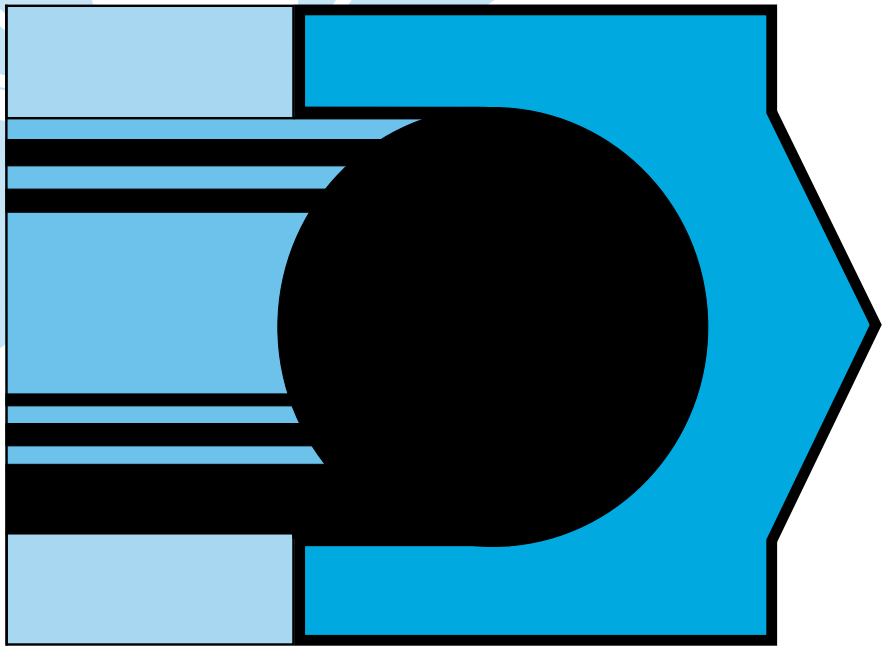
CSM-1000

Crown™ Seal

MACROTECH POLYSEAL, INC.



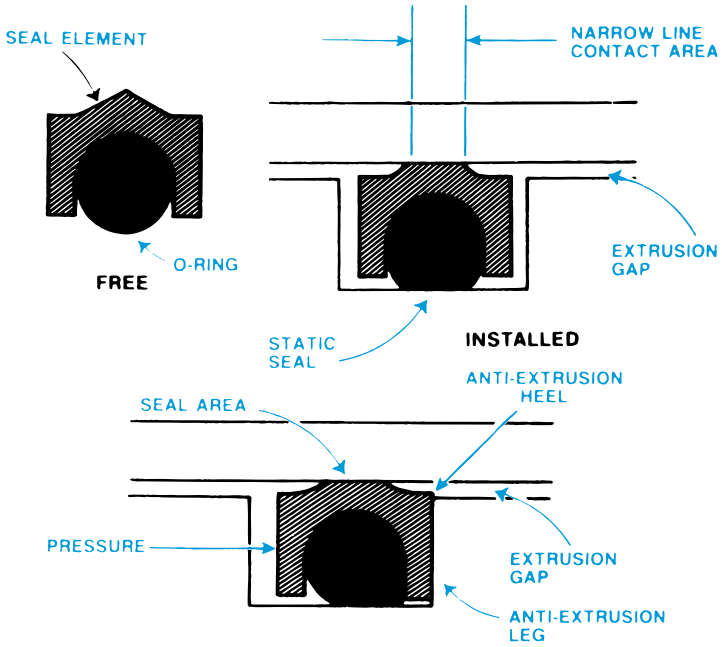
1/97

PATENT NO. 4,190,259

Crown Seal™

DESCRIPTION

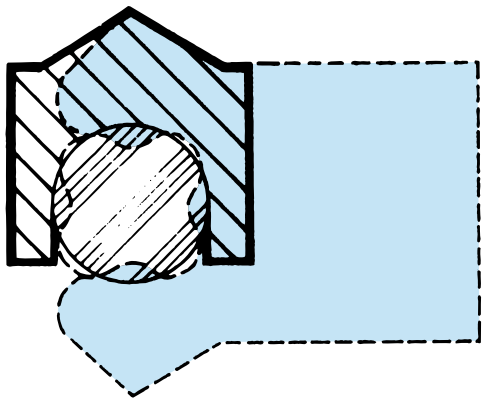
The Crown Seal is a squeeze-type seal. An O-ring is used as a loading spring and to seal the static surface. The crowned sealing surface produces a positive seal from vacuum to high pressure, due to narrow single line seal contact area. Crown Seal side legs act as an anti-extrusion device for the O-ring as well as adding stability to the seal. The dynamic sealing element of the Crown Seal can be made of either Lubrithane or Fluorotrel to give long life on relatively rough sealing surfaces. Crown Seal is double acting, requiring only one groove on the piston.



