4	250	0.265	0.12	2.40	19895	21090	6.05
	5	4	250	0.335	0.16	3.00	15915	21325	10.25
	6	4	250	0.400	0.20	3.60	13265	21225	15.30
	8	4	250	0.535	0.25	4.80	9945	21280	25.55
	10	4	250	0.665	0.32	6.00	7960	21175	40.65
	12	4	250	0.800	0.40	7.20	6630	21215	61.10
	16	4	250	1.065	0.48	9.60	4975	21195	97.65

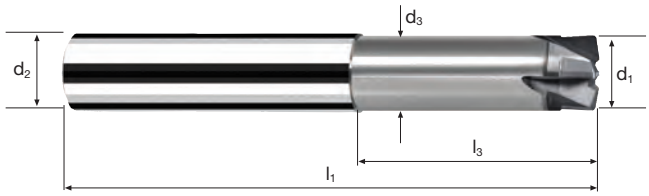
High feed end mills XFeed

Cylindrical neck, 3xd

HM
XT

λ **0°**
γ **0°**

HFC

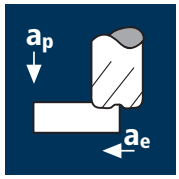


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60		**Ti** Titanium	**HSS GG(G)**

Example: **Order-N°.** Coating **X** Article-N°. **7600** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_3	$ap_{max.}$	$R_{theo.}$	α	z	X-AL	**X7600**
.180	3	6	2.8	57	9	0.12	0.27	6.0°	4		●
.220	4	6	3.7	57	12	0.16	0.36	3.8°	4		●
.260	5	6	4.6	57	15	0.20	0.45	1.8°	4		●
.300	6	6	5.5	57	20	0.25	0.54	0.0°	4		●
.391	8	8	7.4	63	26	0.33	0.72	0.0°	4		●
.450	10	10	9.2	72	31	0.41	0.90	0.0°	4		●
.501	12	12	11.0	83	37	0.50	1.08	0.0°	4		●
.610	16	16	15.0	92	43	0.69	1.44	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	250	0.315	0.24	3.60	13265	16715	14.45
	8	4	250	0.420	0.32	4.80	9945	16710	25.65
	10	4	250	0.525	0.40	6.00	7960	16715	40.10
	12	4	250	0.630	0.48	7.20	6630	16710	57.75
Steel 1100 - 1300 N/mm²	6	4	220	0.270	0.24	3.60	11670	12605	10.90
	8	4	220	0.355	0.32	4.80	8755	12430	19.10
	10	4	220	0.445	0.40	6.00	7005	12470	29.95
	12	4	220	0.535	0.48	7.20	5835	12485	43.15
Steel 1300 - 1500 N/mm²	6	4	200	0.245	0.22	3.60	10610	10400	8.25
	8	4	200	0.330	0.29	4.80	7960	10505	14.60
	10	4	200	0.410	0.36	6.00	6365	10440	22.55
	12	4	200	0.490	0.43	7.20	5305	10400	32.20
Hardened tool steel 48 - 52 HRC	6	4	180	0.190	0.19	3.60	9550	7260	4.95
	8	4	180	0.250	0.26	4.80	7160	7160	8.95
	10	4	180	0.315	0.32	6.00	5730	7220	13.85
	12	4	180	0.380	0.38	7.20	4775	7260	19.85

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	6	4	160	0.140	0.17	3.60	8490	4755	2.90
	8	4	160	0.190	0.22	4.80	6365	4835	5.10
	10	4	160	0.235	0.28	6.00	5095	4790	8.05
	12	4	160	0.285	0.34	7.20	4245	4840	11.85
Hardened tool steel 56 - 60 HRC	6	4	140	0.090	0.16	3.60	7425	2675	1.55
	8	4	140	0.120	0.21	4.80	5570	2675	2.70
	10	4	140	0.145	0.26	6.00	4455	2585	4.05
	12	4	140	0.175	0.31	7.20	3715	2600	5.80

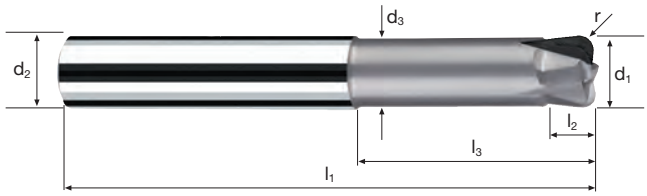
High feed end mills XFeed-R

Cylindrical neck, 3xd

HSS | Favora® | Base-X | X-Generation X

II

HM XT	λ 0° γ -10°
	HFC



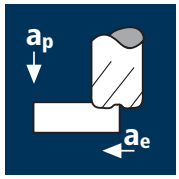
new!

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7620** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r	z		X-AL
										X7620
.300	6	6	5.5	57	3	20	1.0	4		●
.391	8	8	7.4	63	4	26	1.5	4		●
.450	10	10	9.2	72	5	31	2.0	4		●
.501	12	12	11.0	83	6	37	2.5	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	3	4	250	0.165	0.08	1.20	26525	17505	1.70
	4	4	250	0.220	0.12	1.60	19895	17510	3.35
	5	4	250	0.280	0.16	2.00	15915	17825	5.70
	6	4	250	0.335	0.20	2.40	13265	17775	8.55
	8	4	250	0.445	0.25	3.20	9945	17700	14.15
	10	4	250	0.555	0.32	4.00	7960	17670	22.60
	12	4	250	0.665	0.40	4.80	6630	17635	33.85
	16	4	250	0.890	0.48	6.40	4975	17710	54.40
Steel 1100 - 1300 N/mm²	3	4	220	0.140	0.08	1.20	23345	13075	1.25
	4	4	220	0.185	0.12	1.60	17510	12955	2.50
	5	4	220	0.240	0.16	2.00	14005	13445	4.30
	6	4	220	0.285	0.20	2.40	11670	13305	6.40
	8	4	220	0.380	0.25	3.20	8755	13310	10.65
	10	4	220	0.470	0.32	4.00	7005	13170	16.85
	12	4	220	0.565	0.40	4.80	5835	13185	25.30
	16	4	220	0.755	0.48	6.40	4375	13215	40.60
Steel 1300 - 1500 N/mm²	3	4	200	0.130	0.07	1.20	21220	11035	0.95
	4	4	200	0.170	0.11	1.60	15915	10820	1.90
	5	4	200	0.220	0.14	2.00	12735	11205	3.15
	6	4	200	0.260	0.18	2.40	10610	11035	4.75
	8	4	200	0.345	0.23	3.20	7960	10985	8.10
	10	4	200	0.435	0.29	4.00	6365	11075	12.85
	12	4	200	0.520	0.36	4.80	5305	11035	19.05
	16	4	200	0.695	0.43	6.40	3980	11065	30.45
Hardened tool steel 48 - 52 HRC	3	4	180	0.100	0.06	1.20	19100	7640	0.55
	4	4	180	0.130	0.10	1.60	14325	7450	1.20
	5	4	180	0.170	0.13	2.00	11460	7795	2.05
	6	4	180	0.200	0.16	2.40	9550	7640	2.95
	8	4	180	0.265	0.20	3.20	7160	7590	4.85
	10	4	180	0.335	0.26	4.00	5730	7680	8.00
	12	4	180	0.400	0.32	4.80	4775	7640	11.75
	16	4	180	0.535	0.38	6.40	3580	7660	18.65

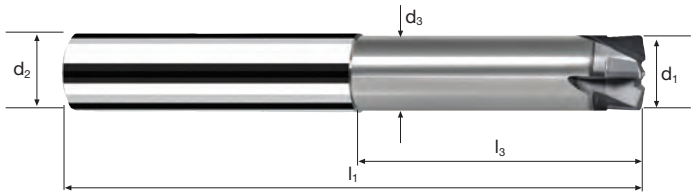
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	3	4	160	0.075	0.06	1.20	16975	5095	0.35
	4	4	160	0.100	0.08	1.60	12735	5095	0.65
	5	4	160	0.125	0.11	2.00	10185	5095	1.10
	6	4	160	0.150	0.14	2.40	8490	5095	1.70
	8	4	160	0.200	0.18	3.20	6365	5090	2.95
	10	4	160	0.250	0.22	4.00	5095	5095	4.50
	12	4	160	0.300	0.28	4.80	4245	5095	6.85
	16	4	160	0.400	0.34	6.40	3185	5095	11.10
Hardened tool steel 56 - 60 HRC	3	4	140	0.045	0.05	1.20	14855	2675	0.15
	4	4	140	0.060	0.08	1.60	11140	2675	0.35
	5	4	140	0.080	0.10	2.00	8915	2855	0.55
	6	4	140	0.095	0.13	2.40	7425	2820	0.90
	8	4	140	0.125	0.16	3.20	5570	2785	1.45
	10	4	140	0.155	0.21	4.00	4455	2760	2.30
	12	4	140	0.185	0.26	4.80	3715	2750	3.45
	16	4	140	0.250	0.31	6.40	2785	2785	5.55
Hardened tool steel > 60 HRC	3	4	80	0.035	0.05	1.20	8490	1190	0.05
	4	4	80	0.050	0.07	1.60	6365	1275	0.15
	5	4	80	0.060	0.10	2.00	5095	1225	0.25
	6	4	80	0.075	0.12	2.40	4245	1275	0.35
	8	4	80	0.100	0.15	3.20	3185	1275	0.60
	10	4	80	0.120	0.19	4.00	2545	1220	0.95
	12	4	80	0.145	0.24	4.80	2120	1230	1.40
	16	4	80	0.195	0.29	6.40	1590	1240	2.30
Cast iron (lamellar / spheroidal)	3	4	250	0.165	0.08	1.20	26525	17505	1.70
	4	4	250	0.220	0.12	1.60	19895	17510	3.35
	5	4	250	0.280	0.16	2.00	15915	17825	5.70
	6	4	250	0.335	0.20	2.40	13265	17775	8.55
	8	4	250	0.445	0.25	3.20	9945	17700	14.15
	10	4	250	0.555	0.32	4.00	7960	17670	22.60
	12	4	250	0.665	0.40	4.80	6630	17635	33.85
	16	4	250	0.890	0.48	6.40	4975	17710	54.40

High feed end mills XFeed

Cylindrical neck, 6xd

HM XT | λ 0° γ 0°

HFC

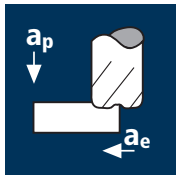


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS GG(G)

Example: **Order-N°.** Coating **X** Article-N°. **7604** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_3	$ap_{max.}$	$R_{theo.}$	α	z	X-AL **X7604**
.180	3	6	2.8	66	18	0.12	0.27	3.7°	4	●
.220	4	6	3.7	69	24	0.16	0.36	2.1°	4	●
.260	5	6	4.6	75	30	0.20	0.45	1.0°	4	●
.300	6	6	5.5	80	43	0.25	0.54	0.0°	4	●
.391	8	8	7.4	90	53	0.33	0.72	0.0°	4	●
.450	10	10	9.2	105	64	0.41	0.90	0.0°	4	●
.501	12	12	11.0	120	74	0.50	1.08	0.0°	4	●
.610	16	16	15.0	135	86	0.69	1.44	0.0°	4	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	6	4	250	0.260	0.24	2.40	13265	13795	7.95
	8	4	250	0.350	0.32	3.20	9945	13925	14.25
	10	4	250	0.435	0.40	4.00	7960	13850	22.15
	12	4	250	0.520	0.48	4.80	6630	13790	31.75
Steel 1100 - 1300 N/mm²	6	4	220	0.220	0.24	2.40	11670	10270	5.90
	8	4	220	0.300	0.32	3.20	8755	10505	10.75
	10	4	220	0.370	0.40	4.00	7005	10365	16.60
	12	4	220	0.440	0.48	4.80	5835	10270	23.65
Steel 1300 - 1500 N/mm²	6	4	200	0.205	0.22	2.40	10610	8700	4.60
	8	4	200	0.275	0.29	3.20	7960	8755	8.10
	10	4	200	0.340	0.36	4.00	6365	8655	12.45
	12	4	200	0.405	0.43	4.80	5305	8595	17.75
Hardened tool steel 48 - 52 HRC	6	4	180	0.155	0.19	2.40	9550	5920	2.70
	8	4	180	0.210	0.26	3.20	7160	6015	5.00
	10	4	180	0.260	0.32	4.00	5730	5960	7.65
	12	4	180	0.310	0.38	4.80	4775	5920	10.80

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	6	4	160	0.115	0.17	2.40	8490	3905	1.60
	8	4	160	0.160	0.22	3.20	6365	4075	2.85
	10	4	160	0.195	0.28	4.00	5095	3975	4.45
	12	4	160	0.235	0.34	4.80	4245	3990	6.50
Hardened tool steel 56 - 60 HRC	6	4	140	0.075	0.16	2.40	7425	2230	0.85
	8	4	140	0.100	0.21	3.20	5570	2230	1.50
	10	4	140	0.120	0.26	4.00	4455	2140	2.25
	12	4	140	0.145	0.31	4.80	3715	2155	3.20

Hochvorschubfräser XFeed-R

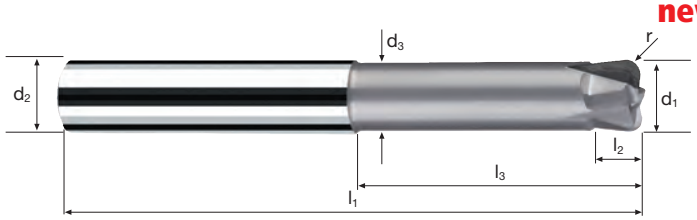
Cylindrical neck, 6xd

HSS | Favora® | Base-X | X-Generation X

II

HM XT	λ 0° γ-10°
	HFC

new!

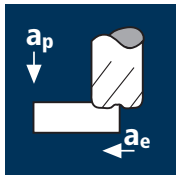


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS GG(G)

Example: **Order-N°.** Coating **X** | Article-N°. **7624** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r	z		X-AL / X7624
.300	6	6	5.5	80	3	43	1.0	4		●
.391	8	8	7.4	90	4	53	1.5	4		●
.450	10	10	9.2	105	5	64	2.0	4		●
.501	12	12	11.0	120	6	74	2.5	4		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	3	4	150	0.135	0.05	0.90	15915	8595	0.40
	4	4	150	0.180	0.08	1.20	11935	8595	0.85
	5	4	150	0.225	0.10	1.50	9550	8595	1.30
	6	4	150	0.275	0.13	1.80	7960	8755	2.05
	8	4	150	0.365	0.16	2.40	5970	8715	3.35
	10	4	150	0.455	0.21	3.00	4775	8690	5.45
	12	4	150	0.545	0.27	3.60	3980	8675	8.45
	16	4	150	0.725	0.32	4.80	2985	8655	13.30
Steel 1100 - 1300 N/mm²	3	4	140	0.115	0.05	0.90	14855	6835	0.30
	4	4	140	0.155	0.08	1.20	11140	6905	0.65
	5	4	140	0.190	0.10	1.50	8915	6775	1.00
	6	4	140	0.235	0.13	1.80	7425	6980	1.65
	8	4	140	0.310	0.16	2.40	5570	6905	2.65
	10	4	140	0.385	0.21	3.00	4455	6860	4.30
	12	4	140	0.465	0.27	3.60	3715	6910	6.70
	16	4	140	0.615	0.32	4.80	2785	6850	10.50
Steel 1300 - 1500 N/mm²	3	4	120	0.105	0.05	0.90	12735	5350	0.25
	4	4	120	0.140	0.07	1.20	9550	5350	0.45
	5	4	120	0.175	0.09	1.50	7640	5350	0.70
	6	4	120	0.215	0.12	1.80	6365	5475	1.20
	8	4	120	0.285	0.14	2.40	4775	5445	1.85
	10	4	120	0.355	0.19	3.00	3820	5425	3.10
	12	4	120	0.425	0.24	3.60	3185	5415	4.70
	16	4	120	0.565	0.29	4.80	2385	5390	7.50
Hardened tool steel 48 - 52 HRC	3	4	90	0.080	0.04	0.90	9550	3055	0.10
	4	4	90	0.110	0.06	1.20	7160	3150	0.25
	5	4	90	0.135	0.08	1.50	5730	3095	0.35
	6	4	90	0.165	0.10	1.80	4775	3150	0.55
	8	4	90	0.220	0.13	2.40	3580	3150	1.00
	10	4	90	0.275	0.17	3.00	2865	3150	1.60
	12	4	90	0.325	0.22	3.60	2385	3100	2.45
	16	4	90	0.435	0.26	4.80	1790	3115	3.90

Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	3	4	80	0.060	0.04	0.90	8490	2040	0.05
	4	4	80	0.080	0.06	1.20	6365	2035	0.15
	5	4	80	0.100	0.07	1.50	5095	2040	0.20
	6	4	80	0.125	0.09	1.80	4245	2125	0.35
	8	4	80	0.165	0.11	2.40	3185	2100	0.55
	10	4	80	0.205	0.15	3.00	2545	2085	0.95
	12	4	80	0.245	0.19	3.60	2120	2080	1.40
	16	4	80	0.325	0.22	4.80	1590	2065	2.20
Hardened tool steel 56 - 60 HRC	3	4	60	0.040	0.03	0.90	6365	1020	0.05
	4	4	60	0.050	0.05	1.20	4775	955	0.05
	5	4	60	0.065	0.07	1.50	3820	995	0.10
	6	4	60	0.075	0.08	1.80	3185	955	0.15
	8	4	60	0.100	0.10	2.40	2385	955	0.25
	10	4	60	0.125	0.14	3.00	1910	955	0.40
	12	4	60	0.155	0.18	3.60	1590	985	0.65
	16	4	60	0.205	0.21	4.80	1195	980	1.00
Hardened tool steel > 60 HRC	3	4	50	0.030	0.03	0.90	5305	635	0.00
	4	4	50	0.040	0.05	1.20	3980	635	0.05
	5	4	50	0.050	0.06	1.50	3185	635	0.05
	6	4	50	0.060	0.08	1.80	2655	635	0.10
	8	4	50	0.080	0.10	2.40	1990	635	0.15
	10	4	50	0.100	0.13	3.00	1590	635	0.25
	12	4	50	0.120	0.16	3.60	1325	635	0.35
	16	4	50	0.160	0.19	4.80	995	635	0.60
Cast iron (lamellar / spheroidal)	3	4	150	0.135	0.05	0.90	15915	8595	0.40
	4	4	150	0.180	0.08	1.20	11935	8595	0.85
	5	4	150	0.225	0.10	1.50	9550	8595	1.30
	6	4	150	0.275	0.13	1.80	7960	8755	2.05
	8	4	150	0.365	0.16	2.40	5970	8715	3.35
	10	4	150	0.455	0.21	3.00	4775	8690	5.45
	12	4	150	0.545	0.27	3.60	3980	8675	8.45
	16	4	150	0.725	0.32	4.80	2985	8655	13.30

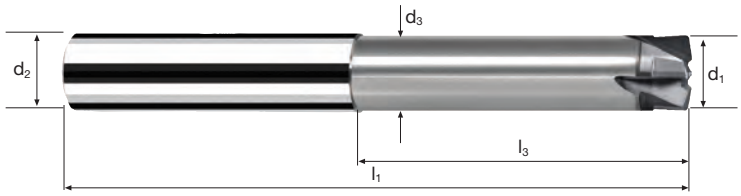
High feed end mills XFeed

Cylindrical neck, 9xd

HM
XT

λ **0°**
γ **0°**

HFC

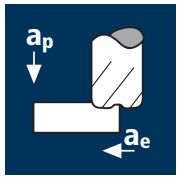


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60		**Ti** Titanium	**HSS GG(G)**

Example: **Order-N°.** — Coating: **X** | Article-N°.: **7608** | ø-Code: **.180**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_3	$ap_{max.}$	$R_{theo.}$	α	z	X-AL	**X7608**
.180	3	6	2.8	75	27	0.12	0.27	2.7°	4		●
.220	4	6	3.7	80	36	0.16	0.36	1.5°	4		●
.260	5	6	4.6	87	45	0.20	0.45	0.7°	4		●
.300	6	6	5.5	100	63	0.25	0.54	0.0°	4		●
.391	8	8	7.4	120	83	0.33	0.72	0.0°	4		●
.450	10	10	9.2	135	94	0.41	0.90	0.0°	4		●
.501	12	12	11.0	160	114	0.50	1.08	0.0°	4		●
.610	16	16	15.0	180	131	0.69	1.44	0.0°	4		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	3	4	150	0.135	0.05	0.90	15915	8595	0.40
	4	4	150	0.180	0.08	1.20	11935	8595	0.85
	5	4	150	0.225	0.10	1.50	9550	8595	1.30
	6	4	150	0.275	0.13	1.80	7960	8755	2.05
	8	4	150	0.365	0.16	2.40	5970	8715	3.35
	10	4	150	0.455	0.21	3.00	4775	8690	5.45
	12	4	150	0.545	0.27	3.60	3980	8675	8.45
Steel 1100 - 1300 N/mm²	3	4	140	0.115	0.05	0.90	14855	6835	0.30
	4	4	140	0.155	0.08	1.20	11140	6905	0.65
	5	4	140	0.190	0.10	1.50	8915	6775	1.00
	6	4	140	0.235	0.13	1.80	7425	6980	1.65
	8	4	140	0.310	0.16	2.40	5570	6905	2.65
	10	4	140	0.385	0.21	3.00	4455	6860	4.30
	12	4	140	0.465	0.27	3.60	3715	6910	6.70
Steel 1300 - 1500 N/mm²	3	4	120	0.105	0.05	0.90	12735	5350	0.25
	4	4	120	0.140	0.07	1.20	9550	5350	0.45
	5	4	120	0.175	0.09	1.50	7640	5350	0.70
	6	4	120	0.215	0.12	1.80	6365	5475	1.20
	8	4	120	0.285	0.14	2.40	4775	5445	1.85
	10	4	120	0.355	0.19	3.00	3820	5425	3.10
	12	4	120	0.425	0.24	3.60	3185	5415	4.70
Hardened tool steel 48 - 52 HRC	3	4	90	0.080	0.04	0.90	9550	3055	0.10
	4	4	90	0.110	0.06	1.20	7160	3150	0.25
	5	4	90	0.135	0.08	1.50	5730	3095	0.35
	6	4	90	0.165	0.10	1.80	4775	3150	0.55
	8	4	90	0.220	0.13	2.40	3580	3150	1.00
	10	4	90	0.275	0.17	3.00	2865	3150	1.60
	12	4	90	0.325	0.22	3.60	2385	3100	2.45

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 52 - 56 HRC	3	4	80	0.060	0.04	0.90	8490	2040	0.05
	4	4	80	0.080	0.06	1.20	6365	2035	0.15
	5	4	80	0.100	0.07	1.50	5095	2040	0.20
	6	4	80	0.125	0.09	1.80	4245	2125	0.35
	8	4	80	0.165	0.11	2.40	3185	2100	0.55
	10	4	80	0.205	0.15	3.00	2545	2085	0.95
	12	4	80	0.245	0.19	3.60	2120	2080	1.40
Hardened tool steel 56 - 60 HRC	3	4	60	0.040	0.03	0.90	6365	1020	0.05
	4	4	60	0.050	0.05	1.20	4775	955	0.05
	5	4	60	0.065	0.07	1.50	3820	995	0.10
	6	4	60	0.075	0.08	1.80	3185	955	0.15
	8	4	60	0.100	0.10	2.40	2385	955	0.25
	10	4	60	0.125	0.14	3.00	1910	955	0.40
	12	4	60	0.155	0.18	3.60	1590	985	0.65
Hardened tool steel > 60 HRC	3	4	50	0.030	0.03	0.90	5305	635	0.00
	4	4	50	0.040	0.05	1.20	3980	635	0.05
	5	4	50	0.050	0.06	1.50	3185	635	0.05
	6	4	50	0.060	0.08	1.80	2655	635	0.10
	8	4	50	0.080	0.10	2.40	1990	635	0.15
	10	4	50	0.100	0.13	3.00	1590	635	0.25
	12	4	50	0.120	0.16	3.60	1325	635	0.35
Cast iron (lamellar / spheroidal)	3	4	150	0.135	0.05	0.90	15915	8595	0.40
	4	4	150	0.180	0.08	1.20	11935	8595	0.85
	5	4	150	0.225	0.10	1.50	9550	8595	1.30
	6	4	150	0.275	0.13	1.80	7960	8755	2.05
	8	4	150	0.365	0.16	2.40	5970	8715	3.35
	10	4	150	0.455	0.21	3.00	4775	8690	5.45
	12	4	150	0.545	0.27	3.60	3980	8675	8.45

High feed end mills XFeed

Conical neck, 9xd

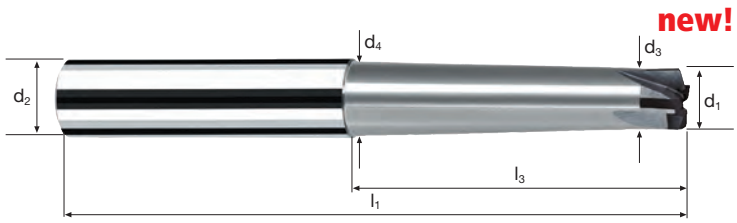
HSS | Favora® | Base-X | X-Generation X

II

HM
XT

λ 0°
γ 0°

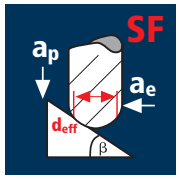
HFC

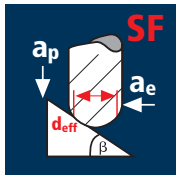


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS GG(G)

Example: **Order-N°.** Coating **X** Article-N°. **7658** ø-Code **.180**

ø Code	d_1 e8	d_2 h6	d_3	d_4	l_1	l_3	$ap_{max.}$	$R_{theo.}$	α	z	X-AL	X7658
.180	3	6	2.8	3.7	75	27	0.12	0.27	3.0°	4		●
.220	4	6	3.7	4.9	80	36	0.16	0.36	1.5°	4		●
.260	5	8	4.6	6.1	90	45	0.20	0.45	2.0°	4		●
.300	6	8	5.5	7.6	120	63	0.25	0.54	1.0°	4		●
.391	8	12	7.4	10.2	160	83	0.33	0.72	1.5°	4		●
.450	10	16	9.2	12.3	180	94	0.41	0.90	2.0°	4		●
.501	12	16	11.0	14.8	180	114	0.50	1.08	1.0°	4		●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Hardened tool steel 52 - 56 HRC	4	2	700	0.020	0.014	0.022	2.40	60000	2400	30
		5	2	700	0.025	0.016	0.024	2.97	60000	3000	30
		6	2	700	0.030	0.018	0.026	3.55	60000	3600	30
		8	2	700	0.040	0.020	0.030	4.67	47715	3815	30
		10	2	700	0.040	0.022	0.034	5.79	38485	3080	30
		12	2	700	0.050	0.026	0.038	6.94	32105	3210	30
	Hardened tool steel 56 - 60 HRC	4	2	650	0.020	0.014	0.022	2.40	60000	2400	30
		5	2	650	0.025	0.016	0.024	2.97	60000	3000	30
		6	2	650	0.025	0.018	0.026	3.55	58285	2915	30
		8	2	650	0.035	0.020	0.030	4.67	44305	3100	30
		10	2	650	0.035	0.022	0.034	5.79	35735	2500	30
		12	2	650	0.045	0.026	0.038	6.94	29815	2685	30
	Hardened tool steel > 60 HRC	4	2	600	0.015	0.014	0.022	2.40	60000	1800	30
		5	2	600	0.020	0.016	0.024	2.97	60000	2400	30
		6	2	600	0.025	0.018	0.026	3.55	53800	2690	30
		8	2	600	0.030	0.020	0.030	4.67	40900	2455	30
		10	2	600	0.030	0.022	0.034	5.79	32985	1980	30
		12	2	600	0.040	0.026	0.038	6.94	27520	2200	30

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Hardened tool steel 52 - 56 HRC	4	2	700	0.020	0.022	0.014	3.72	59900	2395	60
		5	2	700	0.025	0.024	0.016	4.63	48125	2405	60
		6	2	700	0.030	0.026	0.018	5.55	40150	2410	60
		8	2	700	0.040	0.030	0.020	7.37	30235	2420	60
		10	2	700	0.040	0.034	0.022	9.18	24275	1940	60
		12	2	700	0.050	0.038	0.026	11.00	20255	2025	60
	Hardened tool steel 56 - 60 HRC	4	2	650	0.020	0.022	0.014	3.72	55620	2225	60
		5	2	650	0.025	0.024	0.016	4.63	44690	2235	60
		6	2	650	0.025	0.026	0.018	5.55	37280	1865	60
		8	2	650	0.035	0.030	0.020	7.37	28075	1965	60
		10	2	650	0.035	0.034	0.022	9.18	22540	1580	60
		12	2	650	0.045	0.038	0.026	11.00	18810	1695	60
	Hardened tool steel > 60 HRC	4	2	600	0.015	0.022	0.014	3.72	51340	1540	60
		5	2	600	0.020	0.024	0.016	4.63	41250	1650	60
		6	2	600	0.025	0.026	0.018	5.55	34415	1720	60
		8	2	600	0.030	0.030	0.020	7.37	25915	1555	60
		10	2	600	0.030	0.034	0.022	9.18	20805	1250	60
		12	2	600	0.040	0.038	0.026	11.00	17365	1390	60

Ball nose end mills Sphero-CBN

Cylindrical neck, 3xd

CBN

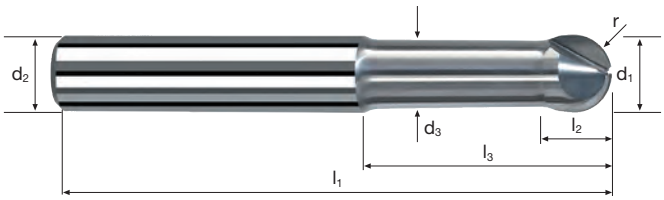
λ 0°
γ 0°

h5

d1

r

F

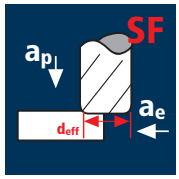


HRC 48-56 | HRC 56-60 | HRC > 60 | HSS

Example: **Order-N°.** Coating **31700** Article-N°. ø-Code **.220**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	31700	
.220	4	6	3.7	80	3.2	12	2.0	4.0°	2	●	
.260	5	6	4.6	80	4.0	15	2.5	2.0°	2	●	
.300	6	6	5.5	80	4.8	20	3.0	0.0°	2	●	
.391	8	8	7.4	100	6.4	26	4.0	0.0°	2	●	
.450	10	10	9.2	100	8.0	31	5.0	0.0°	2	●	
.501	12	12	11.0	120	9.6	37	6.0	0.0°	2	●	

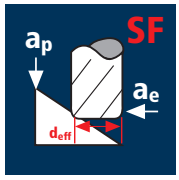
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 52 - 56 HRC									
4	2	650	0.020	0.020	0.040	3.28	60000	2400	r=0.5
5	2	650	0.025	0.026	0.050	4.32	47895	2395	r=0.5
6	2	650	0.030	0.030	0.060	5.34	38745	2325	r=0.5
8	2	650	0.040	0.040	0.080	7.39	28000	2240	r=0.5
10	2	650	0.050	0.030	0.100	9.34	22155	2215	r=0.5
12	2	650	0.060	0.036	0.120	11.37	18200	2185	r=0.5
Hardened tool steel 56 - 60 HRC									
4	2	620	0.020	0.020	0.040	3.28	60000	2400	r=0.5
5	2	620	0.025	0.026	0.050	4.32	45685	2285	r=0.5
6	2	620	0.030	0.030	0.060	5.34	36960	2220	r=0.5
8	2	620	0.040	0.040	0.080	7.39	26705	2135	r=0.5
10	2	620	0.050	0.030	0.100	9.34	21130	2115	r=0.5
12	2	620	0.060	0.036	0.120	11.37	17360	2085	r=0.5
Hardened tool steel > 60 HRC									
4	2	580	0.020	0.020	0.040	3.28	56290	2250	r=0.5
5	2	580	0.025	0.026	0.050	4.32	42735	2135	r=0.5
6	2	580	0.030	0.030	0.060	5.34	34575	2075	r=0.5
8	2	580	0.040	0.040	0.080	7.39	24985	2000	r=0.5
10	2	580	0.050	0.030	0.100	9.34	19765	1975	r=0.5
12	2	580	0.060	0.036	0.120	11.37	16240	1950	r=0.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 52 - 56 HRC									
4	2	700	0.020	0.016	0.016	3.86	57725	2310	45
5	2	700	0.025	0.020	0.020	4.88	45660	2285	45
6	2	700	0.030	0.022	0.022	5.88	37895	2275	45
8	2	700	0.040	0.024	0.024	7.89	28240	2260	45
10	2	700	0.050	0.026	0.026	9.90	22505	2250	45
12	2	700	0.060	0.032	0.032	11.91	18710	2245	45
Hardened tool steel 56 - 60 HRC									
4	2	650	0.020	0.016	0.016	3.86	53605	2145	45
5	2	650	0.025	0.020	0.020	4.88	42400	2120	45
6	2	650	0.030	0.022	0.022	5.88	35190	2110	45
8	2	650	0.040	0.024	0.024	7.89	26225	2100	45
10	2	650	0.050	0.026	0.026	9.90	20900	2090	45
12	2	650	0.060	0.032	0.032	11.91	17375	2085	45
Hardened tool steel > 60 HRC									
4	2	600	0.020	0.016	0.016	3.86	49480	1980	45
5	2	600	0.025	0.020	0.020	4.88	39140	1955	45
6	2	600	0.030	0.022	0.022	5.88	32480	1950	45
8	2	600	0.040	0.024	0.024	7.89	24205	1935	45
10	2	600	0.050	0.026	0.026	9.90	19290	1930	45
12	2	600	0.060	0.032	0.032	11.91	16035	1925	45

Corner radius end mills XSpeed-CBN

Cylindrical neck, 3xd

CBN

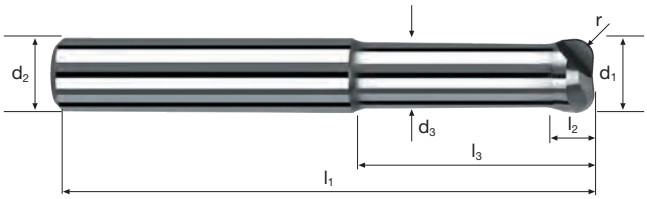
λ 0°
γ 0°

h5

d1

r

F

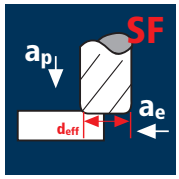


HRC 48-56 | HRC 56-60 | HRC > 60 | HSS

Example: **Order-N°.** Coating **3** Article-N°. **1420** ø-Code **.220**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	31420
.220	4	6	3.7	80	1.9	12	0.5	3.7°	2	●
.260	5	6	4.6	80	2.5	15	0.5	1.7°	2	●
.300	6	6	5.5	80	3.0	20	0.5	0.0°	2	●
.391	8	8	7.4	100	4.0	26	0.5	0.0°	2	●
.450	10	10	9.2	100	5.0	31	0.5	0.0°	2	●
.501	12	12	11.0	120	6.0	37	0.5	0.0°	2	●

Application



Material

Hardened tool steel 52 - 56 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
4	2	650	0.020	0.020	0.040	2.40	60000	2400	r=1.00
5	2	650	0.025	0.026	0.050	3.01	60000	3000	r=1.25
6	2	650	0.030	0.030	0.060	3.60	57475	3450	r=1.50
8	2	650	0.040	0.040	0.080	4.80	43105	3450	r=2.00
10	2	650	0.050	0.030	0.100	5.77	35860	3585	r=2.50
12	2	650	0.060	0.036	0.120	6.93	29855	3585	r=3.00

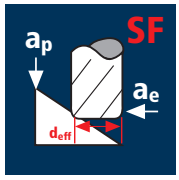
Hardened tool steel 56 - 60 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
4	2	620	0.020	0.020	0.040	2.40	60000	2400	r=1.00
5	2	620	0.025	0.026	0.050	3.01	60000	3000	r=1.25
6	2	620	0.030	0.030	0.060	3.60	54820	3290	r=1.50
8	2	620	0.040	0.040	0.080	4.80	41115	3290	r=2.00
10	2	620	0.050	0.030	0.100	5.77	34205	3420	r=2.50
12	2	620	0.060	0.036	0.120	6.93	28480	3420	r=3.00

Hardened tool steel > 60 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
4	2	580	0.020	0.020	0.040	2.40	60000	2400	r=1.00
5	2	580	0.025	0.026	0.050	3.01	60000	3000	r=1.25
6	2	580	0.030	0.030	0.060	3.60	51285	3075	r=1.50
8	2	580	0.040	0.040	0.080	4.80	38465	3075	r=2.00
10	2	580	0.050	0.030	0.100	5.77	31995	3200	r=2.50
12	2	580	0.060	0.036	0.120	6.93	26640	3195	r=3.00

Application



Material

Hardened tool steel 52 - 56 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
4	2	700	0.020	0.016	0.016	3.64	60000	2400	45
5	2	700	0.025	0.020	0.020	4.55	48970	2450	45
6	2	700	0.030	0.022	0.022	5.45	40885	2455	45
8	2	700	0.040	0.024	0.024	7.23	30820	2465	45
10	2	700	0.050	0.026	0.026	9.01	24730	2475	45
12	2	700	0.060	0.032	0.032	10.82	20595	2470	45

Hardened tool steel 56 - 60 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
4	2	650	0.020	0.016	0.016	3.64	56845	2275	45
5	2	650	0.025	0.020	0.020	4.55	45475	2275	45
6	2	650	0.030	0.022	0.022	5.45	37965	2280	45
8	2	650	0.040	0.024	0.024	7.23	28620	2290	45
10	2	650	0.050	0.026	0.026	9.01	22965	2295	45
12	2	650	0.060	0.032	0.032	10.82	19125	2295	45

Hardened tool steel > 60 HRC

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
4	2	600	0.020	0.016	0.016	3.64	52470	2100	45
5	2	600	0.025	0.020	0.020	4.55	41975	2100	45
6	2	600	0.030	0.022	0.022	5.45	35045	2105	45
8	2	600	0.040	0.024	0.024	7.23	26415	2115	45
10	2	600	0.050	0.026	0.026	9.01	21200	2120	45
12	2	600	0.060	0.032	0.032	10.82	17650	2120	45

Corner radius end mills XSpeed-CBN

Cylindrical neck, 3xd

CBN

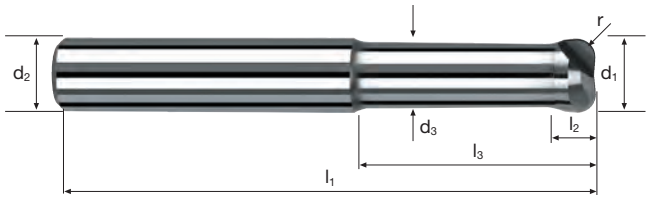
λ 0°
γ 0°

h5

d1

r

F

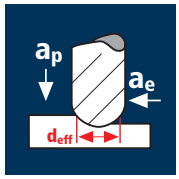


HRC 48-56 | HRC 56-60 | HRC > 60 | HSS

Example: **Order-N°.** Coating **3** Article-N°. **1410** ø-Code **.220**

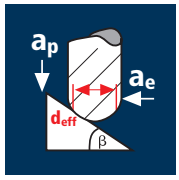
ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.015	α	z	31410
.220	4	6	3.7	80	1.9	12	1.00	3.8°	2	●
.260	5	6	4.6	80	2.5	15	1.25	1.8°	2	●
.300	6	6	5.5	80	3.0	20	1.50	0.0°	2	●
.391	8	8	7.4	100	4.0	26	2.00	0.0°	2	●
.450	10	10	9.2	100	5.0	31	2.50	0.0°	2	●
.501	12	12	11.0	120	6.0	37	3.00	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.016	0.03	0.10	0.24	60000	1920	6.0
	0.8	2	140	0.026	0.05	0.16	0.39	60000	3120	25.0
	1.0	2	140	0.034	0.06	0.20	0.47	60000	4080	49.0
	1.2	2	140	0.040	0.07	0.24	0.56	60000	4800	80.5
	1.5	2	140	0.050	0.09	0.30	0.71	60000	6000	162.0
	2.0	2	140	0.066	0.12	0.40	0.95	46910	6190	297.0
	2.5	2	140	0.084	0.15	0.50	1.19	37450	6290	472.0
	2.8	2	140	0.094	0.17	0.56	1.34	33255	6250	595.0
	3.0	2	140	0.100	0.18	0.60	1.42	31385	6275	677.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.016	0.03	0.10	0.24	60000	1920	6.0
	0.8	2	120	0.024	0.05	0.16	0.39	60000	2880	23.0
	1.0	2	120	0.032	0.06	0.20	0.47	60000	3840	46.0
	1.2	2	120	0.038	0.07	0.24	0.56	60000	4560	76.5
	1.5	2	120	0.048	0.09	0.30	0.71	53800	5165	139.5
	2.0	2	120	0.062	0.12	0.40	0.95	40210	4985	239.5
	2.5	2	120	0.080	0.15	0.50	1.19	32100	5135	385.0
	2.8	2	120	0.090	0.17	0.56	1.34	28505	5130	488.5
	3.0	2	120	0.096	0.18	0.60	1.42	26900	5165	558.0
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	0.24	60000	1680	5.0
	0.8	2	100	0.022	0.05	0.16	0.39	60000	2640	21.0
	1.0	2	100	0.030	0.06	0.20	0.47	60000	3600	43.0
	1.2	2	100	0.036	0.07	0.24	0.56	56845	4095	69.0
	1.5	2	100	0.044	0.09	0.30	0.71	44835	3945	106.5
	2.0	2	100	0.058	0.12	0.40	0.95	33505	3885	186.5
	2.5	2	100	0.074	0.15	0.50	1.19	26750	3960	297.0
	2.8	2	100	0.082	0.17	0.56	1.34	23755	3895	371.0
	3.0	2	100	0.088	0.18	0.60	1.42	22415	3945	426.0
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	0.24	60000	1440	4.5
	0.8	2	60	0.020	0.05	0.16	0.39	48970	1960	15.5
	1.0	2	60	0.028	0.06	0.20	0.47	40635	2275	27.5
	1.2	2	60	0.032	0.07	0.24	0.56	34105	2185	36.5
	1.5	2	60	0.040	0.09	0.30	0.71	26900	2150	58.0
	2.0	2	60	0.052	0.12	0.40	0.95	20105	2090	100.5
	2.5	2	60	0.068	0.15	0.50	1.19	16050	2185	164.0
	2.8	2	60	0.076	0.17	0.56	1.34	14255	2165	206.0
	3.0	2	60	0.080	0.18	0.60	1.42	13450	2150	232.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.020	0.022	0.022	0.47	60000	2400	45
	0.8	2	300	0.022	0.034	0.034	0.75	60000	2640	45
	1.0	2	300	0.028	0.042	0.042	0.93	60000	3360	45
	1.2	2	300	0.030	0.050	0.050	1.12	60000	3600	45
	1.5	2	300	0.034	0.064	0.064	1.40	60000	4080	45
	2.0	2	300	0.038	0.084	0.084	1.86	51340	3900	45
	2.5	2	300	0.040	0.106	0.106	2.33	40985	3280	45
	2.8	2	300	0.044	0.118	0.118	2.61	36590	3220	45
	3.0	2	300	0.046	0.126	0.126	2.79	34230	3150	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.020	0.022	0.022	0.47	60000	2400	45
	0.8	2	250	0.020	0.034	0.034	0.75	60000	2400	45
	1.0	2	250	0.026	0.042	0.042	0.93	60000	3120	45
	1.2	2	250	0.028	0.050	0.050	1.12	60000	3360	45
	1.5	2	250	0.032	0.064	0.064	1.40	56845	3640	45
	2.0	2	250	0.036	0.084	0.084	1.86	42785	3080	45
	2.5	2	250	0.038	0.106	0.106	2.33	34155	2595	45
	2.8	2	250	0.042	0.118	0.118	2.61	30490	2560	45
	3.0	2	250	0.044	0.126	0.126	2.79	28525	2510	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.018	0.022	0.022	0.47	60000	2160	45
	0.8	2	200	0.020	0.034	0.034	0.75	60000	2400	45
	1.0	2	200	0.026	0.042	0.042	0.93	60000	3120	45
	1.2	2	200	0.028	0.050	0.050	1.12	56845	3185	45
	1.5	2	200	0.030	0.064	0.064	1.40	45475	2730	45
	2.0	2	200	0.034	0.084	0.084	1.86	34230	2330	45
	2.5	2	200	0.036	0.106	0.106	2.33	27325	1965	45
	2.8	2	200	0.040	0.118	0.118	2.61	24390	1950	45
	3.0	2	200	0.042	0.126	0.126	2.79	22820	1915	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.016	0.022	0.022	0.47	60000	1920	45
	0.8	2	150	0.018	0.034	0.034	0.75	60000	2160	45
	1.0	2	150	0.022	0.042	0.042	0.93	51340	2260	45
	1.2	2	150	0.024	0.050	0.050	1.12	42630	2045	45
	1.5	2	150	0.028	0.064	0.064	1.40	34105	1910	45
	2.0	2	150	0.030	0.084	0.084	1.86	25670	1540	45
	2.5	2	150	0.032	0.106	0.106	2.33	20495	1310	45
	2.8	2	150	0.036	0.118	0.118	2.61	18295	1315	45
	3.0	2	150	0.036	0.126	0.126	2.79	17115	1230	45

Ball nose end mills MicroX

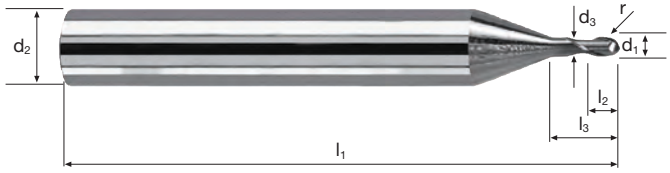
Shank Ø 6mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA | **λ 30° γ-10°**

h5



d1

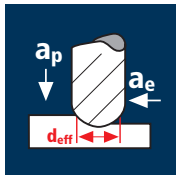
r

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6562** | ø-Code **.020**

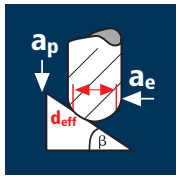
ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X6562
.020	0.2	6	0.18	57	0.2	0.6	0.10	9.7°	2		●
.030	0.3	6	0.25	57	0.3	0.9	0.15	9.5°	2		●
.040	0.4	6	0.35	57	0.4	1.2	0.20	9.4°	2		●
.050	0.5	6	0.45	57	0.5	1.5	0.25	13.3°	2		●
.060	0.6	6	0.55	57	0.6	1.8	0.30	13.0°	2		●
.080	0.8	6	0.75	57	0.8	2.4	0.40	12.4°	2		●
.100	1.0	6	0.95	57	1.0	3.0	0.50	11.8°	2		●
.108	1.2	6	1.10	57	1.2	3.6	0.60	11.2°	2		●
.120	1.5	6	1.40	57	1.5	4.5	0.75	10.3°	2		●
.140	2.0	6	1.90	57	2.0	6.0	1.00	9.0°	2		●
.152	2.3	6	2.10	57	2.3	6.9	1.15	8.1°	2		●
.160	2.5	6	2.30	57	2.5	7.5	1.25	7.6°	2		●
.172	2.8	6	2.60	57	2.8	8.4	1.40	6.8°	2		●
.180	3.0	6	2.80	57	3.0	9.0	1.50	6.4°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.016	0.03	0.10	0.24	60000	1920	6.0
	0.8	2	140	0.026	0.04	0.16	0.35	60000	3120	20.0
	1.0	2	140	0.034	0.05	0.20	0.44	60000	4080	41.0
	1.2	2	140	0.040	0.06	0.24	0.52	60000	4800	69.0
	1.5	2	140	0.050	0.08	0.30	0.67	60000	6000	144.0
	2.0	2	140	0.066	0.10	0.40	0.87	51225	6760	270.5
	2.5	2	140	0.084	0.13	0.50	1.11	40150	6745	438.5
	2.8	2	140	0.094	0.14	0.56	1.22	36530	6870	538.5
	3.0	2	140	0.100	0.15	0.60	1.31	34020	6805	612.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.016	0.03	0.10	0.24	60000	1920	6.0
	0.8	2	120	0.024	0.04	0.16	0.35	60000	2880	18.5
	1.0	2	120	0.032	0.05	0.20	0.44	60000	3840	38.5
	1.2	2	120	0.038	0.06	0.24	0.52	60000	4560	65.5
	1.5	2	120	0.048	0.08	0.30	0.67	57010	5475	131.5
	2.0	2	120	0.062	0.10	0.40	0.87	43905	5445	218.0
	2.5	2	120	0.080	0.13	0.50	1.11	34415	5505	358.0
	2.8	2	120	0.090	0.14	0.56	1.22	31310	5635	442.0
	3.0	2	120	0.096	0.15	0.60	1.31	29160	5600	504.0
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	0.24	60000	1680	5.0
	0.8	2	100	0.022	0.04	0.16	0.35	60000	2640	17.0
	1.0	2	100	0.030	0.05	0.20	0.44	60000	3600	36.0
	1.2	2	100	0.036	0.06	0.24	0.52	60000	4320	62.0
	1.5	2	100	0.044	0.08	0.30	0.67	47510	4180	100.5
	2.0	2	100	0.058	0.10	0.40	0.87	36590	4245	170.0
	2.5	2	100	0.074	0.13	0.50	1.11	28675	4245	276.0
	2.8	2	100	0.082	0.14	0.56	1.22	26090	4280	335.5
	3.0	2	100	0.088	0.15	0.60	1.31	24300	4275	385.0
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	0.24	60000	1440	4.5
	0.8	2	60	0.020	0.04	0.16	0.35	54570	2185	14.0
	1.0	2	60	0.028	0.05	0.20	0.44	43405	2430	24.5
	1.2	2	60	0.032	0.06	0.24	0.52	36730	2350	34.0
	1.5	2	60	0.040	0.08	0.30	0.67	28505	2280	54.5
	2.0	2	60	0.052	0.10	0.40	0.87	21955	2285	91.5
	2.5	2	60	0.068	0.13	0.50	1.11	17205	2340	152.0
	2.8	2	60	0.076	0.14	0.56	1.22	15655	2380	186.5
	3.0	2	60	0.080	0.15	0.60	1.31	14580	2335	210.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.020	0.020	0.020	0.46	60000	2400	45
	0.8	2	300	0.022	0.032	0.032	0.74	60000	2640	45
	1.0	2	300	0.028	0.042	0.042	0.93	60000	3360	45
	1.2	2	300	0.030	0.050	0.050	1.12	60000	3600	45
	1.5	2	300	0.034	0.062	0.062	1.40	60000	4080	45
	2.0	2	300	0.038	0.082	0.082	1.86	51340	3900	45
	2.5	2	300	0.040	0.102	0.102	2.32	41160	3295	45
	2.8	2	300	0.044	0.114	0.114	2.60	36730	3230	45
	3.0	2	300	0.046	0.122	0.122	2.79	34230	3150	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.020	0.020	0.020	0.46	60000	2400	45
	0.8	2	250	0.020	0.032	0.032	0.74	60000	2400	45
	1.0	2	250	0.026	0.042	0.042	0.93	60000	3120	45
	1.2	2	250	0.028	0.050	0.050	1.12	60000	3360	45
	1.5	2	250	0.032	0.062	0.062	1.40	56845	3640	45
	2.0	2	250	0.036	0.082	0.082	1.86	42785	3080	45
	2.5	2	250	0.038	0.102	0.102	2.32	34300	2605	45
	2.8	2	250	0.042	0.114	0.114	2.60	30610	2570	45
	3.0	2	250	0.044	0.122	0.122	2.79	28525	2510	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.018	0.020	0.020	0.46	60000	2160	45
	0.8	2	200	0.020	0.032	0.032	0.74	60000	2400	45
	1.0	2	200	0.026	0.042	0.042	0.93	60000	3120	45
	1.2	2	200	0.028	0.050	0.050	1.12	56845	3185	45
	1.5	2	200	0.030	0.062	0.062	1.40	45475	2730	45
	2.0	2	200	0.034	0.082	0.082	1.86	34230	2330	45
	2.5	2	200	0.036	0.102	0.102	2.32	27440	1975	45
	2.8	2	200	0.040	0.114	0.114	2.60	24485	1960	45
	3.0	2	200	0.042	0.122	0.122	2.79	22820	1915	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.016	0.020	0.020	0.46	60000	1920	45
	0.8	2	150	0.018	0.032	0.032	0.74	60000	2160	45
	1.0	2	150	0.022	0.042	0.042	0.93	51340	2260	45
	1.2	2	150	0.024	0.050	0.050	1.12	42630	2045	45
	1.5	2	150	0.028	0.062	0.062	1.40	34105	1910	45
	2.0	2	150	0.030	0.082	0.082	1.86	25670	1540	45
	2.5	2	150	0.032	0.102	0.102	2.32	20580	1315	45
	2.8	2	150	0.036	0.114	0.114	2.60	18365	1320	45
	3.0	2	150	0.036	0.122	0.122	2.79	17115	1230	45

Ball nose end mills MicroX

Shank Ø 6mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | X-Generation X

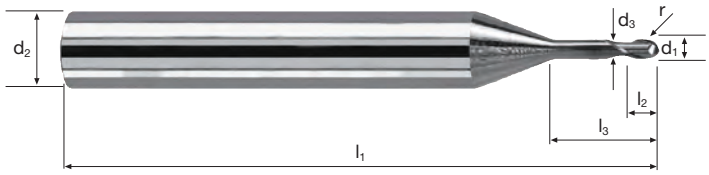
II

HM XA | λ 30° γ-10°

h5

d1

r

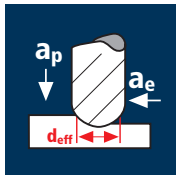


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6564** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X6564
.050	0.5	6	0.45	57	0.5	2.5	0.25	12.3°	2		●
.060	0.6	6	0.55	57	0.6	3.0	0.30	11.9°	2		●
.080	0.8	6	0.75	57	0.8	4.0	0.40	11.0°	2		●
.100	1.0	6	0.95	57	1.0	5.0	0.50	10.2°	2		●
.108	1.2	6	1.10	57	1.2	6.0	0.60	9.4°	2		●
.120	1.5	6	1.40	61	1.5	7.5	0.75	8.4°	2		●
.140	2.0	6	1.90	61	2.0	10.0	1.00	6.9°	2		●
.152	2.3	6	2.10	61	2.3	11.5	1.15	6.0°	2		●
.160	2.5	6	2.30	61	2.5	12.5	1.25	5.5°	2		●
.172	2.8	6	2.60	61	2.8	14.0	1.40	4.9°	2		●
.180	3.0	6	2.80	66	3.0	15.0	1.50	4.4°	2		●

Application



Material

Hardened tool steel 42 - 48 HRC

X X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	140	0.016	0.02	0.09	0.20	60000	1920	3.5
0.6	2	140	0.020	0.02	0.11	0.22	60000	2400	5.5
0.8	2	140	0.026	0.03	0.14	0.30	60000	3120	13.0
1.0	2	140	0.034	0.04	0.18	0.39	60000	4080	29.5
1.2	2	140	0.040	0.05	0.22	0.48	60000	4800	53.0
1.5	2	140	0.050	0.06	0.27	0.59	60000	6000	97.0
2.0	2	140	0.066	0.08	0.36	0.78	57135	7540	217.0
2.5	2	140	0.084	0.10	0.45	0.98	45475	7640	344.0
3.0	2	140	0.100	0.12	0.54	1.18	37765	7555	489.5

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	120	0.016	0.02	0.09	0.20	60000	1920	3.5
0.6	2	120	0.020	0.02	0.11	0.22	60000	2400	5.5
0.8	2	120	0.024	0.03	0.14	0.30	60000	2880	12.0
1.0	2	120	0.032	0.04	0.18	0.39	60000	3840	27.5
1.2	2	120	0.038	0.05	0.22	0.48	60000	4560	50.0
1.5	2	120	0.048	0.06	0.27	0.59	60000	5760	93.5
2.0	2	120	0.062	0.08	0.36	0.78	48970	6070	175.0
2.5	2	120	0.080	0.10	0.45	0.98	38980	6235	280.5
3.0	2	120	0.096	0.12	0.54	1.18	32370	6215	402.5

Hardened tool steel 52 - 56 HRC

X

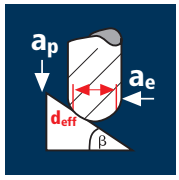
d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	100	0.014	0.02	0.09	0.20	60000	1680	3.0
0.6	2	100	0.018	0.02	0.11	0.22	60000	2160	5.0
0.8	2	100	0.022	0.03	0.14	0.30	60000	2640	11.0
1.0	2	100	0.030	0.04	0.18	0.39	60000	3600	26.0
1.2	2	100	0.036	0.05	0.22	0.48	60000	4320	47.5
1.5	2	100	0.044	0.06	0.27	0.59	53950	4750	77.0
2.0	2	100	0.058	0.08	0.36	0.78	40810	4735	136.5
2.5	2	100	0.074	0.10	0.45	0.98	32480	4805	216.0
3.0	2	100	0.088	0.12	0.54	1.18	26975	4750	308.0

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	60	0.012	0.02	0.09	0.20	60000	1440	2.5
0.6	2	60	0.016	0.02	0.11	0.22	60000	1920	4.0
0.8	2	60	0.020	0.03	0.14	0.30	60000	2400	10.0
1.0	2	60	0.028	0.04	0.18	0.39	48970	2740	19.5
1.2	2	60	0.032	0.05	0.22	0.48	39790	2545	28.0
1.5	2	60	0.040	0.06	0.27	0.59	32370	2590	42.0
2.0	2	60	0.052	0.08	0.36	0.78	24485	2545	73.5
2.5	2	60	0.068	0.10	0.45	0.98	19490	2650	119.5
3.0	2	60	0.080	0.12	0.54	1.18	16185	2590	168.0

Application



Material

Hardened tool steel 42 - 48 HRC

X X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	300	0.020	0.020	0.020	0.46	60000	2400	45
0.6	2	300	0.022	0.024	0.024	0.56	60000	2640	45
0.8	2	300	0.024	0.032	0.032	0.74	60000	2880	45
1.0	2	300	0.028	0.040	0.040	0.93	60000	3360	45
1.2	2	300	0.030	0.048	0.048	1.11	60000	3600	45
1.5	2	300	0.034	0.060	0.060	1.39	60000	4080	45
2.0	2	300	0.038	0.080	0.080	1.86	51340	3900	45
2.5	2	300	0.040	0.100	0.100	2.32	41160	3295	45
3.0	2	300	0.046	0.120	0.120	2.78	34350	3160	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	250	0.020	0.020	0.020	0.46	60000	2400	45
0.6	2	250	0.020	0.024	0.024	0.56	60000	2400	45
0.8	2	250	0.022	0.032	0.032	0.74	60000	2640	45
1.0	2	250	0.026	0.040	0.040	0.93	60000	3120	45
1.2	2	250	0.028	0.048	0.048	1.11	60000	3360	45
1.5	2	250	0.032	0.060	0.060	1.39	57250	3665	45
2.0	2	250	0.036	0.080	0.080	1.86	42785	3080	45
2.5	2	250	0.038	0.100	0.100	2.32	34300	2605	45
3.0	2	250	0.044	0.120	0.120	2.78	28625	2520	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	200	0.018	0.020	0.020	0.46	60000	2160	45
0.6	2	200	0.020	0.024	0.024	0.56	60000	2400	45
0.8	2	200	0.022	0.032	0.032	0.74	60000	2640	45
1.0	2	200	0.026	0.040	0.040	0.93	60000	3120	45
1.2	2	200	0.028	0.048	0.048	1.11	57355	3210	45
1.5	2	200	0.030	0.060	0.060	1.39	45800	2750	45
2.0	2	200	0.034	0.080	0.080	1.86	34230	2330	45
2.5	2	200	0.036	0.100	0.100	2.32	27440	1975	45
3.0	2	200	0.042	0.120	0.120	2.78	22900	1925	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	150	0.016	0.020	0.020	0.46	60000	1920	45
0.6	2	150	0.018	0.024	0.024	0.56	60000	2160	45
0.8	2	150	0.020	0.032	0.032	0.74	60000	2400	45
1.0	2	150	0.022	0.040	0.040	0.93	51340	2260	45
1.2	2	150	0.024	0.048	0.048	1.11	43015	2065	45
1.5	2	150	0.028	0.060	0.060	1.39	34350	1925	45
2.0	2	150	0.030	0.080	0.080	1.86	25670	1540	45
2.5	2	150	0.032	0.100	0.100	2.32	20580	1315	45
3.0	2	150	0.036	0.120	0.120	2.78	17175	1235	45

Ball nose end mills MicroX

Shank Ø 6mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation X

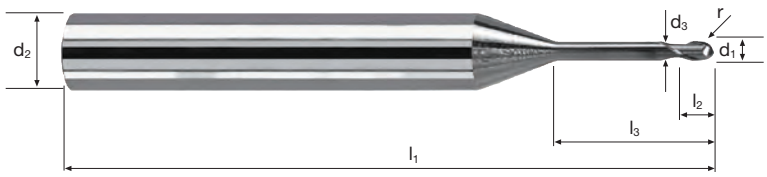
II

HM XA | λ 30° γ-10°

h5

d1

r

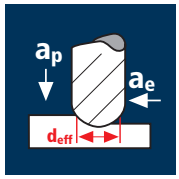


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6566** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X6566
.050	0.5	6	0.45	57	0.5	4.0	0.25	11.1°	2		●
.060	0.6	6	0.55	57	0.6	4.8	0.30	10.5°	2		●
.080	0.8	6	0.75	57	0.8	6.4	0.40	9.4°	2		●
.100	1.0	6	0.95	61	1.0	8.0	0.50	8.4°	2		●
.108	1.2	6	1.10	61	1.2	9.6	0.60	7.6°	2		●
.120	1.5	6	1.40	61	1.5	12.0	0.75	6.5°	2		●
.140	2.0	6	1.90	66	2.0	16.0	1.00	5.1°	2		●
.160	2.5	6	2.30	69	2.5	20.0	1.25	3.9°	2		●
.180	3.0	6	2.80	75	3.0	24.0	1.50	3.1°	2		●

Application



Material

Hardened tool steel 42 - 48 HRC

X X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	140	0.016	0.02	0.08	0.20	60000	1920	3.0
0.6	2	140	0.020	0.02	0.10	0.22	60000	2400	5.0
0.8	2	140	0.026	0.03	0.13	0.30	60000	3120	12.0
1.0	2	140	0.034	0.04	0.16	0.39	60000	4080	26.0
1.2	2	140	0.040	0.05	0.19	0.48	60000	4800	45.5
1.5	2	140	0.050	0.06	0.24	0.59	60000	6000	86.5
2.0	2	140	0.066	0.08	0.32	0.78	57135	7540	193.0
2.5	2	140	0.084	0.10	0.40	0.98	45475	7640	305.5
3.0	2	140	0.100	0.12	0.48	1.18	37765	7555	435.0

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	120	0.016	0.02	0.08	0.20	60000	1920	3.0
0.6	2	120	0.020	0.02	0.10	0.22	60000	2400	5.0
0.8	2	120	0.024	0.03	0.13	0.30	60000	2880	11.0
1.0	2	120	0.032	0.04	0.16	0.39	60000	3840	24.5
1.2	2	120	0.038	0.05	0.19	0.48	60000	4560	43.5
1.5	2	120	0.048	0.06	0.24	0.59	60000	5760	83.0
2.0	2	120	0.062	0.08	0.32	0.78	48970	6070	155.5
2.5	2	120	0.080	0.10	0.40	0.98	38980	6235	249.5
3.0	2	120	0.096	0.12	0.48	1.18	32370	6215	358.0

Hardened tool steel 52 - 56 HRC

X

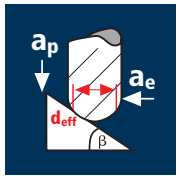
d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	100	0.014	0.02	0.08	0.20	60000	1680	2.5
0.6	2	100	0.018	0.02	0.10	0.22	60000	2160	4.5
0.8	2	100	0.022	0.03	0.13	0.30	60000	2640	10.5
1.0	2	100	0.030	0.04	0.16	0.39	60000	3600	23.0
1.2	2	100	0.036	0.05	0.19	0.48	60000	4320	41.0
1.5	2	100	0.044	0.06	0.24	0.59	53950	4750	68.5
2.0	2	100	0.058	0.08	0.32	0.78	40810	4735	121.0
2.5	2	100	0.074	0.10	0.40	0.98	32480	4805	192.0
3.0	2	100	0.088	0.12	0.48	1.18	26975	4750	273.5

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
0.5	2	60	0.012	0.02	0.08	0.20	60000	1440	2.5
0.6	2	60	0.016	0.02	0.10	0.22	60000	1920	4.0
0.8	2	60	0.020	0.03	0.13	0.30	60000	2400	9.5
1.0	2	60	0.028	0.04	0.16	0.39	48970	2740	17.5
1.2	2	60	0.032	0.05	0.19	0.48	39790	2545	24.0
1.5	2	60	0.040	0.06	0.24	0.59	32370	2590	37.5
2.0	2	60	0.052	0.08	0.32	0.78	24485	2545	65.0
2.5	2	60	0.068	0.10	0.40	0.98	19490	2650	106.0
3.0	2	60	0.080	0.12	0.48	1.18	16185	2590	149.0

Application



Material

Hardened tool steel 42 - 48 HRC

X X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	300	0.018	0.018	0.018	0.46	60000	2160	45
0.6	2	300	0.020	0.022	0.022	0.55	60000	2400	45
0.8	2	300	0.022	0.028	0.028	0.73	60000	2640	45
1.0	2	300	0.026	0.036	0.036	0.92	60000	3120	45
1.2	2	300	0.028	0.042	0.042	1.10	60000	3360	45
1.5	2	300	0.030	0.052	0.052	1.38	60000	3600	45
2.0	2	300	0.034	0.070	0.070	1.84	51900	3530	45
2.5	2	300	0.036	0.088	0.088	2.29	41700	3000	45
3.0	2	300	0.042	0.106	0.106	2.75	34725	2915	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	250	0.018	0.018	0.018	0.46	60000	2160	45
0.6	2	250	0.020	0.022	0.022	0.55	60000	2400	45
0.8	2	250	0.020	0.028	0.028	0.73	60000	2400	45
1.0	2	250	0.024	0.036	0.036	0.92	60000	2880	45
1.2	2	250	0.026	0.042	0.042	1.10	60000	3120	45
1.5	2	250	0.028	0.052	0.052	1.38	57665	3230	45
2.0	2	250	0.032	0.070	0.070	1.84	43250	2770	45
2.5	2	250	0.034	0.088	0.088	2.29	34750	2365	45
3.0	2	250	0.040	0.106	0.106	2.75	28940	2315	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	200	0.016	0.018	0.018	0.46	60000	1920	45
0.6	2	200	0.018	0.022	0.022	0.55	60000	2160	45
0.8	2	200	0.020	0.028	0.028	0.73	60000	2400	45
1.0	2	200	0.024	0.036	0.036	0.92	60000	2880	45
1.2	2	200	0.026	0.042	0.042	1.10	57875	3010	45
1.5	2	200	0.028	0.052	0.052	1.38	46135	2585	45
2.0	2	200	0.030	0.070	0.070	1.84	34600	2075	45
2.5	2	200	0.032	0.088	0.088	2.29	27800	1780	45
3.0	2	200	0.038	0.106	0.106	2.75	23150	1760	45

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
0.5	2	150	0.014	0.018	0.018	0.46	60000	1680	45
0.6	2	150	0.016	0.022	0.022	0.55	60000	1920	45
0.8	2	150	0.018	0.028	0.028	0.73	60000	2160	45
1.0	2	150	0.020	0.036	0.036	0.92	51900	2075	45
1.2	2	150	0.022	0.042	0.042	1.10	43405	1910	45
1.5	2	150	0.024	0.052	0.052	1.38	34600	1660	45
2.0	2	150	0.028	0.070	0.070	1.84	25950	1455	45
2.5	2	150	0.028	0.088	0.088	2.29	20850	1170	45
3.0	2	150	0.034	0.106	0.106	2.75	17365	1180	45

Ball nose end mills MicroX

Shank Ø 6mm, cylindrical neck, 10xd

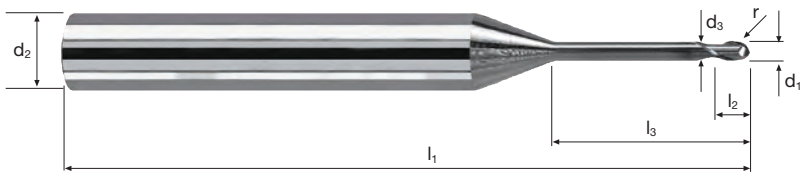
HSS | Favora® | Base-X | X-Generation X

II

HM XA | λ 30° γ-10°

h5

d1 | r

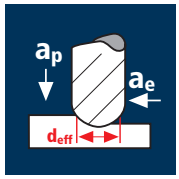


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6568** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	X-AL	X6568
.050	0.5	6	0.45	57	0.5	5.0	0.25	10.3°	2		●
.060	0.6	6	0.55	57	0.6	6.0	0.30	9.7°	2		●
.080	0.8	6	0.75	61	0.8	8.0	0.40	8.5°	2		●
.100	1.0	6	0.95	61	1.0	10.0	0.50	7.6°	2		●
.108	1.2	6	1.10	66	1.2	12.0	0.60	6.7°	2		●
.120	1.5	6	1.40	66	1.5	15.0	0.75	5.7°	2		●
.140	2.0	6	1.90	69	2.0	20.0	1.00	4.3°	2		●
.160	2.5	6	2.30	75	2.5	25.0	1.25	3.3°	2		●
.180	3.0	6	2.80	80	3.0	30.0	1.50	2.5°	2		●

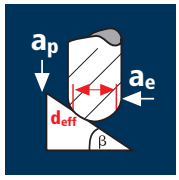
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC									
0.5	2	140	0.020	0.02	0.09	0.20	60000	2400	4.5
0.6	2	140	0.024	0.02	0.11	0.22	60000	2880	6.5
0.8	2	140	0.032	0.03	0.14	0.30	60000	3840	16.0
1.0	2	140	0.040	0.04	0.18	0.39	60000	4800	34.5
1.2	2	140	0.048	0.05	0.22	0.48	60000	5760	63.5
1.5	2	140	0.060	0.06	0.27	0.59	60000	7200	116.5
2.0	2	140	0.080	0.08	0.36	0.78	57135	9140	263.0
2.5	2	140	0.100	0.10	0.45	0.98	45475	9095	409.5
3.0	2	140	0.120	0.12	0.54	1.18	37765	9065	587.5
Hardened tool steel 48 - 52 HRC									
0.5	2	120	0.020	0.02	0.09	0.20	60000	2400	4.5
0.6	2	120	0.022	0.02	0.11	0.22	60000	2640	6.0
0.8	2	120	0.030	0.03	0.14	0.30	60000	3600	15.0
1.0	2	120	0.038	0.04	0.18	0.39	60000	4560	33.0
1.2	2	120	0.046	0.05	0.22	0.48	60000	5520	60.5
1.5	2	120	0.058	0.06	0.27	0.59	60000	6960	113.0
2.0	2	120	0.076	0.08	0.36	0.78	48970	7445	214.5
2.5	2	120	0.096	0.10	0.45	0.98	38980	7485	337.0
3.0	2	120	0.114	0.12	0.54	1.18	32370	7380	478.0
Hardened tool steel 52 - 56 HRC									
0.5	2	100	0.018	0.02	0.09	0.20	60000	2160	4.0
0.6	2	100	0.022	0.02	0.11	0.22	60000	2640	6.0
0.8	2	100	0.028	0.03	0.14	0.30	60000	3360	14.0
1.0	2	100	0.036	0.04	0.18	0.39	60000	4320	31.0
1.2	2	100	0.042	0.05	0.22	0.48	60000	5040	55.5
1.5	2	100	0.052	0.06	0.27	0.59	53950	5610	91.0
2.0	2	100	0.070	0.08	0.36	0.78	40810	5715	164.5
2.5	2	100	0.088	0.10	0.45	0.98	32480	5715	257.0
3.0	2	100	0.106	0.12	0.54	1.18	26975	5720	370.5
Hardened tool steel 56 - 60 HRC									
0.5	2	60	0.016	0.02	0.09	0.20	60000	1920	3.5
0.6	2	60	0.020	0.02	0.11	0.22	60000	2400	5.5
0.8	2	60	0.026	0.03	0.14	0.30	60000	3120	13.0
1.0	2	60	0.032	0.04	0.18	0.39	48970	3135	22.5
1.2	2	60	0.038	0.05	0.22	0.48	39790	3025	33.5
1.5	2	60	0.048	0.06	0.27	0.59	32370	3110	50.5
2.0	2	60	0.064	0.08	0.36	0.78	24485	3135	90.5
2.5	2	60	0.080	0.10	0.45	0.98	19490	3120	140.5
3.0	2	60	0.096	0.12	0.54	1.18	16185	3110	201.5

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Hardened tool steel 42 - 48 HRC									
0.5	2	300	0.024	0.020	0.020	0.46	60000	2880	45
0.6	2	300	0.026	0.024	0.024	0.56	60000	3120	45
0.8	2	300	0.030	0.032	0.032	0.74	60000	3600	45
1.0	2	300	0.034	0.040	0.040	0.93	60000	4080	45
1.2	2	300	0.036	0.048	0.048	1.11	60000	4320	45
1.5	2	300	0.040	0.060	0.060	1.39	60000	4800	45
2.0	2	300	0.046	0.080	0.080	1.86	51340	4725	45
2.5	2	300	0.048	0.100	0.100	2.32	41160	3950	45
3.0	2	300	0.056	0.120	0.120	2.78	34350	3845	45
Hardened tool steel 48 - 52 HRC									
0.5	2	250	0.022	0.020	0.020	0.46	60000	2640	45
0.6	2	250	0.024	0.024	0.024	0.56	60000	2880	45
0.8	2	250	0.028	0.032	0.032	0.74	60000	3360	45
1.0	2	250	0.032	0.040	0.040	0.93	60000	3840	45
1.2	2	250	0.034	0.048	0.048	1.11	60000	4080	45
1.5	2	250	0.038	0.060	0.060	1.39	57250	4350	45
2.0	2	250	0.044	0.080	0.080	1.86	42785	3765	45
2.5	2	250	0.046	0.100	0.100	2.32	34300	3155	45
3.0	2	250	0.054	0.120	0.120	2.78	28625	3090	45
Hardened tool steel 52 - 56 HRC									
0.5	2	200	0.022	0.020	0.020	0.46	60000	2640	45
0.6	2	200	0.024	0.024	0.024	0.56	60000	2880	45
0.8	2	200	0.028	0.032	0.032	0.74	60000	3360	45
1.0	2	200	0.030	0.040	0.040	0.93	60000	3600	45
1.2	2	200	0.032	0.048	0.048	1.11	57355	3670	45
1.5	2	200	0.036	0.060	0.060	1.39	45800	3300	45
2.0	2	200	0.042	0.080	0.080	1.86	34230	2875	45
2.5	2	200	0.044	0.100	0.100	2.32	27440	2415	45
3.0	2	200	0.050	0.120	0.120	2.78	22900	2290	45
Hardened tool steel 56 - 60 HRC									
0.5	2	150	0.020	0.020	0.020	0.46	60000	2400	45
0.6	2	150	0.020	0.024	0.024	0.56	60000	2400	45
0.8	2	150	0.024	0.032	0.032	0.74	60000	2880	45
1.0	2	150	0.028	0.040	0.040	0.93	51340	2875	45
1.2	2	150	0.028	0.048	0.048	1.11	43015	2410	45
1.5	2	150	0.032	0.060	0.060	1.39	34350	2200	45
2.0	2	150	0.036	0.080	0.080	1.86	25670	1850	45
2.5	2	150	0.038	0.100	0.100	2.32	20580	1565	45
3.0	2	150	0.044	0.120	0.120	2.78	17175	1510	45

Ball nose end mills MicroX

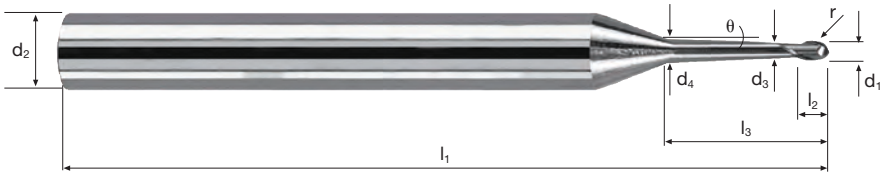
Shank Ø 6mm, conical neck 0.9°, 8xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA | λ 30° γ-10°

h5





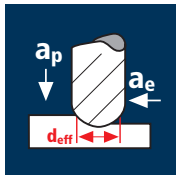


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6766** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r ±0.005	α	z	X-AL	X6766
.050	0.5	6	0.45	0.56	57	0.40	4.0	0.9°	0.25	11.1°	2		●
.060	0.6	6	0.55	0.68	57	0.50	4.8	0.9°	0.30	10.5°	2		●
.080	0.8	6	0.75	0.93	57	0.65	6.4	0.9°	0.40	9.4°	2		●
.100	1.0	6	0.95	1.18	61	0.80	8.0	0.9°	0.50	8.4°	2		●
.108	1.2	6	1.10	1.42	61	1.00	9.6	0.9°	0.60	7.6°	2		●
.120	1.5	6	1.40	1.79	61	1.20	12.0	0.9°	0.75	6.5°	2		●
.140	2.0	6	1.90	2.41	66	1.60	16.0	0.9°	1.00	5.1°	2		●
.160	2.5	6	2.30	3.03	69	2.00	20.0	0.9°	1.25	3.9°	2		●
.180	3.0	6	2.80	3.64	75	2.40	24.0	0.9°	1.50	3.1°	2		●

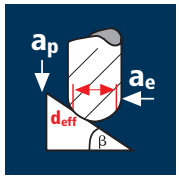
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC									
0.5	2	140	0.020	0.02	0.08	0.20	60000	2400	4.0
0.6	2	140	0.024	0.02	0.10	0.22	60000	2880	6.0
0.8	2	140	0.032	0.03	0.13	0.30	60000	3840	15.0
1.0	2	140	0.040	0.04	0.16	0.39	60000	4800	30.5
1.2	2	140	0.048	0.05	0.19	0.48	60000	5760	54.5
1.5	2	140	0.060	0.06	0.24	0.59	60000	7200	103.5
2.0	2	140	0.080	0.08	0.32	0.78	57135	9140	234.0
2.5	2	140	0.100	0.10	0.40	0.98	45475	9095	364.0
3.0	2	140	0.120	0.12	0.48	1.18	37765	9065	522.0
Hardened tool steel 48 - 52 HRC									
0.5	2	120	0.020	0.02	0.08	0.20	60000	2400	4.0
0.6	2	120	0.022	0.02	0.10	0.22	60000	2640	5.5
0.8	2	120	0.030	0.03	0.13	0.30	60000	3600	14.0
1.0	2	120	0.038	0.04	0.16	0.39	60000	4560	29.0
1.2	2	120	0.046	0.05	0.19	0.48	60000	5520	52.5
1.5	2	120	0.058	0.06	0.24	0.59	60000	6960	100.0
2.0	2	120	0.076	0.08	0.32	0.78	48970	7445	190.5
2.5	2	120	0.096	0.10	0.40	0.98	38980	7485	299.5
3.0	2	120	0.114	0.12	0.48	1.18	32370	7380	425.0
Hardened tool steel 52 - 56 HRC									
0.5	2	100	0.018	0.02	0.08	0.20	60000	2160	3.5
0.6	2	100	0.022	0.02	0.10	0.22	60000	2640	5.5
0.8	2	100	0.028	0.03	0.13	0.30	60000	3360	13.0
1.0	2	100	0.036	0.04	0.16	0.39	60000	4320	27.5
1.2	2	100	0.042	0.05	0.19	0.48	60000	5040	48.0
1.5	2	100	0.052	0.06	0.24	0.59	53950	5610	81.0
2.0	2	100	0.070	0.08	0.32	0.78	40810	5715	146.5
2.5	2	100	0.088	0.10	0.40	0.98	32480	5715	228.5
3.0	2	100	0.106	0.12	0.48	1.18	26975	5720	329.5
Hardened tool steel 56 - 60 HRC									
0.5	2	60	0.016	0.02	0.08	0.20	60000	1920	3.0
0.6	2	60	0.020	0.02	0.10	0.22	60000	2400	5.0
0.8	2	60	0.026	0.03	0.13	0.30	60000	3120	12.0
1.0	2	60	0.032	0.04	0.16	0.39	48970	3135	20.0
1.2	2	60	0.038	0.05	0.19	0.48	39790	3025	28.5
1.5	2	60	0.048	0.06	0.24	0.59	32370	3110	45.0
2.0	2	60	0.064	0.08	0.32	0.78	24485	3135	80.5
2.5	2	60	0.080	0.10	0.40	0.98	19490	3120	125.0
3.0	2	60	0.096	0.12	0.48	1.18	16185	3110	179.0

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Hardened tool steel 42 - 48 HRC									
0.5	2	300	0.022	0.018	0.018	0.46	60000	2640	45
0.6	2	300	0.024	0.022	0.022	0.55	60000	2880	45
0.8	2	300	0.026	0.028	0.028	0.73	60000	3120	45
1.0	2	300	0.032	0.036	0.036	0.92	60000	3840	45
1.2	2	300	0.034	0.042	0.042	1.10	60000	4080	45
1.5	2	300	0.038	0.052	0.052	1.38	60000	4560	45
2.0	2	300	0.042	0.070	0.070	1.84	51900	4360	45
2.5	2	300	0.044	0.088	0.088	2.29	41700	3670	45
3.0	2	300	0.050	0.106	0.106	2.75	34725	3475	45
Hardened tool steel 48 - 52 HRC									
0.5	2	250	0.020	0.018	0.018	0.46	60000	2400	45
0.6	2	250	0.022	0.022	0.022	0.55	60000	2640	45
0.8	2	250	0.024	0.028	0.028	0.73	60000	2880	45
1.0	2	250	0.030	0.036	0.036	0.92	60000	3600	45
1.2	2	250	0.032	0.042	0.042	1.10	60000	3840	45
1.5	2	250	0.036	0.052	0.052	1.38	57665	4150	45
2.0	2	250	0.040	0.070	0.070	1.84	43250	3460	45
2.5	2	250	0.042	0.088	0.088	2.29	34750	2920	45
3.0	2	250	0.048	0.106	0.106	2.75	28940	2780	45
Hardened tool steel 52 - 56 HRC									
0.5	2	200	0.020	0.018	0.018	0.46	60000	2400	45
0.6	2	200	0.022	0.022	0.022	0.55	60000	2640	45
0.8	2	200	0.024	0.028	0.028	0.73	60000	2880	45
1.0	2	200	0.028	0.036	0.036	0.92	60000	3360	45
1.2	2	200	0.030	0.042	0.042	1.10	57875	3475	45
1.5	2	200	0.034	0.052	0.052	1.38	46135	3135	45
2.0	2	200	0.038	0.070	0.070	1.84	34600	2630	45
2.5	2	200	0.040	0.088	0.088	2.29	27800	2225	45
3.0	2	200	0.046	0.106	0.106	2.75	23150	2130	45
Hardened tool steel 56 - 60 HRC									
0.5	2	150	0.018	0.018	0.018	0.46	60000	2160	45
0.6	2	150	0.020	0.022	0.022	0.55	60000	2400	45
0.8	2	150	0.020	0.028	0.028	0.73	60000	2400	45
1.0	2	150	0.026	0.036	0.036	0.92	51900	2700	45
1.2	2	150	0.028	0.042	0.042	1.10	43405	2430	45
1.5	2	150	0.030	0.052	0.052	1.38	34600	2075	45
2.0	2	150	0.034	0.070	0.070	1.84	25950	1765	45
2.5	2	150	0.036	0.088	0.088	2.29	20850	1500	45
3.0	2	150	0.040	0.106	0.106	2.75	17365	1390	45

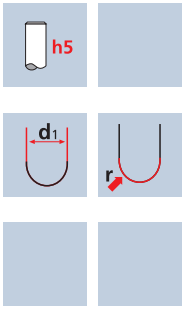
Ball nose end mills MicroX

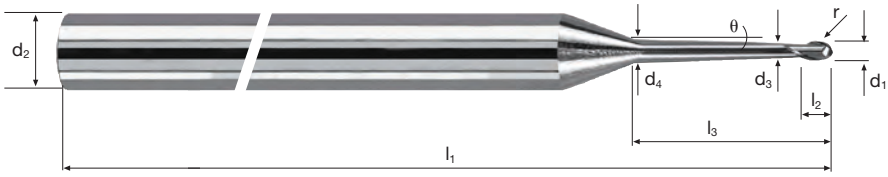
Shank Ø 6mm, conical neck 0.9°, 10xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA | λ 30° γ -10°



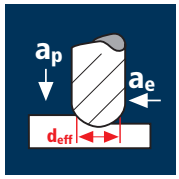


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6768** | ø-Code **.050**

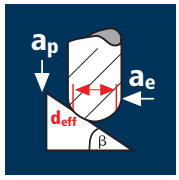
ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r ±0.005	α	z	X-AL	X6768
.050	0.5	6	0.45	0.60	57	0.40	5.0	0.9°	0.25	10.3°	2		●
.060	0.6	6	0.55	0.73	57	0.50	6.0	0.9°	0.30	9.7°	2		●
.080	0.8	6	0.75	0.99	61	0.65	8.0	0.9°	0.40	8.5°	2		●
.100	1.0	6	0.95	1.25	61	0.80	10.0	0.9°	0.50	7.6°	2		●
.108	1.2	6	1.10	1.51	66	1.00	12.0	0.9°	0.60	6.7°	2		●
.120	1.5	6	1.40	1.90	66	1.20	15.0	0.9°	0.75	5.7°	2		●
.140	2.0	6	1.90	2.55	69	1.60	20.0	0.9°	1.00	4.3°	2		●
.160	2.5	6	2.30	3.19	75	2.00	25.0	0.9°	1.25	3.3°	2		●
.180	3.0	6	2.80	3.84	75	2.40	30.0	0.9°	1.50	2.5°	2		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.015	0.02	0.07	0.20	60000	1800	2.5
	0.8	2	140	0.025	0.02	0.11	0.25	60000	3000	6.5
	1.0	2	140	0.030	0.03	0.14	0.34	60000	3600	15.0
	1.2	2	140	0.035	0.04	0.17	0.43	60000	4200	28.5
	1.5	2	140	0.045	0.05	0.21	0.54	60000	5400	56.5
	2.0	2	140	0.055	0.06	0.28	0.68	60000	6600	111.0
	2.5	2	140	0.070	0.08	0.35	0.88	50640	7090	198.5
	3.0	2	140	0.085	0.09	0.42	1.02	43690	7425	280.5
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.014	0.02	0.07	0.20	60000	1680	2.5
	0.8	2	120	0.024	0.02	0.11	0.25	60000	2880	6.5
	1.0	2	120	0.028	0.03	0.14	0.34	60000	3360	14.0
	1.2	2	120	0.034	0.04	0.17	0.43	60000	4080	27.5
	1.5	2	120	0.042	0.05	0.21	0.54	60000	5040	53.0
	2.0	2	120	0.052	0.06	0.28	0.68	56175	5840	98.0
	2.5	2	120	0.066	0.08	0.35	0.88	43405	5730	160.5
	3.0	2	120	0.080	0.09	0.42	1.02	37450	5990	226.5
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.02	0.07	0.20	60000	1680	2.5
	0.8	2	100	0.022	0.02	0.11	0.25	60000	2640	6.0
	1.0	2	100	0.026	0.03	0.14	0.34	60000	3120	13.0
	1.2	2	100	0.030	0.04	0.17	0.43	60000	3600	24.5
	1.5	2	100	0.040	0.05	0.21	0.54	58950	4715	49.5
	2.0	2	100	0.048	0.06	0.28	0.68	46810	4495	75.5
	2.5	2	100	0.062	0.08	0.35	0.88	36175	4485	125.5
	3.0	2	100	0.074	0.09	0.42	1.02	31210	4620	174.5
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.02	0.07	0.20	60000	1440	2.0
	0.8	2	60	0.020	0.02	0.11	0.25	60000	2400	5.5
	1.0	2	60	0.024	0.03	0.14	0.34	56175	2695	11.5
	1.2	2	60	0.028	0.04	0.17	0.43	44415	2485	17.0
	1.5	2	60	0.036	0.05	0.21	0.54	35370	2545	26.5
	2.0	2	60	0.044	0.06	0.28	0.68	28085	2470	41.5
	2.5	2	60	0.056	0.08	0.35	0.88	21705	2430	68.0
	3.0	2	60	0.068	0.09	0.42	1.02	18725	2545	96.0

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.018	0.016	0.016	0.46	60000	2160	45
	0.8	2	300	0.020	0.024	0.024	0.72	60000	2400	45
	1.0	2	300	0.026	0.030	0.030	0.91	60000	3120	45
	1.2	2	300	0.028	0.036	0.036	1.09	60000	3360	45
	1.5	2	300	0.030	0.046	0.046	1.36	60000	3600	45
	2.0	2	300	0.034	0.060	0.060	1.81	52760	3590	45
	2.5	2	300	0.036	0.076	0.076	2.27	42070	3030	45
	3.0	2	300	0.042	0.090	0.090	2.72	35110	2950	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.018	0.016	0.016	0.46	60000	2160	45
	0.8	2	250	0.020	0.024	0.024	0.72	60000	2400	45
	1.0	2	250	0.024	0.030	0.030	0.91	60000	2880	45
	1.2	2	250	0.026	0.036	0.036	1.09	60000	3120	45
	1.5	2	250	0.028	0.046	0.046	1.36	58515	3275	45
	2.0	2	250	0.032	0.060	0.060	1.81	43965	2815	45
	2.5	2	250	0.034	0.076	0.076	2.27	35055	2385	45
	3.0	2	250	0.040	0.090	0.090	2.72	29255	2340	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.016	0.016	0.016	0.46	60000	1920	45
	0.8	2	200	0.018	0.024	0.024	0.72	60000	2160	45
	1.0	2	200	0.024	0.030	0.030	0.91	60000	2880	45
	1.2	2	200	0.026	0.036	0.036	1.09	58405	3035	45
	1.5	2	200	0.028	0.046	0.046	1.36	46810	2620	45
	2.0	2	200	0.030	0.060	0.060	1.81	35175	2110	45
	2.5	2	200	0.032	0.076	0.076	2.27	28045	1795	45
	3.0	2	200	0.038	0.090	0.090	2.72	23405	1780	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.014	0.016	0.016	0.46	60000	1680	45
	0.8	2	150	0.016	0.024	0.024	0.72	60000	1920	45
	1.0	2	150	0.020	0.030	0.030	0.91	52470	2100	45
	1.2	2	150	0.022	0.036	0.036	1.09	43805	1925	45
	1.5	2	150	0.024	0.046	0.046	1.36	35110	1685	45
	2.0	2	150	0.028	0.060	0.060	1.81	26380	1475	45
	2.5	2	150	0.028	0.076	0.076	2.27	21035	1180	45
	3.0	2	150	0.034	0.090	0.090	2.72	17555	1195	45

Ball nose end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 12xd

HSS | Favora® | Base-X | X-Generation X

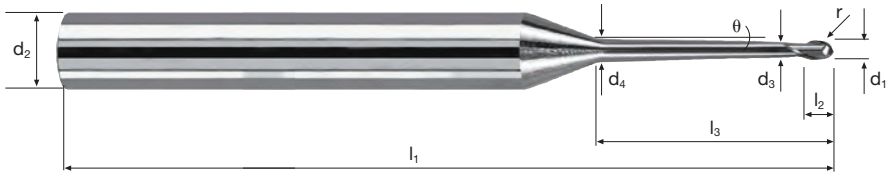
II

HM XA | λ 30° γ -10°

h5

d1

r

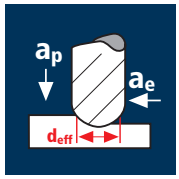


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6770** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r ±0.005	α	z	X-AL	X6770
.050	0.5	6	0.45	0.62	57	0.40	6.0	0.9°	0.25	9.9°	2		●
.080	0.8	6	0.75	1.03	61	0.65	9.6	0.9°	0.40	8.0°	2		●
.100	1.0	6	0.95	1.30	66	0.80	12.0	0.9°	0.50	7.0°	2		●
.108	1.2	6	1.10	1.57	66	1.00	14.4	0.9°	0.60	6.1°	2		●
.120	1.5	6	1.40	1.98	69	1.20	18.0	0.9°	0.75	5.1°	2		●
.140	2.0	6	1.90	2.66	75	1.60	24.0	0.9°	1.00	3.9°	2		●
.160	2.5	6	2.30	3.34	80	2.00	30.0	0.9°	1.25	2.9°	2		●
.180	3.0	6	2.80	4.02	87	2.40	36.0	0.9°	1.50	2.2°	2		●

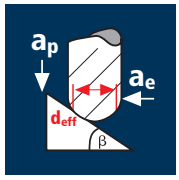
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC									
0.5	2	140	0.015	0.02	0.06	0.20	60000	1800	2.0
0.8	2	140	0.025	0.02	0.10	0.25	60000	3000	6.0
1.0	2	140	0.030	0.03	0.12	0.34	60000	3600	13.0
1.2	2	140	0.035	0.04	0.14	0.43	60000	4200	23.5
1.5	2	140	0.045	0.05	0.18	0.54	60000	5400	48.5
2.0	2	140	0.055	0.06	0.24	0.68	60000	6600	95.0
2.5	2	140	0.070	0.08	0.30	0.88	50640	7090	170.0
3.0	2	140	0.085	0.09	0.36	1.02	43690	7425	240.5
Hardened tool steel 48 - 52 HRC									
0.5	2	120	0.014	0.02	0.06	0.20	60000	1680	2.0
0.8	2	120	0.024	0.02	0.10	0.25	60000	2880	6.0
1.0	2	120	0.028	0.03	0.12	0.34	60000	3360	12.0
1.2	2	120	0.034	0.04	0.14	0.43	60000	4080	23.0
1.5	2	120	0.042	0.05	0.18	0.54	60000	5040	45.5
2.0	2	120	0.052	0.06	0.24	0.68	56175	5840	84.0
2.5	2	120	0.066	0.08	0.30	0.88	43405	5730	137.5
3.0	2	120	0.080	0.09	0.36	1.02	37450	5990	194.0
Hardened tool steel 52 - 56 HRC									
0.5	2	100	0.014	0.02	0.06	0.20	60000	1680	2.0
0.8	2	100	0.022	0.02	0.10	0.25	60000	2640	5.5
1.0	2	100	0.026	0.03	0.12	0.34	60000	3120	11.0
1.2	2	100	0.030	0.04	0.14	0.43	60000	3600	20.0
1.5	2	100	0.040	0.05	0.18	0.54	58950	4715	42.5
2.0	2	100	0.048	0.06	0.24	0.68	46810	4495	64.5
2.5	2	100	0.062	0.08	0.30	0.88	36175	4485	107.5
3.0	2	100	0.074	0.09	0.36	1.02	31210	4620	149.5
Hardened tool steel 56 - 60 HRC									
0.5	2	60	0.012	0.02	0.06	0.20	60000	1440	1.5
0.8	2	60	0.020	0.02	0.10	0.25	60000	2400	5.0
1.0	2	60	0.024	0.03	0.12	0.34	56175	2695	9.5
1.2	2	60	0.028	0.04	0.14	0.43	44415	2485	14.0
1.5	2	60	0.036	0.05	0.18	0.54	35370	2545	23.0
2.0	2	60	0.044	0.06	0.24	0.68	28085	2470	35.5
2.5	2	60	0.056	0.08	0.30	0.88	21705	2430	58.5
3.0	2	60	0.068	0.09	0.36	1.02	18725	2545	82.5

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Hardened tool steel 42 - 48 HRC									
0.5	2	300	0.018	0.012	0.012	0.44	60000	2160	45
0.8	2	300	0.020	0.020	0.020	0.71	60000	2400	45
1.0	2	300	0.026	0.026	0.026	0.90	60000	3120	45
1.2	2	300	0.028	0.030	0.030	1.07	60000	3360	45
1.5	2	300	0.030	0.038	0.038	1.34	60000	3600	45
2.0	2	300	0.034	0.050	0.050	1.79	53350	3630	45
2.5	2	300	0.036	0.062	0.062	2.23	42825	3085	45
3.0	2	300	0.042	0.076	0.076	2.68	35635	2995	45
Hardened tool steel 48 - 52 HRC									
0.5	2	250	0.018	0.012	0.012	0.44	60000	2160	45
0.8	2	250	0.020	0.020	0.020	0.71	60000	2400	45
1.0	2	250	0.024	0.026	0.026	0.90	60000	2880	45
1.2	2	250	0.026	0.030	0.030	1.07	60000	3120	45
1.5	2	250	0.028	0.038	0.038	1.34	59390	3325	45
2.0	2	250	0.032	0.050	0.050	1.79	44460	2845	45
2.5	2	250	0.034	0.062	0.062	2.23	35685	2425	45
3.0	2	250	0.040	0.076	0.076	2.68	29695	2375	45
Hardened tool steel 52 - 56 HRC									
0.5	2	200	0.016	0.012	0.012	0.44	60000	1920	45
0.8	2	200	0.018	0.020	0.020	0.71	60000	2160	45
1.0	2	200	0.024	0.026	0.026	0.90	60000	2880	45
1.2	2	200	0.026	0.030	0.030	1.07	59500	3095	45
1.5	2	200	0.028	0.038	0.038	1.34	47510	2660	45
2.0	2	200	0.030	0.050	0.050	1.79	35565	2135	45
2.5	2	200	0.032	0.062	0.062	2.23	28550	1825	45
3.0	2	200	0.038	0.076	0.076	2.68	23755	1805	45
Hardened tool steel 56 - 60 HRC									
0.5	2	150	0.014	0.012	0.012	0.44	60000	1680	45
0.8	2	150	0.016	0.020	0.020	0.71	60000	1920	45
1.0	2	150	0.020	0.026	0.026	0.90	53055	2120	45
1.2	2	150	0.022	0.030	0.030	1.07	44625	1965	45
1.5	2	150	0.024	0.038	0.038	1.34	35635	1710	45
2.0	2	150	0.028	0.050	0.050	1.79	26675	1495	45
2.5	2	150	0.028	0.062	0.062	2.23	21410	1200	45
3.0	2	150	0.034	0.076	0.076	2.68	17815	1210	45

Ball nose end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 15xd

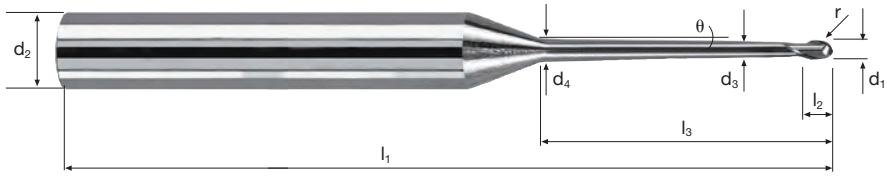
HM XA

λ **30°**
γ **-10°**

h5

d_1

r

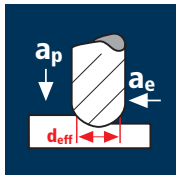


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60	**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Copper**

Example: **Order-N°.** Coating **X** Article-N°. **6772** ø-Code **.050**

ø Code	d_1 0/-0.01	d_2 h5	d_3	d_4	l_1	l_2	l_3	θ	r ±0.005	α	z	X-AL	X6772
.050	0.5	6	0.45	0.67	61	0.40	7.5	0.9°	0.25	9.1°	2		●
.080	0.8	6	0.75	1.11	66	0.65	12.0	0.9°	0.40	7.1°	2		●
.100	1.0	6	0.95	1.40	66	0.80	15.0	0.9°	0.50	6.1°	2		●
.108	1.2	6	1.10	1.69	69	1.00	18.0	0.9°	0.60	5.3°	2		●
.120	1.5	6	1.40	2.12	75	1.20	22.5	0.9°	0.75	4.5°	2		●
.140	2.0	6	1.90	2.85	80	1.60	30.0	0.9°	1.00	3.3°	2		●
.160	2.5	6	2.30	3.58	87	2.00	37.5	0.9°	1.25	2.4°	2		●
.180	3.0	6	2.80	4.30	100	2.40	45.0	0.9°	1.50	1.8°	2		●

Application



Material

Hardened tool steel 42 - 48 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.2	2	140	0.006	0.01	0.04	0.09	60000	720	0.5
0.5	2	140	0.012	0.04	0.10	0.27	60000	1440	6.0
0.8	2	140	0.020	0.06	0.16	0.42	60000	2400	23.0
1.0	2	140	0.026	0.07	0.20	0.51	60000	3120	43.5
1.2	2	140	0.030	0.08	0.24	0.60	60000	3600	69.0
1.5	2	140	0.038	0.11	0.30	0.78	57135	4340	143.0
2.0	2	140	0.050	0.14	0.40	1.02	43690	4370	244.5
2.5	2	140	0.062	0.18	0.50	1.29	34545	4285	385.5
3.0	2	140	0.076	0.21	0.60	1.53	29125	4425	557.5

Hardened tool steel 48 - 52 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.2	2	120	0.006	0.01	0.04	0.09	60000	720	0.5
0.5	2	120	0.012	0.04	0.10	0.27	60000	1440	6.0
0.8	2	120	0.020	0.06	0.16	0.42	60000	2400	23.0
1.0	2	120	0.024	0.07	0.20	0.51	60000	2880	40.5
1.2	2	120	0.028	0.08	0.24	0.60	60000	3360	64.5
1.5	2	120	0.036	0.11	0.30	0.78	48970	3525	116.5
2.0	2	120	0.048	0.14	0.40	1.02	37450	3595	201.5
2.5	2	120	0.058	0.18	0.50	1.29	29610	3435	309.0
3.0	2	120	0.072	0.21	0.60	1.53	24965	3595	453.0

Hardened tool steel 52 - 56 HRC

D

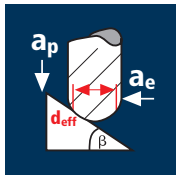
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.2	2	100	0.006	0.01	0.04	0.09	60000	720	0.5
0.5	2	100	0.010	0.04	0.10	0.27	60000	1200	5.0
0.8	2	100	0.018	0.06	0.16	0.42	60000	2160	20.5
1.0	2	100	0.022	0.07	0.20	0.51	60000	2640	37.0
1.2	2	100	0.026	0.08	0.24	0.60	53055	2760	53.0
1.5	2	100	0.034	0.11	0.30	0.78	40810	2775	91.5
2.0	2	100	0.044	0.14	0.40	1.02	31210	2745	153.5
2.5	2	100	0.054	0.18	0.50	1.29	24675	2665	240.0
3.0	2	100	0.066	0.21	0.60	1.53	20805	2745	346.0

Hardened tool steel 56 - 60 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.2	2	60	0.004	0.01	0.04	0.09	60000	480	0.0
0.5	2	60	0.010	0.04	0.10	0.27	60000	1200	5.0
0.8	2	60	0.016	0.06	0.16	0.42	45475	1455	14.0
1.0	2	60	0.020	0.07	0.20	0.51	37450	1500	21.0
1.2	2	60	0.024	0.08	0.24	0.60	31830	1530	29.5
1.5	2	60	0.030	0.11	0.30	0.78	24485	1470	48.5
2.0	2	60	0.040	0.14	0.40	1.02	18725	1500	84.0
2.5	2	60	0.050	0.18	0.50	1.29	14805	1480	133.0
3.0	2	60	0.060	0.21	0.60	1.53	12485	1500	189.0

Application



Material

Hardened tool steel 42 - 48 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.2	2	300	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	300	0.016	0.022	0.022	0.47	60000	1920	45
0.8	2	300	0.018	0.034	0.034	0.75	60000	2160	45
1.0	2	300	0.022	0.044	0.044	0.93	60000	2640	45
1.2	2	300	0.024	0.052	0.052	1.12	60000	2880	45
1.5	2	300	0.028	0.064	0.064	1.40	60000	3360	45
2.0	2	300	0.030	0.086	0.086	1.87	51065	3065	45
2.5	2	300	0.032	0.108	0.108	2.33	40985	2625	45
3.0	2	300	0.036	0.128	0.128	2.80	34105	2455	45

Hardened tool steel 48 - 52 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.2	2	250	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	250	0.016	0.022	0.022	0.47	60000	1920	45
0.8	2	250	0.018	0.034	0.034	0.75	60000	2160	45
1.0	2	250	0.020	0.044	0.044	0.93	60000	2400	45
1.2	2	250	0.022	0.052	0.052	1.12	60000	2640	45
1.5	2	250	0.026	0.064	0.064	1.40	56845	2955	45
2.0	2	250	0.028	0.086	0.086	1.87	42555	2385	45
2.5	2	250	0.030	0.108	0.108	2.33	34155	2050	45
3.0	2	250	0.034	0.128	0.128	2.80	28420	1935	45

Hardened tool steel 52 - 56 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.2	2	200	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	200	0.014	0.022	0.022	0.47	60000	1680	45
0.8	2	200	0.016	0.034	0.034	0.75	60000	1920	45
1.0	2	200	0.020	0.044	0.044	0.93	60000	2400	45
1.2	2	200	0.022	0.052	0.052	1.12	56845	2500	45
1.5	2	200	0.026	0.064	0.064	1.40	45475	2365	45
2.0	2	200	0.028	0.086	0.086	1.87	34045	1905	45
2.5	2	200	0.028	0.108	0.108	2.33	27325	1530	45
3.0	2	200	0.032	0.128	0.128	2.80	22735	1455	45

Hardened tool steel 56 - 60 HRC

D

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.2	2	150	0.006	0.008	0.008	0.19	60000	720	45
0.5	2	150	0.012	0.022	0.022	0.47	60000	1440	45
0.8	2	150	0.014	0.034	0.034	0.75	60000	1680	45
1.0	2	150	0.018	0.044	0.044	0.93	51340	1850	45
1.2	2	150	0.020	0.052	0.052	1.12	42630	1705	45
1.5	2	150	0.022	0.064	0.064	1.40	34105	1500	45
2.0	2	150	0.024	0.086	0.086	1.87	25535	1225	45
2.5	2	150	0.026	0.108	0.108	2.33	20495	1065	45
3.0	2	150	0.028	0.128	0.128	2.80	17055	955	45

Ball nose end mills Microcut-B1H

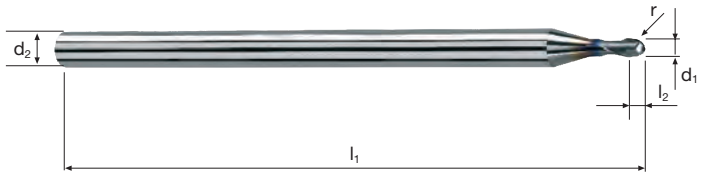
Shank Ø 3mm, 1xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA | λ **30°** γ **-10°**

h5





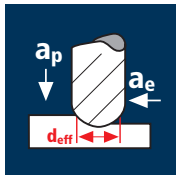


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **15781** ø-Code **.020**

ø Code	d_1 0/-0.01	d_2 h5	l_1	l_2	r ±0.005	α	z	DURO-S D15781
.020	0.2	3	40	0.24	0.10	14.7°	2	●
.030	0.3	3	40	0.36	0.15	14.3°	2	●
.040	0.4	3	40	0.48	0.20	14.1°	2	●
.050	0.5	3	40	0.60	0.25	14.0°	2	●
.060	0.6	3	40	0.72	0.30	13.8°	2	●
.080	0.8	3	40	0.96	0.40	13.1°	2	●
.100	1.0	3	50	1.20	0.50	12.6°	2	●
.108	1.2	3	50	1.40	0.60	12.1°	2	●
.120	1.5	3	50	1.80	0.75	10.9°	2	●
.140	2.0	3	50	2.40	1.00	8.6°	2	●
.160	2.5	3	50	3.00	1.25	5.3°	2	●
.180	3.0	3	50	3.60	1.50	0.0°	2	●

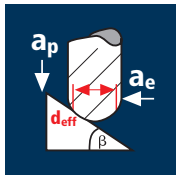
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
0.2	2	180	0.008	0.02	0.04	0.12	60000	960	1.0
0.5	2	180	0.018	0.04	0.10	0.27	60000	2160	8.5
0.8	2	180	0.028	0.06	0.16	0.42	60000	3360	32.5
1.0	2	180	0.036	0.08	0.20	0.54	60000	4320	69.0
1.2	2	180	0.042	0.10	0.24	0.66	60000	5040	121.0
1.5	2	180	0.054	0.12	0.30	0.81	60000	6480	233.5
2.0	2	180	0.072	0.16	0.40	1.09	52565	7570	484.5
2.5	2	180	0.090	0.20	0.50	1.36	42130	7585	758.5
3.0	2	180	0.108	0.24	0.60	1.63	35150	7590	1093.0
Steel 1100 - 1300 N/mm²									
0.2	2	160	0.008	0.02	0.04	0.12	60000	960	1.0
0.5	2	160	0.016	0.04	0.10	0.27	60000	1920	7.5
0.8	2	160	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	160	0.032	0.08	0.20	0.54	60000	3840	61.5
1.2	2	160	0.038	0.10	0.24	0.66	60000	4560	109.5
1.5	2	160	0.048	0.12	0.30	0.81	60000	5760	207.5
2.0	2	160	0.064	0.16	0.40	1.09	46725	5980	382.5
2.5	2	160	0.082	0.20	0.50	1.36	37450	6140	614.0
3.0	2	160	0.098	0.24	0.60	1.63	31245	6125	882.0
Stainless steel [Cr-Ni/1.4301]									
0.2	2	80	0.008	0.02	0.04	0.12	60000	960	1.0
0.5	2	80	0.016	0.04	0.10	0.27	60000	1920	7.5
0.8	2	80	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	80	0.032	0.08	0.20	0.54	47160	3020	48.5
1.2	2	80	0.038	0.10	0.24	0.66	38585	2930	70.5
1.5	2	80	0.048	0.12	0.30	0.81	31440	3020	108.5
2.0	2	80	0.064	0.16	0.40	1.09	23365	2990	191.5
2.5	2	80	0.082	0.20	0.50	1.36	18725	3070	307.0
3.0	2	80	0.098	0.24	0.60	1.63	15625	3065	441.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.2	2	60	0.006	0.02	0.04	0.12	60000	720	0.5
0.5	2	60	0.012	0.04	0.10	0.27	60000	1440	6.0
0.8	2	60	0.020	0.06	0.16	0.42	45475	1820	17.5
1.0	2	60	0.026	0.08	0.20	0.54	35370	1840	29.5
1.2	2	60	0.030	0.10	0.24	0.66	28940	1735	41.5
1.5	2	60	0.038	0.12	0.30	0.81	23580	1790	64.5
2.0	2	60	0.050	0.16	0.40	1.09	17520	1750	112.0
2.5	2	60	0.064	0.20	0.50	1.36	14045	1800	180.0
3.0	2	60	0.076	0.24	0.60	1.63	11715	1780	256.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
0.2	2	300	0.010	0.008	0.008	0.19	60000	1200	45
0.5	2	300	0.020	0.022	0.022	0.47	60000	2400	45
0.8	2	300	0.022	0.034	0.034	0.75	60000	2640	45
1.0	2	300	0.028	0.042	0.042	0.93	60000	3360	45
1.2	2	300	0.030	0.050	0.050	1.12	60000	3600	45
1.5	2	300	0.034	0.064	0.064	1.40	60000	4080	45
2.0	2	300	0.038	0.084	0.084	1.86	51340	3900	45
2.5	2	300	0.040	0.106	0.106	2.33	40985	3280	45
3.0	2	300	0.046	0.126	0.126	2.79	34230	3150	45
Steel 1100 - 1300 N/mm²									
0.2	2	250	0.010	0.008	0.008	0.19	60000	1200	45
0.5	2	250	0.018	0.022	0.022	0.47	60000	2160	45
0.8	2	250	0.020	0.034	0.034	0.75	60000	2400	45
1.0	2	250	0.026	0.042	0.042	0.93	60000	3120	45
1.2	2	250	0.028	0.050	0.050	1.12	60000	3360	45
1.5	2	250	0.030	0.064	0.064	1.40	56845	3410	45
2.0	2	250	0.034	0.084	0.084	1.86	42785	2910	45
2.5	2	250	0.036	0.106	0.106	2.33	34155	2460	45
3.0	2	250	0.042	0.126	0.126	2.79	28525	2395	45
Stainless steel [Cr-Ni/1.4301]									
0.2	2	120	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	120	0.016	0.022	0.022	0.47	60000	1920	45
0.8	2	120	0.018	0.034	0.034	0.75	50930	1835	45
1.0	2	120	0.022	0.042	0.042	0.93	41075	1805	45
1.2	2	120	0.024	0.050	0.050	1.12	34105	1635	45
1.5	2	120	0.028	0.064	0.064	1.40	27285	1530	45
2.0	2	120	0.030	0.084	0.084	1.86	20535	1230	45
2.5	2	120	0.032	0.106	0.106	2.33	16395	1050	45
3.0	2	120	0.036	0.126	0.126	2.79	13690	985	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.2	2	100	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	100	0.014	0.022	0.022	0.47	60000	1680	45
0.8	2	100	0.016	0.034	0.034	0.75	42445	1360	45
1.0	2	100	0.020	0.042	0.042	0.93	34230	1370	45
1.2	2	100	0.022	0.050	0.050	1.12	28420	1250	45
1.5	2	100	0.024	0.064	0.064	1.40	22735	1090	45
2.0	2	100	0.026	0.084	0.084	1.86	17115	890	45
2.5	2	100	0.028	0.106	0.106	2.33	13660	765	45
3.0	2	100	0.032	0.126	0.126	2.79	11410	730	45

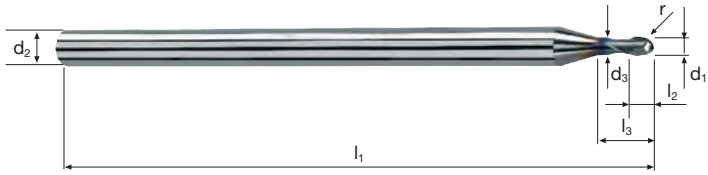
Ball nose end mills Microcut-B3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

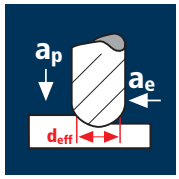
HM Micro | λ **30°** γ **5°**

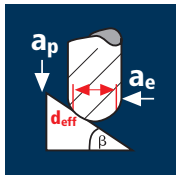


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5782** | ø-Code **.020**

ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	MICRO **M5782**
.020	0.2	3	0.18	40	0.24	0.6	0.10	9.4°	2	●
.030	0.3	3	0.25	40	0.36	0.9	0.15	9.0°	2	●
.040	0.4	3	0.35	40	0.48	1.2	0.20	8.7°	2	●
.050	0.5	3	0.45	40	0.60	1.5	0.25	11.8°	2	●
.060	0.6	3	0.55	40	0.72	1.8	0.30	11.2°	2	●
.080	0.8	3	0.75	40	0.96	2.4	0.40	10.1°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.50	9.0°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.60	7.9°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.75	6.5°	2	●
.140	2.0	3	1.90	50	2.40	6.0	1.00	4.1°	2	●
.160	2.5	3	2.30	50	3.00	7.5	1.25	2.0°	2	●
.180	3.0	3	2.80	50	3.60	9.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
	Hardened tool steel 42 - 48 HRC	0.5	2	140	0.012	0.03	0.10	0.24	60000	1440	4.5
		0.6	2	140	0.016	0.04	0.12	0.30	60000	1920	9.0
		0.8	2	140	0.020	0.05	0.16	0.39	60000	2400	19.0
		1.0	2	140	0.026	0.06	0.20	0.47	60000	3120	37.5
		1.2	2	140	0.030	0.07	0.24	0.56	60000	3600	60.5
		1.5	2	140	0.038	0.09	0.30	0.71	60000	4560	123.0
		2.0	2	140	0.050	0.12	0.40	0.95	46910	4690	225.0
		2.5	2	140	0.062	0.15	0.50	1.19	37450	4645	348.5
		3.0	2	140	0.076	0.18	0.60	1.42	31385	4770	515.0
	Hardened tool steel 48 - 52 HRC	0.5	2	120	0.012	0.03	0.10	0.24	60000	1440	4.5
		0.6	2	120	0.016	0.04	0.12	0.30	60000	1920	9.0
		0.8	2	120	0.020	0.05	0.16	0.39	60000	2400	19.0
		1.0	2	120	0.024	0.06	0.20	0.47	60000	2880	34.5
		1.2	2	120	0.028	0.07	0.24	0.56	60000	3360	56.5
		1.5	2	120	0.036	0.09	0.30	0.71	53800	3875	104.5
		2.0	2	120	0.048	0.12	0.40	0.95	40210	3860	185.5
		2.5	2	120	0.058	0.15	0.50	1.19	32100	3725	279.5
		3.0	2	120	0.072	0.18	0.60	1.42	26900	3875	418.5
	Hardened tool steel 52 - 56 HRC	0.5	2	100	0.010	0.03	0.10	0.24	60000	1200	3.5
		0.6	2	100	0.014	0.04	0.12	0.30	60000	1680	8.0
		0.8	2	100	0.018	0.05	0.16	0.39	60000	2160	17.5
		1.0	2	100	0.022	0.06	0.20	0.47	60000	2640	31.5
		1.2	2	100	0.026	0.07	0.24	0.56	56845	2955	49.5
		1.5	2	100	0.034	0.09	0.30	0.71	44835	3050	82.5
		2.0	2	100	0.044	0.12	0.40	0.95	33505	2950	141.5
		2.5	2	100	0.054	0.15	0.50	1.19	26750	2890	217.0
		3.0	2	100	0.066	0.18	0.60	1.42	22415	2960	319.5
	Hardened tool steel 56 - 60 HRC	0.5	2	60	0.010	0.03	0.10	0.24	60000	1200	3.5
		0.6	2	60	0.012	0.04	0.12	0.30	60000	1440	7.0
		0.8	2	60	0.016	0.05	0.16	0.39	48970	1565	12.5
		1.0	2	60	0.020	0.06	0.20	0.47	40635	1625	19.5
		1.2	2	60	0.024	0.07	0.24	0.56	34105	1635	27.5
		1.5	2	60	0.030	0.09	0.30	0.71	26900	1615	43.5
		2.0	2	60	0.040	0.12	0.40	0.95	20105	1610	77.5
		2.5	2	60	0.050	0.15	0.50	1.19	16050	1605	120.5
		3.0	2	60	0.060	0.18	0.60	1.42	13450	1615	174.5

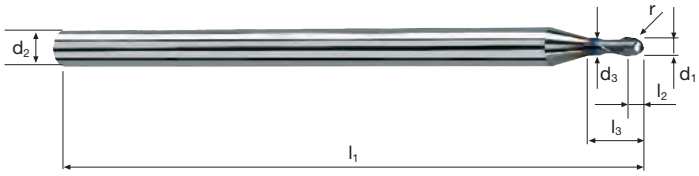
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Hardened tool steel 42 - 48 HRC	0.5	2	300	0.016	0.020	0.020	0.46	60000	1920	45
		0.6	2	300	0.018	0.024	0.024	0.56	60000	2160	45
		0.8	2	300	0.020	0.032	0.032	0.74	60000	2400	45
		1.0	2	300	0.022	0.042	0.042	0.93	60000	2640	45
		1.2	2	300	0.024	0.050	0.050	1.12	60000	2880	45
		1.5	2	300	0.028	0.062	0.062	1.40	60000	3360	45
		2.0	2	300	0.030	0.082	0.082	1.86	51340	3080	45
		2.5	2	300	0.032	0.102	0.102	2.32	41160	2635	45
		3.0	2	300	0.036	0.122	0.122	2.79	34230	2465	45
	Hardened tool steel 48 - 52 HRC	0.5	2	250	0.016	0.020	0.020	0.46	60000	1920	45
		0.6	2	250	0.018	0.024	0.024	0.56	60000	2160	45
		0.8	2	250	0.020	0.032	0.032	0.74	60000	2400	45
		1.0	2	250	0.020	0.042	0.042	0.93	60000	2400	45
		1.2	2	250	0.022	0.050	0.050	1.12	60000	2640	45
		1.5	2	250	0.026	0.062	0.062	1.40	56845	2955	45
		2.0	2	250	0.028	0.082	0.082	1.86	42785	2395	45
		2.5	2	250	0.030	0.102	0.102	2.32	34300	2060	45
		3.0	2	250	0.034	0.122	0.122	2.79	28525	1940	45
	Hardened tool steel 52 - 56 HRC	0.5	2	200	0.014	0.020	0.020	0.46	60000	1680	45
		0.6	2	200	0.016	0.024	0.024	0.56	60000	1920	45
		0.8	2	200	0.018	0.032	0.032	0.74	60000	2160	45
		1.0	2	200	0.020	0.042	0.042	0.93	60000	2400	45
		1.2	2	200	0.022	0.050	0.050	1.12	56845	2500	45
		1.5	2	200	0.026	0.062	0.062	1.40	45475	2365	45
		2.0	2	200	0.028	0.082	0.082	1.86	34230	1915	45
		2.5	2	200	0.028	0.102	0.102	2.32	27440	1535	45
		3.0	2	200	0.032	0.122	0.122	2.79	22820	1460	45
	Hardened tool steel 56 - 60 HRC	0.5	2	150	0.012	0.020	0.020	0.46	60000	1440	45
		0.6	2	150	0.014	0.024	0.024	0.56	60000	1680	45
		0.8	2	150	0.016	0.032	0.032	0.74	60000	1920	45
		1.0	2	150	0.018	0.042	0.042	0.93	51340	1850	45
		1.2	2	150	0.020	0.050	0.050	1.12	42630	1705	45
		1.5	2	150	0.022	0.062	0.062	1.40	34105	1500	45
		2.0	2	150	0.024	0.082	0.082	1.86	25670	1230	45
		2.5	2	150	0.026	0.102	0.102	2.32	20580	1070	45
		3.0	2	150	0.028	0.122	0.122	2.79	17115	960	45

Ball nose end mills Microcut-B3H

Shank Ø 3mm, cylindrical neck, 3xd

HM XA | λ 30° γ-10°

h5



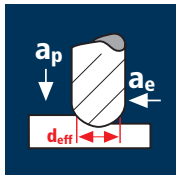
d1

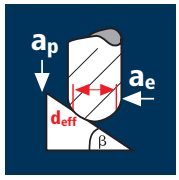
r

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5792** ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DURO-S D5792
.050	0.5	3	0.45	40	0.60	1.5	0.25	11.8°	2	●
.060	0.6	3	0.55	40	0.72	1.8	0.30	11.2°	2	●
.080	0.8	3	0.75	40	0.96	2.4	0.40	10.1°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.50	9.0°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.60	7.9°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.75	6.5°	2	●
.140	2.0	3	1.90	50	2.40	6.0	1.00	4.1°	2	●
.160	2.5	3	2.30	50	3.00	7.5	1.25	2.0°	2	●
.180	3.0	3	2.80	50	3.60	9.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
	Steel < 850 N/mm²	0.5	2	120	0.014	0.03	0.10	0.24	60000	1680	5.0
		0.6	2	120	0.018	0.04	0.12	0.30	60000	2160	10.5
		0.8	2	120	0.022	0.05	0.16	0.39	60000	2640	21.0
		1.0	2	120	0.028	0.06	0.20	0.47	60000	3360	40.5
		1.2	2	120	0.034	0.07	0.24	0.56	60000	4080	68.5
		1.5	2	120	0.042	0.09	0.30	0.71	53800	4520	122.0
		2.0	2	120	0.058	0.12	0.40	0.95	40210	4665	224.0
		2.5	2	120	0.072	0.15	0.50	1.19	32100	4620	346.5
		3.0	2	120	0.086	0.18	0.60	1.42	26900	4625	499.5
	Steel 850 - 1100 N/mm²	0.5	2	80	0.012	0.03	0.10	0.24	60000	1440	4.5
		0.6	2	80	0.016	0.04	0.12	0.30	60000	1920	9.0
		0.8	2	80	0.020	0.05	0.16	0.39	60000	2400	19.0
		1.0	2	80	0.026	0.06	0.20	0.47	54180	2815	34.0
		1.2	2	80	0.030	0.07	0.24	0.56	45475	2730	46.0
		1.5	2	80	0.038	0.09	0.30	0.71	35865	2725	73.5
		2.0	2	80	0.052	0.12	0.40	0.95	26805	2790	134.0
		2.5	2	80	0.064	0.15	0.50	1.19	21400	2740	205.5
		3.0	2	80	0.078	0.18	0.60	1.42	17935	2800	302.5
	Unalloyed copper	0.5	2	230	0.016	0.03	0.10	0.24	60000	1920	6.0
		0.6	2	230	0.020	0.04	0.12	0.30	60000	2400	11.5
		0.8	2	230	0.024	0.05	0.16	0.39	60000	2880	23.0
		1.0	2	230	0.030	0.06	0.20	0.47	60000	3600	43.0
		1.2	2	230	0.038	0.07	0.24	0.56	60000	4560	76.5
		1.5	2	230	0.046	0.09	0.30	0.71	60000	5520	149.0
		2.0	2	230	0.064	0.12	0.40	0.95	60000	7680	368.5
		2.5	2	230	0.080	0.15	0.50	1.19	60000	9600	720.0
		3.0	2	230	0.094	0.18	0.60	1.42	51560	9695	1047.0
	Wrought aluminium alloys Si < 6%	0.5	2	480	0.016	0.03	0.10	0.24	60000	1920	6.0
		0.6	2	480	0.020	0.04	0.12	0.30	60000	2400	11.5
		0.8	2	480	0.024	0.05	0.16	0.39	60000	2880	23.0
		1.0	2	480	0.030	0.06	0.20	0.47	60000	3600	43.0
		1.2	2	480	0.038	0.07	0.24	0.56	60000	4560	76.5
		1.5	2	480	0.046	0.09	0.30	0.71	60000	5520	149.0
		2.0	2	480	0.064	0.12	0.40	0.95	60000	7680	368.5
		2.5	2	480	0.080	0.15	0.50	1.19	60000	9600	720.0
		3.0	2	480	0.094	0.18	0.60	1.42	60000	11280	1218.0

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Steel < 850 N/mm²	0.5	2	220	0.016	0.020	0.020	0.46	60000	1920	45
		0.6	2	220	0.018	0.024	0.024	0.56	60000	2160	45
		0.8	2	220	0.020	0.032	0.032	0.74	60000	2400	45
		1.0	2	220	0.022	0.040	0.040	0.93	60000	2640	45
		1.2	2	220	0.024	0.048	0.048	1.11	60000	2880	45
		1.5	2	220	0.028	0.060	0.060	1.39	50380	2820	45
		2.0	2	220	0.030	0.080	0.080	1.86	37650	2260	45
		2.5	2	220	0.032	0.100	0.100	2.32	30185	1930	45
		3.0	2	220	0.036	0.120	0.120	2.78	25190	1815	45
	Steel 850 - 1100 N/mm²	0.5	2	150	0.014	0.020	0.020	0.46	60000	1680	45
		0.6	2	150	0.016	0.024	0.024	0.56	60000	1920	45
		0.8	2	150	0.018	0.032	0.032	0.74	60000	2160	45
		1.0	2	150	0.020	0.040	0.040	0.93	51340	2055	45
		1.2	2	150	0.022	0.048	0.048	1.11	43015	1895	45
		1.5	2	150	0.026	0.060	0.060	1.39	34350	1785	45
		2.0	2	150	0.028	0.080	0.080	1.86	25670	1440	45
		2.5	2	150	0.028	0.100	0.100	2.32	20580	1150	45
		3.0	2	150	0.032	0.120	0.120	2.78	17175	1100	45
	Unalloyed copper	0.5	2	400	0.018	0.020	0.020	0.46	60000	2160	45
		0.6	2	400	0.020	0.024	0.024	0.56	60000	2400	45
		0.8	2	400	0.022	0.032	0.032	0.74	60000	2640	45
		1.0	2	400	0.024	0.040	0.040	0.93	60000	2880	45
		1.2	2	400	0.026	0.048	0.048	1.11	60000	3120	45
		1.5	2	400	0.030	0.060	0.060	1.39	60000	3600	45
		2.0	2	400	0.034	0.080	0.080	1.86	60000	4080	45
		2.5	2	400	0.036	0.100	0.100	2.32	54885	3950	45
		3.0	2	400	0.040	0.120	0.120	2.78	45800	3665	45
	Wrought aluminium alloys Si < 6%	0.5	2	650	0.018	0.020	0.020	0.46	60000	2160	45
		0.6	2	650	0.020	0.024	0.024	0.56	60000	2400	45
		0.8	2	650	0.022	0.032	0.032	0.74	60000	2640	45
		1.0	2	650	0.024	0.040	0.040	0.93	60000	2880	45
		1.2	2	650	0.026	0.048	0.048	1.11	60000	3120	45
		1.5	2	650	0.030	0.060	0.060	1.39	60000	3600	45
		2.0	2	650	0.034	0.080	0.080	1.86	60000	4080	45
		2.5	2	650	0.036	0.100	0.100	2.32	60000	4320	45
		3.0	2	650	0.040	0.120	0.120	2.78	60000	4800	45

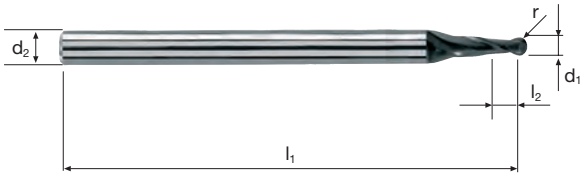
Ball nose end mills

Shank Ø 3mm, 3xd

HSS Favora® F Base-X X-Generation

II

HM	λ 30° γ 10°

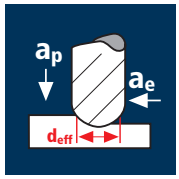


Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	Copper Aluminium

Example: **Order-N°.** Coating **M** Article-N°. **45785** ø-Code **.030**

ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	r ±0.01	α	z		MICRO
								5785	M45785
.030	0.3	3	40	1.0	0.15	9.0°	2	●	●
.040	0.4	3	40	1.0	0.20	8.9°	2	●	●
.050	0.5	3	40	1.5	0.25	8.4°	2	●	●
.060	0.6	3	40	1.5	0.30	8.3°	2	●	●
.070	0.7	3	40	2.0	0.35	7.8°	2	●	●
.080	0.8	3	40	2.0	0.40	7.7°	2	●	●
.090	0.9	3	40	2.5	0.45	7.2°	2	●	●
.100	1.0	3	40	3.0	0.50	6.7°	2	●	●
.108	1.2	3	40	4.0	0.60	5.7°	2	●	●
.120	1.5	3	40	4.0	0.75	5.3°	2	●	●
.130	1.8	3	40	5.0	0.90	5.2°	2	●	●
.140	2.0	3	40	5.0	1.00	4.6°	2	●	●
.160	2.5	3	40	7.0	1.25	2.0°	2	●	●
.180	3.0	4	44	10.0	1.50	2.6°	2	●	●

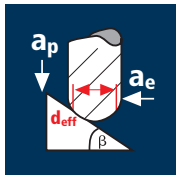
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
0.5	2	180	0.018	0.04	0.10	0.27	60000	2160	8.5
0.6	2	180	0.022	0.04	0.12	0.30	60000	2640	12.5
0.8	2	180	0.028	0.06	0.16	0.42	60000	3360	32.5
1.0	2	180	0.036	0.07	0.20	0.51	60000	4320	60.5
1.2	2	180	0.042	0.08	0.24	0.60	60000	5040	97.0
1.5	2	180	0.054	0.11	0.30	0.78	60000	6480	214.0
2.0	2	180	0.072	0.14	0.40	1.02	56175	8090	453.0
2.5	2	180	0.090	0.18	0.50	1.29	44415	7995	719.5
3.0	2	180	0.108	0.21	0.60	1.53	37450	8090	1019.5
Steel 1100 - 1300 N/mm²									
0.5	2	160	0.016	0.04	0.10	0.27	60000	1920	7.5
0.6	2	160	0.020	0.04	0.12	0.30	60000	2400	11.5
0.8	2	160	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	160	0.032	0.07	0.20	0.51	60000	3840	54.0
1.2	2	160	0.038	0.08	0.24	0.60	60000	4560	87.5
1.5	2	160	0.048	0.11	0.30	0.78	60000	5760	190.0
2.0	2	160	0.064	0.14	0.40	1.02	49930	6390	358.0
2.5	2	160	0.082	0.18	0.50	1.29	39480	6475	583.0
3.0	2	160	0.098	0.21	0.60	1.53	33290	6525	822.0
Stainless steel [Cr-Ni/1.4301]									
0.5	2	80	0.016	0.04	0.10	0.27	60000	1920	7.5
0.6	2	80	0.020	0.04	0.12	0.30	60000	2400	11.5
0.8	2	80	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	80	0.032	0.07	0.20	0.51	49930	3195	44.5
1.2	2	80	0.038	0.08	0.24	0.60	42445	3225	62.0
1.5	2	80	0.048	0.11	0.30	0.78	32650	3135	103.5
2.0	2	80	0.064	0.14	0.40	1.02	24965	3195	179.0
2.5	2	80	0.082	0.18	0.50	1.29	19740	3235	291.0
3.0	2	80	0.098	0.21	0.60	1.53	16645	3260	411.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.5	2	60	0.012	0.04	0.10	0.27	60000	1440	6.0
0.6	2	60	0.016	0.04	0.12	0.30	60000	1920	9.0
0.8	2	60	0.020	0.06	0.16	0.42	45475	1820	17.5
1.0	2	60	0.026	0.07	0.20	0.51	37450	1945	27.0
1.2	2	60	0.030	0.08	0.24	0.60	31830	1910	36.5
1.5	2	60	0.038	0.11	0.30	0.78	24485	1860	61.5
2.0	2	60	0.050	0.14	0.40	1.02	18725	1875	105.0
2.5	2	60	0.064	0.18	0.50	1.29	14805	1895	170.5
3.0	2	60	0.076	0.21	0.60	1.53	12485	1900	239.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
0.5	2	300	0.014	0.020	0.020	0.46	60000	1680	45
0.6	2	300	0.016	0.024	0.024	0.56	60000	1920	45
0.8	2	300	0.018	0.032	0.032	0.74	60000	2160	45
1.0	2	300	0.022	0.040	0.040	0.93	60000	2640	45
1.2	2	300	0.024	0.048	0.048	1.11	60000	2880	45
1.5	2	300	0.028	0.060	0.060	1.39	60000	3360	45
2.0	2	300	0.030	0.080	0.080	1.86	51340	3080	45
2.5	2	300	0.032	0.100	0.100	2.32	41160	2635	45
3.0	2	300	0.036	0.120	0.120	2.78	34350	2475	45
Steel 1100 - 1300 N/mm²									
0.2	2	250	0.012	0.008	0.008	0.19	60000	1440	45
0.5	2	250	0.014	0.020	0.020	0.46	60000	1680	45
0.8	2	250	0.016	0.032	0.032	0.74	60000	1920	45
1.0	2	250	0.020	0.040	0.040	0.93	60000	2400	45
1.2	2	250	0.022	0.048	0.048	1.11	60000	2640	45
1.5	2	250	0.026	0.060	0.060	1.39	57250	2975	45
2.0	2	250	0.028	0.080	0.080	1.86	42785	2395	45
2.5	2	250	0.028	0.100	0.100	2.32	34300	1920	45
3.0	2	250	0.032	0.120	0.120	2.78	28625	1830	45
Stainless steel [Cr-Ni/1.4301]									
0.2	2	120	0.012	0.008	0.008	0.19	60000	1440	45
0.5	2	120	0.012	0.020	0.020	0.46	60000	1440	45
0.8	2	120	0.014	0.032	0.032	0.74	51620	1445	45
1.0	2	120	0.018	0.040	0.040	0.93	41075	1480	45
1.2	2	120	0.020	0.048	0.048	1.11	34415	1375	45
1.5	2	120	0.022	0.060	0.060	1.39	27480	1210	45
2.0	2	120	0.024	0.080	0.080	1.86	20535	985	45
2.5	2	120	0.026	0.100	0.100	2.32	16465	855	45
3.0	2	120	0.028	0.120	0.120	2.78	13740	770	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.2	2	100	0.010	0.008	0.008	0.19	60000	1200	45
0.5	2	100	0.012	0.020	0.020	0.46	60000	1440	45
0.8	2	100	0.012	0.032	0.032	0.74	43015	1030	45
1.0	2	100	0.016	0.040	0.040	0.93	34230	1095	45
1.2	2	100	0.016	0.048	0.048	1.11	28675	920	45
1.5	2	100	0.020	0.060	0.060	1.39	22900	915	45
2.0	2	100	0.022	0.080	0.080	1.86	17115	755	45
2.5	2	100	0.022	0.100	0.100	2.32	13720	605	45
3.0	2	100	0.026	0.120	0.120	2.78	11450	595	45

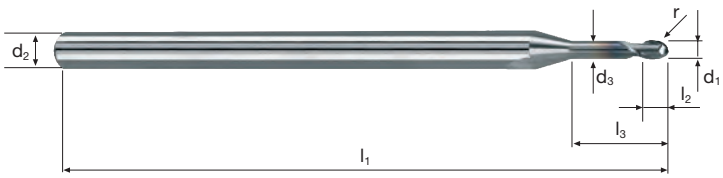
Ball nose end mills Microcut-B5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ **30°** γ **5°**

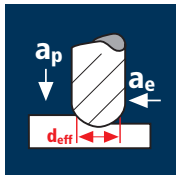


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5784** ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	MICRO M5784
.050	0.5	3	0.45	40	0.60	2.5	0.25	10.1°	2	●
.060	0.6	3	0.55	40	0.72	3.0	0.30	9.4°	2	●
.070	0.7	3	0.65	40	0.84	3.5	0.35	8.7°	2	●
.080	0.8	3	0.75	40	0.96	4.0	0.40	8.0°	2	●
.090	0.9	3	0.85	40	1.08	4.5	0.45	7.4°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.50	6.9°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.60	5.8°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.75	4.4°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.90	3.3°	2	●
.140	2.0	3	1.90	50	2.40	10.0	1.00	2.6°	2	●
.152	2.3	3	2.10	50	2.76	11.5	1.15	1.7°	2	●
.160	2.5	3	2.30	50	3.00	12.5	1.25	1.2°	2	●
.172	2.8	3	2.60	50	3.36	14.0	1.40	0.5°	2	●
.180	3.0	3	2.80	50	3.60	15.0	1.50	0.0°	2	●

Application



Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.5	2	140	0.012	0.03	0.10	0.24	60000	1440	4.5
0.6	2	140	0.016	0.03	0.12	0.26	60000	1920	7.0
0.8	2	140	0.020	0.04	0.16	0.35	60000	2400	15.5
1.0	2	140	0.026	0.05	0.20	0.44	60000	3120	31.0
1.2	2	140	0.030	0.06	0.24	0.52	60000	3600	52.0
1.5	2	140	0.038	0.08	0.30	0.67	60000	4560	109.5
2.0	2	140	0.050	0.10	0.40	0.87	51225	5125	205.0
2.5	2	140	0.062	0.13	0.50	1.11	40150	4980	323.5
3.0	2	140	0.076	0.15	0.60	1.31	34020	5170	465.5

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.5	2	120	0.012	0.03	0.10	0.24	60000	1440	4.5
0.6	2	120	0.016	0.03	0.12	0.26	60000	1920	7.0
0.8	2	120	0.020	0.04	0.16	0.35	60000	2400	15.5
1.0	2	120	0.024	0.05	0.20	0.44	60000	2880	29.0
1.2	2	120	0.028	0.06	0.24	0.52	60000	3360	48.5
1.5	2	120	0.036	0.08	0.30	0.67	57010	4105	98.5
2.0	2	120	0.048	0.10	0.40	0.87	43905	4215	168.5
2.5	2	120	0.058	0.13	0.50	1.11	34415	3990	259.5
3.0	2	120	0.072	0.15	0.60	1.31	29160	4200	378.0

Hardened tool steel 52 - 56 HRC



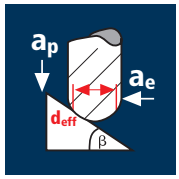
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.5	2	100	0.010	0.03	0.10	0.24	60000	1200	3.5
0.6	2	100	0.014	0.03	0.12	0.26	60000	1680	6.0
0.8	2	100	0.018	0.04	0.16	0.35	60000	2160	14.0
1.0	2	100	0.022	0.05	0.20	0.44	60000	2640	26.5
1.2	2	100	0.026	0.06	0.24	0.52	60000	3120	45.0
1.5	2	100	0.034	0.08	0.30	0.67	47510	3230	77.5
2.0	2	100	0.044	0.10	0.40	0.87	36590	3220	129.0
2.5	2	100	0.054	0.13	0.50	1.11	28675	3095	201.0
3.0	2	100	0.066	0.15	0.60	1.31	24300	3210	289.0

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
0.5	2	60	0.010	0.03	0.10	0.24	60000	1200	3.5
0.6	2	60	0.012	0.03	0.12	0.26	60000	1440	5.0
0.8	2	60	0.016	0.04	0.16	0.35	54570	1745	11.0
1.0	2	60	0.020	0.05	0.20	0.44	43405	1735	17.5
1.2	2	60	0.024	0.06	0.24	0.52	36730	1765	25.5
1.5	2	60	0.030	0.08	0.30	0.67	28505	1710	41.0
2.0	2	60	0.040	0.10	0.40	0.87	21955	1755	70.0
2.5	2	60	0.050	0.13	0.50	1.11	17205	1720	112.0
3.0	2	60	0.060	0.15	0.60	1.31	14580	1750	157.5

Application



Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	300	0.016	0.020	0.020	0.46	60000	1920	45
0.6	2	300	0.018	0.024	0.024	0.56	60000	2160	45
0.8	2	300	0.020	0.032	0.032	0.74	60000	2400	45
1.0	2	300	0.022	0.040	0.040	0.93	60000	2640	45
1.2	2	300	0.024	0.048	0.048	1.11	60000	2880	45
1.5	2	300	0.028	0.060	0.060	1.39	60000	3360	45
2.0	2	300	0.030	0.080	0.080	1.86	51340	3080	45
2.5	2	300	0.032	0.100	0.100	2.32	41160	2635	45
3.0	2	300	0.036	0.120	0.120	2.78	34350	2475	45

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	250	0.016	0.020	0.020	0.46	60000	1920	45
0.6	2	250	0.018	0.024	0.024	0.56	60000	2160	45
0.8	2	250	0.020	0.032	0.032	0.74	60000	2400	45
1.0	2	250	0.020	0.040	0.040	0.93	60000	2400	45
1.2	2	250	0.022	0.048	0.048	1.11	60000	2640	45
1.5	2	250	0.026	0.060	0.060	1.39	57250	2975	45
2.0	2	250	0.028	0.080	0.080	1.86	42785	2395	45
2.5	2	250	0.030	0.100	0.100	2.32	34300	2060	45
3.0	2	250	0.034	0.120	0.120	2.78	28625	1945	45

Hardened tool steel 52 - 56 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	200	0.014	0.020	0.020	0.46	60000	1680	45
0.6	2	200	0.016	0.024	0.024	0.56	60000	1920	45
0.8	2	200	0.018	0.032	0.032	0.74	60000	2160	45
1.0	2	200	0.020	0.040	0.040	0.93	60000	2400	45
1.2	2	200	0.022	0.048	0.048	1.11	57355	2525	45
1.5	2	200	0.026	0.060	0.060	1.39	45800	2380	45
2.0	2	200	0.028	0.080	0.080	1.86	34230	1915	45
2.5	2	200	0.028	0.100	0.100	2.32	27440	1535	45
3.0	2	200	0.032	0.120	0.120	2.78	22900	1465	45

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	150	0.012	0.020	0.020	0.46	60000	1440	45
0.6	2	150	0.014	0.024	0.024	0.56	60000	1680	45
0.8	2	150	0.016	0.032	0.032	0.74	60000	1920	45
1.0	2	150	0.018	0.040	0.040	0.93	51340	1850	45
1.2	2	150	0.020	0.048	0.048	1.11	43015	1720	45
1.5	2	150	0.022	0.060	0.060	1.39	34350	1510	45
2.0	2	150	0.024	0.080	0.080	1.86	25670	1230	45
2.5	2	150	0.026	0.100	0.100	2.32	20580	1070	45
3.0	2	150	0.028	0.120	0.120	2.78	17175	960	45

Ball nose end mills Microcut-B5H

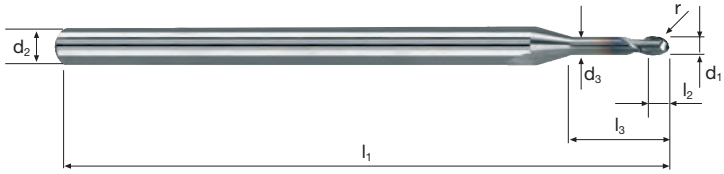
Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA | **λ 30° γ-10°**

h5



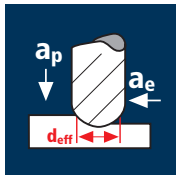


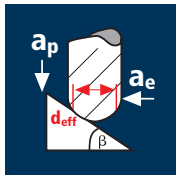


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Example: **Order-N°.** Coating **D** | Article-N°. **5794** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DURO-S D5794
.050	0.5	3	0.45	40	0.60	2.5	0.25	10.1°	2	●
.060	0.6	3	0.55	40	0.72	3.0	0.30	9.4°	2	●
.070	0.7	3	0.65	40	0.84	3.5	0.35	8.7°	2	●
.080	0.8	3	0.75	40	0.96	4.0	0.40	8.0°	2	●
.090	0.9	3	0.85	40	1.08	4.5	0.45	7.4°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.50	6.9°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.60	5.8°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.75	4.4°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.90	3.3°	2	●
.140	2.0	3	1.90	50	2.40	10.0	1.00	2.6°	2	●
.152	2.3	3	2.10	50	2.76	11.5	1.15	1.7°	2	●
.160	2.5	3	2.30	50	3.00	12.5	1.25	1.2°	2	●
.172	2.8	3	2.60	50	3.36	14.0	1.40	0.5°	2	●
.180	3.0	3	2.80	50	3.60	15.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
	Steel 850 - 1100 N/mm²	0.5	2	180	0.018	0.03	0.10	0.24	60000	2160	6.5
		0.6	2	180	0.022	0.03	0.12	0.26	60000	2640	9.5
		0.8	2	180	0.028	0.04	0.16	0.35	60000	3360	21.5
		1.0	2	180	0.036	0.05	0.20	0.44	60000	4320	43.0
		1.2	2	180	0.042	0.06	0.24	0.52	60000	5040	72.5
		1.5	2	180	0.054	0.08	0.30	0.67	60000	6480	155.5
		2.0	2	180	0.072	0.10	0.40	0.87	60000	8640	345.5
		2.5	2	180	0.090	0.13	0.50	1.11	51620	9290	604.0
		3.0	2	180	0.108	0.15	0.60	1.31	43740	9450	850.5
	Steel 1100 - 1300 N/mm²	0.5	2	160	0.016	0.03	0.10	0.24	60000	1920	6.0
		0.6	2	160	0.020	0.03	0.12	0.26	60000	2400	8.5
		0.8	2	160	0.026	0.04	0.16	0.35	60000	3120	20.0
		1.0	2	160	0.032	0.05	0.20	0.44	60000	3840	38.5
		1.2	2	160	0.038	0.06	0.24	0.52	60000	4560	65.5
		1.5	2	160	0.048	0.08	0.30	0.67	60000	5760	138.0
		2.0	2	160	0.064	0.10	0.40	0.87	58540	7495	300.0
		2.5	2	160	0.082	0.13	0.50	1.11	45885	7525	489.0
		3.0	2	160	0.098	0.15	0.60	1.31	38880	7620	686.0
	Stainless steel [Cr-Ni/1.4301]	0.5	2	80	0.016	0.03	0.10	0.24	60000	1920	6.0
		0.6	2	80	0.020	0.03	0.12	0.26	60000	2400	8.5
		0.8	2	80	0.026	0.04	0.16	0.35	60000	3120	20.0
		1.0	2	80	0.032	0.05	0.20	0.44	57875	3705	37.0
		1.2	2	80	0.038	0.06	0.24	0.52	48970	3720	53.5
		1.5	2	80	0.048	0.08	0.30	0.67	38010	3650	87.5
		2.0	2	80	0.064	0.10	0.40	0.87	29270	3745	150.0
		2.5	2	80	0.082	0.13	0.50	1.11	22940	3760	244.5
		3.0	2	80	0.098	0.15	0.60	1.31	19440	3810	343.0
	Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	60	0.012	0.03	0.10	0.24	60000	1440	4.5
		0.6	2	60	0.016	0.03	0.12	0.26	60000	1920	7.0
		0.8	2	60	0.020	0.04	0.16	0.35	54570	2185	14.0
		1.0	2	60	0.026	0.05	0.20	0.44	43405	2255	22.5
		1.2	2	60	0.030	0.06	0.24	0.52	36730	2205	32.0
		1.5	2	60	0.038	0.08	0.30	0.67	28505	2165	52.0
		2.0	2	60	0.050	0.10	0.40	0.87	21955	2195	88.0
		2.5	2	60	0.064	0.13	0.50	1.11	17205	2200	143.0
		3.0	2	60	0.076	0.15	0.60	1.31	14580	2215	199.5

