MELTIO

Manufacturing and developing
Wire-Laser Metal 3D Printing Technology

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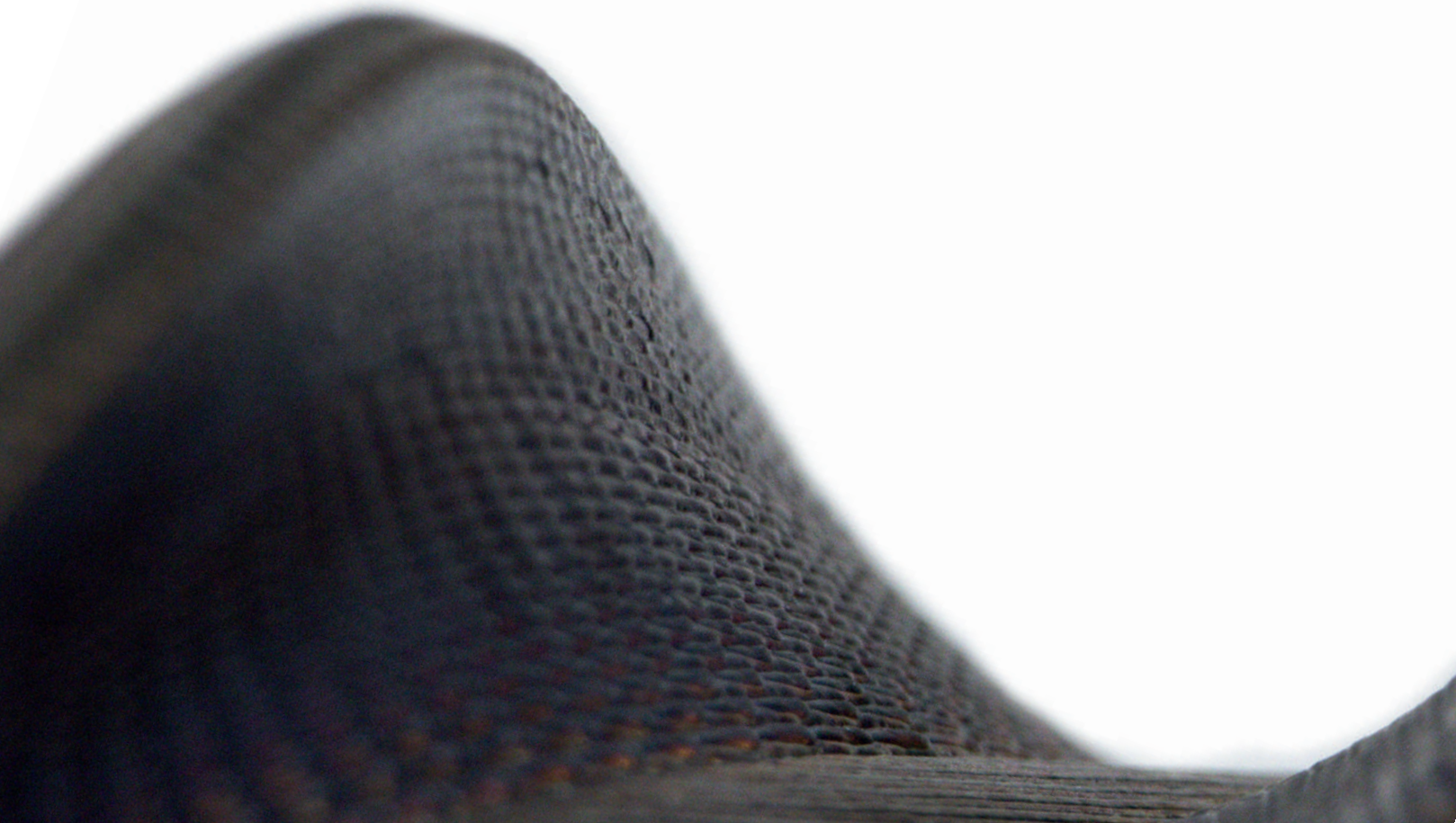
ASSISTENZA E MACCHINE UTENSILI

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.

