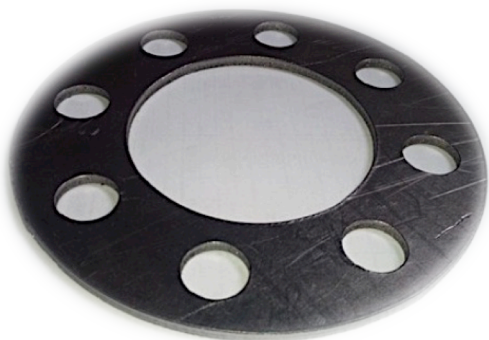
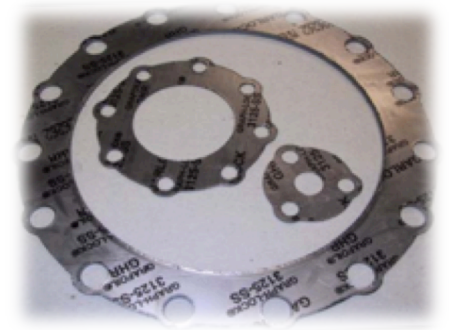


- GRAFOIL® Graphite Clad Metal Laminate materials are single-layer pure flexible graphite of the same grade mechanically bonded (GRAFOIL® GHE) or by a micro-thin phenolic based adhesive on both sides of a metal substrate (GRAFOIL® GHR and GRAFOIL® TG-251).
- Metal substrates used are; Tanged Stainless Steel (GRAFOIL® GHE), Flat Stainless Steel (GRAFOIL® GHR) and Low Carbon Steel (GRAFOIL® TG-251).
- Graphite purity range 97% to 98%
- Continuous operating temperature ranges from - 240°C to 450°C (GRAFOIL® TG-251) and - 240°C to 525°C (GRAFOIL® GHE & GRAFOIL® GHR).
- Chemical resistant to aggressive chemical.
- The most efficient sealing gaskets and packing
- Good and healthy replacement for asbestos
- Unlimited shelf Life
- Low outgassing



