Next-generation manufacturing

ABOUT US

Titomic is an Australian public company specialising in industrial scale metal additive manufacturing using its patented Titomic Kinetic Fusion® technology.

Incorporated in 2014, Titomic was formed to capitalise on Australia’s abundant titanium reserves through the commercialisation of an additive manufacturing technology - Titomic Kinetic Fusion®. The technology was co-developed with the CSIRO – Australia’s national science agency for the application of cold-gas dynamic spraying of titanium or metal alloy particles onto a scaffold to produce a load-bearing structure. This technology forms part of what is being marketed by Titomic as Titomic Kinetic Fusion®.

Alongside its patented Titomic Kinetic Fusion® (TKF) process, Titomic leverages automation, specialty materials and additive manufacturing expertise to create high-performance products and solve complex engineering challenges. Titomic has the exclusive rights to commercialise the proprietary and patented TKF process globally.

YOUR TRUSTED PARTNER

We partner with world-class research organisations to ensure our products are certified to the highest possible standards.
THE STRATEGIC ADVANTAGE

Titomic has developed the world’s largest and fastest metal additive manufacturing systems and coating technologies.

Although additive manufacturing was first used commercially in the 1980’s to produce functional concepts and prototypes, advances in spraying and material technology such as Titomic Kinetic Fusion® are now pioneering large-scale additive manufacturing for dissimilar metals, alloys and composites for load bearing applications such as tooling, spare parts and end-use products; superseding traditional forms of manufacturing.

Traditional manufacturing brings with it a myriad of challenges such as extensive lead times, scalability, limitations in material and coating properties, and excess product waste. These challenges may lead to lost revenue due to down time, increased costs, inferior products, and many other pain points for the customer.

Titomic Kinetic Fusion® can eliminate these challenges and unlock the ability to commercialise viable product solutions in sectors such as Aviation, Aerospace, Defence, Mining, Energy, Oil & Gas, Infrastructure and Automotive.

REDUCED TIME TO MARKET

Titomic Kinetic Fusion® provides the world’s fastest deposition rates and with deposition efficiency as high as 95-97%, builds parts to a near-net shape. The TKF process produces parts more rapidly than both traditional and additive manufacturing methods, where parts are machined down from billet or forgings. This approach reduces lead times from weeks or months to just days.

ECO-FRIENDLY

TKF creates a smaller environmental footprint than conventional methods as a result of reduced mass, efficient use of resources and a shorter supply chain. Additionally, titanium super alloys typically achieve a 40% weight reduction in products to improve fuel efficiency and increase wear and corrosion resistance, enabling longer part life.

AFFORDABILITY

Titomic Kinetic Fusion® produces parts comparable to traditional manufacturing in both affordability and productivity. With a shorter supply chain, faster build rates and less material waste, TKF is an affordable and superior alternative. Additionally, TKF may utilise metal powders at different price points, allowing lower-grade materials to be used to manufacture high-performance products more affordably with higher performance in reduced time.

CUTTING EDGE MATERIALS

Titomic Kinetic Fusion® is the only established process capable of fusing dissimilar materials, allowing manufacturers to exploit the advantages of multiple metals within a single part as well as the metallisation of plastics. The process utilises a broad range of metals, superalloys, and ceramic blends. Titomic Kinetic Fusion® parts also meet certification standards such as ASTM International standards for metals.
Titomic’s R&D team work devotedly with clients to understand their manufacturing needs and uncover innovative ways to produce new and existing parts. Titomic’s expert technical team provides design for manufacture, prototyping, feasibility studies, and process validation.

Clients can take advantage of Titomic’s OEM production capability at Titomic’s Smart Bureaus. Parts are produced for the client with Titomic’s agile manufacturing capability, enabled by TKF. This allows clients to reduce their cost of ownership, reduce risk, simplify their supply chains, minimize waste, and drastically increase their speed to market.

Titomic is your trusted partner from beginning to end, providing all of your production services from R&D and prototyping, to design for manufacture, and OEM production. Whether you’re at the beginning of your manufacturing journey, or ready to produce a thousand parts, we’ve got you covered at every step.
MANUFACTURING PARTNERSHIP

As our clients become ready to take the next step and move into volume production, Titomic offers cost-efficient scalable routes to production through manufacturing partnerships. Titomic provides companies with a complete supply and service solution – materials selection and sourcing, bespoke TKF machine, after-sale service and high quality, affordable powder consumables. Titomic’s secure global supply chain delivers a broad range of metal powder consumables and the dedicated support staff work with you to provide guidance and ensure your TKF System.

TKF SYSTEMS
Titomic partners with industry-leading robotics and equipment manufacturing firms to create bespoke machines, allowing product customisation without size constraints. Titomic Kinetic Fusion® enables automated production lines with no need for tooling, welding, folding or bending thus simplifying the supply chain. This results in less design iterations so you can spend more time innovating and less time troubleshooting.

METAL POWDER CONSUMABLES
Clients can source a cost competitive range of metal powders for their additive manufacturing requirements – not just titanium. In fact, the TKF process allows lower grade powders that were previously deemed unavailable, to be utilised for high-end, high-spec applications.

POST SALES SERVICE
Our team of trained engineers are on call to provide dedicated support, including preventative maintenance, trouble-shooting services, and to ensure your Titomic Kinetic Fusion® system is fulfilling your manufacturing needs – in spec and on time.
THE TITOMIC KINETIC FUSION® ADVANTAGE

The Titomic Kinetic Fusion process is the first additive manufacturing process to mitigate oxidation issues associated with melt-based additive manufacturing methods. Titomic Kinetic Fusion® creates parts by accelerating metal powders at supersonic speeds onto a substrate, and as the powders collide, kinetic energy forces them to fuse together, causing a mechanical bond and forming layers of deposited material. The formation of these layers rapidly builds large, seamless metal parts without the need to melt metals.

With the TKF process there is no heat-related distortion, materials retain their properties and are comparable to cast and wrought material. This opens new design possibilities for clients across industries and a multitude of applications.
**TKF 1000 - A TURNKEY SOLUTION**

The TKF 1000 is Titomic’s smaller additive manufacturing system, engineered to support a range of low to mid-size production applications to industry, academia and research organisations. The off-the-shelf, turnkey additive manufacturing system offers rapid, agile manufacturing, prototyping, custom parts, and pilot runs prior to mass production. With industry leading build rates and a build envelope of 1m³, the TKF1000 enables in-house manufacturing capability to increase self-reliance, reduce lead times and simplify supply chains.

**System Features:**
- 6 axis robotic maneuverability
- Rapid deposition rates
- Protective, sound-dampening booth
- Integrated dust extraction

**Specifications:**
- **Build envelope**: 1m x 1m x 1m
- **Footprint**: 6.5m x 4.3m x 3m
- **Shuttle Load**: 1000kg

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**TKF 9000 - THE WORLD’S LARGEST**

The TKF 9000 is the world’s largest metal 3D printer. With a build envelope of 40.5m³ and industry leading build rates, the TKF 9000 provides the new age of industrial scale additive manufacturing. The TKF 9000 provides a custom built, autonomous robotic production line capable of on-demand additive manufacturing of load bearing structures and specialty surface coatings.

**System Features:**
- Automated robotic production
- World’s fastest additive manufacturing
- Integrated dust extraction

**Specifications:**
- **Build envelope**: 9m x 3m x 1.5m
- **Shuttle Load**: 5000kg

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