Alloy steel 4140 | 1.7225 | EN19 | 42CrMo4

Alloy Steel 4140 offers high strength and toughness for shafts and gears.

Mechanical properties

Ultimate tensile strength	355 - 370 MPa
Yield strength	230 MPa
Young's modulus (modulus of elasticity)	208 - 216 GPa
Elongation at break	18 - 26 %

Physical properties

Corrosion resistance	Moderate to Poor
Magnetism	Semi-Magnetic
UV resistance	Excellent
Weldability	Moderate

Thermal properties

Maximum service temperature	613 - 650 °C
Thermal expansion coefficent	11.5 - 13.5 10^-6/ºC
Thermal conductivity	42 - 48 W/(m·°C)

Electrical properties

Electrical resistivity	20 - 25 µΩ*cm

Post treatments

Post-Processing	Tempering & Annealing
Anodizing compatibility	Not suitable

Common applications

Heavy duty shafts	
Connecting rods	
High tensile bolts	

Alloy Steel 4140 (1.7225 | 42CrMo4 | EN19) CNC Machining Applications & Parts

Alloy Steel 4140 is a versatile chromium-molybdenum medium carbon steel known for its high strength, good toughness, and excellent wear resistance. It is one of the most commonly used steels for general machining and can be heat treated to a wide range of hardness levels.

Typical Parts We Machine from Alloy Steel 4140:

- **General Engineering:** Axles, shafts, gears, bolts, spindles
- **Hydraulic & Pneumatic:** Cylinder barrels, piston rods, valve bodies
- **Tooling & Jigs:** Milling machine arbors, fixtures, jigs, press tools

Our Machining Advantage:

We have extensive experience machining 4140 in all its conditions—from annealed to pre-hardened (~28-32 HRC)—using optimized parameters and tooling to ensure efficiency, precision, and excellent surface integrity.

Get an Instant Quote for your custom Alloy Steel 4140 parts today.