Seal Design Handbook

SEALCO
INTERNATIONAL LTD

High performance in the most demanding environments

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Sealco International is one of the UKs leading suppliers of sealing products, and as part of our ongoing commitment to provide the best service to our customers, we are able to offer bespoke solutions to suit individual applications.

Our state of the art Seal Production Centre allows us to produce the optimum seal in the appropriate material, without the need for costly tool charges or high minimum order quantities.

The profile and material options shown highlights a selection of typical profiles available - but the possibilities are endless and we would be pleased to discuss your specific application.

We use industry specific materials such as NORSOK certified elastomers suitable for oil and gas applications as well as food and water grade materials.

Our flexible manufacturing produces true JIT supply of both standard and bespoke product. This coupled with our large stock of elastomer and PTFE products allows you to keep your stocks low and reduce costs.

We offer full technical support from concept to the finished product - on-time - every time.

Sealco International offer you sealing solutions tailored to your specifications. We have the very latest technology in machined seals, operated by experienced and knowledgeable engineers and geared up to manufacture urgent specials or standard seals, in a variety of quality materials.
We can produce seals upto 520mm OD on site and larger sizes on request without the need of costly tooling.

Quality

Sealco International are committed to continual improvement of our quality and safety systems, as such we are certified to:
ISO9001:2015 Quality System, **ISO14001:2015** Environmental certification & **ISO45001:2018** Health & Safety certification.
Copies can be supplied on request.

Manufacturing

Due to having the latest technology in CNC machining we can rapidly respond to customer demands, ensuring we surpass customer requirements with:

- No Tooling requirements
- Reduce customer stocking requirements
- Very short lead times
- Engineering to customer requirements

Materials

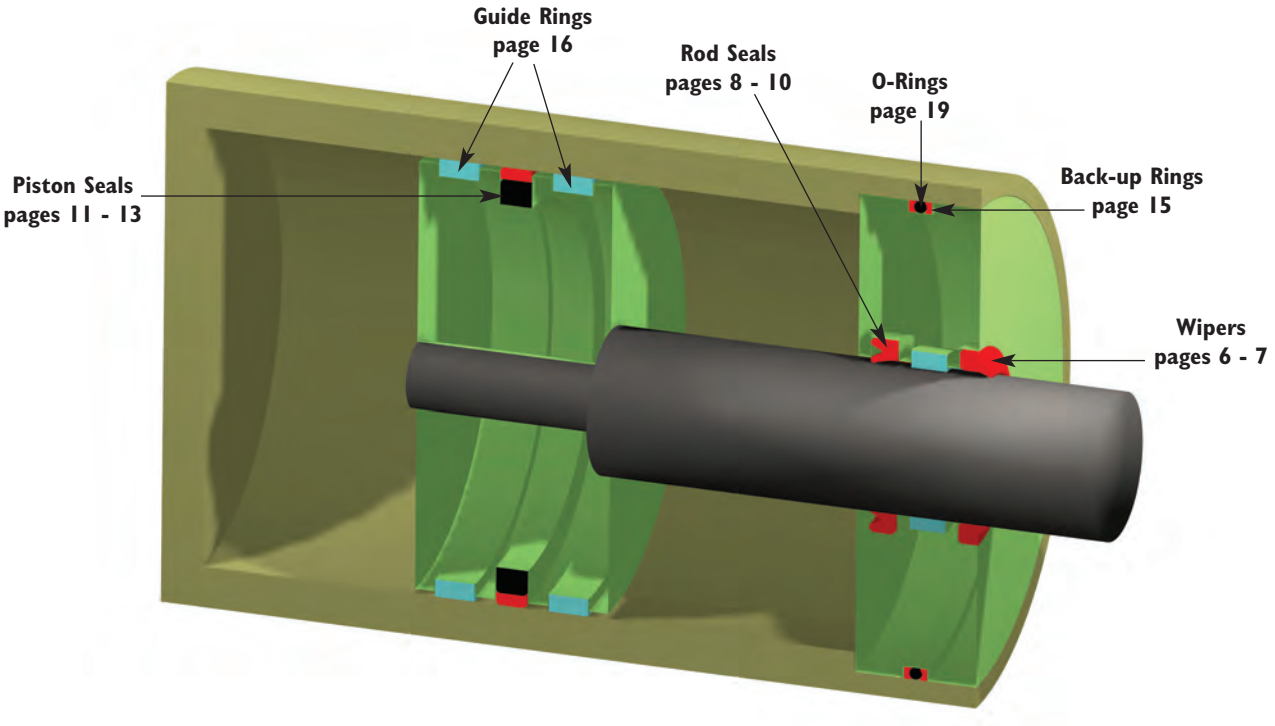
All materials used by Sealco are stocked on site at our head office location in the West Midlands, to enable immediate manufacturing when required; standard stocked materials include: Polyurethane, Nitrile, H-Nitrile, Viton, FPM, EPDM, Silicone, Acetal, Peek, PTFE's and many more on demand within days.

Full Package

Sealco International Ltd, not only supply machined seals, but offer a full range of sealing products, from standard o rings, high performance metal seals, gaskets or any other type of seal to suit your application. Our internal and external engineers bring over 100 years of engineering sealing solutions, and can therefore offer the best solution to your sealing needs.

Design

Working closely with our customers, Sealco can offer drafting and design with the capability to also manufacture metal components for both prototypes and finished product with validation of components and design – both FEA evaluation and production of CFD (Fluid Dynamics). Our aim is to work with engineers and designers at the conceptual stage thus working in optimum seal geometries from day one – reducing rework, testing and time from concept to completion. Software such as Ansys, Inventor and SolidWorks are used. With these packages, the optimum seal can be designed from the offset. Also we can reduce the resource burden of the customer as the engineering of the metal parts can be handled by Sealco in association with our partners. Supply of metal parts with the seals also reduces the procurement burden as Sealco becomes the single source for the project also supplying bearings, snap rings, bolting etc.



Polyurethanes (other polyurethanes by request)

Coding			U203-R95	U203-G95	U203-B95	U203-B95LT
Colour			Red	Green	Blue	Blue
Description			Polyurethane	Polyurethane	Polyurethane	Low Temp Polyurethane
	DIN - Standard	Unit				
FDA Approved			no	no	YES	no
Density	DIN 53479	g/cm³	1.1	1.1	1.1	1.1
Hardness at 20°	DIN 53505	Shore A	95 +/-2	95 +/-2	93 +/-2	95 +/-2
100% Modulus	DIN 53504	N/mm²	> 12	> 12	> 10	> 10
Tensile strength	DIN 53504	N/mm²	38	38	40	> 45
Elongation at break	DIN 53504	%	520	520	460	> 400
Tear strength	DIN 53515	kN/m	158	158	135	135
Rebound resilience	DIN 53512	%	40	40	38	38
Abrasion loss	DIN 53516	mm³	-	-	< 35	-
Compression set	DIN 53517	%	31	31	31	< 26
hardness at -5	DIN 53505	Shore A	95	95	96	96
Hardness at +80	DIN 53505	Shore A	93	93	93	93
Min. service temperature		°C	-30	-30	-30	-50
Max. service temperature		°C	105	105	105	105

Rubber Elastomers (other rubbers by request)

Coding			N107-B85	N109-B95	N111-W85	HN112-B85
Colour			Black	Black	White	Black
Description			NBR	NBR	NBR	Hydrogenated NBR
	DIN - Standard	Unit				
FDA Approved			no	no	YES	no
Density	DIN 53479	g/cm³	1.32	1.27	1.36	1.23
hardness at 20°	DIN 53505	Shore A	85 +/- 5	95 +/- 5	85 +/- 5	85 +/- 5
Tensile strength	DIN 53504	N/mm²	17.2 +/- 15%	20.1 +/- 15%	7.9 +/- 15%	21.7 +/- 15%
Elongation at break	DIN 53504	%	171 +/- 20%	61 +/- 20%	305 +/- 20%	215 +/- 20%
Modulus 100%	DIN 53504	N/mm	10.2 +/- 30%	-	4.5 +/- 30%	-
Tear strength	DIN 53507B	N/mm	3.3	3	7.6	6.6
Compression set: 70h/RT	DIN 53517A	%	6.0 +/- 25%	13 +/- 20%	21 +/- 20%	-
Compression set: 22h/70°C	DIN 53517A	%	6.7 +/- 25%	16 +/- 20%	23 +/- 20%	20.2 +/- 20%
Compression set: 22h/100°C	DIN 53517A	%	6.8 +/- 25%	16 +/- 20%	29 +/- 20%	22.3 +/- 20%
Compression set: 22h/150°C	DIN 53517A	%	-	-	-	-
Compression set: 24h/175°C	DIN 53517A	%	-	-	-	-
Min. service temperature		°C	-25	-25	-22	-25
Max. service temperature		°C	100	100	100	150
Short time max service temp in air		°C	-	-	110	-

Thermoplastics (other thermoplastics by request)

Coding			P101-WE	A112-WC	T101-W	T105-G
Colour			White	White	White	Grey
Description			Polyacetal	Polyamide	Virgin PTFE	15% Glass 5%
	DIN - Standard	Unit				Mos2 PTFE
FDA Approved			YES	YES	YES	no
Density	DIN 53479	g/cm³	1.41	1.15	2.14 2.18	2.1 - 2.3
	62 - 67	62 - 67	65 - 70	62 - 67		
Moisture absorption	23°C / 50% rel M	%	0.2	2.2	-	-
Moisture absorption	Water 23°C	%	0.8	6.6	-	-
Tensile strength	DIN 53455	N/mm²	68-70	80-85	23 - 28	14 - 20
Elongation at break	DIN 53455	%	35	25	250-300	200 - 220
Modulus of elasticity	DIN 53457	N/mm²	3300	3300	-	-
Ball Hardness H358/3	DIN 53456	N/mm²	140	165	25 - 28	-
Ball Hardness H132/6	DIN 53456	N/mm²	-	-	-	43
Coefficient of sliding		µ	< 0.4	< 0.4	-	-
Coefficient of Friction (dyn)	ASTM D1894	µ	-	-	0.06 - 0.1	0.08
Wear factor (K)	ASTM D3702	cm³min10⁻ /kg m h	-	-	2.9	9 - 13
Compare Strength at 1% Deformation	DIN 53454	N/mm²	-	-	4 - 5	8.5 - 9
Therm Exp Coeff (lin) 25-100°	DIN 53328	10⁻ /°C	-	-	12 - 14.8	9 - 12
Melting temperature		°C	164 -167	220	-	-
Min Service temperature		°C	-50	-30	-200	-200
Max Service temperature		°C	100	100	260	260

U203-GM95	U203-FDA95	U203-D57					
Grey	Natual White	Dark Blue					
Polyurethane (MoS_2)	Polyurethane	Polyurethane					
no	YES	YES					
1.15	1.1	1.13					
95 +/-2	93 +/-2	57 +/-2					
> 11	> 10	> 18					
> 35	> 40	> 30					
> 560	460	330					
130	135	125					
49	38	42					
< 50	< 35	-					
26	31	32					
95	96	57					
93	93	52					
-30	-30	-30					
105	105	90					

E131-B85	E132-W85	F109-BR85	F110-BR85	F111-B85	S102-R85	S103-BL85	AF101-B85
Black	White	Brown	Brown	Black	Red	Blue	Black
EPDM	EPDM	VITON (GEN)	FPM	FPM	Silcone	Silicone	AFLAS
no	YES	no	YES	no	no	YES	no
1.22	1.39	2.44	2.62	1.88	1.54	1.54	1.68
85 +/- 5	85 +/- 5	85 +/- 5	85 +/- 5	85 +/- 5	85 +/- 5	85 +/- 5	85 +/- 5
12.8 +/- 15%	7.3 +/- 15%	11.7 +/- 15%	7.7 +/- 15%	11.5 +/- 15%	7.4 +/- 15%	7.4 +/- 15%	7.2 +/- 15%
130 +/- 20%	374 +/- 20%	154 +/- 20%	160 +/- 20%	180 +/- 20%	120 +/- 20%	120 +/- 20%	236 +/- 20%
6.2 +/- 30%	4.2 +/- 30%	8.8 +/- 30%	6.55 +/- 30%	7.3 +/- 30%	-	-	4.2 +/- 30%
3.2	5.8	4.2	4.3	6.4	10	10	7.2
20.9 +/- 20%	22.3 +/- 20%	14.1 +/- 20%	-	32.0 +/- 20%	10.8 +/- 25%	-	27.0 +/- 20%
20.7 +/- 20%	45.1 +/- 20%	9.4 +/- 25%	-	27.3 +/- 20%	10.6 +/- 25%	-	24.7 +/- 20%
19.8 +/- 20%	77.9 +/- 20%	6.0 +/- 25%	-	25.3 +/- 20%	6.8 +/- 25%	-	19.8 +/- 20%
40.9 +/- 20%	-		-	-	-	-	-
-	-	9.4 +/- 25%	27 +/- 20%	32.8 +/- 20%	20.4 +/- 20%	18.5 +/- 20%	24.5 +/- 20%
-50	-50	-20	-25	-25	-55	-55	-15
130	100	210	210	210	210	180	210
-	130	280	280	280	270	270	280

T110-BR40	T115-BR40	T120-BR60	T125-C25	PK100-CN			
Brown	Blue	Brown	Black	Beige			
40% Bronze PFFE	40 % Bronze PTFE	60% Bronze PTFE	25% Carbon PTFE	Peek			
no	no	no	no	YES			
3.05 - 3.12	3.05 - 3.12	3.8 - 3.9	2.05 -2.15	1.31			
62 - 67	62 - 67	65 - 70	62 - 67				
-	-	-	-	0.2			
-	-	-	-	0.45			
23 - 28	23 - 28	15 - 20	14 -18	115			
200 - 250	200 - 250	150 - 160	70 -130	17			
-	-	-	-	4300			
-	-	-	-	190			
36	-	34	43	-			
-	-	-	-	< 0.5			
0.13	0.13	0.13	0.13	-			
9 -13	9 - 13	10	16 -20	-			
- 9	7 - 9	10 - 11	7 - 9	-			
10 - 11.5	10 - 11.5	8 - 9	10 - 12	-			
-	-	-	-	340			
-200	-200	-200	-200	-50			
260	260	260	260	250			

