Laser sintering system **EOSINT M 280** for the production of tooling inserts, prototype parts and end products directly in metal

e-Manufacturing Solutions

The Technology:
Laser sintering - the Key to e-Manufacturing

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.

The system:
e-Manufacturing for the industrial sector

The EOSINT M 280 is an updated and further improved version of the EOSINT M 270, the leading system on the market for the additive manufacturing of metal components. It directly produces top-quality metal parts on the basis of three-dimensional CAD data – fully automatically, in only a few hours, and with no need for tools. The Direct Metal Laser Sintering (DMLS) process builds the parts up layer by layer by melting fine metal powder with a laser beam, which enables the creation of extremely complex geometries such as free form surfaces, deep grooves and three-dimensional cooling channels.

The system is optionally equipped with a 200 or 400 watt fibre laser. This type of laser provides an exceptionally high beam quality and power stability which can be monitored during the build process using the Laser Power Monitoring (LPM) option. Together with an optimized Gas Management System this guarantees optimal and consistent processing conditions for highest and constant part building quality. The system operates in both protective nitrogen and argon atmospheres. This allows the system to process a wide range of materials: from light metals to stainless and tool steel to superalloys.

The process software has been developed and improved over a period many years and contains many intelligent exposure strategies and features; these enable the optimization and adaption of the build process for a variety of material types and applications. EOS offers a range of powder metal materials

for the EOSINT M 280 with corresponding parameter sets that have been optimized according to the application. These produce parts with standardized part property profiles (PPPs). In addition, EOS ensures maximum reliability by intensive process development and thorough quality assurance of all products. The system's capacity can be adapted to different customer requirements with a variety of options and additional equipment. The Integrated Process Chain Management (IPCM) modules enable greater productivity, higher quality and increased user-friendliness, and can also be added to at any time.

The distinctive features of the EOSINT M 280 system are the quality of the parts it produces and the ergonomically designed peripherals. These features are what make the system the ideal production tool for the economical batch-size optimized manufacture of parts at all stages of the product life cycle. The system is therefore perfectly suited for an industrial environment.

The software:
Achieving maximum productivity automatically

EOS offers various software packages for processing CAD data and tracking production flows. EOSTATE was developed to provide users with an overview of all production-related data at any desired point in time. The software processes production data for freely definable timeframes and displays it clearly. The user's requirements are accommodated within the integrated Basic, Quality Assurance, Controlling and Machine Park Management (MPM) modules. They ensure that production flows are easy to track and to manage.

Technical Data	
Building volume (including building platform)	250 mm x 250 mm x 325 mm (9.85 x 9.85 x 12.8 in)
Laser type	Yb-fibre laser, 200 W or 400 W (optional)
Precision optics	F-theta-lens, high-speed scanner
Scan speed	up to 7.0 m/s (23 ft./sec)
Variable focus diameter	100 - 500 µm (0.004 - 0.02 in)
Power supply	32 A
Power consumption	maximum 8.5 kW / typical 3.2 kW
Nitrogen generator	integrated
Compressed air supply	7,000 hPa; 20 m^3/h (102 psi; 706 ft^3/h)
Dimensions (W x D x H)	
System	2,200 mm x 1,070 mm x 2,290 mm (86.6 x 42.1 x 90.1 in)
Recommended installation space	min. 4.8 m x 3.6 m x 2.9 m (189 x 142 x 114 in)
Weight	approx. 1,250 kg (2,756 lb)
Data preparation	
Software	EOS RP Tools; EOSTATE Magics RP (Materialise)
CAD interface	STL. Optional: converter for all standard formats
Network	Ethernet

EOS GmbH
Electro Optical Systems
Corporate Headquarters
Robert-Stirling-Ring 1
82152 Krailling/Munich
Germany
Phone +49 89 893 36-0
Fax +49 89 893 36-285

Further EOS Offices

EOS France
Phone +33 437 49 76 76

EOS India
Phone +91 44 28 15 87 94

EOS Italy
Phone +39 0233 40 16 59

EOS Korea
Phone +82 32 552 82 31

EOS Nordic & Baltic
Phone +46 31 760 46 40

EOS of North America
Phone +1 248 306 01 43

EOS Singapore
Phone +65 6430 05 50

EOS Greater China
Phone +86 21 602307 00

EOS UK
Phone +44 1926 62 31 07

www.eos.info • info@eos.info

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Status 06/2013. Technical data subject to change without notice. EOS is certified according to ISO 9001.