

O - Ring



Double-Acting

Materials: Elastomer, Zurcon® & Others



개요

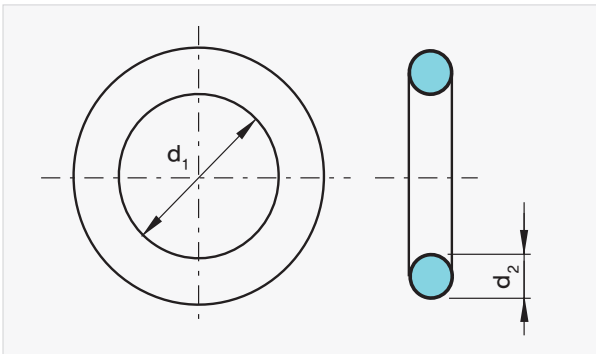
O-Ring은 설계자에게 광범위한 정적 혹은 동적인 환경을 위한 경제적이며 효과적인 Sealing 요소이다.

O-Ring은 손쉬운 사용방법과 저비용으로 제품 제작이 가능하여 가장 광범위한 Seal로 사용되고 있다.

일반적이거나 특별한 환경에서 다양하게 선택이 가능한 재질들로 O-Ring은 거의 모든 유체와 Gas 환경에서 Seal로 사용될 수 있다.

O-Ring은 금형에 의해 성형된다. 규격은 O-Ring의 내경 d_1 과 단면 d_2 로 정의된다.

단면은 0.35에서 40mm, 그리고 내경은 5,000mm, 혹은 그 이상도 가능하다.



O-Ring 규격

장점

- 기구를 더 작고, 간결한 설계를 가능하게 한다.
- 쉽고, 안전한 조립으로 위험을 줄여준다.
- 고정, 운동, 단동 혹은, 복동용으로 다양하게 적용이 가능하다.
- 매체에 따라서 재질을 선정할 수 있다.
- Back-up Ring을 사용하여 고압까지 적용할 수 있다.

적용 범위

O-Ring은 다양한 환경에 사용이 가능하다. 온도, 압력, 매체에 따라서 적절한 재질을 선택해야 한다. O-Ring이 적합한 Sealing 요소로써 사용하기 위해 작동 환경을 고려해야 한다.

압력

-고정 부위 (Static Application)

- 50 bar 미만, 혹은 O-Ring의 내경이 50mm보다 크면, Back-up Ring이 필요 없다.
- 100 bar 미만이며 O-Ring의 내경이 50mm보다 작으면, Back-up Ring이 필요 없다. (단, 재질과 단면, 공차 값에 따라서)
- 400 bar 이상은 Back-up Ring이 필요하며 2,500bar 이상은 특수한 재질의 Back-up Ring이 필요하고, Extrusion Gap을 확인해야 한다.

-운동 부위 (Dynamic Application)

- 왕복운동에서 50 bar 미만은 Back-up Ring이 필요하지 않다.
- 이 이상은 Back-up Ring을 사용한다.

적용 속도 (Speed)

- 왕복운동은 0.5 m/s.

온도 (Temperature)

- 60°C ~ +325°C (단, 재질 선정에 따라서 조건은 변함.) 재질을 선정할 때, 적용환경의 최대 온도와 지속 시간을 반드시 고려하여야 한다. 또한, 회전 운동에서는 마찰 열에 의해 온도가 증가되는 것을 고려하여야 한다.

매체

- 탄성 재질들은 거의 모든 매체와 Gas에 적용이 가능하다. 매체와의 호환 여부는 상담을 받으시길 권장드리며, 일반적인 재질에 대한 정보는 Material 차트를 확인 바랍니다.

※ 주의사항

- 최대 속도는 재질, 타입, 압력, 온도, 틈새 크기에 따라 좌우된다.

작동 원리

O-Ring은 복동형 Sealing 요소입니다. 눌림 양은 반경 혹은, 축 방향으로 설치된 O-Ring의 Sealing을 가능하게 한다.

이러한 힘(눌림 양)은 System 압력이 증가됨에 따라서 Sealing Force도 증가하게 된다.

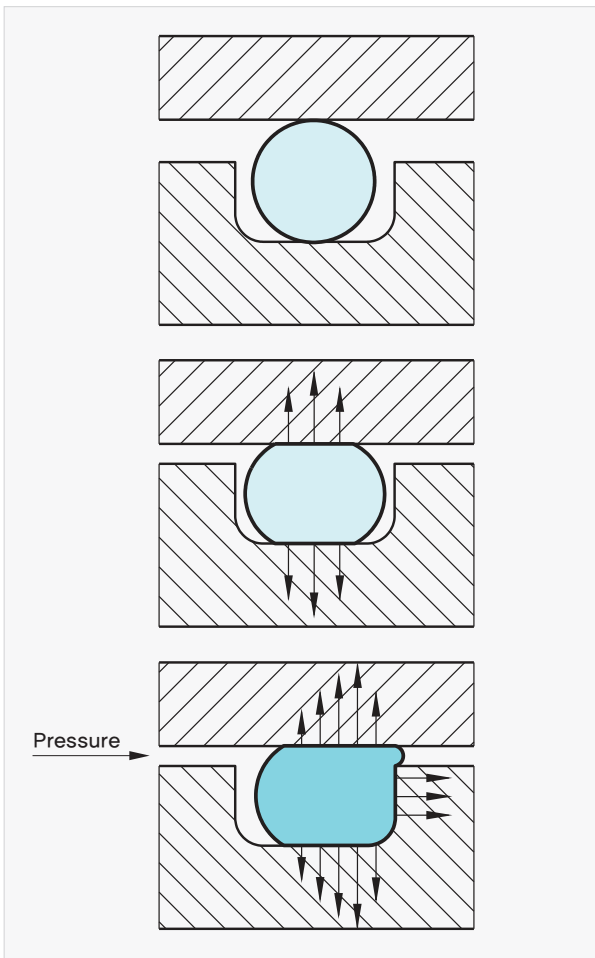
압력을 받을 때, O-Ring은 유체가 흐르는 방향과 비슷하게 이동하게 된다.

이 압력은 모든 방향에서 동일하게 나타난다.

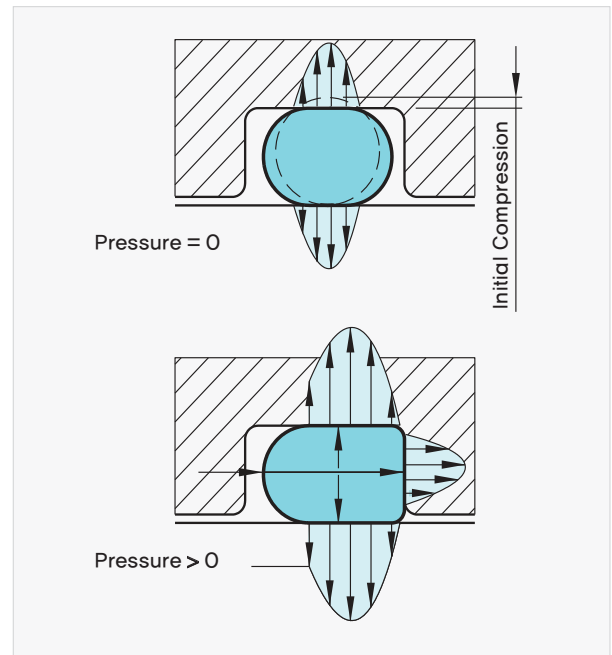
Initial Compression

눌림 양은 O-Ring의 단면이 홈 안에서 Sealing할 수 있게 하는 주된 기능이다. 적용 환경에 따라서, O-Ring 단면의 눌림 양을 추천한다.

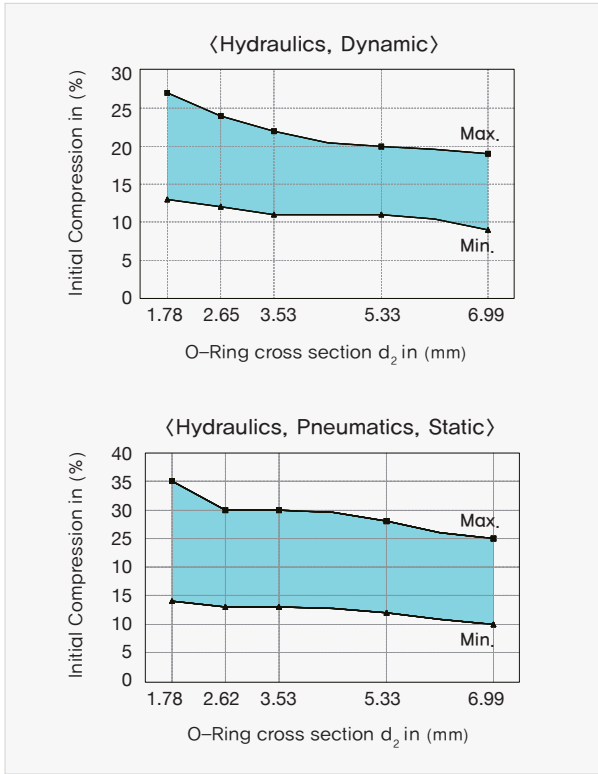
- 운동용 : 6 ~ 20%
- 고정용 : 15 ~ 30%



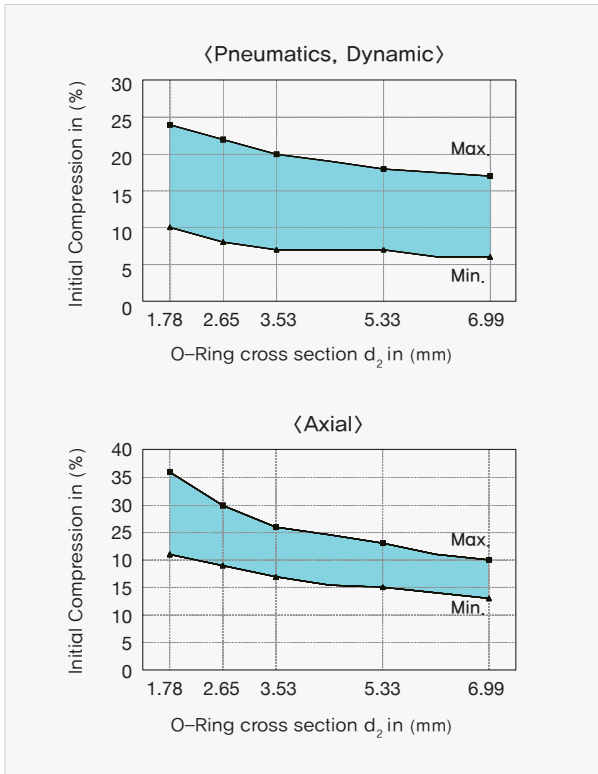
O-Ring Sealing Forces with & without System.



O-Ring contact pressure installed & under service pressure.



Permissible range of initial compression as a function of cross-section, radial dynamic.

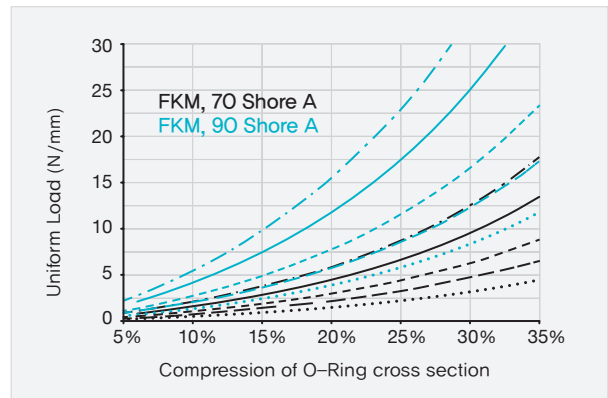
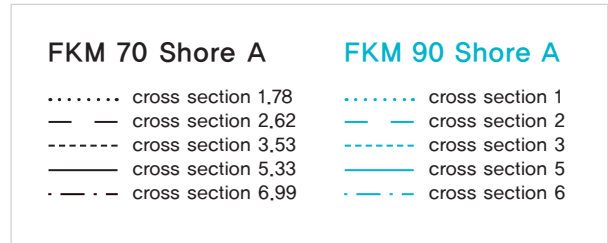
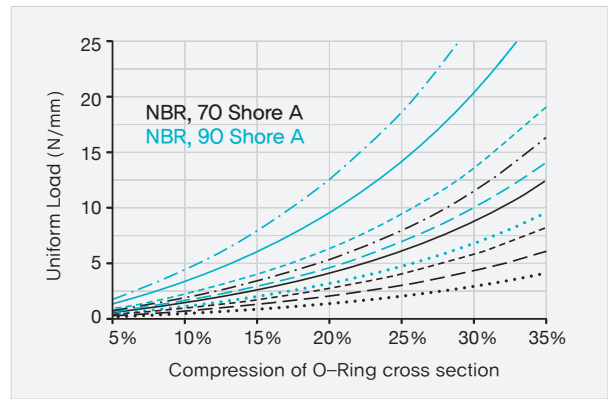


Permissible range of initial compression as a function of cross-section, radial static & axial.

압축력 / Compression Force

O-Ring의 압축력은 재질, 재질의 경도, O-Ring의 내경과 단면 특히, 초기 압축에 의해 달라진다.

O-Ring의 단면과 재질 종류, 재질의 경도, 그리고 그것들을 압축했을 때의 하중을 나타낸다. 이러한 하중은 O-Ring을 설치하였을 때, 전체적인 압축력을 추측할 수 있게 한다.



O-Ring의 설계 방법

반경 방향 Sealing (고정용, 운동용)

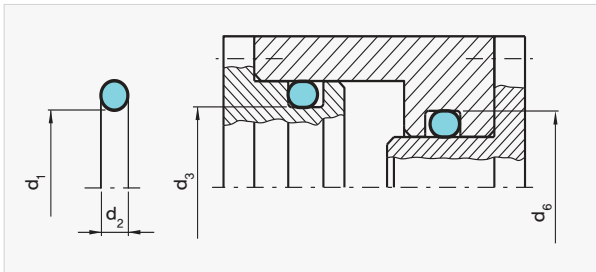
• 내경 Sealing (Rod Sealing)

O-Ring의 규격은 홈의 외경 치수 d_6 보다 O-Ring의 외경 ($d_1 + 2d_2$) 치수가 최소 같거나 큰 것을 선택한다.

O-Ring의 외경은 d_6 보다 최대 3% 이하로 작은 것을 권장한다. 단, 20mm 이하의 경우, d_6 와 거의 근접한 규격을 권장한다.

• 외경 Sealing (Piston Sealing)

O-Ring의 규격은 홈의 내경 치수 d_3 보다 O-Ring의 내경 (d_1) 치수와 같거나 작은 것을 선택한다.



반경 방향 - Radial installation, static & dynamic.

축 방향 Sealing (고정용)

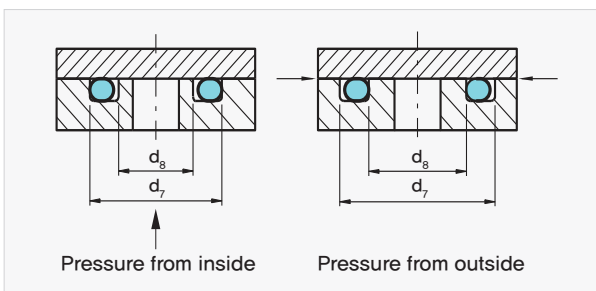
• 축 방향으로 설치할 때는, 압력의 방향을 고려해서 O-Ring 규격을 선정해야 한다.

O-Ring의 내부에서 압력이 작용할 때는, 홈의 외경 치수와 O-Ring의 외경 치수가 같거나 큰 것을 선택한다.

O-Ring의 외부에서 압력이 작용할 때는, 홈의 내경 보다 O-Ring의 내경이 작은 것을 선택한다.

O-Ring의 내부 압력에 대한 선정 시, 외경은 d_7 보다 1~2% 큰 제품을 권장한다.

O-Ring의 외부 압력에 대한 선정 시, 내경은 d_8 보다 1~3% 작은 제품을 권장한다.



축 방향 - Axial installation, static.

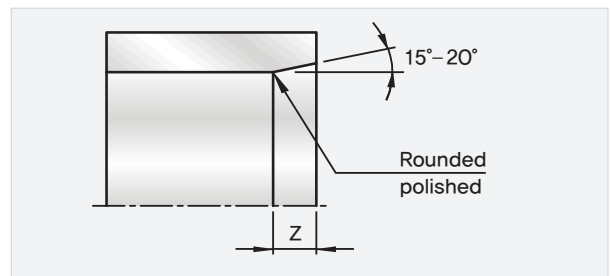
설치 방법

O-Ring은 다양한 방법으로 설치할 수 있다.

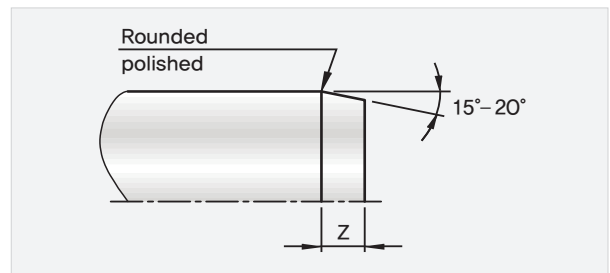
올바른 조립 방법과 설계는, 처음부터 Seal이 파손되는 것을 방지한다.

설치 구간이 길 경우에는, O-Ring의 안착 부위를 오목하게 처리하며 가능한 짧은 구간을 선택해서 설치하는 동안, 뒤틀림을 줄이는 것이 좋다.

O-Ring을 설치하는 동안, 인입 구간의 모서리를 둥글게 처리하는 것이 좋다.



Lead-in Chamfers for Bores, Tubes.



Lead-in Chamfers for Shafts, Rods.

재질 / Materials for O-Ring

O-Ring의 재질 선택은 장비의 내구성과 효율을 위하여 매우 중요한 부분이다.

O-Ring 및 모든 유기 화합물은 사용에 제한이 있다.

매체 및 온도, 압력에 의한 외부적인 영향으로 본래의 재질에 영향을 주고, Sealing 기능에 악영향을 줄 수 있다.

• NBR (Nitrile Butadiene Rubber)

Mineral 기반의 오일과 그리스에서 대부분 사용되고 있다.

- 적용 온도범위 : $-30^{\circ}\text{C} \sim +100^{\circ}\text{C}$ (짧게는 $+120^{\circ}\text{C}$)
 $-60^{\circ}\text{C} \sim +100^{\circ}\text{C}$
 (특별하게 성형된 경우)

• FKM (Fluorocarbon Rubber)

불소를 함유에 만든 FKM 재질은 화학적 내성을 갖지만 신축성이 약하다.

FKM은 가연성이 낮고, Gas 투과율이 낮으며 오존과 풍화에 저항이 있는 것으로 알려져 있다.

FKM은 고온의 Mineral 기반의 오일과 그리스에서 사용이 가능하다.

- 적용 온도범위 : $-20^{\circ}\text{C} \sim +200^{\circ}\text{C}$ (짧게는 $+230^{\circ}\text{C}$)
 $-35^{\circ}\text{C} \sim +200^{\circ}\text{C}$
 (특별하게 성형된 경우)

• FFKM

과불화 탄성체(FFKM)는 PTFE와 비슷한 수준의 화학적 내성과 높은 열 저항성을 나타낸다.

FFKM은 대부분의 화학산업과 고온 환경에 이르는 분야에 적용이 가능하다.

- 적용 온도 범위 : $-25^{\circ}\text{C} \sim +240^{\circ}\text{C}$
 $-25^{\circ}\text{C} \sim +325^{\circ}\text{C}$ (특별한 재질)

• VMQ (Silicone Rubber)

VMQ 실리콘은 열에 대한 저항과 냉각 시, 신축성, 전기 절연 성질에서 매우 우수한 특성을 나타내며 오존, 자외선에도 좋은 내성을 보인다.

- 적용 온도범위 : $-50^{\circ}\text{C} \sim +175^{\circ}\text{C}$

• EPDM (Ethylene Propylene Diene Rubber)

EPDM은 열에 대한 저항과 오존, 그리고 노화에 저항성이 좋다.

게다가, 높은 탄성과 저온 특성이 좋고, 절연체로 좋은 특성을 갖고 있다.

주로, Brake 오일과 Steam 환경에 적용이 된다.

- 적용 온도범위 : $-45^{\circ}\text{C} \sim +150^{\circ}\text{C}$ (짧게는 $+175^{\circ}\text{C}$)

• HNBR (Hydrogenated Nitrile Butadiene Rubber)

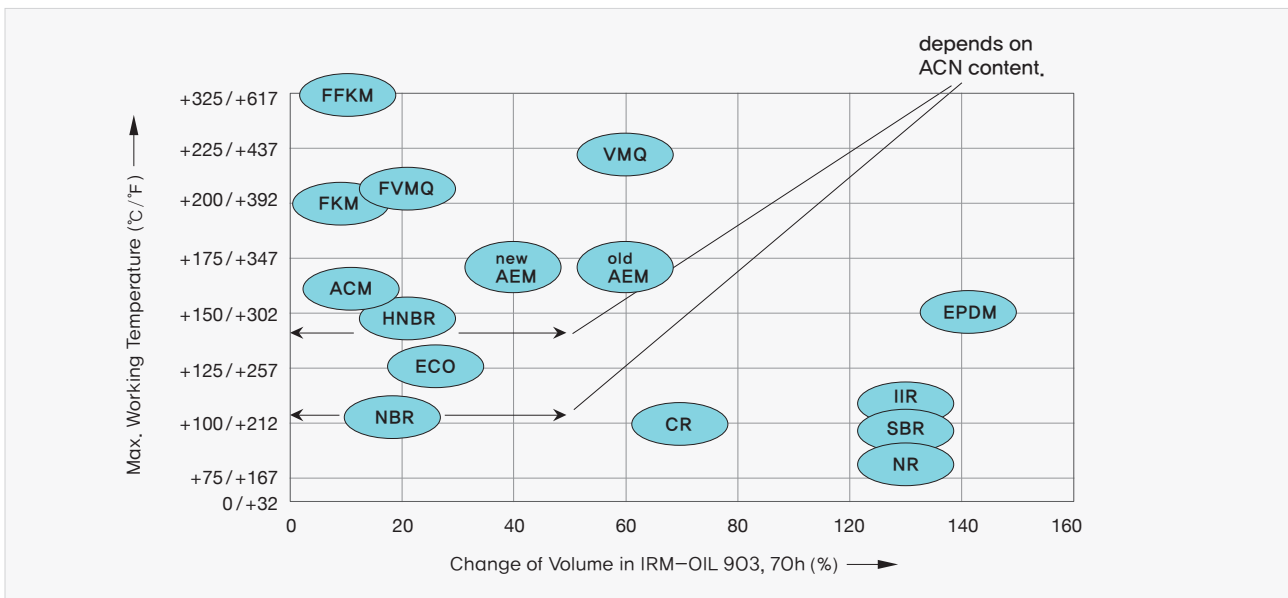
HNBR은 NBR의 Butadiene에 수소첨가물을 반응시켜 만들어진다.

HNBR은 ACN*을 18~50% 함유하며, 이들 포화도에 따라서 특성이 결정된다.

좋은 기계적 물성을 갖고 있다.

- 적용 온도 범위 : $-30^{\circ}\text{C} \sim +140^{\circ}\text{C}$

*ACN : Acrylonitrile



Change of Volume in IRM-Oil 903 (old ASTM-Oil No.3)

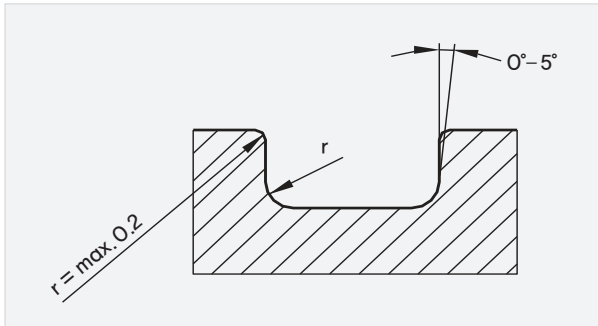
재질 / Materials for O-Ring

Material Type	Hardness Shore A (± 5)	Color	Operating Temperature range	Material Code	Description
NBR Nitrile Butadiene Rubber	70	Black	-30℃ ~ +100℃	N7083	<ul style="list-style-type: none"> • 유.공압에 적합하며 매체에 대한 저항 증가. • 광물 베이스의 유압 작동유. • 동식물유 및 유지. • 난연성 액체 (HFA, HFB, HFC). • 지방족, 탄화수소 (프로판, 부탄, 가솔린). • 실리콘 오일 및 그리이스. • 80℃미만의 물. • 공기. • 합성 에스테르. • 식물성 오일로 만든 Bio-oil. • 유압 밀폐에 대한 부위.
			-55℃ ~ +80℃	N7T40	
			-30℃ ~ +100℃	N7003	
			-30℃ ~ +100℃	N7024	
	90	Black	-25℃ ~ +100℃	N9002	
HNBR Hydrogenated Nitrile Butadiene Rubber	70	Black	-30℃ ~ +140℃	H7671	<ul style="list-style-type: none"> • 고온, 고인장이 요구되는 조건. • 모터 오일에 뛰어난 저항성. • 자동 변속 오일. • 청량가스. • 아민류. • 오일 혼합액. • 산화연료, 윤활유 등.
			-25℃ ~ +140℃	H7503	
FKM Fluorocarbon Rubber	70	Green	-20℃ ~ +200℃	V70GA	<ul style="list-style-type: none"> • 광물유와 그리이스 지방족. • 방향족과 염화 탄화수소. • 가솔린. • 99 옥탄 가솔린. • 디젤 연료. • 난연성 인화합물. • 실리콘유와 그리이스. • 산, 알칼리. • 고진공 적용에 적당.
			-20℃ ~ +200℃	V70G2	
	80	Black	-20℃ ~ +200℃	VC009	
			-20℃ ~ +200℃	V80G2	
			-20℃ ~ +200℃	V8003	
			-20℃ ~ +200℃	V8605	
	90	Green	-20℃ ~ +200℃	V8T41	
			-15℃ ~ +200℃	V90G1	
90	Black	-15℃ ~ +200℃	V9670		
		-15℃ ~ +200℃	V9670		
EPDM Ethylene Propylene Diene Rubber	70	Black	-45℃ ~ +150℃	E7502	<ul style="list-style-type: none"> • 과산화물 경화. • 뜨거운 물. • 수증기. • 브레이크 유동체. • 청정제. • 알코올. • 케톤. • 엔진 냉각제. • 난연성 인산에 근거한 액체. • 유기산, 무기산 및 염기. • 광물유에는 저항성이 없으므로 사용 주의.
			-45℃ ~ +130℃	E7002	
			-45℃ ~ +150℃	E7T41	
			-45℃ ~ +150℃	E7518	
VMQ Methyl Vinyl Silicon Rubber	60	Red	-50℃ ~ +175℃	S60R1	<ul style="list-style-type: none"> • 고온에서 뜨거운 공기. • 산소. • 불활성 가스. • 오존. • 자외선 방사. • 엔진과 변속 장치의 지방족 오일. • 동물유. • 식물성 유지와 오일. • 브레이크 유동체. • 광물유에는 낮은 저항성을 가짐. 단지, 고정용에만 응용.
	70	Red	-50℃ ~ +175℃	S70R2	

Lead-in Chamfers

Lead-in Chamfers Length Z min.		O-Ring cross section d_2
15°	20°	
2.5	1.5	up to 1.78 1.80
3.0	2.0	up to 2.62 2.65
3.5	2.5	up to 3.53 3.55
4.5	3.5	up to 5.33 5.30
5.0	4.0	up to 7.00
6.0	4.5	above 7.00

Lead-in Chamfer의 표면조도 : $Ra \leq 0.8\mu m$



Groove Specifications

표면 조도 / Surface Roughness

O-Ring은 압력에 따라서 불규칙한 표면에도 사용할 수 있다. 하지만, Gas, 혹은 유체를 Sealing 하기 위해서는 표면 조도의 관리가 이루어져야 한다.

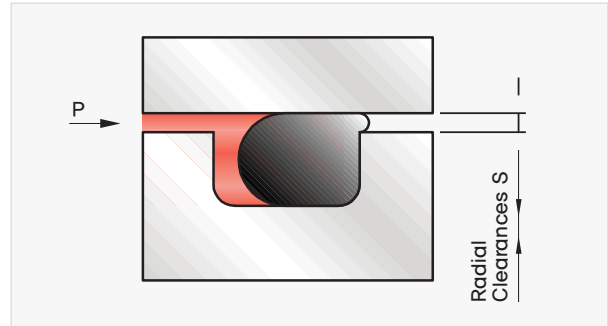
Ra 값만으로는 Sealing을 위한 표면 조도의 기준을 모두 충족시킬 수 없기에, DIN 4768 & DIN EN ISO 4287 용어와 정의를 참조 바란다.

Type of Load	Surface	Rt μm	Rz μm	Ra μm
Radial-Dynamic	Mating surface (bore, rod, shaft)	≤ 2.5	≤ 1.6	≤ 0.4
	Groove flanks, Groove diameter.	≤ 10.0	≤ 6.3	≤ 1.6
Radial-Static Axial-Static	Mating surface, Groove flanks, Groove diameter.	≤ 10.0 ≤ 16.0	≤ 6.3	≤ 1.6
	For Pulsating pressures : Mating surface, Groove flanks, Groove diameter.	≤ 6.3 ≤ 10.0	≤ 6.3	≤ 0.8 ≤ 1.6

반경 방향 틈새 S / Radial Clearance S

반경 방향의 틈새(S)가 기준보다 클 경우, O-Ring은 압출되어 파손될 수 있다.

허용되는 반경 방향 틈새 값은 O-Ring이 받는 압력, 단면, 그리고 경도, Back-up Ring의 재질에 따라 달라진다.



아래 표는 O-Ring의 단면과 경도 값에 따른 반경 방향 틈새 값(S)이다.

Back-up Ring 사용 권장 조건 :

- 내경 50mm 이상 50bar 이상.
- 내경 50mm 이하 100bar 이상.

O-Ring cross-section d_2	up to 2	2 - 3	3 - 5	5 - 7	above 7
O-Rings with Hardness of 70 Shore A					
Pressure MPa	Radial Clearance S				
≤ 3.50	0.08	0.09	0.10	0.13	0.15
≤ 7.00	0.05	0.07	0.08	0.09	0.10
≤ 10.50	0.03	0.04	0.05	0.07	0.08
O-Ring with Hardness of 90 Shore A					
Pressure MPa	Radial Clearance S				
≤ 3.50	0.13	0.15	0.20	0.23	0.25
≤ 7.00	0.10	0.13	0.13	0.18	0.20
≤ 10.50	0.07	0.09	0.10	0.13	0.15
≤ 14.00	0.05	0.07	0.08	0.09	0.10
≤ 17.50	0.04	0.05	0.07	0.08	0.09
≤ 21.00	0.03	0.04	0.04	0.07	0.08
≤ 35.00	0.02	0.03	0.03	0.04	0.04

Installation Dimensions

Cross section d_2	Radial Installation			Axial Installation		Radius ¹⁾ $r \pm 0.2$
	Housing Depth ²⁾		Groove Width	Groove Depth	Groove Width	
	Dynamic (t)	Static (t)	$b_1 + 0.25$	$h + 0.1$	$b_4 + 0.2$	
2.10	1.75	1.55	2.80	1.55	2.90	0.30
2.20	1.85	1.60	3.00	1.60	3.00	0.30
2.26	1.90	1.70	3.00	1.70	3.10	0.30
2.30	1.95	1.75	3.10	1.75	3.10	0.30
2.34	1.95	1.75	3.10	1.75	3.10	0.30
2.40	2.05	1.80	3.20	1.80	3.30	0.30
2.46	2.10	1.85	3.30	1.85	3.40	0.30
2.50	2.15	1.90	3.30	1.90	3.40	0.30
2.62	2.25	2.00	3.60	2.00	3.80	0.30
2.65	2.25	2.00	3.60	2.00	3.80	0.30
2.70	2.30	2.05	3.60	2.05	3.80	0.30
2.80	2.40	2.10	3.70	2.10	3.90	0.60
2.92	2.50	2.20	3.90	2.20	4.00	0.60
2.95	2.50	2.20	3.90	2.20	4.00	0.60
3.00	2.60	2.30	4.00	2.30	4.00	0.60
3.10	2.70	2.40	4.10	2.40	4.10	0.60
3.50	3.05	2.65	4.60	2.65	4.70	0.60
3.53	3.10	2.70	4.80	2.70	5.00	0.60
3.55	3.10	2.70	4.80	2.70	5.00	0.60
3.60	3.15	2.80	4.80	2.80	5.10	0.60
4.00	3.50	3.10	5.20	3.10	5.30	0.60
4.50	4.00	3.50	5.80	3.50	5.90	0.60
5.00	4.40	4.00	6.60	4.00	6.70	0.60
5.30	4.70	4.30	7.10	4.30	7.30	0.60
5.33	4.70	4.30	7.10	4.30	7.30	0.60
5.50	4.80	4.50	7.10	4.50	7.30	0.60
5.70	5.00	4.60	7.20	4.60	7.40	0.60
6.00	5.30	4.90	7.40	4.90	7.60	0.60
6.50	5.70	5.40	8.00	5.40	8.20	1.00
6.99	6.10	5.80	9.50	5.80	9.70	1.00
7.00	6.10	5.80	9.50	5.80	9.70	1.00
7.50	6.60	6.30	9.70	6.30	9.90	1.00
8.00	7.10	6.70	9.80	6.70	10.00	1.00
8.40	7.50	7.10	10.00	7.10	10.30	1.00
9.00	8.10	7.70	10.60	7.70	10.90	1.50
9.50	8.60	8.20	11.00	8.20	11.40	1.50
10.00	9.10	8.60	11.60	8.60	12.00	2.00
12.00	11.0	10.60	13.50	10.60	14.00	2.00

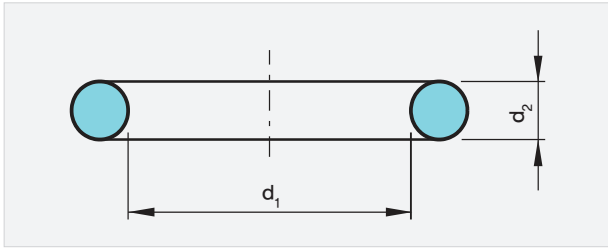
1) Back-up Ring 사용 시, $r = 0.25 \pm 0.2\text{mm}$

Highlighted Materials are standard.

2) 추천된 홈 치수는 O-Ring 내경을 늘리는 양은 고려되지 않았음, 공차기준은 H8/f7을 권장합니다.

3) 과불화탄성체 (FFKM)에는 상기 설계 기준을 적용 할 수 없음. FFKM의 설계에 대한 보다 자세한 사항은 문의 요망.

O-Ring Dimensions



O-Ring Dimensions / TSS Part No.

according to ISO 3601-1 & as 568 with Valid Tolerances according to ISO 3601-1.