**Product Family**

Reinforced Laminate

GHE – GTB with Tanged Stainless Steel Reinforcement

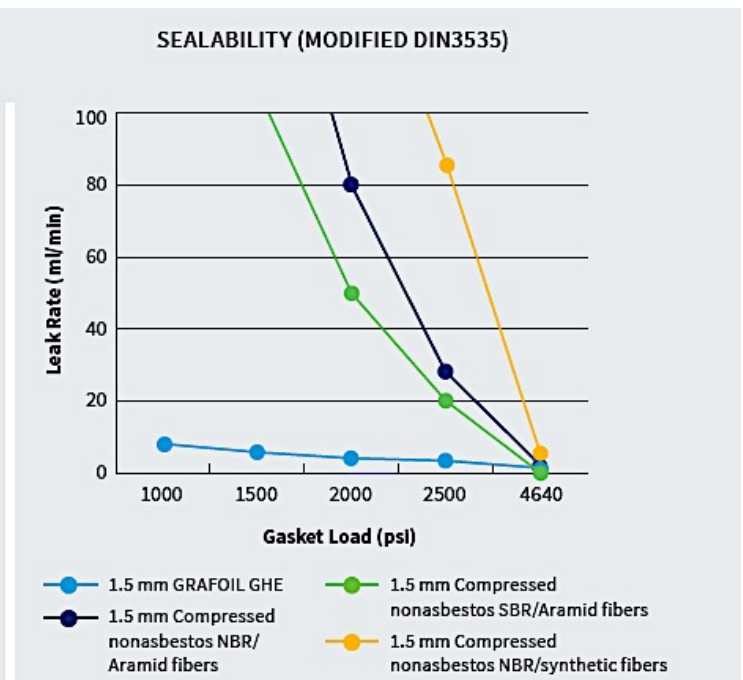
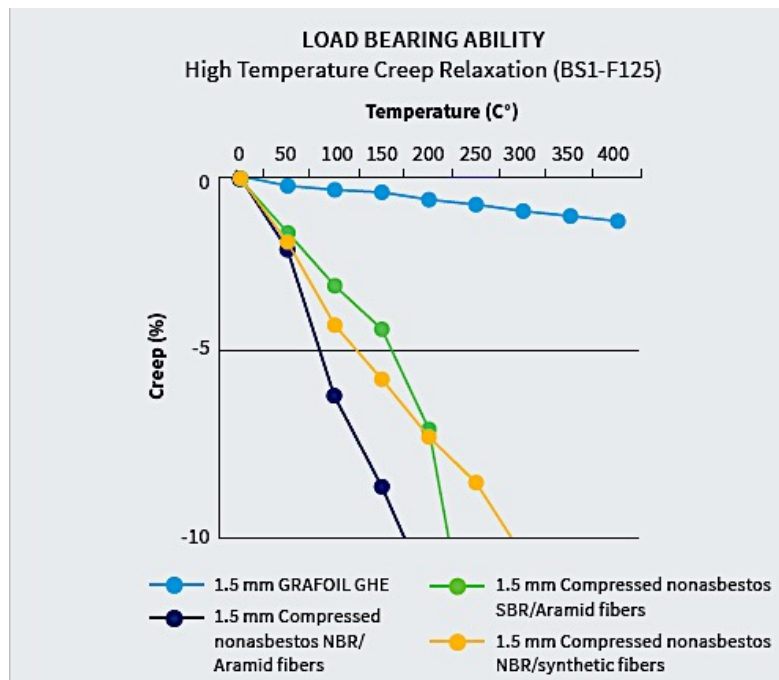
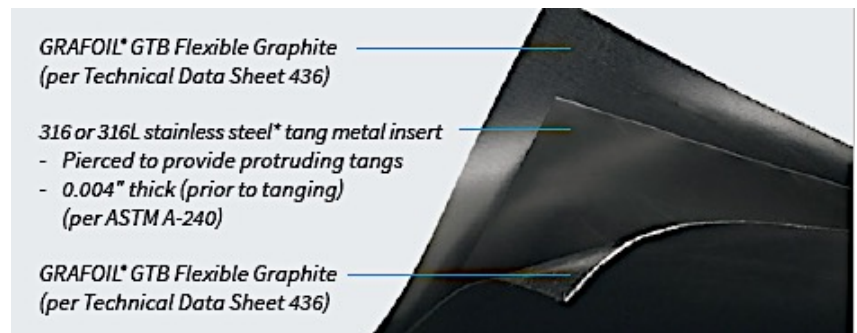
**Product Overview**

GRAFOIL® GHE metal- reinforced laminate consists of GRAFOIL® GTB flexible graphite mechanically attached to both sides of a stainless steel tang metal insert.

**Applications**

GRAFOIL® GHE material is suitable for standard industrial fluid sealing applications

- Chemicals
- Petrochemicals
- Refinery
- Steam service
- Cryogenic Applications
- ASME Class 150 & 300 Flanges



While maintaining an effective seal, GRAFOIL® material exhibits virtually no creep relaxation. As a result, the need for periodic bolt tightening is greatly reduced.

# Typical Properties\* GRAFOIL® GHE

Characteristic	Typical Value
Thickness	0.064" (1.63 mm) 0.124" (3.15 mm) 0.122" (3.10 mm)
Width	39.4" (1000 mm)
Length	39.4" (1000 mm) 100' (30.5 mt) for < 0.064" thick
Bulk Density	70 lb/ft <sup>3</sup> (1.12 g/cc)
Compressibility at 5000 psi (35 MPa) load	36% for 0.064" thick
Recovery at 5000 psi (35 MPa) load	18% for 0.064" thick
Operating Temperature	-400°F to 975°F (-240°C to 525°C)
Creep Relaxation Method: BSI-F 125 at 6391 psi (44.1 MPa) load up to 400°C	<3% for 70 lb/ft <sup>3</sup>
Sealability Method: Mod DIN 3535 at 580 psi N <sub>2</sub> at 32 MPa load	<1.5 ml/min for 70 lb/ft <sup>3</sup>
<b>Resistance in #3 Oil</b>	
Thickness increase	< 12%
Weight change	< 35%
<b>Resistance in #1 Oil</b>	
Thickness increase	< 8%
Weight change	< 33%
Certification	Certify to Grade

Note:  
 \*Properties listed are typical and cannot be used as accept/reject specifications  
 \*\* Because teeth of the tanged metal interlayer may indent metals softer than 316/316L stainless steel, Grade GHE gaskets are not normally recommended for use with glass, bronze, aluminum or other softer metal flanges.

