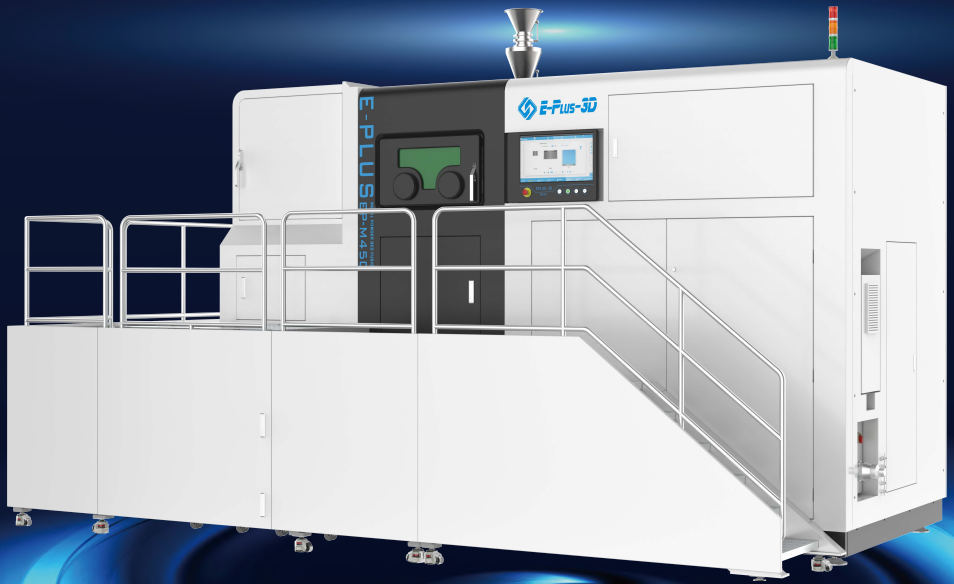
E-Plus-3D®

EP-M450

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

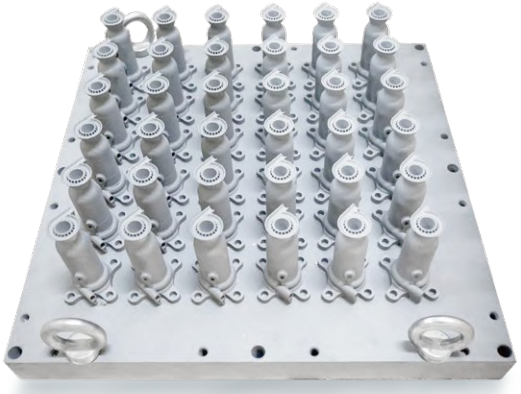


EP-M450

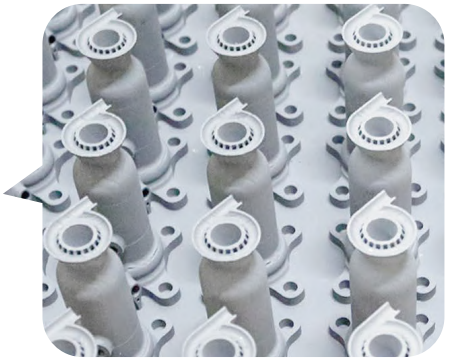
With a building chamber size of 455*455*500 mm^3. EPlus 3D Introduces EP-M450 to the successful line of MPBF™ 3D printers. The new EP-M450 is a marvelous metal printer that makes the production of reliable and high quality large metallic parts viable on industrial scale without requiring any tools.

With it's user friendly software interface, one click printing ability and optional single/dual 500 Watt fiber lasers, EP-M450 takes digital additive manufacturing one step ahead in the field of large scale industrial applications.

