

**CPC ENGINEERING SPECIFICATION**

SECTION SOP	Doc. No. CES-26-114
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STRUCTURAL STEEL PLATES, ANGLES, CHANNELS, BEAMS AND
OTHER LOW CARBON MILL SHAPES

Rev	Reason for change	Date	Made by	Reviewed by	Approved by	Status
0	INITIAL RELEASE	07-02-2024	PK	USR	JG	Released

SUMMARY:

This specification covers low carbon shapes including plate, sheet, channel, angle and beams for use in welded fabrications.



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1.0 Scope

This specification covers low carbon shapes including plate, sheet, beam, channel and angle for use in welded fabrications. When this specification is used to manufacture welded structures, the fabricator shall have a CPC approved weld procedure that is applicable to the materials and work to be done.

This specification provides a variety of IS:2062 standard structural materials of similar chemistry and strength level. The selections within this specification may be considered interchangeable for CPC approved weld procedures where impact testing is NOT required.

Equivalent or higher quality grades may be used by the supplier provided they meet the requirements of this specification. When substituted grades do not meet the requirements of this specification, they may be used provided the supplier informs and receives approval from CPC prior to commencement of fabrication.

2.0 Chemistry Requirements

The heat analysis shall conform to the composition in Table 1. With reference of IS:2062

Table 1: Chemical composition, weight% (all are maximums unless otherwise noted)

Grade Designation E 250	Ladle Analysis. Percentage (%)	
Quality	A	BR
Element		
Carbon, C	0.23	0.22
Manganese, Mn*	1.50	1.50
Phosphorus, P	0.045	0.045
Sulphur, S	0.045	0.045
Silicon, Si**	0.4	0.4
		0.41
Carbon Equivalence (CE), max	0.42	
* Actual Mn contents above the limits specified are acceptable as long as CE < 0.45. ** There are no Si requirements for IS:2062 shapes and bars.		

$$CE = C + \frac{Mn}{6} + \frac{(Cr + Mo + V)}{5} + \frac{(Ni + Cu)}{15}$$



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4.0 Mechanical Properties

Mechanical properties as per below table.

Table 2: Mechanical properties, with reference of **IS:2062**.

Grade Designation	Quality	Tensile Strength (MPa)	Yield Stress (MPa)			Percentage elongation L
			<20	20-40	>40	
	A	410	250	240	230	23
E 250	BR	410	250	240	230	23

* New grade designation system based on minimum yield stress has been adopted.

5.0 Markings

Each piece of the material shall be identified with the heat number marked on the exterior surface. Item marked with manufacturer's name or trade mark with designation.

6.0 Inspection

Material shall be inspected and free of laps, seams, cracks or other injurious indications.

7.0 Reference Specifications

IS:2062.

