



EN8 vs EN8A vs EN8B vs EN8C vs EN8D vs EN8M vs EN8DM: Complete Steel Grade Comparison

Description et Industries Brig The EN8 series represents a family of versatile medium-carbon steels with subtle variations that impact The EN8 series represents a ranning of versaline incommunity machinability, strength, and heat treatment response. This guide compares: alniess Steels

- Chemical composition differences
- Mechanical properties
- Optimal heat treatment
- Recommended applications

Steelmet Industries supplies all EN8 variants as:

ð??1 Round bars (Ã? 10mm â?? 300mm)

ð??1 Flat bars and forged blanks

ð??¹ Turned or ground precision stock

## Chemical Composition Comparison

Grade C% Si% Mn% P% **S**% Other

0.36-0.44 0.10-0.40 0.60-1.00 â?¤0.05 â?¤0.05 â?? EN8

EN8A 0.36-0.44 0.10-0.40 0.60-1.00 â?¤0.05 â?¤0.05 Improved purity



Grade	C%	Si%	Mn%	P%	<b>S</b> %	Other
EN8B	0.36-0.44 0	.10-0.40 0	.60-1.00 â	?¤0.05	â?¤0.05	Lead added
EN8C	0.36-0.44 0	.10-0.40 0	.60-1.00 â	?¤0.05	â?¤0.05	Sulfur increased
EN8D	0.36-0.44 0	.10-0.40 0	.60-1.00 â	?¤0.05	â?¤0.05	Controlled Mn
EN8M	0.36-0.44 0	.10-0.40 0	.90-1.50 â	?¤0.05	â?¤0.05	Higher Mn
EN8DM	0.36-0.44 0	.10-0.40 0	.90-1.50 â	?¤0.05	â?¤0.05	Higher Mn + controlled chemistry

## ð??¹ Key Variations:

- EN8B: Contains lead (Pb) for improved machinability
- **EN8C**: Higher sulfur for better chip formation
- Increased manganese for better hardenability

# **Mechanical Properties (Normalized Condi**

Mechanical Properties (Normalized Condition)           Grade         Tensile (MPa) Yield (MPa) Elongation (%) Hardness (BHN)           EN8         700-850         460         14         201-255           EN8B         700-850         460         14         201-255           EN8B         700-850         460         14         201-255										
Grade	Tensile (MPa)	Yield (MPa)	Elongation (%)	Hardness (BHN)						
EN8	700-850	460	14	201-255 <b>CSS</b> C						
EN8A	700-850	460	14	201-255						
EN8B	700-850	460	14	201-255						
EN8C	700-850	460	14	201-255						
EN8D	700-850	460	14	201-255						
EN8M	800-950	550	12	248-302						
EN8DM	800-950	550	12	248-302						

â? EN8M/EN8DM offer 15-20% higher strength due to increased manganese

# **Key Differences & Applications**

- 1. Machinability Comparison
  - Best Machinability: EN8B (lead added) > EN8C (sulfur added) > Standard EN8
  - EN8M/EN8DM: Require more power but maintain good tool life

## 2. Heat Treatment Response



- EN8M/EN8DM: Achieve deeper hardening (ideal for large sections)
- Standard EN8: Suitable for smaller components

#### 3. Recommended Uses

- EN8/EN8A: General engineering components, shafts, bolts
- EN8B/EN8C: High-volume machined parts (gears, fittings)
- Equivalents & Alternatives

  TINN ISO

  ENSM/ENSDM: Heavy-uu., 1

  Teels, F. Alternatives Bright Bars, Alloy

  Steels, Stainless Steels

#### Selection Guide

General purpose: EN8/EN8A

Mass machining: EN8B/EN8C

Heavy sections/strength: EN8M/EN8DM

#### **Steelmet Industries provides:**

ð??¹ All EN8 variants in stock

ð??¹ Custom heat treatment (quenching & tempering)

ð??¹ Precision ground bars (h9 tolerance)

ŏ??? Contact our technical team for grade recommendations.



## Conclusion

While all EN8 grades share similar base composition, subtle variations significantly impact their performance in machining, heat treatment, and final applications.

Steelmet Industries maintains ready stock of all EN8 variants a?? from standard EN8 to specialty EN8DM. Request a quote for your specific requirements.

## Category

1. BS970 1955 EN8 Steel and variants

## **Tags**



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#### **Author**

admin