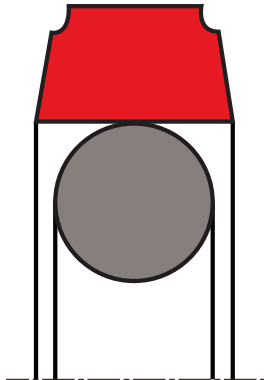


## piston seal K08-SA

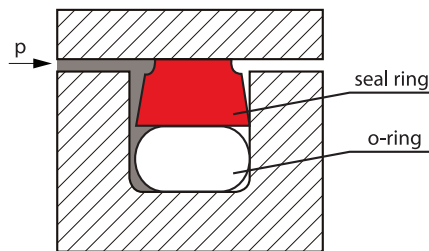
## seal spec



### description

K08-SA is a further technical development of the K08-D seal which has been successfully used for decades. it is fully interchangeable with the earlier K08 seals in all new applications. the benefits of the patented seal concept are provided by the innovative functional principle of the trapezoidal profile cross-section.

- both lateral profile flanks are inclined so that the seal profile tapers towards the seal surface. the profile can thus retain the robust and compact form typical of piston seals without losing any of the flexibility required to achieve a pressure-related maximum compression (see drawing below).



- the edge angle created by the special K08-SA cross-sectional form permits an additional degree of freedom and enables a slight tilting movement of the seal. the maximum compression is thus always shifted towards the area of the seal edge directly exposed to the pressure. on the low-pressure edge of the seal, on the other hand, the K08-SA exhibits only zones with neutral strains without compressive or shearing loads, thus effectively reducing the danger of gap extrusion.

### application



### category of profile

machined or molded/standard/trade product.

### double acting

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

### area of application: hydraulics

the K08-SA is the recommended sealing element for double acting pistons of hydraulic components such as: injection moulding machines, machine tools, presses, excavators, forklifts & handling machinery, agriculture, valves for hydraulic & pneumatic circuits.

### advantages

the benefits offered to date by the K08-SA are still retained in full, and are now complemented by a number of further important advantages:

- very good static leak-tightness
- increased clearance possible (approx. +50%), depending on the operating conditions.
- due to the larger extrusion gap, safe use even with soiled media.
- low friction, no stick-slip effect.
- simple groove design, one-piece pistons possible.
- installation grooves to ISO 7425/1.
- adaptable to the operating conditions due to a wide range of possible materials.
- suitable for new environmentally safe hydraulic fluids.
- available for all cylinder diameters up to 2.700 mm.

### operating parameters & material for standard application:

material		temperature	max. surface speed	max. pressure <sup>1</sup>
sealing element	energizer			
	NBR 70 Shore A	-30°C ... + 100°C	15 m/s	600 bar (60 MPa)
s-mart PTFE bronze	NBR 70 Shore A (low temp.)	-45°C ... + 80°C	15 m/s	600 bar (60 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	15 m/s	600 bar (60 MPa)

for hydraulic components with reciprocating movement in mineral oils containing zinc or medium with good lubricating performance. for hydraulic 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			
PTFE + carbon fibre (high carbon fibre filled)	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)

non-lubricating fluids or pneumatic applications require self-lubricating sealing materials.

for all lubricating and non-lubricating hydraulic fluids, hydraulic oils without zinc, water hydraulic, soft mating surfaces, good extrusion resistance. surface texture not suitable for gases.

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

colour: grey

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

material		temperature	max. surface speed	max. pressure <sup>1</sup>
sealing element	energizer			
s-mart PU	NBR 70 Shore A	-30°C ... + 100°C	15 m/s	800 bar (80 MPa)
	NBR 70 Shore A (low temp.)	-45°C ... + 80°C	15 m/s	800 bar (80 MPa)

if rougher surface finish must be sealed.

for lubricating hydraulic fluids, high abrasion resistance, high extrusion resistance, limited chemical resistance.

mating surface material: steel, steel, hardened, cast iron, ceramic coating, stainless steel

colour: yellow to light-brown

important note:

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.

<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 1			O-Ring cross section
standard application	light application	heavy duty application				10 MPa	20 MPa	40 MPa	
8 ~ 14,9	15 ~ 39,9	~	D - 4,9	2,2	0,4	0,40	0,30	0,20	1,78
15 ~ 39,9	40 ~ 79,9	~	D - 7,5	3,2	0,6	0,60	0,50	0,30	2,62
40 ~ 79,9	80 ~ 132,9	15 ~ 39,9	D - 11,0	4,2	1,0	0,70	0,50	0,30	3,53
80 ~ 132,9	133 ~ 329,9	40 ~ 79,9	D - 15,5	6,3	1,3	0,80	0,60	0,40	5,33
133 ~ 329,9	330 ~ 669,9	80 ~ 132,9	D - 21,0	8,1	1,8	0,80	0,60	0,40	6,99
330 ~ 669,9	670 ~ 999,9	133 ~ 329,9	D - 24,5	8,1	1,8	0,90	0,70	0,50	7,00
670 ~ 999,9	~	330 ~ 669,9	D - 28,0	9,5	2,5	1,00	0,80	0,60	8,40
≥ 1000 <sup>2</sup>	≥ 1000 <sup>2</sup>	≥ 1000 <sup>2</sup>	D - 38,0	13,8	3,0	1,20	0,90	0,70	12,00

important note:

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.

<sup>1</sup> at pressures > 40 MPa use diameter tolerance H8/f8 (bore/piston) in area of the seal. the radial clearance is valid for material PTFE + Bronze at +60°C.

<sup>2</sup> energiser has a special shape.

**surface quality**

surface roughness	material	Rtmax [µm]	Rz DIN [µm]	Ra [µm]
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

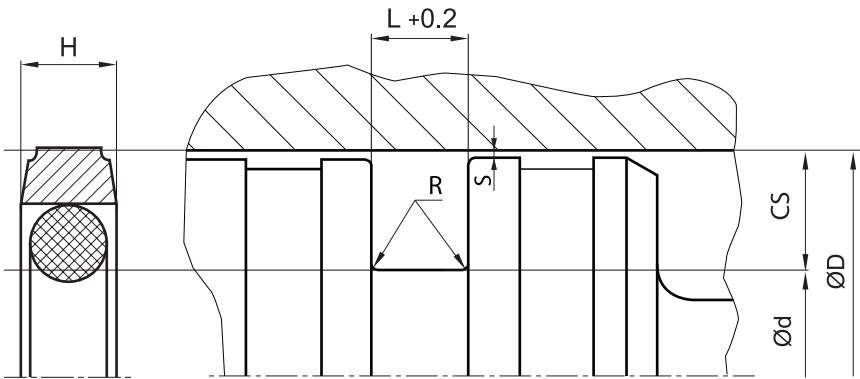


tolerance recommendation

seal housing tolerances	
$\varnothing d$	h9
$\varnothing D$	H9

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.