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# BS4659 BD2 Tool Steel

**BS4659 BD2 tool steel stockholders and suppliers, delivering to the whole of the UK.** West Yorkshire Steel are suppliers of BD2 in round bar, flat bar, plate and sheet. As a high carbon high chromium tool steel it offers very high wear resistance and toughness. BD2 tool steel hardens in air with minimum distortion and when polished offers a measure of corrosion resistance. It is often used for tools operating under conditions of severe wear and abrasion or as an alternative to oil hardening tool steel grades when long runs are required.

We welcome export enquiries for tool steel. Please contact our sales office and consult our shipping policy for further details.

**Related Specifications**

ASTM A681 DIN 17350 BS EN ISO 4957

**Alternative BS4659 tool steel grades we supply**

BO1 | BD3 | BO2 | BA2 | BS1 | BH13 | BP20 | BP30| BM2 | BM35 | BM42

## Form of Supply

BD2 is supplied in round bar, flat bar, sheet and plate. BD2 steel blanks can be sawn to your required lengths as one offs or multiple cut pieces. Ground tool steel BD2 bar can be supplied, providing a quality precision finished bar to close tolerances.

Contact our experienced sales team who will assist you with your BS 4659 BD2 tool steel enquiry.

- Sheet
- Plate
- Flat
- Diameter

## Ground Flat Stock

BD2 can be produced as precision ground flat stock / gauge plate. Subject to availability of raw material pieces can be produced in approximately 2 to 3 weeks. Standard and non-standard sizes are available.

## Typical Analysis

| | | | |
|---|---|---|---|
| Carbon | 1.40-1.60% | Chromium | 11.50-12.50% |
| Molybdenum | 0.70-1.20% | Silicon | 0.60% max |
| Vanadium | 0.25-1.00% | Manganese | 0.60% max |

## Forging

Heat the BD2 tool steel slowly and uniformly to 700°C then more rapidly to 900-1040°C. After forging the tool steel cool down slowly.

## Annealing

Tool steel BD2 is supplied in the annealed and machineable condition. Re-annealing will only be necessary if the tool steel has been hardened or forged. To anneal, heat the steel slowly and uniformly to 850-870°C. Soak for three to four hours and cool in the furnace to room temperature. Re-heat and again soak for three to four hours and allow to cool in the furnace to room temperature.

## Stress Relieving

Stress relieving is recommended for tools made from BD2 tool steel that have been heavily machined, ground or otherwise subjected to cold work. The relief of internal strains is advisable prior to hardening to minimise the possibility of distortion. Stress relieving should be carried out after rough machining. To stress relieve, heat the BD2 component to 600-650°C and soak well then cool in the furnace or in air. The tool may then be finish machined before hardening.

## Hardening

It is preferable to heat the tools in a controlled atmosphere. If this is not possible, pack hardening is recommended. A reducing atmosphere is desirable. Pre heat the D2 tool steel component to 750-800°C. and allow to soak at this temperature. The tools may then be brought up to 1000-1040°C for air cooling, or 980°C for oil quenching. Soak thoroughly at the temperature for thirty minutes per 25mm of ruling section, then cool or quench accordingly. It is important not to exceed 1020°C when heating for hardening.

## Tempering

Temper the BD2 tool steel with the least possible delay after hardening, preferably when the steel is still hand warm. Select a suitable tempering temperature between 150-220°C or 450-550°C. The lower tempering range is used when maximum hardness is required and the higher tempering range should be used when maximum toughness is required. When the component has reached the required temperature, soak for at least one hour per 25mm of section. Double tempering is recommended.

## Heat Treatment

Heat treatment temperatures for BS 4659 BD2, 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 tool steels.

## Quality Assured Supply

BS4659 BD2 tool steel is supplied in accordance with our ISO 9001:2015 registration.