



Carbide drills Thread cutting tools

a passion for precision





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a passion for precision





Hole-making made easy and efficient

It gives us great pleasure to present for the first time, our drilling and thread cutting tools in a single combined catalogue with emphasis on a clear and simple layout.

As always, recommended cutting data is included. During extensive testing, our ToolSchool optimised the cutting data, enabling you to produce holes and threads safely and highly efficiently with the aid of Fraisa tools.

High-performance Carbide drills

The comprehensive programme of the successful XDrill®, Supradrill and Favora® lines now also contains an extensive programme of drilling tools for working with fibre-reinforced plastics (CFC).

The Microdrill line has been expanded to include tools with integrated cooling channels and dimensions from Ø 0.1 mm.

Catalogue pages 7-152

Precision HSS and Carbide taps

The production of internal screw threads using taps is a delicate process – not least because it represents one of the final manufacturing operations and the component will already have a high value. It makes the issue of process security all the more important. Choosing the right tool ensures production reliability. Thanks to the coding system developed by Fraisa, the possibility of tool mix-ups is a thing of the past.

Catalogue pages 155-363

High-performance HSS and Carbide cold forming taps (roll taps)

Thread forming is a highly efficient method of producing internal threads without cutting, thereby increasing process reliability. Fraisa offers an extensive range of thread formers for use in aluminium alloys and steel materials. We recommend you investigate this alternative to thread cutting tools – especially when it concerns high volume manufacture of threaded holes.

Catalogue pages 364-393

Precision Carbide thread milling tools

Today's modern CNC machines with 3 axis simultaneous movement enable us to use thread milling tools for the manufacture of internal and external threads. The process of thread milling offers increased reliability due to the production of short chips, the ability to adjust size / tolerance and machine a full thread to the bottom of a hole. Fraisa's greatly expanded range encompasses thread milling tools, combination drill / thread milling tools and now also thread whirling tools made from carbide.

Catalogue pages 394-435



All-inclusive service

Service

Each tool can be reconditioned several times during its lifetime and it is important that the tool performs the same as a new tool afterwards. Fraisa's Tool-Service guarantees that reconditioning accurately returns the tool to its original condition. In the course of it, the geometry, cutting edge and coating are accurately reproduced, enabling the tool to be reused to its full potential.

Catalogue pages 451-487

E-Shop - 24 hrs online with Fraisa

Open since mid 2011 and already apparently indispensable: The Fraisa Webshop has rapidly established itself with our customers. It's hardly surprising since the database is a sophisticated online version of the tried and tested Fraisa catalogues. All tool information and cutting data are provided in a clearly laid-out format. First and foremost, the E-Shop allows Fraisa products to be ordered at the click of a mouse 24/7. Your order is delivered direct to your address the following day, thanks to the modern Fraisa logistics organisation.



Fraisa benefits in a nutshell

- State-of-the-art technology
- Finest quality tools with a money-back guarantee
- Excellent availability from stock
- Unrivalled price/performance ratio
- Service and advice on-site

Replaces edition



www.fraisa.com

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Drilling tools for steel, aluminium, stainless steel and titanium

Spiral flute drills

I

5xd

N° B72015



X-Generation	X	HM MGX		Rm <1500			11
Base-X	B	HM MG10		Rm <1100	Inox Stainless		27
Base-X	B	HM MG10		Rm <1100			45
Favora [®]	F	HM		Rm <1100	Inox Stainless		55

N° B52015 / B53015



N° B52014 / B53014



N° BU42015 / BU43015



3xd

N° B72011



N° B52111 / B53111



N° B52011 / B53011



N° B52010 / B53010



X-Generation	X	HM MGX		Rm <1500			65
X-Generation	X	HM XA		HRC 48 - >60			75
Base-X	B	HM MG10		Rm <1100	Inox Stainless		81
Base-X	B	HM MG10		Rm <1100			85

8xd

N° B72020



N° B52020 / B53020



X-Generation	X	HM MGX		Rm <1300			95
Base-X	B	HM MG10		Rm <1100			105

Drilling tools for steel, aluminium, stainless steel and titanium

Deep hole drills

15xd							
N° B52915		Base-X B	HM MGD ²		Rm <1100		109
20xd							
N° B52920		Base-X B	HM MGD ²		Rm <1100		111
25xd							
N° B52925		Base-X B	HM MGD ²		Rm <1100		113
30xd							
N° B52930		Base-X B	HM MGD ²		Rm <1100		115

Drilling tools for steel, aluminium, stainless steel and titanium

Micro drills



5xd							
N° B57014		X-Generation X	HM MG10		Rm <1100		117
N° B57015 new!		X-Generation X	HM MG10		Rm <1100	Inox Stainless	123

8xd							
N° B57020 new!		X-Generation X	HM MG10		Rm <1100		125

Step drills

3xd, for core drill sizes for taps							
N° B52801		Base-X B	HM		Rm <1100		127

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	180	0.135	21.5	19100	2580	18.0	0.5
3.30	180	0.145	21.1	17360	2515	21.5	0.5
3.50	180	0.155	20.8	16370	2535	24.5	0.5
3.80	180	0.170	30.3	15080	2565	29.0	0.7
4.00	180	0.185	30.0	14325	2650	33.5	0.7
4.20	180	0.200	29.7	13640	2730	38.0	0.7
4.50	180	0.230	29.3	12730	2930	46.5	0.6
4.80	180	0.245	36.8	11935	2925	53.0	0.8
5.00	180	0.255	36.5	11460	2920	57.5	0.8
3.00	160	0.115	21.5	16975	1950	14.0	0.7
3.30	160	0.125	21.1	15435	1930	16.5	0.7
3.50	160	0.135	20.8	14550	1965	19.0	0.6
3.80	160	0.145	30.3	13405	1945	22.0	0.9
4.00	160	0.160	30.0	12730	2035	25.5	0.9
4.20	160	0.170	29.7	12125	2060	28.5	0.9
4.50	160	0.195	29.3	11320	2205	35.0	0.8
4.80	160	0.210	36.8	10610	2230	40.5	1.0
5.00	160	0.215	36.5	10185	2190	43.0	1.0
3.00	140	0.105	21.5	14855	1560	11.0	0.8
3.30	140	0.115	21.1	13505	1555	13.5	0.8
3.50	140	0.125	20.8	12730	1590	15.5	0.8
3.80	140	0.135	30.3	11725	1585	18.0	1.1
4.00	140	0.145	30.0	11140	1615	20.5	1.1
4.20	140	0.155	29.7	10610	1645	23.0	1.1
4.50	140	0.180	29.3	9905	1785	28.5	1.0
4.80	140	0.190	36.8	9285	1765	32.0	1.3
5.00	140	0.200	36.5	8915	1785	35.0	1.2
3.00	100	0.080	21.5	10610	850	6.0	1.5
3.30	100	0.090	21.1	9645	870	7.5	1.5
3.50	100	0.095	20.8	9095	865	8.5	1.4
3.80	100	0.100	30.3	8375	840	9.5	2.2
4.00	100	0.110	30.0	7960	875	11.0	2.1
4.20	100	0.120	29.7	7580	910	12.5	2.0
4.50	100	0.135	29.3	7075	955	15.0	1.8
4.80	100	0.145	36.8	6630	960	17.5	2.3
5.00	100	0.150	36.5	6365	955	19.0	2.3

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]
Stainless steel
[Cr-Ni/1.4301]

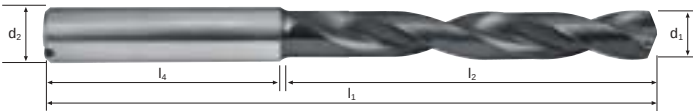
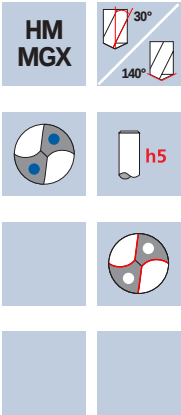
Titanium alloys
>300 HB
[Ti6Al4V]

Cast iron
(lamellar / spheroidal)

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	55	0.060	21.5	5835	350	2.5	3.7
3.30	55	0.070	21.1	5305	370	3.0	3.4
3.50	55	0.070	20.8	5000	350	3.5	3.6
3.80	55	0.080	30.3	4605	370	4.0	4.9
4.00	55	0.085	30.0	4375	370	4.5	4.9
4.20	55	0.090	29.7	4170	375	5.0	4.8
4.50	55	0.105	29.3	3890	410	6.5	4.3
4.80	55	0.110	36.8	3645	400	7.0	5.5
5.00	55	0.115	36.5	3500	405	8.0	5.4
3.00	70	0.060	21.5	7425	445	3.0	2.9
3.30	70	0.070	21.1	6750	475	4.0	2.7
3.50	70	0.070	20.8	6365	445	4.5	2.8
3.80	70	0.080	30.3	5865	470	5.5	3.9
4.00	70	0.085	30.0	5570	475	6.0	3.8
4.20	70	0.090	29.7	5305	475	6.5	3.8
4.50	70	0.105	29.3	4950	520	8.5	3.4
4.80	70	0.110	36.8	4640	510	9.0	4.3
5.00	70	0.115	36.5	4455	510	10.0	4.3
3.00	40	0.060	21.5	4245	255	2.0	5.1
3.30	40	0.070	21.1	3860	270	2.5	4.7
3.50	40	0.070	20.8	3640	255	2.5	4.9
3.80	40	0.080	30.3	3350	270	3.0	6.7
4.00	40	0.085	30.0	3185	270	3.5	6.7
4.20	40	0.090	29.7	3030	275	4.0	6.5
4.50	40	0.105	29.3	2830	295	4.5	6.0
4.80	40	0.110	36.8	2655	290	5.0	7.6
5.00	40	0.115	36.5	2545	295	6.0	7.4
3.00	240	0.120	21.5	25465	3055	21.5	0.4
3.30	240	0.135	21.1	23150	3125	26.5	0.4
3.50	240	0.140	20.8	21825	3055	29.5	0.4
3.80	240	0.155	30.3	20105	3115	35.5	0.6
4.00	240	0.165	30.0	19100	3150	39.5	0.6
4.20	240	0.180	29.7	18190	3275	45.5	0.5
4.50	240	0.205	29.3	16975	3480	55.5	0.5
4.80	240	0.220	36.8	15915	3500	63.5	0.6
5.00	240	0.230	36.5	15280	3515	69.0	0.6

Spiral flute drills XDrill®

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .0300							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0300	3.0	6	66	28	36	●	
.0310	3.1	6	66	28	36	●	
.0320	3.2	6	66	28	36	●	
.0330	3.3	6	66	28	36	●	
.0340	3.4	6	66	28	36	●	
.0350	3.5	6	66	28	36	●	
.0360	3.6	6	66	28	36	●	
.0370	3.7	6	66	28	36	●	
.0380	3.8	6	74	36	36	●	
.0390	3.9	6	74	36	36	●	
.0400	4.0	6	74	36	36	●	
.0410	4.1	6	74	36	36	●	
.0420	4.2	6	74	36	36	●	
.0430	4.3	6	74	36	36	●	
.0440	4.4	6	74	36	36	●	
.0450	4.5	6	74	36	36	●	
.0460	4.6	6	74	36	36	●	
.0470	4.7	6	74	36	36	●	
.0480	4.8	6	82	44	36	●	
.0490	4.9	6	82	44	36	●	
.0500	5.0	6	82	44	36	●	
.0510	5.1	6	82	44	36	●	
.0520	5.2	6	82	44	36	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
5.50	180	0.280	35.8	10415	2915	69.5	0.7
5.80	180	0.295	35.3	9880	2915	77.0	0.7
6.00	180	0.315	35.0	9550	3010	85.0	0.7
6.20	180	0.335	43.7	9240	3095	93.5	0.8
6.50	180	0.350	43.3	8815	3085	102.5	0.8
6.80	180	0.365	42.8	8425	3075	111.5	0.8
7.00	180	0.380	42.5	8185	3110	119.5	0.8
7.20	180	0.390	42.2	7960	3105	126.5	0.8
7.50	180	0.405	41.8	7640	3095	136.5	0.8

5.50	160	0.240	35.8	9260	2220	52.5	1.0
5.80	160	0.250	35.3	8780	2195	58.0	1.0
6.00	160	0.270	35.0	8490	2290	64.5	0.9
6.20	160	0.285	43.7	8215	2340	70.5	1.1
6.50	160	0.300	43.3	7835	2350	78.0	1.1
6.80	160	0.315	42.8	7490	2360	85.5	1.1
7.00	160	0.325	42.5	7275	2365	91.0	1.1
7.20	160	0.335	42.2	7075	2370	96.5	1.1
7.50	160	0.345	41.8	6790	2345	103.5	1.1

5.50	140	0.220	35.8	8100	1780	42.5	1.2
5.80	140	0.230	35.3	7685	1770	47.0	1.2
6.00	140	0.250	35.0	7425	1855	52.5	1.1
6.20	140	0.265	43.7	7190	1905	57.5	1.4
6.50	140	0.275	43.3	6855	1885	62.5	1.4
6.80	140	0.290	42.8	6555	1900	69.0	1.4
7.00	140	0.300	42.5	6365	1910	73.5	1.3
7.20	140	0.305	42.2	6190	1890	77.0	1.3
7.50	140	0.320	41.8	5940	1900	84.0	1.3

5.50	100	0.165	35.8	5785	955	22.5	2.2
5.80	100	0.175	35.3	5490	960	25.5	2.2
6.00	100	0.190	35.0	5305	1010	28.5	2.1
6.20	100	0.200	43.7	5135	1025	31.0	2.6
6.50	100	0.210	43.3	4895	1030	34.0	2.5
6.80	100	0.220	42.8	4680	1030	37.5	2.5
7.00	100	0.225	42.5	4545	1025	39.5	2.5
7.20	100	0.235	42.2	4420	1040	42.5	2.4
7.50	100	0.245	41.8	4245	1040	46.0	2.4

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]
Stainless steel
[Cr-Ni/1.4301]

Titanium alloys
>300 HB
[Ti6Al4V]

Cast iron
(lamellar / spheroidal)

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
5.50	55	0.130	35.8	3185	415	10.0	5.2
5.80	55	0.135	35.3	3020	410	11.0	5.2
6.00	55	0.145	35.0	2920	425	12.0	4.9
6.20	55	0.155	43.7	2825	440	13.5	6.0
6.50	55	0.160	43.3	2695	430	14.5	6.0
6.80	55	0.170	42.8	2575	440	16.0	5.8
7.00	55	0.175	42.5	2500	440	17.0	5.8
7.20	55	0.180	42.2	2430	435	17.5	5.8
7.50	55	0.185	41.8	2335	430	19.0	5.8

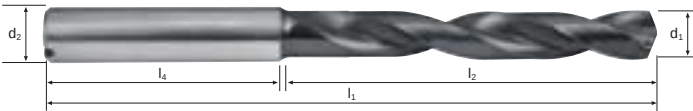
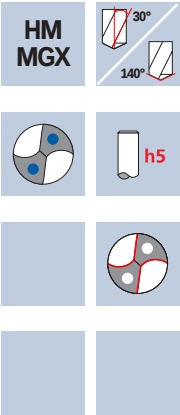
5.50	70	0.130	35.8	4050	525	12.5	4.1
5.80	70	0.135	35.3	3840	520	13.5	4.1
6.00	70	0.145	35.0	3715	540	15.5	3.9
6.20	70	0.155	43.7	3595	555	17.0	4.7
6.50	70	0.160	43.3	3430	550	18.5	4.7
6.80	70	0.170	42.8	3275	555	20.0	4.6
7.00	70	0.175	42.5	3185	555	21.5	4.6
7.20	70	0.180	42.2	3095	555	22.5	4.6
7.50	70	0.185	41.8	2970	550	24.5	4.6

5.50	40	0.130	35.8	2315	300	7.0	7.2
5.80	40	0.135	35.3	2195	295	8.0	7.2
6.00	40	0.145	35.0	2120	305	8.5	6.9
6.20	40	0.155	43.7	2055	320	9.5	8.2
6.50	40	0.160	43.3	1960	315	10.5	8.2
6.80	40	0.170	42.8	1870	320	11.5	8.0
7.00	40	0.175	42.5	1820	320	12.5	8.0
7.20	40	0.180	42.2	1770	320	13.0	7.9
7.50	40	0.185	41.8	1700	315	14.0	8.0

5.50	240	0.255	35.8	13890	3540	84.0	0.6
5.80	240	0.265	35.3	13170	3490	92.0	0.6
6.00	240	0.285	35.0	12730	3630	102.5	0.6
6.20	240	0.305	43.7	12320	3760	113.5	0.7
6.50	240	0.320	43.3	11755	3760	125.0	0.7
6.80	240	0.335	42.8	11235	3765	136.5	0.7
7.00	240	0.345	42.5	10915	3765	145.0	0.7
7.20	240	0.355	42.2	10610	3765	153.5	0.7
7.50	240	0.370	41.8	10185	3770	166.5	0.7

Spiral flute drills XDrill®

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .0530							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0530	5.3	6	82	44	36	●	
.0540	5.4	6	82	44	36	●	
.0550	5.5	6	82	44	36	●	
.0560	5.6	6	82	44	36	●	
.0570	5.7	6	82	44	36	●	
.0580	5.8	6	82	44	36	●	
.0590	5.9	6	82	44	36	●	
.0600	6.0	6	82	44	36	●	
.0610	6.1	8	91	53	36	●	
.0620	6.2	8	91	53	36	●	
.0630	6.3	8	91	53	36	●	
.0640	6.4	8	91	53	36	●	
.0650	6.5	8	91	53	36	●	
.0660	6.6	8	91	53	36	●	
.0670	6.7	8	91	53	36	●	
.0680	6.8	8	91	53	36	●	
.0690	6.9	8	91	53	36	●	
.0700	7.0	8	91	53	36	●	
.0710	7.1	8	91	53	36	●	
.0720	7.2	8	91	53	36	●	
.0730	7.3	8	91	53	36	●	
.0740	7.4	8	91	53	36	●	
.0750	7.5	8	91	53	36	●	



Application
Steel < 500 N/mm ²

Steel 500 - 850 N/mm ²

Steel 850 - 1100 N/mm ²

Steel 1100 - 1300 N/mm ²
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d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	180	0.410	41.6	7540	3090	140.0	0.8
8.00	180	0.430	41.0	7160	3080	155.0	0.8
8.20	180	0.445	48.7	6985	3110	164.0	0.9
8.50	180	0.460	48.3	6740	3100	176.0	0.9
8.80	180	0.475	47.8	6510	3090	188.0	0.9
9.00	180	0.485	47.5	6365	3085	196.5	0.9
9.20	180	0.495	47.2	6230	3085	205.0	0.9
9.50	180	0.515	46.8	6030	3105	220.0	0.9
9.80	180	0.530	46.3	5845	3100	234.0	0.9

7.60	160	0.350	41.6	6700	2345	106.5	1.1
8.00	160	0.370	41.0	6365	2355	118.5	1.0
8.20	160	0.380	48.7	6210	2360	124.5	1.2
8.50	160	0.395	48.3	5990	2365	134.0	1.2
8.80	160	0.405	47.8	5785	2345	142.5	1.2
9.00	160	0.415	47.5	5660	2350	149.5	1.2
9.20	160	0.425	47.2	5535	2350	156.0	1.2
9.50	160	0.440	46.8	5360	2360	167.5	1.2
9.80	160	0.455	46.3	5195	2365	178.5	1.2

7.60	140	0.325	41.6	5865	1905	86.5	1.3
8.00	140	0.340	41.0	5570	1895	95.5	1.3
8.20	140	0.350	48.7	5435	1900	100.5	1.5
8.50	140	0.360	48.3	5245	1890	107.0	1.5
8.80	140	0.375	47.8	5065	1900	115.5	1.5
9.00	140	0.385	47.5	4950	1905	121.0	1.5
9.20	140	0.390	47.2	4845	1890	125.5	1.5
9.50	140	0.405	46.8	4690	1900	134.5	1.5
9.80	140	0.420	46.3	4545	1910	144.0	1.5

7.60	100	0.245	41.6	4190	1025	46.5	2.4
8.00	100	0.260	41.0	3980	1035	52.0	2.4
8.20	100	0.265	48.7	3880	1030	54.5	2.8
8.50	100	0.275	48.3	3745	1030	58.5	2.8
8.80	100	0.285	47.8	3615	1030	62.5	2.8
9.00	100	0.290	47.5	3535	1025	65.0	2.8
9.20	100	0.300	47.2	3460	1040	69.0	2.7
9.50	100	0.310	46.8	3350	1040	73.5	2.7
9.80	100	0.320	46.3	3250	1040	78.5	2.7

Material

Steel 1300 - 1500 N/mm ²
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Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]

Titanium alloys >300 HB [Ti6Al4V]

Cast iron (lamellar / spheroidal)

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	55	0.190	41.6	2305	440	20.0	5.7
8.00	55	0.200	41.0	2190	440	22.0	5.6
8.20	55	0.205	48.7	2135	440	23.0	6.6
8.50	55	0.210	48.3	2060	435	24.5	6.7
8.80	55	0.220	47.8	1990	440	27.0	6.5
9.00	55	0.225	47.5	1945	440	28.0	6.5
9.20	55	0.230	47.2	1905	440	29.0	6.4
9.50	55	0.235	46.8	1845	435	31.0	6.5
9.80	55	0.245	46.3	1785	435	33.0	6.4

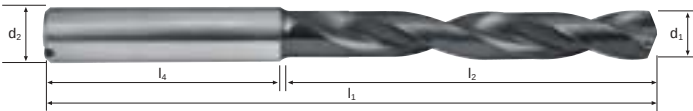
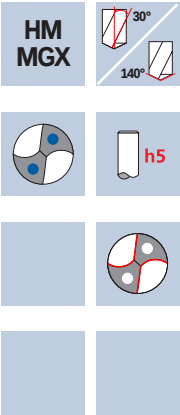
7.60	70	0.190	41.6	2930	555	25.0	4.5
8.00	70	0.200	41.0	2785	555	28.0	4.4
8.20	70	0.205	48.7	2715	555	29.5	5.3
8.50	70	0.210	48.3	2620	550	31.0	5.3
8.80	70	0.220	47.8	2530	555	34.0	5.2
9.00	70	0.225	47.5	2475	555	35.5	5.1
9.20	70	0.230	47.2	2420	555	37.0	5.1
9.50	70	0.235	46.8	2345	550	39.0	5.1
9.80	70	0.245	46.3	2275	555	42.0	5.0

7.60	40	0.190	41.6	1675	320	14.5	7.8
8.00	40	0.200	41.0	1590	320	16.0	7.7
8.20	40	0.205	48.7	1555	320	17.0	9.1
8.50	40	0.210	48.3	1500	315	18.0	9.2
8.80	40	0.220	47.8	1445	320	19.5	9.0
9.00	40	0.225	47.5	1415	320	20.5	8.9
9.20	40	0.230	47.2	1385	320	21.5	8.9
9.50	40	0.235	46.8	1340	315	22.5	8.9
9.80	40	0.245	46.3	1300	320	24.0	8.7

7.60	240	0.375	41.6	10050	3770	171.0	0.7
8.00	240	0.395	41.0	9550	3770	189.5	0.7
8.20	240	0.405	48.7	9315	3775	199.5	0.8
8.50	240	0.415	48.3	8990	3730	211.5	0.8
8.80	240	0.430	47.8	8680	3730	227.0	0.8
9.00	240	0.440	47.5	8490	3735	237.5	0.8
9.20	240	0.450	47.2	8305	3735	248.5	0.8
9.50	240	0.465	46.8	8040	3740	265.0	0.8
9.80	240	0.480	46.3	7795	3740	282.0	0.7

Spiral flute drills XDrill®

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .0760							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0760	7.6	8	91	53	36	●	
.0770	7.7	8	91	53	36	●	
.0780	7.8	8	91	53	36	●	
.0790	7.9	8	91	53	36	●	
.0800	8.0	8	91	53	36	●	
.0810	8.1	10	103	61	40	●	
.0820	8.2	10	103	61	40	●	
.0830	8.3	10	103	61	40	●	
.0840	8.4	10	103	61	40	●	
.0850	8.5	10	103	61	40	●	
.0860	8.6	10	103	61	40	●	
.0870	8.7	10	103	61	40	●	
.0880	8.8	10	103	61	40	●	
.0890	8.9	10	103	61	40	●	
.0900	9.0	10	103	61	40	●	
.0910	9.1	10	103	61	40	●	
.0920	9.2	10	103	61	40	●	
.0930	9.3	10	103	61	40	●	
.0940	9.4	10	103	61	40	●	
.0950	9.5	10	103	61	40	●	
.0960	9.6	10	103	61	40	●	
.0970	9.7	10	103	61	40	●	
.0980	9.8	10	103	61	40	●	

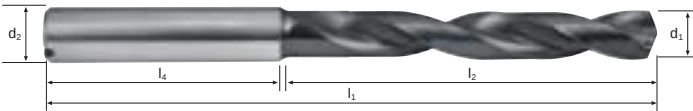
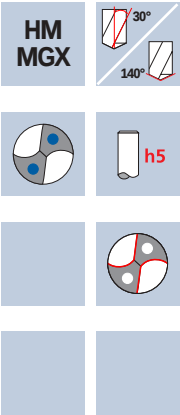


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	10.00	180	0.540	46.0	5730	3095	243.0	0.9
	10.20	180	0.545	55.7	5615	3060	250.0	1.1
	10.50	180	0.565	55.3	5455	3080	266.5	1.1
	10.80	180	0.575	54.8	5305	3050	279.5	1.1
	11.00	180	0.585	54.5	5210	3050	290.0	1.1
	11.20	180	0.585	54.2	5115	2990	294.5	1.1
	11.50	180	0.590	53.8	4980	2940	305.5	1.1
	11.80	180	0.600	53.3	4855	2915	319.0	1.1
	12.00	180	0.610	53.0	4775	2915	329.5	1.1
Steel 500 - 850 N/mm²	10.00	160	0.465	46.0	5095	2370	186.0	1.2
	10.20	160	0.470	55.7	4995	2350	192.0	1.4
	10.50	160	0.485	55.3	4850	2350	203.5	1.4
	10.80	160	0.495	54.8	4715	2335	214.0	1.4
	11.00	160	0.500	54.5	4630	2315	220.0	1.4
	11.20	160	0.500	54.2	4545	2275	224.0	1.4
	11.50	160	0.505	53.8	4430	2235	232.0	1.4
	11.80	160	0.510	53.3	4315	2200	240.5	1.5
	12.00	160	0.520	53.0	4245	2205	249.5	1.4
Steel 850 - 1100 N/mm²	10.00	140	0.425	46.0	4455	1895	149.0	1.5
	10.20	140	0.430	55.7	4370	1880	153.5	1.8
	10.50	140	0.445	55.3	4245	1890	163.5	1.8
	10.80	140	0.455	54.8	4125	1875	172.0	1.8
	11.00	140	0.460	54.5	4050	1865	177.0	1.8
	11.20	140	0.465	54.2	3980	1850	182.5	1.8
	11.50	140	0.465	53.8	3875	1800	187.0	1.8
	11.80	140	0.470	53.3	3775	1775	194.0	1.8
	12.00	140	0.480	53.0	3715	1785	202.0	1.8
Steel 1100 - 1300 N/mm²	10.00	100	0.325	46.0	3185	1035	81.5	2.7
	10.20	100	0.330	55.7	3120	1030	84.0	3.2
	10.50	100	0.340	55.3	3030	1030	89.0	3.2
	10.80	100	0.345	54.8	2945	1015	93.0	3.2
	11.00	100	0.350	54.5	2895	1015	96.5	3.2
	11.20	100	0.350	54.2	2840	995	98.0	3.3
	11.50	100	0.355	53.8	2770	985	102.5	3.3
	11.80	100	0.360	53.3	2700	970	106.0	3.3
	12.00	100	0.365	53.0	2655	970	109.5	3.3

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	10.00	55	0.250	46.0	1750	440	34.5	6.3
	10.20	55	0.255	55.7	1715	435	35.5	7.7
	10.50	55	0.260	55.3	1665	435	37.5	7.6
	10.80	55	0.265	54.8	1620	430	39.5	7.6
	11.00	55	0.270	54.5	1590	430	41.0	7.6
	11.20	55	0.270	54.2	1565	425	42.0	7.7
	11.50	55	0.270	53.8	1520	410	42.5	7.9
	11.80	55	0.275	53.3	1485	410	45.0	7.8
	12.00	55	0.280	53.0	1460	410	46.5	7.8
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	10.00	70	0.250	46.0	2230	560	44.0	4.9
	10.20	70	0.255	55.7	2185	555	45.5	6.0
	10.50	70	0.260	55.3	2120	550	47.5	6.0
	10.80	70	0.265	54.8	2065	545	50.0	6.0
	11.00	70	0.270	54.5	2025	545	52.0	6.0
	11.20	70	0.270	54.2	1990	535	52.5	6.1
	11.50	70	0.270	53.8	1940	525	54.5	6.1
	11.80	70	0.275	53.3	1890	520	57.0	6.2
	12.00	70	0.280	53.0	1855	520	59.0	6.1
Titanium alloys >300 HB [Ti6Al4V]	10.00	40	0.250	46.0	1275	320	25.0	8.6
	10.20	40	0.255	55.7	1250	320	26.0	10.4
	10.50	40	0.260	55.3	1215	315	27.5	10.5
	10.80	40	0.265	54.8	1180	315	29.0	10.4
	11.00	40	0.270	54.5	1155	310	29.5	10.5
	11.20	40	0.270	54.2	1135	305	30.0	10.7
	11.50	40	0.270	53.8	1105	300	31.0	10.8
	11.80	40	0.275	53.3	1080	295	32.5	10.8
	12.00	40	0.280	53.0	1060	295	33.5	10.8
Cast iron (lamellar / spheroidal)	10.00	240	0.490	46.0	7640	3745	294.0	0.7
	10.20	240	0.500	55.7	7490	3745	306.0	0.9
	10.50	240	0.510	55.3	7275	3710	321.0	0.9
	10.80	240	0.525	54.8	7075	3715	340.5	0.9
	11.00	240	0.530	54.5	6945	3680	349.5	0.9
	11.20	240	0.535	54.2	6820	3650	359.5	0.9
	11.50	240	0.535	53.8	6645	3555	369.5	0.9
	11.80	240	0.545	53.3	6475	3530	386.0	0.9
	12.00	240	0.555	53.0	6365	3535	400.0	0.9

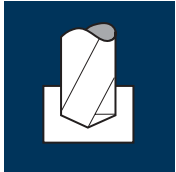
Spiral flute drills XDrill®

5xd



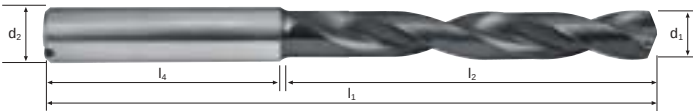
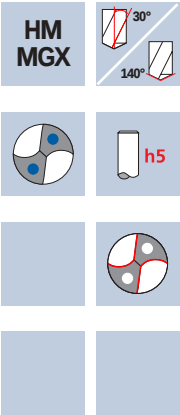
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .0990							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
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.1000	10.0	10	103	61	40	●	
.1010	10.1	12	118	71	45	●	
.1020	10.2	12	118	71	45	●	
.1030	10.3	12	118	71	45	●	
.1040	10.4	12	118	71	45	●	
.1050	10.5	12	118	71	45	●	
.1060	10.6	12	118	71	45	●	
.1070	10.7	12	118	71	45	●	
.1080	10.8	12	118	71	45	●	
.1090	10.9	12	118	71	45	●	
.1100	11.0	12	118	71	45	●	
.1110	11.1	12	118	71	45	●	
.1120	11.2	12	118	71	45	●	
.1130	11.3	12	118	71	45	●	
.1140	11.4	12	118	71	45	●	
.1150	11.5	12	118	71	45	●	
.1160	11.6	12	118	71	45	●	
.1170	11.7	12	118	71	45	●	
.1180	11.8	12	118	71	45	●	
.1190	11.9	12	118	71	45	●	
.1200	12.0	12	118	71	45	●	

Application	Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	12.20	180	0.620	58.7	4695	2910	340.0	1.2
		12.50	180	0.635	58.3	4585	2910	357.0	1.2
		12.60	180	0.640	58.1	4545	2910	363.0	1.2
		12.80	180	0.650	57.8	4475	2910	374.5	1.2
		13.00	180	0.660	57.5	4405	2905	385.5	1.2
		13.20	180	0.670	57.2	4340	2910	398.0	1.2
		13.50	180	0.675	56.8	4245	2865	410.0	1.2
		13.80	180	0.675	56.3	4150	2800	419.0	1.2
		14.00	180	0.680	56.0	4095	2785	428.5	1.2
	Steel 500 - 850 N/mm ²	12.20	160	0.530	58.7	4175	2215	259.0	1.6
		12.50	160	0.545	58.3	4075	2220	272.5	1.6
		12.60	160	0.545	58.1	4040	2200	274.5	1.6
		12.80	160	0.555	57.8	3980	2210	284.5	1.6
		13.00	160	0.565	57.5	3920	2215	294.0	1.6
		13.20	160	0.575	57.2	3860	2220	304.0	1.5
		13.50	160	0.580	56.8	3775	2190	313.5	1.6
		13.80	160	0.580	56.3	3690	2140	320.0	1.6
		14.00	160	0.585	56.0	3640	2130	328.0	1.6
	Steel 850 - 1100 N/mm ²	12.20	140	0.490	58.7	3655	1790	209.0	2.0
		12.50	140	0.500	58.3	3565	1785	219.0	2.0
		12.60	140	0.505	58.1	3535	1785	222.5	2.0
		12.80	140	0.510	57.8	3480	1775	228.5	2.0
		13.00	140	0.520	57.5	3430	1785	237.0	1.9
		13.20	140	0.530	57.2	3375	1790	245.0	1.9
		13.50	140	0.535	56.8	3300	1765	252.5	1.9
		13.80	140	0.535	56.3	3230	1730	259.0	2.0
		14.00	140	0.540	56.0	3185	1720	265.0	2.0
	Steel 1100 - 1300 N/mm ²	12.20	100	0.370	58.7	2610	965	113.0	3.6
		12.50	100	0.380	58.3	2545	965	118.5	3.6
		12.60	100	0.385	58.1	2525	970	121.0	3.6
		12.80	100	0.390	57.8	2485	970	125.0	3.6
		13.00	100	0.395	57.5	2450	970	129.0	3.6
		13.20	100	0.400	57.2	2410	965	132.0	3.6
		13.50	100	0.405	56.8	2360	955	136.5	3.6
		13.80	100	0.405	56.3	2305	935	140.0	3.6
		14.00	100	0.410	56.0	2275	935	144.0	3.6
Material		d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		12.20	55	0.285	58.7	1435	410	48.0	8.6
		12.50	55	0.290	58.3	1400	405	49.5	8.6
		12.60	55	0.295	58.1	1390	410	51.0	8.5
		12.80	55	0.300	57.8	1370	410	53.0	8.5
		13.00	55	0.305	57.5	1345	410	54.5	8.4
		13.20	55	0.310	57.2	1325	410	56.0	8.4
		13.50	55	0.310	56.8	1295	400	57.5	8.5
		13.80	55	0.310	56.3	1270	395	59.0	8.6
		14.00	55	0.315	56.0	1250	395	61.0	8.5
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		12.20	70	0.285	58.7	1825	520	61.0	6.8
		12.50	70	0.290	58.3	1785	520	64.0	6.7
		12.60	70	0.295	58.1	1770	520	65.0	6.7
		12.80	70	0.300	57.8	1740	520	67.0	6.7
		13.00	70	0.305	57.5	1715	525	69.5	6.6
		13.20	70	0.310	57.2	1690	525	72.0	6.5
		13.50	70	0.310	56.8	1650	510	73.0	6.7
		13.80	70	0.310	56.3	1615	500	75.0	6.8
		14.00	70	0.315	56.0	1590	500	77.0	6.7
Titanium alloys >300 HB [Ti6Al4V]		12.20	40	0.285	58.7	1045	300	35.0	11.7
		12.50	40	0.290	58.3	1020	295	36.0	11.9
		12.60	40	0.295	58.1	1010	300	37.5	11.6
		12.80	40	0.300	57.8	995	300	38.5	11.6
		13.00	40	0.305	57.5	980	300	40.0	11.5
		13.20	40	0.310	57.2	965	300	41.0	11.4
		13.50	40	0.310	56.8	945	295	42.0	11.6
		13.80	40	0.310	56.3	925	285	42.5	11.9
		14.00	40	0.315	56.0	910	285	44.0	11.8
Cast iron (lamellar / spheroidal)		12.20	240	0.560	58.7	6260	3505	409.5	1.0
		12.50	240	0.575	58.3	6110	3515	431.5	1.0
		12.60	240	0.580	58.1	6065	3520	439.0	1.0
		12.80	240	0.590	57.8	5970	3520	453.0	1.0
		13.00	240	0.600	57.5	5875	3525	468.0	1.0
		13.20	240	0.610	57.2	5785	3530	483.0	1.0
		13.50	240	0.615	56.8	5660	3480	498.0	1.0
		13.80	240	0.615	56.3	5535	3405	509.5	1.0
		14.00	240	0.620	56.0	5455	3380	520.5	1.0

Spiral flute drills XDrill®

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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .1210							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
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.1240	12.4	14	124	77	45	●	
.1250	12.5	14	124	77	45	●	
.1260	12.6	14	124	77	45	●	
.1270	12.7	14	124	77	45	●	
.1280	12.8	14	124	77	45	●	
.1290	12.9	14	124	77	45	●	
.1300	13.0	14	124	77	45	●	
.1310	13.1	14	124	77	45	●	
.1320	13.2	14	124	77	45	●	
.1330	13.3	14	124	77	45	●	
.1340	13.4	14	124	77	45	●	
.1350	13.5	14	124	77	45	●	
.1360	13.6	14	124	77	45	●	
.1370	13.7	14	124	77	45	●	
.1380	13.8	14	124	77	45	●	
.1390	13.9	14	124	77	45	●	
.1400	14.0	14	124	77	45	●	

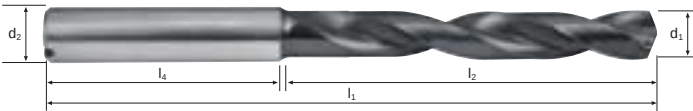
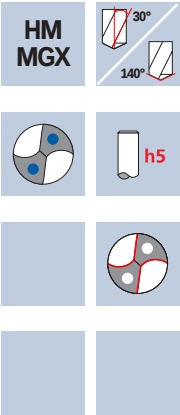


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	14.20	180	0.685	61.7	4035	2765	438.0	1.3
	14.50	180	0.690	61.3	3950	2725	450.0	1.3
	14.80	180	0.700	60.8	3870	2710	466.0	1.3
	15.00	180	0.710	60.5	3820	2710	479.0	1.3
	15.20	180	0.720	60.2	3770	2715	492.5	1.3
	15.50	180	0.725	59.8	3695	2680	505.5	1.3
	15.70	180	0.725	59.5	3650	2645	512.0	1.3
	15.80	180	0.730	59.3	3625	2645	518.5	1.3
	16.00	180	0.735	59.0	3580	2630	529.0	1.3
Steel 500 - 850 N/mm²	14.20	160	0.590	61.7	3585	2115	335.0	1.8
	14.50	160	0.590	61.3	3510	2070	342.0	1.8
	14.80	160	0.600	60.8	3440	2065	355.0	1.8
	15.00	160	0.610	60.5	3395	2070	366.0	1.8
	15.20	160	0.615	60.2	3350	2060	374.0	1.8
	15.50	160	0.620	59.8	3285	2035	384.0	1.8
	15.70	160	0.625	59.5	3245	2030	393.0	1.8
	15.80	160	0.625	59.3	3225	2015	395.0	1.8
	16.00	160	0.630	59.0	3185	2005	403.0	1.8
Steel 850 - 1100 N/mm²	14.20	140	0.540	61.7	3140	1695	268.5	2.2
	14.50	140	0.545	61.3	3075	1675	276.5	2.2
	14.80	140	0.555	60.8	3010	1670	287.5	2.2
	15.00	140	0.560	60.5	2970	1665	294.0	2.2
	15.20	140	0.570	60.2	2930	1670	303.0	2.2
	15.50	140	0.570	59.8	2875	1640	309.5	2.2
	15.70	140	0.575	59.5	2840	1635	316.5	2.2
	15.80	140	0.580	59.3	2820	1635	320.5	2.2
	16.00	140	0.580	59.0	2785	1615	324.5	2.2
Steel 1100 - 1300 N/mm²	14.20	100	0.410	61.7	2240	920	145.5	4.0
	14.50	100	0.415	61.3	2195	910	150.5	4.0
	14.80	100	0.420	60.8	2150	905	155.5	4.0
	15.00	100	0.425	60.5	2120	900	159.0	4.0
	15.20	100	0.430	60.2	2095	900	163.5	4.0
	15.50	100	0.435	59.8	2055	895	169.0	4.0
	15.70	100	0.435	59.5	2025	880	170.5	4.1
	15.80	100	0.440	59.3	2015	885	173.5	4.0
	16.00	100	0.440	59.0	1990	875	176.0	4.0

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	14.20	55	0.315	61.7	1235	390	62.0	9.5
	14.50	55	0.320	61.3	1205	385	63.5	9.6
	14.80	55	0.325	60.8	1185	385	66.0	9.5
	15.00	55	0.330	60.5	1165	385	68.0	9.4
	15.20	55	0.330	60.2	1150	380	69.0	9.5
	15.50	55	0.335	59.8	1130	380	71.5	9.4
	15.70	55	0.335	59.5	1115	375	72.5	9.5
	15.80	55	0.340	59.3	1110	375	73.5	9.5
	16.00	55	0.340	59.0	1095	370	74.5	9.6
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	14.20	70	0.315	61.7	1570	495	78.5	7.5
	14.50	70	0.320	61.3	1535	490	81.0	7.5
	14.80	70	0.325	60.8	1505	490	84.5	7.4
	15.00	70	0.330	60.5	1485	490	86.5	7.4
	15.20	70	0.330	60.2	1465	485	88.0	7.4
	15.50	70	0.335	59.8	1440	480	90.5	7.5
	15.70	70	0.335	59.5	1420	475	92.0	7.5
	15.80	70	0.340	59.3	1410	480	94.0	7.4
	16.00	70	0.340	59.0	1395	475	95.5	7.5
Titanium alloys >300 HB [Ti6Al4V]	14.20	40	0.315	61.7	895	280	44.5	13.2
	14.50	40	0.320	61.3	880	280	46.0	13.1
	14.80	40	0.325	60.8	860	280	48.0	13.0
	15.00	40	0.330	60.5	850	280	49.5	13.0
	15.20	40	0.330	60.2	840	275	50.0	13.1
	15.50	40	0.335	59.8	820	275	52.0	13.0
	15.70	40	0.335	59.5	810	270	52.5	13.2
	15.80	40	0.340	59.3	805	275	54.0	12.9
	16.00	40	0.340	59.0	795	270	54.5	13.1
Cast iron (lamellar / spheroidal)	14.20	240	0.625	61.7	5380	3365	533.0	1.1
	14.50	240	0.630	61.3	5270	3320	548.0	1.1
	14.80	240	0.635	60.8	5160	3275	563.5	1.1
	15.00	240	0.645	60.5	5095	3285	580.5	1.1
	15.20	240	0.655	60.2	5025	3290	597.0	1.1
	15.50	240	0.660	59.8	4930	3255	614.0	1.1
	15.70	240	0.660	59.5	4865	3210	621.5	1.1
	15.80	240	0.665	59.3	4835	3215	630.5	1.1
	16.00	240	0.670	59.0	4775	3200	643.5	1.1

Spiral flute drills XDrill®

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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72015	
Ø-Code							
Ø-Code	d1 m7	d2 h5	l1	l2	l4		
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.1420	14.2	16	133	83	48	●	
.1430	14.3	16	133	83	48	●	
.1440	14.4	16	133	83	48	●	
.1450	14.5	16	133	83	48	●	
.1460	14.6	16	133	83	48	●	
.1470	14.7	16	133	83	48	●	
.1480	14.8	16	133	83	48	●	
.1490	14.9	16	133	83	48	●	
.1500	15.0	16	133	83	48	●	
.1510	15.1	16	133	83	48	●	
.1520	15.2	16	133	83	48	●	
.1530	15.3	16	133	83	48	●	
.1540	15.4	16	133	83	48	●	
.1550	15.5	16	133	83	48	●	
.1560	15.6	16	133	83	48	●	
.1570	15.7	16	133	83	48	●	
.1580	15.8	16	133	83	48	●	
.1590	15.9	16	133	83	48	●	
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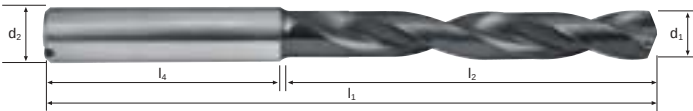
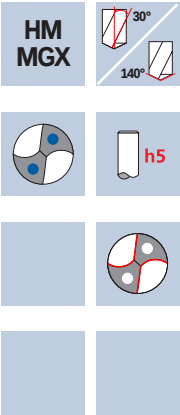


