

EN24T (817M40T)

HIGH STRENGTH ENGINEERING STEEL

PRODUCT OVERVIEW

EN24T (817M40T) is a bright drawn nickel chromium molybdenum through hardening steel which can be heat treated to produce a wide range of strengths. Heat treatment and tempering can both be achieved with minimum surface scaling. EN24T also benefits from good hardenability and wear resistance and is an ideal material for use in the production of dies and punches.

HARDENABILITY

Due to its hardenability capabilities, EN24T is used extensively in heavy duty applications where hardness, wear resistance and tensile strength is of prime importance. Supplied in the quenched and tempered or 'T' condition, the alloy can be further surface hardened up to 60 HRC by nitriding or flame induction processes, which will further enhance the material's wear characteristics. Note that in the 'T' supplied condition, EN24T bars greater than 250mm in diameter may suffer from reduced mechanical properties when approaching the centre of the material.

To improve centre core mechanical properties, it is recommended that larger sizes are annealed. Bar and billets supplied in the annealed state also benefit from improved machinability.

MATERIAL SPECIFICATIONS

BS 970:1955	EN24T
BS 970:1991	817M40T
German / DIN	34CrNiMo6
French AFNOR	35NCD6
American AISI / SAE	4340
German Werkstoff No.	1.6582
European Standard	EN10277-5

PRODUCT AVAILABILITY

Round, square and flat bar and plate, which is supplied in the 'T' condition.



MATERIAL SPECIFICATIONS

Good impact values for EN24T (817M40T) at low service temperatures is another feature of this material and for this reason, EN24T has become a popular material in offshore applications such as in marine mechanical handling equipment and hydraulic bolt tensioners.

MACHINABILITY

Whilst EN24T is classed as a readily machinable product it is more difficult to machine and use of carbide in the machining process is essential.

EN24T (817M40T) can be machined when hardened with stainless tip tools. There is a greater likelihood of shear loading when compared to other engineering steels such as EN16 and EN19.

FOR CHEMICAL AND MECHANICAL PROPERTIES, PLEASE REFER TO THE REVERSE SIDE OF THIS TECHNICAL DATASHEET

PRODUCT BENEFITS

- High strength engineering steel
- For heavy duty applications
- Good hardenability and wear resistance
- Good impact values in low service temperatures
- Popular for marine and offshore applications
- Readily machinable
- Heat treated to produce a variety of strengths

APPLICATIONS

EN24T (817M40T) offers a good combination of strength, hardenability and wear resistance. Application examples include:

- Power transmission gears and cams
- Hydraulic bolt tensioners
- Marine mechanical handling equipment
- Dies and punches
- Heavy duty axles
- Shafts, bolts and studs

CHEMICAL COMPOSITION (weight %)

	C	Si	Mn	P	S	Mo	Cr	Ni
Min	0.36	0.10	0.45			0.20	1.00	1.30
Max	0.44	0.35	0.70	0.035	0.04	0.35	1.40	1.70

MECHANICAL PROPERTIES (subject to ruling section)

Condition	Tensile N/mm ²	Yield N/mm ²	Elongation %	Izod KCVJ	Hardness Brinell
T	850 - 1000	650	13	35	248 - 302
U	925 - 1000	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

ABOUT THAMES STOCKHOLDERS

Thames Stockholders is one of the UK's leading suppliers of engineering steels. We stock EN24T (817M40T) in round, square and flat bar and plate, which is supplied in the 'T' condition. We offer our stock products to both domestic and International customers. We can also process your products internally and cut your material to your exact size requirements. With ideal proximity to the UK's main motorway network and ports, our location is ideal for the supply and distribution of high-quality engineering steels.

To discover more about our products and to receive a competitive quotation, please call Thames Stockholders today to speak to a member of our technical team on +44 (0)20 8805 3282.