Features

- Exceptional chemical resistance with a cost-efficient replacement for FFKM seals for chemical applications.
- Temperature capability from -60°c to 205°c.
- Compliant to key global regulatory standards: FDA, USP Class VI
- Cost effective alternative to FFKM.
- Specific product recommendations for an extensive range of applications, from the simplest to the most extreme.
- Resistant to compression set and cold flow issues of solid PTFE seals.

RS PRO FEP Silicone Encapsulated O-rings

RS PRO is the own brand of RS. The RS PRO Seal of Approval is your assurance of professional quality, a guarantee that every part is rigorously tested, inspected, and audited against demanding standards. Making RS PRO the Smart Choice for our customers.

FEP Encapsulated Silicone O-Ring

Product Description

Our FEP encapsulated 'O'-rings provide a high performance and low-cost sealing solutions for a variety of chemically demanding applications, or where regulatory compliance is particularly important.

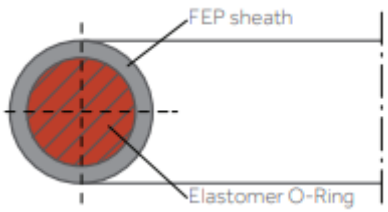
The combination of elastomers and encapsulation choice enables our encapsulated seals to achieve a combination of temperature, chemical and cost performance unrivalled by pure elastomeric solutions.

FEP encapsulated O-rings are recommended when a standard O-ring has inadequate chemical resistance for an application. They are also recommended when a solid PTFE O-ring does not have the elasticity for reliable, long term fluid sealing. They are often used where chemical resistance and or hygiene is required.

Typical Industries: Food, Chemical, Petrochemical, Pharmaceutical

General Specifications

Type	O-Ring
Material	FEP Encapsulated Silicone
Encapsulation	FEP - Fluorinated Ethylene Propylene (transparent)
Core	Silicone (Red)
Hardness	85-90 Shore A
Minimum Operating Temperature	-60°C
Maximum Operating Temperature	+205°C
Temperature Range	-60°C to +205°C (-75°F to +400°F)
Inside Diameter	Please see table below
Outside Diameter	Please see table below
Thickness	Please see table below
BS Standard	Please see table below
Compliance/Certifications	FDA, USP Class VI, EC 1935/2004 & LABS
Recommended Maximum Stretch	Maximum I.D stretch of the 'O'-ring should be 20% for Silicone core. Stretch should be evenly applied to the circumference with use of a fitting tool.



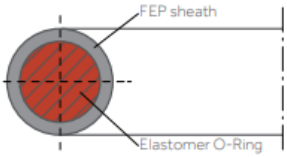
FEP Encapsulated Silicone O-Ring

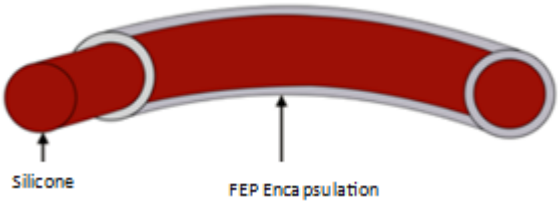
What is an Encapsulated O-ring?

FEP Encapsulated 'O'-ring seal is an 'O'-ring bound by a seamless and uniform Fluorinated Ethylene Propylene (FEP) encapsulation, which encloses an elastomeric core, completely protecting it from the media. The combination of elastomers and encapsulation choice enables our encapsulated seals to achieve a combination of temperature, chemical and cost performance unrivalled by pure elastomeric solutions. The elastomeric core provides the energising sealing force.

Silicone Inner Core

Commercially the best inner core material option, providing a lower shore hardness and greater elasticity than Viton™/FKM - an excellent material choice for the majority of applications





Technical Data

The FEP encapsulation is the essential component of the Chem-Ring® and it is resistant to practically all chemicals.
Within normal application temperatures, FEP resins are vulnerable to only a few chemicals.
In some instances, at or near the suggested service limit temperatures of FEP 205°C (400°F) a few chemicals at high concentrations have been reported to be reactive.

Groove Dimension Table

FEP Rings are designed to be used in all standard 'O'-ring grooves with the same housing dimensions and clearances as for standard elastomeric seals. Our recommendations for BS ISO 3601-1/AS 568 imperial standard 'O'- ring grooves are tabled here.

