

Green Laser Metal Printing Solution Provider

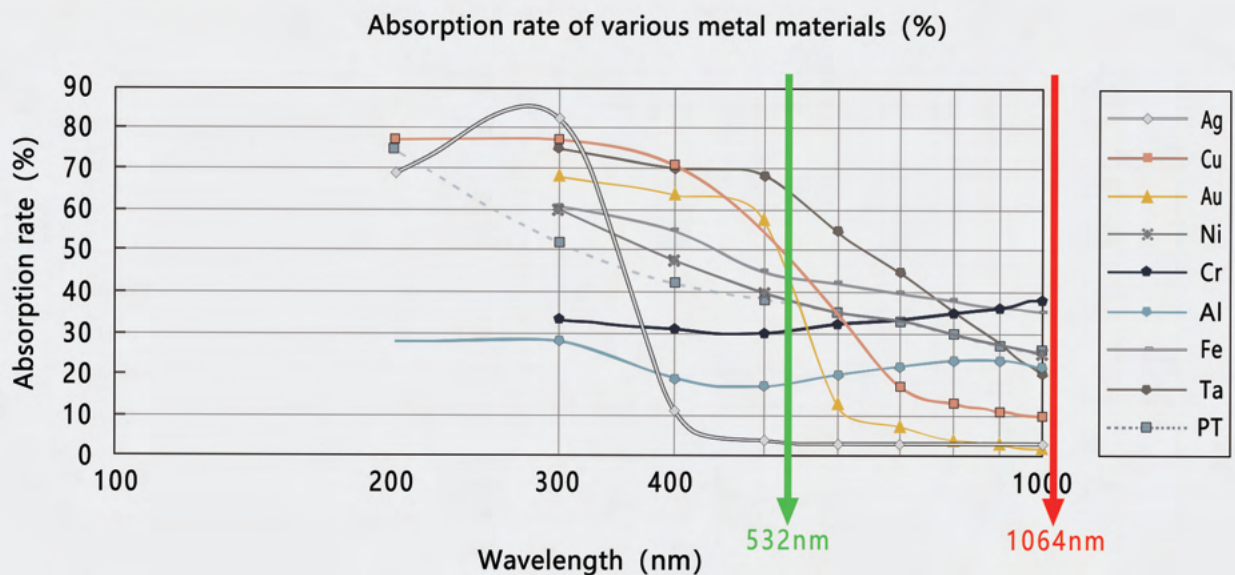


For a Greener Print

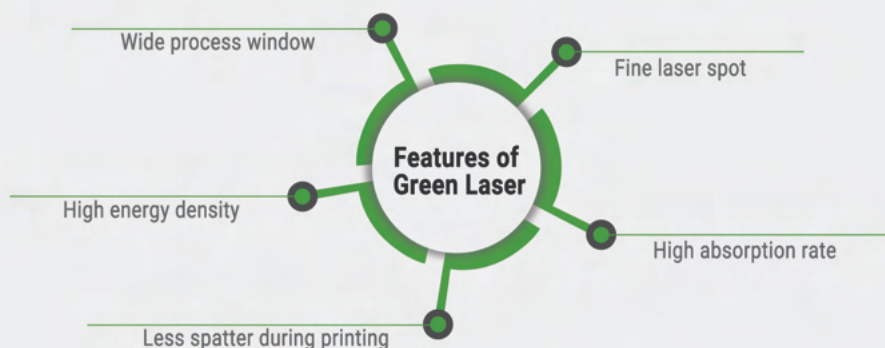
Addireen, founded in 2023, pioneered China's first green laser metal 3D printing solution. With nearly 18 years of experience in the R&D and utilization of both laser technology and metal 3D printing equipment, our team advances the field through short-wavelength and composite multi-wavelength lasers, offering superior 3D printing solutions for highly reflective metals and refractory metals, and also enabling a more efficient and finer printing of common metal materials.

