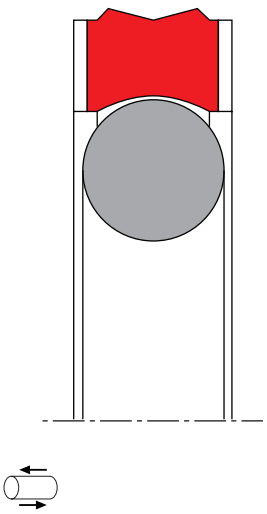
SEAL SPEC
K08-P



description

o-ring activated symmetric PU piston seal with excellent static and dynamic sealing capacity, remedy wear resistant.

+ asymmetric double-acting composite piston seals, with a gliding part made of excellent wear resistant polyurethane and an elastic preload element.
+ interference fit on the inside diameter.
+ various materials are available for different purposes.
+ snaps into simple grooves (see notes on installation).
+ the free space on the trailing side reduces the risk of gap extrusion.
+ highest degree of sealing across a wide temperature range.
+ for pressures up to 250 bar as a seal between pressurised space and atmosphere.
+ excellent sealing in all pressure ranges.
+ excellent static and dynamic sealing.
+ suitable for short and long travel with extremely slow or quick movements.
+ no stick- slip. no drag pressure build-up.
+ small break-away load after prolonged periods of standstill.
+ suitable for holding functions.
+ because of the excellent sealing effect a fluid transport between the pressurised spaces is practically prevented.

category of profile

machined or molded/standard/trade product

double acting

the K08-P seal is designed for use as a piston seal

area of application; hydraulics

- reciprocating pistons on hydraulic cylinders, small swivelling motion permissible. as piston seal at simple designs in medium pressure range.
- dimensions according to ISO 7425 part 1 are common, as well as standard types that differ slightly in the depth of the mounting space. for specific dimensions see "range of profile sizes".

note

- the calculation program is based on mounting spaces according to ISO 7425, part 1. intermediate sizes are possible, with an o-ring for standard sizes. for deviating dimensions choose a different profile.

function

K08-P profiles are composite piston seals designed to seal between two pressurised spaces; 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.

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operating parameter & material

sealing element	material energizer	back-up ring	temperature	max surface speed	max pressure[1]	hydrolysis	dry running	wear resistance
PU	NBR	-	-30 °C ... +100 °C	1,0 m/s	250 bar (25 MPa)	-	+	++
HPU	NBR	-	-20 °C ... +100 °C	1,0 m/s	250 bar (25 MPa)	-	+	++
TPU	NBR	-	-30 °C ... +100 °C	1,0 m/s	250 bar (25 MPa)	-	+	++
SPU	NBR	-	-20 °C ... +100 °C	1,4 m/s	250 bar (25 MPa)	-	++	++
GPU	NBR	-	-30 °C ... +100 °C	1,0 m/s	250 bar (25 MPa)	-	+	++

[1] 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).

note on special material:
as temperature limit and chemical resistance are determined by the preload element, the temperature range can be increased and the resistance to chemical influences improved, if a special material is used for the preload element.

gap dimension

operating pressure	cs = (ØD - Ød)/2 mm 2,45	3,75	5,5	7,75	10,5	12,25
	safe extrusion gap (mm)					
50 bar (5 MPa)	0,28	0,39	0,45	0,55	0,63	0,72
100 bar (10 MPa)	0,22	0,30	0,34	0,40	0,45	0,54
150 bar (15 MPa)	0,18	0,24	0,26	0,32	0,36	0,43
200 bar (20 MPa)	0,15	0,20	0,22	0,25	0,29	0,35
250 bar (25 MPa)	0,13	0,16	0,18	0,21	0,24	0,29

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	h10
ØD	H9

mode of installation

the seal can generally be snapped over the piston by hand without problems.

insertion chamfer

in order to avoid damage to the piston seal during installation, the piston and the housing 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°
2,45	2,5	1,5
3,75	3,5	2
5,5	4,5	3
7,75	5	3,5
10,5	6	5
12,25	8	6

instead of a chamfer, the piston can also be designed with a radius. recommended size of the radius is equal to size of chamfer (R=c).

