

## Double-acting piston seal

Type: PS 02 (w/o notches) + PS 03 (with notches)



Double-acting piston seals type PS 02 (without notches) and PS 03 (with notches) are ideal for applications in hydraulic systems and offer slip-stick free movement and also good dry-running properties. The operating media here range from mineral oil-based hydraulic fluids through to environment-friendly bio-oils, water, flame-resistant hydraulic fluids and air.

While the PTFE profile ring provides dynamic sealing against the cylinder surface, the elastic O-ring ensures even pressure distribution of the PTFE profile ring against the cylinder surface and thus secures static sealing between profile ring and groove base.

The piston seal shows good sealing performance even at low pressures due to the PTFE profile ring's inherent prestress force and the contact force of the preloaded O-ring. At elevated system pressures, the medium increases the load on the O-ring which then presses the PTFE seal with additional force against the cylinder surface.

Various combinations of materials ensure that the rod seal can be used reliably across the whole pressure, speed and temperature range.

### Notches

To ensure that the preload of the seal is maintained under sudden changes of pressure and movement direction, it can be produced with radial notches on both sides (type PS 03).

### Operating media

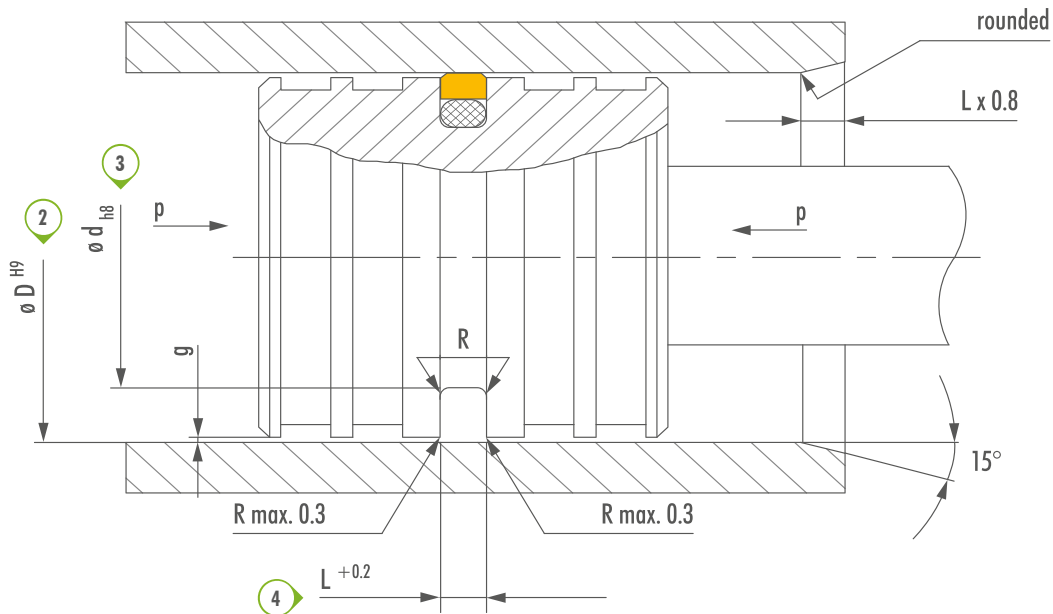
Mineral oil based hydraulic fluids	Environment-friendly bio-oils
Water	Flame-resistant hydraulic fluids
Air	Other media acc. to O-ring material

### Operating range

Pressure	up to 40 MPa (400 bar)
Speed	up to 15 m/s
Temperature	- 30 °C to + 200 °C (acc. to O-ring material)

### Surface quality

	Ra	Rt
Contact surface	≤ 0.3 μm	≤ 3.0 μm
Groove base	≤ 1.6 μm	≤ 16.0 μm
Groove flank	≤ 1.6 μm	≤ 16.0 μm



### Installation dimensions

Heavy-duty version	Cylinder $\varnothing D$		Groove base $\varnothing d$	Groove width $L^{+0.2}$	Radius R	Gap dimension g			O-ring cross section $\varnothing$
	Standard version	Light-duty version				10 MPa max.	20 MPa max.	40 MPa max.	
-	8.0 - 14.9	15.0 - 39.9	$\varnothing d + 4.9$	2.2	0.4	0.3	0.2	0.15	1.78
-	15.0 - 39.9	40.0 - 79.9	$\varnothing d + 7.5$	3.2	0.6	0.4	0.25	0.15	2.62
15.0 - 39.9	40.0 - 79.9	80.0 - 132.9	$\varnothing d + 11.0$	4.2	1.0	0.4	0.25	0.2	3.53
40.0 - 79.9	80.0 - 132.9	133.0 - 329.9	$\varnothing d + 15.5$	6.3	1.3	0.5	0.3	0.2	5.33
80.0 - 132.9	133.0 - 329.9	330.0 - 669.0	$\varnothing d + 21.0$	8.1	1.8	0.6	0.35	0.25	7.0
133.0 - 329.9	330.0 - 669.9	670.0 - 900.0	$\varnothing d + 24.5$	8.1	1.8	0.6	0.35	0.25	7.0
330.0 - 669.9	670.0 - 900.0	-	$\varnothing d + 28.0$	9.5	2.5	0.7	0.5	0.3	8.4

### Material selection PTFE profile ring

PTFE + bronze	The standard for hydraulic applications, good sliding behavior, particularly pressure and abrasion resistant, not for use in aqueous media or acids
PTFE + glass-MoS <sub>2</sub>	Particularly wear and abrasion resistant, can be used in media with poor lubricating properties, in water and also water-oil emulsions
PTFE + carbon	Exceptionally abrasion and extrusion resistant, can be used in water hydraulic systems

Find additional materials in our PTFE materials overview in the technical information section.

### Selection of materials O-ring

Nitrile rubber NBR	Temperature range - 30 °C to + 120 °C
Fluorinated rubber FPM	Temperature range - 25 °C to + 200 °C

To place a quick order for the correct product, please use the order information system below.

SYSTEM: **PS 03** Cylinder  $\varnothing D$  x Groove base diameter  $\varnothing d$  x Groove width L » Material

①      ②                                      ③                                      ④                                      ⑤

EXAMPLE: **PS03 150 x 129 x 8.1 CCN-BRR40**

① Double-acting piston seal    ② Cylinder diameter  $\varnothing D$  150 mm  
 ③ Groove base diameter  $\varnothing d$  129 mm    ④ Groove width L 8.1 mm    ⑤ Material PTFE + 40% bronze