

## C45 Carbon Steel

**C45 steel stockholders and suppliers, delivering to the whole of the UK.** C45 is a medium carbon steel grade offering reasonable tensile strength. Supplied in the cold drawn or hot rolled condition, tensile properties can vary but are approximately between 500-800 N/mm<sup>2</sup>. This grade can be flame or induction hardened to produce a good surface hardness with moderate wear resistance. C45 is widely used for components that require better properties than mild steel but does not justify the costs of an alloy steel. Available from stock in bar, C45 can be cut to your requirements. We also offer flame cut plates cut to your required sizes and normalised. C45 flame cut plates can be supplied surface ground or precision ground.

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

### Alternative carbon steel grades we supply

[EN3](#) | [EN8](#) | [EN9](#) | [EN32](#) | [EN43](#) | [070M20](#) | [080M40](#) | [070M55](#) | [080A15](#) | [S275](#) | [S355](#) | [Key Steel](#)

### Form of Supply

West Yorkshire Steel are steel stockholders and suppliers of C45 carbon steel round, square and flat bar. Bars can be sawn to your required length in 1 off or multiple cut pieces. West Yorkshire Steel supply flame cut steel profiles in grade C45, which can be surface ground if required. Ground C45 steel bar can be supplied, providing a precision ground steel bar to tight tolerances.

Contact our experienced sales team who will assist you with your C45 medium carbon steel enquiry.

- Plate
- Flat
- Diameter

### Applications

C45 is widely used for many general engineering applications. Typical applications include tools, shafts, nuts, bolts, connecting rods, screws, rollers.

### Analysis

Carbon	0.42-0.50%	Phosphorous	0.045% max
Manganese	0.50-0.80%	Sulphur	0.045% max
Silicon	0.15-0.40%		

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## Flame Cut Profiles

West Yorkshire Steel are suppliers of C45 flame cut steel profiles. As a hard edge can occur when flame cutting C45 plate this grade is commonly normalised after flame cutting. Flame cut profiles can be supplied Lumsden ground or precision ground.

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## C45 Ground Flat Stock

Precision ground flat stock / gauge plate can be supplied in 500mm / 1000mm lengths. Non-standard sizes can be produced in approximately 2 to 3 weeks.

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## Forging

Preheat the steel carefully, then raise temperature to 1100°C for forging. Do not forge below 850°C. After forging cool slowly, preferably in a furnace.

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## Annealing

Heat slowly to 680-710°C, soak well. Cool slowly in the furnace.

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## Hardening

Heat the component slowly to 820-860°C and allow it to be heated through. Quench in oil or water.

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## Tempering

Temper immediately after quenching whilst tools are still hand warm. Re-heat the C45 to the tempering temperature then soak for one hour per 25 millimetre of total thickness (2 hours minimum) Cool in air. For most applications temper between 550-660°C.

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## Welding

We recommend you contact your welding consumables supplier who should provide you full assistance and information on welding C45 steel.

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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 C45 steel component. Other considerations during heat treatment 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 C45 carbon steel.

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## Certification

C45 carbon steel is available with a cast and analysis certificate or a BS EN 10204 3.1 mill certificate, please request when placing any orders.

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## Quality Assured Supply

C45 carbon steel is supplied in accordance with our ISO 9001:2015 registration.