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
WR01 	The profile is designed with interference on the OD which provides a good static fit in the groove, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. For housings acc. to ISO 6195-Type A.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR01A 	The profile is designed with interference on the OD which provides a good static fit in the groove, preventing the entry of humidity and other contamination via the outside diameter. The support shoulder prevents tilting of the wiper. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. For housings acc. to ISO 6195-Type A.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR02 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR02A 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. Support shoulder to prevent tilting.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR02B 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. For housings acc. to ISO 6195-1986 Type C.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR02C 	The profile is designed with an additional sealing lip on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Sharp sealing lip for wiping in extreme conditions (mining industry, ice etc.). Commonly made out of hard materials such as hard grade PU.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR02D 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Sharp sealing edge for aggressive wiping. The hump on the sealing lip enables better stability of the wiper. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR03 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Tight seat in the housing ensures that the wiper is held in place. Prevention of corrosion in the seat due to the use of a retainer ring in hard plastics. Not suitable for pressure from the trailing side. For housings acc. to ISO 6195-1986 Type B.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	POM P101-WE
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	PEEK PK100-CN
WR04 	The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. No precision fit required. Mainly used in English machines. Special housing designs required. Pressure on the trailing side should be avoided.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR07 	The profile is designed with a slight interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Wiper is made in hard plastics (POM, PEEK, etc.) or hard grade PU which ensures high stiffness, breaking strength and stability. Good dry running properties. Not suitable for pressure from the trailing side. Special designed housings required.	-30°C to +105°C	1 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-60°C to +100°C	1 m/s	N/A	POM P101-WE	
		-30°C to +105°C	1 m/s	N/A	PA A112-WC	
		-50°C to +250°C	1 m/s	N/A	PEEK PK100-CN	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
WR08 	The profile is held in place via the outside lip and the retainer nose. Made in hard plastics (POM, PEEK, etc.) or hard grade PU which ensures high stiffness, breaking strength and stability. Good dry running properties. Not suitable for pressure from the trailing side. Special designed housings required.	-30°C to +105°C	1 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-60°C to +100°C	1 m/s	N/A	POM P101-WE	
		-30°C to +105°C	1 m/s	N/A	PA A112-WC	
		-50°C to +250°C	1 m/s	N/A	PEEK PK100-CN	
WR11 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. The sealing lip on the fluid side reduces the remaining oil film to a minimum if used in combination with composite seals as a tandem seal. For housings acc. to ISO 6195-Type C.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR012 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. The sealing lip on the fluid side reduces the remaining oil film to a minimum if used in combination with composite seals as a tandem seal. For housings acc. to ISO 6195-Type C.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR13 	The profile is designed with two geometrically different lips for wiping off any dirt on the rod and to reduce the residual oil film on the media side. The wiper consists of a PTFE wiping part and an O-Ring as preload element, maintaining contact pressure on the rod. Due to the use of an O-Ring the wiper is able to compensate deflections of the rod. Mainly used in combination with rod seal RS09B. Pressure should be limited to 15bar. For housings acc. to ISO 6195 Type D.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	NBR 70
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	NBR 70
		-20°C to +210°C	4 m/s	N/A	PTFE T101-W	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-25% Carbon T125-C25	FPM 75
WR13-E2 	The profile is designed with two geometrically different lips for wiping off any dirt on the rod and to reduce the residual oil film on the medium side. The wiper consists of a PTFE wiping part and an O-Ring as preload element, maintaining contact pressure on the rod. Due to the use of an O-Ring the wiper is able to compensate deflections of the rod. Bigger O-Ring compared to WR13. Mainly used in combination with rod seal RS09B. Pressure should be limited to 15bar. For housings acc. to ISO 6195 Type D.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	NBR 70
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	NBR 70
		-20°C to +210°C	4 m/s	N/A	PTFE T101-W	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-25% Carbon T125-C25	FPM 75
WR014 	The profile is designed with one sharp lip for wiping off any dirt on the rod. The residual oil film is recovered. The wiper consists of a PTFE wiping part and an O-Ring as preload element, maintaining contact pressure on the rod. Due to the use of an O-Ring the wiper is able to compensate deflections of the rod. Good dry running properties. No "stick-slip". Pressure on the trailing side should be avoided. For housings acc. to ISO 6195 Type D.	-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	NBR 70
		-20°C to +210°C	4 m/s	N/A	PTFE T101-W	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-25% Carbon T125-C25	FPM 75
WR15 	The profile is designed with two geometrically different lips for wiping off any dirt on the rod and to reduce the residual oil film on the medium side. The wiper consists of a PTFE wiping part and two O-Rings as preload element, maintaining contact pressure on the rod. Due to the use of O-Rings the wiper is able to compensate deflections of the rod. Mainly used in combination with rod seal RS09B. Pressure should be limited to 15bar. For housings acc. to ISO 6195 Type D.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	NBR 70
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	NBR 70
		-20°C to +210°C	4 m/s	N/A	PTFE T101-W	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	4 m/s	N/A	PTFE-25% Carbon T125-C25	FPM 75
WR17 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Double acting wiper that is now only used in old machinery. For new constructions WR11 or WR12 is recommended. Special designed housings required. Pressure from the trailing side should be avoided.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	
WR18 	Special wiper for outside sealing. The profile is designed with interference on the ID which provides a good static fit, preventing the entry of humidity and other contamination via the inside diameter. The design of the wiper lip supports the recirculation of the remaining oil film into the cylinder, whilst the exclusion of contamination is guaranteed. Pressure from the trailing side has to be avoided.	-30°C to +105°C	4 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	4 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	4 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	4 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	4 m/s	N/A	FPM 85 F109-BR85	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
RS01 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer).	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS01A 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Wider groove and softer lips compared to RS01. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	160 bar/2300 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	160 bar/2300 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	160 bar/2300 psi	FPM 85 F109-BR85	
RS01B 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Sharp lips on ID and OD. Good static and dynamic sealing performance. Good performance in low pressure conditions. Useable for long stroke lengths. Out-of date profile; only used in old machinery. Poor sealing that causes a relatively thick oil film.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS02 	Asymmetrical, single acting rod seal with integrated back-up ring, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer). Activated back-up ring prevents and reduces extrusion.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
RS02A 	Asymmetrical, single acting rod seal with integrated back-up ring, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer). Activated back-up ring prevents and reduces extrusion.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
RS02B 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Improved sealing performance in pressureless condition because of the glide ring on the ID. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" Activated back-up ring prevents and reduces extrusion.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
RS03 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. Used for short, pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	NBR 70
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	FPM 75
		-20°C to 210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	FPM 75
RS04 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Activated back-up ring prevents and reduces gap extrusion. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. Used for short, pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
RS05 	Asymmetrical, single acting rod seal for pneumatic applications, designed with interference on the OD which provides a good static fit in the groove. Special designed sealing lip to retain the lubrication film and prevent dry running. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip", small break-away loads after long standstill.	-30°C to +105°C	0.5 m/s	25 bar/350 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	25 bar/350 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	25 bar/350 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	25 bar/350 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	25 bar/350 psi	FPM 85 F109-BR85	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
RS08 	Symmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Special design for small cross sections where lips would be too thin. Excellent static and dynamic sealing performance. Excellent performance over all pressure ranges. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure. Particularly suitable for high viscosity media.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS09 	Asymmetrical, single acting rod seal, designed with interference of the O-Ring on the OD and slight interference of the glide ring on the ID. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent gap extrusion resistance due to the free space on the trailing side.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
RS09A 	Symmetrical, double acting rod seal, designed with interference of the O-Ring on the OD and slight interference of the glide ring on the ID. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
RS09B 	Asymmetrical, single acting rod seal, designed with interference of the O-Ring on the OD and slight interference of the glide ring on the ID. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance due to the free space on the trailing side.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
RS91 	Asymmetrical, single acting rod seal, designed with interference of the preload element on the OD and slight interference of the glide ring on the ID. High pressure force because of a machined rubber preload element. Less relative movement of the rubber part compared to an O-Ring giving the seal a higher wear resistance. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent gap extrusion resistance due to the free space on the trailing side. Can be used in grooves where no O-Ring is possible.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 85
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 85
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 85
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 85
RS91B 	Asymmetrical, single acting rod seal, designed with interference of the preload element on the OD and slight interference of the glide ring on the ID. High pressure force because of a machined rubber preload element. Less relative movement of the rubber part compared to an O-Ring giving the seal a higher wear resistance. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent gap extrusion resistance due to the free space on the trailing side. Can be used in grooves where no O-Ring is possible.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 85
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 85
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 85
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 85
RS16 	Asymmetrical, single acting rod seal. Long sealing lip compensates for radial inaccuracy or eccentricity. Useable for long stroke lengths. Low break-away load after long standstills. Seal design tends to "stick-slip" effect.	-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS17 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS17A 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Activated back-up ring prevents and reduces gap extrusion. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
RS17B 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	NBR 70
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	FPM 75
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	FPM 75
RS17C 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Activated back-up ring prevents and reduces extrusion. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
RS17D 	Symmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Special design for small cross sections where lips would be too thin. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Excellent static and dynamic sealing performance. Excellent performance over all pressure ranges. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure. Particularly suitable for high viscosity media.	-30°C to +105°C	0.3 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.3 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.3 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.3 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.3 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
RS17E 	Asymmetrical, single acting rod seal, designed with interference on the OD which provides a good static fit in the groove. Special design for small cross sections where lips would be too thin. Secondary lip for stabilising at large seal heights and reducing the residual oil film. Activated back-up ring prevents and reduces extrusion. Excellent static and dynamic sealing performance. Excellent performance over all pressure ranges. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure. Particularly suitable for high viscosity media.	-30°C to +105°C	0.3 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.3 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.3 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.3 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.3 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
RS19 	Asymmetrical, single acting rod seal, designed with low interference on the static sealing diameter. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions. Negligible tendency to "stick-slip" effect, small break away loads.	-200°C to +80°C	15 m/s	160 bar/2300 psi	UHMWPE	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE T101-W	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE-25% Carbon T125-C25	
RS19A 	Asymmetrical, single acting rotary seal with clamping flange. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions, no stick-slip effect.	-200°C to +80°C	2 m/s	150 bar/2200 psi	UHMWPE	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE T101-W	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-25% Carbon T125-C25	
RS20 	Asymmetrical, double acting compact rod seal, designed with interference on the OD which provides a good static fit in the groove. Excellent static and dynamic sealing performance. Excellent performance in high and low pressure conditions. Negligible tendency to "stick-slip" effect. High break-away load after long standstills. Activated back-up rings reduce extrusion and prevent twisting of the seal in the groove.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	700 bar/10.000 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	700 bar/10.000 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	700 bar/10.000 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
RS31-33 	Asymmetrical, single acting rod seal, combined with pressure ring and support ring. By adjusting the number of packings friction and leakage characteristics can be influenced. Excellent dynamic and good static sealing performance. Excellent performance in high pressure conditions. Especially used for long stroke lengths. Low friction due to flexible lip design.	-30°C to +105°C	0.5 m/s	500 bar/7200 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	500 bar/7200 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
RS35 	Asymmetrical, double acting compact rod seal, designed with interference on the OD which provides a good static fit in the groove. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. For rotary applications the interference on the OD has to be increased (better static fit to reduce the danger of the seal rotating in the housing), the preload has to be reduced (lower friction).	-30°C to +105°C	0.4 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.4 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.4 m/s	150 bar /2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.4 m/s	150 bar /2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.4 m/s	150 bar /2200 psi	FPM 85 F109-BR85	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
PS01 	Asymmetrical, single acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer).	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PS01A 	Asymmetrical, single acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Wider groove and softer lips compared to PS01. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	160 bar/2300 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	160 bar/2300 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	160 bar/2300 psi	FPM 85 F109-BR85	
PS01B 	Asymmetrical, single acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Sharp lips on ID and OD. Good static and dynamic sealing performance. Good performance in low pressure conditions. Useable for long stroke lengths. Out-of date profile; only used in old machinery. Poor sealing that causes a relatively thick oil film.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PS02 	Asymmetrical, single acting piston seal with integrated back-up ring, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer). Activated back-up ring prevents and reduces extrusion.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
PS02A 	Asymmetrical, single acting piston seal with integrated back-up ring, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s. For lower speeds the dynamic lip should be redesigned (shorter, stiffer). Activated back-up ring prevents and reduces extrusion.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
PS03 	Asymmetrical, single acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. Used for short, pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	NBR 70
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	FPM 75
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	FPM 75
PS04 	Asymmetrical, single acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing lip shorter than static lip to avoid drag pressure. Increased preload due to an additional O-Ring. Activated back-up ring prevents and reduces extrusion. Excellent static and dynamic sealing performance. Excellent performance in all pressure ranges. Used for short, pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
PS05 	Asymmetrical, single acting piston seal for pneumatic applications, designed with interference on the ID which provides a good static fit in the groove. Special designed sealing lip to retain the lubrication film and prevent dry running. Excellent static and dynamic sealing performance. Useable for long stroke lengths. Negligible tendency to "stick-slip", small break-away loads after long standstill.	-30°C to +105°C	0.5 m/s	25 bar/350 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	25 bar/350 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	25 bar/350 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	25 bar/350 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	25 bar/350 psi	FPM 85 F109-BR85	
PS08 	Symmetrical, double acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the PTFE glide ring on the OD. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent gap extrusion resistance.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
PS08A 	Symmetrical, double acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the glide ring on the OD. Two external sealing edges working as a primary seal and reducing the risk of the blow-by effect. Central back-up and sealing bulge. Glide ring is made from very wear resistant hard grade polyurethane. Suitable for positioning and holding functions. Negligible tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	1 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	1 m/s	250 bar/3600 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	1 m/s	250 bar/3600 psi	UHMWPE	NBR 70
		-20°C to +210°C	1 m/s	250 bar/3600 psi	PTFE T101-W	FPM 75
		-20°C to +210C	1 m/s	250 bar/3600 psi	PTFE-25% Carbon T125-C25	FPM 75
PS08B 	Asymmetrical, single acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the glide ring on the OD. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance due to the free space on the trailing side.	-30°C to +105°C	10 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	10 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
PS08C 	Symmetrical, double acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the glide ring on the OD. Quad ring® on the outside diameter ensures additional sealing especially at holding and positioning functions. Good sealing function at medium separation. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance.	-30°C to +105°C	2 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	2 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	2 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
PS08D 	Symmetrical, double acting piston seal, designed with interference of the O-Rings on the ID and slight interference of the glide ring on the OD. Quad ring® on the outside diameter ensures additional sealing especially at holding and positioning functions. The use of two O-Rings ensures better pressure distribution on the sealing edges. Good sealing function at medium separation. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance.	-30°C to +105°C	2 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	2 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	2 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
PS08E 	Symmetrical, double acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the glide ring on the OD. Glide ring is made from very wear resistant hard grade polyurethane. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance.	-30°C to +105°C	1 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	1 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	10 m/s	400 bar/5800 psi	UHMWPE	NBR 70
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	10 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 75
PS08F 	Symmetrical, double acting piston seal, designed with interference of the O-Ring on the ID and slight interference of the glide ring on the OD. Glide ring is made from very wear resistant hard grade polyurethane. Excellent sealing performance in low and high speeds. Suitable for positioning and holding functions. Negligible tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	1 m/s	250 bar/3600 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	1 m/s	250 bar/3600 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	1 m/s	250 bar/3600 psi	UHMWPE	NBR 70
		-20°C to +210°C	1 m/s	250 bar/3600 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	1 m/s	250 bar/3600 psi	PTFE-25% Carbon T125-C25	FPM 75
PS81 	Symmetrical, double acting piston seal, designed with interference of the preload element on the ID and slight interference of the glide ring on the OD. High pressure force because of a machined rubber preload element. Less relative movement of the rubber part compared to an O-Ring giving the seal a higher wear resistance. Excellent sealing performance in low and high speeds. Suitable for positioning functions. Negligible tendency to "stick-slip" effect, good sliding properties. Low break-away load after long standstills. Excellent extrusion resistance. Can be used in grooves where no O-Ring is possible.	-30°C to +105°C	2 m/s	250 bar/3600 psi	PU Red U203-95	NBR 85
		-30°C to +105°C	2 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85
		-60°C to +80°C	2 m/s	400 bar/5800 psi	UHMWPE	NBR 85
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE T101-W	FPM 85
		-20°C to +210°C	2 m/s	400 bar/5800 psi	PTFE-25% Carbon T125-C25	FPM 85
PS09 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two guiding/back-up elements. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
PS09A 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing, two back-up and two gide elements. Useable for short and long stroke lengths. Compact piston design possible Good static and dynamic sealing performance. Good positioning control.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE

