

# WEAR RINGS

## BECA

### 006 Piston



#### DESCRIPTION

The BECA 006 profile is a machined guide ring with a 30° angle cut as standard made from filled PTFE or PE-UHMW, depending on the type of application. Embossed rings are also offered. The embossing is a set of lubricant pockets, which improves the friction. Other types of cuts can be made.

#### ADVANTAGES

Substantial and improved lubrication conditions through the tear structures  
 Very good friction coefficient; no stick-slip effect  
 Good wear resistance; very long life  
 Increased absorption of foreign particles  
 Good vibration absorption  
 No water absorption for the PE-UHMW

#### APPLICATIONS

Agriculture  
 Food & Beverage  
 Shock absorbers  
 Maintenance  
 Dry applications  
 Injection presses  
 Pneumatics  
 Presses  
 Robotics  
 Standard cylinders

#### MATERIALS

Bronze-filled PTFE  
 Carbon-filled PTFE  
 PE-UHMW

Other grades of materials are available. Please contact our experts.

#### TECHNICAL DATA

<b>Temperature</b>	PTFE: -60°C / +150°C PE-UHMW: -60°C / +80°C
<b>Speed</b>	PTFE: 15 m/s PE-UHMW: 2 m/s
<b>Media</b>	Mineral hydraulic oils Biocompatible fluids Water Air Others (contact our experts)
<b>Max. compression resistance</b>	30 to 35 N/mm <sup>2</sup>
<b>Radial loads in dynamic applications</b>	Filled PTFE: 15 N/mm <sup>2</sup> at 25°C 12 N/mm <sup>2</sup> at 80°C 8 N/mm <sup>2</sup> at 120°C PE-UHMW: 25 N/mm <sup>2</sup> at 25°C 10 N/mm <sup>2</sup> at 80°C

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

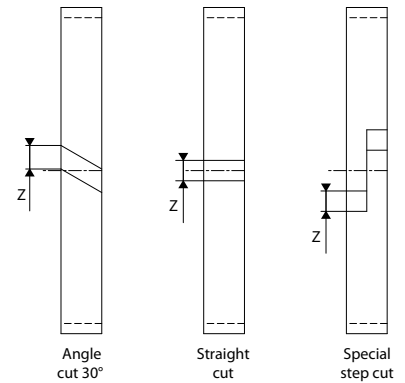
#### WEAR RING HEIGHT DIMENSIONING

$$H = (F \times f) / (\varnothing D1 \times Cr)$$

where:

- H = Min. height of guide (mm)
- F = Max. radial force (N)
- f = Safety coefficient (we recommend 2)
- ∅D1 = Bore diameter (mm)
- Cr = Permissible radial load in dynamic applications (N/mm<sup>2</sup>)

#### TYPES OF CUT



#### EXTRUSION GAPS

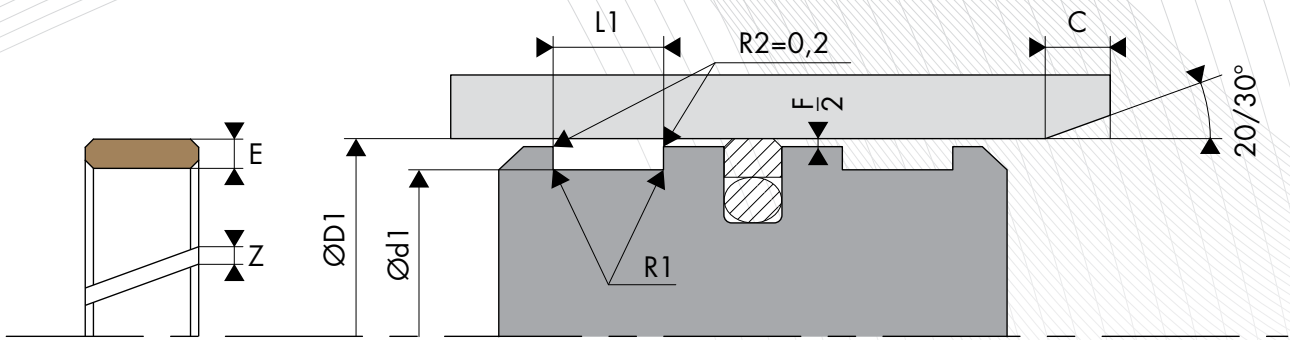
Bore diameter ∅D1	Min. radial gap F/2 min	Max. radial gap F/2 max
8.0 - 20.0	0.20	0.30
21.00 - 100.0	0.25	0.40
101.0 - 250.0	0.30	0.60
251.0 - 500.0	0.40	0.80
501.0 - 1000.0	0.50	1.10
> 1000.0	0.50	1.20