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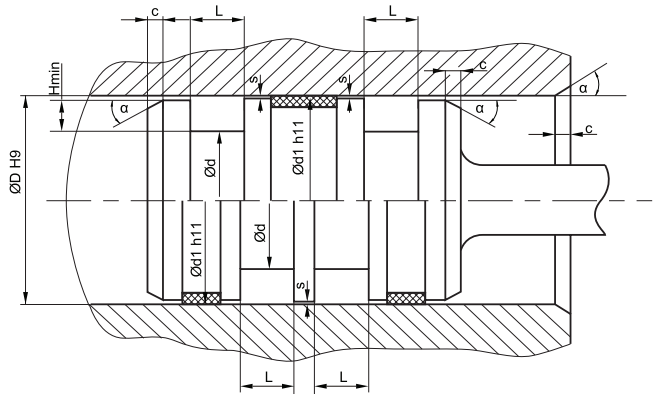
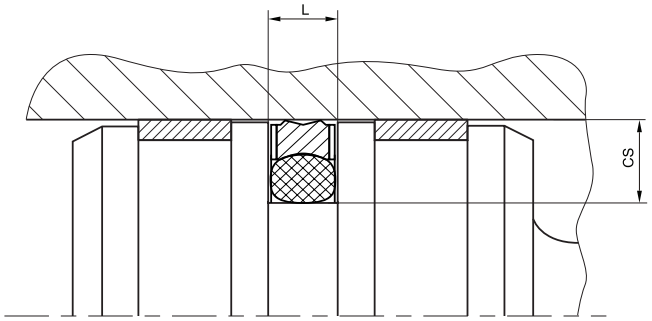
recommended mounting space



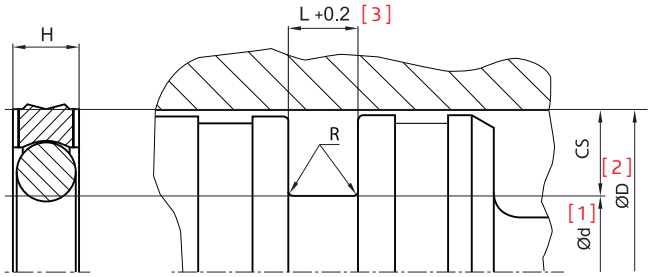
plastic guiderings (wearbands) have to feature a adequate cutting gap (recommendation: 2-5% of D). if metalic guides are used, spiral grooves shall be provided. smaller values for Hmin will ease the installation (reduced elongation and mounting force) but the height of the retaining collar has to be sufficient to assure a stable fit in the housing (larger than cs/2, smaller retaining collars will increase the danger of eversion of the profile in case of occuring drag pressure). in order to avoid drag pressure built up in case of back-to-back arrangement, the distance between the seals should be as small as possible.

fitted



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...



Ød [mm] [1]	ØD [mm] [2]	L [mm] [3]	cs = (ØD - Ød)/2 [mm]
ØD - 4,9	8 ~ 14,9	2,2	2,45
ØD - 7,5	15 ~ 39,9	3,2	3,75
ØD - 11	40 ~ 79,9	4,2	5,5
ØD - 15,5	80 ~ 132,9	6,3	7,75
ØD - 21	133 ~ 329,9	8,1	10,5
ØD - 24,5	330 ~ 669,9	8,1	12,25

the ratio between nominal width and seal height cs/H should not drop below 1/1.25. therefore we recommend the following housing heights.

L	R
≤ 4,2	max. 0,5
> 4,2 .....≤ 6,3	max. 0,8
> 6,3 .....≤ 8,1	max. 1,2
> 8,1	max. 2