

# ROD SEALS

## BECA 022



### DESCRIPTION

The BECA 022 profile is a double acting composite rod 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)

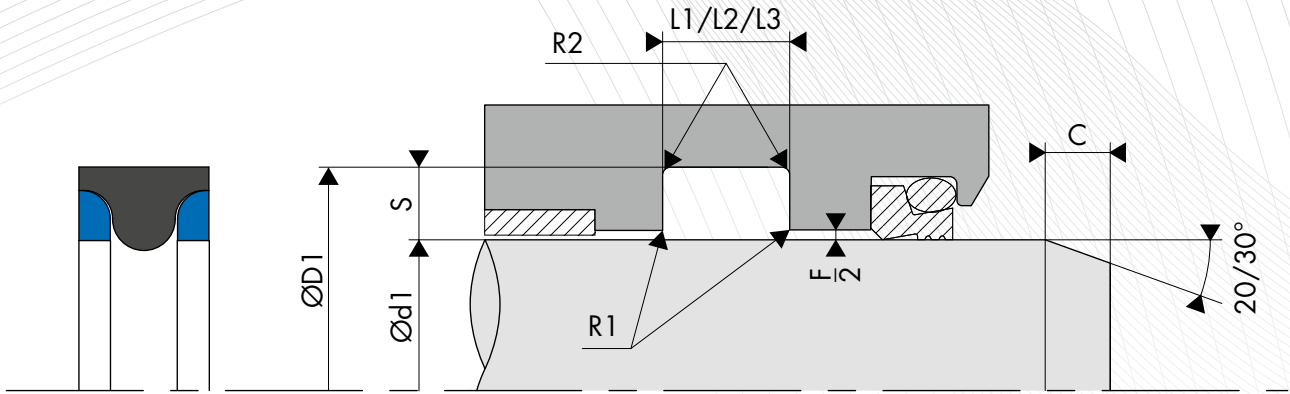
The figures above indicate the maximum values and may not be cumulated. They may be developed, depending on the materials used.

### SURFACE ROUGHNESS

Roughness	Dynamic surface area	Static surface area	Groove flanks
Ra	0.05 - 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

### 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	L3 min - max	
010 - 012	2.39 - 2.52	3.81 - 4.06	5.26 - 5.51	0.10
013 - 028	2.39 - 2.52	3.81 - 4.06	5.26 - 5.51	0.13
110 - 125	3.58 - 3.83	4.65 - 4.90	6.22 - 6.47	0.13
126 - 131	3.58 - 3.83	4.65 - 4.90	6.22 - 6.47	0.15
132 - 149	3.58 - 3.83	4.65 - 4.90	6.22 - 6.47	0.18
210 - 222	4.78 - 5.03	5.97 - 6.22	7.72 - 7.97	0.13
223 - 225	4.78 - 5.03	5.97 - 6.22	7.72 - 7.97	0.15
226 - 245	4.78 - 5.03	5.97 - 6.22	7.72 - 7.97	0.18
246 - 247	4.78 - 5.03	5.97 - 6.22	7.72 - 7.97	0.20
325 - 327	7.14 - 7.39	8.48 - 8.73	10.77 - 11.02	0.15
328 - 349	7.14 - 7.39	8.48 - 8.73	10.77 - 11.02	0.18
425 - 449	9.53 - 9.78	12.07 - 12.32	14.71 - 14.96	0.23
450 - 460	9.53 - 9.78	12.07 - 12.32	14.71 - 14.96	0.25

