

31CrMoV9 Steel

31CrMoV9 round bar

31CrMoV9 tool steel stockholders and suppliers, delivering to the whole of the UK.

31CrMoV9 is a chromium molybdenum vanadium nitriding steel type grade commonly supplied in the quenched and tempered condition. Supplied in round bar, this grade is commonly used in the automotive industry.

Form of Supply

West Yorkshire Steel are stockholders and suppliers of 31CrMoV9 tool steel round bar. Diameters can be sawn to your required lengths as one offs or multiple cut pieces. 31CrMoV9 ground tool steel bar can be supplied, providing a quality precision ground bar to your required tolerances.

Applications

With its high wear resistance 31CrMoV9 steel is used widely in the engineering and automotive industries. It is suitable for components with medium and large cross sections which require high tensile strength and good toughness. Typically used in gear and engine construction for components such as crankshafts, connecting rods, steering knuckles, screws and bolts



Contact our experienced sales team who will assist you with your 31CrMoV9 enquiry.

- Diameter

DIN Standard steel grades we supply

[45NiCrMo16](#) | [55NiCrMoV7](#) | [90MnCrV8](#)
[42CrMo4](#) | [X45NiCrMo4](#) | [60WCrV8](#) | [31CrMoV9](#)
[X100CrMoV5](#) | [X153CrMoV12](#) | [X210Cr12](#)
[60WCrV7](#) | [X210CrW12](#) | [X40Cr14](#) | [X40CrMoV5-1](#)
[40CrMnMoS8-6](#) | [HS6-5-2C](#) | [40CrMnMo7](#)
[X155CrMoV12-1](#) | [100MnCrW4](#)

Typical Analysis

| | | | |
|-------------|------------|-----------|------------|
| Carbon | 0.27-0.34% | Silicon | 0.40% max |
| Chromium | 2.30-2.70% | Manganese | 0.40-0.70% |
| Molybdenum | 0.15-0.25% | Sulphur | 0.035% max |
| Phosphorous | 0.025% max | Vanadium | 0.10-0.25% |

Forging

Heat the 31CrMoV9 component slowly, allowing sufficient time for the steel to become heated through. Begin forging at 1050°C. Do not forge below 930°C reheating if necessary. After forging, cool very slowly.

Normalising

Heat to 860-900°C. Soak well and allow to cool in the air.

Annealing

Heat the steel uniformly to 680-720°C. Soak well, cool slowly in the furnace. Hardness after annealing is 248 HB max.

Hardening

Heat slowly and uniformly to 840-880°C until heated through. Quench in oil or water.

Tempering

Heat carefully to a suitable temperature, selected by reference to a tempering chart or table (usually between 540-680°C). Soak at the temperature for 2 hours per 25mm of ruling section, then allow to cool in the air.

Nitriding

Tools machined from pre-hardened 31CrMoV9 may be nitrided to give a wear resistant case of approximately 800 HV surface hardness.

Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to various factors such as the shape and size of each 31CrMoV9 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 tool steel grades.

Final Grinding

Select the correct type of wheel in consultation with the grinding wheel manufacturer. Ensure the grinding wheel is in good condition by means of a suitable dressing tool. Wet grinding is a preferable option using a copious supply of coolant. If dry grinding is resorted to then use a very soft wheel.

Quality Assured Supply

31CrMoV9 tool steel is supplied in accordance with our ISO 9001:2015 registration.