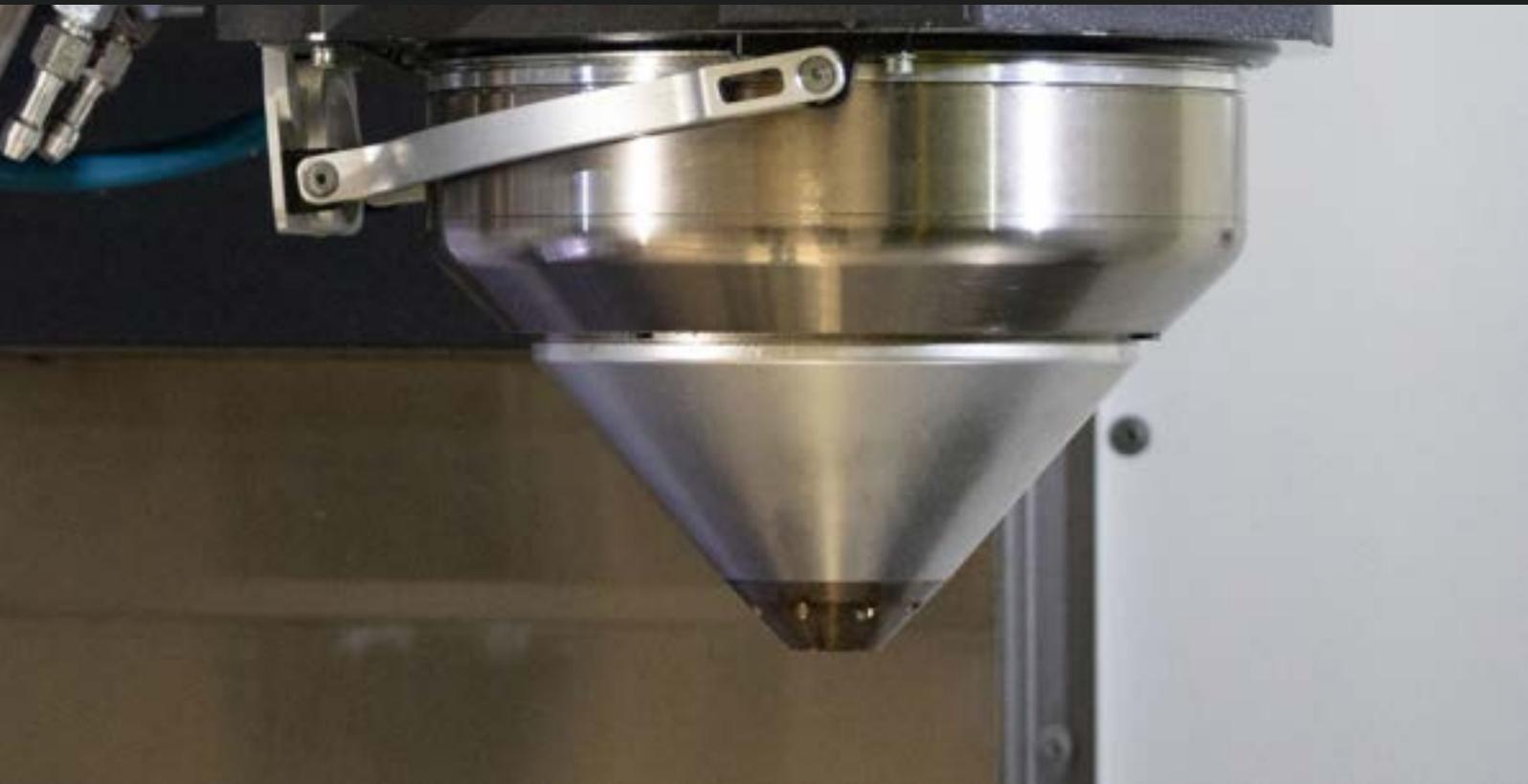


# MELTIO

**Advanced Metal  
Additive Manufacturing**



Meltio delivers a new standard in metal manufacturing with its patented wire-laser technology available as a compact standalone system or easily integrated into CNC machines and robotic arms. Our plug-and-play integration kits make **advanced additive manufacturing** more accessible than ever, with fast setup and minimal hardware requirements.

