

TWI Services to the Automotive Industry Sector



TWI WORLD CENTRE
FOR MATERIALS
JOINING TECHNOLOGY

Automotive Industry Team Activities at TWI

TWI works with the automotive industry to provide innovative solutions for body structures, assembly. TWI can offer you world-class value to help improve the efficiency of manufacturing. Quality customer relations are regularly built on integrity, trust and reliability through the application of our expertise.

We support you at any, or every, stage of your product life cycle: from concept development through to recycling.

TWI's strengths in the automotive sector include:

- Innovative processes for better solutions to your problems
- Extensive experience of materials performance and fabrication
- Wide ranging core research
- Extensive training facilities
- Absolute confidentiality



Project partnering

Providing engineering support, from product and process design reviews through to implementation in production.

Training

A properly trained and qualified workforce is the vital resource of every organisation keen to maintain its competitive advantage in tough home and international markets. TWI's training and qualification services are designed to enhance the skills of all those engaged in welding, joining, and inspection. Many existing courses are automotive industry approved and we can tailor-make to your particular needs.

Supply chains

TWI assists many clients with materials and process selection and the implementation of choices made through their supply chains.

Environmental knowledge

We advise on relevant legislation and best practices to ensure your continued efficiency without any surprises.

Innovation toolbox

By dipping into our toolbox you can find tools that help to make your processes more innovative in a practical, realistic and profitable way. We aim to help you to reduce costs, add functionality and increase the potential for recycling.

es, powertrain, interior, electronics and sensor device
structure, performance and safety of road vehicles. High
application of technology and efficient service.

We understand what's important to you...

Work at TWI is driven directly by those factors considered important by the companies and organisations in the field.

- Lightweighting

Joining aluminium, magnesium and high strength steels

Joining dissimilar materials – metal-to-metal, metal-to-composite

Repair considerations when using new materials

New joining processes



- Process cost reduction

- Faster time-to-market

- Lean manufacture

- Electronics for harsh environments

- Lead-free soldering

- Design for disassembly

- Product reliability

Precision reliability modelling, testing, analysis, and life prediction

- Innovative technologies –

Surfi-Sculpt®, Clearweld®, cold spray, Comeld™

- Joining aspects associated with alternative fuel use

- Surface modification for improved wear or corrosion performance

- Thermally and electrically conductive adhesives

- Coatings and encapsulation

- Total service:

Including proof of concept, prototyping, development and evaluation of manufacturing methods.



TWI is a world-renowned research and technology organisation specialising in materials joining.

TWI services include:

- Materials joining – steels, aluminium, magnesium, titanium, plastics, fabrics, foams, ceramics and composites
- Laser and electron beam technologies – welding, cutting, surfacing/cladding
- Friction welding – friction stir, friction stir spot, rotary, linear, orbital
- Resistance welding – spot, projection, stitch, seam
- Arc welding – MIG, MAG, TIG, plasma
- Mechanical fastening – self piercing rivets, clinching
- Plastics joining – hot gas, hot plate, friction, laser, high frequency, ultrasonic
- Structural integrity – testing: mechanical, wear and fatigue; stress measurement and failure analysis
- Material analysis
- Modelling
- Electronics packaging and assembly expertise
- Soldering, brazing, microjoining including expertise in all aspects of lead-free soldering
- Experts in electronics production and process development
- Manufacturing and production support
- Environmental testing – sour (H₂S) salt and humidity testing; corrosion, corrosion fatigue and stress corrosion; temperature cycling
- Quality control - NDT, in-process monitoring, instrumentation
- Adhesive bonding – mixing and dispensing, joint design, conventional and novel curing
- Surface pre-treatment, mechanical and joint reliability testing and failure investigation
- Surface engineering - spraying: cold spray, arc, HVOF; surfacing: friction and laser; surface preparation and sol-gel coatings

TWI Industrial Membership

TWI Industrial Membership is a partnership that will help you to improve the performance of your business. By becoming Industrial Members, companies and organisations can gain full access to TWI's unique range of facilities and expertise. Payment of the annual technology access fee allows use of any of the extensive services available from TWI.



Please contact TWI if you would like to know more about the services outlined in this brochure.

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