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d_1	Tolerance \pm	d_2	Tolerance \pm
ORAR00001	001	0.74	0.12	1.02	0.08
ORAR00002	002	1.07	0.12	1.27	
ORAR00003	003	1.42	0.12	1.52	
ORAR00004	004	1.78	0.13	1.78	0.08
ORAR00005	005	2.57	0.13	1.78	
ORAR00006	006	2.90	0.13	1.78	
ORAR00007	007	3.68	0.14	1.78	
ORAR00008	008	4.47	0.15	1.78	
ORAR00009	009	5.28	0.15	1.78	
ORAR00010	010	6.07	0.16	1.78	0.08
ORAR00011	011	7.65	0.17	1.78	
ORAR00012	012	9.25	0.18	1.78	
ORAR00013	013	10.82	0.20	1.78	
ORAR00014	014	12.42	0.21	1.78	
ORAR00015	015	14.00	0.22	1.78	
ORAR00016	016	15.60	0.23	1.78	
ORAR00017	017	17.17	0.24	1.78	
ORAR00018	018	18.77	0.26	1.78	
ORAR00019	019	20.35	0.27	1.78	
ORAR00020	020	21.95	0.28	1.78	
ORAR00021	021	23.52	0.29	1.78	
ORAR00022	022	25.12	0.30	1.78	
ORAR00023	023	26.70	0.31	1.78	
ORAR00024	024	28.30	0.33	1.78	
ORAR00025	025	29.87	0.34	1.78	0.09
ORAR00026	026	31.47	0.35	1.78	
ORAR00027	027	33.05	0.36	1.78	
ORAR00028	028	34.65	0.37	1.78	
ORAR00029	029	37.82	0.39	1.78	
ORAR00030	030	41.00	0.42	1.78	

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d_1	Tolerance \pm	d_2	Tolerance \pm
ORAR00031	031	44.17	0.44	1.78	0.08
ORAR00032	032	47.35	0.46	1.78	
ORAR00033	033	50.52	0.48	1.78	
ORAR00034	034	53.70	0.51	1.78	
ORAR00035	035	56.87	0.53	1.78	
ORAR00036	036	60.05	0.55	1.78	
ORAR00037	037	63.22	0.57	1.78	0.08
ORAR00038	038	66.40	0.59	1.78	
ORAR00039	039	69.57	0.62	1.78	
ORAR00040	040	72.75	0.64	1.78	
ORAR00041	041	75.92	0.66	1.78	
ORAR00042	042	82.27	0.70	1.78	
ORAR00043	043	88.62	0.75	1.78	
ORAR00044	044	94.97	0.79	1.78	
ORAR00045	045	101.32	0.83	1.78	
ORAR00046	046	107.67	0.88	1.78	
ORAR00047	047	114.02	0.92	1.78	
ORAR00048	048	120.37	0.96	1.78	
ORAR00049	049	126.72	1.01	1.78	
ORAR00050	050	133.07	1.05	1.78	
ORAR00102	102	1.24	0.12	2.62	
ORAR00103	103	2.06	0.13	2.62	
ORAR00104	104	2.84	0.13	2.62	
ORAR00105	105	3.63	0.14	2.62	
ORAR00106	106	4.42	0.15	2.62	
ORAR00107	107	5.23	0.15	2.62	
ORAR00108	108	6.02	0.16	2.62	
ORAR00109	109	7.59	0.17	2.62	
ORAR00110	110	9.19	0.18	2.62	
ORAR00111	111	10.77	0.20	2.62	
ORAR00112	112	12.37	0.21	2.62	
ORAR00113	113	13.94	0.22	2.62	
ORAR00114	114	15.54	0.23	2.62	
ORAR00115	115	17.12	0.24	2.62	
ORAR00116	116	18.72	0.26	2.62	
ORAR00117	117	20.30	0.27	2.62	
ORAR00118	118	21.89	0.28	2.62	
ORAR00119	119	23.47	0.29	2.62	
ORAR00120	120	25.07	0.30	2.62	

O-Ring Dimensions / TSS Part No.

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
ORAR00121	121	26.64	0.31	2.62	0.09
ORAR00122	122	28.24	0.33	2.62	
ORAR00123	123	29.82	0.34	2.62	
ORAR00124	124	31.42	0.35	2.62	
ORAR00125	125	32.99	0.36	2.62	
ORAR00126	126	34.59	0.37	2.62	
ORAR00127	127	36.17	0.38	2.62	
ORAR00128	128	37.77	0.39	2.62	
ORAR00129	129	39.34	0.40	2.62	
ORAR00130	130	40.94	0.42	2.62	
ORAR00131	131	42.52	0.43	2.62	
ORAR00132	132	44.12	0.44	2.62	
ORAR00133	133	45.69	0.45	2.62	
ORAR00134	134	47.29	0.46	2.62	
ORAR00135	135	48.90	0.47	2.62	
ORAR00136	136	50.47	0.48	2.62	
ORAR00137	137	52.07	0.49	2.62	
ORAR00138	138	53.64	0.51	2.62	
ORAR00139	139	55.25	0.52	2.62	
ORAR00140	140	56.82	0.53	2.62	
ORAR00141	141	58.42	0.54	2.62	
ORAR00142	142	59.99	0.55	2.62	
ORAR00143	143	61.60	0.56	2.62	
ORAR00144	144	63.17	0.57	2.62	
ORAR00145	145	64.77	0.58	2.62	
ORAR00146	146	66.34	0.59	2.62	
ORAR00147	147	67.95	0.61	2.62	
ORAR00148	148	69.52	0.62	2.62	
ORAR00149	149	71.12	0.63	2.62	
ORAR00150	150	72.69	0.64	2.62	
ORAR00151	151	75.87	0.66	2.62	
ORAR00152	152	82.22	0.70	2.62	
ORAR00153	153	88.57	0.75	2.62	
ORAR00154	154	94.92	0.79	2.62	
ORAR00155	155	101.27	0.83	2.62	
ORAR00156	156	107.62	0.88	2.62	
ORAR00157	157	113.97	0.92	2.62	
ORAR00158	158	120.32	0.96	2.62	
ORAR00159	159	126.67	1.00	2.62	
ORAR00160	160	133.02	1.05	2.62	
ORAR00161	161	139.37	1.09	2.62	
ORAR00162	162	145.72	1.13	2.62	

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section		
		d ₁	Tolerance ±	d ₂	Tolerance ±	
ORAR00163	163	152.07	1.17	2.62	0.09	
ORAR00164	164	158.42	1.22	2.62		
ORAR00165	165	164.77	1.26	2.62		
ORAR00166	166	171.12	1.30	2.62		
ORAR00167	167	177.47	1.34	2.62		
ORAR00168	168	183.82	1.38	2.62		
ORAR00169	169	190.17	1.43	2.62		
ORAR00170	170	196.52	1.47	2.62		
ORAR00171	171	202.87	1.51	2.62		
ORAR00172	172	209.22	1.55	2.62		
ORAR00173	173	215.57	1.59	2.62		
ORAR00174	174	221.92	1.63	2.62		
ORAR00175	175	228.27	1.68	2.62		
ORAR00176	176	234.62	1.72	2.62		
ORAR00177	177	240.97	1.76	2.62		
ORAR00178	178	247.32	1.80	2.62		
ORAR00201	201	4.34	0.15	3.53		0.10
ORAR00202	202	5.94	0.16	3.53		
ORAR00203	203	7.52	0.17	3.53		
ORAR00204	204	9.12	0.18	3.53		
ORAR00205	205	10.69	0.20	3.53		
ORAR00206	206	12.29	0.21	3.53		
ORAR00207	207	13.87	0.22	3.53		
ORAR00208	208	15.47	0.23	3.53		
ORAR00209	209	17.04	0.24	3.53		
ORAR00210	210	18.64	0.25	3.53		
ORAR00211	211	20.22	0.27	3.53		
ORAR00212	212	21.82	0.28	3.53		
ORAR00213	213	23.39	0.29	3.53		
ORAR00214	214	24.99	0.30	3.53		
ORAR00215	215	26.57	0.31	3.53		
ORAR00216	216	28.17	0.32	3.53		
ORAR00217	217	29.74	0.34	3.53		
ORAR00218	218	31.34	0.35	3.53		
ORAR00219	219	32.92	0.36	3.53		
ORAR00220	220	34.52	0.37	3.53		
ORAR00221	221	36.09	0.38	3.53		
ORAR00222	222	37.69	0.39	3.53		
ORAR00223	223	40.87	0.42	3.53		
ORAR00224	224	44.04	0.44	3.53		
ORAR00225	225	47.22	0.46	3.53		

O-Ring Dimensions / TSS Part No.

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
ORAR00226	226	50.39	0.48	3.53	0.10
ORAR00227	227	53.57	0.51	3.53	
ORAR00228	228	56.74	0.53	3.53	
ORAR00229	229	59.92	0.55	3.53	
ORAR00230	230	63.09	0.57	3.53	
ORAR00231	231	66.27	0.59	3.53	
ORAR00232	232	69.44	0.62	3.53	
ORAR00233	233	72.62	0.64	3.53	
ORAR00234	234	75.79	0.66	3.53	
ORAR00235	235	78.97	0.68	3.53	
ORAR00236	236	82.14	0.70	3.53	
ORAR00237	237	85.32	0.72	3.53	
ORAR00238	238	88.49	0.75	3.53	
ORAR00239	239	91.67	0.77	3.53	
ORAR00240	240	94.84	0.79	3.53	
ORAR00241	241	98.02	0.81	3.53	
ORAR00242	242	101.19	0.83	3.53	
ORAR00243	243	104.37	0.85	3.53	
ORAR00244	244	107.54	0.88	3.53	
ORAR00245	245	110.72	0.90	3.53	
ORAR00246	246	113.89	0.92	3.53	
ORAR00247	247	117.07	0.94	3.53	
ORAR00248	248	120.24	0.96	3.53	
ORAR00249	249	123.42	0.98	3.53	
ORAR00250	250	126.59	1.00	3.53	
ORAR00251	251	129.77	1.03	3.53	
ORAR00252	252	132.94	1.05	3.53	
ORAR00253	253	136.12	1.07	3.53	
ORAR00254	254	139.29	1.09	3.53	
ORAR00255	255	142.47	1.11	3.53	
ORAR00256	256	145.64	1.13	3.53	
ORAR00257	257	148.82	1.15	3.53	
ORAR00258	258	151.99	1.17	3.53	
ORAR00259	259	158.34	1.22	3.53	
ORAR00260	260	164.69	1.26	3.53	
ORAR00261	261	171.04	1.30	3.53	
ORAR00262	262	177.39	1.34	3.53	
ORAR00263	263	183.74	1.38	3.53	
ORAR00264	264	190.09	1.43	3.53	
ORAR00265	265	196.44	1.47	3.53	
ORAR00266	266	202.79	1.51	3.53	
ORAR00267	267	209.14	1.55	3.53	

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section		
		d ₁	Tolerance ±	d ₂	Tolerance ±	
ORAR00268	268	215.49	1.59	3.53	0.10	
ORAR00269	269	221.84	1.63	3.53		
ORAR00270	270	228.19	1.68	3.53		
ORAR00271	271	234.54	1.72	3.53		
ORAR00272	272	240.89	1.76	3.53		
ORAR00273	273	247.24	1.80	3.53		
ORAR00274	274	253.59	1.83	3.53		
ORAR00275	275	266.29	1.92	3.53		
ORAR00276	276	278.99	2.00	3.53		
ORAR00277	277	291.69	2.09	3.53		
ORAR00278	278	304.39	2.17	3.53		
ORAR00279	279	329.79	2.33	3.53		
ORAR00280	280	355.19	2.49	3.53		
ORAR00281	281	380.59	2.65	3.53		
ORAR00282	282	405.26	2.81	3.53		
ORAR00283	283	430.66	2.97	3.53		
ORAR00284	284	456.06	3.13	3.53		
ORAR00309	309	10.46	0.19	5.33		0.13
ORAR00310	310	12.07	0.21	5.33		
ORAR00311	311	13.64	0.22	5.33		
ORAR00312	312	15.24	0.23	5.33		
ORAR00313	313	16.81	0.24	5.33		
ORAR00314	314	18.42	0.25	5.33		
ORAR00315	315	19.99	0.26	5.33		
ORAR00316	316	21.59	0.28	5.33		
ORAR00317	317	23.16	0.29	5.33		
ORAR00318	318	24.77	0.30	5.33		
ORAR00319	319	26.34	0.31	5.33		
ORAR00320	320	27.94	0.32	5.33		
ORAR00321	321	29.51	0.33	5.33		
ORAR00322	322	31.12	0.35	5.33		
ORAR00323	323	32.69	0.36	5.33		
ORAR00324	324	34.29	0.37	5.33		
ORAR00325	325	37.47	0.39	5.33		
ORAR00326	326	40.64	0.41	5.33		
ORAR00327	327	43.82	0.44	5.33		
ORAR00328	328	46.99	0.46	5.33		
ORAR00329	329	50.17	0.48	5.33		
ORAR00330	330	53.34	0.50	5.33		
ORAR00331	331	56.52	0.53	5.33		
ORAR00332	332	59.69	0.55	5.33		

O-Ring Dimensions / TSS Part No.

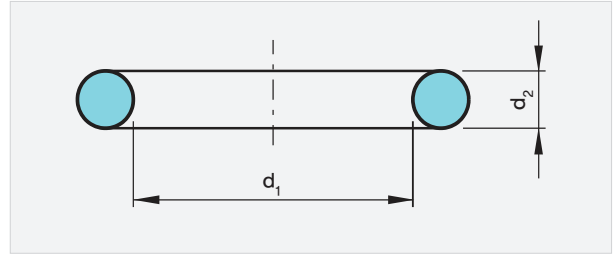
TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
ORAR00333	333	62.87	0.57	5.33	0.13
ORAR00334	334	66.04	0.59	5.33	
ORAR00335	335	69.22	0.61	5.33	
ORAR00336	336	72.39	0.64	5.33	
ORAR00337	337	75.57	0.66	5.33	
ORAR00338	338	78.74	0.68	5.33	
ORAR00339	339	81.92	0.70	5.33	
ORAR00340	340	85.09	0.72	5.33	
ORAR00341	341	88.27	0.74	5.33	
ORAR00342	342	91.44	0.77	5.33	
ORAR00343	343	94.62	0.79	5.33	
ORAR00344	344	97.79	0.81	5.33	
ORAR00345	345	100.97	0.83	5.33	
ORAR00346	346	104.14	0.85	5.33	
ORAR00347	347	107.32	0.87	5.33	
ORAR00348	348	110.49	0.90	5.33	
ORAR00349	349	113.67	0.92	5.33	
ORAR00350	350	116.84	0.94	5.33	
ORAR00351	351	120.02	0.96	5.33	
ORAR00352	352	123.19	0.98	5.33	
ORAR00353	353	126.37	1.00	5.33	
ORAR00354	354	129.54	1.02	5.33	
ORAR00355	355	132.72	1.05	5.33	
ORAR00356	356	135.89	1.07	5.33	
ORAR00357	357	139.07	1.09	5.33	
ORAR00358	358	142.24	1.11	5.33	
ORAR00359	359	145.42	1.13	5.33	
ORAR00360	360	148.59	1.15	5.33	
ORAR00361	361	151.77	1.17	5.33	
ORAR00362	362	158.12	1.21	5.33	
ORAR00363	363	164.47	1.26	5.33	
ORAR00364	364	170.82	1.30	5.33	
ORAR00365	365	177.17	1.34	5.33	
ORAR00366	366	183.52	1.38	5.33	
ORAR00367	367	189.87	1.42	5.33	
ORAR00368	368	196.22	1.47	5.33	
ORAR00369	369	202.57	1.51	5.33	
ORAR00370	370	208.92	1.55	5.33	
ORAR00371	371	215.27	1.59	5.33	
ORAR00372	372	221.62	1.63	5.33	
ORAR00373	373	227.97	1.67	5.33	
ORAR00374	374	234.32	1.72	5.33	

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section		
		d ₁	Tolerance ±	d ₂	Tolerance ±	
ORAR00375	375	240.67	1.80	5.33	0.13	
ORAR00376	376	247.02	1.84	5.33		
ORAR00377	377	253.37	1.92	5.33		
ORAR00378	378	266.07	1.92	5.33		
ORAR00379	379	278.77	2.00	5.33		
ORAR00380	380	291.47	2.09	5.33		
ORAR00381	381	304.17	2.17	5.33		
ORAR00382	382	329.57	2.33	5.33		
ORAR00383	383	354.97	2.49	5.33		
ORAR00384	384	380.37	2.65	5.33		
ORAR00385	385	405.26	2.81	5.33		
ORAR00386	386	430.66	2.97	5.33		
ORAR00387	387	456.06	3.13	5.33		
ORAR00388	388	481.46	3.29	5.33		
ORAR00389	389	506.86	3.45	5.33		
ORAR00390	390	532.26	3.61	5.33		
ORAR00391	391	557.66	3.77	5.33		
ORAR00392	392	582.68	3.92	5.33		
ORAR00393	393	608.08	4.08	5.33		
ORAR00394	394	633.48	4.24	5.33		
ORAR00395	395	658.88	4.40	5.33		
ORAR00425	425	113.67	0.92	6.99		0.15
ORAR00426	426	116.84	0.94	6.99		
ORAR00427	427	120.02	0.96	6.99		
ORAR00428	428	123.19	0.98	6.99		
ORAR00429	429	126.37	1.00	6.99		
ORAR00430	430	129.54	1.02	6.99		
ORAR00431	431	132.72	1.05	6.99		
ORAR00432	432	135.89	1.07	6.99		
ORAR00433	433	139.07	1.09	6.99		
ORAR00434	434	142.24	1.11	6.99		
ORAR00435	435	145.42	1.13	6.99		
ORAR00436	436	148.59	1.15	6.99		
ORAR00437	437	151.77	1.17	6.99		
ORAR00438	438	158.12	1.21	6.99		
ORAR00439	439	164.47	1.26	6.99		
ORAR00440	440	170.82	1.30	6.99		
ORAR00441	441	177.17	1.34	6.99		
ORAR00442	442	183.52	1.38	6.99		
ORAR00443	443	189.87	1.42	6.99		
ORAR00444	444	196.22	1.47	6.99		
ORAR99445	445	202.57	1.51	6.99		

TSS Part No.	Ident-No. ISO 3601-1 AS 568	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
ORAR00446	446	215.27	1.59	6.99	0.15
ORAR00447	447	227.97	1.67	6.99	
ORAR00448	448	240.67	1.76	6.99	
ORAR00449	449	253.43	1.84	6.99	
ORAR00450	450	266.07	1.92	6.99	
ORAR00451	451	278.77	2.00	6.99	
ORAR00452	452	291.47	2.09	6.99	
ORAR00453	453	304.17	2.17	6.99	
ORAR00454	454	316.87	2.25	6.99	
ORAR00455	455	329.57	2.33	6.99	
ORAR00456	456	342.27	2.41	6.99	
ORAR00457	457	354.97	2.49	6.99	
ORAR00458	458	367.67	2.57	6.99	
ORAR00459	459	380.37	2.65	6.99	
ORAR00460	460	393.07	2.73	6.99	
ORAR00461	461	405.26	2.81	6.99	
ORAR00462	462	417.96	2.89	6.99	
ORAR00463	463	430.66	2.97	6.99	
ORAR00464	464	443.36	3.05	6.99	
ORAR00465	465	456.06	3.13	6.99	
ORAR00466	466	468.76	3.21	6.99	
ORAR00467	467	481.46	3.29	6.99	
ORAR00468	468	494.16	3.37	6.99	
ORAR00469	469	506.86	3.45	6.99	
ORAR00470	470	532.26	3.61	6.99	
ORAR00471	471	557.66	3.77	6.99	
ORAR00472	472	582.68	3.92	6.99	
ORAR00473	473	608.08	4.08	6.99	
ORAR00474	474	633.48	4.24	6.99	
ORAR00475	475	658.88	4.40	6.99	

O-Ring Dimensions

for Straight Thread Tube Fittings according to AS 568.



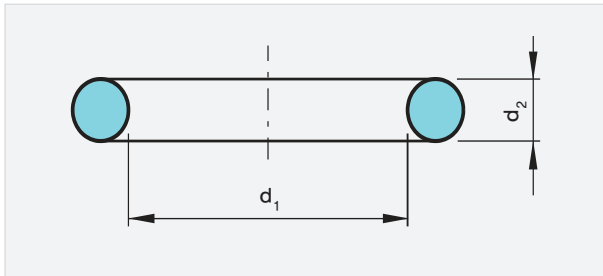
O-Ring Dimensions / TSS Part No.

for Straight Thread Tube Fittings according to AS 568 with Valid Tolerances according to ISO 3601-1.

TSS Part No.	Ident-No. AS 568	Inside-Ø		Cross section		Tube size
		d ₁	Tolerance ±	d ₂	Tolerance ±	Outside diameter (OD) inch
ORAR00901	901	4.70	0.15	1.42	0.08	3/32
ORAR00902	902	6.07	0.16	1.63	0.08	1/8
ORAR00903	903	7.65	0.17	1.63	0.08	3/16
ORAR00904	904	8.92	0.18	1.83	0.08	1/4
ORAR00905	905	10.52	0.19	1.83	0.08	5/16
ORAR00906	906	11.89	0.20	1.98	0.08	3/8
ORAR00907	907	13.46	0.22	2.08	0.08	7/16
ORAR00908	908	16.36	0.24	2.20	0.08	1/2
ORAR00909	909	17.93	0.25	2.46	0.09	9/16
ORAR00910	910	19.18	0.26	2.46	0.09	5/8
ORAR00911	911	21.92	0.28	2.95	0.09	11/16
ORAR00912	912	23.47	0.29	2.95	0.09	3/4
ORAR00913	913	25.04	0.30	2.95	0.09	13/16
ORAR00914	914	26.62	0.31	2.95	0.09	7/8
ORAR00916	916	29.74	0.34	2.95	0.09	1
ORAR00918	918	34.42	0.37	2.95	0.09	11/8
ORAR00920	920	37.47	0.39	3.00	0.09	11/4
ORAR00924	924	43.69	0.44	3.00	0.09	11/2
ORAR00928	928	53.09	0.50	3.00	0.09	13/4
ORAR00932	932	59.36	0.55	3.00	0.09	13/4

O-Ring Dimensions

according to Japanese Standard JIS B 2401.



O-Ring Dimensions / TSS Part No.

according to JIS B 2401 for Dynamic use (P) with Valid Tolerances according to ISO 3601-1

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section		
		d_1	Tolerance ±	d_2	Tolerance ±	
OR1900280	P3	2.80	0.13	1.90	0.08	
OR1900380	P4	3.80	0.14	1.90		
OR1900480	P5	4.80	0.15	1.90		
OR1900580	P6	5.80	0.16	1.90		
OR1900680	P7	6.80	0.17	1.90		
OR1900780	P8	7.80	0.17	1.90		
OR1900880	P9	8.80	0.18	1.90		
OR1900980	P10	9.80	0.19	1.90		
OR2400980	P10A	9.80	0.19	2.40		0.09
OR2401080	P11	10.80	0.20	2.40		
OR2401100	P11.2	11.00	0.20	2.40		
OR2401180	P12	11.80	0.20	2.40		
OR2401230	P12.5	12.30	0.21	2.40		
OR2401380	P14	13.80	0.22	2.40		
OR2401480	P15	14.80	0.23	2.40		
OR2401580	P16	15.80	0.23	2.40		
OR2401780	P18	17.80	0.25	2.40		
OR2401980	P20	19.80	0.26	2.40	0.10	
OR2402080	P21	20.80	0.27	2.40		
OR2402180	P22	21.80	0.28	2.40		
OR3502170	P22A	21.70	0.28	3.50		
OR3502210	P22.4	21.10	0.28	3.50		
OR3502378	P24	23.78	0.29	3.50		
OR3502479	P25	24.70	0.30	3.50		
OR3502520	P25.5	25.20	0.30	3.50		
OR3502570	P26	25.70	0.31	3.50		

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section	
		d_1	Tolerance ±	d_2	Tolerance ±
OR3502770	P28	27.70	0.32	3.50	0.10
OR3502870	P29	28.70	0.33	3.50	
OR3502920	P29.5	29.20	0.33	3.50	
OR3502970	P30	29.70	0.34	3.50	
OR3503070	P31	30.70	0.34	3.50	
OR3503120	P31.5	31.20	0.35	3.50	
OR3503170	P32	31.70	0.35	3.50	
OR3503370	P34	33.70	0.36	3.50	
OR3503470	P35	34.70	0.37	3.50	
OR3503520	P35.5	35.20	0.38	3.50	
OR3503570	P36	35.70	0.38	3.50	
OR3503770	P38	37.70	0.39	3.50	
OR3503870	P39	38.70	0.40	3.50	
OR3503970	P40	39.70	0.41	3.50	
OR3504070	P41	40.70	0.41	3.50	
OR3504170	P42	41.70	0.42	3.50	
OR3504370	P44	43.70	0.44	3.50	
OR3504470	P45	44.70	0.44	3.50	
OR3504570	P46	45.70	0.45	3.50	
OR3504770	P48	47.70	0.46	3.50	
OR3504870	P49	48.70	0.47	3.50	
OR3504970	P50	49.70	0.48	3.50	
OR5704760	P48A	47.60	0.46	5.70	0.13
OR5704960	P50A	49.60	0.48	5.70	
OR5705160	P52	51.60	0.49	5.70	
OR5705260	P53	52.60	0.50	5.70	
OR5705460	P55	54.60	0.51	5.70	
OR5705560	P56	55.60	0.52	5.70	
OR5705760	P58	57.60	0.53	5.70	
OR5705960	P60	59.60	0.55	5.70	
OR5706160	P62	61.60	0.56	5.70	
OR5706260	P63	62.60	0.57	5.70	
OR5706460	P65	64.60	0.58	5.70	
OR5706660	P67	66.60	0.60	5.70	
OR5706960	P70	69.60	0.62	5.70	
OR5707060	P71	70.60	0.62	5.70	
OR5707460	P75	74.60	0.65	5.70	
OR5707960	P80	79.60	0.69	5.70	
OR5708460	P85	84.60	0.72	5.70	
OR5708960	P90	89.60	0.75	5.70	

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
OR5709460	P95	94.60	0.79	5.70	0.13
OR5709960	P100	99.60	0.82	5.70	
OR5710160	P102	101.60	0.84	5.70	
OR5710460	P105	104.60	0.86	5.70	
OR5710960	P110	109.60	0.89	5.70	
OR5711160	P112	111.60	0.90	5.70	
OR5711460	P115	114.60	0.92	5.70	
OR5711960	P120	119.60	0.96	5.70	
OR5712460	P125	124.60	0.99	5.70	
OR5712960	P130	129.60	1.02	5.70	
OR5713160	P130	131.60	1.0	5.70	
OR5713460	P135	134.60	1.06	5.70	
OR5713960	P140	139.60	1.09	5.70	
OR5714460	P145	144.60	1.12	5.70	
OR5714960	P150	149.60	1.16	5.70	
OR8414950	P150A	149.50	1.16	8.40	0.15
OR8415450	P155	154.50	1.19	8.40	
OR8415950	P160	159.50	1.22	8.40	
OR8416450	P165	164.50	1.26	8.40	
OR8416950	P170	169.50	1.29	8.40	
OR8417450	P175	174.50	1.32	8.40	
OR8417950	P180	179.50	1.36	8.40	
OR8418450	P185	184.50	1.39	8.40	
OR8418950	P190	189.50	1.42	8.40	
OR8419450	P195	194.50	1.45	8.40	
OR8419950	P200	199.50	1.49	8.40	
OR8420450	P205	204.50	1.52	8.40	
OR8420850	P209	208.50	1.55	8.40	
OR8420950	P210	209.50	1.55	8.40	
OR8421450	P215	214.50	1.59	8.40	
OR8421950	P220	219.50	1.62	8.40	
OR8422450	P225	224.50	1.65	8.40	
OR8422950	P230	229.50	1.68	8.40	
OR8423450	P235	234.50	1.72	8.40	
OR8423950	P240	239.50	1.75	8.40	
OR8424450	P245	244.50	1.78	8.40	
OR8424950	P250	249.50	1.81	8.40	
OR8425450	P255	254.50	1.85	8.40	
OR8425950	P260	259.50	1.88	8.40	
OR8426450	P265	264.50	1.19	8.40	
OR8426950	P270	269.50	1.94	8.40	
OR8427450	P275	274.50	1.98	8.40	

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
OR8427950	P280	279.50	2.01	8.40	0.15
OR8428450	P285	284.50	2.04	8.40	
OR8428950	P290	289.50	2.07	8.40	
OR8429450	P295	294.50	2.10	8.40	
OR8429950	P300	299.50	2.14	8.40	
OR8431450	P315	314.50	2.23	8.40	
OR8431950	P320	319.50	2.27	8.40	
OR8433450	P335	334.50	2.36	8.40	
OR8433950	P340	339.50	2.39	8.40	
OR8435450	P355	354.50	2.49	8.40	
OR8435950	P360	359.50	2.52	8.40	
OR8437450	P375	374.50	2.62	8.40	
OR8438450	P385	384.50	2.68	8.40	
OR8439950	P400	399.50	2.77	8.40	

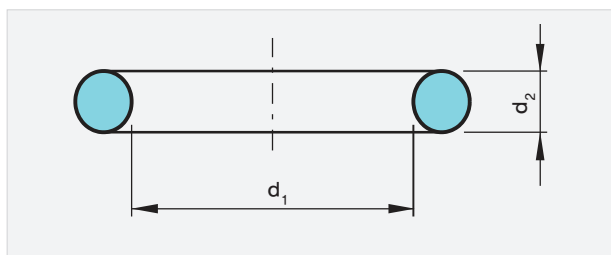
O-Ring Dimensions / TSS Part No.

according to JIS B 2401 for Static use (G)
with Valid Tolerances according to ISO 3601-1

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
OR3102440	G25	24.40	0.30	3.10	0.09
OR3102940	G30	29.40	0.33	3.10	
OR3103440	G35	34.40	0.37	3.10	
OR3103940	G40	39.40	0.41	3.10	
OR3104440	G45	44.40	0.44	3.10	
OR3104940	G50	49.40	0.48	3.10	
OR3105440	G55	54.40	0.51	3.10	
OR3105940	G60	59.40	0.55	3.10	
OR3106440	G65	64.40	0.58	3.10	
OR3106940	G70	69.40	0.62	3.10	
OR3107440	G75	74.40	0.65	3.10	
OR3107940	G80	79.40	0.68	3.10	
OR3108440	G85	84.40	0.72	3.10	
OR3108940	G90	89.40	0.75	3.10	
OR3109440	G95	94.40	0.79	3.10	
OR3109940	G100	99.40	0.82	3.10	
OR3110440	G105	104.40	0.85	3.10	
OR3110940	G110	109.40	0.89	3.10	
OR3111440	G115	114.40	0.92	3.10	
OR3111940	G120	119.40	0.96	3.10	
OR3112440	G125	124.40	0.99	3.10	
OR3112940	G130	129.40	1.02	3.10	
OR3113440	G135	134.40	1.06	3.10	
OR3113940	G140	139.40	1.09	3.10	
OR3114440	G145	144.40	1.12	3.10	

TSS Part No.	Ident-No. JIS B 2401	Inside-Ø		Cross section	
		d ₁	Tolerance ±	d ₂	Tolerance ±
OR5714930	G150	149.30	1.16	5.70	0.13
OR5715430	G155	154.30	1.19	5.70	
OR5715930	G160	159.30	1.22	5.70	
OR5716430	G165	164.30	1.26	5.70	
OR5716930	G170	169.30	1.29	5.70	
OR5717430	G175	174.30	1.32	5.70	
OR5717930	G180	179.30	1.35	5.70	
OR5718430	G185	184.30	1.39	5.70	
OR5718930	G190	189.30	1.42	5.70	
OR5719430	G195	194.30	1.45	5.70	
OR5719930	G200	199.30	1.49	5.70	
OR5720930	G210	209.30	1.55	5.70	
OR5721930	G220	219.30	1.62	5.70	
OR5722930	G230	229.30	1.68	5.70	
OR5723930	G240	239.30	1.75	5.70	
OR5724930	G250	249.30	1.81	5.70	
OR5725930	G260	259.30	1.88	5.70	
OR5726930	G270	269.30	1.94	5.70	
OR5727930	G280	279.30	2.01	5.70	
OR5728930	G290	289.30	2.07	5.70	
OR5729930	G300	299.30	2.14	5.70	

O-Ring Dimensions



O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
0.50 × 1.00 0.74 × 1.02 1.00 × 1.50	OR1000050 ORAR00001 OR1500100	ARP
1.07 × 1.27 1.20 × 1.00 1.24 × 2.62	ORAR00002 OR1000120 ORAR00102	ARP ARP
1.42 × 1.52 1.50 × 1.00 1.50 × 1.50	ORAR00003 OR1000150 OR1500150	ARP
1.78 × 1.78 1.80 × 1.00 1.80 × 1.20	ORAR00004 OR1000180 OR1200180	ARP
1.80 × 1.80 2.00 × 1.00 2.00 × 1.50	ORIA00180 OR1000200 OR1500200	DIN/ISO/NF
2.00 × 1.80 2.06 × 2.62 2.20 × 1.00	ORIA00200 ORAR00103 OR1000220	DIN/ISO/NF ARP
2.24 × 1.80 2.40 × 1.90 2.50 × 1.00	ORIA00224 OR1900240 OR1000250	DIN/ISO/NF R0
2.50 × 1.20 2.50 × 1.30 2.50 × 1.50	OR1200250 OR1300250 OR1500250	
2.50 × 1.60 2.50 × 1.80 2.57 × 1.78	OR1600250 ORIA00250 ORAR00005	DIN/ISO/NF ARP
2.60 × 1.00 2.60 × 1.20 2.60 × 1.30	OR1000260 OR1200260 OR1300260	
2.60 × 1.90 2.70 × 1.60 2.80 × 1.60	OR1900260 OR1600270 OR1600280	R1

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
2.80 × 1.80 2.80 × 1.90 2.84 × 2.62	ORIA00280 OR1900280 ORAR00104	DIN/ISO/NF P3 ARP
2.90 × 1.78 3.00 × 1.00 3.00 × 1.50	ORAR00006 OR1000300 OR1500300	ARP
3.00 × 2.00 3.00 × 2.40 3.00 × 2.70	OR2000300 OR2400300 OR2700300	
3.00 × 3.00 3.10 × 1.60 3.15 × 1.80	OR3000300 OR1600310 ORIA00315	S DIN/ISO/NF
3.20 × 1.60 3.20 × 1.80 3.20 × 2.50	OR1600320 OR1800320 OR2500320	
3.30 × 1.00 3.30 × 1.50 3.30 × 2.40	OR1000330 OR1500330 OR2400330	S
3.40 × 1.90 3.50 × 1.00 3.50 × 1.20	OR1900340 OR1000350 OR1200350	R2
3.50 × 1.50 3.50 × 2.00 3.55 × 1.80	OR1500350 OR2000350 ORIA00355	DIN/ISO/NF
3.63 × 2.62 3.68 × 1.78 3.70 × 1.90	ORAR00105 ORAR00007 OR1900370	ARP ARP
3.80 × 1.50 3.80 × 1.90 3.90 × 1.80	OR1500380 OR1900380 OR1800390	P4
4.00 × 1.00 4.00 × 1.20 4.00 × 1.50	OR1000400 OR1200400 OR1500400	
4.00 × 1.80 4.00 × 2.00 4.00 × 2.50	ORIA00400 OR2000400 OR2500400	DIN/ISO/NF
4.00 × 3.00 4.00 × 4.00 4.10 × 1.60	OR3000400 OR4000400 OR1600410	S
4.20 × 1.90 4.30 × 2.40 4.34 × 3.53	OR1900420 OR2400430 ORAR00201	R3 ARP

