



# Enter a new age of automated manufacturing

Produce high-performing parts or perform coatings and repairs on demand – while combating the most complex manufacturing challenges.

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**TRANSFORMING THE FACTORY FLOOR**

## **A new era in metal manufacturing**

At Titomic, we're reimagining how metal parts are produced and protected across aerospace, automotive, defence, mining and beyond – to maximise your uptime and profits in an ever-competitive and challenging world.



## Cold spray makes it possible

Titomic's Kinetic Fusion Additive Manufacturing (TKF AM) and Coatings & Repairs systems harness patented cold spray technology to produce high-performing parts or perform coatings and repairs on demand – while combating the most complex manufacturing challenges.

Our advanced cold spray systems can be tailored to any production line or manufacturing environment, saving time, costs and waste while reducing risk and enhancing your customer value proposition.



Access novel, **cost-effective** materials with unparalleled capabilities.



Perform rapid surface **repairs** with closed loop robotic systems.



Produce thick **coatings** and complete metal objects.



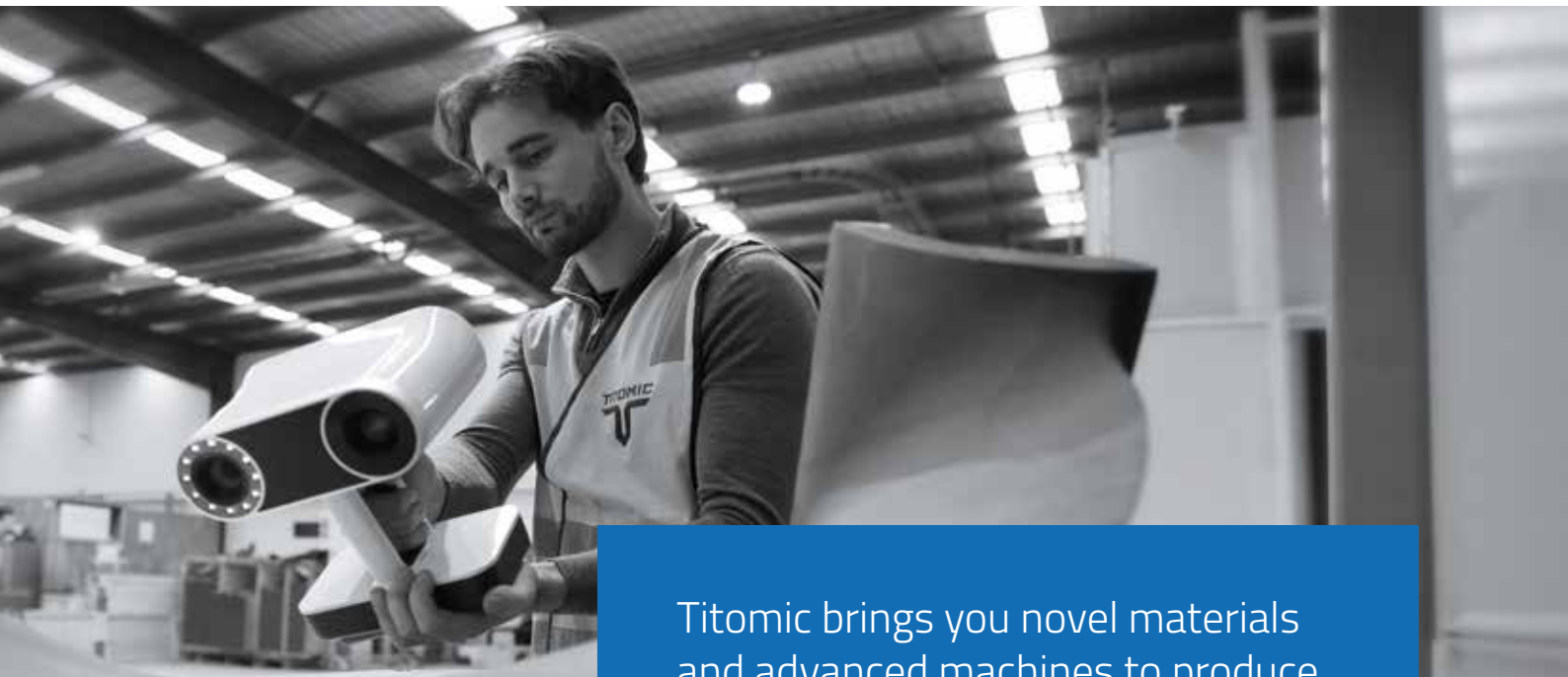
Make **near-net shape geometries** for faster speed to market and better buy-to-fly ratios.



