

Parco

2269-90 HNBR Seals

Need Extrusion Resistant HNBR Seals?

2269-90 Meets Your Needs

1. Superior Resistance to Extrusion

Modulus indicates the amount a seal resists deforming under stress. A seal with high modulus is more extrusion resistant than a seal with low modulus. Seals made from Parco's 90-durometer hydrogenated nitrile (HNBR) compound 2269-90 are ideal for high-pressure oil field applications that cannot use contoured back-up rings (see Figure 1). At 100 percent elongation, seals made from Parco's 90-durometer compound have a modulus of 3,800 psi.

2. Outstanding Resistance to Oils at High Temperatures

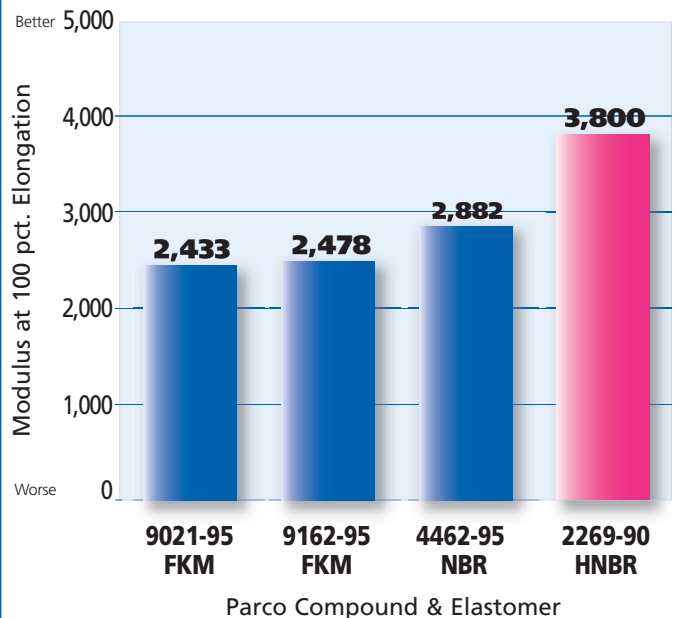
Exposure to oils can cause seals to swell significantly. High temperatures can also cause seals to undergo irreversible chemical changes, reducing resistance to compression set. Parco's 2269-90 seals offer outstanding resistance to oils at high temperatures. After testing 2269-90 in Industry Reference Material (IRM) 903 oil for 70 hours at 302°F, its volume swell was 14 percent.

3. Excellent Resistance to Compression Set

To perform properly, 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 2269-90, better maintains its elastomeric properties and original thickness, preserving seal integrity. Seals made from Parco's 2269-90 compound provide excellent resistance to compression set at higher temperatures. After testing 2269-90 for 70 hours at 257°F, it had a compression set of only 13 percent.

Fig. 1: Extrusion Resistance of Typical Parco High-Durometer Compounds



Source: Parco R & D Data.

Seals made from 2269-90 have superior extrusion resistance compared to other high-durometer Parco compounds.

Key Features

Parco's 2269-90 HNBR seals are an excellent choice for high-pressure applications. Key features include the following:

- Superior resistance to extrusion:**
 Parco 2269-90 seals have a modulus at 100 percent elongation of 3800 psi.
- Outstanding resistance to oil at high temperatures:**
 Parco 2269-90 seals have volume swell of 14 percent in IRM 903 oil after 70 hours at 302°F.
- Excellent resistance to compression set:**
 Parco 2269-90 seals have a compression set of only 13 percent after 70 hours at 257°F.
- Wide range of service temperatures:**
 Parco 2269-90 seals are suitable for applications ranging from -30 to +300°F.

Typical Values for Compound 2269-90 90-durometer HNBR

Section of Spec.	Physical Property	Requirement ¹	Typical Value	ASTM ² Test Method
Z1	Original Properties			
	Hardness, Shore A	90 ± 5	95	D2240
	Tensile strength, MPa (psi), min.	10(1450)	27.1(3935)	D412
	Ultimate elongation, pct., min.	100	104	D412
	Modulus at 100 pct., elongation psi	Report	3800	D412
A25	Heat Aging			
	70 hours at 125°C (257°F)			D865
	Hardness change, pts., Shore A	0 to 15	0	
	Tensile strength change, pct., max.	-25	-10	
	Ultimate elongation change, pct., max.	-50	-25	
Z2	Compression Set			D395 Method B
	70 hours at 125°C (257°F)			
	Pct. of original deflection, max.	35	13	
EO36	Fluid Aging, IRM³ 903 Oil			
	70 hours at 150°C (302°F)			D471
	Hardness change, pts., Shore A	±10	-6	
	Tensile strength change, pct., max.	-35	-10	
	Ultimate elongation change, pct., max.	-35	-12	
	Volume change, pct.	0 to 25	14	

¹Compound 2269-90 meets the requirements shown above for ASTM D2000 M3CH910 A25 EO36 Z1 Z2.

²ASTM is the acronym for American Society for Testing and Materials.

³IRM is the acronym for Industry Reference Material.

Source: Parco Test Report 7248A and R & D Data.

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