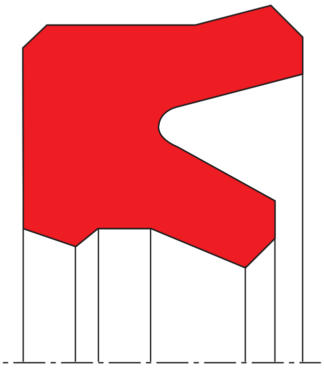
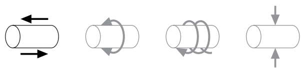
SEAL SPEC
S17-P





description

asymmetric rod seal with additional sealing-respectively stabilizing lip. Interference fit on outside diameter maintains stable fit in the housing. design mainly used for telescopic cylinders, mobile hydraulic or for special housing dimensions.

+ asymmetric single-acting rod lipseal, with the dynamic sealing lip being shorter than the static one.
+ interference fit on the outside diameter.
+ various materials are available for different purposes.
+ snaps into simple grooves (see notes on installation).
+ best sealing effect across a wide temperature range.
+ for pressures up to 400 bar as a seal between pressurised spaces.
+ good sealing in all pressure ranges.
+ excellent static and dynamic sealing.
+ the secondary lip reduces the residual oil film.

category of profile

machined or molded/standard/trade product.

single acting

the S17-P seal is designed for use as a rod seal.

area of application; hydraulics

- reciprocating rods on hydraulic cylinders, push rods, fittings.
- rod seals for applications with small extrusion gap and without special impact load.
- commonly used as sealing element in telescopic cylinders (for large deflections increased preload may be necessary).
- can also be used as a pivot seal at low loads (e.g. end seal in rotary pivots).

note

- this seal has the correct functioning dimension only when mounted. when slipping the seal over the piston rod, it may appear too large.
- the ratio between nominal width and sealing height cs/H should not drop below a value of 1/1.25 (essentially according to ISO 5597 housings for piston and rod seals).
- on long strokes drag pressure may be built up between both lips, which can lead to disfunction.

function

S17-P profiles are lip seals designed to seal pressurised space against the atmosphere; mainly for reciprocating movements. the secondary lip on the back ensures a increased stability in the housing. the design is based on application in standard hydraulic systems with conventional hydraulic oils. the operating parameters are as defined in the sealing data sheet and material data. requirements deviating from these parameters can be met to a certain degree by changing the geometry in the software program.

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operating parameter & material

sealing element (material)	energizer (material)	back-up ring (material)	temperature	max surface speed	max pressure[1]	hydrolysis	dry running	wear resistance
PU	-	-	-30 °C ... +100 °C	0,3 m/s	400 bar (40 MPa)	-	+	++
HPU	-	-	-20 °C ... +100 °C	0,3 m/s	400 bar (40 MPa)	++	+	++
LTPU	-	-	-30 °C ... +100 °C	0,3 m/s	400 bar (40 MPa)	-	+	++
SPU	-	-	-20 °C ... +100 °C	0,4 m/s	400 bar (40 MPa)	++	++	++
GPU	-	-	-30 °C ... +100 °C	0,5 m/s	400 bar (40 MPa)	++	+	++

[1] pressure ratings are dependent on the size of the extrusion gap. ++ particularly suitable + suitable o conditional suitable - not suitable

the stated operation conditions represent general indications. it is recommended not to use all maximum values simultaneously. surface speed limits apply only to the presence of adequate lubrication film.

for detailed information regarding chemical resistance please refer to our „list of resistance". for increased chemical and thermal resistance rubber materials are to be preferred, attention should be paid to restrictions for pressure range and wear resistance. for higher gliding speeds another system should be used (e.g. PTFE materials).

