



**ES&C**  
ENGINEERED SEALS & COMPONENTS, LLC.

# POLY-TREL PISTON SEALS

## KEY FEATURES OF SERIES 704 & 708 PISTON SEALS:

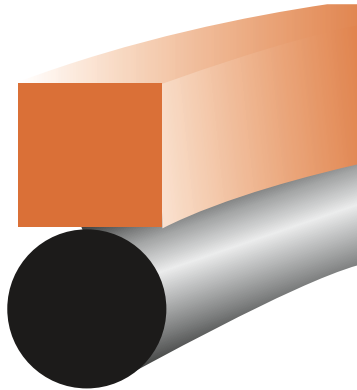
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- Positive Sealing to 5000 PSI
- Large "E" Gaps +.020 Total
- Double Acting
- Superior Physical Properties
- Easy to Install - No Resizing
- -40°F to +230°F
- Zero Leakage at Low & High PSI
- Series 704 - Square Cross Section
- Series 708 - Rectangular Cross Section
- Vented Series Upon Request

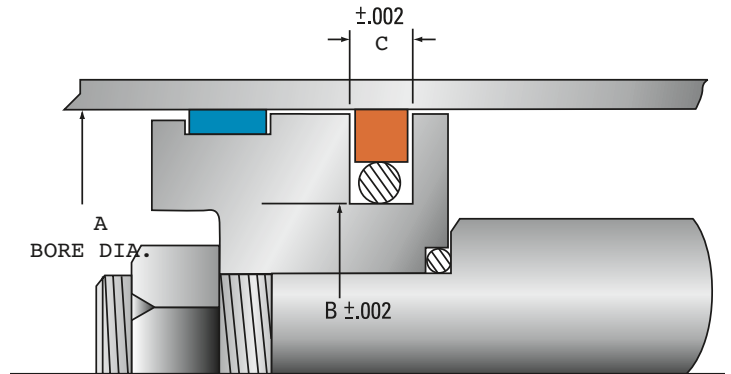




# SERIES 704 "SQUARE" POLY-TREL PISTON SEALS



**SERIES 704  
Square Section**



Series 704 Poly-Trel Piston Seals is a square, compact, low friction seal for light to medium duty hydraulic cylinders.

Poly-Trel Piston Seals are manufactured from a very tough polyester elastomeric material with friction reducing agents. They are directly interchangeable with TFE, urethane, and rubber seals.

Rapid recovery of seal after assembly. No re-sizing is required unlike common PTFE seals.

Energized with an O-ring this seals exhibits excellent position holding characteristics under load.

Wide range of fluid compatibility, temperature ranges -40F to +230F, and speeds up to 3.0 ft/sec. with a maximum pressure of 5,000 PSI.

It is recommended that an adequate ESC-LON Wear Ring be used in conjunction with this seal.

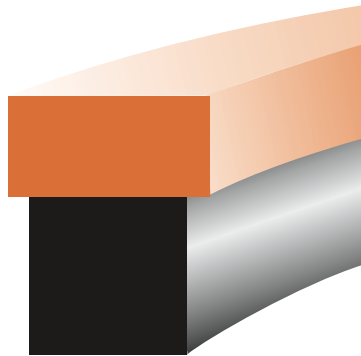
704 Dash Number	A BORE Diameter	GROOVE DIMENSIONS		O-Ring Dash Number
		B ± .002 Diameter	C ± .002 WIDTH	
-008	.500	.241	.083	-009
-010	.625	.366	.083	-011
-012	.750	.491	.083	-013
-014	.875	.616	.083	-015
-016	1.000	.741	.083	-017
-018	1.125	.866	.083	-019
-020	1.250	.991	.083	-021
-022	1.375	1.116	.083	-023
-024	1.500	1.241	.083	-025
-025	1.562	1.172	.122	-122
-026	1.625	1.235	.122	-123
-028	1.750	1.360	.122	-125
-030	1.875	1.485	.122	-127
-032	2.000	1.606	.130	-129
-034	2.125	1.731	.130	-131
-036	2.250	1.856	.130	-133
-038	2.375	1.981	.130	-135
-040	2.500	2.106	.130	-137
-044	2.750	2.356	.130	-141
-048	3.000	2.606	.130	-145
-052	3.250	2.856	.130	-149
-056	3.500	3.106	.130	-151

