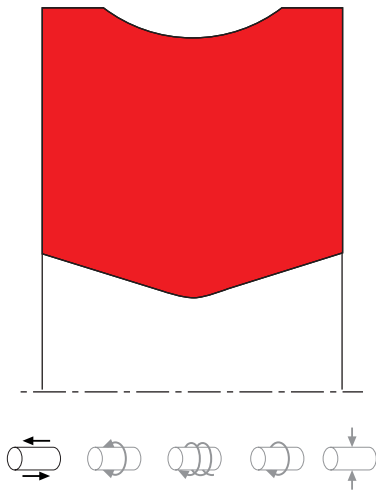


# SEAL SPEC S35-P



## description

compact rod seal with almost no dead spots as required for applications in food and pharma industry, also commonly used as o-ring replacement, because design with interference fit on outside diameter maintains non-twisting in dynamic applications.

- + asymmetric double-acting rod compact seal. the preload is achieved by the internal stress of the seal material.
- + interference fit on the outside diameter.
- + various materials are available for different purposes.
- + snaps into simple grooves (see notes on installation).
- + good sealing effect across a wide temperature range.
- + for pressures up to 400 bar as a seal between pressurised space and atmosphere or between pressurised spaces.
- + good sealing in the low pressure range.
- + excellent static sealing.
- + only few dead spots.
- + the housing grooves are same as housing grooves for o-rings (see "range of profile sizes")
- + no twisting in dynamic applications.
- + space-saving design.

## category of profile

machined or molded/standard/trade product.

## single acting

the S35-P seal is designed for use as a rod seal.

## area of application; hydraulics

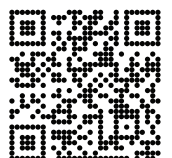
- static and dynamic seals in hydraulic systems.
- use in systems with o-ring grooves instead of o-rings in case of stability problems (twisting) or "pumping".
- for food and pharma applications or as a valve seal.

## note

- decreasing preload in rotary applications is necessary because of high friction.
- a design in rubber materials is not recommendable because of the geometry (use S20-R).

## function

S35-P profiles are compact seals designed to seal pressurised space against the atmosphere or between pressurised spaces mainly for reciprocating movements, but for slight rotations as well. 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.



## operating parameter & material

sealing element	material energizer	back-up ring	temperature	max surface speed	max pressure <sup>1</sup>	hydrolysis	dry running	wear resistance
PU	-	-	-30 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)	-	+	++
HPU	-	-	-20 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)	++	+	++
LTPU	-	-	-50 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)	-	+	++
SPU	-	-	-20 °C ... +110 °C	0,5 m/s	400 bar (40 MPa)	++	++	++
GPU	-	-	-30 °C ... +110 °C	0,4 m/s	400 bar (40 MPa)	++	+	++

<sup>1</sup> 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)	0,18	0,22	0,32	0,38	0,45	0,53
200 bar (20 MPa)	0,12	0,16	0,25	0,33	0,40	0,45
300 bar (30 MPa)	0,07	0,13	0,21	0,28	0,36	0,42
400 bar (40 MPa)	0,05	0,10	0,18	0,26	0,33	0,39

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 table 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

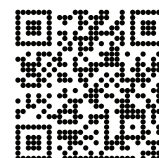
Ød	type of installation
≤ 4·cs	open mounting space required
> 4·cs ..... ≤ 6·cs	snap mounting with tool
> 6·cs	snap mounting by hand

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.

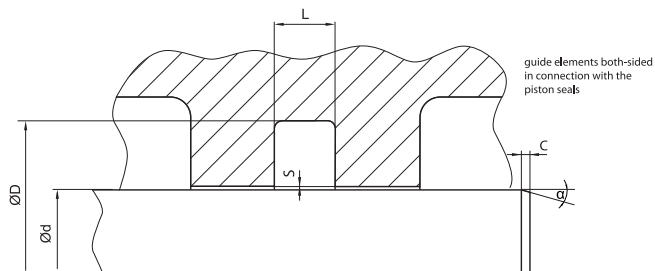
cs (mm)	c (mm)	
	α = 15° ... 20°	α = 20° ... 30°
(2)	2	1
(3)	3	1,5
4	3,5	2
5	4	2,5
6	4,5	3
7,5	5	4
10	6	5
12,5	8,5	6,5
15	10	7,5
20	13	10



# SEAL SPEC S35-P

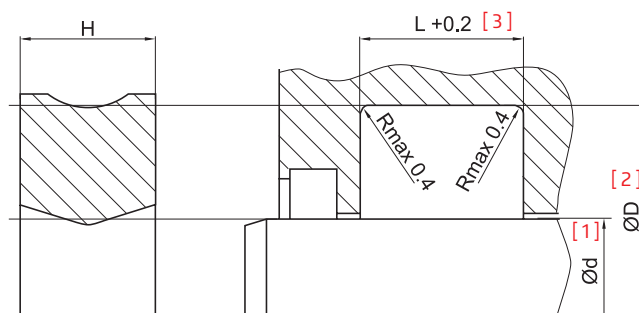


## recommended mounting space



## 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...

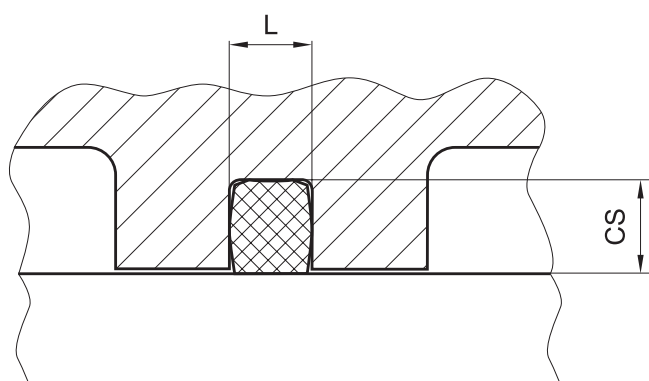


## recommended guide tolerance D1

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

Ød [mm] [1]	L [mm] [3]	cs = (ØD - Ød)/2 [mm]
5 - 9.9	4	2,5
10 - 24.9	4,5	3
25 - 49.9	5,5	4
50 - 99.9	6,5	5
100 - 149.9	9,5	7,5
150 - 299.9	12,5	10
300 - 499.9	15	12,5
500 - 700	17,5	15
>700	22	20

## fitted



we recommend the following values for cross sections and housing heights in accordance to the diameter range

