

# ROD SEALS

## BECA

### 340-349



#### DESCRIPTION

The BECA 340 profile is a single acting rod seal composed of a profiled, filled PTFE U-ring type seal and a V-spring that is resistant to corrosion.

The BECA 349 profile is specially designed for applications where the seal is in contact with food products. It is characterised by a silicone overmoulding on the inside of the seal, which completely hides the V-spring, thus preventing impurities from accumulating in this hard-to-clean area.

#### ADVANTAGES

- Wide temperature range and excellent chemical resistance
- Low friction coefficient; no stick-slip effect
- Excellent abrasion resistance
- Good dimensional stability
- Non-toxic material

#### APPLICATIONS

- Food & Beverage
- Medical
- Pharmaceutical
- Static hydraulics

#### MATERIALS

- Profiled seal**
  - Carbon-filled PTFE
  - Blue GL PTFE
  - PE-UHMW
- V-Shaped spring**
  - Stainless steel

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

#### TECHNICAL DATA

|             |  |
|-------------|--|
| Temperature | -200°C / +260°C  |
| Pressure    | 40 MPa   |
| Speed       | 15 m/s   |
| Media       | Practically all types of fluids, and chemical and gas products |

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

#### EXTRUSION GAPS

| Radial section S | Radial gap F/2 |        |        |        |
|------------------|----------------|--------|--------|--------|
|                  | 2 MPa          | 10 MPa | 20 MPa | 40 MPa |
| 1.45             | 0.20           | 0.10   | 0.08   | 0.05   |
| 2.25             | 0.25           | 0.15   | 0.10   | 0.07   |
| 3.10             | 0.35           | 0.20   | 0.15   | 0.08   |
| 4.70             | 0.50           | 0.25   | 0.20   | 0.10   |
| 6.10             | 0.60           | 0.30   | 0.25   | 0.12   |
| 9.50             | 0.90           | 0.50   | 0.40   | 0.20   |

#### 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      |

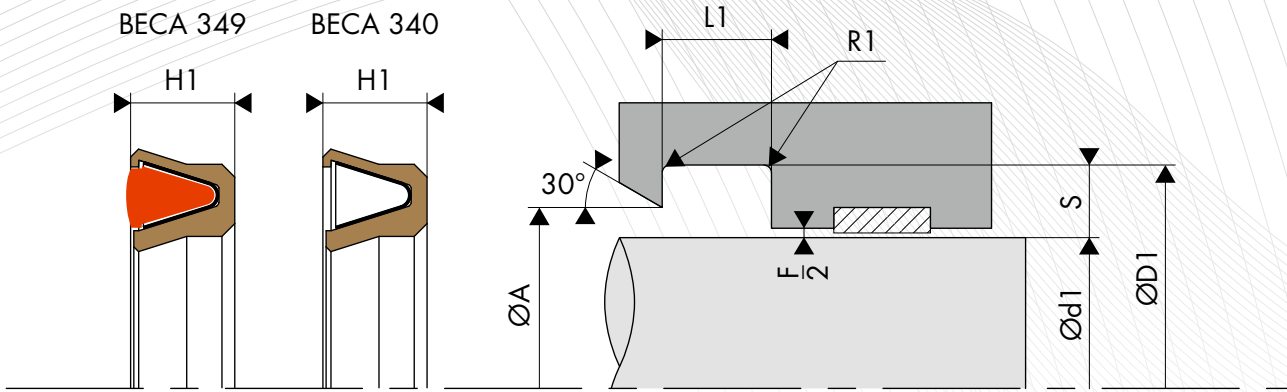
#### CHAMFERS AND RADIUS

| Radial section S | Radius R1 | Chamfer C |
|------------------|-----------|-----------|
| 1.45             | 0.40      | 3.00      |
| 2.25             | 0.40      | 3.00      |
| 3.10             | 0.60      | 3.00      |
| 4.70             | 0.80      | 3.00      |
| 6.10             | 0.80      | 3.50      |
| 9.50             | 0.80      | 6.50      |