ADVANTAGE

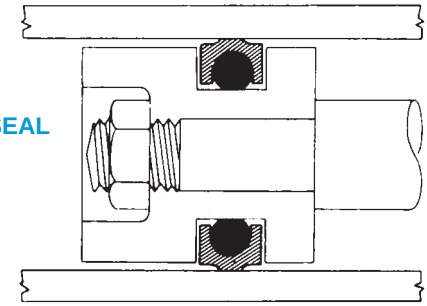
This seal can be used to upgrade existing designs as well as to provide a positive seal for new design produts. It will directly inter-change in the grooves designed for T-seals, O-rings, and Quad seals. The Crown Seal can generally be used in all petroleum, water/glycol, water/oil, emulsion based hydraulic fluids up to 220°F. It can also be used with a Poly-Vi O-ring as a spring in phosphate ester and synthentic hydraulic fluids with constant temperature up to 150°F and intermittent temperture up to 180°F. Crown Seal offers the same positive sealing principles available from the Type-B Polyseal in a more compact and economic package which retrofits many existing groove dimensions.

SAME SEALING PRINCIPLE AS THE TYPE B POLYSEAL.

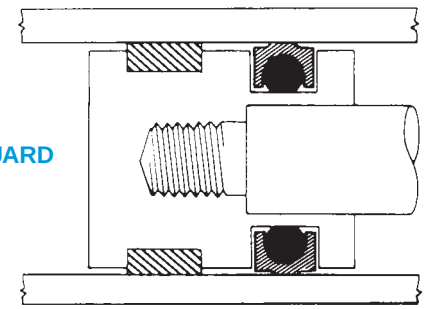


TYPICAL APPLICATIONS

CROWN SEAL