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Steel 850 - 1100 N/mm²	0.5	2	300	0.014	0.020	0.020	0.46	60000	1680	45
		0.6	2	300	0.016	0.022	0.022	0.55	60000	1920	45
		0.8	2	300	0.018	0.030	0.030	0.74	60000	2160	45
		1.0	2	300	0.022	0.038	0.038	0.92	60000	2640	45
		1.2	2	300	0.024	0.046	0.046	1.11	60000	2880	45
		1.5	2	300	0.028	0.058	0.058	1.39	60000	3360	45
		2.0	2	300	0.030	0.076	0.076	1.85	51620	3095	45
		2.5	2	300	0.032	0.096	0.096	2.31	41340	2645	45
		3.0	2	300	0.036	0.114	0.114	2.77	34475	2480	45
	Steel 1100 - 1300 N/mm²	0.5	2	250	0.012	0.020	0.020	0.46	60000	1440	45
		0.6	2	250	0.014	0.022	0.022	0.55	60000	1680	45
		0.8	2	250	0.016	0.030	0.030	0.74	60000	1920	45
		1.0	2	250	0.020	0.038	0.038	0.92	60000	2400	45
		1.2	2	250	0.022	0.046	0.046	1.11	60000	2640	45
		1.5	2	250	0.026	0.058	0.058	1.39	57250	2975	45
		2.0	2	250	0.028	0.076	0.076	1.85	43015	2410	45
		2.5	2	250	0.028	0.096	0.096	2.31	34450	1930	45
		3.0	2	250	0.032	0.114	0.114	2.77	28730	1840	45
	Stainless steel [Cr-Ni/1.4301]	0.5	2	120	0.012	0.020	0.020	0.46	60000	1440	45
		0.6	2	120	0.012	0.022	0.022	0.55	60000	1440	45
		0.8	2	120	0.014	0.030	0.030	0.74	51620	1445	45
		1.0	2	120	0.018	0.038	0.038	0.92	41520	1495	45
		1.2	2	120	0.020	0.046	0.046	1.11	34415	1375	45
		1.5	2	120	0.022	0.058	0.058	1.39	27480	1210	45
		2.0	2	120	0.024	0.076	0.076	1.85	20650	990	45
		2.5	2	120	0.026	0.096	0.096	2.31	16535	860	45
		3.0	2	120	0.028	0.114	0.114	2.77	13790	770	45
	Titanium alloys up to 300 HB [Ti5Al2.5Sn]	0.5	2	100	0.010	0.020	0.020	0.46	60000	1200	45
		0.6	2	100	0.012	0.022	0.022	0.55	57875	1390	45
		0.8	2	100	0.012	0.030	0.030	0.74	43015	1030	45
		1.0	2	100	0.016	0.038	0.038	0.92	34600	1105	45
		1.2	2	100	0.016	0.046	0.046	1.11	28675	920	45
		1.5	2	100	0.020	0.058	0.058	1.39	22900	915	45
		2.0	2	100	0.022	0.076	0.076	1.85	17205	755	45
		2.5	2	100	0.022	0.096	0.096	2.31	13780	605	45
		3.0	2	100	0.026	0.114	0.114	2.77	11490	595	45

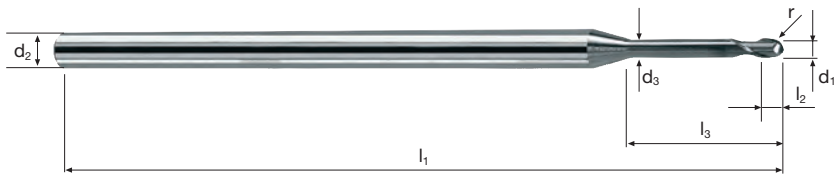
Ball nose end mills Microcut-B8

Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ **30°** γ **5°**

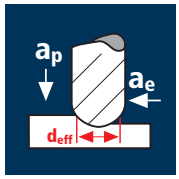


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5786** | ø-Code **.050**

ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	MICRO **M5786**
.050	0.5	3	0.45	40	0.60	4.0	0.25	8.4°	2	●
.060	0.6	3	0.55	40	0.72	4.8	0.30	7.6°	2	●
.080	0.8	3	0.75	40	0.96	6.4	0.40	6.2°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.50	5.1°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.60	4.2°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.75	3.1°	2	●
.140	2.0	3	1.90	60	2.40	16.0	1.00	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	1.25	0.8°	2	●
.180	3.0	3	2.80	60	3.60	24.0	1.50	0.0°	2	●

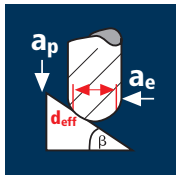
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Hardened tool steel 42 - 48 HRC									
0.5	2	140	0.012	0.02	0.09	0.20	60000	1440	2.5
0.6	2	140	0.016	0.02	0.11	0.22	60000	1920	4.0
0.8	2	140	0.020	0.03	0.14	0.30	60000	2400	10.0
1.0	2	140	0.026	0.04	0.18	0.39	60000	3120	22.5
1.2	2	140	0.030	0.05	0.22	0.48	60000	3600	39.5
1.5	2	140	0.038	0.06	0.27	0.59	60000	4560	74.0
2.0	2	140	0.050	0.08	0.36	0.78	57135	5715	164.5
2.5	2	140	0.062	0.10	0.45	0.98	45475	5640	254.0
3.0	2	140	0.076	0.12	0.54	1.18	37765	5740	372.0
Hardened tool steel 48 - 52 HRC									
0.5	2	120	0.012	0.02	0.09	0.20	60000	1440	2.5
0.6	2	120	0.016	0.02	0.11	0.22	60000	1920	4.0
0.8	2	120	0.020	0.03	0.14	0.30	60000	2400	10.0
1.0	2	120	0.024	0.04	0.18	0.39	60000	2880	20.5
1.2	2	120	0.028	0.05	0.22	0.48	60000	3360	37.0
1.5	2	120	0.036	0.06	0.27	0.59	60000	4320	70.0
2.0	2	120	0.048	0.08	0.36	0.78	48970	4700	135.5
2.5	2	120	0.058	0.10	0.45	0.98	38980	4520	203.5
3.0	2	120	0.072	0.12	0.54	1.18	32370	4660	302.0
Hardened tool steel 52 - 56 HRC									
0.5	2	100	0.010	0.02	0.09	0.20	60000	1200	2.0
0.6	2	100	0.014	0.02	0.11	0.22	60000	1680	3.5
0.8	2	100	0.018	0.03	0.14	0.30	60000	2160	9.0
1.0	2	100	0.022	0.04	0.18	0.39	60000	2640	19.0
1.2	2	100	0.026	0.05	0.22	0.48	60000	3120	34.5
1.5	2	100	0.034	0.06	0.27	0.59	53950	3670	59.5
2.0	2	100	0.044	0.08	0.36	0.78	40810	3590	103.5
2.5	2	100	0.054	0.10	0.45	0.98	32480	3510	158.0
3.0	2	100	0.066	0.12	0.54	1.18	26975	3560	230.5
Hardened tool steel 56 - 60 HRC									
0.5	2	60	0.010	0.02	0.09	0.20	60000	1200	2.0
0.6	2	60	0.012	0.02	0.11	0.22	60000	1440	3.0
0.8	2	60	0.016	0.03	0.14	0.30	60000	1920	8.0
1.0	2	60	0.020	0.04	0.18	0.39	48970	1960	14.0
1.2	2	60	0.024	0.05	0.22	0.48	39790	1910	21.0
1.5	2	60	0.030	0.06	0.27	0.59	32370	1940	31.5
2.0	2	60	0.040	0.08	0.36	0.78	24485	1960	56.5
2.5	2	60	0.050	0.10	0.45	0.98	19490	1950	88.0
3.0	2	60	0.060	0.12	0.54	1.18	16185	1940	125.5

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
0.5	2	300	0.016	0.020	0.020	0.46	60000	1920	45
0.6	2	300	0.018	0.022	0.022	0.55	60000	2160	45
0.8	2	300	0.020	0.030	0.030	0.74	60000	2400	45
1.0	2	300	0.022	0.038	0.038	0.92	60000	2640	45
1.2	2	300	0.024	0.046	0.046	1.11	60000	2880	45
1.5	2	300	0.028	0.058	0.058	1.39	60000	3360	45
2.0	2	300	0.030	0.076	0.076	1.85	51620	3095	45
2.5	2	300	0.032	0.096	0.096	2.31	41340	2645	45
3.0	2	300	0.036	0.114	0.114	2.77	34475	2480	45
Hardened tool steel 48 - 52 HRC									
0.5	2	250	0.016	0.020	0.020	0.46	60000	1920	45
0.6	2	250	0.018	0.022	0.022	0.55	60000	2160	45
0.8	2	250	0.020	0.030	0.030	0.74	60000	2400	45
1.0	2	250	0.020	0.038	0.038	0.92	60000	2400	45
1.2	2	250	0.022	0.046	0.046	1.11	60000	2640	45
1.5	2	250	0.026	0.058	0.058	1.39	57250	2975	45
2.0	2	250	0.028	0.076	0.076	1.85	43015	2410	45
2.5	2	250	0.030	0.096	0.096	2.31	34450	2065	45
3.0	2	250	0.034	0.114	0.114	2.77	28730	1955	45
Hardened tool steel 52 - 56 HRC									
0.5	2	200	0.014	0.020	0.020	0.46	60000	1680	45
0.6	2	200	0.016	0.022	0.022	0.55	60000	1920	45
0.8	2	200	0.018	0.030	0.030	0.74	60000	2160	45
1.0	2	200	0.020	0.038	0.038	0.92	60000	2400	45
1.2	2	200	0.022	0.046	0.046	1.11	57355	2525	45
1.5	2	200	0.026	0.058	0.058	1.39	45800	2380	45
2.0	2	200	0.028	0.076	0.076	1.85	34415	1925	45
2.5	2	200	0.028	0.096	0.096	2.31	27560	1545	45
3.0	2	200	0.032	0.114	0.114	2.77	22985	1470	45
Hardened tool steel 56 - 60 HRC									
0.5	2	150	0.012	0.020	0.020	0.46	60000	1440	45
0.6	2	150	0.014	0.022	0.022	0.55	60000	1680	45
0.8	2	150	0.016	0.030	0.030	0.74	60000	1920	45
1.0	2	150	0.018	0.038	0.038	0.92	51900	1870	45
1.2	2	150	0.020	0.046	0.046	1.11	43015	1720	45
1.5	2	150	0.022	0.058	0.058	1.39	34350	1510	45
2.0	2	150	0.024	0.076	0.076	1.85	25810	1240	45
2.5	2	150	0.026	0.096	0.096	2.31	20670	1075	45
3.0	2	150	0.028	0.114	0.114	2.77	17240	965	45

Ball nose end mills Microcut-B8H

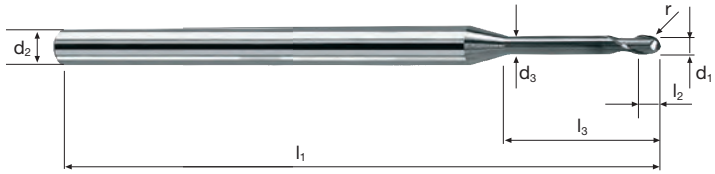
Shank Ø 3mm, cylindrical neck, 8xd

HM XA | λ **30°** γ **-10°**

h5

d1

r

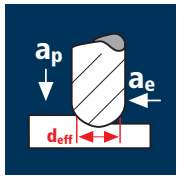


	Rm 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60	**Inox** Stainless	**Ti** Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5796** ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DURO-S D5796
.050	0.5	3	0.45	40	0.60	4.0	0.25	8.4°	2	●
.060	0.6	3	0.55	40	0.72	4.8	0.30	7.6°	2	●
.080	0.8	3	0.75	40	0.96	6.4	0.40	6.2°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.50	5.1°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.60	4.2°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.75	3.1°	2	●
.140	2.0	3	1.90	60	2.40	16.0	1.00	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	1.25	0.8°	2	●
.180	3.0	3	2.80	60	3.60	24.0	1.50	0.0°	2	●

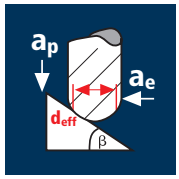
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
0.5	2	180	0.018	0.02	0.08	0.20	60000	2160	3.5
0.6	2	180	0.022	0.02	0.09	0.22	60000	2640	5.0
0.8	2	180	0.028	0.03	0.12	0.30	60000	3360	12.0
1.0	2	180	0.036	0.04	0.15	0.39	60000	4320	26.0
1.2	2	180	0.042	0.05	0.18	0.48	60000	5040	45.5
1.5	2	180	0.054	0.06	0.23	0.59	60000	6480	89.5
2.0	2	180	0.072	0.08	0.30	0.78	60000	8640	207.5
2.5	2	180	0.090	0.10	0.38	0.98	58465	10525	400.0
3.0	2	180	0.108	0.12	0.45	1.18	48555	10490	566.5
Steel 1100 - 1300 N/mm²									
0.5	2	160	0.016	0.02	0.08	0.20	60000	1920	3.0
0.6	2	160	0.020	0.02	0.09	0.22	60000	2400	4.5
0.8	2	160	0.026	0.03	0.12	0.30	60000	3120	11.0
1.0	2	160	0.032	0.04	0.15	0.39	60000	3840	23.0
1.2	2	160	0.038	0.05	0.18	0.48	60000	4560	41.0
1.5	2	160	0.048	0.06	0.23	0.59	60000	5760	79.5
2.0	2	160	0.064	0.08	0.30	0.78	60000	7680	184.5
2.5	2	160	0.082	0.10	0.38	0.98	51970	8525	324.0
3.0	2	160	0.098	0.12	0.45	1.18	43160	8460	457.0
Stainless steel [Cr-Ni/1.4301]									
0.5	2	80	0.016	0.02	0.08	0.20	60000	1920	3.0
0.6	2	80	0.020	0.02	0.09	0.22	60000	2400	4.5
0.8	2	80	0.026	0.03	0.12	0.30	60000	3120	11.0
1.0	2	80	0.032	0.04	0.15	0.39	60000	3840	23.0
1.2	2	80	0.038	0.05	0.18	0.48	53055	4030	36.5
1.5	2	80	0.048	0.06	0.23	0.59	43160	4145	57.0
2.0	2	80	0.064	0.08	0.30	0.78	32650	4180	100.5
2.5	2	80	0.082	0.10	0.38	0.98	25985	4260	162.0
3.0	2	80	0.098	0.12	0.45	1.18	21580	4230	228.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.5	2	60	0.012	0.02	0.08	0.20	60000	1440	2.5
0.6	2	60	0.016	0.02	0.09	0.22	60000	1920	3.5
0.8	2	60	0.020	0.03	0.12	0.30	60000	2400	8.5
1.0	2	60	0.026	0.04	0.15	0.39	48970	2545	15.5
1.2	2	60	0.030	0.05	0.18	0.48	39790	2385	21.5
1.5	2	60	0.038	0.06	0.23	0.59	32370	2460	34.0
2.0	2	60	0.050	0.08	0.30	0.78	24485	2450	59.0
2.5	2	60	0.064	0.10	0.38	0.98	19490	2495	95.0
3.0	2	60	0.076	0.12	0.45	1.18	16185	2460	133.0

Application



Material

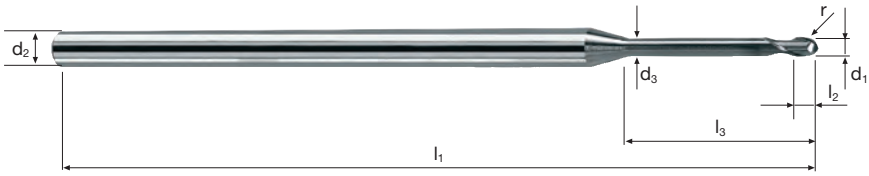
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
0.5	2	300	0.012	0.018	0.018	0.46	60000	1440	45
0.6	2	300	0.014	0.022	0.022	0.55	60000	1680	45
0.8	2	300	0.016	0.028	0.028	0.73	60000	1920	45
1.0	2	300	0.020	0.036	0.036	0.92	60000	2400	45
1.2	2	300	0.022	0.042	0.042	1.10	60000	2640	45
1.5	2	300	0.024	0.052	0.052	1.38	60000	2880	45
2.0	2	300	0.026	0.070	0.070	1.84	51900	2700	45
2.5	2	300	0.028	0.088	0.088	2.29	41700	2335	45
3.0	2	300	0.032	0.106	0.106	2.75	34725	2220	45
Steel 1100 - 1300 N/mm²									
0.2	2	250	0.010	0.008	0.008	0.19	60000	1200	45
0.5	2	250	0.012	0.018	0.018	0.46	60000	1440	45
0.8	2	250	0.014	0.028	0.028	0.73	60000	1680	45
1.0	2	250	0.018	0.036	0.036	0.92	60000	2160	45
1.2	2	250	0.020	0.042	0.042	1.10	60000	2400	45
1.5	2	250	0.022	0.052	0.052	1.38	57665	2535	45
2.0	2	250	0.024	0.070	0.070	1.84	43250	2075	45
2.5	2	250	0.026	0.088	0.088	2.29	34750	1805	45
3.0	2	250	0.028	0.106	0.106	2.75	28940	1620	45
Stainless steel [Cr-Ni/1.4301]									
0.2	2	120	0.010	0.008	0.008	0.19	60000	1200	45
0.5	2	120	0.012	0.018	0.018	0.46	60000	1440	45
0.8	2	120	0.012	0.028	0.028	0.73	52325	1255	45
1.0	2	120	0.016	0.036	0.036	0.92	41520	1330	45
1.2	2	120	0.018	0.042	0.042	1.10	34725	1250	45
1.5	2	120	0.020	0.052	0.052	1.38	27680	1105	45
2.0	2	120	0.020	0.070	0.070	1.84	20760	830	45
2.5	2	120	0.022	0.088	0.088	2.29	16680	735	45
3.0	2	120	0.026	0.106	0.106	2.75	13890	720	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.2	2	100	0.008	0.008	0.008	0.19	60000	960	45
0.5	2	100	0.010	0.018	0.018	0.46	60000	1200	45
0.8	2	100	0.012	0.028	0.028	0.73	43605	1045	45
1.0	2	100	0.014	0.036	0.036	0.92	34600	970	45
1.2	2	100	0.016	0.042	0.042	1.10	28940	925	45
1.5	2	100	0.016	0.052	0.052	1.38	23065	740	45
2.0	2	100	0.018	0.070	0.070	1.84	17300	625	45
2.5	2	100	0.020	0.088	0.088	2.29	13900	555	45
3.0	2	100	0.022	0.106	0.106	2.75	11575	510	45

Ball nose end mills Microcut-B10

Shank Ø 3mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**

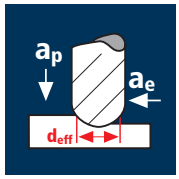


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **Gold / Platinum Copper**

Example: **Order-N°.** — Coating: **M** | Article-N°.: **5787** | ø-Code: **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	MICRO
										M5787
.050	0.5	3	0.45	40	0.60	5.0	0.25	7.5°	2	●
.060	0.6	3	0.55	40	0.72	6.0	0.30	6.7°	2	●
.080	0.8	3	0.75	40	0.96	8.0	0.40	5.4°	2	●
.100	1.0	3	0.95	50	1.20	10.0	0.50	4.3°	2	●
.108	1.2	3	1.10	50	1.44	12.0	0.60	3.5°	2	●
.120	1.5	3	1.40	60	1.80	15.0	0.75	2.6°	2	●
.140	2.0	3	1.90	60	2.40	20.0	1.00	1.4°	2	●
.160	2.5	3	2.30	60	3.00	25.0	1.25	0.6°	2	●
.180	3.0	3	2.80	60	3.60	30.0	1.50	0.0°	2	●

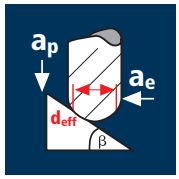
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
1.0	2	180	0.028	0.03	0.12	0.34	60000	3360	12.0
1.2	2	180	0.034	0.04	0.14	0.43	60000	4080	23.0
1.5	2	180	0.042	0.05	0.18	0.54	60000	5040	45.5
2.0	2	180	0.058	0.06	0.24	0.68	60000	6960	100.0
2.5	2	180	0.072	0.08	0.30	0.88	60000	8640	207.5
3.0	2	180	0.086	0.09	0.36	1.02	56175	9660	313.0
Steel 1100 - 1300 N/mm²									
1.0	2	160	0.026	0.03	0.12	0.34	60000	3120	11.0
1.2	2	160	0.030	0.04	0.14	0.43	60000	3600	20.0
1.5	2	160	0.038	0.05	0.18	0.54	60000	4560	41.0
2.0	2	160	0.052	0.06	0.24	0.68	60000	6240	90.0
2.5	2	160	0.064	0.08	0.30	0.88	57875	7410	178.0
3.0	2	160	0.078	0.09	0.36	1.02	49930	7790	252.5
Stainless steel [Cr-Ni/1.4301]									
1.0	2	80	0.022	0.03	0.12	0.34	60000	2640	9.5
1.2	2	80	0.028	0.04	0.14	0.43	59220	3315	18.5
1.5	2	80	0.034	0.05	0.18	0.54	47160	3205	29.0
2.0	2	80	0.046	0.06	0.24	0.68	37450	3445	49.5
2.5	2	80	0.058	0.08	0.30	0.88	28940	3355	80.5
3.0	2	80	0.068	0.09	0.36	1.02	24965	3395	110.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	60	0.020	0.03	0.12	0.34	56175	2245	8.0
1.2	2	60	0.024	0.04	0.14	0.43	44415	2130	12.0
1.5	2	60	0.030	0.05	0.18	0.54	35370	2120	19.0
2.0	2	60	0.040	0.06	0.24	0.68	28085	2245	32.5
2.5	2	60	0.050	0.08	0.30	0.88	21705	2170	52.0
3.0	2	60	0.060	0.09	0.36	1.02	18725	2245	72.5

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	300	0.020	0.028	0.028	0.90	60000	2400	45
1.2	2	300	0.022	0.034	0.034	1.08	60000	2640	45
1.5	2	300	0.024	0.042	0.042	1.35	60000	2880	45
2.0	2	300	0.026	0.056	0.056	1.80	53055	2760	45
2.5	2	300	0.028	0.070	0.070	2.25	42445	2375	45
3.0	2	300	0.032	0.084	0.084	2.70	35370	2265	45
Steel 1100 - 1300 N/mm²									
1.0	2	250	0.018	0.028	0.028	0.90	60000	2160	45
1.2	2	250	0.020	0.034	0.034	1.08	60000	2400	45
1.5	2	250	0.022	0.042	0.042	1.35	58950	2595	45
2.0	2	250	0.024	0.056	0.056	1.80	44210	2120	45
2.5	2	250	0.026	0.070	0.070	2.25	35370	1840	45
3.0	2	250	0.028	0.084	0.084	2.70	29475	1650	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	120	0.016	0.028	0.028	0.90	42445	1360	45
1.2	2	120	0.018	0.034	0.034	1.08	35370	1275	45
1.5	2	120	0.020	0.042	0.042	1.35	28295	1130	45
2.0	2	120	0.020	0.056	0.056	1.80	21220	850	45
2.5	2	120	0.022	0.070	0.070	2.25	16975	745	45
3.0	2	120	0.026	0.084	0.084	2.70	14150	735	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	100	0.014	0.028	0.028	0.90	35370	990	45
1.2	2	100	0.016	0.034	0.034	1.08	29475	945	45
1.5	2	100	0.016	0.042	0.042	1.35	23580	755	45
2.0	2	100	0.018	0.056	0.056	1.80	17685	635	45
2.5	2	100	0.020	0.070	0.070	2.25	14150	565	45
3.0	2	100	0.022	0.084	0.084	2.70	11790	520	45

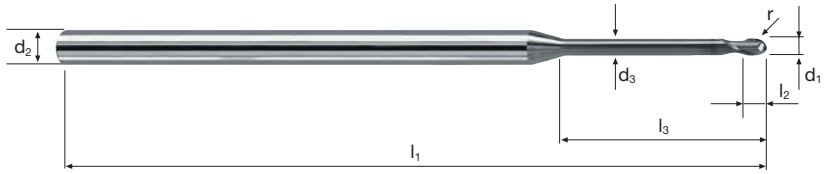
Ball nose end mills Microcut-B12

Shank Ø 3mm, cylindrical neck, 12xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ **30°** γ **5°**

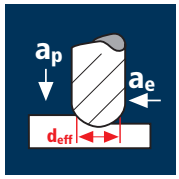


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5791** | ø-Code **.100**

ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	MICRO **M5791**
.100	1.0	3	0.95	50	1.20	12.0	0.50	3.8°	2	●
.108	1.2	3	1.10	60	1.44	14.4	0.60	3.0°	2	●
.120	1.5	3	1.40	60	1.80	18.0	0.75	2.2°	2	●
.140	2.0	3	1.90	60	2.40	24.0	1.00	1.2°	2	●
.160	2.5	3	2.30	70	3.00	30.0	1.25	0.5°	2	●
.180	3.0	3	2.80	70	3.60	36.0	1.50	0.0°	2	●

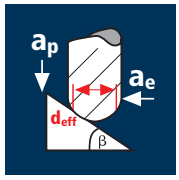
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
1.0	2	150	0.028	0.03	0.10	0.34	60000	3360	10.0
1.2	2	150	0.034	0.04	0.12	0.43	60000	4080	19.5
1.5	2	150	0.042	0.05	0.15	0.54	60000	5040	38.0
2.0	2	150	0.058	0.06	0.20	0.68	60000	6960	83.5
2.5	2	150	0.072	0.08	0.25	0.88	54260	7815	156.5
3.0	2	150	0.086	0.09	0.30	1.02	46810	8050	217.5
Steel 1100 - 1300 N/mm²									
1.0	2	120	0.026	0.03	0.10	0.34	60000	3120	9.5
1.2	2	120	0.030	0.04	0.12	0.43	60000	3600	17.5
1.5	2	120	0.038	0.05	0.15	0.54	60000	4560	34.0
2.0	2	120	0.052	0.06	0.20	0.68	56175	5840	70.0
2.5	2	120	0.064	0.08	0.25	0.88	43405	5555	111.0
3.0	2	120	0.078	0.09	0.30	1.02	37450	5840	157.5
Stainless steel [Cr-Ni/1.4301]									
1.0	2	70	0.022	0.03	0.10	0.34	60000	2640	8.0
1.2	2	70	0.028	0.04	0.12	0.43	51820	2900	14.0
1.5	2	70	0.034	0.05	0.15	0.54	41265	2805	21.0
2.0	2	70	0.046	0.06	0.20	0.68	32770	3015	36.0
2.5	2	70	0.058	0.08	0.25	0.88	25320	2935	58.5
3.0	2	70	0.068	0.09	0.30	1.02	21845	2970	80.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	50	0.020	0.03	0.10	0.34	46810	1870	5.5
1.2	2	50	0.024	0.04	0.12	0.43	37015	1775	8.5
1.5	2	50	0.030	0.05	0.15	0.54	29475	1770	13.5
2.0	2	50	0.040	0.06	0.20	0.68	23405	1870	22.5
2.5	2	50	0.050	0.08	0.25	0.88	18085	1810	36.0
3.0	2	50	0.060	0.09	0.30	1.02	15605	1875	50.5

Application



Material

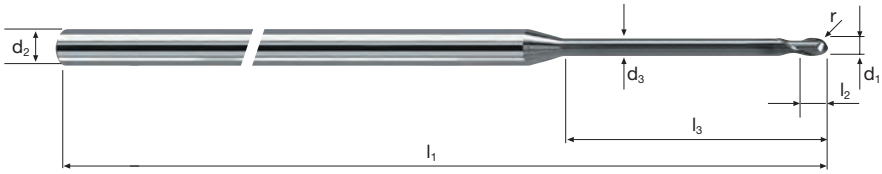
d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	250	0.020	0.026	0.026	0.90	60000	2400	45
1.2	2	250	0.022	0.032	0.032	1.08	60000	2640	45
1.5	2	250	0.024	0.040	0.040	1.35	58950	2830	45
2.0	2	250	0.026	0.052	0.052	1.79	44460	2310	45
2.5	2	250	0.028	0.066	0.066	2.24	35525	1990	45
3.0	2	250	0.032	0.078	0.078	2.69	29585	1895	45
Steel 1100 - 1300 N/mm²									
1.0	2	200	0.018	0.026	0.026	0.90	60000	2160	45
1.2	2	200	0.020	0.032	0.032	1.08	58950	2360	45
1.5	2	200	0.022	0.040	0.040	1.35	47160	2075	45
2.0	2	200	0.024	0.052	0.052	1.79	35565	1705	45
2.5	2	200	0.026	0.066	0.066	2.24	28420	1480	45
3.0	2	200	0.028	0.078	0.078	2.69	23665	1325	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	100	0.016	0.026	0.026	0.90	35370	1130	45
1.2	2	100	0.018	0.032	0.032	1.08	29475	1060	45
1.5	2	100	0.020	0.040	0.040	1.35	23580	945	45
2.0	2	100	0.020	0.052	0.052	1.79	17785	710	45
2.5	2	100	0.022	0.066	0.066	2.24	14210	625	45
3.0	2	100	0.026	0.078	0.078	2.69	11835	615	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	80	0.014	0.026	0.026	0.90	28295	790	45
1.2	2	80	0.016	0.032	0.032	1.08	23580	755	45
1.5	2	80	0.016	0.040	0.040	1.35	18865	605	45
2.0	2	80	0.018	0.052	0.052	1.79	14225	510	45
2.5	2	80	0.020	0.066	0.066	2.24	11370	455	45
3.0	2	80	0.022	0.078	0.078	2.69	9465	415	45

Ball nose end mills Microcut-B15

Shank Ø 3mm, cylindrical neck, 15xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**

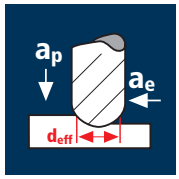


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5793** ø-Code **.100**

ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	MICRO M5793
.100	1.0	3	0.95	60	1.20	15.0	0.50	3.2°	2	●
.108	1.2	3	1.10	60	1.44	18.0	0.60	2.5°	2	●
.120	1.5	3	1.40	70	1.80	22.5	0.75	1.8°	2	●
.140	2.0	3	1.90	70	2.40	30.0	1.00	1.0°	2	●
.160	2.5	3	2.30	70	3.00	37.5	1.25	0.4°	2	●
.180	3.0	3	2.80	80	3.60	45.0	1.50	0.0°	2	●

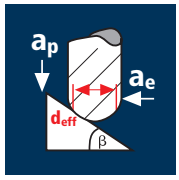
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
1.0	2	150	0.028	0.03	0.08	0.34	60000	3360	8.0
1.2	2	150	0.034	0.04	0.10	0.43	60000	4080	16.5
1.5	2	150	0.042	0.05	0.12	0.54	60000	5040	30.0
2.0	2	150	0.058	0.06	0.16	0.68	60000	6960	67.0
2.5	2	150	0.072	0.08	0.20	0.88	54260	7815	125.0
3.0	2	150	0.086	0.09	0.24	1.02	46810	8050	174.0
Steel 1100 - 1300 N/mm²									
1.0	2	120	0.026	0.03	0.08	0.34	60000	3120	7.5
1.2	2	120	0.030	0.04	0.10	0.43	60000	3600	14.5
1.5	2	120	0.038	0.05	0.12	0.54	60000	4560	27.5
2.0	2	120	0.052	0.06	0.16	0.68	56175	5840	56.0
2.5	2	120	0.064	0.08	0.20	0.88	43405	5555	89.0
3.0	2	120	0.078	0.09	0.24	1.02	37450	5840	126.0
Stainless steel [Cr-Ni/1.4301]									
1.0	2	70	0.022	0.03	0.08	0.34	60000	2640	6.5
1.2	2	70	0.028	0.04	0.10	0.43	51820	2900	11.5
1.5	2	70	0.034	0.05	0.12	0.54	41265	2805	17.0
2.0	2	70	0.046	0.06	0.16	0.68	32770	3015	29.0
2.5	2	70	0.058	0.08	0.20	0.88	25320	2935	47.0
3.0	2	70	0.068	0.09	0.24	1.02	21845	2970	64.0
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	50	0.020	0.03	0.08	0.34	46810	1870	4.5
1.2	2	50	0.024	0.04	0.10	0.43	37015	1775	7.0
1.5	2	50	0.030	0.05	0.12	0.54	29475	1770	10.5
2.0	2	50	0.040	0.06	0.16	0.68	23405	1870	18.0
2.5	2	50	0.050	0.08	0.20	0.88	18085	1810	29.0
3.0	2	50	0.060	0.09	0.24	1.02	15605	1875	40.5

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	250	0.020	0.022	0.022	0.88	60000	2400	45
1.2	2	250	0.022	0.026	0.026	1.06	60000	2640	45
1.5	2	250	0.024	0.034	0.034	1.33	59835	2870	45
2.0	2	250	0.026	0.044	0.044	1.77	44960	2340	45
2.5	2	250	0.028	0.056	0.056	2.21	36010	2015	45
3.0	2	250	0.032	0.066	0.066	2.65	30030	1920	45
Steel 1100 - 1300 N/mm²									
1.0	2	200	0.018	0.022	0.022	0.88	60000	2160	45
1.2	2	200	0.020	0.026	0.026	1.06	60000	2400	45
1.5	2	200	0.022	0.034	0.034	1.33	47870	2105	45
2.0	2	200	0.024	0.044	0.044	1.77	35970	1725	45
2.5	2	200	0.026	0.056	0.056	2.21	28805	1500	45
3.0	2	200	0.028	0.066	0.066	2.65	24025	1345	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	100	0.016	0.022	0.022	0.88	36175	1160	45
1.2	2	100	0.018	0.026	0.026	1.06	30030	1080	45
1.5	2	100	0.020	0.034	0.034	1.33	23935	955	45
2.0	2	100	0.020	0.044	0.044	1.77	17985	720	45
2.5	2	100	0.022	0.056	0.056	2.21	14405	635	45
3.0	2	100	0.026	0.066	0.066	2.65	12010	625	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	80	0.014	0.022	0.022	0.88	28940	810	45
1.2	2	80	0.016	0.026	0.026	1.06	24025	770	45
1.5	2	80	0.016	0.034	0.034	1.33	19145	615	45
2.0	2	80	0.018	0.044	0.044	1.77	14385	520	45
2.5	2	80	0.020	0.056	0.056	2.21	11525	460	45
3.0	2	80	0.022	0.066	0.066	2.65	9610	425	45

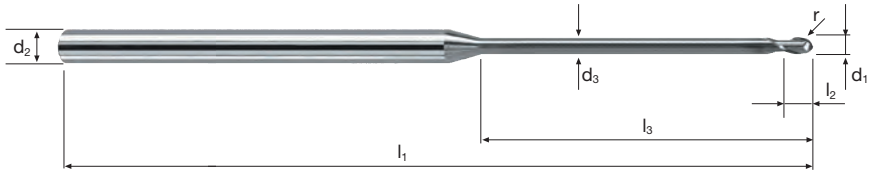
Ball nose end mills Microcut-B20

Shank Ø 3mm, cylindrical neck, 20xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ **30°** γ **5°**

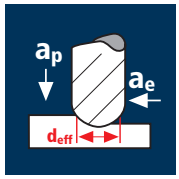


Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **15795** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	MICRO
										M15795
.100	1.0	3	0.95	60	1.20	20	0.50	2.5°	2	●
.108	1.2	3	1.10	60	1.44	24	0.60	2.0°	2	●
.120	1.5	3	1.40	70	1.80	30	0.75	1.4°	2	●
.140	2.0	3	1.90	80	2.40	40	1.00	0.8°	2	●
.160	2.5	3	2.30	80	3.00	50	1.25	0.3°	2	●
.180	3.0	3	2.80	90	3.60	60	1.50	0.0°	2	●

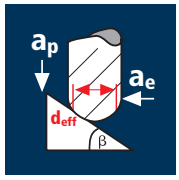
Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	Q [mm³/min]
Steel 850 - 1100 N/mm²									
0.5	2	180	0.018	0.04	0.10	0.27	60000	2160	8.5
0.6	2	180	0.022	0.05	0.12	0.33	60000	2640	16.0
0.7	2	180	0.026	0.06	0.14	0.39	60000	3120	26.0
0.8	2	180	0.028	0.06	0.16	0.42	60000	3360	32.5
1.0	2	180	0.036	0.08	0.20	0.54	60000	4320	69.0
1.2	2	180	0.042	0.10	0.24	0.66	60000	5040	121.0
1.5	2	180	0.054	0.12	0.30	0.81	60000	6480	233.5
2.0	2	180	0.072	0.16	0.40	1.09	52565	7570	484.5
3.0	2	180	0.108	0.24	0.60	1.63	35150	7590	1093.0
Steel 1100 - 1300 N/mm²									
0.5	2	160	0.016	0.04	0.10	0.27	60000	1920	7.5
0.6	2	160	0.020	0.05	0.12	0.33	60000	2400	14.5
0.7	2	160	0.024	0.06	0.14	0.39	60000	2880	24.0
0.8	2	160	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	160	0.032	0.08	0.20	0.54	60000	3840	61.5
1.2	2	160	0.038	0.10	0.24	0.66	60000	4560	109.5
1.5	2	160	0.048	0.12	0.30	0.81	60000	5760	207.5
2.0	2	160	0.064	0.16	0.40	1.09	46725	5980	382.5
3.0	2	160	0.098	0.24	0.60	1.63	31245	6125	882.0
Stainless steel [Cr-Ni/1.4301]									
0.5	2	80	0.016	0.04	0.10	0.27	60000	1920	7.5
0.6	2	80	0.020	0.05	0.12	0.33	60000	2400	14.5
0.7	2	80	0.024	0.06	0.14	0.39	60000	2880	24.0
0.8	2	80	0.026	0.06	0.16	0.42	60000	3120	30.0
1.0	2	80	0.032	0.08	0.20	0.54	47160	3020	48.5
1.2	2	80	0.038	0.10	0.24	0.66	38585	2930	70.5
1.5	2	80	0.048	0.12	0.30	0.81	31440	3020	108.5
2.0	2	80	0.064	0.16	0.40	1.09	23365	2990	191.5
3.0	2	80	0.098	0.24	0.60	1.63	15625	3065	441.5
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.5	2	60	0.012	0.04	0.10	0.27	60000	1440	6.0
0.6	2	60	0.016	0.05	0.12	0.33	57875	1850	11.0
0.7	2	60	0.018	0.06	0.14	0.39	48970	1765	15.0
0.8	2	60	0.020	0.06	0.16	0.42	45475	1820	17.5
1.0	2	60	0.026	0.08	0.20	0.54	35370	1840	29.5
1.2	2	60	0.030	0.10	0.24	0.66	28940	1735	41.5
1.5	2	60	0.038	0.12	0.30	0.81	23580	1790	64.5
2.0	2	60	0.050	0.16	0.40	1.09	17520	1750	112.0
3.0	2	60	0.076	0.24	0.60	1.63	11715	1780	256.5

Application



Material

d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	deff [mm]	n [min⁻¹]	vf [mm/min]	β
Steel 850 - 1100 N/mm²									
0.5	2	300	0.020	0.022	0.022	0.47	60000	2400	45
0.6	2	300	0.022	0.026	0.026	0.56	60000	2640	45
0.7	2	300	0.024	0.030	0.030	0.65	60000	2880	45
0.8	2	300	0.026	0.034	0.034	0.75	60000	3120	45
1.0	2	300	0.028	0.042	0.042	0.93	60000	3360	45
1.2	2	300	0.030	0.050	0.050	1.12	60000	3600	45
1.5	2	300	0.034	0.064	0.064	1.40	60000	4080	45
2.0	2	300	0.036	0.084	0.084	1.86	51340	3695	45
3.0	2	300	0.046	0.126	0.126	2.79	34230	3150	45
Steel 1100 - 1300 N/mm²									
0.5	2	250	0.018	0.022	0.022	0.47	60000	2160	45
0.6	2	250	0.020	0.026	0.026	0.56	60000	2400	45
0.7	2	250	0.022	0.030	0.030	0.65	60000	2640	45
0.8	2	250	0.024	0.034	0.034	0.75	60000	2880	45
1.0	2	250	0.026	0.042	0.042	0.93	60000	3120	45
1.2	2	250	0.028	0.050	0.050	1.12	60000	3360	45
1.5	2	250	0.030	0.064	0.064	1.40	56845	3410	45
2.0	2	250	0.032	0.084	0.084	1.86	42785	2740	45
3.0	2	250	0.042	0.126	0.126	2.79	28525	2395	45
Stainless steel [Cr-Ni/1.4301]									
0.5	2	120	0.016	0.022	0.022	0.47	60000	1920	45
0.6	2	120	0.018	0.026	0.026	0.56	60000	2160	45
0.7	2	120	0.020	0.030	0.030	0.65	58765	2350	45
0.8	2	120	0.020	0.034	0.034	0.75	50930	2035	45
1.0	2	120	0.022	0.042	0.042	0.93	41075	1805	45
1.2	2	120	0.024	0.050	0.050	1.12	34105	1635	45
1.5	2	120	0.028	0.064	0.064	1.40	27285	1530	45
2.0	2	120	0.028	0.084	0.084	1.86	20535	1150	45
3.0	2	120	0.036	0.126	0.126	2.79	13690	985	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
0.5	2	100	0.014	0.022	0.022	0.47	60000	1680	45
0.6	2	100	0.016	0.026	0.026	0.56	56845	1820	45
0.7	2	100	0.016	0.030	0.030	0.65	48970	1565	45
0.8	2	100	0.018	0.034	0.034	0.75	42445	1530	45
1.0	2	100	0.020	0.042	0.042	0.93	34230	1370	45
1.2	2	100	0.022	0.050	0.050	1.12	28420	1250	45
1.5	2	100	0.024	0.064	0.064	1.40	22735	1090	45
2.0	2	100	0.026	0.084	0.084	1.86	17115	890	45
3.0	2	100	0.032	0.126	0.126	2.79	11410	730	45

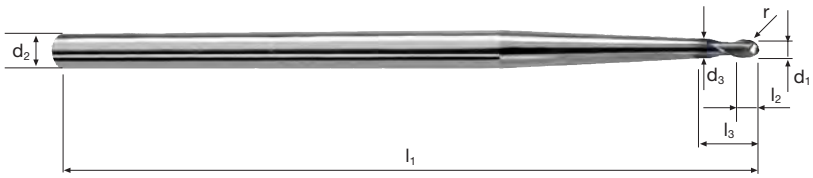
Ball nose end mills Microcut-LB2

Shank Ø 3mm, 2xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ **30°** γ **5°**

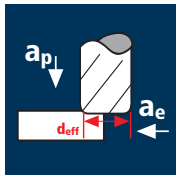


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** | Article-N°. **5788** | ø-Code **.050**

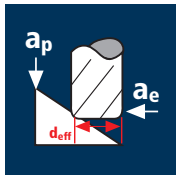
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	MICRO **M5788**
.050	0.5	3	0.45	60	0.60	1.0	0.25	2.5°	2	●
.060	0.6	3	0.55	60	0.72	1.2	0.30	2.5°	2	●
.070	0.7	3	0.65	60	0.84	1.4	0.35	2.5°	2	●
.080	0.8	3	0.75	60	0.96	1.6	0.40	2.5°	2	●
.100	1.0	3	0.95	60	1.20	2.0	0.50	2.5°	2	●
.108	1.2	3	1.10	60	1.44	2.4	0.60	2.5°	2	●
.120	1.5	3	1.40	60	1.80	3.0	0.75	2.5°	2	●
.140	2.0	3	1.90	60	2.40	4.0	1.00	1.5°	2	●
.180	3.0	3	2.80	60	3.60	6.0	1.50	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.016	0.03	0.10	0.44	60000	1920	r=0.1
	0.8	2	140	0.026	0.05	0.16	0.77	57875	3010	r=0.1
	1.0	2	140	0.034	0.06	0.20	0.89	50075	3405	r=0.2
	1.2	2	140	0.040	0.07	0.24	1.10	40515	3240	r=0.2
	1.5	2	140	0.050	0.09	0.30	1.43	31165	3115	r=0.2
	2.0	2	140	0.066	0.12	0.40	1.97	22620	2985	r=0.2
	2.5	2	140	0.084	0.15	0.50	2.49	17895	3005	r=0.2
	3.0	2	140	0.100	0.18	0.60	3.00	14855	2970	r=0.2
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.016	0.03	0.10	0.44	60000	1920	r=0.1
	0.8	2	120	0.024	0.05	0.16	0.77	49610	2380	r=0.1
	1.0	2	120	0.032	0.06	0.20	0.89	42920	2745	r=0.2
	1.2	2	120	0.038	0.07	0.24	1.10	34725	2640	r=0.2
	1.5	2	120	0.048	0.09	0.30	1.43	26710	2565	r=0.2
	2.0	2	120	0.062	0.12	0.40	1.97	19390	2405	r=0.2
	2.5	2	120	0.080	0.15	0.50	2.49	15340	2455	r=0.2
	3.0	2	120	0.096	0.18	0.60	3.00	12735	2445	r=0.2
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	0.44	60000	1680	r=0.1
	0.8	2	100	0.022	0.05	0.16	0.77	41340	1820	r=0.1
	1.0	2	100	0.030	0.06	0.20	0.89	35765	2145	r=0.2
	1.2	2	100	0.036	0.07	0.24	1.10	28940	2085	r=0.2
	1.5	2	100	0.044	0.09	0.30	1.43	22260	1960	r=0.2
	2.0	2	100	0.058	0.12	0.40	1.97	16160	1875	r=0.2
	2.5	2	100	0.074	0.15	0.50	2.49	12785	1890	r=0.2
	3.0	2	100	0.088	0.18	0.60	3.00	10610	1865	r=0.2
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	0.44	43405	1040	r=0.1
	0.8	2	60	0.020	0.05	0.16	0.77	24805	990	r=0.1
	1.0	2	60	0.028	0.06	0.20	0.89	21460	1200	r=0.2
	1.2	2	60	0.032	0.07	0.24	1.10	17365	1110	r=0.2
	1.5	2	60	0.040	0.09	0.30	1.43	13355	1070	r=0.2
	2.0	2	60	0.052	0.12	0.40	1.97	9695	1010	r=0.2
	2.5	2	60	0.068	0.15	0.50	2.49	7670	1045	r=0.2
	3.0	2	60	0.080	0.18	0.60	3.00	6365	1020	r=0.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.020	0.022	0.022	0.50	60000	2400	45
	0.8	2	300	0.022	0.034	0.034	0.80	60000	2640	45
	1.0	2	300	0.028	0.042	0.042	1.00	60000	3360	45
	1.2	2	300	0.030	0.050	0.050	1.20	60000	3600	45
	1.5	2	300	0.034	0.064	0.064	1.50	60000	4080	45
	2.0	2	300	0.038	0.084	0.084	1.99	47990	3645	45
	2.5	2	300	0.040	0.106	0.106	2.48	38505	3080	45
	3.0	2	300	0.046	0.126	0.126	2.97	32155	2960	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.020	0.022	0.022	0.50	60000	2400	45
	0.8	2	250	0.020	0.034	0.034	0.80	60000	2400	45
	1.0	2	250	0.026	0.042	0.042	1.00	60000	3120	45
	1.2	2	250	0.028	0.050	0.050	1.20	60000	3360	45
	1.5	2	250	0.032	0.064	0.064	1.50	53055	3395	45
	2.0	2	250	0.036	0.084	0.084	1.99	39990	2880	45
	2.5	2	250	0.038	0.106	0.106	2.48	32090	2440	45
	3.0	2	250	0.044	0.126	0.126	2.97	26795	2360	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.018	0.022	0.022	0.50	60000	2160	45
	0.8	2	200	0.020	0.034	0.034	0.80	60000	2400	45
	1.0	2	200	0.026	0.042	0.042	1.00	60000	3120	45
	1.2	2	200	0.028	0.050	0.050	1.20	53055	2970	45
	1.5	2	200	0.030	0.064	0.064	1.50	42445	2545	45
	2.0	2	200	0.034	0.084	0.084	1.99	31990	2175	45
	2.5	2	200	0.036	0.106	0.106	2.48	25670	1850	45
	3.0	2	200	0.042	0.126	0.126	2.97	21435	1800	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.016	0.022	0.022	0.50	60000	1920	45
	0.8	2	150	0.018	0.034	0.034	0.80	59685	2150	45
	1.0	2	150	0.022	0.042	0.042	1.00	47750	2100	45
	1.2	2	150	0.024	0.050	0.050	1.20	39790	1910	45
	1.5	2	150	0.028	0.064	0.064	1.50	31830	1780	45
	2.0	2	150	0.030	0.084	0.084	1.99	23995	1440	45
	2.5	2	150	0.032	0.106	0.106	2.48	19255	1230	45
	3.0	2	150	0.036	0.126	0.126	2.97	16075	1155	45

Corner radius end mills MicroX

Shank Ø 6mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | X-Generation X

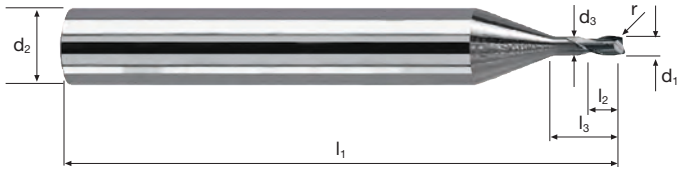
II

HM XA | **λ 25° γ-10°**

h5

d1

r

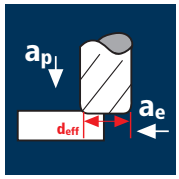


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60	**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Copper**

Example: **Order-N°.** Coating **X** Article-N°. **6532** ø-Code **.050**

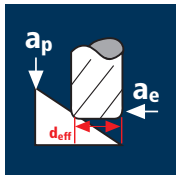
ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.01	α	z	X-AL X6532
.050	0.5	6	0.45	57	0.5	1.5	0.10	13.2°	2	●
.080	0.8	6	0.75	57	0.8	2.4	0.10	12.2°	2	●
.100	1.0	6	0.95	57	1.0	3.0	0.20	11.6°	2	●
.108	1.2	6	1.10	57	1.2	3.6	0.20	10.9°	2	●
.120	1.5	6	1.40	57	1.5	4.5	0.20	10.0°	2	●
.140	2.0	6	1.90	57	2.0	6.0	0.20	8.6°	2	●
.160	2.5	6	2.30	57	2.5	7.5	0.20	7.2°	2	●
.180	3.0	6	2.80	57	3.0	9.0	0.20	6.0°	2	●
.145	2.0	6	1.90	57	2.0	6.0	0.50	8.7°	2	●
.165	2.5	6	2.30	57	2.5	7.5	0.50	7.3°	2	●
.185	3.0	6	2.80	57	3.0	9.0	0.50	6.1°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.016	0.03	0.10	0.44	60000	1920	r=0.1
	0.8	2	140	0.026	0.04	0.16	0.76	58640	3050	r=0.1
	1.0	2	140	0.034	0.05	0.20	0.86	51820	3525	r=0.2
	1.2	2	140	0.040	0.06	0.24	1.09	40885	3270	r=0.2
	1.5	2	140	0.050	0.08	0.30	1.42	31385	3140	r=0.2
	2.0	2	140	0.066	0.10	0.40	1.95	22855	3015	r=0.2
	2.5	2	140	0.084	0.13	0.50	2.47	18040	3030	r=0.2
	3.0	2	140	0.100	0.15	0.60	2.99	14905	2980	r=0.2
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.016	0.03	0.10	0.44	60000	1920	r=0.1
	0.8	2	120	0.024	0.04	0.16	0.76	50260	2410	r=0.1
	1.0	2	120	0.032	0.05	0.20	0.86	44415	2845	r=0.2
	1.2	2	120	0.038	0.06	0.24	1.09	35045	2665	r=0.2
	1.5	2	120	0.048	0.08	0.30	1.42	26900	2580	r=0.2
	2.0	2	120	0.062	0.10	0.40	1.95	19590	2430	r=0.2
	2.5	2	120	0.080	0.13	0.50	2.47	15465	2475	r=0.2
	3.0	2	120	0.096	0.15	0.60	2.99	12775	2455	r=0.2
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.014	0.03	0.10	0.44	60000	1680	r=0.1
	0.8	2	100	0.022	0.04	0.16	0.76	41885	1845	r=0.1
	1.0	2	100	0.030	0.05	0.20	0.86	37015	2220	r=0.2
	1.2	2	100	0.036	0.06	0.24	1.09	29205	2105	r=0.2
	1.5	2	100	0.044	0.08	0.30	1.42	22415	1975	r=0.2
	2.0	2	100	0.058	0.10	0.40	1.95	16325	1895	r=0.2
	2.5	2	100	0.074	0.13	0.50	2.47	12885	1905	r=0.2
	3.0	2	100	0.088	0.15	0.60	2.99	10645	1875	r=0.2
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.012	0.03	0.10	0.44	43405	1040	r=0.1
	0.8	2	60	0.020	0.04	0.16	0.76	25130	1005	r=0.1
	1.0	2	60	0.028	0.05	0.20	0.86	22210	1245	r=0.2
	1.2	2	60	0.032	0.06	0.24	1.09	17520	1120	r=0.2
	1.5	2	60	0.040	0.08	0.30	1.42	13450	1075	r=0.2
	2.0	2	60	0.052	0.10	0.40	1.95	9795	1020	r=0.2
	2.5	2	60	0.068	0.13	0.50	2.47	7730	1050	r=0.2
	3.0	2	60	0.080	0.15	0.60	2.99	6390	1020	r=0.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.020	0.020	0.020	0.50	60000	2400	45
	0.8	2	300	0.022	0.032	0.032	0.80	60000	2640	45
	1.0	2	300	0.028	0.042	0.042	1.00	60000	3360	45
	1.2	2	300	0.030	0.050	0.050	1.20	60000	3600	45
	1.5	2	300	0.034	0.062	0.062	1.50	60000	4080	45
	2.0	2	300	0.038	0.082	0.082	2.00	47750	3630	45
	2.5	2	300	0.040	0.102	0.102	2.49	38350	3070	45
	3.0	2	300	0.046	0.122	0.122	2.97	32155	2960	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.020	0.020	0.020	0.50	60000	2400	45
	0.8	2	250	0.020	0.032	0.032	0.80	60000	2400	45
	1.0	2	250	0.026	0.042	0.042	1.00	60000	3120	45
	1.2	2	250	0.028	0.050	0.050	1.20	60000	3360	45
	1.5	2	250	0.032	0.062	0.062	1.50	53055	3395	45
	2.0	2	250	0.036	0.082	0.082	2.00	39790	2865	45
	2.5	2	250	0.038	0.102	0.102	2.49	31960	2430	45
	3.0	2	250	0.044	0.122	0.122	2.97	26795	2360	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.018	0.020	0.020	0.50	60000	2160	45
	0.8	2	200	0.020	0.032	0.032	0.80	60000	2400	45
	1.0	2	200	0.026	0.042	0.042	1.00	60000	3120	45
	1.2	2	200	0.028	0.050	0.050	1.20	53055	2970	45
	1.5	2	200	0.030	0.062	0.062	1.50	42445	2545	45
	2.0	2	200	0.034	0.082	0.082	2.00	31830	2165	45
	2.5	2	200	0.036	0.102	0.102	2.49	25570	1840	45
	3.0	2	200	0.042	0.122	0.122	2.97	21435	1800	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.016	0.020	0.020	0.50	60000	1920	45
	0.8	2	150	0.018	0.032	0.032	0.80	59685	2150	45
	1.0	2	150	0.022	0.042	0.042	1.00	47750	2100	45
	1.2	2	150	0.024	0.050	0.050	1.20	39790	1910	45
	1.5	2	150	0.028	0.062	0.062	1.50	31830	1780	45
	2.0	2	150	0.030	0.082	0.082	2.00	23875	1435	45
	2.5	2	150	0.032	0.102	0.102	2.49	19175	1225	45
	3.0	2	150	0.036	0.122	0.122	2.97	16075	1155	45

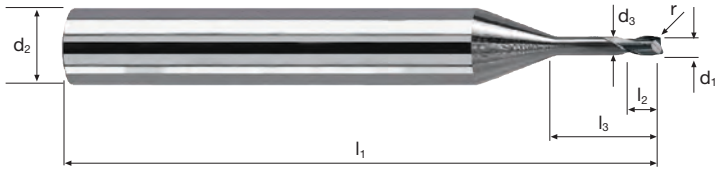
Corner radius end mills MicroX

Shank Ø 6mm, cylindrical neck, 5xd

HM XA

λ 25° γ-10°

h5





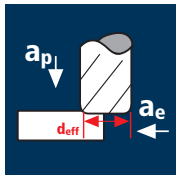


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** Article-N°. **6534** ø-Code **.050**

ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	r 0/+0.01	α	z	X-AL	X6534
.050	0.5	6	0.45	57	0.5	2.5	0.10	12.2°	2	●	
.080	0.8	6	0.75	57	0.8	4.0	0.10	10.8°	2	●	
.100	1.0	6	0.95	57	1.0	5.0	0.20	9.9°	2	●	
.108	1.2	6	1.10	57	1.2	6.0	0.20	9.2°	2	●	
.120	1.5	6	1.40	61	1.5	7.5	0.20	8.1°	2	●	
.140	2.0	6	1.90	61	2.0	10.0	0.20	6.6°	2	●	
.160	2.5	6	2.30	61	2.5	12.5	0.20	5.3°	2	●	
.180	3.0	6	2.80	66	3.0	15.0	0.20	4.2°	2	●	
.145	2.0	6	1.90	61	2.0	10.0	0.50	6.7°	2	●	
.165	2.5	6	2.30	61	2.5	12.5	0.50	5.4°	2	●	
.185	3.0	6	2.80	66	3.0	15.0	0.50	4.3°	2	●	

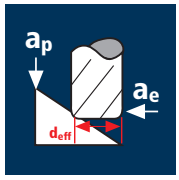
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC									
0.5	2	140	0.016	0.02	0.09	0.42	60000	1920	r=0.1
0.8	2	140	0.026	0.03	0.14	0.74	60000	3120	r=0.1
1.0	2	140	0.034	0.04	0.18	0.84	53055	3610	r=0.2
1.2	2	140	0.040	0.05	0.22	1.06	42040	3365	r=0.2
1.5	2	140	0.050	0.06	0.27	1.39	32060	3205	r=0.2
2.0	2	140	0.066	0.08	0.36	1.92	23210	3065	r=0.2
2.5	2	140	0.084	0.10	0.45	2.45	18190	3055	r=0.2
3.0	2	140	0.100	0.12	0.54	2.97	15005	3000	r=0.2
Hardened tool steel 48 - 52 HRC									
0.5	2	120	0.016	0.02	0.09	0.42	60000	1920	r=0.1
0.8	2	120	0.024	0.03	0.14	0.74	51620	2480	r=0.1
1.0	2	120	0.032	0.04	0.18	0.84	45475	2910	r=0.2
1.2	2	120	0.038	0.05	0.22	1.06	36035	2740	r=0.2
1.5	2	120	0.048	0.06	0.27	1.39	27480	2640	r=0.2
2.0	2	120	0.062	0.08	0.36	1.92	19895	2465	r=0.2
2.5	2	120	0.080	0.10	0.45	2.45	15590	2495	r=0.2
3.0	2	120	0.096	0.12	0.54	2.97	12860	2470	r=0.2
Hardened tool steel 52 - 56 HRC									
0.5	2	100	0.014	0.02	0.09	0.42	60000	1680	r=0.1
0.8	2	100	0.022	0.03	0.14	0.74	43015	1895	r=0.1
1.0	2	100	0.030	0.04	0.18	0.84	37895	2275	r=0.2
1.2	2	100	0.036	0.05	0.22	1.06	30030	2160	r=0.2
1.5	2	100	0.044	0.06	0.27	1.39	22900	2015	r=0.2
2.0	2	100	0.058	0.08	0.36	1.92	16580	1925	r=0.2
2.5	2	100	0.074	0.10	0.45	2.45	12995	1925	r=0.2
3.0	2	100	0.088	0.12	0.54	2.97	10720	1885	r=0.2
Hardened tool steel 56 - 60 HRC									
0.5	2	60	0.012	0.02	0.09	0.42	45475	1090	r=0.1
0.8	2	60	0.020	0.03	0.14	0.74	25810	1030	r=0.1
1.0	2	60	0.028	0.04	0.18	0.84	22735	1275	r=0.2
1.2	2	60	0.032	0.05	0.22	1.06	18020	1155	r=0.2
1.5	2	60	0.040	0.06	0.27	1.39	13740	1100	r=0.2
2.0	2	60	0.052	0.08	0.36	1.92	9945	1035	r=0.2
2.5	2	60	0.068	0.10	0.45	2.45	7795	1060	r=0.2
3.0	2	60	0.080	0.12	0.54	2.97	6430	1030	r=0.2

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC									
0.5	2	300	0.020	0.020	0.020	0.50	60000	2400	45
0.8	2	300	0.022	0.032	0.032	0.80	60000	2640	45
1.0	2	300	0.028	0.040	0.040	1.00	60000	3360	45
1.2	2	300	0.030	0.048	0.048	1.20	60000	3600	45
1.5	2	300	0.034	0.060	0.060	1.50	60000	4080	45
2.0	2	300	0.038	0.080	0.080	2.00	47750	3630	45
2.5	2	300	0.040	0.100	0.100	2.49	38350	3070	45
3.0	2	300	0.046	0.120	0.120	2.97	32155	2960	45
Hardened tool steel 48 - 52 HRC									
0.5	2	250	0.020	0.020	0.020	0.50	60000	2400	45
0.8	2	250	0.020	0.032	0.032	0.80	60000	2400	45
1.0	2	250	0.026	0.040	0.040	1.00	60000	3120	45
1.2	2	250	0.028	0.048	0.048	1.20	60000	3360	45
1.5	2	250	0.032	0.060	0.060	1.50	53055	3395	45
2.0	2	250	0.036	0.080	0.080	2.00	39790	2865	45
2.5	2	250	0.038	0.100	0.100	2.49	31960	2430	45
3.0	2	250	0.044	0.120	0.120	2.97	26795	2360	45
Hardened tool steel 52 - 56 HRC									
0.5	2	200	0.018	0.020	0.020	0.50	60000	2160	45
0.8	2	200	0.020	0.032	0.032	0.80	60000	2400	45
1.0	2	200	0.026	0.040	0.040	1.00	60000	3120	45
1.2	2	200	0.028	0.048	0.048	1.20	53055	2970	45
1.5	2	200	0.030	0.060	0.060	1.50	42445	2545	45
2.0	2	200	0.034	0.080	0.080	2.00	31830	2165	45
2.5	2	200	0.036	0.100	0.100	2.49	25570	1840	45
3.0	2	200	0.042	0.120	0.120	2.97	21435	1800	45
Hardened tool steel 56 - 60 HRC									
0.5	2	150	0.016	0.020	0.020	0.50	60000	1920	45
0.8	2	150	0.018	0.032	0.032	0.80	59685	2150	45
1.0	2	150	0.022	0.040	0.040	1.00	47750	2100	45
1.2	2	150	0.024	0.048	0.048	1.20	39790	1910	45
1.5	2	150	0.028	0.060	0.060	1.50	31830	1780	45
2.0	2	150	0.030	0.080	0.080	2.00	23875	1435	45
2.5	2	150	0.032	0.100	0.100	2.49	19175	1225	45
3.0	2	150	0.036	0.120	0.120	2.97	16075	1155	45

Corner radius end mills MicroX

Shank Ø 6mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation X

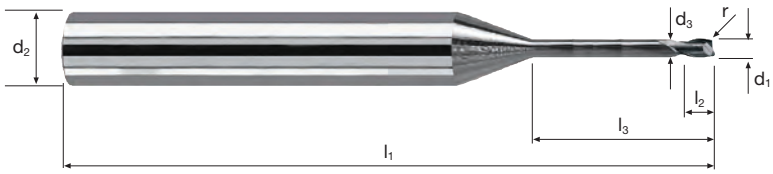
II

HM XA | **λ 25° γ-10°**

h5

d1

r

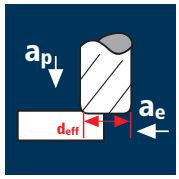


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6536** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r 0/+0.01	α	z	X-AL X6536
.050	0.5	6	0.45	57	0.5	4.0	0.10	11.1°	2	●
.080	0.8	6	0.75	57	0.8	6.4	0.10	9.2°	2	●
.100	1.0	6	0.95	61	1.0	8.0	0.20	8.3°	2	●
.108	1.2	6	1.10	61	1.2	9.6	0.20	7.3°	2	●
.120	1.5	6	1.40	61	1.5	12.0	0.20	6.4°	2	●
.140	2.0	6	1.90	66	2.0	16.0	0.20	4.9°	2	●
.160	2.5	6	2.30	69	2.5	20.0	0.20	3.8°	2	●
.180	3.0	6	2.80	75	3.0	24.0	0.20	2.9°	2	●
.145	2.0	6	1.90	66	2.0	16.0	0.50	5.0°	2	●
.165	2.5	6	2.30	69	2.5	20.0	0.50	3.9°	2	●
.185	3.0	6	2.80	75	3.0	24.0	0.50	3.0°	2	●

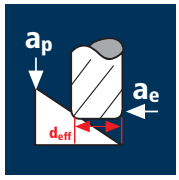
Application



Material

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.020	0.02	0.09	0.42	60000	2400	r=0.1
	0.8	2	140	0.032	0.03	0.14	0.74	60000	3840	r=0.1
	1.0	2	140	0.040	0.04	0.18	0.84	53055	4245	r=0.2
	1.2	2	140	0.048	0.05	0.22	1.06	42040	4035	r=0.2
	1.5	2	140	0.060	0.06	0.27	1.39	32060	3845	r=0.2
	2.0	2	140	0.080	0.08	0.36	1.92	23210	3715	r=0.2
	2.5	2	140	0.100	0.10	0.45	2.45	18190	3640	r=0.2
	3.0	2	140	0.120	0.12	0.54	2.97	15005	3600	r=0.2
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.020	0.02	0.09	0.42	60000	2400	r=0.1
	0.8	2	120	0.030	0.03	0.14	0.74	51620	3095	r=0.1
	1.0	2	120	0.038	0.04	0.18	0.84	45475	3455	r=0.2
	1.2	2	120	0.046	0.05	0.22	1.06	36035	3315	r=0.2
	1.5	2	120	0.058	0.06	0.27	1.39	27480	3190	r=0.2
	2.0	2	120	0.076	0.08	0.36	1.92	19895	3025	r=0.2
	2.5	2	120	0.096	0.10	0.45	2.45	15590	2995	r=0.2
	3.0	2	120	0.114	0.12	0.54	2.97	12860	2930	r=0.2
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.018	0.02	0.09	0.42	60000	2160	r=0.1
	0.8	2	100	0.028	0.03	0.14	0.74	43015	2410	r=0.1
	1.0	2	100	0.036	0.04	0.18	0.84	37895	2730	r=0.2
	1.2	2	100	0.042	0.05	0.22	1.06	30030	2525	r=0.2
	1.5	2	100	0.052	0.06	0.27	1.39	22900	2380	r=0.2
	2.0	2	100	0.070	0.08	0.36	1.92	16580	2320	r=0.2
	2.5	2	100	0.088	0.10	0.45	2.45	12995	2285	r=0.2
	3.0	2	100	0.106	0.12	0.54	2.97	10720	2275	r=0.2
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.016	0.02	0.09	0.42	45475	1455	r=0.1
	0.8	2	60	0.026	0.03	0.14	0.74	25810	1340	r=0.1
	1.0	2	60	0.032	0.04	0.18	0.84	22735	1455	r=0.2
	1.2	2	60	0.038	0.05	0.22	1.06	18020	1370	r=0.2
	1.5	2	60	0.048	0.06	0.27	1.39	13740	1320	r=0.2
	2.0	2	60	0.064	0.08	0.36	1.92	9945	1275	r=0.2
	2.5	2	60	0.080	0.10	0.45	2.45	7795	1245	r=0.2
	3.0	2	60	0.096	0.12	0.54	2.97	6430	1235	r=0.2

Application



Material

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.024	0.020	0.020	0.50	60000	2880	45
	0.8	2	300	0.028	0.032	0.032	0.80	60000	3360	45
	1.0	2	300	0.034	0.040	0.040	1.00	60000	4080	45
	1.2	2	300	0.036	0.048	0.048	1.20	60000	4320	45
	1.5	2	300	0.040	0.060	0.060	1.50	60000	4800	45
	2.0	2	300	0.046	0.080	0.080	2.00	47750	4395	45
	2.5	2	300	0.048	0.100	0.100	2.49	38350	3680	45
	3.0	2	300	0.056	0.120	0.120	2.97	32155	3600	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.022	0.020	0.020	0.50	60000	2640	45
	0.8	2	250	0.026	0.032	0.032	0.80	60000	3120	45
	1.0	2	250	0.032	0.040	0.040	1.00	60000	3840	45
	1.2	2	250	0.034	0.048	0.048	1.20	60000	4080	45
	1.5	2	250	0.038	0.060	0.060	1.50	53055	4030	45
	2.0	2	250	0.044	0.080	0.080	2.00	39790	3500	45
	2.5	2	250	0.046	0.100	0.100	2.49	31960	2940	45
	3.0	2	250	0.054	0.120	0.120	2.97	26795	2895	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.022	0.020	0.020	0.50	60000	2640	45
	0.8	2	200	0.026	0.032	0.032	0.80	60000	3120	45
	1.0	2	200	0.030	0.040	0.040	1.00	60000	3600	45
	1.2	2	200	0.032	0.048	0.048	1.20	53055	3395	45
	1.5	2	200	0.036	0.060	0.060	1.50	42445	3055	45
	2.0	2	200	0.042	0.080	0.080	2.00	31830	2675	45
	2.5	2	200	0.044	0.100	0.100	2.49	25570	2250	45
	3.0	2	200	0.050	0.120	0.120	2.97	21435	2145	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.020	0.020	0.020	0.50	60000	2400	45
	0.8	2	150	0.022	0.032	0.032	0.80	59685	2625	45
	1.0	2	150	0.028	0.040	0.040	1.00	47750	2675	45
	1.2	2	150	0.028	0.048	0.048	1.20	39790	2230	45
	1.5	2	150	0.032	0.060	0.060	1.50	31830	2035	45
	2.0	2	150	0.036	0.080	0.080	2.00	23875	1720	45
	2.5	2	150	0.038	0.100	0.100	2.49	19175	1455	45
	3.0	2	150	0.044	0.120	0.120	2.97	16075	1415	45

Corner radius end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 8xd

HSS | Favora® | Base-X | X-Generation X

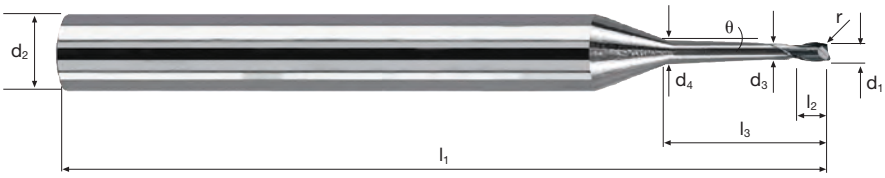
II

HM XA | **λ 25° γ-10°**

h5

d1

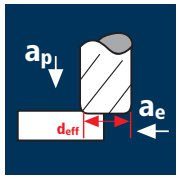
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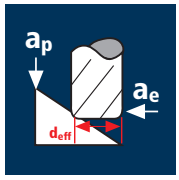


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** Article-N°. **6736** ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r 0/+0.01	α	z	X-AL	X6736
.050	0.5	6	0.45	0.56	57	0.40	4.0	0.9°	0.10	11.1°	2		●
.080	0.8	6	0.75	0.93	57	0.65	6.4	0.9°	0.10	9.2°	2		●
.100	1.0	6	0.95	1.18	61	0.80	8.0	0.9°	0.20	8.3°	2		●
.108	1.2	6	1.10	1.42	61	1.00	9.6	0.9°	0.20	7.3°	2		●
.120	1.5	6	1.40	1.79	61	1.20	12.0	0.9°	0.20	6.4°	2		●
.140	2.0	6	1.90	2.41	66	1.60	16.0	0.9°	0.20	4.9°	2		●
.160	2.5	6	2.30	3.03	69	2.00	20.0	0.9°	0.20	3.8°	2		●
.180	3.0	6	2.80	3.64	75	2.40	24.0	0.9°	0.20	2.9°	2		●
.145	2.0	6	1.90	2.41	66	1.60	16.0	0.9°	0.50	5.0°	2		●
.165	2.5	6	2.30	3.03	69	2.00	20.0	0.9°	0.50	3.9°	2		●
.185	3.0	6	2.80	3.64	75	2.40	24.0	0.9°	0.50	3.0°	2		●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
	Hardened tool steel 42 - 48 HRC	0.5	2	140	0.020	0.02	0.08	0.42	60000	2400	r=0.1
		0.8	2	140	0.032	0.03	0.13	0.74	60000	3840	r=0.1
		1.0	2	140	0.040	0.04	0.16	0.84	53055	4245	r=0.2
		1.2	2	140	0.048	0.05	0.19	1.06	42040	4035	r=0.2
		1.5	2	140	0.060	0.06	0.24	1.39	32060	3845	r=0.2
		2.0	2	140	0.080	0.08	0.32	1.92	23210	3715	r=0.2
		2.5	2	140	0.100	0.10	0.40	2.45	18190	3640	r=0.2
		3.0	2	140	0.120	0.12	0.48	2.97	15005	3600	r=0.2
	Hardened tool steel 48 - 52 HRC	0.5	2	120	0.020	0.02	0.08	0.42	60000	2400	r=0.1
		0.8	2	120	0.030	0.03	0.13	0.74	51620	3095	r=0.1
		1.0	2	120	0.038	0.04	0.16	0.84	45475	3455	r=0.2
		1.2	2	120	0.046	0.05	0.19	1.06	36035	3315	r=0.2
		1.5	2	120	0.058	0.06	0.24	1.39	27480	3190	r=0.2
		2.0	2	120	0.076	0.08	0.32	1.92	19895	3025	r=0.2
		2.5	2	120	0.096	0.10	0.40	2.45	15590	2995	r=0.2
		3.0	2	120	0.114	0.12	0.48	2.97	12860	2930	r=0.2
	Hardened tool steel 52 - 56 HRC	0.5	2	100	0.018	0.02	0.08	0.42	60000	2160	r=0.1
		0.8	2	100	0.028	0.03	0.13	0.74	43015	2410	r=0.1
		1.0	2	100	0.036	0.04	0.16	0.84	37895	2730	r=0.2
		1.2	2	100	0.042	0.05	0.19	1.06	30030	2525	r=0.2
		1.5	2	100	0.052	0.06	0.24	1.39	22900	2380	r=0.2
		2.0	2	100	0.070	0.08	0.32	1.92	16580	2320	r=0.2
		2.5	2	100	0.088	0.10	0.40	2.45	12995	2285	r=0.2
		3.0	2	100	0.106	0.12	0.48	2.97	10720	2275	r=0.2
	Hardened tool steel 56 - 60 HRC	0.5	2	60	0.016	0.02	0.08	0.42	45475	1455	r=0.1
		0.8	2	60	0.026	0.03	0.13	0.74	25810	1340	r=0.1
		1.0	2	60	0.032	0.04	0.16	0.84	22735	1455	r=0.2
		1.2	2	60	0.038	0.05	0.19	1.06	18020	1370	r=0.2
		1.5	2	60	0.048	0.06	0.24	1.39	13740	1320	r=0.2
		2.0	2	60	0.064	0.08	0.32	1.92	9945	1275	r=0.2
		2.5	2	60	0.080	0.10	0.40	2.45	7795	1245	r=0.2
		3.0	2	60	0.096	0.12	0.48	2.97	6430	1235	r=0.2

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
	Hardened tool steel 42 - 48 HRC	0.5	2	300	0.022	0.018	0.018	0.50	60000	2640	45
		0.8	2	300	0.026	0.028	0.028	0.80	60000	3120	45
		1.0	2	300	0.032	0.036	0.036	0.99	60000	3840	45
		1.2	2	300	0.034	0.042	0.042	1.20	60000	4080	45
		1.5	2	300	0.038	0.052	0.052	1.50	60000	4560	45
		2.0	2	300	0.042	0.070	0.070	2.00	47750	4010	45
		2.5	2	300	0.044	0.088	0.088	2.49	38350	3375	45
		3.0	2	300	0.050	0.106	0.106	2.98	32045	3205	45
	Hardened tool steel 48 - 52 HRC	0.5	2	250	0.020	0.018	0.018	0.50	60000	2400	45
		0.8	2	250	0.024	0.028	0.028	0.80	60000	2880	45
		1.0	2	250	0.030	0.036	0.036	0.99	60000	3600	45
		1.2	2	250	0.032	0.042	0.042	1.20	60000	3840	45
		1.5	2	250	0.036	0.052	0.052	1.50	53055	3820	45
		2.0	2	250	0.040	0.070	0.070	2.00	39790	3185	45
		2.5	2	250	0.042	0.088	0.088	2.49	31960	2685	45
		3.0	2	250	0.048	0.106	0.106	2.98	26705	2565	45
	Hardened tool steel 52 - 56 HRC	0.5	2	200	0.020	0.018	0.018	0.50	60000	2400	45
		0.8	2	200	0.024	0.028	0.028	0.80	60000	2880	45
		1.0	2	200	0.028	0.036	0.036	0.99	60000	3360	45
		1.2	2	200	0.030	0.042	0.042	1.20	53055	3185	45
		1.5	2	200	0.034	0.052	0.052	1.50	42445	2885	45
		2.0	2	200	0.038	0.070	0.070	2.00	31830	2420	45
		2.5	2	200	0.040	0.088	0.088	2.49	25570	2045	45
		3.0	2	200	0.046	0.106	0.106	2.98	21365	1965	45
	Hardened tool steel 56 - 60 HRC	0.5	2	150	0.018	0.018	0.018	0.50	60000	2160	45
		0.8	2	150	0.020	0.028	0.028	0.80	59685	2385	45
		1.0	2	150	0.026	0.036	0.036	0.99	48230	2510	45
		1.2	2	150	0.028	0.042	0.042	1.20	39790	2230	45
		1.5	2	150	0.030	0.052	0.052	1.50	31830	1910	45
		2.0	2	150	0.034	0.070	0.070	2.00	23875	1625	45
		2.5	2	150	0.036	0.088	0.088	2.49	19175	1380	45
		3.0	2	150	0.040	0.106	0.106	2.98	16025	1280	45

Corner radius end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 10xd

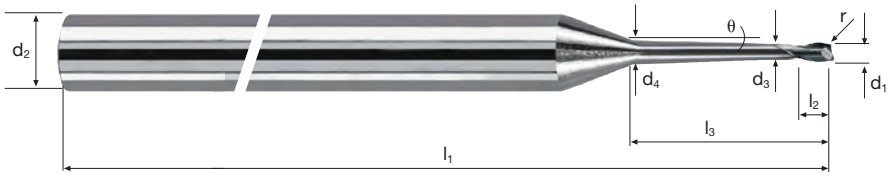
HM XA

λ 25° γ-10°

h5

d1

r

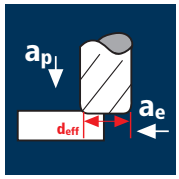


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** Article-N°. **6738** ø-Code **.050**

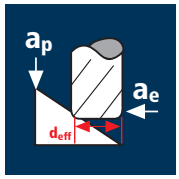
ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r 0/+0.01	α	z	X-AL	X6738
.050	0.5	6	0.45	0.60	57	0.40	5.0	0.9°	0.10	10.4°	2		●
.080	0.8	6	0.75	0.99	61	0.65	8.0	0.9°	0.10	8.6°	2		●
.100	1.0	6	0.95	1.25	61	0.80	10.0	0.9°	0.20	7.6°	2		●
.108	1.2	6	1.10	1.51	66	1.00	12.0	0.9°	0.20	6.8°	2		●
.120	1.5	6	1.40	1.90	66	1.20	15.0	0.9°	0.20	5.8°	2		●
.140	2.0	6	1.90	2.55	69	1.60	20.0	0.9°	0.20	4.4°	2		●
.160	2.5	6	2.30	3.19	75	2.00	25.0	0.9°	0.20	3.4°	2		●
.180	3.0	6	2.80	3.84	75	2.40	30.0	0.9°	0.20	2.6°	2		●
.145	2.0	6	1.90	2.55	69	1.60	20.0	0.9°	0.50	4.4°	2		●
.165	2.5	6	2.30	3.19	75	2.00	25.0	0.9°	0.50	3.4°	2		●
.185	3.0	6	2.80	3.84	75	2.40	30.0	0.9°	0.50	2.6°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	0.5	2	140	0.020	0.02	0.07	0.42	60000	2400	r=0.1
	0.8	2	140	0.032	0.02	0.11	0.72	60000	3840	r=0.1
	1.0	2	140	0.040	0.03	0.14	0.81	55020	4400	r=0.2
	1.2	2	140	0.048	0.04	0.17	1.04	42850	4115	r=0.2
	1.5	2	140	0.060	0.05	0.21	1.36	32770	3930	r=0.2
	2.0	2	140	0.080	0.06	0.28	1.89	23580	3775	r=0.2
	2.5	2	140	0.100	0.08	0.35	2.42	18415	3685	r=0.2
	3.0	2	140	0.120	0.09	0.42	2.93	15210	3650	r=0.2
Hardened tool steel 48 - 52 HRC	0.5	2	120	0.020	0.02	0.07	0.42	60000	2400	r=0.1
	0.8	2	120	0.030	0.02	0.11	0.72	53055	3185	r=0.1
	1.0	2	120	0.038	0.03	0.14	0.81	47160	3585	r=0.2
	1.2	2	120	0.046	0.04	0.17	1.04	36730	3380	r=0.2
	1.5	2	120	0.058	0.05	0.21	1.36	28085	3260	r=0.2
	2.0	2	120	0.076	0.06	0.28	1.89	20210	3070	r=0.2
	2.5	2	120	0.096	0.08	0.35	2.42	15785	3030	r=0.2
	3.0	2	120	0.114	0.09	0.42	2.93	13035	2970	r=0.2
Hardened tool steel 52 - 56 HRC	0.5	2	100	0.018	0.02	0.07	0.42	60000	2160	r=0.1
	0.8	2	100	0.028	0.02	0.11	0.72	44210	2475	r=0.1
	1.0	2	100	0.036	0.03	0.14	0.81	39300	2830	r=0.2
	1.2	2	100	0.042	0.04	0.17	1.04	30610	2570	r=0.2
	1.5	2	100	0.052	0.05	0.21	1.36	23405	2435	r=0.2
	2.0	2	100	0.070	0.06	0.28	1.89	16840	2360	r=0.2
	2.5	2	100	0.088	0.08	0.35	2.42	13155	2315	r=0.2
	3.0	2	100	0.106	0.09	0.42	2.93	10865	2305	r=0.2
Hardened tool steel 56 - 60 HRC	0.5	2	60	0.016	0.02	0.07	0.42	45475	1455	r=0.1
	0.8	2	60	0.026	0.02	0.11	0.72	26525	1380	r=0.1
	1.0	2	60	0.032	0.03	0.14	0.81	23580	1510	r=0.2
	1.2	2	60	0.038	0.04	0.17	1.04	18365	1395	r=0.2
	1.5	2	60	0.048	0.05	0.21	1.36	14045	1350	r=0.2
	2.0	2	60	0.064	0.06	0.28	1.89	10105	1295	r=0.2
	2.5	2	60	0.080	0.08	0.35	2.42	7890	1260	r=0.2
	3.0	2	60	0.096	0.09	0.42	2.93	6520	1250	r=0.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	0.5	2	300	0.018	0.016	0.016	0.50	60000	2160	45
	0.8	2	300	0.020	0.024	0.024	0.80	60000	2400	45
	1.0	2	300	0.026	0.030	0.030	0.99	60000	3120	45
	1.2	2	300	0.028	0.036	0.036	1.19	60000	3360	45
	1.5	2	300	0.030	0.046	0.046	1.50	60000	3600	45
	2.0	2	300	0.034	0.060	0.060	2.00	47750	3245	45
	2.5	2	300	0.036	0.076	0.076	2.50	38200	2750	45
	3.0	2	300	0.042	0.090	0.090	2.99	31940	2685	45
Hardened tool steel 48 - 52 HRC	0.5	2	250	0.018	0.016	0.016	0.50	60000	2160	45
	0.8	2	250	0.020	0.024	0.024	0.80	60000	2400	45
	1.0	2	250	0.024	0.030	0.030	0.99	60000	2880	45
	1.2	2	250	0.026	0.036	0.036	1.19	60000	3120	45
	1.5	2	250	0.028	0.046	0.046	1.50	53055	2970	45
	2.0	2	250	0.032	0.060	0.060	2.00	39790	2545	45
	2.5	2	250	0.034	0.076	0.076	2.50	31830	2165	45
	3.0	2	250	0.040	0.090	0.090	2.99	26615	2130	45
Hardened tool steel 52 - 56 HRC	0.5	2	200	0.016	0.016	0.016	0.50	60000	1920	45
	0.8	2	200	0.018	0.024	0.024	0.80	60000	2160	45
	1.0	2	200	0.024	0.030	0.030	0.99	60000	2880	45
	1.2	2	200	0.026	0.036	0.036	1.19	53500	2780	45
	1.5	2	200	0.028	0.046	0.046	1.50	42445	2375	45
	2.0	2	200	0.030	0.060	0.060	2.00	31830	1910	45
	2.5	2	200	0.032	0.076	0.076	2.50	25465	1630	45
	3.0	2	200	0.038	0.090	0.090	2.99	21290	1620	45
Hardened tool steel 56 - 60 HRC	0.5	2	150	0.014	0.016	0.016	0.50	60000	1680	45
	0.8	2	150	0.016	0.024	0.024	0.80	59685	1910	45
	1.0	2	150	0.020	0.030	0.030	0.99	48230	1930	45
	1.2	2	150	0.022	0.036	0.036	1.19	40125	1765	45
	1.5	2	150	0.024	0.046	0.046	1.50	31830	1530	45
	2.0	2	150	0.028	0.060	0.060	2.00	23875	1335	45
	2.5	2	150	0.028	0.076	0.076	2.50	19100	1070	45
	3.0	2	150	0.034	0.090	0.090	2.99	15970	1085	45

Corner radius end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 12xd

HSS | Favora® | Base-X | X-Generation X

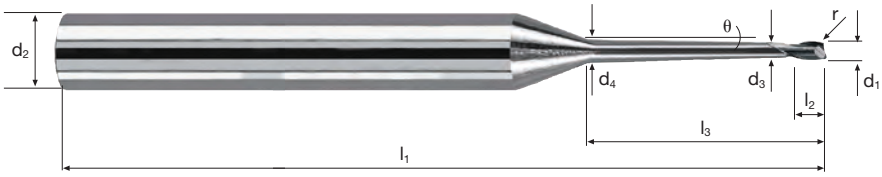
II

HM XA | λ 25° γ-10°

h5

d1

r

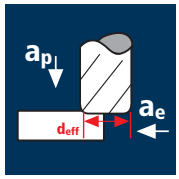


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** | Article-N°. **6740** | ø-Code **.050**

ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r 0/+0.01	α	z	X-AL	X6740
.050	0.5	6	0.45	0.62	57	0.40	6.0	0.9°	0.10	9.9°	2		●
.080	0.8	6	0.75	1.03	61	0.65	9.6	0.9°	0.10	7.9°	2		●
.100	1.0	6	0.95	1.30	66	0.80	12.0	0.9°	0.20	7.0°	2		●
.108	1.2	6	1.10	1.57	66	1.00	14.4	0.9°	0.20	6.2°	2		●
.120	1.5	6	1.40	1.98	69	1.20	18.0	0.9°	0.20	5.1°	2		●
.140	2.0	6	1.90	2.66	75	1.60	24.0	0.9°	0.20	3.9°	2		●
.160	2.5	6	2.30	3.34	80	2.00	30.0	0.9°	0.20	2.9°	2		●
.180	3.0	6	2.80	4.02	87	2.40	36.0	0.9°	0.20	2.2°	2		●
.145	2.0	6	1.90	2.66	75	1.60	24.0	0.9°	0.50	3.9°	2		●
.165	2.5	6	2.30	3.34	80	2.00	30.0	0.9°	0.50	2.9°	2		●
.185	3.0	6	2.80	4.02	87	2.40	36.0	0.9°	0.50	2.2°	2		●

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
0.5	2	140	0.020	0.02	0.06	0.42	60000	2400	r=0.1
0.8	2	140	0.032	0.02	0.10	0.72	60000	3840	r=0.1
1.0	2	140	0.040	0.03	0.12	0.81	55020	4400	r=0.2
1.2	2	140	0.048	0.04	0.14	1.04	42850	4115	r=0.2
1.5	2	140	0.060	0.05	0.18	1.36	32770	3930	r=0.2
2.0	2	140	0.080	0.06	0.24	1.89	23580	3775	r=0.2
2.5	2	140	0.100	0.08	0.30	2.42	18415	3685	r=0.2
3.0	2	140	0.120	0.09	0.36	2.93	15210	3650	r=0.2

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
0.5	2	120	0.020	0.02	0.06	0.42	60000	2400	r=0.1
0.8	2	120	0.030	0.02	0.10	0.72	53055	3185	r=0.1
1.0	2	120	0.038	0.03	0.12	0.81	47160	3585	r=0.2
1.2	2	120	0.046	0.04	0.14	1.04	36730	3380	r=0.2
1.5	2	120	0.058	0.05	0.18	1.36	28085	3260	r=0.2
2.0	2	120	0.076	0.06	0.24	1.89	20210	3070	r=0.2
2.5	2	120	0.096	0.08	0.30	2.42	15785	3030	r=0.2
3.0	2	120	0.114	0.09	0.36	2.93	13035	2970	r=0.2

Hardened tool steel 52 - 56 HRC

X

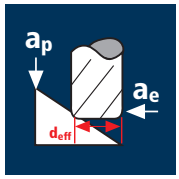
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
0.5	2	100	0.018	0.02	0.06	0.42	60000	2160	r=0.1
0.8	2	100	0.028	0.02	0.10	0.72	44210	2475	r=0.1
1.0	2	100	0.036	0.03	0.12	0.81	39300	2830	r=0.2
1.2	2	100	0.042	0.04	0.14	1.04	30610	2570	r=0.2
1.5	2	100	0.052	0.05	0.18	1.36	23405	2435	r=0.2
2.0	2	100	0.070	0.06	0.24	1.89	16840	2360	r=0.2
2.5	2	100	0.088	0.08	0.30	2.42	13155	2315	r=0.2
3.0	2	100	0.106	0.09	0.36	2.93	10865	2305	r=0.2

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
0.5	2	60	0.016	0.02	0.06	0.42	45475	1455	r=0.1
0.8	2	60	0.026	0.02	0.10	0.72	26525	1380	r=0.1
1.0	2	60	0.032	0.03	0.12	0.81	23580	1510	r=0.2
1.2	2	60	0.038	0.04	0.14	1.04	18365	1395	r=0.2
1.5	2	60	0.048	0.05	0.18	1.36	14045	1350	r=0.2
2.0	2	60	0.064	0.06	0.24	1.89	10105	1295	r=0.2
2.5	2	60	0.080	0.08	0.30	2.42	7890	1260	r=0.2
3.0	2	60	0.096	0.09	0.36	2.93	6520	1250	r=0.2

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	300	0.018	0.012	0.012	0.49	60000	2160	45
0.8	2	300	0.020	0.020	0.020	0.80	60000	2400	45
1.0	2	300	0.026	0.026	0.026	0.99	60000	3120	45
1.2	2	300	0.028	0.030	0.030	1.19	60000	3360	45
1.5	2	300	0.030	0.038	0.038	1.49	60000	3600	45
2.0	2	300	0.034	0.050	0.050	2.00	47750	3245	45
2.5	2	300	0.036	0.062	0.062	2.50	38200	2750	45
3.0	2	300	0.042	0.076	0.076	3.00	31830	2675	45

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	250	0.018	0.012	0.012	0.49	60000	2160	45
0.8	2	250	0.020	0.020	0.020	0.80	60000	2400	45
1.0	2	250	0.024	0.026	0.026	0.99	60000	2880	45
1.2	2	250	0.026	0.030	0.030	1.19	60000	3120	45
1.5	2	250	0.028	0.038	0.038	1.49	53410	2990	45
2.0	2	250	0.032	0.050	0.050	2.00	39790	2545	45
2.5	2	250	0.034	0.062	0.062	2.50	31830	2165	45
3.0	2	250	0.040	0.076	0.076	3.00	26525	2120	45

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	200	0.016	0.012	0.012	0.49	60000	1920	45
0.8	2	200	0.018	0.020	0.020	0.80	60000	2160	45
1.0	2	200	0.024	0.026	0.026	0.99	60000	2880	45
1.2	2	200	0.026	0.030	0.030	1.19	53500	2780	45
1.5	2	200	0.028	0.038	0.038	1.49	42725	2395	45
2.0	2	200	0.030	0.050	0.050	2.00	31830	1910	45
2.5	2	200	0.032	0.062	0.062	2.50	25465	1630	45
3.0	2	200	0.038	0.076	0.076	3.00	21220	1615	45

Hardened tool steel 56 - 60 HRC

X

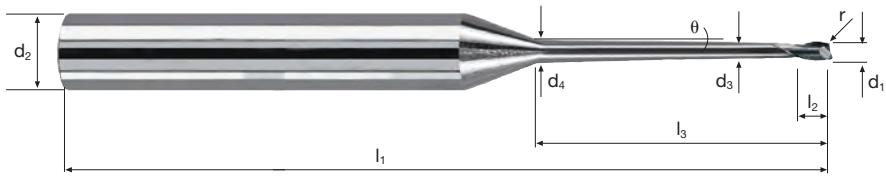
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
0.5	2	150	0.014	0.012	0.012	0.49	60000	1680	45
0.8	2	150	0.016	0.020	0.020	0.80	59685	1910	45
1.0	2	150	0.020	0.026	0.026	0.99	48230	1930	45
1.2	2	150	0.022	0.030	0.030	1.19	40125	1765	45
1.5	2	150	0.024	0.038	0.038	1.49	32045	1540	45
2.0	2	150	0.028	0.050	0.050	2.00	23875	1335	45
2.5	2	150	0.028	0.062	0.062	2.50	19100	1070	45
3.0	2	150	0.034	0.076	0.076	3.00	15915	1080	45

Corner radius end mills MicroX

Shank Ø 6mm, conical neck 0.9°, 15xd

HM XA | **λ 25° γ-10°**

h5

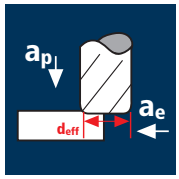


Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	Cobalt-Chrome Copper

Example: **Order-N°.** Coating **X** Article-N°. **6742** ø-Code **.050**

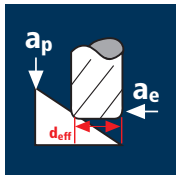
ø Code	d1 0/-0.01	d2 h5	d3	d4	l1	l2	l3	θ	r 0/+0.01	α	z	X-AL	X6742
.050	0.5	6	0.45	0.67	61	0.40	7.5	0.9°	0.10	9.1°	2		●
.080	0.8	6	0.75	1.11	66	0.65	12.0	0.9°	0.10	7.1°	2		●
.100	1.0	6	0.95	1.40	66	0.80	15.0	0.9°	0.20	6.1°	2		●
.108	1.2	6	1.10	1.69	69	1.00	18.0	0.9°	0.20	5.3°	2		●
.120	1.5	6	1.40	2.12	75	1.20	22.5	0.9°	0.20	4.4°	2		●
.140	2.0	6	1.90	2.85	80	1.60	30.0	0.9°	0.20	3.3°	2		●
.160	2.5	6	2.30	3.58	87	2.00	37.5	0.9°	0.20	2.4°	2		●
.180	3.0	6	2.80	4.30	100	2.40	45.0	0.9°	0.20	1.8°	2		●
.145	2.0	6	1.90	2.85	80	1.60	30.0	0.9°	0.50	3.3°	2		●
.165	2.5	6	2.30	3.58	87	2.00	37.5	0.9°	0.50	2.4°	2		●
.185	3.0	6	2.80	4.30	100	2.40	45.0	0.9°	0.50	1.8°	2		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.026	0.07	0.20	0.90	49515	2575	r=0.2
	1.2	2	140	0.030	0.08	0.24	1.12	39790	2385	r=0.2
	1.5	2	140	0.038	0.11	0.30	1.46	30525	2320	r=0.2
	2.0	2	140	0.050	0.14	0.40	1.98	22505	2250	r=0.2
	2.5	2	140	0.062	0.18	0.50	2.50	17825	2210	r=0.2
	3.0	2	140	0.076	0.21	0.60	3.00	14855	2260	r=0.2
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.07	0.20	0.90	42445	2035	r=0.2
	1.2	2	120	0.028	0.08	0.24	1.12	34105	1910	r=0.2
	1.5	2	120	0.036	0.11	0.30	1.46	26165	1885	r=0.2
	2.0	2	120	0.048	0.14	0.40	1.98	19290	1850	r=0.2
	2.5	2	120	0.058	0.18	0.50	2.50	15280	1770	r=0.2
	3.0	2	120	0.072	0.21	0.60	3.00	12735	1835	r=0.2
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.07	0.20	0.90	35370	1555	r=0.2
	1.2	2	100	0.026	0.08	0.24	1.12	28420	1480	r=0.2
	1.5	2	100	0.034	0.11	0.30	1.46	21805	1485	r=0.2
	2.0	2	100	0.044	0.14	0.40	1.98	16075	1415	r=0.2
	2.5	2	100	0.054	0.18	0.50	2.50	12735	1375	r=0.2
	3.0	2	100	0.066	0.21	0.60	3.00	10610	1400	r=0.2
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.07	0.20	0.90	21220	850	r=0.2
	1.2	2	60	0.024	0.08	0.24	1.12	17055	820	r=0.2
	1.5	2	60	0.030	0.11	0.30	1.46	13080	785	r=0.2
	2.0	2	60	0.040	0.14	0.40	1.98	9645	770	r=0.2
	2.5	2	60	0.050	0.18	0.50	2.50	7640	765	r=0.2
	3.0	2	60	0.060	0.21	0.60	3.00	6365	765	r=0.2

Application



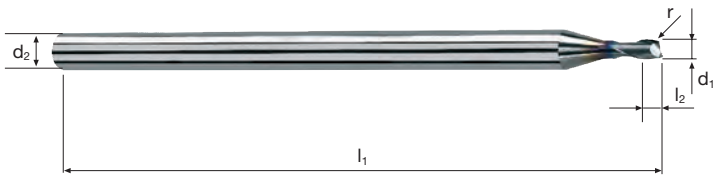
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	1.0	2	300	0.022	0.044	0.044	1.00	60000	2640	45
	1.2	2	300	0.024	0.052	0.052	1.20	60000	2880	45
	1.5	2	300	0.028	0.064	0.064	1.50	60000	3360	45
	2.0	2	300	0.030	0.086	0.086	1.99	47990	2880	45
	2.5	2	300	0.032	0.108	0.108	2.48	38505	2465	45
	3.0	2	300	0.036	0.128	0.128	2.97	32155	2315	45
Hardened tool steel 48 - 52 HRC	1.0	2	250	0.020	0.044	0.044	1.00	60000	2400	45
	1.2	2	250	0.022	0.052	0.052	1.20	60000	2640	45
	1.5	2	250	0.026	0.064	0.064	1.50	53055	2760	45
	2.0	2	250	0.028	0.086	0.086	1.99	39990	2240	45
	2.5	2	250	0.030	0.108	0.108	2.48	32090	1925	45
	3.0	2	250	0.034	0.128	0.128	2.97	26795	1820	45
Hardened tool steel 52 - 56 HRC	1.0	2	200	0.020	0.044	0.044	1.00	60000	2400	45
	1.2	2	200	0.022	0.052	0.052	1.20	53055	2335	45
	1.5	2	200	0.026	0.064	0.064	1.50	42445	2205	45
	2.0	2	200	0.028	0.086	0.086	1.99	31990	1790	45
	2.5	2	200	0.028	0.108	0.108	2.48	25670	1440	45
	3.0	2	200	0.032	0.128	0.128	2.97	21435	1370	45
Hardened tool steel 56 - 60 HRC	1.0	2	150	0.018	0.044	0.044	1.00	47750	1720	45
	1.2	2	150	0.020	0.052	0.052	1.20	39790	1590	45
	1.5	2	150	0.022	0.064	0.064	1.50	31830	1400	45
	2.0	2	150	0.024	0.086	0.086	1.99	23995	1150	45
	2.5	2	150	0.026	0.108	0.108	2.48	19255	1000	45
	3.0	2	150	0.028	0.128	0.128	2.97	16075	900	45

Corner radius end mills Microcut-T1H

Shank Ø 3mm, 1xd

HM XA

λ 25° γ-10°

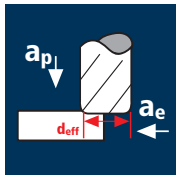


	Rm 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56	**HRC** 56-60	**HRC** > 60	**Inox** Stainless	**Ti** Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **15751** ø-Code **.100**

ø Code	d_1 ±0.01	d_2 h6	l_1	l_2	r 0/+0.03	α	z		DURO-S **D15751**
.100	1.0	3	50	1.20	0.20	11.4°	2		●
.108	1.2	3	50	1.44	0.20	10.5°	2		●
.120	1.5	3	50	1.80	0.20	9.1°	2		●
.140	2.0	3	50	2.40	0.20	6.6°	2		●
.160	2.5	3	50	3.00	0.20	3.6°	2		●
.180	3.0	3	50	3.60	0.20	0.0°	2		●

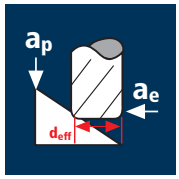
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Steel 850 - 1100 N/mm²									
1.0	2	180	0.036	0.08	0.20	0.92	60000	4320	r=0.2
1.2	2	180	0.042	0.10	0.24	1.15	49825	4185	r=0.2
1.5	2	180	0.054	0.12	0.30	1.47	38980	4210	r=0.2
2.0	2	180	0.072	0.16	0.40	1.99	28795	4145	r=0.2
2.5	2	180	0.090	0.20	0.50	2.50	22920	4125	r=0.2
3.0	2	180	0.108	0.24	0.60	2.99	19165	4140	r=0.2
Steel 1100 - 1300 N/mm²									
1.0	2	160	0.032	0.08	0.20	0.92	55360	3545	r=0.2
1.2	2	160	0.038	0.10	0.24	1.15	44290	3365	r=0.2
1.5	2	160	0.048	0.12	0.30	1.47	34645	3325	r=0.2
2.0	2	160	0.064	0.16	0.40	1.99	25595	3275	r=0.2
2.5	2	160	0.082	0.20	0.50	2.50	20370	3340	r=0.2
3.0	2	160	0.098	0.24	0.60	2.99	17035	3340	r=0.2
Stainless steel [Cr-Ni/1.4301]									
1.0	2	80	0.032	0.08	0.20	0.92	27680	1770	r=0.2
1.2	2	80	0.038	0.10	0.24	1.15	22145	1685	r=0.2
1.5	2	80	0.048	0.12	0.30	1.47	17325	1665	r=0.2
2.0	2	80	0.064	0.16	0.40	1.99	12795	1640	r=0.2
2.5	2	80	0.082	0.20	0.50	2.50	10185	1670	r=0.2
3.0	2	80	0.098	0.24	0.60	2.99	8515	1670	r=0.2
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	60	0.026	0.08	0.20	0.92	20760	1080	r=0.2
1.2	2	60	0.030	0.10	0.24	1.15	16610	995	r=0.2
1.5	2	60	0.038	0.12	0.30	1.47	12995	990	r=0.2
2.0	2	60	0.050	0.16	0.40	1.99	9600	960	r=0.2
2.5	2	60	0.064	0.20	0.50	2.50	7640	980	r=0.2
3.0	2	60	0.076	0.24	0.60	2.99	6390	970	r=0.2

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	300	0.028	0.042	0.042	1.00	60000	3360	45
1.2	2	300	0.030	0.050	0.050	1.20	60000	3600	45
1.5	2	300	0.034	0.064	0.064	1.50	60000	4080	45
2.0	2	300	0.038	0.084	0.084	1.99	47990	3645	45
2.5	2	300	0.040	0.106	0.106	2.48	38505	3080	45
3.0	2	300	0.046	0.126	0.126	2.97	32155	2960	45
Steel 1100 - 1300 N/mm²									
1.0	2	250	0.026	0.042	0.042	1.00	60000	3120	45
1.2	2	250	0.028	0.050	0.050	1.20	60000	3360	45
1.5	2	250	0.030	0.064	0.064	1.50	53055	3185	45
2.0	2	250	0.034	0.084	0.084	1.99	39990	2720	45
2.5	2	250	0.036	0.106	0.106	2.48	32090	2310	45
3.0	2	250	0.042	0.126	0.126	2.97	26795	2250	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	120	0.022	0.042	0.042	1.00	38200	1680	45
1.2	2	120	0.024	0.050	0.050	1.20	31830	1530	45
1.5	2	120	0.028	0.064	0.064	1.50	25465	1425	45
2.0	2	120	0.030	0.084	0.084	1.99	19195	1150	45
2.5	2	120	0.032	0.106	0.106	2.48	15405	985	45
3.0	2	120	0.036	0.126	0.126	2.97	12860	925	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	100	0.020	0.042	0.042	1.00	31830	1275	45
1.2	2	100	0.022	0.050	0.050	1.20	26525	1165	45
1.5	2	100	0.024	0.064	0.064	1.50	21220	1020	45
2.0	2	100	0.026	0.084	0.084	1.99	15995	830	45
2.5	2	100	0.028	0.106	0.106	2.48	12835	720	45
3.0	2	100	0.032	0.126	0.126	2.97	10720	685	45

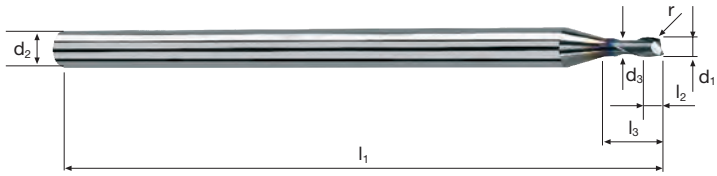
Corner radius end mills Microcut-T3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ 25° γ 6°

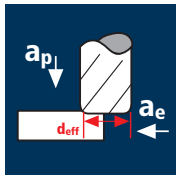


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5752** ø-Code **.100**

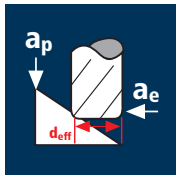
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	α	z	MICRO **M5752**
.100	1.0	3	0.95	50	1.20	3.0	0.20	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.20	7.4°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.20	5.9°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.20	3.7°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.20	1.7°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.20	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.026	0.06	0.20	0.89	50075	2605	r=0.2
	1.2	2	140	0.030	0.07	0.24	1.10	40515	2430	r=0.2
	1.5	2	140	0.038	0.09	0.30	1.43	31165	2370	r=0.2
	2.0	2	140	0.050	0.12	0.40	1.97	22620	2260	r=0.2
	2.5	2	140	0.062	0.15	0.50	2.49	17895	2220	r=0.2
	3.0	2	140	0.076	0.18	0.60	3.00	14855	2260	r=0.2
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.06	0.20	0.89	42920	2060	r=0.2
	1.2	2	120	0.028	0.07	0.24	1.10	34725	1945	r=0.2
	1.5	2	120	0.036	0.09	0.30	1.43	26710	1925	r=0.2
	2.0	2	120	0.048	0.12	0.40	1.97	19390	1860	r=0.2
	2.5	2	120	0.058	0.15	0.50	2.49	15340	1780	r=0.2
	3.0	2	120	0.072	0.18	0.60	3.00	12735	1835	r=0.2
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.06	0.20	0.89	35765	1575	r=0.2
	1.2	2	100	0.026	0.07	0.24	1.10	28940	1505	r=0.2
	1.5	2	100	0.034	0.09	0.30	1.43	22260	1515	r=0.2
	2.0	2	100	0.044	0.12	0.40	1.97	16160	1420	r=0.2
	2.5	2	100	0.054	0.15	0.50	2.49	12785	1380	r=0.2
	3.0	2	100	0.066	0.18	0.60	3.00	10610	1400	r=0.2
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.06	0.20	0.89	21460	860	r=0.2
	1.2	2	60	0.024	0.07	0.24	1.10	17365	835	r=0.2
	1.5	2	60	0.030	0.09	0.30	1.43	13355	800	r=0.2
	2.0	2	60	0.040	0.12	0.40	1.97	9695	775	r=0.2
	2.5	2	60	0.050	0.15	0.50	2.49	7670	765	r=0.2
	3.0	2	60	0.060	0.18	0.60	3.00	6365	765	r=0.2

Application

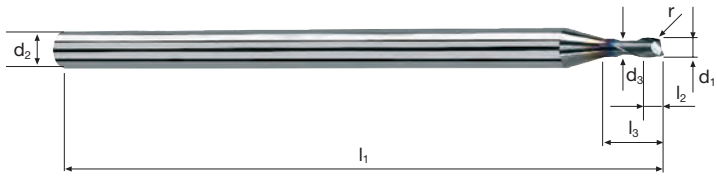


Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	1.0	2	300	0.022	0.042	0.042	1.00	60000	2640	45
	1.2	2	300	0.024	0.050	0.050	1.20	60000	2880	45
	1.5	2	300	0.028	0.062	0.062	1.50	60000	3360	45
	2.0	2	300	0.030	0.082	0.082	2.00	47750	2865	45
	2.5	2	300	0.032	0.102	0.102	2.49	38350	2455	45
	3.0	2	300	0.036	0.122	0.122	2.97	32155	2315	45
Hardened tool steel 48 - 52 HRC	1.0	2	250	0.020	0.042	0.042	1.00	60000	2400	45
	1.2	2	250	0.022	0.050	0.050	1.20	60000	2640	45
	1.5	2	250	0.026	0.062	0.062	1.50	53055	2760	45
	2.0	2	250	0.028	0.082	0.082	2.00	39790	2230	45
	2.5	2	250	0.030	0.102	0.102	2.49	31960	1920	45
	3.0	2	250	0.034	0.122	0.122	2.97	26795	1820	45
Hardened tool steel 52 - 56 HRC	1.0	2	200	0.020	0.042	0.042	1.00	60000	2400	45
	1.2	2	200	0.022	0.050	0.050	1.20	53055	2335	45
	1.5	2	200	0.026	0.062	0.062	1.50	42445	2205	45
	2.0	2	200	0.028	0.082	0.082	2.00	31830	1780	45
	2.5	2	200	0.028	0.102	0.102	2.49	25570	1430	45
	3.0	2	200	0.032	0.122	0.122	2.97	21435	1370	45
Hardened tool steel 56 - 60 HRC	1.0	2	150	0.018	0.042	0.042	1.00	47750	1720	45
	1.2	2	150	0.020	0.050	0.050	1.20	39790	1590	45
	1.5	2	150	0.022	0.062	0.062	1.50	31830	1400	45
	2.0	2	150	0.024	0.082	0.082	2.00	23875	1145	45
	2.5	2	150	0.026	0.102	0.102	2.49	19175	995	45
	3.0	2	150	0.028	0.122	0.122	2.97	16075	900	45

Corner radius end mills Microcut-T3H

Shank Ø 3mm, cylindrical neck, 3xd

HM XA | **λ 25° γ-10°**

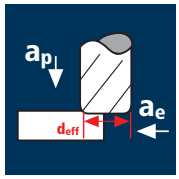


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5762** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DURO-S D5762
.100	1.0	3	0.95	50	1.20	3.0	0.20	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.20	7.4°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.20	5.9°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.20	3.7°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.20	1.7°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.20	0.0°	2	●

Application



Material

Steel
850 - 1100 N/mm²

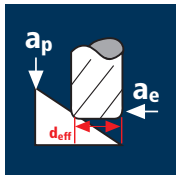
Steel
1100 - 1300 N/mm²

Stainless steel
[Cr-Ni/1.4301]

Titanium alloys
up to 300 HB
[Ti5Al2.5Sn]

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Steel 850 - 1100 N/mm²									
1.0	2	180	0.036	0.07	0.20	0.90	60000	4320	r=0.2
1.2	2	180	0.042	0.08	0.24	1.12	51160	4295	r=0.2
1.5	2	180	0.054	0.11	0.30	1.46	39245	4240	r=0.2
2.0	2	180	0.072	0.14	0.40	1.98	28940	4165	r=0.2
2.5	2	180	0.090	0.18	0.50	2.50	22920	4125	r=0.2
3.0	2	180	0.108	0.21	0.60	3.00	19100	4125	r=0.2
Steel 1100 - 1300 N/mm²									
1.0	2	160	0.032	0.07	0.20	0.90	56590	3620	r=0.2
1.2	2	160	0.038	0.08	0.24	1.12	45475	3455	r=0.2
1.5	2	160	0.048	0.11	0.30	1.46	34885	3350	r=0.2
2.0	2	160	0.064	0.14	0.40	1.98	25725	3295	r=0.2
2.5	2	160	0.082	0.18	0.50	2.50	20370	3340	r=0.2
3.0	2	160	0.098	0.21	0.60	3.00	16975	3325	r=0.2
Stainless steel [Cr-Ni/1.4301]									
1.0	2	80	0.032	0.07	0.20	0.90	28295	1810	r=0.2
1.2	2	80	0.038	0.08	0.24	1.12	22735	1730	r=0.2
1.5	2	80	0.048	0.11	0.30	1.46	17440	1675	r=0.2
2.0	2	80	0.064	0.14	0.40	1.98	12860	1645	r=0.2
2.5	2	80	0.082	0.18	0.50	2.50	10185	1670	r=0.2
3.0	2	80	0.098	0.21	0.60	3.00	8490	1665	r=0.2
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	60	0.026	0.07	0.20	0.90	21220	1105	r=0.2
1.2	2	60	0.030	0.08	0.24	1.12	17055	1025	r=0.2
1.5	2	60	0.038	0.11	0.30	1.46	13080	995	r=0.2
2.0	2	60	0.050	0.14	0.40	1.98	9645	965	r=0.2
2.5	2	60	0.064	0.18	0.50	2.50	7640	980	r=0.2
3.0	2	60	0.076	0.21	0.60	3.00	6365	965	r=0.2

Application



Material

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

Stainless steel
[Cr-Ni/1.4301]

Titanium alloys
up to 300 HB
[Ti5Al2.5Sn]

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	300	0.022	0.040	0.040	1.00	60000	2640	45
1.2	2	300	0.024	0.048	0.048	1.20	60000	2880	45
1.5	2	300	0.028	0.060	0.060	1.50	60000	3360	45
2.0	2	300	0.030	0.080	0.080	2.00	47750	2865	45
2.5	2	300	0.032	0.100	0.100	2.49	38350	2455	45
3.0	2	300	0.036	0.120	0.120	2.97	32155	2315	45
Steel 1100 - 1300 N/mm²									
1.0	2	250	0.020	0.040	0.040	1.00	60000	2400	45
1.2	2	250	0.022	0.048	0.048	1.20	60000	2640	45
1.5	2	250	0.026	0.060	0.060	1.50	53055	2760	45
2.0	2	250	0.028	0.080	0.080	2.00	39790	2230	45
2.5	2	250	0.028	0.100	0.100	2.49	31960	1790	45
3.0	2	250	0.032	0.120	0.120	2.97	26795	1715	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	120	0.018	0.040	0.040	1.00	38200	1375	45
1.2	2	120	0.020	0.048	0.048	1.20	31830	1275	45
1.5	2	120	0.022	0.060	0.060	1.50	25465	1120	45
2.0	2	120	0.024	0.080	0.080	2.00	19100	915	45
2.5	2	120	0.026	0.100	0.100	2.49	15340	800	45
3.0	2	120	0.028	0.120	0.120	2.97	12860	720	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	100	0.016	0.040	0.040	1.00	31830	1020	45
1.2	2	100	0.016	0.048	0.048	1.20	26525	850	45
1.5	2	100	0.020	0.060	0.060	1.50	21220	850	45
2.0	2	100	0.022	0.080	0.080	2.00	15915	700	45
2.5	2	100	0.022	0.100	0.100	2.49	12785	565	45
3.0	2	100	0.026	0.120	0.120	2.97	10720	555	45

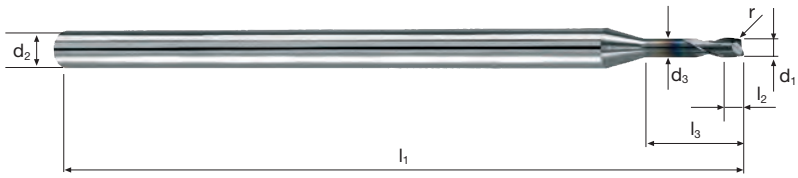
Corner radius end mills Microcut-T5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ 25° γ 6°

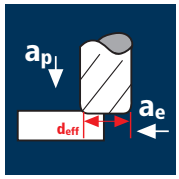


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5754** ø-Code **.100**

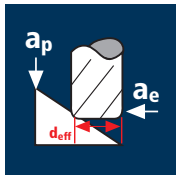
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	α	z	MICRO **M5754**
.100	1.0	3	0.95	50	1.20	5.0	0.20	6.6°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.20	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.20	4.2°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.20	2.5°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.20	1.1°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.20	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.026	0.05	0.20	0.86	51820	2695	r=0.2
	1.2	2	140	0.030	0.06	0.24	1.09	40885	2455	r=0.2
	1.5	2	140	0.038	0.08	0.30	1.42	31385	2385	r=0.2
	2.0	2	140	0.050	0.10	0.40	1.95	22855	2285	r=0.2
	2.5	2	140	0.062	0.13	0.50	2.47	18040	2235	r=0.2
	3.0	2	140	0.076	0.15	0.60	2.99	14905	2265	r=0.2
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.05	0.20	0.86	44415	2130	r=0.2
	1.2	2	120	0.028	0.06	0.24	1.09	35045	1965	r=0.2
	1.5	2	120	0.036	0.08	0.30	1.42	26900	1935	r=0.2
	2.0	2	120	0.048	0.10	0.40	1.95	19590	1880	r=0.2
	2.5	2	120	0.058	0.13	0.50	2.47	15465	1795	r=0.2
	3.0	2	120	0.072	0.15	0.60	2.99	12775	1840	r=0.2
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.05	0.20	0.86	37015	1630	r=0.2
	1.2	2	100	0.026	0.06	0.24	1.09	29205	1520	r=0.2
	1.5	2	100	0.034	0.08	0.30	1.42	22415	1525	r=0.2
	2.0	2	100	0.044	0.10	0.40	1.95	16325	1435	r=0.2
	2.5	2	100	0.054	0.13	0.50	2.47	12885	1390	r=0.2
	3.0	2	100	0.066	0.15	0.60	2.99	10645	1405	r=0.2
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.05	0.20	0.86	22210	890	r=0.2
	1.2	2	60	0.024	0.06	0.24	1.09	17520	840	r=0.2
	1.5	2	60	0.030	0.08	0.30	1.42	13450	805	r=0.2
	2.0	2	60	0.040	0.10	0.40	1.95	9795	785	r=0.2
	2.5	2	60	0.050	0.13	0.50	2.47	7730	775	r=0.2
	3.0	2	60	0.060	0.15	0.60	2.99	6390	765	r=0.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	1.0	2	300	0.022	0.040	0.040	1.00	60000	2640	45
	1.2	2	300	0.024	0.048	0.048	1.20	60000	2880	45
	1.5	2	300	0.028	0.060	0.060	1.50	60000	3360	45
	2.0	2	300	0.030	0.080	0.080	2.00	47750	2865	45
	2.5	2	300	0.032	0.100	0.100	2.49	38350	2455	45
	3.0	2	300	0.036	0.120	0.120	2.97	32155	2315	45
Hardened tool steel 48 - 52 HRC	1.0	2	250	0.020	0.040	0.040	1.00	60000	2400	45
	1.2	2	250	0.022	0.048	0.048	1.20	60000	2640	45
	1.5	2	250	0.026	0.060	0.060	1.50	53055	2760	45
	2.0	2	250	0.028	0.080	0.080	2.00	39790	2230	45
	2.5	2	250	0.030	0.100	0.100	2.49	31960	1920	45
	3.0	2	250	0.034	0.120	0.120	2.97	26795	1820	45
Hardened tool steel 52 - 56 HRC	1.0	2	200	0.020	0.040	0.040	1.00	60000	2400	45
	1.2	2	200	0.022	0.048	0.048	1.20	53055	2335	45
	1.5	2	200	0.026	0.060	0.060	1.50	42445	2205	45
	2.0	2	200	0.028	0.080	0.080	2.00	31830	1780	45
	2.5	2	200	0.028	0.100	0.100	2.49	25570	1430	45
	3.0	2	200	0.032	0.120	0.120	2.97	21435	1370	45
Hardened tool steel 56 - 60 HRC	1.0	2	150	0.018	0.040	0.040	1.00	47750	1720	45
	1.2	2	150	0.020	0.048	0.048	1.20	39790	1590	45
	1.5	2	150	0.022	0.060	0.060	1.50	31830	1400	45
	2.0	2	150	0.024	0.080	0.080	2.00	23875	1145	45
	2.5	2	150	0.026	0.100	0.100	2.49	19175	995	45
	3.0	2	150	0.028	0.120	0.120	2.97	16075	900	45

Corner radius end mills Microcut-T5H

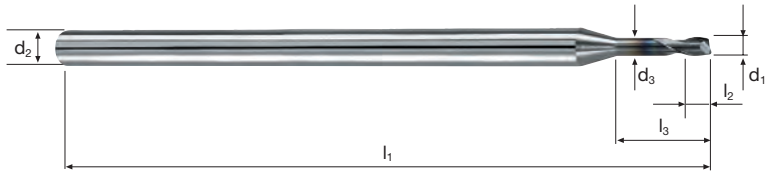
Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA

λ 25° γ-10°

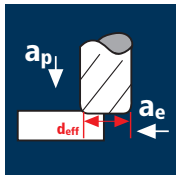


	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Example: **Order-N°.** Coating **D** Article-N°. **5764** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DURO-S D5764
.100	1.0	3	0.95	50	1.20	5.0	0.20	6.6°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.20	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.20	4.2°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.20	2.5°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.20	1.1°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.20	0.0°	2	●

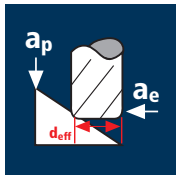
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Steel 850 - 1100 N/mm²									
1.0	2	180	0.036	0.05	0.20	0.86	60000	4320	r=0.2
1.2	2	180	0.042	0.06	0.24	1.09	52565	4415	r=0.2
1.5	2	180	0.054	0.08	0.30	1.42	40350	4360	r=0.2
2.0	2	180	0.072	0.10	0.40	1.95	29385	4230	r=0.2
2.5	2	180	0.090	0.13	0.50	2.47	23195	4175	r=0.2
3.0	2	180	0.108	0.15	0.60	2.99	19165	4140	r=0.2
Steel 1100 - 1300 N/mm²									
1.0	2	160	0.032	0.05	0.20	0.86	59220	3790	r=0.2
1.2	2	160	0.038	0.06	0.24	1.09	46725	3550	r=0.2
1.5	2	160	0.048	0.08	0.30	1.42	35865	3445	r=0.2
2.0	2	160	0.064	0.10	0.40	1.95	26120	3345	r=0.2
2.5	2	160	0.082	0.13	0.50	2.47	20620	3380	r=0.2
3.0	2	160	0.098	0.15	0.60	2.99	17035	3340	r=0.2
Stainless steel [Cr-Ni/1.4301]									
1.0	2	80	0.032	0.05	0.20	0.86	29610	1895	r=0.2
1.2	2	80	0.038	0.06	0.24	1.09	23365	1775	r=0.2
1.5	2	80	0.048	0.08	0.30	1.42	17935	1720	r=0.2
2.0	2	80	0.064	0.10	0.40	1.95	13060	1670	r=0.2
2.5	2	80	0.082	0.13	0.50	2.47	10310	1690	r=0.2
3.0	2	80	0.098	0.15	0.60	2.99	8515	1670	r=0.2
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	60	0.026	0.05	0.20	0.86	22210	1155	r=0.2
1.2	2	60	0.030	0.06	0.24	1.09	17520	1050	r=0.2
1.5	2	60	0.038	0.08	0.30	1.42	13450	1020	r=0.2
2.0	2	60	0.050	0.10	0.40	1.95	9795	980	r=0.2
2.5	2	60	0.064	0.13	0.50	2.47	7730	990	r=0.2
3.0	2	60	0.076	0.15	0.60	2.99	6390	970	r=0.2

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Steel 850 - 1100 N/mm²									
1.0	2	300	0.022	0.038	0.038	0.99	60000	2640	45
1.2	2	300	0.024	0.046	0.046	1.20	60000	2880	45
1.5	2	300	0.028	0.058	0.058	1.50	60000	3360	45
2.0	2	300	0.030	0.076	0.076	2.00	47750	2865	45
2.5	2	300	0.032	0.096	0.096	2.49	38350	2455	45
3.0	2	300	0.036	0.114	0.114	2.98	32045	2305	45
Steel 1100 - 1300 N/mm²									
1.0	2	250	0.020	0.038	0.038	0.99	60000	2400	45
1.2	2	250	0.022	0.046	0.046	1.20	60000	2640	45
1.5	2	250	0.026	0.058	0.058	1.50	53055	2760	45
2.0	2	250	0.028	0.076	0.076	2.00	39790	2230	45
2.5	2	250	0.028	0.096	0.096	2.49	31960	1790	45
3.0	2	250	0.032	0.114	0.114	2.98	26705	1710	45
Stainless steel [Cr-Ni/1.4301]									
1.0	2	120	0.018	0.038	0.038	0.99	38585	1390	45
1.2	2	120	0.020	0.046	0.046	1.20	31830	1275	45
1.5	2	120	0.022	0.058	0.058	1.50	25465	1120	45
2.0	2	120	0.024	0.076	0.076	2.00	19100	915	45
2.5	2	120	0.026	0.096	0.096	2.49	15340	800	45
3.0	2	120	0.028	0.114	0.114	2.98	12820	720	45
Titanium alloys up to 300 HB [Ti5Al2.5Sn]									
1.0	2	100	0.016	0.038	0.038	0.99	32155	1030	45
1.2	2	100	0.016	0.046	0.046	1.20	26525	850	45
1.5	2	100	0.020	0.058	0.058	1.50	21220	850	45
2.0	2	100	0.022	0.076	0.076	2.00	15915	700	45
2.5	2	100	0.022	0.096	0.096	2.49	12785	565	45
3.0	2	100	0.026	0.114	0.114	2.98	10680	555	45

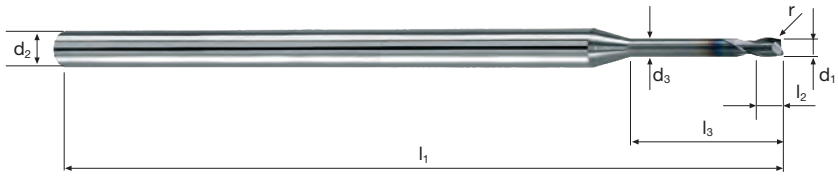
Corner radius end mills Microcut-T8

Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

II

HM Micro | λ 25° γ 6°

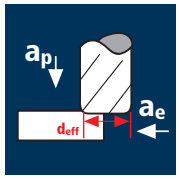


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**Cobalt-Chrome Gold / Platinum Copper**

Example: **Order-N°.** Coating **M** Article-N°. **5756** ø-Code **.100**

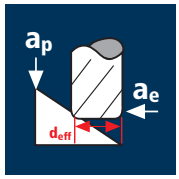
ø Code	d_1 ±0.01	d_2 h6	d_3	l_1	l_2	l_3	r 0/+0.03	α	z	MICRO **M5756**
.100	1.0	3	0.95	50	1.20	8.0	0.20	4.9°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.20	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.20	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.20	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.20	0.7°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.20	0.0°	2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	r [mm]
Hardened tool steel 42 - 48 HRC	1.0	2	140	0.026	0.04	0.18	0.84	53055	2760	r=0.2
	1.2	2	140	0.030	0.05	0.22	1.06	42040	2520	r=0.2
	1.5	2	140	0.038	0.06	0.27	1.39	32060	2435	r=0.2
	2.0	2	140	0.050	0.08	0.36	1.92	23210	2320	r=0.2
	2.5	2	140	0.062	0.10	0.45	2.45	18190	2255	r=0.2
	3.0	2	140	0.076	0.12	0.54	2.97	15005	2280	r=0.2
Hardened tool steel 48 - 52 HRC	1.0	2	120	0.024	0.04	0.18	0.84	45475	2185	r=0.2
	1.2	2	120	0.028	0.05	0.22	1.06	36035	2020	r=0.2
	1.5	2	120	0.036	0.06	0.27	1.39	27480	1980	r=0.2
	2.0	2	120	0.048	0.08	0.36	1.92	19895	1910	r=0.2
	2.5	2	120	0.058	0.10	0.45	2.45	15590	1810	r=0.2
	3.0	2	120	0.072	0.12	0.54	2.97	12860	1850	r=0.2
Hardened tool steel 52 - 56 HRC	1.0	2	100	0.022	0.04	0.18	0.84	37895	1665	r=0.2
	1.2	2	100	0.026	0.05	0.22	1.06	30030	1560	r=0.2
	1.5	2	100	0.034	0.06	0.27	1.39	22900	1555	r=0.2
	2.0	2	100	0.044	0.08	0.36	1.92	16580	1460	r=0.2
	2.5	2	100	0.054	0.10	0.45	2.45	12995	1405	r=0.2
	3.0	2	100	0.066	0.12	0.54	2.97	10720	1415	r=0.2
Hardened tool steel 56 - 60 HRC	1.0	2	60	0.020	0.04	0.18	0.84	22735	910	r=0.2
	1.2	2	60	0.024	0.05	0.22	1.06	18020	865	r=0.2
	1.5	2	60	0.030	0.06	0.27	1.39	13740	825	r=0.2
	2.0	2	60	0.040	0.08	0.36	1.92	9945	795	r=0.2
	2.5	2	60	0.050	0.10	0.45	2.45	7795	780	r=0.2
	3.0	2	60	0.060	0.12	0.54	2.97	6430	770	r=0.2

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Hardened tool steel 42 - 48 HRC	1.0	2	300	0.022	0.038	0.038	0.99	60000	2640	45
	1.2	2	300	0.024	0.046	0.046	1.20	60000	2880	45
	1.5	2	300	0.028	0.058	0.058	1.50	60000	3360	45
	2.0	2	300	0.030	0.076	0.076	2.00	47750	2865	45
	2.5	2	300	0.032	0.096	0.096	2.49	38350	2455	45
	3.0	2	300	0.036	0.114	0.114	2.98	32045	2305	45
Hardened tool steel 48 - 52 HRC	1.0	2	250	0.020	0.038	0.038	0.99	60000	2400	45
	1.2	2	250	0.022	0.046	0.046	1.20	60000	2640	45
	1.5	2	250	0.026	0.058	0.058	1.50	53055	2760	45
	2.0	2	250	0.028	0.076	0.076	2.00	39790	2230	45
	2.5	2	250	0.030	0.096	0.096	2.49	31960	1920	45
	3.0	2	250	0.034	0.114	0.114	2.98	26705	1815	45
Hardened tool steel 52 - 56 HRC	1.0	2	200	0.020	0.038	0.038	0.99	60000	2400	45
	1.2	2	200	0.022	0.046	0.046	1.20	53055	2335	45
	1.5	2	200	0.026	0.058	0.058	1.50	42445	2205	45
	2.0	2	200	0.028	0.076	0.076	2.00	31830	1780	45
	2.5	2	200	0.028	0.096	0.096	2.49	25570	1430	45
	3.0	2	200	0.032	0.114	0.114	2.98	21365	1365	45
Hardened tool steel 56 - 60 HRC	1.0	2	150	0.018	0.038	0.038	0.99	48230	1735	45
	1.2	2	150	0.020	0.046	0.046	1.20	39790	1590	45
	1.5	2	150	0.022	0.058	0.058	1.50	31830	1400	45
	2.0	2	150	0.024	0.076	0.076	2.00	23875	1145	45
	2.5	2	150	0.026	0.096	0.096	2.49	19175	995	45
	3.0	2	150	0.028	0.114	0.114	2.98	16025	895	45

Corner radius end mills Microcut-T8H

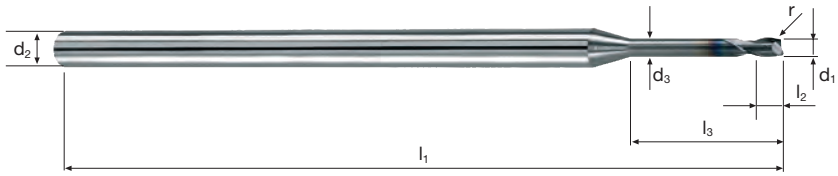
Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation X

II

HM XA

λ 25° γ-10°



	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

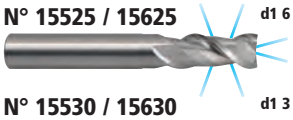
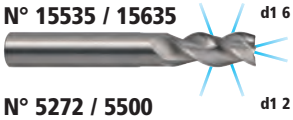
Example: **Order-N°.** Coating **D** Article-N°. **5766** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DURO-S D5766
.100	1.0	3	0.95	50	1.20	8.0	0.20	4.9°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.20	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.20	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.20	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.20	0.7°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.20	0.0°	2	●


fraisa

End milling tools for aluminium and copper
Smooth-edged, cylindrical

Normal version

N° 15520 / 15620 d1 2 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	511
N° 15525 / 15625 d1 6 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	513
N° 15530 / 15630 d1 3 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	515
N° 15535 / 15635 d1 6 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	517
N° 5272 / 5500 d1 2 – 20 	Favora® F	HM MG10	45°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	519

Medium length version

N° 15550 / 15650 d1 3 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	521
N° 15557 / 15657 d1 3 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	523
N° 15560 / 15660 d1 3 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	525

Long version

N° 15559 / 15659 new! d1 6 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	527
N° 15561 / 15661 d1 6 – 20 	X-Generation X	HM MG10	90°	Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	529

End milling tools for aluminium and copper
Smooth-edged, with corner radius

2xd - 5xd version

N° 15572 new! 	d1 10 – 25 r 2.5, 4.0	X-Generation X	HM MG10	2xd	Al Aluminium Alloy			531
N° 15573 	d1 3 – 25 r 0.5, 1.0, 2.5, 4.0	X-Generation X	HM MG10	3xd	Al Aluminium Alloy			533
N° 15574 	d1 6 – 25 r 1.0, 2.5, 4.0	X-Generation X	HM MG10	4xd	Al Aluminium Alloy			537
N° 15575 	d1 10 – 25 r 1.0, 2.5, 4.0	X-Generation X	HM MG10	5xd	Al Aluminium Alloy			539
N° 15582 	d1 10 – 25 r 2.5, 4.0	X-Generation X	HM MG10	2xd	Al Aluminium Alloy			541
N° 15583 	d1 3 – 25 r 0.5, 1.0, 2.5, 4.0	X-Generation X	HM MG10	3xd	Al Aluminium Alloy			543
N° 15584 	d1 6 – 25 r 1.0, 2.5, 4.0	X-Generation X	HM MG10	4xd	Al Aluminium Alloy			547
N° 15585 	d1 10 – 25 r 1.0, 2.5, 4.0	X-Generation X	HM MG10	5xd	Al Aluminium Alloy			549

Normal version

N° 5275 	d1 3 – 25 r 0.5, 1.0, 1.5, 2.0, 2.5	Base-X B	HM MG10		Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	551
N° 5271 	d1 10 – 25 r 1.5, 2.0, 2.5, 4.0	Base-X B	HM MG10		Al Aluminium Alloy			553
N° 5276 	d1 6 – 25 r 1.0, 1.5, 2.0, 2.5	Base-X B	HM MG10		Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	555

Medium length version

N° 5277 	d1 6 – 20 r 1.0, 1.5, 2.0	Base-X B	HM MG10		Al Aluminium Alloy	Cu Copper	Plastic Thermoplast	557

End milling tools for aluminium and copper
Profiled

Normal version, cylindrical

N° 5297 / 5397



d1 6 – 20

X-Generation X	HM MG10	45°	Al Aluminium Alloy	Cu Copper		559

N° 0391



d1 6 – 25

HSS	HSS-E Co8	45°	Al Aluminium Alloy	Cu Copper		561

Medium length version, cylindrical

N° 15297 / 15397



d1 6 – 20

X-Generation X	HM MG10	45°	Al Aluminium Alloy	Cu Copper		563

N° 15298 / 15398



d1 6 – 25

X-Generation X	HM MG10	45°	Al Aluminium Alloy	Cu Copper		565

N° 0393



d1 10 – 25

HSS	HSS-E Co8	45°	Al Aluminium Alloy	Cu Copper		567

Normal version, with corner radius

N° 15277 / 15377

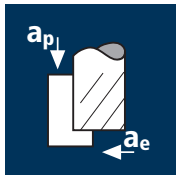


d1 16 – 20

r 2.5, 4.0

X-Generation X	HM MG10		Al Aluminium Alloy	Cu Copper		569

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	2	550	0.055	4.5	1.8	58360	6420	52.0
	4	2	550	0.075	6.0	2.4	43770	6565	94.5
	5	2	550	0.090	7.5	3.0	35015	6305	142.0
	6	2	550	0.120	9.0	3.6	29180	7005	227.0
	8	2	550	0.160	12.0	4.8	21885	7005	403.5
	10	2	550	0.200	15.0	6.0	17510	7005	630.5
	12	2	550	0.220	18.0	7.2	14590	6420	832.0
	16	2	550	0.245	24.0	9.6	10940	5360	1235.0
	20	2	550	0.285	30.0	12.0	8755	4990	1796.5
Unalloyed copper	3	2	400	0.045	4.5	1.8	42445	3820	31.0
	4	2	400	0.060	6.0	2.4	31830	3820	55.0
	5	2	400	0.070	7.5	3.0	25465	3565	80.0
	6	2	400	0.095	9.0	3.6	21220	4030	130.5
	8	2	400	0.130	12.0	4.8	15915	4140	238.5
	10	2	400	0.160	15.0	6.0	12735	4075	367.0
	12	2	400	0.175	18.0	7.2	10610	3715	481.5
	16	2	400	0.195	24.0	9.6	7960	3105	715.5
	20	2	400	0.230	30.0	12.0	6365	2930	1055.0
Thermoplastics	3	2	1000	0.055	4.5	1.8	60000	6600	53.5
	4	2	1000	0.075	6.0	2.4	60000	9000	129.5
	5	2	1000	0.090	7.5	3.0	60000	10800	243.0
	6	2	1000	0.120	9.0	3.6	53055	12735	412.5
	8	2	1000	0.160	12.0	4.8	39790	12735	733.5
	10	2	1000	0.200	15.0	6.0	31830	12730	1145.5
	12	2	1000	0.220	18.0	7.2	26525	11670	1512.5
	16	2	1000	0.245	24.0	9.6	19895	9750	2246.5
	20	2	1000	0.285	30.0	12.0	15915	9070	3265.0
Cast aluminium Si 6% - 15%	3	2	350	0.040	4.5	1.8	37135	2970	24.0
	4	2	350	0.055	6.0	2.4	27855	3065	44.0
	5	2	350	0.065	7.5	3.0	22280	2895	65.0
	6	2	350	0.085	9.0	3.6	18570	3155	102.0
	8	2	350	0.110	12.0	4.8	13925	3065	176.5
	10	2	350	0.140	15.0	6.0	11140	3120	281.0
	12	2	350	0.155	18.0	7.2	9285	2880	373.0
	16	2	350	0.170	24.0	9.6	6965	2370	546.0
	20	2	350	0.200	30.0	12.0	5570	2230	803.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	2	450	0.040	3.0	3	47750	3820	34.5
	4	2	450	0.055	4.0	4	35810	3940	63.0
	5	2	450	0.065	5.0	5	28650	3725	93.0
	6	2	450	0.085	6.0	6	23875	4060	146.0
	8	2	450	0.110	8.0	8	17905	3940	252.0
	10	2	450	0.140	10.0	10	14325	4010	401.0
	12	2	450	0.155	12.0	12	11935	3700	533.0
	16	2	450	0.170	16.0	16	8955	3045	779.5
	20	2	450	0.200	20.0	20	7160	2865	1146.0
Unalloyed copper	3	2	350	0.030	3.0	3	37135	2230	20.0
	4	2	350	0.045	4.0	4	27855	2505	40.0
	5	2	350	0.050	5.0	5	22280	2230	56.0
	6	2	350	0.070	6.0	6	18570	2600	93.5
	8	2	350	0.090	8.0	8	13925	2505	160.5
	10	2	350	0.110	10.0	10	11140	2450	245.0
	12	2	350	0.125	12.0	12	9285	2320	334.0
	16	2	350	0.135	16.0	16	6965	1880	481.5
	20	2	350	0.160	20.0	20	5570	1780	712.0
Thermoplastics	3	2	800	0.040	3.0	3	60000	4800	43.0
	4	2	800	0.055	4.0	4	60000	6600	105.5
	5	2	800	0.065	5.0	5	50930	6620	165.5
	6	2	800	0.085	6.0	6	42445	7215	259.5
	8	2	800	0.110	8.0	8	31830	7005	448.5
	10	2	800	0.140	10.0	10	25465	7130	713.0
	12	2	800	0.155	12.0	12	21220	6580	947.5
	16	2	800	0.170	16.0	16	15915	5410	1385.0
	20	2	800	0.200	20.0	20	12735	5095	2038.0
Cast aluminium Si 6% - 15%	3	2	300	0.030	3.0	3	31830	1910	17.0
	4	2	300	0.040	4.0	4	23875	1910	30.5
	5	2	300	0.045	5.0	5	19100	1720	43.0
	6	2	300	0.060	6.0	6	15915	1910	69.0
	8	2	300	0.075	8.0	8	11935	1790	114.5
	10	2	300	0.100	10.0	10	9550	1910	191.0
	12	2	300	0.110	12.0	12	7960	1750	252.0
	16	2	300	0.120	16.0	16	5970	1435	367.5
	20	2	300	0.140	20.0	20	4775	1335	534.0

Cylindrical end mills AX-NV2

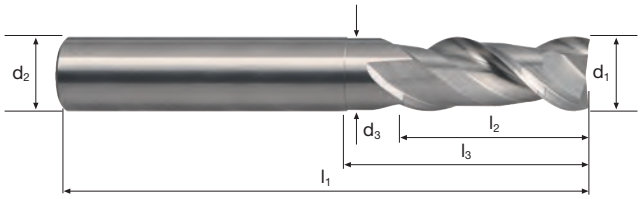
Smooth-edged, normal version with short neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90°

