



March 22, 2017

Hybrid Metal 3D Printer

New *LUMEX Avance-25* Order Intake Start

Matsuura Machinery Corporation has totally re-engineered the hybrid metal 3D printer model, *LUMEX Avance-25*, and starts to accept orders from today.

LUMEX is Matsuura's hybrid metal 3D printer series which comprises metal laser sintering by fiber laser and high-speed milling of a machining center. Matsuura led the world in 2002 with the commercialization of a hybrid metal 3D printer, and since then, we have achieved a solid track record of *LUMEX Avance-25* (order intake started from 2006) mostly in the high value-added dies and molds market. (More than 50 machines have been delivered so far.)

In the recent years the market demand for shorter sintering time (higher speed) has been growing. The new *LUMEX Avance-25* incorporates our "knowhow" of high-speed sintering, obtained through the development of the *LUMEX Avance-60* (maximum part size: 600 x 600 x 500 mm) which was released last year. Now available with a higher speed, the market applicable to hybrid 3D printers will expand, further increasing the appeal of the *LUMEX Avance-25*.

To shorten the sintering time, the *LUMEX Avance-25* has a greatly enhanced powder distribution speed along with, optimized galvano control and sintering conditions, ensuring a sintering capacity of 14 cc/h* (double the existing). In addition, if equipped with a large-capacity 1-kW fiber laser system, the sintering capacity can be increased to 35 cc/h* (five times greater than existing).

Likewise, the milling time can be reduced up to 75%* with a higher cutting feedrate and by supporting larger-diameter tools.

LUMEX Avance-25 can be installed with an optional full automatic powder supply, collection and reuse system. This system enables automatic metal powder supply and collection without operator contact with the powder, which ensures good workability and a clean working environment. In addition, U-axis stroke extension (185 mm extended to 300 mm) is available as an option. When the U-axis stroke is extended, large and heavy parts (256 x 256 x 300 mm / 150 kg) can be manufactured.

The capabilities of the CAM software dedicated to the *LUMEX* series, *LUMEX CAM*, are also upgraded. By upgrading both machine and software at the same time, we believe that the machine has become easier for operators to use, which will contribute to the expansion of the metal 3D printer market.

Matsuura is planning to exhibit the *LUMEX Avance-25* at DMS2017 (28th Design Engineering & Manufacturing Solutions Expo) that will be held from June 21 in Tokyo.

* This is the result of die manufacture using Matsuura Maraging II; the actual performance may vary depending on the part material and shape.

LUMEX Avance-25 Capabilities and Features

Basic specifications

Item		<i>New!</i> <i>LUMEX Avance-25</i>	Existing <i>LUMEX Avance-25</i>
Max. part size		256 mm x 256 mm x 185 mm (STD) 256 mm x 256 mm x 300 mm (OP)	250 mm x 250 mm x 185 mm
Allowable sintered part weight		90 kg (STD)/ 150 kg (OP)	90 kg
Laser	Output	400 W (STD) 500 W (OP)/ 1 kW (OP)	400 W
	Type	Yb fiber laser	Yb fiber laser
Sintering capacity		14 cc/h (STD) 35 cc/h (OP) *1 kW selected	7 cc/h
MAXIA Spindle	Rotation speed	45,000 min ⁻¹	45,000 min ⁻¹
	Type of spindle taper	1/10 taper #20 (Matsuura special)	1/10 taper #20 (Matsuura special)
	Power	2.6/ 4.5 kW	2.6/ 4.5 kW
	Torque	1.31 N·m	1.31 N·m
Travel (X / Y / Z axis)		260 mm/ 260 mm/ 100 mm	260 mm/ 260 mm/ 100 mm
Rapid traverse rate	XY axes	60,000 mm/min	60,000 mm/min
	Z axis	30,000 mm/min	30,000 mm/min
Cutting feed rate	XY axes	1 ~ 60,000 mm/min	1 ~ 60,000 mm/min
	Z axis	1 ~ 30,000 mm/min	1 ~ 30,000 mm/min
Tool storage capacity		20 tools	20 tools
NC system		<i>I-Tech Avance</i>	<i>I-Tech Avance</i>

Features

1. High speed
 - 1.1. Material supply unit (squeegee blade) speed improvement
 - 1.2. Optimized galvano control and sintering conditions
 - 1.3. Expansion of sintering capacity per unit time
14 cc/h* (double the existing, 400W)
 - 1.4. Powder suction function
Higher cutting feedrate and use of large-diameter tools: Milling time 75%* reduction
2. New options
 - 2.1. Large-capacity 1 kW fiber laser
Sintering capacity per unit time: 35 cc/h* (2.5 times greater than standard, 400W)
 - 2.2. APR system (automatic powder recovery system)
Easy and safe material handling without operator contact
 - 2.3. U-axis stroke: 300 mm
Max. part size: 256 mm x 256 mm x 300 mm, allowable sintering weight: 150 kg
3. New guard design, new operation panel
4. *LUMEX CAM* update

* The actual performance may vary depending on the part material and shape.



Figure: *LUMEX Avance-25* External View