TABLE MATERIALS

| Profiled seal |          |                                     |                    |   | V-spring |                  |                     | 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   | I        | X10 Cr Ni 18-8   | -200°C/+260°C       | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |
| 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                                | I        | X10 Cr Ni 18-8   | -200°C/+260°C       |   |
| CG            | C        | PTFE + 23% Carbon + 2% Graphite     | Black              | Good resistance to chemical products<br>Thermal and electrical conductivity<br>Anti-static<br>High-performing in compression-based dynamic applications   | I        | X10 Cr Ni 18-8   | -200°C/+260°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  | I        | X10 Cr Ni 18-8   | -200°C/+260°C       |   |
| VM            | M        | PTFE + 15 % Glass + 5% MOS2         | Grey               | Maintains its chemical and dielectric properties<br>Well-suited to applications with rotational and simultaneous alternating movements  | I        | X10 Cr Ni 18-8   | -200°C/+260°C       | Steel<br>Chrome steel<br>Cast iron  |
| 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  | I        | X10 Cr Ni 18-8   | -200°C/+260°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 | I        | X10 Cr Ni 18-8   | -200°C/+260°C       | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |
| 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>  | I        | X10 Cr Ni 18-8   | -200°C/+260°C       | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |
| K2            | K        | PTFE + 20% Ekonol                   | Light brown        | Use up to +300°C<br>Good friction coefficient and low permeability  | I        | X10 Cr Ni 18-8   | -200°C/+260°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>  | I        | X10 Cr Ni 18-8   | -200°C/+260°C       | Steel<br>Chrome steel<br>Cast iron  |
| B4            | B        | PTFE + 40% Bronze                   | Dark brown         | 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   | I        | X10 Cr Ni 18-8   | -200°C/+260°C       |   |
| HG            | HG       | PE-UHMW                             | White or off-white | Excellent wear resistance on contact with water and air   | I        | X10 Cr Ni 18-8   | -70°C/+80°C         | Steel<br>Stainless steel<br>Chrome steel<br>Aluminium<br>Bronze<br>Cast iron<br>Treated surface |

Other grades of materials are available depending on your specificities.



○ INSTALLATION DIMENSIONS

| Series | Rod diameter<br>Ød1 h9 |                | Groove diameter | Groove width | Radial section | Step height |
|--------|------------------------|----------------|-----------------|--------------|----------------|-------------|
|        | Standard range         | Extended range | ØD1 H9          | L1 0/+0.20   | S              | ØD1 - A     |
| 340.0* | 3.0 - 9.9              | 3.0 - 40.0     | d1 + 2.90       | 2.40         | 1.45           | 0.4         |
| 340.1  | 10.0 - 19.9            | 6.0 - 200.0    | d1 + 4.50       | 3.60         | 2.25           | 0.6         |
| 340.2  | 20.0 - 39.9            | 10.0 - 400.0   | d1 + 6.20       | 4.80         | 3.10           | 0.7         |
| 340.3  | 40.0 - 119.9           | 20.0 - 700.0   | d1 + 9.40       | 7.10         | 4.70           | 0.8         |
| 340.4  | 120.0 - 629.9          | 35.0 - 999.9   | d1 + 12.20      | 9.50         | 6.10           | 0.9         |
| 340.5  | 630.0 - 999.9          | 80.0 - 999.9   | d1 + 19.00      | 15.00        | 9.50           | 0.9         |

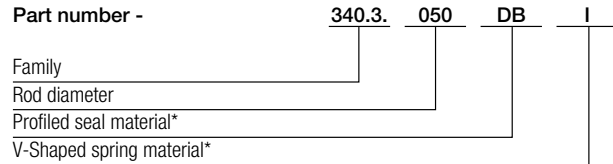
For special applications > 40 MPa, we recommend using an H8/f8 tolerance (groove/rod) or selecting other, more suitable materials. Please contact our experts.