By using standard welding wire as feedstock, Meltio systems produce **dense, high-quality metal parts** with consistent mechanical performance without complexity and risks. Whether you're enhancing existing machinery or adopting additive from scratch, Meltio offers a flexible, cost-efficient, and reliable path to modern metal production.

## Laser Metal Deposition

---

### Multi-Laser Deposition Head

**LMD is a Directed Energy Deposition (DED)** process that functions by precisely stacking weld beads on top of one another. The wire feedstock is introduced into the laser-generated melt pool.

Our compact deposition head integrates multiple lasers and a coaxial wire feed, enabling efficient processing of standard welding wires, independently or in sequence.



## What makes our systems unique?

---

### Safer operations

---

Fully enclosed systems, Class 1 laser safety, and wire feedstock eliminate airborne risks.

### Precision and control

---

Patented Coaxial Wire Feed and multi-laser heads for consistent, precise deposition.

### Single, Dual and Quadruple wire

---

Options for printing with up to four different materials in the same print sequentially with the reliability of a single wire process.

### Great mechanical properties

---

Achieve near net-shape parts with superior properties.

## Enhanced performance and reliability with Meltio Blue Lasers

---

### High absorption and efficiency

---

450 nm blue light improves energy absorption and printing efficiency, enhancing deposition rates and reducing energy consumption.

### Factory laser alignment

---

Ensures maximum printing repeatability and minimal maintenance, enhancing long-term reliability and reducing downtime.

### Wide range of compatible materials

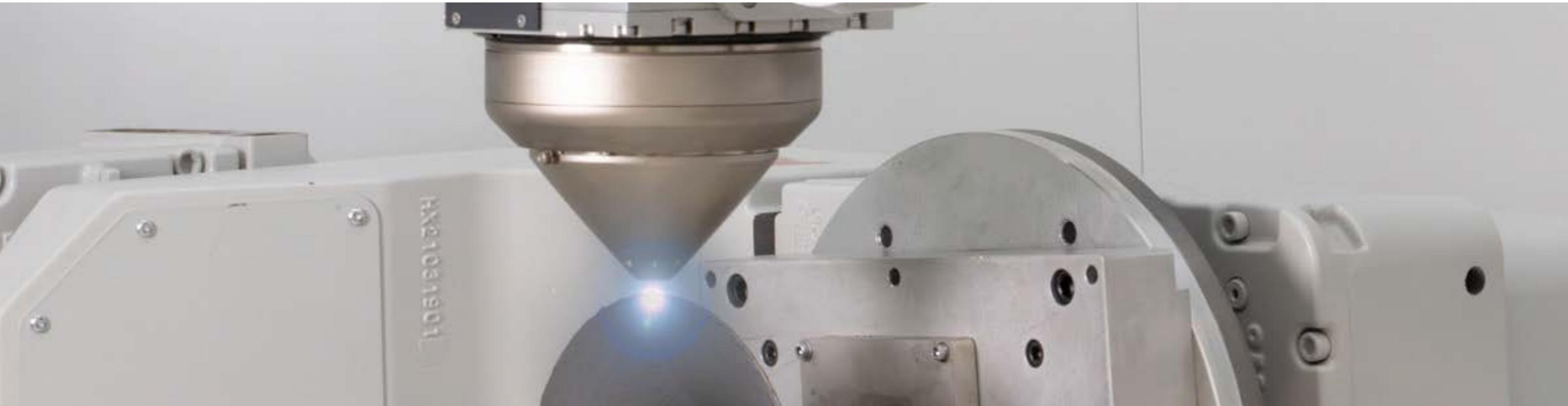
---

The multi-laser blue system is compatible with a broad range of metal materials, providing flexibility and versatility in production.

### Integrated sensors and vision system

---

Real-time monitoring and feedback from integrated sensors and a vision system ensure precise control and continuous optimization during the printing process, enhancing quality and consistency.



# Industries already working with Meltio

---

## Energy, Oil & Gas

---

Corrosion-resistant parts and pipeline repairs, showcasing hybrid manufacturing that integrates additive and subtractive processes on a single platform.

## Aerospace, Defense and Naval

---

Part repair and on-demand manufacturing capabilities in remote or operational areas. Wide range of common military-grade metals. Legacy components no longer manufactured by the OEM. Rapid prototyping on designs for new components or specialized tools.

