



AISI 4140 Alloy Steel

Quality 4140 alloy steel cut and delivered straight to your workshop.

AISI 4140 alloy steel stockholders and suppliers, delivering to the whole of the UK.

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 4130, however it does have inferior weldability characteristics. AISI 4140 machines well in the supply condition of 18-22HRc.

AISI [oil and gas steel](#) grades we supply:

[4130](#) | [4140](#) | [4145](#) | [4330](#) | [4340](#) | [8620](#) | [6150](#) |

Form of Supply

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



Contact our experienced sales team who will assist you with your AISI 4140 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%	Silicon	0.15-0.35%
Manganese	0.75-1.00%	Chromium	0.80-1.10%
Molybdenum	0.15-0.25%	Nickel	0.25% max
Sulphur	0.040% max.	Phosphorous	0.035% max.

Forging

Preheat carefully, then raise 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 any hardening.

Hardening

AISI 4140 steel is usually supplied ready heat treated with a hardness of 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 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 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 4140 alloy steel.1

Quality Assured Supply

4140 alloy steel is supplied in accordance with our ISO 9001:2015 registration.



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