Garlock
SEALING TECHNOLOGIES®
an EnPro Industries company

SEAL & DESIGN INC.

Garlock 9800

MATERIAL PROPERTIES*

Color:	Black
Composition:	Carbon fibers with a SBR rubber binder
Fluid Services[1]:	Water, saturated steam[3] and inert gases
Temperature[2], °F (°C)	
Minimum:	-100 (-73)
Continuous Max:	+650 (+343)
Maximum:	+900 (+482)
Pressure[2], Maximum, psig (bar):	2000 (138)
P x T (max.)[2], psig x °F (bar x °C)	
1/32 and 1/16":	700,000 (25,000)
1/8":	350,000 (12,000)
Meets Specification:	Fire Safe

TYPICAL PHYSICAL PROPERTIES*

ASTM F36	**Compressibility**, range, %:	7-17	
ASTM F36	**Recovery**, %:	55	
ASTM F38	**Creep Relaxation**, %:	15	
ASTM F152	**Tensile**, Across Grain, psi (N/mm^2):	1500 (10)	
ASTM F1315	**Density**, lbs./ft.^{3} (grams/cm^3):	105 (1.68)	
ASTM F433	**Thermal Conductivity (K)**, W/m°K (Btu.·in./hr.·ft.^{2}·°F):	0.50-0.60 (3.50-4.15)	
ASTM F586	**Design Factors**	1/16" & Under	1/8"
	"m" factor:	3.5	8
	"y" factor, psi (N/mm^2):	2350 (16.2)	3200 (22.1)
ASTM F104	**Line Call Out**:	F712402A9B3E34K8L302M9[(4)]	

SEALING CHARACTERISTICS*

	ASTM F37B Fuel A	ASTM F37B Nitrogen	DIN 3535- 4 Gas Permeability
Gasket Load, psi (N/mm2):	500 (3.5)	3000 (20.7)	4640 (32)
Internal Pressure, psig (bar):	9.8 (0.7)	30 (2)	580 (40)
Leakage	**0.1 ml/hr.**	**0.1 ml/hr.**	**0.015 cc/min**

IMMERSION PROPERTIES*- ASTM F146 Fluid Resistance after Five Hours

	ASTM #1 Oil 300°F (150°C)	ASTM IRM #903 300°F (150°C)	ASTM Fuel A 70-85°F (20-30°C)	ASTM Fuel B 70-85°F (20-30°C)
Thickness Increase, (%)	0-10	15-40	0-10	5-20
Weight Increase, (%)	<20	-	<20	<20
Tensile Loss, (%)	-	<65	-	-

Notes:

This is a general guide and should not be the sole means of selecting or rejecting this material. ASTM test results in accordance with ASTM F-104; properties based on 1/32" (0.8mm) sheet thickness unless otherwise mentioned.

* Values do not constitute specification Limits

[1] See Garlock chemical resistance guide.

[2] Based on ANSI RF flanges at our preferred torque. When approaching maximum pressure, continuous operating temperature, minimum temperature or 50% of maximum PxT, consult Garlock Applications Engineering. Minimum temperature rating is conservative.

[3] Minimum recommended assembly stress = 4,800psi. Preferred assembly stress = 6,000-10,000psi. Gasket thickness of 1/16" strongly preferred. Retorque the bolts/studs prior to pressurizing the assembly. For saturated steam above 150psig or superheated steam, consult Garlock Engineering.

[4] A9: Leakage in Fuel A (Isooctane), Gasket Load = 500psi (3.5N/mm2), Pressure = 9.8psig (0.7bar): Typical = 0.1ml/hr, Max = 0.5ml/hr. A9: Leakage in Nitrogen, Gasket Load = 3,000psi (20.7N/mm2), Pressure = 30psig (2bar): Typical = 0.1ml/hr, Max = 0.5ml/hr. M9: Tensile Strength = 1,400psi min. (9.7N/mm2 min.).

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