



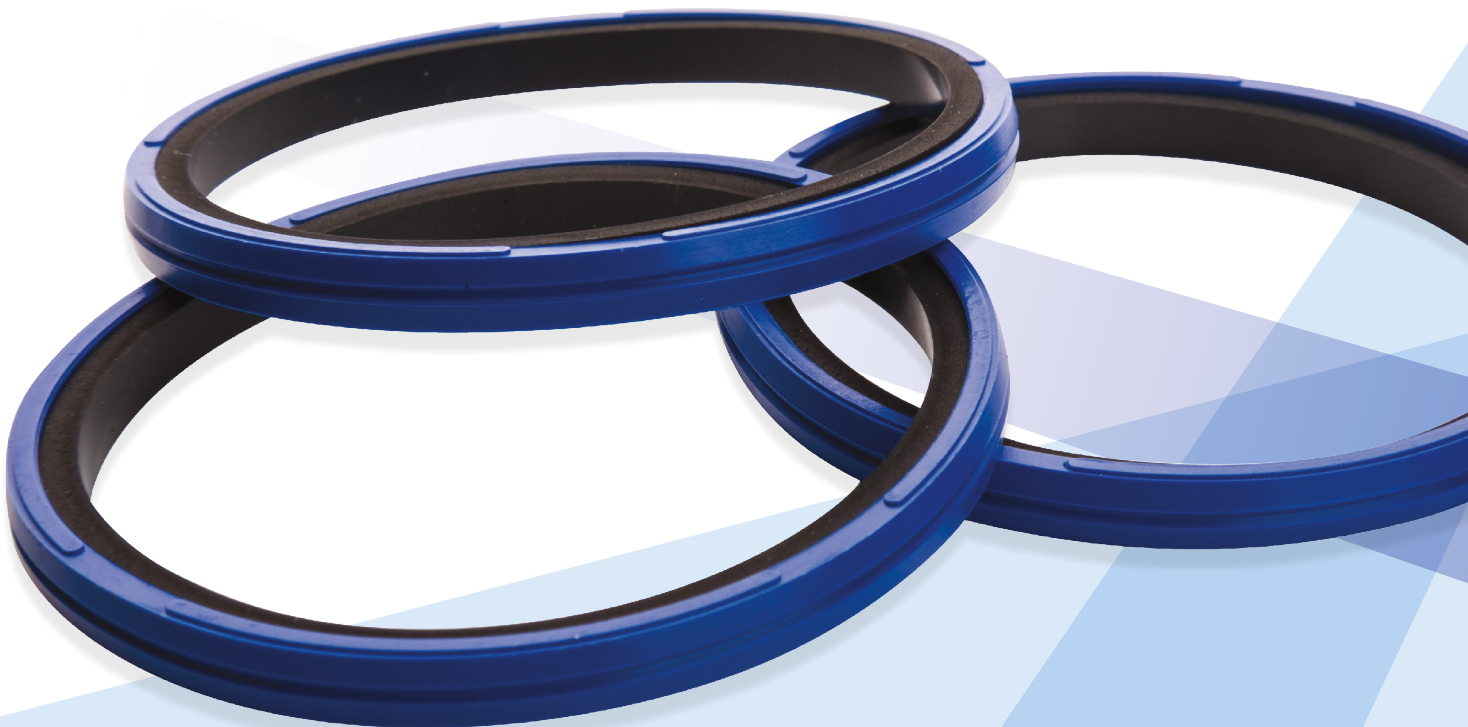
**ES&C**  
ENGINEERED SEALS & COMPONENTS, LLC.