## ASME Gasket Factors

- "m" Factor: 2
- "y" Stress: 2500 psi (17.28 MPa)
- Max Gasket Unit Load: 24,000 psi (165.87 MPa)



**Product Family**

Reinforced Laminate

GHR – GTB with Flat Stainless Steel Reinforcement



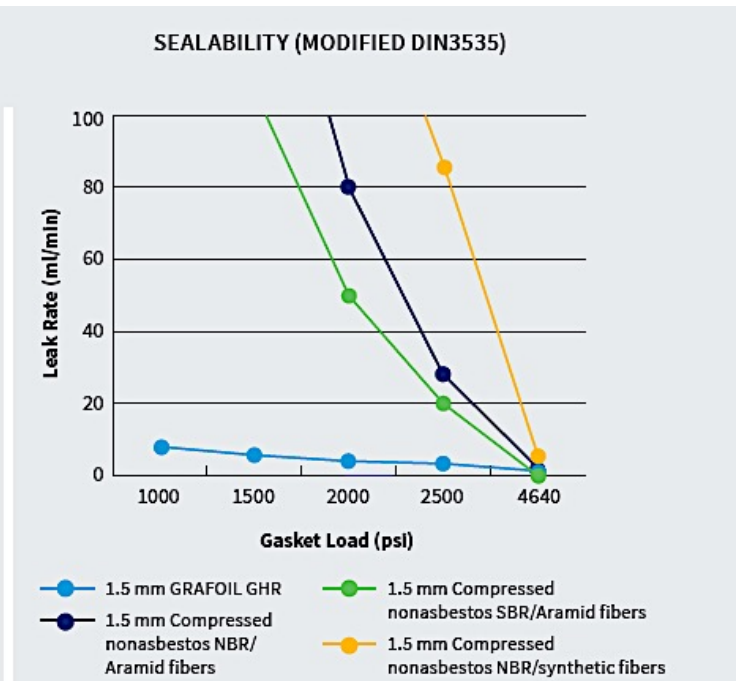
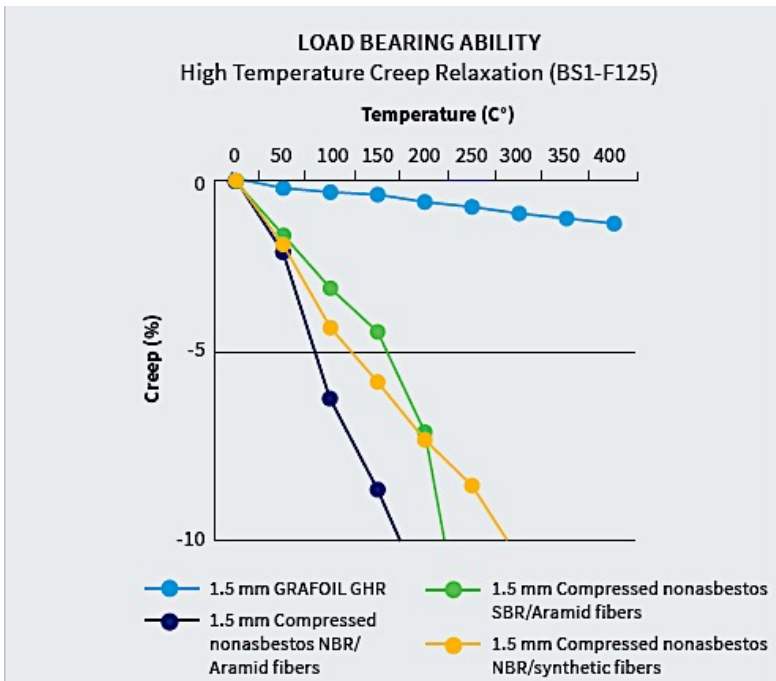
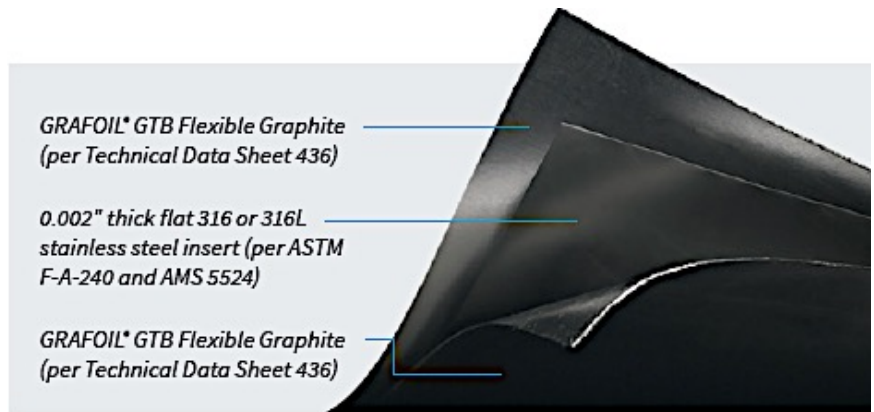
**Product Overview**

