



GE Additive

Repeatability at scale

Concept Laser M2 Series 5

Now available with
dual 1kW lasers

M2 Series 5

Concept Laser M2 Series 5

Enabling repeatability at scale

In today's manufacturing world, the need for increased productivity, usability and reliability are key. GE Additive is pushing the boundaries of additive manufacturing again with the next generation of DMLM machine. Built for superior part quality, machine usability and repeatability, the new Concept Laser M2 Series 5 is designed especially for highly regulated industries like aerospace or medical. Finer feature resolution, improved part quality and consistency enables you to unlock new revenue opportunities with new and innovative designs and builds.

Designed for high quality builds at scale

The M2 Series 5 can unlock your company's manufacturing potential. The new system provides an elevated level of productivity and repeatability by minimizing the effects of process variations. The result—fast builds that help lower your company's cost.

The powerful dual-laser system—available in both 400 W and 1kW—combined with 3D optics enables 100% coverage per laser, meaning that both optical systems have full build-field overlap. A dedicated thermal control of the optics further

leads to improved thermal and optical stability, accuracy, and best-in-class stitching. Due to the small but variable spot size, the system provides the user with more flexibility that enables both fine features and enhanced productivity.

The flow-optimized build chamber of the M2 Series 5 now allows for a more constant gas flow. Additionally, the new optimized gas flow design eliminates recirculation and reduces variation by 25% over the entire build field.

New part vectorization allows for additional flexibility to part parameter design, enabling new geometries and ensuring part quality, especially with increased part complexity. The pre-calculation helps to save time and boost productivity. In combination with multiple internal sensors, this ensures a more tightly controlled build environment, resulting in significantly better part quality and consistency. These are the key drivers for success in safety-relevant industries like aerospace and medical and other industries looking at scaled production.



DESIGNED WITH THE USER IN MIND

Offering maximum usability, maintainability and safety

The M2 Series 5 features a unique safety system that promotes safety and efficient handling of reactive materials. This is made possible by the physical separation of the process chamber and a material handling side, connected with a movable build module. Additionally, all powder handling processes are performed under inert gas to prevent oxidation and safety hazards. The integrated glovebox system enables safe, non-contact handling of reactive or harmful materials and enables the dust-protected removal of parts. Together with the newly optimized water-floodable filter modules, the M2 Series 5 offers maximum protection for the machine operators, while extending the filter life and reducing operating costs.

The system is designed to maximize usability and maintainability. All functionalities of the machine have been optimized for easy access and handling. The new software of the M2 Series 5 helps you save time before, during and after the build process.

New software features like pre-calculation now enable an off-machine scan path generation. This eliminates calculation delays between layers for complex parts. A new dose profile also helps to further reduce powder consumption for builds with changing geometries.

The additional optical sensors help to monitor the optics temperature to ensure a more stable process and better part quality.

Furthermore, part segmentation and vector tool path support optimized exposure strategies, while the thin wall segmentation enables ultra fine feature resolution within the part.

The new QuickStart functionality now offers the ability to start a build job directly from the glovebox, while the machine automatically establishes the build job conditions—enabling additional operational productivity savings.



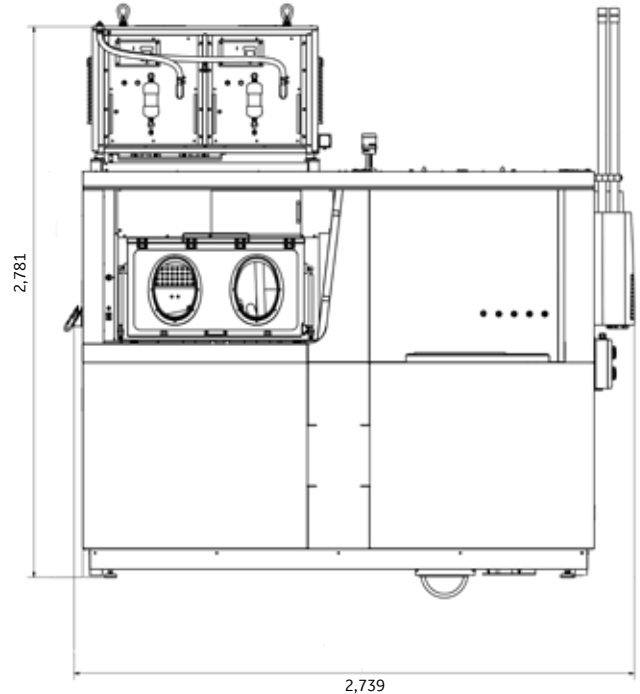
M2 Series 5 Highlights

- Bigger build volume: 245 x 245 x 350 mm
- 400W or 1kW dual-laser system with full overlap
- Improved gas flow system
- 3D optics with 70 – 500 µm spot size
- Inert sieving and powder exchange
- Maximized machine uptime
- Pre-calculation software saves time with complex parts
- Designed for usability and maintainability
- Laser safety T1 machine certification
- QuickStart functionality

