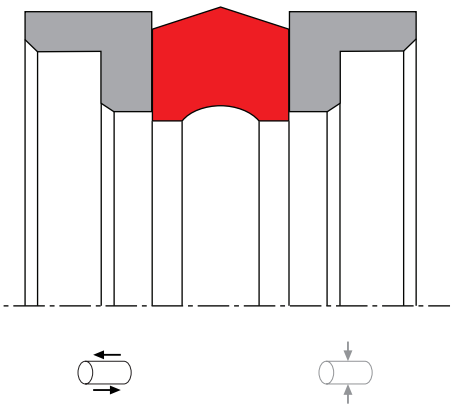
SEAL SPEC
K17-P



description

space saving, compact piston seal with integrated guiding elements excellent static sealing capacity, suitable for small housings.

+ asymmetric double-acting compact piston seal set, consisting of a gliding part, a preload element and combined guiding and backup elements.
+ interference fit on the inside diameter.
+ various materials are available for different purposes.
+ easy to slip over stepped grooves (see notes on installation and recommended mounting space).
+ highest degree of sealing across a wide temperature range.
+ for pressures up to 250 bar as a seal between pressurised spaces.
+ excellent sealing in all pressure ranges.
+ very good static sealing and excellent dynamic sealing.
+ suitable for short and long travel.
+ due to compact design an inexpensive construction of piston is possible.
+ no drag pressure build-up.
+ because of the excellent sealing effect, a fluid transport between the pressurised spaces is practically prevented.
+ 1 groove on the inside diameter of the preload element for local limiting the preload force.

category of profile

machined or molded/standard/trade product.

double acting

the K17-P seal is designed for use as a piston seal

area of application; hydraulics

- reciprocating pistons in hydraulic cylinders.
- as piston seals for clamping function resp. for moderate requests for movement.

note

- the ratio between nominal width and sealing height cs/H should be approximately 1/2.
- for cross sections above 10 mm we recommend to use profile K09-N.

function

K17-P profiles are compact 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.

SEAL SPEC
K17-P

operating parameter & material

sealing element	material energizer	back-up ring	temperature	max surface speed	max pressure[1]	hydrolysis	dry running	wear resistance
PU	-	POM/PA[2]	-30 °C ... +100 °C	0,5 m/s	250 bar (25 MPa)	-	+	+
HPU	-	POM/PA[2]	-20 °C ... +100 °C	0,5 m/s	250 bar (25 MPa)	+	+	+
LTPU	-	POM/PA[2]	-40 °C ... +100 °C	0,5 m/s	250 bar (25 MPa)	-	+	+
SPU	-	POM/PA[2]	-20 °C ... +100 °C	0,7 m/s	250 bar (25 MPa)	+	++	+
GPU	-	POM/PA[2]	-30 °C ... +100 °C	0,5 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

[2] POM up to ø260 mm, PA above ø260 mm

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:
the temperature limits are determined by the guide- and support parts, using special materials can expand the temperature limits.

gap dimension

by using the guide and support parts, the extrusion gap for the sealing part is already integrated in the seal. the gap between piston and housing should not exceed (D-d1)·0.13 resp. 1 mm, fabrication tolerances have to be included.

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
Ød1	h7
ØD	H9

mode of installation

the first guiding- and backup element should be placed into the groove, then the sealing element should be slipped over the piston and snapped into the groove, then the second guiding- and backup element should be placed into the groove. for inside diameters of 40mm and more, the seal can generally be slipped over the piston and snapped into closed grooves. due to occuring deformation force at installation, assembly aid tools are to be used for large cross-sections. the material deformation should not exceed the value of 20%, otherwise the permanent deformation would be too large.

insertion chamfer

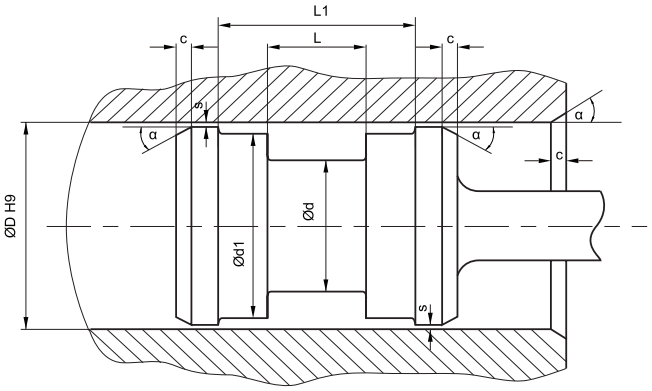
in order to avoid damage to the piston seal during installation, the piston and the housing is to be chamfered and rounded as shown in the "recommended mounting space" drawing. the size of chamfer depends on the seal type and profile width.

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

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).

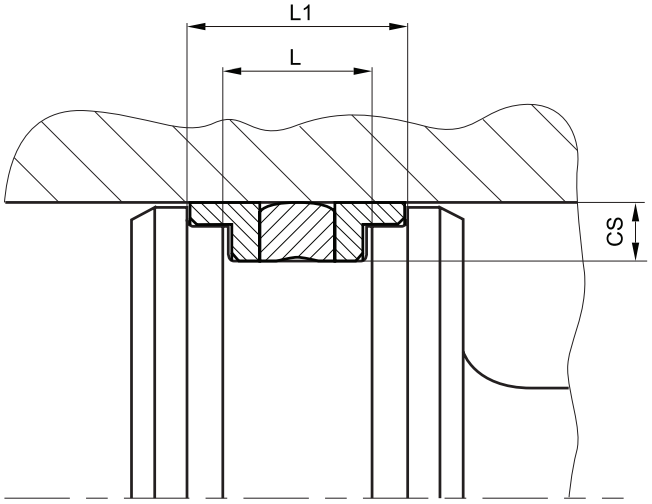
SEAL SPEC
K17-P

recommended mounting space



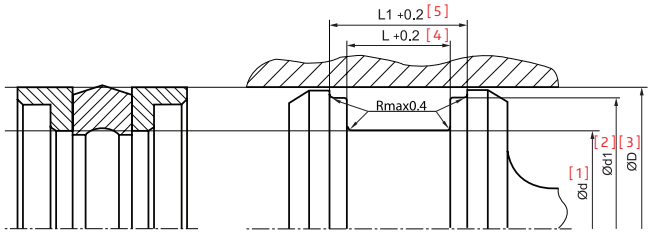
plastic guiderings (wearbands) have to feature a adequate cutting gap (recommendation: 2-5% of D). if metalic guides are used, spiral grooves shall be provided. smaller values for Hmin will ease the installation (reduced elongation and mounting force) but the height of the retaining collar has to be 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...



Ød1 [mm] [2]	ØD [mm] [3]	L [mm] [4]	L1 [mm] [5]	cs = (ØD - Ød)/2
ØD - 3	20 ~ 49,9	10	18	4
ØD - 3	50 ~ 79,9	10	18	5
ØD - 4	80 ~ 119.9	15	23	7,5
ØD - 5	120 ~ 199.9	20	33	10
ØD - 6	200 ~ 399.9	25	39	12,5
ØD - 8	400 ~ 750	30	44	15
ØD - 8	> 750	40	54	20

the ratio between nominal width and seal height cs/H should be approximately 1/2. therefore we recommend the following housing heights.