

# Merkel U-Ring NA 400

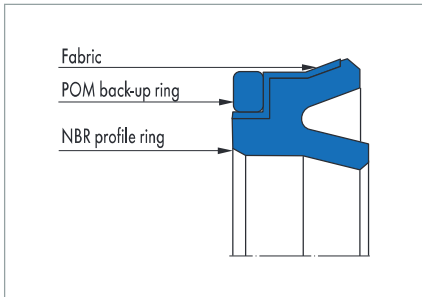


Fig. 1 Merkel U-Ring NA 400

## Product description

Merkel U-ring with asymmetrical profile of the sealing lips, fabric reinforcement on the dynamic sealing side and back-up ring as a gap sealing component.

## Product advantages

Single-acting piston seal for medium load, preferably for spare parts requirement.

## Application

Earth moving equipment, industrial vehicles, presses, mobile hydraulics. We recommend more modern series for new designs.

## Material

### Sealing component

| Material           | Code       | Hardness   |
|--------------------|------------|------------|
| Nitrile rubber NBR | 80 NBR 878 | 80 Shore A |

### Back-up ring

| Material   | Code       |
|------------|------------|
| Polyacetal | POM 992020 |

## Operating conditions

| Material                | 80 NBR 878/POM          |
|-------------------------|-------------------------|
|                         | Temperature range in °C |
| Hydraulic oils HL, HLP  | -30 ... +100            |
| HFA fluids              | +5 ... +60              |
| HFB fluids              | +5 ... +60              |
| HFC fluids              | -30 ... +60             |
| HFD fluids              | -                       |
| Water                   | +5 ... +90              |
| HETG (rapeseed oil)     | -30 ... +80             |
| HEES (synthetic esters) | -                       |
| HEPG (glycol)           | -30 ... +60             |
| Mineral greases         | -30 ... +100            |
| Pressure p in MPa       | 40                      |
| Running speed v in m/s  | 0,5                     |

## Surface quality

| Surface roughness | R <sub>a</sub>  | R <sub>max</sub> |
|-------------------|-----------------|------------------|
| 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<sub>v</sub> >50% to max. 90% at cutting depth c = Rz/2 and reference line C ref = 0%.

### Design notes

Please observe our general design notes in → Technical Manual.

### Gap dimension

The largest gap dimension occurring on the non-pressurised side of the seal in operation is of vital importance for the function of the seal. → Technical Manual.

| Profile | Max. permissible gap dimension |        |        |        |
|---------|--------------------------------|--------|--------|--------|
|         | 16 MPa                         | 26 MPa | 32 MPa | 40 MPa |
| ≤80     | 0,60                           | 0,50   | 0,40   | 0,35   |
| >80     | 0,65                           | 0,55   | 0,45   | 0,40   |

### Tolerance recommendation and dimension d2

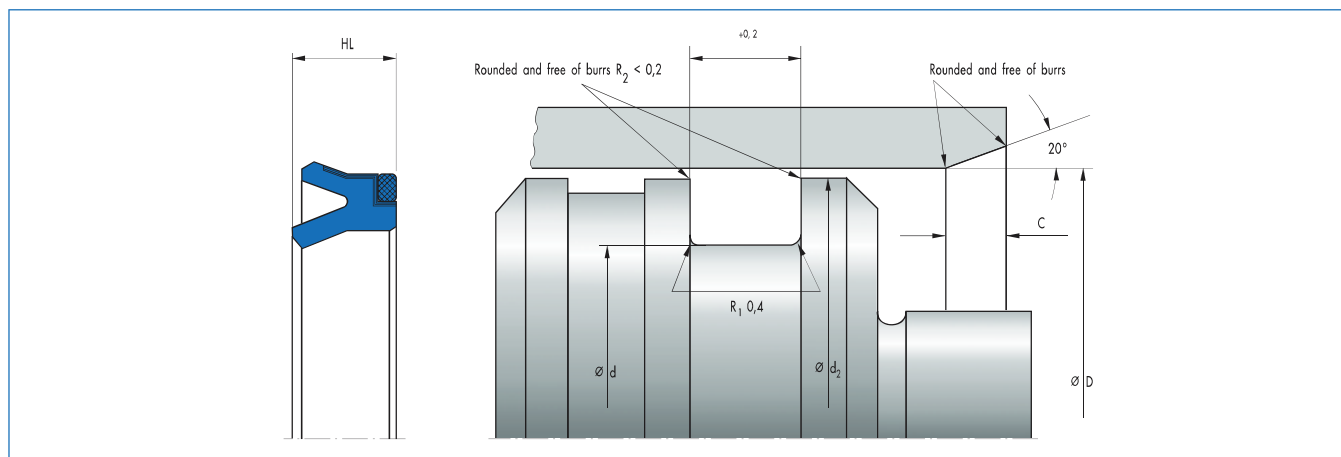
The admissible gap width, tolerances, guide play and deflection of the guide under load are to be taken into account when designing d2. → Technical Manual.

