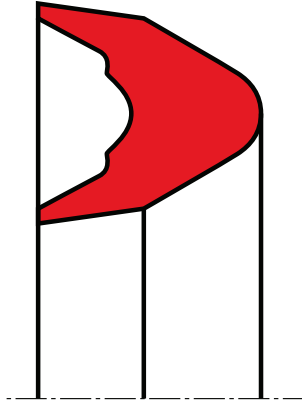


piston seal K24-P

seal spec

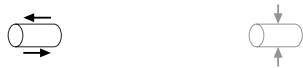


description

chevron ring with flexible lip design. replacement part for standard commercial housings (male and female adapter mainly made of metal).

- symmetric single-acting piston seal ring to be used in combination with already existing pressure ring and support ring (mainly made of metal or integrated in the housing).
- various materials are available for different purposes.
- good sealing effect in the higher pressure range
- due to the strong trailing side suitable for pressures up to 500 bar (PU) resp. 250 bar (Rubber) as a seal between pressurised spaces.
- excellent static and dynamic sealing.
- suitable for short and long travel.
- very sturdy and wear-resistant (PU).
- insensitive to thermal damage caused by air in the oil.
- open mounting space required (see mode of installation).
- mainly used for repair purposes. use more modern systems for new designs.
- friction is less than with the K1012 type, but greater than with more modern sealing systems (e.g. K08). the mechanical efficiency of this packing is thus less than that of more state-of-the-art systems.
- the central support prevents wedging of the individual packings under pressure. therefore the frictional forces in the high pressure range are relatively low.

application



not bolded symbols; please consult our technical for application limitations

category of profile

machined only.

single acting

the K24-P seal is designed for use as a piston seal - either single.

area of application: hydraulics

reciprocating pistons in hydraulic cylinders; small swivelling motion also permissible. especially for heavy hydraulic applications or heavy-duty operating conditions and in the case of tread wear. used for sealing pistons and plungers of upstroke presses, where the return stroke is generated by it's own weight.

note

- expensive and complex design.
- no adjustment possible.
- only available for commercial cross sections. for deviations (e.g. reworked housings) the total sealing sets (K1315-T resp. S1315-T) should be used.

function

K24-P profiles are single acting piston seals designed to seal pressurised space against the atmosphere or - in case of back to back arrangement with intermediate guidinging - 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.

**operating parameters & material**

diameter range: up to 600 mm

material	temperature	max. surface speed	max. pressure ¹	hydrolysis	dry running	wear resistance
s-mart PU	-30 °C ... +110 °C	0,5 m/s	500 bar (50 MPa)	-	+	++
s-mart HPU	-20 °C ... +110 °C	0,5 m/s	500 bar (50 MPa)	++	+	++
s-mart LTPU	-50 °C ... +110 °C	0,5 m/s	500 bar (50 MPa)	-	+	++
s-mart SPU	-20 °C ... +110 °C	0,7 m/s	500 bar (50 MPa)	++	++	++
s-mart GPU	-30 °C ... +110 °C	0,5 m/s	500 bar (50 MPa)	++	+	++
s-mart NBR	-30 °C ... +100 °C	0,5 m/s	250 bar (25 MPa)	-	-	O
s-mart FKM	-20 °C ... +200 °C	0,5 m/s	250 bar (25 MPa)	-	-	O
s-mart EPDM ²	-50 °C ... +150 °C	0,5 m/s	250 bar (25 MPa)	++	-	O
s-mart HNBR	-25 °C ... +150 °C	0,5 m/s	250 bar (25 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.

¹ pressure ratings are dependent on the size of the extrusion gap.

² POM up to Ø260 mm, PA above Ø260 mm

++ ... 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, polyurethan materials increase wear resistance. for higher gliding speeds another system should be used (e.g. PTFE materials).

gap dimension

when using a pressure ring, the extrusion gap is already integrated in the seal. the gap between piston and housing should not exceed $cs-0.05$.

surface quality

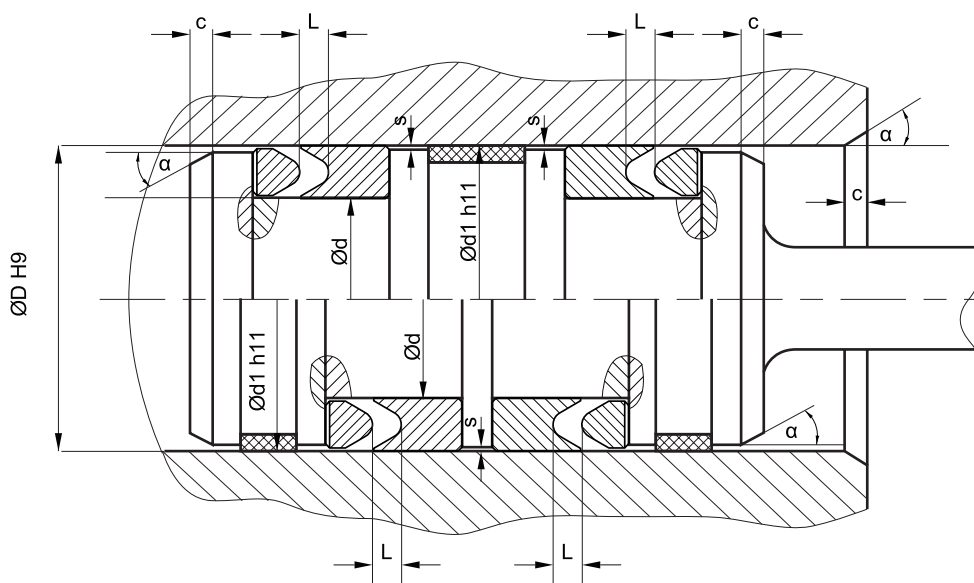
surface roughness	Rtmax (µm)	Ra (µm)
sliding surface	≤2,5	≤0,1-0,5
bottom of groove	≤6,3	≤1,6
groove face	≤15	≤3