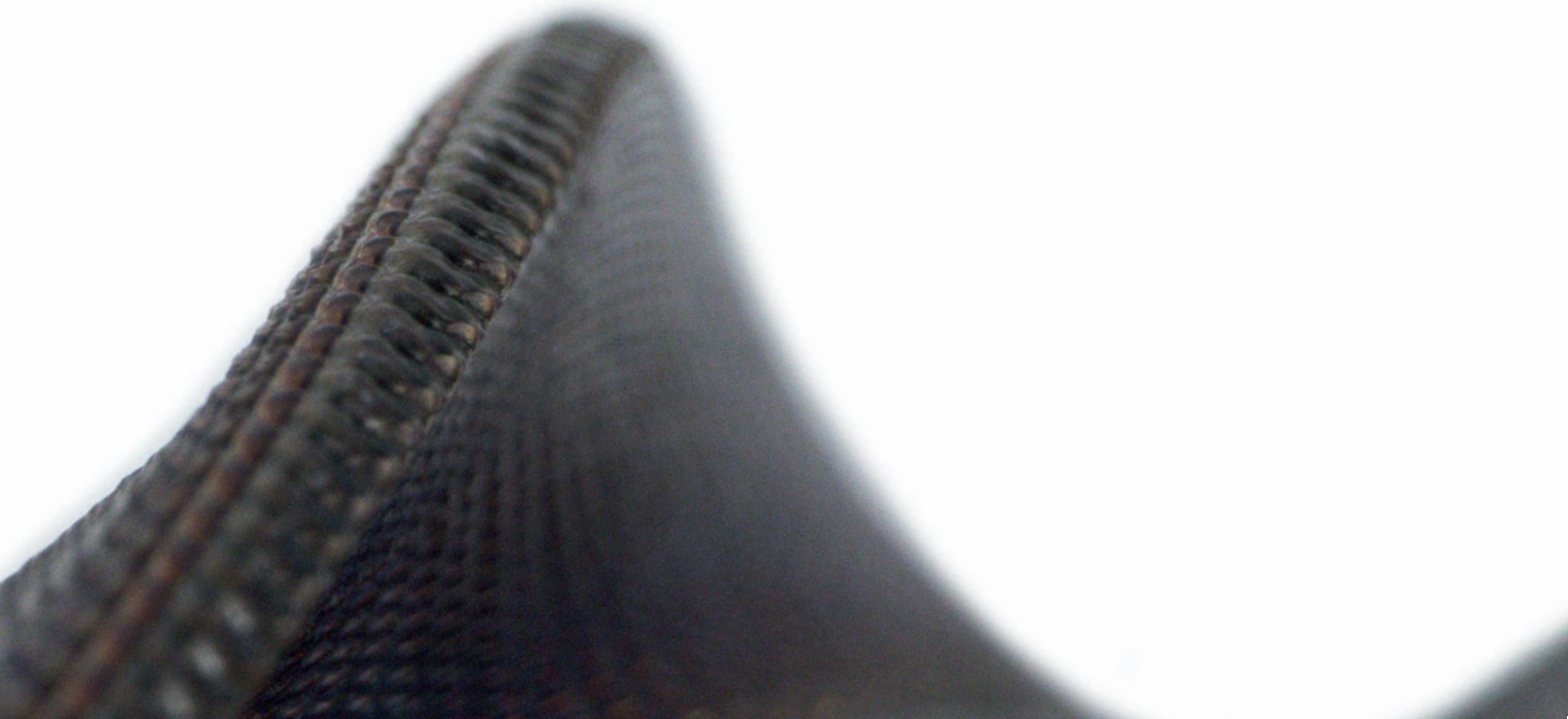
Meltio’s technology comes packaged in a compact deposition head, host of multiple lasers, capable of processing commodity welding wires independently and simultaneously.



Wire-Laser Metal 3D Printing Technology

Discover Meltio’s state-of-the-art wire-laser metal 3D printing technology - either as a standalone metal 3D printer or integrated into a CNC machine or a robot arm. Our metal additive manufacturing solutions bring unprecedented possibilities to enjoy 3D printing advantages in everyday part production.

Our mission is to delight customers, partners, employees and shareholders by pioneering the development of affordable metal 3D printing systems that are reliable, safe and easy to use, continually reinforcing our status as disruptors.



Meltio M450

Turn-key Metal 3D Printer

Designed for industry without the need for industrial infrastructure; affordable, reliable, safe and easy-to-use metal 3D printer. Ideal for small to medium size part fabrication and multi-metal 3D printing research.

