

XYCOMP® 5475 HIGH-PERFORMANCE THERMOPLASTIC COMPOSITE ENCLOSURE ASSEMBLY

IMPROVED PERFORMANCE OVER TRADITIONAL COMPOSITE AND METALLIC MATERIALS

To protect critical electronic components in various applications, manufacturers install enclosure boxes for protection from environmental and electrical elements, and to reduce thermal loads. These enclosures must be water-tight, impervious to aerospace fluids, and be crafted from materials capable of conducting heat away from the contents of the box. Electromagnetic shielding and protection from lightning strikes and static electricity are also essential for these components.

Traditionally made from metal for their beneficial mechanical, thermal, and electrical properties, these enclosures bring excess weight to the aircraft and can suffer from corrosion. In addition, traditional composite materials do not provide sufficient thermal conductivity or electrical properties for successful use in electrical enclosures. Greene, Tweed's Xycomp® 5475 high-performance, thermoplastic composite enclosure assembly provides greater thermal conductivity than traditional composites with the electrical and mechanical properties that are essential for aircraft enclosure, while achieving a 30% weight reduction over aluminum.

To develop the Xycomp 5475 composite enclosure, Greene, Tweed has leveraged our significant engineering design expertise and composite material technologies. Our proprietary molding techniques have allowed for the creation of a fully customized solution, including integrated features such as isolation pockets, stiffeners, fasteners and heat sinks. The material meets stringent FST (Flame, Smoke and Toxicity) regulations, making it suitable for aerospace applications, and exhibits superior toughness over aluminum, for improved product performance. Xycomp 5475 offers excellent corrosion and vibration resistance, achieving better protection for the components within the enclosure. In addition, this assembly's significant weight reduction over metallic parts offers improved aircraft efficiencies for reduced energy costs.



Xycomp enclosure assembly

ADVANTAGES OF XYCOMP 5475

- Superior thermal and electrical performance compared to traditional composite solutions
- Better damping characteristics than conventional metal solutions
- 30% weight reduction over comparable metal parts for reduced energy costs
- Meets FST requirements for flammability, heat release, smoke density and smoke toxicity with improved FST capabilities over thermoset materials

DESIGN THROUGH PRODUCTION APPROACH

- Unique processing capabilities for manufacturing complex-contour shapes and tubular components
 - High pressure near-net compression molding
 - Techna3™ complex tubular shape molding
 - Specialized thermoplastic fiber-placement processes
- From prototype development through production implementation
- High-tolerance composite machining
- Material characterization, quality and structural component testing
- Extensive, global support capabilities with superior responsiveness

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