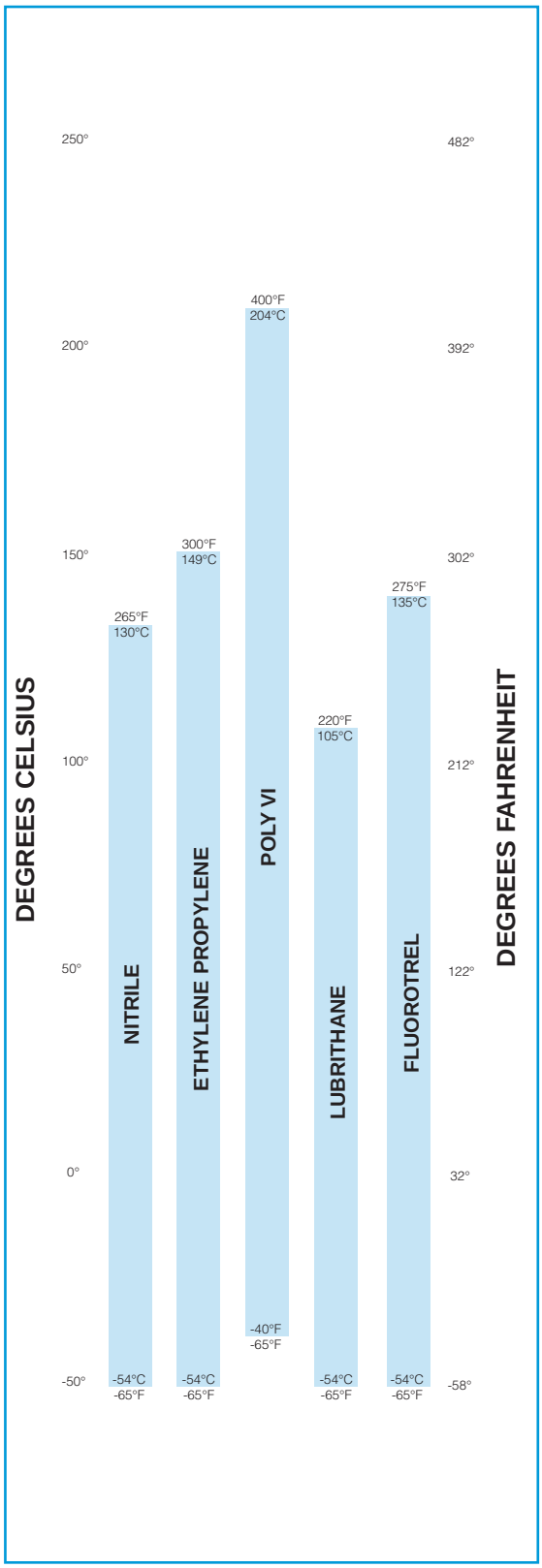


CROWN SEAL WITH POLY GUARD WEAR RING

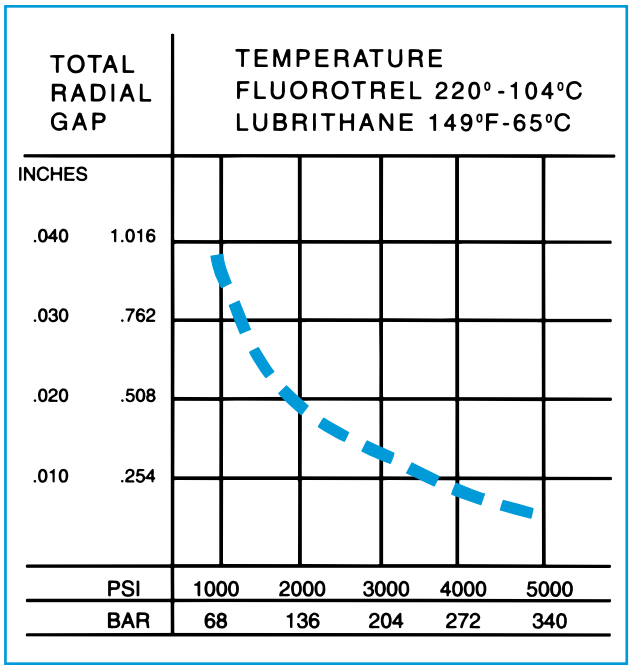


TEMPERATURE RANGE BY POLYMER

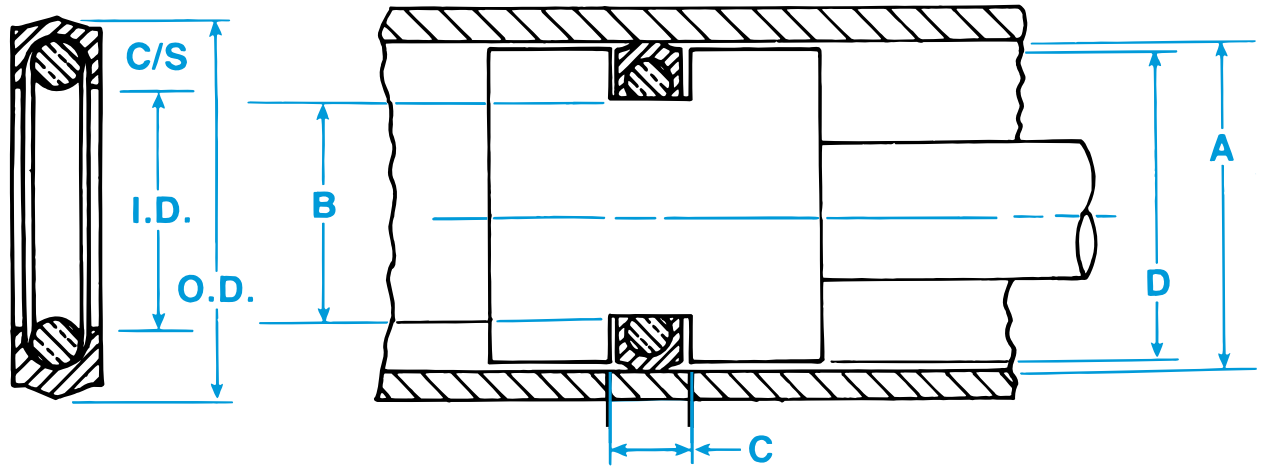
Temperature range is determined by the type of base polymer from which compounds are made. Chart depicts maximum temperature range for each polymer, assuming continuous exposure. Short term or intermittent exposure extends high temperature potential. Adverse application conditions reduce temperature capabilities. Engineering assistance is available from Macrotech Polyseal, Inc. on applications which exceed the temperature guidelines. The chart does not take into consideration the fluid Media to be sealed. Most chemical reactions increase with temperature rise. Because of this all seals should be tested at the temperature and in the fluid that they are to be used.



