



GE Additive

Repeatability at scale

Concept Laser M2 Series 5

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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 400W dual-laser system combined with 3D optics enables up to 100% coverage per laser with full overlap and 2x faster build speeds. A dedicated thermal control of the optics further leads to improved thermal and optical

stability, accuracy, and best-in-class stitching. And 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 water-floodable filter modules, the M2 Series 5 offers maximum protection for the machine operators.

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 fine feature resolution.



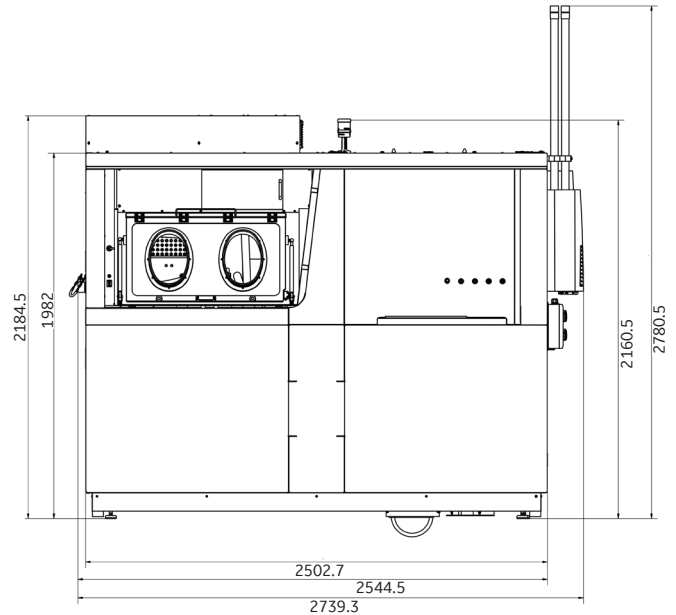
M2 Series 5 Highlights

- Bigger build volume: 245 x 245 x 350 mm
- 400W dual laser system
- Improved gas flow system
- Better part quality and consistency
- Unique safety system
- Inert sieving and powder exchange
- Maximized machine uptime
- Pre-calculation software saves time with complex parts
- Designed for usability and maintainability

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Technical Data

Build envelope	245 x 245 x 350 mm (x, y, z)
Layer thickness	20 - 80 μ m
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 μ m - 500 μ m)
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
Inert gas supply	2 gas connections provided N ₂ generator external (optional)
Inert gas consumption	< 1.5 m ³ /h
Filtering system	integrated, with a 20 M2 filter surface
Dimensions	2,695 x 1,818 x 2,185 mm (W x D x H)
Weight	approx. 2,500 kg
Operating conditions	18 - 25°C



Powders and parameters available

GE Additive 316L
GE Additive AlSi10Mg
GE Additive AlSi7Mg
GE Additive M300
GE Additive 17-4 PH
rematitan® CL
AP&C Ti64 grade 23 CL
AP&C Ni718 CL

Powders and parameters in development

AP&C CpTi grade 2 CL
GE Additive CR-PH
AP&C Ni625 CL
remanium® star CL

CoCrMo (F75)

Parameters available



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