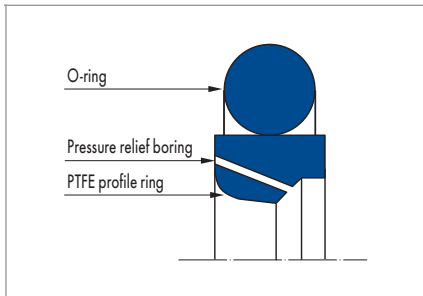


# MERKEL OMEGAT OMS-MR PR



## PRODUCT DESCRIPTION

Two-component Merkel seal set for sealing piston rods, consisting of one PTFE profile ring with integrated pressure-relief function and an elastomer ring as pre-load component. Patented product design (patent no.: DE 10117662 Cl).

## PRODUCT ADVANTAGES

- Can be exchanged with operating environments of the Merkel Omegat OMS-MR Series.
- Increased operating reliability of sealing systems with demanding operating parameters (no continuously pressure build-up in gap area)
- Extended service life of sealing systems by long-term stability (reduced loading of the sealing system by minimised friction and wear)

## APPLICATION

- Earth moving equipment
- Industrial vehicles
- Large cylinders
- Agricultural machinery
- Cranes
- Presses
- Marine hydraulics
- Injection moulding machines
- Control and regulation equipment
- Rolling mills

## MATERIAL

### PTFE profile ring

Material	Code	Colour
PTFE bronze compound	PTFE B602	Brown
PTFE glass MoS2 compound	PTFE GM201	Grey
PTFE carbon fibre compound	PTFE C104	Dark grey

### O-ring

Material	Code	Colour
Nitrile rubber	NBR	-

Other combinations of materials are available on enquiry.

## OPERATING CONDITIONS

<b>Pressure p</b>	40 MPa
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<b>Running speed v</b>	5 m/s
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Medium/ Temperature	PTFE B602/NBR	PTFE GM201/ NBR	PTFE C104/NBR
Hydraulic oils HL, HLP	-30 °C ... +100 °C	-30 °C ... +100 °C	-30 °C ... +100 °C
HFA fluids	-	+5 °C ... +60 °C	+5 °C ... +60 °C
HFB fluids	-	+5 °C ... +60 °C	+5 °C ... +60 °C
HFC fluids	-	-30 °C ... +60 °C	-30 °C ... +60 °C
HFD fluids	-	-	-
Water	-	+5 °C ... +100 °C	+5 °C ... +100 °C
HETG (rapeseed oil)	-30 °C ... +80 °C	-30 °C ... +80 °C	-30 °C ... +80 °C
HEES (synthetic ester)	-30 °C ... +80 °C	-30 °C ... +60 °C	-30 °C ... +80 °C
HEPG (glycol)	-30 °C ... +60 °C	-30 °C ... +60 °C	-30 °C ... +60 °C
Mineral greases	-30 °C ... +100 °C	-30 °C ... +100 °C	-30 °C ... +100 °C

The specified values are maximum values and must not be applied simultaneously.

## DESIGN NOTES

### Surface quality

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

Percentage contact area  $M_r$  >50% up to max. 90% at cutting depth  $c = R_z/2$  and reference line  $C_{ref} = 0\%$ .

Admissible gap dimension

The dimension D2 is determined under load with reference to the maximum permissible extrusion gap, the tolerance levels, the guide play and the compressive deflection of the guide.

→ Technical Manual. The maximum permissible extrusion gap with one-sided position of the piston rod is primarily determined by the maximum operating pressure and the temperature-dependent form stability of the sealing material.

Profile dimension	16 MPa	26 MPa	32 MPa	40 MPa
5,35 mm	0,50 mm	0,40 mm	0,30 mm	–
7,55 mm	0,55 mm	0,45 mm	0,35 mm	0,30 mm
10,25 mm	0,60 mm	0,50 mm	0,40 mm	0,40 mm
12,0 mm	0,70 mm	0,60 mm	0,55 mm	0,50 mm
13,65 mm	0,75 mm	0,65 mm	0,60 mm	0,55 mm

At an operating temperature above 90°C and simultaneously applied operating pressure above 26 MPa we recommend the use of the material compounds PTFE B602 and PTFE C104.

Tolerances

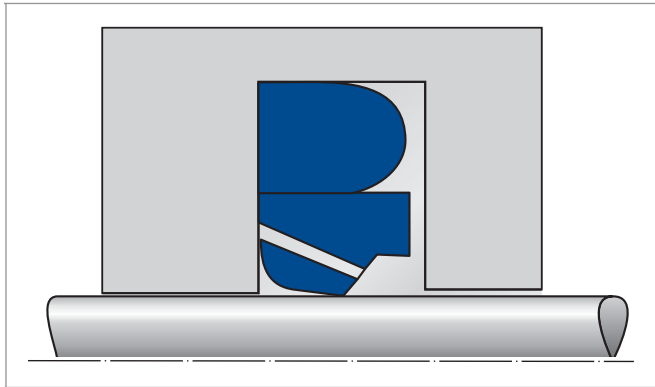
Nominal Ø d	D
≤500 mm	H8
>500 mm	H7

FITTING & INSTALLATION

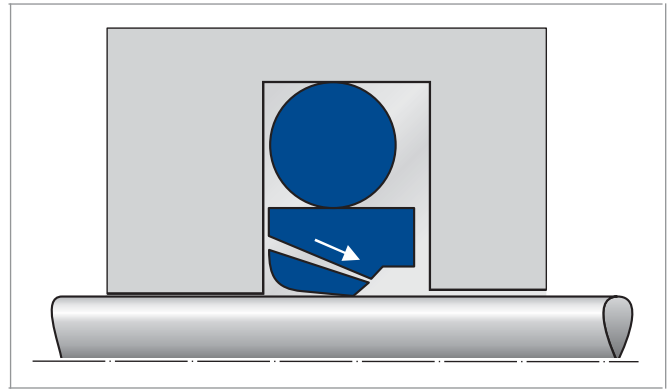
Careful fitting is a prerequisite for the correct function of the seal.  
→ Technical Manual.

SPECIALITIES

Mode of operation



Position in the operating environment



Position in the operating environment during pressure relief

It is essential  $p_z < p_H$ , whereas

- $p_z$  = pressure in the gap area (in the diagram left)
- $p_H$  = pressure in the main area ((in the diagram right)

The Omegat OMS-MR PR has an integrated pressure-relief function. Once the gap pressure  $p_z$  is greater than the pressure in the main area  $p_H$  (e.g. caused by poor speed conditions during extension and retraction) the seal is reliably relieved. The sealing function of the Omegat OMS-MR PR is similar to the tried-and-trusted Omegat seals.