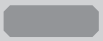
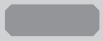
Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
PS16 	Asymmetrical, single acting piston seal. Long sealing lip compensates for radial inaccuracy or eccentricity. Useable for long stroke lengths. Low break-away load after long standstills. Seal design tends to "stick-slip" effect.	-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PS16A 	Asymmetrical, single acting piston seal. Long sealing lip compensates for radial inaccuracy or eccentricity. Useable for long stroke lengths. Low break-away load after long standstills. Seal design tends to "stick-slip" effect.	-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	150 bar/2200 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PS17 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one sealing and two guiding/back-up elements. Useable for short and long stroke lengths. Good dynamic and static sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
PS17A 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one sealing and two guiding/back-up elements. Useable for short and long stroke lengths. Good dynamic and static sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
PS17B 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one sealing and two guiding/back-up elements. Two sealing edges on the OD for improved media separation. Useable for short and long stroke lengths. Good dynamic and static sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
PS19 	Asymmetrical, single acting piston seal, designed with low interference on the static sealing diameter. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions. Negligible tendency to "stick-slip" effect, small break away loads.	-200°C to +80°C	15 m/s	160 bar/2300 psi	UHMWPE	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE T101-W	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	15 m/s	160 bar/2300 psi	PTFE-25% Carbon T125-C25	
PS19A 	Asymmetrical, single acting rotary seal with clamping flange. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions, no stick-slip effect.	-200°C to +80°C	2 m/s	150 bar/2200 psi	UHMWPE	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE T101-W	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-25% Carbon T125-C25	
PS20 	Symmetrical, double acting compact piston seal, designed with interference on the ID which provides a good static fit in the groove. Excellent static and dynamic sealing performance. Excellent performance in high and low pressure conditions. Negligible tendency to "stick-slip" effect. High break-away load after long standstills. Activated back-up rings reduce extrusion and prevent twisting of the seal in the groove.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.5 m/s	700 bar/10.000 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	700 bar/10.000 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.5 m/s	700 bar/10.000 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
PS23 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two back-up elements. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force. No drag pressure build-up.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
PS35 	Asymmetrical, double acting compact piston seal, designed with interference on the ID which provides a good static fit in the groove. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. For rotary applications the interference on the ID has to be increased (better static fit to reduce the danger of the seal rotating in the housing), the preload has to be reduced (lower friction).	-30°C to +105°C	0.4 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.4 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.4 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.4 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.4 m/s	150 bar/2200 psi	FPM 85 F109-BR85	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
PRS06 	Symmetrical, single acting piston/rod seal. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PRS06A 	Symmetrical, single acting piston/rod seal. Wider groove and softer lips compared to PRS06. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	160 bar/2300 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	160 bar/2300 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	160 bar/2300 psi	FPM 85 F109-BR85	
PRS06B 	Symmetrical, single acting piston/rod seal. Good static and dynamic sealing performance. Good performance in low pressure conditions. Useable for long stroke lengths. Out-of date profile; only used in old machinery. Poor sealing that causes a relative thick oil film.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PRS06C 	Symmetrical, single acting piston/rod seal. Special design for small cross sections where lips would be too thin. Excellent static and dynamic sealing performance. Excellent performance over all pressure ranges. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure. Particularly suitable for high viscosity media.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PRS06D 	Symmetrical, single acting piston/rod seal. Special design with wider groove for large cross sections. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PRS06E 	Symmetrical, single acting piston/rod seal. Axial stabilisation of the seal by means of an additional land. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	
PRS07 	Symmetrical, single acting piston/rod seal. Increased preload due to an additional O-Ring. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR 70
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	NBR 70
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	FPM 75
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	FPM 75
PRS10SP 	Variable support ring for vee packings PRS10-12 Excellent static and dynamic sealing performance. Excellent performance in high pressure conditions. Useable for short and long stroke lengths. High wear resistance.	-60°C to +100°C	Contact us	Contact us	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	Contact us	UHMWPE	
		-200°C to +260°C	Contact us	Contact us	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	Contact us	PEEK PK100-CN FPM75	
PRS10-12 	Symmetrical, single acting piston/rod seal, combined with pressure ring and support ring. By adjusting the number of packings friction and leakage characteristics can be influenced. Excellent static and dynamic sealing performance. Excellent performance in high pressure conditions. Useable for short and long stroke lengths. High wear resistance.	-30°C to +105°C	0.5 m/s	500 bar/7200 psi	PU Red U203-95	POM P101-WE NBR 70
		-200°C to +260°C	0.5 m/s	500 bar/7200 psi	PTFE-25% Carbon T125-C25	PEEK PK100-CN FPM 75
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to +210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
PRS13-15 	Symmetrical, single acting piston/rod seal, combined with pressure ring and support ring. By adjusting the number of packings friction and leakage characteristics can be influenced. Excellent static and dynamic sealing performance. Excellent performance in high pressure conditions. Useable for short and long stroke lengths. Reduced friction compared to PRS10-12 profile especially in the high pressure range.	-30°C to +105°C	0.5 m/s	500 bar/7200 psi	PU Red U203-95	POM P101-WE NBR 70
		-200°C to +260°C	0.5 m/s	500 bar/7200 psi	PTFE-25% Carbon T125-C25	PEEK PK100-CN
		-25°C to +100°C	0.5 m/s	300 bar/4300 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.5 m/s	300 bar/4300 psi	HNBR 85 HN112-B85	PEEK PK100-CN
		-20°C to + 210°C	0.5 m/s	300 bar/4300 psi	FPM 85 F109-BR85	PEEK PK100-CN
PRS18 	Symmetrical, single acting piston/rod seal, no interference on the ID or OD. Increased preload due to an additional O-Ring. Sharp lips for use in high viscosity media. Excellent static and dynamic sealing performance. Good performance in all pressure ranges. Used for short pulsating strokes. No reverse leakage when changing direction. Recommended for positioning or holding under pressure.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU Red U203-95	NBR70
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	NBR70
		-25°C to +100°C	0.5 m/s	150 bar/2200 psi	NBR 85 N107-85	NBR70
		-25°C to +150°C	0.5 m/s	150 bar/2200 psi	HNBR 85 HN112-B85	FPM75
		-20°C to +210°C	0.5 m/s	150 bar/2200 psi	FPM 85 F109-BR85	FPM75

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
PRS19B 	Symmetrical, single acting piston/rod seal, no interference on the ID or OD. Preload effected through round Helicoil-spring which ensures high pressure on the sealing edges. Excellent static and dynamic sealing performance. Excellent sealing performance in low and high pressure ranges. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions. Also used for gas applications. Negligible tendency to "stick-slip" effect, small break away loads.	-200°C to +80°C -200°C to +260°C -200°C to +260°C -200°C to +260°C	5 m/s * 5 m/s * 5 m/s * 5 m/s * * (0.1 m/s rotating)	150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi	UHMWPE PTFE T101-W PTFE-40% Bronze T120-BR40 PTFE-25% Carbon T125-C25	
PRS19C 	Symmetrical, single acting piston/rod seal, no interference on the ID or OD. Preload effected through Helicoil-spring which ensures high pressure on the rounded sealing lips.. Excellent static and dynamic sealing performance. Excellent sealing performance in low and high pressure ranges. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions. Also used for gas applications. Negligible tendency to "stick-slip" effect, small break away loads.	-200°C to +80°C -200°C to +260°C -200°C to +260°C -200°C to +260°C	5 m/s * 5 m/s * 5 m/s * 5 m/s * * (0.1 m/s rotating)	150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi	UHMWPE PTFE T101-W PTFE-40% Bronze T120-BR40 PTFE-25% Carbon T125-C25	
PRS19D 	Symmetrical, single acting piston/rod seal, no interference on the ID or OD. Preload effected through round Helicoil-spring which ensures high pressure on the sealing edges. Excellent static and dynamic sealing performance. Excellent sealing performance in low and high pressure ranges. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions. Negligible tendency to "stick-slip" effect, small break away loads.	-200°C to +80°C -200°C to +260°C -200°C to +260°C -200°C to +260°C	2 m/s 2 m/s 2 m/s 2 m/s	200 bar/2900 psi 200 bar/2900 psi 200 bar/2900 psi 200 bar/2900 psi	UHMWPE PTFE T101-W PTFE-40% Bronze T120-BR40 PTFE-25% Carbon T125-C25	
PRS22 	Symmetrical, single acting piston/rod seal, no interference on the ID or OD. Stabilisation of the sealing ring by an additional retainer ring. Excellent static and dynamic sealing performance. Excellent performance in low pressure conditions. Useable for long stroke lengths. Negligible tendency to "stick-slip" effect above a speed of 0.15 m/s.	-30°C to +105°C -30°C to +105°C -25°C to +100°C -25°C to +150°C -20°C to +210°C	0.5 m/s 0.5 m/s 0.5 m/s 0.5 m/s 0.5 m/s	400 bar/5800 psi 400 bar/5800 psi 150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi	PU Red U203-95 PU 57 MoS2 Grey U203-GM95 NBR 85 N107-85 HNBR 85 HN112-B85 FPM 85 F109-BR85	POM P101-WE POM P101-WE POM P101-WE PEEK PK100-CN PEEK PK100-CN
PRS99 	Variable pressure ring for vee packings PRS10-12 Excellent static and dynamic sealing performance. Excellent performance in high pressure conditions. Useable for short and long stroke lengths. High wear resistance.	-30°C to +105°C -30°C to +105°C -25°C to +100°C -25°C to +150°C -20°C to +210°C	0.5 m/s 0.5 m/s 0.5 m/s 0.5 m/s 0.5 m/s	400 bar/5800 psi 400 bar/5800 psi 150 bar/2200 psi 150 bar/2200 psi 150 bar/2200 psi	PU Red U203-95 PU 57 MoS2 Grey U203-GM95 NBR 85 N107-85 HNBR 85 HN112-B85 FPM 85 F109-BR85	NBR 70 NBR 70 NBR 70 FPM 85 FPM 85

BACK-UP RINGS • BACK-UP RINGS • BACK-UP RINGS • BACK-UP RINGS

BUR08 	Normally cut at an angle for easy installation, but also available as non-split version. Low dynamic friction. Low break-away forces after long standstills. Activated back-up rings reduce extrusion gap and prevent twisting of the seal in the groove.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	
BUR09 	Especially designed for use with O-Rings. Improved form stability of the elastomer O-Ring. Bigger contact area of the O-Ring compared to BUR08 creating less deformation. Normally cut at an angle for easy installation, but also available as non-split version. Low dynamic friction. Low break-away forces after long standstills. Activated back-up rings reduce extrusion gap and prevent twisting of the seal in the groove.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	
BUR10 	Back-up rings or Anti Extrusion Rings do not have a sealing function. They are designed to prevent elastic sealing elements of extrusion gap. Features Active Anti Extrusion Ring for Piston Seal PS02. Reduced gap extrusion of the elastomer seal and/or higher pressures up to 700bar possible Prevention of twisting of the seal in the groove. Available as split non-split version.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	
BUR11 	Active Anti Extrusion Ring for Rod Seal RS02. Reduced extrusion gap of the elastomer seal and/or higher pressures up to 700bar possible Prevention of twisting of the seal in the groove. Available as split non-split version.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	
BUR12 	Triangular Anti Extrusion Ring for Rod applications. Special housing designs required. Reduced extrusion gap of the elastomer seal and/or higher pressures up to 700bar possible. Available as split and non-split version.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	
BUR13 	Triangular Anti Extrusion Ring for Piston applications. Special housing designs required. Reduced extrusion gap of the elastomer seal and/or higher pressures up to 700bar possible. Available as split and non-split version.	-30°C to +105°C -60°C to +100°C -200°C to +80°C -200°C to +260°C -50°C to +250°C	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	PU 57 MoS2 Grey U203-GM95 POM P101-WE NBR70 UHMWPE PTFE-25% Carbon T125-C25 PEEK PK100-CN FPM75	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
BWR01 	Normally cut at an angle for easy installation, but also available as non-split version. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR01A 	Spiral groove on the outside diameter for better lubrication Normally cut at an angle for easy installation, but also available as non-split version. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR03 	Normally cut at an angle for easy installation, but also available as non-split version. For use in piston applications. Design combines guiding and back-up ring function. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR04 	Normally cut at an angle for easy installation, but also available as non-split version. For use in rod applications. Design combines guiding and back-up ring function. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR05 	Normally cut at an angle for easy installation, but also available as non-split version. For use in piston applications. Integrated collar on inside diameter. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR06 	Normally cut at an angle for easy installation, but also available as non-split version. For use in rod applications. Integrated collar on outside diameter. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR07 	Normally cut at an angle for easy installation, but also available as non-split version. For use in piston applications. Integrated collar on Inside diameter. Design combines guiding and back-up ring function. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	
BWR08 	Normally cut at an angle for easy installation, but also available as non-split version. For use in rod applications. Integrated collar on outside diameter. Design combines guiding and back-up ring function. Low dynamic friction. Low break-away forces after long standstills.	-60°C to +100°C	Contact us	N/A	POM P101-WE NBR70	
		-200°C to +80°C	Contact us	N/A	UHMWPE	
		-200°C to +260°C	Contact us	N/A	PTFE-25% Carbon T125-C25	
		-50°C to +250°C	Contact us	N/A	PEEK PK100-CN FPM75	

