

Turcon® Stepseal® V LM



Single-acting

Designed for Lubrication Management
Technology

Rubber-energized plastic-faced seal

Material:

Turcon®, Zurcon® and Elastomer





■ Turcon® Stepseal® V LM



Description

Turcon® Stepseal® V LM is a new type of primary seal, conceived and developed to improve system performance and service life of the whole system, including hardware and other seals.

Stepseal® V LM is the first unidirectional seal element to integrate the Lubrication Management principles developed by Trelleborg Sealing Solutions as a standard feature.

Traditionally unidirectional seals provide sealing by means of sharp, defined sealing edges, which establish high contact pressure with the hardware and suppress fluid film during the forward stroke.

With Lubrication Management, a modified seal edge reduces contact pressure with the hardware and supports the formation of a lubricating fluid film during the forward stroke. This allows fluid to reach secondary seals and scrapers in a controlled way, while back-pumping of fluid ensures lubrication during the return stroke. The efficient, built-in check valve action introduced with Stepseal® V protects secondary seals and scrapers against system pressure, and it ensures that pressure build-up between the seals is eliminated.

Lower contact pressure and improved lubrication reduce the mechanical and thermal load on seals and hardware, resulting in increased service life and system reliability.

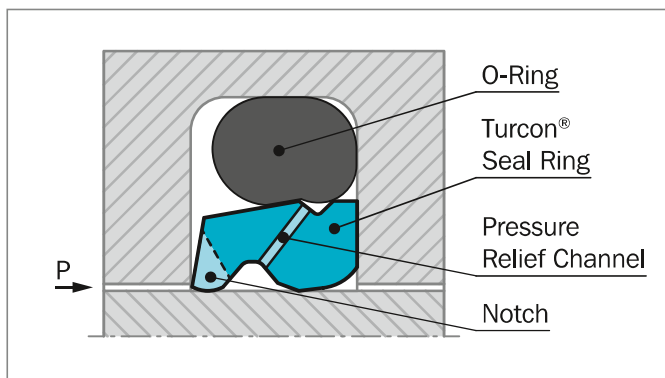


Figure 27: Turcon® Stepseal® V LM

ADVANTAGES

- Built-in check valve performance identical to that of Stepseal® V
- No pressure build-up on secondary sealing element and Excluder®
- Independent of in- and outstroke velocity
- Independent of stroke length
- High tolerance to hardware non-concentricity and radial play
- Minimum contribution to friction by secondary sealing element and Excluder®
- Minimum wear of secondary sealing element and Excluder®
- Robust, optimized seal face
- Increased leakage control
- Extended seal life
- Increased operational reliability
- Fits standard Stepseal® 2K groove dimensions as well as ISO 7425 seal housings

APPLICATION EXAMPLES

- Wind turbine pitch control
- Production presses
- Injection molding clamping cylinders
- Mobile cranes and lifts
- Vehicle suspensions



CHARACTERISTICS

- Primary seal with hydrostatic pressure release
- Check valve function
- Hydrodynamic back-pumping
- Stabilized position in the groove
- Extended seal life
- Improved system reliability

IMPROVED FRICTION PERFORMANCE

Turcon® Stepseal® V LM offers uniform, low friction of the complete sealing system through improved lubrication of all sealing elements and by preventing pressurization of the secondary seal element.

FEATURES

Stepseal® V LM combines efficiency with reliability and longevity for the full sealing system and of the hardware. Controlled support of lubrication and lowered contact pressure reduce friction and wear, while the refined valve function eliminates pressure build-up in seal systems, making drain lines and buffer volumes between seals a thing of the past.

In rod seal systems, Stepseal® V LM is used together with a secondary rod seal, preferably from the range of Turcon® and Zurcon® Rod Seals.

OPERATING CONDITIONS

Pressure:	Up to 50 MPa (Turcon® M12) Up to 60 MPa (Turcon® T08 and Zurcon® Z53)
Speed:	Up to 15 m/s with linear movements, frequency up to 15 Hz
Temperature:	-45 °C to +200 °C depending on seal and O-Ring material
Media:	Mineral oil based hydraulic fluids, flame retardant hydraulic fluids, environmentally friendly fluids (bio-oils), phosphate ester, water and others, depending on the seal and O-Ring material - see Table 20.
Clearance:	The maximum permissible radial clearance S_{max} is shown in Table 21, as a function of the operating pressure and functional diameter.