Engine turbine casing assembly
IN718 high temperature alloy
Φ410*240 mm^3



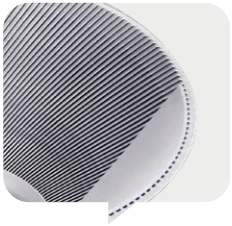
Multi-oil pipeline assembly parts
IN718 high temperature alloy
420*420*110 mm^3



Mass production of intricate parts
achieved with single print

EP M450 is a highly efficient large scale production oriented metal 3D printer which offers bi-directional powder re-coating and high part building speed up-to 55cm3/h. EPlus-3D's complete open system makes EP M450 a very powerful tool for large scale manufactures as they have complete freedom to choose their print strategies with different metal powders like stainless steel, titanium, aluminum and nickel alloys etc, which prominently reduces the overall cost of ownership.

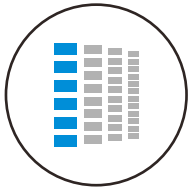
Due to it's high efficiency, quality production and dependability along with the ease of operation and integration of additive manufacturing into overall manufacturing ecosystem, EP-M450 makes sure it's owners remain one step ahead in their field of engagement.



High quality large ejector cap with complex internal structures

Engine leaf ring structure
316L stainless steel
Φ400*60 mm^3

TC4 titanium alloy
Φ393*340 mm^3



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 (XxYxZ): 455 x 455 x 500 mm^3, build chamber volume >100 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 %.
- Maxiumum 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-EFFICTIVE & EASY OPERATION

- 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 ≤6 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.

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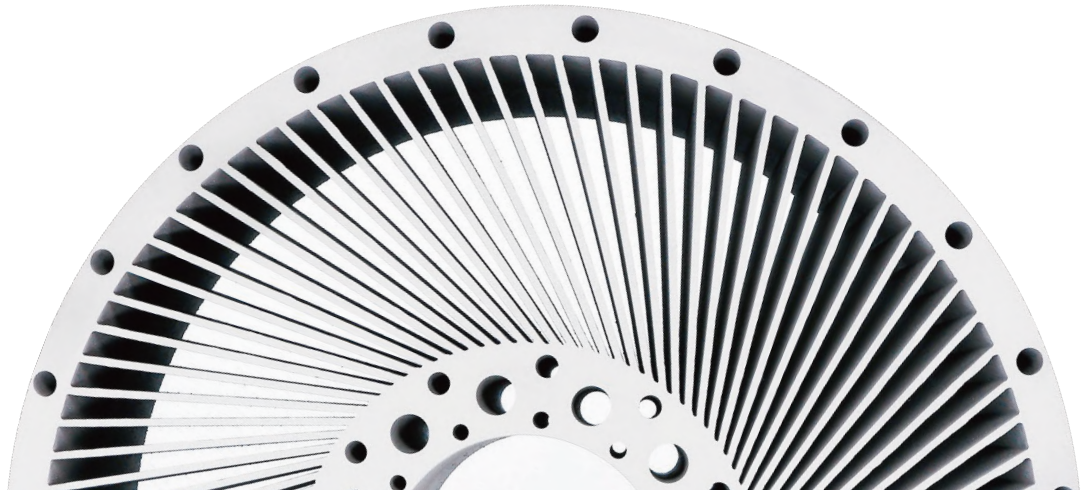

EP-M450 PARAMETER

Machine Model	EP-M450
Build Chamber (XxYxZ)	455 x 455 x 500 mm^3
Optical System	Fiber Laser 500 W/1000 W (single or dual-laser optional)
Spot Size	80-120 μm
Max Scan Speed	8 m/s
Layer Thickness	20-120 μm
Building Speed	Single Laser : 15~35 cm^3/h Dual Laser : 35~65 cm^3/h
Material	Titanium Alloy, Aluminium Alloy, Nickel Alloy, Maraging Steel, Stainless Steel, Cobalt Chrome, Copper Alloy, etc.
Power Supply	380 V, 46.5 A, 13.3 kW, 50 / 60 Hz (Dual Laser : 14.5 kW, 53.5A)
Gas Supply	Ar/N_2
Forming chamber oxygen content	≤100 ppm
Dimension (WxDxH)	5670 x 3700 x 3325 mm^3
Weight	10000 kg
Software	EPLUS 3D, EPHatch
Input Data Format	STL file or other convertible format

Notice: Eplus3D reserves the right to explain any alteration of the specifications and pictures.