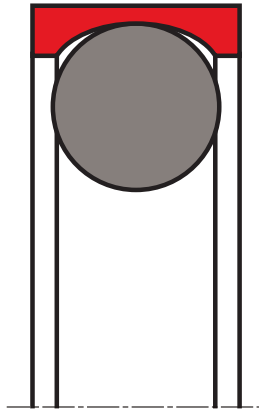


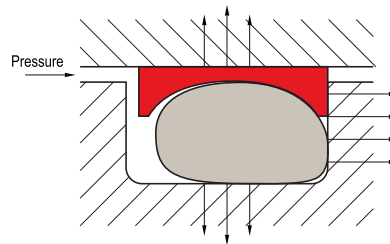
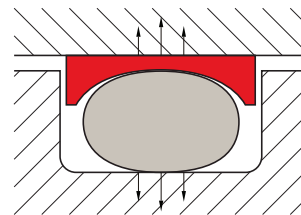
## piston seal K08-SB

## seal spec



### description

the K08-SB is a rubber energised plastic faced seal. the seal is designed to expand and improve the service parameters of O-Rings and is installed in existing O-Ring grooves. K08-SB combines the flexibility and response of O-Rings with the wear and friction characteristics of the PTFE series materials in dynamic applications. the double acting performance of the seal follows from the symmetrical cross section which allow the seal to respond to pressure in both directions. initial contact pressure is provided by radial compression of the O-Ring. when the system pressure is increased the O-Ring transforms this into additional contact pressure, the contact pressure of the seal is thereby automatically adjusted so sealing is ensured under all service conditions. the drawing below shows the cross section of K08-SB, without and with pressure.



### application



not bolded symbols; please consult our technical for application limitations

### category of profile

machined or molded/standard/trade product.

### double acting

the K08-SB seal is designed for use as a piston seal.

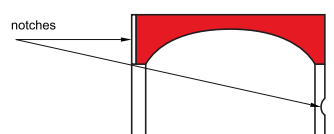
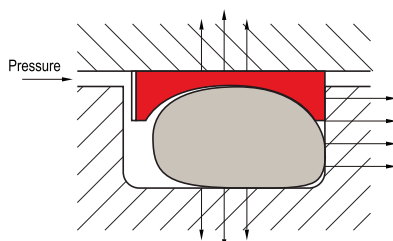
### area of application: hydraulics

the K08-SB is the recommended sealing element for double acting pistons of hydraulic or pneumatic cylinders in sectors such as:

- machine tools, handling devices, manipulators, valves, chemical process equipment.
- it is particular recommended for light duty and small diameter applications.

### notches

K08-SB is as standard supplied without radial notches, as the thin radial section of the seal gives good response to pressure variations. for diameters from 8 mm notches on both sides are optional. these ensure direct pressurizing of the seal under all operating conditions.



**advantages**

- compact groove dimensions and simple installation
- low friction without stick-slip
- resistance against wear and extrusion
- piston seals available for all diameters from 5 to 999,9 mm
- standard cross sections cover AS 568A and important metric O-Rings, other cross sections available on request
- fits also groove dimensions per MIL-G-5514F

**operating parameters & material for standard application:**

material		temperature	max. surface speed	max. pressure <sup>1</sup>
sealing element	energizer			
s-mart PTFE bronze	NBR 70 Shore A	-30°C ... + 100°C	15 m/s	350 bar (350 MPa)
	NBR 70 Shore A (low temp.)	-45°C ... + 80°C	15 m/s	350 bar (350 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	15 m/s	350 bar (350 MPa)

for hydraulic components with reciprocating movement in mineral oils containing zinc or medium with good lubricating performance and hard mating surface.

standard material for hydraulics, high compressive strength, good sliding and wear properties, good extrusion resistance, BAM tested.

mating surface material: steel tubes, steel hardened cast iron

colour: greyish to dark brown

**operating parameters & material for special application:**

material		temperature	max. surface speed	max. pressure <sup>1</sup>
sealing element	energizer			
s-mart PTFE carbon	NBR 70 Shore A	-30°C ... + 100°C	15 m/s	250 bar (25 MPa)
	NBR 70 Shore A (low temp.)	-45°C ... + 80°C	15 m/s	250 bar (25 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	15 m/s	250 bar (25 MPa)
	EPDM <sup>2</sup> 70 Shore A	-45°C ... + 145°C	15 m/s	250 bar (25 MPa)

short stroke movements, poor lubricating fluids and soft mating surfaces.

for all lubricating and non-lubricating hydraulic fluids, soft matings urfaces

mating surface material: steel, steel hardened cast iron, stainless steel, aluminium, bronze

colour: black

*important note:*

*the above data are maximum values 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.

