

# EN40B (722M24)

## NITRIDING ENGINEERING STEEL

### PRODUCT DESCRIPTION

Benefitting from good wear resistance and high fatigue strength, EN40B (722M24) is a chromium-molybdenum based engineering steel grade which is often supplied in the hardened and tempered condition. This can promote a tensile strength of up to 1075 N/mm<sup>2</sup>. Nitriding produces a hard and wear resistant casing resulting in an engineering material which offers good fatigue and shock resistance. The nitriding process is normally performed at a relatively low temperature which results in a scale free surface with minimal distortion. EN40B (722M24) can operate in atmospheres of up to 500°C before any loss in surface hardness is observed.

EN40B is supplied in the hardened and tempered 'T' condition. This nitriding steel also offers a good combination of ductility and toughness. When supplied in the 'T' condition, EN40B is ideal for applications requiring high tensile strength and high creep resistance.

EN40B (722M24) has become a popular engineering material for use in industries such as textiles, automotive and aerospace. It is also used extensively by billet crankshaft manufacturers.



### BENEFITS OF NITRIDING & CARBURISING

Both heat treatments are thermomechanical and performed at low temperature which promotes minimal distortion. Nitriding promotes a high surface hardness with resistance to wear and galling whilst fatigue strength is also increased. Carburising is a thermomechanical heat treatment which diffuses carbon in the surface of the steel creating a hard casing. This increases the overall strength of the material and promotes increased wear resistance. EN40B (722M24) is particularly suited to both heat treatment types which results in a high strength, high wearing engineering steel.

The welding of EN40B (722M24) is not recommended but it is readily machinable using conventional machining methods and in accordance with the machine manufacturer's instructions.

### PRODUCT AVAILABILITY

Round and flat bar supplied in the 'T' condition

### MATERIAL SPECIFICATIONS

- EN40B
- 722M24
- 1.7361
- 32CrMo12
- 30CD12

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

## PRODUCT BENEFITS

- High fatigue strength
- Good wear resistance
- Suitable for nitriding
- Good combination of ductility and toughness
- Supplied hardened & tempered (T condition)
- High tensile strength
- High creep resistance

## APPLICATIONS

EN40B (722M24) offers engineers a multitude of performance options based on the material's delivery condition. Application examples include:

- Crankshafts and gears
- Compressor discs
- Cams, pinions and gudgeon pins
- Spindles and pins
- Gear wheels
- Used in aerospace, textile, automotive
- Suitable for general engineering applications

## CHEMICAL COMPOSITION (weight %)

	C	Si	Mn	Mo	Cr	Ni	P	S
Min	0.20	0.10	0.40	0.40	2.90	0.40	0.05	0.05
Max	0.30	0.35	0.65	0.70	3.50	0.40	0.05	0.05

## MECHANICAL PROPERTIES (subject to ruling section)

Condition	Tensile N/mm <sup>2</sup>	Yield N/mm <sup>2</sup>	Elongation %	Izod KCV J	Hardness Brinell
S	725 - 925	585	15	50	223 - 277
T	850 - 1000	680	13	50	248 - 302
U	925 - 1000	755	12	42	269 - 331

## ABOUT THAMES STOCKHOLDERS

Thames Stockholders is one of the UK's leading suppliers of engineering steels. We stock EN40B (722M24) in round and flat bar. 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.



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