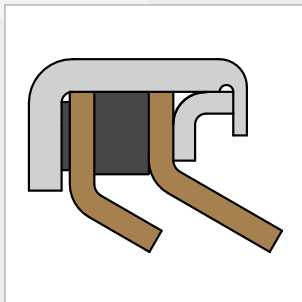




SHAFT SEALS WITH PTFE LIPS BECA 805



DESCRIPTION

The BECA 805 profile is a shaft seal composed of a filled PTFE double primary sealing lip, a rubber counter-seal and a metal cage.

ADVANTAGES

Excellent chemical inertia
May be used in the food industry
Very good friction coefficient;
no stick-slip effect
Machined outside diameter for
precise mounting in the housing

APPLICATIONS

Engines
Crankshafts
Food & Beverage

MATERIALS

Sealing lip

Virgin PTFE
Glass-filled PTFE
Carbon-filled PTFE

Metal cage

Steel - AISI 1010
Stainless steel - AISI 304
Stainless steel - AISI 316

SEAL DESIGN

Tolerance for the outside diameter of the seal (ØD)

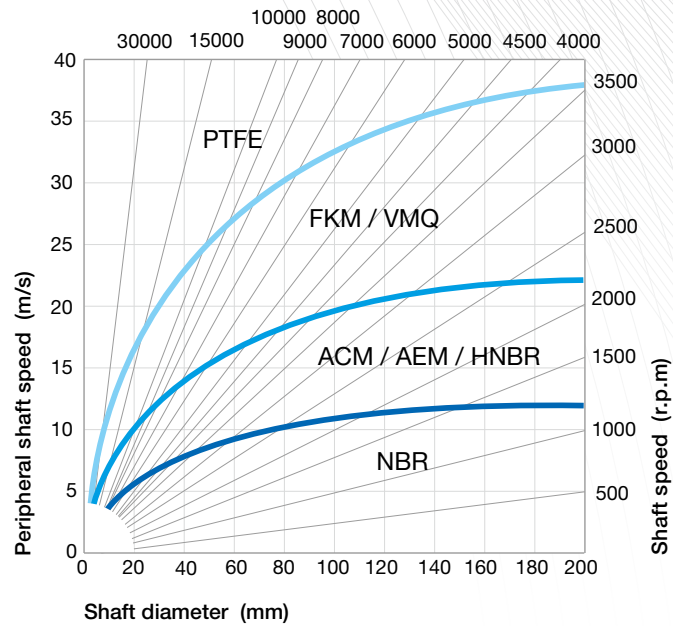
Bore diameter ØD1 (mm)	Apparent metal cage	Rubber coating	Coating with grooves
ØD1 ≤ 50.0	+0.10 / +0.20	+0.15 / +0.30	+0.20 / +0.40
50.0 < ØD1 ≤ 80.0	+0.13 / +0.23	+0.20 / +0.35	+0.25 / +0.45
80.0 < ØD1 ≤ 120.0	+0.15 / +0.25	+0.20 / +0.35	+0.25 / +0.45
120.0 < ØD1 ≤ 180.0	+0.18 / +0.28	+0.25 / +0.45	+0.30 / +0.55
180.0 < ØD1 ≤ 300.0	+0.20 / +0.30	+0.25 / +0.45	+0.30 / +0.55
300.0 < ØD1 ≤ 500.0	+0.23 / +0.35	+0.30 / +0.55	+0.35 / +0.65
500.0 < ØD1 ≤ 630.0	+0.23 / +0.35	+0.35 / +0.65	+0.40 / +0.75

Roundness tolerance

Bore diameter ØD1 (mm)	Apparent metal cage	Rubber coating
ØD1 ≤ 50.0	0.18	0.25
50.0 < ØD1 ≤ 80.0	0.25	0.35
80.0 < ØD1 ≤ 120.0	0.30	0.50
120.0 < ØD1 ≤ 180.0	0.40	0.65
180.0 < ØD1 ≤ 300.0	0.25% of the outside diameter	0.80
300.0 < ØD1 ≤ 500.0	0.25% of the outside diameter	1.00
500.0 < ØD1 ≤ 630.0	-	-

