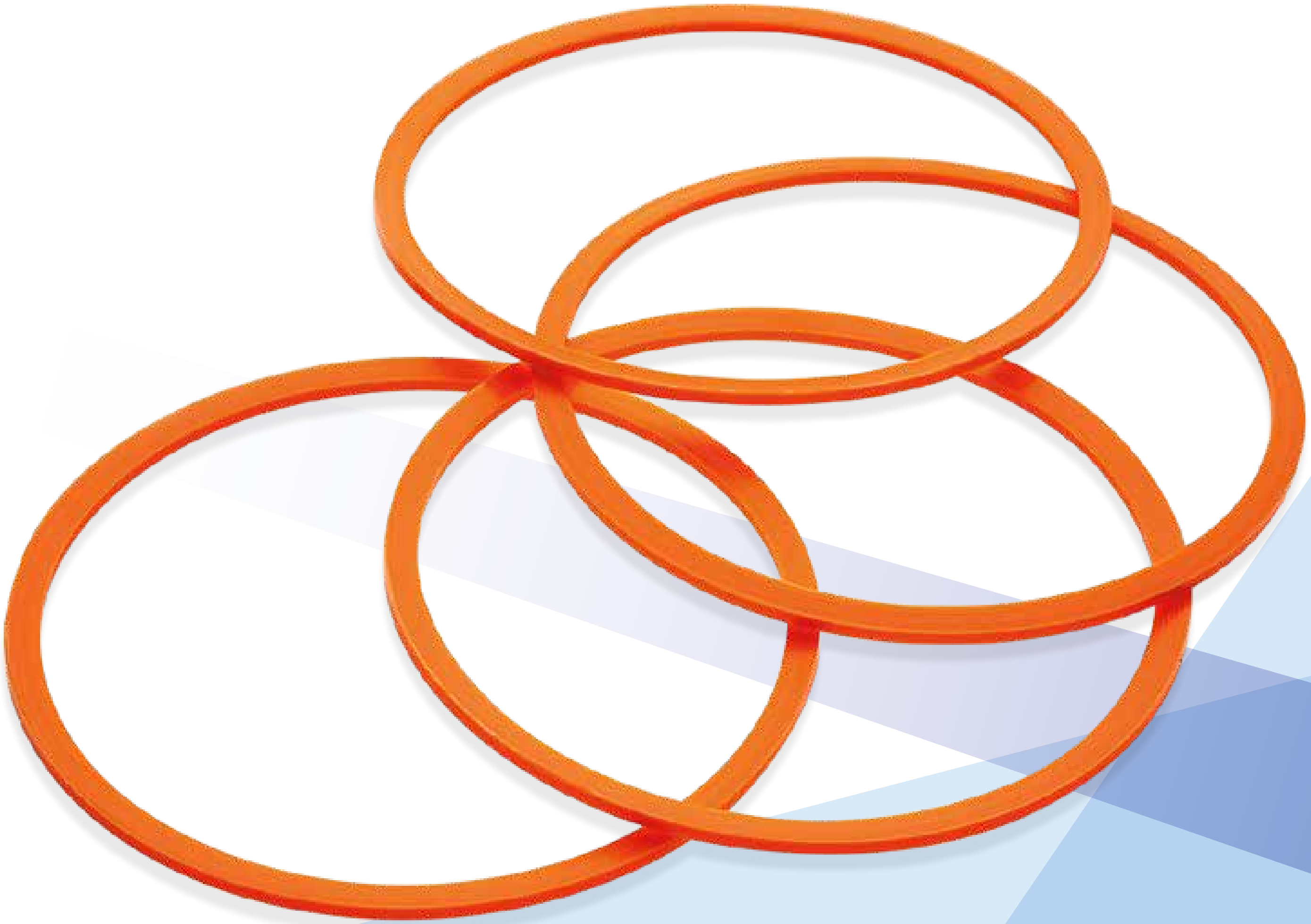
ESC
ENGINEERED SEALS & COMPONENTS, LLC.

POLY-TREL SERIES 758

STATIC BACK-UPS

KEY FEATURES OF SERIES 758 BACK-UPS:

- Easy to Use
- Avoids Twisting or Bunching
- Maximum Extrusion Resistance
- Designed for Industrial Static Grooves



SERIES 758
STATIC BACK-UPS

Back-up Rings are in the most common anti-extrusion devices in dynamic sealing. They provide simple solutions to safely increase pressure or solve existing seal extrusion problems.

Back-up rings function by positioning a more robust material adjacent to the extrusion gap, taking the seals place and providing a barrier against high pressures and the extrusion gap. They also protect the seals against pressure spikes, and it insure seal performance at higher temperatures.

ESC Series 758 Back-up Rings have been specifically designed for an industrial static O- ring groove. This series was developed to overcome the cross section and diameter problems that "standard industrial" back-up rings have.

The cross section and diameter have been designed to fit the groove properly, and to give the O-ring optimum life. Series 758 will not tip over, bunch up, or get sheared off during assembly.

ESC Series 758 will also fit in an industrial dynamic groove, but just not as efficiently.

ESC has found that manufacturing Series 758 Compound HT55-OR, from a formulation of copolyester elastomer, TPC-ET, gives the Back-up rings advantages Rubber or Urethane do not. For example, better fluid resistance and much better pressure and heat resistance.