Application	Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		16.20	180	0.740	68.7	3535	2615	539.0	1.6
		16.40	180	0.750	68.4	3495	2620	553.5	1.6
		16.50	180	0.755	68.3	3470	2620	560.0	1.6
		16.80	180	0.755	67.8	3410	2575	571.0	1.6
		17.00	180	0.760	67.5	3370	2560	581.0	1.6
		17.20	180	0.765	67.2	3330	2545	591.5	1.6
		17.50	180	0.770	66.8	3275	2520	606.0	1.6
		17.70	180	0.775	66.5	3235	2505	616.5	1.6
		18.00	180	0.780	66.0	3185	2485	632.5	1.6
Steel 500 - 850 N/mm ²		16.20	160	0.635	68.7	3145	1995	411.0	2.1
		16.40	160	0.640	68.4	3105	1985	419.5	2.1
		16.50	160	0.645	68.3	3085	1990	425.5	2.1
		16.80	160	0.650	67.8	3030	1970	436.5	2.1
		17.00	160	0.650	67.5	2995	1945	441.5	2.1
		17.20	160	0.655	67.2	2960	1940	451.0	2.1
		17.50	160	0.660	66.8	2910	1920	462.0	2.1
		17.70	160	0.660	66.5	2875	1900	467.5	2.1
		18.00	160	0.670	66.0	2830	1895	482.0	2.1
Steel 850 - 1100 N/mm ²		16.20	140	0.585	68.7	2750	1610	332.0	2.6
		16.40	140	0.590	68.4	2715	1600	338.0	2.6
		16.50	140	0.595	68.3	2700	1605	343.0	2.6
		16.80	140	0.595	67.8	2655	1580	350.0	2.6
		17.00	140	0.600	67.5	2620	1570	356.5	2.6
		17.20	140	0.600	67.2	2590	1555	361.5	2.6
		17.50	140	0.610	66.8	2545	1550	373.0	2.6
		17.70	140	0.610	66.5	2520	1535	377.5	2.6
		18.00	140	0.615	66.0	2475	1520	387.0	2.6
Steel 1100 - 1300 N/mm ²		16.20	100	0.445	68.7	1965	875	180.5	4.7
		16.40	100	0.450	68.4	1940	875	185.0	4.7
		16.50	100	0.450	68.3	1930	870	186.0	4.7
		16.80	100	0.455	67.8	1895	860	190.5	4.7
		17.00	100	0.455	67.5	1870	850	193.0	4.8
		17.20	100	0.460	67.2	1850	850	197.5	4.7
		17.50	100	0.460	66.8	1820	835	201.0	4.8
		17.70	100	0.465	66.5	1800	835	205.5	4.8
		18.00	100	0.470	66.0	1770	830	211.0	4.8

Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	16.20	55	0.340	68.7	1080	365	75.0	11.3
	16.40	55	0.345	68.4	1070	370	78.0	11.1
	16.50	55	0.350	68.3	1060	370	79.0	11.1
	16.80	55	0.350	67.8	1040	365	81.0	11.1
	17.00	55	0.350	67.5	1030	360	81.5	11.3
	17.20	55	0.350	67.2	1020	355	82.5	11.4
	17.50	55	0.355	66.8	1000	355	85.5	11.3
	17.70	55	0.355	66.5	990	350	86.0	11.4
	18.00	55	0.360	66.0	975	350	89.0	11.3
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	16.20	70	0.340	68.7	1375	470	97.0	8.8
	16.40	70	0.345	68.4	1360	470	99.5	8.7
	16.50	70	0.350	68.3	1350	475	101.5	8.6
	16.80	70	0.350	67.8	1325	465	103.0	8.7
	17.00	70	0.350	67.5	1310	460	104.5	8.8
	17.20	70	0.350	67.2	1295	455	105.5	8.9
	17.50	70	0.355	66.8	1275	455	109.5	8.8
	17.70	70	0.355	66.5	1260	445	109.5	9.0
	18.00	70	0.360	66.0	1240	445	113.0	8.9
Titanium alloys >300 HB [Ti6Al4V]	16.20	40	0.340	68.7	785	265	54.5	15.6
	16.40	40	0.345	68.4	775	265	56.0	15.5
	16.50	40	0.350	68.3	770	270	57.5	15.2
	16.80	40	0.350	67.8	760	265	58.5	15.4
	17.00	40	0.350	67.5	750	265	60.0	15.3
	17.20	40	0.350	67.2	740	260	60.5	15.5
	17.50	40	0.355	66.8	730	260	62.5	15.4
	17.70	40	0.355	66.5	720	255	62.5	15.6
	18.00	40	0.360	66.0	705	255	65.0	15.5
Cast iron (lamellar / spheroidal)	16.20	240	0.675	68.7	4715	3185	656.5	1.3
	16.40	240	0.680	68.4	4660	3170	669.5	1.3
	16.50	240	0.685	68.3	4630	3170	678.0	1.3
	16.80	240	0.685	67.8	4545	3115	690.5	1.3
	17.00	240	0.690	67.5	4495	3100	703.5	1.3
	17.20	240	0.695	67.2	4440	3085	717.0	1.3
	17.50	240	0.700	66.8	4365	3055	735.0	1.3
	17.70	240	0.705	66.5	4315	3040	748.0	1.3
	18.00	240	0.710	66.0	4245	3015	767.0	1.3

Spiral flute drills XDrill®

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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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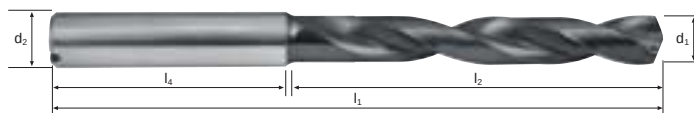
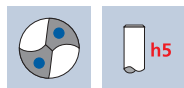
Example: Order-N°.						DURO-X	
Article-N°. Ø-Code						B72015	
B72015 .1610							
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.1660	16.6	18	143	93	48	●	
.1670	16.7	18	143	93	48	●	
.1680	16.8	18	143	93	48	●	
.1690	16.9	18	143	93	48	●	
.1700	17.0	18	143	93	48	●	
.1710	17.1	18	143	93	48	●	
.1720	17.2	18	143	93	48	●	
.1730	17.3	18	143	93	48	●	
.1740	17.4	18	143	93	48	●	
.1750	17.5	18	143	93	48	●	
.1760	17.6	18	143	93	48	●	
.1770	17.7	18	143	93	48	●	
.1780	17.8	18	143	93	48	●	
.1790	17.9	18	143	93	48	●	
.1800	18.0	18	143	93	48	●	



Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		18.50	180	0.785	73.3	3095	2430	653.0	1.8
		18.70	180	0.785	73.0	3065	2405	660.5	1.8
		19.00	180	0.790	72.5	3015	2380	675.0	1.8
		19.20	180	0.795	72.2	2985	2375	687.5	1.8
		19.30	180	0.800	72.0	2970	2375	695.0	1.8
		19.50	180	0.805	71.8	2940	2365	706.5	1.8
		19.70	180	0.810	71.5	2910	2355	718.0	1.8
		19.80	180	0.810	71.3	2895	2345	722.0	1.8
		20.00	180	0.820	71.0	2865	2350	738.5	1.8
Steel 500 - 850 N/mm ²		18.50	160	0.670	73.3	2755	1845	496.0	2.4
		18.70	160	0.675	73.0	2725	1840	505.5	2.4
		19.00	160	0.680	72.5	2680	1820	516.0	2.4
		19.20	160	0.680	72.2	2655	1805	522.5	2.4
		19.30	160	0.685	72.0	2640	1810	529.5	2.4
		19.50	160	0.690	71.8	2610	1800	537.5	2.4
		19.70	160	0.690	71.5	2585	1785	544.0	2.4
		19.80	160	0.695	71.3	2570	1785	549.5	2.4
		20.00	160	0.705	71.0	2545	1795	564.0	2.4
Steel 850 - 1100 N/mm ²		18.50	140	0.620	73.3	2410	1495	402.0	2.9
		18.70	140	0.620	73.0	2385	1480	406.5	3.0
		19.00	140	0.625	72.5	2345	1465	415.5	3.0
		19.20	140	0.625	72.2	2320	1450	420.0	3.0
		19.30	140	0.630	72.0	2310	1455	425.5	3.0
		19.50	140	0.635	71.8	2285	1450	433.0	3.0
		19.70	140	0.640	71.5	2260	1445	440.5	3.0
		19.80	140	0.640	71.3	2250	1440	443.5	3.0
		20.00	140	0.645	71.0	2230	1440	452.5	3.0
Steel 1100 - 1300 N/mm ²		18.50	100	0.470	73.3	1720	810	217.5	5.4
		18.70	100	0.470	73.0	1700	800	219.5	5.5
		19.00	100	0.475	72.5	1675	795	225.5	5.5
		19.20	100	0.475	72.2	1660	790	228.5	5.5
		19.30	100	0.480	72.0	1650	790	231.0	5.5
		19.50	100	0.485	71.8	1630	790	236.0	5.5
		19.70	100	0.485	71.5	1615	785	239.5	5.5
		19.80	100	0.485	71.3	1610	780	240.0	5.5
		20.00	100	0.490	71.0	1590	780	245.0	5.5

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	18.50	55	0.360	73.3	945	340	91.5	12.9
	18.70	55	0.360	73.0	935	335	92.0	13.1
	19.00	55	0.365	72.5	920	335	95.0	13.0
	19.20	55	0.365	72.2	910	330	95.5	13.1
	19.30	55	0.370	72.0	905	335	98.0	12.9
	19.50	55	0.370	71.8	900	335	100.0	12.9
	19.70	55	0.375	71.5	890	335	102.0	12.8
	19.80	55	0.375	71.3	885	330	101.5	13.0
	20.00	55	0.380	71.0	875	335	105.0	12.7
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	18.50	70	0.360	73.3	1205	435	117.0	10.1
	18.70	70	0.360	73.0	1190	430	118.0	10.2
	19.00	70	0.365	72.5	1175	430	122.0	10.1
	19.20	70	0.365	72.2	1160	425	123.0	10.2
	19.30	70	0.370	72.0	1155	425	124.5	10.2
	19.50	70	0.370	71.8	1145	425	127.0	10.1
	19.70	70	0.375	71.5	1130	425	129.5	10.1
	19.80	70	0.375	71.3	1125	420	129.5	10.2
	20.00	70	0.380	71.0	1115	425	133.5	10.0
Titanium alloys >300 HB [Ti6Al4V]	18.50	40	0.360	73.3	690	250	67.0	17.6
	18.70	40	0.360	73.0	680	245	67.5	17.9
	19.00	40	0.365	72.5	670	245	69.5	17.8
	19.20	40	0.365	72.2	665	245	71.0	17.7
	19.30	40	0.370	72.0	660	245	71.5	17.6
	19.50	40	0.370	71.8	655	240	71.5	17.9
	19.70	40	0.375	71.5	645	240	73.0	17.9
	19.80	40	0.375	71.3	645	240	74.0	17.8
	20.00	40	0.380	71.0	635	240	75.5	17.8
Cast iron (lamellar / spheroidal)	18.50	240	0.710	73.3	4130	2930	787.5	1.5
	18.70	240	0.715	73.0	4085	2920	802.0	1.5
	19.00	240	0.720	72.5	4020	2895	821.0	1.5
	19.20	240	0.720	72.2	3980	2865	829.5	1.5
	19.30	240	0.725	72.0	3960	2870	839.5	1.5
	19.50	240	0.735	71.8	3920	2880	860.0	1.5
	19.70	240	0.735	71.5	3880	2850	868.5	1.5
	19.80	240	0.740	71.3	3860	2855	879.0	1.5
	20.00	240	0.745	71.0	3820	2845	894.0	1.5

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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[illegible]



Material
Steel < 500 N/mm ²

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.50	160	0.065	22.3	20370	1325	6.5	1.0
2.60	160	0.070	22.1	19590	1370	7.5	1.0
2.80	160	0.075	21.8	18190	1365	8.5	1.0
2.90	160	0.075	21.6	17560	1315	8.5	1.0
3.00	160	0.080	21.5	16975	1360	9.5	0.9
3.30	160	0.085	21.1	15435	1310	11.0	1.0
3.50	160	0.090	20.8	14550	1310	12.5	1.0
3.75	160	0.100	20.4	13580	1360	15.0	0.9
3.80	160	0.100	30.3	13405	1340	15.0	1.4

Steel 500 - 850 N/mm ²

2.50	120	0.065	22.3	15280	995	5.0	1.3
2.60	120	0.070	22.1	14690	1030	5.5	1.3
2.80	120	0.075	21.8	13640	1025	6.5	1.3
2.90	120	0.075	21.6	13170	990	6.5	1.3
3.00	120	0.080	21.5	12730	1020	7.0	1.3
3.30	120	0.085	21.1	11575	985	8.5	1.3
3.50	120	0.090	20.8	10915	980	9.5	1.3
3.75	120	0.100	20.4	10185	1020	11.5	1.2
3.80	120	0.100	30.3	10050	1005	11.5	1.8

Steel 850 - 1100 N/mm ²

2.50	100	0.050	22.3	12730	635	3.0	2.1
2.60	100	0.050	22.1	12245	610	3.0	2.2
2.80	100	0.055	21.8	11370	625	4.0	2.1
2.90	100	0.060	21.6	10975	660	4.5	2.0
3.00	100	0.060	21.5	10610	635	4.5	2.0
3.30	100	0.065	21.1	9645	625	5.5	2.0
3.50	100	0.070	20.8	9095	635	6.0	2.0
3.75	100	0.075	20.4	8490	635	7.0	1.9
3.80	100	0.075	30.3	8375	630	7.0	2.9

Steel 1100 - 1300 N/mm ²
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2.50	65	0.040	22.3	8275	330	1.5	4.1
2.60	65	0.045	22.1	7960	360	2.0	3.7
2.80	65	0.045	21.8	7390	335	2.0	3.9
2.90	65	0.050	21.6	7135	355	2.5	3.7
3.00	65	0.050	21.5	6895	345	2.5	3.7
3.30	65	0.055	21.1	6270	345	3.0	3.7
3.50	65	0.060	20.8	5910	355	3.5	3.5
3.75	65	0.065	20.4	5515	360	4.0	3.4
3.80	65	0.065	30.3	5445	355	4.0	5.1

Material

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
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Steel 1300 - 1500 N/mm ²
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2.50	35	0.035	22.3	4455	155	1.0	8.6
2.60	35	0.035	22.1	4285	150	1.0	8.8
2.80	35	0.035	21.8	3980	140	1.0	9.3
2.90	35	0.040	21.6	3840	155	1.0	8.4
3.00	35	0.040	21.5	3715	150	1.0	8.6
3.30	35	0.045	21.1	3375	150	1.5	8.4
3.50	35	0.045	20.8	3185	145	1.5	8.6
3.75	35	0.050	20.4	2970	150	1.5	8.2
3.80	35	0.050	30.3	2930	145	1.5	12.5

Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]

2.50	60	0.040	22.3	7640	305	1.5	4.4
2.60	60	0.040	22.1	7345	295	1.5	4.5
2.80	60	0.045	21.8	6820	305	2.0	4.3
2.90	60	0.045	21.6	6585	295	2.0	4.4
3.00	60	0.045	21.5	6365	285	2.0	4.5
3.30	60	0.050	21.1	5785	290	2.5	4.4
3.50	60	0.055	20.8	5455	300	3.0	4.2
3.75	60	0.060	20.4	5095	305	3.5	4.0
3.80	60	0.060	30.3	5025	300	3.5	6.1

Cast iron (lamellar / spheroidal)

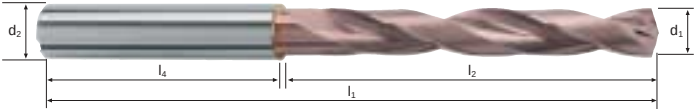
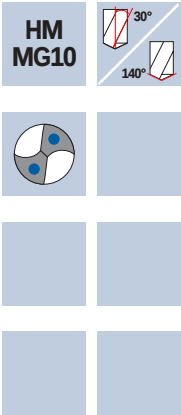
2.50	200	0.070	22.3	25465	1785	9.0	0.7
2.60	200	0.075	22.1	24485	1835	9.5	0.7
2.80	200	0.080	21.8	22735	1820	11.0	0.7
2.90	200	0.085	21.6	21950	1865	12.5	0.7
3.00	200	0.085	21.5	21220	1805	13.0	0.7
3.30	200	0.095	21.1	19290	1835	15.5	0.7
3.50	200	0.100	20.8	18190	1820	17.5	0.7
3.75	200	0.105	20.4	16975	1780	19.5	0.7
3.80	200	0.110	30.3	16755	1845	21.0	1.0

Wrought aluminium alloys Si < 6%

2.50	250	0.055	22.3	31830	1750	8.5	0.8
2.60	250	0.060	22.1	30605	1835	9.5	0.7
2.80	250	0.060	21.8	28420	1705	10.5	0.8
2.90	250	0.065	21.6	27440	1785	12.0	0.7
3.00	250	0.065	21.5	26525	1725	12.0	0.7
3.30	250	0.075	21.1	24115	1810	15.5	0.7
3.50	250	0.080	20.8	22735	1820	17.5	0.7
3.75	250	0.085	20.4	21220	1805	20.0	0.7
3.80	250	0.085	30.3	20940	1780	20.0	1.0

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0250*	2.50	6	66	28	36	●	
.0255*	2.55	6	66	28	36	●	
.0260*	2.60	6	66	28	36	●	
.0265*	2.65	6	66	28	36	●	
.0270*	2.70	6	66	28	36	●	
.0280*	2.80	6	66	28	36	●	
.0285*	2.85	6	66	28	36	●	
.0290*	2.90	6	66	28	36	●	
.0295*	2.95	6	66	28	36	●	
.0300	3.00	6	66	28	36	●	
.0305	3.05	6	66	26	36	●	
.0310	3.10	6	66	28	36	●	
.0315	3.15	6	66	28	36	●	
.0320	3.20	6	66	28	36	●	
.0330	3.30	6	66	28	36	●	
.0340	3.40	6	66	28	36	●	
.0350	3.50	6	66	28	36	●	
.0360	3.60	6	66	28	36	●	
.0370	3.70	6	66	28	36	●	
.0375	3.75	6	66	28	36	●	
.0380	3.80	6	74	36	36	●	
.0385	3.85	6	74	36	36	●	
* without internal cooling							

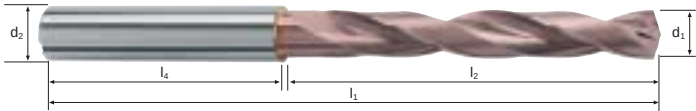
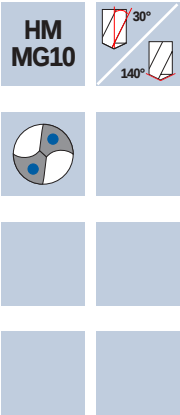


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		4.00	160	0.105	30.0	12730	1335	17.0	1.3
		4.20	160	0.110	29.7	12125	1335	18.5	1.3
		4.40	160	0.115	29.4	11575	1330	20.0	1.3
		4.50	160	0.120	29.3	11320	1360	21.5	1.3
		4.80	160	0.125	36.8	10610	1325	24.0	1.7
		5.00	160	0.130	36.5	10185	1325	26.0	1.7
		5.20	160	0.135	36.2	9795	1320	28.0	1.6
		5.30	160	0.140	36.0	9610	1345	29.5	1.6
		5.50	160	0.145	35.8	9260	1345	32.0	1.6
		5.50	120	0.145	35.8	6945	1005	24.0	2.1
Steel 500 - 850 N/mm ²		4.00	120	0.105	30.0	9550	1005	12.5	1.8
		4.20	120	0.110	29.7	9095	1000	14.0	1.8
		4.40	120	0.115	29.4	8680	1000	15.0	1.8
		4.50	120	0.120	29.3	8490	1020	16.0	1.7
		4.80	120	0.125	36.8	7960	995	18.0	2.2
		5.00	120	0.130	36.5	7640	995	19.5	2.2
		5.20	120	0.135	36.2	7345	990	21.0	2.2
		5.30	120	0.140	36.0	7205	1010	22.5	2.1
		5.50	120	0.145	35.8	6945	1005	24.0	2.1
		5.50	100	0.145	35.8	5785	635	15.0	3.4
Steel 850 - 1100 N/mm ²		4.00	100	0.080	30.0	7960	635	8.0	2.8
		4.20	100	0.085	29.7	7580	645	9.0	2.8
		4.40	100	0.090	29.4	7235	650	10.0	2.7
		4.50	100	0.090	29.3	7075	635	10.0	2.8
		4.80	100	0.095	36.8	6630	630	11.5	3.5
		5.00	100	0.100	36.5	6365	635	12.5	3.4
		5.20	100	0.105	36.2	6120	645	13.5	3.4
		5.30	100	0.105	36.0	6005	630	14.0	3.4
		5.50	100	0.110	35.8	5785	635	15.0	3.4
		5.50	65	0.090	35.8	3760	340	8.0	6.3
Steel 1100 - 1300 N/mm ²		4.00	65	0.065	30.0	5175	335	4.0	5.4
		4.20	65	0.070	29.7	4925	345	5.0	5.2
		4.40	65	0.075	29.4	4700	355	5.5	5.0
		4.50	65	0.075	29.3	4600	345	5.5	5.1
		4.80	65	0.080	36.8	4310	345	6.0	6.4
		5.00	65	0.085	36.5	4140	350	7.0	6.3
		5.20	65	0.085	36.2	3980	340	7.0	6.4
		5.30	65	0.090	36.0	3905	350	7.5	6.2
		5.50	65	0.090	35.8	3760	340	8.0	6.3
		5.50	65	0.090	35.8	3760	340	8.0	6.3

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	4.00	35	0.055	30.0	2785	155	2.0	11.6
	4.20	35	0.055	29.7	2655	145	2.0	12.3
	4.40	35	0.060	29.4	2530	150	2.5	11.8
	4.50	35	0.060	29.3	2475	150	2.5	11.7
	4.80	35	0.065	36.8	2320	150	2.5	14.7
	5.00	35	0.065	36.5	2230	145	3.0	15.1
	5.20	35	0.070	36.2	2140	150	3.0	14.5
	5.30	35	0.070	36.0	2100	145	3.0	14.9
	5.50	35	0.075	35.8	2025	150	3.5	14.3
	5.50	35	0.075	35.8	2025	150	3.5	14.3
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	4.00	60	0.060	30.0	4775	285	3.5	6.3
	4.20	60	0.065	29.7	4545	295	4.0	6.0
	4.40	60	0.070	29.4	4340	305	4.5	5.8
	4.50	60	0.070	29.3	4245	295	4.5	6.0
	4.80	60	0.075	36.8	3980	300	5.5	7.4
	5.00	60	0.075	36.5	3820	285	5.5	7.7
	5.20	60	0.080	36.2	3675	295	6.5	7.4
	5.30	60	0.080	36.0	3605	290	6.5	7.4
	5.50	60	0.085	35.8	3470	295	7.0	7.3
	5.50	60	0.085	35.8	3470	295	7.0	7.3
Cast iron (lamellar / spheroidal)	4.00	200	0.115	30.0	15915	1830	23.0	1.0
	4.20	200	0.120	29.7	15160	1820	25.0	1.0
	4.40	200	0.125	29.4	14470	1810	27.5	1.0
	4.50	200	0.130	29.3	14145	1840	29.5	1.0
	4.80	200	0.135	36.8	13265	1790	32.5	1.2
	5.00	200	0.145	36.5	12730	1845	36.0	1.2
	5.20	200	0.150	36.2	12245	1835	39.0	1.2
	5.30	200	0.150	36.0	12010	1800	39.5	1.2
	5.50	200	0.155	35.8	11575	1795	42.5	1.2
	5.50	200	0.155	35.8	11575	1795	42.5	1.2
Wrought aluminium alloys Si < 6%	4.00	250	0.090	30.0	19895	1790	22.5	1.0
	4.20	250	0.095	29.7	18945	1800	25.0	1.0
	4.40	250	0.100	29.4	18085	1810	27.5	1.0
	4.50	250	0.100	29.3	17685	1770	28.0	1.0
	4.80	250	0.105	36.8	16580	1740	31.5	1.3
	5.00	250	0.110	36.5	15915	1750	34.5	1.3
	5.20	250	0.115	36.2	15305	1760	37.5	1.2
	5.30	250	0.120	36.0	15015	1800	39.5	1.2
	5.50	250	0.120	35.8	14470	1735	41.0	1.2
	5.50	250	0.120	35.8	14470	1735	41.0	1.2

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°. Ø-Code						B52015	
B52015 .0390						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0390	3.90	6	74	36	36	●	
.0400	4.00	6	74	36	36	●	
.0410	4.10	6	74	36	36	●	
.0420	4.20	6	74	36	36	●	
.0430	4.30	6	74	36	36	●	
.0440	4.40	6	74	36	36	●	
.0445	4.45	6	74	36	36	●	
.0450	4.50	6	74	36	36	●	
.0460	4.60	6	74	36	36	●	
.0470	4.70	6	74	36	36	●	
.0480	4.80	6	82	44	36	●	
.0490	4.90	6	82	44	36	●	
.0495	4.95	6	82	44	36	●	
.0500	5.00	6	82	44	36	●	
.0505	5.05	6	82	44	36	●	
.0510	5.10	6	82	44	36	●	
.0520	5.20	6	82	44	36	●	
.0525	5.25	6	82	44	36	●	
.0530	5.30	6	82	44	36	●	
.0540	5.40	6	82	44	36	●	
.0550	5.50	6	82	44	36	●	
.0560	5.60	6	82	44	36	●	
.0565	5.65	6	82	44	36	●	

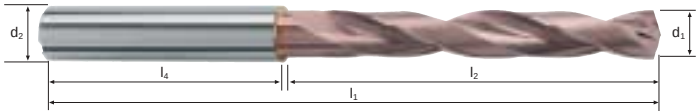
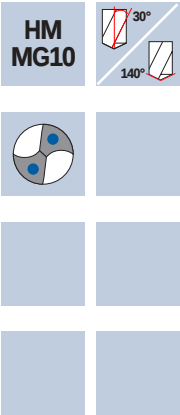


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	5.80	160	0.155	35.3	8780	1360	36.0	1.6
	6.00	160	0.160	35.0	8490	1360	38.5	1.5
	6.20	160	0.165	43.7	8215	1355	41.0	1.9
	6.50	160	0.170	43.3	7835	1330	44.0	2.0
	6.80	160	0.180	42.8	7490	1350	49.0	1.9
	7.00	160	0.185	42.5	7275	1345	52.0	1.9
	7.20	160	0.190	42.2	7075	1345	55.0	1.9
	7.40	160	0.195	41.9	6880	1340	57.5	1.9
	7.50	160	0.195	41.8	6790	1325	58.5	1.9
Steel 500 - 850 N/mm²	5.80	120	0.155	35.3	6585	1020	27.0	2.1
	6.00	120	0.160	35.0	6365	1020	29.0	2.1
	6.20	120	0.165	43.7	6160	1015	30.5	2.6
	6.50	120	0.170	43.3	5875	1000	33.0	2.6
	6.80	120	0.180	42.8	5615	1010	36.5	2.5
	7.00	120	0.185	42.5	5455	1010	39.0	2.5
	7.20	120	0.190	42.2	5305	1010	41.0	2.5
	7.40	120	0.195	41.9	5160	1005	43.0	2.5
	7.50	120	0.195	41.8	5095	995	44.0	2.5
Steel 850 - 1100 N/mm²	5.80	100	0.115	35.3	5490	630	16.5	3.4
	6.00	100	0.120	35.0	5305	635	18.0	3.3
	6.20	100	0.125	43.7	5135	640	19.5	4.1
	6.50	100	0.130	43.3	4895	635	21.0	4.1
	6.80	100	0.135	42.8	4680	630	23.0	4.1
	7.00	100	0.140	42.5	4545	635	24.5	4.0
	7.20	100	0.145	42.2	4420	640	26.0	4.0
	7.40	100	0.150	41.9	4300	645	27.5	3.9
	7.50	100	0.150	41.8	4245	635	28.0	3.9
Steel 1100 - 1300 N/mm²	5.80	65	0.095	35.3	3565	340	9.0	6.2
	6.00	65	0.100	35.0	3450	345	10.0	6.1
	6.20	65	0.105	43.7	3335	350	10.5	7.5
	6.50	65	0.110	43.3	3185	350	11.5	7.4
	6.80	65	0.115	42.8	3045	350	12.5	7.3
	7.00	65	0.115	42.5	2955	340	13.0	7.5
	7.20	65	0.120	42.2	2875	345	14.0	7.3
	7.40	65	0.125	41.9	2795	350	15.0	7.2
	7.50	65	0.125	41.8	2760	345	15.0	7.3

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	5.80	35	0.075	35.3	1920	145	4.0	14.6
	6.00	35	0.080	35.0	1855	150	4.0	14.0
	6.20	35	0.085	43.7	1795	155	4.5	16.9
	6.50	35	0.085	43.3	1715	145	5.0	17.9
	6.80	35	0.090	42.8	1640	150	5.5	17.1
	7.00	35	0.095	42.5	1590	150	6.0	17.0
	7.20	35	0.095	42.2	1545	145	6.0	17.5
	7.40	35	0.100	41.9	1505	150	6.5	16.8
	7.50	35	0.100	41.8	1485	150	6.5	16.7
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	5.80	60	0.090	35.3	3295	295	8.0	7.2
	6.00	60	0.090	35.0	3185	285	8.0	7.4
	6.20	60	0.095	43.7	3080	295	9.0	8.9
	6.50	60	0.100	43.3	2940	295	10.0	8.8
	6.80	60	0.105	42.8	2810	295	10.5	8.7
	7.00	60	0.110	42.5	2730	300	11.5	8.5
	7.20	60	0.110	42.2	2655	290	12.0	8.7
	7.40	60	0.115	41.9	2580	295	12.5	8.5
	7.50	60	0.115	41.8	2545	295	13.0	8.5
Cast iron (lamellar / spheroidal)	5.80	200	0.165	35.3	10975	1810	48.0	1.2
	6.00	200	0.170	35.0	10610	1805	51.0	1.2
	6.20	200	0.175	43.7	10270	1795	54.0	1.5
	6.50	200	0.185	43.3	9795	1810	60.0	1.4
	6.80	200	0.195	42.8	9360	1825	66.5	1.4
	7.00	200	0.200	42.5	9095	1820	70.0	1.4
	7.20	200	0.205	42.2	8840	1810	73.5	1.4
	7.40	200	0.210	41.9	8605	1805	77.5	1.4
	7.50	200	0.215	41.8	8490	1825	80.5	1.4
Wrought aluminium alloys Si < 6%	5.80	250	0.130	35.3	13720	1785	47.0	1.2
	6.00	250	0.135	35.0	13265	1790	50.5	1.2
	6.20	250	0.140	43.7	12835	1795	54.0	1.5
	6.50	250	0.145	43.3	12245	1775	59.0	1.5
	6.80	250	0.150	42.8	11705	1755	63.5	1.5
	7.00	250	0.155	42.5	11370	1760	67.5	1.4
	7.20	250	0.160	42.2	11050	1770	72.0	1.4
	7.40	250	0.165	41.9	10755	1775	76.5	1.4
	7.50	250	0.165	41.8	10610	1750	77.5	1.4

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0575	5.75	6	82	44	36	●	
.0580	5.80	6	82	44	36	●	
.0590	5.90	6	82	44	36	●	
.0600	6.00	6	82	44	36	●	
.0610	6.10	8	91	53	36	●	
.0620	6.20	8	91	53	36	●	
.0630	6.30	8	91	53	36	●	
.0640	6.40	8	91	53	36	●	
.0650	6.50	8	91	53	36	●	
.0660	6.60	8	91	53	36	●	
.0670	6.70	8	91	53	36	●	
.0680	6.80	8	91	53	36	●	
.0690	6.90	8	91	53	36	●	
.0700	7.00	8	91	53	36	●	
.0710	7.10	8	91	53	36	●	
.0720	7.20	8	91	53	36	●	
.0725	7.25	8	91	53	36	●	
.0730	7.30	8	91	53	36	●	
.0740	7.40	8	91	53	36	●	
.0745	7.45	8	91	53	36	●	
.0750	7.50	8	91	53	36	●	
.0755	7.55	8	91	53	36	●	

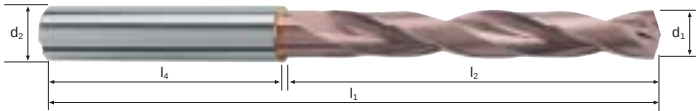


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		7.60	160	0.200	41.6	6700	1340	61.0	1.9
		7.80	160	0.205	41.3	6530	1340	64.0	1.8
		8.00	160	0.210	41.0	6365	1335	67.0	1.8
		8.20	160	0.215	48.7	6210	1335	70.5	2.2
		8.50	160	0.225	48.3	5990	1350	76.5	2.1
		8.80	160	0.230	47.8	5785	1330	81.0	2.2
		9.00	160	0.235	47.5	5660	1330	84.5	2.1
		9.20	160	0.240	47.2	5535	1330	88.5	2.1
		9.40	160	0.245	46.9	5420	1330	92.5	2.1
		9.40	160	0.245	46.9	5420	1330	92.5	2.1
Steel 500 - 850 N/mm ²		7.60	120	0.200	41.6	5025	1005	45.5	2.5
		7.80	120	0.205	41.3	4895	1005	48.0	2.5
		8.00	120	0.210	41.0	4775	1005	50.5	2.4
		8.20	120	0.215	48.7	4660	1000	53.0	2.9
		8.50	120	0.225	48.3	4495	1010	57.5	2.9
		8.80	120	0.230	47.8	4340	1000	61.0	2.9
		9.00	120	0.235	47.5	4245	1000	63.5	2.9
		9.20	120	0.240	47.2	4150	995	66.0	2.8
		9.40	120	0.245	46.9	4065	995	69.0	2.8
		9.40	120	0.245	46.9	4065	995	69.0	2.8
Steel 850 - 1100 N/mm ²		7.60	100	0.150	41.6	4190	630	28.5	4.0
		7.80	100	0.155	41.3	4080	630	30.0	3.9
		8.00	100	0.160	41.0	3980	635	32.0	3.9
		8.20	100	0.165	48.7	3880	640	34.0	4.6
		8.50	100	0.170	48.3	3745	635	36.0	4.6
		8.80	100	0.175	47.8	3615	635	38.5	4.5
		9.00	100	0.180	47.5	3535	635	40.5	4.5
		9.20	100	0.185	47.2	3460	640	42.5	4.4
		9.40	100	0.190	46.9	3385	645	45.0	4.4
		9.40	100	0.190	46.9	3385	645	45.0	4.4
Steel 1100 - 1300 N/mm ²		7.60	65	0.125	41.6	2720	340	15.5	7.3
		7.80	65	0.130	41.3	2655	345	16.5	7.2
		8.00	65	0.135	41.0	2585	350	17.5	7.0
		8.20	65	0.135	48.7	2525	340	18.0	8.6
		8.50	65	0.140	48.3	2435	340	19.5	8.5
		8.80	65	0.145	47.8	2350	340	20.5	8.4
		9.00	65	0.150	47.5	2300	345	22.0	8.3
		9.20	65	0.155	47.2	2250	350	23.5	8.1
		9.40	65	0.155	46.9	2200	340	23.5	8.3
		9.40	65	0.155	46.9	2200	340	23.5	8.3

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	7.60	35	0.100	41.6	1465	145	6.5	17.2
	7.80	35	0.105	41.3	1430	150	7.0	16.5
	8.00	35	0.105	41.0	1395	145	7.5	17.0
	8.20	35	0.110	48.7	1360	150	8.0	19.5
	8.50	35	0.115	48.3	1310	150	8.5	19.3
	8.80	35	0.115	47.8	1265	145	9.0	19.8
	9.00	35	0.120	47.5	1240	150	9.5	19.0
	9.20	35	0.125	47.2	1210	150	10.0	18.9
	9.40	35	0.125	46.9	1185	150	10.5	18.8
	9.40	35	0.125	46.9	1185	150	10.5	18.8
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	7.60	60	0.115	41.6	2515	290	13.0	8.6
	7.80	60	0.120	41.3	2450	295	14.0	8.4
	8.00	60	0.125	41.0	2385	300	15.0	8.2
	8.20	60	0.125	48.7	2330	290	15.5	10.1
	8.50	60	0.130	48.3	2245	290	16.5	10.0
	8.80	60	0.135	47.8	2170	295	18.0	9.7
	9.00	60	0.140	47.5	2120	295	19.0	9.7
	9.20	60	0.140	47.2	2075	290	19.5	9.8
	9.40	60	0.145	46.9	2030	295	20.5	9.5
	9.40	60	0.145	46.9	2030	295	20.5	9.5
Cast iron (lamellar / spheroidal)	7.60	200	0.215	41.6	8375	1800	81.5	1.4
	7.80	200	0.225	41.3	8160	1835	87.5	1.4
	8.00	200	0.230	41.0	7960	1830	92.0	1.3
	8.20	200	0.235	48.7	7765	1825	96.5	1.6
	8.50	200	0.245	48.3	7490	1835	104.0	1.6
	8.80	200	0.250	47.8	7235	1810	110.0	1.6
	9.00	200	0.255	47.5	7075	1805	115.0	1.6
	9.20	200	0.265	47.2	6920	1835	122.0	1.5
	9.40	200	0.270	46.9	6775	1830	127.0	1.5
	9.40	200	0.270	46.9	6775	1830	127.0	1.5
Wrought aluminium alloys Si < 6%	7.60	250	0.170	41.6	10470	1780	80.5	1.4
	7.80	250	0.175	41.3	10200	1785	85.5	1.4
	8.00	250	0.180	41.0	9945	1790	90.0	1.4
	8.20	250	0.180	48.7	9705	1745	92.0	1.7
	8.50	250	0.190	48.3	9360	1780	101.0	1.6
	8.80	250	0.195	47.8	9045	1765	107.5	1.6
	9.00	250	0.200	47.5	8840	1770	112.5	1.6
	9.20	250	0.205	47.2	8650	1775	118.0	1.6
	9.40	250	0.210	46.9	8465	1780	123.5	1.6
	9.40	250	0.210	46.9	8465	1780	123.5	1.6

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
Ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0765	7.65	8	91	53	36	●	
.0770	7.70	8	91	53	36	●	
.0780	7.80	8	91	53	36	●	
.0790	7.90	8	91	53	36	●	
.0800	8.00	8	91	53	36	●	
.0810	8.10	10	103	61	40	●	
.0820	8.20	10	103	61	40	●	
.0830	8.30	10	103	61	40	●	
.0840	8.40	10	103	61	40	●	
.0850	8.50	10	103	61	40	●	
.0860	8.60	10	103	61	40	●	
.0870	8.70	10	103	61	40	●	
.0875	8.75	10	103	61	40	●	
.0880	8.80	10	103	61	40	●	
.0885	8.85	10	103	61	40	●	
.0890	8.90	10	103	61	40	●	
.0900	9.00	10	103	61	40	●	
.0910	9.10	10	103	61	40	●	
.0920	9.20	10	103	61	40	●	
.0925	9.25	10	103	61	40	●	
.0930	9.30	10	103	61	40	●	
.0940	9.40	10	103	61	40	●	

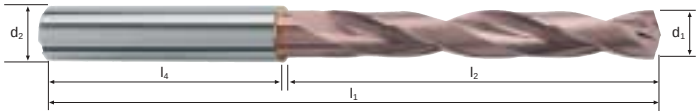
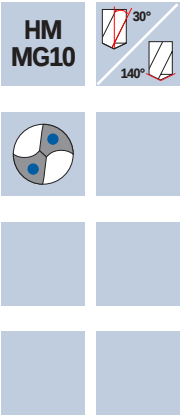


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	9.50	160	0.250	46.8	5360	1340	95.0	2.1
		9.60	160	0.255	46.6	5305	1355	98.0	2.1
		9.80	160	0.260	46.3	5195	1350	102.0	2.1
		10.00	160	0.265	46.0	5095	1350	106.0	2.0
		10.20	160	0.270	55.7	4995	1350	110.5	2.5
		10.50	160	0.275	55.3	4850	1335	115.5	2.5
		10.80	160	0.285	54.8	4715	1345	123.0	2.4
		11.00	160	0.290	54.5	4630	1345	128.0	2.4
		11.50	160	0.305	53.8	4430	1350	140.0	2.4
		9.50	120	0.250	46.8	4020	1005	71.0	2.8
	Steel 500 - 850 N/mm ²	9.60	120	0.255	46.6	3980	1015	73.5	2.8
		9.80	120	0.260	46.3	3900	1015	76.5	2.7
		10.00	120	0.265	46.0	3820	1010	79.5	2.7
		10.20	120	0.270	55.7	3745	1010	82.5	3.3
		10.50	120	0.275	55.3	3640	1000	86.5	3.3
		10.80	120	0.285	54.8	3535	1005	92.0	3.3
		11.00	120	0.290	54.5	3470	1005	95.5	3.3
		11.50	120	0.305	53.8	3320	1015	105.5	3.2
		9.50	100	0.190	46.8	3350	635	45.0	4.4
		9.60	100	0.190	46.6	3315	630	45.5	4.4
	Steel 850 - 1100 N/mm ²	9.80	100	0.195	46.3	3250	635	48.0	4.4
		10.00	100	0.200	46.0	3185	635	50.0	4.3
		10.20	100	0.205	55.7	3120	640	52.5	5.2
		10.50	100	0.210	55.3	3030	635	55.0	5.2
		10.80	100	0.215	54.8	2945	635	58.0	5.2
		11.00	100	0.220	54.5	2895	635	60.5	5.1
		11.50	100	0.230	53.8	2770	635	66.0	5.1
		9.50	65	0.160	46.8	2180	350	25.0	8.0
		9.60	65	0.160	46.6	2155	345	25.0	8.1
		9.80	65	0.165	46.3	2110	350	26.5	7.9
	Steel 1100 - 1300 N/mm ²	10.00	65	0.165	46.0	2070	340	26.5	8.1
		10.20	65	0.170	55.7	2030	345	28.0	9.7
		10.50	65	0.175	55.3	1970	345	30.0	9.6
		10.80	65	0.180	54.8	1915	345	31.5	9.5
		11.00	65	0.185	54.5	1880	350	33.5	9.3
		11.50	65	0.190	53.8	1800	340	35.5	9.5

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	9.50	35	0.125	46.8	1175	145	10.5	19.4
	9.60	35	0.130	46.6	1160	150	11.0	18.6
	9.80	35	0.130	46.3	1135	150	11.5	18.5
	10.00	35	0.135	46.0	1115	150	12.0	18.4
	10.20	35	0.135	55.7	1090	145	12.0	23.0
	10.50	35	0.140	55.3	1060	150	13.0	22.1
	10.80	35	0.145	54.8	1030	150	13.5	21.9
	11.00	35	0.145	54.5	1015	145	14.0	22.6
	11.50	35	0.155	53.8	970	150	15.5	21.5
	9.50	60	0.145	46.8	2010	290	20.5	9.7
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	9.60	60	0.150	46.6	1990	300	21.5	9.3
	9.80	60	0.150	46.3	1950	295	22.5	9.4
	10.00	60	0.155	46.0	1910	295	23.0	9.4
	10.20	60	0.155	55.7	1870	290	23.5	11.5
	10.50	60	0.160	55.3	1820	290	25.0	11.4
	10.80	60	0.165	54.8	1770	290	26.5	11.3
	11.00	60	0.170	54.5	1735	295	28.0	11.1
	11.50	60	0.175	53.8	1660	290	30.0	11.1
	9.50	200	0.270	46.8	6700	1810	128.5	1.6
	9.60	200	0.275	46.6	6630	1825	132.0	1.5
Cast iron (lamellar / spheroidal)	9.80	200	0.280	46.3	6495	1820	137.5	1.5
	10.00	200	0.285	46.0	6365	1815	142.5	1.5
	10.20	200	0.290	55.7	6240	1810	148.0	1.8
	10.50	200	0.300	55.3	6065	1820	157.5	1.8
	10.80	200	0.310	54.8	5895	1825	167.0	1.8
	11.00	200	0.315	54.5	5785	1820	173.0	1.8
	11.50	200	0.330	53.8	5535	1825	189.5	1.8
	9.50	250	0.210	46.8	8375	1760	125.0	1.6
	9.60	250	0.215	46.6	8290	1780	129.0	1.6
	9.80	250	0.220	46.3	8120	1785	134.5	1.6
Wrought aluminium alloys Si < 6%	10.00	250	0.220	46.0	7960	1750	137.5	1.6
	10.20	250	0.225	55.7	7800	1755	143.5	1.9
	10.50	250	0.235	55.3	7580	1780	154.0	1.9
	10.80	250	0.240	54.8	7370	1770	162.0	1.9
	11.00	250	0.245	54.5	7235	1775	168.5	1.8
	11.50	250	0.255	53.8	6920	1765	183.5	1.8

