

ROD SEALS BECA 161-163-165



DESCRIPTION

The BECA 161-163-165 profiles are double acting composite rod seals composed of a pre-tightened rubber O'Ring and a custom-made polyurethane friction ring.

ADVANTAGES

Optimal sealing in static and dynamic applications
Excellent abrasion and wear resistance

APPLICATIONS

Agriculture
Light and medium-sized industry
Machine tools
Material handling/Lifting

MATERIALS

Friction ring

PU 93 Shore A - Blue
PU 96 Shore A - Blue
High temp. PU 96 Shore A - Beige

O'Ring

NBR 70 Shore A

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

TECHNICAL DATA

Temperature	-30°C / +100°C
Pressure	25 MPa
Speed	0.5 m/sec
Media	Mineral hydraulic oils

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
2.45	0.20
3.65	0.25
5.35	0.25
7.55	0.30
10.25	0.30
12.00	0.35
13.65	0.35
19.00	0.40

SURFACE ROUGHNESS

Roughness	Dynamic surface area	Static surface area	Groove flanks
Ra	0.1 - 0.4 µm	≤1.6 µm	≤3.2 µm
Rz	0.63 - 2.5 µm	≤6.3 µm	≤10.0 µm
Rmax	1.0 - 4.0 µm	≤10.0 µm	≤16.0 µm

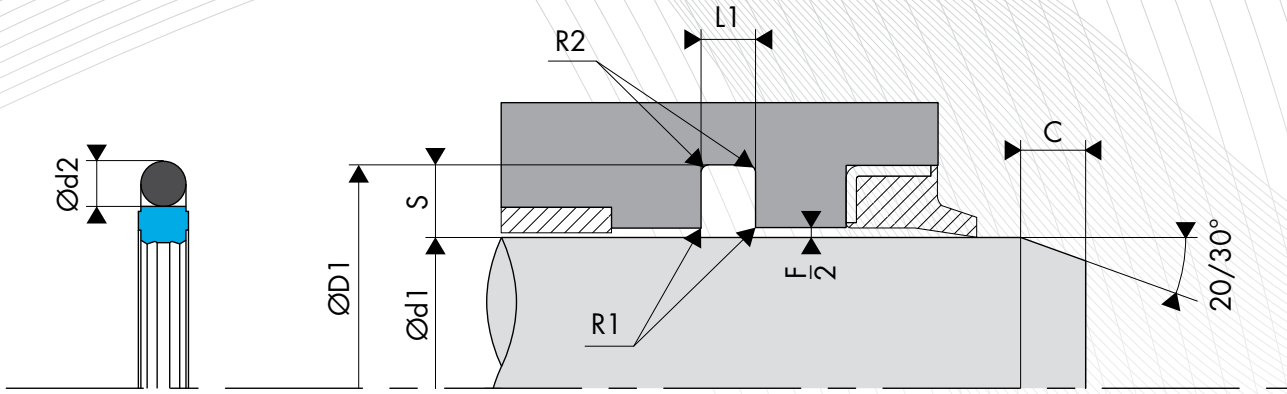
CHAMFERS AND RADIUS

Radial section S	Radius R1	Radius R2	Chamfer C
2.45	0.30	0.40	0.55
3.65	0.30	0.60	0.70
5.35	0.30	1.00	0.95
7.55	0.30	1.30	1.35
10.25	0.30	1.80	1.75
12.00	0.30	1.80	1.75
13.65	0.30	2.50	10.00
19.00	0.30	3.00	12.00

○ TABLE MATERIALS

Friction ring					O'Ring			Mating surface material
Standard code	ISO code	Material	Colour	Characteristics	Code	Type of material	Service temperature	
HG	HG	PE-UHMW	White or off-white	Excellent wear resistance on contact with water and air	K6	NBR 70 Shore A	-30°C/+80°C	Steel Stainless steel Chrome steel Aluminium Bronze Cast iron Treated surface
PU	U	Polyurethane	Blue	Strong mechanical resistance Good resistance to wear and abrasion High elasticity modulus	K6	NBR 70 Shore A	-30°C/+90°C	
PUHT	U	High-temperature polyurethane	White or off-white	Good flexibility Very good resistance to ozone and oxidation	K6	NBR 70 Shore A	-30°C/+100°C	

Other grades of materials are available depending on your specificities.



