

# Maraging steel 1,2709

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

Material Properties	Value as built	Value as heat treated
Max. Tensile Strength (xyz)	1100 ± 100 MPa	1950 ± 100 MPa
Modulus of elasticity (xy/z)	160 ± 20/150 ± 20 GPa	180 ± 20 GPa
Yield strength (Rp 0.2) (xy/z)	1050 ± 100/1000 ± 100 MPa	1900 ± 100 MPa
Elongation at break	10 ± 4 %	2 ± 1 %
Hardness by Rockwell	33-37 HRC	50-54 HRC
Charpy-notched impact strength	45 ± 10 J	11 ± 4 J

Thermal Properties	Value as built	Value as heat treated
Specific heat capacity	450 ± 20 J/(kg °C)	450 ± 20 J/(kg °C)
Heat conductivity	15 ± 0.8 W/(m °C)	20 ± 1 W/(m °C)
Max operating temperature	400 °C	400 °C

Process-related properties	Value as built	Value as heat treated
Roughness (after micro shot blasting) (Ra/Rz)	4-6.5/20-50 µm	4-6.5/20-50 µm
Achievable part accuracy	±40-60 <sup>2)</sup> / ±0.2% of nom. <sup>3)</sup> µm	±40-60 <sup>2)</sup> / ±0.2% of nom. <sup>3)</sup> µm
Min. wall thickness	0.3-0.4 mm	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 0.5 mm is recommended for part sizes up to 200mm and 1.0 mm for bigger parts.