

4140 chromoly steel

One of the most versatile steels, 4140 is characterized by its toughness, abrasion resistance, and impact resistance, making it a great all-purpose steel for industrial applications.

Composition %

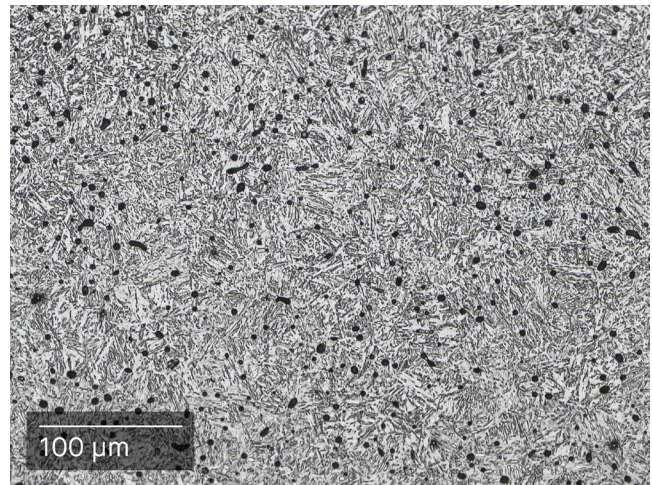
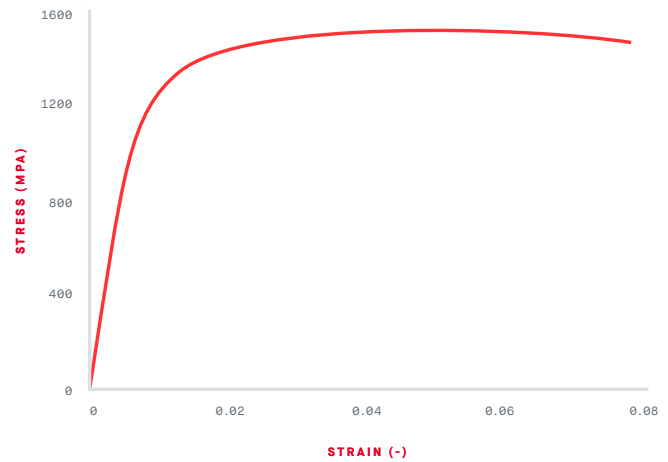
Cr	0.8 – 1.2
Mo	0.2 – 0.3
C	0.3 (typical)
Si	0.6 (max)
Mn	1.0 (max)
Fe	Balance

Other standard designations¹

AISI	4140
UNS	G41400
DIN	1.7200
JIS	G4105

Mechanical properties²

	standard	Studio System heat treated ³	MPIF 35-MIM heat treated (min) ⁴	Wrought heat treated, for reference ³
Yield strength (MPa)	ASTM E8	1060	1070	1500
Ultimate Tensile Strength (MPa)	ASTM E8	1450	1380	1990
Elongation at break	ASTM E8	5.5%	3%	10%
Hardness (HRC)	ASTM E18	40	46 (typical)	52
Density (relative)		95%	95.5%	100%



Studio System™ heat treated microstructure.

¹ Listed designations are for reference purposes only. Composition and mechanical properties may vary.

² Properties shown reflect beta processing parameters. Properties were obtained for sintering loads between 1.5 kg and 3 kg.

³ Heat treated samples were oil quenched from 857 °C and tempered at 204 °C for 2 hours.

⁴ Per MPIF Standard 35, Materials Standards for Metal Injection Molded Parts (MPIF 35-MIM, 2018).

End-use material performance is impacted (+/-) by certain factors including but not limited to part geometry and design, application and evaluation conditions, etc.