Produce **high-performance**, solid-state metal components faster, lighter, stronger and longer lasting.



**Rapidly** build titanium components for lighter aircraft, armoured vehicles, rockets and more.



Titomic brings you novel materials and advanced machines to produce parts and improve products **like never before.**

## ADDITIVE MANUFACTURING

Put the power back in your hands, go to market faster and be more profitable with our complementary **additive manufacturing systems** for creating metal parts.

Leveraging our patented Titomic Kinetic Fusion (TKF) technology, we work with you to integrate our custom in-line manufacturing solutions into your production line.

Our systems are specifically designed to your needs and engineered to reduce lead times, maximise uptime, cut material costs and enhance performance. So you can add greater efficiency to your operations and unlock new material possibilities – to maximise production and profitability.

From prototyping to R&D, small-run production and on-demand manufacturing, our fully customisable Titomic Kinetic Fusion Additive Manufacturing (TKF AM) systems bring the limitless possibilities of high-pressure cold spray technology and more to your factory floor – without making your existing equipment obsolete.

- ✓ Machines
- ✓ Materials
- ✓ Software
- ✓ Training
- ✓ Support



Faster output



Less waste



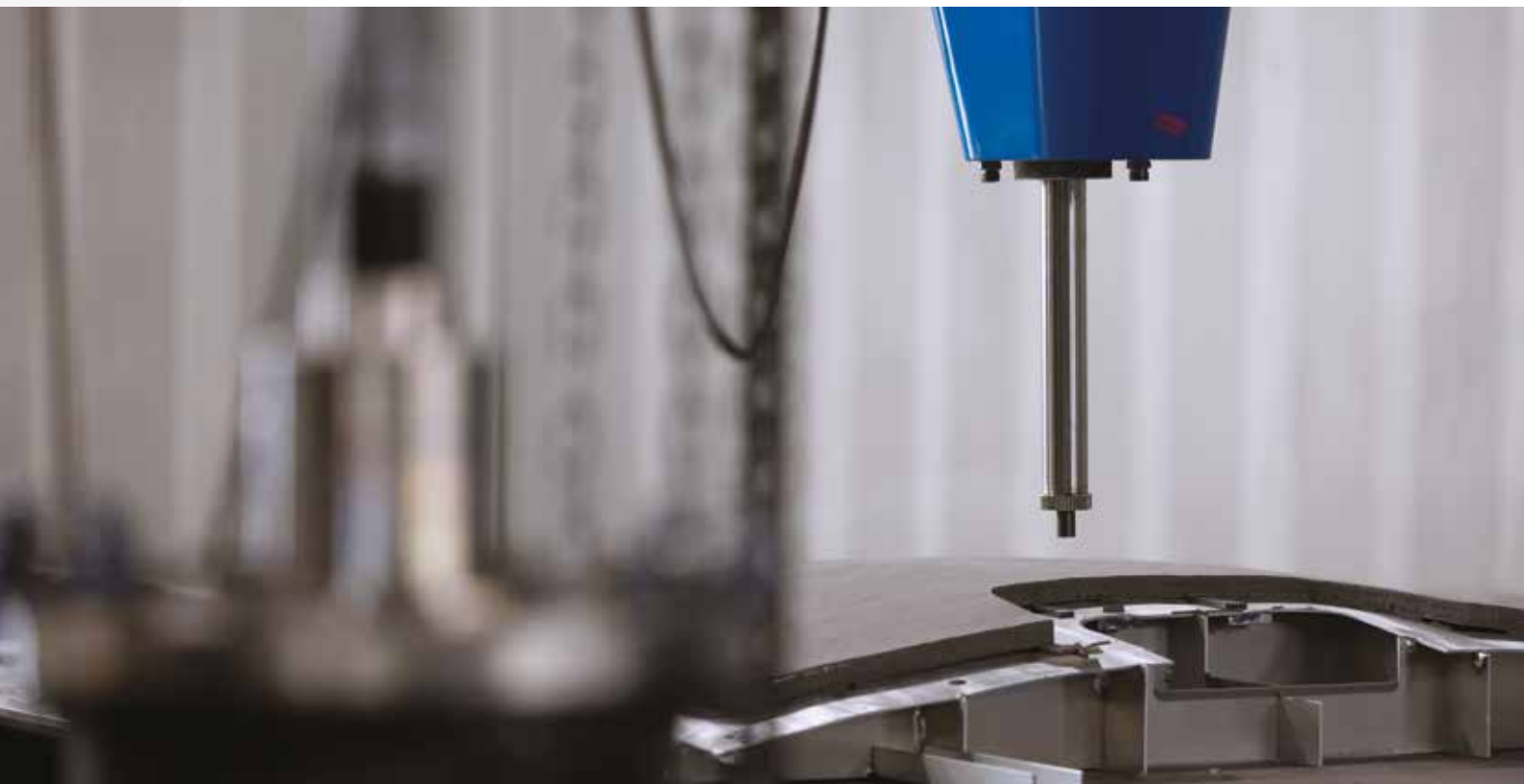
Scalable systems



Any size



Cost competitive



