

# PISTON SEALS

## BECA 020



### DESCRIPTION

The BECA 020 profile is a single acting composite piston seal composed of a profiled rubber seal and a filled PTFE or POM back-up ring. It meets the standards MIL-G-5514F and AS4716.

### ADVANTAGES

- Excellent extrusion resistance
- Good sealing effect in static applications
- Wide temperature range and excellent chemical resistance, depending on the materials selected
- Housing in line with MIL-G-5514F and AS4716

### APPLICATIONS

- Actuators
- Brakes systems
- Flight controls
- Engine systems
- Landing gear

### MATERIALS

#### Profiled seal

- NBR 70 Shore A
- FKM 70 Shore A
- EPDM 70 Shore A
- VMQ 70 Shore A

#### Back-up ring

- Polyoxymethylene - POM
- Filled PTFE

### TECHNICAL DATA

<b>Temperature</b>	-40°C / +200°C
<b>Pressure</b>	35 MPa in static applications 21 MPa in dynamic applications
<b>Speed</b>	1 m/s
<b>Media</b>	Mineral hydraulic oils Fire-resistant liquids Biocompatible fluids Water Others (contact our experts)

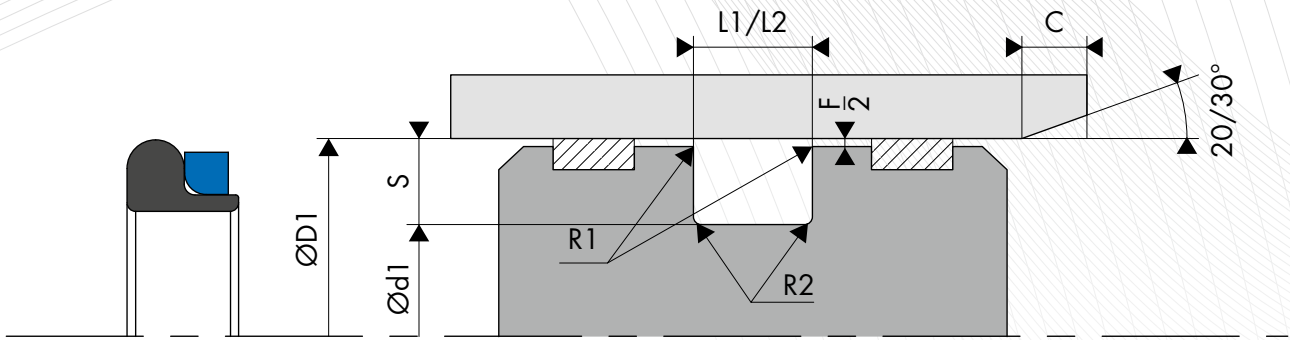
The figures above indicate the maximum values and may not be cumulated. They may be developed, depending on the materials used.

### 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

Series	Radius		Chamfer C
	R1 min - max	R2 min - max	
010 - 028	0.13 - 0.26	0.13 - 0.38	2.00
110 - 149	0.13 - 0.26	0.13 - 0.38	2.50
210 - 222	0.13 - 0.26	0.13 - 0.38	3.00
223 - 247	0.13 - 0.26	0.25 - 0.64	3.50
325 - 349	0.13 - 0.26	0.51 - 0.89	4.00
425 - 460	0.13 - 0.26	0.51 - 0.89	4.50



○ GROOVE WIDTHS AND EXTRUSION GAPS

Series	Groove width		Extrusion gaps F
	L1 min - max	L2 min - max	
010 - 012	2.39 - 2.52	3.81 - 4.06	0.10
013 - 028	2.39 - 2.52	3.81 - 4.06	0.13
110 - 128	3.58 - 3.83	4.65 - 4.90	0.13
129 - 140	3.58 - 3.83	4.65 - 4.90	0.15
141 - 149	3.58 - 3.83	4.65 - 4.90	0.18
210 - 223	4.78 - 5.03	5.97 - 6.22	0.13
224 - 227	4.78 - 5.03	5.97 - 6.22	0.15
228 - 243	4.78 - 5.03	5.97 - 6.22	0.18
244 - 247	4.78 - 5.03	5.97 - 6.22	0.20
325 - 329	7.14 - 7.39	8.48 - 8.73	0.15
330 - 345	7.14 - 7.39	8.48 - 8.73	0.18
346 - 349	7.14 - 7.39	8.48 - 8.73	0.20
425 - 445	9.53 - 9.78	12.07 - 12.32	0.23
446	9.53 - 9.78	12.07 - 12.32	0.25
447 - 460	9.53 - 9.78	12.07 - 12.32	0.28