RADIAL EXTRUSION GAP VS. PRESSURE AND TEMPERATURE



PART NO.	NOM REF.	NOM O.D.	NOM C/S	A BORE DIA.	B GROOVE DIA.	C GROOVE LENGTH	D PISTON DIA.
CP-334	2-5/8	3	3/16	2.999 +.004 –.000	2.624 +.000 –.002	.280 +.005 –.000	2.997 +.000 –.004
CP-335	2-3/4	3-1/8	3/16	3.124 +.004 –.000	2.749 +.000 –.004	.280 +.005 –.000	3.122 +.000 –.004
CP-336	2-7/8	3-1/4	3/16	3.249 +.004 –.000	2.874 +.000 –.004	.280 +.005 –.000	3.247 +.000 –.004
CP-337	3	3-3/8	3/16	3.375 +.004 –.000	3.000 +.000 –.004	.280 +.005 –.000	3.373 +.000 –.004
CP-338	3-1/8	3-1/2	3/16	3.500 +.004 –.000	3.125 +.000 –.004	.280 +.005 –.000	3.498 +.000 –.004
CP-339	3-1/4	3-5/8	3/16	3.625 +.004 –.000	3.250 +.000 –.004	.280 +.005 –.000	3.623 +.000 –.004
CP-340	3-3/8	3-3/4	3/16	3.7520 +.004 –.000	3.375 +.000 –.004	.280 +.005 –.000	3.748 +.000 –.004
CP-341	3-1/2	3-7/8	3/16	3.875 +.004 –.000	3.500 +.000 –.004	.280 +.005 –.000	3.873 +.000 –.004
CP-342	3-5/8	4	3/16	4.000 +.004 –.000	3.625 +.000 –.004	.280 +.005 –.000	3.998 +.000 –.004
CP-343	3-3/4	4-1/8	3/16	4.125 +.004 –.000	3.750 +.000 –.004	.280 +.005 –.000	4.123 +.000 –.004
CP-344	3-7/8	4-1/4	3/16	4.250 +.004 –.000	3.875 +.000 –.004	.280 +.005 –.000	4.248 +.000 –.004
CP-345	4	4.3/8	3/16	4.375 +.004 –.000	4.000 +.000 –.004	.280 +.005 –.000	4.373 +.000 –.004
CP-346	4-1/8	4-1/2	3/16	4.500 +.004 –.000	4.125 +.000 –.004	.280 +.005 –.000	4.498 +.000 –.004
CP-347	4-1/4	4-5/8	3/16	4.625 +.004 –.000	4.250 +.000 –.004	.280 +.005 –.000	4.623 +.000 –.004
CP-348	4-3/8	4-3/4	3/16	4.750 +.004 –.000	4.375 +.000 –.004	.280 +.005 –.000	4.748 +.000 –.004
CP-349	4-1/2	4-7/8	3/16	4.875 +.004 –.000	4.500 +.000 –.004	.280 +.005 –.000	4.873 +.000 –.004
CP-350	4-5/8	5	3/16	5.001 +.004 –.000	4.626 +.000 –.004	.280 +.005 –.000	4.999 +.000 –.004
CP-426	4-5/8	5-1/8	1/4	5.125 +.004 –.000	4.646 +.000 –.004	.365 +.006 –.000	5.124 +.000 –.004
CP-427	4-3/4	5-1/4	1/4	5.251 +.004 –.000	4.770 +.000 –.004	.365 +.006 –.000	5.249 +.000 –.004
CP-428	4-7/8	5-3/8	1/4	5.376 +.004 –.000	4.896 +.000 –.004	.365 +.006 –.000	5.374 +.000 –.004
CP-429	5	5-1/2	1/4	5.501 +.004 –.000	5.021 +.000 –.004	.365 +.006 –.000	4.499 +.000 –.004
