

TENDER ENQUIRY NO.: X/6620/2024/0179/F

SUB: - TERMS & CONDITIONS FOR FABRICATION OF END SHIELDS

WITH BHEL MATERIAL

NIT-Notice Inviting Tender

Salient Details of Notice Inviting Tender (NIT)		
Sl. No.	Issue	Description
1.	Item details	As per Enquiry Annexure X/6620/2024/0179/F/1
2.	Issue of Tender Documents	From BHEL eProcurement website https://eprocurebhel.co.in/nicgep/app (Tender documents will be available for downloading from BHEL e-Procurement website till due date of submission)
3.	Due Date Of Offer Submission	Date: - 17.06.2024 Time: 13:45 hrs https://eprocurebhel.co.in/nicgep/app Offer to be submitted in online only through e-procurement Portal. (Bidders are requested to visit website to view corrigendum/ addenda/ amendments/ extension/ modification etc. before submitting offer).
4.	Opening of Tender (Techno-Commercial Bid)	Date: - 17.06.2024 Time: 14.00 Hrs Notes: <i>This tender being an e-tender, it shall be opened online only through the E-Procurement Portal. Participating bidders may witness the Opening online only.</i>
5.	Cost of Tender	INR 2000/- (If hard copy of tender document is required from BHEL otherwise not applicable.)
6.	EMD (Earnest Money Deposit)	0
7.	Schedule Of Pre-Bid Discussion	Not Applicable
8.	Integrity Pact & Details of Independent External Monitor (IEM)	Not Applicable
9.	Latest Updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL e-tender portal https://eprocurebhel.co.in/nicgep/app and not in the newspapers. Bidders to keep themselves updated with all such information

Please submit your offer only for the above requirement subject to our **GENERAL INSTRUCTIONS AND STANDARD TERMS & CONDITIONS (Version: June-2021, Rev.06)**. Please visit our site www.hwr.bhel.com for General Instructions and Standard Terms & Conditions (GISTC) for Tender Enquiries. All the bidders/vendors must ensure compliance of these GISTC. GISTC can also be referred by login to B2B Portal for Registered Vendors.

Tender Fee & EMD (If Applicable) will be submitted in the form of Pay Order / Demand Draft (drawn in favor of 'BHEL HARIDWAR') only. It may be noted that if hard copy of any tender document is required,

TENDER ENQUIRY NO.: X/6620/2024/0179/F

then the same may be collected against copy of Pay Order / Demand Draft of requisite tender fee (while original to be submitted with Part-I).

If EMD is not submitted along with the offer, then the offer may not be considered.

For E-Payment, the RTGS details are mentioned as below:

Bank Details	SWIFT Details of bank
STATE BANK OF INDIA RANIPUR BRANCH, OPP: BHEL MAIN GATE, SECTOR-5, RANIPUR, HARIDWAR, UTTRAKHAND, INDIA PIN CODE : 249403	SWIFT NO.: SBININBB225 CC ACCOUNT NO.: 10667995458 IFSC CODE: SBIN0000586

As per notification reference no. NSIC/HO/GP/15(4)/2013-14 dated 07.07.2013 Micro & Small Enterprises (MSEs) are not required to submit Tender fees. A Valid MSE certificate such as Udyog Aadhar (UAN)/Udyam Certificate/NSIC/EM (Part-II) etc. issued from competent authority shall be submitted in support of Micro & Small Enterprises (MSEs).

“As per the OM No. F. No. 1(2)(1)/2016-MA dated. 09.02.2017 issued from the Office of Development Commissioner (Micro, Small & Medium Enterprises), “Traders and agents should not be allowed to avail the benefits extended under the PP Policy.”

Central / State – PSUs / Government departments are exempted from submission of EMD subject to approval by BHEL management.

BHEL will forfeit the EMD if, the successful bidder / vendor refuses to honor the order after award of the same on him and / or withdraws his bid and / or unilaterally changes the offer and / or any of its terms & conditions within the validity period.

INSTRUCTIONS TO BIDDERS FOR SUBMITTING OFFER

TECHNICAL QUALIFICATION: Technical Requirement, Pre-Qualifying Requirements/PQR to be submitted. It is the mandatory requirement. Offer of vendors not meeting these requirements may not be considered.

ESSENTIAL INSTRUCTIONS

The tender shall be **submitted in two parts** in separate cover as described below on or before the due date:

Part I (Cover-1) - Containing the following:

1. Techno -Commercial Bid
2. Tender Fee & EMD (Earnest Money Deposit) Or Valid certificate/Document towards exemption of Tender fee and/or EMD (applicable for Micro and small Enterprises, Central / State – PSUs / Government departments, PMD vendors etc.)

Part II (Cover-2) - Containing Price Bid in attached Format

Bidders against tender will necessarily have to obtain class – III DSCs. Procedure for application available on www.bhel.com.

TENDER ENQUIRY NO.: X/6620/2024/0179/F

E-Procurement Portal Inputs

Procedure for Submission of Offer for E – Tender-Procedure for Submission of Tender is available in the “Bidder Manual for BHEL Bidders” at E-tender portal <https://eprocurebhel.co.in/nicgep/app> . Terms and conditions mentioned therein shall form integral part of the NIT and bidders shall abide by the same.

Hardware and Software requirements for participating in e-tender

Please refer the website for the minimum system requirements and setting document for Bidders under the link: <https://eprocurebhel.co.in/nicgep/app>

Digital Signature

To know the procedure for obtaining Digital Signature Certificate (DSC), suppliers who are not having the DSC are advised to visit our website [http://www.bhel.com/home.php/Tender Notifications/Sample Checklist](http://www.bhel.com/home.php/Tender%20Notifications/Sample%20Checklist).

NIC portal Helpdesk Contacts

For any technical related queries please call at 24 x 7 Help Desk Number

0120-4001 002

0120-4200 462

0120-4001 005

0120-6277 787

International bidders are requested to prefix 91 as country code

Email Support

Address: A) For any Issues or Clarifications relating to the published tenders, bidders are requested to contact the respective Tender Inviting Authority

Technical - support-eproc@nic.in

Note

Offers/tenders submitted in the E-tender portal shall only be considered for further evaluation. Offers sent by FAX / E-mail / any mode other than E-tender would not be entertained.

The Tenderers must submit their Tenders, as detailed below:

SPECIAL NOTE: All documents to be submitted should be uploaded in respective places in the E-Tender portal as per the list mentioned given in this NIT. BHEL shall not be responsible for incomplete documents.

SUB: - TERMS & CONDITIONS FOR FABRICATION OF END SHIELDS
WITH BHEL MATERIAL

Online offers are invited through e-procurement portal <https://eprocurebhel.co.in/nicgep/app> from suppliers for the supply of the items.

The item name and drawing no. mentioned in the enquiry is for reference & will be available for ordering. A sample of Combined Bill of Materials and all reference drawings are also enclosed for having a general idea of the tender.

1. **SCOPE OF WORK:** - This enquiry is for pre-fabrication machining & fabrication of following items with BHEL Material as per drawing, QP & other specifications.

Sl. No.	Item Description	Drg. No.	Qty.	BHEL Material Weight /Kg.	Total Weight (in kg.)
1	END SHIELD LOWER HALF TE(WELD)	0139360101000	1	8026.80 Kg.	8026.80 Kg.
2.	END SHIELD UPPER HALF TE (WELD)	0139360101100	1	6979.65 Kg.	6979.65 Kg.
3.	END SHIELD UPPER HALF EE (WELD)	0139360101200	1	7813.65 Kg.	7813.65 Kg.
4.	END SHIELD EE LOWER HALF (WELD)	0139360101300	1	8818.42 Kg.	8818.42 Kg.

Remark - Total load for the enquiry (Approximately) = 31638.52 Kg.

Technical requirement and instructions of the drawings are to be strictly followed.

The rate (s) should be quoted in Rupees/Kg for BHEL material.

I) Instructions for END SHIELDS:

- a. Technical requirements (TR) is mandatory for all part items and the assembly and welding process as outlined in drawings must be strictly followed and no deviation allowed.
- b. ALL WELD SEAMS ARE TO BE ROOT RUN DP TESTED.
- c. VENDOR TO FOLLOW TECHNICAL REQUIREMENTS STRICTLY AS PER DRG.
- d. FOR DRG. NO. 01393601010-00, ITEM NO - 19, 20, 50, 52, 56, 57, 62, 63, 67, 87, 90, 93, 99, 79, 80, 81, 82 & 101 ARE NOT IN SCOPE OF VENDOR.
- e. FOR DRG. NO - 01393601013-00, ITEM NO - 19, 20, 50, 52, 56, 57, 62, 63, 67, 79, 80, 81, 82, 87, 90, 93, 99 & 100 ARE NOT IN SCOPE OF VENDOR.
- f. FOR DRG. NO. 01393601011-00 ITEM NO. 51, 53, 54, 65, 89, 90, 98, 77 & 99 ARE NOT IN SCOPE OF VENDOR.

- g. FOR DRG. NO. 01393601012-00, ITEM NO. 51, 53, 54, 65, 89, 90, 98, 77 & 99 ARE NOT IN SCOPE OF VENDOR.
- h. SR IS IN THE SCOPE OF BHEL.
- i. PAINTING IS IN SCOPE OF BHEL.
- j. THE VENDOR TO CONDUCT THOROUGH AIR GROOVE TESTING ON THE SPECIFIED WELD SEAMS AS PER DRAWINGS & STANDARDS ANNEXURE-1 (TG-40116) & PROPER CARE MUST BE TAKEN DURING THE PREPARATION OF THE GROOVES. THEY MUST BE DEBRIS-FREE & OBSTRUCTIONS IN THE PASSAGES MUST BE REMOVED TO HAVE SMOOTH PASSAGE OF AIR DURING TESTING, GROOVES MUST BE OF A UNIFORM DEPTH AND WIDTH AS PER DRG.
- k. THE VENDOR TO ENSURE THAT CYLINDRICAL AND ITEMS WITH RADIUS ARE POSITIONED PERPENDICULAR TO THE VERTICAL WALLS.
- l. ALL THE PIPES & HOLES ARE TO BE PLUGGED WITH WOODEN PLUGS BEFORE DESPATCH.
- m. VENDOR TO CONDUCT HYDRAULIC TESTING OF OIL CHAMBER PIPE ALSO EXTRA CARE TO BE TAKEN DURING WELDING IN SURROUNDING OF THIS PIPE TO AVOID PUNCTURE IN THIS PIPE.
- n. FLATNESS OF PLATES ESPECIALLY JOINT FLANGES TO BE ENSURED BEFORE FIT UP & DURING FIT-UP PERPENDICULARITY SHOULD BE MAINTAINED BETWEEN JOINT FLANGES AND ITEMS FITTED OVER IT.
- o. VENDOR IS SUGGESTED THAT BEARING HOUSING TO BE ASSEMBLED ON SHIELDING WALL AND THEN BEARING HOUSING ASSEMBLED TO BE ASSEMBLED WITH JOINT FLANGES.
- p. Quality plan (if any) to be followed for Material induction and CHP.
- q. Customer's seal (if Any on supplied Material) to be transferred.
- r. All special tests viz., UT, RT, HYDRAULIC & KEROSENE etc. are to be performed as per drg. requirements.
- s. Copies of the relevant certificates to be supplied to the receiving shop.
- t. Cleaning of parts, removal of mill scale from components prior to assy will be in scope of vendor.
- u. Final Assembly shall undergo cleaning to ensure that all parts are free from dents, mills, spatters.
- v. Aesthetic appearance shall also be ensured and inspected before delivery to BHEL.

2. VALIDITY: -

The validity of offers by vendors should be at least for a period of **90 days for this enquiry from the date of enquiry opening.**

3. SUBMISSION OF OFFERS: -

Open tender is hoisted on the <https://eprocurebhel.co.in/nicgep/app> and no hard copy of document is provided by BHEL, no tender fee shall be insisted upon from the bidders.

The offer is to be submitted in **two parts** on NIC portal only on website: <https://eprocurebhel.co.in/nicgep/app>

BHEL reserves the right to reject any or all the tenders either in full or part thereof without assigning any reasons thereof.

4. DELIVERY: -

F.O.R.: HEEP, BHEL Haridwar.

5. DELIVERY SCHEDULE: -

Sl. No.	Item Description	Drg. No.	Qty.	Delivery
1	END SHIELD LOWER HALF TE(WELD)	0139360101000	1	45 Days from last BHEL material sent to vendors work
2	END SHIELD UPPER HALF TE (WELD)	0139360101100	1	45 Days from last BHEL material sent to vendors work
3	END SHIELD UPPER HALF EE (WELD)	0139360101200	1	45 Days from last BHEL material sent to vendors work
4	END SHIELD EE LOWER HALF (WELD)	0139360101300	1	45 Days from last BHEL material sent to vendors work

- 6. Bank Guarantee/Indemnity Bond: -** 10 % Bank Guarantee and 90% Indemnity Bond for the value of materials to be given by vendor for free issue materials. Material value will be calculated on PPMIV/Challan value basis. On intimation from BHEL regarding BG & IB, the same shall be provided by the vendor (s) within 15 Days. If suitable BG and IB are not submitted to BHEL within 15 days of intimation, then the amount of days delayed beyond 15 days after intimation will be deducted from delivery days of that item and consequent PO amendment will be issued.

For Example: If intimation for requirement of BG & IB of an item of a PO is given to vendor on 01.04.2023 from BHEL, then vendor should mandatorily provide required BG and IB by 15.04.2023. In case, the vendor provides the same by 30.04.2023, then the difference of 15 days (between 30.04.2023 & 15.04.2023) will be deducted from delivery days of that item and consequent PO amendment will be issued.

7. INSPECTION: -

- The inspection will be carried out by BHEL/BHEL nominated inspection agency at Party's works. All facilities and equipment's, calibrated instruments and standard gauges required for inspection shall be provided by the vendor during inspection. In some cases, inspection by customer's representatives like NTPC/RITES etc. may also be carried out at Party's works and CHP clearance may be obtained. No additional charges will be paid on this account.
- The party is to follow system for material control, if applicable, as per BHEL Quality Control system.
- Identification marks shall be punched on each item by the vendor i.e. Purchase Order No., Drawing No., IR No. etc.
- Aesthetic appearance is to be maintained as per drg. requirement.

8. GUARANTEE CERTIFICATE: -

The vendor shall warrant that the supplied fabricated assemblies/items comply fully with the drawings and other technical conditions. If the fabrications/items are found defective owing to faulty workmanship/incomplete work within a period of eighteen (18) months from the date of dispatch, the vendor shall make good of it/replace the same free of cost. Alternatively, the rework/replacement charges will be recovered.

9. PAYMENT TERMS: -

- 9.1 90% after acceptance & final clearance of SRIV. 10% after FTS and final accountal of material.
- 9.2 No packing and forwarding charges will be paid extra.
- 9.3 In case of rejection, total cost of material will be recovered in case of BHEL Material and no labour cost will be paid.
- 9.4 For MSEs (covered under MSME Act) which are registered and periodically renewed with BHEL, the payment will be made within 45 days or as prescribed in the relevant act.
- 9.5 Detailed terms at clause 10.0 of GISTC Rev. 07, June 2021.

10. LD CLAUSE: -

@ 0.5% per week subject to max 10% for the delayed portion of supply. The entry date mentioned by CISF on the challan at BHEL material gate will be taken as material receipt date.

11. GST: -

As per clause 11.0 of GISTC (attached). At present GST rate applicable for this enquiry will be 12%. However, it will be as applicable as per Govt. guidelines/circulars.

12. QUALITY REQUIREMENTS: -

Inspection by BHEL/BHEL nominated inspection agency as per drawing /Standard and quality plan requirements.

Quality plan no. QP/QA/216469 rev 00 dated 11.05.2024 is attached, which is to be followed.

13. REVERSE AUCTION: -

“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.” For detailed terms and conditions of RA guidelines, kindly refer www.bhel.com.

14. EVALUATION OF BIDS:

All vendors will be assessed on total cost to BHEL basis that includes freight, taxes, ITC etc. Item wise evaluation will be applicable for this enquiry.

In the course of evaluation, if more than one bidder happens to occupy L1 status, L1 bidder shall be decided by toss/draw of lots, in the presence of respective L1 bidder(s) or their representative(s). Ranking will be done accordingly. BHEL’s decision in such situation shall be final and binding.

15. TRANSPORTATION: -

Transportation of PPMIV material (raw material) will be in scope of BHEL and the freight will be borne by BHEL. However, the same will be loaded into the cost quoted by vendor in RA sheet. Vendor to deliver fabricated/machined/formed items to BHEL Haridwar at their own cost.

16. SCRAP: -

- Generated scrap is to be retained by the sub-contractor. This scrap is chargeable. The scrap rate will be calculated based on the monthly market scrap price Published in JPC Bulletin (Govt. of India Constitution)/any other document under category of scrap MELTING SCRAP/any other similar category. The calculated monthly price for charging scrap will be rounded off to two decimal places of Rupee. GST charges on scrap shall also be applicable.
- BHEL would recover the amount of GST and Trade Tax as applicable from the sub-contractor's account in lieu of scrap retained by them. The difference between raw material weight and finalized weight shall be considered for the calculation of scrap generation.
- A 3% invisible cutting allowance may be given on the finished weight.

17. RECTIFICATION: -

Any defect (noticed at Shop) arising out of the fabrication/machining/forming done by the Sub-Contractor, will have to be rectified or items replaced by the sub-contractor within 10 days at their own cost. Otherwise BHEL will be free to take necessary action as deemed fit and consequence/cost of the same will be to subcontractors-account.

18. Breach of Contract: In case of breach of contract, wherever the value of security instruments like performance bank guarantee available with BHEL against the said contract is atleast 10% of the contract value, the same be encashed. In case the value of the security instruments available is less than 10% of the contract value, the balance amount be recovered from other financial remedies (i.e. available bills of the contractor, retention amount, etc. with BHEL) or legal remedies be pursued. The balance scope shall be got done independently without Risk & Cost of the failed supplier/ contractor. Further, levy of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract. Accordingly, recovery of an amount equivalent to 10% of the contract value may be made in case of breach of contract."

19. DISTRIBUTION OF LOADS: -

Load will be placed on L1 Vendor.

20. GENERAL INSTRUCTIONS: -

20.1 No further sub-contracting to third party or sister concern by the sub-contractor is allowed Without prior permission of BHEL. If found guilty, will be debarred.

20.2 BHEL reserves the right to suspend/cancel the PO/Enquiry unilaterally without any financial repercussions, if Sub-contractor's performance is not found to be satisfactory.

20.2.1 BHEL reserves the right to revise the drawing after placement of purchase order. The prices in the purchase order will be amended according to revised drawing.

20.3 Please refer general instructions and standard terms & conditions (GISTC) for bidding against tender enquiry (version June-2021, Rev:07) the bidder/vendor must ensure compliance of these GISTC (version June-2021, Rev:07). Please refer <https://hwr.bhel.com>.

20.4 MSE suppliers are exempted for submission of EMD & Tender Fee.

20.5 Central / State – PSUs / Government departments are exempted from submission of EMD subject to approval by BHEL management.

20.6 Documents submitted with the offer/bid by the bidder should be signed and stamped in each page by authorized representative of the bidder.

20.6.1 PQR required documents is to be submitted along with the Techno- Commercial offer (PART-I).

Note: - Offer shall be entertained only after submission of duly filled, signed and stamped PQR and relevant documents. Offers of the vendor(s) not submitting this may be ignored.

20.7 Vendor Contract clause regarding GST ITC and provision for E-invoices:

(i) E-invoicing under GST is being implemented w.e.f. 01.04.2022 for all the taxable persons having turnover more than Rs. 10 Cr. It has been specified by the Govt. that it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from Govt. portal on a Tax Invoice. Based on such information, GST ITC as claimed by BHEL in GST Returns shall be matched with the corresponding details uploaded by supplier in E-invoicing System.

(ii) In case the vendor /contractor delays or fails to provide all the documents as per the Purchase order / Work Order at the time of submitting Tax invoice to BHEL, any subsequent financial loss to BHEL on account of vendor/contractor shall be to vendor's / contractor's account. BHEL has further right to take necessary steps to protect its interest at the time of release of payment. This further requires inclusion of IRN and QR code on tax invoice as announced by Govt. of India w.e.f. 01.10.2020.

20.8 In case of ordering against the tender, vendor should submit their invoices against goods and services immediately after supply of goods & services but not later than 30 days from the invoice date. In case of delay, consequential losses like loss of input credit and non-availability of concessional forms etc. shall be to the vendor account.

20.9 The bidders against open tender will necessarily have to obtain class – III DSC (Digital signature). Procedure for application is available on hwr.bhel.com.

20.10 Following MSE conditions shall be followed: -

UDYAM Certificate.

Detailed MSE conditions is at clause no. 23.0 of GISTC Rev. 07, June 2021.

* Govt. guidelines will supersede all clauses of this tender for MSE benefits to vendor(s).

MSE Suppliers can avail the intended benefits only if they submit along with the offer, attested copies of UDYAM Certificate.

Detailed MSE conditions is at clause no. 23.0 of GISTC Rev. 07, June 2021. * Govt. guidelines will supersede all clauses of this tender for MSE benefits to vendor(s).

20.11 BHEL may load maximum penalty under LD Clause, to the extent the same is not agreed by the vendor, for the purpose of comparative statement. Where deliveries quoted by the vendor are not suiting, BHEL may also ignore the offer of the vendor.

21. "A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder who found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

a) they have controlling partner (s) in common; or

b) they receive or have received any direct or indirect subsidy/ financial

stake from any of them; or

c) they have the same legal representative/agent for purposes of this bid; or

d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder, or

e) Bidder participates in more than one bid in this bidding process.

Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; or

f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:

1. The principal manufacturer directly or through one Indian agent on his behalf; and

2. Indian/foreign agent on behalf of only one principal,
or

g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid, or

h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business. "

- **Against vendor's replies, BHEL reserves the right to ask for more information/ documents / clarifications. Vendor's offer shall not be considered if vendor fails to furnish the document / information / clarifications as mentioned above or doesn't meet the acceptance criteria. Time period for technical/commercial clarification is 3 days.**

- Amendments/Corrigendum, if any, will be hosted on designated web site/ GePNIC Portal only. Other terms and conditions will be as per tender documents. Any vendor who is under hold (for the item)/ delisted/ banned with BHEL on date of opening of Part – 1 will not be allowed to quote for this tender. In case their offer is received, it may be outrightly rejected.
- The Tender Documents, Drawings, P.O copy etc. shall be sent by e-mails and shall not be sent in hard copies. Vendors to kindly note that the details sent by e-mail shall be considered for delivery against the finalized contract(s)/ P. O's placed.
- ****OFFERS SHALL BE ADMITTED THROUGH GePNIC PORTAL <https://eprocurebhel.co.in/nicgep/app> ONLY**

Annexure - A

SUB: - TERMS & CONDITIONS FOR FABRICATION OF END SHIELDS
WITH BHEL MATERIAL

OpenTender Enquiry No.: X/6620/2024/0179/F/1

Sl. No.	Item Description/Drg No.	MATERIAL BY	Qty	Total weight	Rate Rupees/Kg (Tick the correct option)
1	END SHIELD LOWER HALF TE(WELD)	0139360101000	1	8026.80 Kg.	Quoted/ Not Quoted
2	END SHIELD UPPER HALF TE (WELD)	0139360101100	1	6979.65 Kg.	Quoted/ Not Quoted
3	END SHIELD UPPER HALF EE (WELD)	0139360101200	1	7813.65 Kg.	Quoted/ Not Quoted
4	END SHIELD EE LOWER HALF (WELD)	0139360101300	1	8818.42 Kg.	Quoted/ Not Quoted

Authorized Signature:

(with date & seal of company)

Name of Supplier: -

Annexure - B

Make in India Certificate

Certificate In line with Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017 & P-45021/2/2017-PP (BE-II) dated 28.05.2018, we hereby certify that we M/s

_____ (supplier name) are local supplier meeting the requirement of minimum local content (50%) as defined in above orders for the material against Enquiry No. ____

X/6620/2024/0179/F/1. Details of location at which local value addition will be made is as follows:

_____ We also understand, false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

Authorized Signature:

(with date & seal of company)

Name of Supplier: -

TERMS AND CONDITIONS FOR Enquiry No.X/6620/2024/0179/F/1

Sl. No.	TERMS	VENDOR'S ACCEPTANCE/ REMARKS
1	<u>Scope of Work:</u> - Complete PRE-FAB. M/C & FAB. ONLY is to be carried out by the vendor as per Drawing/Standard, QP and Technical requirements (as per clause 1 of terms & conditions).	
2	Quotation is valid for a minimum period of 90 days from date of opening of enquiry. (as per clause no. 2.0 of Terms and Conditions)	
3	Submission of offers (as per clause no. 3.0 of Terms and Conditions)	
4	Quoted rates are on F.O.R. sub-contract store, HEEP, Haridwar basis.(as per clause no. 4.0 of Terms and Conditions)	
5	Delivery as per clause 5.0 of T& C of enquiry.	
6	Bank Guarantee/Indemnity Bond: 10% BG & 90% Indemnity bond (as per clause 6.0 of T& C of enquiry)	
7	Inspection shall be done as per clause no. 7.0 of Terms and Conditions of Enquiry.	
8	Guarantee Certificate shall be valid for 18 months . (as per clause no. 8.0 of Terms and Conditions of Enquiry)	
9	Payment 90% after acceptance & final clearance of SRIV. 10% after FTS and final account of material (as per clause no. 9.0 of Terms and Conditions of Enquiry).	
10	LD clause is applicable@0.5% per week or part thereof with a maximum limit of 10% of the delayed portion of the PO (as per clause no. 10.0 of Terms and Conditions of Enquiry).	
11	GST shall be applicable against documentary proof. Input Tax Credit shall be applicable and BHEL can claim benefit (as per clause no. 11.0 of Terms and Conditions of Enquiry).	
12	Quality Requirements (as per clause no. 12.0 of Terms and Conditions of Enquiry).	
13	We accept Reverse Auction(RA) clause as per standard policy of BHEL (as per clause no. 13.0 of Terms and Conditions of Enquiry).	
14	Evaluation of bids (as per clause no. 14.0 of Terms and Conditions of Enquiry).	
15	Transportation:Confirm acceptance of clause 15.0 of T & C. Manufactured items shall be despatched by BHEL approved transporter only and Insurance shall be borne by BHEL.	
16	Scrap : Confirm acceptance of Clause 16.0 of T & C of Enq.	
17	Rectification:Confirm acceptance of Clause 17.0 of T & C of Enq.	
18	Breach of contract: Confirm acceptance of Clause 18.0 of T & C of Enq.	
19	Distribution of Load: Accept the Clause 19 of T & C	
20	We have read clause no. 20 of terms and conditions of Enquiry and confirm to abide the same. (Clause 20.1 -20.11)	
21	Conflict of Interest:Confirm acceptance of Clause 21.0 of T & C of Enq.	
22	Duly Filled Annexure A (Unpriced- Quoted / Not Quoted)	
23	We have submitted Make in India certificate (duly filled and signed as per Annexure-B).	
24	We accept all terms and conditions of GISTC Rev. 07	
25	Rates have been quoted in indian Rupees on per Kg basis.	
26	PQR : as per clause 20.6.1 of T&C of enquiry.(duly filled, signed and stamped PQR and relevant documents)	

I have read and agreed all the terms and conditions of enquiry in detail and agree.

Note: BHEL reserves the right to reject any or all the offers (on techno-commercial ground) without assigning any reason thereof.

(Vendor's signature with Stamp)

PQR

Item : END SHIELD LOWER HALF 01393601013 00 (EE) & 01393601010 00 (TE)

01.00	Pre-Qualification Requirement	Required	Offered
01.01	Experience: Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. End-shield or Fabricated Assembly in last 7 years from the date of enquiry as per following details: (i) Dimensions of job: LXBXH = 2000 mm X 1500mm X1000 mm and above. (ii) Weight: 10 Tons and above	Vendor to Comply & submit suitable evidence including technical specifications, drawings etc.	
01.02	Facility: (i) Lifting facility and capacity at vendor works should EOT crane 10 Tons and above. Sufficient Hook height to suit job requirements. (ii) Vendor must have levelled bed plate having size : Length= 4000 mm, Breadth=2000 mm and above to fabricate the job (Either machined bed plate or bed plate constructed by steel plates is allowed but concrete floor not allowed). (iii) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (iv) Vendor must have rolling bending facility of plate thickness 90 mm and above at width of 900 mm and above (v) Vendor must have cutting facility to cut plate of thickness 150 mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.	
01.03	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated assembly was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.04.	Vendor to Comply & submit suitable documents	
01.04	Vendor to furnish name of customer/company with complete contact details and month /year of previous supply along with copy of PO, type of manufacturing facility used for fabrication (assembly/welding/pre-fabrication machining), supply documents, Payment details(invoice copy) and inspection documents of supplied fabricated assembly.	Vendor to Comply & submit suitable documents	
01.05	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents	
01.06	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree	
Note: PQR is not restrictive			

Page 1 of 2

(Mond Prataay)
Sr. Engineer/FTX

17/05/24
Ravi Deshwal
Manager/fabrication technology

17/05/24
Vivek Chavhan
OGM (B-2/FTX)

17/5/24
Kuldeep Khandelwal
Asst. Engr

TECHNICAL REQUIREMENT

01.00	TECHNICAL REQUIREMENT		
01.01	(i) Vendor must have Suitable machining facility to fullfill machining requirement of it no. 12 , 14 , 21, 37 of CBOM 01393601013 00 END SHIELD LOWER HALF (TE) & item no.12 , 14 , 21, 37 of CBOM 01393601010 00 END SHIELD LOWER HALF (EE) . If vendor does not have above required facility mentioned above then vendor may get it done from its sub-vendor provided that the vendor must send details of facilities of its sub-vendor at the time of offer submission along with the consent letter of its sub-vendor for the same.	Vendor to Comply & submit suitable documents	

Mohd Intazam
(Sr. Engineer/FT)

17/05/24
Ravi Deshwal
Manager/Fabrication Technology

Vish
17/05/24
VIVEK SINGH
DMC (FAB/FT)

K. K. Ganguly
17/5/24
K. K. Ganguly
Asst. FBO

PQR			
Item : END SHIELD UPPER HALF 01393601011 00 (TE) & 01393601012 00 (EE)			
01.00	Pre-Qualification Requirement	Required	Offered
01.01	Experience: Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. End-shield or equivalent Fabricated Assembly in last 7 years from the date of enquiry as per following details: (i) Dimensions of job: LXBXH = 2000 mm X 1500 mm X 1000 mm and above. (ii) Weight: 10 Tons and above	Vendor to Comply & submit suitable evidence including technical specifications, drawings etc.	
01.02	Facility: i) Lifting facility and capacity at vendor works should EOT crane 10 Tons and above. Sufficient Hook height to suit job requirements. ii) Vendor must have levelled bed plate having size : Length= 4000 mm, Breadth=2000 mm and above to fabricate the job (Either machined bed plate or bed plate constructed by steel plates is allowed but concrete floor not allowed). (iii) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (iv) Vendor must have rolling bending facility of plate thickness 63 mm and above at width of 200 mm and above. (v) Vendor must have cutting facility to cut plate of thickness 150 mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.	
01.03	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company/or end user duly confirming that fabricated assembly was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.04.	Vendor to Comply & submit suitable documents	
01.04	Vendor to furnish name of customer/company with complete contact details and month /year of previous supply along with copy of PO, type of manufacturing facility used for fabrication (assembly/welding/pre-fabrication machining), supply documents, Payment details(invoice copy) and inspection documents of supplied fabricated assembly.	Vendor to Comply & submit suitable documents	
01.05	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents	
01.06	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree	
Note:	PQR is not restrictive		

(Signature)
Mohd Imtaz
Sr. Engineer / FTX

(Signature)
17/05/24
Ravi Deshwal
Manager (Fabrication Technology)

(Signature)
17/05/24
VIVEK SRIVASTAVA
DAIRY (FAB/FT)

(Signature)
17/05/24
K. K. Singh
Asst. Eng.