Typically, POLY-TREL HT55-OR, has an operating temperature range of -65°F to +275°F. Compound HT55-ORSHS is a Hydrolytically stabilized compound, which is used in water based fluid applications.

ESC Series 758 most popular sizes are molded endless without a imperfection where the material would enter the mold. This proprietary process was developed by ESC engineers to give the back-up rings maximum strength and flexibility.

The back-up rings are imperfection free resulting in a part that will not "neck down" due to the part not having a gate or nit line.

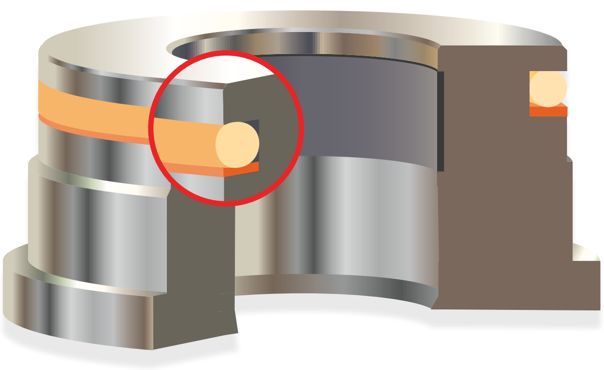
This makes the parts perfectly smooth on both the inside diameter and outside diameter.

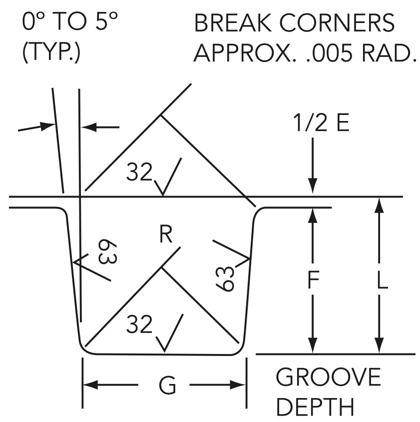
ADVANTAGES

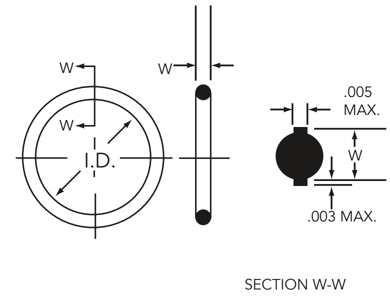
- No more twisted back-ups.
- Fire Resistant Fluids.
- Extended Range -65° to +275°.
- **Dynamic Pressure to 7,000 psi**
- **Static Pressure to 20,000 psi**

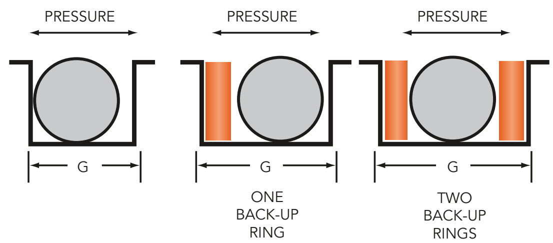
For Cartridge Valves Too!

SERIES 758
POLY-TREL BACK-UP & O-RING GROOVE DESIGN GUIDE









INDUSTRIAL O-RING *STATIC SEAL* GLAND GUIDELINE

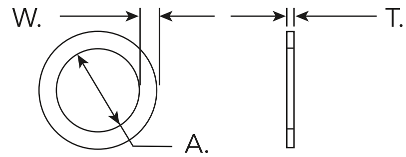
O-Ring Size	W Cross Section		L Gland Depth	Squeeze		E (a) (c) Diameteral Clearance	G Groove Width			R Groove Radius	Eccentricity Max. (b)
	Nominal	Actual		Actual	%		No Back-up Ring	One Back-up Ring	Two Back-up Rings		
044 through 050	1/16	.070 ±.003	.050 to .052	.015 to .023	22 to 32	.002 to .005	.093 to .098	.138 to .143	.205 to .210	.005 to .015	.002
102 through 178	3/32	.103 ±.003	.081 to .083	.017 to .025	17 to 24	.002 to .005	.140 to .145	.171 to .176	.238 to .243	.005 to .015	.002
201 through 284	1/8	.139 ±.004	.111 to .113	.022 to .032	16 to 23	.003 to .006	.187 to .192	.208 to .213	.275 to .280	.010 to .025	.003
309 through 395	3/16	.210 ±.005	.170 to 173	.032 to .045	15 to 21	.003 to .006	.281 to .286	.311 to .316	.410 to .415	.020 to .035	.004
425 through 475	1/4	.275 ±.006	.226 to .229	.040 to .055	15 to 20	.004 to .007	.375 to .380	.408 to .413	.538 to .543	.020 to .035	.005

(a) Clearance gap must be held to a minimum consistent with design requirements for temperature range variation.
(b) Total Indicator reading between groove and adjacent bearing surface.
(c) Reduce maximum diametrical clearance 50% when using silicone O-rings.

