



FlexiFab automated robotic FSW system

Designed and manufactured by TWI and partners in the FlexiFab project

Next-generation flexible robotic friction stir welding system for fabricating complex three-dimensional components.

Features and benefits

- Comprehensive data-logging system
- Retractable pin
- Turntable for circumferential welds
- Full three-dimensional capability
- Offline programming
- Multi-station setup gives high flexibility
- Demountable for large components

Applications

- Joining three-dimensional, complex-geometry components
- Supporting greater use of lightweight aluminium parts in the transport sector
- Reducing costs for complex aluminium part fabrication
- Sealing lids in heat exchanger assemblies
- Sealing of water channels in cylinder blocks for the automotive industry
- Fabricating aluminium battery pans for electric cars
- Hematic sealing of sensors and electronic assemblies such as hard drives used in harsh environments
- Sealing of liquid cold plates which manage heat loads during power generation, conditioning, conversion and storage

Technical specification

- ABB IRB 7600 robot
- Rotation speed: 3300RPM
- Spindle torque: 70Nm
- Axial force: 10kN
- Welding speed: >2m/min
- Working envelope: 5000mm diameter
- Control: force and position