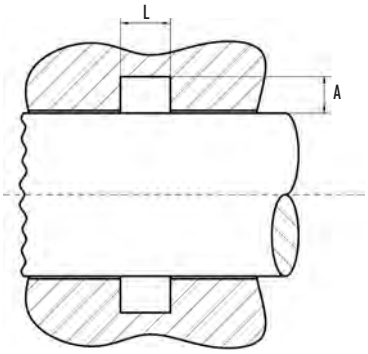
Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
OS01 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Tight seat in the housing and an additional retainer ring in hard plastic or Aluminium / Steel ensures that the seal is held in place. Tension spring for increasing the bonding force. Not suitable for high pressure from the trailing side.	-30°C to +105°C	5 m/s	0.5 bar/7 PSI	PU Red U203-95	POM P101-WE NBR 70
		-25°C to +100°C	10 m/s	0.5 bar/7 PSI	NBR 85 N107-85	POM P101-WE NBR 70
		-20°C to +210°C	15 m/s	0.5 bar/7 PSI	FPM 85 F109-BR85	PTFE-25% Carbon T125-C25
OS02 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Additional dust lip for protecting the sealing lip. Tight seat in the housing and an additional retainer ring in hard plastic or Aluminium / Steel ensures that the seal is held in place. Tension spring for increasing the bonding force. Not suitable for high pressure from the trailing side.	-30°C to +105°C	5 m/s	0.5 bar/7 PSI	PU Red U203-95	POM P101-WE NBR 70
		-25°C to +100°C	10 m/s	0.5 bar/7 PSI	NBR 85 N107-85	POM P101-WE NBR 70
		-20°C to +210°C	15 m/s	0.5 bar/7 PSI	FPM 85 F109-BR85	PTFE-25% Carbon T125-C25
OS08 	The profile is designed with interference on the OD which provides a good static fit, preventing the entry of humidity and other contamination via the outside diameter. Springless preloaded sealing lip which enables a compact design. Small friction and low heat build-up. Not suitable for pressure from the trailing side.	-30°C to +105°C	5 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	7 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	10 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	10 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	10 m/s	N/A	FPM 85 F109-BR85	
R03 	Symmetrical, double acting rotary seal for high pressures and low speeds, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing on the ID. Backup elements on the left and right side for maintaining the function also at large sealing gaps. Excellent static and dynamic sealing performance.	-30°C to +105°C	0.2 m/s	400 bar/5800 psi	PU Red U203-95	POM P101-WE NBR 70
		-30°C to +105°C	0.2 m/s	400 bar/5800 psi	PU 57 MoS2 Grey U203-GM95	POM P101-WE NBR 70
		-25°C to +100°C	0.2 m/s	200 bar/2900 psi	NBR 85 N107-85	POM P101-WE NBR 70
		-25°C to +150°C	0.2 m/s	200 bar/2900 psi	HNBR 85 HN112-B85	PEEK PK100-CN FPM 75
		-20°C to +210°C	0.2 m/s	200 bar/2900 psi	FPM 85 F109-BR85	PEEK PK100-CN FPM 75
R04 	Symmetrical, double acting rotary seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing on the ID. Excellent static and dynamic sealing performance. Low friction.	-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.2 m/s	100 bar/1400 psi	NBR 85 N107-85	
		-25°C to +150°C	0.2 m/s	100 bar/1400 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.2 m/s	100 bar/1400 psi	FPM 85 F109-BR85	
R04A 	Symmetrical, double acting rotary seal, designed with interference on the OD which provides a good static fit in the groove. Dynamic sealing on the ID. Excellent static and dynamic sealing performance. Low friction.	-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.2 m/s	100 bar/1400 psi	NBR 85 N107-85	
		-25°C to +150°C	0.2 m/s	100 bar/1400 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.2 m/s	100 bar/1400 psi	FPM 85 F109-BR85	
R05 	Symmetrical, double acting rotary seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing on the OD. Excellent static and dynamic sealing performance. Low friction.	-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.2 m/s	100 bar/1400 psi	NBR 85 N107-85	
		-25°C to +150°C	0.2 m/s	100 bar/1400 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.2 m/s	100 bar/1400 psi	FPM 85 F109-BR85	
R05A 	Symmetrical, double acting rotary seal, designed with interference on the ID which provides a good static fit in the groove. Dynamic sealing on the OD. Excellent static and dynamic sealing performance. Low friction.	-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU Red U203-95	
		-30°C to +105°C	0.2 m/s	160 bar/2300 psi	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	0.2 m/s	100 bar/1400 psi	NBR 85 N107-85	
		-25°C to +150°C	0.2 m/s	100 bar/1400 psi	HNBR 85 HN112-B85	
		-20°C to +210°C	0.2 m/s	100 bar/1400 psi	FPM 85 F109-BR85	
VR06 	Rotary seal, designed with interference on the ID which provides a good static fit on the shaft and ensures the seal rotates with the shaft. Axial dynamic sealing lip vertical to the rod. Small contact pressure of the sealing lip that enables also "dry running". Low friction on the sealing lip - decreasing with the rotation speed as a result of the centrifugal force. Little abrasion and long lifetime. Ensurance of sealing also at eccentric rods or rod misalignments. Pressure must be avoided.	-30°C to +105°C	25 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	25 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	25 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	25 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	25 m/s	N/A	FPM 85 F109-BR85	
VR07 	Rotary seal, designed with interference on the ID which provides a good static fit on the shaft and ensures the seal rotates with the shaft. Axial dynamic sealing lip vertical to the rod. Small contact pressure of the sealing lip that enables also "dry running". Low friction on the sealing lip - decreasing with the rotation speed as a result of the centrifugal force. Little abrasion and long lifetime. Ensures of sealing also at eccentric rods or rod misalignments. Pressure must be avoided.	-30°C to +105°C	25 m/s	N/A	PU Red U203-95	
		-30°C to +105°C	25 m/s	N/A	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	25 m/s	N/A	NBR 85 N107-85	
		-25°C to +150°C	25 m/s	N/A	HNBR 85 HN112-B85	
		-20°C to +210°C	25 m/s	N/A	FPM 85 F109-BR85	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
R08 	Asymmetrical, double acting rotary seal for inside sealing, designed with interference of the O-Ring on the OD and no interference of the glide ring on the ID. Excellent sealing performance at low speeds with high pressure. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 70
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 75
R08D 	Asymmetrical, double acting rotary seal for inside sealing, designed with interference of the O-Ring on the OD and no interference of the glide ring on the ID. Excellent sealing performance at low speeds with high pressure. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 70
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 75
R09 	Asymmetrical, double acting rotary seal for inside sealing, designed with interference of the O-Ring on the OD and no interference of the glide ring on the ID. Excellent sealing performance at low speeds with high pressure. Peripheral grooves that enable the build up of a lubricant reservoir. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 70
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 75
R09A 	Asymmetrical, double acting rotary seal for inside sealing, designed with interference of the preload element on the OD and no interference of the glide ring on the ID. Excellent sealing performance at low speeds with high pressure. Peripheral grooves that enable the build up of a lubricant reservoir. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance. Especially for use in non standardized grooves.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 85
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 85
R10 	Asymmetrical, double acting rotary seal for outside sealing, designed with interference of the O-Ring on the ID and no interference of the glide ring on the OD. Excellent sealing performance at low speeds with high pressure. Peripheral grooves that enable the build up of a lubricant reservoir. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 70
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 75
R10A 	Asymmetrical, double acting rotary seal for outside sealing, designed with interference of the preload element on the ID and no interference of the glide ring on the OD. Excellent sealing performance at low speeds with high pressure. Peripheral grooves that enable the build up of a lubricant reservoir. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance. Especially for use in non standardized grooves.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 85
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 85
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 85
R11 	Asymmetrical, double acting rotary seal for outside sealing, designed with interference of the O-Ring on the ID and no interference of the glide ring on the OD. Excellent sealing performance at low speeds with high pressure. No tendency to "stick-slip" effect. Low break-away load after long standstills. Good extrusion resistance.	-30°C to +105°C	0.4 m/s	350 bar/5000 psi	PU 57 MoS2 Grey U203-GM95	NBR 70
		-60°C to +80°C	0.4 m/s	350 bar/5000 psi	UHMWPE	NBR 70
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE T101-W	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-40% Bronze T120-BR40	FPM 75
		-20°C to +210°C	0.4 m/s	350 bar/5000 psi	PTFE-25% Carbon T125-C25	FPM 75
RS19A 	Asymmetrical, single acting rotary seal with clamping flange. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions, no stick-slip effect.	-200°C to +80°C	2 m/s	150 bar/2200 psi	UHMWPE	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE T101-W	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-25% Carbon T125-C25	
PS19A 	Asymmetrical, single acting rotary seal with clamping flange. Preload effected through V-spring. Dynamic sealing lip shorter than static lip to avoid drag pressure. Excellent static and dynamic sealing performance. Useable for short and long stroke lengths. Low friction in dry running or poor lubrication conditions, no stick-slip effect.	-200°C to +80°C	2 m/s	150 bar/2200 psi	UHMWPE	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE T101-W	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	2 m/s	150 bar/2200 psi	PTFE-25% Carbon T125-C25	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
FL01A 	Especially designed for pressure from outside. Simple seal designed to maintain low costs. Variable dimensions to be used also in special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Wide application range. Simple mounting. Compact and simple grooves.	-30°C to +105°C	N/A	Contact us	PU Red U203-95	
		-30°C to +105°C	N/A	Contact us	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	N/A	Contact us	NBR 85 N107-85	
		-25°C to +150°C	N/A	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	N/A	Contact us	FPM 85 F109-BR85	
FL02B 	Especially designed for pressure from inside. Simple seal designed to maintain low costs. Variable dimensions to be used also in special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Wide application range. Simple mounting. Compact and simple grooves.	-30°C to +105°C	N/A	Contact us	PU Red U203-95	
		-30°C to +105°C	N/A	Contact us	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	N/A	Contact us	NBR 85 N107-85	
		-25°C to +150°C	N/A	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	N/A	Contact us	FPM 85 F109-BR85	
FL03 	Simple seal designed to maintain low costs. Variable dimensions to be used also in special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Wide application range. Simple mounting. Compact and simple grooves.	-30°C to +105°C	N/A	Contact us	PU Red U203-95	
		-30°C to +105°C	N/A	Contact us	PU 57 MoS2 Grey U203-GM95	
		-25°C to +100°C	N/A	Contact us	NBR 85 N107-85	
		-25°C to +150°C	N/A	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	N/A	Contact us	FPM 85 F109-BR85	
FL06 	A spring energised face seal for internal pressure. This profile offers high static sealing integrity over a wide temperature range with excellent chemical compatibility. Low bolt loading is required between flanges due to the flexible spring energisation of the seal. Can also be used in some rotary applications as a face seal.	-200°C to +80°C	Contact us	250 bar/3500 psi	UHMWPE	
		-200°C to +260°C	Contact us	250 bar/3500 psi	PTFE T101-W	
		-200°C to +260°C	Contact us	250 bar/3500 psi	PTFE-40% Bronze T120-BR40	
		-200°C to +260°C	Contact us	250 bar/3500 psi	PTFE-25% Carbon T125-C25	
OR 	Sealing over a wide range of pressures, temperatures and tolerances. Simple and compact design. Symmetrical profile cross section. Wide application ranges. Simple mounting. Compact and simple grooves. Easy and cost saving constructions possible.	-30°C to +105°C	Contact us	Contact us	PU Red U203-95	
		-25°C to +100°C	Contact us	Contact us	NBR 85 N107-85	
		-25°C to +150°C	Contact us	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	Contact us	Contact us	FPM 85 F109-BR85	
		-200°C to +260°C	Contact us	Contact us	PTFE T101-W	
ORH 	Used for special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Simple and compact design. Symmetrical profile cross section. Wide application ranges. Simple mounting. Compact and simple grooves. Easy and cost saving constructions possible.	-30°C to +105°C	Contact us	Contact us	PU Red U203-95	
		-25°C to +100°C	Contact us	Contact us	NBR 85 N107-85	
		-25°C to +150°C	Contact us	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	Contact us	Contact us	FPM 85 F109-BR85	
		-200°C to +260°C	Contact us	Contact us	PTFE T101-W	
ORV 	Used for special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Simple and compact design. Symmetrical profile cross section. Wide application ranges. Simple mounting. Compact and simple grooves. Easy and cost saving constructions possible.	-30°C to +105°C	Contact us	Contact us	PU Red U203-95	
		-25°C to +100°C	Contact us	Contact us	NBR 85 N107-85	
		-25°C to +150°C	Contact us	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	Contact us	Contact us	FPM 85 F109-BR85	
		-200°C to +260°C	Contact us	Contact us	PTFE T101-W	
QR01 	Better pressure distribution compared to O-Rings. Used for special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Wide application ranges. Simple mounting. Compact and simple grooves. Easy and cost saving constructions possible.	-30°C to +105°C	Contact us	Contact us	PU Red U203-95	
		-25°C to +100°C	Contact us	Contact us	NBR 85 N107-85	
		-25°C to +150°C	Contact us	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	Contact us	Contact us	FPM 85 F109-BR85	
		-200°C to +260°C	Contact us	Contact us	PTFE T101-W	
SS01 	Better pressure distribution compared to O-Rings. Flexible dimensioning of the seal for use also in special dimensioned grooves. Sealing over a wide range of pressures, temperatures and tolerances. Wide application ranges. Simple mounting. Compact and simple grooves. Easy and cost saving constructions possible.	-30°C to +105°C	Contact us	Contact us	PU Red U203-95	
		-25°C to +100°C	Contact us	Contact us	NBR 85 N107-85	
		-25°C to +150°C	Contact us	Contact us	HNBR 85 HN112-B85	
		-20°C to +210°C	Contact us	Contact us	FPM 85 F109-BR85	
		-200°C to +260°C	Contact us	Contact us	PTFE T101-W	

Profile	Description	Temperature	Speed max.	Pressure max.	Seal Material	Other Materials
P50 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one elastic sealing element and two back-up elements. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		
P51 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two back-up elements. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force. No drag pressure build-up.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		
P51G 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two back-up elements. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force. No drag pressure build-up.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-3°C0 to +105°C	0.5 m/s	400 bar/5800 psi*	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		
P52 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one elastic sealing element and two back-up elements that also have guiding properties. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force. No drag pressure build-up.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		
P53 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two integrated back-up elements that also have guiding properties. Useable for short and long stroke lengths. Good static and dynamic sealing performance. High frictional force. No drag pressure build-up.	-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	700 bar/10.000 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		
P54 	Double acting piston seal, designed with interference on the ID which provides a good static fit in the groove. Consisting of one gliding, one energizing and two integrated guiding / back-up elements. Useable for short and long stroke lengths. Good dynamic and static sealing performance. High frictional force.	-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU Red U203-95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
		-30°C to +105°C	0.5 m/s	400 bar/5800 psi*	PU 57 MoS2 Grey U203-GM95	NBR 85 N107-85 POM P101-WE
				* (1500 bar static)		

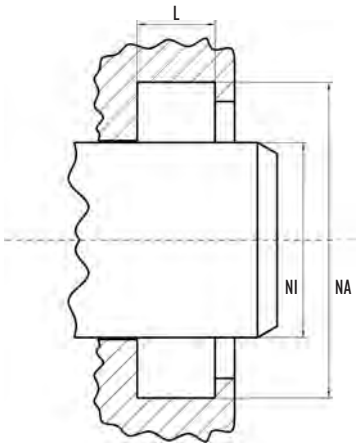
TYPICAL O-RING AND BACK-UP HOUSING SIZES



O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
1.50	1.10mm	2.10mm	3.10mm	4.10mm	1.00mm
1.78	1.35mm	2.50mm	3.50mm	4.50mm	1.00mm
2.00	1.56mm	2.70mm	4.20mm	5.70mm	1.50mm
2.50	2.05mm	3.30mm	4.80mm	6.30mm	1.50mm
2.62	2.18mm	3.50mm	5.00mm	6.50mm	1.50mm
3.00	2.50mm	3.90mm	5.40mm	6.90mm	1.50mm
3.53	3.00mm	4.40mm	5.90mm	7.40mm	1.50mm
4.00	3.40mm	5.00mm	6.70mm	8.40mm	1.70mm
5.00	4.25mm	6.30mm	8.00mm	9.70mm	1.70mm
5.33	4.50mm	6.70mm	8.40mm	10.10mm	1.70mm
5.70	4.85mm	7.10mm	9.10mm	11.10mm	2.00mm
6.00	5.10mm	7.50mm	9.50mm	11.50mm	2.00mm
6.99	5.94mm	8.80mm	10.80mm	12.80mm	2.00mm

Please refer to the O-Ring charts for standard O-Ring sizes

Tolerances



Tolerances	
L < 10mm	+ 0.2mm
L ≥ 10mm	+ 0.3mm
Ø NA	H 11
Ø NI	f 8

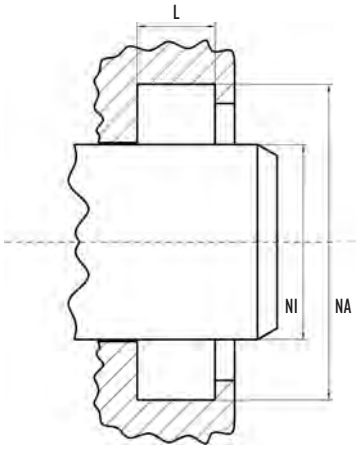
Surface roughness	Rt max	Ra
Bottom of groove	≤ 6.3µm	≤ 1.6µm
Face of groove	≤ 15µm	≤ 3.0µm

Sliding surface		
PU, elastomers	≤ 2.5µm	≤ 0.1 - 0.5µm
PTFE	≤ 2.0µm	≤ 0.05 - 0.3µm

NA = Outside diameter **NI** = Rod diameter **L** = Groove length

Profiles

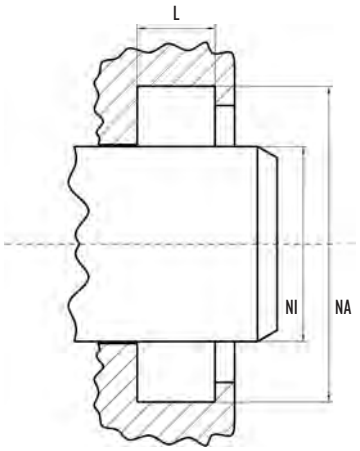
WR01
WR12



NI	NA	L
6 - 99mm	NI +8.0mm	4.0mm
100 - 149mm	NI +12.0mm	5.5mm
> 149mm	NI +15.0mm	6.5mm