ESC

3503 W. Milwaukee • Spencer, IA 51301 • p: 712-580-3990 • sales@engseals.com • www.engseals.com

SERIES 758
POLY-TREL BACK-UP SIZES

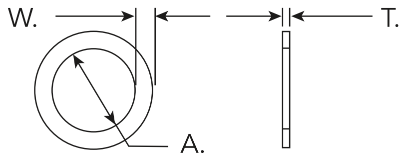


Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-004	0.088	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-006	0.135	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-007	0.166	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-008	0.197	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-009	0.228	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-010	0.260	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-010.5	0.260	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-011	0.322	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-011.5	0.322	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-012	0.385	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-012.5	0.385	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-013	0.447	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-013.5	0.447	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-014	0.510	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-014.5	0.510	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-015	0.572	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-015.5	0.572	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-016	0.635	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-016.5	0.635	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-017	0.697	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-017.5	0.697	± .005	.052	+.002/-.003	.0285	± .005	HT55-OR
758-018	0.760	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-018.5	0.760	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-019	0.822	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-019.5	0.822	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-020	0.885	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-020.5	0.885	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-021	0.947	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-021.5	0.947	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-022	1.010	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-022.5	1.010	± .005	.052	+.002/-.003	.028	± .005	HT55-OR
758-023	1.072	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-024	1.135	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-025	1.197	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-026	1.260	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-027	1.322	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-028	1.385	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-029	1.510	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-030	1.635	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-031	1.760	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-032	1.885	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-033	2.010	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-034	2.135	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-035	2.260	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-036	2.385	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-037	2.510	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-038	2.635	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-039	2.760	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-040	2.885	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-041	3.010	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-042	3.260	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-043	3.510	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-044	3.760	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-045	4.010	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-046	4.250	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-047	4.510	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-048	4.760	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-049	5.010	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-050	5.260	± .005	.052	+.002/-.003	.045	± .005	HT55-OR
758-102	0.082	± .005	.078	± .003	0.050	± .005	HT55-OR
758-103	0.114	± .005	.078	± .003	.050	± .005	HT55-OR

Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-104	0.145	± .005	.078	± .003	.050	± .005	HT55-OR
758-105	0.175	± .005	.078	± .003	.050	± .005	HT55-OR
750-106	0.207	± .005	.078	± .003	.050	± .005	HT55-OR
750-107	0.239	± .005	.078	± .003	.050	± .005	HT55-OR
750-108	0.270	± .005	.078	± .003	.050	± .005	HT55-OR
750-109	0.332	± .005	.078	± .003	.050	± .005	HT55-OR
758-110	0.395	± .005	.078	± .003	.050	± .005	HT55-OR
758-111	0.457	± .005	.078	± .003	.050	± .005	HT55-OR
758-112	0.520	± .005	.078	± .003	.050	± .005	HT55-OR
758-113	0.582	± .005	.078	± .003	.050	± .005	HT55-OR
758-114	0.645	± .005	.078	± .003	.050	± .005	HT55-OR
758-115	0.707	± .005	.078	± .003	.050	± .005	HT55-OR
758-116	0.770	± .005	.078	± .003	.050	± .005	HT55-OR
758-117	0.832	± .005	.078	± .003	.050	± .005	HT55-OR
758-117.5	0.832	± .005	.078	± .003	.050	± .005	HT55-OR
758-118	0.895	± .005	.078	± .003	.050	± .005	HT55-OR
758-119	0.957	± .005	.078	± .003	.050	± .005	HT55-OR
758-120	1.020	± .005	.078	± .003	.050	± .005	HT55-OR
758-121	1.082	± .005	.078	± .003	.050	± .005	HT55-OR
758-122	1.145	± .005	.078	± .003	.050	± .005	HT55-OR
758-123	1.205	± .005	.078	± .003	.050	± .005	HT55-OR
758-124	1.270	± .005	.078	± .003	.050	± .005	HT55-OR
758-125	1.332	± .005	.078	± .003	.050	± .005	HT55-OR
758-126	1.395	± .005	.078	± .003	.050	± .005	HT55-OR
758-127	1.457	± .005	.078	± .003	.050	± .005	HT55-OR
758-128	1.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-129	1.582	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-130	1.645	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-131	1.707	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-132	1.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-133	1.832	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-134	1.895	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-135	1.957	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-136	2.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-137	2.082	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-138	2.145	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-139	2.207	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-140	2.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-141	2.332	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-142	2.395	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-143	2.457	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-144	2.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-145	2.582	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-146	2.645	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-147	2.707	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-148	2.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-149	2.832	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-150	2.895	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-151	3.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-152	3.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-153	3.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-154	3.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-155	4.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-156	4.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-157	4.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-158	4.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-159	5.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-160	5.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-161	5.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-162	5.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-163	6.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR

Part numbers shaded in Orange, when installed on a piston may not recover when stretched over. A softer compound may be needed.