Cross Section	A	B Static	B Dynamic	B Pneumatic
1.78 mm 0.070"	2.36 – 2.49 mm 0.093 – 0.098"	1.42 – 1.52 mm 0.0563 – 0.060"	1.55 – 1.60 mm 0.061 – 0.063"	1.63 – 1.65 mm 0.064 – 0.065"
2.62 mm 0.103"	3.56 – 3.68 mm 0.140 – 0.145"	2.082 – 2.21 mm 0.082 – 0.087"	2.29 – 2.36 mm 0.090 – 0.093"	2.38 – 2.44 mm 0.094 – 0.096"
3.53 mm 0.139"	4.78 – 4.88 mm 0.187 – 0.192"	2.82 – 3.00 mm 0.111 – 0.118"	3.10 – 3.18 mm 0.122 – 0.125"	3.23 – 3.28 mm 0.127 – 0.129"
5.33 mm 0.210"	7.14 – 7.26 mm 0.281 – 0.286"	4.27 – 4.52 mm 0.168 – 0.178"	4.67 – 4.80 mm 0.184 – 0.189"	4.90 – 4.95 mm 0.193 – 0.195"
6.99 mm 0.275"	9.53 – 9.65 mm 0.375 – 0.380"	5.59 – 5.89 mm 0.220 – 0.232"	6.15 – 6.27 mm 0.242 – 0.247"	6.43 – 6.48 mm 0.253 – 0.255"

Degree of squeeze

· 15/22% for static applications
· 10/15% for dynamic applications
· 8/10% for pneumatic applications
The amount of squeeze required varies with many factors, most critically, the pressure to be sealed.

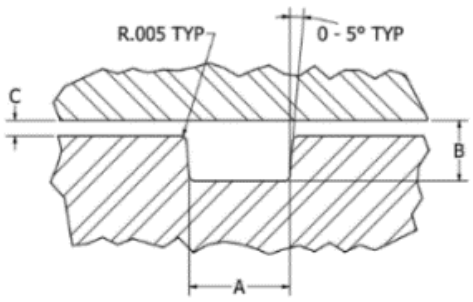
Seal Extrucion Radial Clearance Details

If the radial clearance gap (C on below diagram) between the sealing surface and the groove corners are too large and the pressure exceeds the deformation limit of the 'O' ring, extrusion of the ring material can occur. When this happens, the extruded material wears or frays with cycling and can cause seal failure. There are two possible options to minimise the potential for 'O' ring extrusion.

• Preferably, close the clearance gap (C) by modifying the shaft or housing dimensions, or use backup washers or other anti-extrusion devices.

• Alternatively, use the harder, higher modulus Viton™/FKM core, at the possible expense of higher friction and greater tendency to leak at lower pressure ranges.

Recommended maximum design radial clearance gap to prevent extrusions	
Maximum Pressure	
PSI	FEP / A Silicone
100	0.381mm /0.015”
250	0.355mm /0.014”
500	0.304 mm /0.012”
750	0.254mm 0.010”
1000	0.228mm /0.009”
1500	0.152mm /0.006”
2000	0.127mm /0.005”
3000	0.076mm/0.003”



Detailed Specifications

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731823	5.29	8.85	1.78	BS009
731824	6.07	9.63	1.78	BS010
731825	7.65	11.21	1.78	BS011
731826	9.25	12.81	1.78	BS012
731828	10.82	14.38	1.78	BS013
731829	12.42	15.98	1.78	BS014
731830	14	17.56	1.78	BS015
731831	15.6	19.16	1.78	BS016
731832	17.17	20.73	1.78	BS017
731834	18.77	22.33	1.78	BS018
731835	20.35	23.91	1.78	BS019
731836	21.95	25.51	1.78	BS020
731837	23.52	27.08	1.78	BS021
731838	25.12	28.68	1.78	BS022
731839	26.7	30.26	1.78	BS023
731840	28.3	31.86	1.78	BS024
731841	29.87	33.43	1.78	BS025
731842	31.47	35.03	1.78	BS026
731843	33.05	36.61	1.78	BS027
731844	34.65	38.21	1.78	BS028
731845	37.82	41.38	1.78	BS029
731846	41	44.56	1.78	BS030
731847	44.17	47.73	1.78	BS031
731848	47.35	50.91	1.78	BS032
731850	50.52	54.08	1.78	BS033
731851	53.7	57.26	1.78	BS034
731852	56.87	60.43	1.78	BS035
731853	60.04	63.60	1.78	BS036
731854	63.22	66.78	1.78	BS037
731856	66.4	69.96	1.78	BS038
731857	69.57	73.13	1.78	BS039
731858	72.75	76.31	1.78	BS040
731723	75.92	79.48	1.78	BS041
731724	82.27	85.83	1.78	BS042
731725	88.62	92.18	1.78	BS043
731727	94.97	98.53	1.78	BS044
731728	101.32	104.88	1.78	BS045
731729	107.67	111.23	1.78	BS046
731730	114.02	117.58	1.78	BS047
731731	120.37	123.93	1.78	BS048

