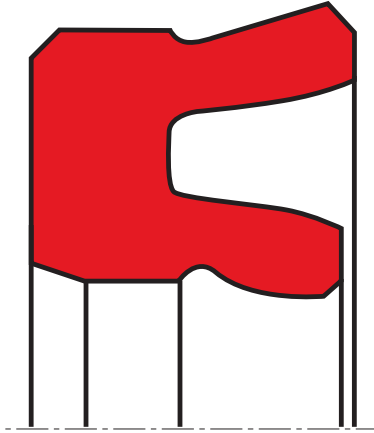


## rod seal S05-R

## seal spec



### application



### description

as profile S05-R, good wear resistance and adaptation possibilities for diverse temperatures and media by selection of suitable seal material. special design of sealing lip allows retention of initial lubricating film.

- asymmetric single-acting rod lip seals, with the dynamic sealing lip being shaped differently than the static one.
- nominal dimension on outside diameter.
- various materials are available for varying applications.
- snaps into simple grooves (see notes on installation).
- best sealing effect across a wide temperature range.
- sealing effect enhanced by high recovery rate of the lubricant.
- the specific geometry supports the maintenance of the initial lubricating film thereby avoiding dry- running.
- for pressures up to 25 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 tendency of "stick-slip".
- small break-away load after prolonged standstill.

### category of profile

machined only.

### single acting

the S05-R seal is designed for use as a rod seal.

### area of application: pneumatic

- reciprocating rods on pneumatic cylinders, push rods, fittings.
- as rod seal in heavy machine construction with impact load.
- suitable for dry and conditioned air.
- can be used as a pivot seal for small loads.

### note

- the ratio between nominal width and sealing height  $c_s/H$  should not drop below a value of 1/1.25 (mainly according to ISO 5597 housings for piston and rod seals).

### function

S05-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 pneumatic systems (conditioned or dry air with initial lifetime lubrication). 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 parameters & material**

diameter range: up to 600 mm

material	temperature	max. surface speed	max. pressure <sup>1</sup>	hydrolysis	dry running	wear resistance
s-mart NBR	-30 °C ... +100 °C	1 m/s	25 bar (2,5 MPa)	-	-	O
s-mart FKM	-20 °C ... +200 °C	1 m/s	25 bar (2,5 MPa)	-	-	O
s-mart EPDM <sup>1</sup>	-50 °C ... +150 °C	1 m/s	25 bar (2,5 MPa)	++	-	O
s-mart HNBR	-25 °C ... +150 °C	1 m/s	25 bar (2,5 MPa)	+	O	+

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.

<sup>1</sup> attention: not suitable for mineral oils!

++ ... particularly suitable

o ... conditional suitable

+ ... suitable

- ... not suitable

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 wear resistance.

**gap dimension**

referring to the low pressure range in standard pneumatic applications the extrusion gap depends only on cross section and temperature. the maximum value of the permissible extrusion gap is reached when the piston or the piston rod touches one side of the cylindrical tube or the guide. the extrusion gap should not exceed 10% of the cross section for 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

