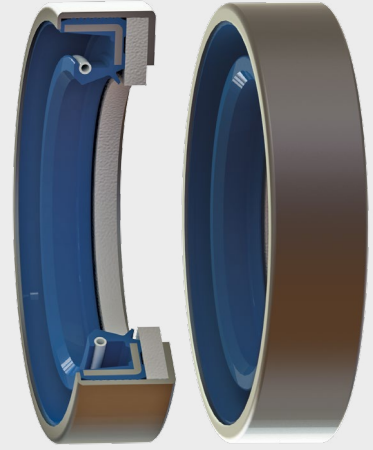


COMBI SEALS

COMB1



DESCRIPTION

The COMB1 profile is a combi seal composed of a metal cage, a TC-TCW shaft seal and a felt or polyurethane foam anti-pollution deflector.

ADVANTAGES

Long lifespan
Moderate/high rotation speeds
Small axial displacements

APPLICATIONS

Agriculture
Transmissions
Rotations during high levels of pollution

MATERIALS

Rubber

NBR 70 - 75 Shore A

Deflector

Felt

PU foam

Metal cage

Steel - AISI 1010

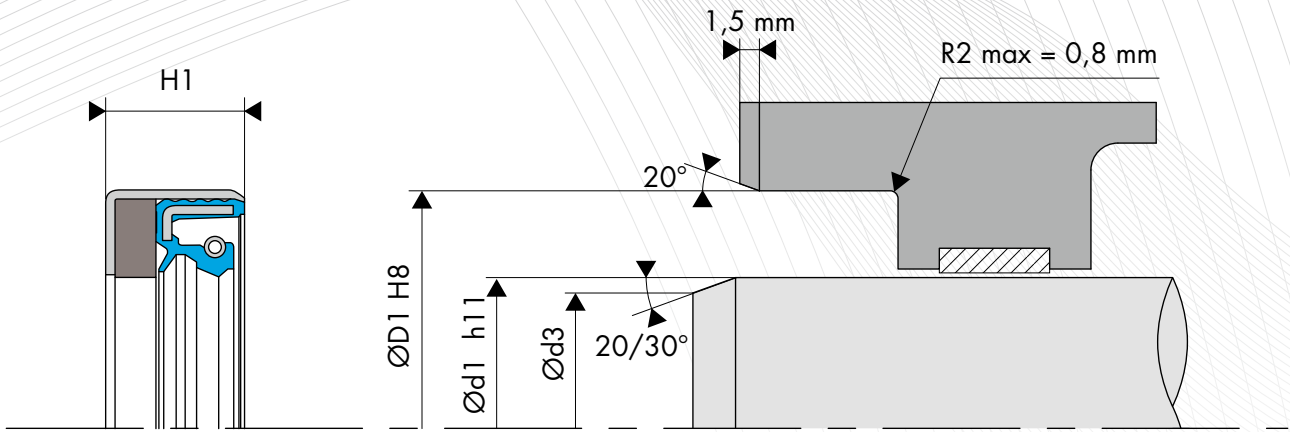
Spring

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	5 m/s	10 m/s	7 m/s	7 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	Low	Low	Low	Low
Level of pollution	Normal	Normal	Normal	Normal

