



## EN1A Steel | Properties, Equivalents, Applications | Steelmet Industries

### EN1A Steel Overview

**EN1A**, also known as **230M07** or **Free Cutting Mild Steel**, is a low-carbon steel with added sulfur that offers **excellent machinability**. It is the go-to material for mass production on CNC machines and automatic lathes. At **Steelmet Industries**, we offer **EN1A steel bars** in bright and hot rolled forms with excellent surface finish, tight tolerances, and consistent quality.

### Chemical Composition of EN1A Steel

Element	Composition (%)
Carbon (C)	0.07 – 0.15
Manganese (Mn)	0.80 – 1.20
Sulfur (S)	0.20 – 0.30
Phosphorus (P)	≤ 0.07
Iron (Fe)	Balance

*Note: EN1A is a free-cutting steel. The high sulfur content improves machinability.*

### Mechanical Properties (Typical in Cold Drawn Condition)

Property	Value
Tensile Strength	370 – 540 MPa
Yield Strength	220 – 350 MPa
Elongation	~15%
Hardness (BHN)	130 – 170
Machinability Rating	100% (Excellent)

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## • Equivalent Grades of EN1A

Standard	Equivalent Grade
EN	EN1A / 230M07
AISI	1213 / 12L13
IS	14420 (Steel Type 14C6S13)
DIN	9SMn28 / 1.0715
JIS	SUM22
BS	EN1A / 230M07

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## • Applications of EN1A Steel

EN1A is widely used for high-speed machining of parts with moderate strength requirements, including:

- Automatic turned parts
- Precision machined components
- Spacers and bushes
- Shafts and studs
- Couplings and connectors
- Valve parts and nipples
- Furniture and hardware components

It is ideal for **mass production**, especially on CNCs and turret lathes where tight tolerances and fast cycle times are critical.

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## • Machinability, Weldability & Heat Treatment

- **Machinability:** Excellent best among all carbon steels

- **Weldability:** Limited due to high sulfur content; use EN1A lead-free (EN1A(L)) if welding is necessary
- **Heat Treatment:** Not typically hardened; not suited for quenching or tempering
- **Case Hardening:** Possible if core strength is not a concern

For applications requiring welding or better impact toughness, **EN1A(L)** or **EN3B** may be more suitable.

## EN1A Steel Bars from Steelmet Industries

Steelmet Industries supplies EN1A in multiple profiles and conditions:

- **Bright Bars:** Drawn, Peeled, Ground – ideal for precision machining
- **Hot Rolled Bars:** For forgings and general use
- **Shapes:** Rounds, Squares, Flats, Hexagons, Round Corner Squares, Custom Profiles
- **Size Range:**
  - Rounds: 10 mm to 75 mm
  - Flats and Squares: As per requirement
- **Tolerances:** ISO H9, H10 or customer-specified
- **Supply Condition:** Bright drawn, annealed, hot rolled, or custom

We ensure **low decarb**, **consistent chemistry**, and **tight tolerances** for hassle-free machining and high productivity.

## Why Choose Steelmet Industries for EN1A?

- Decades of experience in free-cutting steels
- Custom sizes and tolerances

- Fast dispatch from ready stock
- Traceable material with Test Certificate
- Ideal partner for OEMs, exporters, and contract manufacturers
- Competitive pricing and customer-first service

## Certifications & Compliance

- Supplied with **Material Test Certificate (MTC)**
- Complies with EN 10277, BS 970, IS 14420
- Optional: NABL-certified lab reports, UT/visual inspection, TPI

## Get a Quote for EN1A Steel

Need EN1A steel bars for machining or mass production?

Contact **Steelmet Industries** today.

Website: <https://www.steelmet.in>

© Fill out the enquiry form to receive a quick quotation from our team.

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