TECHNICAL REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required	Offered
01.01	(i) Vendor must have Suitable machining facility to perform pre fabrication Machining operation for item no: 13, 22, 36 of CBOM 01393601011 00 i.e. END SHIELD UPPER HALF TE(WELD) & item no: 13, 22, 36 of CBOM 01393601012 00 i.e. END SHIELD UPPER HALF (EE). If vendor does not have above required facility mentioned then vendor may get it done from its sub-vendor provided that the vendor must send details of facilities of its sub-vendor at the time of offer submission along with the consent letter of its sub-vendor for the same.	Vendor to Comply & submit suitable documents	

[Signature]
 Mohd Intazar
 Sr. Engineer / FTX

[Signature]
 17/05/24
 Ravi Deshwal
 Manager / Fabrication Technology

[Signature]
 17/05/24
 VIVEK SRIVASTAVA
 35 MEDAS / FTX

[Signature]
 17/05/24
 K. Gangula
 Asst. Mgr.

Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/ EQUIPM- ENTS	END SHIELD LOWER HALF TE (WELD), END SHIELD UPPER HALF TE (WELD), END SHIELD UPPER HALF EE (WELD) & END SHIELD LOWER HALF EE (WELD) (ITEM NO. 1 TO 4 OF SIR)					Q.P. NO	QP/QA/216469				
								DATE	11.05.2024				
								REV. NO.	00	CONTRACTOR		BHEL (HEEP) HWR	
								PAGE NO.	1 of 2	Indent		Sir No. 2G20240004 dated 07.05.2024	
Sl. No.	COMPONENT OPERATION	CHARACTRISTIC CHECKED	CATEGORY	TYPE/ METHOD OF CHECKED	QUANT-UM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE DOCUMENT	FORMAT OF RECORD	D	AGENCY			REMARKS
										M	B	C	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

1	Material inspection receipt at vendor works	Verification of identification of material	Major	Visual inspection	100 %	As per drg./ Standard	As per drg./ Standard	Record	✓	P	V	-	Material will be supplied by BHEL. Transfer of Identification of BHEL material to be ensured.
2	IN PROCESS-INSPECTION												
2.1	WPS, PQR & WPQ Qualification	Scrutinizing	Major	Record check	100%	ASME SEC IX	ASME SEC IX	Test Report	-	P	V	-	BHEL /BHEL approved agency WPS/PQR/WPQ shall be used
2.2	Marking, Cutting & Edge Preparation	i) Marking	Major	Marking check	100 %	As per drg./ Standard	As per drg./ Standard	-	-	P	-	-	
		ii) Dimension	Major	Measurement	100%	As per drg./ Standard	As per drg./ Standard	-	-	P	-	-	
		iii) Edge preparation	Minor	Measurement	100%	As per drg./ Standard	As per drg./ Standard	-	-	P	-	-	
2.3	Welding Operation	i) Fit up	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	✓	P	V	-	1) BHEL approved electrode shall be used during welding 2) Qualified welders by BHEL /BHEL approved agency in accordance with ASME Section IX will be deployed on the job.
		ii) Visual inspection of welds	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	✓	P	V	-	
		iii) NDT, as applicable	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	✓	P	W		

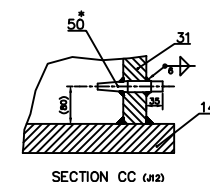
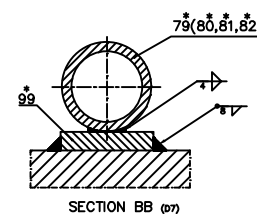
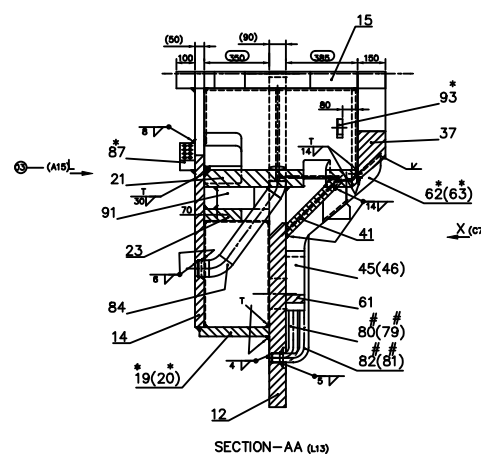
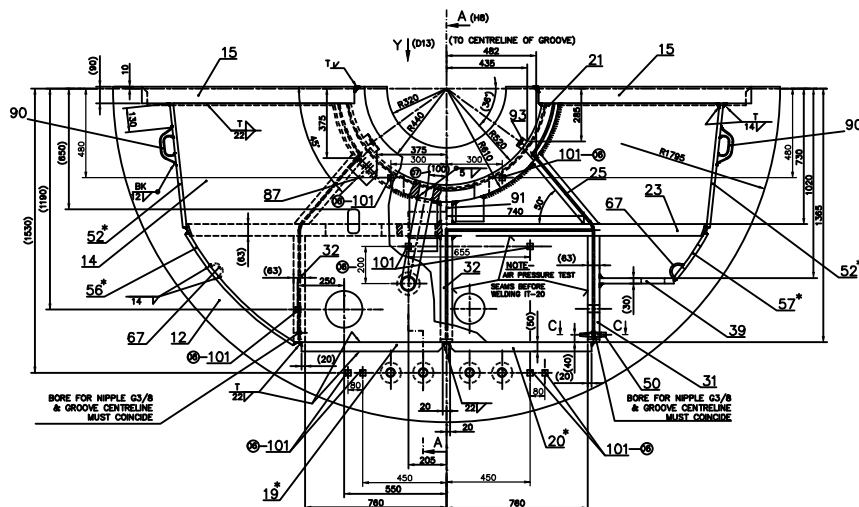
Manufacturer/Subcontractor	Legends: P Perform by; W Witness by; V Record review; C Customer; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: Documents with tick mark shall be submitted by vendor to BHEL.	For BHEL Use स्वाती जैन प्रबंधक गुणता आश्वासन ब्रज भूषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
----------------------------	---	---

Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/ EQUIPM- ENTS	END SHIELD LOWER HALF TE (WELD), END SHIELD UPPER HALF TE (WELD), END SHIELD UPPER HALF EE (WELD) & END SHIELD LOWER HALF EE (WELD) (ITEM NO. 1 TO 4 OF SIR)					Q.P. NO	QP/QA/216469				
								DATE	11.05.2024				
								REV. NO.	00		CONTRACTOR	BHEL (HEEP) HWR	
								PAGE NO.	2 of 2		Indent	Sir No. 2G20240004 dated 07.05.2024	
Sl. No.	COMPONENT OPERATION	CHARACTRISTIC CHECKED	CATEGORY	TYPE/ METHOD OF CHECKED	QUANT-UM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE DOCUMENT	FORMAT OF RECORD	D	AGENCY			REMARKS
										M	B	C	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

3	<u>FINAL INSPECTION</u>												
3.1		i) Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	√	P	W	-	
		ii) Completeness of Job, Documentation	Major	Visual	-	-	Drg./QP	Record	-	P	V	-	Item shall be dispatched to BHEL after acceptance by BHEL nominated agency after duly identifying by punching P.O. No., drg no. Plant Order No. and I.R. No.

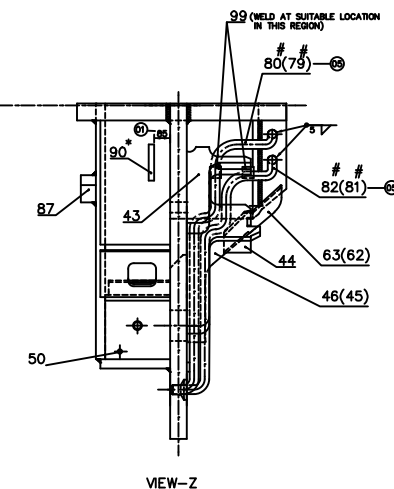
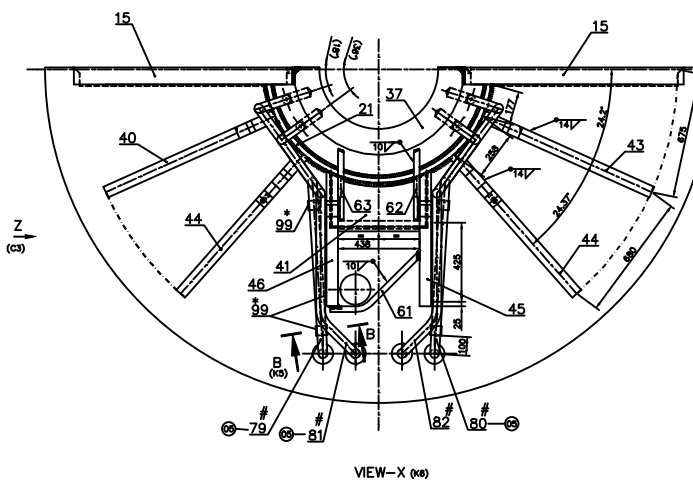
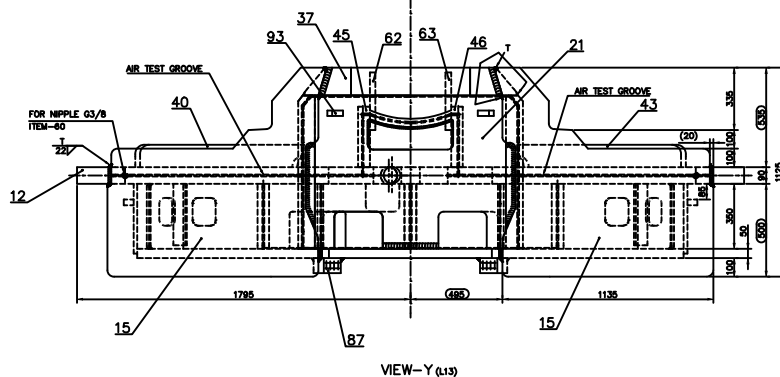
Note: All requirements of P.O., drawing and standard shall be fulfilled.

Manufacturer/Subcontractor	Legends: P Perform by; W Witness by; V Record review; C Customer; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: Documents with tick mark shall be submitted by vendor to BHEL.	For BHEL Use  स्वाती जैन प्रबंधक गुणता आश्वासन  ब्रज भूषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
-----------------------------------	--	---



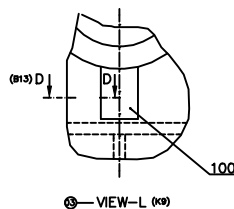
TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW4040039.
2. ALL UNSPECIFIED WELD SEAMS TO BE OF SIZE .375".
3. QUALITY GRADES AS PER HYDROBOND C55 FOR ALL AT ITEM #80.
4. TEST SCOPE AS PER HYDROBOND198, CATEGORY OF SERVICE REQUIREMENTS 3(X).
5. LEAKAGE BELIEVED TO BE NON-EXISTENT. LEAKAGE TESTING AT 560-580°F FOR 10 HOURS.
6. PROTECT ALL THREADED HOLES, FLANGES AND PIPES SURFACE FROM DAMAGES.
7. SURFACE TEMPERATURE IS PER HYDROBOND198.
8. DURING FABRICATION, CARE SHOULD BE TAKEN FOR PROPER MATCHING OF AIR TESTING GROOVE.
9. TEST THE WELD SEAMS BY AIR LEAKAGE TEST AS PER 10-4016 ANNOTATION.
10. ITEMS MARKED WITH * (T100-18,250,50,56,57,62,63,67,87,90,93,99) SHOULD BE TESTED AFTER STRESS RELIEVING.
11. WELD SEAMS MARKED "T" ARE NOT TO BE CRIMER COATED TILL HYDRAULIC TESTING IS OVER.
12. 100% DPT TO BE DONE AT ROOT JUNT.
13. 100% DPT TO BE DONE ON ITEMS MARKED WITH # TO BE CARRIED OUT AFTER MACHINING OF END SHELL.
14. IT IS SUGGESTED TO WELD EARTHING PIPE ITEM NO. 101 AFTER MACHINING, DURING WELDING OF PIPES.



NOTE :-

DIMENSIONS ENCIRCLED WITH REQUIRES CARE DURING MANUFACTURING.



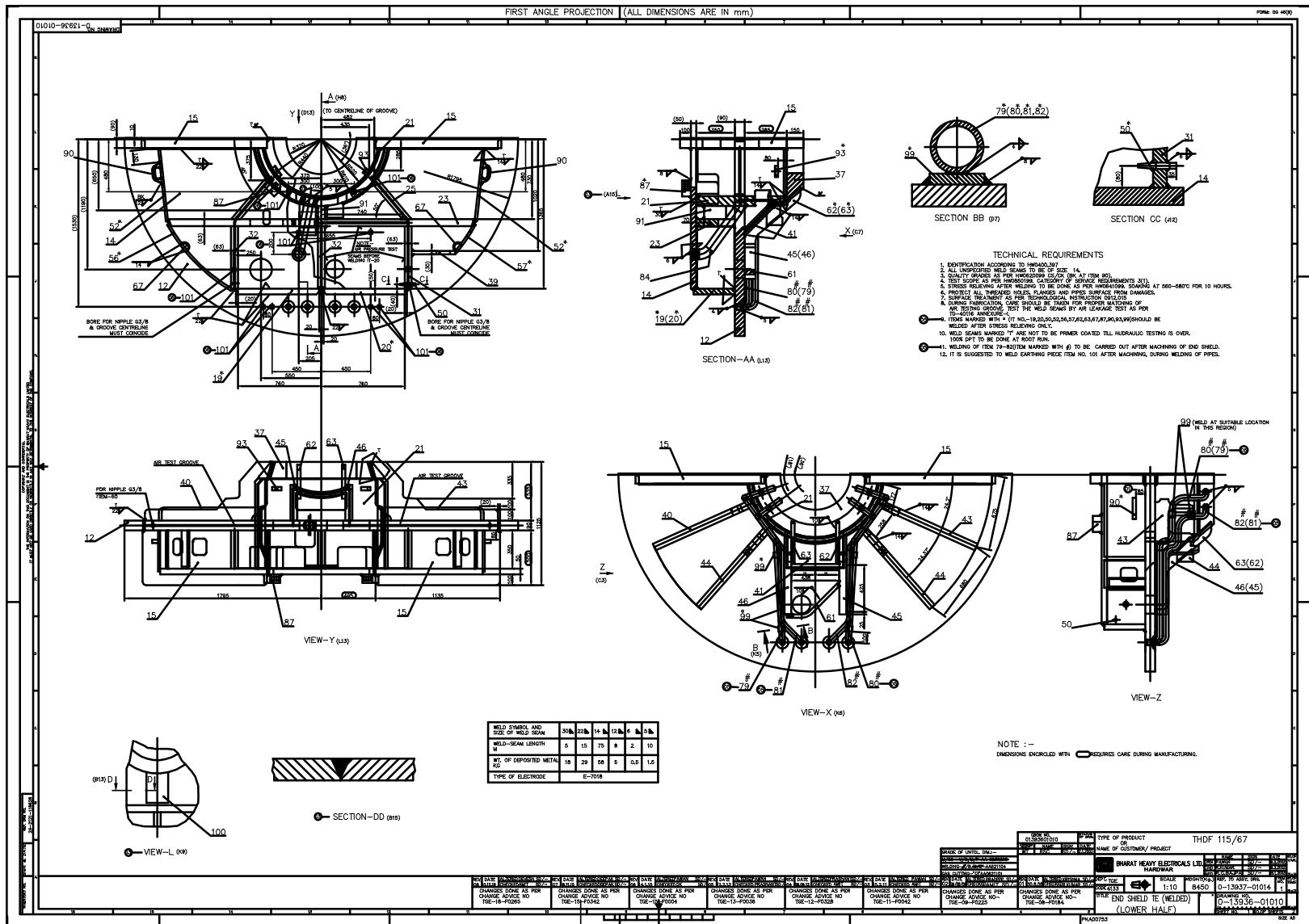
⑬— SECTION—DD (B15)

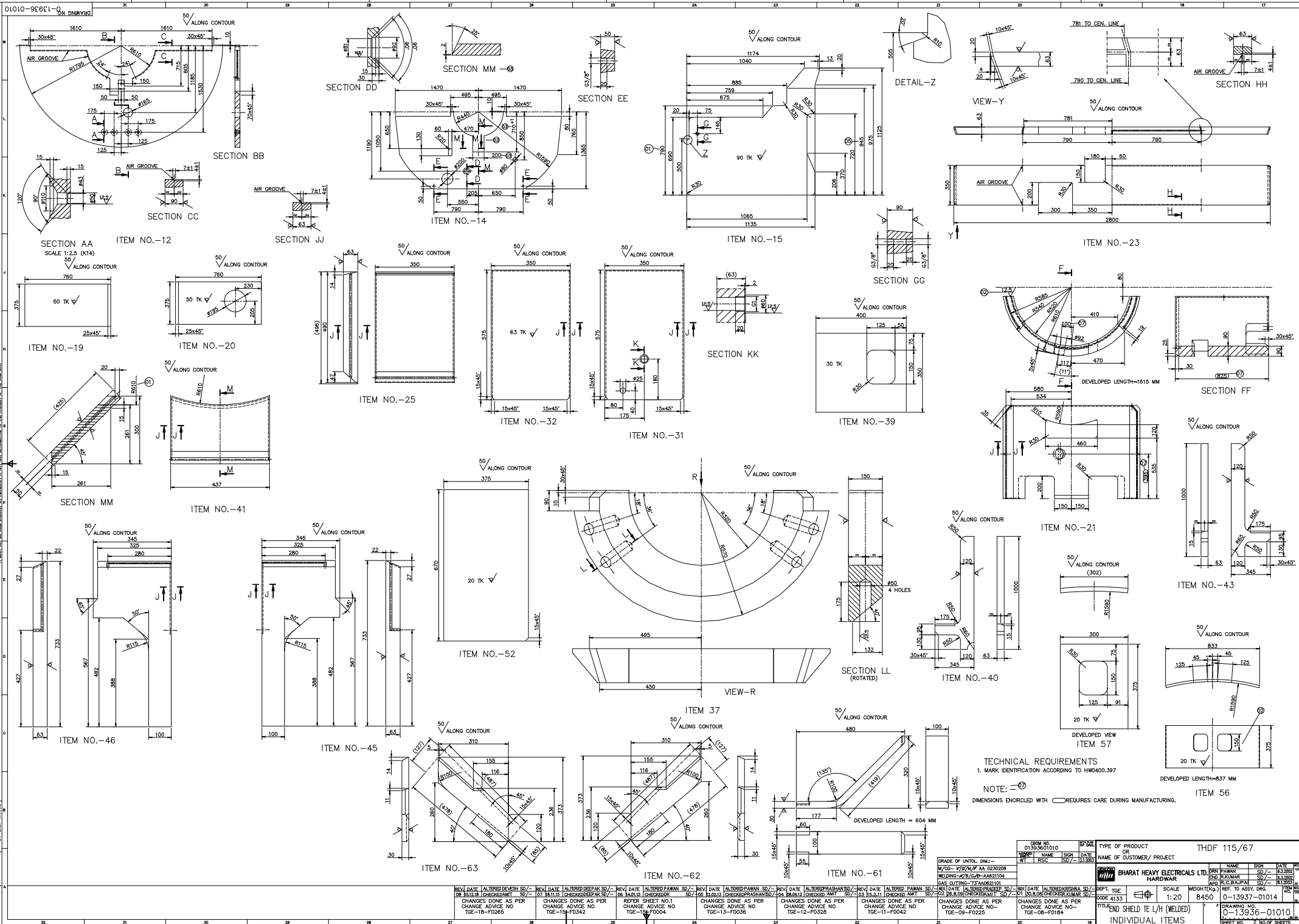
WELD SYMBOL AND SIZE OF WELD SEAM	30L	22L	14 L	12 L	6 L	5 L
WELD-SEAM LENGTH IN	5	15	75	8	2	10
WT. OF DEPOSITED METAL KG	18	29	58	5	0.5	1.
TYPE OF ELECTRODE	E-7018					

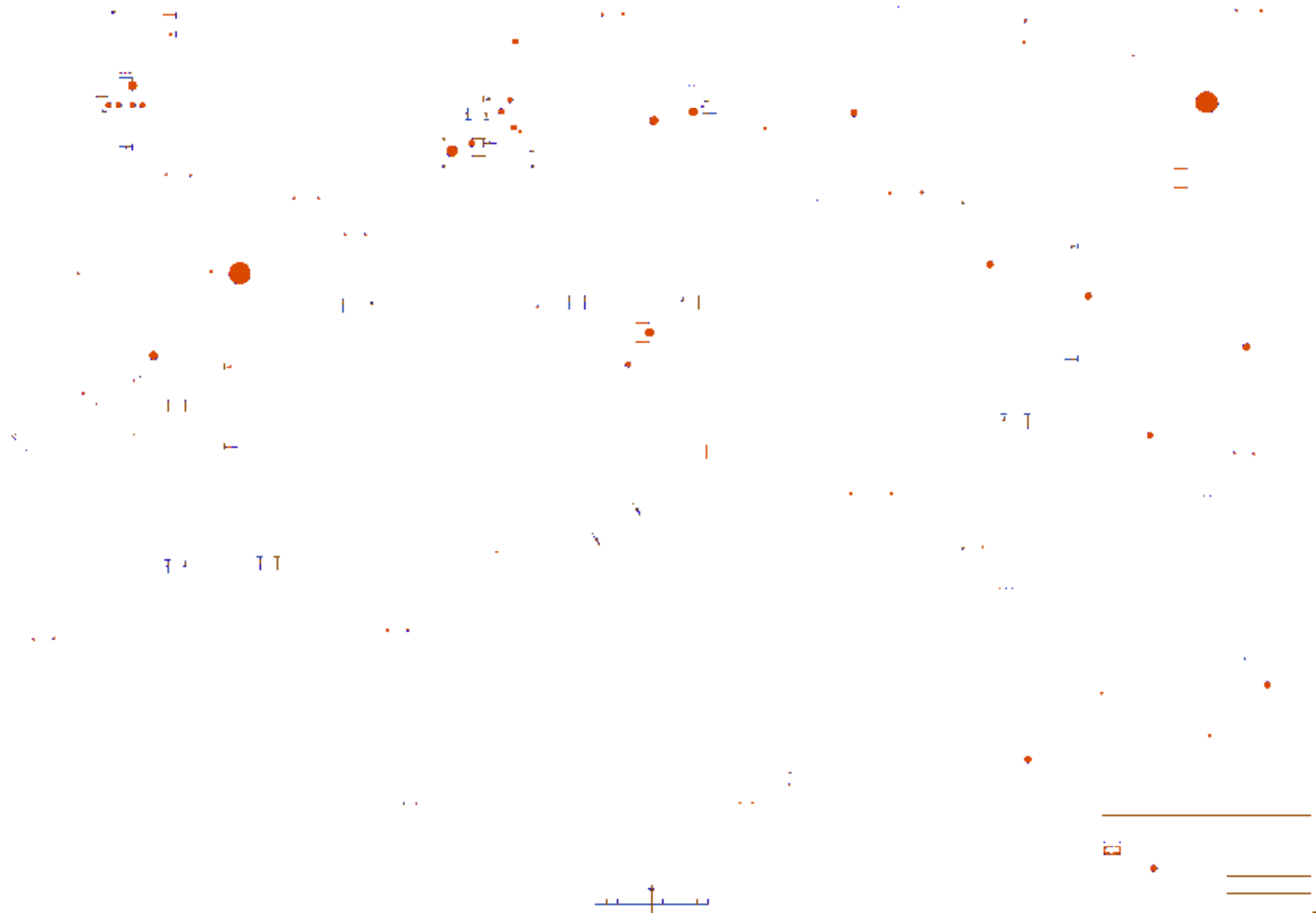
③—VIEW—L (K9)

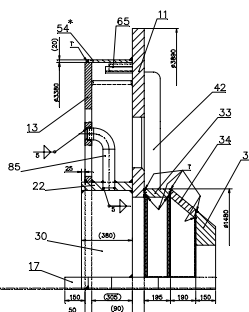
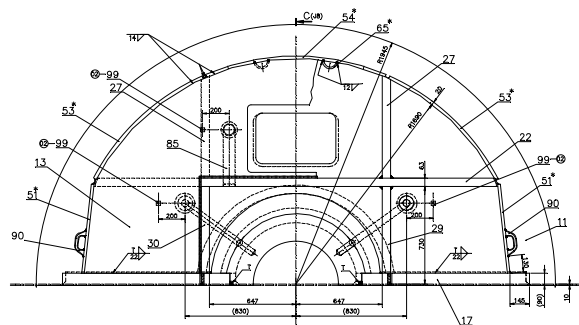
NEV DATE 06/18/18	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-18-F0285	NEV DATE 07/18/18	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-19-F0342	NEV DATE 04/11/19	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-19-F0004	NEV DATE 02/22/19	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-13-F0038	NEV DATE 06/06/18	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-12-F0328	NEV DATE 03/16/19	ALTIMED PAINW 50/ CHECKED PAINW 50/ CHANGES DONE AS PER TGE-11-F0042
----------------------	---	----------------------	---	----------------------	---	----------------------	---	----------------------	---	----------------------	---

QCH NO 01393001010		IP NO		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		THDF 115/67	
DATE MT	ISSUE DATE	ISSUE DATE	ISSUE DATE	NAME		ISSUE DATE	ISSUE DATE
01	01	01	01	OMNAR HEAVY ELECTRICAL LTD.		01	01
				HARDWARE			
REF. TO: 01393001010				REF. TO: 01393001010		REF. TO: 01393001010	
CHANGES DONE AS PER CHANGE ADVICE NO-TC -00-1018A				CHANGES DONE AS PER CHANGE ADVICE NO-TC -00-1018A		CHANGES DONE AS PER CHANGE ADVICE NO-TC -00-1018A	
TITLE				TITLE		TITLE	
END SHIELD TE (WELDED)				END SHIELD TE (WELDED)		END SHIELD TE (WELDED)	
(1 OVER HALF)				(1 OVER HALF)		(1 OVER HALF)	

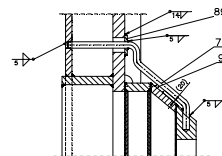




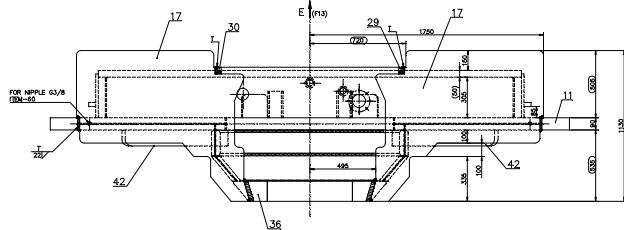




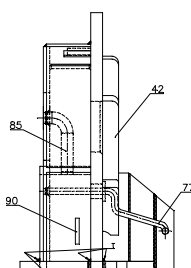
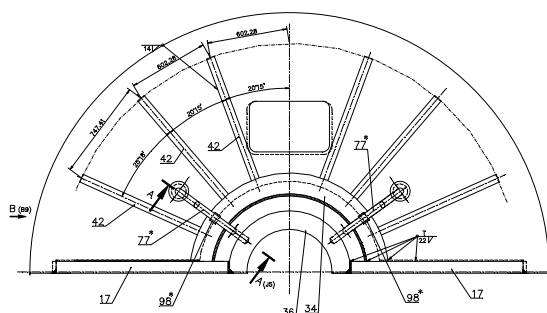
SECTION CC (N13)



SECTION AA (B13)
(ROTATED)



VIEW-E (H13)



VIEW-B (cis)

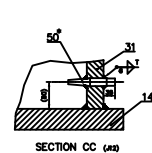
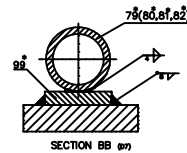
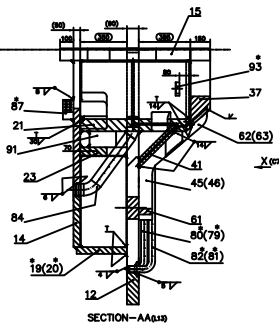
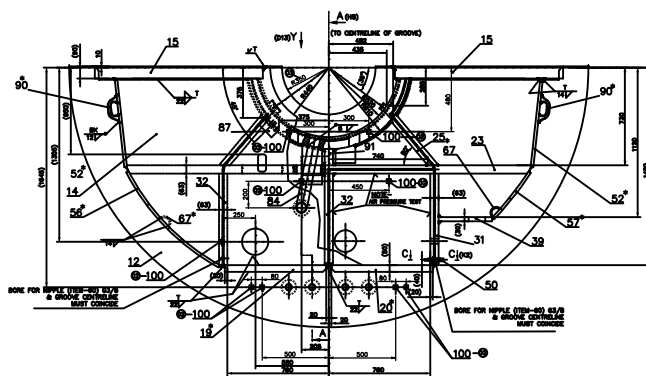
- ### TECHNICAL REQUIREMENTS
1. IDENTIFICATION ACCORDING TO HMB000-390.
2. ALL DIMENSIONS WELD BEAMS TO BE AS OF SECT. B4.
3. QUALITY GRADES AS FOR HMB000-390/CX/BK (AS IT ITEM 80).
4. TEST SCOPES AS FOR HMB000-390/CX/BK (AS PER REQUIREMENTS X1).
5. STRESS RELIEFING AFTER WELDING IS TO BE DONE AS FOR HMB000-690, SLOWING AT 560-580 °C FOR 10 HOURS.
6. SURFACE INSPECTION AS FOR TECHNOLOGICAL INSTRUCTIONS 911/213.
7. DURING PROPER INSPECTION, CARE SHOULD BE TAKEN FOR PROPER MARKING AND RECORDING.
8. AFTER TESTING GROUPS, TEST RES. INCREASE BY AN AVERAGE 25% AS WELDED.
9. ALL UNDESIRED ANGLE—(IT NO.—61,554,565,778,898) SHOULD BE PERFORMED AS STRESS RELIEVING ONLY.
10. WELD SEAMS MARKED "A1" ARE NOT TO BE PRIMER COATED WITH HYDRAULIC TEST IS OVER.
11. THE WELD IS TO BE KEPT AS CLOSE TO ROOM TEMPERATURE AS POSSIBLE.
12. IT IS SUGGESTED TO WELD BARTENDING PIECES IT NO. 99 AFTER MACHINING, DURING WELDING OF PIPES.