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731733	126.72	130.28	1.78	BS049
731734	133.07	136.63	1.78	BS050
731735	9.19	14.43	2.62	BS110
731736	10.77	16.01	2.62	BS111
731737	12.37	17.61	2.62	BS112
731738	13.95	19.19	2.62	BS113
731739	15.54	20.78	2.62	BS114
731740	17.12	22.36	2.62	BS115
731741	18.72	23.96	2.62	BS116
731742	20.29	25.53	2.62	BS117
731743	21.9	27.14	2.62	BS118
731744	23.47	28.71	2.62	BS119
731745	25.07	30.31	2.62	BS120
731746	26.65	31.89	2.62	BS121
731747	28.25	33.49	2.62	BS122
731749	29.82	35.06	2.62	BS123
731750	31.42	36.66	2.62	BS124
731751	33	38.24	2.62	BS125
731752	34.6	39.84	2.62	BS126
731753	36.17	41.41	2.62	BS127
731755	37.77	43.01	2.62	BS128
731756	39.35	44.59	2.62	BS129
731859	40.95	46.19	2.62	BS130
731860	42.52	47.76	2.62	BS131
731862	44.12	49.36	2.62	BS132
731863	45.7	50.94	2.62	BS133
731864	17.3	22.54	2.62	BS134
731865	48.9	54.14	2.62	BS135
731866	50.47	55.71	2.62	BS136
731867	52.07	57.31	2.62	BS137
731868	53.65	58.89	2.62	BS138
731869	55.25	60.49	2.62	BS139
731870	56.82	62.06	2.62	BS140
731871	58.42	63.66	2.62	BS141
731872	60	65.24	2.62	BS142
731873	61.6	66.84	2.62	BS143
731874	63.17	68.41	2.62	BS144
731875	64.77	70.01	2.62	BS145
731876	66.35	71.59	2.62	BS146
731878	67.95	73.19	2.62	BS147
731957	69.52	74.76	2.62	BS148
731958	71.12	76.36	2.62	BS149
731959	72.7	77.94	2.62	BS150
731960	75.87	81.11	2.62	BS151
731961	82.22	87.46	2.62	BS152

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731963	88.57	93.81	2.62	BS153
731964	94.92	100.16	2.62	BS154
731965	101.27	106.51	2.62	BS155
731966	107.62	112.86	2.62	BS156
731967	113.97	119.21	2.62	BS157
731968	120.32	125.56	2.62	BS158
731969	126.67	131.91	2.62	BS159
731970	133.02	138.26	2.62	BS160
731971	139.37	144.61	2.62	BS161
731972	145.72	150.96	2.62	BS162
731973	152.07	157.31	2.62	BS163
731974	158.42	163.66	2.62	BS164
731975	164.77	170.01	2.62	BS165
731976	171.12	176.36	2.62	BS166
731977	177.47	182.71	2.62	BS167
731979	183.82	189.06	2.62	BS168
731980	190.17	195.41	2.62	BS169
731981	196.52	201.76	2.62	BS170
731982	202.87	208.11	2.62	BS171
731418	209.22	214.46	2.62	BS172
731419	215.57	220.81	2.62	BS173
731420	221.92	227.16	2.62	BS174
731421	228.27	233.51	2.62	BS175
731422	234.62	239.86	2.62	BS176
731424	240.97	246.21	2.62	BS177
731425	247.32	252.56	2.62	BS178
731426	12.29	19.35	3.53	BS206
731427	13.87	20.93	3.53	BS207
731428	15.47	22.53	3.53	BS208
731429	17.04	24.10	3.53	BS209
731430	18.64	25.70	3.53	BS210
731431	20.22	27.28	3.53	BS211
731432	21.82	28.88	3.53	BS212
731433	23.39	30.45	3.53	BS213
731434	25	32.06	3.53	BS214
731435	26.57	33.63	3.53	BS215
731436	28.17	35.23	3.53	BS216
731437	29.75	36.81	3.53	BS217
731438	31.34	38.40	3.53	BS218
731440	32.92	39.98	3.53	BS219
731441	34.52	41.58	3.53	BS220
731442	36.1	43.16	3.53	BS221
731443	37.7	44.76	3.53	BS222
731444	40.87	47.93	3.53	BS223
731446	44.05	51.11	3.53	BS224

