

# E550CCu – Technical Datasheet

## 1. Chemical & Mechanical Properties

### A. Chemical Composition

| Element        | % Composition |
|----------------|---------------|
| Carbon (C)     | ≤ 0.22%       |
| Manganese (Mn) | ≤ 1.60%       |
| Phosphorus (P) | ≤ 0.045%      |
| Sulphur (S)    | ≤ 0.040%      |
| Silicon (Si)   | ≤ 0.45%       |
| Copper (Cu)    | 0.20 – 0.35%  |

### B. Mechanical Properties

| Property              | Value                             |
|-----------------------|-----------------------------------|
| Yield Strength (YS)   | ≥ 550 MPa                         |
| Tensile Strength (TS) | 640 – 790 MPa                     |
| Elongation            | ≥ 15%                             |
| Hardness              | 200 – 230 HB                      |
| Impact Test           | 27J min at -10°C (Charpy V-Notch) |

## 2. Equivalent / Alternative Grades

### A. Chemical Composition Comparison

| Standard   | Grade     | C (%)  | Mn (%) | P (%)   | S (%)   | Si (%) | Cu (%)      |
|------------|-----------|--------|--------|---------|---------|--------|-------------|
| IS 2062    | E550CCu   | ≤ 0.22 | ≤ 1.60 | ≤ 0.045 | ≤ 0.040 | ≤ 0.45 | 0.20 – 0.35 |
| EN 10025-2 | S460J2+Cu | ≤ 0.22 | ≤ 1.60 | ≤ 0.035 | ≤ 0.035 | ≤ 0.55 | ≥ 0.20      |
| ASTM A572  | Gr 70+Cu  | ≤ 0.23 | ≤ 1.35 | ≤ 0.040 | ≤ 0.050 | ≤ 0.40 | ≥ 0.20      |

### B. Mechanical Properties Comparison

| Standard   | Grade     | Yield Strength (MPa) | Tensile Strength (MPa) | Elongation / Impact  |
|------------|-----------|----------------------|------------------------|----------------------|
| IS 2062    | E550CCu   | ≥ 550                | 640 – 790              | ≥ 15% / 27J @ - 10°C |
| EN 10025-2 | S460J2+Cu | ≥ 460                | 510 – 680              | ≥ 22% / 27J @ - 10°C |
| ASTM A572  | Gr 70+Cu  | ≥ 480                | 620 – 780              | ≥ 15% / 20J @ RT     |

### 3. Common Applications

- Bridges
- Marine structures
- Heavy machinery
- Industrial fabrication
- Railway wagons

### 4. Standard Conformance

IS 2062:2011 – Indian Standard for Hot Rolled Medium and High Tensile Structural Steel.

Grade Code Meaning:

E: Killed steel; 550: Minimum yield strength in MPa; CCu: Copper added with impact testing

## 5. Disclaimer

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