SERIES 758
POLY-TREL BACK-UP SIZES

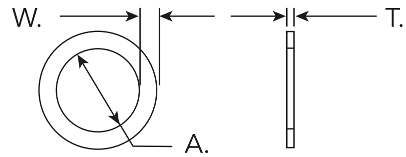


Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-164	6.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-165	6.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-166	6.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-167	7.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-168	7.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-169	7.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-170	7.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-171	8.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-172	8.270	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-173	8.520	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-174	8.770	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-175	9.020	+.005/-.010	.078	± .003	.050	± .005	HT55-OR
758-201	0.197	± .005	.108	± .003	.050	± .005	HT55-OR
758-202	0.260	± .005	.108	± .003	.050	± .005	HT55-OR
758-204	0.385	± .005	.108	± .003	.050	± .005	HT55-OR
758-205	0.447	± .005	.108	± .003	.050	± .005	HT55-OR
758-206	0.510	± .005	.108	± .003	.050	± .005	HT55-OR
758-207	0.572	± .005	.108	± .003	.050	± .005	HT55-OR
758-208	0.635	± .005	.108	± .003	.050	± .005	HT55-OR
758-209	0.697	± .005	.108	± .003	.050	± .005	HT55-OR
758-210	0.760	± .005	.108	± .003	.050	± .005	HT55-OR
758-211	0.822	± .005	.108	± .003	.050	± .005	HT55-OR
758-212	0.885	± .005	.108	± .003	.050	± .005	HT55-OR
758-213	0.947	± .005	.108	± .003	.050	± .005	HT55-OR
758-214	1.020	± .005	.108	± .003	.050	± .005	HT55-OR
758-215	1.082	± .005	.108	± .003	.050	± .005	HT55-OR
758-216	1.145	± .005	.108	± .003	.050	± .005	HT55-OR
758-217	1.207	± .005	.108	± .003	.050	± .005	HT55-OR
758-218	1.270	± .005	.108	± .003	.050	± .005	HT55-OR
758-219	1.312	± .005	.108	± .003	.050	± .005	HT55-OR
758-220	1.395	± .005	.108	± .003	.050	± .005	HT55-OR
758-221	1.457	± .005	.108	± .003	.050	± .005	HT55-OR
758-222	1.520	± .005	.108	± .003	.050	± .005	HT55-OR
758-223	1.645	± .005	.108	± .003	.050	± .005	HT55-OR
758-224	1.770	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-225	1.895	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-226	2.020	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-227	2.145	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-228	2.270	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-229	2.375	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-230	2.520	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-231	2.625	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-232	2.770	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-233	2.895	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-234	3.020	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-235	3.145	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-236	3.270	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-237	3.395	+.005/-.010	.108	± .003	0.05	± .005	HT55-OR
758-238	3.520	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-239	3.645	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-240	3.770	+.005/-.010	.108	± .003	.050	± .005	HT55-OR
758-241	3.895	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-242	4.020	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-243	4.145	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-244	4.270	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-245	4.375	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-246	4.520	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-247	4.645	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-248	4.770	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-249	4.895	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-250	5.020	+.005/-.015	.108	± .003	.050	± .005	HT55-OR

Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-251	5.145	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-252	5.270	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-253	5.375	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-254	5.520	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-255	5.625	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-256	5.770	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-257	5.875	+.005/-.015	.108	± .003	.050	± .005	HT55-OR
758-258	6.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-259	6.270	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-260	6.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-261	6.770	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-262	7.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-263	7.270	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-264	7.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-265	7.770	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-266	8.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-267	8.270	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-268	8.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-269	8.770	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-270	9.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-271	9.250	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-272	9.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-273	9.750	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-274	10.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-275	10.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-276	11.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-277	11.520	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-278	12.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-279	13.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-280	14.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-281	15.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-283	17.020	+.010/-.015	.108	± .003	.050	± .005	HT55-OR
758-310	0.525	± .005	.167	± .003	.070	± .005	HT55-OR
758-311	0.587	± .005	.167	± .003	.070	± .005	HT55-OR
758-312	0.650	± .005	.167	± .003	.070	± .005	HT55-OR
758-313	0.712	± .005	.167	± .003	.070	± .005	HT55-OR
758-314	0.775	± .005	.167	± .003	.070	± .005	HT55-OR
758-315	0.834	± .005	.167	± .003	.070	± .005	HT55-OR
758-316	0.900	± .005	.167	± .003	.070	± .005	HT55-OR
758-317	0.962	± .005	.167	± .003	.070	± .005	HT55-OR
758-318	1.025	± .005	.167	± .003	.070	± .005	HT55-OR
758-319	1.087	± .005	.167	± .003	.070	± .005	HT55-OR
758-320	1.150	± .005	.167	± .003	.070	± .005	HT55-OR
758-321	1.212	± .005	.167	± .003	.070	± .005	HT55-OR
758-322	1.275	± .005	.167	± .003	.070	± .005	HT55-OR
758-323	1.337	± .005	.167	± .003	.070	± .005	HT55-OR
758-324	1.400	± .005	.167	± .003	.070	± .005	HT55-OR
758-325	1.525	± .005	.167	± .003	.070	± .005	HT55-OR
758-326	1.650	± .005	.167	± .003	.070	± .005	HT55-OR
758-327	1.775	± .005	.167	± .003	.070	± .005	HT55-OR
758-328	1.900	± .005	.167	± .003	.070	± .005	HT55-OR
758-329	2.025	± .005	.167	± .003	.070	± .005	HT55-OR
758-330	2.150	± .005	.167	± .003	.070	± .005	HT55-OR
758-331	2.275	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-332	2.400	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-333	2.525	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-334	2.650	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-335	2.775	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-336	2.900	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-337	3.025	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-338	3.150	+.005/-.010	.167	± .003	.070	± .005	HT55-OR

Part numbers shaded in Orange, when installed on a piston may not recover when stretched over. A softer compound may be needed.

