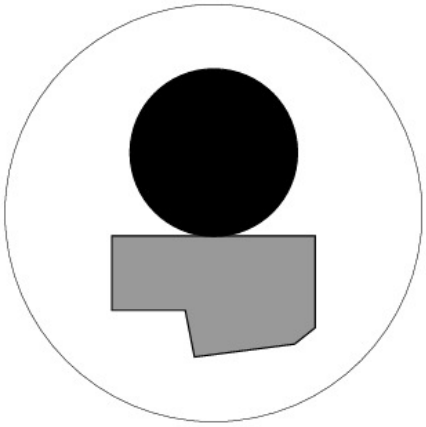
Rod Seal
HS 250

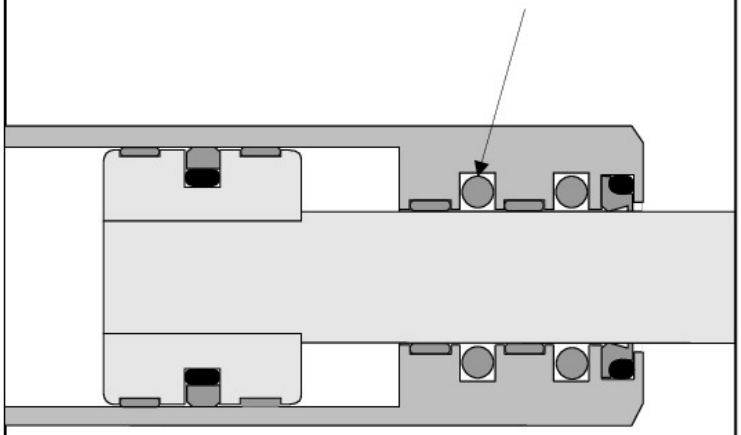
Simple acting rod seals from the HS 250 series can be used for most hydraulic applications. Different material combinations guarantee high functional security and long life over the entire pressure and velocity range, even at low friction, considering various temperatures and pressure fluids.

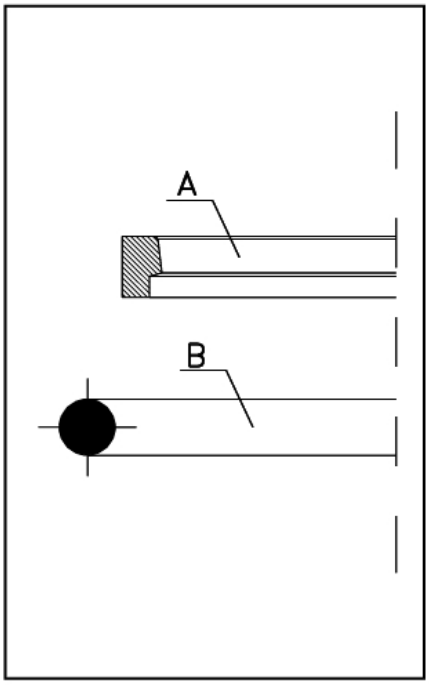
Special Features:

- Two part composition comprising of profile gasket and O-ring
- Outstanding shear characteristics, no stick-slip effect
- Good dynamic and static sealing
- Good abrasion resistance, long life
- Wide temperature range and chemical resistance, depending on O-ring material
- Designed for mounting in undivided grooves
- Available for all rod diameters up to 2500 mm



Material	: PTFE-Compound or polyurethane
Operating pressure	: up to 40 MPa (400 bar)
Velocity	: reciprocating to 15 m/s
Temperature	: -40 to +200 °C





Profile Gasket (Part A)

Gasket section is rectangular and is provided with a stepped sealing edge on the pressure side. On the opposite side, the profile travels under a flat wedge. This special form of sealing profile helps to achieve a recovery effect. This means that the persistent oil film present on the piston rod during motion is conveyed back to the surge chamber in course of the in-movement.