Vario



Roughing

Finishing

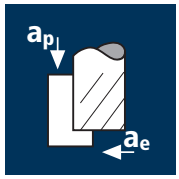
III

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15520** | ø-Code **.140**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	α	z	15620	CELERO C15620
									15520	C15520
.140	2	6	1.9	57	7	10	7.0°	2	●	●
.180	3	6	2.8	57	8	14	4.5°	2	●	●
.220	4	6	3.7	57	11	16	3.0°	2	●	●
.260	5	6	4.6	57	13	18	1.5°	2	●	●
.300	6	6	5.5	57	13	20	0.0°	2	●	●
.391	8	8	7.4	63	19	26	0.0°	2	●	●
.450	10	10	9.2	72	22	31	0.0°	2	●	●
.501	12	12	11.0	83	26	37	0.0°	2	●	●
.610	16	16	15.0	92	32	43	0.0°	2	●	●
.682	20	20	19.0	104	38	53	0.0°	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	2	650	0.065	9.0	3.3	34485	4485	133.0
	8	2	650	0.090	12.0	4.4	25865	4655	246.0
	10	2	650	0.110	15.0	5.5	20690	4550	375.5
	12	2	650	0.120	18.0	6.6	17240	4140	492.0
	16	2	650	0.135	24.0	8.8	12930	3490	737.0
	20	2	650	0.155	30.0	11.0	10345	3205	1057.5
Unalloyed copper	6	2	500	0.050	9.0	3.3	26525	2655	79.0
	8	2	500	0.070	12.0	4.4	19895	2785	147.0
	10	2	500	0.090	15.0	5.5	15915	2865	236.5
	12	2	500	0.095	18.0	6.6	13265	2520	299.5
	16	2	500	0.105	24.0	8.8	9945	2090	441.5
	20	2	500	0.125	30.0	11.0	7960	1990	656.5
Thermoplastics	6	2	1200	0.065	9.0	3.3	60000	7800	231.5
	8	2	1200	0.090	12.0	4.4	47750	8595	454.0
	10	2	1200	0.110	15.0	5.5	38200	8405	693.5
	12	2	1200	0.120	18.0	6.6	31830	7640	907.5
	16	2	1200	0.135	24.0	8.8	23875	6445	1361.0
	20	2	1200	0.155	30.0	11.0	19100	5920	1953.5
Cast aluminium Si 6% - 15%	6	2	450	0.045	9.0	3.3	23875	2150	64.0
	8	2	450	0.060	12.0	4.4	17905	2150	113.5
	10	2	450	0.075	15.0	5.5	14325	2150	177.5
	12	2	450	0.085	18.0	6.6	11935	2030	241.0
	16	2	450	0.095	24.0	8.8	8955	1700	359.0
	20	2	450	0.110	30.0	11.0	7160	1575	520.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	2	550	0.045	5.4	6	29180	2625	85.0
	8	2	550	0.060	7.2	8	21885	2625	151.0
	10	2	550	0.075	9.0	10	17510	2625	236.5
	12	2	550	0.085	10.8	12	14590	2480	321.5
	16	2	550	0.095	14.4	16	10940	2080	479.0
	20	2	550	0.110	18.0	20	8755	1925	693.0
Unalloyed copper	6	2	450	0.040	5.4	6	23875	1910	62.0
	8	2	450	0.050	7.2	8	17905	1790	103.0
	10	2	450	0.060	9.0	10	14325	1720	155.0
	12	2	450	0.070	10.8	12	11935	1670	216.5
	16	2	450	0.075	14.4	16	8955	1345	310.0
	20	2	450	0.090	18.0	20	7160	1290	464.5
Thermoplastics	6	2	1000	0.045	5.4	6	53055	4775	154.5
	8	2	1000	0.060	7.2	8	39790	4775	275.0
	10	2	1000	0.075	9.0	10	31830	4775	430.0
	12	2	1000	0.085	10.8	12	26525	4510	584.5
	16	2	1000	0.095	14.4	16	19895	3780	871.0
	20	2	1000	0.110	18.0	20	15915	3500	1260.0
Cast aluminium Si 6% - 15%	6	2	400	0.035	5.4	6	21220	1485	48.0
	8	2	400	0.040	7.2	8	15915	1275	73.5
	10	2	400	0.055	9.0	10	12735	1400	126.0
	12	2	400	0.060	10.8	12	10610	1275	165.0
	16	2	400	0.065	14.4	16	7960	1035	238.5
	20	2	400	0.075	18.0	20	6365	955	344.0

Cylindrical end mills AX-NV2

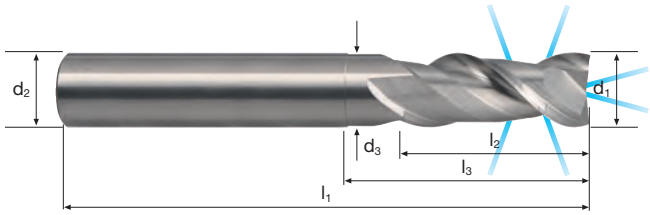
Smooth-edged, normal version with short neck, with integral cooling channel

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90°

Vario



Roughing

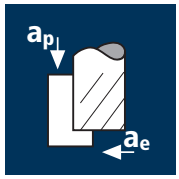
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15525** ø-Code **.300**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	z	15625	CELERO C15625
								15525	C15525
.300	6	6	5.5	57	13	20	2	●	●
.391	8	8	7.4	63	19	26	2	●	●
.450	10	10	9.2	72	22	31	2	●	●
.501	12	12	11.0	83	26	37	2	●	●
.610	16	16	15.0	92	32	43	2	●	●
.682	20	20	19.0	104	38	53	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	550	0.050	4.5	1.4	58360	8755	55.0
	4	3	550	0.065	6.0	1.8	43770	8535	92.0
	5	3	550	0.085	7.5	2.3	35015	8930	154.0
	6	3	550	0.110	9.0	2.7	29180	9630	234.0
	8	3	550	0.135	12.0	3.6	21885	8865	383.0
	10	3	550	0.165	15.0	4.5	17510	8665	585.0
	12	3	550	0.200	18.0	5.4	14590	8755	851.0
	16	3	550	0.215	24.0	7.2	10940	7055	1219.0
	20	3	550	0.250	30.0	9.0	8755	6565	1772.5
Unalloyed copper	3	3	400	0.040	4.5	1.4	42445	5095	31.0
	4	3	400	0.050	6.0	1.8	31830	4775	51.5
	5	3	400	0.070	7.5	2.3	25465	5350	90.5
	6	3	400	0.090	9.0	2.7	21220	5730	139.0
	8	3	400	0.110	12.0	3.6	15915	5250	227.0
	10	3	400	0.130	15.0	4.5	12735	4965	335.0
	12	3	400	0.160	18.0	5.4	10610	5095	495.0
	16	3	400	0.170	24.0	7.2	7960	4060	701.5
	20	3	400	0.200	30.0	9.0	6365	3820	1031.5
Thermoplastics	3	3	1000	0.050	4.5	1.4	60000	9000	54.5
	4	3	1000	0.065	6.0	1.8	60000	11700	126.5
	5	3	1000	0.085	7.5	2.3	60000	15300	258.0
	6	3	1000	0.110	9.0	2.7	53055	17510	425.5
	8	3	1000	0.135	12.0	3.6	39790	16115	696.0
	10	3	1000	0.165	15.0	4.5	31830	15755	1063.5
	12	3	1000	0.200	18.0	5.4	26525	15915	1547.0
	16	3	1000	0.215	24.0	7.2	19895	12830	2217.0
	20	3	1000	0.250	30.0	9.0	15915	11935	3222.5
Cast aluminium Si 6% - 15%	3	3	350	0.035	4.5	1.4	37135	3900	23.5
	4	3	350	0.045	6.0	1.8	27855	3760	40.5
	5	3	350	0.060	7.5	2.3	22280	4010	67.5
	6	3	350	0.075	9.0	2.7	18570	4180	101.5
	8	3	350	0.095	12.0	3.6	13925	3970	171.5
	10	3	350	0.115	15.0	4.5	11140	3845	259.5
	12	3	350	0.140	18.0	5.4	9285	3900	379.0
	16	3	350	0.150	24.0	7.2	6965	3135	541.5
	20	3	350	0.175	30.0	9.0	5570	2925	790.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	450	0.035	1.8	3	47750	5015	27.0
	4	3	450	0.045	2.4	4	35810	4835	46.5
	5	3	450	0.060	3.0	5	28650	5155	77.5
	6	3	450	0.075	3.6	6	23875	5370	116.0
	8	3	450	0.095	4.8	8	17905	5105	196.0
	10	3	450	0.115	6.0	10	14325	4940	296.5
	12	3	450	0.140	7.2	12	11935	5015	433.5
	16	3	450	0.150	9.6	16	8955	4030	619.0
	20	3	450	0.175	12.0	20	7160	3760	902.5
Unalloyed copper	3	3	350	0.030	1.8	3	37135	3340	18.0
	4	3	350	0.035	2.4	4	27855	2925	28.0
	5	3	350	0.050	3.0	5	22280	3340	50.0
	6	3	350	0.060	3.6	6	18570	3345	72.5
	8	3	350	0.075	4.8	8	13925	3135	120.5
	10	3	350	0.090	6.0	10	11140	3010	180.5
	12	3	350	0.110	7.2	12	9285	3065	265.0
	16	3	350	0.120	9.6	16	6965	2505	385.0
	20	3	350	0.140	12.0	20	5570	2340	561.5
Thermoplastics	3	3	800	0.035	1.8	3	60000	6300	34.0
	4	3	800	0.045	2.4	4	60000	8100	78.0
	5	3	800	0.060	3.0	5	50930	9165	137.5
	6	3	800	0.075	3.6	6	42445	9550	206.5
	8	3	800	0.095	4.8	8	31830	9070	348.5
	10	3	800	0.115	6.0	10	25465	8785	527.0
	12	3	800	0.140	7.2	12	21220	8910	770.0
	16	3	800	0.150	9.6	16	15915	7160	1100.0
	20	3	800	0.175	12.0	20	12735	6685	1604.5
Cast aluminium Si 6% - 15%	3	3	300	0.025	1.8	3	31830	2385	13.0
	4	3	300	0.030	2.4	4	23875	2150	20.5
	5	3	300	0.040	3.0	5	19100	2290	34.5
	6	3	300	0.055	3.6	6	15915	2625	56.5
	8	3	300	0.065	4.8	8	11935	2325	89.5
	10	3	300	0.080	6.0	10	9550	2290	137.5
	12	3	300	0.100	7.2	12	7960	2390	206.5
	16	3	300	0.105	9.6	16	5970	1880	289.0
	20	3	300	0.125	12.0	20	4775	1790	429.5

Cylindrical end mills AX-NV3

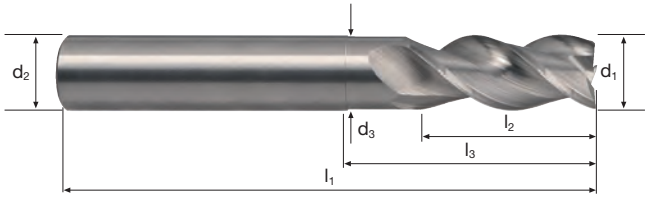
Smooth-edged, normal version with short neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90°

Vario



Roughing

Finishing

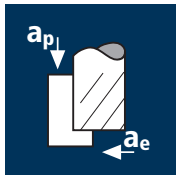
III

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15530** | ø-Code **.180**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	α	z	15630	CELERO C15630
									15530	C15530
.180	3	6	2.8	57	8	14	4.5°	3	●	●
.220	4	6	3.7	57	11	16	3.0°	3	●	●
.260	5	6	4.6	57	13	18	1.5°	3	●	●
.300	6	6	5.5	57	13	20	0.0°	3	●	●
.391	8	8	7.4	63	19	26	0.0°	3	●	●
.450	10	10	9.2	72	22	31	0.0°	3	●	●
.501	12	12	11.0	83	26	37	0.0°	3	●	●
.610	16	16	15.0	92	32	43	0.0°	3	●	●
.682	20	20	19.0	104	38	53	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	650	0.060	9.0	2.4	34485	6205	134.0
	8	3	650	0.075	12.0	3.2	25865	5820	223.5
	10	3	650	0.090	15.0	4.0	20690	5585	335.0
	12	3	650	0.110	18.0	4.8	17240	5690	491.5
	16	3	650	0.120	24.0	6.4	12930	4655	715.0
	20	3	650	0.140	30.0	8.0	10345	4345	1043.0
Unalloyed copper	6	3	500	0.050	9.0	2.4	26525	3980	86.0
	8	3	500	0.060	12.0	3.2	19895	3580	137.5
	10	3	500	0.070	15.0	4.0	15915	3340	200.5
	12	3	500	0.090	18.0	4.8	13265	3580	309.5
	16	3	500	0.095	24.0	6.4	9945	2835	435.5
	20	3	500	0.110	30.0	8.0	7960	2625	630.0
Thermoplastics	6	3	1200	0.060	9.0	2.4	60000	10800	233.5
	8	3	1200	0.075	12.0	3.2	47750	10745	412.5
	10	3	1200	0.090	15.0	4.0	38200	10315	619.0
	12	3	1200	0.110	18.0	4.8	31830	10505	907.5
	16	3	1200	0.120	24.0	6.4	23875	8595	1320.0
	20	3	1200	0.140	30.0	8.0	19100	8020	1925.0
Cast aluminium Si 6% - 15%	6	3	450	0.040	9.0	2.4	23875	2865	62.0
	8	3	450	0.050	12.0	3.2	17905	2685	103.0
	10	3	450	0.065	15.0	4.0	14325	2795	167.5
	12	3	450	0.075	18.0	4.8	11935	2685	232.0
	16	3	450	0.085	24.0	6.4	8955	2285	351.0
	20	3	450	0.095	30.0	8.0	7160	2040	489.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	550	0.040	3.0	6	29180	3500	63.0
	8	3	550	0.050	4.0	8	21885	3285	105.0
	10	3	550	0.065	5.0	10	17510	3415	171.0
	12	3	550	0.075	6.0	12	14590	3285	236.5
	16	3	550	0.085	8.0	16	10940	2790	357.0
	20	3	550	0.095	10.0	20	8755	2495	499.0
Unalloyed copper	6	3	450	0.035	3.0	6	23875	2505	45.0
	8	3	450	0.040	4.0	8	17905	2150	69.0
	10	3	450	0.050	5.0	10	14325	2150	107.5
	12	3	450	0.060	6.0	12	11935	2150	155.0
	16	3	450	0.065	8.0	16	8955	1745	223.5
	20	3	450	0.075	10.0	20	7160	1610	322.0
Thermoplastics	6	3	1000	0.040	3.0	6	53055	6365	114.5
	8	3	1000	0.050	4.0	8	39790	5970	191.0
	10	3	1000	0.065	5.0	10	31830	6205	310.5
	12	3	1000	0.075	6.0	12	26525	5970	430.0
	16	3	1000	0.085	8.0	16	19895	5075	649.5
	20	3	1000	0.095	10.0	20	15915	4535	907.0
Cast aluminium Si 6% - 15%	6	3	400	0.030	3.0	6	21220	1910	34.5
	8	3	400	0.035	4.0	8	15915	1670	53.5
	10	3	400	0.045	5.0	10	12735	1720	86.0
	12	3	400	0.055	6.0	12	10610	1750	126.0
	16	3	400	0.060	8.0	16	7960	1435	183.5
	20	3	400	0.070	10.0	20	6365	1335	267.0

Cylindrical end mills AX-NV3

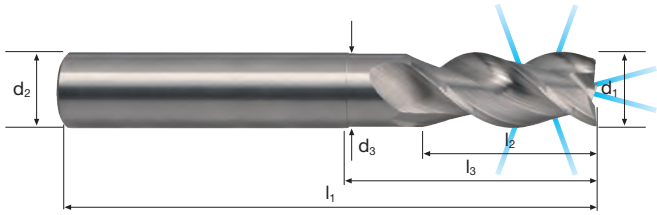
Smooth-edged, normal version with short neck, with integral cooling channel

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90°

Vario



Roughing

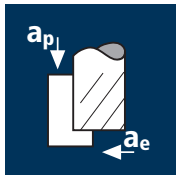
Finishing

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15535** | ø-Code **.300**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	z	15635	CELERO C15635
								15535	C15535
.300	6	6	5.5	57	13	20	3	●	●
.391	8	8	7.4	63	19	26	3	●	●
.450	10	10	9.2	72	22	31	3	●	●
.501	12	12	11.0	83	26	37	3	●	●
.610	16	16	15.0	92	32	43	3	●	●
.682	20	20	19.0	104	38	53	3	●	●

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	550	0.040	4.5	1.4	58360	4670	29.5
4	2	550	0.055	6.0	1.8	43770	4815	52.0
5	2	550	0.070	7.5	2.3	35015	4900	84.5
6	2	550	0.090	9.0	2.7	29180	5250	127.5
8	2	550	0.120	12.0	3.6	21885	5250	227.0
10	2	550	0.150	15.0	4.5	17510	5255	354.5
12	2	550	0.165	18.0	5.4	14590	4815	468.0
16	2	550	0.185	24.0	7.2	10940	4050	700.0
20	2	550	0.215	30.0	9.0	8755	3765	1016.5

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	400	0.030	4.5	1.4	42445	2545	15.5
4	2	400	0.045	6.0	1.8	31830	2865	31.0
5	2	400	0.055	7.5	2.3	25465	2800	47.5
6	2	400	0.070	9.0	2.7	21220	2970	72.0
8	2	400	0.095	12.0	3.6	15915	3025	130.5
10	2	400	0.120	15.0	4.5	12735	3055	206.0
12	2	400	0.130	18.0	5.4	10610	2760	268.5
16	2	400	0.150	24.0	7.2	7960	2390	413.0
20	2	400	0.170	30.0	9.0	6365	2165	584.5

Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	1000	0.040	4.5	1.4	60000	4800	29.0
4	2	1000	0.055	6.0	1.8	60000	6600	71.5
5	2	1000	0.070	7.5	2.3	60000	8400	142.0
6	2	1000	0.090	9.0	2.7	53055	9550	232.0
8	2	1000	0.120	12.0	3.6	39790	9550	412.5
10	2	1000	0.150	15.0	4.5	31830	9550	644.5
12	2	1000	0.165	18.0	5.4	26525	8755	851.0
16	2	1000	0.185	24.0	7.2	19895	7360	1272.0
20	2	1000	0.215	30.0	9.0	15915	6845	1848.0

Cast aluminium Si 6% - 15%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	350	0.030	4.5	1.4	37135	2230	13.5
4	2	350	0.040	6.0	1.8	27855	2230	24.0
5	2	350	0.050	7.5	2.3	22280	2230	37.5
6	2	350	0.065	9.0	2.7	18570	2415	58.5
8	2	350	0.085	12.0	3.6	13925	2365	102.0
10	2	350	0.105	15.0	4.5	11140	2340	158.0
12	2	350	0.115	18.0	5.4	9285	2135	207.5
16	2	350	0.130	24.0	7.2	6965	1810	313.0
20	2	350	0.150	30.0	9.0	5570	1670	451.0

Application



Material

Wrought aluminium alloys Si < 6%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	450	0.030	1.5	3	47750	2865	13.0
4	2	450	0.040	2.0	4	35810	2865	23.0
5	2	450	0.050	2.5	5	28650	2865	36.0
6	2	450	0.065	3.0	6	23875	3105	56.0
8	2	450	0.085	4.0	8	17905	3045	97.5
10	2	450	0.105	5.0	10	14325	3010	150.5
12	2	450	0.115	6.0	12	11935	2745	197.5
16	2	450	0.130	8.0	16	8955	2330	298.0
20	2	450	0.150	10.0	20	7160	2150	430.0

Unalloyed copper

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	350	0.025	1.5	3	37135	1855	8.5
4	2	350	0.030	2.0	4	27855	1670	13.5
5	2	350	0.040	2.5	5	22280	1780	22.5
6	2	350	0.050	3.0	6	18570	1855	33.5
8	2	350	0.070	4.0	8	13925	1950	62.5
10	2	350	0.085	5.0	10	11140	1895	95.0
12	2	350	0.090	6.0	12	9285	1670	120.0
16	2	350	0.105	8.0	16	6965	1465	187.5
20	2	350	0.120	10.0	20	5570	1335	267.0

Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	800	0.030	1.5	3	60000	3600	16.0
4	2	800	0.040	2.0	4	60000	4800	38.5
5	2	800	0.050	2.5	5	50930	5095	63.5
6	2	800	0.065	3.0	6	42445	5520	99.5
8	2	800	0.085	4.0	8	31830	5410	173.0
10	2	800	0.105	5.0	10	25465	5350	267.5
12	2	800	0.115	6.0	12	21220	4880	351.5
16	2	800	0.130	8.0	16	15915	4140	530.0
20	2	800	0.150	10.0	20	12735	3820	764.0

Cast aluminium Si 6% - 15%

C

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
3	2	300	0.020	1.5	3	31830	1275	5.5
4	2	300	0.030	2.0	4	23875	1435	11.5
5	2	300	0.035	2.5	5	19100	1335	16.5
6	2	300	0.045	3.0	6	15915	1430	25.5
8	2	300	0.060	4.0	8	11935	1430	46.0
10	2	300	0.075	5.0	10	9550	1435	72.0
12	2	300	0.080	6.0	12	7960	1275	92.0
16	2	300	0.090	8.0	16	5970	1075	137.5
20	2	300	0.105	10.0	20	4775	1005	201.0

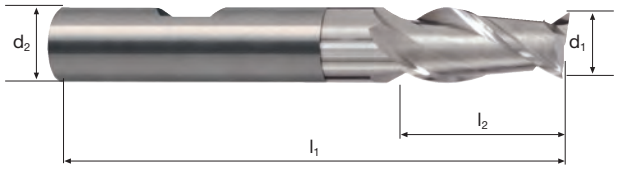
Cylindrical end mills Alucut

Smooth-edged, normal version

HSS | Favora® F | Base-X | X-Generation

HM MG10 | λ 40° γ 18°

45°



Roughing

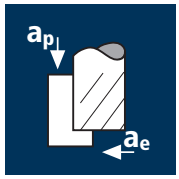
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **5500** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	45°	α	z	CELERO C5500	C5272
.140	2	6	54	6	0.10	8.0°	2		●
.180	3	6	57	7	0.10	6.0°	2		●
.220	4	6	57	8	0.10	4.5°	2		●
.260	5	6	57	10	0.15	2.5°	2		●
.300	6	6	57	10	0.15	0.0°	2		●
.391	8	8	63	16	0.15	0.0°	2		●
.450	10	10	72	19	0.20	0.0°	2		●
.501	12	12	83	22	0.20	0.0°	2		●
.610	16	16	92	26	0.20	0.0°	2		●
.682	20	20	104	32	0.20	0.0°	2		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
3	2	550	0.050	4.5	1.2	58360	5835	31.5
4	2	550	0.065	6.0	1.6	43770	5690	54.5
5	2	550	0.080	7.5	2.0	35015	5600	84.0
6	2	550	0.110	9.0	2.4	29180	6420	138.5
8	2	550	0.145	12.0	3.2	21885	6345	243.5
10	2	550	0.180	15.0	4.0	17510	6305	378.5
12	2	550	0.195	18.0	4.8	14590	5690	491.5
16	2	550	0.220	24.0	6.4	10940	4815	739.5
20	2	550	0.255	30.0	8.0	8755	4465	1071.5
Unalloyed copper								
3	2	400	0.040	4.5	1.2	42445	3395	18.5
4	2	400	0.050	6.0	1.6	31830	3185	30.5
5	2	400	0.065	7.5	2.0	25465	3310	49.5
6	2	400	0.090	9.0	2.4	21220	3820	82.5
8	2	400	0.115	12.0	3.2	15915	3660	140.5
10	2	400	0.145	15.0	4.0	12735	3695	221.5
12	2	400	0.155	18.0	4.8	10610	3290	284.5
16	2	400	0.175	24.0	6.4	7960	2785	428.0
20	2	400	0.205	30.0	8.0	6365	2610	626.5
Thermoplastics								
3	2	1000	0.050	4.5	1.2	60000	6000	32.5
4	2	1000	0.065	6.0	1.6	60000	7800	75.0
5	2	1000	0.080	7.5	2.0	60000	9600	144.0
6	2	1000	0.110	9.0	2.4	53055	11670	252.0
8	2	1000	0.145	12.0	3.2	39790	11540	443.0
10	2	1000	0.180	15.0	4.0	31830	11460	687.5
12	2	1000	0.195	18.0	4.8	26525	10345	894.0
16	2	1000	0.220	24.0	6.4	19895	8755	1345.0
20	2	1000	0.255	30.0	8.0	15915	8115	1947.5
Cast aluminium Si 6% - 15%								
3	2	350	0.035	4.5	1.2	37135	2600	14.0
4	2	350	0.045	6.0	1.6	27855	2505	24.0
5	2	350	0.055	7.5	2.0	22280	2450	37.0
6	2	350	0.075	9.0	2.4	18570	2785	60.0
8	2	350	0.100	12.0	3.2	13925	2785	107.0
10	2	350	0.125	15.0	4.0	11140	2785	167.0
12	2	350	0.135	18.0	4.8	9285	2505	216.5
16	2	350	0.155	24.0	6.4	6965	2160	332.0
20	2	350	0.180	30.0	8.0	5570	2005	481.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
3	2	450	0.035	2.1	3	47750	3345	21.0
4	2	450	0.045	2.8	4	35810	3225	36.0
5	2	450	0.055	3.5	5	28650	3150	55.0
6	2	450	0.075	4.2	6	23875	3580	90.0
8	2	450	0.100	5.6	8	17905	3580	160.5
10	2	450	0.125	7.0	10	14325	3580	250.5
12	2	450	0.135	8.4	12	11935	3220	324.5
16	2	450	0.155	11.2	16	8955	2775	497.5
20	2	450	0.180	14.0	20	7160	2580	722.5
Unalloyed copper								
3	2	350	0.030	2.1	3	37135	2230	14.0
4	2	350	0.035	2.8	4	27855	1950	22.0
5	2	350	0.045	3.5	5	22280	2005	35.0
6	2	350	0.060	4.2	6	18570	2230	56.0
8	2	350	0.080	5.6	8	13925	2230	100.0
10	2	350	0.100	7.0	10	11140	2230	156.0
12	2	350	0.110	8.4	12	9285	2045	206.0
16	2	350	0.125	11.2	16	6965	1740	312.0
20	2	350	0.145	14.0	20	5570	1615	452.0
Thermoplastics								
3	2	800	0.035	2.1	3	60000	4200	26.5
4	2	800	0.045	2.8	4	60000	5400	60.5
5	2	800	0.055	3.5	5	50930	5600	98.0
6	2	800	0.075	4.2	6	42445	6365	160.5
8	2	800	0.100	5.6	8	31830	6365	285.0
10	2	800	0.125	7.0	10	25465	6365	445.5
12	2	800	0.135	8.4	12	21220	5730	577.5
16	2	800	0.155	11.2	16	15915	4935	884.5
20	2	800	0.180	14.0	20	12735	4585	1284.0
Cast aluminium Si 6% - 15%								
3	2	300	0.025	2.1	3	31830	1590	10.0
4	2	300	0.030	2.8	4	23875	1435	16.0
5	2	300	0.040	3.5	5	19100	1530	27.0
6	2	300	0.055	4.2	6	15915	1750	44.0
8	2	300	0.070	5.6	8	11935	1670	75.0
10	2	300	0.090	7.0	10	9550	1720	120.5
12	2	300	0.095	8.4	12	7960	1510	152.0
16	2	300	0.110	11.2	16	5970	1315	235.5
20	2	300	0.125	14.0	20	4775	1195	334.5

Cylindrical end mills AX-NV2

Smooth-edged, medium length version with neck

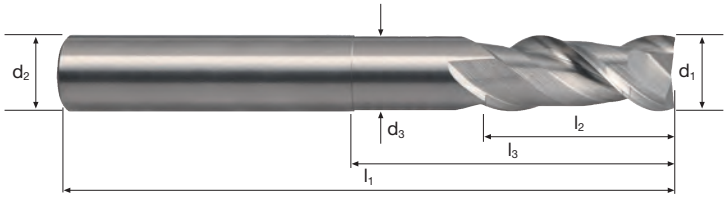
HSS | Favora® | Base-X | X-Generation X

HM
MG10

λ **40°**
γ **20°**

90°

Vario



Roughing

Finishing

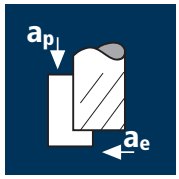
III

Rm < 850			**Al** Aluminium > 99%	**Al** Aluminium Alloy	**Al** Aluminium Cast		**Cu** Copper	**Plastic** Thermoplast	

Example: **Order-N°.** Coating **C** Article-N°. **15550** ø-Code **.180**

ø Code	d_1 h6	d_2 h6	d_3	l_1	l_2	l_3	α	z	15650	CELERO C15650
									15550	C15550
.180	3	6	2.8	63	8	20	3.5°	2	●	●
.220	4	6	3.7	63	11	22	2.5°	2	●	●
.260	5	6	4.6	63	13	24	1.5°	2	●	●
.300	6	6	5.5	63	13	26	0.0°	2	●	●
.391	8	8	7.4	72	19	35	0.0°	2	●	●
.450	10	10	9.2	84	22	43	0.0°	2	●	●
.501	12	12	11.0	97	26	51	0.0°	2	●	●
.610	16	16	15.0	108	32	59	0.0°	2	●	●
.682	20	20	19.0	122	38	71	0.0°	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	550	0.045	4.5	0.9	58360	7880	32.0
	4	3	550	0.060	6.0	1.2	43770	7880	56.5
	5	3	550	0.075	7.5	1.5	35015	7880	88.5
	6	3	550	0.100	9.0	1.8	29180	8755	142.0
	8	3	550	0.120	12.0	2.4	21885	7880	227.0
	10	3	550	0.150	15.0	3.0	17510	7880	354.5
	12	3	550	0.180	18.0	3.6	14590	7880	510.5
	16	3	550	0.190	24.0	4.8	10940	6235	718.5
	20	3	550	0.225	30.0	6.0	8755	5910	1064.0
Unalloyed copper	3	3	400	0.035	4.5	0.9	42445	4455	18.0
	4	3	400	0.050	6.0	1.2	31830	4775	34.5
	5	3	400	0.060	7.5	1.5	25465	4585	51.5
	6	3	400	0.080	9.0	1.8	21220	5095	82.5
	8	3	400	0.095	12.0	2.4	15915	4535	130.5
	10	3	400	0.120	15.0	3.0	12735	4585	206.5
	12	3	400	0.145	18.0	3.6	10610	4615	299.0
	16	3	400	0.150	24.0	4.8	7960	3580	412.5
	20	3	400	0.180	30.0	6.0	6365	3435	618.5
Thermoplastics	3	3	1000	0.045	4.5	0.9	60000	8100	33.0
	4	3	1000	0.060	6.0	1.2	60000	10800	78.0
	5	3	1000	0.075	7.5	1.5	60000	13500	152.0
	6	3	1000	0.100	9.0	1.8	53055	15915	258.0
	8	3	1000	0.120	12.0	2.4	39790	14325	412.5
	10	3	1000	0.150	15.0	3.0	31830	14325	644.5
	12	3	1000	0.180	18.0	3.6	26525	14325	928.5
	16	3	1000	0.190	24.0	4.8	19895	11340	1306.5
	20	3	1000	0.225	30.0	6.0	15915	10745	1934.0
Cast aluminium Si 6% - 15%	3	3	350	0.030	4.5	0.9	37135	3340	13.5
	4	3	350	0.040	6.0	1.2	27855	3345	24.0
	5	3	350	0.055	7.5	1.5	22280	3675	41.5
	6	3	350	0.070	9.0	1.8	18570	3900	63.0
	8	3	350	0.085	12.0	2.4	13925	3550	102.0
	10	3	350	0.105	15.0	3.0	11140	3510	158.0
	12	3	350	0.125	18.0	3.6	9285	3480	225.5
	16	3	350	0.135	24.0	4.8	6965	2820	325.0
	20	3	350	0.160	30.0	6.0	5570	2675	481.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	450	0.030	1.4	3	47750	4300	17.5
	4	3	450	0.040	1.8	4	35810	4295	31.0
	5	3	450	0.055	2.3	5	28650	4725	53.0
	6	3	450	0.070	2.7	6	23875	5015	81.0
	8	3	450	0.085	3.6	8	17905	4565	131.5
	10	3	450	0.105	4.5	10	14325	4510	203.0
	12	3	450	0.125	5.4	12	11935	4475	290.0
	16	3	450	0.135	7.2	16	8955	3625	417.5
	20	3	450	0.160	9.0	20	7160	3435	618.5
Unalloyed copper	3	3	350	0.025	1.4	3	37135	2785	11.5
	4	3	350	0.030	1.8	4	27855	2505	18.0
	5	3	350	0.045	2.3	5	22280	3010	34.0
	6	3	350	0.055	2.7	6	18570	3065	49.5
	8	3	350	0.070	3.6	8	13925	2925	84.0
	10	3	350	0.085	4.5	10	11140	2840	128.0
	12	3	350	0.100	5.4	12	9285	2785	180.5
	16	3	350	0.110	7.2	16	6965	2300	265.0
	20	3	350	0.130	9.0	20	5570	2170	390.5
Thermoplastics	3	3	800	0.030	1.4	3	60000	5400	22.0
	4	3	800	0.040	1.8	4	60000	7200	52.0
	5	3	800	0.055	2.3	5	50930	8405	94.5
	6	3	800	0.070	2.7	6	42445	8915	144.5
	8	3	800	0.085	3.6	8	31830	8115	233.5
	10	3	800	0.105	4.5	10	25465	8020	361.0
	12	3	800	0.125	5.4	12	21220	7960	516.0
	16	3	800	0.135	7.2	16	15915	6445	742.5
	20	3	800	0.160	9.0	20	12735	6115	1100.5
Cast aluminium Si 6% - 15%	3	3	300	0.020	1.4	3	31830	1910	7.5
	4	3	300	0.030	1.8	4	23875	2150	15.5
	5	3	300	0.040	2.3	5	19100	2290	26.0
	6	3	300	0.050	2.7	6	15915	2385	38.5
	8	3	300	0.060	3.6	8	11935	2150	62.0
	10	3	300	0.075	4.5	10	9550	2150	97.0
	12	3	300	0.090	5.4	12	7960	2150	139.5
	16	3	300	0.095	7.2	16	5970	1700	196.0
	20	3	300	0.110	9.0	20	4775	1575	283.5

Cylindrical end mills AX-NV3

Smooth-edged, medium-length version with neck

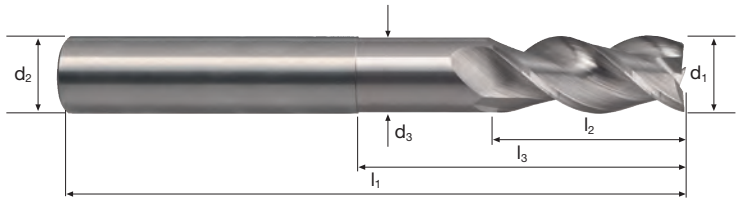
HSS | Favora® | Base-X | X-Generation X

HM MG10

λ 40° γ 20°

90°

Vario



Roughing

Finishing

Rm < 850

Al Aluminium > 99%

Al Aluminium Alloy

Al Aluminium Cast

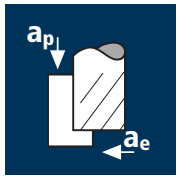
Cu Copper

Plastic Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15557** ø-Code **.180**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	α	z	15657	CELERO C15657
									15557	C15557
.180	3	6	2.8	63	8	20	3.5°	3	●	●
.220	4	6	3.7	63	11	22	2.5°	3	●	●
.260	5	6	4.6	63	13	24	1.5°	3	●	●
.300	6	6	5.5	63	13	26	0.0°	3	●	●
.391	8	8	7.4	72	19	35	0.0°	3	●	●
.450	10	10	9.2	84	22	43	0.0°	3	●	●
.501	12	12	11.0	97	26	51	0.0°	3	●	●
.610	16	16	15.0	108	32	59	0.0°	3	●	●
.682	20	20	19.0	122	38	71	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	550	0.035	7.5	0.6	58360	6130	27.5
	4	3	550	0.045	10.0	0.8	43770	5910	47.5
	5	3	550	0.060	12.5	1.0	35015	6305	79.0
	6	3	550	0.075	15.0	1.2	29180	6565	118.0
	8	3	550	0.095	20.0	1.6	21885	6235	199.5
	10	3	550	0.115	25.0	2.0	17510	6040	302.0
	12	3	550	0.140	30.0	2.4	14590	6130	441.5
	16	3	550	0.150	40.0	3.2	10940	4925	630.5
	20	3	550	0.175	50.0	4.0	8755	4595	919.0
Unalloyed copper	3	3	400	0.030	7.5	0.6	42445	3820	17.0
	4	3	400	0.035	10.0	0.8	31830	3340	26.5
	5	3	400	0.050	12.5	1.0	25465	3820	48.0
	6	3	400	0.060	15.0	1.2	21220	3820	69.0
	8	3	400	0.075	20.0	1.6	15915	3580	114.5
	10	3	400	0.090	25.0	2.0	12735	3440	172.0
	12	3	400	0.110	30.0	2.4	10610	3500	252.0
	16	3	400	0.120	40.0	3.2	7960	2865	366.5
	20	3	400	0.140	50.0	4.0	6365	2675	535.0
Thermoplastics	3	3	1000	0.035	7.5	0.6	60000	6300	28.5
	4	3	1000	0.045	10.0	0.8	60000	8100	65.0
	5	3	1000	0.060	12.5	1.0	60000	10800	135.0
	6	3	1000	0.075	15.0	1.2	53055	11935	215.0
	8	3	1000	0.095	20.0	1.6	39790	11340	363.0
	10	3	1000	0.115	25.0	2.0	31830	10980	549.0
	12	3	1000	0.140	30.0	2.4	26525	11140	802.0
	16	3	1000	0.150	40.0	3.2	19895	8955	1146.0
	20	3	1000	0.175	50.0	4.0	15915	8355	1671.0
Cast aluminium Si 6% - 15%	3	3	350	0.025	7.5	0.6	37135	2785	12.5
	4	3	350	0.030	10.0	0.8	27855	2505	20.0
	5	3	350	0.040	12.5	1.0	22280	2675	33.5
	6	3	350	0.055	15.0	1.2	18570	3065	55.0
	8	3	350	0.065	20.0	1.6	13925	2715	87.0
	10	3	350	0.080	25.0	2.0	11140	2675	134.0
	12	3	350	0.100	30.0	2.4	9285	2785	200.5
	16	3	350	0.105	40.0	3.2	6965	2195	281.0
	20	3	350	0.125	50.0	4.0	5570	2090	418.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	3	3	450	0.025	1.2	3	47750	3580	13.0
	4	3	450	0.030	1.6	4	35810	3225	20.5
	5	3	450	0.040	2.0	5	28650	3440	34.5
	6	3	450	0.055	2.4	6	23875	3940	56.5
	8	3	450	0.065	3.2	8	17905	3490	89.5
	10	3	450	0.080	4.0	10	14325	3440	137.5
	12	3	450	0.100	4.8	12	11935	3580	206.0
	16	3	450	0.105	6.4	16	8955	2820	289.0
	20	3	450	0.125	8.0	20	7160	2685	429.5
Unalloyed copper	3	3	350	0.020	1.2	3	37135	2230	8.0
	4	3	350	0.025	1.6	4	27855	2090	13.5
	5	3	350	0.030	2.0	5	22280	2005	20.0
	6	3	350	0.045	2.4	6	18570	2505	36.0
	8	3	350	0.050	3.2	8	13925	2090	53.5
	10	3	350	0.065	4.0	10	11140	2170	87.0
	12	3	350	0.080	4.8	12	9285	2230	128.5
	16	3	350	0.085	6.4	16	6965	1775	182.0
	20	3	350	0.100	8.0	20	5570	1670	267.0
Thermoplastics	3	3	800	0.025	1.2	3	60000	4500	16.0
	4	3	800	0.030	1.6	4	60000	5400	34.5
	5	3	800	0.040	2.0	5	50930	6110	61.0
	6	3	800	0.055	2.4	6	42445	7005	101.0
	8	3	800	0.065	3.2	8	31830	6205	159.0
	10	3	800	0.080	4.0	10	25465	6110	244.5
	12	3	800	0.100	4.8	12	21220	6365	366.5
	16	3	800	0.105	6.4	16	15915	5015	513.5
	20	3	800	0.125	8.0	20	12735	4775	764.0
Cast aluminium Si 6% - 15%	3	3	300	0.020	1.2	3	31830	1910	7.0
	4	3	300	0.020	1.6	4	23875	1435	9.0
	5	3	300	0.030	2.0	5	19100	1720	17.0
	6	3	300	0.040	2.4	6	15915	1910	27.5
	8	3	300	0.045	3.2	8	11935	1610	41.0
	10	3	300	0.055	4.0	10	9550	1575	63.0
	12	3	300	0.070	4.8	12	7960	1670	96.0
	16	3	300	0.075	6.4	16	5970	1345	137.5
	20	3	300	0.090	8.0	20	4775	1290	206.5

Cylindrical end mills AX-NV3

Smooth-edged, medium length version with short neck

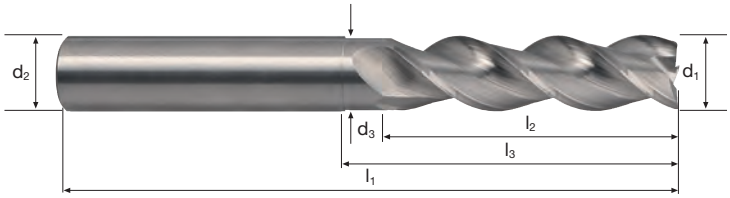
HSS | Favora® | Base-X | X-Generation **X**

HM
MG10

λ **40°**
γ **20°**

90°

Vario



Roughing

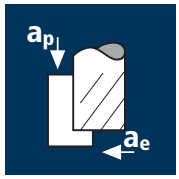
Finishing

Rm < 850 | | | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | | **Cu** Copper | **Plastic** Thermoplast |

Example: **Order-N°.** Coating **C** Article-N°. **15560** ø-Code **.180**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	α	z	15660	CELERO C15660
									15560	C15560
.180	3	6	2.8	63	14	20	3.5°	3	●	●
.220	4	6	3.7	63	17	22	2.5°	3	●	●
.260	5	6	4.6	63	19	24	1.5°	3	●	●
.300	6	6	5.5	63	19	26	0.0°	3	●	●
.391	8	8	7.4	72	28	35	0.0°	3	●	●
.450	10	10	9.2	84	34	43	0.0°	3	●	●
.501	12	12	11.0	97	40	51	0.0°	3	●	●
.610	16	16	15.0	108	48	59	0.0°	3	●	●
.682	20	20	19.0	122	56	71	0.0°	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	550	0.085	9.0	1.5	29180	7440	100.5
	8	3	550	0.105	12.0	2.0	21885	6895	165.5
	10	3	550	0.135	15.0	2.5	17510	7090	266.0
	12	3	550	0.160	18.0	3.0	14590	7005	378.5
	16	3	550	0.170	24.0	4.0	10940	5580	535.5
	20	3	550	0.200	30.0	5.0	8755	5255	788.5
Unalloyed copper	6	3	400	0.070	9.0	1.5	21220	4455	60.0
	8	3	400	0.085	12.0	2.0	15915	4060	97.5
	10	3	400	0.110	15.0	2.5	12735	4205	157.5
	12	3	400	0.130	18.0	3.0	10610	4140	223.5
	16	3	400	0.135	24.0	4.0	7960	3225	309.5
	20	3	400	0.160	30.0	5.0	6365	3055	458.5
Thermoplastics	6	3	1000	0.085	9.0	1.5	53055	13530	182.5
	8	3	1000	0.105	12.0	2.0	39790	12535	301.0
	10	3	1000	0.135	15.0	2.5	31830	12890	483.5
	12	3	1000	0.160	18.0	3.0	26525	12730	687.5
	16	3	1000	0.170	24.0	4.0	19895	10145	974.0
	20	3	1000	0.200	30.0	5.0	15915	9550	1432.5
Cast aluminium Si 6% - 15%	6	3	350	0.060	9.0	1.5	18570	3345	45.0
	8	3	350	0.075	12.0	2.0	13925	3135	75.0
	10	3	350	0.095	15.0	2.5	11140	3175	119.0
	12	3	350	0.110	18.0	3.0	9285	3065	165.5
	16	3	350	0.120	24.0	4.0	6965	2505	240.5
	20	3	350	0.140	30.0	5.0	5570	2340	351.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	450	0.060	2.1	6	23875	4300	54.0
	8	3	450	0.075	2.8	8	17905	4030	90.5
	10	3	450	0.095	3.5	10	14325	4085	143.0
	12	3	450	0.110	4.2	12	11935	3940	198.5
	16	3	450	0.120	5.6	16	8955	3225	289.0
	20	3	450	0.140	7.0	20	7160	3005	420.5
Unalloyed copper	6	3	350	0.050	2.1	6	18570	2785	35.0
	8	3	350	0.060	2.8	8	13925	2505	56.0
	10	3	350	0.075	3.5	10	11140	2505	87.5
	12	3	350	0.090	4.2	12	9285	2505	126.5
	16	3	350	0.095	5.6	16	6965	1985	178.0
	20	3	350	0.110	7.0	20	5570	1840	257.5
Thermoplastics	6	3	800	0.060	2.1	6	42445	7640	96.5
	8	3	800	0.075	2.8	8	31830	7160	160.5
	10	3	800	0.095	3.5	10	25465	7260	254.0
	12	3	800	0.110	4.2	12	21220	7005	353.0
	16	3	800	0.120	5.6	16	15915	5730	513.5
	20	3	800	0.140	7.0	20	12735	5350	749.0
Cast aluminium Si 6% - 15%	6	3	300	0.040	2.1	6	15915	1910	24.0
	8	3	300	0.055	2.8	8	11935	1970	44.0
	10	3	300	0.065	3.5	10	9550	1860	65.0
	12	3	300	0.075	4.2	12	7960	1790	90.0
	16	3	300	0.085	5.6	16	5970	1520	136.0
	20	3	300	0.100	7.0	20	4775	1435	201.0

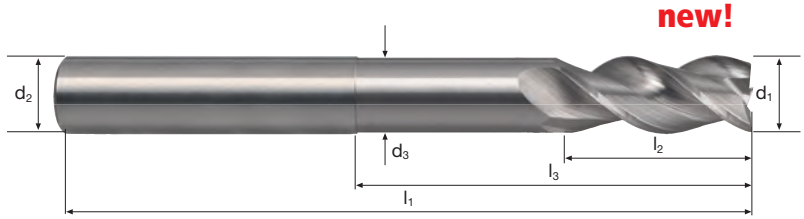
Cylindrical end mills AX-V3

Smooth-edged, long version with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90° | Vario



Roughing

Finishing

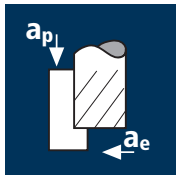
III

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15559** | ø-Code **.300**

ø Code	d1 h6	d2 h6	d3	l1	l2	l3	z	15659	CELERO C15659
								15559	C15559
.300	6	6	5.5	70	13	33	3	●	●
.391	8	8	7.4	80	19	43	3	●	●
.450	10	10	9.2	100	22	59	3	●	●
.501	12	12	11.0	110	26	64	3	●	●
.610	16	16	15.0	123	32	74	3	●	●
.682	20	20	19.0	141	38	90	3	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	350	0.065	18.0	0.9	18570	3620	58.5
	8	3	350	0.080	24.0	1.2	13925	3340	96.0
	10	3	350	0.100	30.0	1.5	11140	3340	150.5
	12	3	350	0.120	36.0	1.8	9285	3345	217.0
	16	3	350	0.130	48.0	2.4	6965	2715	313.0
	20	3	350	0.150	60.0	3.0	5570	2505	451.0
Unalloyed copper	6	3	220	0.050	18.0	0.9	11670	1750	28.5
	8	3	220	0.065	24.0	1.2	8755	1705	49.0
	10	3	220	0.080	30.0	1.5	7005	1680	75.5
	12	3	220	0.095	36.0	1.8	5835	1665	108.0
	16	3	220	0.105	48.0	2.4	4375	1380	159.0
	20	3	220	0.120	60.0	3.0	3500	1260	227.0
Thermoplastics	6	3	600	0.065	18.0	0.9	31830	6205	100.5
	8	3	600	0.080	24.0	1.2	23875	5730	165.0
	10	3	600	0.100	30.0	1.5	19100	5730	258.0
	12	3	600	0.120	36.0	1.8	15915	5730	371.5
	16	3	600	0.130	48.0	2.4	11935	4655	536.5
	20	3	600	0.150	60.0	3.0	9550	4300	774.0
Cast aluminium Si 6% - 15%	6	3	200	0.045	18.0	0.9	10610	1430	23.0
	8	3	200	0.055	24.0	1.2	7960	1315	38.0
	10	3	200	0.070	30.0	1.5	6365	1335	60.0
	12	3	200	0.085	36.0	1.8	5305	1355	88.0
	16	3	200	0.090	48.0	2.4	3980	1075	124.0
	20	3	200	0.105	60.0	3.0	3185	1005	181.0

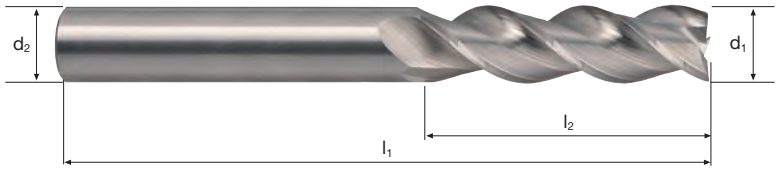
Cylindrical end mills AX-V3

Smooth-edged, long version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

90° | Vario



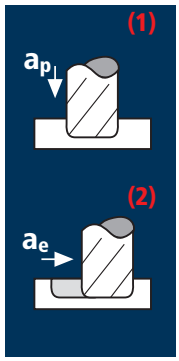
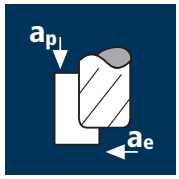
Roughing

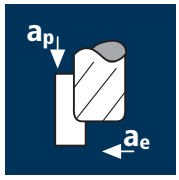
Finishing

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15561** | ø-Code **.300**

ø Code	d1 h6	d2 h6	l1	l2	z	15661	CELERO C15661
						15561	C15561
.300	6	6	70	26	3	●	●
.391	8	8	80	36	3	●	●
.450	10	10	100	45	3	●	●
.501	12	12	110	53	3	●	●
.610	16	16	123	63	3	●	●
.682	20	20	141	75	3	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.175	6.0	10.0	3500	5250	7000	10500
		12	2	0.210	6.5	12.0	4200	6300	8400	12600
		16	2	0.225	7.0	16.0	4500	6750	9000	13500
		20	2	0.240	7.0	20.0	4800	7200	9600	14400
		25	2	0.250	7.0	25.0	5000	7500	10000	15000
		10	2	0.175	6.0	8.0	3500	5250	7000	10500
		12	2	0.210	6.5	9.6	4200	6300	8400	12600
		16	2	0.225	7.0	12.8	4500	6750	9000	13500
		20	2	0.240	7.0	16.0	4800	7200	9600	14400
		25	2	0.250	7.0	20.0	5000	7500	10000	15000
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.175	9.0	6.0	3500	5250	7000	10500
		12	2	0.210	9.8	7.2	4200	6300	8400	12600
		16	2	0.225	10.5	9.6	4500	6750	9000	13500
		20	2	0.240	10.5	12.0	4800	7200	9600	14400
		25	2	0.250	10.5	15.0	5000	7500	10000	15000

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.055	*	0.30	1100	1650	2200	3300
		12	2	0.065	*	0.35	1300	1950	2600	3900
		16	2	0.070	*	0.50	1400	2100	2800	4200
		20	2	0.070	*	0.60	1400	2100	2800	4200
		25	2	0.075	*	0.75	1500	2250	3000	4500
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.385	0.50	0.50	7700	11550	15400	23100
		12	2	0.460	0.60	0.60	9200	13800	18400	27600
		16	2	0.495	0.75	0.75	9900	14850	19800	29700
		20	2	0.530	1.00	1.00	10600	15900	21200	31800
		25	2	0.550	1.20	1.20	11000	16500	22000	33000

Corner radius end mills AX-RV2

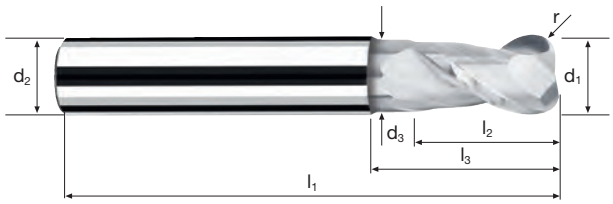
Smooth-edged, version 2xd with neck

HSS | Favora® | Base-X | X-Generation **X**

HM MG10 | λ 40° γ 20°

G 2.5

Vario



new!

Roughing

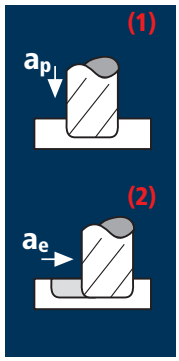
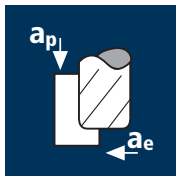
Finishing

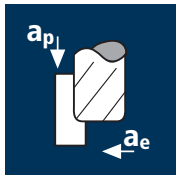
III

			Al Aluminium > 99%	**Al** Aluminium Alloy	**Al** Aluminium Cast		**Cu** Copper	**Plastic** Thermoplast	

Example: **Order-N°.** Coating **C** Article-N°. **15572** ø-Code **.457**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	z	15572	CELERO C15572
.457	10	10	9.2	63	11	20	2.0	2.5	2	●	●
.506	12	12	11.0	73	13	24	2.0	2.5	2	●	●
.612	16	16	15.0	82	18	32	2.0	2.5	2	●	●
.684	20	20	19.0	92	22	40	2.0	2.5	2	●	●
.774	25	25	24.0	107	27	50	2.0	2.5	2	●	●
.508	12	12	11.0	73	13	24	2.0	4.0	2	●	●
.614	16	16	15.0	82	18	32	2.0	4.0	2	●	●
.686	20	20	19.0	92	22	40	2.0	4.0	2	●	●
.776	25	25	24.0	107	27	50	2.0	4.0	2	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	3	2	0.050	2.0	3.0	1000	1500	2000	3000
		4	2	0.065	3.0	4.0	1300	1950	2600	3900
		6	2	0.100	4.0	6.0	2000	3000	4000	6000
		8	2	0.130	5.0	8.0	2600	3900	5200	7800
		10	2	0.165	5.5	10.0	3300	4950	6600	9900
		12	2	0.195	6.0	12.0	3900	5850	7800	11700
		16	2	0.210	6.5	16.0	4200	6300	8400	12600
		20	2	0.220	7.0	20.0	4400	6600	8800	13200
		25	2	0.230	7.0	25.0	4600	6900	9200	13800
	Wrought aluminium alloys [AlMgSi1 / 6082]	3	2	0.050	2.0	2.4	1000	1500	2000	3000
		4	2	0.065	3.0	3.2	1300	1950	2600	3900
		6	2	0.100	4.0	4.8	2000	3000	4000	6000
		8	2	0.130	5.0	6.4	2600	3900	5200	7800
		10	2	0.165	5.5	8.0	3300	4950	6600	9900
		12	2	0.195	6.0	9.6	3900	5850	7800	11700
		16	2	0.210	6.5	12.8	4200	6300	8400	12600
		20	2	0.220	7.0	16.0	4400	6600	8800	13200
		25	2	0.230	7.0	20.0	4600	6900	9200	13800
	Cast aluminium [G-AlSi11Mg]									
	C									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	3	2	0.050	3.0	1.8	1000	1500	2000	3000
		4	2	0.065	4.5	2.4	1300	1950	2600	3900
		6	2	0.100	6.0	3.6	2000	3000	4000	6000
		8	2	0.130	7.5	4.8	2600	3900	5200	7800
		10	2	0.165	8.3	6.0	3300	4950	6600	9900
		12	2	0.195	9.0	7.2	3900	5850	7800	11700
		16	2	0.210	9.8	9.6	4200	6300	8400	12600
		20	2	0.220	10.5	12.0	4400	6600	8800	13200
		25	2	0.230	10.5	15.0	4600	6900	9200	13800
	C									

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	3	2	0.015	*	0.10	300	450	600	900
		4	2	0.020	*	0.10	400	600	800	1200
		6	2	0.030	*	0.20	600	900	1200	1800
		8	2	0.040	*	0.25	800	1200	1600	2400
		10	2	0.050	*	0.30	1000	1500	2000	3000
		12	2	0.060	*	0.35	1200	1800	2400	3600
		16	2	0.065	*	0.50	1300	1950	2600	3900
		20	2	0.065	*	0.60	1300	1950	2600	3900
		25	2	0.070	*	0.75	1400	2100	2800	4200
	C									
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	3	2	0.110	0.30	0.30	2200	3300	4400	6600
		4	2	0.145	0.35	0.35	2900	4350	5800	8700
		6	2	0.220	0.40	0.40	4400	6600	8800	13200
		8	2	0.285	0.45	0.45	5700	8550	11400	17100
		10	2	0.365	0.50	0.50	7300	10950	14600	21900
		12	2	0.430	0.60	0.60	8600	12900	17200	25800
		16	2	0.460	0.75	0.75	9200	13800	18400	27600
		20	2	0.485	1.00	1.00	9700	14550	19400	29100
		25	2	0.505	1.20	1.20	10100	15150	20200	30300
	C									

Corner radius end mills AX-RV2

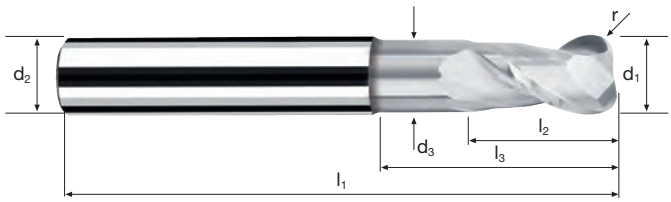
Smooth-edged, version 3xd with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | **λ 40° γ 20°**

G 2.5

Vario



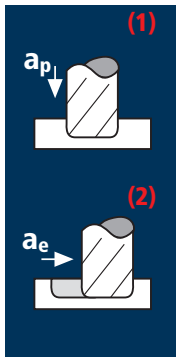
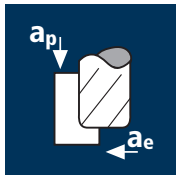
Roughing

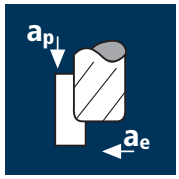
Finishing

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15573** ø-Code **.180**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	α	z	15573	CELERO C15573
new!	.180	3	6	2.8	54	4	9	3.0	0.5	5.9°	2	●	●
new!	.220	4	6	3.7	54	5	12	3.0	0.5	3.7°	2	●	●
new!	.260	5	6	4.6	54	6	15	3.0	0.5	1.7°	2	●	●
new!	.300	6	6	5.5	54	7	18	3.0	0.5	0.0°	2	●	●
	.302	6	6	5.5	54	7	18	3.0	1.0	0.0°	2	●	●
	.391	8	8	7.4	63	9	24	3.0	1.0	0.0°	2	●	●
	.450	10	10	9.2	72	11	30	3.0	1.0	0.0°	2	●	●
	.501	12	12	11.0	83	13	36	3.0	1.0	0.0°	2	●	●
	.608	16	16	15.0	97	18	48	3.0	1.0	0.0°	2	●	●
new!	.680	20	20	19.0	111	22	60	3.0	1.0	0.0°	2	●	●
new!	.770	25	25	24.0	132	27	75	3.0	1.0	0.0°	2	●	●
new!	.307	6	6	5.5	54	7	18	3.0	2.5	0.0°	2	●	●
new!	.397	8	8	7.4	63	9	24	3.0	2.5	0.0°	2	●	●
	.457	10	10	9.2	72	11	30	3.0	2.5	0.0°	2	●	●
	.506	12	12	11.0	83	13	36	3.0	2.5	0.0°	2	●	●
	.612	16	16	15.0	97	18	48	3.0	2.5	0.0°	2	●	●
	.684	20	20	19.0	111	22	60	3.0	2.5	0.0°	2	●	●
	.774	25	25	24.0	132	27	75	3.0	2.5	0.0°	2	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	10	2	0.165	5.5	10.0	3300	4950	6600	9900
		12	2	0.195	6.0	12.0	3900	5850	7800	11700
		16	2	0.210	6.5	16.0	4200	6300	8400	12600
		20	2	0.220	7.0	20.0	4400	6600	8800	13200
		25	2	0.230	7.0	25.0	4600	6900	9200	13800
	Wrought aluminium alloys [AlMgSi1 / 6082]	10	2	0.165	5.5	8.0	3300	4950	6600	9900
		12	2	0.195	6.0	9.6	3900	5850	7800	11700
		16	2	0.210	6.5	12.8	4200	6300	8400	12600
		20	2	0.220	7.0	16.0	4400	6600	8800	13200
		25	2	0.230	7.0	20.0	4600	6900	9200	13800
	Cast aluminium [G-AlSi11Mg]									
	C									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.165	8.3	6.0	3300	4950	6600	9900
		12	2	0.195	9.0	7.2	3900	5850	7800	11700
		16	2	0.210	9.8	9.6	4200	6300	8400	12600
		20	2	0.220	10.5	12.0	4400	6600	8800	13200
		25	2	0.230	10.5	15.0	4600	6900	9200	13800
	C									

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.050	*	0.30	1000	1500	2000	3000
		12	2	0.060	*	0.35	1200	1800	2400	3600
		16	2	0.065	*	0.50	1300	1950	2600	3900
		20	2	0.065	*	0.60	1300	1950	2600	3900
		25	2	0.070	*	0.75	1400	2100	2800	4200
	C									
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	2	0.365	0.50	0.50	7300	10950	14600	21900
		12	2	0.430	0.60	0.60	8600	12900	17200	25800
		16	2	0.460	0.75	0.75	9200	13800	18400	27600
		20	2	0.485	1.00	1.00	9700	14550	19400	29100
		25	2	0.505	1.20	1.20	10100	15150	20200	30300
	C									

Corner radius end mills AX-RV2

Smooth-edged, version 3xd with neck

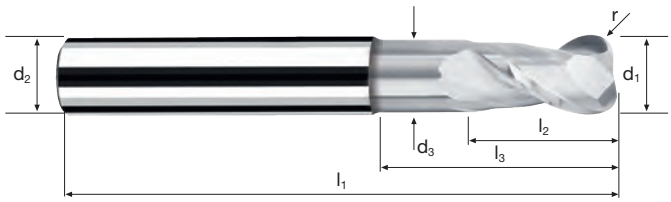
HSS | Favora® | Base-X | X-Generation X

HM MG10

λ 40°
γ 20°

G 2.5

Vario



Roughing

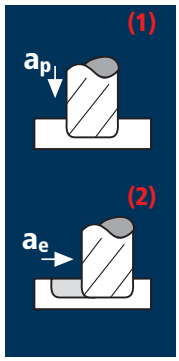
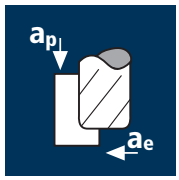
Finishing

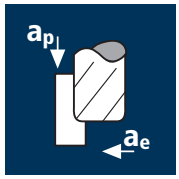
III

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15573** ø-Code **.459**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	l3/d1	r 0/+0.03	α	z	15573	CELERO C15573
.459	10	10	9.2	72	11	30	3.0	4.0	0.0°	2	●	●
.508	12	12	11.0	83	13	36	3.0	4.0	0.0°	2	●	●
.614	16	16	15.0	97	18	48	3.0	4.0	0.0°	2	●	●
.686	20	20	19.0	111	22	60	3.0	4.0	0.0°	2	●	●
.776	25	25	24.0	132	27	75	3.0	4.0	0.0°	2	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	6	2	0.090	3.5	6.0	1800	2700	3600	5400
		8	2	0.120	4.5	8.0	2400	3600	4800	7200
		10	2	0.150	5.0	10.0	3000	4500	6000	9000
		12	2	0.180	5.5	12.0	3600	5400	7200	10800
		16	2	0.190	6.0	16.0	3800	5700	7600	11400
		20	2	0.205	6.5	20.0	4100	6150	8200	12300
		25	2	0.215	6.5	25.0	4300	6450	8600	12900
	Wrought aluminium alloys [AlMgSi1 / 6082]	6	2	0.090	3.5	3.6	1800	2700	3600	5400
		8	2	0.120	4.5	4.8	2400	3600	4800	7200
		10	2	0.150	5.0	6.0	3000	4500	6000	9000
		12	2	0.180	5.5	7.2	3600	5400	7200	10800
		16	2	0.190	6.0	9.6	3800	5700	7600	11400
		20	2	0.205	6.5	12.0	4100	6150	8200	12300
		25	2	0.215	6.5	15.0	4300	6450	8600	12900
	Cast aluminium [G-AlSi11Mg]									
	C									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.090	5.3	3.6	1800	2700	3600	5400
		8	2	0.120	6.8	4.8	2400	3600	4800	7200
		10	2	0.150	7.5	6.0	3000	4500	6000	9000
		12	2	0.180	8.3	7.2	3600	5400	7200	10800
		16	2	0.190	9.0	9.6	3800	5700	7600	11400
		20	2	0.205	9.8	12.0	4100	6150	8200	12300
		25	2	0.215	9.8	15.0	4300	6450	8600	12900
	C									

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.025	*	0.20	500	750	1000	1500
		8	2	0.035	*	0.25	700	1050	1400	2100
		10	2	0.045	*	0.30	900	1350	1800	2700
		12	2	0.055	*	0.35	1100	1650	2200	3300
		16	2	0.055	*	0.50	1100	1650	2200	3300
		20	2	0.060	*	0.60	1200	1800	2400	3600
		25	2	0.065	*	0.75	1300	1950	2600	3900
	C	*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.200	0.40	0.40	4000	6000	8000	12000
		8	2	0.265	0.45	0.45	5300	7950	10600	15900
		10	2	0.330	0.50	0.50	6600	9900	13200	19800
		12	2	0.395	0.60	0.60	7900	11850	15800	23700
		16	2	0.420	0.75	0.75	8400	12600	16800	25200
		20	2	0.450	1.00	1.00	9000	13500	18000	27000
		25	2	0.475	1.20	1.20	9500	14250	19000	28500
	C									

Corner radius end mills AX-RV2

Smooth-edged, version 4xd with neck

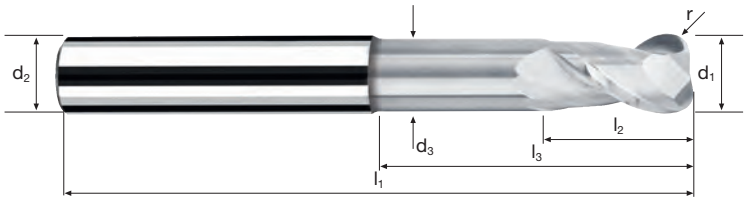
HSS | Favora® | Base-X | X-Generation X

HM
MG10

λ **40°**
γ **20°**

G 2.5

Vario



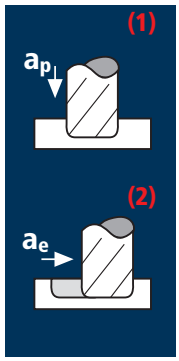
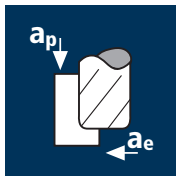
Roughing

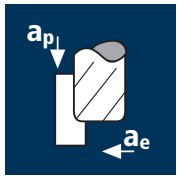
Finishing

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15574** ø-Code **.302**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	z	15574	CELERO C15574
	.302	6	6	5.5	60	7	24	4.0	1.0	2	●	●
	.391	8	8	7.4	68	9	32	4.0	1.0	2	●	●
	.450	10	10	9.2	84	11	40	4.0	1.0	2	●	●
	.501	12	12	11.0	97	13	48	4.0	1.0	2	●	●
	.608	16	16	15.0	115	18	64	4.0	1.0	2	●	●
new!	**.680**	20	20	19.0	130	22	80	4.0	1.0	2	●	●
new!	**.770**	25	25	24.0	157	27	100	4.0	1.0	2	●	●
new!	**.307**	6	6	5.5	60	7	24	4.0	2.5	2	●	●
new!	**.397**	8	8	7.4	68	9	32	4.0	2.5	2	●	●
	.457	10	10	9.2	84	11	40	4.0	2.5	2	●	●
	.506	12	12	11.0	97	13	48	4.0	2.5	2	●	●
	.612	16	16	15.0	115	18	64	4.0	2.5	2	●	●
	.684	20	20	19.0	130	22	80	4.0	2.5	2	●	●
	.774	25	25	24.0	157	27	100	4.0	2.5	2	●	●
	.459	10	10	9.2	84	11	40	4.0	4.0	2	●	●
	.508	12	12	11.0	97	13	48	4.0	4.0	2	●	●
	.614	16	16	15.0	115	18	64	4.0	4.0	2	●	●
	.686	20	20	19.0	130	22	80	4.0	4.0	2	●	●
	.776	25	25	24.0	157	27	100	4.0	4.0	2	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	6	2	0.065	4.0	6.0	1300	1950	2600	3900
		8	2	0.085	4.5	8.0	1700	2550	3400	5100
		10	2	0.110	5.0	10.0	2200	3300	4400	6600
		12	2	0.120	5.0	12.0	2400	3600	4800	7200
		16	2	0.150	5.0	16.0	3000	4500	6000	9000
		20	2	0.180	5.0	20.0	3600	5400	7200	10800
		25	2	0.200	5.0	25.0	4000	6000	8000	12000
	Wrought aluminium alloys [AlMgSi1 / 6082]	6	2	0.065	4.0	3.6	1300	1950	2600	3900
		8	2	0.085	4.5	4.8	1700	2550	3400	5100
		10	2	0.110	5.0	6.0	2200	3300	4400	6600
		12	2	0.120	5.0	7.2	2400	3600	4800	7200
		16	2	0.150	5.0	9.6	3000	4500	6000	9000
		20	2	0.180	5.0	12.0	3600	5400	7200	10800
		25	2	0.200	5.0	15.0	4000	6000	8000	12000
	Cast aluminium [G-AlSi11Mg]									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.065	6.0	3.6	1300	1950	2600	3900
		8	2	0.085	6.8	4.8	1700	2550	3400	5100
		10	2	0.110	7.5	6.0	2200	3300	4400	6600
		12	2	0.120	7.5	7.2	2400	3600	4800	7200
		16	2	0.150	7.5	9.6	3000	4500	6000	9000
		20	2	0.180	7.5	12.0	3600	5400	7200	10800
		25	2	0.200	7.5	15.0	4000	6000	8000	12000

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.020	*	0.20	400	600	800	1200
		8	2	0.025	*	0.25	500	750	1000	1500
		10	2	0.035	*	0.30	700	1050	1400	2100
		12	2	0.035	*	0.35	700	1050	1400	2100
		16	2	0.045	*	0.50	900	1350	1800	2700
		20	2	0.055	*	0.60	1100	1650	2200	3300
		25	2	0.060	*	0.75	1200	1800	2400	3600
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	2	0.145	0.35	0.35	2900	4350	5800	8700
		8	2	0.185	0.40	0.40	3700	5550	7400	11100
		10	2	0.240	0.45	0.45	4800	7200	9600	14400
		12	2	0.265	0.50	0.50	5300	7950	10600	15900
		16	2	0.330	0.60	0.60	6600	9900	13200	19800
		20	2	0.395	0.75	0.75	7900	11850	15800	23700
		25	2	0.440	0.80	0.80	8800	13200	17600	26400

Corner radius end mills AX-RV2

Smooth-edged, version 5xd with neck

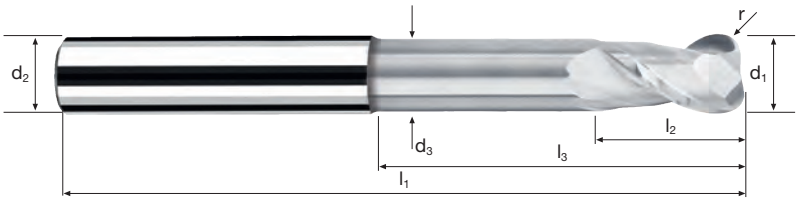
HSS | Favora® | Base-X | X-Generation **X**

HM
MG10

λ **40°**
γ **20°**

G 2.5

Vario



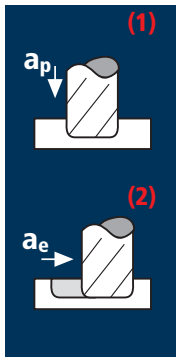
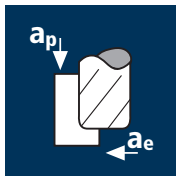
Roughing

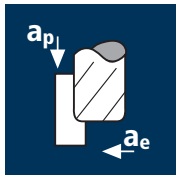
Finishing

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15575** ø-Code **.450**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	z	**15575**	**CELERO C15575**
	.450	10	10	9.2	91	11	50	5.0	1.0	2	●	●
	.501	12	12	11.0	106	13	60	5.0	1.0	2	●	●
	.608	16	16	15.0	129	18	80	5.0	1.0	2	●	●
new!	**.680**	20	20	19.0	151	22	100	5.0	1.0	2	●	●
new!	**.770**	25	25	24.0	182	27	125	5.0	1.0	2	●	●
new!	**.307**	6	6	5.5	66	7	30	5.0	2.5	2	●	●
new!	**.397**	8	8	7.4	76	9	40	5.0	2.5	2	●	●
	.457	10	10	9.2	91	11	50	5.0	2.5	2	●	●
	.506	12	12	11.0	106	13	60	5.0	2.5	2	●	●
	.612	16	16	15.0	129	18	80	5.0	2.5	2	●	●
	.684	20	20	19.0	151	22	100	5.0	2.5	2	●	●
	.774	25	25	24.0	182	27	125	5.0	2.5	2	●	●
	.459	10	10	9.2	91	11	50	5.0	4.0	2	●	●
	.508	12	12	11.0	106	13	60	5.0	4.0	2	●	●
	.614	16	16	15.0	129	18	80	5.0	4.0	2	●	●
	.686	20	20	19.0	151	22	100	5.0	4.0	2	●	●
	.776	25	25	24.0	182	27	125	5.0	4.0	2	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	10	3	0.115	6.0	10.0	3450	5175	6900	10350
		12	3	0.135	6.5	12.0	4050	6075	8100	12150
		16	3	0.145	7.0	16.0	4350	6525	8700	13050
		20	3	0.155	7.0	20.0	4650	6975	9300	13950
		25	3	0.160	7.0	25.0	4800	7200	9600	14400
	Wrought aluminium alloys [AlMgSi1 / 6082]	10	3	0.115	6.0	8.0	3450	5175	6900	10350
		12	3	0.135	6.5	9.6	4050	6075	8100	12150
		16	3	0.145	7.0	12.8	4350	6525	8700	13050
		20	3	0.155	7.0	16.0	4650	6975	9300	13950
		25	3	0.160	7.0	20.0	4800	7200	9600	14400
	Cast aluminium [G-AlSi11Mg]									
	C									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	3	0.115	9.0	6.0	3450	5175	6900	10350
		12	3	0.135	9.8	7.2	4050	6075	8100	12150
		16	3	0.145	10.5	9.6	4350	6525	8700	13050
		20	3	0.155	10.5	12.0	4650	6975	9300	13950
		25	3	0.160	10.5	15.0	4800	7200	9600	14400
	C									

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	3	0.035	*	0.30	1050	1575	2100	3150
		12	3	0.040	*	0.35	1200	1800	2400	3600
		16	3	0.045	*	0.50	1350	2025	2700	4050
		20	3	0.045	*	0.60	1350	2025	2700	4050
		25	3	0.050	*	0.75	1500	2250	3000	4500
	C									
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	10	3	0.255	0.50	0.50	7650	11475	15300	22950
		12	3	0.295	0.60	0.60	8850	13275	17700	26550
		16	3	0.320	0.75	0.75	9600	14400	19200	28800
		20	3	0.340	1.00	1.00	10200	15300	20400	30600
		25	3	0.350	1.20	1.20	10500	15750	21000	31500
	C									

Corner radius end mills AX-RV3

Smooth-edged, version 2xd with neck

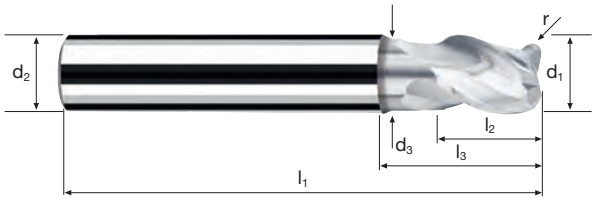
HSS | Favora® | Base-X | X-Generation X

HM
MG10

λ 40°
γ 20°

G 2.5

Vario



Roughing

Finishing

Al Aluminium > 99%

Al Aluminium Alloy

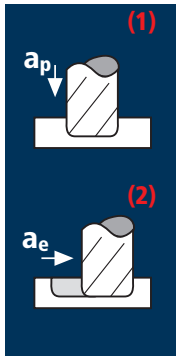
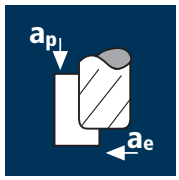
Al Aluminium Cast

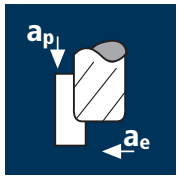
Cu Copper

Plastic Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15582** ø-Code **.475**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	l3/d1	r 0/+0.03	z	15582	CELERO C15582
.457	10	10	9.2	63	11	20	2.0	2.5	3	●	●
.506	12	12	11.0	73	13	24	2.0	2.5	3	●	●
.612	16	16	15.0	82	18	32	2.0	2.5	3	●	●
.684	20	20	19.0	92	22	40	2.0	2.5	3	●	●
.774	25	25	24.0	107	27	50	2.0	2.5	3	●	●
.508	12	12	11.0	73	13	24	2.0	4.0	3	●	●
.614	16	16	15.0	82	18	32	2.0	4.0	3	●	●
.686	20	20	19.0	92	22	40	2.0	4.0	3	●	●
.776	25	25	24.0	107	27	50	2.0	4.0	3	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	3	3	0.030	2.0	3.0	900	1350	1800	2700
		4	3	0.040	3.0	4.0	1200	1800	2400	3600
		6	3	0.060	4.0	6.0	1800	2700	3600	5400
		8	3	0.085	5.0	8.0	2550	3825	5100	7650
		10	3	0.105	5.5	10.0	3150	4725	6300	9450
		12	3	0.125	6.0	12.0	3750	5625	7500	11250
		16	3	0.135	6.5	16.0	4050	6075	8100	12150
		20	3	0.140	7.0	20.0	4200	6300	8400	12600
		25	3	0.150	7.0	25.0	4500	6750	9000	13500
		3	3	0.030	2.0	2.4	900	1350	1800	2700
		4	3	0.040	3.0	3.2	1200	1800	2400	3600
		6	3	0.060	4.0	4.8	1800	2700	3600	5400
		8	3	0.085	5.0	6.4	2550	3825	5100	7650
		10	3	0.105	5.5	8.0	3150	4725	6300	9450
		12	3	0.125	6.0	9.6	3750	5625	7500	11250
		16	3	0.135	6.5	12.8	4050	6075	8100	12150
		20	3	0.140	7.0	16.0	4200	6300	8400	12600
		25	3	0.150	7.0	20.0	4500	6750	9000	13500
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	3	3	0.030	3.0	1.8	900	1350	1800	2700
		4	3	0.040	4.5	2.4	1200	1800	2400	3600
		6	3	0.060	6.0	3.6	1800	2700	3600	5400
		8	3	0.085	7.5	4.8	2550	3825	5100	7650
		10	3	0.105	8.3	6.0	3150	4725	6300	9450
		12	3	0.125	9.0	7.2	3750	5625	7500	11250
		16	3	0.135	9.8	9.6	4050	6075	8100	12150
		20	3	0.140	10.5	12.0	4200	6300	8400	12600
		25	3	0.150	10.5	15.0	4500	6750	9000	13500

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	3	3	0.010	*	0.10	300	450	600	900
		4	3	0.010	*	0.10	300	450	600	900
		6	3	0.020	*	0.20	600	900	1200	1800
		8	3	0.025	*	0.25	750	1125	1500	2250
		10	3	0.030	*	0.30	900	1350	1800	2700
		12	3	0.040	*	0.35	1200	1800	2400	3600
		16	3	0.040	*	0.50	1200	1800	2400	3600
		20	3	0.040	*	0.60	1200	1800	2400	3600
		25	3	0.045	*	0.75	1350	2025	2700	4050
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	3	2	0.065	0.40	0.40	1300	1950	2600	3900
		4	2	0.090	0.45	0.45	1800	2700	3600	5400
		6	2	0.130	0.40	0.40	2600	3900	5200	7800
		8	2	0.185	0.45	0.45	3700	5550	7400	11100
		10	2	0.230	0.50	0.50	4600	6900	9200	13800
		12	2	0.275	0.60	0.60	5500	8250	11000	16500
		16	2	0.295	0.75	0.75	5900	8850	11800	17700
		20	2	0.310	1.00	1.00	6200	9300	12400	18600
		25	2	0.330	1.20	1.20	6600	9900	13200	19800

*ap_{lim} see page 952

Corner radius end mills AX-RV3

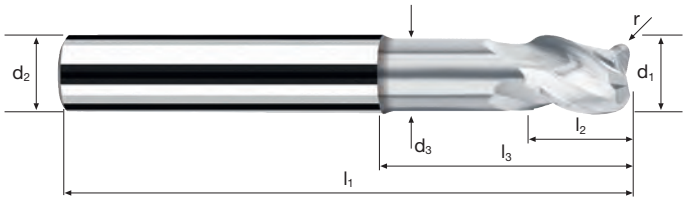
Smooth-edged, version 3xd with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | **λ 40° γ 20°**

G 2.5

Vario



Roughing

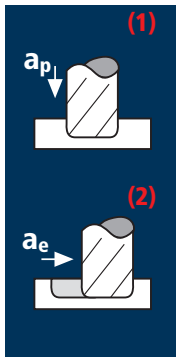
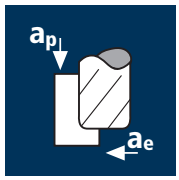
Finishing

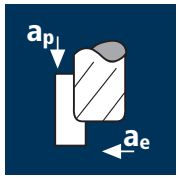
III

				Al Aluminium > 99%	**Al** Aluminium Alloy	**Al** Aluminium Cast		**Cu** Copper	**Plastic** Thermoplast	

Example: **Order-N°.** Coating **C** Article-N°. **15583** ø-Code **.180**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	α	z	15583	CELERO C15583
new!	.180	3	6	2.8	54	4	9	3.0	0.5	5.9°	3	●	●
new!	.220	4	6	3.7	54	5	12	3.0	0.5	3.7°	3	●	●
new!	.260	5	6	4.6	54	6	15	3.0	0.5	1.7°	3	●	●
new!	.300	6	6	5.5	54	7	18	3.0	0.5	0.0°	3	●	●
	.302	6	6	5.5	54	7	18	3.0	1.0	0.0°	3	●	●
	.391	8	8	7.4	63	9	24	3.0	1.0	0.0°	3	●	●
	.450	10	10	9.2	72	11	30	3.0	1.0	0.0°	3	●	●
	.501	12	12	11.0	83	13	36	3.0	1.0	0.0°	3	●	●
	.608	16	16	15.0	97	18	48	3.0	1.0	0.0°	3	●	●
new!	.680	20	20	19.0	111	22	60	3.0	1.0	0.0°	3	●	●
new!	.770	25	25	24.0	132	27	75	3.0	1.0	0.0°	3	●	●
new!	.307	6	6	5.5	54	7	18	3.0	2.5	0.0°	3	●	●
new!	.397	8	8	7.4	63	9	24	3.0	2.5	0.0°	3	●	●
	.457	10	10	9.2	72	11	30	3.0	2.5	0.0°	3	●	●
	.506	12	12	11.0	83	13	36	3.0	2.5	0.0°	3	●	●
	.612	16	16	15.0	97	18	48	3.0	2.5	0.0°	3	●	●
	.684	20	20	19.0	111	22	60	3.0	2.5	0.0°	3	●	●
	.774	25	25	24.0	132	27	75	3.0	2.5	0.0°	3	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	10	3	0.105	5.5	10.0	3150	4725	6300	9450
		12	3	0.125	6.0	12.0	3750	5625	7500	11250
		16	3	0.135	6.5	16.0	4050	6075	8100	12150
		20	3	0.140	7.0	20.0	4200	6300	8400	12600
		25	3	0.150	7.0	25.0	4500	6750	9000	13500
		10	3	0.105	5.5	8.0	3150	4725	6300	9450
		12	3	0.125	6.0	9.6	3750	5625	7500	11250
		16	3	0.135	6.5	12.8	4050	6075	8100	12150
		20	3	0.140	7.0	16.0	4200	6300	8400	12600
		25	3	0.150	7.0	20.0	4500	6750	9000	13500
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	10	3	0.105	8.3	6.0	3150	4725	6300	9450
		12	3	0.125	9.0	7.2	3750	5625	7500	11250
		16	3	0.135	9.8	9.6	4050	6075	8100	12150
		20	3	0.140	10.5	12.0	4200	6300	8400	12600
		25	3	0.150	10.5	15.0	4500	6750	9000	13500

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	10	3	0.030	*	0.30	900	1350	1800	2700
		12	3	0.040	*	0.35	1200	1800	2400	3600
		16	3	0.040	*	0.50	1200	1800	2400	3600
		20	3	0.040	*	0.60	1200	1800	2400	3600
		25	3	0.045	*	0.75	1350	2025	2700	4050
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg] C	10	2	0.230	0.50	0.50	4600	6900	9200	13800
		12	2	0.275	0.60	0.60	5500	8250	11000	16500
		16	2	0.295	0.75	0.75	5900	8850	11800	17700
		20	2	0.310	1.00	1.00	6200	9300	12400	18600
		25	2	0.330	1.20	1.20	6600	9900	13200	19800

Corner radius end mills AX-RV3

Smooth-edged, version 3xd with neck

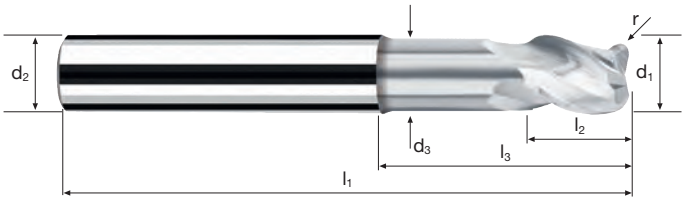
HSS | Favora® | Base-X | X-Generation X

HM MG10

λ 40°
γ 20°

G 2.5

Vario



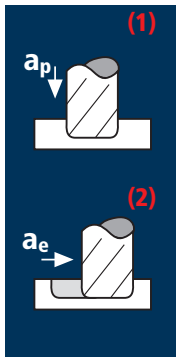
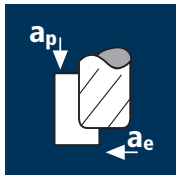
Roughing

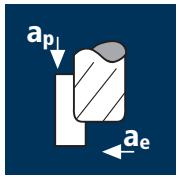
Finishing

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15583** ø-Code **.459**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	α	z	15583	C15583
.459	10	10	9.2	72	11	30	3.0	4.0	0.0°	3	●	●
.508	12	12	11.0	83	13	36	3.0	4.0	0.0°	3	●	●
.614	16	16	15.0	97	18	48	3.0	4.0	0.0°	3	●	●
.686	20	20	19.0	111	22	60	3.0	4.0	0.0°	3	●	●
.776	25	25	24.0	132	27	75	3.0	4.0	0.0°	3	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.060	3.5	6.0	1800	2700	3600	5400
		8	3	0.075	4.5	8.0	2250	3375	4500	6750
		10	3	0.095	5.0	10.0	2850	4275	5700	8550
		12	3	0.115	5.5	12.0	3450	5175	6900	10350
		16	3	0.125	6.0	16.0	3750	5625	7500	11250
		20	3	0.130	6.5	20.0	3900	5850	7800	11700
		25	3	0.140	6.5	25.0	4200	6300	8400	12600
		6	3	0.060	3.5	3.6	1800	2700	3600	5400
		8	3	0.075	4.5	4.8	2250	3375	4500	6750
		10	3	0.095	5.0	6.0	2850	4275	5700	8550
		12	3	0.115	5.5	7.2	3450	5175	6900	10350
		16	3	0.125	6.0	9.6	3750	5625	7500	11250
		20	3	0.130	6.5	12.0	3900	5850	7800	11700
		25	3	0.140	6.5	15.0	4200	6300	8400	12600
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.060	5.3	3.6	1800	2700	3600	5400
		8	3	0.075	6.8	4.8	2250	3375	4500	6750
		10	3	0.095	7.5	6.0	2850	4275	5700	8550
		12	3	0.115	8.3	7.2	3450	5175	6900	10350
		16	3	0.125	9.0	9.6	3750	5625	7500	11250
		20	3	0.130	9.8	12.0	3900	5850	7800	11700
		25	3	0.140	9.8	15.0	4200	6300	8400	12600

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.020	*	0.20	600	900	1200	1800
		8	3	0.025	*	0.25	750	1125	1500	2250
		10	3	0.030	*	0.30	900	1350	1800	2700
		12	3	0.035	*	0.35	1050	1575	2100	3150
		16	3	0.040	*	0.50	1200	1800	2400	3600
		20	3	0.040	*	0.60	1200	1800	2400	3600
		25	3	0.040	*	0.75	1200	1800	2400	3600
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.130	0.35	0.35	3900	5850	7800	11700
		8	3	0.165	0.40	0.40	4950	7425	9900	14850
		10	3	0.210	0.45	0.45	6300	9450	12600	18900
		12	3	0.255	0.50	0.50	7650	11475	15300	22950
		16	3	0.275	0.60	0.60	8250	12375	16500	24750
		20	3	0.285	0.75	0.75	8550	12825	17100	25650
		25	3	0.310	0.80	0.80	9300	13950	18600	27900

Corner radius end mills AX-RV3

Smooth-edged, version 4xd with neck

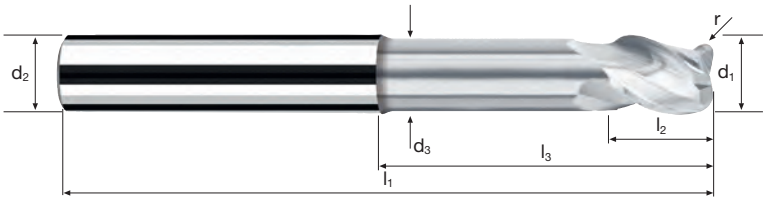
HSS | Favora® | Base-X | X-Generation X

HM
MG10

λ 40°
γ 20°

G 2.5

Vario



Roughing

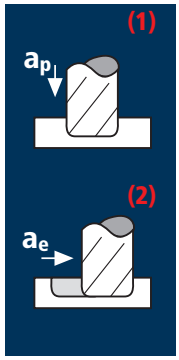
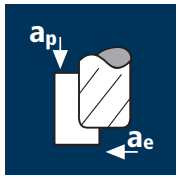
Finishing

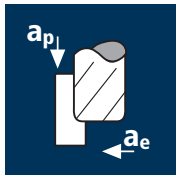
III

			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15584** | ø-Code **.302**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	z	15584	CELERO C15584
	.302	6	6	5.5	60	7	24	4.0	1.0	3	●	●
	.391	8	8	7.4	68	9	32	4.0	1.0	3	●	●
	.450	10	10	9.2	84	11	40	4.0	1.0	3	●	●
	.501	12	12	11.0	97	13	48	4.0	1.0	3	●	●
	.608	16	16	15.0	115	18	64	4.0	1.0	3	●	●
new!	.680	20	20	19.0	130	22	80	4.0	1.0	3	●	●
new!	-770	25	25	24.0	157	27	100	4.0	1.0	3	●	●
new!	.307	6	6	5.5	60	7	24	4.0	2.5	3	●	●
new!	.397	8	8	7.4	68	9	32	4.0	2.5	3	●	●
	.457	10	10	9.2	84	11	40	4.0	2.5	3	●	●
	.506	12	12	11.0	97	13	48	4.0	2.5	3	●	●
	.612	16	16	15.0	115	18	64	4.0	2.5	3	●	●
	.684	20	20	19.0	130	22	80	4.0	2.5	3	●	●
	.774	25	25	24.0	157	27	100	4.0	2.5	3	●	●
	.459	10	10	9.2	84	11	40	4.0	4.0	3	●	●
	.508	12	12	11.0	97	13	48	4.0	4.0	3	●	●
	.614	16	16	15.0	115	18	64	4.0	4.0	3	●	●
	.686	20	20	19.0	130	22	80	4.0	4.0	3	●	●
	.776	25	25	24.0	157	27	100	4.0	4.0	3	●	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium Aviation [AlMg1SiCu / 6061] [AlCu4MgSi / 2017] [AlCu2Mg1,5Ni / 2618] [AlZn5,5MgCu / 7175] [AlZn6CuMgZr / 7150] [AlCu4Mg1 / 2124]	6	3	0.040	4.0	6.0	1200	1800	2400	3600
		8	3	0.055	4.5	8.0	1650	2475	3300	4950
		10	3	0.070	5.0	10.0	2100	3150	4200	6300
		12	3	0.075	5.0	12.0	2250	3375	4500	6750
		16	3	0.095	5.0	16.0	2850	4275	5700	8550
		20	3	0.115	5.0	20.0	3450	5175	6900	10350
		25	3	0.130	5.0	25.0	3900	5850	7800	11700
	Wrought aluminium alloys [AlMgSi1 / 6082]	6	3	0.040	4.0	3.6	1200	1800	2400	3600
		8	3	0.055	4.5	4.8	1650	2475	3300	4950
		10	3	0.070	5.0	6.0	2100	3150	4200	6300
		12	3	0.075	5.0	7.2	2250	3375	4500	6750
		16	3	0.095	5.0	9.6	2850	4275	5700	8550
		20	3	0.115	5.0	12.0	3450	5175	6900	10350
		25	3	0.130	5.0	15.0	3900	5850	7800	11700
	Cast aluminium [G-AlSi11Mg]									
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.040	6.0	3.6	1200	1800	2400	3600
		8	3	0.055	6.8	4.8	1650	2475	3300	4950
		10	3	0.070	7.5	6.0	2100	3150	4200	6300
		12	3	0.075	7.5	7.2	2250	3375	4500	6750
		16	3	0.095	7.5	9.6	2850	4275	5700	8550
		20	3	0.115	7.5	12.0	3450	5175	6900	10350
		25	3	0.130	7.5	15.0	3900	5850	7800	11700

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.010	*	0.20	300	450	600	900
		8	3	0.015	*	0.25	450	675	900	1350
		10	3	0.020	*	0.30	600	900	1200	1800
		12	3	0.025	*	0.35	750	1125	1500	2250
		16	3	0.030	*	0.50	900	1350	1800	2700
		20	3	0.035	*	0.60	1050	1575	2100	3150
		25	3	0.040	*	0.75	1200	1800	2400	3600
		*ap_{lim} see page 952								
	Construction aluminium [AlZn5,5MgCu / 7175] Wrought aluminium alloys [AlMgSi1 / 6082] Cast aluminium [G-AlSi11Mg]	6	3	0.090	0.45	0.45	2700	4050	5400	8100
		8	3	0.120	0.50	0.50	3600	5400	7200	10800
		10	3	0.155	0.45	0.45	4650	6975	9300	13950
		12	3	0.165	0.50	0.50	4950	7425	9900	14850
		16	3	0.210	0.60	0.60	6300	9450	12600	18900
		20	3	0.255	0.75	0.75	7650	11475	15300	22950
		25	3	0.285	0.80	0.80	8550	12825	17100	25650

Corner radius end mills AX-RV3

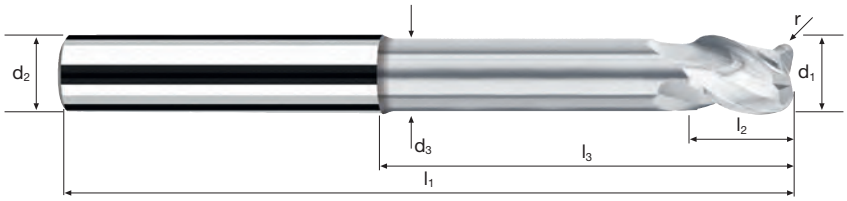
Smooth-edged, version 5xd with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 20°

G 2.5

Vario



Roughing

Finishing

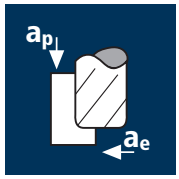
III

Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15585** ø-Code **.450**

	ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	l_3/d_1	r 0/+0.03	z	15585	CELERO C15585
	.450	10	10	9.2	91	11	50	5.0	1.0	3	●	●
	.501	12	12	11.0	106	13	60	5.0	1.0	3	●	●
	.608	16	16	15.0	129	18	80	5.0	1.0	3	●	●
new!	.680	20	20	19.0	151	22	100	5.0	1.0	3	●	●
new!	.770	25	25	24.0	182	27	125	5.0	1.0	3	●	●
new!	.307	6	6	5.5	66	7	30	5.0	2.5	3	●	●
new!	.397	8	8	7.4	76	9	40	5.0	2.5	3	●	●
	.457	10	10	9.2	91	11	50	5.0	2.5	3	●	●
	.506	12	12	11.0	106	13	60	5.0	2.5	3	●	●
	.612	16	16	15.0	129	18	80	5.0	2.5	3	●	●
	.684	20	20	19.0	151	22	100	5.0	2.5	3	●	●
	.774	25	25	24.0	182	27	125	5.0	2.5	3	●	●
	.459	10	10	9.2	91	11	50	5.0	4.0	3	●	●
	.508	12	12	11.0	106	13	60	5.0	4.0	3	●	●
	.614	16	16	15.0	129	18	80	5.0	4.0	3	●	●
	.686	20	20	19.0	151	22	100	5.0	4.0	3	●	●
	.776	25	25	24.0	182	27	125	5.0	4.0	3	●	●

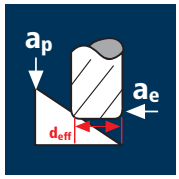
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
3	2	450	0.045	2.4	1.4	47745	4295	14.5
4	2	450	0.060	3.2	1.8	35810	4295	24.5
5	2	450	0.075	4.0	2.3	28650	4300	39.5
6	2	450	0.095	4.8	2.7	23875	4535	59.0
8	2	450	0.130	6.4	3.6	17905	4655	107.5
10	2	450	0.160	8.0	4.5	14325	4585	165.0
12	2	450	0.175	9.6	5.4	11935	4175	216.5
16	2	450	0.195	12.8	7.2	8950	3490	321.5
20	2	450	0.230	16.0	9.0	7160	3295	474.5
Unalloyed copper								
3	2	350	0.035	2.4	1.4	37135	2600	8.5
4	2	350	0.050	3.2	1.8	27850	2785	16.0
5	2	350	0.060	4.0	2.3	22280	2675	24.0
6	2	350	0.075	4.8	2.7	18570	2785	36.0
8	2	350	0.105	6.4	3.6	13925	2925	67.5
10	2	350	0.130	8.0	4.5	11140	2895	104.0
12	2	350	0.140	9.6	5.4	9285	2600	135.0
16	2	350	0.155	12.8	7.2	6965	2160	199.0
20	2	350	0.185	16.0	9.0	5570	2060	296.5
Thermoplastics								
3	2	800	0.045	2.4	1.4	60000	5400	17.5
4	2	800	0.060	3.2	1.8	60000	7200	41.5
5	2	800	0.075	4.0	2.3	50930	7640	69.0
6	2	800	0.095	4.8	2.7	42440	8065	104.5
8	2	800	0.130	6.4	3.6	31830	8275	190.5
10	2	800	0.160	8.0	4.5	25465	8150	293.5
12	2	800	0.175	9.6	5.4	21220	7425	385.0
16	2	800	0.195	12.8	7.2	15915	6205	572.0
20	2	800	0.230	16.0	9.0	12730	5855	843.0
Cast aluminium Si 6% - 15%								
3	2	300	0.030	2.4	1.4	31830	1910	6.0
4	2	300	0.040	3.2	1.8	23875	1910	11.0
5	2	300	0.055	4.0	2.3	19100	2100	19.0
6	2	300	0.065	4.8	2.7	15915	2070	27.0
8	2	300	0.090	6.4	3.6	11935	2150	49.5
10	2	300	0.110	8.0	4.5	9550	2100	75.5
12	2	300	0.125	9.6	5.4	7960	1990	103.0
16	2	300	0.135	12.8	7.2	5970	1610	148.5
20	2	300	0.160	16.0	9.0	4775	1530	220.5

Application



Material

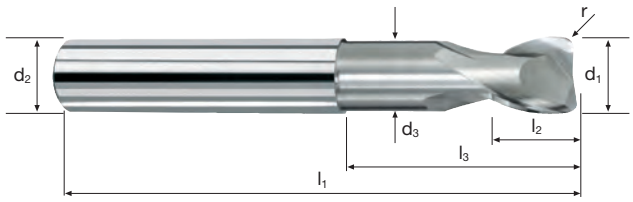
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Wrought aluminium alloys Si < 6%									
3	2	600	0.055	0.25	0.25	2.97	60000	6600	45
4	2	600	0.075	0.30	0.30	3.93	48600	7290	45
5	2	600	0.090	0.35	0.35	4.89	39060	7030	45
6	2	600	0.120	0.40	0.40	5.98	31940	7665	45
8	2	600	0.160	0.45	0.45	7.96	23995	7680	45
10	2	600	0.200	0.50	0.50	10.00	19100	7640	45
12	2	600	0.220	0.60	0.60	11.97	15955	7020	45
16	2	600	0.245	0.75	0.75	15.98	11950	5855	45
20	2	600	0.285	1.00	1.00	19.86	9615	5480	45
Unalloyed copper									
3	2	450	0.045	0.25	0.25	2.97	48230	4340	45
4	2	450	0.060	0.30	0.30	3.93	36450	4375	45
5	2	450	0.070	0.35	0.35	4.89	29295	4100	45
6	2	450	0.095	0.40	0.40	5.98	23955	4550	45
8	2	450	0.130	0.45	0.45	7.96	17995	4680	45
10	2	450	0.160	0.50	0.50	10.00	14325	4585	45
12	2	450	0.175	0.60	0.60	11.97	11965	4190	45
16	2	450	0.195	0.75	0.75	15.98	8965	3495	45
20	2	450	0.230	1.00	1.00	19.86	7215	3320	45
Thermoplastics									
3	2	1000	0.055	0.25	0.25	2.97	60000	6600	45
4	2	1000	0.075	0.30	0.30	3.93	60000	9000	45
5	2	1000	0.090	0.35	0.35	4.89	60000	10800	45
6	2	1000	0.120	0.40	0.40	5.98	53230	12775	45
8	2	1000	0.160	0.45	0.45	7.96	39990	12795	45
10	2	1000	0.200	0.50	0.50	10.00	31830	12730	45
12	2	1000	0.220	0.60	0.60	11.97	26595	11700	45
16	2	1000	0.245	0.75	0.75	15.98	19920	9760	45
20	2	1000	0.285	1.00	1.00	19.86	16030	9135	45
Cast aluminium Si 6% - 15%									
3	2	400	0.040	0.25	0.25	2.97	42870	3430	45
4	2	400	0.055	0.30	0.30	3.93	32400	3565	45
5	2	400	0.065	0.35	0.35	4.89	26040	3385	45
6	2	400	0.085	0.40	0.40	5.98	21290	3620	45
8	2	400	0.110	0.45	0.45	7.96	15995	3520	45
10	2	400	0.140	0.50	0.50	10.00	12735	3565	45
12	2	400	0.155	0.60	0.60	11.97	10635	3295	45
16	2	400	0.170	0.75	0.75	15.98	7970	2710	45
20	2	400	0.200	1.00	1.00	19.86	6410	2565	45

Corner radius end mills AluSpeed

Smooth-edged, normal version

HSS | Favora® | Base-X | **B** | X-Generation

HM MG10 | **λ 30° γ 15°**



Roughing

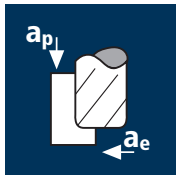
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **5275** ø-Code **.180**

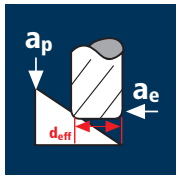
ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	5275	CELERO C5275
.180	3	6	2.8	57	4	9	0.5	5.9°	2	●	●
.220	4	6	3.7	57	5	12	0.5	3,7°	2	●	●
.260	5	6	4.6	57	6	15	0.5	1.7°	2	●	●
.300	6	6	5.5	57	7	20	1.0	0.0°	2	●	●
.391	8	8	7.4	63	9	26	1.0	0.0°	2	●	●
.450	10	10	9.2	72	11	31	1.5	0.0°	2	●	●
.501	12	12	11.0	83	13	37	1.5	0.0°	2	●	●
.610	16	16	15.0	92	17	43	2.0	0.0°	2	●	●
.682	20	20	19.0	104	21	53	2.0	0.0°	2	●	●
.772	25	25	24.0	121	26	64	2.5	0.0°	2	●	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	10	2	300	0.145	8.0	4.5	9550	2770	99.5
	12	2	300	0.175	9.6	5.4	7960	2785	144.5
	16	2	300	0.235	12.8	7.2	5970	2805	258.5
	20	2	300	0.320	16.0	9.0	4775	3055	440.0
	25	2	300	0.400	20.0	11.3	3820	3055	690.5
Unalloyed copper	10	2	200	0.115	8.0	4.5	6365	1465	52.5
	12	2	200	0.140	9.6	5.4	5305	1485	77.0
	16	2	200	0.190	12.8	7.2	3980	1510	139.0
	20	2	200	0.255	16.0	9.0	3185	1625	234.0
	25	2	200	0.320	20.0	11.3	2545	1630	367.0
Thermoplastics	10	2	600	0.145	8.0	4.5	19100	5540	199.5
	12	2	600	0.175	9.6	5.4	15915	5570	288.5
	16	2	600	0.235	12.8	7.2	11935	5610	517.0
	20	2	600	0.320	16.0	9.0	9550	6110	880.0
	25	2	600	0.400	20.0	11.3	7640	6110	1375.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Wrought aluminium alloys Si < 6%	10	2	350	0.180	0.50	0.50	10.00	11140	4010	45
	12	2	350	0.220	0.60	0.60	11.97	9310	4095	45
	16	2	350	0.290	0.75	0.75	15.98	6970	4045	45
	20	2	350	0.400	1.00	1.00	19.95	5585	4470	45
	25	2	350	0.500	1.80	1.80	24.84	4485	4485	45
Unalloyed copper	10	2	300	0.145	0.50	0.50	10.00	9550	2770	45
	12	2	300	0.175	0.60	0.60	11.97	7980	2795	45
	16	2	300	0.230	0.75	0.75	15.98	5975	2750	45
	20	2	300	0.320	1.00	1.00	19.95	4785	3060	45
	25	2	300	0.400	1.80	1.80	24.84	3845	3075	45
Thermoplastics	10	2	700	0.180	0.50	0.50	10.00	22280	8020	45
	12	2	700	0.220	0.60	0.60	11.97	18615	8190	45
	16	2	700	0.290	0.75	0.75	15.98	13945	8090	45
	20	2	700	0.400	1.00	1.00	19.95	11170	8935	45
	25	2	700	0.500	1.80	1.80	24.84	8970	8970	45

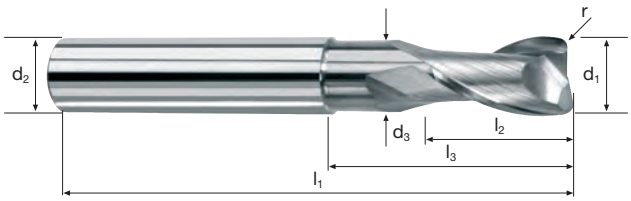
Corner radius end mills AX-R

Smooth-edged, normal version

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10

λ **30°**
γ **15°**



Roughing

Finishing

Al Aluminium > 99%

Al Aluminium Alloy

Cu Copper

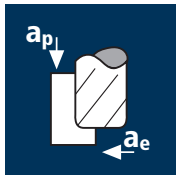
Plastic Thermoplast

Example: **Order-N°.** Coating | Article-N°. **5271** | ø-Code **.450**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	5271
.450	10	10	9.2	72	16	31	1.5	2	●
.501	12	12	11.0	83	19	37	1.5	2	●
.610	16	16	15.0	92	25	43	2.0	2	●
.682	20	20	19.0	104	31	53	2.0	2	●
.503	12	12	11.0	83	19	37	2.5	2	●
.612	16	16	15.0	92	25	43	2.5	2	●
.684	20	20	19.0	104	31	53	2.5	2	●
.774	25	25	24.0	121	39	64	2.5	2	●
.614	16	16	15.0	92	25	43	4.0	2	●
.686	20	20	19.0	104	31	53	4.0	2	●
.776	25	25	24.0	121	39	64	4.0	2	●

III

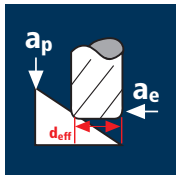
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
6	3	450	0.085	5.4	2.1	23875	6090	69.0
8	3	450	0.110	7.2	2.8	17905	5910	119.0
10	3	450	0.140	9.0	3.5	14325	6015	189.5
12	3	450	0.155	10.8	4.2	11935	5550	251.5
16	3	450	0.170	14.4	5.6	8950	4565	368.0
20	3	450	0.185	18.0	7.0	7160	3975	501.0
25	3	450	0.205	22.5	8.8	5730	3525	698.0
Unalloyed copper								
6	3	350	0.070	5.4	2.1	18570	3900	44.0
8	3	350	0.090	7.2	2.8	13925	3760	76.0
10	3	350	0.110	9.0	3.5	11140	3675	116.0
12	3	350	0.125	10.8	4.2	9285	3480	158.0
16	3	350	0.135	14.4	5.6	6965	2820	227.5
20	3	350	0.150	18.0	7.0	5570	2505	315.5
25	3	350	0.165	22.5	8.8	4455	2205	434.0
Thermoplastics								
6	3	800	0.085	5.4	2.1	42440	10820	122.5
8	3	800	0.110	7.2	2.8	31830	10505	212.0
10	3	800	0.140	9.0	3.5	25465	10695	337.0
12	3	800	0.155	10.8	4.2	21220	9865	447.5
16	3	800	0.170	14.4	5.6	15915	8115	654.5
20	3	800	0.185	18.0	7.0	12730	7065	890.0
25	3	800	0.205	22.5	8.8	10185	6265	1233.5
Cast aluminium Si 6% - 15%								
6	3	300	0.060	5.4	2.1	15915	2865	32.5
8	3	300	0.075	7.2	2.8	11935	2685	54.0
10	3	300	0.100	9.0	3.5	9550	2865	90.0
12	3	300	0.110	10.8	4.2	7960	2625	119.0
16	3	300	0.120	14.4	5.6	5970	2150	173.5
20	3	300	0.130	18.0	7.0	4775	1860	234.5
25	3	300	0.145	22.5	8.8	3820	1660	327.0

Application



Material

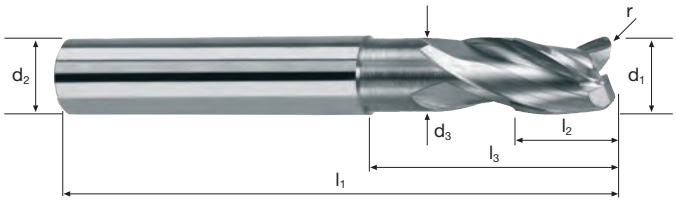
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
Wrought aluminium alloys Si < 6%									
6	3	600	0.110	0.40	0.40	5.98	31940	10540	45
8	3	600	0.145	0.45	0.45	7.96	23995	10440	45
10	3	600	0.180	0.50	0.50	10.00	19100	10315	45
12	3	600	0.195	0.60	0.60	11.97	15955	9335	45
16	3	600	0.220	0.75	0.75	15.98	11950	7885	45
20	3	600	0.240	1.00	1.00	19.86	9615	6925	45
25	3	600	0.265	1.50	1.50	24.65	7750	6160	45
Unalloyed copper									
6	3	450	0.090	0.40	0.40	5.98	23955	6470	45
8	3	450	0.115	0.45	0.45	7.96	17995	6210	45
10	3	450	0.145	0.50	0.50	10.00	14325	6230	45
12	3	450	0.155	0.60	0.60	11.97	11965	5565	45
16	3	450	0.175	0.75	0.75	15.98	8965	4705	45
20	3	450	0.190	1.00	1.00	19.86	7215	4115	45
25	3	450	0.210	1.50	1.50	24.65	5810	3660	45
Thermoplastics									
6	3	1000	0.110	0.40	0.40	5.98	53230	17565	45
8	3	1000	0.145	0.45	0.45	7.96	39990	17395	45
10	3	1000	0.180	0.50	0.50	10.00	31830	17190	45
12	3	1000	0.195	0.60	0.60	11.97	26595	15560	45
16	3	1000	0.220	0.75	0.75	15.98	19920	13145	45
20	3	1000	0.240	1.00	1.00	19.86	16030	11540	45
25	3	1000	0.265	1.50	1.50	24.65	12915	10265	45
Cast aluminium Si 6% - 15%									
6	3	400	0.075	0.40	0.40	5.98	21290	4790	45
8	3	400	0.100	0.45	0.45	7.96	15995	4800	45
10	3	400	0.125	0.50	0.50	10.00	12735	4775	45
12	3	400	0.135	0.60	0.60	11.97	10635	4305	45
16	3	400	0.155	0.75	0.75	15.98	7970	3705	45
20	3	400	0.170	1.00	1.00	19.86	6410	3270	45
25	3	400	0.185	1.50	1.50	24.65	5165	2865	45

Corner radius end mills AX-3R

Smooth-edged, normal version

HSS | Favora® | Base-X | **B** | X-Generation

HM MG10	λ 30° γ 15°



Roughing

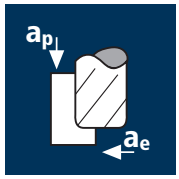
Finishing

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **5276** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z		CELERO
									5276	C5276
.300	6	6	5.5	57	7	20	1.0	3	●	●
.391	8	8	7.4	63	9	26	1.0	3	●	●
.450	10	10	9.2	72	11	31	1.5	3	●	●
.501	12	12	11.0	83	13	37	1.5	3	●	●
.610	16	16	15.0	92	17	43	2.0	3	●	●
.682	20	20	19.0	104	21	53	2.0	3	●	●
.772	25	25	24.0	121	26	64	2.5	3	●	●

Application



Material

Wrought aluminium alloys Si < 6%

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
6	2	400	0.095	3.6	1.5	21220	4030	22.0
8	2	400	0.130	4.8	2.0	15915	4140	39.5
10	2	400	0.160	6.0	2.5	12730	4075	61.0
12	2	400	0.175	7.2	3.0	10610	3715	80.0
16	2	400	0.195	9.6	4.0	7960	3105	119.0
20	2	400	0.230	12.0	5.0	6365	2930	176.0

Unalloyed copper

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
6	2	300	0.075	3.6	1.5	15915	2385	13.0
8	2	300	0.105	4.8	2.0	11935	2505	24.0
10	2	300	0.130	6.0	2.5	9550	2485	37.5
12	2	300	0.140	7.2	3.0	7960	2230	48.0
16	2	300	0.155	9.6	4.0	5970	1850	71.0
20	2	300	0.185	12.0	5.0	4775	1765	106.0

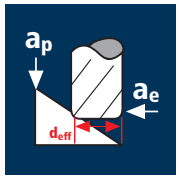
Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
6	2	700	0.095	3.6	1.5	37135	7055	38.0
8	2	700	0.130	4.8	2.0	27850	7240	69.5
10	2	700	0.160	6.0	2.5	22280	7130	107.0
12	2	700	0.175	7.2	3.0	18570	6500	140.5
16	2	700	0.195	9.6	4.0	13925	5430	208.5
20	2	700	0.230	12.0	5.0	11140	5125	307.5

Cast aluminium Si 6% - 15%

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
6	2	250	0.065	3.6	1.5	13265	1725	9.5
8	2	250	0.090	4.8	2.0	9945	1790	17.0
10	2	250	0.110	6.0	2.5	7960	1750	26.5
12	2	250	0.125	7.2	3.0	6630	1660	36.0
16	2	250	0.135	9.6	4.0	4975	1345	51.5
20	2	250	0.160	12.0	5.0	3980	1275	76.5

Application



Material

Wrought aluminium alloys Si < 6%

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	2	500	0.110	0.35	0.35	5.99	26570	5845	45
8	2	500	0.145	0.40	0.40	7.98	19945	5785	45
10	2	500	0.180	0.45	0.45	10.00	15915	5730	45
12	2	500	0.240	0.50	0.50	12.00	13265	6365	45
16	2	500	0.320	0.60	0.60	16.00	9945	6365	45
20	2	500	0.400	0.75	0.75	19.98	7965	6370	45

Unalloyed copper

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	2	400	0.090	0.35	0.35	5.99	21255	3825	45
8	2	400	0.115	0.40	0.40	7.98	15955	3670	45
10	2	400	0.145	0.45	0.45	10.00	12735	3695	45
12	2	400	0.190	0.50	0.50	12.00	10610	4030	45
16	2	400	0.255	0.60	0.60	16.00	7960	4060	45
20	2	400	0.320	0.75	0.75	19.98	6375	4080	45

Thermoplastics

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	2	800	0.110	0.35	0.35	5.99	42515	9355	45
8	2	800	0.145	0.40	0.40	7.98	31910	9255	45
10	2	800	0.180	0.45	0.45	10.00	25465	9165	45
12	2	800	0.240	0.50	0.50	12.00	21220	10185	45
16	2	800	0.320	0.60	0.60	16.00	15915	10185	45
20	2	800	0.400	0.75	0.75	19.98	12745	10195	45

Cast aluminium Si 6% - 15%

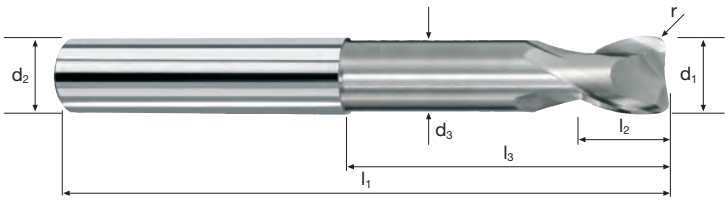
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	β
6	2	300	0.075	0.35	0.35	5.99	15945	2390	45
8	2	300	0.100	0.40	0.40	7.98	11965	2395	45
10	2	300	0.125	0.45	0.45	10.00	9550	2390	45
12	2	300	0.170	0.50	0.50	12.00	7960	2705	45
16	2	300	0.225	0.60	0.60	16.00	5970	2685	45
20	2	300	0.280	0.75	0.75	19.98	4780	2675	45

Corner radius end mills AluSpeed

Smooth-edged, medium length version

HSS | Favora® | Base-X | **B** | X-Generation

HM MG10 | **λ 30° γ 15°**



Roughing

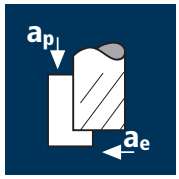
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **5277** ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	5277	CELERO C5277
.300	6	6	5.5	70	7	33	1.0	2	●	●
.391	8	8	7.4	80	9	43	1.0	2	●	●
.450	10	10	9.2	84	11	43	1.5	2	●	●
.501	12	12	11.0	97	13	51	1.5	2	●	●
.610	16	16	15.0	115	17	66	2.0	2	●	●
.682	20	20	19.0	130	21	79	2.0	2	●	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
6	3	600	0.065	9	3.6	31830	6205	201.0
8	3	600	0.090	12	4.8	23875	6445	371.0
10	3	600	0.110	15	6.0	19100	6305	567.5
12	3	600	0.135	18	7.2	15915	6445	835.5
16	3	600	0.180	24	9.6	11935	6445	1485.0
20	3	600	0.220	30	12.0	9550	6305	2270.0
Unalloyed copper								
6	3	400	0.065	9	3.6	21220	4140	134.0
8	3	400	0.090	12	4.8	15915	4295	247.5
10	3	400	0.110	15	6.0	12735	4205	378.5
12	3	400	0.135	18	7.2	10610	4295	556.5
16	3	400	0.180	24	9.6	7960	4300	990.5
20	3	400	0.220	30	12.0	6365	4200	1512.0
Thermoplastics								
6	3	800	0.065	9	3.6	42445	8275	268.0
8	3	800	0.090	12	4.8	31830	8595	495.0
10	3	800	0.110	15	6.0	25465	8405	756.5
12	3	800	0.135	18	7.2	21220	8595	1114.0
16	3	800	0.180	24	9.6	15915	8595	1980.5
20	3	800	0.220	30	12.0	12735	8405	3026.0

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%								
6	3	500	0.060	9.0	6	26525	4775	258.0
8	3	500	0.080	12.0	8	19895	4775	458.5
10	3	500	0.100	15.0	10	15915	4775	716.5
12	3	500	0.120	18.0	12	13265	4775	1031.5
16	3	500	0.160	24.0	16	9945	4775	1833.5
20	3	500	0.200	30.0	20	7960	4775	2865.0
Unalloyed copper								
6	3	270	0.060	9.0	6	14325	2580	139.5
8	3	270	0.080	12.0	8	10745	2580	247.5
10	3	270	0.100	15.0	10	8595	2580	387.0
12	3	270	0.120	18.0	12	7160	2580	557.5
16	3	270	0.160	24.0	16	5370	2580	990.5
20	3	270	0.200	30.0	20	4295	2575	1545.0
Thermoplastics								
6	3	800	0.060	9.0	6	42445	7640	412.5
8	3	800	0.080	12.0	8	31830	7640	733.5
10	3	800	0.100	15.0	10	25465	7640	1146.0
12	3	800	0.120	18.0	12	21220	7640	1650.0
16	3	800	0.160	24.0	16	15915	7640	2934.0
20	3	800	0.200	30.0	20	12735	7640	4584.0

Cylindrical end mills AX-FP

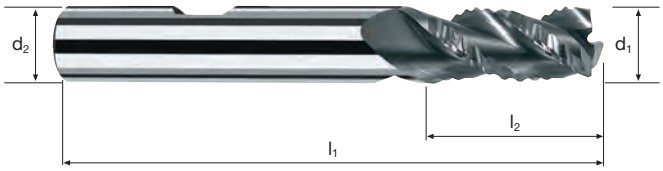
Profiled, normal version

HSS | Favora® | Base-X | X-Generation X

III

HM MG10 | λ **40°** γ **18°**

45°



Roughing

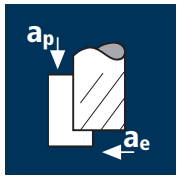
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **5397** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z	CELERO C5397	CELERO C5297
.300	6	6	57	13	0.40	3		●
.391	8	8	63	19	0.40	3		●
.450	10	10	72	22	0.40	3		●
.501	12	12	83	26	0.40	3		●
.610	16	16	92	32	0.50	3		●
.682	20	20	104	38	0.50	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	345	0.055	9	2.4	18305	3020	65.0
	8	3	345	0.070	12	3.2	13730	2885	111.0
	10	3	345	0.090	15	4.0	10980	2965	178.0
	12	3	345	0.125	18	4.8	9150	3430	296.5
	16	3	345	0.170	24	6.4	6865	3500	537.5
	20	3	345	0.210	30	8.0	5490	3460	830.5
	25	3	345	0.265	38	10.0	4395	3495	1310.5
Unalloyed copper	6	3	147	0.055	9	2.4	7800	1285	28.0
	8	3	147	0.070	12	3.2	5850	1230	47.0
	10	3	147	0.090	15	4.0	4680	1265	76.0
	12	3	147	0.125	18	4.8	3900	1465	126.5
	16	3	147	0.170	24	6.4	2925	1490	229.0
	20	3	147	0.210	30	8.0	2340	1475	354.0
	25	3	147	0.265	38	10.0	1870	1485	557.0
Thermoplastics	6	3	360	0.055	9	2.4	19100	3150	68.0
	8	3	360	0.070	12	3.2	14325	3010	115.5
	10	3	360	0.090	15	4.0	11460	3095	185.5
	12	3	360	0.125	18	4.8	9550	3580	309.5
	16	3	360	0.170	24	6.4	7160	3650	560.5
	20	3	360	0.210	30	8.0	5730	3610	866.5
	25	3	360	0.265	38	10.0	4585	3645	1367.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	315	0.045	6	6	16710	2255	81.0
	8	3	315	0.055	8	8	12535	2070	132.5
	10	3	315	0.070	10	10	10025	2105	210.5
	12	3	315	0.100	12	12	8355	2505	360.5
	16	3	315	0.135	16	16	6265	2535	649.0
	20	3	315	0.170	20	20	5015	2560	1024.0
	25	3	315	0.210	25	25	4010	2525	1578.0
Unalloyed copper	6	3	136	0.045	6	6	7215	975	35.0
	8	3	136	0.055	8	8	5410	895	57.5
	10	3	136	0.070	10	10	4330	910	91.0
	12	3	136	0.100	12	12	3610	1085	156.0
	16	3	136	0.135	16	16	2705	1095	280.5
	20	3	136	0.170	20	20	2165	1105	442.0
	25	3	136	0.210	25	25	1730	1090	681.5
Thermoplastics	6	3	335	0.045	6	6	17775	2400	86.5
	8	3	335	0.055	8	8	13330	2200	141.0
	10	3	335	0.070	10	10	10665	2240	224.0
	12	3	335	0.100	12	12	8885	2665	384.0
	16	3	335	0.135	16	16	6665	2700	691.0
	20	3	335	0.170	20	20	5330	2720	1088.0
	25	3	335	0.210	25	25	4265	2685	1678.0

Cylindrical end mills

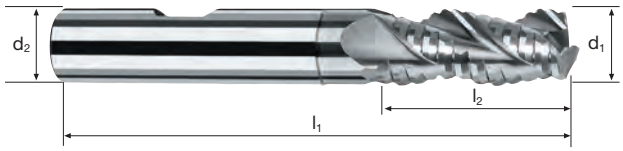
Profiled, normal version

HSS | Favora® | Base-X | X-Generation

III

HSS-E Co8 | **λ 40° γ 18°**

45°



Roughing

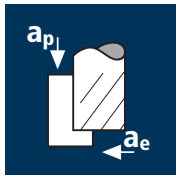
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **0391** ø-Code **.300**

ø Code	d_1 k8	d_2 h6	l_1	l_2	45°	α	z	CELERO C0391
.300	6	6	57	13	0.4	0.0°	3	●
.402	8	10	69	19	0.4	2.5°	3	●
.450	10	10	72	22	0.4	0.0°	3	●
.501	12	12	83	26	0.4	0.0°	3	●
.610	16	16	92	32	0.5	0.0°	3	●
.682	20	20	104	38	0.5	0.0°	3	●
.772	25	25	121	45	0.7	0.0°	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	600	0.065	12	1.8	31830	6205	134.0
	8	3	600	0.090	16	2.4	23875	6445	247.5
	10	3	600	0.110	20	3.0	19100	6305	378.5
	12	3	600	0.135	24	3.6	15915	6445	557.0
	16	3	600	0.180	32	4.8	11935	6445	990.0
	20	3	600	0.220	40	6.0	9550	6305	1513.0
Unalloyed copper	6	3	400	0.065	12	1.8	21220	4140	89.5
	8	3	400	0.090	16	2.4	15915	4295	165.0
	10	3	400	0.110	20	3.0	12735	4205	252.5
	12	3	400	0.135	24	3.6	10610	4295	371.0
	16	3	400	0.180	32	4.8	7960	4300	660.5
	20	3	400	0.220	40	6.0	6365	4200	1008.0
Thermoplastics	6	3	800	0.065	12	1.8	42445	8275	178.5
	8	3	800	0.090	16	2.4	31830	8595	330.0
	10	3	800	0.110	20	3.0	25465	8405	504.5
	12	3	800	0.135	24	3.6	21220	8595	742.5
	16	3	800	0.180	32	4.8	15915	8595	1320.0
	20	3	800	0.220	40	6.0	12735	8405	2017.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	500	0.060	4.2	6	26525	4775	120.5
	8	3	500	0.080	5.6	8	19895	4775	214.0
	10	3	500	0.100	7.0	10	15915	4775	334.5
	12	3	500	0.120	8.4	12	13265	4775	481.5
	16	3	500	0.160	11.2	16	9945	4775	855.5
	20	3	500	0.200	14.0	20	7960	4775	1337.0
Unalloyed copper	6	3	270	0.060	4.2	6	14325	2580	65.0
	8	3	270	0.080	5.6	8	10745	2580	115.5
	10	3	270	0.100	7.0	10	8595	2580	180.5
	12	3	270	0.120	8.4	12	7160	2580	260.0
	16	3	270	0.160	11.2	16	5370	2580	462.5
	20	3	270	0.200	14.0	20	4295	2575	721.0
Thermoplastics	6	3	800	0.060	4.2	6	42445	7640	192.5
	8	3	800	0.080	5.6	8	31830	7640	342.5
	10	3	800	0.100	7.0	10	25465	7640	535.0
	12	3	800	0.120	8.4	12	21220	7640	770.0
	16	3	800	0.160	11.2	16	15915	7640	1369.0
	20	3	800	0.200	14.0	20	12735	7640	2139.0

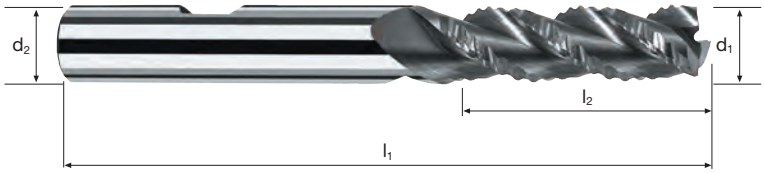
Cylindrical end mills AX-FP

Profiled, medium length version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ **40°** γ **18°**

45°



Roughing

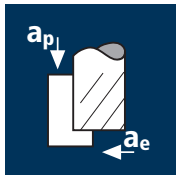
Finishing

Rm < 850			**Al** Aluminium > 99%	**Al** Aluminium Alloy	**Al** Aluminium Cast		**Cu** Copper	**Plastic** Thermoplast	

Example: **Order-N°.** Coating **C** | Article-N°. **15397** | ø-Code **.300**

ø Code	d_1 e8	d_2 h6	l_1	l_2	45°	z		CELERO
								C15397
								C15297
.300	6	6	63	19	0.40	3		●
.391	8	8	72	28	0.40	3		●
.450	10	10	84	34	0.40	3		●
.501	12	12	97	40	0.40	3		●
.610	16	16	108	48	0.50	3		●
.682	20	20	122	56	0.50	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	600	0.065	9	2.4	31830	6205	134.0
	8	3	600	0.090	12	3.2	23875	6445	247.5
	10	3	600	0.110	15	4.0	19100	6305	378.5
	12	3	600	0.135	18	4.8	15915	6445	557.0
	16	3	600	0.180	24	6.4	11935	6445	990.0
	20	3	600	0.220	30	8.0	9550	6305	1513.0
	25	3	600	0.280	38	10.0	7640	6420	2407.5
Unalloyed copper	6	3	400	0.065	9	2.4	21220	4140	89.5
	8	3	400	0.090	12	3.2	15915	4295	165.0
	10	3	400	0.110	15	4.0	12735	4205	252.5
	12	3	400	0.135	18	4.8	10610	4295	371.0
	16	3	400	0.180	24	6.4	7960	4300	660.5
	20	3	400	0.220	30	8.0	6365	4200	1008.0
	25	3	400	0.280	38	10.0	5095	4280	1605.0
Thermoplastics	6	3	800	0.065	9	2.4	42445	8275	178.5
	8	3	800	0.090	12	3.2	31830	8595	330.0
	10	3	800	0.110	15	4.0	25465	8405	504.5
	12	3	800	0.135	18	4.8	21220	8595	742.5
	16	3	800	0.180	24	6.4	15915	8595	1320.0
	20	3	800	0.220	30	8.0	12735	8405	2017.0
	25	3	800	0.280	38	10.0	10185	8555	3208.0

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	6	3	500	0.060	4.8	6	26525	4775	137.5
	8	3	500	0.080	6.4	8	19895	4775	244.5
	10	3	500	0.100	8.0	10	15915	4775	382.0
	12	3	500	0.120	9.6	12	13265	4775	550.0
	16	3	500	0.160	12.8	16	9945	4775	978.0
	20	3	500	0.200	16.0	20	7960	4775	1528.0
	25	3	500	0.250	20.0	25	6365	4775	2387.5
Unalloyed copper	6	3	270	0.060	4.8	6	14325	2580	74.5
	8	3	270	0.080	6.4	8	10745	2580	132.0
	10	3	270	0.100	8.0	10	8595	2580	206.5
	12	3	270	0.120	9.6	12	7160	2580	297.0
	16	3	270	0.160	12.8	16	5370	2580	528.5
	20	3	270	0.200	16.0	20	4295	2575	824.0
	25	3	270	0.250	20.0	25	3440	2580	1290.0
Thermoplastics	6	3	800	0.060	4.8	6	42445	7640	220.0
	8	3	800	0.080	6.4	8	31830	7640	391.0
	10	3	800	0.100	8.0	10	25465	7640	611.0
	12	3	800	0.120	9.6	12	21220	7640	880.0
	16	3	800	0.160	12.8	16	15915	7640	1564.5
	20	3	800	0.200	16.0	20	12735	7640	2445.0
	25	3	800	0.250	20.0	25	10185	7640	3820.0

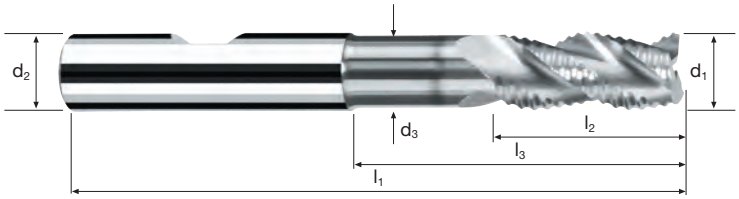
Cylindrical end mills AX-FP

Profiled, medium length version with neck

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ **40°** γ **18°**

45°



Roughing

Finishing

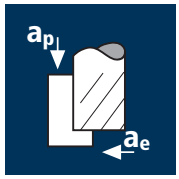
Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

III

Example: **Order-N°.** Coating **C** Article-N°. **15398** ø-Code **.300**

ø Code	d_1 e8	d_2 h6	d_3	l_1	l_2	l_3	45°	z	CELERO C15398	CELERO C15298
.300	6	6	5.5	63	13	26	0.40	3		●
.391	8	8	7.4	72	19	35	0.40	3		●
.450	10	10	9.2	84	22	43	0.40	3		●
.501	12	12	11.0	97	26	51	0.40	3		●
.610	16	16	15.0	108	32	59	0.50	3		●
.682	20	20	19.0	122	38	71	0.50	3		●
.772	25	25	24.0	144	45	87	0.70	3		●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	10	3	173	0.060	30	2.0	5505	990	59.5
	12	3	173	0.090	36	2.4	4590	1240	107.0
	16	3	173	0.120	48	3.2	3440	1240	190.5
	20	3	173	0.145	60	4.0	2755	1200	288.0
	25	3	173	0.185	75	5.0	2205	1225	459.5
Unalloyed copper	10	3	73	0.060	30	2.0	2325	420	25.0
	12	3	73	0.090	36	2.4	1935	520	45.0
	16	3	73	0.120	48	3.2	1450	520	80.0
	20	3	73	0.145	60	4.0	1160	505	121.0
	25	3	73	0.185	75	5.0	930	515	193.0
Thermoplastics	10	3	183	0.060	30	2.0	5825	1050	63.0
	12	3	183	0.090	36	2.4	4855	1310	113.0
	16	3	183	0.120	48	3.2	3640	1310	201.0
	20	3	183	0.145	60	4.0	2915	1270	305.0
	25	3	183	0.185	75	5.0	2330	1295	485.5

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	10	3	157	0.050	5	10	5000	750	37.5
	12	3	157	0.070	6.0	12	4165	875	63.0
	16	3	157	0.095	8.0	16	3125	890	114.0
	20	3	157	0.120	10.0	20	2500	900	180.0
	25	3	157	0.145	12.5	25	2000	870	272.0
Unalloyed copper	10	3	68	0.050	5.0	10	2165	325	16.5
	12	3	68	0.070	6.0	12	1805	380	27.5
	16	3	68	0.095	8.0	16	1355	385	49.5
	20	3	68	0.120	10.0	20	1080	390	78.0
	25	3	68	0.145	12.5	25	865	375	117.0
Thermoplastics	10	3	168	0.050	5.0	10	5350	805	40.5
	12	3	168	0.070	6.0	12	4455	935	67.5
	16	3	168	0.095	8.0	16	3340	950	121.5
	20	3	168	0.120	10.0	20	2675	965	193.0
	25	3	168	0.145	12.5	25	2140	930	290.5

Cylindrical end mills

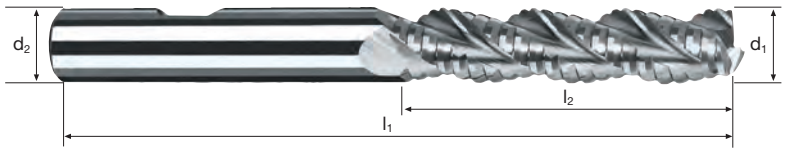
Profiled, medium length version

HSS | Favora® | Base-X | X-Generation

III

HSS-E Co8 | **λ 40° γ 18°**

45°



Roughing

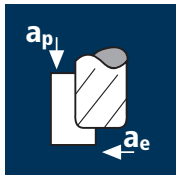
Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **0393** ø-Code **.450**

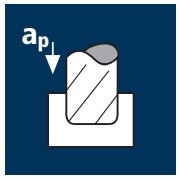
ø Code	d1 k8	d2 h6	l1	l2	45°	z	CELERO C0393
.450	10	10	95	45	0.4	3	●
.501	12	12	110	53	0.4	3	●
.610	16	16	123	63	0.5	3	●
.682	20	20	141	75	0.5	3	●
.772	25	25	166	90	0.7	3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	16	3	600	0.190	24	9.6	11935	6805	1568.0
	20	3	600	0.235	30	12.0	9550	6735	2424.5
Unalloyed copper	16	3	400	0.190	24	9.6	7960	4535	1045.0
	20	3	400	0.235	30	12.0	6365	4485	1614.5
Thermoplastics	16	3	800	0.190	24	9.6	15915	9070	2089.5
	20	3	800	0.235	30	12.0	12735	8980	3233.0

Application



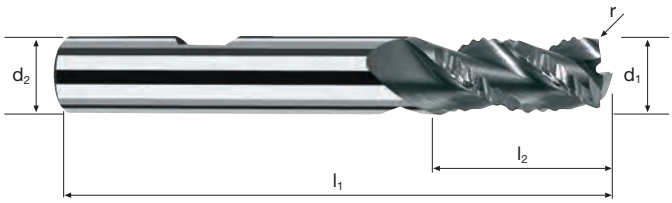
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	16	3	500	0.170	24.0	16	9945	5070	1947.0
	20	3	500	0.210	30.0	20	7960	5015	3009.0
Unalloyed copper	16	3	270	0.170	24.0	16	5370	2740	1052.0
	20	3	270	0.210	30.0	20	4295	2705	1623.0
Thermoplastics	16	3	800	0.170	24.0	16	15915	8115	3116.0
	20	3	800	0.210	30.0	20	12735	8025	4815.0

Corner radius end mills AX-RFP

Profiled, normal version

HSS | Favora® | Base-X | X-Generation X

HM MG10 | λ 40° γ 18°



Roughing

Finishing

Rm < 850 | **Al** Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast

Example: **Order-N°.** Coating **C** Article-N°. **15377** ø-Code **.612**

ø Code	d_1 e8	d_2 h6	l_1	l_2	r 0/+0.03	z	15377	CELERO C15377
							15277	C15277
.612	16	16	92	32	2.5	3	●	●
.684	20	20	104	38	2.5	3	●	●
.614	16	16	92	32	4.0	3	●	●
.686	20	20	104	38	4.0	3	●	●


fraisa

End milling tools for graphite
Micro with ball nose

Assortment list

Ball nose end mills	**576 - 578**
Corner radius end mills	**579 - 581**
Cylindrical end mills	**582 - 583**

Shank ø 6mm, tolerance r ±0.005

N° 6062 	d1 1.5 – 6.0	X-Generation X	HM XA	3xd	C Graphite			585
N° 6064 	d1 0.2 – 6.0	X-Generation X	HM XA	5xd	C Graphite			587
N° 6066 	d1 0.2 – 6.0	X-Generation X	HM XA	8xd	C Graphite			589
N° 6068 	d1 0.4 – 6.0	X-Generation X	HM XA	10xd	C Graphite			591
N° 6070 	d1 0.4 – 2.0	X-Generation X	HM XA	12xd	C Graphite			593

Shank ø 3mm, tolerance r ±0.01

N° 5782 	d1 0.2 – 3.0	Base-X B	HM Micro	3xd	C Graphite			595
N° 5784 	d1 0.5 – 3.0	Base-X B	HM Micro	5xd	C Graphite			597
N° 5786 	d1 0.5 – 3.0	Base-X B	HM Micro	8xd	C Graphite			599
N° 5787 	d1 0.5 – 3.0	Base-X B	HM Micro	10xd	C Graphite			601
N° 5791 	d1 1.0 – 3.0	Base-X B	HM Micro	12xd	C Graphite			603
N° 5793 	d1 1.0 – 3.0	Base-X B	HM Micro	15xd	C Graphite			605
N° 15795 	d1 1.0 – 3.0	Base-X B	HM Micro	20xd	C Graphite			607

IV

End milling tools for graphite
Micro with corner radius

Shank ø 6mm, tolerance r ±0.005

N° 6032 	d1 1.5 – 6.0 r 0.2, 0.5	X-Generation	**X**	**HM XA**	**3xd**	**C** Graphite			609
N° 6034 	d1 0.2 – 6.0 r 0.05, 0.1, 0.2, 0.5	X-Generation	**X**	**HM XA**	**5xd**	**C** Graphite			611
N° 6036 	d1 0.2 – 6.0 r 0.05, 0.1, 0.2, 0.5	X-Generation	**X**	**HM XA**	**8xd**	**C** Graphite			613
N° 6038 	d1 0.4 – 6.0 r 0.05, 0.1, 0.2, 0.5	X-Generation	**X**	**HM XA**	**10xd**	**C** Graphite			615
N° 6040 	d1 0.4 – 2.0 r 0.05, 0.1, 0.2	X-Generation	**X**	**HM XA**	**12xd**	**C** Graphite			617

Shank ø 3mm, tolerance r 0/+0.03

N° 5752 	d1 1.0 – 3.0 r 0.2	Base-X	**B**	**HM Micro**	**3xd**	**C** Graphite			619
N° 5754 	d1 1.0 – 3.0 r 0.2	Base-X	**B**	**HM Micro**	**5xd**	**C** Graphite			621
N° 5756 	d1 1.0 – 3.0 r 0.2	Base-X	**B**	**HM Micro**	**8xd**	**C** Graphite			623

End milling tools for graphite
Micro, cylindrical

Shank ø 3mm

N° 5712 d1 0.2 – 3.0



N° 5714 d1 0.5 – 3.0



N° 5716 d1 0.5 – 3.0



N° 5717 d1 0.5 – 3.0



Base-X **B**	HM Micro	3xd	**C** Graphite			625
Base-X **B**	HM Micro	5xd	**C** Graphite			627
Base-X **B**	HM Micro	8xd	**C** Graphite			629
Base-X **B**	HM Micro	10xd	**C** Graphite			631

IV

End milling tools for graphite
Ball nose

Tolerance r ±0.005

N° 7480 d1 6 – 12



N° 7484 d1 6 – 12



N° 7488 d1 6 – 12



X-Generation X	HM XA	3xd	C Graphite			633
X-Generation X	HM XA	6xd	C Graphite			635
X-Generation X	HM XA	9xd	C Graphite			637

End milling tools for graphite
Corner radius

Tolerance r ±0.005

N° 7284

d1 6 – 12
r 0.5, 1.0



N° 7288

d1 6 – 12
r 0.5, 1.0



X-Generation	X	HM XA	6xd	C Graphite			639
X-Generation	X	HM XA	9xd	C Graphite			641

Tolerance r 0/+0.03

N° 5630

d1 6 – 12
r 1.0, 1.5



N° 5640

d1 2 – 12
r 0.15, 0.2, 0.3, 0.5



N° 5645

d1 2 – 12
r 0.15, 0.2, 0.3, 0.5



N° 5650

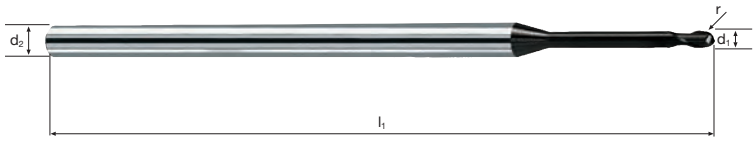
d1 10 – 12
r 0.5

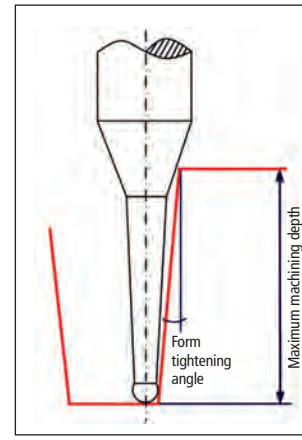


Base-X	B	HM XA		C Graphite			643
Base-X	B	HM XA		C Graphite			645
Base-X	B	HM XA		C Graphite			647
Base-X	B	HM XA		C Graphite			649

IV

Assortment list for ball nose end mills



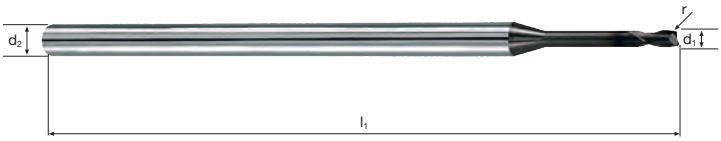


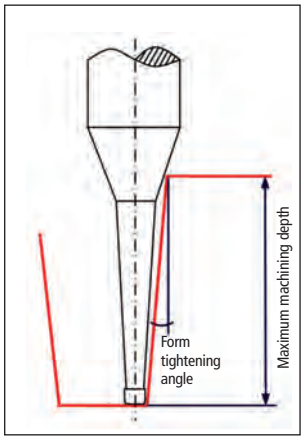
Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.2	3	40	2	0.10	0°	0.56	0.59	0.62	0.70	0.79	B5782020	595
	6	57	2	0.10	0°	0.96	1.01	1.06	1.19	1.36	B6064020	587
	6	57	2	0.10	0°	1.56	1.64	1.73	1.94	2.22	B6066020	589
0.3	3	40	2	0.15	0°	0.94	0.99	1.04	1.16	1.32	B5782030	595
	6	57	2	0.15	0°	1.54	1.62	1.71	1.91	2.17	B6064030	587
	6	57	2	0.15	0°	2.44	2.57	2.71	3.03	3.46	B6066030	589
0.4	3	40	2	0.20	0°	1.24	1.30	1.37	1.53	1.73	B5782040	595
	6	57	2	0.20	0°	2.04	2.14	2.26	2.52	2.87	B6064040	587
	6	57	2	0.20	0°	3.24	3.41	3.59	4.02	4.57	B6066040	589
	6	57	2	0.20	0°	4.04	4.25	4.48	5.02	5.71	B6068040	591
	6	57	2	0.20	0°	4.84	5.09	5.36	6.01	6.85	B6070040	593
0.5	3	40	2	0.25	0°	1.49	1.54	1.59	1.70	1.82	B5782050	595
	6	57	2	0.25	0°	2.49	2.57	2.66	2.85	3.07	B6064050	587
	3	40	2	0.25	0°	2.49	2.57	2.66	2.85	3.07	B5784050	597
	6	57	2	0.25	0°	3.99	4.12	4.26	4.57	4.93	B6066050	589
	3	40	2	0.25	0°	3.99	4.12	4.26	4.57	4.93	B5786050	599
	6	57	2	0.25	0°	4.99	5.16	5.33	5.72	6.17	B6068050	591
	3	40	2	0.25	0°	4.99	5.16	5.33	5.72	6.17	B5787050	601
	6	57	2	0.25	0°	5.99	6.19	6.40	6.87	7.42	B6070050	593
0.6	3	40	2	0.30	0°	1.79	1.85	1.90	2.03	2.18	B5782060	595
	6	57	2	0.30	0°	2.99	3.09	3.19	3.41	3.67	B6064060	587
	3	40	2	0.30	0°	2.99	3.09	3.19	3.41	3.67	B5784060	597
	6	57	2	0.30	0°	4.79	4.95	5.11	5.48	5.91	B6066060	589
	3	40	2	0.30	0°	4.79	4.95	5.11	5.48	5.91	B5786060	599
	6	57	2	0.30	0°	5.99	6.19	6.40	6.86	7.40	B6068060	591
	3	40	2	0.30	0°	5.99	6.19	6.40	6.86	7.40	B5787060	601
	6	57	2	0.30	0°	7.19	7.43	7.68	8.24	8.90	B6070060	593
0.7	3	40	2	0.35	0°	3.49	3.60	3.72	3.98	4.28	B5784070	597
0.8	3	40	2	0.40	0°	2.39	2.46	2.54	2.71	2.91	B5782080	595
	6	57	2	0.40	0°	3.99	4.12	4.25	4.55	4.89	B6064080	587
	3	40	2	0.40	0°	3.99	4.12	4.25	4.55	4.89	B5784080	597
	6	57	2	0.40	0°	6.39	6.60	6.82	7.31	7.88	B6066080	589
	3	40	2	0.40	0°	6.39	6.60	6.82	7.31	7.88	B5786080	599
	6	57	2	0.40	0°	7.99	8.25	8.53	9.15	9.87	B6068080	591
	3	40	2	0.40	0°	7.99	8.25	8.53	9.15	9.87	B5787080	601
	6	57	2	0.40	0°	9.59	9.91	10.24	10.99	11.86	B6070080	593
0.9	3	40	2	0.45	0°	4.49	4.67	4.78	5.12	5.50	B5784090	597

