

AISI 4140 Alloy Steel

AISI 4140 steel stockholders and suppliers, delivering to the whole of the UK. AISI 4140 is a chromium molybdenum alloy steel specification widely used in the oil and gas industry. Similar to grade [AISI 4130](#) but with a slightly higher carbon content. The higher carbon content of AISI 4140 gives greater strength and heat treatment capabilities in comparison to AISI 4130, however it does have inferior weldability characteristics. AISI 4140 machines well in the supply condition of 18-22HRc.

We welcome export enquiries for AISI 4140 steel. Contact our sales office and consult our [shipping policy](#) for further details.

Alternative grades we supply

[4130](#) | [4145](#) | [4330V](#) | [4340](#) | [8620](#) | [6150](#)

Form of Supply

West Yorkshire Steel are AISI 4140 steel stockholders of round bar. Diameters can be supplied as full bar lengths or cut pieces. AISI 4140 ground steel bar can be supplied, providing a quality alloy steel precision ground bar to tight tolerances.

Contact our experienced sales team who will assist you with your AISI 4140 alloy steel enquiry.

- Diameter

Applications

AISI 4140 is commonly used for a variety of applications in the oil and gas sector. Typical applications include components such as connection rods, collets, conveyor pins, gears, stem assemblies, pump shafts and tool holders.

Analysis

Carbon	0.38-0.43%	Chromium	0.80-1.10%
Manganese	0.75-1.00%	Molybdenum	0.15-0.25%
Silicon	0.10-0.35%	Phosphorous	0.035% max
Nickel	0.25% max	Sulphur	0.040% max

Forging

Preheat the steel carefully, then raise the temperature to 1150-1200°C for forging. Do not forge below 850°C.

Annealing

Heat the AISI 4140 slowly to 800-850°C and allow enough time for the steel to be thoroughly heated. Cool slowly in the furnace to 480°C followed by air cooling.

Stress Relieving

When parts are heavily machined, ground or otherwise subject to cold work, stress relieving will be beneficial prior to hardening.

Hardening

AISI 4140 steel is usually supplied ready heat treated to 18-22HRC. If further heat treatment is required annealed AISI 4140 should be heated slowly to 840-875°C and after adequate soaking at this temperature quench in oil. Temper as soon as the tools reach room temperature.

Tempering

Heat the AISI 4140 carefully to a suitable temperature selected by reference to a tempering chart or table (usually between 550-700°C, soak at the temperature for 2 hours per 25mm of ruling section, then allow to cool in air. Tempering between 250-375°C is not advised as tempering within this range will seriously reduce the impact value.

Typical Mechanical Properties*

	Tensile KSI	0.2% Proof Stress KSI	Elongation %	Reduction of Area %	Hardness HRc	Hardness Brinell
Min	100	80	20	40	18	217
Max	130	110			22	235

(*at room temperature heat treated to 18-22HRC)

Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to factors such as the shape and size of each AISI 4140 steel component. Other considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment of alloy steel.

Certification

AISI 4140 alloy steel is available with a cast and analysis certificate or a BS EN 10204 3.1 mill certificate, please request when placing any orders.

Quality Assured Supply

AISI 4140 round bar is supplied in accordance with our ISO 9001 : 2008 registration.