MELTIO

Meltio Engine Robot Integration

Large-scale Metal 3D Printing

The most affordable large-scale metal 3D printing solution, the Meltio Engine integrates with any robot arm manufacturer and interface on the market.

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

Technical Specifications

Dimensions (WxDxH):
390x700x1025 mm

Print Envelope (WxDxH):
Depending on robot reach

System Weight:
142 kg

Laser Type:
6 x 200W direct diode lasers

Laser Wavelength:
976 nm

Total Laser Power:
1200 W

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

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

Process Control:
Closed-loop, laser and wire modulation

Cooling:
Active water-cooled chiller included

Wire Materials:
Compatible with a wide range of welding wires including stainless steels, mild steels, carbon steels, titanium alloys, inconel and tool steel.

Wire Feedstock:
Diamenter: 0,8-1,2 mm
Spool Type: BS300
or wire drums

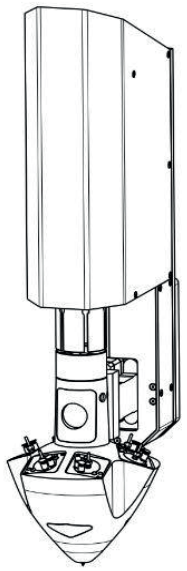
Powder Feedstock:
45 to 90 µm particle size

Powder Materials:
Compatible with non-reactive metal powders such as stainless steels, carbon steels and inconel.

Printhead Information

Printhead Size (WxDxH):
202x297x784 mm

Printhead Weight:
15,5 kg



Key Integration requirements:

- Payload of at least 45 - 60 kg ensures that the robot can follow the additive toolpath precisely.
  Position repeatability of ± 0,06 mm according to ISO 9283.
- At least 8 Digital I/O configured according to “Communications Protocols Robot Meltio Engine”. When using OPC DA or Socket as the default communication protocol, Meltio recommends a total of 16 Digital I/O.
- The robot and the ositioner must be installed, configured, and calibrated before the Meltio Engine Integration
- Laser-safe robot cell with a security circuit between the robot controller, the Meltio Engine, and the cell door interlock. The integrator is responsible for the correct installation and operation of the security system.

Upgrades and Accessories

Hot Wire:
Increase the print speed with a programmable power supply that preheats the material before it enters the melt pool.

Dual Wire:
Print parts in two materials using the dual wire option. Dual wire allows for the fast and automatic switching of materials within a print without cross-contamination.