○ INSTALLATION DIMENSIONS

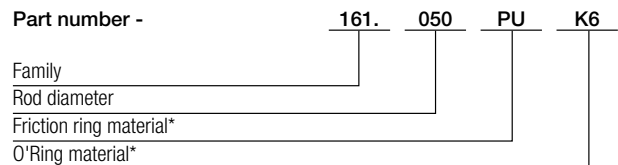
Rod diameter Ød1 f8/h9			Groove diameter	Groove width	Radial section	O'Ring cross-section
BECA 161 Standard range	BECA 163 Light range	BECA 165 Heavy-duty range	ØD1 H9	L1 0/+0.20	S	Ød2
3.0 - 7.9	8.0 - 18.9	---	d1 + 4.90	2.20	2.45	1.78
8.0 - 18.9	19.0 - 37.9	---	d1 + 7.30	3.20	3.65	2.62
19.0 - 37.9	38.0 - 199.9	8.0 - 18.9	d1 + 10.70	4.20	5.35	3.53
38.0 - 199.9	200.0 - 255.9	19.0 - 37.9	d1 + 15.10	6.30	7.55	5.33
200.0 - 255.9	256.0 - 649.9	38.0 - 199.9	d1 + 20.50	8.10	10.25	6.99
256.0 - 649.9	650.0 - 999.9	200.0 - 255.9	d1 + 24.00	8.10	12.00	6.99
650.0 - 999.9	1000.0 - 1200.0	256.0 - 649.9	d1 + 27.30	9.50	13.65	8.40
1000.0 - 1200.0	---	650.0 - 999.9	d1 + 38.00	13.80	19.00	12.00

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 _____ : Polyurethane friction ring - Code PU
 _____ : NBR 70 Shore A O'Ring - Code K6
Rod diameter _____ : Ød1 = 50.00 mm
Groove diameter _____ : ØD1 = 65.10 mm
Part number _____ : 161. 050PUK6



* 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
161.003	3.00	7.90	2.20
161.004	4.00	8.90	2.20
161.005	5.00	9.90	2.20
161.006	6.00	10.90	2.20
161.007	7.00	11.90	2.20
163.008	8.00	12.90	2.20
161.008	8.00	15.30	3.20
165.008	8.00	18.70	4.20
163.009	9.00	13.90	2.20
161.009	9.00	16.30	3.20
165.009	9.00	19.70	4.20
163.010	10.00	14.90	2.20
161.010	10.00	17.30	3.20
165.010	10.00	20.70	4.20
163.011	11.00	15.90	2.20
161.011	11.00	18.30	3.20
165.011	11.00	21.70	4.20
163.012	12.00	16.90	2.20
161.012	12.00	19.30	3.20
165.012	12.00	22.70	4.20
163.013	13.00	17.90	2.20
161.013	13.00	20.30	3.20
165.013	13.00	23.70	4.20
163.014	14.00	18.90	2.20
161.014	14.00	21.30	3.20
165.014	14.00	24.70	4.20
163.015	15.00	19.90	2.20
161.015	15.00	22.30	3.20
165.015	15.00	25.70	4.20
163.016	16.00	20.90	2.20
161.016	16.00	23.30	3.20
165.016	16.00	26.70	4.20
163.017	17.00	21.90	2.20
161.017	17.00	24.30	3.20
165.017	17.00	27.70	4.20
163.018	18.00	22.90	2.20
161.018	18.00	25.30	3.20
165.018	18.00	28.70	4.20
163.019	19.00	26.30	3.20
161.019	19.00	29.70	4.20
165.019	19.00	34.10	6.30
163.020	20.00	27.30	3.20
161.020	20.00	30.70	4.20
165.020	20.00	35.10	6.30
163.021	21.00	28.30	3.20
161.021	21.00	31.70	4.20
165.021	21.00	36.10	6.30
163.022	22.00	29.30	3.20
161.022	22.00	32.70	4.20
165.022	22.00	37.10	6.30
163.024	24.00	31.30	3.20
161.024	24.00	34.70	4.20
165.024	24.00	39.10	6.30
163.025	25.00	32.30	3.20
161.025	25.00	35.70	4.20
165.025	25.00	40.10	6.30
163.026	26.00	33.30	3.20
161.026	26.00	36.70	4.20
165.026	26.00	41.10	6.30
163.027	27.00	34.30	3.20
161.027	27.00	37.70	4.20
165.027	27.00	42.10	6.30
163.028	28.00	35.30	3.20
161.028	28.00	38.70	4.20
165.028	28.00	43.10	6.30