## Automotive and Motorsport

---

Production of high-performance components with successful implementations of multi-material printing to boost part efficiency.

## Tooling and Molds

---

Custom tooling with conformal cooling channels, where multi-material printing and repair extend tool life and performance.

## Mining

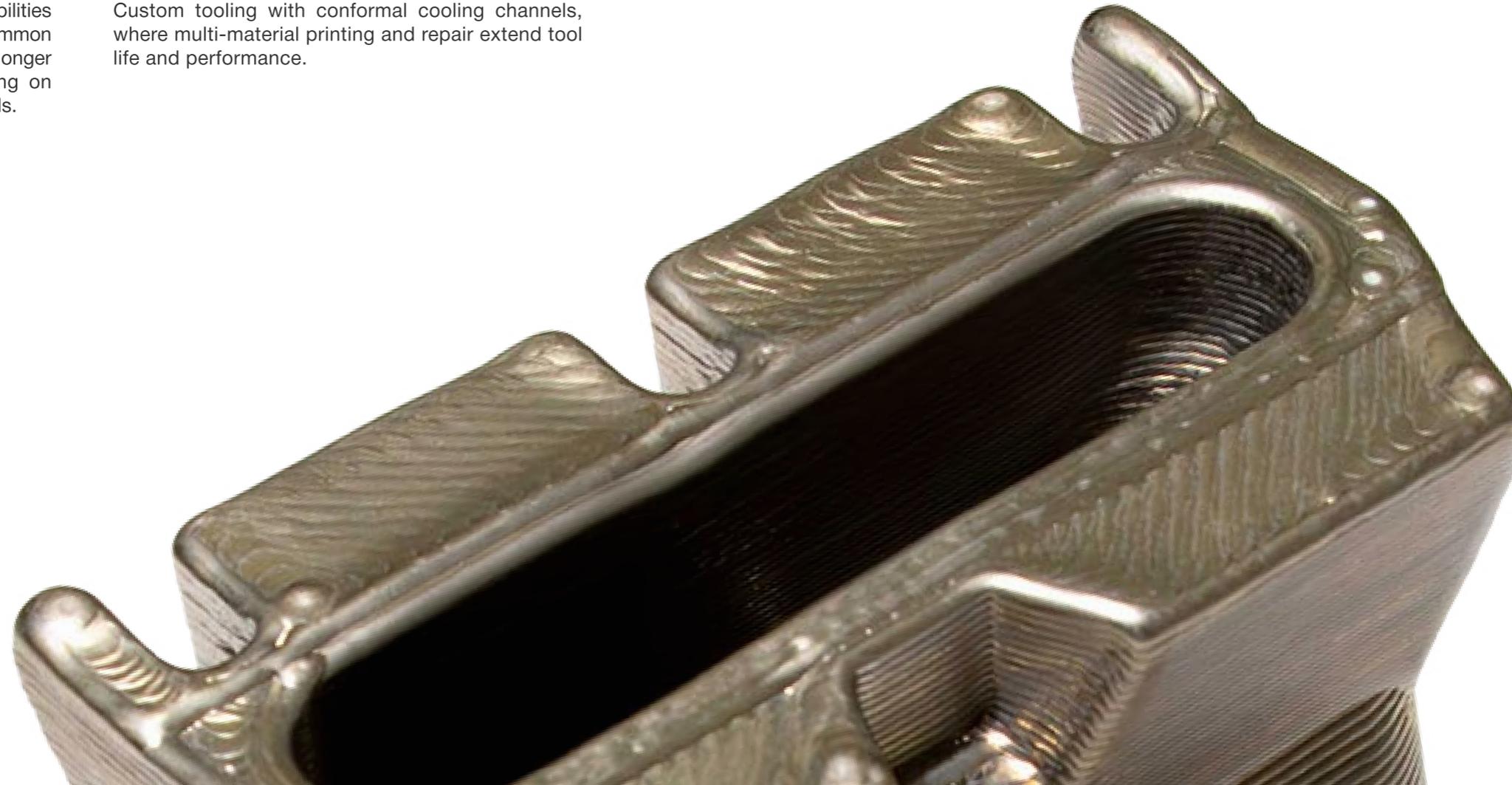
---

Create and repair parts directly at the point-of-need, even in remote locations. Greatly reduce the high costs for custom or complex parts. Improve the production process by cutting the equipment downtime impacting productivity.

