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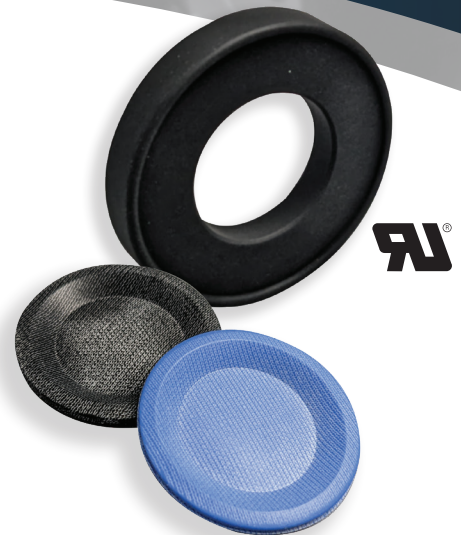
UL ELASTOMERS For Fuel Handling

Custom Molded Rubber
O-Rings
Fabric Reinforced Diaphragms
Rubber-To-Metal / Plastic

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Seal Standards Within The UL Retail Fuel Handling Industry



Underwriter Laboratories

UL stands for Underwriter Laboratories, a third-party certification company that's been around for over a century. They certify products with the aim to make the world a safer place for both workers and consumers. Besides testing, they set industry standards to follow when innovating new products.

Regulatory & Standards Compliance

UL2586 - Standard for Hose Nozzle Valves

- **UL2586A** for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)
- **UL2586B** for Diesel Fuel, Bio-diesel Fuel, Diesel/Bio-diesel Blends with Nominal Bio-diesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil
- **UL2586C** for Power-Operated Dispensing Devices for Diesel Exhaust Fluid

UL87 - Standard for Power-Operated Dispensing Devices for Petroleum Products

- **UL87A** for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)
- **UL87B** for Diesel Fuel, Bio-diesel Fuel, Diesel/Bio-diesel Blends with Nominal Bio-diesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil
- **UL87C** for Power-Operated Dispensing Devices for Diesel Exhaust Fluid

UL 50E - Enclosures for Electrical Equipment, Environmental Considerations

- Cellular gasket materials rated "UL 50E (continuous compression)" have been investigated for use where they are under compression over the life of their use (e.g., gaskets used in pilot lights, pushbuttons, selector switches, viewing windows, disconnect operators).
- Cellular gasket materials rated "UL 50E (periodic recompression)" comply with UL 50E Compression Test requirements. They may be used in continuous compression applications, but have additionally been investigated for use where they are subject to prolonged periods of compression followed by occasional, short periods of relaxation where the seal provided by the gasket may be broken during the life of the application and, after each such occurrence, the gasket is expected to provide the same seal when recompressed (e.g., gaskets used as the sealing means in the perimeter of doors and covers).
- Solid (noncellular) gasket materials rated "UL 50E" are considered suitable for either continuous compression or periodic recompression applications.

UL 157 "Gaskets & Seals" Recognitions

Code	End-Use Application
A	Extinguishing agents
B	Gasoline
C	Gasoline / Alcohol blends up to 15% alcohol
D	Naptha or kerosene
E	MPS gas
F	Manufactured gas or natural gas
G	Diesel fuel, fuel oil or lubricating oil
H	Heated fuel oil
I	Anhydrous ammonia
J	Liquefied petroleum gas (LP-gas)
K	Dry-cleaning agents
L	Laundry detergents
M	Dishwashing detergents
N	Atmospheric ozone
O	Generated ozone
(c)	Complementary Recognized under HMY2. MH26295



UL RECOGNIZED MATERIALS

Engineered Seal Products offers a wide variety of UL recognized rubber compounds to meet the critical demands and varying applications within the fuel handling market. Whether our own, or solutions from our supplier partners, we have the expertise to match the standards for hose, nozzle, valves and power-operated dispensing devices for petroleum products.