The Meltio M450 allows users to produce metal parts of very high density in a single-step process on a very compact footprint.

Reliable **Safe** **Easy-to-use** **Affordable**

Technical Specifications

Dimensions (WxDxH):	560 x 600 x 1.400 mm
Print Envelope (WxDxH):	145 x 168 x 390 mm
System Weight:	250 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
Enclosure:	Laser safe, sealed, controlled atmosphere
Interface:	USB, Ethernet, WiFi
Cooling:	Active water-cooled chiller included
Wire Feedstock:	Diameter: 0.8-1.2 mm Spool Type: BS300
Accessories:	Laser Alignment System, Hot Wire and Dual Wire

Meltio M450 Applications

Nozzle

Size:	65 x 82 x 194 mm
Weight:	1.14 kg
Material:	Stainless Steel 316L

Connecting Rod

Size:	50 x 156 x 333 mm
Weight:	9.85 kg
Material:	Stainless Steel 316L

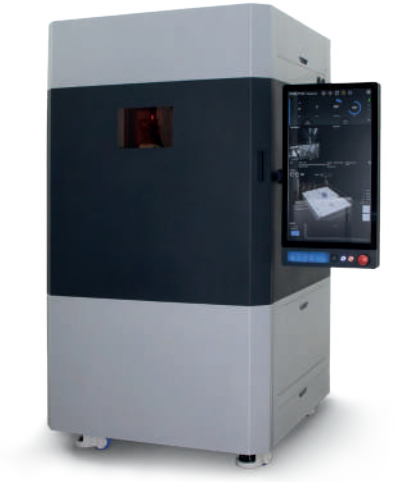
Meltio M600

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**



Technical Specifications

Dimensions (WxDxH):	1.050 x 1.150 x 1.950 mm
Build Envelope (WxDxH):	300 x 400 x 600 mm
System Weight:	800-1000kg (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 level
Laser Type:	9x Direct Diode Lasers
Laser Wavelength:	450 nm (Blue)

Total Laser Power:	1000 W
Power Input:	400V Three Phase
Power Consumption:	4-6 kW Peak Depending on selected options
Process Control:	Closed Loop, Laser and wire Modulation
Touch Probe:	Automated XYZ Touch Probe integrated
Enclosure:	Laser safe, Controlled inert atmosphere
Interface:	USB, Ethernet, WiFi
Cooling:	Active water-cooled chiller included
Wire Feedstock:	Diameter: 0.8-1.2 mm / Spool Type: BS300 External wire drum ready

Meltio M600 Applications

Combustion Chamber DM

Size:	132 x 200 x 176 mm
Weight:	6.4 kg
Material:	Inconel 718 Copper

Bracket

Size:	153 x 345 x 275 mm
Weight:	18.6 kg
Material:	Stainless Steel 316L

Meltio Engine CNC Integration

Hybrid Manufacturing Integration

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

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

Hybrid **Retrofitting** **Geometry Freedom** **Part Repair**

Technical Specifications

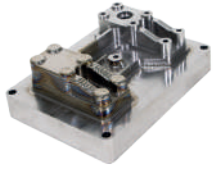
Dimensions (WxDxH):	390 x 700 x 1.025 mm
Print Envelope (WxDxH):	Depending on the integration
System Weight:	142 kg
Laser Type:	6 x 200W direct diode lasers
Laser Wavelength:	976 nm
Total Laser Power:	1200 W
Power Input:	208/230 V single phase or 400 V three phase
Power Consumption:	2-5 kW peak depending on selected options

Process Control:	Closed-loop, laser and wire modulation
Cooling:	Active water-cooled chiller included
Printhead Retracted Size (WxDxH):	255 x 320 x 872 mm
Printhead Unretracted Size (WxDH):	255 x 320 x 1045 mm
Printhead Weight:	46.5 kg
Wire Feedstock:	Diameter: 0.8-1.2 mm / Spool Type: BS300 or wire drums
Accessories:	Laser Alignment System and Dual Wire

Meltio Engine CNC Applications

Semi-Open Impeller

Size:	73 x 48 x 17 mm
Weight:	1.47 kg
Material:	Stainless Steel 316L Nickel 625



Aircraft Bracket

Size:	110 x 161 x 35 mm
Weight:	1.5 kg
Material:	Titanium 64

Meltio Engine Robot Integration

Large-Scale Metal 3D Printing

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.