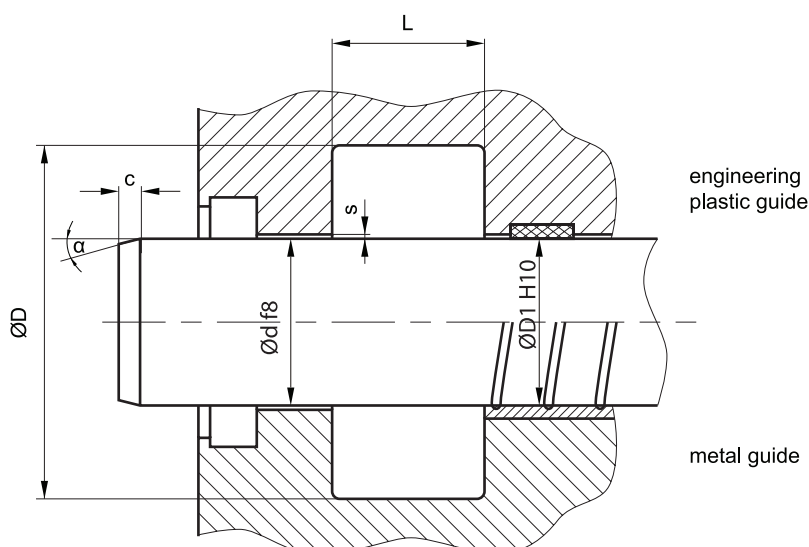
**tolerance recommendation**

seal housing tolerances	
Ød	f8
ØD	H10

**mode of installation**

for inside diameters of 25 mm or more, and dependant on the radial cross section (cs), the seal can be snapped into the housing.

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

**recommended mounting space:**

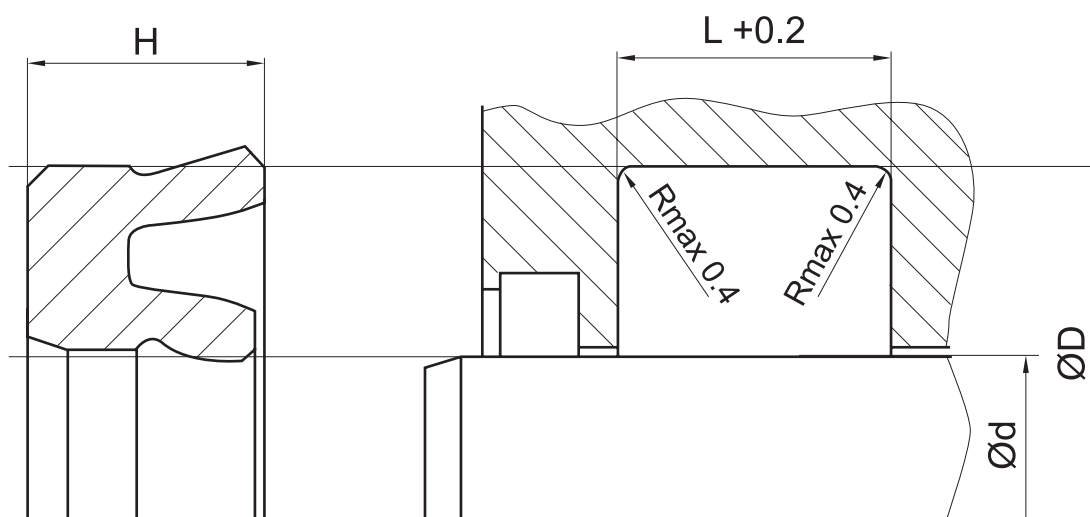
**insertion chamfer:**

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)	
	$\alpha = 15^\circ \dots 20^\circ$	$\alpha = 20^\circ \dots 30^\circ$
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 & 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...

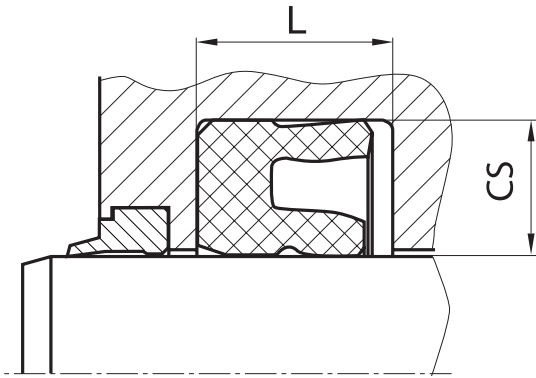


the ratio between nominal width and seal height  $cs/H$  should not drop below  $1/1,25$ . therefore we recommend the following housing heights.

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



**fitted:**



*don't hesitate to contact our technical department for further information or for special requirements (temperature, speed etc.), so that suitable materials and/or designs can be recommended.*