tolerance recommendation

seal housing tolerances	
Ød	f8
ØD	H9

mode of installation

open housings are required, the pressure and the support element have to be in existence already.

recommended mounting space:

plastic guiderings (wearbands) have to feature a adequate cutting gap (recommendation: 2-5% of D). if metallic guides are used, spiral grooves shall be provided. 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.

**insertion chamfer:**

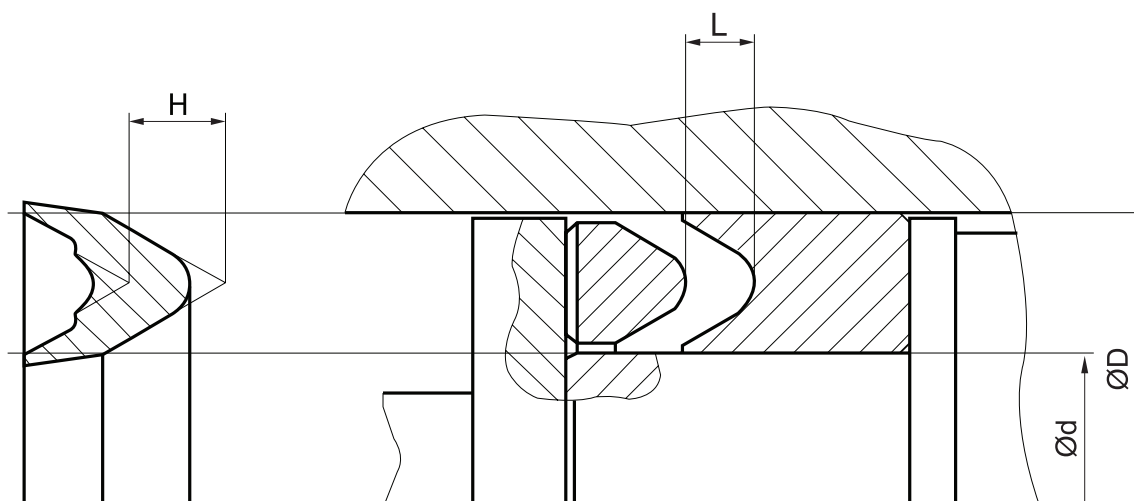
in order to avoid damage to the piston seal during installation, the piston and the housing is to be chamfered and rounded as shown in the "recommended mounting space" drawing. the size of chamfer depends on the seal type and profile width.

cs (mm)	c (mm)	
	$\alpha = 15^\circ \dots 20^\circ$	$\alpha = 20^\circ \dots 30^\circ$
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

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 & 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...

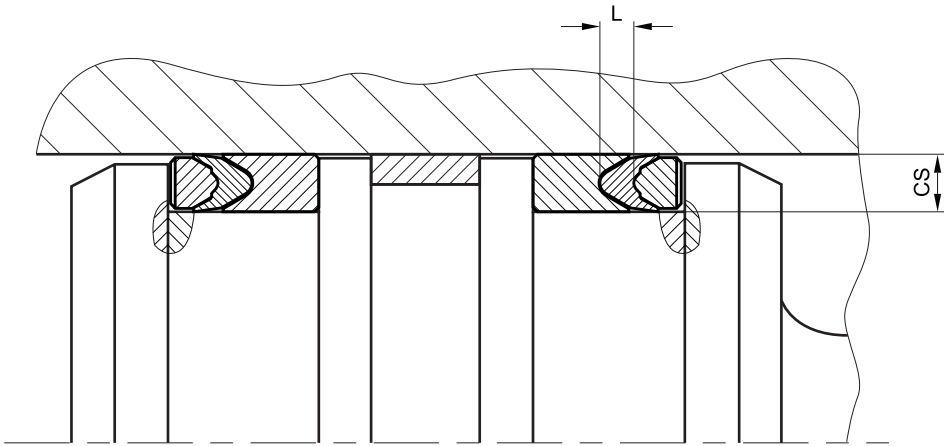


the profile should only be used for replacement if such housings are already existing. use more modern systems for new designs. the following table shows cross sections with the corresponding chevron heights:

$cs = (\text{ØD} - \text{Ød})/2$ [mm]	H [mm]
5	4
5,5	4,5
6	4,5
7	5
7,5	5
8	5
10	6
12	7
12,5	8,5
15	8,5
20	11
25	12,5
30	14



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.