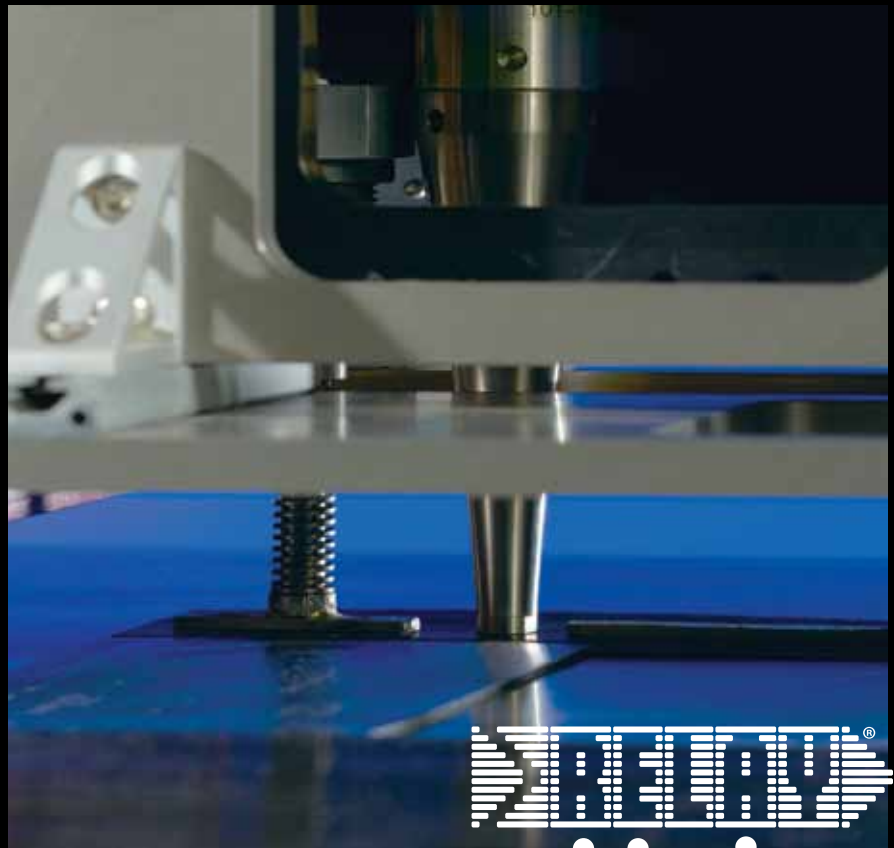


**FIBERFORGE®**



Lightweighting Your World.®



Rapid

Efficient

Layup

# Fiberforge RELAY® Station

## Breakthrough technology for the rapid production of advanced composite parts



Turnkey system

### Fiberforge technology:

- **Extremely high throughput—processes over 300 lbs. of material per hour**
- **Automated**
- **Accurate, repeatable and reliable**
- **Intuitive, easy-to-use interface**
- **Unsurpassed design and engineering support**



Fiber reinforced thermoplastics are the future of structural composites. Thermoplastics offer excellent toughness, stiffness, impact attenuation, chemical resistance and flammability performance.

High material and processing costs have prohibited the adoption of thermoplastic composites for volume applications. Enter Fiberforge®. With Fiberforge, advanced composites in high volume production applications are an economic reality.

Fiberforge's patented technology enables low cost, rapid and efficient processing of thermoplastic composites. No other technology can produce advanced-composite structures for a lower cost or in higher volume.

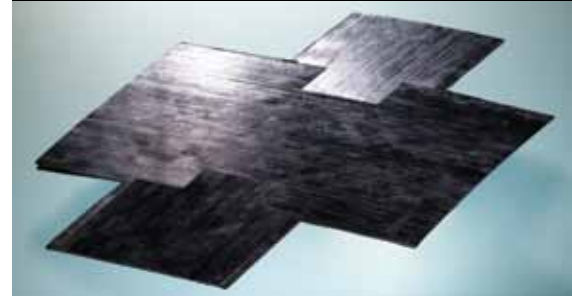
Rapid lay-up of Tailored Blank by Relay Station: minute one

1:00



Consolidate Blank: minute two

2:00

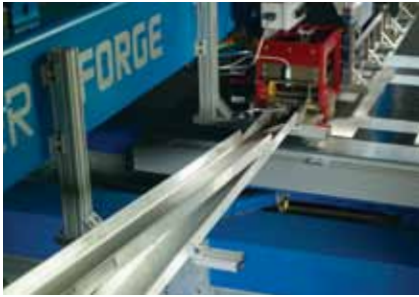


Thermoform Blank: minute three

3:00



**Fiberforge's patented Relay Station is a state-of-the-art tool for the rapid, high volume production of fiber-reinforced thermoplastic composite structures.**



### Process Summary

The Relay Station includes a rapid tape dispensing system, which feeds composite tape through a track positioned above a three-axis motion table. Based on the specifications of the part being produced, tape lengths are fed into the track, cut, and placed on the table. As the tape is placed, a series of ultrasonic weld tips descend and rapidly tack the tape to the ply beneath it.

Following welding, the table indexes to a new position to lay the next course. This process repeats until a multi-ply tailored blank is constructed. Following lay up, the blank is removed, then consolidated and thermoformed into a 3D part.

Fiberforge's proprietary software, TailorGen™, generates the tailored blank design from a 2D model and feeds the design to the Relay Station for production.



### Relay Station Operating System Specs

- PC-Based Operating System
- 4 Servo Axes – X, Y, A (carriages)
- Windows-based operating platform
- Touch screen, full manual and auto control
- Advanced error indicators and data logging

### Relay Station Facility Requirements

Power:	480 Volts, +/- 10%
	3 Phase
	100 Amps
Air:	Compressed Air, 10 CFM @ 90 psi
Footprint:	5.5m x 8.3m
Temperature:	Max. ambient continuous operating temperature 85° F
Humidity:	Max. ambient continuous operating relative humidity 65%



# Fiberforge RELAY<sup>®</sup> Station



## Relay Station Specifications

Relay	1000 Series	2000 Series
Max. Blank Size	1m x 1m	2m x 2m
Footprint	5.5m x 8.3m	7.7m x 9.9m
Maximum Throughput*	230 lb./hr.	368 lb./hr.
Tape Width	25 mm - 150 mm	50 mm - 150 mm
Tack System (with power supply and sequencer)	6 weld heads	12 weld heads
Vacuum Table	Two Zones	Eight Zones

\*Actual throughput may vary based on tape width, part design, material type and machine options.



## System Specifications and Upgrade Options

	Standard	Option
Resolution	A = 0.01° X, Y = 0.025 mm U = 0.1 mm	
Repeatability	A = ±0.05° X, Y = ±0.2 mm U = ±1.0 mm	
Graphic User Interface	Windows-based touch screen	
Part Logging	Textfile	SQL Database Connectivity
Warranty	1 year	3 or 5 years
Weld Method	Simultaneous	Simultaneous
Creel System	Single Creel	Double Creel
Tape Loading	Manual	Automatic
Part Removal	Manual	Automatic
Carriage Tray	Adjustable	—
Cutting Head	Fixed	Angled

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Fiberforge's technology is protected by US patents #6,607,626; 6,939,423; 7,235,149; and patents pending.  
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