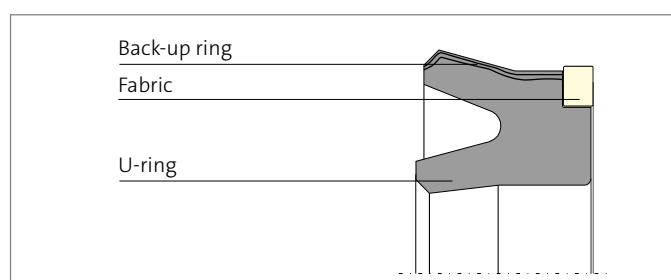


MERKEL

U-RING SEAL SET 0215



Merkel U-ring Seal Set 0215 is a two-piece seal set comprising an elastomer U-ring with a fabric reinforcement on the running surface and an active back-up ring.



VALUE TO THE CUSTOMER

- Low friction due to fabric reinforcement
- Large dimension range
- Resistant to extrusion owing to activated back-up ring

Applications

Single-acting piston seal for use in hydraulics or pneumatics.

Material

Profile ring

Material	Designation	Color
Nitrile rubber	NBR	black
Cotton fabric	BI-NBR	black

Back-up ring

Material	Designation	Color
D<300 mm Polyacetal	POM	white
D>300 mm Polyamide	PA	white

Other materials like PTFE/bronze back-up ring on request.



FEATURES AND BENEFITS

Operating conditions

Material	NBR/BI-NBR/POM or PA
Hydraulic oils, HL, HLP	−30 ... +100 °C
HFA fluids	+5 ... +60 °C
HFB fluids	+5 ... +60 °C
HFC fluids	−30 ... +60 °C
HFD fluids	–
Water	+5 ... +100 °C
HETG (rape-seed oil)	−30 ... +80 °C
HEES (synth. ester)	−30 ... +80 °C
HEPG (glycol)	−30 ... +60 °C
Mineral greases	−30 ... +100 °C
Pressure Hydraulic	25 or 40* MPa
Pressure Pneumatic	5 MPa
Sliding speed	1,5 m/s

* max. pressure depends on the profile

The figures given are maximum values and must not be applied simultaneously.

Surface finish

Peak-to-valley heights	R_a	R_{max}
Sliding surface	0,05 ... 0,3 μm	$\leq 2,5 \mu\text{m}$
Groove base	$\leq 1,6 \mu\text{m}$	$\leq 6,3 \mu\text{m}$
Groove sides	$\leq 3,0 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

Material content M_f >50 % to max. 90 %, with cut depth $c = R_z/2$ and reference line $C_{ref} = 0 \%$

Gap dimension

The dimension d_2 is determined by factoring in the maximum permissible extrusion gap, the tolerances, the guide clearance, the deflection of the guide under load, and the pipe expansion. Please consult our Technical Manual.

The maximum permissible extrusion gap with a one-sided position of the piston rod is significantly determined by the maximum operating pressure and the temperature-dependent dimensional stability of the seal material.

Profile dimension	Max. permissible gap dimension			
Profile	16 MPa	26 MPa	32 MPa	40 MPa
<15	1,2	1,0	0,65	0,5
>15	1,8	1,4	0,9	0,7

The largest gap width occurring in operation on the non-pressurised side of the seal is crucial for the functioning of the seal. Please consult our Technical Manual.

Tolerances

Diameter	Tolerance
D	H8
d_2	h10

The tolerance for the diameters d_2 and D is specified in connection with the gap dimension calculation. In typical hydraulic applications up to a nominal dimension of 1.000 mm, the tolerance fields h7 and h8 or H7 and H8 are usually chosen.

Design notes

Please note the general design remarks in our Technical Manual.

Installation & assembly

Reliable seal function is dependent on correct installation. Please also consult our Technical Manual.



FEATURES AND BENEFITS

Installation diagram

