

# WIPER SEALS

## BECA 480



### DESCRIPTION

The BECA 480 profile is a composite wiper seal composed of a filled PTFE friction ring and a pre-tightened rubber O'Ring.

### ADVANTAGES

Low friction coefficient;  
no stick-slip effect

Wide temperature range and excellent chemical resistance, depending on the materials selected

Excellent abrasion and wear resistance

Very good wiping effect against external pollutions

### APPLICATIONS

Shock absorbers  
Standard cylinders

### MATERIALS

#### Friction ring

Bronze-filled PTFE  
Carbon-filled PTFE  
Virgin PTFE

#### O'Ring

NBR 70 Shore A

Other grades of materials are available. Please refer to the materials table on the next page.

### TECHNICAL DATA

|             |  |
|-------------|--|
| Temperature | -30°C / +200°C   |
| Speed       | 5 m/s  |
| Media       | Lubricated air<br>Oil-free air<br>Non-aggressive gases |

The figures above indicate the maximum values and may not be cumulated. They may be developed, depending on the materials used.

### SURFACE ROUGHNESS

| Roughness | Dynamic surface area | Static surface area | Groove flanks |
|-----------|----------------------|---------------------|---------------|
| Ra        | 0.05 - 0.2 µm        | ≤1.6 µm             | ≤3.2 µm       |
| Rz        | 0.4 - 1.6 µm         | ≤6.3 µm             | ≤10.0 µm      |
| Rmax      | 0.63 - 2.5 µm        | ≤10.0 µm            | ≤16.0 µm      |

### RADIUS

| Radial section S | Radius R1 | Radius R2 |
|------------------|-----------|-----------|
| 2.40             | 0.20      | 0.40      |
| 3.40             | 0.20      | 0.80      |
| 4.40             | 0.20      | 1.00      |
| 6.10             | 0.20      | 1.50      |
| 8.00             | 0.20      | 1.50      |

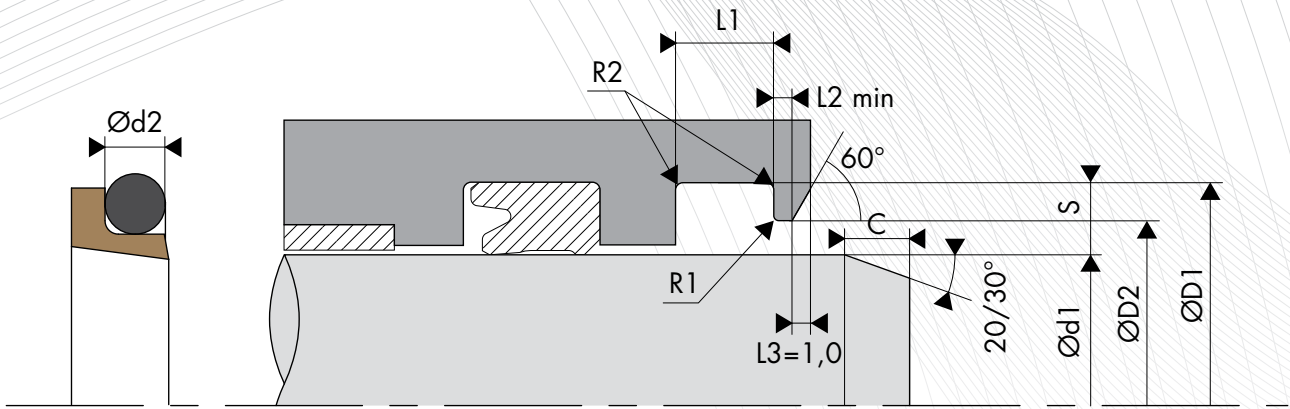
### CHAMFER

The chamfer length as well as the chamfer angle are determined by the rod seal.