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
1.0	3	50	2	0.50	0°	2.99	3.08	3.17	3.38	3.63	B5782100	595
	6	57	2	0.50	0°	4.99	5.15	5.31	5.68	6.11	B6064100	587
	3	50	2	0.50	0°	4.99	2.15	5.31	5.68	6.11	B5784100	597
	6	57	2	0.50	0°	7.99	8.25	8.52	9.13	9.84	B6066100	589
	3	50	2	0.50	0°	7.99	8.25	8.52	9.13	9.84	B5786100	599
	6	57	2	0.50	0°	9.99	10.32	10.66	11.43	12.33	B6068100	591
	3	50	2	0.50	0°	9.99	10.32	10.66	11.43	12.33	B5787100	601
	6	61	2	0.50	0°	11.99	12.38	12.80	13.73	14.81	B6070100	593
	3	50	2	0.50	0°	11.99	12.38	12.80	13.73	14.81	B5791100	603
	3	60	2	0.50	0°	14.99	15.49	16.01	17.18	18.55	B5793100	605
	3	60	2	0.50	0°	19.99	20.65	21.36	22.93	-	B15795100	607
1.2	3	50	2	0.60	0°	3.69	3.79	3.91	4.17	4.47	B5782108	595
	3	50	2	0.60	0°	6.09	6.28	6.48	6.93	7.45	B5784108	597
	3	50	2	0.60	0°	9.69	10.00	10.33	11.07	11.92	B5786108	599
	3	50	2	0.60	0°	12.09	12.48	12.89	13.82	14.91	B5787108	601
	3	60	2	0.60	0°	14.49	14.96	15.46	16.58	-	B5791108	603
	3	60	2	0.60	0°	18.09	18.68	19.31	20.72	-	B5793108	605
	3	60	2	0.60	0°	24.09	24.88	25.73	-	-	B15795108	607
1.5	6	57	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	B6062120	585
	3	50	2	0.75	0°	4.59	4.72	4.86	5.18	5.55	B5782120	595
	6	57	2	0.75	0°	7.59	7.82	8.07	8.63	9.28	B6064120	587
	3	50	2	0.75	0°	7.59	7.82	8.07	8.63	9.28	B5784120	597
	6	57	2	0.75	0°	12.09	12.47	12.88	13.80	14.87	B6066120	589
	3	60	2	0.75	0°	12.09	12.47	12.88	13.80	14.87	B5786120	599
	6	61	2	0.75	0°	15.09	15.57	16.09	17.25	18.60	B6068120	591
	3	60	2	0.75	0°	15.09	15.57	16.09	17.25	-	B5787120	601
	6	66	2	0.75	0°	18.09	18.67	19.30	20.70	22.33	B6070120	593
	3	60	2	0.75	0°	18.09	18.67	19.30	20.70	-	B5791120	603
	3	70	2	0.75	0°	22.59	23.33	24.12	-	-	B5793120	605
	3	70	2	0.75	0°	30.09	31.08	32.14	-	-	B15795120	607
1.8	3	50	2	0.90	0°	9.09	9.37	9.67	10.33	11.11	B5784132	597
2.0	6	57	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	B6062140	585
	3	50	2	1.00	0°	6.09	6.26	6.45	6.87	7.35	B5782140	595
	6	57	2	1.00	0°	10.09	10.40	10.73	11.47	12.33	B6064140	587
	3	50	2	1.00	0°	10.09	10.40	10.73	11.47	-	B5784140	597
	6	61	2	1.00	0°	16.09	16.60	17.15	18.37	19.79	B6066140	589
	3	60	2	1.00	0°	16.09	16.60	17.15	-	-	B5786140	599
	6	66	2	1.00	0°	20.09	20.73	21.42	22.96	24.76	B6068140	591
	3	60	2	1.00	0°	20.09	20.73	21.42	-	-	B5787140	601
	6	69	2	1.00	0°	24.09	24.87	25.70	27.56	39.73	B6070140	593
	3	60	2	1.00	0°	24.09	24.87	25.70	-	-	B5791140	603
	3	70	2	1.00	0°	30.09	31.07	-	-	-	B5793140	605
	3	80	2	1.00	0°	40.09	41.41	-	-	-	B15795140	607
2.3	3	50	2	1.15	0°	11.77	12.13	12.52	13.38	14.39	B5784152	597
2.5	3	50	2	1.25	0°	7.77	8.00	8.24	-	-	B5782160	595
	3	50	2	1.25	0°	12.77	13.17	13.58	-	-	B5784160	597
	3	60	2	1.25	0°	20.27	20.92	-	-	-	B5786160	599
	3	60	2	1.25	0°	25.27	26.09	-	-	-	B5787160	601
	3	70	2	1.25	0°	30.27	-	-	-	-	B5791160	603
	3	70	2	1.25	0°	37.77	-	-	-	-	B5793160	605
	3	80	2	1.25	0°	50.27	-	-	-	-	B15795160	607
2.8	3	50	2	1.40	0°	14.27	-	-	-	-	B5784172	597
3.0	6	57	2	1.50	0°	9.27	9.54	9.82	10.46	11.20	B6062180	585
	6	57	2	1.50	0°	15.27	15.74	16.24	17.36	18.66	B6064180	587
	6	61	2	1.50	0°	18.27	18.84	19.45	20.81	22.39	B6064182	587

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
3.0	6	66	2	1.50	0°	24.27	25.04	25.87	27.71	29.84	B6066180	589
	6	75	2	1.50	0°	30.27	31.25	32.29	34.60	-	B6068180	591
	3	50	2	1.50	0°	8.90	-	-	-	-	B5782180	595
	3	50	2	1.50	0°	14.90	-	-	-	-	B5784180	597
	3	60	2	1.50	0°	23.90	-	-	-	-	B5786180	599
	3	60	2	1.50	0°	29.90	-	-	-	-	B5787180	601
	3	70	2	1.50	0°	35.90	-	-	-	-	B5791180	603
	3	80	2	1.50	0°	44.90	-	-	-	-	B5793180	605
	3	90	2	1.50	0°	59.90	-	-	-	-	B15795180	607
4.0	6	57	2	2.00	0°	12.46	12.82	13.20	14.05	15.04	B6062220	585
	6	61	2	2.00	0°	20.46	21.09	21.75	23.25	-	B6064220	587
	6	66	2	2.00	0°	25.46	26.25	27.10	29.00	-	B6064222	587
	6	75	2	2.00	0°	32.46	33.49	34.59	-	-	B6066220	589
	6	80	2	2.00	0°	40.46	41.76	43.15	-	-	B6068220	591
5.0	6	57	2	2.50	0°	15.65	16.09	16.57	-	-	B6062260	585
	6	66	2	2.50	0°	25.65	26.43	27.27	-	-	B6064260	587
	6	80	2	2.50	0°	40.65	41.93	-	-	-	B6066260	589
	6	100	2	2.50	0°	50.65	52.27	-	-	-	B6068260	591
6.0	6	57	2	3.00	0°	17.90	-	-	-	-	B6062300	585
	6	57	2	3.00	0°	19.90	-	-	-	-	B7480300	633
	6	69	2	3.00	0°	29.90	-	-	-	-	B6064300	587
	6	80	2	3.00	0°	42.90	-	-	-	-	B7484300	635
	6	87	2	3.00	0°	47.90	-	-	-	-	B6066300	589
	6	100	2	3.00	0°	59.90	-	-	-	-	B6068300	591
	6	100	2	3.00	0°	62.90	-	-	-	-	B7488300	637
8.0	8	63	2	4.00	0°	25.90	-	-	-	-	B7480391	633
	8	90	2	4.00	0°	52.90	-	-	-	-	B7484391	635
	8	120	2	4.00	0°	82.90	-	-	-	-	B7488391	637
10.0	10	72	2	5.00	0°	30.90	-	-	-	-	B7480450	633
	10	105	2	5.00	0°	63.90	-	-	-	-	B7484450	635
	10	135	2	5.00	0°	93.90	-	-	-	-	B7488450	637
12.0	12	83	2	6.00	0°	36.90	-	-	-	-	B7480501	633
	12	120	2	6.00	0°	73.90	-	-	-	-	B7484501	635
	12	160	2	6.00	0°	113.90	-	-	-	-	B7488501	637

Assortment list for corner radius end mills



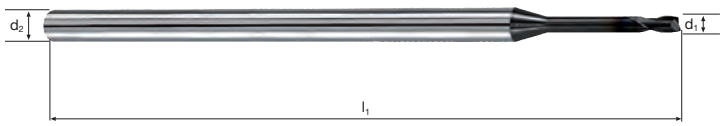


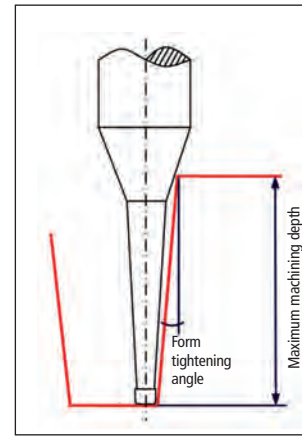
Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.2	6	57	2	-	0°	0.96	1.01	1.07	1.22	1.40	B6034020	611
	6	57	2	-	0°	1.56	1.64	1.74	1.97	2.26	B6036020	613
0.3	6	57	2	-	0°	1.54	1.63	1.72	1.95	2.24	B6034030	611
	6	57	2	-	0°	2.44	2.57	2.72	3.07	3.52	B6036030	613
0.4	6	57	2	0.05	0°	2.04	2.15	2.27	2.56	2.93	B6034040	611
	6	57	2	0.05	0°	3.24	3.41	3.60	4.06	4.63	B6036040	613
	6	57	2	0.05	0°	4.04	4.26	4.49	5.05	5.77	B6038040	615
	6	57	2	0.05	0°	4.84	5.10	5.38	6.05	6.91	B6040040	617
0.5	6	57	2	0.05	0°	2.49	2.58	2.67	2.88	3.11	B6034048	611
	6	57	2	0.10	0°	2.49	2.58	2.67	2.87	3.10	B6034050	611
	6	57	2	0.10	0°	3.99	4.13	4.27	4.59	4.97	B6036050	613
	6	57	2	0.05	0°	3.99	4.13	4.28	4.60	4.98	B6036048	613
	6	57	2	0.10	0°	4.99	5.16	5.34	5.74	6.21	B6038050	615
	6	57	2	0.05	0°	4.99	5.16	5.35	5.75	6.22	B6038048	615
	6	57	2	0.05	0°	5.99	6.20	6.41	6.90	7.46	B6040048	617
	6	57	2	0.10	0°	5.99	6.20	6.41	6.89	7.45	B6040050	617
0.6	6	57	2	0.10	0°	2.99	3.09	3.20	3.44	3.72	B6034060	611
	6	57	2	0.10	0°	4.79	4.95	5.13	5.51	5.96	B6036060	613
	6	57	2	0.10	0°	5.99	6.20	6.41	6.89	7.45	B6038060	615
	6	57	2	0.10	0°	7.19	7.44	7.70	8.27	8.94	B6040060	617
0.8	6	57	2	0.10	0°	3.99	4.13	4.27	4.59	4.97	B6034080	611
	6	57	2	0.10	0°	6.39	6.61	6.84	7.35	7.95	B6036080	613
	6	57	2	0.10	0°	7.99	8.26	8.55	9.19	9.94	B6038080	615
	6	57	2	0.10	0°	9.59	9.92	10.26	11.03	11.93	B6040080	617
1.0	3	50	2	0.20	0°	2.99	3.09	3.20	3.43	3.70	B5752100	619
	6	57	2	0.20	0°	4.99	5.16	5.33	5.73	6.18	B6034100	611
	3	50	2	0.20	0°	4.99	5.16	5.33	5.73	6.18	B5754100	621
	6	57	2	0.10	0°	4.99	5.16	5.34	5.74	6.21	B6034098	611
	6	57	2	0.20	0°	7.99	8.26	8.54	9.18	9.91	B6036100	613
	3	50	2	0.20	0°	7.99	8.26	8.54	9.18	9.91	B5756100	623
	6	57	2	0.10	0°	7.99	8.26	8.55	9.19	9.94	B6036098	613
	6	57	2	0.20	0°	9.99	10.33	10.68	11.48	12.40	B6038100	615
	6	57	2	0.10	0°	9.99	10.33	10.69	11.49	12.42	B6038098	615
	6	61	2	0.20	0°	11.99	12.39	12.82	13.78	14.89	B6040100	617
	6	61	2	0.10	0°	11.99	12.40	12.83	13.79	14.91	B6040098	617
1.2	3	50	2	0.20	0°	3.69	3.81	3.94	4.23	4.56	B5752108	619
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	B5754108	621

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
1.2	3	50	2	0.20	0°	9.69	10.01	10.36	11.12	12.02	B5756108	623
1.5	6	57	2	0.20	0°	4.59	4.74	4.90	5.26	5.68	B6032120	609
	3	50	2	0.20	0°	4.59	4.74	4.90	5.26	5.68	B5752120	619
	6	57	2	0.20	0°	7.59	7.84	8.11	8.71	9.41	B6034120	611
	3	50	2	0.20	0°	7.59	7.84	8.11	8.71	9.41	B5754120	621
	6	57	2	0.20	0°	12.09	12.49	12.92	13.88	15.00	B6036120	613
	3	60	2	0.20	0°	12.09	12.49	12.92	13.88	-	B5756120	623
	6	61	2	0.20	0°	15.09	15.59	16.13	17.33	18.73	B6038120	615
	6	66	2	0.20	0°	18.09	18.69	19.34	20.78	22.46	B6040120	617
2.0	3	40	3	0.15	0°	5.90	6.10	6.31	6.78	7.32	B5640140	645
	6	57	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	B6032140	609
	3	50	2	0.20	0°	6.09	6.29	6.50	6.98	7.54	B5752140	619
	3	60	3	0.15	0°	8.90	9.20	9.52	10.23	-	B5645140	647
	6	57	2	0.20	0°	10.09	10.42	10.78	11.58	12.52	B6034140	611
	3	50	2	0.20	0°	10.09	10.42	10.78	11.78	-	B5754140	621
	6	61	2	0.20	0°	16.09	16.63	17.20	18.48	19.98	B6036140	613
	3	60	2	0.20	0°	16.09	16.63	17.20	-	-	B5756140	623
	6	66	2	0.20	0°	20.09	20.76	21.48	23.08	24.95	B6038140	615
	6	69	2	0.20	0°	24.09	24.89	25.76	27.68	29.92	B6040140	617
2.5	3	50	2	0.20	0°	7.77	8.03	8.31	-	-	B5752160	619
	3	50	2	0.20	0°	12.77	13.20	13.66	-	-	B5754160	621
	3	60	2	0.20	0°	20.27	20.95	-	-	-	B5756160	623
3.0	6	57	2	0.20	0°	9.27	9.58	9.91	10.65	11.51	B6032180	609
	6	57	2	0.20	0°	15.27	15.78	16.33	17.55	18.96	B6034180	611
	6	61	2	0.20	0°	18.27	18.89	19.54	21.00	22.69	B6034182	611
	6	66	2	0.20	0°	24.27	25.09	25.96	27.90	-	B6036180	613
	6	75	2	0.20	0°	30.27	31.29	32.38	34.80	-	B6038180	615
	3	50	2	0.20	0°	8.90	-	-	-	-	B5752180	619
	3	40	3	0.15	0°	11.90	-	-	-	-	B5640180	645
	3	50	2	0.20	0°	14.90	-	-	-	-	B5754180	621
	3	60	2	0.20	0°	23.90	-	-	-	-	B5756180	623
	3	60	3	0.15	0°	29.90	-	-	-	-	B5645180	647
4.0	6	57	2	0.50	0°	12.46	12.87	13.30	14.27	15.40	B6032220	609
	6	57	2	0.20	0°	12.46	12.88	13.32	14.31	15.47	B6032215	609
	6	61	2	0.50	0°	20.46	21.14	21.86	23.47	-	B6034220	611
	6	61	2	0.20	0°	20.46	21.15	21.88	23.51	-	B6034215	611
	6	66	2	0.50	0°	25.46	26.30	27.21	-	-	B6034222	611
	6	66	2	0.20	0°	25.46	26.31	27.23	-	-	B6034217	611
	6	75	2	0.50	0°	32.46	33.54	34.69	-	-	B6036220	613
	6	75	2	0.20	0°	32.46	33.55	34.71	-	-	B6036215	613
	6	80	2	0.50	0°	40.46	41.81	43.25	-	-	B6038220	615
	6	80	2	0.20	0°	40.46	41.82	43.27	-	-	B6038215	615
	4	50	3	0.20	0°	13.90	-	-	-	-	B5640220	645
	4	60	3	0.20	0°	29.90	-	-	-	-	B5645220	647
5.0	6	57	2	0.50	0°	15.65	16.16	16.71	-	-	B6032260	609
	6	57	2	0.20	0°	15.65	16.17	16.73	-	-	B6032255	609
	6	66	2	0.50	0°	25.65	26.50	27.41	-	-	B6034260	611
	6	66	2	0.20	0°	25.65	26.51	27.43	-	-	B6034255	611
	5	50	3	0.30	0°	15.90	-	-	-	-	B5640260	645
	5	70	3	0.30	0°	34.90	-	-	-	-	B5645260	647
	6	80	2	0.20	0°	40.65	42.01	-	-	-	B6036255	613
	6	80	2	0.50	0°	40.65	42.00	-	-	-	B6036260	613
	6	100	2	0.20	0°	50.65	52.35	-	-	-	B6038255	615
	6	100	2	0.50	0°	50.65	52.34	-	-	-	B6038260	615
6.0	6	57	2	0.20	0°	17.90	-	-	-	-	B6032295	609

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	r	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
6.0	6	57	2	0.50	0°	17.90	-	-	-	-	B6032300	609
	6	63	3	0.30	0°	18.90	-	-	-	-	B5640300	645
	6	69	2	0.20	0°	29.90	-	-	-	-	B6034295	611
	6	69	2	0.50	0°	29.90	-	-	-	-	B6034300	611
	6	70	2	1.00	0°	32.90	-	-	-	-	B5630300	643
	6	100	3	0.30	0°	39.90	-	-	-	-	B5645300	647
	6	80	2	0.50	0°	42.90	-	-	-	-	B7284300	639
	6	80	2	1.00	0°	42.90	-	-	-	-	B7284297	639
	6	87	2	0.20	0°	47.90	-	-	-	-	B6036295	613
	6	87	2	0.50	0°	47.90	-	-	-	-	B6036300	613
	6	100	2	0.20	0°	59.90	-	-	-	-	B6038295	615
	6	100	2	0.50	0°	59.90	-	-	-	-	B6038300	615
	6	100	2	0.50	0°	62.90	-	-	-	-	B7288300	641
	6	100	2	1.00	0°	62.90	-	-	-	-	B7288297	641
8.0	8	63	3	0.50	0°	18.90	-	-	-	-	B5640391	645
	8	100	3	0.50	0°	39.90	-	-	-	-	B5645391	647
	8	80	2	1.00	0°	42.90	-	-	-	-	B5630391	643
	8	90	2	0.50	0°	52.90	-	-	-	-	B7284391	639
	8	90	2	1.00	0°	52.90	-	-	-	-	B7284388	639
	8	120	2	0.50	0°	82.90	-	-	-	-	B7288391	641
	8	120	2	1.00	0°	82.90	-	-	-	-	B7288388	641
10.0	10	72	3	0.50	0°	21.90	-	-	-	-	B5640450	645
	10	100	3	0.50	0°	39.90	-	-	-	-	B5645450	647
	10	84	2	1.50	0°	42.90	-	-	-	-	B5630450	643
	10	125	3	0.50	0°	54.90	-	-	-	-	B5650450	649
	10	105	2	0.50	0°	63.90	-	-	-	-	B7284450	639
	10	105	2	1.00	0°	63.90	-	-	-	-	B7284445	639
	10	135	2	0.50	0°	93.90	-	-	-	-	B7288450	641
	10	135	2	1.00	0°	93.90	-	-	-	-	B7288445	641
12.0	12	75	3	0.50	0°	24.90	-	-	-	-	B5640501	645
	12	97	3	0.50	0°	41.90	-	-	-	-	B5645501	647
	12	97	2	1.50	0°	50.90	-	-	-	-	B5630501	643
	12	125	3	0.50	0°	54.90	-	-	-	-	B5650501	649
	12	120	2	0.50	0°	73.90	-	-	-	-	B7284501	639
	12	120	2	1.00	0°	73.90	-	-	-	-	B7284496	639
	12	160	2	0.50	0°	113.90	-	-	-	-	B7288501	641
	12	160	2	1.00	0°	113.90	-	-	-	-	B7288496	641

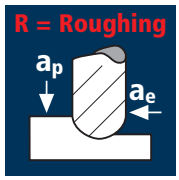
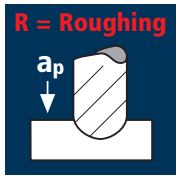
Assortment list for cylindrical end mills

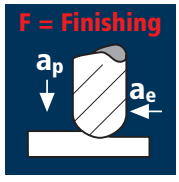
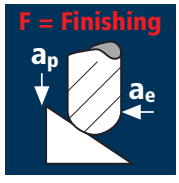




Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	45°	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
0.2	3	40	2	-	0°	0.56	0.59	0.63	0.72	0.83	B5712020	625
0.3	3	40	2	-	0°	0.94	1.00	1.06	1.20	1.38	B5712030	625
0.4	3	40	2	-	0°	1.24	1.31	1.39	1.57	1.81	B5712040	625
0.5	3	40	2	-	0°	1.49	1.55	1.60	1.73	1.88	B5712050	625
	3	40	2	-	0°	2.49	2.58	2.67	2.88	3.12	B5714050	627
	3	40	2	-	0°	3.99	4.13	4.28	4.61	4.99	B5716050	629
	3	40	2	-	0°	4.99	5.17	5.35	5.76	6.23	B5717050	631
0.6	3	40	2	-	0°	1.79	1.86	1.93	2.08	2.25	B5712060	625
	3	40	2	-	0°	2.99	3.10	3.21	3.46	3.75	B5714060	627
	3	40	2	-	0°	4.79	4.96	5.13	5.53	5.98	B5716060	629
	3	40	2	-	0°	5.99	3.20	6.42	6.91	7.48	B5717060	631
0.7	3	40	2	-	0°	3.49	3.61	3.74	4.03	4.37	B5714070	627
0.8	3	40	2	-	0°	2.39	2.48	2.57	2.77	3.00	B5712080	625
	3	40	2	-	0°	3.99	4.13	4.28	4.61	4.99	B5714080	627
	3	40	2	-	0°	6.39	6.61	6.85	7.37	7.97	B5716080	629
	3	40	2	-	0°	7.99	8.27	8.56	9.21	9.96	B5717080	631
0.9	3	40	2	-	0°	4.49	4.65	4.81	5.18	5.61	B5714090	627
1.0	3	50	2	0.07	0°	2.99	3.10	3.21	3.46	3.75	B5712100	625
	3	50	2	0.07	0°	4.99	5.17	5.35	5.76	6.23	B5714100	627
	3	50	2	0.07	0°	7.99	8.27	8.56	9.21	9.96	B5716100	629
	3	50	2	0.07	0°	9.99	10.33	10.70	11.51	12.45	B5717100	631
1.2	3	50	2	0.07	0°	3.69	3.81	3.95	4.25	4.61	B5712108	625
	3	50	2	0.07	0°	6.09	6.30	6.52	7.01	7.59	B5714108	627
	3	50	2	0.07	0°	9.69	10.02	10.37	11.15	12.07	B5716108	629
	3	50	2	0.07	0°	12.09	12.50	12.94	13.91	15.05	B5717108	631
1.5	3	50	2	0.07	0°	4.59	4.74	4.91	5.29	5.73	B5712120	625
	3	50	2	0.07	0°	7.59	7.85	8.12	8.74	9.46	B5714120	627
	3	60	2	0.07	0°	12.09	12.50	12.94	13.91	-	B5716120	629
	3	60	2	0.07	0°	15.09	15.60	16.15	17.36	-	B5717120	631
1.8	3	50	2	0.07	0°	9.09	9.40	9.73	10.46	11.32	B5714132	627
2.0	3	50	2	0.10	0°	6.09	6.30	6.52	7.01	7.59	B5712140	625
	3	50	2	0.10	0°	10.09	10.43	10.80	11.61	-	B5714140	627
	3	60	2	0.10	0°	16.09	16.63	17.22	-	-	B5716140	629
	3	60	2	0.10	0°	20.09	20.77	21.49	-	-	B5717140	631
2.3	3	50	2	0.10	0°	11.77	12.17	12.60	-	-	B5714152	627
2.5	3	50	2	0.10	0°	7.77	8.04	8.32	-	-	B5712160	625
	3	50	2	0.10	0°	12.77	13.21	13.67	-	-	B5714160	627

Structural dimensions						Maximum machining depth in mm for corresponding form tightening angle – = workpiece contour lies outside of collision area with tool					Identification	
d1	d2	l1	z	45°	θ	0°	0.5°	1°	2°	3°	Order-N°.	Page
2.5	3	60	2	0.10	0°	20.27	20.96	-	-	-	B5716160	629
	3	60	2	0.10	0°	25.27	26.13	-	-	-	B5717160	631
2.8	3	50	2	0.10	0°	14.27	-	-	-	-	B5714172	627
3.0	3	50	2	0.10	0°	8.90	-	-	-	-	B5712180	625
	3	50	2	0.10	0°	14.90	-	-	-	-	B5714180	627
	3	60	2	0.10	0°	23.90	-	-	-	-	B5716180	629
	3	60	2	0.10	0°	29.90	-	-	-	-	B5717180	631

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.5	2	0.018	0.75	0.90	540	900	1080	1620
		2.0	2	0.024	1.00	1.20	720	1200	1440	2160
		3.0	2	0.035	1.50	1.80	1050	1750	2100	3150
		4.0	2	0.047	2.00	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.50	3.00	1770	2950	3540	5310
		6.0	2	0.071	3.00	3.60	2130	3550	4260	6390
	Graphite B	1.5	2	0.014	0.75	1.50	420	700	840	1260
		2.0	2	0.018	1.00	2.00	540	900	1080	1620
		3.0	2	0.027	1.50	3.00	810	1350	1620	2430
		4.0	2	0.036	2.00	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.50	5.00	1350	2250	2700	4050
		6.0	2	0.055	3.00	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.5	2	0.020	0.23	0.30	600	1000	1200	1800
		2.0	2	0.027	0.30	0.40	810	1350	1620	2430
		3.0	2	0.040	0.45	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.60	0.80	1590	2650	3180	4770
		5.0	2	0.067	0.75	1.00	2010	3350	4020	6030
		6.0	2	0.080	0.90	1.20	2400	4000	4800	7200
	Graphite B	1.5	2	0.020	0.30	0.30	600	1000	1200	1800
		2.0	2	0.027	0.40	0.40	810	1350	1620	2430
		3.0	2	0.040	0.60	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.80	0.80	1590	2650	3180	4770
		5.0	2	0.067	1.00	1.00	2010	3350	4020	6030
		6.0	2	0.080	1.20	1.20	2400	4000	4800	7200

Ball nose end mills MicrospheroXG

Shank Ø 6mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | X-Generation **X**

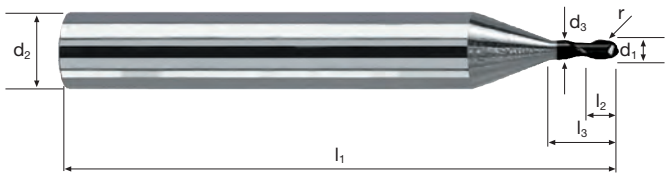
HM
XA

λ **30°**
γ **15°**

h5

d_1

r



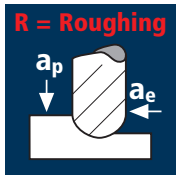
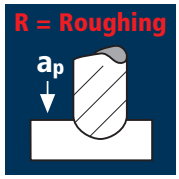
C
Graphite

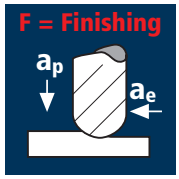
CF/GF
Fiber Reinforced Plastics

IV

Example:
Order-N°. Coating **B** Article-N°. **6062** ø-Code **.120**

ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	r ±0.005	α	z	DIAPLUS B6062
.120	1.5	6	1.4	57	1.5	4.5	0.75	10.3°	2	●
.140	2.0	6	1.9	57	2.0	6.0	1.00	9.0°	2	●
.180	3.0	6	2.8	57	3.0	9.0	1.50	6.4°	2	●
.220	4.0	6	3.7	57	4.0	12.0	2.00	4.1°	2	●
.260	5.0	6	4.6	57	5.0	15.0	2.50	2.0°	2	●
.300	6.0	6	5.5	57	6.0	18.0	3.00	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.004	0.15	0.20	120	200	240	360
		0.4	2	0.005	0.20	0.25	150	250	300	450
		0.5	2	0.006	0.25	0.30	180	300	360	540
		0.6	2	0.007	0.25	0.35	210	350	420	630
		0.8	2	0.009	0.35	0.50	270	450	540	810
		1.0	2	0.012	0.45	0.60	360	600	720	1080
		1.5	2	0.018	0.70	0.90	540	900	1080	1620
		2.0	2	0.024	0.90	1.20	720	1200	1440	2160
	Graphite B	3.0	2	0.035	1.35	1.80	1050	1750	2100	3150
		4.0	2	0.047	1.80	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.25	3.00	1770	2950	3540	5310
		6.0	2	0.071	2.70	3.60	2130	3550	4260	6390
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.20	60	100	120	180
		0.3	2	0.003	0.15	0.30	90	150	180	270
		0.4	2	0.004	0.20	0.40	120	200	240	360
		0.5	2	0.005	0.25	0.50	150	250	300	450
		0.6	2	0.005	0.25	0.60	150	250	300	450
		0.8	2	0.007	0.35	0.80	210	350	420	630
		1.0	2	0.009	0.45	1.00	270	450	540	810
		1.5	2	0.014	0.70	1.50	420	700	840	1260
		2.0	2	0.018	0.90	2.00	540	900	1080	1620
	Graphite B	3.0	2	0.027	1.35	3.00	810	1350	1620	2430
		4.0	2	0.036	1.80	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.25	5.00	1350	2250	2700	4050
		6.0	2	0.055	2.70	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
F = Finishing 	Graphite B	0.2	2	0.003	0.03	0.04	90	150	180	270
		0.3	2	0.004	0.04	0.06	120	200	240	360
		0.4	2	0.005	0.06	0.08	150	250	300	450
		0.5	2	0.007	0.07	0.10	210	350	420	630
		0.6	2	0.008	0.08	0.12	240	400	480	720
		0.8	2	0.011	0.11	0.16	330	550	660	990
		1.0	2	0.013	0.14	0.20	390	650	780	1170
		1.5	2	0.020	0.21	0.30	600	1000	1200	1800
		2.0	2	0.027	0.28	0.40	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.42	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.56	0.80	1590	2650	3180	4770
		5.0	2	0.067	0.70	1.00	2010	3350	4020	6030
		6.0	2	0.080	0.84	1.20	2400	4000	4800	7200
F = Finishing 	Graphite B	0.2	2	0.003	0.04	0.04	90	150	180	270
		0.3	2	0.004	0.05	0.05	120	200	240	360
		0.4	2	0.005	0.07	0.07	150	250	300	450
		0.5	2	0.007	0.09	0.09	210	350	420	630
		0.6	2	0.008	0.11	0.11	240	400	480	720
		0.8	2	0.011	0.14	0.14	330	550	660	990
		1.0	2	0.013	0.18	0.18	390	650	780	1170
		1.5	2	0.020	0.27	0.27	600	1000	1200	1800
		2.0	2	0.027	0.36	0.36	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.54	0.54	1200	2000	2400	3600
		4.0	2	0.053	0.72	0.72	1590	2650	3180	4770
		5.0	2	0.067	0.90	0.90	2010	3350	4020	6030
		6.0	2	0.080	1.08	1.08	2400	4000	4800	7200

Ball nose end mills MicrospheroXG

Shank Ø 6mm, cylindrical neck, 5xd

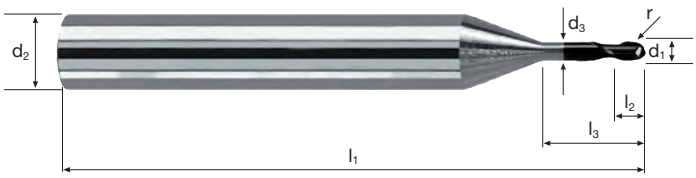
HSS | Favora® | Base-X | X-Generation X

HM XA | λ 30° γ 15°

h5

d1

r



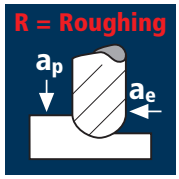
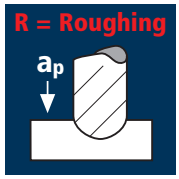
IV

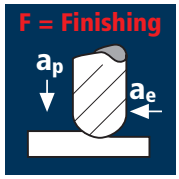
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **6064** | ø-Code **.020**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DIAPLUS B6064
.020	0.2	6	0.18	57	0.2	1.0	0.10	9.5°	2	●
.030	0.3	6	0.25	57	0.3	1.5	0.15	9.3°	2	●
.040	0.4	6	0.35	57	0.4	2.0	0.20	9.1°	2	●
.050	0.5	6	0.45	57	0.5	2.5	0.25	12.3°	2	●
.060	0.6	6	0.55	57	0.6	3.0	0.30	11.9°	2	●
.080	0.8	6	0.75	57	0.8	4.0	0.40	11.0°	2	●
.100	1.0	6	0.95	57	1.0	5.0	0.50	10.2°	2	●
.120	1.5	6	1.40	57	1.5	7.5	0.75	8.4°	2	●
.140	2.0	6	1.90	57	2.0	10.0	1.00	6.9°	2	●
.180	3.0	6	2.80	57	3.0	15.0	1.50	4.4°	2	●
.182	3.0	6	2.80	61	3.0	18.0	1.50	3.9°	2	●
.220	4.0	6	3.70	61	4.0	20.0	2.00	2.6°	2	●
.222	4.0	6	3.70	66	4.0	25.0	2.00	2.2°	2	●
.260	5.0	6	4.60	66	5.0	25.0	2.50	1.2°	2	●
.300	6.0	6	5.50	69	6.0	30.0	3.00	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.004	0.10	0.20	120	200	240	360
		0.4	2	0.005	0.15	0.25	150	250	300	450
		0.5	2	0.006	0.20	0.30	180	300	360	540
		0.6	2	0.007	0.25	0.35	210	350	420	630
		0.8	2	0.009	0.30	0.50	270	450	540	810
		1.0	2	0.012	0.40	0.60	360	600	720	1080
		1.5	2	0.018	0.60	0.90	540	900	1080	1620
		2.0	2	0.024	0.80	1.20	720	1200	1440	2160
	Graphite B	3.0	2	0.035	1.20	1.80	1050	1750	2100	3150
		4.0	2	0.047	1.60	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.00	3.00	1770	2950	3540	5310
		6.0	2	0.071	2.40	3.60	2130	3550	4260	6390
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.20	60	100	120	180
		0.3	2	0.003	0.10	0.30	90	150	180	270
		0.4	2	0.004	0.15	0.40	120	200	240	360
		0.5	2	0.005	0.20	0.50	150	250	300	450
		0.6	2	0.005	0.25	0.60	150	250	300	450
		0.8	2	0.007	0.30	0.80	210	350	420	630
		1.0	2	0.009	0.40	1.00	270	450	540	810
		1.5	2	0.014	0.60	1.50	420	700	840	1260
		2.0	2	0.018	0.80	2.00	540	900	1080	1620
	Graphite B	3.0	2	0.027	1.20	3.00	810	1350	1620	2430
		4.0	2	0.036	1.60	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.00	5.00	1350	2250	2700	4050
		6.0	2	0.055	2.40	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
F = Finishing 	Graphite B	0.2	2	0.003	0.02	0.04	90	150	180	270
		0.3	2	0.004	0.04	0.05	120	200	240	360
		0.4	2	0.005	0.05	0.07	150	250	300	450
		0.5	2	0.007	0.06	0.09	210	350	420	630
		0.6	2	0.008	0.07	0.11	240	400	480	720
		0.8	2	0.011	0.10	0.14	330	550	660	990
		1.0	2	0.013	0.12	0.18	390	650	780	1170
		1.5	2	0.020	0.18	0.27	600	1000	1200	1800
		2.0	2	0.027	0.24	0.36	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.36	0.54	1200	2000	2400	3600
		4.0	2	0.053	0.48	0.72	1590	2650	3180	4770
		5.0	2	0.067	0.60	0.90	2010	3350	4020	6030
		6.0	2	0.080	0.72	1.08	2400	4000	4800	7200
F = Finishing 	Graphite B	0.2	2	0.003	0.03	0.03	90	150	180	270
		0.3	2	0.004	0.05	0.05	120	200	240	360
		0.4	2	0.005	0.06	0.06	150	250	300	450
		0.5	2	0.007	0.08	0.08	210	350	420	630
		0.6	2	0.008	0.10	0.10	240	400	480	720
		0.8	2	0.011	0.13	0.13	330	550	660	990
		1.0	2	0.013	0.16	0.16	390	650	780	1170
		1.5	2	0.020	0.24	0.24	600	1000	1200	1800
		2.0	2	0.027	0.32	0.32	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.48	0.48	1200	2000	2400	3600
		4.0	2	0.053	0.64	0.64	1590	2650	3180	4770
		5.0	2	0.067	0.80	0.80	2010	3350	4020	6030
		6.0	2	0.080	0.96	0.96	2400	4000	4800	7200

Ball nose end mills MicrospheroXG

Shank Ø 6mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation **X**

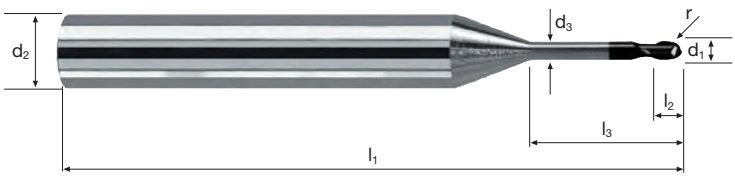
HM
XA

λ **30°**
γ **15°**

h5

d1

r



C
Graphite

CF/GF
Fiber Reinforced Plastics

IV

Example:
Order-N°. Coating **B** Article-N°. **6066** ø-Code **.020**

DIAPLUS

B6066

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	
.020	0.2	6	0.18	57	0.2	1.6	0.10	9.3°	2	●
.030	0.3	6	0.25	57	0.3	2.4	0.15	9.0°	2	●
.040	0.4	6	0.35	57	0.4	3.2	0.20	8.5°	2	●
.050	0.5	6	0.45	57	0.5	4.0	0.25	11.1°	2	●
.060	0.6	6	0.55	57	0.6	4.8	0.30	10.5°	2	●
.080	0.8	6	0.75	57	0.8	6.4	0.40	9.4°	2	●
.100	1.0	6	0.95	57	1.0	8.0	0.50	8.4°	2	●
.120	1.5	6	1.40	57	1.5	12.0	0.75	6.5°	2	●
.140	2.0	6	1.90	61	2.0	16.0	1.00	5.1°	2	●
.180	3.0	6	2.80	66	3.0	24.0	1.50	3.1°	2	●
.220	4.0	6	3.70	75	4.0	32.0	2.00	1.7°	2	●
.260	5.0	6	4.60	80	5.0	40.0	2.50	0.8°	2	●
.300	6.0	6	5.50	87	6.0	48.0	3.00	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
R = Roughing	Graphite	0.4	2	0.005	0.15	0.15	150	250	300	450
		0.5	2	0.006	0.20	0.20	180	300	360	540
		0.6	2	0.007	0.25	0.25	210	350	420	630
		0.8	2	0.009	0.30	0.30	270	450	540	810
		1.0	2	0.012	0.40	0.40	360	600	720	1080
		1.5	2	0.018	0.60	0.60	540	900	1080	1620
		2.0	2	0.024	0.80	0.80	720	1200	1440	2160
		3.0	2	0.035	1.20	1.20	1050	1750	2100	3150
		4.0	2	0.047	1.60	1.60	1410	2350	2820	4230
	Graphite	5.0	2	0.059	2.00	2.00	1770	2950	3540	5310
		6.0	2	0.071	2.40	2.40	2130	3550	4260	6390
R = Roughing	Graphite	0.4	2	0.003	0.10	0.40	90	150	180	270
		0.5	2	0.004	0.15	0.50	120	200	240	360
		0.6	2	0.004	0.20	0.60	120	200	240	360
		0.8	2	0.006	0.25	0.80	180	300	360	540
		1.0	2	0.007	0.30	1.00	210	350	420	630
		1.5	2	0.011	0.45	1.50	330	550	660	990
		2.0	2	0.015	0.60	2.00	450	750	900	1350
		3.0	2	0.022	0.90	3.00	660	1100	1320	1980
		4.0	2	0.029	1.20	4.00	870	1450	1740	2610
	Graphite	5.0	2	0.036	1.50	5.00	1080	1800	2160	3240
		6.0	2	0.044	1.80	6.00	1320	2200	2640	3960

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
F = Finishing	Graphite	0.4	2	0.005	0.04	0.06	150	250	300	450
		0.5	2	0.007	0.05	0.08	210	350	420	630
		0.6	2	0.008	0.06	0.10	240	400	480	720
		0.8	2	0.011	0.08	0.13	330	550	660	990
		1.0	2	0.013	0.10	0.16	390	650	780	1170
		1.5	2	0.020	0.15	0.24	600	1000	1200	1800
		2.0	2	0.027	0.20	0.32	810	1350	1620	2430
		3.0	2	0.040	0.30	0.48	1200	2000	2400	3600
		4.0	2	0.053	0.40	0.64	1590	2650	3180	4770
	Graphite	5.0	2	0.067	0.50	0.80	2010	3350	4020	6030
		6.0	2	0.080	0.60	0.96	2400	4000	4800	7200
F = Finishing	Graphite	0.4	2	0.005	0.06	0.06	150	250	300	450
		0.5	2	0.007	0.07	0.07	210	350	420	630
		0.6	2	0.008	0.08	0.08	240	400	480	720
		0.8	2	0.011	0.11	0.11	330	550	660	990
		1.0	2	0.013	0.14	0.14	390	650	780	1170
		1.5	2	0.020	0.21	0.21	600	1000	1200	1800
		2.0	2	0.027	0.28	0.28	810	1350	1620	2430
		3.0	2	0.040	0.42	0.42	1200	2000	2400	3600
		4.0	2	0.053	0.56	0.56	1590	2650	3180	4770
	Graphite	5.0	2	0.067	0.70	0.70	2010	3350	4020	6030
		6.0	2	0.080	0.84	0.84	2400	4000	4800	7200

Ball nose end mills MicrospheroXG

Shank Ø 6mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | X-Generation X

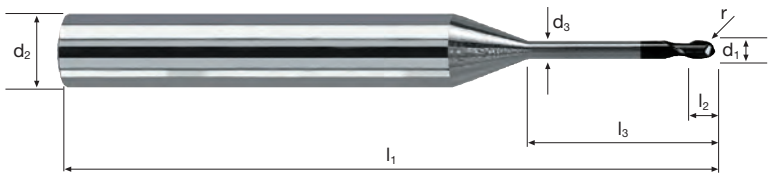
HM
XA

λ **30°**
γ **15°**

h5

d_1

r



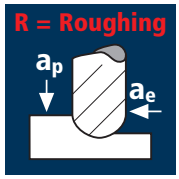
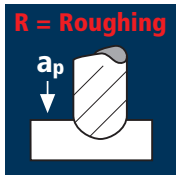
IV

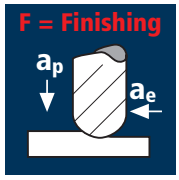
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **6068** ø-Code **.040**

ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	r ±0.005	α	z	DIAPLUS B6068
.040	0.4	6	0.35	57	0.4	4.0	0.20	8.3°	2	●
.050	0.5	6	0.45	57	0.5	5.0	0.25	10.3°	2	●
.060	0.6	6	0.55	57	0.6	6.0	0.30	9.7°	2	●
.080	0.8	6	0.75	57	0.8	8.0	0.40	8.5°	2	●
.100	1.0	6	0.95	57	1.0	10.0	0.50	7.6°	2	●
.120	1.5	6	1.40	61	1.5	15.0	0.75	5.7°	2	●
.140	2.0	6	1.90	66	2.0	20.0	1.00	4.3°	2	●
.180	3.0	6	2.80	75	3.0	30.0	1.50	2.5°	2	●
.220	4.0	6	3.70	80	4.0	40.0	2.00	1.4°	2	●
.260	5.0	6	4.60	100	5.0	50.0	2.50	0.6°	2	●
.300	6.0	6	5.50	100	6.0	60.0	3.00	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	0.4	2	0.004	0.10	0.15	120	200	240	360
		0.5	2	0.005	0.15	0.20	150	250	300	450
		0.6	2	0.006	0.20	0.25	180	300	360	540
		0.8	2	0.008	0.25	0.30	240	400	480	720
		1.0	2	0.009	0.30	0.40	270	450	540	810
		1.5	2	0.014	0.45	0.60	420	700	840	1260
		2.0	2	0.019	0.60	0.80	570	950	1140	1710
	Graphite B	0.4	2	0.003	0.10	0.40	90	150	180	270
		0.5	2	0.004	0.10	0.50	120	200	240	360
		0.6	2	0.004	0.10	0.60	120	200	240	360
		0.8	2	0.006	0.15	0.80	180	300	360	540
		1.0	2	0.007	0.20	1.00	210	350	420	630
		1.5	2	0.011	0.30	1.50	330	550	660	990
		2.0	2	0.015	0.40	2.00	450	750	900	1350

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	0.4	2	0.004	0.04	0.06	120	200	240	360
		0.5	2	0.005	0.05	0.07	150	250	300	450
		0.6	2	0.006	0.06	0.08	180	300	360	540
		0.8	2	0.009	0.08	0.11	270	450	540	810
		1.0	2	0.011	0.10	0.14	330	550	660	990
		1.5	2	0.016	0.15	0.21	480	800	960	1440
		2.0	2	0.021	0.20	0.28	630	1050	1260	1890
	Graphite B	0.4	2	0.004	0.04	0.04	120	200	240	360
		0.5	2	0.005	0.05	0.05	150	250	300	450
		0.6	2	0.006	0.06	0.06	180	300	360	540
		0.8	2	0.009	0.08	0.08	270	450	540	810
		1.0	2	0.011	0.10	0.10	330	550	660	990
		1.5	2	0.016	0.15	0.15	480	800	960	1440
		2.0	2	0.021	0.20	0.20	630	1050	1260	1890

Ball nose end mills MicrospheroXG

Shank Ø 6mm, cylindrical neck, 12xd

HSS | Favora® | Base-X | X-Generation **X**

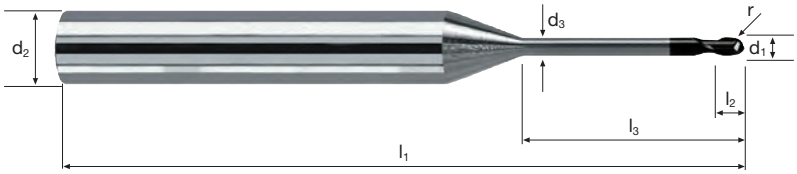
HM
XA

λ **30°**
γ **15°**

h5

d_1

r



C
Graphite

CF/GF
Fiber Reinforced Plastics

IV

Example:
Order-N°. Coating **B** Article-N°. **6070** ø-Code **.040**

ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	r ±0.005	α	z	DIAPLUS B6070
.040	0.4	6	0.35	57	0.4	4.8	0.20	8.0°	2	●
.050	0.5	6	0.45	57	0.5	6.0	0.25	9.9°	2	●
.060	0.6	6	0.55	57	0.6	7.2	0.30	9.2°	2	●
.080	0.8	6	0.75	57	0.8	9.6	0.40	8.0°	2	●
.100	1.0	6	0.95	61	1.0	12.0	0.50	7.0°	2	●
.120	1.5	6	1.40	66	1.5	18.0	0.75	5.1°	2	●
.140	2.0	6	1.90	69	2.0	24.0	1.00	3.9°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
R = Roughing	Graphite	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.003	0.15	0.20	90	150	180	270
		0.4	2	0.004	0.20	0.25	120	200	240	360
		0.5	2	0.005	0.25	0.30	150	250	300	450
		0.6	2	0.006	0.30	0.35	180	300	360	540
		0.8	2	0.008	0.40	0.50	240	400	480	720
		1.0	2	0.009	0.50	0.60	270	450	540	810
		1.2	2	0.011	0.60	0.70	330	550	660	990
		1.5	2	0.014	0.75	0.90	420	700	840	1260
	Graphite	2.0	2	0.019	1.00	1.20	570	950	1140	1710
		2.5	2	0.024	1.25	1.50	720	1200	1440	2160
		3.0	2	0.028	1.50	1.80	840	1400	1680	2520
R = Roughing	Graphite	0.2	2	0.001	0.10	0.20	30	50	60	90
		0.3	2	0.002	0.15	0.30	60	100	120	180
		0.4	2	0.003	0.20	0.40	90	150	180	270
		0.5	2	0.004	0.25	0.50	120	200	240	360
		0.6	2	0.004	0.30	0.60	120	200	240	360
		0.8	2	0.006	0.40	0.80	180	300	360	540
		1.0	2	0.007	0.50	1.00	210	350	420	630
		1.2	2	0.009	0.60	1.20	270	450	540	810
		1.5	2	0.011	0.75	1.50	330	550	660	990
	Graphite	2.0	2	0.015	1.00	2.00	450	750	900	1350
		2.5	2	0.018	1.25	2.50	540	900	1080	1620
		3.0	2	0.022	1.50	3.00	660	1100	1320	1980

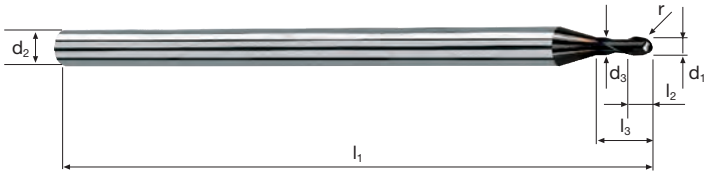
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
F = Finishing	Graphite	0.2	2	0.002	0.03	0.04	60	100	120	180
		0.3	2	0.003	0.05	0.06	90	150	180	270
		0.4	2	0.004	0.06	0.08	120	200	240	360
		0.5	2	0.005	0.08	0.10	150	250	300	450
		0.6	2	0.006	0.09	0.12	180	300	360	540
		0.8	2	0.009	0.12	0.16	270	450	540	810
		1.0	2	0.011	0.15	0.20	330	550	660	990
		1.2	2	0.013	0.18	0.24	390	650	780	1170
		1.5	2	0.016	0.23	0.30	480	800	960	1440
	Graphite	2.0	2	0.021	0.30	0.40	630	1050	1260	1890
		2.5	2	0.027	0.38	0.50	810	1350	1620	2430
		3.0	2	0.032	0.45	0.60	960	1600	1920	2880
F = Finishing	Graphite	0.2	2	0.002	0.04	0.04	60	100	120	180
		0.3	2	0.003	0.06	0.06	90	150	180	270
		0.4	2	0.004	0.08	0.08	120	200	240	360
		0.5	2	0.005	0.10	0.10	150	250	300	450
		0.6	2	0.006	0.12	0.12	180	300	360	540
		0.8	2	0.009	0.16	0.16	270	450	540	810
		1.0	2	0.011	0.20	0.20	330	550	660	990
		1.2	2	0.013	0.24	0.24	390	650	780	1170
		1.5	2	0.016	0.30	0.30	480	800	960	1440
	Graphite	2.0	2	0.021	0.40	0.40	630	1050	1260	1890
		2.5	2	0.027	0.50	0.50	810	1350	1620	2430
		3.0	2	0.032	0.60	0.60	960	1600	1920	2880

Ball nose end mills Microcut-B3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



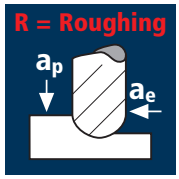
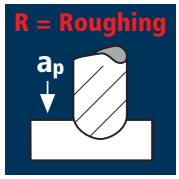
C Graphite

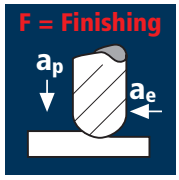
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5782** | ø-Code **.020**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5782
.020	0.2	3	0.18	40	0.24	0.6	0.10	9.4°	2	●
.030	0.3	3	0.25	40	0.36	0.9	0.15	9.0°	2	●
.040	0.4	3	0.35	40	048	1.2	0.20	8.7°	2	●
.050	0.5	3	0.45	40	0.60	1.5	0.25	11.8°	2	●
.060	0.6	3	0.55	40	0.72	1.8	0.30	11.2°	2	●
.080	0.8	3	0.75	40	0.96	2.4	0.40	10.1°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.50	9.0°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.60	7.9°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.75	6.5°	2	●
.140	2.0	3	1.90	50	2.40	6.0	1.00	4.1°	2	●
.160	2.5	3	2.30	50	3.00	7.5	1.25	2.0°	2	●
.180	3.0	3	2.80	50	3.60	9.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite	0.5	2	0.005	0.25	0.30	150	250	300	450
		0.6	2	0.006	0.25	0.35	180	300	360	540
		0.7	2	0.007	0.30	0.40	210	350	420	630
		0.8	2	0.008	0.35	0.50	240	400	480	720
		0.9	2	0.008	0.40	0.55	240	400	480	720
		1.0	2	0.009	0.45	0.60	270	450	540	810
		1.2	2	0.011	0.55	0.70	330	550	660	990
		1.5	2	0.014	0.70	0.90	420	700	840	1260
	B	1.8	2	0.017	0.80	1.10	510	850	1020	1530
	Graphite	2.0	2	0.019	0.90	1.20	570	950	1140	1710
		2.3	2	0.022	1.05	1.40	660	1100	1320	1980
		2.5	2	0.024	1.15	1.50	720	1200	1440	2160
		2.8	2	0.026	1.25	1.70	780	1300	1560	2340
	B	3.0	2	0.028	1.35	1.80	840	1400	1680	2520
	Graphite	0.5	2	0.004	0.25	0.50	120	200	240	360
		0.6	2	0.004	0.25	0.60	120	200	240	360
		0.7	2	0.005	0.30	0.70	150	250	300	450
		0.8	2	0.006	0.35	0.80	180	300	360	540
		0.9	2	0.007	0.40	0.90	210	350	420	630
		1.0	2	0.007	0.45	1.00	210	350	420	630
		1.2	2	0.009	0.55	1.20	270	450	540	810
		1.5	2	0.011	0.70	1.50	330	550	660	990
	B	1.8	2	0.013	0.80	1.80	390	650	780	1170
	Graphite	2.0	2	0.015	0.90	2.00	450	750	900	1350
		2.3	2	0.017	1.05	2.30	510	850	1020	1530
		2.5	2	0.018	1.15	2.50	540	900	1080	1620
		2.8	2	0.020	1.25	2.80	600	1000	1200	1800
	B	3.0	2	0.022	1.35	3.00	660	1100	1320	1980

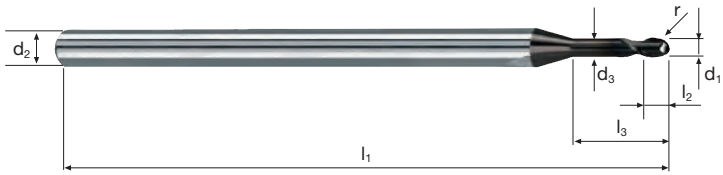
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite	0.5	2	0.005	0.07	0.10	150	250	300	450
		0.6	2	0.006	0.08	0.12	180	300	360	540
		0.7	2	0.007	0.10	0.14	210	350	420	630
		0.8	2	0.009	0.11	0.16	270	450	540	810
		0.9	2	0.010	0.13	0.18	300	500	600	900
		1.0	2	0.011	0.14	0.20	330	550	660	990
		1.2	2	0.013	0.17	0.24	390	650	780	1170
		1.5	2	0.016	0.21	0.30	480	800	960	1440
	B	1.8	2	0.019	0.25	0.36	570	950	1140	1710
	Graphite	2.0	2	0.021	0.28	0.40	630	1050	1260	1890
		2.3	2	0.025	0.32	0.46	750	1250	1500	2250
		2.5	2	0.027	0.35	0.50	810	1350	1620	2430
		2.8	2	0.030	0.39	0.56	900	1500	1800	2700
	B	3.0	2	0.032	0.42	0.60	960	1600	1920	2880
	Graphite	0.5	2	0.005	0.09	0.09	150	250	300	450
		0.6	2	0.006	0.11	0.11	180	300	360	540
		0.7	2	0.007	0.13	0.13	210	350	420	630
		0.8	2	0.009	0.14	0.14	270	450	540	810
		0.9	2	0.010	0.16	0.16	300	500	600	900
		1.0	2	0.011	0.18	0.18	330	550	660	990
		1.2	2	0.013	0.22	0.22	390	650	780	1170
		1.5	2	0.016	0.27	0.27	480	800	960	1440
	B	1.8	2	0.019	0.32	0.32	570	950	1140	1710
	Graphite	2.0	2	0.021	0.36	0.36	630	1050	1260	1890
		2.3	2	0.025	0.41	0.41	750	1250	1500	2250
		2.5	2	0.027	0.45	0.45	810	1350	1620	2430
		2.8	2	0.030	0.50	0.50	900	1500	1800	2700
	B	3.0	2	0.032	0.54	0.54	960	1600	1920	2880

Ball nose end mills Microcut-B5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



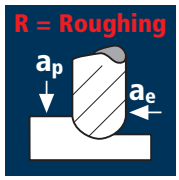
C Graphite

CF/GF Fiber Reinforced Plastics

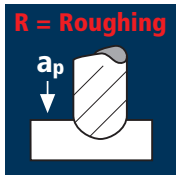
IV

Example: **Order-N°.** Coating **B** | Article-N°. **5784** | ø-Code **.050**

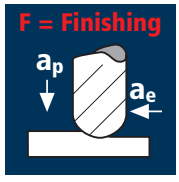
ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5784
.050	0.5	3	0.45	40	0.60	2.5	0.25	10.1°	2	●
.060	0.6	3	0.55	40	0.72	3.0	0.30	9.4°	2	●
.070	0.7	3	0.65	40	0.84	3.5	0.35	8.7°	2	●
.080	0.8	3	0.75	40	0.96	4.0	0.40	8.1°	2	●
.090	0.9	3	0.85	40	1.08	4.5	0.45	7.4°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.50	6.9°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.60	5.8°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.75	4.5°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.90	3.3°	2	●
.140	2.0	3	1.90	50	2.40	10.0	1.00	2.7°	2	●
.152	2.3	3	2.20	50	2.76	11.5	1.15	1.8°	2	●
.160	2.5	3	2.30	50	3.00	12.5	1.25	1.2°	2	●
.172	2.8	3	2.60	50	3.36	14.0	1.40	0.5°	2	●
.180	3.0	3	2.80	50	3.60	15.0	1.50	0.0°	2	●

Application	Material
R = Roughing 	Graphite B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.20	0.30	150	250	300	450
0.6	2	0.006	0.25	0.35	180	300	360	540
0.8	2	0.008	0.30	0.50	240	400	480	720
1.0	2	0.009	0.40	0.60	270	450	540	810
1.2	2	0.011	0.50	0.70	330	550	660	990
1.5	2	0.014	0.60	0.90	420	700	840	1260
2.0	2	0.019	0.80	1.20	570	950	1140	1710
2.5	2	0.024	1.00	1.50	720	1200	1440	2160
3.0	2	0.028	1.20	1.80	840	1400	1680	2520

Application	Material
R = Roughing 	Graphite B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.004	0.20	0.50	120	200	240	360
0.6	2	0.004	0.25	0.60	120	200	240	360
0.8	2	0.006	0.30	0.80	180	300	360	540
1.0	2	0.007	0.40	1.00	210	350	420	630
1.2	2	0.009	0.50	1.20	270	450	540	810
1.5	2	0.011	0.60	1.50	330	550	660	990
2.0	2	0.015	0.80	2.00	450	750	900	1350
2.5	2	0.018	1.00	2.50	540	900	1080	1620
3.0	2	0.022	1.20	3.00	660	1100	1320	1980

Application	Material
F = Finishing 	Graphite B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.06	0.09	150	250	300	450
0.6	2	0.006	0.07	0.11	180	300	360	540
0.8	2	0.009	0.10	0.14	270	450	540	810
1.0	2	0.011	0.12	0.18	330	550	660	990
1.2	2	0.013	0.14	0.22	390	650	780	1170
1.5	2	0.016	0.18	0.27	480	800	960	1440
2.0	2	0.021	0.24	0.36	630	1050	1260	1890
2.5	2	0.027	0.30	0.45	810	1350	1620	2430
3.0	2	0.032	0.36	0.54	960	1600	1920	2880

Application	Material
F = Finishing 	Graphite B

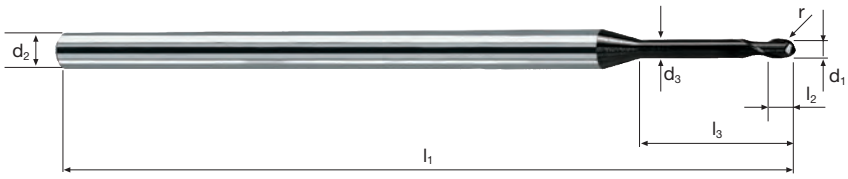
d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.08	0.08	150	250	300	450
0.6	2	0.006	0.10	0.10	180	300	360	540
0.8	2	0.009	0.13	0.13	270	450	540	810
1.0	2	0.011	0.16	0.16	330	550	660	990
1.2	2	0.013	0.19	0.19	390	650	780	1170
1.5	2	0.016	0.24	0.24	480	800	960	1440
2.0	2	0.021	0.32	0.32	630	1050	1260	1890
2.5	2	0.027	0.40	0.40	810	1350	1620	2430
3.0	2	0.032	0.48	0.48	960	1600	1920	2880

Ball nose end mills Microcut-B8

Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



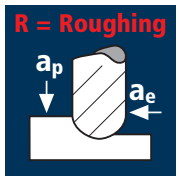
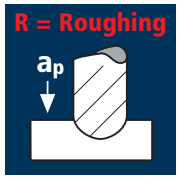
C Graphite

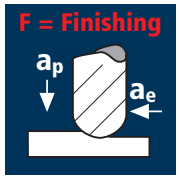
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5786** | ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5786
.050	0.5	3	0.45	40	0.60	4.0	0.25	8.4°	2	●
.060	0.6	3	0.55	40	0.72	4.8	0.30	7.6°	2	●
.080	0.8	3	0.75	40	0.96	6.4	0.40	6.2°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.50	5.1°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.60	4.2°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.75	3.1°	2	●
.140	2.0	3	1.90	60	2.40	16.0	1.00	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	1.25	0.8°	2	●
.180	3.0	3	2.80	60	3.60	24.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	0.5	2	0.005	0.20	0.20	150	250	300	450
		0.6	2	0.006	0.25	0.25	180	300	360	540
		0.8	2	0.008	0.30	0.30	240	400	480	720
		1.0	2	0.009	0.40	0.40	270	450	540	810
		1.2	2	0.011	0.50	0.50	330	550	660	990
		1.5	2	0.014	0.60	0.60	420	700	840	1260
		2.0	2	0.019	0.80	0.80	570	950	1140	1710
		2.5	2	0.024	1.00	1.00	720	1200	1440	2160
		3.0	2	0.028	1.20	1.20	840	1400	1680	2520
	Graphite B	0.5	2	0.003	0.15	0.50	90	150	180	270
		0.6	2	0.003	0.20	0.60	90	150	180	270
		0.8	2	0.004	0.25	0.80	120	200	240	360
		1.0	2	0.005	0.30	1.00	150	250	300	450
		1.2	2	0.007	0.35	1.20	210	350	420	630
		1.5	2	0.008	0.45	1.50	240	400	480	720
		2.0	2	0.011	0.60	2.00	330	550	660	990
		2.5	2	0.014	0.75	2.50	420	700	840	1260
		3.0	2	0.016	0.90	3.00	480	800	960	1440

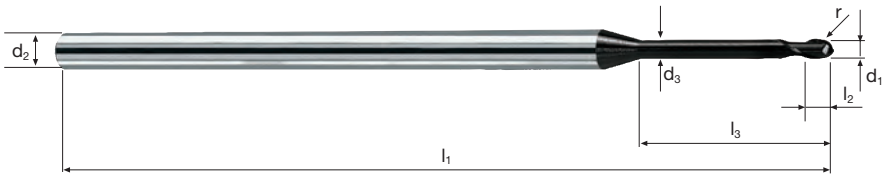
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	0.5	2	0.005	0.05	0.08	150	250	300	450
		0.6	2	0.006	0.06	0.10	180	300	360	540
		0.8	2	0.009	0.08	0.13	270	450	540	810
		1.0	2	0.011	0.10	0.16	330	550	660	990
		1.2	2	0.013	0.12	0.19	390	650	780	1170
		1.5	2	0.016	0.15	0.24	480	800	960	1440
		2.0	2	0.021	0.20	0.32	630	1050	1260	1890
		2.5	2	0.027	0.25	0.40	810	1350	1620	2430
		3.0	2	0.032	0.30	0.48	960	1600	1920	2880
	Graphite B	0.5	2	0.005	0.07	0.07	150	250	300	450
		0.6	2	0.006	0.08	0.08	180	300	360	540
		0.8	2	0.009	0.11	0.11	270	450	540	810
		1.0	2	0.011	0.14	0.14	330	550	660	990
		1.2	2	0.013	0.17	0.17	390	650	780	1170
		1.5	2	0.016	0.21	0.21	480	800	960	1440
		2.0	2	0.021	0.28	0.28	630	1050	1260	1890
		2.5	2	0.027	0.35	0.35	810	1350	1620	2430
		3.0	2	0.032	0.42	0.42	960	1600	1920	2880

Ball nose end mills Microcut-B10

Shank Ø 3mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



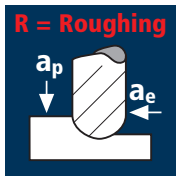
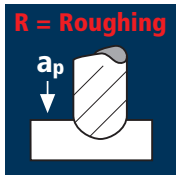
C Graphite

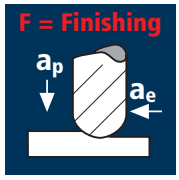
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5787** | ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5787
.050	0.5	3	0.45	40	0.60	5.0	0.25	7.5°	2	●
.060	0.6	3	0.55	40	0.72	6.0	0.30	6.7°	2	●
.080	0.8	3	0.75	40	0.96	8.0	0.40	5.4°	2	●
.100	1.0	3	0.95	50	1.20	10.0	0.50	4.3°	2	●
.108	1.2	3	1.10	50	1.44	12.0	0.60	3.5°	2	●
.120	1.5	3	1.40	60	1.80	15.0	0.75	2.6°	2	●
.140	2.0	3	1.90	60	2.40	20.0	1.00	1.4°	2	●
.160	2.5	3	2.30	60	3.00	25.0	1.25	0.6°	2	●
.180	3.0	3	2.80	60	3.60	30.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.007	0.30	0.40	210	350	420	630
		1.2	2	0.008	0.35	0.50	240	400	480	720
		1.5	2	0.011	0.45	0.60	330	550	660	990
		2.0	2	0.014	0.60	0.80	420	700	840	1260
		2.5	2	0.018	0.75	1.00	540	900	1080	1620
		3.0	2	0.021	0.90	1.20	630	1050	1260	1890
	Graphite B	1.0	2	0.005	0.20	1.00	150	250	300	450
		1.2	2	0.007	0.25	1.20	210	350	420	630
		1.5	2	0.008	0.30	1.50	240	400	480	720
		2.0	2	0.011	0.40	2.00	330	550	660	990
		2.5	2	0.014	0.50	2.50	420	700	840	1260
		3.0	2	0.016	0.60	3.00	480	800	960	1440

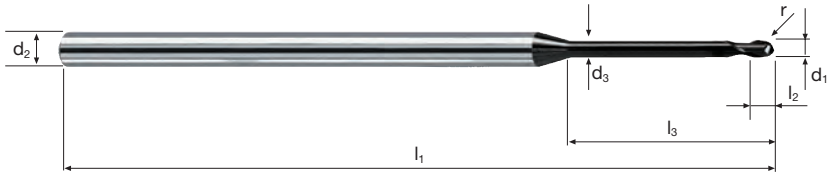
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.008	0.10	0.14	240	400	480	720
		1.2	2	0.010	0.12	0.17	300	500	600	900
		1.5	2	0.012	0.15	0.21	360	600	720	1080
		2.0	2	0.016	0.20	0.28	480	800	960	1440
		2.5	2	0.020	0.25	0.35	600	1000	1200	1800
		3.0	2	0.024	0.30	0.42	720	1200	1440	2160
	Graphite B	1.0	2	0.008	0.10	0.10	240	400	480	720
		1.2	2	0.010	0.12	0.12	300	500	600	900
		1.5	2	0.012	0.15	0.15	360	600	720	1080
		2.0	2	0.016	0.20	0.20	480	800	960	1440
		2.5	2	0.020	0.25	0.25	600	1000	1200	1800
		3.0	2	0.024	0.30	0.30	720	1200	1440	2160

Ball nose end mills Microcut-B12

Shank Ø 3mm, cylindrical neck, 12xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



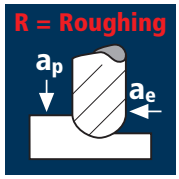
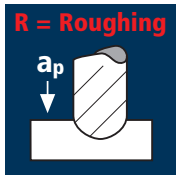
C Graphite

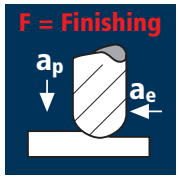
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5791** | ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5791
.100	1.0	3	0.95	50	1.20	12.0	0.50	3.8°	2	●
.108	1.2	3	1.10	60	1.44	14.4	0.60	3.0°	2	●
.120	1.5	3	1.40	60	1.80	18.0	0.75	2.2°	2	●
.140	2.0	3	1.90	60	2.40	24.0	1.00	1.2°	2	●
.160	2.5	3	2.30	70	3.00	30.0	1.25	0.5°	2	●
.180	3.0	3	2.80	70	3.60	36.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.007	0.20	0.30	210	350	420	630
		1.2	2	0.008	0.25	0.35	240	400	480	720
		1.5	2	0.011	0.30	0.45	330	550	660	990
		2.0	2	0.014	0.40	0.60	420	700	840	1260
		2.5	2	0.018	0.50	0.75	540	900	1080	1620
		3.0	2	0.021	0.60	0.90	630	1050	1260	1890
	Graphite B	1.0	2	0.005	0.10	1.00	150	250	300	450
		1.2	2	0.007	0.10	1.20	210	350	420	630
		1.5	2	0.008	0.15	1.50	240	400	480	720
		2.0	2	0.011	0.20	2.00	330	550	660	990
		2.5	2	0.014	0.25	2.50	420	700	840	1260
		3.0	2	0.016	0.30	3.00	480	800	960	1440

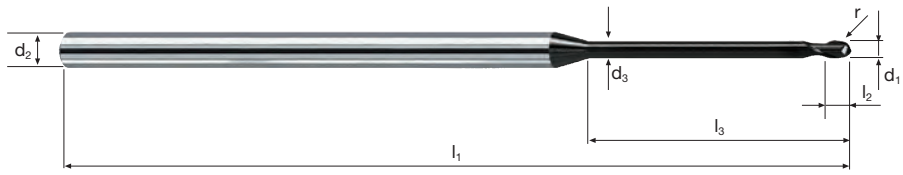
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.008	0.08	0.10	240	400	480	720
		1.2	2	0.010	0.10	0.12	300	500	600	900
		1.5	2	0.012	0.12	0.15	360	600	720	1080
		2.0	2	0.016	0.16	0.20	480	800	960	1440
		2.5	2	0.020	0.20	0.25	600	1000	1200	1800
		3.0	2	0.024	0.24	0.30	720	1200	1440	2160
	Graphite B	1.0	2	0.008	0.08	0.08	240	400	480	720
		1.2	2	0.010	0.10	0.10	300	500	600	900
		1.5	2	0.012	0.12	0.12	360	600	720	1080
		2.0	2	0.016	0.16	0.16	480	800	960	1440
		2.5	2	0.020	0.20	0.20	600	1000	1200	1800
		3.0	2	0.024	0.24	0.24	720	1200	1440	2160

Ball nose end mills Microcut-B15

Shank Ø 3mm, cylindrical neck, 15xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**

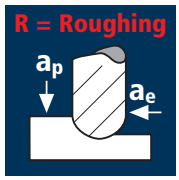


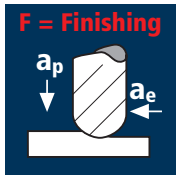
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **5793** | ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B5793
.100	1.0	3	0.95	60	1.20	15.0	0.50	3.2°	2	●
.108	1.2	3	1.10	60	1.44	18.0	0.60	2.5°	2	●
.120	1.5	3	1.40	70	1.80	22.5	0.75	1.8°	2	●
.140	2.0	3	1.90	70	2.40	30.0	1.00	1.0°	2	●
.160	2.5	3	2.30	70	3.00	37.5	1.25	0.4°	2	●
.180	3.0	3	2.80	80	3.60	45.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	1.0	2	0.007	0.15	0.20	210	350	420	630
		1.2	2	0.008	0.20	0.25	240	400	480	720
		1.5	2	0.011	0.25	0.30	330	550	660	990
		2.0	2	0.014	0.30	0.40	420	700	840	1260
		2.5	2	0.018	0.40	0.50	540	900	1080	1620
		3.0	2	0.021	0.45	0.60	630	1050	1260	1890
	B									

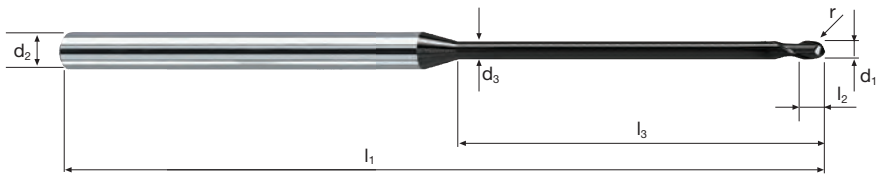
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	1.0	2	0.008	0.06	0.08	240	400	480	720
		1.2	2	0.010	0.07	0.10	300	500	600	900
		1.5	2	0.012	0.09	0.12	360	600	720	1080
		2.0	2	0.016	0.12	0.16	480	800	960	1440
		2.5	2	0.020	0.15	0.20	600	1000	1200	1800
		3.0	2	0.024	0.18	0.24	720	1200	1440	2160
	B									
	Graphite	1.0	2	0.008	0.06	0.06	240	400	480	720
		1.2	2	0.010	0.07	0.07	300	500	600	900
		1.5	2	0.012	0.09	0.09	360	600	720	1080
		2.0	2	0.016	0.12	0.12	480	800	960	1440
		2.5	2	0.020	0.15	0.15	600	1000	1200	1800
		3.0	2	0.024	0.18	0.18	720	1200	1440	2160
	B									

Ball nose end mills Microcut-B20

Shank Ø 3mm, cylindrical neck, 20xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **30°** γ **5°**



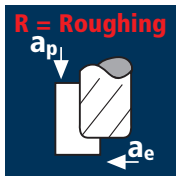
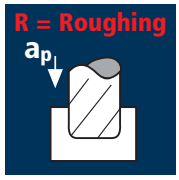
C Graphite

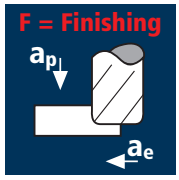
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** Article-N°. **15795** ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r ±0.01	α	z	DIAMANT B15795
.100	1.0	3	0.95	60	1.20	20.0	0.50	2.5°	2	●
.108	1.2	3	1.10	60	1.44	24.0	0.60	2.0°	2	●
.120	1.5	3	1.40	70	1.80	30.0	0.75	1.4°	2	●
.140	2.0	3	1.90	80	2.40	40.0	1.00	0.8°	2	●
.160	2.5	3	2.30	80	3.00	50.0	1.25	0.3°	2	●
.180	3.0	3	2.80	90	3.60	60.0	1.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	1.5	2	0.018	0.75	0.90	540	900	1080	1620
		2.0	2	0.024	1.00	1.20	720	1200	1440	2160
		3.0	2	0.035	1.50	1.80	1050	1750	2100	3150
		4.0	2	0.047	2.00	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.50	3.00	1770	2950	3540	5310
		6.0	2	0.071	3.00	3.60	2130	3550	4260	6390
	Graphite B	1.5	2	0.014	0.75	1.50	420	700	840	1260
		2.0	2	0.018	1.00	2.00	540	900	1080	1620
		3.0	2	0.027	1.50	3.00	810	1350	1620	2430
		4.0	2	0.036	2.00	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.50	5.00	1350	2250	2700	4050
		6.0	2	0.055	3.00	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	1.5	2	0.020	0.23	0.30	600	1000	1200	1800
		2.0	2	0.027	0.30	0.40	810	1350	1620	2430
		3.0	2	0.040	0.45	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.60	0.80	1590	2650	3180	4770
		5.0	2	0.067	0.75	1.00	2010	3350	4020	6030
		6.0	2	0.080	0.90	1.20	2400	4000	4800	7200
	Graphite B	1.5	2	0.020	0.30	0.30	600	1000	1200	1800
		2.0	2	0.027	0.40	0.40	810	1350	1620	2430
		3.0	2	0.040	0.60	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.80	0.80	1590	2650	3180	4770
		5.0	2	0.067	1.00	1.00	2010	3350	4020	6030
		6.0	2	0.080	1.20	1.20	2400	4000	4800	7200

Corner radius end mills MicrotoroXG

Shank Ø 6mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | X-Generation **X**

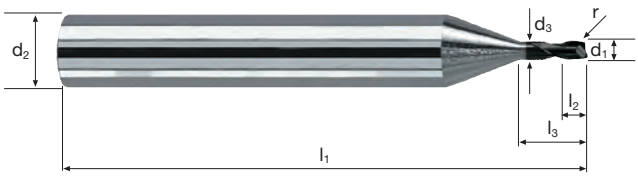
HM
XA

λ **30°**
γ **15°**

h5

d1

r



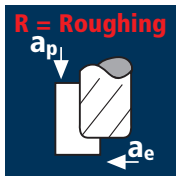
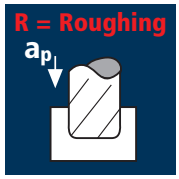
IV

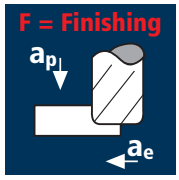
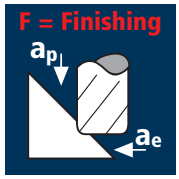
C
Graphite

CF/GF
Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **6032** ø-Code **.120**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DIAPLUS B6032
.120	1.5	6	1.40	57	1.5	4.5	0.20	10.0°	2	●
.140	2.0	6	1.90	57	2.0	6.0	0.20	8.6°	2	●
.180	3.0	6	2.80	57	3.0	9.0	0.20	6.0°	2	●
.215	4.0	6	3.70	57	4.0	12.0	0.20	3.7°	2	●
.220	4.0	6	3.70	57	4.0	12.0	0.50	3.7°	2	●
.255	5.0	6	4.60	57	5.0	15.0	0.20	1.8°	2	●
.260	5.0	6	4.60	57	5.0	15.0	0.50	2.0°	2	●
.295	6.0	6	5.50	57	6.0	18.0	0.20	0.0°	2	●
.300	6.0	6	5.50	57	6.0	18.0	0.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.004	0.15	0.20	120	200	240	360
		0.4	2	0.005	0.20	0.25	150	250	300	450
		0.5	2	0.006	0.25	0.30	180	300	360	540
		0.6	2	0.007	0.25	0.35	210	350	420	630
		0.8	2	0.009	0.35	0.50	270	450	540	810
		1.0	2	0.012	0.45	0.60	360	600	720	1080
		1.5	2	0.018	0.70	0.90	540	900	1080	1620
		2.0	2	0.024	0.90	1.20	720	1200	1440	2160
	Graphite B	3.0	2	0.035	1.35	1.80	1050	1750	2100	3150
		4.0	2	0.047	1.80	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.25	3.00	1770	2950	3540	5310
		6.0	2	0.071	2.70	3.60	2130	3550	4260	6390
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.20	60	100	120	180
		0.3	2	0.003	0.15	0.30	90	150	180	270
		0.4	2	0.004	0.20	0.40	120	200	240	360
		0.5	2	0.005	0.25	0.50	150	250	300	450
		0.6	2	0.005	0.25	0.60	150	250	300	450
		0.8	2	0.007	0.35	0.80	210	350	420	630
		1.0	2	0.009	0.45	1.00	270	450	540	810
		1.5	2	0.014	0.70	1.50	420	700	840	1260
		2.0	2	0.018	0.90	2.00	540	900	1080	1620
	Graphite B	3.0	2	0.027	1.35	3.00	810	1350	1620	2430
		4.0	2	0.036	1.80	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.25	5.00	1350	2250	2700	4050
		6.0	2	0.055	2.70	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
F = Finishing 	Graphite B	0.2	2	0.003	0.03	0.04	90	150	180	270
		0.3	2	0.004	0.04	0.06	120	200	240	360
		0.4	2	0.005	0.06	0.08	150	250	300	450
		0.5	2	0.007	0.07	0.10	210	350	420	630
		0.6	2	0.008	0.08	0.12	240	400	480	720
		0.8	2	0.011	0.11	0.16	330	550	660	990
		1.0	2	0.013	0.14	0.20	390	650	780	1170
		1.5	2	0.020	0.21	0.30	600	1000	1200	1800
		2.0	2	0.027	0.28	0.40	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.42	0.60	1200	2000	2400	3600
		4.0	2	0.053	0.56	0.80	1590	2650	3180	4770
		5.0	2	0.067	0.70	1.00	2010	3350	4020	6030
		6.0	2	0.080	0.84	1.20	2400	4000	4800	7200
F = Finishing 	Graphite B	0.2	2	0.003	0.04	0.04	90	150	180	270
		0.3	2	0.004	0.05	0.05	120	200	240	360
		0.4	2	0.005	0.07	0.07	150	250	300	450
		0.5	2	0.007	0.09	0.09	210	350	420	630
		0.6	2	0.008	0.11	0.11	240	400	480	720
		0.8	2	0.011	0.14	0.14	330	550	660	990
		1.0	2	0.013	0.18	0.18	390	650	780	1170
		1.5	2	0.020	0.27	0.27	600	1000	1200	1800
		2.0	2	0.027	0.36	0.36	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.54	0.54	1200	2000	2400	3600
		4.0	2	0.053	0.72	0.72	1590	2650	3180	4770
		5.0	2	0.067	0.90	0.90	2010	3350	4020	6030
		6.0	2	0.080	1.08	1.08	2400	4000	4800	7200

Corner radius end mills MicrotoroXG

Shank Ø 6mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | X-Generation X

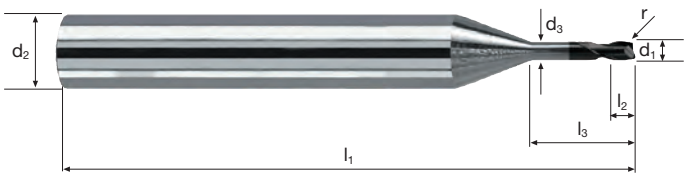
HM
XA

λ **30°**
γ **15°**

h5

d_1

r



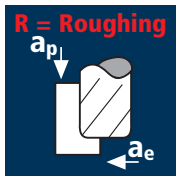
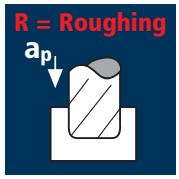
C
Graphite

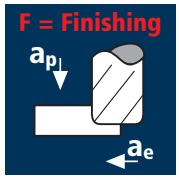
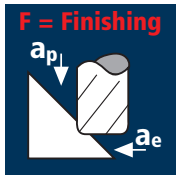
CF/GF
Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** Article-N°. **6034** ø-Code **.020**

ø Code	d_1 0/-0.01	d_2 h5	d_3	l_1	l_2	l_3	r ±0.005	α	z	DIAPLUS B6034
.020	0.2	6	0.18	57	0.2	1.0	-	9.5°	2	●
.030	0.3	6	0.25	57	0.3	1.5	-	9.2°	2	●
.040	0.4	6	0.35	57	0.4	2.0	0.05	9.0°	2	●
.048	0.5	6	0.45	57	0.5	2.5	0.05	12.2°	2	●
.050	0.5	6	0.45	57	0.5	2.5	0.10	12.2°	2	●
.060	0.6	6	0.55	57	0.6	3.0	0.10	11.7°	2	●
.080	0.8	6	0.75	57	0.8	4.0	0.10	10.8°	2	●
.098	1.0	6	0.95	57	1.0	5.0	0.10	9.9°	2	●
.100	1.0	6	0.95	57	1.0	5.0	0.20	9.9°	2	●
.120	1.5	6	1.40	57	1.5	7.5	0.20	8.1°	2	●
.140	2.0	6	1.90	57	2.0	10.0	0.20	6.6°	2	●
.180	3.0	6	2.80	57	3.0	15.0	0.20	4.2°	2	●
.182	3.0	6	2.80	61	3.0	18.0	0.20	3.7°	2	●
.215	4.0	6	3.70	61	4.0	20.0	0.20	2.5°	2	●
.217	4.0	6	3.70	66	4.0	25.0	0.20	2.0°	2	●
.220	4.0	6	3.70	61	4.0	20.0	0.50	2.6°	2	●
.222	4.0	6	3.70	66	4.0	25.0	0.50	2.1°	2	●
.255	5.0	6	4.60	66	5.0	25.0	0.20	1.1°	2	●
.260	5.0	6	4.60	66	5.0	25.0	0.50	1.1°	2	●
.295	6.0	6	5.50	69	6.0	30.0	0.20	0.0°	2	●
.300	6.0	6	5.50	69	6.0	30.0	0.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.004	0.10	0.20	120	200	240	360
		0.4	2	0.005	0.15	0.25	150	250	300	450
		0.5	2	0.006	0.20	0.30	180	300	360	540
		0.6	2	0.007	0.25	0.35	210	350	420	630
		0.8	2	0.009	0.30	0.50	270	450	540	810
		1.0	2	0.012	0.40	0.60	360	600	720	1080
		1.5	2	0.018	0.60	0.90	540	900	1080	1620
		2.0	2	0.024	0.80	1.20	720	1200	1440	2160
	Graphite B	3.0	2	0.035	1.20	1.80	1050	1750	2100	3150
		4.0	2	0.047	1.60	2.40	1410	2350	2820	4230
		5.0	2	0.059	2.00	3.00	1770	2950	3540	5310
		6.0	2	0.071	2.40	3.60	2130	3550	4260	6390
R = Roughing 	Graphite B	0.2	2	0.002	0.10	0.20	60	100	120	180
		0.3	2	0.003	0.10	0.30	90	150	180	270
		0.4	2	0.004	0.15	0.40	120	200	240	360
		0.5	2	0.005	0.20	0.50	150	250	300	450
		0.6	2	0.005	0.25	0.60	150	250	300	450
		0.8	2	0.007	0.30	0.80	210	350	420	630
		1.0	2	0.009	0.40	1.00	270	450	540	810
		1.5	2	0.014	0.60	1.50	420	700	840	1260
		2.0	2	0.018	0.80	2.00	540	900	1080	1620
	Graphite B	3.0	2	0.027	1.20	3.00	810	1350	1620	2430
		4.0	2	0.036	1.60	4.00	1080	1800	2160	3240
		5.0	2	0.045	2.00	5.00	1350	2250	2700	4050
		6.0	2	0.055	2.40	6.00	1650	2750	3300	4950

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
F = Finishing 	Graphite B	0.2	2	0.003	0.02	0.04	90	150	180	270
		0.3	2	0.004	0.04	0.05	120	200	240	360
		0.4	2	0.005	0.05	0.07	150	250	300	450
		0.5	2	0.007	0.06	0.09	210	350	420	630
		0.6	2	0.008	0.07	0.11	240	400	480	720
		0.8	2	0.011	0.10	0.14	330	550	660	990
		1.0	2	0.013	0.12	0.18	390	650	780	1170
		1.5	2	0.020	0.18	0.27	600	1000	1200	1800
		2.0	2	0.027	0.24	0.36	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.36	0.54	1200	2000	2400	3600
		4.0	2	0.053	0.48	0.72	1590	2650	3180	4770
		5.0	2	0.067	0.60	0.90	2010	3350	4020	6030
		6.0	2	0.080	0.72	1.08	2400	4000	4800	7200
F = Finishing 	Graphite B	0.2	2	0.003	0.03	0.03	90	150	180	270
		0.3	2	0.004	0.05	0.05	120	200	240	360
		0.4	2	0.005	0.06	0.06	150	250	300	450
		0.5	2	0.007	0.08	0.08	210	350	420	630
		0.6	2	0.008	0.10	0.10	240	400	480	720
		0.8	2	0.011	0.13	0.13	330	550	660	990
		1.0	2	0.013	0.16	0.16	390	650	780	1170
		1.5	2	0.020	0.24	0.24	600	1000	1200	1800
		2.0	2	0.027	0.32	0.32	810	1350	1620	2430
	Graphite B	3.0	2	0.040	0.48	0.48	1200	2000	2400	3600
		4.0	2	0.053	0.64	0.64	1590	2650	3180	4770
		5.0	2	0.067	0.80	0.80	2010	3350	4020	6030
		6.0	2	0.080	0.96	0.96	2400	4000	4800	7200

Corner radius end mills MicrotoroXG

Shank Ø 6mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | X-Generation X

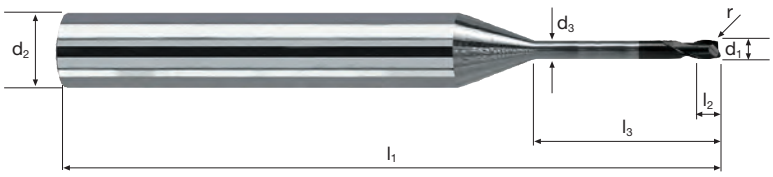
HM
XA

λ **30°**
γ **15°**

h5

d1

r



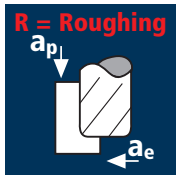
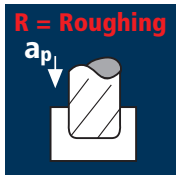
IV

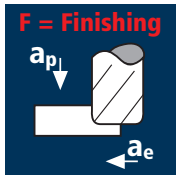
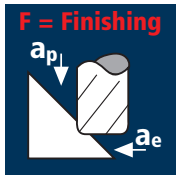
C
Graphite

CF/GF
Fiber Reinforced Plastics

Example:
Order-N°. Coating **B** Article-N°. **6036** ø-Code **.020**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DIAPLUS B6036
.020	0.2	6	0.18	57	0.2	1.6	-	9.2°	2	●
.030	0.3	6	0.25	57	0.3	2.4	-	8.8°	2	●
.040	0.4	6	0.35	57	0.4	3.2	0.05	8.4°	2	●
.048	0.5	6	0.45	57	0.5	4.0	0.05	11.0°	2	●
.050	0.5	6	0.45	57	0.5	4.0	0.10	11.0°	2	●
.060	0.6	6	0.55	57	0.6	4.8	0.10	10.3°	2	●
.080	0.8	6	0.75	57	0.8	6.4	0.10	9.2°	2	●
.098	1.0	6	0.95	57	1.0	8.0	0.10	8.3°	2	●
.100	1.0	6	0.95	57	1.0	8.0	0.20	8.3°	2	●
.120	1.5	6	1.40	57	1.5	12.0	0.20	6.4°	2	●
.140	2.0	6	1.90	61	2.0	16.0	0.20	4.9°	2	●
.180	3.0	6	2.80	66	3.0	24.0	0.20	2.9°	2	●
.215	4.0	6	3.70	75	4.0	32.0	0.20	1.7°	2	●
.220	4.0	6	3.70	75	4.0	32.0	0.50	1.7°	2	●
.255	5.0	6	4.60	80	5.0	40.0	0.20	0.7°	2	●
.260	5.0	6	4.60	80	5.0	40.0	0.50	0.7°	2	●
.295	6.0	6	5.50	87	6.0	48.0	0.20	0.0°	2	●
.300	6.0	6	5.50	87	6.0	48.0	0.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	0.4	2	0.005	0.15	0.15	150	250	300	450
		0.5	2	0.006	0.20	0.20	180	300	360	540
		0.6	2	0.007	0.25	0.25	210	350	420	630
		0.8	2	0.009	0.30	0.30	270	450	540	810
		1.0	2	0.012	0.40	0.40	360	600	720	1080
		1.5	2	0.018	0.60	0.60	540	900	1080	1620
		2.0	2	0.024	0.80	0.80	720	1200	1440	2160
		3.0	2	0.035	1.20	1.20	1050	1750	2100	3150
	B	4.0	2	0.047	1.60	1.60	1410	2350	2820	4230
	Graphite	5.0	2	0.059	2.00	2.00	1770	2950	3540	5310
		6.0	2	0.071	2.40	2.40	2130	3550	4260	6390
	B									
	Graphite	0.4	2	0.004	0.10	0.40	120	200	240	360
		0.5	2	0.005	0.15	0.50	150	250	300	450
		0.6	2	0.005	0.20	0.60	150	250	300	450
		0.8	2	0.007	0.25	0.80	210	350	420	630
		1.0	2	0.009	0.30	1.00	270	450	540	810
		1.5	2	0.014	0.45	1.50	420	700	840	1260
		2.0	2	0.018	0.60	2.00	540	900	1080	1620
		3.0	2	0.027	0.90	3.00	810	1350	1620	2430
	B	4.0	2	0.036	1.20	4.00	1080	1800	2160	3240
	Graphite	5.0	2	0.045	1.50	5.00	1350	2250	2700	4050
		6.0	2	0.055	1.80	6.00	1650	2750	3300	4950
	B									

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	0.4	2	0.005	0.04	0.06	150	250	300	450
		0.5	2	0.007	0.05	0.08	210	350	420	630
		0.6	2	0.008	0.06	0.10	240	400	480	720
		0.8	2	0.011	0.08	0.13	330	550	660	990
		1.0	2	0.013	0.10	0.16	390	650	780	1170
		1.5	2	0.020	0.15	0.24	600	1000	1200	1800
		2.0	2	0.027	0.20	0.32	810	1350	1620	2430
		3.0	2	0.040	0.30	0.48	1200	2000	2400	3600
	B	4.0	2	0.053	0.40	0.64	1590	2650	3180	4770
	Graphite	5.0	2	0.067	0.50	0.80	2010	3350	4020	6030
		6.0	2	0.080	0.60	0.96	2400	4000	4800	7200
	B									
	Graphite	0.4	2	0.005	0.06	0.06	150	250	300	450
		0.5	2	0.007	0.07	0.07	210	350	420	630
		0.6	2	0.008	0.08	0.08	240	400	480	720
		0.8	2	0.011	0.11	0.11	330	550	660	990
		1.0	2	0.013	0.14	0.14	390	650	780	1170
		1.5	2	0.020	0.21	0.21	600	1000	1200	1800
		2.0	2	0.027	0.28	0.28	810	1350	1620	2430
		3.0	2	0.040	0.42	0.42	1200	2000	2400	3600
	B	4.0	2	0.053	0.56	0.56	1590	2650	3180	4770
	Graphite	5.0	2	0.067	0.70	0.70	2010	3350	4020	6030
		6.0	2	0.080	0.84	0.84	2400	4000	4800	7200
	B									

Corner radius end mills MicrotoroXG

Shank Ø 6mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | X-Generation X

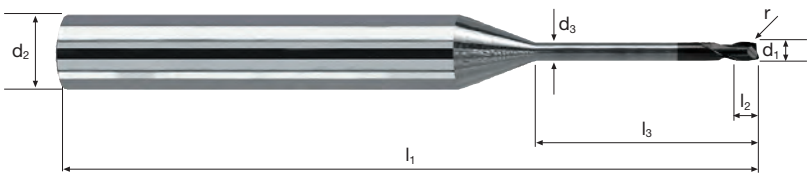
HM
XA

λ **30°**
γ **15°**

h5

d1

r



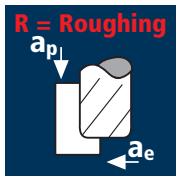
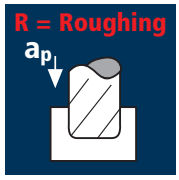
IV

C
Graphite

CF/GF
Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **6038** ø-Code **.040**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DIAPLUS B6038
.040	0.4	6	0.35	57	0.4	4.0	0.05	8.1°	2	●
.048	0.5	6	0.45	57	0.5	5.0	0.05	10.3°	2	●
.050	0.5	6	0.45	57	0.5	5.0	0.10	10.4°	2	●
.060	0.6	6	0.55	57	0.6	6.0	0.10	9.6°	2	●
.080	0.8	6	0.75	57	0.8	8.0	0.10	8.4°	2	●
.098	1.0	6	0.95	57	1.0	10.0	0.10	7.4°	2	●
.100	1.0	6	0.95	57	1.0	10.0	0.20	7.4°	2	●
.120	1.5	6	1.40	61	1.5	15.0	0.20	5.5°	2	●
.140	2.0	6	1.90	66	2.0	20.0	0.20	4.2°	2	●
.180	3.0	6	2.80	75	3.0	30.0	0.20	2.5°	2	●
.215	4.0	6	3.70	80	4.0	40.0	0.20	1.4°	2	●
.220	4.0	6	3.70	80	4.0	40.0	0.50	1.4°	2	●
.255	5.0	6	4.60	100	5.0	50.0	0.20	0.6°	2	●
.260	5.0	6	4.60	100	5.0	50.0	0.50	0.6°	2	●
.295	6.0	6	5.50	100	6.0	60.0	0.20	0.0°	2	●
.300	6.0	6	5.50	100	6.0	60.0	0.50	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	0.4	2	0.004	0.10	0.15	120	200	240	360
		0.5	2	0.005	0.15	0.20	150	250	300	450
		0.6	2	0.006	0.20	0.25	180	300	360	540
		0.8	2	0.008	0.25	0.30	240	400	480	720
		1.0	2	0.009	0.30	0.40	270	450	540	810
		1.5	2	0.014	0.45	0.60	420	700	840	1260
		2.0	2	0.019	0.60	0.80	570	950	1140	1710
	Graphite B	0.4	2	0.003	0.10	0.40	90	150	180	270
		0.5	2	0.004	0.10	0.50	120	200	240	360
		0.6	2	0.004	0.10	0.60	120	200	240	360
		0.8	2	0.006	0.15	0.80	180	300	360	540
		1.0	2	0.007	0.20	1.00	210	350	420	630
		1.5	2	0.011	0.30	1.50	330	550	660	990
		2.0	2	0.015	0.40	2.00	450	750	900	1350

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite B	0.4	2	0.004	0.04	0.06	120	200	240	360
		0.5	2	0.005	0.05	0.07	150	250	300	450
		0.6	2	0.006	0.06	0.08	180	300	360	540
		0.8	2	0.009	0.08	0.11	270	450	540	810
		1.0	2	0.011	0.10	0.14	330	550	660	990
		1.5	2	0.016	0.15	0.21	480	800	960	1440
		2.0	2	0.021	0.20	0.28	630	1050	1260	1890
	Graphite B	0.4	2	0.004	0.04	0.04	120	200	240	360
		0.5	2	0.005	0.05	0.05	150	250	300	450
		0.6	2	0.006	0.06	0.06	180	300	360	540
		0.8	2	0.009	0.08	0.08	270	450	540	810
		1.0	2	0.011	0.10	0.10	330	550	660	990
		1.5	2	0.016	0.15	0.15	480	800	960	1440
		2.0	2	0.021	0.20	0.20	630	1050	1260	1890

Corner radius end mills MicrotoroXG

Shank Ø 6mm, cylindrical neck, 12xd

HSS | Favora® | Base-X | X-Generation X

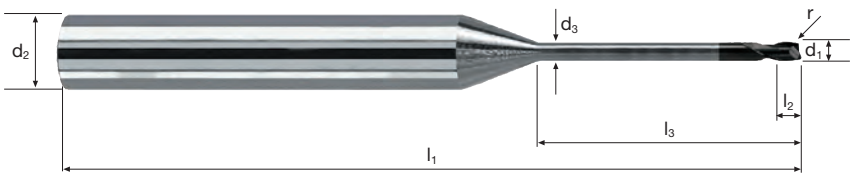
HM
XA

λ **30°**
γ **15°**

h5

d1

r



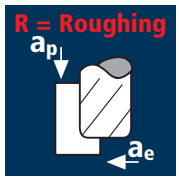
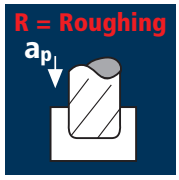
IV

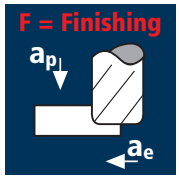
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **6040** ø-Code **.040**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	α	z	DIAPLUS B6040
.040	0.4	6	0.35	57	0.4	4.8	0.05	7.8°	2	●
.048	0.5	6	0.45	57	0.5	6.0	0.05	9.6°	2	●
.050	0.5	6	0.45	57	0.5	6.0	0.10	9.7°	2	●
.060	0.6	6	0.55	57	0.6	7.2	0.10	8.9°	2	●
.080	0.8	6	0.75	57	0.8	9.6	0.10	7.7°	2	●
.098	1.0	6	0.95	61	1.0	12.0	0.10	6.7°	2	●
.100	1.0	6	0.95	61	1.0	12.0	0.20	6.7°	2	●
.120	1.5	6	1.40	66	1.5	18.0	0.20	4.9°	2	●
.140	2.0	6	1.90	69	2.0	24.0	0.20	3.7°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.009	0.50	0.60	270	450	540	810
		1.2	2	0.011	0.60	0.70	330	550	660	990
		1.5	2	0.014	0.75	0.90	420	700	840	1260
		2.0	2	0.019	1.00	1.20	570	950	1140	1710
		2.5	2	0.024	1.25	1.50	720	1200	1440	2160
		3.0	2	0.028	1.50	1.80	840	1400	1680	2520
	Graphite B	1.0	2	0.007	0.50	1.00	210	350	420	630
		1.2	2	0.009	0.60	1.20	270	450	540	810
		1.5	2	0.011	0.75	1.50	330	550	660	990
		2.0	2	0.015	1.00	2.00	450	750	900	1350
		2.5	2	0.018	1.25	2.50	540	900	1080	1620
		3.0	2	0.022	1.50	3.00	660	1100	1320	1980

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.011	0.15	0.20	330	550	660	990
		1.2	2	0.013	0.18	0.24	390	650	780	1170
		1.5	2	0.016	0.23	0.30	480	800	960	1440
		2.0	2	0.021	0.30	0.40	630	1050	1260	1890
		2.5	2	0.027	0.38	0.50	810	1350	1620	2430
		3.0	2	0.032	0.45	0.60	960	1600	1920	2880
	Graphite B	1.0	2	0.011	0.20	0.20	330	550	660	990
		1.2	2	0.013	0.24	0.24	390	650	780	1170
		1.5	2	0.016	0.30	0.30	480	800	960	1440
		2.0	2	0.021	0.40	0.40	630	1050	1260	1890
		2.5	2	0.027	0.50	0.50	810	1350	1620	2430
		3.0	2	0.032	0.60	0.60	960	1600	1920	2880

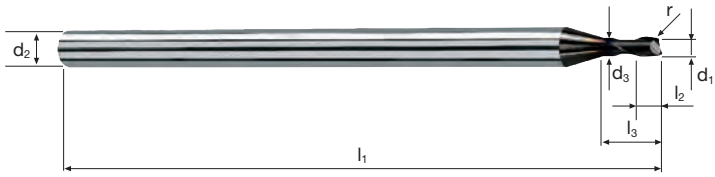
Corner radius end mills Microcut-T3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro

λ **25°**
γ **6°**



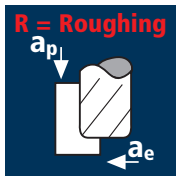
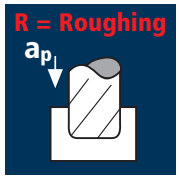
C Graphite

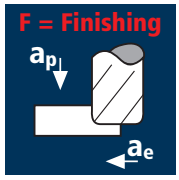
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5752** | ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DIAMANT B5752
.100	1.0	3	0.95	50	1.20	3.0	0.20	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.20	7.4°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.20	5.9°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.20	3.7°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.20	1.7°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.20	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.009	0.45	0.60	270	450	540	810
		1.2	2	0.011	0.55	0.70	330	550	660	990
		1.5	2	0.014	0.70	0.90	420	700	840	1260
		2.0	2	0.019	0.90	1.20	570	950	1140	1710
		2.5	2	0.024	1.15	1.50	720	1200	1440	2160
		3.0	2	0.028	1.35	1.80	840	1400	1680	2520
	Graphite B	1.0	2	0.007	0.45	1.00	210	350	420	630
		1.2	2	0.009	0.55	1.20	270	450	540	810
		1.5	2	0.011	0.70	1.50	330	550	660	990
		2.0	2	0.015	0.90	2.00	450	750	900	1350
		2.5	2	0.018	1.15	2.50	540	900	1080	1620
		3.0	2	0.022	1.35	3.00	660	1100	1320	1980

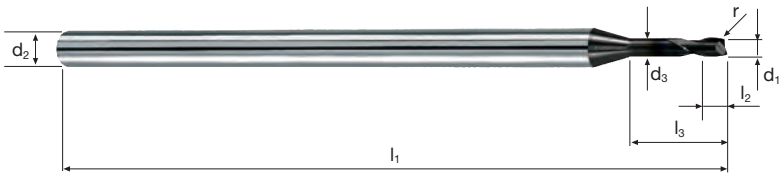
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.011	0.14	0.20	330	550	660	990
		1.2	2	0.013	0.17	0.24	390	650	780	1170
		1.5	2	0.016	0.21	0.30	480	800	960	1440
		2.0	2	0.021	0.28	0.40	630	1050	1260	1890
		2.5	2	0.027	0.35	0.50	810	1350	1620	2430
		3.0	2	0.032	0.42	0.60	960	1600	1920	2880
	Graphite B	1.0	2	0.011	0.18	0.18	330	550	660	990
		1.2	2	0.013	0.22	0.22	390	650	780	1170
		1.5	2	0.016	0.27	0.27	480	800	960	1440
		2.0	2	0.021	0.36	0.36	630	1050	1260	1890
		2.5	2	0.027	0.45	0.45	810	1350	1620	2430
		3.0	2	0.032	0.54	0.54	960	1600	1920	2880

Corner radius end mills Microcut-T5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **25°** γ **6°**



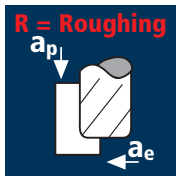
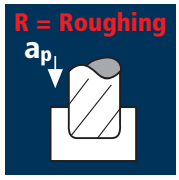
C Graphite

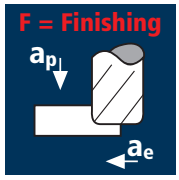
CF/GF Fiber Reinforced Plastics

IV

Example: **Order-N°.** Coating **B** | Article-N°. **5754** | ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DIAMANT B5754
.100	1.0	3	0.95	50	1.20	5.0	0.20	6.6°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.20	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.20	4.2°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.20	2.5°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.20	1.1°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.20	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.009	0.40	0.60	270	450	540	810
		1.2	2	0.011	0.50	0.70	330	550	660	990
		1.5	2	0.014	0.60	0.90	420	700	840	1260
		2.0	2	0.019	0.80	1.20	570	950	1140	1710
		2.5	2	0.024	1.00	1.50	720	1200	1440	2160
		3.0	2	0.028	1.20	1.80	840	1400	1680	2520
	Graphite B	1.0	2	0.007	0.40	1.00	210	350	420	630
		1.2	2	0.009	0.50	1.20	270	450	540	810
		1.5	2	0.011	0.60	1.50	330	550	660	990
		2.0	2	0.015	0.80	2.00	450	750	900	1350
		2.5	2	0.018	1.00	2.50	540	900	1080	1620
		3.0	2	0.022	1.20	3.00	660	1100	1320	1980

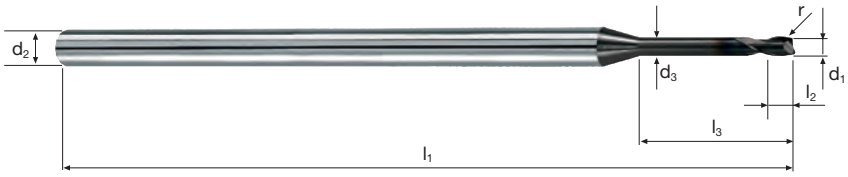
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	1.0	2	0.011	0.12	0.18	330	550	660	990
		1.2	2	0.013	0.14	0.22	390	650	780	1170
		1.5	2	0.016	0.18	0.27	480	800	960	1440
		2.0	2	0.021	0.24	0.36	630	1050	1260	1890
		2.5	2	0.027	0.30	0.45	810	1350	1620	2430
		3.0	2	0.032	0.36	0.54	960	1600	1920	2880
	Graphite B	1.0	2	0.011	0.16	0.16	330	550	660	990
		1.2	2	0.013	0.19	0.19	390	650	780	1170
		1.5	2	0.016	0.24	0.24	480	800	960	1440
		2.0	2	0.021	0.32	0.32	630	1050	1260	1890
		2.5	2	0.027	0.40	0.40	810	1350	1620	2430
		3.0	2	0.032	0.48	0.48	960	1600	1920	2880

Corner radius end mills Microcut-T8

Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **25°** γ **6°**



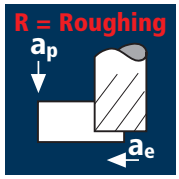
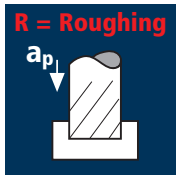
IV

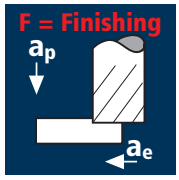
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **5756** | ø-Code **.100**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	r 0/+0.03	α	z	DIAMANT B5756
.100	1.0	3	0.95	50	1.20	8.0	0.20	4.9°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.20	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.20	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.20	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.20	0.7°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.20	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	0.2	2	0.002	0.10	0.10	60	100	120	180
		0.3	2	0.003	0.15	0.20	90	150	180	270
		0.4	2	0.004	0.20	0.25	120	200	240	360
		0.5	2	0.005	0.25	0.30	150	250	300	450
		0.6	2	0.006	0.25	0.35	180	300	360	540
		0.8	2	0.008	0.35	0.50	240	400	480	720
		1.0	2	0.009	0.45	0.60	270	450	540	810
		1.2	2	0.011	0.55	0.70	330	550	660	990
		1.5	2	0.014	0.70	0.90	420	700	840	1260
	Graphite	2.0	2	0.019	0.90	1.20	570	950	1140	1710
		2.5	2	0.024	1.15	1.50	720	1200	1440	2160
		3.0	2	0.028	1.35	1.80	840	1400	1680	2520
	Graphite	0.2	2	0.001	0.10	0.20	30	50	60	90
		0.3	2	0.002	0.15	0.30	60	100	120	180
		0.4	2	0.003	0.20	0.40	90	150	180	270
		0.5	2	0.004	0.25	0.50	120	200	240	360
		0.6	2	0.004	0.25	0.60	120	200	240	360
		0.8	2	0.006	0.35	0.80	180	300	360	540
		1.0	2	0.007	0.45	1.00	210	350	420	630
		1.2	2	0.009	0.55	1.20	270	450	540	810
		1.5	2	0.011	0.70	1.50	330	550	660	990
	Graphite	2.0	2	0.015	0.90	2.00	450	750	900	1350
		2.5	2	0.018	1.15	2.50	540	900	1080	1620
		3.0	2	0.022	1.35	3.00	660	1100	1320	1980

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite	0.2	2	0.002	0.03	0.04	60	100	120	180
		0.3	2	0.003	0.04	0.06	90	150	180	270
		0.4	2	0.004	0.06	0.08	120	200	240	360
		0.5	2	0.005	0.07	0.10	150	250	300	450
		0.6	2	0.006	0.08	0.12	180	300	360	540
		0.8	2	0.009	0.11	0.16	270	450	540	810
		1.0	2	0.011	0.14	0.20	330	550	660	990
		1.2	2	0.013	0.17	0.24	390	650	780	1170
		1.5	2	0.016	0.21	0.30	480	800	960	1440
	Graphite	2.0	2	0.021	0.28	0.40	630	1050	1260	1890
		2.5	2	0.027	0.35	0.50	810	1350	1620	2430
		3.0	2	0.032	0.42	0.60	960	1600	1920	2880
	Graphite	0.2	2	0.002	0.04	0.04	60	100	120	180
		0.3	2	0.003	0.05	0.05	90	150	180	270
		0.4	2	0.004	0.07	0.07	120	200	240	360
		0.5	2	0.005	0.09	0.09	150	250	300	450
		0.6	2	0.006	0.11	0.11	180	300	360	540
		0.8	2	0.009	0.14	0.14	270	450	540	810
		1.0	2	0.011	0.18	0.18	330	550	660	990
		1.2	2	0.013	0.22	0.22	390	650	780	1170
		1.5	2	0.016	0.27	0.27	480	800	960	1440
	Graphite	2.0	2	0.021	0.36	0.36	630	1050	1260	1890
		2.5	2	0.027	0.45	0.45	810	1350	1620	2430
		3.0	2	0.032	0.54	0.54	960	1600	1920	2880

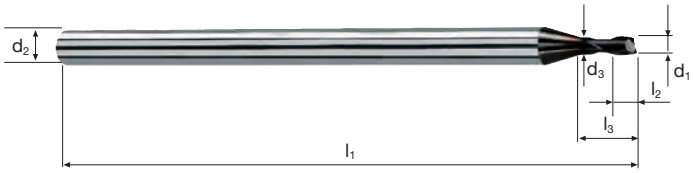
Cylindrical end mills Microcut-C3

Shank Ø 3mm, cylindrical neck, 3xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **25°** γ **6°**

45°



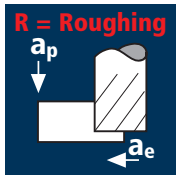
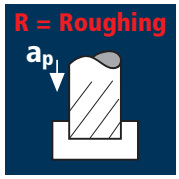
IV

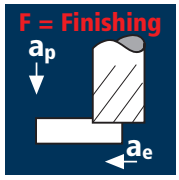
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **5712** ø-Code **.020**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	DIAMANT B5712
.020	0.2	3	0.18	40	0.24	0.6	-	9.4°	2	●
.030	0.3	3	0.25	40	0.36	0.9	-	9.0°	2	●
.040	0.4	3	0.35	40	0.48	1.2	-	8.5°	2	●
.050	0.5	3	0.45	40	0.60	1.5	-	11.5°	2	●
.060	0.6	3	0.55	40	0.72	1.8	-	11.9°	2	●
.080	0.8	3	0.75	40	0.96	2.4	-	9.6°	2	●
.100	1.0	3	0.95	50	1.20	3.0	0.07	8.5°	2	●
.108	1.2	3	1.10	50	1.44	3.6	0.07	7.4°	2	●
.120	1.5	3	1.40	50	1.80	4.5	0.07	5.9°	2	●
.140	2.0	3	1.90	50	2.40	6.0	0.10	3.7°	2	●
.160	2.5	3	2.30	50	3.00	7.5	0.10	1.7°	2	●
.180	3.0	3	2.80	50	3.60	9.0	0.10	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite	0.5	2	0.005	0.25	0.30	150	250	300	450
		0.6	2	0.006	0.25	0.35	180	300	360	540
		0.7	2	0.007	0.30	0.40	210	350	420	630
		0.8	2	0.008	0.35	0.50	240	400	480	720
		0.9	2	0.008	0.40	0.55	240	400	480	720
		1.0	2	0.009	0.45	0.60	270	450	540	810
		1.2	2	0.011	0.55	0.70	330	550	660	990
		1.5	2	0.014	0.70	0.90	420	700	840	1260
		1.8	2	0.017	0.80	1.10	510	850	1020	1530
	Graphite	2.0	2	0.019	0.90	1.20	570	950	1140	1710
		2.3	2	0.022	1.05	1.40	660	1100	1320	1980
		2.5	2	0.024	1.15	1.50	720	1200	1440	2160
		2.8	2	0.026	1.25	1.70	780	1300	1560	2340
		3.0	2	0.028	1.35	1.80	840	1400	1680	2520
	Graphite	0.5	2	0.004	0.25	0.50	120	200	240	360
		0.6	2	0.004	0.25	0.60	120	200	240	360
		0.7	2	0.005	0.30	0.70	150	250	300	450
		0.8	2	0.006	0.35	0.80	180	300	360	540
		0.9	2	0.007	0.40	0.90	210	350	420	630
		1.0	2	0.007	0.45	1.00	210	350	420	630
		1.2	2	0.009	0.55	1.20	270	450	540	810
		1.5	2	0.011	0.70	1.50	330	550	660	990
		1.8	2	0.013	0.80	1.80	390	650	780	1170
	Graphite	2.0	2	0.015	0.90	2.00	450	750	900	1350
		2.3	2	0.017	1.05	2.30	510	850	1020	1530
		2.5	2	0.018	1.15	2.50	540	900	1080	1620
		2.8	2	0.020	1.25	2.80	600	1000	1200	1800
		3.0	2	0.022	1.35	3.00	660	1100	1320	1980

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
	Graphite	0.5	2	0.005	0.07	0.10	150	250	300	450
		0.6	2	0.006	0.08	0.12	180	300	360	540
		0.7	2	0.007	0.10	0.14	210	350	420	630
		0.8	2	0.009	0.11	0.16	270	450	540	810
		0.9	2	0.010	0.13	0.18	300	500	600	900
		1.0	2	0.011	0.14	0.20	330	550	660	990
		1.2	2	0.013	0.17	0.24	390	650	780	1170
		1.5	2	0.016	0.21	0.30	480	800	960	1440
		1.8	2	0.019	0.25	0.36	570	950	1140	1710
	Graphite	2.0	2	0.021	0.28	0.40	630	1050	1260	1890
		2.3	2	0.025	0.32	0.46	750	1250	1500	2250
		2.5	2	0.027	0.35	0.50	810	1350	1620	2430
		2.8	2	0.030	0.39	0.56	900	1500	1800	2700
		3.0	2	0.032	0.42	0.60	960	1600	1920	2880
	Graphite	0.5	2	0.005	0.09	0.09	150	250	300	450
		0.6	2	0.006	0.11	0.11	180	300	360	540
		0.7	2	0.007	0.13	0.13	210	350	420	630
		0.8	2	0.009	0.14	0.14	270	450	540	810
		0.9	2	0.010	0.16	0.16	300	500	600	900
		1.0	2	0.011	0.18	0.18	330	550	660	990
		1.2	2	0.013	0.22	0.22	390	650	780	1170
		1.5	2	0.016	0.27	0.27	480	800	960	1440
		1.8	2	0.019	0.32	0.32	570	950	1140	1710
	Graphite	2.0	2	0.021	0.36	0.36	630	1050	1260	1890
		2.3	2	0.025	0.41	0.41	750	1250	1500	2250
		2.5	2	0.027	0.45	0.45	810	1350	1620	2430
		2.8	2	0.030	0.50	0.50	900	1500	1800	2700
		3.0	2	0.032	0.54	0.54	960	1600	1920	2880

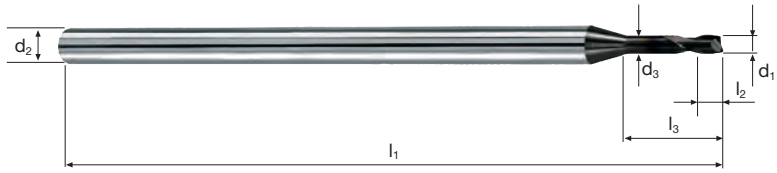
Cylindrical end mills Microcut-C5

Shank Ø 3mm, cylindrical neck, 5xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°



IV

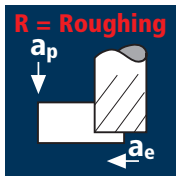
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **5714** ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	DIAMANT B5714
.050	0.5	3	0.45	40	0.60	2.5	-	9.9°	2	●
.060	0.6	3	0.55	40	0.72	3.0	-	9.2°	2	●
.070	0.7	3	0.65	40	0.84	3.5	-	8.4°	2	●
.080	0.8	3	0.75	40	0.96	4.0	-	7.8°	2	●
.090	0.9	3	0.85	40	1.08	4.5	-	7.2°	2	●
.100	1.0	3	0.95	50	1.20	5.0	0.07	6.6°	2	●
.108	1.2	3	1.10	50	1.44	6.0	0.07	5.5°	2	●
.120	1.5	3	1.40	50	1.80	7.5	0.07	4.2°	2	●
.132	1.8	3	1.70	50	2.16	9.0	0.07	3.1°	2	●
.140	2.0	3	1.90	50	2.40	10.0	0.10	2.5°	2	●
.152	2.3	3	2.10	50	2.76	11.5	0.10	1.6°	2	●
.160	2.5	3	2.30	50	3.00	12.5	0.10	1.1°	2	●
.172	2.8	3	2.60	50	3.36	14.0	0.10	0.4°	2	●
.180	3.0	3	2.80	50	3.60	15.0	0.10	0.0°	2	●

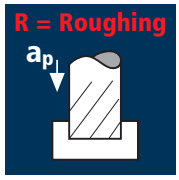
Application	Material
R = Roughing	Graphite



B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.20	0.30	150	250	300	450
0.6	2	0.006	0.25	0.35	180	300	360	540
0.8	2	0.008	0.30	0.50	240	400	480	720
1.0	2	0.009	0.40	0.60	270	450	540	810
1.2	2	0.011	0.50	0.70	330	550	660	990
1.5	2	0.014	0.60	0.90	420	700	840	1260
2.0	2	0.019	0.80	1.20	570	950	1140	1710
2.5	2	0.024	1.00	1.50	720	1200	1440	2160
3.0	2	0.028	1.20	1.80	840	1400	1680	2520

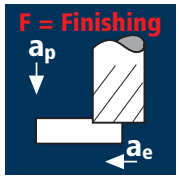
Application	Material
R = Roughing	Graphite



B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.004	0.20	0.50	120	200	240	360
0.6	2	0.004	0.25	0.60	120	200	240	360
0.8	2	0.006	0.30	0.80	180	300	360	540
1.0	2	0.007	0.40	1.00	210	350	420	630
1.2	2	0.009	0.50	1.20	270	450	540	810
1.5	2	0.011	0.60	1.50	330	550	660	990
2.0	2	0.015	0.80	2.00	450	750	900	1350
2.5	2	0.018	1.00	2.50	540	900	1080	1620
3.0	2	0.022	1.20	3.00	660	1100	1320	1980

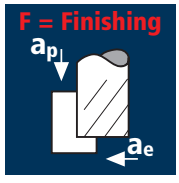
Application	Material
F = Finishing	Graphite



B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.06	0.09	150	250	300	450
0.6	2	0.006	0.07	0.11	180	300	360	540
0.8	2	0.009	0.10	0.14	270	450	540	810
1.0	2	0.011	0.12	0.18	330	550	660	990
1.2	2	0.013	0.14	0.22	390	650	780	1170
1.5	2	0.016	0.18	0.27	480	800	960	1440
2.0	2	0.021	0.24	0.36	630	1050	1260	1890
2.5	2	0.027	0.30	0.45	810	1350	1620	2430
3.0	2	0.032	0.36	0.54	960	1600	1920	2880

Application	Material
F = Finishing	Graphite



B

d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min⁻¹ vf [mm/min]	n=25000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]	n=45000 min⁻¹ vf [mm/min]
0.5	2	0.005	0.08	0.08	150	250	300	450
0.6	2	0.006	0.10	0.10	180	300	360	540
0.8	2	0.009	0.13	0.13	270	450	540	810
1.0	2	0.011	0.16	0.16	330	550	660	990
1.2	2	0.013	0.19	0.19	390	650	780	1170
1.5	2	0.016	0.24	0.24	480	800	960	1440
2.0	2	0.021	0.32	0.32	630	1050	1260	1890
2.5	2	0.027	0.40	0.40	810	1350	1620	2430
3.0	2	0.032	0.48	0.48	960	1600	1920	2880

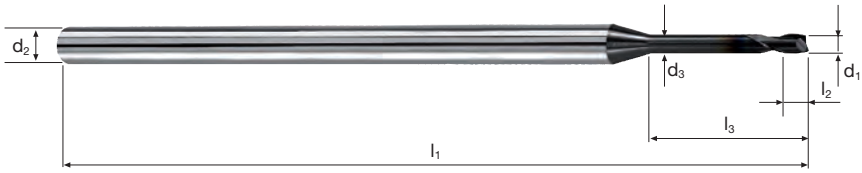
Cylindrical end mills Microcut-C8

Shank Ø 3mm, cylindrical neck, 8xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ **25°** γ **6°**

45°



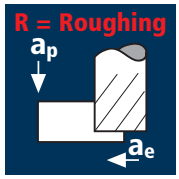
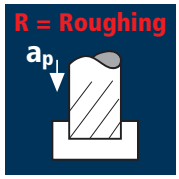
IV

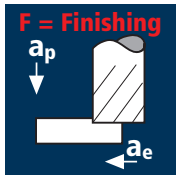
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **5716** | ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	DIAMANT B5716
.050	0.5	3	0.45	40	0.60	4.0	-	8.3°	2	●
.060	0.6	3	0.55	40	0.72	4.8	-	7.4°	2	●
.080	0.8	3	0.75	40	0.96	6.4	-	6.0°	2	●
.100	1.0	3	0.95	50	1.20	8.0	0.07	4.9°	2	●
.108	1.2	3	1.10	50	1.44	9.6	0.07	4.0°	2	●
.120	1.5	3	1.40	60	1.80	12.0	0.07	3.0°	2	●
.140	2.0	3	1.90	60	2.40	16.0	0.10	1.7°	2	●
.160	2.5	3	2.30	60	3.00	20.0	0.10	0.7°	2	●
.180	3.0	3	2.80	60	3.60	24.0	0.10	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	0.5	2	0.005	0.20	0.20	150	250	300	450
		0.6	2	0.006	0.25	0.25	180	300	360	540
		0.8	2	0.008	0.30	0.30	240	400	480	720
		1.0	2	0.009	0.40	0.40	270	450	540	810
		1.2	2	0.011	0.50	0.50	330	550	660	990
		1.5	2	0.014	0.60	0.60	420	700	840	1260
		2.0	2	0.019	0.80	0.80	570	950	1140	1710
		2.5	2	0.024	1.00	1.00	720	1200	1440	2160
		3.0	2	0.028	1.20	1.20	840	1400	1680	2520
	Graphite B	0.5	2	0.003	0.15	0.50	90	150	180	270
		0.6	2	0.003	0.20	0.60	90	150	180	270
		0.8	2	0.004	0.25	0.80	120	200	240	360
		1.0	2	0.005	0.30	1.00	150	250	300	450
		1.2	2	0.007	0.35	1.20	210	350	420	630
		1.5	2	0.008	0.45	1.50	240	400	480	720
		2.0	2	0.011	0.60	2.00	330	550	660	990
		2.5	2	0.014	0.75	2.50	420	700	840	1260
		3.0	2	0.016	0.90	3.00	480	800	960	1440

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=15000 min^{-1} vf [mm/min]	n=25000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]	n=45000 min^{-1} vf [mm/min]
	Graphite B	0.5	2	0.005	0.05	0.08	150	250	300	450
		0.6	2	0.006	0.06	0.09	180	300	360	540
		0.8	2	0.009	0.08	0.12	270	450	540	810
		1.0	2	0.011	0.10	0.15	330	550	660	990
		1.2	2	0.013	0.12	0.18	390	650	780	1170
		1.5	2	0.016	0.15	0.23	480	800	960	1440
		2.0	2	0.021	0.20	0.30	630	1050	1260	1890
		2.5	2	0.027	0.25	0.38	810	1350	1620	2430
		3.0	2	0.032	0.30	0.45	960	1600	1920	2880
	Graphite B	0.5	2	0.005	0.07	0.07	150	250	300	450
		0.6	2	0.006	0.08	0.08	180	300	360	540
		0.8	2	0.009	0.11	0.11	270	450	540	810
		1.0	2	0.011	0.14	0.14	330	550	660	990
		1.2	2	0.013	0.17	0.17	390	650	780	1170
		1.5	2	0.016	0.21	0.21	480	800	960	1440
		2.0	2	0.021	0.28	0.28	630	1050	1260	1890
		2.5	2	0.027	0.35	0.35	810	1350	1620	2430
		3.0	2	0.032	0.42	0.42	960	1600	1920	2880

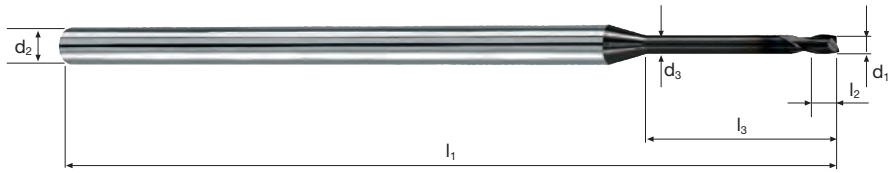
Cylindrical end mills Microcut-C10

Shank Ø 3mm, cylindrical neck, 10xd

HSS | Favora® | Base-X | **B** | X-Generation

HM Micro | λ 25° γ 6°

45°



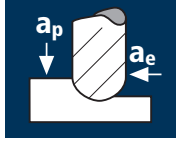
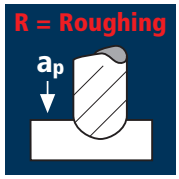
IV

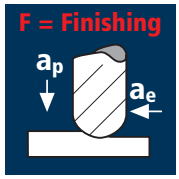
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **5717** | ø-Code **.050**

ø Code	d1 ±0.01	d2 h6	d3	l1	l2	l3	45°	α	z	DIAMANT B5717
.050	0.5	3	0.45	40	0.60	5.0	-	7.4°	2	●
.060	0.6	3	0.55	40	0.72	6.0	-	6.6°	2	●
.080	0.8	3	0.75	40	0.96	8.0	-	5.2°	2	●
.100	1.0	3	0.95	50	1.20	10.0	0.07	4.2°	2	●
.108	1.2	3	1.10	50	1.44	12.0	0.07	3.4°	2	●
.120	1.5	3	1.40	60	1.80	15.0	0.07	2.5°	2	●
.140	2.0	3	1.90	60	2.40	20.0	0.10	1.4°	2	●
.160	2.5	3	2.30	60	3.00	25.0	0.10	0.6°	2	●
.180	3.0	3	2.80	60	3.60	30.0	0.10	0.0°	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
R = Roughing 	Graphite B	6	2	0.071	3.00	3.60	1420	2130	2840	4260
		8	2	0.094	4.00	4.80	1880	2820	3760	5640
		10	2	0.118	5.00	6.00	2360	3540	4720	7080
		12	2	0.141	6.00	7.20	2820	4230	5640	8460
R = Roughing 	Graphite B	6	2	0.055	3.00	6.0	1100	1650	2200	3300
		8	2	0.073	4.00	8.0	1460	2190	2920	4380
		10	2	0.091	5.00	10.0	1820	2730	3640	5460
		12	2	0.109	6.00	12.0	2180	3270	4360	6540

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
F = Finishing 	Graphite B	6	2	0.080	0.90	1.20	1600	2400	3200	4800
		8	2	0.107	1.20	1.60	2140	3210	4280	6420
		10	2	0.133	1.50	2.00	2660	3990	5320	7980
		12	2	0.160	1.80	2.40	3200	4800	6400	9600
F = Finishing 	Graphite B	6	2	0.080	1.20	0.40	1600	2400	3200	4800
		8	2	0.107	1.60	0.40	2140	3210	4280	6420
		10	2	0.133	2.00	0.40	2660	3990	5320	7980
		12	2	0.160	2.40	0.40	3200	4800	6400	9600

Ball nose end mills SpheroXG

Tolerance r ±0.005, 3xd

HSS | Favora® | Base-X | X-Generation X

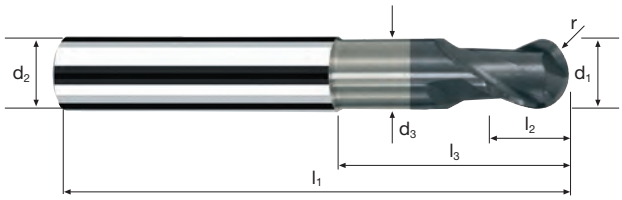
HM
XA

λ **30°**
γ **15°**

h5

d1

r



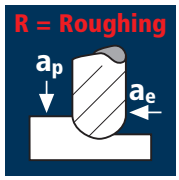
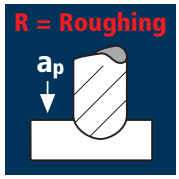
IV

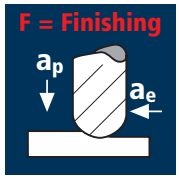
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **7480** ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	z	DIAPLUS B7480
.300	6	6	5.5	57	7	20	3.0	2	●
.391	8	8	7.4	63	9	26	4.0	2	●
.450	10	10	9.2	72	11	31	5.0	2	●
.501	12	12	11.0	83	13	37	6.0	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Graphite B	6	2	0.071	2.70	3.60	1420	2130	2840	4260
		8	2	0.094	3.60	4.80	1880	2820	3760	5640
		10	2	0.118	4.50	6.00	2360	3540	4720	7080
		12	2	0.141	5.40	7.20	2820	4230	5640	8460
	Graphite B	6	2	0.055	2.70	6.0	1100	1650	2200	3300
		8	2	0.073	3.60	8.0	1460	2190	2920	4380
		10	2	0.091	4.50	10.0	1820	2730	3640	5460
		12	2	0.109	5.40	12.0	2180	3270	4360	6540

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	Graphite B	6	2	0.080	0.85	1.20	1600	2400	3200	4800
		8	2	0.107	1.10	1.60	2140	3210	4280	6420
		10	2	0.133	1.40	2.00	2660	3990	5320	7980
		12	2	0.160	1.70	2.40	3200	4800	6400	9600
	Graphite B	6	2	0.080	1.10	0.35	1600	2400	3200	4800
		8	2	0.107	1.45	0.35	2140	3210	4280	6420
		10	2	0.133	1.80	0.35	2660	3990	5320	7980
		12	2	0.160	2.15	0.35	3200	4800	6400	9600

Ball nose end mills SpheroXG

Tolerance r ±0.005, 6xd

HSS | Favora® | Base-X | X-Generation X

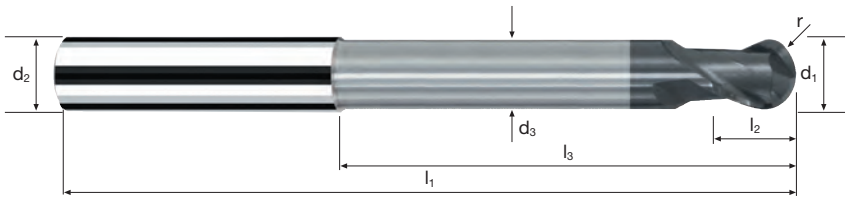
HM
XA

λ **30°**
γ **15°**

h5

d1

r



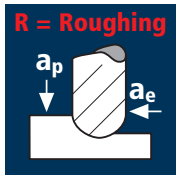
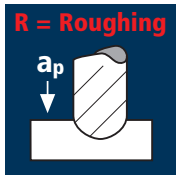
IV

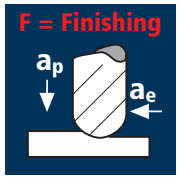
C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **7484** ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	z	DIAPLUS B7484
.300	6	6	5.5	80	7	43	3.0	2	●
.391	8	8	7.4	90	9	53	4.0	2	●
.450	10	10	9.2	105	11	64	5.0	2	●
.501	12	12	11.0	120	13	74	6.0	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.071	2.40	2.40	1420	2130	2840	4260
		8	2	0.094	3.20	3.20	1880	2820	3760	5640
		10	2	0.118	4.00	4.00	2360	3540	4720	7080
		12	2	0.141	4.80	4.80	2820	4230	5640	8460
	Graphite B	6	2	0.044	1.80	6.0	880	1320	1760	2640
		8	2	0.058	2.40	8.0	1160	1740	2320	3480
		10	2	0.073	3.00	10.0	1460	2190	2920	4380
		12	2	0.087	3.60	12.0	1740	2610	3480	5220

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.080	0.60	0.95	1600	2400	3200	4800
		8	2	0.107	0.80	1.30	2140	3210	4280	6420
		10	2	0.133	1.00	1.60	2660	3990	5320	7980
		12	2	0.160	1.20	1.90	3200	4800	6400	9600
	Graphite B	6	2	0.080	0.85	0.30	1600	2400	3200	4800
		8	2	0.107	1.10	0.30	2140	3210	4280	6420
		10	2	0.133	1.40	0.30	2660	3990	5320	7980
		12	2	0.160	1.70	0.30	3200	4800	6400	9600

Ball nose end mills SpheroXG

Tolerance r ±0.005, 9xd

HSS | Favora® | Base-X | X-Generation **X**

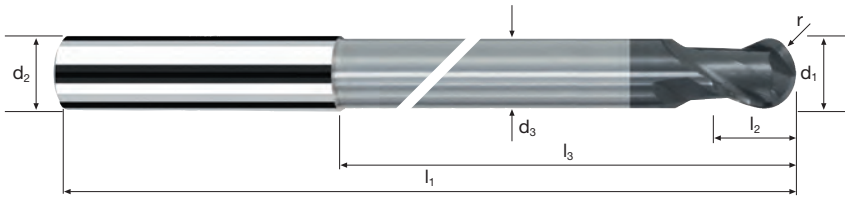
HM
XA

λ **30°**
γ **15°**

h5

d1

r



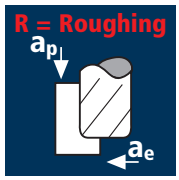
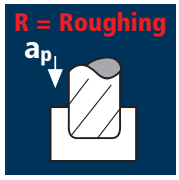
C
Graphite

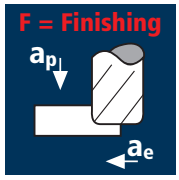
CF/GF
Fiber Reinforced Plastics

IV

Example:
Order-N°. Coating **B** Article-N°. **7488** ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	z	DIAPLUS B7488
.300	6	6	5.5	100	7	63	3.0	2	●
.391	8	8	7.4	120	9	83	4.0	2	●
.450	10	10	9.2	135	11	94	5.0	2	●
.501	12	12	11.0	160	13	114	6.0	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.056	4.80	2.40	1120	1680	2240	3360
		8	2	0.075	6.40	3.20	1500	2250	3000	4500
		10	2	0.094	8.00	4.00	1880	2820	3760	5640
		12	2	0.113	9.60	4.80	2260	3390	4520	6780
	Graphite B	6	2	0.044	3.0	6.0	880	1320	1760	2640
		8	2	0.058	4.0	8.0	1160	1740	2320	3480
		10	2	0.073	5.0	10.0	1460	2190	2920	4380
		12	2	0.087	6.0	12.0	1740	2610	3480	5220

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.080	0.48	2.70	1600	2400	3200	4800
		8	2	0.107	0.64	3.60	2140	3210	4280	6420
		10	2	0.133	0.80	4.50	2660	3990	5320	7980
		12	2	0.160	0.96	5.40	3200	4800	6400	9600
	Graphite B	6	2	0.080	0.90	0.90	1600	2400	3200	4800
		8	2	0.107	1.20	1.20	2140	3210	4280	6420
		10	2	0.133	1.50	1.50	2660	3990	5320	7980
		12	2	0.160	1.80	1.80	3200	4800	6400	9600

Corner radius end mills ToroXG

Tolerance r ±0.005, 6xd

HSS | Favora® | Base-X | X-Generation X

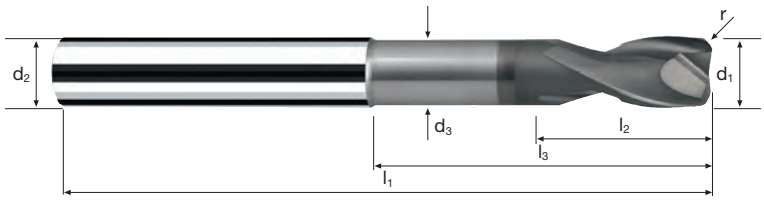
HM
XA

λ **30°**
γ **15°**

h5

d1

r



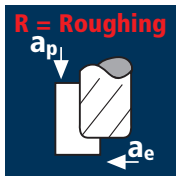
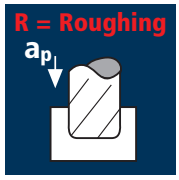
IV

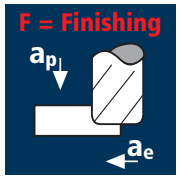
C
Graphite

CF/GF
Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **7284** ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	z	DIAPLUS B7284
.300	6	6	5.5	80	7	43	0.5	2	●
.297	6	6	5.5	80	7	43	1.0	2	●
.391	8	8	7.4	90	9	53	0.5	2	●
.388	8	8	7.4	90	9	53	1.0	2	●
.450	10	10	9.2	105	11	64	0.5	2	●
.445	10	10	9.2	105	11	64	1.0	2	●
.501	12	12	11.0	120	13	74	0.5	2	●
.496	12	12	11.0	120	13	74	1.0	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.056	4.80	1.20	1120	1680	2240	3360
		8	2	0.075	6.40	1.60	1500	2250	3000	4500
		10	2	0.094	8.00	2.00	1880	2820	3760	5640
		12	2	0.113	9.60	2.40	2260	3390	4520	6780
	Graphite B	6	2	0.044	2.10	6.0	880	1320	1760	2640
		8	2	0.058	2.80	8.0	1160	1740	2320	3480
		10	2	0.073	3.50	10.0	1460	2190	2920	4380
		12	2	0.087	4.20	12.0	1740	2610	3480	5220

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.080	0.36	1.50	1600	2400	3200	4800
		8	2	0.107	0.48	2.00	2140	3210	4280	6420
		10	2	0.133	0.60	2.50	2660	3990	5320	7980
		12	2	0.160	0.72	3.00	3200	4800	6400	9600
	Graphite B	6	2	0.080	0.84	0.84	1600	2400	3200	4800
		8	2	0.107	1.12	1.12	2140	3210	4280	6420
		10	2	0.133	1.40	1.40	2660	3990	5320	7980
		12	2	0.160	1.68	1.68	3200	4800	6400	9600

Corner radius end mills ToroXG

Tolerance r ±0.005, 9xd

HSS | Favora® | Base-X | X-Generation X

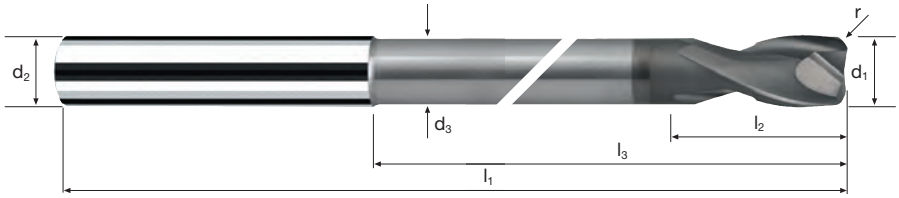
HM
XA

λ **30°**
γ **15°**

h5

d1

r



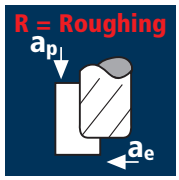
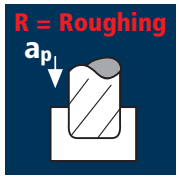
IV

C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** Article-N°. **7288** ø-Code **.300**

ø Code	d1 0/-0.01	d2 h5	d3	l1	l2	l3	r ±0.005	z	DIAPLUS B7288
.300	6	6	5.5	100	7	63	0.5	2	●
.297	6	6	5.5	100	7	63	1.0	2	●
.391	8	8	7.4	120	9	83	0.5	2	●
.388	8	8	7.4	120	9	83	1.0	2	●
.450	10	10	9.2	135	11	94	0.5	2	●
.445	10	10	9.2	135	11	94	1.0	2	●
.501	12	12	11.0	160	13	114	0.5	2	●
.496	12	12	11.0	160	13	114	1.0	2	●

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.071	4.80	2.40	1420	2130	2840	4260
		8	2	0.094	6.40	3.20	1880	2820	3760	5640
		10	2	0.118	8.00	4.00	2360	3540	4720	7080
		12	2	0.141	9.60	4.80	2820	4230	5640	8460
	Graphite B	6	2	0.055	3.0	6.0	1100	1650	2200	3300
		8	2	0.073	4.0	8.0	1460	2190	2920	4380
		10	2	0.091	5.0	10.0	1820	2730	3640	5460
		12	2	0.109	6.0	12.0	2180	3270	4360	6540

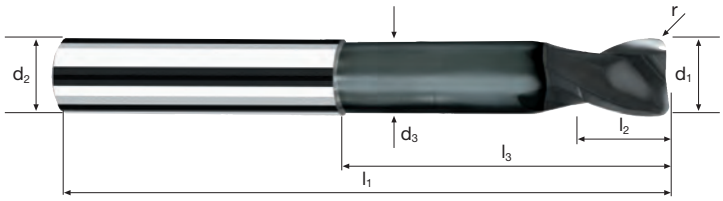
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	6	2	0.080	0.60	2.70	1600	2400	3200	4800
		8	2	0.107	0.80	3.60	2140	3210	4280	6420
		10	2	0.133	1.00	4.50	2660	3990	5320	7980
		12	2	0.160	1.20	5.40	3200	4800	6400	9600
	Graphite B	6	2	0.080	1.08	1.08	1600	2400	3200	4800
		8	2	0.107	1.44	1.44	2140	3210	4280	6420
		10	2	0.133	1.80	1.80	2660	3990	5320	7980
		12	2	0.160	2.16	2.16	3200	4800	6400	9600