We address key industry challenges—limited materials, low printing efficiency, high costs, and complex post-processing—by providing innovative solutions that drive mass production. We at Addireen, are committed to establishing us as a global leader in our targeted market segment of digital manufacturing.

Advantages of Green Laser



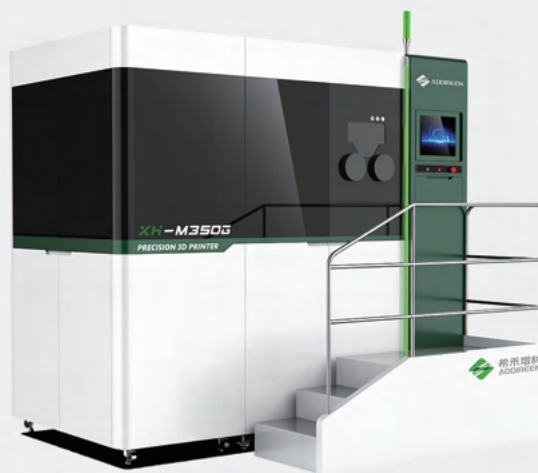
- ◇ The absorption rate of copper-based materials at short wavelength green laser is approx. 10 times that of infrared light
- ◇ Green laser can meet the application requirements of short wavelength, high power, and high laser beam quality at the same time.



Green Laser Metal Printing Solutions



XH-M160G



XH-M350G



XH-M100G



XH-M660G



XH-M100G

High Power Green Laser for Precious Metals

The smallest build volume of Addireen, equipped with a green fiber laser, one of the first industrial green lasers on the market with a wavelength of 532nm. M100G features an innovative powder feeding structure and a convenient powder recovery system, which minimizes startup costs and reduces powder waste. It is ideal for processing precious powder, such as gold, platinum, and silver 925, with unparalleled quality and consistency, making it suitable for customized jewelry production. Additionally, it is compatible with highly reflective materials, refractory materials and their composite materials. M100G offers open-source printing parameters, making it an ideal tool for new material test and development.

Features

✦ Green Laser Source for a Different Material Package

Equipped with parameters for precious powders, such as gold, platinum, and silver 925, as well as pure copper and copper alloys. It can also be applied to other reflective alloys and composite materials (e.g., Cu-based diamond composites, Cu-based graphene).

✦ Innovative Powder Handling

The powder handling system is specially developed for applications that require small amounts of powder, such as jewelry with precious metals and lab tests for material or parameter development. This design minimizes machine operating costs.

✦ Fine Laser Spot Size with Excellent Detail Resolution

The smaller laser spot size of 15 μm enables the creation of the finest structures.

Applications

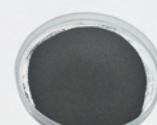
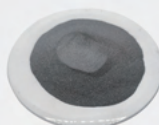
Jewelry

Gold, platinum, silver



Material Development

Copper(Cu), copper alloys, tungsten(W), tantalum(Ta), molybdenum(Mo), zirconium(Zr), niobium(Nb), chromium(Cr)



Machine Specifications

Model	XH-M100G
Build Volume ⁽¹⁾	Ø100*100mm
Laser Source	Continuous single-mode green fiber laser, wavelength 532nm, 500W
Focus Diameter	15-30µm
Focusing system	F-theta lens focusing
Scanning Speed	Up to 8m/s
Layer Thickness	20-120µm
Machine Dimensions	1109*888*1893mm
Weight	Approx. 850KG
Materials	Gold, platinum, silver 925, refractory metals, composite materials (Cu-based diamond composite, Cu-based graphene)

Note : (1)Height for build plate is not included.