TABLE MATERIALS

| Friction ring |          |                                     |                |   | O'Ring |                  |                     | Mating surface material   |                                    |
|---------------|----------|-------------------------------------|----------------|---|--------|------------------|---------------------|---|------------------------------------|
| Standard code | ISO code | Material                            | Colour         | Characteristics   | Code   | Type of material | Service temperature |   |                                    |
| DP            | P        | Virgin PTFE                         | White          | Resistance to chemical products<br>Impermeability<br>Dielectric<br>Non-stick<br>Low friction coefficient<br>Food industry   | K6     | NBR 70 Shore A   | -30°C/+100°C        | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
|               |          |                                     |                |   | F6     | VMQ 70 Shore A   | -60°C/+200°C        |   |                                    |
| DC            | C        | PTFE + 25% Carbon                   | Grey           | <b>Improvements</b><br>• <b>Wear properties</b><br>• <b>Compression set</b><br>Good resistance to chemical products<br>Thermal and electrical conductivity<br>Anti-static<br>High-performing in compression-based dynamic applications  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
| CG            | C        | PTFE + 23% Carbon + 2% Graphite     | Black          | High-performing in compression-based dynamic applications   | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
| DV            | V        | PTFE + 25 % Glass                   | Blue           | <b>Improvements</b><br>• <b>Wear properties</b><br>• <b>Mechanical strength</b><br>Slightly more abrasive, however, this is corrected by adding MOS2<br>Maintains its chemical and dielectric properties<br>Well-suited to applications with rotational and simultaneous alternating movements  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   | Steel<br>Chrome steel<br>Cast iron |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
| VM            | M        | PTFE + 15 % Glass + 5% MOS2         | Grey           | Well-suited to applications with rotational and simultaneous alternating movements  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
| DX            | X        | PTFE GL Blue + Glass + Metal oxides | Turquoise blue | Resistance to compression<br>Resistance to wear<br>Excellent chemical stability<br>Good thermal conductivity  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
| DG            | G        | PTFE + 15% Graphite                 | Black          | <b>Improvements</b><br>• <b>Wear properties</b><br>Reduced wear on metal parts<br>Self-lubricating<br>Thermal and electrical conductivity<br>Low permeability<br>Good friction coefficient<br>Anti-static<br>High performing in dynamic self-lubricating applications   | K6     | NBR 70 Shore A   | -30°C/+100°C        | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
| K1            | K        | PTFE + 10% Ekonol                   | Light brown    | <b>Improvements</b><br>• <b>Better abrasion resistance</b><br>• <b>Better dimensional stability at high temperatures</b><br>Use up to +300°C<br>Good friction coefficient and low permeability  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
| K2            | K        | PTFE + 20% Ekonol                   | Light brown    | Good friction coefficient and low permeability  | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
|               |          |                                     |                |   | C6     | EPDM 70 Shore A  | -45°C/+150°C        |   |                                    |
| DB            | B        | PTFE + 60% Bronze                   | Dark brown     | <b>Improvements</b><br>• <b>Wear properties</b><br>• <b>Warping resistance and creep strength</b><br>• <b>Compression resistance</b><br>Self-lubricating<br>Electrical and thermal conductivity<br>Does not alter the metal parts<br>Reduced hold with certain chemical products<br>Used for high-compression dynamic seals and has a low level of wear | K6     | NBR 70 Shore A   | -30°C/+100°C        | Steel<br>Chrome steel<br>Cast iron  |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |
| B4            | B        | PTFE + 40% Bronze                   | Dark brown     | Used for high-compression dynamic seals and has a low level of wear   | K6     | NBR 70 Shore A   | -30°C/+100°C        |   |                                    |
|               |          |                                     |                |   | G6     | FKM 70 Shore A   | -20°C/+200°C        |   |                                    |

Other grades of materials are available depending on your specificities.



