

# ROD SEALS

## BECA

### 157-158



#### DESCRIPTION

The BECA 157 - 158 profile is a double acting rod composite seal composed of a filled PTFE friction ring and two pre-tightened rubber O'Rings. It can be assembled in a groove according to standard ISO 7425/2. Option of connecting the seal to 1 or 2 back-up rings.

#### ADVANTAGES

Optimal sealing for separating two fluids  
 Low friction coefficient;  
 no stick-slip effect  
 Excellent abrasion resistance  
 Wide temperature range and excellent chemical resistance, depending on the material selected for the O'Ring

#### APPLICATIONS

Mobile hydraulics  
 Machine tools  
 Presses  
 Hydro-pneumatic suspension systems

#### MATERIALS

**Friction ring**  
 Bronze-filled PTFE  
**O'Rings**  
 NBR 70 Shore A

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

#### TECHNICAL DATA

<b>Temperature</b>	-30°C / +200°C
<b>Pressure</b>	50 MPa
<b>Speed</b>	2 m/s
<b>Media</b>	Mineral hydraulic oils Fire-resistant liquids Biocompatible fluids Water Gas Others (contact our experts)

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		
	10 MPa	20 MPa	40 MPa
5.50	0.25	0.15	0.10
7.75	0.30	0.20	0.15
10.50	0.30	0.20	0.15
12.25	0.30	0.20	0.15
14.00	0.45	0.30	0.25
19.00	0.55	0.40	0.35

#### 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

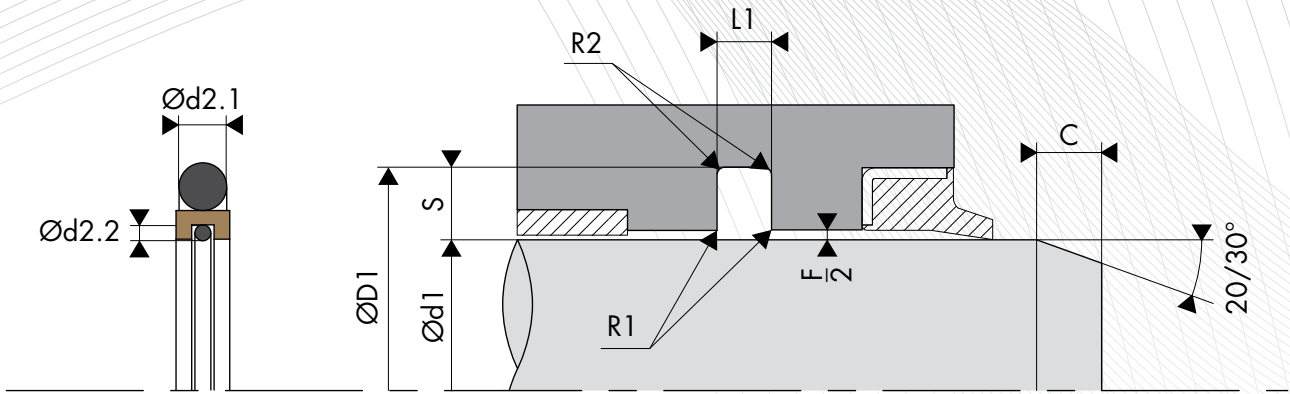
#### CHAMFERS AND RADIUS

Radial section S	Radius R1	Radius R2	Chamfer C
5.50	0.30	1.00	3.00
7.75	0.30	1.30	3.00
10.50	0.30	1.80	5.00
12.25	0.30	1.80	6.00
14.00	0.30	2.50	8.00
19.00	0.30	3.00	10.00