SERIES 758
POLY-TREL BACK-UP SIZES



Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-339	3.275	+.005/-.010	.167	± .003	.070	± .005	HT55-OR
758-340	3.400	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-341	3.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-342	3.650	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-343	3.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-344	3.900	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-345	4.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-346	4.150	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-347	4.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-348	4.400	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-349	4.525	+.005/-.015	.167	± .003	0.07	± .006	HT55-OR
758-350	4.650	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-351	4.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-352	4.900	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-353	5.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-354	5.150	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-355	5.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-356	5.400	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-357	5.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-358	5.650	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-359	5.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-360	5.900	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-361	6.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-362	6.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-363	6.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-364	6.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-365	7.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-366	7.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-367	7.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-368	7.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-369	8.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-370	8.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-371	8.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-372	8.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-373	9.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-374	9.275	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-375	9.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-376	9.775	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-377	10.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-378	10.525	+.005/-.015	.167	± .003	.070	± .006	HT55-OR

Part # SERIES	ID		C/S		Width		STANDARD COMPOUND
	A	TOL	W	TOL	T	TOL	
758-379	11.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-381	12.025	+.005/-.015	.167	± .003	.070	± .006	HT55-OR
758-425	4.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-426	4.664	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-427	4.789	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-428	4.914	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-429	5.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-430	5.125	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-431	5.250	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-432	5.414	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-433	5.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-434	5.664	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-435	5.789	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-436	5.914	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-437	6.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-438	6.250	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-439	6.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-440	6.789	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-441	7.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-442	7.289	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-443	7.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-444	7.789	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-445	8.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-446	8.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-447	9.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-448	9.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-449	10.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-450	10.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-451	11.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-452	11.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-453	12.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-454	12.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-455	13.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-456	13.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-457	14.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-458	14.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-459	15.250	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-460	15.539	+.007/-.015	.222	± .003	.105	± .006	HT55-OR
758-461	16.039	+.007/-.015	.222	± .003	.105	± .006	HT55-OR

Part numbers shaded in Orange, when installed on a piston may not recover when stretched over. A softer compound may be needed.

Series 758 Poly-Trel Static O-Ring Groove Back-up Rings

ESC's Series 758 back-up rings offer extrusion resistance up to 7,000 psi for dynamic applications and 20,000 psi for static applications. ECS Series 758 are interchangeable with most existing O-ring back-ups being used today. The Orange color also ensures that the parts can be easily identified and that they are correctly assembled. Compound HT55-OR provides excellent extrusion resistance when compared to Nitrile and has a better fluid compatibility range than other back-up ring compounds.

Technical Data

Standard Material	Temperature	Max Pressure Range: Dynamic*	Max Pressure Range: Static
HT55-OR	-65°F to +275°F (-54° C to +135°C)	7,000 psi (482 bar)	20,000 psi (1,379 bar)
HT65-N (Optional)	-65°F to +275°F (-54° C to +135°C)	7,000 psi (482 bar)	20,000 psi (1,379 bar)

* 4,900 psi (337 bar) with ESC Ultra-Precision Wear Rings.
3,500 psi (241 bar) with standard tolerance wear rings.

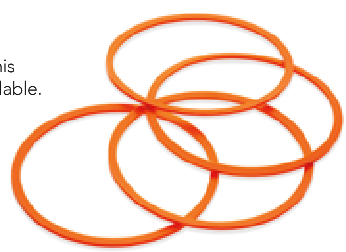
SERIES 758 STANDARD COMPOUND

POLY-TREL Compound HT55-OR

TPC-ET thermoplastic polyester elastomer

Property	Test Method	Units	Value
Tensile Modulus	ISO 527-1/-2	psi	27,557
Stress @5% Strain	ISO 527-1/-2	psi	1,000
Stress @10% Strain	ISO 527-1/-2	psi	1,600
Stress @ 50% Strain	ISO 527-1/-2	psi	2,030
Stress at Break	ISO 527-1/-2	psi	5,800
Nominal Strain at Break	ISO 527-1/-2	%	780
Strain at Break	ISO 527-1/-2	%	>300
Flexural Modulus	ISO 178	psi	29,000
Shear Modulus	ISO 6721	psi	9,430
Tensile creep modulus, 1000h	ISO 899-1	psi	18,900
Charpy Impact Strength, 23°C	ISO 179/1eU	$ftlb/in^2$	N
Charpy Impact Strength, -30°C	ISO 179/1eU	$ftlb/in^2$	N
Charpy Notched Impact Strength, -30°C	ISO 179/1eU	$ftlb/in^2$	71.4
Charpy Notched Impact Strength, -40°C	ISO 179/1eU	$ftlb/in^2$	14.3
Poisson's Ratio			.48
Compression Set at 70°C	ISO 815	%	60
Brittleness Temperature	ISO 974	°F	-144
Shore D Hardness, 15s	ISO 868	D	51
Shore D Hardness, Max	ISO 868	D	55
Tear Strength, parallel	ISO 34-1	kN/m	133
Tear Strength, Normal	ISO 34-1	kN/m	133
Abrasion Resistance	ISO 4649	mm^3	120
Melting Temperature, 10°C/min	ISO 11357-1/-3	°F	397
Glass Transition Temperature (10°C/min)	ISO 11357-1/2	°F	-4
Vicat Softening Temperature, 50°C/h, 10N	ISO 306	°F	356
Coeff. Of Linear Therm. Expansion, Parallel	ISO 11359-1/2	E-4/°F	1.11
Coeff. Of Linear Therm. Expansion, Normal	ISO 11359-1/2	E-4/°F	1.11
Shelf Life	ISO R1183		10 years
Service Temperature Range*			-65°F to +275°F
Color			ORANGE

Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23C unless otherwise stated.