○ TOLERANCES ON THE BORE DIAMETERS AND GROOVE DIAMETERS

Series	Tolerance on bore diameter ØD1	Tolerance on groove diameter Ød1
010 - 012	0/+0.025	-0.025/0
013 - 349	0/+0.050	-0.050/0
425 - 446	0/+0.076	-0.050/0
447 - 460	0/+0.100	-0.076/0

 DIMENSIONS

Part number	Series	Bore diameter		Groove diameter		Groove width	
		AS4716 / MIL-G-5514		AS4716	MIL-G-5514	0 BAE	1 BAE
		ØD1		Ød1	Ød1	L1 min	L2 min
020.010	010	9.14		6.35	6.30	2.39	3.81
020.011	011	10.72		7.92	7.87	2.39	3.81
020.012	012	12.32		9.53	9.47	2.39	3.81
020.013	013	13.97		11.20	11.13	2.39	3.81
020.014	014	15.57		12.80	12.73	2.39	3.81
020.015	015	17.15		14.38	14.30	2.39	3.81
020.016	016	18.75		15.98	15.90	2.39	3.81
020.017	017	20.32		17.55	17.48	2.39	3.81
020.018	018	21.92		19.13	19.08	2.39	3.81
020.019	019	23.50		20.70	20.65	2.39	3.81
020.020	020	25.17		22.38	22.33	2.39	3.81
020.021	021	26.75		23.95	23.90	2.39	3.81
020.022	022	28.35		25.55	25.50	2.39	3.81
020.023	023	29.92		27.13	27.08	2.39	3.81
020.024	024	31.52		28.73	28.68	2.39	3.81
020.025	025	33.10		30.30	30.25	2.39	3.81
020.026	026	34.70		31.90	31.85	2.39	3.81
020.027	027	36.27		33.48	33.43	2.39	3.81
020.028	028	37.87		35.08	35.03	2.39	3.81
020.110	110	13.97		9.63	9.45	3.58	4.65
020.111	111	15.57		11.20	11.05	3.58	4.65
020.112	112	17.15		12.75	12.62	3.58	4.65
020.113	113	18.75		14.35	14.22	3.58	4.65
020.114	114	20.32		15.93	15.80	3.58	4.65
020.115	115	21.92		17.50	17.40	3.58	4.65
020.116	116	23.50		19.06	18.97	3.58	4.65
020.117	117	25.17		20.75	20.65	3.58	4.65
020.118	118	26.75		22.33	22.23	3.58	4.65
020.119	119	28.35		23.93	22.83	3.58	4.65
020.120	120	29.92		25.48	25.40	3.58	4.65
020.121	121	31.52		27.08	27.00	3.58	4.65
020.122	122	33.10		28.65	28.58	3.58	4.65
020.123	123	34.70		30.25	30.18	3.58	4.65
020.124	124	36.27		31.83	31.75	3.58	4.65
020.125	125	37.87		33.43	33.35	3.58	4.65
020.126	126	39.45		35.00	34.93	3.58	4.65
020.127	127	41.05		36.60	36.53	3.58	4.65
020.128	128	42.62		38.18	38.10	3.58	4.65
020.129	129	44.22		39.78	39.70	3.58	4.65
020.130	130	45.85		41.43	41.33	3.58	4.65
020.131	131	47.42		43.00	42.90	3.58	4.65
020.132	132	49.02		44.60	44.50	3.58	4.65
020.133	133	50.60		46.18	46.08	3.58	4.65
020.134	134	52.20		47.78	47.68	3.58	4.65
020.135	135	53.80		49.38	49.28	3.58	4.65
020.136	136	55.37		50.95	50.85	3.58	4.65
020.137	137	56.97		52.55	52.45	3.58	4.65
020.138	138	58.55		54.13	54.03	3.58	4.65
020.139	139	60.15		55.73	55.63	3.58	4.65
020.140	140	61.72		57.30	57.20	3.58	4.65
020.141	141	63.32		58.90	58.80	3.58	4.65
020.142	142	64.90		60.48	60.38	3.58	4.65
020.143	143	66.50		62.08	61.98	3.58	4.65
020.144	144	68.07		63.65	63.55	3.58	4.65
020.145	145	69.67		65.25	63.15	3.58	4.65
020.146	146	71.25		66.83	66.73	3.58	4.65
020.147	147	72.85		68.43	68.33	3.58	4.65
020.148	148	74.42		70.00	69.90	3.58	4.65
020.149	149	76.02		71.60	71.50	3.58	4.65
020.210	210	25.17		19.05	19.00	4.78	5.97
020.211	211	26.75		20.62	20.57	4.78	5.97