TABLE MATERIALS

Friction ring					O'Rings			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 Impermeability Dielectric Non-stick Low friction coefficient Food industry	K6	NBR 70 Shore A	-30°C/+100°C	Steel Stainless steel Chrome steel Aluminium Bronze Cast iron 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> • <b>Wear properties</b> • <b>Compression set</b> Good resistance to chemical products Thermal and electrical conductivity Anti-static 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	Thermal and electrical conductivity Anti-static 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> • <b>Wear properties</b> • <b>Mechanical strength</b> Slightly more abrasive, however, this is corrected by adding MOS2 Maintains its chemical and dielectric properties Well-suited to applications with rotational and simultaneous alternating movements	K6	NBR 70 Shore A	-30°C/+100°C		Steel Chrome steel 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 Resistance to wear Excellent chemical stability 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> • <b>Wear properties</b> Reduced wear on metal parts Self-lubricating Thermal and electrical conductivity Low permeability Good friction coefficient Anti-static High performing in dynamic self-lubricating applications	K6	NBR 70 Shore A	-30°C/+100°C	Steel Stainless steel Chrome steel Aluminium Bronze Cast iron 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> • <b>Better abrasion resistance</b> • <b>Better dimensional stability at high temperatures</b> Use up to +300°C 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		
DB	B	PTFE + 60% Bronze	Dark brown	<b>Improvements</b> • <b>Wear properties</b> • <b>Warping resistance and creep strength</b> • <b>Compression resistance</b> Self-lubricating Electrical and thermal conductivity Does not alter the metal parts Reduced hold with certain chemical products Used for high-compression dynamic seals and has a low level of wear	K6	NBR 70 Shore A	-30°C/+100°C		Steel Chrome steel 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

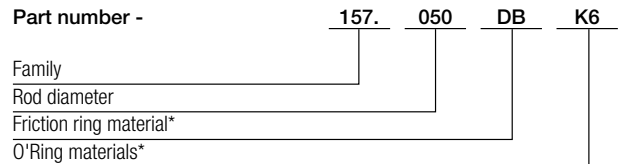
Rod diameter Ød1 f8/h9		Groove diameter	Groove width	Radial section	O'Ring cross-section	O'Ring / X'Ring cross-section
BECA 157 Standard range	BECA 158 Extended range	ØD1 H9	L1 0/+0.20	S	Ød2.1	Ød2.2
19.0 - 37.9	18.0 - 450.0	d1 + 11.00	4.20	5.50	3.53	1.78
38.0 - 199.9	30.0 - 650.0	d1 + 15.50	6.30	7.75	5.33	1.78
200.0 - 255.9	105.0 - 999.9	d1 + 21.00	8.10	10.50	6.99	2.62
256.0 - 649.9	120.0 - 999.9	d1 + 24.50	8.10	12.25	6.99	2.62
650.0 - 999.9	285.0 - 999.9	d1 + 28.00	9.50	14.00	8.40	3.53
---	650.0 - 999.9	d1 + 38.00	13.80	19.00	12.00	5.33

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

○ EXAMPLE OF CODIFICATION

**STANDARD CODIFICATION**

**Materials** \_\_\_\_\_ : Friction ring, PTFE + 60% Bronze - Code DB  
 \_\_\_\_\_ : NBR 70 Shore A O'Rings - Code K6  
**Rod diameter** \_\_\_\_\_ : Ød1 = 50.00 mm  
**Groove diameter** \_\_\_\_\_ : ØD1 = 65.50 mm  
**Part number** \_\_\_\_\_ : 157. 050DBK6