Large-Scale **Geometry Freedom** **Part Repair** **Cladding**

Technical Specifications

Dimensions (WxDxH):	390 x 700 x 1.025 mm
Print Envelope (WxDxH):	Depending on the reach of the robot arm
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
Printhead Retracted Size (WxDxH):	202 x 297 x 784 mm
Printhead Weight:	15.5 kg
Wire Feedstock:	Diameter: 0.8-1.2 mm / Spool Type: BS300 or wire drums
Accessories:	Laser Alignment System, Hot Wire and Dual Wire
Software:	Meltio Space Included

Meltio Engine Robot Applications

Screw Compressor

Size:	75 x 75 x 230 mm cladded
Weight:	6.6 kg
Material:	Stainless Steel 316L

Naval Propeller - 3 blades

Size:	900 x 900 x 250 mm
Weight:	11 kg
Material:	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 & capable solution for 3D printing, repair, cladding and feature addition.

Plug-and-Play Installation **Best Components** **Safe** **Tested and Certified**

Technical Specifications

Dimensions (WxDxH):	4.050 x 2.350 x 3.000 mm Indoor use only
Print Envelope:	1 meter diameter printing volume with continuous positioner axes interpolation. Actively Cooled 300x400 mm Build Platform
System Weight:	4.000 kg
Laser Type:	Meltio Engine Robot Integrated and Tested
Movement System:	6- Axis Robot Arm & 2-Axis Workpiece Positioner
Platform:	Structural Steel with Laser-safe Class 1 enclosure with CE certification. All equipment anchored to the platform
Integration:	Unified Control Panel, 4k WebCam monitoring & Live Timeline of sensors and 3D model based on reading TCP positions from robot
Slicing Software:	Meltio Space one year subscription included. Pre-defined Print profiles and slicing strategies. Focused on ease of use
Power Input:	Three phase 400V power supply, 5 poles (3W+N+PE) 63 A, 24kw peak power
Required Inputs:	Inert Argon Gas supply between 2 to 5 bar. (Meltio offers an optional Gas Regulator) & Internet Lan cable connection

Meltio Robot Cell Applications

Conveyor Belt

Size:	130 x 903 x 855 mm
Weight:	4.99 kg
Material:	Stainless Steel 316L

Structural Member

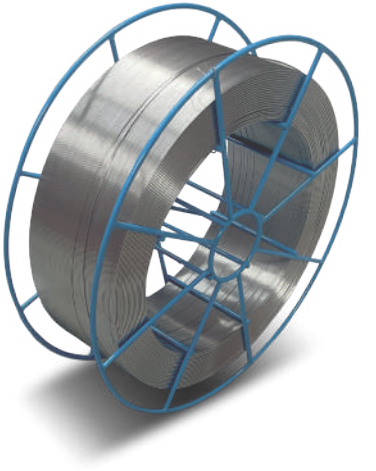
Size:	170 x 130 x 900 mm
Weight:	5.95 kg
Material:	Stainless Steel 316L

