EN32 vs EN32A vs EN32B vs EN32C vs 080M15 vs 070M20 â?? Complete Comparison of Low Carbon Case Hardening Steels (BS 970 Series)

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Low carbon case hardening steels like **EN32**, **EN32A**, **EN32B**, and **080M15** are vital in applications where a tough, machinable core is needed, but the surface requires hardening. This detailed comparison explains how each grade under **BS 970** differs and helps buyers choose the most suitable material for gears, pins, bushes, camshafts, and automotive parts.

At **Steelmet Industries**, we offer customized bright and black bars in all these grades with complete traceability and tailored solutions for forging and machining needs.

ð??? Comparative Table

Grade	Standard	Carbon %	Manganese %	Case Depth	Hardness after Carburizing (HRC)	Common Use
EN32	BS 970:1955	0.10â??0.15	0.40â??0.70	0.75â??1.25 mm	55â??62 HRC	Gears, cams, mild-duty shafts
EN32A	BS 970:1955	0.10â??0.15	0.50â??0.90	0.75â??1.25 mm	58â??62 HRC	Pins, bushes, timing sprockets
EN32B	BS 970:1955	0.12â??0.18	0.90â??1.20	0.75â??1.25 mm	58â??63 HRC	High-load pins, transmission parts
EN32C	BS 970:1955	0.13â??0.18	0.70â??1.00	0.75â??1.25 mm	58â??63 HRC	Heavy-duty linkages, bearings
080M15	BS 970:1991	0.13â??0.18	0.60â??0.90	0.75â??1.25 mm	58â??62 HRC	Automotive cams, bushes, rollers
070M20	BS 970:1991	0.15â??0.25	0.50â??0.80	1.0â??1.5 mm	58â??63 HRC	Mild shafts, wear-resistant parts

ð??• Key Differences Explained

â? EN32 vs EN32A

EN32A has slightly higher manganese content, offering better hardenability and improved machinability. Itâ??s more commonly used in modern setups than legacy EN32.

â? EN32A vs EN32B

EN32B provides better wear resistance due to higher manganese levels. Ideal where repetitive surface impact is expected.

â? EN32 Family vs 080M15

080M15 is the **modern equivalent** of EN32A, as per BS 970:1991. Chemically and mechanically, both are very similar. If youâ??re ordering new production, 080M15 is generally preferred.

â? EN32 Family vs 070M20

Though not strictly a case-hardening grade, 070M20 is often carburized for similar applications but has slightly higher carbon content. It bridges the gap between low carbon and medium carbon steels.

ð?• Applications Across Industries

- **Automotive:** Gears, sprockets, clutch hubs
- **Textile Machinery:** Bushes, pins, low-wear moving parts
- **Agricultural Equipment:** Linkages, couplings, housings
- **Forgings:** Case-hardened forged blanks with fine grain structure

Steelmet Industries supplies these steels as:

- Black Bars (Rolled / Peeled)
- Bright Bars (Cold Drawn / Ground)

- Custom sizes and shapes
- Heat-treated or normalized if needed

â? Material Selection Tips

- For **economical case hardening** with good machinability â?? **080M15 / EN32A**
- For **slightly better wear** and stress resistance â?? **EN32B**
- For **legacy drawings or old equipment** â?? **EN32 / EN32C**
- For **general-purpose mild case hardening** â?? **070M20**

ð??© Why choose Steelmet Industries?

With decades of expertise in **case hardening steels**, **Steelmet Industries** helps customers not just match a grade â?? but optimize it. Our detailed heat charts, dimensional consistency, and traceable supply chain ensure every bar meets your exact requirement.

Explore our range, or send your inquiry through our Contact Page or on WhatsApp at +91 712 2728071 . Your application deserves the right core and a wear-resistant skin â?? and weâ??ll help you get there.

â? FAQs

Q1. Is 080M15 the same as EN32A?
Yes. 080M15 is the updated designation for EN32A as per BS 970:1991.

Q2. Can EN32 steels be welded?
They can be welded but pre-heating and post-weld stress relief is recommended due to low carbon content and case-hardened layer.

Q3. Are these steels suitable for induction hardening?
Not recommended. Theyâ??re ideal for **carburizing** or gas nitriding rather than flame or induction hardening.

Q4. Can Steelmet supply normalized EN32 steel?
Yes. We supply in rolled, normalized, or annealed condition as per customer request.

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Date
26/05/2026
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