TECHNICAL DATA

Speed

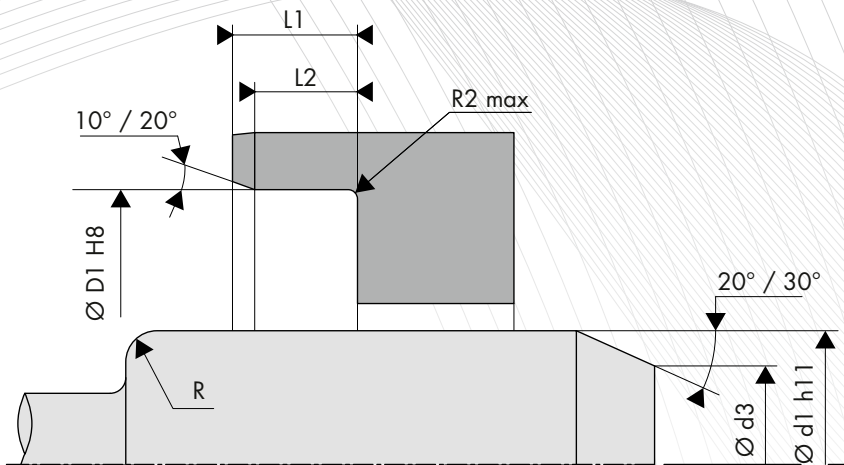


Linear speed calculation:

$$s \text{ (m/s)} = \frac{[\text{shaft } \varnothing \text{ (mm)} \times \text{speed (rpm)} \times \pi]}{60,000}$$

Temperature / Media

Media		Maximum temperature depending on the materials
		PTFE
Mineral oils	Oils for motors	+150°C
	Oils for gearboxes	+150°C
	Oils for hypoid gears	+150°C
	ATF oils	+150°C
	Hydraulic oils	+150°C
	Greases	+150°C
Fire-resistant fluids	HFA group - Emulsion with more than 80% water	+
	HFB group - Opposite solution (water in oil)	+
	HFC group - Polymer aqueous solution	+
	HFD group - Water-free synthetic fluids	+150°C
Other fluids	EL + L heating oil	+
	Air	+150°C
	Water	+
	Water for washing	+
Temperature range	Min.	-60°C
	Max.	+200°C



SHAFT DESIGN

Shaft hardness

Rotation speed	Hardness in HRC
$s \leq 4.0$ m/sec	45 HRC
$4.0 < s \leq 10.0$ m/s	55 HRC
$s > 10.0$ m/sec	60 HRC

Surface roughness

Ra	0.1 to 0.4 μm
Rz	1.0 to 4.0 μm
Rmax	≤ 6.3 μm

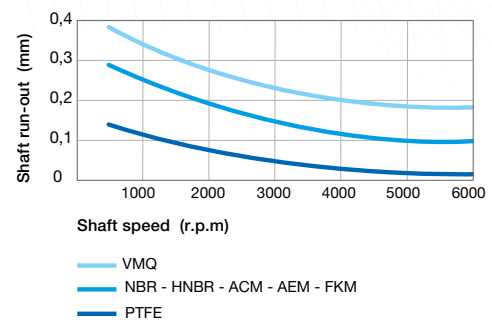
Shaft tolerance

Shaft diameter $\varnothing d1$ (mm)	Tolerance h11 (mm)
$\varnothing d1 \leq 3.0$	-0.060 / 0
$3.0 < \varnothing d1 \leq 6.0$	-0.075 / 0
$6.0 < \varnothing d1 \leq 10.0$	-0.090 / 0
$10.0 < \varnothing d1 \leq 18.0$	-0.110 / 0
$18.0 < \varnothing d1 \leq 30.0$	-0.130 / 0
$30.0 < \varnothing d1 \leq 50.0$	-0.160 / 0
$50.0 < \varnothing d1 \leq 80.0$	-0.190 / 0
$80.0 < \varnothing d1 \leq 120.0$	-0.220 / 0
$120.0 < \varnothing d1 \leq 180.0$	-0.250 / 0
$180.0 < \varnothing d1 \leq 250.0$	-0.290 / 0
$250.0 < \varnothing d1 \leq 315.0$	-0.320 / 0
$315.0 < \varnothing d1 \leq 400.0$	-0.360 / 0
$400.0 < \varnothing d1 \leq 500.0$	-0.400 / 0

