Direct Metal Laser Sintering (DMLS)

ToolSteel 1.2709 / MS1

Key Features

Ultra high strength and hardness • Excellent fatigue strength • Good machinability • Properties adjustable with different heat treatment

Product Description

ToolSteel 1.2709 is an ultra-high-strength maraging steel ideal for demanding molding applications. Its exceptional properties are achieved through the formation of intermetallic phases and precipitates during heat treatment, offering excellent fatigue strength, hardness, and machinability. The material's properties can be adjusted with different heat treatments. Typical applications include plastic injection molding, extrusion tools, hot pressing tools, and die casting tools for aluminum and zinc alloys.

Properties*

Yield strength (xy/z)	2,170 / 2,180 MPa
Tensile strength (xy/z)	2,250 / 2,260 MPa
Elongation at break (xy/z)	4.2 / 3.3%
Fatigue strength (at 1x10-7 cycles)	732 MPa
Impact toughness	10 J
Coefficient of thermal expansion (25 – 100 °C)	10.72*10-6/K
Density	8.05 g/cm^3
Hardness	57 HRC
Corrosion resistance	3/5

*Heat treated state, 40 µm layer thickness

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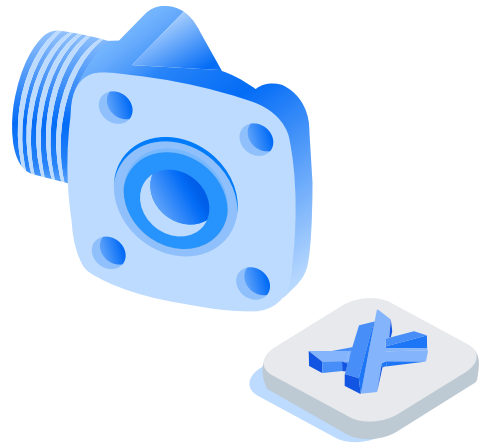
Applications

Plastic injection molding
Extrusion tools
Hot pressing tools
Die casting tools for aluminium and zinc alloys
Tooling



Chemical Composition

Fe	Balance
Ni	17 - 19
Co	8.5 - 10
Mo	4.5 - 5.2
Ti	0.8 - 1.2

Reference

For more detailed source information, please consult the original document linked here. We encourage users to verify the data's relevance and suitability for their specific needs.