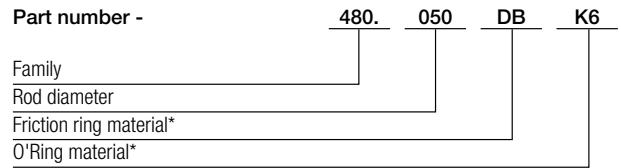
○ INSTALLATION DIMENSIONS

| Rod diameter<br>Ød1 f8/h9 |                | Groove diameter | Bore diameter | Groove width | Step width | O'Ring<br>cross-section |
|---------------------------|----------------|-----------------|---------------|--------------|------------|-------------------------|
| Standard range            | Extended range | ØD1 H9          | ØD2 H11       | L1 0/+0.20   | L2 min     | Ød2                     |
| 4.0 - 11.9                | 4.0 - 130.0    | d1 + 4.80       | d1 + 2.70     | 3.70         | 2.00       | 1.78                    |
| 12.0 - 64.9               | 10.0 - 245.0   | d1 + 6.80       | d1 + 3.50     | 5.00         | 2.00       | 2.62                    |
| 65.0 - 250.9              | 25.0 - 400.0   | d1 + 8.80       | d1 + 4.00     | 6.00         | 3.00       | 3.53                    |
| 251.0 - 420.9             | 40.0 - 655.0   | d1 + 12.20      | d1 + 4.50     | 8.40         | 4.00       | 5.33                    |
| 421.0 - 650.9             | 110.0 - 655.0  | d1 + 16.00      | d1 + 5.20     | 11.00        | 4.00       | 6.99                    |

○ EXAMPLE OF CODIFICATION

**STANDARD CODIFICATION**

**Materials** \_\_\_\_\_ : Friction ring, PTFE + 60% Bronze - Code DB  
 \_\_\_\_\_ : NBR 70 Shore A O'Ring - Code K6  
**Rod diameter** \_\_\_\_\_ : Ød1 + 50.00 mm  
**Groove diameter** \_\_\_\_\_ : ØD1 = 58.80 mm  
**Part number** \_\_\_\_\_ : 480. 050DBK6



\* The codes that define the materials are set out in the materials table on the previous page.

