

## Garlock 9800

### MATERIAL PROPERTIES\*:

<b>Color:</b>	Black
<b>Composition:</b>	Carbon fibers with a SBR rubber binder
<b>Fluid Services<sup>1</sup>:</b>	Water, saturated steam <sup>3</sup> , and inert gases
<b>Temperature<sup>2</sup>, °F (°C)</b>	
Minimum:	-100 (-75)
Continuous Max:	+650 (+343)
Maximum:	+900 (+482)
<b>Pressure<sup>2</sup>, Maximum, psig (bar):</b>	2000 (70)
<b>P x T (max.)<sup>2</sup>, psig x °F (bar x °C):</b>	
1/32 and 1/16":	700,000 (25,000)
1/8"	350,000 (12,000)
<b>Meets Specification:</b>	Fire Safe

### TYPICAL PHYSICAL PROPERTIES\*:

<b>ASTM F36</b>	<b>Compressibility</b> , range, %:	7-17	
<b>ASTM F36</b>	<b>Recovery</b> , %:	55	
<b>ASTM F38</b>	<b>Creep Relaxation</b> (1/32" Thick), %:	15	
<b>ASTM F152</b>	<b>Tensile</b> , Across Grain, psi (N/mm <sup>2</sup> ):	1500 (10)	
<b>ASTM F1315</b>	<b>Density</b> , lbs./ft. <sup>3</sup> (grams/cm <sup>3</sup> ):	105 (1.68)	
<b>ASTM F433</b>	<b>Thermal Conductivity (K)</b> , W/m <sup>2</sup> K (Btu.·in./hr.·ft. <sup>2</sup> ·°F):	0.50-0.60 (3.50-4.15)	
<b>ASTM F586</b>	<b>Design Factors</b>	<u>1/16" &amp; Under</u>	<u>1/8"</u>
	"m" factor	3.5	8
	"y" factor, psi (N/mm <sup>2</sup> )	2350 (16.2)	3200 (22.1)
<b>ASTM F104</b>	<b>Line Call Out:</b>	F712402A9B3E34K8L302M9 <sup>(4)</sup>	

### SEALING CHARACTERISTICS\*

	<b>ASTM F37B Fuel A</b>	<b>ASTM F37B Nitrogen</b>	<b>DIN 3535-4 Gas Permeability</b>
<b>Gasket Load</b> , psi (N/mm <sup>2</sup> ):	500 (3.5)	3000 (20.7)	4640 (32)
<b>Internal Pressure</b> , psig (bar):	9.8 (0.7)	30 (2)	580 (40)
<b>Leakage</b>	<b>0.1 ml/hr.</b>	<b>0.6 ml/hr.</b>	<b>0.015 cc/min</b>

## 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)
<b>Thickness Increase, (%)</b>	0-10	15-40	0-10	5-20
<b>Weight Increase, (%)</b>	<20	-	<20	<20
<b>Tensile Loss, (%)</b>	-	<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 1/16" (1.6mm) sheet thickness unless otherwise mentioned.

\* Values do not constitute specification Limits

<sup>1</sup> See Garlock chemical resistance guide.

<sup>2</sup> Based on ANSI RF flanges at our preferred torque. When approaching maximum pressure, continuous operating temperature, minimum temperature or 50% of maximum P<sub>x</sub>T, consult Garlock Applications Engineering. Minimum temperature rating is conservative.

<sup>3</sup> Minimum recommended assembly stress = 4800psi. 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.

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