| Nominal Ø D | D   | d   |
|-------------|-----|-----|
| ≤320        | H11 | h11 |

### Fitting & installation

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

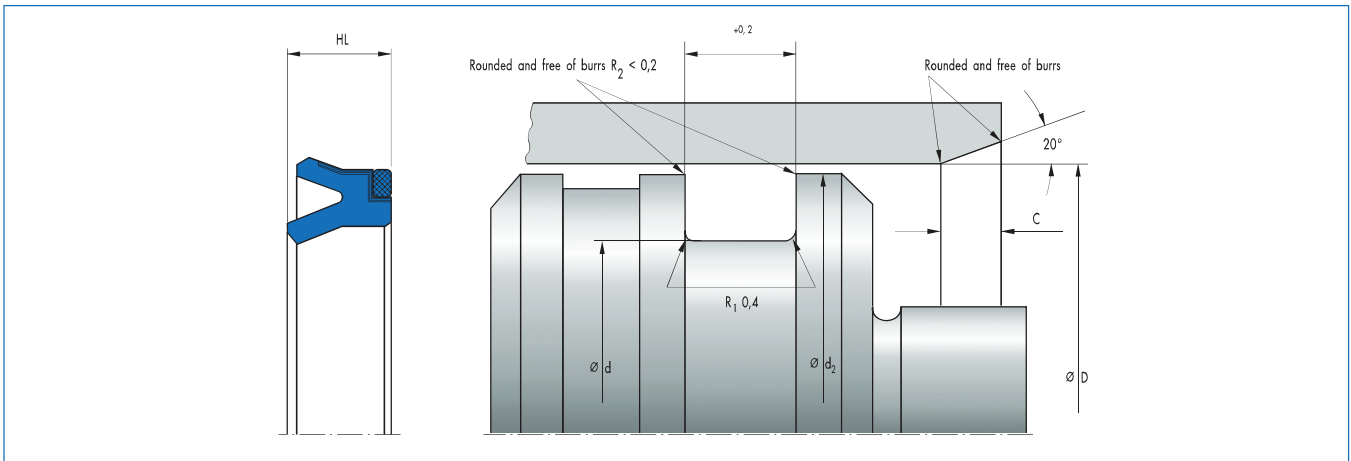
Article list



| D   | d   | H  | L  | Profile | C   | Fitting | Housing | Material      | Article No. |   |
|-----|-----|----|----|---------|-----|---------|---------|---------------|-------------|---|
| 25  | 15  | 8  | 9  | 5       | 4   |         |         | 80 NBR M00878 | 25279       | D |
| 32  | 17  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 25287       | D |
| 40  | 25  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 25289       | D |
| 45  | 30  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 4561        | B |
| 50  | 30  | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 25325       | B |
| 50  | 35  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 25306       | B |
| 55  | 40  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 4565        | B |
| 60  | 40  | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 30008       | D |
| 63  | 43  | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 25351       | D |
| 63  | 48  | 10 | 11 | 7,5     | 5,5 |         |         | 80 NBR M00878 | 25330       | B |
| 70  | 50  | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 4566        | B |
| 75  | 55  | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 30009       | B |
| 80  | 55  | 15 | 16 | 12,5    | 6,5 |         |         | 80 NBR M00878 | 25404       | D |
| 80  | 60  | 12 | 13 | 10      | 6   |         | ISO     | 80 NBR M00878 | 25383       | B |
| 80  | 65  | 10 | 11 | 7,5     | 5,5 | W       |         | 80 NBR M00878 | 25354       | B |
| 90  | 70  | 12 | 13 | 10      | 6   | W       |         | 80 NBR M00878 | 30011       | D |
| 100 | 75  | 15 | 16 | 12,5    | 6,5 |         |         | 80 NBR M00878 | 25427       | D |
| 100 | 80  | 12 | 13 | 10      | 6   | W       | ISO     | 80 NBR M00878 | 25415       | B |
| 110 | 90  | 12 | 13 | 10      | 6   | W       |         | 80 NBR M00878 | 30021       | B |