Profiles

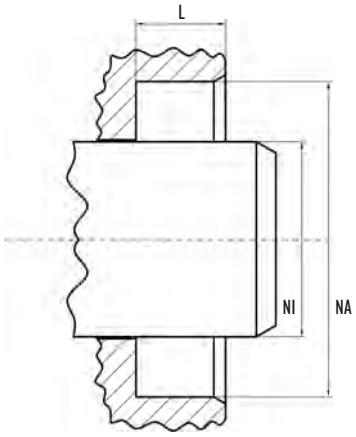
WR02
WR11



NI	NA	L
6 - 99mm	NI +8.0mm	5.0mm
100 - 149mm	NI +10.0mm	6.5mm
> 149mm	NI +15.0mm	8.5mm

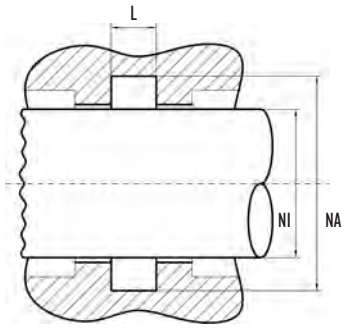
Profiles

WR03



NI	NA	L
6 - 99mm	NI +8.0mm	5.0mm
100 - 149mm	NI +10.0mm	7.5mm
150 - 199mm	NI +15.0mm	8.5mm
> 200mm	NI +20.0mm	12.0mm

Tolerances



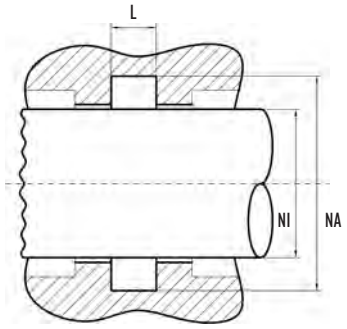
Tolerances	
L < 10mm	+ 0.2mm
L ≥ 10mm	+ 0.3mm
Ø NA	H 10
Ø NI	f 8

Surface roughness	Rt max	Ra
Bottom of groove	≤ 6.3µm	≤ 1.6µm
Face of groove	≤ 15µm	≤ 3.0µm
Sliding surface		
PU, elastomers	≤ 2.5µm	≤ 0.1 - 0.5µm
PTFE	≤ 2.0µm	≤ 0.05 - 0.3µm

NA = Outside diameter **NI** = Rod diameter **L** = Groove length

Profiles

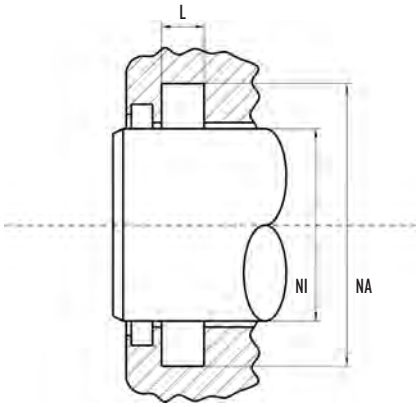
RS01
RS02
RS03
RS04
RS05
RS06
RS07
RS08
RS17
RS19
RS35



NI	NA	L
6 - 24mm	NI +8.0mm	6.0mm
25 - 49mm	NI +10.0mm	8.0mm
40 - 149mm	NI +15.0mm	10.0mm
150 - 299mm	NI +20.0mm	15.0mm
300 - 499mm	NI +25.0mm	18.0mm
500 - 699mm	NI +30.0mm	25.0mm
> 700mm	NI +35.0mm	30.0mm

Profiles

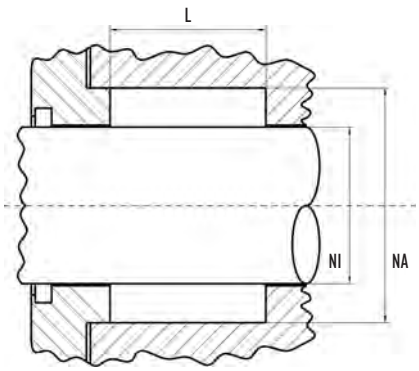
RS09
RS09A
RS09B
RS91
RS91B



NI	NA	L
5 - 7mm	NI +4.9mm	2.2mm
8 - 19mm	NI +7.3mm	2.2mm
20 - 39mm	NI +10.7mm	4.2mm
40 - 199mm	NI +15.1mm	6.3mm
200 - 259mm	NI +20.5mm	8.1mm
260 - 699mm	NI +24.0mm	8.1mm
> 700mm	NI +27.3mm	9.5mm

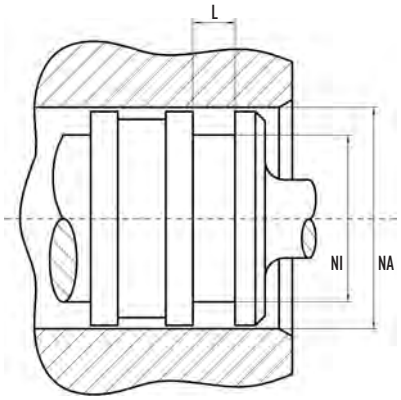
Profiles

RS31-33
PRS10-12
PRS13-15



NI	NA	L
10 - 39mm	NI +10.0mm	16.0mm
40 - 79mm	NI +15.0mm	25.0mm
80 - 159mm	NI +20.0mm	30.5mm
160 - 219mm	NI +25.0mm	38.0mm
220 - 299mm	NI +30.0mm	48.0mm
> 300mm	NI +40.0mm	65.0mm

Tolerances



Tolerances	
L < 10mm	+ 0.2mm
L ≥ 10mm	+ 0.3mm
Ø NA	H 9
Ø NI	h 10

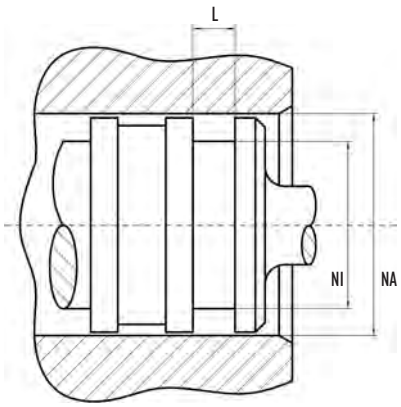
Surface roughness	Rt max	Ra
Bottom of groove	≤ 6.3µm	≤ 1.6µm
Face of groove	≤ 15µm	≤ 3.0µm

Sliding surface		
PU, elastomers	≤ 2.5µm	≤ 0.1 - 0.5µm
PTFE	≤ 2.0µm	≤ 0.05 - 0.3µm

NA = Outside diameter **NI** = Groove diameter **L** = Groove length

Profiles

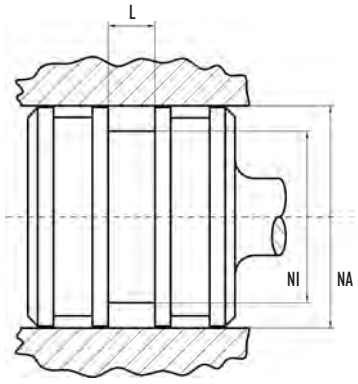
PS01
PS02
PS03
PS04
PS05
PS19
PS35



NA	NI	L
6 - 24mm	NA -8.0mm	6.0mm
25 - 49mm	NA -10.0mm	8.0mm
50 - 74mm	NA -12.0mm	8.5mm
75 - 149mm	NA -16.0mm	10.0mm
150 - 299mm	NA -20.0mm	12.0mm
300 - 499mm	NA -25.0mm	18.0mm
> 500mm	NA -35.0mm	26.0mm

Profiles

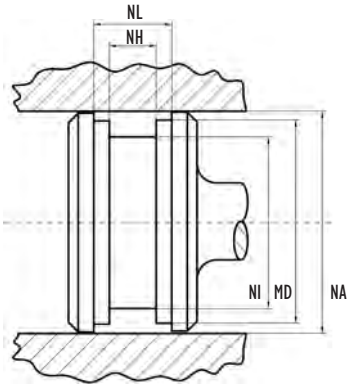
PS08
PS08A
PS08B
PS08C
PS08E
PS08F
PS81



NA	NI	L
8 - 14mm	NA -4.9mm	2.2mm
15 - 39mm	NA -7.5mm	3.2mm
40 - 74mm	NA -11.0mm	4.2mm
75 - 149mm	NA -15.5mm	6.3mm
150 - 299mm	NA -21.0mm	8.1mm
300 - 699mm	NA -24.5mm	8.1mm
> 700mm	NA -28.0mm	9.5mm

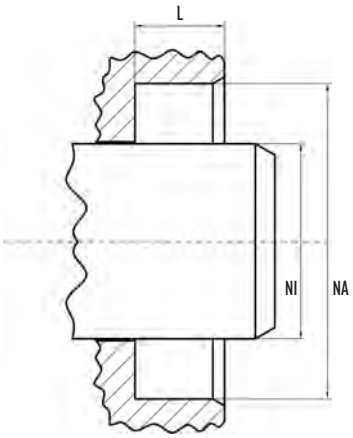
Profiles

PS09
PS17



NA	NI	MD	NH	NL
20 - 49mm	NA -20.0mm	NA -3.0mm	12.5mm	20.0mm
50 - 79mm	NA -15.0mm	NA -4.0mm	20.0mm	28.0mm
80 - 149mm	NA -20.0mm	NA -5.0mm	25.0mm	35.0mm
150 - 399mm	NA -25.0mm	NA -6.0mm	30.0mm	45.0mm
400 - 699mm	NA -30.0mm	NA -8.0mm	35.0mm	50.0mm
> 700mm	NA -40.0mm	NA -8.0mm	40.0mm	55.0mm

Tolerances



Tolerances	
L < 10mm	+ 0.2mm
L ≥ 10mm	+ 0.3mm
Ø NA	H 8
Ø NI	f 7

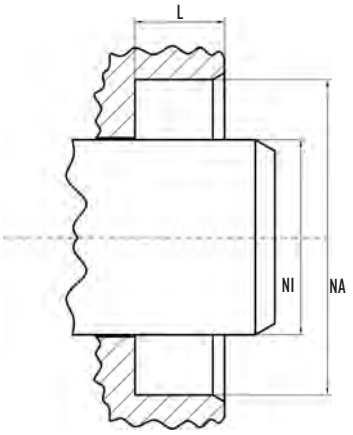
Surface roughness	Rt max	Ra
Bottom of groove	≤ 10µm	≤ 1.8µm
Face of groove	≤ 15µm	≤ 3.0µm

Sliding surface		
PU, elastomers	≤ 2.5µm	≤ 0.1 - 0.5µm
PTFE	≤ 2.0µm	≤ 0.05 - 0.3µm

NA = Outside diameter **NI** = Rod diameter **L** = Groove length

Profiles

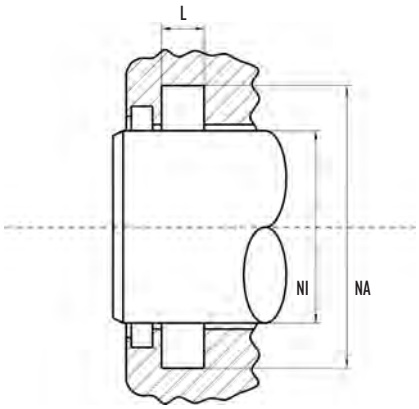
OS01
OS02



NI	NA	L
6 - 59mm	NI +12.0mm	7.0mm
60 - 149mm	NI +15.0mm	8.0mm
150 - 299mm	NI +20.0mm	10.0mm
300 - 499mm	NI +30.0mm	12.0mm
500 - 699mm	NI +40.0mm	22.0mm
> 700mm	NI +50.0mm	25.0mm

Profiles

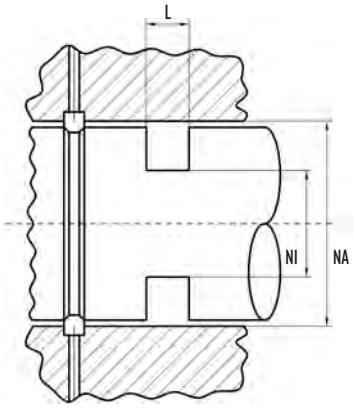
R08
R08D
R09
R09A



NI	NA	L
6 - 19mm	NI +4.9mm	2.2mm
20 - 39mm	NI +7.5mm	3.2mm
40 - 199mm	NI +11.0mm	4.2mm
200 - 259mm	NI +15.5mm	6.3mm
260 - 699mm	NI +21.0mm	8.1mm
> 700mm	NI +28.0mm	9.5mm

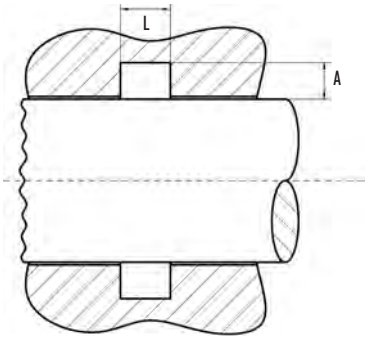
Profiles

R10
R10A
R11



NI	NA	L
15 - 39mm	NI +7.5mm	3.2mm
40 - 74mm	NI +11.0mm	4.2mm
75 - 149mm	NI +15.5mm	6.3mm
150 - 299mm	NI +21.0mm	8.1mm
300 - 699mm	NI +24.5mm	8.1mm
> 700mm	NI +28.0mm	9.5mm

