



## M2 High Speed Steel

Quality M2 high speed steel cut and delivered straight to your tool room, whatever size you need.

### M2 high speed steel stockholders and suppliers, delivering to the whole of the UK.

West Yorkshire Steel are suppliers of M2 high speed steel in round bar, sheet and plate which can be bandsaw cut to your specific requirements. As a tungsten molybdenum, general purpose high speed steel, it is widely used in the production of machine tool bits, cold forming tools and cutting tools. M2 high speed steel offers high toughness combined with good cutting powers and will withstand increases in temperature without losing its temper.

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

### Popular [tool steel and high speed steel](#) grades we supply

[O1](#) | [D2](#) | [D3](#) | [O2](#) | [D6](#) | [A2](#) | [S1](#) | [H13](#) | [P20](#) | [P20S](#) | [420](#) | [1.2083](#) | [2767](#) | [M2](#) | [M42](#) | [Ground Flat Stock 1.1730](#)

### Form of Supply

West Yorkshire Steel are stockholders and suppliers of round bar, flat bar and plate. M2 can be sawn to your required lengths as one offs or multiple cut pieces. Rectangular pieces can be sawn from flat bar or plate to your specific sizes. Ground high speed steel bar can be supplied, providing a quality precision finish bar to close tolerances.



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

- Sheet
- Flat
- Plate
- Diameter

## Applications

Typical applications for M2 high speed steel are twist drills, reamers, broaching tools, taps, milling tools, metal saws. M2 is suitable for cold forming tools such as extrusion rams and dies, also cutting tools, plastic moulds with elevated wear resistance and screws.

## Typical Analysis

Carbon	0.85%	Chromium	4.10%
Molybdenum	5.00%	Tungsten	6.40%
Vanadium	1.80%		

## M2 Ground Flat Stock

Precision ground flat stock / gauge plate can be produced in M2 tool steel. Subject to size suitability and availability pieces can be produced in approximately 2 to 3 weeks. Standard and non-standard sizes are available.

## M2 Tool Bits

M2 high speed steel tool bits are supplied in flats, squares and rounds. Commonly supplied in standard sizes though non standard sizes can be produced within a few weeks, subject to availability of suitable raw material. More information on our [tool bits](#) web page.

## Forging

Pre heat slowly and uniformly to 850-900°C. The heat should then be increased more quickly to the forging temperature of 1050-1150°C. If during the forging the temperature of the material drops below 880-900°C, re heating will be necessary. Cool the M2 component very slowly after forging.

## Annealing

Annealing is recommended after hot working and before re hardening. Heat the M2 high speed steel to 850°C at a rate of no more than 220°C per hour. Always hold at temperature for one hour per 25mm of thickness (with two hours being minimum). Furnace cool slowly. The annealed hardness achieved should be 248 Brinell or lower.

## Stress Relieving

If tools produced from M2 high speed steel are heavily machined or ground it is recommended to stress relieve after machining and prior to hardening to minimise the possibility of distortion. To stress relieve heat the component to 675-725°C and soak well (for approximately two hours), then cool in air. The tools can be finish machined before heat treatment.

## Hardening

Pre heat the steel in two steps; 450-500°C then 850-900°C. Then continue heating to the final hardening temperature of 1200-1250°C and ensure that the component is heated through. Care must be taken not to allow the component to remain too long at the hardening temperature. Quench in warm oil or brine. If quenching in brine allow the tools to equalize, then complete the quench in air. If quenching in oil remove the component from the oil at about 500°C and then air cool. M2 high speed steel is also suitable for vacuum hardening.

## Tempering

Temper the component immediately after quenching. Heat uniformly and thoroughly to the selected tempering temperature and hold at for at least two hours (one hour per 25mm of total thickness). Double tempering is essential and for tools cut by wire EDM triple tempering is strongly recommended.

Temperature °C	500	550	600	650
Hardness HRc	64	65	64	61

## 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 M2 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 high speed steels.

## 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

M2 high speed steel is supplied in accordance with our ISO 9001:2015 registration.



**West Yorkshire Steel Ltd**  
Sandbeck Industrial Estate,  
Wetherby, Leeds,  
LS22 7DN UK

Call: 01937 584440  
Fax: 01937 580128  
Email: [sales@westyorkssteel.com](mailto:sales@westyorkssteel.com)  
 

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