

# HB450 Grade - Technical Datasheet

## 1. Chemical & Mechanical Properties

Property	Value
Carbon (C)	≤ 0.20 %
Manganese (Mn)	≤ 1.55 %
Sulphur (S)	≤ 0.040 %
Phosphorus (P)	≤ 0.045 %
Copper (Cu)	0.20 – 0.35 %
Silicon (Si)	≤ 0.45 %
Yield Strength (YS)	≥ 450 MPa
Tensile Strength (TS)	540 – 680 MPa
Elongation	≥ 18 %

Hardness: Approx. 450 HB (Brinell)

Impact Test: Typically specified (varies by standard)

## 2. Equivalent / Alternative Grades

Standard	Grade	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Cu (%)	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HB)
IS 2062	E450	≤0.20	≤1.55	≤0.045	≤0.040	≤0.45	0.20 – 0.35	≥450	540 – 680	≥18	~450
EN 10025-2	S460	≤0.24	≤1.60	≤0.035	≤0.035	≤0.55	≥0.20	≥460	570 – 720	≥20	~450
ASTM A572	Grade 60	≤0.23	≤1.35	≤0.040	≤0.050	≤0.40	≥0.20	≥415	540 – 700	≥18	~450
JIS G3106	SM520	≤0.20	≤1.60	≤0.035	≤0.035	≤0.55	≥0.20 (typ.)	≥520	570 – 720	~18	~450

### 3. Common Applications

- Heavy-duty construction machinery
- Earth-moving equipment parts
- Mining and quarrying equipment
- High-strength structural steel components
- Wear-resistant and abrasion-resistant parts
- Heavy vehicles and trailers

### 4. Standard Conformance

- IS 2062: Hot Rolled Medium and High Tensile Structural Steel (India)
- Equivalent standards include:
  - EN 10025-2 (Europe)
  - ASTM A572 Grade 60 (USA)
  - JIS G3106 SM520 (Japan)

### 5. Disclaimer

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