

## 1.2510 Tool Steel

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**1.2510 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. This grade is an oil hardening tool steel supplied in the annealed condition. It offers good durability, gives excellent wear resistance and holds a good cutting edge. With these properties this tool steel is an excellent general purpose grade often used where the expense of a high carbon high chromium tool steel would not be justified.

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

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### Form of Supply

West Yorkshire Steel are suppliers of 1.2510 tool steel round bar, flat bar, plate and block. Diameters can be sawn to your required lengths as one offs or multiple cut pieces. Rectangular pieces can be sawn from flat bar or block to your specific sizes. 1.2510 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 tool steel enquiry.

- Sheet
  - Plate
  - Flat
  - Diameter
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### Applications

Popular applications for 1.2510 tool steel include medium run dies, intricate press tools, drawing punches, broaches, bushings, lathe centres, chuck jaws, master cavity sinking hobs, paper cutting machine knives, plug gauges, thread gauges and precision measuring tools. It is also commonly used in applications such as cams, cloth cutting knives, cold taps, reamers, trimmer dies, tube expander rolls, plastic moulds and woodworking knives, collets, cutting hobs and strip slitting cutters.

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## Analysis

Carbon	0.90-1.05%	Chromium	0.50-0.70%
Manganese	1.00-1.20%	Vanadium	0.05-0.15%
Silicon	0.15-0.35%	Nickel	0.30% max
Tungsten	0.50-0.70%	Phosphorous	0.035% max
		Sulphur	0.035% max

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## Ground Flat Stock

Precision ground flat stock / gauge plate can be supplied in 1.2510 tool steel. Stocks are available in a wide range of sizes. Metric sizes are supplied in 500mm and 1000mm lengths. Imperial sizes are supplied in 18" and 36" lengths. Subject to size suitability and availability of raw material non standard sizes and lengths can be produced in approximately 2 to 3 weeks.

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## Forging

Heat slowly and begin forging at 980-1000°C. Do not forge below 800°C. After forging cool slowly preferably in a furnace.

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## Annealing

Supplied in the annealed and machineable condition re-annealing will only be necessary if the tool steel has been forged or hardened by the tool maker. To anneal, heat the tool steel slowly to 740-760°C, soak well and allow to cool in the furnace to 500°C or below, before withdrawing. Annealed hardness will be about 229 Brinell.

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## Stress Relieving

When heavily machined, ground or otherwise subject to cold work, stress relieving will be beneficial prior to hardening. Heat the component carefully to 670-700°C, soak well and allow to cool in air.

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## Hardening

Heat slowly and if possible pre heat at 300-500°C before raising to the hardening temperature of 780-820°C. Pre heating is especially desirable for complex sections. Soak thoroughly allowing 30 minutes per 25mm of ruling section before quenching. Light sections should be quenched in oil from the lower end of the hardening temperature range. Tempering is always necessary after hardening.

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## Martempering

Martempering is an alternative hardening procedure when suitable salt bath equipment is available. By this method the internal strain, distortion and risk of quench cracking are reduced to a minimum. Pre heat at 360°C then increase the heat to 800°C for sections 3mm thick or less, or to 820°C for sections over 3mm thick. Soak according to section then quench into molten salt, held at 210°C. Allow enough time for the centre of the piece to reach bath temperature, withdraw and cool in the air. Tempering will then be necessary. Hardening from a neutral salt bath, will reduce the possibility of scaling or decarburisation. Heat to 830-850°C and after equalisation quench in oil.

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## Tempering

Temper between 100°-350°C. Soak well at the selected temperature and soak for at least one hour per 25mm of total thickness.

<b>Temperature [°C]</b>	100	150	200	250	300	350
<b>Hardness [HRc]</b>	64-63	63-62	62-61	60-59	58-57	56-55

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## 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 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 1.2510 tool steel.

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## 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.

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## Quality Assured Supply

1.2510 tool steel is supplied in accordance with our ISO 9001:2015 registration.