Our team

Formed in 2005, we are a privately held company based in Farnborough, Hampshire. Our vertically integrated production capabilities allow complete flexibility of design from conception to final component manufacture. UK-based production plant offers ITAR-free supply of the materials technology.

TISICS have over three decades experience in advanced metal composite development and manufacture. Our highly experienced technical team can deliver component solutions tailored to the application requirements.

To understand how we can unlock new capabilities in your sector, please get in touch to find out how we can help.

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UltraMAT

Ultramaterial Innovations

UltraMAT – Power ultrasound as a generic tool for micro/nanoscale processing of metals

www.ultramat.co.uk

TISICS

Titanium Composites

www.tisics.co.uk

Innovate UK

UltraMAT is an **Innovate UK** Project Ref. 102802

Who we are

TISICS develops **light weight ceramic fibre reinforced Titanium and Aluminium alloys** for high performance systems where strength, mass, corrosion resistance and temperature properties can be exploited, with partners in the space, aerospace, defence, automotive and energy sectors.

40%

weight savings with substitution of conventional geometry components

70%

weight savings with designs optimised for composite properties and net shape manufacturing

TECHNOLOGY

METAL MATRIX COMPOSITES

Titanium and aluminium alloys are selectively reinforced with ceramic fibre to form metal composite components. The technology benefits from the low density of the metal matrix while delivering the performance of high strength steels with significant mass reduction.

CERAMIC FIBRE

TISICS manufacture continuous silicon carbide mono-filaments at its Farnborough plant. Continuous fibre offers considerable benefits through high mechanical and thermal performance, enabling MMCs to operate at higher loads and temperatures with lower creep and CTE than the base metal.

NET SHAPE MANUFACTURE

Net shape fabrication significantly reduces waste compared with conventional forming and machining techniques. This additive manufacture incorporates integral features with reduced final machining and assembly operations.

Our Products and services

Reinforced pressure vessel for Satellite propulsion system. 6 Month development from drawings to tested parts.

Novel use of diffusion bonding to build single piece near net shape pressurised propellant system. Diffusion bonding enables additive manufacture of complex parts to reduce system assembly mass and time.

Near Net Shape Titanium Matrix composite (TMC) Manufacture

Aluminium composite wing trailing edge rib development. Integral attachment points. Compression strength enabled lightening compared to machined aluminium.

TISICS LARAD Programme TMC robotic arm demonstrator. In collaboration with Airbus Defence and Space- Innovate UK programme

Full size landing gear side stay for Airbus A320. 35% lighter than aluminium standard part.
Net shape manufacture of tube and clevises to avoid welds.