Meltio Materials

Multi-Wire Metal 3D Printing

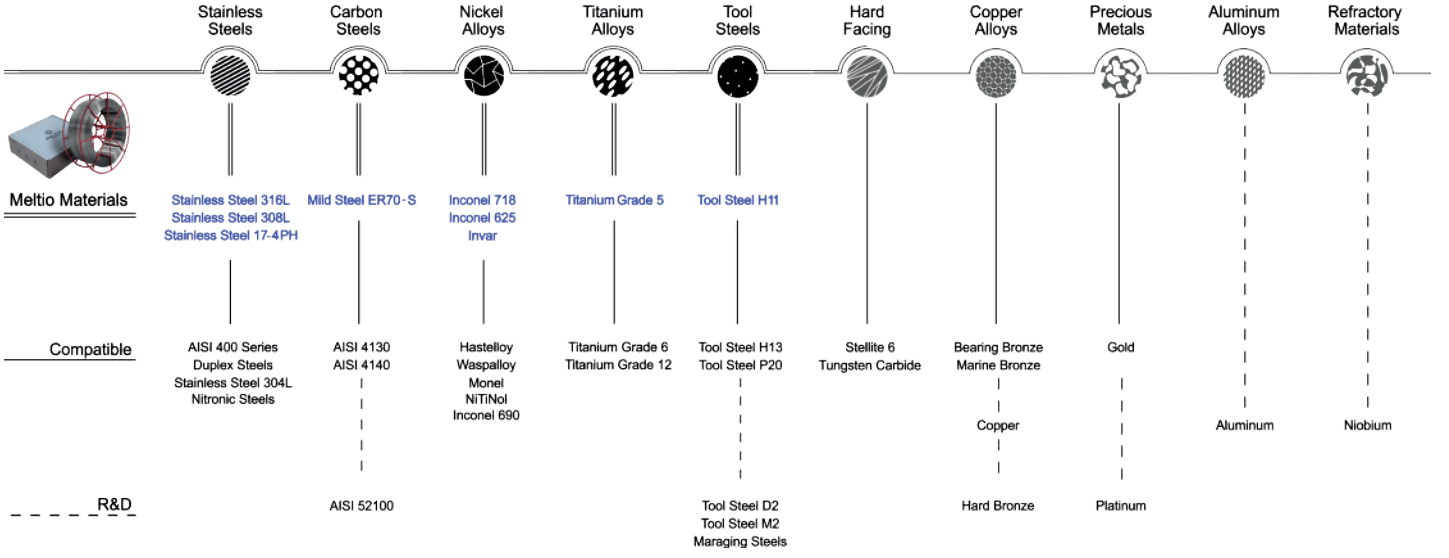
Meltio's Laser Metal Deposition process achieves exceptional material mechanical properties using multiple wires.

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



Single Wire **Dual Wire** **Quad Wire** **99.98 % Densification**

Unlimited Third-party Material Choice



Meltio Stainless Steel 316L

Meltio Stainless Steel 308L

Meltio Stainless Steel 17-4PH

Meltio Mild Steel ER70-S

Meltio Invar

Meltio Inconel 718

Meltio Inconel 625

Meltio Titanium 64

Meltio Tool Steel H11

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 M450 and Meltio M600 metal 3D printers.

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**

Meltio Horizon Advantages

Tailor-made to Laser Wire:	Made to measure for Meltio's LMD process and Materials. Complete solution delivered with material parameters
Easy-to-use:	Only relevant settings are available. Meltio Specific Explainers for all settings to make getting started much easier
Integrated:	Incorporating more than just toolpath generation. It combines the print and material profiles into a single job file for more control over the printing process
Future Proof:	Building a dedicated platform for toolpath generation specific to Meltio allows us to expand our scope of service in the future
Custom Gas Profile:	Configure your gas source and cost directly within Meltio Horizon. Flow rates are defined within each material
Hotwire Compatible:	Make full use of Meltio Hotwire features directly from the slicer and configure different sections of the build for quality and speed

Meltio Horizon Slicing Features

Unlinked Infill	**Full Control**	**Improved Overhang Quality**
Hotwire Printing Processes	**Advanced Infill Strategies and Object Modifiers**	**Perimeters + Infill Joint**

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 variable extrusion toolpaths for the ABB, Kuka, Fanuc and Yaskawa 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**

Meltio Space Advantages

Intuitive:	No previous expertise in robotics or programming is required thanks to a modern interface built specifically for wire-DED and robots
Powerful:	Multiple slicing options including variable deposition to address a wide variety of geometries with very fast calculation of complex toolpaths
Post-Processor:	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 (IO)
Investment Protection:	Low capital and running costs. Includes continuous updates and predefined robot kinematic libraries
Dependable:	High success rate thanks to its kinematic model able to detect collisions along part creation even with part itself
Tuned to Meltio LMD:	A comprehensive set of advanced features to use Wire-LMD options like Dual Wire printing

Meltio Space Slicing Strategies

Planar Strategies	Radial Strategies	Strategies for Revolved Surfaces
Non-planar or Freeform based strategies	**Advanced Variable Deposition Strategies**	

Automated Process parametrization

Optimize the performance of the Meltio Engine by fine-tuning process parameters for enhanced efficiency.
Automated process parametrization when defining only the Geometry (Solid or Hollow), the desired Quality (Utility or Fully Dense), and the Material.

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