



EOSINT M 270

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Laser-sintering system for the production of tooling inserts, prototype parts and end products directly in metal

Laser-sintering is well known as the technology of choice for ensuring the quickest route from product idea to market launch. Innovative companies from a broad range of industries are using this technology for e-Manufacturing – the fast, flexible and cost-effective production directly from electronic data for every phase of the product life cycle.

Metal Parts directly from CAD Data

EOSINT M 270 builds metal parts using Direct Metal Laser-Sintering (DMLS). The technology fuses metal powder into a solid part by melting it locally using a focussed laser beam. The parts are built up additively layer by layer. Even highly complex geometries are created directly from 3D CAD data, fully automatically, in just a few hours and without any tooling. It is a net-shape process, producing parts with high accuracy and detail resolution, good surface quality and excellent mechanical properties.

A wide variety of materials can be processed by the EOSINT M 270, ranging from light alloys via steels to super-alloys and composites. EOS has developed novel alloys especially for the DMLS process, and has also optimized and qualified standard industrial materials such as stainless steels for this machine. Further materials are continually being developed and qualified.

New Perspectives in Manufacturing with DirectPart

EOSINT M 270 is widely used to produce positive parts directly from CAD data. This application is called DirectPart. The components can be prototypes, series production parts or even spare parts. Whether the requirement is to deliver a functional metal prototype within one day, or to economically manufacture hundreds of individualized implants in bio-compatible alloy each week, EOSINT M 270 offers the solution.

Rapid and High-Performance Tooling with DirectTool

DMLS is well known as a leading technology for toolmaking, an application known as DirectTool. With its high accuracy and surface quality, EOSINT M 270 is an ideal platform for this application. The direct process eliminates tool-path generation and multiple machining processes such as EDM. Tool inserts are built overnight or even in just a few hours. Also the freedom of design can be used to optimize tool performance, for example by integrating conformal cooling channels into the tool. Increasingly, both strategies are combined to create improved performance in shorter time. DirectTool is best known for plastic injection moulding. However, the technology is also used





for other tooling types including blow moulding, extrusion, die casting, sheet metal forming etc.

EOSINT M 270 is a state-of-the-art laser-sintering system. Its solid-state fibre laser offers high performance and reliability over a long lifetime. Fine focussing optics enable excellent detail resolution and part quality, while a variable focus diameter allows increased productivity and broad process control. The gas-tight process chamber offers an efficient use of a protective atmosphere. This enables a wide range of materials to be processed.

Technical Data

<i>Effective building volume (including building platform)</i>	<i>250 mm x 250 mm x 215 mm (9.85 x 9.85 x 8.5 in.)</i>
<i>Building speed (material-dependent)</i>	<i>2 - 20 mm³/s (0.0001 - 0.001 in³/sec.)</i>
<i>Layer thickness (material-dependent)</i>	<i>20 - 100 µm (0.001 - 0.004 in.)</i>
<i>Laser type</i>	<i>Yb-fibre laser, 200 W</i>
<i>Precision optics</i>	<i>F-theta-lens, high-speed scanner</i>
<i>Scan speed</i>	<i>up to 7.0 m/s (23 ft./sec.)</i>
<i>Variable focus diameter</i>	<i>100 - 500 µm (0.004 - 0.02 in.)</i>
<i>Power supply</i>	<i>32 A</i>
<i>Power consumption</i>	<i>maximum 5.5 kW</i>
<i>Nitrogen generator</i>	<i>standard</i>
<i>Compressed air supply</i>	<i>7,000 hPa; 20 m³/h (102 psi; 26.2 yd³/h.)</i>
Dimensions (B x D x H)	
<i>System</i>	<i>2,000 mm x 1,050 mm x 1,940 mm (78.8 x 41.4 x 76.4 in.)</i>
<i>Recommended installation space</i>	<i>approx. 3.5 m x 3.6 m x 2.5 m (137.9 x 141.8 x 100 in.)</i>
<i>Weight</i>	<i>approx. 1,130 kg (2,491 lb.)</i>
Data preparation	
<i>PC</i>	<i>current Windows operating system</i>
<i>Software</i>	<i>EOS RP Tools; Magics RP (Materialise)</i>
<i>CAD interface</i>	<i>STL. Optional: converter for all standard formats</i>
<i>Network</i>	<i>Ethernet</i>
Certification	<i>CE, NFPA</i>

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EOS has been developing technologies and processes for Rapid Prototyping since 1989. Today the company is the world's leading manufacturer of laser-sintering systems for Rapid Prototyping, Rapid Tooling and Rapid Manufacturing. Laser-sintering is the key technology for e-Manufacturing.

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