

दिनांक एवं हस्ताक्षर SIGN & DATE	 HARDWAR	Technical Delivery Condition for procurement of fabricated / finish component / assembly		TDC-F-21601870054-00 Rev No. 01		
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सामग्री सूची रखणा को	SUPERSEDES INVENTORY	<u>Drilled Main Ti Cladded Tube Plate for Condenser</u> Condenser Main Tube Plate shall be manufactured with vendor material and supplied in finished condition including painting & other requirements as specified in Drawing mentioned in List of Drawings. Vendor to confirm and ensure compliance to following points during offer submission / execution of order: - Vendor shall submit Manufacturing Plan (MP) indicating sequence of operation and stage inspection (like plate straightening, packet making, marking on CNC machine drilling etc.) and Quality Plan (QP) with the offer. - Ti cladded plate shall be manufactured as per BHEL specification AA14001, Rev. 01. Vendor to confirm all clauses of referred specification. - Material of base plate shall be carbon steel as per SA 516, Gr. 70 (SUPPLEMENTARY REQUIREMENT S1, S5 AND S8) and Titanium cladding material shall be as per ASTM B265, Gr.1. BHEL specification AA10119 (cross refereed in specification AA14001) is to be referred except for raw material procurement. - Vendor to clearly specify details of works and facilities to be used for drilling and machining of Ti clad plate and take approval from BHEL for same. - One set of major drawings and standards are attached with the enquiry for preparation of offer by the vendor. - Test certificates of undrilled Ti cladded tube plate shall be reviewed and approved by BHEL prior to performing of drilling and machining operations on Ti clad tube plate. - Detonation point (of explosion bonding process) shall be marked on Ti Clad plate using non removable paint before dispatch of drilled Ti clad tube plate. Drawings and documents furnished to vendor are BHEL property. Strict confidentiality is to be maintained and under no circumstances these documents or copy of these should be transferred to third party without express permission of BHEL. - Checking of holes shall be done by Vendors at their works as follows: - Checking of hole size using Go-NoGo gauge. - Checking of ovality using Dial bore gauge. - Checking of ligament using Vernier calipers. - Checking of surface finish of holes. - Checking of pitch distance of two locating holes. - Checking of locating hole position from axis of tube layout along the Y-axis.				
स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।		COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company				
		DEPTT. : HXE नाम NAME निर्माणकर्ता WORKED BY T.BANSAL				
		WT जांचकर्ता CHECKED BY R.BANSAL				
		QAX सहमत विभाग AGREED DEPTT. नाम NAME दिनांक एवं हस्ताक्षर DATE & SIGNATURE पर्यवेक्षणकर्ता BY S.KANT				

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SUPERSEDES INVENTORY		g) Checking of locating hole position from vertical centerline of tube layout along the X-axis. h) Checking of no. of peripheral holes as per Drawing requirement. i) Visual checking of hole corner radius as per drawing requirements. j) Checking of no. of plugged holes and DPT of plug holes if any with BHEL permission. k) Checking of over size holes if any and recording dimensions of same. l) Marking of center line of main tube plate. m) Checking that holes marked for tie rods are not drilled. n) Identification marking of all the main tube plate contained in the packet before dispatch. o) Preservation of holes before dispatch as per drawing / Purchase order requirements.										
सामग्री सूची संख्या को		9. Vendor to ensure following technological necessity / process control during manufacturing to control distortion and achieve dimensional accuracy: (a) Proper handling during turning, shifting and transportation. (b) Flatness as mentioned in drawing before and after drilling. (c) Use of technological supports / fixtures. (d) Main Tube Plates are not to be drilled in packets and each tube plate is to be drilled separately. No tool drift is permitted during drilling.										
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		6. Vendor shall ensure packing with proper supports and protection against external hazards during transportation of drilled Ti clad tube plate. Packing drawing of same shall be submitted for approval by BHEL. 7. Marking of holes as per tube layout drg no.2160187005400 shall be done by CNC drilling machine. 8. Painting shall be done as specified in respective drawings. 9. Inspection of the job at supplier's works shall be carried out by BHEL / BHEL authorized agency for which adequate prior notice (minimum 4 weeks) shall be given by the vendor. 10. Vendor shall furnish following test certificates in a Data Folder prior to dispatch of material. 10.1 Inspection record of dimensions specified in drawing										
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सामग्री सूची संख्या को	SUPERSEDES INVENTORY NO.	List of Drawings / Standards 1. Specification.....AA14001, AA10119 2. Drawings..... 2160187005400 2. Painting..... HE77001, AA57104							
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited.It must not be used directly or indirectly in any way detrimental to the interest of the company		RECORDS OF CHANGES							
		SL. NO.	PARA NO. / ANNEXURE NO.	DOC. NO. / REV. NO.	REISSUE/ REV. NO.	REVISION DATE	NATURE OF CHANGE		
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में की गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।									
		REV.NO	NAME	SIGN	DATE		निर्माणकर्ता WORKED BY	T.BANSAL	
							जांचकर्ता CHECKED BY	R.BANSAL	



