

X40Cr14 Steel

X40Cr14 steel suppliers, delivering throughout the UK. West Yorkshire Steel are suppliers of round bar, plate and sawn pieces from block. As a chromium alloyed martensitic stainless type steel it is characterised by good polishability, good hardenability and high hardness achievable after hardening. X40Cr14 has fair corrosion resistance providing suitability for applications in the optical and medical industries.

We welcome export enquiries for X40Cr14. Contact our sales office and consult our [shipping policy](#) for details.

Form of Supply

West Yorkshire Steel are stockholders and suppliers of fully annealed X40Cr14 steel rounds and flats. Rectangular pieces can be sawn from flat bar or block to your specific sizes. Diameters can be sawn to your required lengths as one offs or multiple cut pieces. Ground bar can be supplied, providing a quality precision finish to close tolerances.

- Sheet
- Plate
- Flat
- Diameter

Applications

X40Cr14 is suited for plastic moulds, for acid aggressive plastics, PVC or acetates and with plastics containing abrasive fillers.

Analysis

| | | | |
|-----------|------------|-------------|--------------|
| Carbon | 0.36-0.42% | Chromium | 12.50-14.50% |
| Manganese | 1.00% max | Phosphorous | 0.03% max |
| Silicon | 1.00% max | Sulphur | 0.03% max |

Forging

Forge by heating slowly and uniformly up to 1000°C. After forging cool slowly in furnace or using thermoinsulating material.

Annealing

Heat slowly up to 780°C. Cool slowly in furnace at a slow rate to 600°C and then air cool.

Stress Relieving

If heavy machining or grinding work has been carried out, stress relieving is advisable. This will minimise the danger of distortion or cracking during the subsequent heat treatment. To stress relieve, heat the tools slowly up to 650°C, and soak for a minimum of two hours per 25mm of section. Allow to cool in the furnace to 500°C then continue to cool freely in air. The tools can then be finish machined, leaving on an allowance for final grinding after heat treatment.

Hardening

Pre heat the component up to 600-700°C and heat thoroughly. Continue heating to the final hardening temperature of 980-1050°C and allow the component to be heated through. Protect the component against decarburisation, quench in oil or air cool.

Tempering

Heat uniformly to the selected tempering temperature, hold at heat for one hour per 25mm of thickness. A Double tempering is recommended. It is recommended to temper at 250°C to achieve the best permutation of hardness, toughness and corrosion resistance.

| | | | | | | |
|-------------------------|-----|-----|-----|-----|-----|-----|
| Temperature [°C] | 100 | 200 | 300 | 400 | 500 | 600 |
| Hardness [HRc] | 56 | 54 | 52 | 54 | 53 | 34 |

Heat Treatment

Heat treatment temperatures, rate of heating, cooling and soaking times can vary due to factors such as the shape and size of each steel component. Considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Consult a heat treatment provider for full guidance on heat treatment.

Final Grinding

Always select the correct grade of wheel in consultation with a grinding wheel supplier. Ensure the grinding wheel is of good condition. Wet grinding is a preferable option using plenty of coolant. If dry grinding is resorted to then use a soft wheel.

Quality Assured Supply

X40Cr14 steel is supplied in accordance with our ISO 9001:2008 registration.