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
163.029	29.00	36.30	3.20
161.029	29.00	39.70	4.20
165.029	29.00	44.10	6.30
163.030	30.00	37.30	3.20
161.030	30.00	40.70	4.20
165.030	30.00	45.10	6.30
163.032	32.00	39.30	3.20
161.032	32.00	42.70	4.20
165.032	32.00	47.10	6.30
163.034	34.00	41.30	3.20
161.034	34.00	44.70	4.20
165.034	34.00	49.10	6.30
163.035	35.00	42.30	3.20
161.035	35.00	45.70	4.20
165.035	35.00	50.10	6.30
163.036	36.00	43.30	3.20
161.036	36.00	46.70	4.20
165.036	36.00	51.10	6.30
163.038	38.00	48.70	4.20
161.038	38.00	53.10	6.30
165.038	38.00	58.50	8.10
163.039	39.00	49.70	4.20
161.039	39.00	54.10	6.30
165.039	39.00	59.50	8.10
163.040	40.00	50.70	4.20
161.040	40.00	55.10	6.30
165.040	40.00	60.50	8.10
163.041	41.00	51.70	4.20
161.041	41.00	56.10	6.30
165.041	41.00	61.50	8.10
163.042	42.00	52.70	4.20
161.042	42.00	57.10	6.30
165.042	42.00	62.50	8.10
163.044	44.00	54.70	4.20
161.044	44.00	59.10	6.30
165.044	44.00	64.50	8.10
163.045	45.00	55.70	4.20
161.045	45.00	60.10	6.30
165.045	45.00	65.50	8.10
163.046	46.00	56.70	4.20
161.046	46.00	61.10	6.30
165.046	46.00	66.50	8.10
163.047	47.00	57.70	4.20
161.047	47.00	62.10	6.30
165.047	47.00	67.50	8.10
163.048	48.00	58.70	4.20
161.048	48.00	63.10	6.30
165.048	48.00	68.50	8.10
163.050	50.00	60.70	4.20
161.050	50.00	65.10	6.30
165.050	50.00	70.50	8.10
163.051	51.00	61.70	4.20
161.051	51.00	66.10	6.30
165.051	51.00	71.50	8.10
163.052	52.00	62.70	4.20
161.052	52.00	67.10	6.30
165.052	52.00	72.50	8.10
163.055	55.00	65.70	4.20
161.055	55.00	70.10	6.30
165.055	55.00	75.50	8.10
163.056	56.00	66.70	4.20
161.056	56.00	71.10	6.30
165.056	56.00	76.50	8.10
163.058	58.00	68.70	4.20
161.058	58.00	73.10	6.30

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
165.058	58.00	78.50	8.10
163.060	60.00	70.70	4.20
161.060	60.00	75.10	6.30
165.060	60.00	80.50	8.10
163.061	61.00	71.70	4.20
161.061	61.00	76.10	6.30
165.061	61.00	81.50	8.10
163.062	62.00	72.70	4.20
161.062	62.00	77.10	6.30
165.062	62.00	82.50	8.10
163.063	63.00	73.70	4.20
161.063	63.00	78.10	6.30
165.063	63.00	83.50	8.10
163.065	65.00	75.70	4.20
161.065	65.00	80.10	6.30
165.065	65.00	85.50	8.10
163.067	67.00	77.70	4.20
161.067	67.00	82.10	6.30
165.067	67.00	87.50	8.10
163.068	68.00	78.70	4.20
161.068	68.00	83.10	6.30
165.068	68.00	88.50	8.10
163.070	70.00	80.70	4.20
161.070	70.00	85.10	6.30
165.070	70.00	90.50	8.10
163.072	72.00	82.70	4.20
161.072	72.00	87.10	6.30
165.072	72.00	92.50	8.10
163.075	75.00	85.70	4.20
161.075	75.00	90.10	6.30
165.075	75.00	95.50	8.10
163.078	78.00	88.70	4.20
161.078	78.00	93.10	6.30
165.078	78.00	98.50	8.10
163.079	79.00	89.70	4.20
161.079	79.00	94.10	6.30
165.079	79.00	99.50	8.10
163.080	80.00	90.70	4.20
161.080	80.00	95.10	6.30
165.080	80.00	100.50	8.10
163.081	81.00	91.70	4.20
161.081	81.00	96.10	6.30
165.081	81.00	101.50	8.10
163.082	82.00	92.70	4.20
161.082	82.00	97.10	6.30
165.082	82.00	102.50	8.10
163.083	83.00	93.70	4.20
161.083	83.00	98.10	6.30
165.083	83.00	103.50	8.10
163.084	84.00	94.70	4.20
161.084	84.00	99.10	6.30
165.084	84.00	104.50	8.10
163.085	85.00	95.70	4.20
161.085	85.00	100.10	6.30
165.085	85.00	105.50	8.10
163.086	86.00	96.70	4.20
161.086	86.00	101.10	6.30
165.086	86.00	106.50	8.10
163.088	88.00	98.70	4.20
161.088	88.00	103.10	6.30
165.088	88.00	108.50	8.10
163.090	90.00	100.70	4.20
161.090	90.00	105.10	6.30
165.090	90.00	110.50	8.10
163.092	92.00	102.70	4.20

