

COMBI SEALS COMB4



DESCRIPTION

The COMB4 profile is a combi seal composed of a metal cage with a rubber coating covering half of the outside of the cage, a DC-DCW double sealing lip and a compact polyurethane anti-pollution deflector.

ADVANTAGES

- Long lifespan
- Moderate rotation speeds
- Elevated/moderate axial displacements
- Moderate/high protection against external dirt
- Improved static sealing

APPLICATIONS

- Agriculture
- Transmissions
- Rotations during high levels of pollution

MATERIALS

Rubber

NBR 70 - 75 Shore A

FKM 70 - 75 Shore A

Deflector

PU 92 Shore A

PU 94 Shore A

Metal cage

Steel - AISI 1010

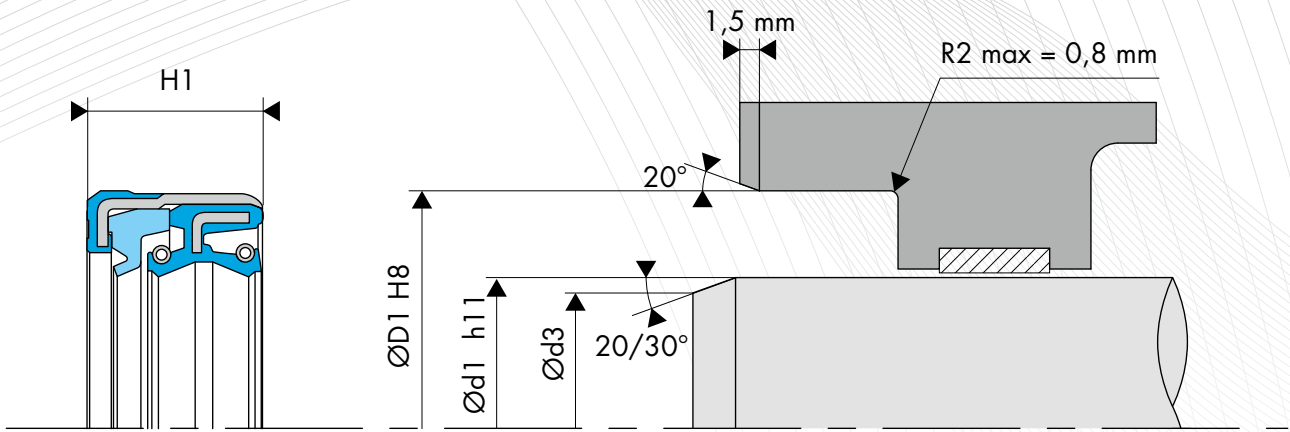
Spring

Steel - AISI 1070 - 1090

TECHNICAL DATA

Technical data	NBR 70 - 75 Shore A	FKM 70 - 75 Shore A	ACM 70 - 75 Shore A	HNBR 70 - 75 Shore A
Temperature	-30°C / +80°C	-20°C/+100°C	-25°C/+90°C	-30°C/+90°C
Speed	4 m/s	6 m/s	5 m/s	5 m/s
Pressure	0.02 - 0.05 MPa	0.02 - 0.05 MPa	0.02 - 0.05 MPa	0.02 - 0.05 MPa
Accepted axial offset	Average - High	Average - High	Average - High	Average - High
Level of pollution	Moderate	Moderate	Moderate	Moderate

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



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 *	0.2 to 0.8 μm
Rz	1.0 to 4.0 μm
Rmax	≤ 6.3 μm

*Ra = 0.1 μm for demanding applications

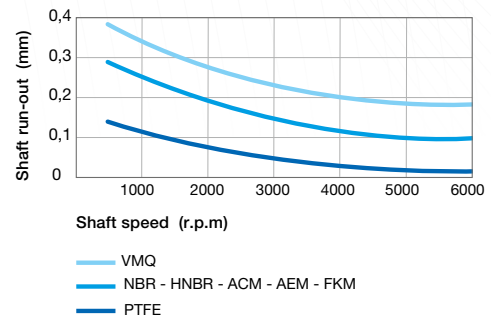
Shaft tolerance

Shaft diameter Ød1 (mm)	Tolerance h11 (mm)
$\text{Ød1} \leq 3.0$	-0.060 / 0
$3.0 < \text{Ød1} \leq 6.0$	-0.075 / 0
$6.0 < \text{Ød1} \leq 10.0$	-0.090 / 0
$10.0 < \text{Ød1} \leq 18.0$	-0.110 / 0
$18.0 < \text{Ød1} \leq 30.0$	-0.130 / 0
$30.0 < \text{Ød1} \leq 50.0$	-0.160 / 0
$50.0 < \text{Ød1} \leq 80.0$	-0.190 / 0
$80.0 < \text{Ød1} \leq 120.0$	-0.220 / 0
$120.0 < \text{Ød1} \leq 180.0$	-0.250 / 0
$180.0 < \text{Ød1} \leq 250.0$	-0.290 / 0
$250.0 < \text{Ød1} \leq 315.0$	-0.320 / 0
$315.0 < \text{Ød1} \leq 400.0$	-0.360 / 0
$400.0 < \text{Ød1} \leq 500.0$	-0.400 / 0

