

## EOSINT S 750

Double laser-sintering system for the direct, tool-less production of sand cores and moulds for metal castings

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 today in every stage of the product life cycle for batch-size optimized production.

Rapid Product Development with laser-sintering technology from EOS accelerates Simultaneous Engineering. Development quality increases and errors can be avoided or detected early on, before they cause high costs or endanger the products timely launch. Small series of niche and trend products can be manufactured economically and flexibly, as can spare parts on demand. Manufacturers can react to market fluctuations at short notice and without the risk of high start-up investments. Users of laser-sintering technology thereby increase the quality of their products, their innovative power and profitability.

### Directly from CAD data to sand cores and moulds

The EOSINT S 750 is the only double laser-sintering system worldwide for the processing of Croning® moulding material. Using the DirectCast® method, the system builds cores and moulds directly from CAD data for the production of sand castings – fully automatically, with a building speed of up to 2,500 cm<sup>3</sup>/h and without any tooling. Sand parts of any complexity are built layer by layer, with high accuracy, detail resolution and surface quality, up to a build volume of 720 mm x 380 mm x 380 mm.

The resulting cores or core packages are not only realized with significant savings in time and costs compared to conventional technologies, but usually also consist of less parts which can thus be assembled faster and more precisely.

*Companies which develop, manufacture and supply products are today confronted with many different demands and market trends. Innovative companies ensure their competitive advantage and success by rapidly adapting to new situations in every phase of the product life cycle:*

### DEVELOPMENT

- Shorter time to market
  - More product variants
  - Increasing design complexity
- Rapid Prototyping**

### PRODUCTION

- Mass customization
  - Niche markets
  - Fluctuations in demand
- Rapid Manufacturing**

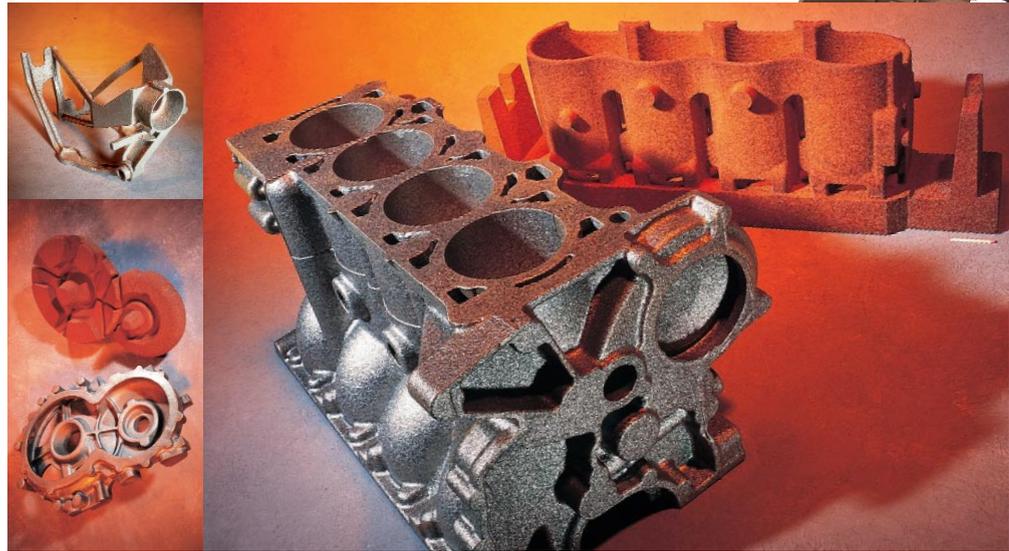
### SPARE PARTS PRODUCTION

- Fast availability
  - Minimized inventories
  - Reduced warehousing costs
- Spare Parts on Demand**



## The Applications of EOSINT S 750

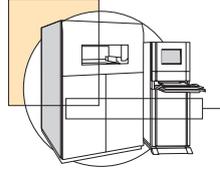
The moulds and cores built with DirectCast® can be used for the production of castings in all conventional materials, from magnesium to high alloy steel.



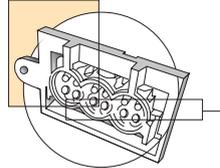
### 1. CAD Data



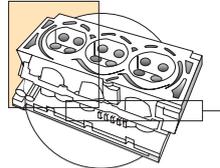
### 2. EOSINT S



### 3. Sand Mould/Core



### 4. Casting



### DirectCast® with EOSINT S

Computerized product design is followed by laser-sintering of the three-dimensional CAD data. The resulting sand core and/or sand mould can then be used for casting.

