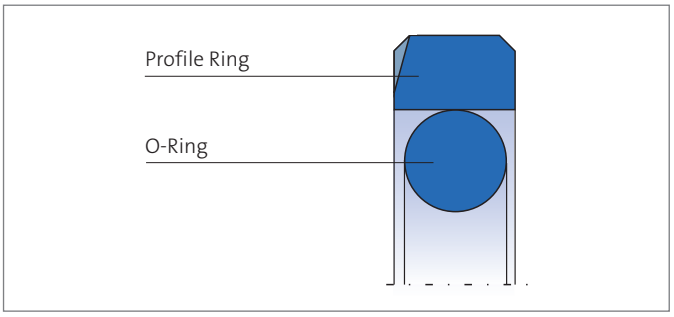
MERKEL OMEGAT OMKU-MR

Merkel Omegat OMKU-MR is a two-piece seal set for sealing double acting pistons, consisting of a PU profile ring and an O-ring as a pre-stressing element.



VALUE TO THE CUSTOMER

- Very high resistance to pressure and hardness
- Very good protection against extrusion
- High resistance to abrasion
- Can be used in standardized housings according to ISO 7425/1. Rod diameters in agreement with ISO 3320

Applications

Merkel Omegat OMKU-MR can be used with pistons pressurized on both sides, including handling equipment, agricultural machinery, injection molding machines, industrial presses, in marine hydraulics, industrial vehicles, truck loading cranes, rolling mills, control and regulating equipment.

Material

Profile Ring

Material	Designation	Color
Polyurethane	58 AU V206	dark yellow

O-Ring

Material	Designation
Nitrile Rubber	NBR

Other material combinations available on request.

TECHNICAL PROPERTIES

Operating Conditions

Material	58 AU V 206 / NBR
Hydraulic oils, HL, HLP	–30 ... +100 °C
HFA Fluids	+5 ... +50 °C
HFB Fluids	+5 ... +50 °C
HFC Fluids	+5 ... +40 °C
HFD Fluids	–
Water	+5 ... +50 °C
HETG (rape-seed oil)	–30 ... +60 °C
HEES (synth. ester)	–30 ... +80 °C
HEPG (glycol)	–30 ... +50 °C
Mineral Greases	–30 ... +100 °C
Pressure	16 MPa
Sliding Speed	0,5 m/s

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	≤2,5 µm
Groove	≤1,6 µm	≤6,3 µm
Groove Sides	≤3,0 µm	≤15,0 µm

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

The long-time behavior of a sealing element and its dependability against early failures are crucially influenced by the quality of the counter surface. A precise description and assessment of the counter surface is thus indispensable.
Based on recent findings, we recommend supplementing the above definition of surface finish for the sliding surface by the characteristics detailed in the table below. With these new characteristics derived from the material content, the hitherto merely general description of the material content is significantly improved, not least in regard to the abrasiveness of the surface. Please also consult our Technical Manual.

Surface finish of the sliding surfaces

Characteristic Value	Limit	
R_a	>0,05 µm	<0,30 µm
R_{max}	<2,5 µm	
R_{pkx}	<0,5 µm	
R_{pk}	<0,5 µm	
R_k	>0,25 µm	<0,7 µm
R_{vk}	>0,2 µm	<0,65 µm
R_{vkx}	>0,2 µm	<2,0 µm

The limit values listed in the table do not currently apply for ceramic or semi-ceramic counterfaces. Please also consult our Technical Manual.

Design Notes

Please note the general remarks in our Technical Manual.

GLAND DESIGN

Gap Dimension

The dimension d2 is determined taking into account the maximum permissible extrusion gap, the tolerances, the guide clearance, the deflection of the guide under load and the tube elongation. The maximum permissible extrusion gap when the piston body is positioned on one side is essentially determined by the maximum operating pressure and the temperature-dependent dimensional stability of the seal material.

Profile Dimension [mm]		Max. Permissible Gap Dimension [mm]	
L	Profile	8 MPa	16 MPa
6,3	7,75	0,5	0,2
8,1	10,5	0,55	0,25
8,1	12,25	0,6	0,3
9,5	14,0	0,6	0,35

Tolerances

Diameter D [mm]	Tolerance
<500	h8
≥500	h7

The tolerance to diameter D and d_2 is determined 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 selected.
Please also consult our Technical Manual.

Fitting & Installation

Careful fitting is a prerequisite for the correct function of the seal. Please also consult our Technical Manual. A fitting jig facilitates the installation of small Omegat rings.

Installation Diagram