gap dimension

operating pressure	cs = (ØD - Ød)/2 mm: 4	5	7,5	10	12,5	15
	safe extrusion gap (mm)					
100 bar (10 MPa)	0,20	0,20	0,30	0,40	0,45	0,50
200 bar (20 MPa)	0,10	0,15	0,25	0,35	0,40	0,45
300 bar (30 MPa)	0,07	0,12	0,22	0,30	0,35	0,43
400 bar (40 MPa)	0,05	0,10	0,18	0,25	0,32	0,40

the above data are maximum value and can't be used at the same time. e.g. the maximum operating speed depend on material type, pressure, temperature and gap value. temperature range also dependent on medium.
the diagram applies to an operating temperature of 70 °C.

surface quality

surface roughness	Rtmax (μm)	Ra (μm)
sliding surface	≤2,5	≤0,1-0,5
bottom of groove	≤6,3	≤1,6
groove face	≤15	≤3

tolerance recommendation

seal housing tolerance	
Ød	f8
ØD	H10

mode of installation

Ød	type of installation
≤ 6·cs	open mounting space required
> 6·cs .....≤ 10·cs	snap mounting with tool
> 10·cs	snap mounting by hand

for inside diameters of 25mm or more, and dependant on radial cross section (cs), seals may be snapped into closed housings.

insertion chamfer

in order to avoid damage to the rod seal during installation, the piston rod is to be chamfered and rounded as shown in the "recommended mounting space" drawing. the size of chamfer depends on the seal type and profile width.

cs (mm)	c (mm) α = 15° ... 20°	c (mm) α = 20° ... 30°
4	3,5	2
5	4	2,5
6	4,5	3
7,5	5	4
10	6	5
12,5	8,5	6,5
15	10	7,5
20	13	10

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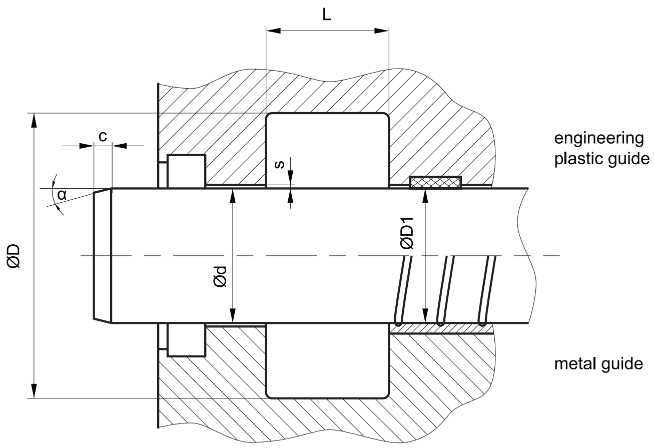
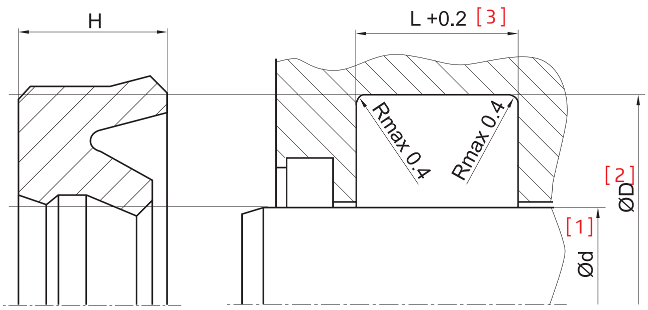
recommended mounting space



seal & housing recommendations

please note that we are able to produce those profiles to your specific need or any non standard housing. for detail measurements, please see seal-mart catalog...



recommended guide tolerance D1

d f8 [mm]	p ≤ 100 [bar]	100< p ≤ 200 [bar]	p > 200 [bar]
≤ 100	H10	H8	H8
> 100 ≤ 200	H10	H8	H7
> 200	H9	H8	H7

L [mm] [3]	cs = (ØD - Ød)/2 [mm]
6,3	4
8	5
9	6
10	7,5
14	10
17	12,5
25	15
32	20

the ratio between nominal width and seal height cs/H should not drop below 1/1.25. therefore we recommend the following housing heights.

fitted