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
4.42 × 2.62	ORAR00106	ARP
4.47 × 1.78	ORAR00008	ARP
4.50 × 1.00	OR1000450	
4.50 × 1.50	OR1500450	
4.50 × 2.00	OR2000450	
4.50 × 2.50	OR2500450	
4.60 × 2.00	OR2000460	
4.60 × 2.40	OR2400460	
4.70 × 1.00	OR1000470	
4.80 × 1.80	OR1800480	
4.80 × 1.90	OR1900480	P5
4.87 × 1.80	ORIA00487	DIN/ISO/NF
4.90 × 1.90	OR1900490	R4
5.00 × 1.00	OR1000500	
5.00 × 1.20	OR1200500	
5.00 × 1.50	OR1500500	
5.00 × 1.80	ORIA00500	DIN/ISO/NF
5.00 × 2.00	OR2000500	
5.00 × 2.50	OR2500500	
5.00 × 3.00	OR3000500	
5.00 × 5.00	OR5000500	
5.10 × 1.60	OR1600510	S
5.15 × 1.80	ORIA00515	DIN/ISO/NF
5.23 × 2.62	ORAR00107	ARP
5.28 × 1.78	ORAR00009	ARP
5.30 × 1.80	ORIA00530	DIN/ISO/NF
5.30 × 2.40	OR2400530	S
5.50 × 1.00	OR1000550	
5.50 × 1.50	OR1500550	
5.50 × 1.60	OR1600550	
5.50 × 2.00	OR2000550	
5.60 × 1.80	ORIA00560	DIN/ISO/NF
5.70 × 1.90	OR1900570	R5
5.80 × 1.90	OR1900580	P6
5.94 × 3.53	ORAR00202	ARP
6.00 × 1.00	OR1000600	
6.00 × 1.50	OR1500600	
6.00 × 1.80	ORIA00600	DIN/ISO/NF
6.00 × 2.00	OR2000600	
6.00 × 2.20	OR2200600	
6.00 × 2.50	OR2500600	
6.00 × 3.00	OR3000600	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
6.02 × 2.62	ORAR00108	ARP
6.07 × 1.78	ORAR00010	ARP
6.10 × 1.60	OR1600610	S
6.30 × 1.80	ORIA00630	DIN/ISO/NF
6.30 × 2.40	OR2400630	S
6.40 × 1.90	OR1900640	R5A
6.50 × 1.50	OR1500650	
6.50 × 1.60	OR1600605	
6.50 × 2.00	OR2000650	
6.50 × 3.00	OR3000650	
6.50 × 5.00	OR5000650	
6.60 × 1.60	OR1600660	
6.70 × 1.80	ORIA00670	DIN/ISO/NF
6.80 × 1.90	OR1900680	P7
6.90 × 1.80	ORIA00690	DIN/ISO/NF
7.00 × 1.00	OR1000700	
7.00 × 1.20	OR1200700	
7.00 × 1.30	OR1300700	
7.00 × 2.50	OR1500700	
7.00 × 3.00	OR1800700	
7.00 × 4.00	OR2000700	
7.00 × 2.50	OR2500700	
7.00 × 3.00	OR3000700	
7.00 × 4.00	OR4000700	
7.10 × 1.60	OR1600710	S
7.10 × 1.80	ORIA00710	DIN/ISO/NF
7.20 × 1.90	OR1900720	R6
7.30 × 2.40	OR2400730	S
7.50 × 1.50	OR1500750	
7.50 × 1.80	ORIA00750	DIN/ISO/NF
7.50 × 2.00	OR2000750	
7.50 × 2.50	OR2500750	
7.52 × 3.53	ORAR00203	ARP
7.59 × 2.62	ORAR00109	ARP
7.65 × 1.78	ORAR00011	ARP
7.80 × 1.90	OR1900780	P8
8.00 × 1.00	OR1000800	
8.00 × 1.50	OR1500800	
8.00 × 1.60	OR1600800	
8.00 × 1.80	ORIA00800	DIN/ISO/NF
8.00 × 1.90	OR1900800	R6A
8.00 × 2.00	OR2000800	
8.00 × 2.20	OR2200800	
8.00 × 2.40	OR2400800	
8.00 × 2.50	OR2500800	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
8.00 × 3.00	OR3000800	
8.00 × 3.50	OR3500800	
8.00 × 4.00	OR4000800	
8.00 × 4.50	OR4500800	
8.00 × 5.00	OR5000800	
8.10 × 1.60	OR1600810	S
8.30 × 2.40	OR2400830	S
8.50 × 1.00	OR1000850	
8.50 × 1.50	OR1500850	
8.50 × 1.80	ORIA00850	DIN/ISO/NF
8.50 × 2.00	OR2000850	
8.50 × 2.50	OR2500850	
8.50 × 3.00	OR3000850	
8.75 × 1.80	ORIA00875	DIN/ISO/NF
8.80 × 1.90	OR1900880	P9
8.90 × 1.90	OR1900890	R7
8.90 × 2.70	OR2700890	R8
9.00 × 1.00	OR1000900	
9.00 × 1.20	OR1200900	
9.00 × 1.50	OR1500900	
9.00 × 1.80	ORIA00900	DIN/ISO/NF
9.00 × 2.00	OR2000900	
9.00 × 2.50	OR2500900	
9.00 × 3.00	OR3000900	
9.00 × 4.00	OR4000900	
9.00 × 4.50	OR4500900	
9.00 × 6.00	OR6000900	
9.10 × 1.60	OR1600910	S
9.12 × 3.53	ORAR00204	ARP
9.19 × 2.62	ORAR00110	ARP
9.25 × 1.78	ORAR00012	ARP
9.30 × 2.40	OR2400930	S
9.50 × 1.00	OR1000950	
9.50 × 1.50	OR1500950	
9.50 × 1.60	OR1600950	
9.50 × 1.80	ORIA00950	DIN/ISO/NF
9.50 × 2.00	OR2000950	
9.50 × 2.50	OR2500950	
9.50 × 3.00	OR3000950	
9.60 × 2.40	OR2400960	
9.80 × 1.90	OR1900980	P10
9.80 × 2.40	OR2400980	P10A

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
10.00 × 1.00	OR1001000	
10.00 × 1.50	OR1501000	
10.00 × 1.80	ORIA01000	DIN/ISO/NF
10.00 × 2.00	OR2001000	
10.00 × 2.40	OR2401000	
10.00 × 2.50	OR2501000	
10.00 × 3.00	OR3001000	
10.00 × 3.50	OR3501000	
10.00 × 4.00	OR4001000	
10.00 × 5.00	OR5001000	
10.10 × 1.60	OR1601010	S
10.30 × 2.40	OR2401030	S
10.46 × 5.33	ORAR00309	ARP
10.50 × 1.50	OR1501050	
10.50 × 2.70	OR2701050	R9
10.60 × 1.80	ORIA01060	DIN /ISO/NF
10.69 × 3.53	ORAR00205	ARP
10.77 × 2.62	ORAR00111	ARP
10.80 × 2.40	OR2401080	P11
10.82 × 1.78	ORAR00013	ARP
11.00 × 1.00	OR1001100	
11.00 × 1.50	OR1501100	
11.00 × 2.00	OR2001100	
11.00 × 2.40	OR2401100	P11.2
11.00 × 2.50	OR2501100	
11.00 × 2.00	OR3001100	
11.00 × 3.50	OR3501100	
11.00 × 4.00	OR4001100	
11.10 × 1.60	OR1601110	S
11.20 × 2.40	ORIA01120	DIN/ISO/NF
11.30 × 2.40	OR2401130	S
11.80 × 1.80	ORIA01180	DIN/ISO/NF
11.80 × 2.40	OR2401180	P12
12.00 × 1.00	OR1001200	
12.00 × 1.50	OR1501200	
12.00 × 2.00	OR2001200	
12.00 × 2.50	OR2501200	
12.00 × 3.00	OR3001200	
12.00 × 4.00	OR4001200	
12.00 × 4.50	OR4501200	
12.00 × 5.00	OR5001200	
12.07 × 5.33	ORAR00310	ARP

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
12.10 × 1.60	OR1601210	S
12.10 × 2.70	OR2701210	R10
12.29 × 3.53	ORAR00206	ARP
12.30 × 2.40	OR2401230	S
12.37 × 2.62	ORAR00112	ARP
12.42 × 1.78	ORAR00014	ARP
12.50 × 1.50	OR1501250	DIN/ISO/NF
12.50 × 1.80	ORIA01250	
12.50 × 2.00	OR2001250	
12.50 × 2.50	OR2501250	
13.00 × 1.00	OR1001300	
13.00 × 1.50	OR1501300	
13.00 × 2.00	OR2001300	
13.00 × 2.50	OR2501300	
13.00 × 3.00	OR3001300	
13.00 × 3.50	OR3501300	S
13.00 × 4.00	OR4001300	
13.10 × 1.60	OR1601310	
13.20 × 1.80	ORIA01320	DIN/ISO/NF
13.30 × 2.40	OR2401330	S
13.60 × 2.70	OR2701360	R11
13.64 × 5.33	ORAR00311	ARP
13.80 × 2.40	OR2401380	P14
13.87 × 3.53	ORAR00207	ARP
13.94 × 2.62	ORAR00113	ARP
14.00 × 1.00	OR1001400	
14.00 × 1.50	OR1501400	
14.00 × 1.60	OR1601400	
14.00 × 1.78	ORAR00015	ARP
14.00 × 1.80	ORIA01400	DIN/ISO/NF
14.00 × 2.00	OR2001400	
14.00 × 2.40	OR2401400	
14.00 × 2.50	OR2501400	
14.00 × 2.65	ORIB01400	DIN/ISO/NF
14.00 × 2.70	OR2701400	
14.00 × 3.00	OR3001400	
14.00 × 4.00	OR4001400	
14.00 × 5.00	OR5001400	S
14.10 × 1.60	OR1601410	
14.30 × 2.40	OR2401430	
14.80 × 2.40	OR2401480	P15
15.00 × 1.00	OR1001500	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
15.00 × 1.50	OR1501500	DIN/ISO/NF
15.00 × 1.80	ORIA01500	
15.00 × 2.00	OR2001500	
15.00 × 2.50	OR2501500	DIN/ISO/NF
15.00 × 2.65	ORIB01500	
15.00 × 3.00	OR3001500	
15.00 × 3.50	OR3501500	
15.00 × 4.00	OR4001500	
15.00 × 5.00	OR5001500	
15.00 × 6.00	OR6001500	
15.00 × 7.00	OR7001500	
15.10 × 1.60	OR1601510	
15.10 × 2.70	OR2701510	R12
15.24 × 5.33	ORAR00312	ARP
15.30 × 2.40	OR2401530	S
15.47 × 3.53	ORAR00208	ARP
15.54 × 2.62	ORAR00114	ARP
15.60 × 1.78	ORAR00016	ARP
15.80 × 2.40	OR2401580	P16
16.00 × 1.00	OR1001600	
16.00 × 1.50	OR1401600	
16.00 × 1.80	ORIA01600	
16.00 × 2.00	OR2001600	DIN/ISO/NF
16.00 × 2.50	OR2501600	
16.00 × 2.65	ORIB01600	
16.00 × 3.00	OR3001600	
16.00 × 3.50	OR3501600	DIN/ISO/NF
16.00 × 4.00	OR4001600	
16.00 × 4.50	OR4501600	
16.00 × 5.00	OR5001600	
16.10 × 1.60	OR1601610	S
16.30 × 2.40	OR2401630	S
16.81 × 5.33	ORAR00313	ARP
16.90 × 2.70	OR2701690	R13
17.00 × 1.00	OR1001700	
17.00 × 1.50	OR1501700	
17.00 × 1.80	ORIA01700	
17.00 × 2.00	OR2001700	DIN/ISO/NF
17.00 × 2.50	OR2501700	
17.00 × 2.65	ORIB01700	
17.00 × 3.00	OR3001700	
17.00 × 3.50	OR3501700	DIN/ISO/NF

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
17.00 × 4.00 17.00 × 5.00 17.04 × 3.53	OR4001700 OR5001700 ORAR00209	ARP
17.10 × 1.60 17.12 × 2.62 17.17 × 1.78	OR1601710 ORAR00115 ORAR00017	S ARP ARP
17.30 × 2.40 17.80 × 2.40 18.00 × 1.00	OR2401730 OR2401780 OR1001800	S P18
18.00 × 1.50 18.00 × 2.00 18.00 × 2.50	OR1501800 OR2001800 OR2501800	
18.00 × 2.65 18.00 × 3.00 18.00 × 3.50	ORIB01800 OR3001800 OR2501800	DIN/ISO/NF
18.00 × 3.55 18.00 × 4.00 18.00 × 4.50	ORIC01800 OR4001800 OR4501800	DIN/ISO/NF
18.00 × 5.00 18.10 × 1.60 18.30 × 2.40	OR5001800 OR1601810 OR2401830	S
18.30 × 3.60 18.40 × 2.70 18.42 × 5.33	OR3601830 OR2701840 ORAR00314	R15 R14 ARP
18.64 × 3.53 18.72 × 2.62 18.77 × 1.78	ORAR00210 ORAR00116 ORAR00018	ARP ARP ARP
19.00 × 1.00 19.00 × 1.50 19.00 × 1.80	OR1001900 OR1501900 OR1801900	
19.00 × 2.00 19.00 × 2.50 19.00 × 2.65	OR2001900 RO2501900 ORIB01900	DIN/ISO/NF
19.00 × 3.50 19.00 × 3.55 19.00 × 4.00	OR3501900 ORIC01900 OR4001900	DIN/ISO/NF
19.00 × 5.00 19.00 × 6.00 19.10 × 1.60	PR5001900 OR6001900 OR1601910	S
19.20 × 3.00 19.30 × 2.40 19.80 × 2.40	OR3001920 OR2401930 OR2401980	S S P20

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
19.80 × 3.60 19.99 × 5.33 20.00 × 1.00	OR3601980 ORAR00315 OR1002000	R16 ARP
20.00 × 1.30 20.00 × 1.50 20.00 × 2.00	OR1302000 OR1502000 OR2002000	
20.00 × 2.50 20.00 × 2.65 20.00 × 3.00	RO2502000 ORIB02000 OR3002000	DIN/ISO/NF
20.00 × 3.50 20.00 × 3.55 20.00 × 4.00	OR3502000 ORIC02000 OR4002000	DIN/ISO/NF
20.00 × 4.50 20.00 × 5.00 20.00 × 6.00	OR4502000 OR5002000 OR6002000	
20.22 × 3.53 20.29 × 2.62 20.30 × 2.40	ORAR00211 ORAR00117 OR2402030	ARP ARP
20.35 × 1.78 20.80 × 2.40 21.00 × 2.00	ORAR00019 OR2402080 OR2002100	ARP P21
21.00 × 2.50 21.00 × 3.00 21.00 × 4.00	OR2502100 OR3002100 OR4002100	
21.00 × 6.00 21.20 × 2.65 21.20 × 3.55	OR6002100 ORIB02120 ORIC02120	DIN/ISO/NF DIN/ISO/NF
21.30 × 2.40 21.30 × 3.60 21.59 × 5.33	OR2402130 OR3602130 ORAR00316	R17 ARP
21.70 × 3.50 21.80 × 2.40 21.82 × 3.53	OR3502170 OR2402180 ORAR00212	P22A P22 ARP
21.89 × 2.62 21.95 × 1.78 22.00 × 1.00	ORAR00118 ORAR00020 OR1002200	ARP ARP
22.00 × 1.30 22.00 × 1.50 22.00 × 2.00	OR1302200 OR1502200 OR2002200	
22.00 × 2.50 22.00 × 3.00 22.00 × 3.50	OR2502200 OR3002200 OR3502200	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
22.00 × 4.00	OR4002200	
22.00 × 4.50	OR4502200	
22.00 × 5.00	OR5002200	
22.00 × 6.00	OR6002200	
22.10 × 1.60	OR1602210	S
22.10 × 3.50	OR3502210	P22.4
22.20 × 3.00	OR3002220	S
22.30 × 2.40	OR2402230	
22.40 × 2.65	ORIB02240	DIN/ISO/NF
22.40 × 3.55	ORIC02240	DIN/ISO/NF
23.00 × 1.00	OR1002300	
23.00 × 1.50	OR1502300	
23.00 × 2.00	OR2002300	
23.00 × 2.50	OR2502300	
23.00 × 3.00	OR3002300	
23.00 × 3.60	OR3602300	R18
23.00 × 4.00	OR4002300	
23.00 × 5.00	OR5002300	
23.00 × 5.50	OR5502300	
23.00 × 6.00	OR6002300	
23.16 × 5.33	ORAR00317	ARP
23.30 × 2.40	OR2402330	
23.39 × 3.53	ORAR00213	ARP
23.47 × 2.62	ORAR00119	ARP
23.52 × 1.78	ORAR00021	ARP
23.60 × 2.65	ORIB02360	DIN/ISO/NF
23.60 × 3.55	ORIC02360	DIN/ISO/NF
23.70 × 3.50	OR3502370	
24.00 × 1.00	OR1002400	
24.00 × 1.50	OR1502400	P24
24.00 × 2.00	OR2002400	
24.00 × 2.50	OR2502400	
24.00 × 3.00	OR3002400	
24.00 × 3.50	OR3502400	
24.00 × 4.00	OR4002400	
24.00 × 5.00	OR5002400	
24.00 × 6.00	OR6002400	
24.20 × 3.00	OR3002420	S
24.40 × 3.10	OR3102440	G25
24.60 × 3.60	OR3602460	R19
24.70 × 3.50	OR3502470	P25
24.77 × 5.33	ORAR00318	ARP

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
25.00 × 1.00	OR1002500	
25.00 × 1.50	OR1502500	
25.00 × 2.00	OR2002500	
25.00 × 2.50	OR2502500	
25.00 × 2.65	ORIB02500	DIN/ISO/NF
25.00 × 3.00	OR3002500	
25.00 × 3.53	ORAR00214	ARP
25.00 × 3.55	ORIC02500	DIN/ISO/NF
25.00 × 4.00	OR4002500	
25.00 × 4.50	OR4502500	
25.00 × 5.00	OR5002500	
25.00 × 6.00	OT6002500	
25.07 × 2.62	RRAR00120	ARP
25.10 × 1.60	OR1602510	S
25.12 × 1.78	ORAR00022	ARP
25.20 × 3.00	OR3002520	
25.20 × 3.50	OR3502520	
25.40 × 2.40	OR2402530	P25.5
25.70 × 3.50	OR3502570	P26
25.80 × 2.65	ORIB02580	DIN/ISO/NF
25.80 × 3.55	ORIC02580	DIN/ISO/NF
26.00 × 1.00	OR1002600	
26.00 × 1.50	OR1502600	
26.00 × 2.00	OR2002600	
26.00 × 2.50	OR2502600	
26.00 × 3.50	OR3502600	
26.00 × 4.00	OR4002600	
26.00 × 5.00	OR5002600	
26.00 × 6.00	OR6002600	
26.20 × 3.00	OR3002620	S
26.20 × 3.60	OR3602620	R20
26.34 × 5.33	ORAR00319	ARP
26.57 × 3.53	ORAR00215	ARP
26.64 × 2.62	ORAR00121	ARP
26.70 × 1.78	ORAR00023	ARP
27.00 × 1.50	OR1502700	
27.00 × 2.00	OR2002700	
27.00 × 2.50	OR2502700	
27.00 × 3.00	OR3002700	
27.00 × 4.00	OR4002700	
27.00 × 4.50	OR4502700	
27.00 × 5.00	OR5002700	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
27.00 × 6.00 27.10 × 1.60 27.30 × 2.40	OR6002700 OR1602710 OR2402730	S
27.70 × 3.50 27.80 × 3.60 27.94 × 5.33	OR3502770 OR3602780 ORAR00320	P28 R21 ARP
28.00 × 1.00 28.00 × 1.50 28.00 × 2.00	OR1002800 OR1502800 OR2002800	
28.00 × 2.50 28.00 × 2.65 28.00 × 3.00	OR2502800 ORIB02800 OR3002800	DIN/ISO/NF
28.00 × 3.55 28.00 × 4.00 28.00 × 5.00	ORIC02800 OR4002800 OR5002800	DIN/ISO/NF
28.00 × 6.00 28.17 × 3.53 28.24 × 2.62	OR6002800 ORAR00216 ORAR00122	ARP ARP
28.30 × 1.78 28.70 × 3.50 29.00 × 1.50	ORAR00024 OR3502870 OR1502900	ARP P29
29.00 × 2.00 29.00 × 2.50 29.00 × 3.00	OR2002900 OR2502900 OR3002900	
29.00 × 3.50 29.00 × 5.00 29.10 × 1.60	OR3502900 OR5002900 OR1602910	S
29.20 × 3.00 29.20 × 3.50 29.30 × 3.60	OR3002920 OR3502920 OR3602930	S P29.5 R22
29.40 × 3.10 29.50 × 1.50 29.40 × 4.50	OR3102940 OR1502950 OR4502950	G30
29.40 × 3.10 29.50 × 1.50 29.50 × 4.50	OR3102940 OR1502950 OR4502950	
29.51 × 5.33 29.70 × 3.50 29.74 × 3.53	ORAR00321 OR3502970 ORAR00217	ARP P30 ARP
29.82 × 2.62 29.87 × 1.78 30.00 × 1.00	ORAR00123 ORAR00025 OR1003000	ARP ARP

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
30.00 × 1.50 30.00 × 2.00 30.00 × 2.50	OR1503000 OR2003000 OR2503000	
30.00 × 2.65 30.00 × 3.00 30.00 × 3.50	ORIB03000 OR3003000 OR3503000	DIN/ISO/NF
30.00 × 3.55 30.00 × 4.00 30.00 × 4.50	ORIC03000 OR4003000 OR4503000	DIN/ISO/NF
30.00 × 5.00 30.00 × 6.00 30.00 × 7.00	OR5003000 OR6003000 OR7003000	
30.20 × 3.00 30.30 × 2.40 30.70 × 3.50	OR3003020 OR2403030 OR3503070	P31
30.80 × 3.60 31.00 × 1.50 31.00 × 2.00	OR3603080 OR1503100 OR2003100	R23
31.00 × 2.50 31.00 × 3.00 31.00 × 3.50	OR2503100 OR3003100 OR3503100	
31.00 × 4.00 31.12 × 5.33 31.20 × 3.50	OR4003100 ORAR00322 OR3503120	ARP P31.5
31.34 × 3.54 31.42 × 2.62 31.47 × 1.78	ORAR00218 ORAR00124 ORAR00026	ARP ARP ARP
31.50 × 2.65 31.50 × 3.55 31.70 × 3.50	ORIB03150 ORIC03150 OR3503170	DIN/ISO/NF DIN/ISO/NF P32
32.00 × 1.00 32.00 × 1.50 32.00 × 2.00	OR1003200 OR1503200 OR2003200	
32.00 × 2.50 32.00 × 3.00 32.00 × 3.50	OR2503200 OR3003200 OR3503200	
32.00 × 4.00 32.00 × 5.00 32.10 × 1.60	OR4003200 OR5003200 OR1603210	S
32.20 × 3.00 32.50 × 2.65 32.50 × 3.55	OR3003220 ORIB03250 ORIC03250	S DIN/ISO/NF DIN/ISO/NF

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
32.50 × 3.60	OR3603250	R24
32.69 × 5.33	ORAR00323	ARP
32.92 × 3.53	ORAR00219	ARP
32.99 × 2.62	ORAR00125	ARP
33.00 × 1.50	OR1503300	
33.00 × 2.00	OR2003300	
33.00 × 2.50	OR2503300	
33.00 × 3.00	OR3003300	
33.00 × 3.50	OR3503300	
33.00 × 4.00	OR4003300	
33.05 × 1.78	ORAR00027	ARP
33.30 × 2.40	OR2403330	
33.50 × 2.55	ORIB03350	DIN/ISO/NF
33.50 × 3.55	ORIC03350	DIN/ISO/NF
33.70 × 3.50	OR3503370	P34
34.00 × 1.00	OR1003400	
34.00 × 2.00	OR2003400	
34.00 × 2.30	OR2302400	
34.00 × 2.50	OR2503400	
34.00 × 3.00	OR3003400	
34.00 × 4.00	OR4003400	
34.00 × 5.00	OR5003400	
34.00 × 6.00	OR6003400	
34.10 × 3.60	OR3603410	R25
34.20 × 3.00	OR3003420	S
34.29 × 5.33	ORAR00324	ARP
34.40 × 3.10	OR3103440	G35
34.50 × 2.65	ORIB03450	DIN/ISO/NF
34.50 × 3.55	ORIV03450	DIN/ISO/NF
34.52 × 3.53	ORAR00220	ARP
34.59 × 2.62	ORAR00126	ARP
34.65 × 1.78	ORAR00028	ARP
34.70 × 3.50	OR3503470	P35
35.00 × 1.50	OR1503500	
35.00 × 2.00	OR2003500	
35.00 × 2.50	OR2503500	
35.00 × 3.00	OR3003500	
35.00 × 3.50	OR3503500	
35.00 × 4.00	OR4003500	
35.00 × 5.00	OR5003500	
35.00 × 6.00	OR6003500	
35.00 × 7.00	OR7003500	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
35.10 × 1.60	OR1603510	S
35.20 × 3.00	OR3003520	
35.20 × 3.50	OR3503520	P35.5
35.20 × 5.70	OR5703520	
35.50 × 2.65	ORIB03550	DIN/ISO/NF
35.50 × 3.55	ORIC03550	DIN/ISO/NF
35.60 × 3.60	OR3603560	R26
35.70 × 3.50	OR3503570	P36
36.00 × 1.50	OR1503600	
36.00 × 2.00	OR2003600	
36.00 × 2.50	OR2503600	
36.00 × 3.00	OR3003600	
36.00 × 4.00	OR4003600	
36.00 × 4.50	OR4503600	
36.00 × 5.00	OR5004600	
36.00 × 6.00	OR6003600	
36.09 × 3.53	ORAR00221	ARP
36.17 × 2.62	ORAR00127	ARP
36.20 × 3.00	OR3003620	S
36.50 × 2.65	ORIB03650	DIN/ISO/NF
36.50 × 3.55	ORIC03650	DIN/ISO/NF
37.00 × 2.00	OR2003700	
37.00 × 2.50	OR2503700	
37.00 × 3.00	OR3003700	
37.00 × 3.50	OR3503700	
37.10 × 1.60	OR1603710	S
37.30 × 3.60	OR3603730	R27
37.47 × 5.33	ORAR00325	ARP/R28
37.50 × 2.65	ORIB03750	DIN/ISO/NF
37.50 × 3.55	ORIC03750	DIN/ISO/NF
37.69 × 3.53	ORAR00222	ARP
37.70 × 3.50	OR3503770	P38
37.77 × 2.62	ORAR00128	ARP
37.82 × 1.78	ORAR00029	ARP
38.00 × 1.00	OR1003800	
38.00 × 1.50	OR1503800	
38.00 × 2.00	OR2003800	
38.00 × 2.50	OR2503800	
38.00 × 3.00	OR3003800	
38.00 × 3.50	OR3503800	
38.00 × 4.00	OR4003800	
38.00 × 4.50	OR4503800	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
38.00 × 5.00	OR5003800	
38.00 × 6.00	OR6003800	
38.00 × 7.00	OR7003800	
38.70 × 2.65	ORIB03870	DIN/ISO/NF
38.70 × 3.50	OR3503870	P39
38.70 × 3.55	ORIC03870	DIN/ISO/NF
39.00 × 1.50	OR1503900	
39.00 × 2.00	OR2003900	
39.00 × 2.50	OR2503900	
39.00 × 3.00	OR3003900	
39.00 × 4.00	OR4003900	
39.00 × 5.50	OR5503900	
39.20 × 3.00	OR3003920	S
39.20 × 5.70	OR5703920	
39.34 × 2.62	ORAR00129	ARP
39.40 × 3.10	OR3103940	G40
39.70 × 3.50	OR3503970	P40
40.00 × 1.00	OR1004000	
40.00 × 1.50	OR1504000	
40.00 × 2.00	OR2004000	
40.00 × 2.50	OR2504000	
40.00 × 3.00	OR3004000	
40.00 × 3.50	OR3504000	
40.00 × 3.55	ORIC04000	DIN/ISO/NF
40.00 × 4.00	OR4004000	
40.00 × 4.50	OR4504000	
40.00 × 5.00	OR5004000	
40.00 × 5.30	ORID04000	DIN/ISO/NF
40.00 × 5.50	OR5504000	
40.00 × 6.00	OR6004000	
40.00 × 7.00	OR7004000	
40.00 × 7.50	OR7504000	
40.20 × 3.00	OR3004020	
40.64 × 5.33	ORAR00326	ARP/R29
40.70 × 3.50	OR3504070	P41
40.87 × 3.53	ORAR00223	ARP
40.94 × 2.62	ORAR00130	ARP
41.00 × 1.78	ORAR00030	ARP
41.00 × 2.00	OR2004100	
41.00 × 3.00	OR3004100	
41.00 × 4.00	OR4004100	
41.00 × 7.50	OR7504100	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
41.20 × 3.55	ORIC04120	DIN/ISO/NF
41.20 × 5.30	ORID04120	DIN/ISO/NF
41.20 × 5.70	OR57 04120	
41.70 × 3.50	OR3504170	P42
42.00 × 1.00	OR1004200	
42.00 × 1.50	OR1504200	
42.00 × 2.00	OR2004200	
42.00 × 2.50	OR2504200	
42.00 × 3.00	OR3004200	
42.00 × 3.50	OR3504200	
42.00 × 4.00	OR4004200	
42.00 × 4.50	OR4504200	
42.00 × 5.00	OR5004200	
42.00 × 6.00	OR6004200	
42.20 × 3.00	OR3004220	S
42.50 × 3.55	ORIC04250	DIN/ISO/NF
42.50 × 5.30	ORID04250	DIN/ISO/NF
42.52 × 2.62	ORAR00131	ARP
43.00 × 1.60	OR1604300	
43.00 × 2.00	OR2004300	
43.00 × 2.50	OR2504300	
43.00 × 3.00	OR3004300	
43.00 × 3.50	OR3504300	
43.00 × 6.00	OR6006300	
43.70 × 3.50	OR3504370	P44
43.70 × 3.55	ORIC04370	DIN/ISO/NF
43.70 × 5.30	ORID04370	DIN/ISO/NF
43.82 × 5.33	ORAR00327	ARP/R30
44.00 × 2.00	OR2004400	
44.00 × 2.50	OR2504400	
44.00 × 3.00	OR3004400	
44.00 × 4.00	OR4004400	
44.00 × 4.50	OR4504400	
44.00 × 5.00	OR5004400	
44.00 × 6.00	OR6004400	
44.04 × 3.53	ORAR00224	ARP
44.12 × 2.62	ORAR00132	ARP
44.17 × 1.78	ORAR00031	ARP
44.20 × 3.00	OR3004420	S
44.20 × 5.70	OR5704420	S
44.40 × 3.10	OR3104440	G45
44.70 × 3.50	OR3504470	P45

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
45.00 × 1.00	OR1004500	
45.00 × 1.50	OR1504500	
45.00 × 2.00	OR2004500	
45.00 × 2.50	OR2504500	
45.00 × 3.00	OR3004500	
45.00 × 3.50	OR3504500	
45.00 × 3.55	ORIC04500	DIN/ISO/NF
45.00 × 4.00	OR4004500	
45.00 × 4.50	OR4504500	
45.00 × 5.00	OR5004500	
45.00 × 5.30	ORID04500	DIN/ISO/NF
45.00 × 5.50	OR5504500	
45.00 × 6.00	OR6004500	
45.00 × 7.00	OR7004500	
45.69 × 2.62	ORAR00133	ARP
45.70 × 3.50	OR3504570	P46
46.00 × 2.00	OR2004600	
46.00 × 2.50	OR2504600	
46.00 × 3.00	OR3004600	
46.00 × 3.50	OR3503600	
46.00 × 4.00	OR4004600	
46.00 × 4.50	OR4504600	
46.00 × 5.00	OR5004600	
46.00 × 6.00	OR6004600	
46.20 × 3.55	ORIC04620	DIN/ISO/NF
46.20 × 5.30	ORIB04620	DIN/ISO/NF
46.99 × 5.33	ORAR00328	ARP/R31
47.00 × 2.00	OR2004700	
47.00 × 2.50	OR2504700	
47.00 × 3.00	OR3004700	
47.00 × 4.00	OR4004700	
47.00 × 5.00	OR5004700	
47.20 × 5.70	OR5704720	
47.22 × 3.53	ORAR00225	ARP
47.29 × 2.62	ORAR00134	ARP
47.35 × 2.78	ORAR00032	ARP
47.50 × 3.55	ORIC04750	DIN/ISO/NF
47.50 × 5.30	ORIB04750	DIN/ISO/NF
47.60 × 5.70	OR5704760	P48A
47.70 × 3.50	OR3504770	P48
48.00 × 1.00	OR1004800	
48.00 × 1.50	OR1504800	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
48.00 × 2.00	OR2004800	
48.00 × 2.50	OR2504800	
48.00 × 3.00	OR3004800	
48.00 × 4.00	OR4004800	
48.00 × 4.50	OR4504800	
48.00 × 5.00	OR5004800	
48.00 × 6.00	OR6004800	
48.00 × 7.00	OR7004800	
48.70 × 3.50	OR3504870	P49
48.70 × 3.55	ORIC04870	DIN/ISO/NF
48.70 × 5.30	ORID04870	DIN/ISO/NF
48.90 × 2.62	ORAR00135	ARP
49.00 × 1.50	OR1504900	
49.00 × 2.50	OR2504900	
49.00 × 3.00	OR3004900	
49.00 × 3.50	OR3503900	
49.00 × 4.00	OR4004900	
49.20 × 5.70	OR5704920	S
49.40 × 3.10	OR3104940	G50
49.50 × 3.00	OR3004950	S
49.60 × 5.70	OR5704960	P50A
49.70 × 3.50	OR3504970	P50
50.00 × 1.50	OR1505000	
50.00 × 2.00	OR2005000	
50.00 × 2.50	OR2505000	
50.00 × 3.00	OR3005000	
50.00 × 3.55	ORIC05000	DIN/ISO/NF
50.00 × 4.00	OR4005000	
50.00 × 4.50	OR4505000	
50.00 × 5.00	OR5005000	
50.00 × 5.30	ORID05000	DIN/ISO/NF
50.00 × 5.50	OR5005000	
50.00 × 6.00	OR6005000	
50.00 × 6.50	OR6505000	
60.00 × 7.00	OR7005000	
50.17 × 5.33	ORAR00329	ARP/R32
50.39 × 3.53	ORAR00226	ARP
50.47 × 2.62	ORAR00136	ARP
50.52 × 2.78	ORAR00033	ARP
51.00 × 2.50	OR2505100	
51.00 × 3.00	OR3005100	
51.00 × 4.00	OR4005100	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
51.00 × 4.50	OR4505100	
51.00 × 5.50	OR5505100	
51.20 × 5.70	OR5705120	
51.50 × 1.50	OR1505150	
51.50 × 3.55	ORIC05150	DIN/ISO/NF
51.50 × 5.30	ORID05150	DIN/ISO/NF
51.60 × 5.70	OR5705160	P52
52.00 × 1.50	OR1505200	
52.00 × 2.00	OR2005200	
52.00 × 2.50	OR2505200	
52.00 × 3.00	OR3005200	
52.00 × 3.50	OR3505200	
52.00 × 4.00	OR4005200	
52.00 × 5.00	OR5005200	
52.00 × 6.00	OR6005200	
52.07 × 2.62	ORAR00137	ARP
52.60 × 5.70	OR5705260	P53
53.00 × 1.50	OR1505300	
53.00 × 2.00	OR2005300	
53.00 × 2.50	OR2505300	
53.00 × 3.00	OR3005300	
53.00 × 3.50	OR3505300	
53.00 × 3.55	ORIC05300	DIN/ISO/NF
53.00 × 5.00	OR5005300	
53.00 × 5.30	ORID05300	DIN/ISO/NF
53.00 × 6.00	OR6005300	
53.00 × 7.00	OR7005300	
53.34 × 5.33	ORAR00330	ARP/R33
53.57 × 3.53	ORAR00227	ARP
53.64 × 2.62	ORAR00138	ARP
53.70 × 1.78	ORAR00034	ARP
54.00 × 1.50	OR1505400	
54.00 × 2.50	OR2505400	
54.00 × 3.00	OR3005400	
54.00 × 4.00	OR4005400	
54.00 × 5.00	OR5005400	
54.00 × 5.50	OR5505400	
54.00 × 6.00	OR6005400	
54.20 × 5.70	OR5705420	S
54.40 × 3.10	OR3105440	G55
54.50 × 3.00	OR3005450	S
54.50 × 3.55	ORIC05450	DIN/ISO/NF