## Heavy Industry and Construction

---

Large-scale manufacturing and reinforcement structures, supported by large-scale printing case studies that significantly reduce production costs.



# Meltio M600

## Industrial Metal 3D Printer

Expand your manufacturing capabilities with Blue Lasers, a large build volume and a fully inert chamber for the best material properties. Printing is easier than ever thanks to the improved process control, advanced sensors and live monitoring allowing you to produce parts consistently 24/7.

The Meltio M600, with its built-in 3-axis probing system and work-holding solutions, is the ideal companion for your manufacturing operations.



Production ready

Reliable

Easy-to-use

Repeatability

Dimensions (WxDxH):	1050 x 1150 x 1950 mm
Build envelope (WxDxH):	300 x 400 x 600 mm
System weight:	800-1000 kg (depending on options)
Movement system:	Servo Motor Linear axis with absolute encoder on all axis
Filtration system:	3 Stage Particulate and Chemical Filtration included
Environment control:	Control O2 and Humidity levels
Laser type:	9x Direct Diode Lasers
Laser wavelength:	450 nm (Blue)
Total laser power:	1000 W

Power input:	380-415 V Three-phase + N + PE 200-240 V Three-phase +PE
Power consumption:	4-6 kW avg. consumption, 12 kW peak
Process control:	Closed Loop, Laser and Wire Modulation
Touch probe:	Automated XYZ Touch Probe integrated
Enclosure:	Laser safe, Controlled inert atmosphere
Interface:	USB, Ethernet
Cooling:	Active water-cooled chiller included
Wire feedstock:	Diameter: 0.8-1.2 mm / Spool Type: BS300 External wire drum ready



### Exhaust manifold - Automotive

Size:	126 x 111 x 110 mm
Weight:	4.6 kg
Material:	Stainless Steel 316L // Nickel 718



### Heat exchanger core - Oil & Gas

Size:	120 x 120 x 395 mm
Weight:	8.7 kg
Material:	CuCrZr

# Meltio Engine Integration kits for Industrial Robots and CNCs

## Enhance your existing equipment

The integration-agnostic Meltio Engine Laser Integration Kits enhance Industrial Robots and CNC mills by incorporating our high-precision laser head technology, allowing companies to leverage metal 3D printing using their existing equipment.

By adding advanced additive metal manufacturing, Meltio **empowers businesses to innovate and elevate their production** capabilities efficiently. Our flexible integration solutions maximize return on investment, enabling more companies to compete effectively in the evolving manufacturing landscape.

Hybrid

Retrofitting

Geometry freedom

Part repair

Large-Scale

Cladding



- 1.0/1.4kW Blue Laser factory calibrated
- Stronger & reliable dual wire feeders
- Compact & simple system
- All Quick-Connect easier integration
- Process control more stable & compatible
- 27" & 17" screen options
- Melt pool camera on head
- Max safety level PL4e
- Predefined print profiles for meltio materials
- Frictionless wire liners (no external motor or reservoir)

# Easier than ever

## Integration steps

**Select Your Movement System:** Choose between Robot or CNC Mill

**2. Mount the Meltio Engine:** Includes Laser Deposition Head, Engine Control Unit, Touch Screen (HMI), Spool Holder and Chiller

**3. Protect your team:** Laser-safe windows, panels, and door interlocks

**4. Two-way communication:** 8 digital I/O & respective M-codes. Dual channel safety lines between controllers

**5. Let's slice:** Enjoy a 1-year free Meltio Space subscription for Robots, or select Hybrid CAM software with adaptable post-processors for CNC mills and M-codes

**6. Start printing:** Enhance your productivity with predefined print profiles for Meltio Materials for solid and hollow geometries



## Rely on your regional integrator partner

**Local expertise:** Integrators understand regional markets and specific robot/CNC brands, tailoring solutions effectively

**Enhanced support:** Local partners offer timely, expert support, boosting customer satisfaction across platforms

**Market penetration:** Our partner network enables fast market entry, adapting to different brands and technologies

**Adaptation and innovation:** Collaborations drive innovation, aligning Meltio's technology with diverse sector needs and CNC architectures

**Accessibility:** This approach ensures Meltio's solutions remain globally accessible and compatible with various machinery



## Explore the opportunity to become one of our partners

Include your own integrations within the "Powered by Meltio" portfolio, allowing your integration to be sold within your region by our reseller network.

