

Parco

1933-70 Fluorosilicone Seals

Need Seals to Meet AMS-R-25988?

1933-70 Meets Your Needs

1. Exceeds AMS-R-25988 and MIL-DTL-25988

Seals made from Parco's 70-durometer fluorosilicone compound 1933-70 exceed the requirements of AMS-R-25988 and MIL-DTL-25988 (see test report on reverse side). Parco supplies seals to 65 military and aerospace specifications. We are also one of only a few manufacturers approved to supply Qualified Products List (QPL) rubber seals. Our quality system is certified to ISO/TS 16949 and AS9100. So when you specify 1933-70, rest assured that you've made the right choice.

2. Excellent Performance at Low Temperatures

Our 1933-70 seals can be used in static applications with continuous service temperatures as low as -90°F. The American Society for Testing and Materials (ASTM) recommends the temperature retraction (TR-10) test to evaluate rubber for low-temperature service. Our laboratory technicians performed a TR-10 test on our 1933-70 material. After stretching O-rings made from our 1933-70 compound 50 percent in freezing temperatures, we gradually raised the temperature. The O-rings retracted 10 percent at the low temperature of -82°F. The temperature at which rubber retracts 10 percent approximates the material's low service temperature. The

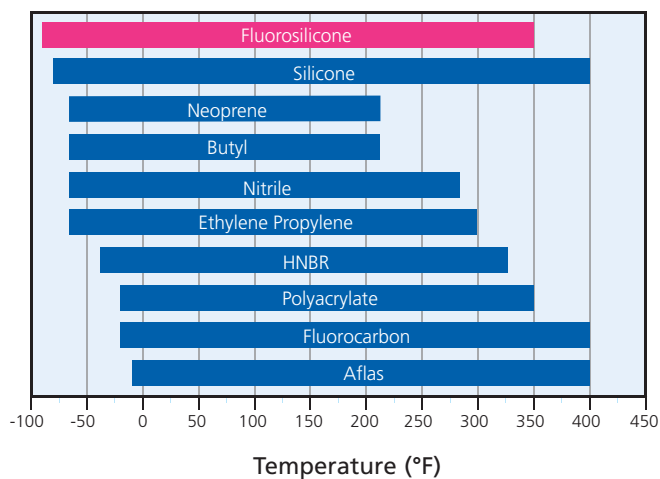
excellent low-temperature properties of 1933-70 seals enable them to resist cracking in low-temperature applications (see Figure 1).

3. Outstanding Resistance to Compression Set

To perform properly, most seals must resist taking a set from compression after being installed. When a seal takes a set, it no longer exerts force on the mating surfaces, resulting in leakage. A compound with low compression set, like 1933-70, better maintains its elastomeric properties and original thickness, preserving seal integrity. Seals made from Parco's 1933-70 compound provide excellent resistance to compression set. After testing 1933-70 for 22 hours at 347°F, it had compression set of only four percent.

Fig. 1:

Service Temperatures of Popular Elastomers¹



¹Compounding affects performance at both high and low temperatures. Not all compounds of a given elastomer have the same temperature range. The bars above show the temperature range of the compounds in each elastomer.

Key Features

Parco's 1933-70 fluorosilicone seals are an excellent choice for use in applications at low temperatures and high pressures. Key features include the following:

- **Meets military and aerospace specifications:**
Parco 1933-70 seals exceed the requirements of AMS-R-25988 and MIL-DTL-25988.
- **Excellent performance at low temperatures:**
Parco 1933-70 seals can be used in static applications with continuous service temperatures as low as -90°F.
- **Outstanding resistance to compression set:**
Parco 1933-70 seals have compression set of only 4 percent after 22 hours at 347°F.
- **Wide range of service temperatures:**
Parco 1933-70 seals are suitable for applications ranging from -90 to +350°F.
- **Color:**
Parco 1933-70 seals are blue.

Typical Values for Compound 1933-70 70-durometer fluorosilicone for AMS-R-25988

Section of Spec.	Physical Property	Requirement ¹	Typical Value	ASTM ² Test Method
	Original Properties			
Z1	Hardness, Shore A	70 ± 5	67	D2240
	Tensile strength, MPa (psi), min.	6(870)	7(1043)	D412
	Ultimate elongation, pct., min.	150	150	D412
Z2	Modulus at 100 pct., elongation, psi, min.	Report	695	D412
	Compression Set			
Basic	22 hours at 175°C (347°F) Pct. of original deflection, max.	50	4	D395 Method B
	Heat Aging			
A19	70 hours at 225°C (437°F) Hardness change, pts., Shore A, max.	15	0	D573
	Tensile strength change, pct., max.	-45	-27	
	Ultimate elongation change, pct., max.	-45	-5	
	Fluid Aging, Fuel C			
EF31	70 hours at 23°C (73°F) Hardness change, pts., Shore A	-15 to 0	-14	D471
	Tensile strength change, pct., max.	-60	-26	
	Ultimate elongation change, pct., max.	-50	-25	
	Volume change, pct.	0 to 25	22	
	Fluid Aging, IRM³ 903 Oil			
EO36	70 hours at 150°C (302°F) Hardness change, pts., Shore A	-10 to 0	-9	D471
	Tensile strength change, pct., max.	-35	-13	
	Ultimate elongation change, pct., max.	-30	3	
	Volume change, pct.	0 to 10	5	
	Low Temperature Properties			
F19	Nonbrittle after 3 minutes at -55°C (-67°F)	Pass	Pass	D2137
Z3	TR-10 °C (°F)	-56.7(-70)	-63(-82)	D1329

¹Compound 1933-70 meets the requirements shown above for ASTM D2000 M2FK606 A19 EF31 EO36 F19 Z1 Z2 Z3. Compound 1933-70 also meets the requirements for Aerospace Material Specification AMS-R-25988 and MIL-DTL-25988, *Rubber, Fluorosilicone Elastomer, Oil and Fuel-Resistant, Sheets, Strips, Molded Parts, and Extruded Shapes*. ²ASTM is the acronym for the American Society for Testing and Materials. ³IRM is the acronym for Industry Reference Material.

Source: Parco Test Reports and R & D Data.

Parco

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