IMPORTANT NOTE

The above data are maximum values and cannot be used at the same time, e.g. the maximum operating speed depends on material type, pressure, temperature and gap value. Temperature range also depends on media.

SERIES

Different cross section sizes are recommended as a function of the seal diameters. Table 19 shows the relationship between the series number according to the seal diameter range and the different application class sizes:

Standard application:	General applications without exceptional operating conditions.
Light application:	Applications with demands for reduced friction or for smaller grooves.
Heavy-duty application:	For exceptional operating loads such as high pressures, pressure peaks, large clearances, etc.

**Table 19: Available Range**

Series No.	Rod Diameter d_N f8/h9
RSL20	12.0 - 455.0
RSL30	12.0 - 655.0
RSL40	38.0 - 655.0
RSL80	140.0 - 999.9
RSL50	160.0 - 999.9
RSL5X	1,000.0 - 1,200.0
RSL60	650.0 - 999.9
RSL6X	1,000.0 - 2,600.0

SEALING SYSTEM

Stepseal® V LM is developed for use with a secondary sealing element. Figure 28 shows such a tandem configuration with the Stepseal® V LM.

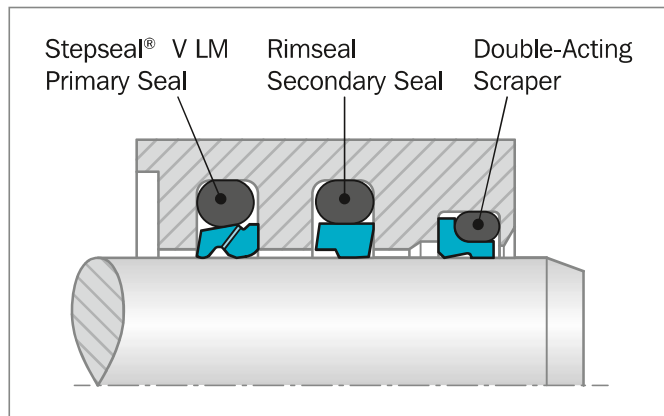


Figure 28: Turcon® Stepseal® V LM and Zurcon® Rimseal in tandem configuration

The integrated check valve function of Stepseal® V LM ensures that pressure cannot be trapped between the primary and secondary seals, and no extra space between them is required to accumulate hydraulic fluid.

Depending on the application and the operating conditions, the combination of different materials offers a further improvement in sealing efficiency and service life of the system.

For example, in hydraulic cylinders subject to high loads and under rough operating conditions, the primary seal should be made of Turcon® and the secondary seal of Zurcon®.

INSTALLATION INSTRUCTIONS

Stepseal® V LM is installed according to information on page 37 to 38

Closed groove installation applies the same dimensions as for Turcon® Stepseal® 2K in Table 6 page 38.

RECOMMENDED MATERIALS

The following material combinations have proven effective for hydraulic applications:

Turcon® Stepseal® V LM in Turcon® M12

All-round material for light to heavy hydraulic applications with linear, short stroke or helical movements in mineral oils, flame retardant hydraulic fluids, phosphate ester, bio-oils or fluids with low lubricating properties:

O-Ring:	NBR 70 Shore A	N
	FKM 70 Shore A	V

Set code: M12N or M12V

Turcon® Stepseal® V LM in Turcon® T46

For medium to heavy applications with linear movements in mineral oils and other media with good lubrication:

O-Ring:	NBR 70 Shore A	N
	FKM 70 Shore A	V

Set code: T46N or T46V

For specific applications, all Turcon® materials are available.

Other material combinations are listed in Table 20.