NOTE :-

NOTE :—
DIMENSIONS ENCLOSED WITH REQUIRES CARE DURING MANUFACTURING.

WELD SYMBOL AND SIZE OF WELD SEAM	22b	14b	12b	8b
WELD-SEAM LENGTH IN	5	72	8	5
WT. OF DEPOSITED METAL KG	9	59	12	2
TYPE OF ELECTRODE	E-7018			

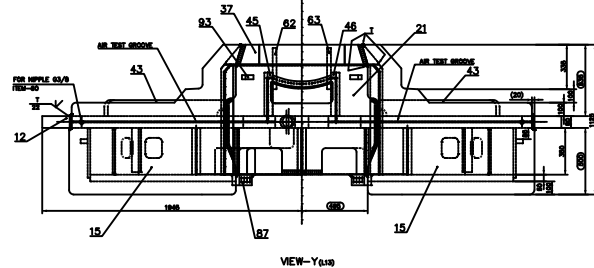
[illegible]



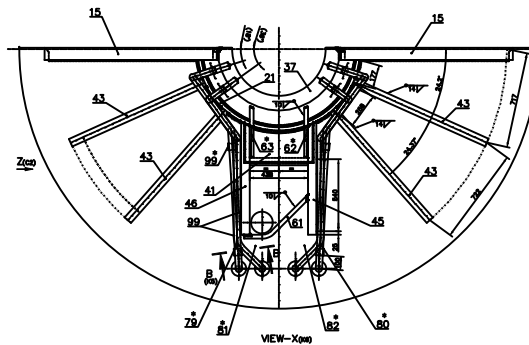
TECHNICAL REQUIREMENTS

1. CONSTRUCTION ACCORDING TO DRAWING.
2. ALL DIMENSIONS ARE TO BE GIVEN TO THE CENTER OF GRAVITY OF THE PARTS.
3. TEST SHALL BE FOR HYDRAULIC LEAKAGE OF THE SHIELDING SYSTEM.
4. WELDING SHALL BE DONE IN THE PRESENCE OF INSPECTION. WELDING AT 200-250 °C FOR 10 HOURS.
5. INSPECT ALL WELDS, FLANGES AND PIPES SURFACE FOR DEFECTS.
6. SURVEILLANCE: CHECK THE WELDING PROCESS, QUALITY OF AIR SYSTEM, WELDING, WITH THE WELD BLANK BY AIR LEAKAGE TEST AS PER THE DRAWING.
7. WELDS MARKED WITH "T" (TIG) OR "W" (WELD) SHALL BE WELDED BY TIG OR WELDING PROCESS.
8. WELDS MARKED WITH "T" (TIG) OR "W" (WELD) SHALL BE WELDED BY TIG OR WELDING PROCESS.
9. WELDS MARKED WITH "T" (TIG) OR "W" (WELD) SHALL BE WELDED BY TIG OR WELDING PROCESS.
10. WELDS MARKED WITH "T" (TIG) OR "W" (WELD) SHALL BE WELDED BY TIG OR WELDING PROCESS.
11. IT IS SUGGESTED TO WELD ENTIRE PIPE FROM NO. 100 AFTER MACHINING, DURING WELDING OF PIPE.

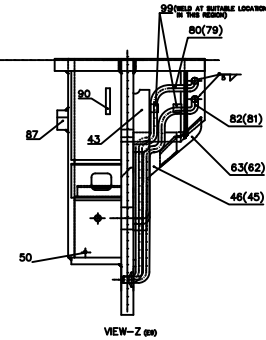
SECTION-AA (1:1)



VIEW-Y (1:1)



VIEW-X (1:1)



VIEW-Z (1:1)

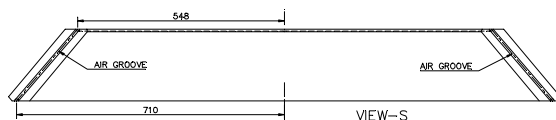
WELD SYMBOL AND WELD-DETAILED LENGTH	20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%
WELD-DETAILED LENGTH	5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
WELD-DETAILED LENGTH	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
WELD-DETAILED LENGTH	200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000
WELD-DETAILED LENGTH	2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000 8500 9000 9500 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000
WELD-DETAILED LENGTH	25000 30000 35000 40000 45000 50000 55000 60000 65000 70000 75000 80000 85000 90000 95000 100000 110000 120000 130000 140000 150000 160000 170000 180000 190000 200000
WELD-DETAILED LENGTH	250000 300000 350000 400000 450000 500000 550000 600000 650000 700000 750000 800000 850000 900000 950000 1000000 1100000 1200000 1300000 1400000 1500000 1600000 1700000 1800000 1900000 2000000
WELD-DETAILED LENGTH	2500000 3000000 3500000 4000000 4500000 5000000 5500000 6000000 6500000 7000000 7500000 8000000 8500000 9000000 9500000 10000000 11000000 12000000 13000000 14000000 15000000 16000000 17000000 18000000 19000000 20000000
WELD-DETAILED LENGTH	25000000 30000000 35000000 40000000 45000000 50000000 55000000 60000000 65000000 70000000 75000000 80000000 85000000 90000000 95000000 100000000 110000000 120000000 130000000 140000000 150000000 160000000 170000000 180000000 190000000 200000000
WELD-DETAILED LENGTH	250000000 300000000 350000000 400000000 450000000 500000000 550000000 600000000 650000000 700000000 750000000 800000000 850000000 900000000 950000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000
WELD-DETAILED LENGTH	2500000000 3000000000 3500000000 4000000000 4500000000 5000000000 5500000000 6000000000 6500000000 7000000000 7500000000 8000000000 8500000000 9000000000 9500000000 10000000000 11000000000 12000000000 13000000000 14000000000 15000000000 16000000000 17000000000 18000000000 19000000000 20000000000

TYPE OF ELECTRODE: E-7018

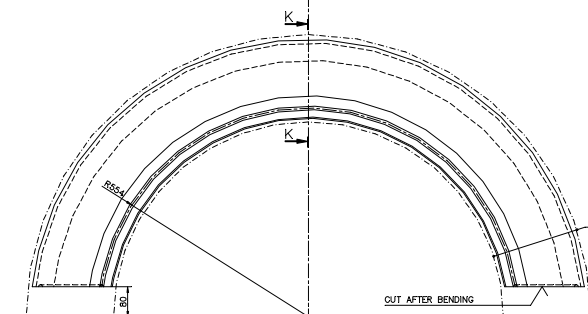
NOTE :-

DIMENSIONS SHOWN WITH  DIMENSIONS SHALL BE GIVEN TO THE CENTER OF GRAVITY OF THE PARTS.

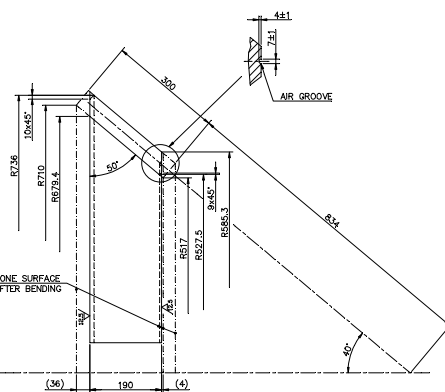
FORM NO.	TYPE OF PRODUCT	THDF-125/67
NAME OF COMPANY / PROJECT	INSURAT HEAVY ELECTRICALS LTD.	
SCALE	1:20	9421
DATE	END SHIELD EE (WLD) LOWER HALF	01393601013
DESIGNED BY	INSURAT HEAVY ELECTRICALS LTD.	
CHECKED BY	INSURAT HEAVY ELECTRICALS LTD.	
APPROVED BY	INSURAT HEAVY ELECTRICALS LTD.	

50 /
THE REST

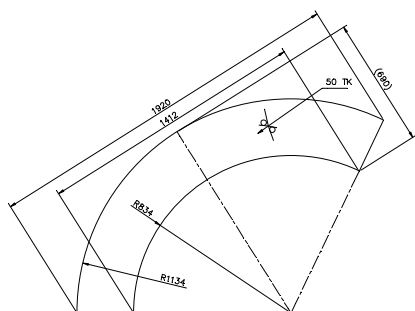
VIEW-S



ITEM 34



SECTION KK



DEVELOPED VIEW

TECHNICAL REQUIREMENTS
1. IDENTIFICATION ACCORDING TO HW 0400.397

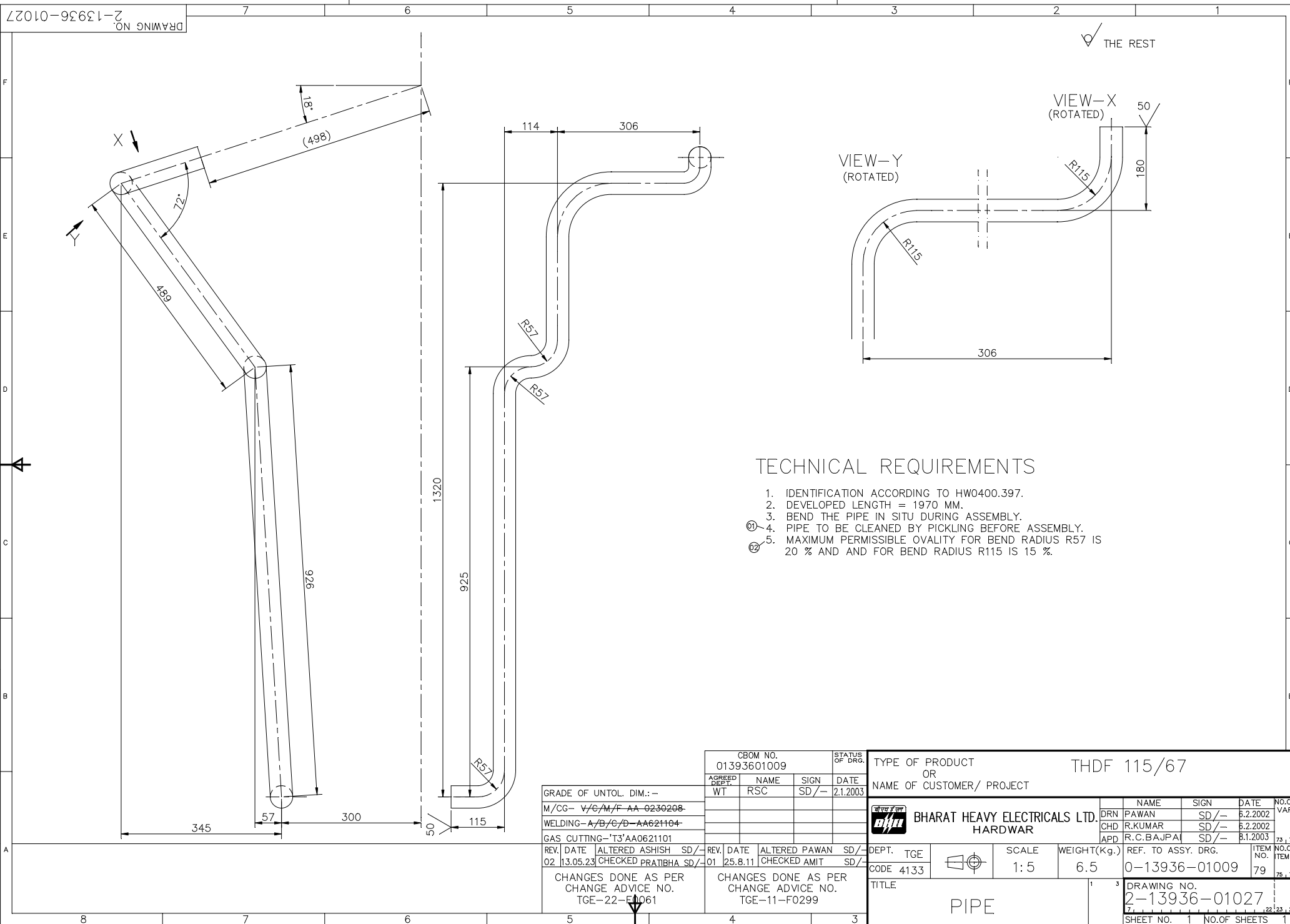
DESIGN NO.		REV. NO.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT	
DATE	NAME	DATE	NAME		
03/03/2008	MTX	03/03/2008	MTX	THDF 125/67	
GRADE OF UNTOOL: DML-1				BHARAT HEAVY ELECTRICALS LTD.	
MFG. CO. - W.P.M. P.K.A. 03/03/2008				HARDWARE	
WELDING - A/B/C/D - A002104				REF. TO ASSY. DRG.	
GAS CUTTING - T2/A002101				ITEM NO.	
REV. DATE	ALIGNED	REV. DATE	CHECKED	DRAWING NO.	
				11393601002	
DEPT. TCE				SHEET NO.1	
CORE 4133				NO. OF SHEET	
TITLE				SIZE A1	
PLATE					

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

24-2101-119200
REF. DRG NO.

SIGN & DATE

INVENTORY NO.



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397.
2. DEVELOPED LENGTH = 1970 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
- ⑪-4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
- ⑫-5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND FOR BEND RADIUS R115 IS 15 %

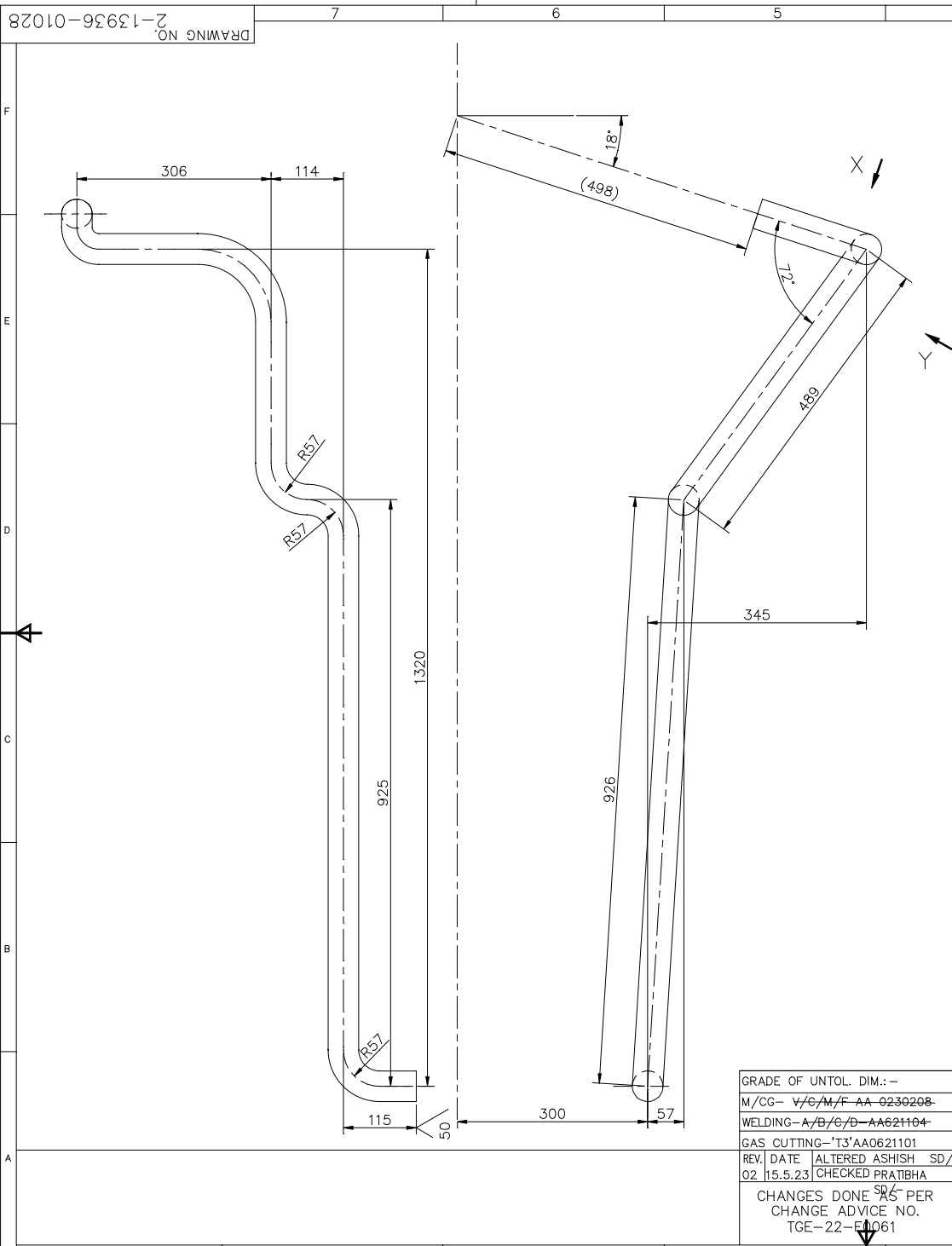
		CBOM NO. 01393601009		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		THDF 115/67				
GRADE OF UNTOL. DIM.: -		AGREED WT	NAME RSC	SIGN SD/-	DATE 2.1.2003	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME PAWAN	SIGN SD/-	DATE 5.2.2002	NO. OF VAR.
M/CG- V/C/M/F AA 0230208								CHD	R.KUMAR	SD/-	5.2.2002	
WELDING-A/B/C/D-AA621H04						APD	R.C.BAJPAI	SD/-	8.1.2003		73, 174	
GAS CUTTING-T3'AA0621101						DEPT.	TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
REV. DATE ALTERED ASHISH SD/-	REV. DATE ALTERED PAWAN SD/-	01	25.8.11	CHECKED PRATIBHA SD/-	CHECKED AMIT SD/-	CODE 4133		1:5	6.5	0-13936-01009	79	75, 77
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0061		CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0299				TITLE PIPE		1 3 DRAWING NO. 2-13936-01027 7, 12, 23, 24 SHEET NO. 1 NO. OF SHEETS 24				
5		4				3						

DRAWING NO. 2-13936-01028

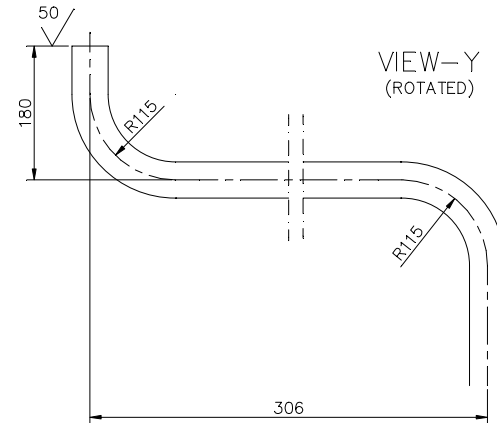
COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.24-2101-119200
REF. DRG NO.

SIGN & DATE

INVENTORY NO.



THE REST

VIEW-X
(ROTATED)VIEW-Y
(ROTATED)

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397.
2. DEVELOPED LENGTH = 1970 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND AND FOR BEND RADIUS R115 IS 15 %.

CBOM NO. 01393601009		STATUS OF DRG.	
AGREED DEPT. WT	NAME RSC	SIGN SD/-	DATE 2.1.2003
GRADE OF UNTOL. DIM.: -			
M/CG- V/C/M/F AA-0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-T3/AA0621101			
REV. DATE	ALTERED ASHISH SD/-	REV. DATE	ALTERED PAWAN SD/-
02 15.5.23	CHECKED PRATIBHA	01 25.8.11	CHECKED AMIT SD/-
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0061		CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0299	

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT

THDF 115/67

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

NAME	SIGN	DATE	NO. OF VAR.
DRN PAWAN	SD/-	6.2.2002	
CHD R.KUMAR	SD/-	6.2.2002	
APD R.C.BAJPAI	SD/-	8.1.2003	73, 74

DEPT. TGE

CODE 4133



SCALE

1:5

WEIGHT(Kg.)

6.5

REF. TO ASSY. DRG.

0-13936-01009

ITEM NO. OF
ITEMS

80

TITLE

PIPE

DRAWING NO.
2-13936-01028

SHEET NO. 1 NO. OF SHEETS 1

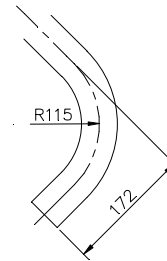
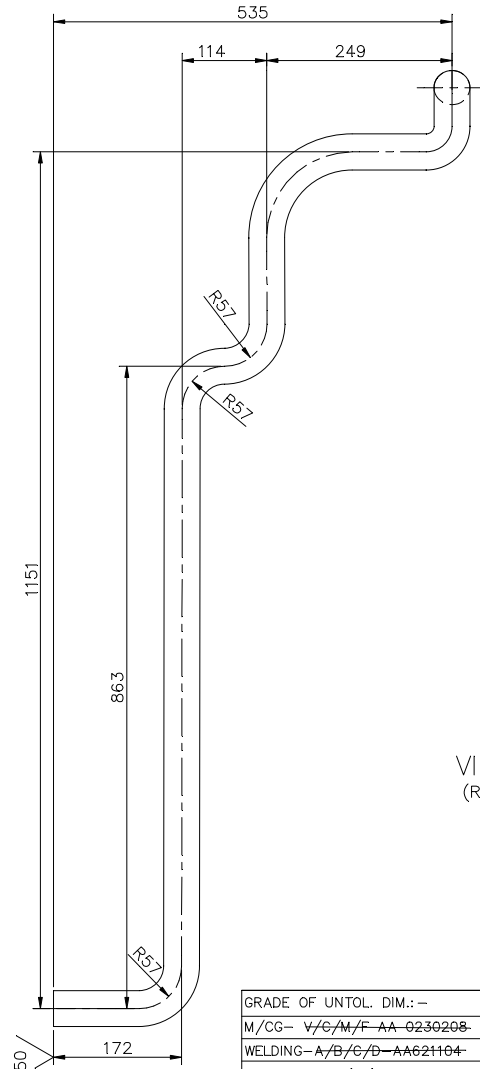
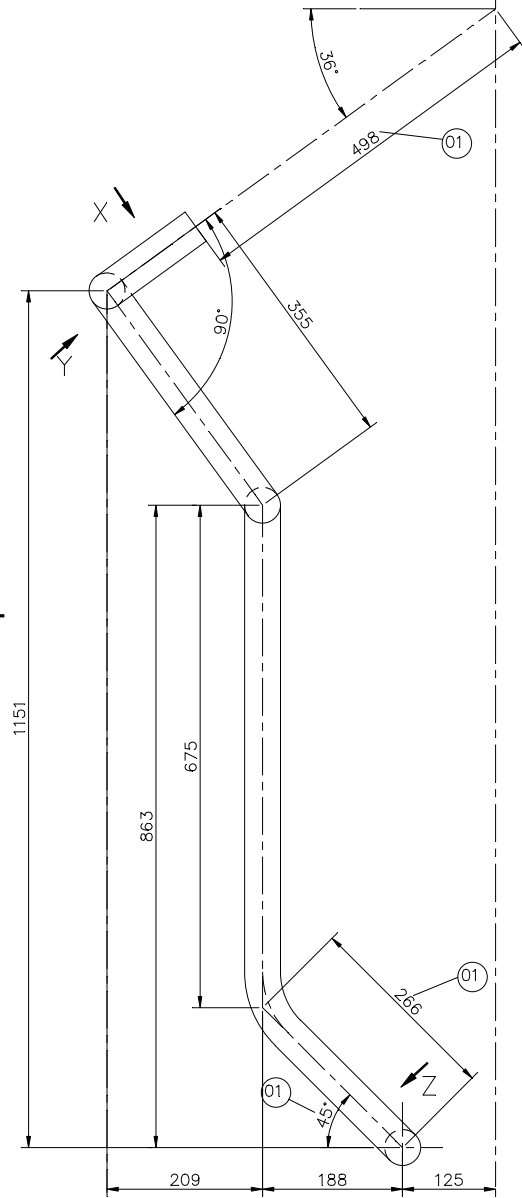
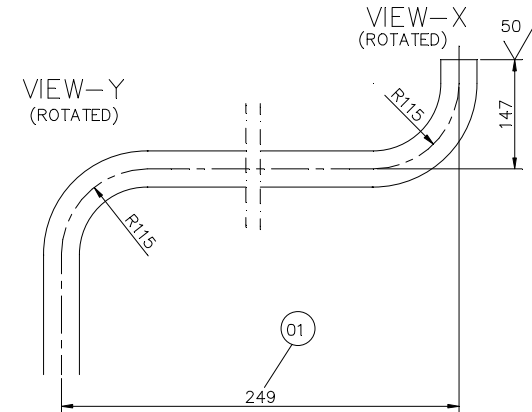
SIZE A2

DRAWING NO. 2-13936-01029

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.24-2101-119200
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

VIEW-Z
(ROTATED)

THE REST

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397.
2. DEVELOPED LENGTH = 1790 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND AND FOR BEND RADIUS R115 IS 15 %.

REV.	DATE	ALTERED	ASHISH SD/-
03	15.05.23	CHECKED	PRATIBHA SD/-
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0061			

REV.	DATE	ALTERED	PAWAN SD/-
02	25.8.11	CHECKED	AMIT SD/-
CHANGES DONE AS PER CHANGE ADVICE NO TGE-11-F0199			

REV.	DATE	ALTERED	KRISHNA SD/-
01	10.9.08	CHECKED	R.KUMAR SD/-
CHANGES DONE AS PER CHANGE ADVICE NO TGE-08-F0206			

AGREED	NAME	SIGN	DATE
DEF.	WT	RSC	SD/-
2.1.2003			

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				THDF 115/67				
 BHARAT HEAVY ELECTRICALS LTD. HARDWAR				DRN	PAWAN	SD/-	6.2.2002	NO. OF VAR.
				CHD	R.KUMAR	SD/-	6.2.2002	
				APD	R.C.BAJPAI	SD/-	8.1.2003	
				73, 74				
DEPT.	TGE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS	
CODE	4133		1:5	6.5	0-13936-01009	81	75, 77	
TITLE				DRAWING NO. 2-13936-01029				
PIPE				SHEET NO. 1 NO. OF SHEETS 1				
				71 22 23 24				

DEPT. TGE

CODE 4133

TITLE



PIPE

SCALE

1:5

WEIGHT(Kg.)

6.5

REF. TO ASSY. DRG.

0-13936-01009

DRAWING NO.