Part number	Series	Bore diameter		Groove diameter		Groove width	
		AS4716 / MIL-G-5514		AS4716	MIL-G-5514	0 BAE	1 BAE
		ØD1		Ød1	Ød1	L1 min	L2 min
020.212	212	28.35		22.20	22.17	4.78	5.97
020.213	213	29.92		23.77	23.75	4.78	5.97
020.214	214	31.52		25.37	25.35	4.78	5.97
020.215	215	33.10		27.03	26.92	4.78	5.97
020.216	216	34.70		25.55	28.52	4.78	5.97
020.217	217	36.27		30.12	30.10	4.78	5.97
020.218	218	37.87		31.72	31.70	4.78	5.97
020.219	219	39.45		33.30	33.27	4.78	5.97
020.220	220	41.05		34.90	34.87	4.78	5.97
020.221	221	42.62		36.47	36.45	4.78	5.97
020.222	222	44.22		38.07	38.05	4.78	5.97
020.223	223	47.42		41.28	41.25	4.78	5.97
020.224	224	50.60		44.45	44.42	4.78	5.97
020.225	225	53.80		47.65	47.63	4.78	5.97
020.226	226	56.97		50.83	50.80	4.78	5.97
020.227	227	60.15		54.00	53.98	4.78	5.97
020.228	228	63.32		57.18	57.15	4.78	5.97
020.229	229	66.50		60.35	60.33	4.78	5.97
020.230	230	69.67		63.53	63.50	4.78	5.97
020.231	231	72.85		66.70	66.68	4.78	5.97
020.232	232	76.02		69.88	69.85	4.78	5.97
020.233	233	79.20		73.05	73.03	4.78	5.97
020.234	234	82.37		76.23	76.20	4.78	5.97
020.235	235	85.55		79.40	79.38	4.78	5.97
020.236	236	88.72		82.58	82.55	4.78	5.97
020.237	237	91.90		85.75	85.73	4.78	5.97
020.238	238	95.07		88.93	88.93	4.78	5.97
020.239	239	98.25		92.10	92.10	4.78	5.97
020.240	240	101.42		95.28	95.28	4.78	5.97
020.241	241	104.60		98.45	98.45	4.78	5.97
020.242	242	107.77		101.63	101.63	4.78	5.97
020.243	243	110.95		104.80	104.80	4.78	5.97
020.244	244	114.12		107.98	107.98	4.78	5.97
020.245	245	117.30		111.15	111.15	4.78	5.97
020.246	246	120.47		114.33	114.33	4.78	5.97
020.247	247	123.65		117.50	117.50	4.78	5.97
020.325	325	47.42		37.97	37.97	7.14	8.48
020.326	326	50.60		41.15	41.15	7.14	8.48
020.327	327	53.80		44.35	44.35	7.14	8.48
020.328	328	56.97		47.52	47.52	7.14	8.48
020.329	329	60.15		50.70	50.70	7.14	8.48
020.330	330	63.32		53.87	53.87	7.14	8.48
020.331	331	66.50		57.05	57.05	7.14	8.48
020.332	332	69.67		60.22	60.22	7.14	8.48
020.333	333	72.85		63.40	63.40	7.14	8.48
020.334	334	76.02		66.57	66.57	7.14	8.48
020.335	335	79.20		69.75	69.75	7.14	8.48
020.336	336	82.37		72.92	72.92	7.14	8.48
020.337	337	85.55		76.10	76.10	7.14	8.48
020.338	338	88.72		79.27	79.27	7.14	8.48
020.339	339	91.90		82.45	82.45	7.14	8.48
020.340	340	95.07		85.62	85.62	7.14	8.48
020.341	341	98.25		88.80	88.80	7.14	8.48
020.342	342	101.42		91.97	91.97	7.14	8.48
020.343	343	104.60		95.15	95.15	7.14	8.48
020.344	344	107.77		98.32	98.32	7.14	8.48
020.345	345	110.95		101.50	101.50	7.14	8.48
020.346	346	114.12		104.67	104.67	7.14	8.48
020.347	347	117.30		107.85	107.85	7.14	8.48
020.348	348	120.47		111.02	111.02	7.14	8.48
020.349	349	123.65		114.20	114.20	7.14	8.48