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
54.50 × 5.30	ORID05450	DIN/ISO/NF
54.60 × 5.70	OR5705460	P55
55.00 × 1.50	OR1505500	
55.00 × 2.00	OR2005500	
55.00 × 2.50	OR2505500	
55.00 × 3.00	OR3005500	
55.00 × 3.50	OR3505500	
55.00 × 4.00	OR4005500	
55.00 × 5.00	OR5005500	
55.00 × 6.00	OR6005500	
55.25 × 2.62	ORAR00139	ARP
55.60 × 5.70	OR5705560	P56
56.00 × 2.00	OR2005600	
56.00 × 2.50	OR2505600	
56.00 × 3.00	OR3005600	
56.00 × 3.55	ORIC05600	DIN/ISO/NF
56.00 × 4.00	OR4005600	
56.00 × 4.50	OR4505600	
56.00 × 5.20	OR5205600	
56.00 × 5.30	ORID05600	DIN/ISO/NF
56.52 × 5.33	ORAR00331	ARP/R34
56.74 × 3.53	ORAR00228	ARP
56.82 × 2.62	ORAR00140	ARP
56.87 × 1.78	ORAR00035	ARP
57.00 × 1.50	OR1505700	
57.00 × 2.00	OR2005700	
57.00 × 2.50	OR2505700	
57.00 × 3.00	OR3005700	
57.00 × 4.00	OR4005700	
57.00 × 4.50	OR4505700	
57.00 × 8.00	OR8005700	
57.20 × 5.70	OR5705720	
57.60 × 5.70	OR5705760	P58
58.00 × 2.00	OR2005800	
58.00 × 2.50	OR2505800	
58.00 × 3.00	OR3005800	
58.00 × 3.55	ORIC05800	DIN/ISO/NF
58.00 × 4.00	OR4005800	
58.00 × 5.00	OR5005800	
58.00 × 5.30	ORID05800	DIN/ISO/NF
58.00 × 5.50	OR5505800	
58.00 × 6.00	OR6006800	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
58.00 × 7.00	OR7005800	ARP
58.42 × 2.62	ORAR00141	
59.00 × 1.50	OR1505900	
59.00 × 2.50	OR2505900	S
59.00 × 3.00	OR3005900	
59.20 × 5.70	OR5705920	
59.40 × 3.10	OR3105940	G60
59.50 × 3.00	OR3005950	S
59.60 × 5.70	OR5705960	P60
59.69 × 5.33	ORAR00332	ARP/R35
59.92 × 3.53	ORAR00229	ARP
59.99 × 2.62	ORAR00142	ARP
60.00 × 1.50	OR1506000	
60.00 × 2.00	OR2006000	
60.00 × 2.50	RO2506000	
60.00 × 3.00	OR3006000	DIN/ISO/NF
60.00 × 3.50	OR3506000	
60.00 × 3.55	ORIC06000	
60.00 × 4.00	OR4006000	
60.00 × 4.50	OR4506000	
60.00 × 5.00	OR5006000	
60.00 × 5.30	ORID06000	DIN/ISO/NF
60.00 × 6.00	OR6006000	
60.00 × 7.00	OR7006000	
60.05 × 1.78	ORAR00036	
61.00 × 5.00	OR5006100	
61.20 × 5.70	OR5706120	
61.50 × 3.55	ORIC06150	
61.50 × 5.30	ORID06150	DIN/ISO/NF
61.60 × 2.62	ORAR00143	ARP
61.60 × 5.70	OR5706160	P62
62.00 × 1.50	OR1506200	
62.00 × 2.00	OR2006200	
62.00 × 2.50	OR2506200	
62.00 × 3.00	OR3006200	
62.00 × 4.00	OR4006200	
62.00 × 5.00	OR5006200	
62.00 × 6.00	OR6006200	
62.20 × 5.70	OR5706220	
62.60 × 5.70	OR5706260	
62.87 × 5.33	ORAR00333	ARP/R36
63.00 × 1.50	OR1506300	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard	
63.00 × 2.00	OR2006300		
63.00 × 2.50	OR2506300		
63.00 × 3.00	OR3006300		
63.00 × 3.55	ORIC06300	DIN/ISO/NF	
63.00 × 4.00	OR4006300		
63.00 × 4.50	OR4506300		
63.00 × 5.00	OR5006300		
63.00 × 5.30	ORID06300	DIN/ISO/NF	
63.00 × 7.00	OR7006300		
63.09 × 3.53	ORAR00230		ARP
63.17 × 2.62	ORAR00144		ARP
63.22 × 1.78	ORAR00037	ARP	
64.00 × 3.00	OR3006400		
64.00 × 3.50	OR3506400		
64.00 × 4.00	OR4006400		
64.00 × 5.00	OR5006400		
64.00 × 6.00	OR6006400		
64.20 × 5.70	OR5706420		S
64.40 × 3.20	OR3106440	G65	
64.50 × 3.00	OR3006450	S	
64.60 × 5.70	OR5706460	P65	
64.77 × 2.62	ORAR00145	ARP	
65.00 × 1.50	OR1506500		
65.00 × 2.00	OR2006500		
65.00 × 2.50	OR2506500		
65.00 × 3.00	OR3006500		
65.00 × 3.50	OR3506500		
65.00 × 3.55	ORIC06500	DIN/ISO/NF	
65.00 × 4.00	OR4006500		
65.00 × 4.50	OR4506500		
65.00 × 5.00	OR5006500		
65.00 × 5.30	ORID06500	DIN/ISO/NF	
65.00 × 5.50	OR5506500		
66.00 × 2.00	OR2006600		
66.00 × 3.00	OR3006600		
66.00 × 5.00	OR5006600		
66.04 × 5.33	ORAR00334		ARP/R37
66.27 × 3.53	ORAR00231		ARP
66.34 × 2.62	ORAR00146	ARP	
66.40 × 1.78	ORAR00038	ARP	
66.60 × 5.70	OR5706660	P67	
67.00 × 1.50	OR1506700		

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
67.00 × 2.00	OR2006700	
67.00 × 2.50	OR2506700	
67.00 × 3.00	OR3006700	
67.00 × 3.55	ORIC06700	DIN/ISO/NF
67.00 × 4.00	OR4006700	
67.00 × 5.30	ORID06700	DIN/ISO/NF
67.20 × 3.00	OR3006720	
67.20 × 5.70	OR5706720	
67.95 × 2.62	ORAR00147	ARP
68.00 × 2.00	OR2006800	
68.00 × 2.50	OR2506800	
68.00 × 3.00	OR3006800	
68.00 × 4.00	OR4006800	
68.00 × 5.00	OR5006800	
68.00 × 5.50	OR5506800	
68.00 × 6.00	OR6006800	
68.00 × 7.00	OR7006800	
69.00 × 1.50	OR1506900	
69.00 × 3.00	OR3006900	
69.00 × 3.55	ORIC06900	DIN/ISO/NF
69.00 × 4.50	OR4506900	
69.00 × 5.30	ORID06900	DIN/ISO/NF
69.00 × 6.00	OR6006900	
69.20 × 5.70	OR5706920	S
69.22 × 5.33	ORAR00335	ARP/R38
69.40 × 3.10	OR3106940	G70
69.44 × 3.53	ORAR00232	ARP
69.50 × 3.00	OR3006950	S
69.52 × 2.62	ORAR00148	ARP
69.57 × 1.78	ORAR00039	ARP
69.60 × 5.70	OR5706960	P70
70.00 × 2.00	OR2007000	
70.00 × 2.50	OR2507000	
70.00 × 3.00	OR3007000	
70.00 × 4.00	OR4007000	
70.00 × 4.50	OR4507000	
70.00 × 5.00	OR5007000	
70.00 × 5.50	OR5507000	
70.00 × 6.00	OR6007000	
70.00 × 7.00	OR7007000	
70.60 × 5.70	OR5707060	P71
71.00 × 2.00	OR2007100	
71.00 × 3.00	OR3007100	
71.00 × 3.55	ORIC07100	DIN/ISO/NF
71.00 × 5.30	ORID07100	DIN/ISO/NF

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
71.12 × 2.62	ORAR00149	ARP
71.20 × 5.70	OR5707120	
71.50 × 1.50	OR1507150	
72.00 × 2.00	OR2007200	
72.00 × 2.50	OR2507200	
72.00 × 3.00	OR3007200	
72.00 × 4.00	OR4007200	
72.00 × 5.00	OR5007200	
72.00 × 5.50	OR5507200	
72.00 × 7.00	OR7007200	
72.39 × 5.33	ORAR00336	ARP/R39
72.62 × 3.53	ORAR00233	ARP
72.69 × 2.62	ORAR00150	ARP
72.75 × 1.78	ORAR00040	ARP
73.00 × 2.00	OR2007300	
73.00 × 2.50	OR2507300	
73.00 × 3.00	OR3007300	
73.00 × 3.55	ORIC07300	DIN/ISO/NF
73.00 × 5.00	OR5007300	
73.00 × 5.30	ORID07300	DIN/ISO/NF
74.00 × 1.00	OR1007400	
74.00 × 1.50	OR1507400	
74.00 × 2.00	OR2007400	
74.00 × 3.00	OR3007400	
74.40 × 4.00	OR4007400	
74.00 × 4.50	OR4507400	
74.00 × 6.00	OR6007400	
74.20 × 5.70	OR5707420	S
74.40 × 3.10	OR3107440	G75
74.50 × 3.00	OR3007450	S
74.60 × 5.70	OR5707460	P75
75.00 × 2.00	OR2007500	
75.00 × 2.50	OR2507500	
75.00 × 3.00	OR3007500	
75.00 × 3.50	OR3507500	
75.00 × 3.55	ORIC07500	DIN/ISO/NF
75.00 × 4.00	OR4007500	
75.00 × 4.50	OR4507500	
75.00 × 5.00	OR5007500	
75.00 × 5.30	ORID07500	DIN/ISO/NF
75.00 × 5.50	OR5507500	
75.00 × 6.00	OR6007500	
75.00 × 7.00	OR7007500	
75.57 × 5.33	ORAR00337	ARP/R40
75.79 × 3.53	ORAR00234	ARP

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
75.87 × 2.62	ORAR00151	ARP
75.92 × 1.78	ORAR00041	ARP
76.00 × 1.50	OR1507600	
76.00 × 2.00	OR2007600	
76.00 × 2.50	OR2507600	
76.00 × 3.00	OR3007600	
76.00 × 4.00	OR4007600	
76.00 × 4.50	OR4507600	
76.00 × 5.00	OR5007600	
77.00 × 5.00	OR5007700	
77.50 × 3.55	ORIC07750	DIN/ISO/NF
77.50 × 5.30	ORID07750	DIN/ISO/NF
78.00 × 1.50	OR1507800	
78.00 × 2.00	OR2007800	
78.00 × 3.00	OR3007800	
78.00 × 3.50	OR3507800	
78.00 × 4.00	OR4007800	
78.00 × 5.00	OR5007800	
78.00 × 6.00	OR6007800	
78.74 × 5.33	ORAR00338	ARP/R41
78.97 × 3.53	ORAR00235	ARP
79.00 × 2.00	OR2007900	
79.00 × 3.00	OR3007900	
79.20 × 5.70	OR5707920	S
79.40 × 3.10	OR3107940	G80
79.50 × 3.00	OR3007950	
79.50 × 7.00	OR7007950	
79.60 × 5.70	OR5707960	P80
80.00 × 1.50	OR1508000	
80.00 × 2.00	OR2008000	
80.00 × 2.50	OR2508000	
80.00 × 3.00	OR3008000	
80.00 × 3.55	ORIC08000	DIN/ISO/NF
80.00 × 4.00	OR4008000	
80.00 × 4.50	OR4508000	
80.00 × 5.00	OR5008000	
80.00 × 5.30	ORID08000	DIN/ISO/NF
80.00 × 5.50	OR5508000	
80.00 × 6.00	OR6008000	
80.50 × 1.50	OR1508050	
81.00 × 7.00	OR7008100	
81.92 × 5.33	ORAR00339	ARP/R42

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
82.00 × 3.00	OR3008200	
82.00 × 4.00	OR4008200	
82.00 × 5.00	OR5008200	
82.14 × 3.53	ORAR00236	ARP
82.20 × 5.70	OR5708820	
82.22 × 2.62	ORAR00152	ARP
82.27 × 1.78	ORAR00042	ARP
82.50 × 3.55	ORIC08250	DIN/ISO/NF
82.50 × 5.30	ORID08250	DIN/ISO/NF
83.00 × 2.00	OR2008300	
83.00 × 3.00	OR3008300	
84.00 × 2.00	OR2008400	
84.00 × 3.00	OR3008400	
84.00 × 4.00	OR4008400	
84.00 × 6.00	OR6008400	
84.10 × 5.70	OR5708410	S
84.20 × 5.70	OR5708420	
84.40 × 3.10	OR3108440	G85
84.50 × 3.00	OR3008450	S
84.60 × 5.70	OR5708460	P85
85.00 × 2.00	OR2008500	
85.00 × 2.50	OR2508500	
85.00 × 3.00	OR3008500	
85.00 × 3.55	ORIC08500	DIN/ISO/NF
85.00 × 4.00	OR4008500	
85.00 × 4.50	OR4508500	
85.00 × 5.00	OR5008500	
85.00 × 5.30	ORID08500	DIN/ISO/NF
85.00 × 5.50	OR5508500	
85.00 × 6.00	OR6008500	
85.00 × 7.00	OR7008500	
85.09 × 5.33	ORAR00340	ARP/R43
85.32 × 3.53	ORAR00237	ARP
85.50 × 2.50	OR2508550	
86.00 × 2.00	OR2008600	
86.00 × 3.00	OR3008600	
86.00 × 4.00	OR4008600	
86.00 × 4.50	OR4508600	
87.00 × 4.00	OR4008700	
87.00 × 5.00	OR5008700	
87.20 × 5.70	OR5708720	
87.50 × 3.55	ORIC08750	DIN/ISO/NF

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
87.50 × 5.30	ORID08750	DIN/ISO/NF
88.00 × 1.50	OR1508800	
88.00 × 3.00	OR3008800	
88.00 × 4.00	OR4008800	
88.00 × 5.00	OR5008800	
88.00 × 6.00	OR6008800	
88.27 × 5.33	ORAR00341	ARP/R44
88.49 × 3.53	ORAR00238	ARP
88.57 × 2.62	ORAR00153	ARP
88.62 × 1.78	ORAR00043	ARP
89.00 × 3.00	OR3008900	
89.00 × 4.50	OR4508900	
89.00 × 7.00	OR7008900	
89.10 × 5.70	OR5708910	S
89.40 × 3.10	OR3108940	G90
89.50 × 3.00	OR3008950	S
89.60 × 5.70	OR5708960	P90
90.00 × 1.00	OR1009000	
90.00 × 2.00	OR2009000	
90.00 × 2.50	OR2509000	
90.00 × 3.00	OR3009000	
90.00 × 3.55	ORIC09000	
90.00 × 4.00	OR4009000	
90.00 × 4.50	OR4509000	DIN/ISO/NF
90.00 × 5.00	OR5009000	DIN/ISO/NF
90.00 × 5.30	ORID09000	
90.00 × 5.50	OR5509000	
90.00 × 6.00	OR6009000	ARP/R45
90.00 × 7.00	OR7009000	
91.44 × 5.33	ORAR00342	
91.67 × 3.53	ORAR00239	ARP
92.00 × 1.50	OR1509200	
92.00 × 3.00	OR3009200	
92.00 × 4.00	OR4009200	
92.00 × 4.50	OR4509200	
92.00 × 5.00	OR5009200	
92.00 × 5.50	OR5509200	
92.00 × 7.00	OR7009200	DIN/ISO/NF
92.50 × 3.55	ORIC09250	
92.50 × 5.30	ORID09250	
93.00 × 2.00	OR2009300	DIN/ISO/NF
93.00 × 3.00	OR3009300	
93.00 × 3.00	OR3009300	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
93.00 × 4.00	OR4009300	
93.50 × 4.50	OR4509350	
94.00 × 2.50	OR2509400	
94.00 × 3.00	OR3009400	
94.00 × 4.00	OR4009400	
94.00 × 5.00	OR5009400	
94.00 × 7.00	OR7009400	S G95
94.10 × 5.70	OR5709410	
94.40 × 3.10	OR3109440	
94.50 × 3.00	OR3009450	S
94.60 × 5.70	OR5709460	P95
94.62 × 5.33	ORAR00343	ARP/R46
98.84 × 3.53	ORAR00240	ARP
94.92 × 2.62	ORAR00154	ARP
94.97 × 1.78	ORAR00044	ARP
95.00 × 2.00	OR2009500	DIN/ISO/NF
95.00 × 2.50	OR2509500	
95.00 × 3.55	ORIC09500	
95.00 × 4.00	OR4009500	DIN/ISO/NF
95.00 × 4.50	OR4509500	
95.00 × 5.00	OR5009500	
95.00 × 5.30	ORID09500	
95.00 × 5.50	OR5509500	
95.00 × 6.00	OR6009500	
95.00 × 7.00	OR7009500	
96.00 × 2.50	OR2509600	
96.00 × 3.00	OR3009600	
96.00 × 4.00	OR4009600	
96.00 × 5.00	OR5009600	
96.00 × 6.00	OR6009600	
96.50 × 6.50	OR6509650	
97.00 × 3.50	OR3509700	
97.00 × 5.00	OR5009700	
97.50 × 3.55	ORIC09750	DIN/ISO/NF
97.50 × 5.30	ORID09750	DIN/ISO/NF
97.79 × 5.33	ORAR00344	ARP/R47
98.00 × 2.50	OR2509800	
98.00 × 3.00	OR3009800	
98.00 × 4.00	OR4009800	
98.02 × 3.53	ORAR00241	ARP
99.00 × 3.00	OR3009900	
99.00 × 7.00	OR7009900	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
99.10 × 5.70	OR5709910	S
99.40 × 3.10	OR3109940	G100
99.50 × 3.00	OR3009950	S
99.60 × 5.70	OR5709960	P100
100.00 × 1.00	OR1010000	
100.00 × 1.50	OR1510000	
100.00 × 2.00	OR2010000	
100.00 × 2.50	OR2510000	
100.00 × 3.00	OR3010000	
100.00 × 3.55	ORIC10000	DIN/ISO/NF
100.00 × 4.00	OR4010000	
100.00 × 5.00	OR5010000	
100.00 × 5.30	ORID10000	DIN/ISO/NF
100.00 × 5.50	OR5510000	
100.00 × 6.00	OR6010000	
100.00 × 7.00	OR7010000	
100.00 × 8.00	OR8010000	
100.97 × 5.33	ORAR00345	ARP/R48
101.19 × 3.53	ORAR00242	ARP
101.27 × 2.62	ORAR00155	ARP
101.32 × 1.78	ORAR00045	ARP
101.60 × 5.70	OR5710160	P102
102.00 × 3.00	OR3010200	
102.00 × 4.00	OR4010200	
103.00 × 2.00	OR2010300	
103.00 × 3.55	ORIC10300	DIN/ISO/NF
103.00 × 5.30	ORID10300	DIN/ISO/NF
103.00 × 6.00	OR6010300	
104.00 × 2.50	OR2510400	
104.00 × 3.00	OR3010400	
104.00 × 4.00	OR4010400	
104.00 × 5.00	OR5010400	
104.00 × 6.00	OR6010400	
104.10 × 5.70	OR5710410	S
104.14 × 5.33	ORAR00346	ARP/R49
104.37 × 3.53	ORAR00243	ARP
104.40 × 3.10	OR3110440	G105
104.50 × 3.00	OR3010450	S
104.60 × 5.70	OR5710460	P105

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
105.00 × 2.00	OR2010500	
105.00 × 2.50	OR2510500	
105.00 × 3.00	OR3010500	
105.00 × 3.50	OR3510500	
105.00 × 4.00	OR4010500	
105.00 × 4.50	OR4510500	
105.00 × 5.00	OR5010500	
105.00 × 6.00	OR6010500	
106.00 × 2.00	OR2010600	
106.00 × 3.00	OR3010600	
106.00 × 3.55	ORIC10600	DIN/ISO/NF
106.00 × 4.50	OR4510600	
106.00 × 5.30	ORID10600	DIN/ISO/NF
106.00 × 6.00	OR6010600	
106.00 × 7.00	OR7010600	
107.00 × 2.50	OR2510700	
107.00 × 5.00	OR5010700	
107.32 × 5.33	ORAR00347	ARP/R50
107.54 × 3.53	ORAR00244	ARP
107.62 × 2.62	ORAR00156	ARP
107.67 × 1.78	ORAR00046	ARP
108.00 × 3.00	OR3010800	
108.00 × 4.00	OR4010800	
108.00 × 6.00	OR6010800	
108.00 × 7.00	OR7010800	
108.80 × 8.40	OR8410880	
10900 × 3.55	ORIC10900	DIN/ISO
109.00 × 5.30	ORID10900	DIN/ISO
109.10 × 5.70	OR5710910	S
109.20 × 5.70	OR5710920	
109.40 × 3.10	OR3110940	G110
109.50 × 3.00	OR3010950	S
109.60 × 5.70	OR5710960	P110
110.00 × 2.00	OR2011000	
110.00 × 3.00	OR3011000	
110.00 × 3.50	OR3511000	
110.00 × 4.00	OR4011000	
110.00 × 4.50	OR4511000	
110.00 × 5.00	OR5011000	
110.00 × 5.50	OR5511000	
110.00 × 6.00	OR6011000	
110.00 × 8.00	OR8011000	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
110.49 × 5.33	ORAR00348	ARP/R51
110.72 × 3.53	ORAR00245	ARP
111.60 × 5.70	OR5711160	P112
112.00 × 1.50	OR1511200	
112.00 × 2.50	OR2511200	
112.00 × 3.00	OR3011200	
112.00 × 3.55	ORIC11200	DIN/ISO/NF
112.00 × 4.00	OR4011200	
112.00 × 5.00	OR5011200	
112.00 × 5.30	ORID11200	DIN/ISO/NF
112.00 × 6.00	OR6011200	
112.00 × 8.00	OR8011200	
113.00 × 3.50	OR3511300	
113.00 × 4.00	OR4011300	
113.67 × 5.33	ORAR00349	ARP/R52
113.67 × 7.00	ORAR00425	ARP/R53
113.89 × 3.53	ORAR00246	ARP
113.97 × 2.62	ORAR00157	ARP
114.00 × 3.00	OR3011400	
114.00 × 4.00	OR4011400	
114.00 × 6.00	OR6011400	
114.00 × 8.00	OR8011400	
114.02 × 1.78	ORAR00047	ARP
114.30 × 5.70	OR5711430	S
114.40 × 3.10	OR3111440	G115
114.50 × 3.00	OR3011450	S
114.60 × 5.70	OR5711460	P115
115.00 × 2.00	OR2011500	
115.00 × 2.50	OR2511500	
115.00 × 3.00	OR3011500	
115.00 × 3.55	ORIC11500	DIN/ISO/NF
115.00 × 4.00	OR4011500	
115.00 × 4.50	OR4511500	
115.00 × 5.00	OR5011500	
115.00 × 5.30	ORID11500	DIN/ISO/NF
115.00 × 6.00	OR6011500	
115.00 × 7.00	OR7011500	
116.00 × 3.00	OR3011600	
116.00 × 4.00	OR4011600	
116.84 × 5.33	ORAR00350	ARP
116.84 × 7.00	ORAR00426	ARP/R54
117.00 × 2.50	OR2511700	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
117.00 × 4.00	OR4011700	
117.00 × 8.00	OR8011700	
117.07 × 3.53	ORAR00247	ARP
118.00 × 2.00	OR2011800	
118.00 × 3.00	OR3011800	
118.00 × 3.55	ORIC11800	DIN/ISO/NF
118.00 × 4.00	OR4011800	
118.00 × 4.50	OR4511800	
118.00 × 5.00	OR5011800	
118.00 × 5.30	ORID11800	DIN/ISO/NF
118.00 × 6.00	OR6011800	
119.00 × 3.00	OR3011950	
119.30 × 5.70	OR5711930	S
119.40 × 3.10	OR3111940	G120
119.50 × 3.00	OR3011950	S
119.60 × 5.70	OR5711960	P120
120.00 × 2.00	OR2012000	
120.00 × 2.50	OR2512000	
120.00 × 3.00	OR3012000	
120.00 × 3.50	OR3512000	
120.00 × 4.00	OR4012000	
120.00 × 4.50	OR4512000	
120.00 × 5.00	OR5012000	
120.00 × 6.00	OR6012000	
120.02 × 5.33	ORAR00351	ARP/R55
120.02 × 7.00	ORAR00427	ARP
120.24 × 3.53	ORAR00248	ARP
120.32 × 2.62	ORAR00158	ARP
120.37 × 1.78	ORAR00048	ARP
122.00 × 2.00	OR2012200	
122.00 × 3.00	OR3012200	
122.00 × 3.55	ORIC12200	DIN/ISO/NF
122.00 × 4.00	OR4012200	
122.00 × 5.30	ORID12200	DIN/ISO/NF
120.00 × 6.00	OR6012300	
123.19 × 5.33	ORAR00352	ARP
123.19 × 7.00	ORAR00428	ARP/R56
123.42 × 3.53	ORAR00249	ARP
124.00 × 4.00	OR4012400	
124.00 × 4.50	OR4512400	
124.30 × 5.70	OR5712460	S
124.40 × 3.10	OR3112440	G125

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
124.50 × 3.00	OR3012450	S
124.60 × 5.70	OR5712460	P125
125.00 × 2.00	OR2012500	
125.00 × 2.50	OR2512500	
125.00 × 3.00	OR3012500	
125.00 × 3.50	OR3512500	
125.00 × 3.55	ORIC12500	DIN/ISO/NF
125.00 × 4.00	OR4012500	
125.00 × 5.00	OR5012500	
125.00 × 5.30	ORID12500	DIN/ISO/NF
125.00 × 6.00	OR6012500	
125.00 × 8.00	OR8012500	
126.00 × 4.00	OR4012600	
126.00 × 4.50	OR4512600	
126.37 × 5.33	ORAR00353	ARP
126.37 × 7.00	ORAR00429	ARP/R57
126.59 × 3.53	ORAR00250	ARP
126.67 × 2.62	ORAR00159	ARP
126.72 × 1.78	ORAR00049	ARP
127.00 × 4.00	OR4012700	
127.00 × 5.00	OR5012700	
128.00 × 2.00	OR2012800	
128.00 × 2.50	OR2512800	
128.00 × 3.00	OR3012800	
128.00 × 3.55	ORIC12800	DIN/ISO/NF
128.00 × 5.30	ORID12800	DIN/ISO/NF
128.00 × 6.00	OR6012800	
129.00 × 4.00	OR4012900	
129.30 × 5.70	OR5712930	S
129.40 × 3.10	OR3112940	G130
129.50 × 3.00	OR3012950	S
129.54 × 5.33	ORAR00354	ARP
129.54 × 7.00	ORAR00430	ARP/R58
129.60 × 5.70	OR5712960	P130
129.77 × 3.53	ORAR00251	ARP
130.00 × 2.00	OR2013000	
130.00 × 2.50	OR2513000	
130.00 × 3.00	OR3013000	
130.00 × 4.00	OR4013000	
130.00 × 4.50	OR4513000	
130.00 × 5.00	OR5013000	
130.00 × 5.50	OR5513000	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
130.00 × 6.00	OR6013000	
130.00 × 7.50	OR7513000	
131.50 × 4.50	OR4513150	
131.60 × 5.70	OR5713160	P132
132.00 × 2.00	OR2013200	
132.00 × 3.00	OR3013200	
132.00 × 3.55	ORIC13200	DIN/ISO/NF
132.00 × 4.00	OR4013200	
132.00 × 5.00	OR5013200	
132.00 × 5.30	ORID13200	DIN/ISO/NF
132.00 × 8.00	OR8013200	
132.72 × 5.33	ORAR00355	ARP
132.72 × 7.00	ORAR00431	ARP/R59
132.94 × 3.53	ORAR00252	ARP
133.00 × 4.00	OR4013300	
133.02 × 2.62	ORAR00160	ARP
133.07 × 1.78	ORAR00050	ARP
134.00 × 3.00	OR3013400	
134.00 × 4.00	OR4013400	
134.00 × 5.00	OR5013400	
134.30 × 5.70	OR5713430	S
134.40 × 3.10	OR3113440	G135
134.50 × 3.00	OR3013450	S
135.60 × 5.70	OR5713560	P135
135.00 × 2.00	OR2013500	
135.00 × 2.50	OR2513500	
135.00 × 3.00	OR3013500	
135.00 × 4.00	OR4013500	
135.00 × 5.00	OR5013500	
135.00 × 6.00	OR6013500	
135.89 × 5.33	ORAR00356	ARP
135.89 × 7.00	ORAR00432	ARP/R60
136.00 × 3.55	ORIC13600	DIN/ISO/NF
136.00 × 5.30	ORID13600	DIN/ISO/NF
136.00 × 8.00	OR8013600	
136.12 × 3.53	ORAR00253	ARP
138.00 × 3.00	OR3013800	
138.00 × 5.00	OR5013800	
138.00 × 6.00	OR6013800	
139.07 × 5.33	ORAR00357	ARP
139.07 × 7.00	ORAR00433	ARP/R61
139.29 × 3.53	ORAR00254	ARP

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
139.30 × 5.70	OR5713930	S
139.37 × 2.62	ORAR00161	ARP
139.40 × 3.10	OR3113940	G140
139.50 × 3.00	OR3013930	S
139.60 × 5.70	OR5713960	P140
139.40 × 3.10	OR3113940	
140.00 × 2.50	OR2514000	DIN/ISO/NF
140.00 × 3.00	OR3014000	
140.00 × 3.55	ORIC14000	
140.00 × 4.00	OR4014000	
140.00 × 4.50	OR4514000	
140.00 × 5.00	OR5014000	
140.00 × 5.30	ORID14000	DIN/ISO/NF
142.00 × 4.00	OR4014200	
142.00 × 6.00	OR6014200	
142.24 × 5.33	ORAR00358	ARP
142.24 × 7.00	ORAR00434	ARP/R62
142.47 × 3.53	ORAR00255	ARP
143.00 × 2.00	OR2014300	
144.00 × 4.00	OR4014400	
144.00 × 5.00	OR5014400	
144.00 × 8.00	OR8014400	S
144.10 × 8.40	OR8414410	
144.30 × 5.70	OR5714430	
144.40 × 3.10	OR3114440	G145
144.50 × 3.00	OR3014450	S
144.60 × 5.70	OR5714460	P145
145.00 × 2.50	OR2514500	DIN/ISO/NF
145.00 × 3.55	ORIC14500	
145.00 × 4.00	OR4014500	
145.00 × 4.50	OR4514500	DIN/ISO/NF
145.00 × 5.30	ORID14500	
145.00 × 6.00	OR6014500	
145.42 × 5.33	ORAR00359	ARP
145.42 × 7.00	ORAR00435	ARP/R63
145.64 × 3.53	ORAR00256	ARP
145.72 × 2.62	ORAR00162	ARP
146.00 × 2.00	OR2014600	
146.00 × 3.00	OR3014600	
146.00 × 4.00	OR4014600	
148.00 × 4.00	OR4014800	
148.00 × 6.00	OR6014800	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
148.49 × 5.33	ORAR00360	ARP
148.59 × 7.00	ORAR00436	ARP/R64
148.82 × 3.53	ORAR00257	ARP
149.00 × 3.00	OR3014900	S
149.00 × 5.00	OR5014900	
149.10 × 8.40	OR8414910	
149.20 × 5.70	OR5714920	G150 P150A
149.30 × 5.70	OR5714930	
149.50 × 8.40	OR8414950	
149.60 × 5.70	OR5714960	P150
150.00 × 2.00	OR2015000	
150.00 × 2.50	OR2515000	
150.00 × 3.00	OR3015000	
150.00 × 3.55	ORIC15000	DIN/ISO/NF
150.00 × 4.00	OR4015000	
150.00 × 4.50	OR4515000	
150.00 × 5.00	OR5015000	DIN/ISO/NF
150.00 × 5.30	ORID15000	
150.00 × 6.00	OR6015000	
150.00 × 8.00	OR8015000	ARP
151.77 × 5.33	ORAR00361	
151.77 × 7.00	ORAR00437	
151.99 × 3.53	ORAR00258	ARP/R65
152.00 × 7.50	OR7515200	ARP
152.07 × 2.62	ORAR00163	ARP
153.00 × 4.50	OR4515300	
153.00 × 6.00	OR6015300	
153.50 × 1.60	OR1615350	S
154.00 × 3.00	OR3015400	
154.10 × 8.40	OR8415410	
154.30 × 5.70	OR5715430	G155 P155
154.50 × 8.40	OR8415450	
155.00 × 2.50	OR2515500	
155.00 × 3.00	OR3015500	DIN/ISO/NF
155.00 × 3.55	ORIC15500	
155.00 × 4.00	OR4015500	
155.00 × 4.50	OR4515500	DIN/ISO/NF
155.00 × 5.00	OR5015500	
155.00 × 5.30	ORID15500	
155.00 × 8.00	OR8015500	
156.00 × 2.00	OR2015600	
156.00 × 2.50	OR2515600	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
156.00 × 3.00	OR3015600	
156.00 × 4.00	OR4015600	
157.00 × 3.00	OR3015700	
158.00 × 5.00	OR5015800	
158.00 × 6.00	OR6015800	
158.12 × 5.33	ORAR00362	ARP
158.12 × 7.00	ORAR00438	ARP/R66
158.34 × 3.53	ORAR00259	ARP
158.42 × 2.62	ORAR00164	ARP
159.10 × 8.40	OR8415910	S
159.30 × 5.70	OR5715930	G160/S
159.50 × 8.40	OR8415950	P160
160.00 × 2.00	OR2016000	
160.00 × 2.50	OR2516000	
160.00 × 3.00	OR3016000	
160.00 × 3.55	ORIC16000	DIN/ISO/NF
160.00 × 4.00	OR4016000	
160.00 × 4.50	OR4516000	
160.00 × 5.00	OR5016000	
160.00 × 5.30	ORID16000	DIN/ISO/NF
160.00 × 6.00	OR6016000	
160.00 × 8.00	OR8016000	
162.00 × 3.00	OR3016200	
164.00 × 3.00	OR3016400	
164.00 × 4.00	OR4016400	
164.00 × 5.00	OR5016400	
164.10 × 8.40	OR8416410	S
164.30 × 5.70	OR5716430	G165/S
164.47 × 5.33	ORAR00363	ARP
164.47 × 7.00	ORAR00439	ARP/R67
164.50 × 8.40	OR8416450	P165
164.69 × 3.53	ORAR00260	ARP
164.77 × 2.62	ORAR00165	ARP
165.00 × 2.00	OR2016500	
165.00 × 2.50	OR2516500	
165.00 × 3.00	OR3016500	
165.00 × 3.55	ORIC16500	DIN/ISO/NF
165.00 × 4.00	OR4016500	
165.00 × 4.50	OR4516500	
165.00 × 5.00	OR5016500	
165.00 × 5.30	ORID16500	DIN/ISO/NF
165.00 × 6.00	OR6016500	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
165.00 × 8.00	OR8016500	
166.00 × 6.00	OR6016600	
166.00 × 8.00	OR8016600	
167.00 × 2.50	OR2516700	
168.00 × 4.00	OR4016800	
168.00 × 5.00	OR5016800	
169.10 × 8.40	OR8416910	S
169.30 × 5.70	OR5716930	G170/S
169.50 × 8.40	OR8416950	P170
170.00 × 2.00	OR2017000	
170.00 × 2.50	OR2517000	
170.00 × 3.00	OR3017000	
170.00 × 3.50	OR3517000	
170.00 × 3.55	ORIC17000	DIN/ISO/NF
170.00 × 4.00	OR4017000	
170.00 × 5.00	OR5017000	
170.00 × 5.30	ORID17000	DIN/ISO/NF
170.00 × 6.00	OR6017000	
170.00 × 8.00	OR8017000	
170.82 × 5.33	ORAR00364	ARP
170.82 × 7.00	ORAR00440	ARP/R68
171.04 × 3.53	ORAR00261	ARP
171.12 × 2.62	ORAR00166	ARP
172.00 × 4.00	OR4017200	
172.00 × 6.00	OR6017200	
174.00 × 3.00	OR3017400	
174.10 × 8.40	OR8417410	S
174.30 × 5.70	OR5717430	G275/S
174.50 × 8.40	OR8417450	P175
175.00 × 2.00	OR2017500	
175.00 × 3.55	ORIC17500	DIN/ISO/NF
175.00 × 4.00	OR4017500	
175.00 × 5.00	OR5017500	
175.00 × 5.30	ORID17500	DIN/ISO/NF
175.00 × 6.00	OR6017500	
175.00 × 7.00	OR7017500	
175.00 × 8.00	OR8017500	
176.00 × 6.00	OR6017600	
176.20 × 7.00	OR7017620	
177.00 × 4.00	OR4017700	
177.17 × 5.33	ORAR00365	ARP
177.17 × 7.00	ORAR00441	ARP/R69