XH-M160G

More Than Just Copper

**Compact High-performance Precision
Printing Solution**

Features

✦ Outstanding Printing Performance in Pure Copper and Copper Alloys

Green Laser Enables the Additive Manufacturing of Highly Reflective Materials, Allowing for More Effective and Efficient Printing. It Delivers a High Absorption Rate, and Generates Less Spatter During Printing. Finer Details Can be Achieved Due to the Small Spot Size of Green Laser. The Performance of the Printed Copper and Its Alloy Parts are Enhanced.



Electrical Conductivity $\approx 101\% \text{ IACS}^{(1)}$



Thermal Conductivity $\approx 390 \text{ W}/(\text{m}\cdot\text{K})^{(1)}$



Density $\geq 99.8\%^{(1)}$

✦ Precision Printing, Accurate Control of Details

Featuring a $15\mu\text{m}$ Minimum Beam Diameter, M160G Delivers Exceptional Resolution for Micron-level Precision and a Minimum Wall Thickness of 0.05mm .

✦ High Power & Stability for Continuous Operation

Equipped With 500W / 700W High-power Green Fiber Lasers, Enabling long Time High-load Printing and Ensuring a Stable and Reliable Process.

✦ Broad Material Compatibility, Expanded Applications

Support a Range of Materials, Including Pure Copper, Copper Alloys, Titanium Alloys, Stainless Steel, Pure Tungsten, Tungsten Alloys, Aluminum Alloys. Widely Used in Aerospace, Electronics, Automotive, Precision Manufacturing, and Other Fields.

Note: (1) Pure Copper Heat Treated. The Test Parameter can Vary According to Factors Like Printing Parameter, Material Used.

M160G is a Compact Industrial Metal Laser Printing System for Precision Manufacturing. Compatible With Pure Copper, Copper Alloys, Titanium Alloys, Stainless steel, Pure Tungsten, Tungsten Alloys, Aluminum Alloys, it Offers High Performance in a 160*160*200mm Footprint.

Equipped With ADDIREEN's Self-developed 532nm Continuous Single-mode Green Fiber Laser (500W/700W), M160G Enhances Absorption in Highly Reflective and Refractory Metals. Overcoming Infrared Laser Challenges in Such Materials.

With a Minimum Beam Diameter of 15μm, It Enables Ultra-fine Wall Thickness and Micron-level Precision. Built for Efficiency and Stability, M160G Operates Reliably Under High-load Industrial Conditions, Meeting the Rigorous Demands of High-end Manufacturing.

Machine Specifications

Model XH-M160G

Build Volume⁽¹⁾ 160*160*200mm

Laser Source Continuous Single-mode Green Fiber Laser, Wavelength 532nm, Optional With 500W, 700W

Focus Diameter 15-40μm

Focusing System F-theta Lens Focusing

Scanning Speed 8m/s

Printing Speed 10-30cm³/h

Layer Thickness 20-120μm

Machine Dimensions 1280*1200*2000mm

Weight Approx. 1.2T

Materials Pure Copper, Copper Alloys, Titanium Alloys, Stainless Steel, Pure Tungsten, Tungsten Alloys, Aluminum Alloys and Other Highly Reflective Metals, Refractory Metals, Composite Materials (Cu-based Diamond Composite, Cu-based Graphene), Other Common Metal Materials.

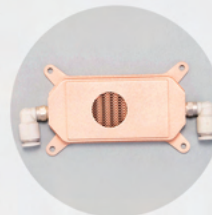
Note : (1) Height of Build Plate is Not Included.

