

Meltio Engine Robot Integration

Laser Metal Deposition (LMD) Technology

Turn a robot arm into a metal 3D printing system with no inherent size constraints. The Meltio Engine Robot Integration is the perfect platform for large and complex 3D printing, repair, cladding and feature addition.



High Complexity

Create highly complex parts with infinite degrees of freedom.



Retrofitting

Provide new capability to any robot arm by turning it into a metal 3D printing system.



Part Repair

Cost-effective component repair, part augmentation and feature addition.



Large Scale

No inherent constraints when the working envelope is only limited by the size of the motion system.

Technical Specifications

Dimensions (W*D*H): 390*700*1025 mm

System Weight: 142 kg

Laser Type: 6 x 200 W direct diode lasers

Power Input: 208/230 V single phase or 400 V three phase

Interface: USB, ethernet, wireless datalink

Print Envelope (X*Y*Z): Depending on robot reach

Total Laser Power: 1200 W

Laser Wavelength: 976 nm

Cooling: Active water-cooled chiller included

Process Control: Closed-loop, laser and wire modulation

Power Consumption: 2-5 kW peak depending on selected options

Printhead Retracted Size (WxDxH): 202x297x784 mm

Printhead Weight: 15.5 kg

Wire Feedstock: Diamenter: 0.8-1.2 mm
Spool Type: BS300
or wire drums

Accessories: Laser Alignment System, Hot Wire and Dual Wire

Open Materials Platform

Stainless Steels

Excellent strength and corrosion resistance.

Mild Steels

Cheap and ductile, with unparalleled machinability and weldability.

Carbon Steels

High impact strength, retain hardness at high temperatures.

Titanium

High strength to weight ratio and corrosion resistance.

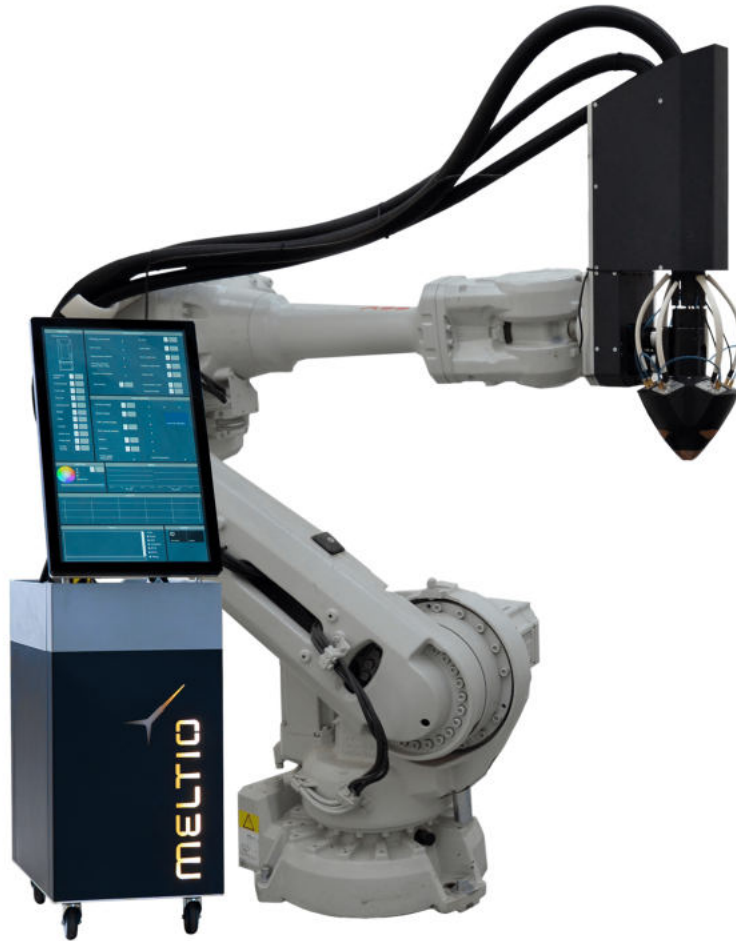
Nickel

High versatility, outstanding heat and corrosion resistance.

Copper

Under Development.

Meltio Engine Robot Integration



Unlock geometry freedom in part size and complexity by integrating Meltio with a Robot Arm. The cost-effective solution for large metal part manufacturing.

Robot Integration Hardware

Custom mounting hardware for the deposition head and upper enclosure for electronics and related sensors.



Robot Requirements

Minimum requirements for a successful integration of the Meltio Engine with a robot arm are:

1. Payload of at least 20kg (60kg recommended)
2. More than 3 digital input ports available
3. More than 3 digital output ports available
4. Enclosed room with safety locks
5. Laser safe windows and/or camera

Applications



Naval Propeller SS316L – Marine

Size: 600mm Ø - 250mm
Weight: 12.1 kg
Print Time: 43 h 40 m



Engine Manifold SS316L - Motorsport

Size: 205 x 360 x 473 mm
Weight: 5.2 kg
Print Time: 19 h 23 m



Spherical Tank SS316L – Oil & Gas

Size: 500 Ø mm sphere
Weight: 29.6 kg
Print Time: 81 h 20 m