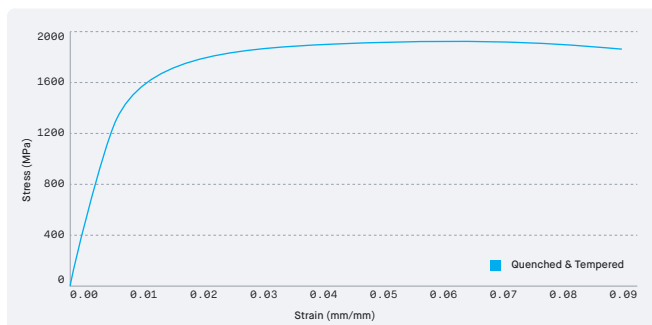


[Material Data Sheet]

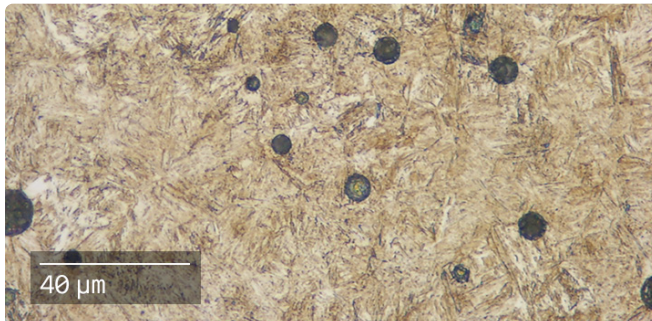
4140

Low-Alloy Steel



COMPOSITION % (AISI/SAE 4140)

Fe	Balance
C	0.3 - 0.5
Cr	0.8 - 1.2
Mn	1.0 (max)
Mo	0.2 - 0.3
Si	0.6 (max)



MECHANICAL PROPERTIES

	Standard	Production System™ Quenched & Tempered	ASTM B883 / MIPF 35 (min - typ) Quenched & Tempered
Yield strength ¹ (MPa)	ASTM E8M	1,455 ± 34	1,070 – 1,240
Ultimate tensile strength ¹ (MPa)	ASTM E8M	1,880 ± 29	1,380 – 1,650
Elongation at break (%)	ASTM E8M	4.8 ± 1.1	3 – 5
Young's modulus (GPa)	ASTM E1111	203 ± 9	205
Hardness (HRC)	ASTM E18	47.1 ± 0.7	46
Density	g/cm ³	7.5	7.5
Surface roughness ² (μm Ra)	ASTM B311	3 – 8	-

ATTRIBUTES & APPLICATIONS

Low-Alloy heat-treatable steel used in applications requiring high strength, hardness, & toughness

Good elongation with quality impact & abrasion resistance

Automotive parts, armament components, jigs, fixtures, tooling, gears, sprockets, wrenches & structural housings

Mechanical components (static & dynamically loaded)

Impact components (e.g. golf iron heads, hammers, crash cans)

OTHER STANDARD DESIGNATIONS

UNS G41400

EN 1.7225

42CrMo4

- YS & UTS properties noted represent mean values across Xy orientation.
- Surface roughness measured in Z direction after sintering & sand blasting.
- Stress strain curve reported in X print orientations after quenching and tempering.