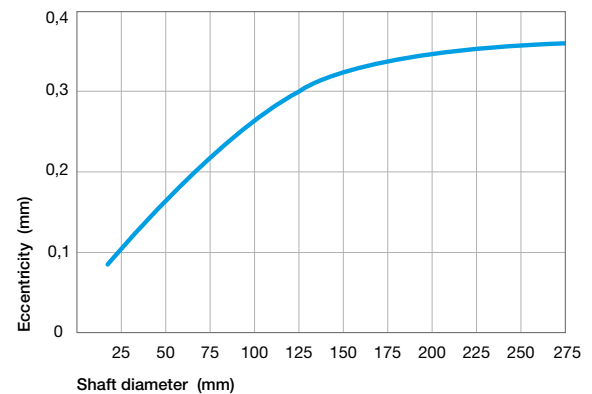
Chamfer and radius

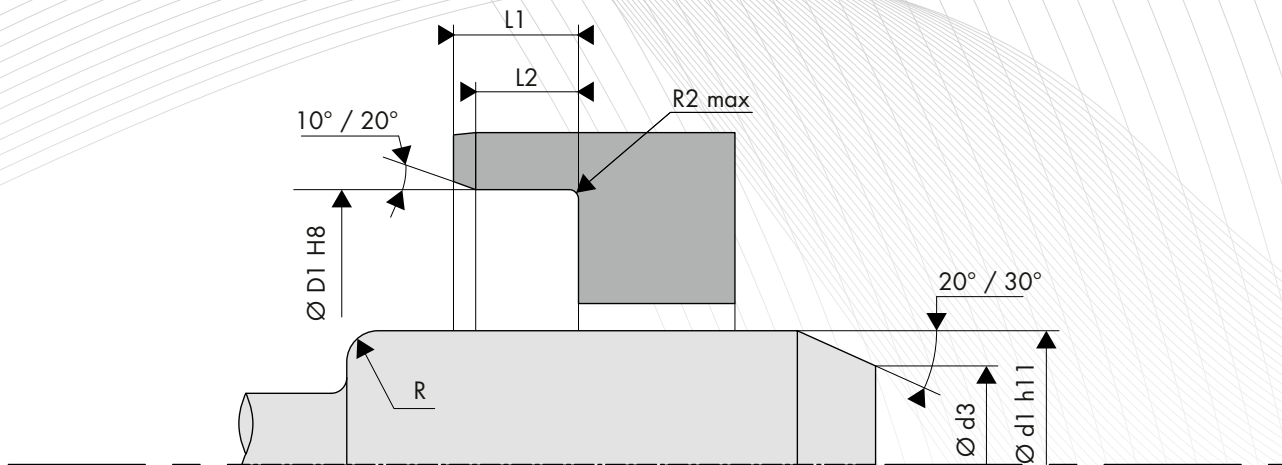
Shaft diameter $\varnothing d1$ (mm)	Chamfer diameter $\varnothing d3$ (mm)	Radius R (mm)
$\varnothing d1 \leq 10.0$	$\varnothing d1 - 1.50$	2.00
$10.0 < \varnothing d1 \leq 20.0$	$\varnothing d1 - 2.00$	2.00
$20.0 < \varnothing d1 \leq 30.0$	$\varnothing d1 - 2.50$	3.00
$30.0 < \varnothing d1 \leq 40.0$	$\varnothing d1 - 3.00$	3.00
$40.0 < \varnothing d1 \leq 50.0$	$\varnothing d1 - 3.50$	4.00
$50.0 < \varnothing d1 \leq 70.0$	$\varnothing d1 - 4.00$	4.00
$70.0 < \varnothing d1 \leq 95.0$	$\varnothing d1 - 4.50$	5.00
$95.0 < \varnothing d1 \leq 130.0$	$\varnothing d1 - 5.50$	6.00
$130.0 < \varnothing d1 \leq 240.0$	$\varnothing d1 - 7.00$	8.00
$240.0 < \varnothing d1 \leq 500.0$	$\varnothing d1 - 11.00$	12.00

Shaft run out



Eccentricity





HOUSING DESIGN

Surface roughness

Ra	0.8 to 3.2 µm
Rz	6.3 to 16.0 µm
Rmax	≤16.0 µm

Housing tolerance

Bore diameter ØD1 (mm)	Tolerance H8 (mm)
3.0 < ØD1 ≤ 6.0	0 / +0.018
6.0 < ØD1 ≤ 10.0	0 / +0.022
10.0 < ØD1 ≤ 18.0	0 / +0.027
18.0 < ØD1 ≤ 30.0	0 / +0.033
30.0 < ØD1 ≤ 50.0	0 / +0.039
50.0 < ØD1 ≤ 80.0	0 / +0.046
80.0 < ØD1 ≤ 120.0	0 / +0.054
120.0 < ØD1 ≤ 180.0	0 / +0.063
180.0 < ØD1 ≤ 250.0	0 / +0.072
250.0 < ØD1 ≤ 315.0	0 / +0.081
315.0 < ØD1 ≤ 400.0	0 / +0.089
400.0 < ØD1 ≤ 500.0	0 / +0.097
500.0 < ØD1 ≤ 630.0	0 / +0.110

Groove width

Height H1 (mm)	Width	
	L2 min (mm)	L1 min (mm)
7.00	5.95	7.50
8.00	6.80	8.50
10.00	8.50	11.00
12.00	10.30	13.00
15.00	12.75	16.00
20.00	17.00	21.00

Groove radius

Height H1 (mm)	Radius R2 max (mm)
7.00	0.50
8.00	
10.00	
12.00	
15.00	0.70
20.00	