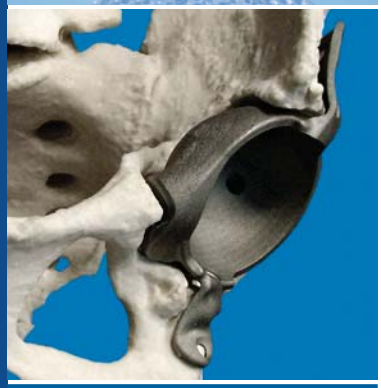
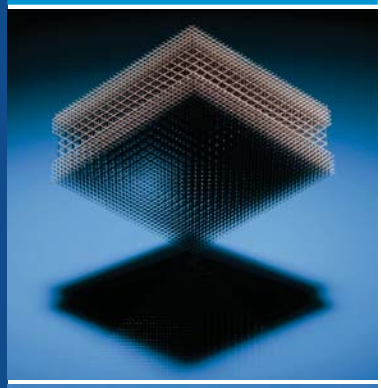

Courtesy of Jotero





MTT TECHNOLOGIES GROUP

CAD driven direct manufacturing in a wide range of metals

MTT Selective Laser Melting

MTT's Selective Laser Melting (SLM) is a pioneering additive manufacturing process capable of producing fully dense metal parts direct from 3D CAD using a high-powered fiber laser. Parts are built from a range of fine metal powders that are fully melted in a tightly controlled atmosphere layer by layer in thicknesses ranging from 20 to 100 microns. The current range of machines are the third generation designs and, following several years of detailed market feedback from key development partners and clients, now represent state of the art manufacturing systems. Key features providing significant enhancements over previous models include variable powder delivery, ultra low Oxygen content in the build atmosphere and an unparalleled safe change filter system to minimise user materials contact.

The range comprises the **SLM 250** and the **SLM 125,** both of which feature vacuum technology and low gas consumption. The machine has been designed for ease of use within a manufacturing environment and features a touch screen interface and various menu options for machine preparation and clean down. Machine robustness has been given a high priority adopting a 'machine tool' approach to use and serviceability. Consumables costs are minimised through careful design and features such as the soft re-coater blade, that can be rotated several times before replacement, and the use of low cost filter elements right through to low gas consumption, all contribute to system reliability and low cost of ownership.

MTT's SLM systems have always processed a wide selection of materials and the new range is no exception, but with the additional benefits of rapid materials change over via a cassette type materials delivery system; particularly useful where materials development or product variety are needed. The capability to safely process reactive materials such as Titanium and Aluminium is a standard feature on MTT SLM machines. In particular the gas knife that clears away reactive sooty emissions and the heated build plate are both pre-requisites for the successful processing of both materials.

Both the new machines feature a fully welded vacuum chamber, enabling low-pressure evacuation followed by a recharge with high purity Argon gas. The gas consumption rate, after the initial chamber flood, is extremely low, and allows operation at Oxygen concentrations below 50 parts per million – a crucial factor when processing reactive materials such as Titanium and Aluminium; and contributing significantly to material integrity and mechanical performance.

All file preparation is completed off-line through a choice of interface, either Marcam Autofab software or via Materialise Magics. Once complete the build file is uploaded to the machine via a secure network or direct connection. Product traceability has been improved by the addition of process data and event logging as standard with various additional process control options on request.

Further information on this technology can be found in our product specific brochure.

English 2531/3en
German 2531/3de

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SLM TECHNICAL DATA

	SLM 250	SLM 125
Build volume	250mm x 250mm x 300mm (x,y,z) z extendable to 400mm	125mm x 125mm x 125mm (x,y,z)
Fiber laser power	200 – 400 W	100 – 200 W
Layer thickness	20 to 100µm	20 to 100µm
Standard laser spot size	50 microns diameter at powder surface	30 microns diameter at powder surface
Available materials	Stainless Steel 316L and 17-4PH, H13 Tool Steel, Aluminium Al-Si-12Mg and Al-Si-10Mg, Titanium CP, Ti-6Al-4V and Ti-6Al-7Nb, Cobalt-Chrome (ASTM75), Inconell 718 and 625	
Materials in development	We have a range of materials in development, please contact MTT for an up to date list.	

For more information or to arrange a meeting to discuss your individual requirements, please contact us:

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