#### 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

#### RADIUS

Bore diameter ∅D1	Radius R1
≤ 250.0	0.20
> 250.0	0.40



### INSTALLATION DIMENSIONS

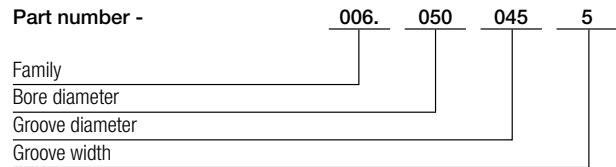
ISO 10766	Bore diameter	Groove diameter	Groove width	Seal thickness	Gap
	ØD1 H9	Ød1 h8	L1 0/+0.20	E	Z +/-0.50
*	8.0 - 20.0	D1 - 3.10	2.50	1.55	1.00
*	10.0 - 50.0	D1 - 3.10	4.00	1.55	1.00
*	16.0 - 140.0	D1 - 5.00	5.60	2.50	1.25
*	60.0 - 220.0	D1 - 5.00	9.70	2.50	1.25
*	130.0 - 400.0	D1 - 5.00	15.00	2.50	1.25
*	280.0 - 999.9	D1 - 5.00	25.00	2.50	1.25
*	280.0 - 999.9	D1 - 8.00	25.00	4.00	2.00

Other dimensions are possible, not taking ISO 10766 into consideration. Please contact our experts

### EXAMPLE OF CODIFICATION

#### STANDARD CODIFICATION

Material \_\_\_\_\_ : Bronze-filled PTFE  
 Bore diameter \_\_\_\_\_ : ØD1 = 50.00 mm  
 Groove diameter \_\_\_\_\_ : Ød1 + 45.00 mm  
 Groove width \_\_\_\_\_ : L1 = 5.60 mm  
 Part number \_\_\_\_\_ : 006.0500455



 DIMENSIONS

Part number	Bore diameter ØD1 H9	Groove diameter Ød1 h8	Groove width L1 0/+0.20	Seal thickness E
006.0080494	8.00	4.90	4.00	1.55
006.0100694	10.00	6.90	4.00	1.55
006.0120894	12.00	8.90	4.00	1.55
006.0141094	14.00	10.90	4.00	1.55
006.0151194	15.00	11.90	4.00	1.55
<b>006.0160115</b>	<b>16.00</b>	<b>11.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.0161294</b>	<b>16.00</b>	<b>12.90</b>	<b>4.00</b>	<b>1.55</b>
006.0180135	18.00	13.00	5.60	2.50
006.0181494	18.00	14.90	4.00	1.55
<b>006.0200155</b>	<b>20.00</b>	<b>15.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.0201694</b>	<b>20.00</b>	<b>16.90</b>	<b>4.00</b>	<b>1.55</b>
006.0220175	22.00	17.00	5.60	2.50
006.0221894	22.00	18.90	4.00	1.55
<b>006.0250205</b>	<b>25.00</b>	<b>20.00</b>	<b>5.60</b>	<b>2.50</b>
006.0250209	25.00	20.00	9.70	2.50
<b>006.0252194</b>	<b>25.00</b>	<b>21.90</b>	<b>4.00</b>	<b>1.55</b>
006.0270225	27.00	22.00	5.60	2.50
006.0270229	27.00	22.00	9.70	2.50
006.0272394	27.00	23.90	4.00	1.55
006.0280235	28.00	23.00	5.60	2.50
006.0280239	28.00	23.00	9.70	2.50
006.0282494	28.00	24.90	4.00	1.55
006.0300255	30.00	25.00	5.60	2.50
006.0300259	30.00	25.00	9.70	2.50
006.0302694	30.00	26.90	4.00	1.55
<b>006.0320275</b>	<b>32.00</b>	<b>27.00</b>	<b>5.60</b>	<b>2.50</b>
006.0320279	32.00	27.00	9.70	2.50
<b>006.0322894</b>	<b>32.00</b>	<b>28.90</b>	<b>4.00</b>	<b>1.55</b>
006.0330285	33.00	28.00	5.60	2.50
006.0330289	33.00	28.00	9.70	2.50
006.0332994	33.00	29.90	4.00	1.55
006.0350305	35.00	30.00	5.60	2.50
006.0350309	35.00	30.00	9.70	2.50
006.0353194	35.00	31.90	4.00	1.55
006.0360315	36.00	31.00	5.60	2.50
006.0360319	36.00	31.00	9.70	2.50
006.0363294	36.00	32.90	4.00	1.55
006.0370325	37.00	32.00	5.60	2.50
006.0370329	37.00	32.00	9.70	2.50
006.0373394	37.00	33.90	4.00	1.55
006.0380335	38.00	33.00	5.60	2.50
006.0380339	38.00	33.00	9.70	2.50
006.0383494	38.00	34.90	4.00	1.55
<b>006.0400355</b>	<b>40.00</b>	<b>35.00</b>	<b>5.60</b>	<b>2.50</b>
006.0400359	40.00	35.00	9.70	2.50
<b>006.0403694</b>	<b>40.00</b>	<b>36.90</b>	<b>4.00</b>	<b>1.55</b>
006.0410365	41.00	36.00	5.60	2.50
006.0410369	41.00	36.00	9.70	2.50
006.0413794	41.00	37.90	4.00	1.55
006.0420375	42.00	37.00	5.60	2.50
006.0420379	42.00	37.00	9.70	2.50
006.0423894	42.00	38.90	4.00	1.55
006.0450405	45.00	40.00	5.60	2.50
006.0450409	45.00	40.00	9.70	2.50
006.0454194	45.00	41.90	4.00	1.55
006.0480435	48.00	43.00	5.60	2.50
006.0480439	48.00	43.00	9.70	2.50
006.0484494	48.00	44.90	4.00	1.55
<b>006.0500455</b>	<b>50.00</b>	<b>45.00</b>	<b>5.60</b>	<b>2.50</b>
006.0500459	50.00	45.00	9.70	2.50
<b>006.0504694</b>	<b>50.00</b>	<b>46.90</b>	<b>4.00</b>	<b>1.55</b>
006.0520475	52.00	47.00	5.60	2.50