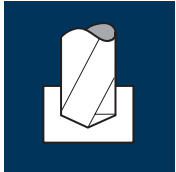
Spiral flute drills Supradrill N

5xd



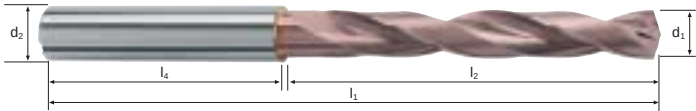
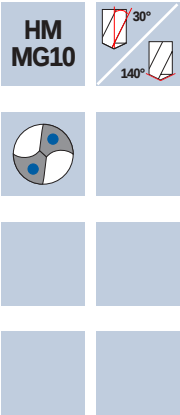
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0970	9.70	10	103	61	40	●	
.0980	9.80	10	103	61	40	●	
.0990	9.90	10	103	61	40	●	
.1000	10.00	10	103	61	40	●	
.1010	10.10	12	118	71	45	●	
.1020	10.20	12	118	71	45	●	
.1030	10.30	12	118	71	45	●	
.1040	10.40	12	118	71	45	●	
.1050	10.50	12	118	71	45	●	
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.1070	10.70	12	118	71	45	●	
.1080	10.80	12	118	71	45	●	
.1090	10.90	12	118	71	45	●	
.1100	11.00	12	118	71	45	●	
.1110	11.10	12	118	71	45	●	
.1120	11.20	12	118	71	45	●	
.1130	11.30	12	118	71	45	●	
.1140	11.40	12	118	71	45	●	
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Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	11.80	160	0.310	53.3	4315	1340	146.5	2.4
		12.00	160	0.315	53.0	4245	1335	151.0	2.4
		12.20	160	0.320	58.7	4175	1335	156.0	2.6
		12.50	160	0.330	58.3	4075	1345	165.0	2.6
		12.80	160	0.335	57.8	3980	1335	172.0	2.6
		13.00	160	0.340	57.5	3920	1335	177.0	2.6
		13.20	160	0.345	57.2	3860	1330	182.0	2.6
		13.50	160	0.355	56.8	3775	1340	192.0	2.5
		13.80	160	0.365	56.3	3690	1345	201.0	2.5
	Steel 500 - 850 N/mm ²	11.80	120	0.310	53.3	3235	1005	110.0	3.2
		12.00	120	0.315	53.0	3185	1005	113.5	3.2
		12.20	120	0.320	58.7	3130	1000	117.0	3.5
		12.50	120	0.330	58.3	3055	1010	124.0	3.5
		12.80	120	0.335	57.8	2985	1000	128.5	3.5
		13.00	120	0.340	57.5	2940	1000	132.5	3.5
		13.20	120	0.345	57.2	2895	1000	137.0	3.4
		13.50	120	0.355	56.8	2830	1005	144.0	3.4
		13.80	120	0.365	56.3	2770	1010	151.0	3.3
	Steel 850 - 1100 N/mm ²	11.80	100	0.235	53.3	2700	635	69.5	5.0
		12.00	100	0.240	53.0	2655	635	72.0	5.0
		12.20	100	0.245	58.7	2610	640	75.0	5.5
		12.50	100	0.250	58.3	2545	635	78.0	5.5
		12.80	100	0.255	57.8	2485	635	81.5	5.5
		13.00	100	0.260	57.5	2450	635	84.5	5.4
		13.20	100	0.265	57.2	2410	640	87.5	5.4
		13.50	100	0.270	56.8	2360	635	91.0	5.4
		13.80	100	0.275	56.3	2305	635	95.0	5.3
	Steel 1100 - 1300 N/mm ²	11.80	65	0.195	53.3	1755	340	37.0	9.4
		12.00	65	0.200	53.0	1725	345	39.0	9.2
		12.20	65	0.205	58.7	1695	345	40.5	10.2
		12.50	65	0.210	58.3	1655	350	43.0	10.0
		12.80	65	0.215	57.8	1615	345	44.5	10.1
		13.00	65	0.215	57.5	1590	340	45.0	10.1
		13.20	65	0.220	57.2	1565	345	47.0	9.9
		13.50	65	0.225	56.8	1535	345	49.5	9.9
		13.80	65	0.230	56.3	1500	345	51.5	9.8
Material		d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		11.80	35	0.155	53.3	945	145	16.0	22.1
		12.00	35	0.160	53.0	930	150	17.0	21.2
		12.20	35	0.165	58.7	915	150	17.5	23.5
		12.50	35	0.165	58.3	890	145	18.0	24.1
		12.80	35	0.170	57.8	870	150	19.5	23.1
		13.00	35	0.175	57.5	855	150	20.0	23.0
		13.20	35	0.175	57.2	845	150	20.5	22.9
		13.50	35	0.180	56.8	825	150	21.5	22.7
		13.80	35	0.185	56.3	805	150	22.5	22.5
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		11.80	60	0.180	53.3	1620	290	31.5	11.0
		12.00	60	0.185	53.0	1590	295	33.5	10.8
		12.20	60	0.190	58.7	1565	295	34.5	11.9
		12.50	60	0.190	58.3	1530	290	35.5	12.1
		12.80	60	0.195	57.8	1490	290	37.5	12.0
		13.00	60	0.200	57.5	1470	295	39.0	11.7
		13.20	60	0.205	57.2	1445	295	40.5	11.6
		13.50	60	0.210	56.8	1415	295	42.0	11.6
		13.80	60	0.210	56.3	1385	290	43.5	11.6
Cast iron (lamellar / spheroidal)		11.80	200	0.335	53.3	5395	1805	197.5	1.8
		12.00	200	0.345	53.0	5305	1830	207.0	1.7
		12.20	200	0.350	58.7	5220	1825	213.5	1.9
		12.50	200	0.355	58.3	5095	1810	222.0	1.9
		12.80	200	0.365	57.8	4975	1815	233.5	1.9
		13.00	200	0.370	57.5	4895	1810	240.0	1.9
		13.20	200	0.375	57.2	4825	1810	247.5	1.9
		13.50	200	0.385	56.8	4715	1815	260.0	1.9
		13.80	200	0.395	56.3	4615	1825	273.0	1.9
Wrought aluminium alloys Si < 6%		11.80	250	0.260	53.3	6745	1755	192.0	1.8
		12.00	250	0.265	53.0	6630	1755	198.5	1.8
		12.20	250	0.270	58.7	6525	1760	205.5	2.0
		12.50	250	0.280	58.3	6365	1780	218.5	2.0
		12.80	250	0.285	57.8	6215	1770	228.0	2.0
		13.00	250	0.290	57.5	6120	1775	235.5	1.9
		13.20	250	0.295	57.2	6030	1780	243.5	1.9
		13.50	250	0.300	56.8	5895	1770	253.5	1.9
		13.80	250	0.305	56.3	5765	1760	263.0	1.9

Spiral flute drills Supradrill N

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Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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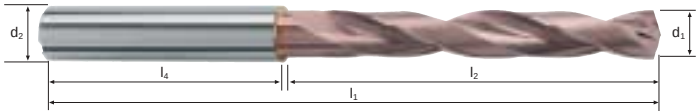
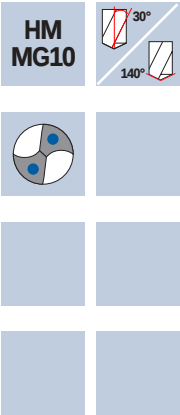
Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
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.1200	12.00	12	118	71	45	●	
.1210	12.10	14	124	77	45	●	
.1220	12.20	14	124	77	45	●	
.1230	12.30	14	124	77	45	●	
.1240	12.40	14	124	77	45	●	
.1250	12.50	14	124	77	45	●	
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.1290	12.90	14	124	77	45	●	
.1300	13.00	14	124	77	45	●	
.1310	13.10	14	124	77	45	●	
.1320	13.20	14	124	77	45	●	
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.1350	13.50	14	124	77	45	●	
.1360	13.60	14	124	77	45	●	
.1370	13.70	14	124	77	45	●	
.1380	13.80	14	124	77	45	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm²	14.00	160	0.370	56.0	3640	1345	207.0	2.5
		14.20	160	0.375	61.7	3585	1345	213.0	2.8
		14.50	160	0.380	61.3	3510	1335	220.5	2.8
		14.80	160	0.390	60.8	3440	1340	230.5	2.7
		15.00	160	0.395	60.5	3395	1340	237.0	2.7
		15.20	160	0.400	60.2	3350	1340	243.0	2.7
		15.50	160	0.410	59.8	3285	1345	254.0	2.7
		15.80	160	0.415	59.3	3225	1340	262.5	2.7
		16.00	160	0.420	59.0	3185	1340	269.5	2.6
		16.00	160	0.420	59.0	3185	1340	269.5	2.6
	Steel 500 - 850 N/mm²	14.00	120	0.370	56.0	2730	1010	155.5	3.3
		14.20	120	0.375	61.7	2690	1010	160.0	3.7
		14.50	120	0.380	61.3	2635	1000	165.0	3.7
		14.80	120	0.390	60.8	2580	1005	173.0	3.6
		15.00	120	0.395	60.5	2545	1005	177.5	3.6
		15.20	120	0.400	60.2	2515	1005	182.5	3.6
		15.50	120	0.410	59.8	2465	1010	190.5	3.6
		15.80	120	0.415	59.3	2420	1005	197.0	3.5
		16.00	120	0.420	59.0	2385	1000	201.0	3.5
		16.00	120	0.420	59.0	2385	1000	201.0	3.5
	Steel 850 - 1100 N/mm²	14.00	100	0.280	56.0	2275	635	98.0	5.3
		14.20	100	0.285	61.7	2240	640	101.5	5.8
		14.50	100	0.290	61.3	2195	635	105.0	5.8
		14.80	100	0.295	60.8	2150	635	109.0	5.7
		15.00	100	0.300	60.5	2120	635	112.0	5.7
		15.20	100	0.305	60.2	2095	640	116.0	5.6
		15.50	100	0.310	59.8	2055	635	120.0	5.7
		15.80	100	0.315	59.3	2015	635	124.5	5.6
		16.00	100	0.320	59.0	1990	635	127.5	5.6
		16.00	100	0.320	59.0	1990	635	127.5	5.6
	Steel 1100 - 1300 N/mm²	14.00	65	0.235	56.0	1480	350	54.0	9.6
		14.20	65	0.235	61.7	1455	340	54.0	10.9
		14.50	65	0.240	61.3	1425	340	56.0	10.8
		14.80	65	0.245	60.8	1400	345	59.5	10.6
		15.00	65	0.250	60.5	1380	345	61.0	10.5
		15.20	65	0.255	60.2	1360	345	62.5	10.5
		15.50	65	0.260	59.8	1335	345	65.0	10.4
		15.80	65	0.265	59.3	1310	345	67.5	10.3
		16.00	65	0.265	59.0	1295	345	69.5	10.3
		16.00	65	0.265	59.0	1295	345	69.5	10.3

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm²	14.00	35	0.185	56.0	795	145	22.5	23.2
	14.20	35	0.190	61.7	785	150	24.0	24.7
	14.50	35	0.195	61.3	770	150	25.0	24.5
	14.80	35	0.195	60.8	755	145	25.0	25.2
	15.00	35	0.200	60.5	745	150	26.5	24.2
	15.20	35	0.205	60.2	735	150	27.0	24.1
	15.50	35	0.205	59.8	720	150	28.5	23.9
	15.80	35	0.210	59.3	705	150	29.5	23.7
	16.00	35	0.215	59.0	695	150	30.0	23.6
	16.00	35	0.215	59.0	695	150	30.0	23.6
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	14.00	60	0.215	56.0	1365	295	45.5	11.4
	14.20	60	0.220	61.7	1345	295	46.5	12.5
	14.50	60	0.225	61.3	1315	295	48.5	12.5
	14.80	60	0.230	60.8	1290	295	50.5	12.4
	15.00	60	0.230	60.5	1275	295	52.0	12.3
	15.20	60	0.235	60.2	1255	295	53.5	12.2
	15.50	60	0.240	59.8	1230	295	55.5	12.2
	15.80	60	0.245	59.3	1210	295	58.0	12.1
	16.00	60	0.245	59.0	1195	295	59.5	12.0
	16.00	60	0.245	59.0	1195	295	59.5	12.0
Cast iron (lamellar / spheroidal)	14.00	200	0.400	56.0	4545	1820	280.0	1.8
	14.20	200	0.405	61.7	4485	1815	287.5	2.0
	14.50	200	0.415	61.3	4390	1820	300.5	2.0
	14.80	200	0.425	60.8	4300	1830	315.0	2.0
	15.00	200	0.430	60.5	4245	1825	322.5	2.0
	15.20	200	0.435	60.2	4190	1825	331.0	2.0
	15.50	200	0.445	59.8	4105	1825	344.5	2.0
	15.80	200	0.450	59.3	4030	1815	356.0	2.0
	16.00	200	0.455	59.0	3980	1810	364.0	2.0
	16.00	200	0.455	59.0	3980	1810	364.0	2.0
Wrought aluminium alloys Si < 6%	14.00	250	0.310	56.0	5685	1760	271.0	1.9
	14.20	250	0.315	61.7	5605	1765	279.5	2.1
	14.50	250	0.320	61.3	5490	1755	290.0	2.1
	14.80	250	0.330	60.8	5375	1775	305.5	2.1
	15.00	250	0.335	60.5	5305	1775	313.5	2.0
	15.20	250	0.340	60.2	5235	1780	323.0	2.0
	15.50	250	0.345	59.8	5135	1770	334.0	2.0
	15.80	250	0.350	59.3	5035	1760	345.0	2.0
	16.00	250	0.355	59.0	4975	1765	355.0	2.0
	16.00	250	0.355	59.0	4975	1765	355.0	2.0

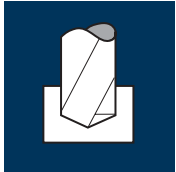
Spiral flute drills Supradrill N

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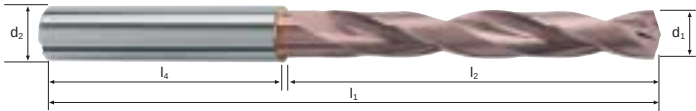
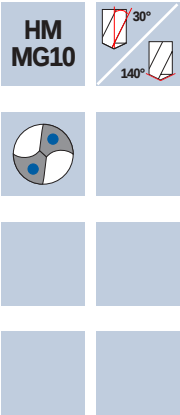
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
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.1450	14.50	16	133	83	48	●	
.1460	14.60	16	133	83	48	●	
.1470	14.70	16	133	83	48	●	
.1480	14.80	16	133	83	48	●	
.1490	14.90	16	133	83	48	●	
.1500	15.00	16	133	83	48	●	
.1510	15.10	16	133	83	48	●	
.1520	15.20	16	133	83	48	●	
.1530	15.30	16	133	83	48	●	
.1540	15.40	16	133	83	48	●	
.1550	15.50	16	133	83	48	●	
.1560	15.60	16	133	83	48	●	
.1570	15.70	16	133	83	48	●	
.1580	15.80	16	133	83	48	●	
.1590	15.90	16	133	83	48	●	
.1600	16.00	16	133	83	48	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	16.20	160	0.425	68.7	3145	1335	275.0	3.1
		16.50	160	0.435	68.3	3085	1340	286.5	3.1
		16.60	160	0.435	68.1	3070	1335	289.0	3.1
		16.80	160	0.440	67.8	3030	1335	296.0	3.0
		17.00	160	0.445	67.5	2995	1335	303.0	3.0
		17.20	160	0.455	67.2	2960	1345	312.5	3.0
		17.50	160	0.460	66.8	2910	1340	322.5	3.0
		17.80	160	0.470	66.3	2860	1345	334.5	3.0
		18.00	160	0.475	66.0	2830	1345	342.5	2.9
		18.00	160	0.475	66.0	2830	1345	342.5	2.9
	Steel 500 - 850 N/mm ²	16.20	120	0.425	68.7	2360	1005	207.0	4.1
		16.50	120	0.435	68.3	2315	1005	215.0	4.1
		16.60	120	0.435	68.1	2300	1000	216.5	4.1
		16.80	120	0.440	67.8	2275	1000	221.5	4.1
		17.00	120	0.445	67.5	2245	1000	227.0	4.1
		17.20	120	0.455	67.2	2220	1010	234.5	4.0
		17.50	120	0.460	66.8	2185	1005	241.5	4.0
		17.80	120	0.470	66.3	2145	1010	251.5	3.9
		18.00	120	0.475	66.0	2120	1005	255.5	3.9
		18.00	120	0.475	66.0	2120	1005	255.5	3.9
	Steel 850 - 1100 N/mm ²	16.20	100	0.325	68.7	1965	640	132.0	6.4
		16.50	100	0.330	68.3	1930	635	136.0	6.5
		16.60	100	0.330	68.1	1920	635	137.5	6.4
		16.80	100	0.335	67.8	1895	635	141.0	6.4
		17.00	100	0.340	67.5	1870	635	144.0	6.4
		17.20	100	0.345	67.2	1850	640	148.5	6.3
		17.50	100	0.350	66.8	1820	635	152.5	6.3
		17.80	100	0.355	66.3	1790	635	158.0	6.3
		18.00	100	0.360	66.0	1770	635	161.5	6.2
		18.00	100	0.360	66.0	1770	635	161.5	6.2
	Steel 1100 - 1300 N/mm ²	16.20	65	0.270	68.7	1275	345	71.0	11.9
		16.50	65	0.275	68.3	1255	345	74.0	11.9
		16.60	65	0.275	68.1	1245	340	73.5	12.0
		16.80	65	0.280	67.8	1230	345	76.5	11.8
		17.00	65	0.285	67.5	1215	345	78.5	11.7
		17.20	65	0.285	67.2	1205	345	80.0	11.7
		17.50	65	0.290	66.8	1180	340	82.0	11.8
		17.80	65	0.295	66.3	1160	340	84.5	11.7
		18.00	65	0.300	66.0	1150	345	88.0	11.5
		18.00	65	0.300	66.0	1150	345	88.0	11.5
Material		d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		16.20	35	0.215	68.7	690	150	31.0	27.5
		16.50	35	0.220	68.3	675	150	32.0	27.3
		16.60	35	0.220	68.1	670	145	31.5	28.2
		16.80	35	0.225	67.8	665	150	33.5	27.1
		17.00	35	0.225	67.5	655	145	33.0	27.9
		17.20	35	0.230	67.2	650	150	35.0	26.9
		17.50	35	0.235	66.8	635	150	36.0	26.7
		17.80	35	0.235	66.3	625	145	36.0	27.4
		18.00	35	0.240	66.0	620	150	38.0	26.4
		18.00	35	0.240	66.0	620	150	38.0	26.4
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		16.20	60	0.250	68.7	1180	295	61.0	14.0
		16.50	60	0.255	68.3	1155	295	63.0	13.9
		16.60	60	0.255	68.1	1150	295	64.0	13.9
		16.80	60	0.260	67.8	1135	295	65.5	13.8
		17.00	60	0.260	67.5	1125	295	67.0	13.7
		17.20	60	0.265	67.2	1110	295	68.5	13.7
		17.50	60	0.270	66.8	1090	295	71.0	13.6
		17.80	60	0.275	66.3	1075	295	73.5	13.5
		18.00	60	0.275	66.0	1060	290	74.0	13.7
		18.00	60	0.275	66.0	1060	290	74.0	13.7
Cast iron (lamellar / spheroidal)		16.20	200	0.465	68.7	3930	1825	376.0	2.3
		16.50	200	0.470	68.3	3860	1815	388.0	2.3
		16.60	200	0.475	68.1	3835	1820	394.0	2.2
		16.80	200	0.480	67.8	3790	1820	403.5	2.2
		17.00	200	0.485	67.5	3745	1815	412.0	2.2
		17.20	200	0.490	67.2	3700	1815	421.5	2.2
		17.50	200	0.500	66.8	3640	1820	438.0	2.2
		17.80	200	0.510	66.3	3575	1825	454.0	2.2
		18.00	200	0.515	66.0	3535	1820	463.0	2.2
		18.00	200	0.515	66.0	3535	1820	463.0	2.2
Wrought aluminium alloys Si < 6%		16.20	250	0.360	68.7	4910	1770	365.0	2.3
		16.50	250	0.365	68.3	4825	1760	376.5	2.3
		16.60	250	0.370	68.1	4795	1775	384.0	2.3
		16.80	250	0.375	67.8	4735	1775	393.5	2.3
		17.00	250	0.380	67.5	4680	1780	404.0	2.3
		17.20	250	0.380	67.2	4625	1760	409.0	2.3
		17.50	250	0.390	66.8	4545	1775	427.0	2.3
		17.80	250	0.395	66.3	4470	1765	439.0	2.3
		18.00	250	0.400	66.0	4420	1770	450.5	2.2
		18.00	250	0.400	66.0	4420	1770	450.5	2.2

Spiral flute drills Supradrill N

5xd



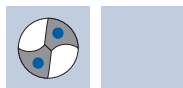
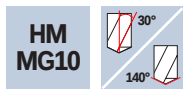
Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52015	
ø-Code						B53015	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.1610	16.10	18	143	93	48	●	
.1620	16.20	18	143	93	48	●	
.1630	16.30	18	143	93	48	●	
.1640	16.40	18	143	93	48	●	
.1650	16.50	18	143	93	48	●	
.1660	16.60	18	143	93	48	●	
.1670	16.70	18	143	93	48	●	
.1680	16.80	18	143	93	48	●	
.1690	16.90	18	143	93	48	●	
.1700	17.00	18	143	93	48	●	
.1710	17.10	18	143	93	48	●	
.1720	17.20	18	143	93	48	●	
.1730	17.30	18	143	93	48	●	
.1740	17.40	18	143	93	48	●	
.1750	17.50	18	143	93	48	●	
.1760	17.60	18	143	93	48	●	
.1770	17.70	18	143	93	48	●	
.1780	17.80	18	143	93	48	●	
.1790	17.90	18	143	93	48	●	
.1800	18.00	18	143	93	48	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	18.50	160	0.485	73.3	2755	1335	359.0	3.3
		18.70	160	0.490	73.0	2725	1335	366.5	3.3
		19.00	160	0.500	72.5	2680	1340	380.0	3.2
		19.20	160	0.505	72.2	2655	1340	388.0	3.2
		19.30	160	0.510	72.0	2640	1345	393.5	3.2
		19.50	160	0.515	71.8	2610	1345	401.5	3.2
		19.70	160	0.520	71.5	2585	1345	410.0	3.2
		19.80	160	0.520	71.3	2570	1335	411.0	3.2
		20.00	160	0.525	71.0	2545	1335	419.5	3.2
	Steel 500 - 850 N/mm ²	18.50	120	0.485	73.3	2065	1000	269.0	4.4
		18.70	120	0.490	73.0	2045	1000	274.5	4.4
		19.00	120	0.500	72.5	2010	1005	285.0	4.3
		19.20	120	0.505	72.2	1990	1005	291.0	4.3
		19.30	120	0.510	72.0	1980	1010	295.5	4.3
		19.50	120	0.515	71.8	1960	1010	301.5	4.3
		19.70	120	0.520	71.5	1940	1010	308.0	4.2
		19.80	120	0.520	71.3	1930	1005	309.5	4.3
		20.00	120	0.525	71.0	1910	1005	315.5	4.2
	Steel 850 - 1100 N/mm ²	18.50	100	0.370	73.3	1720	635	170.5	6.9
		18.70	100	0.375	73.0	1700	640	176.0	6.8
		19.00	100	0.380	72.5	1675	635	180.0	6.9
		19.20	100	0.385	72.2	1660	640	185.5	6.8
		19.30	100	0.385	72.0	1650	635	186.0	6.8
		19.50	100	0.390	71.8	1630	635	189.5	6.8
		19.70	100	0.395	71.5	1615	640	195.0	6.7
		19.80	100	0.395	71.3	1610	635	195.5	6.7
		20.00	100	0.400	71.0	1590	635	199.5	6.7
	Steel 1100 - 1300 N/mm ²	18.50	65	0.310	73.3	1120	345	92.5	12.7
		18.70	65	0.310	73.0	1105	345	95.0	12.7
		19.00	65	0.315	72.5	1090	345	98.0	12.6
		19.20	65	0.320	72.2	1080	345	100.0	12.6
		19.30	65	0.320	72.0	1070	340	99.5	12.7
		19.50	65	0.325	71.8	1060	345	103.0	12.5
		19.70	65	0.330	71.5	1050	345	105.0	12.4
		19.80	65	0.330	71.3	1045	345	106.0	12.4
		20.00	65	0.335	71.0	1035	345	108.5	12.3
Material		d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		18.50	35	0.245	73.3	600	145	39.0	30.3
		18.70	35	0.250	73.0	595	150	41.0	29.2
		19.00	35	0.255	72.5	585	150	42.5	29.0
		19.20	35	0.255	72.2	580	150	43.5	28.9
		19.30	35	0.255	72.0	575	145	42.5	29.8
		19.50	35	0.260	71.8	570	150	45.0	28.7
		19.70	35	0.265	71.5	565	150	45.5	28.6
		19.80	35	0.265	71.3	565	150	46.0	28.5
		20.00	35	0.265	71.0	555	145	45.5	29.4
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		18.50	60	0.285	73.3	1030	295	79.5	14.9
		18.70	60	0.290	73.0	1020	295	81.0	14.8
		19.00	60	0.290	72.5	1005	290	82.0	15.0
		19.20	60	0.295	72.2	995	295	85.5	14.7
		19.30	60	0.295	72.0	990	290	85.0	14.9
		19.50	60	0.300	71.8	980	295	88.0	14.6
		19.70	60	0.305	71.5	970	295	90.0	14.5
		19.80	60	0.305	71.3	965	295	91.0	14.5
		20.00	60	0.310	71.0	955	295	92.5	14.4
Cast iron (lamellar / spheroidal)		18.50	200	0.530	73.3	3440	1825	490.5	2.4
		18.70	200	0.535	73.0	3405	1820	500.0	2.4
		19.00	200	0.545	72.5	3350	1825	517.5	2.4
		19.20	200	0.550	72.2	3315	1825	528.5	2.4
		19.30	200	0.550	72.0	3300	1815	531.0	2.4
		19.50	200	0.555	71.8	3265	1810	540.5	2.4
		19.70	200	0.565	71.5	3230	1825	556.5	2.4
		19.80	200	0.565	71.3	3215	1815	559.0	2.4
		20.00	200	0.570	71.0	3185	1815	570.0	2.3
Wrought aluminium alloys Si < 6%		18.50	250	0.410	73.3	4300	1765	474.5	2.5
		18.70	250	0.415	73.0	4255	1765	484.5	2.5
		19.00	250	0.420	72.5	4190	1760	499.0	2.5
		19.20	250	0.425	72.2	4145	1760	509.5	2.5
		19.30	250	0.430	72.0	4125	1775	519.5	2.4
		19.50	250	0.435	71.8	4080	1775	530.0	2.4
		19.70	250	0.440	71.5	4040	1780	542.5	2.4
		19.80	250	0.440	71.3	4020	1770	545.0	2.4
		20.00	250	0.445	71.0	3980	1770	556.0	2.4

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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[illegible]



Material
Steel < 500 N/mm ²

Steel 500 - 850 N/mm ²

Steel 850 - 1100 N/mm ²

Steel 1100 - 1300 N/mm ²
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d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.50	140	0.060	22.3	17825	1070	5.5	1.3
2.70	140	0.065	21.9	16505	1075	6.0	1.2
2.90	140	0.070	21.6	15365	1075	7.0	1.2
3.00	140	0.070	21.5	14855	1040	7.5	1.2
3.30	140	0.080	21.1	13505	1080	9.0	1.2
3.50	140	0.085	20.8	12730	1080	10.5	1.2
3.80	140	0.090	20.3	11725	1055	12.0	1.7
4.00	140	0.095	30.0	11140	1060	13.5	1.7
4.20	140	0.100	29.7	10610	1060	14.5	1.7

2.50	110	0.060	22.3	14005	840	4.0	1.6
2.70	110	0.065	21.9	12970	845	5.0	1.6
2.90	110	0.070	21.6	12075	845	5.5	1.5
3.00	110	0.070	21.5	11670	815	6.0	1.6
3.30	110	0.080	21.1	10610	850	7.5	1.5
3.50	110	0.085	20.8	10005	850	8.0	1.5
3.80	110	0.090	30.3	9215	830	9.5	2.2
4.00	110	0.095	30.0	8755	830	10.5	2.2
4.20	110	0.100	29.7	8335	835	11.5	2.1

2.50	80	0.045	22.3	10185	460	2.5	2.9
2.70	80	0.050	21.9	9430	470	2.5	2.8
2.90	80	0.050	21.6	8780	440	3.0	2.9
3.00	80	0.055	21.5	8490	465	3.5	2.8
3.30	80	0.060	21.1	7715	465	4.0	2.7
3.50	80	0.065	20.8	7275	475	4.5	2.6
3.80	80	0.070	30.3	6700	470	5.5	3.9
4.00	80	0.070	30.0	6365	445	5.5	4.0
4.20	80	0.075	29.7	6065	455	6.5	3.9

2.50	55	0.040	22.3	7005	280	1.5	4.8
2.70	55	0.040	21.9	6485	260	1.5	5.1
2.90	55	0.045	21.6	6035	270	2.0	4.8
3.00	55	0.045	21.5	5835	265	2.0	4.9
3.30	55	0.050	21.1	5305	265	2.5	4.8
3.50	55	0.055	20.8	5000	275	2.5	4.5
3.80	55	0.055	30.3	4605	255	3.0	7.1
4.00	55	0.060	30.0	4375	265	3.5	6.8
4.20	55	0.065	29.7	4170	270	3.5	6.6

Material

Steel 1300 - 1500 N/mm ²
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Cold work tool steel (12% Cr) high alloyed [1.2379]
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Cast iron (lamellar / spheroidal)

Wrought aluminium alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.50	25	0.025	22.3	3185	80	0.5	16.7
2.70	25	0.025	21.9	2945	75	0.5	17.5
2.90	25	0.030	21.6	2745	80	0.5	16.2
3.00	25	0.030	21.5	2655	80	0.5	16.1
3.30	25	0.035	21.1	2410	85	0.5	14.9
3.50	25	0.035	20.8	2275	80	1.0	15.6
3.80	25	0.040	30.3	2095	85	1.0	21.4
4.00	25	0.040	30.0	1990	80	1.0	22.5
4.20	25	0.040	29.7	1895	75	1.0	23.8

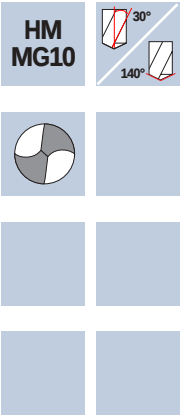
2.50	50	0.030	22.3	6365	190	1.0	7.0
2.70	50	0.035	21.9	5895	205	1.0	6.4
2.90	50	0.035	21.6	5490	190	1.5	6.8
3.00	50	0.040	21.5	5305	210	1.5	6.1
3.30	50	0.040	21.1	4825	195	1.5	6.5
3.50	50	0.045	20.8	4545	205	2.0	6.1
3.80	50	0.050	30.3	4190	210	2.5	8.7
4.00	50	0.050	30.0	3980	200	2.5	9.0
4.20	50	0.055	29.7	3790	210	3.0	8.5

2.50	160	0.065	22.3	20370	1325	6.5	1.0
2.70	160	0.070	21.9	18865	1320	7.5	1.0
2.90	160	0.075	21.6	17560	1315	8.5	1.0
3.00	160	0.075	21.5	16975	1275	9.0	1.0
3.30	160	0.085	21.1	15435	1310	11.0	1.0
3.50	160	0.090	20.8	14550	1310	12.5	1.0
3.80	160	0.100	30.3	13405	1340	15.0	1.4
4.00	160	0.105	30.0	12730	1335	17.0	1.3
4.20	160	0.110	29.7	12125	1335	18.5	1.3

2.50	220	0.050	22.3	28010	1400	7.0	1.0
2.70	220	0.055	21.9	25935	1425	8.0	0.9
2.90	220	0.060	21.6	24150	1450	9.5	0.9
3.00	220	0.060	21.5	23345	1400	10.0	0.9
3.30	220	0.065	21.1	21220	1380	12.0	0.9
3.50	220	0.070	20.8	20010	1400	13.5	0.9
3.80	220	0.075	30.3	18430	1380	15.5	1.3
4.00	220	0.080	30.0	17505	1400	17.5	1.3
4.20	220	0.085	29.7	16675	1415	19.5	1.3

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52014	
Ø-Code						B53014	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0250	2.50	6	66	28	36	●	
.0255	2.55	6	66	28	36	●	
.0260	2.60	6	66	28	36	●	
.0265	2.65	6	66	28	36	●	
.0270	2.70	6	66	28	36	●	
.0280	2.80	6	66	28	36	●	
.0285	2.85	6	66	28	36	●	
.0290	2.90	6	66	28	36	●	
.0295	2.95	6	66	28	36	●	
.0300	3.00	6	66	28	36	●	
.0310	3.10	6	66	28	36	●	
.0320	3.20	6	66	28	36	●	
.0330	3.30	6	66	28	36	●	
.0340	3.40	6	66	28	36	●	
.0350	3.50	6	66	28	36	●	
.0360	3.60	6	66	28	36	●	
.0370	3.70	6	66	28	36	●	
.0380	3.80	6	74	36	36	●	
.0390	3.90	6	74	36	36	●	
.0400	4.00	6	74	36	36	●	
.0410	4.10	6	74	36	36	●	
.0420	4.20	6	74	36	36	●	
.0430	4.30	6	74	36	36	●	



Application
Steel < 500 N/mm ²

Steel 500 - 850 N/mm ²

Steel 850 - 1100 N/mm ²

Steel 1100 - 1300 N/mm ²
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d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
4.50	140	0.105	29.3	9905	1040	16.5	1.7
4.80	140	0.115	36.8	9285	1070	19.5	2.1
5.00	140	0.120	36.5	8915	1070	21.0	2.0
5.10	140	0.120	36.4	8740	1050	21.5	2.1
5.50	140	0.130	35.8	8100	1055	25.0	2.0
5.80	140	0.135	35.3	7685	1035	27.5	2.0
6.00	140	0.140	35.0	7425	1040	29.5	2.0
6.10	140	0.145	43.9	7305	1060	31.0	2.5
6.50	140	0.155	43.3	6855	1065	35.5	2.4

4.50	110	0.105	29.3	7780	815	13.0	2.2
4.80	110	0.115	36.8	7295	840	15.0	2.6
5.00	110	0.120	36.5	7005	840	16.5	2.6
5.10	110	0.120	36.4	6865	825	17.0	2.6
5.50	110	0.130	35.8	6365	825	19.5	2.6
5.80	110	0.135	35.3	6035	815	21.5	2.6
6.00	110	0.140	35.0	5835	815	23.0	2.6
6.10	110	0.145	43.9	5740	830	24.5	3.2
6.50	110	0.155	43.3	5385	835	27.5	3.1

4.50	80	0.080	29.3	5660	455	7.0	3.9
4.80	80	0.085	36.8	5305	450	8.0	4.9
5.00	80	0.090	36.5	5095	460	9.0	4.8
5.10	80	0.090	36.4	4995	450	9.0	4.9
5.50	80	0.100	35.8	4630	465	11.0	4.6
5.80	80	0.105	35.3	4390	460	12.0	4.6
6.00	80	0.110	35.0	4245	465	13.0	4.5
6.10	80	0.110	43.9	4175	460	13.5	5.7
6.50	80	0.115	43.3	3920	450	15.0	5.8

4.50	55	0.070	29.3	3890	270	4.5	6.5
4.80	55	0.070	36.8	3645	255	4.5	8.7
5.00	55	0.075	36.5	3500	265	5.0	8.3
5.10	55	0.075	36.4	3435	260	5.5	8.4
5.50	55	0.085	35.8	3185	270	6.5	8.0
5.80	55	0.085	35.3	3020	255	6.5	8.3
6.00	55	0.090	35.0	2920	265	7.5	7.9
6.10	55	0.090	43.9	2870	260	7.5	10.1
6.50	55	0.100	43.3	2695	270	9.0	9.6

Material

Steel 1300 - 1500 N/mm ²
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Cold work tool steel (12% Cr) high alloyed [1.2379]
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Cast iron (lamellar / spheroidal)

Wrought aluminium alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
4.50	25	0.045	29.3	1770	80	1.5	22.0
4.80	25	0.050	36.8	1660	85	1.5	26.0
5.00	25	0.050	36.5	1590	80	1.5	27.4
5.10	25	0.050	36.4	1560	80	1.5	27.3
5.50	25	0.055	35.8	1445	80	2.0	26.9
5.80	25	0.060	35.3	1370	80	2.0	26.5
6.00	25	0.060	35.0	1325	80	2.5	26.3
6.10	25	0.060	43.9	1305	80	2.5	32.9
6.50	25	0.065	43.3	1225	80	2.5	32.5

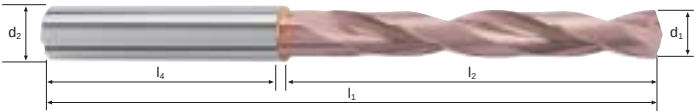
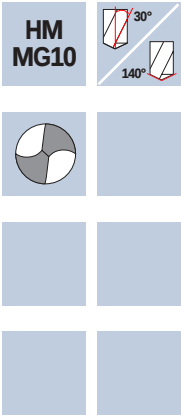
4.50	50	0.060	29.3	3535	210	3.5	8.4
4.80	50	0.060	36.8	3315	200	3.5	11.0
5.00	50	0.065	36.5	3185	205	4.0	10.7
5.10	50	0.065	36.4	3120	205	4.0	10.7
5.50	50	0.070	35.8	2895	205	5.0	10.5
5.80	50	0.075	35.3	2745	205	5.5	10.3
6.00	50	0.075	35.0	2655	200	5.5	10.5
6.10	50	0.080	43.9	2610	210	6.0	12.5
6.50	50	0.085	43.3	2450	210	7.0	12.4

4.50	160	0.115	29.3	11320	1300	20.5	1.4
4.80	160	0.125	36.8	10610	1325	24.0	1.7
5.00	160	0.130	36.5	10185	1325	26.0	1.7
5.10	160	0.130	36.4	9985	1300	26.5	1.7
5.50	160	0.140	35.8	9260	1295	31.0	1.7
5.80	160	0.150	35.3	8780	1315	34.5	1.6
6.00	160	0.155	35.0	8490	1315	37.0	1.6
6.10	160	0.155	43.9	8350	1295	38.0	2.0
6.50	160	0.165	43.3	7835	1295	43.0	2.0

4.50	220	0.090	29.3	15560	1400	22.5	1.3
4.80	220	0.095	36.8	14590	1385	25.0	1.6
5.00	220	0.100	36.5	14005	1400	27.5	1.6
5.10	220	0.100	36.4	13730	1375	28.0	1.6
5.50	220	0.110	35.8	12730	1400	33.5	1.5
5.80	220	0.115	35.3	12075	1390	36.5	1.5
6.00	220	0.120	35.0	11670	1400	39.5	1.5
6.10	220	0.120	43.9	11480	1380	40.5	1.9
6.50	220	0.130	43.3	10775	1400	46.5	1.9

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						Article-N°.		ø-Code				U-4XD	
						B52014		.0440				B52014	
												B53014	
ø Code	d1 m7	d2 h6	l1	l2	l4								
.0440	4.40	6	74	36	36							●	
.0450	4.50	6	74	36	36							●	
.0460	4.60	6	74	36	36							●	
.0470	4.70	6	74	36	36							●	
.0480	4.80	6	82	44	36							●	
.0490	4.90	6	82	44	36							●	
.0500	5.00	6	82	44	36							●	
.0510	5.10	6	82	44	36							●	
.0520	5.20	6	82	44	36							●	
.0530	5.30	6	82	44	36							●	
.0540	5.40	6	82	44	36							●	
.0550	5.50	6	82	44	36							●	
.0560	5.60	6	82	44	36							●	
.0570	5.70	6	82	44	36							●	
.0580	5.80	6	82	44	36							●	
.0590	5.90	6	82	44	36							●	
.0600	6.00	6	82	44	36							●	
.0610	6.10	8	91	53	36							●	
.0620	6.20	8	91	53	36							●	
.0630	6.30	8	91	53	36							●	
.0640	6.40	8	91	53	36							●	
.0650	6.50	8	91	53	36							●	
.0660	6.60	8	91	53	36							●	

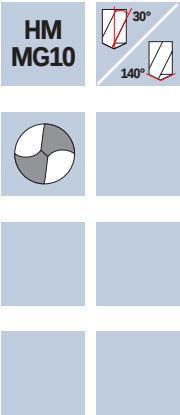


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		6.80	140	0.160	42.8	6555	1050	38.0	2.4
		6.90	140	0.165	42.6	6460	1065	40.0	2.4
		7.00	140	0.165	42.5	6365	1050	40.5	2.4
		7.50	140	0.180	41.8	5940	1070	47.5	2.3
		7.80	140	0.185	41.3	5715	1055	50.5	2.3
		8.00	140	0.190	41.0	5570	1060	53.5	2.3
		8.20	140	0.195	48.7	5435	1060	56.0	2.8
		8.50	140	0.200	48.3	5245	1050	59.5	2.8
		8.60	140	0.205	48.1	5180	1060	61.5	2.7
		6.80	110	0.160	42.8	5150	825	30.0	3.1
		6.90	110	0.165	42.6	5075	835	31.0	3.1
		7.00	110	0.165	42.5	5000	825	31.5	3.1
		7.50	110	0.180	41.8	4670	840	37.0	3.0
		7.80	110	0.185	41.3	4490	830	39.5	3.0
		8.00	110	0.190	41.0	4375	830	41.5	3.0
		8.20	110	0.195	48.7	4270	835	44.0	3.5
		8.50	110	0.200	48.3	4120	825	47.0	3.5
		8.60	110	0.205	48.1	4070	835	48.5	3.5
Steel 850 - 1100 N/mm ²		6.80	80	0.120	42.8	3745	450	16.5	5.7
		6.90	80	0.125	42.6	3690	460	17.0	5.6
		7.00	80	0.125	42.5	3640	455	17.5	5.6
		7.50	80	0.135	41.8	3395	460	20.5	5.5
		7.80	80	0.140	41.3	3265	455	21.5	5.4
		8.00	80	0.145	41.0	3185	460	23.0	5.3
		8.20	80	0.150	48.7	3105	465	24.5	6.3
		8.50	80	0.155	48.3	2995	465	26.5	6.2
		8.60	80	0.155	48.1	2960	460	26.5	6.3
		6.80	55	0.100	42.8	2575	260	9.5	9.9
		6.90	55	0.105	42.6	2535	265	10.0	9.6
		7.00	55	0.105	42.5	2500	265	10.0	9.6
		7.50	55	0.115	41.8	2335	270	12.0	9.3
		7.80	55	0.115	41.3	2245	260	12.5	9.5
		8.00	55	0.120	41.0	2190	265	13.5	9.3
		8.20	55	0.125	48.7	2135	265	14.0	11.0
		8.50	55	0.130	48.3	2060	270	15.5	10.7
		8.60	55	0.130	48.1	2035	265	15.5	10.9

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel 1300 - 1500 N/mm²	6.80	25	0.070	42.8	1170	80	3.0	32.1
	6.90	25	0.070	42.6	1155	80	3.0	32.0
	7.00	25	0.070	42.5	1135	80	3.0	31.9
	7.50	25	0.075	41.8	1060	80	3.5	31.4
	7.80	25	0.080	41.3	1020	80	4.0	31.0
	8.00	25	0.080	41.0	995	80	4.0	30.7
	8.20	25	0.080	48.7	970	80	4.0	36.5
	8.50	25	0.085	48.3	935	80	4.5	36.2
	8.60	25	0.085	48.1	925	80	4.5	36.1
Cold work tool steel (12% Cr) high alloyed [1.2379]	6.80	50	0.085	42.8	2340	200	7.5	12.8
	6.90	50	0.090	42.6	2305	205	7.5	12.5
	7.00	50	0.090	42.5	2275	205	8.0	12.4
	7.50	50	0.095	41.8	2120	200	9.0	12.5
	7.80	50	0.100	41.3	2040	205	10.0	12.1
	8.00	50	0.105	41.0	1990	210	10.5	11.7
	8.20	50	0.105	48.7	1940	205	11.0	14.3
	8.50	50	0.110	48.3	1870	205	11.5	14.1
	8.60	50	0.110	48.1	1850	205	12.0	14.1
Cast iron (lamellar / spheroidal)	6.80	160	0.175	42.8	7490	1310	47.5	2.0
	6.90	160	0.175	42.6	7380	1290	48.0	2.0
	7.00	160	0.180	42.5	7275	1310	50.5	1.9
	7.50	160	0.195	41.8	6790	1325	58.5	1.9
	7.80	160	0.200	41.3	6530	1305	62.5	1.9
	8.00	160	0.205	41.0	6365	1305	65.5	1.9
	8.20	160	0.210	48.7	6210	1305	69.0	2.2
	8.50	160	0.220	48.3	5990	1320	75.0	2.2
	8.60	160	0.220	48.1	5920	1300	75.5	2.2
Wrought aluminium alloys Si < 6%	6.80	220	0.135	42.8	10300	1390	50.5	1.8
	6.90	220	0.140	42.6	10150	1420	53.0	1.8
	7.00	220	0.140	42.5	10005	1400	54.0	1.8
	7.50	220	0.150	41.8	9335	1400	62.0	1.8
	7.80	220	0.155	41.3	8980	1390	66.5	1.8
	8.00	220	0.160	41.0	8755	1400	70.5	1.8
	8.20	220	0.165	48.7	8540	1410	74.5	2.1
	8.50	220	0.170	48.3	8240	1400	79.5	2.1
	8.60	220	0.170	48.1	8145	1385	80.5	2.1

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52014	
Ø-Code						B53014	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0670	6.70	8	91	53	36	●	
.0680	6.80	8	91	53	36	●	
.0690	6.90	8	91	53	36	●	
.0700	7.00	8	91	53	36	●	
.0710	7.10	8	91	53	36	●	
.0720	7.20	8	91	53	36	●	
.0730	7.30	8	91	53	36	●	
.0740	7.40	8	91	53	36	●	
.0750	7.50	8	91	53	36	●	
.0760	7.60	8	91	53	36	●	
.0770	7.70	8	91	53	36	●	
.0780	7.80	8	91	53	36	●	
.0790	7.90	8	91	53	36	●	
.0800	8.00	8	91	53	36	●	
.0810	8.10	10	103	61	40	●	
.0820	8.20	10	103	61	40	●	
.0830	8.30	10	103	61	40	●	
.0840	8.40	10	103	61	40	●	
.0850	8.50	10	103	61	40	●	
.0860	8.60	10	103	61	40	●	
.0870	8.70	10	103	61	40	●	
.0880	8.80	10	103	61	40	●	
.0890	8.90	10	103	61	40	●	



Material
Steel < 500 N/mm ²

Steel 500 - 850 N/mm ²

Steel 850 - 1100 N/mm ²

Steel 1100 - 1300 N/mm ²
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d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
9.00	140	0.215	47.5	4950	1065	68.0	2.7
9.50	140	0.225	46.8	4690	1055	75.0	2.7
9.80	140	0.230	46.3	4545	1045	79.0	2.7
10.00	140	0.235	46.0	4455	1045	82.0	2.6
10.20	140	0.240	55.7	4370	1050	86.0	3.2
10.40	140	0.245	55.4	4285	1050	89.0	3.2
10.50	140	0.250	55.3	4245	1060	92.0	3.1
10.80	140	0.255	54.8	4125	1050	96.0	3.1
11.00	140	0.260	54.5	4050	1055	100.5	3.1

9.00	110	0.215	47.5	3890	835	53.0	3.4
9.50	110	0.225	46.8	3685	830	59.0	3.4
9.80	110	0.230	46.3	3575	820	62.0	3.4
10.00	110	0.235	46.0	3500	825	65.0	3.3
10.20	110	0.240	55.7	3435	825	67.5	4.1
10.40	110	0.245	55.4	3365	825	70.0	4.0
10.50	110	0.250	55.3	3335	835	72.5	4.0
10.80	110	0.255	54.8	3240	825	75.5	4.0
11.00	110	0.260	54.5	3185	830	79.0	3.9

9.00	80	0.160	47.5	2830	455	29.0	6.3
9.50	80	0.170	46.8	2680	455	32.5	6.2
9.80	80	0.175	46.3	2600	455	34.5	6.1
10.00	80	0.180	46.0	2545	460	36.0	6.0
10.20	80	0.185	55.7	2495	460	37.5	7.3
10.40	80	0.185	55.4	2450	455	38.5	7.3
10.50	80	0.190	55.3	2425	460	40.0	7.2
10.80	80	0.195	54.8	2360	460	42.0	7.1
11.00	80	0.200	54.5	2315	465	44.0	7.0