Corner radius end mills

Tolerance r 0/+0.03

HSS | Favora® | Base-X | **B** | X-Generation

HM XA | λ **30°** γ **15°**



IV

C Graphite

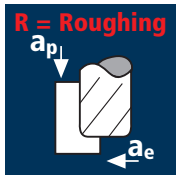
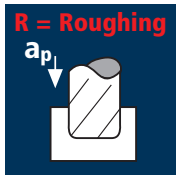
CF/GF Fiber Reinforced Plastics

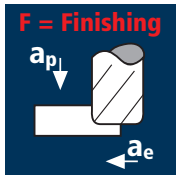
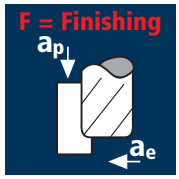
Example: **Order-N°.** Coating **B** | Article-N°. **5630** | ø-Code **.300**

ø Code	d1 e8	d2 h6	d3	l1	l2	l3	r 0/+0.03	z	DIAMANT B5630
.300	6	6	5.5	70	7	33	1.0	2	●
.391	8	8	7.4	80	9	43	1.0	2	●
.450	10	10	9.2	84	11	43	1.5	2	●
.501	12	12	11.0	97	13	51	1.5	2	●

CNC Diameter D

d1	Tolerance e8		Diameter Minimum	Diameter Maximum	D
6	-0.038	-0.020	**5.962**	**5.980**	**5.971**
8	-0.047	-0.025	**7.953**	**7.975**	**7.964**
10			**9.953**	**9.975**	**9.964**
12	-0.059	-0.032	**11.941**	**11.968**	**11.955**

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	2	3	0.024	4.0	0.50	720	1080	1440	2160
		3	3	0.035	6.0	0.75	1050	1575	2100	3150
		4	3	0.047	8.0	1.00	1410	2115	2820	4230
		5	3	0.059	10.0	1.25	1770	2655	3540	5310
		6	3	0.071	12.0	1.50	2130	3195	4260	6390
		8	3	0.094	16.0	2.00	2820	4230	5640	8460
		10	3	0.118	20.0	2.50	3540	5310	7080	10620
		12	3	0.141	24.0	3.00	4230	6345	8460	12690
	Graphite B	2	3	0.018	0.60	2.0	540	810	1080	1620
		3	3	0.027	0.90	3.0	810	1215	1620	2430
		4	3	0.036	1.20	4.0	1080	1620	2160	3240
		5	3	0.045	1.50	5.0	1350	2025	2700	4050
		6	3	0.055	1.80	6.0	1650	2475	3300	4950
		8	3	0.073	2.40	8.0	2190	3285	4380	6570
		10	3	0.091	3.00	10.0	2730	4095	5460	8190
		12	3	0.109	3.60	12.0	3270	4905	6540	9810

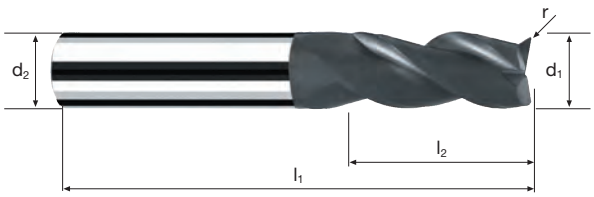
Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	2	3	0.027	0.20	0.80	810	1215	1620	2430
		3	3	0.040	0.30	1.20	1200	1800	2400	3600
		4	3	0.053	0.40	1.60	1590	2385	3180	4770
		5	3	0.067	0.50	2.00	2010	3015	4020	6030
		6	3	0.080	0.60	2.40	2400	3600	4800	7200
		8	3	0.107	0.80	3.20	3210	4815	6420	9630
		10	3	0.133	1.00	4.00	3990	5985	7980	11970
		12	3	0.160	1.20	4.80	4800	7200	9600	14400
	Graphite B	2	3	0.027	4.0	0.30	810	1215	1620	2430
		3	3	0.040	6.0	0.45	1200	1800	2400	3600
		4	3	0.053	8.0	0.60	1590	2385	3180	4770
		5	3	0.067	10.0	0.75	2010	3015	4020	6030
		6	3	0.080	12.0	0.90	2400	3600	4800	7200
		8	3	0.107	16.0	1.20	3210	4815	6420	9630
		10	3	0.133	20.0	1.50	3990	5985	7980	11970
		12	3	0.160	24.0	1.80	4800	7200	9600	14400

Corner radius end mills

Tolerance r 0/+0.03

HSS | Favora® | Base-X | **B** | X-Generation

HM XA | λ **40°** γ **15°**



IV

C Graphite

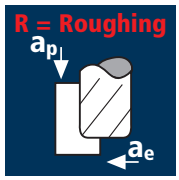
CF/GF Fiber Reinforced Plastics

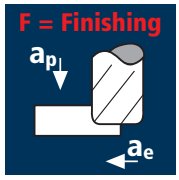
Example: **Order-N°.** Coating **B** Article-N°. **5640** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z	DIAMANT B5640
.140	2	3	40	6	0.15	3.4°	3	●
.180	3	3	40	12	0.15	0.0°	3	●
.220	4	4	50	14	0.20	0.0°	3	●
.260	5	5	50	16	0.30	0.0°	3	●
.300	6	6	63	19	0.30	0.0°	3	●
.391	8	8	63	19	0.50	0.0°	3	●
.450	10	10	72	22	0.50	0.0°	3	●
.501	12	12	75	25	0.50	0.0°	3	●

CNC Diameter D

d1	Tolerance e8		Diameter Minimum	Diameter Maximum	D
2	-0.028	-0.014	**1.972**	**1.986**	**1.979**
3			**2.972**	**2.986**	**2.979**
4	-0.038	-0.020	**3.962**	**3.980**	**3.971**
5			**4.962**	**4.980**	**4.971**
6			**5.962**	**5.980**	**5.971**
8	-0.047	-0.025	**7.953**	**7.975**	**7.964**
10			**9.953**	**9.975**	**9.964**
12	-0.059	-0.032	**11.941**	**11.968**	**11.955**

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	2	3	0.019	6.0	0.40	570	855	1140	1710
		3	3	0.028	9.0	0.60	840	1260	1680	2520
		4	3	0.038	12.0	0.80	1140	1710	2280	3420
		5	3	0.047	15.0	1.00	1410	2115	2820	4230
		6	3	0.056	18.0	1.20	1680	2520	3360	5040
		8	3	0.075	24.0	1.60	2250	3375	4500	6750
		10	3	0.094	30.0	2.00	2820	4230	5640	8460
		12	3	0.113	36.0	2.40	3390	5085	6780	10170

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	Graphite B	2	3	0.021	0.20	0.70	630	945	1260	1890
		3	3	0.032	0.30	1.05	960	1440	1920	2880
		4	3	0.043	0.40	1.40	1290	1935	2580	3870
		5	3	0.053	0.50	1.75	1590	2385	3180	4770
		6	3	0.064	0.60	2.10	1920	2880	3840	5760
		8	3	0.085	0.80	2.80	2550	3825	5100	7650
		10	3	0.107	1.00	3.50	3210	4815	6420	9630
		12	3	0.128	1.20	4.20	3840	5760	7680	11520
	Graphite B	2	3	0.021	6.0	0.30	630	945	1260	1890
		3	3	0.032	9.0	0.45	960	1440	1920	2880
		4	3	0.043	12.0	0.60	1290	1935	2580	3870
		5	3	0.053	15.0	0.75	1590	2385	3180	4770
		6	3	0.064	18.0	0.90	1920	2880	3840	5760
		8	3	0.085	24.0	1.20	2550	3825	5100	7650
		10	3	0.107	30.0	1.50	3210	4815	6420	9630
		12	3	0.128	36.0	1.80	3840	5760	7680	11520

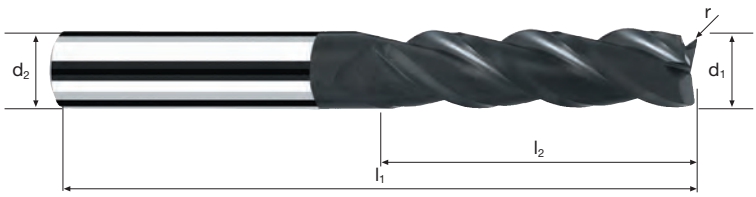
Corner radius end mills

Tolerance r 0/+0.03

HSS | Favora® | Base-X | **B** | X-Generation

HM
XA

λ **40°**
γ **15°**



IV

C
Graphite

CF/GF
Fiber Reinforced Plastics

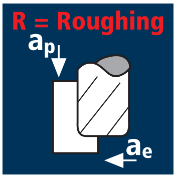
Example:
Order-N°. Coating **B** Article-N°. **5645** ø-Code **.140**

ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	α	z	DIAMANT B5645
.140	2	3	60	9	0.15	2.5°	3	●
.180	3	3	60	30	0.15	0.0°	3	●
.220	4	4	60	30	0.20	0.0°	3	●
.260	5	5	70	35	0.30	0.0°	3	●
.300	6	6	100	40	0.30	0.0°	3	●
.391	8	8	100	40	0.50	0.0°	3	●
.450	10	10	100	40	0.50	0.0°	3	●
.501	12	12	97	42	0.50	0.0°	3	●

CNC Diameter D

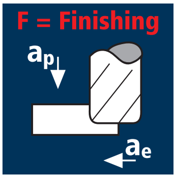
d1	Tolerance e8		Diameter Minimum	Diameter Maximum	D
2	-0.028	-0.014	**1.972**	**1.986**	**1.979**
3			**2.972**	**2.986**	**2.979**
4	-0.038	-0.020	**3.962**	**3.980**	**3.971**
5			**4.962**	**4.980**	**4.971**
6			**5.962**	**5.980**	**5.971**
8	-0.047	-0.025	**7.953**	**7.975**	**7.964**
10			**9.953**	**9.975**	**9.964**
12	-0.059	-0.032	**11.941**	**11.968**	**11.955**

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	$n=10000\ min^{-1}$ vf [mm/min]	$n=15000\ min^{-1}$ vf [mm/min]	$n=20000\ min^{-1}$ vf [mm/min]	$n=30000\ min^{-1}$ vf [mm/min]
R = Roughing	Graphite	10	3	0.071	40	1.5	2130	3195	4260	6390
		12	3	0.085	48	1.8	2550	3825	5100	7650



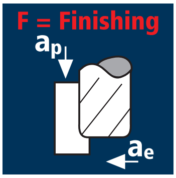
B

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	$n=10000\ min^{-1}$ vf [mm/min]	$n=15000\ min^{-1}$ vf [mm/min]	$n=20000\ min^{-1}$ vf [mm/min]	$n=30000\ min^{-1}$ vf [mm/min]
F = Finishing	Graphite	10	3	0.080	1.0	3.0	2400	3600	4800	7200
		12	3	0.096	1.2	3.6	2880	4320	5760	8640



B

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	$n=10000\ min^{-1}$ vf [mm/min]	$n=15000\ min^{-1}$ vf [mm/min]	$n=20000\ min^{-1}$ vf [mm/min]	$n=30000\ min^{-1}$ vf [mm/min]
F = Finishing	Graphite	10	3	0.080	40	1.0	2400	3600	4800	7200
		12	3	0.096	48	1.2	2880	4320	5760	8640



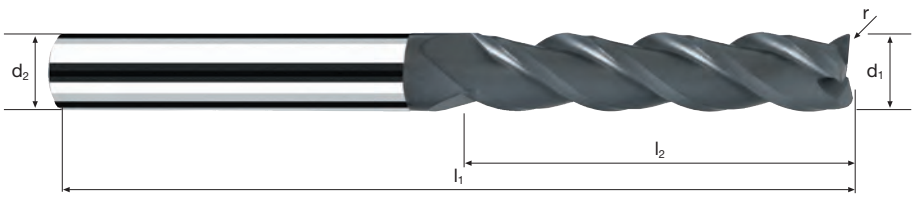
B

Corner radius end mills

Tolerance r 0/+0.03

HSS Favora® Base-X **B** X-Generation

HM XA | **λ 40° γ 15°**



IV

C Graphite

CF/GF Fiber Reinforced Plastics

Example: **Order-N°.** Coating **B** | Article-N°. **5650** | ø-Code **.450**

ø Code	d1 e8	d2 h6	l1	l2	r 0/+0.03	z	DIAMANT	B5650
.450	10	10	125	55	0.5	3		●
.501	12	12	125	55	0.5	3		●

CNC Diameter D

d1	Tolerance e8		Diameter Minimum	Diameter Maximum	D
10	-0.047	-0.025	**9.953**	**9.975**	**9.964**
12	-0.059	-0.032	**11.941**	**11.968**	**11.955**


fraisa

End milling tools for CFC

Cylindrical

N° 25000 d1 4 – 12 	X-Generation X	CVD	45°	CFK GFK I	CFK GFK II	CFK III	655
N° 25004 d1 2 – 12 	X-Generation X	CVD	45°	CFK GFK I	CFK GFK II	CFK III	657
N° 25010 d1 8 – 12 	X-Generation X	CVD	45°	CFK GFK I	CFK GFK II	CFK III	659
N° 20020 d1 4 – 12 	Base-X B	HM MG6	45°	CFK GFK I	CFK GFK II		661
N° 20025 d1 4 – 12 	Base-X B	HM MG6	45°	CFK GFK I	CFK GFK II		663
N° 20030 d1 4 – 12 	Base-X B	HM MG6	45°	CFK GFK I	CFK GFK II		665
N° 20060 d1 4 – 10 	Base-X B	HM MG10		CFK GFK I			667
N° 20040 d1 4 – 10 	Base-X B	HM MG10		CFK GFK I			669
N° 20360 d1 4 – 10 	Base-X B	HM MG10		CFK GFK I			671
N° 20340 d1 4 – 10 	Base-X B	HM MG10		CFK GFK I			673

V


fraisa

End milling tools for CFC

Corner radius

N° 25404 d1 2 – 12 r 0.2, 0.5, 1.0



X-Generation X	CVD		CFK GFK I	CFK GFK II	CFK III	675

Ball nose

N° 25704 d1 2 – 12



X-Generation X	CVD		CFK GFK I	CFK GFK II	CFK III	677

N° 25700 d1 2 – 12



X-Generation X	CVD		CFK GFK I	CFK GFK II	CFK III	679

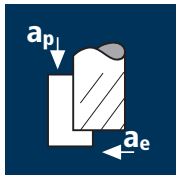
N° 20760 d1 4 – 10



Base-X B	HM MG10		CFK GFK I			681

V

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	4	2	0.045	6.0	1.0	900	1350	1800	2700
	6	2	0.070	8.0	1.5	1400	2100	2800	4200
	8	2	0.095	9.0	2.0	1900	2850	3800	5700
	10	2	0.120	9.0	2.5	2400	3600	4800	7200
	12	2	0.135	9.0	3.0	2700	4050	5400	
GRP	4	2	0.040	6.0	1.0	800	1200	1600	2400
	6	2	0.060	8.0	1.5	1200	1800	2400	3600
	8	2	0.080	9.0	2.0	1600	2400	3200	4800
	10	2	0.100	9.0	2.5	2000	3000	4000	6000
	12	2	0.115	9.0	3.0	2300	3450	4600	
Aluminium Si > 6%	4	2	0.035	4.0	1.0	700	1050	1400	2100
	6	2	0.055	6.0	1.5	1100	1650	2200	3300
	8	2	0.070	7.0	2.0	1400	2100	2800	4200
	10	2	0.090	7.0	2.5	1800	2700	3600	5400
	12	2	0.105	7.0	3.0	2100	3150	4200	
Graphite	4	2	0.040	6.0	1.0	800	1200	1600	2400
	6	2	0.060	8.0	1.5	1200	1800	2400	3600
	8	2	0.080	9.0	2.0	1600	2400	3200	4800
	10	2	0.100	9.0	2.5	2000	3000	4000	6000
	12	2	0.115	9.0	3.0	2300	3450	4600	

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	4	2	0.035	2.4	4	700	1050	1400	2100
	6	2	0.055	3.6	6	1100	1650	2200	3300
	8	2	0.075	4.8	8	1500	2250	3000	4500
	10	2	0.095	6.0	10	1900	2850	3800	5700
	12	2	0.110	7.2	12	2200	3300	4400	
GRP	4	2	0.030	2.4	4	600	900	1200	1800
	6	2	0.050	3.6	6	1000	1500	2000	3000
	8	2	0.065	4.8	8	1300	1950	2600	3900
	10	2	0.080	6.0	10	1600	2400	3200	4800
	12	2	0.090	7.2	12	1800	2700	3600	
Aluminium Si > 6%	4	2	0.030	2.0	4	600	900	1200	1800
	6	2	0.045	3.0	6	900	1350	1800	2700
	8	2	0.055	4.0	8	1100	1650	2200	3300
	10	2	0.070	5.0	10	1400	2100	2800	4200
	12	2	0.085	6.0	12	1700	2550	3400	
Graphite	4	2	0.030	2.4	4	600	900	1200	1800
	6	2	0.050	3.6	6	1000	1500	2000	3000
	8	2	0.065	4.8	8	1300	1950	2600	3900
	10	2	0.080	6.0	10	1600	2400	3200	4800
	12	2	0.090	7.2	12	1800	2700	3600	

Cylindrical end mills CVD

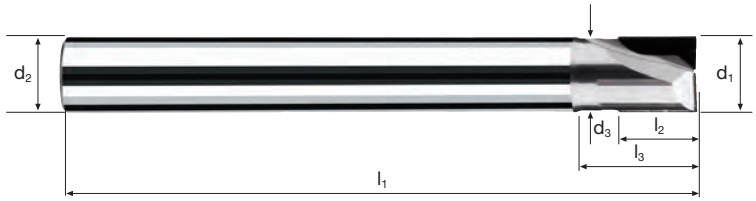
Medium-length version with short neck, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD | λ 0° γ 0°

45°

d_1



Wear resistance

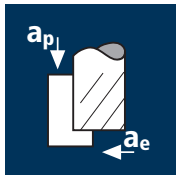
Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **25000** Article-N°. ø-Code **.220**

ø Code	d_1 h7	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	25000	
.220	4	6	3.8	60	8	10	0.1	4.1	2	●	
.222	4	6	3.8	60	15	20	0.1	2.4	2	●	
.300	6	6	5.8	65	10	15	0.1	0.0	2	●	
.304	6	6	5.8	65	20	25	0.1	0.0	2	●	
.391	8	8	7.6	70	10	15	0.1	0.0	2	●	
.395	8	8	7.6	70	20	30	0.1	0.0	2	●	
.450	10	10	9.6	85	10	15	0.1	0.0	2	●	
.455	10	10	9.6	85	20	30	0.1	0.0	2	●	
.501	12	12	11.6	92	10	15	0.1	0.0	2	●	
.505	12	12	11.6	92	20	30	0.1	0.0	2	●	

V

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.020	1.2	1.0	400	600	800	1200
	3	2	0.030	1.8	1.5	600	900	1200	1800
	4	2	0.040	2.4	2.0	800	1200	1600	2400
	6	2	0.065	3.6	3.0	1300	1950	2600	3900
	8	2	0.085	4.8	4.0	1700	2550	3400	5100
	10	2	0.105	6.0	5.0	2100	3150	4200	6300
	12	2	0.120	7.2	6.0	2400	3600	4800	
GRP	2	2	0.015	1.2	1.0	300	450	600	900
	3	2	0.025	1.8	1.5	500	750	1000	1500
	4	2	0.035	2.4	2.0	700	1050	1400	2100
	6	2	0.055	3.6	3.0	1100	1650	2200	3300
	8	2	0.070	4.8	4.0	1400	2100	2800	4200
	10	2	0.090	6.0	5.0	1800	2700	3600	5400
	12	2	0.100	7.2	6.0	2000	3000	4000	
Aluminium Si > 6%	2	2	0.015	1.0	1.0	300	450	600	900
	3	2	0.025	1.5	1.5	500	750	1000	1500
	4	2	0.030	2.0	2.0	600	900	1200	1800
	6	2	0.050	3.0	3.0	1000	1500	2000	3000
	8	2	0.065	4.0	4.0	1300	1950	2600	3900
	10	2	0.080	5.0	5.0	1600	2400	3200	4800
	12	2	0.090	6.0	6.0	1800	2700	3600	
Graphite	2	2	0.015	1.2	1.0	300	450	600	900
	3	2	0.025	1.8	1.5	500	750	1000	1500
	4	2	0.035	2.4	2.0	700	1050	1400	2100
	6	2	0.055	3.6	3.0	1100	1650	2200	3300
	8	2	0.070	4.8	4.0	1400	2100	2800	4200
	10	2	0.090	6.0	5.0	1800	2700	3600	5400
	12	2	0.100	7.2	6.0	2000	3000	4000	

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.015	1.0	2	300	450	600	900
	3	2	0.020	1.5	3	400	600	800	1200
	4	2	0.030	2.0	4	600	900	1200	1800
	6	2	0.045	3.0	6	900	1350	1800	2700
	8	2	0.060	4.0	8	1200	1800	2400	3600
	10	2	0.075	5.0	10	1500	2250	3000	4500
	12	2	0.085	6.0	12	1700	2550	3400	
GRP	2	2	0.010	1.0	2	200	300	400	600
	3	2	0.020	1.5	3	400	600	800	1200
	4	2	0.025	2.0	4	500	750	1000	1500
	6	2	0.040	3.0	6	800	1200	1600	2400
	8	2	0.050	4.0	8	1000	1500	2000	3000
	10	2	0.065	5.0	10	1300	1950	2600	3900
	12	2	0.070	6.0	12	1400	2100	2800	
Aluminium Si > 6%	2	2	0.010	0.8	2	200	300	400	600
	3	2	0.020	1.2	3	400	600	800	1200
	4	2	0.020	1.6	4	400	600	800	1200
	6	2	0.035	2.4	6	700	1050	1400	2100
	8	2	0.045	3.2	8	900	1350	1800	2700
	10	2	0.055	4.0	10	1100	1650	2200	3300
	12	2	0.065	4.8	12	1300	1950	2600	
Graphite	2	2	0.010	1.0	2	200	300	400	600
	3	2	0.020	1.5	3	400	600	800	1200
	4	2	0.025	2.0	4	500	750	1000	1500
	6	2	0.040	3.0	6	800	1200	1600	2400
	8	2	0.050	4.0	8	1000	1500	2000	3000
	10	2	0.065	5.0	10	1300	1950	2600	3900
	12	2	0.070	6.0	12	1400	2100	2800	

Cylindrical end mills CVD

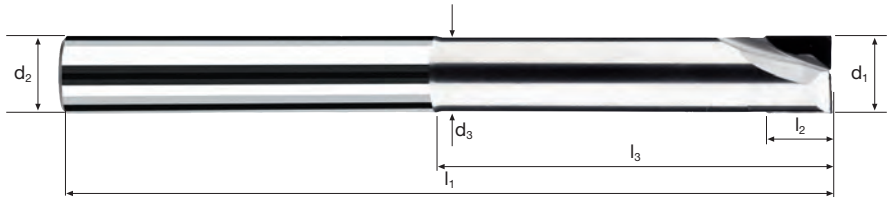
Long version with neck, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD | λ **0°** γ **0°**

45°

d_1



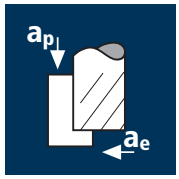
Wear resistance

Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **2** Article-N°. **5004** ø-Code **.140**

ø Code	d_1 h7	d_2 h6	d_3	l_1	l_2	l_3	45°	α	z	**25004**	
.140	2	6	1.9	55	2.5	10	0.1	6.5	2	●	
.180	3	6	2.8	75	2.5	20	0.1	3.3	2	●	
.220	4	6	3.8	75	2.5	30	0.1	1.7	2	●	
.300	6	6	5.6	100	6.0	40	0.1	0.0	2	●	
.391	8	8	7.4	100	7.0	40	0.1	0.0	2	●	
.450	10	10	9.6	100	8.0	50	0.1	0.0	2	●	
.501	12	12	11.6	105	9.0	60	0.1	0.0	2	●	

V

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	CFC	8	5	0.075	8.0	4.0	3750	5625	7500	11250
		10	5	0.095	10.0	5.0	4750	7125	9500	14250
		12	7	0.110	12.0	6.0	7700	11550	15400	
	GRP	8	5	0.065	8.0	4.0	3250	4875	6500	9750
		10	5	0.080	10.0	5.0	4000	6000	8000	12000
		12	7	0.095	12.0	6.0	6650	9975	13300	
	Aluminium Si > 6%	8	5	0.060	6.4	4.0	3000	4500	6000	9000
		10	5	0.070	8.0	5.0	3500	5250	7000	10500
		12	7	0.085	9.6	6.0	5950	8925	11900	
	Graphite	8	5	0.065	8.0	4.0	3250	4875	6500	9750
		10	5	0.080	10.0	5.0	4000	6000	8000	12000
		12	7	0.095	12.0	6.0	6650	9975	13300	

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
	CFC	8	5	0.045	8.0	8	2250	3375	4500	6750
		10	5	0.055	10.0	10	2750	4125	5500	8250
		12	7	0.065	12.0	12	4550	6825	9100	
	GRP	8	5	0.040	8.0	8	2000	3000	4000	6000
		10	5	0.050	10.0	10	2500	3750	5000	7500
		12	7	0.055	12.0	12	3850	5775	7700	
	Aluminium Si > 6%	8	5	0.035	6.4	8	1750	2625	3500	5250
		10	5	0.040	8.0	10	2000	3000	4000	6000
		12	7	0.050	9.6	12	3500	5250	7000	
	Graphite	8	5	0.040	8.0	8	2000	3000	4000	6000
		10	5	0.050	10.0	10	2500	3750	5000	7500
		12	7	0.055	12.0	12	3850	5775	7700	

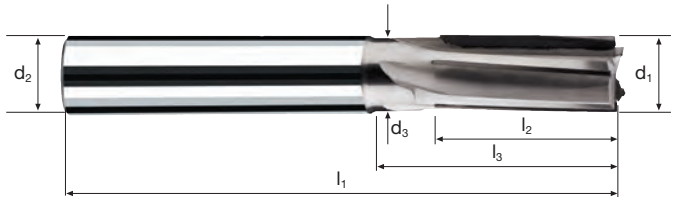
Cylindrical end mills CVD

Normal version with short neck, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD | λ 4° γ 0°

45°



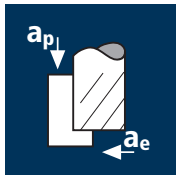
Wear resistance

Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **2** Article-N°. **5010** ø-Code **.391**

ø Code	d1 h8	d2 h6	d3	l1	l2	l3	45°	z	25010
.391	8	8	7.4	55	10	18	0.1	5	●
.395	8	8	7.4	65	20	28	0.1	5	●
.450	10	10	9.4	62	12	21	0.1	5	●
.455	10	10	9.4	72	22	31	0.1	5	●
.501	12	12	11.4	70	15	24	0.1	7	●
.505	12	12	11.4	80	24	34	0.1	7	●

V

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	200	0.025	7.2	1.6	15915	3185
		5	8	200	0.030	9.0	2.0	12735	3055
		6	8	200	0.040	10.8	2.4	10610	3395
		8	8	200	0.045	14.4	3.2	7960	2865
		10	8	200	0.050	18.0	4.0	6365	2545
		12	8	200	0.060	21.6	4.8	5305	2545
	GRP	4	8	150	0.030	7.2	1.6	11935	2865
		5	8	150	0.035	9.0	2.0	9550	2675
		6	8	150	0.040	10.8	2.4	7960	2545
		8	8	150	0.050	14.4	3.2	5970	2390
		10	8	150	0.055	18.0	4.0	4775	2100
		12	8	150	0.065	21.6	4.8	3980	2070

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	150	0.020	3.2	4	11935	1910
		5	8	150	0.025	4.0	5	9550	1910
		6	8	150	0.030	4.8	6	7960	1910
		8	8	150	0.035	6.4	8	5970	1670
		10	8	150	0.040	8.0	10	4775	1530
		12	8	150	0.050	9.6	12	3980	1590
	GRP	4	8	100	0.025	3.2	4	7960	1590
		5	8	100	0.030	4.0	5	6365	1530
		6	8	100	0.030	4.8	6	5305	1275
		8	8	100	0.040	6.4	8	3980	1275
		10	8	100	0.045	8.0	10	3185	1145
		12	8	100	0.050	9.6	12	2655	1060

Note the application technology information is on page 952!

Cylindrical end mills

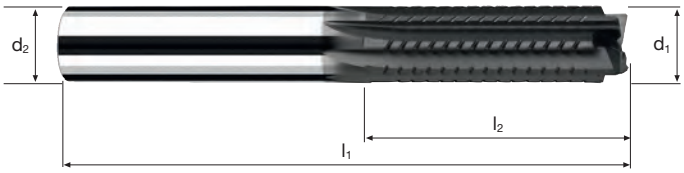
Normal version, straight cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG6

λ **0°**
γ **18°**

45°

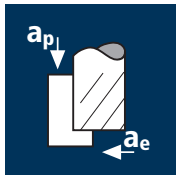


Wear resistance

CFK GFK I | **CFK GFK II**

V

									DIAMANT
Example: **Order-N°.**			Coating: **B**	Article-N°.: **20020**	ø-Code: **.220**				**B20020**
ø Code	d_1 h10	d_2 h6	l_1	l_2	45°	α	z		
.220	4	6	60	16	0.1	2.9	8		●
.260	5	6	60	18	0.1	1.4	8		●
.300	6	6	60	20	0.1	0.0	8		●
.302	6	6	65	25	0.1	0.0	8		●
.304	6	6	75	28	0.1	0.0	8		●
.391	8	8	63	22	0.2	0.0	8		●
.393	8	8	75	32	0.2	0.0	8		●
.450	10	10	72	32	0.2	0.0	8		●
.501	12	12	83	32	0.2	0.0	8		●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	200	0.025	7.2	1.6	15915	3185
		5	8	200	0.030	9.0	2.0	12735	3055
		6	8	200	0.040	10.8	2.4	10610	3395
		8	8	200	0.045	14.4	3.2	7960	2865
		10	8	200	0.050	18.0	4.0	6365	2545
		12	8	200	0.060	21.6	4.8	5305	2545
	GRP	4	8	150	0.030	7.2	1.6	11935	2865
		5	8	150	0.035	9.0	2.0	9550	2675
		6	8	150	0.040	10.8	2.4	7960	2545
		8	8	150	0.050	14.4	3.2	5970	2390
		10	8	150	0.055	18.0	4.0	4775	2100
		12	8	150	0.065	21.6	4.8	3980	2070

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	150	0.020	3.2	4	11935	1910
		5	8	150	0.025	4.0	5	9550	1910
		6	8	150	0.030	4.8	6	7960	1910
		8	8	150	0.035	6.4	8	5970	1670
		10	8	150	0.040	8.0	10	4775	1530
		12	8	150	0.050	9.6	12	3980	1590
	GRP	4	8	100	0.025	3.2	4	7960	1590
		5	8	100	0.030	4.0	5	6365	1530
		6	8	100	0.030	4.8	6	5305	1275
		8	8	100	0.040	6.4	8	3980	1275
		10	8	100	0.045	8.0	10	3185	1145
		12	8	100	0.050	9.6	12	2655	1060

Note the application technology information is on page 952!

Cylindrical end mills

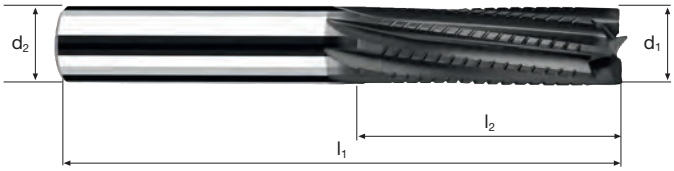
Normal version, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG6

λ **8°**
γ **18°**

45°



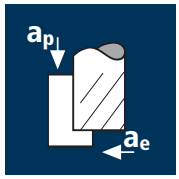
Wear resistance

CFK GFK I | **CFK GFK II**

V

Example: **Order-N°.** Coating **B** Article-N°. **20025** ø-Code **.220**

ø Code	d1 h10	d2 h6	l1	l2	45°	α	z	DIAMANT B20025
.220	4	6	60	16	0.1	2.9	8	●
.260	5	6	60	18	0.1	1.4	8	●
.300	6	6	60	20	0.1	0.0	8	●
.302	6	6	65	25	0.1	0.0	8	●
.304	6	6	75	28	0.1	0.0	8	●
.391	8	8	63	22	0.2	0.0	8	●
.393	8	8	75	32	0.2	0.0	8	●
.450	10	10	72	32	0.2	0.0	8	●
.501	12	12	83	32	0.2	0.0	8	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	200	0.025	7.2	1.6	15915	3185
		5	8	200	0.030	9.0	2.0	12735	3055
		6	8	200	0.040	10.8	2.4	10610	3395
		8	8	200	0.045	14.4	3.2	7960	2865
		10	8	200	0.050	18.0	4.0	6365	2545
		12	8	200	0.060	21.6	4.8	5305	2545
	GRP	4	8	150	0.030	7.2	1.6	11935	2865
		5	8	150	0.035	9.0	2.0	9550	2675
		6	8	150	0.040	10.8	2.4	7960	2545
		8	8	150	0.050	14.4	3.2	5970	2390
		10	8	150	0.055	18.0	4.0	4775	2100
		12	8	150	0.065	21.6	4.8	3980	2070

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	8	150	0.020	3.2	4	11935	1910
		5	8	150	0.025	4.0	5	9550	1910
		6	8	150	0.030	4.8	6	7960	1910
		8	8	150	0.035	6.4	8	5970	1670
		10	8	150	0.040	8.0	10	4775	1530
		12	8	150	0.050	9.6	12	3980	1590
	GRP	4	8	100	0.025	3.2	4	7960	1590
		5	8	100	0.030	4.0	5	6365	1530
		6	8	100	0.030	4.8	6	5305	1275
		8	8	100	0.040	6.4	8	3980	1275
		10	8	100	0.045	8.0	10	3185	1145
		12	8	100	0.050	9.6	12	2655	1060

Note the application technology information is on page 952!

Cylindrical end mills

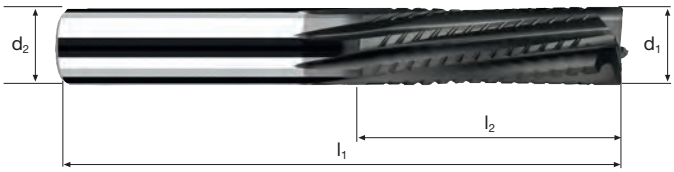
Normal version, pushing cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG6

λ **-8°**
γ **18°**

45°



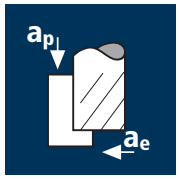
Wear resistance

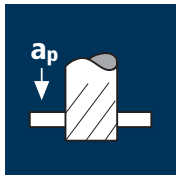
CFK GFK I | **CFK GFK II**

V

Example: **Order-N°.** Coating **B** Article-N°. **20030** ø-Code **.220**

ø Code	d1 h10	d2 h6	l1	l2	45°	α	z	DIAMANT
								B20030
.220	4	6	60	16	0.1	2.9	8	●
.260	5	6	60	18	0.1	1.4	8	●
.300	6	6	60	20	0.1	0.0	8	●
.302	6	6	65	25	0.1	0.0	8	●
.304	6	6	75	28	0.1	0.0	8	●
.391	8	8	63	22	0.2	0.0	8	●
.393	8	8	75	32	0.2	0.0	8	●
.450	10	10	72	32	0.2	0.0	8	●
.501	12	12	83	32	0.2	0.0	8	●

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	160	0.100	8.0	1.6	12735	1275
		5	160	0.140	10.0	2.0	10185	1425
		6	160	0.190	12.0	2.4	8490	1615
		8	160	0.285	16.0	3.2	6365	1815
		10	160	0.385	20.0	4.0	5095	1960
	GRP	4	100	0.100	8.0	1.6	7960	795
		5	100	0.140	10.0	2.0	6365	890
		6	100	0.190	12.0	2.4	5305	1010
		8	100	0.285	16.0	3.2	3980	1135
		10	100	0.385	20.0	4.0	3185	1225

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	100	0.070	4.0	4	7960	555
		5	100	0.100	5.0	5	6365	635
		6	100	0.135	6.0	6	5305	715
		8	100	0.200	8.0	8	3980	795
		10	100	0.270	10.0	10	3185	860
	GRP	4	60	0.070	4.0	4	4775	335
		5	60	0.100	5.0	5	3820	380
		6	60	0.135	6.0	6	3185	430
		8	60	0.200	8.0	8	2385	475
		10	60	0.270	10.0	10	1910	515
	CFC	4	100	0.035	2.0	4	7960	280
		5	100	0.050	2.5	5	6365	320
		6	100	0.065	3.0	6	5305	345
		8	100	0.100	4.0	8	3980	400
		10	100	0.135	5.0	10	3185	430
	GRP	4	60	0.035	2.0	4	4775	165
		5	60	0.050	2.5	5	3820	190
		6	60	0.065	3.0	6	3185	205
		8	60	0.100	4.0	8	2385	240
		10	60	0.135	5.0	10	1910	260

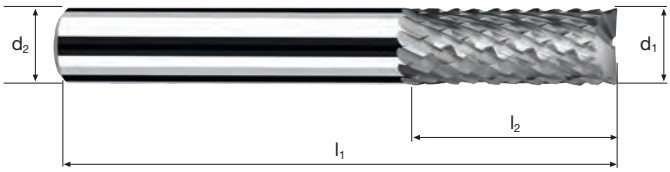
Note the application technology information is on page 952!

Cylindrical end mills

Normal version, medium tooth, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10



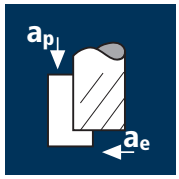
Wear resistance

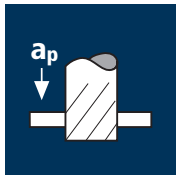
CFK
GFK
I

V

Example: **Order-N°.** Coating | Article-N°. **20060** | ø-Code **.220**

ø Code	d1 h11	d2 h6	l1	l2	20060
.220	4	4	50	16	●
.260	5	5	50	16	●
.300	6	6	60	19	●
.302	6	6	75	30	●
.391	8	8	63	25	●
.393	8	8	75	35	●
.450	10	10	72	25	●

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	160	0.090	8.0	1.6	12735	1145
		5	160	0.125	10.0	2.0	10185	1275
		6	160	0.170	12.0	2.4	8490	1445
		8	160	0.255	16.0	3.2	6365	1625
		10	160	0.345	20.0	4.0	5095	1760
	GRP	4	100	0.090	8.0	1.6	7960	715
		5	100	0.125	10.0	2.0	6365	795
		6	100	0.170	12.0	2.4	5305	900
		8	100	0.255	16.0	3.2	3980	1015
		10	100	0.345	20.0	4.0	3185	1100

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	100	0.065	4.0	4	7960	515
		5	100	0.090	5.0	5	6365	575
		6	100	0.120	6.0	6	5305	635
		8	100	0.180	8.0	8	3980	715
		10	100	0.240	10.0	10	3185	765
	GRP	4	60	0.065	4.0	4	4775	310
		5	60	0.090	5.0	5	3820	345
		6	60	0.120	6.0	6	3185	380
		8	60	0.180	8.0	8	2385	430
		10	60	0.240	10.0	10	1910	460
	CFC	4	100	0.030	2.0	4	7960	240
		5	100	0.045	2.5	5	6365	285
		6	100	0.060	3.0	6	5305	320
		8	100	0.090	4.0	8	3980	360
		10	100	0.120	5.0	10	3185	380
	GRP	4	60	0.030	2.0	4	4775	145
		5	60	0.045	2.5	5	3820	170
		6	60	0.060	3.0	6	3185	190
		8	60	0.090	4.0	8	2385	215
		10	60	0.120	5.0	10	1910	230

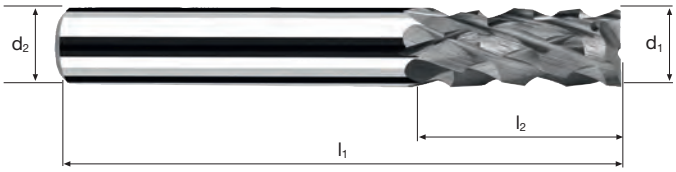
Note the application technology information is on page 952!

Cylindrical end mills

Normal version, coarse tooth, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10



Wear resistance



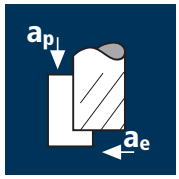
CFK
GFK
I

V

Example: **Order-N°.** Coating | Article-N°. **20040** | ø-Code **.220**

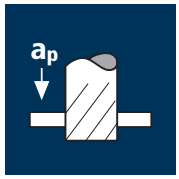
ø Code	d_1 h11	d_2 h6	l_1	l_2	**20040**	
.220	4	4	50	16	●	
.260	5	5	50	16	●	
.300	6	6	60	19	●	
.302	6	6	75	30	●	
.391	8	8	63	25	●	
.393	8	8	75	35	●	
.450	10	10	72	25	●	

Application



Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
CFC	4	160	0.100	8.0	1.6	12735	1275
	5	160	0.140	10.0	2.0	10185	1425
	6	160	0.190	12.0	2.4	8490	1615
	8	160	0.285	16.0	3.2	6365	1815
	10	160	0.385	20.0	4.0	5095	1960
GRP	4	100	0.100	8.0	1.6	7960	795
	5	100	0.140	10.0	2.0	6365	890
	6	100	0.190	12.0	2.4	5305	1010
	8	100	0.285	16.0	3.2	3980	1135
	10	100	0.385	20.0	4.0	3185	1225

Application



Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
CFC	4	100	0.070	4.0	4	7960	555
	5	100	0.100	5.0	5	6365	635
	6	100	0.135	6.0	6	5305	715
	8	100	0.200	8.0	8	3980	795
	10	100	0.270	10.0	10	3185	860
GRP	4	60	0.070	4.0	4	4775	335
	5	60	0.100	5.0	5	3820	380
	6	60	0.135	6.0	6	3185	430
	8	60	0.200	8.0	8	2385	475
	10	60	0.270	10.0	10	1910	515

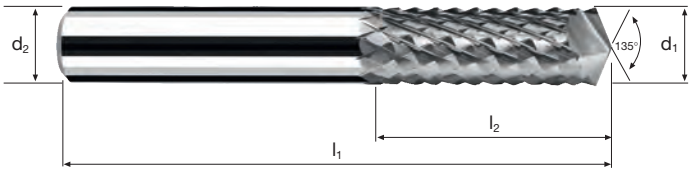
Note the application technology information is on page 952!

Cylindrical end mills

Normal version with drill point, medium tooth, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10



Wear resistance

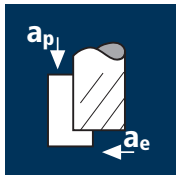
CFK
GFK
I

Example:
Order-N°. Coating Article-N°. ø-Code **20360** **.220**

ø Code	d1 h11	d2 h6	l1	l2	20360
.220	4	4	50	16	●
.260	5	5	50	16	●
.300	6	6	60	19	●
.302	6	6	75	30	●
.391	8	8	60	25	●
.393	8	8	75	35	●
.450	10	10	72	30	●

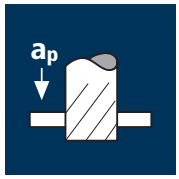
V

Application



Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
CFC	4	160	0.090	8.0	1.6	12735	1145
	5	160	0.125	10.0	2.0	10185	1275
	6	160	0.170	12.0	2.4	8490	1445
	8	160	0.255	16.0	3.2	6365	1625
	10	160	0.345	20.0	4.0	5095	1760
GRP	4	100	0.090	8.0	1.6	7960	715
	5	100	0.125	10.0	2.0	6365	795
	6	100	0.170	12.0	2.4	5305	900
	8	100	0.255	16.0	3.2	3980	1015
	10	100	0.345	20.0	4.0	3185	1100

Application



Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
CFC	4	100	0.065	4.0	4	7960	515
	5	100	0.090	5.0	5	6365	575
	6	100	0.120	6.0	6	5305	635
	8	100	0.180	8.0	8	3980	715
	10	100	0.240	10.0	10	3185	765
GRP	4	60	0.065	4.0	4	4775	310
	5	60	0.090	5.0	5	3820	345
	6	60	0.120	6.0	6	3185	380
	8	60	0.180	8.0	8	2385	430
	10	60	0.240	10.0	10	1910	460

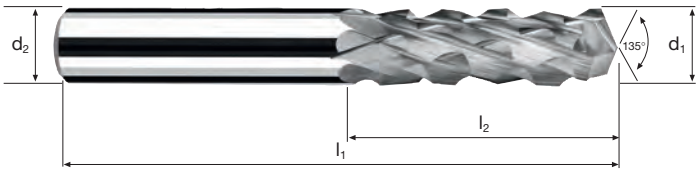
Note the application technology information is on page 952!

Cylindrical end mills

Normal version with drill point, coarse tooth, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10



Wear resistance



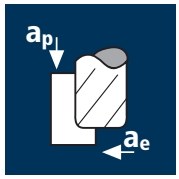
CFK
GFK
I

Example: **Order-N°.** Coating | Article-N°. **20340** | ø-Code **.220**

ø Code	d1 h11	d2 h6	l1	l2	20340
.220	4	4	50	16	●
.260	5	5	50	16	●
.300	6	6	60	19	●
.302	6	6	75	30	●
.391	8	8	60	25	●
.393	8	8	75	35	●
.450	10	10	72	30	●

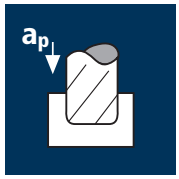
V

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.020	1.2	1.0	400	600	800	1200
	3	2	0.030	1.8	1.5	600	900	1200	1800
	4	2	0.040	2.4	2.0	800	1200	1600	2400
	6	2	0.065	3.6	3.0	1300	1950	2600	3900
	8	2	0.085	4.8	4.0	1700	2550	3400	5100
	10	2	0.105	6.0	5.0	2100	3150	4200	6300
	12	2	0.120	7.2	6.0	2400	3600	4800	
GRP	2	2	0.015	1.2	1.0	300	450	600	900
	3	2	0.025	1.8	1.5	500	750	1000	1500
	4	2	0.035	2.4	2.0	700	1050	1400	2100
	6	2	0.055	3.6	3.0	1100	1650	2200	3300
	8	2	0.070	4.8	4.0	1400	2100	2800	4200
	10	2	0.090	6.0	5.0	1800	2700	3600	5400
	12	2	0.100	7.2	6.0	2000	3000	4000	
Aluminium Si > 6%	2	2	0.015	1.0	1.0	300	450	600	900
	3	2	0.025	1.5	1.5	500	750	1000	1500
	4	2	0.030	2.0	2.0	600	900	1200	1800
	6	2	0.050	3.0	3.0	1000	1500	2000	3000
	8	2	0.065	4.0	4.0	1300	1950	2600	3900
	10	2	0.080	5.0	5.0	1600	2400	3200	4800
	12	2	0.090	6.0	6.0	1800	2700	3600	
Graphite	2	2	0.015	1.2	1.0	300	450	600	900
	3	2	0.025	1.8	1.5	500	750	1000	1500
	4	2	0.035	2.4	2.0	700	1050	1400	2100
	6	2	0.055	3.6	3.0	1100	1650	2200	3300
	8	2	0.070	4.8	4.0	1400	2100	2800	4200
	10	2	0.090	6.0	5.0	1800	2700	3600	5400
	12	2	0.100	7.2	6.0	2000	3000	4000	

Application



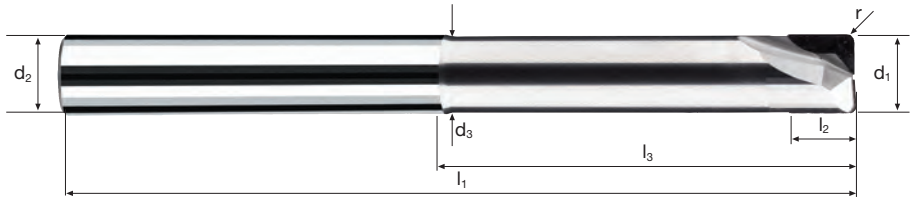
Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.015	1.2	2	300	450	600	900
	3	2	0.020	1.8	3	400	600	800	1200
	4	2	0.030	2.4	4	600	900	1200	1800
	6	2	0.045	3.6	6	900	1350	1800	2700
	8	2	0.060	4.8	8	1200	1800	2400	3600
	10	2	0.075	6.0	10	1500	2250	3000	4500
	12	2	0.085	7.2	12	1700	2550	3400	
GRP	2	2	0.010	1.2	2	200	300	400	600
	3	2	0.020	1.8	3	400	600	800	1200
	4	2	0.025	2.4	4	500	750	1000	1500
	6	2	0.040	3.6	6	800	1200	1600	2400
	8	2	0.050	4.8	8	1000	1500	2000	3000
	10	2	0.065	6.0	10	1300	1950	2600	3900
	12	2	0.070	7.2	12	1400	2100	2800	
Aluminium Si > 6%	2	2	0.010	1.0	2	200	300	400	600
	3	2	0.020	1.5	3	400	600	800	1200
	4	2	0.020	2.0	4	400	600	800	1200
	6	2	0.035	3.0	6	700	1050	1400	2100
	8	2	0.045	4.0	8	900	1350	1800	2700
	10	2	0.055	5.0	10	1100	1650	2200	3300
	12	2	0.065	6.0	12	1300	1950	2600	
Graphite	2	2	0.010	1.2	2	200	300	400	600
	3	2	0.020	1.8	3	400	600	800	1200
	4	2	0.025	2.4	4	500	750	1000	1500
	6	2	0.040	3.6	6	800	1200	1600	2400
	8	2	0.050	4.8	8	1000	1500	2000	3000
	10	2	0.065	6.0	10	1300	1950	2600	3900
	12	2	0.070	7.2	12	1400	2100	2800	

Corner radius end mills CVD

Long version with neck, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD | λ 0° γ 0°



Wear resistance

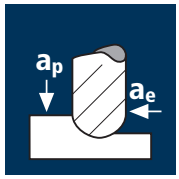
Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **25404** ø-Code **.138**

ø Code	d_1 h7	d_2 h6	d_3	l_1	l_2	l_3	r ±0.01	α	z	25404	
.138	2	6	1.9	55	2.5	10	0.2	6.6	2	●	
.178	3	6	2.8	75	2.5	20	0.2	3.3	2	●	
.218	4	6	3.8	75	2.5	30	0.2	1.7	2	●	
.300	6	6	5.6	100	6.0	40	0.5	0.0	2	●	
.388	8	8	7.6	100	7.0	40	0.5	0.0	2	●	
.448	10	10	9.6	100	8.0	50	0.5	0.0	2	●	
.498	12	12	11.6	107	9.0	60	0.5	0.0	2	●	
.302	6	6	5.6	100	6.0	40	1.0	0.0	2	●	
.391	8	8	7.6	100	7.0	40	1.0	0.0	2	●	
.450	10	10	9.6	100	8.0	50	1.0	0.0	2	●	
.501	12	12	11.6	107	9.0	60	1.0	0.0	2	●	

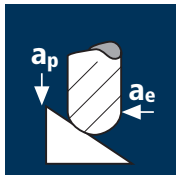
V

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.020	1.1	0.90	400	600	800	1200
	3	2	0.030	1.7	1.35	600	900	1200	1800
	4	2	0.040	2.2	1.80	800	1200	1600	2400
	6	2	0.065	3.3	2.70	1300	1950	2600	3900
	8	2	0.085	4.4	3.60	1700	2550	3400	5100
	10	2	0.105	5.5	4.50	2100	3150	4200	6300
	12	2	0.120	6.6	5.40	2400	3600	4800	
GRP	2	2	0.015	1.1	0.90	300	450	600	900
	3	2	0.025	1.7	1.35	500	750	1000	1500
	4	2	0.035	2.2	1.80	700	1050	1400	2100
	6	2	0.055	3.3	2.70	1100	1650	2200	3300
	8	2	0.070	4.4	3.60	1400	2100	2800	4200
	10	2	0.090	5.5	4.50	1800	2700	3600	5400
	12	2	0.100	6.6	5.40	2000	3000	4000	
Aluminium Si > 6%	2	2	0.015	1.1	0.90	300	450	600	900
	3	2	0.025	1.7	1.35	500	750	1000	1500
	4	2	0.030	2.2	1.80	600	900	1200	1800
	6	2	0.050	3.3	2.70	1000	1500	2000	3000
	8	2	0.065	4.4	3.60	1300	1950	2600	3900
	10	2	0.080	5.5	4.50	1600	2400	3200	4800
	12	2	0.090	6.6	5.40	1800	2700	3600	
Graphite	2	2	0.015	1.1	0.90	300	450	600	900
	3	2	0.025	1.7	1.35	500	750	1000	1500
	4	2	0.035	2.2	1.80	700	1050	1400	2100
	6	2	0.055	3.3	2.70	1100	1650	2200	3300
	8	2	0.070	4.4	3.60	1400	2100	2800	4200
	10	2	0.090	5.5	4.50	1800	2700	3600	5400
	12	2	0.100	6.6	5.40	2000	3000	4000	

Application



Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min⁻¹ vf [mm/min]	n=15000 min⁻¹ vf [mm/min]	n=20000 min⁻¹ vf [mm/min]	n=30000 min⁻¹ vf [mm/min]
CFC	2	2	0.020	0.20	0.20	400	600	800	1200
	3	2	0.030	0.30	0.30	600	900	1200	1800
	4	2	0.040	0.40	0.40	800	1200	1600	2400
	6	2	0.065	0.60	0.60	1300	1950	2600	3900
	8	2	0.085	0.80	0.80	1700	2550	3400	5100
	10	2	0.105	1.00	1.00	2100	3150	4200	6300
	12	2	0.120	1.20	1.20	2400	3600	4800	
GRP	2	2	0.015	0.20	0.20	300	450	600	900
	3	2	0.025	0.30	0.30	500	750	1000	1500
	4	2	0.035	0.40	0.40	700	1050	1400	2100
	6	2	0.055	0.60	0.60	1100	1650	2200	3300
	8	2	0.070	0.80	0.80	1400	2100	2800	4200
	10	2	0.090	1.00	1.00	1800	2700	3600	5400
	12	2	0.100	1.20	1.20	2000	3000	4000	
Aluminium Si > 6%	2	2	0.015	0.20	0.20	300	450	600	900
	3	2	0.025	0.30	0.30	500	750	1000	1500
	4	2	0.030	0.40	0.40	600	900	1200	1800
	6	2	0.050	0.60	0.60	1000	1500	2000	3000
	8	2	0.065	0.80	0.80	1300	1950	2600	3900
	10	2	0.080	1.00	1.00	1600	2400	3200	4800
	12	2	0.090	1.20	1.20	1800	2700	3600	
Graphite	2	2	0.015	0.20	0.20	300	450	600	900
	3	2	0.025	0.30	0.30	500	750	1000	1500
	4	2	0.035	0.40	0.40	700	1050	1400	2100
	6	2	0.055	0.60	0.60	1100	1650	2200	3300
	8	2	0.070	0.80	0.80	1400	2100	2800	4200
	10	2	0.090	1.00	1.00	1800	2700	3600	5400
	12	2	0.100	1.20	1.20	2000	3000	4000	

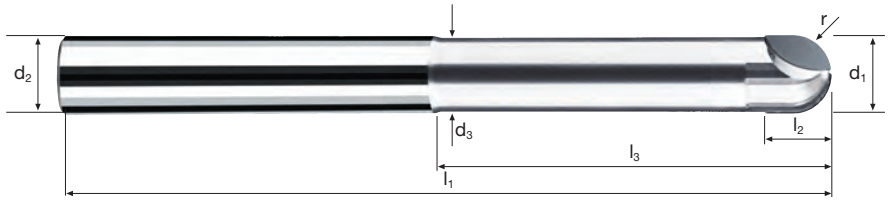
Ball nose end mills CVD

Long version, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD

λ 0°
γ 0°



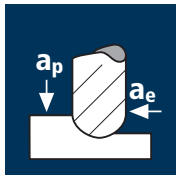
Wear resistance

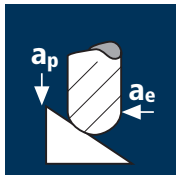
Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **25704** Article-N°. ø-Code **.140**

ø Code	d_1 h7	d_2 h6	d_3	l_1	l_2	l_3	r ±0.005	α	z	25704
.140	2	6	1.9	55	2.5	10	1.0	6.8	2	●
.180	3	6	2.8	75	2.5	20	1.5	3.5	2	●
.220	4	6	3.8	75	2.5	30	2.0	1.8	2	●
.300	6	6	5.6	100	6.0	40	3.0	0.0	2	●
.391	8	8	7.6	100	7.0	40	4.0	0.0	2	●
.450	10	10	9.6	100	8.0	50	5.0	0.0	2	●
.501	12	12	11.6	107	9.0	60	6.0	0.0	2	●

V

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	CFC	2	2	0.025	1.2	0.90	500	750	1000	1500
		3	2	0.035	1.8	1.35	700	1050	1400	2100
		4	2	0.045	2.4	1.80	900	1350	1800	2700
		6	2	0.070	3.6	2.70	1400	2100	2800	4200
		8	2	0.095	4.8	3.60	1900	2850	3800	5700
		10	2	0.120	6.0	4.50	2400	3600	4800	7200
		12	2	0.135	7.2	5.40	2700	4050	5400	
	GRP	2	2	0.020	1.2	0.90	400	600	800	1200
		3	2	0.030	1.8	1.35	600	900	1200	1800
		4	2	0.040	2.4	1.80	800	1200	1600	2400
		6	2	0.060	3.6	2.70	1200	1800	2400	3600
		8	2	0.080	4.8	3.60	1600	2400	3200	4800
		10	2	0.100	6.0	4.50	2000	3000	4000	6000
		12	2	0.115	7.2	5.40	2300	3450	4600	
	Aluminium Si > 6%	2	2	0.020	1.2	0.90	400	600	800	1200
		3	2	0.025	1.8	1.35	500	750	1000	1500
		4	2	0.035	2.4	1.80	700	1050	1400	2100
		6	2	0.055	3.6	2.70	1100	1650	2200	3300
		8	2	0.070	4.8	3.60	1400	2100	2800	4200
		10	2	0.090	6.0	4.50	1800	2700	3600	5400
		12	2	0.105	7.2	5.40	2100	3150	4200	
	Graphite	2	2	0.020	1.2	0.90	400	600	800	1200
		3	2	0.030	1.8	1.35	600	900	1200	1800
		4	2	0.040	2.4	1.80	800	1200	1600	2400
		6	2	0.060	3.6	2.70	1200	1800	2400	3600
		8	2	0.080	4.8	3.60	1600	2400	3200	4800
		10	2	0.100	6.0	4.50	2000	3000	4000	6000
		12	2	0.115	7.2	5.40	2300	3450	4600	

Application	Material	d1 [mm]	z	f_z [mm]	a_p [mm]	a_e [mm]	n=10000 min^{-1} vf [mm/min]	n=15000 min^{-1} vf [mm/min]	n=20000 min^{-1} vf [mm/min]	n=30000 min^{-1} vf [mm/min]
	CFC	2	2	0.025	0.20	0.20	500	750	1000	1500
		3	2	0.035	0.30	0.30	700	1050	1400	2100
		4	2	0.045	0.40	0.40	900	1350	1800	2700
		6	2	0.070	0.60	0.60	1400	2100	2800	4200
		8	2	0.095	0.80	0.80	1900	2850	3800	5700
		10	2	0.120	1.00	1.00	2400	3600	4800	7200
		12	2	0.135	1.20	1.20	2700	4050	5400	
	GRP	2	2	0.020	0.20	0.20	400	600	800	1200
		3	2	0.030	0.30	0.30	600	900	1200	1800
		4	2	0.040	0.40	0.40	800	1200	1600	2400
		6	2	0.060	0.60	0.60	1200	1800	2400	3600
		8	2	0.080	0.80	0.80	1600	2400	3200	4800
		10	2	0.100	1.00	1.00	2000	3000	4000	6000
		12	2	0.115	1.20	1.20	2300	3450	4600	
	Aluminium Si > 6%	2	2	0.020	0.20	0.20	400	600	800	1200
		3	2	0.025	0.30	0.30	500	750	1000	1500
		4	2	0.035	0.40	0.40	700	1050	1400	2100
		6	2	0.055	0.60	0.60	1100	1650	2200	3300
		8	2	0.070	0.80	0.80	1400	2100	2800	4200
		10	2	0.090	1.00	1.00	1800	2700	3600	5400
		12	2	0.105	1.20	1.20	2100	3150	4200	
	Graphite	2	2	0.020	0.20	0.20	400	600	800	1200
		3	2	0.030	0.30	0.30	600	900	1200	1800
		4	2	0.040	0.40	0.40	800	1200	1600	2400
		6	2	0.060	0.60	0.60	1200	1800	2400	3600
		8	2	0.080	0.80	0.80	1600	2400	3200	4800
		10	2	0.100	1.00	1.00	2000	3000	4000	6000
		12	2	0.115	1.20	1.20	2300	3450	4600	

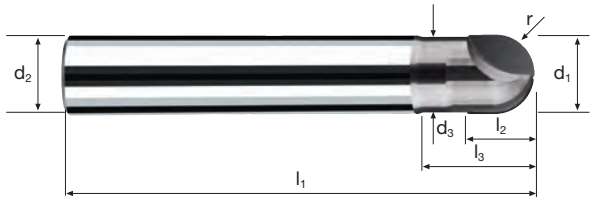
Ball nose end mills CVD

Short version, straight cutting edge

HSS | Favora® | Base-X | X-Generation X

CVD

λ **0°**
γ **0°**







Wear resistance

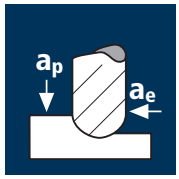


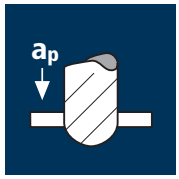
Al Aluminium Cast | **Cu** Copper | **CuZn** Brass | **C** Graphite | **CFK GFK I** | **CFK GFK II** | **CFK III** | **CFK/Al**

Example: **Order-N°.** Coating **25700** Article-N°. ø-Code **.140**

ø Code	d_1 h7	d_2 h6	d_3	l_1	l_2	l_3	r ±0.005	α	z	25700	
.140	2	6	1.9	50	2.5	4	1.0	10.6	2	●	
.180	3	6	2.8	50	2.5	4	1.5	9.9	2	●	
.220	4	6	3.8	50	2.5	6	2.0	6.9	2	●	
.300	6	6	5.6	50	6.0	9	3.0	0.0	2	●	
.391	8	8	7.6	60	7.0	12	4.0	0.0	2	●	
.450	10	10	9.6	60	8.0	14	5.0	0.0	2	●	
.501	12	12	11.6	65	9.0	14	6.0	0.0	2	●	

V

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	160	0.100	8.0	1.6	12735	1275
		5	160	0.140	10.0	2.0	10185	1425
		6	160	0.190	12.0	2.4	8490	1615
		8	160	0.285	16.0	3.2	6365	1815
		10	160	0.385	20.0	4.0	5095	1960
	GRP	4	100	0.100	8.0	1.6	7960	795
		5	100	0.140	10.0	2.0	6365	890
		6	100	0.190	12.0	2.4	5305	1010
		8	100	0.285	16.0	3.2	3980	1135
		10	100	0.385	20.0	4.0	3185	1225

Application	Material	d1 [mm]	v_c [m/min]	f [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
	CFC	4	100	0.070	4.0	4	7960	555
		5	100	0.100	5.0	5	6365	635
		6	100	0.135	6.0	6	5305	715
		8	100	0.200	8.0	8	3980	795
		10	100	0.270	10.0	10	3185	860
	GRP	4	60	0.070	4.0	4	4775	335
		5	60	0.100	5.0	5	3820	380
		6	60	0.135	6.0	6	3185	430
		8	60	0.200	8.0	8	2385	475
		10	60	0.270	10.0	10	1910	515

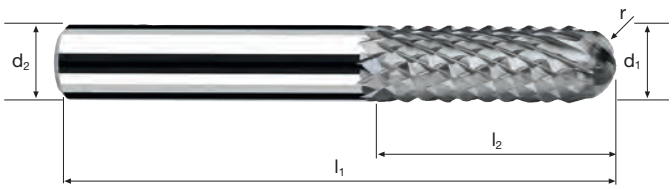
Note the application technology information is on page 952!

Ball nose end mills

Normal version, medium tooth, pulling cutting edge

HSS | Favora® | Base-X | **B** | X-Generation

HM
MG10



Wear resistance

CFK
GFK
I

Example: **Order-N°.** Coating **2** Article-N°. **0760** ø-Code **.220**

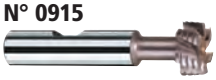
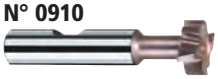
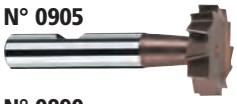
ø Code	d1 h10	d2 h6	l1	l2	r	20760
.220	4	4	50	19	2.0	●
.260	5	5	50	19	2.5	●
.300	6	6	60	22	3.0	●
.391	8	8	63	29	4.0	●
.450	10	10	72	30	5.0	●

V


fraisa

End milling tools with special forms

Forming end mills

N° 7920 	Base-X B	HM MG10		Rm <850-1300			687
N° 0920 	HSS	HSS-E Co8		Rm <850-1100			689
N° 0915 	HSS	HSS-E Co8		Rm <850-1100			691
N° 0910 	HSS	HSS-E Co8		Rm <850-1100			693
N° 0905 	HSS	HSS-E Co8		Rm <850-1100			695
N° 0890 	HSS	HSS-E Co8		Rm <850-1100			699


fraisa

End milling tools with special forms

Deburring end mills

N° 7930



Base-X B	HM		Rm <850-1100			701

N° 7940



Base-X B	HM		Rm <850-1100			703

N° 7942



Base-X B	HM		Rm <850-1100			705

Universal end mills

N° 7960



Base-X B	HM		Rm <850-1100			707

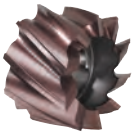
Shell end mills

N° 3490



HSS	HSS-E Co8	45°	Rm <850-1100			709

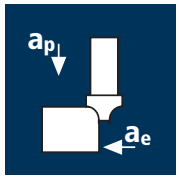
N° 3209



HSS	HSS-E Co8	90°	Rm 850-1300			711

VI

Application



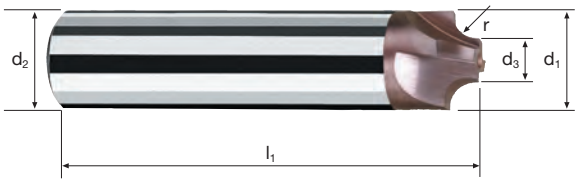
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	6	4	120	0.025	0.50	0.50	6365	635
	6	4	120	0.025	0.75	0.75	6365	635
	8	4	120	0.030	1.00	1.00	4775	575
	8	4	120	0.030	1.25	1.25	4775	575
	8	4	120	0.030	1.50	1.50	4775	575
	10	4	120	0.040	2.00	2.00	3820	610
	10	4	120	0.040	2.50	2.50	3820	610
	12	4	120	0.050	3.00	3.00	3185	635
Steel 850 - 1100 N/mm²	6	4	100	0.020	0.50	0.50	5305	425
	6	4	100	0.020	0.75	0.75	5305	425
	8	4	100	0.025	1.00	1.00	3980	400
	8	4	100	0.025	1.25	1.25	3980	400
	8	4	100	0.025	1.50	1.50	3980	400
	10	4	100	0.035	2.00	2.00	3185	445
	10	4	100	0.035	2.50	2.50	3185	445
	12	4	100	0.040	3.00	3.00	2655	425
Steel 1100 - 1300 N/mm²	6	4	60	0.015	0.50	0.50	3185	190
	6	4	60	0.015	0.75	0.75	3185	190
	8	4	60	0.025	1.00	1.00	2385	240
	8	4	60	0.025	1.25	1.25	2385	240
	8	4	60	0.025	1.50	1.50	2385	240
	10	4	60	0.030	2.00	2.00	1910	230
	10	4	60	0.030	2.50	2.50	1910	230
	12	4	60	0.035	3.00	3.00	1590	225
Stainless steel [Cr-Ni/1.4301]	6	4	50	0.015	0.50	0.50	2655	160
	6	4	50	0.015	0.75	0.75	2655	160
	8	4	50	0.025	1.00	1.00	1990	200
	8	4	50	0.025	1.25	1.25	1990	200
	8	4	50	0.025	1.50	1.50	1990	200
	10	4	50	0.030	2.00	2.00	1590	190
	10	4	50	0.030	2.50	2.50	1590	190
	12	4	50	0.035	3.00	3.00	1325	185

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	6	4	140	0.025	0.50	0.50	7425	745
	6	4	140	0.025	0.75	0.75	7425	745
	8	4	140	0.030	1.00	1.00	5570	670
	8	4	140	0.030	1.25	1.25	5570	670
	8	4	140	0.030	1.50	1.50	5570	670
	10	4	140	0.040	2.00	2.00	4455	715
	10	4	140	0.040	2.50	2.50	4455	715
	12	4	140	0.050	3.00	3.00	3715	745
Unalloyed copper	6	4	160	0.020	0.50	0.50	8490	680
	6	4	160	0.020	0.75	0.75	8490	680
	8	4	160	0.025	1.00	1.00	6365	635
	8	4	160	0.025	1.25	1.25	6365	635
	8	4	160	0.025	1.50	1.50	6365	635
	10	4	160	0.035	2.00	2.00	5095	715
	10	4	160	0.035	2.50	2.50	5095	715
	12	4	160	0.040	3.00	3.00	4245	680
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	6	4	60	0.015	0.50	0.50	3185	190
	6	4	60	0.015	0.75	0.75	3185	190
	8	4	60	0.025	1.00	1.00	2385	240
	8	4	60	0.025	1.25	1.25	2385	240
	8	4	60	0.025	1.50	1.50	2385	240
	10	4	60	0.030	2.00	2.00	1910	230
	10	4	60	0.030	2.50	2.50	1910	230
	12	4	60	0.035	3.00	3.00	1590	225
Wrought aluminium alloys Si < 6%	6	4	180	0.005	0.50	0.50	9550	190
	6	4	180	0.005	0.75	0.75	9550	190
	8	4	180	0.005	1.00	1.00	7160	145
	8	4	180	0.005	1.25	1.25	7160	145
	8	4	180	0.005	1.50	1.50	7160	145
	10	4	180	0.010	2.00	2.00	5730	230
	10	4	180	0.010	2.50	2.50	5730	230
	12	4	180	0.010	3.00	3.00	4775	190

Quarter radius end mills

HSS | Favora® | Base-X | **B** | X-Generation

HM MG10	λ 0° γ 0°

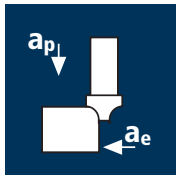


Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500				**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **7920** | ø-Code **.300**

ø Code	d_1	d_2 h6	d_3 ±0.1	l_1	r JS10	z		UNICUT-4X **U7920**
.300	6	6	4.5	57	0.50	4		●
.303	6	6	4.0	57	0.75	4		●
.391	8	8	5.5	63	1.00	4		●
.394	8	8	5.0	63	1.25	4		●
.397	8	8	4.5	63	1.50	4		●
.450	10	10	5.0	72	2.00	4		●
.453	10	10	4.5	72	2.50	4		●
.501	12	12	5.0	83	3.00	4		●

Application



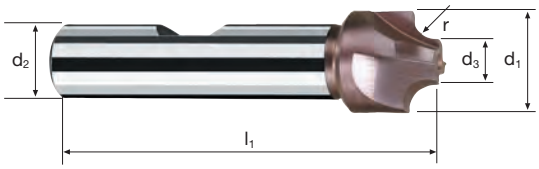
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	10	4	55	0.010	2.0	2.0	1750	70
	12	4	55	0.010	2.5	2.5	1460	60
	16	4	55	0.025	4.0	4.0	1095	110
	20	4	55	0.030	5.0	5.0	875	105
	22	4	55	0.035	6.0	6.0	795	110
	24	5	55	0.040	7.0	7.0	730	145
	28	5	55	0.045	8.0	8.0	625	140
	32	5	55	0.050	10.0	10.0	545	135
	38	6	55	0.060	12.0	12.0	460	165
Steel 850 - 1100 N/mm²	10	4	45	0.010	2.0	2.0	1430	55
	12	4	45	0.010	2.5	2.5	1195	50
	16	4	45	0.025	4.0	4.0	895	90
	20	4	45	0.030	5.0	5.0	715	85
	22	4	45	0.035	6.0	6.0	650	90
	24	5	45	0.040	7.0	7.0	595	120
	28	5	45	0.045	8.0	8.0	510	115
	32	5	45	0.050	10.0	10.0	450	115
	38	6	45	0.060	12.0	12.0	375	135
Steel 1100 - 1300 N/mm²	10	4	34	0.010	2.0	2.0	1080	45
	12	4	34	0.010	2.5	2.5	900	35
	16	4	34	0.025	4.0	4.0	675	70
	20	4	34	0.030	5.0	5.0	540	65
	22	4	34	0.035	6.0	6.0	490	70
	24	5	34	0.040	7.0	7.0	450	90
	28	5	34	0.045	8.0	8.0	385	85
	32	5	34	0.050	10.0	10.0	340	85
	38	6	34	0.060	12.0	12.0	285	105
Stainless steel [Cr-Ni/1.4301]	10	4	21	0.010	2.0	2.0	670	25
	12	4	21	0.010	2.5	2.5	555	20
	16	4	21	0.025	4.0	4.0	420	40
	20	4	21	0.030	5.0	5.0	335	40
	22	4	21	0.035	6.0	6.0	305	45
	24	5	21	0.040	7.0	7.0	280	55
	28	5	21	0.045	8.0	8.0	240	55
	32	5	21	0.050	10.0	10.0	210	55
	38	6	21	0.060	12.0	12.0	175	65

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	10	4	42	0.010	2.0	2.0	1335	55
	12	4	42	0.010	2.5	2.5	1115	45
	16	4	42	0.025	4.0	4.0	835	85
	20	4	42	0.030	5.0	5.0	670	80
	22	4	42	0.035	6.0	6.0	610	85
	24	5	42	0.040	7.0	7.0	555	110
	28	5	42	0.045	8.0	8.0	475	105
	32	5	42	0.050	10.0	10.0	420	105
	38	6	42	0.060	12.0	12.0	350	125
Unalloyed copper	10	4	65	0.010	2.0	2.0	2070	85
	12	4	65	0.010	2.5	2.5	1725	70
	16	4	65	0.025	4.0	4.0	1295	130
	20	4	65	0.030	5.0	5.0	1035	125
	22	4	65	0.035	6.0	6.0	940	130
	24	5	65	0.040	7.0	7.0	860	170
	28	5	65	0.045	8.0	8.0	740	165
	32	5	65	0.050	10.0	10.0	645	160
	38	6	65	0.060	12.0	12.0	545	195
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	10	4	23	0.010	2.0	2.0	730	30
	12	4	23	0.010	2.5	2.5	610	25
	16	4	23	0.025	4.0	4.0	460	45
	20	4	23	0.030	5.0	5.0	365	45
	22	4	23	0.035	6.0	6.0	335	45
	24	5	23	0.040	7.0	7.0	305	60
	28	5	23	0.045	8.0	8.0	260	60
	32	5	23	0.050	10.0	10.0	230	60
	38	6	23	0.060	12.0	12.0	195	70
Wrought aluminium alloys Si < 6%	10	4	80	0.010	2.0	2.0	2545	100
	12	4	80	0.010	2.5	2.5	2120	85
	16	4	80	0.025	4.0	4.0	1590	160
	20	4	80	0.030	5.0	5.0	1275	155
	22	4	80	0.035	6.0	6.0	1160	160
	24	5	80	0.040	7.0	7.0	1060	210
	28	5	80	0.045	8.0	8.0	910	205
	32	5	80	0.050	10.0	10.0	795	200
	38	6	80	0.060	12.0	12.0	670	240

Quarter radius end mills

HSS | Favora® | Base-X | X-Generation

HSS-E Co8	λ 8° γ 0°



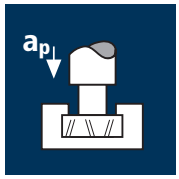
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Example: **Order-N°.** Coating **U** Article-N°. **0920** ø-Code **.080**

ø Code	d_1	d_2 h6	d_3 0/+0.1	l_1	r H11	z		UNICUT-4X U0920
.080	8	10	5.3	56	1.0	4		●
.090	9	10	5.3	56	1.5	4		●
.100	10	10	5.1	56	2.0	4		●
.120	12	12	6.1	63	2.5	4		●
.140	14	12	7.1	63	3.0	4		●
.160	16	12	7.1	63	4.0	4		●
.200	20	16	8.7	70	5.0	4		●
.220	22	16	8.7	70	6.0	4		●
.240	24	16	8.7	70	7.0	5		●
.280	28	16	10.2	70	8.0	5		●
.320	32	16	10.2	75	10.0	5		●
.380	38	20	11.7	80	12.0	6		●
.460	46	25	14.0	94	15.0	6		●
.580	58	25	15.0	100	20.0	6		●

VI

Application



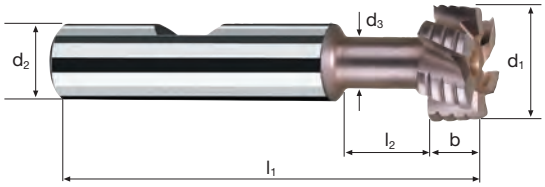
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	16	6	55	0.020	8	16	1095	130
	18	6	55	0.020	8	18	975	115
	21	6	55	0.030	9	21	835	150
	25	6	55	0.040	11	25	700	170
	28	6	55	0.040	12	28	625	150
	32	6	55	0.050	14	32	545	165
	40	8	55	0.060	18	40	440	210
Steel 850 - 1100 N/mm²	16	6	45	0.020	8	16	895	105
	18	6	45	0.020	8	18	795	95
	21	6	45	0.030	9	21	680	120
	25	6	45	0.040	11	25	575	140
	28	6	45	0.040	12	28	510	120
	32	6	45	0.050	14	32	450	135
	40	8	45	0.060	18	40	360	175
Steel 1100 - 1300 N/mm²	16	6	34	0.020	8	16	675	80
	18	6	34	0.020	8	18	600	70
	21	6	34	0.030	9	21	515	95
	25	6	34	0.040	11	25	435	105
	28	6	34	0.040	12	28	385	90
	32	6	34	0.050	14	32	340	100
	40	8	34	0.060	18	40	270	130
Stainless steel [Cr-Ni/1.4301]	16	6	21	0.020	8	16	420	50
	18	6	21	0.020	8	18	370	45
	21	6	21	0.030	9	21	320	60
	25	6	21	0.040	11	25	265	65
	28	6	21	0.040	12	28	240	60
	32	6	21	0.050	14	32	210	65
	40	8	21	0.060	18	40	165	80

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	16	6	42	0.020	8	16	835	100
	18	6	42	0.020	8	18	745	90
	21	6	42	0.030	9	21	635	115
	25	6	42	0.040	11	25	535	130
	28	6	42	0.040	12	28	475	115
	32	6	42	0.050	14	32	420	125
	40	8	42	0.060	18	40	335	160
Unalloyed copper	16	6	65	0.020	8	16	1295	155
	18	6	65	0.020	8	18	1150	140
	21	6	65	0.030	9	21	985	175
	25	6	65	0.040	11	25	830	200
	28	6	65	0.040	12	28	740	180
	32	6	65	0.050	14	32	645	195
	40	8	65	0.060	18	40	515	245
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	16	6	23	0.020	8	16	460	55
	18	6	23	0.020	8	18	405	50
	21	6	23	0.030	9	21	350	65
	25	6	23	0.040	11	25	295	70
	28	6	23	0.040	12	28	260	60
	32	6	23	0.050	14	32	230	70
	40	8	23	0.060	18	40	185	90
Wrought aluminium alloys Si < 6%	16	6	80	0.020	8	16	1590	190
	18	6	80	0.020	8	18	1415	170
	21	6	80	0.030	9	21	1215	220
	25	6	80	0.040	11	25	1020	245
	28	6	80	0.040	12	28	910	220
	32	6	80	0.050	14	32	795	240
	40	8	80	0.060	18	40	635	305

T-groove end mills

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HSS-E Co8	λ 7° γ 10°



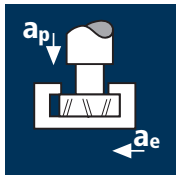
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Example: **Order-N°.** Coating **U** Article-N°. **0915** ø-Code **.140**

ø Code	d_1 d11	d_2 h6	d_3 h12	l_1	l_2	b d11	z	UNICUT-4X U0915
.140	16	10	7	62	12	8.0	6	●
.160	18	12	8	70	14	8.0	6	●
.180	21	12	10	74	18	9.0	6	●
.200	25	16	12	82	20	11.0	6	●
.220	28	16	12	83	21	12.0	6	●
.240	32	16	15	90	27	14.0	6	●
.260	40	25	19	108	31	18.0	8	●

VI

Application



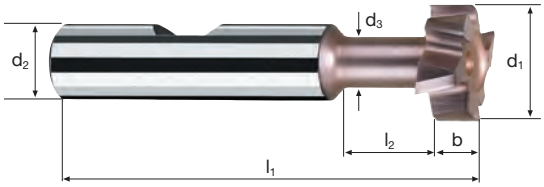
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	11.0	4	55	0.010	4	1.1	1590	65
	12.5	4	55	0.010	6	1.3	1400	55
	16.0	4	55	0.025	8	1.6	1095	110
	18.0	6	55	0.025	8	1.8	975	145
	21.0	6	55	0.040	9	2.1	835	200
	25.0	6	55	0.045	11	2.5	700	190
	32.0	6	55	0.060	14	3.2	545	195
	40.0	8	55	0.070	18	4.0	440	245
	50.0	8	55	0.090	22	5.0	350	250
Steel 850 - 1100 N/mm²	11.0	4	45	0.010	4	1.1	1300	50
	12.5	4	45	0.010	6	1.3	1145	45
	16.0	4	45	0.025	8	1.6	895	90
	18.0	6	45	0.025	8	1.8	795	120
	21.0	6	45	0.040	9	2.1	680	165
	25.0	6	45	0.045	11	2.5	575	155
	32.0	6	45	0.060	14	3.2	450	160
	40.0	8	45	0.070	18	4.0	360	200
	50.0	8	45	0.090	22	5.0	285	205
Steel 1100 - 1300 N/mm²	11.0	4	34	0.010	4	1.1	985	40
	12.5	4	34	0.010	6	1.3	865	35
	16.0	4	34	0.025	8	1.6	675	70
	18.0	6	34	0.025	8	1.8	600	90
	21.0	6	34	0.040	9	2.1	515	125
	25.0	6	34	0.045	11	2.5	435	115
	32.0	6	34	0.060	14	3.2	340	120
	40.0	8	34	0.070	18	4.0	270	150
	50.0	8	34	0.090	22	5.0	215	155
Stainless steel [Cr-Ni/1.4301]	11.0	4	21	0.010	4	1.1	610	25
	12.5	4	21	0.010	6	1.3	535	20
	16.0	4	21	0.025	8	1.6	420	40
	18.0	6	21	0.025	8	1.8	370	55
	21.0	6	21	0.040	9	2.1	320	75
	25.0	6	21	0.045	11	2.5	265	70
	32.0	6	21	0.060	14	3.2	210	75
	40.0	8	21	0.070	18	4.0	165	90
	50.0	8	21	0.090	22	5.0	135	95

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	11.0	4	42	0.010	4	1.1	1215	50
	12.5	4	42	0.010	6	1.3	1070	45
	16.0	4	42	0.025	8	1.6	835	85
	18.0	6	42	0.025	8	1.8	745	110
	21.0	6	42	0.040	9	2.1	635	150
	25.0	6	42	0.045	11	2.5	535	145
	32.0	6	42	0.060	14	3.2	420	150
	40.0	8	42	0.070	18	4.0	335	190
	50.0	8	42	0.090	22	5.0	265	190
Unalloyed copper	11.0	4	65	0.010	4	1.1	1880	75
	12.5	4	65	0.010	6	1.3	1655	65
	16.0	4	65	0.025	8	1.6	1295	130
	18.0	6	65	0.025	8	1.8	1150	175
	21.0	6	65	0.040	9	2.1	985	235
	25.0	6	65	0.045	11	2.5	830	225
	32.0	6	65	0.060	14	3.2	645	230
	40.0	8	65	0.070	18	4.0	515	290
	50.0	8	65	0.090	22	5.0	415	300
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	11.0	4	23	0.010	4	1.1	665	25
	12.5	4	23	0.010	6	1.3	585	25
	16.0	4	23	0.025	8	1.6	460	45
	18.0	6	23	0.025	8	1.8	405	60
	21.0	6	23	0.040	9	2.1	350	85
	25.0	6	23	0.045	11	2.5	295	80
	32.0	6	23	0.060	14	3.2	230	85
	40.0	8	23	0.070	18	4.0	185	105
	50.0	8	23	0.090	22	5.0	145	105
Wrought aluminium alloys Si < 6%	11.0	4	80	0.010	4	1.1	2315	95
	12.5	4	80	0.010	6	1.3	2035	80
	16.0	4	80	0.025	8	1.6	1590	160
	18.0	6	80	0.025	8	1.8	1415	210
	21.0	6	80	0.040	9	2.1	1215	290
	25.0	6	80	0.045	11	2.5	1020	275
	32.0	6	80	0.060	14	3.2	795	285
	40.0	8	80	0.070	18	4.0	635	355
	50.0	8	80	0.090	22	5.0	510	365

T-groove end mills

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HSS-E Co8	λ 12° γ 12°



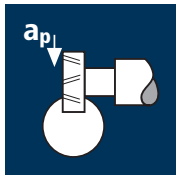
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Example: **Order-N°.** Coating **U** Article-N°. **0910** ø-Code **.100**

ø Code	d_1 d11	d_2 h6	d_3 h12	l_1	l_2	b d11	z	UNICUT-4X U0910
.100	11.0	10	4	53.5	8	4.0	4	●
.120	12.5	10	5	57.0	9	6.0	4	●
.140	16.0	10	7	62.0	12	8.0	4	●
.160	18.0	12	8	70.0	15	8.0	6	●
.180	21.0	12	10	74.0	19	9.0	6	●
.200	25.0	16	12	82.0	21	11.0	6	●
.220	32.0	16	15	90.0	27	14.0	6	●
.240	40.0	25	19	108.0	30	18.0	8	●
.260	50.0	32	25	124.0	40	22.0	8	●
						b		
						k11		
.500*	12.0	8	5	54.0	14	2.5	8	●
.520*	16.0	8	6	56.0	16	3.0	8	●
.540*	20.0	10	8	62.0	17	4.0	8	●
.560*	25.0	10	9	65.0	19	5.0	10	●
.580*	32.0	12	10	73.0	21	6.0	12	●
.600*	40.0	12	11	77.0	23	8.0	12	●
.620*	50.0	16	14	84.0	25	10.0	14	●
	* Conical neck							

VI

Application



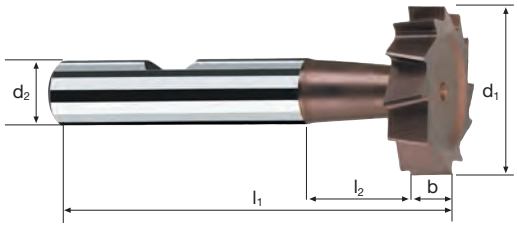
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	7.5	8	55	0.005	2.0	2.0	2335	95
	10.5	8	55	0.010	2.9	2.5	1665	135
	13.5	8	55	0.010	3.8	3.0	1295	105
	16.5	8	55	0.025	5.0	4.0	1060	210
	19.5	10	55	0.035	5.5	5.0	900	315
	22.5	10	55	0.040	6.6	6.0	780	310
	25.5	12	55	0.045	7.5	6.0	685	370
Steel 850 - 1100 N/mm²	7.5	8	45	0.005	2.0	2.0	1910	75
	10.5	8	45	0.010	2.9	2.5	1365	110
	13.5	8	45	0.010	3.8	3.0	1060	85
	16.5	8	45	0.025	5.0	4.0	870	175
	19.5	10	45	0.035	5.5	5.0	735	255
	22.5	10	45	0.040	6.6	6.0	635	255
	25.5	12	45	0.045	7.5	6.0	560	300
Steel 1100 - 1300 N/mm²	7.5	8	34	0.005	2.0	2.0	1445	60
	10.5	8	34	0.010	2.9	2.5	1030	80
	13.5	8	34	0.010	3.8	3.0	800	65
	16.5	8	34	0.025	5.0	4.0	655	130
	19.5	10	34	0.035	5.5	5.0	555	195
	22.5	10	34	0.040	6.6	6.0	480	190
	25.5	12	34	0.045	7.5	6.0	425	230
Stainless steel [Cr-Ni/1.4301]	7.5	8	21	0.005	2.0	2.0	890	35
	10.5	8	21	0.010	2.9	2.5	635	50
	13.5	8	21	0.010	3.8	3.0	495	40
	16.5	8	21	0.025	5.0	4.0	405	80
	19.5	10	21	0.035	5.5	5.0	345	120
	22.5	10	21	0.040	6.6	6.0	295	120
	25.5	12	21	0.045	7.5	6.0	260	140

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	7.5	8	42	0.005	2.0	2.0	1785	70
	10.5	8	42	0.010	2.9	2.5	1275	100
	13.5	8	42	0.010	3.8	3.0	990	80
	16.5	8	42	0.025	5.0	4.0	810	160
	19.5	10	42	0.035	5.5	5.0	685	240
	22.5	10	42	0.040	6.6	6.0	595	240
	25.5	12	42	0.045	7.5	6.0	525	285
Unalloyed copper	7.5	8	65	0.005	2.0	2.0	2760	110
	10.5	8	65	0.010	2.9	2.5	1970	160
	13.5	8	65	0.010	3.8	3.0	1535	125
	16.5	8	65	0.025	5.0	4.0	1255	250
	19.5	10	65	0.035	5.5	5.0	1060	370
	22.5	10	65	0.040	6.6	6.0	920	370
	25.5	12	65	0.045	7.5	6.0	810	435
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	7.5	8	23	0.005	2.0	2.0	975	40
	10.5	8	23	0.010	2.9	2.5	695	55
	13.5	8	23	0.010	3.8	3.0	540	45
	16.5	8	23	0.025	5.0	4.0	445	90
	19.5	10	23	0.035	5.5	5.0	375	130
	22.5	10	23	0.040	6.6	6.0	325	130
	25.5	12	23	0.045	7.5	6.0	285	155
Wrought aluminium alloys Si < 6%	7.5	8	80	0.005	2.0	2.0	3395	135
	10.5	8	80	0.010	2.9	2.5	2425	195
	13.5	8	80	0.010	3.8	3.0	1885	150
	16.5	8	80	0.025	5.0	4.0	1545	310
	19.5	10	80	0.035	5.5	5.0	1305	455
	22.5	10	80	0.040	6.6	6.0	1130	450
	25.5	12	80	0.045	7.5	6.0	1000	540

Slotting end mills

HSS | Favora® | Base-X | X-Generation

HSS-E Co8 | λ 10° γ 8°



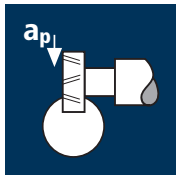
Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Inox** Stainless | **Ti** Titanium | **GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **0905** ø-Code **.100**

ø Code	d_1 h11	d_2 h6	l_1	l_2	b e8	z	UNICUT-4X U0905
.100	4.5	6	50	12	1.0	8	●
.150	7.5	6	50	11	1.5	8	●
.160	7.5	6	50	10	2.0	8	●
.200	10.5	6	50	11	2.0	8	●
.210	10.5	6	50	10	2.5	8	●
.220	10.5	6	50	9	3.0	8	●
.310	13.5	10	56	13	2.5	8	●
.320	13.5	10	56	12	3.0	8	●
.330	13.5	10	56	11	4.0	8	●
.360	16.5	10	56	12	3.0	8	●
.370	16.5	10	56	11	4.0	8	●
.380	16.5	10	56	10	5.0	8	●
.410	19.5	10	63	18	3.0	10	●
.420	19.5	10	63	17	4.0	10	●
.430	19.5	10	63	16	5.0	10	●
.440	19.5	10	63	15	6.0	10	●
.500	22.5	10	63	17	4.0	10	●
.510	22.5	10	63	16	5.0	10	●
.520	22.5	10	63	15	6.0	10	●
.540	22.5	10	63	14	8.0	10	●
.600	25.5	10	63	16	5.0	12	●
.610	25.5	10	63	15	6.0	12	●

VI

Application



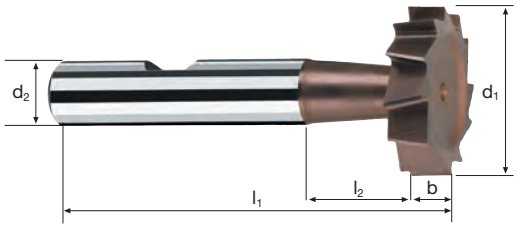
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	28.5	12	55	0.050	8.2	8.0	615	370
	32.5	12	55	0.060	9.8	10.0	540	390
	45.5	14	55	0.080	12.0	10.0	385	430
Steel 850 - 1100 N/mm²	28.5	12	45	0.050	8.2	8.0	505	305
	32.5	12	45	0.060	9.8	10.0	440	315
	45.5	14	45	0.080	12.0	10.0	315	355
Steel 1100 - 1300 N/mm²	28.5	12	34	0.050	8.2	8.0	380	230
	32.5	12	34	0.060	9.8	10.0	335	240
	45.5	14	34	0.080	12.0	10.0	240	270
Stainless steel [Cr-Ni/1.4301]	28.5	12	21	0.050	8.2	8.0	235	140
	32.5	12	21	0.060	9.8	10.0	205	150
	45.5	14	21	0.080	12.0	10.0	145	160

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	28.5	12	42	0.050	8.2	8.0	470	280
	32.5	12	42	0.060	9.8	10.0	410	295
	45.5	14	42	0.080	12.0	10.0	295	330
Unalloyed copper	28.5	12	65	0.050	8.2	8.0	725	435
	32.5	12	65	0.060	9.8	10.0	635	455
	45.5	14	65	0.080	12.0	10.0	455	510
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	28.5	12	23	0.050	8.2	8.0	255	155
	32.5	12	23	0.060	9.8	10.0	225	160
	45.5	14	23	0.080	12.0	10.0	160	180
Wrought aluminium alloys Si < 6%	28.5	12	80	0.050	8.2	8.0	895	535
	32.5	12	80	0.060	9.8	10.0	785	565
	45.5	14	80	0.080	12.0	10.0	560	625

Slotting end mills

HSS | Favora® | Base-X | X-Generation

HSS-E Co8	λ 10° γ 8°



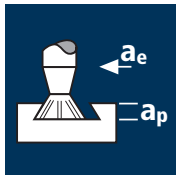
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Example: **Order-N°.** Coating **U** Article-N°. **0905** ø-Code **.650**

ø Code	d1 h11	d2 h6	l1	l2	b e8	z		UNICUT-4X U0905
.650	28.5	10	63	14	6.0	12		●
.660	28.5	10	63	13	8.0	12		●
.700	28.5	12	71	14	10.0	12		●
.750	32.5	12	71	18	6.0	12		●
.760	32.5	12	71	17	7.0	12		●
.770	32.5	12	71	16	8.0	12		●
.800	32.5	12	71	15	10.0	12		●
.900	45.5	12	71	14	10.0	14		●

VI

Application



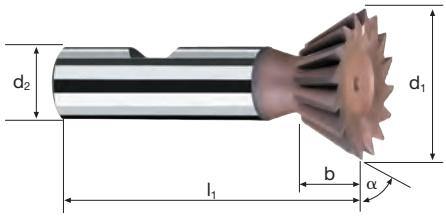
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	8	7	55	0.005	2.5	1.5	2190	75
	12	8	55	0.010	3.0	2.0	1460	115
	16	10	55	0.015	4.0	2.2	1095	165
	20	12	55	0.018	6.0	2.4	875	190
	25	14	55	0.020	8.0	2.6	700	195
	32	16	55	0.025	10.0	3.0	545	220
Steel 850 - 1100 N/mm²	8	7	45	0.005	2.5	1.5	1790	65
	12	8	45	0.010	3.0	2.0	1195	95
	16	10	45	0.015	4.0	2.2	895	135
	20	12	45	0.018	6.0	2.4	715	155
	25	14	45	0.020	8.0	2.6	575	160
	32	16	45	0.025	10.0	3.0	450	180
Steel 1100 - 1300 N/mm²	8	7	34	0.005	2.5	1.5	1355	45
	12	8	34	0.010	3.0	2.0	900	70
	16	10	34	0.015	4.0	2.2	675	100
	20	12	34	0.018	6.0	2.4	540	115
	25	14	34	0.020	8.0	2.6	435	120
	32	16	34	0.025	10.0	3.0	340	135
Stainless steel [Cr-Ni/1.4301]	8	7	21	0.005	2.5	1.5	835	30
	12	8	21	0.010	3.0	2.0	555	45
	16	10	21	0.015	4.0	2.2	420	65
	20	12	21	0.018	6.0	2.4	335	70
	25	14	21	0.020	8.0	2.6	265	75
	32	16	21	0.025	10.0	3.0	210	85

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	8	7	42	0.005	2.5	1.5	1670	60
	12	8	42	0.010	3.0	2.0	1115	90
	16	10	42	0.015	4.0	2.2	835	125
	20	12	42	0.018	6.0	2.4	670	145
	25	14	42	0.020	8.0	2.6	535	150
	32	16	42	0.025	10.0	3.0	420	170
Unalloyed copper	8	7	65	0.005	2.5	1.5	2585	90
	12	8	65	0.010	3.0	2.0	1725	140
	16	10	65	0.015	4.0	2.2	1295	195
	20	12	65	0.018	6.0	2.4	1035	225
	25	14	65	0.020	8.0	2.6	830	230
	32	16	65	0.025	10.0	3.0	645	260
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	8	7	23	0.005	2.5	1.5	915	30
	12	8	23	0.010	3.0	2.0	610	50
	16	10	23	0.015	4.0	2.2	460	70
	20	12	23	0.018	6.0	2.4	365	80
	25	14	23	0.020	8.0	2.6	295	85
	32	16	23	0.025	10.0	3.0	230	90
Wrought aluminium alloys Si < 6%	8	7	80	0.005	2.5	1.5	3185	110
	12	8	80	0.010	3.0	2.0	2120	170
	16	10	80	0.015	4.0	2.2	1590	240
	20	12	80	0.018	6.0	2.4	1275	275
	25	14	80	0.020	8.0	2.6	1020	285
	32	16	80	0.025	10.0	3.0	795	320

Angular end mills

HSS | Favora® | Base-X | X-Generation

HSS-E Co8	λ 0° γ 0°



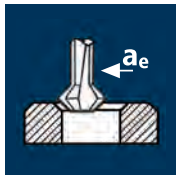
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Example: **Order-N°.** Coating **U** Article-N°. **0890** ø-Code **.100**

ø Code	d_1 js12	d_2 h6	l_1	b	α (±20')	z	UNICUT-4X U0890
.100	12	10	54	3.0	45°	8	●
.120	16	12	60	4.0	45°	10	●
.140	20	12	63	5.0	45°	12	●
.160	25	12	67	6.3	45°	14	●
.180	32	16	71	8.0	45°	16	●
.300	8	6	49	3.0	60°	7	●
.320	12	10	54	4.0	60°	8	●
.340	16	12	60	6.3	60°	10	●
.360	20	12	63	8.0	60°	12	●
.380	25	12	67	10.0	60°	14	●
.400	32	16	71	12.5	60°	16	●

VI

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	3	4	150	0.008	0.15	15915	510
	4	4	150	0.012	0.20	11935	575
	5	4	150	0.014	0.25	9550	535
	6	4	150	0.018	0.25	7960	575
	8	4	150	0.022	0.30	5970	525
	10	4	150	0.028	0.40	4775	535
	12	4	150	0.034	0.50	3980	540
Steel 850 - 1100 N/mm²	3	4	120	0.008	0.15	12735	410
	4	4	120	0.012	0.20	9550	460
	5	4	120	0.014	0.25	7640	430
	6	4	120	0.018	0.25	6365	460
	8	4	120	0.022	0.30	4775	420
	10	4	120	0.028	0.40	3820	430
	12	4	120	0.034	0.50	3185	435
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.008	0.15	5305	170
	4	4	50	0.012	0.20	3980	190
	5	4	50	0.014	0.25	3185	180
	6	4	50	0.018	0.25	2655	190
	8	4	50	0.022	0.30	1990	175
	10	4	50	0.028	0.40	1590	180
	12	4	50	0.034	0.50	1325	180
Cast iron (lamellar / spheroidal)	3	4	180	0.008	0.15	19100	610
	4	4	180	0.012	0.20	14325	690
	5	4	180	0.014	0.25	11460	640
	6	4	180	0.018	0.25	9550	690
	8	4	180	0.022	0.30	7160	630
	10	4	180	0.028	0.40	5730	640
	12	4	180	0.034	0.50	4775	650

Application



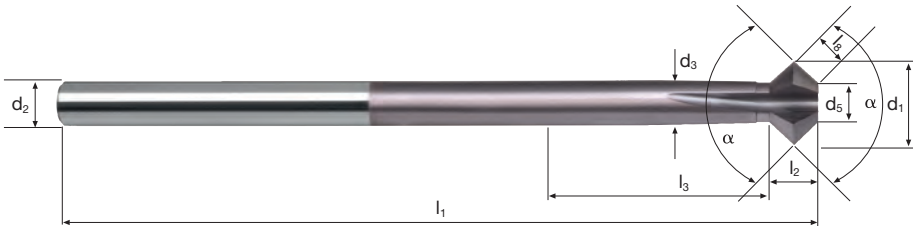
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	3	4	150	0.008	0.15	15915	510
	4	4	150	0.012	0.20	11935	575
	5	4	150	0.014	0.25	9550	535
	6	4	150	0.018	0.25	7960	575
	8	4	150	0.022	0.30	5970	525
	10	4	150	0.028	0.40	4775	535
	12	4	150	0.034	0.50	3980	540
Steel 850 - 1100 N/mm²	3	4	120	0.008	0.15	12735	410
	4	4	120	0.012	0.20	9550	460
	5	4	120	0.014	0.25	7640	430
	6	4	120	0.018	0.25	6365	460
	8	4	120	0.022	0.30	4775	420
	10	4	120	0.028	0.40	3820	430
	12	4	120	0.034	0.50	3185	435
Stainless steel [Cr-Ni/1.4301]	3	4	50	0.008	0.15	5305	170
	4	4	50	0.012	0.20	3980	190
	5	4	50	0.014	0.25	3185	180
	6	4	50	0.018	0.25	2655	190
	8	4	50	0.022	0.30	1990	175
	10	4	50	0.028	0.40	1590	180
	12	4	50	0.034	0.50	1325	180
Cast iron (lamellar / spheroidal)	3	4	180	0.008	0.15	19100	610
	4	4	180	0.012	0.20	14325	690
	5	4	180	0.014	0.25	11460	640
	6	4	180	0.018	0.25	9550	690
	8	4	180	0.022	0.30	7160	630
	10	4	180	0.028	0.40	5730	640
	12	4	180	0.034	0.50	4775	650

Forward and reverse deburring end mills

45° - Chamfer

HSS | Favora® | Base-X | **B** | X-Generation

HM	λ 0° γ 8°



Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **7930** | ø-Code **.180**

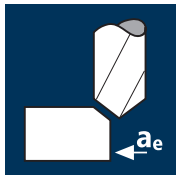
ø Code	d1 *	d2 h6	d3	d5	l1	l2	l3	l8	α	z	UNICUT-4X
											U7930
.180	3	6	2.2	1.2	100	1.30	10	2.5	90°	4	●
.220	4	6	2.9	1.6	100	1.75	12	3.4	90°	4	●
.260	5	6	3.4	2.0	100	2.30	15	4.2	90°	4	●
.300	6	6	3.8	2.4	100	2.90	18	5.1	90°	4	●
.391	8	6	4.9	4.9	100	3.10	35	4.4	90°	4	●
.450	10	6	5.9	5.9	100	4.10	35	5.8	90°	4	●
.501	12	6	5.9	5.9	100	6.10	35	8.6	90°	4	●

*** Tolerance of the cutting diameter**

d1	Tolerance
< 6	0/-0.05
≥ 6	0/-0.15

VI

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	6	4	150	0.020	0.20	0.20	7960	635
	8	4	150	0.025	0.25	0.25	5970	595
	10	4	150	0.030	0.30	0.30	4775	575
	12	4	150	0.035	0.40	0.40	3980	555
Steel 850 - 1100 N/mm²	6	4	120	0.020	0.20	0.20	6365	510
	8	4	120	0.025	0.25	0.25	4775	480
	10	4	120	0.030	0.30	0.30	3820	460
	12	4	120	0.035	0.40	0.40	3185	445
Steel 1100 - 1300 N/mm²	6	4	70	0.020	0.20	0.20	3715	295
	8	4	70	0.025	0.25	0.25	2785	280
	10	4	70	0.030	0.30	0.30	2230	270
	12	4	70	0.035	0.40	0.40	1855	260
Stainless steel [Cr-Ni/1.4301]	6	4	60	0.020	0.20	0.20	3185	255
	8	4	60	0.025	0.25	0.25	2385	240
	10	4	60	0.030	0.30	0.30	1910	230
	12	4	60	0.035	0.40	0.40	1590	225

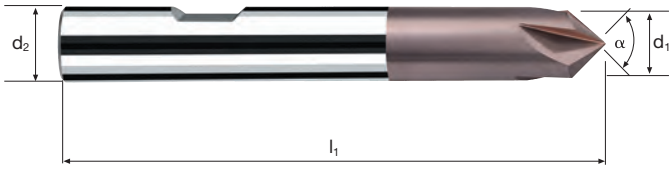
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	6	4	160	0.020	0.20	0.20	8490	680
	8	4	160	0.025	0.25	0.25	6365	635
	10	4	160	0.030	0.30	0.30	5095	610
	12	4	160	0.035	0.40	0.40	4245	595
Unalloyed copper	6	4	180	0.020	0.20	0.20	9550	765
	8	4	180	0.025	0.25	0.25	7160	715
	10	4	180	0.030	0.30	0.30	5730	690
	12	4	180	0.035	0.40	0.40	4775	670
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	6	4	70	0.020	0.20	0.20	3715	295
	8	4	70	0.025	0.25	0.25	2785	280
	10	4	70	0.030	0.30	0.30	2230	270
	12	4	70	0.035	0.40	0.40	1855	260
Wrought aluminium alloys Si < 6%	6	4	200	0.020	0.20	0.20	10610	850
	8	4	200	0.025	0.25	0.25	7960	795
	10	4	200	0.030	0.30	0.30	6365	765
	12	4	200	0.035	0.40	0.40	5305	745

Deburring end mills

45° - Chamfer

HSS | Favora® | Base-X | **B** | X-Generation

HM	λ 0° γ 0°



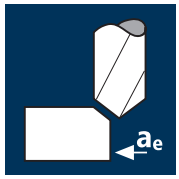
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **7940** ø-Code **.300**

ø Code	d_1 h6	d_2 h6	l_1	α	z	UNICUT-4X U7940
.300	6	6	57	90°	4	●
.391	8	8	63	90°	4	●
.450	10	10	72	90°	4	●
.501	12	12	83	90°	4	●

VI

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²	2	3	150	0.005	0.05	0.05	23875	360
	3	3	150	0.010	0.10	0.10	15915	475
	4	3	150	0.015	0.15	0.15	11935	535
	6	3	150	0.020	0.20	0.20	7960	480
Steel 850 - 1100 N/mm²	2	3	120	0.005	0.05	0.05	19100	285
	3	3	120	0.010	0.10	0.10	12735	380
	4	3	120	0.015	0.15	0.15	9550	430
	6	3	120	0.020	0.20	0.20	6365	380
Steel 1100 - 1300 N/mm²	2	3	70	0.005	0.05	0.05	11140	165
	3	3	70	0.010	0.10	0.10	7425	225
	4	3	70	0.015	0.15	0.15	5570	250
	6	3	70	0.020	0.20	0.20	3715	225
Stainless steel [Cr-Ni/1.4301]	2	3	60	0.005	0.05	0.05	9550	145
	3	3	60	0.010	0.10	0.10	6365	190
	4	3	60	0.015	0.15	0.15	4775	215
	6	3	60	0.020	0.20	0.20	3185	190

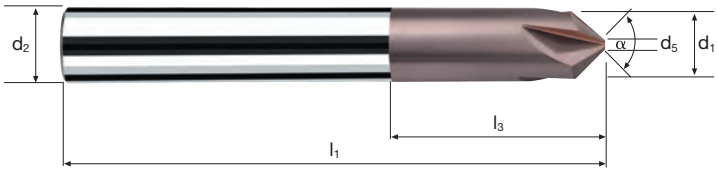
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Cast iron (lamellar / spheroidal)	2	3	160	0.005	0.05	0.05	25465	380
	3	3	160	0.010	0.10	0.10	16975	510
	4	3	160	0.015	0.15	0.15	12735	575
	6	3	160	0.020	0.20	0.20	8490	510
Unalloyed copper	2	3	180	0.005	0.05	0.05	28650	430
	3	3	180	0.010	0.10	0.10	19100	575
	4	3	180	0.015	0.15	0.15	14325	645
	6	3	180	0.020	0.20	0.20	9550	575
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	2	3	70	0.005	0.05	0.05	11140	165
	3	3	70	0.010	0.10	0.10	7425	225
	4	3	70	0.015	0.15	0.15	5570	250
	6	3	70	0.020	0.20	0.20	3715	225
Wrought aluminium alloys Si < 6%	2	3	200	0.005	0.05	0.05	31830	475
	3	3	200	0.010	0.10	0.10	21220	635
	4	3	200	0.015	0.15	0.15	15915	715
	6	3	200	0.020	0.20	0.20	10610	635

Deburring end mills

45° - Chamfer

HSS | Favora® | Base-X | **B** | X-Generation

HM	λ 0° γ 0°



Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **7942** ø-Code **.140**

ø Code	d_1 h6	d_2 h6	d_5 ±0.05	l_1	l_3	α	z		UNICUT-4X **U7942**
.140	2	3	0.20	38	7.2	90°	3		●
.180	3	3	0.30	38	–	90°	3		●
.220	4	4	0.40	50	–	90°	3		●
.300	6	6	0.60	57	–	90°	3		●

VI

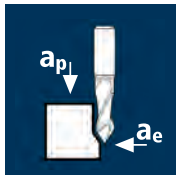
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²							
3	2	120	0.008	0.10	0.10	12735	205
4	2	120	0.012	0.15	0.15	9550	230
5	2	120	0.014	0.20	0.20	7640	215
6	2	120	0.018	0.20	0.20	6365	230
8	2	120	0.022	0.25	0.25	4775	210
10	2	120	0.028	0.35	0.35	3820	215
12	2	120	0.034	0.45	0.45	3185	215
Steel 850 - 1100 N/mm²							
3	2	100	0.008	0.10	0.10	10610	170
4	2	100	0.012	0.15	0.15	7960	190
5	2	100	0.014	0.20	0.20	6365	180
6	2	100	0.018	0.20	0.20	5305	190
8	2	100	0.022	0.25	0.25	3980	175
10	2	100	0.028	0.35	0.35	3185	180
12	2	100	0.034	0.45	0.45	2655	180
Stainless steel [Cr-Ni/1.4301]							
3	2	50	0.008	0.10	0.10	5305	85
4	2	50	0.012	0.15	0.15	3980	95
5	2	50	0.014	0.20	0.20	3185	90
6	2	50	0.018	0.20	0.20	2655	95
8	2	50	0.022	0.25	0.25	1990	90
10	2	50	0.028	0.35	0.35	1590	90
12	2	50	0.034	0.45	0.45	1325	90
Cast iron (lamellar / spheroidal)							
3	2	140	0.008	0.10	0.10	14855	240
4	2	140	0.012	0.15	0.15	11140	265
5	2	140	0.014	0.20	0.20	8915	250
6	2	140	0.018	0.20	0.20	7425	265
8	2	140	0.022	0.25	0.25	5570	245
10	2	140	0.028	0.35	0.35	4455	250
12	2	140	0.034	0.45	0.45	3715	255

Application



Material

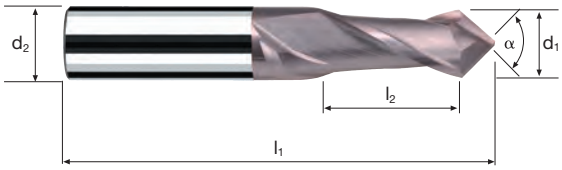
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]
Steel < 850 N/mm²							
3	2	100	0.008	3	0.15	10610	170
4	2	100	0.012	4	0.15	7960	190
5	2	100	0.014	5	0.20	6365	180
6	2	100	0.018	6	0.20	5305	190
8	2	100	0.022	8	0.25	3980	175
10	2	100	0.028	10	0.25	3185	180
12	2	100	0.034	12	0.30	2655	180
Steel 850 - 1100 N/mm²							
3	2	80	0.008	3	0.15	8490	135
4	2	80	0.012	4	0.15	6365	155
5	2	80	0.014	5	0.20	5095	145
6	2	80	0.018	6	0.20	4245	155
8	2	80	0.022	8	0.25	3185	140
10	2	80	0.028	10	0.25	2545	145
12	2	80	0.034	12	0.30	2120	145
Stainless steel [Cr-Ni/1.4301]							
3	2	45	0.008	3	0.15	4775	75
4	2	45	0.012	4	0.15	3580	85
5	2	45	0.014	5	0.20	2865	80
6	2	45	0.018	6	0.20	2385	85
8	2	45	0.022	8	0.25	1790	80
10	2	45	0.028	10	0.25	1430	80
12	2	45	0.034	12	0.30	1195	80
Cast iron (lamellar / spheroidal)							
3	2	120	0.008	3	0.15	12735	205
4	2	120	0.012	4	0.15	9550	230
5	2	120	0.014	5	0.20	7640	215
6	2	120	0.018	6	0.20	6365	230
8	2	120	0.022	8	0.25	4775	210
10	2	120	0.028	10	0.25	3820	215
12	2	120	0.034	12	0.30	3185	215

Universal end mills

Milling, chamfering, centering, drilling

HSS | Favora® | Base-X | **B** | X-Generation

HM	λ 30° γ 12°



Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** | Article-N°. **7960** | ø-Code **.180**

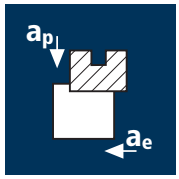
ø Code	d_1 *	d_2 h6	l_1	l_2	α	z	UNICUT-4X U7960
.180	3	4	50	6	90°	2	●
.220	4	5	50	8	90°	2	●
.260	5	6	50	10	90°	2	●
.300	6	8	60	12	90°	2	●
.391	8	10	70	16	90°	2	●
.450	10	12	70	18	90°	2	●
.501	12	12	70	20	90°	2	●

*** Tolerance of the cutting diameter**

d_1	Tolerance
< 12	h9
≥ 12	h11

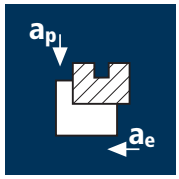
VI

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	32	6	65	0.060	6.4	24.0	645	230	35.5
	40	8	65	0.080	8.0	30.0	515	330	79.0
	50	8	65	0.100	10.0	37.5	415	330	124.0
	63	10	65	0.120	12.6	47.3	330	395	235.0
	80	10	65	0.120	16.0	60.0	260	310	297.5
Steel 850 - 1100 N/mm²	32	6	48	0.060	6.4	24.0	475	170	26.0
	40	8	48	0.080	8.0	30.0	380	245	59.0
	50	8	48	0.100	10.0	37.5	305	245	92.0
	63	10	48	0.120	12.6	47.3	245	295	175.5
	80	10	48	0.120	16.0	60.0	190	230	221.0
Steel 1100 - 1300 N/mm²	32	6	35	0.060	6.4	24.0	350	125	19.0
	40	8	35	0.080	8.0	30.0	280	180	43.0
	50	8	35	0.100	10.0	37.5	225	180	67.5
	63	10	35	0.120	12.6	47.3	175	210	125.0
	80	10	35	0.120	16.0	60.0	140	170	163.0
Stainless steel [Cr-Ni/1.4301]	32	6	26	0.060	6.4	24.0	260	95	14.5
	40	8	26	0.080	8.0	30.0	205	130	31.0
	50	8	26	0.100	10.0	37.5	165	130	49.0
	63	10	26	0.120	12.6	47.3	130	155	92.5
	80	10	26	0.120	16.0	60.0	105	125	120.0

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Steel < 850 N/mm²	32	6	68	0.070	6.4	9.6	675	285	17.5
	40	8	68	0.090	8.0	12.0	540	390	37.5
	50	8	68	0.110	10.0	15.0	435	385	58.0
	63	10	68	0.125	12.6	18.9	345	430	102.5
	80	10	68	0.145	16.0	24.0	270	390	150.0
Steel 850 - 1100 N/mm²	32	6	55	0.070	6.4	9.6	545	230	14.0
	40	8	55	0.090	8.0	12.0	440	315	30.0
	50	8	55	0.110	10.0	15.0	350	310	46.5
	63	10	55	0.125	12.6	18.9	280	350	83.5
	80	10	55	0.145	16.0	24.0	220	320	123.0
Steel 1100 - 1300 N/mm²	32	6	40	0.070	6.4	9.6	400	170	10.5
	40	8	40	0.090	8.0	12.0	320	230	22.0
	50	8	40	0.110	10.0	15.0	255	225	34.0
	63	10	40	0.125	12.6	18.9	200	250	59.5
	80	10	40	0.145	16.0	24.0	160	230	88.5
Stainless steel [Cr-Ni/1.4301]	32	6	29	0.070	6.4	9.6	290	120	7.5
	40	8	29	0.090	8.0	12.0	230	165	16.0
	50	8	29	0.110	10.0	15.0	185	165	25.0
	63	10	29	0.125	12.6	18.9	145	180	43.0
	80	10	29	0.145	16.0	24.0	115	165	63.5

Cylindrical end mills

Profiled

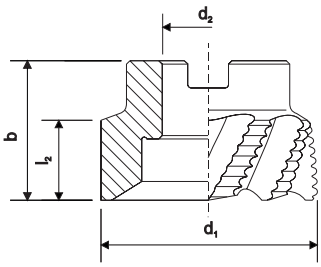
HSS | Favora® | Base-X | X-Generation

HSS-E Co8

λ 25° γ 10°

45°





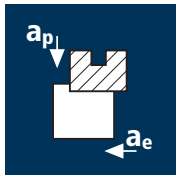
Rm < 850	**Rm** 850-1100	**Rm** 1100-1300					**Inox** Stainless	**Ti** Titanium	**GG(G) Aluminium Copper**

Example: **Order-N°.** Coating **U** Article-N°. **3490** ø-Code **.100**

ø Code	d_1 k9	d_2 H7	l_2	b k13	45°	z	UNICUT-4X U3490
.100	32	13	15	28	0.7	6	●
.110	40	16	18	32	0.9	8	●
.130	50	22	20	36	0.9	8	●
.160	63	27	22	40	1.2	10	●
.180	80	27	25	45	1.2	10	●

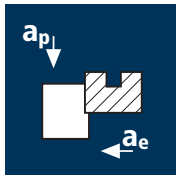
VI

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	40	8	45	0.065	2.0	30.0	360	185	11.0
	50	8	45	0.080	2.5	37.5	285	180	17.0
	63	10	45	0.080	3.2	47.3	225	180	27.0
	80	12	45	0.100	4.0	60.0	180	215	51.5
Steel 1100 - 1300 N/mm²	40	8	30	0.065	2.0	30.0	240	125	7.5
	50	8	30	0.080	2.5	37.5	190	120	11.5
	63	10	30	0.080	3.2	47.3	150	120	18.0
	80	12	30	0.100	4.0	60.0	120	145	35.0
Cold work tool steel (12% Cr), high alloyed [1.2379]	40	8	20	0.065	2.0	30.0	160	85	5.0
	50	8	20	0.080	2.5	37.5	125	80	7.5
	63	10	20	0.080	3.2	47.3	100	80	12.0
	80	12	20	0.100	4.0	60.0	80	95	23.0
Cast iron (lamellar / spheroidal)	40	8	42	0.065	2.0	30.0	335	175	10.5
	50	8	42	0.080	2.5	37.5	265	170	16.0
	63	10	42	0.080	3.2	47.3	210	170	25.5
	80	12	42	0.100	4.0	60.0	165	200	48.0

Application



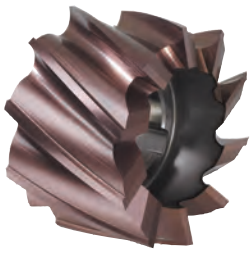
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	40	8	50	0.065	20.0	1.0	400	210	4.0
	50	8	50	0.080	25.0	1.3	320	205	6.5
	63	10	50	0.080	31.5	1.6	255	205	10.0
	80	12	50	0.100	40.0	2.0	200	240	19.0
Steel 1100 - 1300 N/mm²	40	8	35	0.065	20.0	1.0	280	145	3.0
	50	8	35	0.080	25.0	1.3	225	145	4.5
	63	10	35	0.080	31.5	1.6	175	140	7.0
	80	12	35	0.100	40.0	2.0	140	170	13.5
Cold work tool steel (12% Cr), high alloyed [1.2379]	40	8	25	0.065	20.0	1.0	200	105	2.0
	50	8	25	0.080	25.0	1.3	160	100	3.0
	63	10	25	0.080	31.5	1.6	125	100	5.0
	80	12	25	0.100	40.0	2.0	100	120	9.5
Cast iron (lamellar / spheroidal)	40	8	45	0.065	20.0	1.0	360	185	3.5
	50	8	45	0.080	25.0	1.3	285	180	5.5
	63	10	45	0.080	31.5	1.6	225	180	9.0
	80	12	45	0.100	40.0	2.0	180	215	17.0

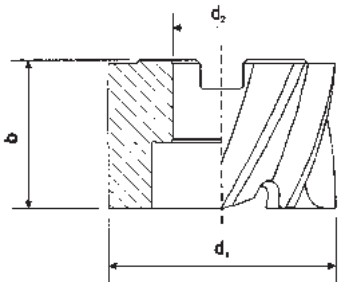
Cylindrical end mills

Smooth-edged

HSS Favora® Base-X X-Generation

HSS-E Co8	λ 30° γ 15°
90°	





Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G)

Example: **Order-N°.** Coating **U** Article-N°. **3209** ø-Code **.110**

ø Code	d1 k8	d2 H7	b k13	z		UNICUT-4X U3209
.110	40	16	32	8		●
.130	50	22	36	8		●
.160	63	27	40	10		●
.180	80	27	45	12		●

VI


fraisa

NovoSys X® Milling heads for steel, stainless steel and titanium
715 – 725

NovoSys X® Milling heads for 3D machining
727 – 753

NovoSys X® Special forms
755 – 763

NovoSys X® Special tools
764 – 765

Accessories and information on NovoSys X®
Assembly instructions
766 – 770


fraisa

NovoSys X® Milling heads for steel, stainless steel and titanium

Smooth-edged, cylindrical

N° NV-10-01-04-02-10 d1 10 – 20



HM UT	45°	Rm <850-1300			717

N° NV-11-01-04-02-10 d1 11 – 22



HM UT	45°	Rm <850-1300			719

N° N-10-01-04-01-10 d1 10 – 20



HM UT	45°	Rm <850-1300			721

N° N-10-01-03-01-10 d1 10 – 20



HM UT	45°	Rm <850-1300			723

Profiled, cylindrical

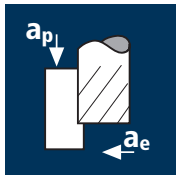
N° NR-10-01-04-03-10 d1 10 – 20



HM UT	45°	Rm <850-1100			725

VII

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
Steel < 850 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	220	0.180	6.0	1.0	7005	5045	0.80	•
12	4	220	0.200	8.0	1.2	5835	4670	1.00	•
16	4	220	0.240	12.0	1.6	4375	4200	1.30	•
20	4	220	0.280	14.0	2.0	3500	3920	1.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	220	0.180	6.0	1.2	7005	5045	1.00	•
12	4	220	0.200	8.0	1.4	5835	4670	1.10	•
16	4	220	0.240	12.0	1.9	4375	4200	1.50	•
Steel 850 - 1100 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.180	6.0	1.0	5730	4125	0.80	•
12	4	180	0.200	8.0	1.2	4775	3820	1.00	•
16	4	180	0.240	12.0	1.6	3580	3435	1.30	•
20	4	180	0.280	14.0	2.0	2865	3210	1.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.180	6.0	1.2	5730	4125	1.00	•
12	4	180	0.200	8.0	1.4	4775	3820	1.10	•
16	4	180	0.240	12.0	1.9	3580	3435	1.50	•
Cold work tool steel (12% Cr), high alloyed [1.2379]									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	80	0.160	6.0	1.0	2545	1630	0.80	•
12	4	80	0.180	8.0	1.2	2120	1525	1.00	•
16	4	80	0.215	12.0	1.6	1590	1365	1.30	•
20	4	80	0.250	14.0	2.0	1275	1275	1.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	80	0.160	6.0	1.2	2545	1630	1.00	•
12	4	80	0.180	8.0	1.4	2120	1525	1.10	•
16	4	80	0.215	12.0	1.9	1590	1365	1.50	•
Cast iron (lamellar / spheroidal)									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.180	6.0	1.0	5730	4125	0.80	•
12	4	180	0.200	8.0	1.2	4775	3820	1.00	•
16	4	180	0.240	12.0	1.6	3580	3435	1.30	•
20	4	180	0.280	14.0	2.0	2865	3210	1.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.180	6.0	1.2	5730	4125	1.00	•
12	4	180	0.200	8.0	1.4	4775	3820	1.10	•
16	4	180	0.240	12.0	1.9	3580	3435	1.50	•

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_p [mm]	a_p [mm]
Steel < 850 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	200	0.080	2.0	10.0	6365	2035	1.80	•
12	4	200	0.100	2.4	12.0	5305	2120	2.20	•
16	4	200	0.140	3.2	16.0	3980	2230	2.90	•
20	4	200	0.180	4.0	20.0	3185	2295	3.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	200	0.080	2.5	10.0	6365	2035	2.00	•
12	4	200	0.100	3.0	12.0	5305	2120	2.40	•
16	4	200	0.140	4.0	16.0	3980	2230	3.20	•
Steel 850 - 1100 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.080	2.0	10.0	5095	1630	1.80	•
12	4	160	0.100	2.4	12.0	4245	1700	2.20	•
16	4	160	0.140	3.2	16.0	3185	1785	2.90	•
20	4	160	0.180	4.0	20.0	2545	1830	3.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.080	2.5	10.0	5095	1630	2.00	•
12	4	160	0.100	3.0	12.0	4245	1700	2.40	•
16	4	160	0.140	4.0	16.0	3185	1785	3.20	•
Cold work tool steel (12% Cr), high alloyed [1.2379]									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	60	0.070	2.0	10.0	1910	535	1.80	•
12	4	60	0.090	2.4	12.0	1590	570	2.20	•
16	4	60	0.125	3.2	16.0	1195	600	2.90	•
20	4	60	0.160	4.0	20.0	955	610	3.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	60	0.070	2.5	10.0	1910	535	2.00	•
12	4	60	0.090	3.0	12.0	1590	570	2.40	•
16	4	60	0.125	4.0	16.0	1195	600	3.20	•
Cast iron (lamellar / spheroidal)									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.080	2.0	10.0	5095	1630	1.80	•
12	4	160	0.100	2.4	12.0	4245	1700	2.20	•
16	4	160	0.140	3.2	16.0	3185	1785	2.90	•
20	4	160	0.180	4.0	20.0	2545	1830	3.60	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.080	2.5	10.0	5095	1630	2.00	•
12	4	160	0.100	3.0	12.0	4245	1700	2.40	•
16	4	160	0.140	4.0	16.0	3185	1785	3.20	•

Cylindrical end mills

Smooth-edged

NovoSys X®

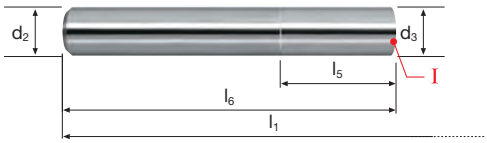
HM
UT

λ 40°
γ 0°

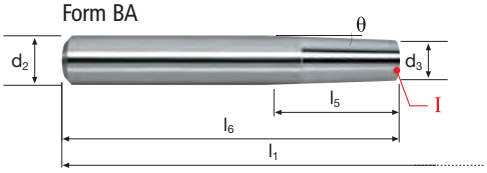
45°

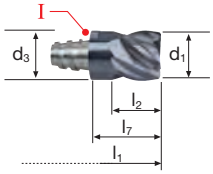
Vario

Form AA



Form BA





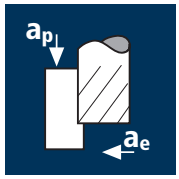
I = Interface

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Milling heads									POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	45°	z	i	I	
NV-10-01-04-02-10	10	9.8	7	13.0	0.2	4	8	10	●
NV-12-01-04-02-12	12	11.8	9	16.5	0.2	4	10	12	●
NV-16-01-04-02-16	16	15.8	13	20.5	0.2	4	13	16	●
NV-20-01-04-02-20	20	19.8	15	25.5	0.2	4	17	20	●

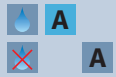
Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		78.0		65		N	10	●
AA-10-080-040-10	10	9.8	93.0	40	80		M	10	●
AA-10-120-080-10	10	9.8	133.0	80	120		L	10	●
AA-12-070-000-12	12		86.5		70		N	12	●
AA-12-085-040-12	12	11.8	101.5	40	85		M	12	●
AA-12-120-075-12	12	11.8	136.5	75	120		L	12	●
AA-16-080-032-16	16	15.8	100.5	32	80		N	16	●
AA-16-110-062-16	16	15.8	130.5	62	110		M	16	●
AA-20-090-040-20	20	19.8	115.5	40	90		N	20	●
AA-20-150-100-20	20	19.8	175.5	100	150		L	20	●
BA-12-080-032-10	12	9.8	93.0	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	133.0	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	136.5	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	156.5	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	140.5	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	180.5	80	160	1.5°	L	16	●

Application



Material

Steel
< 850 N/mm²



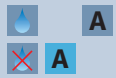
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	220	0.180	6.0	1.0	6365	4585	0.80	•
13	4	220	0.200	8.0	1.2	5385	4310	1.00	•
18	4	220	0.240	12.0	1.6	3890	3735	1.30	•
22	4	220	0.280	14.0	2.0	3185	3565	1.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	220	0.180	6.0	1.2	6365	4585	1.00	•
13	4	220	0.200	8.0	1.4	5385	4310	1.10	•
18	4	220	0.240	12.0	1.9	3890	3735	1.50	•

Steel
850 - 1100 N/mm²



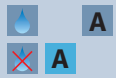
				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	180	0.180	6.0	1.0	5210	3750	0.80	•
13	4	180	0.200	8.0	1.2	4405	3525	1.00	•
18	4	180	0.240	12.0	1.6	3185	3060	1.30	•
22	4	180	0.280	14.0	2.0	2605	2920	1.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	180	0.180	6.0	1.2	5210	3750	1.00	•
13	4	180	0.200	8.0	1.4	4405	3525	1.10	•
18	4	180	0.240	12.0	1.9	3185	3060	1.50	•

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	80	0.160	6.0	1.0	2315	1480	0.80	•
13	4	80	0.180	8.0	1.2	1960	1410	1.00	•
18	4	80	0.215	12.0	1.6	1415	1215	1.30	•
22	4	80	0.250	14.0	2.0	1155	1155	1.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	80	0.160	6.0	1.2	2315	1480	1.00	•
13	4	80	0.180	8.0	1.4	1960	1410	1.10	•
18	4	80	0.215	12.0	1.9	1415	1215	1.50	•

Cast iron
(lamellar / spheroidal)



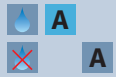
				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	180	0.180	6.0	1.0	5210	3750	0.80	•
13	4	180	0.200	8.0	1.2	4405	3525	1.00	•
18	4	180	0.240	12.0	1.6	3185	3060	1.30	•
22	4	180	0.280	14.0	2.0	2605	2920	1.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	180	0.180	6.0	1.2	5210	3750	1.00	•
13	4	180	0.200	8.0	1.4	4405	3525	1.10	•
18	4	180	0.240	12.0	1.9	3185	3060	1.50	•

Application



Material

Steel
< 850 N/mm²



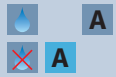
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_p [mm]	a_p [mm]
				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	200	0.080	2.0	11.0	5785	1850	1.80	•
13	4	200	0.100	2.4	13.0	4895	1960	2.20	•
18	4	200	0.140	3.2	18.0	3535	1980	2.90	•
22	4	200	0.180	4.0	22.0	2895	2085	3.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	200	0.080	2.5	11.0	5785	1850	2.00	•
13	4	200	0.100	3.0	13.0	4895	1960	2.40	•
18	4	200	0.140	4.0	18.0	3535	1980	3.20	•

Steel
850 - 1100 N/mm²



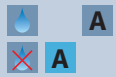
				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	160	0.080	2.0	11.0	4630	1480	1.80	•
13	4	160	0.100	2.4	13.0	3920	1570	2.20	•
18	4	160	0.140	3.2	18.0	2830	1585	2.90	•
22	4	160	0.180	4.0	22.0	2315	1665	3.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	160	0.080	2.5	11.0	4630	1480	2.00	•
13	4	160	0.100	3.0	13.0	3920	1570	2.40	•
18	4	160	0.140	4.0	18.0	2830	1585	3.20	•

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	60	0.070	2.0	11.0	1735	485	1.80	•
13	4	60	0.090	2.4	13.0	1470	530	2.20	•
18	4	60	0.125	3.2	18.0	1060	530	2.90	•
22	4	60	0.160	4.0	22.0	870	555	3.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	60	0.070	2.5	11.0	1735	485	2.00	•
13	4	60	0.090	3.0	13.0	1470	530	2.40	•
18	4	60	0.125	4.0	18.0	1060	530	3.20	•

Cast iron
(lamellar / spheroidal)



				Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
11	4	160	0.080	2.0	11.0	4630	1480	1.80	•
13	4	160	0.100	2.4	13.0	3920	1570	2.20	•
18	4	160	0.140	3.2	18.0	2830	1585	2.90	•
22	4	160	0.180	4.0	22.0	2315	1665	3.60	•
				Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
11	4	160	0.080	2.5	11.0	4630	1480	2.00	•
13	4	160	0.100	3.0	13.0	3920	1570	2.40	•
18	4	160	0.140	4.0	18.0	2830	1585	3.20	•

Cylindrical end mills

Smooth-edged, d1 cutting diameter with excess

NovoSys X®

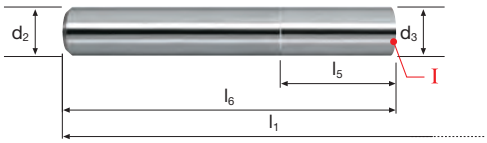
HM
UT

λ 40°
γ 0°

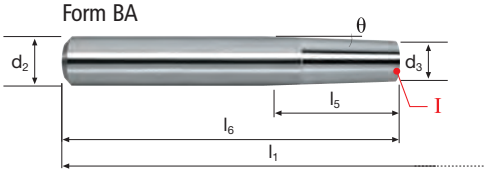
45°

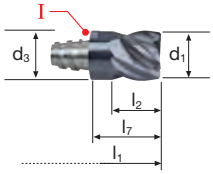
Vario

Form AA



Form BA





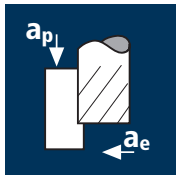
I = Interface

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Milling heads									POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	45°	z	i	I	
NV-11-01-04-02-10	11	9.8	8	18	0.20	4	8	10	●
NV-13-01-04-02-12	13	11.8	10	20	0.20	4	10	12	●
NV-18-01-04-02-16	18	15.8	14	32	0.20	4	13	16	●
NV-22-01-04-02-20	22	19.8	16	36	0.25	4	17	20	●

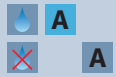
Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Steel
< 850 N/mm²



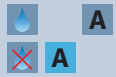
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	220	0.130	6.0	0.8	7005	3645	0.60	•
12	4	220	0.150	8.0	1.0	5835	3500	0.80	•
16	4	220	0.200	12.0	1.2	4375	3500	1.00	•
20	4	220	0.230	14.0	1.6	3500	3220	1.30	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	220	0.130	6.0	1.0	7005	3645	0.80	•
12	4	220	0.150	8.0	1.2	5835	3500	1.00	•
16	4	220	0.200	12.0	1.6	4375	3500	1.30	•

Steel
850 - 1100 N/mm²



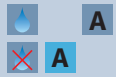
			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	180	0.130	6.0	0.8	5730	2980	0.60	•
12	4	180	0.150	8.0	1.0	4775	2865	0.80	•
16	4	180	0.200	12.0	1.2	3580	2865	1.00	•
20	4	180	0.230	14.0	1.6	2865	2635	1.30	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	180	0.130	6.0	1.0	5730	2980	0.80	•
12	4	180	0.150	8.0	1.2	4775	2865	1.00	•
16	4	180	0.200	12.0	1.6	3580	2865	1.30	•

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	80	0.110	6.0	0.8	2545	1120	0.60	•
12	4	80	0.130	8.0	1.0	2120	1100	0.80	•
16	4	80	0.180	12.0	1.2	1590	1145	1.00	•
20	4	80	0.200	14.0	1.6	1275	1020	1.30	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	80	0.110	6.0	1.0	2545	1120	0.80	•
12	4	80	0.130	8.0	1.2	2120	1100	1.00	•
16	4	80	0.180	12.0	1.6	1590	1145	1.30	•

Cast iron
(lamellar / spheroidal)



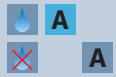
			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	180	0.130	6.0	0.8	5730	2980	0.60	•
12	4	180	0.150	8.0	1.0	4775	2865	0.80	•
16	4	180	0.200	12.0	1.2	3580	2865	1.00	•
20	4	180	0.230	14.0	1.6	2865	2635	1.30	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	180	0.130	6.0	1.0	5730	2980	0.80	•
12	4	180	0.150	8.0	1.2	4775	2865	1.00	•
16	4	180	0.200	12.0	1.6	3580	2865	1.30	•

Application



Material

Steel
< 850 N/mm²



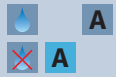
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_p [mm]	a_p [mm]
			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	200	0.065	1.5	10.0	6365	1655	1.30	•
12	4	200	0.080	2.0	12.0	5305	1700	1.80	•
16	4	200	0.110	2.6	16.0	3980	1750	2.40	•
20	4	200	0.150	3.5	20.0	3185	1910	3.20	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	200	0.065	1.8	10.0	6365	1655	1.60	•
12	4	200	0.080	2.4	12.0	5305	1700	2.20	•
16	4	200	0.110	3.0	16.0	3980	1750	2.70	•

Steel
850 - 1100 N/mm²



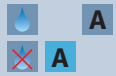
			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	160	0.065	1.5	10.0	5095	1325	1.30	•
12	4	160	0.080	2.0	12.0	4245	1360	1.80	•
16	4	160	0.110	2.6	16.0	3185	1400	2.40	•
20	4	160	0.150	3.5	20.0	2545	1525	3.20	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	160	0.065	1.8	10.0	5095	1325	1.60	•
12	4	160	0.080	2.4	12.0	4245	1360	2.20	•
16	4	160	0.110	3.0	16.0	3185	1400	2.70	•

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	60	0.055	1.5	10.0	1910	420	1.30	•
12	4	60	0.070	2.0	12.0	1590	445	1.80	•
16	4	60	0.090	2.6	16.0	1195	430	2.40	•
20	4	60	0.140	3.5	20.0	955	535	3.20	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	60	0.055	1.8	10.0	1910	420	1.60	•
12	4	60	0.070	2.4	12.0	1590	445	2.20	•
16	4	60	0.090	3.0	16.0	1195	430	2.70	•

Cast iron
(lamellar / spheroidal)



			Carbide shanks, cylindrical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	160	0.065	1.5	10.0	5095	1325	1.30	•
12	4	160	0.080	2.0	12.0	4245	1360	1.80	•
16	4	160	0.110	2.6	16.0	3185	1400	2.40	•
20	4	160	0.150	3.5	20.0	2545	1525	3.20	•
			Carbide shanks, conical, L-Type: N					**L-Type: M**	**L-Type: L**
10	4	160	0.065	1.8	10.0	5095	1325	1.60	•
12	4	160	0.080	2.4	12.0	4245	1360	2.20	•
16	4	160	0.110	3.0	16.0	3185	1400	2.70	•

Cylindrical end mills

Smooth-edged

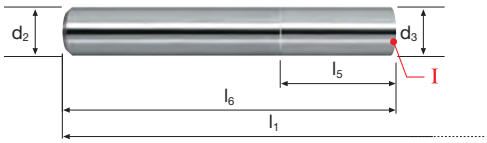
NovoSys X®

HM
UT

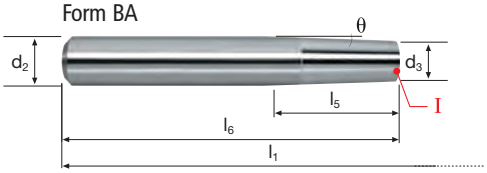
λ 30°
γ 9°

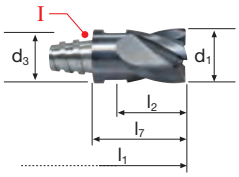
45°

Form AA



Form BA





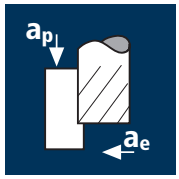
I = Interface

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **Inox** Stainless | **Ti** Titanium | **GG(G)**

Milling heads									**POLYCUT-A**
Order-N°.	d_1 e8	d_3	l_2	l_7	45°	z	i	I	
N-10-01-04-01-10	10	9.8	8	18	0.15	4	8	10	●
N-12-01-04-01-12	12	11.8	10	20	0.15	4	10	12	●
N-16-01-04-01-16	16	15.8	14	32	0.15	4	13	16	●
N-20-01-04-01-20	20	19.8	16	36	0.15	4	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
Steel < 850 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	220	0.130	6.0	0.8	7005	2730	0.60	•
12	3	220	0.150	8.0	1.0	5835	2625	0.80	•
16	3	220	0.200	12.0	1.2	4375	2625	1.00	•
20	3	220	0.230	14.0	1.6	3500	2415	1.30	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	220	0.130	6.0	1.0	7005	2730	0.80	•
12	3	220	0.150	8.0	1.2	5835	2625	1.00	•
16	3	220	0.200	12.0	1.6	4375	2625	1.30	•
Steel 850 - 1100 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	180	0.130	6.0	0.8	5730	2235	0.60	•
12	3	180	0.150	8.0	1.0	4775	2150	0.80	•
16	3	180	0.200	12.0	1.2	3580	2150	1.00	•
20	3	180	0.230	14.0	1.6	2865	1975	1.30	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	180	0.130	6.0	1.0	5730	2235	0.80	•
12	3	180	0.150	8.0	1.2	4775	2150	1.00	•
16	3	180	0.200	12.0	1.6	3580	2150	1.30	•
Cold work tool steel (12% Cr), high alloyed [1.2379]									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	80	0.110	6.0	0.8	2545	840	0.60	•
12	3	80	0.130	8.0	1.0	2120	825	0.80	•
16	3	80	0.180	12.0	1.2	1590	860	1.00	•
20	3	80	0.200	14.0	1.6	1275	765	1.30	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	80	0.110	6.0	1.0	2545	840	0.80	•
12	3	80	0.130	8.0	1.2	2120	825	1.00	•
16	3	80	0.180	12.0	1.6	1590	860	1.30	•
Cast iron (lamellar / spheroidal)									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	180	0.130	6.0	0.8	5730	2235	0.60	•
12	3	180	0.150	8.0	1.0	4775	2150	0.80	•
16	3	180	0.200	12.0	1.2	3580	2150	1.00	•
20	3	180	0.230	14.0	1.6	2865	1975	1.30	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	180	0.130	6.0	1.0	5730	2235	0.80	•
12	3	180	0.150	8.0	1.2	4775	2150	1.00	•
16	3	180	0.200	12.0	1.6	3580	2150	1.30	•

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_p [mm]	a_p [mm]
Steel < 850 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	200	0.065	1.5	10.0	6365	1240	1.30	•
12	3	200	0.080	2.0	12.0	5305	1275	1.80	•
16	3	200	0.110	2.6	16.0	3980	1315	2.40	•
20	3	200	0.150	3.5	20.0	3185	1435	3.20	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	200	0.065	1.8	10.0	6365	1240	1.60	•
12	3	200	0.080	2.4	12.0	5305	1275	2.20	•
16	3	200	0.110	3.0	16.0	3980	1315	2.70	•
Steel 850 - 1100 N/mm²									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	160	0.065	1.5	10.0	5095	995	1.30	•
12	3	160	0.080	2.0	12.0	4245	1020	1.80	•
16	3	160	0.110	2.6	16.0	3185	1050	2.40	•
20	3	160	0.150	3.5	20.0	2545	1145	3.20	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	160	0.065	1.8	10.0	5095	995	1.60	•
12	3	160	0.080	2.4	12.0	4245	1020	2.20	•
16	3	160	0.110	3.0	16.0	3185	1050	2.70	•
Cold work tool steel (12% Cr), high alloyed [1.2379]									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	60	0.055	1.5	10.0	1910	315	1.30	•
12	3	60	0.070	2.0	12.0	1590	335	1.80	•
16	3	60	0.090	2.6	16.0	1195	325	2.40	•
20	3	60	0.140	3.5	20.0	955	400	3.20	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	60	0.055	1.8	10.0	1910	315	1.60	•
12	3	60	0.070	2.4	12.0	1590	335	2.20	•
16	3	60	0.090	3.0	16.0	1195	325	2.70	•
Cast iron (lamellar / spheroidal)									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	160	0.065	1.5	10.0	5095	995	1.30	•
12	3	160	0.080	2.0	12.0	4245	1020	1.80	•
16	3	160	0.110	2.6	16.0	3185	1050	2.40	•
20	3	160	0.150	3.5	20.0	2545	1145	3.20	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	3	160	0.065	1.8	10.0	5095	995	1.60	•
12	3	160	0.080	2.4	12.0	4245	1020	2.20	•
16	3	160	0.110	3.0	16.0	3185	1050	2.70	•