GRAFOIL® GHR metal- reinforced laminate consists of GRAFOIL® GTB flexible graphite adhesive bonded to both sides of a flat stainless steel core.

**Applications**

GRAFOIL® GHR material is suitable for standard industrial fluid sealing applications

- Chemicals
- Petrochemicals
- Refinery
- Steam service
- Cryogenic Applications
- ASME Class 150 & 300 Flanges



While maintaining an effective seal, GRAFOIL® material exhibits virtually no creep relaxation. As a result, the need for periodic bolt tightening is greatly reduced.

# Typical Properties\* GRAFOIL® GHR

Characteristic	Typical Value
Thickness	0.032" (0.81 mm) 0.062" (1.57 mm) 0.122" (3.10 mm)
Width	39.4" (1000 mm)
Length	39.4" (1000 mm) 60" (1524 mm) for > 0.082" thick 100' (30.5 mt) for < 0.062" thick
Bulk Density	70 lb/ft <sup>3</sup> (1.12 g/cc)
Compressibility at 5000 psi (35 MPa) load	40%
Recovery at 5000 psi (35 MPa) load	15%
Tensile Strength	3800 psi (26.31 MPa)
Operating Temperature	-400°F to 975°F (-240°C to 525°C)
Creep Relaxation Method: BSI-F 125 at 6391 psi (44.1 MPa) load up to 400°C	<3% for 70 lb/ft <sup>3</sup>
Sealability Method: Mod DIN 3535 at 580 psi N2 at 32 MPa load	<1.5 ml/min for 70 lb/ft <sup>3</sup>
<b>Resistance in #3 Oil</b>	
Thickness increase	< 12%
Weight change	< 35%
<b>Resistance in #1 Oil</b>	
Thickness increase	< 8%
Weight change	< 33%
Certification	Certify to Grade

Note: \*Properties listed are typical and cannot be used as accept/reject specifications

## ASME Gasket Factors

- "m" Factor: 2
- "y" Stress: 900 psi (6.22 MPa)
- Max Gasket Unit Load: 24,000 psi (165.87 MPa)

Asia authorized distributor: Everjoy Industrial Supplies Pte. Ltd.

