Radhe Steel

TECHNICAL DATASHEET

EN8 / C45 / 080M40

Medium carbon steel – bright bars

STANDARD REFERENCE

CHEMISTRY	EN 10083-2 (C45, C45E); BS 970 (080M40)
BRIGHT PRODUCTS	EN 10277-1 and -5; dimensions and tolerances EN 10278
INDIAN STANDARD	IS 1570: 40C8 / 45C8 (nearest)
SOFT ANNEALED HARDNESS	≤207 HB (+A)



COMPARABLE STANDARDS

Europe (EN)	Germany (DIN / W.-Nr.)	UK (BS 970)	USA (SAE / AISI)	India (IS)	Japan (JIS)
C45 / C45E	1.0503 / 1.1191	080M40 (EN8)	1045 (nearest)	40C8 / 45C8 (nearest)	S45C

"Nearest" means a comparable grade, not an identical one. Check the chemistry limits before substituting one for another.

CHEMICAL COMPOSITION (cast analysis, % by mass)

C	Si	Mn	P	S	Cr	Mo	Ni
0.42–0.50	≤0.40	0.50–0.80	≤0.045	≤0.045	≤0.40	≤0.10	≤0.40

Source: EN 10083-2, grade C45 (Cr+Mo+Ni ≤0.63). 080M40 (EN8) per BS 970 has C 0.36–0.44, so EN8 and C45 are comparable, not identical.

MECHANICAL PROPERTIES - QUENCHED AND TEMPERED (+QT) (by size band)

Size d (mm)	Rp0.2 (MPa) min	Rm (MPa)	A (%) min
d ≤ 16	490	700–850	14
16 < d ≤ 40	430	650–800	16
40 < d ≤ 100	370	630–780	17

Source: EN 10083-2 (C45, reference sections)

RECOMMENDED WORKING TEMPERATURES (°C)

Hot forming	Normalising	Soft annealing	Hardening	Quench	Tempering
1100–850	840–880	680–710	820–860	Water / polymer	550–660

Source: EN 10083-2. A dash means no figure is given here; ask your heat treatment provider.

Indicative only. Consult your heat treatment provider.

SUPPLY RANGE

Shape	Size range (mm)	Tolerance class
Round	Ø 6–100 (alloy grades up to Ø 150)	h9 / h10 / h11
Hexagon	A/F 6–75	h9 / h11
Square	8–80	h11 / h12
Flat	Width 10–150 × thickness 3–50	On request

Catalogue range across grades. Confirm sizes, lengths and availability for this grade when you request a quote.

EN 10204 3.1 test certificate supplied with every delivery. Export orders shipped worldwide from India; ask for export packing and documents when you request a quote.

Scan to WhatsApp for a quote

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