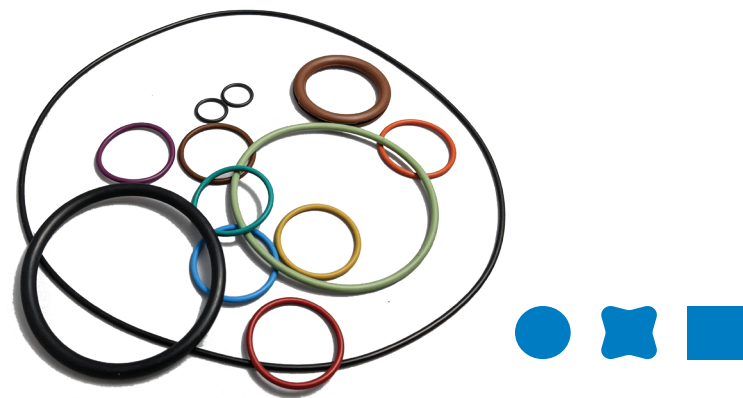
CUSTOM MOLDED RUBBER

Maximum design flexibility combined with a wide variety of material options provide engineered solutions that meet the most demanding requirements.

UL Fueling Applications

- Nozzles
- Pumps
- Valves
- Meters
- Piping
- Lighting Devices
- Electronic Devices
- Vibration Isolation
- Protection
- Fluid/Air Transfer

- ☑ Static
- ☑ Dynamic



O-RINGS, QUAD RINGS, SQUARE RINGS

The industry standard for sealing technology that is low cost, versatile and provides the best value in sealing applications.

UL Fueling Applications

- Nozzles
- Pumps
- Valves
- Meters
- Piping
- Lighting Devices
- Electronic Devices

- ☑ Static
- ☑ Dynamic
- ☑ Standard
- ☑ Custom



FABRIC REINFORCED DIAPHRAGMS

Custom compression molded and calendared diaphragm material for a wide variety of applications including isolation, pressure sensing and sealing. Available in rolling and flat diaphragm designs molded R1S and R2S. Unreinforced diaphragm material is also available.

UL Fueling Applications

- Nozzles
- Regulators
- Pumps
- Actuators
- Meters
- Control Valves

- ☑ Static
- ☑ Dynamic



RUBBER-TO-METAL & RUBBER-TO-PLASTIC OVER-MOLDING

Over-molding offers design flexibility, space savings and cost savings by reducing parts and assembly time. Our capabilities include rubber over-molding to both metallic and plastic substrates with a variety of UL elastomers. Typical product designs include poppets, gasketing, check valves, and valve stems.

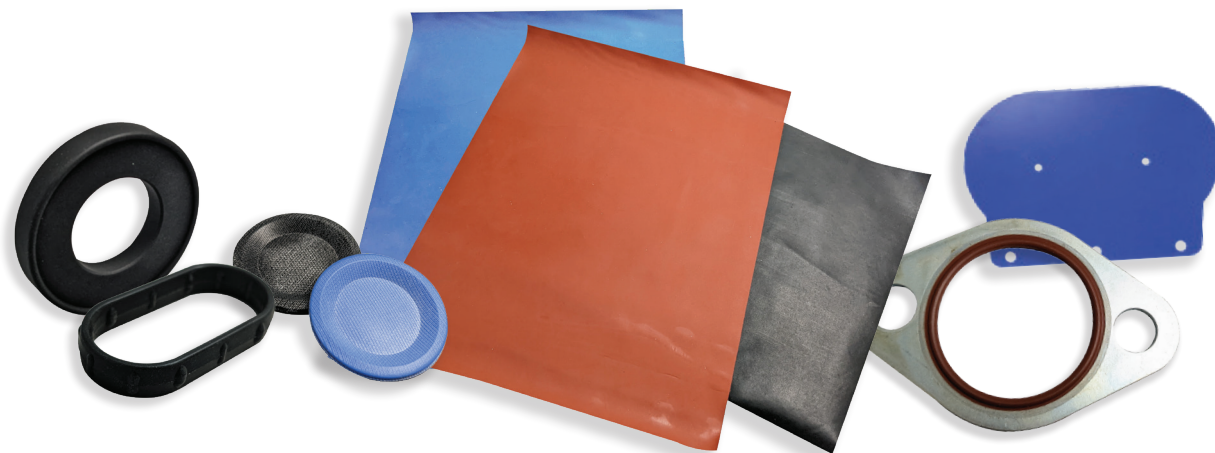
UL Fueling Applications

- Piping
- Lighting Devices
- Electronic Devices
- Vibration Isolation
- Protection
- Fluid/Air Transfer

