



Garlock 9900

MATERIAL PROPERTIES*

Color:	Mahogany
Composition:	Graphite fibers with a nitrile binder
Fluid Services¹:	Saturated steam ³ , water, oil, inert gases, aliphatic hydrocarbons and gasoline
Temperature², °F (°C)	
Minimum:	-100 (-73)
Continuous Max:	+650 (+343)
Maximum:	+1000 (+537)
Pressure², 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:	ABS (American Bureau of Shipping), STR 508(5) Rev. 2 and Fire Safe

TYPICAL PHYSICAL PROPERTIES*

ASTM F36	Compressibility, range, %:	7-17
ASTM F36	Recovery, %:	65
ASTM F38	Creep Relaxation, %:	9
ASTM F152	Tensile, Across Grain, psi (N/mm²):	1800 (12)
ASTM F1315	Density, lbs./ft.³ (grams/cm³):	110 (1.76)
ASTM F433	Thermal Conductivity (K), W/m²K (Btu.in./hr.-ft.².°F):	0.87 (6.0)
ASTM D149	Dielectric Properties, range, volts/mil.	
	Sample conditioning	1/16" 1/8"
	3 hours at 250°F:	<2 -
	96 hours at 100% Relative Humidity:	- -
ASTM F586	Design Factors	1/16" & Under 1/8"
	"m" factor:	4.5 6
	"y" factor, psi (N/mm ²):	4100 (28.3) 4100 (28.3)
ROTT	Gasket Constants, 1/16":	Gb=2,322 a=0.133 Gs=18.0
ASTM F104	Line Call Out:	F712102A9B3E22K9L401M5 ⁽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, (%)	0-5	0-10	0-5	0-10
Weight Increase, (%)	<10	-	<7	<15
Tensile Loss, (%)	-	<35	-	-

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 P x T, consult Hanna Rubber Company. 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. K9: Thermal Conductivity = 0.87W/m²K (6.0btu.in/h-ft².°F).

⁵ Testing and certification required.