XYCOMP® 5101 HIGH-PERFORMANCE THERMOPLASTIC COMPOSITE LANDING GEAR SPACER RINGS

DURABLE PARTS OFFER IMPROVED PERFORMANCE IN EXTREME ENVIRONMENTS

Aircraft landing gear components are subjected to extreme loads from gear deployment, aerodynamic forces, landing, and taxiing. These constant demands have historically required that landing gear components be made from aluminum alloys or UHTS (ultra-high-tensile-strength) steel for their strength and desirable chemical properties. Greene, Tweed's Xycomp® high-performance thermoplastic composite landing gear spacer rings offer comparable benefits to these legacy materials, while achieving a 30% weight reduction over the incumbent aluminum part.

Due to their position within the aircraft, landing gear components cannot be easily monitored for damage and wear. To ensure our Xycomp components can withstand the extreme environment, we performed empirical testing to simulate impact loads equaling 5x the typical life of an aircraft. The testing also included a full range of temperature requirements while immersed in aircraft solvents.

Following completion of these comprehensive tests, ultrasonic and dimensional analysis showed no evidence of cracking, delamination or other physical deformation. These results demonstrated the ability of this innovative solution to provide a reliable alternative to heavier metallic components, while achieving significant weight savings for increased aircraft efficiencies.

ADVANTAGES OF XYCOMP LANDING GEAR COMPONENTS

- Provides good fatigue resistance against micro-cracking from high-frequency vibration, for prevention of material deterioration
- Offers superior toughness and impact resistance in comparison to thermoset composites, increasing resistance to force, and extreme temperatures and pressures
- Excellent resistance to aerospace solvents including jet fuel, hydraulic fluid, and de-icing fluid, offering reduced corrosion
- 30% lighter than aluminum parts, for reduced energy costs
- Provides low water absorption, increasing strength and stiffness properties to extend component life

Xycomp landing gear spacer ring

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 and structural component testing
- Extensive, global support capabilities with superior responsiveness

Contact Us

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