UL 157 Material Matrix

		Brand	Compound	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
NBR	Engineered Seal Products		N8008	•	•	•	•		•	•			•					
	Parker O-Ring		N0497-70		•	•	•		•	•			•					
	Parker O-Ring		N1500-75		•	•	•		•	•			•					
	Parker O-Ring		N1502-70		•	•	•											•
	Parker O-Ring		NF162-65		•	•	•		•	•	•			•				
	Parker O-Ring		NF265-80		•	•	•		•	•				•				
	Parker O-Ring		NL288-70		•	•	•		•	•	•			•				
FKM	Engineered Seal Products		V8090		•	•	•		•	•								
	Engineered Seal Products		V8091		•	•	•		•	•	•		•					
	Parker O-Ring		V0747-75		•	•	•		•	•	•		•					
	Parker O-Ring (obsolete)		V0884-75		•	•	•		•	•								
	Parker Hannifin		V1163-75		•	•	•		•	•			•					
	Parker O-Ring (obsolete)		V1226-75		•	•	•		•	•								
	Parker O-Ring		V1237-65		•	•	•		•	•			•					
	Parker O-Ring		V1262-65		•	•	•		•	•								
	Parker O-Ring		V1263-75		•	•	•		•	•								
	Parker O-Ring		V1264-90		•	•	•		•	•								
	Parker O-Ring		V1436-75	•	•	•	•		•	•	•		•					
	Parker O-Ring		VA151-75		•	•	•		•	•	•		•					
	Parker O-Ring		VG273-75 (c)		•	•	•		•	•	•		•					
	Parker O-Ring (obsolete)		VM100-75		•	•	•		•	•	•		•					
	Parker O-Ring		VA075-75		•	•	•		•	•	•		•					
Parker O-Ring		VW076-75		•	•	•		•	•	•		•						
Freudenberg-NOK		V121		•	•	•		•	•	•		•						
Freudenberg-NOK		V123		•	•	•		•	•	•		•						
Freudenberg-NOK		V75	•	•	•	•		•	•	•		•						
Freudenberg-NOK		V75BR		•	•	•		•	•	•		•						
FVMQ	Engineered Seal Products		L8090		•	•	•		•	•			•					
	Parker O-Ring		L1120-70		•	•	•		•	•	•		•					
	Parker O-Ring		L1465-70		•	•	•		•	•								
	Parker O-Ring		LM100-70		•	•	•		•	•	•		•					
VMQ	Engineered Seal Products		S8082												•	•	•	•
	Parker O-Ring		S7395-60															
	Parker O-Ring		S7442-40															•

The final acceptance of a gasket material in a specific end-use application is dependent on its installation and use, and may require additional evaluation with respect to ingress or leakage of solids (such as dusts), liquids or gases, or other features dependent on the design and construction of the equipment in which it is used.



MATERIALS: UL Tested Physical Properties

Brand	Compound	File Number	Temperature Range (°C)	Hardness Range	Tensile Str (psi)	Elong (%)	Max Comp Set (%)	Max Tensile Set (%)
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NITRILE (NBR)

Engineered Seal Products	N8008	MH65940	-40 to 60	69 to 79	1599	294	8.8	1
	USE: A(Water, Dry Chemical), B, C(Ethanol), D, F, G, J Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B 100% (B100) biodiesel fuel or diesel/biodiesel fuel blends with nominal biodiesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable as gasket material for use in UL 778 - Motor Operated Water Pumps (temperature rise: 35 or less°C)							
Parker O-Ring	N0497-70	MH25709	-40 to 60	69 to 79	1836	340	11.1	0
	USE: B, C(Ethanol), D, F, G, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for use with Gasoline/Alcohol blends up to 15% Methanol							
Parker O-Ring	N1500-75	MH25709	-40 to 60	72 to 82	1610	300	8.8	1
	USE: B, C(Ethanol), D, F, G, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B 100% (B100) bio-diesel fuel or diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for use with MTBE/gasoline blends containing up to 100% MTBE Suitable for use with Gasoline/Alcohol blends up to 15% Methanol							
Parker O-Ring	N1502-70	MH25709	-40 to 60	71 to 81	1383	283	7.4	0
	USE: B, C(Ethanol), D, O Suitable for use with Gasoline/Alcohol blends up to 15% Methanol							
Parker O-Ring	NF162-65	MH25709	-40 to 70	60 to 70	1540	310	25	2
	USE: B, C(Ethanol), D, F, G, H, J Suitable for use with MTBE/gasoline blends containing up to 100% MTBE Suitable as gasket material for use in UL 262 - Gate Valves for Fire-Protection Service							
Parker O-Ring	NF265-80	MH25709	-40 to 60	79 to 89	1350	175	19.4	6
	USE: B, C (Ethanol), D, G Suitable for use with MT8E/gasoline blends containing up to 20% MT8E Suitable for use with Gasoline/Alcohol blends up to 15% Methanol							
Parker O-Ring	NL288-70	MH25709	-40 to 60	65 to 75	1800	360	6.6	32
	USE: B, D, F, G, H, J							

