



CHEMICALLY RESISTANT. UNIFORMLY STRONG. INHERENTLY CLEAN.

TOTAL INTEGRITY

FOR THE MOST DEMANDING APPLICATIONS

SIGMA[®]

THE INNOVATION OF INTEGRITY.

Flexitallic[®]



GLOBAL STANDARDIZATION THROUGH INNOVATIVE ENGINEERING

Flexitallic is proud to introduce the SIGMA family of biaxially-oriented PTFE sheet—proven 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® gasket materials to provide you with the complete and innovative sealing solutions you demand to handle all your sealing needs.

Flexitallic's global and national contracts are helping major petrochemical facilities achieve their performance, maintenance and budgetary goals. By designing seals that last longer in the most difficult applications, SIGMA helps production processes increase their output capabilities. That's just one example of how Flexitallic is leading ***The Innovation of Integrity.***

SIGMA® 500

- Enhanced compressibility for low bolt loads
- Improved flexibility over conventional calendered and graphite sheets
- Moderate concentrations of acids & caustics, chlorine, hydrogen peroxide
- Can be used for all concentrations of sulfuric acid
- WRAS approved for hot and cold potable water services



SIGMA® 500

MATERIAL:
Biaxially-oriented PTFE containing hollow glass microspheres

COLOR: Blue

SIGMA® 511

- Standard compressibility
- Strong acids (except hydrofluoric) to general chemicals
- Can be used for all concentrations of sulfuric acid
- Not suited for molten alkali metals, fluorine gas and hydrogen fluoride
- WRAS approved for hot and cold potable water services



SIGMA® 511

MATERIAL:
Biaxially-oriented PTFE containing silica

COLOR: Fawn

SIGMA® 533

- Standard compressibility
- Ideal for sealing food, pharmaceutical and other non-contamination applications
- Strong alkaline solutions to other general chemicals
- Aqueous hydrofluoric acid below 49%
- Not suited for sealing molten alkali metals or fluorine gas



SIGMA® 533

MATERIAL:
Biaxially-oriented PTFE containing barium sulfate

COLOR: Off-White (pigment-free)



BIAXIALLY- ORIENTED PTFE

FOR UNPARALLELED SEALING PERFORMANCE

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-oriented 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.

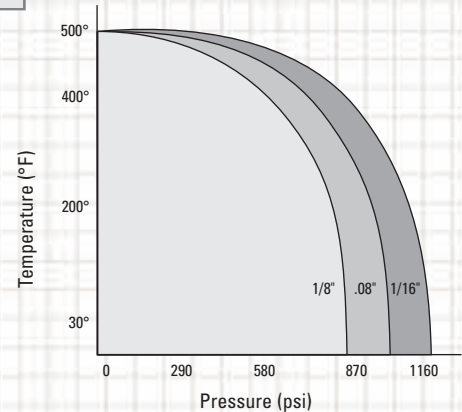
SIGMA 500/511/533/ 588

Pressure Containment and Temperature

Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	260°C (500°F)	260°C (500°F)	260°C (500°F)
Max. Pressure, psig (bars)	1235 (85 bars)	1015 (70 bars)	870 (60 bars)

NOTE:
The pressure/temperature (to the left) cannot be used simultaneously.

pH Range	0-14	
Sheet Sizes	US STANDARD	60" x 60"
	METRIC	2 m x 2 m
Sheet Thicknesses	US STANDARD	1/32"– 1/8"
	METRIC	0.75 mm– 3.0 mm
Recommended Surface Finish	125-250 μ in (3.2 – 6.3 μ m)	



Physical Properties

		SIGMA® 500	SIGMA® 511	SIGMA® 533
Color		Blue	Fawn	Off-White
Density	lb/ft ³ (g/cc)	87 (1.4)	137 (2.19)	180 (2.89)

Mechanical Properties ASTM F152

Cross Grain Tensile	psi (MPa)	1740 (12.0)	2175 (15.0)	2260 (15.6)
With Grain Tensile	psi (MPa)	1940 (13.4)	2230 (15.4)	2275 (15.7)

Gasket Constants & Design Information

ASME m		1.4	1.4	1.4
ASME y	psi (MPa)	1885 (13.0)	2320 (16.0)	2320 (16.0)
PVRC Gb ¹	psi	4	209	115
PVRC a ¹		0.804	0.356	0.382
PVRC Gs ¹	psi	0.115	0.00498	0.000065
Tpmax ¹		13150	24750	26800
Dielectric Strength	kv/mm	6.1	17.7	11
ASTM F104 Line Callout		F456110E11M5	F452110E11M6	F452110E11M6

NOTE: Data based on 1/32" material. ¹Based on 1/16".