# Meltio Engine Integration kit for CNCs

## Hybrid Manufacturing

The most affordable hybrid manufacturing solution, fitting almost any Vertical Machining Center in the market. Enable metal 3D printing and machining of complex geometries in a single process step.

The Meltio Engine is the ideal complement for near-net shape manufacturing, repair and feature addition.



Hybrid

Retrofitting

Geometry freedom

Part repair

<b>Laser system:</b>	1.0/1.4 kW 9 x 450 nm direct diode lasers
<b>Printhead:</b>	Mounted on the right side of the spindle 32.5 to 35 kg
<b>Printhead retracted size (WxDxH):</b>	280 x 332 x 684 mm
<b>Printhead unretracted size (WxDxH):</b>	280 x 332 x 943 mm
<b>Control unit:</b>	Wall mounted, air-cooled 80.5 kg 600 x 300 x 800 mm
<b>Human machine interface:</b>	Wall mounted 17" tactile screen
<b>Cooling:</b>	Water-cooled deposition head. Chiller Included
<b>Print envelope (WxDxH):</b>	Depending on the Machining Center

<b>Feeder system:</b>	Quad-point traction servo feeders, frictionless liners
<b>Process control:</b>	Melt Pool Camera & Closed-loop wire modulation
<b>Power input:</b>	200/240 V 3W+PE 380/415 V 3W+N+PE
<b>Power consumption:</b>	9.2 kW peak 2-5 kw avg.
<b>Wire feedstock:</b>	Diameter: 0.8-1.2 mm / Spool Type: BS300 External wire drum ready
<b>Product configurations:</b>	Single or Dual Wire



### Injection knife - Agriculture

**Printing time:** 15h Printing Time

**Material:** Stainless Steel 316L



### Aircraft bracket - Aerospace

**Size:** 110 x 161 x 35 mm

**Weight:** 1.5 kg

**Material:** Titanium 64

# Meltio Engine Integration kit for Industrial Robots

## Large and complex manufacturing

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

The Meltio Engine integrates with any robot arm manufacturer and interface on the market. Meltio Space slicer software for robots is compatible with ABB, Kuka, Fanuc, Yaskawa and Siemens.



- Large-Scale
- Geometry freedom
- Part repair
- Cladding

<b>Laser system:</b>	1.0/1.4 kW 9 x 450 nm direct diode lasers
<b>Printhead:</b>	Robot Mounted 20.5 to 23 kg
<b>Printhead size (WxDxH):</b>	262 x 272 x 572 mm
<b>Control unit:</b>	Wall mounted, air-cooled 80.5 kg 600 x 300 x 800 mm
<b>Human machine interface:</b>	Wall mounted 27" tactile screen
<b>Cooling:</b>	Water-cooled deposition head. Chiller Included
<b>Slicer software:</b>	Meltio Space 1-year subscription Included
<b>Print envelope (WxDxH):</b>	Depending on robot's reach

<b>Feeder system:</b>	Quad-point traction servo feeders, frictionless liners
<b>Process control:</b>	Melt Pool Camera & Closed-loop wire modulation
<b>Power input:</b>	200/240 V 3W+PE 380/415 V 3W+N+PE
<b>Power consumption:</b>	9.2 kW peak 2-5 kw avg.
<b>Wire feedstock:</b>	Diameter: 0.8-1.2 mm / Spool Type: BS300 External wire drum ready
<b>Product configurations:</b>	Single or Dual Wire



### Ball Valve - Oil & Gas

<b>Size:</b>	360 x 405 x 301 mm
<b>Weight:</b>	4.3 kg
<b>Material:</b>	Stelloy 21



### Eductor - Naval

<b>Printing time:</b>	58 h Printing Time
<b>Material:</b>	Stainless Steel 316L



### Jet engine exhaust - Aerospace

<b>Size:</b>	R167 x 355 mm
<b>Weight:</b>	12 kg
<b>Material:</b>	Stainless Steel 316L



### Vertical manifold - Automotive

<b>Size:</b>	255 x 255 x 450 mm
<b>Weight:</b>	5.7 kg
<b>Material:</b>	Stainless Steel 316L

# Meltio Engine Robot Cell

## Plug-and-Play Solution for Robot Integration

An affordable turn-key solution for the Meltio Engine Robot Integration. It is designed to provide industries with a secure and efficient solution for manufacturing metal 3D printed parts.

