

METAL ADDITIVE  
MANUFACTURING  
SOLUTIONS

# HH INDUSTRIES R&D MACHINE SPECIFICATIONS



✉ Email  
[info@h-h.co.za](mailto:info@h-h.co.za)

☎ Telephone  
+27 78 119 6780

🌐 Website  
[www.h-h.co.za](http://www.h-h.co.za)

# DIRECT METAL LASER MELTING (DMLM)

Direct metal laser melting (DMLM) is a Powder Bed Fusion (PBF) technology that creates metal parts by selectively melting thin layers (15 to 100  $\mu\text{m}$ ) of metal powder using a high-powered laser. This includes direct metal laser sintering (DMLS), direct metal printing (DMP), and selective laser melting (SLM). These technologies and systems are fundamentally the same and even use the same laser and scanner sources. At HH Industries we utilise GE Additive's Concept Laser DMLM technology as they are one of the leading users of metal additive manufacturing in the Aerospace and Defense industries.

## CONCEPT LASER MLAB 200R

The Concept Laser MLab 200R is one of the best machines for Research and Development for Laser Powder Bed Fusion (L-PBF). The machine has a high process stability which enables production of complex parts quickly and efficiently, while providing high part quality and resolution. The machine design allows for rapid change of material without the risk of contamination. The build volume is limited to 100 x 100 x 105 mm. We stock a number of materials and can assist you with development and qualification of new materials. We also have access to a Concept Laser M2 with build volume 250 x 250 x 280 mm, if larger parts need to be printed.



### MLab 200R

The MLab 200R is suited for high-surface quality and creating intricate part structures. The parameters are open and can be changed for material development.

### Build Envelope:

100 x 100 x 105 mm (x, y, z)

### Laser Type

200W Fiber Laser (CW) IPG  
1070 nm Wavelength

### Layer Height:

0.015 - 0.100 mm

The materials we stock are:

- AlSi10Mg
- Cobalt Chrome
- Maraging Steel M300
- Nickel 718
- Stainless Steel 17-4
- Stainless Steel 316L
- Ti-6Al-4V Grade 23
- Nitinol (NiTi)



# LASER METAL DEPOSITION

Wire Laser Metal Deposition (W-LMD) is a Directed Energy Deposition (DED) process that functions by precisely stacking weld beads on top of one another, in wire form, when introduced into the laser generated melt pool. Meltio's multi-material printing technology comes packaged in a compact deposition head that has the laser, wire, and shielding gas all strategically focused to the point of printing.

At HH Industries we utilise Meltio's technology because it is a proven game-changer for metal printing of large metal components for the Mining, Oil & Gas and Defence industries.

## MELTIO M450



### **Meltio M450**

The M450 is suited for large parts with very little overhangs. The enclosure is laser safe and can be flooded with inert gas. Two materials can be printed sequentially. The system has open parameters so new materials can be developed on the platform.

### **Build Envelope:**

150 x 170 x 350 mm (x, y, z)

**Laser Type:** Six 200 W Direct Diode Lasers with a total energy input of 1.2 kW, 976 nm Wavelength

### **Layer Height:**

0.7 - 1.2 mm

Hot Wire and Dual Wire Printing Capabilities

The Meltio M450 can print with most Mig welding wires with 1 mm to 1.2 mm diameter. The materials we normally stock are:

- Mild Steel
- Stainless Steel 309
- Stainless Steel 316L
- Ti-6Al-4V Grade 23
- Tool Steel H11 (Special Order)
- Inconel 718 (Special Order)