Part number	Bore diameter ØD1 H9	Groove diameter Ød1 h8	Groove width L1 0/+0.20	Seal thickness E
006.0520479	52.00	47.00	9.70	2.50
006.0550505	55.00	50.00	5.60	2.50
006.0550509	55.00	50.00	9.70	2.50
006.0580535	58.00	53.00	5.60	2.50
006.0580539	58.00	53.00	9.70	2.50
006.0600555	60.00	55.00	5.60	2.50
006.0600559	60.00	55.00	9.70	2.50
006.0610565	61.00	56.00	5.60	2.50
006.0610569	61.00	56.00	9.70	2.50
<b>006.0630585</b>	<b>63.00</b>	<b>58.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.0630589</b>	<b>63.00</b>	<b>58.00</b>	<b>9.70</b>	<b>2.50</b>
006.0650605	65.00	60.00	5.60	2.50
006.0650609	65.00	60.00	9.70	2.50
006.0680635	68.00	63.00	5.60	2.50
006.0680639	68.00	63.00	9.70	2.50
006.0700655	70.00	65.00	5.60	2.50
006.0700659	70.00	65.00	9.70	2.50
006.0720675	72.00	67.00	5.60	2.50
006.0720679	72.00	67.00	9.70	2.50
006.0750705	75.00	70.00	5.60	2.50
006.0750709	75.00	70.00	9.70	2.50
006.0780735	78.00	73.00	5.60	2.50
006.0780739	78.00	73.00	9.70	2.50
<b>006.0800755</b>	<b>80.00</b>	<b>75.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.0800759</b>	<b>80.00</b>	<b>75.00</b>	<b>9.70</b>	<b>2.50</b>
006.0850805	85.00	80.00	5.60	2.50
006.0850809	85.00	80.00	9.70	2.50
006.0900855	90.00	85.00	5.60	2.50
006.0900859	90.00	85.00	9.70	2.50
006.0950905	95.00	90.00	5.60	2.50
006.0950909	95.00	90.00	9.70	2.50
<b>006.1000955</b>	<b>100.00</b>	<b>95.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.1000959</b>	<b>100.00</b>	<b>95.00</b>	<b>9.70</b>	<b>2.50</b>
006.1051005	105.00	100.00	5.60	2.50
006.1051009	105.00	100.00	9.70	2.50
006.1101055	110.00	105.00	5.60	2.50
006.1101059	110.00	105.00	9.70	2.50
006.1151105	115.00	110.00	5.60	2.50
006.1151109	115.00	110.00	9.70	2.50
006.1201155	120.00	115.00	5.60	2.50
006.1201159	120.00	115.00	9.70	2.50
<b>006.1251205</b>	<b>125.00</b>	<b>120.00</b>	<b>5.60</b>	<b>2.50</b>
<b>006.1251209</b>	<b>125.00</b>	<b>120.00</b>	<b>9.70</b>	<b>2.50</b>
006.1251202	125.00	120.00	25.00	2.50
006.1301259	130.00	125.00	9.70	2.50
006.1301252	130.00	125.00	25.00	2.50
006.1351309	135.00	130.00	9.70	2.50
006.1351302	135.00	130.00	25.00	2.50
<b>006.1401359</b>	<b>140.00</b>	<b>135.00</b>	<b>9.70</b>	<b>2.50</b>
006.1401352	140.00	135.00	25.00	2.50
006.1451409	145.00	140.00	9.70	2.50
006.1451402	145.00	140.00	25.00	2.50
006.1501459	150.00	145.00	9.70	2.50
006.1501452	150.00	145.00	25.00	2.50
006.1551509	155.00	150.00	9.70	2.50
006.1551502	155.00	150.00	25.00	2.50
<b>006.1601559</b>	<b>160.00</b>	<b>155.00</b>	<b>9.70</b>	<b>2.50</b>
006.1601552	160.00	155.00	25.00	2.50
006.1651609	165.00	160.00	9.70	2.50
006.1651602	165.00	160.00	25.00	2.50
006.1701659	170.00	165.00	9.70	2.50
006.1701652	170.00	165.00	25.00	2.50