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**Product Family**

Reinforced Laminate

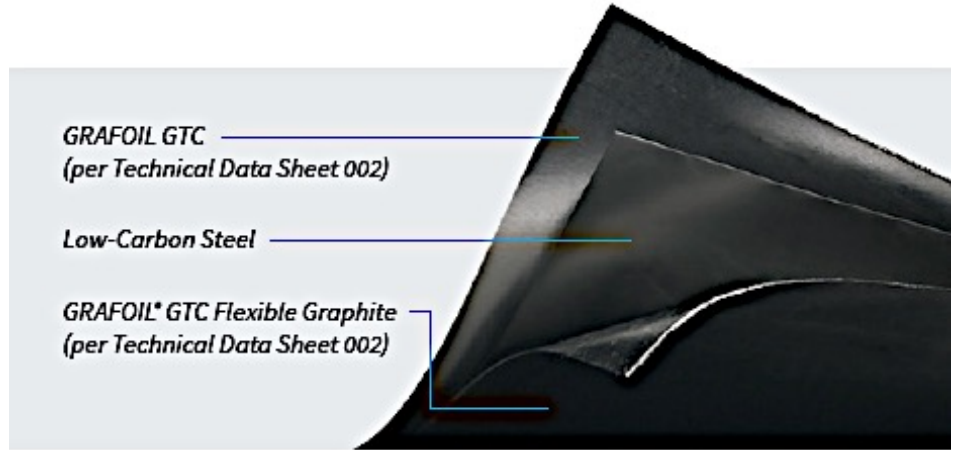
GHR – GTC with Low Carbon Steel

**Product Overview**

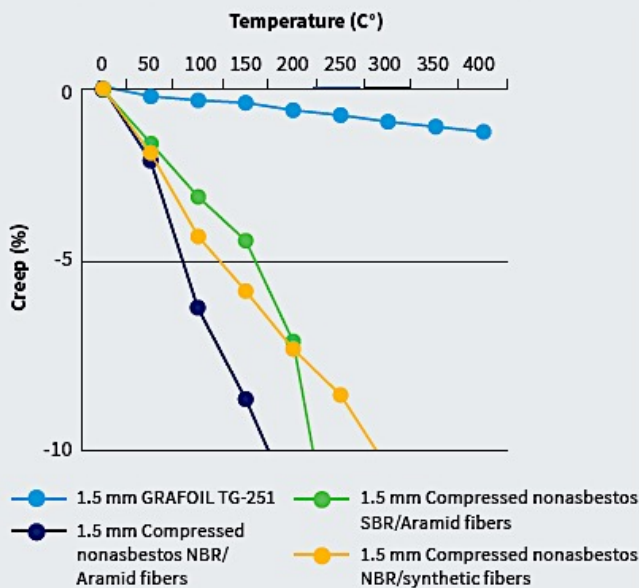
GRAFOIL® TG-251 metal- reinforced Graphite laminate consists of GRAFOIL® GTC flexible graphite adhesive bonded to both sides of a Low Carbon Steel.

**Applications**

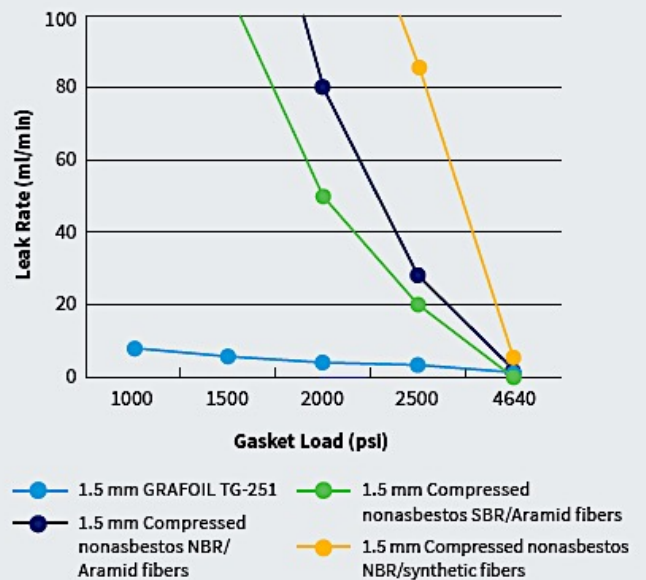
- Chemicals
- Petrochemicals
- Refinery
- Steam service
- Cryogenic Applications
- ASME Class 150 & 300 Flanges



**LOAD BEARING ABILITY**  
High Temperature Creep Relaxation (BS1-F125)



**SEALABILITY (MODIFIED DIN3535)**



## Laminate Construction

1. GRAFOIL<sup>®</sup> GTC flexible graphite, with a micro-thin phenolic based adhesive
2. 0.17 mm thick Low-Carbon Steel Grade 1008 or 1010, with a micro-thin phenolic based adhesive
3. GRAFOIL<sup>®</sup> GTC Flexible graphite

### Typical Properties\* GRAFOIL<sup>®</sup> TG-251

Characteristic	Typical Value
Thickness	0.037" (0.94 mm) 0.047" (1.19 mm)
Width	24" (610 mm)
Length	24" (610 mm)
Bulk Density	70 lb/ft <sup>3</sup> (1.12 g/cc)
Compressibility at 5000 psi (35 MPa) load	34%
Recovery at 5000 psi (35 MPa) load	31%
Creep Relaxation Method: BSI-F125 at 6391 psi (44.1 MPa) Load up to 400°C	<3% for 70 lb/ft <sup>3</sup>
<b>Air Aging, 5 hours at 540°C</b>	
Weight Loss	5%
Compressibility	39%
Recovery	24%
<b>Fluid Soaking</b> Distilled Water, 22 hours @ boiling 50/50 Glycol/Water, 48 hours @ boiling	No separation between GRAFOIL <sup>®</sup> material and steel

Note: \*Properties listed are typical and cannot be used as accept/reject specifications

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