Table 20: Turcon® and Zurcon® Materials for Stepseal® V LM

Material, Applications, Properties	Code	O-Ring Material Shore A	Code	O-Ring Operating Temp.* °C	Mating Surface Material	MPa max. Dynamic
Turcon® M12 First material choice for seals in linear motion Overall improved properties For new constructions and updating For all commonly applied hydraulic fluids including fluids with low lubrication performance Lowest friction and best sliding properties Lowest wear on seals Improved absorption of abrasive contaminants Low wear or abrasion of counter surface BAM tested Mineral fiber and Additives filled Color: Dark gray	M12	NBR 70	N	-30 to +100	Steel	50
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		FKM 70	V	-10 to +200	Steel plated (rod) Cast iron Stainless steel Titanium	
Turcon® T05 For lubricating fluids Also for gas service Very low friction Very good sliding and sealing properties Color: Turquoise	T05	NBR 70	N	-30 to +100	Steel	20
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		FKM 70	V	-10 to +200		
Turcon® T08 For lubricating fluids and linear motion Very high compressive strength and extrusion resistance Hard counter surfaces are recommended Bronze filled Color: Light to dark brown, which may have variations in shading	T08	NBR 70	N	-30 to +100	Steel hardened	60
		NBR 70 Low temp.	T	-45 to +80	Steel chrome plated (rod)	
		FKM 70	V	-10 to +200	Cast iron	
Turcon® T10 For hydraulic and pneumatic For lubricating and non-lubricating fluids High extrusion resistance Good chemical resistance Not for electrically conducting fluids BAM tested Carbon, graphite filled Color: Black	T10	NBR 70	N	-30 to +100	Steel	40
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		FKM 70	V	-10 to +200	Stainless steel	
		EPDM 70	E**	-45 to +145		
Turcon® T29 For lubricating and non-lubricating fluids Good extrusion resistance Surface texture is not suitable for gas sealing Not for electrically conducting fluids Carbon fiber filled Color: Gray	T29	NBR 70	N	-30 to +100	Steel	30
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		FKM 70	V	-10 to +200	Cast iron	
		EPDM 70	E**	-45 to +145	Stainless steel	



Material, Applications, Properties	Code	O-Ring Material Shore A	Code	O-Ring Operating Temp.* °C	Mating Surface Material	MPa max. Dynamic
Turcon® T40 For lubricating and non-lubricating fluids High frequency and short strokes Water hydraulics Surface texture is not suitable for gas sealing Carbon fiber filled Color: Gray	T40	NBR 70	N	-30 to +100	Steel	25
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		FKM 70	V	-10 to +200	Cast iron	
		EPDM 70	E**	-45 to +145	Stainless steel Aluminum	
Turcon® T46 For lubricated hydraulics in linear motion High compressive strength High extrusion resistance Very good sliding and wear properties BAM tested Bronze filled Color: Light to dark brown, which may have variations in shading	T46	NBR 70	N	-30 to +100	Steel hardened	50
		NBR 70 Low temp.	T	-45 to +80	Steel chrome plated (rod) Cast iron	
		FKM 70	V	-10 to +200		
Zurcon® Z53*** For mineral oil based fluids Very high abrasion and extrusion resistance For counter surface with rougher surface finish Limited chemical resistance Max. working temperature +110 °C Cast polyurethane Color: Yellow to light-brown	Z53	NBR 70	N	-30 to +100	Steel	60
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod) Cast iron Stainless steel Ceramic coating	
Zurcon® Z80 For lubricating and non-lubricating fluids Water based fluids, air and gases Dry air pneumatics High abrasion and extrusion resistance For service in abrasive conditions and media with particles Good chemical resistance Limited temperature capability (-60 to +80 °C) UHMWPE (Ultra High Molecular Weight Polyethylene) Color: White to off-white	Z80	NBR 70	N	-30 to (+100)	Steel	35
		NBR 70 Low temp.	T	-45 to +80	Steel hardened Steel chrome plated (rod)	
		EPDM 70	E**	-45 to (+145)	Stainless steel Aluminum Ceramic coating	

* The O-Ring operation temperature is only valid in mineral hydraulic oil (except EPDM).

** Material not suitable for mineral oils.

*** Max. diameter 2,200 mm.

BAM: Tested by "Bundesanstalt Materialprüfung, Germany".

Highlighted materials are recommended.



