E-Plus-3D

EP-M450H

Large Size & High Speed & Reliable Production Metal Additive Manufacturing System



EP-M450H

With a building chamber size of 456*456*1080 mm³. EPlus 3D Introduces EP-M450H to the successful line of MPBF™ 3D printers. The new EP-M450 is a marvelous metal printer that makes the production of reliable and high quality large metallic parts viable on industrial scale without requiring any tools.



Multi-oil pipeline assembly parts
IN718 high temperature alloy
420*420*110 mm³



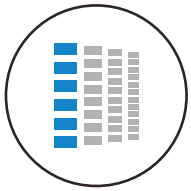
Engine turbine casing assembly
IN718 high temperature alloy
ϕ410*240mm³



Engine leaf ring structure
316L stainless steel
ϕ400*60mm³



TC4 titanium alloy
ϕ393*340mm³



HIGH QUALITY

Printed parts' density > 99.9 %, deviation in parts' mechanical properties < 5 %.

- The optimized gas flow design ensures efficient removal of smoke and splashes as well as achievement of uniform and consistent full size printing.
- Dynamic software with ability to divide the model into different sections like upper and lower surfaces, core areas and small areas etc. Different process parameters can be applied individually to these parts for high printed part quality.
- Repeatable positional accuracy along Z-axis of building direction ≤ ± 5 μm.
- Overlapping deviation with dual laser printing ≤ ± 0.1 mm. Overall mechanical properties of the printed part remains same when compared to printing results with the single laser machine.



HIGH EFFICIENCY

- Build chamber size (X*Y*Z): 456*456*1080 mm³, build chamber volume > 200 L.
- Printing with increased layer thickness can be realized, increasing the production capacity.
- With in-house developed processing software (EP-Hatch), optimized scanning strategies can be achieved yielding reduced print duration.
- Optional dual laser system with 2*500 W fiber lasers increases printing efficiency by 70 %.
- Maximum building rate of 55 cm^3/h.
- Bi-directional powder re-coating method leads to reduced re-coating time.



RELIABLE

- Excellent core optic components from world-class supplier and mature process control parameter algorithm provides highest part quality.
- High quality uniform part printing due to excellent control over building environment and components.
- Tightly sealed build chamber maintains oxygen concentration <100 ppm and a stable pressure during printing.
- Sustained monitoring of powder left in feeder and ability to add powder without stopping the machine ensures uninterrupted part printing.
- Double protection of chamber door is attained due to dual gas releasing ports on top of printing chamber.

COST-EFFECTIVE & EASY OPERATION

- Two-stage filtration system with permanent filter can use blow back function to remove the fume.
- Highly user friendly software interface and one-click printing technology makes printing super simplified.
- Comparability with different types of recoater blades such as ceramic, PU, alloy steel etc.
- Reduced gas consumption during printing ≤12 L/min helps reducing operation cost.
- Traceable print records after every print and real-time display of readings for various sensors.

OPEN SYSTEM

- Open parameters for editing laser power, scan speed, scan direction, up and down facing surfaces etc.
- Open system ensures freedom to choose among wide range of metal powders available in market.
- Process software can be integrated with Siemens NX software to realize effective planning of design, simulation and printing path planning, within one software and highly improving the production efficiency.
- Process software supports SLC and CLI formats.



EP-M450H PARAMETER

Machine Model	EP-M450H
Build Chamber (XxYxZ)	456*456*1080 mm^3
Optical System	Fiber Laser 500W/1000W (single or dual-laser optional)
Spot Size	90-130μm
Max Scan Speed	8m/s
Layer Thickness	20-120μm
Building Speed	Single Laser : 15~35cm^3/h Dual Laser : 35~65cm^3/h
Material	Titanium Alloy, Aluminium Alloy, Nickel Alloy, Maraging Steel, Stainless Steel, Cobalt Chrome, Copper Alloy, etc.
Power Supply	380V, 10kW, 46.4A, 50 / 60Hz (Dual Laser : 13kW, 50A)
Gas Supply	Ar/N_2
Forming chamber oxygen content	≤100ppm
Dimension (WxDxH)	6410*3670*4850mm^3
Weight	15000kg
Software	EPLUS 3D, EPHatch
Input Data Format	STL file or other convertible format

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