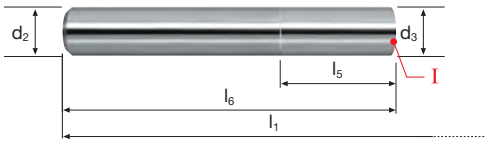
Cylindrical end mills

Smooth-edged

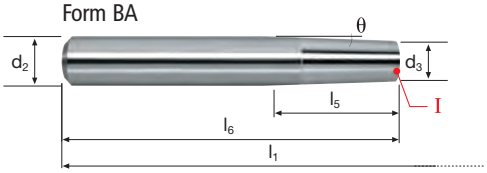
NovoSys X®

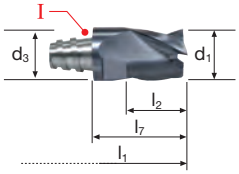
HM UT	λ 30° γ 9°
45°	

Form AA



Form BA





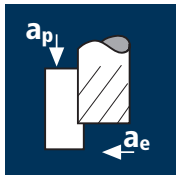
I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	45°	z	i	I		
N-10-01-03-01-10	10	9.8	8	18	0.15	3	8	10		●
N-12-01-03-01-12	12	11.8	10	20	0.15	3	10	12		●
N-16-01-03-01-16	16	15.8	14	32	0.15	3	13	16		●
N-20-01-03-01-20	20	19.8	16	36	0.15	3	17	20		●

Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
Steel < 850 N/mm² — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	200	0.040	6.0	4.0	6365	1020	3.20	•
12	4	200	0.050	8.0	4.8	5305	1060	3.80	•
16	5	200	0.070	12.0	6.4	3980	1395	5.10	•
20	6	200	0.090	14.0	8.0	3185	1720	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	200	0.040	6.0	4.4	6365	1020	3.50	•
12	4	200	0.050	8.0	5.3	5305	1060	4.20	•
16	5	200	0.070	12.0	7.0	3980	1395	5.60	•
Steel 850 - 1100 N/mm² — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.030	6.0	4.0	5095	610	3.20	•
12	4	160	0.040	8.0	4.8	4245	680	3.80	•
16	5	160	0.055	12.0	6.4	3185	875	5.10	•
20	6	160	0.070	14.0	8.0	2545	1070	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.030	6.0	4.4	5095	610	3.50	•
12	4	160	0.040	8.0	5.3	4245	680	4.20	•
16	5	160	0.055	12.0	7.0	3185	875	5.60	•
Cold work tool steel (12% Cr), high alloyed [1.2379] — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	60	0.030	6.0	4.0	1910	230	3.20	•
12	4	60	0.040	8.0	4.8	1590	255	3.80	•
16	5	60	0.055	12.0	6.4	1195	330	5.10	•
20	6	60	0.070	14.0	8.0	955	400	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	60	0.030	6.0	4.4	1910	230	3.50	•
12	4	60	0.040	8.0	5.3	1590	255	4.20	•
16	5	60	0.055	12.0	7.0	1195	330	5.60	•
Cast iron (lamellar / spheroidal) — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.040	6.0	4.0	5095	815	3.20	•
12	4	160	0.050	8.0	4.8	4245	850	3.80	•
16	5	160	0.070	12.0	6.4	3185	1115	5.10	•
20	6	160	0.090	14.0	8.0	2545	1375	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	160	0.040	6.0	4.4	5095	815	3.50	•
12	4	160	0.050	8.0	5.3	4245	850	4.20	•
16	5	160	0.070	12.0	7.0	3185	1115	5.60	•

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_p [mm]	a_p [mm]
Steel < 850 N/mm² — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.040	4.0	10.0	5730	915	3.20	•
12	4	180	0.050	4.8	12.0	4775	955	3.80	•
16	5	180	0.065	6.4	16.0	3580	1165	5.10	•
20	6	180	0.080	8.0	20.0	2865	1375	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	180	0.040	4.4	10.0	5730	915	3.50	•
12	4	180	0.050	5.3	12.0	4775	955	4.20	•
16	5	180	0.065	7.0	16.0	3580	1165	5.60	•
Steel 850 - 1100 N/mm² — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	140	0.030	4.0	10.0	4455	535	3.20	•
12	4	140	0.040	4.8	12.0	3715	595	3.80	•
16	5	140	0.050	6.4	16.0	2785	695	5.10	•
20	6	140	0.065	8.0	20.0	2230	870	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	140	0.030	4.4	10.0	4455	535	3.50	•
12	4	140	0.040	5.3	12.0	3715	595	4.20	•
16	5	140	0.050	7.0	16.0	2785	695	5.60	•
Cold work tool steel (12% Cr), high alloyed [1.2379] — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	50	0.030	4.0	10.0	1590	190	3.20	•
12	4	50	0.040	4.8	12.0	1325	210	3.80	•
16	5	50	0.050	6.4	16.0	995	250	5.10	•
20	6	50	0.065	8.0	20.0	795	310	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	50	0.030	4.4	10.0	1590	190	3.50	•
12	4	50	0.040	5.3	12.0	1325	210	4.20	•
16	5	50	0.050	7.0	16.0	995	250	5.60	•
Cast iron (lamellar / spheroidal) — A / A									
	Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	140	0.040	4.0	10.0	4455	715	3.20	•
12	4	140	0.050	4.8	12.0	3715	745	3.80	•
16	5	140	0.065	6.4	16.0	2785	905	5.10	•
20	6	140	0.080	8.0	20.0	2230	1070	6.40	•
	Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
10	4	140	0.040	4.4	10.0	4455	715	3.50	•
12	4	140	0.050	5.3	12.0	3715	745	4.20	•
16	5	140	0.065	7.0	16.0	2785	905	5.60	•

Cylindrical end mills

Profiled

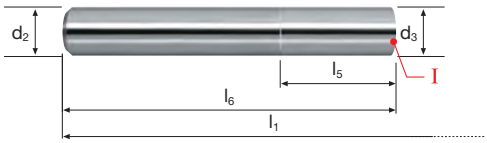
NovoSys X®

HM
UT

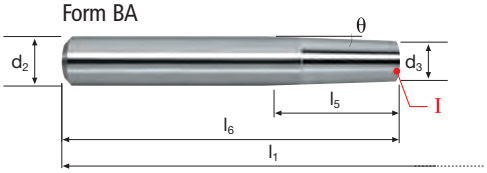
λ 45°
γ 8°

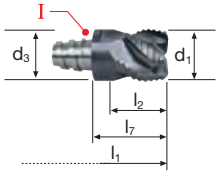
45°

Form AA



Form BA





I = Interface

Rm < 850 | **Rm** 850-1100 | **Rm** 1100-1300 | **Ti** Titanium | **GG(G)**

Milling heads									POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	45°	z	i	I	
NR-10-01-04-03-10	10	9.8	7	13.0	0.35	4	8	10	●
NR-12-01-04-03-12	12	11.8	9	16.5	0.35	4	10	12	●
NR-16-01-05-04-16	16	15.8	13	20.5	0.45	5	13	16	●
NR-20-01-06-04-20	20	19.8	15	25.5	0.45	6	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		78.0		65		N	10	●
AA-10-080-040-10	10	9.8	93.0	40	80		M	10	●
AA-10-120-080-10	10	9.8	133.0	80	120		L	10	●
AA-12-070-000-12	12		86.5		70		N	12	●
AA-12-085-040-12	12	11.8	101.5	40	85		M	12	●
AA-12-120-075-12	12	11.8	136.5	75	120		L	12	●
AA-16-080-032-16	16	15.8	100.5	32	80		N	16	●
AA-16-110-062-16	16	15.8	130.5	62	110		M	16	●
AA-20-090-040-20	20	19.8	115.5	40	90		N	20	●
AA-20-150-100-20	20	19.8	175.5	100	150		L	20	●
BA-12-080-032-10	12	9.8	93.0	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	133.0	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	136.5	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	156.5	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	140.5	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	180.5	80	160	1.5°	L	16	●


fraisa

NovoSys X® milling heads for 3D machining

Ball nose, Tolerance r ±0.01

N° X-10-200-02-50-10 	d1 10 – 20	**HM XT**		**Rm** 1100-1500	**HRC** 48-60		729
N° X-11-201-02-55-10 	d1 11 – 22	**HM XT**		**Rm** 1100-1500	**HRC** 48-60		731
N° X-10-202-02-50-10 	d1 10 – 20	**HM XA**		**Rm** 1100-1500	**HRC** 48- > 60		733
N° H-10-03-02-50-10 	d1 10 – 20	**HM UT**		**Rm** 1100-1500	**HRC** 48-60		735
N° N-10-03-02-50-10 	d1 10 – 20	**HM UT**		**Rm** 850-1500			737

Corner radius

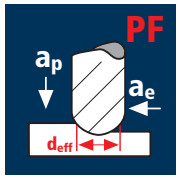
N° X-10-100-06-05-10 	d1 10 – 20 r 0.5	**HM XT**		**Rm** 1100-1500	**HRC** 48- > 60		739
N° X-10-101-06-10-10 	d1 10 – 20 r 1.0	**HM XT**		**Rm** 1100-1500	**HRC** 48- > 60		741
N° H-10-02-04-05-10 	d1 10 – 20 r 0.5	**HM UT**		**Rm** 1100-1500	**HRC** 48-60		743
N° H-10-02-04-10-10 	d1 10 – 20 r 1.0	**HM UT**		**Rm** 1100-1500	**HRC** 48-60		745
N° N-10-02-04-05-10 	d1 10 – 20 r 0.5	**HM UT**		**Rm** <850-1300			747
N° N-10-02-04-10-10 	d1 10 – 20 r 1.0	**HM UT**		**Rm** <850-1300			749
N° N-10-02-04-15-10 	d1 10 – 20 r 1.5	**HM UT**		**Rm** <850-1300			751

High Feed Cutting (HFC)

N° X-10-300-04-09-10 	d1 10 – 20	**HM XT**	HFC 	**Rm** 850-1500	**HRC** 48- > 60		753

VII

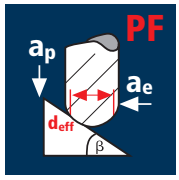
Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
Hardened tool steel 42 - 48 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	160	0.145	0.80	1.20	5.43	9380	2720	0.48	11910
12	2	160	0.150	0.96	1.44	6.51	7825	2350	0.58	9895
16	2	160	0.160	1.28	1.92	8.68	5865	1875	0.77	7435
20	2	160	0.170	1.60	2.40	10.85	4695	1595	0.96	5955
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	160	0.150	0.80	1.20	5.43	9380	2815	0.48	11910
12	2	160	0.160	0.96	1.44	6.51	7825	2505	0.58	9895
16	2	160	0.170	1.28	1.92	8.68	5865	1995	0.77	7435
Hardened tool steel 48 - 52 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	130	0.135	0.80	1.20	5.43	7620	2055	0.48	9680
12	2	130	0.140	0.96	1.44	6.51	6355	1780	0.58	8040
16	2	130	0.145	1.28	1.92	8.68	4765	1380	0.77	6040
20	2	130	0.155	1.60	2.40	10.85	3815	1185	0.96	4840
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	130	0.140	0.80	1.20	5.43	7620	2135	0.48	9680
12	2	130	0.145	0.96	1.44	6.51	6355	1845	0.58	8040
16	2	130	0.155	1.28	1.92	8.68	4765	1475	0.77	6040
Hardened tool steel 52 - 56 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	110	0.125	0.80	1.20	5.43	6450	1615	0.48	8190
12	2	110	0.130	0.96	1.44	6.51	5380	1400	0.58	6800
16	2	110	0.135	1.28	1.92	8.68	4035	1090	0.77	5110
20	2	110	0.145	1.60	2.40	10.85	3225	935	0.96	4095
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	110	0.130	0.80	1.20	5.43	6450	1675	0.48	8190
12	2	110	0.135	0.96	1.44	6.51	5380	1455	0.58	6800
16	2	110	0.145	1.28	1.92	8.68	4035	1170	0.77	5110
Hardened tool steel 56 - 60 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	50	0.085	0.24	0.72	3.06	5200	885	0.14	6775
12	2	50	0.090	0.29	0.86	3.69	4315	775	0.17	5610
16	2	50	0.095	0.38	1.15	4.87	3270	620	0.23	4180
20	2	50	0.100	0.48	1.44	6.12	2600	520	0.29	3330
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	50	0.090	0.24	0.72	3.06	5200	935	0.14	6775
12	2	50	0.095	0.29	0.86	3.69	4315	820	0.17	5610
16	2	50	0.100	0.38	1.15	4.87	3270	655	0.23	4180

Application



Material

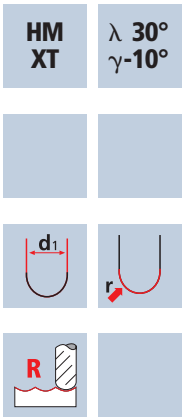
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
Hardened tool steel 42 - 48 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	180	0.145	0.80	0.80	9.78	5860	1700	0.56	6010
12	2	180	0.150	0.96	0.96	11.73	4885	1465	0.67	5010
16	2	180	0.160	1.28	1.28	15.64	3665	1175	0.90	3755
20	2	180	0.170	1.60	1.60	19.55	2930	995	1.12	3005
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	180	0.150	0.80	0.80	9.78	5860	1760	0.56	6010
12	2	180	0.160	0.96	0.96	11.73	4885	1565	0.67	5010
16	2	180	0.170	1.28	1.28	15.64	3665	1245	0.90	3755
Hardened tool steel 48 - 52 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	150	0.135	0.80	0.80	9.78	4880	1320	0.56	5010
12	2	150	0.140	0.96	0.96	11.73	4070	1140	0.67	4175
16	2	150	0.145	1.28	1.28	15.64	3055	885	0.90	3130
20	2	150	0.155	1.60	1.60	19.55	2440	755	1.12	2505
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	150	0.140	0.80	0.80	9.78	4880	1365	0.56	5010
12	2	150	0.145	0.96	0.96	11.73	4070	1180	0.67	4175
16	2	150	0.155	1.28	1.28	15.64	3055	945	0.90	3130
Hardened tool steel 52 - 56 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	120	0.125	0.80	0.80	9.78	3905	975	0.56	4010
12	2	120	0.130	0.96	0.96	11.73	3255	845	0.67	3340
16	2	120	0.135	1.28	1.28	15.64	2440	660	0.90	2505
20	2	120	0.145	1.60	1.60	19.55	1955	565	1.12	2005
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	120	0.130	0.80	0.80	9.78	3905	1015	0.56	4010
12	2	120	0.135	0.96	0.96	11.73	3255	880	0.67	3340
16	2	120	0.145	1.28	1.28	15.64	2440	710	0.90	2505
Hardened tool steel 56 - 60 HRC										
	Carbide shanks, cylindrical, L-Type: N								**L-Type: M**	
10	2	60	0.100	0.40	0.40	9.28	2060	410	0.28	2120
12	2	60	0.105	0.48	0.48	11.13	1715	360	0.34	1765
16	2	60	0.110	0.64	0.64	14.84	1285	285	0.45	1325
20	2	60	0.120	0.80	0.80	18.55	1030	245	0.56	1060
	Carbide shanks, conical, L-Type: N								**L-Type: M**	
10	2	60	0.105	0.40	0.40	9.28	2060	435	0.28	2120
12	2	60	0.110	0.48	0.48	11.13	1715	375	0.34	1765
16	2	60	0.120	0.64	0.64	14.84	1285	310	0.45	1325

Ball nose end mills Sphero-XR

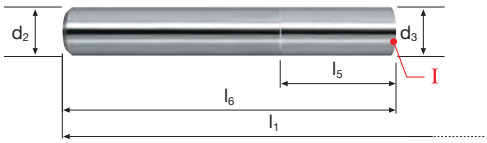
Tolerance r ±0.01

NovoSys X®

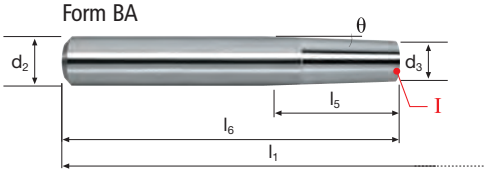
HM XT | λ 30° γ-10°

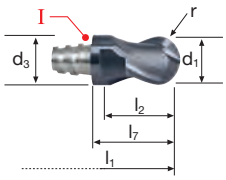


Form AA



Form BA





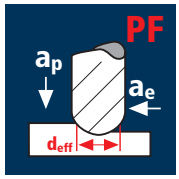
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Milling heads									X-AL
Order-N°.	d1 0/-0.02	d3	l2	l7	r ±0.01	z	i	I	
X-10-200-02-50-10	10	9.8	8	18	5.0	2	8	10	●
X-12-200-02-60-12	12	11.8	10	20	6.0	2	10	12	●
X-16-200-02-80-16	16	15.8	14	32	8.0	2	13	16	●
X-20-200-02-100-20	20	19.8	16	36	10.0	2	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	160	0.145	0.88	1.32	5.97	8530	2475	0.53	10810
13	2	160	0.150	1.04	1.56	7.05	7225	2170	0.62	9190
18	2	160	0.160	1.44	2.16	9.77	5215	1670	0.86	6635
22	2	160	0.170	1.76	2.64	11.94	4265	1450	1.06	5405
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	160	0.150	0.88	1.32	5.97	8530	2560	0.53	10810
13	2	160	0.160	1.04	1.56	7.05	7225	2310	0.62	9190
18	2	160	0.170	1.44	2.16	9.77	5215	1775	0.86	6635

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	130	0.135	0.88	1.32	5.97	6930	1870	0.53	8785
13	2	130	0.140	1.04	1.56	7.05	5870	1645	0.62	7470
18	2	130	0.145	1.44	2.16	9.77	4235	1230	0.86	5390
22	2	130	0.155	1.76	2.64	11.94	3465	1075	1.06	4390
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	130	0.140	0.88	1.32	5.97	6930	1940	0.53	8785
13	2	130	0.145	1.04	1.56	7.05	5870	1700	0.62	7470
18	2	130	0.155	1.44	2.16	9.77	4235	1315	0.86	5390

Hardened tool steel 52 - 56 HRC

X

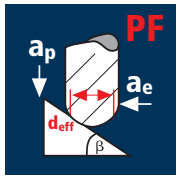
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	110	0.125	0.88	1.32	5.97	5865	1465	0.53	7430
13	2	110	0.130	1.04	1.56	7.05	4965	1290	0.62	6320
18	2	110	0.135	1.44	2.16	9.77	3585	970	0.86	4560
22	2	110	0.145	1.76	2.64	11.94	2935	850	1.06	3715
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	110	0.130	0.88	1.32	5.97	5865	1525	0.53	7430
13	2	110	0.135	1.04	1.56	7.05	4965	1340	0.62	6320
18	2	110	0.145	1.44	2.16	9.77	3585	1040	0.86	4560

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	50	0.085	0.26	0.79	3.34	4765	810	0.16	6040
13	2	50	0.090	0.31	0.94	3.97	4010	720	0.19	5100
18	2	50	0.095	0.43	1.30	5.50	2895	550	0.26	3705
22	2	50	0.100	0.53	1.58	6.75	2360	470	0.32	3020
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	50	0.090	0.26	0.79	3.34	4765	860	0.16	6040
13	2	50	0.095	0.31	0.94	3.97	4010	760	0.19	5100
18	2	50	0.100	0.43	1.30	5.50	2895	580	0.26	3705

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	180	0.145	0.88	0.88	10.75	5330	1545	0.62	5460
13	2	180	0.150	1.04	1.04	12.71	4510	1355	0.73	4625
18	2	180	0.160	1.44	1.44	17.60	3255	1040	1.01	3340
22	2	180	0.170	1.76	1.76	21.51	2665	905	1.23	2735
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	180	0.150	0.88	0.88	10.75	5330	1600	0.62	5460
13	2	180	0.160	1.04	1.04	12.71	4510	1445	0.73	4625
18	2	180	0.170	1.44	1.44	17.60	3255	1105	1.01	3340

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	150	0.135	0.88	0.88	10.75	4440	1200	0.62	4550
13	2	150	0.140	1.04	1.04	12.71	3755	1050	0.73	3855
18	2	150	0.145	1.44	1.44	17.60	2715	785	1.01	2785
22	2	150	0.155	1.76	1.76	21.51	2220	690	1.23	2275
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	150	0.140	0.88	0.88	10.75	4440	1245	0.62	4550
13	2	150	0.145	1.04	1.04	12.71	3755	1090	0.73	3855
18	2	150	0.155	1.44	1.44	17.60	2715	840	1.01	2785

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	120	0.125	0.88	0.88	10.75	3555	890	0.62	3640
13	2	120	0.130	1.04	1.04	12.71	3005	780	0.73	3080
18	2	120	0.135	1.44	1.44	17.60	2170	585	1.01	2225
22	2	120	0.145	1.76	1.76	21.51	1775	515	1.23	1820
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	120	0.130	0.88	0.88	10.75	3555	925	0.62	3640
13	2	120	0.135	1.04	1.04	12.71	3005	810	0.73	3080
18	2	120	0.145	1.44	1.44	17.60	2170	630	1.01	2225

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
11	2	60	0.100	0.44	0.44	10.20	1870	375	0.31	1925
13	2	60	0.105	0.52	0.52	12.06	1585	335	0.36	1630
18	2	60	0.110	0.72	0.72	16.70	1145	250	0.50	1180
22	2	60	0.120	0.88	0.88	20.41	935	225	0.62	965
	Carbide shanks, conical, L-Type: N								L-Type: M	
11	2	60	0.105	0.44	0.44	10.20	1870	395	0.31	1925
13	2	60	0.110	0.52	0.52	12.06	1585	350	0.36	1630
18	2	60	0.120	0.72	0.72	16.70	1145	275	0.50	1180

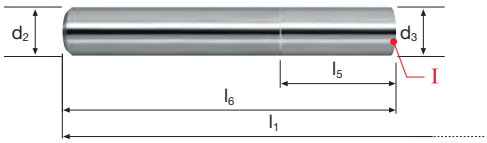
Ball nose end mills Sphero-XR

Tolerance r ±0.01, d1 cutting diameter with excess

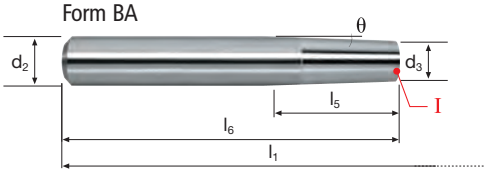
NovoSys X®

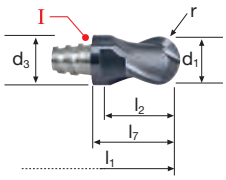
HM XT	λ 30° γ-10°
d1	r
R	

Form AA



Form BA





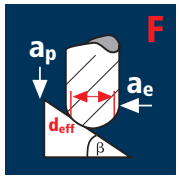
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Milling heads									X-AL
Order-N°.	d1 0/-0.02	d3	l2	l7	r ±0.01	z	i	I	
X-11-201-02-55-10	11	9.8	8	18	5.5	2	8	10	●
X-13-201-02-65-12	13	11.8	10	20	6.5	2	10	12	●
X-18-201-02-90-16	18	15.8	14	32	9.0	2	13	16	●
X-22-201-02-110-20	22	19.8	16	36	11.0	2	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	300	0.100	0.20	0.20	8.77	10890	2180	0.18	0.12
12	2	300	0.105	0.25	0.25	10.56	9045	1900	0.23	0.15
16	2	300	0.110	0.30	0.30	13.96	6840	1505	0.27	0.18
20	2	300	0.120	0.35	0.35	17.36	5500	1320	0.32	0.21
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	300	0.105	0.20	0.20	8.77	10890	2285	0.18	0.12
12	2	300	0.110	0.25	0.25	10.56	9045	1990	0.23	0.15
16	2	300	0.120	0.30	0.30	13.96	6840	1640	0.27	0.18

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	250	0.095	0.20	0.20	8.77	9075	1725	0.18	0.12
12	2	250	0.100	0.25	0.25	10.56	7535	1505	0.23	0.15
16	2	250	0.105	0.30	0.30	13.96	5700	1195	0.27	0.18
20	2	250	0.115	0.35	0.35	17.36	4585	1055	0.32	0.21
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	250	0.100	0.20	0.20	8.77	9075	1815	0.18	0.12
12	2	250	0.105	0.25	0.25	10.56	7535	1580	0.23	0.15
16	2	250	0.115	0.30	0.30	13.96	5700	1310	0.27	0.18

Hardened tool steel 52 - 56 HRC

X

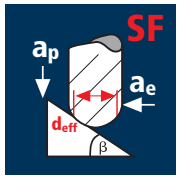
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.090	0.20	0.20	8.77	7260	1305	0.18	0.12
12	2	200	0.095	0.25	0.25	10.56	6030	1145	0.23	0.15
16	2	200	0.100	0.30	0.30	13.96	4560	910	0.27	0.18
20	2	200	0.110	0.35	0.35	17.36	3665	805	0.32	0.21
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.095	0.20	0.20	8.77	7260	1380	0.18	0.12
12	2	200	0.100	0.25	0.25	10.56	6030	1205	0.23	0.15
16	2	200	0.110	0.30	0.30	13.96	4560	1005	0.27	0.18

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	150	0.085	0.20	0.20	8.77	5445	925	0.18	0.12
12	2	150	0.090	0.25	0.25	10.56	4520	815	0.23	0.15
16	2	150	0.095	0.30	0.30	13.96	3420	650	0.27	0.18
20	2	150	0.100	0.35	0.35	17.36	2750	550	0.32	0.21
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	150	0.090	0.20	0.20	8.77	5445	980	0.18	0.12
12	2	150	0.095	0.25	0.25	10.56	4520	860	0.23	0.15
16	2	150	0.100	0.30	0.30	13.96	3420	685	0.27	0.18

Application



Material

Hardened tool steel 42 - 48 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	400	0.070	0.04	0.04	7.91	16095	2255	0.04	0.03
12	2	400	0.075	0.04	0.04	9.41	13530	2030	0.04	0.03
16	2	400	0.080	0.05	0.05	12.51	10180	1630	0.05	0.04
20	2	400	0.085	0.05	0.05	15.48	8225	1400	0.05	0.04
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	400	0.070	0.04	0.04	7.91	16095	2255	0.04	0.03
12	2	400	0.075	0.04	0.04	9.41	13530	2030	0.04	0.03
16	2	400	0.080	0.05	0.05	12.51	10180	1630	0.05	0.04

Hardened tool steel 48 - 52 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	350	0.065	0.04	0.04	7.91	14085	1830	0.04	0.03
12	2	350	0.070	0.04	0.04	9.41	11840	1660	0.04	0.03
16	2	350	0.075	0.05	0.05	12.51	8905	1335	0.05	0.04
20	2	350	0.080	0.05	0.05	15.48	7195	1150	0.05	0.04
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	350	0.065	0.04	0.04	7.91	14085	1830	0.04	0.03
12	2	350	0.070	0.04	0.04	9.41	11840	1660	0.04	0.03
16	2	350	0.075	0.05	0.05	12.51	8905	1335	0.05	0.04

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	280	0.060	0.04	0.04	7.91	11270	1350	0.04	0.03
12	2	280	0.065	0.04	0.04	9.41	9470	1230	0.04	0.03
16	2	280	0.070	0.05	0.05	12.51	7125	1000	0.05	0.04
20	2	280	0.070	0.05	0.05	15.48	5760	805	0.05	0.04
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	280	0.060	0.04	0.04	7.91	11270	1350	0.04	0.03
12	2	280	0.065	0.04	0.04	9.41	9470	1230	0.04	0.03
16	2	280	0.070	0.05	0.05	12.51	7125	1000	0.05	0.04

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	180	0.055	0.04	0.04	7.91	7245	795	0.04	0.03
12	2	180	0.055	0.04	0.04	9.41	6090	670	0.04	0.03
16	2	180	0.060	0.05	0.05	12.51	4580	550	0.05	0.04
20	2	180	0.065	0.05	0.05	15.48	3700	480	0.05	0.04
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	180	0.055	0.04	0.04	7.91	7245	795	0.04	0.03
12	2	180	0.055	0.04	0.04	9.41	6090	670	0.04	0.03
16	2	180	0.060	0.05	0.05	12.51	4580	550	0.05	0.04

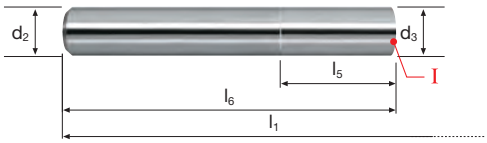
Ball nose end mills Sphero-XF

Tolerance r ±0.01

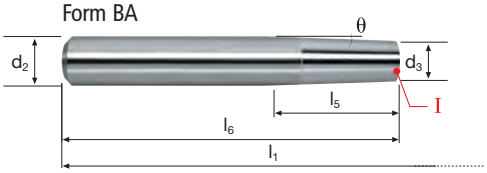
NovoSys X®

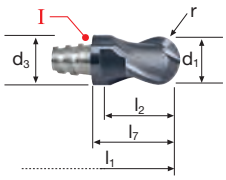
HM XA	λ 30° γ-10°
d1	r
	F

Form AA



Form BA





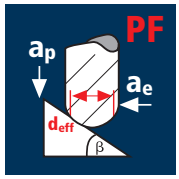
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	Copper

Milling heads										X-AL
Order-N°.	d1 0/-0.02	d3	l2	l7	r ±0.01	z	i	I		
X-10-202-02-50-10	10	9.8	8	18	5.0	2	8	10		●
X-12-202-02-60-12	12	11.8	10	20	6.0	2	10	12		●
X-16-202-02-80-16	16	15.8	14	32	8.0	2	13	16		●
X-20-202-02-100-20	20	19.8	16	36	10.0	2	17	20		●

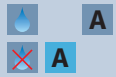
Carbide shanks, Form AA / BA										
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



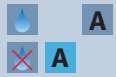
Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	160	0.125	0.40	0.50	9.28	5490	1375	0.28	5655
12	2	160	0.130	0.48	0.60	11.13	4575	1190	0.34	4705
16	2	160	0.140	0.64	0.80	14.84	3430	960	0.45	3530
20	2	160	0.150	0.80	1.00	18.55	2745	825	0.56	2825
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	160	0.130	0.40	0.50	9.28	5490	1425	0.28	5655
12	2	160	0.140	0.48	0.60	11.13	4575	1280	0.34	4705
16	2	160	0.150	0.64	0.80	14.84	3430	1030	0.45	3530

Hardened tool steel 48 - 52 HRC



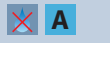
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	120	0.115	0.40	0.50	9.28	4115	945	0.28	4240
12	2	120	0.120	0.48	0.60	11.13	3430	825	0.34	3530
16	2	120	0.130	0.64	0.80	14.84	2575	670	0.45	2650
20	2	120	0.140	0.80	1.00	18.55	2060	575	0.56	2120
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	120	0.120	0.40	0.50	9.28	4115	990	0.28	4240
12	2	120	0.130	0.48	0.60	11.13	3430	890	0.34	3530
16	2	120	0.140	0.64	0.80	14.84	2575	720	0.45	2650

Hardened tool steel 52 - 56 HRC



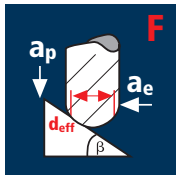
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	100	0.105	0.40	0.50	9.28	3430	720	0.28	3535
12	2	100	0.110	0.48	0.60	11.13	2860	630	0.34	2940
16	2	100	0.120	0.64	0.80	14.84	2145	515	0.45	2210
20	2	100	0.130	0.80	1.00	18.55	1715	445	0.56	1765
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	100	0.110	0.40	0.50	9.28	3430	755	0.28	3535
12	2	100	0.120	0.48	0.60	11.13	2860	685	0.34	2940
16	2	100	0.130	0.64	0.80	14.84	2145	560	0.45	2210

Hardened tool steel 56 - 60 HRC



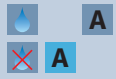
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	50	0.090	0.20	0.25	8.77	1815	325	0.14	1865
12	2	50	0.090	0.24	0.30	10.52	1515	275	0.17	1555
16	2	50	0.100	0.32	0.40	14.03	1135	225	0.22	1165
20	2	50	0.105	0.40	0.50	17.54	905	190	0.28	930
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	50	0.090	0.20	0.25	8.77	1815	325	0.14	1865
12	2	50	0.100	0.24	0.30	10.52	1515	305	0.17	1555
16	2	50	0.105	0.32	0.40	14.03	1135	240	0.22	1165

Application



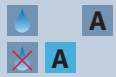
Material

Hardened tool steel 42 - 48 HRC



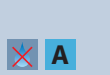
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	250	0.080	0.20	0.20	8.77	9075	1450	0.18	0.10
12	2	250	0.095	0.25	0.25	10.56	7535	1430	0.23	0.13
16	2	250	0.105	0.30	0.30	13.96	5700	1195	0.27	0.15
20	2	250	0.100	0.35	0.35	17.36	4585	915	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	250	0.105	0.20	0.20	8.77	9075	1905	0.18	0.10
12	2	250	0.110	0.25	0.25	10.56	7535	1660	0.23	0.13
16	2	250	0.120	0.30	0.30	13.96	5700	1370	0.27	0.15

Hardened tool steel 48 - 52 HRC



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.075	0.20	0.20	8.77	7260	1090	0.18	0.10
12	2	200	0.090	0.25	0.25	10.56	6030	1085	0.23	0.13
16	2	200	0.100	0.30	0.30	13.96	4560	910	0.27	0.15
20	2	200	0.095	0.35	0.35	17.36	3665	695	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.100	0.20	0.20	8.77	7260	1450	0.18	0.10
12	2	200	0.105	0.25	0.25	10.56	6030	1265	0.23	0.13
16	2	200	0.115	0.30	0.30	13.96	4560	1050	0.27	0.15

Hardened tool steel 52 - 56 HRC



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	180	0.070	0.20	0.20	8.77	6535	915	0.18	0.10
12	2	180	0.080	0.25	0.25	10.56	5425	870	0.23	0.13
16	2	180	0.095	0.30	0.30	13.96	4105	780	0.27	0.15
20	2	180	0.090	0.35	0.35	17.36	3300	595	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	180	0.095	0.20	0.20	8.77	6535	1240	0.18	0.10
12	2	180	0.100	0.25	0.25	10.56	5425	1085	0.23	0.13
16	2	180	0.110	0.30	0.30	13.96	4105	905	0.27	0.15

Hardened tool steel 56 - 60 HRC



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	120	0.070	0.20	0.20	8.77	4355	610	0.18	0.10
12	2	120	0.070	0.25	0.25	10.56	3615	505	0.23	0.13
16	2	120	0.090	0.30	0.30	13.96	2735	490	0.27	0.15
20	2	120	0.085	0.35	0.35	17.36	2200	375	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	120	0.090	0.20	0.20	8.77	4355	785	0.18	0.10
12	2	120	0.095	0.25	0.25	10.56	3615	685	0.23	0.13
16	2	120	0.100	0.30	0.30	13.96	2735	545	0.27	0.15

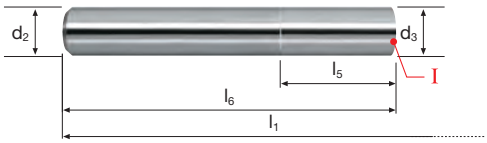
Ball nose end mills

Tolerance r ±0.01

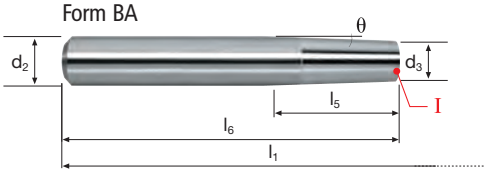
NovoSys X®

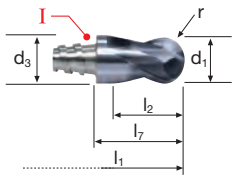
HM UT	λ 30° γ 0°

Form AA



Form BA





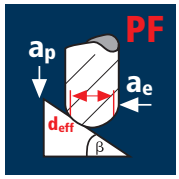
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			

Milling heads									POLYCUT-A
Order-N°.	d1 ±0.02	d3	l2	l7	r ±0.01	z	i	I	
H-10-03-02-50-10	10	9.8	8	18	5.0	2	8	10	●
H-12-03-02-60-12	12	11.8	10	20	6.0	2	10	12	●
H-16-03-02-80-16	16	15.8	12	32	8.0	2	13	16	●
H-20-03-02-100-20	20	19.8	14	36	10.0	2	17	20	●

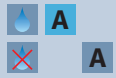
Carbide shanks, Form AA / BA									
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Steel
850 - 1100 N/mm²



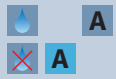
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	200	0.135	0.40	0.50	9.28	6860	1850	0.28	7065
12	2	200	0.140	0.48	0.60	11.13	5720	1600	0.34	5885
16	2	200	0.150	0.64	0.80	14.84	4290	1285	0.45	4415
20	2	200	0.160	0.80	1.00	18.55	3430	1100	0.56	3535
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	200	0.140	0.40	0.50	9.28	6860	1920	0.28	7065
12	2	200	0.150	0.48	0.60	11.13	5720	1715	0.34	5885
16	2	200	0.155	0.64	0.80	14.84	4290	1330	0.45	4415

Steel
1100 - 1300 N/mm²



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	180	0.125	0.40	0.50	9.28	6175	1545	0.28	6360
12	2	180	0.130	0.48	0.60	11.13	5150	1340	0.34	5295
16	2	180	0.140	0.64	0.80	14.84	3860	1080	0.45	3975
20	2	180	0.145	0.80	1.00	18.55	3090	895	0.56	3180
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	180	0.130	0.40	0.50	9.28	6175	1605	0.28	6360
12	2	180	0.140	0.48	0.60	11.13	5150	1440	0.34	5295
16	2	180	0.145	0.64	0.80	14.84	3860	1120	0.45	3975

Steel
1300 - 1500 N/mm²



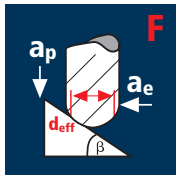
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	150	0.115	0.40	0.50	9.28	5145	1185	0.28	5300
12	2	150	0.120	0.48	0.60	11.13	4290	1030	0.34	4415
16	2	150	0.130	0.64	0.80	14.84	3215	835	0.45	3310
20	2	150	0.135	0.80	1.00	18.55	2575	695	0.56	2650
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	150	0.120	0.40	0.50	9.28	5145	1235	0.28	5300
12	2	150	0.130	0.48	0.60	11.13	4290	1115	0.34	4415
16	2	150	0.130	0.64	0.80	14.84	3215	835	0.45	3310

Stainless steel
[Cr-Ni-Mo-.../1.4571]



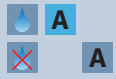
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	
10	2	60	0.095	0.20	0.25	8.77	2180	415	0.14	2240
12	2	60	0.100	0.24	0.30	10.52	1815	365	0.17	1865
16	2	60	0.105	0.32	0.40	14.03	1360	285	0.22	1400
20	2	60	0.110	0.40	0.50	17.54	1090	240	0.28	1120
	Carbide shanks, conical, L-Type: N								L-Type: M	
10	2	60	0.100	0.20	0.25	8.77	2180	435	0.14	2240
12	2	60	0.105	0.24	0.30	10.52	1815	380	0.17	1865
16	2	60	0.110	0.32	0.40	14.03	1360	300	0.22	1400

Application



Material

Steel
850 - 1100 N/mm²



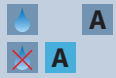
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	350	0.080	0.20	0.20	8.77	12705	2035	0.18	0.10
12	2	350	0.095	0.25	0.25	10.56	10550	2005	0.23	0.13
16	2	350	0.105	0.30	0.30	13.96	7980	1675	0.27	0.15
20	2	350	0.100	0.35	0.35	17.36	6420	1285	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	350	0.105	0.20	0.20	8.77	12705	2670	0.18	0.10
12	2	350	0.110	0.25	0.25	10.56	10550	2320	0.23	0.13
16	2	350	0.120	0.30	0.30	13.96	7980	1915	0.27	0.15

Steel
1100 - 1300 N/mm²



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	280	0.075	0.20	0.20	8.77	10165	1525	0.18	0.10
12	2	280	0.090	0.25	0.25	10.56	8440	1520	0.23	0.13
16	2	280	0.100	0.30	0.30	13.96	6385	1275	0.27	0.15
20	2	280	0.095	0.35	0.35	17.36	5135	975	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	280	0.100	0.20	0.20	8.77	10165	2035	0.18	0.10
12	2	280	0.105	0.25	0.25	10.56	8440	1770	0.23	0.13
16	2	280	0.115	0.30	0.30	13.96	6385	1470	0.27	0.15

Steel
1300 - 1500 N/mm²



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.070	0.20	0.20	8.77	7260	1015	0.18	0.10
12	2	200	0.080	0.25	0.25	10.56	6030	965	0.23	0.13
16	2	200	0.095	0.30	0.30	13.96	4560	865	0.27	0.15
20	2	200	0.090	0.35	0.35	17.36	3665	660	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	200	0.095	0.20	0.20	8.77	7260	1380	0.18	0.10
12	2	200	0.100	0.25	0.25	10.56	6030	1205	0.23	0.13
16	2	200	0.110	0.30	0.30	13.96	4560	1005	0.27	0.15

Stainless steel
[Cr-Ni-Mo-.../1.4571]



	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	2	100	0.065	0.20	0.20	8.77	3630	470	0.18	0.10
12	2	100	0.065	0.25	0.25	10.56	3015	390	0.23	0.13
16	2	100	0.085	0.30	0.30	13.96	2280	390	0.27	0.15
20	2	100	0.080	0.35	0.35	17.36	1835	295	0.32	0.18
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	2	100	0.085	0.20	0.20	8.77	3630	615	0.18	0.10
12	2	100	0.090	0.25	0.25	10.56	3015	545	0.23	0.13
16	2	100	0.095	0.30	0.30	13.96	2280	435	0.27	0.15

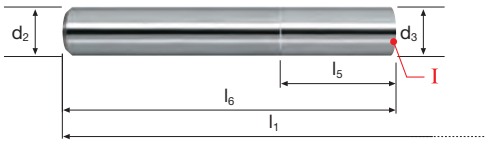
Ball nose end mills

Tolerance r ±0.01

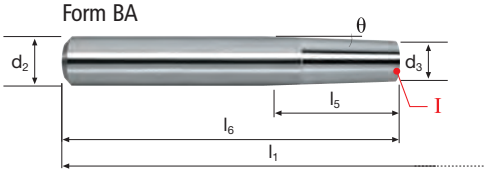
NovoSys X®

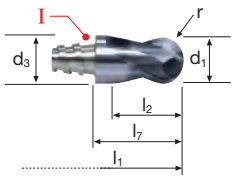
HM UT	λ 30° γ 9°

Form AA



Form BA





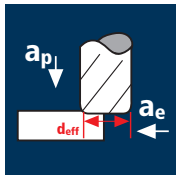
I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless		GG(G)

Milling heads									POLYCUT-A
Order-N°.	d1 ±0.02	d3	l2	l7	r ±0.01	z		I	
N-10-03-02-50-10	10	9.8	8	18	5.0	2	8	10	●
N-12-03-02-60-12	12	11.8	10	20	6.0	2	10	12	●
N-16-03-02-80-16	16	15.8	12	32	8.0	2	13	16	●
N-20-03-02-100-20	20	19.8	14	36	10.0	2	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	150	0.095	0.24	3.50	9.85	4845	2760	2.50	1.50
12	6	150	0.115	0.25	4.20	11.87	4020	2775	3.00	1.80
16	6	150	0.130	0.28	5.60	15.90	3005	2345	4.00	2.40
20	8	150	0.145	0.30	7.00	19.92	2395	2780	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	150	0.105	0.24	3.50	9.85	4845	3050	2.50	1.50
12	6	150	0.125	0.25	4.20	11.87	4020	3015	3.00	1.80
16	6	150	0.140	0.28	5.60	15.90	3005	2525	4.00	2.40

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	120	0.085	0.24	3.50	9.85	3880	1980	2.50	1.50
12	6	120	0.105	0.25	4.20	11.87	3220	2030	3.00	1.80
16	6	120	0.115	0.28	5.60	15.90	2400	1655	4.00	2.40
20	8	120	0.130	0.30	7.00	19.92	1920	1995	175.00	105.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	120	0.095	0.24	3.50	9.85	3880	2210	2.50	1.50
12	6	120	0.115	0.25	4.20	11.87	3220	2220	3.00	1.80
16	6	120	0.125	0.28	5.60	15.90	2400	1800	4.00	2.40

Hardened tool steel 56 - 60 HRC

X

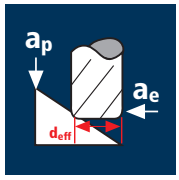
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	80	0.080	0.24	3.50	9.85	2585	1240	2.50	1.50
12	6	80	0.095	0.25	4.20	11.87	2145	1225	3.00	1.80
16	6	80	0.105	0.28	5.60	15.90	1600	1010	4.00	2.40
20	8	80	0.120	0.30	7.00	19.92	1280	1230	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	80	0.085	0.24	3.50	9.85	2585	1320	2.50	1.50
12	6	80	0.105	0.25	4.20	11.87	2145	1350	3.00	1.80
16	6	80	0.115	0.28	5.60	15.90	1600	1105	4.00	2.40

Hardened tool steel > 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	40	0.055	0.24	3.50	9.85	1295	425	2.50	1.50
12	6	40	0.065	0.25	4.20	11.87	1075	420	3.00	1.80
16	6	40	0.075	0.28	5.60	15.90	800	360	4.00	2.40
20	8	40	0.085	0.30	7.00	19.92	640	435	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	40	0.060	0.24	3.50	9.85	1295	465	2.50	1.50
12	6	40	0.075	0.25	4.20	11.87	1075	485	3.00	1.80
16	6	40	0.080	0.28	5.60	15.90	800	385	4.00	2.40

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	360	0.185	0.15	0.15	10.00	11460	12720	0.14	0.11
12	6	360	0.225	0.18	0.18	12.00	9550	12895	0.16	0.14
16	6	360	0.250	0.24	0.24	15.97	7175	10765	0.22	0.18
20	8	360	0.285	0.30	0.30	19.93	5750	13110	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	360	0.185	0.15	0.15	10.00	11460	12720	0.14	0.11
12	6	360	0.225	0.18	0.18	12.00	9550	12895	0.16	0.14
16	6	360	0.250	0.24	0.24	15.97	7175	10765	0.22	0.18

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	250	0.175	0.15	0.15	10.00	7960	8360	0.14	0.11
12	6	250	0.215	0.18	0.18	12.00	6630	8555	0.16	0.14
16	6	250	0.240	0.24	0.24	15.97	4985	7180	0.22	0.18
20	8	250	0.270	0.30	0.30	19.93	3995	8630	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	250	0.175	0.15	0.15	10.00	7960	8360	0.14	0.11
12	6	250	0.215	0.18	0.18	12.00	6630	8555	0.16	0.14
16	6	250	0.240	0.24	0.24	15.97	4985	7180	0.22	0.18

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	180	0.160	0.15	0.15	10.00	5730	5500	0.14	0.11
12	6	180	0.195	0.18	0.18	12.00	4775	5585	0.16	0.14
16	6	180	0.215	0.24	0.24	15.97	3590	4630	0.22	0.18
20	8	180	0.245	0.30	0.30	19.93	2875	5635	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	180	0.160	0.15	0.15	10.00	5730	5500	0.14	0.11
12	6	180	0.195	0.18	0.18	12.00	4775	5585	0.16	0.14
16	6	180	0.215	0.24	0.24	15.97	3590	4630	0.22	0.18

Hardened tool steel > 60 HRC

X

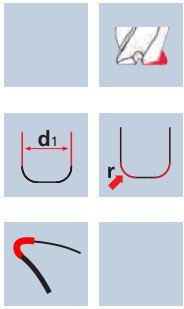
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	100	0.095	0.15	0.15	10.00	3185	1815	0.14	0.11
12	6	100	0.115	0.18	0.18	12.00	2655	1830	0.16	0.14
16	6	100	0.125	0.24	0.24	15.97	1995	1495	0.22	0.18
20	8	100	0.145	0.30	0.30	19.93	1595	1850	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	100	0.095	0.15	0.15	10.00	3185	1815	0.14	0.11
12	6	100	0.115	0.18	0.18	12.00	2655	1830	0.16	0.14
16	6	100	0.125	0.24	0.24	15.97	1995	1495	0.22	0.18

Corner radius end mills XSpeed

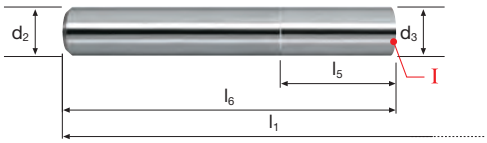
Tolerance r 0/+0.02

NovoSys X®

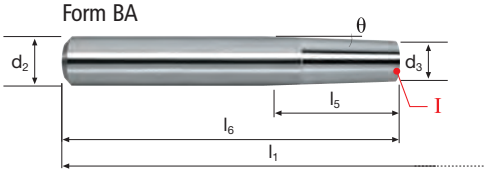
HM XT	λ 55° γ-10°

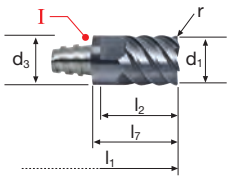


Form AA



Form BA





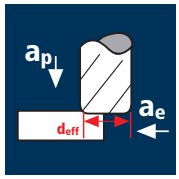
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS

Milling heads									X-AL
Order-N°.	d_1 0/-0.02	d_3	l_2	l_7	r 0/+0.02	z	i	I	
X-10-100-06-05-10	10	9.8	8	18	0.5	6	8	10	●
X-12-100-06-05-12	12	11.8	10	20	0.5	6	10	12	●
X-16-100-06-05-16	16	15.8	14	32	0.5	6	13	16	●
X-20-100-08-05-20	20	19.8	16	36	0.5	8	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	150	0.095	0.24	3.50	9.30	5135	2925	2.50	1.50
12	6	150	0.115	0.25	4.20	11.32	4220	2910	3.00	1.80
16	6	150	0.130	0.28	5.60	15.39	3100	2420	4.00	2.40
20	8	150	0.145	0.30	7.00	19.43	2455	2850	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	150	0.105	0.24	3.50	9.30	5135	3235	2.50	1.50
12	6	150	0.125	0.25	4.20	11.32	4220	3165	3.00	1.80
16	6	150	0.140	0.28	5.60	15.39	3100	2605	4.00	2.40

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	120	0.085	0.24	3.50	9.30	4105	2095	2.50	1.50
12	6	120	0.105	0.25	4.20	11.32	3375	2125	3.00	1.80
16	6	120	0.115	0.28	5.60	15.39	2480	1710	4.00	2.40
20	8	120	0.130	0.30	7.00	19.43	1965	2045	175.00	105.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	120	0.095	0.24	3.50	9.30	4105	2340	2.50	1.50
12	6	120	0.115	0.25	4.20	11.32	3375	2330	3.00	1.80
16	6	120	0.125	0.28	5.60	15.39	2480	1860	4.00	2.40

Hardened tool steel 56 - 60 HRC

X

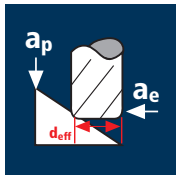
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	80	0.080	0.24	3.50	9.30	2740	1315	2.50	1.50
12	6	80	0.095	0.25	4.20	11.32	2250	1285	3.00	1.80
16	6	80	0.105	0.28	5.60	15.39	1655	1045	4.00	2.40
20	8	80	0.120	0.30	7.00	19.43	1310	1260	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	80	0.085	0.24	3.50	9.30	2740	1395	2.50	1.50
12	6	80	0.105	0.25	4.20	11.32	2250	1420	3.00	1.80
16	6	80	0.115	0.28	5.60	15.39	1655	1140	4.00	2.40

Hardened tool steel > 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	40	0.055	0.24	3.50	9.30	1370	450	2.50	1.50
12	6	40	0.065	0.25	4.20	11.32	1125	440	3.00	1.80
16	6	40	0.075	0.28	5.60	15.39	825	370	4.00	2.40
20	8	40	0.085	0.30	7.00	19.43	655	445	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	40	0.060	0.24	3.50	9.30	1370	495	2.50	1.50
12	6	40	0.075	0.25	4.20	11.32	1125	505	3.00	1.80
16	6	40	0.080	0.28	5.60	15.39	825	395	4.00	2.40

Application



Material

Hardened tool steel 48 - 52 HRC

X

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	360	0.185	0.15	0.15	9.95	11515	12780	0.14	0.11
12	6	360	0.225	0.18	0.18	11.97	9575	12925	0.16	0.14
16	6	360	0.250	0.24	0.24	15.99	7165	10750	0.22	0.18
20	8	360	0.285	0.30	0.30	20.00	5730	13065	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	360	0.185	0.15	0.15	9.95	11515	12780	0.14	0.11
12	6	360	0.225	0.18	0.18	11.97	9575	12925	0.16	0.14
16	6	360	0.250	0.24	0.24	15.99	7165	10750	0.22	0.18

Hardened tool steel 52 - 56 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	250	0.175	0.15	0.15	9.95	8000	8400	0.14	0.11
12	6	250	0.215	0.18	0.18	11.97	6650	8580	0.16	0.14
16	6	250	0.240	0.24	0.24	15.99	4975	7165	0.22	0.18
20	8	250	0.270	0.30	0.30	20.00	3980	8595	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	250	0.175	0.15	0.15	9.95	8000	8400	0.14	0.11
12	6	250	0.215	0.18	0.18	11.97	6650	8580	0.16	0.14
16	6	250	0.240	0.24	0.24	15.99	4975	7165	0.22	0.18

Hardened tool steel 56 - 60 HRC

X

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	180	0.160	0.15	0.15	9.95	5760	5530	0.14	0.11
12	6	180	0.195	0.18	0.18	11.97	4785	5600	0.16	0.14
16	6	180	0.215	0.24	0.24	15.99	3585	4625	0.22	0.18
20	8	180	0.245	0.30	0.30	20.00	2865	5615	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	180	0.160	0.15	0.15	9.95	5760	5530	0.14	0.11
12	6	180	0.195	0.18	0.18	11.97	4785	5600	0.16	0.14
16	6	180	0.215	0.24	0.24	15.99	3585	4625	0.22	0.18

Hardened tool steel > 60 HRC

X

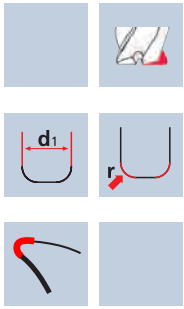
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	6	100	0.095	0.15	0.15	9.95	3200	1825	0.14	0.11
12	6	100	0.115	0.18	0.18	11.97	2660	1835	0.16	0.14
16	6	100	0.125	0.24	0.24	15.99	1990	1495	0.22	0.18
20	8	100	0.145	0.30	0.30	20.00	1590	1845	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	6	100	0.095	0.15	0.15	9.95	3200	1825	0.14	0.11
12	6	100	0.115	0.18	0.18	11.97	2660	1835	0.16	0.14
16	6	100	0.125	0.24	0.24	15.99	1990	1495	0.22	0.18

Corner radius end mills XSpeed

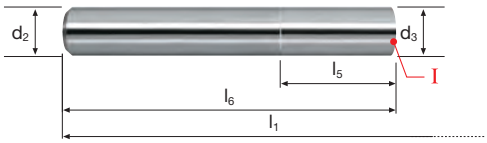
Tolerance r 0/+0.02

NovoSys X®

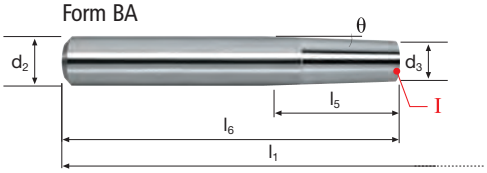
HM XT	λ 55° γ-10°

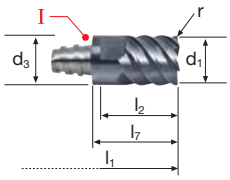


Form AA



Form BA





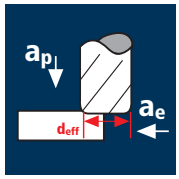
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS

Milling heads									X-AL
Order-N°.	d_1 0/-0.02	d_3	l_2	l_7	r 0/+0.02	z	i	I	
X-10-101-06-10-10	10	9.8	8	18	1.0	6	8	10	●
X-12-101-06-10-12	12	11.8	10	20	1.0	6	10	12	●
X-16-101-06-10-16	16	15.8	14	32	1.0	6	13	16	●
X-20-101-08-10-20	20	19.8	16	36	1.0	8	17	20	●

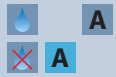
Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



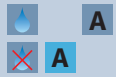
Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	180	0.105	0.24	3.50	9.85	5815	2440	2.50	1.50
12	4	180	0.125	0.25	4.20	11.87	4825	2415	3.00	1.80
16	4	180	0.145	0.28	5.60	15.90	3605	2090	4.00	2.40
20	4	180	0.160	0.30	7.00	19.92	2875	1840	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	180	0.115	0.24	3.50	9.85	5815	2675	2.50	1.50
12	4	180	0.135	0.25	4.20	11.87	4825	2605	3.00	1.80
16	4	180	0.155	0.28	5.60	15.90	3605	2235	4.00	2.40

Hardened tool steel 48 - 52 HRC



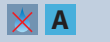
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	140	0.095	0.24	3.50	9.85	4525	1720	2.50	1.50
12	4	140	0.115	0.25	4.20	11.87	3755	1725	3.00	1.80
16	4	140	0.130	0.28	5.60	15.90	2805	1460	4.00	2.40
20	4	140	0.145	0.30	7.00	19.92	2235	1295	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	140	0.105	0.24	3.50	9.85	4525	1900	2.50	1.50
12	4	140	0.120	0.25	4.20	11.87	3755	1800	3.00	1.80
16	4	140	0.140	0.28	5.60	15.90	2805	1570	4.00	2.40

Hardened tool steel 52 - 56 HRC



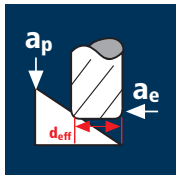
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	110	0.085	0.24	3.50	9.85	3555	1210	2.50	1.50
12	4	110	0.105	0.25	4.20	11.87	2950	1240	3.00	1.80
16	4	110	0.120	0.28	5.60	15.90	2200	1055	4.00	2.40
20	4	110	0.130	0.30	7.00	19.92	1760	915	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	110	0.095	0.24	3.50	9.85	3555	1350	2.50	1.50
12	4	110	0.110	0.25	4.20	11.87	2950	1300	3.00	1.80
16	4	110	0.125	0.28	5.60	15.90	2200	1100	4.00	2.40

Hardened tool steel 56 - 60 HRC



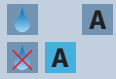
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	70	0.075	0.24	3.50	9.85	2260	680	2.50	1.50
12	4	70	0.090	0.25	4.20	11.87	1875	675	3.00	1.80
16	4	70	0.105	0.28	5.60	15.90	1400	590	4.00	2.40
20	4	70	0.115	0.30	7.00	19.92	1120	515	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	70	0.085	0.24	3.50	9.85	2260	770	2.50	1.50
12	4	70	0.095	0.25	4.20	11.87	1875	715	3.00	1.80
16	4	70	0.110	0.28	5.60	15.90	1400	615	4.00	2.40

Application



Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	360	0.195	0.15	0.15	10.00	11460	8940	0.14	0.11
12	4	360	0.230	0.18	0.18	12.00	9550	8785	0.16	0.14
16	4	360	0.265	0.24	0.24	15.97	7175	7605	0.22	0.18
20	4	360	0.300	0.30	0.30	19.93	5750	6900	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	360	0.195	0.15	0.15	10.00	11460	8940	0.14	0.11
12	4	360	0.230	0.18	0.18	12.00	9550	8785	0.16	0.14
16	4	360	0.265	0.24	0.24	15.97	7175	7605	0.22	0.18

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	300	0.185	0.15	0.15	10.00	9550	7065	0.14	0.11
12	4	300	0.220	0.18	0.18	12.00	7960	7005	0.16	0.14
16	4	300	0.250	0.24	0.24	15.97	5980	5980	0.22	0.18
20	4	300	0.285	0.30	0.30	19.93	4790	5460	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	300	0.185	0.15	0.15	10.00	9550	7065	0.14	0.11
12	4	300	0.220	0.18	0.18	12.00	7960	7005	0.16	0.14
16	4	300	0.250	0.24	0.24	15.97	5980	5980	0.22	0.18

Hardened tool steel 52 - 56 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.175	0.15	0.15	10.00	7005	4905	0.14	0.11
12	4	220	0.205	0.18	0.18	12.00	5835	4785	0.16	0.14
16	4	220	0.240	0.24	0.24	15.97	4385	4210	0.22	0.18
20	4	220	0.270	0.30	0.30	19.93	3515	3795	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.175	0.15	0.15	10.00	7005	4905	0.14	0.11
12	4	220	0.205	0.18	0.18	12.00	5835	4785	0.16	0.14
16	4	220	0.240	0.24	0.24	15.97	4385	4210	0.22	0.18

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	160	0.155	0.15	0.15	10.00	5095	3160	0.14	0.11
12	4	160	0.185	0.18	0.18	12.00	4245	3140	0.16	0.14
16	4	160	0.210	0.24	0.24	15.97	3190	2680	0.22	0.18
20	4	160	0.240	0.30	0.30	19.93	2555	2455	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	160	0.155	0.15	0.15	10.00	5095	3160	0.14	0.11
12	4	160	0.185	0.18	0.18	12.00	4245	3140	0.16	0.14
16	4	160	0.210	0.24	0.24	15.97	3190	2680	0.22	0.18

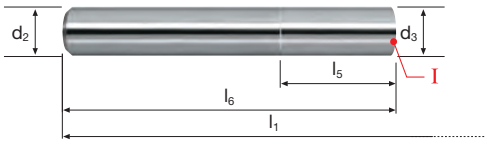
Corner radius end mills

Tolerance r 0/+0.03

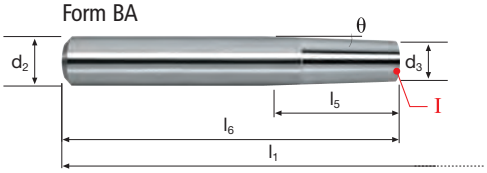
NovoSys X®

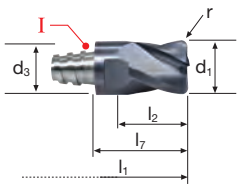
HM UT	λ 30° γ 0°

Form AA



Form BA





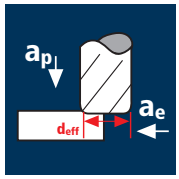
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	r 0/+0.03	z	i	I		
H-10-02-04-05-10	10	9.8	8	18	0.5	4	8	10		●
H-12-02-04-05-12	12	11.8	10	20	0.5	4	10	12		●
H-16-02-04-05-16	16	15.8	14	32	0.5	4	13	16		●
H-20-02-04-05-20	20	19.8	16	36	0.5	4	17	20		●

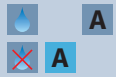
Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



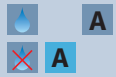
Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	180	0.105	0.24	3.50	9.30	6160	2585	2.50	1.50
12	4	180	0.125	0.25	4.20	11.32	5060	2530	3.00	1.80
16	4	180	0.145	0.28	5.60	15.39	3725	2160	4.00	2.40
20	4	180	0.160	0.30	7.00	19.43	2950	1890	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	180	0.115	0.24	3.50	9.30	6160	2835	2.50	1.50
12	4	180	0.135	0.25	4.20	11.32	5060	2730	3.00	1.80
16	4	180	0.155	0.28	5.60	15.39	3725	2310	4.00	2.40

Hardened tool steel 48 - 52 HRC



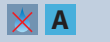
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	140	0.095	0.24	3.50	9.30	4790	1820	2.50	1.50
12	4	140	0.115	0.25	4.20	11.32	3935	1810	3.00	1.80
16	4	140	0.130	0.28	5.60	15.39	2895	1505	4.00	2.40
20	4	140	0.145	0.30	7.00	19.43	2295	1330	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	140	0.105	0.24	3.50	9.30	4790	2010	2.50	1.50
12	4	140	0.120	0.25	4.20	11.32	3935	1890	3.00	1.80
16	4	140	0.140	0.28	5.60	15.39	2895	1620	4.00	2.40

Hardened tool steel 52 - 56 HRC



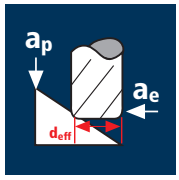
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	110	0.085	0.24	3.50	9.30	3765	1280	2.50	1.50
12	4	110	0.105	0.25	4.20	11.32	3095	1300	3.00	1.80
16	4	110	0.120	0.28	5.60	15.39	2275	1090	4.00	2.40
20	4	110	0.130	0.30	7.00	19.43	1800	935	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	110	0.095	0.24	3.50	9.30	3765	1430	2.50	1.50
12	4	110	0.110	0.25	4.20	11.32	3095	1360	3.00	1.80
16	4	110	0.125	0.28	5.60	15.39	2275	1140	4.00	2.40

Hardened tool steel 56 - 60 HRC



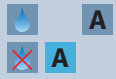
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	70	0.075	0.24	3.50	9.30	2395	720	2.50	1.50
12	4	70	0.090	0.25	4.20	11.32	1970	710	3.00	1.80
16	4	70	0.105	0.28	5.60	15.39	1450	610	4.00	2.40
20	4	70	0.115	0.30	7.00	19.43	1145	525	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	70	0.085	0.24	3.50	9.30	2395	815	2.50	1.50
12	4	70	0.095	0.25	4.20	11.32	1970	750	3.00	1.80
16	4	70	0.110	0.28	5.60	15.39	1450	640	4.00	2.40

Application



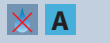
Material

Hardened tool steel 42 - 48 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	360	0.195	0.15	0.15	9.95	11515	8980	0.14	0.11
12	4	360	0.230	0.18	0.18	11.97	9575	8810	0.16	0.14
16	4	360	0.265	0.24	0.24	15.99	7165	7595	0.22	0.18
20	4	360	0.300	0.30	0.30	20.00	5730	6875	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	360	0.195	0.15	0.15	9.95	11515	8980	0.14	0.11
12	4	360	0.230	0.18	0.18	11.97	9575	8810	0.16	0.14
16	4	360	0.265	0.24	0.24	15.99	7165	7595	0.22	0.18

Hardened tool steel 48 - 52 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	300	0.185	0.15	0.15	9.95	9595	7100	0.14	0.11
12	4	300	0.220	0.18	0.18	11.97	7980	7020	0.16	0.14
16	4	300	0.250	0.24	0.24	15.99	5970	5970	0.22	0.18
20	4	300	0.285	0.30	0.30	20.00	4775	5445	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	300	0.185	0.15	0.15	9.95	9595	7100	0.14	0.11
12	4	300	0.220	0.18	0.18	11.97	7980	7020	0.16	0.14
16	4	300	0.250	0.24	0.24	15.99	5970	5970	0.22	0.18

Hardened tool steel 52 - 56 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.175	0.15	0.15	9.95	7040	4930	0.14	0.11
12	4	220	0.205	0.18	0.18	11.97	5850	4795	0.16	0.14
16	4	220	0.240	0.24	0.24	15.99	4380	4205	0.22	0.18
20	4	220	0.270	0.30	0.30	20.00	3500	3780	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.175	0.15	0.15	9.95	7040	4930	0.14	0.11
12	4	220	0.205	0.18	0.18	11.97	5850	4795	0.16	0.14
16	4	220	0.240	0.24	0.24	15.99	4380	4205	0.22	0.18

Hardened tool steel 56 - 60 HRC



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	160	0.155	0.15	0.15	9.95	5120	3175	0.14	0.11
12	4	160	0.185	0.18	0.18	11.97	4255	3150	0.16	0.14
16	4	160	0.210	0.24	0.24	15.99	3185	2675	0.22	0.18
20	4	160	0.240	0.30	0.30	20.00	2545	2445	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	160	0.155	0.15	0.15	9.95	5120	3175	0.14	0.11
12	4	160	0.185	0.18	0.18	11.97	4255	3150	0.16	0.14
16	4	160	0.210	0.24	0.24	15.99	3185	2675	0.22	0.18

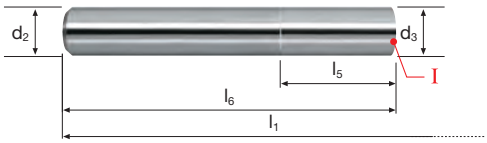
Corner radius end mills

Tolerance r 0/+0.03

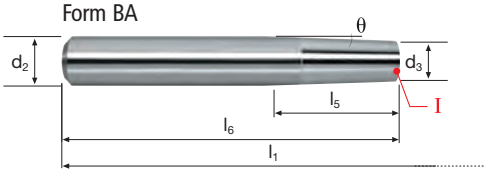
NovoSys X®

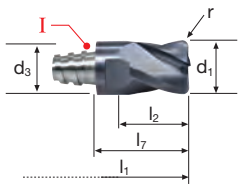
HM UT	λ 30° γ 0°

Form AA



Form BA





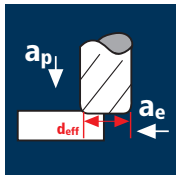
I = Interface

	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	r 0/+0.03	z	i	I		
H-10-02-04-10-10	10	9.8	8	18	1.0	4	8	10		●
H-12-02-04-10-12	12	11.8	10	20	1.0	4	10	12		●
H-16-02-04-10-16	16	15.8	14	32	1.0	4	13	16		●
H-20-02-04-10-20	20	19.8	16	36	1.0	4	17	20		●

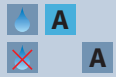
Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



Material

Steel
< 850 N/mm²



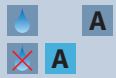
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	280	0.105	0.24	3.50	9.85	9050	3800	2.50	1.50
12	4	280	0.125	0.25	4.20	11.87	7510	3755	3.00	1.80
16	4	280	0.145	0.28	5.60	15.90	5605	3250	4.00	2.40
20	4	280	0.160	0.30	7.00	19.92	4475	2865	5.00	3.00
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	280	0.115	0.24	3.50	9.85	9050	4165	2.50	1.50
12	4	280	0.135	0.25	4.20	11.87	7510	4055	3.00	1.80
16	4	280	0.155	0.28	5.60	15.90	5605	3475	4.00	2.40

Steel
850 - 1100 N/mm²



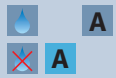
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	220	0.095	0.24	3.50	9.85	7110	2700	2.50	1.50
12	4	220	0.115	0.25	4.20	11.87	5900	2715	3.00	1.80
16	4	220	0.130	0.28	5.60	15.90	4405	2290	4.00	2.40
20	4	220	0.145	0.30	7.00	19.92	3515	2040	5.00	3.00
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	220	0.105	0.24	3.50	9.85	7110	2985	2.50	1.50
12	4	220	0.120	0.25	4.20	11.87	5900	2830	3.00	1.80
16	4	220	0.140	0.28	5.60	15.90	4405	2465	4.00	2.40

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



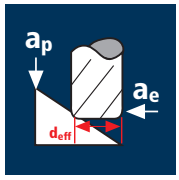
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	80	0.080	0.24	3.50	9.85	2585	825	2.50	1.50
12	4	80	0.095	0.25	4.20	11.87	2145	815	3.00	1.80
16	4	80	0.110	0.28	5.60	15.90	1600	705	4.00	2.40
20	4	80	0.120	0.30	7.00	19.92	1280	615	5.00	3.00
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	80	0.085	0.24	3.50	9.85	2585	880	2.50	1.50
12	4	80	0.100	0.25	4.20	11.87	2145	860	3.00	1.80
16	4	80	0.115	0.28	5.60	15.90	1600	735	4.00	2.40

Cast iron
(lamellar / spheroidal)



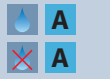
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	260	0.105	0.24	3.50	9.85	8400	3530	2.50	1.50
12	4	260	0.125	0.25	4.20	11.87	6970	3485	3.00	1.80
16	4	260	0.145	0.28	5.60	15.90	5205	3020	4.00	2.40
20	4	260	0.160	0.30	7.00	19.92	4155	2660	5.00	3.00
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	260	0.115	0.24	3.50	9.85	8400	3865	2.50	1.50
12	4	260	0.135	0.25	4.20	11.87	6970	3765	3.00	1.80
16	4	260	0.155	0.28	5.60	15.90	5205	3225	4.00	2.40

Application



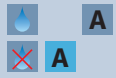
Material

Steel
< 850 N/mm²



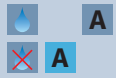
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	10.00	13370	8290	0.14	0.11
12	4	420	0.185	0.18	0.18	12.00	11140	8245	0.16	0.14
16	4	420	0.210	0.24	0.24	15.97	8370	7030	0.22	0.18
20	4	420	0.240	0.30	0.30	19.93	6710	6440	0.27	0.23
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	10.00	13370	8290	0.14	0.11
12	4	420	0.185	0.18	0.18	12.00	11140	8245	0.16	0.14
16	4	420	0.210	0.24	0.24	15.97	8370	7030	0.22	0.18

Steel
850 - 1100 N/mm²



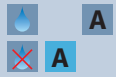
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Typ: L
10	4	350	0.145	0.15	0.15	10.00	11140	6460	0.14	0.11
12	4	350	0.175	0.18	0.18	12.00	9285	6500	0.16	0.14
16	4	350	0.200	0.24	0.24	15.97	6975	5580	0.22	0.18
20	4	350	0.230	0.30	0.30	19.93	5590	5145	0.27	0.23
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	350	0.145	0.15	0.15	10.00	11140	6460	0.14	0.11
12	4	350	0.175	0.18	0.18	12.00	9285	6500	0.16	0.14
16	4	350	0.200	0.24	0.24	15.97	6975	5580	0.22	0.18

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	10.00	7005	3220	0.14	0.11
12	4	220	0.140	0.18	0.18	12.00	5835	3270	0.16	0.14
16	4	220	0.160	0.24	0.24	15.97	4385	2805	0.22	0.18
20	4	220	0.180	0.30	0.30	19.93	3515	2530	0.27	0.23
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	10.00	7005	3220	0.14	0.11
12	4	220	0.140	0.18	0.18	12.00	5835	3270	0.16	0.14
16	4	220	0.160	0.24	0.24	15.97	4385	2805	0.22	0.18

Cast iron
(lamellar / spheroidal)



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
				Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	10.00	12730	7895	0.14	0.11
12	4	400	0.185	0.18	0.18	12.00	10610	7850	0.16	0.14
16	4	400	0.210	0.24	0.24	15.97	7975	6700	0.22	0.18
20	4	400	0.240	0.30	0.30	19.93	6390	6135	0.27	0.23
				Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	10.00	12730	7895	0.14	0.11
12	4	400	0.185	0.18	0.18	12.00	10610	7850	0.16	0.14
16	4	400	0.210	0.24	0.24	15.97	7975	6700	0.22	0.18

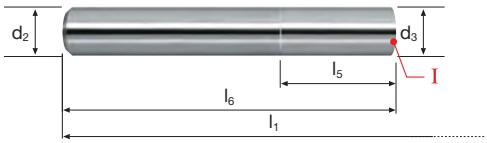
Corner radius end mills

Tolerance r 0/+0.03

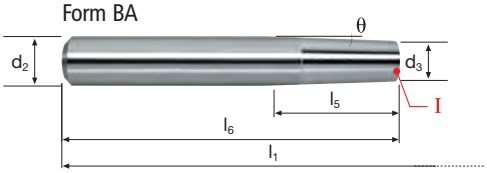
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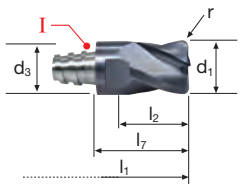
HM UT	λ 30° γ 9°

Form AA



Form BA





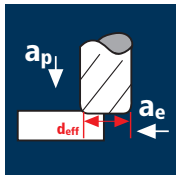
I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	r 0/+0.03	z		I		
N-10-02-04-05-10	10	9.8	8	18	0.5	4	8	10		●
N-12-02-04-05-12	12	11.8	10	20	0.5	4	10	12		●
N-16-02-04-05-16	16	15.8	14	32	0.5	4	13	16		●
N-20-02-04-05-20	20	19.8	16	36	0.5	4	17	20		●

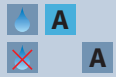
Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



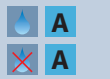
Material

Steel
< 850 N/mm²



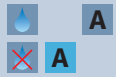
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	280	0.105	0.24	3.50	9.30	9585	4025	2.50	1.50
12	4	280	0.125	0.25	4.20	11.32	7875	3940	3.00	1.80
16	4	280	0.145	0.28	5.60	15.39	5790	3360	4.00	2.40
20	4	280	0.160	0.30	7.00	19.43	4585	2935	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	280	0.115	0.24	3.50	9.30	9585	4410	2.50	1.50
12	4	280	0.135	0.25	4.20	11.32	7875	4255	3.00	1.80
16	4	280	0.155	0.28	5.60	15.39	5790	3590	4.00	2.40

Steel
850 - 1100 N/mm²



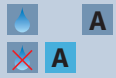
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.095	0.24	3.50	9.30	7530	2860	2.50	1.50
12	4	220	0.115	0.25	4.20	11.32	6185	2845	3.00	1.80
16	4	220	0.130	0.28	5.60	15.39	4550	2365	4.00	2.40
20	4	220	0.145	0.30	7.00	19.43	3605	2090	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.105	0.24	3.50	9.30	7530	3165	2.50	1.50
12	4	220	0.120	0.25	4.20	11.32	6185	2970	3.00	1.80
16	4	220	0.140	0.28	5.60	15.39	4550	2550	4.00	2.40

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



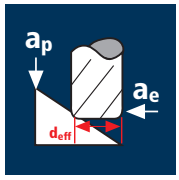
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	80	0.080	0.24	3.50	9.30	2740	875	2.50	1.50
12	4	80	0.095	0.25	4.20	11.32	2250	855	3.00	1.80
16	4	80	0.110	0.28	5.60	15.39	1655	730	4.00	2.40
20	4	80	0.120	0.30	7.00	19.43	1310	630	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	80	0.085	0.24	3.50	9.30	2740	930	2.50	1.50
12	4	80	0.100	0.25	4.20	11.32	2250	900	3.00	1.80
16	4	80	0.115	0.28	5.60	15.39	1655	760	4.00	2.40

Cast iron
(lamellar / spheroidal)



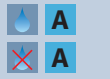
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	260	0.105	0.24	3.50	9.30	8900	3740	2.50	1.50
12	4	260	0.125	0.25	4.20	11.32	7310	3655	3.00	1.80
16	4	260	0.145	0.28	5.60	15.39	5380	3120	4.00	2.40
20	4	260	0.160	0.30	7.00	19.43	4260	2725	5.00	3.00
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	260	0.115	0.24	3.50	9.30	8900	4095	2.50	1.50
12	4	260	0.135	0.25	4.20	11.32	7310	3945	3.00	1.80
16	4	260	0.155	0.28	5.60	15.39	5380	3335	4.00	2.40

Application



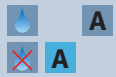
Material

Steel
< 850 N/mm²



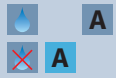
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	9.95	13435	8330	0.14	0.11
12	4	420	0.185	0.18	0.18	11.97	11170	8265	0.16	0.14
16	4	420	0.210	0.24	0.24	15.99	8360	7020	0.22	0.18
20	4	420	0.240	0.30	0.30	20.00	6685	6420	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	9.95	13435	8330	0.14	0.11
12	4	420	0.185	0.18	0.18	11.97	11170	8265	0.16	0.14
16	4	420	0.210	0.24	0.24	15.99	8360	7020	0.22	0.18

Steel
850 - 1100 N/mm²



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	350	0.145	0.15	0.15	9.95	11195	6495	0.14	0.11
12	4	350	0.175	0.18	0.18	11.97	9305	6515	0.16	0.14
16	4	350	0.200	0.24	0.24	15.99	6965	5570	0.22	0.18
20	4	350	0.230	0.30	0.30	20.00	5570	5125	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	350	0.145	0.15	0.15	9.95	11195	6495	0.14	0.11
12	4	350	0.175	0.18	0.18	11.97	9305	6515	0.16	0.14
16	4	350	0.200	0.24	0.24	15.99	6965	5570	0.22	0.18

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	9.95	7040	3240	0.14	0.11
12	4	220	0.140	0.18	0.18	11.97	5850	3275	0.16	0.14
16	4	220	0.160	0.24	0.24	15.99	4380	2805	0.22	0.18
20	4	220	0.180	0.30	0.30	20.00	3500	2520	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	9.95	7040	3240	0.14	0.11
12	4	220	0.140	0.18	0.18	11.97	5850	3275	0.16	0.14
16	4	220	0.160	0.24	0.24	15.99	4380	2805	0.22	0.18

Cast iron
(lamellar / spheroidal)



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N								L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	9.95	12795	7935	0.14	0.11
12	4	400	0.185	0.18	0.18	11.97	10635	7870	0.16	0.14
16	4	400	0.210	0.24	0.24	15.99	7965	6690	0.22	0.18
20	4	400	0.240	0.30	0.30	20.00	6365	6110	0.27	0.23
	Carbide shanks, conical, L-Type: N								L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	9.95	12795	7935	0.14	0.11
12	4	400	0.185	0.18	0.18	11.97	10635	7870	0.16	0.14
16	4	400	0.210	0.24	0.24	15.99	7965	6690	0.22	0.18

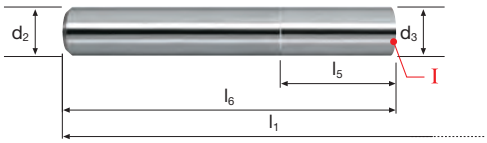
Corner radius end mills

Tolerance r 0/+0.03

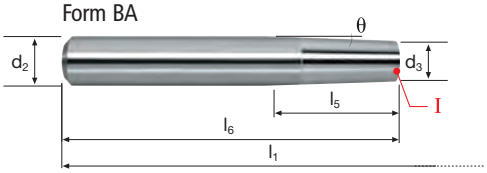
NovoSys X®

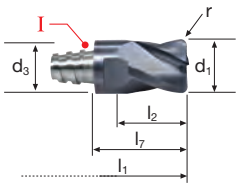
HM UT	λ 30° γ 9°

Form AA



Form BA





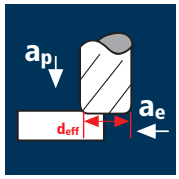
I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	r 0/+0.03	z	i	I		
N-10-02-04-10-10	10	9.8	8	18	1.0	4	8	10		●
N-12-02-04-10-12	12	11.8	10	20	1.0	4	10	12		●
N-16-02-04-10-16	16	15.8	14	32	1.0	4	13	16		●
N-20-02-04-10-20	20	19.8	16	36	1.0	4	17	20		●

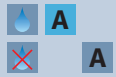
Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



Material

Steel
< 850 N/mm²



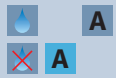
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	280	0.105	0.24	3.50	8.63	10330	4340	2.50	1.50
12	4	280	0.125	0.25	4.20	10.66	8360	4180	3.00	1.80
16	4	280	0.145	0.28	5.60	14.75	6040	3505	4.00	2.40
20	4	280	0.160	0.30	7.00	18.80	4740	3035	5.00	3.00
					Carbide shanks, conical, L-Type: N				L-Typ: M	L-Type: L
10	4	280	0.115	0.24	3.50	8.63	10330	4750	2.50	1.50
12	4	280	0.135	0.25	4.20	10.66	8360	4515	3.00	1.80
16	4	280	0.155	0.28	5.60	14.75	6040	3745	4.00	2.40

Steel
850 - 1100 N/mm²



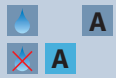
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	220	0.095	0.24	3.50	8.63	8115	3085	2.50	1.50
12	4	220	0.115	0.25	4.20	10.66	6570	3020	3.00	1.80
16	4	220	0.130	0.28	5.60	14.75	4750	2470	4.00	2.40
20	4	220	0.145	0.30	7.00	18.80	3725	2160	5.00	3.00
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	220	0.105	0.24	3.50	8.63	8115	3410	2.50	1.50
12	4	220	0.120	0.25	4.20	10.66	6570	3155	3.00	1.80
16	4	220	0.140	0.28	5.60	14.75	4750	2660	4.00	2.40

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



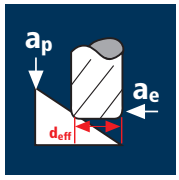
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	80	0.080	0.24	3.50	8.63	2950	945	2.50	1.50
12	4	80	0.095	0.25	4.20	10.66	2390	910	3.00	1.80
16	4	80	0.110	0.28	5.60	14.75	1725	760	4.00	2.40
20	4	80	0.120	0.30	7.00	18.80	1355	650	5.00	3.00
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	80	0.085	0.24	3.50	8.63	2950	1005	2.50	1.50
12	4	80	0.100	0.25	4.20	10.66	2390	955	3.00	1.80
16	4	80	0.115	0.28	5.60	14.75	1725	795	4.00	2.40

Cast iron
(lamellar / spheroidal)



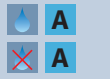
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm]	n [min⁻¹]	v_f [mm/min]	a_e [mm]	a_e [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	260	0.105	0.24	3.50	8.63	9590	4030	2.50	1.50
12	4	260	0.125	0.25	4.20	10.66	7765	3885	3.00	1.80
16	4	260	0.145	0.28	5.60	14.75	5610	3255	4.00	2.40
20	4	260	0.160	0.30	7.00	18.80	4400	2815	5.00	3.00
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	260	0.115	0.24	3.50	8.63	9590	4410	2.50	1.50
12	4	260	0.135	0.25	4.20	10.66	7765	4195	3.00	1.80
16	4	260	0.155	0.28	5.60	14.75	5610	3480	4.00	2.40

Application



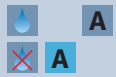
Material

Steel
< 850 N/mm²



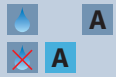
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	9.83	13600	8430	0.14	0.11
12	4	420	0.185	0.18	0.18	11.87	11265	8335	0.16	0.14
16	4	420	0.210	0.24	0.24	15.93	8390	7050	0.22	0.18
20	4	420	0.240	0.30	0.30	19.97	6695	6425	0.27	0.23
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	420	0.155	0.15	0.15	9.83	13600	8430	0.14	0.11
12	4	420	0.185	0.18	0.18	11.87	11265	8335	0.16	0.14
16	4	420	0.210	0.24	0.24	15.93	8390	7050	0.22	0.18

Steel
850 - 1100 N/mm²



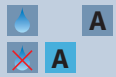
d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	350	0.145	0.15	0.15	9.83	11335	6575	0.14	0.11
12	4	350	0.175	0.18	0.18	11.87	9385	6570	0.16	0.14
16	4	350	0.200	0.24	0.24	15.93	6995	5595	0.22	0.18
20	4	350	0.230	0.30	0.30	19.97	5580	5135	0.27	0.23
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	350	0.145	0.15	0.15	9.83	11335	6575	0.14	0.11
12	4	350	0.175	0.18	0.18	11.87	9385	6570	0.16	0.14
16	4	350	0.200	0.24	0.24	15.93	6995	5595	0.22	0.18

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	9.83	7125	3280	0.14	0.11
12	4	220	0.140	0.18	0.18	11.87	5900	3305	0.16	0.14
16	4	220	0.160	0.24	0.24	15.93	4395	2815	0.22	0.18
20	4	220	0.180	0.30	0.30	19.97	3505	2525	0.27	0.23
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	220	0.115	0.15	0.15	9.83	7125	3280	0.14	0.11
12	4	220	0.140	0.18	0.18	11.87	5900	3305	0.16	0.14
16	4	220	0.160	0.24	0.24	15.93	4395	2815	0.22	0.18

Cast iron
(lamellar / spheroidal)



d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
					Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	9.83	12955	8030	0.14	0.11
12	4	400	0.185	0.18	0.18	11.87	10725	7935	0.16	0.14
16	4	400	0.210	0.24	0.24	15.93	7995	6715	0.22	0.18
20	4	400	0.240	0.30	0.30	19.97	6375	6120	0.27	0.23
					Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	4	400	0.155	0.15	0.15	9.83	12955	8030	0.14	0.11
12	4	400	0.185	0.18	0.18	11.87	10725	7935	0.16	0.14
16	4	400	0.210	0.24	0.24	15.93	7995	6715	0.22	0.18

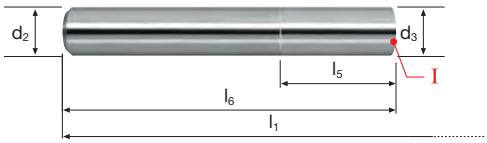
Corner radius end mills

Tolerance r 0/+0.03

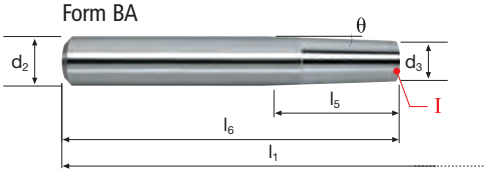
NovoSys X®

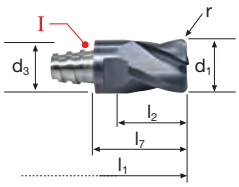
HM UT	λ 30° γ 9°

Form AA



Form BA





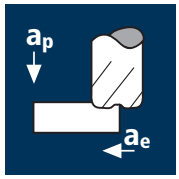
I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	l_2	l_7	r 0/+0.03	z	i	I		
N-10-02-04-15-10	10	9.8	8	18	1.5	4	8	10		●
N-12-02-04-15-12	12	11.8	10	20	1.5	4	10	12		●
N-16-02-04-15-16	16	15.8	14	32	1.5	4	13	16		●
N-20-02-04-15-20	20	19.8	16	36	1.5	4	17	20		●

Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae [mm]	ae [mm]
Steel 850 - 1100 N/mm²			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	250	0.665	0.32	6.00	7960	21175	4.00	2.00
	12	4	250	0.800	0.40	7.20	6630	21215	4.80	2.40
	16	4	250	1.065	0.48	9.60	4975	21195	6.40	3.20
	20	4	250	1.110	0.56	12.00	3980	17670	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	250	0.665	0.32	6.00	7960	21175	4.00	2.00
	12	4	250	0.800	0.40	7.20	6630	21215	4.80	2.40
	16	4	250	1.065	0.48	9.60	4975	21195	6.40	3.20
Steel 1100 - 1300 N/mm²			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	220	0.565	0.32	6.00	7005	15830	4.00	2.00
	12	4	220	0.680	0.40	7.20	5835	15870	4.80	2.40
	16	4	220	0.905	0.48	9.60	4375	15840	6.40	3.20
	20	4	220	0.945	0.56	12.00	3500	13230	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	220	0.565	0.32	6.00	7005	15830	4.00	2.00
	12	4	220	0.680	0.40	7.20	5835	15870	4.80	2.40
	16	4	220	0.905	0.48	9.60	4375	15840	6.40	3.20
Steel 1300 - 1500 N/mm²			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	200	0.520	0.29	6.00	6365	13240	4.00	2.00
	12	4	200	0.625	0.36	7.20	5305	13265	4.80	2.40
	16	4	200	0.830	0.43	9.60	3980	13215	6.40	3.20
	20	4	200	0.865	0.50	12.00	3185	11020	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	200	0.520	0.29	6.00	6365	13240	4.00	2.00
	12	4	200	0.625	0.36	7.20	5305	13265	4.80	2.40
	16	4	200	0.830	0.43	9.60	3980	13215	6.40	3.20
Hardened tool steel 48 - 52 HRC			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	180	0.400	0.26	6.00	5730	9170	4.00	2.00
	12	4	180	0.480	0.32	7.20	4775	9170	4.80	2.40
	16	4	180	0.640	0.38	9.60	3580	9165	6.40	3.20
	20	4	180	0.665	0.45	12.00	2865	7620	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	180	0.400	0.26	6.00	5730	9170	4.00	2.00
	12	4	180	0.480	0.32	7.20	4775	9170	4.80	2.40
	16	4	180	0.640	0.38	9.60	3580	9165	6.40	3.20

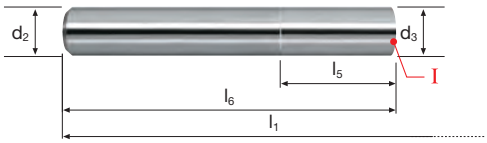
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae [mm]	ae [mm]
Hardened tool steel 52 - 56 HRC			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	160	0.300	0.22	6.00	5095	6115	4.00	2.00
	12	4	160	0.360	0.28	7.20	4245	6115	4.80	2.40
	16	4	160	0.480	0.34	9.60	3185	6115	6.40	3.20
	20	4	160	0.500	0.39	12.00	2545	5090	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	160	0.300	0.22	6.00	5095	6115	4.00	2.00
	12	4	160	0.360	0.28	7.20	4245	6115	4.80	2.40
	16	4	160	0.480	0.34	9.60	3185	6115	6.40	3.20
Hardened tool steel 56 - 60 HRC			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	140	0.185	0.21	6.00	4455	3295	4.00	2.00
	12	4	140	0.225	0.26	7.20	3715	3345	4.80	2.40
	16	4	140	0.300	0.31	9.60	2785	3340	6.40	3.20
	20	4	140	0.310	0.36	12.00	2230	2765	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	140	0.185	0.21	6.00	4455	3295	4.00	2.00
	12	4	140	0.225	0.26	7.20	3715	3345	4.80	2.40
	16	4	140	0.300	0.31	9.60	2785	3340	6.40	3.20
Hardened tool steel > 60 HRC			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	80	0.145	0.19	6.00	2545	1475	4.00	2.00
	12	4	80	0.175	0.24	7.20	2120	1485	4.80	2.40
	16	4	80	0.235	0.29	9.60	1590	1495	6.40	3.20
	20	4	80	0.245	0.34	12.00	1275	1250	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	80	0.145	0.19	6.00	2545	1475	4.00	2.00
	12	4	80	0.175	0.24	7.20	2120	1485	4.80	2.40
	16	4	80	0.235	0.29	9.60	1590	1495	6.40	3.20
Cast iron (lamellar / spheroidal)			**Carbide shanks, cylindrical, L-Type: N**						**L-Type: M**	**L-Type: L**
	10	4	250	0.665	0.32	6.00	7960	21175	4.00	2.00
	12	4	250	0.800	0.40	7.20	6630	21215	4.80	2.40
	16	4	250	1.065	0.48	9.60	4975	21195	6.40	3.20
	20	4	250	1.110	0.56	12.00	3980	17670	8.00	4.00
			Carbide shanks, conical, L-Type: N						**L-Type: M**	**L-Type: L**
	10	4	250	0.665	0.32	6.00	7960	21175	4.00	2.00
	12	4	250	0.800	0.40	7.20	6630	21215	4.80	2.40
	16	4	250	1.065	0.48	9.60	4975	21195	6.40	3.20

High feed end mills XFeed

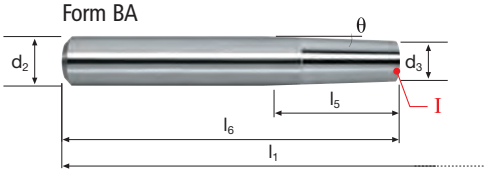
NovoSys X®

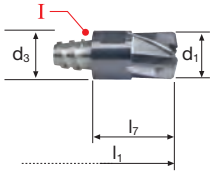
HM XT	λ 0° γ 0°
	HFC

Form AA



Form BA





I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS GG(G)

Milling heads									X-AL
Order-N°.	d_1 0/-0.025	d_3	l_7	$ap_{max.}$	$R_{theo.}$	z	i	I	
X-10-300-04-09-10	10	9.8	18	0.41	0.90	4	8	10	●
X-12-300-04-11-12	12	11.8	20	0.50	1.08	4	10	12	●
X-16-300-04-15-16	16	15.8	32	0.69	1.44	4	13	16	●
X-20-300-04-18-20	20	19.8	36	0.82	1.80	4	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●


fraisa

NovoSys X® special forms

Chamfering

N° NX-12-04-04-90-10



HM UT		Rm <850-1100			757

N° NF-10-04-04-90-10



HM UT		Rm <850-1100			759

N° NF-10-04-02-90-10



HM UT		Rm <850-1100			761

Drilling

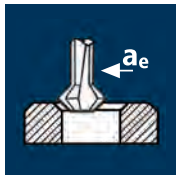
N° NA-10-04-02-60-10



HM UT		Rm <850-1100			763

VII

Application



Material

Steel
< 850 N/mm²

Steel
850 - 1100 N/mm²

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

d1 [mm]	z	vc [m/min]	fz [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae [mm]	ae [mm]
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	150	0.035	0.4	3980	555	0.30	0.20
16	6	150	0.045	0.5	2985	805	0.40	0.30
20	6	150	0.055	0.8	2385	785	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	150	0.040	0.4	3980	635	0.30	0.20
16	6	150	0.050	0.5	2985	895	0.40	0.30
20	6	150	0.060	0.8	2385	860	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	120	0.035	0.4	3185	445	0.30	0.20
16	6	120	0.045	0.5	2385	645	0.40	0.30
20	6	120	0.055	0.8	1910	630	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	120	0.040	0.4	3185	510	0.30	0.20
16	6	120	0.050	0.5	2385	715	0.40	0.30
20	6	120	0.060	0.8	1910	690	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	60	0.030	0.4	1590	190	0.30	0.20
16	6	60	0.040	0.5	1195	285	0.40	0.30
20	6	60	0.050	0.8	955	285	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	60	0.035	0.4	1590	225	0.30	0.20
16	6	60	0.045	0.5	1195	325	0.40	0.30
20	6	60	0.055	0.8	955	315	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	180	0.035	0.4	4775	670	0.30	0.20
16	6	180	0.045	0.5	3580	965	0.40	0.30
20	6	180	0.055	0.8	2865	945	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	180	0.040	0.4	4775	765	0.30	0.20
16	6	180	0.050	0.5	3580	1075	0.40	0.30
20	6	180	0.060	0.8	2865	1030	0.60	0.40

Application



Material

Steel
< 850 N/mm²

Steel
850 - 1100 N/mm²

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

d1 [mm]	z	vc [m/min]	fz [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae [mm]	ae [mm]
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	150	0.035	0.4	3980	555	0.30	0.20
16	6	150	0.045	0.5	2985	805	0.40	0.30
20	6	150	0.055	0.8	2385	785	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	150	0.040	0.4	3980	635	0.30	0.20
16	6	150	0.050	0.5	2985	895	0.40	0.30
20	6	150	0.060	0.8	2385	860	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	120	0.035	0.4	3185	445	0.30	0.20
16	6	120	0.045	0.5	2385	645	0.40	0.30
20	6	120	0.055	0.8	1910	630	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	120	0.040	0.4	3185	510	0.30	0.20
16	6	120	0.050	0.5	2385	715	0.40	0.30
20	6	120	0.060	0.8	1910	690	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	60	0.030	0.4	1590	190	0.30	0.20
16	6	60	0.040	0.5	1195	285	0.40	0.30
20	6	60	0.050	0.8	955	285	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	60	0.035	0.4	1590	225	0.30	0.20
16	6	60	0.045	0.5	1195	325	0.40	0.30
20	6	60	0.055	0.8	955	315	0.60	0.40
Carbide shanks, cylindrical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	160	0.035	0.4	4245	595	0.30	0.20
16	6	160	0.045	0.5	3185	860	0.40	0.30
20	6	160	0.055	0.8	2545	840	0.60	0.40
Carbide shanks, conical, L-Type: N							**L-Type: M**	**L-Type: L**
12	4	160	0.040	0.4	4245	680	0.30	0.20
16	6	160	0.050	0.5	3185	955	0.40	0.30
20	6	160	0.060	0.8	2545	915	0.60	0.40

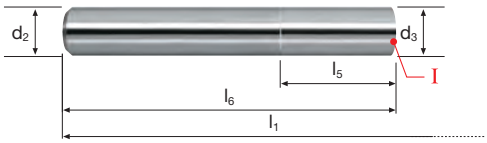
Forward and reverse deburring end mills

45° - Chamfer

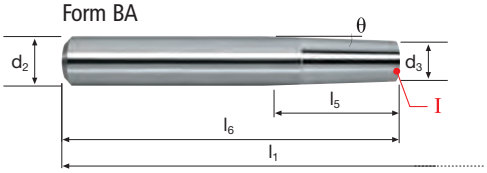
NovoSys X®

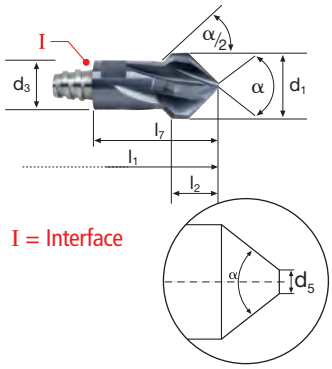
HM UT	λ 10° γ 8°

Form AA



Form BA



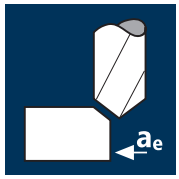


Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Milling heads											POLYCUT-A
Order-N°.	d1 e8	d3	d5	l2	l7	α 0°/-1°	z	i	I		
NX-12-04-04-90-10	12	9.8	1.0	9.50	19.75	90°	4	8	10		●
NX-16-04-06-90-12	16	11.8	1.5	11.25	29.50	90°	6	10	12		●
NX-20-04-06-90-16	20	15.8	1.5	13.25	33.50	90°	6	13	16		●

Carbide shanks, Form AA / BA										
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I		
AA-10-065-000-10	10		84.75		65		N	10		●
AA-10-080-040-10	10	9.8	99.75	40	80		M	10		●
AA-10-120-080-10	10	9.8	139.75	80	120		L	10		●
AA-12-070-000-12	12		99.50		70		N	12		●
AA-12-085-040-12	12	11.8	114.50	40	85		M	12		●
AA-12-120-075-12	12	11.8	149.50	75	120		L	12		●
AA-16-080-032-16	16	15.8	113.50	32	80		N	16		●
AA-16-110-062-16	16	15.8	143.50	62	110		M	16		●
BA-12-080-032-10	12	9.8	99.75	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	139.75	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	149.50	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	169.50	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	153.50	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	193.50	80	160	1.5°	L	16		●

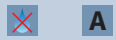
Application



Material

Steel
< 850 N/mm²





d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	150	0.030	0.3	0.3	4775	575	0.25	0.20
12	4	150	0.040	0.4	0.4	3980	635	0.30	0.25
16	6	150	0.050	0.5	0.5	2985	895	0.40	0.30
20	6	150	0.060	0.8	0.8	2385	860	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	150	0.035	0.3	0.3	4775	670	0.25	0.20
12	4	150	0.045	0.4	0.4	3980	715	0.30	0.25
16	6	150	0.055	0.5	0.5	2985	985	0.40	0.30

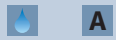
Steel
850 - 1100 N/mm²





d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	120	0.030	0.3	0.3	3820	460	0.25	0.20
12	4	120	0.040	0.4	0.4	3185	510	0.30	0.25
16	6	120	0.050	0.5	0.5	2385	715	0.40	0.30
20	6	120	0.060	0.8	0.8	1910	690	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	120	0.035	0.3	0.3	3820	535	0.25	0.20
12	4	120	0.045	0.4	0.4	3185	575	0.30	0.25
16	6	120	0.055	0.5	0.5	2385	785	0.40	0.30

Steel
1100 - 1300 N/mm²





d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	70	0.030	0.3	0.3	2230	270	0.25	0.20
12	4	70	0.040	0.4	0.4	1855	295	0.30	0.25
16	6	70	0.050	0.5	0.5	1395	420	0.40	0.30
20	6	70	0.060	0.8	0.8	1115	400	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	70	0.035	0.3	0.3	2230	310	0.25	0.20
12	4	70	0.045	0.4	0.4	1855	335	0.30	0.25
16	6	70	0.055	0.5	0.5	1395	460	0.40	0.30

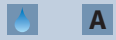
Stainless steel
[Cr-Ni/1.4301]



d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	60	0.030	0.3	0.3	1910	230	0.25	0.20
12	4	60	0.040	0.4	0.4	1590	255	0.30	0.25
16	6	60	0.050	0.5	0.5	1195	360	0.40	0.30
20	6	60	0.060	0.8	0.8	955	345	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	60	0.035	0.3	0.3	1910	265	0.25	0.20
12	4	60	0.045	0.4	0.4	1590	285	0.30	0.25
16	6	60	0.055	0.5	0.5	1195	395	0.40	0.30

Material

Cast iron
(lamellar / spheroidal)





d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	160	0.030	0.3	0.3	5095	610	0.25	0.20
12	4	160	0.040	0.4	0.4	4245	680	0.30	0.25
16	6	160	0.050	0.5	0.5	3185	955	0.40	0.30
20	6	160	0.060	0.8	0.8	2545	915	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	160	0.035	0.3	0.3	5095	715	0.25	0.20
12	4	160	0.045	0.4	0.4	4245	765	0.30	0.25
16	6	160	0.055	0.5	0.5	3185	1050	0.40	0.30

Unalloyed copper



d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	180	0.030	0.3	0.3	5730	690	0.25	0.20
12	4	180	0.040	0.4	0.4	4775	765	0.30	0.25
16	6	180	0.050	0.5	0.5	3580	1075	0.40	0.30
20	6	180	0.060	0.8	0.8	2865	1030	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	180	0.035	0.3	0.3	5730	800	0.25	0.20
12	4	180	0.045	0.4	0.4	4775	860	0.30	0.25
16	6	180	0.055	0.5	0.5	3580	1180	0.40	0.30

Titanium alloys
up to 300 HB
[Ti5Al2.5Sn]



d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	70	0.030	0.3	0.3	2230	270	0.25	0.20
12	4	70	0.040	0.4	0.4	1855	295	0.30	0.25
16	6	70	0.050	0.5	0.5	1395	420	0.40	0.30
20	6	70	0.060	0.8	0.8	1115	400	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	70	0.035	0.3	0.3	2230	310	0.25	0.20
12	4	70	0.045	0.4	0.4	1855	335	0.30	0.25
16	6	70	0.055	0.5	0.5	1395	460	0.40	0.30

Wrought aluminium
alloys Si < 6%



d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min⁻¹]	vf [mm/min]	ae / ap [mm]	ae / ap [mm]
			Carbide shanks, cylindrical, L-Type: N					L-Type: M	L-Type: L
10	4	200	0.030	0.3	0.3	6365	765	0.25	0.20
12	4	200	0.040	0.4	0.4	5305	850	0.30	0.25
16	6	200	0.050	0.5	0.5	3980	1195	0.40	0.30
20	6	200	0.060	0.8	0.8	3185	1145	0.60	0.50
			Carbide shanks, conical, L-Type: N					L-Type: M	L-Type: L
10	4	200	0.035	0.3	0.3	6365	890	0.25	0.20
12	4	200	0.045	0.4	0.4	5305	955	0.30	0.25
16	6	200	0.055	0.5	0.5	3980	1315	0.40	0.30

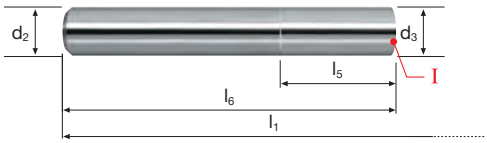
Deburring end mills

45° - Chamfer

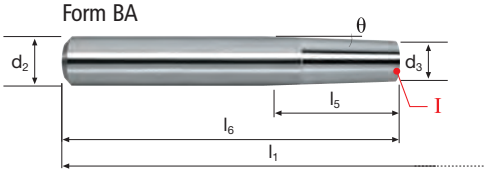
NovoSys X®

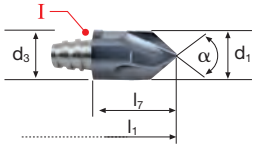
HM UT	λ 10° γ 8°

Form AA

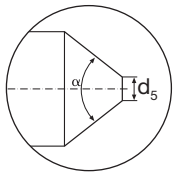


Form BA





I = Interface

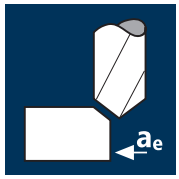


Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Milling heads										POLYCUT-A
Order-N°.	d_1 e8	d_3	d_5	l_7	α 0°/-1°	z	i	I		
NF-10-04-04-90-10	10	9.8	1.0	18	90°	4	8	10		●
NF-12-04-04-90-12	12	11.8	1.0	20	90°	4	10	12		●
NF-16-04-06-90-16	16	15.8	1.5	32	90°	6	13	16		●
NF-20-04-06-90-20	20	19.8	1.5	36	90°	6	17	20		●

Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		83		65		N	10		●
AA-10-080-040-10	10	9.8	98	40	80		M	10		●
AA-10-120-080-10	10	9.8	138	80	120		L	10		●
AA-12-070-000-12	12		90		70		N	12		●
AA-12-085-040-12	12	11.8	105	40	85		M	12		●
AA-12-120-075-12	12	11.8	140	75	120		L	12		●
AA-16-080-032-16	16	15.8	112	32	80		N	16		●
AA-16-110-062-16	16	15.8	142	62	110		M	16		●
AA-20-090-040-20	20	19.8	126	40	90		N	20		●
AA-20-150-100-20	20	19.8	186	100	150		L	20		●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16		●

Application



Material

Steel
< 850 N/mm²

Steel
850 - 1100 N/mm²

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N							L-Type: M	L-Type: L
10	2	150	0.030	0.3	0.3	4775	285	0.25	0.20
12	2	150	0.040	0.4	0.4	3980	320	0.30	0.25
16	2	150	0.050	0.5	0.5	2985	300	0.40	0.30
20	2	150	0.060	0.8	0.8	2385	285	0.60	0.50
	Carbide shanks, conical, L-Type: N							L-Type: M	L-Type: L
10	2	150	0.035	0.3	0.3	4775	335	0.25	0.20
12	2	150	0.045	0.4	0.4	3980	360	0.30	0.25
16	2	150	0.055	0.5	0.5	2985	330	0.40	0.30

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N							L-Type: M	L-Type: L
10	2	120	0.030	0.3	0.3	3820	230	0.25	0.20
12	2	120	0.040	0.4	0.4	3185	255	0.30	0.25
16	2	120	0.050	0.5	0.5	2385	240	0.40	0.30
20	2	120	0.060	0.8	0.8	1910	230	0.60	0.50
	Carbide shanks, conical, L-Type: N							L-Type: M	L-Type: L
10	2	120	0.035	0.3	0.3	3820	265	0.25	0.20
12	2	120	0.045	0.4	0.4	3185	285	0.30	0.25
16	2	120	0.055	0.5	0.5	2385	260	0.40	0.30

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N							L-Type: M	L-Type: L
10	2	60	0.030	0.3	0.3	1910	115	0.25	0.20
12	2	60	0.040	0.4	0.4	1590	125	0.30	0.25
16	2	60	0.050	0.5	0.5	1195	120	0.40	0.30
20	2	60	0.060	0.8	0.8	955	115	0.60	0.50
	Carbide shanks, conical, L-Type: N							L-Type: M	L-Type: L
10	2	60	0.035	0.3	0.3	1910	135	0.25	0.20
12	2	60	0.045	0.4	0.4	1590	145	0.30	0.25
16	2	60	0.055	0.5	0.5	1195	130	0.40	0.30

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	a_e / a_p [mm]
	Carbide shanks, cylindrical, L-Type: N							L-Type: M	L-Type: L
10	2	160	0.030	0.3	0.3	5095	305	0.25	0.20
12	2	160	0.040	0.4	0.4	4245	340	0.30	0.25
16	2	160	0.050	0.5	0.5	3185	320	0.40	0.30
20	2	160	0.060	0.8	0.8	2545	305	0.60	0.50
	Carbide shanks, conical, L-Type: N							L-Type: M	L-Type: L
10	2	160	0.035	0.3	0.3	5095	355	0.25	0.20
12	2	160	0.045	0.4	0.4	4245	380	0.30	0.25
16	2	160	0.055	0.5	0.5	3185	350	0.40	0.30

Application



Material

Steel
< 850 N/mm²

Steel
850 - 1100 N/mm²

Cold work tool steel
(12% Cr),
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	150	0.200	4775	955	765	575
12	150	0.240	3980	955	765	575
16	150	0.280	2985	835	670	500
20	150	0.300	2385	715	570	430
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	150	0.200	4775	955	765	575
12	150	0.240	3980	955	765	575
16	150	0.280	2985	835	670	500

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	120	0.200	3820	765	610	460
12	120	0.240	3185	765	610	460
16	120	0.280	2385	670	535	400
20	120	0.300	1910	575	460	345
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	120	0.200	3820	765	610	460
12	120	0.240	3185	765	610	460
16	120	0.280	2385	670	535	400

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	60	0.180	1910	345	275	205
12	60	0.220	1590	350	280	210
16	60	0.250	1195	300	240	180
20	60	0.280	955	265	210	160
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	60	0.180	1910	345	275	205
12	60	0.220	1590	350	280	210
16	60	0.250	1195	300	240	180

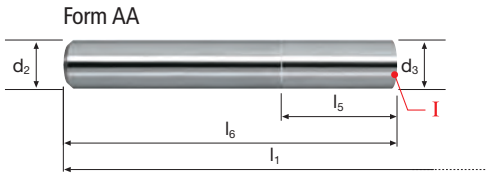
d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	160	0.200	5095	1020	815	610
12	160	0.240	4245	1020	815	610
16	160	0.280	3185	890	710	535
20	160	0.300	2545	765	610	460
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	160	0.200	5095	1020	815	610
12	160	0.240	4245	1020	815	610
16	160	0.280	3185	890	710	535

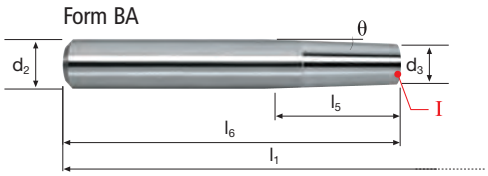
Deburring end mills

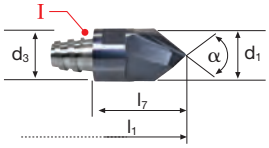
45° - Chamfer

NovoSys X®

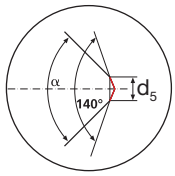
HM UT	λ 7° γ 8°







I = Interface

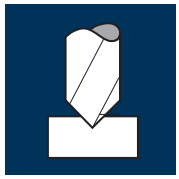


Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Milling heads									POLYCUT-A
Order-N°.	d1 e8	d3	d5	l7	α 0°/-1°	z	i	I	
NF-10-04-02-90-10	10	9.8	1.5	18	90°	2	8	10	●
NF-12-04-02-90-12	12	11.8	1.8	20	90°	2	10	12	●
NF-16-04-02-90-16	16	15.8	2.4	32	90°	2	13	16	●
NF-20-04-02-90-20	20	19.8	3.0	36	90°	2	17	20	●

Carbide shanks, Form AA / BA									
Order-N°.	d2 h6	d3	l1	l5	l6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	●
AA-10-080-040-10	10	9.8	98	40	80		M	10	●
AA-10-120-080-10	10	9.8	138	80	120		L	10	●
AA-12-070-000-12	12		90		70		N	12	●
AA-12-085-040-12	12	11.8	105	40	85		M	12	●
AA-12-120-075-12	12	11.8	140	75	120		L	12	●
AA-16-080-032-16	16	15.8	112	32	80		N	16	●
AA-16-110-062-16	16	15.8	142	62	110		M	16	●
AA-20-090-040-20	20	19.8	126	40	90		N	20	●
AA-20-150-100-20	20	19.8	186	100	150		L	20	●
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	●
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	●
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	●
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	●
BA-20-120-062-16	20	15.8	152	62	120	2.0°	M	16	●
BA-20-160-080-16	20	15.8	192	80	160	1.5°	L	16	●

Application



Material

Steel < 850 N/mm²

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	150	0.200	4775	955	765	575
12	150	0.240	3980	955	765	575
16	150	0.280	2985	835	670	500
20	150	0.320	2385	765	610	460
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	150	0.220	4775	1050	840	630
12	150	0.260	3980	1035	830	620
16	150	0.300	2985	895	715	535

Steel 850 - 1100 N/mm²

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	120	0.200	3820	765	610	460
12	120	0.240	3185	765	610	460
16	120	0.280	2385	670	535	400
20	120	0.320	1910	610	490	365
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	120	0.220	3820	840	670	505
12	120	0.260	3185	830	665	500
16	120	0.300	2385	715	570	430

Steel 1100 - 1300 N/mm²

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	70	0.180	2230	400	320	240
12	70	0.220	1855	410	330	245
16	70	0.250	1395	350	280	210
20	70	0.280	1115	310	250	185
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	70	0.180	2230	400	320	240
12	70	0.220	1855	410	330	245
16	70	0.250	1395	350	280	210

Stainless steel [Cr-Ni/1.4301]

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	60	0.180	1910	345	275	205
12	60	0.220	1590	350	280	210
16	60	0.250	1195	300	240	180
20	60	0.280	955	265	210	160
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	60	0.180	1910	345	275	205
12	60	0.220	1590	350	280	210
16	60	0.250	1195	300	240	180

Material

Cast iron (lamellar / spheroidal)

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	160	0.200	5095	1020	815	610
12	160	0.240	4245	1020	815	610
16	160	0.280	3185	890	710	535
20	160	0.320	2545	815	650	490
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	160	0.220	5095	1120	895	670
12	160	0.260	4245	1105	885	665
16	160	0.300	3185	955	765	575

Unalloyed copper

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	180	0.200	5730	1145	915	685
12	180	0.240	4775	1145	915	685
16	180	0.280	3580	1000	800	600
20	180	0.320	2865	915	730	550
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	180	0.220	5730	1260	1010	755
12	180	0.260	4775	1240	990	745
16	180	0.300	3580	1075	860	645

Titanium alloys up to 300 HB [Ti5Al2.5Sn]

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	70	0.180	2230	400	320	240
12	70	0.220	1855	410	330	245
16	70	0.250	1395	350	280	210
20	70	0.280	1115	310	250	185
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	70	0.180	2230	400	320	240
12	70	0.220	1855	410	330	245
16	70	0.250	1395	350	280	210

Wrought aluminium alloys Si < 6%

d1 [mm]	v_c [m/min]	f [mm]	n [min⁻¹]	v_f [mm/min]	v_f [mm/min]	v_f [mm/min]
	Carbide shanks, cylindrical, L-Type: N				L-Type: M	L-Type: L
10	200	0.200	6365	1275	1020	765
12	200	0.240	5305	1275	1020	765
16	200	0.280	3980	1115	890	670
20	200	0.320	3185	1020	815	610
	Carbide shanks, conical, L-Type: N				L-Type: M	L-Type: L
10	200	0.220	6365	1400	1120	840
12	200	0.260	5305	1380	1105	830
16	200	0.300	3980	1195	955	715

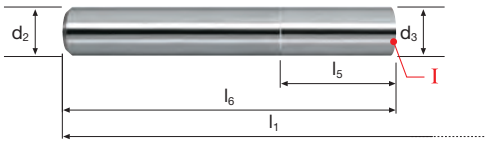
Centering drill

60° - Drilling

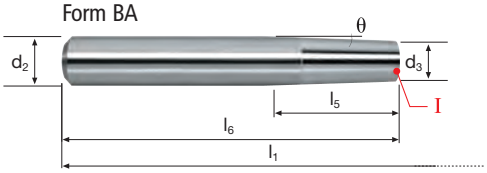
NovoSys X®

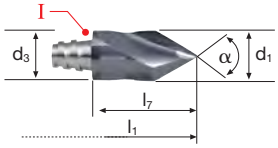
HM UT	λ 25°

Form AA



Form BA





I = Interface

Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless	Ti Titanium	GG(G) Aluminium Copper

Milling heads									POLYCUT-A
Order-N°.	d_1 h6	d_3	l_7	α 0°/-1°	z	i	I		
NA-10-04-02-60-10	10	9.8	22.5	60°	2	8	10		●
NA-12-04-02-60-12	12	11.8	25.0	60°	2	10	12		●
NA-16-04-02-60-16	16	15.8	35.0	60°	2	13	16		●
NA-20-04-02-60-20	20	19.8	40.0	60°	2	17	20		●

Carbide shanks, Form AA / BA										
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I		
AA-10-065-000-10	10		87.5		65		N	10		●
AA-10-080-040-10	10	9.8	102.5	40	80		M	10		●
AA-10-120-080-10	10	9.8	142.5	80	120		L	10		●
AA-12-070-000-12	12		95.0		70		N	12		●
AA-12-085-040-12	12	11.8	110.0	40	85		M	12		●
AA-12-120-075-12	12	11.8	145.0	75	120		L	12		●
AA-16-080-032-16	16	15.8	115.0	32	80		N	16		●
AA-16-110-062-16	16	15.8	145.0	62	110		M	16		●
AA-20-090-040-20	20	19.8	130.0	40	90		N	20		●
AA-20-150-100-20	20	19.8	190.0	100	150		L	20		●
BA-12-080-032-10	12	9.8	102.5	32	80	2.0°	M	10		●
BA-12-120-042-10	12	9.8	142.5	42	120	1.5°	L	10		●
BA-16-120-060-12	16	11.8	145.0	60	120	2.0°	M	12		●
BA-16-140-080-12	16	11.8	165.0	80	140	1.5°	L	12		●
BA-20-120-062-16	20	15.8	155.0	62	120	2.0°	M	16		●
BA-20-160-080-16	20	15.8	195.0	80	160	1.5°	L	16		●

NovoSys X® special tools

Heads, carbide shanks

NovoSys X®

You want it, we'll make it!

Custom tools are tools that are made to measure. Custom products that match your specific needs, in accordance with the current market requirements. At Fraisa, the best machines and materials, the latest technology and the wealth of expertise of the technology leader are all put to use. Our goal is to support your optimisation processes and to minimise your costs. Fraisa custom tools help you deliver custom services. To put it plainly: Concep-Tool optimises processes, increases performance and boosts productivity. This is often achieved simply by combining several standard tools to create one exceptionally productive custom tool.

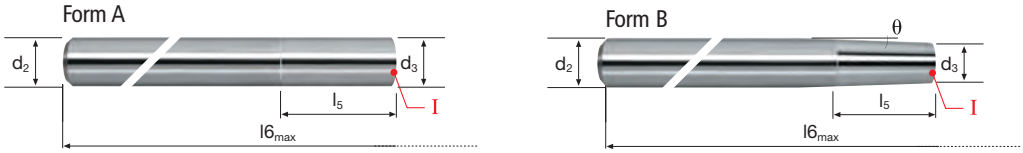


Heads made to measure

Specially adapted for your processes, the most versatile range of custom heads can be produced on the 10, 12, 16, 20 interface holding fixture (now also available in 25 as well).
Processes: milling, chamfering, drilling, counter-boring, grinding, individually or in combination.

HM shanks made to measure

The made-to-measure HM shanks are produced as basis shanks ($l6_{max}$ = maximum length).
The shape, the total length $l6_{max}$, the neck length $l5$ and the angle θ are matched to your processes in line with your specifications (●).



Carbide shanks, Form A / B								
Order-N°.	d_2 h6	d_3	l_5	l_6 max	θ		I	
99991399AA10	10	9.8	●	*240*	–		10	
99991399AA12	12	11.8	●	*240*	–		12	
99991399AA16	16	15.8	●	*300*	–		16	
99991399AA20	20	19.8	●	*300*	–		20	
99991399BA10	12	9.8	●	*240*	●		10	
99991399BA12	16	11.8	●	*300*	●		12	
99991399BA16	20	15.8	●	*300*	●		16	

Other carbide shanks

Carbide shanks, Form BA									
Order-N°.	d_2 h6	d_3	l_5	l_6	θ	L-Type	I		
BA-12-140-042-10	12	9.8	42	140	1.5°	L	10	●	
BA-16-160-080-12	16	11.8	80	160	1.5°	L	12	●	
BA-20-180-080-16	20	15.8	80	180	1.5°	L	16	●	

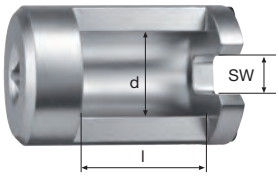
Torque limiter with connector 3/8"

Torque is pre-set according to table



Order-N°.		I	Torque	
Y-042-10		10 + 12	10 Nm	●
Y-042-16		16 + 20	18 Nm	●

Adapter with connector 3/8"



Order-N°.	SW	d	l	I	Torque	
Y-040-10	8	18	17	10	10 Nm	●
Y-040-12	10	18	25	12	10 Nm	●
Y-040-16	13	28	35	16	18 Nm	●
Y-040-20	17	28	35	20	18 Nm	●

T-handle with connector 3/8"



Order-N°.		
Y-044-00		●

Short wrench



Order-N°.	SW	I	
Y-030-10	8	10	●
Y-030-12	10	12	●
Y-030-16	13	16	●
Y-030-20	17	20	●

Assembly instructions with torque limiter



Attaching the milling head

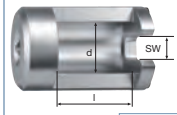
The thread of the head, the shank and the flat surface must be free of dirt. Dirt can affect the positive lock. As a result of this, the tool may break.



Using the adapter

The table below (Accessories, page 656) shows which adapter is required for which interface.

Adapter with connector 3/8"



Order-N°.	SW	d	l	I	Torque
Y-040-10	8	18	17	10	10 Nm
Y-040-12	10	18	25	12	10 Nm
Y-040-16	13	28	35	16	18 Nm
Y-040-20	17	28	35	20	18 Nm



Tightening the milling head

Screw on the head evenly with a T-handle and both hands. Using the torque limiter (table below / Accessories, page 656) ensures that the milling head is mounted with the correct torque.

The head is securely screwed on when no light gap can be seen on the flat surface. If a light gap remains visible after screwing on, the head is to be disconnected and cleaned.

Torque limiter with connector 3/8"
Torque is pre-set according to table



Order-N°.	I	Torque
Y-042-10	10 + 12	10 Nm
Y-042-16	16 + 20	18 Nm

Assembly instructions with short wrench



Holding the shank

In a chuck that satisfies the machining requirements.



Attaching the milling head

The thread of the head, the shank and the flat surface must be free of dirt. Dirt can affect the positive lock. As a result of this, the tool may break.



Tightening the milling head

Carefully screw on the head using a short wrench. Important: because hard metals have virtually no elasticity, care must be taken that the head is not screwed on any further once it comes into contact with the flat surface of the shank.

The head is securely screwed on when no light gap can be seen on the flat surface. If a light gap remains visible after screwing on, the head is to be disconnected and cleaned.

