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1.2312 Tool Steel

1.2312 tool steel suppliers and stockholders delivering to the whole of the UK. West Yorkshire Steel are stockholders and suppliers of round bar, flat bar, plate and block. 1.2312 is high tensile alloy tool steel supplied in the hardened and tempered condition. With its higher sulphur content it offers better machineability than 1.2311 plastic mould tool steel grade.

Form of Supply

West Yorkshire Steel are stockholders and suppliers of round bar, flat bar, plate and block. 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. Precision ground tool steel bar can be supplied, providing a quality precision ground bar to tight tolerances.

Contact our experienced sales team who will assist you with your 1.2312 tool steel enquiry.

- Plate
- Flat
- Diameter

Applications

1.2312 tool steel is ideally suited for the production of moulds where improved machinability is required. Typical applications include die holders, zinc die casting dies, backers, bolsters and injection moulds. The versatility of this plastic mould tool steel with its high tensile characteristics enables uses for a variety of other applications such as shafts and wear strips.

Analysis

Carbon	0.35-0.45%	Chromium	1.80-2.00%
Manganese	1.40-1.60%	Molybdenum	0.15-0.25%
Sulphur	0.05-0.10%	Silicon	0.30-0.50%
Phosphorous	0.03% max		

Forging

Heat 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.

Stress Relieving

When dies are heavily machined, we recommend stabilising just before finish machining in order to relieve machining strains. Heat to 460-500°C. Soak well and allow to cool in the air.

Annealing

Heat uniformly to 710-740°C. Soak well, cool slowly in the furnace.

Hardening

Heat uniformly to 830-870°C until heated through. Quench in oil.

Tempering

Heat uniformly and soak at the tempering temperature for at least one hour per 25mm of section. Allow to cool in still air.

Temperature [°C]	100	200	300	400	500	600
Hardness [HRc]	51	50	48	46	42	36
Tensile [N/mm²]	1730	1670	1570	1480	1330	1140

Nitriding

Tools machined from pre-hardened 1.2312 may be nitrided to give a wear resistant case of approximately Rockwell C60 surface hardness with a case depth of .35mm to 0.5mm. Nitriding also increases the corrosion resistance. After nitriding at 525°C in ammonia gas the surface hardness of the tool will be approximately 650HV.

Temperature	Time	Approx. Depth of Case
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525ºC	20 hours	0.30mm
525ºC	40 hours	0.35mm
525ºC	60 hours	0.50mm

Carbursing / Case Hardening

Tools produced from 1.2312 tool steel may be case hardened, which can achieve a surface hardness of between 55 to 59 Rockwell C.

Flame / Induction Hardening

Induction or flame hardening of will achieve a hardness of 50 to 55HRc. It is preferable to air cool, though smaller components may require forced cooling. Temper immediately after hardening.

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 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 1.2312 tool steel.

Quality Assured Supply

1.2312 tool steel is supplied in accordance with our ISO 9001:2015 registration.