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MATERIALS: UL Tested Physical Properties

Brand	Compound	File Number	Temperature Range (°C)	Hardness Range	Tensile Str (psi)	Elong (%)	Max Comp Set (%)	Max Tensile Set (%)
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FLUOROCARBON (FKM)

Engineered Seal Products	V8090	MH65940	-60 to 200	68 to 78	2035	183	16.9	0
	USE: B, C(Ethanol), D, G Suitable for UL 50E continuous compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion Suitable for UL 87A and UL 2586A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B and UL 2586B diesel/biodiesel fuel blends with nominal biodiesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C and UL 2586C diesel exhaust fluids for static and dynamic applications							
Engineered Seal Products	V8091	MH65940	-40 to 200	75 to 85	2278	201	5.3	4
USE: B, C(Ethanol), D, F, G, H, J Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion								
Parker O-Ring	V0747-75	MH25709	-40 to 60	70 to 80	1740	170	8.3	3
USE: B, D, F, G, H, J								
Parker Hannifin	V1163-75	MH47018	-40 to 60	71 to 81	1894	238	17	3
	USE: B, C(Ethanol), D, F, G, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C diesel exhaust fluids for static and dynamic applications Suitable for use with ETBE/gasoline blends containing up to 20% ETBE Suitable for use with MTBE/gasoline blends containing up to 20% MTBE Suitable for use with TAME/gasoline blends containing up to 20% TAME							
Parker O-Ring	V1237-65	MH25709	-26 to 200	64 to 74	1990	270	14.8	6
USE: B, C(Ethanol), D, F, G, J Suitable for use with ETBE/gasoline blends containing up to 20% ETBE Suitable for use with MTBE/gasoline blends containing up to 20% MTBE Suitable for use with TAME/gasoline blends containing up to 20% TAME								
Parker O-Ring	V1262-65	MH25709	-40 to 105	62 to 72	1689	276	9.3	3
USE: B, C(Ethanol), D, G Suitable for use with Gasoline/Alcohol blends up to 15% Methanol								
Parker O-Ring	V1263-75	MH25709	-40 to 105	72 to 82	1970	255	18.5	3
USE: B, C(Ethanol), D, G Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C diesel exhaust fluids for static and dynamic applications Suitable for use with Gasoline/Alcohol blends up to 15% Methanol								

MATERIALS: UL Tested Physical Properties

Brand	Compound	File Number	Temperature Range (°C)	Hardness Range	Tensile Str (psi)	Elong (%)	Max Comp Set (%)	Max Tensile Set (%)
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FLUOROCARBON (FKM) - Continued