**DIMENSIONS**

| Part number | Rod diameter<br>Ød1 f8/h9 | Groove diameter<br>ØD1 H9 | Bore diameter<br>ØD2 H11 | Groove width<br>L1 0/+0.20 | Step width<br>L2 min |
|-------------|---------------------------|---------------------------|--------------------------|----------------------------|----------------------|
| 480.004     | 4.00                      | 8.80                      | 6.70                     | 3.70                       | 2.00                 |
| 480.005     | 5.00                      | 9.80                      | 7.70                     | 3.70                       | 2.00                 |
| 480.006     | 6.00                      | 10.80                     | 8.70                     | 3.70                       | 2.00                 |
| 480.008     | 8.00                      | 12.80                     | 10.70                    | 3.70                       | 2.00                 |
| 480.009     | 9.00                      | 13.80                     | 11.70                    | 3.70                       | 2.00                 |
| 480.010     | 10.00                     | 14.80                     | 12.70                    | 3.70                       | 2.00                 |
| 480.012     | 12.00                     | 18.80                     | 15.50                    | 5.00                       | 2.00                 |
| 480.014     | 14.00                     | 20.80                     | 17.50                    | 5.00                       | 2.00                 |
| 480.015     | 15.00                     | 21.80                     | 18.50                    | 5.00                       | 2.00                 |
| 480.016     | 16.00                     | 22.80                     | 19.50                    | 5.00                       | 2.00                 |
| 480.018     | 18.00                     | 24.80                     | 21.50                    | 5.00                       | 2.00                 |
| 480.020     | 20.00                     | 26.80                     | 23.50                    | 5.00                       | 2.00                 |
| 480.022     | 22.00                     | 28.80                     | 25.50                    | 5.00                       | 2.00                 |
| 480.025     | 25.00                     | 31.80                     | 28.50                    | 5.00                       | 2.00                 |
| 480.028     | 28.00                     | 34.80                     | 31.50                    | 5.00                       | 2.00                 |
| 480.030     | 30.00                     | 36.80                     | 33.50                    | 5.00                       | 2.00                 |
| 480.032     | 32.00                     | 38.80                     | 35.50                    | 5.00                       | 2.00                 |
| 480.035     | 35.00                     | 41.80                     | 38.50                    | 5.00                       | 2.00                 |
| 480.036     | 36.00                     | 42.80                     | 39.50                    | 5.00                       | 2.00                 |
| 480.037     | 37.00                     | 43.80                     | 40.50                    | 5.00                       | 2.00                 |
| 480.038     | 38.00                     | 44.80                     | 41.50                    | 5.00                       | 2.00                 |
| 480.040     | 40.00                     | 46.80                     | 43.50                    | 5.00                       | 2.00                 |
| 480.042     | 42.00                     | 48.80                     | 45.50                    | 5.00                       | 2.00                 |
| 480.045     | 45.00                     | 51.80                     | 48.50                    | 5.00                       | 2.00                 |
| 480.048     | 48.00                     | 54.80                     | 51.50                    | 5.00                       | 2.00                 |
| 480.049     | 49.00                     | 55.80                     | 52.50                    | 5.00                       | 2.00                 |
| 480.050     | 50.00                     | 56.80                     | 53.50                    | 5.00                       | 2.00                 |
| 480.052     | 52.00                     | 58.80                     | 55.50                    | 5.00                       | 2.00                 |
| 480.054     | 54.00                     | 60.80                     | 57.50                    | 5.00                       | 2.00                 |
| 480.055     | 55.00                     | 61.80                     | 58.50                    | 5.00                       | 2.00                 |
| 480.056     | 56.00                     | 62.80                     | 59.50                    | 5.00                       | 2.00                 |
| 480.058     | 58.00                     | 64.80                     | 61.50                    | 5.00                       | 2.00                 |
| 480.060     | 60.00                     | 66.80                     | 63.50                    | 5.00                       | 2.00                 |
| 480.062     | 62.00                     | 68.80                     | 65.50                    | 5.00                       | 2.00                 |
| 480.063     | 63.00                     | 69.80                     | 66.50                    | 5.00                       | 2.00                 |
| 480.065     | 65.00                     | 73.80                     | 69.00                    | 6.00                       | 3.00                 |
| 480.068     | 68.00                     | 76.80                     | 72.00                    | 6.00                       | 3.00                 |
| 480.070     | 70.00                     | 78.80                     | 74.00                    | 6.00                       | 3.00                 |
| 480.075     | 75.00                     | 83.80                     | 79.00                    | 6.00                       | 3.00                 |
| 480.080     | 80.00                     | 88.80                     | 84.00                    | 6.00                       | 3.00                 |
| 480.085     | 85.00                     | 93.80                     | 89.00                    | 6.00                       | 3.00                 |
| 480.090     | 90.00                     | 98.80                     | 94.00                    | 6.00                       | 3.00                 |
| 480.095     | 95.00                     | 103.80                    | 99.00                    | 6.00                       | 3.00                 |
| 480.100     | 100.00                    | 108.80                    | 104.00                   | 6.00                       | 3.00                 |
| 480.105     | 105.00                    | 113.80                    | 109.00                   | 6.00                       | 3.00                 |
| 480.110     | 110.00                    | 118.80                    | 114.00                   | 6.00                       | 3.00                 |
| 480.115     | 115.00                    | 123.80                    | 119.00                   | 6.00                       | 3.00                 |
| 480.120     | 120.00                    | 128.80                    | 124.00                   | 6.00                       | 3.00                 |
| 480.125     | 125.00                    | 133.80                    | 129.00                   | 6.00                       | 3.00                 |
| 480.130     | 130.00                    | 138.80                    | 134.00                   | 6.00                       | 3.00                 |
| 480.135     | 135.00                    | 143.80                    | 139.00                   | 6.00                       | 3.00                 |
| 480.140     | 140.00                    | 148.80                    | 144.00                   | 6.00                       | 3.00                 |
| 480.145     | 145.00                    | 153.80                    | 149.00                   | 6.00                       | 3.00                 |
| 480.150     | 150.00                    | 158.80                    | 154.00                   | 6.00                       | 3.00                 |
| 480.155     | 155.00                    | 163.80                    | 159.00                   | 6.00                       | 3.00                 |
| 480.160     | 160.00                    | 168.80                    | 164.00                   | 6.00                       | 3.00                 |
| 480.165     | 165.00                    | 173.80                    | 169.00                   | 6.00                       | 3.00                 |
| 480.170     | 170.00                    | 178.80                    | 174.00                   | 6.00                       | 3.00                 |
| 480.175     | 175.00                    | 183.80                    | 179.00                   | 6.00                       | 3.00                 |
| 480.180     | 180.00                    | 188.80                    | 184.00                   | 6.00                       | 3.00                 |
| 480.185     | 185.00                    | 193.80                    | 189.00                   | 6.00                       | 3.00                 |
| 480.190     | 190.00                    | 198.80                    | 194.00                   | 6.00                       | 3.00                 |
| 480.195     | 195.00                    | 203.80                    | 199.00                   | 6.00                       | 3.00                 |

