MADIT

METAL ADDITIVE MANUFACTURING

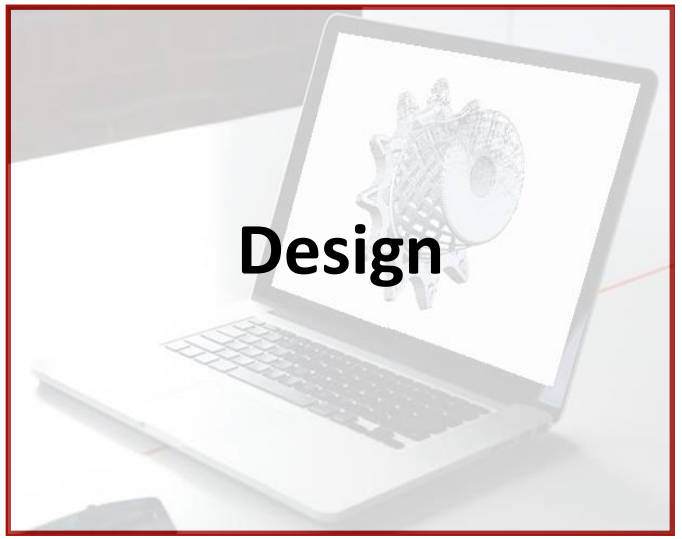
2020

The Company

Founded on Q2 2020, specializes in **Selective Laser Melting (SLM)** or metal 3d printing.

It count with **6 years of experience on SLM** applied to the aerospace sector and **15 years** of experience on **metal manufacturing and design**.

Services focused on SLM technology:



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What is SLM?

https://www.youtube.com/watch?v=rcqw6HZACbY

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Selective Laser Melting

It is an additive manufacturing technology, metal 3D printing.

A SLM machine fuse **metal powder** layer by layer using a **high power laser.**

- ✓ High material **density** (> 99,5%)
- ✓ High **mechanical properties**
- ✓ **Good tolerances** (< ±0,2mm)
- ✓ **Max. dimensions:** 250x250x320mm

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Benefits of Additive Manufacturing

Shorter lead times
2-3 days → SLM
1-2 weeks → Final Part

Design changes allowed
between units & batches

Virtual warehouse

Low-medium batches
From 1 to 5.000 units

No tool investment

Part count reduction
(production management)

Complex geometries

Weight & space reduction

Function improvement

Personalization

Consulting Capacities

Training on SLM

- **Basic course** in additive technologies (4h)
- **SLM** specialization course (16h)
- **Customized** course

Technical development

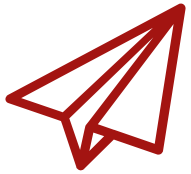
- **Powder** evaluation
- **Parameter** studies
- SLM **project** management

Porfolio Analysis

Search of **optimization and improving possibilities** in client production and products.

Technical certification

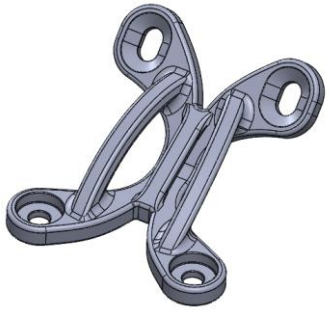
Certification applied to **products** of different sectors.



Design Capacities

Design for Additive Manuf.

Optimal geometry in order to reduce manufacturing costs, weight reduction and increase of funtionality.



Structural Analysis

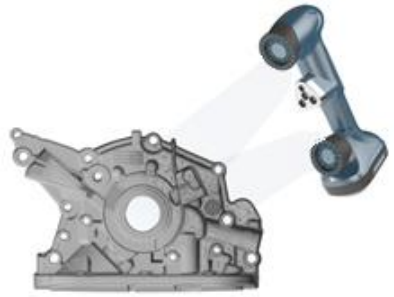
Digital simulation of functional behaviour through the application of forces on the part.