The Meltio Engine Robot Cell is the most versatile and capable solution for 3D printing, repair, cladding and feature addition.



- Plug-and-Play installation
- Best components
- Safe
- Tested and certified

<b>Dimensions (WxDxH):</b>	4.050 x 2.350 x 3.000 mm Indoor use only
<b>Print envelope:</b>	1 meter diameter printing volume with continuous positioner axes interpolation. Actively Cooled 300 x 400 mm build platform
<b>System weight:</b>	4.000 kg
<b>Laser type:</b>	Meltio Engine Robot Integrated and Tested
<b>Movement system:</b>	6- Axis Robot Arm & 2-Axis Workpiece Positioner
<b>Platform:</b>	Structural Steel with Laser-safe Class 1 enclosure with CE certification. All equipment anchored to the platform

<b>Integration:</b>	Unified Control Panel, 4k WebCam monitoring & Live Timeline of sensors and 3D model based on reading TCP positions from robot
<b>Slicing software:</b>	Meltio Space one year subscription included. Pre-defined Print profiles and slicing strategies. Focused on ease of use
<b>Power input:</b>	385-415V 50/60Hz (3W+N+PE) 20 kW peak 7 kW avg. upon request: 230V 50/60Hz (3W)
<b>Required inputs:</b>	Inert Argon Gas supply between 2 to 5 bar. (Meltio offers an optional Gas Regulator) & Internet Lan cable connection
<b>Accessories:</b>	Inert Bubble for full Print envelope with Independent Atmospheric Control O2 and Humidity and Temperature Monitoring

# Powered by Meltio

## Turn-key Meltio Engine solutions by our partners

Harness the power of our advanced metal additive manufacturing technology with confidence, backed by expert support of our integration and reseller partners. Available regionally, these solutions cater to a wide range of industrial applications, making it easier than ever for businesses to elevate their production capabilities.

Our vision is to integrate with every robot, CNC mill, and CNC controller, including various CNC architectures like lathes. **“Powered by Meltio”** is a game-changing market segment, **adapting to diverse industries** while upholding the quality and reliability of the Meltio brand. We invite new integrators and resellers to join us in this exciting journey, empowering you to offer innovative solutions that meet the evolving needs of the market. **Together, we can transform the future of manufacturing!**

- Turn-key
- Pre-configured
- Expert support
- Confidence
- Regional availability\*

## Hybrid CNC Machines



### Phillips Additive Hybrid

3-axis & 5-axis  
Hybrid CNCs  
Haas controller



### Jupiter & Union

3-axis & 5-axis  
Hybrid CNCs  
Fanuc controller

## Multi-axis Robot Cells



### Wire Trading

6+2 axis Robot Cell  
Kuka robot



### 3D Solution

6+2 axis Robot Cell  
Kuka controller



### Force Automation

6+2 axis Robot Cell  
ABB robot



### Accufacture - Alchemist I

6+2 axis Robot Cell  
Fanuc robot



### AM Solutions - with:Plus

6+2 axis Robot Cell  
ABB robot

## Containerized solutions



### Snowbird - SAMP Tech

3-axis  
Hybrid containerized solution  
Fanuc controller



### AM Solutions

6+2 axis  
Containerized solution  
Kuka robot

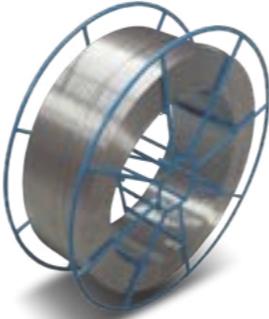
\*Consult Meltio for their availability in your region