PISTON SEALS  
**M-PAC**  
302 SERIES

**KEY FEATURES OF SERIES 302 M-PAC:**

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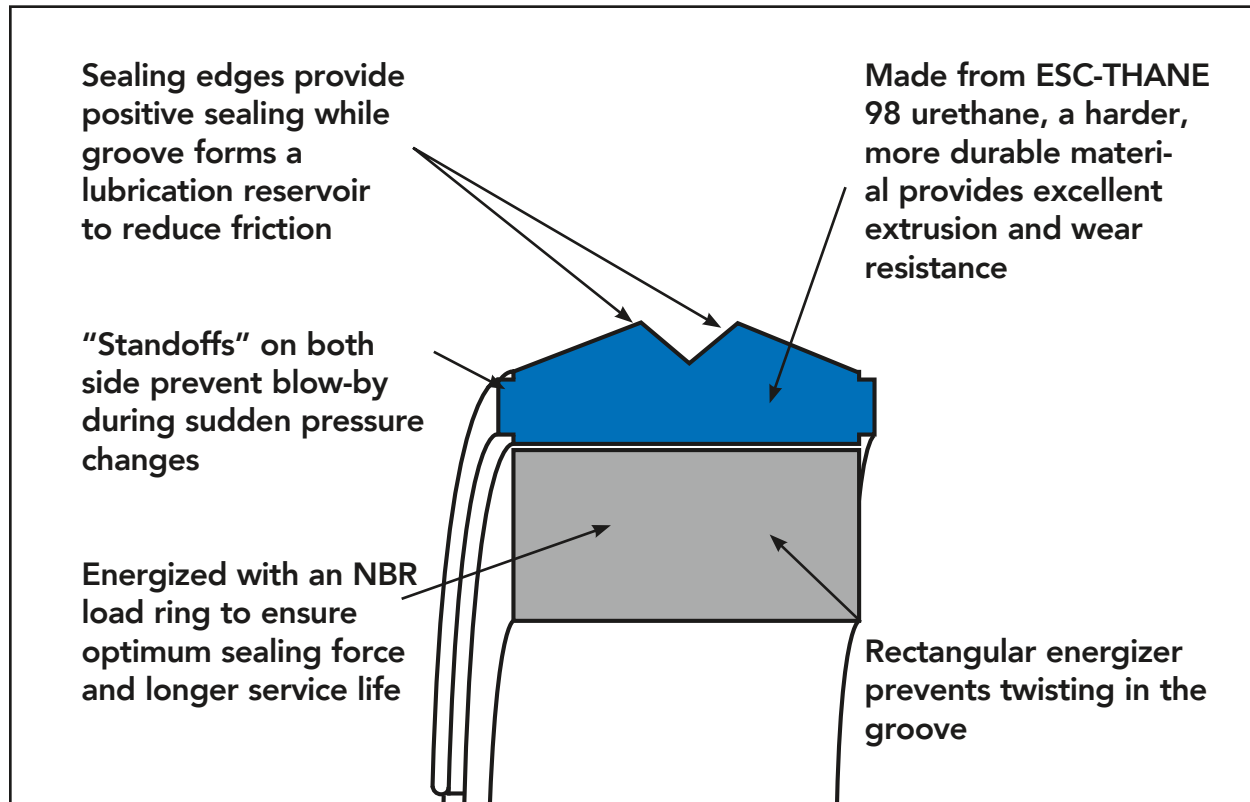
- 2 Piece Design for Maximum Performance
- Resists Twisting & Spiral Failure
- Easy to Install
- High Pressure Range
- Vented for Optimum Sealing
- Unique Seal Geometry
- Temperature Range: -40°F to +220°F
- NEW PPDI Compound -60F to +275F