Topologycal Optimization

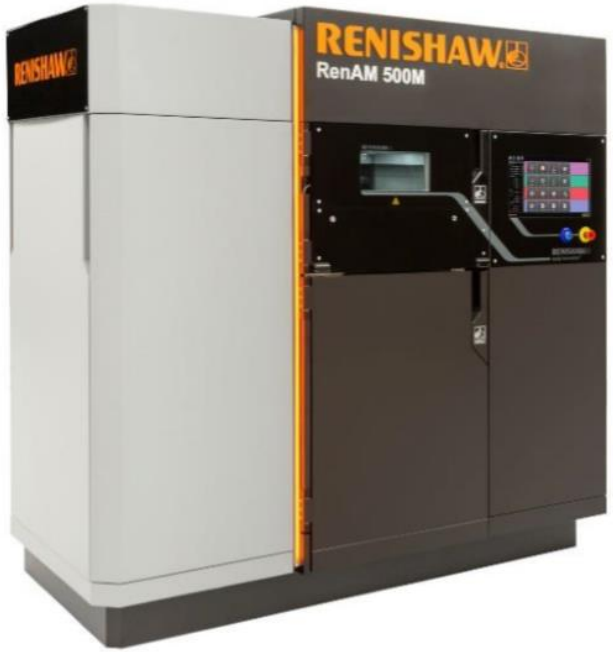
Computational method that obtains the mínimum material for an specific condition of forces.

Reverse Engineering

Recuperation of CAD geometries from phisical parts.



SLM Capacities



RenAM 500M

Max: 250x250x320mm

Aluminum (AlSi10Mg)

RenAM 500M

Max: 250x250x320mm

Stainless Steel (316L)

AM 250

Max: 250x250x280mm

Tool Steel (1.2709)

Parameters developed by MADIT to improve material density, roughness and productivity

Post-process Capacities

Heat treatment

Machining

Bandsaw

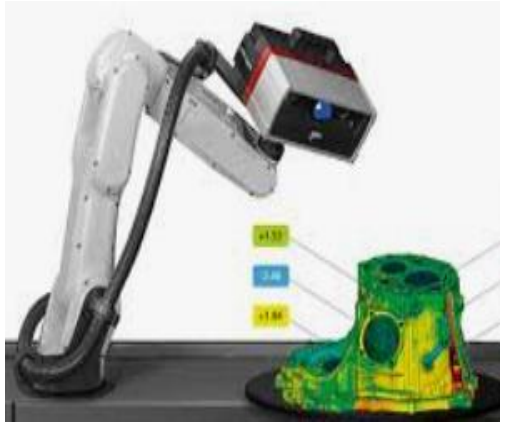
Wire EDM

Sandblasting

Vibropolishing

UTS Cleaning

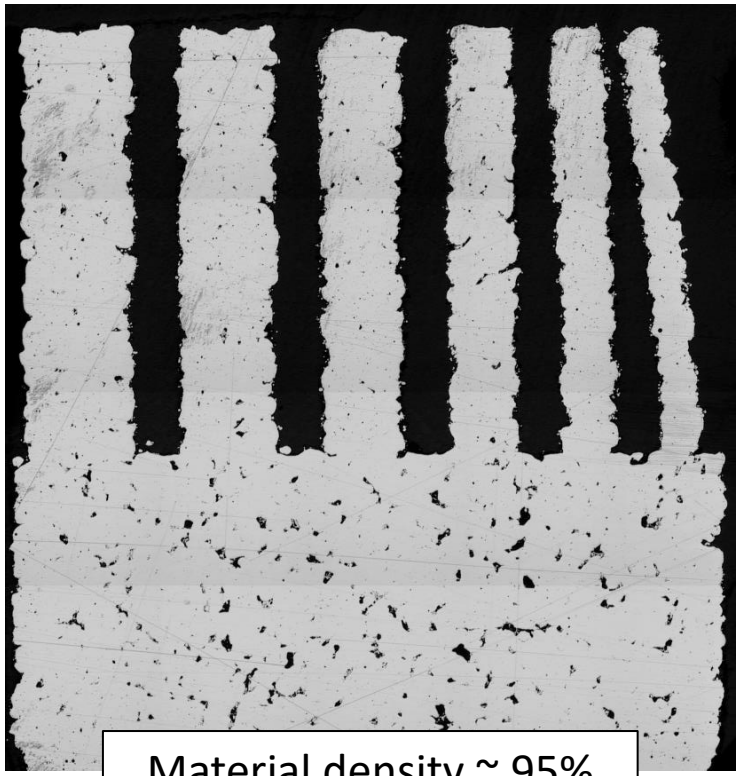
3D Scanner



The required post-processes are included to reduce lead time & costs

Material Quality

Before (2010)