**TOLERANCES ON THE ROD DIAMETERS AND GROOVE DIAMETERS**

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

**DIMENSIONS**

Part number	Series	Rod diameter	Groove diameter		Groove width		
		AS4716 / MIL-G-5514	AS4716	MIL-G-5514	0 BAE	1 BAE	2 BAE
		Ød1	ØD1	ØD1	L1 min	L2 min	L3 min
022.010	010	6.30	9.12	9.14	2.39	3.81	5.26
022.011	011	7.87	10.69	10.72	2.39	3.81	5.26
022.012	012	9.47	12.29	12.32	2.39	3.81	5.26
022.013	013	11.05	13.84	13.89	2.39	3.81	5.26
022.014	014	12.65	15.44	15.49	2.39	3.81	5.26
022.015	015	14.22	17.02	17.07	2.39	3.81	5.26
022.016	016	15.82	18.62	18.67	2.39	3.81	5.26
022.017	017	17.40	20.19	20.24	2.39	3.81	5.26
022.018	018	19.00	21.79	21.84	2.39	3.81	5.26
022.019	019	20.57	23.37	23.42	2.39	3.81	5.26
022.020	020	22.17	24.97	25.02	2.39	3.81	5.26
022.021	021	23.75	26.54	26.59	2.39	3.81	5.26
022.022	022	25.35	28.14	28.19	2.39	3.81	5.26
022.023	023	26.92	29.72	29.77	2.39	3.81	5.26
022.024	024	28.52	31.32	31.37	2.39	3.81	5.26
022.025	025	30.10	32.89	32.94	2.39	3.81	5.26
022.026	026	31.70	34.49	34.54	2.39	3.81	5.26
022.027	027	33.27	36.07	36.12	2.39	3.81	5.26
022.028	028	34.87	37.67	37.72	2.39	3.81	5.26
022.110	110	9.47	13.87	14.00	3.58	4.65	6.22
022.111	111	11.05	15.47	15.57	3.58	4.65	6.22
022.112	112	12.65	17.07	17.17	3.58	4.65	6.22
022.113	113	14.22	18.64	18.75	3.58	4.65	6.22
022.114	114	15.82	20.24	20.35	3.58	4.65	6.22
022.115	115	17.40	21.82	21.92	3.58	4.65	6.22
022.116	116	19.00	23.44	23.52	3.58	4.65	6.22
022.117	117	20.57	25.02	25.10	3.58	4.65	6.22
022.118	118	22.17	26.62	26.70	3.58	4.65	6.22
022.119	119	23.75	28.19	28.27	3.58	4.65	6.22
022.120	120	25.35	29.79	29.87	3.58	4.65	6.22
022.121	121	26.92	31.37	31.45	3.58	4.65	6.22
022.122	122	28.52	32.97	33.05	3.58	4.65	6.22
022.123	123	30.10	34.54	34.62	3.58	4.65	6.22
022.124	124	31.70	36.14	36.22	3.58	4.65	6.22
022.125	125	33.27	37.72	37.80	3.58	4.65	6.22
022.126	126	34.87	39.32	39.40	3.58	4.65	6.22
022.127	127	36.45	40.89	40.97	3.58	4.65	6.22
022.128	128	38.05	42.49	42.57	3.58	4.65	6.22
022.129	129	39.62	44.07	44.15	3.58	4.65	6.22
022.130	130	41.22	45.67	45.75	3.58	4.65	6.22
022.131	131	42.80	47.24	47.32	3.58	4.65	6.22
022.132	132	44.40	48.84	48.92	3.58	4.65	6.22
022.133	133	45.97	50.39	50.50	3.58	4.65	6.22
022.134	134	47.57	51.99	52.10	3.58	4.65	6.22
022.135	135	49.17	53.59	53.70	3.58	4.65	6.22
022.136	136	50.75	55.17	55.27	3.58	4.65	6.22
022.137	137	52.35	56.77	56.87	3.58	4.65	6.22
022.138	138	53.92	58.34	58.45	3.58	4.65	6.22
022.139	139	55.52	59.94	60.05	3.58	4.65	6.22
022.140	140	57.10	61.52	61.62	3.58	4.65	6.22
022.141	141	58.70	63.12	63.22	3.58	4.65	6.22
022.142	142	60.27	64.69	64.80	3.58	4.65	6.22
022.143	143	61.87	66.29	66.40	3.58	4.65	6.22
022.144	144	63.45	67.87	67.97	3.58	4.65	6.22
022.145	145	65.05	69.47	69.57	3.58	4.65	6.22
022.146	146	66.62	71.04	71.15	3.58	4.65	6.22
022.147	147	68.22	72.64	72.75	3.58	4.65	6.22
022.148	148	69.80	74.22	74.32	3.58	4.65	6.22
022.149	149	71.40	75.82	75.92	3.58	4.65	6.22
022.210	210	19.00	25.12	25.17	4.78	5.97	7.72

