

ADVANCED COMPOSITES

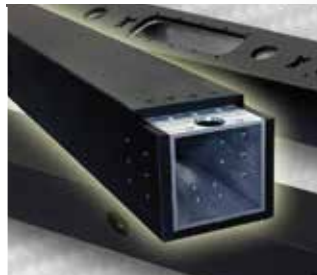
When designing and manufacturing composite components, Composiflex strictly adheres to the stringent performance and quality standards that are demanded by aerospace and military applications. We are well known for our "art-to-part" projects and are uniquely experienced with both ballistic and structural products.

Although custom designs are our specialty, Composiflex also gladly responds to make-to-print opportunities. Our engineers function as an extension of our customers' engineering staffs, effectively collaborating to solve design challenges.

The use of manufacturing aerospace composites, is growing rapidly, led by major airframe manufactures for both commercial and military aviation. Advanced aerospace composites have gained wide acceptance to replace metal, primarily for weight reduction. Performance benefits of the use of composites include lowering fuel costs, and increasing flight time, speed, and distance.

Composiflex products for aerospace and military applications include:

- Aerodynamic composite cowlings and fairings
- Honeycomb cored panels and foam cored panels
- Unmanned Aerial Vehicle (UAV) components
- Composite ducts and tubes
- Avionics racks and enclosures
- A wide variety of manned aircraft composite components
- Radomes and Antennas
- Aircraft System components and subassemblies
- Composite aerostructures
- Payloads and pods



Structural Applications

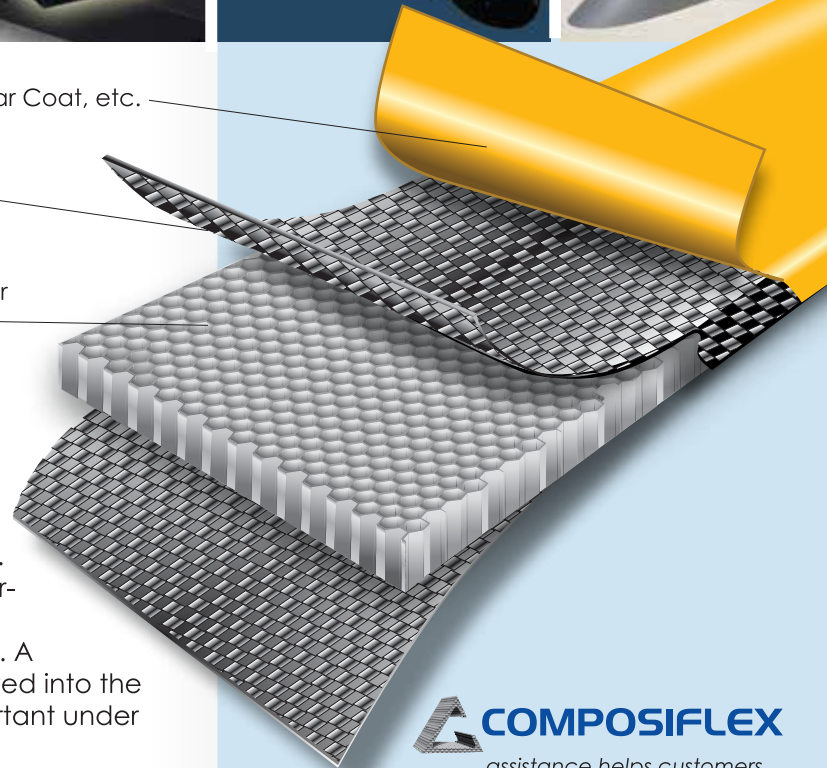
The diversity of Composiflex customers and applications provides us with a broad portfolio of experience not common among many composites manufacturers. Our design expertise and production capabilities have become extremely valuable to aerospace and military engineers who seek to minimize vehicle weight by converting metal components to composite materials, commonly achieving a weight reduction of 30-40% or more.

Composite materials offer other advantages over metals. With composite materials, we can create material properties that vary with load axis. Designers have the ability to optimize part performance under a given load spectrum. A variety of lightweight cores and inserts can be incorporated into the composite structure to increase rigidity, particularly important under bending loads. Composiflex engineers select the optimal combination of materials, production process, geometry, and part construction to produce an application-specific solution.

Finish: Paint, Clear Coat, etc.

Multi-Ply
Composite
Material

Light-Weight Foam or
Honeycomb Core



COMPOSIFLEX

assistance helps customers
meet MIL-SPEC and other
challenging requirements.

AEROSPACE & MILITARY

Structural / Ballistic Applications

The phrase “ballistic event” typically denotes some sort of offensive projectile but it also relates to high-speed collisions involving birds, hail, etc.

Certain structural components must be designed to survive such impacts.

As a supplier of ballistic protection solutions for aircraft, state department vehicles, and military vehicles, Composiflex engineers design parts that satisfy both structural and ballistic performance requirements.

Vehicle components often require a compromise among the inter-related factors of performance, weight, and

cost. Minimizing weight is important to allow optimal handling, maneuverability, and braking, as well as fuel efficiency. Composiflex engineers leverage decades of experience with fiber reinforced plastics to provide an ideal solution for each application.

Protecting passengers, crew and equipment is of critical concern to Composiflex engineers. Systems in both aircraft and ground vehicles are subject to high quality control standards according to each customer's demands. Our experienced engineers construct complicated pieces at precision tolerances, designing solutions that accurately integrate into the vehicle system and remain structurally sound, even after a ballistic impact.

Fire, Smoke, and Toxicity

Although phenolic resin composites provide one means of addressing fire, smoke, and toxicity requirements, this is not always the ideal material choice. Composiflex engineers have developed an innovative wrap that meets FAR 25.853 and are lighter weight, without the dangerous formaldehyde and phenol present in phenolic.

Production Processes

The optimal production process choice is based upon final part specifications and production volume. Many of our processes involve hand lay-up of fabric or prepreg material onto a form tool, with kits optimized by a CNC cutting machine. Although proprietary production methods are often developed in order to satisfy the requirements of a specific application, standard production options include:



Curing (Autoclave, Press and Oven):

Cured computer-controlled and recorded heat and pressure.



Resin Transfer Molding (RTM)/VARTM and Light RTM: Mold process that combines fibers and resin.



Filament Winding: Resin coated fibers wound on rotating mandrel.



Engineering: Analysis and testing to support your project.



Press Molding: Compression molded parts or flat panels.



Tooling/Prototype: Production and prototype tooling options available.



Machining: In-house CNC machining controls costs and lead time.



Finishing & Other: Surface prep, painting/coating, and other processes including final assemblies, sub-assemblies, and kits can be created.

Visit composiflex.com for more detailed information. Our experienced engineering staff is available for your technical assistance. Please call 800-673-2544 or e-mail us at info@composiflex.com.



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For more than 40 years, Composiflex has been an innovator in the design and manufacture of advanced high-performance composites. Specializing in custom designs, Composiflex currently serves the aerospace, military, ballistic protection, medical, industrial, and recreational markets. Composiflex conducts operations in Erie, PA, USA.

Nadcap Accredited Composites
ISO 9001 Certified
AS9100 Certified