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Press Release

July 2, 2019

Release of LASERTEC 12 *SLM* Powder Bed Laser Additive Manufacturing Machine

DMG MORI CO., LTD. (hereinafter called “DMG MORI”) begins taking order for the powder bed laser additive manufacturing machine LASERTEC 12 *SLM* on July 9. The LASERTEC 12 *SLM* will be exhibited for the first time in Japan at the IGA INNOVATION DAYS 2019 to be held from July 9 (Tue) to 13 (Sat). The model will demonstrate high-precision additive manufacturing of a medical component using a laser with a small spot diameter of 35 µm.

The LASERTEC 12 *SLM* uses a powder bed to allow for precision manufacturing, and it is suited for molding of parts/products with an integrated structure and complex-shaped workpieces which are difficult to create by cutting. As the peripheral equipment is compact, the model achieves a space-saving design.

The followings are detailed features of the LASERTEC 12 *SLM* in terms of (1) Metal additive manufacturing technology (2) Maintenance (3) Software and (4) Control devices.

(1) Metal additive manufacturing (AM)
- Uses the powder bed method where an individual layer of metal powder materials is built up and irradiated with laser to create the shape
- Achieves high-precision molding of complex-shaped parts like a lattice using a laser with the smallest spot diameter of 35 µm
- Maximum building volume (X x Y x Z): 125 x 125 x 200 mm
- Integrated linear scale with a positioning accuracy of less than 1 µm for high-precision metal additive manufacturing

(2) Maintenance
- New powder module system “*re*PLUG” for quick replacement of powder materials
  + Continuous long-hour machine operation with two filters for recycling internal Argon gas. When one of the filters needs replacing, the filtering operation can be automatically switched to the other one with no machine downtime.
  + Simple cartridge replacement system for quick material changes in approximately two hours
  + Airtight structure integrated with the powder material supply and collection units and the recycling system to prevent material powder from scattering and ensure safe replacement
- Optional “*re*PLUG RESEARCH” powder module system for testing build-up conditions of new materials and developing build-up processes

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(3) Software

- "OPTOMET" software to help create the ideal build-up parameters
  + Calculates the ideal build-up parameters only by operator's entering two types of information about powders
  + Reflects specific parameters set by customers to database
  + Calculates the build-up parameters only by operator's entering the elemental components of new materials

(4) Controls

- Equipped with the "CELOS" touchscreen control panel to assist machine operation as well as programming with various CELOS applications
  <Examples of CELOS applications>
  + RDesigner: Helps operators do programming for metal additive manufacturing
  + JOB CONTROL: Displays machining jobs to show calculations of build-up time and build-up status on a monitor

DMG MORI will continue to provide products that are reliable, highly-functional and worthy of investment to meet each and every customer's needs.

Product name	Laser Additive Manufacturing in Powder Bed
Model name	LASERTEC 12 *SLM*
Applicable industries/markets	Automotive, aerospace, medical, molds, etc.
Annual production volume	100 units/year *Total of LASERTEC 30 *SLM* and LASERTEC 12 *SLM*

■ Main specifications

Item		LASERTEC 12 *SLM*
Building volume (X x Y x Z)	(mm)	125 x 125 x 200
Layer thickness	(μm)	20 to 100
Laser spot diameter	(μm)	Min. 35
Laser type		Fiber type
Laser output (depending on specification)	(W)	200 to 400

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Appearance of LASERTEC 12 *SLM*

Newly developed "*re*PLUG" powder module system

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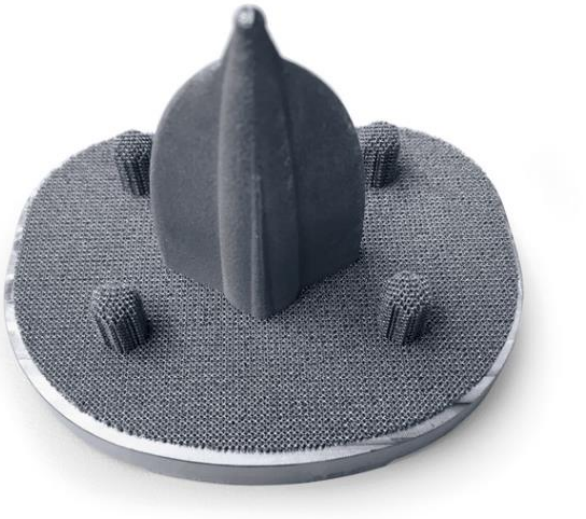

10 mm

Application example: tibial plateau (medical)
Workpiece size: 75 x 57 x 53 mm

10 mm

Application example: impeller (automotive)
Workpiece size: φ45 x 27 mm

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