

Fiberforge is a manufacturing company focused on the design and production of thermoplastic advanced composite parts for high-performance applications. Fiberforge has developed a breakthrough process that turns uni-directional, pre-impregnated thermoplastic tape (UD tape) into finished parts faster, more efficiently and at a lower cost than other known processes.

Fiberforge's patented process focuses on manufacturing of thermoplastic structural parts including the required steps from product specification, part design, structural optimization, prototyping and testing to serial production. Fiberforge also sells its RELAY[®] manufacturing equipment to parts producers worldwide. It is our main goal to provide high quality and affordable solutions to our customers. Our capabilities begin with selecting materials and continue through delivery of parts or equipment.

MATERIALS, DESIGN, & ANALYSIS: Fiberforge capabilities begin with helping customers define product requirements and continue through material selection, testing and qualifying materials, part design and analysis, including production costing to ensure a successful commercialization for our customers.

- **Materials Selection:** Fiberforge helps customers choose, based on cost and technical requirements, from over 19 thermoplastic matrices and continuous structural fibers (*e.g.*, glass, carbon, basalt & aramid) in uni-directional, pre-impregnated thermoplastic tape from our worldwide supply chain.
- **Materials Testing:** an in-house testing facility (including an Instron testing machine, micro-polishing station, and microscope) and partnerships to ensure rapid and reliable material testing for our customers including: base, mechanical, and thermal properties of materials.
- **Qualification:** Fiberforge helps customers qualify materials, processes and final products.
- **Design & Analysis:** Fiberforge's application engineering team deploys advanced software including SolidWorks, Autocad, CompositePro, and NEI Nastran for design and analysis of UD-tape-based composite parts and systems.
- **Cost Analysis:** Fiberforge has proprietary cost modeling capabilities for helping customers determine economic viability early in a project's development stage.

PRODUCTION & DEVELOPMENT CAPABILITIES: Fiberforge has production capabilities in-house for parts up to 1 x 1 m² in size, has partnered with Fraunhofer ICT in Pfinztal, Germany for development of larger parts up to 2 x 2 m² in size. Fiberforge's in-house production and development capabilities include:

- **Preforming:** an in-house RELAY[®] 1000 Station that rapidly lays up preforms from UD tape.
- **Consolidation:** a rapid step-press consolidation system.
- **Tooling:** a HAAS VF-5 XT CNC machine with 1524 x 660 x 635 mm³ travel and a 4th axis is used for making matched metal tooling in-house.
- **Heating & Thermoforming:** IR oven and automated shuttle system integrated with our 1 x 1 m² plate press with 810mm daylight and 408T pressure.
- **Joining:** induction and resistance welding, adhesive bonding, co-processing and mechanical fastening.
- **Finishing Techniques:** machining of carbon-fiber and glass-fiber parts to high tolerances on a DMS 5-axis twin 5^{ft} bed CNC Router.
- **Quality Systems & Assurance Testing:** AS9100C compliant quality production along with NDI, Faro arm, surface roughness and gage tools.

Our Applications Team has deep experience in the design and manufacture of thermoplastic composite components, having developed and produced products for many industries including aerospace, defense, consumer electronics, medical, automotive and sporting goods. The market for thermoplastic advanced composite products is currently booming due in part to increased consumer demand and regulatory pressure for lightweight and fuel-efficient products. With a long background in thermoplastics we are geared to deliver solutions for the growing market for these materials globally, and we have active ongoing programs in the United States, Europe and Asia. For more information please call Cheryl Schmidt at the number below.