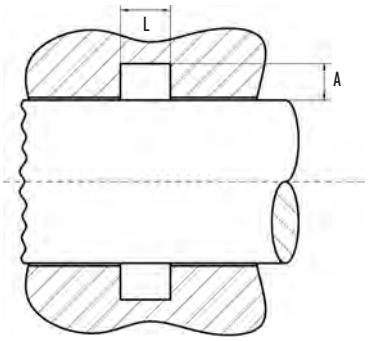
Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter		Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter	
	ins	mm	ins	mm	ins	mm	ins	mm		ins	mm	ins	mm	ins	mm	ins	mm
BS001*	1/32	0,8	.095	2,5	0.029	0,73	.040	1,02	**BS042**	3.1/4	82	3.3/8	86	3.239	82,28	.015	0,38
BS002*	3/64	1,2	.130	3,3	0.042	1,07	.050	1,27	**BS534**	3.3/8	85	3.1/2	90	3.360	85,34	.020	0,51
BS003*	1/16	1,6	.160	4,1	0.056	1,42	.060	1,53	**BS043**	3.1/2	88,5	3.5/8	92	3.489	88,64	.015	0,38
BS606*	5/64	2		3,8	0.070	1,78	.040	1,02	**BS536**	3.5/8	91,5	3.3/4	96	3.610	91,7	.020	0,51
BS607*	7/64	2,8		4,5	0.100	2,54	.040	1,02	**BS044**	3.3/4	95	3.7/8	99	3.739	95	.015	0,38
Cross Section 1/16" Nominal .070" ± .003" (1,78mm ± 0,08mm)									**BS538**	3.7/8	98	4	102	3.860	98,05	.020	0,51
BS004*	5/64	2	13/64	5	0.070	1,78	.005	0,13	**BS045**	4	101	4.1/8	105	3.989	101,34	.015	0,38
BS005*	7/64	2,8	15/64	6	0.101	2,57	.005	0,13	**BS540**	4.1/8	104	4.1/4	109	4.110	104,4	.020	0,51
BS006*	1/8	3	1/4	6,3	0.114	2,90	.005	0,13	**BS046**	4.1/4	107	4.3/8	112	4.239	107,7	.015	0,38
BS801*		3,2		6,5	0.125	3,17	.005	0,13	**BS542**	4.3/8	110,5	4.1/2	115	4.360	110,74	.020	0,51
BS007*	5/32	4	9/32	7	0.145	3,69	.005	0,13	**BS047**	4.1/2	114	4.5/8	118	4.489	114	.015	0,38
BS008*	3/16	4,5	5/16	8	0.176	4,47	.005	0,15	**BS544**	4.5/8	116	4.3/4	121	4.610	117,1	.020	0,51
BS802*		4,7		8,3	0.187	4,76	.005	0,13	**BS048**	4.3/4	120	4.7/8	124	4.739	120,4	.015	0,38
BS009*	7/32	5,5	11/32	8,7	0.208	5,28	.005	0,13	**BS546**	4.7/8	123	5	127	4.860	123,44	.020	0,51
BS010*	1/4	6	3/8	9,5	0.239	6,07	.005	0,13	**BS049**	5	127	5.1/8	130	4.989	126,76	.023	0,58
BS803*		6,3		10	0.250	6,35	.005	0,13	**BS548**	5.1/8	130	5.1/4	133	5.095	129,4	.028	0,71
BS610*	17/64	6,7		10,2	0.266	6,75	.005	0,13	**BS050**	5.1/4	133	5.3/8	136	5.239	133,1	.023	0,58
BS011*	5/16	7,6	7/16	11	0.301	7,66	.005	0,13	**BS550**	5.3/8	136	5.1/2	140	5.345	135,76	.028	0,71
BS804*		8		11,5	0.312	7,94	.005	0,13	**BS551**	5.1/2	139	5.5/8	143	5.470	138,94	.028	0,71
BS611*	11/32	8,7	15/32	12	0.344	8,73	.005	0,13	**BS552**	5.5/8	142	5.3/4	146	5.595	142,11	.028	0,71
BS012*	3/8	9,5	1/2	12,7	0.364	9,25	.005	0,13	**BS553**	5.3/4	145	5.7/8	149	5.720	145,29	.028	0,71
BS013	7/16	11	9/16	14,2	0.426	10,82	.005	0,13	**BS554**	5.7/8	148	6	152	5.845	148,46	.028	0,71
BS806	7/16	11		14,5	0.437	11,11	.005	0,13	**BS555**	6	151	6.1/8	156	5.970	151,64	.028	0,71
BS014	1/2	12,5	5/8	15,6	0.489	12,42	.005	0,13	**BS556**	6.1/8	155	6.1/4	160	6.095	154,81	.028	0,71
BS015	9/16	14	11/16	17,2	0.551	14	.005	0,13	**BS557**	6.1/4	158	6.3/8	163	6.220	158	.028	0,71
BS016	5/8	15,5	3/4	18,8	0.614	15,60	.005	0,13	**BS558**	6.3/8	161	6.1/2	166	6.345	161,16	.028	0,71
BS017	11/16	17,4	13/16	20,5	0.676	17,16	.005	0,13	**BS559**	6.1/2	164	6.5/8	169	6.470	164,34	.028	0,71
BS018	3/4	19	7/8	22	0.739	18,77	.005	0,13	**BS560**	6.5/8	167	6.3/4	172	6.695	167,51	.028	0,71
BS019	13/16	20,5	15/16	23,5	0.801	20,35	.006	0,15	**BS561**	6.3/4	170	6.7/8	175	6.720	170,69	.028	0,71
BS020	7/8	22	1	25,4	0.864	21,95	.006	0,15	**BS562**	6.7/8	174	7	179	6.845	173,87	.028	0,71
BS021	15/16	23,5	1.1/16	26,8	0.926	23,52	.006	0,15	**Cross Section 3/32" Nominal .103" ± .003" (2,62mm ± 0,08mm)**								
BS022	1	25	1.1/8	28,5	0.989	25,12	.006	0,15	**BS102***	1/16	1,6	1/4	6,0	0.049	1,24	.004	0,10
BS023	1.1/16	27	1.3/16	30	1.051	26,70	.006	0,15	**BS103***	3/32	2,4	9/32	7,0	0.081	2,06	.005	0,13
BS024	1.1/8	28	1.1/4	31,5	1.114	28,30	.006	0,15	**BS104***	1/8	3,0	5/16	7,6	0.112	2,84	.005	0,13
BS025	1.3/16	30	1.5/16	33,5	1.176	29.87	.006	0,15	**BS105***	5/32	4,0	11/32	8,7	0.143	3,63	.005	0,13
BS026	1.1/4	31,5	1.3/8	35	1.239	31,47	.006	0,15	**BS106***	3/16	4,5	3/8	9,5	0.174	4,42	.005	0,13
BS027	1.5/16	33	1.7/16	36,3	1.301	33,05	.006	0,15	**BS107***	7/32	5,5		10,2	0.206	5,23	.005	0,13
BS028	1.3/8	34,5	1.1/2	38	1.364	34,65	.006	0,15	**BS108***	1/4	6	7/16	11	0.237	6,02	.005	0,13
BS517	1.7/16	36	1.9/16	40	1.428	36,27	.015	0,38	**BS109***	5/16	7,6	1/2	12,7	0.299	7,60	.005	0,13
BS029	1.1/2	38	1.5/8	41	1.489	37,82	.010	0,25	**BS110***	3/8	9,5	9/16	14,2	0.362	9,19	.005	0,13
BS519	1.9/16	39,5	1.11/16	43	1.553	39.45	.015	0,38	**BS613***	25/64	9,9	37/64	14,6	0.391	9,92	.005	0,13
BS030	1.5/8	41	1.3/4	44,5	1.614	41	.010	0,25	**BS111***	7/16	11	5/8	15,6	0.424	10,78	.005	0,13
BS031	1.3/4	44	1.7/8	47	1.739	44,17	.010	0,25	**BS614***	15/32	11,9	21/32	16,6	0.469	11,91	.005	0,13
BS032	1.7/8	47	2	51	1.864	47,34	.010	0,25	**BS112***	1/2	12,5	11/16	17,2	0.487	12,37	.005	0,13
BS033	2	50	2.1/8	54	1.989	50,52	.010	0,25	**BS807***	1/2	12,5	–	17,5	0.500	12,70	.005	0,13
BS034	2.1/8	53	2.1/4	58	2.114	53,67	.010	0,25	**BS615***	33/64	13	45/64	17,8	0.516	13,10	.005	0,13
BS035	2.1/4	56,5	2.3/8	61	2.239	56,87	.010	0,25	**BS113***	9/16	14	3/4	18,8	0.549	13,95	.005	0,13
BS036	2.3/8	60	2.1/2	64	2.364	6,04	.010	0,25	**BS616***	19/32	15	25/32	19,8	0.594	15,08	.005	0,13
BS037	2.1/2	63	2.5/8	67	2.489	63,22	.010	0,25	**BS114***	5/8	15,5	13/16	20,5	0.612	15,54	.005	0,13
BS038	2.5/8	66	2.3/4	70	2.614	66,4	.010	0,25	**BS809***	–	15,8	–	21	0.625	15,88	.005	0,13
BS039	2.3/4	69,5	2.7/8	74	2.739	69,57	.015	0,38	**BS115***	11/16	17,4	7/8	22	0.674	17,13	.005	0,13
BS040	2.7/8	73	3	77	2.864	72,76	.015	0,38	**BS810***	11/16	17,4	–	22,5	0.687	17,46	.005	0,13
BS041	3	76	3.1/8	80	2.989	75,94	.015	0,38	**BS617***	–	17,8	–	23	0.703	17,86	.005	0,13
BS532	3.1/8	79	3.1/4	83	3.110	79	.020	0,51	**BS116***	3/4	19	15/16	23,5	0.737	18,72	.005	0,13



* Items indicated are suitable for dynamic application

O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
1.78	1.35mm	2.50mm	3.50mm	4.50mm	1.00mm
2.62	2.18mm	3.50mm	5.00mm	6.50mm	1.50mm

Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter		Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter	
	ins	mm	ins	mm	ins	mm	ins	mm		ins	mm	ins	mm	ins	mm	ins	mm
BS117	13/16	20,5	1	25,4	0.799	20,29	.006	0,15	**BS164**	6.1/4	158	6.7/16	164	6.237	158,43	.023	0,58
BS812	–	21	–	26	0.812	20,54	.006	0,15	**BS165**	6.1/2	164	6.11/16	170	6.487	164,78	.023	0,58
BS118	7/8	22	1.1/16	26,8	0.862	21,90	.006	0,15	**BS166**	6.3/4	170	6.15/16	177	6.737	171,13	.023	0,58
BS813	–	22,5	–	27,5	0.875	22,23	.006	0,15	**BS167**	7	177	7.3/16	183	6.987	177,48	.023	0,58
BS119	15/16	23,5	1.1/8	28,5	0.924	23,47	.006	0,15	**BS168**	7.1/4	183	7.7/16	190	7.237	183,83	.030	0,76
BS814	–	23,8	–	29	0.937	23,81	.006	0,15	**BS169**	7.1/2	190	7.11/16	196	7.487	190,18	.030	0,76
BS120	1	25	1.3/16	30	0.987	25,07	.006	0,15	**BS170**	7.3/4	196	7.15/16	202	7.737	196,53	.030	0,76
BS121	1.1/16	27	1.1/4	31,5	1.049	26,65	.006	0,15	**BS171**	8	202	8.3/16	209	7.987	202,88	.030	0,76
BS122	1.1/8	28	1.5/15	33,5	1.112	28,25	.006	0,15	**BS172**	8.1/4	209	8.7/16	215	8.237	209,23	.030	0,76
BS123	1.3/16	30	1.3/8	35	1.174	29,83	.006	0,15	**BS173**	8.1/2	215	8.11/16	222	8.487	215,58	.030	0,76
BS124	1.1/4	31,5	1.7/16	36,3	1.237	31,42	.006	0,15	**BS174**	8.3/4	221	8.15/6	228	8.737	221,93	.030	0,76
BS125	1.5/16	33	1.1/2	38	1.299	33	.006	0,15	**BS175**	9	228	9.3/16	234	8.987	228,28	.030	0,76
BS126	1.3/8	34,5	1.9/16	40	1.362	34,60	.006	0,15	**BS176**	9.1/4	234	9.7/16	240	9.237	234,63	.030	0,76
BS127	1.7/16	36	1.5/8	41	1.424	36,17	.006	0,15	**BS177**	9.1/2	240	9.11/16	247	9.487	240,98	.030	0,76
BS128	1.1/2	38	1.11/16	43	1.487	37,77	.006	0,15	**BS178**	9.3/4	247	9.15/16	253	9.737	247,33	.030	0,76
BS129	1.9/16	39,5	1.3/4	44,5	1.549	39,35	.010	0,25	**Cross Section 1/8" Nominal .139" ± .004" (3,53mm ± 0,10mm)**								
BS130	1.5/8	41	1.13/16	46	1.612	40,95	.010	0,25	**BS201**	3/16	4,5	7/16	11,0	0.171	4,34	.005	0,13
BS131	1.11/16	42,5	1.7/8	47	1.674	42,52	.010	0,25	**BS202**	1/4	6,0	1/2	12,5	0.234	5,94	.005	0,13
BS132	1.3/4	44	1.15/16	49	1.737	44,12	.010	0,25	**BS203**	5/16	7,6	9/16	14,0	0.296	7,52	.005	0,13
BS133	1.13/16	45,5	2	51	1.799	45,70	.010	0,25	**BS204**	3/8	9,5	5/8	15,5	0.359	9,12	.005	0,13
BS134	1.7/8	47	2.1/16	53	1.862	47,30	.010	0,25	**BS205**	7/16	11,0	11/16	17,4	0.421	10,69	.005	0,13
BS135	1.15/16	49	2.1/8	54	1.925	48,90	.010	0,25	**BS206**	1/2	12,5	3/4	19,0	0.484	12,29	.005	0,13
BS136	2	50	2.3/16	56	1.987	50,47	.010	0,25	**BS207**	9/16	14,0	13/16	20,5	0.546	13,87	.005	0,13
BS137	2.1/16	52	2.1/4	58	2.050	52,07	.010	0,25	**BS208**	5/8	15,5	7/8	22,0	0.609	15,47	.005	0,13
BS138	2.1/8	53	2.5/16	59	2.112	53,65	.010	0,25	**BS209**	11/16	17,4	15/16	23,5	0.671	17,04	.005	0,13
BS139	2.3/16	55	2.3/8	61	2.175	55,25	.010	0,25	**BS210**	3/4	19	1	25,4	0.734	18,64	.006	0,15
BS140	2.1/4	56,5	2.7/16	62,5	2.237	56,82	.010	0,25	**BS211**	13/16	20,5	1.1/16	26,8	0.796	20,22	.006	0,15
BS141	2.5/16	58,5	2.1/2	64	2.300	58,42	.010	0,25	**BS212**	7/8	22	1.1/8	28,5	0.859	21,82	.006	0,15
BS142	2.3/8	60	2.9/16	66	2.362	60	.010	0,25	**BS213**	15/16	23,5	1.3/16	30	0.921	23,4	.006	0,15
BS143	2.7/16	61,5	2.5/8	67	2.425	61,60	.010	0,25	**BS214**	1	25	1.1/4	31,5	0.984	25	.006	0,15
BS144	2.1/2	63	2.11/16	69	2.487	63,17	.010	0,25	**BS618**	1.1/64	25,5	–	33	1.016	25,8	.006	0,15
BS145	2.9/16	65	2.3/4	70	2.550	64,77	.010	0,25	**BS215**	1.1/16	27	1.5/16	33,5	1.086	26,57	.006	0,15
BS146	2.5/8	66	2.13/16	72	2.612	66,35	.010	0,25	**BS216**	1.1/8	28	1.3/8	35	1.109	28,17	.006	0,15
BS147	2.11/16	68	2.7/8	74	2.675	67,95	.015	0,38	**BS217**	1.3/16	30	1.7/16	36,3	1.171	29,75	.006	0,15
BS148	2.3/4	69,5	2.15/16	75	2.737	69,52	.015	0,38	**BS218**	1.1/4	31,5	1.1/2	38	1.234	31,34	.006	0,15
BS149	2.13/16	71	3	77	2.800	71,12	.015	0,38	**BS219**	1.5/16	33	1.9/16	40	1.296	32,93	.006	0,15
BS150	2.7/8	73	3.1/16	78	2.862	72,70	.015	0,38	**BS220**	1.3/8	34,5	1.5/8	41	1.359	34,52	.006	0,15
BS640	2.15/16	74,5	31/8	80	2.924	74,30	.015	0,38	**BS221**	1.7/16	36	1.11/16	43	1.421	36,1	.006	0,15
BS151	3	76	3.3/16	82	2.987	75,88	.015	0,38	**BS222**	1.1/2	38	1.3/4	44,5	1.484	37,7	.006	0,15
BS641	3.1/16	77	3.1/4	83	3.049	77,50	.015	0,38	**BS824**	1.9/16	39,5	1.13/16	46	1.563	39,7	.010	0,25
BS642	3.3/16	80,5	3.3/8	86	3.174	80,60	.015	0,38	**BS223**	1.5/8	41	1.7/8	47	1.609	40,87	.010	0,25
BS152	3.1/4	82	3.7/16	88	3.237	82,22	.015	0,38	**BS825**	1.5/8	41	–	48,5	1.625	41,28	.010	0,25
BS643	3.5/16	84	3.1/2	90	3.299	83,80	.015	0,38	**BS826**	1.11/16	42,5	1.15/16	49	1.687	42,86	.010	0,25
BS153	3.1/2	88,5	3.11/16	94	3.487	88,58	.015	0,38	**BS224**	1.3/4	44	2	51	1.734	44,05	.010	0,25
BS154	3.3/4	95	3.15/16	101	3.737	94,93	.015	0,38	**BS827**	–	44,5	–	52	1.750	44,45	.010	0,25
BS155	4	101	4.3/16	107	3.987	101,28	.015	0,38	**BS828**	1.13/16	45,5	2.1/16	53	1.812	46,04	.010	0,25
BS156	4.1/4	107	4.7/16	113	4.237	107,63	.015	0,38	**BS225**	1.7/8	47	2.1/8	54	1.859	47,23	.010	0,25
BS157	4.1/2	114	4.11/16	120	4.487	113,98	.015	0,38	**BS829**	–	47,5	–	55	1.875	47,62	.010	0,25
BS158	4.3/4	120	4.15/16	126	4.737	120,33	.015	0,38	**BS830**	1.15/16	49	2.3/16	56	1.937	49,2	.010	0,25
BS159	5	127	5.3/16	132	4.987	126,67	.015	0,38	**BS226**	2	50	2.1/4	58	1.984	50,4	.010	0,25
BS160	5.1/4	133	5.7/16	138	5.237	133	.023	0,58	**BS831**	–	50,5	–	58,5	2.000	50,8	.010	0,25
BS161	5.1/2	139	5.11/16	145	5.487	139,38	.023	0,58	**BS832**	2.1/16	52	2.5/16	59	2.062	52,4	.010	0,25
BS162	5.3/4	145	5.15/16	151	5.737	145,73	.023	0,58	**BS227**	2.1/8	53	2.3/8	61	2.109	53,57	.010	0,25
BS163	6	151	6.3/16	158	5.987	152,07	.023	0,58	**BS833**	–	53.5	–	61,5	2.125	53,97	.010	0,25