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

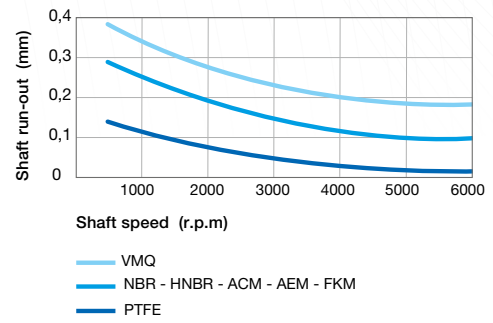
Shaft tolerance

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

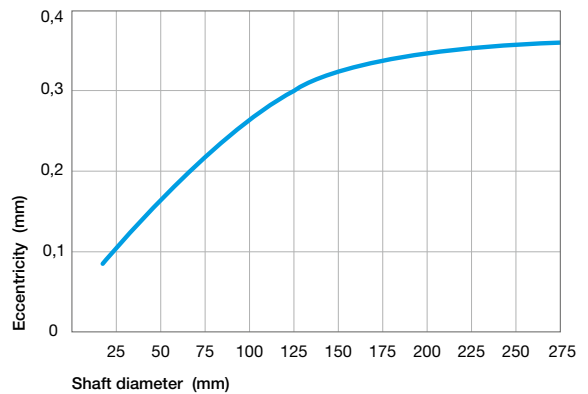
Chamfer

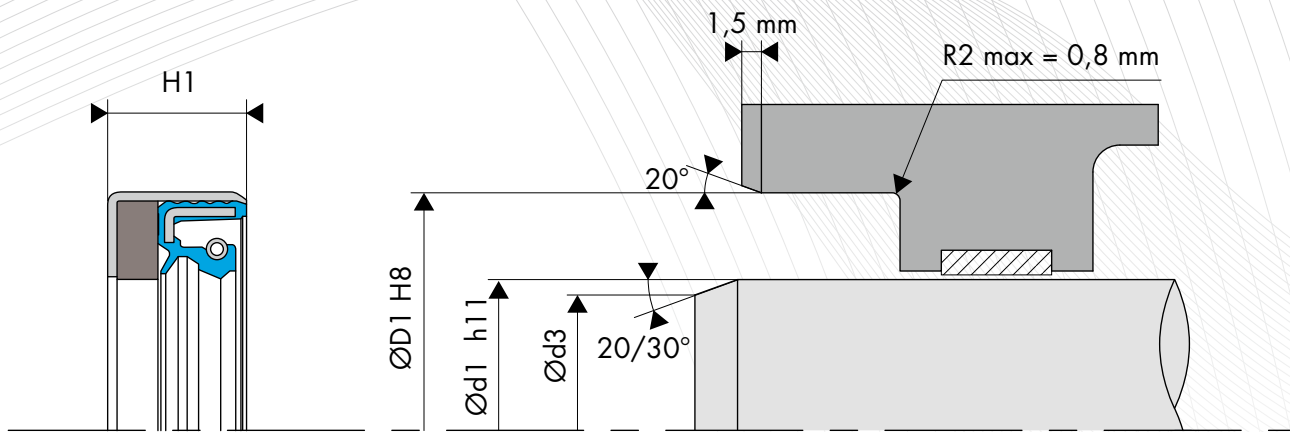
Shaft diameter Ød1 (mm)	Chamfer diameter Ød3 (mm)
$\text{Ød1} \leq 10.0$	$\text{Ød1} - 1.50$
$10.0 < \text{Ød1} \leq 20.0$	$\text{Ød1} - 2.00$
$20.0 < \text{Ød1} \leq 30.0$	$\text{Ød1} - 2.50$
$30.0 < \text{Ød1} \leq 40.0$	$\text{Ød1} - 3.00$
$40.0 < \text{Ød1} \leq 50.0$	$\text{Ød1} - 3.50$
$50.0 <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

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
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Housing tolerance

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

DIMENSIONS

Part number	Shaft diameter Ød1 h11	Bore diameter ØD1 H8	Seal height H1
COMB1 30 x 44 x 11	30.00	44.00	11.00
COMB1 35 x 50 x 10	35.00	50.00	10.00
COMB1 35 x 52 x 10	35.00	52.00	10.00
COMB1 35 x 52 x 16	35.00	52.00	16.00
COMB1 35 x 62 x 12	35.00	62.00	12.00
COMB1 35 x 72 x 12	35.00	72.00	12.00
COMB1 40 x 55 x 10	40.00	55.00	10.00
COMB1 40 x 58 x 10	40.00	58.00	10.00
COMB1 40 x 62 x 10	40.00	62.00	10.00
COMB1 42 x 62 x 14	42.00	62.00	14.00
COMB1 45 x 62 x 11	45.00	62.00	11.00
COMB1 45 x 65 x 12	45.00	65.00	12.00
COMB1 48 x 65 x 11	48.00	65.00	11.00
COMB1 48 x 74 x 13	48.00	74.00	13.00
COMB1 50 x 75 x 12	50.00	75.00	12.00
COMB1 55 x 72 x 12	55.00	72.00	12.00
COMB1 55 x 80 x 11	55.00	80.00	11.00
COMB1 60 x 80 x 12	60.00	80.00	12.00
COMB1 65 x 92 x 14	65.00	92.00	14.00
COMB1 65 x 98 x 15	65.00	98.00	15.00
COMB1 68 x 85 x 12	68.00	85.00	12.00
COMB1 75 x 102 x 14	75.00	102.00	14.00
COMB1 80 x 110 x 16	80.00	110.00	16.00
COMB1 85 x 110 x 16	85.00	110.00	16.00
COMB1 95 x 120 x 13	95.00	120.00	13.00
COMB1 100 x 130 x 16	100.00	130.00	16.00
COMB1 105 x 125 x 16	105.00	125.00	16.00
COMB1 105 x 130 x 12	105.00	130.00	12.00
COMB1 105 x 140 x 16	105.00	140.00	16.00
COMB1 110 x 130 x 12	110.00	130.00	12.00
COMB1 110 x 130 x 16	110.00	130.00	16.00
COMB1 110 x 150 x 16	110.00	150.00	16.00
COMB1 112 x 140 x 13.2	112.00	140.00	13.20
COMB1 120 x 150 x 15	120.00	150.00	15.00
COMB1 130 x 170 x 16	130.00	170.00	16.00
COMB1 145 x 170 x 16	145.00	170.00	16.00
COMB1 150 x 170 x 16	150.00	170.00	16.00
COMB1 155 x 176 x 16	155.00	176.00	16.00
COMB1 165 x 190 x 17	165.00	190.00	17.00
COMB1 170 x 190 x 15	170.00	190.00	15.00
COMB1 170 x 205 x 17	170.00	205.00	17.00
COMB1 180 x 205 x 17	180.00	205.00	17.00
COMB1 190 x 215 x 17	190.00	215.00	17.00
COMB1 190 x 220 x 20	190.00	220.00	20.00