Part number	Series	Bore diameter	Groove diameter		Groove width	
		AS4716 / MIL-G-5514	AS4716	MIL-G-5514	0 BAE	1 BAE
		ØD1	Ød1	Ød1	L1 min	L2 min
020.425	425	126.34	114.22	114.22	9.53	12.07
020.426	426	129.51	117.40	117.40	9.53	12.07
020.427	427	132.69	120.57	120.57	9.53	12.07
020.428	428	135.86	123.75	123.75	9.53	12.07
020.429	429	139.04	126.92	126.92	9.53	12.07
020.430	430	142.21	130.10	130.10	9.53	12.07
020.431	431	145.39	133.27	133.27	9.53	12.07
020.432	432	148.56	136.45	136.45	9.53	12.07
020.433	433	151.74	139.62	139.62	9.53	12.07
020.434	434	154.91	142.80	142.80	9.53	12.07
020.435	435	158.09	145.97	145.97	9.53	12.07
020.436	436	161.26	149.15	149.15	9.53	12.07
020.437	437	164.44	152.32	152.32	9.53	12.07
020.438	438	170.79	158.67	158.67	9.53	12.07
020.439	439	177.14	165.02	165.02	9.53	12.07
020.440	440	183.49	171.37	171.37	9.53	12.07
020.441	441	189.84	177.72	177.72	9.53	12.07
020.442	442	196.19	184.07	184.07	9.53	12.07
020.443	443	202.54	190.42	190.42	9.53	12.07
020.444	444	208.89	196.77	196.77	9.53	12.07
020.445	445	215.24	203.12	203.12	9.53	12.07
020.446	446	227.94	215.82	215.82	9.53	12.07
020.447	447	240.64	228.52	228.52	9.53	12.07
020.448	448	253.34	241.22	241.22	9.53	12.07
020.449	449	266.04	253.92	253.92	9.53	12.07
020.450	450	278.74	266.62	266.62	9.53	12.07
020.451	451	291.44	279.32	279.32	9.53	12.07
020.452	452	304.14	292.02	292.02	9.53	12.07
020.453	453	316.84	304.72	304.72	9.53	12.07
020.454	454	329.54	317.42	317.42	9.53	12.07
020.455	455	342.24	330.12	330.12	9.53	12.07
020.456	456	354.94	342.82	342.82	9.53	12.07
020.457	457	367.64	355.52	355.52	9.53	12.07
020.458	458	380.34	368.22	368.22	9.53	12.07
020.459	459	393.04	380.92	380.92	9.53	12.07
020.460	460	405.74	393.62	393.62	9.53	12.07