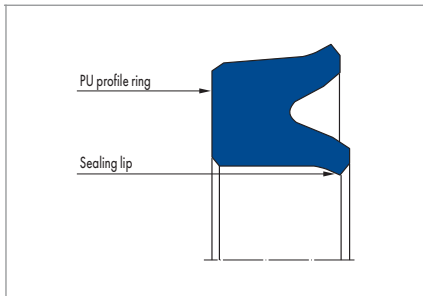


MERKEL U-RING TM 21



PRODUCT DESCRIPTION

Merkel U-ring with asymmetrical profile, inner lip set back and press fit at the outer diameter.

PRODUCT ADVANTAGES

Single-acting piston seal for hydraulic cylinders used in heavy machinery areas. The highly wear-resistant polyurethane material allows for use under high operating requirements.

- Good media resistance
- Broad range of temperatures
- Very good static and dynamic tightness
- No mould tools required
- Large range of dimensions

APPLICATION

- Large cylinders
- Presses
- Heavy machinery manufacture
- Injection moulding machines

MATERIAL

<500 mm

Material	Code	Hardness
Polyurethane	95 AU V142	95 Shore A

>500 mm

Material	Code	Hardness
Polyurethane	93 AU V167	93 Shore A

OPERATING CONDITIONS

Pressure p	40 MPa
Running speed v	0,5 m/s

Medium/ Temperature	93 AU V167	95 AU V142
Hydraulic oils HL, HLP	-25 °C ... +100 °C	-30 °C ... +110 °C
HFA fluids	+5 °C ... +60 °C	+5 °C ... +50 °C
HFB fluids	+5 °C ... +60 °C	+5 °C ... +50 °C
HFC fluids	-25 °C	-30 °C ... +40 °C
HFD fluids	-	-
Water	+5 °C ... +60 °C	+5 °C ... +50 °C
HETG (rapeseed oil)	-25 °C ... +60 °C	-30 °C ... +60 °C
HEES (synthetic ester)	-25 °C ... +80 °C	-30 °C ... +80 °C
HEPG (glycol)	-25 °C ... +50 °C	-30 °C ... +50 °C
Mineral greases	-25 °C ... +100 °C	-30 °C ... +110 °C

DESIGN NOTES

Please observe our general design notes in → Technical Manual.

Surface quality

Peak-to-valley heights	R _a	R _{max}
Sliding surface	0,05 ... 0,3 µm	≤2,5 µm
Groove base	≤1,6 µm	≤6,3 µm
Groove flanks	≤3,0 µm	≤15,0 µm

Percentage contact area M_r >50% to max. 90% at cutting depth c = Rz/2 and reference line C ref = 0%.

Admissible gap dimension

Profile dimension	16 MPa	26 MPa	32 MPa	40 MPa
<5,0 mm	0,45 mm	0,40 mm	0,35 mm	-
>5,0 mm ... ≤7,5 mm	0,50 mm	0,45 mm	0,40 mm	0,35 mm
>7,5 mm ... ≤12,5 mm	0,55 mm	0,50 mm	0,45 mm	0,40 mm
15,0 mm	0,60 mm	0,55 mm	0,45 mm	0,40 mm
>15,0 mm ... ≤20,0 mm	0,65 mm	0,60 mm	0,50 mm	0,45 mm
>20,0 mm ... ≤25,0 mm	0,65 mm	0,60 mm	0,50 mm	0,45 mm

Tolerances

The admissible gap width, tolerances, guide play and deflection of the guide under load are to be taken into account when designing D2. → Technical Manual.

Nominal Ø D	D	d
≤500 mm	H8	h11
>500 mm	H7	h11

FITTING & INSTALLATION

Some items require an axially accessible installation space. Please ask our advisory service about this.

HOUSING RECOMMENDATIONS FOR NEW DESIGNS

Primary seal TM 20

D	d	L	C
>200 ... 630 mm	D - 30 mm	25 mm	9 mm
>630 ... 800 mm	D - 40 mm	32 mm	11 mm
>800 ... 2000 mm	D - 50 mm	40 mm	13 mm