Profile gaskets are manufactured from specially modified PTFE materials. Compound 55 is the standard material of construction (MOC) that is used in hydraulics applications. This material is particularity superior in respect of very high abrasion resistance, inherent stability, very good shearing characteristics and very good thermal and chemical resistance.

O-Ring (Part B)

O-rings are standard sealing elements with circular cross section. Those used in the present application conform to the series of dimensions as per AS 568 A (American norms).

Standard MOC for hydraulics applications is NBR, which guarantees particularly good resistance to hydraulic fluids. For use with profile gaskets O-rings with hardness of 70 Shore A are preferred.

Materials Overview: Profile Gasket

01: Pure PTFE - Outstanding chemical resistance - used in chemical, foodstuffs and pharmaceutical industry with light mechanical stress.

12: Modified PTFE - Very good chemical resistance, outstanding shear characteristics, special purpose and intermediate stress applications.

25: Modified PTFE + glass fiber - High abrasion resistance and inherent stability, good chemical resistance, used in various areas of industry and intermediate stress hydraulic applications.

30: Modified PTFE + carbon - Good abrasion resistance and inherent stability, good chemical resistance, used in water and water-oil emulsions with intermediate stress. Also designed for dry runs.

55: Modified PTFE + bronze - High abrasion resistance and inherent stability, very good shear characteristics, good chemical resistance, used in intermediate to high stress hydraulics applications.

67: Modified PTFE - Very high abrasion resistance and inherent stability, used in hydraulics and abrasive pressure fluid applications.

83: Modified Polyurethan - Very high abrasion resistance and inherent stability, used primarily in intermediate stress hydraulic applications.

Rod seals HS 250 have been successfully used for many years in hydraulic cylinders. To optimize rod sealing, we recommend the incorporation of two HS 250 seals followed by a single dual wiper HA 355. This seal and wiper combination affords nearly leak-free rod sealing even with heavily loaded hydraulic cylinders in demanding environments.

The seal can be used in divided and un-divided profile grooves; for use in an un-divided groove, the gasket must be carefully bent to a kidney shape. The ring is then further stretched apart through the chamfered piston rod.

Materials Overview: O-Ring

N: Acrylonitrile Butadiene Rubber - Used in general machine construction, hydraulics, pneumatics - Resistant to mineral oil based pressure fluids, HFA-, HFB- und HFC fluids and water.

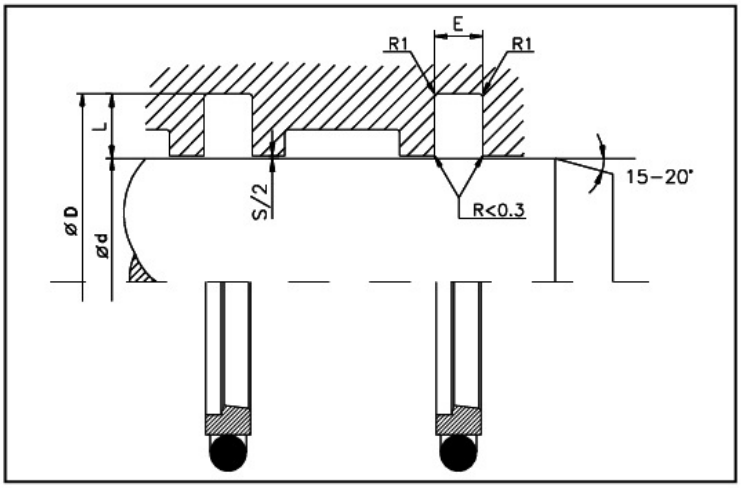
F: Fluorine containing Rubbers - Used at high temperatures and aggressive surrounding media, resistant to mineral based and synthetic pressure fluids, aliphatic, aromatic and chlorated hydrocarbons, phosphate-ester based poorly inflammable fluids.

E: Ethylene Propylene Diene Rubbers - Used in armature and pump industry. Resistant to hot water, steam, phosphate-ester based poorly inflammable fluids but is not resistant to mineral oils.

S: Silicon Rubbers.