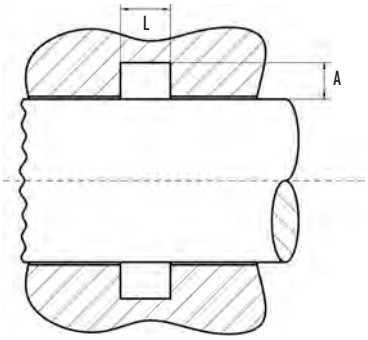


* Items indicated are suitable for dynamic application

O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
1.78	1.35mm	2.50mm	3.50mm	4.50mm	1.00mm
2.62	2.18mm	3.50mm	5.00mm	6.50mm	1.50mm

Size Ref:	To suit SHAFT ins	mm	To suit CYLINDER ins	mm	Internal Diameter ins	mm	Tolerance on Int. Diameter ins	mm
BS834	2.3/16	55	2.7/16	62,5	2.187	55,56	.010	0,25
BS228	2.1/4	56,5	2.1/2	64	2.234	56,75	.010	0,25
BS835	–	57	–	64,5	2.250	57,15	.010	0,25
BS836	25/16	58,5	2.9/16	66	2.312	58,74	.010	0,25
BS229	2.3/8	60	2.5/8	67	2.359	59,92	.010	0,25
BS837	2.3/8	60	–	68	2.375	60,32	.010	0,25
BS838	2.7/16	61,5	2.11/16	69	2.437	61,9	.010	0,25
BS230	2.1/2	63	2.3/14	70	2.484	63,1	.010	0,25
BS839	–	63,5	–	70,5	2.500	63,5	.010	0,25
BS840	2.9/16	65	2.13/16	72	2.563	65.1	.010	0,25
BS231	2.5/8	66	.27/8	74	2.609	66,27	.010	0,25
BS841	–	66,5	–	74,5	2.625	66,67	.015	0,38
BS842	2.11/16	68	2.15/16	75	2.687	68,26	.015	0,38
BS232	2.3/4	69,5	3	77	2.734	69,44	.015	0,38
BS843	2.13/16	71	–	77,5	2.750	69,85	.015	0,38
BS844	–	72	3.1/16	78	2.812	71,44	.015	0,38
BS233	2.7/8	73	3.1/8	80	2.859	72,62	.015	0,38
BS845	–	74	–	80,5	2.875	73,02	.015	0,38
BS846	2.15/16	74,5	3.3/16	82	2.937	74,6	.015	0,38
BS234	3	76	3.1/4	83	2.984	75,8	.015	0,38
BS235	3.1/8	79	3.3/8	86	3.109	78,97	.015	0,38
BS236	3.1/4	82	3.1/2	90	3.234	82,14	.015	0,38
BS237	3.3/8	85	3.5/8	92	3.359	85,32	.015	0,38
BS238	3.1/2	88,5	3.3/4	96	3.484	88,5	.015	0,38
BS239	3.5/8	91,5	3.7/8	99	3.609	91,67	.015	0,38
BS240	3.3/4	95	4	102	3.734	94,84	.015	0,38
BS241	3.7/8	98	4.1/8	105	3.859	98,02	.015	0,38
BS242	4	101	4.1/4	109	3.984	101,2	.015	0,38
BS243	4.1/8	104	4.3/8	112	4.109	104,37	.015	0,38
BS244	4.1/4	107	4.1/2	115	4.234	107,54	.015	0,38
BS245	4.3/8	110,5	4.5/8	118	4.359	110,72	.015	0,38
BS246	4.1/2	114	4.3/4	121	4.484	113,9	.015	0,38
BS247	4.5/8	116	4.7/8	124	4.609	117,07	.015	0,38
BS248	4.3/4	120	5	127	4.734	120,24	.015	0,38
BS249	4.7/8	123	5.1/8	130	4.859	123,42	.015	0,38
BS250	5	127	5.1/4	133	4.984	126,6	.015	0,38
BS251	5.1/8	130	5.3/8	136	5.109	129,77	.023	0,58
BS252	5.1/4	133	5.1/2	140	5.234	132,94	.023	0,58
BS253	5.3/8	136	5.5/8	143	5.359	136,12	.023	0,58
BS254	5.1/2	139	5.3/4	146	5.484	139,3	.023	0,58
BS255	5.5/8	142	5.7/8	149	5.609	142,47	.023	0,58
BS256	5.3/4	145	6	152	5.734	145,65	.023	0,58
BS257	5.7/8	184	6.1/8	156	5.859	148,82	.023	0,58
BS258	6	151	6.1/4	160	5.984	152	.023	0,58
BS259	6.1/4	158	6.1/2	166	6.234	158,35	.023	0,58
BS260	6.1/2	164	6.3/4	172	6.484	164,7	.023	0,58
BS261	6.3/4	170	7	179	6.734	171,05	.023	0,58
BS262	7	177	7.1/4	185	6.984	177,4	.023	0,58
BS263	7.1/4	183	7.1/2	191	7.234	183,75	.030	0,76
BS264	7.1/2	190	7.3/4	198	7.484	190,1	.030	0,76
BS265	7.3/4	196	8	204	7.734	196,45	.030	0,76
BS266	8	202	8.1/4	210	7.984	202,8	.030	0,76
BS267	8.1/4	209	8.1/2	217	8.234	209,15	.030	0,76
BS268	8.1/2	215	8.3/4	223	8.484	215,5	.030	0,76

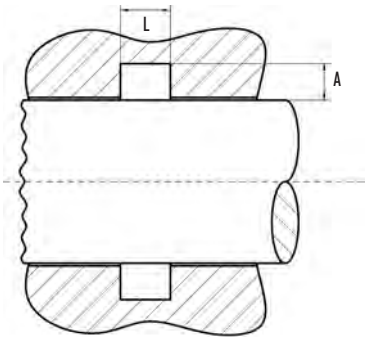
Size Ref:	To suit SHAFT ins	mm	To suit CYLINDER ins	mm	Internal Diameter ins	mm	Tolerance on Int. Diameter ins	mm
BS269	8.3/4	221	9	230	8.734	221,85	.030	0,76
BS270	9	228	9.1/4	236	8.984	228.2	.030	0,76
BS271	9.1/4	234	9.1/2	242	9.234	234,55	.030	0,76
BS272	9.1/2	240	9.3/4	249	9.484	240,9	.030	0,76
BS273	9.3/4	247	10	255	9.734	247,25	.030	0,76
BS274	10	253	10.1/4	262	9.984	253.6	.030	0,76
BS275	10.1/2	266	10.3/4	274	10.484	266,3	.030	0,76
BS276	11	278	11.1/4	287	10.984	279	.030	0,76
BS277	11.1/2	291	11.3/4	300	11.484	291,7	.030	0,76
BS278	12	304	12.1/4	312	11.984	304,4	.030	0,76
BS279	13	330	13.1/4	338	12.984	329,8	.030	0,76
BS280	14	355	14.1/4	363	13.984	355,2	.030	0,76
BS281	15	380	15.1/4	389	14.984	380,6	.030	0,76
BS282	16	405	16.1/4	414	15.955	405,26	.045	1,14
BS283	17	431	17.1/4	440	16.955	430,66	.045	1,14
BS284	18	456	18.1/4	465	17.955	456,06	.045	1,14
Cross Section 3/16" Nominal .210" ± .005" (5,33mm ± 0,13mm)								
BS309	7/16	11,0	13/16	20,5	0.412	10,46	.005	0,13
BS310	1/2	12,5	7/8	22,0	0.475	12,07	.005	0,13
BS311	9/16	14,0	15/16	23,5	0.537	13,64	.005	0,13
BS312	5/8	15,5	1	25,0	0.600	15,24	.005	0,13
BS313	11/16	17,4	1.1/16	27,0	0.662	16,81	.005	0,13
BS314	3/4	19,0	1.1/8	28,0	0.725	18,42	.005	0,13
BS315	13/16	20,5	1.3/16	30,0	0.787	19,99	.006	0,15
BS316	7/8	22,0	1.1/4	31,5	0.850	21,59	.006	0,15
BS317	15/16	23,5	1.5/16	33,0	0.912	23,16	.006	0,15
BS318	1	25,0	1.3/8	34,5	0.975	24,77	.006	0,15
BS319	1.1/16	27,0	1.7/16	36,3	1.037	26,34	.006	0,15
BS320	1.1/8	28,0	1.1/2	38,0	1.100	27,94	.006	0,15
BS321	1.3/16	30,0	1.9/16	40,0	1.162	29,51	.006	0,15
BS322	1.1/4	31,5	1.5/8	41,0	1.225	31,12	.006	0,15
BS323	1.5/16	33,0	1.11/16	43,0	1.287	32,69	.006	0,15
BS324	1.3/8	34,5	1.3/4	44,5	1.350	34,29	.006	0,15
BS325	1.1/2	38	1.7/8	47	1.475	37,47	.010	0,25
BS326	1.5/8	41	2	51	1.600	40,65	.010	0,25
BS327	1.3/4	44	2.1/8	54	1.725	43,82	.010	0,25
BS328	1.7/8	47	2.1/4	58	1.850	47	.010	0,25
BS329	2	50	2.3/8	61	1.975	50,16	.010	0,25
BS330	2.1/8	53	2.1/2	64	2.100	53,34	.010	0,25
BS331	2.1/4	56,5	2.5/8	67	2.225	56,52	.010	0,25
BS332	2.3/8	60	2.3/4	70	2.350	59,70	.010	0,25
BS333	2.1/2	63	2.7/8	74	2.475	62,87	.010	0,25
BS334	2.5/8	66	3	77	2.600	66,04	.010	0,25
BS335	2.3/4	69,5	3.1/8	80	2.725	69,22	.015	0,38
BS336	2.7/8	73	3.1/4	83	2.850	72,40	.015	0,38
BS619	2.15/16	74,5	3.5/16	85	2.938	74,63	.015	0,38
BS337	3	76	3.3/8	86	2.975	75.57	.015	0,38
BS338	3.1/8	79	3.1/2	90	3.100	78,74	.015	0,38
BS620	–	80	–	91	3.141	79,77	.015	0,38
BS339	3.1/4	82	3.5/8	92	3.225	81,92	.015	0,38
BS340	3.3/8	85	3.3/4	96	3.350	85,10	.015	0,38
BS341	3.1/2	88,5	3.7/8	99	3.475	88,27	.015	0,38
BS621	3.9/16	90	3.15/16	101	3.531	89,69	.015	0,38
BS342	3.5/8	91,5	4	102	3.600	91,44	.015	0,38



* Items indicated are suitable for dynamic application

O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
2.62	2.18mm	3.50mm	5.00mm	6.50mm	1.50mm
5.33	4.50mm	6.70mm	8.40mm	10.10mm	1.70mm