CP-430	5-1/8	5-5/8	1/4	5.626 +.004 –.000	5.146 +.000 –.004	.365 +.006 –.000	5.624 +.000 –.004
CP-431	5-1/4	5-3/4	1/4	5.751 +.004 –.000	5.271 +.000 –.004	.365 +.006 –.000	5.749 +.000 –.004
CP-432	5-3/8	5-7/8	1/4	5.876 +.004 –.000	5.396 +.000 –.004	.365 +.006 –.000	5.874 +.000 –.004
CP-433	5-1/2	6	1/4	6.001 +.004 –.000	5.521 +.000 –.004	.365 +.006 –.000	5.999 +.000 –.004
CP-434	5-5/8	6-1/8	1/4	6.126 +.004 –.000	5.646 +.000 –.004	.365 +.006 –.000	6.124 +.000 –.004
CP-435	5-3/4	6-1/4	1/4	6.251 +.004 –.000	5.771 +.000 –.004	.365 +.006 –.000	6.249 +.000 –.004
CP-437	6	6-1/2	1/4	6.500 +.006 –.000	6.020 +.000 –.006	.365 +.006 –.000	6.498 +.000 –.006
CP-438	6-1/4	6-3/4	1/4	6.750 +.006 –.000	6.270 +.000 –.006	.365 +.006 –.000	6.748 +.000 –.006
CP-439	6-1/2	7	1/4	7.000 +.006 –.000	6.520 +.000 –.006	.365 +.006 –.000	6.998 +.000 –.006
CP-440	6-3/4	7-1/4	1/4	7.250 +.006 –.000	6.770 +.000 –.006	.365 +.006 –.000	7.248 +.000 –.006
CP-441	7	7-1/2	1/4	7.500 +.006 –.000	7.020 +.000 –.006	.365 +.006 –.000	7.498 +.000 –.006
CP-442	7-1/4	7-3/4	1/4	7.750 +.006 –.000	7.270 +.000 –.006	.365 +.006 –.000	7.748 +.000 –.006
CP-443	7-1/2	8	1/4	8.000 +.006 –.000	7.520 +.000 –.006	.365 +.006 –.000	7.998 +.000 –.006
CP-444	7-3/4	8-1/4	1/4	8.250 +.006 –.000	7.770 +.000 –.006	.365 +.006 –.000	8.248 +.000 –.006
CP-445	8	8-1/2	1/4	8.500 +.006 –.000	8.020 +.000 –.006	.365 +.006 –.000	8.498 +.000 –.006
CP-446	8-1/2	9	1/4	9.000 +.006 –.000	8.520 +.000 –.006	.365 +.006 –.000	8.998 +.000 –.006
CP-447	9	9-1/2	1/4	9.500 +.006 –.000	9.020 +.000 –.006	.365 +.006 –.000	9.498 +.000 –.006
CP-448	9-1/2	10	1/4	10.000 +.006 –.000	9.520 +.000 –.006	.365 +.006 –.000	9.998 +.000 –.006
CP-449	10	10-1/2	1/4	10.500 +.006 –.000	10.020 +.000 –.006	.365 +.006 –.000	10.498 +.000 –.006
CP-450	10-1/2	11	1/4	11.000 +.006 –.000	10.520 +.000 –.006	.365 +.006 –.000	10.998 +.000 –.006
CP-451	11	11-1/2	1/4	11.500 +.006 –.000	11.020 +.000 –.006	.365 +.006 –.000	11.498 +.000 –.006
CP-452	11-1/2	12	1/4	12.000 +.006 –.000	11.520 +.000 –.006	.365 +.006 –.000	11.998 +.000 –.006



