

EN24T Alloy Steel

EN24 EN24T flat bar and round bar steel stockholders and suppliers, delivering to the whole of the UK.

This grade is a nickel chromium molybdenum specification usually supplied hardened and tempered as EN24T or EN24U. EN24T steel is readily machineable and combines a good high tensile steel strength with shock resistance, ductility and wear resistance. It is a widely used engineering steel with a tensile strength of 850/1000 N/mm². It has reasonably good impact properties at low temperatures, whilst it is also suitable for a variety of elevated temperature applications. Flame or induction hardening of EN24T can give a case hardness of 50 HRC or higher.

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

Alternative grades we supply

[EN16T](#) | [EN19T](#) | [EN26W](#) | [EN30B](#) | [EN31](#) | [EN32](#) | [EN36](#) | [EN40B](#) | [EN41B](#) |

Form of Supply

West Yorkshire Steel are stockholders and suppliers of EN24T flat, round and plate – squares, flats and diameters can be sawn cut to your required sizes. Diameters in EN24T are available bright drawn and black hot rolled. EN24T can be sawn to your required lengths as one offs or multiple cut pieces.

Ground steel bar can be supplied, providing a high tensile engineering steel precision ground bar to tight tolerances.

Contact our experienced sales team who will assist you with your EN24 alloy steel enquiry.

- Plate
 - Flat
 - Diameter
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Applications

EN24 was originally introduced for use in the motor vehicle and machine tool industries for gears, pinions, shafts, spindles and the like. Later its applications became much more extended. Suitable to produce parts for such as locomotives, cranes, rolling mills, coal cutting machinery etc. where good strength and fatigue resistance is called for. Other applications for EN24 and EN24T are found in die casting and hot metal working, such as die bolsters, racks and pinions, angle pins for pressure die casting, hot stamping dies for aluminium stamping, die beds for steel stamping, lower temperature nut, bolt and rivet heading dies, large section drop forging dies. It is widely used in the plastic and rubber moulding industries for moulds (particularly rubber moulds), hob retaining rings, patens, retaining rings for built up moulds, stop pins for moulds. For moulds EN24 is normally supplied hardened and tempered to 'T' condition. If a higher hardness is desired EN24T should be annealed and then heat treated to the required hardness.

Analysis

Carbon	0.35-0.45%	Silicon	0.10-0.35%
Nickel	1.30-1.80%	Manganese	0.45-0.70%
Chromium	0.90-1.40%	Phosphorous	0.05% max
Molybdenum	0.20-0.35%	Sulphur	0.05% max

EN24T Flat Bar

EN24T flat bar is available cut from large rectangular block, pieces can be cold sawn to your specific sizes.

Forging

Preheat carefully, then raise temperature to 1000-1100°C for forging. Do not forge the steel below 850-1100°C. After forging cool slowly preferably in a furnace.

Annealing

Heat slowly to 840-860°C, soak well and allow to cool with the furnace to 580°C, before withdrawing.

Stress Relieving

When parts are heavily machined, ground or otherwise subject to cold work, stress relieving will be beneficial prior to hardening. Heat carefully to 650-670°C, soak well before cooling in the furnace or in the air.

Hardening

EN24T is supplied ready heat treated. If further heat treatment is required annealed EN24 should be heated slowly to 830-850°C and after adequate soaking at this temperature quench in oil. Temper as soon as tools reach room temperature. 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.

Tempering

Heat carefully to a suitable temperature selected by reference to the tempering chart or table, soak at the temperature for 2 hours per 25mm of ruling section, then all to cool in the air. Tempering between 250-375°C is not advised as tempering within this range will seriously reduce the impact value. The tempering temperature is dependent on the required mechanical properties, the steel can achieve EN24U, EN24V, EN24W, EN24Y & EN24Z.

Typical Mechanical Properties*

Condition	Tensile N/mm ²	Yield N/mm ²	Elongation %	Izod KCV J	Hardness Brinell
T	850-1000	650	13	35	248-302
U	925-1075	755	12	42	269-331
V	1000-1150	850	12	42	293-352
W	1075-1225	940	11	35	311-375
X	1150-1300	1020	10	28	341-401
Y	1225-1375	1095	10	21	363-429
Z	1550	1235	5	9	444

(*subject to ruling section)

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 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 alloy steel.

Certification

EN24T alloy steel is available with a cast and analysis certificate or BS EN 10204 3.1 mill certificate, please request when placing any orders.

Quality Assured Supply

EN24T is supplied in accordance with our ISO 9001:2015 registration.