

## 817M40 Alloy Steel

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**817M40 817M40T flat and round alloy steel suppliers and stockholders, delivering to the whole of the UK.** West Yorkshire Steel are suppliers of 817M40T in diameters and cut flat bar pieces, which can be supplied as sawn blanks to your required sizes. It is a nickel chromium molybdenum specification usually supplied high tensile as 817M40T or 817M40U. This grade is readily machineable and combines good high tensile steel strength with shock resistance, ductility and wear resistance characteristics. In 'T' condition it is a widely used engineering steel with a tensile strength of 850-1000N/mm<sup>2</sup>. 817M40T has reasonably good impact properties at low temperatures, whilst it is also suitable for a variety of elevated temperature applications. 817M40T can be flame or induction hardened to give a case hardness of 50HRc 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

[605M36T](#) | [709M40T](#) | [708M40T](#) | [826M40W](#) | [835M30](#) | [535A99](#) | [655M13](#) | [722M24](#) | [905M39](#)

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### Form of Supply

West Yorkshire Steel are stockholders and suppliers of 817M40T round bar and sawn flat bar and plate – squares, flats and diameters can be sawn cut to your required sizes. Bar is available bright drawn and black hot rolled up to one metre in diameter. 817M40T can be sawn to your required lengths as one offs or multiple cut pieces. 817M40T centreless 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 817M40 alloy steel enquiry.

- Plate
  - Flat
  - Diameter
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### Applications

817M40T is a popular high tensile steel used widely in many industries. 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 and stop pins for moulds. For moulds applications 817M40 is normally supplied hardened and tempered to 'T' condition. If a higher hardness is desired 817M40T should be annealed and heat treated to the required hardness. It is suitable to produce parts for locomotives, cranes, rolling mills, coal cutting machinery etc. where great strength and fatigue resistance are required. Other applications for 817M40 and 817M40T are found in die casting and hot metal working, for example 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 and large section drop forging dies.

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## Analysis

Carbon	0.36-0.44%	Nickel	1.30-1.70%
Manganese	0.45-0.70%	Chromium	1.00-1.40%
Silicon	0.10-0.35%	Molybdenum	0.20-0.35%
Phosphorous	0.035% max		
Sulphur	0.040% max		

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## Flat Bar

817M40T flat bar is available cut from large rectangular block, pieces can be sawn to your specific sizes.

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## Forging

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

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## Annealing

Heat the 817M40T slowly to 840-860°C, soak well and allow to cool with the furnace to 580°C, before withdrawing.

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## 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.

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## Hardening

817M40T is commonly supplied ready heat treated. If further heat treatment is required annealed 817M40 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.

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## Tempering

Heat the steel carefully to a suitable temperature selected by reference to a tempering chart or table, soak at the temperature for two hours per 25mm of ruling section, then allow to cool in the air. Tempering between 250-375°C is not advised as tempering within this range will reduce the impact value.

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## Typical Mechanical Properties\*

Condition	Tensile N/mm <sup>2</sup>	Yield N/mm <sup>2</sup>	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)

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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 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.

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## Certification

817M40T alloy steel is available with a cast and analysis certificate or BS EN 10204 3.1 mill certificate, please request when placing any orders.

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## Quality Assured Supply

817M40T is supplied in accordance with our ISO 9001:2015 registration.