



## AISI 4330V Alloy Steel

Quality 4330V alloy steel cut and delivered straight to your workshop.

**AISI 4330V alloy steel stockholders and suppliers, delivering to the whole of the UK.**

AISI 4330V is a nickel chromium molybdenum vanadium alloy steel grade widely used in the oil and gas sectors. AISI 4330V is a modification of the 4330 alloy steel grade, with hardenability and other characteristics improved by the addition of vanadium. The addition of vanadium and nickel to 4330V alloy steel helps it achieve high strength and hardness in larger diameters in comparison to similar grades such as AISI 4145. With its lower carbon content it has better welding characteristics than [AISI 4145](#). AISI 4330V is commonly supplied quenched and tempered with a hardness of between 35 to 39HRC.

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

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

### Form of Supply

West Yorkshire Steel are AISI 4330V steel stockholders and suppliers of round bar. Diameters can be supplied as full bar lengths or cut blanks. AISI 4330V 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 4330V enquiry.

■ Diameter

## Applications

Shock loading or stress concentration applications are suited to this steel specification. 4330V is widely used in the oil and gas industry for applications such as oil tools, drill jars and shoes, tool holders and reamers and in the aerospace industry for applications such as bolting and air frames.

## Analysis

Carbon	0.30-0.34%	Silicon	0.15-0.35%
Manganese	0.75-1.00%	Chromium	0.75-1.00%
Molybdenum	0.40-0.50%	Nickel	1.65-2.00%
Sulphur	0.035% max.	Phosphorous	0.035% max.
Vanadium	0.05-0.10%		

## Forging

Preheat the steel carefully, then raise the temperature to 1070-1230°C for forging. Do not forge below 850°C. 4330V has good forging characteristics but care must be taken when cooling the steel due to its susceptibility to cracking. Cooling in ash or lime after forging is recommended.

## Annealing

Heat the steel slowly to 820-860°C and allow enough time for the steel to be thoroughly heated. Cool slowly in the furnace to 580°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

4330V steel is usually supplied ready heat treated to 35-39 HRc. If further heat treatment is required annealed 4330V 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 carefully to a suitable temperature selected by reference to a tempering chart or table, soak at the temperature for 2 hours per 25mm of ruling section, then allow to cool in air.

## Typical Mechanical Properties

	Tensile KSI	0.2% Proof Stress KSI	Elongation %	Reduction of Area %	Hardness HRc	Hardness Brinell
Min	150	140	15	59	35	331
Max	190	180			39	370

(at room temperature heat treated to 35-39HRc)

## 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 4330V 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 AISI 4330V steel.

## Quality Assured Supply

4330V alloy steel is supplied in accordance with our ISO 9001:2015 registration.



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