C: Chloroprene Rubbers.

Rod Seal
HS 250



Limitations on Use

Operating pressure	: up to 40 MPa (400 bar)
Velocity	: reciprocating to 15 m/s
Temperature	: -40 to +200 °C (depending on O-Ring material)

Media for Use

Mineral oil based hydraulic fluids, flame resistant fluids (HFA, HFB, HFC), non-polluting pressure fluids (Bio Oils), water, air and other media (depending on O-Ring material).

Surface Finish

Surfaces	Rmax	Rz	Ra
Faces	2,5 µm	1,6 µm	0,4 µm
Groove root	10,0 µm	6,3 µm	1,6 µm
Groove flanks	16,0 µm	10,0 µm	3,2 µm

Recommended Sizes for Installation

Section	O-Ring Cord-ø mm	Recommended Diameter Standard **d** mm	Groove Width **E** mm	Groove Depth **L** mm	Max. Diameter Clearance **S** 0 - 200 bar mm	Max. Diameter Clearance **S** 200 - 400 bar mm	Radius **R1** max. mm
01	1,78	3 - 7,9	2,2	2,45	0,4 - 0,2	0,3 - 0,1	0,3
02	2,62	8 - 18,9	3,2	3,65	0,4 - 0,2	0,3 - 0,1	0,5
03	3,53	19 - 37,9	4,2	5,35	0,6 - 0,3	0,4 - 0,2	0,7
04	5,33	38 - 199,9	6,3	7,55	0,8 - 0,4	0,4 - 0,2	1,2
05	7,00	200 - 255,9	8,1	10,25	1,0 - 0,5	0,5 - 0,3	1,5
06	7,00	256 - 649,9	8,1	12,00	1,0 - 0,5	0,5 - 0,3	1,5

d f8/h9	**D** H9	**E** +0,2	O-Ring	**Part N°**
3,00	7,90	2,20	008	HS250 0030-01-55N
4,00	8,90	2,20	010	HS250 0040-01-55N
5,00	9,90	2,20	011	HS250 0050-01-55N
6,00	**10,90**	**2,20**	**011**	**HS250 0060-01-55N**
7,00	11,90	2,20	012	HS250 0070-01-55N
8,00	**12,90**	**2,20**	**012**	**HS250 0080-01-55N**
8,00	**15,30**	**3,20**	**011**	**HS250 0080-02-55N**
10,00	**14,90**	**2,20**	**013**	**HS250 0100-01-55N**
10,00	**17,30**	**3,20**	**113**	**HS250 0100-02-55N**
12,00	**16,90**	**2,20**	**015**	**HS250 0120-01-55N**
12,00	**19,30**	**3,20**	**114**	**HS250 0120-02-55N**
14,00	**18,90**	**2,20**	**016**	**HS250 0140-01-55N**
14,00	**21,30**	**3,20**	**115**	**HS250 0140-02-55N**
15,00	19,90	2,20	016	HS250 0150-01-55N
15,00	22,30	3,20	116	HS250 0150-02-55N
16,00	20,90	2,20	017	HS250 0160-01-55N
16,00	**23,30**	**3,20**	**116**	**HS250 0160-02-55N**
18,00	22,90	2,20	018	HS250 0180-01-55N
18,00	**25,30**	**3,20**	**118**	**HS250 0180-02-55N**
20,00	**27,30**	**3,20**	**118**	**HS250 0200-02-55N**
20,00	**30,70**	**4,20**	**214**	**HS250 0200-03-55N**
22,00	**29,30**	**3,20**	**120**	**HS250 0220-02-55N**
22,00	**32,70**	**4,20**	**215**	**HS250 0220-03-55N**
25,00	**32,30**	**3,20**	**122**	**HS250 0250-02-55N**
25,00	**35,70**	**4,20**	**217**	**HS250 0250-03-55N**
28,00	35,30	3,20	124	HS250 0280-02-55N
28,00	**38,70**	**4,20**	**219**	**HS250 0280-03-55N**