2-13936-01029

SHEET NO. 1 NO. OF SHEETS 1

SIZE A2

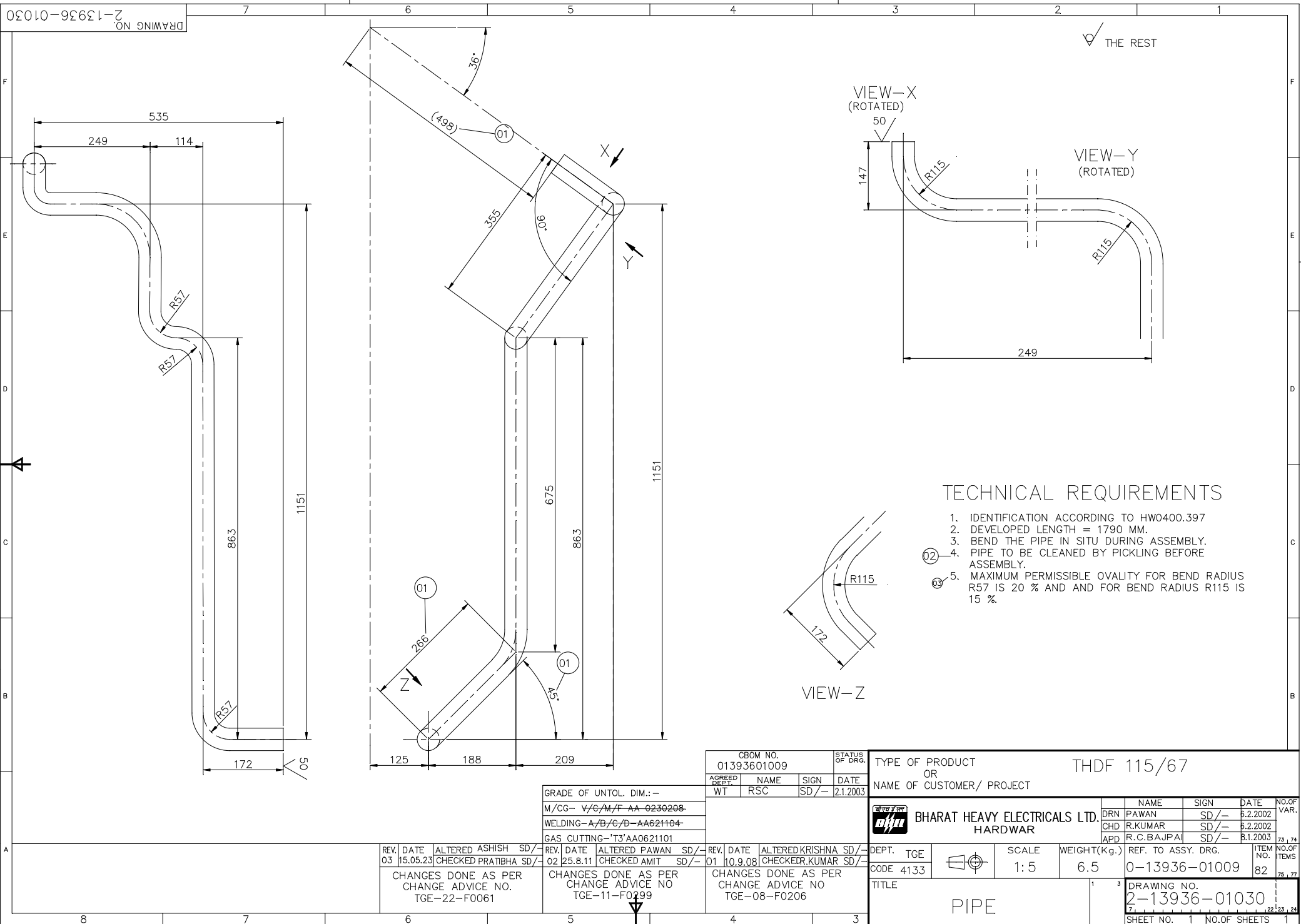
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRAWING NO. 2-13936-01030

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.24-2101-T19200
REF. DRG NO.

SIGN & DATE

INVENTORY NO.



CBOM NO. 01393601009		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WT	RSC	SD/-	2.1.2003

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		THDF 115/67			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	PAWAN	SIGN	DATE
		CHD	R.KUMAR	SD/-	6.2.2002
		APD	R.C.BAJPAI	SD/-	6.2.2003
DEPT.	TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.OF
CODE 4133		1:5	6.5	0-13936-01009	NO. OF
TITLE		PIPE		DRAWING NO.	ITEMS
				2-13936-01030	75-77
				SHEET NO. 1	NO.OF SHEETS 1

DRAWING NO. 21393601031

50/
✓ ALONG CONTOURSECTION AA
SCALE 1:2.5

1280

900

605

80

10

20

20

7±1

SECTION CC

4±1

AIR GROOVE

10x45°

8.50

45

30x45°

R6.35

R19.45

R50

600

710

710

7

6

5

4

3

2

1

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

NOTE—
THE SOFT COPY IS DRAWN TO SCALE 1:1

CBOM NO.

01393601012

WITX AWTXTSC AWTXTSC

M/CG- V/e/M/P AA 0230208

WELDING-A/B/C/D-AA0621104

GAS CUTTING-T3'AA0621101

REV. DATE ALTERED CHECKED

REV. DATE ALTERED CHECKED

TYPE OF PRODUCT

OR

NAME OF CUSTOMER/ PROJECT

THDF 125/67

BHARAT HEAVY ELECTRICALS LTD.

HARDWAR

DEPT. TGE

CODE 4133

TITLE

PLATE

SCALE

1:10

WEIGHT(Kg.)

3415

NAME

SIGN

DATE

NO. OF

ITEMS

DRAWING NO.

21393601031

SHEET NO. 1

NO. OF SHEETS 1

SIZE A2

DRAWING NO. 0403

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

CONFIDENTIAL AND PROPRIETARY

24-2121-126598/13	REF. DRG. NO.
-------------------	---------------

	SIGN & DATE
--	-------------

INVENTORY NO.

SECTION FF

RO

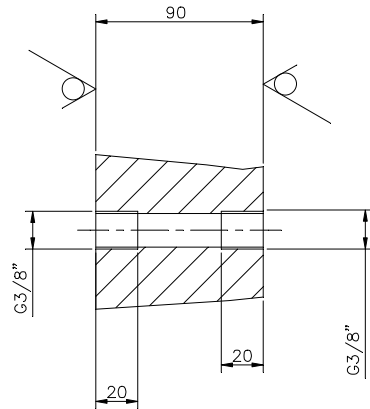
NOTE—
THE SOFT COPY IS DRAWN TO SCALE 1:1

TECHNICAL REQUIREMENTS

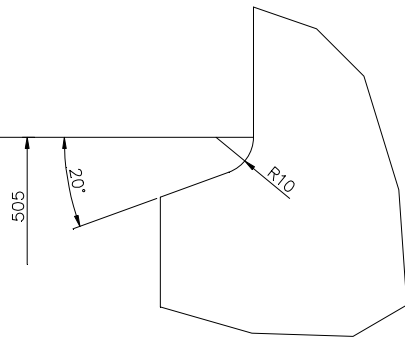
1. IDENTIFICATION ACCORDING TO HW 0400.397

CBOM NO.		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT										T.H.D.F 125/67			
01.39.3601012		REV. DATE		NAME		SIGN		DATE		NAME		SIGN		DATE		NO. OF VAR.	
WITX		AWTXXTSC 19/7/2007		AWTXXTSC		AWTXXTSC		19/7/2007		DRN		STGPK		SD / -		12/01/2007	
										CHD		ATGPK		SD / -		12/01/2007	
										APD		ATGPK		SD / -		24/07/2007	
										REF. TO ASSY. DRG.						ITEM NO. OF ITEMS	
										WEIGHT (Kg.)		01.39.3601012		13		75, 77	
										SCALE		1:10					
										DEPT. TGE							
										CODE 4133							
										TITLE		1		3			
										DRAWING NO.							
										21393601032							
										SHEET NO. 1						NO. OF SHEETS 1	
										5		4		3			
										GRADE OF UNTOL. DIM.:-							
										M/CO- V/C/M/F AA 0230208							
										WELDING-A/B/C/D-AA621104							
										GAS CUTTING - T3AA621101							
										REV. DATE		ALTERED		CHECKED			
										01		19.2.18		PER AMIT SD/-			
										CHANGES AS PER C.A.NO.							
										TGE-19-F-0084 DATED							
										28.12.2017.							

SIZE A2

DRAWING NO.
2139360103350/
ALONG CONTOUR

SECTION GG



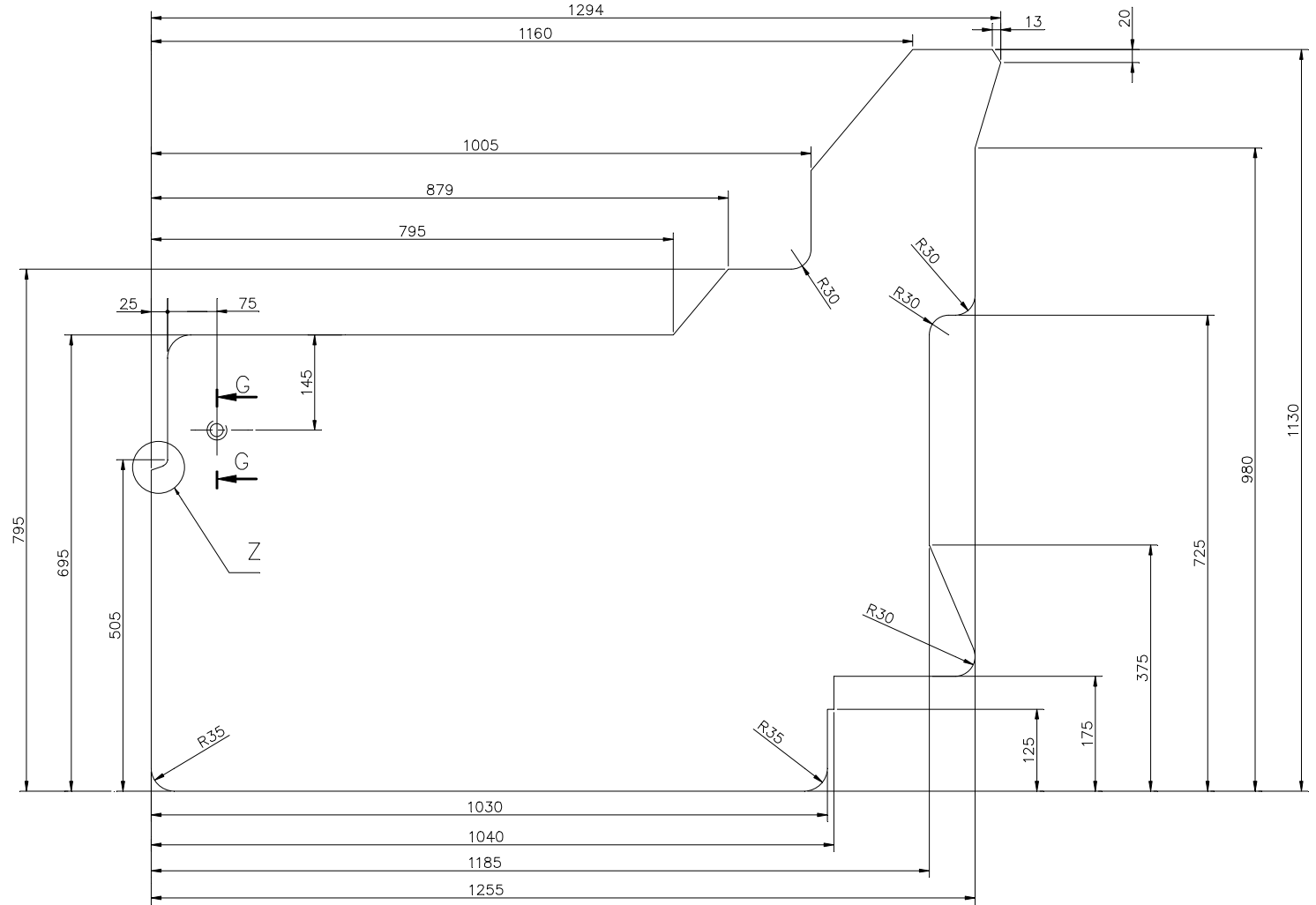
DETAIL-Z

NOTE-

THE SOFT COPY IS DRAWN TO SCALE 1:1

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397



CBOM NO.		STATUS OF DRG.	
01393601012			
AGREED DEPT.	NAME	SIGN	DATE
WTX	AWT	XTSC	AWT

GRADE OF UNTOL. DIM.: -

M/CG- V/e/M/F AA 0230208

WELDING-A/B/G/D-AA0621104

GAS CUTTING-T3'AA0621101

REV.	DATE	ALTERED
		CHECKED

REV.	DATE	ALTERED
		CHECKED

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT

THDF 125/67

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

NAME	SIGN	DATE	NO. OF
DRN	STGEPK	12/01/2007	VAR.
CHD	ATGERK	12/01/2007	
APD	ATGERK	24/01/2007	73, 74

DEPT. TGE



SCALE

WEIGHT(Kg.)

REF. TO ASSY. DRG.

ITEM NO. OF

CODE 4133

1:5

645

01393601012

17

TITLE

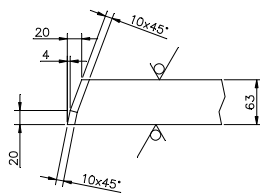
PLATE

DRAWING NO.

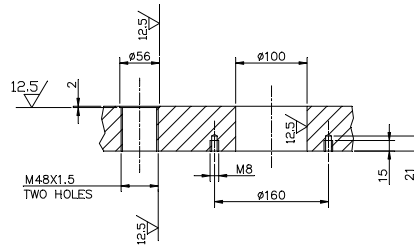
21393601033

SHEET NO. 1 NO. OF SHEETS 1

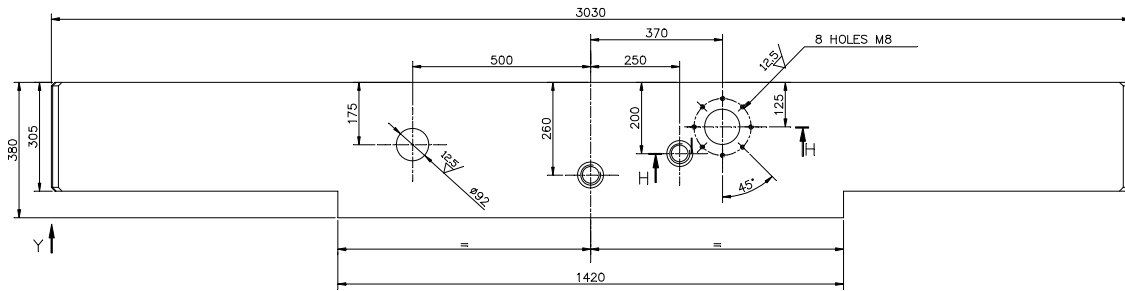
SIZE A2

DRAWING NO.
2139360103450/
ALONG CONTOUR

VIEW-Y



SECTION HH



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

INVENTORY NO. SIGN & DATE 24-12-108508/22

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD.
IT MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

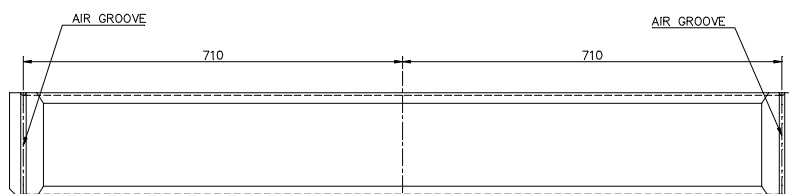
GRADE OF UNTOL DIM:--		REV. DATE		ALTERED		CHECKED	
M/CG- V/e/M/P AA 0230208							
WELDING-A/B/C/D-AA0621104							
GAS CUTTING-T3'AA0621101							

CBOM NO.		STATUS	
01393601012		APPROVED	DATE
WITX	AWITXTSC	AWITXTSC	AWITXTSC

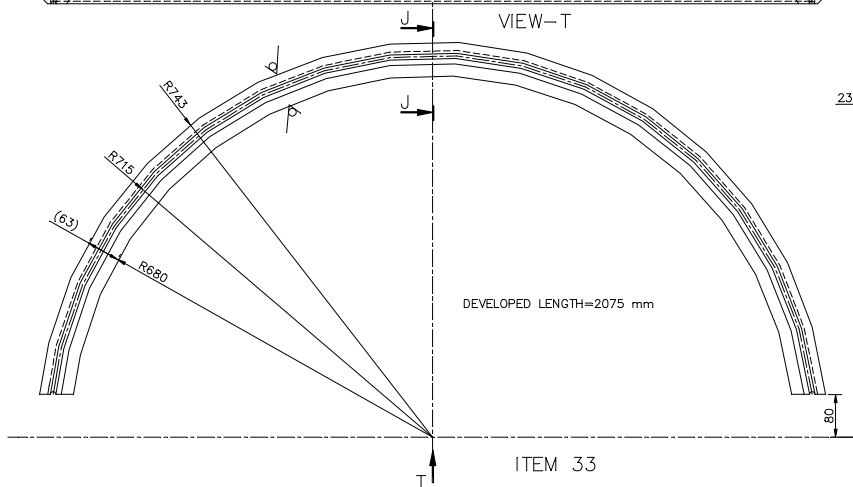
TYPE OF PRODUCT		THDF 125/67	
OR		NAME OF CUSTOMER/ PROJECT	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.
CODE 4133	1:15	500	01393601012
TITLE	PLATE		

NAME	SIGN	DATE	NO. OF
DRN STGEPK	STGEPK	12/01/2007	VAR.
CHD ATGERK	ATGERK	12/01/2007	
APD ATGERK	ATGERK	12/01/2007	

DRAWING NO.
21393601034
SHEET NO. 1 NO. OF SHEETS 1
SIZE A2

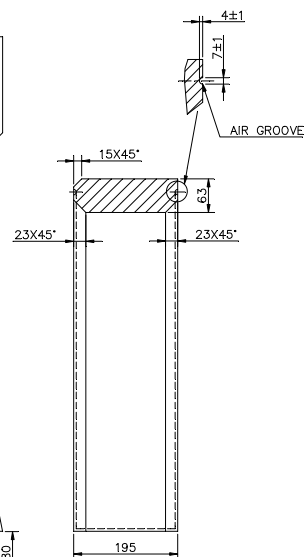
DRAWING NO.
2139360103550°
✓ ALONG CONTOUR

VIEW-T



DEVELOPED LENGTH=2075 mm

ITEM 33



SECTION JJ

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

INVENTORY NO. SIGN. & DATE 24-101-114300/33 REG. DRG NO.

CBOM NO.				STATUS	
01393601012				DATE	
GRADE OF UNTOL. DIM:--	WITX	AWITX	TSC	NAME	SIGN
M/CG- V/C/M/F AA 0230208					
WELDING-A/B/C/D-AA621104					
GAS CUTTING-T3'AA0621101					
REV.	DATE	ALTERED	CHECKED	REV.	DATE

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT

THDF 125/67

				NAME		SIGN	DATE	NO. OF
BHARAT HEAVY ELECTRICALS LTD.				DRN	STGEPK	12/01/2007	VAR.	
HARDWAR				CHD	ATGERK	12/01/2007		
				APD	ATGERK	12/01/2007	73.74	
				REF. TO ASSY. DRG.			ITEM NO. 33	
				01393601012			73.77	
TITLE				DRAWING NO.				
PLATE				21393601035				
				SHEET NO. 1			NO. OF SHEETS 1	

DEPT. TGE

CODE 4133

SCALE

1:20

WEIGHT(Kg.)

180

TITLE

PLATE

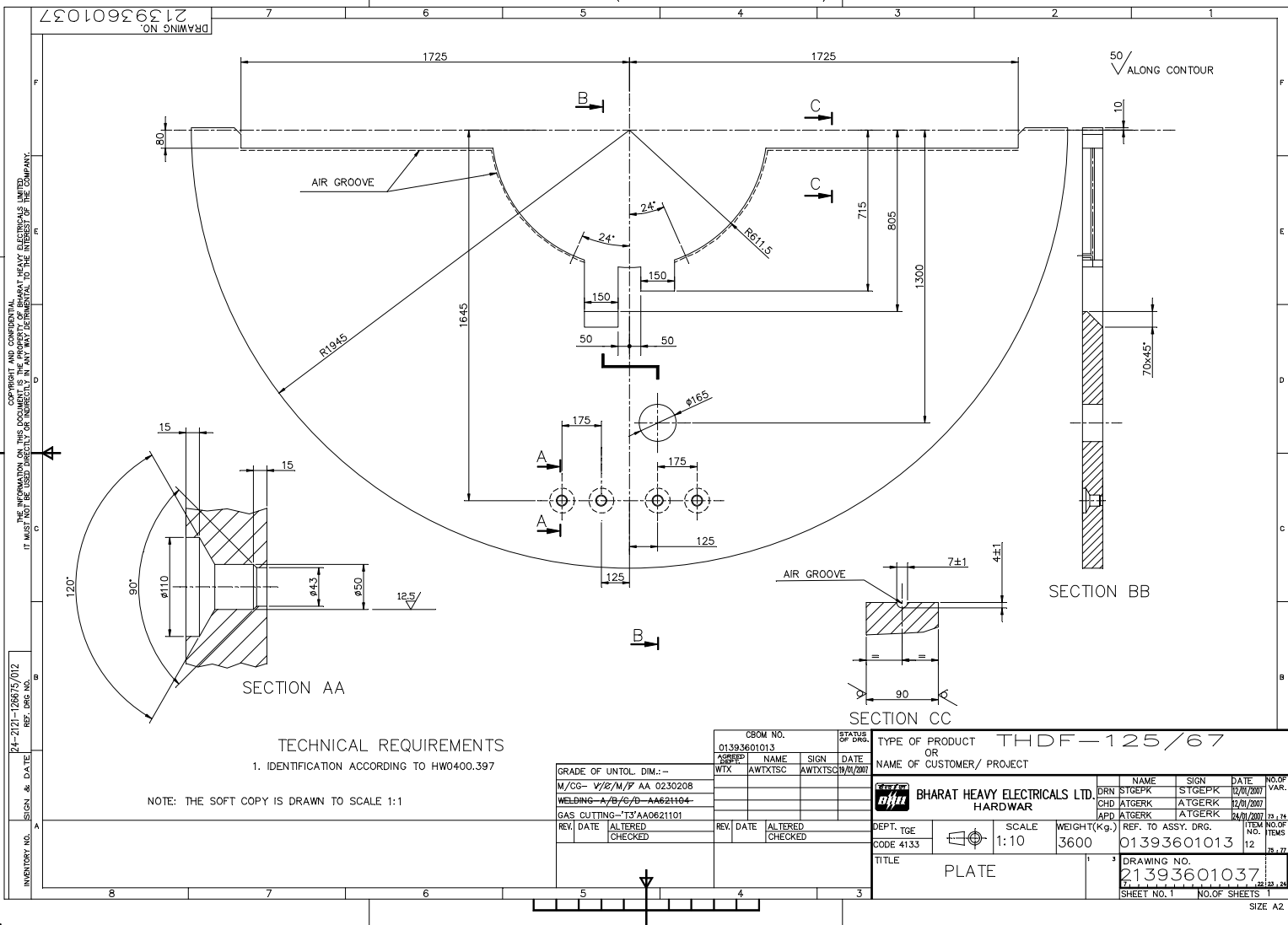
DRAWING NO.

21393601035

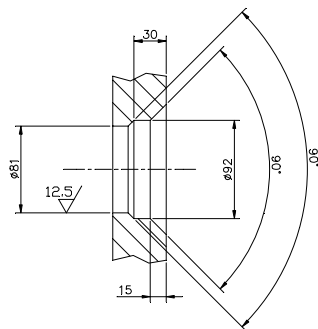
SHEET NO. 1

NO. OF SHEETS

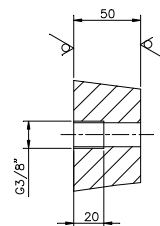
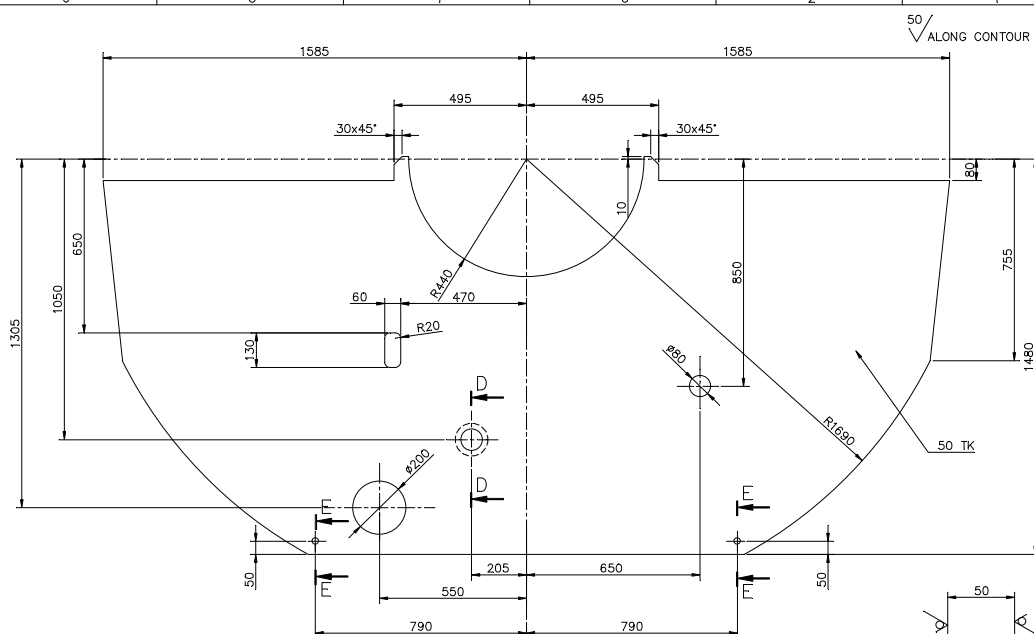
SIZE A2



INVENTORY NO.	SIGN & DATE	24-2121-126675/014
REF. DRG NO.		



SECTION DD



SECTION EE

NOTE: THE SOFT COPY IS DRAWN TO SCALE 1:1

GRADE OF UNTOL. DIM.: --		CBOM NO. 01393601013		STATUS OF DR
M/C-- V/G/M/F AA 0230208		WITX	AWTXTSC	AWTXTSC B/W
WELDING--A/B/C/D-AA521104				
GAS CUTTING--T3*AA0621101				
REV. DATE	ALTERED CHECKED	REV. DATE	ALTERED CHECKED	

TYPE OF PRODUCT THDF-125/67
OR
NAME OF CUSTOMER/ PROJECT

 BHARAT HEAVY ELECTRICALS LTD. HARDWARE		NAME DRN STEGPK STEGPK		SIGN STEGPK		DATE 12/01/2007		NO. OF VAR.	
DEPT. TGE CODE 41.33		SCALE 1:10		WEIGHT(Kg.) 1415		CHD ATGK		ATGK ATGK	
				REF. TO ASSY. DRG. 1393601013		APD ATGK		ITEM NO. OF ITEMS	
TITLE PLATE				DRAWING NO. 21393601038		SHEET No. 1		NO. OF SHEETS 12	

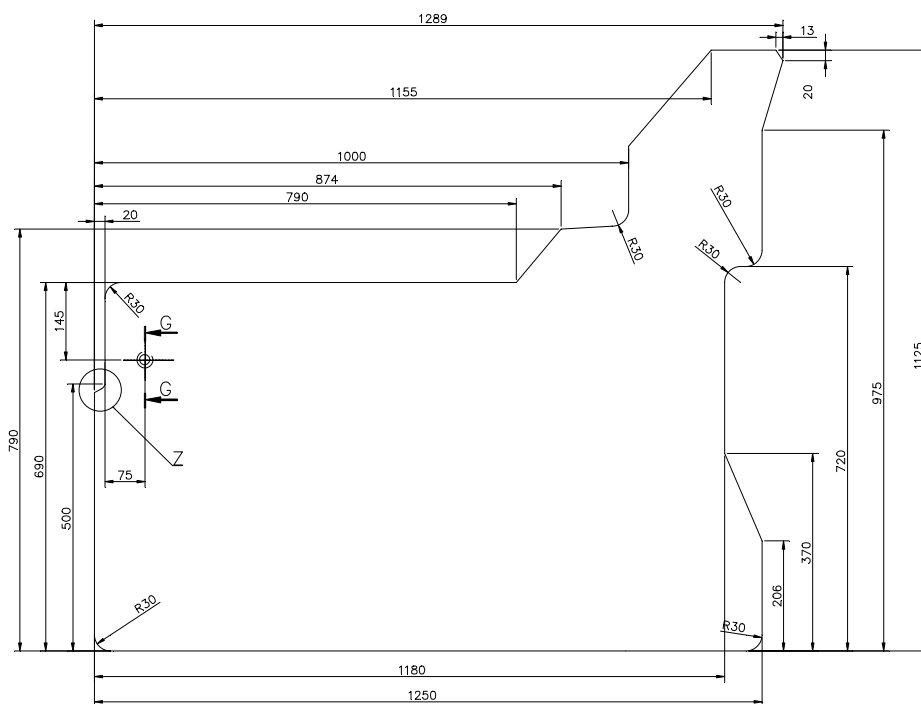
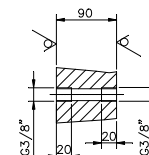
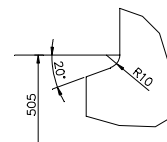
PLATE

3	DRAWING NO.	
	21393601038	
	SHEET NO 1	NO OF SHEETS

SIZE A2

DRAWING NO. 21393601039

50
✓ ALONG CONTOUR



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

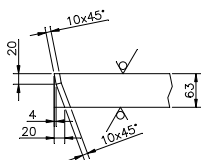
NOTE: THE SOFT COPY IS DRAWN TO SCALE 1:1

3.397	GRADE OF UNTOL. DIM.: -		CBOM NO. 01395601013		STATUS OF DR
	ACRSP	NAME	SIGN	DATE	
M/C - VJ/E/M/F AA 0230208	WTX	AWTXTSC	AWTXTSC	01/08/20	
WELDING A/B/C/D AA621104					
GAS CUTTING - T3'AA0621101					
REV. DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	

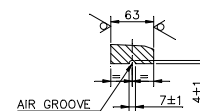
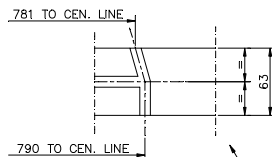
TYPE OF PRODUCT THDF-125/67
OR
NAME OF CUSTOMER/ PROJECT

	BHARAT HEAVY ELECTRICALS LTD. HARDWARE		NAME	SIGN	DATE	NO. OF	
			DRN	STGE/K	STGE/K	VAR.	
			CHD	ATER/K	ATER/K		
			WTE/K	ATER/K			
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRN				
CODE 4133		1:5	665	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24			
TITLE			DRAWING NO.				
PLATE			21933601039				
			SHEET NO. 1 OF 2 SHEETS				

DRAWING NO. 21393601041

50
✓ ALONG CONTOUR

VIEW-Y

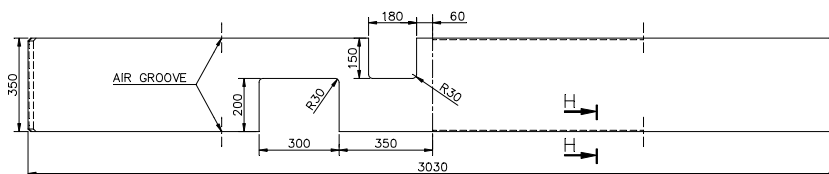


SECTION HH



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397



Y ↑

24-2121-16675/023

REV. DGS NO.

