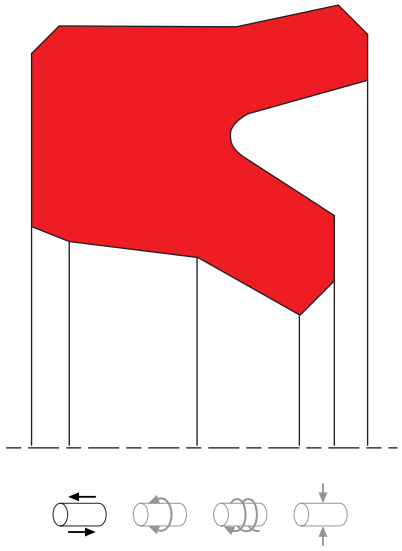
SEAL SPEC
S01-R



description

as profile S01-P, but more adaptation possibilities for diverse temperatures and media by selection of suitable seal material.

+ asymmetric single-acting rod lipseals, with the dynamic sealing lip being shorter than the static one.
+ interference fit on the inside diameter.
+ various materials are available for different purposes.
+ snaps into simple grooves (see notes on installation).
+ best sealing effect across a wide temperature range.
+ sealing effect enhanced by high recovery rate.
+ for pressures up to 160 bar as a seal between pressurised space and atmosphere.
+ good sealing in the low pressure range.
+ excellent static and dynamic sealing.
+ suitable for long travel.
+ little inclination to "stick-slip".
+ low break-away load after prolonged periods of standstill.

category of profile

machined or molded/standard/trade product

single acting

the S01-R seal is designed for use as a rod seal

area of application; hydraulics

- reciprocating rods on hydraulic cylinders, push rods and fittings.
- rod for applications seals with small extrusion gap and without special impact load.
- if composite seals on PTFE basis (e.g. S09-E) are used, this rod seal can be used as a secondary seal.
- can also be used as a pivot seal at low loads.

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).
- for short strokes the S08-R type is preferred.

function

S01-R profiles are lip seals designed to seal pressurised space against the atmosphere; mainly for reciprocating movements. 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.

SEAL SPEC
S01-R

operating parameter & material

material	temperature	max surface speed	max pressure[1]	hydrolysis	dry running	wear resistance
NBR	-30 °C ... +100 °C	0,5 m/s	160 bar (16 MPa)	-	-	o
FKM	-20 °C ... +200 °C	0,5 m/s	160 bar (16 MPa)	-	-	o
EPDM	-50 °C ... +150 °C	0,5 m/s	160 bar (16 MPa)	++	-	o
HNBR	-25 °C ... +150 °C	0,5 m/s	160 bar (16 MPa)	+	o	+
MVQ	-60 °C ... +200 °C	-	-	++	-	-

[1] pressure ratings are dependent on the size of the extrusion gap.

++ particularly suitable + suitable o conditional suitable - not suitable

[2] attention: not suitable for mineral oils!

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 wear resistance and higher pressure range polyurethane materials are to be preferred,attention should be paid to restrictions in chemical and thermal resistance. for higher gliding speeds another sealing 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)					
50 bar (5 MPa)	0,18	0,22	0,26	0,30	0,33	0,36
100 bar (10 MPa)	0,16	0,18	0,24	0,27	0,31	0,35
160 bar (16 MPa)	0,14	0,17	0,22	0,25	0,27	0,33

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.
use larger cross sections to increase maximum allowed gap dimension. if the permissible extrusion gap cannot be achieved, S02-R is to be used.

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	H9

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.

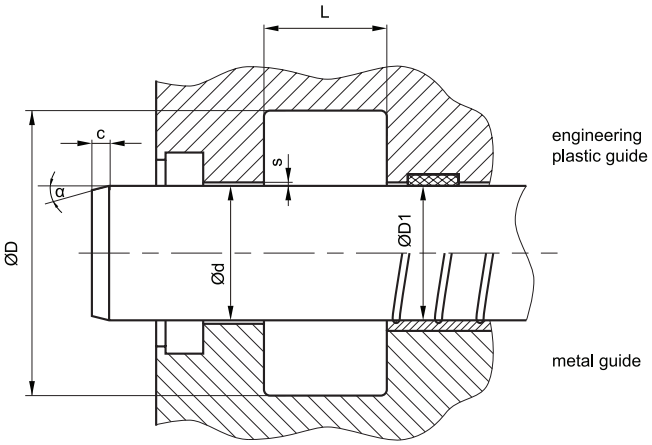
insertion chamfer

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°	α = 20° ... 30°
(2)	2	1
(3)	3	1,5
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

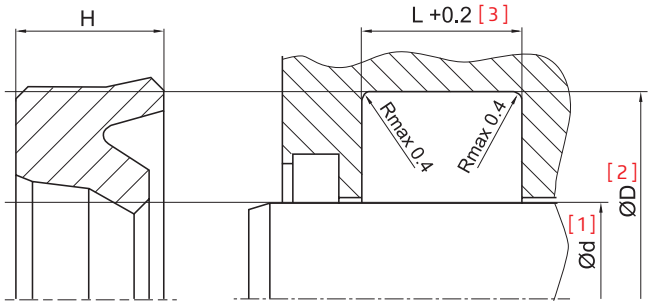
SEAL SPEC
S01-R

recommended mounting space



seal & housing recommendations

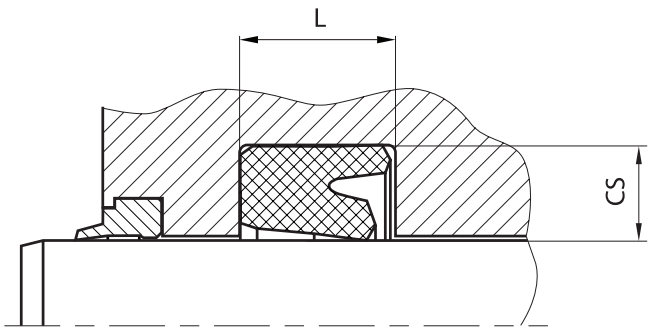
please note that we are able to produce those profiles to your specific need or any non standard housing. for detail measurements, please see seal-mart catalog...



recommended guide tolerance D1

d f8 [mm]	p ≤ 100 [bar]	p > 100 [bar]	secondary seal
≤ 100	H10	H8	H8
> 100 ≤ 200	H10	H8	H8
> 200	H9	H8	H8

fitted



Ød [mm] [1]	ØD [mm] [2]	L [mm] [3]	cs = (ØD - Ød)/2 [mm]
5 ~ 24,9	ØD + 8	6,3	4
25 ~ 49,9	ØD + 10	8	5
50 ~ 149,9	ØD + 15	10	7,5
150 ~ 299,9	ØD + 20	14	10
300 ~ 499,9	ØD + 25	17	12,5
500 ~ 699,9	ØD + 30	25	15
700 ~ 1000	ØD + 40	32	20
> 1000	ØD + 40	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.