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
177.39 × 3.53	ORAR00262	ARP
177.47 × 2.62	ORAR00167	ARP
178.00 × 2.00	OR2017800	
179.00 × 3.00	OR3017900	
179.10 × 8.40	OR8417910	S
170.30 × 5.70	OR5717930	G180/S
179.50 × 8.40	OR8417950	P180
180.00 × 1.50	OR1518000	
180.00 × 3.00	OR3018000	
180.00 × 3.50	OR3518000	
180.00 × 3.55	ORIC18000	DIN/ISO/NF
180.00 × 4.00	OR4018000	
180.00 × 4.50	OR4518000	
180.00 × 5.00	OR5018000	
180.00 × 5.30	ORID18000	DIN/ISO/NF
180.00 × 6.00	OR6018000	
180.00 × 8.00	OR8018000	
182.00 × 3.00	OR3018200	
182.00 × 4.00	OR4018200	
182.00 × 6.00	OR6018200	
182.00 × 7.00	OR7018200	
183.52 × 5.33	ORAR00366	ARP
183.52 × 7.00	ORAR00422	ARP/R70
183.74 × 3.53	ORAR00263	ARP
183.82 × 2.62	ORAR00168	ARP
184.00 × 8.00	OR8018400	
184.10 × 8.40	OR8418410	S
184.30 × 5.70	OR5718430	G185/S
184.50 × 8.40	OR8418450	P185
185.00 × 2.00	OR2018500	
185.00 × 3.00	OR3018500	
185.00 × 3.55	ORIC18500	DIN/ISO/NF
185.00 × 4.00	OR4018500	
185.00 × 4.50	OR4518500	
185.00 × 5.00	OR5018500	
185.00 × 5.30	ORID18500	DIN/ISO/NF
185.00 × 6.00	OR6018500	
185.00 × 7.50	OR7518500	
186.00 × 3.50	OR3518600	
186.00 × 7.00	OR7018600	
188.00 × 2.00	OR2018800	
188.00 × 3.00	OR3018800	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
188.00 × 4.00	OR4018800	
188.00 × 6.00	OR6018800	
189.10 × 8.40	OR8418910	S
189.30 × 5.70	OR5718930	G190/S
189.50 × 8.40	OR8418950	P190
189.87 × 5.33	ORAR00367	ARP
189.87 × 7.00	ORAR00443	ARP/R71
190.00 × 3.00	OR3019000	
190.00 × 3.55	ORIC19000	DIN/ISO/NF
190.00 × 4.00	OR4019000	
190.00 × 5.00	OR5019000	
190.00 × 5.30	ORID19000	DIN/ISO/NF
190.00 × 6.00	OR6019000	
190.00 × 8.00	OR8019000	
190.09 × 3.53	ORAR00264	ARP
190.17 × 2.62	ORAR00169	
192.00 × 3.00	OR3019200	ARP
192.00 × 4.00	OR4019200	
193.70 × 7.00	OR7019370	
194.00 × 2.00	OR2019400	
194.00 × 3.00	OR3019400	
194.10 × 8.40	OR8419410	S
194.30 × 5.70	OR5719430	G195/S
194.50 × 8.40	OR8419450	P195
195.00 × 2.50	OR2519500	
195.00 × 3.00	OR3019500	
195.00 × 3.50	OR3519500	
195.00 × 3.55	ORIC19500	DIN/ISO/NF
195.00 × 4.00	OR4019500	
195.00 × 5.00	OR5019500	
195.00 × 5.30	ORIC19500	DIN/ISO/NF
195.00 × 6.00	OR6019500	
196.22 × 5.33	ORAR00368	ARP
196.22 × 7.00	ORAR00444	ARP/R72
196.44 × 3.53	ORAR00265	ARP
196.52 × 2.62	ORAR00170	ARP
197.00 × 3.00	OR3019700	
198.00 × 4.00	OR4019800	
198.00 × 5.00	OR5019800	
198.00 × 6.00	OR6019800	
199.10 × 8.40	OR8419910	S
199.30 × 5.70	OR5719930	G200/S

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
199.50 × 8.40 200.00 × 2.00 20000 × 2.50	OR8419950 OR2020000 OR2520000	P200
200.00 × 3.00 200.00 × 3.55 200.00 × 4.00	OR3020000 ORIC20000 OR4020000	DIN/ISO/NF
200.00 × 5.00 200.00 × 5.30 200.00 × 6.00	OR5020000 ORID20000 OR6020000	DIN/ISO/NF
200.00 × 8.00 202.57 × 5.33 202.57 × 7.00	OR8020000 ORAR00369 ORAR00445	ARP ARP/R73
202.79 × 3.53 202.87 × 2.62 203.00 × 3.00	ORAR00266 ORAR00171 OR3020300	ARP ARP
204.00 × 4.00 204.00 × 6.00 204.20 × 5.70	OR4020400 OR5720400 OR6020400	
204.50 × 8.40 205.00 × 1.50 205.00 × 2.00	OR8420450 OR1520500 OR2020500	P205
205.00 × 3.00 205.00 × 5.00 205.00 × 7.00	OR3020500 OR5020500 OR7020500	
206.00 × 5.30 206.00 × 7.00 208.00 × 3.00	ORID20600 ORIE20600 OR3020800	DIN/ISO/NF DIN/ISO/NF
208.00 × 4.00 208.00 × 6.00 208.00 × 7.00	OR4020800 OR6020800 OR7020800	
208.50 × 8.40 208.92 × 5.33 209.10 × 8.40	OR8420850 ORAR00370 OR8420910	P209 ARP S
209.14 × 3.53 209.22 × 2.62 209.30 × 5.70	ORAR00267 ORAR00172 OR5720930	ARP ARP G210/S
209.50 × 8.40 210.00 × 2.00 210.00 × 3.00	OR8420950 OR2021000 OR3021000	P210
210.00 × 4.00 210.00 × 5.00 210.00 × 6.50	OR4021000 OR5021000 OR6521000	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
210.00 × 7.00 210.00 × 8.00 212.00 × 2.50	OR7021000 OR8021000 OR2521200	
212.00 × 5.30 212.00 × 6.00 212.00 × 7.00	ORID21200 OR6021200 ORID21200	DIN/ISO/NF DIN/ISO/NF
212.00 × 7.00 213.00 × 3.00 213.00 × 7.00	OR7021200 OR3021300 OR7021300	
214.00 × 5.00 214.50 × 8.40 215.00 × 3.00	OR5021400 OR8421450 OR3021500	P215
215.00 × 5.00 215.00 × 8.00 215.27 × 5.33	OR5021500 OR8021500 ORAR00371	ARP
215.27 × 7.00 215.49 × 3.53 215.57 × 2.62	ORAR00446 ORAR00268 ORAR00173	ARP/R74 ARP ARP
216.00 × 2.00 216.00 × 4.00 217.00 × 5.00	OR2012600 OR4021600 OR5021700	
218.00 × 5.30 218.00 × 6.00 218.00 × 7.00	ORID21800 OR6021800 ORIE21800	DIN/ISO/NF DIN/ISO/NF
218.50 × 4.50 219.10 × 8.40 219.30 × 5.70	OR4521850 OR8421910 OR5721930	S G220/S
219.50 × 8.40 220.00 × 2.00 220.00 × 3.00	OR8421950 OR2022000 OR3022000	P220
220.00 × 4.00 220.00 × 5.00 220.00 × 7.00	OR4022000 OR5022000 OR7022000	
220.00 × 8.00 221.62 × 5.33 221.84 × 3.53	OR8022000 ORAR00372 ORAR00269	ARP ARP
221.92 × 2.62 222.00 × 4.00 224.00 × 5.30	ORAR00174 OR4022200 ORID22400	ARP DIN/ISO/NF
224.00 × 7.00 224.50 × 8.40 225.00 × 3.00	ORIE22400 OR8422450 OR3022500	DIN/ISO/NF P225

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
225.00 × 4.00	OR4022500	
225.00 × 5.00	OR5022500	
225.00 × 6.00	OR6022500	
225.00 × 7.00	OR7022500	
225.00 × 8.00	OR8022500	
226.00 × 6.00	OR6022600	
227.97 × 5.33	ORAR00373	ARP
227.97 × 7.00	ORAR00447	ARP/R75
228.00 × 4.00	OR4022800	
228.00 × 7.00	OR7022800	
228.19 × 3.53	ORAR00270	ARP
228.27 × 2.62	ORAR00175	ARP
229.00 × 6.00	OR6022900	
229.10 × 8.40	OR8422910	S
229.30 × 5.70	OR5722930	G230/S
229.50 × 8.40	OR8422950	P230
230.00 × 2.00	OR2023000	
230.00 × 3.00	OR3023000	
230.00 × 5.30	ORID23000	DIN/ISO/NF
230.00 × 4.00	OR4023000	
230.00 × 5.00	OR5023000	
230.00 × 7.00	ORIE23000	DIN/ISO/NF
230.00 × 8.00	OR8023000	
233.00 × 3.00	OR3023300	
234.32 × 5.33	ORAR00374	ARP
234.50 × 8.40	OR8423450	P235
234.54 × 3.53	ORAR00271	ARP
234.62 × 2.62	ORAR00176	ARP
235.00 × 4.00	OR4023500	
235.00 × 5.00	OR5023500	
235.00 × 6.00	OR6023500	
235.00 × 7.00	OR7023500	
235.00 × 8.00	OR8023500	
236.00 × 5.30	ORID23600	DIN/ISO/NF
236.00 × 7.00	ORIE23600	DIN/ISO/NF
238.00 × 2.00	OR2023800	
238.00 × 4.00	OR4023800	
238.00 × 5.00	OR5023800	
238.00 × 8.00	OR8023800	
239.10 × 8.40	OR8423910	S
239.30 × 5.70	OR5723930	G240/S
239.50 × 8.40	OR8423950	P240

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
240.00 × 3.00	OR3024000	
240.00 × 4.00	OR4024000	
240.00 × 5.00	OR5024000	
240.00 × 6.00	OR6024000	
240.67 × 5.33	ORAR00375	ARP
240.67 × 7.00	ORAR00448	ARP/R76
240.89 × 3.53	ORAR00272	ARP
240.97 × 2.62	ORAR00177	ARP
242.00 × 5.00	OR5024200	
242.00 × 6.00	OR6024200	
242.00 × 8.00	OR8024200	
243.00 × 5.30	ORID24300	DIN/ISO/NF
243.00 × 7.00	ORIE24300	DIN/ISO/NF
244.00 × 2.00	OR2024400	
244.00 × 7.00	OR7024400	
244.50 × 8.40	OR8424450	P245
245.00 × 3.00	OR3024500	
245.00 × 5.00	OR5024500	
246.00 × 4.00	OR4024600	
247.00 × 6.00	OR6024700	
247.00 × 7.00	OR7024700	
247.02 × 5.33	ORAR00376	ARP
247.24 × 3.53	ORAR00273	ARP
247.32 × 2.62	ORAR00178	ARP
248.00 × 5.00	OR5024800	
249.10 × 8.40	OR8424910	S
249.30 × 5.70	OR5724930	G250/S
249.50 × 8.40	OR8424950	P250
250.00 × 3.00	OR3025000	
250.00 × 3.55	ORID25000	
250.00 × 4.00	OR4025000	
250.00 × 5.00	OR5025000	
250.00 × 6.00	OR6025000	
250.00 × 7.00	OR7025000	
250.00 × 7.00	ORIE25000	DIN/ISO/NF
250.00 × 8.00	OR8025000	
253.37 × 5.33	ORAR00377	ARP
253.37 × 7.00	ORAR00449	ARP/R77
253.59 × 3.53	OARA00274	ARP
254.00 × 3.00	OR3025400	
254.50 × 8.40	OR8425450	P255
255.00 × 2.00	OR2025500	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
255.00 × 3.00	OR3025500	
255.00 × 4.00	OR4025500	
255.00 × 5.00	OR5025500	
258.00 × 5.30	ORID25800	DIN/ISO/NF
258.00 × 6.00	OR6025800	
258.00 × 7.00	ORIE25800	DIN/ISO/NF
259.10 × 8.40	OR8425910	
259.30 × 5.70	OR5725930	G260/S
259.50 × 8.40	OR8425950	P260
260.00 × 2.50	OR2526000	
260.00 × 3.00	OR3026000	
260.00 × 4.00	OR4026000	
260.00 × 5.00	OR5026000	
260.00 × 6.00	OR6026000	
260.00 × 7.00	OR7026000	
260.00 × 8.00	OR8026000	
262.00 × 2.00	OR2026200	
262.00 × 4.00	OR4026200	
264.50 × 8.40	OR8426450	P265
265.00 × 3.00	OR3026500	
265.00 × 4.00	OR4026500	
265.00 × 5.00	OR5026500	
265.00 × 5.30	ORID26500	DIN/ISO/NF
265.00 × 6.50	OR6526500	
265.00 × 7.00	ORIE26500	DIN/ISO/NF
265.00 × 8.00	OR8026500	
266.00 × 6.00	OR6026600	
266.07 × 5.33	ORAR00378	ARP
266.07 × 7.00	ORAR00450	ARP/R78
266.29 × 3.53	ORAR00275	ARP
267.00 × 4.50	OR4526700	
268.80 × 8.40	OR8426880	
269.00 × 2.50	OR2526900	
269.30 × 5.70	OR5726930	G270/S
269.50 × 8.40	OR8426950	P270
270.00 × 2.50	OR2527000	
270.00 × 3.00	OR3027000	
270.00 × 4.00	OR4027000	
270.00 × 5.00	OR5027000	
270.00 × 6.00	OR6027000	
270.00 × 8.00	OR8027000	
272.00 × 4.00	OR4027200	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
272.00 × 5.30	ORID27200	DIN/ISO/NF
272.00 × 7.00	ORIE27200	DIN/ISO/NF
274.00 × 2.00	OR2027400	
274.00 × 3.00	OR3027400	
274.00 × 6.50	OR6527400	
274.50 × 8.40	OR8427450	P275
275.00 × 4.00	OR4027500	
275.00 × 5.00	OR5027500	
276.00 × 2.00	OR2027600	
278.77 × 5.33	ORAR00379	ARP
278.77 × 7.00	ORAR00451	ARP/R79
278.99 × 3.53	ORAR00276	ARP
279.10 × 8.40	OR8427910	
279.30 × 5.70	OR5727930	G280/S
279.50 × 8.40	OR8427950	P280
280.00 × 2.50	OR2528000	
280.00 × 3.00	OR3028000	DIN/ISO/NF
280.00 × 4.00	OR4028000	
280.00 × 5.00	OR5028000	
280.00 × 5.30	ORID28000	DIN/ISO/NF
280.00 × 6.00	OR6028000	
280.00 × 7.00	ORIE28000	DIN/ISO/NF
280.00 × 8.00	OR8028000	
282.00 × 4.00	OR4028200	
284.50 × 8.40	OR8428450	P285
285.00 × 3.00	OR3028500	
285.00 × 4.00	OR4028500	
285.00 × 5.00	OR5028500	
285.10 × 7.00	OR7028510	
288.00 × 6.00	OR6028800	
289.10 × 8.40	OR8428910	
289.30 × 5.70	OR5728930	G290/S
289.50 × 8.40	OR8428950	P290
290.00 × 2.00	OR2029000	
290.00 × 3.00	OR3029000	
290.00 × 5.00	OR5029000	
290.00 × 5.30	ORID29000	DIN/ISO/NF
290.00 × 6.00	OR6029000	
290.00 × 7.00	ORIE29000	DIN/ISO/NF
290.00 × 8.00	OR8029000	
291.47 × 5.33	ORAR00380	ARP
291.47 × 7.00	ORAR00452	ARP/R80

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
291.69 × 3.53 292.00 × 4.00 292.60 × 8.40	ORAR00277 OR4029200 OR8429260	ARP
294.00 × 4.00 294.00 × 6.00 294.50 × 8.40	OR4029400 OR6029400 OR8429450	P295
295.00 × 6.00 296.00 × 2.50 297.00 × 4.00	OR6029500 OR2529600 OR4029700	
299.30 × 5.70 299.50 × 8.40 300.00 × 3.00	OR5729930 OR8429950 OR3030000	G300/S P300
300.00 × 5.00 300.00 × 5.30 300.00 × 6.00	OR5030000 ORID30000 OR6030000	DIN/ISO/NF
300.00 × 7.00 300.00 × 8.00 304.00 × 8.00	ORIE30000 OR8030000 OR8030400	DIN/ISO/NF
304.17 × 5.33 304.17 × 7.00 304.39 × 3.53	ORAR00381 ORAR00453 ORAR00278	ARP ARP/R81 ARP
305.00 × 4.00 305.00 × 5.00 307.00 × 5.30	OR4030500 OR5030500 ORID30700	DIN/ISO/NF
307.00 × 7.00 310.00 × 3.00 310.00 × 4.00	ORIE30700 OR3031000 OR4031000	DIN/ISO/NF
310.00 × 5.00 310.00 × 7.00 310.00 × 8.00	OR5031000 OR7031000 OR8031000	
314.00 × 8.00 314.50 × 8.40 315.00 × 2.50	OR8031400 OR8431450 OR2531500	P315
315.00 × 4.00 315.00 × 5.00 315.00 × 5.30	OR4031500 OR5031500 ORID31500	DIN/ISO/NF
315.00 × 6.00 315.00 × 7.00 316.87 × 7.00	OR6031500 ORIE31500 ORAR00454	DIN/ISO/NF ARP/R82
319.30 × 5.70 319.50 × 8.40 320.00 × 3.00	OR5731930 OR8431950 OR3032000	S P320

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
320.00 × 4.00 320.00 × 5.00 320.00 × 6.00	OR4032000 OR5032000 OR6032000	
320.00 × 7.00 320.00 × 8.00 324.00 × 4.00	OR7032000 OR8032000 OR4032400	
325.00 × 5.00 325.00 × 5.30 325.00 × 6.00	OR5032500 ORID32500 OR6032500	DIN/ISO/NF
325.00 × 7.00 329.57 × 5.33 329.57 × 7.00	ORIE32500 ORAR00382 ORAR00455	DIN/ISO/NF ARP ARP/R83
329.79 × 3.53 330.00 × 4.00 330.00 × 5.00	ORAR00279 OR4033000 OR5033000	ARP
330.00 × 6.00 330.00 × 7.00 330.00 × 8.00	OR6033000 OR7033000 OR8033000	
331.00 × 3.00 333.00 × 4.00 334.50 × 8.40	OR3033100 OR4033300 OR8433450	P335
335.00 × 5.00 335.00 × 5.30 335.00 × 6.00	OR5033500 ORID33500 OR6033500	DIN/ISO/NF
335.00 × 7.00 338.00 × 6.00 339.30 × 5.70	ORIE33500 OR6033800 OR5733930	DIN/ISO/NF S
339.50 × 8.40 340.00 × 3.50 340.00 × 4.00	OR8433950 OR3534000 OR4034000	P340
340.00 × 5.00 340.00 × 6.00 340.00 × 8.00	OR5034000 OR6034000 OR8034000	
342.00 × 8.00 342.47 × 7.00 345.00 × 5.00	OR8034200 ORAR00456 OR5034500	ARP/R84
345.00 × 5.30 345.00 × 7.00 348.00 × 4.00	ORID34500 ORIE34500 OR4034800	DIN/ISO/NF DIN/ISO/NF
348.00 × 6.00 349.10 × 8.40 352.50 × 4.00	OR6034800 OR8434910 OR4035000	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
350.00 × 5.00	OR5035000	
350.00 × 6.00	OR6035000	
350.00 × 8.00	OR8035000	
354.50 × 8.40	OR8435450	P355
354.97 × 5.33	ORAR00383	ARP
354.97 × 7.00	ORAR00457	ARP/R85
355.00 × 4.00	OR4035500	
355.00 × 5.00	OR5035500	
355.00 × 5.30	ORID35500	DIN/ISO/NF
355.00 × 7.00	ORIE35500	DIN/ISO/NF
355.19 × 3.53	ORAR00280	ARP
358.00 × 6.00	OR6035800	
359.10 × 8.40	OR8435910	
359.30 × 5.70	OR5735930	S
359.50 × 8.40	OR8435950	P360
360.00 × 4.00	OR4036000	
360.00 × 5.00	OR5036000	
360.00 × 8.00	OR8036000	
365.00 × 5.00	OR5036500	
365.00 × 5.30	ORID36500	DIN/ISO/NF
365.00 × 7.00	ORIE36500	DIN/ISO/NF
367.00 × 3.50	OR3536700	
367.00 × 5.00	OR5036700	
367.67 × 7.00	ORAR00458	ARP/R86
368.00 × 2.50	OR2536800	
368.00 × 6.00	OR6036800	
370.00 × 4.00	OR4037000	
370.00 × 5.00	OR5037000	
372.00 × 8.40	OR8437200	
374.00 × 8.00	OR8037400	
374.50 × 8.40	OR8437450	P375
375.00 × 5.00	OR5037500	
375.00 × 5.30	ORID37500	DIN/ISO/NF
375.00 × 7.00	ORIE37500	DIN/ISO/NF
376.00 × 6.00	OR6037600	
379.10 × 8.40	OR8437910	
379.20 × 5.70	OR5737920	
379.30 × 5.70	OR5737930	S
380.00 × 3.00	OR3038000	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
380.00 × 4.00	OR4038000	
380.00 × 5.00	OR5038000	
380.00 × 6.00	OR6038000	
380.00 × 8.00	OR8038000	
380.37 × 5.33	ORAR00384	ARP
380.37 × 7.00	ORAR00459	ARP/R87
380.59 × 3.53	ORAR00281	ARP
382.00 × 8.00	OR8038200	
384.50 × 8.40	OR8438450	P385
385.00 × 5.00	OR5038500	
386.00 × 6.00	OR6038600	
387.00 × 5.30	ORID38700	DIN/ISO/NF
387.00 × 7.00	ORIE38700	DIN/ISO/NF
388.00 × 6.00	OR6038800	
388.00 × 7.00	OR7038800	
389.00 × 8.00	OR8038900	
390.00 × 3.00	OR3039000	
390.00 × 4.00	OR4039000	
393.07 × 7.00	ORAR00460	ARP/R88
394.00 × 6.00	OR6039400	
394.00 × 8.00	OR8039400	
395.00 × 5.00	OR5039500	
399.10 × 8.40	OR8439910	
399.30 × 5.70	OR5739930	S
399.50 × 8.40	OR8439950	P400
400.00 × 2.00	OR2040000	
400.00 × 3.00	OR3040000	
400.00 × 4.00	OR4040000	
400.00 × 5.00	OR5040000	
400.00 × 5.30	ORID40000	DIN/ISO/NF
400.00 × 7.00	ORIE40000	DIN/ISO/NF
400.00 × 8.00	OR8040000	
405.26 × 3.53	ORAR00282	ARP
405.26 × 5.33	ORAR00385	ARP
405.26 × 7.00	ORAR00461	ARP
410.00 × 4.00	OR4041000	
410.00 × 5.00	OR5041000	
410.00 × 6.50	OR6541000	
412.00 × 7.00	ORIE41200	DIN/ISO/NF
412.00 × 8.00	OR8041200	
415.00 × 5.00	OR5041500	
417.96 × 7.00	ORAR00462	ARP

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
419.30 × 5.70	OR5741930	
420.00 × 4.00	OR4042000	
420.00 × 5.00	OR5042000	
422.00 × 6.00	OR6042200	
424.00 × 5.00	OR5042400	
425.00 × 4.00	OR4042500	
425.00 × 7.00	ORIE42500	DIN/ISO/NF
425.00 × 8.00	OR8042500	
427.00 × 5.00	OR5042700	
429.00 × 6.00	OR6042900	
430.00 × 4.00	OR4043000	
430.66 × 3.53	ORAR00283	ARP
430.66 × 5.33	ORAR00386	ARP
430.66 × 7.00	ORAR00463	ARP
433.00 × 4.00	OR4043300	
437.00 × 7.00	ORIE43700	DIN/ISO/NF
438.00 × 4.00	OR4043800	
439.30 × 5.70	OR5743930	S
440.00 × 3.00	OR3044000	
440.00 × 4.00	OR4044000	
443.36 × 7.00	ORAR00464	ARP
444.00 × 8.00	OR8044400	
445.00 × 5.00	OR5044500	
448.00 × 6.00	OR6044800	
450.00 × 5.00	OR5045000	
445.00 × 7.00	ORIE45000	DIN/ISO/NF
450.00 × 8.00	OR8045000	
451.00 × 7.00	OR7045100	
456.06 × 3.53	ORAR00284	ARP
456.06 × 5.33	ORAR00387	ARP
456.06 × 7.00	ORAR00465	ARP
459.30 × 5.70	OR5745930	S
460.00 × 4.00	OR4046000	
460.00 × 5.00	OR5046000	
460.00 × 8.00	OR8046000	
462.00 × 7.00	ORIE46200	DIN/ISO/NF
465.00 × 5.00	OR5046500	
465.00 × 9.00	OR9046500	
468.76 × 7.00	ORAR00466	ARP
470.00 × 4.00	OR4047000	
470.00 × 5.00	OR5047000	
470.00 × 6.00	OR6047000	

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
470.00 × 8.00	OR8047000	
472.00 × 8.00	OR8047200	
475.00 × 4.00	OR4047500	
475.00 × 7.00	ORIE47500	DIN/ISO/NF
479.30 × 5.70	OR5747930	S
480.00 × 4.00	OR4048000	
480.00 × 5.00	OR5048000	
480.00 × 6.00	OR6048000	
480.00 × 8.00	OR8048000	
481.38 × 5.33	ORAR00388	ARP
481.38 × 7.00	ORAR00467	ARP
487.00 × 7.00	ORIE48700	DIN/ISO/NF
487.00 × 8.00	OR8048700	
489.20 × 5.70	OR5748910	
490.00 × 5.00	OR5049000	
490.00 × 8.00	OR8049000	
492.00 × 4.00	OR4049200	
494.16 × 7.00	ORAR00468	ARP
499.30 × 5.70	OR5749930	
500.00 × 5.00	OR5050000	
500.00 × 6.00	OR6050000	
500.00 × 7.00	ORIE50000	DIN/ISO/NF
500.00 × 8.00	OR8050000	
504.00 × 6.00	OR6050400	
506.78 × 5.33	ORAR00389	ARP
506.86 × 7.00	ORAR00469	ARP
508.00 × 6.00	OR6050800	
510.00 × 5.00	OR5051000	
515.00 × 7.00	ORIE51500	DIN/ISO/NF
520.00 × 5.00	OR5052000	
525.00 × 8.00	OR8052500	
530.00 × 4.00	OR4053000	
530.00 × 5.00	OR5053000	
530.00 × 7.00	ORIE53000	DIN/ISO/NF
532.18 × 5.33	ORAR00390	ARP
532.26 × 7.00	ORAR00470	ARP
540.00 × 8.00	OR8054000	
542.00 × 7.00	OR7054200	
545.00 × 3.00	OR3054500	
545.00 × 7.00	ORIE54500	DIN/ISO/NF
549.00 × 6.00	OR60549 00	
550.00 × 5.00	OR5055000	

O-Ring Dimensions / TSS Part No.

Dimensions $d_1 \times d_2$	TSS Part No.	Standard
557.58 × 5.33	ORAR00391	ARP
557.66 × 7.00	ORAR00471	ARP
560.00 × 4.00	OR4056000	
560.00 × 5.00	OR5056000	DIN/ISO/NF
560.00 × 6.00	OR6056000	
560.00 × 7.00	ORIE56000	
569.00 × 6.00	OR6056900	DIN/ISO/NF
579.00 × 6.00	OR6057900	
580.00 × 7.00	ORIE58000	
580.00 × 8.00	OR8058000	ARP
582.68 × 5.33	ORAR00392	
582.68 × 7.00	ORAR00472	
585.00 × 4.00	OR4058500	
585.00 × 5.00	OR5058500	
590.00 × 5.00	OR5059000	
592.00 × 8.00	OR8059200	
600.00 × 4.00	OR4060000	
600.00 × 5.00	OR5060000	
600.00 × 7.00	ORIE60000	DIN/ISO/NF
600.00 × 8.00	OR8060000	ARP
608.08 × 5.33	ORAR00393	
608.08 × 7.00	ORAR00473	
615.00 × 7.00	ORIE61500	DIN/ISO/NF
630.00 × 7.00	ORIE63000	DIN/ISO/NF
633.48 × 5.33	ORAR00394	ARP
633.48 × 7.00	ORAR00474	ARP
649.00 × 8.40	OR8464900	
650.00 × 7.00	ORIE65000	DIN/ISO/NF
658.08 × 5.33	ORAR00395	ARP
658.88 × 7.00	ORAR00475	ARP
670.00 × 7.00	ORIE67000	DIN/ISO/NF
680.00 × 8.40	OR8468000	
715.00 × 8.40	OR8471500	
740.00 × 8.40	OR8474000	
774.10 × 8.40	OR8477410	
810.00 × 8.40	OR8481000	
845.00 × 8.40	OR8484500	
865.00 × 8.40	OR8486500	
888.00 × 8.40	OR8488800	
934.10 × 8.40	OR8493410	
959.10 × 8.40	OR8495910	

*DIN/ISO/NF 규격은 문의 바랍니다.

- DIN / ISO = DIN 3771 / ISO 3601
- ARP = American standard AS 568A
British standard BS 1806
- S = Swedish standard SMS 1586
- P/G = Japanese standard JIS B 2401
- NF = French standard NF T 47-501
- R = French recommendation

주문 예

O-Ring

- Dimensions : Inside diameter $d_1 = 40.00\text{mm}$
Cord diameter $d_2 = 3.00\text{mm}$
- Compound : NBR 70
(Nitrile Butadiene Elastomer 70 Shore A)

TSS Article No. OR3004000 N70
 TSS Part No. _____
 Compound No. (Standard) _____

이전에 사용했던 규격과 상호 호환되므로, Part No.만
변경하면 됩니다.

Quad-Ring®



Piston, Rod & Rotary Applications

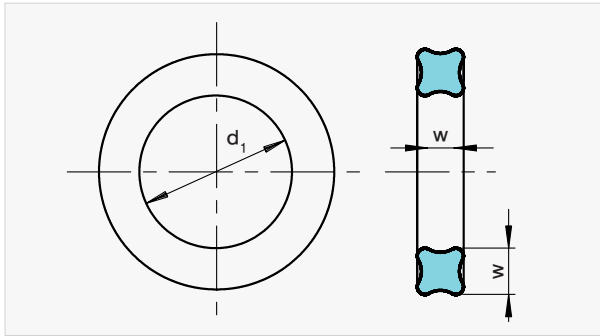
Materials: Elastomer



개요

Quad-Ring®은 미국 표준 규격인, AS 568A와 동일한 규격으로 되어있다.

Self-Energized의 복동 Seal로서, 반경 방향 및 축-방향의 힘이 시스템 압력과 같은 방향으로 움직이기 때문에, 압력의 상승에 따라 Seal의 기밀성이 증가한다.



Quad-Ring® Seal 단면도

특징

Quad-Ring®은 왕복 운동용, 고정용 및 회전용으로 사용할 수 있다.

왕복 피스톤, 로드, 축, 스피들 등 회전 및 나선형으로 사용 가능하다. 고정용으로는 부상, 플랜지, 커버 등의 반경 방향 및 축 방향에 사용된다.

장점

- 왕복 운동에 의한 비틀림 현상이 없다.
- O-Ring 보다 접촉 압력이 적으므로 마찰이 적고, 내마모성이 증가하여 수명이 길다.
- 접촉 압력이 단면 전체에 분포되어, 누유 방지가 우수하다.

적용 범위

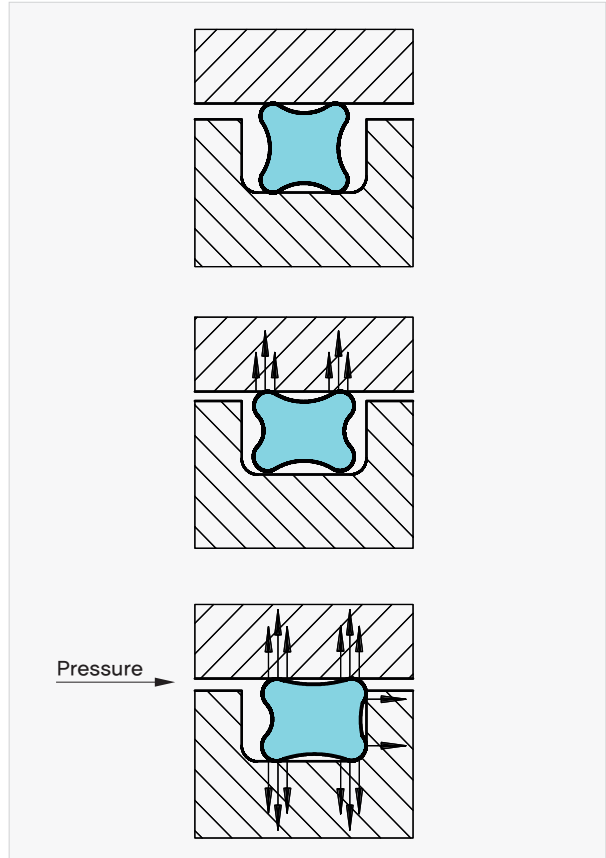
- 압력 : 최대 400 bar (Back-up Ring 사용 시.)
- 속도 : 최대 0.5 m/s
- 온도 : -54℃ ~ +200℃ (재질에 따라서)

※ 주의사항

- 위에 제시된 최대 수치는 같은 동작 시간대에 동시에 유효할 수는 없다.
- 최대 속도는 재질, 타입, 압력, 온도, 틈새 크기에 따라 좌우된다.
- 온도 범위 또한, 매체 조건에 따라 영향을 받는다.

작동 원리

시스템 압력의 증가로 총체적인 Sealing Force가 증가한다. Seal에 압력이 가해지면 Seal은 높은 점성과 압력의 유동체와 같은 방식으로 모든 면에 균등하게 전달된다.



Quad-Ring® Seal squeeze with & without system pressure.

Back-up Ring을 사용해야 하는 경우 :

PTFE 재질로 되어있으며, 하기 조건에 사용한다.

- 50 bar 이상의 고압하에서 사용.
- 속도가 빠르거나 순간적인 작동이 요구되는 경우.
- 고온, 또는 온도의 변화가 심한 경우.
- Oil의 오염이 예상되는 경우.
- 가공 불량으로 틈새에 문제가 있는 경우.

*상기 조건 중, 한 가지라도 해당되면 필히 적용한다.