The information provided in this data sheet corresponds to our knowledge on the subject at the date of this publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such materials used in combination with any other material, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specifications limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to do to determine the suitability of a specific compound for your particular purpose. Since Engineered Seals, LLC cannot anticipate all variation in actual end-use conditions ESC makes no warranties and assumes no liability in connection with any use of this information. Caution: Do not use this product in medical application involving permanent implantation in the human body.

3503 W. Milwaukee • Spencer, IA 51301 • p: 712-580-3990 • sales@engseals.com • www.engseals.com

POLY-TREL STANDARD COMPOUNDS

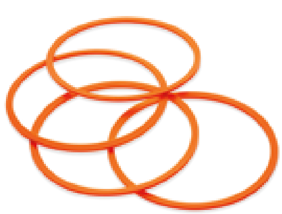
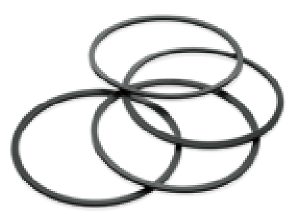
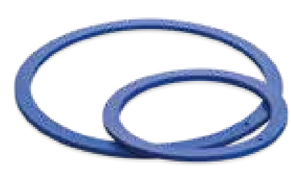
POLY-TREL FAMILY OF COMPOUNDS

TPC-ET Thermoplastic Polyester Elastomer

Property	Test Method	Units	HT40 Value	HT47 Value	HT50 Value	HT55 Value	HT63 Value	HT72 Value
				COMPOUND NUMBER				
Hardness , Shore D	ISO 868	D	40	47	50	55	63	72
Tensile Strength, Ultimate	ISO 527	Mpa (psi)	21 (3,050)	30.5 (4,425)	36.0 (5,220)	40 (5,800)	41 (5950)	45.8 (6640)
Tensile Stress	ISO 527							
@5% Strain		Mpa (psi)	2.5 (0.4)	n/a		6.9 (1)	12 (1.7)	14 (2)
@10% Strain		Mpa (psi)	4.4 (0.6)	6.8 (1.0)	6.8 (1.0)	11 (1.6)	15 (2.2)	23 (3.3)
@50% Strain		Mpa (psi)	8.0 (1.2)	11 (1.6)	11 (1.6)			
Yield Stress	ISO 527	Mpa (psi)	x	x	30	14 (2,000)	19 (2,800)	x
Stress at Break	ISO 527	Mpa (psi)	17 (2,500)	17 (2,500)		44 (6,400)	46 (6,700)	53 (7,700)
Strain at Break	ISO 527	%	250	200		500	490	450
Normal Strain at Break	ISO 527	%	350	>50		800	540	x
Yield Strain	ISO 527	%	x	x	30	37	35	x
Tensile Modulus	ISO 527	Mpa (psi)	55 (8,000)	105 (15,200)	740 (10,700)	188 (27,300)	280 (41,000)	525 (76,000)
Flexural Modulus -40°C (-40°F)	ISO 178	Mpa (psi)	200 (29,000)	260 (37,000)	470 (68,700)	760 (110000)	248 (36000)	2350 (340000)
Flexural Modulus 23°C (73°F)	ISO 178	Mpa (psi)	65 (9,400)	117 (17,000)	124 ((18,000)	200 (29000)	330 (48000)	570 (83000)
Flexural Modulus 100°C (212°F)	ISO 178	Mpa (psi)	30 (4,000)	60 (9,000)	46 (6,700)	100 (14000)	296 (43000)	200 (28000)
Elongation at Break	ISO 527	%	424	462	530	500	490	450
Tensile Strength at Yield	ISO 527	Mpa (psi)	7.5 (1,090)	7.2 (1,045)	36 (5,220)	6.9 (1,000)	19 (2760)	26 (3770)
Glass Transition Temperature (10°C/min)	ISO 11357-1/2	°C (°F)	-25 (-31F)	-45 (-49F)	+62 (+144F)	-20 (-4F)	0 (+32F)	+25 (+77F)
Deflection Temp @ 66 psi	ISO 75f	°C (°F)	50 (122F)	60 (140F)	+62 (+144)	+70 (+160F)	+85 (+185F)	+95 (+203F)
Deflection Temp @ 264 psi	ISO 75f	°C (°F)	x	x	+40 (+104F)	+40 (+113F)	+45 (+113F)	+45 (+126F)
Temperature Range			-65F to +250F	-65F to +250F	-65F to +275F	-65F to +275F	-65F to +275F	-65F to +275F
Shelf Life	ISO R1183	Years	10 years	10 years	10 years	10 years	10 years	10 years

Test specimen for ISO 527 is 1BA (2mm) at 50mm/min; all other ISO & ASTM mechanical properties measured at 4mm; electrical properties measured at 2mm.
All mechanical & electrical properties measured on injection molded specimens.
Test temperatures are 23C unless otherwise stated.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of this publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such materials used in combination with any other material, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specifications limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to do to determine the suitability of a specific compound for your particular purpose. Since Engineered Seals cannot anticipate all variation in actual end-use conditions ESC makes no warranties and assumes no liability in connection with any use of this information. Caution: Do not use this product in medical application involving permanent implantation in the human body.