\*Only BECA 340.0 profiles are fitted with an O'Ring instead of a V-spring.

○ EXAMPLE OF CODIFICATION

**STANDARD CODIFICATION**

**Materials** \_\_\_\_\_ : 60% Bronze-filled PTFE profiled seal- Code DB  
 \_\_\_\_\_ : Stainless steel V-Shaped spring - Code I  
**Rod diameter** \_\_\_\_\_ : Ød1 = 50.00 mm  
**Groove diameter** \_\_\_\_\_ : ØD1 = 59.40 mm  
**Part number** \_\_\_\_\_ : 340. 3050DBI



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

## DIMENSIONS

| Part number | Rod diameter<br>Ød1 h9 | Groove diameter<br>ØD1 H9 | Seal height<br>H1 | Groove width<br>L1 0/+0.20 |
|-------------|------------------------|---------------------------|-------------------|----------------------------|
| 340.0004    | 4.00                   | 6.90                      | 2.10              | 2.40                       |
| 340.0005    | 5.00                   | 7.90                      | 2.10              | 2.40                       |
| 340.0006    | 6.00                   | 8.90                      | 2.10              | 2.40                       |
| 340.0007    | 7.00                   | 9.90                      | 2.10              | 2.40                       |
| 340.0008    | 8.00                   | 10.90                     | 2.10              | 2.40                       |
| 340.1010    | 10.00                  | 14.50                     | 3.30              | 3.60                       |
| 340.1011    | 11.00                  | 15.50                     | 3.30              | 3.60                       |
| 340.1012    | 12.00                  | 16.50                     | 3.30              | 3.60                       |
| 340.1014    | 14.00                  | 18.50                     | 3.30              | 3.60                       |
| 340.1015    | 15.00                  | 19.50                     | 3.30              | 3.60                       |
| 340.1016    | 16.00                  | 20.50                     | 3.30              | 3.60                       |
| 340.1018    | 18.00                  | 22.50                     | 3.30              | 3.60                       |
| 340.2020    | 20.00                  | 26.20                     | 4.40              | 4.80                       |
| 340.2022    | 22.00                  | 28.20                     | 4.40              | 4.80                       |
| 340.2025    | 25.00                  | 31.20                     | 4.40              | 4.80                       |
| 340.2028    | 28.00                  | 34.20                     | 4.40              | 4.80                       |
| 340.2030    | 30.00                  | 36.20                     | 4.40              | 4.80                       |
| 340.2032    | 32.00                  | 38.20                     | 4.40              | 4.80                       |
| 340.2033    | 33.00                  | 39.20                     | 4.40              | 4.80                       |
| 340.2035    | 35.00                  | 41.20                     | 4.40              | 4.80                       |
| 340.2036    | 36.00                  | 42.20                     | 4.40              | 4.80                       |
| 340.2038    | 38.00                  | 44.20                     | 4.40              | 4.80                       |
| 340.3040    | 40.00                  | 49.40                     | 6.50              | 7.10                       |
| 340.3042    | 42.00                  | 51.40                     | 6.50              | 7.10                       |
| 340.3045    | 45.00                  | 54.40                     | 6.50              | 7.10                       |
| 340.3048    | 48.00                  | 57.40                     | 6.50              | 7.10                       |
| 340.3050    | 50.00                  | 59.40                     | 6.50              | 7.10                       |
| 340.3052    | 52.00                  | 61.40                     | 6.50              | 7.10                       |
| 340.3055    | 55.00                  | 64.40                     | 6.50              | 7.10                       |
| 340.3056    | 56.00                  | 65.40                     | 6.50              | 7.10                       |
| 340.3060    | 60.00                  | 69.40                     | 6.50              | 7.10                       |
| 340.3063    | 63.00                  | 72.40                     | 6.50              | 7.10                       |
| 340.3065    | 65.00                  | 74.40                     | 6.50              | 7.10                       |
| 340.3070    | 70.00                  | 79.40                     | 6.50              | 7.10                       |
| 340.3072    | 72.00                  | 81.40                     | 6.50              | 7.10                       |

