When it comes to applications involving aggressive chemicals, SIGMA® provides enhanced levels of sealing performance when compared to conventional materials. While conventional PTFE-based sealing materials have long been the choice for superb chemical resistance, they are not ideally suited to achieve the maximum reduction of creep in situations where seal integrity is paramount—a vital consideration for stringent long-term emission control.

Utilizing a unique manufacturing process exclusive to Flexitallic, we created SIGMA®: an innovatively-engineered line of biaxially orientated PTFE gasket materials. Developed for processes ranging from cryogenic temperatures to 500°F (260°C), and suitable for sealing virtually every chemical medium across the entire pH range (0-14), SIGMA® pairs the outstanding chemical resistance of PTFE with enhanced dimensional stability to improve overall material stress retention.

The non-stick properties of the SIGMA® range of materials offer excellent removal after usage to dramatically reduce the downtime on shutdown. In addition, all components in the SIGMA® range are FDA compliant. This inherently clean nature makes them ideal for use in industries where product contamination is of concern such as food, pharmaceuticals and electronics.

For total sealing reliability, inventory consolidation and strict long-term emission control, nothing out-performs SIGMA®—The Innovation of Integrity.

www.flexitallic.com
**SIGMA 500**
- Enhanced compressibility for low bolt loads
- Improved flexibility over conventional calendared and graphite sheets
- Suitable for use in alkali, acid and chlorine service
- Can be used for all concentrations of sulfuric acid
- WRAS approved for hot and cold potable water services

**SIGMA 511**
- Standard compressibility
- Strong acids (except hydrofluoric) to general chemicals
- Ideal for sealing food, pharmaceutical and other non-corrosive applications
- Strong alkalis solutions and other general chemicals
- Aqueous hydrofluoric acid below 49%
- Not suited for sealing molten metals or fluorine gas

**SIGMA 533**
- Standard compressibility
- Ideal for sealing food, pharmaceutical and other non-corrosive applications
- Strong alkalis solutions and other general chemicals
- Aqueous hydrofluoric acid below 49%
- Not suited for sealing molten metals or fluorine gas

**SIGMA 588**
- Unique cellular structural - low load sealing for damaged contact surfaces
- Layered structure enhances dimensional stability and assists installation of larger gaskets
- Layers bonded by direct sintering - no adhesive layer or potential leak paths
- Suitable for use in both concentrated acid and alkali service
- Ease of use - eliminates jacket fold over associated with large envelope gaskets

**SIGMA 600**
- High compressibility for ultra-low bolt loads, plastic and glass lined equipment
- Suitable for use across a wide range of chemical, media, acids, alkalis, halogen and hydrocarbons
- Universal - minimizes inventory requirements and eliminates 'nis-application'
- Easy to cut, handle, install and remove
- Pigment and filler free - suitable for 'contamination sensitive' applications

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**SIGMA 500 / 511 / 533 / 588 / 600**

**Typical Physical and Mechanical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>SIGMA 500</th>
<th>SIGMA 511</th>
<th>SIGMA 533</th>
<th>SIGMA 588</th>
<th>SIGMA 600</th>
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</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.4 g/cm³</td>
<td>1.4 g/cm³</td>
<td>1.4 g/cm³</td>
<td>1.4 g/cm³</td>
<td>1.4 g/cm³</td>
</tr>
<tr>
<td>Compressibility</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Recovery</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
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<tr>
<td>Tensile Strength</td>
<td>14 (2030)</td>
<td>15 (2175)</td>
<td>15 (2175)</td>
<td>16 (2475)</td>
<td>16 (2475)</td>
</tr>
<tr>
<td>Residual Stress (175°C)</td>
<td>30</td>
<td>30</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Creep Relaxation</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Leakage</td>
<td>mL/min</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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<tr>
<td>Liquid Leakage (0 psi internal pressure)</td>
<td>mL/hr</td>
<td>0.7</td>
<td>1.8</td>
<td>1.8</td>
<td>1.5</td>
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</table>

**Gasket Constants & Design Information - ASME / PVRC**

**Pressure Containment and Temperature**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>psi</th>
<th>psi</th>
<th>psi</th>
<th>psi</th>
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<tbody>
<tr>
<td>0.08</td>
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<td></td>
<td></td>
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<tr>
<td>0.13</td>
<td></td>
<td></td>
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<tr>
<td>0.19</td>
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**Liquid Leakage**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>psi</th>
<th>psi</th>
<th>psi</th>
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<tr>
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<td>0.13</td>
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<tr>
<td>0.19</td>
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</tbody>
</table>

**Data based on 1/16" (1.5 mm) thickness material**

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**Innovative Materials, Engineered Solutions**

Flexible is proud to introduce the SIGMA® family of braided oriented PTFE sheet—designed to perform where gasket integrity is paramount. Specified by more than 500 major corporations, SIGMA® stands side-by-side with Flexitallic®, metal gaskets and Thermiculite® peelable materials to provide you with the complete and innovative sealing solution you demand to handle all your sealing applications.

By designing seals that last longer in the most difficult applications, SIGMA® helps production process increase their output capabilities.

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**Sheet Sizes**

<table>
<thead>
<tr>
<th>US Standard</th>
<th>Metric</th>
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</thead>
<tbody>
<tr>
<td>60&quot; x 60&quot;</td>
<td>150x150 cm</td>
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</table>

**Surface Finish**

<table>
<thead>
<tr>
<th>METRIC</th>
<th>3.2 - 6.3 µm</th>
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</table>

**Thicknesses**

<table>
<thead>
<tr>
<th>METRIC</th>
<th>0.75 mm - 3.0 mm</th>
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</thead>
</table>

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For further information please consult Flexitallic Applications Engineering Department.

NOTE: Other sheet sizes and thicknesses are available on request.

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**Sigma Range - Pressure/Temperature Envelope**

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**NOTE:** All pressures and temperatures are available in metric and equivalent U.S. units.

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**NOTE:** The pressure/temperature (shown above) cannot be used simultaneously.

---

**Sigma Range - Pressure/Temperature Envelope**

---

**NOTE:** All pressures and temperatures are available in metric and equivalent U.S. units.

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**NOTE:** The pressure/temperature (shown above) cannot be used simultaneously.