Applications



IGBT

Material: Pure Copper



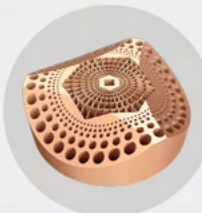
Cold Plate

Material: Pure Copper



Fin Structure Display

Material: Pure Copper
Fin thickness: 0.5mm



Structure Display

Material: Pure Copper
Wall Thickness 0.1mm



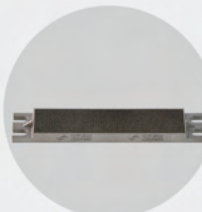
Grid Structure

Material: Stainless Steel
Wall Thickness: 0.06 mm



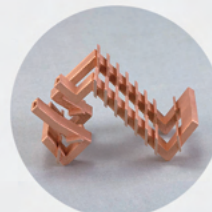
Lattice Structure

Material: Titanium Alloy
Wall Thickness: 0.06 mm



Tungsten Anti-scatter Grids

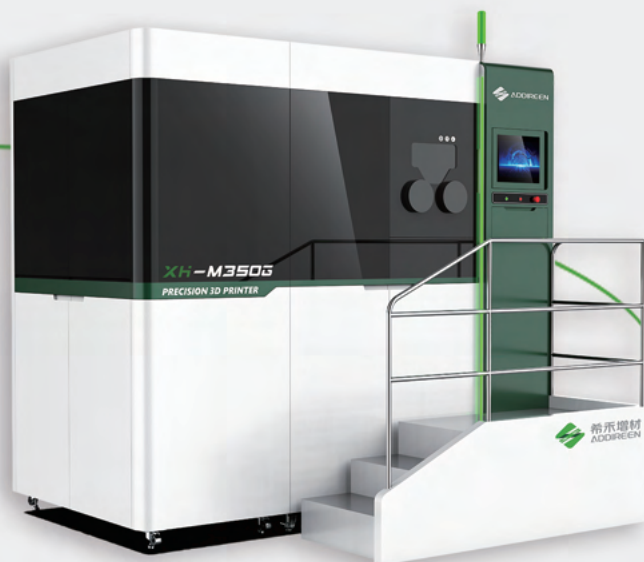
Material: Pure Tungsten
Wall Thickness 0.05mm



High Frequency Induction Heating Coil

Material: Pure Copper





XH-M350G

High Volume Production Solution for Pure Copper and Copper Alloys

Features

✦ Incredible Printing Performance with Copper and Copper Alloys

Green laser enables the additive manufacturing of highly reflective materials, allowing for more effective and efficient printing. It delivers a high absorption rate, and generates less spatter during printing. Finer details can be achieved due to the small spot size of green laser. The performance of the printed copper and its alloy parts are enhanced.



Electrical conductivity $\approx 101\%$ IACS⁽¹⁾



Thermal conductivity $\approx 390\text{W}/(\text{m}\cdot\text{K})^{(1)}$



Density $\geq 99.8\%$ ⁽¹⁾



Min.wall thickness 0.08mm

✦ Fast Printing Speed in Copper and Copper Alloys

15-55cm³/h(green laser) **VS** 6.12cm³/h(infrared laser)⁽²⁾

✦ Efficient Speed and Fine Details

Dual laser system, bidirectional powder coating, and equip with large layer thickness printing parameter, printing can be more efficient. Small spot size down to 40μm, fine details can be realized.

Note: (1) Pure copper heat treated. The test parameter can vary according to factors like printing parameter, material used.

(2) Typical printing speed of single 1kw NIR laser

M350G, with a build volume of 350*350*500mm, boasts a robust modular design and can be equipped with one or two green fiber lasers, available in 500W, 700W, or 1000W. The system enables efficient printing of materials like copper, copper alloys, and precious metals, which are difficult or impossible to process with infrared lasers.

The machine's modular platform gives flexibility to reproducible production and easy maintenance. Its open-source system supports extensive parameter customization and a wide range of materials. The system is open to integrate seamlessly with upstream and downstream software.

Machine Specifications

Model XH-M350G

Build Volume ⁽¹⁾	350*350*500mm
Laser Source	Continuous single-mode green fiber laser, wavelength 532nm, optional with 500W, 700W, 1000W
Focus Diameter	40-60μm
Focusing System	F-theta lens focusing
Scanning Speed	Up to 8m/s
Printing Speed	10-30cm ³ /h Single laser 15-55cm ³ /h Dual laser
Layer Thickness	20-120μm
Machine Dimensions	3050*1750*2850mm
Weight	Approx. 3.9T
Materials	Pure copper, copper alloys, refractory metals, composite materials(Cu-based diamond composite, Cu-based graphene), other common metal materials

Note : (1)Height of build plate is not included.

