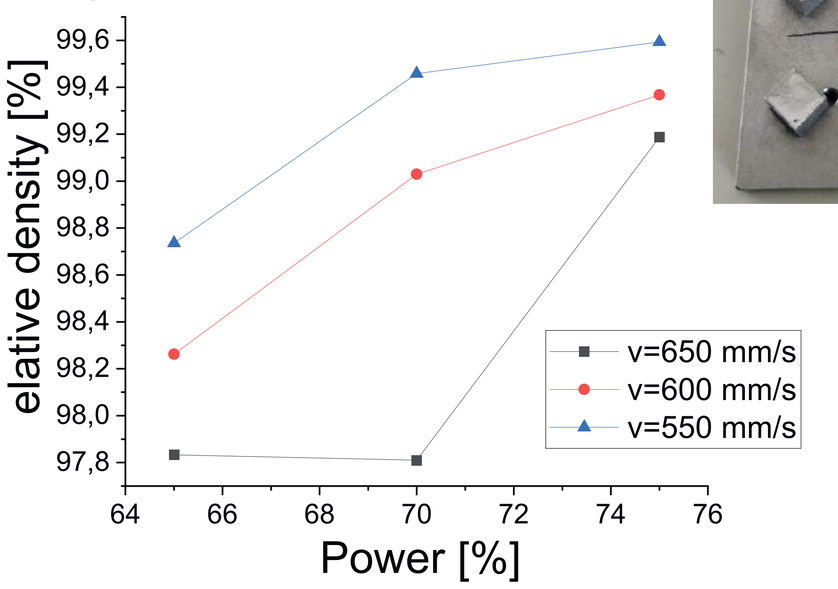
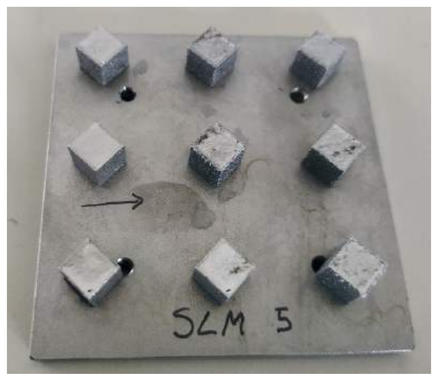
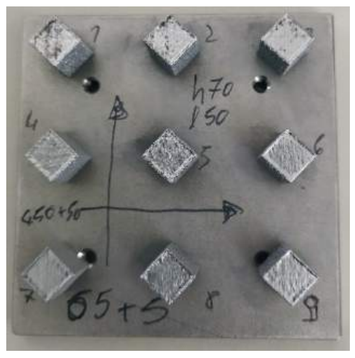
Selective Laser Melting of Ti6Al4V samples

The machine used is the latest version of the MetalONE, 285W laser and better control of the inert gas.
The process optimization was carried out for maximizing the relative density.

Almost full dense (up to 99.6%) cubic samples were built with:
Power = 73% ≈ 240W
Speed = 550 mm/s
Focus = +1.0 mm
Layer height = 50 um
Hatching distance = 100um







Test using
Simplify slicer
Hatching = 70 um
Layer = 50 um

Ongoing test using
Cura slicer
Hatching = 100 um
Layer = 50 um

Selective Laser Melting of CuNiCrSi samples

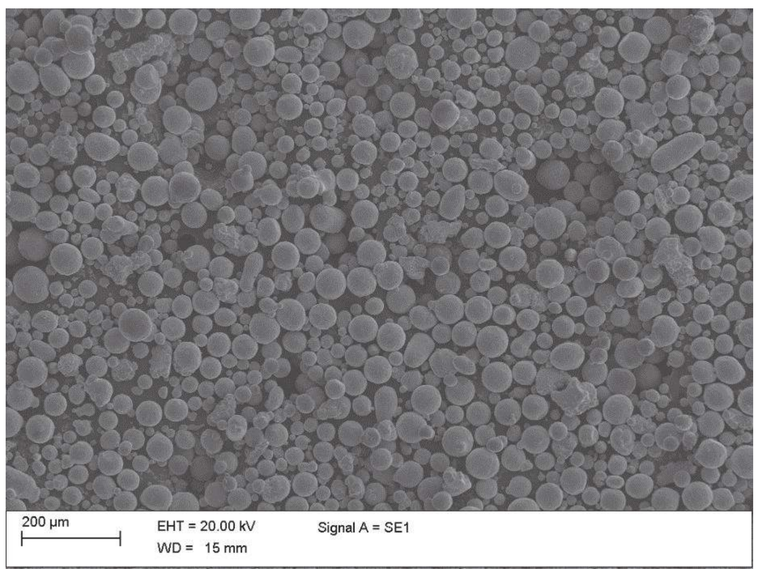
SLM system, equipped with a 1kW fiber laser, was realized for printing high reflective materials, like copper based powders.

