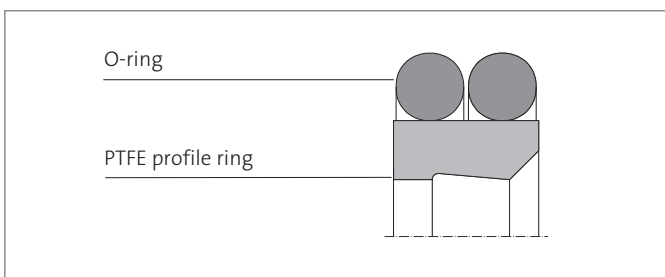


# MERKEL DOUBLE WIPER PT 1



Merkel Double Wiper PT 1, consisting of a PTFE profile ring with one sealing and one wiping edge, plus two O-rings as pre-stressing elements.



## Applications

Double wiper with integrated sealing function for improving overall sealing capabilities. The PT 1 is preferably used in conjunction with our rod seals Merkel Omegat OMS-MR PR or U-Ring T 20.

## Material

### PTFE profile ring

| Material                         | Designation | Color      |
|----------------------------------|-------------|------------|
| PTFE-glass-fibre - MOS2 compound | PTFE GM201  | light gray |
| PTFE-bronze compound             | PTFE B602   | brown      |

### O-ring

| Material         | Designation |
|------------------|-------------|
| Nitrile rubber   | NBR         |
| Fluoro elastomer | FKM         |

Other material combinations are available on request.

## VALUE TO THE CUSTOMER

- Enhanced functional reliability of the sealing system, due to additional sealing edge
- High operating reliability, due to sturdy profile ring made of PTFE compound (can briefly withstand the full operating pressure)
- Very good wiping capability for dirt adhering, due to dimensionally stable wiping edge
- Excellent control and positioning characteristics due to favorable frictional behavior (stick-slip-free)



## FEATURES AND BENEFITS

### Operating conditions

| Material                | PTFE GM201/NBR  | PTFE B602/NBR   | PTFE B602/FKM   |
|-------------------------|-----------------|-----------------|-----------------|
| Hydraulic oils, HL, HLP | -30 ... +100 °C | -30 ... +100 °C | -10 ... +200 °C |
| HFA fluids              | + 5 ... +60 °C  | –               | –               |
| HFB fluids              | + 5 ... +60 °C  | –               | –               |
| HFC fluids              | -30 ... +60 °C  | –               | –               |
| HFD fluids              | –               | –               | -10 ... +200 °C |
| Water                   | + 5 ... +100 °C | –               | –               |
| HETG (rape-seed oil)    | -30 ... +80 °C  | -30 ... +80 °C  | -10 ... +80 °C  |
| HEES (synth. ester)     | -30 ... +80 °C  | -30 ... +80 °C  | -10 ... +100 °C |
| HEPG (glycol)           | -30 ... +60 °C  | -30 ... +60 °C  | -10 ... +80 °C  |
| Mineral greases         | -30 ... +100 °C | -30 ... +100 °C | -10 ... +200 °C |
| Sliding speed           | 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 $\mu\text{m}$ | $\leq 2,5 \mu\text{m}$  |
| 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  $M_i$  > 50% to max. 90%, with cut depth  $c = R_i/2$  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 counterface. 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 $\mu\text{m}$  |                     |
| $R_{plx}$            | <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 $\mu\text{m}$ |
| $R_{vix}$            | >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.

### Tolerances

| Diameter D | Tolerance |
|------------|-----------|
| D          | H9        |
| $D_1$      | H10       |

The tolerance for the diameter  $d$  is specified in connection with the gap dimension calculation for the primary seal. In typical hydraulic applications up to a nominal dimension of 1.000 mm, the tolerance fields f7 and f8 are usually chosen.

### Design notes

We recommend a pressure-relief bore. In the case of upstream seals with a good return capability, a pressure-relief feature is not necessary. Please also consult our technical manual.

### Installation & assembly

Reliable seal function is dependent on correct installation. Please also consult our technical manual.



## FEATURES AND BENEFITS

### Installation diagram