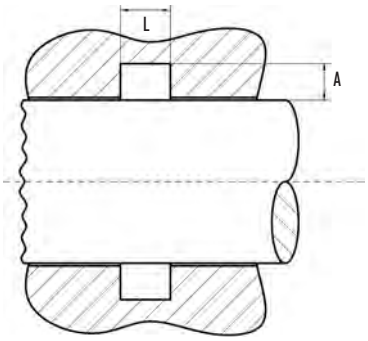
Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter		Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter	
	ins	mm	ins	mm	ins	mm	ins	mm		ins	mm	ins	mm	ins	mm	ins	mm
BS343	3.3/4	95	4.1/8	105	3.725	94,62	.015	0,38	**BS380**	11.1/2	291	11.7/8	303	11.475	291,47	.030	0,76
BS344	3.7/8	98	4.1/4	109	3.850	97,80	.015	0,38	**BS381**	12	304	12.3/8	315	11.975	304,17	.030	0,76
BS622	3.15/16	100	4.5/16	111	3.937	100	.015	0,38	**BS382**	13	330	13.3/8	341	12.975	329,57	.030	0,76
BS345	4	101	4.3/8	112	3.975	100,97	.015	0,38	**BS383**	14	355	14.3/8	366	13.975	354,97	.030	0,76
BS346	4.1/8	104	4.1/2	115	4.100	104,14	.015	0,38	**BS384**	15	380	15.3/8	392	14.975	380,37	.030	0,76
BS347	4.1/4	107	4.5/8	118	4.225	107,32	.015	0,38	**BS385**	16	405	16.3/8	417	15.955	405,26	.045	1,14
BS623	4.5/16	109	–	120,5	4.312	109,54	.015	0,38	**BS386**	17	431	17.3/8	443	16.955	430,66	.045	1,14
BS348	4.3/8	110,5	4.3/4	121	4.350	110,50	.015	0,38	**BS387**	18	456	18.3/8	468	17.955	456,06	.045	1,14
BS349	4.1/2	114	4.7/8	124	4.475	113,67	.015	0,38	**BS388**	19	482	19.3/8	494	18.955	481,46	.045	1,14
BS350	4.5/8	116	5	127	4.600	116,84	.015	0,38	**BS389**	20	507	20.3/8	519	19.955	506,86	.045	1,14
BS860	–	117	5.1/16	129	4.625	117,48	.015	0,38	**BS390**	21	532	21.3/8	544	20.955	532,26	.045	1,14
BS351	4.3/4	120	5.1/8	130	4.725	120,02	.015	0,38	**BS391**	22	558	22.3/8	570	21.955	557,66	.045	1,14
BS861	–	121	5.3/16	132	4.750	120,65	.015	0,38	**BS392**	23	583	23.3/8	595	22.940	582,68	.060	1,52
BS352	4.7/8	123	5.1/4	133	4.850	123,20	.015	0,38	**BS393**	24	608	24.3/8	620	23.940	608,08	.060	1,52
BS862	–	124	5.5/16	135	4.875	123,83	.015	0,38	**BS394**	25	634	25.3/8	646	24.940	633,48	.060	1,52
BS353	5	127	5.3/8	136	4.975	126,37	.015	0,38	**BS395**	26	660	26.5	671	25.940	658,88	.060	1,52
BS863	–	128	5/16	138	5.0	127	.023	0,58	**Cross Section 1/4" Nominal .275" ± .006" (6,99mm ± 0,15mm)**								
BS354	5.1/8	130	51/2	140	5.100	129,54	.023	0,58	**BS425**	4.1/2	114	5.1/16	127	4.475	113,67	.015	0,38
BS864	–	131	–	141	5.125	130,18	.023	0,58	**BS624**	4.9/16	115	5.1/8	129	4.516	114,7	.015	0,38
BS355	5.1/4	133	5.5/8	143	5.225	132,72	.023	0,58	**BS426**	4.5/8	116	5.1/4	130	4.600	116,84	.015	0,38
BS865	–	134	–	144	5.250	133,35	.023	0,58	**BS427**	4.3/4	120	5.3/8	133	4.725	120,02	.015	0,38
BS356	5.3/8	136	5.3/4	146	5.350	135,90	.023	0,58	**BS428**	4.7/8	123	–	136	4.850	123,2	.015	0,38
BS866	–	137	–	148	5.375	136,53	.023	0,58	**BS625**	–	124	5.1/2	139	4.906	124,6	.015	0,38
BS357	5.1/2	139	5.7/8	149	5.475	139,07	.023	0,58	**BS429**	5	127	5.5/8	140	4.975	126,37	.015	0,38
BS867	–	140	5.15/16	151	5.500	139,70	.023	0,58	**BS430**	5.1/8	130	5.3/4	143	5.100	129,54	.023	0,58
BS358	5.5/8	142	6	152	5.600	142,24	.023	0,58	**BS431**	5.1/4	133	5.13/16	146	5.225	132,72	.023	0,58
BS868	–	143	–	154	5.625	142,88	.023	0,58	**BS626**	–	134	5.7/8	148	5.297	134,5	.023	0,58
BS359	5.3/4	145	6.1/8	156	5.725	145,42	.023	0,58	**BS432**	5.3/8	136	6	149	5.350	135,9	.023	0,58
BS869	–	146	6.3/16	158	5.750	146,05	.023	0,58	**BS433**	5.1/2	139	6.1/8	152	5.475	139,07	.023	0,58
BS360	5.7/8	148	6.1/4	160	5.850	148,60	.023	0,58	**BS434**	5.5/8	142	6.1/4	156	5.600	142,24	.023	0,58
BS870	–	149	–	161	5.875	149,23	.023	0,58	**BS435**	5.3/4	145	6.3/8	160	5.725	145,42	.023	0,58
BS361	6	151	6.3/8	163	5.975	151,77	.023	0,58	**BS436**	5.7/8	148	6.1/2	163	5.850	148,6	.023	0,58
BS644	6.1/8	155	6.1/2	166	6.100	155	.023	0,58	**BS437**	6	151	6.5/8	166	5.975	151,77	.023	0,58
BS362	6.1/4	158	6.5/8	169	6.225	158,12	.023	0,58	**BS872**	6.1/8	155	6.3/4	169	6.125	155,6	.023	0,58
BS645	6.3/8	161	6.3/4	172	6.350	161,30	.023	0,58	**BS438**	6.1/4	158	6.13/16	172	6.225	158,12	.023	0,58
BS363	6.1/2	164	6.7/8	175	6.475	164,47	.023	0,58	**BS627**	–	159	–	174	6,281	159,5	.023	0,58
BS646	6.5/8	167	7	179	6.600	167,70	.023	0,58	**BS874**	6.3/8	161	7	176	6.375	161,9	.023	0,58
BS364	6.3/4	170	7.1/8	182	6.725	170,82	.023	0,58	**BS439**	6.1/2	164	3/8	179	6.475	164,47	.023	0,58
BS647	6.7/8	174	7.1/4	185	6.850	174	.023	0,58	**BS628**	6.9/16	166	7.1/16	181	6.563	166,7	.023	0,58
BS365	7	177	7.3/8	188	6.975	177,17	.023	0,58	**BS876**	6.5/8	167	7.1/8	182	6.625	168,3	.023	0,58
BS366	7.1/4	183	7.5/8	195	7.225	183,52	.030	0,76	**BS440**	6.3/4	170	7.1/4	185	6.725	170,82	.023	0,58
BS367	7.1/2	190	7.7/8	201	7.475	189,87	.030	0,76	**BS878**	6.7/8	174	7.7/16	190	6.875	174,6	.023	0,58
BS368	7.3/4	196	8.1/8	208	7.725	196,22	.030	0,76	**BS441**	7	177	7.1/2	191	6.975	177,17	.023	0,58
BS369	8	202	8.3/8	214	7.975	202,57	.030	0,76	**BS880**	7.1/8	180	7.5/8	195	7.125	181	.030	0,76
BS370	8.1/4	209	8.5/8	220	8.225	208,92	.030	0,76	**BS442**	7.1/4	183	7.3/4	198	7.225	183,52	.030	0,76
BS371	.81/2	215	8.7/8	226	8.475	215,27	.030	0,76	**BS882**	7.3/8	187	7.7/8	201	7.375	187,3	.030	0,76
BS372	.83/4	221	9.1/8	232	8.725	221,62	.030	0,76	**BS443**	7.1/2	190	8	204	7.475	189,87	.030	0,76
BS373	9	228	9.3/8	239	8.975	227,97	.030	0,76	**BS884**	7.5/8	193	8.1/8	208	7.625	193,7	.030	0,76
BS374	9.1/4	234	9.5/8	245	9.225	234,32	.030	0,76	**BS444**	7.3/4	196	8.1/4	210	7.725	196,22	.030	0,76
BS375	9.1/2	240	9.7/8	252	9.475	240,67	.030	0,76	**BS886**	7.7/8	199	8.3/8	214	7.875	200	.030	0,76
BS376	9.3/4	247	10.1/8	258	9.725	247,02	.030	0,76	**BS445**	8	202	8.1/2	217	7.975	202,57	.030	0,76
BS377	10	253	10.3/8	265	9.975	253,37	.030	0,76	**BS674**	8.1/4	209	8.3/4	223	8.225	208,92	.030	0,76
BS378	10.1/2	266	10.7/8	277	10.475	266,07	.030	0,76	**BS446**	8.1/2	215	9	230	8.475	215,27	.030	0,76
BS379	11	278	11.3/8	290	10.975	278,77	.030	0,76	**BS676**	8.3/4	221	9.1/4	236	8.725	221,62	.030	0,76



* Items indicated are suitable for dynamic application

O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
5.33	4.50mm	6.70mm	8.40mm	10.10mm	1.70mm
6.99	5.94mm	8.80mm	10.80mm	12.80mm	2.00mm

Size Ref:	To suit SHAFT		To suit CYLINDER		Internal Diameter		Tolerance on Int. Diameter	
	ins	mm	ins	mm	ins	mm	ins	mm
BS447	9	228	9.1/2	242	8.975	227,97	.030	0,76
BS678	9.1/4	234	9.3/4	249	9.225	234,32	.030	0,76
BS448	9.1/2	240	10	255	9.475	240,67	.030	0,76
BS680	9.3/4	247	10.1/4	262	9.725	247	.030	0,76
BS449	10	253	10.1/2	268	9.975	253,57	.030	0,76
BS682	10.1/4	260	10.3/4	274	10.225	259,7	.030	0,76
BS450	10.1/2	266	11	280	10.475	266,07	.030	0,76
BS684	10.3/4	273	11.1/4	287	10.725	272,4	.030	0,76
BS451	11	278	11.1/2	293	10.975	278,77	.030	0,76
BS686	11.1/4	285	11.3/4	300	11.225	285,1	.030	0,76
BS452	11.1/2	291	12	306	11.475	291,47	.030	0,76
BS688	11.3/4	298	12.1/4	312	11.725	297,8	.030	0,76
BS453	12	304	12.1/2	319	11.975	304,17	.030	0,76
BS648	12.1/4	311	12.3/4	325	12.225	310,5	.030	0,76
BS454	12.1/2	317	13	331	12.475	316,87	.030	0,76
BS649	12.3/4	323	13.1/4	338	12.725	323,2	.030	0,76
BS455	13	330	13.1/2	344	12.975	329,57	.030	0,76
BS650	13.1/4	336	13.3/4	350	13.225	335,9	.030	0,76
BS456	13.1/2	342	14	357	13.475	342,27	.030	0,76
BS457	14	355	14.1/2	370	13.975	354,97	.030	0,76
BS458	14.1/2	368	15	382	14.475	367,67	.030	0,76
BS459	15	380	15.1/2	395	14.975	380,37	.030	0,76
BS460	15.1/2	393	16	408	15.475	393,07	.030	0,76
BS461	16	405	16.1/2	420	15.955	405,26	.045	1,14
BS462	16.1/2	418	17	432	16.455	417,96	.045	1,14
BS463	17	431	17.1/2	445	16.955	430,66	.045	1,14
BS464	17.1/2	443	18	458	17.455	443,36	.045	1,14
BS465	18	456	18.1/2	471	17.955	456,06	.045	1,14
BS466	18.1/2	469	19	483	18.455	468,76	.045	1,14
BS467	19	482	19.1/2	496	18.955	481,46	.045	1,14
BS468	19.1/2	494	20	509	19.455	494,16	.045	1,14
BS469	20	507	20.1/2	521	19.955	506,86	.045	1,14
BS470	21	532	21.1/2	547	20.955	532,26	.045	1,14
BS471	22	558	22.1/2	573	21.955	557,66	.045	1,14
BS472	23	583	23.1/2	598	22.940	582,68	.060	1,52
BS473	24	608	24.1/2	624	23.940	608,08	.060	1,52
BS474	25	634	25.1/2	649	24.940	633,48	.060	1,52
BS475	26	660	26.1/2	675	25.940	658,88	.060	1,52



* Items indicated are suitable for dynamic application

O-ring section	A	L No back-up ring	L One back-up ring	L Two back-up rings	Back-up width
6.99	5.94mm	8.80mm	10.80mm	12.80mm	2.00mm

METRIC RANGE OF O RINGS TO BS4518

Size Ref: 1.6mm sec	Inside I.D. (mm)	Tolerance on I.D. (mm)	Size Ref: 2.4mm sec	Inside I.D. (mm)	Tolerance on I.D. (mm)	Size Ref: 3.0mm sec	Inside I.D. (mm)	Tolerance on I.D. (mm)	Size Ref: 5.7mm sec	Inside I.D. (mm)	Tolerance on I.D. (mm)	Size Ref: 8.4mm sec	Inside I.D. (mm)	Tolerance on I.D. (mm)
0031-16	3.1	0.15	0036-24	3.6	0.15	0195-30	19.5	0.25	0443-57	44.3	0.30	1441-84	144.1	0.60
0041-16	4.1	0.15	0046-24	4.6	0.15	0215-30	21.5	0.25	0453-57	45.3	0.30	1491-84	149.1	0.60
0051-16	5.1	0.15	0056-24	5.6	0.15	0225-30	22.5	0.25	0493-57	49.3	0.30	1541-84	154.1	0.60
0061-16	6.1	0.15	0066-24	6.6	0.15	0245-30	24.5	0.25	0523-57	52.3	0.40	1591-84	159.1	0.60
0071-16	7.1	0.15	0076-24	7.6	0.15	0255-30	25.5	0.25	0543-57	54.3	0.40	1641-84	164.1	0.60
0081-16	8.1	0.15	0086-24	8.6	0.15	0265-30	26.5	0.25	0553-57	55.3	0.40	1691-84	169.1	0.60
0091-16	9.1	0.15	0096-24	9.6	0.15	0275-30	27.5	0.25	0593-57	59.3	0.40	1741-84	174.1	0.60
0101-16	10.1	0.20	0106-24	10.6	0.20	0295-30	29.5	0.25	0623-57	62.3	0.40	1791-84	179.1	0.60
0111-16	11.1	0.20	0116-24	11.6	0.20	0315-30	31.5	0.30	0643-57	64.3	0.40	1841-84	184.1	0.80
0121-16	12.1	0.20	0126-24	12.6	0.20	0325-30	32.5	0.30	0693-57	69.3	0.40	1891-84	189.1	0.80
0131-16	13.1	0.20	0136-24	13.6	0.20	0345-30	34.5	0.30	0743-57	74.3	0.40	1941-84	194.1	0.80
0141-16	14.1	0.20	0146-24	14.6	0.20	0355-30	35.5	0.30	0793-57	79.3	0.40	1991-84	199.1	0.80
0151-16	15.1	0.20	0156-24	15.6	0.20	0365-30	36.5	0.30	0843-57	84.3	0.50	2041-84	204.1	0.80
0161-16	16.1	0.20	0166-24	16.6	0.20	0375-30	37.5	0.30	0893-57	89.3	0.50	2091-84	209.1	0.80
0171-16	17.1	0.20	0176-24	17.6	0.20	0395-30	39.5	0.30	0943-57	94.3	0.50	2191-84	219.1	0.80
0181-16	18.1	0.25	0186-24	18.6	0.25	0415-30	41.5	0.30	0993-57	99.3	0.50	2291-84	229.1	0.80
0191-16	19.1	0.25	0196-24	19.6	0.25	0425-30	42.5	0.30	1043-57	104.3	0.50	2341-84	234.1	0.80
0221-16	22.1	0.25	0216-24	21.6	0.25	0445-30	44.5	0.30	1093-57	109.3	0.50	2391-84	239.1	0.80
0251-16	25.1	0.25	0246-24	24.6	0.25	0495-30	49.5	0.30	1143-57	114.3	0.50	2491-84	249.1	0.80
0271-16	27.1	0.25	0276-24	27.6	0.25	0545-30	54.5	0.30	1193-57	119.3	0.50			
0291-16	29.1	0.25	0296-24	29.6	0.25	0595-30	59.5	0.40	1243-57	124.3	0.60			
0321-16	32.1	0.30	0316-24	31.6	0.30	0645-30	64.5	0.40	1293-57	129.3	0.60			
0351-16	35.1	0.30	0346-24	34.6	0.30	0695-30	69.5	0.40	1343-57	134.3	0.60			
0371-16	37.1	0.30	0376-24	37.6	0.30	0745-30	74.5	0.40	1393-57	139.3	0.60			
			0396-24	39.6	0.30	0795-30	79.5	0.40	1443-57	144.3	0.60			
			0416-24	41.6	0.30	0845-30	84.5	0.50	1493-57	149.3	0.60			
			0446-24	44.6	0.30	0895-30	59.5	0.50	1543-57	154.3	0.60			
			0476-24	47.6	0.30	0945-30	94.5	0.50	1593-57	159.3	0.60			
			0496-24	49.6	0.40	0995-30	99.5	0.50	1643-57	164.3	0.60			
			0516-24	51.6	0.40	1045-30	104.5	0.50	1693-57	169.3	0.60			
			0546-24	54.6	0.40	1095-30	109.5	0.50	1743-57	174.3	0.60			
			0576-24	57.6	0.40	1145-30	114.5	0.50	1793-57	179.3	0.80			
			0596-24	59.6	0.40	1195-30	119.5	0.50	1843-57	184.3	0.80			
			0616-24	61.6	0.40	1245-30	124.5	0.60	1893-57	189.3	0.80			
			0646-24	64.6	0.40	1295-30	129.5	0.60	1943-57	194.3	0.80			
			0676-24	67.6	0.40	1345-30	134.5	0.60	1993-57	199.3	0.80			
			0696-24	69.6	0.40	1395-30	139.5	0.60	2093-57	209.3	0.80			
						1445-30	144.5	0.60	2193-57	219.3	0.80			
						1495-30	149.5	0.60	2293-57	229.3	0.80			
						1545-30	154.5	0.60	2393-57	239.3	0.80			
						1595-30	159.5	0.60	2493-57	249.3	0.80			
						1645-30	164.5	0.60	2593-57	259.3	1.00			
						1695-30	169.5	0.60	2693-57	269.3	1.00			
						1745-30	174.5	0.60	2793-57	279.3	1.00			
						1795-30	179.5	0.60	2893-57	289.3	1.00			
						1845-30	184.5	0.80	2993-57	299.3	1.00			
						1895-30	189.5	0.80	3193-57	319.3	1.50			
						1945-30	194.5	0.80	3393-57	339.3	1.50			
						1995-30	199.5	0.80	3593-57	359.3	1.50			
						2095-30	209.5	0.80	3793-57	379.3	1.50			
						2195-30	219.5	0.80	3993-57	399.3	1.50			
						2295-30	229.5	0.80	4193-57	419.3	2.00			
						2395-30	239.5	0.80	4393-57	439.3	2.00			
						2495-30	249.5	0.80	4593-57	459.3	2.00			
									4793-57	479.3	2.00			
									4993-57	499.3	2.00			

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