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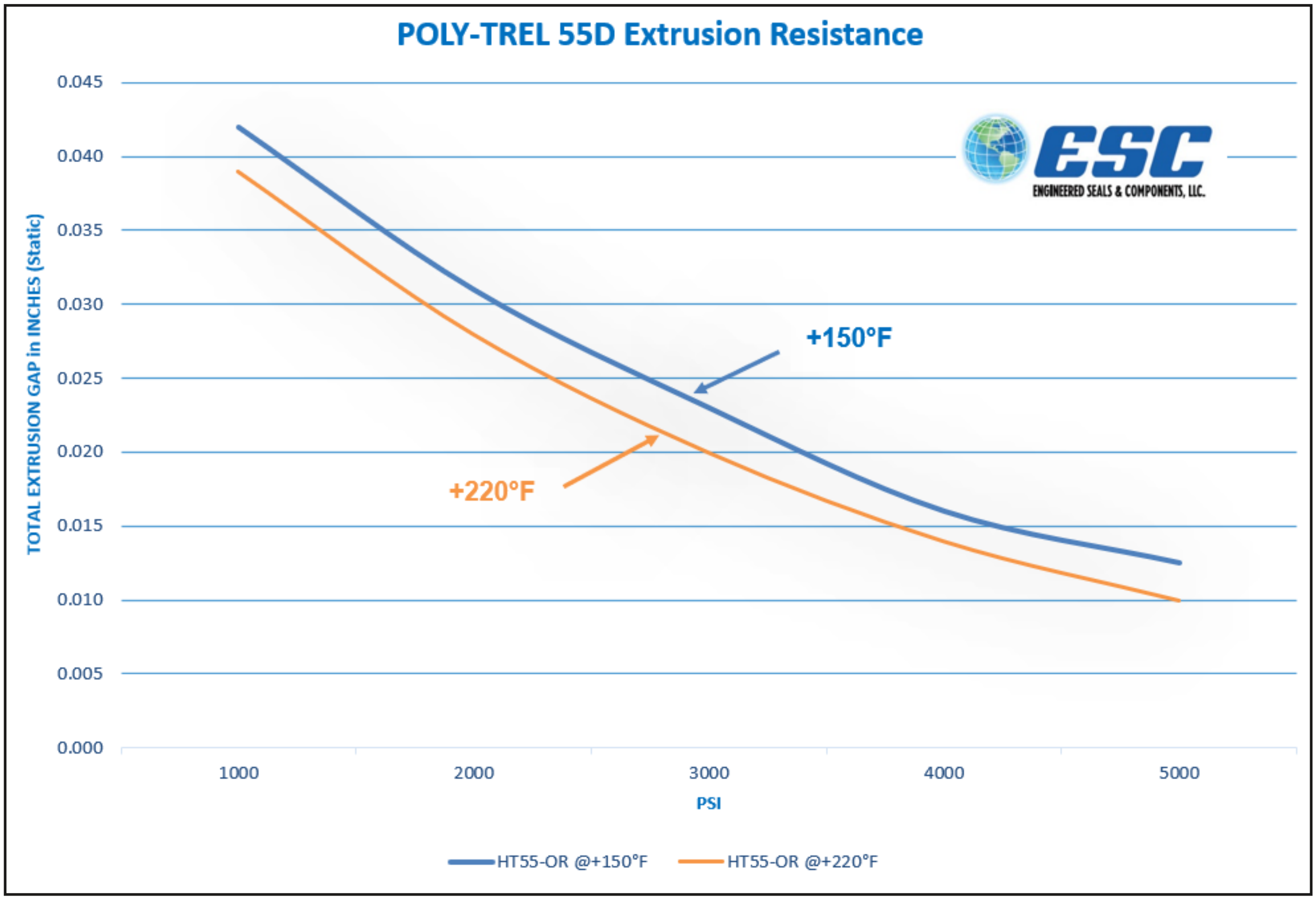
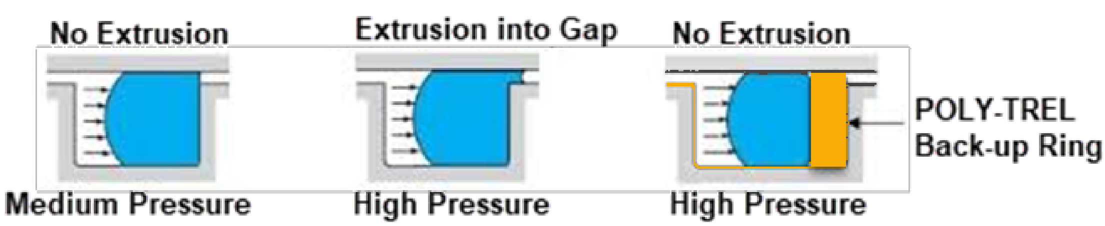
POLY-TREL BACK-UP RING EXTRUSION DESIGN GUIDE

POLY-TREL HT55-OR Extrusion Resistance at +150F and +220F





O-Ring Deformation Under Pressure With and with out Back-up Ring

Above data was acquired in a test laboratory. No side load, shock loads, or dynamic motions were applied. Your results may be different. This information is to be used as a guideline only. It is always good practice to test in actual or specific conditions and applications.