■ Installation Recommendation

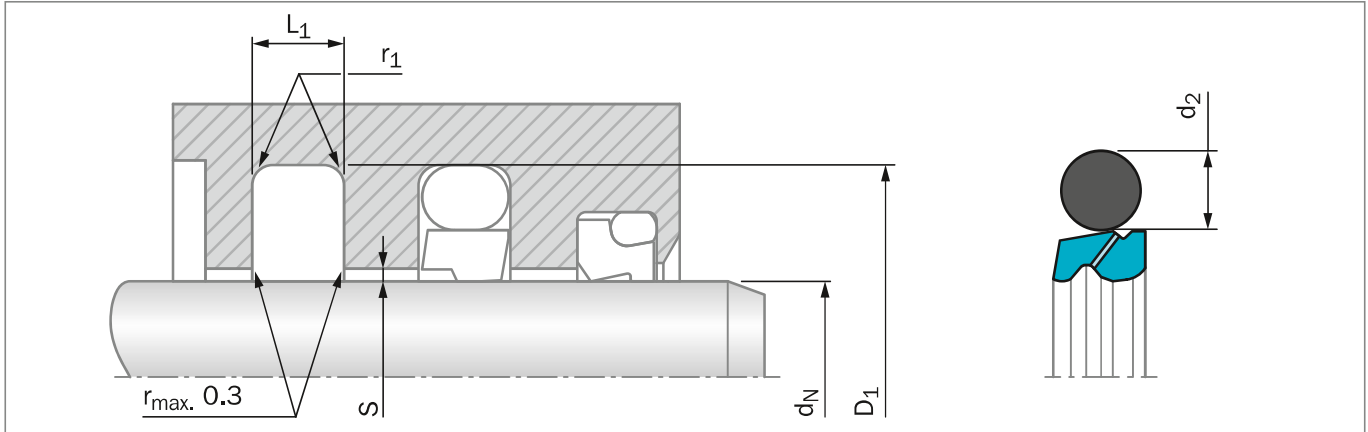


Figure 29: Installation Drawing

Table 21: Installation Dimensions – Standard Recommendations

Series No.	Rod Diameter d_N f8/h9			Groove Diameter D_1 H9	Groove Width L_1 +0.2	Radius r_1 max	Radial Clearance S_{max} *			O-Ring Cross Section d_2
	Standard Application	Light Application	Heavy Duty Application				10 MPa	20 MPa	40 MPa	
RSL20	19 - 37.9	38 - 199.9	12 - 18.9	$d_N + 10.7$	4.2	1.0	0.50	0.30	0.20	3.53
RSL30	38 - 199.9	200 - 255.9	19 - 37.9	$d_N + 15.1$	6.3	1.3	0.70	0.40	0.25	5.33
RSL40	200 - 255.9	256 - 649.9	38 - 199.9	$d_N + 20.5$	8.1	1.8	0.80	0.60	0.35	7.00
RSL80	256 - 649.9	650 - 999.9	200 - 255.9	$d_N + 24.0$	8.1	1.8	0.90	0.70	0.40	7.00
RSL50	650 - 999.9	-	256 - 649.9	$d_N + 27.3$	9.5	2.5	1.00	0.80	0.50	8.40
RSL5X	-	1,000 - 1,200	-	$d_N + 27.3$	9.5	2.5	1.00	0.80	0.50	8.40
RSL60**	-	-	650 - 999.9	$d_N + 38.0$	13.8	3.0	1.20	0.90	0.60	12.00
RSL6X**	1,000 - 2,600	-	-	$d_N + 38.0$	13.8	3.0	1.20	0.90	0.60	12.00

* At pressures > **40 MPa** use diameter tolerance H8/f8 (bore/rod) in the area behind seal or consult your local Customer Solution Center for alternative material or profiles.

Slydring® / Wear Rings are not applicable at very small radial clearances S, consult the Slydring® section in this catalog.

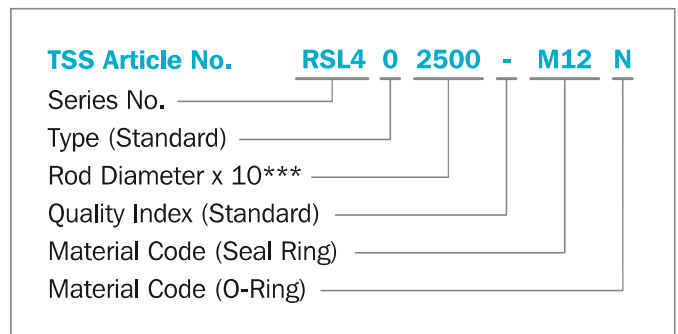
** All O-Rings with 12 mm cross section are delivered as a special profile ring.

ORDERING EXAMPLE

Turcon® Stepseal® V LM complete with O-Ring, standard application:

Series:	RSL4 from Table 21
Rod diameter:	$d_N = 250.0$ mm
TSS Part No.:	RSL402500 from Table 22

Select the material from Table 20. The corresponding code numbers are appended to the TSS Part No. Together these form the TSS Article Number. The TSS Article Number for all intermediate sizes can be determined by following the example:



*** For diameters $d_N \geq 1,000.0$ mm multiply only by factor 1.
 Example: RSL6 for diameter $d_N = 1,200.0$ mm.
 TSS Article No.: RSL6X**1200** -M12



Table 22: Installation Dimensions / TSS Part No.

Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size	Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size
d_N f8/h9	D_1 H9	L_1 +0.2			d_N f8/h9	D_1 H9	L_1 +0.2		
12.0	22.7	4.2	RSL200120	17.04 x 3.53	60.0	75.1	6.3	RSL300600	66.04 x 5.33
15.0	25.7	4.2	RSL200150	18.66 x 3.53	63.0	73.7	4.2	RSL200630	66.27 x 3.53
19.0	29.7	4.2	RSL200190	23.40 x 3.53	63.0	78.1	6.3	RSL300630	69.22 x 5.33
20.0	30.7	4.2	RSL200200	25.00 x 3.53	63.5	78.6	6.3	RSL300635	69.22 x 5.33
22.0	32.7	4.2	RSL200220	26.58 x 3.53	65.0	75.7	4.2	RSL200650	69.44 x 3.53
25.0	35.7	4.2	RSL200250	29.75 x 3.53	65.0	80.1	6.3	RSL300650	69.22 x 5.33
25.4	36.1	4.2	RSL200254	29.75 x 3.53	67.0	77.7	4.2	RSL200670	72.62 x 3.53
26.0	36.7	4.2	RSL200260	29.75 x 3.53	69.0	84.1	6.3	RSL300690	75.57 x 5.33
28.0	38.7	4.2	RSL200280	32.92 x 3.53	70.0	80.7	4.2	RSL200700	75.79 x 3.53
30.0	40.7	4.2	RSL200300	34.52 x 3.53	70.0	85.1	6.3	RSL300700	75.57 x 5.33
32.0	42.7	4.2	RSL200320	36.09 x 3.53	70.0	90.5	8.1	RSL400700	78 x 7.00
35.0	45.7	4.2	RSL200350	37.69 x 3.53	72.0	82.7	4.2	RSL200720	75.79 x 3.53
36.0	46.7	4.2	RSL200360	40.87 x 3.53	73.0	88.1	6.3	RSL300730	78.74 x 5.33
37.0	47.7	4.2	RSL200370	40.87 x 3.53	75.0	85.7	4.2	RSL200750	78.97 x 3.53
38.0	48.7	4.2	RSL200380	40.87 x 3.53	75.0	90.1	6.3	RSL300750	81.92 x 5.33
38.0	53.1	6.3	RSL300380	43.82 x 5.33	75.0	95.5	8.1	RSL400750	83 x 7.00
40.0	50.7	4.2	RSL200400	44.04 x 3.53	76.2	91.3	6.3	RSL300762	81.92 x 5.33
40.0	55.1	6.3	RSL300400	43.82 x 5.33	78.0	93.1	6.3	RSL300780	85.09 x 5.33
42.0	52.7	4.2	RSL200420	47.22 x 3.53	78.0	98.5	8.1	RSL400780	86 x 7.00
42.0	57.1	6.3	RSL300420	46.99 x 5.33	80.0	90.7	4.2	RSL200800	85.32 x 3.53
43.0	53.7	4.2	RSL200430	47.22 x 3.53	80.0	95.1	6.3	RSL300800	85.09 x 5.33
44.45	59.5	6.3	RSL300444	50.17 x 5.33	80.0	100.5	8.1	RSL400800	88 x 7.00
45.0	55.7	4.2	RSL200450	50.39 x 3.53	82.5	97.6	6.3	RSL300825	88.27 x 5.33
45.0	60.1	6.3	RSL300450	50.17 x 5.33	83.0	93.7	4.2	RSL200830	88.49 x 3.53
48.0	58.7	4.2	RSL200480	53.57 x 3.53	85.0	95.7	4.2	RSL200850	88.49 x 3.53
48.0	63.1	6.3	RSL300480	53.34 x 5.33	85.0	100.1	6.3	RSL300850	91.44 x 5.33
50.0	60.7	4.2	RSL200500	53.57 x 3.53	85.0	105.5	8.1	RSL400850	93 x 7.00
50.0	65.1	6.3	RSL300500	56.52 x 5.33	89.0	104.1	6.3	RSL300890	94.62 x 5.33
50.8	61.5	4.2	RSL200508	53.57 x 3.53	90.0	100.7	4.2	RSL200900	94.84 x 3.53
50.8	65.9	6.3	RSL300508	56.52 x 5.33	90.0	105.1	6.3	RSL300900	94.62 x 5.33
52.0	62.7	4.2	RSL200520	56.74 x 3.53	90.0	110.5	8.1	RSL400900	98 x 7.00
52.0	67.1	6.3	RSL300520	56.52 x 5.33	92.0	102.7	4.2	RSL200920	98.02 x 3.53
54.0	69.1	6.3	RSL300540	59.69 x 5.33	92.0	107.1	6.3	RSL300920	97.79 x 5.33
55.0	65.7	4.2	RSL200550	59.92 x 3.53	95.0	105.7	4.2	RSL200950	101.19 x 3.53
55.0	70.1	6.3	RSL300550	59.69 x 5.33	95.0	110.1	6.3	RSL300950	100.97 x 5.33
56.0	66.7	4.2	RSL200560	59.92 x 3.53	95.0	115.5	8.1	RSL400950	103 x 7.00
56.0	71.1	6.3	RSL300560	62.87 x 5.33	100.0	110.7	4.2	RSL201000	104.37 x 3.53
57.1	67.8	4.2	RSL200571	59.92 x 3.53	100.0	115.1	6.3	RSL301000	107.32 x 5.33
59.0	69.7	4.2	RSL200590	63.09 x 3.53	100.0	120.5	8.1	RSL401000	108 x 7.00
60.0	70.7	4.2	RSL200600	63.09 x 3.53	101.6	116.7	6.3	RSL301016	107.32 x 5.33



Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size	Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size
d_N f8/h9	D_1 H9	L_1 +0.2			d_N f8/h9	D_1 H9	L_1 +0.2		
105.0	120.1	6.3	RSL301050	110.49 x 5.33	195.0	210.1	6.3	RSL301950	202.57 x 5.33
105.0	125.5	8.1	RSL401050	113.67 x 7.00	200.0	215.1	6.3	RSL302000	208.92 x 5.33
110.0	120.7	4.2	RSL201100	113.89 x 3.53	200.0	220.5	8.1	RSL402000	208.90 x 7.00
110.0	125.1	6.3	RSL301100	116.84 x 5.33	205.0	225.5	8.1	RSL402050	215.27 x 7.00
110.0	130.5	8.1	RSL401100	116.84 x 7.00	210.0	230.5	8.1	RSL402100	215.27 x 7.00
115.0	130.1	6.3	RSL301150	120.02 x 5.33	211.0	231.5	8.1	RSL402110	215.27 x 7.00
120.0	135.1	6.3	RSL301200	126.37 x 5.33	212.0	232.5	8.1	RSL402120	227.97 x 7.00
120.0	140.5	8.1	RSL401200	129.54 x 7.00	215.0	235.5	8.1	RSL402150	227.97 x 7.00
125.0	140.1	6.3	RSL301250	129.54 x 5.33	220.0	240.5	8.1	RSL402200	227.97 x 7.00
125.0	145.5	8.1	RSL401250	132.72 x 7.00	225.0	245.5	8.1	RSL402250	240.67 x 7.00
125.4	140.5	6.3	RSL301254	132.72 x 5.33	230.0	245.1	6.3	RSL302300	234.32 x 5.33
127.0	142.1	6.3	RSL301270	132.72 x 5.33	230.0	250.5	8.1	RSL402300	240.67 x 7.00
130.0	145.1	6.3	RSL301300	135.89 x 5.33	235.0	255.5	8.1	RSL402350	240.67 x 7.00
130.0	150.5	8.1	RSL401300	139.07 x 7.00	240.0	260.5	8.1	RSL402400	253.37 x 7.00
132.0	147.1	6.3	RSL301320	139.07 x 5.33	245.0	265.5	8.1	RSL402450	253.37 x 7.00
135.0	145.7	4.2	RSL201350	139.29 x 3.53	250.0	270.5	8.1	RSL402500	266.07 x 7.00
135.0	150.1	6.3	RSL301350	142.24 x 5.33	260.0	284.0	8.1	RSL802600	266.07 x 7.00
137.0	152.1	6.3	RSL301370	142.24 x 5.33	265.0	289.0	8.1	RSL802650	278.77 x 7.00
138.0	153.1	6.3	RSL301380	142.24 x 5.33	270.0	290.5	8.1	RSL402700	278.77 x 7.00
140.0	150.7	4.2	RSL201400	145.64 x 3.53	270.0	294.0	8.1	RSL802700	278.77 x 7.00