## COATINGS & REPAIRS

Unlock the **limitless possibilities of cold spray** technology for your factory floor, to tackle any emerging or ongoing challenges.

With Titomic's fully customisable low and medium pressure cold spray systems, it's never been easier, faster or more profitable to restore and coat metals and temperature-sensitive materials without making your existing systems obsolete.

Whether you're working with metals, glass, ceramics or plastics, Titomic's fully customisable low and medium pressure cold spray systems allow you to make rapid repairs and apply metal coatings – with unparalleled thickness, adhesion, density, conductivity and corrosion resistance.

### See what's possible:

- Low process temperature prevents part deformation, structural changes, mechanical and thermal stresses
- Localised spraying jet provides greater accuracy
- Restores thin wall parts where other methods fail
- High adhesion: 30-60 MPa
- Low porosity: < 1 %



Spray metal within 10 seconds



No need to pre-treat



Rapid material build-up



Manual and automated spraying



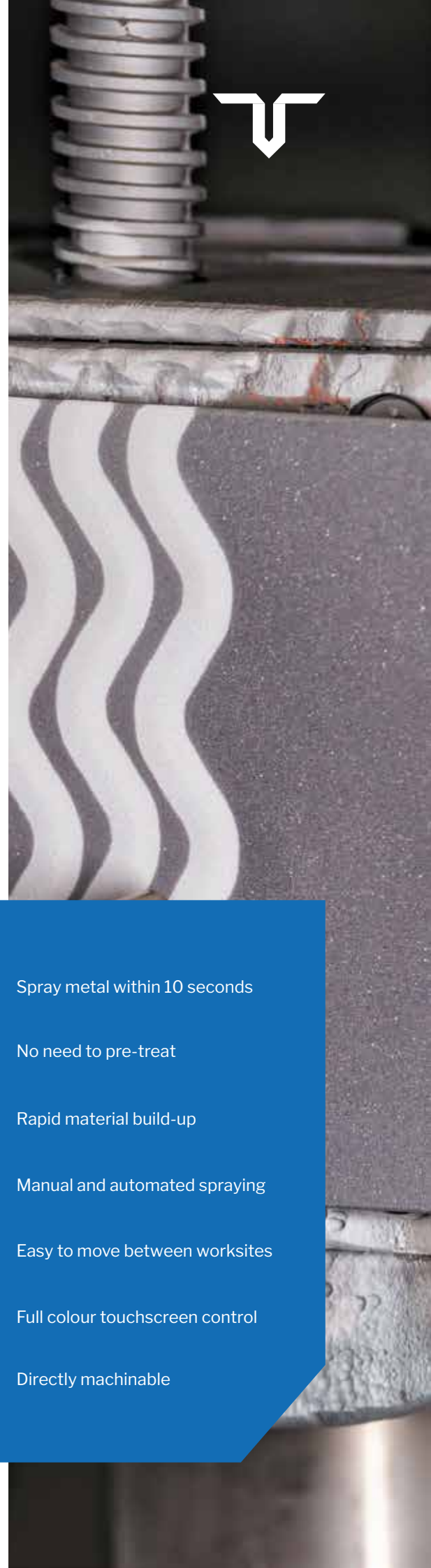
Easy to move between worksites



Full colour touchscreen control



Directly machinable



## COMMON APPLICATIONS

Titomic's systems harness cold spray technologies together with machines, materials, software and robotics (backed by training and support) to produce better-performing parts for a variety of applications in high-pressure environments:

# Additive Manufacturing



### BARRELS

Produce large multi-metal barrels that are lighter and offer better corrosion and erosion performance than traditional techniques.



### TOOLING

Produce stronger, lighter, thinner and corrosion-resistant near-net shape faceplates – with reduced welding, assembly and lead times.



### BALLISTICS

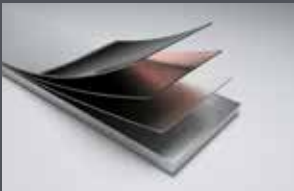
Produce larger, lightweight titanium armour at a competitive price point.



### STRUCTURES

Replace complex and costly welded assemblies with single-piece structures.

# Coatings & Repairs



### RADIATION SHIELDING

Unlock a reliable, enduring, lightweight and cost-effective alternative to prohibitively expensive radiation-hardened electronics.



### ENERGY

Create solar panel componentry and add hard-wearing efficiencies to wind turbine blades, plus combine materials for electrical and thermal conductivity.



### INDUCTION COATINGS

Rapidly add ferrous metals to dissimilar metal parts, to enable induction technology in cookware, manufacturing and more.



### WEAR RESISTANCE

Protect glass mould equipment and glob chutes from wear, and replace hard chrome coatings.



### REPAIRS

Rapidly repair metal parts, restoring them to working order in applications across aerospace, mining, defence, boilermaking and more. Spray metal in seconds, so you can restore parts in minutes.



### CORROSION

Apply corrosion-resistant materials such as titanium to new or existing parts, enhancing their lifespan in corrosive environments across marine, chemical, and oil and gas applications.



### EMBEDDED SENSORS

Build and incorporate electronic sensors directly into parts, providing hard-wearing and anti-corrosion analytical sensors for offshore oil and gas, subterranean piping and more.





