



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

### Introduction

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.

### Comparative Table

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

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## Key Differences Explained

### EN32 vs EN32A

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

### EN32A vs EN32B

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

### EN32 Family vs 080M15

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

### 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.

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## 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

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## Material Selection Tips

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

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## Why choose Steelmet Industries?

With decades of expertise in **case hardening steels**, **Steelmet Industries** helps customers not just match a grade → 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 → and we'll help you get there.

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## 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. They'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.

