



Plastic laser sintering system **FORMIGA P 110**  
for the direct manufacture of series,  
spare parts and functional prototypes



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 in the compact class**  
"FORMIGA quality" has become a quality label for the additive manufacturing of plastics. The FORMIGA P 110 is the successor to the FORMIGA P 100 and continues to be the laser sintering system of choice in the compact class that gives you an ideal access to the world of laser sintering.

With a build envelope of 7.9 in x 9.8 in x 13 in, the FORMIGA P 110 produces plastic products from polyamide or polystyrene within a few hours directly from CAD data. The system is ideal for the economic production of small series and individualized products with

complex geometries – requirements that apply e.g. to the medical device industry and to high-value consumer goods. Various EOS parameter sets enable a focus both on economic efficiency and on highest surface quality. With shortest throughput times and relatively low investment costs, the FORMIGA P 110 can be integrated perfectly into a produc-

tion environment that requires highest levels of flexibility.

## **Innovation for use in production**

The FORMIGA P 110 offers a number of technical innovations. Process stability and reproducibility of the system have been enhanced even further. Among other things, this is achieved by the new

integrated 4-channel heating and a single-point pyrometer. An external nitrogen connection guarantees least-cost integration in factories that have a central nitrogen supply system. High product quality is ensured by the proved and tested dosing and coating system. The FORMIGA P 110 achieves maximal surface quality



*Filling funnel:  
Made of polyamide  
using an EOSINT P  
system.*

in particular at vertical walls. The extremely small focus diameter enables the production of walls that are only 0.016 in thick, making the system ideal for small, filigree components such as connectors. The FORMIGA P 110 is extremely user-friendly and requires just a minimum of accessories. This results in lower energy consumption and consequently in reduced costs of operation. It is a door-passing laser sintering system with low erection condition requirements. The system can be installed and

set up in less than two days. Data preparation can conveniently take place at the workstation with makes it well suited also for decentralized production areas.

#### **Automation and intelligent functionality**

Its ergonomic peripheral equipment and the high degree of automation make the FORMIGA P 110 easy to handle, enable optimal use of machine capacity and materials and allow best possible integration of the system into industrial

production environments. The newly developed Integrated Process Chain Management (IPCM+) solution features a powder mixing station and integrated powder recycling tailored to production requirements. The high level of automation makes for minimal downtimes and increased productivity. Moreover, the EOSPACE software allows the parts to be easily positioned in the build chamber to make optimal use of the available space. This means shorter production times and lower costs.

#### Technical Data

Effective building volume	200 mm x 250 mm x 330 mm (7.9 x 9.8 x 13 in, excl. pyrometer measurement spot)
Building speed (depending on material)	up to 20 mm height/h (0.79 in/h)
Layer thickness (depending on material)	0.06 mm (0.0024 in), 0.1 mm (0.0039 in), 0.12 mm (0.0047 in)
Support structure	not required
Laser type	CO <sub>2</sub> , 30 W
Precision optics	F-theta lens
Scan speed during building	up to 5 m/sec (16.4 ft/sec.)
Power supply	16 A
Power consumption	maximum 5 kW / typical 1,4 kW
Nitrogen generator incl. external nitrogen connection	integrated
Compressed air supply	min. 6,000 hPA (87 psi); 10 m <sup>3</sup> /h (13.08 m <sup>3</sup> )

#### Dimensions (W x D x H)

Machine with powder containers and touch screen	1,320 mm x 1,067 mm x 2,204 mm (51.97 x 42.01 x 86.77 in)
Recommended installation space	3.20 m x 3.50 m x 3.0 m (126 x 137.8 x 118.1 in)
Weight	approx. 600 kg (1,323 lb.)
Unpacking and sieving station (optional)	1,200 mm x 700 mm x 1,500 mm (47.24 x 27.56 x 59.06 in)
Powder mixing station (optional)	700 mm x 500 mm x 1,000 mm (27.56 x 19.69 x 39.37 in)

#### Data preparation

Software	EOS RP Tools (optional); Desktop PSW
Data interface to CAD system	STL (optional: converter to all common formats)
Network	Ethernet

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