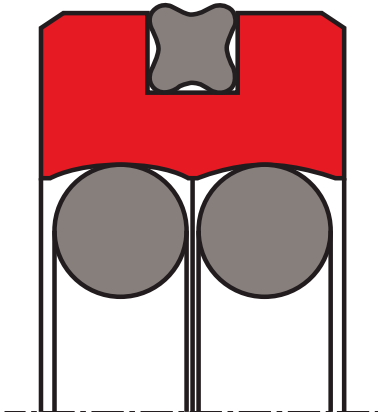


piston seal K60

seal spec



description

the seal profile of the K60 has been redesigned on both the dynamic and static sealing surface. two O-rings are used to energize the seal instead of one.

the K60 combines the benefits of a low-friction PTFE filled slipper seal with the high sealing characteristics of an elastomeric seal by incorporating a limited foot print X-ring seal in the dynamic sealing face. this optimizes leakage control while minimizing friction.

the particular characteristics of the K60 are the special seal profile with a defined seal edge and the use of two O-Rings as energizing elements to optimize the pressure profile and to reduce the force of attack at gas permeability.

application



not bolded symbols; please consult our technical for application limitations

category of profile

machined or molded/standard/trade product.

double acting

the K60 seal is designed for use as a piston seal.

area of application: hydraulics

the K60 is the recommended sealing element for double acting pistons of accumulators and positioning and holding cylinders for:

- machine tools
- presses
- rolling mills
- off shore
- accumulators
- heavy duty suspension cylinders

it is particularly recommended for heavy duty and large diameter applications.

media: for all common hydraulic fluids, including bio-oils and gases

advantages

- high sealing effect in applications requiring media separation, e.g. fluid/fluid or fluid/gas.
- double security through the combination of low-friction special materials with elastomer seals.
- low gas permeation rate.
- higher pressure application, higher sliding speed compared to the K61
- outstanding sliding properties, no stick-slip effect.

operating parameters & material for standard application:

material		temperature	max. surface speed	max. pressure ¹
sealing element	energizer			
s-mart PTFE bronze	NBR 70 Shore A	-30°C ... + 100°C	3 m/s	600 bar (60 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	3 m/s	600 bar (60 MPa)

for hydraulic components in mineral oils or medium with good lubricating performance.

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 ¹
sealing element	energizer			
PTFE + carbon fibre (carbon, graphite filled)	NBR 70 Shore A	-30°C ... + 100°C	3 m/s	250 bar (25 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	3 m/s	250 bar (25 MPa)
	EPDM ² 70 Shore A	-45°C ... + 145°C	3 m/s	250 bar (25 MPa)

for special applications requiring other material combinations, please contact our technical department for further information.

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

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

colour: grey.

operating parameters & material for standard application:

material		temperature	max. surface speed	max. pressure ¹
sealing element	energizer			
PTFE + carbon graphite (carbon, graphite filled)	NBR 70 Shore A	-30°C ... + 100°C	3 m/s	600 bar (60 MPa)
	FKM 70 Shore A	-10°C ... + 200°C	3 m/s	600 bar (60 MPa)
	EPDM ² 70 Shore A	-45°C ... + 145°C	3 m/s	600 bar (60 MPa)

for hydraulic components in mineral oils or medium with good lubricating performance.

for oil hydraulic and pneumatic for all lubricating and non-lubricating fluids, high extrusion resistance, good chemical resistance, BAM tested

mating surface material: steel, stainless steel.

colour: black.

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 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	X-Ring cross section
recommended range	extended range				10 MPa	20 MPa	40 MPa		
40 - 79.9	25 - 140	D - 10.0	6,3	0,6	0,30	0,20	0,15	2,62	1,78
80 - 132.9	50 - 250	D - 13.0	8,3	1,0	0,40	0,30	0,15	3,53	2,62
133 - 462.9	100 - 480	D - 18.0	12,3	1,3	0,40	0,30	0,20	5,33	3,53
463 - 700.0	425 - 700	D - 31.0	16,3	1,8	0,50	0,40	0,30	7,00	5,33

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.

¹ at pressures > 30 MPa use diameter tolerance H8/f8 (bore/piston) in area of the seal.

surface quality

surface roughness	material	temperature	max. surface speed	max. pressure ¹
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

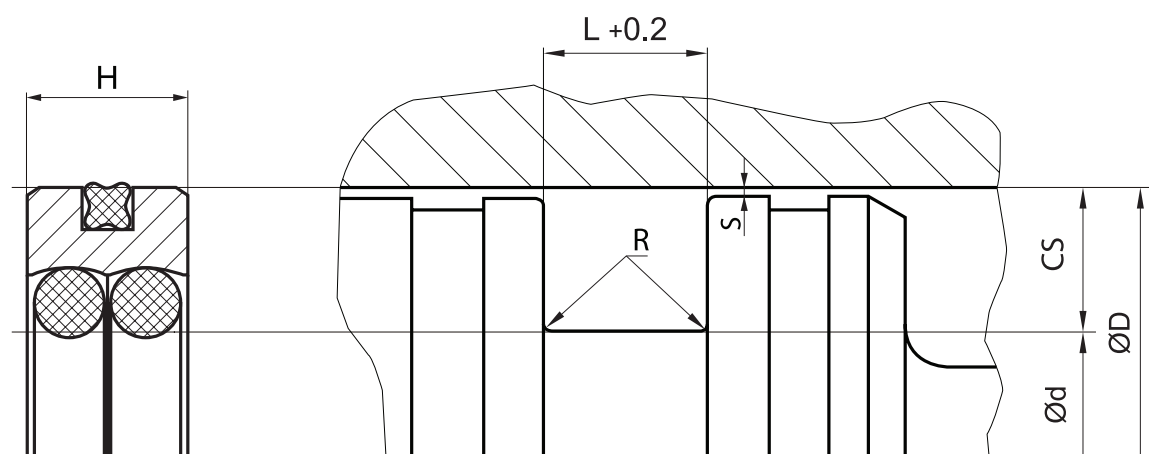
tolerance recommendation

seal housing tolerances	
Ød	h9
ØD	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.