Part number	Bore diameter ØD1 H9	Groove diameter Ød1 h8	Groove width L1 0/+0.20	Seal thickness E
006.1751709	175.00	170.00	9.70	2.50
006.1751702	175.00	170.00	25.00	2.50
<b>006.1801759</b>	<b>180.00</b>	<b>175.00</b>	<b>9.70</b>	<b>2.50</b>
<b>006.1801751</b>	<b>180.00</b>	<b>175.00</b>	<b>15.00</b>	<b>2.50</b>
006.1801752	180.00	175.00	25.00	2.50
006.1851809	185.00	180.00	9.70	2.50
006.1851801	185.00	180.00	15.00	2.50
006.1851802	185.00	180.00	25.00	2.50
006.1901859	190.00	185.00	9.70	2.50
006.1901851	190.00	185.00	15.00	2.50
006.1901852	190.00	185.00	25.00	2.50
006.1951909	195.00	190.00	9.70	2.50
006.1951901	195.00	190.00	15.00	2.50
006.1951902	195.00	190.00	25.00	2.50
<b>006.2001959</b>	<b>200.00</b>	<b>195.00</b>	<b>9.70</b>	<b>2.50</b>
<b>006.2001951</b>	<b>200.00</b>	<b>195.00</b>	<b>15.00</b>	<b>2.50</b>
006.2001952	200.00	195.00	25.00	2.50
006.2052009	205.00	200.00	9.70	2.50
006.2052001	205.00	200.00	15.00	2.50
006.2052002	205.00	200.00	25.00	2.50
006.2102059	210.00	205.00	9.70	2.50
006.2102051	210.00	205.00	15.00	2.50
006.2102052	210.00	205.00	25.00	2.50
006.2152109	215.00	210.00	9.70	2.50
006.2152101	215.00	210.00	15.00	2.50
006.2152102	215.00	210.00	25.00	2.50
<b>006.2202159</b>	<b>220.00</b>	<b>215.00</b>	<b>9.70</b>	<b>2.50</b>
<b>006.2202151</b>	<b>220.00</b>	<b>215.00</b>	<b>15.00</b>	<b>2.50</b>
006.2202152	220.00	215.00	25.00	2.50
006.2252209	225.00	220.00	9.70	2.50
006.2252201	225.00	220.00	15.00	2.50
006.2252202	225.00	220.00	25.00	2.50
006.2302259	230.00	225.00	9.70	2.50
006.2302251	230.00	225.00	15.00	2.50
006.2302252	230.00	225.00	25.00	2.50
006.2352309	235.00	230.00	9.70	2.50
006.2352301	235.00	230.00	15.00	2.50
006.2352302	235.00	230.00	25.00	2.50
006.2402359	240.00	235.00	9.70	2.50
006.2402351	240.00	235.00	15.00	2.50
006.2402352	240.00	235.00	25.00	2.50
006.2452409	245.00	240.00	9.70	2.50
006.2452401	245.00	240.00	15.00	2.50
006.2452402	245.00	240.00	25.00	2.50
<b>006.2502459</b>	<b>250.00</b>	<b>245.00</b>	<b>9.70</b>	<b>2.50</b>
<b>006.2502451</b>	<b>250.00</b>	<b>245.00</b>	<b>15.00</b>	<b>2.50</b>
006.2502452	250.00	245.00	25.00	2.50
006.2552501	255.00	250.00	15.00	2.50
006.2552502	255.00	250.00	25.00	2.50
006.2602551	260.00	255.00	15.00	2.50
006.2602552	260.00	255.00	25.00	2.50