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
161.092	92.00	107.10	6.30
165.092	92.00	112.50	8.10
163.095	95.00	105.70	4.20
161.095	95.00	110.10	6.30
165.095	95.00	115.50	8.10
163.098	98.00	108.70	4.20
161.098	98.00	113.10	6.30
165.098	98.00	118.50	8.10
163.100	100.00	110.70	4.20
161.100	100.00	115.10	6.30
165.100	100.00	120.50	8.10
163.105	105.00	115.70	4.20
161.105	105.00	120.10	6.30
165.105	105.00	125.50	8.10
163.108	108.00	118.70	4.20
161.108	108.00	123.10	6.30
165.108	108.00	128.50	8.10
163.110	110.00	120.70	4.20
161.110	110.00	125.10	6.30
165.110	110.00	130.50	8.10
163.115	115.00	125.70	4.20
161.115	115.00	130.10	6.30
165.115	115.00	135.50	8.10
163.120	120.00	130.70	4.20
161.120	120.00	135.10	6.30
165.120	120.00	140.50	8.10
163.125	125.00	135.70	4.20
161.125	125.00	140.10	6.30
165.125	125.00	145.50	8.10
163.127	127.00	137.70	4.20
161.127	127.00	142.10	6.30
165.127	127.00	147.50	8.10
163.130	130.00	140.70	4.20
161.130	130.00	145.10	6.30
165.130	130.00	150.50	8.10
163.135	135.00	145.70	4.20
161.135	135.00	150.10	6.30
165.135	135.00	155.50	8.10
163.138	138.00	148.70	4.20
161.138	138.00	153.10	6.30
165.138	138.00	158.50	8.10
163.140	140.00	150.70	4.20
161.140	140.00	155.10	6.30
165.140	140.00	160.50	8.10
163.145	145.00	155.70	4.20
161.145	145.00	160.10	6.30
165.145	145.00	165.50	8.10
163.150	150.00	160.70	4.20
161.150	150.00	165.10	6.30
165.150	150.00	170.50	8.10
163.155	155.00	165.70	4.20
161.155	155.00	170.10	6.30
165.155	155.00	175.50	8.10
163.160	160.00	170.70	4.20
161.160	160.00	175.10	6.30
165.160	160.00	180.50	8.10
163.165	165.00	175.70	4.20
161.165	165.00	180.10	6.30
165.165	165.00	185.50	8.10
163.170	170.00	180.70	4.20
161.170	170.00	185.10	6.30
165.170	170.00	190.50	8.10
163.175	175.00	185.70	4.20
161.175	175.00	190.10	6.30
165.175	175.00	195.50	8.10

