DIGITAL® MECHANICS
RAPID PRODUCTION SERVICES

METALS
PLASTICS

Stainless steel 1.4542, 17-4ph

Material data sheet for stainless steel parts produced by Selective Laser Melting

Material Properties	Value as built
Tensile Strength	832 ± 87 MPa
Modulus of elasticity	155 ± 22 GPa
Yield strength (Rp 0.2)	572 ± 25 MPa
Elongation at break	31 ± 3 %
Hardness by Vickers	221 ± 4 HV1

Thermal Properties	Value as built
Coefficient of Thermal Expansion	$14x10^{-6}$ m/(m °C)
Heat conductivity (20-300 °C)	13-16 W/(m °C)
Max operating temperature	550 °C

Process-related properties	Value as built
Roughness (after micro shot blasting) (Ra/Rz)	9 ± 2/-54 ± 15µm
Achievable part accuracy	±20-50[2] / ±0.2% of nom.[3] µm
Min. wall thickness	0.3-0.4 mm

1) Due to anisotropic effects, some geometries will only allow for lesser values of max. 15 % below manufacturer's information. Please consider this in the design of the part.

2) As a result of the part's geometry, strong tensions may cause distortion in the part which may lead to greater deviation.

3) For surfaces which are to be finished mechanically, an allowance of at least

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3D production with brains