| 115 | 90  | 15 | 16 | 12,5    | 6,5 |         |         | 80 NBR M00878 | 35943       | D |
| 120 | 100 | 12 | 13 | 10      | 6   | W       |         | 80 NBR M00878 | 30026       | D |
| 125 | 100 | 15 | 16 | 12,5    | 6,5 |         | ISO     | 80 NBR M00878 | 25452       | B |
| 125 | 105 | 12 | 13 | 10      | 6   | W       | ISO     | 80 NBR M00878 | 25440       | B |
| 140 | 120 | 12 | 13 | 10      | 6   |         |         | 80 NBR M00878 | 30030       | B |
| 150 | 125 | 15 | 16 | 12,5    | 6,5 |         |         | 80 NBR M00878 | 30033       | D |
| 160 | 130 | 18 | 19 | 15      | 7,5 |         |         | 80 NBR M00878 | 25474       | D |
| 160 | 135 | 15 | 16 | 12,5    | 6,5 | W       | ISO     | 80 NBR M00878 | 25464       | B |
| 180 | 150 | 18 | 19 | 15      | 7,5 |         |         | 80 NBR M00878 | 3631        | B |
| 200 | 170 | 18 | 19 | 15      | 7,5 |         | ISO     | 80 NBR M00878 | 25493       | D |
| 200 | 175 | 15 | 16 | 12,5    | 6,5 | W       | ISO     | 80 NBR M00878 | 25491       | B |
| 220 | 190 | 18 | 19 | 15      | 7,5 |         |         | 80 NBR M00878 | 25495       | D |
| 220 | 195 | 15 | 16 | 12,5    | 6,5 | W       |         | 80 NBR M00878 | 4580        | D |
| 250 | 215 | 20 | 21 | 17,5    | 10  |         |         | 80 NBR M00878 | 25503       | D |
| 250 | 220 | 18 | 19 | 15      | 7,5 | W       | ISO     | 80 NBR M00878 | 25496       | B |
| 280 | 250 | 18 | 19 | 15      | 7,5 | W       |         | 80 NBR M00878 | 4610        | D |

B Available from stock D On request: Tool is available, delivery at short notice

Fitting: H = by hand; W = with fitting tool; blank = axially accessible housing



| D   | d   | H  | L  | Profile | C  | Fitting | Housing | Material      | Article No. |   |
|-----|-----|----|----|---------|----|---------|---------|---------------|-------------|---|
| 320 | 280 | 23 | 24 | 20      | 11 |         |         | 80 NBR M00878 | 4624        | D |
| 320 | 285 | 20 | 21 | 17,5    | 10 | W       |         | 80 NBR M00878 | 4618        | D |

B Available from stock D On request: Tool is available, delivery at short notice

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