# Meltio Materials

## Multi-Wire Advanced Manufacturing

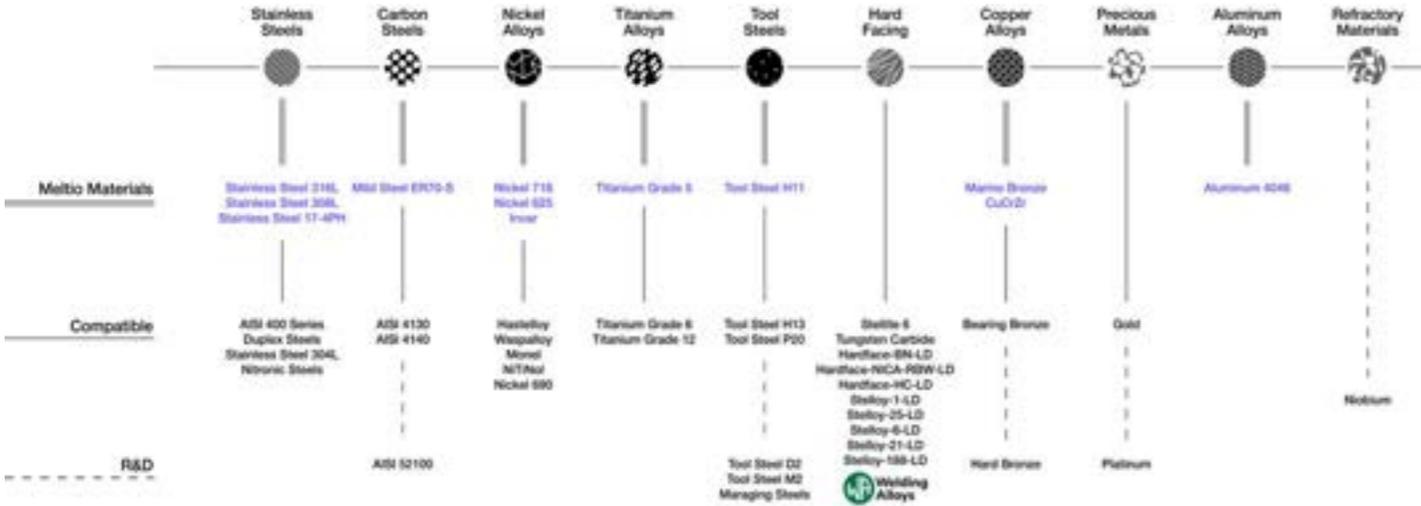
Meltio's Laser Metal Deposition process achieves exceptional material mechanical properties using multiple wires.

Choose the ideal welding wire for your application: unlimited third-party commodity material or qualified Meltio Materials that secure the user experience.



- Single wire
- Dual wire
- Quad wire
- 99.98 % Densification

## Unlimited third-party material choice



## Meltio Materials

- Meltio Stainless Steel 316L
- Meltio Stainless Steel 308L
- Meltio Stainless Steel 17-4PH
- Meltio Mild Steel ER70-S
- Meltio Tool Steel H11
- Meltio Marine Bronze
- Meltio CuCrZr
- Meltio Nickel 718
- Meltio Nickel 625
- Meltio Titanium 64
- Meltio Invar
- Meltio Aluminum 4046

# Materials Properties

### Superior mechanical properties:

Meltio delivers significantly higher Ultimate Tensile Strength (UTS) and Yield Strength compared to traditional casting and wrought methods, ensuring robust performance in demanding applications.

### Competitive hardness:

Materials like Tool Steel H11 (49 HRC) and Nickel 718 (245 HV-30) offer excellent wear resistance, making them ideal for high-performance components.

### Material and time efficiency:

Additive manufacturing minimizes material waste and energy consumption contributes to more sustainable production practices, particularly for hollow or thin parts, leading to lower production costs and shorter lead times.

### Lower heat input:

The laser energy source used in Meltio reduces the heat-affected zone (HAZ), resulting in stronger, more durable parts by minimizing material recrystallization.

### High density and compliance with standards:

With over 99.5% density achievable in various metal alloys, Meltio meets or exceeds ISO and ASTM standards, providing confidence in material performance.