PART NO.	NOM I.D.	NOM O.D.	NOM C/S	A BORE DIA.	B GROOVE DIA.	C GROOVE LENGTH	D PISTON DIA.
CP-106	3/16	3/8	3/32	.374 +.002 –.000	.188 +.000 –.002	.150 +.005 –.000	.372 +.000 –.002
CP-108	1/4	7/16	3/32	.436 +.002 –.000	.250 +.000 –.002	.150 +.005 –.000	.434 +.000 –.002
CP-109	5/16	1/2	3/32	.499 +.002 –.000	.313 +.000 –.002	.150 +.005 –.000	.497 +.000 –.002
CP-203	5/16	9/16	1/8	.561 +.002 –.000	.315 +.000 –.002	.185 +.005 –.000	.559 +.000 –.002
CP-204	3/8	5/8	1/8	.624 +.002 –.000	.378 +.000 –.002	.185 +.005 –.000	.622 +.000 –.002
CP-205	7/16	11/16	1/8	.686 +.002 –.000	.440 +.000 –.002	.185 +.005 –.000	.684 +.000 –.002
CP-206	1/2	3/4	1/8	.749 +.002 –.000	.503 +.000 –.002	.185 +.005 –.000	.747 +.000 –.002
CP-207	9/16	13/16	1/8	.811 +.002 –.000	.565 +.000 –.002	.185 +.005 –.000	.809 +.000 –.002
CP-208	5/8	7/8	1/8	.874 +.002 –.000	.628 +.000 –.002	.185 +.005 –.000	.872 +.000 –.002
CP-209	11/16	15/16	1/8	.936 +.002 –.000	.690 +.000 –.002	.185 +.005 –.000	.934 +.000 –.002
CP-210	3/4	1	1/8	1.000 +.002 –.000	.754 +.000 –.002	.185 +.005 –.000	.998 +.000 –.002
CP-211	13/16	1-1/16	1/8	1.062 +.002 –.000	.816 +.000 –.002	.185 +.005 –.000	1.060 +.000 –.002
CP-212	7/8	1-1/8	1/8	1.125 +.002 –.000	.879 +.000 –.002	.185 +.005 –.000	1.123 +.000 –.002
CP-213	15/16	1-3/16	1/8	1.187 +.002 –.000	.941 +.000 –.002	.185 +.005 –.000	1.185 +.000 –.002
CP-214	1	1-1/4	1/8	1.250 +.002 –.000	1.004 +.000 –.002	.185 +.005 –.000	1.248 +.000 –.002
CP-215	1-1/16	1-5/16	1/8	1.312 +.002 –.000	1.066 +.000 –.002	.185 +.005 –.000	1.310 +.000 –.002
CP-216	1-1/8	1-3/8	1/8	1.375 +.002 –.000	1.129 +.000 –.002	.185 +.005 –.000	1.373 +.000 –.002
CP-217	1-3/16	1-7/16	1/8	1.437 +.002 –.000	1.191 +.000 –.002	.185 +.005 –.000	1.435 +.000 –.002
CP-218	1-1/4	1-1/2	1/8	1.500 +.002 –.000	1.254 +.000 –.002	.185 +.005 –.000	1.498 +.000 –.002
CP-219	1-5/16	1-9/16	1/8	1.562 +.002 –.000	1.316 +.000 –.002	.185 +.005 –.000	1.560 +.000 –.002
CP-220	1-3/8	1-5/8	1/8	1.625 +.002 –.000	1.379 +.000 –.002	.185 +.005 –.000	1.623 +.000 –.002
CP-222	1-1/2	1-3/4	1/8	1.750 +.002 –.000	1.504 +.000 –.002	.185 +.005 –.000	1.748 +.000 –.002
CP-325	1-1/2	1-7/8	3/16	1.875 +.002 –.000	1.500 +.000 –.002	.280 +.005 –.000	1.873 +.000 –.002
CP-326	1-5/8	2	3/16	2.000 +.002 –.000	1.625 +.000 –.002	.280 +.005 –.000	1.998 +.000 –.002
CP-327	1-3/4	2-1/8	3/16	2.125 +.002 –.000	1.750 +.000 –.002	.280 +.005 –.000	2.123 +.000 –.002
CP-328	1-7/8	2-1/4	3/16	2.250 +.002 –.000	1.875 +.000 –.002	.280 +.005 –.000	2.248 +.000 –.002
CP-329	2	2-3/8	3/16	2.375 +.002 –.000	2.000 +.000 –.002	.280 +.005 –.000	2.373 +.000 –.002
CP-330	2-1/8	2-1/2	3/16	2.500 +.002 –.000	2.125 +.000 –.002	.280 +.005 –.000	2.498 +.000 –.002
CP-331	2-1/4	2-5/8	3/16	2.625 +.002 –.000	2.250 +.000 –.002	.280 +.005 –.000	2.622 +.000 –.002
CP-332	2-3/8	2-3/4	3/16	2.749 +.004 –.000	2.374 +.000 –.004	.280 +.005 –.000	2.747 +.000 –.004
CP-333	2-1/2	2-7/8	3/16	2.874 +.004 –.000	2.499 +.000 –.004	.280 +.005 –.000	2.872 +.000 –.004