9.00	55	0.135	47.5	1945	265	17.0	10.8
9.50	55	0.145	46.8	1845	270	19.0	10.4
9.80	55	0.145	46.3	1785	260	19.5	10.7
10.00	55	0.150	46.0	1750	265	21.0	10.4
10.20	55	0.155	55.7	1715	265	21.5	12.6
10.40	55	0.155	55.4	1685	260	22.0	12.8
10.50	55	0.160	55.3	1665	265	23.0	12.5
10.80	55	0.160	54.8	1620	260	24.0	12.6
11.00	55	0.165	54.5	1590	260	24.5	12.6

Material

Steel 1300 - 1500 N/mm ²
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Cold work tool steel (12% Cr) high alloyed [1.2379]
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Cast iron (lamellar / spheroidal)

Wrought aluminium alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
9.00	25	0.090	47.5	885	80	5.0	35.6
9.50	25	0.095	46.8	840	80	5.5	35.1
9.80	25	0.100	46.3	810	80	6.0	34.7
10.00	25	0.100	46.0	795	80	6.5	34.5
10.20	25	0.100	55.7	780	80	6.5	41.8
10.40	25	0.105	55.4	765	80	7.0	41.6
10.50	25	0.105	55.3	760	80	7.0	41.5
10.80	25	0.110	54.8	735	80	7.5	41.1
11.00	25	0.110	54.5	725	80	7.5	40.9

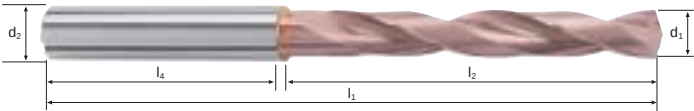
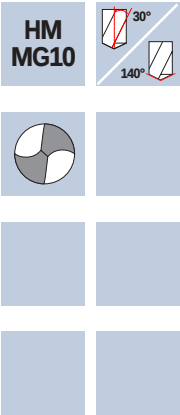
9.00	50	0.115	47.5	1770	205	13.0	13.9
9.50	50	0.120	46.8	1675	200	14.0	14.0
9.80	50	0.125	46.3	1625	205	15.5	13.6
10.00	50	0.130	46.0	1590	205	16.0	13.5
10.20	50	0.130	55.7	1560	205	17.0	16.3
10.40	50	0.135	55.4	1530	205	17.5	16.2
10.50	50	0.135	55.3	1515	205	18.0	16.2
10.80	50	0.140	54.8	1475	205	19.0	16.0
11.00	50	0.140	54.5	1445	200	19.0	16.4

9.00	160	0.230	47.5	5660	1300	82.5	2.2
9.50	160	0.245	46.8	5360	1315	93.0	2.1
9.80	160	0.250	46.3	5195	1300	98.0	2.1
10.00	160	0.255	46.0	5095	1300	102.0	2.1
10.20	160	0.260	55.7	4995	1300	106.0	2.6
10.40	160	0.265	55.4	4895	1295	110.0	2.6
10.50	160	0.270	55.3	4850	1310	113.5	2.5
10.80	160	0.280	54.8	4715	1320	121.0	2.5
11.00	160	0.285	54.5	4630	1320	125.5	2.5

9.00	220	0.180	47.5	7780	1400	89.0	2.0
9.50	220	0.190	46.8	7370	1400	99.0	2.0
9.80	220	0.195	46.3	7145	1395	105.0	2.0
10.00	220	0.200	46.0	7005	1400	110.0	2.0
10.20	220	0.205	55.7	6865	1405	115.0	2.4
10.40	220	0.210	55.4	6735	1415	120.0	2.3
10.50	220	0.210	55.3	6670	1400	121.0	2.4
10.80	220	0.215	54.8	6485	1395	128.0	2.4
11.00	220	0.220	54.5	6365	1400	133.0	2.3

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52014	
ø-Code						B53014	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0900	9.00	10	103	61	40	●	
.0910	9.10	10	103	61	40	●	
.0920	9.20	10	103	61	40	●	
.0930	9.30	10	103	61	40	●	
.0940	9.40	10	103	61	40	●	
.0950	9.50	10	103	61	40	●	
.0960	9.60	10	103	61	40	●	
.0970	9.70	10	103	61	40	●	
.0980	9.80	10	103	61	40	●	
.0990	9.90	10	103	61	40	●	
.1000	10.00	10	103	61	40	●	
.1010	10.10	12	118	71	45	●	
.1020	10.20	12	118	71	45	●	
.1030	10.30	12	118	71	45	●	
.1040	10.40	12	118	71	45	●	
.1050	10.50	12	118	71	45	●	
.1060	10.60	12	118	71	45	●	
.1070	10.70	12	118	71	45	●	
.1080	10.80	12	118	71	45	●	
.1090	10.90	12	118	71	45	●	
.1100	11.00	12	118	71	45	●	
.1110	11.10	12	118	71	45	●	
.1120	11.20	12	118	71	45	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

Wrought aluminium
alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
11.50	140	0.270	53.8	3875	1045	108.5	3.1
11.70	140	0.275	53.5	3810	1050	113.0	3.1
12.00	140	0.285	53.0	3715	1060	120.0	3.0
12.50	140	0.295	58.3	3565	1050	129.0	3.3
13.00	140	0.310	57.5	3430	1065	141.5	3.2
14.00	140	0.330	56.0	3185	1050	161.5	3.2
15.00	140	0.355	60.5	2970	1055	186.5	3.4
15.50	140	0.365	59.8	2875	1050	198.0	3.4
16.00	140	0.380	59.0	2785	1060	213.0	3.3

11.50	110	0.270	53.8	3045	820	85.0	3.9
11.70	110	0.275	53.5	2995	825	88.5	3.9
12.00	110	0.285	53.0	2920	830	94.0	3.8
12.50	110	0.295	58.3	2800	825	101.0	4.2
13.00	110	0.310	57.5	2695	835	111.0	4.1
14.00	110	0.330	56.0	2500	825	127.0	4.1
15.00	110	0.355	60.5	2335	830	146.5	4.4
15.50	110	0.365	59.8	2260	825	155.5	4.3
16.00	110	0.380	59.0	2190	830	167.0	4.3

11.50	80	0.205	53.8	2215	455	47.5	7.1
11.70	80	0.210	53.5	2175	455	49.0	7.1
12.00	80	0.215	53.0	2120	455	51.5	7.0
12.50	80	0.225	58.3	2035	460	56.5	7.6
13.00	80	0.235	57.5	1960	460	61.0	7.5
14.00	80	0.250	56.0	1820	455	70.0	7.4
15.00	80	0.270	60.5	1700	460	81.5	7.9
15.50	80	0.280	59.8	1645	460	87.0	7.8
16.00	80	0.290	59.0	1590	460	92.5	7.7

11.50	55	0.175	53.8	1520	265	27.5	12.2
11.70	55	0.175	53.5	1495	260	28.0	12.3
12.00	55	0.180	53.0	1460	265	30.0	12.0
12.50	55	0.190	58.3	1400	265	32.5	13.2
13.00	55	0.195	57.5	1345	260	34.5	13.3
14.00	55	0.210	56.0	1250	265	41.0	12.7
15.00	55	0.225	60.5	1165	260	46.0	14.0
15.50	55	0.235	59.8	1130	265	50.0	13.5
16.00	55	0.240	59.0	1095	265	53.5	13.4

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
11.50	25	0.115	53.8	690	80	8.5	40.4
11.70	25	0.115	53.5	680	80	8.5	40.1
12.00	25	0.120	53.0	665	80	9.0	39.8
12.50	25	0.125	58.3	635	80	10.0	43.7
13.00	25	0.130	57.5	610	80	10.5	43.1
14.00	25	0.140	56.0	570	80	12.5	42.0
15.00	25	0.150	60.5	530	80	14.0	45.4
15.50	25	0.155	59.8	515	80	15.0	44.9
16.00	25	0.160	59.0	495	80	16.0	44.3

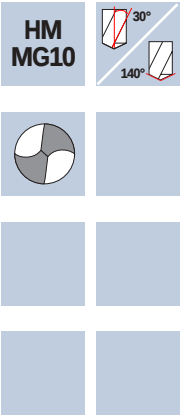
11.50	50	0.150	53.8	1385	210	22.0	15.4
11.70	50	0.150	53.5	1360	205	22.0	15.7
12.00	50	0.155	53.0	1325	205	23.0	15.5
12.50	50	0.160	58.3	1275	205	25.0	17.1
13.00	50	0.165	57.5	1225	200	26.5	17.3
14.00	50	0.180	56.0	1135	205	31.5	16.4
15.00	50	0.195	60.5	1060	205	36.0	17.7
15.50	50	0.200	59.8	1025	205	38.5	17.5
16.00	50	0.205	59.0	995	205	41.0	17.3

11.50	160	0.295	53.8	4430	1305	135.5	2.5
11.70	160	0.300	53.5	4355	1305	140.5	2.5
12.00	160	0.310	53.0	4245	1315	148.5	2.4
12.50	160	0.320	58.3	4075	1305	160.0	2.7
13.00	160	0.335	57.5	3920	1315	174.5	2.6
14.00	160	0.360	56.0	3640	1310	201.5	2.6
15.00	160	0.385	60.5	3395	1305	230.5	2.8
15.50	160	0.400	59.8	3285	1315	248.0	2.7
16.00	160	0.410	59.0	3185	1305	262.5	2.7

11.50	220	0.230	53.8	6090	1400	145.5	2.3
11.70	220	0.235	53.5	5985	1405	151.0	2.3
12.00	220	0.240	53.0	5835	1400	158.5	2.3
12.50	220	0.250	58.3	5600	1400	172.0	2.5
13.00	220	0.260	57.5	5385	1400	186.0	2.5
14.00	220	0.280	56.0	5000	1400	215.5	2.4
15.00	220	0.300	60.5	4670	1400	247.5	2.6
15.50	220	0.310	59.8	4520	1400	264.0	2.6
16.00	220	0.320	59.0	4375	1400	281.5	2.5

Spiral flute drills Supradrill N

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52014	
ø-Code						B53014	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.1130	11.30	12	118	71	45	●	
.1140	11.40	12	118	71	45	●	
.1150	11.50	12	118	71	45	●	
.1160	11.60	12	118	71	45	●	
.1170	11.70	12	118	71	45	●	
.1180	11.80	12	118	71	45	●	
.1190	11.90	12	118	71	45	●	
.1200	12.00	12	118	71	45	●	
.1250	12.50	14	124	77	45	●	
.1280	12.80	14	124	77	45	●	
.1300	13.00	14	124	77	45	●	
.1350	13.50	14	124	77	45	●	
.1380	13.80	14	124	77	45	●	
.1400	14.00	14	124	77	45	●	
.1450	14.50	16	133	83	48	●	
.1480	14.80	16	133	83	48	●	
.1500	15.00	16	133	83	48	●	
.1550	15.50	16	133	83	48	●	
.1580	15.80	16	133	83	48	●	
.1600	16.00	16	133	83	48	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.50	170	0.065	22.3	21645	1405	7.0	1.0
2.80	170	0.075	21.8	19325	1450	9.0	0.9
3.00	170	0.080	21.5	18040	1445	10.0	0.9
3.30	170	0.085	21.1	16400	1395	12.0	0.9
3.50	170	0.090	20.8	15460	1390	13.5	0.9
4.00	170	0.105	30.0	13530	1420	18.0	1.3
4.20	170	0.110	29.7	12885	1415	19.5	1.3
4.50	170	0.120	29.3	12025	1445	23.0	1.2
4.80	170	0.125	36.8	11275	1410	25.5	1.6

2.50	130	0.065	22.3	16550	1075	5.5	1.2
2.80	130	0.075	21.8	14780	1110	7.0	1.2
3.00	130	0.080	21.5	13795	1105	8.0	1.2
3.30	130	0.085	21.1	12540	1065	9.0	1.2
3.50	130	0.090	20.8	11825	1065	10.0	1.2
4.00	130	0.105	30.0	10345	1085	13.5	1.7
4.20	130	0.110	29.7	9850	1085	15.0	1.6
4.50	130	0.120	29.3	9195	1105	17.5	1.6
4.80	130	0.125	36.8	8620	1080	19.5	2.0

2.50	110	0.050	22.3	14005	700	3.5	1.9
2.80	110	0.055	21.8	12505	690	4.0	1.9
3.00	110	0.060	21.5	11670	700	5.0	1.8
3.30	110	0.065	21.1	10610	690	6.0	1.8
3.50	110	0.070	20.8	10005	700	6.5	1.8
4.00	110	0.080	30.0	8755	700	9.0	2.6
4.20	110	0.085	29.7	8335	710	10.0	2.5
4.50	110	0.090	29.3	7780	700	11.0	2.5
4.80	110	0.095	36.8	7295	695	12.5	3.2

2.50	70	0.040	22.3	8915	355	1.5	3.8
2.80	70	0.045	21.8	7960	360	2.0	3.6
3.00	70	0.050	21.5	7425	370	2.5	3.5
3.30	70	0.055	21.1	6750	370	3.0	3.4
3.50	70	0.060	20.8	6365	380	3.5	3.3
4.00	70	0.065	30.0	5570	360	4.5	5.0
4.20	70	0.070	29.7	5305	370	5.0	4.8
4.50	70	0.075	29.3	4950	370	6.0	4.8
4.80	70	0.080	36.8	4640	370	6.5	6.0

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]
Stainless steel
[Cr-Ni/1.4301]

Cast iron
(lamellar / spheroidal)

Wrought aluminium
alloys Si < 6%

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.50	40	0.035	22.3	5095	180	1.0	7.4
2.80	40	0.035	21.8	4545	160	1.0	8.2
3.00	40	0.040	21.5	4245	170	1.0	7.6
3.30	40	0.045	21.1	3860	175	1.5	7.2
3.50	40	0.045	20.8	3640	165	1.5	7.6
4.00	40	0.055	30.0	3185	175	2.0	10.3
4.20	40	0.055	29.7	3030	165	2.5	10.8
4.50	40	0.060	29.3	2830	170	2.5	10.3
4.80	40	0.065	36.8	2655	175	3.0	12.6

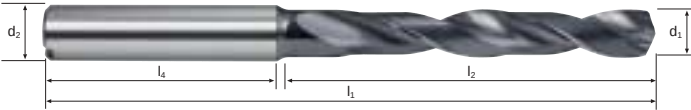
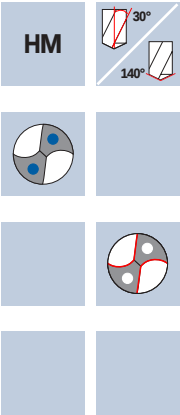
2.50	60	0.040	22.3	7640	305	1.5	4.4
2.80	60	0.045	21.8	6820	305	2.0	4.3
3.00	60	0.045	21.5	6365	285	2.0	4.5
3.30	60	0.050	21.1	5785	290	2.5	4.4
3.50	60	0.055	20.8	5455	300	3.0	4.2
4.00	60	0.060	30.0	4775	285	3.5	6.3
4.20	60	0.065	29.7	4545	295	4.0	6.0
4.50	60	0.070	29.3	4245	295	4.5	6.0
4.80	60	0.075	36.8	3980	300	5.5	7.4

2.50	220	0.070	22.3	28010	1960	9.5	0.7
2.80	220	0.080	21.8	25010	2000	12.5	0.7
3.00	220	0.085	21.5	23345	1985	14.0	0.6
3.30	220	0.095	21.1	21220	2015	17.0	0.6
3.50	220	0.100	20.8	20010	2000	19.0	0.6
4.00	220	0.115	30.0	17505	2015	25.5	0.9
4.20	220	0.120	29.7	16675	2000	27.5	0.9
4.50	220	0.130	29.3	15560	2025	32.0	0.9
4.80	220	0.135	36.8	14590	1970	35.5	1.1

2.50	250	0.055	22.3	31830	1750	8.5	0.8
2.80	250	0.060	21.8	28420	1705	10.5	0.8
3.00	250	0.065	21.5	26525	1725	12.0	0.7
3.30	250	0.075	21.1	24115	1810	15.5	0.7
3.50	250	0.080	20.8	22735	1820	17.5	0.7
4.00	250	0.090	30.0	19895	1790	22.5	1.0
4.20	250	0.095	29.7	18945	1800	25.0	1.0
4.50	250	0.100	29.3	17685	1770	28.0	1.0
4.80	250	0.105	36.8	16580	1740	31.5	1.3

Spiral flute drills

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						NANO-U	
Article-N°.						BU42015	
ø-Code						BU43015	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.0250*	2.5	6	66	28	36	●	
.0280*	2.8	6	66	28	36	●	
.0290*	2.9	6	66	28	36	●	
.0300	3.0	6	66	28	36	●	
.0310	3.1	6	66	28	36	●	
.0320	3.2	6	66	28	36	●	
.0330	3.3	6	66	28	36	●	
.0340	3.4	6	66	28	36	●	
.0350	3.5	6	66	28	36	●	
.0360	3.6	6	66	28	36	●	
.0370	3.7	6	66	28	36	●	
.0380	3.8	6	74	36	36	●	
.0390	3.9	6	74	36	36	●	
.0400	4.0	6	74	36	36	●	
.0410	4.1	6	74	36	36	●	
.0420	4.2	6	74	36	36	●	
.0430	4.3	6	74	36	36	●	
.0440	4.4	6	74	36	36	●	
.0450	4.5	6	74	36	36	●	
.0460	4.6	6	74	36	36	●	
.0470	4.7	6	74	36	36	●	
.0480	4.8	6	82	44	36	●	
* without internal cooling							

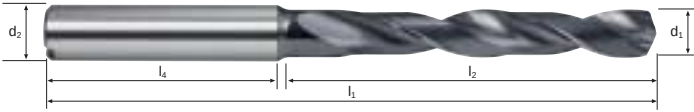
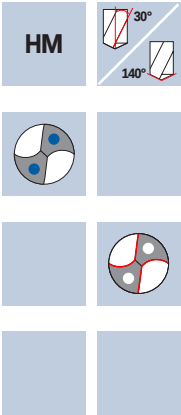


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		5.00	170	0.130	36.5	10825	1405	27.5	1.6
		5.30	170	0.140	36.0	10210	1430	31.5	1.5
		5.50	170	0.145	35.8	9840	1425	34.0	1.5
		5.80	170	0.155	35.3	9330	1445	38.0	1.5
		6.00	170	0.160	35.0	9020	1445	41.0	1.5
		6.30	170	0.165	43.5	8590	1415	44.0	1.8
		6.50	170	0.170	43.3	8325	1415	47.0	1.8
		6.80	170	0.180	42.8	7960	1435	52.0	1.8
		7.00	170	0.185	42.5	7730	1430	55.0	1.8
Steel 500 - 850 N/mm ²		5.00	130	0.130	36.5	8275	1075	21.0	2.0
		5.30	130	0.140	36.0	7810	1095	24.0	2.0
		5.50	130	0.145	35.8	7525	1090	26.0	2.0
		5.80	130	0.155	35.3	7135	1105	29.0	1.9
		6.00	130	0.160	35.0	6895	1105	31.0	1.9
		6.30	130	0.165	43.5	6570	1085	34.0	2.4
		6.50	130	0.170	43.3	6365	1080	36.0	2.4
		6.80	130	0.180	42.8	6085	1095	40.0	2.3
		7.00	130	0.185	42.5	5910	1095	42.0	2.3
Steel 850 - 1100 N/mm ²		5.00	110	0.100	36.5	7005	700	13.5	3.1
		5.30	110	0.105	36.0	6605	695	15.5	3.1
		5.50	110	0.110	35.8	6365	700	16.5	3.1
		5.80	110	0.115	35.3	6035	695	18.5	3.0
		6.00	110	0.120	35.0	5835	700	20.0	3.0
		6.30	110	0.125	43.5	5560	695	21.5	3.8
		6.50	110	0.130	43.3	5385	700	23.0	3.7
		6.80	110	0.135	42.8	5150	695	25.0	3.7
		7.00	110	0.140	42.5	5000	700	27.0	3.6
Steel 1100 - 1300 N/mm ²		5.00	70	0.085	36.5	4455	380	7.5	5.8
		5.30	70	0.090	36.0	4205	380	8.5	5.7
		5.50	70	0.090	35.8	4050	365	8.5	5.9
		5.80	70	0.095	35.3	3840	365	9.5	5.8
		6.00	70	0.100	35.0	3715	370	10.5	5.7
		6.30	70	0.105	43.5	3535	370	11.5	7.1
		6.50	70	0.110	43.3	3430	375	12.5	6.9
		6.80	70	0.115	42.8	3275	375	13.5	6.8
		7.00	70	0.115	42.5	3185	365	14.0	7.0

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	5.00	40	0.065	36.5	2545	165	3.0	13.3
	5.30	40	0.070	36.0	2400	170	4.0	12.7
	5.50	40	0.075	35.8	2315	175	4.0	12.3
	5.80	40	0.075	35.3	2195	165	4.5	12.8
	6.00	40	0.080	35.0	2120	170	5.0	12.4
	6.30	40	0.085	43.5	2020	170	5.5	15.4
	6.50	40	0.085	43.3	1960	165	5.5	15.7
	6.80	40	0.090	42.8	1870	170	6.0	15.1
	7.00	40	0.095	42.5	1820	175	6.5	14.6
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	5.00	60	0.075	36.5	3820	285	5.5	7.7
	5.30	60	0.080	36.0	3605	290	6.5	7.4
	5.50	60	0.085	35.8	3470	295	7.0	7.3
	5.80	60	0.090	35.3	3295	295	8.0	7.2
	6.00	60	0.090	35.0	3185	285	8.0	7.4
	6.30	60	0.095	43.5	3030	290	9.0	9.0
	6.50	60	0.100	43.3	2940	295	10.0	8.8
	6.80	60	0.105	42.8	2810	295	10.5	8.7
	7.00	60	0.110	42.5	2730	300	11.5	8.5
Cast iron (lamellar / spheroidal)	5.00	220	0.145	36.5	14005	2030	40.0	1.1
	5.30	220	0.150	36.0	13215	1980	43.5	1.1
	5.50	220	0.155	35.8	12730	1975	47.0	1.1
	5.80	220	0.165	35.3	12075	1990	52.5	1.1
	6.00	220	0.170	35.0	11670	1985	56.0	1.1
	6.30	220	0.180	43.5	11115	2000	62.5	1.3
	6.50	220	0.185	43.3	10775	1995	66.0	1.3
	6.80	220	0.195	42.8	10300	2010	73.0	1.3
	7.00	220	0.200	42.5	10005	2000	77.0	1.3
Wrought aluminium alloys Si < 6%	5.00	250	0.110	36.5	15915	1750	34.5	1.3
	5.30	250	0.120	36.0	15015	1800	39.5	1.2
	5.50	250	0.120	35.8	14470	1735	41.0	1.2
	5.80	250	0.130	35.3	13720	1785	47.0	1.2
	6.00	250	0.135	35.0	13265	1790	50.5	1.2
	6.30	250	0.140	43.5	12630	1770	55.0	1.5
	6.50	250	0.145	43.3	12245	1775	59.0	1.5
	6.80	250	0.150	42.8	11705	1755	63.5	1.5
	7.00	250	0.155	42.5	11370	1760	67.5	1.4

Spiral flute drills

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						Article-N°.		ø-Code		NANO-U	
						BU42015		BU43015			
ø Code	d1 m7	d2 h6	l1	l2	l4						
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.0510	5.1	6	82	44	36	●					
.0520	5.2	6	82	44	36	●					
.0530	5.3	6	82	44	36	●					
.0540	5.4	6	82	44	36	●					
.0550	5.5	6	82	44	36	●					
.0560	5.6	6	82	44	36	●					
.0570	5.7	6	82	44	36	●					
.0580	5.8	6	82	44	36	●					
.0590	5.9	6	82	44	36	●					
.0600	6.0	6	82	44	36	●					
.0610	6.1	8	91	53	36	●					
.0620	6.2	8	91	53	36	●					
.0630	6.3	8	91	53	36	●					
.0640	6.4	8	91	53	36	●					
.0650	6.5	8	91	53	36	●					
.0660	6.6	8	91	53	36	●					
.0670	6.7	8	91	53	36	●					
.0680	6.8	8	91	53	36	●					
.0690	6.9	8	91	53	36	●					
.0700	7.0	8	91	53	36	●					
.0710	7.1	8	91	53	36	●					

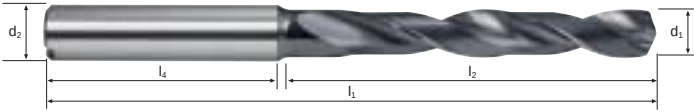
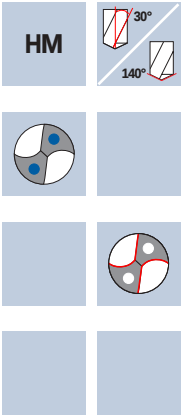


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		7.20	170	0.190	42.2	7515	1430	58.0	1.8
		7.50	170	0.195	41.8	7215	1405	62.0	1.8
		7.80	170	0.205	41.3	6940	1425	68.0	1.7
		8.00	170	0.210	41.0	6765	1420	71.5	1.7
		8.30	170	0.220	48.6	6520	1435	77.5	2.0
		8.50	170	0.225	48.3	6365	1430	81.0	2.0
		8.80	170	0.230	47.8	6150	1415	86.0	2.0
		9.00	170	0.235	47.5	6015	1415	90.0	2.0
		9.40	170	0.245	46.9	5755	1410	98.0	2.0
		9.40	170	0.245	46.9	5755	1410	98.0	2.0
Steel 500 - 850 N/mm ²		7.20	130	0.190	42.2	5745	1090	44.5	2.3
		7.50	130	0.195	41.8	5515	1075	47.5	2.3
		7.80	130	0.205	41.3	5305	1090	52.0	2.3
		8.00	130	0.210	41.0	5175	1085	54.5	2.3
		8.30	130	0.220	48.6	4985	1095	59.0	2.7
		8.50	130	0.225	48.3	4870	1095	62.0	2.6
		8.80	130	0.230	47.8	4700	1080	65.5	2.7
		9.00	130	0.235	47.5	4600	1080	68.5	2.6
		9.40	130	0.245	46.9	4400	1080	75.0	2.6
		9.40	130	0.245	46.9	4400	1080	75.0	2.6
Steel 850 - 1100 N/mm ²		7.20	110	0.145	42.2	4865	705	28.5	3.6
		7.50	110	0.150	41.8	4670	700	31.0	3.6
		7.80	110	0.155	41.3	4490	695	33.0	3.6
		8.00	110	0.160	41.0	4375	700	35.0	3.5
		8.30	110	0.165	48.6	4220	695	37.5	4.2
		8.50	110	0.170	48.3	4120	700	39.5	4.1
		8.80	110	0.175	47.8	3980	695	42.5	4.1
		9.00	110	0.180	47.5	3890	700	44.5	4.1
		9.40	110	0.190	46.9	3725	710	49.5	4.0
		9.40	110	0.190	46.9	3725	710	49.5	4.0
Steel 1100 - 1300 N/mm ²		7.20	70	0.120	42.2	3095	370	15.0	6.8
		7.50	70	0.125	41.8	2970	370	16.5	6.8
		7.80	70	0.130	41.3	2855	370	17.5	6.7
		8.00	70	0.135	41.0	2785	375	19.0	6.6
		8.30	70	0.140	48.6	2685	375	20.5	7.8
		8.50	70	0.140	48.3	2620	365	20.5	7.9
		8.80	70	0.145	47.8	2530	365	22.0	7.9
		9.00	70	0.150	47.5	2475	370	23.5	7.7
		9.40	70	0.155	46.9	2370	365	25.5	7.7
		9.40	70	0.155	46.9	2370	365	25.5	7.7

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	7.20	40	0.095	42.2	1770	170	7.0	14.9
	7.50	40	0.100	41.8	1700	170	7.5	14.8
	7.80	40	0.105	41.3	1630	170	8.0	14.6
	8.00	40	0.105	41.0	1590	165	8.5	14.9
	8.30	40	0.110	48.6	1535	170	9.0	17.2
	8.50	40	0.115	48.3	1500	175	10.0	16.6
	8.80	40	0.115	47.8	1445	165	10.0	17.4
	9.00	40	0.120	47.5	1415	170	11.0	16.8
	9.40	40	0.125	46.9	1355	170	12.0	16.6
	9.40	40	0.125	46.9	1355	170	12.0	16.6
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	7.20	60	0.110	42.2	2655	290	12.0	8.7
	7.50	60	0.115	41.8	2545	295	13.0	8.5
	7.80	60	0.120	41.3	2450	295	14.0	8.4
	8.00	60	0.125	41.0	2385	300	15.0	8.2
	8.30	60	0.130	48.6	2300	300	16.0	9.7
	8.50	60	0.130	48.3	2245	290	16.5	10.0
	8.80	60	0.135	47.8	2170	295	18.0	9.7
	9.00	60	0.140	47.5	2120	295	19.0	9.7
	9.40	60	0.145	46.9	2030	295	20.5	9.5
	9.40	60	0.145	46.9	2030	295	20.5	9.5
Cast iron (lamellar / spheroidal)	7.20	220	0.205	42.2	9725	1995	81.0	1.3
	7.50	220	0.215	41.8	9335	2005	88.5	1.3
	7.80	220	0.225	41.3	8980	2020	96.5	1.2
	8.00	220	0.230	41.0	8755	2015	101.5	1.2
	8.30	220	0.235	48.6	8435	1980	107.0	1.5
	8.50	220	0.245	48.3	8240	2020	114.5	1.4
	8.80	220	0.250	47.8	7960	1990	121.0	1.4
	9.00	220	0.255	47.5	7780	1985	126.5	1.4
	9.40	220	0.270	46.9	7450	2010	139.5	1.4
	9.40	220	0.270	46.9	7450	2010	139.5	1.4
Wrought aluminium alloys Si < 6%	7.20	250	0.160	42.2	11050	1770	72.0	1.4
	7.50	250	0.165	41.8	10610	1750	77.5	1.4
	7.80	250	0.175	41.3	10200	1785	85.5	1.4
	8.00	250	0.180	41.0	9945	1790	90.0	1.4
	8.30	250	0.185	48.6	9590	1775	96.0	1.6
	8.50	250	0.190	48.3	9360	1780	101.0	1.6
	8.80	250	0.195	47.8	9045	1765	107.5	1.6
	9.00	250	0.200	47.5	8840	1770	112.5	1.6
	9.40	250	0.210	46.9	8465	1780	123.5	1.6
	9.40	250	0.210	46.9	8465	1780	123.5	1.6

Spiral flute drills

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						NANO-U	
Article-N°.						BU42015	
ø-Code						BU43015	
ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0730	7.3	8	91	53	36	●	
.0740	7.4	8	91	53	36	●	
.0750	7.5	8	91	53	36	●	
.0760	7.6	8	91	53	36	●	
.0770	7.7	8	91	53	36	●	
.0780	7.8	8	91	53	36	●	
.0790	7.9	8	91	53	36	●	
.0800	8.0	8	91	53	36	●	
.0810	8.1	10	103	61	40	●	
.0820	8.2	10	103	61	40	●	
.0830	8.3	10	103	61	40	●	
.0840	8.4	10	103	61	40	●	
.0850	8.5	10	103	61	40	●	
.0860	8.6	10	103	61	40	●	
.0870	8.7	10	103	61	40	●	
.0880	8.8	10	103	61	40	●	
.0890	8.9	10	103	61	40	●	
.0900	9.0	10	103	61	40	●	
.0910	9.1	10	103	61	40	●	
.0920	9.2	10	103	61	40	●	
.0930	9.3	10	103	61	40	●	
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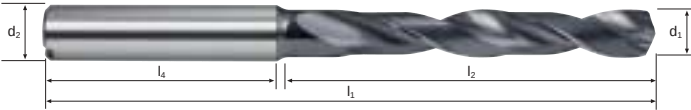
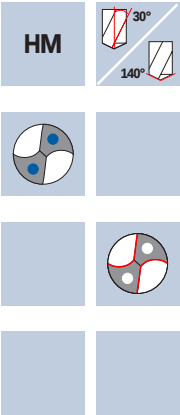


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		9.50	170	0.250	46.8	5695	1425	101.0	2.0
		9.80	170	0.260	46.3	5520	1435	108.0	1.9
		10.00	170	0.265	46.0	5410	1435	112.5	1.9
		10.20	170	0.270	55.7	5305	1430	117.0	2.3
		10.50	170	0.275	55.3	5155	1420	123.0	2.3
		10.80	170	0.285	54.8	5010	1430	131.0	2.3
		11.00	170	0.290	54.5	4920	1425	135.5	2.3
		11.30	170	0.295	54.0	4790	1415	142.0	2.3
		11.50	170	0.305	53.8	4705	1435	149.0	2.2
Steel 500 - 850 N/mm ²		9.50	130	0.250	46.8	4355	1090	77.5	2.6
		9.80	130	0.260	46.3	4220	1095	82.5	2.5
		10.00	130	0.265	46.0	4140	1095	86.0	2.5
		10.20	130	0.270	55.7	4055	1095	89.5	3.1
		10.50	130	0.275	55.3	3940	1085	94.0	3.1
		10.80	130	0.285	54.8	3830	1090	100.0	3.0
		11.00	130	0.290	54.5	3760	1090	103.5	3.0
		11.30	130	0.295	54.0	3660	1080	108.5	3.0
		11.50	130	0.305	53.8	3600	1100	114.5	2.9
Steel 850 - 1100 N/mm ²		9.50	110	0.190	46.8	3685	700	49.5	4.0
		9.80	110	0.195	46.3	3575	695	52.5	4.0
		10.00	110	0.200	46.0	3500	700	55.0	3.9
		10.20	110	0.205	55.7	3435	705	57.5	4.7
		10.50	110	0.210	55.3	3335	700	60.5	4.7
		10.80	110	0.215	54.8	3240	695	63.5	4.7
		11.00	110	0.220	54.5	3185	700	66.5	4.7
		11.30	110	0.225	54.0	3100	700	70.0	4.6
		11.50	110	0.230	53.8	3045	700	72.5	4.6
Steel 1100 - 1300 N/mm ²		9.50	70	0.160	46.8	2345	375	26.5	7.5
		9.80	70	0.165	46.3	2275	375	28.5	7.4
		10.00	70	0.165	46.0	2230	370	29.0	7.5
		10.20	70	0.170	55.7	2185	370	30.0	9.0
		10.50	70	0.175	55.3	2120	370	32.0	9.0
		10.80	70	0.180	54.8	2065	370	34.0	8.9
		11.00	70	0.185	54.5	2025	375	35.5	8.7
		11.30	70	0.190	54.0	1970	375	37.5	8.6
		11.50	70	0.190	53.8	1940	370	38.5	8.7

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	9.50	40	0.125	46.8	1340	170	12.0	16.5
	9.80	40	0.130	46.3	1300	170	13.0	16.3
	10.00	40	0.135	46.0	1275	170	13.5	16.2
	10.20	40	0.135	55.7	1250	170	14.0	19.7
	10.50	40	0.140	55.3	1215	170	14.5	19.5
	10.80	40	0.145	54.8	1180	170	15.5	19.3
	11.00	40	0.145	54.5	1155	165	15.5	19.8
	11.30	40	0.150	54.0	1125	170	17.0	19.1
	11.50	40	0.155	53.8	1105	170	17.5	19.0
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	9.50	60	0.145	46.8	2010	290	20.5	9.7
	9.80	60	0.150	46.3	1950	295	22.5	9.4
	10.00	60	0.155	46.0	1910	295	23.0	9.4
	10.20	60	0.155	55.7	1870	290	23.5	11.5
	10.50	60	0.160	55.3	1820	290	25.0	11.4
	10.80	60	0.165	54.8	1770	290	26.5	11.3
	11.00	60	0.170	54.5	1735	295	28.0	11.1
	11.30	60	0.175	54.0	1690	295	29.5	11.0
	11.50	60	0.175	53.8	1660	290	30.0	11.1
Cast iron (lamellar / spheroidal)	9.50	220	0.270	46.8	7370	1990	141.0	1.4
	9.80	220	0.280	46.3	7145	2000	151.0	1.4
	10.00	220	0.285	46.0	7005	1995	156.5	1.4
	10.20	220	0.290	55.7	6865	1990	162.5	1.7
	10.50	220	0.300	55.3	6670	2000	173.0	1.7
	10.80	220	0.310	54.8	6485	2010	184.0	1.6
	11.00	220	0.315	54.5	6365	2005	190.5	1.6
	11.30	220	0.325	54.0	6195	2015	202.0	1.6
	11.50	220	0.330	53.8	6090	2010	209.0	1.6
Wrought aluminium alloys Si < 6%	9.50	250	0.210	46.8	8375	1760	125.0	1.6
	9.80	250	0.220	46.3	8120	1785	134.5	1.6
	10.00	250	0.220	46.0	7960	1750	137.5	1.6
	10.20	250	0.225	55.7	7800	1755	143.5	1.9
	10.50	250	0.235	55.3	7580	1780	154.0	1.9
	10.80	250	0.240	54.8	7370	1770	162.0	1.9
	11.00	250	0.245	54.5	7235	1775	168.5	1.8
	11.30	250	0.250	54.0	7040	1760	176.5	1.8
	11.50	250	0.255	53.8	6920	1765	183.5	1.8

Spiral flute drills

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						NANO-U	
Article-N°.						BU42015	
ø-Code						BU43015	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.0950	9.5	10	103	61	40	●	
.0960	9.6	10	103	61	40	●	
.0970	9.7	10	103	61	40	●	
.0980	9.8	10	103	61	40	●	
.0990	9.9	10	103	61	40	●	
.1000	10.0	10	103	61	40	●	
.1010	10.1	12	118	71	45	●	
.1020	10.2	12	118	71	45	●	
.1030	10.3	12	118	71	45	●	
.1040	10.4	12	118	71	45	●	
.1050	10.5	12	118	71	45	●	
.1060	10.6	12	118	71	45	●	
.1070	10.7	12	118	71	45	●	
.1080	10.8	12	118	71	45	●	
.1090	10.9	12	118	71	45	●	
.1100	11.0	12	118	71	45	●	
.1110	11.1	12	118	71	45	●	
.1120	11.2	12	118	71	45	●	
.1130	11.3	12	118	71	45	●	
.1140	11.4	12	118	71	45	●	
.1150	11.5	12	118	71	45	●	
.1160	11.6	12	118	71	45	●	
.1170	11.7	12	118	71	45	●	

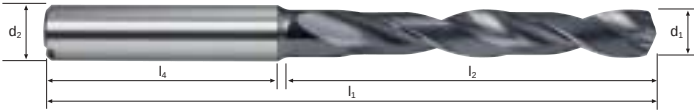
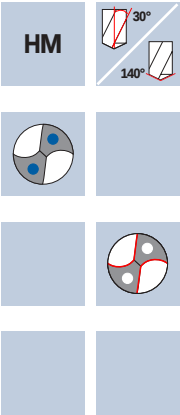


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	12.00	170	0.315	53.0	4510	1420	160.5	2.2
	12.50	170	0.330	58.3	4330	1430	175.5	2.4
	13.00	170	0.340	57.5	4165	1415	188.0	2.4
	13.50	170	0.355	56.8	4010	1425	204.0	2.4
	14.00	170	0.370	56.0	3865	1430	220.0	2.3
	14.50	170	0.380	61.3	3730	1415	233.5	2.6
	15.00	170	0.395	60.5	3610	1425	252.0	2.5
	15.50	170	0.410	59.8	3490	1430	270.0	2.5
	16.00	170	0.420	59.0	3380	1420	285.5	2.5
Steel 500 - 850 N/mm²	12.00	130	0.315	53.0	3450	1085	122.5	2.9
	12.50	130	0.330	58.3	3310	1090	134.0	3.2
	13.00	130	0.340	57.5	3185	1085	144.0	3.2
	13.50	130	0.355	56.8	3065	1090	156.0	3.1
	14.00	130	0.370	56.0	2955	1095	168.5	3.1
	14.50	130	0.380	61.3	2855	1085	179.0	3.4
	15.00	130	0.395	60.5	2760	1090	192.5	3.3
	15.50	130	0.410	59.8	2670	1095	206.5	3.3
	16.00	130	0.420	59.0	2585	1085	218.0	3.3
Steel 850 - 1100 N/mm²	12.00	110	0.240	53.0	2920	700	79.0	4.5
	12.50	110	0.250	58.3	2800	700	86.0	5.0
	13.00	110	0.260	57.5	2695	700	93.0	4.9
	13.50	110	0.270	56.8	2595	700	100.0	4.9
	14.00	110	0.280	56.0	2500	700	108.0	4.8
	14.50	110	0.290	61.3	2415	700	115.5	5.3
	15.00	110	0.300	60.5	2335	700	123.5	5.2
	15.50	110	0.310	59.8	2260	700	132.0	5.1
	16.00	110	0.320	59.0	2190	700	140.5	5.1
Steel 1100 - 1300 N/mm²	12.00	70	0.200	53.0	1855	370	42.0	8.6
	12.50	70	0.210	58.3	1785	375	46.0	9.3
	13.00	70	0.215	57.5	1715	370	49.0	9.3
	13.50	70	0.225	56.8	1650	370	53.0	9.2
	14.00	70	0.235	56.0	1590	375	57.5	9.0
	14.50	70	0.240	61.3	1535	370	61.0	9.9
	15.00	70	0.250	60.5	1485	370	65.5	9.8
	15.50	70	0.260	59.8	1440	375	71.0	9.6
	16.00	70	0.265	59.0	1395	370	74.5	9.6

Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	12.00	40	0.160	53.0	1060	170	19.0	18.7
	12.50	40	0.165	58.3	1020	170	21.0	20.6
	13.00	40	0.175	57.5	980	170	22.5	20.3
	13.50	40	0.180	56.8	945	170	24.5	20.0
	14.00	40	0.185	56.0	910	170	26.0	19.8
	14.50	40	0.195	61.3	880	170	28.0	21.6
	15.00	40	0.200	60.5	850	170	30.0	21.4
	15.50	40	0.205	59.8	820	170	32.0	21.1
	16.00	40	0.215	59.0	795	170	34.0	20.8
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	12.00	60	0.185	53.0	1590	295	33.5	10.8
	12.50	60	0.190	58.3	1530	290	35.5	12.1
	13.00	60	0.200	57.5	1470	295	39.0	11.7
	13.50	60	0.210	56.8	1415	295	42.0	11.6
	14.00	60	0.215	56.0	1365	295	45.5	11.4
	14.50	60	0.225	61.3	1315	295	48.5	12.5
	15.00	60	0.230	60.5	1275	295	52.0	12.3
	15.50	60	0.240	59.8	1230	295	55.5	12.2
	16.00	60	0.245	59.0	1195	295	59.5	12.0
Cast iron (lamellar / spheroidal)	12.00	220	0.345	53.0	5835	2015	228.0	1.6
	12.50	220	0.355	58.3	5600	1990	244.0	1.8
	13.00	220	0.370	57.5	5385	1990	264.0	1.7
	13.50	220	0.385	56.8	5185	1995	285.5	1.7
	14.00	220	0.400	56.0	5000	2000	308.0	1.7
	14.50	220	0.415	61.3	4830	2005	331.0	1.8
	15.00	220	0.430	60.5	4670	2010	355.0	1.8
	15.50	220	0.445	59.8	4520	2010	379.5	1.8
	16.00	220	0.455	59.0	4375	1990	400.0	1.8
Wrought aluminium alloys Si < 6%	12.00	250	0.265	53.0	6630	1755	198.5	1.8
	12.50	250	0.280	58.3	6365	1780	218.5	2.0
	13.00	250	0.290	57.5	6120	1775	235.5	1.9
	13.50	250	0.300	56.8	5895	1770	253.5	1.9
	14.00	250	0.310	56.0	5685	1760	271.0	1.9
	14.50	250	0.320	61.3	5490	1755	290.0	2.1
	15.00	250	0.335	60.5	5305	1775	313.5	2.0
	15.50	250	0.345	59.8	5135	1770	334.0	2.0
	16.00	250	0.355	59.0	4975	1765	355.0	2.0

Spiral flute drills

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						NANO-U	
Article-N°.						BU42015	
ø-Code						BU43015	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.1180	11.8	12	118	71	45	●	
.1190	11.9	12	118	71	45	●	
.1200	12.0	12	118	71	45	●	
.1250	12.5	14	124	77	45	●	
.1280	12.8	14	124	77	45	●	
.1300	13.0	14	124	77	45	●	
.1310	13.1	14	124	77	45	●	
.1350	13.5	14	124	77	45	●	
.1380	13.8	14	124	77	45	●	
.1400	14.0	14	124	77	45	●	
.1450	14.5	16	133	83	48	●	
.1480	14.8	16	133	83	48	●	
.1500	15.0	16	133	83	48	●	
.1510	15.1	16	133	83	48	●	
.1550	15.5	16	133	83	48	●	
.1580	15.8	16	133	83	48	●	
.1600	16.0	16	133	83	48	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	180	0.140	15.5	19100	2675	19.0	0.3
3.30	180	0.155	15.1	17360	2690	23.0	0.3
3.50	180	0.165	14.8	16370	2700	26.0	0.3
3.80	180	0.175	18.3	15080	2640	30.0	0.4
4.00	180	0.195	18.0	14325	2795	35.0	0.4
4.20	180	0.210	17.7	13640	2865	39.5	0.4
4.50	180	0.240	17.3	12730	3055	48.5	0.3
4.80	180	0.255	20.8	11935	3045	55.0	0.4
5.00	180	0.265	20.5	11460	3035	59.5	0.4
3.00	160	0.120	15.5	16975	2035	14.5	0.6
3.30	160	0.130	15.1	15435	2005	17.0	0.6
3.50	160	0.140	14.8	14550	2035	19.5	0.6
3.80	160	0.150	18.3	13405	2010	23.0	0.9
4.00	160	0.165	18.0	12730	2100	26.5	0.9
4.20	160	0.180	17.7	12125	2185	30.5	0.8
4.50	160	0.205	17.3	11320	2320	37.0	0.8
4.80	160	0.220	20.8	10610	2335	42.5	0.9
5.00	160	0.230	20.5	10185	2345	46.0	0.9
3.00	140	0.110	15.5	14855	1635	11.5	0.8
3.30	140	0.120	15.1	13505	1620	14.0	0.8
3.50	140	0.130	14.8	12730	1655	16.0	0.8
3.80	140	0.140	18.3	11725	1640	18.5	1.1
4.00	140	0.155	18.0	11140	1725	21.5	1.0
4.20	140	0.165	17.7	10610	1750	24.0	1.0
4.50	140	0.190	17.3	9905	1880	30.0	0.9
4.80	140	0.200	20.8	9285	1855	33.5	1.2
5.00	140	0.210	20.5	8915	1870	36.5	1.2
3.00	100	0.085	15.5	10610	900	6.5	1.4
3.30	100	0.090	15.1	9645	870	7.5	1.5
3.50	100	0.100	14.8	9095	910	9.0	1.4
3.80	100	0.105	18.3	8375	880	10.0	2.1
4.00	100	0.115	18.0	7960	915	11.5	2.0
4.20	100	0.125	17.7	7580	950	13.0	1.9
4.50	100	0.145	17.3	7075	1025	16.5	1.7
4.80	100	0.155	20.8	6630	1030	18.5	2.1
5.00	100	0.160	20.5	6365	1020	20.0	2.1

