

AISI 4140 Alloy Steel

AISI 4140 ALLOY STEEL DATASHEET

AISI 4140 alloy steel has high strength, high fatigue strength, toughness, torsional strength, and impact and abrasion resistance. Additionally, AISI 4140 alloy steel is highly ductile when annealed, though it requires more pressure as it is tougher than most carbon steels. AISI 4140 alloy steel is easily welded, but if this is done after hardening, it will also require a post weld heat treatment.

AISI 4140 alloy steel is typically used in aerospace, oil, gas, automotive, agricultural, and defense industries, specifically gears, shafts, spindles, fixtures, and collars.

Product forms include bar, seamless tubing, and plate.



Standards

- UNS G41400

Physical Properties

- Density: 0.283 LB/in³ (7.85 g/cm³)
- Melting Range: 2580-2650°F (1416-1454°C)
- Modulus of Elasticity: 29.7 x10⁶psi (205 Gpa)
- Magnetic Permeability:

Characteristics

- Good strength
- Easily welded
- Easy to machine

Chemical Composition

	C	Mn	S	Si	P	Cr	Mo	Fe
MIN	0.38	0.70	-	0.15	-	0.80	0.15	96.785
MAX	0.43	1.00	0.04	0.30	0.035	1.10	0.25	97.840

Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness (max) HRB (BHN)
95 (655)	60.2 (415)	25.7	56.9	92 (197)

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