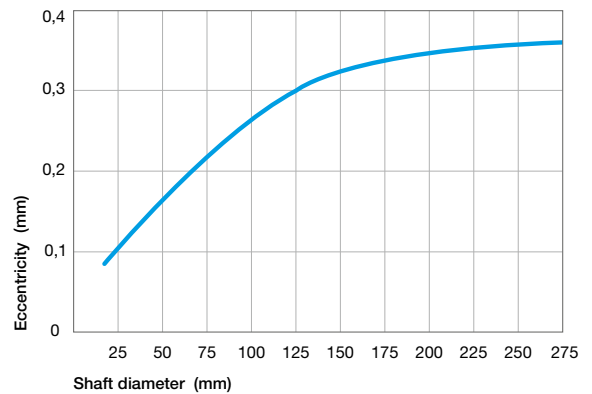
Chamfer

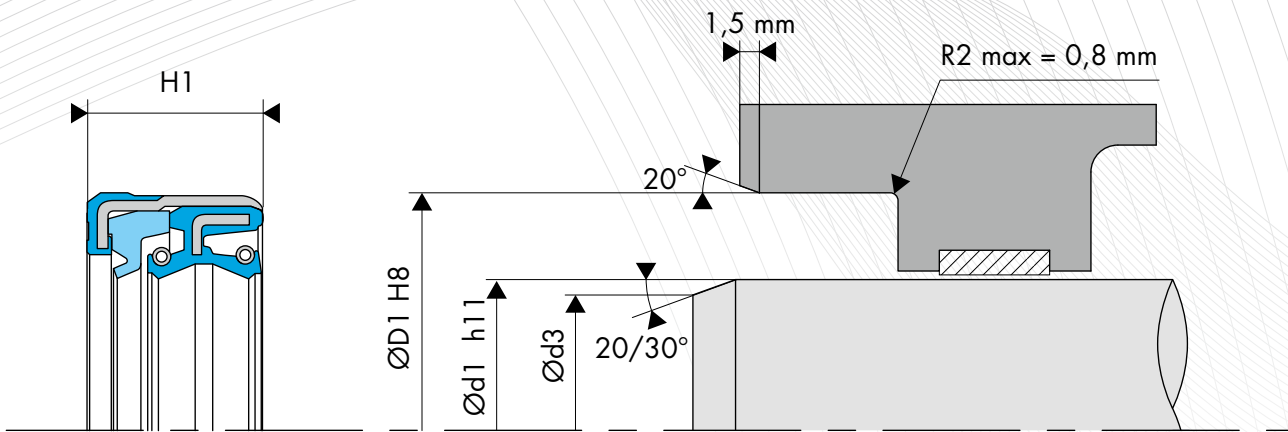
Shaft diameter Ød1 (mm)	Chamfer diameter Ød3 (mm)
$\text{Ød1} \leq 10.0$	$\text{Ød1} - 1.50$
$10.0 < \text{Ød1} \leq 20.0$	$\text{Ød1} - 2.00$
$20.0 < \text{Ød1} \leq 30.0$	$\text{Ød1} - 2.50$
$30.0 < \text{Ød1} \leq 40.0$	$\text{Ød1} - 3.00$
$40.0 < \text{Ød1} \leq 50.0$	$\text{Ød1} - 3.50$
$50.0 < \text{Ød1} \leq 70.0$	$\text{Ød1} - 4.00$
$70.0 < \text{Ød1} \leq 95.0$	$\text{Ød1} - 4.50$
$95.0 < \text{Ød1} \leq 130.0$	$\text{Ød1} - 5.50$
$130.0 < \text{Ød1} \leq 240.0$	$\text{Ød1} - 7.00$
$240.0 < \text{Ød1} \leq 500.0$	$\text{Ød1} - 11.00$

Shaft run out



Eccentricity





HOUSING DESIGN

Surface roughness

Ra	0,8 to 3,2 μm
Rz	6,3 to 16,0 μm
Rmax	$\leq 16,0 \mu\text{m}$

Chamfer

Housing	20° (+/-5°) x 1.5 mm
---------	----------------------

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

DIMENSIONS

Part number	Shaft diameter Ød1 h11	Bore diameter ØD1 H8	Seal height H1
COMB4 37 x 52 x 16	37.00	52.00	16.00
COMB4 45 x 60 x 16	45.00	60.00	16.00
COMB4 50 x 65 x 18	50.00	65.00	18.00
COMB4 55 x 80 x 16	55.00	80.00	16.00
COMB4 60 x 75 x 16	60.00	75.00	16.00
COMB4 75 x 95 x 16.5	75.00	95.00	16.50