



EOS StainlessSteel 17-4PH
for EOS M 300-4

EOS StainlessSteel 17-4PH

EOS M 300-4 | 40 μm

EOS StainlessSteel 17-4PH is an iron based metal alloy material widely used in engineering applications, which require corrosion resistance and strength. EOS StainlessSteel 17-4PH is a stainless steel powder intended for manufacturing parts on EOS metal systems with EOS DMLS processes.



Main Characteristics

- Corrosion resistance and strength
- Parts can be machined, shot-peened and polished in as-built or heat treated states
- Solution annealing together with aging treatment are necessary in order to achieve proper hardness and mechanical properties (ASTM A564-13)
- Chemical composition and part properties corresponding to 1.4542, UNS 17400 and ASTM A564M

Typical Applications

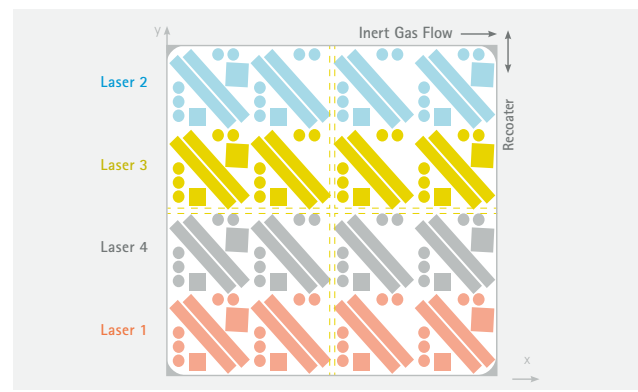
- Acid and corrosion resistant engineering parts
- Medical instruments (surgical tools, orthopedic instrumentation)

Product Information

DMLS System	EOS M 300-4
Material	EOS StainlessSteel 17-4PH
Process	40 μm layer thickness
Build platform temperature	80 °C
Inert gas	Argon
Recoater blade	Ceramic, two-sided recoating
Volume rate	up to 4 x 3.32 mm ³ /s

Layout of test job

Part properties based on two test jobs each for the as manufactured and heat treated data.



Typical part properties¹

	Yield strength R _{p0.2} [MPa]	Tensile strength R _m [MPa]	Elongation at break A [%]	Number of samples
As manufactured vertical	947	1052	15.7	159
As manufactured horizontal	941	1015	16.8	64
Heat treated vertical	1240	1371	10.5	160
Heat treated horizontal	1207	1349	10.7	64
Max. pore size	< 110 μm			64
Porosity	0.014 %			64

Mechanical properties tested according to DIN EN ISO 6892-1 B10. The values in the table are average values and dependent on the build platform temperature, on the thermal load of the job layout as well as the position on the build plate and the resulting cycle time. In this case a minimum layer time of 40 seconds was used.

Heat treatment procedure in Argon atmosphere:


1. Solution annealing at 1040 °C (+/-15 °C) for 30 min, air cooling under 32 °C.
2. Aging: Hold 460 °C for 1 h, air cooling under 32 °C


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Cover: This image shows a possible application.