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]
Stainless steel
[Cr-Ni/1.4301]

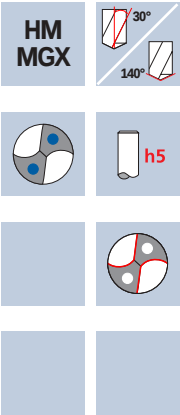
Titanium alloys
>300 HB
[Ti6Al4V]

Cast iron
(lamellar / spheroidal)

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	55	0.065	15.5	5835	380	2.5	3.4
3.30	55	0.070	15.1	5305	370	3.0	3.4
3.50	55	0.075	14.8	5000	375	3.5	3.3
3.80	55	0.080	18.3	4605	370	4.0	4.9
4.00	55	0.090	18.0	4375	395	5.0	4.6
4.20	55	0.095	17.7	4170	395	5.5	4.5
4.50	55	0.110	17.3	3890	430	7.0	4.1
4.80	55	0.120	20.8	3645	435	8.0	5.1
5.00	55	0.125	20.5	3500	440	8.5	5.0
3.00	70	0.065	15.5	7425	485	3.5	2.7
3.30	70	0.070	15.1	6750	475	4.0	2.7
3.50	70	0.075	14.8	6365	475	4.5	2.6
3.80	70	0.080	18.3	5865	470	5.5	3.9
4.00	70	0.090	18.0	5570	500	6.5	3.6
4.20	70	0.095	17.7	5305	505	7.0	3.5
4.50	70	0.110	17.3	4950	545	8.5	3.2
4.80	70	0.120	20.8	4640	555	10.0	4.0
5.00	70	0.125	20.5	4455	555	11.0	3.9
3.00	40	0.065	15.5	4245	275	2.0	4.7
3.30	40	0.070	15.1	3860	270	2.5	4.7
3.50	40	0.075	14.8	3640	275	2.5	4.5
3.80	40	0.080	18.3	3350	270	3.0	6.7
4.00	40	0.090	18.0	3185	285	3.5	6.3
4.20	40	0.095	17.7	3030	290	4.0	6.1
4.50	40	0.110	17.3	2830	310	5.0	5.7
4.80	40	0.120	20.8	2655	320	6.0	6.9
5.00	40	0.125	20.5	2545	320	6.5	6.8
3.00	240	0.125	15.5	25465	3185	22.5	0.4
3.30	240	0.140	15.1	23150	3240	27.5	0.4
3.50	240	0.150	14.8	21825	3275	31.5	0.4
3.80	240	0.160	18.3	20105	3215	36.5	0.6
4.00	240	0.175	18.0	19100	3345	42.0	0.5
4.20	240	0.190	17.7	18190	3455	48.0	0.5
4.50	240	0.220	17.3	16975	3735	59.5	0.5
4.80	240	0.235	20.8	15915	3740	67.5	0.6
5.00	240	0.240	20.5	15280	3665	72.0	0.6

Spiral flute drills XDrill®

3xd



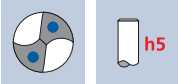
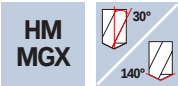
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72011	
σ-Code							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0300	3.0	6	62	20	36	●	
.0310	3.1	6	62	20	36	●	
.0320	3.2	6	62	20	36	●	
.0330	3.3	6	62	20	36	●	
.0340	3.4	6	62	20	36	●	
.0350	3.5	6	62	20	36	●	
.0360	3.6	6	62	20	36	●	
.0370	3.7	6	62	20	36	●	
.0380	3.8	6	66	24	36	●	
.0390	3.9	6	66	24	36	●	
.0400	4.0	6	66	24	36	●	
.0410	4.1	6	66	24	36	●	
.0420	4.2	6	66	24	36	●	
.0430	4.3	6	66	24	36	●	
.0440	4.4	6	66	24	36	●	
.0450	4.5	6	66	24	36	●	
.0460	4.6	6	66	24	36	●	
.0470	4.7	6	66	24	36	●	
.0480	4.8	6	66	28	36	●	
.0490	4.9	6	66	28	36	●	
.0500	5.0	6	66	28	36	●	
.0510	5.1	6	66	28	36	●	
.0520	5.2	6	66	28	36	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	5.50	180	0.295	19.8	10415	3070	73.0	0.4
		5.80	180	0.310	19.3	9880	3065	81.0	0.4
		6.00	180	0.330	19.0	9550	3150	89.0	0.4
		6.20	180	0.350	24.7	9240	3235	97.5	0.5
		6.50	180	0.370	24.3	8815	3260	108.0	0.4
		6.80	180	0.385	23.8	8425	3245	118.0	0.4
		7.00	180	0.395	23.5	8185	3235	124.5	0.4
		7.20	180	0.410	30.2	7960	3265	133.0	0.6
		7.50	180	0.425	29.8	7640	3245	143.5	0.6
	Steel 500 - 850 N/mm ²	5.50	160	0.250	19.8	9260	2315	55.0	0.9
		5.80	160	0.265	19.3	8780	2325	61.5	0.9
		6.00	160	0.285	19.0	8490	2420	68.5	0.9
		6.20	160	0.300	24.7	8215	2465	74.5	1.1
		6.50	160	0.315	24.3	7835	2470	82.0	1.1
		6.80	160	0.330	23.8	7490	2470	89.5	1.0
		7.00	160	0.340	23.5	7275	2475	95.0	1.0
		7.20	160	0.350	30.2	7075	2475	101.0	1.0
		7.50	160	0.365	29.8	6790	2480	109.5	1.0
	Steel 850 - 1100 N/mm ²	5.50	140	0.230	19.8	8100	1865	44.5	1.2
		5.80	140	0.245	19.3	7685	1885	50.0	1.1
		6.00	140	0.260	19.0	7425	1930	54.5	1.1
		6.20	140	0.275	24.7	7190	1975	59.5	1.3
		6.50	140	0.290	24.3	6855	1990	66.0	1.3
		6.80	140	0.305	23.8	6555	2000	72.5	1.3
		7.00	140	0.315	23.5	6365	2005	77.0	1.3
		7.20	140	0.320	30.2	6190	1980	80.5	1.3
		7.50	140	0.335	29.8	5940	1990	88.0	1.3
	Steel 1100 - 1300 N/mm ²	5.50	100	0.175	19.8	5785	1010	24.0	2.1
		5.80	100	0.185	19.3	5490	1015	27.0	2.1
		6.00	100	0.200	19.0	5305	1060	30.0	2.0
		6.20	100	0.210	24.7	5135	1080	32.5	2.4
		6.50	100	0.220	24.3	4895	1075	35.5	2.4
		6.80	100	0.230	23.8	4680	1075	39.0	2.4
		7.00	100	0.240	23.5	4545	1090	42.0	2.3
		7.20	100	0.245	30.2	4420	1085	44.0	2.3
		7.50	100	0.255	29.8	4245	1080	47.5	2.3
Material		d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		5.50	55	0.135	19.8	3185	430	10.0	5.0
		5.80	55	0.145	19.3	3020	440	11.5	4.8
		6.00	55	0.150	19.0	2920	440	12.5	4.8
		6.20	55	0.160	24.7	2825	450	13.5	5.8
		6.50	55	0.170	24.3	2695	460	15.5	5.6
		6.80	55	0.180	23.8	2575	465	17.0	5.5
		7.00	55	0.185	23.5	2500	465	18.0	5.5
		7.20	55	0.190	30.2	2430	460	18.5	5.5
		7.50	55	0.195	29.8	2335	455	20.0	5.5
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		5.50	70	0.135	19.8	4050	545	13.0	3.9
		5.80	70	0.145	19.3	3840	555	14.5	3.8
		6.00	70	0.150	19.0	3715	555	15.5	3.8
		6.20	70	0.160	24.7	3595	575	17.5	4.6
		6.50	70	0.170	24.3	3430	585	19.5	4.4
		6.80	70	0.180	23.8	3275	590	21.5	4.4
		7.00	70	0.185	23.5	3185	590	22.5	4.3
		7.20	70	0.190	30.2	3095	590	24.0	4.3
		7.50	70	0.195	29.8	2970	580	25.5	4.3
Titanium alloys >300 HB [Ti6Al4V]		5.50	40	0.135	19.8	2315	315	7.5	6.8
		5.80	40	0.145	19.3	2195	320	8.5	6.6
		6.00	40	0.150	19.0	2120	320	9.0	6.6
		6.20	40	0.160	24.7	2055	330	10.0	7.9
		6.50	40	0.170	24.3	1960	335	11.0	7.8
		6.80	40	0.180	23.8	1870	335	12.0	7.7
		7.00	40	0.185	23.5	1820	335	13.0	7.6
		7.20	40	0.190	30.2	1770	335	13.5	7.6
		7.50	40	0.195	29.8	1700	330	14.5	7.6
Cast iron (lamellar / spheroidal)		5.50	240	0.265	19.8	13890	3680	87.5	0.6
		5.80	240	0.280	19.3	13170	3690	97.5	0.6
		6.00	240	0.300	19.0	12730	3820	108.0	0.5
		6.20	240	0.320	24.7	12320	3940	119.0	0.7
		6.50	240	0.335	24.3	11755	3940	130.5	0.7
		6.80	240	0.350	23.8	11235	3930	142.5	0.7
		7.00	240	0.360	23.5	10915	3930	151.0	0.6
		7.20	240	0.370	30.2	10610	3925	160.0	0.6
		7.50	240	0.385	29.8	10185	3920	173.0	0.6

Spiral flute drills XDrill®

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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72011	
Ø-Code							
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.0550	5.5	6	66	28	36	●	
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.0570	5.7	6	66	28	36	●	
.0580	5.8	6	66	28	36	●	
.0590	5.9	6	66	28	36	●	
.0600	6.0	6	66	28	36	●	
.0610	6.1	8	79	34	36	●	
.0620	6.2	8	79	34	36	●	
.0630	6.3	8	79	34	36	●	
.0640	6.4	8	79	34	36	●	
.0650	6.5	8	79	34	36	●	
.0660	6.6	8	79	34	36	●	
.0670	6.7	8	79	34	36	●	
.0680	6.8	8	79	34	36	●	
.0690	6.9	8	79	34	36	●	
.0700	7.0	8	79	34	36	●	
.0710	7.1	8	79	41	36	●	
.0720	7.2	8	79	41	36	●	
.0730	7.3	8	79	41	36	●	
.0740	7.4	8	79	41	36	●	
.0750	7.5	8	79	41	36	●	

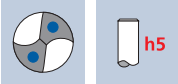
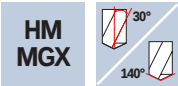


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	7.60	180	0.430	29.6	7540	3240	147.0	0.5
	8.00	180	0.455	29.0	7160	3260	164.0	0.5
	8.20	180	0.465	34.7	6985	3250	171.5	0.6
	8.50	180	0.480	34.3	6740	3235	183.5	0.6
	8.80	180	0.500	33.8	6510	3255	198.0	0.6
	9.00	180	0.510	33.5	6365	3245	206.5	0.6
	9.20	180	0.520	33.2	6230	3240	215.5	0.6
	9.50	180	0.540	32.8	6030	3255	230.5	0.6
	9.80	180	0.555	32.3	5845	3245	245.0	0.6
Steel 500 - 850 N/mm²	7.60	160	0.370	29.6	6700	2480	112.5	1.0
	8.00	160	0.390	29.0	6365	2480	124.5	1.0
	8.20	160	0.400	34.7	6210	2485	131.0	1.2
	8.50	160	0.415	34.3	5990	2485	141.0	1.2
	8.80	160	0.425	33.8	5785	2460	149.5	1.2
	9.00	160	0.435	33.5	5660	2460	156.5	1.2
	9.20	160	0.445	33.2	5535	2465	164.0	1.1
	9.50	160	0.460	32.8	5360	2465	174.5	1.1
	9.80	160	0.475	32.3	5195	2470	186.5	1.1
Steel 850 - 1100 N/mm²	7.60	140	0.340	29.6	5865	1995	90.5	1.3
	8.00	140	0.360	29.0	5570	2005	101.0	1.2
	8.20	140	0.365	34.7	5435	1985	105.0	1.5
	8.50	140	0.380	34.3	5245	1995	113.0	1.5
	8.80	140	0.395	33.8	5065	2000	121.5	1.4
	9.00	140	0.405	33.5	4950	2005	127.5	1.4
	9.20	140	0.410	33.2	4845	1985	132.0	1.4
	9.50	140	0.425	32.8	4690	1995	141.5	1.4
	9.80	140	0.440	32.3	4545	2000	151.0	1.4
Steel 1100 - 1300 N/mm²	7.60	100	0.260	29.6	4190	1090	49.5	2.3
	8.00	100	0.270	29.0	3980	1075	54.0	2.3
	8.20	100	0.280	34.7	3880	1085	57.5	2.7
	8.50	100	0.290	34.3	3745	1085	61.5	2.7
	8.80	100	0.300	33.8	3615	1085	66.0	2.6
	9.00	100	0.305	33.5	3535	1080	68.5	2.6
	9.20	100	0.315	33.2	3460	1090	72.5	2.6
	9.50	100	0.325	32.8	3350	1090	77.5	2.6
	9.80	100	0.335	32.3	3250	1090	82.0	2.5

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	7.60	55	0.200	29.6	2305	460	21.0	5.4
	8.00	55	0.210	29.0	2190	460	23.0	5.3
	8.20	55	0.215	34.7	2135	460	24.5	6.4
	8.50	55	0.220	34.3	2060	455	26.0	6.4
	8.80	55	0.230	33.8	1990	460	28.0	6.2
	9.00	55	0.235	33.5	1945	455	29.0	6.3
	9.20	55	0.240	33.2	1905	455	30.0	6.2
	9.50	55	0.250	32.8	1845	460	32.5	6.1
	9.80	55	0.255	32.3	1785	455	34.5	6.1
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	7.60	70	0.200	29.6	2930	585	26.5	4.3
	8.00	70	0.210	29.0	2785	585	29.5	4.2
	8.20	70	0.215	34.7	2715	585	31.0	5.0
	8.50	70	0.220	34.3	2620	575	32.5	5.0
	8.80	70	0.230	33.8	2530	580	35.5	4.9
	9.00	70	0.235	33.5	2475	580	37.0	4.9
	9.20	70	0.240	33.2	2420	580	38.5	4.9
	9.50	70	0.250	32.8	2345	585	41.5	4.8
	9.80	70	0.255	32.3	2275	580	43.5	4.8
Titanium alloys >300 HB [Ti6Al4V]	7.60	40	0.200	29.6	1675	335	15.0	7.5
	8.00	40	0.210	29.0	1590	335	17.0	7.3
	8.20	40	0.215	34.7	1555	335	17.5	8.7
	8.50	40	0.220	34.3	1500	330	18.5	8.8
	8.80	40	0.230	33.8	1445	330	20.0	8.7
	9.00	40	0.235	33.5	1415	335	21.5	8.5
	9.20	40	0.240	33.2	1385	330	22.0	8.6
	9.50	40	0.250	32.8	1340	335	23.5	8.4
	9.80	40	0.255	32.3	1300	330	25.0	8.4
Cast iron (lamellar / spheroidal)	7.60	240	0.390	29.6	10050	3920	178.0	0.6
	8.00	240	0.410	29.0	9550	3915	197.0	0.6
	8.20	240	0.420	34.7	9315	3910	206.5	0.7
	8.50	240	0.440	34.3	8990	3955	224.5	0.7
	8.80	240	0.455	33.8	8680	3950	240.0	0.7
	9.00	240	0.465	33.5	8490	3950	251.5	0.7
	9.20	240	0.475	33.2	8305	3945	262.0	0.7
	9.50	240	0.490	32.8	8040	3940	279.5	0.7
	9.80	240	0.505	32.3	7795	3935	297.0	0.7

Spiral flute drills XDrill®

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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72011	
Ø-Code							
Ø	d1 m7	d2 h5	l1	l2	l4		
.0760	7.6	8	79	41	36	●	
.0770	7.7	8	79	41	36	●	
.0780	7.8	8	79	41	36	●	
.0790	7.9	8	79	41	36	●	
.0800	8.0	8	79	41	36	●	
.0810	8.1	10	89	47	40	●	
.0820	8.2	10	89	47	40	●	
.0830	8.3	10	89	47	40	●	
.0840	8.4	10	89	47	40	●	
.0850	8.5	10	89	47	40	●	
.0860	8.6	10	89	47	40	●	
.0870	8.7	10	89	47	40	●	
.0880	8.8	10	89	47	40	●	
.0890	8.9	10	89	47	40	●	
.0900	9.0	10	89	47	40	●	
.0910	9.1	10	89	47	40	●	
.0920	9.2	10	89	47	40	●	
.0930	9.3	10	89	47	40	●	
.0940	9.4	10	89	47	40	●	
.0950	9.5	10	89	47	40	●	
.0960	9.6	10	89	47	40	●	
.0970	9.7	10	89	47	40	●	
.0980	9.8	10	89	47	40	●	

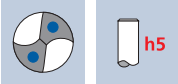
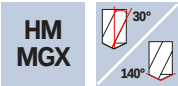


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	10.00	180	0.565	32.0	5730	3235	254.0	0.6
	10.20	180	0.575	39.7	5615	3230	264.0	0.7
	10.50	180	0.590	39.3	5455	3220	279.0	0.7
	10.80	180	0.605	38.8	5305	3210	294.0	0.7
	11.00	180	0.610	38.5	5210	3180	302.0	0.7
	11.20	180	0.615	38.2	5115	3145	310.0	0.7
	11.50	180	0.620	37.8	4980	3090	321.0	0.7
	11.80	180	0.630	37.3	4855	3060	334.5	0.7
	12.00	180	0.640	37.0	4775	3055	345.5	0.7
Steel 500 - 850 N/mm²	10.00	160	0.485	32.0	5095	2470	194.0	1.1
	10.20	160	0.495	39.7	4995	2475	202.0	1.4
	10.50	160	0.505	39.3	4850	2450	212.0	1.4
	10.80	160	0.520	38.8	4715	2450	224.5	1.3
	11.00	160	0.525	38.5	4630	2430	231.0	1.3
	11.20	160	0.530	38.2	4545	2410	237.5	1.3
	11.50	160	0.530	37.8	4430	2350	244.0	1.4
	11.80	160	0.540	37.3	4315	2330	255.0	1.4
	12.00	160	0.550	37.0	4245	2335	264.0	1.4
Steel 850 - 1100 N/mm²	10.00	140	0.445	32.0	4455	1980	155.5	1.4
	10.20	140	0.455	39.7	4370	1990	162.5	1.7
	10.50	140	0.465	39.3	4245	1975	171.0	1.7
	10.80	140	0.475	38.8	4125	1960	179.5	1.7
	11.00	140	0.485	38.5	4050	1965	186.5	1.7
	11.20	140	0.485	38.2	3980	1930	190.0	1.7
	11.50	140	0.490	37.8	3875	1900	197.5	1.7
	11.80	140	0.495	37.3	3775	1870	204.5	1.7
	12.00	140	0.505	37.0	3715	1875	212.0	1.7
Steel 1100 - 1300 N/mm²	10.00	100	0.340	32.0	3185	1085	85.0	2.5
	10.20	100	0.345	39.7	3120	1075	88.0	3.1
	10.50	100	0.355	39.3	3030	1075	93.0	3.1
	10.80	100	0.365	38.8	2945	1075	98.5	3.1
	11.00	100	0.365	38.5	2895	1055	100.5	3.1
	11.20	100	0.370	38.2	2840	1050	103.5	3.1
	11.50	100	0.375	37.8	2770	1040	108.0	3.1
	11.80	100	0.380	37.3	2700	1025	112.0	3.1
	12.00	100	0.385	37.0	2655	1020	115.5	3.1

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	10.00	55	0.260	32.0	1750	455	35.5	6.1
	10.20	55	0.265	39.7	1715	455	37.0	7.3
	10.50	55	0.275	39.3	1665	460	40.0	7.2
	10.80	55	0.280	38.8	1620	455	41.5	7.2
	11.00	55	0.285	38.5	1590	455	43.0	7.2
	11.20	55	0.285	38.2	1565	445	44.0	7.3
	11.50	55	0.285	37.8	1520	435	45.0	7.4
	11.80	55	0.290	37.3	1485	430	47.0	7.4
	12.00	55	0.295	37.0	1460	430	48.5	7.4
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	10.00	70	0.260	32.0	2230	580	45.5	4.8
	10.20	70	0.265	39.7	2185	580	47.5	5.8
	10.50	70	0.275	39.3	2120	585	50.5	5.7
	10.80	70	0.280	38.8	2065	580	53.0	5.7
	11.00	70	0.285	38.5	2025	575	54.5	5.7
	11.20	70	0.285	38.2	1990	565	55.5	5.8
	11.50	70	0.285	37.8	1940	555	57.5	5.8
	11.80	70	0.290	37.3	1890	550	60.0	5.8
	12.00	70	0.295	37.0	1855	545	61.5	5.8
Titanium alloys >300 HB [Ti6Al4V]	10.00	40	0.260	32.0	1275	330	26.0	8.4
	10.20	40	0.265	39.7	1250	330	27.0	10.1
	10.50	40	0.275	39.3	1215	335	29.0	9.9
	10.80	40	0.280	38.8	1180	330	30.0	10.0
	11.00	40	0.285	38.5	1155	330	31.5	9.9
	11.20	40	0.285	38.2	1135	325	32.0	10.0
	11.50	40	0.285	37.8	1105	315	32.5	10.2
	11.80	40	0.290	37.3	1080	315	34.5	10.2
	12.00	40	0.295	37.0	1060	315	35.5	10.1
Cast iron (lamellar / spheroidal)	10.00	240	0.515	32.0	7640	3935	309.0	0.7
	10.20	240	0.520	39.7	7490	3895	318.5	0.9
	10.50	240	0.540	39.3	7275	3930	340.5	0.8
	10.80	240	0.550	38.8	7075	3890	356.5	0.8
	11.00	240	0.555	38.5	6945	3855	366.5	0.8
	11.20	240	0.560	38.2	6820	3820	376.5	0.9
	11.50	240	0.565	37.8	6645	3755	390.0	0.9
	11.80	240	0.570	37.3	6475	3690	403.5	0.9
	12.00	240	0.580	37.0	6365	3690	417.5	0.9

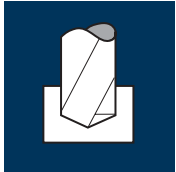
Spiral flute drills XDrill®

3xd



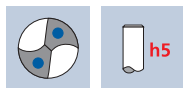
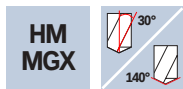
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72011	
σ-Code							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0990	9.9	10	89	47	40	●	
.1000	10.0	10	89	47	40	●	
.1010	10.1	12	102	55	45	●	
.1020	10.2	12	102	55	45	●	
.1030	10.3	12	102	55	45	●	
.1040	10.4	12	102	55	45	●	
.1050	10.5	12	102	55	45	●	
.1060	10.6	12	102	55	45	●	
.1070	10.7	12	102	55	45	●	
.1080	10.8	12	102	55	45	●	
.1090	10.9	12	102	55	45	●	
.1100	11.0	12	102	55	45	●	
.1110	11.1	12	102	55	45	●	
.1120	11.2	12	102	55	45	●	
.1130	11.3	12	102	55	45	●	
.1140	11.4	12	102	55	45	●	
.1150	11.5	12	102	55	45	●	
.1160	11.6	12	102	55	45	●	
.1170	11.7	12	102	55	45	●	
.1180	11.8	12	102	55	45	●	
.1190	11.9	12	102	55	45	●	
.1200	12.0	12	102	55	45	●	

Application	Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	12.50	180	0.665	41.3	4585	3050	374.5	0.8
		13.00	180	0.695	40.5	4405	3060	406.0	0.8
		13.50	180	0.705	40.2	4340	3060	419.0	0.8
		14.00	180	0.715	39.0	4095	2930	451.0	0.8
		14.50	180	0.725	43.3	3950	2865	473.0	0.9
		15.00	180	0.745	42.5	3820	2845	503.0	0.9
		15.50	180	0.760	41.8	3695	2810	530.0	0.9
		15.80	180	0.770	41.3	3625	2790	547.0	0.9
		16.00	180	0.775	41.0	3580	2775	558.0	0.9
	Steel 500 - 850 N/mm ²	12.50	160	0.570	41.3	4075	2325	285.5	1.5
		13.00	160	0.595	40.5	3920	2330	309.5	1.5
		13.50	160	0.605	40.2	3860	2335	319.5	1.5
		14.00	160	0.610	39.0	3640	2220	341.5	1.5
		14.50	160	0.620	43.3	3510	2175	359.0	1.7
		15.00	160	0.640	42.5	3395	2175	384.5	1.7
		15.50	160	0.650	41.8	3285	2135	403.0	1.7
		15.80	160	0.660	41.3	3225	2130	417.5	1.7
		16.00	160	0.665	41.0	3185	2120	426.5	1.7
	Steel 850 - 1100 N/mm ²	12.50	140	0.525	41.3	3565	1870	229.5	1.9
		13.00	140	0.545	40.5	3430	1870	248.0	1.8
		13.50	140	0.555	40.2	3375	1875	256.5	1.8
		14.00	140	0.565	39.0	3185	1800	277.0	1.9
		14.50	140	0.570	43.3	3075	1755	290.0	2.1
		15.00	140	0.590	42.5	2970	1750	309.5	2.1
		15.50	140	0.600	41.8	2875	1725	325.5	2.1
		15.80	140	0.605	41.3	2820	1705	334.5	2.1
		16.00	140	0.610	41.0	2785	1700	342.0	2.1
	Steel 1100 - 1300 N/mm ²	12.50	100	0.400	41.3	2545	1020	125.0	3.4
		13.00	100	0.415	40.5	2450	1015	134.5	3.4
		13.50	100	0.420	40.2	2410	1010	138.0	3.4
		14.00	100	0.430	39.0	2275	980	151.0	3.4
		14.50	100	0.435	43.3	2195	955	157.5	3.9
		15.00	100	0.445	42.5	2120	945	167.0	3.8
		15.50	100	0.455	41.8	2055	935	176.5	3.8
		15.80	100	0.460	41.3	2015	925	181.5	3.8
		16.00	100	0.465	41.0	1990	925	186.0	3.8
Material		d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²		12.50	55	0.310	41.3	1400	435	53.5	8.0
		13.00	55	0.320	40.5	1345	430	57.0	8.0
		13.50	55	0.325	40.2	1325	430	59.0	8.0
		14.00	55	0.330	39.0	1250	415	64.0	8.1
		14.50	55	0.335	43.3	1205	405	67.0	9.1
		15.00	55	0.345	42.5	1165	400	70.5	9.1
		15.50	55	0.350	41.8	1130	395	74.5	9.1
		15.80	55	0.355	41.3	1110	395	77.5	9.0
		16.00	55	0.355	41.0	1095	390	78.5	9.1
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]		12.50	70	0.310	41.3	1785	555	68.0	6.3
		13.00	70	0.320	40.5	1715	550	73.0	6.3
		13.50	70	0.325	40.2	1690	550	75.5	6.2
		14.00	70	0.330	39.0	1590	525	81.0	6.4
		14.50	70	0.335	43.3	1535	515	85.0	7.1
		15.00	70	0.345	42.5	1485	510	90.0	7.1
		15.50	70	0.350	41.8	1440	505	95.5	7.1
		15.80	70	0.355	41.3	1410	500	98.0	7.1
		16.00	70	0.355	41.0	1395	495	99.5	7.2
Titanium alloys >300 HB [Ti6Al4V]		12.50	40	0.310	41.3	1020	315	38.5	11.1
		13.00	40	0.320	40.5	980	315	42.0	11.0
		13.50	40	0.325	40.2	965	315	43.0	10.9
		14.00	40	0.330	39.0	910	300	46.0	11.2
		14.50	40	0.335	43.3	880	295	48.5	12.5
		15.00	40	0.345	42.5	850	295	52.0	12.3
		15.50	40	0.350	41.8	820	285	54.0	12.6
		15.80	40	0.355	41.3	805	285	56.0	12.5
		16.00	40	0.355	41.0	795	280	56.5	12.6
Cast iron (lamellar / spheroidal)		12.50	240	0.605	41.3	6110	3695	453.5	0.9
		13.00	240	0.630	40.5	5875	3700	491.0	0.9
		13.50	240	0.640	40.2	5785	3700	506.5	0.9
		14.00	240	0.650	39.0	5455	3545	545.5	0.9
		14.50	240	0.660	43.3	5270	3480	574.5	1.1
		15.00	240	0.675	42.5	5095	3440	608.0	1.1
		15.50	240	0.690	41.8	4930	3400	641.5	1.1
		15.80	240	0.700	41.3	4835	3385	663.5	1.1
		16.00	240	0.705	41.0	4775	3365	676.5	1.1

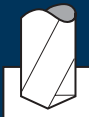
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Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56			Inox Stainless	Ti Titanium	GG(G)
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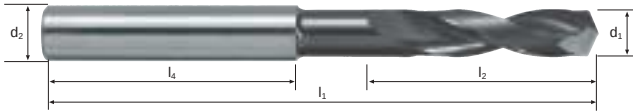
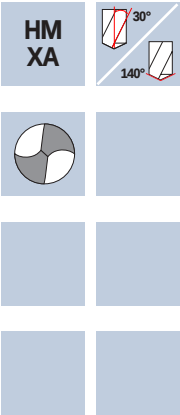
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Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Hardened tool steel 42 - 48 HRC	3.00	35	0.060	15.5	3715	225	1.5	4.1
		4.00	35	0.080	18.0	2785	225	3.0	4.8
		4.30	35	0.085	17.6	2590	220	3.0	4.8
		5.00	35	0.100	20.5	2230	225	4.5	5.5
		5.50	35	0.110	19.8	2025	225	5.5	5.3
		6.00	35	0.120	19.0	1855	225	6.5	5.1
		6.50	35	0.130	24.3	1715	225	7.5	6.5
		6.90	35	0.135	23.6	1615	220	8.0	6.4
		8.00	35	0.155	29.0	1395	215	11.0	8.1
	Hardened tool steel 48 - 52 HRC	3.00	30	0.050	15.5	3185	160	1.0	5.8
		4.00	30	0.065	18.0	2385	155	2.0	7.0
		4.30	30	0.070	17.6	2220	155	2.5	6.8
		5.00	30	0.085	20.5	1910	160	3.0	7.7
		5.50	30	0.090	19.8	1735	155	3.5	7.7
		6.00	30	0.100	19.0	1590	160	4.5	7.1
		6.50	30	0.110	24.3	1470	160	5.5	9.1
		6.90	30	0.115	23.6	1385	160	6.0	8.9
		8.00	30	0.130	29.0	1195	155	8.0	11.2
	Hardened tool steel 52 - 56 HRC	3.00	20	0.045	15.5	2120	95	0.5	9.8
		4.00	20	0.055	18.0	1590	85	1.0	12.7
		4.30	20	0.060	17.6	1480	90	1.5	11.7
		5.00	20	0.070	20.5	1275	90	2.0	13.7
		5.50	20	0.080	19.8	1155	90	2.0	13.2
		6.00	20	0.085	19.0	1060	90	2.5	12.7
		6.50	20	0.095	24.3	980	95	3.0	15.3
		6.90	20	0.080	23.6	925	75	3.0	18.9
		8.00	20	0.085	29.0	795	70	3.5	24.9
	Hardened tool steel 56 - 60 HRC	3.00	15	0.020	15.5	1590	30	0.0	31.0
		4.00	15	0.025	18.0	1195	30	0.5	36.0
		4.30	15	0.025	17.6	1110	30	0.5	35.2
		5.00	15	0.030	20.5	955	30	0.5	41.0
		5.50	15	0.035	19.8	870	30	0.5	39.6
		6.00	15	0.040	19.0	795	30	1.0	38.0
		6.50	15	0.040	24.3	735	30	1.0	48.6
		6.90	15	0.040	23.6	690	30	1.0	47.2
		8.00	15	0.050	29.0	595	30	1.5	58.0

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Hardened tool steel > 60 HRC	3.00	10	0.015	15.5	1060	15	0.0	62.0
	4.00	10	0.020	18.0	795	15	0.0	72.0
	4.30	10	0.025	17.6	740	20	0.5	52.8
	5.00	10	0.030	20.5	635	20	0.5	61.5
	5.50	10	0.030	19.8	580	15	0.5	79.2
	6.00	10	0.035	19.0	530	20	0.5	57.0
	6.50	10	0.035	24.3	490	15	0.5	97.2
	6.90	10	0.040	23.6	460	20	0.5	70.8
	8.00	10	0.045	29.0	400	20	1.0	87.0

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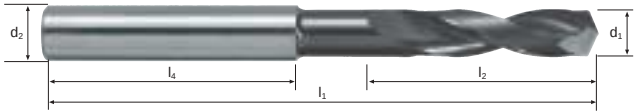
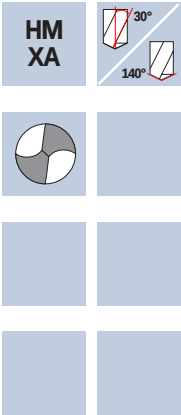


			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS GG(G)
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Example: Order-N°.						DURO-SD	
Article-N°.						B52111	
ø-Code						B53111	
ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0340	3.40	6	62	20	36	●	
.0350	3.50	6	62	20	36	●	
.0400	4.00	6	66	24	36	●	
.0420	4.20	6	66	24	36	●	
.0430	4.30	6	66	24	36	●	
.0450	4.50	6	66	24	36	●	
.0500	5.00	6	66	28	36	●	
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.0520	5.20	6	66	28	36	●	
.0550	5.50	6	66	28	36	●	
.0560	5.60	6	66	28	36	●	
.0600	6.00	6	66	28	36	●	
.0650	6.50	8	79	34	36	●	
.0670	6.70	8	79	34	36	●	
.0690	6.90	8	79	34	36	●	
.0700	7.00	8	79	34	36	●	
.0710	7.10	8	79	41	36	●	
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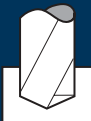
Spiral flute drills Supradrill HX

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			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS GG(G)
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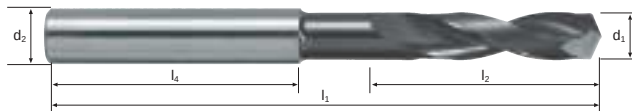
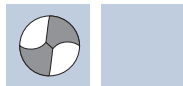
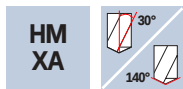
						DURO-SD	
Example: Order-N°.						B52111	
Article-N°.						B53111	
ø-Code							
ø Code	d1 m7	d2 h6	l1	l2	l4		
.0810	8.10	10	89	47	40	●	
.0850	8.50	10	89	47	40	●	
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.0885	8.85	10	89	47	40	●	
.0900	9.00	10	89	47	40	●	
.0910	9.10	10	89	47	40	●	
.0950	9.50	10	89	47	40	●	
.1000	10.00	10	89	47	40	●	
.1030	10.30	12	102	55	45	●	
.1040	10.40	12	102	55	45	●	
.1050	10.50	12	102	55	45	●	
.1070	10.70	12	102	55	45	●	
.1100	11.00	12	102	55	45	●	
.1150	11.50	12	102	55	45	●	
.1160	11.60	12	102	55	45	●	
.1190	11.90	12	102	55	45	●	
.1200	12.00	12	102	55	45	●	
.1210	12.10	14	107	60	45	●	
.1220	12.20	14	107	60	45	●	
.1250	12.50	14	107	60	45	●	
.1270	12.70	14	107	60	45	●	
.1300	13.00	14	107	60	45	●	
.1400	14.00	14	107	60	45	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Hardened tool steel 42 - 48 HRC	14.10	35	0.235	43.9	790	185	29.0	14.2
		14.20	35	0.235	43.7	785	185	29.5	14.2
		14.70	35	0.245	43.0	760	185	31.5	13.9
		15.00	35	0.245	42.5	745	185	32.5	13.8
		15.40	35	0.250	41.9	725	180	33.5	14.0
		16.00	35	0.260	41.0	695	180	36.0	13.7
		19.20	35	0.310	50.2	580	180	52.0	16.7
	Hardened tool steel 48 - 52 HRC	14.10	30	0.195	43.9	675	130	20.5	20.3
		14.20	30	0.195	43.7	670	130	20.5	20.2
		14.70	30	0.205	43.0	650	135	23.0	19.1
		15.00	30	0.205	42.5	635	130	23.0	19.6
		15.40	30	0.210	41.9	620	130	24.0	19.3
		16.00	30	0.215	41.0	595	130	26.0	18.9
		19.20	30	0.260	50.2	495	130	37.5	23.2
	Hardened tool steel 52 - 56 HRC	14.10	20	0.125	43.9	450	55	8.5	47.9
		14.20	20	0.125	43.7	450	55	8.5	47.7
		14.70	20	0.130	43.0	435	55	9.5	46.9
		15.00	20	0.130	42.5	425	55	9.5	46.4
		15.40	20	0.135	41.9	415	55	10.0	45.7
		16.00	20	0.135	41.0	400	55	11.0	44.7
		19.20	20	0.165	50.2	330	55	16.0	54.8
	Hardened tool steel 56 - 60 HRC	14.10	15	0.075	43.9	340	25	4.0	105.4
		14.20	15	0.075	43.7	335	25	4.0	104.9
		14.70	15	0.075	43.0	325	25	4.0	103.2
		15.00	15	0.075	42.5	320	25	4.5	102.0
		15.40	15	0.080	41.9	310	25	4.5	100.6
		16.00	15	0.080	41.0	300	25	5.0	98.4
		19.20	15	0.095	50.2	250	25	7.0	120.5

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Spiral flute drills Supradrill HX

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			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60			HSS GG(G)
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[illegible]

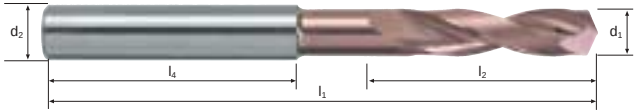


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		3.00	160	0.085	15.5	16975	1445	10.0	0.6
		3.30	160	0.095	15.1	15435	1465	12.5	0.6
		3.50	160	0.100	14.8	14550	1455	14.0	0.6
		4.00	160	0.115	18.0	12730	1465	18.5	0.7
		4.20	160	0.120	17.7	12125	1455	20.0	0.7
		5.00	160	0.145	20.5	10185	1475	29.0	0.8
		6.00	160	0.170	19.0	8490	1445	41.0	0.8
		6.80	160	0.195	23.8	7490	1460	53.0	1.0
		8.50	160	0.245	34.3	5990	1470	83.5	1.4
		3.00	120	0.085	15.5	12730	1080	7.5	0.9
Steel 500 - 850 N/mm ²		3.30	120	0.095	15.1	11575	1100	9.5	0.8
		3.50	120	0.100	14.8	10915	1090	10.5	0.8
		4.00	120	0.115	18.0	9550	1100	14.0	1.0
		4.20	120	0.120	17.7	9095	1090	15.0	1.0
		5.00	120	0.145	20.5	7640	1110	22.0	1.1
		6.00	120	0.170	19.0	6365	1080	30.5	1.1
		6.80	120	0.195	23.8	5615	1095	40.0	1.3
		8.50	120	0.245	34.3	4495	1100	62.5	1.9
		3.00	100	0.065	15.5	10610	690	5.0	1.3
		3.30	100	0.075	15.1	9645	725	6.0	1.2
Steel 850 - 1100 N/mm ²		3.50	100	0.080	14.8	9095	730	7.0	1.2
		4.00	100	0.090	18.0	7960	715	9.0	1.5
		4.20	100	0.095	17.7	7580	720	10.0	1.5
		5.00	100	0.110	20.5	6365	700	13.5	1.8
		6.00	100	0.135	19.0	5305	715	20.0	1.6
		6.80	100	0.150	23.8	4680	700	25.5	2.0
		8.50	100	0.190	34.3	3745	710	40.5	2.9
		3.00	65	0.055	15.5	6895	380	2.5	2.4
		3.30	65	0.060	15.1	6270	375	3.0	2.4
		3.50	65	0.060	14.8	5910	355	3.5	2.5
Steel 1100 - 1300 N/mm ²		4.00	65	0.070	18.0	5175	360	4.5	3.0
		4.20	65	0.075	17.7	4925	370	5.0	2.9
		5.00	65	0.090	20.5	4140	375	7.5	3.3
		6.00	65	0.105	19.0	3450	360	10.0	3.2
		6.80	65	0.120	23.8	3045	365	13.5	3.9
		8.50	65	0.150	34.3	2435	365	20.5	5.6

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	3.00	35	0.045	15.5	3715	165	1.0	5.6
	3.30	35	0.045	15.1	3375	150	1.5	6.0
	3.50	35	0.050	14.8	3185	160	1.5	5.5
	4.00	35	0.055	18.0	2785	155	2.0	7.0
	4.20	35	0.060	17.7	2655	160	2.0	6.6
	5.00	35	0.070	20.5	2230	155	3.0	7.9
	6.00	35	0.085	19.0	1855	160	4.5	7.1
	6.80	35	0.095	23.8	1640	155	5.5	9.2
	8.50	35	0.120	34.3	1310	155	9.0	13.3
	3.00	60	0.045	15.5	6365	285	2.0	3.3
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	3.30	60	0.050	15.1	5785	290	2.5	3.1
	3.50	60	0.050	14.8	5455	275	2.5	3.2
	4.00	60	0.060	18.0	4775	285	3.5	3.8
	4.20	60	0.065	17.7	4545	295	4.0	3.6
	5.00	60	0.075	20.5	3820	285	5.5	4.3
	6.00	60	0.090	19.0	3185	285	8.0	4.0
	6.80	60	0.100	23.8	2810	280	10.0	5.1
	8.50	60	0.125	34.3	2245	280	16.0	7.4
	3.00	200	0.095	15.5	21220	2015	14.0	0.5
	3.30	200	0.105	15.1	19290	2025	17.5	0.4
Cast iron (lamellar / spheroidal)	3.50	200	0.110	14.8	18190	2000	19.0	0.4
	4.00	200	0.125	18.0	15915	1990	25.0	0.5
	4.20	200	0.130	17.7	15160	1970	27.5	0.5
	5.00	200	0.155	20.5	12730	1975	39.0	0.6
	6.00	200	0.190	19.0	10610	2015	57.0	0.6
	6.80	200	0.215	23.8	9360	2010	73.0	0.7
	8.50	200	0.265	34.3	7490	1985	112.5	1.0
	3.00	250	0.085	15.5	26525	2255	16.0	0.4
	3.30	250	0.095	15.1	24115	2290	19.5	0.4
	3.50	250	0.100	14.8	22735	2275	22.0	0.4
Wrought aluminium alloys Si < 6%	4.00	250	0.115	18.0	19895	2290	29.0	0.5
	4.20	250	0.120	17.7	18945	2275	31.5	0.5
	5.00	250	0.145	20.5	15915	2310	45.5	0.5
	6.00	250	0.170	19.0	13265	2255	64.0	0.5
	6.80	250	0.195	23.8	11705	2280	83.0	0.6
	8.50	250	0.245	34.3	9360	2295	130.0	0.9

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52011	
ø-Code						B53011	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.0300	3.0	6	62	20	36	●	
.0330	3.3	6	62	20	36	●	
.0340	3.4	6	62	20	36	●	
.0350	3.5	6	62	20	36	●	
.0370	3.7	6	62	20	36	●	
.0380	3.8	6	66	24	36	●	
.0400	4.0	6	66	24	36	●	
.0420	4.2	6	66	24	36	●	
.0450	4.5	6	66	24	36	●	
.0480	4.8	6	66	28	36	●	
.0500	5.0	6	66	28	36	●	
.0550	5.5	6	66	28	36	●	
.0580	5.8	6	66	28	36	●	
.0600	6.0	6	66	28	36	●	
.0650	6.5	8	79	34	36	●	
.0680	6.8	8	79	34	36	●	
.0700	7.0	8	79	34	36	●	
.0750	7.5	8	79	41	36	●	
.0780	7.8	8	79	41	36	●	
.0800	8.0	8	79	41	36	●	
.0850	8.5	10	89	47	40	●	
.0880	8.8	10	89	47	40	●	
.0900	9.0	10	89	47	40	●	