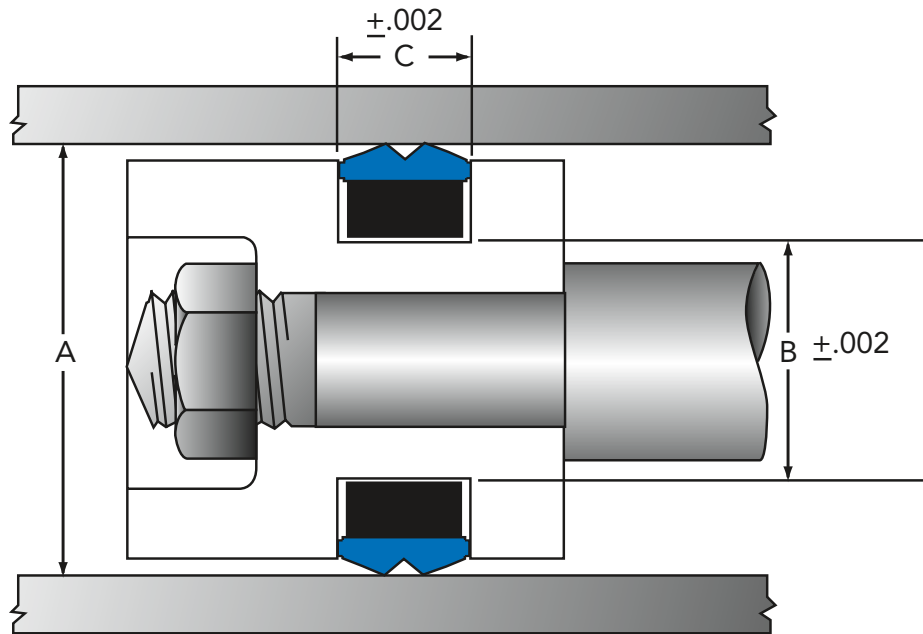
# PISTON SEALS M-PAC

## SERIES 302



- \* **UNIQUE SEAL GEOMETRY:** The geometry of the M-PAC Seal allows a fluid reservoir between the two points of the M (in between the two separate sealing surfaces). This provides extra lubrication for reduced breakaway and running friction. The rectangular load ring provide positive, no drift sealing in many cylinder applications.
- \* **RESISTS SPIRAL FAILURE:** M-PAC Seals are generally rectangular in cross section providing improved stability to resist cocking, twisting, sticking, and rolling.
- \* **EASY TO INSTALL:** Because of the unique 2 piece design, M-PAC Seals are a SNAP to install. No more resizing as is the case with many other types of seals.
- \* **FLUID PRESSURE RANGE:** ESC M-PAC Seals are rated to withstand pressure up to 5800 psi at recommended groove dimensions and tolerances.
- \* **FLUID & TEMPERATURE RANGE:** Temperature limits of -65° to +300° F can be attained with POLY-TREL. ESC-THANE compound has a range of -40° F to +220° F and is the standard compound.
- \* **VENTED:** This causes the seal to be more responsive to high speed pressure shifts.

This series has been designed to give you, the designer, maximum flexibility. The standard seal has been designed to replace an O-ring (without back-ups). This is a 2 piece unit. Because of the rectangular cross section design, this seal is very resistant to rolling or twisting. If you are replacing an O-ring and two back-ups, we recommend that you use the appropriate M-PAC Piston Seals and two 756-Series vented back-ups. The 302 Series is our most popular with medium duty cylinder applications.



## SERIES 302

Part No.	Nominal Dims. (inch)			A (inch)	B (inch)	C (inch)
	OD	ID	C/S			
302-210-187	1	3/4	1/8	1.000	0.758	0.187
302-214-187	1-1/4	1	1/8	1.250	1.008	0.187
302-218-187	1-1/2	1-1/4	1/8	1.500	1.258	0.187
302-222-187	1-3/4	1-1/2	1/8	1.750	1.508	0.187
302-326-281	2	1-5/8	3/16	2.000	1.630	0.281
302-328-281	2-1/4	1-7/8	3/16	2.250	1.880	0.281
302-330-281	2-1/2	2-1/8	3/16	2.500	2.130	0.281
302-332-281	2-3/4	2-3/8	3/16	2.750	2.380	0.281
302-334-281	3	2-5/8	3/16	3.000	2.630	0.281
302-336-281	3-1/4	2-7/8	3/16	3.250	2.880	0.281
302-338-281	3-1/2	3-1/8	3/16	3.500	3.130	0.281
302-340-281	3-3/4	3-3/8	3/16	3.750	3.380	0.281
302-342-281	4	3-5/8	3/16	4.000	3.630	0.281
302-344-281	4-1/4	3-7/8	3/16	4.250	3.880	0.281
302-346-281	4-1/2	4-1/8	3/16	4.500	4.130	0.281
302-348-281	4-3/4	4-3/8	3/16	4.750	4.380	0.281
302-350-281	5	4-5/8	3/16	5.002	4.630	0.281
302-427-375	5-1/4	4-3/4	1/4	5.252	4.778	0.375
302-429-375	5-1/2	5	1/4	5.502	5.028	0.375
302-431-375	5-3/4	5-1/4	1/4	5.752	5.278	0.375
302-433-375	6	5-1/2	1/4	6.002	5.528	0.375
302-435-375	6-1/4	5-3/4	1/4	6.252	5.778	0.375
302-437-375	6-1/2	6	1/4	6.502	6.028	0.375
302-438-375	6-3/4	6-1/4	1/4	6.752	6.278	0.375
302-439-375	7	6-1/2	1/4	7.002	6.528	0.375

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



# SERIES 302 M-PAC STANDARD COMPOUND

## ESC-thane Compound U98-BLU

TPU thermoplastic polyester urethane

Property	Test Method	Units	Value
<b>Mechanical</b>			
Tensile Modulus	DIN 53.479	MPa (psi)	
@50% Elongation			–
@100% Elongation			11
@300% Elongation			19
Tensile Strength	DIN 53.504	MPa (psi)	35
Ultimate Elongation		%	400
Elongation at Break	DIN 53.504	%	600
Tear Strength, Die "C"	DIN 53.515	KN/m (PSI)	150
Compression Set	ASTM D395B		
22 hours at 25 C (77 F)		%	35
22 hours at 70 C (158 F)		%	44
Hardness , Shore A	DIN 53.505		98A / 52D
Taber Abrasion Resistance	DIN 53.516	mm 3	25
Tg		F	-37
Vicat Softening point	ASTM D1525	F	257
Useful Temperature Range			-40F to 250F
Reinforcement	NO		
Color			BLUE

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.





**ESC**

ENGINEERED SEALS & COMPONENTS, LLC.

ENGINEERED SEALS & COMPONENTS  
***“Let’s Make it Happen”***

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