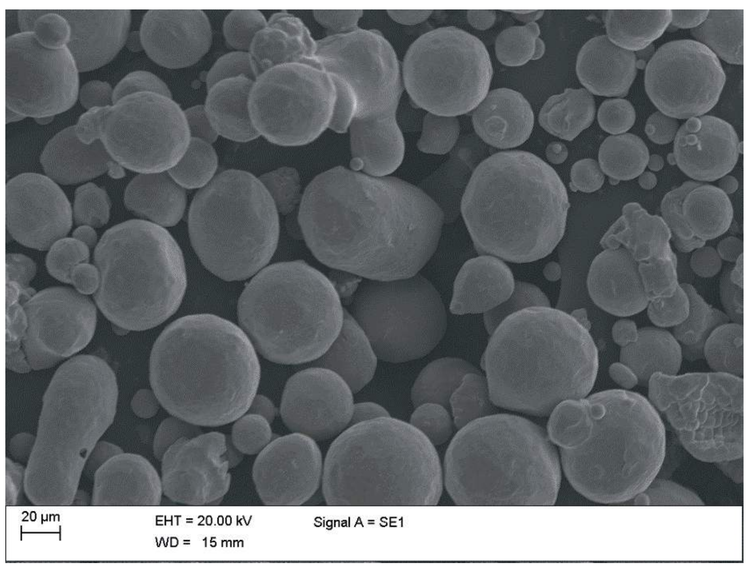
The machine was a heavy modified version of the original MetalONE:
- new laser and control logic
- new optical system for the 1KW power
- new powder distribution structure.

Spherical CuNiCrSi powder, whose chemistry reported in the table, was used.

Si (wt.%)	Cr (wt.%)	Ni (wt.%)	Cu (wt.%)
0,56	*!9	'!.&	)@!'(

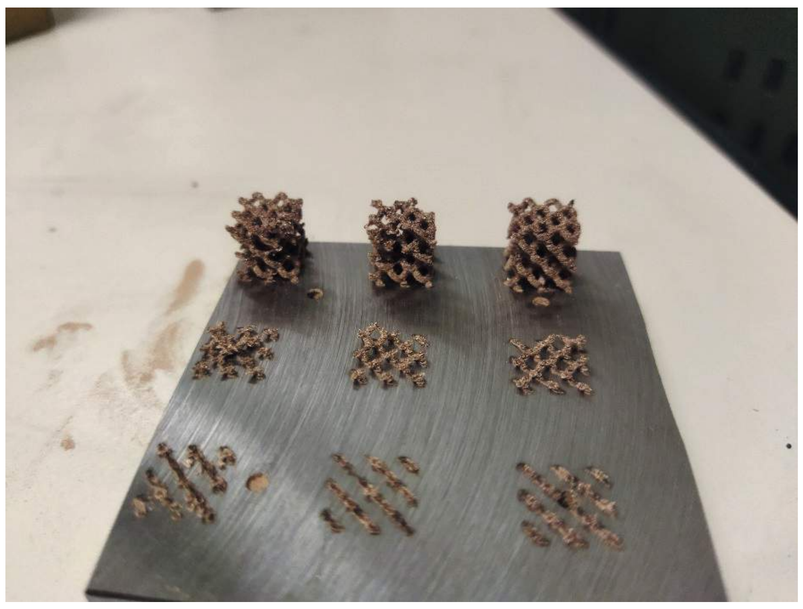
SEM images of the powder





Cubic full dense samples were built.

Realization of lattice structures is in progress



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