| Part number | Rod diameter<br>Ød1 f8/h9 | Groove diameter<br>ØD1 H9 | Bore diameter<br>ØD2 H11 | Groove width<br>L1 0/+0.20 | Step width<br>L2 min |
|-------------|---------------------------|---------------------------|--------------------------|----------------------------|----------------------|
| 480.200     | 200.00                    | 208.80                    | 204.00                   | 6.00                       | 3.00                 |
| 480.205     | 205.00                    | 213.80                    | 209.00                   | 6.00                       | 3.00                 |
| 480.210     | 210.00                    | 218.80                    | 214.00                   | 6.00                       | 3.00                 |
| 480.215     | 215.00                    | 223.80                    | 219.00                   | 6.00                       | 3.00                 |
| 480.220     | 220.00                    | 228.80                    | 224.00                   | 6.00                       | 3.00                 |
| 480.230     | 230.00                    | 238.80                    | 234.00                   | 6.00                       | 3.00                 |
| 480.240     | 240.00                    | 248.80                    | 244.00                   | 6.00                       | 3.00                 |
| 480.250     | 250.00                    | 258.80                    | 254.00                   | 6.00                       | 3.00                 |
| 480.260     | 260.00                    | 272.20                    | 264.50                   | 8.40                       | 4.00                 |
| 480.270     | 270.00                    | 282.20                    | 274.50                   | 8.40                       | 4.00                 |
| 480.280     | 280.00                    | 292.20                    | 284.50                   | 8.40                       | 4.00                 |
| 480.290     | 290.00                    | 302.20                    | 294.50                   | 8.40                       | 4.00                 |
| 480.300     | 300.00                    | 312.20                    | 304.50                   | 8.40                       | 4.00                 |
| 480.310     | 310.00                    | 322.20                    | 314.50                   | 8.40                       | 4.00                 |
| 480.320     | 320.00                    | 332.20                    | 324.50                   | 8.40                       | 4.00                 |
| 480.330     | 330.00                    | 342.20                    | 334.50                   | 8.40                       | 4.00                 |
| 480.340     | 340.00                    | 352.20                    | 344.50                   | 8.40                       | 4.00                 |
| 480.350     | 350.00                    | 362.20                    | 354.50                   | 8.40                       | 4.00                 |
| 480.360     | 360.00                    | 372.20                    | 364.50                   | 8.40                       | 4.00                 |
| 480.370     | 370.00                    | 382.20                    | 374.50                   | 8.40                       | 4.00                 |
| 480.380     | 380.00                    | 392.20                    | 384.50                   | 8.40                       | 4.00                 |
| 480.390     | 390.00                    | 402.20                    | 394.50                   | 8.40                       | 4.00                 |
| 480.400     | 400.00                    | 412.20                    | 404.50                   | 8.40                       | 4.00                 |
| 480.450     | 450.00                    | 466.00                    | 455.20                   | 11.00                      | 4.00                 |
| 480.500     | 500.00                    | 516.00                    | 505.20                   | 11.00                      | 4.00                 |