704 Dash Number	A BORE Diameter	GROOVE DIMENSIONS		O-Ring Dash Number
		B ± .002 Diameter	C ± .002 WIDTH	
-060	3.750	3.356	.130	-152
-064	4.000	3.606	.130	-153
-068	4.250	3.856	.130	-154
-072	4.500	4.106	.130	-155
-076	4.750	4.356	.130	-156
-080	5.000	4.606	.130	-157
-084	5.250	4.856	.130	-158
-088	5.500	5.106	.130	-159
-092	5.750	5.232	.159	-251
-096	6.000	5.482	.159	-253
-100	6.250	5.732	.159	-255
-104	6.500	5.982	.159	-257
-108	6.750	6.232	.159	-258
-112	7.000	6.482	.159	-259
-116	7.250	6.732	.159	-260
-120	7.500	6.982	.159	-261
-124	7.750	7.232	.159	-262
-128	8.000	7.482	.159	-263
-136	8.500	7.982	.159	-265
-144	9.000	8.482	.159	-267
-152	9.500	8.982	.159	-269
-160	10.000	9.482	.159	-271

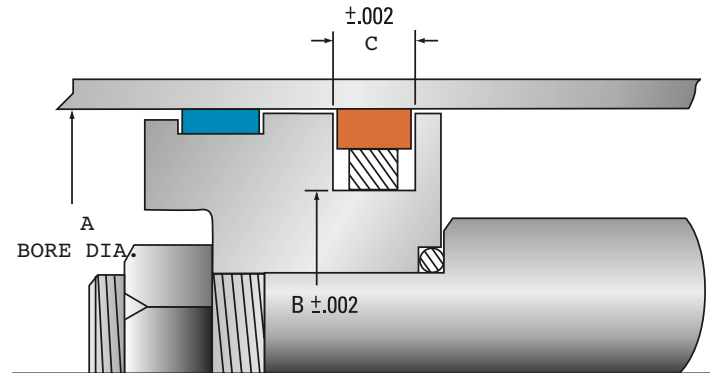
\* Consult factory if you do not see the size you need.



# SERIES 708 "RECTANGLE" POLY-TREL PISTON SEALS



**SERIES 708  
Rectangular  
Section**



Series 708 Poly-Trel Piston Seals is a rectangular, compact, low friction seal for light to heavy duty hydraulic cylinders.

Poly-Trel Piston Seals are manufactured from a very tough polyester elastomeric material with friction reducing agents and reinforcements for exceptional extrusion resistance.

Rapid recovery of seal after assembly. No re-sizing is required unlike common PTFE seals.

Energized with a Square Nitrile Ring this seal exhibits excellent stability and position holding characteristics under load.

Wide range of fluid compatibility, temperature ranges -40F to +230F, and speeds up to 3.0 ft/sec. with a maximum pressure of 5,000 PSI.

It is recommended that an adequate ESC-LON Wear Ring be used in conjunction with this seal.