표면 조도 / Surface Roughness

적용	표면	R max (µm)	Rz (µm)	Ra (µm)
운동용	Mating surface (Bore, Rod, Shaft)	1.0 – 2.5	0.63 – 1.6	0.1 – 0.4
	Groove surface (Groove root, Groove flanks)	≤ 10.0	≤ 6.3	≤ 1.6
고정용	Mating surface Groove surface (Groove root, Groove flanks)	≤ 10.0 ≤ 16.0	≤ 6.3 ≤ 10.0	≤ 1.6 ≤ 3.2
	for Pulsating pressures : Mating surface	≤ 6.3	≤ 4.0	≤ 0.8
	Groove surface (Groove root, Groove flanks)	≤ 10.0	≤ 6.3	≤ 1.6

재질 / Materials for Quad-Ring® (미국 표준 규격 AS 568 A)

고분자 재질	재질 No.	경도* Shore A/IRHD Tol. ±5	색상	온도 (°C)**	적용 범위
아크릴-니트릴 부타디엔 NBR	N7004 (366Y)	70	검정색	-30 ~ +110	<ul style="list-style-type: none"> 유, 공압에 적합한 표준 재질. 광물유와 관련된 유압유. 동식물유 및 유지. 지방족 탄화수소. (프로판, 부탄, 가솔린) 실리콘 오일 및 그리이스. 80°C미만의 물. (저온에 적합.)
	N8004 (446A)	80	검정색	-30 ~ +110	
	N7203 (523A)	70	검정색	-50 ~ +110	
과포화 니트릴 HNBR	H7690 (574BF)	70	검정색	-35 ~ +150	<ul style="list-style-type: none"> 고온, 고인장이 요구되는 조건. 모터 오일에 뛰어난 저항성 자동 변속 오일 청량가스, 아민류, 오일 혼합액, 산화연료, 윤활유 등
에탈렌 프로필렌 EPDM	E7509 (559N)	70	검정색	-50 ~ +130	<ul style="list-style-type: none"> 과산화물 경화, 뜨거운 물, 수증기 브레이크 유동체, 엔진 냉각제, 청정제, 알콜, 케톤, 에스테르, 유기산, 무기산 및 염기, 광물유에는 저항성이 없으므로 사용 주의.
불화 탄성체 FPM	V7002 (514AD)	70	검정색	-20 ~ +260	<ul style="list-style-type: none"> 광물유와 그리이스. 난연성 액체. 지방족, 방향족과 염화 탄화 수소. 가솔린 99옥탄 가솔린, 디젤 연료, 난연성 인화합물 실리콘유와 그리이스, 고진공 적용에 적당.
	V8005 (514AQ)	80	검정색	-20 ~ +260	
	V9002 (514J)	90	검정색	-20 ~ +260	

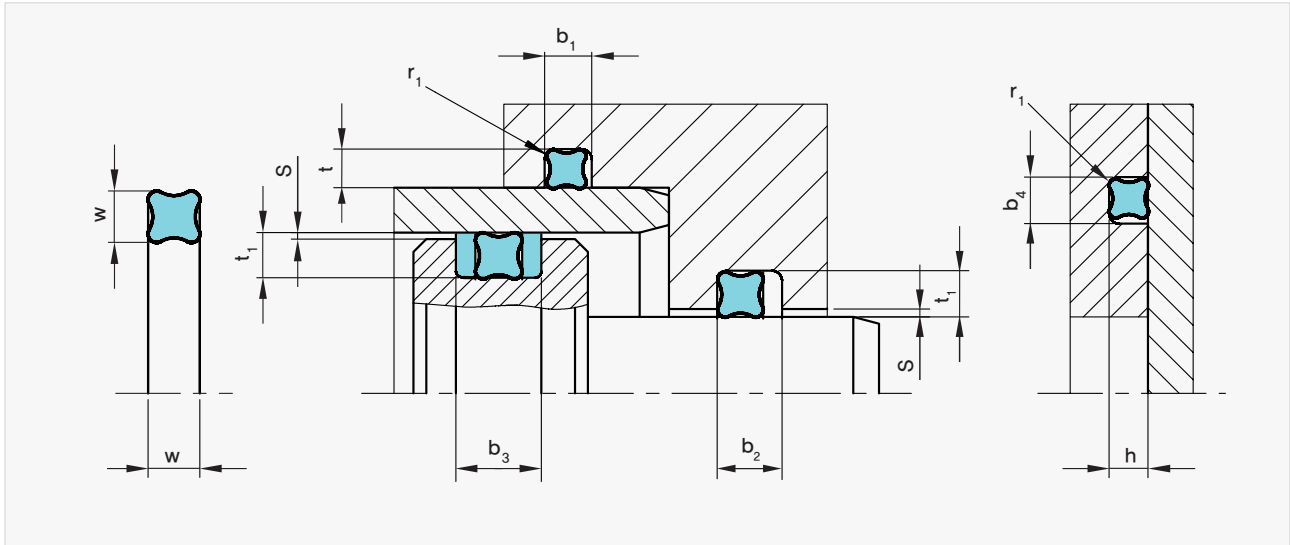
* ()안의 수치는 이전의 재질 코드임.

탄성체의 경도 범위는 DIN 53505와 조화되어 Shore A로 나타내었다. 시험 편은 DIN 기준에 제시된 것으로 측정하였다.

** 온도 범위는 한계치이며 Sealing 시, 매체와 작동압력 조건에 따라 항상 고려해야 한다.

연속 작동 시의 온도는 한계치보다 언제나 낮게 설계하여야 한다.

Installation Recommendation



Installation drawing

Installation Dimensions

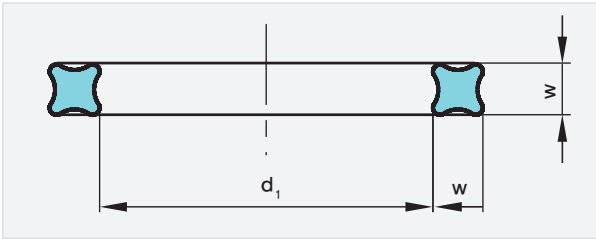
Cord Diameter w	Radial Initial Squeeze		Groove Dimensions					Radius** r ₁	Radial Gap S max.
	Dynamic	Static	Groove Depth *		Groove Width				
	max. min.	max. min.	Dynamic t ₁ + 0.05	Static t/h + 0.05	b ₁ , b ₄ +0.2	b ₂ +0.2	b ₃ +0.2		
1.02	<u>0.300</u> 0.115	<u>0.350</u> 0.165	0.80	0.75	1.20	When using Back-up Rings the groove is to be increased by the Back-up Ring thickness	0.10	0.03	
1.27	<u>0.330</u> 0.145	<u>0.430</u> 0.245	1.00	0.90	1.40		0.10	0.03	
1.52	<u>0.350</u> 0.165	<u>0.450</u> 0.265	1.25	1.15	1.70		0.22	0.04	
1.78	<u>0.360</u> 0.175	<u>0.460</u> 0.275	1.50	1.40	2.00		0.22	0.05	
2.62	<u>0.400</u> 0.215	<u>0.450</u> 0.265	2.30	2.25	3.00		0.30	0.08	
3.53	<u>0.430</u> 0.205	<u>0.530</u> 0.305	3.20	3.10	4.00		0.40	0.08	
5.33	<u>0.560</u> 0.250	<u>0.710</u> 0.400	4.90	4.75	6.00		0.40	0.10	
7.00	<u>0.700</u> 0.350	<u>0.950</u> 0.600	6.40	6.20	8.00		0.60	0.10	

* Also, O-Ring Grooves can be generally used. Friction may be higher at Dynamic application. Back-up Rings must be adapted.

** If a Back-up Ring is used, the recommended radius should always be r₁ = 0.25 ± 0.2mm

Quad-Ring® Dimensions

in dependence on the American O-Ring Standard AS 568



Quad-Ring® Dimensions / Part No.

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04001	0.74	0.10	1.02	0.08
QRAR04002	1.07	0.10	1.27	0.08
QRAR04003	1.42	0.10	1.52	0.08
QRAR04004	1.78	0.13	1.78	0.08
QRAR04005	2.57	0.13	1.78	0.08
QRAR04006	2.90	0.13	1.78	0.08
QRAR04007	3.68	0.13	1.78	0.08
QRAR04008	4.47	0.13	1.78	0.08
QRAR04009	5.28	0.13	1.78	0.08
QRAR04010	6.07	0.13	1.78	0.08
QRAR04011	7.65	0.13	1.78	0.08
QRAR04012	9.25	0.13	1.78	0.08
QRAR04013	10.82	0.13	1.78	0.08
QRAR04014	12.42	0.13	1.78	0.08
QRAR04015	14.00	0.18	1.78	0.08
QRAR04016	15.60	0.23	1.78	0.08
QRAR04017	17.17	0.23	1.78	0.08
QRAR04018	18.77	0.23	1.78	0.08
QRAR04019	20.35	0.23	1.78	0.08
QRAR04020	21.95	0.23	1.78	0.08
QRAR04021	23.52	0.23	1.78	0.08
QRAR04022	25.12	0.25	1.78	0.08
QRAR04023	26.70	0.25	1.78	0.08
QRAR04024	28.30	0.25	1.78	0.08
QRAR04025	29.87	0.28	1.78	0.08
QRAR04026	31.47	0.28	1.78	0.08
QRAR04027	33.05	0.28	1.78	0.08
QRAR04028	34.65	0.33	1.78	0.08
QRAR04029	37.82	0.33	1.78	0.08
QRAR04030	41.00	0.33	1.78	0.08

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04031	44.17	0.38	1.78	0.08
QRAR04032	47.35	0.38	1.78	0.08
QRAR04033	50.52	0.46	1.78	0.08
QRAR04034	53.70	0.46	1.78	0.08
QRAR04035	56.87	0.46	1.78	0.08
QRAR04036	60.05	0.46	1.78	0.08
QRAR04037	63.22	0.46	1.78	0.08
QRAR04038	66.40	0.51	1.78	0.08
QRAR04039	69.57	0.51	1.78	0.08
QRAR04040	72.75	0.51	1.78	0.08
QRAR04041	75.92	0.61	1.78	0.08
QRAR04042	82.27	0.61	1.78	0.08
QRAR04043	88.62	0.61	1.78	0.08
QRAR04044	94.97	0.69	1.78	0.08
QRAR04045	101.32	0.69	1.78	0.08
QRAR04046	107.67	0.76	1.78	0.08
QRAR04047	114.02	0.76	1.78	0.08
QRAR04048	120.37	0.76	1.78	0.08
QRAR04049	126.72	0.94	1.78	0.08
QRAR04050	133.07	0.94	1.78	0.08
QRAR04102	1.24	0.13	2.62	0.08
QRAR04103	2.06	0.13	2.62	0.08
QRAR04104	2.84	0.13	2.62	0.08
QRAR04105	3.63	0.13	2.62	0.08
QRAR04106	4.42	0.13	2.62	0.08
QRAR04107	5.23	0.13	2.62	0.08
QRAR04108	6.02	0.13	2.62	0.08
QRAR04109	7.59	0.13	2.62	0.08
QRAR04110	9.19	0.13	2.62	0.08

Tolerance: 70 Shore A nitrile 기준 (Minnesota Rubber)

Quad-Ring® Dimensions / Part No.

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04111	10.77	0.13	2.62	0.08
QRAR04112	12.37	0.13	2.62	0.08
QRAR04113	13.94	0.18	2.62	0.08
QRAR04114	15.54	0.23	2.62	0.08
QRAR04115	17.12	0.23	2.62	0.08
QRAR04116	18.72	0.23	2.62	0.08
QRAR04117	20.29	0.25	2.62	0.08
QRAR04118	21.89	0.25	2.62	0.08
QRAR04119	23.47	0.25	2.62	0.08
QRAR04120	25.07	0.25	2.62	0.08
QRAR04121	26.64	0.25	2.62	0.08
QRAR04122	28.24	0.25	2.62	0.08
QRAR04123	29.82	0.30	2.62	0.08
QRAR04124	31.42	0.30	2.62	0.08
QRAR04125	32.99	0.30	2.62	0.08
QRAR04126	34.59	0.30	2.62	0.08
QRAR04127	36.17	0.30	2.62	0.08
QRAR04128	37.77	0.30	2.62	0.08
QRAR04129	39.34	0.38	2.62	0.08
QRAR04130	40.94	0.38	2.62	0.08
QRAR04131	42.52	0.38	2.62	0.08
QRAR04132	44.12	0.38	2.62	0.08
QRAR04133	45.69	0.38	2.62	0.08
QRAR04134	47.29	0.38	2.62	0.08
QRAR04135	48.90	0.43	2.62	0.08
QRAR04136	50.47	0.43	2.62	0.08
QRAR04137	52.07	0.43	2.62	0.08
QRAR04138	53.64	0.43	2.62	0.08
QRAR04139	55.25	0.43	2.62	0.08
QRAR04140	56.82	0.43	2.62	0.08
QRAR04141	58.42	0.51	2.62	0.08
QRAR04142	59.99	0.51	2.62	0.08
QRAR04143	61.60	0.51	2.62	0.08
QRAR04144	63.17	0.51	2.62	0.08
QRAR04145	64.77	0.51	2.62	0.08
QRAR04146	66.34	0.51	2.62	0.08
QRAR04147	67.95	0.56	2.62	0.08
QRAR04148	69.52	0.56	2.62	0.08
QRAR04149	71.12	0.56	2.62	0.08
QRAR04150	72.69	0.56	2.62	0.08
QRAR04151	75.87	0.61	2.62	0.08
QRAR04152	82.22	0.61	2.62	0.08
QRAR04153	88.57	0.61	2.62	0.08

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04154	94.92	0.71	2.62	0.08
QRAR04155	101.27	0.71	2.62	0.08
QRAR04156	107.62	0.76	2.62	0.08
QRAR04157	113.97	0.76	2.62	0.08
QRAR04158	120.32	0.76	2.62	0.08
QRAR04159	126.67	0.89	2.62	0.08
QRAR04160	133.02	0.89	2.62	0.08
QRAR04161	139.37	0.89	2.62	0.08
QRAR04162	145.72	0.89	2.62	0.08
QRAR04163	152.07	0.89	2.62	0.08
QRAR04164	158.42	1.02	2.62	0.08
QRAR04165	164.77	1.02	2.62	0.08
QRAR04166	171.12	1.02	2.62	0.08
QRAR04167	177.47	1.02	2.62	0.08
QRAR04168	183.82	1.14	2.62	0.08
QRAR04169	190.17	1.14	2.62	0.08
QRAR04170	196.52	1.14	2.62	0.08
QRAR04171	202.87	1.14	2.62	0.08
QRAR04172	209.22	1.27	2.62	0.08
QRAR04173	215.57	1.27	2.62	0.08
QRAR04174	221.92	1.27	2.62	0.08
QRAR04175	228.27	1.27	2.62	0.08
QRAR04176	234.62	1.40	2.62	0.08
QRAR04177	240.97	1.40	2.62	0.08
QRAR04178	247.32	1.40	2.62	0.08
QRAR04201	4.34	0.13	3.53	0.10
QRAR04202	5.94	0.13	3.53	0.10
QRAR04203	7.52	0.13	3.53	0.10
QRAR04204	9.12	0.13	3.53	0.10
QRAR04205	10.69	0.13	3.53	0.10
QRAR04206	12.29	0.13	3.53	0.10
QRAR04207	13.87	0.18	3.53	0.10
QRAR04208	15.47	0.23	3.53	0.10
QRAR04209	17.04	0.23	3.53	0.10
QRAR04210	18.64	0.25	3.53	0.10
QRAR04211	20.22	0.25	3.53	0.10
QRAR04212	21.82	0.25	3.53	0.10
QRAR04213	23.39	0.25	3.53	0.10
QRAR04214	24.99	0.25	3.53	0.10
QRAR04215	26.57	0.25	3.53	0.10
QRAR04216	28.17	0.30	3.53	0.10
QRAR04217	29.74	0.30	3.53	0.10

Tolerance: 70 Shore A nitrile 기준 (Minnesota Rubber)

Quad-Ring® Dimensions / Part No.

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04218	31.34	0.30	3.53	0.10
QRAR04219	32.92	0.30	3.53	0.10
QRAR04220	34.52	0.30	3.53	0.10
QRAR04221	36.09	0.30	3.53	0.10
QRAR04222	37.69	0.38	3.53	0.10
QRAR04223	40.87	0.38	3.53	0.10
QRAR04224	44.04	0.38	3.53	0.10
QRAR04225	47.22	0.46	3.53	0.10
QRAR04226	50.39	0.46	3.53	0.10
QRAR04227	53.57	0.46	3.53	0.10
QRAR04228	56.74	0.51	3.53	0.10
QRAR04229	59.92	0.51	3.53	0.10
QRAR04230	63.09	0.51	3.53	0.10
QRAR04231	66.27	0.51	3.53	0.10
QRAR04232	69.44	0.61	3.53	0.10
QRAR04233	72.62	0.61	3.53	0.10
QRAR04234	75.79	0.61	3.53	0.10
QRAR04235	78.97	0.61	3.53	0.10
QRAR04236	82.14	0.61	3.53	0.10
QRAR04237	85.32	0.61	3.53	0.10
QRAR04238	88.49	0.61	3.53	0.10
QRAR04239	91.67	0.71	3.53	0.10
QRAR04240	94.84	0.71	3.53	0.10
QRAR04241	98.02	0.71	3.53	0.10
QRAR04242	101.19	0.71	3.53	0.10
QRAR04243	104.37	0.71	3.53	0.10
QRAR04244	107.54	0.76	3.53	0.10
QRAR04245	110.72	0.76	3.53	0.10
QRAR04246	113.89	0.76	3.53	0.10
QRAR04247	117.07	0.76	3.53	0.10
QRAR04248	120.24	0.76	3.53	0.10
QRAR04249	123.42	0.89	3.53	0.10
QRAR04250	126.59	0.89	3.53	0.10
QRAR04251	129.77	0.89	3.53	0.10
QRAR04252	132.94	0.89	3.53	0.10
QRAR04253	136.12	0.89	3.53	0.10
QRAR04254	139.29	0.89	3.53	0.10
QRAR04255	142.47	0.89	3.53	0.10
QRAR04256	145.64	0.89	3.53	0.10
QRAR04257	148.82	0.89	3.53	0.10
QRAR04258	151.99	0.89	3.53	0.10
QRAR04259	158.34	1.02	3.53	0.10

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04260	164.69	1.02	3.53	0.10
QRAR04261	171.04	1.02	3.53	0.10
QRAR04262	177.39	1.02	3.53	0.10
QRAR04263	183.74	1.14	3.53	0.10
QRAR04264	190.09	1.14	3.53	0.10
QRAR04265	196.44	1.14	3.53	0.10
QRAR04266	202.79	1.14	3.53	0.10
QRAR04267	209.14	1.27	3.53	0.10
QRAR04268	215.49	1.27	3.53	0.10
QRAR04269	221.84	1.27	3.53	0.10
QRAR04270	228.19	1.27	3.53	0.10
QRAR04271	234.54	1.40	3.53	0.10
QRAR04272	240.89	1.40	3.53	0.10
QRAR04273	247.24	1.40	3.53	0.10
QRAR04274	253.59	1.40	3.53	0.10
QRAR04275	266.29	1.40	3.53	0.10
QRAR04276	278.99	1.65	3.53	0.10
QRAR04277	291.69	1.65	3.53	0.10
QRAR04278	304.39	1.65	3.53	0.10
QRAR04279	329.79	1.65	3.53	0.10
QRAR04280	355.19	1.65	3.53	0.10
QRAR04281	380.59	1.65	3.53	0.10
QRAR04282	405.26	1.91	3.53	0.10
QRAR04283	430.66	2.03	3.53	0.10
QRAR04284	456.06	2.16	3.53	0.10
QRAR04309	10.46	0.13	5.33	0.13
QRAR04310	12.07	0.13	5.33	0.13
QRAR04311	13.64	0.18	5.33	0.13
QRAR04312	15.24	0.23	5.33	0.13
QRAR04313	16.81	0.23	5.33	0.13
QRAR04314	18.42	0.25	5.33	0.13
QRAR04315	19.99	0.25	5.33	0.13
QRAR04316	21.59	0.25	5.33	0.13
QRAR04317	23.16	0.25	5.33	0.13
QRAR04318	24.77	0.25	5.33	0.13
QRAR04319	26.34	0.25	5.33	0.13
QRAR04320	27.94	0.30	5.33	0.13
QRAR04321	29.51	0.30	5.33	0.13
QRAR04322	31.12	0.30	5.33	0.13
QRAR04323	32.69	0.30	5.33	0.13
QRAR04324	34.29	0.30	5.33	0.13

Tolerance: 70 Shore A nitrile 기준 (Minnesota Rubber)

Quad-Ring® Dimensions / Part No.

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04325	37.47	0.38	5.33	0.13
QRAR04326	40.64	0.38	5.33	0.13
QRAR04327	43.82	0.38	5.33	0.13
QRAR04328	46.99	0.38	5.33	0.13
QRAR04329	50.17	0.46	5.33	0.13
QRAR04330	53.34	0.46	5.33	0.13
QRAR04331	56.52	0.46	5.33	0.13
QRAR04332	59.69	0.46	5.33	0.13
QRAR04333	62.87	0.51	5.33	0.13
QRAR04334	66.04	0.51	5.33	0.13
QRAR04335	69.22	0.51	5.33	0.13
QRAR04336	72.39	0.51	5.33	0.13
QRAR04337	75.57	0.61	5.33	0.13
QRAR04338	78.74	0.61	5.33	0.13
QRAR04339	81.92	0.61	5.33	0.13
QRAR04340	85.09	0.61	5.33	0.13
QRAR04341	88.27	0.61	5.33	0.13
QRAR04342	91.44	0.71	5.33	0.13
QRAR04343	94.62	0.71	5.33	0.13
QRAR04344	97.79	0.71	5.33	0.13
QRAR04345	100.97	0.71	5.33	0.13
QRAR04346	104.14	0.71	5.33	0.13
QRAR04347	107.32	0.76	5.33	0.13
QRAR04348	110.49	0.76	5.33	0.13
QRAR04349	113.67	0.76	5.33	0.13
QRAR04350	116.84	0.76	5.33	0.13
QRAR04351	120.02	0.76	5.33	0.13
QRAR04352	123.19	0.76	5.33	0.13
QRAR04353	126.37	0.94	5.33	0.13
QRAR04354	129.54	0.94	5.33	0.13
QRAR04355	132.72	0.94	5.33	0.13
QRAR04356	135.89	0.94	5.33	0.13
QRAR04357	139.07	0.94	5.33	0.13
QRAR04358	142.24	0.94	5.33	0.13
QRAR04359	145.42	0.94	5.33	0.13
QRAR04360	148.59	0.94	5.33	0.13
QRAR04361	151.77	0.94	5.33	0.13
QRAR04362	158.12	1.02	5.33	0.13
QRAR04363	164.47	1.02	5.33	0.13
QRAR04364	170.82	1.02	5.33	0.13
QRAR04365	177.17	1.02	5.33	0.13

Part No.	Inside-Ø		Cord Diameter	
	d ₁	Tolerance ±	w	Tolerance ±
QRAR04366	183.52	1.14	5.33	0.13
QRAR04367	189.87	1.14	5.33	0.13
QRAR04368	196.22	1.14	5.33	0.13
QRAR04369	202.57	1.14	5.33	0.13
QRAR04370	208.92	1.27	5.33	0.13
QRAR04371	215.27	1.27	5.33	0.13
QRAR04372	221.62	1.27	5.33	0.13
QRAR04373	227.97	1.27	5.33	0.13
QRAR04374	234.32	1.40	5.33	0.13
QRAR04375	240.67	1.40	5.33	0.13
QRAR04376	247.02	1.40	5.33	0.13
QRAR04377	253.37	1.40	5.33	0.13
QRAR04378	266.07	1.52	5.33	0.13
QRAR04379	278.77	1.52	5.33	0.13
QRAR04380	291.47	1.65	5.33	0.13
QRAR04381	304.17	1.65	5.33	0.13
QRAR04382	329.57	1.65	5.33	0.13
QRAR04383	354.97	1.78	5.33	0.13
QRAR04384	380.37	1.78	5.33	0.13
QRAR04385	405.26	1.91	5.33	0.13
QRAR04386	430.66	2.03	5.33	0.13
QRAR04387	456.06	2.16	5.33	0.13
QRAR04388	481.46	2.29	5.33	0.13
QRAR04389	506.86	2.41	5.33	0.13
QRAR04390	532.26	2.41	5.33	0.13
QRAR04391	557.66	2.54	5.33	0.13
QRAR04392	582.68	2.67	5.33	0.13
QRAR04393	608.08	2.79	5.33	0.13
QRAR04394	633.48	2.92	5.33	0.13
QRAR04395	658.88	3.05	5.33	0.13
QRAR04425	113.67	0.84	7.00	0.15
QRAR04426	116.84	0.84	7.00	0.15
QRAR04427	120.02	0.84	7.00	0.15
QRAR04428	123.19	0.84	7.00	0.15
QRAR04429	126.37	0.94	7.00	0.15
QRAR04430	129.54	0.94	7.00	0.15
QRAR04431	132.72	0.94	7.00	0.15
QRAR04432	135.89	0.94	7.00	0.15
QRAR04433	139.07	0.94	7.00	0.15
QRAR04434	142.24	0.94	7.00	0.15
QRAR04435	145.42	0.94	7.00	0.15

Tolerance: 70 Shore A nitrile 기준 (Minnesota Rubber)

Quad-Ring® Dimensions / Part No.

Part No.	Inside-Ø		Cord Diameter	
	d _i	Tolerance ±	w	Tolerance ±
QRAR04436	148.59	0.94	7.00	0.15
QRAR04437	151.77	0.94	7.00	0.15
QRAR04438	158.12	1.02	7.00	0.15
QRAR04439	164.47	1.02	7.00	0.15
QRAR04440	170.82	1.02	7.00	0.15
QRAR04441	177.17	1.02	7.00	0.15
QRAR04442	183.52	1.14	7.00	0.15
QRAR04443	189.87	1.14	7.00	0.15
QRAR04444	196.22	1.14	7.00	0.15
QRAR04445	202.57	1.14	7.00	0.15
QRAR04446	215.27	1.40	7.00	0.15
QRAR04447	227.97	1.40	7.00	0.15
QRAR04448	240.67	1.40	7.00	0.15
QRAR04449	253.37	1.40	7.00	0.15
QRAR04450	266.07	1.52	7.00	0.15
QRAR04451	278.77	1.52	7.00	0.15
QRAR04452	291.47	1.52	7.00	0.15
QRAR04453	304.17	1.52	7.00	0.15
QRAR04454	316.87	1.52	7.00	0.15
QRAR04455	329.57	1.52	7.00	0.15
QRAR04456	342.27	1.78	7.00	0.15
QRAR04457	354.97	1.78	7.00	0.15
QRAR04458	367.67	1.78	7.00	0.15
QRAR04459	380.37	1.78	7.00	0.15
QRAR04460	393.07	1.78	7.00	0.15
QRAR04461	405.26	1.91	7.00	0.15
QRAR04462	417.96	1.91	7.00	0.15
QRAR04463	430.66	2.03	7.00	0.15
QRAR04464	443.46	2.16	7.00	0.15
QRAR04465	456.06	2.16	7.00	0.15
QRAR04466	468.76	2.16	7.00	0.15
QRAR04467	481.46	2.29	7.00	0.15
QRAR04468	494.16	2.29	7.00	0.15
QRAR04469	506.86	2.41	7.00	0.15
QRAR04470	532.26	2.41	7.00	0.15
QRAR04471	557.66	2.54	7.00	0.15
QRAR04472	582.68	2.67	7.00	0.15
QRAR04473	608.08	2.79	7.00	0.15
QRAR04474	633.48	2.92	7.00	0.15
QRAR04475	658.88	3.05	7.00	0.15

Quad-Ring®의 내경(d_i)과 두께(w)에 대한 공차 값은 단지, Shore A 70 경도의 NBR(N7004) 재질에만 적용된다.

다른 재질이나 경도를 지닌 탄성 제품은 각각의 수축 현상으로 인하여 테이블에 명시된 값에서 약간의 편차가 있을 수 있다.

주문 예

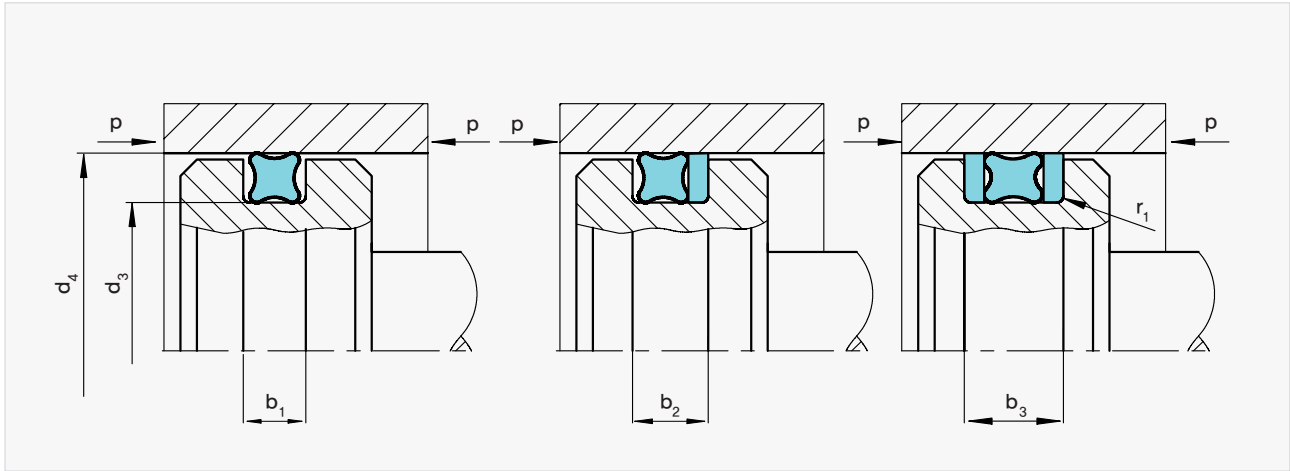
Quad-Ring® Seal No. 4214
(In dependence on AS 568A)

- Dimensions : Inside diameter d_i = 24.99mm
Cord diameter w = 3.53mm
- Compound : NBR 70
(Nitrile Butadiene Elastomer 70 Shore A)

Order No.	QRAR04214	-	N7004
Part No.			
Quality Index (Standard)			
Compound No. (Standard)			

Orders detailing size & material are also possible.

Installation Recommendation – External Sealing (외경용)



Installation drawing

The following data regarding Back-up Rings and Groove widths b_2 and b_3 are exemplary. The use and the suitability of a Back-up Ring type as well as the design of the appropriate Groove widths b_2 and b_3 should be verified and adapted regarding the application.

Installation Dimensions / Part No.

Bore	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
	Part No.	Dimensions			Part No.	$b_1+0.2$	$b_2+0.2$	
d_4 H8				d_3 h9				r_1
6.0	QRAR04005	2.57 × 1.78	BU1500030	3.0	2.0	3.4	4.8	0.2
8.0	QRAR04008	4.47 × 1.78	BU1500050	5.0	2.0	3.4	4.8	0.2
10.0	QRAR04010	6.07 × 1.78	BU1500070	7.0	2.0	3.4	4.8	0.2
12.0	QRAR4012A	8.20 × 1.78	BU1500090	9.0	2.0	3.4	4.8	0.2
14.0	QRAR04013	10.82 × 1.78	BU1500110	11.0	2.0	3.4	4.8	0.2
15.0	QRAR4111A	10.20 × 2.62	BU2300104	10.4	3.0	4.4	5.8	0.3
16.0	QRAR04111	10.77 × 2.62	BU2300114	11.4	3.0	4.4	5.8	0.3
18.0	QRAR04112	12.37 × 2.62	BU2300134	13.4	3.0	4.4	5.8	0.3
20.0	QRAR4114A	14.70 × 2.62	BU2300154	15.4	3.0	4.4	5.8	0.3
22.0	QRAR4115A	16.20 × 2.62	BU2300174	17.4	3.0	4.4	5.8	0.3
25.0	QRAR4210A	18.20 × 3.53	BU3200186	18.6	4.0	5.4	6.8	0.4
28.0	QRAR04212	21.82 × 3.53	BU3200216	21.6	4.0	5.4	6.8	0.4
30.0	QRAR04213	23.39 × 3.53	BU3200236	23.6	4.0	5.4	6.8	0.4
32.0	QRAR04214	25.00 × 3.53	BU3200256	25.6	4.0	5.4	6.8	0.4
35.0	QRAR04216	28.17 × 3.53	BU3200286	28.6	4.0	5.4	6.8	0.4
40.0	QRAR04219	32.92 × 3.53	BU3200336	33.6	4.0	5.4	6.8	0.4
42.0	QRAR04220	34.52 × 3.53	BU3200356	35.6	4.0	5.4	6.8	0.4
45.0	QRAR04222	37.69 × 3.53	BU3200386	38.6	4.0	5.4	6.8	0.4
48.0	QRAR04325	37.46 × 5.33	BU4900382	38.2	6.0	7.7	9.4	0.4
50.0	QRAR4326A	39.20 × 5.33	BU4900402	40.2	6.0	7.7	9.4	0.4
52.0	QRAR04326	40.64 × 5.33	BU4900422	42.2	6.0	7.7	9.4	0.4

*If a Back-up Ring is used the recommended radius should always $r_1 = 0.25 \pm 0.2\text{mm}$

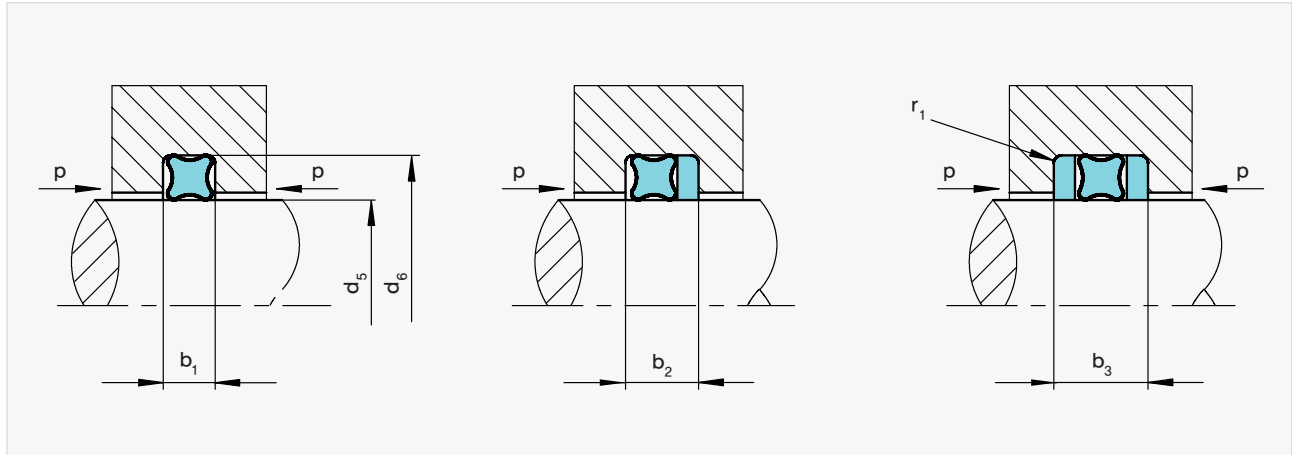
**BH : Single cut
BU : Uncut

Installation Dimensions / Part No.

