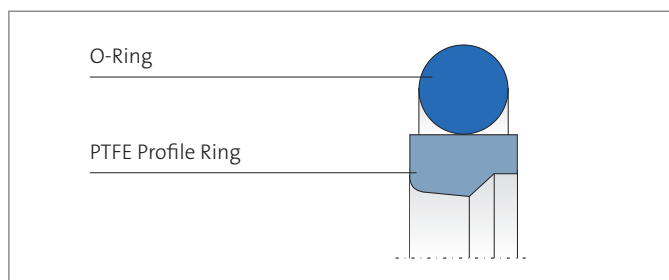


MERKEL OMEGAT OMS-MR



Merkel Omegat OMS-MR is a two-piece seal set for sealing piston rods, consisting of a PTFE Profile ring and an O-ring as a pre-stressing element.



VALUE TO THE CUSTOMER

- Very high stability under pressure
- Good thermal conductivity
- Very good extrusion safety
- High resistance to abrasion
- Low friction, stick-slip free

Application

Rod seal especially suitable for use within a sealing system.

Material

PTFE Profile Ring

Material	Designation	Color
PTFE-bronze Compound	PTFE B602	Brown
PTFE-glass-fiber-MoS2 Compound	PTFE GM201	Light Gray
PTFE-carbon-fiber-compound	PTFE C104	Dark Gray

O-Ring

Material	Designation
Nitrile Rubber	NBR
Fluoroelastomer	FKM

Other material combinations available on request.



TECHNICAL PROPERTIES

Operating Conditions

Material	PTFE B602/NBR	PTFE GM201/NBR PTFE C104/NBR	PTFE B602/FKM	PTFE GM201/FKM PTFE C104/FKM
Hydraulic Oils, HL, HLP	-30 ... +100 °C	-30 ... +100 °C	-10 ... +200 °C	-10 ... +200 °C
HFA Fluids	–	+5 ... +60 °C	–	+5 ... +60 °C
HFB Fluids	–	+5 ... +60 °C	–	+5 ... +60 °C
HFC Fluids	–	-30 ... +60 °C	–	-10 ... +60 °C
HFD Fluids	–	–	-10 ... +200 °C	-10 ... +200 °C
Water	–	+5 ... +100 °C	–	–
HETG (rape-seed oil)	-30 ... +80 °C	-30 ... +80 °C	-10 ... +80 °C	-10 ... +80 °C
HEES (synth. ester)	-30 ... +80 °C	-30 ... +80 °C	-10 ... +100 °C	-10 ... +100 °C
HEPG (glycol)	-30 ... +60 °C	-30 ... +60 °C	-10 ... +80 °C	-10 ... +80 °C
Mineral Greases	-30 ... +100 °C	-30 ... +100 °C	-10 ... +200 °C	-10 ... +200 °C
Pressure	40 MPa	40 MPa	40 MPa	40 MPa
Running Speed	5 m/s	5 m/s	5 m/s	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	$\leq 2,5 \mu\text{m}$
Groove	$\leq 1,6 \mu\text{m}$	$\leq 6,3 \mu\text{m}$
Groove Sides	$\leq 3,0 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

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

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 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	$>0,05 \mu\text{m}$	$<0,30 \mu\text{m}$
R_{max}	$<2,5 \mu\text{m}$	
R_{pkx}	$<0,5 \mu\text{m}$	
R_{pk}	$<0,5 \mu\text{m}$	
R_k	$>0,25 \mu\text{m}$	$<0,7 \mu\text{m}$
R_{vk}	$>0,2 \mu\text{m}$	$<0,65 \mu\text{m}$
R_{vtx}	$>0,2 \mu\text{m}$	$<2,0 \mu\text{m}$

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



GLAND DESIGN

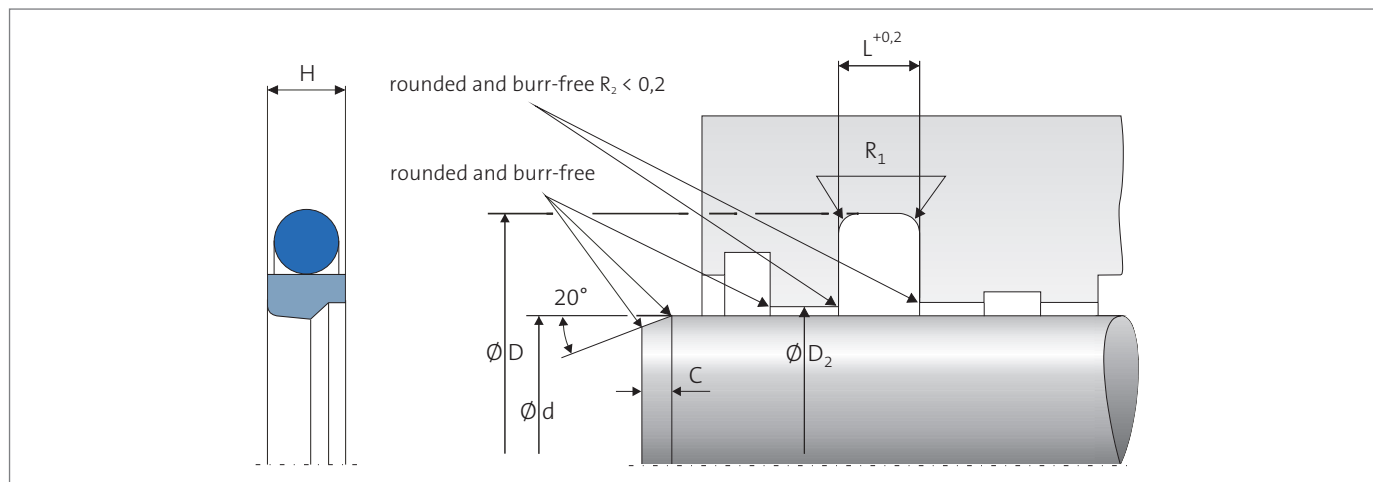
Gap Dimension

The dimension D2 is determined by factoring in the maximum permissible extrusion gap, the tolerances, the guide clearance and the deflection of the guide under load. 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. Please also consult our Technical Manual.

Profile dimension		Max. permissible gap dimension			
L [mm]	Profile	16 MPa	26 MPa	32 MPa	40 MPa
3,2	3,65	0,4	0,35	–	–
4,2	5,35	0,5	0,4	0,3	–
6,3	7,55	0,55	0,45	0,35	0,3
8,1	10,25	0,6	0,5	0,4	0,4
8,1	12	0,7	0,6	0,55	0,5
9,5	13,65	0,75	0,65	0,6	0,55

At an operating temperature of above 90 °C, and simultaneous exposure to an operating pressure of more than 26 MPa, we recommend the use of the material compound PTFE B602.

Installation Diagram



The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

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Tolerances

Diameter D [mm]	Tolerance
<500	H8
>500	H7

The tolerance for the diameter d and D2 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 f7 and f8 or H7 and H8 are usually chosen.

Installation & Assembly

Flawless functioning of the seals is conditional on meticulous installation. Please also consult our Technical Manual.