

# Aurora | LABS™

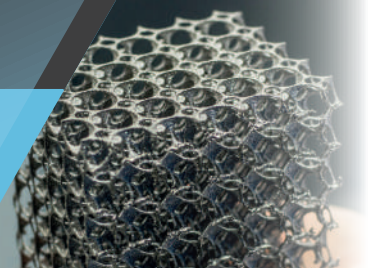
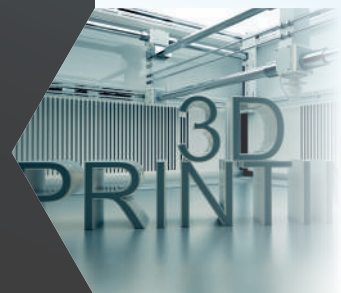
## BEST VALUE AND MOST FLEXIBLE 3D METAL PRINTER ON THE MARKET!

LARGEST RANGE OF MATERIALS THAT CAN BE 3D PRINTED CURRENTLY ON THE MARKET

NEAR NET SHAPE PRINTING FOR MINIMUM POST PROCESSING

MANUFACTURE PARTS USING THREE DIFFERENT MODES

- Selective Laser Sintering (SLS)
- Selective Laser Melting (SLM)
- Directed Energy Deposition (DED)





3 x Independently Controlled Powder Hoppers

## Patent-Pending Technology

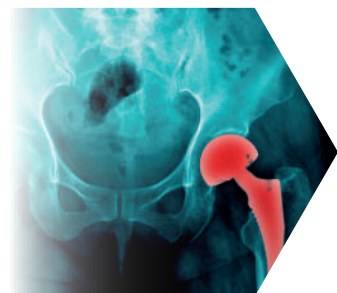
**UNRIVALLED RESEARCH AND DEVELOPMENT FLEXIBILITY AURORA LABS' 3D METAL PRINTERS USE REVOLUTIONARY TECHNOLOGY AND DESIGN. THE BENEFITS ARE:**

- Patent-pending multi-metal printing
- Excellent accuracy and repeatability
- Largest range of materials that can be printed
- Can operate in three different modes
- Open source software for full customisability of operation and parameters

## Advantages for Research

**AURORA LABS' 3D METAL PRINTERS HAVE A NUMBER OF DISTINCT ADVANTAGES FOR RESEARCH AND DEVELOPMENT. OPEN SOURCE SOFTWARE THAT ALLOWS COMPLETE CUSTOMISATION OF:**

- Mode
- Step thickness
- Duration
- Energy level
- Print pattern
- On-the-fly alloying (DED mode only)
- Graded layers for dissimilar material applications
- Multiple backing gases



## Printing Modes

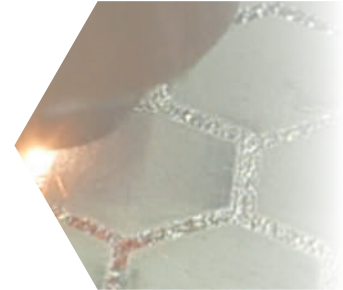
**SELECTIVE LASER SINTERING (SLS)** builds up parts from 3D CAD models by sintering the metal powder (heating to below its melting point) layer by layer. This process usually requires heat treatment depending on the part application.

**SELECTIVE LASER MELTING (SLM)** builds up parts from 3D CAD models by fully melting the metal powder layer by layer.

**DIRECTED ENERGY DEPOSITION (DED)** builds up parts from 3D CAD models by injecting powder directly into the path of the energy beam layer by layer.

# S-Titanium Pro Specifications

CLASS 1 LASER PRODUCT	S-Titanium Pro USD \$49,999.00 <sup>ex GST</sup>
Laser power	300 W
Layer thickness range	Minimum 30µm, Maximum 200µm
Build envelope & capacity (X×Y×Z)	200 ×200 ×500 mm 150kg
Gantry X,Y Resolution	50-70 µm
Minimum bead and height resolution (316L, Ti6Al4V)	x = y = 100µm, z = 25µm
Installation and Operating Requirements	
Space Required	300 ×300 ×300 cm
Lifting Requirement Approx. Weight	200 kg (excl. packing) 350 kg (incl. packing)
Air Exchange	7 x room volume air exchange per hour
Gas Requirements	Argon, 5L/min after initial 25L/min flush
Software	
Input data file format	STL
Material Handling	
Powder Hoppers	3
Hopper Loading System	Manual



## S-Titanium Pro Specifications

### S-Titanium Pro 3D Metal Printer

Dimensions with accessories (L x W)	600 x 700 mm
Height (with powder feeders installed)	2350 mm (+350mm for servicing)
Weight	170 kg
Size of process chamber (X x Y x Z)	200 x 200 x 500 mm
Metal powder supply	3 x 10 L
Electrical connection	3 Phase - 415 V 50 Hz
Gas - Argon	Maximum 30L/min
Noise emission	
Continuous noise pressure level	60 dB(A)
Maximum noise pressure level	66 dB(A)

### Water Chiller

Dimensions	670 x 470 mm
Height	890 mm
Weight	30 kg
Voltage	220 V
Frequency	50 Hz
Current	1.0 - 4.5 A
Compressor power	0.965 kW
Refrigeration capacity	2592 kcal/h
Maximum flow	13 L/min

### Lasers

The S-Titanium Pro is a Class 1 laser product with two embedded Class 4 lasers.

Average power (each)	150 W
Peak power (each)	170 W
Wavelength	10,600 nm
Beam Diameter	5 mm at 2 m
Beam Divergence	0.17 degrees

### Operating Environment

The recommended ambient temperature range for the operating environment is 10 - 25°C with a recommended ambient relative humidity range of 20 - 55%, non-condensing.

### Computer/System Requirements

The minimum requirements for computer operating systems can be found on Mattercontrol's website (<http://wiki.mattercontrol.com/Downloads>) and is also summarised below:

64-bit Windows Vista or higher | OS X 10.7 and higher | Ubuntu or Mint

### Materials

Currently Available: Stainless Steel 316, Stainless Steel 420, Inconel 625, Inconel 718, Hastelloy C-276, NiBSi, WC, Iron, Titanium - GRADE 5 and CP, Bronze, Brass, Gold, Silver, Aluminium AISi7Mg, Aluminium AISi10Mg, Maraging Steel