### Summary of structural properties as printed:

Material	Ultimate Tensile Strength (MPa)	% of Casting	% of Wrought	Yield Strength (MPa)	% of Casting	% of Wrought	Hardness (HV-30)	% of Casting	% of Wrought
Stainless Steel 316L	643	126%	118%	429	206%	165%	173 HV-30	80%	77%
Stainless Steel 17-4PH	1017	130%	78%	815	106%	70%	258 HV-30	66%	66%
Mild Steel ER70-S	598	144%	136%	484	236%	194%	175 HV-30	109%	138%
Tool Steel H11	1830	92%	88%	1170	71%	70%	49 HRC	92%	100%
Nickel 718	833	104%	67%	537	71%	52%	245 HV-30	72%	70%
Nickel 625	739	89%	90%	323	78%	66%	160 HV-10	73%	73%
Titanium 64	802	93%	86%	727	96%	85%	303 HV-30	89%	87%
Meltio Materials Average	802	111%	95%	609	123%	100%	186.57 HV	83%	87%

\*Printed parts can be heat treated in order to enhance its structural behavior

# Meltio Horizon

## Metal 3D Printer Slicer

Meltio Horizon is a proprietary toolpath generator software for 3-axis metal 3D printing, tailored specifically to our laser-wire deposition process with the Meltio M600 industrial metal 3D printer.

Simpler profile selection and premade profiles that cover a large range of geometries and qualities.



- Custom buildplates
- Improve layer flatness
- Cool new possibilities
- Crisp overhangs

<b>Tailor-made for wire-laser process:</b>	Designed for Meltio's W-LMD process and materials. Complete solution with defined material parameters
<b>User-friendly:</b>	Access just the essential settings, with clear guidance to get you started
<b>All-in-one integration:</b>	Going beyond simple toolpath generation, this system merges print and material profiles into one single job file. This integration provides greater control over the entire printing process
<b>Future ready:</b>	By developing a dedicated platform for toolpath generation tailored specifically to Meltio, we are positioning ourselves to broaden our range of services in the future
<b>Optimized gas profiles:</b>	Easily configure your gas source and costs directly in Meltio Horizon. Flow rates can be customized for each material to optimize performance and efficiency
<b>Hotwire compatibility:</b>	Leverage Meltio Hotwire features directly within the slicer to optimize various sections of your build for enhanced quality and speed

## Meltio Horizon additional features

Unlinked infill for flatter layers	Hotwire printing parametrization freedom
Improved overhang quality through material control	Advanced infill strategies and objects modifiers
Full control: Parametrize Infill, Inner and outer perimeters, support and rafts.	Predefined print profiles for Meltio materials

# Meltio Space

## Tailor-made 3D printing software

Meltio Space is a state-of-the-art toolpath generator software for the Meltio Engine Robot Integration with an easy-to-use interface for planar, non-planar, and Meltio's tech adapted variable extrusion calculation for the ABB, Kuka, Fanuc, Yaskawa and Siemens robots.

A new perspective on 3D printing, specifically for robot systems, by breaking free from the limitations of 3-axis systems.



- Unlock complex geometry
- Reduce programming time
- Unparalleled easy-of-use

<b>Intuitive:</b>	No previous expertise in robotics or programming is required thanks to a modern interface built specifically for wire-DED and robots
<b>Powerful:</b>	Multiple slicing options including variable deposition to address a wide variety of geometries with very fast calculation of complex toolpaths
<b>Post-processor:</b>	Meltio Space offers its users a diverse range of post-processors for the most popular robot brands, including predefined options such as ABB (IO), ABB (OPC), ABB (Socket), KUKA (IO), FANUC (IO), YASKAWA
<b>Investment protection:</b>	Low capital and running costs. Includes continuous updates and predefined robot kinematic libraries
<b>Dependable:</b>	High success rate thanks to its kinematic model able to detect collisions along part creation even with part itself
<b>Tuned to Meltio LMD:</b>	Automated process parametrization when defining only the Geometry (Solid or Hollow), the desired Quality (Utility or Fully Dense), and the Material

## Meltio Space Slicing Strategies

☰ Planar horizontal	↓ Cladding
↷ Planar along curve	☸ Conical fields
☒ Planar angled	⏏ Non-planar surface
⦿ Radial	↪ Revolved surface
⦿ Radial 360°	☄ Sweep



Get to know us!

# MELTIO