Parker O-Ring	V1264-90	MH25709	-40 to 105	82 to 92	2124	143	29.8	4
USE: B, C(Ethanol), D, G Suitable for use with Gasoline/Alcohol blends up to 15% Methanol Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications								
Parker O-Ring	V1436-75	MH25709	-40 to 105	65 to 75	2105	225	6.2	3
USE: A(Water, Dry Chemical), B, D, F, G, H, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications								
Parker O-Ring	VA151-75	MH25709	-40 to 195	68 to 78	1700	170	4	3
USE: B, D, F, G, H, J								
Parker O-Ring	VG273-75 (C)	MH25709	-40 to 60	70 to 80	2050	200	9.2	4
USE: B, C(Ethanol), D, F, G, H, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 25% (E25) for static and dynamic applications Suitable for use with MTBE/gasoline blends containing up to 20% MTBE Suitable for use with Gasoline/Alcohol blends up to 15% Methanol								
Parker O-Ring	VA075-75	MH25709	-40 to 150	75 to 85	2212	175	8	3.7
USE: B, C(Ethanol), D, F, G, H, J Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion								
Parker O-Ring	VW076-75	MH25709	-40 to 150	70 to 80	1875	195	6	3.7
USE: B, C(Ethanol), D, F, G, H, J Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion								
Freudenberg -NOK	V121	MH16378	-30 to 105	75 to 85	1950	270	11.1	10
USE: B, C(Ethanol), D, F, G, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for use with MTBE/gasoline blends containing up to 15% MTBE Suitable for use with Gasoline/Alcohol blends up to 15% Methanol								
Freudenberg -NOK	V123	MH16378	-40 to 105	75 to 85	2500	130	13.1	0
USE: B, C(Ethanol), D, F, G, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for use with ETBE/gasoline blends containing up to 20% ETBE Suitable for use with MTBE/gasoline blends containing up to 20% MTBE Suitable for use with TAME/gasoline blends containing up to 17% TAME Suitable for use with Gasoline/Alcohol blends up to 15% Methanol								
Freudenberg -NOK	V75	MH16378	-40 to 105	75 to 85	1850	200	5.7	3
USE: A(Water, Dry Chemical, Halon), B, D, F, G, H, J								
Freudenberg -NOK	V75BR	MH16378	-30 to 105	73 to 83	1750	220	4.6	3
USE: B, D, G								



MATERIALS: UL Tested Physical Properties

Brand	Compound	File Number	Temperature Range (°C)	Hardness Range	Tensile Str (psi)	Elong (%)	Max Comp Set (%)	Max Tensile Set (%)
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FLUOROSILICONE (FVMQ)

Engineered Seal Products	L8090	MH65940	-55 to 80	63 to 73	1107	215	4	3
	USE: B, C(Ethanol), D, G Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion Suitable for UL 87A and UL 2586A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B and UL 2586B 100% (B100) biodiesel fuel or diesel/biodiesel fuel blends with nominal biodiesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C and UL 2586C diesel exhaust fluids for static and dynamic applications							
Parker O-Ring	L1120-70	MH25709	-54 to 60	66 to 76	880	180	5.6	8
	USE: B, C (Ethanol), D, F, G, H, J Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C diesel exhaust fluids for static and dynamic applications Suitable for use with Gasoline/Alcohol blends up to 15% Methanol							
Parker O-Ring	L1465-70	MH25709	-55 to 80	63 to 73	1107	215	4	3
	USE: B, C (Ethanol), D, G Suitable for UL SOE continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion Suitable for UL 87A and UL 2586A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for static and dynamic applications Suitable for UL 87B and UL 2586B 100% (B100) bio-diesel fuel or diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C and UL 2586C diesel exhaust fluids for static and dynamic applications							
Parker O-Ring	LM100-70	MH25709	-54 to 60	67 to 77	1315	191	3.52	5.7
	USE: B, D, F, G, H, J Suitable for UL SOE continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6 and 6P Suitable for UL 87A gasoline/ethanol blends with ethanol concentrations up to 85% (E85) for dynamic applications Suitable for UL 87B diesel/bio-diesel fuel blends with nominal bio-diesel fuel concentrations up to 20% (B20) for static and dynamic applications Suitable for UL 87C diesel exhaust fluids for static and dynamic applications							

SILICONE (VMQ)

Engineered Seal Products	S8082	MH65940	-65 to 135	63 to 73	895.7	211.7	6.8	0
	USE: L, M, N, O Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6, 6P, 12, 12K and 13 including oil immersion							
Parker O-Ring	S7395-60	MH25709	-65 to 75	53 to 63	550	235	4.2	0
	USE: Suitable for UL 50E continuous compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6 and 6P							
Parker O-Ring	S7442-40	MH25709	-55 to 75	39 to 49	1160	405	26	0
	USE: N							



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