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1.2083 Stainless Tool Steel

1.2083 stainless tool steel stockholders and suppliers, delivering to the whole of the UK. West Yorkshire Steel are suppliers of round bar, plate and offer sawn pieces from block. As a chromium alloyed stainless plastic mould steel, it is characterised by good polishability, good hardenability with high hardness achievable after heat treatment. The steel has fair corrosion resistance giving this plastic mould stainless steel suitability for applications in the medical and optical industries.

We welcome export enquiries for stainless tool steel. Contact our sales office and consult our shipping policy for details.

Form of Supply

West Yorkshire Steel are stockholders and suppliers of 1.2083 stainless tool steel round bar, flat bar, plate and block. Rectangular pieces can be sawn from flat bar or block to your specific sizes. Diameters in 1.2083 can be sawn to your required lengths as one offs or multiple cut pieces. Ground tool steel bar can be supplied, providing a quality precision finish to tight tolerances.

- Sheet
- Plate
- Flat
- Diameter

Applications

1.2083 stainless tool steel is ideally suited for plastic moulds, for acid aggressive plastics, PVC or acetates, and can be used with plastics containing abrasive fillers. It also is suitable to produce components for medical and optical applications.

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 to 1000°C. After forging cool slowly in furnace or thermoinsulating material.

Annealing

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

Stress Relieving

When heavy machining and/or grinding has been carried out, stress relieving is advisable to minimise the danger of distortion or cracking during the subsequent heat treatment. To stress relieve, heat the tools slowly to 650°C, soak for a minimum of two hours per 25mm of section and allow to cool down 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 hardening and tempering.

Hardening

Pre heat to 600-700°C until heated through. Continue heating the component to the final hardening temperature of 980-1050°C and allow to be heated through. Protect the component against decarburisation by using a neutral salt bath, controlled atmosphere furnace or vacuum. Air cool or quench in oil.

Tempering

Heat the 1.2083 uniformly and thoroughly to the selected tempering temperature and hold at heat for one hour per 25mm of total thickness. Double tempering is recommended. To achieve the best permutation of hardness, toughness and corrosion resistance it is recommended to temper at 250°C.

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

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 1.2083 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 stainless tool steel.

Final Grinding

Select the correct grade 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

1.2083 stainless tool steel is supplied in accordance with our ISO 9001:2015 registration.