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

## DIMENSIONS

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
157.018	18.00	29.00	4.20
<b>157.020</b>	<b>20.00</b>	<b>31.00</b>	<b>4.20</b>
<b>157.022</b>	<b>22.00</b>	<b>33.00</b>	<b>4.20</b>
<b>157.025</b>	<b>25.00</b>	<b>36.00</b>	<b>4.20</b>
<b>157.028</b>	<b>28.00</b>	<b>39.00</b>	<b>4.20</b>
157.030	30.00	41.00	4.20
<b>157.032</b>	<b>32.00</b>	<b>43.00</b>	<b>4.20</b>
157.035	35.00	46.00	4.20
<b>157.036</b>	<b>36.00</b>	<b>47.00</b>	<b>4.20</b>
157.038	38.00	53.50	6.30
157.040	40.00	55.50	6.30
157.042	42.00	57.50	6.30
157.045	45.00	60.50	6.30
157.048	48.00	63.50	6.30
157.050	50.00	65.50	6.30
157.052	52.00	67.50	6.30
157.055	55.00	70.50	6.30
<b>157.056</b>	<b>56.00</b>	<b>71.50</b>	<b>6.30</b>
157.058	58.00	73.50	6.30
157.060	60.00	75.50	6.30
157.062	62.00	77.50	6.30
<b>157.063</b>	<b>63.00</b>	<b>78.50</b>	<b>6.30</b>
157.065	65.00	80.50	6.30
157.068	68.00	83.50	6.30
<b>157.070</b>	<b>70.00</b>	<b>85.50</b>	<b>6.30</b>
157.075	75.00	90.50	6.30
<b>157.080</b>	<b>80.00</b>	<b>95.50</b>	<b>6.30</b>
157.085	85.00	100.50	6.30
<b>157.090</b>	<b>90.00</b>	<b>105.50</b>	<b>6.30</b>
157.095	95.00	110.50	6.30
<b>157.100</b>	<b>100.00</b>	<b>115.50</b>	<b>6.30</b>
157.105	105.00	120.50	6.30
<b>157.110</b>	<b>110.00</b>	<b>125.50</b>	<b>6.30</b>
157.115	115.00	130.50	6.30
157.120	120.00	135.50	6.30
<b>157.125</b>	<b>125.00</b>	<b>140.50</b>	<b>6.30</b>
157.130	130.00	145.50	6.30
157.135	135.00	150.50	6.30

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
<b>157.140</b>	<b>140.00</b>	<b>155.50</b>	<b>6.30</b>
157.145	145.00	160.50	6.30
157.150	150.00	165.50	6.30
157.155	155.00	170.50	6.30
<b>157.160</b>	<b>160.00</b>	<b>175.50</b>	<b>6.30</b>
157.165	165.00	180.50	6.30
157.170	170.00	185.50	6.30
157.175	175.00	190.50	6.30
<b>157.180</b>	<b>180.00</b>	<b>195.50</b>	<b>6.30</b>
157.185	185.00	200.50	6.30
157.190	190.00	205.50	6.30
157.195	195.00	210.50	6.30
<b>157.200</b>	<b>200.00</b>	<b>221.00</b>	<b>8.10</b>
157.205	205.00	226.00	8.10
157.210	210.00	231.00	8.10
157.215	215.00	236.00	8.10
<b>157.220</b>	<b>220.00</b>	<b>241.00</b>	<b>8.10</b>
157.230	230.00	251.00	8.10
157.240	240.00	261.00	8.10
157.250	250.00	271.00	8.10
157.260	260.00	284.50	8.10
157.270	270.00	294.50	8.10
<b>157.280</b>	<b>280.00</b>	<b>304.50</b>	<b>8.10</b>
157.290	290.00	314.50	8.10
157.300	300.00	324.50	8.10
157.310	310.00	334.50	8.10
157.320	320.00	344.50	8.10
157.330	330.00	354.50	8.10
<b>157.340</b>	<b>340.00</b>	<b>364.50</b>	<b>8.10</b>
157.350	350.00	374.50	8.10
157.360	360.00	384.50	8.10
157.370	370.00	394.50	8.10
157.380	380.00	404.50	8.10
157.390	390.00	414.50	8.10
157.400	400.00	424.50	8.10
157.450	450.00	474.50	8.10
<b>157.500</b>	<b>500.00</b>	<b>524.50</b>	<b>8.10</b>

The figures highlighted in bold correspond to the dimensions for standard ISO 7425/2, with the rod diameters in line with standard ISO 3320. Other intermediate sizes can be provided.