<sup>1</sup> pressure ratings are dependent on the size of the extrusion gap.

<sup>2</sup> attention: not suitable for mineral oils!

**gap dimension**

bore diameter - D (H9)		d (h9)	L + 0,2	R	max. permissible gap dimension - s				O-Ring cross section
standard range	extended range				2 MPa	10 MPa	20 MPa	35 MPa	
5 ~ 13,9	5 ~ 139,9	D - 2,9	2,4	0,4	0,10	0,10	0,08	0,05	1,78
14 ~ 24,9	8 ~ 259,9	D - 4,5	3,6	0,4	0,15	0,15	0,10	0,07	2,62
25 ~ 24,9	12 ~ 469,9	D - 6,2	4,8	0,6	0,25	0,20	0,15	0,08	3,53
46 ~ 124,9	20 ~ 669,9	D - 9,4	7,1	0,8	0,35	0,25	0,20	0,10	5,33
125 ~ 669,9	80 ~ 999,9	D - 12,2	9,5	0,8	0,50	0,30	0,25	0,15	6,99
670 ~ 999,9	125 ~ 999,9	D - 15,0	10,0	1,0	0,60	0,40	0,30	0,50	8,40

*important note:*

*the above data are maximum values 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.*



### surface quality

surface roughness	material	Rtmax [ $\mu\text{m}$ ]	Rz DIN [ $\mu\text{m}$ ]	Ra [ $\mu\text{m}$ ]
mating surface	PTFE + .....	0.63 - 2.50	0.40 - 1.60	0.05 - 0.20
	PU & Rubber	1.00 - 4.00	0.63 - 2.50	0.10 - 0.40
groove surface		< 16	< 10.0	< 1.6

### tolerance recommendation

#### seal housing tolerances

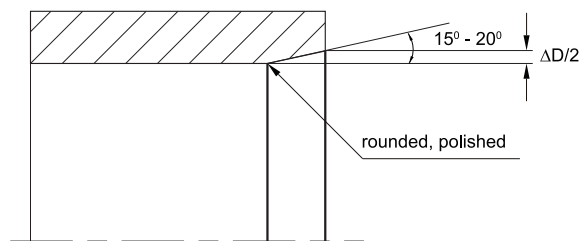
$\varnothing d$	h9
$\varnothing D$	H9

### lead-in chamfers

in order to avoid damage to the seal during installation, lead-in chamfers and rounded edges must be provided on the bore or piston rod (see drawing below).

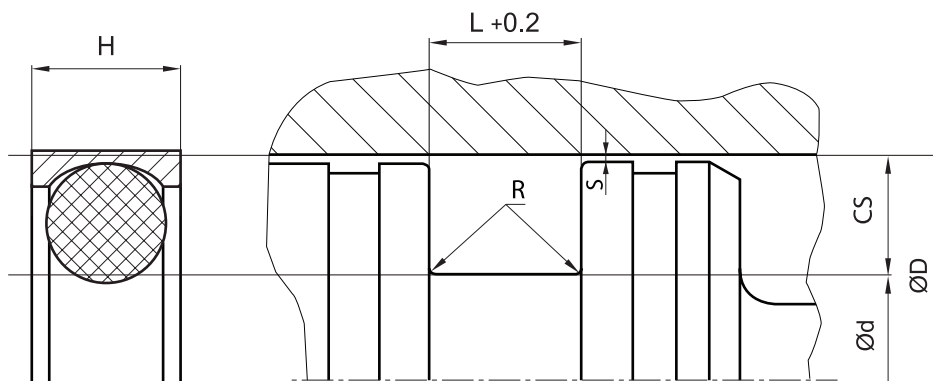
the minimum length of the lead-in chamfer depends on the profile size of the seal and can be seen from the following tables.

lead-in chamfer* diameter increase $\Delta D$ min	O-Ring cross section
1,4	1,78 - 2,00
1,8	2,40 - 2,62
2,4	3,00 - 4,00
3,2	5,00 - 5,70
4	7,00 - 8,40



### 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...



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.