Space Without the Weight

Grid-Stiffened and Lattice Composite Structures

ATG Europe has recently developed a patented manufacturing process that enables significant mass and cost savings for space and launch vehicle applications. Utilizing uni-directional prepregs from Toray Advanced Composites, the gridstiffened and lattice composite structure is comprised of continuous carbon fiber tows arranged in an overlapping lattice fashion.

The application of this architecture can positively impact multiple applications e.g., spacecraft central cylinders—the core component of a satellite's structure.

The structure was manufactured using the Toray Advanced Composites RS-36 epoxy prepreg system, with Toray M55J high modulus fiber as a uni-directional reinforcement. Established as a material for space applications, this resulted in an impressive performance whilst also ensuring the required material outgassing characteristics for the component.

Grid-stiffened and Lattice Architecture Benefits

High performing and extremely lightweight

Provides up to 30% mass reduction compared to sandwich structures
Reduces part cost by 30%

About ATG Europe

ATG Europe is a recognized leader in aerospace composite solutions with ongoing development projects for spacecraft and launcher structures.

About Toray Advanced Composites

With more than 25 years of space flight heritage, Toray Advanced Composites is the undisputed leader in developing and manufacturing cutting-edge, high-reliability materials for the space market. Our products are found on most satellites, spacecraft, and planetary rovers launched from the Western world. No other materials company offers the pedigree, experience, or breadth of product knowledge to meet the demanding needs of the space, launch, and satellite industry.







www.toraytac.com/space

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