Short wrench



Order-N°.	SW	I
Y-030-10	8	10
Y-030-12	10	12
Y-030-16	13	16
Y-030-20	17	20

Ordering example

1. Select milling head

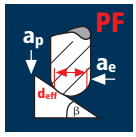
Milling heads									POLYCUT-A
Order-N°.	d_1 ±0.02	d_3	l_2	l_7	r ±0.01	z	i	I	
N-10-03-02-50-10	10	9.8	8	18	5.0	2	8	10	•
N-12-03-02-60-12	12	11.8	10	20	6.0	2	10	12	•
N-16-03-02-80-16	16	15.8	12	32	8.0	2	13	16	•
N-20-03-02-100-20	20	19.8	14	36	10.0	2	17	20	•

2. Select milling shank with corresponding interface

Carbide shanks, Form AA / BA									
Order-N°.	d_2 h6	d_3	l_1	l_5	l_6	θ	L-Type	I	
AA-10-065-000-10	10		83		65		N	10	
AA-10-080-040-10	10	9.8	98	40	80		M	10	
AA-10-120-080-10	10	9.8	138	80	120		L	10	
AA-12-070-000-12	12		90		70		N	12	
AA-12-085-040-12	12	11.8	105	40	85		M	12	
AA-12-120-075-12	12	11.8	140	75	120		L	12	
AA-16-080-032-16	16	15.8	112	32	80		N	16	
AA-16-110-062-16	16	15.8	142	62	110		M	16	
AA-20-090-040-20	20	19.8	126	40	90		N	20	
AA-20-150-100-20	20	19.8	186	100	150		L	20	
BA-12-080-032-10	12	9.8	98	32	80	2.0°	M	10	
BA-12-120-042-10	12	9.8	138	42	120	1.5°	L	10	
BA-16-120-060-12	16	11.8	140	60	120	2.0°	M	12	
BA-16-140-080-12	16	11.8	160	80	140	1.5°	L	12	

3. Determine cutting data according to cutter diameter and shank type

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	d_{eff} [mm] β = 45°	n [min⁻¹]	v_f [mm/min]	a_e / a_p [mm]	n [min⁻¹]
Steel 850 - 1100 N/mm² A A	Carbide shanks, cylindrical, L-Type: N									L-Type: M	
	10	2	200	0.135	0.40	0.50	9.28	6860	1850	0.28	7065
	12	2	200	0.140	0.48	0.60	11.13	5720	1600	0.34	5885
	16	2	200	0.150	0.64	0.80	14.84	4290	1285	0.45	4415
	20	2	200	0.160	0.80	1.00	18.55	3430	1100	0.56	3535
	Carbide shanks, conical, L-Type: N									L-Type: M	
	10	2	200	0.140	0.40	0.50	9.28	6860	1920	0.28	7065
	12	2	200	0.150	0.48	0.60	11.13	5720	1715	0.34	5885
	16	2	200	0.155	0.64	0.80	14.84	4290	1330	0.45	4415
Steel 1100 - 1300 N/mm² A A	Carbide shanks, cylindrical, L-Type: N									L-Type: M	
	10	2	180	0.125	0.40	0.50	9.28	6175	1545	0.28	6360
	12	2	180	0.130	0.48	0.60	11.13	5150	1340	0.34	5295
	16	2	180	0.140	0.64	0.80	14.84	3860	1080	0.45	3975
	20	2	180	0.145	0.80	1.00	18.55	3090	895	0.56	3180
	Carbide shanks, conical, L-Type: N									L-Type: M	
	10	2	180	0.130	0.40	0.50	9.28	6175	1605	0.28	6360
	12	2	180	0.140	0.48	0.60	11.13	5150	1440	0.34	5295
	16	2	180	0.145	0.64	0.80	14.84	3860	1120	0.45	3975
Steel 1300 - 1500 N/mm² A A	Carbide shanks, cylindrical, L-Type: N									L-Type: M	
	10	2	150	0.115	0.40	0.50	9.28	5145	1185	0.28	5300
	12	2	150	0.120	0.48	0.60	11.13	4290	1030	0.34	4415
	16	2	150	0.130	0.64	0.80	14.84	3215	835	0.45	3310
	20	2	150	0.135	0.80	1.00	18.55	2575	695	0.56	2650
	Carbide shanks, conical, L-Type: N									L-Type: M	
	10	2	150	0.120	0.40	0.50	9.28	5145	1235	0.28	5300
	12	2	150	0.130	0.48	0.60	11.13	4290	1115	0.34	4415
	16	2	150	0.130	0.64	0.80	14.84	3215	835	0.45	3310
Stainless steel [Cr-Ni-Mo-.../1.4571] A	Carbide shanks, cylindrical, L-Type: N									L-Type: M	
	10	2	60	0.095	0.20	0.25	8.77	2180	415	0.14	2240
	12	2	60	0.100	0.24	0.30	10.52	1815	365	0.17	1865
	16	2	60	0.105	0.32	0.40	14.03	1360	285	0.22	1400
	20	2	60	0.110	0.40	0.50	17.54	1090	240	0.28	1120
	Carbide shanks, conical, L-Type: N									L-Type: M	
	10	2	60	0.100	0.20	0.25	8.77	2180	435	0.14	2240
	12	2	60	0.105	0.24	0.30	10.52	1815	380	0.17	1865
	16	2	60	0.110	0.32	0.40	14.03	1360	300	0.22	1400

Round indexable insert milling tools

773 – 835

Indexable insert milling tools HFC

837 – 875

Indexable insert Face milling tools

877 – 893

Corner/slot indexable insert milling tools

895 – 937

Accessories

938 – 939


fraisa

Round indexable insert milling tools

Round insert end mill for indexable inserts 10mm

N° W03140 d1 20 – 32



N° W03185 d1 20 – 32



NX	λ **5°** γ **15°**		**Rm** 850-1500			777
SX	λ **5°** γ **20°**		**Inox** Stainless	**Rm** <850		779
HX	λ **5°** γ **-4°**		**Rm** 1300-1500	**HRC** 48-60		781
ZX	λ **5°** γ **14°**		**Ni** Alloys	**Inox** Stainless	**Rm** <850	783
AX	λ **5°** γ **21°**		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	785

Round insert end mill for indexable inserts 12mm

N° W03150 d1 25 – 32



N° W03195 d1 25 – 32



NX	λ **0°** γ **14°**		**Rm** 850-1500			787
SX	λ **0°** γ **19°**		**Inox** Stainless	**Rm** <850		789
HX	λ **0°** γ **-4°**		**Rm** 1300-1500	**HRC** 48-60		791
ZX	λ **0°** γ **13°**		**Ni** Alloys	**Inox** Stainless	**Rm** <850	793
AX	λ **0°** γ **20°**		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	795

Round insert end mill for indexable inserts 10mm

N° W03410

d1 40 – 52



NX	λ 5° γ 15°		**Rm** 850-1500			797
SX	λ 5° γ 20°		**Inox** Stainless	**Rm** <850		799
HX	λ 5° γ -4°		**Rm** 1300-1500	**HRC** 48-60		801
ZX	λ 5° γ 14°		**Ni** Alloys	**Inox** Stainless	**Rm** <850	803
AX	λ 5° γ 21°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	805

Round insert end mill for indexable inserts 12mm

N° W03412

d1 40 – 100



NX	λ 5° γ 15°		**Rm** 850-1500			807
SX	λ 5° γ 20°		**Inox** Stainless	**Rm** <850		809
HX	λ 5° γ -4°		**Rm** 1300-1500	**HRC** 48-60		811
ZX	λ 5° γ 14°		**Ni** Alloys	**Inox** Stainless	**Rm** <850	813
AX	λ 5° γ 21°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	815

Round insert end mill for indexable inserts 10mm

N° W03210

d1 25 – 35



NX	λ 5° γ 15°		**Rm** 850-1500			817
SX	λ 5° γ 20°		**Inox** Stainless	**Rm** <850		819
HX	λ 5° γ -4°		**Rm** 1300-1500	**HRC** 48-60		821
ZX	λ 5° γ 14°		**Ni** Alloys	**Inox** Stainless	**Rm** <850	823
AX	λ 5° γ 21°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	825

Round insert end mill for indexable inserts 12mm

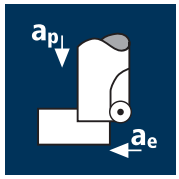
N° W03212

d1 35 – 42



NX	λ 5° γ 15°		**Rm** 850-1500			827
SX	λ 5° γ 20°		**Inox** Stainless	**Rm** <850		829
HX	λ 5° γ -4°		**Rm** 1300-1500	**HRC** 48-60		831
ZX	λ 5° γ 14°		**Ni** Alloys	**Inox** Stainless	**Rm** <850	833
AX	λ 5° γ 21°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	835

Application



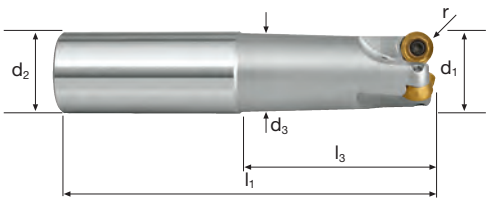
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	M	20	2	220	0.500	1.33	12.0	3500	3500	56.0
		25	3	220	0.500	1.33	15.0	2800	4200	84.0
		32	4	220	0.500	1.33	19.2	2190	4380	112.0
	XL	20	2	180	0.480	1.22	8.0	2865	2750	27.0
		25	3	180	0.480	1.22	10.0	2290	3300	40.5
		32	4	180	0.480	1.22	12.8	1790	3435	53.5
Steel 850 - 1100 N/mm²	M	20	2	200	0.400	1.20	12.0	3185	2550	36.5
		25	3	200	0.400	1.20	15.0	2545	3055	55.0
		32	4	200	0.400	1.20	19.2	1990	3185	73.5
	XL	20	2	160	0.385	1.10	8.0	2545	1960	17.0
		25	3	160	0.385	1.10	10.0	2035	2350	26.0
		32	4	160	0.385	1.10	12.8	1590	2450	34.5
Steel 1100 - 1300 N/mm²	M	20	2	180	0.350	1.13	12.0	2865	2005	27.0
		25	3	180	0.350	1.13	15.0	2290	2405	41.0
		32	4	180	0.350	1.13	19.2	1790	2505	54.5
	XL	20	2	140	0.335	1.04	8.0	2230	1495	12.5
		25	3	140	0.335	1.04	10.0	1785	1795	18.5
		32	4	140	0.335	1.04	12.8	1395	1870	25.0
Steel 1300 - 1500 N/mm²	M	20	2	120	0.300	1.06	12.0	1910	1145	14.5
		25	3	120	0.300	1.06	15.0	1530	1375	22.0
		32	4	120	0.300	1.06	19.2	1195	1435	29.0
	XL	20	2	100	0.290	0.98	8.0	1590	920	7.0
		25	3	100	0.290	0.98	10.0	1275	1110	11.0
		32	4	100	0.290	0.98	12.8	995	1155	14.5

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	M	20	2	100	0.250	1.00	12.0	1590	795	9.5
		25	3	100	0.250	1.00	15.0	1275	955	14.5
		32	4	100	0.250	1.00	19.2	995	995	19.0
	XL	20	2	80	0.240	0.92	8.0	1275	610	4.5
		25	3	80	0.240	0.92	10.0	1020	735	7.0
		32	4	80	0.240	0.92	12.8	795	765	9.0
Cast iron (lamellar / spheroidal)	M	20	2	180	0.500	1.33	12.0	2865	2865	45.5
		25	3	180	0.500	1.33	15.0	2290	3435	68.5
		32	4	180	0.500	1.33	19.2	1790	3580	91.5
	XL	20	2	140	0.480	1.22	8.0	2230	2140	21.0
		25	3	140	0.480	1.22	10.0	1785	2570	31.5
		32	4	140	0.480	1.22	12.8	1395	2680	42.0

Round insert end mill NX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 15°



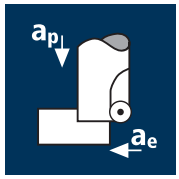
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03140.202	20	20	19	110	57	1.4	2	M	●
W03185.202	20	20	19	185	57	1.4	2	XL	●
W03140.253	25	25	24	124	65	1.4	3	M	●
W03185.253	25	25	24	210	65	1.4	3	XL	●
W03140.324	32	32	31	144	81	1.4	4	M	●
W03185.324	32	32	31	250	81	1.4	4	XL	●

Inserts NX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



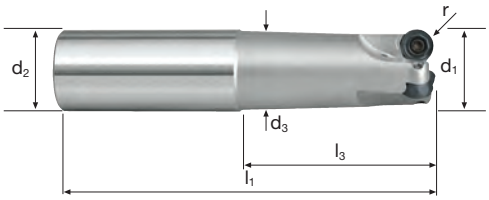
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	M	20	2	160	0.360	0.91	12.0	2545	1830	20.0
		25	3	160	0.360	0.91	15.0	2035	2200	30.0
		32	4	160	0.360	0.91	19.2	1590	2290	40.0
	XL	20	2	140	0.340	0.69	8.0	2230	1515	8.5
		25	3	140	0.340	0.69	10.0	1785	1820	12.5
		32	4	140	0.340	0.69	12.8	1395	1895	16.5
Stainless steel [Cr-Ni/1.4301]	M	20	2	120	0.325	0.82	12.0	1910	1240	12.0
		25	3	120	0.325	0.82	15.0	1530	1490	18.5
		32	4	120	0.325	0.82	19.2	1195	1555	24.5
	XL	20	2	100	0.305	0.62	8.0	1590	970	5.0
		25	3	100	0.305	0.62	10.0	1275	1165	7.0
		32	4	100	0.305	0.62	12.8	995	1215	9.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	20	2	130	0.290	0.82	12.0	2070	1200	12.0
		25	3	130	0.290	0.82	15.0	1655	1440	17.5
		32	4	130	0.290	0.82	19.2	1295	1500	23.5
	XL	20	2	110	0.270	0.62	8.0	1750	945	4.5
		25	3	110	0.270	0.62	10.0	1400	1135	7.0
		32	4	110	0.270	0.62	12.8	1095	1185	9.5
Heat resistant steel [17-4 PH]	M	20	2	100	0.215	0.64	12.0	1590	685	5.5
		25	3	100	0.215	0.64	15.0	1275	820	8.0
		32	4	100	0.215	0.64	19.2	995	855	10.5
	XL	20	2	80	0.205	0.48	8.0	1275	525	2.0
		25	3	80	0.205	0.48	10.0	1020	625	3.0
		32	4	80	0.205	0.48	12.8	795	650	4.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	M	20	2	55	0.200	0.59	12.0	875	350	2.5
		25	3	55	0.200	0.59	15.0	700	420	3.5
		32	4	55	0.200	0.59	19.2	545	435	5.0
	XL	25	3	45	0.185	0.45	10.0	575	320	1.5
		25	3	45	0.185	0.45	10.0	575	320	1.5
		25	3	45	0.185	0.45	10.0	575	320	1.5
Steel < 850 N/mm²	M	20	2	220	0.450	1.23	12.0	3500	3150	46.5
		25	3	220	0.450	1.23	15.0	2800	3780	69.5
		32	4	220	0.450	1.23	19.2	2190	3940	93.0
	XL	20	2	180	0.425	1.13	8.0	2865	2435	22.0
		25	3	180	0.425	1.13	10.0	2290	2920	33.0
		32	4	180	0.425	1.13	12.8	1790	3045	44.0

Round insert end mill SX

Inserts 10mm, with integral air / cooling channel

HM | λ **5°** γ **20°**



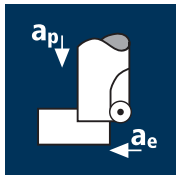
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03140.202	20	20	19	110	57	1.4	2	M	●
W03185.202	20	20	19	185	57	1.4	2	XL	●
W03140.253	25	25	24	124	65	1.4	3	M	●
W03185.253	25	25	24	210	65	1.4	3	XL	●
W03140.324	32	32	31	144	81	1.4	4	M	●
W03185.324	32	32	31	250	81	1.4	4	XL	●

Inserts SX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53310.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application

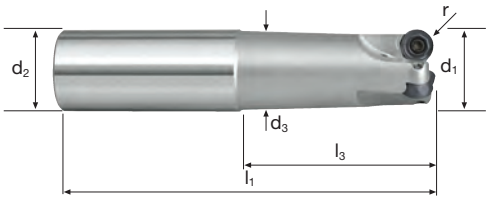


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	M	20	2	100	0.350	1.00	12.0	1590	1115	13.5
		25	3	100	0.350	1.00	15.0	1275	1340	20.0
		32	4	100	0.350	1.00	19.2	995	1395	27.0
	XL	20	2	90	0.320	0.76	8.0	1430	915	5.5
		25	3	90	0.320	0.76	10.0	1145	1100	8.5
		32	4	90	0.320	0.76	12.8	895	1145	11.0
Hardened tool steel 48 - 52 HRC	M	20	2	80	0.330	0.95	12.0	1275	840	9.5
		25	3	80	0.330	0.95	15.0	1020	1010	14.5
		32	4	80	0.330	0.95	19.2	795	1050	19.0
	XL	20	2	70	0.305	0.72	8.0	1115	680	4.0
		25	3	70	0.305	0.72	10.0	890	815	6.0
		32	4	70	0.305	0.72	12.8	695	850	8.0
Hardened tool steel 52 - 56 HRC	M	20	2	50	0.315	0.90	12.0	795	500	5.5
		25	3	50	0.315	0.90	15.0	635	600	8.0
		32	4	50	0.315	0.90	19.2	495	625	11.0
	XL	20	2	40	0.290	0.68	8.0	635	370	2.0
		25	3	40	0.290	0.68	10.0	510	445	3.0
		32	4	40	0.290	0.68	12.8	400	465	4.0
Hardened tool steel 56 - 60 HRC	M	20	2	30	0.225	0.70	12.0	475	215	2.0
		25	3	30	0.225	0.70	15.0	380	255	2.5
		32	4	30	0.225	0.70	19.2	300	270	3.5
	XL	20	2	25	0.210	0.53	8.0	400	170	0.5
		25	3	25	0.210	0.53	10.0	320	200	1.0
		32	4	25	0.210	0.53	12.8	250	210	1.5

Round insert end mill HX

Inserts 10mm, with integral air / cooling channel

HM | λ **5°** γ **-4°**



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03140.202	20	20	19	110	57	1.4	2	M	●
W03185.202	20	20	19	185	57	1.4	2	XL	●
W03140.253	25	25	24	124	65	1.4	3	M	●
W03185.253	25	25	24	210	65	1.4	3	XL	●
W03140.324	32	32	31	144	81	1.4	4	M	●
W03185.324	32	32	31	250	81	1.4	4	XL	●

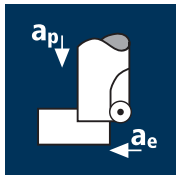
Inserts HX 10mm — Delivery range: Packaging unit 10 pieces

Order-N°.	D_1	r	D	
W53210.010	10.0	5.0	4.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



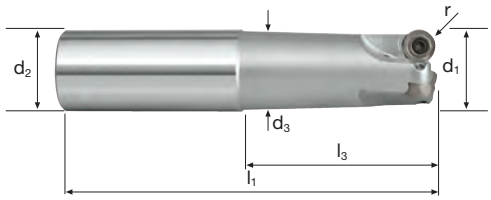
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	M	20	2	130	0.340	0.80	12.0	2070	1410	13.5
		25	3	130	0.340	0.80	15.0	1655	1690	20.5
		32	4	130	0.340	0.80	19.2	1295	1760	27.0
	XL	20	2	110	0.320	0.60	8.0	1750	1120	5.5
		25	3	110	0.320	0.60	10.0	1400	1345	8.0
		32	4	110	0.320	0.60	12.8	1095	1400	11.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	20	2	140	0.305	0.80	12.0	2230	1360	13.0
		25	3	140	0.305	0.80	15.0	1785	1635	19.5
		32	4	140	0.305	0.80	19.2	1395	1700	26.0
	XL	20	2	120	0.290	0.60	8.0	1910	1110	5.5
		25	3	120	0.290	0.60	10.0	1530	1330	8.0
		32	4	120	0.290	0.60	12.8	1195	1385	10.5
Heat resistant steel [17-4 PH] [Duplex]	M	20	2	110	0.220	0.64	12.0	1750	770	6.0
		25	3	110	0.220	0.64	15.0	1400	925	9.0
		32	4	110	0.220	0.64	19.2	1095	965	12.0
	XL	20	2	100	0.210	0.48	8.0	1590	670	2.5
		25	3	100	0.210	0.48	10.0	1275	805	4.0
		32	4	100	0.210	0.48	12.8	995	835	5.0
Titanium alloys >300 HB [Ti6Al4V]	M	20	2	60	0.205	0.60	12.0	955	390	3.0
		25	3	60	0.205	0.60	15.0	765	470	4.0
		32	4	60	0.205	0.60	19.2	595	490	5.5
	XL	20	2	50	0.190	0.45	8.0	795	300	1.0
		25	3	50	0.190	0.45	10.0	635	360	1.5
		32	4	50	0.190	0.45	12.8	495	375	2.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	M	20	2	80	0.240	0.72	12.0	1275	610	5.5
		25	3	80	0.240	0.72	15.0	1020	735	8.0
		32	4	80	0.240	0.72	19.2	795	765	10.5
	XL	20	2	70	0.225	0.54	8.0	1115	500	2.0
		25	3	70	0.225	0.54	10.0	890	600	3.0
		32	4	70	0.225	0.54	12.8	695	625	4.5
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	M	20	2	35	0.135	0.64	8.0	555	150	1.0
		25	3	35	0.135	0.64	10.0	445	180	1.0
		32	4	35	0.135	0.64	12.8	350	190	1.5
	XL	20	2	30	0.130	0.48	8.0	475	125	0.5
		25	3	30	0.130	0.48	10.0	380	150	0.5
		32	4	30	0.130	0.48	12.8	300	155	1.0

Round insert end mill ZX

Inserts 10mm, with integral air / cooling channel

HM | λ **5°** γ **14°**



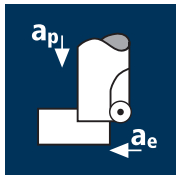
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys HSS**

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03140.202	20	20	19	110	57	1.4	2	M	●
W03185.202	20	20	19	185	57	1.4	2	XL	●
W03140.253	25	25	24	124	65	1.4	3	M	●
W03185.253	25	25	24	210	65	1.4	3	XL	●
W03140.324	32	32	31	144	81	1.4	4	M	●
W03185.324	32	32	31	250	81	1.4	4	XL	●

Inserts ZX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application

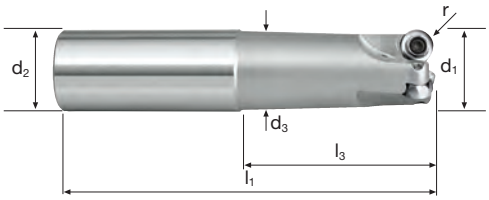


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	M	20	2	700	0.400	1.20	12.0	11140	8910	128.5
		25	3	650	0.400	1.20	15.0	8275	9930	178.5
		32	4	550	0.400	1.20	19.2	5470	8750	201.5
	XL	20	2	650	0.380	1.10	8.0	10345	7860	69.0
		25	3	600	0.380	1.10	10.0	7640	8710	96.0
		32	4	500	0.380	1.10	12.8	4975	7560	106.5
Cast aluminium Si 6%-15%	M	20	2	550	0.350	1.20	12.0	8755	6130	88.5
		25	3	500	0.350	1.20	15.0	6365	6685	120.5
		32	4	450	0.350	1.20	19.2	4475	6265	144.5
	XL	20	2	500	0.330	1.10	8.0	7960	5255	46.0
		25	3	450	0.330	1.10	10.0	5730	5675	62.5
		32	4	400	0.330	1.10	12.8	3980	5255	74.0
Unalloyed copper	M	20	2	500	0.350	1.20	12.0	7960	5570	80.0
		25	3	450	0.350	1.20	15.0	5730	6015	108.5
		32	4	400	0.350	1.20	19.2	3980	5570	128.5
	XL	20	2	450	0.330	1.10	8.0	7160	4725	41.5
		25	3	400	0.330	1.10	10.0	5095	5045	55.5
		32	4	400	0.330	1.10	12.8	3980	5255	74.0
Thermoplastics	M	20	2	700	0.400	1.20	12.0	11140	8910	128.5
		25	3	650	0.400	1.20	15.0	8275	9930	178.5
		32	4	550	0.400	1.20	19.2	5470	8750	201.5
	XL	20	2	650	0.380	1.10	8.0	10345	7860	69.0
		25	3	600	0.380	1.10	10.0	7640	8710	96.0
		32	4	500	0.380	1.10	12.8	4975	7560	106.5

Round insert end mill AX

Inserts 10mm, with integral air / cooling channel

HM | λ **5°** γ **21°**



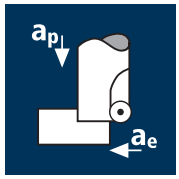
Al Aluminum > 99% | **Al** Aluminum Alloy | **Al** Aluminum Cast | **Cu** Copper | **Plastic** Thermoplast | **CuZn Brass** **CF/GF** Fiber Reinforced Plastics

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03140.202	20	20	19	110	57	1.4	2	M	●
W03185.202	20	20	19	185	57	1.4	2	XL	●
W03140.253	25	25	24	124	65	1.4	3	M	●
W03185.253	25	25	24	210	65	1.4	3	XL	●
W03140.324	32	32	31	144	81	1.4	4	M	●
W03185.324	32	32	31	250	81	1.4	4	XL	●

Inserts AX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53510.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



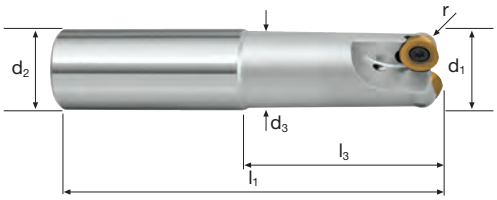
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	M	25	2	220	0.500	1.67	15.0	2800	2800	70.0
		32	3	220	0.500	1.67	19.2	2190	3285	105.5
	XL	25	2	180	0.480	1.50	10.0	2290	2200	33.0
		32	3	180	0.480	1.50	12.8	1790	2580	49.5
Steel 850 - 1100 N/mm²	M	25	2	200	0.400	1.50	15.0	2545	2035	46.0
		32	3	200	0.400	1.50	19.2	1990	2390	69.0
	XL	25	2	160	0.385	1.40	10.0	2035	1565	22.0
		32	3	160	0.385	1.40	12.8	1590	1835	33.0
Steel 1100 - 1300 N/mm²	M	25	2	180	0.350	1.42	15.0	2290	1605	34.0
		32	3	180	0.350	1.42	19.2	1790	1880	51.5
	XL	25	2	140	0.335	1.27	10.0	1785	1195	15.0
		32	3	140	0.335	1.27	12.8	1395	1400	23.0
Steel 1300 - 1500 N/mm²	M	25	2	120	0.300	1.34	15.0	1530	920	18.5
		32	3	120	0.300	1.34	19.2	1195	1075	27.5
	XL	25	2	100	0.290	1.20	10.0	1275	740	9.0
		32	3	100	0.290	1.20	12.8	995	865	13.5

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	M	25	2	100	0.250	1.25	15.0	1275	640	12.0
		32	3	100	0.250	1.25	19.2	995	745	18.0
	XL	25	2	80	0.240	1.13	10.0	1020	490	5.5
		32	3	80	0.240	1.13	12.8	795	570	8.0
Cast iron (lamellar / spheroidal)	M	25	2	180	0.500	1.67	15.0	2290	2290	57.5
		32	3	180	0.500	1.67	19.2	1790	2685	86.0
	XL	25	2	140	0.480	1.50	10.0	1785	1715	25.5
		32	3	140	0.480	1.50	12.8	1395	2010	38.5

Round insert end mill NX

Inserts 12mm, with integral air / cooling channel

HM	λ 0° γ 14°



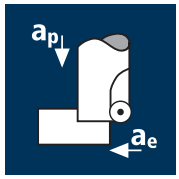
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03150.252	25	25	24	124	65	1.7	2	M	●
W03195.252	25	25	24	210	65	1.7	2	XL	●
W03150.323	32	32	31	144	81	1.7	3	M	●
W03195.323	32	32	31	250	81	1.7	3	XL	●

Inserts NX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



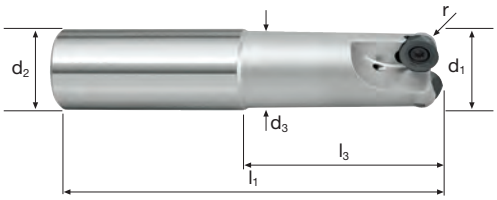
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	M	25	2	160	0.380	1.14	15.0	2035	1545	26.5
		32	3	160	0.380	1.14	19.2	1590	1815	39.5
	XL	25	2	140	0.360	0.90	10.0	1785	1285	11.5
		32	3	140	0.360	0.90	12.8	1395	1505	17.5
Stainless steel [Cr-Ni/1.4301]	M	25	2	120	0.340	1.03	15.0	1530	1040	16.0
		32	3	120	0.340	1.03	19.2	1195	1220	24.0
	XL	25	2	100	0.325	0.81	10.0	1275	830	6.5
		32	3	100	0.325	0.81	12.8	995	970	10.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	25	2	130	0.305	1.03	15.0	1655	1010	15.5
		32	3	130	0.305	1.03	19.2	1295	1185	23.5
	XL	25	2	110	0.290	0.81	10.0	1400	810	6.5
		32	3	110	0.290	0.81	12.8	1095	955	10.0
Heat resistant steel [17-4 PH]	M	25	2	100	0.230	0.80	15.0	1275	585	7.0
		32	3	100	0.230	0.80	19.2	995	685	10.5
	XL	25	2	80	0.215	0.63	10.0	1020	440	3.0
		32	3	80	0.215	0.63	12.8	795	515	4.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	M	25	2	55	0.210	0.74	15.0	700	295	3.5
		32	3	55	0.210	0.74	19.2	545	345	5.0
	XL	25	2	45	0.200	0.59	10.0	575	230	1.5
		32	3	45	0.200	0.59	12.8	450	270	2.0
Steel < 850 N/mm²	M	25	2	220	0.475	1.54	15.0	2800	2660	61.5
		32	3	220	0.475	1.54	19.2	2190	3120	92.5
	XL	25	2	180	0.450	1.42	10.0	2290	2060	29.5
		32	3	180	0.450	1.42	12.8	1790	2415	44.0

Round insert end mill SX

Inserts 12mm, with integral air / cooling channel

HM | λ **0°** γ **19°**



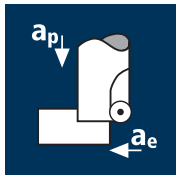
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03150.252	25	25	24	124	65	1.7	2	M	●
W03195.252	25	25	24	210	65	1.7	2	XL	●
W03150.323	32	32	31	144	81	1.7	3	M	●
W03195.323	32	32	31	250	81	1.7	3	XL	●

Inserts SX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53310.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application

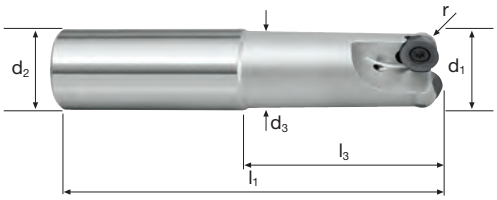


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	M	25	2	100	0.350	1.44	15.0	1275	895	19.5
		32	3	100	0.350	1.44	19.2	995	1045	29.0
	XL	25	2	90	0.320	1.11	10.0	1145	735	8.0
		32	3	90	0.320	1.11	12.8	895	860	12.0
Hardened tool steel 48 - 52 HRC	M	25	2	80	0.330	1.37	15.0	1020	675	14.0
		32	3	80	0.330	1.37	19.2	795	785	20.5
	XL	25	2	70	0.305	1.05	10.0	890	545	5.5
		32	3	70	0.305	1.05	12.8	695	635	8.5
Hardened tool steel 52 - 56 HRC	M	25	2	50	0.315	1.30	15.0	635	400	8.0
		32	3	50	0.315	1.30	19.2	495	470	11.5
	XL	25	2	40	0.290	1.00	10.0	510	295	3.0
		32	3	40	0.290	1.00	12.8	400	350	4.5
Hardened tool steel 56 - 60 HRC	M	25	2	30	0.225	1.01	15.0	380	170	2.5
		32	3	30	0.225	1.01	19.2	300	205	4.0
	XL	25	2	25	0.210	0.78	10.0	320	135	1.0
		32	3	25	0.210	0.78	12.8	250	160	1.5

Round insert end mill HX

Inserts 12mm, with integral air / cooling channel

HM	λ 0° γ -4°



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03150.252	25	25	24	124	65	1.7	2	M	●
W03195.252	25	25	24	210	65	1.7	2	XL	●
W03150.323	32	32	31	144	81	1.7	3	M	●
W03195.323	32	32	31	250	81	1.7	3	XL	●

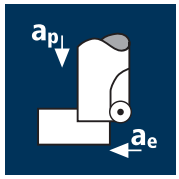
Inserts HX 12mm Delivery range: Packaging unit 10 pieces

Order-N°.	D_1	r	D	
W53210.012	12.0	6.0	4.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



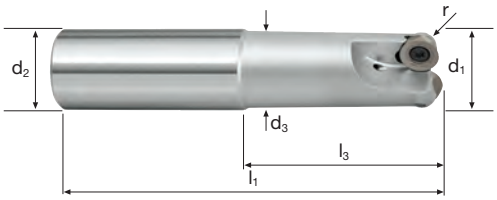
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	M	25	2	130	0.360	1.00	15.0	1655	1190	18.0
		32	3	130	0.360	1.00	19.2	1295	1400	27.0
	XL	25	2	110	0.340	0.80	10.0	1400	950	7.5
		32	3	110	0.340	0.80	12.8	1095	1115	11.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	25	2	140	0.325	1.00	15.0	1785	1160	17.5
		32	3	140	0.325	1.00	19.2	1395	1360	26.0
	XL	25	2	120	0.305	0.80	10.0	1530	935	7.5
		32	3	120	0.305	0.80	12.8	1195	1095	11.0
Heat resistant steel [17-4 PH] [Duplex]	M	25	2	110	0.235	0.80	15.0	1400	660	8.0
		32	3	110	0.235	0.80	19.2	1095	770	12.0
	XL	25	2	100	0.220	0.64	10.0	1275	560	3.5
		32	3	100	0.220	0.64	12.8	995	655	5.5
Titanium alloys >300 HB [Ti6Al4V]	M	25	2	60	0.215	0.75	15.0	765	330	3.5
		32	3	60	0.215	0.75	19.2	595	385	5.5
	XL	25	2	50	0.205	0.60	10.0	635	260	1.5
		32	3	50	0.205	0.60	12.8	495	305	2.5

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	M	25	2	80	0.250	0.90	15.0	1020	510	7.0
		32	3	80	0.250	0.90	19.2	795	595	10.5
	XL	25	2	70	0.240	0.72	10.0	890	425	3.0
		32	3	70	0.240	0.72	12.8	695	500	4.5
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	M	25	2	35	0.145	0.80	10.0	445	130	1.0
		32	3	35	0.145	0.80	12.8	350	150	1.5
	XL	25	2	30	0.135	0.64	10.0	380	105	0.5
		32	3	30	0.135	0.64	12.8	300	120	1.0

Round insert end mill ZX

Inserts 12mm, with integral air / cooling channel

HM | λ **0°** γ **13°**



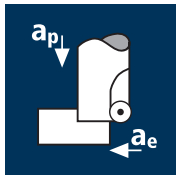
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys HSS**

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03150.252	25	25	24	124	65	1.7	2	M	●
W03195.252	25	25	24	210	65	1.7	2	XL	●
W03150.323	32	32	31	144	81	1.7	3	M	●
W03195.323	32	32	31	250	81	1.7	3	XL	●

Inserts ZX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application

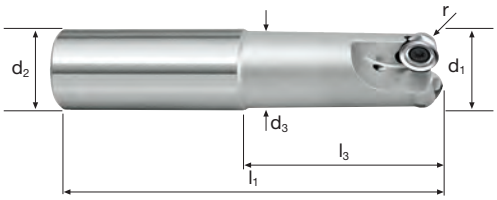


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	M	25	3	650	0.450	1.50	15.0	8275	11170	251.5
		32	4	550	0.450	1.50	19.2	5470	9845	283.5
	XL	25	3	600	0.430	1.40	10.0	7640	9855	138.0
		32	4	500	0.430	1.40	12.8	4975	8555	153.5
Cast aluminium Si 6%-15%	M	25	3	500	0.400	1.50	15.0	6365	7640	172.0
		32	4	450	0.400	1.50	19.2	4475	7160	206.0
	XL	25	3	450	0.380	1.40	10.0	5730	6530	91.5
		32	4	400	0.380	1.40	12.8	3980	6050	108.5
Unalloyed copper	M	25	3	450	0.400	1.50	15.0	5730	6875	154.5
		32	4	400	0.400	1.50	19.2	3980	6370	183.5
	XL	25	3	400	0.380	1.40	10.0	5095	5810	81.5
		32	4	400	0.380	1.40	12.8	3980	6050	108.5
Thermoplastics	M	25	3	650	0.450	1.50	15.0	8275	11170	251.5
		32	4	550	0.450	1.50	19.2	5470	9845	283.5
	XL	25	3	600	0.430	1.40	10.0	7640	9855	138.0
		32	4	500	0.430	1.40	12.8	4975	8555	153.5

Round insert end mill AX

Inserts 12mm, with integral air / cooling channel

HM | λ **0°** γ **20°**



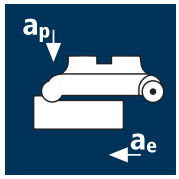
Al Aluminum > 99% | **Al** Aluminum Alloy | **Al** Aluminum Cast | **Cu** Copper | **Plastic** Thermoplast | **CuZn Brass** **CF/GF** Fiber Reinforced Plastics

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W03150.252	25	25	24	124	65	1.7	2	M	●
W03195.252	25	25	24	210	65	1.7	2	XL	●
W03150.323	32	32	31	144	81	1.7	3	M	●
W03195.323	32	32	31	250	81	1.7	3	XL	●

Inserts AX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53510.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	40	4	220	0.500	1.28	24.0	1750	3500	107.50
	42	4	220	0.500	1.28	25.2	1665	3330	107.40
	50	5	220	0.500	1.28	30.0	1400	3500	134.40
	52	5	220	0.500	1.28	31.2	1345	3365	134.40
Steel 850 - 1100 N/mm²	40	4	200	0.400	1.15	24.0	1590	2545	70.25
	42	4	200	0.400	1.15	25.2	1515	2425	70.30
	50	5	200	0.400	1.15	30.0	1275	2550	88.00
	52	5	200	0.400	1.15	31.2	1225	2450	87.90
Steel 1100 - 1300 N/mm²	40	4	180	0.350	1.09	24.0	1430	2000	52.30
	42	4	180	0.350	1.09	25.2	1365	1910	52.45
	50	5	180	0.350	1.09	30.0	1145	2005	65.55
	52	5	180	0.350	1.09	31.2	1100	1925	65.45
Steel 1300 - 1500 N/mm²	40	4	120	0.300	1.02	24.0	955	1145	28.05
	42	4	120	0.300	1.02	25.2	910	1090	28.00
	50	5	120	0.300	1.02	30.0	765	1150	35.20
	52	5	120	0.300	1.02	31.2	735	1105	35.15

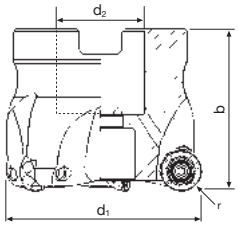
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	40	4	100	0.250	0.96	24.0	795	795	18.30
	42	4	100	0.250	0.96	25.2	760	760	18.40
	50	5	100	0.250	0.96	30.0	635	795	22.90
	52	5	100	0.250	0.96	31.2	610	765	22.90
Cast iron (lamellar / spheroidal)	40	4	180	0.500	1.28	24.0	1430	2860	87.85
	42	4	180	0.500	1.28	25.2	1365	2730	88.05
	50	5	180	0.500	1.28	30.0	1145	2865	110.00
	52	5	180	0.500	1.28	31.2	1100	2750	109.80

Round insert end mill NX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 15°





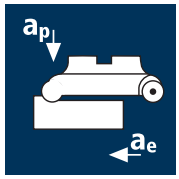
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03410.404*	40	16	40	1.4	4	●
W03410.424*	42	16	40	1.4	4	●
W03410.505	50	22	40	1.4	5	●
W03410.525	52	22	40	1.4	5	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts NX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min^{-1}]	v_f [mm/min]	Q [cm^3/min]
Stainless steel ferritic/martensitic	40	4	160	0.380	0.95	24.0	1275	1940	44.25
	42	4	160	0.380	0.95	25.2	1215	1845	44.15
	50	5	160	0.380	0.95	30.0	1020	1940	55.30
	52	5	160	0.380	0.95	31.2	980	1860	55.15
Stainless steel [Cr-Ni/1.4301]	40	4	120	0.340	0.86	24.0	955	1300	26.85
	42	4	120	0.340	0.86	25.2	910	1240	26.85
	50	5	120	0.340	0.86	30.0	765	1300	33.55
	52	5	120	0.340	0.86	31.2	735	1250	33.55
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	130	0.305	0.86	24.0	1035	1265	26.10
	42	4	130	0.305	0.86	25.2	985	1200	26.00
	50	5	130	0.305	0.86	30.0	830	1265	32.65
	52	5	130	0.305	0.86	31.2	795	1210	32.45
Heat resistant steel [17-4 PH]	40	4	100	0.230	0.66	24.0	795	730	11.55
	42	4	100	0.230	0.66	25.2	760	700	11.65
	50	5	100	0.230	0.66	30.0	635	730	14.45
	52	5	100	0.230	0.66	31.2	610	700	14.40

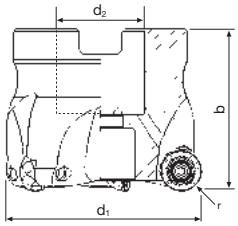
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min^{-1}]	v_f [mm/min]	Q [cm^3/min]
Titanium alloys >300 HB [Ti6Al4V]	40	4	55	0.210	0.62	24.0	440	370	5.50
	42	4	55	0.210	0.62	25.2	415	350	5.45
	50	5	55	0.210	0.62	30.0	350	370	6.90
	52	5	55	0.210	0.62	31.2	335	350	6.75
Steel < 850 N/mm²	40	4	220	0.475	1.23	24.0	1750	3325	98.15
	42	4	220	0.475	1.23	25.2	1665	3165	98.10
	50	5	220	0.475	1.23	30.0	1400	3325	122.70
	52	5	220	0.475	1.23	31.2	1345	3195	122.60

Round insert end mill SX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 20°



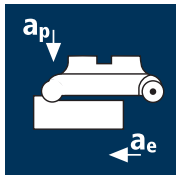


Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03410.404*	40	16	40	1.4	4	●
W03410.424*	42	16	40	1.4	4	●
W03410.505	50	22	40	1.4	5	●
W03410.525	52	22	40	1.4	5	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts SX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53310.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

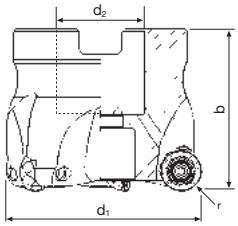
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min^{-1}]	v_f [mm/min]	Q [cm^3/min]
	Hardened tool steel 42 - 48 HRC	40	4	100	0.350	1.22	24.0	795	1115	32.65
		42	4	100	0.350	1.22	25.2	760	1065	32.75
		50	5	100	0.350	1.22	30.0	635	1110	40.65
		52	5	100	0.350	1.22	31.2	610	1070	40.75
	Hardened tool steel 48 - 52 HRC	40	4	80	0.330	1.16	24.0	635	840	23.40
		42	4	80	0.330	1.16	25.2	605	800	23.40
		50	5	80	0.330	1.16	30.0	510	840	29.25
		52	5	80	0.330	1.16	31.2	490	810	29.30
	Hardened tool steel 52 - 56 HRC	40	4	50	0.320	1.10	24.0	400	510	13.45
		42	4	50	0.320	1.10	25.2	380	485	13.45
		50	5	50	0.320	1.10	30.0	320	510	16.85
		52	5	50	0.320	1.10	31.2	305	490	16.80
	Hardened tool steel 56 - 60 HRC	40	4	30	0.230	0.85	24.0	240	220	4.50
		42	4	30	0.230	0.85	25.2	225	205	4.40
		50	5	30	0.230	0.85	30.0	190	220	5.60
		52	5	30	0.230	0.85	31.2	185	215	5.70

Round insert end mill HX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ -4°





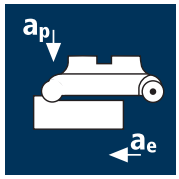
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03410.404*	40	16	40	1.4	4	●
W03410.424*	42	16	40	1.4	4	●
W03410.505	50	22	40	1.4	5	●
W03410.525	52	22	40	1.4	5	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts HX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53210.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	4	130	0.360	0.85	24.0	1035	1490	30.40
	42	4	130	0.360	0.85	25.2	985	1420	30.40
	50	5	130	0.360	0.85	30.0	830	1495	38.10
	52	5	130	0.360	0.85	31.2	795	1430	37.90
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	140	0.325	0.85	24.0	1115	1450	29.60
	42	4	140	0.325	0.85	25.2	1060	1380	29.55
	50	5	140	0.325	0.85	30.0	890	1445	36.85
	52	5	140	0.325	0.85	31.2	855	1390	36.85
Heat resistant steel [17-4 PH] [Duplex]	40	4	110	0.235	0.68	24.0	875	825	13.45
	42	4	110	0.235	0.68	25.2	835	785	13.45
	50	5	110	0.235	0.68	30.0	700	825	16.85
	52	5	110	0.235	0.68	31.2	675	795	16.85
Titanium alloys >300 HB [Ti6Al4V]	40	4	60	0.215	0.64	24.0	475	410	6.30
	42	4	60	0.215	0.64	25.2	455	390	6.30
	50	5	60	0.215	0.64	30.0	380	410	7.85
	52	5	60	0.215	0.64	31.2	365	390	7.80

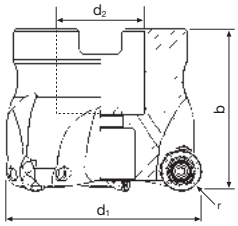
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	4	80	0.250	0.77	24.0	635	635	11.75
	42	4	80	0.250	0.77	25.2	605	605	11.75
	50	5	80	0.250	0.77	30.0	510	640	14.80
	52	5	80	0.250	0.77	31.2	490	615	14.75
Steel < 850 N/mm²	40	4	220	0.470	1.19	24.0	1750	3290	93.95
	42	4	220	0.470	1.19	25.2	1665	3130	93.85
	50	5	220	0.470	1.19	30.0	1400	3290	117.45
	52	5	220	0.470	1.19	31.2	1345	3160	117.30
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	4	35	0.145	0.89	16.0	280	160	2.30
	42	4	35	0.145	0.89	16.8	265	155	2.30
	50	5	35	0.145	0.89	20.0	225	165	2.95
	52	5	35	0.145	0.89	20.8	215	155	2.85

Round insert end mill ZX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 14°



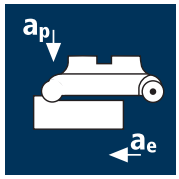


Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03410.404*	40	16	40	1.4	4	●
W03410.424*	42	16	40	1.4	4	●
W03410.505	50	22	40	1.4	5	●
W03410.525	52	22	40	1.4	5	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts ZX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

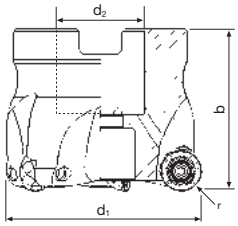
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	4	600	0.400	1.20	24.0	4775	7640	220.05
		42	4	600	0.400	1.20	25.2	4545	7270	219.85
		50	5	550	0.400	1.20	30.0	3500	7000	252.00
		52	5	550	0.400	1.20	31.2	3365	6730	251.95
	Cast aluminium Si 6%-15%	40	4	500	0.350	1.20	24.0	3980	5570	160.40
		42	4	500	0.350	1.20	25.2	3790	5305	160.40
		50	5	450	0.350	1.20	30.0	2865	5015	180.55
		52	5	450	0.350	1.20	31.2	2755	4820	180.45
	Unalloyed copper	40	4	400	0.350	1.20	24.0	3185	4460	128.45
		42	4	400	0.350	1.20	25.2	3030	4240	128.20
		50	5	350	0.350	1.20	30.0	2230	3905	140.60
		52	5	350	0.350	1.20	31.2	2145	3755	140.60
	Thermoplastics	40	4	600	0.400	1.20	24.0	4775	7640	220.05
		42	4	600	0.400	1.20	25.2	4545	7270	219.85
		50	5	550	0.400	1.20	30.0	3500	7000	252.00
		52	5	550	0.400	1.20	31.2	3365	6730	251.95

Round insert end mill AX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 21°





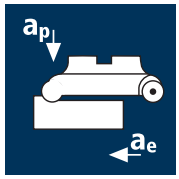
			Al Aluminum > 99%	Al Aluminum Alloy	Al Aluminum Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF/GF Fiber Reinforced Plastics

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03410.404*	40	16	40	1.4	4	●
W03410.424*	42	16	40	1.4	4	●
W03410.505	50	22	40	1.4	5	●
W03410.525	52	22	40	1.4	5	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts AX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53510.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	40	4	220	0.500	1.67	24.0	1750	3500	140.30
	42	4	220	0.500	1.67	25.2	1665	3330	140.15
	50	5	220	0.500	1.67	30.0	1400	3500	175.35
	52	5	220	0.500	1.67	31.2	1345	3365	175.35
	63	6	200	0.500	1.67	37.8	1010	3030	191.25
	66	6	200	0.500	1.67	39.6	965	2895	191.45
	80	8	180	0.500	1.67	48.0	715	2860	229.25
	100	10	180	0.500	1.67	60.0	575	2875	288.05
Steel 850 - 1100 N/mm²	40	4	200	0.400	1.50	24.0	1590	2545	91.60
	42	4	200	0.400	1.50	25.2	1515	2425	91.65
	50	5	200	0.400	1.50	30.0	1275	2550	114.75
	52	5	200	0.400	1.50	31.2	1225	2450	114.65
	63	6	180	0.400	1.50	37.8	910	2185	123.90
	66	6	180	0.400	1.50	39.6	870	2090	124.15
	80	8	160	0.400	1.50	48.0	635	2030	146.15
	100	10	160	0.400	1.50	60.0	510	2040	183.60
Steel 1100 - 1300 N/mm²	40	4	180	0.350	1.42	24.0	1430	2000	68.15
	42	4	180	0.350	1.42	25.2	1365	1910	68.35
	50	5	180	0.350	1.42	30.0	1145	2005	85.40
	52	5	180	0.350	1.42	31.2	1100	1925	85.30
	63	6	160	0.350	1.42	37.8	810	1700	91.25
	66	6	160	0.350	1.42	39.6	770	1615	90.80
	80	8	140	0.350	1.42	48.0	555	1555	106.00
	100	10	140	0.350	1.42	60.0	445	1560	132.90
Steel 1300 - 1500 N/mm²	40	4	120	0.300	1.34	24.0	955	1145	36.80
	42	4	120	0.300	1.34	25.2	910	1090	36.80
	50	5	120	0.300	1.34	30.0	765	1150	46.25
	52	5	120	0.300	1.34	31.2	735	1105	46.20
	63	6	100	0.300	1.34	37.8	505	910	46.10
	66	6	100	0.300	1.34	39.6	480	865	45.90
	80	8	80	0.300	1.34	48.0	320	770	49.55
	100	10	80	0.300	1.34	60.0	255	765	61.50

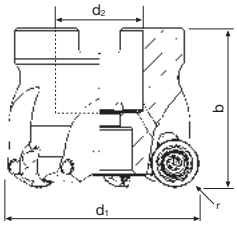
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	40	4	100	0.250	1.25	24.0	795	795	23.85
	42	4	100	0.250	1.25	25.2	760	760	23.95
	50	5	100	0.250	1.25	30.0	635	795	29.80
	52	5	100	0.250	1.25	31.2	610	765	29.85
	63	6	80	0.250	1.25	37.8	405	610	28.80
	66	6	80	0.250	1.25	39.6	385	580	28.70
	80	8	70	0.250	1.25	48.0	280	560	33.60
	100	10	70	0.250	1.25	60.0	225	565	42.40
Cast iron (lamellar / spheroidal)	40	4	180	0.500	1.67	24.0	1430	2860	114.65
	42	4	180	0.500	1.67	25.2	1365	2730	114.90
	50	5	180	0.500	1.67	30.0	1145	2865	143.55
	52	5	180	0.500	1.67	31.2	1100	2750	143.30
	63	6	160	0.500	1.67	37.8	810	2430	153.40
	66	6	160	0.500	1.67	39.6	770	2310	152.75
	80	8	140	0.500	1.67	48.0	555	2220	177.95
	100	10	140	0.500	1.67	60.0	445	2225	222.95

Round insert end mill NX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 15°





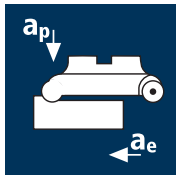
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03412.404*	40	16	40	1.7	4	●
W03412.424*	42	16	40	1.7	4	●
W03412.505	50	22	40	1.7	5	●
W03412.525	52	22	40	1.7	5	●
W03412.636	63	22	40	1.7	6	●
W03412.666	66	22	40	1.7	6	●
W03412.808	80	27	50	1.7	8	●
W03412.100	100	32	50	1.7	10	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts NX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	40	4	160	0.400	1.20	24.0	1275	2040	58.75
	42	4	160	0.400	1.20	25.2	1215	1945	58.80
	50	5	160	0.400	1.20	30.0	1020	2040	73.45
	52	5	160	0.400	1.20	31.2	980	1960	73.40
	63	6	140	0.400	1.20	37.8	705	1690	76.65
	66	6	140	0.400	1.20	39.6	675	1620	77.00
	80	8	120	0.400	1.20	48.0	475	1520	87.55
	100	10	120	0.400	1.20	60.0	380	1520	109.45
Stainless steel [Cr-Ni/1.4301]	40	4	120	0.360	1.08	24.0	955	1375	35.65
	42	4	120	0.360	1.08	25.2	910	1310	35.65
	50	5	120	0.360	1.08	30.0	765	1375	44.55
	52	5	120	0.360	1.08	31.2	735	1325	44.65
	63	6	100	0.360	1.08	37.8	505	1090	44.50
	66	6	100	0.360	1.08	39.6	480	1035	44.25
	80	8	80	0.360	1.08	48.0	320	920	47.70
	100	10	80	0.360	1.08	60.0	255	920	59.60
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	130	0.320	1.08	24.0	1035	1325	34.35
	42	4	130	0.320	1.08	25.2	985	1260	34.30
	50	5	130	0.320	1.08	30.0	830	1330	43.10
	52	5	130	0.320	1.08	31.2	795	1270	42.80
	63	6	110	0.320	1.08	37.8	555	1065	43.50
	66	6	110	0.320	1.08	39.6	530	1020	43.60
	80	8	90	0.320	1.08	48.0	360	920	47.70
	100	10	90	0.320	1.08	60.0	285	910	58.95
Heat resistant steel [17-4 PH]	40	4	100	0.240	0.84	24.0	795	765	15.40
	42	4	100	0.240	0.84	25.2	760	730	15.45
	50	5	100	0.240	0.84	30.0	635	760	19.15
	52	5	100	0.240	0.84	31.2	610	730	19.15
	63	6	80	0.240	0.84	37.8	405	585	18.55
	66	6	80	0.240	0.84	39.6	385	555	18.45
	80	8	70	0.240	0.84	48.0	280	540	21.75
	100	10	70	0.240	0.84	60.0	225	540	27.20

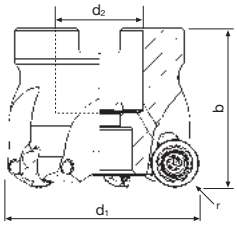
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	40	4	55	0.220	0.78	24.0	440	385	7.20
	42	4	55	0.220	0.78	25.2	415	365	7.15
	50	5	55	0.220	0.78	30.0	350	385	9.00
	52	5	55	0.220	0.78	31.2	335	370	9.00
	63	6	45	0.220	0.78	37.8	225	295	8.70
	66	6	45	0.220	0.78	39.6	215	285	8.80
	80	8	40	0.220	0.78	48.0	160	280	10.50
	100	10	40	0.220	0.78	60.0	125	275	12.85
Steel < 850 N/mm²	40	4	220	0.500	1.56	24.0	1750	3500	131.05
	42	4	220	0.500	1.56	25.2	1665	3330	130.90
	50	5	220	0.500	1.56	30.0	1400	3500	163.80
	52	5	220	0.500	1.56	31.2	1345	3365	163.80
	63	6	180	0.500	1.56	37.8	910	2730	161.00
	66	6	180	0.500	1.56	39.6	870	2610	161.25
	80	8	160	0.500	1.56	48.0	635	2540	190.20
	100	10	160	0.500	1.56	60.0	510	2550	238.70

Round insert end mill SX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 20°



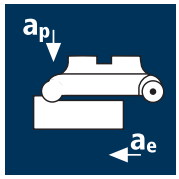


Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	**d_1**	**d_2**	**b**	**$ap_{max.}$**	**z**	
W03412.404*	40	16	40	1.7	4	●
W03412.424*	42	16	40	1.7	4	●
W03412.505	50	22	40	1.7	5	●
W03412.525	52	22	40	1.7	5	●
W03412.636	63	22	40	1.7	6	●
W03412.666	66	22	40	1.7	6	●
W03412.808	80	27	50	1.7	8	●
W03412.100	100	32	50	1.7	10	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts SX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	**D_1**	**r**	**D**	
W53310.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

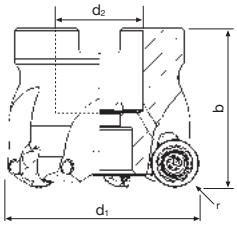
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	40	4	100	0.350	1.61	24.0	795	1115	43.10
		42	4	100	0.350	1.61	25.2	760	1065	43.20
		50	5	100	0.350	1.61	30.0	635	1110	53.60
		52	5	100	0.350	1.61	31.2	610	1070	53.75
		63	6	90	0.350	1.61	37.8	455	955	58.10
		66	6	90	0.350	1.61	39.6	435	915	58.35
		80	8	80	0.350	1.61	48.0	320	895	69.15
		100	10	80	0.350	1.61	60.0	255	895	86.45
	Hardened tool steel 48 - 52 HRC	40	4	80	0.330	1.53	24.0	635	840	30.85
		42	4	80	0.330	1.53	25.2	605	800	30.85
		50	5	80	0.330	1.53	30.0	510	840	38.55
		52	5	80	0.330	1.53	31.2	490	810	38.65
		63	6	70	0.330	1.53	37.8	355	705	40.75
		66	6	70	0.330	1.53	39.6	340	675	40.90
		80	8	60	0.330	1.53	48.0	240	635	46.65
		100	10	60	0.330	1.53	60.0	190	625	57.40
	Hardened tool steel 52 - 56 HRC	40	4	50	0.320	1.45	24.0	400	510	17.75
		42	4	50	0.320	1.45	25.2	380	485	17.70
		50	5	50	0.320	1.45	30.0	320	510	22.20
		52	5	50	0.320	1.45	31.2	305	490	22.15
		63	6	45	0.320	1.45	37.8	225	430	23.55
		66	6	45	0.320	1.45	39.6	215	415	23.85
		80	8	40	0.320	1.45	48.0	160	410	28.55
		100	10	40	0.320	1.45	60.0	125	400	34.80
	Hardened tool steel 56 - 60 HRC	40	4	30	0.230	1.13	24.0	240	220	5.95
		42	4	30	0.230	1.13	25.2	225	205	5.85
		50	5	30	0.230	1.13	30.0	190	220	7.45
		52	5	30	0.230	1.13	31.2	185	215	7.60
		63	6	25	0.230	1.13	37.8	125	175	7.45
		66	6	25	0.230	1.13	39.6	120	165	7.40
		80	8	20	0.230	1.13	48.0	80	145	7.85
		100	10	20	0.230	1.13	60.0	65	150	10.15

Round insert end mill HX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ -4°





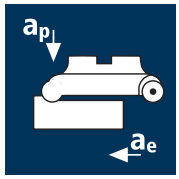
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03412.404*	40	16	40	1.7	4	●
W03412.424*	42	16	40	1.7	4	●
W03412.505	50	22	40	1.7	5	●
W03412.525	52	22	40	1.7	5	●
W03412.636	63	22	40	1.7	6	●
W03412.666	66	22	40	1.7	6	●
W03412.808	80	27	50	1.7	8	●
W03412.100	100	32	50	1.7	10	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts HX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53210.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	4	130	0.380	1.06	24.0	1035	1575	40.05
	42	4	130	0.380	1.06	25.2	985	1495	39.95
	50	5	130	0.380	1.06	30.0	830	1575	50.10
	52	5	130	0.380	1.06	31.2	795	1510	49.95
	63	6	110	0.380	1.06	37.8	555	1265	50.70
	66	6	110	0.380	1.06	39.6	530	1210	50.80
	80	8	90	0.380	1.06	48.0	360	1095	55.70
	100	10	90	0.380	1.06	60.0	285	1085	69.00
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	140	0.340	1.06	24.0	1115	1515	38.55
	42	4	140	0.340	1.06	25.2	1060	1440	38.45
	50	5	140	0.340	1.06	30.0	890	1515	48.20
	52	5	140	0.340	1.06	31.2	855	1455	48.10
	63	6	120	0.340	1.06	37.8	605	1235	49.50
	66	6	120	0.340	1.06	39.6	580	1185	49.75
	80	8	100	0.340	1.06	48.0	400	1090	55.45
	100	10	100	0.340	1.06	60.0	320	1090	69.30
Heat resistant steel [17-4 PH] [Duplex]	40	4	110	0.245	0.85	24.0	875	860	17.55
	42	4	110	0.245	0.85	25.2	835	820	17.55
	50	5	110	0.245	0.85	30.0	700	860	21.95
	52	5	110	0.245	0.85	31.2	675	825	21.90
	63	6	90	0.245	0.85	37.8	455	670	21.55
	66	6	90	0.245	0.85	39.6	435	640	21.55
	80	8	70	0.245	0.85	48.0	280	550	22.45
	100	10	70	0.245	0.85	60.0	225	550	28.05
Titanium alloys >300 HB [Ti6Al4V]	40	4	60	0.230	0.80	24.0	475	435	8.35
	42	4	60	0.230	0.80	25.2	455	420	8.45
	50	5	60	0.230	0.80	30.0	380	435	10.45
	52	5	50	0.230	0.80	31.2	305	350	8.75
	63	6	50	0.230	0.80	37.8	255	350	10.60
	66	6	50	0.230	0.80	39.6	240	330	10.45
	80	8	45	0.230	0.80	48.0	180	330	12.65
	100	10	45	0.230	0.80	60.0	145	335	16.10

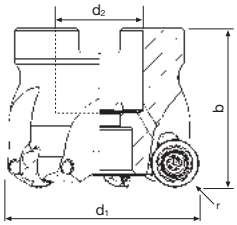
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	4	80	0.265	0.95	24.0	635	675	15.40
	42	4	80	0.265	0.95	25.2	605	640	15.30
	50	5	80	0.265	0.95	30.0	510	675	19.25
	52	5	80	0.265	0.95	31.2	490	650	19.25
	63	6	60	0.265	0.95	37.8	305	485	17.40
	66	6	60	0.265	0.95	39.6	290	460	17.30
	80	8	50	0.265	0.95	48.0	200	425	19.40
	100	10	50	0.265	0.95	60.0	160	425	24.25
Steel < 850 N/mm²	40	4	220	0.495	1.48	24.0	1750	3465	123.10
	42	4	220	0.495	1.48	25.2	1665	3295	122.90
	50	5	220	0.495	1.48	30.0	1400	3465	153.85
	52	5	220	0.495	1.48	31.2	1345	3330	153.75
	63	6	180	0.495	1.48	37.8	910	2705	151.35
	66	6	180	0.495	1.48	39.6	870	2585	151.50
	80	8	160	0.495	1.48	48.0	635	2515	178.65
	100	10	160	0.495	1.48	60.0	510	2525	224.20
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	4	35	0.150	1.11	16.0	280	170	3.00
	42	4	35	0.150	1.11	16.8	265	160	3.00
	50	5	35	0.150	1.11	20.0	225	170	3.75
	52	5	35	0.150	1.11	20.8	215	160	3.70
	63	6	30	0.150	1.11	25.2	150	135	3.80
	66	6	30	0.150	1.11	26.4	145	130	3.80
	80	8	25	0.150	1.11	32.0	100	120	4.25
	100	10	25	0.150	1.11	40.0	80	120	5.35

Round insert end mill ZX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 14°



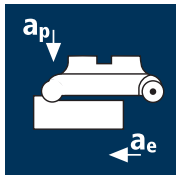


Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03412.404*	40	16	40	1.7	4	●
W03412.424*	42	16	40	1.7	4	●
W03412.505	50	22	40	1.7	5	●
W03412.525	52	22	40	1.7	5	●
W03412.636	63	22	40	1.7	6	●
W03412.666	66	22	40	1.7	6	●
W03412.808	80	27	50	1.7	8	●
W03412.100	100	32	50	1.7	10	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts ZX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

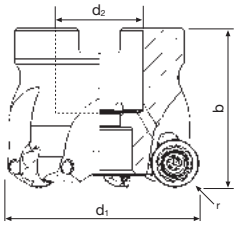
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	4	600	0.450	1.50	24.0	4775	8595	309.40
		42	4	600	0.450	1.50	25.2	4545	8180	309.20
		50	5	550	0.450	1.50	30.0	3500	7875	354.40
		52	5	550	0.450	1.50	31.2	3365	7570	354.30
		63	6	500	0.450	1.50	37.8	2525	6820	386.70
		66	6	500	0.450	1.50	39.6	2410	6505	386.40
		80	8	400	0.450	1.50	48.0	1590	5725	412.20
		100	10	400	0.450	1.50	60.0	1275	5740	516.60
	Cast aluminium Si 6%-15%	40	4	500	0.400	1.50	24.0	3980	6370	229.30
		42	4	500	0.400	1.50	25.2	3790	6065	229.25
		50	5	450	0.400	1.50	30.0	2865	5730	257.85
		52	5	450	0.400	1.50	31.2	2755	5510	257.85
		63	6	400	0.400	1.50	37.8	2020	4850	275.00
		66	6	400	0.400	1.50	39.6	1930	4630	275.00
		80	8	350	0.400	1.50	48.0	1395	4465	321.50
		100	10	350	0.400	1.50	60.0	1115	4460	401.40
	Unalloyed copper	40	4	400	0.400	1.50	24.0	3185	5095	183.40
		42	4	400	0.400	1.50	25.2	3030	4850	183.35
		50	5	350	0.400	1.50	30.0	2230	4460	200.70
		52	5	350	0.400	1.50	31.2	2145	4290	200.75
		63	6	350	0.400	1.50	37.8	1770	4250	241.00
		66	6	350	0.400	1.50	39.6	1690	4055	240.85
		80	8	300	0.400	1.50	48.0	1195	3825	275.40
		100	10	300	0.400	1.50	60.0	955	3820	343.80
	Thermoplastics	40	4	600	0.450	1.50	24.0	4775	8595	309.40
		42	4	600	0.450	1.50	25.2	4545	8180	309.20
		50	5	550	0.450	1.50	30.0	3500	7875	354.40
		52	5	550	0.450	1.50	31.2	3365	7570	354.30
		63	6	500	0.450	1.50	37.8	2525	6820	386.70
		66	6	500	0.450	1.50	39.6	2410	6505	386.40
		80	8	400	0.450	1.50	48.0	1590	5725	412.20
		100	10	400	0.450	1.50	60.0	1275	5740	516.60

Round insert end mill AX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 21°





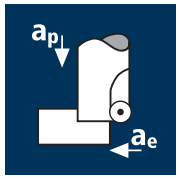
			Al Aluminum > 99%	Al Aluminum Alloy	Al Aluminum Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF/GF Fiber Reinforced Plastics

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W03412.404*	40	16	40	1.7	4	●
W03412.424*	42	16	40	1.7	4	●
W03412.505	50	22	40	1.7	5	●
W03412.525	52	22	40	1.7	5	●
W03412.636	63	22	40	1.7	6	●
W03412.666	66	22	40	1.7	6	●
W03412.808	80	27	50	1.7	8	●
W03412.100	100	32	50	1.7	10	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts AX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53510.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



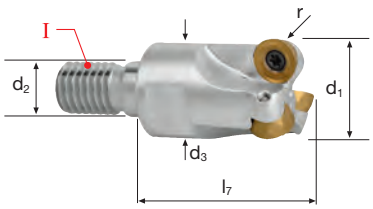
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	<100	25	3	250	0.520	1.33	15.0	3185	4970	99.0
		35	4	250	0.520	1.33	21.0	2275	4730	132.0
	100-160	25	3	220	0.500	1.22	15.0	2800	4200	77.0
		35	4	220	0.500	1.22	21.0	2000	4000	102.5
	160-250	25	3	180	0.480	0.92	10.0	2290	3300	30.5
		35	4	180	0.480	0.92	14.0	1635	3140	40.5
Steel 850 - 1100 N/mm²	<100	25	3	220	0.415	1.20	15.0	2800	3485	62.5
		35	4	220	0.415	1.20	21.0	2000	3320	83.5
	100-160	25	3	200	0.400	1.10	15.0	2545	3055	50.5
		35	4	200	0.400	1.10	21.0	1820	2910	67.0
	160-250	25	3	160	0.385	0.83	10.0	2035	2350	19.5
		35	4	160	0.385	0.83	14.0	1455	2240	26.0
Steel 1100 - 1300 N/mm²	<100	25	3	200	0.365	1.13	15.0	2545	2785	47.0
		35	4	200	0.365	1.13	21.0	1820	2655	63.0
	100-160	25	3	180	0.350	1.04	15.0	2290	2405	37.5
		35	4	180	0.350	1.04	21.0	1635	2290	50.0
	160-250	25	3	140	0.335	0.78	10.0	1785	1795	14.0
		35	4	140	0.335	0.78	14.0	1275	1710	18.5
Steel 1300 - 1500 N/mm²	<100	25	3	140	0.310	1.06	15.0	1785	1660	26.5
		35	4	140	0.310	1.06	21.0	1275	1580	35.0
	100-160	25	3	120	0.300	0.98	15.0	1530	1375	20.0
		35	4	120	0.300	0.98	21.0	1090	1310	27.0
	160-250	25	3	100	0.290	0.74	10.0	1275	1110	8.0
		35	4	100	0.290	0.74	14.0	910	1055	11.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	<100	25	3	120	0.260	1.00	15.0	1530	1195	18.0
		35	4	120	0.260	1.00	21.0	1090	1135	24.0
	100-160	25	3	100	0.250	0.92	15.0	1275	955	13.0
		35	4	100	0.250	0.92	21.0	910	910	17.5
	160-250	25	3	80	0.240	0.69	10.0	1020	735	5.0
		35	4	80	0.240	0.69	14.0	730	700	7.0
Cast iron (lamellar / spheroidal)	<100	25	3	200	0.520	1.33	15.0	2545	3970	79.0
		35	4	200	0.520	1.33	21.0	1820	3785	105.5
	100-160	25	3	180	0.500	1.22	15.0	2290	3435	63.0
		35	4	180	0.500	1.22	21.0	1635	3270	84.0
	160-250	25	3	140	0.480	0.92	10.0	1785	2570	23.5
		35	4	140	0.480	0.92	14.0	1275	2450	31.5

Round insert end mill NX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 15°



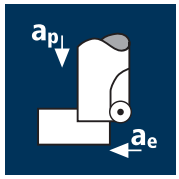
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03210.253	25	12.5	21	35	1.4	3	17	M12	●
W03210.354	35	17.0	29	35	1.4	4	24	M16	●

Inserts NX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



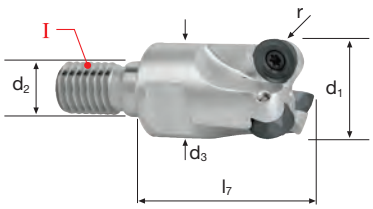
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	<100	25	3	180	0.380	1.01	15.0	2290	2610	39.5
		35	4	180	0.380	1.01	21.0	1635	2485	52.5
	100-160	25	3	160	0.360	0.91	15.0	2035	2200	30.0
		35	4	160	0.360	0.91	21.0	1455	2095	40.0
	160-250	25	3	140	0.340	0.69	10.0	1785	1820	12.5
		35	4	140	0.340	0.69	14.0	1275	1735	17.0
Stainless steel [Cr-Ni/1.4301]	<100	25	3	140	0.340	0.91	15.0	1785	1820	25.0
		35	4	140	0.340	0.91	21.0	1275	1735	33.0
	100-160	25	3	120	0.325	0.82	15.0	1530	1490	18.5
		35	4	120	0.325	0.82	21.0	1090	1415	24.5
	160-250	25	3	100	0.305	0.62	10.0	1275	1165	7.0
		35	4	100	0.305	0.62	14.0	910	1110	9.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	<100	25	3	150	0.305	0.91	15.0	1910	1750	24.0
		35	4	150	0.305	0.91	21.0	1365	1665	32.0
	100-160	25	3	130	0.290	0.82	15.0	1655	1440	17.5
		35	4	130	0.290	0.82	21.0	1180	1370	23.5
	160-250	25	3	110	0.270	0.62	10.0	1400	1135	7.0
		35	4	110	0.270	0.62	14.0	1000	1080	9.5
Heat resistant steel [17-4 PH]	<100	25	3	120	0.230	0.71	15.0	1530	1055	11.0
		35	4	120	0.230	0.71	21.0	1090	1005	15.0
	100-160	25	3	100	0.215	0.64	15.0	1275	820	8.0
		35	4	100	0.215	0.64	21.0	910	785	10.5
	160-250	25	3	80	0.205	0.48	10.0	1020	625	3.0
		35	4	80	0.205	0.48	14.0	730	600	4.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	<100	25	3	60	0.210	0.66	15.0	765	480	5.0
		35	4	60	0.210	0.66	21.0	545	460	6.5
	100-160	25	3	55	0.200	0.59	15.0	700	420	3.5
		35	4	55	0.200	0.59	21.0	500	400	5.0
	160-250	25	3	45	0.185	0.45	10.0	575	320	1.5
		35	4	45	0.185	0.45	14.0	410	305	2.0
Steel < 850 N/mm²	<100	25	3	250	0.495	1.31	15.0	3185	4730	93.0
		35	4	250	0.495	1.31	21.0	2275	4505	124.0
	100-160	25	3	220	0.470	1.18	15.0	2800	3950	70.0
		35	4	220	0.470	1.18	21.0	2000	3760	93.0
	160-250	25	3	180	0.440	0.90	10.0	2290	3025	27.0
		35	4	180	0.440	0.90	14.0	1635	2880	36.5

Round insert end mill SX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 20°



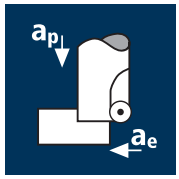
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03210.253	25	12.5	21	35	1.4	3	17	M12	●
W03210.354	35	17.0	29	35	1.4	4	24	M16	●

Inserts SX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53310.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application

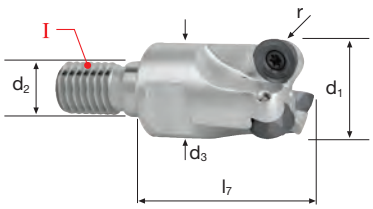


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	<100	25	3	120	0.380	1.10	15.0	1530	1745	29.0
		35	4	120	0.380	1.10	21.0	1090	1655	38.0
	100-160	25	3	100	0.350	1.00	15.0	1275	1340	20.0
		35	4	100	0.350	1.00	21.0	910	1275	27.0
	160-250	25	3	90	0.320	0.76	10.0	1145	1100	8.5
		35	4	90	0.320	0.76	14.0	820	1050	11.0
Hardened tool steel 48 - 52 HRC	<100	25	3	100	0.360	1.04	15.0	1275	1375	21.5
		35	4	100	0.360	1.04	21.0	910	1310	28.5
	100-160	25	3	80	0.330	0.95	15.0	1020	1010	14.5
		35	4	80	0.330	0.95	21.0	730	965	19.5
	160-250	25	3	70	0.305	0.72	10.0	890	815	6.0
		35	4	70	0.305	0.72	14.0	635	775	8.0
Hardened tool steel 52 - 56 HRC	<100	25	3	60	0.340	0.99	15.0	765	780	11.5
		35	4	60	0.340	0.99	21.0	545	740	15.5
	100-160	25	3	50	0.315	0.90	15.0	635	600	8.0
		35	4	50	0.315	0.90	21.0	455	575	11.0
	160-250	25	3	40	0.290	0.68	10.0	510	445	3.0
		35	4	40	0.290	0.68	14.0	365	425	4.0
Hardened tool steel 56 - 60 HRC	<100	25	3	35	0.245	0.77	15.0	445	325	4.0
		35	4	35	0.245	0.77	21.0	320	315	5.0
	100-160	25	3	30	0.225	0.70	15.0	380	255	2.5
		35	4	30	0.225	0.70	21.0	275	250	3.5
	160-250	25	3	25	0.210	0.53	10.0	320	200	1.0
		35	4	25	0.210	0.53	14.0	225	190	1.5

Round insert end mill HX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ -4°



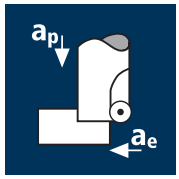
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03210.253	25	12.5	21	35	1.4	3	17	M12	●
W03210.354	35	17.0	29	35	1.4	4	24	M16	●

Inserts HX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53210.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



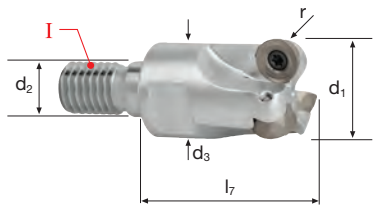
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	<100	25	3	150	0.360	0.89	15.0	1910	2065	27.5
		35	4	150	0.360	0.89	21.0	1365	1965	36.5
	100-160	25	3	130	0.340	0.80	15.0	1655	1690	20.5
		35	4	130	0.340	0.80	21.0	1180	1605	27.0
	160-250	25	3	110	0.320	0.60	10.0	1400	1345	8.0
		35	4	110	0.320	0.60	14.0	1000	1280	11.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	<100	25	3	160	0.325	0.89	15.0	2035	1985	26.5
		35	4	160	0.325	0.89	21.0	1455	1890	35.5
	100-160	25	3	140	0.305	0.80	15.0	1785	1635	19.5
		35	4	140	0.305	0.80	21.0	1275	1555	26.0
	160-250	25	3	120	0.290	0.60	10.0	1530	1330	8.0
		35	4	120	0.290	0.60	14.0	1090	1265	10.5
Heat resistant steel [17-4 PH] [Duplex]	<100	25	3	130	0.235	0.71	15.0	1655	1165	12.5
		35	4	130	0.235	0.71	21.0	1180	1110	16.5
	100-160	25	3	110	0.220	0.64	15.0	1400	925	9.0
		35	4	110	0.220	0.64	21.0	1000	880	12.0
	160-250	25	3	90	0.210	0.48	10.0	1145	720	3.5
		35	4	90	0.210	0.48	14.0	820	690	4.5
Titanium alloys >300 HB [Ti6Al4V]	<100	25	3	65	0.215	0.67	15.0	830	535	5.5
		35	4	65	0.215	0.67	21.0	590	505	7.0
	100-160	25	3	60	0.205	0.60	15.0	765	470	4.0
		35	4	60	0.205	0.60	21.0	545	445	5.5
	160-250	25	3	50	0.190	0.45	10.0	635	360	1.5
		35	4	50	0.190	0.45	14.0	455	345	2.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	<100	25	3	90	0.250	0.80	15.0	1145	860	10.5
		35	4	90	0.250	0.80	21.0	820	820	14.0
	100-160	25	3	80	0.240	0.72	15.0	1020	735	8.0
		35	4	80	0.240	0.72	21.0	730	700	10.5
	160-250	25	3	70	0.225	0.54	10.0	890	600	3.0
		35	4	70	0.225	0.54	14.0	635	570	4.5
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	<100	25	3	40	0.145	0.71	10.0	510	220	1.5
		35	4	40	0.145	0.71	14.0	365	210	2.0
	100-160	25	3	35	0.135	0.64	10.0	445	180	1.0
		35	4	35	0.135	0.64	14.0	320	175	1.5
	160-250	25	3	30	0.130	0.48	10.0	380	150	0.5
		35	4	30	0.130	0.48	14.0	275	145	1.0

Round insert end mill ZX

Inserts 10mm, with integral air / cooling channel

HM | λ **5°** γ **14°**



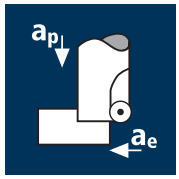
Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys HSS**

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03210.253	25	12.5	21	35	1.4	3	17	M12	●
W03210.354	35	17.0	29	35	1.4	4	24	M16	●

Inserts ZX 10mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.010	10.0	5.0	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application

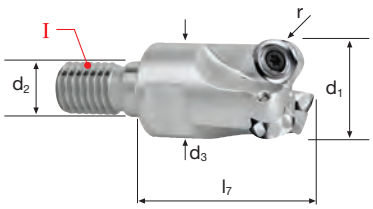


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	<100	25	3	700	0.420	1.30	15.0	8915	11235	219.0
		35	4	600	0.420	1.30	21.0	5455	9165	250.0
	100-160	25	3	650	0.400	1.20	15.0	8275	9930	178.5
		35	4	550	0.400	1.20	21.0	5000	8000	201.5
	160-250	25	3	600	0.380	1.10	10.0	7640	8710	96.0
		35	4	500	0.380	1.10	14.0	4545	6910	106.5
Cast aluminium Si 6%-15%	<100	25	3	550	0.370	1.30	15.0	7005	7775	151.5
		35	4	500	0.370	1.30	21.0	4545	6725	183.5
	100-160	25	3	500	0.350	1.20	15.0	6365	6685	120.5
		35	4	450	0.350	1.20	21.0	4095	5735	144.5
	160-250	25	3	450	0.330	1.10	10.0	5730	5675	62.5
		35	4	400	0.330	1.10	14.0	3640	4805	74.0
Unalloyed copper	<100	25	3	500	0.370	1.30	15.0	6365	7065	138.0
		35	4	450	0.370	1.30	21.0	4095	6060	165.5
	100-160	25	3	450	0.350	1.20	15.0	5730	6015	108.5
		35	4	400	0.350	1.20	21.0	3640	5095	128.5
	160-250	25	3	400	0.330	1.10	10.0	5095	5045	55.5
		35	4	400	0.330	1.10	14.0	3640	4805	74.0
Thermoplastics	<100	25	3	700	0.420	1.30	15.0	8915	11235	219.0
		35	4	600	0.420	1.30	21.0	5455	9165	250.0
	100-160	25	3	650	0.400	1.20	15.0	8275	9930	178.5
		35	4	550	0.400	1.20	21.0	5000	8000	201.5
	160-250	25	3	600	0.380	1.10	10.0	7640	8710	96.0
		35	4	500	0.380	1.10	14.0	4545	6910	106.5

Round insert end mill AX

Inserts 10mm, with integral air / cooling channel

HM	λ 5° γ 21°



			Al Aluminum > 99%	Al Aluminum Alloy	Al Aluminum Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF/GF Fiber Reinforced Plastics

Round insert end mill — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03210.253	25	12.5	21	35	1.4	3	17	M12	●
W03210.354	35	17.0	29	35	1.4	4	24	M16	●

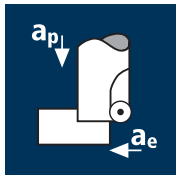
Inserts AX 10mm — Delivery range: Packaging unit 10 pieces

Order-N°.	D_1	r	D	
W53510.010	10.0	5.0	4.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W93110.010	Torque screwdriver **2.0 Nm** with blade Torx TX 10	●
W93111.010	Interchangeable blade for torque screwdriver Torx TX 10	●
W93100.010	Screwdriver Torx TX 10	●
W93500.010	Clamping screws for inserts Torx TX 10 / M 3 x 7.3	●

Application



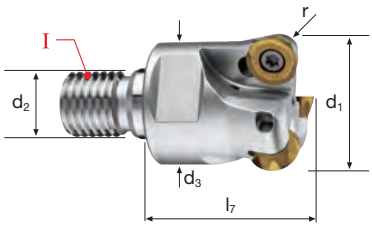
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	<100	35	3	250	0.520	1.67	21.0	2275	3550	124.5
		42	4	250	0.520	1.67	25.2	1895	3940	166.0
	100-180	35	3	220	0.500	1.55	21.0	2000	3000	97.5
		42	4	220	0.500	1.55	25.2	1665	3330	130.0
	180-260	35	3	180	0.480	1.22	14.0	1635	2355	40.0
		42	4	180	0.480	1.22	16.8	1365	2620	53.5
Steel 850 - 1100 N/mm²	<100	35	3	220	0.415	1.50	21.0	2000	2490	78.5
		42	4	220	0.415	1.50	25.2	1665	2765	104.5
	100-180	35	3	200	0.400	1.40	21.0	1820	2185	64.0
		42	4	200	0.400	1.40	25.2	1515	2425	85.5
	180-260	35	3	160	0.385	1.10	14.0	1455	1680	26.0
		42	4	160	0.385	1.10	16.8	1215	1870	34.5
Steel 1100 - 1300 N/mm²	<100	35	3	200	0.365	1.42	21.0	1820	1995	59.5
		42	4	200	0.365	1.42	25.2	1515	2210	79.0
	100-180	35	3	180	0.350	1.32	21.0	1635	1715	47.5
		42	4	180	0.350	1.32	25.2	1365	1910	63.5
	180-260	35	3	140	0.335	1.04	14.0	1275	1280	18.5
		42	4	140	0.335	1.04	16.8	1060	1420	25.0
Steel 1300 - 1500 N/mm²	<100	35	3	140	0.310	1.34	21.0	1275	1185	33.5
		42	4	140	0.310	1.34	25.2	1060	1315	44.5
	100-180	35	3	120	0.300	1.24	21.0	1090	980	25.5
		42	4	120	0.300	1.24	25.2	910	1090	34.0
	180-260	35	3	100	0.290	0.98	14.0	910	790	11.0
		42	4	100	0.290	0.98	16.8	760	880	14.5

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	<100	35	3	120	0.260	1.25	21.0	1090	850	22.5
		42	4	120	0.260	1.25	25.2	910	945	30.0
	100-180	35	3	100	0.250	1.16	21.0	910	685	16.5
		42	4	100	0.250	1.16	25.2	760	760	22.0
	180-260	35	3	80	0.240	0.92	14.0	730	525	7.0
		42	4	80	0.240	0.92	16.8	605	580	9.0
Cast iron (lamellar / spheroidal))	<100	35	3	200	0.520	1.67	21.0	1820	2840	99.5
		42	4	200	0.520	1.67	25.2	1515	3150	132.5
	100-180	35	3	180	0.500	1.55	21.0	1635	2455	80.0
		42	4	180	0.500	1.55	25.2	1365	2730	106.5
	180-260	35	3	140	0.480	1.22	14.0	1275	1835	31.5
		42	4	140	0.480	1.22	16.8	1060	2035	41.5

Round insert end mill NX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 15°



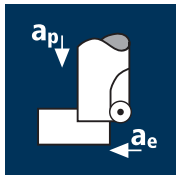
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03212.353	35	17.0	29	35	1.7	3	24	M16	●
W03212.424	42	17.0	31	40	1.7	4	24	M16	●

Inserts NX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53110.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



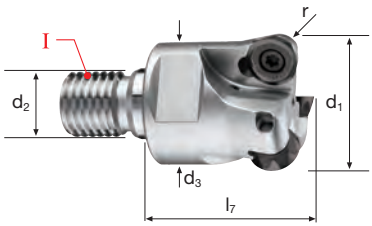
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	<100	35	3	180	0.400	1.25	21.0	1635	1960	51.5
		42	4	180	0.400	1.25	25.2	1365	2185	69.0
	100-180	35	3	160	0.380	1.14	21.0	1455	1660	39.5
		42	4	160	0.380	1.14	25.2	1215	1845	53.0
	180-260	35	3	140	0.360	0.90	14.0	1275	1375	17.5
		42	4	140	0.360	0.90	16.8	1060	1525	23.0
Stainless steel [Cr-Ni/1.4301]	<100	35	3	140	0.360	1.13	21.0	1275	1375	32.5
		42	4	140	0.360	1.13	25.2	1060	1525	43.5
	100-180	35	3	120	0.340	1.03	21.0	1090	1110	24.0
		42	4	120	0.340	1.03	25.2	910	1240	32.0
	180-260	35	3	100	0.325	0.81	14.0	910	885	10.0
		42	4	100	0.325	0.81	16.8	760	990	13.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	<100	35	3	150	0.320	1.13	21.0	1365	1310	31.0
		42	4	150	0.320	1.13	25.2	1135	1455	41.5
	100-180	35	3	130	0.305	1.03	21.0	1180	1080	23.5
		42	4	130	0.305	1.03	25.2	985	1200	31.0
	180-260	35	3	110	0.290	0.81	14.0	1000	870	10.0
		42	4	110	0.290	0.81	16.8	835	970	13.0
Heat resistant steel [17-4 PH]	<100	35	3	120	0.240	0.88	21.0	1090	785	14.5
		42	4	120	0.240	0.88	25.2	910	875	19.5
	100-180	35	3	100	0.230	0.80	21.0	910	630	10.5
		42	4	100	0.230	0.80	25.2	760	700	14.0
	180-260	35	3	80	0.215	0.63	14.0	730	470	4.0
		42	4	80	0.215	0.63	16.8	605	520	5.5

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	<100	35	3	60	0.220	0.81	21.0	545	360	6.0
		42	4	60	0.220	0.81	25.2	455	400	8.0
	100-180	35	3	55	0.210	0.74	21.0	500	315	5.0
		42	4	55	0.210	0.74	25.2	415	350	6.5
	180-260	35	3	45	0.200	0.59	14.0	410	245	2.0
		42	4	45	0.200	0.59	16.8	340	270	2.5
Steel < 850 N/mm²	<100	35	3	250	0.500	1.63	21.0	2275	3415	117.0
		42	4	250	0.500	1.63	25.2	1895	3790	155.5
	100-180	35	3	220	0.475	1.48	21.0	2000	2850	88.5
		42	4	220	0.475	1.48	25.2	1665	3165	118.0
	180-260	35	3	180	0.450	1.17	14.0	1635	2205	36.0
		42	4	180	0.450	1.17	16.8	1365	2455	48.5

Round insert end mill SX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 20°



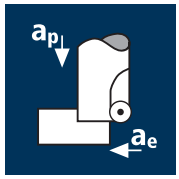
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03212.353	35	17.0	29	35	1.7	3	24	M16	●
W03212.424	42	17.0	31	40	1.7	4	24	M16	●

Inserts SX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53310.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application

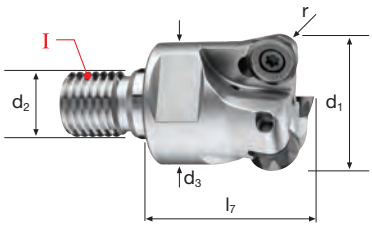


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	<100	35	3	120	0.380	1.61	21.0	1090	1245	42.0
		42	4	120	0.380	1.61	25.2	910	1385	56.0
	100-180	35	3	100	0.350	1.44	21.0	910	955	29.0
		42	4	100	0.350	1.44	25.2	760	1065	38.5
	180-260	35	3	90	0.320	1.11	14.0	820	785	12.0
		42	4	90	0.320	1.11	16.8	680	870	16.0
Hardened tool steel 48 - 52 HRC	<100	35	3	100	0.360	1.53	21.0	910	985	31.5
		42	4	100	0.360	1.53	25.2	760	1095	42.0
	100-180	35	3	80	0.330	1.37	21.0	730	725	21.0
		42	4	80	0.330	1.37	25.2	605	800	27.5
	180-260	35	3	70	0.305	1.05	14.0	635	580	8.5
		42	4	70	0.305	1.05	16.8	530	645	11.5
Hardened tool steel 52 - 56 HRC	<100	35	3	60	0.340	1.45	21.0	545	555	17.0
		42	4	60	0.340	1.45	25.2	455	620	22.5
	100-180	35	3	50	0.315	1.30	21.0	455	430	11.5
		42	4	50	0.315	1.30	25.2	380	480	15.5
	180-260	35	3	40	0.290	1.00	14.0	365	320	4.5
		42	4	40	0.290	1.00	16.8	305	355	6.0
Hardened tool steel 56 - 60 HRC	<100	35	3	35	0.245	1.13	21.0	320	235	5.5
		42	4	35	0.245	1.13	25.2	265	260	7.5
	100-180	35	3	30	0.225	1.01	21.0	275	185	4.0
		42	4	30	0.225	1.01	25.2	225	205	5.0
	180-260	35	3	25	0.210	0.78	14.0	225	140	1.5
		42	4	25	0.210	0.78	16.8	190	160	2.0

Round insert end mill HX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ -4°



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			GG(G)

Round insert end mill Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03212.353	35	17.0	29	35	1.7	3	24	M16	●
W03212.424	42	17.0	31	40	1.7	4	24	M16	●

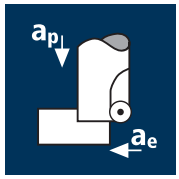
Inserts HX 12mm Delivery range: Packaging unit 10 pieces

Order-N°.	D_1	r	D	
W53210.012	12.0	6.0	4.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application



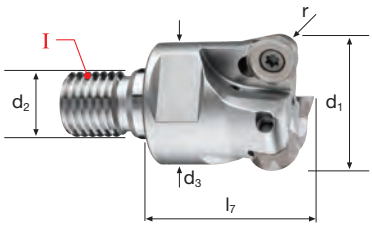
Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	<100	35	3	150	0.380	1.11	21.0	1365	1555	36.0
		42	4	150	0.380	1.11	25.2	1135	1725	48.5
	100-180	35	3	130	0.360	1.00	21.0	1180	1275	27.0
		42	4	130	0.360	1.00	25.2	985	1420	36.0
	180-260	35	3	110	0.340	0.80	14.0	1000	1020	11.5
		42	4	110	0.340	0.80	16.8	835	1135	15.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	<100	35	3	160	0.340	1.11	21.0	1455	1485	34.5
		42	4	160	0.340	1.11	25.2	1215	1650	46.0
	100-180	35	3	140	0.325	1.00	21.0	1275	1245	26.0
		42	4	140	0.325	1.00	25.2	1060	1380	35.0
	180-260	35	3	120	0.305	0.80	14.0	1090	995	11.0
		42	4	120	0.305	0.80	16.8	910	1110	15.0
Heat resistant steel [17-4 PH] [Duplex]	<100	35	3	130	0.245	0.89	21.0	1180	865	16.0
		42	4	130	0.245	0.89	25.2	985	965	21.5
	100-180	35	3	110	0.235	0.80	21.0	1000	705	12.0
		42	4	110	0.235	0.80	25.2	835	785	16.0
	180-260	35	3	90	0.220	0.64	14.0	820	540	5.0
		42	4	90	0.220	0.64	16.8	680	600	6.5
Titanium alloys >300 HB [Ti6Al4V]	<100	35	3	65	0.230	0.83	21.0	590	405	7.0
		42	4	65	0.230	0.83	25.2	495	455	9.5
	100-180	35	3	60	0.215	0.75	21.0	545	350	5.5
		42	4	60	0.215	0.75	25.2	455	390	7.5
	180-260	35	3	50	0.205	0.60	14.0	455	280	2.5
		42	4	50	0.205	0.60	16.8	380	310	3.0

Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	<100	35	3	90	0.265	1.00	21.0	820	650	13.5
		42	4	90	0.265	1.00	25.2	680	720	18.0
	100-180	35	3	80	0.250	0.90	21.0	730	550	10.5
		42	4	80	0.250	0.90	25.2	605	605	13.5
	180-260	35	3	70	0.240	0.72	14.0	635	455	4.5
		42	4	70	0.240	0.72	16.8	530	510	6.0
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	<100	35	3	40	0.150	0.89	14.0	365	165	2.0
		42	4	40	0.150	0.89	16.8	305	185	3.0
	100-180	35	3	35	0.145	0.80	14.0	320	140	1.5
		42	4	35	0.145	0.80	16.8	265	155	2.0
	180-260	35	3	30	0.135	0.64	14.0	275	110	1.0
		42	4	30	0.135	0.64	16.8	225	120	1.5

Round insert end mill ZX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 14°



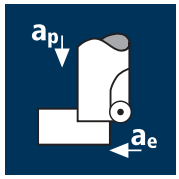
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03212.353	35	17.0	29	35	1.7	3	24	M16	●
W03212.424	42	17.0	31	40	1.7	4	24	M16	●

Inserts ZX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53410.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●

Application

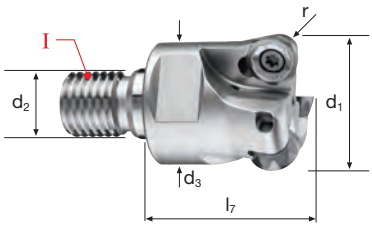


Material	L-Type [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	<100	35	3	600	0.470	1.60	21.0	5455	7690	258.5
		42	4	550	0.470	1.60	25.2	4170	7840	316.0
	100-180	35	3	550	0.450	1.50	21.0	5000	6750	212.5
		42	4	500	0.450	1.50	25.2	3790	6820	258.0
	180-260	35	3	500	0.430	1.40	14.0	4545	5865	115.0
		42	4	450	0.430	1.40	16.8	3410	5865	138.0
Cast aluminium Si 6%-15%	<100	35	3	500	0.420	1.60	21.0	4545	5725	192.5
		42	4	450	0.420	1.60	25.2	3410	5730	231.0
	100-180	35	3	450	0.400	1.50	21.0	4095	4915	155.0
		42	4	400	0.400	1.50	25.2	3030	4850	183.5
	180-260	35	3	400	0.380	1.40	14.0	3640	4150	81.5
		42	4	350	0.380	1.40	16.8	2655	4035	95.0
Unalloyed copper	<100	35	3	500	0.420	1.60	21.0	4545	5725	192.5
		42	4	450	0.420	1.60	25.2	3410	5730	231.0
	100-180	35	3	450	0.400	1.50	21.0	4095	4915	155.0
		42	4	400	0.400	1.50	25.2	3030	4850	183.5
	180-260	35	3	400	0.380	1.40	14.0	3640	4150	81.5
		42	4	350	0.380	1.40	16.8	2655	4035	95.0
Thermoplastics	<100	35	3	600	0.470	1.60	21.0	5455	7690	258.5
		42	4	550	0.470	1.60	25.2	4170	7840	316.0
	100-180	35	3	550	0.450	1.50	21.0	5000	6750	212.5
		42	4	500	0.450	1.50	25.2	3790	6820	258.0
	180-260	35	3	500	0.430	1.40	14.0	4545	5865	115.0
		42	4	450	0.430	1.40	16.8	3410	5865	138.0

Round insert end mill AX

Inserts 12mm, with integral air / cooling channel

HM	λ 5° γ 21°



			Al Aluminum > 99%	Al Aluminum Alloy	Al Aluminum Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF/GF Fiber Reinforced Plastics

Round insert end mill	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W03212.353	35	17.0	29	35	1.7	3	24	M16	●
W03212.424	42	17.0	31	40	1.7	4	24	M16	●

Inserts AX 12mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	D_1	r	D	
W53510.012	12.0	6.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W93110.012	Torque screwdriver **4.25 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W93500.012	Clamping screws for inserts Torx TX 15 / M 4 x 8.5	●


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Indexable insert milling tools HFC

High feed end mills for inserts 10mm

N° W02140 d1 25



N° W02180 d1 25



NX	λ 2° γ 14°	HFC	**Rm** 850-1500			841
SX	λ 2° γ 15°	HFC	**Inox** Stainless	**Rm** <850		843
ZX	λ 2° γ 15°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	845

High feed end mills for inserts 13mm

N° W02150 d1 35



N° W02190 d1 35



NX	λ 0° γ 12°	HFC	**Rm** 850-1500			847
SX	λ 0° γ 13°	HFC	**Inox** Stainless	**Rm** <850		849
ZX	λ 0° γ 13°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	851

High feed end mills for inserts 10mm

N° W02400 d1 40 – 63



NX	λ 4° γ 16°	HFC	**Rm** 850-1500			853
SX	λ 4° γ 17°	HFC	**Inox** Stainless	**Rm** <850		855
ZX	λ 4° γ 17°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	857

High feed end mills for inserts 13mm

N° W02410 d1 50 – 80



NX	λ 4° γ 16°	HFC	**Rm** 850-1500			859
SX	λ 4° γ 17°	HFC	**Inox** Stainless	**Rm** <850		861
ZX	λ 4° γ 17°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	863


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High feed end mills for inserts 10mm

N° W02200 d1 25



NX	λ 2° γ 14°	HFC	**Rm** 850-1500			865
SX	λ 2° γ 15°	HFC	**Inox** Stainless	**Rm** <850		867
ZX	λ 2° γ 15°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	869

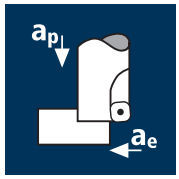
High feed end mills for inserts 13mm

N° W02210 d1 35



NX	λ 0° γ 12°	HFC	**Rm** 850-1500			871
SX	λ 0° γ 13°	HFC	**Inox** Stainless	**Rm** <850		873
ZX	λ 0° γ 13°	HFC	**Ni** Alloys	**Inox** Stainless	**Rm** <850	875

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	M	25	3	200	1.000	0.70	15.0	2545	7635	80.0
	XL	25	3	160	0.800	0.65	10.0	2035	4885	32.0
Steel 850 - 1100 N/mm²	M	25	3	180	0.800	0.63	15.0	2290	5495	52.0
	XL	25	3	140	0.640	0.59	10.0	1785	3425	20.0
Steel 1100 - 1300 N/mm²	M	25	3	160	0.650	0.56	15.0	2035	3970	33.5
	XL	25	3	120	0.520	0.52	10.0	1530	2385	12.5
Steel 1300 - 1500 N/mm²	M	25	3	120	0.550	0.49	15.0	1530	2525	18.5
	XL	25	3	100	0.440	0.45	10.0	1275	1685	7.5

Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	M	25	3	100	0.350	0.45	15.0	1275	1340	9.0
	XL	25	3	80	0.280	0.42	10.0	1020	855	3.5
Cast iron (lamellar / spheroidal)	M	25	3	160	1.000	0.70	15.0	2035	6105	64.0
	XL	25	3	120	0.800	0.65	10.0	1530	3670	24.0

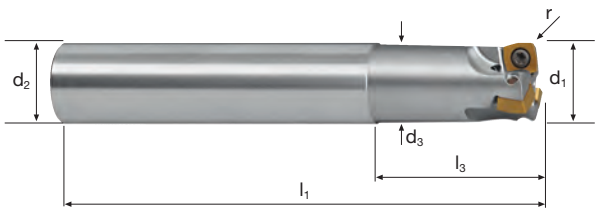
High feed end mills NX

Inserts 10mm, with integral air / cooling channel

HM

λ 2°
γ 14°

HFC



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

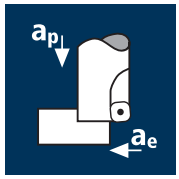
High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W02140.253*	25	25	24	125	65	1.0	3	M	●
W02180.253	25	25	24	225	50	1.0	3	XL	●

* With clamping flat only

Inserts NX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	M	25	3	180	1.000	0.70	15.0	2290	6870	72.0
	XL	25	3	140	0.800	0.65	10.0	1785	4285	28.0
Stainless steel [Cr-Ni/1.4301]	M	25	3	120	0.900	0.63	15.0	1530	4130	39.0
	XL	25	3	100	0.720	0.59	10.0	1275	2755	16.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	25	3	150	0.800	0.63	15.0	1910	4585	43.5
	XL	25	3	120	0.640	0.59	10.0	1530	2940	17.5
Heat resistant steel [17-4 PH]	M	25	3	100	0.600	0.49	15.0	1275	2295	17.0
	XL	25	3	80	0.480	0.45	10.0	1020	1470	6.5

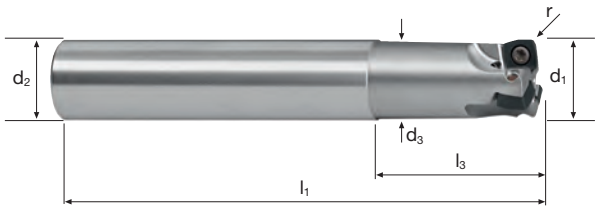
Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	M	25	3	100	0.700	0.49	15.0	1275	2680	19.5
	XL	25	3	80	0.560	0.45	10.0	1020	1715	7.5
Steel < 850 N/mm²	M	25	3	180	1.000	0.70	15.0	2290	6870	72.0
	XL	25	3	140	0.800	0.65	10.0	1785	4285	28.0

High feed end mills SX

Inserts 10mm, with integral air / cooling channel

HM | λ **2°** γ **15°**

HFC



Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

High feed end mills

Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W02140.253*	25	25	24	125	65	1.0	3	M	●
W02180.253	25	25	24	225	50	1.0	3	XL	●

* With clamping flat only

Inserts SX 10mm

Delivery range: Packaging unit 10 pieces

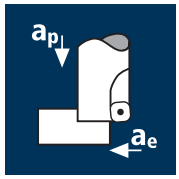
Order-N°.	H	B	D	r	$R_{theo.}$	
W52310.010	10.2	10.0	4.0	0.8	2.0	●

Accessories

Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	M	25	3	130	0.970	0.63	15.0	1655	4815	45.5
	XL	25	3	110	0.810	0.59	10.0	1400	3400	20.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	25	3	160	0.870	0.63	15.0	2035	5310	50.0
	XL	25	3	130	0.725	0.59	10.0	1655	3600	21.0
Heat resistant steel [17-4 PH] [Duplex]	M	25	3	110	0.645	0.48	15.0	1400	2710	19.5
	XL	25	3	90	0.540	0.45	10.0	1145	1855	8.5
Titanium alloys >300 HB [Ti6Al4V]	M	25	3	60	0.590	0.48	15.0	765	1355	10.0
	XL	25	3	50	0.495	0.45	10.0	635	945	4.5

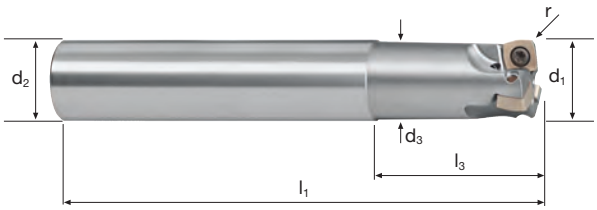
Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	M	25	3	80	0.670	0.57	15.0	1020	2050	17.5
	XL	25	3	60	0.560	0.53	10.0	765	1285	7.0
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	M	25	3	40	0.325	0.44	15.0	510	495	3.5
	XL	25	3	35	0.270	0.41	10.0	445	360	1.5

High feed end mills ZX

Inserts 10mm, with integral air / cooling channel

HM | λ **2°** γ **15°**

HFC



Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Nickel-Alloys HSS**

High feed end mills — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W02140.253*	25	25	24	125	65	1.0	3	M	●
W02180.253	25	25	24	225	50	1.0	3	XL	●

* With clamping flat

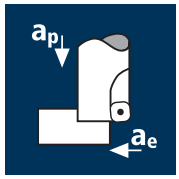
Inserts ZX 10mm — Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.010	10.2	10.0	4.0	0.8	2.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	M	35	3	200	1.200	1.20	21.0	1820	6550	165.0
	XL	35	3	160	1.000	1.00	14.0	1455	4365	61.0
Steel 850 - 1100 N/mm²	M	35	3	180	0.960	1.08	21.0	1635	4710	107.0
	XL	35	3	140	0.800	0.90	14.0	1275	3060	38.5
Steel 1100 - 1300 N/mm²	M	35	3	160	0.780	0.96	21.0	1455	3405	68.5
	XL	35	3	120	0.650	0.80	14.0	1090	2125	24.0
Steel 1300 - 1500 N/mm²	M	35	3	120	0.660	0.84	21.0	1090	2160	38.0
	XL	35	3	100	0.550	0.70	14.0	910	1500	14.5

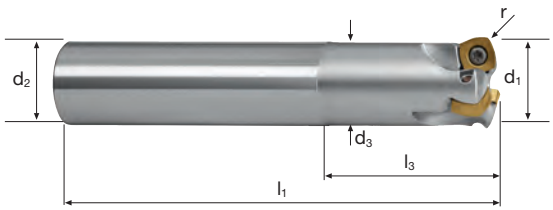
Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	M	35	3	100	0.420	0.78	21.0	910	1145	19.0
	XL	35	3	80	0.350	0.65	14.0	730	765	7.0
Cast iron (lamellar / spheroidal)	M	35	3	160	1.200	1.20	21.0	1455	5240	132.0
	XL	35	3	120	1.000	1.00	14.0	1090	3270	46.0

High feed end mills NX

Inserts 13mm, with integral air / cooling channel

HM | λ **0°** γ **12°**

HFC



Rm < 850	**Rm** 850-1100	**Rm** 1100-1300	**Rm** 1300-1500	**HRC** 48-56					**GG(G)**

High feed end mills — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W02150.353*	35	32	31.4	144	63	2.0	3	M	●
W02190.353	35	32	31.4	250	63	2.0	3	XL	●

* With clamping flat only

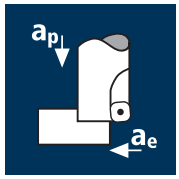
Inserts NX 13mm — Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.013	13.6	13.1	4.8	1.0	3.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	M	35	3	180	1.200	1.20	21.0	1635	5885	148.5
	XL	35	3	140	1.000	1.00	14.0	1275	3825	53.5
Stainless steel [Cr-Ni/1.4301]	M	35	3	120	1.080	1.08	21.0	1090	3530	80.0
	XL	35	3	100	0.900	0.90	14.0	910	2455	31.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	35	3	150	0.960	1.08	21.0	1365	3930	89.0
	XL	35	3	120	0.800	0.90	14.0	1090	2615	33.0
Heat resistant steel [17-4 PH]	M	35	3	100	0.720	0.84	21.0	910	1965	34.5
	XL	35	3	80	0.600	0.70	14.0	730	1315	13.0

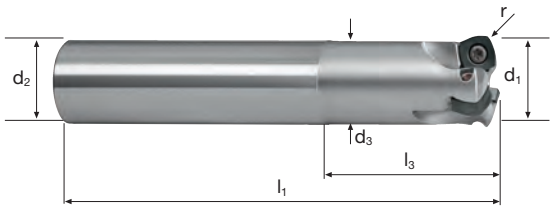
Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	M	35	3	100	0.840	0.84	21.0	910	2295	40.5
	XL	35	3	80	0.700	0.70	14.0	730	1535	15.0
Steel < 850 N/mm²	M	35	3	180	1.200	1.20	21.0	1635	5885	148.5
	XL	35	3	140	1.000	1.00	14.0	1275	3825	53.5

High feed end mills SX

Inserts 13mm, with integral air / cooling channel

HM | λ **0°** γ **13°**

HFC



Rm < 850	**Rm** 850-1100						**Inox** Stainless	**Ti** Titanium	**Tool Steel**

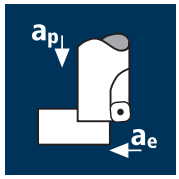
High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	**z**	**L-Type**	
W02150.353*	35	32	31.4	144	63	2.0	3	M	●
W02190.353	35	32	31.4	250	63	2.0	3	XL	●

* With clamping flat only

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	**H**	**B**	**D**	**r**	$R_{theo.}$	
W52310.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	M	35	3	130	1.130	1.08	21.0	1180	4000	90.5
	XL	35	3	110	0.950	0.90	14.0	1000	2850	36.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	M	35	3	160	1.010	1.08	21.0	1455	4410	100.0
	XL	35	3	140	0.850	0.90	14.0	1275	3250	41.0
Heat resistant steel [17-4 PH] [Duplex]	M	35	3	110	0.750	0.82	21.0	1000	2250	38.5
	XL	35	3	90	0.630	0.68	14.0	820	1550	15.0
Titanium alloys >300 HB [Ti6Al4V]	M	35	3	60	0.690	0.82	21.0	545	1130	19.5
	XL	35	3	50	0.580	0.68	14.0	455	790	7.5

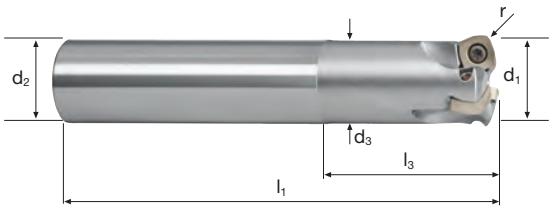
Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	M	35	3	80	0.780	0.97	21.0	730	1710	35.0
	XL	35	3	60	0.655	0.81	14.0	545	1070	12.0
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	M	35	3	35	0.380	0.76	21.0	320	365	6.0
	XL	35	3	25	0.320	0.63	14.0	225	215	2.0

High feed end mills ZX

Inserts 13mm, with integral air / cooling channel

HM | λ **0°** γ **13°**

HFC



Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys HSS**

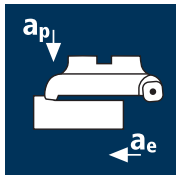
High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W02150.353*	35	32	31.4	144	63	2.0	3	M	●
W02190.353	35	32	31.4	250	63	2.0	3	XL	●

* With clamping flat

Inserts ZX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	40	4	200	1.200	0.75	24.0	1590	7630	137.35
	50	5	200	1.300	0.75	30.0	1275	8290	186.55
	63	6	180	1.400	0.75	37.8	910	7645	216.75
Steel 850 - 1100 N/mm²	40	4	180	0.960	0.68	24.0	1430	5490	89.60
	50	5	180	1.040	0.68	30.0	1145	5955	121.50
	63	6	160	1.120	0.68	37.8	810	5445	139.95
Steel 1100 - 1300 N/mm²	40	4	160	0.780	0.60	24.0	1275	3980	57.30
	50	5	160	0.845	0.60	30.0	1020	4310	77.60
	63	6	140	0.910	0.60	37.8	705	3850	87.30
Steel 1300 - 1500 N/mm²	40	4	120	0.660	0.52	24.0	955	2520	31.45
	50	5	120	0.715	0.52	30.0	765	2735	42.65
	63	6	100	0.770	0.52	37.8	505	2335	45.90

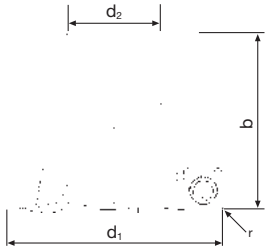
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	40	4	100	0.420	0.49	24.0	795	1335	15.70
	50	5	100	0.455	0.49	30.0	635	1445	21.25
	63	6	80	0.490	0.49	37.8	405	1190	22.05
Cast iron (lamellar / spheroidal)	40	4	160	1.200	0.75	24.0	1275	6120	110.15
	50	5	160	1.300	0.75	30.0	1020	6630	149.20
	63	6	140	1.400	0.75	37.8	705	5920	167.85

High feed end mills NX

Inserts 10mm, with integral air / cooling channel

HM	λ 4° γ 16°
	HFC





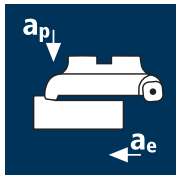
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W02400.404*	40	16	40	1.0	4	●
W02400.505	50	22	40	1.0	5	●
W02400.636	63	22	40	1.0	6	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts NX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W92500.010	Clamping screws for inserts Torx TX 15 / M 3.5 x 8.6	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel ferritic/martensitic	40	4	180	1.200	0.75	24.0	1430	6865	123.55
	50	5	180	1.300	0.75	30.0	1145	7445	167.50
	63	6	140	1.400	0.75	37.8	705	5920	167.85
Stainless steel [Cr-Ni/1.4301]	40	4	120	1.080	0.68	24.0	955	4125	67.30
	50	5	120	1.170	0.68	30.0	765	4475	91.30
	63	6	100	1.260	0.68	37.8	505	3820	98.20
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	150	0.960	0.68	24.0	1195	4590	74.90
	50	5	150	1.040	0.68	30.0	955	4965	101.30
	63	6	120	1.120	0.68	37.8	605	4065	104.50
Heat resistant steel [17-4 PH]	40	4	100	0.720	0.52	24.0	795	2290	28.60
	50	5	100	0.780	0.52	30.0	635	2475	38.60
	63	6	80	0.840	0.52	37.8	405	2040	40.10

Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Titanium alloys >300 HB [Ti6Al4V]	40	4	100	0.840	0.52	24.0	795	2670	33.30
	50	5	100	0.910	0.52	30.0	635	2890	45.10
	63	6	80	0.980	0.52	37.8	405	2380	46.80
Steel < 850 N/mm²	40	4	180	1.200	0.75	24.0	1430	6865	123.55
	50	5	180	1.300	0.75	30.0	1145	7445	167.50
	63	6	140	1.400	0.75	37.8	705	5920	167.85

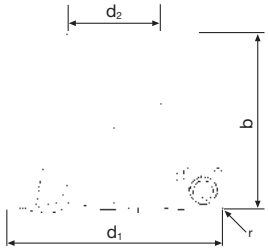
High feed end mills SX

Inserts 10mm, with integral air / cooling channel

HM | λ **4°** γ **17°**

HFC





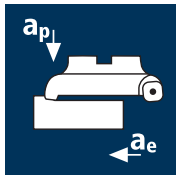
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W02400.404*	40	16	40	1.0	4	●
W02400.505	50	22	40	1.0	5	●
W02400.636	63	22	40	1.0	6	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts SX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52310.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W92500.010	Clamping screws for inserts Torx TX 15 / M 3.5 x 8.6	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	40	4	130	1.135	0.68	24.0	1035	4700	76.70
	50	5	130	1.230	0.68	30.0	830	5105	104.15
	63	6	110	1.325	0.68	37.8	555	4410	113.35
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	160	1.010	0.68	24.0	1275	5150	84.05
	50	5	160	1.095	0.68	30.0	1020	5585	113.95
	63	6	130	1.180	0.68	37.8	655	4635	119.15
Heat resistant steel [17-4 PH] [Duplex]	40	4	110	0.755	0.52	24.0	875	2645	33.00
	50	5	110	0.820	0.52	30.0	700	2870	44.75
	63	6	90	0.880	0.52	37.8	455	2400	47.15
Titanium alloys >300 HB [Ti6Al4V]	40	4	60	0.690	0.52	24.0	475	1310	16.35
	50	5	60	0.750	0.52	30.0	380	1425	22.25
	63	6	50	0.810	0.52	37.8	255	1240	24.35

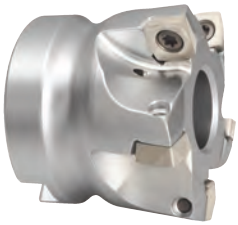
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	4	80	0.785	0.61	24.0	635	1995	29.20
	50	5	80	0.850	0.61	30.0	510	2170	39.70
	63	6	60	0.915	0.61	37.8	305	1675	38.60
Steel < 850 N/mm²	40	4	190	1.225	0.75	24.0	1510	7400	133.20
	50	5	180	1.330	0.75	30.0	1145	7615	171.35
	63	6	160	1.430	0.75	37.8	810	6950	197.05
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	4	40	0.380	0.48	24.0	320	485	5.60
	50	5	35	0.410	0.48	30.0	225	460	6.60
	63	6	30	0.445	0.48	37.8	150	400	7.25

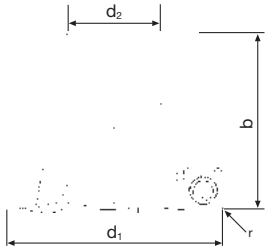
High feed end mills ZX

Inserts 10mm, with integral air / cooling channel

HM | λ **4°** γ **17°**

HFC





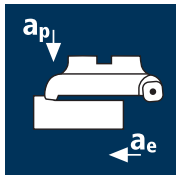
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Nickel-Alloys HSS**

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W02400.404*	40	16	40	1.0	4	●
W02400.505	50	22	40	1.0	5	●
W02400.636	63	22	40	1.0	6	●
W99510.010*	Powerscrew M8.0 x 30.0 (Torque **15.0 Nm**)					●
	Delivery range with Powerscrew					

Inserts ZX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W92500.010	Clamping screws for inserts Torx TX 15 / M 3.5 x 8.6	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	50	4	200	1.400	1.40	30.0	1275	7140	299.90
	63	5	180	1.500	1.40	37.8	910	6825	361.20
	80	7	160	1.600	1.40	48.0	635	7110	477.80
Steel 850 - 1100 N/mm²	50	4	180	1.120	1.26	30.0	1145	5130	193.90
	63	5	160	1.200	1.26	37.8	810	4860	231.45
	80	7	140	1.280	1.26	48.0	555	4975	300.90
Steel 1100 - 1300 N/mm²	50	4	160	0.910	1.12	30.0	1020	3715	124.80
	63	5	140	0.975	1.12	37.8	705	3435	145.40
	80	7	120	1.040	1.12	48.0	475	3460	186.00
Steel 1300 - 1500 N/mm²	50	4	120	0.770	0.98	30.0	765	2355	69.25
	63	5	100	0.825	0.98	37.8	505	2085	77.25
	80	7	80	0.880	0.98	48.0	320	1970	92.65

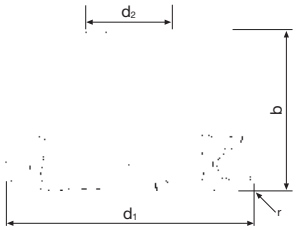
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	50	4	100	0.490	0.91	30.0	635	1245	34.00
	63	5	80	0.525	0.91	37.8	405	1065	36.65
	80	7	70	0.560	0.91	48.0	280	1100	48.05
Cast iron (lamellar / spheroidal)	50	4	160	1.400	1.40	30.0	1020	5710	239.80
	63	5	140	1.500	1.40	37.8	705	5290	279.95
	80	7	120	1.600	1.40	48.0	475	5320	357.50

High feed end mills NX

Inserts 13mm, with integral air / cooling channel

HM	λ 4° γ 16°
	HFC





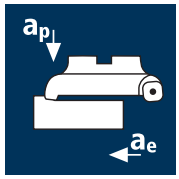
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W02410.504	50	22	40	2.0	4	●
W02410.635	63	22	40	2.0	5	●
W02410.807	80	27	50	2.0	7	●

Inserts NX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	50	4	180	1.400	1.40	30.0	1145	6410	269.20
	63	5	140	1.500	1.40	37.8	705	5290	279.95
	80	7	120	1.600	1.40	48.0	475	5320	357.50
Stainless steel [Cr-Ni/1.4301]	50	4	120	1.260	1.26	30.0	765	3855	145.70
	63	5	100	1.350	1.26	37.8	505	3410	162.40
	80	7	80	1.440	1.26	48.0	320	3225	195.05
Stainless steel [Cr-Ni-Mo-.../1.4571]	50	4	150	1.120	1.26	30.0	955	4280	161.80
	63	5	120	1.200	1.26	37.8	605	3630	172.90
	80	7	100	1.280	1.26	48.0	400	3585	216.80
Heat resistant steel [17-4 PH]	50	4	100	0.840	0.98	30.0	635	2135	62.75
	63	5	80	0.900	0.98	37.8	405	1825	67.60
	80	7	70	0.960	0.98	48.0	280	1880	88.45

Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys > 300 HB [Ti6Al4V]	50	4	100	0.980	0.98	30.0	635	2490	73.20
	63	5	80	1.050	0.98	37.8	405	2125	78.70
	80	7	70	1.120	0.98	48.0	280	2195	103.25
Steel < 850 N/mm²	50	4	180	1.400	1.40	30.0	1145	6410	269.20
	63	5	140	1.500	1.40	37.8	705	5290	279.95
	80	7	120	1.600	1.40	48.0	475	5320	357.50

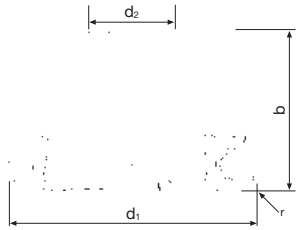
High feed end mills SX

Inserts 13mm, with integral air / cooling channel

HM | λ **4°** γ **17°**

HFC





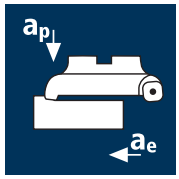
Rm < 850 | **Rm** 850-1100 | **Inox** Stainless | **Ti** Titanium | **Tool Steel**

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W02410.504	50	22	40	2.0	4	●
W02410.635	63	22	40	2.0	5	●
W02410.807	80	27	50	2.0	7	●

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52310.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	50	4	130	1.325	1.26	30.0	830	4400	166.30
	63	5	110	1.425	1.26	37.8	555	3955	188.35
	80	7	90	1.485	1.26	48.0	360	3740	226.20
Stainless steel [Cr-Ni-Mo-.../1.4571]	50	4	160	1.180	1.26	30.0	1020	4815	182.00
	63	5	130	1.270	1.26	37.8	655	4160	198.15
	80	7	110	1.320	1.26	48.0	440	4065	245.85
Heat resistant steel [17-4 PH] [Duplex]	50	4	110	0.880	0.96	30.0	700	2465	71.00
	63	5	90	0.950	0.96	37.8	455	2160	78.40
	80	7	70	0.990	0.96	48.0	280	1940	89.40
Titanium alloys >300 HB [Ti6Al4V]	50	4	60	0.810	0.96	30.0	380	1230	35.40
	63	5	50	0.870	0.96	37.8	255	1110	40.30
	80	7	45	0.905	0.96	48.0	180	1140	52.55

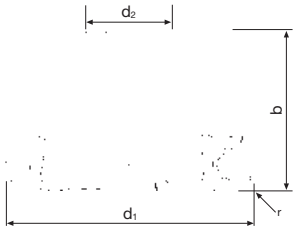
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	50	4	80	0.915	1.13	30.0	510	1865	63.20
	63	5	60	0.985	1.13	37.8	305	1500	64.05
	80	7	50	1.025	1.13	48.0	200	1435	77.85
Steel < 850 N/mm²	50	4	180	1.430	1.40	30.0	1145	6550	275.10
	63	5	160	1.540	1.40	37.8	810	6235	329.95
	80	7	130	1.605	1.40	48.0	515	5785	388.75
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	50	4	35	0.445	0.88	30.0	225	400	10.55
	63	5	30	0.475	0.88	37.8	150	355	11.80
	80	7	25	0.495	0.88	48.0	100	345	14.55

High feed end mills ZX

Inserts 13mm, with integral air / cooling channel

HM	λ 4° γ 17°
	HFC





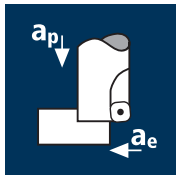
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	l_1	$ap_{max.}$	z	
W02410.504	50	22	40	2.0	4	●
W02410.635	63	22	40	2.0	5	●
W02410.807	80	27	50	2.0	7	●

Inserts ZX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



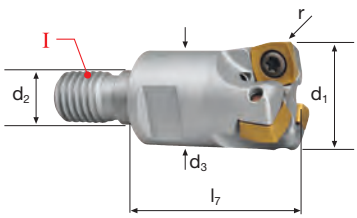
Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	< 100	25	3	250	1.200	0.75	15.0	3185	11465	129.0
	100-160	25	3	200	1.000	0.70	15.0	2545	7635	80.0
	160-250	25	3	160	0.800	0.65	10.0	2035	4885	32.0
Steel 850 - 1100 N/mm²	< 100	25	3	220	0.960	0.68	15.0	2800	8065	82.5
	100-160	25	3	180	0.800	0.63	15.0	2290	5495	52.0
	160-250	25	3	140	0.640	0.59	10.0	1785	3425	20.0
Steel 1100 - 1300 N/mm²	< 100	25	3	200	0.780	0.60	15.0	2545	5955	53.5
	100-160	25	3	160	0.650	0.56	15.0	2035	3970	33.5
	160-250	25	3	120	0.520	0.52	10.0	1530	2385	12.5
Steel 1300 - 1500 N/mm²	< 100	25	3	160	0.660	0.52	15.0	2035	4030	31.5
	100-160	25	3	120	0.550	0.49	15.0	1530	2525	18.5
	160-250	25	3	100	0.440	0.45	10.0	1275	1685	7.5

Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	< 100	25	3	140	0.420	0.49	15.0	1785	2250	16.5
	100-160	25	3	100	0.350	0.45	15.0	1275	1340	9.0
	160-250	25	3	80	0.280	0.42	10.0	1020	855	3.5
Cast iron (lamellar / spheroidal)	< 100	25	3	200	1.200	0.75	15.0	2545	9160	103.0
	100-160	25	3	160	1.000	0.70	15.0	2035	6105	64.0
	160-250	25	3	120	0.800	0.65	10.0	1530	3670	24.0

High feed end mills NX

Inserts 10mm, with integral air / cooling channel

HM	λ 2° γ 14°
	HFC



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

High feed end mills — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02200.253	25	12.5	21	35	1.0	3	17	M12	●

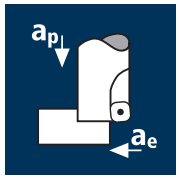
Inserts NX 10mm — Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.010	10.2	10.0	4.0	0.8	2.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



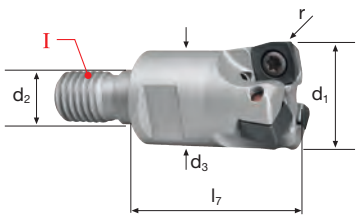
Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	< 100	25	3	200	1.200	0.75	15.0	2545	9160	103.0
	100-160	25	3	180	1.000	0.70	15.0	2290	6870	72.0
	160-250	25	3	140	0.800	0.65	10.0	1785	4285	28.0
Stainless steel [Cr-Ni/1.4301]	< 100	25	3	140	1.080	0.68	15.0	1785	5785	59.0
	100-160	25	3	120	0.900	0.63	15.0	1530	4130	39.0
	160-250	25	3	100	0.720	0.59	10.0	1275	2755	16.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	< 100	25	3	180	0.960	0.68	15.0	2290	6595	67.5
	100-160	25	3	150	0.800	0.63	15.0	1910	4585	43.5
	160-250	25	3	120	0.640	0.59	10.0	1530	2940	17.5
Heat resistant steel [17-4 PH]	< 100	25	3	120	0.720	0.52	15.0	1530	3305	26.0
	100-160	25	3	100	0.600	0.49	15.0	1275	2295	17.0
	160-250	25	3	80	0.480	0.45	10.0	1020	1470	6.5

Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	< 100	25	3	120	0.840	0.52	15.0	1530	3855	30.0
	100-160	25	3	100	0.700	0.49	15.0	1275	2680	19.5
	160-250	25	3	80	0.560	0.45	10.0	1020	1715	7.5
Steel < 850 N/mm²	< 100	25	3	220	1.200	0.75	15.0	2800	10080	113.5
	100-160	25	3	180	1.000	0.70	15.0	2290	6870	72.0
	160-250	25	3	140	0.800	0.65	10.0	1785	4285	28.0

High feed end mills SX

Inserts 10mm, with integral air / cooling channel

HM	λ 2° γ 15°
	HFC



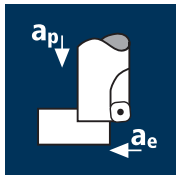
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02200.253	25	12.5	21	35	1.0	3	17	M12	●

Inserts SX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52310.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



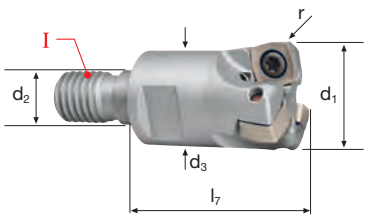
Material	L_A	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	< 100	25	3	150	1.135	0.68	15.0	1910	6505	66.5
	100-160	25	3	130	0.970	0.63	15.0	1655	4815	45.5
	160-250	25	3	110	0.810	0.59	10.0	1400	3400	20.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	< 100	25	3	180	1.010	0.68	15.0	2290	6940	71.0
	100-160	25	3	160	0.870	0.63	15.0	2035	5310	50.0
	160-250	25	3	130	0.725	0.59	10.0	1655	3600	21.0
Heat resistant steel [17-4 PH] [Duplex]	< 100	25	3	130	0.755	0.52	15.0	1655	3750	29.5
	100-160	25	3	110	0.645	0.48	15.0	1400	2710	19.5
	160-250	25	3	90	0.540	0.45	10.0	1145	1855	8.5
Titanium alloys >300 HB [Ti6Al4V]	< 100	25	3	70	0.690	0.52	15.0	890	1840	14.5
	100-160	25	3	60	0.590	0.48	15.0	765	1355	10.0
	160-250	25	3	50	0.495	0.45	10.0	635	945	4.5

Material	L_A	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	< 100	25	3	100	0.785	0.61	15.0	1275	3005	27.5
	100-160	25	3	80	0.670	0.57	15.0	1020	2050	17.5
	160-250	25	3	60	0.560	0.53	10.0	765	1285	7.0
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	< 100	25	3	45	0.380	0.48	15.0	575	655	4.5
	100-160	25	3	40	0.325	0.44	15.0	510	495	3.5
	160-250	25	3	35	0.270	0.41	10.0	445	360	1.5

High feed end mills ZX

Inserts 10mm, with integral air / cooling channel

HM	λ 2° γ 15°
	HFC



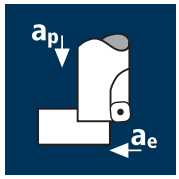
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02200.253	25	12.5	21	35	1.0	3	17	M12	●

Inserts ZX 10mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.010	10.2	10.0	4.0	0.8	2.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



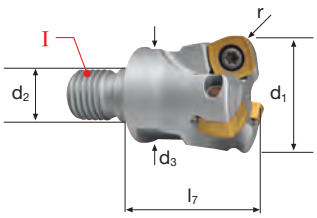
Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	< 100	35	3	250	1.400	1.40	21.0	2275	9555	281.0
	100-180	35	3	200	1.200	1.20	21.0	1820	6550	165.0
	180-260	35	3	160	1.000	1.00	14.0	1455	4365	61.0
Steel 850 - 1100 N/mm²	< 100	35	3	220	1.120	1.26	21.0	2000	6720	178.0
	100-180	35	3	180	0.960	1.08	21.0	1635	4710	107.0
	180-260	35	3	140	0.800	0.90	14.0	1275	3060	38.5
Steel 1100 - 1300 N/mm²	< 100	35	3	200	0.910	1.12	21.0	1820	4970	117.0
	100-180	35	3	160	0.780	0.96	21.0	1455	3405	68.5
	180-260	35	3	120	0.650	0.80	14.0	1090	2125	24.0
Steel 1300 - 1500 N/mm²	< 100	35	3	160	0.770	0.98	21.0	1455	3360	69.0
	100-180	35	3	120	0.660	0.84	21.0	1090	2160	38.0
	180-260	35	3	100	0.550	0.70	14.0	910	1500	14.5

Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 1500 - 1800 N/mm²	< 100	35	3	140	0.490	0.91	21.0	1275	1875	36.0
	100-180	35	3	100	0.420	0.78	21.0	910	1145	19.0
	180-260	35	3	80	0.350	0.65	14.0	730	765	7.0
Cast iron (lamellar / spheroidal)	< 100	35	3	200	1.400	1.40	21.0	1820	7645	225.0
	100-180	35	3	160	1.200	1.20	21.0	1455	5240	132.0
	180-260	35	3	120	1.000	1.00	14.0	1090	3270	46.0

High feed end mills NX

Inserts 13mm, with integral air / cooling channel

HM	λ 0° γ 12°
	HFC



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56					GG(G)

High feed end mills — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02210.353	35	17	29	35	2.0	3	24	M16	●

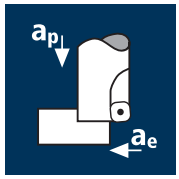
Inserts NX 13mm — Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	$R_{theo.}$	
W52110.013	13.6	13.1	4.8	1.0	3.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



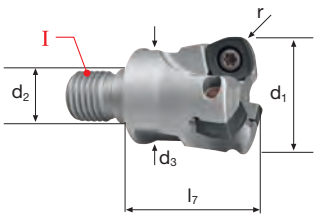
Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel ferritic/martensitic	< 100	35	3	200	1.400	1.40	21.0	1820	7645	225.0
	100-180	35	3	180	1.200	1.20	21.0	1635	5885	148.5
	180-260	35	3	140	1.000	1.00	14.0	1275	3825	53.5
Stainless steel [Cr-Ni/1.4301]	< 100	35	3	140	1.260	1.26	21.0	1275	4820	127.5
	100-180	35	3	120	1.080	1.08	21.0	1090	3530	80.0
	180-260	35	3	100	0.900	0.90	14.0	910	2455	31.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	< 100	35	3	180	1.120	1.26	21.0	1635	5495	145.5
	100-180	35	3	150	0.960	1.08	21.0	1365	3930	89.0
	180-260	35	3	120	0.800	0.90	14.0	1090	2615	33.0
Heat resistant steel [17-4 PH]	< 100	35	3	120	0.840	0.98	21.0	1090	2745	56.5
	100-180	35	3	100	0.720	0.84	21.0	910	1965	34.5
	180-260	35	3	80	0.600	0.70	14.0	730	1315	13.0

Material	L_A [mm]	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Titanium alloys >300 HB [Ti6Al4V]	< 100	35	3	120	0.980	0.98	21.0	1090	3205	66.0
	100-180	35	3	100	0.840	0.84	21.0	910	2295	40.5
	180-260	35	3	80	0.700	0.70	14.0	730	1535	15.0
Steel < 850 N/mm²	< 100	35	3	220	1.400	1.40	21.0	2000	8400	247.0
	100-180	35	3	180	1.200	1.20	21.0	1635	5885	148.5
	180-260	35	3	140	1.000	1.00	14.0	1275	3825	53.5

High feed end mills SX

Inserts 13mm, with integral air / cooling channel

HM	λ 0° γ 13°
	HFC



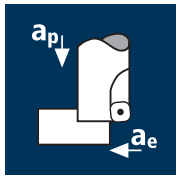
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

High feed end mills	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02210.353	35	17	29	35	2.0	3	24	M16	●

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces					
Order-N°.	H	B	D	r	$R_{theo.}$	
W52310.013	13.6	13.1	4.8	1.0	3.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



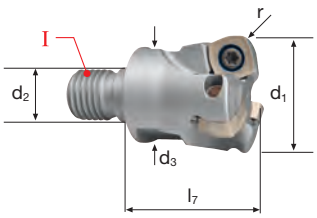
Material	L_A	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	< 100	35	3	150	1.325	1.26	21.0	1365	5425	143.5
	100-180	35	3	130	1.130	1.08	21.0	1180	4000	90.5
	180-260	35	3	110	0.950	0.90	14.0	1000	2850	36.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	< 100	35	3	180	1.185	1.26	21.0	1635	5810	153.5
	100-180	35	3	160	1.010	1.08	21.0	1455	4410	100.0
	180-260	35	3	140	0.850	0.90	14.0	1275	3250	41.0
Heat resistant steel [17-4 PH] [Duplex]	< 100	35	3	130	0.880	0.96	21.0	1180	3115	63.0
	100-180	35	3	110	0.750	0.82	21.0	1000	2250	38.5
	180-260	35	3	90	0.630	0.68	14.0	820	1550	15.0
Titanium alloys >300 HB [Ti6Al4V]	< 100	35	3	70	0.810	0.96	21.0	635	1545	31.0
	100-180	35	3	60	0.690	0.82	21.0	545	1130	19.5
	180-260	35	3	50	0.580	0.68	14.0	455	790	7.5

Material	L_A	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
PM high-speed steel annealed [Böhler S390] [ASP 2023]	< 100	35	3	100	0.915	1.13	21.0	910	2500	59.5
	100-180	35	3	80	0.780	0.97	21.0	730	1710	35.0
	180-260	35	3	60	0.655	0.81	14.0	545	1070	12.0
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	< 100	35	3	45	0.445	0.88	21.0	410	545	10.0
	100-180	35	3	35	0.380	0.76	21.0	320	365	6.0
	180-260	35	3	25	0.320	0.63	14.0	225	215	2.0

High feed end mills ZX

Inserts 13mm, with integral air / cooling channel

HM	λ 0° γ 13°
	HFC



Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys HSS

High feed end mills — Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	d_2	d_3	l_7	$ap_{max.}$	z		I	
W02210.353	35	17	29	35	2.0	3	24	M16	●

Inserts ZX 13mm — Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	$R_{theo.}$	
W52410.013	13.6	13.1	4.8	1.0	3.0	●

Accessories — Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●


fraisa

Face milling cutter for inserts 9mm

N° W01400

d1 40 – 125



NX	λ **12°** γ **-6°**		**Rm** 850-1300			879
SX	λ **12°** γ **-6°**		**Inox** Stainless	**Rm** <850		881
ZX	λ **12°** γ **-6°**		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	883
AX	λ **12°** γ **15°**		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	885

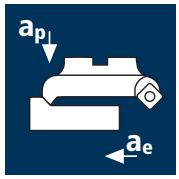
Face milling cutter for inserts 13mm

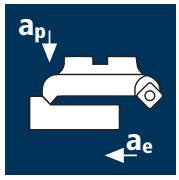
N° W01410

d1 40 – 125



NX	λ **13°** γ **-6°**		**Rm** 850-1300			887
SX	λ **13°** γ **-6°**		**Inox** Stainless	**Rm** <850		889
ZX	λ **13°** γ **-6°**		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	891
AX	λ **13°** γ **13°**		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	893

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	6	220	0.220	2.5	30.0	1750	2310	173.5
		50	7	220	0.220	2.5	37.5	1400	2155	202.0
		63	8	200	0.220	2.5	47.3	1010	1780	210.5
		80	9	200	0.220	2.5	60.0	795	1575	236.5
		100	11	180	0.220	2.5	75.0	575	1390	260.5
		125	12	180	0.220	2.5	93.8	460	1215	285.0
	Steel 850 - 1100 N/mm²	40	6	200	0.220	2.5	30.0	1590	2100	157.5
		50	7	200	0.220	2.5	37.5	1275	1965	184.0
		63	8	180	0.220	2.5	47.3	910	1600	189.0
		80	9	180	0.220	2.5	60.0	715	1415	212.5
		100	11	160	0.220	2.5	75.0	510	1235	231.5
		125	12	160	0.220	2.5	93.8	405	1070	251.0
	Steel 1100 - 1300 N/mm²	40	6	160	0.195	2.5	30.0	1275	1490	112.0
		50	7	160	0.195	2.5	37.5	1020	1390	130.5
		63	8	140	0.195	2.5	47.3	705	1100	130.0
		80	9	140	0.195	2.5	60.0	555	975	146.5
		100	11	120	0.195	2.5	75.0	380	815	153.0
		125	12	120	0.195	2.5	93.8	305	715	167.5
	Steel 1300 - 1500 N/mm²	40	6	120	0.175	2.5	30.0	955	1005	75.5
		50	7	120	0.175	2.5	37.5	765	935	87.5
		63	8	100	0.175	2.5	47.3	505	705	83.5
		80	9	100	0.175	2.5	60.0	400	630	94.5
		100	11	80	0.175	2.5	75.0	255	490	92.0
		125	12	80	0.175	2.5	93.8	205	430	101.0

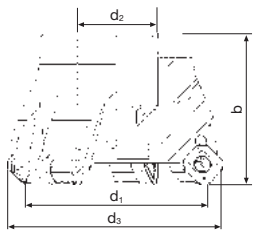
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	6	220	0.165	0.5	30.0	1750	1735	26.0
		50	7	220	0.165	0.5	37.5	1400	1615	30.5
		63	8	200	0.165	0.5	47.3	1010	1335	31.5
		80	9	200	0.165	0.5	60.0	795	1180	35.5
		100	11	180	0.165	0.5	75.0	575	1045	39.0
		125	12	180	0.165	0.5	93.8	460	910	42.5
	Steel 850 - 1100 N/mm²	40	6	200	0.165	0.5	30.0	1590	1575	23.5
		50	7	200	0.165	0.5	37.5	1275	1475	27.5
		63	8	180	0.165	0.5	47.3	910	1200	28.5
		80	9	180	0.165	0.5	60.0	715	1060	32.0
		100	11	160	0.165	0.5	75.0	510	925	34.5
		125	12	160	0.165	0.5	93.8	405	800	37.5
	Steel 1100 - 1300 N/mm²	40	6	160	0.145	0.5	30.0	1275	1110	16.5
		50	7	160	0.145	0.5	37.5	1020	1035	19.5
		63	8	140	0.145	0.5	47.3	705	820	19.5
		80	9	140	0.145	0.5	60.0	555	725	22.0
		100	11	120	0.145	0.5	75.0	380	605	22.5
		125	12	120	0.145	0.5	93.8	305	530	25.0
	Steel 1300 - 1500 N/mm²	40	6	120	0.130	0.5	30.0	955	745	11.0
		50	7	120	0.130	0.5	37.5	765	695	13.0
		63	8	100	0.130	0.5	47.3	505	525	12.5
		80	9	100	0.130	0.5	60.0	400	470	14.0
		100	11	80	0.130	0.5	75.0	255	365	13.5
		125	12	80	0.130	0.5	93.8	205	320	15.0

Face milling cutter 45° NX

Inserts 9mm, with integral air / cooling channel

HM	λ 12° γ -6°





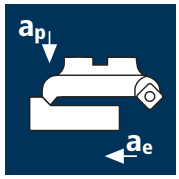
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01400.406	40	16	48.4	40	4.0	6	●
W01400.507	50	22	58.4	40	4.0	7	●
W01400.638	63	22	71.4	40	4.0	8	●
W01400.809	80	27	88.4	50	4.0	9	●
W01400.100	100	32	108.4	50	4.0	11	●
W01400.125	125	40	133.4	63	4.0	12	●

Inserts NX 9mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51110.009	9.5	9.5	4.0	●

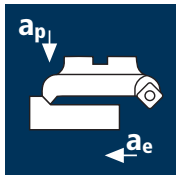
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W91500.009	Clamping screws for inserts Torx TX 08 / M 3.0 x 7.3	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	6	130	0.120	2.5	30.0	1035	745	56.0
	50	7	130	0.120	2.5	37.5	830	695	65.0
	63	8	110	0.120	2.5	47.3	555	535	63.5
	80	9	110	0.120	2.5	60.0	440	475	71.5
	100	11	90	0.120	2.5	75.0	285	375	70.5
	125	12	90	0.120	2.5	93.8	230	330	77.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	6	200	0.120	2.5	30.0	1590	1145	86.0
	50	7	200	0.120	2.5	37.5	1275	1070	100.5
	63	8	180	0.120	2.5	47.3	910	875	103.5
	80	9	180	0.120	2.5	60.0	715	770	115.5
	100	11	160	0.120	2.5	75.0	510	675	126.5
	125	12	160	0.120	2.5	93.8	405	585	137.0
Heat resistant steel [17-4 PH]	40	6	100	0.120	2.5	30.0	795	570	43.0
	50	7	100	0.120	2.5	37.5	635	535	50.0
	63	8	80	0.120	2.5	47.3	405	390	46.0
	80	9	80	0.120	2.5	60.0	320	345	52.0
	100	11	60	0.120	2.5	75.0	190	250	47.0
	125	12	60	0.120	2.5	93.8	155	225	53.0

Application



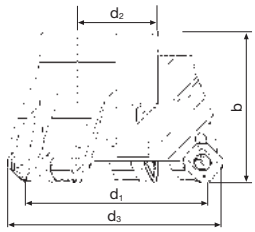
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	6	130	0.080	0.5	30.0	1035	495	7.5
	50	7	130	0.080	0.5	37.5	830	465	8.5
	63	8	110	0.080	0.5	47.3	555	355	8.5
	80	9	110	0.080	0.5	60.0	440	315	9.5
	100	11	90	0.080	0.5	75.0	285	250	9.5
	125	12	90	0.080	0.5	93.8	230	220	10.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	6	200	0.080	0.5	30.0	1590	765	11.5
	50	7	200	0.080	0.5	37.5	1275	715	13.5
	63	8	180	0.080	0.5	47.3	910	580	13.5
	80	9	180	0.080	0.5	60.0	715	515	15.5
	100	11	160	0.080	0.5	75.0	510	450	17.0
	125	12	160	0.080	0.5	93.8	405	390	18.5
Heat resistant steel [17-4 PH]	40	6	100	0.080	0.5	30.0	795	380	5.5
	50	7	100	0.080	0.5	37.5	635	355	6.5
	63	8	80	0.080	0.5	47.3	405	260	6.0
	80	9	80	0.080	0.5	60.0	320	230	7.0
	100	11	60	0.080	0.5	75.0	190	165	6.0
	125	12	60	0.080	0.5	93.8	155	150	7.0

Face milling cutter 45° SX

Inserts 9mm, with integral air / cooling channel

HM	λ 12° γ -6°



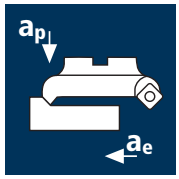


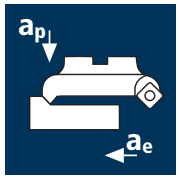
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01400.406	40	16	48.4	40	4.0	6	●
W01400.507	50	22	58.4	40	4.0	7	●
W01400.638	63	22	71.4	40	4.0	8	●
W01400.809	80	27	88.4	50	4.0	9	●
W01400.100	100	32	108.4	50	4.0	11	●
W01400.125	125	40	133.4	63	4.0	12	●

Inserts SX 9mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51310.009	9.5	9.5	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W91500.009	Clamping screws for inserts Torx TX 08 / M 3.0 x 7.3	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	6	40	0.060	2.0	30.0	320	115	7.0
		50	7	40	0.060	2.0	37.5	255	105	8.0
		63	8	30	0.060	2.0	47.3	150	70	6.5
		80	9	30	0.060	2.0	60.0	120	65	8.0
		100	11	20	0.060	2.0	75.0	65	45	7.0
		125	12	20	0.060	2.0	93.8	50	35	6.5
	Manganese steel Mn > 5% [1.3964 / Nitronic]	40	6	100	0.060	2.0	30.0	795	285	17.0
		50	7	100	0.060	2.0	37.5	635	265	20.0
		63	8	90	0.060	2.0	47.3	455	220	21.0
		80	9	90	0.060	2.0	60.0	360	195	23.5
		100	11	80	0.060	2.0	75.0	255	170	25.5
		125	12	80	0.060	2.0	93.8	205	150	28.0
	Heat resistant steel [17-4 PH] [Duplex]	40	6	140	0.120	2.5	30.0	1115	805	60.5
		50	7	140	0.120	2.5	37.5	890	750	70.5
		63	8	120	0.120	2.5	47.3	605	580	68.5
		80	9	120	0.120	2.5	60.0	475	515	77.5
		100	11	100	0.120	2.5	75.0	320	420	79.0
		125	12	100	0.120	2.5	93.8	255	365	85.5
	PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	6	120	0.100	2.5	30.0	955	575	43.0
		50	7	120	0.100	2.5	37.5	765	535	50.0
		63	8	100	0.100	2.5	47.3	505	405	48.0
		80	9	100	0.100	2.5	60.0	400	360	54.0
		100	11	80	0.100	2.5	75.0	255	280	52.5
		125	12	80	0.100	2.5	93.8	205	245	57.5

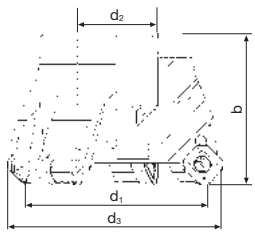
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	6	40	0.080	0.5	30.0	320	155	2.5
		50	7	40	0.080	0.5	37.5	255	145	2.5
		63	8	30	0.080	0.5	47.3	150	95	2.0
		80	9	30	0.080	0.5	60.0	120	85	2.5
		100	11	20	0.080	0.5	75.0	65	55	2.0
		125	12	20	0.080	0.5	93.8	50	50	2.5
	Manganese steel Mn > 5% [1.3964 / Nitronic]	40	6	100	0.080	0.5	30.0	795	380	5.5
		50	7	100	0.080	0.5	37.5	635	355	6.5
		63	8	90	0.080	0.5	47.3	455	290	7.0
		80	9	90	0.080	0.5	60.0	360	260	8.0
		100	11	80	0.080	0.5	75.0	255	225	8.5
		125	12	80	0.080	0.5	93.8	205	195	9.0
	Heat resistant steel [17-4 PH] [Duplex]	40	6	150	0.080	0.5	30.0	1195	575	8.5
		50	7	150	0.080	0.5	37.5	955	535	10.0
		63	8	140	0.080	0.5	47.3	705	450	10.5
		80	9	140	0.080	0.5	60.0	555	400	12.0
		100	11	120	0.080	0.5	75.0	380	335	12.5
		125	12	120	0.080	0.5	93.8	305	295	14.0
	PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	6	120	0.080	0.5	30.0	955	460	7.0
		50	7	120	0.080	0.5	37.5	765	430	8.0
		63	8	100	0.080	0.5	47.3	505	325	7.5
		80	9	100	0.080	0.5	60.0	400	290	8.5
		100	11	80	0.080	0.5	75.0	255	225	8.5
		125	12	80	0.080	0.5	93.8	205	195	9.0

Face milling cutter 45° ZX

Inserts 9mm, with integral air / cooling channel

HM	λ 12° γ -6°



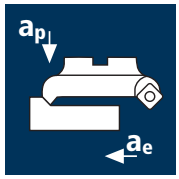


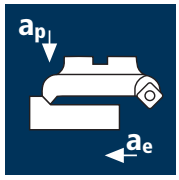
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01400.406	40	16	48.4	40	4.0	6	●
W01400.507	50	22	58.4	40	4.0	7	●
W01400.638	63	22	71.4	40	4.0	8	●
W01400.809	80	27	88.4	50	4.0	9	●
W01400.100	100	32	108.4	50	4.0	11	●
W01400.125	125	40	133.4	63	4.0	12	●

Inserts ZX 9mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51410.009	9.5	9.5	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W91500.009	Clamping screws for inserts Torx TX 08 / M 3.0 x 7.3	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	6	800	0.300	2.5	30.0	6365	11455	859.0
		50	7	800	0.300	2.5	37.5	5095	10700	1003.0
		63	8	700	0.300	2.5	47.3	3535	8485	1003.5
		80	9	700	0.300	2.5	60.0	2785	7520	1128.0
		100	11	600	0.300	2.5	75.0	1910	6305	1182.0
		125	12	600	0.300	2.5	93.8	1530	5510	1292.0
	Cast aluminium Si 6% - 15%	40	6	600	0.220	2.5	30.0	4775	6305	473.0
		50	7	600	0.220	2.5	37.5	3820	5885	551.5
		63	8	550	0.220	2.5	47.3	2780	4895	579.0
		80	9	550	0.220	2.5	60.0	2190	4335	650.5
		100	11	500	0.220	2.5	75.0	1590	3850	722.0
		125	12	500	0.220	2.5	93.8	1275	3365	789.0
	Unalloyed copper	40	6	500	0.220	2.5	30.0	3980	5255	394.0
		50	7	500	0.220	2.5	37.5	3185	4905	460.0
		63	8	450	0.220	2.5	47.3	2275	4005	473.5
		80	9	450	0.220	2.5	60.0	1790	3545	532.0
		100	11	400	0.220	2.5	75.0	1275	3085	578.5
		125	12	400	0.220	2.5	93.8	1020	2695	632.0
	Thermoplastics	40	6	800	0.300	2.5	30.0	6365	11455	859.0
		50	7	800	0.300	2.5	37.5	5095	10700	1003.0
		63	8	700	0.300	2.5	47.3	3535	8485	1003.5
		80	9	700	0.300	2.5	60.0	2785	7520	1128.0
		100	11	600	0.300	2.5	75.0	1910	6305	1182.0
		125	12	600	0.300	2.5	93.8	1530	5510	1292.0

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	6	900	0.100	0.5	30.0	7160	4295	64.5
		50	7	900	0.110	0.5	37.5	5730	4410	82.5
		63	8	800	0.125	0.5	47.3	4040	4040	95.5
		80	9	800	0.140	0.5	60.0	3185	4015	120.5
		100	11	700	0.155	0.5	75.0	2230	3800	142.5
		125	12	700	0.175	0.5	93.8	1785	3750	176.0
	Cast aluminium Si 6% - 15%	40	6	700	0.075	0.5	30.0	5570	2505	37.5
		50	7	700	0.085	0.5	37.5	4455	2650	49.5
		63	8	650	0.095	0.5	47.3	3285	2495	59.0
		80	9	650	0.105	0.5	60.0	2585	2445	73.5
		100	11	600	0.115	0.5	75.0	1910	2415	90.5
		125	12	600	0.130	0.5	93.8	1530	2385	112.0
	Unalloyed copper	40	6	600	0.075	0.5	30.0	4775	2150	32.5
		50	7	600	0.085	0.5	37.5	3820	2275	42.5
		63	8	550	0.095	0.5	47.3	2780	2115	50.0
		80	9	550	0.105	0.5	60.0	2190	2070	62.0
		100	11	500	0.115	0.5	75.0	1590	2010	75.5
		125	12	500	0.130	0.5	93.8	1275	1990	93.5
	Thermoplastics	40	6	900	0.100	0.5	30.0	7160	4295	64.5
		50	7	900	0.110	0.5	37.5	5730	4410	82.5
		63	8	800	0.125	0.5	47.3	4040	4040	95.5
		80	9	800	0.140	0.5	60.0	3185	4015	120.5
		100	11	700	0.155	0.5	75.0	2230	3800	142.5
		125	12	700	0.175	0.5	93.8	1785	3750	176.0

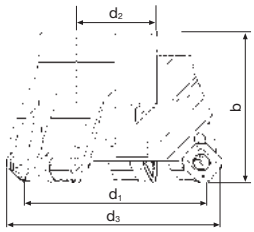
Cutting data for finishing

Face milling cutter 45° AX

Inserts 9mm, with integral air / cooling channel

HM	λ 12° γ 15°



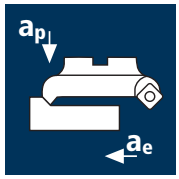


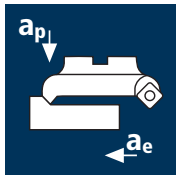
			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF / GF Fiber Reinforced Plastics

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01400.406	40	16	48.4	40	4.0	6	●
W01400.507	50	22	58.4	40	4.0	7	●
W01400.638	63	22	71.4	40	4.0	8	●
W01400.809	80	27	88.4	50	4.0	9	●
W01400.100	100	32	108.4	50	4.0	11	●
W01400.125	125	40	133.4	63	4.0	12	●

Inserts AX 9mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51510.009	9.5	9.5	4.0	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W91500.009	Clamping screws for inserts Torx TX 08 / M 3.0 x 7.3	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	3	220	0.250	4.0	30.0	1750	1315	158.0
		50	4	220	0.250	4.0	37.5	1400	1400	210.0
		63	5	200	0.250	4.0	47.3	1010	1265	239.5
		80	6	200	0.250	4.0	60.0	795	1195	287.0
		100	7	180	0.250	4.0	75.0	575	1005	301.5
		125	8	180	0.250	4.0	93.8	460	920	345.0
	Steel 850 - 1100 N/mm²	40	3	200	0.250	4.0	30.0	1590	1195	143.5
		50	4	200	0.250	4.0	37.5	1275	1275	191.5
		63	5	180	0.250	4.0	47.3	910	1140	215.5
		80	6	180	0.250	4.0	60.0	715	1075	258.0
		100	7	160	0.250	4.0	75.0	510	895	268.5
		125	8	160	0.250	4.0	93.8	405	810	304.0
	Steel 1100 - 1300 N/mm²	40	3	160	0.220	4.0	30.0	1275	840	101.0
		50	4	160	0.220	4.0	37.5	1020	900	135.0
		63	5	140	0.220	4.0	47.3	705	775	146.5
		80	6	140	0.220	4.0	60.0	555	735	176.5
		100	7	120	0.220	4.0	75.0	380	585	175.5
		125	8	120	0.220	4.0	93.8	305	535	200.5
	Steel 1300 - 1500 N/mm²	40	3	120	0.200	4.0	30.0	955	575	69.0
		50	4	120	0.200	4.0	37.5	765	610	91.5
		63	5	100	0.200	4.0	47.3	505	505	95.5
		80	6	100	0.200	4.0	60.0	400	480	115.0
		100	7	80	0.200	4.0	75.0	255	355	106.5
		125	8	80	0.200	4.0	93.8	205	330	124.0

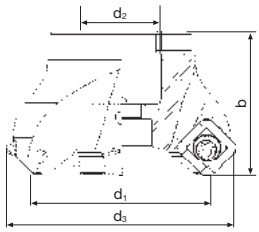
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	3	220	0.165	0.5	30.0	1750	865	13.0
		50	4	220	0.165	0.5	37.5	1400	925	17.5
		63	5	200	0.165	0.5	47.3	1010	835	19.5
		80	6	200	0.165	0.5	60.0	795	785	23.5
		100	7	180	0.165	0.5	75.0	575	665	25.0
		125	8	180	0.165	0.5	93.8	460	605	28.5
	Steel 850 - 1100 N/mm²	40	3	200	0.165	0.5	30.0	1590	785	12.0
		50	4	200	0.165	0.5	37.5	1275	840	16.0
		63	5	180	0.165	0.5	47.3	910	750	17.5
		80	6	180	0.165	0.5	60.0	715	710	21.5
		100	7	160	0.165	0.5	75.0	510	590	22.0
		125	8	160	0.165	0.5	93.8	405	535	25.0
	Steel 1100 - 1300 N/mm²	40	3	160	0.145	0.5	30.0	1275	555	8.5
		50	4	160	0.145	0.5	37.5	1020	590	11.0
		63	5	140	0.145	0.5	47.3	705	510	12.0
		80	6	140	0.145	0.5	60.0	555	485	14.5
		100	7	120	0.145	0.5	75.0	380	385	14.5
		125	8	120	0.145	0.5	93.8	305	355	16.5
	Steel 1300 - 1500 N/mm²	40	3	120	0.130	0.5	30.0	955	370	5.5
		50	4	120	0.130	0.5	37.5	765	400	7.5
		63	5	100	0.130	0.5	47.3	505	330	8.0
		80	6	100	0.130	0.5	60.0	400	310	9.5
		100	7	80	0.130	0.5	75.0	255	230	8.5
		125	8	80	0.130	0.5	93.8	205	215	10.0

Face milling cutter 45° NX

Inserts 13mm, with integral air / cooling channel

HM	λ 13° γ -6°





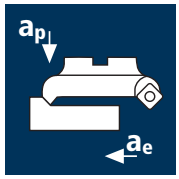
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	**d_1**	**d_2**	**d_3**	**b**	**$ap_{max.}$**	**z**	
W01410.403	40	16	54.0	40	6.0	3	●
W01410.504	50	22	63.9	40	6.0	4	●
W01410.635	63	22	76.9	40	6.0	5	●
W01410.806	80	27	93.9	50	6.0	6	●
W01410.100	100	32	113.9	50	6.0	7	●
W01410.125	125	40	138.9	63	6.0	8	●

Inserts NX 13mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	**H**	**B**	**D**	
W51110.013	13.0	13.0	4.8	●

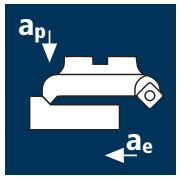
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	3	130	0.120	4.0	30.0	1035	375	45.0
	50	4	130	0.120	4.0	37.5	830	400	60.0
	63	5	110	0.120	4.0	47.3	555	335	63.5
	80	6	110	0.120	4.0	60.0	440	315	75.5
	100	7	90	0.120	4.0	75.0	285	240	72.0
	125	8	90	0.120	4.0	93.8	230	220	82.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	3	200	0.120	4.0	30.0	1590	570	68.5
	50	4	200	0.120	4.0	37.5	1275	610	91.5
	63	5	180	0.120	4.0	47.3	910	545	103.0
	80	6	180	0.120	4.0	60.0	715	515	123.5
	100	7	160	0.120	4.0	75.0	510	430	129.0
	125	8	160	0.120	4.0	93.8	405	390	146.5
Heat resistant steel [17-4 PH]	40	3	100	0.120	4.0	30.0	795	285	34.0
	50	4	100	0.120	4.0	37.5	635	305	46.0
	63	5	80	0.120	4.0	47.3	405	245	46.5
	80	6	80	0.120	4.0	60.0	320	230	55.0
	100	7	60	0.120	4.0	75.0	190	160	48.0
	125	8	60	0.120	4.0	93.8	155	150	56.5

Application



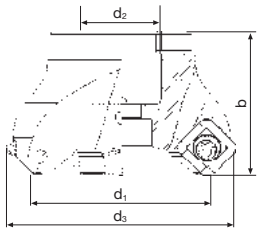
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	3	130	0.080	0.5	30.0	1035	250	4.0
	50	4	130	0.080	0.5	37.5	830	265	5.0
	63	5	110	0.080	0.5	47.3	555	220	5.0
	80	6	110	0.080	0.5	60.0	440	210	6.5
	100	7	90	0.080	0.5	75.0	285	160	6.0
	125	8	90	0.080	0.5	93.8	230	145	7.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	3	200	0.080	0.5	30.0	1590	380	5.5
	50	4	200	0.080	0.5	37.5	1275	410	7.5
	63	5	180	0.080	0.5	47.3	910	365	8.5
	80	6	180	0.080	0.5	60.0	715	345	10.5
	100	7	160	0.080	0.5	75.0	510	285	10.5
	125	8	160	0.080	0.5	93.8	405	260	12.0
Heat resistant steel [17-4 PH]	40	3	100	0.080	0.5	30.0	795	190	3.0
	50	4	100	0.080	0.5	37.5	635	205	4.0
	63	5	80	0.080	0.5	47.3	405	160	4.0
	80	6	80	0.080	0.5	60.0	320	155	4.5
	100	7	60	0.080	0.5	75.0	190	105	4.0
	125	8	60	0.080	0.5	93.8	155	100	4.5

Face milling cutter 45° SX

Inserts 13mm, with integral air / cooling channel

HM	λ 13° γ -6°





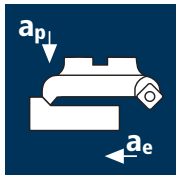
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01410.403	40	16	54.0	40	6.0	3	●
W01410.504	50	22	63.9	40	6.0	4	●
W01410.635	63	22	76.9	40	6.0	5	●
W01410.806	80	27	93.9	50	6.0	6	●
W01410.100	100	32	113.9	50	6.0	7	●
W01410.125	125	40	138.9	63	6.0	8	●

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51310.013	13.0	13.0	4.8	●

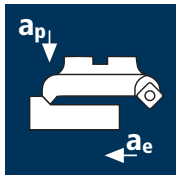
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	3	40	0.060	3.0	30.0	320	60	5.5
	50	4	40	0.060	3.0	37.5	255	60	7.0
	63	5	30	0.060	3.0	47.3	150	45	6.5
	80	6	30	0.060	3.0	60.0	120	45	8.0
	100	7	20	0.060	3.0	75.0	65	25	5.5
	125	8	20	0.060	3.0	93.8	50	25	7.0
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	3	100	0.060	3.0	30.0	795	145	13.0
	50	4	100	0.060	3.0	37.5	635	150	17.0
	63	5	90	0.060	3.0	47.3	455	135	19.0
	80	6	90	0.060	3.0	60.0	360	130	23.5
	100	7	80	0.060	3.0	75.0	255	105	23.5
	125	8	80	0.060	3.0	93.8	205	100	28.0
Heat resistant steel [17-4 PH] [Duplex]	40	3	150	0.120	4.0	30.0	1195	430	51.5
	50	4	150	0.120	4.0	37.5	955	460	69.0
	63	5	140	0.120	4.0	47.3	705	425	80.5
	80	6	140	0.120	4.0	60.0	555	400	96.0
	100	7	120	0.120	4.0	75.0	380	320	96.0
	125	8	120	0.120	4.0	93.8	305	295	110.5
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	3	120	0.100	4.0	30.0	955	285	34.0
	50	4	120	0.100	4.0	37.5	765	305	46.0
	63	5	100	0.100	4.0	47.3	505	255	48.0
	80	6	100	0.100	4.0	60.0	400	240	57.5
	100	7	80	0.100	4.0	75.0	255	180	54.0
	125	8	80	0.100	4.0	93.8	205	165	62.0