Part number	Bore diameter ØD1 H9	Groove diameter Ød1 h8	Groove width L1 0/+0.20	Seal thickness E
006.2652601	265.00	260.00	15.00	2.50
006.2652602	265.00	260.00	25.00	2.50
006.2702651	270.00	265.00	15.00	2.50
006.2702652	270.00	265.00	25.00	2.50
006.2752701	275.00	270.00	15.00	2.50
006.2752702	275.00	270.00	25.00	2.50
<b>006.2802751</b>	<b>280.00</b>	<b>275.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.2802752</b>	<b>280.00</b>	<b>275.00</b>	<b>25.00</b>	<b>2.50</b>
006.2852801	285.00	280.00	15.00	2.50
006.2852802	285.00	280.00	25.00	2.50
006.2902851	290.00	285.00	15.00	2.50
006.2902852	290.00	285.00	25.00	2.50
006.2952901	295.00	290.00	15.00	2.50
006.2952902	295.00	290.00	25.00	2.50
006.3002951	300.00	295.00	15.00	2.50
006.3002952	300.00	295.00	25.00	2.50
006.3053001	305.00	300.00	15.00	2.50
006.3053002	305.00	300.00	25.00	2.50
006.3103051	310.00	305.00	15.00	2.50
006.3103052	310.00	305.00	25.00	2.50
006.3153101	315.00	310.00	15.00	2.50
006.3153102	315.00	310.00	25.00	2.50
<b>006.3203151</b>	<b>320.00</b>	<b>315.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.3203152</b>	<b>320.00</b>	<b>315.00</b>	<b>25.00</b>	<b>2.50</b>
006.3253201	325.00	320.00	15.00	2.50
006.3253202	325.00	320.00	25.00	2.50
006.3303251	330.00	325.00	15.00	2.50
006.3303252	330.00	325.00	25.00	2.50
006.3353301	335.00	330.00	15.00	2.50
006.3353302	335.00	330.00	25.00	2.50
006.3403351	340.00	335.00	15.00	2.50
006.3403352	340.00	335.00	25.00	2.50
006.3453401	345.00	340.00	15.00	2.50
006.3453402	345.00	340.00	25.00	2.50
006.3503451	350.00	345.00	15.00	2.50
006.3503452	350.00	345.00	25.00	2.50
<b>006.3603551</b>	<b>360.00</b>	<b>355.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.3603552</b>	<b>360.00</b>	<b>355.00</b>	<b>25.00</b>	<b>2.50</b>
006.3703651	370.00	365.00	15.00	2.50
006.3703652	370.00	365.00	25.00	2.50
006.3803751	380.00	375.00	15.00	2.50
006.3803752	380.00	375.00	25.00	2.50
006.3903851	390.00	385.00	15.00	2.50
006.3903852	390.00	385.00	25.00	2.50
<b>006.4003951</b>	<b>400.00</b>	<b>395.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.4003952</b>	<b>400.00</b>	<b>395.00</b>	<b>25.00</b>	<b>2.50</b>
<b>006.4504451</b>	<b>450.00</b>	<b>445.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.4504452</b>	<b>450.00</b>	<b>445.00</b>	<b>25.00</b>	<b>2.50</b>
<b>006.5004951</b>	<b>500.00</b>	<b>495.00</b>	<b>15.00</b>	<b>2.50</b>
<b>006.5004952</b>	<b>500.00</b>	<b>495.00</b>	<b>25.00</b>	<b>2.50</b>

The figures highlighted in bold correspond to the dimensions for standard ISO 10766, with the bore diameters in line with standard ISO 3320. Other intermediate sizes can be provided.