| Part number | Rod diameter<br>Ød1 h9 | Groove diameter<br>ØD1 H9 | Seal height<br>H1 | Groove width<br>L1 0/+0.20 |
|-------------|------------------------|---------------------------|-------------------|----------------------------|
| 340.3075    | 75.00                  | 84.40                     | 6.50              | 7.10                       |
| 340.3080    | 80.00                  | 89.40                     | 6.50              | 7.10                       |
| 340.3085    | 85.00                  | 94.40                     | 6.50              | 7.10                       |
| 340.3090    | 90.00                  | 99.40                     | 6.50              | 7.10                       |
| 340.3095    | 95.00                  | 104.40                    | 6.50              | 7.10                       |
| 340.3100    | 100.00                 | 109.40                    | 6.50              | 7.10                       |
| 340.3105    | 105.00                 | 114.40                    | 6.50              | 7.10                       |
| 340.3110    | 110.00                 | 119.40                    | 6.50              | 7.10                       |
| 340.3115    | 115.00                 | 124.40                    | 6.50              | 7.10                       |
| 340.3116    | 116.00                 | 125.40                    | 6.50              | 7.10                       |
| 340.4120    | 120.00                 | 132.20                    | 8.80              | 9.50                       |
| 340.4125    | 125.00                 | 137.20                    | 8.80              | 9.50                       |
| 340.4130    | 130.00                 | 142.20                    | 8.80              | 9.50                       |
| 340.4135    | 135.00                 | 147.20                    | 8.80              | 9.50                       |
| 340.4140    | 140.00                 | 152.20                    | 8.80              | 9.50                       |
| 340.4150    | 150.00                 | 162.20                    | 8.80              | 9.50                       |
| 340.4160    | 160.00                 | 172.20                    | 8.80              | 9.50                       |
| 340.4165    | 165.00                 | 177.20                    | 8.80              | 9.50                       |
| 340.4170    | 170.00                 | 182.20                    | 8.80              | 9.50                       |
| 340.4180    | 180.00                 | 192.20                    | 8.80              | 9.50                       |
| 340.4190    | 190.00                 | 202.20                    | 8.80              | 9.50                       |
| 340.4200    | 200.00                 | 212.20                    | 8.80              | 9.50                       |
| 340.4210    | 210.00                 | 222.20                    | 8.80              | 9.50                       |
| 340.4220    | 220.00                 | 232.20                    | 8.80              | 9.50                       |
| 340.4230    | 230.00                 | 242.20                    | 8.80              | 9.50                       |
| 340.4238    | 238.00                 | 250.20                    | 8.80              | 9.50                       |
| 340.4240    | 240.00                 | 252.20                    | 8.80              | 9.50                       |
| 340.4250    | 250.00                 | 262.20                    | 8.80              | 9.50                       |
| 340.4280    | 280.00                 | 292.20                    | 8.80              | 9.50                       |
| 340.4300    | 300.00                 | 312.20                    | 8.80              | 9.50                       |
| 340.4315    | 315.00                 | 327.20                    | 8.80              | 9.50                       |
| 340.4320    | 320.00                 | 332.20                    | 8.80              | 9.50                       |
| 340.4350    | 350.00                 | 362.20                    | 8.80              | 9.50                       |
| 340.4360    | 360.00                 | 372.20                    | 8.80              | 9.50                       |
| 340.4400    | 400.00                 | 412.20                    | 8.80              | 9.50                       |

The figures highlighted in bold correspond to the rod diameters that are recommended by standard ISO 3320. Other intermediate sizes can be provided.