Application



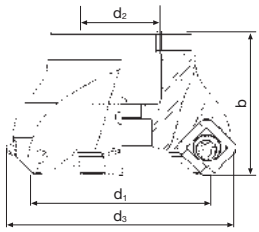
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	3	40	0.080	0.5	30.0	320	75	1.0
	50	4	40	0.080	0.5	37.5	255	80	1.5
	63	5	30	0.080	0.5	47.3	150	60	1.5
	80	6	30	0.080	0.5	60.0	120	60	2.0
	100	7	20	0.080	0.5	75.0	65	35	1.5
	125	8	20	0.080	0.5	93.8	50	30	1.5
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	3	100	0.080	0.5	30.0	795	190	3.0
	50	4	100	0.080	0.5	37.5	635	205	4.0
	63	5	90	0.080	0.5	47.3	455	180	4.5
	80	6	90	0.080	0.5	60.0	360	175	5.5
	100	7	80	0.080	0.5	75.0	255	145	5.5
	125	8	80	0.080	0.5	93.8	205	130	6.0
Heat resistant steel [17-4 PH] [Duplex]	40	3	150	0.080	0.5	30.0	1195	285	4.5
	50	4	150	0.080	0.5	37.5	955	305	5.5
	63	5	140	0.080	0.5	47.3	705	280	6.5
	80	6	140	0.080	0.5	60.0	555	265	8.0
	100	7	120	0.080	0.5	75.0	380	215	8.0
	125	8	120	0.080	0.5	93.8	305	195	9.0
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	3	120	0.080	0.5	30.0	955	230	3.5
	50	4	120	0.080	0.5	37.5	765	245	4.5
	63	5	100	0.080	0.5	47.3	505	200	4.5
	80	6	100	0.080	0.5	60.0	400	190	5.5
	100	7	80	0.080	0.5	75.0	255	145	5.5
	125	8	80	0.080	0.5	93.8	205	130	6.0

Face milling cutter 45° ZX

Inserts 13mm, with integral air / cooling channel

HM	λ 13° γ -6°



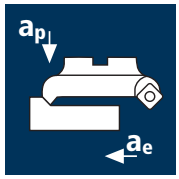


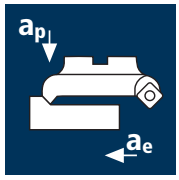
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	d_2	d_3	b	$ap_{max.}$	z	
W01410.403	40	16	54.0	40	6.0	3	●
W01410.504	50	22	63.9	40	6.0	4	●
W01410.635	63	22	76.9	40	6.0	5	●
W01410.806	80	27	93.9	50	6.0	6	●
W01410.100	100	32	113.9	50	6.0	7	●
W01410.125	125	40	138.9	63	6.0	8	●

Inserts ZX 13mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51410.013	13.0	13.0	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	3	800	0.300	4.0	30.0	6365	5730	687.5
		50	4	800	0.300	4.0	37.5	5095	6115	917.5
		63	5	700	0.300	4.0	47.3	3535	5305	1003.5
		80	6	700	0.300	4.0	60.0	2785	5015	1203.5
		100	7	600	0.300	4.0	75.0	1910	4010	1203.0
		125	8	600	0.300	4.0	93.8	1530	3670	1377.0
	Cast aluminium Si 6% - 15%	40	3	600	0.220	4.0	30.0	4775	3150	378.0
		50	4	600	0.220	4.0	37.5	3820	3360	504.0
		63	5	550	0.220	4.0	47.3	2780	3060	579.0
		80	6	550	0.220	4.0	60.0	2190	2890	693.5
		100	7	500	0.220	4.0	75.0	1590	2450	735.0
		125	8	500	0.220	4.0	93.8	1275	2245	842.5
	Unalloyed copper	40	3	500	0.220	4.0	30.0	3980	2625	315.0
		50	4	500	0.220	4.0	37.5	3185	2805	421.0
		63	5	450	0.220	4.0	47.3	2275	2505	474.0
		80	6	450	0.220	4.0	60.0	1790	2365	567.5
		100	7	400	0.220	4.0	75.0	1275	1965	589.5
		125	8	400	0.220	4.0	93.8	1020	1795	673.5
	Thermoplastics	40	3	800	0.300	4.0	30.0	6365	5730	687.5
		50	4	800	0.300	4.0	37.5	5095	6115	917.5
		63	5	700	0.300	4.0	47.3	3535	5305	1003.5
		80	6	700	0.300	4.0	60.0	2785	5015	1203.5
		100	7	600	0.300	4.0	75.0	1910	4010	1203.0
		125	8	600	0.300	4.0	93.8	1530	3670	1377.0

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	3	900	0.100	0.5	30.0	7160	2150	32.5
		50	4	900	0.110	0.5	37.5	5730	2520	47.5
		63	5	800	0.125	0.5	47.3	4040	2525	59.5
		80	6	800	0.140	0.5	60.0	3185	2675	80.5
		100	7	700	0.155	0.5	75.0	2230	2420	91.0
		125	8	700	0.175	0.5	93.8	1785	2500	117.5
	Cast aluminium Si 6% - 15%	40	3	700	0.075	0.5	30.0	5570	1255	19.0
		50	4	700	0.085	0.5	37.5	4455	1515	28.5
		63	5	650	0.095	0.5	47.3	3285	1560	37.0
		80	6	650	0.105	0.5	60.0	2585	1630	49.0
		100	7	600	0.115	0.5	75.0	1910	1540	58.0
		125	8	600	0.130	0.5	93.8	1530	1590	74.5
	Unalloyed copper	40	3	600	0.075	0.5	30.0	4775	1075	16.0
		50	4	600	0.085	0.5	37.5	3820	1300	24.5
		63	5	550	0.095	0.5	47.3	2780	1320	31.0
		80	6	550	0.105	0.5	60.0	2190	1380	41.5
		100	7	500	0.115	0.5	75.0	1590	1280	48.0
		125	8	500	0.130	0.5	93.8	1275	1325	62.0
	Thermoplastics	40	3	900	0.100	0.5	30.0	7160	2150	32.5
		50	4	900	0.110	0.5	37.5	5730	2520	47.5
		63	5	800	0.125	0.5	47.3	4040	2525	59.5
		80	6	800	0.140	0.5	60.0	3185	2675	80.5
		100	7	700	0.155	0.5	75.0	2230	2420	91.0
		125	8	700	0.175	0.5	93.8	1785	2500	117.5

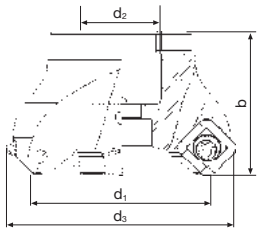
Cutting data for finishing

Face milling cutter 45° AX

Inserts 13mm, with integral air / cooling channel

HM	λ 13° γ 13°





			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF / GF Fiber Reinforced Plastics

Face milling cutter 45°	Delivery range: Cutter body incl. clamping screws for inserts						
Order-N°.	d_1	$d_{2\ h6}$	d_3	b	$ap_{max.}$	z	
W01410.403	40	16	54.0	40	6.0	3	●
W01410.504	50	22	63.9	40	6.0	4	●
W01410.635	63	22	76.9	40	6.0	5	●
W01410.806	80	27	93.9	50	6.0	6	●
W01410.100	100	32	113.9	50	6.0	7	●
W01410.125	125	40	138.9	63	6.0	8	●

Inserts AX 13mm	Delivery range: Packaging unit 10 pieces			
Order-N°.	H	B	D	
W51510.013	12.7	12.7	4.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W91110.013	Torque screwdriver **5.0 Nm** with blade Torx TX 20	●
W91111.013	Interchangeable blade for torque screwdriver Torx TX 20	●
W91100.013	Screwdriver Torx TX 20	●
W91500.013	Clamping screws for inserts Torx TX 20 / M 4.5 x 10.5	●


fraisa

Corner/slot indexable insert milling tools

Corner/Slot end mills 90° for inserts 8mm

N° W00100 d1 16 – 32



N° W00140 d1 16 – 32



N° W00180 d1 16 – 32



NX	λ 8° γ 0°		**Rm** 850-1300			899
SX	λ 8° γ 0°		**Inox** Stainless	**Rm** <850		901
HX	λ 8° γ -8°		**Rm** 1300-1500	**HRC** 48-60		903
ZX	λ 8° γ 0°		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	905
AX	λ 8° γ 20°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	907

Corner/Slot end mills 90° for inserts 13mm

N° W00110 d1 25 – 32



N° W00150 d1 25 – 32



N° W00190 d1 25 – 32



NX	λ 8° γ 6°		**Rm** 850-1300			909
SX	λ 8° γ 6°		**Inox** Stainless	**Rm** <850		911
HX	λ 8° γ -10°		**Rm** 1300-1500	**HRC** 48-60		913
ZX	λ 8° γ 6°		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	915
AX	λ 8° γ 20°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	917


fraisa

Corner end mills 90° for inserts 8mm

N° W00400

d1 40 – 80



NX	λ 8° γ 0°		**Rm** 850-1300			919
SX	λ 8° γ 0°		**Inox** Stainless	**Rm** <850		921
HX	λ 8° γ -8°		**Rm** 1300-1500	**HRC** 48-60		923
ZX	λ 8° γ 0°		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	925
AX	λ 8° γ 20°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	927

Corner end mills 90° for inserts 13mm

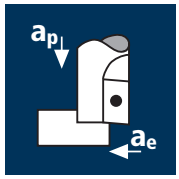
N° W00410

d1 40 – 80



NX	λ 8° γ 6°		**Rm** 850-1300			929
SX	λ 8° γ 6°		**Inox** Stainless	**Rm** <850		931
HX	λ 8° γ -10°		**Rm** 1300-1500	**HRC** 48-60		933
ZX	λ 8° γ 6°		**Ni-/Mn-** Alloys	**Inox** Stainless	**Rm** <850	935
AX	λ 8° γ 20°		**Al** Aluminium Alloy	**Al** Aluminium Cast	**Cu** Copper	937

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	K	16	2	250	0.100	3.0	12.8	4975	995	38.0
		20	3	250	0.100	3.0	16.0	3980	1195	57.5
		25	4	250	0.100	3.0	20.0	3185	1275	76.5
		32	5	250	0.100	3.0	25.6	2485	1245	95.5
	M	16	2	220	0.100	3.0	12.8	4375	875	33.5
		20	3	220	0.100	3.0	16.0	3500	1050	50.5
		25	4	220	0.100	3.0	20.0	2800	1120	67.0
		32	5	220	0.100	3.0	25.6	2190	1095	84.0
	L	16	2	220	0.100	3.0	6.4	4375	875	17.0
		20	3	220	0.100	3.0	8.0	3500	1050	25.0
		25	4	220	0.100	3.0	10.0	2800	1120	33.5
		32	5	220	0.100	3.0	12.8	2190	1095	42.0
Steel 850 - 1100 N/mm²	K	16	2	220	0.100	3.0	12.8	4375	875	33.5
		20	3	220	0.100	3.0	16.0	3500	1050	50.5
		25	4	220	0.100	3.0	20.0	2800	1120	67.0
		32	5	220	0.100	3.0	25.6	2190	1095	84.0
	M	16	2	180	0.100	3.0	12.8	3580	715	27.5
		20	3	180	0.100	3.0	16.0	2865	860	41.5
		25	4	180	0.100	3.0	20.0	2290	915	55.0
		32	5	180	0.100	3.0	25.6	1790	895	68.5
	L	16	2	180	0.100	3.0	6.4	3580	715	13.5
		20	3	180	0.100	3.0	8.0	2865	860	20.5
		25	4	180	0.100	3.0	10.0	2290	915	27.5
		32	5	180	0.100	3.0	12.8	1790	895	34.5
Steel 1100 - 1300 N/mm²	K	16	2	180	0.080	3.0	12.8	3580	575	22.0
		20	3	180	0.080	3.0	16.0	2865	690	33.0
		25	4	180	0.080	3.0	20.0	2290	735	44.0
		32	5	180	0.080	3.0	25.6	1790	715	55.0
	M	16	2	150	0.080	3.0	12.8	2985	480	18.5
		20	3	150	0.080	3.0	16.0	2385	570	27.5
		25	4	150	0.080	3.0	20.0	1910	610	36.5
		32	5	150	0.080	3.0	25.6	1490	595	45.5
	L	16	2	140	0.080	3.0	6.4	2785	445	8.5
		20	3	140	0.080	3.0	8.0	2230	535	13.0
		25	4	140	0.080	3.0	10.0	1785	570	17.0
		32	5	140	0.080	3.0	12.8	1395	560	21.5
Steel 1300 - 1500 N/mm²	K	16	2	150	0.050	3.0	12.8	2985	300	11.5
		20	3	150	0.050	3.0	16.0	2385	360	17.5
		25	4	150	0.050	3.0	20.0	1910	380	23.0
		32	5	150	0.050	3.0	25.6	1490	375	29.0
	M	16	2	120	0.050	3.0	12.8	2385	240	9.0
		20	3	120	0.050	3.0	16.0	1910	285	13.5
		25	4	120	0.050	3.0	20.0	1530	305	18.5
		32	5	120	0.050	3.0	25.6	1195	300	23.0
	L	16	2	100	0.050	3.0	6.4	1990	200	4.0
		20	3	100	0.050	3.0	8.0	1590	240	6.0
		25	4	100	0.050	3.0	10.0	1275	255	7.5
		32	5	100	0.050	3.0	12.8	995	250	9.5

Application

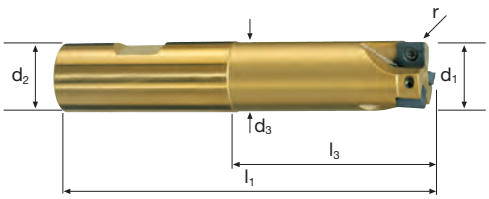


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	K	16	2	180	0.100	2.4	16.0	3580	715	27.5
		20	3	180	0.100	2.4	20.0	2865	860	41.5
		25	4	180	0.100	2.4	25.0	2290	915	55.0
		32	5	180	0.100	2.4	32.0	1790	895	68.5
	M	16	2	160	0.100	2.4	16.0	3185	635	24.5
		20	3	160	0.100	2.4	20.0	2545	765	36.5
		25	4	160	0.100	2.4	25.0	2035	815	49.0
		32	5	160	0.100	2.4	32.0	1590	795	61.0
Steel 1100 - 1300 N/mm²	K	16	2	150	0.080	2.4	16.0	2985	480	18.5
		20	3	150	0.080	2.4	20.0	2385	570	27.5
		25	4	150	0.080	2.4	25.0	1910	610	36.5
		32	5	150	0.080	2.4	32.0	1490	595	45.5
	M	16	2	120	0.080	2.4	16.0	2385	380	14.5
		20	3	120	0.080	2.4	20.0	1910	460	22.0
		25	4	120	0.080	2.4	25.0	1530	490	29.5
		32	5	120	0.080	2.4	32.0	1195	480	37.0

Corner/Slot end mills 90° NX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°



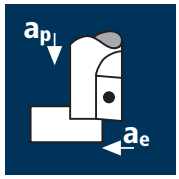
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00100.162	16	16	15.4	75	25	7.5	2	K	●
W00140.162	16	16	15.0	102	51	7.5	2	M	●
W00180.162	16	16	15.0	129	78	7.5	2	L	●
W00100.203	20	20	19.4	77	25	7.5	3	K	●
W00140.203	20	20	19.4	110	57	7.5	3	M	●
W00180.203	20	20	19.4	140	87	7.5	3	L	●
W00100.254	25	25	24.0	90	32	7.5	4	K	●
W00140.254	25	25	24.0	124	65	7.5	4	M	●
W00180.254	25	25	24.0	158	99	7.5	4	L	●
W00100.325	32	32	31.0	102	40	7.5	5	K	●
W00140.325	32	32	31.0	144	81	7.5	5	M	●
W00180.325	32	32	31.0	186	123	7.5	5	L	●

Inserts NX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50111.008	8.4	6.4	3.4	0.6	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

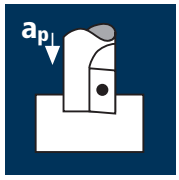
Application



Material

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]									
K	16	2	150	0.050	3.0	12.8	2985	300	11.5
	20	3	150	0.050	3.0	16.0	2385	360	17.5
	25	4	150	0.050	3.0	20.0	1910	380	23.0
	32	5	150	0.050	3.0	25.6	1490	375	29.0
M	16	2	150	0.040	3.0	9.6	2985	240	7.0
	20	3	150	0.040	3.0	12.0	2385	285	10.5
	25	4	150	0.040	3.0	15.0	1910	305	13.5
	32	5	150	0.040	3.0	19.2	1490	300	17.5
L	16	2	150	0.050	3.0	6.4	2985	300	6.0
	20	3	150	0.050	3.0	8.0	2385	360	8.5
	25	4	150	0.050	3.0	10.0	1910	380	11.5
	32	5	150	0.050	3.0	12.8	1490	375	14.5
Stainless steel [Cr-Ni-Mo-.../1.4571]									
K	16	2	250	0.050	3.0	12.8	4975	500	19.0
	20	3	250	0.050	3.0	16.0	3980	595	28.5
	25	4	250	0.050	3.0	20.0	3185	635	38.0
	32	5	250	0.050	3.0	25.6	2485	620	47.5
M	16	2	250	0.040	3.0	9.6	4975	400	11.5
	20	3	250	0.040	3.0	12.0	3980	480	17.5
	25	4	250	0.040	3.0	15.0	3185	510	23.0
	32	5	250	0.040	3.0	19.2	2485	495	28.5
L	16	2	220	0.040	3.0	6.4	4375	350	6.5
	20	3	220	0.040	3.0	8.0	3500	420	10.0
	25	4	220	0.040	3.0	10.0	2800	450	13.5
	32	5	220	0.040	3.0	12.8	2190	440	17.0
Heat resistant steel [17-4 PH]									
K	16	2	120	0.050	3.0	12.8	2385	240	9.0
	20	3	120	0.050	3.0	16.0	1910	285	13.5
	25	4	120	0.050	3.0	20.0	1530	305	18.5
	32	5	120	0.050	3.0	25.6	1195	300	23.0
M	16	2	120	0.040	3.0	9.6	2385	190	5.5
	20	3	120	0.040	3.0	12.0	1910	230	8.5
	25	4	120	0.040	3.0	15.0	1530	245	11.0
	32	5	120	0.040	3.0	19.2	1195	240	14.0
L	16	2	120	0.040	3.0	6.4	2385	190	3.5
	20	3	120	0.040	3.0	8.0	1910	230	5.5
	25	4	120	0.040	3.0	10.0	1530	245	7.5
	32	5	120	0.040	3.0	12.8	1195	240	9.0
Nickel base alloys prec.-hard. [Inconel 718]									
K	16	2	20	0.030	3.0	4.8	400	25	0.5
	20	3	20	0.030	3.0	6.0	320	30	0.5
	25	4	20	0.030	3.0	7.5	255	30	0.5
	32	5	20	0.030	3.0	9.6	200	30	1.0
M	16	2	20	0.020	3.0	1.6	400	15	0.1
	20	3	20	0.020	3.0	2.0	320	20	0.1
	25	4	20	0.020	3.0	2.5	255	20	0.2
	32	5	20	0.020	3.0	3.2	200	20	0.2
L									

Application



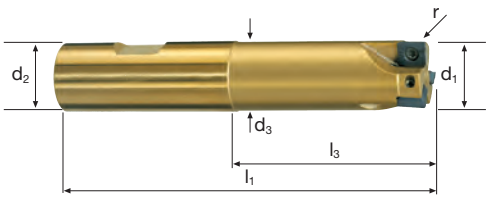
Material

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]									
K	16	2	120	0.050	2.4	16.0	2385	240	9.0
	20	3	120	0.050	2.4	20.0	1910	285	13.5
	25	4	120	0.050	2.4	25.0	1530	305	18.5
	32	5	120	0.050	2.4	32.0	1195	300	23.0
M	16	2	120	0.070	1.5	16.0	2385	335	8.0
	20	3	120	0.070	1.5	20.0	1910	400	12.0
	25	4	120	0.070	1.5	25.0	1530	430	16.0
	32	5	120	0.070	1.5	32.0	1195	420	20.0
L									
Heat resistant steel [17-4 PH]									
K	16	2	100	0.050	2.4	16.0	1990	200	7.5
	20	3	100	0.050	2.4	20.0	1590	240	11.5
	25	4	100	0.050	2.4	25.0	1275	255	15.5
	32	5	100	0.050	2.4	32.0	995	250	19.0
M	16	2	100	0.070	1.5	16.0	1990	280	6.5
	20	3	100	0.070	1.5	20.0	1590	335	10.0
	25	4	100	0.070	1.5	25.0	1275	355	13.5
	32	5	100	0.070	1.5	32.0	995	350	17.0
L									

Corner/Slot end mills 90° SX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°



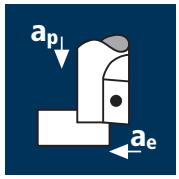
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Tool Steel

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00100.162	16	16	15.4	75	25	7.5	2	K	●
W00140.162	16	16	15.0	102	51	7.5	2	M	●
W00180.162	16	16	15.0	129	78	7.5	2	L	●
W00100.203	20	20	19.4	77	25	7.5	3	K	●
W00140.203	20	20	19.4	110	57	7.5	3	M	●
W00180.203	20	20	19.4	140	87	7.5	3	L	●
W00100.254	25	25	24.0	90	32	7.5	4	K	●
W00140.254	25	25	24.0	124	65	7.5	4	M	●
W00180.254	25	25	24.0	158	99	7.5	4	L	●
W00100.325	32	32	31.0	102	40	7.5	5	K	●
W00140.325	32	32	31.0	144	81	7.5	5	M	●
W00180.325	32	32	31.0	186	123	7.5	5	L	●

Inserts SX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50310.008	8.4	6.4	3.4	0.6	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material

Hardened tool steel 42 - 48 HRC

Hardened tool steel 48 - 52 HRC

Hardened tool steel 52 - 56 HRC

Hardened tool steel 56 - 60 HRC

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC									
K	16	2	150	0.050	3.0	12.8	2985	300	11.5
	20	3	150	0.050	3.0	16.0	2385	360	17.5
	25	4	150	0.050	3.0	20.0	1910	380	23.0
	32	5	150	0.050	3.0	25.6	1490	375	29.0
M	16	2	120	0.070	3.0	9.6	2385	335	9.5
	20	3	120	0.070	3.0	12.0	1910	400	14.5
	25	4	120	0.070	3.0	15.0	1530	430	19.5
	32	5	120	0.070	3.0	19.2	1195	420	24.0
L	16	2	120	0.070	3.0	3.2	2385	335	3.0
	20	3	120	0.070	3.0	4.0	1910	400	5.0
	25	4	120	0.070	3.0	5.0	1530	430	6.5
	32	5	120	0.070	3.0	6.4	1195	420	8.0
Hardened tool steel 48 - 52 HRC									
K	16	2	120	0.050	3.0	12.8	2385	240	9.0
	20	3	120	0.050	3.0	16.0	1910	285	13.5
	25	4	120	0.050	3.0	20.0	1530	305	18.5
	32	5	120	0.050	3.0	25.6	1195	300	23.0
M	16	2	100	0.070	3.0	9.6	1990	280	8.0
	20	3	100	0.070	3.0	12.0	1590	335	12.0
	25	4	100	0.070	3.0	15.0	1275	355	16.0
	32	5	100	0.070	3.0	19.2	995	350	20.0
L	16	2	100	0.070	3.0	3.2	1990	280	2.5
	20	3	100	0.070	3.0	4.0	1590	335	4.0
	25	4	100	0.070	3.0	5.0	1275	355	5.5
	32	5	100	0.070	3.0	6.4	995	350	6.5
Hardened tool steel 52 - 56 HRC									
K	16	2	100	0.050	3.0	12.8	1990	200	7.5
	20	3	100	0.050	3.0	16.0	1590	240	11.5
	25	4	100	0.050	3.0	20.0	1275	255	15.5
	32	5	100	0.050	3.0	25.6	995	250	19.0
M	16	2	80	0.070	3.0	9.6	1590	225	6.5
	20	3	80	0.070	3.0	12.0	1275	270	9.5
	25	4	80	0.070	3.0	15.0	1020	285	13.0
	32	5	80	0.070	3.0	19.2	795	280	16.0
L	16	2	80	0.070	3.0	3.2	1590	225	2.0
	20	3	80	0.070	3.0	4.0	1275	270	3.0
	25	4	80	0.070	3.0	5.0	1020	285	4.5
	32	5	80	0.070	3.0	6.4	795	280	5.5
Hardened tool steel 56 - 60 HRC									
K	16	2	40	0.020	3.0	4.8	795	30	0.5
	20	3	40	0.020	3.0	6.0	635	40	0.5
	25	4	40	0.020	3.0	7.5	510	40	1.0
	32	5	40	0.020	3.0	9.6	400	40	1.0
M	16	2	25	0.020	3.0	1.6	495	20	0.1
	20	3	25	0.020	3.0	2.0	400	25	0.2
	25	4	25	0.020	3.0	2.5	320	25	0.2
	32	5	25	0.020	3.0	3.2	250	25	0.2
L									

Application



Material

Hardened tool steel 48 - 52 HRC

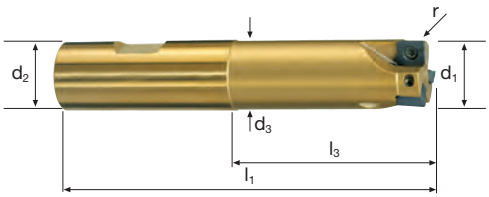
Hardened tool steel 52 - 56 HRC

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 48 - 52 HRC									
K	16	2	100	0.050	2.4	16.0	1990	200	7.5
	20	3	100	0.050	2.4	20.0	1590	240	11.5
	25	4	100	0.050	2.4	25.0	1275	255	15.5
	32	5	100	0.050	2.4	32.0	995	250	19.0
M	16	2	80	0.070	1.5	16.0	1590	225	5.5
	20	3	80	0.070	1.5	20.0	1275	270	8.0
	25	4	80	0.070	1.5	25.0	1020	285	10.5
	32	5	80	0.070	1.5	32.0	795	280	13.5
Hardened tool steel 52 - 56 HRC									
K	16	2	80	0.050	2.4	16.0	1590	160	6.0
	20	3	80	0.050	2.4	20.0	1275	190	9.0
	25	4	80	0.050	2.4	25.0	1020	205	12.5
	32	5	80	0.050	2.4	32.0	795	200	15.5
M	16	2	60	0.070	1.5	16.0	1195	165	4.0
	20	3	60	0.070	1.5	20.0	955	200	6.0
	25	4	60	0.070	1.5	25.0	765	215	8.0
	32	5	60	0.070	1.5	32.0	595	210	10.0

Corner/Slot end mills 90° HX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ -8°



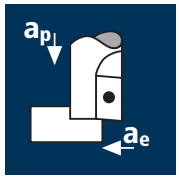
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00100.162	16	16	15.4	75	25	7.5	2	K	●
W00140.162	16	16	15.0	102	51	7.5	2	M	●
W00180.162	16	16	15.0	129	78	7.5	2	L	●
W00100.203	20	20	19.4	77	25	7.5	3	K	●
W00140.203	20	20	19.4	110	57	7.5	3	M	●
W00180.203	20	20	19.4	140	87	7.5	3	L	●
W00100.254	25	25	24.0	90	32	7.5	4	K	●
W00140.254	25	25	24.0	124	65	7.5	4	M	●
W00180.254	25	25	24.0	158	99	7.5	4	L	●
W00100.325	32	32	31.0	102	40	7.5	5	K	●
W00140.325	32	32	31.0	144	81	7.5	5	M	●
W00180.325	32	32	31.0	186	123	7.5	5	L	●

Inserts HX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50210.008	8.5	6.4	3.5	0.6	●

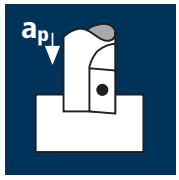
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	K	16	2	40	0.040	3.0	4.8	795	65	1.0
		20	3	40	0.040	3.0	6.0	635	75	1.5
		25	4	40	0.040	3.0	7.5	510	80	2.0
		32	5	40	0.040	3.0	9.6	400	80	2.5
	M	16	2	30	0.030	3.0	2.4	595	35	0.5
		20	3	30	0.030	3.0	3.0	475	45	0.5
		25	4	30	0.030	3.0	3.8	380	45	0.5
		32	5	30	0.030	3.0	4.8	300	45	0.5
	L	16	2	20	0.020	3.0	2.4	400	15	0.1
		20	3	20	0.020	3.0	3.0	320	20	0.2
		25	4	20	0.020	3.0	3.8	255	20	0.2
		32	5	20	0.020	3.0	4.8	200	20	0.3
Manganese steel Mn > 5 % [1.3964 / Nitronic]	K	16	2	100	0.040	3.0	5.6	1990	160	2.5
		20	3	100	0.040	3.0	7.0	1590	190	4.0
		25	4	100	0.040	3.0	8.8	1275	205	5.5
		32	5	100	0.040	3.0	11.2	995	200	6.5
	M	16	2	90	0.030	3.0	4.0	1790	105	1.5
		20	3	90	0.030	3.0	5.0	1430	130	2.0
		25	4	90	0.030	3.0	6.3	1145	135	2.5
		32	5	90	0.030	3.0	8.0	895	135	3.0
	L	16	2	80	0.020	3.0	2.4	1590	65	0.5
		20	3	80	0.020	3.0	3.0	1275	75	0.5
		25	4	80	0.020	3.0	3.8	1020	80	1.0
		32	5	80	0.020	3.0	4.8	795	80	1.0
Heat resistant steel [17-4 PH] [Duplex]	K	16	2	150	0.050	3.0	12.8	2985	300	11.5
		20	3	150	0.050	3.0	16.0	2385	360	17.5
		25	4	150	0.050	3.0	20.0	1910	380	23.0
		32	5	150	0.050	3.0	25.6	1490	375	29.0
	M	16	2	140	0.040	3.0	9.6	2785	225	6.5
		20	3	140	0.040	3.0	12.0	2230	270	9.5
		25	4	140	0.040	3.0	15.0	1785	285	13.0
		32	5	140	0.040	3.0	19.2	1395	280	16.0
	L	16	2	120	0.040	3.0	6.4	2385	190	3.5
		20	3	120	0.040	3.0	8.0	1910	230	5.5
		25	4	120	0.040	3.0	10.0	1530	245	7.5
		32	5	120	0.040	3.0	12.8	1195	240	9.0
PM high-speed steel annealed [Böhler S390] [ASP 2023]	K	16	2	120	0.050	3.0	5.6	2385	240	4.0
		20	3	120	0.050	3.0	7.0	1910	285	6.0
		25	4	120	0.050	3.0	8.8	1530	305	8.0
		32	5	120	0.050	3.0	11.2	1195	300	10.0
	M	16	2	100	0.050	3.0	4.0	1990	200	2.4
		20	3	100	0.050	3.0	5.0	1590	240	3.6
		25	4	100	0.050	3.0	6.3	1275	255	4.8
		32	5	100	0.050	3.0	8.0	995	250	6.0
	L	16	2	80	0.040	3.0	2.4	1590	125	1.0
		20	3	80	0.040	3.0	3.0	1275	155	1.5
		25	4	80	0.040	3.0	3.8	1020	165	2.0
		32	5	80	0.040	3.0	4.8	795	160	2.5

Application

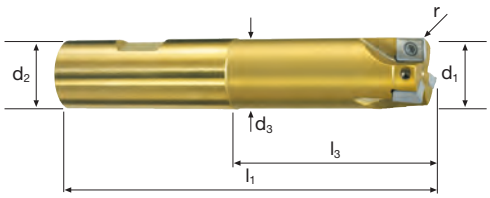


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Manganese steel Mn > 5% [1.3964 / Nitronic]	K	16	2	80	0.040	1.0	16.0	1590	125	2.0
		20	3	80	0.040	1.0	20.0	1275	155	3.0
		25	4	80	0.040	1.0	25.0	1020	165	4.0
		32	5	80	0.040	1.0	32.0	795	160	5.0
	M	16	2	60	0.030	1.0	16.0	1195	70	1.0
		20	3	60	0.030	1.0	20.0	955	85	1.5
		25	4	60	0.030	1.0	25.0	765	90	2.5
		32	5	60	0.030	1.0	32.0	595	90	3.0
PM high-speed steel annealed [Böhler S390] [ASP 2023]	K	16	2	100	0.050	1.5	16.0	1990	200	5.0
		20	3	100	0.050	1.5	20.0	1590	240	7.0
		25	4	100	0.050	1.5	25.0	1275	255	9.5
		32	5	100	0.050	1.5	32.0	995	250	12.0
	M	16	2	80	0.040	1.0	16.0	1590	125	2.0
		20	3	80	0.040	1.0	20.0	1275	155	3.0
		25	4	80	0.040	1.0	25.0	1020	165	4.0
		32	5	80	0.040	1.0	32.0	795	160	5.0

Corner/Slot end mills 90° ZX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°



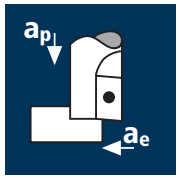
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00100.162	16	16	15.4	75	25	7.5	2	K	●
W00140.162	16	16	15.0	102	51	7.5	2	M	●
W00180.162	16	16	15.0	129	78	7.5	2	L	●
W00100.203	20	20	19.4	77	25	7.5	3	K	●
W00140.203	20	20	19.4	110	57	7.5	3	M	●
W00180.203	20	20	19.4	140	87	7.5	3	L	●
W00100.254	25	25	24.0	90	32	7.5	4	K	●
W00140.254	25	25	24.0	124	65	7.5	4	M	●
W00180.254	25	25	24.0	158	99	7.5	4	L	●
W00100.325	32	32	31.0	102	40	7.5	5	K	●
W00140.325	32	32	31.0	144	81	7.5	5	M	●
W00180.325	32	32	31.0	186	123	7.5	5	L	●

Inserts ZX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50410.008	8.4	6.4	3.4	0.6	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application

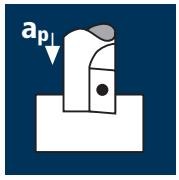


Material

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%									
K	16	2	800	0.120	3.0	12.8	15915	3820	146.5
	20	3	700	0.120	3.0	16.0	11140	4010	192.5
	25	4	500	0.120	3.0	20.0	6365	3055	183.5
	32	5	400	0.120	3.0	25.6	3980	2390	183.5
M	16	2	600	0.120	3.0	12.8	11935	2865	110.0
	20	3	550	0.120	3.0	16.0	8755	3150	151.0
	25	4	450	0.120	3.0	20.0	5730	2750	165.0
	32	5	400	0.120	3.0	25.6	3980	2390	183.5
L	16	2	600	0.120	3.0	6.4	11935	2865	55.0
	20	3	550	0.120	3.0	8.0	8755	3150	75.5
	25	4	450	0.120	3.0	10.0	5730	2750	82.5
	32	5	400	0.120	3.0	12.8	3980	2390	92.0
Cast aluminium Si 6% - 15%									
K	16	2	600	0.080	3.0	12.8	11935	1910	73.5
	20	3	550	0.080	3.0	16.0	8755	2100	101.0
	25	4	450	0.080	3.0	20.0	5730	1835	110.0
	32	5	400	0.080	3.0	25.6	3980	1590	122.0
M	16	2	500	0.080	3.0	12.8	9945	1590	61.0
	20	3	500	0.080	3.0	16.0	7960	1910	91.5
	25	4	450	0.080	3.0	20.0	5730	1835	110.0
	32	5	400	0.080	3.0	25.6	3980	1590	122.0
L	16	2	500	0.080	3.0	6.4	9945	1590	30.5
	20	3	500	0.080	3.0	8.0	7960	1910	46.0
	25	4	450	0.080	3.0	10.0	5730	1835	55.0
	32	5	400	0.080	3.0	12.8	3980	1590	61.0
Unalloyed copper									
K	16	2	500	0.080	3.0	12.8	9945	1590	61.0
	20	3	500	0.080	3.0	16.0	7960	1910	91.5
	25	4	450	0.080	3.0	20.0	5730	1835	110.0
	32	5	400	0.080	3.0	25.6	3980	1590	122.0
M	16	2	450	0.080	3.0	12.8	8955	1435	55.0
	20	3	450	0.080	3.0	16.0	7160	1720	82.5
	25	4	400	0.080	3.0	20.0	5095	1630	98.0
	32	5	400	0.080	3.0	25.6	3980	1590	122.0
L	16	2	400	0.080	3.0	6.4	7960	1275	24.5
	20	3	400	0.080	3.0	8.0	6365	1530	36.5
	25	4	400	0.080	3.0	10.0	5095	1630	49.0
	32	5	400	0.080	3.0	12.8	3980	1590	61.0
Thermoplastics									
K	16	2	800	0.120	3.0	12.8	15915	3820	146.5
	20	3	700	0.120	3.0	16.0	11140	4010	192.5
	25	4	500	0.120	3.0	20.0	6365	3055	183.5
	32	5	400	0.120	3.0	25.6	3980	2390	183.5
M	16	2	700	0.120	3.0	12.8	13925	3340	128.5
	20	3	650	0.120	3.0	16.0	10345	3725	179.0
	25	4	500	0.120	3.0	20.0	6365	3055	183.5
	32	5	400	0.120	3.0	25.6	3980	2390	183.5
L	16	2	700	0.120	3.0	6.4	13925	3340	64.0
	20	3	650	0.120	3.0	8.0	10345	3725	89.5
	25	4	500	0.120	3.0	10.0	6365	3055	91.5
	32	5	400	0.120	3.0	12.8	3980	2390	92.0

v_c can be increased, however balancing of tool is required

Application



Material

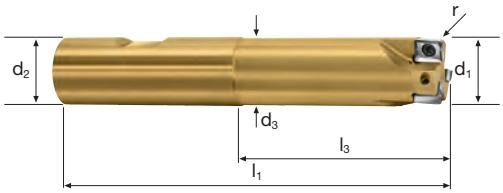
L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%									
K	16	2	600	0.100	2.4	16.0	11935	2385	91.5
	20	3	600	0.100	2.4	20.0	9550	2865	137.5
	25	4	500	0.100	2.4	25.0	6365	2545	152.5
	32	5	400	0.100	2.4	32.0	3980	1990	153.0
M	16	2	500	0.100	2.4	16.0	9945	1990	76.5
	20	3	500	0.100	2.4	20.0	7960	2390	114.5
	25	4	450	0.100	2.4	25.0	5730	2290	137.5
	32	5	400	0.100	2.4	32.0	3980	1990	153.0
Cast aluminium Si 6% - 15%									
K	16	2	500	0.060	2.4	16.0	9945	1195	46.0
	20	3	500	0.060	2.4	20.0	7960	1435	69.0
	25	4	450	0.060	2.4	25.0	5730	1375	82.5
	32	5	400	0.060	2.4	32.0	3980	1195	92.0
M	16	2	400	0.060	2.4	16.0	7960	955	36.5
	20	3	400	0.060	2.4	20.0	6365	1145	55.0
	25	4	400	0.060	2.4	25.0	5095	1225	73.5
	32	5	400	0.060	2.4	32.0	3980	1195	92.0

v_c can be increased, however balancing of tool is required

Corner/Slot end mills 90° AX

Inserts 8mm, with integral air / cooling channel

HM | λ **8°** γ **20°**



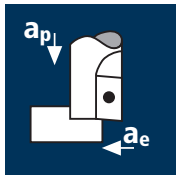
Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast | **CuZn Brass CF / GF** Fiber Reinforced Plastics

Corner/Slot end mills 90° Delivery range: Cutter body incl. clamping screws for inserts									
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	**z**	**L-Type**	
W00100.162	16	16	15.4	75	25	7.5	2	K	●
W00140.162	16	16	15.0	102	51	7.5	2	M	●
W00180.162	16	16	15.0	129	78	7.5	2	L	●
W00100.203	20	20	19.4	77	25	7.5	3	K	●
W00140.203	20	20	19.4	110	57	7.5	3	M	●
W00180.203	20	20	19.4	140	87	7.5	3	L	●
W00100.254	25	25	24.0	90	32	7.5	4	K	●
W00140.254	25	25	24.0	124	65	7.5	4	M	●
W00180.254	25	25	24.0	158	99	7.5	4	L	●
W00100.325	32	32	31.0	102	40	7.5	5	K	●
W00140.325	32	32	31.0	144	81	7.5	5	M	●
W00180.325	32	32	31.0	186	123	7.5	5	L	●

Inserts AX 8mm Delivery range: Packaging unit 10 pieces					
Order-N°.	**H**	**B**	**D**	**r**	
W50510.008	8.3	6.4	3.4	0.6	●

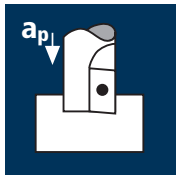
Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces		
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	K	25	3	250	0.100	4.5	20.0	3185	955	86.0
		32	4	250	0.100	4.5	25.6	2485	995	114.5
	M	25	3	220	0.100	4.5	20.0	2800	840	75.5
		32	4	220	0.100	4.5	25.6	2190	875	101.0
	L	25	3	220	0.100	4.0	10.0	2800	840	33.5
		32	4	220	0.100	4.0	12.8	2190	875	45.0
Steel 850 - 1100 N/mm²	K	25	3	220	0.100	4.5	20.0	2800	840	75.5
		32	4	220	0.100	4.5	25.6	2190	875	101.0
	M	25	3	180	0.100	4.5	20.0	2290	685	61.5
		32	4	180	0.100	4.5	25.6	1790	715	82.5
	L	25	3	180	0.100	4.0	10.0	2290	685	27.5
		32	4	180	0.100	4.0	12.8	1790	715	36.5
Steel 1100 - 1300 N/mm²	K	25	3	180	0.080	4.5	20.0	2290	550	49.5
		32	4	180	0.080	4.5	25.6	1790	575	66.0
	M	25	3	150	0.080	4.5	20.0	1910	460	41.5
		32	4	150	0.080	4.5	25.6	1490	475	54.5
	L	25	3	140	0.080	4.0	10.0	1785	430	17.0
		32	4	140	0.080	4.0	12.8	1395	445	23.0
Steel 1300 - 1500 N/mm²	K	25	3	150	0.050	4.5	7.5	1910	285	9.5
		32	4	150	0.050	4.5	9.6	1490	300	13.0
	M	25	3	120	0.050	4.5	7.5	1530	230	8.0
		32	4	120	0.050	4.5	9.6	1195	240	10.5
	L	25	3	100	0.050	4.0	10.0	1275	190	7.5
		32	4	100	0.050	4.0	12.8	995	200	10.0

Application

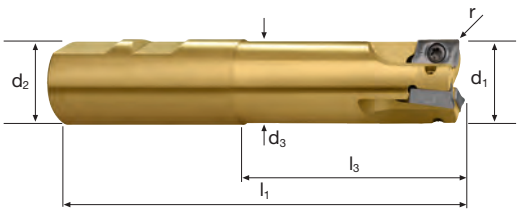


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel 850 - 1100 N/mm²	K	25	3	180	0.100	3.6	25.0	2290	685	61.5
		32	4	180	0.100	3.6	32.0	1790	715	82.5
	M	25	3	160	0.100	3.6	25.0	2035	610	55.0
		32	4	160	0.100	3.6	32.0	1590	635	73.0
Steel 1100 - 1300 N/mm²	K	25	3	150	0.080	3.6	25.0	1910	460	41.5
		32	4	150	0.080	3.6	32.0	1490	475	54.5
	M	25	3	120	0.080	3.6	25.0	1530	365	33.0
		32	4	120	0.080	3.6	32.0	1195	380	44.0

Corner/Slot end mills 90° NX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Corner/Slot end mills 90° Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00110.253	25	25	24.0	90	32	12.5	3	K	●
W00150.253	25	25	24.0	124	65	12.5	3	M	●
W00190.253	25	25	24.0	158	99	12.5	3	L	●
W00110.324	32	32	31.0	102	40	12.5	4	K	●
W00150.324	32	32	31.0	144	81	12.5	4	M	●
W00190.324	32	32	31.0	186	123	12.5	4	L	●

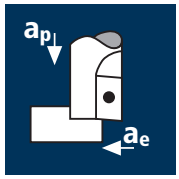
Inserts NX 13mm Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	
W50111.013	14.8	8.1	4.7	0.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces

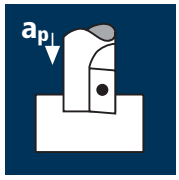
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	K	25	3	150	0.050	4.5	20.0	1910	285	25.5
		32	4	150	0.050	4.5	25.6	1490	300	34.5
	M	25	3	150	0.040	4.5	15.0	1910	230	15.5
		32	4	150	0.040	4.5	19.2	1490	240	20.5
	L	25	3	150	0.050	4.0	10.0	1910	285	11.5
		32	4	150	0.050	4.0	12.8	1490	300	15.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	K	25	3	250	0.050	4.5	20.0	3185	480	43.0
		32	4	250	0.050	4.5	25.6	2485	495	57.0
	M	25	3	250	0.040	4.5	15.0	3185	380	25.5
		32	4	250	0.040	4.5	19.2	2485	400	34.5
	L	25	3	220	0.040	4.0	10.0	2800	335	13.5
		32	4	220	0.040	4.0	12.8	2190	350	18.0
Heat resistant steel [17-4 PH]	K	25	3	120	0.050	4.5	20.0	1530	230	20.5
		32	4	120	0.050	4.5	25.6	1195	240	27.5
	M	25	3	120	0.040	4.5	15.0	1530	185	12.5
		32	4	120	0.040	4.5	19.2	1195	190	16.5
	L	25	3	120	0.040	4.0	10.0	1530	185	7.5
		32	4	120	0.040	4.0	12.8	1195	190	9.5
Nickel base alloys prec.-hard. [Inconel 718]	K	25	3	20	0.030	4.5	7.5	255	25	1.0
		32	4	20	0.030	4.5	9.6	200	25	1.0
	M	25	3	20	0.020	4.5	2.5	255	15	0.2
		32	4	20	0.020	4.5	3.2	200	15	0.2
	L									

Application

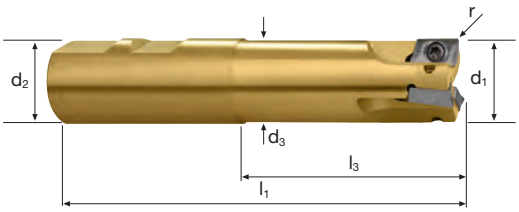


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	K	25	3	120	0.050	3.6	25.0	1530	230	20.5
		32	4	120	0.050	3.6	32.0	1195	240	27.5
	M	25	3	120	0.070	2.5	25.0	1530	320	20.0
		32	4	120	0.070	2.5	32.0	1195	335	27.0
Heat resistant steel [17-4 PH]	K	25	3	100	0.050	3.6	25.0	1275	190	17.0
		32	4	100	0.050	3.6	32.0	995	200	23.0
	M	25	3	100	0.070	2.5	25.0	1275	270	17.0
		32	4	100	0.070	2.5	32.0	995	280	22.5

Corner/Slot end mills 90° SX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°



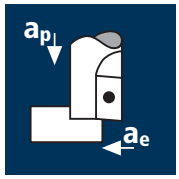
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Tool Steel

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts								
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00110.253	25	25	24.0	90	32	12.5	3	K	●
W00150.253	25	25	24.0	124	65	12.5	3	M	●
W00190.253	25	25	24.0	158	99	12.5	3	L	●
W00110.324	32	32	31.0	102	40	12.5	4	K	●
W00150.324	32	32	31.0	144	81	12.5	4	M	●
W00190.324	32	32	31.0	186	123	12.5	4	L	●

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50310.013	14.8	8.1	4.7	0.8	●

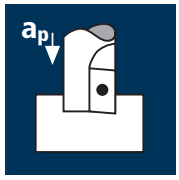
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 42 - 48 HRC	K	25	3	150	0.050	4.5	20.0	1910	285	25.5
		32	4	150	0.050	4.5	25.6	1490	300	34.5
	M	25	3	120	0.070	4.5	15.0	1530	320	21.5
		32	4	120	0.070	4.5	19.2	1195	335	29.0
	L	25	3	120	0.070	4.0	5.0	1530	320	6.5
		32	4	120	0.070	4.0	6.4	1195	335	8.5
Hardened tool steel 48 - 52 HRC	K	25	3	120	0.050	4.5	20.0	1530	230	20.5
		32	4	120	0.050	4.5	25.6	1195	240	27.5
	M	25	3	100	0.070	4.5	15.0	1275	270	18.0
		32	4	100	0.070	4.5	19.2	995	280	24.0
	L	25	3	100	0.070	4.0	5.0	1275	270	5.5
		32	4	100	0.070	4.0	6.4	995	280	7.0
Hardened tool steel 52 - 56 HRC	K	25	3	100	0.050	4.5	20.0	1275	190	17.0
		32	4	100	0.050	4.5	25.6	995	200	23.0
	M	25	3	80	0.070	4.5	15.0	1020	215	14.5
		32	4	80	0.070	4.5	19.2	795	225	19.5
	L	25	3	80	0.070	4.0	5.0	1020	215	4.5
		32	4	80	0.070	4.0	6.4	795	225	6.0
Hardened tool steel 56 - 60 HRC	K	25	3	40	0.020	4.5	7.5	510	30	1.0
		32	4	40	0.020	4.5	9.6	400	30	1.5
	M	25	3	25	0.020	4.5	2.5	320	20	0.0
		32	4	25	0.020	4.5	3.2	250	20	0.5
	L									

Application

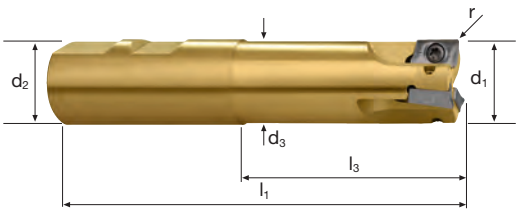


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Hardened tool steel 48 - 52 HRC	K	25	3	100	0.050	3.6	25.0	1275	190	17.0
		32	4	100	0.050	3.6	32.0	995	200	23.0
	M	25	3	80	0.070	3.0	25.0	1020	215	16.0
		32	4	80	0.070	3.0	32.0	795	225	21.5
Hardened tool steel 52 - 56 HRC	K	25	3	80	0.050	3.6	25.0	1020	155	14.0
		32	4	80	0.050	3.6	32.0	795	160	18.5
	M	25	3	60	0.070	3.0	25.0	765	160	12.0
		32	4	60	0.070	3.0	32.0	595	165	16.0

Corner/Slot end mills 90° HX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ-10°



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Corner/Slot end mills 90° Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00110.253	25	25	24.0	90	32	12.5	3	K	●
W00150.253	25	25	24.0	124	65	12.5	3	M	●
W00190.253	25	25	24.0	158	99	12.5	3	L	●
W00110.324	32	32	31.0	102	40	12.5	4	K	●
W00150.324	32	32	31.0	144	81	12.5	4	M	●
W00190.324	32	32	31.0	186	123	12.5	4	L	●

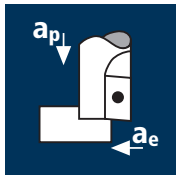
Inserts HX 13mm Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	
W50210.013	14.7	8.1	4.7	0.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces

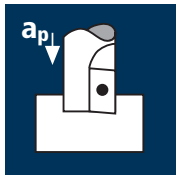
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	K	25	3	40	0.040	4.5	7.5	510	60	2.0
		32	4	40	0.040	4.5	9.6	400	65	3.0
	M	25	3	30	0.030	4.5	5.0	380	35	1.0
		32	4	30	0.030	4.5	6.4	300	35	1.0
	L	25	3	20	0.020	4.5	3.8	255	15	0.5
		32	4	20	0.020	4.5	4.8	200	15	0.5
Manganese steel Mn > 5 % [1.3964 / Nitronic]	K	25	3	100	0.040	4.5	7.5	1275	155	5.0
		32	4	100	0.040	4.5	9.6	995	160	7.0
	M	25	3	90	0.030	4.5	5.0	1145	105	2.5
		32	4	90	0.030	4.5	6.4	895	105	3.0
	L	25	3	80	0.020	4.5	3.8	1020	60	1.0
		32	4	80	0.020	4.5	4.8	795	65	1.5
Heat resistant steel [17-4 PH] [Duplex]	K	25	3	150	0.050	4.5	20.0	1910	285	25.5
		32	4	150	0.050	4.5	25.6	1490	300	34.5
	M	25	3	140	0.040	4.5	15.0	1785	215	14.5
		32	4	140	0.040	4.5	19.2	1395	225	19.5
	L	25	3	120	0.040	4.0	10.0	1530	185	7.5
		32	4	120	0.040	4.0	12.8	1195	190	9.5
PM high-speed steel annealed [Böhler S390] [ASP 2023]	K	25	3	120	0.050	4.5	7.5	1530	230	8.0
		32	4	120	0.050	4.5	9.6	1195	240	10.5
	M	25	3	100	0.050	4.5	5.0	1275	190	4.5
		32	4	100	0.050	4.5	6.4	995	200	6.0
	L	25	3	80	0.040	4.5	3.8	1020	120	2.0
		32	4	80	0.040	4.5	4.8	795	125	2.5

Application

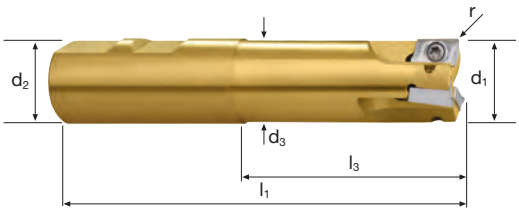


Material	L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Manganese steel Mn > 5% [1.3964 / Nitronic]	K	25	3	80	0.040	1.5	25.0	1020	120	4.5
		32	4	80	0.040	1.5	32.0	795	125	6.0
	M	25	3	60	0.030	1.0	25.0	765	70	2.0
		32	4	60	0.030	1.0	32.0	595	70	2.0
PM high-speed steel annealed [Böhler S390] [ASP 2023]	K	25	3	100	0.050	2.0	25.0	1275	190	9.5
		32	4	100	0.050	2.0	32.0	995	200	13.0
	M	25	3	80	0.040	1.5	25.0	1020	120	4.5
		32	4	80	0.040	1.5	32.0	795	125	6.0

Corner/Slot end mills 90° ZX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°



Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Corner/Slot end mills 90° Delivery range: Cutter body incl. clamping screws for inserts

Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	z	L-Type	
W00110.253	25	25	24.0	90	32	12.5	3	K	●
W00150.253	25	25	24.0	124	65	12.5	3	M	●
W00190.253	25	25	24.0	158	99	12.5	3	L	●
W00110.324	32	32	31.0	102	40	12.5	4	K	●
W00150.324	32	32	31.0	144	81	12.5	4	M	●
W00190.324	32	32	31.0	186	123	12.5	4	L	●

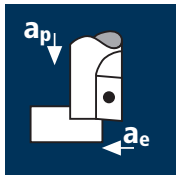
Inserts ZX 13mm Delivery range: Packaging unit 10 pieces

Order-N°.	H	B	D	r	
W50410.013	14.8	8.1	4.7	0.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces

Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application

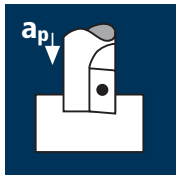


Material

L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%									
K	25	3	500	0.120	4.5	20.0	6365	2290	206.0
	32	4	400	0.120	4.5	25.6	3980	1910	220.0
M	25	3	450	0.100	4.5	20.0	5730	1720	155.0
	32	4	400	0.100	4.5	25.6	3980	1590	183.0
L	25	3	450	0.100	4.0	10.0	5730	1720	69.0
	32	4	400	0.100	4.0	12.8	3980	1590	81.5
Cast aluminium Si 6% - 15%									
K	25	3	450	0.080	4.5	20.0	5730	1375	124.0
	32	4	400	0.080	4.5	25.6	3980	1275	147.0
M	25	3	450	0.080	4.5	20.0	5730	1375	124.0
	32	4	400	0.080	4.5	25.6	3980	1275	147.0
L	25	3	450	0.080	4.0	10.0	5730	1375	55.0
	32	4	400	0.080	4.0	12.8	3980	1275	65.5
Unalloyed copper									
K	25	3	450	0.080	4.5	20.0	5730	1375	124.0
	32	4	400	0.080	4.5	25.6	3980	1275	147.0
M	25	3	400	0.080	4.5	20.0	5095	1225	110.5
	32	4	400	0.080	4.5	25.6	3980	1275	147.0
L	25	3	400	0.080	4.0	10.0	5095	1225	49.0
	32	4	400	0.080	4.0	12.8	3980	1275	65.5
Thermoplastics									
K	25	3	500	0.120	4.5	20.0	6365	2290	206.0
	32	4	400	0.120	4.5	25.6	3980	1910	220.0
M	25	3	500	0.100	4.5	20.0	6365	1910	172.0
	32	4	400	0.100	4.5	25.6	3980	1590	183.0
L	25	3	500	0.100	4.0	10.0	6365	1910	76.5
	32	4	400	0.100	4.0	12.8	3980	1590	81.5

v_c can be increased, however balancing of tool is required

Application



Material

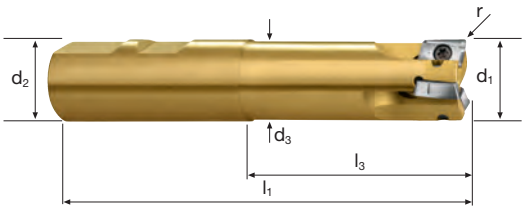
L-Type	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%									
K	25	3	500	0.100	3.6	25.0	6365	1910	172.0
	32	4	400	0.100	3.6	32.0	3980	1590	183.0
M	25	3	450	0.100	3.6	25.0	5730	1720	155.0
	32	4	400	0.100	3.6	32.0	3980	1590	183.0
Cast aluminium Si 6% - 15%									
K	25	3	450	0.060	3.6	25.0	5730	1030	92.5
	32	4	400	0.060	3.6	32.0	3980	955	110.0
M	25	3	400	0.060	3.6	25.0	5095	915	82.5
	32	4	400	0.060	3.6	32.0	3980	955	110.0

v_c can be increased, however balancing of tool is required

Corner/Slot end mills 90° AX

Inserts 13mm, with integral air / cooling channel

HM | λ **8°** γ **20°**

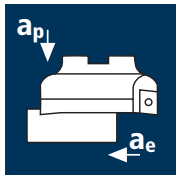


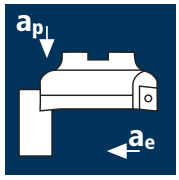
Al Aluminium > 99% | **Al** Aluminium Alloy | **Al** Aluminium Cast | **Cu** Copper | **Plastic** Thermoplast | **CuZn Brass** **CF / GF** Fiber Reinforced Plastics

Corner/Slot end mills 90° Delivery range: Cutter body incl. clamping screws for inserts									
Order-N°.	d_1	$d_{2\ h6}$	d_3	l_1	l_3	$ap_{max.}$	**z**	**L-Type**	
W00110.253	25	25	24	90	32	12.5	3	K	●
W00150.253	25	25	24	124	65	12.5	3	M	●
W00190.253	25	25	24	158	99	12.5	3	L	●
W00110.324	32	32	31	102	40	12.5	4	K	●
W00150.324	32	32	31	144	81	12.5	4	M	●
W00190.324	32	32	31	186	123	12.5	4	L	●

Inserts AX 13mm Delivery range: Packaging unit 10 pieces					
Order-N°.	**H**	**B**	**D**	**r**	
W50510.013	14.7	8.0	4.5	0.8	●

Accessories Delivery range clamping screws for inserts: Packaging unit 10 pieces		
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	5	220	0.100	1.5	30.0	1750	875	39.5
		50	6	220	0.100	1.5	37.5	1400	840	47.5
		63	7	200	0.100	1.5	47.3	1010	705	50.0
		80	10	200	0.100	1.5	60.0	795	795	71.5
	Steel 850 - 1100 N/mm²	40	5	200	0.100	1.5	30.0	1590	795	36.0
		50	6	200	0.100	1.5	37.5	1275	765	43.0
		63	7	180	0.100	1.5	47.3	910	635	45.0
		80	10	180	0.100	1.5	60.0	715	715	64.5
	Steel 1100 - 1300 N/mm²	40	5	180	0.080	1.5	30.0	1430	570	25.5
		50	6	180	0.080	1.5	37.5	1145	550	31.0
		63	7	150	0.080	1.5	47.3	760	425	30.0
		80	10	150	0.080	1.5	60.0	595	475	43.0
	Steel 1300 - 1500 N/mm²	40	5	150	0.050	1.0	30.0	1195	300	9.0
		50	6	150	0.050	1.0	37.5	955	285	10.5
		63	7	120	0.050	1.0	47.3	605	210	10.0
		80	10	120	0.050	1.0	60.0	475	240	14.5

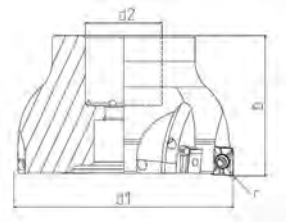
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Steel < 850 N/mm²	40	5	220	0.120	5	6	1750	1050	31.5
		50	6	220	0.120	5	6	1400	1010	30.5
		63	7	200	0.120	5	6	1010	850	25.5
		80	10	200	0.120	5	6	795	955	28.5
	Steel 850 - 1100 N/mm²	40	5	200	0.100	5	6	1590	795	24.0
		50	6	200	0.100	5	6	1275	765	23.0
		63	7	180	0.100	5	6	910	635	19.0
		80	10	180	0.100	5	6	715	715	21.5
	Steel 1100 - 1300 N/mm²	40	5	180	0.080	5	6	1430	570	17.0
		50	6	180	0.080	5	6	1145	550	16.5
		63	7	150	0.080	5	6	760	425	13.0
		80	10	150	0.080	5	6	595	475	14.5
	Steel 1300 - 1500 N/mm²	40	5	150	0.050	5	6	1195	300	9.0
		50	6	150	0.050	5	6	955	285	8.5
		63	7	120	0.050	5	6	605	210	6.5
		80	10	120	0.050	5	6	475	240	7.0

Corner end mills 90° NX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°





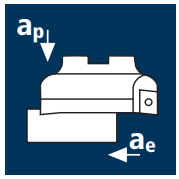
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00400.405	40	16	40	7.5	5	●
W00400.506	50	22	40	7.5	6	●
W00400.637	63	22	40	7.5	7	●
W00400.801	80	27	50	7.5	10	●

Inserts NX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50111.008	8.4	6.4	3.4	0.6	●

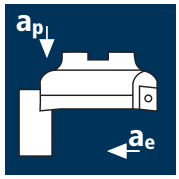
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	40	5	120	0.080	1.5	30.0	955	380	17.0
	50	6	120	0.080	1.5	37.5	765	365	20.5
	63	7	100	0.080	1.5	47.3	505	285	20.0
	80	10	100	0.080	1.5	50.0	400	320	24.0
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	5	150	0.080	1.5	30.0	1195	480	21.5
	50	6	150	0.080	1.5	37.5	955	460	26.0
	63	7	120	0.080	1.5	47.3	605	340	24.0
	80	10	120	0.080	1.5	50.0	475	380	28.5
Heat resistant steel [17-4 PH]	40	5	100	0.080	1.5	30.0	795	320	14.5
	50	6	100	0.080	1.5	37.5	635	305	17.0
	63	7	70	0.080	1.5	47.3	355	200	14.0
	80	10	70	0.080	1.5	50.0	280	225	17.0

Application



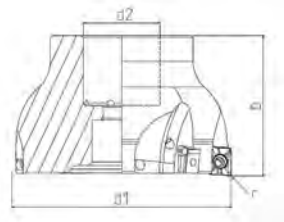
Material	d1 [mm]	z	vc [m/min]	fz [mm]	ap [mm]	ae [mm]	n [min-1]	vf [mm/min]	Q [cm3/min]
Stainless steel [Cr-Ni/1.4301]	40	5	110	0.060	5	6	875	265	8.0
	50	6	110	0.060	5	6	700	250	7.5
	63	7	80	0.060	5	6	405	170	5.0
	80	10	80	0.060	5	6	320	190	5.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	5	150	0.060	5	6	1195	360	11.0
	50	6	150	0.060	5	6	955	345	10.5
	63	7	120	0.060	5	6	605	255	7.5
	80	10	120	0.060	5	6	475	285	8.5
Heat resistant steel [17-4 PH]	40	5	100	0.060	5	6	795	240	7.0
	50	6	100	0.060	5	6	635	230	7.0
	63	7	70	0.060	5	6	355	150	4.5
	80	10	70	0.060	5	6	280	170	5.0

Corner end mills 90° SX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°



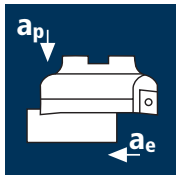


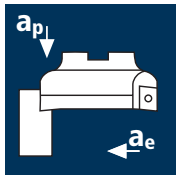
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Corner/Slot end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00400.405	40	16	40	7.5	5	●
W00400.506	50	22	40	7.5	6	●
W00400.637	63	22	40	7.5	7	●
W00400.801	80	27	50	7.5	10	●

Inserts SX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50310.008	8.4	6.4	3.4	0.6	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	40	5	160	0.050	1.5	30.0	1275	320	14.5
		50	6	160	0.050	1.5	37.5	1020	305	17.0
		63	7	130	0.050	1.5	47.3	655	230	16.5
		80	10	130	0.050	1.5	60.0	515	260	23.5
	Hardened tool steel 48 - 52 HRC	40	5	120	0.050	1.5	30.0	955	240	11.0
		50	6	120	0.050	1.5	37.5	765	230	13.0
		63	7	100	0.050	1.5	47.3	505	175	12.5
		80	10	100	0.050	1.5	60.0	400	200	18.0
	Hardened tool steel 52 - 56 HRC	40	5	80	0.050	1.5	30.0	635	160	7.0
		50	6	80	0.050	1.5	37.5	510	155	8.5
		63	7	60	0.050	1.5	47.3	305	105	7.5
		80	10	60	0.050	1.5	60.0	240	120	11.0
	Hardened tool steel 56 - 60 HRC	40	5	40	0.020	1.0	30.0	320	30	1.0
		50	6	40	0.020	1.0	37.5	255	30	1.0
		63	7	30	0.020	1.0	47.3	150	20	1.0
		80	10	30	0.020	1.0	60.0	120	25	1.5

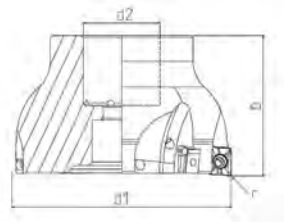
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	40	5	160	0.050	5	6	1275	320	9.5
		50	6	160	0.050	5	6	1020	305	9.0
		63	7	130	0.050	5	6	655	230	7.0
		80	10	130	0.050	5	6	515	260	8.0
	Hardened tool steel 48 - 52 HRC	40	5	120	0.050	5	6	955	240	7.0
		50	6	120	0.050	5	6	765	230	7.0
		63	7	100	0.050	5	6	505	175	5.5
		80	10	100	0.050	5	6	400	200	6.0
	Hardened tool steel 52 - 56 HRC	40	5	100	0.050	5	6	795	200	6.0
		50	6	100	0.050	5	6	635	190	5.5
		63	7	80	0.050	5	6	405	140	4.0
		80	10	80	0.050	5	6	320	160	5.0
	Hardened tool steel 56 - 60 HRC	40	5	40	0.020	5	6	320	30	1.0
		50	6	40	0.020	5	6	255	30	1.0
		63	7	30	0.020	5	6	150	20	0.5
		80	10	30	0.020	5	6	120	25	1.0

Corner end mills 90° HX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ -8°





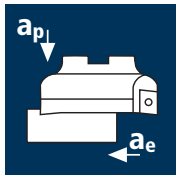
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00400.405	40	16	40	7.5	5	●
W00400.506	50	22	40	7.5	6	●
W00400.637	63	22	40	7.5	7	●
W00400.801	80	27	50	7.5	10	●

Inserts HX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50210.008	8.5	6.4	3.5	0.6	●

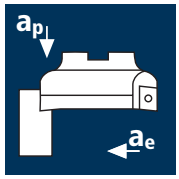
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	5	40	0.040	1.5	30.0	320	65	3.0
	50	6	40	0.040	1.5	37.5	255	60	3.5
	63	7	30	0.040	1.5	47.3	150	40	3.0
	80	10	30	0.040	1.5	50.0	120	50	4.0
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	5	100	0.040	1.5	30.0	795	160	7.0
	50	6	100	0.040	1.5	37.5	635	150	8.5
	63	7	80	0.040	1.5	47.3	405	115	8.0
	80	10	80	0.040	1.5	50.0	320	130	10.0
Heat resistant steel [17-4 PH] [Duplex]	40	5	150	0.080	1.5	30.0	1195	480	21.5
	50	6	150	0.080	1.5	37.5	955	460	26.0
	63	7	120	0.080	1.5	47.3	605	340	24.0
	80	10	120	0.080	1.5	50.0	475	380	28.5
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	5	120	0.050	1.5	30.0	955	240	11.0
	50	6	120	0.050	1.5	37.5	765	230	13.0
	63	7	100	0.050	1.5	47.3	505	175	12.5
	80	10	100	0.050	1.5	50.0	400	200	15.0

Application



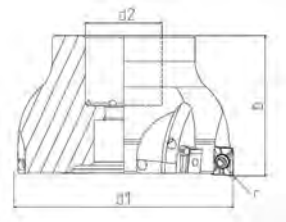
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	5	40	0.050	5	3	320	80	1.0
	50	6	40	0.050	5	3	255	75	1.0
	63	7	40	0.050	5	3	200	70	1.0
	80	10	40	0.050	5	3	160	80	1.0
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	5	100	0.060	5	6	795	240	7.0
	50	6	100	0.060	5	6	635	230	7.0
	63	7	100	0.060	5	6	505	210	6.5
	80	10	100	0.060	5	6	400	240	7.0
Heat resistant steel [17-4 PH] [Duplex]	40	5	150	0.060	5	6	1195	360	11.0
	50	6	150	0.060	5	6	955	345	10.5
	63	7	150	0.060	5	6	760	320	9.5
	80	10	150	0.060	5	6	595	355	10.5
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	5	120	0.060	5	6	955	285	8.5
	50	6	120	0.060	5	6	765	275	8.5
	63	7	120	0.060	5	6	605	255	7.5
	80	10	120	0.060	5	6	475	285	8.5

Corner end mills 90° ZX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 0°



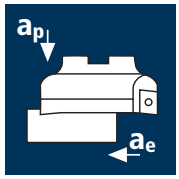


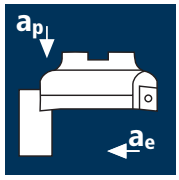
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00400.405	40	16	40	7.5	5	●
W00400.506	50	22	40	7.5	6	●
W00400.637	63	22	40	7.5	7	●
W00400.801	80	27	50	7.5	10	●

Inserts ZX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50410.008	8.4	6.4	3.4	0.6	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	5	600	0.120	1.5	30.0	4775	2865	129.0
		50	6	600	0.120	1.5	37.5	3820	2750	154.5
		63	7	500	0.120	1.5	47.3	2525	2120	150.5
		80	10	500	0.120	1.5	60.0	1990	2390	215.0
	Cast aluminium Si 6% - 15%	40	5	500	0.100	1.5	30.0	3980	1990	89.5
		50	6	500	0.100	1.5	37.5	3185	1910	107.5
		63	7	400	0.100	1.5	47.3	2020	1415	100.5
		80	10	400	0.100	1.5	60.0	1590	1590	143.0
	Unalloyed copper	40	5	400	0.080	1.5	30.0	3185	1275	57.5
		50	6	400	0.080	1.5	37.5	2545	1220	68.5
		63	7	350	0.080	1.5	47.3	1770	990	70.0
		80	10	350	0.080	1.5	60.0	1395	1115	100.5
	Thermoplastics	40	5	600	0.120	1.5	30.0	4775	2865	129.0
		50	6	600	0.120	1.5	37.5	3820	2750	154.5
		63	7	500	0.120	1.5	47.3	2525	2120	150.5
		80	10	500	0.120	1.5	60.0	1990	2390	215.0

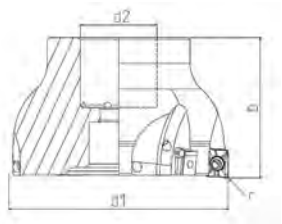
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Wrought aluminium alloys Si < 6%	40	5	600	0.120	5	6	4775	2865	86.0
		50	6	600	0.120	5	6	3820	2750	82.5
		63	7	500	0.120	5	6	2525	2120	63.5
		80	10	500	0.120	5	6	1990	2390	71.5
	Cast aluminium Si 6% - 15%	40	5	500	0.100	5	6	3980	1990	59.5
		50	6	500	0.100	5	6	3185	1910	57.5
		63	7	400	0.100	5	6	2020	1415	42.5
		80	10	400	0.100	5	6	1590	1590	47.5
	Unalloyed copper	40	5	400	0.080	5	6	3185	1275	38.5
		50	6	400	0.080	5	6	2545	1220	36.5
		63	7	350	0.080	5	6	1770	990	29.5
		80	10	350	0.080	5	6	1395	1115	33.5
	Thermoplastics	40	5	600	0.120	5	6	4775	2865	86.0
		50	6	600	0.120	5	6	3820	2750	82.5
		63	7	500	0.120	5	6	2525	2120	63.5
		80	10	500	0.120	5	6	1990	2390	71.5

Corner end mills 90° AX

Inserts 8mm, with integral air / cooling channel

HM	λ 8° γ 20°





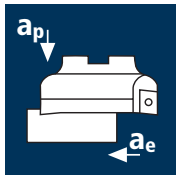
			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF / GF Fiber Reinforced Plastics

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00400.405	40	16	40	7.5	5	●
W00400.506	50	22	40	7.5	6	●
W00400.637	63	22	40	7.5	7	●
W00400.801	80	27	50	7.5	10	●

Inserts AX 8mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50510.008	8.3	6.4	3.4	0.6	●

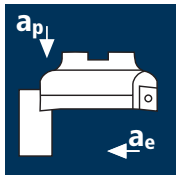
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.008	Torque screwdriver **1.2 Nm** with blade Torx TX 08	●
W90111.008	Interchangeable blade for torque screwdriver Torx TX 08	●
W90100.008	Screwdriver Torx TX 08	●
W90500.008	Clamping screws for inserts Torx TX 08 / M 2.5 x 5.0	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	40	4	220	0.100	2	30.0	1750	700	42.0
	50	5	220	0.100	2	37.5	1400	700	52.5
	63	6	200	0.100	2	47.3	1010	605	57.0
	80	8	200	0.100	2	60.0	795	635	76.0
Steel 850 - 1100 N/mm²	40	4	200	0.100	2	30.0	1590	635	38.0
	50	5	200	0.100	2	37.5	1275	640	48.0
	63	6	180	0.100	2	47.3	910	545	51.5
	80	8	180	0.100	2	60.0	715	570	68.5
Steel 1100 - 1300 N/mm²	40	4	180	0.080	2	30.0	1430	460	27.5
	50	5	180	0.080	2	37.5	1145	460	34.5
	63	6	150	0.080	2	47.3	760	365	34.5
	80	8	150	0.080	2	60.0	595	380	45.5
Steel 1300 - 1500 N/mm²	40	4	150	0.050	2	30.0	1195	240	14.5
	50	5	150	0.050	2	37.5	955	240	18.0
	63	6	120	0.050	2	47.3	605	180	17.0
	80	8	120	0.050	2	60.0	475	190	23.0

Application



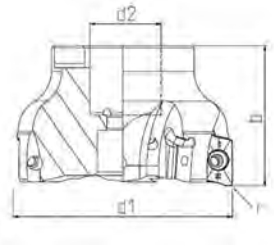
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Steel < 850 N/mm²	40	4	220	0.120	10	8	1750	840	67.0
	50	5	220	0.120	10	8	1400	840	67.0
	63	6	200	0.120	10	8	1010	725	58.0
	80	8	200	0.120	10	8	795	765	61.0
Steel 850 - 1100 N/mm²	40	4	200	0.100	10	8	1590	635	51.0
	50	5	200	0.100	10	8	1275	640	51.0
	63	6	180	0.100	10	8	910	545	43.5
	80	8	180	0.100	10	8	715	570	45.5
Steel 1100 - 1300 N/mm²	40	4	180	0.080	10	8	1430	460	37.0
	50	5	180	0.080	10	8	1145	460	37.0
	63	6	150	0.080	10	8	760	365	29.0
	80	8	150	0.080	10	8	595	380	30.5
Steel 1300 - 1500 N/mm²	40	4	150	0.050	10	8	1195	240	19.0
	50	5	150	0.050	10	8	955	240	19.0
	63	6	120	0.050	10	8	605	180	14.5
	80	8	120	0.050	10	8	475	190	15.0

Corner end mills 90° NX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°





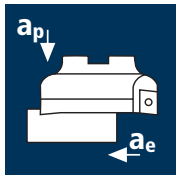
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500						GG(G)

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00410.404	40	16	40	12.5	4	●
W00410.505	50	22	40	12.5	5	●
W00410.636	63	22	40	12.5	6	●
W00410.808	80	27	50	12.5	8	●

Inserts NX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50111.013	14.8	8.1	4.7	0.8	●

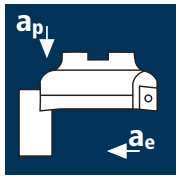
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	4	120	0.080	2	30.0	955	305	18.5
	50	5	120	0.080	2	37.5	765	305	23.0
	63	6	100	0.080	2	47.3	505	240	22.5
	80	8	100	0.080	2	50.0	400	255	25.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	150	0.080	2	30.0	1195	380	23.0
	50	5	150	0.080	2	37.5	955	380	28.5
	63	6	120	0.080	2	47.3	605	290	27.5
	80	8	120	0.080	2	50.0	475	305	30.5
Heat resistant steel [17-4 PH]	40	4	100	0.080	2	30.0	795	255	15.5
	50	5	100	0.080	2	37.5	635	255	19.0
	63	6	70	0.080	2	47.3	355	170	16.0
	80	8	70	0.080	2	50.0	280	180	18.0

Application



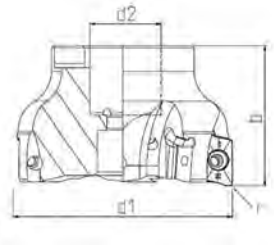
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Stainless steel [Cr-Ni/1.4301]	40	4	110	0.060	10	8	875	210	17.0
	50	5	110	0.060	10	8	700	210	17.0
	63	6	80	0.060	10	8	405	145	11.5
	80	8	80	0.060	10	8	320	155	12.5
Stainless steel [Cr-Ni-Mo-.../1.4571]	40	4	150	0.060	10	8	1195	285	23.0
	50	5	150	0.060	10	8	955	285	23.0
	63	6	120	0.060	10	8	605	220	17.5
	80	8	120	0.060	10	8	475	230	18.5
Heat resistant steel [17-4 PH]	40	4	100	0.060	10	8	795	190	15.0
	50	5	100	0.060	10	8	635	190	15.0
	63	6	70	0.060	10	8	355	130	10.5
	80	8	70	0.060	10	8	280	135	11.0

Corner end mills 90° SX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°



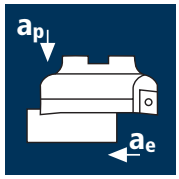


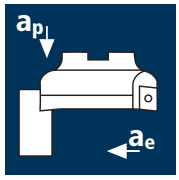
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Tool Steel

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00410.404	40	16	40	12.5	4	●
W00410.505	50	22	40	12.5	5	●
W00410.636	63	22	40	12.5	6	●
W00410.808	80	27	50	12.5	8	●

Inserts SX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50310.013	14.8	8.1	4.7	0.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	40	4	160	0.050	2	30.0	1275	255	15.5
		50	5	160	0.050	2	37.5	1020	255	19.0
		63	6	130	0.050	2	47.3	655	195	18.5
		80	8	130	0.050	2	60.0	515	205	24.5
	Hardened tool steel 48 - 52 HRC	40	4	120	0.050	2	30.0	955	190	11.5
		50	5	120	0.050	2	37.5	765	190	14.5
		63	6	100	0.050	2	47.3	505	150	14.0
		80	8	100	0.050	2	60.0	400	160	19.0
	Hardened tool steel 52 - 56 HRC	40	4	80	0.050	2	30.0	635	125	7.5
		50	5	80	0.050	2	37.5	510	130	10.0
		63	6	60	0.050	2	47.3	305	90	8.5
		80	8	60	0.050	2	60.0	240	95	11.5
	Hardened tool steel 56 - 60 HRC	40	4	40	0.020	2	30.0	320	25	1.5
		50	5	40	0.020	2	37.5	255	25	2.0
		63	6	30	0.020	2	47.3	150	20	2.0
		80	8	30	0.020	2	60.0	120	20	2.5

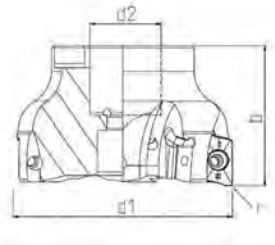
Application	Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
	Hardened tool steel 42 - 48 HRC	40	4	160	0.050	10	8	1275	255	20.5
		50	5	160	0.050	10	8	1020	255	20.5
		63	6	130	0.050	10	8	655	195	15.5
		80	8	130	0.050	10	8	515	205	16.5
	Hardened tool steel 48 - 52 HRC	40	4	120	0.050	10	8	955	190	15.0
		50	5	120	0.050	10	8	765	190	15.0
		63	6	100	0.050	10	8	505	150	12.0
		80	8	100	0.050	10	8	400	160	13.0
	Hardened tool steel 52 - 56 HRC	40	4	100	0.050	10	8	795	160	13.0
		50	5	100	0.050	10	8	635	160	13.0
		63	6	80	0.050	10	8	405	120	9.5
		80	8	80	0.050	10	8	320	130	10.5
	Hardened tool steel 56 - 60 HRC	40	4	40	0.020	10	8	320	25	2.0
		50	5	40	0.020	10	8	255	25	2.0
		63	6	30	0.020	10	8	150	20	1.5
		80	8	30	0.020	10	8	120	20	1.5

Corner end mills 90° HX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ-10°





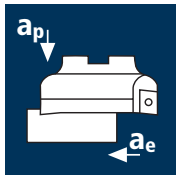
		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	GG(G)

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00410.404	40	16	40	12.5	4	●
W00410.505	50	22	40	12.5	5	●
W00410.636	63	22	40	12.5	6	●
W00410.808	80	27	50	12.5	8	●

Inserts HX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50210.013	14.7	8.1	4.7	0.8	●

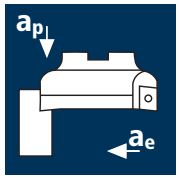
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	4	40	0.040	2	30.0	320	50	3.0
	50	5	40	0.040	2	37.5	255	50	4.0
	63	6	30	0.040	2	47.3	150	35	3.5
	80	8	30	0.040	2	50.0	120	40	4.0
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	4	100	0.040	2	30.0	795	125	7.5
	50	5	100	0.040	2	37.5	635	125	9.5
	63	6	80	0.040	2	47.3	405	95	9.0
	80	8	80	0.040	2	50.0	320	100	10.0
Heat resistant steel [17-4 PH] [Duplex]	40	4	150	0.080	2	30.0	1195	380	23.0
	50	5	150	0.080	2	37.5	955	380	28.5
	63	6	120	0.080	2	47.3	605	290	27.5
	80	8	120	0.080	2	50.0	475	305	30.5
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	4	120	0.050	2	30.0	955	190	11.5
	50	5	120	0.050	2	37.5	765	190	14.5
	63	6	100	0.050	2	47.3	505	150	14.0
	80	8	100	0.050	2	50.0	400	160	16.0

Application



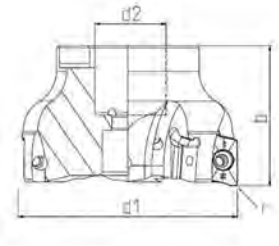
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Nickel base alloys [Inconel 718] [Hastelloy B-3] [Nimonic 90]	40	4	40	0.050	10	4	320	65	2.5
	50	5	40	0.050	10	4	255	65	2.5
	63	6	40	0.050	10	4	200	60	2.5
	80	8	40	0.050	10	4	160	65	2.5
Manganese steel Mn > 5% [1.3964 / Nitronic]	40	4	100	0.060	10	8	795	190	15.0
	50	5	100	0.060	10	8	635	190	15.0
	63	6	100	0.060	10	8	505	180	14.5
	80	8	100	0.060	10	8	400	190	15.0
Heat resistant steel [17-4 PH] [Duplex]	40	4	150	0.060	10	8	1195	285	23.0
	50	5	150	0.060	10	8	955	285	23.0
	63	6	150	0.060	10	8	760	275	22.0
	80	8	150	0.060	10	8	595	285	23.0
PM high-speed steel annealed [Böhler S390] [ASP 2023]	40	4	120	0.060	10	8	955	230	18.5
	50	5	120	0.060	10	8	765	230	18.5
	63	6	120	0.060	10	8	605	220	17.5
	80	8	120	0.060	10	8	475	230	18.5

Corner end mills 90° ZX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 6°





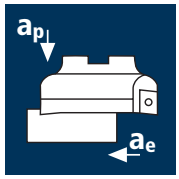
Rm < 850	Rm 850-1100						Inox Stainless	Ti Titanium	Nickel-Alloys Mangan-Steels HSS

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00410.404	40	16	40	12.5	4	●
W00410.505	50	22	40	12.5	5	●
W00410.636	63	22	40	12.5	6	●
W00410.808	80	27	50	12.5	8	●

Inserts ZX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50410.013	14.8	8.1	4.7	0.8	●

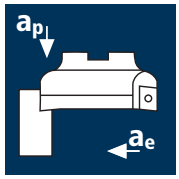
Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Application



Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	40	4	600	0.120	2	30.0	4775	2290	137.5
	50	5	600	0.120	2	37.5	3820	2290	172.0
	63	6	500	0.120	2	47.3	2525	1820	172.0
	80	8	500	0.120	2	60.0	1990	1910	229.0
Cast aluminium Si 6% - 15%	40	4	500	0.100	2	30.0	3980	1590	95.5
	50	5	500	0.100	2	37.5	3185	1595	119.5
	63	6	400	0.100	2	47.3	2020	1210	114.5
	80	8	400	0.100	2	60.0	1590	1270	152.5
Unalloyed copper	40	4	400	0.080	2	30.0	3185	1020	61.0
	50	5	400	0.080	2	37.5	2545	1020	76.5
	63	6	350	0.080	2	47.3	1770	850	80.5
	80	8	350	0.080	2	60.0	1395	895	107.5
Thermoplastics	40	4	600	0.120	2	30.0	4775	2290	137.5
	50	5	600	0.120	2	37.5	3820	2290	172.0
	63	6	500	0.120	2	47.3	2525	1820	172.0
	80	8	500	0.120	2	60.0	1990	1910	229.0

Application

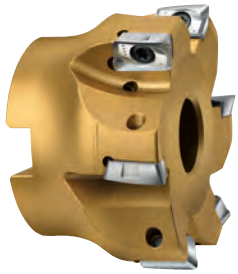


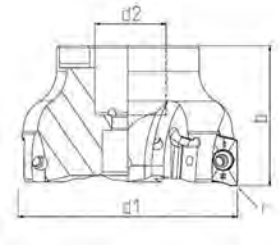
Material	d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	Q [cm³/min]
Wrought aluminium alloys Si < 6%	40	4	600	0.120	10	8	4775	2290	183.0
	50	5	600	0.120	10	8	3820	2290	183.0
	63	6	500	0.120	10	8	2525	1820	145.5
	80	8	500	0.120	10	8	1990	1910	153.0
Cast aluminium Si 6% - 15%	40	4	500	0.100	10	8	3980	1590	127.0
	50	5	500	0.100	10	8	3185	1595	127.5
	63	6	400	0.100	10	8	2020	1210	97.0
	80	8	400	0.100	10	8	1590	1270	101.5
Unalloyed copper	40	4	400	0.080	10	8	3185	1020	81.5
	50	5	400	0.080	10	8	2545	1020	81.5
	63	6	350	0.080	10	8	1770	850	68.0
	80	8	350	0.080	10	8	1395	895	71.5
Thermoplastics	40	4	600	0.120	10	8	4775	2290	183.0
	50	5	600	0.120	10	8	3820	2290	183.0
	63	6	500	0.120	10	8	2525	1820	145.5
	80	8	500	0.120	10	8	1990	1910	153.0

Corner end mills 90° AX

Inserts 13mm, with integral air / cooling channel

HM	λ 8° γ 20°





			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	CuZn Brass CF / GF Fiber Reinforced Plastics

Corner end mills 90°	Delivery range: Cutter body incl. clamping screws for inserts					
Order-N°.	d_1	d_2	b	$ap_{max.}$	z	
W00410.404	40	16	40	12.5	4	●
W00410.505	50	22	40	12.5	5	●
W00410.636	63	22	40	12.5	6	●
W00410.808	80	27	50	12.5	8	●

Inserts AX 13mm	Delivery range: Packaging unit 10 pieces				
Order-N°.	H	B	D	r	
W50510.013	14.7	8.0	4.5	0.8	●

Accessories	Delivery range clamping screws for inserts: Packaging unit 10 pieces	
Order-N°.		
W90110.013	Torque screwdriver **3.2 Nm** with blade Torx TX 15	●
W90111.013	Interchangeable blade for torque screwdriver Torx TX 15	●
W90100.013	Screwdriver Torx TX 15	●
W90500.013	Clamping screws for inserts Torx TX 15 / M 3.5 x 7.2	●

Torque screwdriver Torx with blade

Torque is pre-set according to table



Article-N°.	Torx-Dimension	Torque	
W90110.008	TX 08	1.2 Nm	●
W93110.010	TX 10	2.0 Nm	●
W90110.013	TX 15	3.2 Nm	●
W93110.012	TX 15	4.25 Nm	●
W91110.013	TX 20	5.0 Nm	●

Interchangeable blade for torque screwdriver



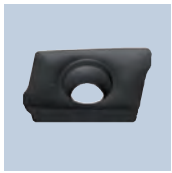
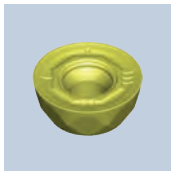
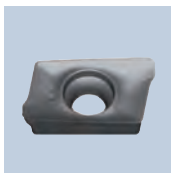
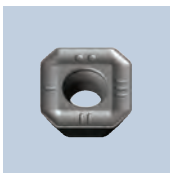
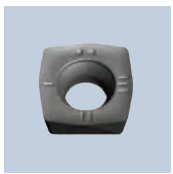
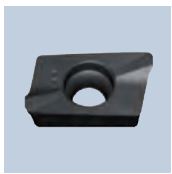
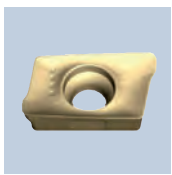
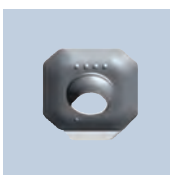
Article-N°.	Torx-Dimension		
W90111.008	TX 08		●
W93111.010	TX 10		●
W90111.013	TX 15		●
W91111.013	TX 20		●

Screwdriver Torx



Article-N°.	Torx-Dimension		
W90100.008	TX 08		●
W93100.010	TX 10		●
W90100.013	TX 15		●
W91100.013	TX 20		●

Marking and assembly of indexable inserts

Type	Corner end mills	Face milling cutter	High feed end mills	Round insert milling*
NX •				
SX ••				
HX •••				
ZX ••••				
AX •••• •				

- Clean the insert seats prior to assembly
- Ensure that all insert markings have the same orientation
- Use the turning moment screw driver to tighten the screws
- Ensure an exact positioning when tightening the indexable inserts

* The indexable round inserts may be used on eight positioning surfaces. It is not necessary to remove the screw completely to turn the insert to the next surface. Ensure a precise positioning when tightening the indexable round insert to the surface in order to prevent damage to the insert seat.


fraisa

Legend to the product page

Performance rating



High performance end milling tools in the X-Generation class
Highest performance and precision



Universal end milling tools in the Base-X class
Universal application



End milling tools in the Favora® class
Favourable and technically perfect



End milling tools in the HSS PM/F class
Cost-effective alternative

Performance

Roughing



Finishing



This index describes the performance of the tool in comparison to other products in the respective chapter. The more boxes that are filled, the better it is suited for each operation. There is always an index for the roughing and finishing applications.

Wear resistance



This index describes the wear resistance of the tools in the CFC section. The more fields are completed, the greater is the wear resistance of the tool, which is crucial for processing abrasive composite materials.

Legend to the product page

Tool technologies



Milling tool with a variable helix angle
- Minimisation of oscillation and vibrations
- Increase in material removal rates and tool life



Milling tool with a partially polished blade
- Reinforcement of the exposed cutting corner
- Absorption of high cutting forces



Milling tool with scaled slot
- Extension of swarf space
- Optimised chip removal
- Highest possible axial and radial infeeds



Milling tool with a variable helix angle
- Axial and radial vibration damping, as well as smooth and gentle cutting
- Better component surfaces and lower noise levels
- Less stress on the spindle and energy consumption, despite high metal removal volume



Milling tool with a special protective chamfer
- Reinforcement of the main cutting edge against chipping
- High tooth feed rates are possible in the case of smooth-edged tools
- High axial and radial infeeds are possible in the case of profiled tools



Milling tool with special edge conditionin
- Conditioning of the main cutting edge for increased stability
- Increase the mechanical and thermal load on the cutting edge
- General increase in the tool life



Front chamfer and circular grinding chamfer
- Tool is supported in radial and axial directions
- Reduced vibrations
- Better surface quality from both side and end faces



Supporting chamfer
- Support for the tool in the radial and axial directions
- Reduced vibrations and higher performance
- Improved surface quality as a result of increased running smoothness



Milling tool with special free space design
- Significant reinforcement of the cutting edge
- Higher performance, less vibrations and improved component quality
- Longer tool life and more process safety - therefore higher degree of automation



Milling tool with a special groove geometry
- Optimised swarf/groove geometry for improved swarf removal
- Optimised relationship between core diameter and swarf space for a high level of tool stability

Legend to the product page

Tool technologies



Finely balanced tools
- Finely balanced tools at least G2.5 at n=20,000 rpm or permissible residual imbalance <1gmm
- Reduction or elimination of the balancing process in the case of finely balanced clamping devices
- Improved surface quality as a result of increased running smoothness and fewer vibrations
- Increase in the service life of the machine spindle



Smooth transitions
- The shaft-neck-cutting edge transitions are fitted with smooth gradients and radii
- Improved tool rigidity and therefore less radial deflection
- Minimal step formation with several infeed depths
- Higher mechanical load and therefore improved performance



Milling tool with increased core diameter
- Improved tool rigidity and less tool deflection
- Higher performance in the area of the infeeds ap, ae and of the feed rate fz
- Better component accuracy through less tool deflection



Milling tool with shank of h5 tolerance
- High concentric and eccentric precision
- Optimal for modern precision chucks



Ball nose end mill with special edge conditioning for rough machining
- Conditioning of the main cutting edge for increased stability
- Significant increase in material removal rates compared to conventional ball nose mills
- General increase in the tool life



Ball nose end mill with special edge conditioning for finish machining
- Conditioning and smoothening of the main cutter profile
- Long term contour precision and surface quality
- General increase in the tool life



Corner radius end mill with special edge conditioning for roughing
- Conditioning of the main cutting edge for increased stability
- Significant increase of the material removal rate compared to standard corner radius end mills
- General increase in the tool life



Corner radius end mill with special edge conditioning for finishing
- Conditioning and smoothening of the main cutting edge
- Long-lasting contour accuracy and surface quality
- General increase in the tool life



Indexable insert
- Periphally ground, partially face polished on all sides
- Improved performance

Legend to the product page

Tool technologies



Ball nose end mill with a highly precise diameter tolerance
- Specially designed bearing tolerances simplify the programming and the secure finish of the end contour
- Highly precise tolerance field for high dimensional accuracy



Ball nose end mill with a highly precise radius tolerance
- Specially designed bearing tolerances simplify the programming and the secure finish of the end contour
- Highly precise tolerance field for high dimensional accuracy



Corner radius end mill with a highly precise diameter tolerance
- Specially designed bearing tolerances simplify the programming and the secure finish of the end contour
- Highly precise tolerance field for high dimensional accuracy



Corner radius end mill with a highly precise radius tolerance
- Specially designed tolerances simplify the programming and the secure finish of the end contour
- Highly precise tolerance field for high dimensional accuracy

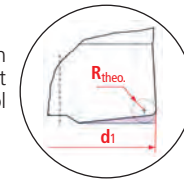


Cylindrical end mill with a highly precise diameter tolerance
- Specially designed bearing tolerances simplify the programming and the secure finish of the end contour
- Highly precise tolerance field for high dimensional accuracy



High feed cutting (HFC) tool
- Tool with a special cutting geometry for high feed cutting
- High feeds are possible due to a defined swarf cross section distribution
- Large swarf space for quick and trouble-free removal of the swarf
- High removal volume with good contour convergency as well

The HFC tool has a theoretical programming radius ($R_{theo.}$). This value is stated for each diameter in the data table on the catalogue page and, for the CNC/CAM programming, it is stated as a tool radius. However as a result of the $R_{theo.}$ difference to the effective tool contour, residual material arises in the machining.



Legend to the product page

Cutting tool substrate material

HM XT	Fine grain carbide. Hardness 1900 HV. Co content 9%. Characterised by a particularly high level of toughness.
HM XA	Fine grain carbide. Hardness 1950 HV. Co content 8%. Characterised by a particularly high level of abrasion resistance.
HM XR	Fine grain carbide. Hardness 1590 HV. Co content 10%. Characterised by a particularly high level of toughness.
HM X10	Fine grain carbide. Hardness >1600 HV. Co content 10%. Characterised by a particularly high level of toughness and abrasion resistance.
HM UT	Fine grain carbide. Hardness 1680 HV. Co content 12%. Characterised by a particularly high level of toughness.
HM MG10	Fine grain carbide. Hardness 1600 HV. Co content 10%.
HM MG6	Fine grain carbide. Hardness 1800 HV. Co content 6%.
HM Plus	Ultrafine-grain carbide. Hardness 1800 HV. Co content 12%.
HM Micro	Ultrafine-grain carbide. Hardness 1680 HV. Co content 10%.
HM	Universal fine-grain carbide.

Legend to the product page

Cutting tool substrate material

CVD	Pure diamond produced by chemical vapour deposition (CVD). Characterised by optimum fracture toughness on the cutting edge and high thermal conductivity.
CBN	Cubic crystallized boron nitride (CBN). Hardness 4700 HV. Characterised by a particularly high level of abrasion resistance.
HSS PM/F	High-performance substrate material, powder metallurgically produced HSS alloys.
HSS-E Co8	High-performance high speed steel.

Legend to the product page

Form of the corner of the cutting edges



The corner between the front side blade and the circumference blade has a protective chamfer of 45°.
The size of the protective chamfer is stated for each diameter in the data table on the catalogue page.



The tool is furnished with a corner radius. For every diameter the size of the radius is listed in the corresponding data table of the catalogue.



Ball nose tool.



The corner between front cutting edge and circumferential cutting edge is executed sharp-edged.



High Feed Cutting (HFC) tool. Tool with a special cutting geometry for high feed milling.



High Feed Cutting (HFC) tool with corner radius. Tool with special cutting edge geometry for high feed machining.

Legend to the product page

Application suitability

A blue background means that the tool is particularly suitable for this material.

A light blue background means that the tool has good to adequate suitability for this material.

Chapter: Steel, stainless steel and titanium / 3D machining of steel / special shapes

Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	

Chapter: Aluminium and copper

Rm < 850			Al Aluminium > 99%	Al Aluminium Alloy	Al Aluminium Cast		Cu Copper	Plastic Thermoplast	

Additional material which can be machined is stated in the additional field

Chapter: CFC

Al Aluminium Cast	Cu Copper	CuZn Brass		C Graphite	CFK GFK I	CFK GFK II	CFK III	CFK/Al	

CFK GFK I

Group I: Fibre-reinforced technical plastics and plastic composites with fibre content up to 30%

CFK GFK II

Group II: Abrasive fibre-reinforced plastic composites with fibre content up to 60%

CFK III

Group III: Very abrasive carbon fibre-reinforced high-performance plastic composites with a fibre content of over 60%

Depending on the combination of the following influencing factors, the fibre-reinforced composite materials can be assigned to the 3 metal-cutting groups (whereby the above description serves as a simplified aid):
– Matrix (binding agent)
– Fibre type (material)
– Fibre shape (short, long, endless, fabric)
– Fibre content
– Fibre structure (orientation)
– Manufacturing process

Legend to the product page

Shape of the shank / shank versions



Full carbide tools with a cylindrical shank: shank version in accordance with DIN 6535 HA



Full carbide tools with a cylindrical shank and a side clamping surface. Shank version in accordance with DIN 6535 HB



Short shank tools: In the diameter graduation and diameter tolerance, the shank corresponds to the DIN 6535 HB standard. The section behind the clamping surface is shortened.



HSS tools with a cylindrical shank and a side clamping surface: Shank version in accordance with DIN 1835 B

NovoSys X®



Full carbide shank, cylindrical, tolerance h6
Form AA: cylindrical throughout or with neck
Form BA: cylindrical shank and conical neck

Indexable insert milling tools



shank version in accordance with DIN 1835 B



Bore receptacle with crosswise slot adherent to DIN 138

Helix angle and rake angle



Helix and rake angles are particularly important characteristics of milling tools. Due to this fact, helix angle λ and rake angle γ are specified for each tool. The exact values can vary with the tool diameter.

Crash angle α



Tools with a smaller cutting diameter than the shank diameter need specific attention during machining. A crash can surely be avoided when the limiting side surfaces are sloped with at least a minimum angle, the crash angle α, against the vertical.
The angle of collision is stated for each diameter in the data table on the catalogue page.

Legend to the product page

Abbreviations

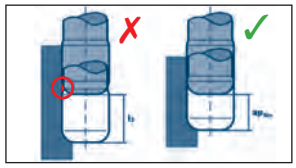
d_1	Diameter of the cutting edge [mm]
d_2	Shank diameter or bore diameter [mm]
d_3	Neck diameter or external diameter (face milling cutter) [mm]
d_4	Diameter of the neck before the neck-shank intersection [mm]
d_5	End face diameter [mm]
l_1	Total length of the tool [mm]
l_2	Length of cutting edge [mm]
l_3	Distance from the front of the tool to the end of the neck [mm]
l_5	Distance from the front of the shank to the end of the neck [mm]
l_6	Shank length [mm]
l_7	Head length [mm]
Θ	Tightening angle «Theta» between d_3 and d_4 [° - DEG]
45°	Size of the protective chamfer between the face end blade and the circumference blade [mm]
r	Corner radius [mm]
α	Collision angle «Alpha» [° - DEG]
β	Minimum setting angle «Beta» [° - DEG]
z	Number of cutting edges
$R_{theo.}$	Theoretical programming radius ($R_{theo.}$) for HFC tools [mm] See information at Tool Technology HFC
ap_{max}	Maximum axial infeed [mm]
ap_{lim}	Axial infeed [mm] limited by the application or tool geometry [mm]

Legend to the product page

Abbreviations

b	Tool height of shell end mills [mm]
φ_{max}	Maximum infeed angle
H	Height of the insert
B	Width of the insert
D	Thickness of the insert
D_1	Diameter of the indexable insert
L-Type	Version: K = short; N = normal; M = medium; L = long; XL = extra long
I	Interface: Interface parameters
	Width across flats. Please note information on installation and torque in the NovoSys X® accessories section.

AX-RV tools:



Clean transitions can be achieved with the AX-RV tools during finishing by means of several infeed depths. However, in this application the correct infeed depth is important. On the basis of the tool geometry with front radius, the limited axial infeed (ap_{lim}) is specified in the following table:

Axial infeed depth ap_{lim} for plane transition in wall for AX-RV2 and AX-RV3

d_1	l_2	Radius r	ap_{lim}	Radius r	ap_{lim}	Radius r	ap_{lim}	Radius r	ap_{lim}
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
3	4	0.5	2.5						
4	5	0.5	3.5						
5	6	0.5	4.5						
6	7	0.5	5.5	1.0	5.0	2.5	3.5		
8	9			1.0	7.0	2.5	5.5	4.0	6.0
10	11			1.0	9.0	2.5	7.5	4.0	6.0
12	13			1.0	11.0	2.5	9.5	4.0	8.0
16	18			1.0	16.0	2.5	14.5	4.0	13.0
20	22			1.0	20.0	2.5	18.5	4.0	17.0
25	27			1.0	25.0	2.5	23.5	4.0	22.0

CFC/GRP processing:

Recommended processing: Counter-rotation
– Heat is led away from the component
– Improved surface quality
– Less disintegration (mechanical damage)
– Dust is led away

Cylindrical end mill DIAMOND coated:
Roughing and finishing of CFC in one operation.



Straight cutting edge for neutral use with medium clamping quality and wall thickness.



Pulling cutting edge for normal use with good clamping and dust/chip removal.



Pushing cutting edge for use in thin materials, as the material is pressed on to the substrate.

Cylindrical end mill blank:



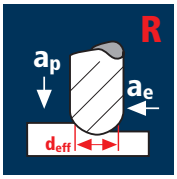
Medium tooth for CFC/GRP > 40% fibre content with pull-through cut, mainly for roughing thinner materials.

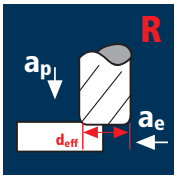


Coarse tooth for CFC/GRP < 40% fibre content with pull-through cut, mainly for roughing thicker materials.

Application notes can be found in the chapter 3D

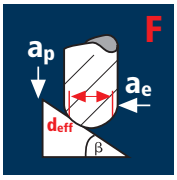
The application symbols are on the left next to the cutting data.
The red letter, top right, provides information concerning strategy in relation to the stated cutting data.

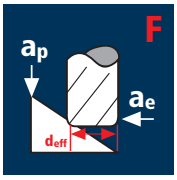




R stands for «Roughing» - a process which requires sufficient power and stability with regard to the machine and clamping.

Z-level roughing: The cutting data given in the catalogue is for layer-by-layer removal. In this case the axial machine axis is set to constant depth and does not change. Pull and push cutting are therefore not recommended!





PF stands for «Pre-Finishing»
F stands for «Finishing»
SF stands for «Super-Finishing»

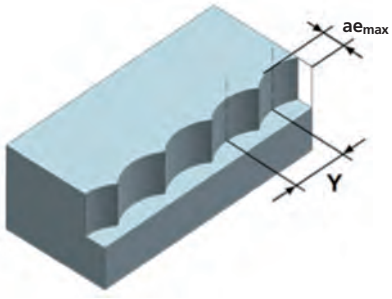
The cutting data given in the catalogue applies for removal from level surfaces and parallel with the shape of the workpiece. Pull and push cutting are permissible. Push cutting is however less than ideal and will result in a reduction in tool life.

Indexable insert milling tools:

Radial infeed depth a_e for flat surfaces with HFC indexable insert milling tools

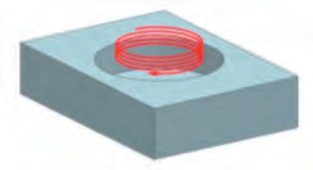
d_1	Insert size	a_e
[mm]	[mm]	[mm]
25	10	13.6
35	13	18.8
40	10	28.6
50	10	38.6
63	10	51.6
50	13	33.8
63	13	46.8
80	13	63.8

Plunge milling with HFC indexable insert milling tools



Insert size	ae_{max}	fz	Y_{max}
[mm]	[mm]	[mm]	[mm]
10	8	0.15	< 0.7 x d_1
13	10.5	0.20	< 0.7 x d_1

Bore milling/helical plunging with milling tools for HFC and round indexable inserts



Minimum and maximum bore diameters

	Indexable inserts HFC 10mm		Indexable inserts HFC 13mm	
d_1	D_{max}	D_{min}	D_{max}	D_{min}
[mm]	[mm]	[mm]	[mm]	[mm]
25	48	35	–	–
35	–	–	68	50
40	78	65	–	–
50	98	85	98	80
63	124	111	124	106
80	–	–	158	140

	Round indexable inserts 10mm		Round indexable inserts 12mm	
d_1	D_{max}	D_{min}	D_{max}	D_{min}
[mm]	[mm]	[mm]	[mm]	[mm]
20	40	24	–	–
25	50	32	–	–
32	64	46	–	–
35	70	52	70	48
40	80	62	80	58
42	84	66	84	62
50	100	82	100	78
52	104	86	104	82
63	–	–	126	104
66	–	–	132	110
80	–	–	160	138
100	–	–	200	178

Infeed angle for monoblock milling tools

Chapter: Steel, stainless steel, titanium and nickel												
Material group	Rm 850-1500			HRC 48 - 60			Inox Stainless			Ti Titanium		
Version	N	M	L	N	M	L	N	M	L	N	M	L
Feed rate vf [%]	100%			100%			80%			80%		
z = 2	2.50°	1.80°	1.00°	1.50°	1.00°	0.60°	2.50°	1.80°	1.00°	2.50°	1.80°	1.00°
z = 3	2.00°	1.20°	0.80°	1.00°	0.65°	0.40°	2.00°	1.20°	0.80°	2.00°	1.20°	0.80°
z = 4	1.00°	0.65°	0.40°	0.50°	0.35°	0.20°	1.00°	0.65°	0.40°	1.00°	0.65°	0.40°
z > 4	0.40°	0.30°	0.20°	0.20°	0.15°	0.10°	0.40°	0.30°	0.20°	0.40°	0.30°	0.20°

Chapter: 3D machining												
Material group	Rm 850-1500			HRC 48 - 60			Inox Stainless			Ti Titanium		
Version	N	M	L	N	M	L	N	M	L	N	M	L
Feed rate vf [%]	100%			100%			80%			80%		
z = 2	0.50°	0.35°	0.25°	0.25°	0.20°	0.10°	0.50°	0.35°	0.25°	0.50°	0.35°	0.25°
z = 4	0.30°	0.25°	0.15°	0.20°	0.15°	0.10°	0.30°	0.25°	0.15°	0.30°	0.25°	0.15°
z > 4	0.20°	0.15°	0.10°	0.15°	0.10°	0.10°	0.20°	0.15°	0.10°	0.20°	0.15°	0.10°
HFC	0.50°	0.35°	0.25°	0.40°	0.30°	0.20°	0.50°	0.35°	0.25°	0.50°	0.35°	0.25°

Chapter: Aluminium and copper												
Material group	Al Aluminium Alloy						Cu Copper					
Version	N	M	2xd	3xd	4xd	5xd	N	M	2xd	3xd	4xd	5xd
Feed rate vf [%]	100%						100%					
z = 2	5.00°	4.00°	6.00°	5.00°	4.00°	2.50°	4.00°	3.00°	5.00°	4.00°	3.00°	2.00°
z = 3	4.50°	3.50°	5.00°	4.50°	3.50°	2.00°	3.50°	2.50°	4.00°	3.50°	2.50°	1.50°

Infeed angle for NovoSys X® milling tools

Chapter: Steel, stainless steel and titanium												
Material group	**Rm** 850-1500			**HRC** 48 - 60			**Inox** Stainless			**Ti** Titanium		
L-Type	N	M	L	N	M	L	N	M	L	N	M	L
Feed rate vf [%]	100%			100%			80%			80%		
z = 3	1.00°	0.60°	0.40°	0.60°	0.45°	0.30°	1.00°	0.60°	0.40°	1.00°	0.60°	0.40°
z = 4	0.50°	0.40°	0.30°	0.40°	0.30°	0.20°	0.50°	0.40°	0.30°	0.50°	0.40°	0.30°
z > 4	0.30°	0.25°	0.20°	0.20°	0.15°	0.10°	0.30°	0.25°	0.20°	0.30°	0.25°	0.20°

Chapter: 3D machining												
Material group	**Rm** 850-1500			**HRC** 48 - 60			**Inox** Stainless			**Ti** Titanium		
L-Type	N	M	L	N	M	L	N	M	L	N	M	L
Feed rate vf [%]	100%			100%			80%			80%		
z = 2	0.15°	0.10°	0.10°	0.10°	0.10°	0.10°	0.15°	0.10°	0.10°	0.15°	0.10°	0.10°
z = 4	0.20°	0.15°	0.15°	0.15°	0.10°	0.10°	0.20°	0.15°	0.15°	0.20°	0.15°	0.15°
z > 4	0.15°	0.10°	0.10°	0.10°	0.10°	0.10°	0.15°	0.10°	0.10°	0.15°	0.10°	0.10°
HFC	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°	0.10°

Infeed angle for indexable insert milling tools

Material group		Rm 850-1500			HRC 48 - 60			Inox Stainless / Ti Titanium			Al Aluminium Alloy		
Version		K	M	L/XL	K	M	L/XL	K	M	L/XL	K	M	L/XL
Feed rate vf [%]		100%			100%			80%			100%		
	d_1												
Corner-/Slot end mills 8mm	16	1.00°	0.80°	0.60°	0.70°	0.55°	0.40°	1.00°	0.80°	0.60°	1.30°	1.10°	0.80°
Corner-/Slot end mills 8mm	20	0.75°	0.60°	0.45°	0.55°	0.40°	0.30°	0.75°	0.60°	0.45°	1.00°	0.80°	0.60°
Corner-/Slot end mills 8mm	25	0.75°	0.60°	0.45°	0.55°	0.40°	0.30°	0.75°	0.60°	0.45°	1.00°	0.80°	0.60°
Corner-/Slot end mills 8mm	32	0.50°	0.40°	0.30°	0.35°	0.30°	0.20°	0.50°	0.40°	0.30°	0.65°	0.50°	0.40°
Corner-/Slot end mills 13mm	25	2.00°	1.60°	1.20°	1.40°	1.10°	0.85°	2.00°	1.60°	1.20°	2.50°	2.00°	1.50°
Corner-/Slot end mills 13mm	32	1.60°	1.30°	0.95°	1.10°	0.90°	0.65°	1.60°	1.30°	0.95°	2.00°	1.60°	1.20°
Corner end mills 8mm	40 ; 50	0.20°			0.20°			0.20°			0.25°		
Corner end mills 8mm	63 ; 80	0.10°			0.10°			0.10°			0.15°		
Corner end mills 13mm	40 ; 50	0.40°			0.40°			0.40°			0.45°		
Corner end mills 13mm	63 ; 80	0.20°			0.20°			0.20°			0.25°		
Face milling cutter	40 ; 50	0.15°			X			0.15°			0.20°		
Face milling cutter	63 ; 80	0.10°			X			0.10°			0.15°		
Face milling cutter	100 ; 125	X			X			X			X		
High feed end mills	25 ; 35	0.60°	0.40°	0.20°	0.50°	0.30°	0.15°	0.60°	0.40°	0.20°	X		
High feed end mills	40 ; 50	0.40°			0.30°			0.40°			X		
High feed end mills	63 ; 80	0.20°			0.15°			0.20°			X		
Round insert end mills	20 ; 25	0.60°	0.40°	0.20°	0.50°	0.30°	0.15°	0.60°	0.40°	0.20°	0.80°	0.50°	0.25°
Round insert end mills	32 ; 35	0.60°	0.40°	0.20°	0.50°	0.30°	0.15°	0.60°	0.40°	0.20°	0.80°	0.50°	0.25°
Round insert end mills	40 ; 42	0.50°			0.40°			0.50°			0.60°		
Round insert end mills	50 ; 52	0.40°			0.30°			0.40°			0.50°		
Round insert end mills	63 ; 66	0.25°			0.20°			0.25°			0.35°		
Round insert end mills	80 ; 100	0.10°			0.10°			0.10°			0.20°		

Calculation formulas for cutting data

Formulas

d_1	Diameter of the cutting edge [mm]
z	Number of cutting edges
a_p	Axial infeed depth [mm]
a_e	Radial infeed depth [mm]
v_c	Cutting speed [m/min]
f_z	Feed per tooth and revolution [mm]
n	Spindle speed [min^{-1}]
v_f	Feed rate [mm/min]
f	Feed per rotation [mm]
Q	Material removal rate [cm^3/min]
d_{eff}	Effective engagement diameter [mm]
β	Setting angle «Beta» [° - DEG]
•	No application recommendation for the corresponding L-Type
L_A	Overall length from the spindle nose

Spindle speed

$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \left[\frac{1}{min}\right]$$

Cutting speed

$$v_c = \frac{d_1 \cdot n \cdot \pi}{1000} \left[\frac{m}{min}\right]$$

Feed rate

$$v_f = f_z \cdot z \cdot n \left[\frac{mm}{min}\right]$$

Feed per tooth

$$f_z = \frac{v_f}{z \cdot n} \left[mm\right]$$

Feed per rotation

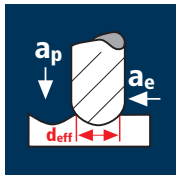
$$f = f_z \cdot z \left[mm\right]$$

Material removal rate

$$Q = \frac{ap \cdot ae \cdot v_f}{1000} \left[\frac{cm^3}{min}\right]$$

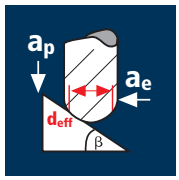
Calculation formulas for cutting data

Effective diameter for ball nose end mills at a set angle β = 0°



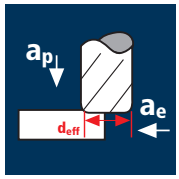
$$d_{eff} = 2 \cdot \sqrt{d_1 \cdot ap - ap^2} \quad [mm]$$

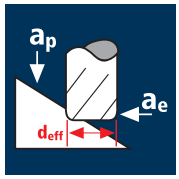
Effective diameter for ball nose end mills at a set angle 0 < β < 90°
Calculator setting in [° - DEG] ; entry of β in [°- DEG]



$$d_{eff} = d_1 \cdot \sin\left[\beta + \cos^{-1}\left(\frac{d_1 - 2 \cdot ap}{d_1}\right)\right] \quad [mm]$$

Effective diameter for corner radius end mills at a set angle 0 ≤ β < 90°
Calculator setting in [° - DEG] ; entry of β in [°- DEG]





$$d_{eff} = d_1 - 2 \cdot r + 2 \cdot r \cdot \sin\left[\beta + \cos^{-1}\left(1 - \frac{ap}{r}\right)\right] \quad [mm]$$

Calculation formulas for cutting data

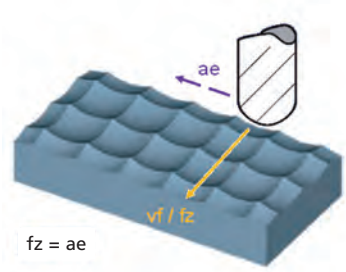
Theoretical surface roughness and surface qualities

Surface roughness in the direction of feed vf

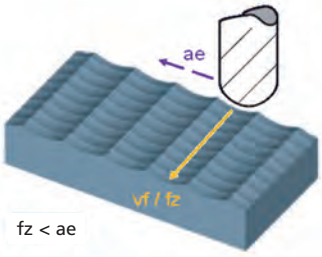
$$R_{th,vf} = \left(\frac{d_1}{2} - \sqrt{\frac{d_1^2 - f_z^2}{4}} \right) \cdot 1000 \quad [\mu m]$$

Surface roughness in the infeed direction ae

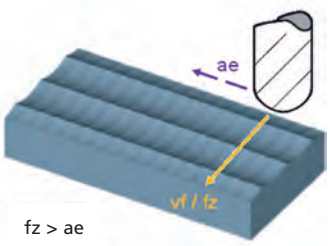
$$R_{th,ae} = \left(\frac{d_1}{2} - \sqrt{\frac{d_1^2 - ae^2}{4}} \right) \cdot 1000 \quad [\mu m]$$



fz = ae

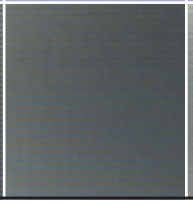
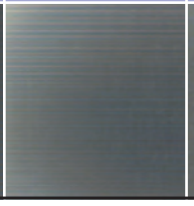
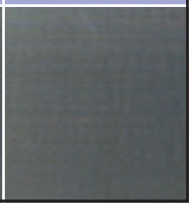


fz < ae



fz > ae

Surface qualities

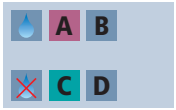
Maximum roughness values Ra in µm; 1 µm = 0.001 mm					
3.2	1.6	0.8	0.4	0.2	0.1
Roughness classes					
N8	N7	N6	N5	N4	N3
					

Hardness conversion table (R_m → HV10 → HB → HRC)

R_m [N/mm²]	HV 10	HB	HRC		R_m [N/mm²]	HV 10	HB	HRC
240	75	71			920	287	273	28
255	80	76			940	293	278	29
270	85	81			970	302	287	30
285	90	86			995	310	295	31
305	95	90			1020	317	301	32
320	100	95			1050	327	311	33
335	105	100			1080	336	319	34
350	110	105			1110	345	328	35
370	115	109			1140	355	337	36
385	120	114			1170	364	346	37
400	125	119			1200	373	354	38
415	130	124			1230	382	363	39
430	135	128			1260	392	372	40
450	140	133			1300	403	383	41
465	145	138			1330	413	393	42
480	150	143			1360	423	402	43
495	155	147			1400	434	413	44
510	160	152			1440	446	424	45
530	165	157			1480	458	435	46
545	170	162			1530	473	449	47
560	175	166			1570	484	460	48
575	180	171			1620	497	472	49
595	185	176			1680	514	488	50
610	190	181			1730	527	501	51
625	195	185			1790	544	517	52
640	200	190			1845	560	532	53
660	205	195			1910	578	549	54
675	210	199			1980	596	567	55
690	215	204			2050	615	584	56
705	220	209			2140	639	607	57
720	225	214				655	622	58
740	230	219				675		59
755	235	223				698		60
770	240	228				720		61
785	245	233				745		62
800	250	238	22			773		63
820	255	242	23			800		64
835	260	247	24			829		65
860	268	255	25			864		66
870	272	258	26			900		67
900	280	266	27			940		68

Coating suitability for milling tools

Coating suitability related to dry or wet machining conditions



A: Excellent suitability of the coating A during wet machining.
B: The suitability of the coating B during wet machining is sufficient to good.

C: Excellent suitability of the coating C during dry machining.
D: The suitability of the coating D during dry machining is sufficient to good.

Coating suitability for milling tools in the corresponding material class

1 = Ideally suited 2 = Adequate to well-suited	U UNICUT-4X		P POLYCHROM		D DURO-S		X X-AL		M MICRO		C CELERO		POLYCUT-A	
Material classes														
Steel < 500 N/mm²	1	X	1	X	X	X	1	X	1	X	1	X	1	X
Steel 500 - 850 N/mm²	1	X	1	X	X	X	1	X	1	X	X	X	1	X
Steel 850 - 1100 N/mm²	1	X	1	1	X	X	1	1	1	X	X	X	1	1
Steel 1100 - 1300 N/mm²	2	2	2	1	X	X	2	1	1	X	X	X	2	1
Steel 1300 - 1500 N/mm²	2	2	2	1	X	2	2	1	2	1	X	X	2	1
Hardened tool steel 48-52 HRC	X	2	X	1	X	2	X	1	X	1	X	X	X	1
Hardened tool steel 52-56 HRC	X	X	X	1	X	1	X	1	X	1	X	X	X	1
Hardened tool steel 56-60 HRC	X	X	X	1	X	1	X	1	X	1	X	X	X	1
Hardened tool steel >60 HRC	X	X	X	2	X	1	X	1	X	X	X	X	X	2
Cold work tool steel (12% Cr) high alloyed [1.2379]	2	2	2	1	X	1	2	1	X	X	X	X	2	1
Cold work tool steel, low alloyed [1.2067]	2	2	2	1	X	1	2	1	X	X	X	X	2	1
Stainless steel ferritic/martensitic	1	X	1	X	X	X	1	X	1	X	X	X	1	X
Stainless steel [Cr-Ni/1.4301]	1	X	1	X	X	X	1	X	1	X	2	X	1	X
Stainless steel [Cr-Ni-Mo-.../1.4571]	1	X	1	X	X	X	1	X	1	X	X	X	1	X
Heat resistant steel [17-4 PH]	1	X	1	X	X	X	2	X	1	X	X	X	1	X
Nickel base alloys prec.-hard. [Inconel 718]	1	X	1	X	X	X	2	X	1	X	X	X	1	X
Cast iron (lamellar / spheroidal)	2	2	2	1	X	1	2	1	2	1	X	X	2	1
Titanium alloys up to 300 HB [Ti5Al2.5Sn]	1	X	1	X	2	X	2	X	1	X	2	X	1	X
Titanium alloy > 300 HB [Ti6Al4V]	1	X	1	X	1	X	2	X	1	X	X	X	1	X
Unalloyed aluminium	X	X	X	X	X	X	X	X	X	X	1	X	X	X
Wrought aluminium Si <6%	2	X	2	X	X	X	X	X	1	X	1	X	2	X
Unalloyed copper	2	X	2	X	X	X	2	X	1	X	1	X	2	X
Wrought copper alloys Bronze	2	2	2	1	X	2	2	1	2	1	X	X	2	1
Brass short chips [Ms58]	2	2	2	1	X	2	2	1	2	1	X	X	2	1
Thermoplastics	2	X	2	X	X	X	X	X	2	X	2	X	2	X
High speed steel hardened	X	X	X	X	X	1	X	X	X	X	X	X	X	X

General conditions

1. General

1.1 The contract is concluded with the written confirmation (Order confirmation) of Fraisa SA or its subsidiaries (hereinafter known in short as «supplier») that it accepts the order.

1.2 Any deviation from the order in the order confirmation forms part of the contract, unless the purchaser rejects it in writing within 5 working days from the receipt date of the order confirmation. Quotations, particularly those involving price lists, brochures, etc., which contain no acceptance dates, are non-binding.

1.3 These delivery conditions shall be binding if they are declared as applicable in the quotation or order confirmation. Other conditions of the purchaser are only applicable if they have been expressly accepted by the supplier and this acceptance is in writing.

1.4 All agreements and legally relevant declarations of the parties need to be made in writing in order to be applicable.

1.5 If any provision of these delivery conditions should prove wholly or partially ineffective, the parties shall replace this provision with a new agreement which comes as close to the intended legal and economic outcome as possible.

2. Scope of the delivery and services

The supplier's deliveries and services are itemised in the order confirmation, including any appendices to it. The supplier is authorised to make changes that lead to improvements, where these do not increase the price.

3. Brochures, catalogues and technical documents

Brochures and catalogues are not binding without other agreements. Information contained in technical documents is only binding if it is explicitly assured.

4. Prices

4.1 All prices are - in the absence of any agreement - net prices, ex works, excluding packaging, in freely available Swiss Francs or the local currency of the subsidiaries, without any deductions.

4.2 All additional costs, e.g. for freight, insurance, export, import and other permits and certifications, shall be borne by the purchaser.

4.3 Likewise, the purchaser shall bear all taxes (especially VAT), levies, fees, duties (and the like) that are imposed in connection with the contract, or reimburse the supplier for them against corresponding proof, if the supplier has to pay for them.

5. Payment terms

5.1 The payments are to be made by the purchaser in accordance with agreed payment terms at the location of the supplier's office without the deduction of discounts, expenses, taxes, duties, fees, duties (and the like). The obligation to make payment is fulfilled, when at the location of the supplier's office, the arranged amount have been made freely available to the supplier. The payment deadline is 30 days from the invoice date.

5.2 The payment deadline and/or the separately agreed payment deadlines must be met even if the transport, delivery or acceptance of the delivery is delayed or prevented for reasons for which the supplier is not responsible, if non-essential items are missing from the delivery, or if subsequent machining is necessary which does not make usage of the delivery impossible.

5.3 If the purchaser does not make payment by the payment deadline and/or the separately agreed payment deadline, he must, without notice, pay interest from the date the invoice is due at an interest rate based on the rate where the purchaser has his office, however at least 4% above the discount rate of the Swiss National Bank. The right to claim further damages is reserved.

6. Retention of title

6.1 The supplier shall retain ownership of all parts of the delivery until he has received the payments in accordance with the contract.

6.2 The purchaser is obliged to participate in measures which are necessary for the protection of the supplier's property; in particular, at the expense of the purchaser, he authorizes the supplier to register or enter the title in public records, books and the like according to the relevant national laws and to comply with all relevant formalities.

6.3 The purchaser shall maintain the delivered goods at his cost for the duration of retention of title and insure them on behalf of the supplier against theft, breakage, fire, water and other risks. He shall further take all measures to ensure that the supplier's property claim is in no way compromised nor cancelled.

7. Delivery deadline

7.1 The supplier shall strive to meet the delivery deadline which is recorded in the order confirmation. The delivery deadline is met if the «ready for despatch» message is sent to the purchaser by its expiry.

7.2 The meeting of the delivery deadline presupposes full compliance with the contractual obligations by the purchaser.

7.3 The delivery deadline shall be extended by an appropriate period if hindrances occur which, despite due care, the supplier cannot avert, regardless of whether they originate from him, the purchaser or a third party. Such hindrances include epidemics, mobilisation, war, riots, major breakdowns, accidents, labour disputes, delayed delivery or mistakes in the delivery of the necessary raw materials and semi-finished products, governmental actions or omissions, and natural events.

7.4 If a specific date is agreed upon instead of a delivery deadline, this is equivalent to the last day of a delivery deadline. Points 7.1 to 7.3 apply analogously.

7.5 In the case of delay, the purchaser is not entitled to compensation or other benefits, except for the agreement cited in point 7 or an agreement stipulated in a separate agreement. This restriction does not apply to unlawful intent or gross negligence on the part of the supplier.

8. Return of goods

For commercial product returns up to CHF 1,000.00, it is necessary for us to charge a reduction of 10% of the value of the goods, however at least CHF 30.00 for checking costs incurred by us. In the case of higher return values, prior consent from FRAISA SA is required. Custom designs and products with special labeling may not be returned.

9. Packaging

Packaging is separately charged by the supplier and cannot be returned.

10. Transfer of benefits and risks

10.1 At the latest, benefits and risks are passed to the purchaser when the delivery leaves the factory.

10.2 If the shipment is delayed at the request of the purchaser or for other reasons which the supplier is not responsible for, the risk is passed to the purchaser for the originally scheduled date of delivery from the factory. From this point on, the supplied products are stored and insured at the purchaser's expense and risk.

11. Shipping, transportation and insurance

11.1 The supplier must be informed of special requests concerning shipping, transportation and insurance in good time. Transportation takes place at the purchaser's expense and risk.

11.2 Complaints relating to the shipping or transportation should be addressed to the last carrier by the purchaser without delay upon receipt of the delivery or the shipping documents.

11.3 Insurance against all kinds of damage is the responsibility of the purchaser.

12. Checking and acceptance of the delivery

12.1 The purchaser must check the delivery upon receipt within 8 days and notify the supplier of any defects within the same period in writing. Failing this, the supply shall be deemed approved.

12.2 The supplier shall resolve the defects which are notified to him in accordance with point 12.1 as quickly as possible, or - at his option - replace defective goods.

12.3 In the case of defects of any sort relating to the delivery, the purchaser has no rights or rights to make claims other than those specifically mentioned in points 12 and 13 (warranty, liability for defects).

13. Warranty, liability for defects

13.1 The warranty period is 6 months. It begins with the date the delivery leaves the factory. In the case of replaced or repaired products, the warranty period starts afresh and shall last for 6 months from the date the replacement goods are shipped from the supplier. The guarantee expires prematurely if the purchaser or a third party undertakes inappropriate modifications or repairs or if the purchaser, when a fault has occurred, does not immediately take all appropriate measures to mitigate the damage and does not give the supplier the opportunity to resolve the defect.

13.2 Damage is excluded from the warranty and the supplier's liability which has arisen in circumstances which cannot be proven to be due to poor materials, faulty design or poor workmanship, e.g. natural wear, improper maintenance, failure to follow operating instructions, excessive strain, unsuitable equipment, chemical or electrolytic influences as well as other reasons that the supplier cannot be held responsible for.

13.3 The purchaser shall only be entitled to the replacement or repair of defective goods. The purchaser is not entitled to further claims, especially for compensation for damage or consequential damage. In no case can claims be considered by the purchaser for compensation for damage which is not caused to the object itself, e.g. loss of production, inability to use the goods, loss of contracts, loss of profit and other direct or indirect damage. This disclaimer does not apply to unlawful intent or gross negligence on the part of the supplier. Moreover, this disclaimer does not apply in so far as any mandatory provisions oppose it.

14. Place of jurisdiction and applicable law

14.1 The place of jurisdiction for the purchaser and the supplier is the place where the supplier has its head office. The supplier is entitled to take out legal action against the purchaser at its place of residence.

14.2 The contract shall be exclusively governed by the national commercial law which applies in the supplier's country. The provisions of the CISG do not apply.

Distribution network

Sales and service locations

Fraisa SA
Gurzelenstrasse 7
4512 Bellach
Fon: +41 (0)32 617 42 42
Fax: +41 (0)32 617 42 41
mail.ch@fraisa.com
www.fraisa.com

Fraisa GmbH
Hanns-Martin-Schleyer-Str. 15b
D-47877 Willich
Fon: +49 2154 489 84-0
Fax: +49 2154 489 84-33
info@fraisa.de
www.fraisa.de

Fraisa Sarl.
7, Rue de Lombardie
F-69150 Décines
Fon: +33 4 721 45 700
Fax: +33 4 723 73 490
fraisa@fraisa.fr
www.fraisa.fr

Fraisa Italia s.r.l.
Via Grosio 10/8
I-20151 Milano
Fon: +39 02 334 06 086
Fax: +39 02 334 06 055
mail.it@fraisa.com
www.fraisa.it

Fraisa Hungária Kft.
Vásárhelyi Pál u. 3
H-3950 Sárospatak
Fon: +36 47 511 217
Fax: +36 47 511 215
mail.hu@fraisa.com
www.fraisa.hu

Fraisa USA Inc.
711 5th St SW
USA-New Brighton MN 55112
Fon: +1 651 636 8488
Fax: +1 651 636 8588
info@fraisausa.com
www.fraisausa.com

Och GmbH
Fischbacher Hauptstrasse 156
D-90475 Nürnberg
Fon: +49 911 833 07-0
Fax: +49 911 833 07-10
info@och.de
www.och.de



(●) and 70 associated companies.
To find your contact refer to **www.fraisa.com.**


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Article list

Example : Article P5327

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Article-N°.		Coating									
INDEX		without	P POLYCHROM	U UNICUT-4X	D DURO-S	X X-AL	M MICRO	C CELERO	T TRIBO	B DIAMANT	B DIAPLUS
Chemical composition			TiAlCrN	TiAlCN	AlTiN	TiAlN/ AlCrN	TiAlN	TiB2	AlTiN + MoS2	C	C
Hardness [HV]			3000	3200	3600	3300	3000	4000	3600	10000	10000
Max. temp. [°C]			1000	650	880	1100	800	700	880	600	600
_ 0110	65			●							
_ 0115	69			●							
_ 0190	103			●							
_ 0200	123			●							
_ 0270	125			●							
_ 0391	561							●			
_ 0393	567							●			
_ 0400	297			●							
_ 0410	301			●							
_ 0540	185		●								
_ 0580	93			●							
_ 0609	191			●							
_ 0610	187			●							
_ 0619	183			●							
_ 0621	217			●							
_ 0640	211			●							
_ 0650	201			●							
_ 0659	199			●							
_ 0665	215			●							
_ 0695	193			●							
_ 0700	141			●							
_ 0770	75			●							
_ 0780	71			●							
_ 0800	379			●							
_ 0830	377			●							
_ 0890	699			●							
_ 0905	695			●							
_ 0910	693			●							
_ 0915	691			●							
_ 0920	689			●							
_ 3209	711			●							
_ 3490	709			●							
_ 5026	137								●		
_ 5036	137		●						●		
_ 5100	353				●						
_ 5140	355				●						
_ 5173	195		●								
_ 5174	203		●								

Article-N°.		Coating									
INDEX		without	P	U	D	X	M	C	T	B	B
			POLYCHROM	UNICUT-4X	DURO-S	X-AL	MICRO	CELERO	TRIBO	DIAMANT	DIAPLUS
_ 5176	209		●								
_ 5200	55		●								
_ 5213	135		●								
_ 5214	33		●								
_ 5215	91		●								
_ 5218	89		●								
_ 5219	113		●								
_ 5220	359		●								
_ 5222	369		●								
_ 5225	77		●								
_ 5227	21		●								
_ 5229	131		●								
_ 5230	49	●	●								
_ 5231	53		●								
_ 5234	163		●								
_ 5236	285								●		
_ 5237	303								●		
_ 5240	45		●								
_ 5244	87				●						
_ 5245	403		●								
_ 5246	405		●								
_ 5248	85		●		●						
_ 5249	133		●		●						
_ 5250	401		●								
_ 5251	111		●		●						
_ 5252	413		●								
_ 5253	393		●		●						
_ 5254	395				●						
_ 5255	47		●						●		
_ 5256	397				●						
_ 5257	411		●		●						
_ 5258	31		●		●						
_ 5259	153		●		●						
_ 5260	223		●								
_ 5265	231		●								
_ 5266	221				●						
_ 5267	399				●						
_ 5268	235		●								
_ 5271	553	●									
_ 5272	519							●			
_ 5275	551	●						●			
_ 5276	555	●						●			
_ 5277	557	●						●			
_ 5279	171		●								
_ 5286	357		●								
_ 5288	367		●								
_ 5289	375		●								
_ 5290	363	●						●			
_ 5292	373			●							
_ 5297	559							●			
_ 5300	55		●								
_ 5313	135		●								
_ 5314	33		●								
_ 5315	91		●								
_ 5318	89		●								
_ 5319	113		●								
_ 5325	77		●								
_ 5327	21		●								
_ 5329	131		●								
_ 5330	49	●	●								
_ 5331	53		●								
_ 5332	101	●	●								
_ 5333	119	●	●								
_ 5334	163		●								
_ 5335	289		●						●		

Article-N°.		Coating									
INDEX		without	P	U	D	X	M	C	T	B	B
			POLYCHROM	UNICUT-4X	DURO-S	X-AL	MICRO	CELERO	TRIBO	DIAMANT	DIAPLUS
_ 5336	285	●	●						●		
_ 5337	303		●						●		
_ 5338	305		●						●		
_ 5339	287		●						●		
_ 5340	45		●								
_ 5344	87				●						
_ 5345	403		●								
_ 5346	405		●								
_ 5348	85		●		●						
_ 5349	133		●		●						
_ 5351	111		●		●						
_ 5353	393		●		●						
_ 5354	395				●						
_ 5355	47		●						●		
_ 5356	397				●						
_ 5357	411		●		●						
_ 5358	31		●		●						
_ 5359	153		●		●						
_ 5360	223		●								
_ 5366	221				●						
_ 5367	399				●						
_ 5379	171		●								
_ 5393	127		●								
_ 5397	559							●			
_ 5400	139		●								
_ 5500	519							●			
_ 5630	643									●	
_ 5640	645									●	
_ 5645	647									●	
_ 5650	649									●	
_ 5710	253	●									
_ 5712	249						●				
_ 5712	625									●	
_ 5714	263						●				
_ 5714	627									●	
_ 5716	269						●				
_ 5716	629									●	
_ 5717	273						●				
_ 5717	631									●	
_ 5721	275						●				
_ 5722	251				●						
_ 5723	277						●				
_ 5724	265				●						
_ 5726	271				●						
_ 5752	495						●				
_ 5752	619									●	
_ 5754	499						●				
_ 5754	621									●	
_ 5756	503						●				
_ 5756	623									●	
_ 5762	497				●						
_ 5764	501				●						
_ 5766	505				●						
_ 5782	455						●				
_ 5782	595									●	
_ 5784	461						●				
_ 5784	597									●	
_ 5785	459	●									
_ 5786	465						●				
_ 5786	599									●	
_ 5787	469						●				
_ 5787	601									●	
_ 5788	477						●				
_ 5791	471						●				
_ 5791	603									●	

Article-N°.		Coating									
INDEX		without	P	U	D	X	M	C	T	B	B
			POLYCHROM	UNICUT-4X	DURO-S	X-AL	MICRO	CELERO	TRIBO	DIAMANT	DIAPLUS
_ 5792	457				●						
_ 5793	473						●				
_ 5793	605									●	
_ 5794	463				●						
_ 5796	467				●						
_ 6032	609										●
_ 6034	611										●
_ 6036	613										●
_ 6038	615										●
_ 6040	617										●
_ 6062	585										●
_ 6064	587										●
_ 6066	589										●
_ 6068	591										●
_ 6070	593										●
_ 6502	237					●					
_ 6504	239					●					
_ 6506	241					●					
_ 6532	479					●					
_ 6534	481					●					
_ 6536	483					●					
_ 6562	437					●					
_ 6564	439					●					
_ 6566	441					●					
_ 6568	443					●					
_ 6736	485					●					
_ 6738	487					●					
_ 6740	489					●					
_ 6742	491					●					
_ 6766	445					●					
_ 6768	447					●					
_ 6770	449					●					
_ 6772	451					●					
_ 7100	381					●					
_ 7104	387					●					
_ 7200	385					●					
_ 7204	391					●					
_ 7284	639										●
_ 7288	641										●
_ 7340	407		●								
_ 7344	415		●								
_ 7400	333					●					
_ 7404	339					●					
_ 7408	345					●					
_ 7420	331					●					
_ 7424	337					●					
_ 7428	343					●					
_ 7450	347					●					
_ 7454	349					●					
_ 7458	351					●					
_ 7460	335					●					
_ 7464	341					●					
_ 7480	633										●
_ 7484	635										●
_ 7488	637										●
_ 7540	361		●								
_ 7544	371		●								
_ 7600	419					●					
_ 7604	423					●					
_ 7608	427					●					
_ 7620	421					●					
_ 7624	425					●					
_ 7658	429					●					
_ 7920	687			●							
_ 7930	701			●							

Article-N°.		Coating									
INDEX		without	P	U	D	X	M	C	T	B	B
			POLYCHROM	UNICUT-4X	DURO-S	X-AL	MICRO	CELERO	TRIBO	DIAMANT	DIAPLUS
_ 7940	703			●							
_ 7942	705			●							
_ 7960	707			●							
_ 8700	35		●								
_ 8705	37		●								
_ 8720	159		●								
_ 8800	35		●								
_ 8805	37		●								
_ 8820	159		●								
_ 15200	27		●								
_ 15202	81		●								
_ 15205	25		●								
_ 15207	43		●								
_ 15208	97		●								
_ 15212	157		●								
_ 15222	29		●								
_ 15223	95		●								
_ 15225	105		●								
_ 15226	145		●								
_ 15227	23		●								
_ 15232	281	●	●						●		
_ 15233	39		●								
_ 15234	41		●								
_ 15236	179		●								
_ 15238	197		●								
_ 15239	207		●								
_ 15242	83		●								
_ 15243	99		●								
_ 15245	121		●								
_ 15247	129		●								
_ 15248	213		●								
_ 15250	219		●								
_ 15251	227		●								
_ 15252	79		●								
_ 15253	107		●								
_ 15257	155		●								
_ 15259	109		●								
_ 15266	229		●								
_ 15268	149		●								
_ 15277	569	●						●			
_ 15294	117		●								
_ 15297	563							●			
_ 15298	565							●			
_ 15299	115		●								
_ 15300	27		●								
_ 15302	81		●								
_ 15304	205		●								
_ 15305	25		●								
_ 15307	43		●								
_ 15308	97		●								
_ 15309	177		●								
_ 15312	157		●								
_ 15322	29		●								
_ 15323	95		●								
_ 15325	105		●								
_ 15326	145		●								
_ 15327	23		●								
_ 15331	175		●								
_ 15333	39		●								
_ 15334	41		●								
_ 15336	179		●								
_ 15338	197		●								
_ 15339	207		●								
_ 15342	83		●								
_ 15343	99		●								

Article-N°.		Coating									
INDEX		without	P	U	D	X	M	C	T	B	B
			POLYCHROM	UNICUT-4X	DURO-S	X-AL	MICRO	CELERO	TRIBO	DIAMANT	DIAPLUS
_ 15345	121		●								
_ 15347	129		●								
_ 15348	213		●								
_ 15352	79		●								
_ 15353	107		●								
_ 15357	155		●								
_ 15359	109		●								
_ 15366	229		●								
_ 15368	149		●								
_ 15377	569	●						●			
_ 15379	173		●								
_ 15394	117		●								
_ 15397	563							●			
_ 15398	565							●			
_ 15399	115		●								
_ 15520	511	●						●			
_ 15525	513	●						●			
_ 15530	515	●						●			
_ 15535	517	●						●			
_ 15550	521	●						●			
_ 15557	523	●						●			
_ 15559	527	●						●			
_ 15560	525	●						●			
_ 15561	529	●						●			
_ 15572	531	●						●			
_ 15573	533	●						●			
_ 15574	537	●						●			
_ 15575	539	●						●			
_ 15582	541	●						●			
_ 15583	543	●						●			
_ 15584	547	●						●			
_ 15585	549	●						●			
_ 15620	511	●						●			
_ 15625	513	●						●			
_ 15630	515	●						●			
_ 15635	517	●						●			
_ 15650	521	●						●			
_ 15657	523	●						●			
_ 15659	527	●						●			
_ 15660	525	●						●			
_ 15661	529	●						●			
_ 15711	243				●						
_ 15725	279						●				
_ 15751	493				●						
_ 15752	261						●				
_ 15754	267						●				
_ 15781	453				●						
_ 15795	475						●				
_ 15795	607									●	
_ 20020	661									●	
_ 20025	663									●	
_ 20030	665									●	
_ 20040	669	●									
_ 20060	667	●									
_ 20340	673	●									
_ 20360	671	●									
_ 20760	681	●									
_ 25000	655	●									
_ 25004	657	●									
_ 25010	659	●									
_ 25404	675	●									
_ 25700	679	●									
_ 25704	677	●									
_ 31410	435	●									
_ 31420	433	●									

Article-N°.		Coating									
INDEX		without	P POLYCHROM	U UNICUT-4X	D DURO-S	X X-AL	M MICRO	C CELERO	T TRIBO	B DIAMANT	B DIAPLUS
_ 31700	431	●									
_ 45217	57		●								
_ 45219	165		●								
_ 45298	365			●							
_ 45317	57		●								
_ 45319	165		●								
_ 45330	63			●							
_ 45333	61		●								
_ 45335	295			●							
_ 45336	291			●							
_ 45339	293			●							
_ 45340	59			●							
_ 45360	225			●							
_ 45362	233			●							
_ 45371	181			●							
_ 45709	245	●					●				
_ 45710	253						●				
_ 45713	257	●					●				
_ 45785	459						●				

Notes

Notes