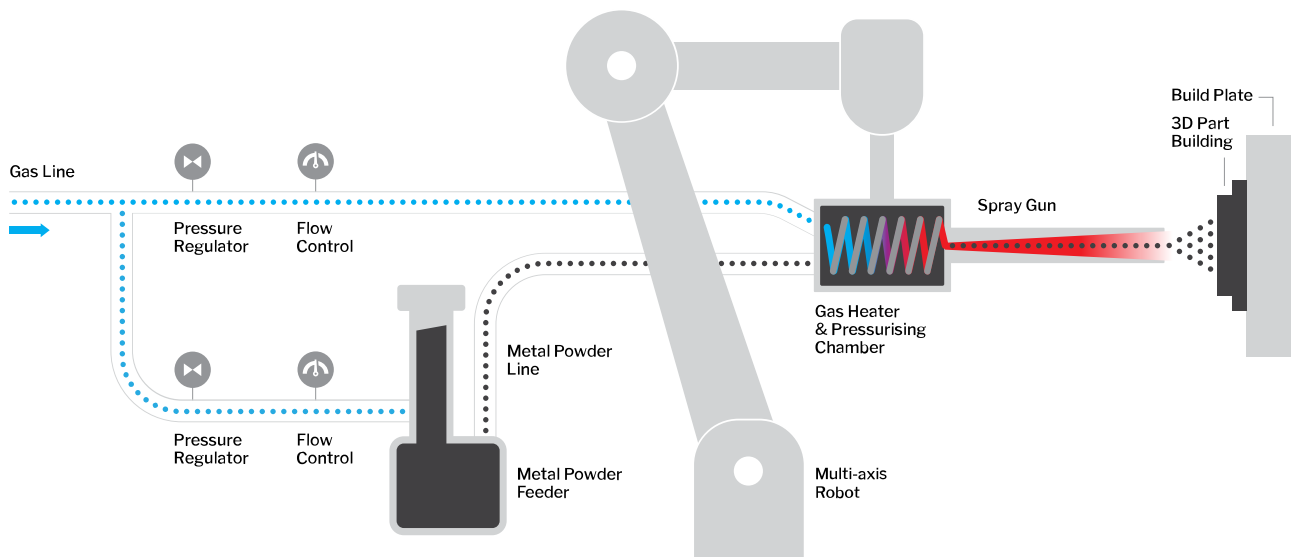
## TECHNOLOGY

# How it works

Cold spray technology makes it quicker, easier, safer and more sustainable to produce multi-metal, high-performance parts on demand – saving time, costs and waste while reducing risk.

This revolutionary process rapidly deposits strong metals, alloys and other specialty materials at low temperatures. So they retain their intrinsic properties without needing to be melted.

By integrating this advanced technology into your existing systems, you can produce new parts with maximum uptime.



- 1** Metal particles are injected into a gas jetstream.
- 2** The particles accelerate at supersonic speeds.
- 3** The particles exit the spray nozzle.
- 4** The particles collide with the surface and deform, sticking to the surface and to each other.
- 5** The particles build up, developing into near-net-shape metal parts.

This process unlocks **limitless design possibilities** with minimal heat distortion. And because the materials keep their intrinsic properties, they're comparable or superior to cast and wrought materials.

## SYSTEMS

# Additive Manufacturing

### TKF 1000

#### Modular system for additively manufacturing metal parts

Ideal for low to mid-size production applications, our modular system offers rapid and agile manufacturing, prototyping, custom parts and pilot runs before mass production.

Because the TKF 1000 can fuse dissimilar metals, it can be used with a wide variety of metals and alloys including titanium, steel, copper, nickel and magnesium.



TKF 1000









### CUSTOMISED

#### Complete customisation

Titomic creates custom systems to fit your exact part, production volume and speed needs – while also being optimised for your environment and easy to integrate into your production line.

Rather than being an alternative solution, our systems elevate and add value to your existing systems, enhancing your existing manufacturing activity.

#### See what's possible:

-  Manufacturing with advanced materials
-  Automated robotic production
-  Fuse dissimilar metals to create custom solutions
-  Additive manufacturing without distortion or oxidation
-  Multiple powder feeders allow rapid manufacturing with dissimilar metals
-  Combine multiple materials in parts
-  Cost effective digital manufacturing
-  Industry leading build rates