Part number	Series	Rod diameter	Groove diameter		Groove width		
		AS4716 / MIL-G-5514	AS4716	MIL-G-5514	0 BAE	1 BAE	2 BAE
		Ød1	ØD1	ØD1	L1 min	L2 min	L3 min
022.211	211	20.57	26.70	26.75	4.78	5.97	7.72
022.212	212	22.17	28.32	28.35	4.78	5.97	7.72
022.213	213	23.75	29.90	29.92	4.78	5.97	7.72
022.214	214	25.35	31.50	31.52	4.78	5.97	7.72
022.215	215	26.92	33.07	33.10	4.78	5.97	7.72
022.216	216	28.52	34.67	34.70	4.78	5.97	7.72
022.217	217	30.10	36.25	36.27	4.78	5.97	7.72
022.218	218	31.70	37.85	37.87	4.78	5.97	7.72
022.219	219	33.27	39.42	39.45	4.78	5.97	7.72
022.220	220	34.87	41.02	41.05	4.78	5.97	7.72
022.221	221	36.45	42.60	42.62	4.78	5.97	7.72
022.222	222	38.05	44.20	44.22	4.78	5.97	7.72
022.223	223	41.22	47.37	47.40	4.78	5.97	7.72
022.224	224	44.40	50.55	50.57	4.78	5.97	7.72
022.225	225	47.57	53.72	53.75	4.78	5.97	7.72
022.226	226	50.75	56.90	56.92	4.78	5.97	7.72
022.227	227	53.92	60.07	60.10	4.78	5.97	7.72
022.228	228	57.10	63.25	63.27	4.78	5.97	7.72
022.229	229	60.27	66.42	66.45	4.78	5.97	7.72
022.230	230	63.45	69.60	69.62	4.78	5.97	7.72
022.231	231	66.62	72.77	72.80	4.78	5.97	7.72
022.232	232	69.80	75.95	75.97	4.78	5.97	7.72
022.233	233	72.97	79.12	79.15	4.78	5.97	7.72
022.234	234	76.12	82.27	82.30	4.78	5.97	7.72
022.235	235	79.30	85.45	85.47	4.78	5.97	7.72
022.236	236	82.47	88.62	88.65	4.78	5.97	7.72
022.237	237	85.65	91.80	91.82	4.78	5.97	7.72
022.238	238	88.82	94.97	95.00	4.78	5.97	7.72
022.239	239	92.00	98.15	98.17	4.78	5.97	7.72
022.240	240	95.17	101.32	101.35	4.78	5.97	7.72
022.241	241	98.35	104.50	104.52	4.78	5.97	7.72
022.242	242	101.52	107.67	107.70	4.78	5.97	7.72
022.243	243	104.70	110.85	110.87	4.78	5.97	7.72
022.244	244	107.87	114.02	114.05	4.78	5.97	7.72
022.245	245	111.05	117.20	117.22	4.78	5.97	7.72
022.246	246	114.22	120.37	120.40	4.78	5.97	7.72
022.247	247	117.40	123.55	123.57	4.78	5.97	7.72
022.325	325	38.05	47.50	47.50	7.14	8.48	10.77
022.326	326	41.22	50.67	50.67	7.14	8.48	10.77
022.327	327	44.40	53.85	53.85	7.14	8.48	10.77
022.328	328	47.57	57.02	57.02	7.14	8.48	10.77
022.329	329	50.75	60.20	60.20	7.14	8.48	10.77
022.330	330	53.92	63.37	63.37	7.14	8.48	10.77
022.331	331	57.10	66.55	66.55	7.14	8.48	10.77
022.332	332	60.27	69.72	69.72	7.14	8.48	10.77
022.333	333	63.45	72.90	72.90	7.14	8.48	10.77
022.334	334	66.62	76.07	76.07	7.14	8.48	10.77
022.335	335	69.80	79.25	79.25	7.14	8.48	10.77
022.336	336	72.97	82.42	82.42	7.14	8.48	10.77
022.337	337	76.12	85.57	85.57	7.14	8.48	10.77
022.338	338	79.30	88.75	88.75	7.14	8.48	10.77
022.339	339	82.47	91.92	91.92	7.14	8.48	10.77
022.340	340	85.65	95.10	95.10	7.14	8.48	10.77
022.341	341	88.82	98.27	98.27	7.14	8.48	10.77
022.342	342	92.00	101.45	101.45	7.14	8.48	10.77
022.343	343	95.17	104.62	104.62	7.14	8.48	10.77
022.344	344	98.35	107.80	107.80	7.14	8.48	10.77
022.345	345	101.52	110.97	110.97	7.14	8.48	10.77
022.346	346	104.70	114.15	114.15	7.14	8.48	10.77
022.347	347	107.87	117.32	117.32	7.14	8.48	10.77

