



COMPANY STANDARDS

TITLE:

MEDIUM STRENGTH
STRUCTURAL STEEL
(C1001 ISSUE - 03)

PAGE No. OF

DATE: 2008-04-23

INFORMATION SHEET - 1/1

IMPORTANT NOTE :

1. INFORMATION IN THIS SHEET SHALL BE FOR INTERNAL USE ONLY.
2. REMOVE THIS PAGE BEFORE ISSUE TO THE SUPPLIER.

ADDITIONAL INFORMATION :

1. Colour coding shall be Grey - Aluminium White - Black. For further details refer to Company Standard PR1002-C.
2. Procurement of structural steel having Tensile strength below 410 MPa shall not be made.
3. After ensuring that material is supplied in corrosion free condition, suitable corrosion preventives shall be applied to suit storage and process.

4. EQUIVALENT SPECIFICATIONS :

- a) International specifications : JIS - SS41 of JIS G3113.
SAE - SAE 1015, SAE 1020
- b) National specification : BIS - IS : 2062 Latest issuance
- c) Collaborator's specifications : Komatsu - SM41B, SS41
Wabco - LW 0961

d) See branch standards for applicability.

5. Consequent to issue of this standard, procurement of material shall not be made by quoting against the above mentioned International/National/Collaborator standards but shall be made only against this standard.

However, if material is offered by the supplier against these equivalent specifications, it can be accepted against this Company Standard, after duly getting co-ordination from Product Engineering and Quality Engineering Departments. Such material shall be procured, stocked and issued only under this standard number with the colour code identified for this material.

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C1001

TITLE:

**MEDIUM STRENGTH
STRUCTURAL STEEL**

PAGE No. 01 OF 03

DATE: 2008-04-23

0. GENERAL INFORMATION :

This specification is meant for steels for general structural purposes. This standard is an adoption of IS : 2062 latest issuance.

This standard is prepared to facilitate preparation of branch standards, to cover specific requirements of plates, bars, structural etc., made up of this grade of steel.

This Issuance supersedes C1001 Issue-02 dated 2002-09-15 and this issuance is prepared to facilitate adoption of IS : 2062 - 2006, wherein, the following changes have been made :

- a) International grade designation system based on yield strength is adopted.
- b) Requirements of IS : 8500 and IS : 1977 have been merged.

1. SCOPE :

This standard covers the requirements of medium strength structural steel grades for general structural purposes and specifies chemical composition, mechanical properties and quality requirements.

2. QUALITY REQUIREMENTS :

- 2.1 Terminology, supply, manufacture, chemical composition, mechanical properties and testing, dimensions & tolerances shall be as per IS : 2062 - 2006 and further revisions of the Indian standard, if any.

3. SPECIFIC REQUIREMENTS :

3.1 FREEDOM FROM DEFECTS - WELD REPAIRS :

Material supplied shall be free from mill scale, heavy rust, corrosion pitting, cracks and laminations.

Minor surface defects may be removed by the manufacturer/supplier by grinding provided, the thickness is not reduced locally by more than 4 % below the minimum specified nominal thickness.

Weld repair for removal of surface defects is not permissible.

PREPARED BY: CSD/
CFWC-MATERIALS

ISSUE No. :
03

REPLACES:

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REF :
IS : 2062

APPROVED BY :

G

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4. CHEMICAL COMPOSITION : Shall be as per Table -1.

TABLE - 1

Grade Designation	Grade Quality	Product Analysis Percent max.					Carbon Equivalent (CE) max.
		C	Mn	Si	S	P	
E250 (Fe 410 W A)	A	0.25	1.55	0.43	0.050	0.050	0.42
E250 (Fe 410 W B)	B	0.24	1.55	0.43	0.050	0.050	0.41
E250 (Fe 410 W C)	C	0.22	1.55	0.43	0.045	0.045	0.39

(Earlier designation is shown in brackets)

Notes : 1) Carbon Equivalent based on Chemical Analysis shall be calculated as follows :

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

- 2) Micro alloying elements (V, Ti, Nb, B etc.,) if any, shall not be more than 0.25 % in total
- 3) Copper content shall be 0.20 % max.
- 4) Nitrogen content shall not exceed 0.012 %
- 5) Trace Elements : Supplier shall ensure that elements not indicated above are not present in the product.

5. MECHANICAL PROPERTIES : Shall be as per Table - 2.

TABLE - 2

Grade Designation	Grade	Tensile Strength min. MPa	Yield Strength min. MPa			Elongation % min. (in the gauge length So)	Charpy V-Notch Impact Energy (J) min.	Internal * Bend Diameter min.	
			< 20 t mm	20-40 t mm	> 40 t mm			≤25 mm	> 25 mm
E250 (Fe 410 W A)	A	410	250	240	230	23	--	2 t	3 t
E250 (Fe 410 W B)	B	410	250	240	230	23	27 note 3	2 t	3 t
E250 (Fe 410 W C)	C	410	250	240	230	23	27 note 4	2 t	3 t

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Notes :

1. t is the thickness of the test piece
2. * Transverse to rolling direction
3. For grade B, minimum Charpy V-notch impact energy is to be guaranteed at 0°C.
4. For grade C, minimum Charpy V-notch impact energy is to be guaranteed at minus 20 °C.
5. The impact values are given for a standard test piece of 10 mm x 10 mm.
6. Impact testing is not required for nominal product thickness/diameter below 12 mm.

6. **MARKING :**

The products shall be suitably marked to identify the following :

Manufacturer's Name/Trade mark

Material and Grade

Heat number

7. **CERTIFICATION :**

Supplier shall provide the manufacturer's test certificate for each heat of supply indicating conformance to this specification.

8. **Note :** The latest issuance of Standards cited shall be referred.

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