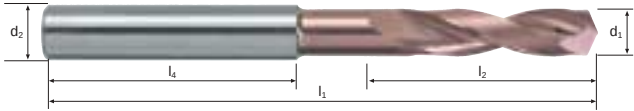


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		10.00	160	0.285	32.0	5095	1450	114.0	1.3
		10.20	160	0.290	39.7	4995	1450	118.5	1.6
		11.00	160	0.315	38.5	4630	1460	138.5	1.6
		12.00	160	0.345	37.0	4245	1465	165.5	1.5
		13.00	160	0.370	40.5	3920	1450	192.5	1.7
		14.00	160	0.400	39.0	3640	1455	224.0	1.6
		15.00	160	0.430	42.5	3395	1460	258.0	1.7
		15.50	160	0.445	41.8	3285	1460	275.5	1.7
		16.00	160	0.455	41.0	3185	1450	291.5	1.7
Steel 500 - 850 N/mm ²		10.00	120	0.285	32.0	3820	1090	85.5	1.8
		10.20	120	0.290	39.7	3745	1085	88.5	2.2
		11.00	120	0.315	38.5	3470	1095	104.0	2.1
		12.00	120	0.345	37.0	3185	1100	124.5	2.0
		13.00	120	0.370	40.5	2940	1090	144.5	2.2
		14.00	120	0.400	39.0	2730	1090	168.0	2.1
		15.00	120	0.430	42.5	2545	1095	193.5	2.3
		15.50	120	0.445	41.8	2465	1095	206.5	2.3
		16.00	120	0.455	41.0	2385	1085	218.0	2.3
Steel 850 - 1100 N/mm ²		10.00	100	0.220	32.0	3185	700	55.0	2.7
		10.20	100	0.225	39.7	3120	700	57.0	3.4
		11.00	100	0.245	38.5	2895	710	67.5	3.3
		12.00	100	0.265	37.0	2655	705	79.5	3.1
		13.00	100	0.290	40.5	2450	710	94.0	3.4
		14.00	100	0.310	39.0	2275	705	108.5	3.3
		15.00	100	0.335	42.5	2120	710	125.5	3.6
		15.50	100	0.345	41.8	2055	710	134.0	3.5
		16.00	100	0.355	41.0	1990	705	141.5	3.5
Steel 1100 - 1300 N/mm ²		10.00	65	0.175	32.0	2070	360	28.5	5.3
		10.20	65	0.180	39.7	2030	365	30.0	6.5
		11.00	65	0.195	38.5	1880	365	34.5	6.3
		12.00	65	0.210	37.0	1725	360	40.5	6.2
		13.00	65	0.230	40.5	1590	365	48.5	6.7
		14.00	65	0.245	39.0	1480	365	56.0	6.4
		15.00	65	0.265	42.5	1380	365	64.5	7.0
		15.50	65	0.270	41.8	1335	360	68.0	7.0
		16.00	65	0.280	41.0	1295	365	73.5	6.7

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	10.00	35	0.145	32.0	1115	160	12.5	12.0
	10.20	35	0.145	39.7	1090	160	13.0	14.9
	11.00	35	0.155	38.5	1015	155	14.5	14.9
	12.00	35	0.170	37.0	930	160	18.0	13.9
	13.00	35	0.185	40.5	855	160	21.0	15.2
	14.00	35	0.200	39.0	795	160	24.5	14.6
	15.00	35	0.215	42.5	745	160	28.5	15.9
	15.50	35	0.220	41.8	720	160	30.0	15.7
	16.00	35	0.230	41.0	695	160	32.0	15.4
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	10.00	60	0.150	32.0	1910	285	22.5	6.7
	10.20	60	0.150	39.7	1870	280	23.0	8.5
	11.00	60	0.165	38.5	1735	285	27.0	8.1
	12.00	60	0.180	37.0	1590	285	32.0	7.8
	13.00	60	0.195	40.5	1470	285	38.0	8.5
	14.00	60	0.210	39.0	1365	285	44.0	8.2
	15.00	60	0.225	42.5	1275	285	50.5	8.9
	15.50	60	0.230	41.8	1230	285	54.0	8.8
	16.00	60	0.240	41.0	1195	285	57.5	8.6
Cast iron (lamellar / spheroidal)	10.00	200	0.315	32.0	6365	2005	157.5	1.0
	10.20	200	0.320	39.7	6240	1995	163.0	1.2
	11.00	200	0.345	38.5	5785	1995	189.5	1.2
	12.00	200	0.375	37.0	5305	1990	225.0	1.1
	13.00	200	0.405	40.5	4895	1980	263.0	1.2
	14.00	200	0.440	39.0	4545	2000	308.0	1.2
	15.00	200	0.470	42.5	4245	1995	352.5	1.3
	15.50	200	0.485	41.8	4105	1990	375.5	1.3
	16.00	200	0.500	41.0	3980	1990	400.0	1.2
Wrought aluminium alloys Si < 6%	10.00	250	0.285	32.0	7960	2270	178.5	0.8
	10.20	250	0.290	39.7	7800	2260	184.5	1.1
	11.00	250	0.315	38.5	7235	2280	216.5	1.0
	12.00	250	0.345	37.0	6630	2285	258.5	1.0
	13.00	250	0.370	40.5	6120	2265	300.5	1.1
	14.00	250	0.400	39.0	5685	2275	350.0	1.0
	15.00	250	0.430	42.5	5305	2280	403.0	1.1
	15.50	250	0.445	41.8	5135	2285	431.0	1.1
	16.00	250	0.455	41.0	4975	2265	455.5	1.1

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52011	
ø-Code						B53011	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0950	9.5	10	89	47	40	●	
.0980	9.8	10	89	47	40	●	
.1000	10.0	10	89	47	40	●	
.1020	10.2	12	102	55	45	●	
.1050	10.5	12	102	55	45	●	
.1080	10.8	12	102	55	45	●	
.1100	11.0	12	102	55	45	●	
.1150	11.5	12	102	55	45	●	
.1180	11.8	12	102	55	45	●	
.1200	12.0	12	102	55	45	●	
.1250	12.5	14	107	60	45	●	
.1280	12.8	14	107	60	45	●	
.1300	13.0	14	107	60	45	●	
.1350	13.5	14	107	60	45	●	
.1380	13.8	14	107	60	45	●	
.1400	14.0	14	107	60	45	●	
.1450	14.5	16	115	65	48	●	
.1480	14.8	16	115	65	48	●	
.1500	15.0	16	115	65	48	●	
.1550	15.5	16	115	65	48	●	
.1580	15.8	16	115	65	48	●	
.1600	16.0	16	115	65	48	●	

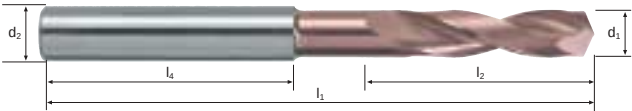


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		3.00	140	0.080	15.5	14855	1190	8.5	0.8
		3.30	140	0.085	15.1	13505	1150	10.0	0.8
		3.50	140	0.090	14.8	12730	1145	11.0	0.8
		3.80	140	0.100	18.3	11725	1175	13.5	0.9
		4.00	140	0.105	18.0	11140	1170	14.5	0.9
		4.20	140	0.110	17.7	10610	1165	16.0	0.9
		4.50	140	0.120	17.3	9905	1190	19.0	0.9
		4.80	140	0.125	20.8	9285	1160	21.0	1.1
		5.00	140	0.130	20.5	8915	1160	23.0	1.1
Steel 500 - 850 N/mm ²		3.00	110	0.080	15.5	11670	935	6.5	1.0
		3.30	110	0.085	15.1	10610	900	7.5	1.0
		3.50	110	0.090	14.8	10005	900	8.5	1.0
		3.80	110	0.100	18.3	9215	920	10.5	1.2
		4.00	110	0.105	18.0	8755	920	11.5	1.2
		4.20	110	0.110	17.7	8335	915	12.5	1.2
		4.50	110	0.120	17.3	7780	935	15.0	1.1
		4.80	110	0.125	20.8	7295	910	16.5	1.4
		5.00	110	0.130	20.5	7005	910	18.0	1.4
Steel 850 - 1100 N/mm ²		3.00	80	0.060	15.5	8490	510	3.5	1.8
		3.30	80	0.065	15.1	7715	500	4.5	1.8
		3.50	80	0.070	14.8	7275	510	5.0	1.7
		3.80	80	0.075	18.3	6700	505	5.5	2.2
		4.00	80	0.080	18.0	6365	510	6.5	2.1
		4.20	80	0.085	17.7	6065	515	7.0	2.1
		4.50	80	0.090	17.3	5660	510	8.0	2.0
		4.80	80	0.095	20.8	5305	505	9.0	2.5
		5.00	80	0.100	20.5	5095	510	10.0	2.4
Steel 1100 - 1300 N/mm ²		3.00	55	0.050	15.5	5835	290	2.0	3.2
		3.30	55	0.055	15.1	5305	290	2.5	3.1
		3.50	55	0.060	14.8	5000	300	3.0	3.0
		3.80	55	0.065	18.3	4605	300	3.5	3.7
		4.00	55	0.065	18.0	4375	285	3.5	3.8
		4.20	55	0.070	17.7	4170	290	4.0	3.7
		4.50	55	0.075	17.3	3890	290	4.5	3.6
		4.80	55	0.080	20.8	3645	290	5.0	4.3
		5.00	55	0.085	20.5	3500	300	6.0	4.1

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	3.00	25	0.035	15.5	2655	95	0.5	9.8
	3.30	25	0.040	15.1	2410	95	1.0	9.5
	3.50	25	0.040	14.8	2275	90	1.0	9.9
	3.80	25	0.045	18.3	2095	95	1.0	11.6
	4.00	25	0.045	18.0	1990	90	1.0	12.0
	4.20	25	0.050	17.7	1895	95	1.5	11.2
	4.50	25	0.055	17.3	1770	95	1.5	10.9
	4.80	25	0.055	20.8	1660	90	1.5	13.9
	5.00	25	0.060	20.5	1590	95	2.0	12.9
Cold work tool steel (12% Cr) high alloyed [1.2379]	3.00	50	0.045	15.5	5305	240	1.5	3.9
	3.30	50	0.045	15.1	4825	215	2.0	4.2
	3.50	50	0.050	14.8	4545	225	2.0	3.9
	3.80	50	0.055	18.3	4190	230	2.5	4.8
	4.00	50	0.055	18.0	3980	220	3.0	4.9
	4.20	50	0.060	17.7	3790	225	3.0	4.7
	4.50	50	0.065	17.3	3535	230	3.5	4.5
	4.80	50	0.070	20.8	3315	230	4.0	5.4
	5.00	50	0.070	20.5	3185	225	4.5	5.5
Cast iron (lamellar / spheroidal)	3.00	160	0.085	15.5	16975	1445	10.0	0.6
	3.30	160	0.095	15.1	15435	1465	12.5	0.6
	3.50	160	0.100	14.8	14550	1455	14.0	0.6
	3.80	160	0.110	18.3	13405	1475	16.5	0.7
	4.00	160	0.115	18.0	12730	1465	18.5	0.7
	4.20	160	0.120	17.7	12125	1455	20.0	0.7
	4.50	160	0.130	17.3	11320	1470	23.5	0.7
	4.80	160	0.135	20.8	10610	1430	26.0	0.9
	5.00	160	0.145	20.5	10185	1475	29.0	0.8
Wrought aluminium alloys Si < 6%	3.00	250	0.070	15.5	26525	1855	13.0	0.5
	3.30	250	0.075	15.1	24115	1810	15.5	0.5
	3.50	250	0.080	14.8	22735	1820	17.5	0.5
	3.80	250	0.085	18.3	20940	1780	20.0	0.6
	4.00	250	0.090	18.0	19895	1790	22.5	0.6
	4.20	250	0.095	17.7	18945	1800	25.0	0.6
	4.50	250	0.105	17.3	17685	1855	29.5	0.6
	4.80	250	0.110	20.8	16580	1825	33.0	0.7
	5.00	250	0.115	20.5	15915	1830	36.0	0.7

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52010	
ø-Code						B53010	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0300	3.0	6	62	20	36	●	
.0310	3.1	6	62	20	36	●	
.0320	3.2	6	62	20	36	●	
.0330	3.3	6	62	20	36	●	
.0340	3.4	6	62	20	36	●	
.0350	3.5	6	62	20	36	●	
.0360	3.6	6	62	20	36	●	
.0370	3.7	6	62	20	36	●	
.0380	3.8	6	66	24	36	●	
.0390	3.9	6	66	24	36	●	
.0400	4.0	6	66	24	36	●	
.0410	4.1	6	66	24	36	●	
.0420	4.2	6	66	24	36	●	
.0430	4.3	6	66	24	36	●	
.0440	4.4	6	66	24	36	●	
.0450	4.5	6	66	24	36	●	
.0460	4.6	6	66	24	36	●	
.0470	4.7	6	66	24	36	●	
.0480	4.8	6	66	28	36	●	
.0490	4.9	6	66	28	36	●	
.0500	5.0	6	66	28	36	●	
.0510	5.1	6	66	28	36	●	
.0520	5.2	6	66	28	36	●	

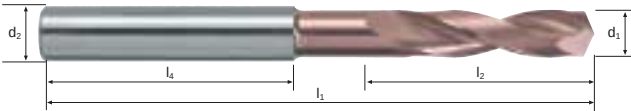


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		5.50	140	0.145	19.8	8100	1175	28.0	1.0
		5.80	140	0.155	19.3	7685	1190	31.5	1.0
		6.00	140	0.160	19.0	7425	1190	33.5	1.0
		6.20	140	0.165	31.7	7190	1185	36.0	1.6
		6.50	140	0.170	31.3	6855	1165	38.5	1.6
		6.80	140	0.180	30.8	6555	1180	43.0	1.6
		7.00	140	0.185	30.5	6365	1180	45.5	1.6
		7.20	140	0.190	30.2	6190	1175	48.0	1.5
		7.50	140	0.195	29.8	5940	1160	51.0	1.5
		5.50	110	0.145	19.8	6365	925	22.0	1.3
		5.80	110	0.155	19.3	6035	935	24.5	1.2
		6.00	110	0.160	19.0	5835	935	26.5	1.2
		6.20	110	0.165	31.7	5645	930	28.0	2.0
		6.50	110	0.170	31.3	5385	915	30.5	2.1
		6.80	110	0.180	30.8	5150	925	33.5	2.0
		7.00	110	0.185	30.5	5000	925	35.5	2.0
		7.20	110	0.190	30.2	4865	925	37.5	2.0
		7.50	110	0.195	29.8	4670	910	40.0	2.0
Steel 850 - 1100 N/mm ²		5.50	80	0.110	19.8	4630	510	12.0	2.3
		5.80	80	0.115	19.3	4390	505	13.5	2.3
		6.00	80	0.120	19.0	4245	510	14.5	2.2
		6.20	80	0.125	31.7	4105	515	15.5	3.7
		6.50	80	0.130	31.3	3920	510	17.0	3.7
		6.80	80	0.135	30.8	3745	505	18.5	3.7
		7.00	80	0.140	30.5	3640	510	19.5	3.6
		7.20	80	0.145	30.2	3535	515	21.0	3.5
		7.50	80	0.150	29.8	3395	510	22.5	3.5
		5.50	55	0.090	19.8	3185	285	7.0	4.2
		5.80	55	0.095	19.3	3020	285	7.5	4.1
		6.00	55	0.100	19.0	2920	290	8.0	3.9
		6.20	55	0.105	31.7	2825	295	9.0	6.4
		6.50	55	0.110	31.3	2695	295	10.0	6.4
		6.80	55	0.115	30.8	2575	295	10.5	6.3
		7.00	55	0.115	30.5	2500	290	11.0	6.3
		7.20	55	0.120	30.2	2430	290	12.0	6.2
		7.50	55	0.125	29.8	2335	290	13.0	6.2

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	5.50	25	0.065	19.8	1445	95	2.5	12.5
	5.80	25	0.070	19.3	1370	95	2.5	12.2
	6.00	25	0.070	19.0	1325	95	2.5	12.0
	6.20	25	0.075	31.7	1285	95	3.0	20.0
	6.50	25	0.075	31.3	1225	90	3.0	20.9
	6.80	25	0.080	30.8	1170	95	3.5	19.5
	7.00	25	0.080	30.5	1135	90	3.5	20.3
	7.20	25	0.085	30.2	1105	95	4.0	19.1
	7.50	25	0.090	29.8	1060	95	4.0	18.8
	5.50	50	0.080	19.8	2895	230	5.5	5.2
	5.80	50	0.085	19.3	2745	235	6.0	4.9
	6.00	50	0.085	19.0	2655	225	6.5	5.1
	6.20	50	0.090	31.7	2565	230	7.0	8.3
	6.50	50	0.095	31.3	2450	235	8.0	8.0
	6.80	50	0.095	30.8	2340	220	8.0	8.4
	7.00	50	0.100	30.5	2275	230	9.0	8.0
	7.20	50	0.105	30.2	2210	230	9.5	7.9
	7.50	50	0.105	29.8	2120	225	10.0	7.9
Cold work tool steel (12% Cr) high alloyed [1.2379]	5.50	160	0.155	19.8	9260	1435	34.0	0.8
	5.80	160	0.165	19.3	8780	1450	38.5	0.8
	6.00	160	0.170	19.0	8490	1445	41.0	0.8
	6.20	160	0.175	31.7	8215	1440	43.5	1.3
	6.50	160	0.185	31.3	7835	1450	48.0	1.3
	6.80	160	0.195	30.8	7490	1460	53.0	1.3
	7.00	160	0.200	30.5	7275	1455	56.0	1.3
	7.20	160	0.205	30.2	7075	1450	59.0	1.2
	7.50	160	0.215	29.8	6790	1460	64.5	1.2
	5.50	250	0.125	19.8	14470	1810	43.0	0.7
	5.80	250	0.135	19.3	13720	1850	49.0	0.6
	6.00	250	0.135	19.0	13265	1790	50.5	0.6
	6.20	250	0.140	31.7	12835	1795	54.0	1.1
	6.50	250	0.150	31.3	12245	1835	61.0	1.0
	6.80	250	0.155	30.8	11705	1815	66.0	1.0
	7.00	250	0.160	30.5	11370	1820	70.0	1.0
	7.20	250	0.165	30.2	11050	1825	74.5	1.0
	7.50	250	0.170	29.8	10610	1805	79.5	1.0

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						Article-N°.		ø-Code		U-4XD	
						B52010		.0530		B52010	
						B53010					
Ø Code	d1 m7	d2 h6	l1	l2	l4						
.0530	5.3	6	66	28	36						
.0540	5.4	6	66	28	36						
.0550	5.5	6	66	28	36						
.0560	5.6	6	66	28	36						
.0570	5.7	6	66	28	36						
.0580	5.8	6	66	28	36						
.0590	5.9	6	66	28	36						
.0600	6.0	6	66	28	36						
.0610	6.1	8	79	34	36						
.0620	6.2	8	79	34	36						
.0630	6.3	8	79	34	36						
.0640	6.4	8	79	34	36						
.0650	6.5	8	79	34	36						
.0660	6.6	8	79	34	36						
.0670	6.7	8	79	34	36						
.0680	6.8	8	79	34	36						
.0690	6.9	8	79	34	36						
.0700	7.0	8	79	34	36						
.0710	7.1	8	79	41	36						
.0720	7.2	8	79	41	36						
.0730	7.3	8	79	41	36						
.0740	7.4	8	79	41	36						
.0750	7.5	8	79	41	36						



Application
Steel < 500 N/mm ²

Steel 500 - 850 N/mm ²

Steel 850 - 1100 N/mm ²

Steel 1100 - 1300 N/mm ²
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d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	140	0.200	29.6	5865	1175	53.5	1.5
8.00	140	0.210	29.0	5570	1170	59.0	1.5
8.20	140	0.215	34.7	5435	1170	62.0	1.8
8.50	140	0.225	34.3	5245	1180	67.0	1.7
8.80	140	0.230	33.8	5065	1165	71.0	1.7
9.00	140	0.235	33.5	4950	1165	74.0	1.7
9.20	140	0.240	33.2	4845	1165	77.5	1.7
9.50	140	0.250	32.8	4690	1175	83.5	1.7
9.80	140	0.260	32.3	4545	1180	89.0	1.6

7.60	110	0.200	29.6	4605	920	41.5	1.9
8.00	110	0.210	29.0	4375	920	46.0	1.9
8.20	110	0.215	34.7	4270	920	48.5	2.3
8.50	110	0.225	34.3	4120	925	52.5	2.2
8.80	110	0.230	33.8	3980	915	55.5	2.2
9.00	110	0.235	33.5	3890	915	58.0	2.2
9.20	110	0.240	33.2	3805	915	61.0	2.2
9.50	110	0.250	32.8	3685	920	65.0	2.1
9.80	110	0.260	32.3	3575	930	70.0	2.1

7.60	80	0.150	29.6	3350	505	23.0	3.5
8.00	80	0.160	29.0	3185	510	25.5	3.4
8.20	80	0.165	34.7	3105	510	27.0	4.1
8.50	80	0.170	34.3	2995	510	29.0	4.0
8.80	80	0.175	33.8	2895	505	30.5	4.0
9.00	80	0.180	33.5	2830	510	32.5	3.9
9.20	80	0.185	33.2	2770	510	34.0	3.9
9.50	80	0.190	32.8	2680	510	36.0	3.9
9.80	80	0.195	32.3	2600	505	38.0	3.8

7.60	55	0.125	29.6	2305	290	13.0	6.1
8.00	55	0.135	29.0	2190	295	15.0	5.9
8.20	55	0.135	34.7	2135	290	15.5	7.2
8.50	55	0.140	34.3	2060	290	16.5	7.1
8.80	55	0.145	33.8	1990	290	17.5	7.0
9.00	55	0.150	33.5	1945	290	18.5	6.9
9.20	55	0.155	33.2	1905	295	19.5	6.8
9.50	55	0.160	32.8	1845	295	21.0	6.7
9.80	55	0.165	32.3	1785	295	22.5	6.6

Material

Steel 1300 - 1500 N/mm ²
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Cold work tool steel (12% Cr) high alloyed [1.2379]
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Cast iron (lamellar / spheroidal)

Wrought aluminium alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	25	0.090	29.6	1045	95	4.5	18.7
8.00	25	0.095	29.0	995	95	5.0	18.3
8.20	25	0.095	34.7	970	90	5.0	23.1
8.50	25	0.100	34.3	935	95	5.5	21.7
8.80	25	0.105	33.8	905	95	6.0	21.3
9.00	25	0.105	33.5	885	95	6.0	21.2
9.20	25	0.110	33.2	865	95	6.5	21.0
9.50	25	0.110	32.8	840	90	6.5	21.9
9.80	25	0.115	32.3	810	95	7.0	20.4

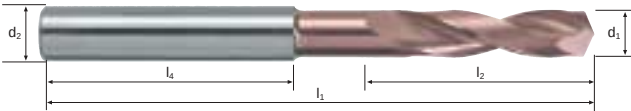
7.60	50	0.110	29.6	2095	230	10.5	7.7
8.00	50	0.115	29.0	1990	230	11.5	7.6
8.20	50	0.115	34.7	1940	225	12.0	9.3
8.50	50	0.120	34.3	1870	225	13.0	9.1
8.80	50	0.125	33.8	1810	225	13.5	9.0
9.00	50	0.130	33.5	1770	230	14.5	8.7
9.20	50	0.130	33.2	1730	225	15.0	8.9
9.50	50	0.135	32.8	1675	225	16.0	8.7
9.80	50	0.140	32.3	1625	230	17.5	8.4

7.60	160	0.215	29.6	6700	1440	65.5	1.2
8.00	160	0.230	29.0	6365	1465	73.5	1.2
8.20	160	0.235	34.7	6210	1460	77.0	1.4
8.50	160	0.245	34.3	5990	1470	83.5	1.4
8.80	160	0.250	33.8	5785	1445	88.0	1.4
9.00	160	0.255	33.5	5660	1445	92.0	1.4
9.20	160	0.265	33.2	5535	1465	97.5	1.4
9.50	160	0.270	32.8	5360	1445	102.5	1.4
9.80	160	0.280	32.3	5195	1455	110.0	1.3

7.60	250	0.175	29.6	10470	1830	83.0	1.0
8.00	250	0.185	29.0	9945	1840	92.5	0.9
8.20	250	0.185	34.7	9705	1795	95.0	1.2
8.50	250	0.195	34.3	9360	1825	103.5	1.1
8.80	250	0.200	33.8	9045	1810	110.0	1.1
9.00	250	0.205	33.5	8840	1810	115.0	1.1
9.20	250	0.210	33.2	8650	1815	120.5	1.1
9.50	250	0.215	32.8	8375	1800	127.5	1.1
9.80	250	0.225	32.3	8120	1825	137.5	1.1

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52010	
ø-Code						B53010	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.0760	7.6	8	79	41	36	●	
.0770	7.7	8	79	41	36	●	
.0780	7.8	8	79	41	36	●	
.0790	7.9	8	79	41	36	●	
.0800	8.0	8	79	41	36	●	
.0810	8.1	10	89	47	40	●	
.0820	8.2	10	89	47	40	●	
.0830	8.3	10	89	47	40	●	
.0840	8.4	10	89	47	40	●	
.0850	8.5	10	89	47	40	●	
.0860	8.6	10	89	47	40	●	
.0870	8.7	10	89	47	40	●	
.0880	8.8	10	89	47	40	●	
.0890	8.9	10	89	47	40	●	
.0900	9.0	10	89	47	40	●	
.0910	9.1	10	89	47	40	●	
.0920	9.2	10	89	47	40	●	
.0930	9.3	10	89	47	40	●	
.0940	9.4	10	89	47	40	●	
.0950	9.5	10	89	47	40	●	
.0960	9.6	10	89	47	40	●	
.0970	9.7	10	89	47	40	●	
.0980	9.8	10	89	47	40	●	



Material
Steel < 500 N/mm ²

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
10.00	140	0.265	32.0	4455	1180	92.5	1.6
10.20	140	0.270	39.7	4370	1180	96.5	2.0
10.50	140	0.275	39.3	4245	1165	101.0	2.0
10.80	140	0.285	38.8	4125	1175	107.5	2.0
11.00	140	0.290	38.5	4050	1175	111.5	2.0
11.20	140	0.295	38.2	3980	1175	116.0	2.0
11.50	140	0.305	37.8	3875	1180	122.5	1.9
11.80	140	0.310	37.3	3775	1170	128.0	1.9
12.00	140	0.315	37.0	3715	1170	132.5	1.9

Steel 500 - 850 N/mm ²

10.00	110	0.265	32.0	3500	930	73.0	2.1
10.20	110	0.270	39.7	3435	925	75.5	2.6
10.50	110	0.275	39.3	3335	915	79.0	2.6
10.80	110	0.285	38.8	3240	925	84.5	2.5
11.00	110	0.290	38.5	3185	925	88.0	2.5
11.20	110	0.295	38.2	3125	920	90.5	2.5
11.50	110	0.305	37.8	3045	930	96.5	2.4
11.80	110	0.310	37.3	2965	920	100.5	2.4
12.00	110	0.315	37.0	2920	920	104.0	2.4

Steel 850 - 1100 N/mm ²

10.00	80	0.200	32.0	2545	510	40.0	3.8
10.20	80	0.205	39.7	2495	510	41.5	4.7
10.50	80	0.210	39.3	2425	510	44.0	4.6
10.80	80	0.215	38.8	2360	505	46.5	4.6
11.00	80	0.220	38.5	2315	510	48.5	4.5
11.20	80	0.225	38.2	2275	510	50.0	4.5
11.50	80	0.230	37.8	2215	510	53.0	4.4
11.80	80	0.235	37.3	2160	510	56.0	4.4
12.00	80	0.240	37.0	2120	510	57.5	4.4

Steel 1100 - 1300 N/mm ²
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10.00	55	0.165	32.0	1750	290	23.0	6.6
10.20	55	0.170	39.7	1715	290	23.5	8.2
10.50	55	0.175	39.3	1665	290	25.0	8.1
10.80	55	0.180	38.8	1620	290	26.5	8.0
11.00	55	0.185	38.5	1590	295	28.0	7.8
11.20	55	0.185	38.2	1565	290	28.5	7.9
11.50	55	0.190	37.8	1520	290	30.0	7.8
11.80	55	0.195	37.3	1485	290	31.5	7.7
12.00	55	0.200	37.0	1460	290	33.0	7.7

Material

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
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Steel 1300 - 1500 N/mm ²
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10.00	25	0.120	32.0	795	95	7.5	20.2
10.20	25	0.120	39.7	780	95	8.0	25.1
10.50	25	0.125	39.3	760	95	8.0	24.8
10.80	25	0.125	38.8	735	90	8.0	25.9
11.00	25	0.130	38.5	725	95	9.0	24.3
11.20	25	0.130	38.2	710	90	9.0	25.5
11.50	25	0.135	37.8	690	95	10.0	23.9
11.80	25	0.140	37.3	675	95	10.5	23.6
12.00	25	0.140	37.0	665	95	10.5	23.4

Cold work tool steel (12% Cr) high alloyed [1.2379]
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10.00	50	0.145	32.0	1590	230	18.0	8.3
10.20	50	0.145	39.7	1560	225	18.5	10.6
10.50	50	0.150	39.3	1515	225	19.5	10.5
10.80	50	0.155	38.8	1475	230	21.0	10.1
11.00	50	0.155	38.5	1445	225	21.5	10.3
11.20	50	0.160	38.2	1420	225	22.0	10.2
11.50	50	0.165	37.8	1385	230	24.0	9.9
11.80	50	0.170	37.3	1350	230	25.0	9.7
12.00	50	0.170	37.0	1325	225	25.5	9.9

Cast iron (lamellar / spheroidal)

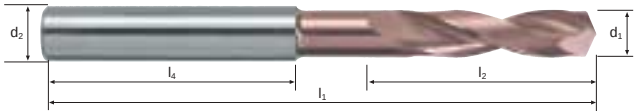
10.00	160	0.285	32.0	5095	1450	114.0	1.3
10.20	160	0.290	39.7	4995	1450	118.5	1.6
10.50	160	0.300	39.3	4850	1455	126.0	1.6
10.80	160	0.310	38.8	4715	1460	133.5	1.6
11.00	160	0.315	38.5	4630	1460	138.5	1.6
11.20	160	0.320	38.2	4545	1455	143.5	1.6
11.50	160	0.330	37.8	4430	1460	151.5	1.6
11.80	160	0.335	37.3	4315	1445	158.0	1.5
12.00	160	0.345	37.0	4245	1465	165.5	1.5

Wrought aluminium alloys Si < 6%

10.00	250	0.230	32.0	7960	1830	143.5	1.0
10.20	250	0.235	39.7	7800	1835	150.0	1.3
10.50	250	0.240	39.3	7580	1820	157.5	1.3
10.80	250	0.245	38.8	7370	1805	165.5	1.3
11.00	250	0.250	38.5	7235	1810	172.0	1.3
11.20	250	0.255	38.2	7105	1810	178.5	1.3
11.50	250	0.265	37.8	6920	1835	190.5	1.2
11.80	250	0.270	37.3	6745	1820	199.0	1.2
12.00	250	0.275	37.0	6630	1825	206.5	1.2

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52010	
Ø-Code						B53010	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
.0990	9.9	10	89	47	40	●	
.1000	10.0	10	89	47	40	●	
.1010	10.1	12	102	55	45	●	
.1020	10.2	12	102	55	45	●	
.1030	10.3	12	102	55	45	●	
.1040	10.4	12	102	55	45	●	
.1050	10.5	12	102	55	45	●	
.1060	10.6	12	102	55	45	●	
.1070	10.7	12	102	55	45	●	
.1080	10.8	12	102	55	45	●	
.1090	10.9	12	102	55	45	●	
.1100	11.0	12	102	55	45	●	
.1110	11.1	12	102	55	45	●	
.1120	11.2	12	102	55	45	●	
.1130	11.3	12	102	55	45	●	
.1140	11.4	12	102	55	45	●	
.1150	11.5	12	102	55	45	●	
.1160	11.6	12	102	55	45	●	
.1170	11.7	12	102	55	45	●	
.1180	11.8	12	102	55	45	●	
.1190	11.9	12	102	55	45	●	
.1200	12.0	12	102	55	45	●	



Application

Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
12.50	140	0.330	41.3	3565	1175	144.0	2.1
12.80	140	0.335	40.8	3480	1165	150.0	2.1
13.00	140	0.340	40.5	3430	1165	154.5	2.1
13.50	140	0.355	39.8	3300	1170	167.5	2.0
14.00	140	0.370	39.0	3185	1180	181.5	2.0
14.50	140	0.380	43.3	3075	1170	193.0	2.2
15.00	140	0.395	42.5	2970	1175	207.5	2.2
15.50	140	0.410	41.8	2875	1180	222.5	2.1
16.00	140	0.420	41.0	2785	1170	235.0	2.1

12.50	110	0.330	41.3	2800	925	113.5	2.7
12.80	110	0.335	40.8	2735	915	117.5	2.7
13.00	110	0.340	40.5	2695	915	121.5	2.7
13.50	110	0.355	39.8	2595	920	131.5	2.6
14.00	110	0.370	39.0	2500	925	142.5	2.5
14.50	110	0.380	43.3	2415	920	152.0	2.8
15.00	110	0.395	42.5	2335	920	162.5	2.8
15.50	110	0.410	41.8	2260	925	174.5	2.7
16.00	110	0.420	41.0	2190	920	185.0	2.7

12.50	80	0.250	41.3	2035	510	62.5	4.9
12.80	80	0.255	40.8	1990	505	65.0	4.8
13.00	80	0.260	40.5	1960	510	67.5	4.8
13.50	80	0.270	39.8	1885	510	73.0	4.7
14.00	80	0.280	39.0	1820	510	78.5	4.6
14.50	80	0.290	43.3	1755	510	84.0	5.1
15.00	80	0.300	42.5	1700	510	90.0	5.0
15.50	80	0.310	41.8	1645	510	96.0	4.9
16.00	80	0.320	41.0	1590	510	102.5	4.8

12.50	55	0.210	41.3	1400	295	36.0	8.4
12.80	55	0.215	40.8	1370	295	38.0	8.3
13.00	55	0.215	40.5	1345	290	38.5	8.4
13.50	55	0.225	39.8	1295	290	41.5	8.2
14.00	55	0.235	39.0	1250	295	45.5	7.9
14.50	55	0.240	43.3	1205	290	48.0	9.0
15.00	55	0.250	42.5	1165	290	51.0	8.8
15.50	55	0.260	41.8	1130	295	55.5	8.5
16.00	55	0.265	41.0	1095	290	58.5	8.5

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]

Cast iron
(lamellar / spheroidal)

Wrought aluminium
alloys Si < 6%

d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
12.50	25	0.145	41.3	635	90	11.0	27.5
12.80	25	0.150	40.8	620	95	12.0	25.8
13.00	25	0.155	40.5	610	95	12.5	25.6
13.50	25	0.160	39.8	590	95	13.5	25.1
14.00	25	0.165	39.0	570	95	14.5	24.6
14.50	25	0.170	43.3	550	95	15.5	27.3
15.00	25	0.175	42.5	530	95	17.0	26.8
15.50	25	0.180	41.8	515	95	18.0	26.4
16.00	25	0.190	41.0	495	95	19.0	25.9

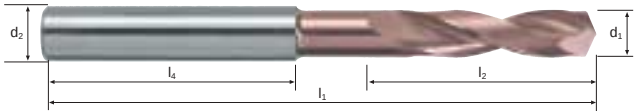
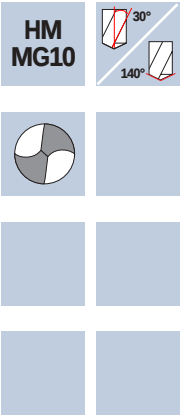
12.50	50	0.180	41.3	1275	230	28.0	10.8
12.80	50	0.185	40.8	1245	230	29.5	10.6
13.00	50	0.185	40.5	1225	225	30.0	10.8
13.50	50	0.195	39.8	1180	230	33.0	10.4
14.00	50	0.200	39.0	1135	225	34.5	10.4
14.50	50	0.205	43.3	1100	225	37.0	11.5
15.00	50	0.215	42.5	1060	230	40.5	11.1
15.50	50	0.220	41.8	1025	225	42.5	11.1
16.00	50	0.230	41.0	995	230	46.0	10.7

12.50	160	0.355	41.3	4075	1445	177.5	1.7
12.80	160	0.365	40.8	3980	1455	187.0	1.7
13.00	160	0.370	40.5	3920	1450	192.5	1.7
13.50	160	0.385	39.8	3775	1455	208.5	1.6
14.00	160	0.400	39.0	3640	1455	224.0	1.6
14.50	160	0.415	43.3	3510	1455	240.5	1.8
15.00	160	0.430	42.5	3395	1460	258.0	1.7
15.50	160	0.445	41.8	3285	1460	275.5	1.7
16.00	160	0.455	41.0	3185	1450	291.5	1.7

12.50	250	0.285	41.3	6365	1815	222.5	1.4
12.80	250	0.295	40.8	6215	1835	236.0	1.3
13.00	250	0.295	40.5	6120	1805	239.5	1.3
13.50	250	0.310	39.8	5895	1825	261.0	1.3
14.00	250	0.320	39.0	5685	1820	280.0	1.3
14.50	250	0.330	43.3	5490	1810	299.0	1.4
15.00	250	0.345	42.5	5305	1830	323.5	1.4
15.50	250	0.355	41.8	5135	1825	344.5	1.4
16.00	250	0.365	41.0	4975	1815	365.0	1.4

Spiral flute drills Supradrill N

3xd



Rm < 850	Rm 850-1100	Rm 1100-1300								GG(G) Aluminium
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Example: Order-N°.						U-4XD	
Article-N°.						B52010	
ø-Code						B53010	
ø Code	d1 m7	d2 h6	l1	l2	l4		
.1250	12.5	14	107	60	45	●	
.1280	12.8	14	107	60	45	●	
.1300	13.0	14	107	60	45	●	
.1350	13.5	14	107	60	45	●	
.1380	13.8	14	107	60	45	●	
.1400	14.0	14	107	60	45	●	
.1450	14.5	16	115	65	48	●	
.1480	14.8	16	115	65	48	●	
.1500	15.0	16	115	65	48	●	
.1550	15.5	16	115	65	48	●	
.1580	15.8	16	115	65	48	●	
.1600	16.0	16	115	65	48	●	



Material
Steel < 500 N/mm ²

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	150	0.080	29.5	15915	1275	9.0	1.4
3.30	150	0.090	29.1	14470	1300	11.0	1.3
3.50	150	0.095	28.8	13640	1295	12.5	1.3
3.80	150	0.105	27.3	12565	1320	15.0	1.7
4.00	150	0.110	27.0	11935	1315	16.5	1.7
4.20	150	0.120	26.7	11370	1365	19.0	1.6
4.50	150	0.140	26.3	10610	1485	23.5	1.5
4.80	150	0.145	24.8	9945	1440	26.0	2.0
5.00	150	0.155	24.5	9550	1480	29.0	2.0

Steel 500 - 850 N/mm ²

3.00	120	0.070	29.5	12730	890	6.5	2.0
3.30	120	0.075	29.1	11575	870	7.5	2.0
3.50	120	0.080	28.8	10915	875	8.5	2.0
3.80	120	0.090	27.3	10050	905	10.5	2.5
4.00	120	0.095	27.0	9550	905	11.5	2.5
4.20	120	0.105	26.7	9095	955	13.0	2.3
4.50	120	0.120	26.3	8490	1020	16.0	2.1
4.80	120	0.125	24.8	7960	995	18.0	2.9
5.00	120	0.130	24.5	7640	995	19.5	2.9

Steel 850 - 1100 N/mm ²

3.00	100	0.065	29.5	10610	690	5.0	2.6
3.30	100	0.070	29.1	9645	675	6.0	2.6
3.50	100	0.075	28.8	9095	680	6.5	2.5
3.80	100	0.080	27.3	8375	670	7.5	3.3
4.00	100	0.090	27.0	7960	715	9.0	3.1
4.20	100	0.095	26.7	7580	720	10.0	3.1
4.50	100	0.110	26.3	7075	780	12.5	2.8
4.80	100	0.115	24.8	6630	760	14.0	3.9
5.00	100	0.120	24.5	6365	765	15.0	3.8

Steel 1100 - 1300 N/mm ²
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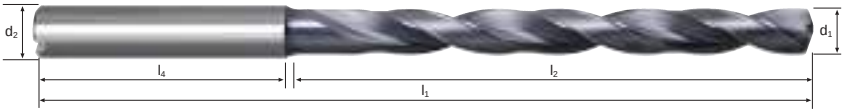
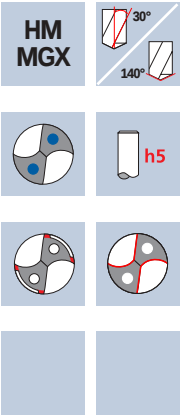
3.00	70	0.050	29.5	7425	370	2.5	4.8
3.30	70	0.055	29.1	6750	370	3.0	4.7
3.50	70	0.055	28.8	6365	350	3.5	4.9
3.80	70	0.060	27.3	5865	350	4.0	6.4
4.00	70	0.065	27.0	5570	360	4.5	6.2
4.20	70	0.070	26.7	5305	370	5.0	6.0
4.50	70	0.085	26.3	4950	420	6.5	5.2
4.80	70	0.090	24.8	4640	420	7.5	7.0
5.00	70	0.090	24.5	4455	400	8.0	7.3

Material
Steel 1300 - 1500 N/mm ²
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]
Titanium alloys >300 HB [Ti6Al4V]
Cast iron (lamellar / spheroidal)

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
3.00	40	0.035	29.5	4245	150	1.0	11.8
3.30	40	0.040	29.1	3860	155	1.5	11.3
3.50	40	0.045	28.8	3640	165	1.5	10.5
3.80	40	0.045	27.3	3350	150	1.5	14.9
4.00	40	0.050	27.0	3185	160	2.0	13.9
4.20	40	0.055	26.7	3030	165	2.5	13.3
4.50	40	0.065	26.3	2830	185	3.0	11.8
4.80	40	0.070	24.8	2655	185	3.5	15.8
5.00	40	0.070	24.5	2545	180	3.5	16.2
3.00	60	0.035	29.5	6365	225	1.5	7.9
3.30	60	0.040	29.1	5785	230	2.0	7.6
3.50	60	0.045	28.8	5455	245	2.5	7.1
3.80	60	0.045	27.3	5025	225	2.5	9.9
4.00	60	0.050	27.0	4775	240	3.0	9.3
4.20	60	0.055	26.7	4545	250	3.5	8.8
4.50	60	0.065	26.3	4245	275	4.5	7.9
4.80	60	0.070	24.8	3980	280	5.0	10.5
5.00	60	0.070	24.5	3820	265	5.0	11.0
3.00	35	0.035	29.5	3715	130	1.0	13.6
3.30	35	0.040	29.1	3375	135	1.0	12.9
3.50	35	0.045	28.8	3185	145	1.5	11.9
3.80	35	0.045	27.3	2930	130	1.5	17.2
4.00	35	0.050	27.0	2785	140	2.0	15.9
4.20	35	0.055	26.7	2655	145	2.0	15.2
4.50	35	0.065	26.3	2475	160	2.5	13.6
4.80	35	0.070	24.8	2320	160	3.0	18.3
5.00	35	0.070	24.5	2230	155	3.0	18.8
3.00	220	0.075	29.5	23345	1750	12.5	1.0
3.30	220	0.080	29.1	21220	1700	14.5	1.0
3.50	220	0.085	28.8	20010	1700	16.5	1.0
3.80	220	0.095	27.3	18430	1750	20.0	1.3
4.00	220	0.100	27.0	17505	1750	22.0	1.3
4.20	220	0.110	26.7	16675	1835	25.5	1.2
4.50	220	0.125	26.3	15560	1945	31.0	1.1
4.80	220	0.135	24.8	14590	1970	35.5	1.5
5.00	220	0.140	24.5	14005	1960	38.5	1.5

Spiral flute drills XDrill®

8xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°. Article-N°. Ø-Code						DURO-X	
B72020 .0300						B72020	
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0300	3.0	6	73	34	36	●	
.0310	3.1	6	73	34	36	●	
.0320	3.2	6	73	34	36	●	
.0330	3.3	6	73	34	36	●	
.0340	3.4	6	73	34	36	●	
.0350	3.5	6	73	34	36	●	
.0360	3.6	6	73	34	36	●	
.0370	3.7	6	73	34	36	●	
.0380	3.8	6	82	43	36	●	
.0390	3.9	6	82	43	36	●	
.0400	4.0	6	82	43	36	●	
.0410	4.1	6	82	43	36	●	
.0420	4.2	6	82	43	36	●	
.0430	4.3	6	82	43	36	●	
.0440	4.4	6	82	43	36	●	
.0450	4.5	6	82	43	36	●	
.0460	4.6	6	82	43	36	●	
.0470	4.7	6	82	43	36	●	
.0480	4.8	6	95	56	36	●	
.0490	4.9	6	95	56	36	●	
.0500	5.0	6	95	56	36	●	
.0510	5.1	6	95	56	36	●	
.0520	5.2	6	95	56	36	●	



Application	Material
Steel < 500 N/mm ²	5.50
	5.80
	6.00
	6.20
	6.50
	6.80
	7.00
	7.20
	7.50
	7.50
Steel 500 - 850 N/mm ²	5.50
	5.80
	6.00
	6.20
	6.50
	6.80
	7.00
	7.20
	7.50
	7.50
Steel 850 - 1100 N/mm ²	5.50
	5.80
	6.00
	6.20
	6.50
	6.80
	7.00
	7.20
	7.50
	7.50
Steel 1100 - 1300 N/mm ²	5.50
	5.80
	6.00
	6.20
	6.50
	6.80
	7.00
	7.20
	7.50
	7.50