### DirectCast® –

#### An ideal supplement to conventional technologies

The development of castings today is placing new demands on foundries. Increasing pressure on time and costs can be met by expanding the range of services offered and turning foundries into full-service providers that can assume overall responsibility for production – from the design to the casting.

The intelligent combination of DirectCast® – a process developed jointly by EOS and ACTech (Freiberg/Saxony, Germany) – with conventional foundry technology allows for major productivity improvements along the process chain. In addition, it opens up new opportunities for services such as the "prototype foundry", a current buzzword which describes this new development.

**EOSINT S 750.** As a laser-sintering system with two lasers, this machine is the benchmark for productivity. It is the world's fastest system of its type for the direct manufacturing of sand moulds and cores without tooling.



**EOSINT S** is ideally suited for rapid production of castings with complex core geometry.

#### Innovative production of castings for a broad range of applications

DirectCast® with the EOSINT S 750 double laser-sintering system enables the production of castings in batch sizes that would be extremely laborious, economically unviable or even impossible to produce using conventional techniques.

In this way, high-quality castings can be produced for example in the fields of motor development, pumps or hydraulic applications, to name just a few potential areas. These castings can be used as fast, cost-effective prototypes or as one-off final products, as required for special-purpose mechanical engineering.

With EOSINT S 750 and DirectCast®, foundries are also ideally positioned to cater for new trends such as spare parts on demand.

Laser-sintered cores and conventionally produced moulds, fitted together in a single core package, strengthen the position of DirectCast® as a profitable tool which is especially suited for the production of castings in small series.

#### Application-optimized materials

EOSINT S 750 uses different Croning® sands which are commonly used in foundries. These sands have been optimized by EOS for the DirectCast® applications. Therefore, the system is ideally suited for building highly complex, detailed sand cores and moulds for the production of first-rate castings in series quality.

Therefore, excellent results are obtained for light-weight constructions using aluminium or magnesium. EOSINT S 750 also opens up new applications for cast iron and steel.

#### Designed for industrial process chains

EOSINT S 750 is not a technological island, but can be seamlessly integrated into today's industrial environment and its processes. The IPCM (Integrated Process Chain Management) developed by EOS offers a full range of ergonomic and highly automated peripheral components for the laser-sintering system. As part of the IPCM, the system offers for example a moulding material cycle including automatic sand recycling as well as a post-curing station. These features further increase the productivity and user-friendliness of the system, whilst a high level of workplace safety for users is ensured at the same time.

*EOS has been developing technologies and processes for Rapid Prototyping since 1989. It all started with a vision – the dream of manufacturing three-dimensional parts direct from CAD data using laser technology. Today the company is the leading European manufacturer of Rapid Prototyping, Rapid Tooling and Rapid Manufacturing systems. All over the world, manufacturing enterprises from many different sectors and specialist service bureaus are using EOS technologies to improve their competitiveness and market position.*

## Technical Data

Effective building volume	720 mm x 380 mm x 380 mm
Building speed (material-dependent)	up to 2,500 cm <sup>3</sup> / h
Layer thickness	0.2 mm
Laser type	2 x 100 W, CO <sub>2</sub>
Precision optics	2 x F-theta lens, 2 x highspeed-scanner
Scan speed (maximum)	3.0 m/s
Power supply	32 A
Power consumption	6 kW (average), 12 kW (maximum)
Compressed air supply	minimum 6,000 hPa; 15 m <sup>3</sup> /h
Dimensions	
Process cabinet	1,400 mm x 1,400 mm x 2.150 mm (B x D x H)
Control cabinet	610 mm x 800 mm x 1,830 mm (B x D x H)
Switchgear cabinet	810 mm x 870 mm 2.150 mm (B x D x H)
Recommended installation space (without IPCM)	4.5 m x 4.6 m x 2.7 m (B x D x H)
Weight (without sand)	approx. 2,200 kg
Data preparation	
PC	current Windows operating system
Software	EOS RP Tools; Magics RP (Materialise); Expert Series (DeskArtes)
CAD interface	STL. Optional converter to all standard formats
Network	Ethernet
Certification	CE

Status 9/02. Technical data subject to change without notice.

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EOS is certified according to ISO 9001.

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