Bore	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
d ₄ H8	Part No.	Dimensions	Part No.	d ₃ h9	b ₁ +0.2	b ₂ +0.2	b ₃ +0.2	r ₁
55.0	QRAR04327	43.82 × 5.33	BU4900452	45.2	6.0	7.7	9.4	0.4
60.0	QRAR04329	50.17 × 5.33	BU4900502	50.2	6.0	7.7	9.4	0.4
63.0	QRAR04330	53.34 × 5.33	BU4900532	53.2	6.0	7.7	9.4	0.4
65.0	QRAR04330	53.35 × 5.33	BU4900552	55.2	6.0	7.7	9.4	0.4
70.0	QRAR04332	59.69 × 5.33	BU4900602	60.2	6.0	7.7	9.4	0.4
75.0	QRAR04333	62.87 × 5.33	BU4900652	65.2	6.0	7.7	9.4	0.4
80.0	QRAR04335	69.20 × 5.33	BU4900702	70.2	6.0	7.7	9.4	0.4
85.0	QRAR04337	75.56 × 5.33	BU4900752	75.2	6.0	7.7	9.4	0.4
90.0	QRAR04338	78.74 × 5.33	BU4900802	80.2	6.0	7.7	9.4	0.4
95.0	QRAR04340	85.10 × 5.33	BU4900852	85.2	6.0	7.7	9.4	0.4
100.0	QRAR04342	91.45 × 5.33	BU4900902	90.2	6.0	7.7	9.4	0.4
105.0	QRAR04343	94.62 × 5.33	BU4900952	95.2	6.0	7.7	9.4	0.4
110.0	QRAR04345	100.96 × 5.33	BU4901002	100.2	6.0	7.7	9.4	0.4
115.0	QRAR04346	104.15 × 5.33	BU4901052	105.2	6.0	7.7	9.4	0.4
120.0	QRAR04348	110.49 × 5.33	BU4901102	110.2	6.0	7.7	9.4	0.4
125.0	QRAR04349	113.66 × 5.33	BU4901152	115.2	6.0	7.7	9.4	0.4
130.0	QRAR04351	120.02 × 5.33	BU4901202	120.2	6.0	7.7	9.4	0.4
135.0	QRAR04427	120.00 × 7.00	BU6401222	122.2	8.0	10.5	13.0	0.6
140.0	QRAR04429	126.36 × 7.00	BU6401272	127.2	8.0	10.5	13.0	0.6
150.0	QRAR04432	135.90 × 7.00	BU6401372	137.2	8.0	10.5	13.0	0.6
160.0	QRAR04435	145.40 × 7.00	BU6401472	147.2	8.0	10.5	13.0	0.6
170.0	QRAR04438	158.10 × 7.00	BU6401572	157.2	8.0	10.5	13.0	0.6
180.0	QRAR04439	164.46 × 7.00	BU6401672	167.2	8.0	10.5	13.0	0.6
190.0	QRAR04441	177.16 × 7.00	BU6401772	177.2	8.0	10.5	13.0	0.6
200.0	QRAR04442	183.50 × 7.00	BU6401872	187.2	8.0	10.5	13.0	0.6
210.0	QRAR04444	196.20 × 7.00	BU6401972	197.2	8.0	10.5	13.0	0.6
220.0	QRAR04445	202.56 × 7.00	BU6402072	207.2	8.0	10.5	13.0	0.6
230.0	QRAR04446	215.27 × 7.00	BU6402172	217.2	8.0	10.5	13.0	0.6
250.0	QRAR04447	227.97 × 7.00	BU6402372	237.2	8.0	10.5	13.0	0.6
280.0	QRAR04450	266.07 × 7.00	BU6402672	267.2	8.0	10.5	13.0	0.6
300.0	QRAR04451	278.77 × 7.00	BU6402872	287.2	8.0	10.5	13.0	0.6
320.0	QRAR04453	304.17 × 7.00	BU6403072	307.2	8.0	10.5	13.0	0.6
350.0	QRAR04455	329.60 × 7.00	BU6403372	337.2	8.0	10.5	13.0	0.6
400.0	QRAR04459	380.40 × 7.00	BU6403872	387.2	8.0	10.5	13.0	0.6
420.0	QRAR04461	405.26 × 7.00	BU6404072	407.2	8.0	10.5	13.0	0.6
450.0	QRAR04463	430.66 × 7.00	BU6404372	437.2	8.0	10.5	13.0	0.6
480.0	QRAR04465	456.06 × 7.00	BU6404672	467.2	8.0	10.5	13.0	0.6
500.0	QRAR04467	481.46 × 7.00	BU6404872	487.2	8.0	10.5	13.0	0.6

위 표에 제시된 권장두께 이외에 Back up Ring 주문시에는 Part No가 변경되므로 별도 문의 바랍니다.

Installation Recommendation – Internal Sealing (내경용)



Installation drawing

The following data regarding Back-up Rings and Groove widths b_2 and b_3 are exemplary. The use and the suitability of a Back-up Ring type as well as the design of the appropriate Groove widths b_2 and b_3 should be verified and adapted regarding the application.

Installation Dimensions / Part No.

Rod	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
d_5 f7	Part No.	Dimensions	Part No.	d_6 H9	$b_1+0.2$	$b_2+0.2$	$b_3+0.2$	r_1
4.0	QRAR04008	4.47 × 1.78	BU1500040	7.0	2.0	3.4	4.8	0.2
5.0	QRAR04009	5.28 × 1.78	BU1500050	8.0	2.0	3.4	4.8	0.2
6.0	QRAR04010	6.07 × 1.78	BU1500060	9.0	2.0	3.4	4.8	0.2
8.0	QRAR4012A	8.20 × 1.78	BU1500080	11.0	2.0	3.4	4.8	0.2
10.0	QRAR4111A	10.20 × 2.62	BU2300100	14.6	3.0	4.4	5.8	0.3
12.0	QRAR04112	12.37 × 2.62	BU2300120	16.6	3.0	4.4	5.8	0.3
14.0	QRAR04113	13.94 × 2.62	BU2300140	18.6	3.0	4.4	5.8	0.3
15.0	QRAR4114A	14.70 × 2.62	BU2300150	19.6	3.0	4.4	5.8	0.3
16.0	QRAR4115A	16.20 × 2.62	BU2300160	20.6	3.0	4.4	5.8	0.3
18.0	QRAR4210A	18.20 × 3.53	BU3200180	24.4	4.0	5.4	6.8	0.4
20.0	QRAR04211	20.22 × 3.53	BU3200200	26.4	4.0	5.4	6.8	0.4
22.0	QRAR04212	21.83 × 3.53	BU3200220	28.4	4.0	5.4	6.8	0.4
25.0	QRAR04214	25.00 × 3.53	BU3200250	31.4	4.0	5.4	6.8	0.4
28.0	QRAR04216	28.17 × 3.53	BU3200280	34.4	4.0	5.4	6.8	0.4
30.0	QRAR04217	29.74 × 3.53	BU3200300	36.4	4.0	5.4	6.8	0.4
32.0	QRAR04218	31.34 × 3.53	BU3200320	38.4	4.0	5.4	6.8	0.4
35.0	QRAR04220	34.52 × 3.53	BU3200350	41.4	4.0	5.4	6.8	0.4
36.0	QRAR04221	36.09 × 3.53	BU3200360	42.4	4.0	5.4	6.8	0.4
40.0	QRAR04326	40.64 × 5.33	BU4900400	49.8	6.0	7.7	9.4	0.4
42.0	QRAR04326	40.64 × 5.33	BU4900420	51.8	6.0	7.7	9.4	0.4
45.0	QRAR4328A	45.20 × 5.33	BU4900450	54.8	6.0	7.7	9.4	0.4

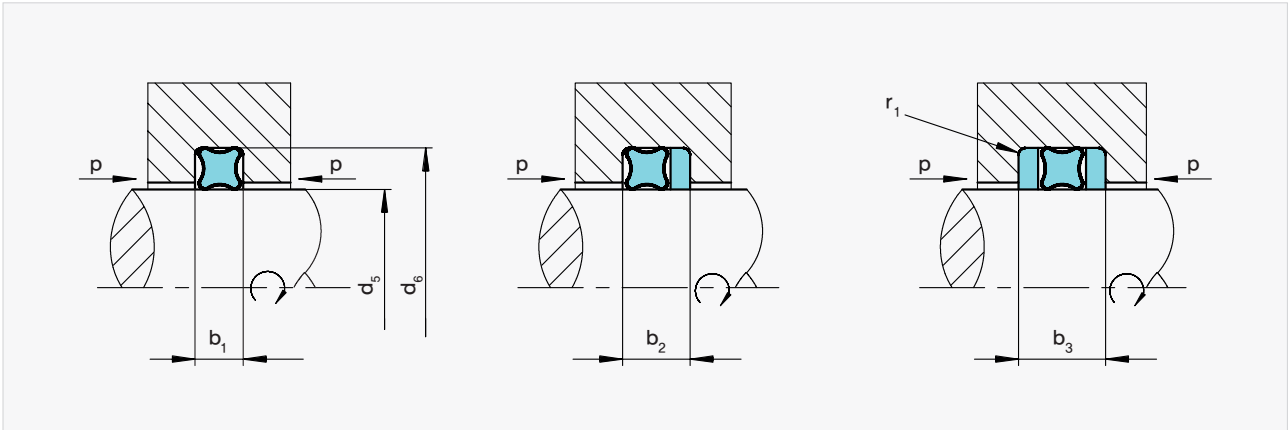
위 표에 제시된 권장두께 이외에 Back up Ring 주문시에는 Part No가 변경되므로 별도 문의 바랍니다.

Installation Dimensions / Part No.

Rod	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
d ₅ f7	Part No.	Dimensions	Part No.	d ₆ H9	b ₁ +0.2	b ₂ +0.2	b ₃ +0.2	r ₁
48.0	QRAR04328	46.99 × 5.33	BU4900480	57.8	6.0	7.7	9.4	0.4
50.0	QRAR04329	50.17 × 5.33	BU4900500	59.8	6.0	7.7	9.4	0.4
52.0	QRAR04329	50.17 × 5.33	BU4900520	61.8	6.0	7.7	9.4	0.4
55.0	QRAR04330	53.34 × 5.33	BU4900550	64.8	6.0	7.7	9.4	0.4
56.0	QRAR04331	56.52 × 5.33	BU4900560	65.8	6.0	7.7	9.4	0.4
60.0	QRAR04332	59.70 × 5.33	BU4900600	69.8	6.0	7.7	9.4	0.4
63.0	QRAR04333	62.87 × 5.33	BU4900630	72.8	6.0	7.7	9.4	0.4
65.0	QRAR04334	66.04 × 5.33	BU4900650	74.8	6.0	7.7	9.4	0.4
70.0	QRAR04335	69.20 × 5.33	BU4900700	79.8	6.0	7.7	9.4	0.4
75.0	QRAR04337	75.56 × 5.33	BU4900750	84.8	6.0	7.7	9.4	0.4
80.0	QRAR04338	78.74 × 5.33	BU4900800	89.8	6.0	7.7	9.4	0.4
85.0	QRAR04340	85.10 × 5.33	BU4900850	94.8	6.0	7.7	9.4	0.4
90.0	QRAR04342	91.45 × 5.33	BU4900900	99.8	6.0	7.7	9.4	0.4
100.0	QRAR04345	100.96 × 5.33	BU4901000	109.8	6.0	7.7	9.4	0.4
105.0	QRAR04346	104.14 × 5.33	BU4901050	114.8	6.0	7.7	9.4	0.4
110.0	QRAR04348	110.49 × 5.33	BU4901100	119.8	6.0	7.7	9.4	0.4
115.0	QRAR04426	116.84 × 7.00	BU6401150	127.8	8.0	10.5	13.0	0.6
120.0	QRAR04427	120.00 × 7.00	BU6401200	132.8	8.0	10.5	13.0	0.6
125.0	QRAR04429	126.36 × 7.00	BU6401250	137.8	8.0	10.5	13.0	0.6
130.0	QRAR04430	129.55 × 7.00	BU6401300	142.8	8.0	10.5	13.0	0.6
135.0	QRAR04432	135.90 × 7.00	BU6401350	147.8	8.0	10.5	13.0	0.6
140.0	QRAR04433	139.06 × 7.00	BU6401400	152.8	8.0	10.5	13.0	0.6
150.0	QRAR04436	148.60 × 7.00	BU6401500	162.8	8.0	10.5	13.0	0.6
160.0	QRAR04439A	160.50 × 7.00	BU6401600	172.8	8.0	10.5	13.0	0.6
170.0	QRAR04440	170.81 × 7.00	BU6401700	182.8	8.0	10.5	13.0	0.6
180.0	QRAR04441	177.16 × 7.00	BU6401800	192.8	8.0	10.5	13.0	0.6
190.0	QRAR04443	189.86 × 7.00	BU6401900	202.8	8.0	10.5	13.0	0.6
200.0	QRAR04445	202.56 × 7.00	BU6402000	212.8	8.0	10.5	13.0	0.6
210.0	QRAR04446	215.27 × 7.00	BU6402100	222.8	8.0	10.5	13.0	0.6
230.0	QRAR04447	228.00 × 7.00	BU6402300	242.8	8.0	10.5	13.0	0.6
240.0	QRAR04448	240.70 × 7.00	BU6402400	252.8	8.0	10.5	13.0	0.6
250.0	QRAR04449	253.40 × 7.00	BU6402500	262.8	8.0	10.5	13.0	0.6
280.0	QRAR04451	278.80 × 7.00	BU6402800	292.8	8.0	10.5	13.0	0.6
300.0	QRAR04453	304.20 × 7.00	BU6403000	312.8	8.0	10.5	13.0	0.6
320.0	QRAR04454	316.90 × 7.00	BU6403200	332.8	8.0	10.5	13.0	0.6
350.0	QRAR04457	354.97 × 7.00	BU6403500	362.8	8.0	10.5	13.0	0.6
400.0	QRAR04461	405.26 × 7.00	BU6404000	412.8	8.0	10.5	13.0	0.6

위 표에 제시된 권장두께 이외에 Back up Ring 주문시에는 Part No가 변경되므로 별도 문의 바랍니다.

Installation Recommendation – Rotary Application (회전용)



Installation drawing

The following data regarding Back-up Rings and Groove widths b_2 and b_3 are exemplary. The use and the suitability of a Back-up Ring type as well as the design of the appropriate Groove widths b_2 and b_3 should be verified and adapted, regarding the application.

고분자 재질에 따른 Quad-Ring® 물성 및 적용범위 (미국 표준규격 AS 568)

고분자 재질	재질 No.	경도* Shore A / IRHD Tol. ±5	색상	온도** (°C)	적용 범위
NBR	525EV	80	검정색	-25°C ~ +125	<ul style="list-style-type: none"> 회전용에 적용. 자기 윤활성을 지님. 윤활조건이 좋지 않은 환경에 적합.

* 탄성체의 경도 범위는 DIN 53505와 조화되어 Shore A로 나타내었다. 시험 편은 DIN 기준에 제시된 것으로 측정하였다.

** 온도 범위는 한계치이며 Sealing 시, 매체와 작동압력 조건에 따라 항상 고려해야 한다. 연속 작동 시의 온도는 한계치보다 언제나 낮게 설계하여야 한다.

Installation Dimensions / Part No.

Rod	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
d_5 f7	Part No.	Dimensions	Part No.	d_6 H8	$b_1+0.2$	$b_2+0.2$	$b_3+0.2$	r_1
4.0	Q4008-525EV	4.47 × 1.78	BU16J0040	7.2	2.0	3.2	4.4	0.2
5.0	Q4009-525EV	5.28 × 1.78	BU16J0050	8.2	2.0	3.2	4.4	0.2
8.0	Q4012A-525EV	8.20 × 1.78	BU16J0080	11.2	2.0	3.2	4.4	0.2
10.0	Q4111A-525EV	10.20 × 2.62	BU24J0100	14.8	2.8	4.0	5.2	0.3
12.0	Q4112-525EV	12.37 × 2.62	BU24J0120	16.8	2.8	4.0	5.2	0.3
15.0	Q4114-525EV	15.54 × 2.62	BU24J0150	19.8	2.8	4.0	5.2	0.3
16.0	Q4115-525EV	17.12 × 2.62	BU24J0160	20.8	2.8	4.0	5.2	0.3
18.0	Q4116-525EV	18.72 × 2.62	BU24J0180	22.8	2.8	4.0	5.2	0.3
20.0	Q4211-525EV	20.22 × 3.53	BU33N0200	26.7	2.8	5.4	7.0	0.4
22.0	Q4213-525EV	23.39 × 3.53	BU33N0220	28.7	3.8	5.4	7.0	0.4
25.0	Q4215-525EV	26.57 × 3.53	BU33N0250	31.7	3.8	5.4	7.0	0.4
28.0	Q4217-525EV	29.74 × 3.53	BU33N0280	34.7	3.8	5.4	7.0	0.4
30.0	Q4218-525EV	31.34 × 3.53	BU33N0300	36.7	3.8	5.4	7.0	0.4
32.0	Q4219-525EV	32.92 × 3.53	BU33N0320	38.7	3.8	5.4	7.0	0.4
35.0	Q4221-525EV	36.09 × 3.53	BU33N0350	41.7	3.8	5.4	7.0	0.4

Installation Dimensions / Part No.

Rod	Quad-Ring®		Back-up Ring*	Groove-Ø	Groove Width			Radius*
d ₅ f7	Part No.	Dimensions	Part No.	d ₆ H8	b ₁ +0.2	b ₂ +0.2	b ₃ +0.2	r ₁
36.0	Q4222-525EV	37.69 × 3.53	BU33N0360	42.7	3.8	5.4	7.0	0.4
40.0	Q4326-525EV	40.64 × 5.33	BU49R0400	49.9	6.0	8.0	10.0	0.4
42.0	Q4327-525EV	43.82 × 5.33	BU49R0420	51.9	6.0	8.0	10.0	0.4
45.0	Q4328-525EV	46.99 × 5.33	BU49R0450	54.9	6.0	8.0	10.0	0.4
48.0	Q4329-525EV	50.17 × 5.33	BU49R0480	57.9	6.0	8.0	10.0	0.4
50.0	Q4330-525EV	53.34 × 5.33	BU49R0500	59.9	6.0	8.0	10.0	0.4
52.0	Q4330-525EV	53.34 × 5.33	BU49R0520	61.9	6.0	8.0	10.0	0.4
55.0	Q4331-525EV	56.52 × 5.33	BU49R0550	64.9	6.0	8.0	10.0	0.4
56.0	Q4331-525EV	56.52 × 5.33	BU49R0560	65.9	6.0	8.0	10.0	0.4
60.0	Q4333-525EV	62.87 × 5.33	BU49R0600	69.9	6.0	8.0	10.0	0.4
63.0	Q4334-525EV	66.04 × 5.33	BU49R0630	72.9	6.0	8.0	10.0	0.4
65.0	Q4334-525EV	66.04 × 5.33	BU49R0650	74.9	6.0	8.0	10.0	0.4
70.0	Q4336-525EV	72.39 × 5.33	BU49R0700	79.9	6.0	8.0	10.0	0.4
75.0	Q4338-525EV	78.74 × 5.33	BU49R0750	84.9	6.0	8.0	10.0	0.4
80.0	Q4339-525EV	81.92 × 5.33	BU49R0800	89.9	6.0	8.0	10.0	0.4
85.0	Q4341-525EV	88.27 × 5.33	BU49R0850	94.9	6.0	8.0	10.0	0.4
90.0	Q4343-525EV	94.62 × 5.33	BU49R0900	99.9	6.0	8.0	10.0	0.4
95.0	Q4344-525EV	97.79 × 5.33	BU49R0950	104.9	6.0	8.0	10.0	0.4
100.0	Q4346-525EV	104.14 × 5.33	BU49R1000	109.9	6.0	8.0	10.0	0.4
105.0	Q4348-525EV	110.49 × 5.33	BU49R1050	114.9	6.0	8.0	10.0	0.4
110.0	Q4426-525EV	116.84 × 7.00	BU66T1100	123.3	7.7	10.2	12.7	0.6
115.0	Q4427-525EV	120.02 × 7.00	BU66T1150	128.3	7.7	10.2	12.7	0.6
120.0	Q4428-525EV	123.19 × 7.00	BU66T1200	133.3	7.7	10.2	12.7	0.6
125.0	Q4430-525EV	129.54 × 7.00	BU66T1250	138.3	7.7	10.2	12.7	0.6
130.0	Q4432-525EV	135.89 × 7.00	BU66T1300	143.3	7.7	10.2	12.7	0.6
140.0	Q4435-525EV	145.42 × 7.00	BU66T1400	153.3	7.7	10.2	12.7	0.6
150.0	Q4438-525EV	158.12 × 7.00	BU66T1500	163.3	7.7	10.2	12.7	0.6
160.0	Q4439-525EV	164.47 × 7.00	BU66T1600	173.3	7.7	10.2	12.7	0.6
180.0	Q4442-525EV	183.52 × 7.00	BU66T1800	193.3	7.7	10.2	12.7	0.6
200.0	Q4445-525EV	202.57 × 7.00	BU66T2000	213.3	7.7	10.2	12.7	0.6

*If a Back-up Ring is used the recommended radius should always $r_1 = 0.25 \pm 0.2\text{mm}$
 Different procedures for the Friction Reduction of the Elastomer Surface are available,
 when Quad-Ring® in a Rotary application.

**BG : Single cut
 BU : Uncut

주문 예

Order No.	Q4008	-	525EV
Part No.			
Quality Index (Standard)			
Material Code. (Standard)			

Quad-Ring® 주문 방식

Order No.	BU4900902	-	PT00
Part No.			
Quality Index (Standard)			
Material Code. (Standard)			

Back-up Ring 주문 방식

Bonded Seal



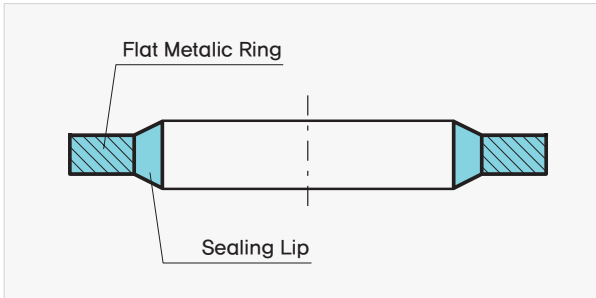
Axial Sealing

Materials : Rubber-Metal Bonded Seals for Bolted connections & Mounting elements.



개요

Bonded Seal은 볼트 머리, 플랜지의 고정용 Seal로 사용되며 Flat 형태의 금속 링과 그 내측에 경화된 사다리꼴 형태의 탄성체 Sealing Lip으로 구성되어있다.

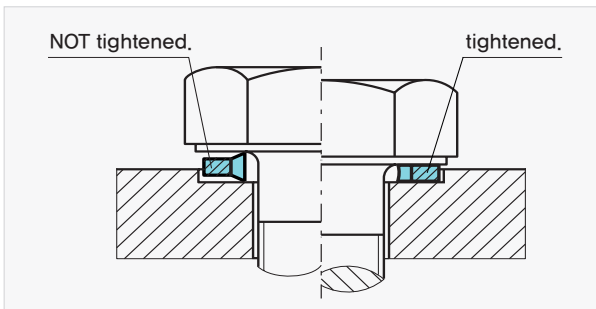


Bonded Seal

표면 조도

$R_{max} < 15 \mu m$

$R_a < 3.2 \mu m$



Application of Bonded Seal

장점

- 볼트와 나사 홈 사이의 누유를 경제적이고, 효과적으로 해결할 수 있다.
- 모든 나사의 홈, 스터드 및 공차 틈새 공간에 적용할 수 있다.
- 홈 가공이 단순하고, 적용이 용이하다.
- Sealing Washer는 메트릭, Whitworth 및 BSP 나사에 사용이 가능하다.
- 다양한 종류의 탄성 중합체(Elastomers)와 금속.
- 폭넓은 온도 범위.
- 안정적인 고압력 Sealing과 저압력 Sealing.
- 금속 Washer는 과도한 압축 및 압출을 방지한다.
- Overhead 설치 시, 사용이 가능하다.
- 자동으로 설치할 수 있다.
- 외부에서 파손 유무를 확인할 수 있다.
- No Sweating.
- 재사용이 가능하다.
- 모든 European 나사 사이즈 공급 가능.

적용 범위

- 압력 : 최대 1000 bar (오목한 곳이 있는 경우)
최대 400 bar (오목한 곳이 없는 경우, $d_2 < 40mm$)
최대 250 bar (오목한 곳이 없는 경우, $d_2 > 40mm$)
- 온도 : $-35^{\circ}C \sim +120^{\circ}C$ (NBR)
 $-25^{\circ}C \sim +200^{\circ}C$ (FPM)
- 매체 : 광물유,
물,
Water-Oil 에멀전,
Gas 등.

재질 / Materials for Bonded Seal

1. GM500 Dowty

- Standard steel
 - BS EN 10139 : 1998 DC01 + C490
Surface treatment Zinc plate yellow chromate
8–12µm
- Stainless steel
 - BS1449 (part 2) type 316 (1,4436) (316S33)
- Seal Lip
 - NBR, 70 Shore A
 - NBR, 90 Shore A
 - FKM, 70 Shore A
 - FKM, 75 Shore A
 - EPDM, 75 Shore A

2. U-Seal B+S

- Standard steel
 - 1,0330 (AISI 1008)
Surface treatment Zinc plate yellow chromate
- Stainless steel
 - 1,4301 (AISI 304)
- Seal Lip
 - NBR, 70 Shore A
 - FKM, 70 Shore A

3. GM500 Self Centering

- Standard steel
 - CS4 BR H5
Surface treatment Zinc palte yellow chromate
8–12µm
- Stainless steel
 - BS1449 (part 2) type 316 (1,4436) (316S33)
- Seal Lip
 - NBR, 70 Shore A
 - NBR, 90 Shore A
 - FKM, 70 Shore A
 - FKM, 75 Shore A
 - EPDM, 75 Shore A

Mating Surface

The plane surfaces to be sealed should be free from scores and should be machined smooth.

The permissible Surface Roughness is :

$$R_{max} < 15\mu m$$

$$R_a < 3.2\mu m$$

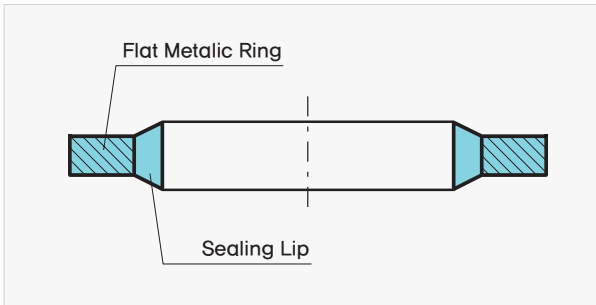
Base Material	Material Code	Type		
		GM500	U-Seal	GM500 self-centering
NBR 70 Shore A + BS EN 10139: 1998	4N49	●	–	●
NBR 90 Shore A + BS EN 10139: 1998	4N59	●	–	●
FKM 70 Shore A + BS EN 10139: 1998	4V89	●	–	●
FKM 75 Shore A + BS EN 10139: 1998	4V49	●	–	●
EPDM 75 Shore A + BS EN 10139: 1998	4E49	●	–	●
NBR 70 Shore A + BS1449 (part2)	4N4E	●	–	●
NBR 90 Shore A + BS1449 (part2)	4N5E	●	–	●
FKM 70 Shore A + BS1449 (part2)	4V8E	●	–	●
FKM 75 Shore A + BS1449 (part2)	4V4E	●	–	●
EPDM 75 Shore A + BS1449 (part2)	4E4E	●	–	●
NBR 70 Shore A + 1.0330	N7MC	–	●	–
FKM 75 Shore A + 1.0330	VCBC	–	●	–
NBR 70 Shore A + 1.4301	N7MA	–	●	–
FKM 75 Shore A + 1.4301	VCBA	–	●	–

Other materials on request.

● Available Sizes.
– NOT available.

GM500 / U-Seal

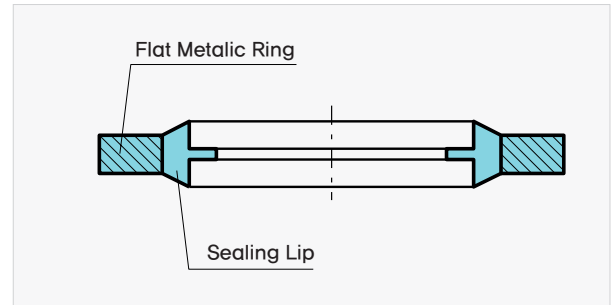
- 일반적인 엔지니어링 환경에서 다양한 볼트를 사용하여 나사 구멍을 밀봉할 수 있다.
- 오목한 볼트 구멍, 혹은 평평한 플렌지에 사용할 수 있다.



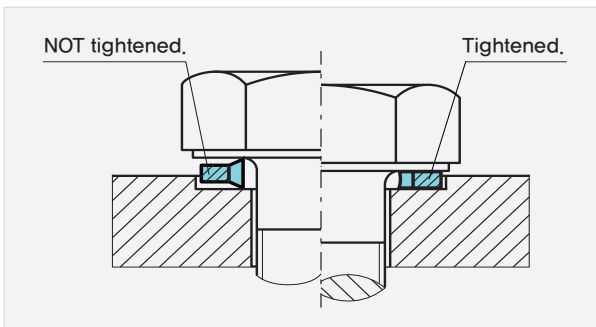
GM500/U-Seal

GM500 Self-Centering

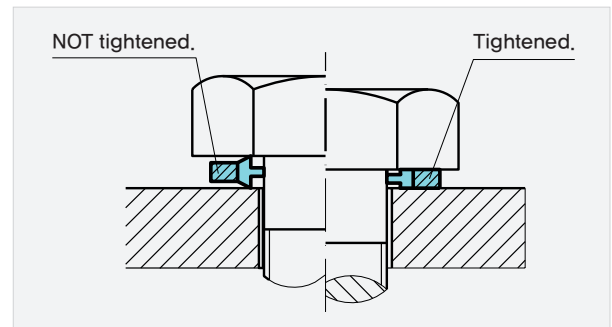
- 볼트와 제품의 중심점을 같게 한다.
- 동심을 잘 유지한다.
- 조립 가능 여부를 확인할 수 있다.
- 편리하게 조립할 수 있다.
- 모든 European 나사 규격의 공급이 가능하다.



GM500 Self-Centering

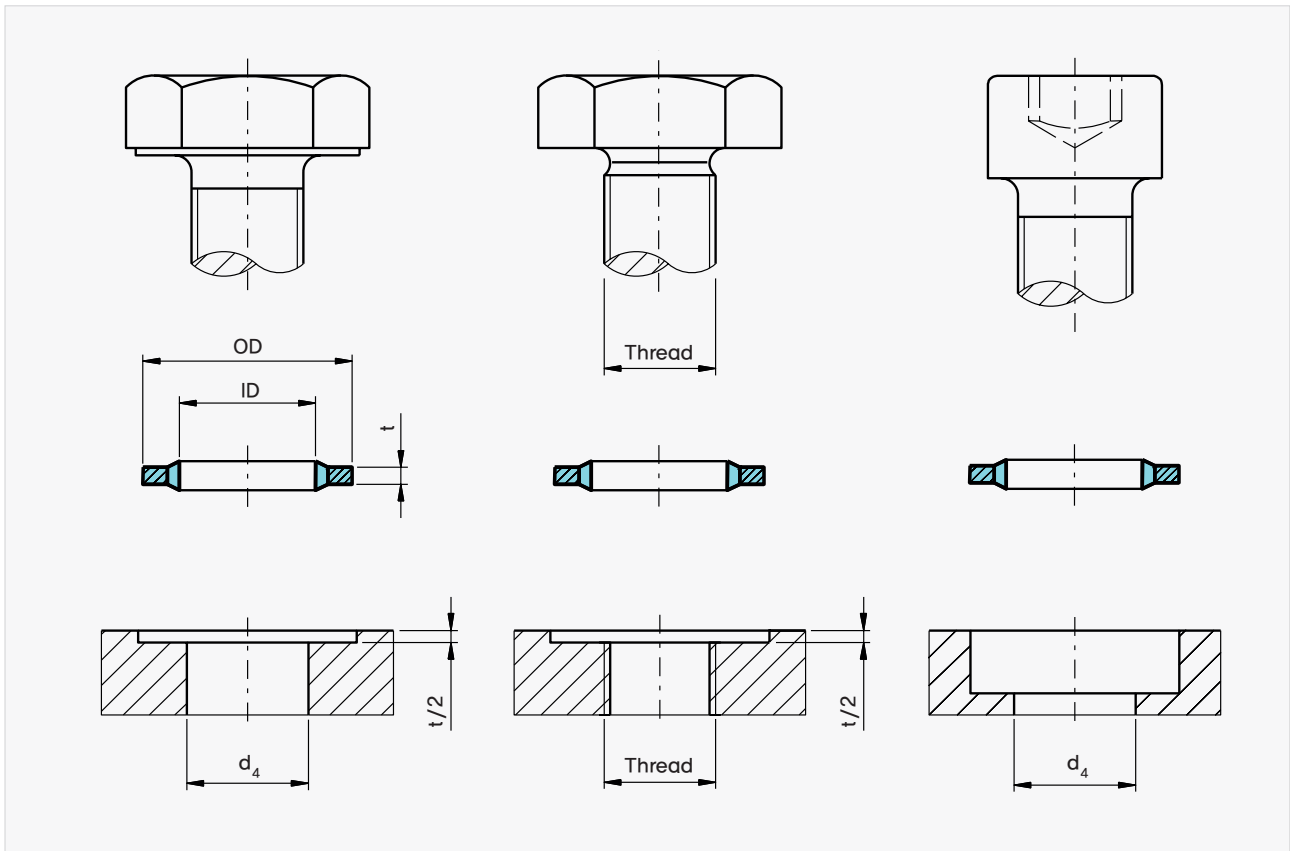


Installation GM500/U-Seal



Installation GM500 Self-Centering

Installation Recommendation – Article Group DD



Installation drawing

주문 예

Bonded Seal for Hexagon head cap screw M4

- Dimensions : Inside diameter ID = 4.5mm
 Outside diameter OD = 7.0mm
 Thickness t = 1.0mm
- Materials : Flat Ring of Steel (1.0330)
 Sealing Lip of NBR, 70 Shore A

TSS Article No. DDM000045 - N7MC
 TSS Part No.
 Quality Index (Standard)
 Material Code. (Standard)

Installation Dimensions / TSS Part No. – GM500 / U-Seal

Metric thread	Dimensions			Bore	TSS Part No.	U-Seal	Ref. No. GM500
	ID	OD	t	d ₄			
M2.5	3.10	6.40	1.00	2.70	DDM000031	●	–
M2.5	3.10	6.40	1.30	2.70	DDM100031	●	–
M3	3.60	7.50	1.00	3.20	DDM000036	–	301
M3	4.10	7.00	1.00	3.20	DDM000041	●	–
M3 (M3.5)	4.10	7.20	1.00	3.20 (3.70)	DDM100041	●	201
M4	4.50	7.00	1.00	4.20	DDM000045	●	202
M4	4.60	9.00	1.00	4.30 (4.20)	DDM000046	●	302
M4	4.90	8.60	1.00	4.30	DDM000049	●	–
M5	5.60	10.00	1.00	5.20	DDM000056	–	303
M5	5.70	9.00	1.00	5.30 (5.20)	DDM000057	●	203
M5	5.70	9.20	1.00	5.30	DDM100057	●	–
M5	5.70	10.00	1.00	5.30 (5.20)	DDM200057	●	204
M5 (M5.5)	6.20	9.20	1.00	5.30 (5.70)	DDM000062	●	205
M6	6.60	11.00	1.00	6.20	DDM000066	–	304
M6	6.70	10.00	1.00	6.40 (6.20)	DDM000067	●	206
M6	6.70	11.00	1.00	6.40 (6.20)	DDM100067	●	207
M6	6.70	11.00	2.50	6.40 (6.20)	DDM200067	–	208
M6	6.85	13.27	1.30	6.20	DDM000068	–	305
M6	6.90	13.20	1.30	6.40	DDM000069	●	–
M6	7.00	11.40	1.00	6.20	DDM100070	–	306
M6	7.00	13.40	1.30	6.40	DDM000070	●	–
M6 (M6.5)	7.10	12.00	1.00	6.40 (6.70)	DDM000071	●	209
M6 (M6.7)	7.30	10.20	1.00	6.40 (6.90)	DDM000073	●	210
M6 (M8)	8.50	13.40	1.00	6.40 (8.20)	DDM000085	●	211
M8	8.60	13.00	1.00	8.20	DDM000086	–	307
M8	8.70	13.00	1.00	8.40 (8.20)	DDM000087	●	212
M8	8.70	14.00	1.00	8.40 (8.20)	DDM100087	●	213
M8	8.70	14.20	1.30	8.40	DDM200087	●	–
M8	8.70	16.00	1.00	8.40 (8.20)	DDM300087	●	214
M8 (M8.5)	9.30	13.30	1.00	8.40 (8.70)	DDM000093	●	215
M10	10.35	16.00	2.00	9.95	DDM000103	–	216
M8 (M10)	10.70	16.00	1.50	8.40 (10.20)	DDM000107	●	217
M10	10.70	17.00	1.50	10.20	DDM200107	–	310
M8 (M10)	10.70	18.00	1.50	8.40 (10.20)	DDM100107	●	218
M10 (M11)	11.40	16.30	1.50	10.50 (11.20)	DDM000114	●	219
M11	11.80	18.10	1.50	11.20	DDM200118	–	312
M10 (M11)	11.80	18.50	1.50	10.50 (11.20)	DDM000118	●	220
M10 (M11)	11.80	19.10	1.50	10.50 (11.20)	DDM100118	●	221
M10 (M12)	12.70	18.00	1.50	10.50 (12.20)	DDM000127	●	222
M12	12.70	19.00	1.50	12.20	DDM200127	–	313
M10 (M12)	12.70	20.00	1.50	10.50 (12.20)	DDM100127	●	223
M12 (M13)	13.70	20.00	1.50	13.00 (13.20)	DDM000137	●	224

● Available Sizes.
– NOT available.