140.0	155.1	6.3	RSL301400	145.42 x 5.33	275.0	299.0	8.1	RSL802750	291.47 x 7.00
140.0	160.5	8.1	RSL401400	148.59 x 7.00	280.0	304.0	8.1	RSL802800	291.47 x 7.00
140.5	155.6	6.3	RSL301405	145.42 x 5.33	285.0	309.0	8.1	RSL802850	291.47 x 7.00
145.0	160.1	6.3	RSL301450	151.77 x 5.33	290.0	314.0	8.1	RSL802900	304.17 x 7.00
145.0	165.5	8.1	RSL401450	151.77 x 7.00	295.0	319.0	8.1	RSL802950	304.17 x 7.00
150.0	165.1	6.3	RSL301500	158.12 x 5.33	300.0	320.5	8.1	RSL403000	304.17 x 7.00
150.0	170.5	8.1	RSL401500	158.12 x 7.00	300.0	324.0	8.1	RSL803000	316.87 x 7.00
153.0	168.1	6.3	RSL301530	158.12 x 5.33	310.0	334.0	8.1	RSL803100	316.87 x 7.00
155.0	170.1	6.3	RSL301550	158.12 x 5.33	320.0	344.0	8.1	RSL803200	329.57 x 7.00
160.0	175.1	6.3	RSL301600	164.47 x 5.33	330.0	354.0	8.1	RSL803300	342.27 x 7.00
160.0	180.5	8.1	RSL401600	170.82 x 7.00	340.0	364.0	8.1	RSL803400	354.97 x 7.00
165.0	180.1	6.3	RSL301650	170.82 x 5.33	350.0	370.5	8.1	RSL403500	354.97 x 7.00
170.0	185.1	6.3	RSL301700	177.17 x 5.33	350.0	374.0	8.1	RSL803500	367.67 x 7.00
170.0	190.5	8.1	RSL401700	177.17 x 7.00	360.0	384.0	8.1	RSL803600	367.67 x 7.00
173.0	188.1	6.3	RSL301730	177.17 x 5.33	365.0	389.0	8.1	RSL803650	380.37 x 7.00
175.0	190.1	6.3	RSL301750	183.52 x 5.33	370.0	394.0	8.1	RSL803700	380.37 x 7.00
180.0	195.1	6.3	RSL301800	183.52 x 5.33	375.0	399.0	8.1	RSL803750	393.07 x 7.00
180.0	200.5	8.1	RSL401800	189.87 x 7.00	380.0	404.0	8.1	RSL803800	393.07 x 7.00
185.0	200.1	6.3	RSL301850	189.87 x 5.33	390.0	414.0	8.1	RSL803900	405.26 x 7.00
185.0	205.5	8.1	RSL401850	196.22 x 7.00	400.0	424.0	8.1	RSL804000	417.96 x 7.00
190.0	205.1	6.3	RSL301900	196.22 x 5.33	410.0	434.0	8.1	RSL804100	417.96 x 7.00
190.0	210.5	8.1	RSL401900	196.22 x 7.00	420.0	444.0	8.1	RSL804200	430.66 x 7.00



Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size	Rod Dia.	Groove Dia.	Groove Width	TSS Part No.	O-Ring Size
d_N f8/h9	D_1 H9	L_1 +0.2			d_N f8/h9	D_1 H9	L_1 +0.2		
430.0	454.0	8.1	RSL804300	443.36 x 7.00	830.0	857.3	9.5	RSL508300	843 x 8.40
435.0	459.0	8.1	RSL804350	443.36 x 7.00	850.0	877.3	9.5	RSL508500	863 x 8.40
440.0	464.0	8.1	RSL804400	456.06 x 7.00	870.0	897.3	9.5	RSL508700	883 x 8.40
450.0	474.0	8.1	RSL804500	468.76 x 7.00	880.0	907.3	9.5	RSL508800	893 x 8.40
460.0	484.0	8.1	RSL804600	468.76 x 7.00	885.0	912.3	9.5	RSL508850	898 x 8.40
470.0	494.0	8.1	RSL804700	481.38 x 7.00	890.0	917.3	9.5	RSL508900	903 x 8.40
480.0	504.0	8.1	RSL804800	494.16 x 7.00	930.0	957.3	9.5	RSL509300	943 x 8.40
485.0	509.0	8.1	RSL804850	494.16 x 7.00	955.0	982.3	9.5	RSL509550	968 x 8.40
490.0	514.0	8.1	RSL804900	506.86 x 7.00	1,000.0	1,038.0	13.8	RSL6X1000	1,017 x 12.0
500.0	524.0	8.1	RSL805000	506.86 x 7.00	1,035.0	1,073.0	13.8	RSL6X1035	1,052 x 12.0
510.0	534.0	8.1	RSL805100	532.26 x 7.00	1,040.0	1,067.3	9.5	RSL5X1040	1,053 x 8.40
520.0	544.0	8.1	RSL805200	532.26 x 7.00	1,040.0	1,078.0	13.8	RSL6X1040	1,057 x 12.0
525.0	549.0	8.1	RSL805250	532.26 x 7.00	1,050.0	1,077.3	9.5	RSL5X1050	1,063 x 8.40
530.0	554.0	8.1	RSL805300	557.66 x 7.00	1,050.0	1,088.0	13.8	RSL6X1050	1,067 x 12.0
540.0	564.0	8.1	RSL805400	557.66 x 7.00	1,100.0	1,138.0	13.8	RSL6X1100	1,117 x 12.0
550.0	574.0	8.1	RSL805500	557.66 x 7.00	1,120.0	1,147.3	9.5	RSL5X1120	1,133 x 8.40
560.0	584.0	8.1	RSL805600	582.68 x 7.00	1,120.0	1,158.0	13.8	RSL6X1120	1,137 x 12.0
570.0	594.0	8.1	RSL805700	582.68 x 7.00	1,200.0	1,227.3	9.5	RSL5X1200	1,213 x 8.40
580.0	604.0	8.1	RSL805800	608.08 x 7.00	1,200.0	1,238.0	13.8	RSL6X1200	1,217 x 12.0
585.0	609.0	8.1	RSL805850	608.08 x 7.00	1,330.0	1,368.0	13.8	RSL6X1330	1,347 x 12.0
590.0	614.0	8.1	RSL805900	608.08 x 7.00	1,500.0	1,538.0	13.8	RSL6X1500	1,517 x 12.0
600.0	624.0	8.1	RSL806000	608.08 x 7.00	1,600.0	1,638.0	13.8	RSL6X1600	1,617 x 12.0
610.0	634.0	8.1	RSL806100	633.48 x 7.00	2,000.0	2,038.0	13.8	RSL6X2000	2,017 x 12.0
620.0	644.0	8.1	RSL806200	633.48 x 7.00	2,600.0	2,638.0	13.8	RSL6X2600	2,617 x 12.0
630.0	654.0	8.1	RSL806300	658.88 x 7.00					
640.0	664.0	8.1	RSL806400	658.88 x 7.00					
650.0	677.3	9.5	RSL506500	663 x 8.40					
656.0	683.3	9.5	RSL506560	669 x 8.40					
660.0	687.3	9.5	RSL506600	673 x 8.40					
680.0	707.3	9.5	RSL506800	693 x 8.40					
685.0	712.3	9.5	RSL506850	698 x 8.40					
700.0	724.0	8.1	RSL807000	713 x 7.00					
700.0	727.3	9.5	RSL507000	713 x 8.40					
710.0	737.3	9.5	RSL507100	723 x 8.40					
730.0	757.3	9.5	RSL507300	743 x 8.40					
760.0	787.3	9.5	RSL507600	773 x 8.40					
765.0	792.3	9.5	RSL507650	778 x 8.40					
780.0	807.3	9.5	RSL507800	793 x 8.40					
790.0	817.3	9.5	RSL507900	803 x 8.40					
800.0	827.3	9.5	RSL508000	813 x 8.40					
810.0	837.3	9.5	RSL508100	823 x 8.40					
820.0	847.3	9.5	RSL508200	833 x 8.40					

The rod diameters in **bold** type are in accordance with the recommendations of ISO 3320.

Other dimensions and all intermediate sizes up to 2,600 mm diameter including imperial (inch) sizes can be supplied.

All O-Rings with 12 mm cross section are delivered as special profile ring.