



XYCOMP® COMPOSITE MATERIAL

HIGH-PERFORMANCE PLASTIC

Greene, Tweed offers precision plastic components for a variety of demanding, semiconductor applications. These components are made from a full range of high-performance thermoplastic materials, including our Xycomp® composite materials. Xycomp is ideally suited to replace metal or ceramic compounds due to its high strength, low weight, corrosion resistance and dimensional stability. Xycomp materials may also be used in high-pressure and high-temperature (up to 250°C/482°F) applications.

The optimal Xycomp material for a specific application is determined by the unique combination of plastic material, fibers and fiber orientation, as well as manufacturing techniques. Greene, Tweed provides the necessary application evaluation services to assist in choosing the best performance characteristics.



FEATURES

- High-strength, heavy-load capabilities
- Lightweight
- High-temperature functionality
- Outstanding chemical resistance
- High-impact resistance
- Excellent wear properties
- Vibration dampening
- Consolidation of assemblies

- Variety of manufacturing methods
 - Various shapes and geometries include thin, flat, hollow, flanged parts
 - Incorporate metal, ribs and other strengthening components
 - Optional coatings to encapsulate parts and reduce friction

DESIGNED TO MEET PERFORMANCE REQUIREMENTS

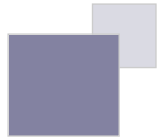
- Technology and design expertise
- Part design reflects application needs
 - Evaluation of application with FEA (Finite Element Analysis)
 - Strength and stiffness can be designed into specific locations to meet application requirements
 - Resin/fiber combination chosen to match application needs

APPLICATIONS

- Wafer processing equipment components
- Robotic equipment, e.g., end effectors
- Replacement of metal or ceramic parts

PRODUCTS AND ENGINEERING

Greene, Tweed offers a complete line of high-performance, application-specific seals and plastic components. Many Greene, Tweed products result from cooperative efforts between Greene, Tweed and leading semiconductor equipment manufacturers and forward-looking fabs. Our dedicated team of chemists, chemical and mechanical engineers, customer service specialists and production technicians are ready to assist you in solving your processing challenges.



TYPICAL PROPERTIES			
Physical	ASTM Method	Xycomp® 1000-03	Xycomp® 1000-04
Resin		PEEK	PEEK
Fiber		Carbon	Carbon
Fiber Orientation		(0°) unidirectional	(0/90°) bi-directional
Color		Black	Black
Density, g/cc		1.6	1.54
Hardness, Rockwell M	D785	105	100
Water Absorption @ 24 hrs, %	D570	0.001	0.008
Mechanical			
Tensile Break Strength, ksi (MPa)	D3039	300 (2,100)	91 (630)
Elongation, %	D3039	1.5	1.0
Flexural Strength, ksi (MPa)	D790	290 (2,000)	120 (830)
Flexural Modulus, Msi (GPa)	D790	18 (124)	7.0 (48.3)
Compressive Strength, ksi (MPa)	D3410	197 (1,400)	83 (570)
Compressive Modulus, Msi (GPa)	D3410	18 (124)	8.0 (55.2)
Thermal			
Coefficient of Thermal Expansion, in/in/°F (cm/cm/°C) <300°F (149°C), 10 ⁻⁶	TMA	0.30 (0.5)	TBD
Glass Transition Temperature, Tg	DSC	143°C (289°F)	143°C (289°F)
Maximum Service Temperature	DSC	250°C (482°F)	250°C (482°F)
Electrical			
Volume Resistivity, ohms-cm, 10 ⁵	D257	2.19	1.39

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Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor modify or alter our standard warranty applicable to such products.

Prior to actual use it is recommended compatibility tests be run to determine suitability in a specific application. This is critical where failure could result in injury or damage. A regular program of inspection and replacement should be implemented. Greene, Tweed technical personnel are available to help with a recommendation.

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