Part number	Series	Rod diameter	Groove diameter		Groove width		
		AS4716 / MIL-G-5514	AS4716	MIL-G-5514	0 BAE	1 BAE	2 BAE
		Ød1	ØD1	ØD1	L1 min	L2 min	L3 min
022.348	348	111.05	120.50	120.50	7.14	8.48	10.77
022.349	349	114.22	123.67	123.67	7.14	8.48	10.77
022.425	425	114.22	126.34	126.34	9.53	12.07	14.71
022.426	426	117.40	129.51	129.51	9.53	12.07	14.71
022.427	427	120.57	132.69	132.69	9.53	12.07	14.71
022.428	428	123.75	135.86	135.86	9.53	12.07	14.71
022.429	429	126.92	139.04	139.04	9.53	12.07	14.71
022.430	430	130.10	142.21	142.21	9.53	12.07	14.71
022.431	431	133.27	145.39	145.39	9.53	12.07	14.71
022.432	432	135.45	148.56	148.56	9.53	12.07	14.71
022.433	433	139.62	151.74	151.74	9.53	12.07	14.71
022.434	434	142.80	154.91	154.91	9.53	12.07	14.71
022.435	435	145.97	158.09	158.09	9.53	12.07	14.71
022.436	436	149.15	161.26	161.26	9.53	12.07	14.71
022.437	437	152.32	164.44	164.44	9.53	12.07	14.71
022.438	438	158.67	170.79	170.79	9.53	12.07	14.71
022.439	439	165.02	177.14	177.14	9.53	12.07	14.71
022.440	440	171.37	183.49	183.49	9.53	12.07	14.71
022.441	441	177.72	189.84	189.84	9.53	12.07	14.71
022.442	442	184.07	196.19	196.19	9.53	12.07	14.71
022.443	443	190.42	202.54	202.54	9.53	12.07	14.71
022.444	444	196.77	208.89	208.89	9.53	12.07	14.71
022.445	445	203.12	215.24	215.24	9.53	12.07	14.71
022.446	446	215.82	227.94	227.94	9.53	12.07	14.71
022.447	447	228.52	240.64	240.64	9.53	12.07	14.71
022.448	448	241.22	253.34	253.34	9.53	12.07	14.71
022.449	449	253.92	266.04	266.04	9.53	12.07	14.71
022.450	450	266.62	278.74	278.74	9.53	12.07	14.71
022.451	451	279.32	291.44	291.44	9.53	12.07	14.71
022.452	452	292.02	304.14	304.14	9.53	12.07	14.71
022.453	453	304.72	316.84	316.84	9.53	12.07	14.71
022.454	454	317.42	329.54	329.54	9.53	12.07	14.71
022.455	455	330.12	342.24	342.24	9.53	12.07	14.71
022.456	456	342.82	354.94	354.94	9.53	12.07	14.71
022.457	457	355.52	367.64	367.64	9.53	12.07	14.71
022.458	458	368.22	380.34	380.34	9.53	12.07	14.71
022.459	459	380.92	393.04	393.04	9.53	12.07	14.71
022.460	460	393.62	405.74	405.74	9.53	12.07	14.71