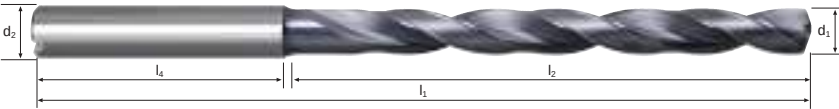
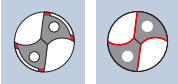
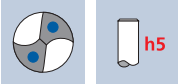
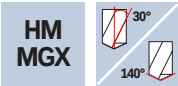
d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
5.50	150	0.170	47.8	8680	1475	35.0	1.9
5.80	150	0.180	47.3	8230	1480	39.0	1.9
6.00	150	0.190	47.0	7960	1510	42.5	1.9
6.20	150	0.205	56.7	7700	1580	47.5	2.2
6.50	150	0.210	56.3	7345	1540	51.0	2.2
6.80	150	0.220	55.8	7020	1545	56.0	2.2
7.00	150	0.230	55.5	6820	1570	60.5	2.1
7.20	150	0.235	65.2	6630	1560	63.5	2.5
7.50	150	0.245	64.8	6365	1560	69.0	2.5
5.50	120	0.145	47.8	6945	1005	24.0	2.9
5.80	120	0.150	47.3	6585	990	26.0	2.9
6.00	120	0.165	47.0	6365	1050	29.5	2.7
6.20	120	0.175	56.7	6160	1080	32.5	3.2
6.50	120	0.180	56.3	5875	1060	35.0	3.2
6.80	120	0.190	55.8	5615	1065	38.5	3.1
7.00	120	0.195	55.5	5455	1065	41.0	3.1
7.20	120	0.200	65.2	5305	1060	43.0	3.7
7.50	120	0.210	64.8	5095	1070	47.5	3.6
5.50	100	0.135	47.8	5785	780	18.5	3.7
5.80	100	0.140	47.3	5490	770	20.5	3.7
6.00	100	0.150	47.0	5305	795	22.5	3.5
6.20	100	0.160	56.7	5135	820	25.0	4.1
6.50	100	0.170	56.3	4895	830	27.5	4.1
6.80	100	0.175	55.8	4680	820	30.0	4.1
7.00	100	0.180	55.5	4545	820	31.5	4.1
7.20	100	0.185	65.2	4420	820	33.5	4.8
7.50	100	0.195	64.8	4245	830	36.5	4.7
5.50	70	0.100	47.8	4050	405	9.5	7.1
5.80	70	0.105	47.3	3840	405	10.5	7.0
6.00	70	0.115	47.0	3715	425	12.0	6.6
6.20	70	0.120	56.7	3595	430	13.0	7.9
6.50	70	0.125	56.3	3430	430	14.5	7.9
6.80	70	0.135	55.8	3275	440	16.0	7.6
7.00	70	0.135	55.5	3185	430	16.5	7.7
7.20	70	0.140	65.2	3095	435	17.5	9.0
7.50	70	0.145	64.8	2970	430	19.0	9.0

Material
Steel 1300 - 1500 N/mm ²
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]
Titanium alloys >300 HB [Ti6Al4V]
Cast iron (lamellar / spheroidal)

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
5.50	40	0.080	47.8	2315	185	4.5	15.5
5.80	40	0.080	47.3	2195	175	4.5	16.2
6.00	40	0.090	47.0	2120	190	5.5	14.8
6.20	40	0.095	56.7	2055	195	6.0	17.4
6.50	40	0.100	56.3	1960	195	6.5	17.3
6.80	40	0.105	55.8	1870	195	7.0	17.2
7.00	40	0.105	55.5	1820	190	7.5	17.5
7.20	40	0.110	65.2	1770	195	8.0	20.1
7.50	40	0.115	64.8	1700	195	8.5	19.9
5.50	60	0.080	47.8	3470	280	6.5	10.2
5.80	60	0.080	47.3	3295	265	7.0	10.7
6.00	60	0.090	47.0	3185	285	8.0	9.9
6.20	60	0.095	56.7	3080	295	9.0	11.5
6.50	60	0.100	56.3	2940	295	10.0	11.5
6.80	60	0.105	55.8	2810	295	10.5	11.3
7.00	60	0.105	55.5	2730	285	11.0	11.7
7.20	60	0.110	65.2	2655	290	12.0	13.5
7.50	60	0.115	64.8	2545	295	13.0	13.2
5.50	35	0.080	47.8	2025	160	4.0	17.9
5.80	35	0.080	47.3	1920	155	4.0	18.3
6.00	35	0.090	47.0	1855	165	4.5	17.1
6.20	35	0.095	56.7	1795	170	5.0	20.0
6.50	35	0.100	56.3	1715	170	5.5	19.9
6.80	35	0.105	55.8	1640	170	6.0	19.7
7.00	35	0.105	55.5	1590	165	6.5	20.2
7.20	35	0.110	65.2	1545	170	7.0	23.0
7.50	35	0.115	64.8	1485	170	7.5	22.9
5.50	220	0.155	47.8	12730	1975	47.0	1.5
5.80	220	0.160	47.3	12075	1930	51.0	1.5
6.00	220	0.175	47.0	11670	2040	57.5	1.4
6.20	220	0.185	56.7	11295	2090	63.0	1.6
6.50	220	0.195	56.3	10775	2100	69.5	1.6
6.80	220	0.200	55.8	10300	2060	75.0	1.6
7.00	220	0.210	55.5	10005	2100	81.0	1.6
7.20	220	0.215	65.2	9725	2090	85.0	1.9
7.50	220	0.225	64.8	9335	2100	93.0	1.9

Spiral flute drills XDrill®

8xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72020	
Ø-Code							
Ø	d1 m7	d2 h5	l1	l2	l4		
.0530	5.3	6	95	56	36	●	
.0540	5.4	6	95	56	36	●	
.0550	5.5	6	95	56	36	●	
.0560	5.6	6	95	56	36	●	
.0570	5.7	6	95	56	36	●	
.0580	5.8	6	95	56	36	●	
.0590	5.9	6	95	56	36	●	
.0600	6.0	6	95	56	36	●	
.0610	6.1	8	105	66	36	●	
.0620	6.2	8	105	66	36	●	
.0630	6.3	8	105	66	36	●	
.0640	6.4	8	105	66	36	●	
.0650	6.5	8	105	66	36	●	
.0660	6.6	8	105	66	36	●	
.0670	6.7	8	105	66	36	●	
.0680	6.8	8	105	66	36	●	
.0690	6.9	8	105	66	36	●	
.0700	7.0	8	105	66	36	●	
.0710	7.1	8	115	76	36	●	
.0720	7.2	8	115	76	36	●	
.0730	7.3	8	115	76	36	●	
.0740	7.4	8	115	76	36	●	
.0750	7.5	8	115	76	36	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Steel
1100 - 1300 N/mm²

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	150	0.250	64.6	6280	1570	71.0	2.5
8.00	150	0.260	64.0	5970	1550	78.0	2.5
8.20	150	0.270	73.7	5825	1575	83.0	2.8
8.50	150	0.280	73.3	5615	1570	89.0	2.8
8.80	150	0.285	72.8	5425	1545	94.0	2.8
9.00	150	0.295	72.5	5305	1565	99.5	2.8
9.20	150	0.300	81.2	5190	1555	103.5	3.1
9.50	150	0.310	80.8	5025	1560	110.5	3.1
9.80	150	0.320	80.3	4870	1560	117.5	3.1
7.60	120	0.215	64.6	5025	1080	49.0	3.6
8.00	120	0.225	64.0	4775	1075	54.0	3.6
8.20	120	0.230	73.7	4660	1070	56.5	4.1
8.50	120	0.240	73.3	4495	1080	61.5	4.1
8.80	120	0.245	72.8	4340	1065	65.0	4.1
9.00	120	0.250	72.5	4245	1060	67.5	4.1
9.20	120	0.260	81.2	4150	1080	72.0	4.5
9.50	120	0.265	80.8	4020	1065	75.5	4.6
9.80	120	0.275	80.3	3900	1075	81.0	4.5
7.60	100	0.195	64.6	4190	815	37.0	4.8
8.00	100	0.205	64.0	3980	815	41.0	4.7
8.20	100	0.210	73.7	3880	815	43.0	5.4
8.50	100	0.220	73.3	3745	825	47.0	5.3
8.80	100	0.225	72.8	3615	815	49.5	5.4
9.00	100	0.230	72.5	3535	815	52.0	5.3
9.20	100	0.235	81.2	3460	815	54.0	6.0
9.50	100	0.245	80.8	3350	820	58.0	5.9
9.80	100	0.255	80.3	3250	830	62.5	5.8
7.60	70	0.150	64.6	2930	440	20.0	8.8
8.00	70	0.155	64.0	2785	430	21.5	8.9
8.20	70	0.160	73.7	2715	435	23.0	10.2
8.50	70	0.165	73.3	2620	430	24.5	10.2
8.80	70	0.170	72.8	2530	430	26.0	10.2
9.00	70	0.175	72.5	2475	435	27.5	10.0
9.20	70	0.180	81.2	2420	435	29.0	11.2
9.50	70	0.185	80.8	2345	435	31.0	11.1
9.80	70	0.190	80.3	2275	430	32.5	11.2

Material

Steel
1300 - 1500 N/mm²

Cold work tool steel
(12% Cr)
high alloyed
[1.2379]
Stainless steel
[Cr-Ni/1.4301]

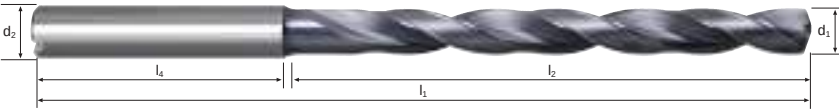
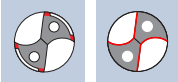
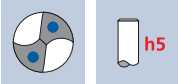
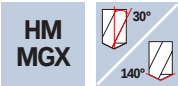
Titanium alloys
>300 HB
[Ti6Al4V]

Cast iron
(lamellar / spheroidal)

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
7.60	40	0.115	64.6	1675	195	9.0	19.9
8.00	40	0.120	64.0	1590	190	9.5	20.2
8.20	40	0.125	73.7	1555	195	10.5	22.7
8.50	40	0.130	73.3	1500	195	11.0	22.6
8.80	40	0.135	72.8	1445	195	12.0	22.4
9.00	40	0.135	72.5	1415	190	12.0	22.9
9.20	40	0.140	81.2	1385	195	13.0	25.0
9.50	40	0.145	80.8	1340	195	14.0	24.9
9.80	40	0.150	80.3	1300	195	14.5	24.7
7.60	60	0.115	64.6	2515	290	13.0	13.4
8.00	60	0.120	64.0	2385	285	14.5	13.5
8.20	60	0.125	73.7	2330	290	15.5	15.2
8.50	60	0.130	73.3	2245	290	16.5	15.2
8.80	60	0.135	72.8	2170	295	18.0	14.8
9.00	60	0.135	72.5	2120	285	18.0	15.3
9.20	60	0.140	81.2	2075	290	19.5	16.8
9.50	60	0.145	80.8	2010	290	20.5	16.7
9.80	60	0.150	80.3	1950	295	22.5	16.3
7.60	35	0.115	64.6	1465	170	7.5	22.8
8.00	35	0.120	64.0	1395	165	8.5	23.3
8.20	35	0.125	73.7	1360	170	9.0	26.0
8.50	35	0.130	73.3	1310	170	9.5	25.9
8.80	35	0.135	72.8	1265	170	10.5	25.7
9.00	35	0.135	72.5	1240	165	10.5	26.4
9.20	35	0.140	81.2	1210	170	11.5	28.7
9.50	35	0.145	80.8	1175	170	12.0	28.5
9.80	35	0.150	80.3	1135	170	13.0	28.3
7.60	220	0.225	64.6	9215	2075	94.0	1.9
8.00	220	0.240	64.0	8755	2100	105.5	1.8
8.20	220	0.245	73.7	8540	2090	110.5	2.1
8.50	220	0.250	73.3	8240	2060	117.0	2.1
8.80	220	0.260	72.8	7960	2070	126.0	2.1
9.00	220	0.265	72.5	7780	2060	131.0	2.1
9.20	220	0.275	81.2	7610	2095	139.5	2.3
9.50	220	0.280	80.8	7370	2065	146.5	2.3
9.80	220	0.290	80.3	7145	2070	156.0	2.3

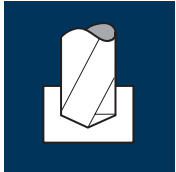
Spiral flute drills XDrill®

8xd



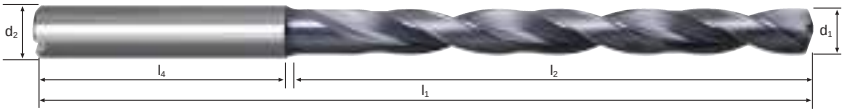
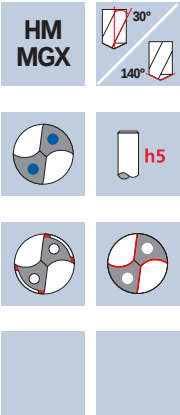
Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72020	
σ-Code							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0760	7.6	8	115	76	36	●	
.0770	7.7	8	115	76	36	●	
.0780	7.8	8	115	76	36	●	
.0790	7.9	8	115	76	36	●	
.0800	8.0	8	115	76	36	●	
.0810	8.1	10	129	86	40	●	
.0820	8.2	10	129	86	40	●	
.0830	8.3	10	129	86	40	●	
.0840	8.4	10	129	86	40	●	
.0850	8.5	10	129	86	40	●	
.0860	8.6	10	129	86	40	●	
.0870	8.7	10	129	86	40	●	
.0880	8.8	10	129	86	40	●	
.0890	8.9	10	129	86	40	●	
.0900	9.0	10	129	86	40	●	
.0910	9.1	10	138	95	40	●	
.0920	9.2	10	138	95	40	●	
.0930	9.3	10	138	95	40	●	
.0940	9.4	10	138	95	40	●	
.0950	9.5	10	138	95	40	●	
.0960	9.6	10	138	95	40	●	
.0970	9.7	10	138	95	40	●	
.0980	9.8	10	138	95	40	●	

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	10.00	150	0.325	80.0	4775	1550	121.5	3.1
		10.20	150	0.335	89.7	4680	1570	128.5	3.4
		10.50	150	0.345	89.3	4545	1570	136.0	3.4
		10.80	150	0.350	88.8	4420	1545	141.5	3.4
		11.00	150	0.355	88.5	4340	1540	146.5	3.4
		11.50	150	0.360	96.8	4150	1495	155.5	3.9
		11.80	150	0.360	96.3	4045	1455	159.0	4.0
		12.00	150	0.370	96.0	3980	1475	167.0	3.9
		12.50	150	0.385	114.3	3820	1470	180.5	4.7
		10.00	120	0.280	80.0	3820	1070	84.0	4.5
	Steel 500 - 850 N/mm ²	10.20	120	0.285	89.7	3745	1065	87.0	5.1
		10.50	120	0.295	89.3	3640	1075	93.0	5.0
		10.80	120	0.300	88.8	3535	1060	97.0	5.0
		11.00	120	0.305	88.5	3470	1060	100.5	5.0
		11.50	120	0.310	96.8	3320	1030	107.0	5.6
		11.80	120	0.310	96.3	3235	1005	110.0	5.7
		12.00	120	0.315	96.0	3185	1005	113.5	5.7
		12.50	120	0.330	114.3	3055	1010	124.0	6.8
		10.00	100	0.260	80.0	3185	830	65.0	5.8
		10.20	100	0.265	89.7	3120	825	67.5	6.5
	Steel 850 - 1100 N/mm ²	10.50	100	0.270	89.3	3030	820	71.0	6.5
		10.80	100	0.275	88.8	2945	810	74.0	6.6
		11.00	100	0.280	88.5	2895	810	77.0	6.6
		11.50	100	0.285	96.8	2770	790	82.0	7.4
		11.80	100	0.285	96.3	2700	770	84.0	7.5
		12.00	100	0.290	96.0	2655	770	87.0	7.5
		12.50	100	0.305	114.3	2545	775	95.0	8.8
		10.00	70	0.195	80.0	2230	435	34.0	11.0
		10.20	70	0.200	89.7	2185	435	35.5	12.4
		10.50	70	0.205	89.3	2120	435	37.5	12.3
	Steel 1100 - 1300 N/mm ²	10.80	70	0.210	88.8	2065	435	40.0	12.2
		11.00	70	0.215	88.5	2025	435	41.5	12.2
		11.50	70	0.215	96.8	1940	415	43.0	14.0
		11.80	70	0.215	96.3	1890	405	44.5	14.3
		12.00	70	0.220	96.0	1855	410	46.5	14.0
		12.50	70	0.230	114.3	1785	410	50.5	16.7
		10.00	40	0.150	80.0	1275	190	15.0	25.3
		10.20	40	0.155	89.7	1250	195	16.0	27.6
		10.50	40	0.160	89.3	1215	195	17.0	27.5
		10.80	40	0.160	88.8	1180	190	17.5	28.0
	Steel 1300 - 1500 N/mm ²	11.00	40	0.165	88.5	1155	190	18.0	27.9
		11.50	40	0.165	96.8	1105	180	18.5	32.3
		11.80	40	0.165	96.3	1080	180	19.5	32.1
		12.00	40	0.170	96.0	1060	180	20.5	32.0
		12.50	40	0.175	114.3	1020	180	22.0	38.1
		10.00	60	0.150	80.0	1910	285	22.5	16.8
		10.20	60	0.155	89.7	1870	290	23.5	18.6
		10.50	60	0.160	89.3	1820	290	25.0	18.5
		10.80	60	0.160	88.8	1770	285	26.0	18.7
		11.00	60	0.165	88.5	1735	285	27.0	18.6
	Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	11.50	60	0.165	96.8	1660	275	28.5	21.1
		11.80	60	0.165	96.3	1620	265	29.0	21.8
		12.00	60	0.170	96.0	1590	270	30.5	21.3
		12.50	60	0.175	114.3	1530	270	33.0	25.4
		10.00	35	0.150	80.0	1115	165	13.0	29.1
		10.20	35	0.155	89.7	1090	170	14.0	31.7
		10.50	35	0.160	89.3	1060	170	14.5	31.5
		10.80	35	0.160	88.8	1030	165	15.0	32.3
		11.00	35	0.165	88.5	1015	165	15.5	32.2
		11.50	35	0.165	96.8	970	160	16.5	36.3
	Titanium alloys >300 HB [Ti6Al4V]	11.80	35	0.165	96.3	945	155	17.0	37.3
		12.00	35	0.170	96.0	930	160	18.0	36.0
		12.50	35	0.175	114.3	890	155	19.0	44.2
		10.00	220	0.295	80.0	7005	2065	162.0	2.3
		10.20	220	0.305	89.7	6865	2095	171.0	2.6
		10.50	220	0.310	89.3	6670	2070	179.0	2.6
		10.80	220	0.315	88.8	6485	2045	187.5	2.6
		11.00	220	0.325	88.5	6365	2070	196.5	2.6
		11.50	220	0.330	96.8	6090	2010	209.0	2.9
		11.80	220	0.330	96.3	5935	1960	214.5	2.9
	Cast iron (lamellar / spheroidal)	12.00	220	0.335	96.0	5835	1955	221.0	2.9
		12.50	220	0.350	114.3	5600	1960	240.5	3.5

Spiral flute drills XDrill®

8xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)
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Example: Order-N°.						DURO-X	
Article-N°.						B72020	
σ-Code							
Ø Code	d1 m7	d2 h5	l1	l2	l4		
.0990	9.9	10	138	95	40	●	
.1000	10.0	10	138	95	40	●	
.1010	10.1	12	153	105	45	●	
.1020	10.2	12	153	105	45	●	
.1030	10.3	12	153	105	45	●	
.1040	10.4	12	153	105	45	●	
.1050	10.5	12	153	105	45	●	
.1060	10.6	12	153	105	45	●	
.1070	10.7	12	153	105	45	●	
.1080	10.8	12	153	105	45	●	
.1090	10.9	12	153	105	45	●	
.1100	11.0	12	153	105	45	●	
.1110	11.1	12	162	114	45	●	
.1120	11.2	12	162	114	45	●	
.1130	11.3	12	162	114	45	●	
.1140	11.4	12	162	114	45	●	
.1150	11.5	12	162	114	45	●	
.1160	11.6	12	162	114	45	●	
.1170	11.7	12	162	114	45	●	
.1180	11.8	12	162	114	45	●	
.1190	11.9	12	162	114	45	●	
.1200	12.0	12	162	114	45	●	
.1250	12.5	14	181	133	45	●	

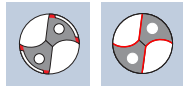
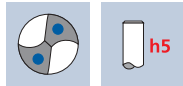
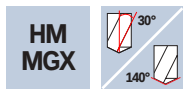


Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
Steel < 500 N/mm²	12.80	150	0.395	113.8	3730	1475	190.0	4.6
	13.00	150	0.400	113.5	3675	1470	195.0	4.6
	13.50	150	0.405	113.2	3615	1465	200.5	4.6
	14.00	150	0.410	112.0	3410	1400	215.5	4.8
	14.50	150	0.420	130.3	3295	1385	228.5	5.6
	14.80	150	0.425	129.8	3225	1370	235.5	5.7
	15.00	150	0.430	129.5	3185	1370	242.0	5.7
	15.50	150	0.440	128.8	3080	1355	255.5	5.7
	16.00	150	0.450	128.0	2985	1345	270.5	5.7
Steel 500 - 850 N/mm²	12.80	120	0.335	113.8	2985	1000	128.5	6.8
	13.00	120	0.340	113.5	2940	1000	132.5	6.8
	13.50	120	0.345	113.2	2895	1000	137.0	6.8
	14.00	120	0.350	112.0	2730	955	147.0	7.0
	14.50	120	0.360	130.3	2635	950	157.0	8.2
	14.80	120	0.365	129.8	2580	940	161.5	8.3
	15.00	120	0.370	129.5	2545	940	166.0	8.3
	15.50	120	0.375	128.8	2465	925	174.5	8.4
	16.00	120	0.385	128.0	2385	920	185.0	8.3
Steel 850 - 1100 N/mm²	12.80	100	0.310	113.8	2485	770	99.0	8.9
	13.00	100	0.315	113.5	2450	770	102.0	8.8
	13.50	100	0.320	113.2	2410	770	105.5	8.8
	14.00	100	0.325	112.0	2275	740	114.0	9.1
	14.50	100	0.330	130.3	2195	725	119.5	10.8
	14.80	100	0.335	129.8	2150	720	124.0	10.8
	15.00	100	0.340	129.5	2120	720	127.0	10.8
	15.50	100	0.345	128.8	2055	710	134.0	10.9
	16.00	100	0.355	128.0	1990	705	141.5	10.9
Steel 1100 - 1300 N/mm²	12.80	70	0.235	113.8	1740	410	53.0	16.7
	13.00	70	0.240	113.5	1715	410	54.5	16.6
	13.50	70	0.245	113.2	1690	415	57.0	16.4
	14.00	70	0.245	112.0	1590	390	60.0	17.2
	14.50	70	0.250	130.3	1535	385	63.5	20.3
	14.80	70	0.255	129.8	1505	385	66.0	20.2
	15.00	70	0.260	129.5	1485	385	68.0	20.2
	15.50	70	0.265	128.8	1440	380	71.5	20.3
	16.00	70	0.270	128.0	1395	375	75.5	20.5

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	12.80	40	0.180	113.8	995	180	23.0	37.9
	13.00	40	0.185	113.5	980	180	24.0	37.8
	13.50	40	0.185	113.2	965	180	24.5	37.7
	14.00	40	0.190	112.0	910	175	27.0	38.4
	14.50	40	0.195	130.3	880	170	28.0	46.0
	14.80	40	0.195	129.8	860	170	29.0	45.8
	15.00	40	0.200	129.5	850	170	30.0	45.7
	15.50	40	0.205	128.8	820	170	32.0	45.5
	16.00	40	0.205	128.0	795	165	33.0	46.5
	12.80	60	0.180	113.8	1490	270	34.5	25.3
	13.00	60	0.185	113.5	1470	270	36.0	25.2
	13.50	60	0.185	113.2	1445	265	36.5	25.6
	14.00	60	0.190	112.0	1365	260	40.0	25.8
	14.50	60	0.195	130.3	1315	255	42.0	30.7
	14.80	60	0.195	129.8	1290	250	43.0	31.2
	15.00	60	0.200	129.5	1275	255	45.0	30.5
	15.50	60	0.205	128.8	1230	250	47.0	30.9
	16.00	60	0.205	128.0	1195	245	49.5	31.3
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	12.80	35	0.180	113.8	870	155	20.0	44.1
	13.00	35	0.185	113.5	855	160	21.0	42.6
	13.50	35	0.185	113.2	845	155	21.0	43.8
	14.00	35	0.190	112.0	795	150	23.0	44.8
	14.50	35	0.195	130.3	770	150	25.0	52.1
	14.80	35	0.195	129.8	755	145	25.0	53.7
	15.00	35	0.200	129.5	745	150	26.5	51.8
	15.50	35	0.205	128.8	720	150	28.5	51.5
	16.00	35	0.205	128.0	695	140	28.0	54.9
Titanium alloys >300 HB [Ti6Al4V]	12.80	220	0.355	113.8	5470	1940	249.5	3.5
	13.00	220	0.360	113.5	5385	1940	257.5	3.5
	13.50	220	0.370	113.2	5305	1965	269.0	3.5
	14.00	220	0.375	112.0	5000	1875	288.5	3.6
	14.50	220	0.380	130.3	4830	1835	303.0	4.3
	14.80	220	0.385	129.8	4730	1820	313.0	4.3
	15.00	220	0.390	129.5	4670	1820	321.5	4.3
	15.50	220	0.400	128.8	4520	1810	341.5	4.3
Cast iron (lamellar / spheroidal)	16.00	220	0.405	128.0	4375	1770	356.0	4.3

Spiral flute drills XDrill®

8xd



Rm < 850	Rm 850-1100	Rm 1100-1300	Rm 1300-1500				Inox Stainless	Ti Titanium	GG(G)
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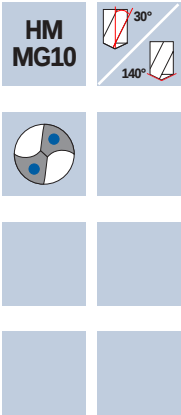
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Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm²	4.00	130	0.085	38.0	10345	880	11.0	2.6
		5.00	130	0.105	49.5	8275	870	17.0	3.4
		6.00	130	0.125	48.0	6895	860	24.5	3.3
		7.00	130	0.145	65.5	5910	855	33.0	4.6
		8.00	130	0.170	64.0	5175	880	44.0	4.4
		9.00	130	0.190	81.5	4600	875	55.5	5.6
		10.00	130	0.210	80.0	4140	870	68.5	5.5
		11.00	130	0.230	97.5	3760	865	82.0	6.8
		12.00	130	0.255	96.0	3450	880	99.5	6.5
			Steel 500 - 850 N/mm²	4.00	100	0.085	38.0	7960	675
5.00	100			0.105	49.5	6365	670	13.0	4.4
6.00	100			0.125	48.0	5305	665	19.0	4.3
7.00	100			0.145	65.5	4545	660	25.5	6.0
8.00	100			0.170	64.0	3980	675	34.0	5.7
9.00	100			0.190	81.5	3535	670	42.5	7.3
10.00	100			0.210	80.0	3185	670	52.5	7.2
11.00	100			0.230	97.5	2895	665	63.0	8.8
12.00	100			0.255	96.0	2655	675	76.5	8.5
	Steel 850 - 1100 N/mm²			4.00	70	0.065	38.0	5570	360
		5.00	70	0.080	49.5	4455	355	7.0	8.4
		6.00	70	0.095	48.0	3715	355	10.0	8.1
		7.00	70	0.110	65.5	3185	350	13.5	11.2
		8.00	70	0.130	64.0	2785	360	18.0	10.7
		9.00	70	0.145	81.5	2475	360	23.0	13.6
		10.00	70	0.160	80.0	2230	355	28.0	13.5
		11.00	70	0.175	97.5	2025	355	33.5	16.5
		12.00	70	0.190	96.0	1855	350	39.5	16.5
			Steel 1100 - 1300 N/mm²	4.00	50	0.055	38.0	3980	220
5.00	50			0.065	49.5	3185	205	4.0	14.5
6.00	50			0.080	48.0	2655	210	6.0	13.7
7.00	50			0.095	65.5	2275	215	8.5	18.3
8.00	50			0.105	64.0	1990	210	10.5	18.3
9.00	50			0.120	81.5	1770	210	13.5	23.3
10.00	50			0.135	80.0	1590	215	17.0	22.3
11.00	50			0.145	97.5	1445	210	20.0	27.9
12.00	50			0.160	96.0	1325	210	24.0	27.4

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm²	4.00	25	0.045	38.0	1990	90	1.0	25.3
	5.00	25	0.060	49.5	1590	95	2.0	31.3
	6.00	25	0.070	48.0	1325	95	2.5	30.3
	7.00	25	0.080	65.5	1135	90	3.5	43.7
	8.00	25	0.095	64.0	995	95	5.0	40.4
	9.00	25	0.105	81.5	885	95	6.0	51.5
	10.00	25	0.115	80.0	795	90	7.0	53.3
	11.00	25	0.130	97.5	725	95	9.0	61.6
	12.00	25	0.140	96.0	665	95	10.5	60.6
	Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	4.00	50	0.045	38.0	3980	180	2.5
5.00		50	0.055	49.5	3185	175	3.5	17.0
6.00		50	0.070	48.0	2655	185	5.0	15.6
7.00		50	0.080	65.5	2275	180	7.0	21.8
8.00		50	0.090	64.0	1990	180	9.0	21.3
9.00		50	0.105	81.5	1770	185	12.0	26.4
10.00		50	0.115	80.0	1590	185	14.5	25.9
11.00		50	0.125	97.5	1445	180	17.0	32.5
12.00		50	0.135	96.0	1325	180	20.5	32.0
Cast iron (lamellar / spheroidal)		4.00	150	0.090	38.0	11935	1075	13.5
	5.00	150	0.115	49.5	9550	1100	21.5	2.7
	6.00	150	0.135	48.0	7960	1075	30.5	2.7
	7.00	150	0.160	65.5	6820	1090	42.0	3.6
	8.00	150	0.185	64.0	5970	1105	55.5	3.5
	9.00	150	0.205	81.5	5305	1090	69.5	4.5
	10.00	150	0.230	80.0	4775	1100	86.5	4.4
	11.00	150	0.250	97.5	4340	1085	103.0	5.4
	12.00	150	0.275	96.0	3980	1095	124.0	5.3
	Wrought aluminium alloys Si < 6%	4.00	200	0.080	38.0	15915	1275	16.0
5.00		200	0.100	49.5	12730	1275	25.0	2.3
6.00		200	0.120	48.0	10610	1275	36.0	2.3
7.00		200	0.140	65.5	9095	1275	49.0	3.1
8.00		200	0.160	64.0	7960	1275	64.0	3.0
9.00		200	0.180	81.5	7075	1275	81.0	3.8
10.00		200	0.200	80.0	6365	1275	100.0	3.8
11.00		200	0.220	97.5	5785	1275	121.0	4.6
12.00		200	0.240	96.0	5305	1275	144.0	4.5

Spiral flute drills Supradrill N

8xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.						DURO-SD	
Article-N°. Ø-Code						B52020	
B52020 .0400						B53020	
Ø Code	d1 m7	d2 h6	l1	l2	l4		
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.0420	4.2	6	82	44	36	●	
.0450	4.5	6	82	44	36	●	
.0480	4.8	6	82	44	36	●	
.0500	5.0	6	95	57	36	●	
.0550	5.5	6	95	57	36	●	
.0580	5.8	6	95	57	36	●	
.0600	6.0	6	95	57	36	●	
.0650	6.5	8	114	76	36	●	
.0680	6.8	8	114	76	36	●	
.0700	7.0	8	114	76	36	●	
.0750	7.5	8	114	76	36	●	
.0780	7.8	8	114	76	36	●	
.0800	8.0	8	114	76	36	●	
.0850	8.5	10	138	95	40	●	
.0900	9.0	10	138	95	40	●	
.0950	9.5	10	138	95	40	●	
.1000	10.0	10	138	95	40	●	
.1050	10.5	12	162	114	45	●	
.1100	11.0	12	162	114	45	●	
.1150	11.5	12	162	114	45	●	
.1200	12.0	12	162	114	45	●	

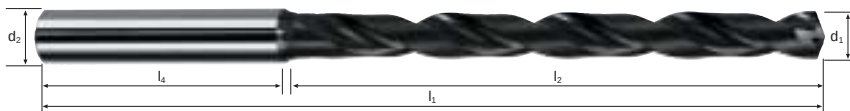
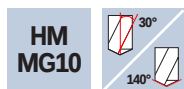


Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel < 500 N/mm ²		12.50	130	0.265	114.3	3310	875	107.5	7.8
		13.00	130	0.275	113.5	3185	875	116.0	7.8
		13.50	130	0.285	112.8	3065	875	125.0	7.7
		14.00	130	0.295	112.0	2955	870	134.0	7.7
		14.50	130	0.305	130.3	2855	870	143.5	9.0
		15.00	130	0.315	129.5	2760	870	153.5	8.9
		16.00	130	0.335	128.0	2585	865	174.0	8.9
Steel 500 - 850 N/mm ²		12.50	100	0.265	114.3	2545	675	83.0	10.2
		13.00	100	0.275	113.5	2450	675	89.5	10.1
		13.50	100	0.285	112.8	2360	675	96.5	10.0
		14.00	100	0.295	112.0	2275	670	103.0	10.0
		14.50	100	0.305	130.3	2195	670	110.5	11.7
		15.00	100	0.315	129.5	2120	670	118.5	11.6
		16.00	100	0.335	128.0	1990	665	133.5	11.5
Steel 850 - 1100 N/mm ²		12.50	70	0.200	114.3	1785	355	43.5	19.3
		13.00	70	0.210	113.5	1715	360	48.0	18.9
		13.50	70	0.215	112.8	1650	355	51.0	19.1
		14.00	70	0.225	112.0	1590	360	55.5	18.7
		14.50	70	0.230	130.3	1535	355	58.5	22.0
		15.00	70	0.240	129.5	1485	355	62.5	21.9
		16.00	70	0.255	128.0	1395	355	71.5	21.6
Steel 1100 - 1300 N/mm ²		12.50	50	0.165	114.3	1275	210	26.0	32.7
		13.00	50	0.175	113.5	1225	215	28.5	31.7
		13.50	50	0.180	112.8	1180	210	30.0	32.2
		14.00	50	0.185	112.0	1135	210	32.5	32.0
		14.50	50	0.195	130.3	1100	215	35.5	36.4
		15.00	50	0.200	129.5	1060	210	37.0	37.0
		16.00	50	0.215	128.0	995	215	43.0	35.7

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Steel 1300 - 1500 N/mm ²	12.50	25	0.145	114.3	635	90	11.0	76.2
	13.00	25	0.150	113.5	610	90	12.0	75.7
	13.50	25	0.160	112.8	590	95	13.5	71.2
	14.00	25	0.165	112.0	570	95	14.5	70.7
	14.50	25	0.170	130.3	550	95	15.5	82.3
	15.00	25	0.175	129.5	530	95	17.0	81.8
	16.00	25	0.185	128.0	495	90	18.0	85.3
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	12.50	50	0.145	114.3	1275	185	22.5	37.1
	13.00	50	0.150	113.5	1225	185	24.5	36.8
	13.50	50	0.155	112.8	1180	185	26.5	36.6
	14.00	50	0.160	112.0	1135	180	27.5	37.3
	14.50	50	0.165	130.3	1100	180	29.5	43.4
	15.00	50	0.170	129.5	1060	180	32.0	43.2
	16.00	50	0.185	128.0	995	185	37.0	41.5
Cast iron (lamellar / spheroidal)	12.50	150	0.285	114.3	3820	1090	134.0	6.3
	13.00	150	0.295	113.5	3675	1085	144.0	6.3
	13.50	150	0.310	112.8	3535	1095	156.5	6.2
	14.00	150	0.320	112.0	3410	1090	168.0	6.2
	14.50	150	0.330	130.3	3295	1085	179.0	7.2
	15.00	150	0.345	129.5	3185	1100	194.5	7.1
	16.00	150	0.365	128.0	2985	1090	219.0	7.0
Wrought aluminium alloys Si < 6%	12.50	200	0.250	114.3	5095	1275	156.5	5.4
	13.00	200	0.260	113.5	4895	1275	169.0	5.3
	13.50	200	0.270	112.8	4715	1275	182.5	5.3
	14.00	200	0.280	112.0	4545	1275	196.5	5.3
	14.50	200	0.290	130.3	4390	1275	210.5	6.1
	15.00	200	0.300	129.5	4245	1275	225.5	6.1
	16.00	200	0.320	128.0	3980	1275	256.5	6.0

Spiral flute drills Supradrill N

8xd

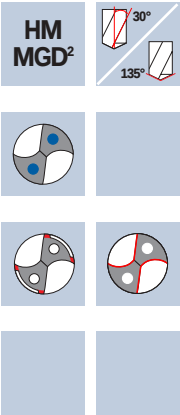


Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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[illegible]

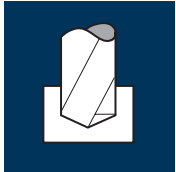
Deep hole drills

15xd

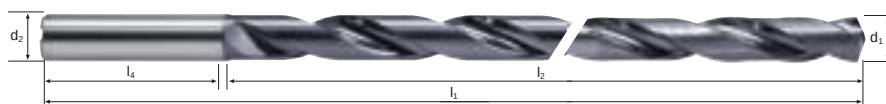
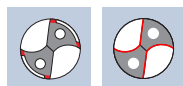
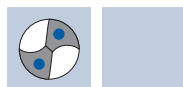


Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G) Aluminium
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Example: Order-N°.						DURO-D²	
Article-N°. Ø-Code						B52915	
B52915 .0300							
Ø Code	d1 h7	d2 h6	l1	l2	l4		
.0300	3.0	4	90	56	32	●	
.0350	3.5	4	100	66	32	●	
.0400	4.0	4	100	66	32	●	
.0450	4.5	5	110	74	34	●	
.0500	5.0	5	120	84	34	●	
.0550	5.5	6	130	92	36	●	
.0600	6.0	6	140	102	36	●	
.0700	7.0	7	155	115	38	●	
.0800	8.0	8	175	133	40	●	
.0900	9.0	9	190	148	40	●	
.1000	10.0	10	210	168	40	●	
.1100	11.0	11	230	183	45	●	
.1200	12.0	12	250	203	45	●	
.1300	13.0	13	265	218	45	●	
.1400	14.0	14	285	233	50	●	
.1500	15.0	15	305	253	50	●	
.1600	16.0	16	320	268	50	●	
Technical notes, page 151							
A pilot hole is required!							

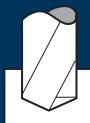
Application	Material	d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	3.00	100	0.120	69.5	10610	1275	9.0	3.3
		4.00	100	0.120	80.0	7960	955	12.0	5.0
		5.00	100	0.120	101.5	6365	765	15.0	8.0
		6.00	100	0.150	121.0	5305	795	22.5	9.1
		8.00	100	0.150	161.0	3980	595	30.0	16.2
		10.00	100	0.200	203.0	3185	635	50.0	19.2
		12.00	100	0.200	240.0	2655	530	60.0	27.2
		14.00	100	0.240	282.0	2275	545	84.0	31.0
		16.00	100	0.240	324.0	1990	480	96.5	40.5
	Steel 500 - 850 N/mm ²	3.00	75	0.115	69.5	7960	915	6.5	4.6
		4.00	75	0.115	80.0	5970	685	8.5	7.0
		5.00	75	0.115	101.5	4775	550	11.0	11.1
		6.00	75	0.145	121.0	3980	575	16.5	12.6
		8.00	75	0.145	161.0	2985	435	22.0	22.2
		10.00	75	0.190	203.0	2385	455	35.5	26.8
		12.00	75	0.190	240.0	1990	380	43.0	37.9
		14.00	75	0.230	282.0	1705	390	60.0	43.4
		16.00	75	0.230	324.0	1490	345	69.5	56.3
	Steel 850 - 1100 N/mm ²	3.00	50	0.100	69.5	5305	530	3.5	7.9
		4.00	50	0.100	80.0	3980	400	5.0	12.0
		5.00	50	0.100	101.5	3185	320	6.5	19.0
		6.00	50	0.140	121.0	2655	370	10.5	19.6
		8.00	50	0.140	161.0	1990	280	14.0	34.5
		10.00	50	0.180	203.0	1590	285	22.5	42.7
		12.00	50	0.180	240.0	1325	240	27.0	60.0
		14.00	50	0.220	282.0	1135	250	38.5	67.7
		16.00	50	0.220	324.0	995	220	44.0	88.4
	Steel 1100 - 1300 N/mm ²	3.00	35	0.090	69.5	3715	335	2.5	12.4
		4.00	35	0.090	80.0	2785	250	3.0	19.2
		5.00	35	0.090	101.5	2230	200	4.0	30.4
		6.00	35	0.125	121.0	1855	230	6.5	31.6
		8.00	35	0.125	161.0	1395	175	9.0	55.2
		10.00	35	0.160	203.0	1115	180	14.0	67.7
		12.00	35	0.160	240.0	930	150	17.0	96.0
		14.00	35	0.200	282.0	795	160	24.5	105.8
		16.00	35	0.200	324.0	695	140	28.0	138.9
Material		d1 [mm]	v _C [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Cold work tool steel (12% Cr) high alloyed [1.2379]		3.00	40	0.100	69.5	4245	425	3.0	9.8
		4.00	40	0.100	80.0	3185	320	4.0	15.0
		5.00	40	0.100	101.5	2545	255	5.0	23.9
		6.00	40	0.140	121.0	2120	295	8.5	24.6
		8.00	40	0.140	161.0	1590	225	11.5	42.9
		10.00	40	0.180	203.0	1275	230	18.0	53.0
		12.00	40	0.180	240.0	1060	190	21.5	75.8
		14.00	40	0.220	282.0	910	200	31.0	84.6
		16.00	40	0.220	324.0	795	175	35.0	111.1
Cast iron (lamellar / spheroidal)		3.00	80	0.160	69.5	8490	1360	9.5	3.1
		4.00	80	0.160	80.0	6365	1020	13.0	4.7
		5.00	80	0.160	101.5	5095	815	16.0	7.5
		6.00	80	0.210	121.0	4245	890	25.0	8.2
		8.00	80	0.210	161.0	3185	670	33.5	14.4
		10.00	80	0.260	203.0	2545	660	52.0	18.5
		12.00	80	0.260	240.0	2120	550	62.0	26.2
		14.00	80	0.320	282.0	1820	580	89.5	29.2
		16.00	80	0.320	324.0	1590	510	102.5	38.1
Wrought aluminium alloys Si < 6%		3.00	180	0.120	69.5	19100	2290	16.0	1.8
		4.00	180	0.120	80.0	14325	1720	21.5	2.8
		5.00	180	0.120	101.5	11460	1375	27.0	4.4
		6.00	180	0.150	121.0	9550	1435	40.5	5.1
		8.00	180	0.150	161.0	7160	1075	54.0	9.0
		10.00	180	0.200	203.0	5730	1145	90.0	10.6
		12.00	180	0.200	240.0	4775	955	108.0	15.1
		14.00	180	0.240	282.0	4095	985	151.5	17.2
		16.00	180	0.240	324.0	3580	860	173.0	22.6

20xd



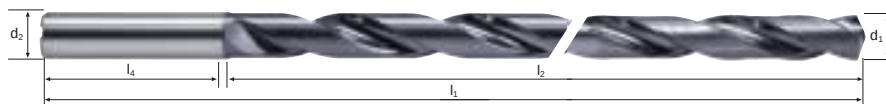
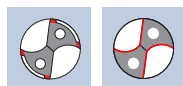
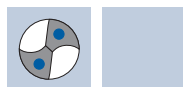
Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G) Aluminium
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[illegible]

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm³/min]	T [sek]
	Steel < 500 N/mm²	3.00	90	0.120	86.5	9550	1145	8.0	4.5
		4.00	90	0.120	100.0	7160	860	11.0	7.0
		5.00	90	0.120	126.5	5730	690	13.5	11.0
		6.00	90	0.150	151.0	4775	715	20.0	12.7
		8.00	90	0.150	201.0	3580	535	27.0	22.5
		9.00	90	0.200	224.5	3185	635	40.5	21.2
		10.00	90	0.200	253.0	2865	575	45.0	26.4
		12.00	90	0.200	300.0	2385	475	53.5	37.9
		14.00	90	0.240	352.0	2045	490	75.5	43.1
			Steel 500 - 850 N/mm²	3.00	70	0.115	86.5	7425	855
4.00	70			0.115	100.0	5570	640	8.0	9.4
5.00	70			0.115	126.5	4455	510	10.0	14.9
6.00	70			0.145	151.0	3715	540	15.5	16.8
8.00	70			0.145	201.0	2785	405	20.5	29.8
9.00	70			0.190	224.5	2475	470	30.0	28.7
10.00	70			0.190	253.0	2230	425	33.5	35.7
12.00	70			0.190	300.0	1855	350	39.5	51.4
14.00	70			0.230	352.0	1590	365	56.0	57.9
	Steel 850 - 1100 N/mm²			3.00	45	0.100	86.5	4775	480
		4.00	45	0.100	100.0	3580	360	4.5	16.7
		5.00	45	0.100	126.5	2865	285	5.5	26.6
		6.00	45	0.140	151.0	2385	335	9.5	27.0
		8.00	45	0.140	201.0	1790	250	12.5	48.2
		9.00	45	0.180	224.5	1590	285	18.0	47.3
		10.00	45	0.180	253.0	1430	255	20.0	59.5
		12.00	45	0.180	300.0	1195	215	24.5	83.7
		14.00	45	0.220	352.0	1025	225	34.5	93.9
			Steel 1100 - 1300 N/mm²	3.00	30	0.090	86.5	3185	285
4.00	30			0.090	100.0	2385	215	2.5	27.9
5.00	30			0.090	126.5	1910	170	3.5	44.6
6.00	30			0.125	151.0	1590	200	5.5	45.3
8.00	30			0.125	201.0	1195	150	7.5	80.4
9.00	30			0.160	224.5	1060	170	11.0	79.2
10.00	30			0.160	253.0	955	155	12.0	97.9
12.00	30			0.160	300.0	795	125	14.0	144.0
14.00	30			0.200	352.0	680	135	21.0	156.4

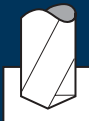
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25xd



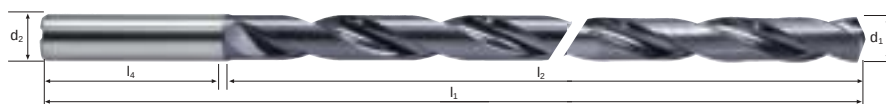
Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G) Aluminium
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[illegible]