d f8/h9	**D** H9	**E** +0,2	O-Ring	**Part N°**
30,00	37,30	3,20	125	HS250 0300-02-55N
30,00	40,70	4,20	220	HS250 0300-03-55N
32,00	39,30	3,20	126	HS250 0320-02-55N
32,00	**42,70**	**4,20**	**221**	**HS250 0320-03-55N**
35,00	42,30	3,20	128	HS250 0350-02-55N
35,00	45,70	4,20	222	HS250 0350-03-55N
36,00	43,30	3,20	129	HS250 0360-02-55N
36,00	**46,70**	**4,20**	**223**	**HS250 0360-03-55N**
38,00	48,70	4,20	224	HS250 0380-03-55N
38,00	53,10	6,30	327	HS250 0380-04-55N
40,00	**50,70**	**4,20**	**224**	**HS250 0400-03-55N**
40,00	**55,10**	**6,30**	**328**	**HS250 0400-04-55N**
42,00	52,70	4,20	225	HS250 0420-03-55N
42,00	57,10	6,30	328	HS250 0420-04-55N
45,00	**55,70**	**4,20**	**226**	**HS250 0450-03-55N**
45,00	**60,10**	**6,30**	**329**	**HS250 0450-04-55N**
48,00	58,70	4,20	226	HS250 0480-03-55N
48,00	63,10	6,30	330	HS250 0480-04-55N
50,00	**60,70**	**4,20**	**227**	**HS250 0500-03-55N**
50,00	**65,10**	**6,30**	**331**	**HS250 0500-04-55N**
52,00	62,70	4,20	228	HS250 0520-03-55N
52,00	67,10	6,30	331	HS250 0520-04-55N
55,00	65,70	4,20	229	HS250 0550-03-55N
55,00	70,10	6,30	333	HS250 0550-04-55N
56,00	**66,70**	**4,20**	**229**	**HS250 0560-03-55N**
56,00	**71,10**	**6,30**	**333**	**HS250 0560-04-55N**
60,00	70,70	4,20	230	HS250 0600-03-55N

d f8/h9	**D** H9	**E** +0,2	O-Ring	**Part N°**
60,00	75,10	6,30	334	HS250 0600-04-55N
63,00	**73,70**	**4,20**	**231**	**HS250 0630-03-55N**
63,00	**78,10**	**6,30**	**335**	**HS250 0630-04-55N**
65,00	80,10	6,30	336	HS250 0650-04-55N
70,00	**85,10**	**6,30**	**337**	**HS250 0700-04-55N**
75,00	90,10	6,30	339	HS250 0750-04-55N
80,00	**95,10**	**6,30**	**340**	**HS250 0800-04-55N**
85,00	100,10	6,30	342	HS250 0850-04-55N
90,00	**105,10**	**6,30**	**343**	**HS250 0900-04-55N**
95,00	110,10	6,30	345	HS250 0950-04-55N
100,00	**115,10**	**6,30**	**347**	**HS250 1000-04-55N**
105,00	120,10	6,30	348	HS250 1050-04-55N
110,00	**125,10**	**6,30**	**350**	**HS250 1100-04-55N**
115,00	130,10	6,30	351	HS250 1150-04-55N
120,00	135,10	6,30	353	HS250 1200-04-55N
125,00	**140,10**	**6,30**	**355**	**HS250 1250-04-55N**
130,00	145,10	6,30	356	HS250 1300-04-55N
135,00	150,10	6,30	358	HS250 1350-04-55N
140,00	**155,10**	**6,30**	**359**	**HS250 1400-04-55N**
150,00	165,10	6,30	362	HS250 1500-04-55N
160,00	**175,10**	**6,30**	**363**	**HS250 1600-04-55N**
160,00	**180,50**	**8,10**	**439**	**HS250 1600-05-55N**
170,00	185,10	6,30	365	HS250 1700-04-55N
180,00	**195,10**	**6,30**	**366**	**HS250 1800-04-55N**
180,00	**200,50**	**8,10**	**442**	**HS250 1800-05-55N**
190,00	205,10	6,30	368	HS250 1900-04-55N
200,00	**220,50**	**8,10**	**445**	**HS250 2000-05-55N**
210,00	230,50	8,10	446	HS250 2100-05-55N
220,00	**240,50**	**8,10**	**447**	**HS250 2200-05-55N**
230,00	250,50	8,10	448	HS250 2300-05-55N
240,00	260,50	8,10	449	HS250 2400-05-55N
250,00	**270,50**	**8,10**	**449**	**HS250 2500-05-55N**
260,00	284,00	8,10	450	HS250 2600-06-55N
270,00	294,00	8,10	451	HS250 2700-06-55N
280,00	**304,00**	**8,10**	**452**	**HS250 2800-06-55N**
290,00	314,00	8,10	453	HS250 2900-06-55N