SIGN. & DATE

INVENTORY NO.

A

B

C

D

E

F

CBOM NO.
01393601013STATUS
OF DRG.

TYPE OF PRODUCT THDF-125/67

OR

NAME OF CUSTOMER/ PROJECT

GRADE OF UNTOL. DIM:-

M/CG- V/E/M/V AA 0230208

WELDING-A/B/C/D-AA021104

GAS CUTTING-T3/AA0621101

REV. DATE ALTERED

CHECKED

WITX AWTXTSC AWTXTSC

SIGN DATE

REV. DATE ALTERED

CHECKED

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

DEPT. TGE

CODE 4133

SCALE 1:10

WEIGHT(Kg.) 483

TITLE PLATE

NAME SIGN DATE NO. OF

ORN STGEPK STGEPK 12/01/2007 VAR.

CHD ATGERK ATGERK 12/01/2007

APD ATGERK ATGERK 12/01/2007

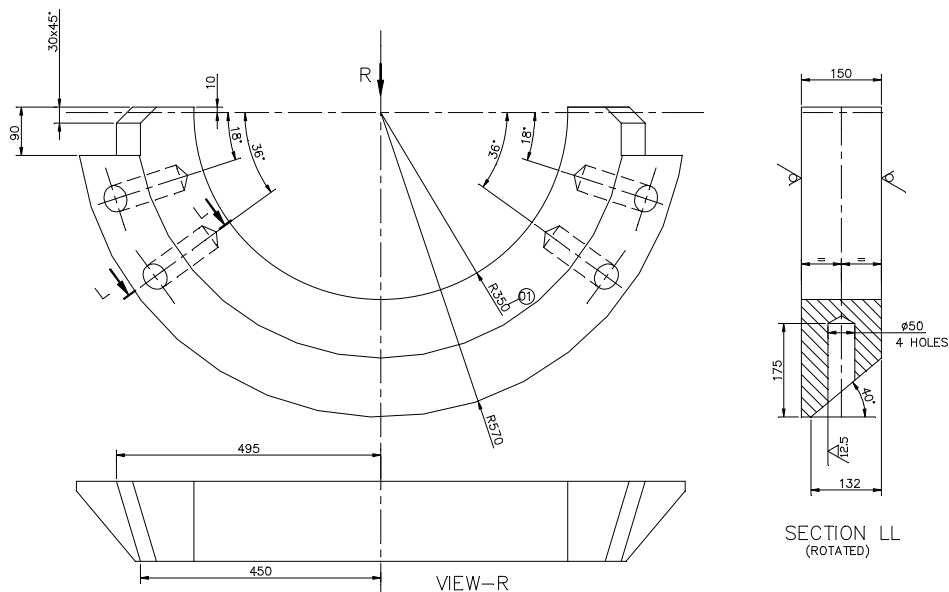
REF. TO ASSY. DRG.

01393601013

DRAWING NO. 21393601041

SHEET NO. 1 NO. OF SHEETS 1

SIZE A2

50
ALONG CONTOUR

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

CBOM NO. 01393601013		STATUS REV. 01		TYPE OF PRODUCT THDF-125/67	
GRADE OF UNTOL. DIM:-		SIGN. DATE		NAME OF CUSTOMER/ PROJECT	
WIT	AWT/TSC	AWT/TSC	AWT/TSC		
M/CG- W/G/M/Q AA 0230208					
WELDING-A/B/C/D-AA021104					
GAS CUTTING-T3/AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED	DEPT. TGE	SCALE
	CHECKED	01.5.1.22	CHECKED	CODE 4133	1:5
		CHANGES DONE AS PER		WEIGHT(Kg.)	
		C/A No. TGE-21-F0148		300	
				REF. TO ASSY. DRG.	
				01393601013	
				DRAWING NO.	
				21393601042	
				SHEET NO. 1	
				NO. OF SHEETS	
				1	
				SIZE A2	

DRAWING NO.
21393601043

THE REST

VIEW-X
(ROTATED)VIEW-Y
(ROTATED)

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397.
2. DEVELOPED LENGTH = 2085 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND AND FOR BEND RADIUS R115 IS 15 %.

		CBOM NO.		STATUS	
		01393601013		REVISED	
GRADE OF UNTOL DIM.:—		DATE	NAME	SIGN	DATE
M/COS - V/C/A/F - AA - 0230208		WTX	AWTATXSC		01/25/81
WELDING A/B/C/D - AA621104-					
CNS CUTTING - T3AA021101					
REV DATE	ALTERED ASHISH SD/-	REV DATE	ALTERED PAWAN SD/-		
02.17.05.23	CHECKED PRATIBHA SD/-	01.25.8.11	CHECKED AMIT SD/-		
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-EA062		CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0301			

TYPE OF PRODUCT THDF-125/67
OR
NAME OF CUSTOMER/ PROJECT

Bharat Heavy Electricals Ltd.		HARDWAR	
NAME	SIGN	DATE	NO. OF
DRN STGEPK	STGEPK	12/01/2007	VAR.
CHD ATGERK	ATGERK	12/01/2007	
APD ATGERK	ATGERK	14/01/2007	79
REF. TO ASSY. DRG.		01393601013	79
DRAWING NO.		21393601043	79
SHEET NO. 1		NO. OF SHEETS 1	79

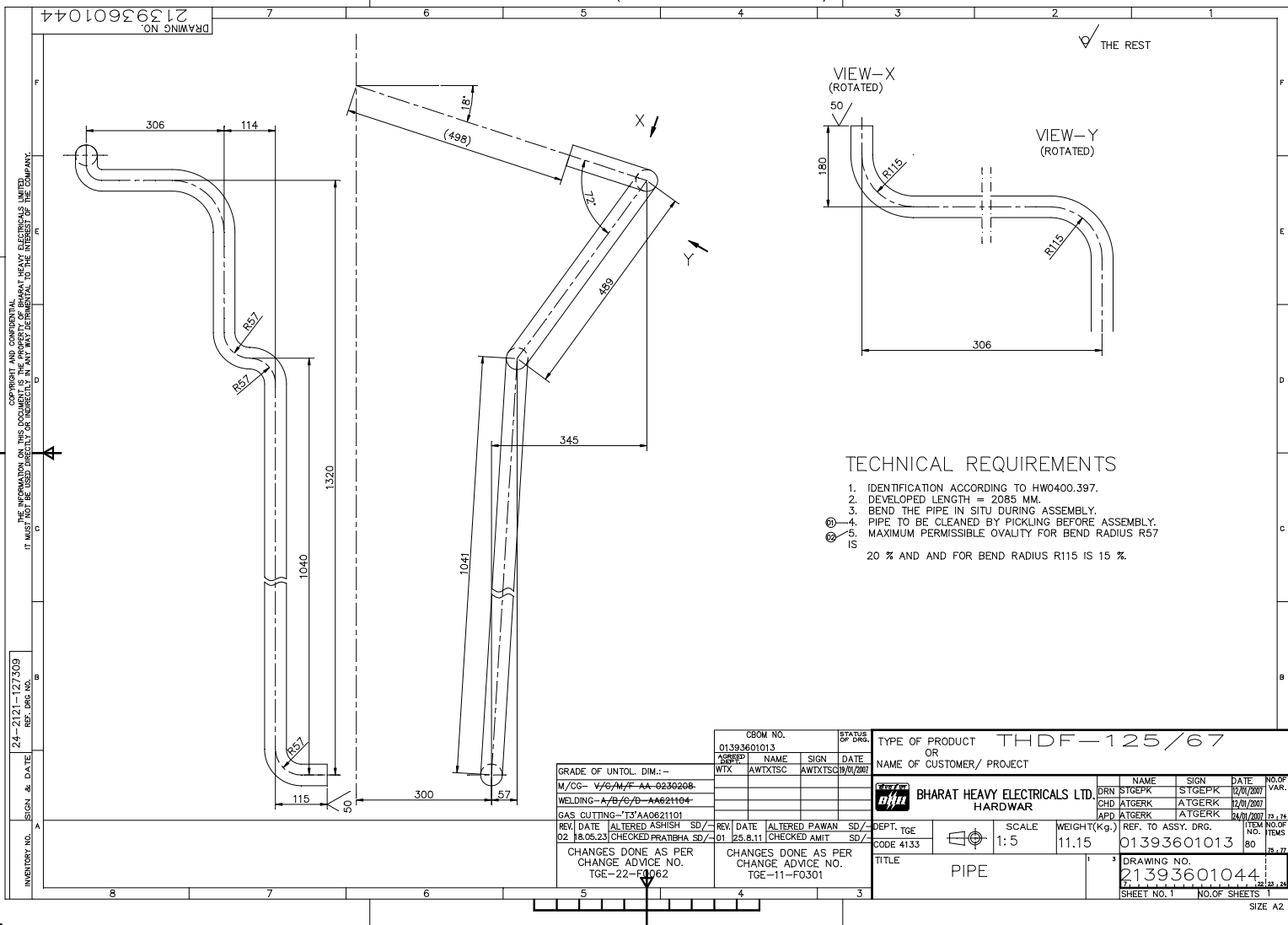
SCALE
1:5WEIGHT(Kg.)
11.15

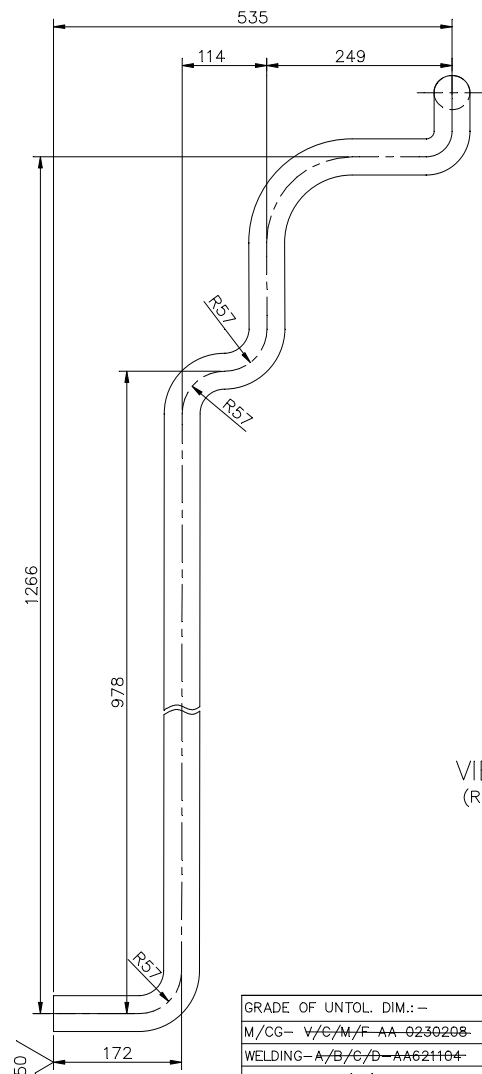
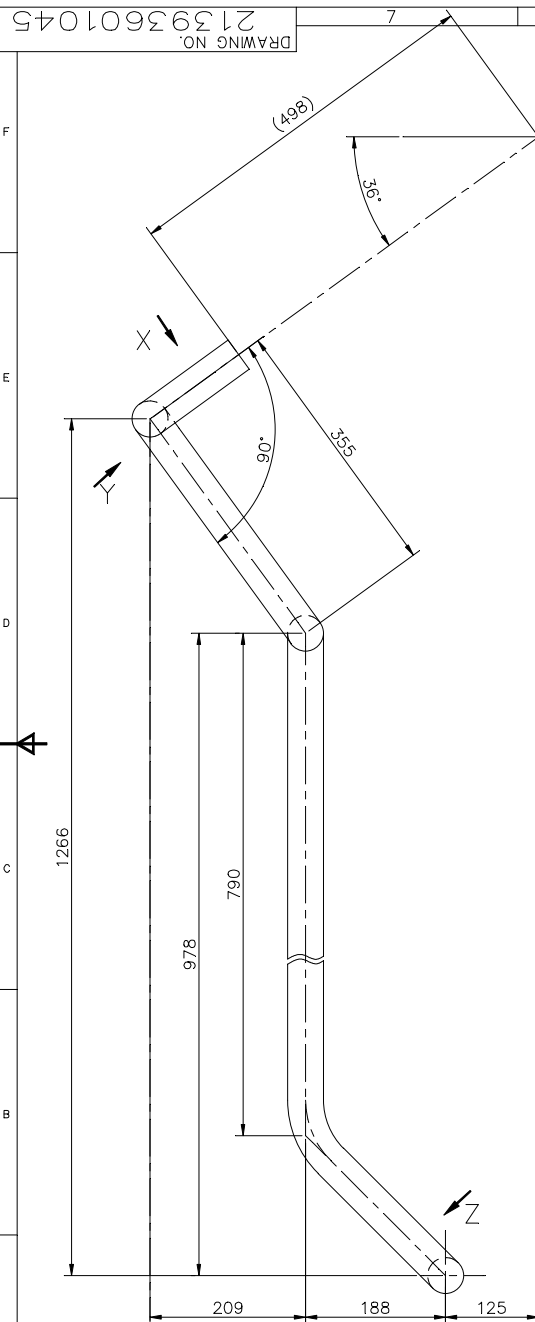
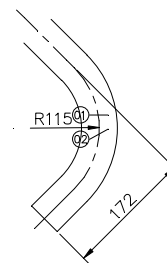
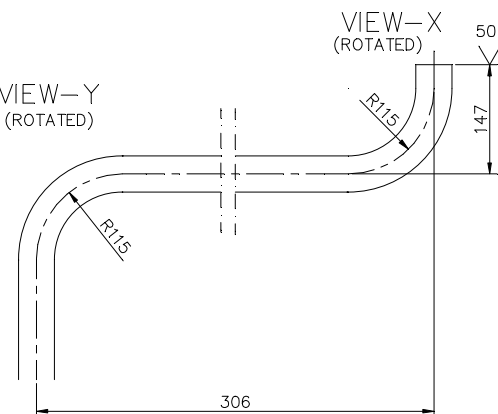
PIPE

DRAWING NO.
21393601043

SHEET NO. 1 NO. OF SHEETS 1

SIZE A2



VIEW-Z
(ROTATED)VIEW-Y
(ROTATED)VIEW-X
(ROTATED)

THE REST

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397.
2. DEVELOPED LENGTH = 1905 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND AND FOR BEND RADIUS R115 IS 15 %.

CBOM NO.					STATUS OF DRG				
01393601013									
AGREED DEPT.	NAME		SIGN	DATE					
WTX	AWTX		TSC	AWTX	TSC	19/01/2007			
GRADE OF UNTOL. DIM.:--									
M/CG- V/C/M/F AA-0230208-									
WELDING-A/B/C/D-AA621104-									
GAS CUTTING-T3'AA0621101									
REV.	DATE	ALTERED	ASHISH	SD/-	REV.	DATE	ALTERED	PAWAN	SD/-
02	17.05.23	CHECKED	PRATIBHA	SD/-	01	25.8.11	CHECKED	AMIT	SD/-
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0062					CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0301				

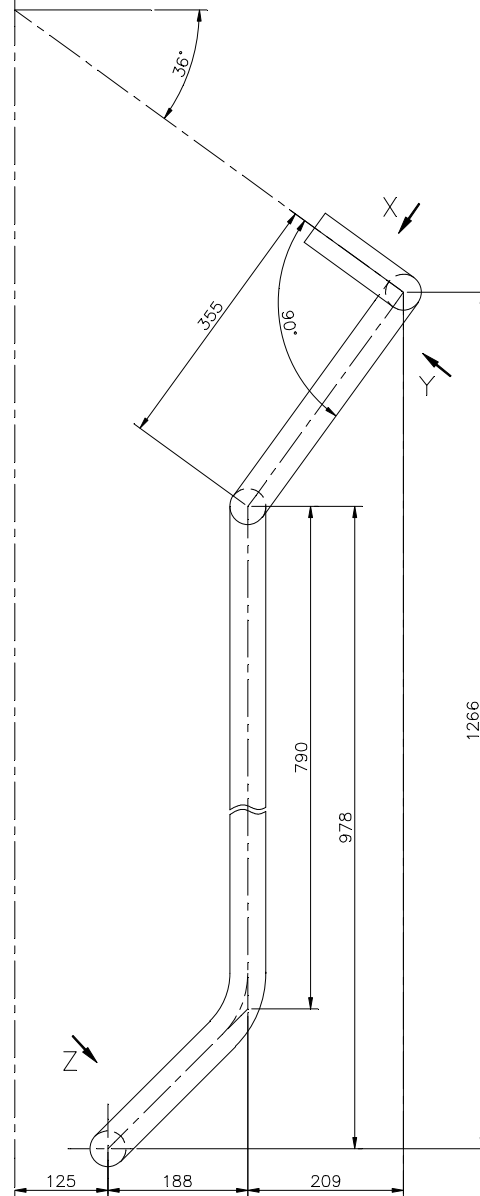
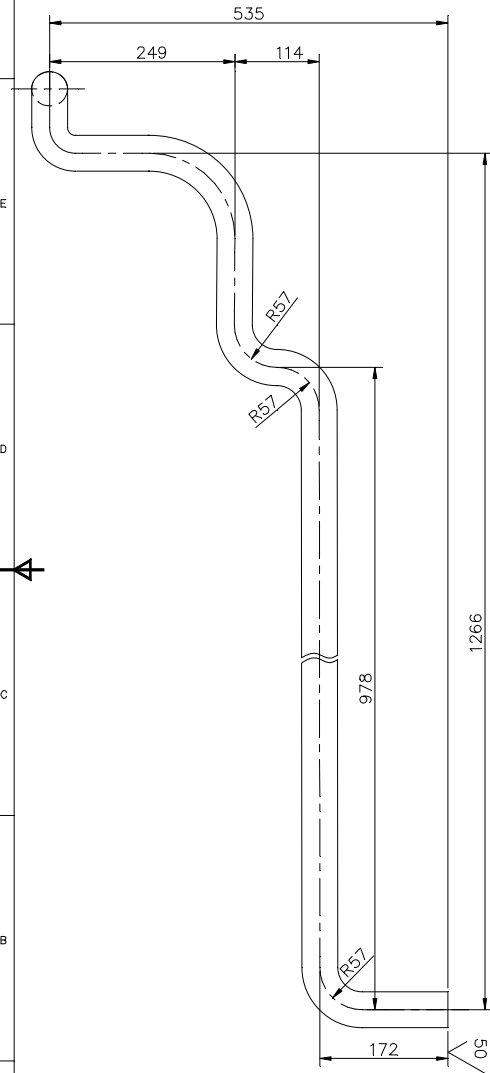
TYPE OF PRODUCT		THDF-125/67			
OR					
NAME OF CUSTOMER/ PROJECT					
BHARAT HEAVY ELECTRICALS LTD. HARDWAR		NAME	SIGN	DATE	NO. OF
		DRN	STGEPK	12/01/2007	VAR.
		CHD	ATGERK	12/01/2007	
		APD	ATGERK	24/01/2007	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1:5	10.16	01393601013		
TITLE		PIPE		ITEM NO. OF	NO. OF
				NO.	ITEMS
				81	75, 77
				DRAWING NO.	
				21393601045	
				SHEET NO. 1	
				NO. OF SHEETS 1	

DRAWING NO. 21393601046

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.24-2121-127311
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

VIEW-X
(ROTATED)

50

147

R115

249

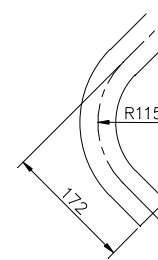
VIEW-Y
(ROTATED)

R115

R115

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397.
2. DEVELOPED LENGTH = 1905 MM.
3. BEND THE PIPE IN SITU DURING ASSEMBLY.
4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 IS 20 % AND AND FOR BEND RADIUS R115 IS 15 %.



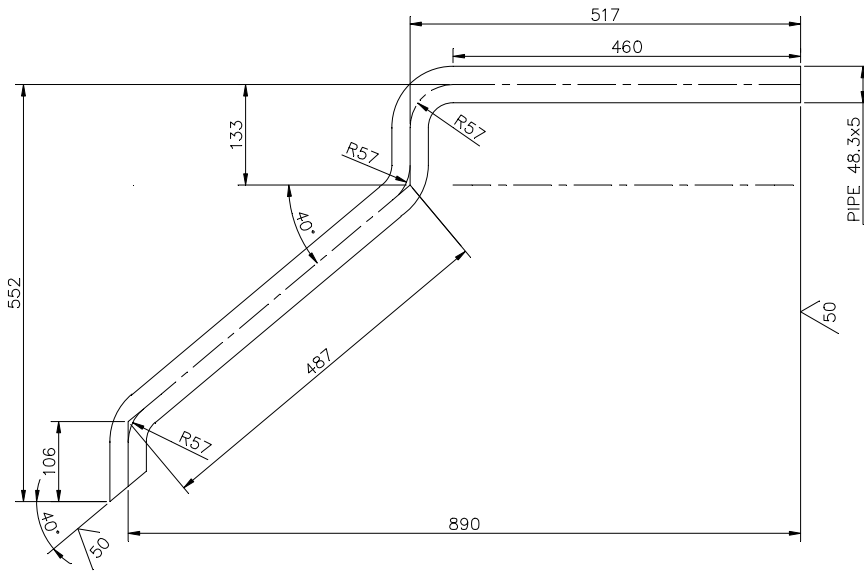
VIEW-Z

209		CBOM NO. 01393601013			STATUS OF DR		
		AGREED DEPT.	NAME	SIGN	DATE		
GRADE OF UNTOL. DIM.: -		WTX	AWTX	TSC	AWTX		
M/CG- V/C/M/F AA-0230208-					19/01/2007		
WELDING-A/B/C/D-AA0621104-							
GAS CUTTING-T3'AA0621101							
REV.	DATE	ALTERED ASHISH	SD/-	REV.	DATE	ALTERED PAWAN	SD/-
02	17.05.23	CHECKED PRATIBHA	SD/-	01	25.8.11	CHECKED AMIT	SD/-
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0062				CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0301			

TYPE OF PRODUCT				THDF-125/67			
OR							
NAME OF CUSTOMER/ PROJECT							
DRN	STGEPK	NAME	SIGN	DATE	NO.OF		
CHD	ATGERK	ATGERK	ATGERK	12/01/2007	VAR.		
APD	ATGERK	ATGERK	ATGERK	24/01/2007	73, 74		
DEPT. TGE				SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.OF
CODE 4133				1:5	10.16	01393601013	NO. OF
TITLE				PIPE			
				DRAWING NO. 21393601046			
				SHEET NO. 1 NO.OF SHEETS 1			

DRAWING NO.
3-13936-01076

✓ THE REST



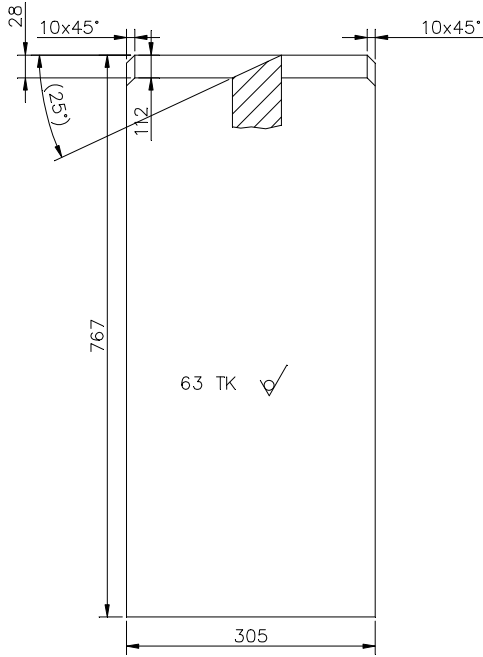
TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400497
2. STRETCHED LENGTH = 1220 MM
3. TO BE MATCHED WITH ASSEMBLY IN SITU.
- ① 4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.
- ② 5. MAXIMUM PERMISSIBLE OVALITY FOR BEND RADIUS R57 . IS 20%.

CBOM NO. 01393601008		STATUS OF DRG.	
AGREED DATE	NAME	SIGN	DATE
WT	RSC	SD/-	12.1.2003
GRADE OF UNTOL. DIM.: -			
M/C6 - V/C/M/F AA 0230208-			
WELDING - A/B/C/D-AA621104-			
GAS CUTTING-'T3'AA0621101			
REV. DATE	ALTERED DEEPAK SD/-	REV. DATE	ALTERED PAWAN SD/-
02 25.8.22	CHECKED DEEPAK SD/-	01 23.8.11	CHECKED AMIT SD/-
CHANGES DONE AS PER CHANGE ADVICE NO. TGE-22-F0063		CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0304	

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				THDF115/67				
 BHARAT HEAVY ELECTRICALS LTD. HARDWAR				NAME		SIGN	DATE	NO.OF VAR.
				DRN PAWAN		SD/-	15.1.2002	
				CHD R.KUMAR		SD/-	15.1.2002	
				APD R.C.BAJPAI		SD/-	8.1.2003	
DEPT.	TGE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
CODE	4133		1:5	6.52	0-13936-01008		77	
TITLE				DRAWING NO.		NO.OF SHEETS		
PIPE				3-13936-01076		22-23, 24		
				SHEET NO.		NO.OF SHEETS		
				1		1		

SIZE A3



TECHNICAL REQUIREMENTS

- 1. IDENTIFICATION ACCORDING TO HW 0400.397

01393601012

WTX AWTXTSC AWTXTSC 19/01/2007

THDF 125/67

TGE
4133

1: 20

115

STGEPK	STGEPK	12/01/2007
ATGERK	ATGERK	12/01/2007
ATGERK	ATGERK	24/01/2007

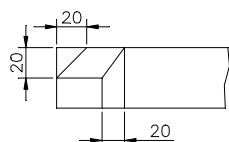
01393601012 27

PLATE

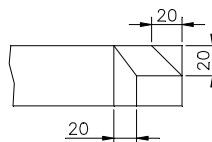
31393601083

DRAWING NO. 31393601084

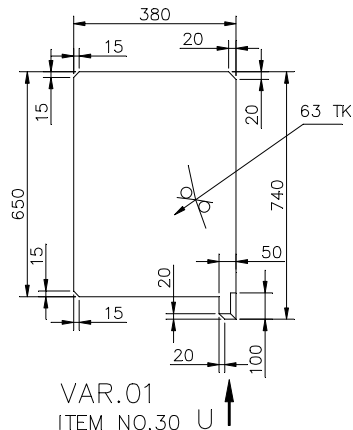
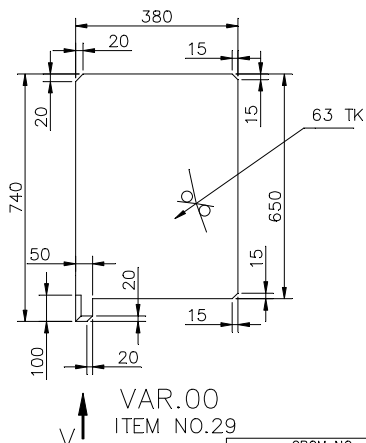
50
✓
ALONG CONTOUR



VIEW-V



VIEW-U



VAR.00
ITEM NO.29

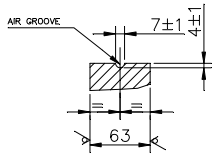
VAR.01
ITEM NO.30 U

TECHNICAL REQUIREMENTS

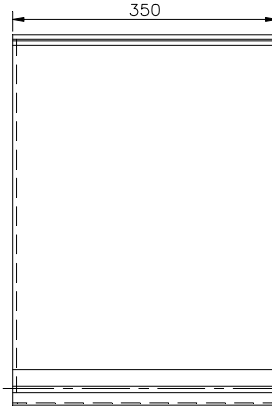
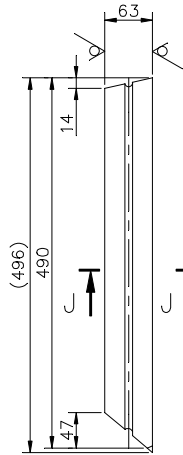
1. IDENTIFICATION ACCORDING TO HW 0400.397

ITEM NO.29		CBOM NO. 01393601012		STATUS OF DRG.		ITEM NO.35		THDF 125/67			
GRADE OF UNTOL. DIM.: -		AGREED DEPT.	NAME	SIGN	DATE	TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT					
M/CG- V/G/M/P AA 0230208		WTX	AWTXTSC	AWTXTSC	19/01/2007	भारत भारती  BHARAT HEAVY ELECTRICALS LTD. HARDWAR DRN CHD APD NAME ATGERK ATGERK SIGN ATGERK ATGERK DATE 12/01/2007 24/01/2007 NO. OF VAR 73, 74					
WELDING-A/B/C/D-AA621104											
GAS CUTTING-T3'AA0621101											
REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED					DEPT.	TGE
						CODE	4133	1: 20	118	01393601012	75, 76
						TITLE		PLATE		DRAWING NO. 31393601084	
										SHEET NO.1 NO. OF SHEETS 1	

SIZE A3

DRAWING NO.
3139360108550/
ALONG CONTOUR

SECTION JJ



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2101-114300/025
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

CBOM NO.				STATUS OF DRG.
01393601013				
AGREED DATE	NAME		SIGN	DATE
WTX	AWTXTSC		AWTXTSC	19/01/2007
REV.	DATE	ALTERED		
		CHECKED		

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT

THDF-125/67

BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

DEPT. TGE

CODE 4133



SCALE

1:5

WEIGHT(Kg.)