Installation Dimensions / TSS Part No. – GM500 / U-Seal

Metric thread	Dimensions			Bore	TSS Part No.	U-Seal	Ref. No. GM500
	ID	OD	t	d ₄			
M12	13.70	20.60	2.10	13.00	DDM100137	●	–
M12 (M13)	13.70	22.00	1.50	13.00 (13.20)	DDM200137	●	225
M12	13.70	22.20	1.59	13.00	DDM300137	●	–
M13	13.80	20.10	1.50	13.20	DDM000138	–	315
M12 (M13.5)	14.00	18.70	1.50	13.00 (13.70)	DDM000140	●	226
M14	14.70	21.00	1.50	14.20	DDM100147	–	316
M12 (M14)	14.70	22.00	1.50	13.00 (14.20)	DDM000147	●	227
M12	14.90	22.30	2.10	13.00	DDM000149	●	–
M14 (M15)	16.00	22.70	1.50	15.00 (15.20)	DDM000160	●	228
M14	16.50	25.50	2.10	15.00	DDM000165	●	–
M16	16.70	23.00	1.50	16.20	DDM100167	–	317
M14 (M16)	16.70	24.00	1.50	15.00 (16.20)	DDM000167	●	229
M16.5	17.20	23.90	2.10	16.70	DDM000172	–	319
M17	17.40	23.70	1.50	17.20	DDM200174	–	318
M14 (M17)	17.40	24.00	1.50	15.00 (17.20)	DDM000174	●	230
M14	17.40	24.00	2.00	15.00	DDM100174	●	–
M16 (M17.5)	18.00	24.70	1.50	17.00 (17.70)	DDM000180	●	231
M16	18.20	25.40	2.50	17.00	DDM000182	●	–
M16 (M18)	18.70	26.00	1.50	17.00 (18.20)	DDM000187	●	232
M18	18.70	27.00	2.00	18.20	DDM100187	–	320
M18 (M20)	20.70	28.00	1.50	19.00 (20.20)	DDM000207	●	233
M20	20.70	29.00	2.00	20.20	DDM100207	–	321
M18 (M21)	21.50	28.70	2.50	19.00 (21.20)	DDM000215	●	234
M21	21.70	30.00	2.00	21.20	DDM000217	–	323
M20 (M22)	22.50	28.00	1.50	21.00 (22.20)	DDM000225	●	235
M20 (M22)	22.70	30.00	2.00	21.00 (22.20)	DDM000227	●	236
M20 (M22)	22.70	30.00	3.00	21.00 (22.20)	DDM100227	●	237
M22	22.70	31.00	2.00	22.20	DDM200227	–	324
M23	23.70	32.00	2.00	23.20	DDM000237	–	325
M20 (M24)	24.70	32.00	2.00	21.00 (24.20)	DDM000247	●	238
M24	24.70	33.00	2.00	24.20	DDM100247	–	326
M22	26.70	35.00	2.00	23.00	DDM000267	●	–
M24	27.00	35.00	2.50	25.00	DDM000270	●	–
M26	27.00	35.30	2.00	26.20	DDM100270	–	327
M24 (M27)	27.20	36.00	2.00	25.00 (27.20)	DDM000272	●	240
M27	27.70	36.00	2.00	27.20	DDM000277	–	328
M28	28.60	36.00	2.00	28.20	DDM000286	–	329
M24	28.70	37.00	2.00	25.00	DDM000287	●	–
M28.5	29.20	37.50	2.00	28.70	DDM000292	–	330
M30	30.70	39.00	2.00	30.20	DDM000307	–	331
M27 (M30)	31.00	39.00	2.00	28.00 (30.20)	DDM000310	●	242
M27 (M33)	33.70	42.00	2.00	28.00 (33.20)	DDM000337	●	243

● Available Sizes.
– NOT available.

Installation Dimensions / TSS Part No. – GM500 / U-Seal

Metric thread	Dimensions			Bore	TSS Part No.	U-Seal	Ref. No. GM500
	ID	OD	t	d ₄			
M27	33.90	42.80	3.25	28.00	DDM000339	●	–
M27	33.90	42.90	3.40	28.00	DDM100339	●	–
M30 (M33)	34.30	43.00	2.00	31.00 (33.20)	DDM000343	●	244
M30 (M36)	36.70	46.00	2.00	31.00 (36.20)	DDM000367	●	245
M36	37.00	48.00	2.50	36.20	DDM000370	–	333
M36 (M39)	40.00	51.00	2.50	37.00 (39.20)	DDM000400	●	246
M39	40.00	51.00	2.50	39.20	DDM100400	–	334
M36 (M42)	42.70	53.00	3.00	37.00 (42.20)	DDM000427	●	247
M42	43.00	54.00	2.50	42.20	DDM000430	–	335
M45	46.00	57.00	2.50	45.20	DDM000460	–	336
M36 (M48)	48.70	59.00	3.00	37.00 (48.20)	DDM000487	●	248
M48	49.00	60.00	2.50	48.20	DDM000490	–	337
M42	51.70	63.50	3.25	43.00	DDM000517	●	–
M42 (M51)	52.00	60.00	3.00	43.00 (51.20)	DDM000520	●	249
M48 (M52)	53.30	64.50	3.00	50.00 (52.20)	DDM000533	●	250
M48 (M60)	60.70	73.00	3.00	50.00 (60.20)	DDM000607	●	251
M68	68.60	79.50	3.50	68.20	DDM000686	–	252
M75	76.10	90.30	3.38	75.20	DDM100761	–	253
M64	76.10	90.30	3.40	66.00	DDM000761	●	–
M88	89.09	101.48	3.25	88.20	DDM000890	–	254
M125	127.00	143.67	5.00	125.20	DDM001270	–	255

● Available Sizes.
– NOT available.

Installation Dimensions, BSP / TSS Part No. – GM500 / U-Seal

Inch thread	BSP	Dimensions			Bore	TSS Part No.	U-Seal	Ref. No. GM500
		ID	OD	t	d ₄			
6BA		3.05	6.35	1.22	2.79	DDW400001	–	001
1/8		3.70	8.05	1.04	3.50	DDW200005	●	–
9/64		4.00	8.38	1.04	3.90	DDW200006	●	–
4BA		4.12	7.26	1.22	3.60	DDW400002	–	002
5/32		4.70	9.29	1.04	4.50	DDW200008	●	–
2BA		5.21	8.38	1.22	4.69	DDW400003	–	003
3/16		5.60	10.79	1.37	5.40	DDW200190	●	–
7/32		6.20	11.55	1.37	6.00	DDW200216	●	–
1/4		6.86	13.21	1.22	6.34	DDW400004	–	004
1/4		6.99	13.34	1.22	6.35	DDW400005	–	005
1/4		7.10	13.18	1.37	7.00	DDW200250	●	–
5/16		8.31	13.34	1.22	7.93	DDW400006	–	006
5/16		8.64	14.22	1.22	7.94	DDW400007	–	007
5/16		8.70	15.16	1.37	8.50	DDW200312	●	–
3/8		10.30	17.52	1.37	10.20	DDW200375	●	–
3/8	1/8	10.37	15.88	2.00	9.53	DDW400020	–	020
40		11.26	18.36	2.00	10.16	DDW400008	–	008
7/16		11.69	19.05	2.00	11.11	DDW400009	–	009
7/16		11.90	19.53	1.90	11.70	DDW200437	●	–
1/2		13.70	22.30	1.90	13.50	DDW200500	●	–
1/2	1/4	13.74	20.57	2.00	12.70	DDW400021	–	021
9/16		14.86	22.23	2.00	14.28	DDW400010	–	010
9/16		15.30	24.68	1.90	15.00	DDW200562	●	–
60		15.83	22.23	2.00	15.23	DDW400022	–	022
5/8		16.52	25.40	2.00	15.88	DDW400011	–	011
5/8		16.90	27.05	1.90	16.80	DDW200625	●	–
	3/8	17.28	23.80	2.00	16.64	DDW400023	–	023
11/16		18.16	25.40	2.34	17.46	DDW400012	–	012
11/16		18.50	29.43	2.28	18.20	DDW200687	●	–
3/4		19.69	26.92	2.34	19.05	DDW400024	–	024
3/4		20.30	32.23	2.28	20.00	DDW200750	●	–
13/16	1/2	21.54	28.58	2.34	20.64	DDW400025	–	025
13/16		21.90	34.59	2.28	21.50	DDW200812	●	–
7/8	5/8	23.49	31.75	2.34	22.23	DDW400026	–	026
7/8		23.50	36.98	2.28	23.20	DDW200875	●	–
15/16		24.26	33.27	2.34	23.80	DDW400013	–	013
15/16		25.10	38.96	2.28	24.80	DDW200937	●	–
1		26.70	42.13	2.28	26.50	DDW201000	●	–
1	3/4	27.05	34.93	2.34	25.41	DDW400027	–	027
1 1/16		27.82	38.61	2.34	27.00	DDW400028	–	028
1 1/8		29.33	36.58	2.34	28.57	DDW400014	–	014
1 1/8		29.80	46.91	2.28	29.50	DDW201125	●	–

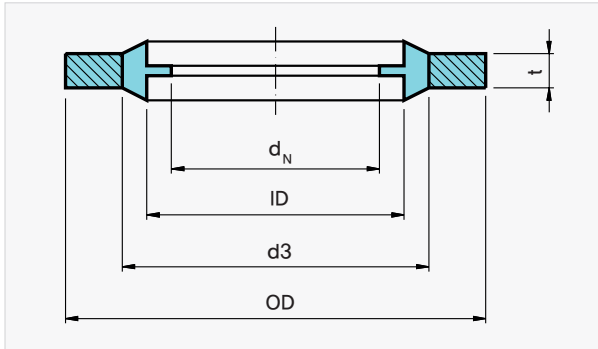
● Available Sizes.
– NOT available.

Installation Dimensions, BSP / TSS Part No. – GM500 / U-Seal

Inch thread	BSP	Dimensions			Bore	TSS Part No.	U-Seal	Ref. No. GM500
		ID	OD	t	d ₄			
1 3/16	7/8	30.81	38.10	2.34	30.15	DDW400029	–	029
1 1/4		32.64	41.40	3.25	31.74	DDW400015	–	015
1 1/4		33.00	51.28	3.40	32.80	DDW201250	●	–
1 5/16	1	33.89	42.80	2.34	33.33	DDW400031	–	031
1 5/16	1	33.89	42.80	3.25	33.33	DDW400030	–	030
1 3/8		35.94	44.45	3.25	34.92	DDW400016	–	016
1 1/2	1 1/4	38.96	47.75	3.25	38.10	DDW400017	–	017
1 1/2		39.50	58.93	3.40	39.00	DDW201500	●	–
1 5/8		42.93	52.38	3.25	41.29	DDW400032	–	032
1 3/4	1 1/2	45.34	57.15	3.25	44.44	DDW400018	–	018
1 7/8		48.44	58.60	3.25	47.64	DDW400033	–	033
2		51.69	63.50	3.25	50.79	DDW400019	–	019
2 1/8	1 3/4	54.89	69.85	3.25	53.99	DDW400034	–	034
2 1/4		58.04	70.36	3.25	57.14	DDW400035	–	035
	2	60.58	73.03	3.25	59.62	DDW400036	–	036
2 1/2		64.39	77.72	3.25	63.49	DDW400037	–	037
	2 1/4	66.68	79.50	3.25	65.50	DDW400038	–	038
	2 1/2	76.08	90.17	3.25	75.18	DDW400039	–	039

● Available Sizes.
 – NOT available.

GM500 / Self-Centering



GM500 Self-Centering

주문 예

- M8
- TSS Article No. = DDM0C0087-4V4E

GM500 / Self-Centering Range Metric Dimensions

Metric thread	Dimensions					TSS Part No.
	OD	d3	ID	d _N	t	
M4	7.00	5.40	4.50	3.30	1.00	DDM0C0045
M5	10.00	7.40	5.70	4.45	1.00	DDM0C0057
M6	10.00	8.00	6.70	5.60	1.00	DDM0C0067
M8	14.00	10.40	8.70	6.40	1.00	DDM0C0087
M10	16.00	12.40	10.70	8.05	1.50	DDM0C0107
M12	19.00	14.10	12.70	9.73	1.50	DDM0C0127
M14	22.00	16.40	14.70	11.38	1.50	DDM0C0147
M16	24.00	18.40	16.70	13.41	1.50	DDM0C0167
M18	26.00	20.40	18.70	14.76	1.50	DDM0C0187
M20	28.00	22.50	20.70	16.76	1.50	DDM0C0207
M22	30.00	24.40	22.70	18.74	2.00	DDM0C0227
M24	32.00	26.40	24.70	20.11	2.00	DDM0C0247

주문 예

- BSP 3/8
- TSS Article No. DDW4C0832-4N5E

GM500 / Self-Centering Range Inch Dimensions, BSP

Inch thread	Dimensions					TSS Part No.
	OD	d3	ID	d _N	t	
BSP 1/8	15.88	11.84	10.37	8.26	2.00	DDW4C0820
BSP 1/4	20.57	15.21	13.74	11.18	2.00	DDW4C0821
5/8	25.40	18.75	16.51	12.90	2.00	DDW4C0869
BSP 3/8	23.80	18.75	17.28	14.76	2.00	DDW4C0823
11/16	25.40	19.69	18.16	14.50	2.40	DDW4C0871
BSP 1/2	28.58	23.01	21.54	18.24	2.47	DDW4C0825
BSP 5/8	31.75	24.97	23.49	20.27	2.47	DDW4C0826
BSP3/4	34.93	28.53	27.05	23.83	2.47	DDW4C0827
BSP7/8	38.10	32.29	30.81	27.51	2.47	DDW4C0829
BSP 1	42.80	36.88	33.89	29.92	3.40	DDW4C0830
BSP1 1/4	52.38	45.93	42.93	38.45	3.40	DDW4C0832
BSP 1 1/2	58.60	51.39	48.44	44.45	3.40	DDW4C0833
BSP 1 3/4	69.85	58.30	54.89	50.42	3.40	DDW4C0834
BSP 2	73.03	63.63	60.58	56.26	3.40	DDW4C0836
BSP 2 1/4	79.50	69.98	66.68	62.36	3.40	DDW4C0838
BSP 2 1/2	90.17	79.38	76.08	71.50	3.40	DDW4C0839

Fluid Connector Seal



Axial Sealing

Materials : Elastomer



개요

이 제품은 유압 Fluid Power 적용에 쓰레드 포트 부분과 스톱 엔드 부분에 Axial 고정용 실로 사용된다.

DIN 3869, ISO 11926, ISO 9974, ISO 1179 기준 높은 압력 조건에서도 제품의 두께는 실질적으로 유지된다. 홈 규격은 DIN 3852 part 11.

적용 범위

- 압력 : 최대 63MPa
- 온도 : -25℃ ~ +100℃ (NBR, 85 Shore A)
-18℃ ~ +200℃ (FKM, 80 Shore A)

※ 주의사항

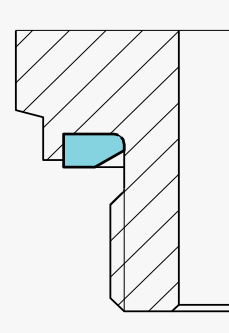
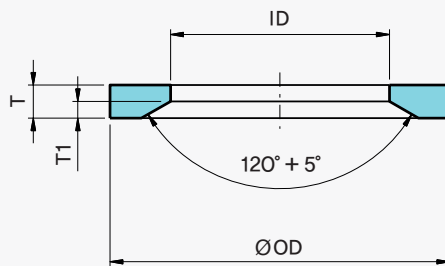
- 위에 제시된 최대 수치는 같은 동작 시간대에 동시에 유효할 수는 없다.
- 온도 범위 또한, 매체 조건에 따라 영향을 받는다.

장점

- 두께 부분의 최소한의 변형.
- 장기간 사용에도 뛰어난 Sealing 효과.
- 뒤틀림 현상 없음.
- 압력 적용 중에도, 제품의 불필요한 움직임이 없다.
- 압력에 따라 규격적으로 구성됨.
- 메탈 Sealing과 비교해 높은 밀폐성 지녔다.

적용 분야

- Excavator (굴삭기)
- 농기계
- 유압 회로용 밸브
- 프레스
- 기계틀
- 사출 성형 기계



Installation drawing

Installation Dimensions / TSS Part No.

Size	Thread (Metric)	Thread (Inch)	Ø ID	Ø OD	T	T1	TSS Part No.
10.0	M10 × 1	G 1/8 A	8.4	11.9	1.0	0.5	DRV100084
12.0	M12 × 1.5	-	9.8	14.4	1.5	0.8	DRV100098
14.0	M14 × 1.5	G 1/4 A	11.6	16.5	1.5	0.8	DRV100116
16.0	M16 × 1.5	-	13.8	18.9	1.5	0.8	DRV100138
17.0	-	G 3/8 A	14.7	18.9	1.5	0.8	DRV100147
18.0	M18 × 1.5	-	15.7	20.9	1.5	0.8	DRV100157
20.0	M20 × 2.5	-	17.8	22.9	1.5	0.8	DRV100178
21.0	-	G 1/2 A	18.5	23.9	1.5	0.8	DRV110185
22.0	M22 × 1.5	-	19.6	24.3	1.5	0.8	DRV100196
27.0	M27 × 2	G 3/4 A	23.9	29.2	1.5	0.8	DRV100239
33.0	M33 × 2	G 1 A	29.7	35.7	2.0	1.0	DRV100297
42.0	M42 × 2	G 1 1/4 A	38.8	45.8	2.0	1.0	DRV100388
48.0	M48 × 2	G 1 1/2 A	44.7	50.7	2.0	1.0	DRV100447

This table shows the possible range of available dimensions. (Fluid Connector Seal)
However, these dimensions are not always stock items.

Turcon® Variseal® HF



Single-Acting

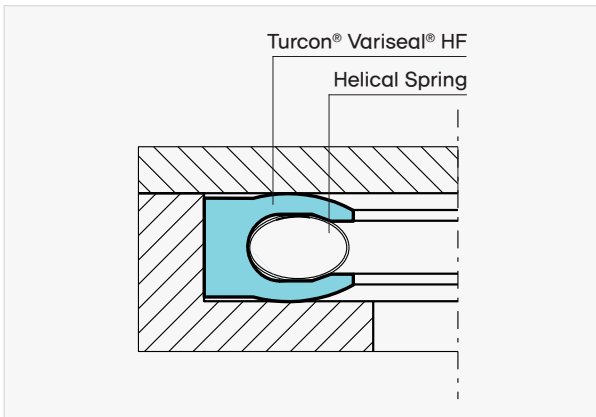
Materials : Turcon®



개요

Turcon® Variseal® HF는 축 방향 고정용 플랜지 Seal로서 사용되며 Variseal®과 같은 원리로 Spring에 의해 우수한 Sealing이 유지된다.

Turcon® Variseal® HF는 내압용과 외압용(진공용)으로 공급된다. Turcon® HF는 Helical Spring이 사용되며 진공 분야, Gas, 저온에서의 플랜지, 커버용으로 최대 장점이 있다.



Turcon® Variseal® HF

Variseal® HF는 주로, 고정용으로 사용되며 사용 조건에 따라 저속의 운동용으로 사용할 수 있다.

Seal과 Spring의 재질을 다양하게 선정할 수 있어서 일반 유·공압 분야뿐만 아니라, 중화학 분야, 의약 분야, 식품 분야 등 폭넓게 사용할 수 있다.

장점

- Gas와 Fluid 분야에서 우수한 Sealing 효과.
- 대부분의 유체와 화학약품에 사용.
- 냉동 분야에서 사용.
- 불완전한 상대 면에서도 양호한 Sealing.
- 다양한 온도조건에서도 우수한 Sealing이 유지된다.
- 식품, 의약품과 접촉 시, 오염 방지 효과.
- 살균 처리 가능.
- 우수한 내구성.

적용 범위

- 압력 : 최대 80 MPa (고정 시,
최대 40 MPa (운동 시,))
- 속도 : 고정, 또는 저속. (상대조건에 따라)
- 온도 : -200 °C ~ +260 °C*
(특히 낮은 온도일 경우, 문의 바람.)
- 유체 : 거의 모든 유체와 화학약품,
Gas,
진공,
인산 에스테르.

재질

Turcon® 재질은 인체에 무해하며, 냄새와 맛이 없다. 아래의 표준 재질은 대부분의 분야에서 사용 가능하다.

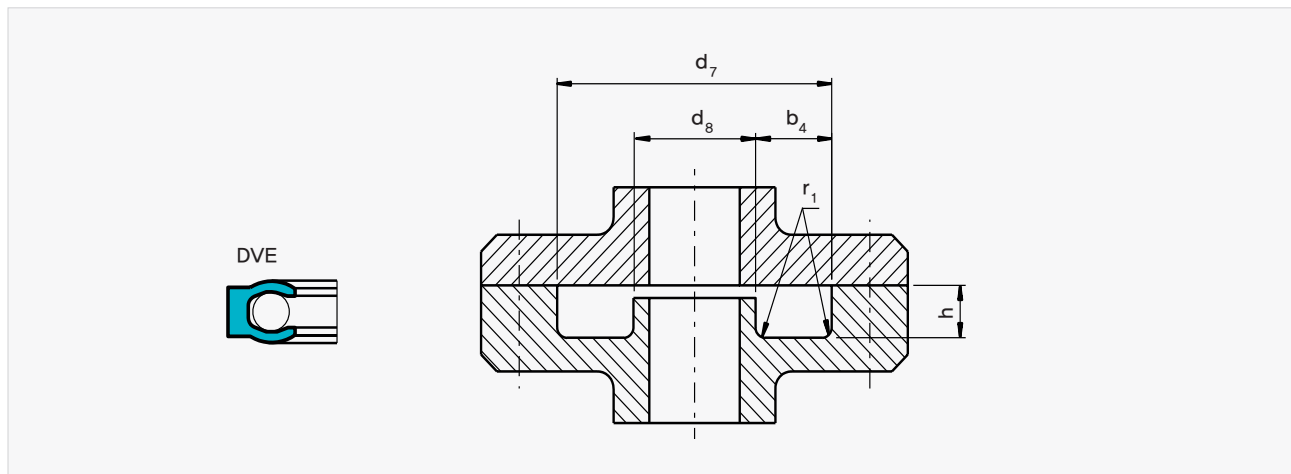
- Sealing : Turcon® T05
- Spring : S (Stainless Steel)
H (Hastelloy)
E (Elgiloy)

※ 요청에 의해 FDA에 승인된 재질도 공급 가능.

표면 조도 / Surface Roughness

권장 최대 표면조도 (µm)			
유체	회전	왕복운동	고정
Cryogenic & Low Molecular Gases, Hydrogen, Helium, Freon, Oxygen, Nitrogen.	R _{max} = 1.0 R _z = 0.63 R _a = 0.1 µm	R _{max} = 2.5 R _z = 1.6 R _a = 0.2 µm	R _{max} = 3.5 R _z = 2.2 R _a = 0.3 µm
Low Viscosity Fluids & Gases, Air, Alcohols, Hydrazine, Gaseous Nitrogen, Natural Gas.	R _{max} = 2.5 R _z = 1.6 R _a = 0.2 µm	R _{max} = 3.5 R _z = 2.2 R _a = 0.3 µm	R _{max} = 5.0 R _z = 3.5 R _a = 0.6 µm
Medium to High Viscosity Fluids, Water, Hydraulic oils, Crude oil, Skydrol, Gear oil, Sealants.	R _{max} = 2.5 R _z = 1.6 R _a = 0.2 µm	R _{max} = 4.0 R _z = 2.5 R _a = 0.4 µm	R _{max} = 6.5 R _z = 5.0 R _a = 0.8 µm

Installation Recommendation for Internal Pressure



Installation drawing

Installation Dimensions

Series No.	Outer Groove Diameter d_7 H11		Inner Groove Diameter d_8	Groove Depth		Groove Width b_4	Radius r_1
	Recommended Range	Extended ¹⁾ Range	Diameter max.	h	Tol.	min.	max.
DVE0	10 – 13.9	14 – 40	$d_7 - 4.8$	1.45	+0.03	2.4	0.4
DVE1	14 – 24.9	13 – 200	$d_7 - 7.2$	2.25	+0.05	3.6	0.4
DVE2	25 – 45.9	18 – 400	$d_7 - 9.6$	3.10	+0.08	4.8	0.6
DVE3	46 – 124.9	28 – 700*	$d_7 - 14.2$	4.70	+0.10	7.1	0.8
DVE4	125 – 999.9**	45 – 1000**	$d_7 - 19.0$	6.10	+0.15	9.5	0.8
DVE5	1000 – 2500***	110 – 2500***	$d_7 - 30.0$	9.50	+0.20	15.0	0.8

1) Available on request.

* For diameters above 600mm b_4 min. = 8.0mm

** For diameters above 600mm b_4 min. = 11.0mm

*** For diameters above 1000mm b_4 min. = 18.0mm

주문 예

Turcon® Variseal® HF

- Outer Groove diameter : $d_7 = 80.0$ mm
- TSS Part No. DVE300800
- Seal Ring
Material Code : T05
- Spring
Material Code : S (Stainless Steel)
Material No. 1,4310 (AISI 301)

TSS Article No. DVE3 0 0800 – T05 S
 TSS Series No. _____
 Type (Standard) _____
 Cylinder diameter x 10 _____
 Quality Index (Standard) _____
 Material Code (Seal Ring) _____
 Material Code (Spring) _____

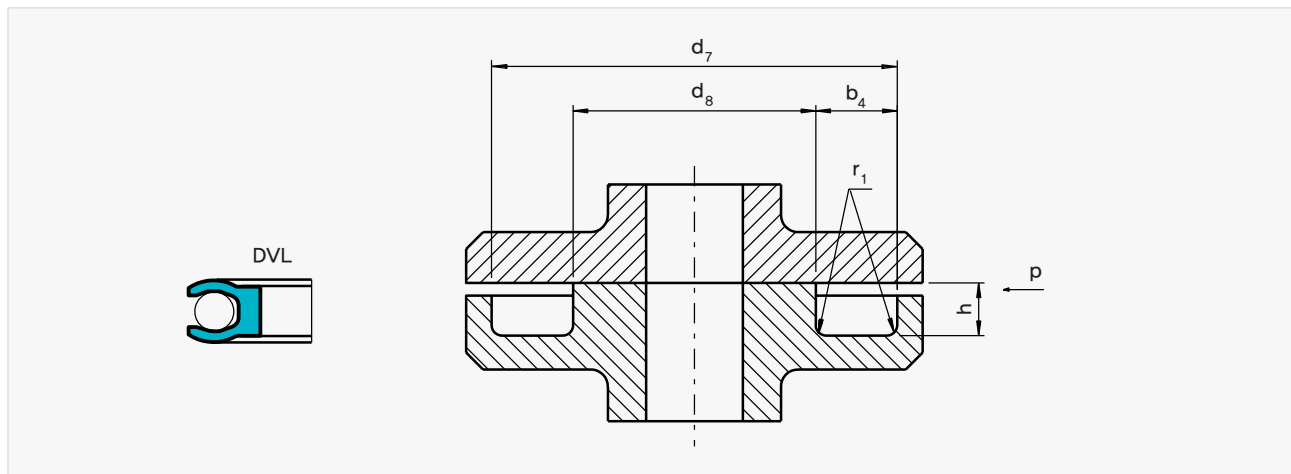
Installation Dimensions / TSS Part No.

Outer Groove Diameter	Inner Groove Diameter	Groove Depth	TSS Part No.
d_7 H11	d_8 max.	h	
10.0	5.2	1.45	DVE000100
12.0	7.2	1.45	DVE000120
14.0	6.8	2.25	DVE100140
15.0	7.8	2.25	DVE100150
16.0	8.8	2.25	DVE100160
18.0	10.8	2.25	DVE100180
20.0	12.8	2.25	DVE100200
22.0	14.8	2.25	DVE100220
25.0	15.4	3.10	DVE200250
28.0	18.4	3.10	DVE200280
30.0	20.4	3.10	DVE200300
32.0	22.4	3.10	DVE200320
35.0	25.4	3.10	DVE200350
36.0	26.4	3.10	DVE200360
40.0	30.4	3.10	DVE200400
42.0	32.4	3.10	DVE200420
45.0	35.4	3.10	DVE200450
48.0	33.8	4.70	DVE300480
50.0	35.8	4.70	DVE300500
52.0	37.8	4.70	DVE300520
55.0	40.8	4.70	DVE300550
56.0	41.8	4.70	DVE300560
60.0	45.8	4.70	DVE300600
63.0	48.8	4.70	DVE300630
65.0	50.8	4.70	DVE300650
70.0	55.8	4.70	DVE300700
75.0	60.8	4.70	DVE300750
80.0	65.8	4.70	DVE300800
85.0	70.8	4.70	DVE300850
90.0	75.8	4.70	DVE300900

Outer Groove Diameter	Inner Groove Diameter	Groove Depth	TSS Part No.
d_7 H11	d_8 max.	h	
95.0	80.8	4.70	DVE300950
100.0	85.8	4.70	DVE301000
105.0	90.8	4.70	DVE301050
110.0	95.8	4.70	DVE301100
115.0	100.8	4.70	DVE301150
120.0	105.8	4.70	DVE301200
122.0	107.8	4.70	DVE301220
125.0	106.0	6.10	DVE401250
130.0	111.0	6.10	DVE401300
135.0	116.0	6.10	DVE401350
140.0	121.0	6.10	DVE401400
150.0	131.0	6.10	DVE401500
160.0	141.0	6.10	DVE401600
170.0	151.0	6.10	DVE401700
180.0	161.0	6.10	DVE401800
190.0	171.0	6.10	DVE401900
200.0	181.0	6.10	DVE402000
210.0	191.0	6.10	DVE402100
220.0	201.0	6.10	DVE402200
230.0	211.0	6.10	DVE402300
240.0	221.0	6.10	DVE402400
250.0	231.0	6.10	DVE402500
280.0	261.0	6.10	DVE402800
300.0	281.0	6.10	DVE403000
320.0	301.0	6.10	DVE403200
350.0	331.0	6.10	DVE403500
360.0	341.0	6.10	DVE403600
400.0	381.0	6.10	DVE404000
420.0	401.0	6.10	DVE404200
450.0	431.0	6.10	DVE404500
480.0	461.0	6.10	DVE404800
500.0	481.0	6.10	DVE405000

All intermediate sizes up to 500mm diameter can be supplied.
 Sizes up to 2,500mm diameter on request.

Installation Recommendation for External Pressure



Installation drawing

Installation Dimensions

Series No.	Inner Groove Diameter d_8 h11		Outer Groove Diameter d_7	Groove Depth		Groove Width b_4	Radius r_1
	Recommended Range	Extended ¹⁾ Range	Diameter max.	h	Tol.	min.	max.
DVL0	3 – 9.9	10 – 40	$d_8 + 4.8$	1.45	+0.03	2.4	0.4
DVL1	10 – 19.9	8 – 200	$d_8 + 7.2$	2.25	+0.05	3.6	0.4
DVL2	20 – 39.9	12 – 400	$d_8 + 9.6$	3.10	+0.08	4.8	0.6
DVL3	40 – 119.9	20 – 700*	$d_8 + 14.2$	4.70	+0.10	7.1	0.8
DVL4	120 – 999.9**	35 – 1000**	$d_8 + 19.0$	6.10	+0.15	9.5	0.8
DVL5	1000 – 2500***	80 – 2500***	$d_8 + 30.0$	9.50	+0.20	15.0	0.8

1) Available on request.

* For diameters above 600mm b_4 min. = 8.0mm

** For diameters above 600mm b_4 min. = 11.0mm

*** For diameters above 1000mm b_4 min. = 18.0mm

주문 예

Turcon® Variseal® HF

- Inner Groove diameter : $d_8 = 80.0$ mm
- TSS Part No. DVL300800
- Seal Ring
Material Code : T05
- Spring
Material Code : S (Stainless Steel)
Material No. 1,4310 (AISI 301)

TSS Article No. DVL3 0 0800 – T05 S

TSS Series No. _____
 Type (Standard) _____
 Cylinder diameter x 10 _____
 Quality Index (Standard) _____
 Material Code (Seal Ring) _____
 Material Code (Spring) _____

Installation Dimensions / TSS Part No.

Inner Groove Diameter	Outer Groove Diameter	Groove Depth	TSS Part No.
d ₈ h11	d ₇ min.	h	
4.0	8.8	1.45	DVL000040
5.0	9.8	1.45	DVL000050
6.0	10.8	1.45	DVL000060
8.0	12.8	1.45	DVL000080
10.0	17.2	2.25	DVL100100
12.0	19.2	2.25	DVL100120
14.0	21.2	2.25	DVL100140
15.0	22.2	2.25	DVL100150
16.0	23.2	2.25	DVL100160
18.0	25.2	2.25	DVL100180
20.0	29.6	3.10	DVL200200
22.0	31.6	3.10	DVL200220
25.0	34.6	3.10	DVL200250
28.0	37.6	3.10	DVL200280
30.0	39.6	3.10	DVL200300
32.0	41.6	3.10	DVL200320
35.0	44.6	3.10	DVL200350
36.0	45.6	3.10	DVL200360
40.0	54.2	4.70	DVL300400
42.0	56.2	4.70	DVL300420
45.0	59.2	4.70	DVL300450
48.0	62.2	4.70	DVL300480
50.0	64.2	4.70	DVL300500
52.0	66.2	4.70	DVL300520
55.0	69.2	4.70	DVL300550
56.0	70.2	4.70	DVL300560
60.0	74.2	4.70	DVL300600
63.0	77.2	4.70	DVL300630
65.0	79.2	4.70	DVL300650
70.0	84.2	4.70	DVL300700
75.0	89.2	4.70	DVL300750
80.0	94.2	4.70	DVL300800
85.0	99.2	4.70	DVL300850

Inner Groove Diameter	Outer Groove Diameter	Groove Depth	TSS Part No.
d ₈ h11	d ₇ min.	h	
90.0	104.2	4.70	DVL300900
95.0	109.2	4.70	DVL300950
100.0	114.2	4.70	DVL301000
105.0	119.2	4.70	DVL301050
110.0	124.2	4.70	DVL301100
115.0	129.2	4.70	DVL301150
120.0	139.0	6.10	DVL301200
125.0	144.0	6.10	DVL401250
130.0	149.0	6.10	DVL401300
135.0	154.0	6.10	DVL401350
140.0	159.0	6.10	DVL401400
150.0	169.0	6.10	DVL401500
160.0	179.0	6.10	DVL401600
170.0	189.0	6.10	DVL401700
180.0	199.0	6.10	DVL401800
190.0	209.0	6.10	DVL401900
200.0	219.0	6.10	DVL402000
210.0	229.0	6.10	DVL402100
220.0	239.0	6.10	DVL402200
230.0	249.0	6.10	DVL402300
240.0	259.0	6.10	DVL402400
250.0	269.0	6.10	DVL402500
280.0	299.0	6.10	DVL402800
300.0	319.0	6.10	DVL403000
320.0	339.0	6.10	DVL403200
350.0	369.0	6.10	DVL403500
360.0	379.0	6.10	DVL403600
400.0	419.0	6.10	DVL404000
420.0	439.0	6.10	DVL404200
450.0	469.0	6.10	DVL404500
480.0	499.0	6.10	DVL404800
500.0	519.0	6.10	DVL405000