# 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.
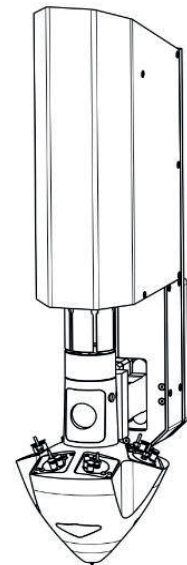
## Upgrades and Accessories

**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.