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	f _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	3.00	90	0.120	105.5	9550	1145	8.0	5.5
		4.00	90	0.120	120.0	7160	860	11.0	8.4
		5.00	90	0.120	151.5	5730	690	13.5	13.2
		6.00	90	0.150	183.0	4775	715	20.0	15.4
		7.00	90	0.150	209.5	4095	615	23.5	20.4
		8.00	90	0.150	241.0	3580	535	27.0	27.0
		9.00	90	0.200	269.5	3185	635	40.5	25.5
		10.00	90	0.200	303.0	2865	575	45.0	31.6
		12.00	90	0.200	365.0	2385	475	53.5	46.1
			Steel 500 - 850 N/mm ²	3.00	70	0.115	105.5	7425	855
4.00	70			0.115	120.0	5570	640	8.0	11.3
5.00	70			0.115	151.5	4455	510	10.0	17.8
6.00	70			0.145	183.0	3715	540	15.5	20.3
7.00	70			0.145	209.5	3185	460	17.5	27.3
8.00	70			0.145	241.0	2785	405	20.5	35.7
9.00	70			0.190	269.5	2475	470	30.0	34.4
10.00	70			0.190	303.0	2230	425	33.5	42.8
12.00	70			0.190	365.0	1855	350	39.5	62.6
	Steel 850 - 1100 N/mm ²			3.00	45	0.100	105.5	4775	480
		4.00	45	0.100	120.0	3580	360	4.5	20.0
		5.00	45	0.100	151.5	2865	285	5.5	31.9
		6.00	45	0.140	183.0	2385	335	9.5	32.8
		7.00	45	0.140	209.5	2045	285	11.0	44.1
		8.00	45	0.140	241.0	1790	250	12.5	57.8
		9.00	45	0.180	269.5	1590	285	18.0	56.7
		10.00	45	0.180	303.0	1430	255	20.0	71.3
		12.00	45	0.180	365.0	1195	215	24.5	101.9
			Steel 1100 - 1300 N/mm ²	3.00	30	0.090	105.5	3185	285
4.00	30			0.090	120.0	2385	215	2.5	33.5
5.00	30			0.090	151.5	1910	170	3.5	53.5
6.00	30			0.125	183.0	1590	200	5.5	54.9
7.00	30			0.125	209.5	1365	170	6.5	73.9
8.00	30			0.125	241.0	1195	150	7.5	96.4
9.00	30			0.160	269.5	1060	170	11.0	95.1
10.00	30			0.160	303.0	955	155	12.0	117.3
12.00	30			0.160	365.0	795	125	14.0	175.2

[illegible]

30xd



Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G) Aluminium
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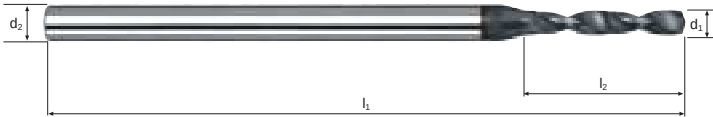
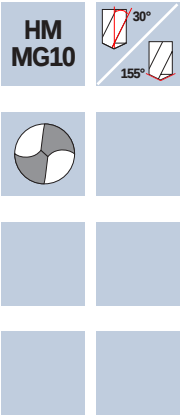
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Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm²	0.20	100	0.004	1.0	60000	240	0.0	0.3
		0.30	100	0.006	1.6	60000	360	0.0	0.3
		0.40	100	0.008	2.0	60000	480	0.0	0.3
		0.50	100	0.010	2.6	60000	600	0.0	0.3
		0.60	100	0.012	3.0	53050	635	0.0	0.3
		0.70	100	0.014	3.5	45475	635	0.0	0.3
		0.80	100	0.016	4.0	39790	635	0.5	0.4
		0.90	100	0.018	4.6	35370	635	0.5	0.4
		1.00	100	0.020	5.0	31830	635	0.5	0.5
			Steel 500 - 850 N/mm²	0.20	80	0.004	1.0	60000	240
0.30	80			0.007	1.6	60000	420	0.0	0.2
0.40	80			0.009	2.0	60000	540	0.0	0.2
0.50	80			0.011	2.6	50930	560	0.0	0.3
0.60	80			0.013	3.0	42440	550	0.0	0.3
0.70	80			0.016	3.5	36380	580	0.0	0.4
0.80	80			0.018	4.0	31830	575	0.5	0.4
0.90	80			0.020	4.6	28295	565	0.5	0.5
1.00	80			0.022	5.0	25465	560	0.5	0.5
	Steel 850 - 1100 N/mm²			0.20	40	0.003	1.0	60000	180
		0.30	40	0.005	1.6	42440	210	0.0	0.5
		0.40	40	0.006	2.0	31830	190	0.0	0.6
		0.50	40	0.008	2.6	25465	205	0.0	0.8
		0.60	40	0.009	3.0	21220	190	0.0	0.9
		0.70	40	0.011	3.5	18190	200	0.0	1.1
		0.80	40	0.012	4.0	15915	190	0.0	1.3
		0.90	40	0.014	4.6	14145	200	0.0	1.4
		1.00	40	0.015	5.0	12730	190	0.0	1.6
			Steel 1100 - 1300 N/mm²	0.20	50	0.004	1.0	60000	240
0.30	50			0.005	1.6	53050	265	0.0	0.4
0.40	50			0.007	2.0	39790	280	0.0	0.4
0.50	50			0.009	2.6	31830	285	0.0	0.5
0.60	50			0.011	3.0	26525	290	0.0	0.6
0.70	50			0.013	3.5	22735	295	0.0	0.7
0.80	50			0.015	4.0	19895	300	0.0	0.8
0.90	50			0.016	4.6	17685	285	0.0	1.0
1.00	50			0.018	5.0	15915	285	0.0	1.1

Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Cast iron (lamellar / spheroidal)	0.20	130	0.004	1.0	60000	240	0.0	0.3
	0.30	130	0.007	1.6	60000	420	0.0	0.2
	0.40	130	0.009	2.0	60000	540	0.0	0.2
	0.50	130	0.011	2.6	60000	660	0.0	0.2
	0.60	130	0.013	3.0	60000	780	0.0	0.2
	0.70	130	0.016	3.5	59115	945	0.5	0.2
	0.80	130	0.018	4.0	51725	930	0.5	0.3
	0.90	130	0.020	4.6	45980	920	0.5	0.3
	1.00	130	0.022	5.0	41380	910	0.5	0.3
	Wrought aluminium alloys Si < 6%	0.20	160	0.004	1.0	60000	240	0.0
0.30		160	0.007	1.6	60000	420	0.0	0.2
0.40		160	0.009	2.0	60000	540	0.0	0.2
0.50		160	0.011	2.6	60000	660	0.0	0.2
0.60		160	0.013	3.0	60000	780	0.0	0.2
0.70		160	0.016	3.5	60000	960	0.5	0.2
0.80		160	0.018	4.0	60000	1080	0.5	0.2
0.90		160	0.020	4.6	56590	1130	0.5	0.2
1.00		160	0.022	5.0	50930	1120	1.0	0.3

Micro drills Microdrill NX

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.					DURO-SD	
Article-N°.					B57014	
Ø-Code						
d1 m7						
d2 h6						
l1						
l2						
.0020	0.20	3	42	1.3	●	
.0025	0.25	3	42	1.6	●	
.0030	0.30	3	42	2.0	●	
.0035	0.35	3	42	2.3	●	
.0040	0.40	3	42	2.6	●	
.0045	0.45	3	42	2.9	●	
.0050	0.50	3	42	3.3	●	
.0055	0.55	3	42	3.6	●	
.0060	0.60	3	42	3.9	●	
.0065	0.65	3	42	4.2	●	
.0070	0.70	3	42	4.6	●	
.0075	0.75	3	42	4.9	●	
.0080	0.80	3	42	5.2	●	
.0085	0.85	3	42	5.5	●	
.0087	0.87	3	42	5.7	●	
.0090	0.90	3	42	5.9	●	
.0095	0.95	3	42	6.2	●	
.0100	1.00	3	42	6.5	●	
.0105	1.05	3	42	6.8	●	
.0107	1.07	3	42	7.0	●	



Material
Steel < 500 N/mm ²

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
1.10	100	0.022	5.5	28935	635	0.5	0.5
1.20	100	0.024	6.0	26525	635	0.5	0.6
1.30	100	0.026	6.6	24485	635	1.0	0.6
1.40	100	0.028	7.0	22735	635	1.0	0.7
1.50	100	0.030	7.6	21220	635	1.0	0.7
1.60	100	0.032	8.0	19895	635	1.5	0.8
1.70	100	0.034	8.6	18725	635	1.5	0.8
1.80	100	0.036	9.0	17685	635	1.5	0.9
1.90	100	0.038	9.6	16755	635	2.0	0.9

Steel 500 - 850 N/mm ²

1.10	80	0.024	5.5	23150	555	0.5	0.6
1.20	80	0.027	6.0	21220	575	0.5	0.6
1.30	80	0.029	6.6	19590	570	1.0	0.7
1.40	80	0.031	7.0	18190	565	1.0	0.7
1.50	80	0.033	7.6	16975	560	1.0	0.8
1.60	80	0.036	8.0	15915	575	1.0	0.8
1.70	80	0.038	8.6	14980	570	1.5	0.9
1.80	80	0.040	9.0	14145	565	1.5	1.0
1.90	80	0.042	9.6	13405	565	1.5	1.0

Steel 850 - 1100 N/mm ²

1.10	40	0.017	5.5	11575	195	0.0	1.7
1.20	40	0.018	6.0	10610	190	0.0	1.9
1.30	40	0.020	6.6	9795	195	0.5	2.0
1.40	40	0.022	7.0	9095	200	0.5	2.1
1.50	40	0.023	7.6	8490	195	0.5	2.3
1.60	40	0.025	8.0	7960	200	0.5	2.4
1.70	40	0.026	8.6	7490	195	0.5	2.6
1.80	40	0.028	9.0	7075	200	0.5	2.7
1.90	40	0.029	9.6	6700	195	0.5	3.0

Stainless steel [Cr-Ni/1.4301]

1.10	30	0.017	5.5	8680	150	0.0	2.2
1.20	30	0.018	6.0	7960	145	0.0	2.5
1.30	30	0.020	6.6	7345	145	0.0	2.7
1.40	30	0.022	7.0	6820	150	0.0	2.8
1.50	30	0.023	7.6	6365	145	0.5	3.1
1.60	30	0.025	8.0	5970	150	0.5	3.2
1.70	30	0.026	8.6	5615	145	0.5	3.6
1.80	30	0.028	9.0	5305	150	0.5	3.6
1.90	30	0.029	9.6	5025	145	0.5	4.0

Material

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
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Cast iron (lamellar / spheroidal)

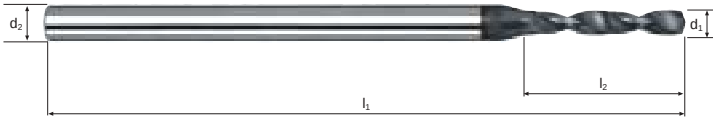
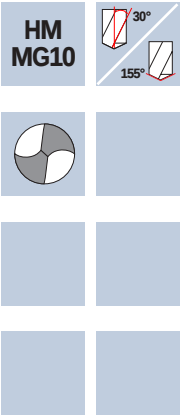
1.10	130	0.024	5.5	37620	905	1.0	0.4
1.20	130	0.027	6.0	34485	930	1.0	0.4
1.30	130	0.029	6.6	31830	925	1.0	0.4
1.40	130	0.031	7.0	29555	915	1.5	0.5
1.50	130	0.033	7.6	27585	910	1.5	0.5
1.60	130	0.036	8.0	25865	930	2.0	0.5
1.70	130	0.038	8.6	24340	925	2.0	0.6
1.80	130	0.040	9.0	22990	920	2.5	0.6
1.90	130	0.042	9.6	21780	915	2.5	0.6

Wrought aluminium alloys Si ≤ 6%

1.10	160	0.024	5.5	46300	1110	1.0	0.3
1.20	160	0.027	6.0	42440	1145	1.5	0.3
1.30	160	0.029	6.6	39175	1135	1.5	0.3
1.40	160	0.031	7.0	36380	1130	1.5	0.4
1.50	160	0.033	7.6	33955	1120	2.0	0.4
1.60	160	0.036	8.0	31830	1145	2.5	0.4
1.70	160	0.038	8.6	29960	1140	2.5	0.5
1.80	160	0.040	9.0	28295	1130	3.0	0.5
1.90	160	0.042	9.6	26805	1125	3.0	0.5

Micro drills Microdrill NX

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.					DURO-SD	
Article-N°.					B57014	
Ø-Code						
d1 m7						
d2 h6						
l1						
l2						
.0110	1.10	3	42	7.2	●	
.0115	1.15	3	42	7.5	●	
.0120	1.20	3	42	7.8	●	
.0125	1.25	3	42	8.1	●	
.0130	1.30	3	42	8.5	●	
.0135	1.35	3	42	8.8	●	
.0140	1.40	3	42	9.1	●	
.0142	1.42	3	42	9.2	●	
.0145	1.45	3	42	9.4	●	
.0150	1.50	3	42	9.8	●	
.0155	1.55	3	42	10.1	●	
.0160	1.60	3	42	10.4	●	
.0162	1.62	3	42	10.5	●	
.0165	1.65	3	42	10.7	●	
.0170	1.70	3	42	11.1	●	
.0175	1.75	3	42	11.4	●	
.0180	1.80	3	42	11.7	●	
.0185	1.85	3	50	12.0	●	
.0190	1.90	3	50	12.4	●	
.0195	1.95	3	50	12.7	●	

Application



Material

Steel
< 500 N/mm²

Steel
500 - 850 N/mm²

Steel
850 - 1100 N/mm²

Stainless steel
[Cr-Ni/1.4301]

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.00	100	0.040	10.0	15915	635	2.0	0.9
2.10	100	0.042	10.5	15160	635	2.0	1.0
2.20	100	0.044	11.0	14470	635	2.5	1.0
2.35	100	0.047	11.8	13545	635	3.0	1.1
2.50	100	0.050	12.6	12730	635	3.0	1.2
2.60	100	0.052	13.0	12245	635	3.5	1.2
2.75	100	0.055	13.8	11575	635	4.0	1.3
2.85	100	0.057	14.2	11170	635	4.0	1.3
2.95	100	0.059	14.8	10790	635	4.5	1.4

2.00	80	0.044	10.0	12730	560	2.0	1.1
2.10	80	0.047	10.5	12125	570	2.0	1.1
2.20	80	0.049	11.0	11575	565	2.0	1.2
2.35	80	0.052	11.8	10835	565	2.5	1.3
2.50	80	0.056	12.6	10185	570	3.0	1.3
2.60	80	0.058	13.0	9795	570	3.0	1.4
2.75	80	0.061	13.8	9260	565	3.5	1.5
2.85	80	0.063	14.2	8935	565	3.5	1.5
2.95	80	0.066	14.8	8630	570	4.0	1.6

2.00	40	0.031	10.0	6365	195	0.5	3.1
2.10	40	0.032	10.5	6065	195	0.5	3.2
2.20	40	0.034	11.0	5785	195	0.5	3.4
2.35	40	0.036	11.8	5420	195	1.0	3.6
2.50	40	0.038	12.6	5095	195	1.0	3.9
2.60	40	0.040	13.0	4895	195	1.0	4.0
2.75	40	0.042	13.8	4630	195	1.0	4.2
2.85	40	0.044	14.2	4470	195	1.0	4.4
2.95	40	0.045	14.8	4315	195	1.5	4.6

2.00	30	0.031	10.0	4775	150	0.5	4.0
2.10	30	0.032	10.5	4545	145	0.5	4.3
2.20	30	0.034	11.0	4340	150	0.5	4.4
2.35	30	0.036	11.8	4065	145	0.5	4.9
2.50	30	0.038	12.6	3820	145	0.5	5.2
2.60	30	0.040	13.0	3675	145	1.0	5.4
2.75	30	0.042	13.8	3470	145	1.0	5.7
2.85	30	0.044	14.2	3350	145	1.0	5.9
2.95	30	0.045	14.8	3235	145	1.0	6.1

Material

Cast iron
(lamellar / spheroidal)

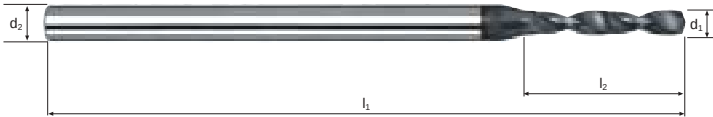
Wrought aluminium
alloys Si < 6%

d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
2.00	130	0.044	10.0	20690	910	3.0	0.7
2.10	130	0.047	10.5	19705	925	3.0	0.7
2.20	130	0.049	11.0	18810	920	3.5	0.7
2.35	130	0.052	11.8	17610	915	4.0	0.8
2.50	130	0.056	12.6	16550	925	4.5	0.8
2.60	130	0.058	13.0	15915	925	5.0	0.8
2.75	130	0.061	13.8	15045	920	5.5	0.9
2.85	130	0.063	14.2	14520	915	6.0	0.9
2.95	130	0.066	14.8	14025	925	6.5	1.0

2.00	160	0.044	10.0	25465	1120	3.5	0.5
2.10	160	0.047	10.5	24250	1140	4.0	0.6
2.20	160	0.049	11.0	23150	1135	4.5	0.6
2.35	160	0.052	11.8	21670	1125	5.0	0.6
2.50	160	0.056	12.6	20370	1140	5.5	0.7
2.60	160	0.058	13.0	19590	1135	6.0	0.7
2.75	160	0.061	13.8	18520	1130	6.5	0.7
2.85	160	0.063	14.2	17870	1125	7.0	0.8
2.95	160	0.066	14.8	17265	1140	8.0	0.8

Micro drills Microdrill NX

5xd



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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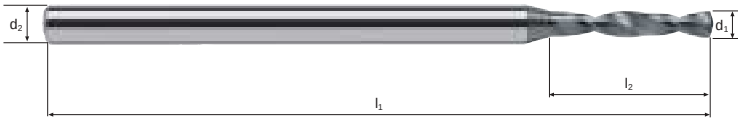
Example: Order-N°.					DURO-SD	
Article-N°. Ø-Code					B57014	
B57014 .0200						
Ø Code	d1 m7	d2 h6	l1	l2		
.0200	2.00	3	50	13.0	●	
.0205	2.05	3	50	13.3	●	
.0210	2.10	3	50	13.7	●	
.0215	2.15	3	50	14.0	●	
.0220	2.20	3	50	14.3	●	
.0225	2.25	3	50	14.6	●	
.0230	2.30	3	50	15.0	●	
.0235	2.35	3	50	15.3	●	
.0240	2.40	3	50	15.6	●	
.0245	2.45	3	50	15.9	●	
.0250	2.50	3	50	16.3	●	
.0255	2.55	3	50	16.6	●	
.0260	2.60	3	50	16.9	●	
.0265	2.65	3	50	17.2	●	
.0270	2.70	3	50	17.6	●	
.0275	2.75	3	50	17.9	●	
.0280	2.80	3	50	18.2	●	
.0285	2.85	3	50	18.5	●	
.0290	2.90	3	50	18.9	●	
.0295	2.95	3	50	19.2	●	

Micro drills Microdrill NX

5xd

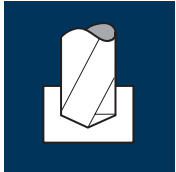


new!



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.					DURO-SD	
Article-N°. Ø-Code					B57015	
Ø Code	d1 m7	d2 h5	l1	l2		
.0200	2.00	3	56	13.0	●	
.0205	2.05	3	56	13.3	●	
.0210	2.10	3	56	13.7	●	
.0215	2.15	3	56	14.0	●	
.0220	2.20	3	56	14.3	●	
.0225	2.25	3	56	14.6	●	
.0230	2.30	3	56	15.0	●	
.0235	2.35	3	56	15.3	●	
.0240	2.40	3	56	15.6	●	
.0245	2.45	3	56	15.9	●	
.0250	2.50	3	56	16.3	●	
.0255	2.55	3	60	16.6	●	
.0260	2.60	3	60	16.9	●	
.0265	2.65	3	60	17.2	●	
.0270	2.70	3	60	17.6	●	
.0275	2.75	3	60	17.9	●	
.0280	2.80	3	60	18.2	●	
.0285	2.85	3	60	18.5	●	
.0290	2.90	3	60	18.9	●	
.0295	2.95	3	60	19.2	●	

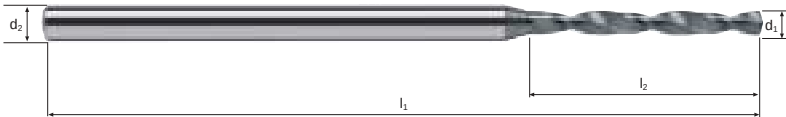
Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Steel < 500 N/mm ²	2.00	140	0.039	16.0	22280	870	2.5	1.1
		2.10	140	0.041	16.9	21220	870	3.0	1.2
		2.20	140	0.043	17.6	20255	870	3.5	1.2
		2.35	140	0.047	18.8	18965	890	4.0	1.3
		2.50	140	0.051	20.1	17825	910	4.5	1.3
		2.60	140	0.053	20.8	17140	910	5.0	1.4
		2.75	140	0.058	22.0	16205	940	5.5	1.4
		2.85	140	0.060	22.8	15635	940	6.0	1.5
		2.95	140	0.064	23.6	15105	965	6.5	1.5
	Steel 500 - 850 N/mm ²	2.00	100	0.039	16.0	15915	620	2.0	1.5
		2.10	100	0.041	16.9	15160	620	2.0	1.6
		2.20	100	0.043	17.6	14470	620	2.5	1.7
		2.35	100	0.047	18.8	13545	635	3.0	1.8
		2.50	100	0.051	20.1	12730	650	3.0	1.9
		2.60	100	0.053	20.8	12245	650	3.5	1.9
		2.75	100	0.058	22.0	11575	670	4.0	2.0
		2.85	100	0.060	22.8	11170	670	4.5	2.0
		2.95	100	0.064	23.6	10790	690	4.5	2.1
	Steel 850 - 1100 N/mm ²	2.00	80	0.039	16.0	12730	495	1.5	1.9
		2.10	80	0.041	16.9	12125	495	1.5	2.0
		2.20	80	0.043	17.6	11575	500	2.0	2.1
		2.35	80	0.047	18.8	10835	510	2.0	2.2
		2.50	80	0.051	20.1	10185	520	2.5	2.3
		2.60	80	0.053	20.8	9795	520	3.0	2.4
		2.75	80	0.058	22.0	9260	535	3.0	2.5
		2.85	80	0.060	22.8	8935	535	3.5	2.6
		2.95	80	0.064	23.6	8630	550	4.0	2.6
	Stainless steel [Cr-Ni-Mo/1.4571]	2.00	60	0.036	16.0	9550	345	1.0	2.8
		2.10	60	0.038	16.9	9095	345	1.0	2.9
		2.20	60	0.040	17.6	8680	345	1.5	3.1
		2.35	60	0.044	18.8	8125	360	1.5	3.1
		2.50	60	0.047	20.1	7640	360	2.0	3.4
		2.60	60	0.050	20.8	7345	365	2.0	3.4
		2.75	60	0.054	22.0	6945	375	2.0	3.5
		2.85	60	0.057	22.8	6700	380	2.5	3.6
		2.95	60	0.059	23.6	6475	380	2.5	3.7
Material		d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
Cast iron (lamellar / spheroidal)		2.00	150	0.046	16.0	23875	1100	3.5	0.9
		2.10	150	0.048	16.9	22735	1090	4.0	0.9
		2.20	150	0.050	17.6	21705	1085	4.0	1.0
		2.35	150	0.055	18.8	20320	1120	5.0	1.0
		2.50	150	0.059	20.1	19100	1125	5.5	1.1
		2.60	150	0.063	20.8	18365	1155	6.0	1.1
		2.75	150	0.067	22.0	17360	1165	7.0	1.1
		2.85	150	0.069	22.8	16755	1155	7.5	1.2
		2.95	150	0.072	23.6	16185	1165	8.0	1.2
Wrought aluminium alloys Si < 6%		2.00	200	0.046	16.0	31830	1465	4.5	0.7
		2.10	200	0.048	16.9	30315	1455	5.0	0.7
		2.20	200	0.050	17.6	28935	1445	5.5	0.7
		2.35	200	0.055	18.8	27090	1490	6.5	0.8
		2.50	200	0.059	20.1	25465	1500	7.5	0.8
		2.60	200	0.063	20.8	24485	1545	8.0	0.8
		2.75	200	0.067	22.0	23150	1550	9.0	0.9
		2.85	200	0.069	22.8	22340	1540	10.0	0.9
		2.95	200	0.072	23.6	21580	1555	10.5	0.9

Micro drills Microdrill NX

8xd



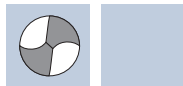
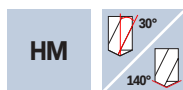
new!



Rm < 850	Rm 850-1100	Rm 1100-1300					Inox Stainless		GG(G) Aluminium
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Example: Order-N°.					DURO-SD	
Article-N°.					B57020	
Ø-Code						
Ø Code	d1 m7	d2 h5	l1	l2		
.0200	2.00	3	56	19.0	●	
.0205	2.05	3	56	19.5	●	
.0210	2.10	3	56	20.0	●	
.0215	2.15	3	56	20.4	●	
.0220	2.20	3	56	20.9	●	
.0225	2.25	3	56	21.4	●	
.0230	2.30	3	56	21.9	●	
.0235	2.35	3	56	22.3	●	
.0240	2.40	3	56	22.8	●	
.0245	2.45	3	56	23.3	●	
.0250	2.50	3	56	23.8	●	
.0255	2.55	3	60	24.2	●	
.0260	2.60	3	60	24.7	●	
.0265	2.65	3	60	25.2	●	
.0270	2.70	3	60	25.7	●	
.0275	2.75	3	60	26.1	●	
.0280	2.80	3	60	26.6	●	
.0285	2.85	3	60	27.1	●	
.0290	2.90	3	60	27.6	●	
.0295	2.95	3	60	28.0	●	

3xd, for core drill sizes for taps



Rm < 850	Rm 850-1100	Rm 1100-1300							GG(G) Aluminium
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[illegible]



Drilling tools for CFC, CFC / Metal composite

Spiral flute drills

3xd

N° B52710 new!



X-Generation

X

HM
XA



CFK

131

II

5xd

N° B52724



X-Generation

X

HM
MG10



CFK/Ti

CFK/Al

133

Micro drills

3xd

N° B57710 new!



X-Generation

X

HM
XA



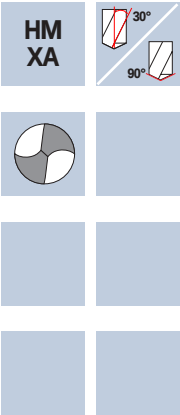
CFK

135

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Material CFC	3.00	100	0.050	17.5	10610	530	3.5	2.0
		4.00	100	0.060	20.0	7960	480	6.0	2.5
		4.83	100	0.080	19.8	6590	525	9.5	2.3
		5.00	100	0.090	19.5	6365	575	11.5	2.0
		6.00	100	0.095	30.0	5305	505	14.5	3.6
		6.35	100	0.100	29.5	5015	500	16.0	3.5

Spiral flute drills CFC

3xd



new!

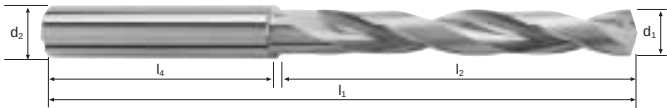
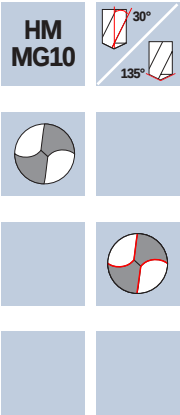


						DIAPLUS	
Example: Order-N°.						B52710	
Article-N°: B52710 ø-Code: .0300							
Ø Code	d1	d2 h6	l1	l2	l4		
.0300	3.00	6	62	22	36	●	
.0400	4.00	6	66	26	36	●	
.0483	4.83	6	66	27	36	●	
.0500	5.00	6	66	27	36	●	
.0600	6.00	8	79	39	36	●	
.0635	6.35	8	79	39	36	●	
Other versions available on request							

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Material CFC/Ti	4.83	20	0.060	36.8	1320	80	1.5	27.6
		6.35	20	0.080	43.5	1005	80	2.5	32.6
	Material CFC/Al	4.83	40	0.060	36.8	2635	160	3.0	13.8
		6.35	40	0.080	43.5	2005	160	5.0	16.3

Spiral flute drills CFC / Metal composite

5xd

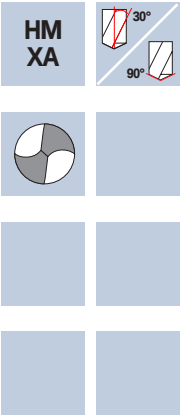


Example: Order-N°.						Article-N°.		ø-Code			
						B52724		.0483			
Ø Code	d1 *	d2 h5	l1	l2	l4						
.0483	4.83	6	82	44	36						
.0635	6.35	8	91	53	36						
Other versions available on request											

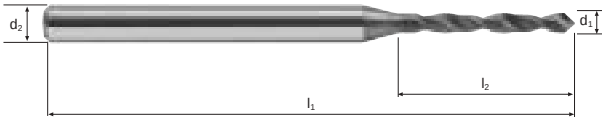
Application	Material	d1 [mm]	v _c [m/min]	f [mm]	L _{max} [mm]	n [min ⁻¹]	v _f [mm/min]	Q [cm ³ /min]	T [sek]
	Material CFC	1.50	100	0.050	4.5	21220	1060	2.0	0.3
		2.00	100	0.060	6.0	15915	875	2.5	0.4

Micro drills Microdrill CFC

3xd



new!



					DIAPLUS	
Example: Order-N°.					B57710	
Article-N°: B57710 Ø-Code: .0150						
Ø Code	d1	d2 h5	l1	l2		
.0150	1.50	3	40	6.8	•	
.0200	2.00	3	40	9.0	•	
Other versions available on request						



Center drills, Counterbores

Center drills

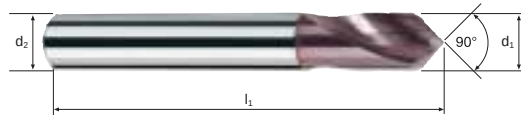
N° B92040		Base-X	B	HM MG10	90°	Rm <1100			139
N° B92020		Base-X	B	HM MG10	120°	Rm <1100			141
N° B92008		Base-X	B	HM MG10	144°	Rm <1100			143

III

Counterbores

N° B92360		Base-X	B	HM	90°	Rm <1100			144
N° B92310 / B92300			HSS	HSS	90°	Rm <1100			145

90°

HM
MG10

Rm
< 850

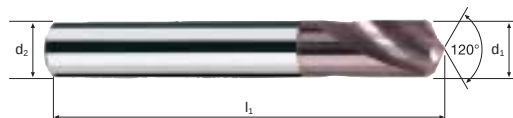
Rm
850-1100

Rm
1100-1300

Inox
Stainless

GG(G)
Aluminium[illegible]

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	n [min ⁻¹]	v _f [mm/min]	
	Steel < 500 N/mm²	3	160	0.070	16975	1190	
		4	160	0.095	12730	1210	
		5	160	0.120	10185	1220	
		6	160	0.145	8490	1230	
		8	160	0.190	6365	1210	
		10	160	0.240	5095	1225	
		12	160	0.285	4245	1210	
		16	160	0.380	3185	1210	
	Steel 500 - 850 N/mm²	3	120	0.070	12730	890	
		4	120	0.095	9550	905	
		5	120	0.120	7640	915	
		6	120	0.145	6365	925	
		8	120	0.190	4775	905	
		10	120	0.240	3820	915	
		12	120	0.285	3185	910	
		16	120	0.380	2385	905	
	Steel 850 - 1100 N/mm²	3	90	0.060	9550	575	
		4	90	0.075	7160	535	
		5	90	0.095	5730	545	
		6	90	0.115	4775	550	
		8	90	0.155	3580	555	
		10	90	0.190	2865	545	
		12	90	0.230	2385	550	
		16	90	0.310	1790	555	
	Steel 1100 - 1300 N/mm²	3	60	0.050	6365	320	
		4	60	0.065	4775	310	
		5	60	0.080	3820	305	
		6	60	0.095	3185	305	
		8	60	0.125	2385	300	
		10	60	0.160	1910	305	
		12	60	0.190	1590	300	
		16	60	0.255	1195	305	
Material		d1 [mm]	v _c [m/min]	f [mm]	n [min ⁻¹]	v _f [mm/min]	
Steel 1300 - 1500 N/mm²	3	30	0.050	3185	160		
	4	30	0.065	2385	155		
	5	30	0.080	1910	155		
	6	30	0.095	1590	150		
	8	30	0.125	1195	150		
	10	30	0.160	955	155		
	12	30	0.190	795	150		
	16	30	0.255	595	150		
Cold work tool steel (12% Cr) high alloyed [1.2379] Stainless steel [Cr-Ni/1.4301]	3	60	0.040	6365	255		
	4	60	0.055	4775	265		
	5	60	0.070	3820	265		
	6	60	0.080	3185	255		
	8	60	0.110	2385	260		
	10	60	0.135	1910	260		
	12	60	0.165	1590	260		
	16	60	0.220	1195	265		
Cast iron (lamellar / spheroidal)	3	180	0.080	19100	1530		
	4	180	0.105	14325	1505		
	5	180	0.130	11460	1490		
	6	180	0.160	9550	1530		
	8	180	0.210	7160	1505		
	10	180	0.265	5730	1520		
	12	180	0.315	4775	1505		
	16	180	0.420	3580	1505		
Wrought aluminium alloys Si < 6%	3	220	0.080	23345	1870		
	4	220	0.105	17505	1840		
	5	220	0.130	14005	1820		
	6	220	0.160	11670	1865		
	8	220	0.210	8755	1840		
	10	220	0.265	7005	1855		
	12	220	0.315	5835	1840		
	16	220	0.420	4375	1840		

120° 

Rm
850-1100

5



1

10



114

Article-N°: **B92020** ø-Code: **.0300**



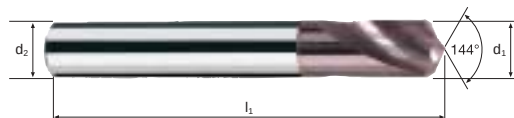
U-4XD

B92020

[illegible]

Application	Material	d1 [mm]	v _c [m/min]	f [mm]	n [min ⁻¹]	v _f [mm/min]	
	Steel < 500 N/mm²	3	160	0.070	16975	1190	
		4	160	0.095	12730	1210	
		5	160	0.120	10185	1220	
		6	160	0.145	8490	1230	
		8	160	0.190	6365	1210	
		10	160	0.240	5095	1225	
		12	160	0.285	4245	1210	
		16	160	0.380	3185	1210	
	Steel 500 - 850 N/mm²	3	120	0.070	12730	890	
		4	120	0.095	9550	905	
		5	120	0.120	7640	915	
		6	120	0.145	6365	925	
		8	120	0.190	4775	905	
		10	120	0.240	3820	915	
		12	120	0.285	3185	910	
		16	120	0.380	2385	905	
	Steel 850 - 1100 N/mm²	3	90	0.060	9550	575	
		4	90	0.075	7160	535	
		5	90	0.095	5730	545	
		6	90	0.115	4775	550	
		8	90	0.155	3580	555	
		10	90	0.190	2865	545	
		12	90	0.230	2385	550	
		16	90	0.310	1790	555	
	Steel 1100 - 1300 N/mm²	3	60	0.050	6365	320	
		4	60	0.065	4775	310	
		5	60	0.080	3820	305	
		6	60	0.095	3185	305	
		8	60	0.125	2385	300	
		10	60	0.160	1910	305	
		12	60	0.190	1590	300	
		16	60	0.255	1195	305	

144°



Rm
850-1100

5



1

10

GG(G)
Aluminium[illegible]

90°



HM



Rm
 < 850

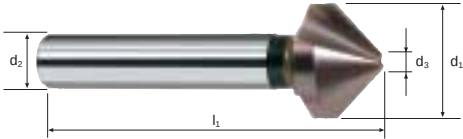
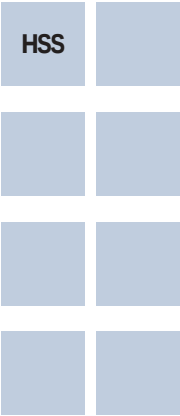
Rm
850-1100

Inox
Stainless

GG(G)
Aluminium[illegible]

Rose countersinks

90°



Rm < 850	Rm 850-1100						Inox Stainless		GG(G) Aluminium
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Example: Order-N°. Article-N°. B92310 Ø-Code .0530						U-4XD	
						B92310	B92300
Ø Code	d1 z9	d2 h9	d3	l1	z		
.0530	5.3	4	1.5	40	3	●	●
.0580	5.8	5	1.5	45	3	●	●
.0630	6.3	5	1.5	45	3	●	●
.0730	7.3	6	1.8	50	3	●	●
.0830	8.3	6	2.0	50	3	●	●
.0940	9.4	6	2.2	50	3	●	●
.1040	10.4	6	2.5	50	3	●	●
.1150	11.5	8	2.8	56	3	●	●
.1240	12.4	8	2.8	56	3	●	●
.1340	13.4	8	2.9	56	3	●	●
.1500	15.0	10	3.2	60	3	●	●
.1650	16.5	10	3.2	60	3	●	●
.1900	19.0	10	3.5	63	3	●	●
.2050	20.5	10	3.5	63	3	●	●
.2500	25.0	10	3.8	67	3	●	●
.3100	31.0	12	4.2	71	3	●	●
.9999	Assortment of rose countersinks containing: 1 pce. Ø 6.3 / 8.3 / 10.4 / 12.4 / 16.5 / 20.5					●	●

Legend to the product page

Performance rating



X-Generation High-performance drilling tools



Base-X Universal drilling tools



Drilling tools in the Favora® class - Favourable and technically perfect



Drilling tools in the HSS class

Tool technologies



Drilling tools with four chamfers (Two friction and two guide lands)

- Improved straightness of the hole
- Improved hole quality and alignment
- Less deviation of the hole when drilling through cross holes
- Precise holes with good surface and maximum support of the tool upon exit



Drilling tool with optimised polished chip flute

- Reduction of friction and therefore less adhesion, improved chip formation and lower heat generation



Drilling tool with shank of h5 tolerance

- High concentricity and roundness
- Optimal for modern precision chucks

Internal cooling



Drills with internal cooling show improved chip formation and better chip removal which in turn results in an improved tool life.



Drills without internal cooling.

Legend to the product page

Cutting tool substrate material

HM XA	Fine grain carbide. Hardness 1950 HV. Co content 8%. Characterised by a particularly high level of abrasion resistance.
HM MGX	High-performance fine grain carbide with ultrafine tungsten carbides. Hardness 1610 HV. Co content 10%.
HM MG10	Fine grain carbide. Hardness 1600 HV. Co content 10%.
HM MGD ²	Fine grain carbide with high bending and shear strength combined with good elasticity.
HM	Universal fine grain carbide.
HSS	High-performance substrate material, conventionally melted HSS alloy.

Point angle and helix angle

	The point angle influences decisively the spectrum of materials that can be drilled. Further, small point angles bring a better centering behaviour; large point angles reduce the torque.
	The helix angle influences decisively the rake angle on the major cutting edge (drill point) of the drill. Therefore, large helix angles are used for soft materials, small helix angles for hard and brittle materials.

Legend to the product page

Versions and dimensions of spiral flute drills

Spiral flute drills carbide, 3xd

The dimensions of this tool correspond to DIN 6537 K «Spiral flute drills carbide with offset cylindrical shank».

Spiral flute drills carbide, 5xd

The dimensions of this tool correspond to DIN 6537 L «Spiral flute drills carbide with offset cylindrical shank».

Spiral flute drills carbide and deep hole drills carbide, greater than 5xd

According to company standard.

Spiral flute drills carbide 8xd, optimised

According to company standard, but with optimised l/d ratio for optimum tool stability.

Special versions and dimensions

90°

Indication of the point angle for center drills or counterbores.

Counterbores 90° to DIN 335

Drilling depths

Indication of the nominal drilling depth. (Example: 5xd: five times drill diameter).

The nominal drilling depth does not correspond to the maximum depth! The maximum drilling depth is specified under $L_{\max}$ or can be calculated using the appropriate formula.

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
-  Carbide Micro drills and Deep hole drills with cylindrical shank: Shank design to company standard.

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.

Rm< 850

Rm850-1100

Rm1100-1300

Rm1300-1500

HRC48-56

HRC56-60

HRC> 60

InoxStainless

TiTitanium

Additional material which can be machined is stated in the additional field

Abbreviations

- d₁** Diameter of the cutting edge [mm]
- d₂** Diameter of the shank [mm]
- d₃** Face-surface diameter on rose countersinks [mm]
- l₁** Total length of the tool [mm]
- l₂** Length of the chip groove [mm]
- l₃** Length of the 2nd step (Step drills) [mm]
- l₄** Length of the shank [mm]

Information for cutting data

Lubrication and coolant pressure

Basically, when drilling work with lubricant. The goal is more efficient chip removal and heat reduction. Hardened steel or abrasive materials can be cooled by using air or treated with MQL (minimal quantity lubrication).

If the coolant is applied externally, ensure the correct positioning of the coolant jet. This should be in the flute (directed parallel to the helix angle) and the entrance to the hole.

The use of internal cooling (internal coolant supply) can increase tool life. It is necessary, depending on the tool diameter, to apply a minimum coolant pressure.

The following table provides a guideline for the recommended Fraisa coolant pressure for IKZ drills:

Required coolant pressure for spiral flute drills with internal coolant emulsion						
Versions	< ø 3 mm	ø 3-5 mm	ø 5-8 mm	ø 8-12 mm	ø 12-16 mm	ø 16-20 mm
up to 5xd	60 bar	50 bar	30 bar	25 bar	20 bar	15 bar
8xd – 30xd	80 bar	60 bar	40 bar	30 bar	25 bar	20 bar
Required coolant pressure for spiral flute drills with internal coolant/MQL (minimal quantity lubrication)						
Versions	< ø 3 mm	ø 3-5 mm	ø 5-8 mm	ø 8-12 mm	ø 12-16 mm	ø 16-20 mm
up to 5xd	12 bar	10 bar	9 bar	8 bar	8 bar	7 bar
8xd – 30xd	14 bar	12 bar	10 bar	9 bar	9 bar	8 bar

Concentricity

The concentricity of the drilling process is an important process influencing variable. The eccentricity should be as small as possible, as this greatly influences the development of tool wear. The rotation should be controlled especially for hole diameters less than 6 mm. The control measurement is made when the drilling tool is in the clamped condition and in the machine spindle.

The following table provides a guideline from Fraisa for the recommended maximum eccentricity:

Maximum eccentricity of spiral flute drills						
Diameter range	< ø 1 mm	ø 1-3 mm	ø 3-6 mm	ø 6-10 mm	ø 10-16 mm	ø 16-20 mm
Maximum eccentricity	3 µm	5 µm	10 µm	15 µm	20 µm	25 µm

Centering and pilot hole

Drilling tools must always be set at right angles to the workpiece. If drilling is required on an inclined surface, an additional machining operation may be necessary to align the workpiece surface at a right angle to the drilling tool.

The point angle of the center drill should always be larger than the point angle of the subsequent spiral flute drill. Thus, an optimum centering of the drill and lower development of tool wear is achieved.

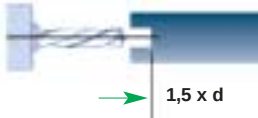
The following recommendation is from Fraisa for centering and pilot holes:

Versions	Cutting material	Recommendation
up to 5xd	Carbide	No
up to 5xd	HSS	Yes
8xd	Carbide	Optional. An improvement of positional accuracy can be achieved by centering.
12xd – 30xd	Carbide	Yes, a pilot hole is required (see page 151)

Technical notes regarding use of deep hole drills

Fraisa SA recommends the following drilling strategy to increase both service life and reliability:

Step 1

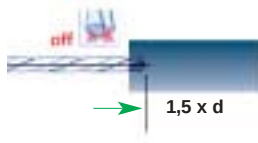


Pilot hole = $1,5 \times d$.

e.g. Supradrill N 3xd. B52010 or B52011.

The pilot hole must be free of chips prior to insertion of the deep-hole drill!

Step 2

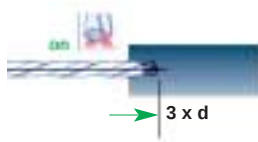


Insert the tool into the hole at max. 300 1/min

and $v_f = 1000\text{mm/min}$.

Without cooling up to 1 mm from the bottom of the pilot hole.

Step 3



Using reduced cutting and feed speed, drill to approx. $3 \times d$. For this purpose, reduce the cutting and feed speed to 40% of the cutting data recommended by Fraisa. Coolant feed is switched on.

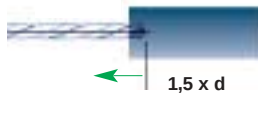
Step 4



Raise the spindle speed and feed speed to the recommended cutting data; without interrupting the feed, the drill must stay in contact.

Continue drilling without ventilation!

Step 5



Retract the deep-hole drill at

$v_f = 1000\text{mm/min}$ – up to $1,5 \times d$ from the hole entry.

Position as in step 2.

Step 6



Next reduce the spindle speed to max. 300 1/min.

Coolant feed is switched off.

Withdraw the drill from the drilled hole.

SAFETY NOTE

Outside of the drill hole, long deep-hole drills may only turn at a low speed (max. 300 1/min). Higher spindle speeds can cause such tools to vibrate, leading to spontaneous failure.

Calculation formulas for cutting data

Formulas

d₁	Diameter of the cutting edge [mm]
v_c	Cutting speed [m/min]
f	Feed per rotation [mm]
n	Spindle speed [min ⁻¹]
v_f	Feed rate [mm/min]
Q	Material removal rate [cm ³ /min]
T	Primary processing time for the maximum drill depth L _{max} of the tool [sec]
L	Effective drill depth [mm]
L_{max}	Maximum drilling depth of the tool, defined by the formula [mm]

Spindle speed

$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \left[\frac{1}{\text{min}} \right]$$

Cutting speed

$$v_c = \frac{d_1 \cdot n \cdot \pi}{1000} \left[\frac{\text{m}}{\text{min}} \right]$$

Feed rate

$$v_f = f \cdot n \left[\frac{\text{mm}}{\text{min}} \right]$$

Material removal rate

$$Q = \frac{d_1^2 \cdot \pi \cdot v_f}{4 \cdot 1000} \left[\frac{\text{cm}^3}{\text{min}} \right]$$

Primary processing time

$$T = \frac{L}{v_f} \cdot 60 \quad [\text{sec}]$$

Maximum drill depth of the tool L_{max}

$$L_{\text{max}} = l_2 - (1.5 \cdot d_1) \quad [\text{mm}]$$