80

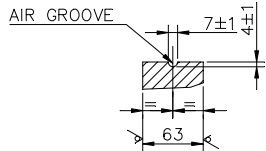
TITLE

PLATE

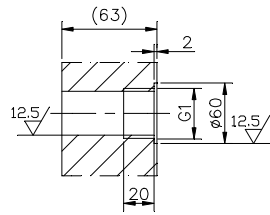
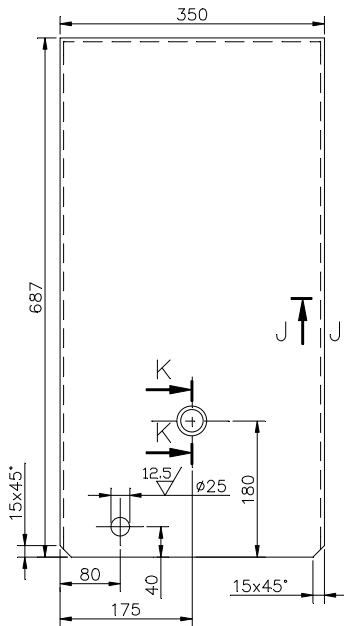
NAME	SIGN	DATE	NO.OF VAR.
DRN	STGEPK	STGEPK	
CHD	ATGERK	ATGERK	12/01/2007
APD	ATGERK	ATGERK	24/01/2007
REF. TO ASSY. DRG.			73, 74
01393601013			25
DRAWING NO.			75, 77
31393601085			22, 23, 24
SHEET NO.1			NO.OF SHEETS 1

SIZE A3

DRAWING NO. 31393601086

50°
ALONG CONTOUR

SECTION JJ



SECTION KK

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2121-126675/031
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

CBOM NO.		STATUS OF DRG.	
01393601013			
AGREED	NAME	SIGN	DATE
WTX	AWTXTSC	AWTXTSC	19/01/2007

TYPE OF PRODUCT OR
THDF-125/67
NAME OF CUSTOMER/ PROJECT

GRADE OF UNTOL. DIM.: -

M/CG- Y/Z/M/Y AA 0230208

WELDING- A/B/C/D-AA621104

GAS CUTTING-'T3'AA0621101

REV. DATE ALTERED
CHECKEDREV. DATE ALTERED DEVESH SD /
CHECKED AMIT SD /CHANGES DONE AS PER
CHANGE ADVICE NO
TGE-18-F0266BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

DEPT. TGE

CODE 4133

TITLE



SCALE

1:5

WEIGHT(Kg.)

119

REF. TO ASSY. DRG.

01393601013

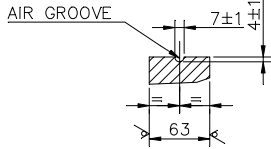
DRAWING NO.

31393601086

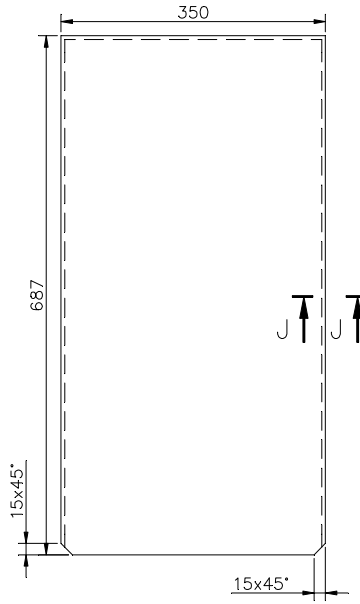
SHEET NO. 1

NO. OF SHEETS 1

SIZE A3

DRAWING NO.
3139360108750/
ALONG CONTOUR

SECTION JJ



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2121-126675/032

REF. DRG NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO.		STATUS OF DRG.	
M/CG- Y/q/M/7 AA 0230208		01393601013			
WELDING-A/B/C/D-AA621104-		AGREED	NAME	SIGN	DATE
GAS CUTTING-'T3'AA0621101		WTX	AWTXTSC	AWTXTSC	19/01/2007
REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				THDF-125/67					
 BHARAT HEAVY ELECTRICALS LTD. HARDWAR					NAME	SIGN	DATE	NO.OF VAR.	
				DRN	STGEPK	STGEPK	12/01/2007		
				CHD	ATGERK	ATGERK	12/01/2007		
				APD	ATGERK	ATGERK	24/01/2007		
DEPT. TGE		SCALE 1: 5	WEIGHT(Kg.) 120	REF. TO ASSY. DRG. 01393601013				ITEM NO. 32	NO.OF ITEMS 75, 77
CODE 4133									
TITLE PLATE				DRAWING NO. 31393601087					
				SHEET NO.1 NO.OF SHEETS 1					

SIZE A3

Copyright and Confidential
The information on this document is the property of
Bharat Heavy Electricals Limited. It must not be used directly
or indirectly in any way detrimental to the interest of the company.

24-2101-114300/041
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

DOC REV NO.: 0

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

FORM: DG-38(B)

8801093601088
DRAWING NO.

50
ALONG CONTOUR

20

(425)

15

261

300

45°

15

261

50

SECTION MM

R610

J

J

M

M

437

SECTION JJ

AIR GROOVE

7±1

63

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

CBOM NO. 01393601013		STATUS OF DRG.	
AGREED DATE	NAME	SIGN	DATE
WTX	AWT	XTSC	19/01/2007

GRADE OF UNTOL. DIM.: -	
M/CG- 1/2/M/7 AA 0230208	
WELDING-A/B/C/D-AA621104	
GAS CUTTING-T3'AA0621101	
REV.	DATE
ALTERED CHECKED	

REV.	DATE
ALTERED CHECKED	

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT	
THDF-125/67	

DEPT.	TGE	SCALE	WEIGHT(Kg.)
CODE	4133	1:5	65
TITLE		PLATE	

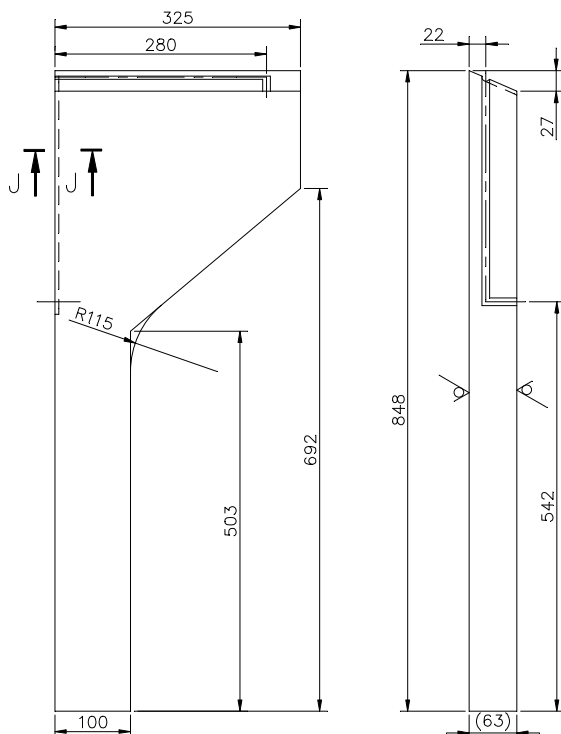
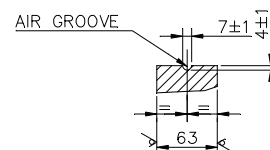
DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	STGEPK	STGEPK	12/01/2007	
APD	ATGERK	ATGERK	24/01/2007	
REF. TO ASSY. DRG.				ITEM NO.
01393601013				41

DRAWING NO.	
31393601088	
SHEET NO.1	NO.OF SHEETS 1

SIZE A3

6801093601089

DRAWING NO.

50°
✓ ALONG CONTOUR

SECTION JJ

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2121-126675/045
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

CBOM NO.
01393601013STATUS
OF DRG.TYPE OF PRODUCT
OR

THDF-125/67

NAME OF CUSTOMER/ PROJECT

GRADE OF UNTOL. DIM.: -

M/CG- 1/2/M/1 AA 0230208

WELDING- A/B/C/D-AA621104

GAS CUTTING-'T3'AA0621101

REV. DATE ALTERED
CHECKEDREV. DATE ALTERED
CHECKED

DEPT. TGE

CODE 4133



SCALE

1:5

WEIGHT(Kg.)

68.25

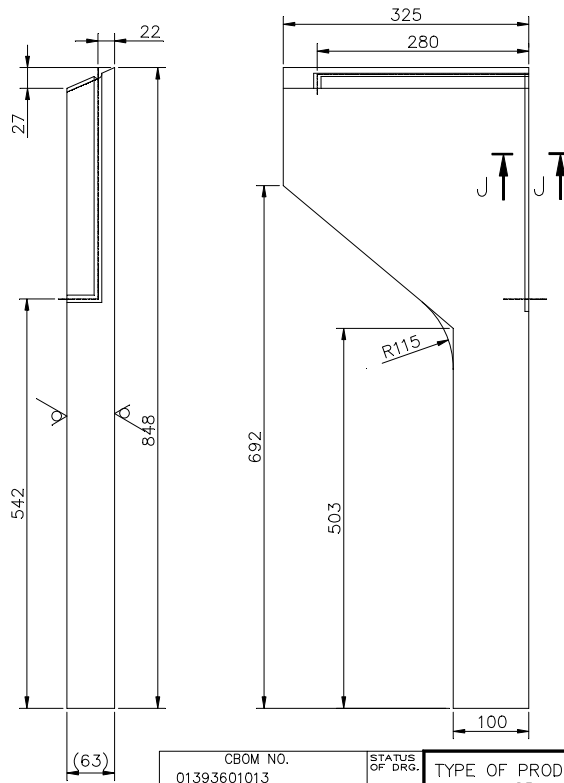
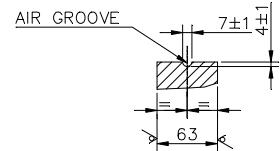
REF. TO ASSY. DRG.

01393601013

DRAWING NO.
31393601089

SHEET NO.1 NO.OF SHEETS 1

SIZE A3

DRAWING NO.
0139360109050°
ALONG CONTOUR

SECTION JJ

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2121-126675/046
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

CBOM NO.
01393601013
STATUS OF DRG.

AGREED	NAME	SIGN	DATE
WTX	AWTXTSC	AWTXTSC	19/01/2007

TYPE OF PRODUCT
OR

THDF-125/67

NAME OF CUSTOMER/ PROJECT

GRADE OF UNTOL. DIM.: -

M/CG- V/Q/M/P AA 0230208

WELDING- A/B/C/D-AA621104

GAS CUTTING-'T3'AA0621101

REV.	DATE	ALTERED
		CHECKED

REV.	DATE	ALTERED
		CHECKED

DEPT. TGE

CODE 4133



SCALE

1:5

WEIGHT(Kg.)

68.25

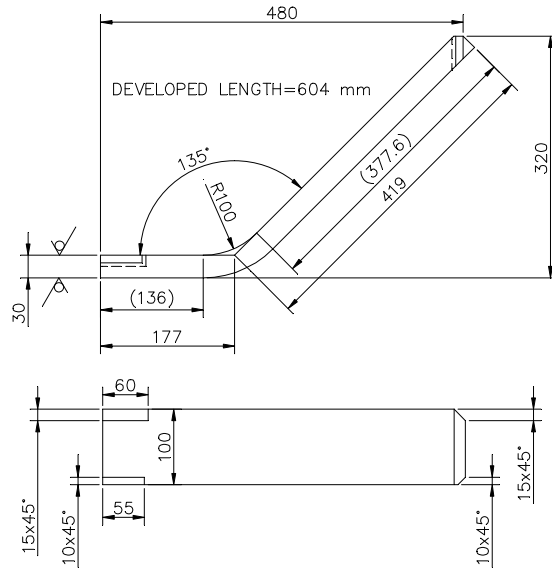
REF. TO ASSY. DRG.

01393601013

DRAWING NO.
31393601090

SHEET NO.1 NO.OF SHEETS 1

SIZE A3

DRAWING NO.
3139360109150/
✓ ALONG CONTOUR

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

CBOM NO. 01393601013		STATUS OF DRG.	
AGREED DATE	NAME	SIGN	DATE
WTX	AWTXTSC	AWTXTSC	19/01/2007
GRADE OF UNTOL. DIM.: -			
M/CG- ~~Y/Z/M/Y~~ AA 0230208			
WELDING- ~~A/B/C/D~~ AA621104			
GAS CUTTING- 'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				THDF-125/67				
	BHARAT HEAVY ELECTRICALS LTD. HARDWAR			DRN	NAME	SIGN	DATE	NO.OF VAR.
				CHD	STGEPK	STGEPK	12/01/2007	
				APD	ATGERK	ATGERK	12/01/2007	
				ATD	ATGERK	ATGERK	24/01/2007	
DEPT. TGE		SCALE 1:5	WEIGHT(Kg.) 14	REF. TO ASSY. DRG. 01393601013			ITEM NO. 61	NO.OF ITEMS 75, 77
CODE 4133								
TITLE PLATE				DRAWING NO. 31393601091				
				SHEET NO.1 NO.OF SHEETS 1				

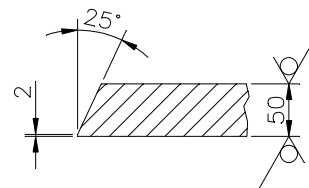
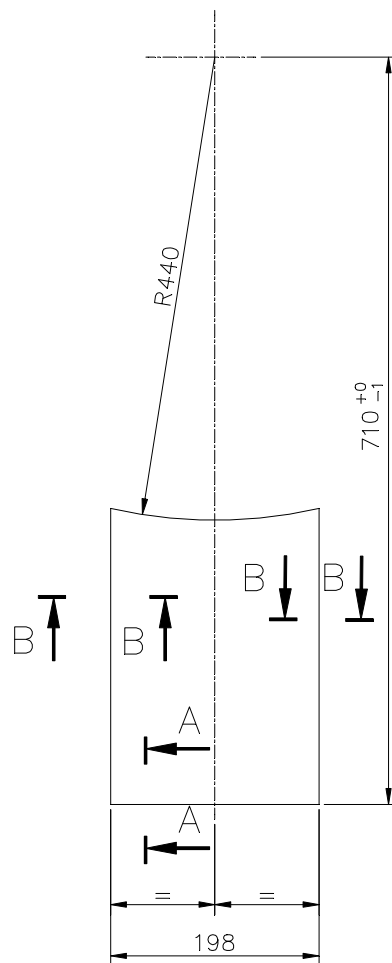
SIZE A3

FIRST ANGLE PROJECTION

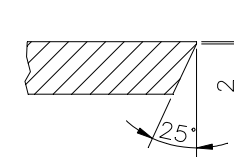
DOC REV NO.: 0

(ALL DIMENSIONS ARE IN mm)

FORM: DG-38(B)

DRAWING NO.
31393601094

SECTION AA



SECTION BB

50/
ALONG CONTOUR

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 0400.397.

GRADE OF UNTOL. DIM.: -				CBOM NO. 01393601009		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				THDF 115/67			
M/CG- V/C/M/F AA 0230208				AGREED DEPT.		NAME		SIGN		DATE		NO.OF VAR.			
WELDING-A/B/C/D-AA621104				WTX		AWTXTSC		AWTXTSC		10/03/2011					
GAS CUTTING-'T3'AA0621101															
REV.		DATE		ALTERED CHECKED		REV.		DATE		ALTERED CHECKED		DEPT. TGE			
												CODE 4133			
												SCALE 1:5			
												WEIGHT(Kg.) 21.3			
												REF. TO ASSY. DRG.			
												01393601009			
												DRAWING NO.			
												31393601094			
												SHEET NO.1			
												NO.OF SHEETS 1			

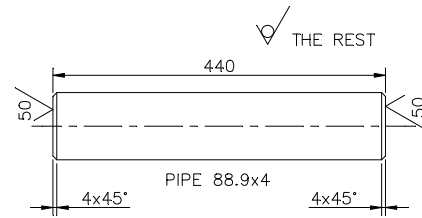
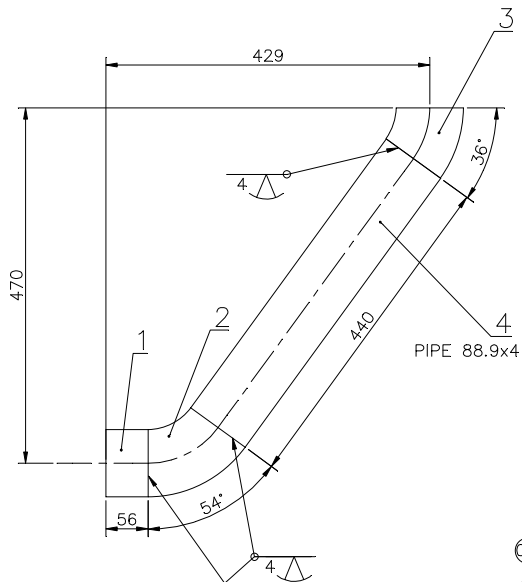
PLATE

SIZE A3

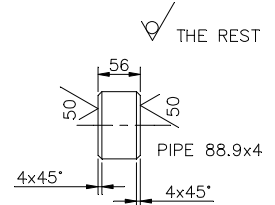
DRAWING NO.
3-13936-01180COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF
BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY
OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.24-2101-119149
REF. DRG NO.

SIGN & DATE

INVENTORY NO.



ITEM NO.-4



ITEM NO.-1

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397
2. WELDING TO BE DONE AS PER HW0620599
- ①-3. QUALITY GRADE AS PER HW0850199 CATEGORY SERVICE REQUIREMENT-1
- ②-4. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.

CBOM NO. 01393601009		STATUS OF DRG.	
AGREED DATE	NAME	SIGN	DATE
WT	RSC	SD/-	21.2003
GRADE OF UNTOL. DIM.: -			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/G/B-AA621104			
GAS CUTTING-'T3'AA0621101			
REV. DATE	ALTERED PAWAN SD/-	REV. DATE	ALTERED PRADEEP SD/-
02 25.8.11	CHECKED AMIT SD/-	01 29/08/09	CHECKED AMIT SD/-
CHANGES DONE AS PER CHANGE ADVICE NO TGE-11-F0299		CHANGES DONE AS PER CHANGE ADVICE NO- TGE-09-F0224	

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT
THDF 115/67BHARAT HEAVY ELECTRICALS LTD.
HARDWAR

DEPT. TGE

CODE 4133



SCALE

1:5

WEIGHT(Kg.)

5.5

REF. TO ASSY. DRG.

0-13936-01009

DRAWING NO.

3-13936-01180

SHEET NO. 1

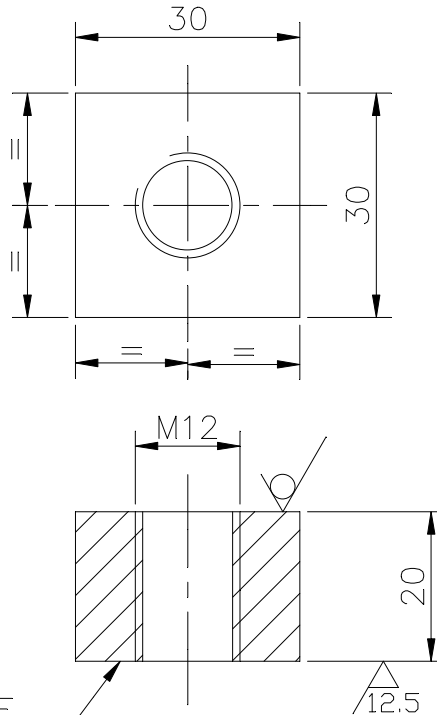
NO.OF SHEETS 1

PKA00692

SIZE A3

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.			STATUS
		CHECKED			CHECKED	01350101054			OF DRG
						AGREED	NAME	SIGN	DATE
						DEPT.			
						WTX	AWTX	YSS	AWTX
									5/5/2007
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208						WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101	

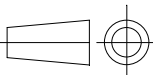
50/
V ALONG CONTOUR



TINNED SURFACE
& PROVIDE BRIGHT FACE

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 0400.397.
2. TIN PLATING TO BE DONE ON THIS FACE AS PER AA0673602.

EMT 329-050 REF.DRG.No.		TECHNICAL REQUIREMENT								
		1. MARK IDENTIFICATION ACCORDING TO HW 0400.397. 2. TIN PLATING TO BE DONE ON THIS FACE AS PER AA0673602.								
SIGN & DATE	श्री एच ई एल BHEL BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR	
					DRN	STGEPK	STGEPK	30/05/2007		
					CHD	STGEAM	STGEAM	30/05/2007		
					APD	ATGERK	ATGERK	28/07/2007		
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM No.	No OF ITEMS	
	CODE 4133		1:1	0.14	01350101064			19		
	TITLE EARTHING PIECE THDF 115/67					DRAWING No. 41350101395				
					SHEET No.1			No.OF SHEETS1		

[illegible]

COPYRIGHT AND CONFIDENTIAL

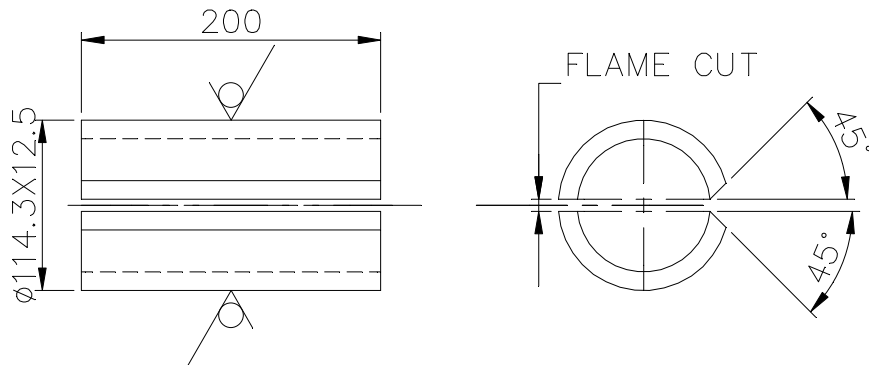
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

41350101395

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE	ALTERED	PAWAN SD/-	REVDATE	ALTERED	KRISHNA SD/-	CBOM No.			STATUS OF DRG
02	26.8.11	CHECKED AMIT SD/-	01	31.10.07	CHECKED RAKESH SD/-	91393601003			
CHANGES DONE AS PER CHANGE ADVICE NO TGE-11-F0300			CERTIFIED TRUE COPY WITHOUT ANY CHANGE C/A NO-TGE-07-F0253			AGREED DEPT.	NAME	SIGN	DATE
						WT	P.GOYAL	SD/-	11.5.87
GRADE OF UNTOL.DIM.M/CG/M/P.AA0230208						WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101	

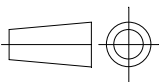
50/
THE REST

TECHNICAL REQUIREMENT: —

1. IDENTIFICATION ACCORDING TO HW 0400397

②—2. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.

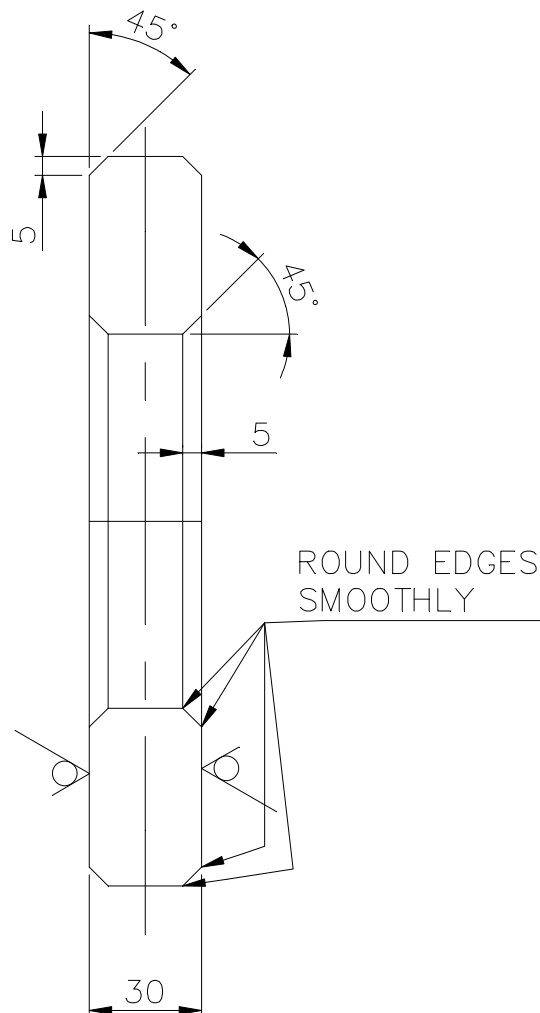
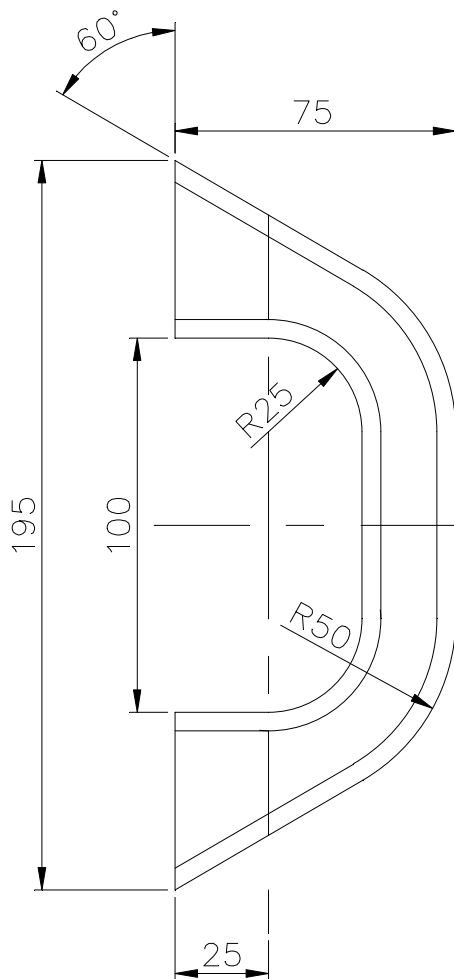
24-2101-96422-a IT.52 KWU
REF.DRG.No.

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR						NAME	SIGN	DATE	NO. OF VAR
						DRN	M.S.P	SD/-	11.4.87	
						CHD	B.L.J/M.S	SD/-	12.4.87	
						APD	N.K.AGARWAL	SD/-	6.6.87	
INVENTORY No.	DEPT. TGE		SCALE 1: 5	WEIGHT(Kg) 6.00	REF.TO ASSY.DRG. 9-139-36-01003			ITEM No. 56	No Of ITEMS	
	CODE 4133									
	TITLE PIPE				DRAWING No. 4-139-36-01130					
	THRI 108/44									
						SHEET No. 1		No.OF SHEETS		1

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	CRISHTNA SD/-	CBOM No.			STATUS
		CHECKED	01	31.10.07	CHECKED	RAKESH SD/-	91393601003			OF DRG
CERTIFIED TRUE COPY WITHOUT ANY CHANGE C/A NO-TGE-07-F0253						AGREED DEPT.	NAME	SIGN	DATE	
						WT	P.GOYAL	SD/-	11.5.87	
GRADE OF UNTOL.DIM.M/CG/M/V.AA0230208						WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101		

50/
THE REST

TECHNICAL REQUIREMENT: —

1.IDENTIFICATION ACCORDING TO HW 0400397

24-2101-97427-a IT.56 KWU
REF.DRG.No.EMT 314-005/A

SIGN & DATE

BHARAT HEAVY ELECTRICALS LTD
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	A.K.A	SD/-	11.4.87	
CHD	B.L.J/M.S	SD/-	11.4.87	
APD	N.K.AGARWAL	SD/-	6.6.87	

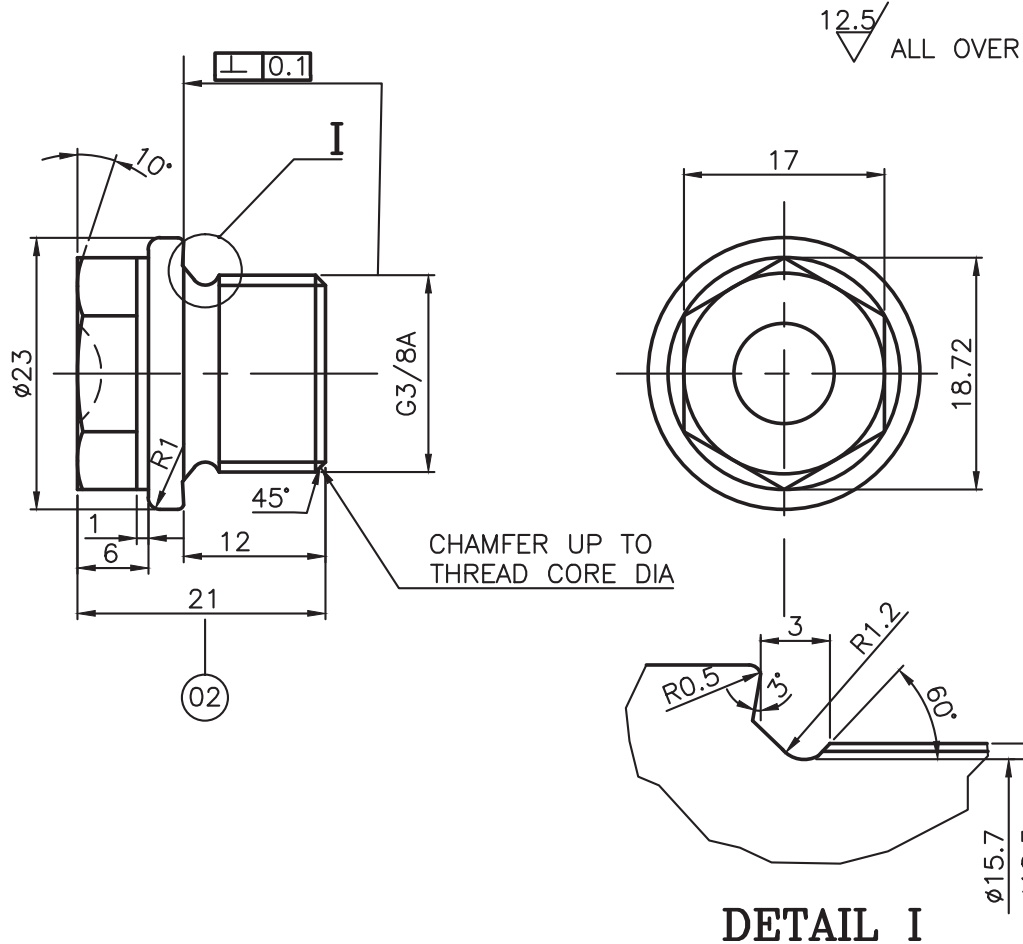
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 2	3.00	9-139-36-01003	034 041	
	TITLE LIFTING LUG				DRAWING No. 4-139-36-01137		
	THRI 108/44				SHEET No. 1 No.OF SHEETS 1		

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

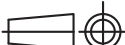
REVDATE ALTEREDPAWAN SD/-	REVDATE ALTEREDKRISHNA SD/-	CBOM No.	STATUS OF DRG
02 29.1.08	CHECKED RAKESH SD/-	01 31.10.07	CHECKED RAKESH SD/-
CHANGES DONE AS PER C/A NO-TGE-08-F0022		CERTIFIED TRUE COPY WITHOUT ANY CHANGE C/A NO-TGE-07-F0253	
GRADE OF UNTOL.DIM.M/CGZ/M/P.AA0230208		WELDING A/B/C/D AA0621104	GAS CUTTING-T3 AA0621101

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



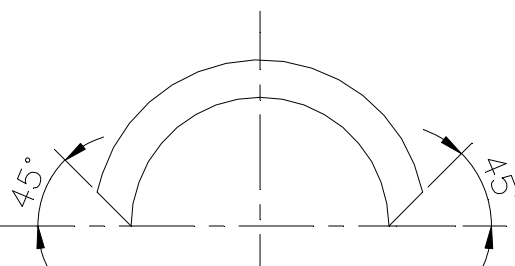
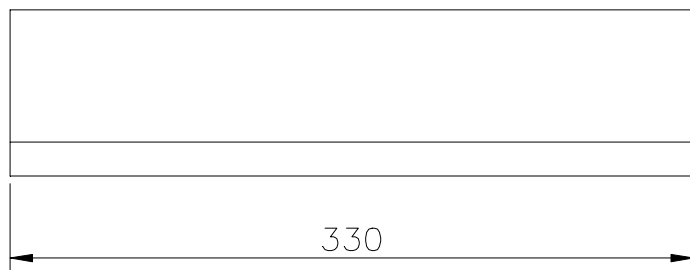
TECHNICAL REQUIREMENT:-

1. IDENTIFICATION ACCORDING TO HW 0400397

SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR				NAME	SIGN	DATE	NO. OF VAR
				DRN	A.K.A	SD/-	4.11.88	
				CHD	B.L.J/M.S	SD/-	4.11.88	
				APD	N.K.AGARWAL	SD/-	20.12.88	
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.		ITEM No.	No OF ITEMS
	CODE 4133		2:1	0.04	9-139-36-01004		038	
	TITLE				DRAWING No.			
	THRI 108/44				4-139-36-01158			
				SHEET No. 1		No.OF SHEETS 1		

REV	DATE	ALTERED	REV	DATE	ALTERED	PAWAN SD/-	CBOM No.			STATUS		
		CHECKED	01	26.8.11	CHECKED	AMIT SD/-	01393601009			OF DRG		
			CHANGES DONE AS PER CHANGE ADVICE NO. TGE-11-F0299				AGREED	NAME	SIGN	DATE		
							DEPT.	WT	RSC	SD/-	21.2003	
GRADE OF UNTOL.DIM.M/C/G/M/F.AA0230208										WELDING A/B/C/D AA0621104	GAS CUTTING-T3 AA0621101	

50
✓
ALONG CONTOUR



PIPE 88.9x10

TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397
 (01)—2. PIPE TO BE CLEANED BY PICKLING BEFORE ASSEMBLY.