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731447	47.22	54.28	3.53	BS225
731448	50.4	57.46	3.53	BS226
731449	53.57	60.63	3.53	BS227
731450	56.75	63.81	3.53	BS228
731983	59.92	66.98	3.53	BS229
731985	63.1	70.16	3.53	BS230
731986	66.27	73.33	3.53	BS231
731987	69.44	76.50	3.53	BS232
731988	72.62	79.68	3.53	BS233
731989	75.79	82.85	3.53	BS234
731990	78.97	86.03	3.53	BS235
731991	82.14	89.20	3.53	BS236
731992	85.32	92.38	3.53	BS237
731993	88.49	95.55	3.53	BS238
731994	91.67	98.73	3.53	BS239
731995	94.84	101.90	3.53	BS240
731996	98.02	105.08	3.53	BS241
731997	101.19	108.25	3.53	BS242
731998	104.37	111.43	3.53	BS243
731999	107.54	114.60	3.53	BS244
732001	110.72	117.78	3.53	BS245
732002	113.89	120.95	3.53	BS246
732003	117.07	124.13	3.53	BS247
732004	120.24	127.30	3.53	BS248
732005	123.42	130.48	3.53	BS249
732006	126.59	133.65	3.53	BS250
732007	129.77	136.83	3.53	BS251
732008	132.94	140.00	3.53	BS252
732009	136.12	143.18	3.53	BS253
732010	139.3	146.36	3.53	BS254
731646	142.47	149.53	3.53	BS255
731648	145.65	152.71	3.53	BS256
731649	148.82	155.88	3.53	BS257
731650	152	159.06	3.53	BS258
731651	158.35	165.41	3.53	BS259
731652	164.7	171.76	3.53	BS260
731654	171.05	178.11	3.53	BS261
731655	177.4	184.46	3.53	BS262
731656	183.75	190.81	3.53	BS263
731657	190.1	197.16	3.53	BS264
731658	196.45	203.51	3.53	BS265
731659	202.8	209.86	3.53	BS266
731660	209.15	216.21	3.53	BS267
731661	215.5	222.56	3.53	BS268
731662	221.85	228.91	3.53	BS269

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731663	228.2	235.26	3.53	BS270
731547	234.55	241.61	3.53	BS271
731548	240.9	247.96	3.53	BS272
731549	247.25	254.31	3.53	BS273
731550	253.6	260.66	3.53	BS274
731551	266.3	273.36	3.53	BS275
731553	279	286.06	3.53	BS276
731554	291.7	298.76	3.53	BS277
731555	304.4	311.46	3.53	BS278
731556	329.8	336.86	3.53	BS279
731557	355.2	362.26	3.53	BS280
731558	380.6	387.66	3.53	BS281
731559	405.26	412.32	3.53	BS282
731560	430.66	437.72	3.53	BS283
731561	456.06	463.12	3.53	BS284
731562	23.16	33.82	5.33	BS317
731563	24.77	35.43	5.33	BS318
731564	26.34	37.00	5.33	BS319
731565	27.94	38.60	5.33	BS320
731566	29.51	40.17	5.33	BS321
731567	31.12	41.78	5.33	BS322
731569	32.69	43.35	5.33	BS323
731570	34.29	44.95	5.33	BS324
731571	37.47	48.13	5.33	BS325
731572	40.65	51.31	5.33	BS326
731573	43.82	54.48	5.33	BS327
731575	46.99	57.65	5.33	BS328
731576	50.16	60.82	5.33	BS329
731577	53.34	64.00	5.33	BS330
731578	56.52	67.18	5.33	BS331
731579	59.69	70.35	5.33	BS332
731664	62.87	73.53	5.33	BS333
731665	66.04	76.70	5.33	BS334
731666	69.22	79.88	5.33	BS335
731667	72.39	83.05	5.33	BS336
731668	75.57	86.23	5.33	BS337
731670	78.74	89.40	5.33	BS338
731671	81.92	92.58	5.33	BS339
731672	85.09	95.75	5.33	BS340
731673	88.27	98.93	5.33	BS341
731674	91.44	102.10	5.33	BS342
731676	94.62	105.28	5.33	BS343
731677	97.79	108.45	5.33	BS344
731678	100.96	111.62	5.33	BS345
731679	104.14	114.80	5.33	BS346

