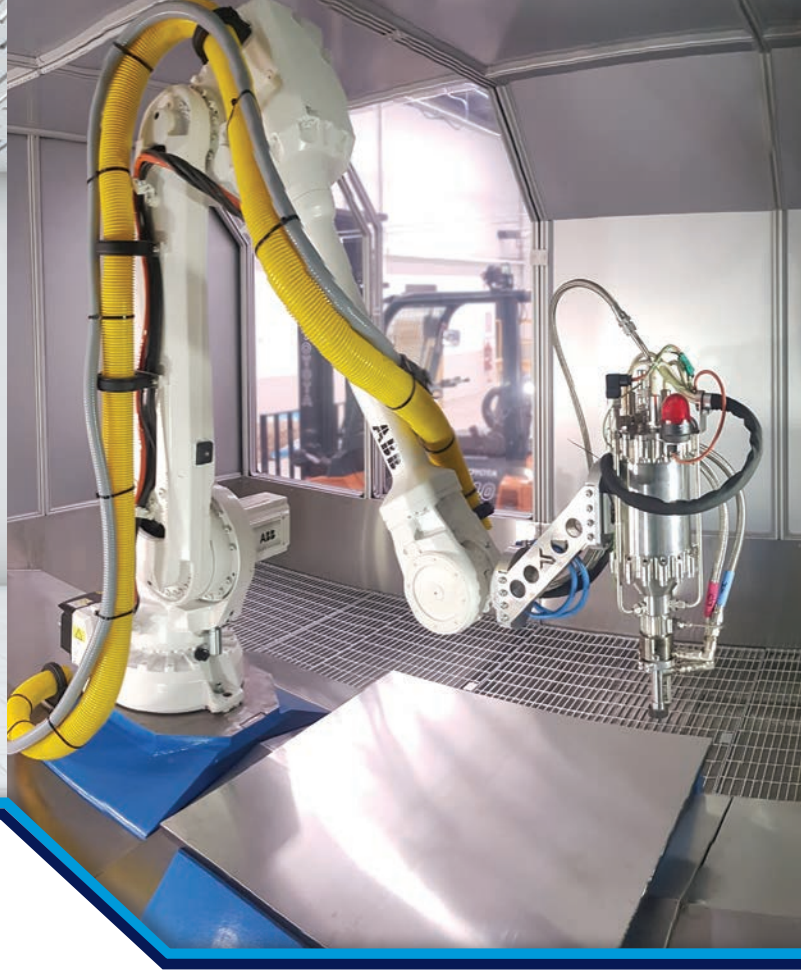

TITOMIC

TKF 1000

MODULAR INDUSTRIAL-SCALE ADDITIVE MANUFACTURING

The TKF 1000 is Titomic's modular additive manufacturing system, engineered to provide compact Titomic Kinetic Fusion® capability to industries, academia and research organisations.

With rapid Kinetic Fusion® build rates and a competitive 2m³ build envelope, TKF 1000 offers rapid manufacturing and prototyping, R&D, and small-run production.

This in-house system puts the power in the hands of the manufacturer to enable self reliance through co-located, on-demand manufacturing.

With this, the TKF 1000 reduces costs, reduces lead times, reduces down time and simplifies supply chains.

- 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
- Industry leading build rates
- Cost effective digital manufacturing
- Manufacturing with advanced materials

READY TO DISCUSS YOUR MANUFACTURING NEEDS? CONTACT US TODAY

www.titomic.com 03 9558 8822 info@titomic.com

SYSTEM FEATURES

- ABB robot provides 6 axis maneuverability
- Intuitive touch panel interface
- Protective sound-dampening booth
- Integrated dust extraction

SYSTEM ENCLOSURE

- Aluminium extruded frame
- Scratch-proof, polycarbonate viewing panels
- Access points for all services and air in/out components
- Fully insulated composite dual-panel cell walls
- Fully insulated pneumatic front cell door with sealing system

EXTRACTION SYSTEM

The TKF 1000 features an external ST3 rated dust extraction system and integrated vacuum system to ensure a safe and clean manufacturing environment

Extractor

- Based on velocity downdraft of 0.5m/s, total volume extracted 8640m³/hr
- Explosion relief venting on rear and sides of dust collector
- CA140-40F filters
- 3 x 50L collection bins
- 1 x ground mount 15kW fan set, 1 x fan starter and pulse controller

Vacuum System

- Plug and play integrated housekeeping vacuum
- Hi-vacuum to single collection point
- 5m max anti-static vacuum hose
- 250m³/hr at 15 kPa

COMPONENT POSITIONING SHUTTLE

- Counter levered linear bearing mounts
- Component mounting table
- Two pneumatically driven positions
- One component fixture spraying plate
- One component small robot mounting plate
- One component lath mounting plate
- Cable chain for carrying component cables

SPECIFICATIONS

Build Envelope	1 x 1 x 0.75m
Footprint	6.5 x 4.3 x 3m
Shuttle Load	1000kg

CONTROL

Platform	Siemens ET 2000
Interfacing	Hard signal or Profinet
Input Data	Hard signal, Profinet or flexible
Feedback Data	Hard signal, Profinet or flexible

PROCESS PARAMETER REGULATIONS

Gas Flow	+/- 0.5% from set point
Chamber Temperature	+/- 3˚ C
Powder Output	+/- 0.5%

OPERATION

Max Temp. 1100˚	15 minutes to heat, 10 to cool
Max Operating Pressure	725 Psi
Powder Feeder Swap	60 seconds

GENERAL MAINTENANCE

Nozzle Change	Under 5 minutes
Heater Change	Under 15 minutes

POWDER FEEDER SYSTEM

Operating Pressure	725 Psi
Feed Ratio	10g/min - 330g/min (20kg/hr)
Weight	45kg

- Dual powder feeder allows combining powders and refilling during operation
- Universal use for ISS 5/8 and ISS 5/11
- Internal controls ensure stable operation process

GENERAL MAINTENANCE

MATERIAL	SPEED	POROSITY	EFFICIENCY (1/5 max feed rate)
Cu	12kg/h	<0.5%	99%
Al 99.99%	3.5kg/h	<0.5%	94%
Ti CP	6.5kg/h	<0.5%	98%
Ti6Al4V	6.5kg/h	<2.5%	98%
SS316L	6.5kg/h	<1%	96%
Ta	19kg/h	<0.5%	99%

MATERIAL MECHANICAL PROPERTIES

MATERIAL	AS SPRAYED (N2)	HEAT TREATED
Cu	285 MPa	Not required
Al 99.99%	85 MPa	70 MPa
SS316L	750-790 MPa	690 MPa
Ni	780 MPa	400 MPa
In718	800 MPa	1300 MPa
AA2024	350 MPa	Not required
AA7050	425 MPa	Not required
In625	600 MPa	925 MPa
Invar	700 MPa	Not required
NiCr	550 MPa	720 MPa
Ti6Al4V	330 MPa	900 MPa