

EN45

EN45 flat bar

EN45 steel stockholders and suppliers, delivering throughout the UK.

EN45 is a silicon manganese spring steel, supplied in the as rolled condition. It is suitable for oil hardening and tempering. When used in the oil hardened and tempered condition EN45 offers excellent spring characteristics. EN45 is commonly used in the automotive industries for the manufacture and repair of leaf springs.

Related Specifications

BS970 1.0904 55Si7 55S6 55Si2Mn ASTM 9255 55SiMn7 250A53 250A57 C2133 55S2 55S6 56S7 55C2

Spring steel grades we supply

[CS95](#) | [CS95](#) | [CS95](#) | [CS100](#) |
[EN42](#) | [EN45](#) | [EN47](#) | [301](#) | [75Cr1](#)

Form of Supply

West Yorkshire Steel are EN45 spring steel suppliers in flat bar and a small range of round bar sizes. We also have stock availability of EN45A which has a variation in carbon content to that of standard grade EN45 spring steel.



■ Flat

Contact our experienced sales team who will assist you with your EN45 spring steel enquiry.

Applications

EN45 is used commonly for many general engineering applications. Typical applications include springs, shafts, bushes, crankshafts, screws, sickles, axes, knives, wood working drills and hammers.

Analysis

Carbon	0.50-0.60%	Silicon	1.50-2.00%
Manganese	0.70-1.00%	Sulphur	0.05% max
Phosphorous	0.05% max		

Forging

Preheat the EN45 carefully, then raise temperature to 1050°C for forging. After forging cool slowly, preferably in a furnace.

Annealing

Heat slowly to 640-680°C, soak well. Cool slowly in the furnace.

Hardening

Heat the steel slowly to 650-700°C and thoroughly soak. Continue heating the steel to the final hardening temperature of 870-930°C and allow the component to be heated through. Quench in oil.

Tempering

Temper the EN45 spring steel immediately after quenching whilst tools are still hand warm. Re-heat to the tempering temperature then soak for one hour per 25 millimetre of total thickness (2 hours minimum) Cool in air. For most applications tempering will be between 400-550°C.

Temperature °C	400	450	500	550	600	650
Hardness HRc	56	50	47	43	37	33

Welding

We recommend you contact your welding consumables supplier who should provide you full assistance and information on welding EN45 steel

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 EN45 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 EN45 steel.

Certification

EN45 as rolled spring steel is available with a cast and analysis certificate or certificate of conformity, please request when placing any orders.

Quality Assured Supply

EN45 spring steel is supplied in accordance with our ISO 9001:2015 registration.



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