



**PLANT PURCHASING
SPECIFICATION
HYDERABAD**

HY10470

REV. NO. 07

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CARBON STEEL PRESSURE VESSEL PLATES FOR LOW AND MODERATE TEMPERATURE SERVICE

(ORDERING DESCRIPTION FOR ASME SA 516, Gr: 70 WITH S1, S5 AND S8)

1.0 GENERAL:

The material and other requirements shall comply with the latest version of ASME SA 516 Gr : 70 with the following additional requirements.

Note: Supplies of plates as per ASTM standards where ASME standard clearly specifies "Identical with ASTM standard" is acceptable.

2.0 APPLICATION:

For fabrication of pressure vessels and heat exchangers as per ASME Boiler and Pressure Vessel code or Indian Boiler Regulations (IBR) requiring S1, S5 and S8 supplementary requirements as per SA 516.

3.0 CONDITION OF DELIVERY:

All the plates shall be free from mill scales, segregation of impurities, cracks, surface flaws, laminations, rough, jagged and imperfect edges.

All the plates up to 10mm thickness (inclusive) shall be suitably protected with rust preventative coatings at the time of supplies.

Surface finish of the plates shall be such as to enable Ultrasonic testing of the material.

4.0 DIMENSIONS:

4.1 The thickness of the plate shall be as specified in the Purchase Order.

4.2 Unless otherwise specified in the Purchase Order, plates shall be supplied to the following widths and lengths.

Thickness (mm)	Width x Length (mm)
6 to 8	2500 x 6000
10 to 36	2500 x 6000

5.0 CHEMICAL COMPOSITION:

Chemical Composition shall be as per SA 516 / A 516 but carbon content shall not exceed 0.25% max.

Revisions:
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6.0 MECHANICAL TESTS:

Tensile test shall be as per SA 516.

7.0 VACUUM TREATMENT:

Plates shall be vacuum degassed as per supplementary requirement S1 of SA 516.

8.0 LOW TEMPERATURE IMPACT TEST:

Charpy V-Notch impact test at low temperature shall be conducted as per supplementary requirement S5 of SA 516. The acceptance criteria shall be as per SA 20.

9.0 ULTRASONIC TEST:

Plates shall be ultrasonically examined as per supplementary requirements S8 of ASME SA 516.

10.0 REPAIRS:

10.1 Repair of defects by welding is not permitted.

10.2 When repairs are done by other mechanical means the minimum plate thickness shall be met with and the surface shall be smoothly dressed up to avoid sharp edges.

11.0 INSPECTION:

11.1 If the material is purchased from WELL-KNOWN STEEL MAKER as approved by IBR (Indian Boiler Regulations) then inspection by any other third party inspection agency is not necessary unless it is specifically mentioned on the order. However, in case of the first time supplies of the material as per this specification, the inspection by BHEL / BHEL nominated inspection agency will be applicable (in addition to the statutory requirements of Indian Boiler Regulations).

11.2 In case of procurement from manufacturers who are not WELL-KNOWN STEEL MAKER as approved by IBR, all plates shall be inspected at manufacturer's works by an Inspection authority recognized by IBR (for manufacturers located outside India) or by IBR (for plates manufactured within India) and the test certificates shall be attested to that effect.

11.3.0 Inspection at supplier works:

11.3.1 BHEL representative / BHEL appointed Inspection Agency shall have free entry and access to all areas where the manufacture of the plates is carried out. All reasonable facilities shall be extended including labour wherever necessary.

11.3.2 BHEL representative / BHEL appointed Inspection Agency shall be given sufficient advance intimation to witness the various processes, tests etc. Punching and identification of test coupons and execution of various tests shall be done in presence of BHEL representative / BHEL appointed Inspection Agency.



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12.0 TEST CERTIFICATE:

Three copies of the test certificates shall be furnished as per IBR format FORM IV. Additionally, the Manufacturer's Test Certificates meeting all the requirements as per SA 516 Gr. 70 (with S1, S5 & S8) shall also be submitted.

Incase the plates are supplied by manufacturers who are only re-rolling the plates using the raw material from outside sources then the raw material source for the plates shall be indicated in the technical offer for review and approval by BHEL. In such cases the raw material test certificates shall also be submitted along with the other test certificates as mentioned above.

13.0 RUST PREVENTION:

All the plates up to 10mm thickness (inclusive) shall be protected with rust preventative coatings suitable for providing resistance from atmospheric corrosion during outside storage for atleast six months.

14.0 MARKING:

The following details shall be hard punched on each plate, near the edge and encircled with the white paint.

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BHEL Order No:

Melt No:

Supplier's Name:

Inspection authority's mark:

15.0 REJECTION & REPLACEMENT:

In the event of the material proving defective in the course of further processing at BHEL, the same shall be rejected notwithstanding any previous acceptance. The supplier shall replace the material at his own cost and the rejected material shall be returned after all the commercial conditions are satisfied.