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731680	107.32	117.98	5.33	BS347
731681	110.49	121.15	5.33	BS348
731682	113.67	124.33	5.33	BS349
731683	116.84	127.50	5.33	BS350
731684	120.02	130.68	5.33	BS351
731685	123.19	133.85	5.33	BS352
731686	126.37	137.03	5.33	BS353
731687	129.54	140.20	5.33	BS354
731688	132.72	143.38	5.33	BS355
731689	135.89	146.55	5.33	BS356
731690	139.07	149.73	5.33	BS357
731691	142.24	152.90	5.33	BS358
731692	145.42	156.08	5.33	BS359
731693	148.59	159.25	5.33	BS360
731581	151.77	162.43	5.33	BS361
731582	158.12	168.78	5.33	BS362
731583	164.47	175.13	5.33	BS363
731584	170.82	181.48	5.33	BS364
731585	177.17	187.83	5.33	BS365
731586	183.52	194.18	5.33	BS366
731879	189.87	200.53	5.33	BS367
731880	196.22	206.88	5.33	BS368
731881	202.57	213.23	5.33	BS369
731882	208.92	219.58	5.33	BS370
731884	215.27	225.93	5.33	BS371
731885	221.62	232.28	5.33	BS372
731886	227.97	238.63	5.33	BS373
731887	234.32	244.98	5.33	BS374
731888	240.67	251.33	5.33	BS375
731889	247.02	257.68	5.33	BS376
731757	253.37	264.03	5.33	BS377
731758	266.07	276.73	5.33	BS378
731759	278.77	289.43	5.33	BS379
731761	291.47	302.13	5.33	BS380
731762	304.17	314.83	5.33	BS381
731763	329.57	340.23	5.33	BS382
731764	354.97	365.63	5.33	BS383
731765	380.37	391.03	5.33	BS384
731766	405.26	415.92	5.33	BS385
731767	430.66	441.32	5.33	BS386
731768	456.06	466.72	5.33	BS387
731769	481.46	492.12	5.33	BS388
731770	506.86	517.52	5.33	BS389
731771	532.26	542.92	5.33	BS390
731772	557.66	568.32	5.33	BS391

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731773	582.7	593.36	5.33	BS392
731774	608.1	618.76	5.33	BS393
731775	633.5	644.16	5.33	BS394
731777	658.9	669.56	5.33	BS395
731778	113.67	127.65	6.99	BS425
731779	116.84	130.82	6.99	BS426
731780	120.02	134.00	6.99	BS427
731781	123.19	137.17	6.99	BS428
731783	126.37	140.35	6.99	BS429
731784	129.54	143.52	6.99	BS430
731785	132.72	146.70	6.99	BS431
731786	135.89	149.87	6.99	BS432
731787	139.07	153.05	6.99	BS433
731788	142.24	156.22	6.99	BS434
731789	145.42	159.40	6.99	BS435
731890	148.59	162.57	6.99	BS436
731891	151.77	165.75	6.99	BS437
731892	158.12	172.10	6.99	BS438
731893	164.47	178.45	6.99	BS439
731894	170.82	184.80	6.99	BS440
731895	177.17	191.15	6.99	BS441
731896	183.52	197.50	6.99	BS442
731897	189.87	203.85	6.99	BS443
731898	196.22	210.20	6.99	BS444
731900	202.57	216.55	6.99	BS445
731901	215.27	229.25	6.99	BS446
731902	227.97	241.95	6.99	BS447
731903	240.67	254.65	6.99	BS448
731904	253.37	267.35	6.99	BS449
731905	266.07	280.05	6.99	BS450
731907	278.77	292.75	6.99	BS451
731908	291.47	305.45	6.99	BS452
731909	304.17	318.15	6.99	BS453
731910	316.87	330.85	6.99	BS454
731911	329.57	343.55	6.99	BS455
731913	342.27	356.25	6.99	BS456
731914	354.97	368.95	6.99	BS457
731915	367.67	381.65	6.99	BS458
731916	380.37	394.35	6.99	BS459
731917	393.08	407.06	6.99	BS460
731918	405.26	419.24	6.99	BS461
731919	417.96	431.94	6.99	BS462
731920	430.66	444.64	6.99	BS463
731790	443.36	457.34	6.99	BS464
731791	456.06	470.04	6.99	BS465

FEP Encapsulated Silicone O-Ring

Product Code	Inner Diameter (mm)	Outside Diameter (mm)	Thickness	BS Standard
731792	468.76	482.74	6.99	BS466
731793	481.46	495.44	6.99	BS467
731794	494.16	508.14	6.99	BS468
731795	506.86	520.84	6.99	BS469
731796	532.26	546.24	6.99	BS470
731797	557.66	571.64	6.99	BS471
731799	582.7	596.68	6.99	BS472
731800	608.1	622.08	6.99	BS473
731801	633.5	647.48	6.99	BS474
731802	658.9	672.88	6.99	BS475