Applications



Combustion Chamber

Material: CuCrZr
Flow Channel : 1mm * 1.35mm



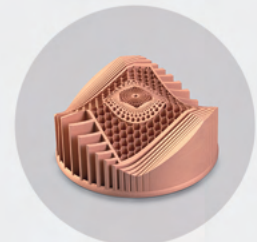
Engine Nozzle

Material: CuCrZr
Bottom Blade Thickness: 0.7mm



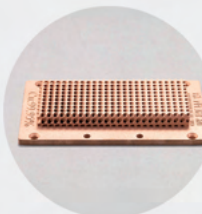
Complex Internal Spiral Channels

Material: Pure copper
Minimum Fin Wall Thickness: 0.5mm



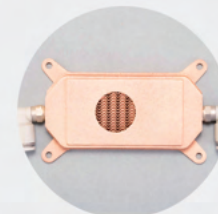
Copper Printed Structures

Material: Pure Copper
Minimum Wall Thickness: 0.1mm
Minimum Hole Diameter: 0.3mm



Heat Sink Baseplate

Material: Pure copper



Liquid Cold Plate

Material: Pure copper



Induction coil

Material: Pure copper



XH-M660G

Large-Size Production Solution for Copper-Based Materials

Features

★ Outstanding Printing Performance in Pure Copper and Copper Alloys

Green Laser enables the additive manufacturing of highly reflective materials, allowing for more effective and efficient printing. It delivers a high absorption rate, and generates less spatter during printing. Finer details can be achieved due to the small spot size of green laser. The performance of the printed copper and its alloy parts are enhanced.



Electrical conductivity $\approx 101\% \text{ IACS}^{(1)}$



Thermal conductivity $\approx 390 \text{ W}/(\text{m}\cdot\text{K})^{(1)}$



Density $\geq 99.8\%^{(1)}$



Max. print height 1.2m

★ Fast Printing Speed in Copper and Copper Alloys

65-140cm³/h

★ Efficient and Precise

Four-laser bidirectional powder spreading and large layer thickness printing enhance efficiency, while the small beam diameter ensures finer details.

Note: (1) Pure copper heat treated. The test parameter can vary according to factors like printing parameter, material used.

M660G leads large-size pure copper and copper alloy additive manufacturing with a 660*660*1300mm molding size and up to 1.2m print height. It enables high accuracy and consistent printing with four self-developed continuous single-mode green fiber lasers and a well calibrated multi-laser precision optical system. The intelligent multi-laser splicing technology ensures $\leq 5\%$ performance variation in splicing areas, enhancing print consistency. Designed for long-term, high-load operation, M660G excels in producing large, high-quality components from pure copper and other highly reflective metals, delivering efficient and reliable metal additive manufacturing.

Machine Specifications

Model **XH-M660G**

Build Volume⁽¹⁾ 660*660*1300mm

Laser Source Continuous single-mode green fiber laser, wavelength 532nm, (500W/700W/1000W)x4

Focus Diameter 40-60 μ m

Focusing System F-theta lens focusing

Scanning Speed 8m/s

Printing Speed 65-140cm³/h

Layer Thickness 20-120 μ m

Machine Dimensions 6325*3815*5268mm

Weight Approx. 16T

Materials Pure Copper, Copper Alloys, Refractory Metals, Composite Materials (Cu-based Diamond Composite, Cu-based Graphene), other Common Metal Materials.

Note : (1)Height of build plate is not included.

Applications



Thrust Chamber

Material: Pure copper

Addireen Technologies Co., Ltd

- Highly Reflective Metals
- Refractory Metals
- Common Metal Materials