E350CuC – Technical Datasheet

1. Chemical & Mechanical Properties

A. Chemical Composition

Element	% Composition
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%

B. Mechanical Properties

Property	Value
Yield Strength (YS)	≥ 350 MPa
Tensile Strength (TS)	490 – 610 MPa
Elongation	≥ 22%
Hardness	160 – 190 HB
Impact Test	27J min at -20°C (Charpy V-Notch test)

2. Equivalent / Alternative Grades

A. Chemical Composition Comparison

Standard	Grade	C (%)	Mn (%)	P (%)	S (%)	Si (%)	Cu (%)
IS 2062	E350CuC	≤ 0.20	≤ 1.55	≤ 0.045	≤ 0.040	≤ 0.45	0.20 – 0.35
EN 10025-2	S355J2 + Cu	≤ 0.24	≤ 1.60	≤ 0.035	≤ 0.035	≤ 0.55	≥ 0.20
ASTM A572	Gr 50 + Cu	≤ 0.23	≤ 1.35	≤ 0.040	≤ 0.050	≤ 0.40	≥ 0.20
JIS G3106	SM490YB + Cu	≤ 0.20	≤ 1.60	≤ 0.035	≤ 0.035	≤ 0.55	≥ 0.20 (typ.)

B. Mechanical Properties Comparison

Standard	Grade	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation / Impact
IS 2062	E350CuC	≥ 350	490 – 610	≥ 22%, 27J @ -20°C
EN 10025-2	S355J2 + Cu	≥ 355	470 – 630	≥ 22%, 27J @ -20°C
ASTM A572	Gr 50 + Cu	≥ 345	450 – 620	≥ 21%, 20J @ RT
JIS G3106	SM490YB + Cu	≥ 355	490 – 610	~21%, 27J @ 0°C

3. Common Applications

- Railway wagons and coaches

- Weather-resistant steel structures

- Bridges and construction frameworks

- Earth-moving equipment and fabrication

- Marine and industrial containers

4. Standard Conformance

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

Grade Code Meaning:

- E: Killed steel

- 350: Minimum yield strength in MPa

- Cu: Copper added for corrosion resistance

- C: Impact tested at -20°C (Charpy V-Notch, min 27J)

5. Disclaimer

For **authoritative** and **legally binding** specifications, users must refer to the **official publications** of the relevant standards—such as the BIS, ASTM, EN or JIS standards—available through their respective websites or published documents.