d f8/h9	**D** H9	**E** +0,2	O-Ring	**Part N°**
300,00	324,00	8,10	454	HS250 3000-06-55N
310,00	334,00	8,10	454	HS250 3100-06-55N
320,00	**344,00**	**8,10**	**455**	**HS250 3200-06-55N**
330,00	354,00	8,10	456	HS250 3300-06-55N
340,00	364,00	8,10	457	HS250 3400-06-55N
350,00	374,00	8,10	458	HS250 3500-06-55N
360,00	**384,00**	**8,10**	**458**	**HS250 3600-06-55N**
370,00	394,00	8,10	459	HS250 3700-06-55N
380,00	404,00	8,10	460	HS250 3800-06-55N
390,00	414,00	8,10	461	HS250 3900-06-55N
400,00	424,00	8,10	461	HS250 4000-06-55N
410,00	434,00	8,10	462	HS250 4100-06-55N
420,00	444,00	8,10	463	HS250 4200-06-55N
430,00	454,00	8,10	464	HS250 4300-06-55N
440,00	464,00	8,10	464	HS250 4400-06-55N
450,00	474,00	8,10	465	HS250 4500-06-55N
460,00	484,00	8,10	466	HS250 4600-06-55N
470,00	494,00	8,10	467	HS250 4700-06-55N
480,00	504,00	8,10	468	HS250 4800-06-55N
490,00	514,00	8,10	469	HS250 4900-06-55N
500,00	524,00	8,10	469	HS250 5000-06-55N
510,00	534,00	8,10	469	HS250 5100-06-55N
520,00	544,00	8,10	470	HS250 5200-06-55N
530,00	554,00	8,10	470	HS250 5300-06-55N
540,00	564,00	8,10	471	HS250 5400-06-55N
550,00	574,00	8,10	471	HS250 5500-06-55N
560,00	584,00	8,10	471	HS250 5600-06-55N
570,00	594,00	8,10	472	HS250 5700-06-55N
580,00	604,00	8,10	472	HS250 5800-06-55N
590,00	614,00	8,10	473	HS250 5900-06-55N
600,00	624,00	8,10	473	HS250 6000-06-55N
610,00	634,00	8,10	473	HS250 6100-06-55N
620,00	644,00	8,10	474	HS250 6200-06-55N
630,00	654,00	8,10	474	HS250 6300-06-55N
640,00	664,00	8,10	475	HS250 6400-06-55N

Further sizes up to Ø 2500 mm available on request.
Dimensions in bold correspond to mounting spaces as per DIN ISO 7425/2.

Example for ordering Rod Seal:

HS 250 0360 - 02 - 55N - ...

- Profile
- Nominal diameter x 10
- Cross-section
- Standard material profile gasket
- Standard material O-Ring
- HME internal code

Material Key:

Profile gasket
01 - pure PTFE
12 - modified PTFE
25 - PTFE glass fiber
30 - PFTE carbon
55 - PTFE bronze
67 - modified PTFE
83 - modified PU

O-Ring
N - NBR
F - FPM
E - EPDM
S - Silikon
C - Chloropren

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