

EN40B / 722M24

31CrMo12 1.8515

MATERIAL DATA SHEET

Parkside Steel

(Stockholders) Ltd

ISO 9001 | BSI FS 86692

Est. 1977 | Co. 01325509

01623 687 660

OVERVIEW

EN40B is the standard UK nitriding steel. Gas nitriding produces 700-850 HV surface hardness with minimal distortion (typically <0.05mm on 50mm shaft) making it ideal for precision components that cannot be re-ground after hardening. Supplied Q+T ready for precision grinding then nitriding.

TYPICAL APPLICATIONS

- Hydraulic cylinder rods
- Pneumatic cylinder rods
- Precision ground shafts
- Spindles requiring surface hardness with minimal distortion
- Chrome replacement applications

SUPPLY & PROCESSING

Supply: Bright round bar 20-100mm.
Condition: Hardened and tempered Q+T. Core tensile 850-1000 N/mm2.
Weldability: Possible. Preheat 200-250C. Post-weld H&T; required.
Machinability: Good in Q+T. 55-80 m/min. Precision grind then nitride.
Certification: 3.1 Inspection Certificate standard.

GRADE EQUIVALENTS

Standard	Designation
BS EN 10085:2001	31CrMo12 / 1.8515
BS 970:1991 (withdrawn)	722M24
DIN	31CrMo12 / 1.8515
ISO	31CrMo12
AISI/SAE	No direct equivalent — closest 4140 Mod.

CHEMICAL COMPOSITION (% by weight)

Designation	C	Si	Mn	P max	S max	Cr	Mo
722M24	0.20–0.28	0.10–0.40	0.40–0.70	0.04	0.04	2.80–3.30	0.45–0.65
31CrMo12	0.26–0.34	0.10–0.40	0.40–0.70	0.035	0.035	2.50–3.00	0.30–0.50

MECHANICAL PROPERTIES

Condition	Tensile Rm (N/mm²)	Yield Re (N/mm²)	A% min	Surface HV (after nitriding)
Q+T (pre-nitride)	~850–1000	~650–800	~12	—
After gas nitriding (5–8 hr)	—	—	—	~700–850 HV

Indicative values. Properties vary by section size and heat treatment condition. Confirm with Parkside Steel.

TO ORDER / GET A QUOTE Call: 01623 687 660 Email: sales@parksidesteel.uk.com Online: parksidesteel.co.uk/quote No minimum order. Same-day collection available.

PARKSIDE STEEL (STOCKHOLDERS) LTD Byron House, 4 Willow Drive Sherwood Park, Annesley Nottinghamshire NG15 0DP ISO 9001 | BSI FS 86692 | Est. 1977

