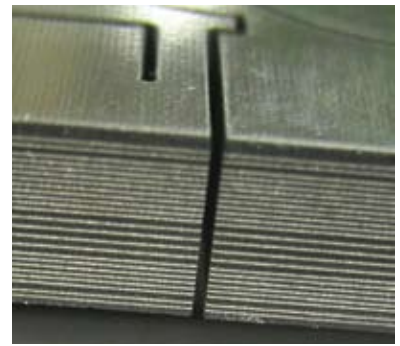




COMPOSITE MACHINING SOLUTIONS FOR 21ST CENTURY AIRCRAFT STRUCTURES



Abrasive Waterjet Machines

Abrasive Waterjet Composite Cutting Advantages Vs. High Speed Routing

- Much better finish
- Tool is always sharp
- No secondary operations required
- No material delamination
- No heat generated
- No airborne dust
- Much longer tool life
- Little or no cutting forces or vibrations
- Simple fixturing
- Higher feedrates



Specialty Composite Machining Systems

Some significant examples include:

- Perforating drill
- Aircraft composite wing stringer machine
- Aircraft composite fuselage drilling machine
- Spar drilling machines
- Nacelles drilling
- Composite surface milling machines

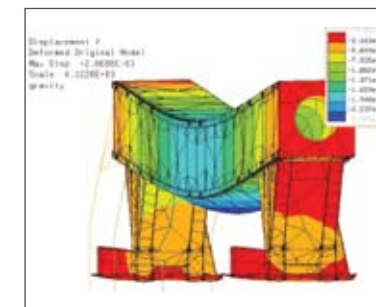


High-Speed Drilling & Routing Machines

- High-stiffness "CB" (230,000 kgcm)
- Direct feedback on rotaries
- Zero backlash design
- 22 max HP - 25,000 RPM
- 40 HSKE, taper
- Liquid cooled spindle
- Auto tool changer
- Probe ready

Engineering

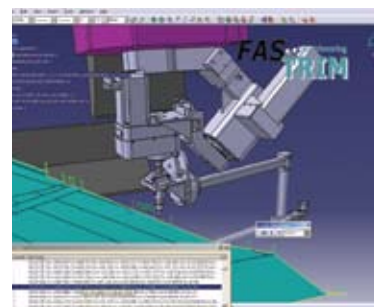
We employ the latest state-of-the-art engineering tools to design our equipment. In our Mechanical Engineering Department we utilize solid modeling, real time kinematic simulation, and dynamic finite element analysis in the design of our machines. Our Electrical Engineering Department designs our own PC based control and integrates commercial CNC and robot controls. In electrical design, the newest high level language compilers and computers are used for sizing and analysis software. Any new design is thoroughly tested and simulated for range/interference, stiffness/deflections, fatigue, servo performance, and software functionally, before being built. This method of engineering has been proven hundreds of times by the performance and reliability of the many different machines we have supplied.



Multiprocess Composite Machining Centers

Reduce cycle time of machining composite aerostructures by 25% as compared to a conventional router with hard tooling

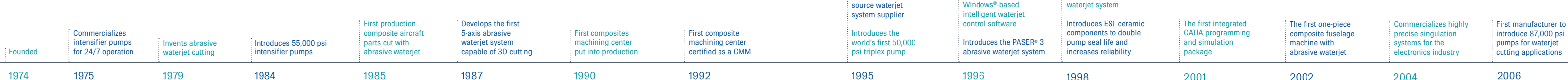
- 5-axis routing
- Precision drilling-countersinking
- Abrasive waterjet cutting
- Marking
- Inspection
- Flexible tooling
- CATIA V5 Programming Systems



Flow Manufacturing

- Verification of form, fit and function prior to customer installation
- Flexible manufacturing process allows for custom configurations
- ISO 9001 certified
- ASME certified

FLOW INNOVATIONS TIMELINE





Flow

INNOVATION | EXPERTISE | COMMITMENT

Get It All with Flow

For over three decades, Flow has set the standard for excellence in composite machining technology. We learn your business requirements. We help you select and implement the right solution. We train your staff. And we are there for you for the entire lifecycle of our products.

When you partner with Flow, you get more than a product:

OUR **INNOVATION** ENSURES THAT YOU WILL ALWAYS HAVE THE LATEST AND HIGHEST QUALITY TECHNOLOGY.

OUR **EXPERTISE** ENSURES THAT YOU WILL ALWAYS HAVE THE RIGHT TECHNOLOGY FOR YOUR INDIVIDUAL BUSINESS NEEDS.

OUR **COMMITMENT** TO CUSTOMER SERVICE ENSURES THAT YOU WILL ALWAYS RECEIVE THE SUPPORT YOU NEED TO STAY PRODUCTIVE.

For your complimentary needs analysis or a product demonstration, please call one of our experts at **1-800-446-3569**.

We look forward to partnering with you in your success.

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