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
163.180	180.00	190.70	4.20
161.180	180.00	195.10	6.30
165.180	180.00	200.50	8.10
163.185	185.00	195.70	4.20
161.185	185.00	200.10	6.30
165.185	185.00	205.50	8.10
163.190	190.00	200.70	4.20
161.190	190.00	205.10	6.30
165.190	190.00	210.50	8.10
163.195	195.00	205.70	4.20
161.195	195.00	210.10	6.30
165.195	195.00	215.50	8.10
163.200	200.00	215.10	6.30
161.200	200.00	220.50	8.10
165.200	200.00	224.00	8.10
163.210	210.00	225.10	6.30
161.210	210.00	230.50	8.10
165.210	210.00	234.00	8.10
163.215	215.00	230.10	6.30
161.215	215.00	235.50	8.10
165.215	215.00	239.00	8.10
163.220	220.00	235.10	6.30
161.220	220.00	240.50	8.10
165.220	220.00	244.00	8.10
163.230	230.00	245.10	6.30
161.230	230.00	250.50	8.10
165.230	230.00	254.00	8.10
163.240	240.00	255.10	6.30
161.240	240.00	260.50	8.10
165.240	240.00	264.00	8.10
163.250	250.00	265.10	6.30
161.250	250.00	270.50	8.10
165.250	250.00	274.00	8.10
163.260	260.00	280.50	8.10
161.260	260.00	284.00	8.10
165.260	260.00	287.30	9.50
163.270	270.00	290.50	8.10
161.270	270.00	294.00	8.10
165.270	270.00	297.30	9.50
163.275	275.00	295.50	8.10
161.275	275.00	299.00	8.10
165.275	275.00	302.30	9.50
163.280	280.00	300.50	8.10
161.280	280.00	304.00	8.10
165.280	280.00	307.30	9.50
163.285	285.00	305.50	8.10
161.285	285.00	309.00	8.10
165.285	285.00	312.30	9.50
163.290	290.00	310.50	8.10
161.290	290.00	314.00	8.10
165.290	290.00	317.30	9.50
163.295	295.00	315.50	8.10
161.295	295.00	319.00	8.10
165.295	295.00	322.30	9.50
163.300	300.00	320.50	8.10
161.300	300.00	324.00	8.10
165.300	300.00	327.30	9.50
163.305	305.00	325.50	8.10
161.305	305.00	329.00	8.10
165.305	305.00	332.30	9.50
163.310	310.00	330.50	8.10

Part number	Rod diameter Ød1 f8/h9	Groove diameter ØD1 H9	Groove width L1 0/+0.20
161.310	310.00	334.00	8.10
165.310	310.00	337.30	9.50
163.320	320.00	340.50	8.10
161.320	320.00	344.00	8.10
165.320	320.00	347.30	9.50
163.330	330.00	350.50	8.10
161.330	330.00	354.00	8.10
165.330	330.00	357.30	9.50
163.340	340.00	360.50	8.10
161.340	340.00	364.00	8.10
165.340	340.00	367.30	9.50
163.350	350.00	370.50	8.10
161.350	350.00	374.00	8.10
165.350	350.00	377.30	9.50
163.360	360.00	380.50	8.10
161.360	360.00	384.00	8.10
165.360	360.00	387.30	9.50
163.370	370.00	390.50	8.10
161.370	370.00	394.00	8.10
165.370	370.00	397.30	9.50
163.380	380.00	400.50	8.10
161.380	380.00	404.00	8.10
165.380	380.00	407.30	9.50
163.390	390.00	410.50	8.10
161.390	390.00	414.00	8.10
165.390	390.00	417.30	9.50
163.400	400.00	420.50	8.10
161.400	400.00	424.00	8.10
165.400	400.00	427.30	9.50
163.410	410.00	430.50	8.10
161.410	410.00	434.00	8.10
165.410	410.00	437.30	9.50
163.420	420.00	440.50	8.10
161.420	420.00	444.00	8.10
165.420	420.00	447.30	9.50
163.430	430.00	450.50	8.10
161.430	430.00	454.00	8.10
165.430	430.00	457.30	9.50
163.440	440.00	460.50	8.10
161.440	440.00	464.00	8.10
165.440	440.00	467.30	9.50
163.450	450.00	470.50	8.10
161.450	450.00	474.00	8.10
165.450	450.00	477.30	9.50
163.460	460.00	480.50	8.10
161.460	460.00	484.00	8.10
165.460	460.00	487.30	9.50
163.470	470.00	490.50	8.10
161.470	470.00	494.00	8.10
165.470	470.00	497.30	9.50
163.480	480.00	500.50	8.10
161.480	480.00	504.00	8.10
165.480	480.00	507.30	9.50
163.490	490.00	510.50	8.10
161.490	490.00	514.00	8.10
165.490	490.00	517.30	9.50
163.500	500.00	520.50	8.10
161.500	500.00	524.00	8.10
165.500	500.00	527.30	9.50

The figures highlighted in bold correspond to the rod diameters that are recommended by standard ISO 3320. Other intermediate sizes can be provided.