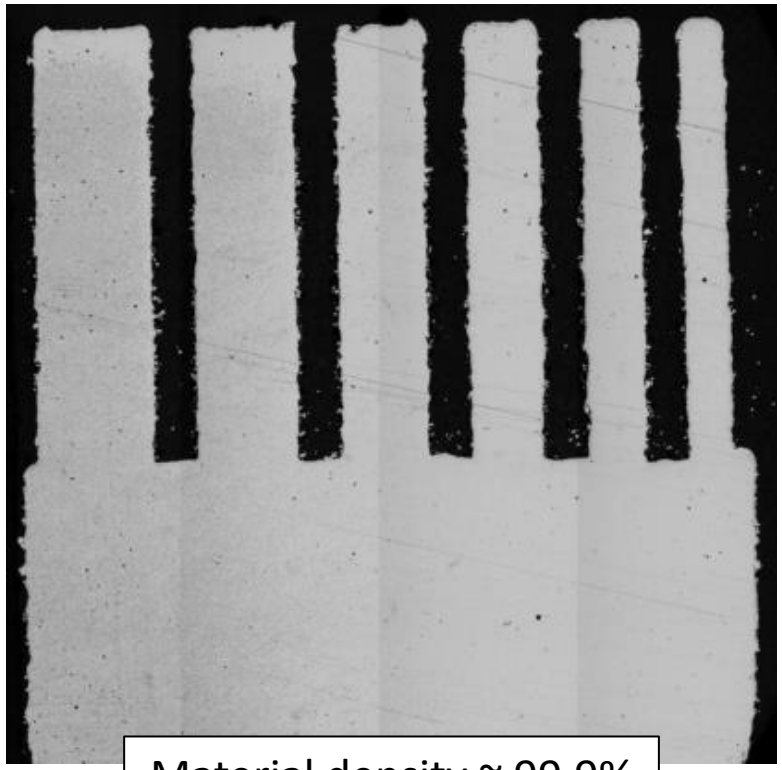


Material density ~ 95%

Improvements

- ✓ **Laser consistency**
- ✓ **Optical systems**
- ✓ **Gas flow**
- ✓ **Calibration procedure**
- ✓ **Software control**

After (2020)



Material density ~ 99,9%

Parameters developed by MADIT to improve material density, roughness and productivity

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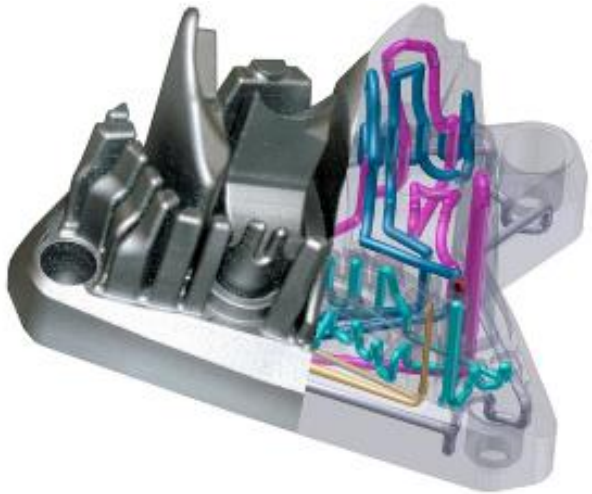
Typology of Customers

Maintenance

- Spare parts
- Tools
- Special parts

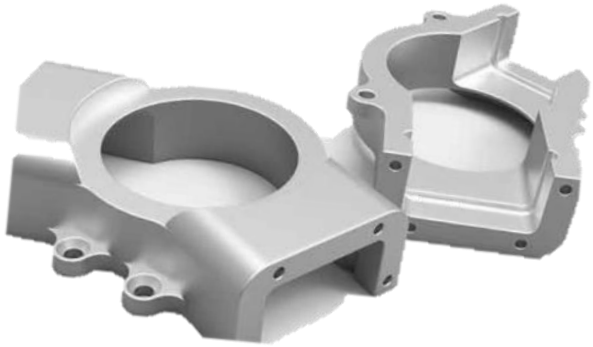
Manufacturers

- Tooling
- Molds
- Prototypes
- Dummy parts



End users & suppliers

- Unitary parts
- Short-medium batches
- Special parts
- Prototypes



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Examples of parts

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MADIT Metal channel

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Let´s industrialize metal 3D printing!

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