



EOS MaragingSteel MS1  
for EOS M 300-4

# EOS MaragingSteel MS1

## EOS M 300-4 | 50 $\mu\text{m}$

Parts built with EOS MaragingSteel MS1 are characterized by having very good mechanical properties and being easily heat-treatable using a simple thermal age-hardening process to obtain excellent hardness and strength.



### Main Characteristics

- The parts are easily post-hardened to more than 50 HRC
- The parts can be machined, spark-eroded, welded, micro shot-peened, polished and coated
- Chemical composition corresponding to 18Ni300 and M300

### Typical Applications

- Injection molding tools & inserts
- Mechanical engineering parts

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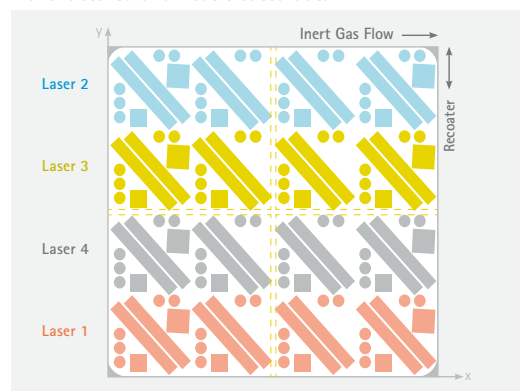
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### Product Information

DMLS System	EOS M 300-4
Material	EOS MaragingSteel MS1
Process	50 $\mu\text{m}$ layer thickness
Inert Gas	Nitrogen
Recoater blade	ceramic, two-sided recoating
Volume rate	up to 4 x 5.5 mm <sup>3</sup> /s

### Layout of test job

Part properties based on one test job each for the as manufactured and heat treated data.



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Typical part properties	Yield strength Rp <sub>0.2</sub> [MPa]	Tensile strength Rm [MPa]	Elongation at break A [%]	Number of samples
As manufactured vertical	860	1,100	12	80
As manufactured horizontal	980	1,200	13	32
Heat treated vertical	1,990	2,110	3	70
Heat treated horizontal	2,040	2,120	4	18
Max. pore size		90 $\mu\text{m}$		32
Porosity		0.05 %		32

Mechanical properties tested according to EN ISO 6892-1 B10. The values in the table are average values and dependent on the thermal load of the job layout as well as the position on the build plate. Heat treatment procedure by solution treatment at 940 °C (1,724 °F) for 2 hours, air cooling to room temperature, age-hardening at 490 °C (914 °F) for 6 hours, air cooling.

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The quoted values refer to the use of this material with above specified type of EOS DMLS system, EOSYSTEM and EOSPRINT software version, parameter set and operation in compliance with parameter sheet and operating instructions. Part properties are measured with specified measurement methods using defined test geometries and procedures. Further details of the test procedures used by EOS are available on request. Any deviation from these standard settings may affect the measured properties. The data correspond to EOS knowledge and experience at the time of publication and they are subject to change without notice as part of EOS' continuous development and improvement processes. EOS does not warrant any properties or fitness for a specific purpose, unless explicitly agreed upon. This also applies regarding any rights of protection as well as laws and regulations.