Gasket Characteristics According to DIN 28090

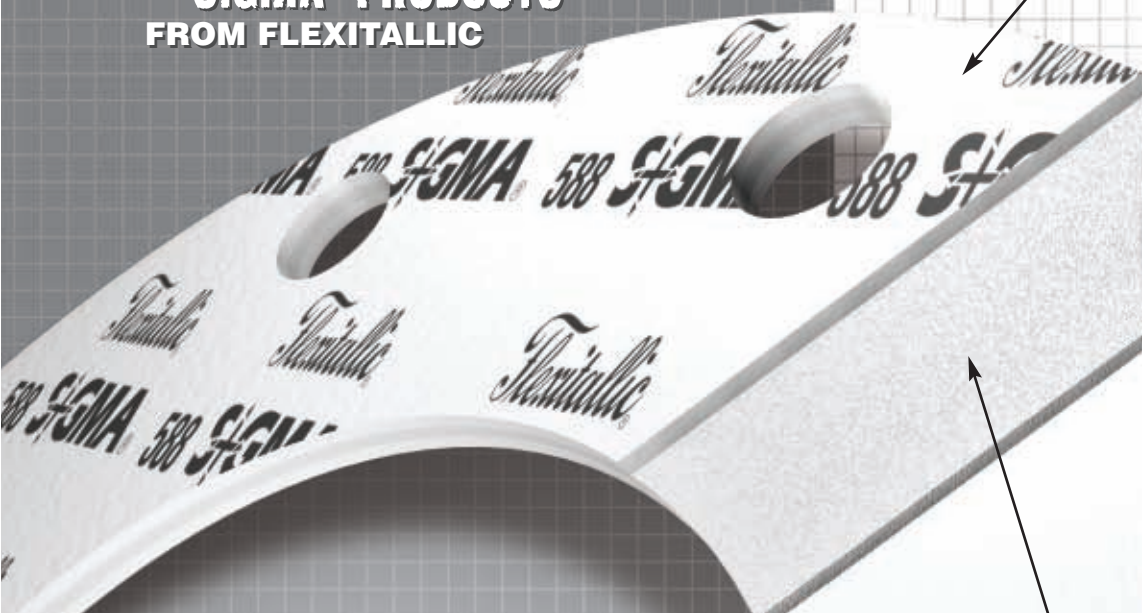
Max. Compressive Stress DIN 28090-1	N/mm ²	195	228	190
Cold Compression Value DIN 28090-2	%	8.5	1.8	2.8
Cold Recovery Value DIN 28090-2	%	4.0	0.9	1.1
Warm Recovery Value 150°C DIN 28090-2	%	6.4	3	4.2
Warm Setting Value 150°C DIN 28090-2	%	42.3	8.7	20.9
Min. Initial Stress DIN 28090-1	N/mm ²	8	8	8
Max. Compressive Stress @ 200°C DIN 28090-1	N/mm ²	70	100	80

For Sigma 588 gasket characteristics please consult Flexitallic Applications & Engineer Department.

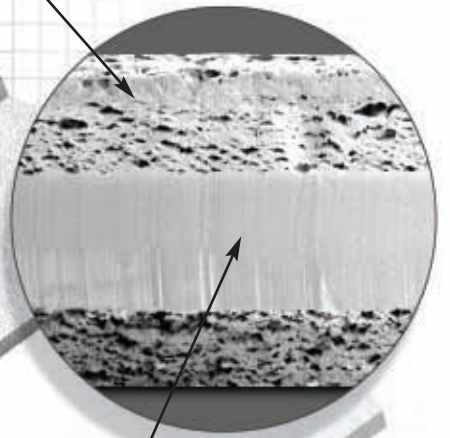
Material Compliance and Approvals:

TA Luft, DVGW, BAM, Eurochlor, Bureau Veritas, WRAS, UDT, FDA, The Chlorine Institute

OTHER **INNOVATIVE**
SIGMA® PRODUCTS
 FROM FLEXITALLIC



- Highly conformable surface layers designed for glass-lined, FRP, ceramic, plastic and low bolt load applications



SIGMA® 588

WHITE W/WHITE CORE (AS SHOWN)

Biaxially-oriented pure PTFE core with highly conformable surface layers for controlled compressibility

- Ultra-high compression
- Ideal for greatly distorted or damaged flanges
- Optimum for ultra-low load, low stress applications
- Suitable for use with Hydrogen Fluoride
- Pure PTFE – No filler
- Universal chemical resistance

SIGMA® 599

WHITE W/BLUE CORE

Biaxially-oriented PTFE containing hollow glass microspheres

- Replacement for cumbersome envelope gaskets
- FDA compliant

- Modified PTFE inner core design to maximize sealability and prevent blow-out
- FDA Compliant



Effectively manage your gasket selection process, simplify inventory requirements and receive proven long-term sealing with SIGMA® gasket material—*The Innovation of Integrity.*

Contact your local Allied Distributor today!



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