24-2101-114300/67
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	PAWAN	SD/-	6.2.2002	
CHD	R.KUMAR	SD/-	6.2.2002	
APD	R.C.BAJPAI	SD/-	8.1.2003	

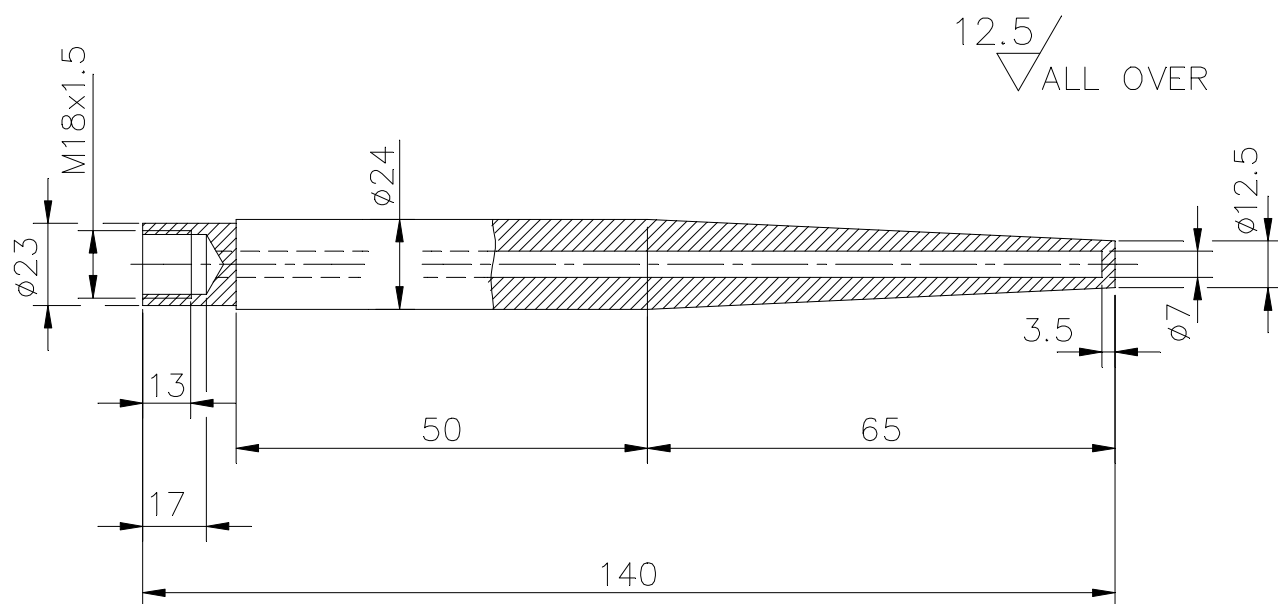
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(KG)	REF. TO ASSY.DRG.	ITEM No.	No. OF ITEMS
	CODE 4133		1: 2	3	0-13936-01009	67	
	TITLE PIPE				DRAWING No. 4-13936-01180		
	THDF 115/67				SHEET No. 1		No. OF SHEETS 1

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601009		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WT	RSC	SD/-	2.1.2003

GRADE OF UNTOL.DIM.M/C/GC/M/P/AA0230208 WELDING A/B/C/D AA0621104 GAS CUTTING-T3 AA0621101



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397 AT HEEP HARDWAR.
2. PROTECTIVE PIPE TO BE PRESSURE TESTED AT 14 BAR.
3. PROTECTIVE PIPE TO BE MANUFACTURED IN ONE PIECE WITHOUT WELD JOINT.

PURCHASED

24-2121-118632
REF.DRG.No. I.T.50

SIGN & DATE

BHARAT HEAVY ELECTRICALS LTD
HARDWAR

NAME	SIGN	DATE	NO. OF VAR
DRN PAWAN	SD/-	2.1.2003	
CHD RK	SD/-	2.1.2003	
APD R.C.BAJPAI	SD/-	8.1.2003	

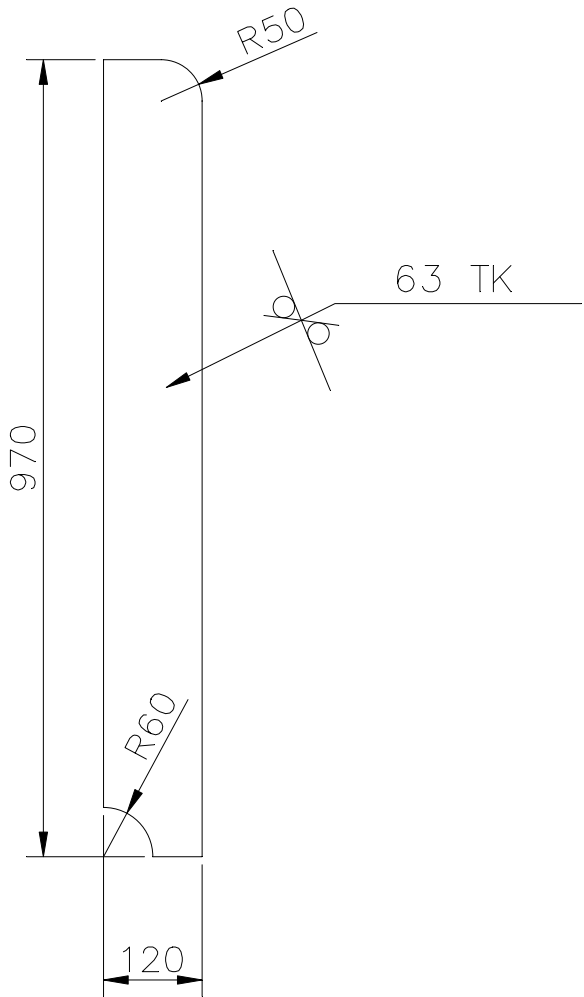
PKA00700

INVENTORY No.

DEPT. TGE CODE 4133	SCALE 1:2	WEIGHT(Kg) 0.4	REF.TO ASSY.DRG. 0-139-36-01009	ITEM No. 050	No OF ITEMS
TITLE PROTECTIVE PIPE			DRAWING No. 41393601185		
THDF 115/67			SHEET No. 1 No.OF SHEETS 1		



50
✓ ALONG CONTOUR



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

STGEPK	STGEPK	12/01/2007
ATGERK	ATGERK	12/01/2007
ATGERK	ATGERK	24/01/2007

TGE

4133

1:10

56

01393601012 42

PLATE

41393601189

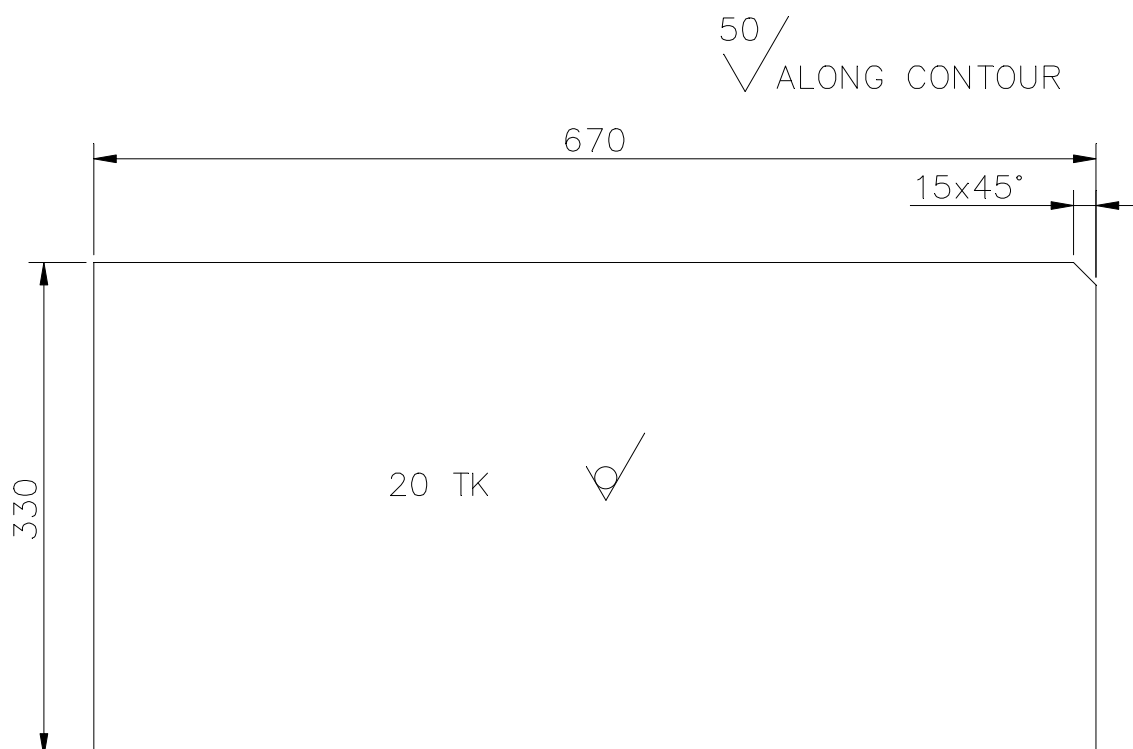
THDF 125/67

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601012		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007

GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208 WELDING A/B/C/D AA0621104 GAS CUTTING-T3 AA0621101



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

24-2101-114300/51
REF.DRG.No.

SIGN & DATE

BHARAT HEAVY ELECTRICALS LTD
HARDWAR

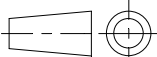
	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEPK	STGEPK	12/01/2007	
CHD	ATGERK	ATGERK	12/01/2007	
APD	ATGERK	ATGERK	24/01/2007	

INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 20	34.7	01393601012	51	
	TITLE PLATE THDF 125/67				DRAWING No. 41393601190		
					SHEET No.1	No.OF SHEETS1	

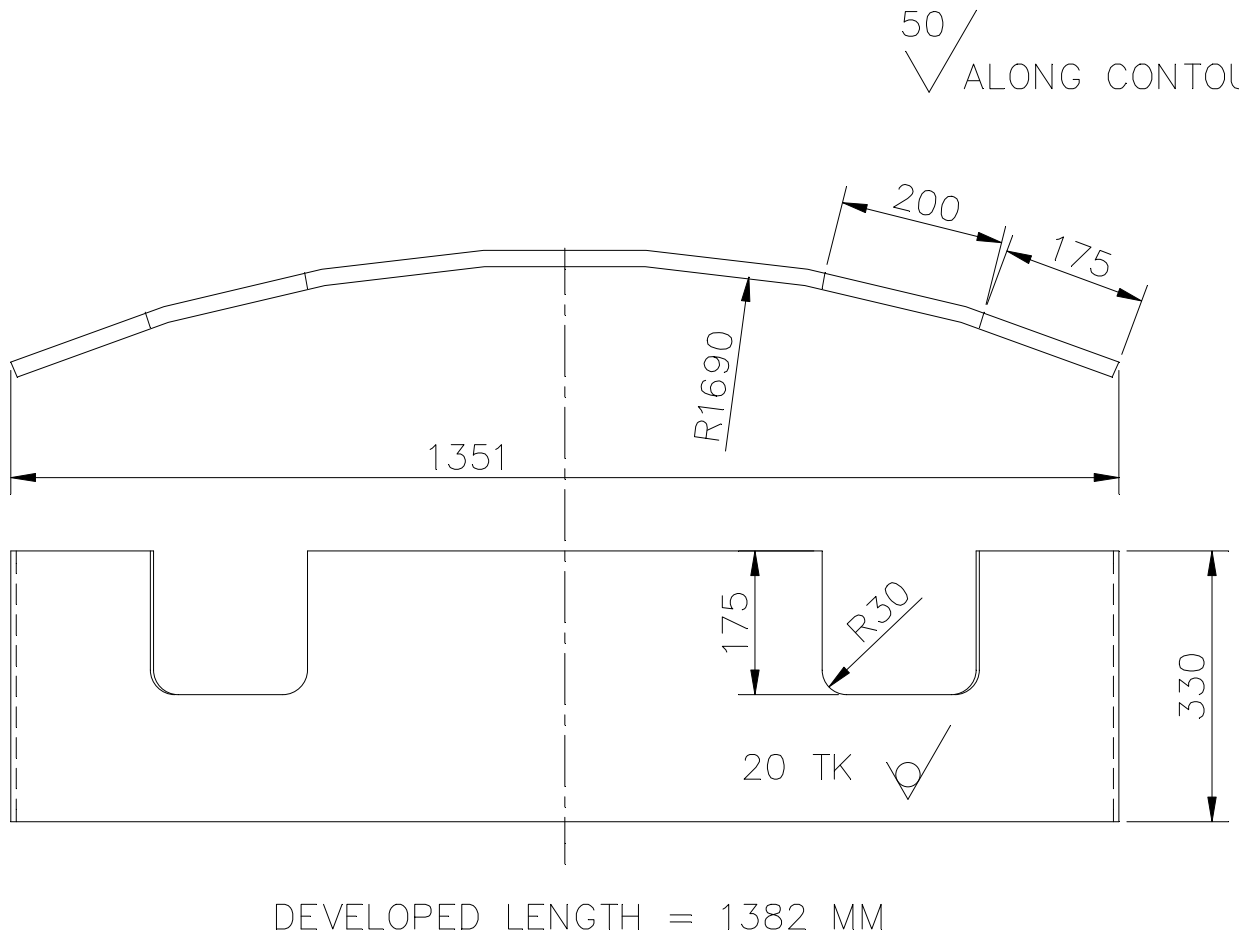
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

24-2121-126598/53
REF.DRG.No.

SIGN & DATE

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR
					DRN	STGEPK	STGEPK	12/01/2007	
					CHD	ATGERK	ATGERK	12/01/2007	
					APD	ATGERK	ATGERK	24/01/2007	
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No OF ITEMS
	CODE 4133		1:10	57.5	01393601012			No. 53	
	TITLE PLATE THDF 125/67				DRAWING No. 41393601191				
	SHEET No.1			No.OF SHEETS1					

[illegible]



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

STGEPK	STGEPK	12/01/2007
ATGERK	ATGERK	12/01/2007
ATGERK	ATGERK	24/01/2007

TGE

4133

1:10

61

01393601012 54

PLATE

THDF 125/67

41393601192

1

1

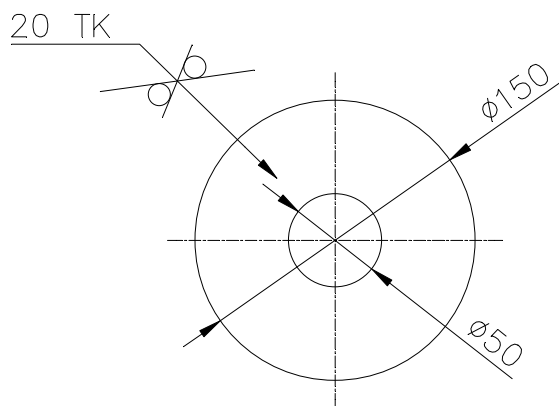
24-2121-126598/54

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601012		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007
GRADE OF UNTOL.DIM.M/CG/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			

50 /
✓ ALONG CONTOUR



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400.397

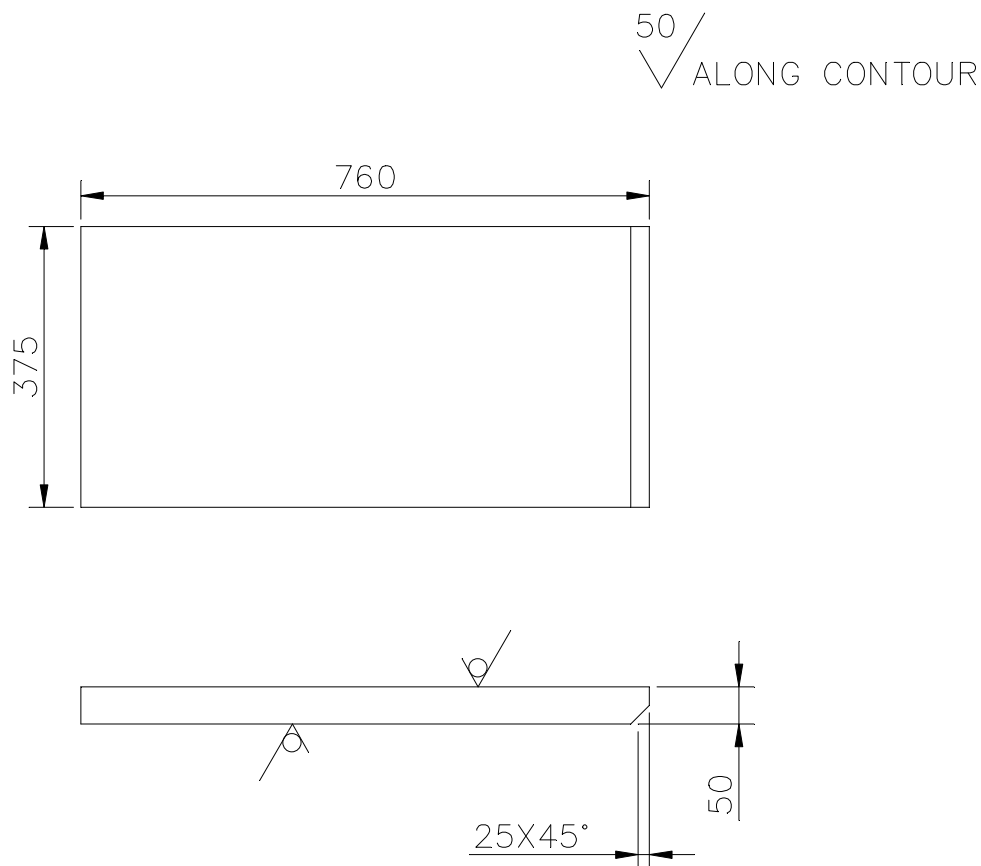
INVENTORY No.	DEPT.TGE		SCALE 1: 20	WEIGHT(Kg) 2.45	REF.TO ASSY.DRG.		ITEM No. 89	No OF ITEMS
	CODE 4133				01393601012			
SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR				NAME	SIGN	DATE	NO. OF VAR
					DRN	STGEPK	STGEPK	
REF.DRG.No.					CHD	ATGERK	ATGERK	12/01/2007
					APD	ATGERK	ATGERK	24/01/2007
TITLE PLATE THDF 125/67					DRAWING No. 41393601193			
					SHEET No.1		No.OF SHEETS1	

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601013		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007

GRADE OF UNTOL.DIM.M/CG/M/AA0230208 WELDING A/B/C/D AA0621104 GAS CUTTING-T3 AA0621101



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

24-2101-114300/019

REF.DRG.No.

SIGN & DATE

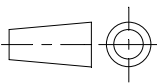


BHARAT HEAVY ELECTRICALS LTD
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEPK	STGEPK	12/01/2007	
CHD	ATGERK	ATGERK	12/01/2007	
APD	ATGERK	ATGERK	24/01/2007	

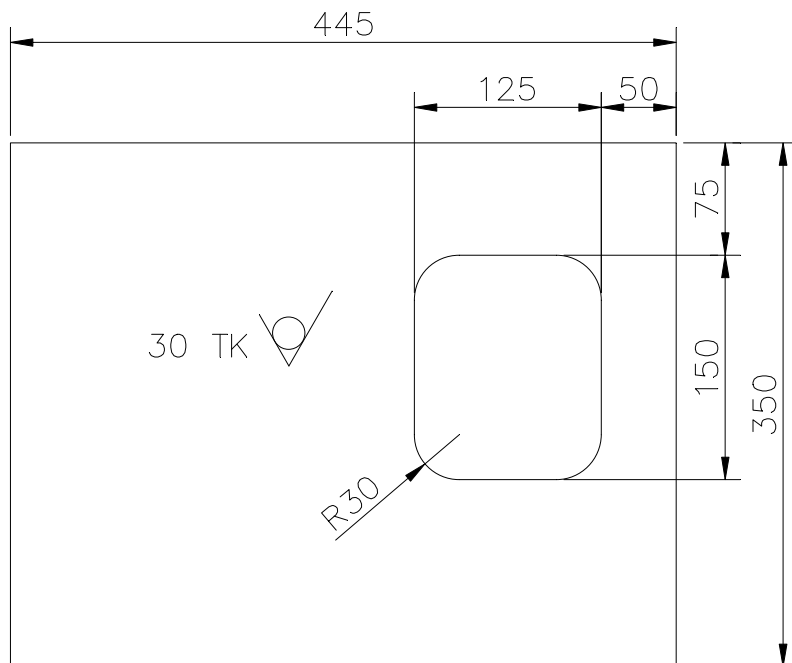
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:10	111	01393601013	19	
	TITLE				DRAWING No.		
	PLATE				41393601194		
	THDF 125/67				SHEET No.1		No.OF SHEETS1

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR	
					DRN	STGEPK	STGEPK	12/01/2007		
					CHD	ATGERK	ATGERK	12/01/2007		
					APD	ATGERK	ATGERK	24/01/2007		
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No. OF ITEMS	
	CODE 4133		1:10	99	01393601013			No. 20		
	TITLE				DRAWING No.					
	PLATE				41393601195					
	THDF 125/67					SHEET No.1			No. OF SHEETS1	

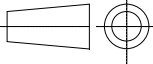
REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.			STATUS
		CHECKED			CHECKED	01393601013			OF DRG
						AGREED	NAME	SIGN	DATE
						DEPT.			
						WTX	AWTXTSC	AWTXTSC	19/01/2007
GRADE OF UNTOL.DIM.M/CGØ/M/F			AA0230208			WELDING A/B/C/D			AA0621104
						GAS CUTTING-T3			AA0621101

50
✓ ALONG CONTOUR



TECHNICAL REQUIREMENTS

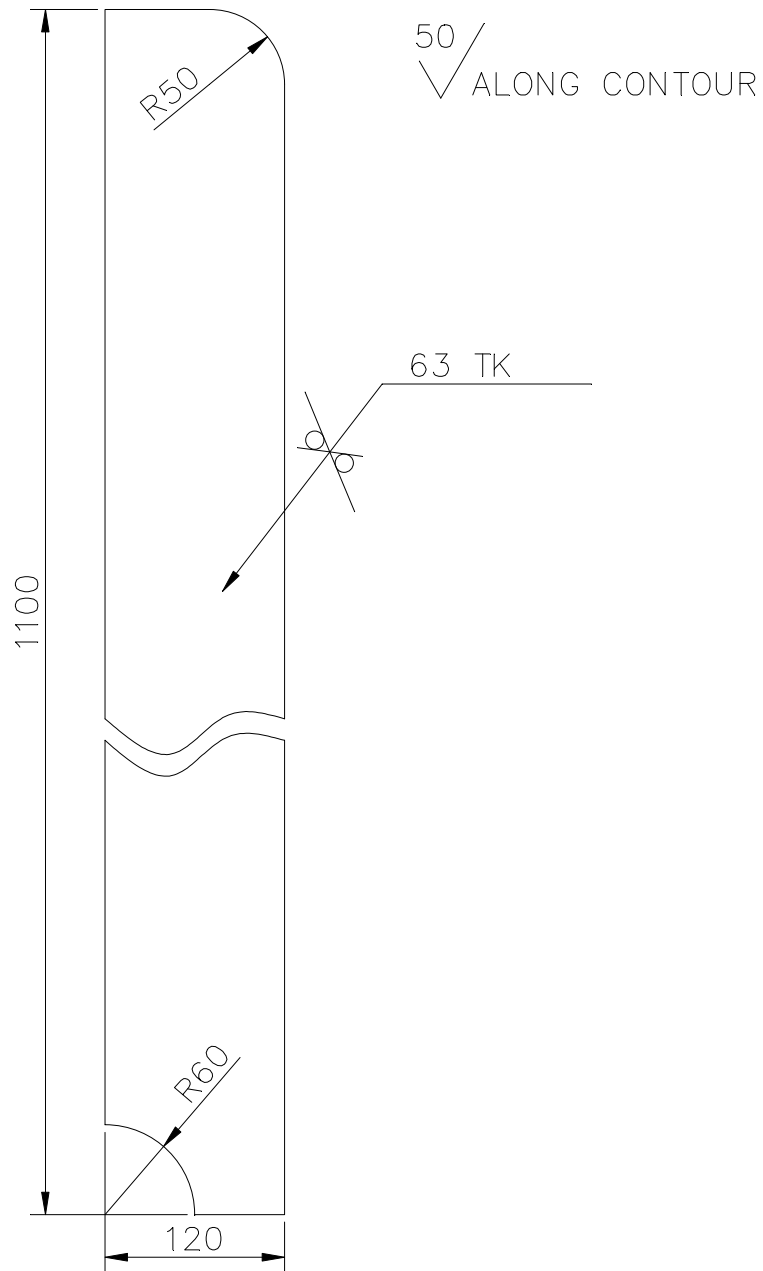
1. IDENTIFICATION ACCORDING TO HW0400.397

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR	
					DRN	STGEPK	STGEPK	12/01/2007		
					CHD	ATGERK	ATGERK	12/01/2007		
					APD	ATGERK	ATGERK	24/01/2007		
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No. OF ITEMS	
	CODE 4133		1: 5	32.5	01393601013			No. 39		
	TITLE PLATE THDF 125/67				DRAWING No. 41393601196					
					SHEET No.1		No.OF SHEETS1			

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

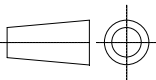
REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601013		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

SIGN & DATE	1. IDENTIFICATION ACCORDING TO HW0400.397									
	 BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR	
					DRN	STGEPK	STGEPK	12/01/2007		
					CHD	ATGERK	ATGERK	12/01/2007		
			APD	ATGERK	ATGERK	24/01/2007				

INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM	No. OF ITEMS
	CODE 4133		1: 5	63.5	01393601013	No. 43	
	TITLE				DRAWING No.		
	PLATE THDF 125/67				41393601197		
				SHEET No.1		No.OF SHEETS1	

--	--	--	--	--	--	--	--	--	--

COPYRIGHT AND CONFIDENTIAL

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

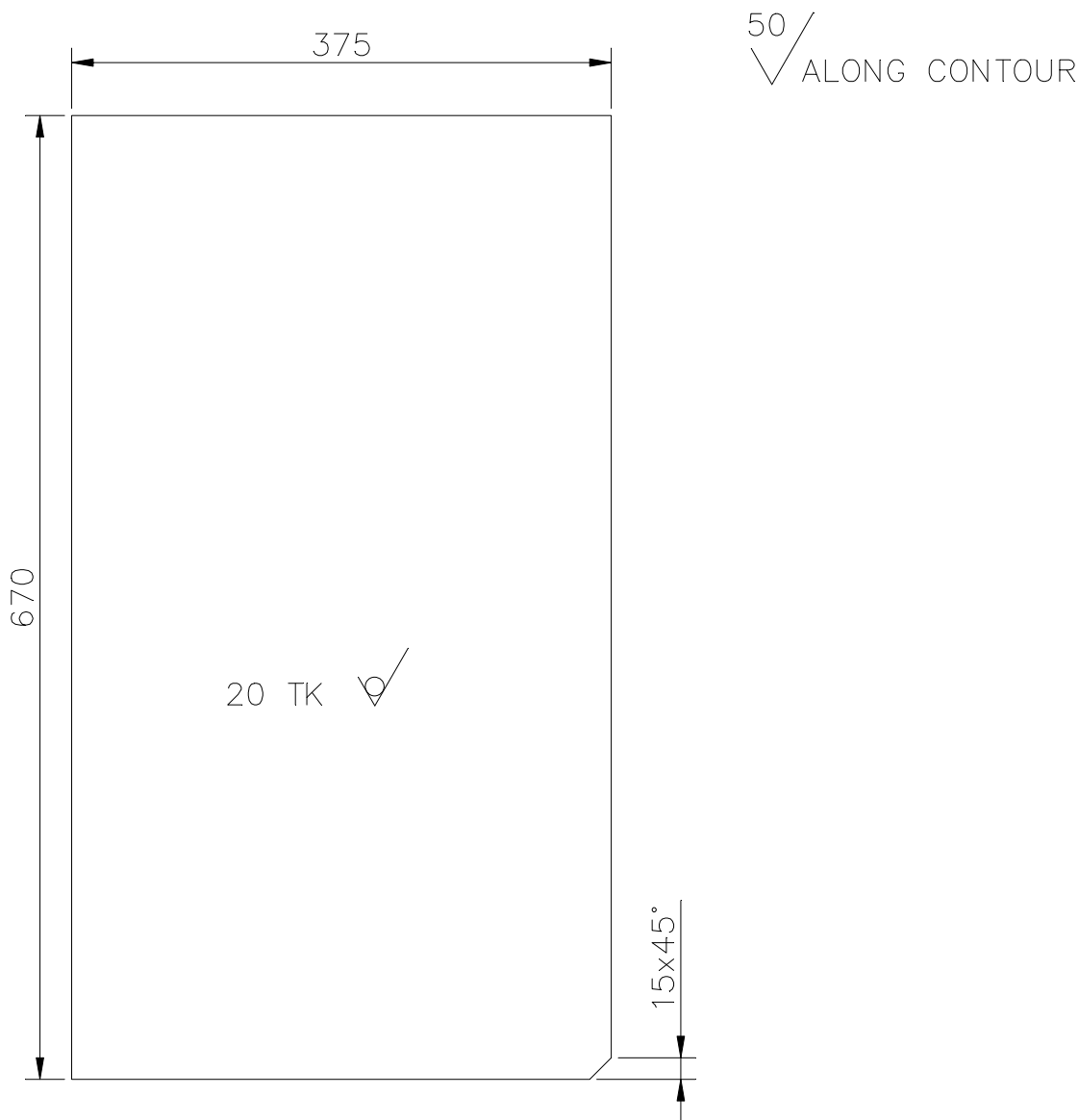
24-2121-126675/043
REF.DRG.No.

