

## 45NiCrMo16 Steel

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**45NiCrMo16 steel suppliers, delivering to the whole of the UK.** West Yorkshire Steel are suppliers of round, flat and plate. 45NiCrMo16 is a 4 1/4% nickel oil hardening steel. It is a good quality steel that achieves high impact with compressive strength. It is suitable for applications demanding extra wear resistance. With characteristics of good full hardenability, good polishability and excellent toughness this steel grade is commonly used for plastic mould applications.

We welcome export enquiries for 45NiCrMo16. Contact our sales office and consult our [shipping policy](#) for further details.

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### Form of Supply

We are stockholders and suppliers of annealed round bar, flat bar, plate and block. Rounds can be sawn to your required lengths as one offs or multiple sawn pieces. Rectangular sections can be sawn from flat bar or block to your specific sizes. Ground bar can be supplied, providing a quality precision ground bar to your required tolerances.

Contact our experienced sales team who will assist you with your 45NiCrMo16 steel enquiry.

- Plate
  - Flat
  - Diameter
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### Applications

Typical applications and components include plastic moulds, shear blades, cutting tools, drawing jaws and coining tools.

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### Analysis

Carbon	0.40-0.50%	Chromium	1.20-1.50%
Manganese	0.20-0.50%	Silicon	0.10-0.40%
Sulphur	0.03% max	Nickel	3.80-4.30%
Phosphorous	0.03% max	Molybdenum	0.15-0.35%

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## Forging

Heat slowly and uniformly to 1050°C. Re heat the steel as necessary and avoid working below 850°C After forging the steel cool slowly in furnace or a thermoinsulating material.

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## Annealing

As this grade of steel is supplied in the annealed and machineable condition re-annealing will only be necessary if the steel has been forged or hardened. Heat the component uniformly to 630-650°C. Soak well then cool slowly in the furnace to approximately 600°C and cool in air.

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## Stress Relieving

When components are heavily machined, stabilising is recommended just before finish machining in order to relieve machining strains. Heat to approx 650°C and soak well, allow to cool in air.

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## Hardening

Pre heat the tool slowly and uniformly to 650-700°C and thoroughly soak. Continue heating to the final hardening temperature of 840-870°C and allow the component to be heated through. Quench the component in oil or cool in air.

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## Tempering

Slowly heat the 45NiCrMo16 component uniformly and thoroughly to the selected tempering temperatures and hold at heat for one hour per 25mm of thickness but for a minimum of two hours. Cool in air. 45NiCrMo16 steel can be hardened by vacuum furnace and gas quench process.

<b>Temperature [°C]</b>	100	200	300	400	500	600
<b>Hardness [HRc]</b>	56	54	50	46	42	38

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## Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times can vary due to factors such as the shape and size of each 45NiCrMo16 component. Other considerations during the heat treatment process include the type of furnace, quenching medium plus the work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment.

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## Final Grinding

Select the correct grade of wheel in consultation with a grinding wheel manufacturer. Ensure the grinding wheel is of 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 soft wheel.

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## Quality Assured Supply

45NiCrMo16 steel is supplied in accordance with our ISO 9001:2008 registration.