FF400-80

Low Temperature Parker ULTRA®

Developed for Low Temperature, HPHT and RGD:

Exploration and production technology advancements are creating a new series of challenges for seal materials in the Oil and Gas industry. Seals are now being pushed to perform in temperature and pressure extremes never seen before in the rubber industry. Application pressures exceeding 25k psi and service temperatures ranging from -40°F to 527°F are placing immense amounts of stress on sealing elements. Exposure to aggressive down hole fluids and production wells with elevated levels of hydrogen sulfide (H_2S) require excellent chemical resistance. High pressure gaseous applications with excessive decompression rates can cause elastomers to rupture at a moment's notice.

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Product Features:

- Temperature range -40° to 527° F
- Excellent low temperature
- Excellent compression set resistance
- RGD resistant per ISO 23936-2 and TOTAL GS EP PVV 142
- H_2S resistant per ISO 23936-2 (10%)
- HTHP applications
- Maintained resilience at high pressures and low temperatures

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Parker's FF400-80 compound has been formulated to provide a solution to all of these sealing challenges.

A best in class TR-10 temperature of -22°F gives Parker's FF400-80 low temperature performance never seen before from a perfluoroelastomer (FFKM). The FF400-80 offers low temperature capability approximately 45°F below a standard FFKM compound and has a recommended service temperature range of -40°F to 527°F. This low temperature flexibility can be extremely valuable for surface equipment such as valves which can be exposed to frigid cold in arctic environments.

The FF400-80 offers unprecedented Rapid Gas Decompression (RGD) resistance. This compound has been tested to and passed the ISO 23936-2 and TOTAL GS EP PVV 142 industry standards. These certifications can be supplied for FF400-80, as well as several other compounds, by Parker O-Ring Division.

All of these characteristics combined with excellent resistance to a broad range of media including elevated levels of hydrogen sulfide (H_2S) make the FF400-80 an optimal solution for use in down hole tools, subsea chokes and other critical devices across the oil and gas industry.

Property		FF400-80
Original physical properties	Test Method	Test Results
Hardness, shore A, pts.	ASTM D2240	82
Tensile strength, psi	ASTM D1414	1677
Elongation, %	ASTM D1414	188
Modulus @ 100% elongation, psi	ASTM D1414	879
Specific gravity	ASTM D297	1.85
Low temperature retraction, ASTM D1329		
TR-10, °F (°C)		-22°F (-30°C)
Compression set, ASTM D395 Method B		
70 hrs. @ 392°F (200°C), % original deflection		21
70 hrs. @ 446°F (230°C), %original deflection		27
70 hrs. @ 482°F (250°C),% of original deflection, max		29
Fluid immersion steam, 70 hrs. @232°F (121°C), ASTM D471		
Hardness change, pts.		+2
Tensile strength change, psi		+11
Elongation change, %		+5
Modulus at 100% elongation change, psi		+9
Volume change, %		0
Fluid immersion, ethylene diamine, 70 hrs. @ 194°F (90°C), ASTM D471		
Hardness change, pts.		-10
Volume change, %		+23
Fluid immersion, diesel #2, 70 hrs. @ 212°F (100°C), ASTM D471		
Hardness change, pts.		-5
Tensile change, %		-25
Elongation change, %		+31
Modulus @ 100% elongation change, %		-23
Volume change, %		+5
Fluid immersions, methanol, 70 hrs. @ 75°F (23.9°C), ASTM D471		
Hardness change, pts.		-2
Tensile change, %		-14
Elongation change, %		+23
Modulus @ 200% elongation change, %		-17
Volume change, %		+1
Fluid immersion, zinc bromide, 70 hrs. @ 212°F (100°C), ASTM D471		
Hardness change, pts.		0
Tensile change, %		-2
Elongation change, %		-2
Modulus @ 100% elongation change, %		-4
Volume change, %		+1

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