CORPORATE PURCHASING SPECIFICATION

AA10119

Rev No. 15

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STRUCTURAL STEEL - WELDABLE QUALITY (PLATES, SECTIONS, STRIPS, FLATS AND BARS)

ORDERING DESCRIPTION

1.0 GENERAL:

The material shall conform to IS 2062 – 2011, E250-Gr.BR (with mandatory Impact Test) or DIN EN 10025-2:2005, Gr. S275JR and comply with following additional requirements.

2.0 APPLICATION:

For general engineering purposes, suitable for welding.

3.0 CONDITION OF DELIVERY:

3.1 Bars & Sections shall be supplied in Hot rolled in straight lengths without twists and bends.

3.2 The material shall be supplied as per IS: 2062 – 2011, E250 Gr.BR (with mandatory Impact Test) or as per DIN EN 10025-2:2005 Gr. 275JR.

3.3 Any other additional requirement as per BHEL Purchase order.

4.0 DIMENSIONS AND TOLERANCES:

4.1 Sizes:

Material shall be supplied to the dimensions specified in BHEL Order.

4.2 Tolerances:

The tolerances on hot rolled material shall comply with IS: 1852 or any other equivalent national standard.

4.3 Straightness for hot rolled bars:

Unless otherwise specified, the permissible deviation in straightness shall not exceed 5 mm in any 1000 mm length.

5.0 TEST SAMPLES:

The selection of test pieces for all tests like Chemical, Mechanical etc. shall be as per IS: 2062, E250-Gr.BR or DIN EN 10025-2, Gr. S275JR.

Revisions:

Clause No. 1, 3, 5 & 8 revised (as per MOM of 38th MRC meeting), Clause 10 added

APPROVED:

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

Rev No.15

Amd No.

Reaffirmed

Prepared

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Year:

HPEP, Hyderabad

Corp.R&D

June, 1976

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CS-72

CORPORATE PURCHASING SPECIFICATION



6.0 ULTRASONIC EXAMINATION:

Plates shall be ultrasonically examined in accordance with BHEL standard AA0850120 (or ASTM-A435) as detailed below and shall comply with the acceptance standards specified therein.

6.1 For plates above 40 mm thick:

Shall be ultrasonically examined unless when otherwise specified in order.

7.0 TEST CERTIFICATES:

Unless otherwise specified, three copies of test certificates shall be supplied.

In addition, the supplier shall ensure to enclose one copy of the test certificate along with their dispatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information:

AA10119 - Rev.No.15/ IS: 2062-Gr: BR (with mandatory Impact test) or DIN EN 10025-2, Gr. S275JR,

BHEL order No.

Melt No, Size & Quantity, Batch No with heat treatment details, Results of Chemical analysis,

Mechanical tests & NDT, Supplier's name, Identification No, TC No, Signature of Competent Authority, etc.

8.0 PACKING AND MARKING:

Plates shall be transported suitably to avoid damage during transit.

Each plate shall be marked with Melt No. Material grade and specification, BHEL Order No, Supplier's Name Identification No, Size & weight, on any one corner and encircled with paint preferably of white colour.

9.0 REJECTION AND REPLACEMENT

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of material, BHEL reserves the right to reject the whole consignment and the supplier shall replace the material free of cost. The rejected material shall be taken back by the supplier after fulfilling the commercial terms and conditions.

10.0 REFERRED STANDARDS (Latest publications including amendments):

1) IS: 1852

2) ASTM - A435

3) AA0850120

26/6/14

CS-721