

Parco

# 9009-90 Fluorocarbon Seals

## Need 90-Durometer FKM Seals with Excellent Resistance to Compression Set?

### 9009-90 Meets Your Needs

#### 1. Excellent Resistance to Compression Set

When installed, 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 our 90-durometer fluorocarbon compound 9009-90, better maintains its elastomeric properties and original thickness, preserving seal integrity. Seals made from Parco's 9009-90 compound provide excellent resistance to compression set at higher temperatures (see Figure 1). After testing 9009-90 for 22 hours at 392°F, it had a compression set of only 7 percent.

#### 2. Outstanding Resistance to Fuel

Parco's 9009-90 seals offer outstanding performance in fuel, including gasoline and diesel. Exposure to such fluids can cause seals to swell significantly. Our 9009-90 seals had volume swell of only 2 percent after 70 hours at 73°F in Reference Fuel C.

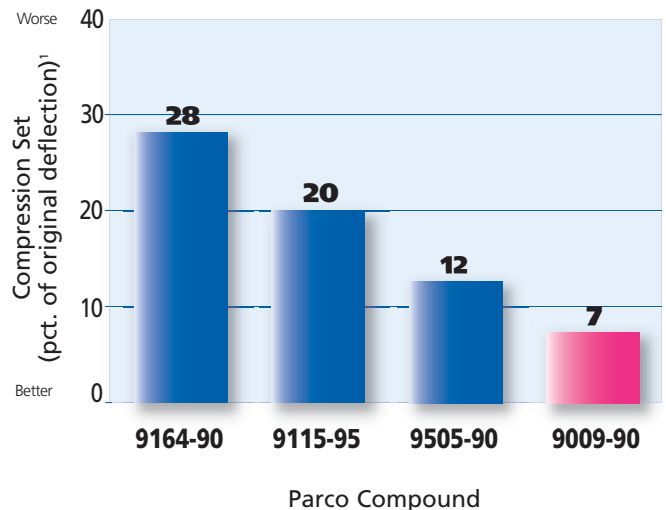
#### 3. Exceeds AMS 7259

Seals made from our 9009-90 compound exceed the requirements of Aerospace Material

Specification (AMS) 7259 (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 9009-90, rest assured that you've made the right choice.

Fig. 1:

**Compression Set of Typical Parco High Durometer FKM Compounds**



<sup>1</sup>Compression set calculated after 22 hours at 200°C (392°F).  
Source: Parco Test Reports.

*Parco seals made from 9009-90 have excellent resistance to compression set. At 7 percent, 9009-90 outperforms other high durometer fluorocarbon compounds.*

## Key Features

Parco's 9009-90 fluorocarbon seals are ideal for a variety of oil field and aerospace applications. Key features include the following:

- **Excellent resistance to compression set:**  
Parco 9009-90 seals have a compression set of only 7 percent after 22 hours at 392°F.
- **Outstanding resistance to fuel, including gasoline and diesel:**  
Parco 9009-90 seals have volume swell of only 2 percent after 70 hours at 73°F in Reference Fuel C.
- **Meets popular aerospace specification:**  
Parco 9009-90 seals exceed the requirements of AMS 7259.
- **Wide range of service temperatures:**  
Parco 9009-90 seals are suitable for applications ranging from -20 to +400°F.

## Typical Values for Compound 9009-90 90-durometer fluorocarbon for AMS 7259

Section of Spec.	Physical Property	Requirement <sup>1</sup>	Typical Value	ASTM <sup>2</sup> Test Method
Z1	<b>Original Properties</b>			
	Hardness, Shore A	90 ± 5	89	D2240
	Tensile strength, MPa (psi), min.	10(1450)	16.8(2437)	D412
	Ultimate elongation, pct., min.	100	139	D412
Basic	<b>Fluid Aging, IRM<sup>3</sup> 903 Oil</b>			
	<b>70 hours at 150°C (302°F)</b> Volume change, pct.	10	1	D471
A1-11	<b>Heat Aging</b>			
	<b>70 hours at 250°C (482°F)</b>			
	Hardness change, pts., Shore A, max.	10	1	D573
	Tensile strength change, pct., max.	-25	-5	
Ultimate elongation change, pct., max.	-25	-3		
B38	<b>Compression Set, Plied</b>			D395 Method B
	<b>22 hours at 200°C (392°F)</b> Pct. of original deflection, max.	50	7	
EF31	<b>Fluid Aging, Fuel C</b>			
	<b>70 hours at 23°C (73°F)</b>			
	Hardness change, pts., Shore A	±5	-3	D471
	Tensile strength change, pct., max.	-25	-1	
	Ultimate elongation change, pct., max.	-20	7	
Volume change, pct.	0 to 10	2		
EO78	<b>Fluid Aging, Service Liquid No. 101</b>			
	<b>70 hours at 200°C (392°F)</b>			
	Hardness change, pts., Shore A	-15 to 5	-7	D471
	Tensile strength change, pct., max.	-40	-13	
	Ultimate elongation change, pct., max.	-20	-13	
Volume change, pct.	0 to 15	8		
Z2	<b>Low Temperature Property</b> TR-10 °C (°F)	Report	-18(0)	D1329

<sup>1</sup>Compound 9009-90 meets the requirements shown above for ASTM D2000 M3HK910 A1-10 B38 EF31 EO78 Z1 Z2.

Compound 9009-90 also meets the requirements for Aerospace Material Specification AMS 7259, *Rings, Sealing, Fluorocarbon (Fkm) Rubber High-Temperature-Fluid Resistant Low Compression Set 85 to 95*. <sup>2</sup>ASTM is the acronym for the American Society for Testing and Materials. <sup>3</sup>IRM is the acronym for Industry Reference Material.

Source: Parco Test Report 7754A and R & D Data.

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