## SYSTEMS

# Coatings & Repairs

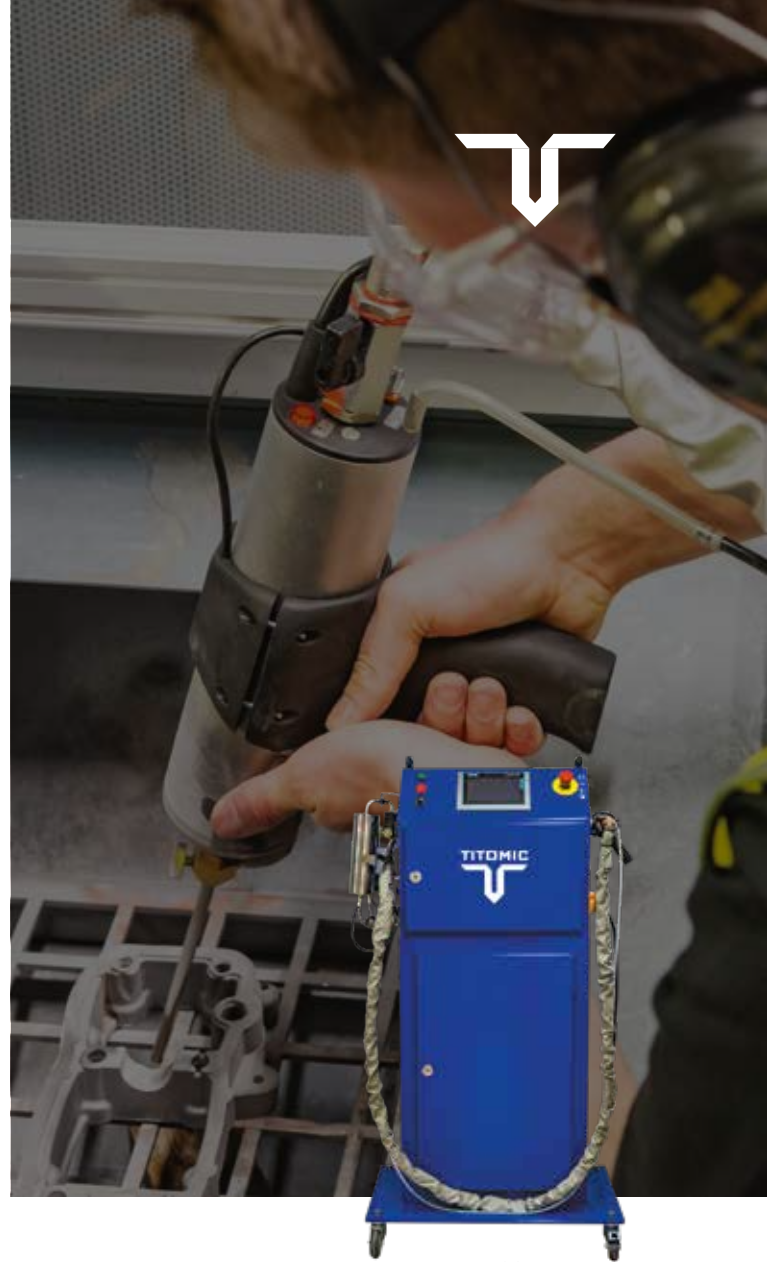
### D523

#### Low Pressure System

Applications for D523 are found in repair and restoration of numerous metal parts like engine components and moulds, sealing, corrosion protection, electrical conductivity, additive manufacturing, and special applications.

#### See what's possible:

- ✓ Repair metal surface defects
- ✓ Geometric restoration of worn or damaged surfaces
- ✓ Electrically conductive coatings
- ✓ Corrosion protection and repair
- ✓ Wear, heat and corrosion resistance



D523

### INTEGRATED SPRAY BOOTHS

Titomic's turnkey integrated spray booth (ISB) systems bring together low-pressure cold spray, handling and dust extraction, and can be customised to your specific needs.

#### See what's possible:

- ✓ Robotics or linear system
- ✓ Remote access for service
- ✓ Closed-loop cold spray
- ✓ Integrated dust suction system
- ✓ Automated parts loading and unloading
- ✓ Compatible with different powder feeders



ISB-10



ISB-11



ISB-12

## MATERIALS

As the advanced manufacturing technology leaders, we can use common metals or combine materials to make never-before-seen bespoke blends (such as titanium with ceramic) to combat corrosion, wear and any other issues impacting your operations.

In creating heterogeneous metal alloys, we can reap the intrinsic benefits of each – such as combating corrosion, wear and any other issues impacting your operations.

### Next generation materials

With problem solving in our DNA, we can recommend the right materials for the best possible outcome. Together with our technology, the possibilities are limitless.

A wide range of metals can be processed.

Low pressure materials:

Aluminium

Zinc

Copper

Tin

Nickel

Babbit

Gold

Silver

Platinum

Inconel 625 (He)

High pressure materials:

Titanium CP

Inconel 718

Invar36,

4330 Steel

Tantalum

Stainless Steel 304

And many more.



Near net shape  
manufacture



3D freeform  
components



MetaMaterials



Functional  
coatings



Fuse dissimilar  
metals





## HOW WE WORK TOGETHER

# Unlocking **new possibilities** for your production line.

As a global technology integrator, we work with you to bring the best metal manufacturing method to your supply chain – solving your challenges and revolutionising your operations.



### **Need to manufacture a prototype?**

We can do it quickly and cost effectively.



### **Want to bring it all in-house?**

We can integrate our system into your production line.



### **Need to build your first parts?**

We can be your small-to-medium-volume manufacturer.



### **Ready to expand?**

We can invest in your production line, sharing the risks and costs.

**Ready to see how we can help  
solve your manufacturing  
challenges?**

**Let's talk.**

Together,  
we can make it  
possible.



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