FLUID COMPATIBILITY

Most of the Macrotech Polyseal, Inc. products consist of more than one material. Because of this, fluid compatibility is based on a judgment, putting greater emphasis on the material of the sealing lip.

The seal recommendations listed in the chart (right) are based on compatibility at relatively low temperatures. Since most chemical reactions increase with temperature rise, seals should be tested in the fluid medium and at the temperature under which they are expected to be used. As a rule of thumb, if the temperature is expected to exceed 180°F and if the fluid compatibility with the lip material is not known, a test should be made at the higher temperature.

Where two or more material combinations are expected to work equally well, the order of recommendation is based on lowest cost. However, attention should be paid to the fact that some material combinations are listed as Standard Non-Stock, and the additional time to obtain the product may influence selection of the seal.

KEY

A FLUOROTREL SEAL ELEMENT NITRILE O-RING	**B** LUBRITHANE SEAL ELEMENT NITRILE O-RING
C FLUOROTREL SEAL ELEMENT POLY-VI O-RING	**D** FLUOROTREL SEAL ELEMENT ETHYLENE-PROPYLENE O-RING

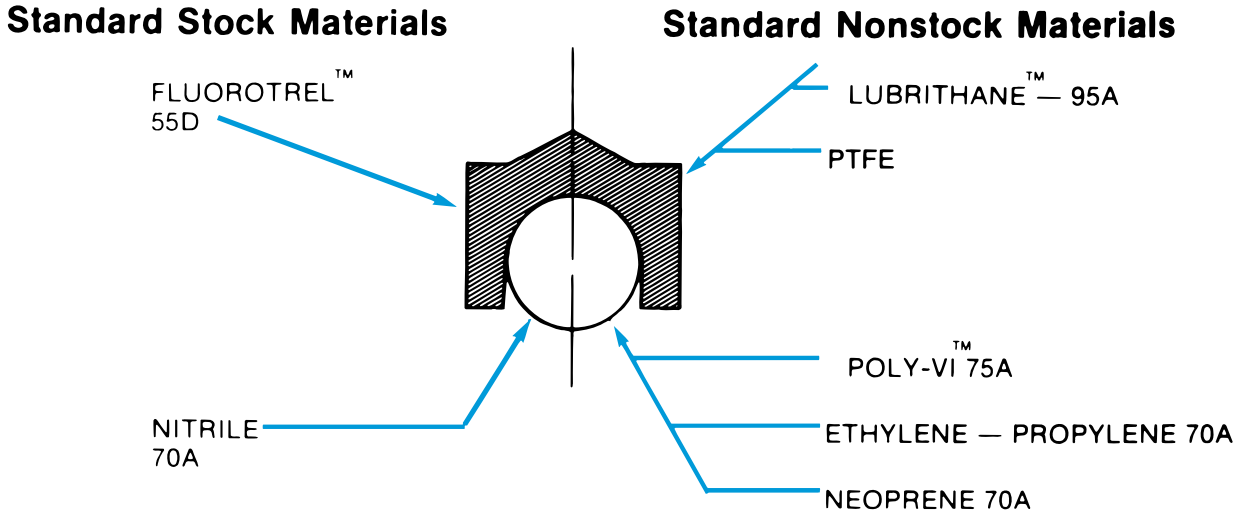
HYDRAULIC FLUIDS COMPATIBILITY, GENERAL

FLUIDS		RECOMMENDED CROWN SEAL
1. Petroleum base Hydraulic Fluids	1.	A, B, C
2. Phosphate Ester Fire resistant Hydraulic Fluids .	2.	C*, D**
3. Water & Glycol Fire Resistant Hydraulic Fluids .	3.	A, B***, C
4. Water & Oil emulsion Fire Resistant Hydraulic Fluid .	4.	A, B***, C
5. Automotive Transmission Fluid .	5.	A, B*, C

* Belw 150°F.
**No contamination of petroleum based fluid can be present.
***Below 180°F only

Note: When a mixture of various hydraulic fluids exists in the system, "C" should be selected as the seal. The Poly-Vi lip of this seal is generally more compatible with mixtures of fluids.

AVAILABLE MATERIAL COMBINATIONS



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