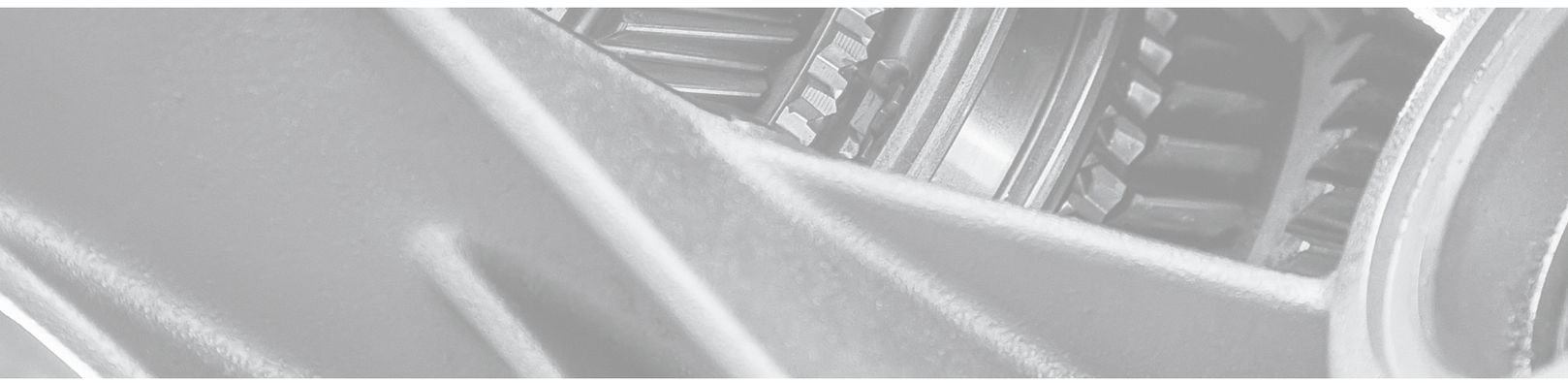
3T additive manufacturing

DATA SHEET

Stainless Steel 15-5 PH



Material description

15-5 PH is a precipitation hardenable stainless steel. This kind of steel is characterized by having very good corrosion resistance and mechanical properties, especially in the precipitation hardened state. It is widely used in a variety of medical, aerospace and other engineering applications requiring high hardness, strength and corrosion resistance.

Physical properties[1]

Density (based on 8.19 g/cm³ theoretical density)	> 99.75%
Pore size	< 100 µm
Porosity rate	< 0.25%
Hardness	min. 140 HV10

Mechanical properties

	Stress Relieved[2]
Tensile strength Horizontal (XY) Vertical (Z)	 1450 MPa ± 100 MPa 1450 MPa ± 100 MPa
Proof strength (Rp 0.2%) Horizontal (XY) Vertical (Z)	 1300 MPa ± 100 MPa 1300 MPa ± 100 MPa
Modulus of elasticity Horizontal (XY) Vertical (Z)	 180 ± 20 GPa 180 ± 20 GPa
Elongation at break Horizontal (XY) Vertical (Z)	 min. 12%

[1] All data gathered using ASTM E8M flat un-machined specimens that were wire EDM to profile with cross section of 2mmx6mm at the gauge section.

[2] Heat treated in air/argon using a modified H900 at 525°C for 4 hours. Please contact us for bespoke heat treatment to achieve different mechanical properties.

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Chemical properties

Material composition wt%	Ni	3.50-5.50	C	0.70 max	S	0.01 max
	Cr	14.00-15.50	Cu	2.50-4.50	Si	1.00 max
	Mo	0.50 max	Mn	1.00 max	N	0.10 max
	Fe	Balance	P	0.025 max		

Material Properties	Applications	Finishes	Industries
• Corrosion Resistant • High Strength • Wear Resistant	• Prototyping • Engineering • Turbomachinery	• Machined • Spark-eroded • Welded • Micro shot-peened • Polished • Coated	• Automotive • Medical • Aerospace