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TWI AND THE DEFENCE INDUSTRY

For over 50 years, TWI has supported the UK Ministry of Defence and global defence contractors in solving critical engineering challenges across land, sea and air platforms.

Our expertise spans advanced joining and welding, composite structures, protective coatings, and asset integrity management — including in-service inspection of military platforms to identify defects, extend operational life, and support through-life capability. Whether optimising lightweight systems, delivering robust field repairs, or advancing next-generation materials technology, TWI provides trusted solutions built on technical excellence, deep sector knowledge, and full security compliance.



Defence Sector Expertise

Our expertise in the defence sector includes:

- **Additive Manufacturing and Repair** – including cold spray and hybrid repair techniques
- **Advanced Welding and Joining** – dissimilar materials, low-heat processes, robotic welding
- **Composite Joining and Lightweight Structures** – welded, bonded, bolted and hybrid systems
- **Surface Engineering and Coatings** – corrosion, wear and thermal protection
- **Ceramic and Metallic Solutions** – integration of ceramics and metals for high-impact environments
- **Mechanical Fastening and Modular Assembly** – for rapid deployment and in-field repair

Adding Value

Partnering with TWI allows you to benefit from:

- **Assured Levels of Security and Confidentiality** – in accordance with UK, European and international government defence industry standards and protocols
- **Certified Quality** – to ISO 9000 series of standards
- **Previous Experience** – gained over decades, working on projects with international manufacturers and users of military equipment
- **Proven Track Record** – supporting OEMs and Tier 1s across major defence programmes
- **Obsolescence Mitigation** – engineering support for legacy systems and ageing platforms
- **Responsive Problem Solving** – from lab-based research to deployable field solutions

TWI research and development is undertaken in strict confidence with both individual experts and multi-disciplinary teams being available to solve all kinds of challenges related to material joining, surfacing, light-weighting, repair, and more.

Our materials experts can help select the best solutions to avoid obsolescence, while covering the entire scope of development activities, from design concepts through to advanced defence materials assessment, defence simulation and modelling and manufacture. We also offer in-service support using science and technological experience to solve any problems and mitigate against failure, creating bespoke solutions for our clients.

As part of our Core Research Programme, TWI has developed innovative joining technologies which are either ready for use in the defence sector, or could be further developed for commercial exploitation.

We work across all areas of the defence industry, covering land, air and marine applications, while our experience and knowledge of other industries allows us to bring bespoke solutions from elsewhere into the defence industry.

FOR MORE INFORMATION, PLEASE CONTACT US AT CONTACTUS@TWI.CO.UK.