**Consult us for all of your ESC-LON Wear Ring needs.**

708 Dash Number	A BORE Diameter	GROOVE DIMENSIONS		Square Ring Dash Number
		B ± .002 Diameter	C ± .002 WIDTH	
-016	1.000	.688	.126	-115
-020	1.250	.938	.126	-119
-024	1.500	1.188	.126	-123
-028	1.750	1.438	.126	-127
-032	2.000	1.688	.126	-131
-036	2.250	1.938	.126	-135
-040	2.500	2.188	.126	-139
-044	2.750	2.438	.126	-143
-048	3.000	2.442	.279	-333
-052	3.250	2.692	.279	-335
-056	3.500	2.942	.279	-337
-060	3.750	3.192	.279	-339
-064	4.000	3.442	.279	-341
-068	4.250	3.692	.279	-343
-072	4.500	3.942	.279	-345
-076	4.750	4.192	.279	-347
-080	5.000	4.442	.279	-349

708 Dash Number	A BORE Diameter	GROOVE DIMENSIONS		Square Ring Dash Number
		B ± .002 Diameter	C ± .002 WIDTH	
-084	5.250	4.476	.378	-425
-088	5.500	4.726	.378	-427
-092	5.750	4.976	.378	-429
-096	6.000	5.226	.378	-431
-104	6.500	5.726	.378	-435
-112	7.000	6.226	.378	-438
-120	7.500	6.726	.378	-440
-128	8.000	7.226	.378	-442
-136	8.500	7.726	.378	-444
-144	9.000	8.110	.378	-445
-152	9.500	8.610	.378	-446
-160	10.000	9.110	.378	-447
-176	11.000	10.110	.378	-449
-192	12.000	11.110	.378	-451
-208	13.000	12.110	.378	-453
-224	14.000	13.110	.378	-455

\* Consult factory if you do not see the size you need.





# SERIES 704 & 708 STANDARD COMPOUNDS

## POLY-TREL Compound HT55-5

TPE thermoplastic polyester elastomer

Property	Test Method	Units	Value HT55-5
<b>Mechanical</b>			
Tensile Elongation	D638	Mpa (kpsi)	500%
Yield Stress	ISO 527	Mpa (kpsi)	
Stress at Break	ISO 527	Mpa (kpsi)	
Strain at Break	ISO 527	%	
Normal Strain at Break	ISO 527	%	
Flexural Strength	D638	psi	18 (60)
Tensile Strength	D638	Mpa (kpsi) 29 (4.15)	
Flexural Modulus	D638	Mpa (kpsi)	552 (80)
-40C (-40F)			
23C (73F)			
100C (212F)			
Hardness , Shore D	ISO 868		
15s			52
Maximum			60
Tensile Impact Strength	ISO 8256 kJ/m2	kJ/m2	
Impact Strength IZOD			
notched 1/8 in (3.2 mm) section		D256	7.8 ft-lbs/in
unnotched 1/8 in (3.2 mm) section			10.6 ft-lb/in
Reinforcement	YES	%	< 5
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.



# SERIES 704 & 708 STANDARD COMPOUND

## POLY-TREL Compound HT55-BLACK

TPE thermoplastic polyester elastomer

Property	Test Method	Units	Value
<b>Mechanical</b>			
Tensile Stress	ISO 527	Mpa (kpsi)	
@5% Strain			6.9 (1)
@10% Strain			11 (1.6)
@50% Strain			
Yield Stress	ISO 527	Mpa (kpsi)	14 (2.0)
Stress at Break	ISO 527	Mpa (kpsi)	44 (6.4)
Strain at Break	ISO 527	%	500
Normal Strain at Break	ISO 527	%	800
Yield Strain	ISO 527	%	37
Tensile Modulus	ISO 527	Mpa (kpsi)	188 (27.3)
Flexural Modulus	ISO 178	Mpa (kpsi)	
-40C (-40F)			760 (110)
23C (73F)			200 (29)
100C (212F)			100 (14)
Hardness , Shore D	ISO 868		
15s			51
Maximum			55
Tensile Impact Strength	ISO 8256	kJ/m2	200
Notched Charpy Impact Strength	Iso 179/1eA	kJ/m2	
-40C (-40F)			148
-30C (-22F)			90
Shelf Life			10 years
Tempurature Range			-65F to to +275F
Color			Black

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.





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***“Let’s Make it Happen”***

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