POLY-TREL BACK-UP RING FLUID RESISTANCE DESIGN GUIDE

Chemical	Rating*
Acetic acid, 20%	A
Acetic acid, 30%	A
Acetic acid, glacial	A
Acetic acid, glacial (+100° F - +38° C)	B
Acetic Anhydride	T
Acetone	B
Acetylene	A
Aluminum chloride solutions	T
Aluminum sulfate solutions	T
Ammonium chloride solutions	A
Ammonium hydroxide solutions	T
Ammonium sulfate solutions	B
Amyl Acetate	B
Amyl alcohol	A
Aniline	C
ASTM oil = 1 (300° F - 149° C)	A
ASTM oil = 3 (300° F - 149° C)	A
ASTM reference fuel A (158°F - 70° C)	A
ASTM reference fuel B (158°F - 70° C)	A
ASTM reference fuel C	A
ASTM reference fuel C (158°F - 70° C)	B
Asphalt	T
Barium hydroxide solutions	T
Beer	A
Benzene	B
Borax solutions	A
Boric acid solutions	A
Bromine anhydrous liquid	X
Butane	A
Butyr acetate	B
Butyric acid	T
Calcium chloride solutions	A
Calcium hydroxide solutions	T
Calcium hypochlorite 5%	A
Carbon bisulfide	B
Carbon dioxide	A
Carbon monoxide	A
Carbon tetrachloride	A,B,C
Castor oil	A,B
Chlorine gas, dry	X
Chlorine gas, wet	X
Chloroacetic acid	X
Chlorobenzene	X
Chloroform	C
Chlorosulfonic acid	C
Citric acid solutions	A
Copper chloride solutions	A
Copper sulfate solutions	A
Cottonseed oil	A
Cyclohexane	A
Dibufyl phthalate	A
Diethyl sebacate	A
Dioctyl phthalate	A
Epichlorohydrin	X
Ethyl acetate	A,B
Ethyl alcohol	A
Ethyl chloride	C
Ethylene dichloride	B,C
Ethylene glycol	A
Ethylene oxide	A
Ferric chloride solutions	T
Fluosilicic acid	T
Formaldehyde 40%	B
Formic Acid	B
FREON®-11	A
FREON®-12	A
FREON-113® (130° F - 55° C)	A
FREON®-114	A
Gasoline	A
Glue	A
Glycerin	A
n-Hexane	A
Hydrazine	C
Hydrochloric acid 20%	B
Hydrocyanic acid	T
Hydrofluoric acid 48%	X
Hydrofluoric acid 75%	X
Hydrofluoric acid, anhydrous	X
Hydrogen	A
Hydrogen sulfide	A
Isooctane	A
Isopropyl alcohol	A
JP-4	A
Kerosene	T
Lacquer solvents	A,B
Lactic acid	T
Linseed oil	T
Lubricating oils	A
Magnesium chloride solutions	T
Magnesium hydroxide solutions	T
Mercuric chloride solutions	T
Mercury	A
Methyl alcohol	A
Methyl ethyl ketone	A,B
Methylene chloride	C
Mineral oil	A
Naphtha	A
Naphthalene	A,B
Nitric acid 10%	B
Nitric acid 30%	C
Nitric acid 60%	C
Nitric acid 70%	C
Nitric acid, red fuming	C
Nitrobenzene	C
Oleic acid	A
Oleum 20-25%	C
Palmitic acid	A
Perchloroethylene	B,C
Phenol	C
Pickling Solution (20% nitric acid, 4% HF)	X
Pickling Solution (17% nitric acid, 4% HF)	X
Potassium dichromate solutions	T
Potassium hydroxide solutions	A
Pydraul 312C	A
Pyridine	X
SAE 10 oil	A
Sea water	A
Silicone grease	A
SKYDROL 500	A
Soap solutions	A
Sodium chloride solutions	A
Sodium dichromate 20%	T
Sodium hydroxide 20%	A
Sodium hypochlorite 5%	B
Sodium hydroxide 46.5%	A
Soybean oil	T
Stannous chloride 15%	T
Steam (212° F - 100° C) stabilized	B
Steam (230° F - 110° C) stabilized	C
Stearic acid	T
Styrene	X
Sulfur, molten	T
Sulfur dioxide, liquid	T
Sulfur dioxide, gas	T
Sulfuric acid up to 50%	A
Sulfuric acid 50-80%	C
Sulfuric acid 60%	C
Sulfuric acid 90%	C
Sulfuric acid 95%	C
Sulfuric acid fuming (20% oleum)	C
Sulfurous acid	B
Tannic acid 10%	A
Tartanic acid	T
Tetrahydrofuran	A,B
Toluene	B
Trichloroethylene	C
Triethanolamine	C
Trisodium phosphate solution	C
Tung oil	T
Water (158° F - 70° C)	A
Water (212° F - 100° C) with stabilizer	B
Xylene	A,B
Zinc chloride solutions	A

* Rating Key
A- Fluid has little or no effect
B- Fluid has minor to moderate effect
C- Fluid has severe effect
T-No data- likely to be compatible
X- No Data-not likely to be compatible

Unless otherwise noted concentrations of aqueous solutions are saturated. All ratings are at room temp. unless specified.

We emphasize that this tabulation should be used as a guide only.
It is based primarily on laboraory andservice tests but does not take nto account all variables that can be encountered in actual use. Therefore, it is always advisable to test the material under actual service conditions before specification. If this is not practical, tests should be devised that simulate service conditions as closely as possible.

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