Concept Laser M2 Series 5 - 1kW

Technical Data

Build envelope	245 x 245 x 350 mm (x, y, z)
Layer thickness	25 - 120 μm
Production speed	2 - 93 cm^3/hr (depending on material / laser power)
Laser system options	Fibre Laser 2x1kW (cw)
Scanning speed	Max 4.5 m/s with variable focus adjustment
Focus diameter	Variable focus (70 - 500 μm)
Reference clamping system (optional)	EROWA, others on request
Connected loads	Approx. power consumption 28A Power supply 3/N/PE AC 400V, 32A connector, compressed air 6-10bar 2 gas connections provided N2 generator external (optional)
Inert gas supply	
Inert gas consumption	5l / min < 1 m^3/h
Filtering system	Integrated, with a 20 m^2 filter surface
Dimensions	2,739 x 2,050 x 2,781 mm (W x D x H)
Weight	Approx. 2,500 kg
Operating conditions	18 - 25°C



Materials available*

- Stainless Steel 316L
- Stainless Steel 17-4PH
- Maraging Steel M300
- Tool Steel H13
- Aluminium AlSi10Mg
- Aluminium A205
- Aluminium AlSi7Mg
- Nickel 718
- Nickel 625
- Titanium Ti6Al4V ELI Grade 23
- Titanium cp-Ti
- Titanium Ti6242
- Cobalt CoCrMo
- Cobalt CoCrW

*Most parameters and data sheets can be found on the M2 Series 5 website



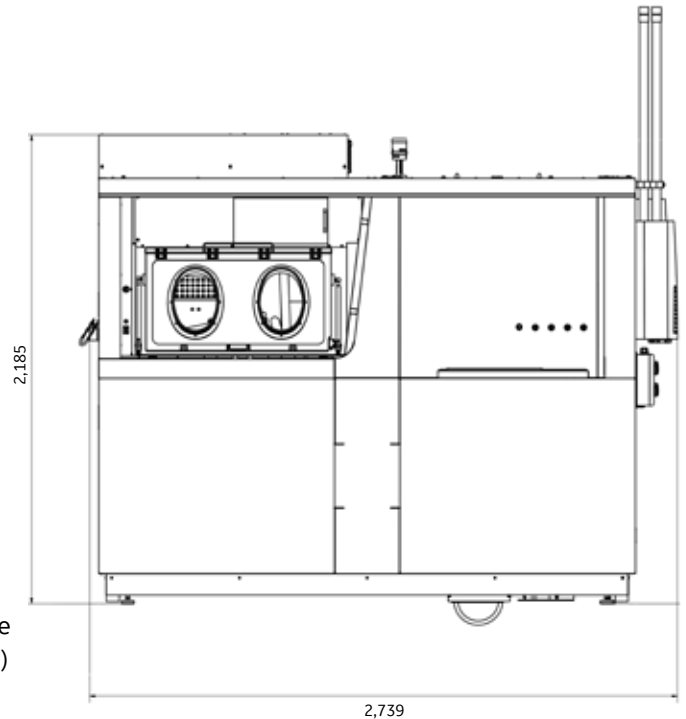
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Concept Laser M2 Series 5 - 400W

Technical Data

Build envelope	245 x 245 x 350 mm (x, y, z)
Layer thickness	20 - 80 μm
Production speed	2 - 35 cm^3/h (depending on material / laser power)
Laser system	Fibre Laser 2 x 400 W (cw), optional 1 x 400 W (cw)
Scanning speed	Max 4.5 m/s with variable focus adjustment
Focus diameter	Variable focus (70 μm - 500 μm)
Reference clamping system (optional)	EROWA, others on request
Connected loads	Approx. power consumption 9 kW Power supply 3/N/PE AC 400V, 32A connector, compressed air 6-10bar 2 gas connections provided N2 generator external (optional)
Inert gas supply	< 1.5 m^3/h
Inert gas consumption	
Filtering system	Integrated, with a 20 m^2 filter surface
Dimensions	2,739 x 1,818 x 2,185 mm (W x D x H)
Weight	Approx. 2,500 kg
Operating conditions	18 - 25°C



Materials available*

- Stainless Steel 316L
- Stainless Steel 17-4PH
- Maraging Steel M300
- Tool Steel H13
- Aluminium AlSi10Mg
- Aluminium A205
- Aluminium AlSi7Mg
- Nickel 718
- Nickel 625
- Titanium Ti6Al4V ELI Grade 23
- Titanium cp-Ti
- Titanium Ti6242
- Cobalt CoCrMo
- Cobalt CoCrW

*Most parameters and data sheets can be found on the M2 Series 5 website



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