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

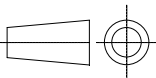
REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01393601013		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007

GRADE OF UNTOL.DIM.M/CG/M/F.AA0230208 WELDING A/B/C/D AA0621104 GAS CUTTING-T3 AA0621101



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400.397

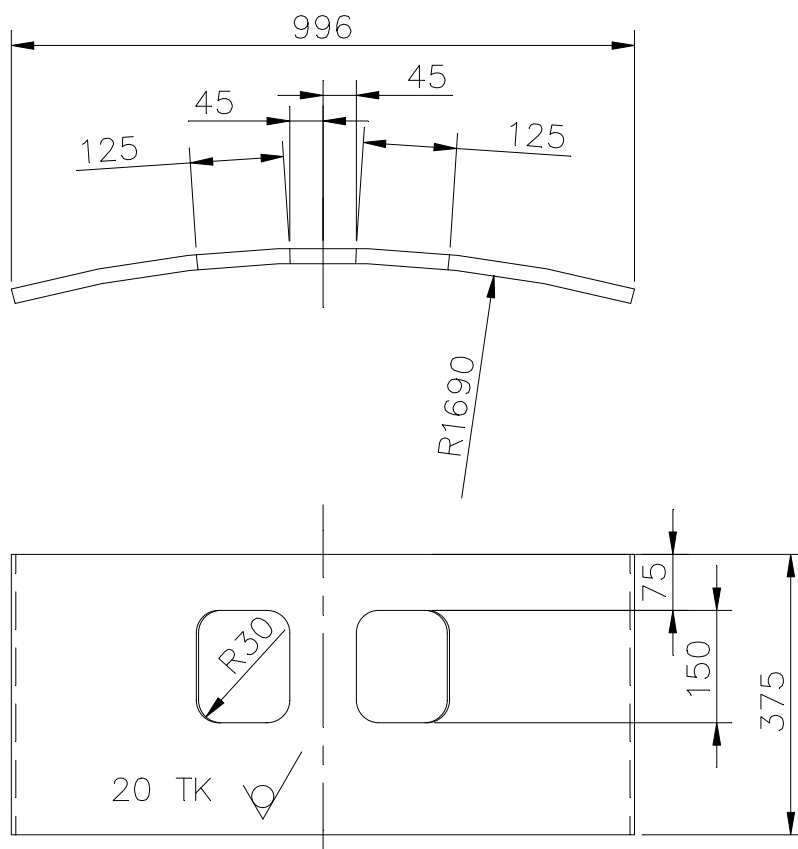
SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR
					DRN	STGEPK	STGEPK	12/01/2007	
					CHD	ATGERK	ATGERK	12/01/2007	
					APD	ATGERK	ATGERK	24/01/2007	
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.		ITEM	No OF ITEMS	
	CODE 4133		1: 5	39.4	01393601013		No. 52		
	TITLE				DRAWING No.				
	PLATE				41393601198				
	THDF 125/67				SHEET No.1		No.OF SHEETS1		

COPYRIGHT AND CONFIDENTIAL
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

24-2101-114300/052
REF.DRG.No.

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.			STATUS OF DRG
		CHECKED			CHECKED	01393601013			
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	19/01/2007
GRADE OF UNTOL.DIM.M/CGØ/M/F-AA0230208			WELDING A/B/C/D-AA0621104			GAS CUTTING-T3 AA0621101			

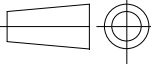
50
✓ ALONG CONTOUR



DEVELOPED LENGTH=1005 MM

TECHNICAL REQUIREMENTS

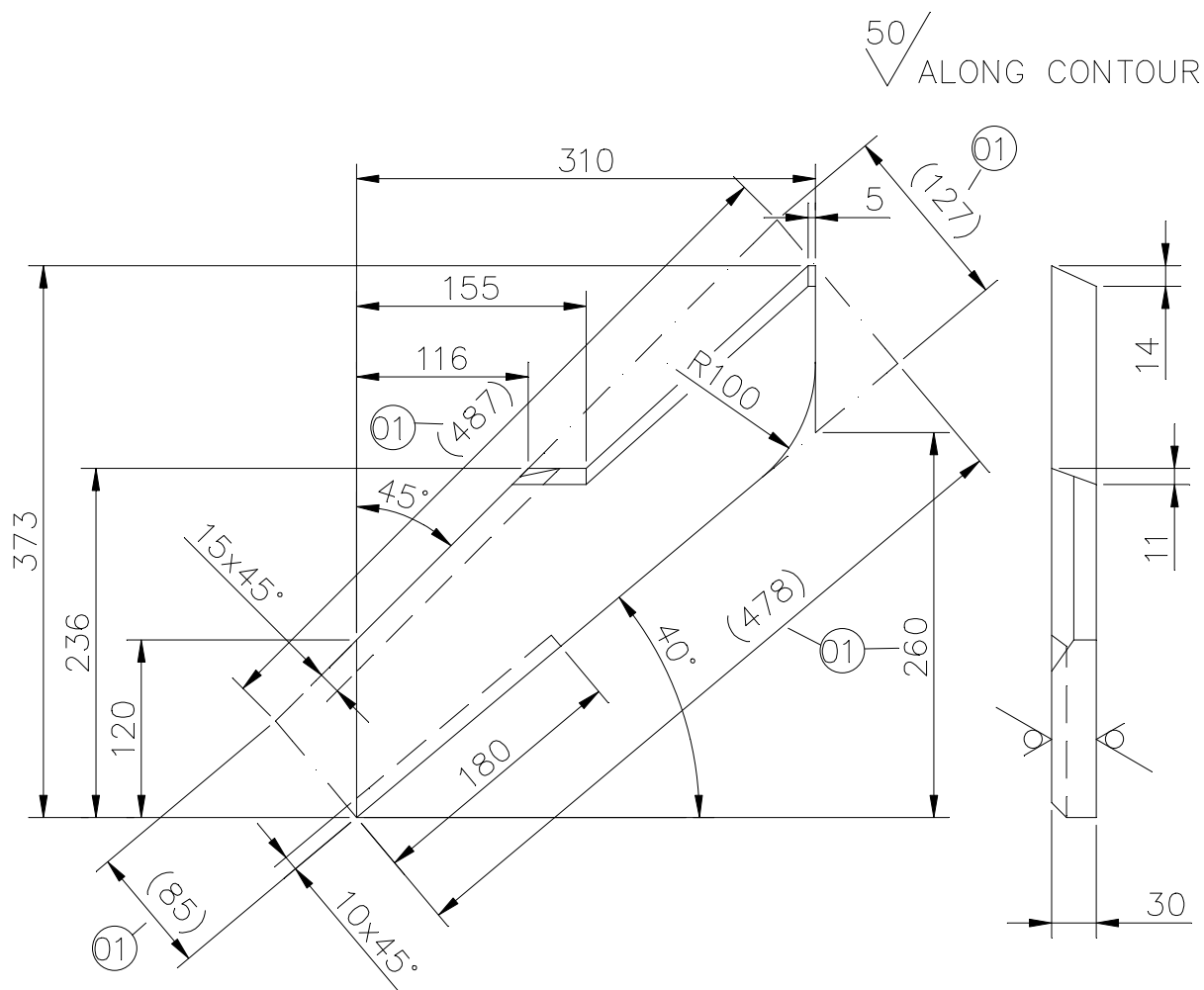
1. IDENTIFICATION ACCORDING TO HW0400.397

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR						NAME	SIGN	DATE	NO. OF VAR
						DRN	STGEPK	STGEPK	12/01/2007	
						CHD	ATGERK	ATGERK	12/01/2007	
						APD	ATGERK	ATGERK	24/01/2007	
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No. OF ITEMS	
	CODE 4133		1: 5	53.5	01393601013			No. 56		
	TITLE				DRAWING No.					
	PLATE				41393601199					
	THDF 125/67					SHEET No.1			No. OF SHEETS1	

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PAWAN SD/-	CBOM No. 01393601013	STATUS OF DRG			
		CHECKED	01	15/10/13	CHECKED	PRASHANT SD/-					
			CHANGES DONE AS PER CHANGE ADVICE NO. TGE-13-F0311				AGREED DEPT.	NAME	SIGN	DATE	
							WTX	AWT	TXTSCA	WTXTSCA	19/01/2007
GRADE OF UNTOL.DIM.M/CGØ/M/Ø			AA0230208			WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397.

24-2101-118628/062
REF.DRG.No.

SIGN & DATE

BHARAT HEAVY ELECTRICALS LTD
HARDWAR

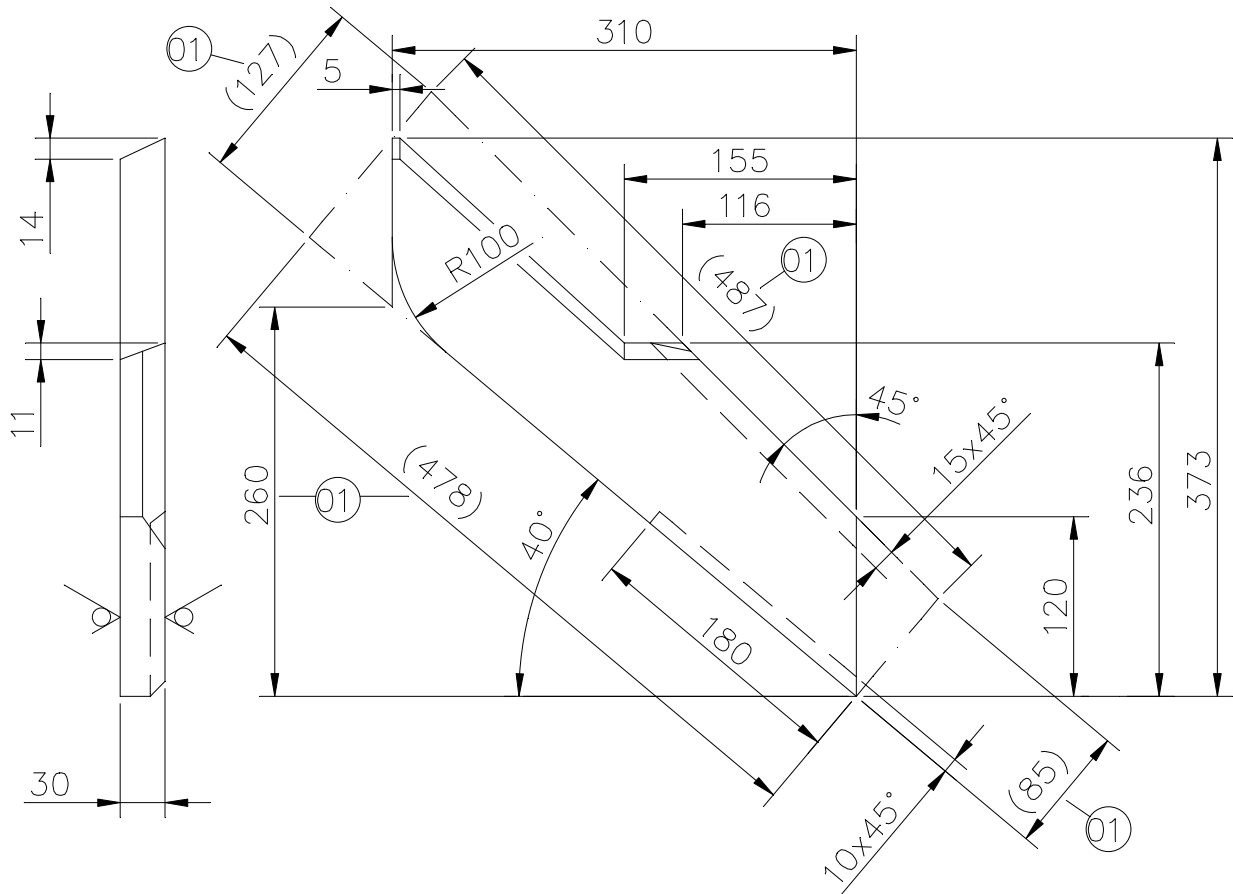
	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEPK	STGEPK	12/01/2007	
CHD	ATGERK	ATGERK	12/01/2007	
APD	ATGERK	ATGERK	24/01/2007	

INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No. OF ITEMS	
	CODE 4133		1: 5	32.5	01393601013	62		
	TITLE				DRAWING No.			
	PLATE				41393601201			
	THDF 125/67				SHEET No.1			No. OF SHEETS1

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

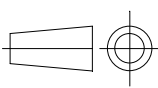
REV	DATE	ALTERED	REV	DATE	ALTERED	PAWAN SD/-	CBOM No.			STATUS
		CHECKED	01	15/10/13	CHECKED	PRASHANT SD/-	01393601013			OF DRG
			CHANGES DONE AS PER CHANGE ADVICE NO. TGE-13-F0311				AGREED	NAME	SIGN	DATE
							DEPT.			
							WTX	AWT	XTSC	AWT
GRADE OF UNTOL.DIM.M/C/G/M/F.AA0230208			WELDING A/B/C/D AA0621104				GAS CUTTING-T3 AA0621101			

50/✓
ALONG CONTOUR

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397.

24-2101-118628/063
REF.DRG.No.

SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR					NAME	SIGN	DATE	NO. OF VAR	
					DRN	STGEPK	STGEPK	12/01/2007		
					CHD	ATGERK	ATGERK	12/01/2007		
					APD	ATGERK	ATGERK	24/01/2007		
INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No OF ITEMS	
	CODE 4133		1:5	32.5	01393601013			No. 63		
	TITLE				DRAWING No.					
	PLATE THDF 125/67				41393601202					
					SHEET No.1		No.OF SHEETS1			



CORPORATE STANDARD

AA 067 36 02

Rev. No. 03

PAGE : 1 OF 6

PROCESS FOR ELECTROPLATING TIN FROM ALKALINE BATH ON FERROUS AND NON-FERROUS METAL PARTS

1.0 GENERAL :

This standard details the process for Tin plating by Vat and Barrel process from an alkaline tin solution on articles of steel, copper and copper alloys to protect them against corrosion, to provide surface for soldering of electrical contacts & terminals and for masking during nitriding. Barrel process for smaller components and tank process for larger components shall be followed.

2.0 APPLICATION :

Used for bus-bar connections, spout connections, cable sockets, etc., of switchgear; hardware like nuts, bolts, connection cams of transformer; brush holder, cable glands, etc., of traction motors; clamp plates, support plates, etc., of capacitors; clamps, brackets, etc., of electronics.

3.0 COMPLIANCE WITH NATIONAL STANDARDS :

This Standard has reference to IS:1359-92 (Reaffirmed 2001): Electroplated coating Tin-Specification.

4.0 MATERIALS

AVAILABLE FROM

Satin Tin Salt-721	: M/S Platewel Processes & Chemicals Ltd., Baroda
Satin Tin Salt	: M/S Grauer & Weil (I) Ltd., Mumbai
Mutton Tallow (Optional)	: Having acid neutralization value of 2.3 to 6.6 mg of KOH/g of mutton tallow
Sodium Perborate	: IS:3598
Hydrogen Peroxide -20 volume :	
Caustic Soda	: AA 54201
Tin Anodes	: IS:2384
Sodium Stannate	: IS:3026

Revisions :

Ref. CL31.11.5 of MOM of MRC (C)

APPROVED :

INTERPLANT MATERIAL RATIONALISATION COMMITTEE-MRC (C)

Rev. No. 03

Amd.No.

Reaffirmed

Prepared

Issued

Dt. of 1 st Issue

Dt.: 15.10.02

Dt :

Year :

BHOPAL

Corp. R&D

Jan '85

AA 067 36 02	CORPORATE STANDARD	
Rev. No. 03		
PAGE : 2 OF 6		

5.0 EQUIPMENT :

5.1 Plating Tank / Vat :

The Tank/vat shall be made of mild steel. The vat shall be provided with an insulated frame on top fitted with insulators for holding the anode and cathode rods. The solution shall be heated by steam, gas or electrical heater..

5.2 Barrel :

The plating barrel shall be constructed of hard rubber, polypropylene, etc., and shall be so driven as to rotate at 10 to 15 rpm.

5.3 Cold Water Rinsing Tank:

Mild steel tank.

5.4 Hot Water Rinsing Tank :

Mild steel tank with heating arrangements.

6.0 COMPOSITION OF ELECTROLYTE AND OPERATING INSTRUCTIONS :

6.1 Electrolyte (Bath Solution) And Operating Conditions :

The electrolyte shall be of the following compositions and operating conditions as specified below :

	<u>SATIN TIN SALT-721</u>	<u>SATIN TIN SALT</u>
Salt for Vat Plating	: 150 g/l	110 g/l
Salt for Barrel Plating	: 250 g/l	200 g/l
Temperature	: 60 - 70°C	60 - 80° C
Ratio of Anode to Cathode Area (Approximately)	: 1:1	1:1
Current density (for information only and not a controlling parameter)	: 1.5 - 2.0 A/dm ² (15-20 A/sq.ft)	1.5 - 2.0 A/dm ² (15-20 sq/ft)
Voltage for Vat	: 2-6 V	2-6 V
Voltage for Barrel	: 10±2 V	10±2 V

6.2 Preparation of Electrolyte :

The vat/barrel shall be filled with water to about 2/3rd capacity and then heated to nearly 50°C.

The required amount of tin salt shall be added to the water in small quantities with stirring.

After complete dissolution, the electrolyte shall be brought upto the working level by adding water and subsequently stirred thoroughly and heated to the operating temperature.



CORPORATE STANDARD

AA 067 36 02

Rev. No. 03

PAGE : 3 OF 6

6.3 Analysis of the Electrolyte :

The electrolyte shall be analysed after initial make-up and subsequently at suitable intervals.

The concentration of the electrolyte shall be maintained at the following limits :

Tin (Metal)	For vat plating	:	30 - 40 g/litre
	For barrel plating	:	50 - 60 g/litre
Free Caustic Soda (NaOH)	For vat plating	:	8 - 16 g/litre
	For barrel plating	:	20 - 30 g/litre

6.4 Temperature and voltage shall be recorded during plating.

7.0 PROCESS OF PLATING:

7.1 Cleaning :

All articles shall be properly cleaned as described in BHEL Standard AA 067 36 01 : Process for cleaning and preparation of metal surfaces prior to electroplating , except passivation. If required electrolytic cleaning can also be carried out additionally.

7.2 Rinsing :

All articles shall be rinsed thoroughly after cleaning to avoid contamination of the plating solution.

7.3 Pre-heating (Optional):

Before dipping in the plating bath all articles should be dipped in a hot water (80-90°C) bath for pre-heating purpose.

7.4 Plating :

All articles shall be plated at the specified current density for a duration which will depend on the thickness of the deposit required.

Note: It shall be ensured that the anodes are never put in the solution before the vat/barrel is loaded and the current switched on. Likewise the anodes shall be removed before switching off the current after the plating is done.

7.5 Cold Rinsing :

After removal from the plating bath, all articles shall be rinsed thoroughly in cold running water till any trace of tin solution is removed.

7.6 Hot Rinsing:

Finally, all articles shall be rinsed in clean hot water at 80-90°C and dried.

AA 067 36 02

Rev. No. 03

PAGE: 4 OF 6

CORPORATE STANDARD**7.7 Reflowing of Tin Deposit (Optional):**

Castings having surface impurities like cavities and blow holes, where removal of entrapped alkaline tin solution is not possible, shall be immersed in a mutton tallow bath maintained at $260 \pm 10^\circ\text{C}$ for 2 to 10 seconds. After flow melting, the articles are quenched in a bath containing kerosene oil at the top and water at the bottom. The residual oil from the flow melted surface shall be removed by vapour degreasing or by dipping in trichloroethylene. The thickness range of coating that can be flow melted is 2.5 to 7.5 microns.

8.0 HEAT TREATMENT :**8.1 Stress Relieving Before Plating :**

Severely cold-worked steels or parts made from steel of tensile strength of 100kgf/mm^2 or greater which have been ground or subjected to severe machining after tempering, shall normally be stress relieved by maintaining them at $200 \pm 10^\circ\text{C}$, for not less than one hour or, preferably, for 30 minutes at the highest temperature within the limits imposed by the tempering temperature.

- 8.1.1** Some steels which have been carburized, flame-hardened or induction-hardened and subsequently ground would be impaired by the above treatment and shall instead be stress relieved at $140 \pm 10^\circ\text{C}$ for not less than five hours.

8.2 Heat Treatment After Plating (Optional):

- 8.2.1** Components subjected to critical fatigue or sustained loading stressed in service and made from severely cold-worked steels or from steels exceeding 100 kgf/mm^2 tensile strength shall be heat treated at $185 \pm 5^\circ\text{C}$ for not less than two hours.

- 8.2.2** Where the temperature of heat treatment in 8.2.1 would be harmful, for example, for some surface-hardened parts, a lower temperature for a longer time may be required.

NOTE:

When tin is plated on the article for soft soldering purposes, it may be flow melted at a temperature of 250 to 260°C to overcome difficulties in soldering during long periods of storage.

9.0 MAINTAINANCE OF ELECTROLYTE:

- 9.1** If the electrolyte is low in tin and caustic soda, then add tin salt according to the requirement
- 9.2** To increase the tin content without affecting the caustic soda content, and addition of sodium stannate should be made.



CORPORATE STANDARD

AA 067 36 02

Rev. No. 03

PAGE : 5 OF 6

9.3 If the bath works sluggishly and the anodes are coated with a thick encrustation, it is an indication that the solution is deficient in free caustic soda. The deficiency shall be corrected by maintaining free caustic soda as per clause 6.3.

9.4 If the deposit is rough, dark spongy, sodium perborate shall be added to the solution at the rate of 0.4 g/l of solution. Alternatively, 20 volume Hydrogen Peroxide to the extent of 1.5 ml/litre of solution may be added.

10.0 CARE OF ANODES :

When working correctly the anodes are covered with a greenish yellow film the continuous maintenance of which is most important.

To obtain this film in the first instance, the vat/barrel shall be loaded with dummy cathodes (e.g. steel sheets). The current switched on and then the tin anodes shall be introduced on the one as each becomes filmed over. This is known as polarisation of anode. The current density necessary for this operation is about twice that normally used for plating. The formation of the film shall be at once apparent by the pale yellow brassy appearance of the anodes and shall also be indicated by a rapid fall in amperage and increase in voltage. As soon as the anodes are properly polarised in this manner, the current shall be reduced to normal and dummy cathodes replaced, one by one, with the articles to be plated. The batch shall be operated continuously for several hours, if possible, removing a number of articles at a time and replacing them with others before further unloading. In this way there will always be sufficient current passing to keep the anodes filmed the whole time they are in the vat/barrel.

At the end of day's work, anodes shall be taken out, current switched off and finally plated articles shall be removed. On commencing work again, the vat/barrel shall be loaded with articles current switched on and then anodes shall be introduced. If for any reason, the anodes lose their greenish yellow surface film and become a normal tin color they must be 'worked in' again as directed at the beginning of this clause until properly filmed over. It is important that the current be kept flowing continuously the whole time the anodes are in the vat/barrel in order to maintain the necessary film upon them. Failure to observe this precaution and keeping the anodes polarised will give rise to the formation of stannite (i.e. stannous tin) in solution and cause the plating to be dark and rough in texture.

11.0 PRECAUTIONS :

Solution shall be kept covered when not in use.

Any chemical that may be necessary to be added shall be dissolved in a part of the original solution before adding it to the vat/barrel. It shall be poured through a filter.

Any metal that may be deposited on any part of the vat/barrel shall be removed.

Any article that becomes lodged in any part of the vat / barrel shall be removed.

AA 067 36 02

Rev. No. 03

PAGE : 6 OF 6

CORPORATE STANDARD**12.0 INSPECTION AND QUALITY OF DEPOSIT :****12.1 Sampling :**

A sample from each batch of tank/barrel load shall be tested.

12.2 Condition of Surface :

The plated surface shall appear as a smooth and continuous film over the base metal and shall be free from defects such as pits, stains, cracks, blisters, unplated areas and other superficial blemishes visible to the unaided eye. The plated surface shall be matt white and free from nodules.

12.3 Thickness of Deposit:

Thickness of deposit shall be as per Appendix A of IS:1359.

12.4 Adhesion Type Test (Cl 9.3, Appendix- C of IS:1359):

The flaking and blistering of the coating shall be taken as evidence of unsatisfactory adhesion.

12.5 Solderability test (Cl 9.5, Appendix-D of IS:1359):

This test shall be carried out whenever specified on BHEL order.

The samples shall be considered solderable, if they show a uniform coating free from discontinuities or breaks visible to the unaided eye.

Samples of tin coating on copper and copper alloys shall be subjected to preliminary artificial ageing treatment as per clause D-3.1.

13.0 REJECTION :

If the samples taken do not comply with clauses 12.2 to 12.5 a further quantity not less than twice the number originally taken shall be subjected to these tests. If any one of these samples also fails, the whole batch shall be rejected.

14.0 REFERRED STANDARDS (Latest Publications Including Amendments) :

- | | | | |
|-------------|-----------------|--------------|--------------|
| 1) IS:1359 | 2) IS : 2384 | 3) IS : 3026 | 4) IS : 3598 |
| 5) AA 54201 | 6) AA 067 36 01 | | |



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601010

Var: 00

Revno: 26

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD LOWER HALF TE(WELD)

Tot wt: 8450.0

Item No	Drawingno Var Mvar			Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
0			01393601010 00			8450.0
1(1)			END SHIELD LOWER HALF TE(WELD)			
MF	DR		THDF 115/67		Y	
12				AA1011819279	AA10119	2993.0
1(1)			PLATE (IT-12 ON SH-2)			
MF	DR	H8	ST-FE410 WB-PLATE			
14				AA1011819210	AA10119	1185.7
1(1)			PLATE (IT-14 ON SH-2)			
MF	DR	J9	ST-FE410 WB-PLATE			
15				AA1011819279	AA10119	610.0
2(2)			PLATE (ITEM-15 ON SH-2)			
MF	DR	L7	ST-FE410 WB-PLATE			
19				AA1011819210	AA10119	111.0
1(1)			PLATE (ITEM-19 ON SH-2)			
MF	DR	H14	ST-FE410 WB-PLATE			
20				AA1011819210	AA10119	99.0
1(1)			PLATE (ITEM-20 ON SH-2)			
MF	DR	H12	ST-FE410 WB-PLATE			
21				AA1011819279	AA10119	800.0
1(1)			PLATE (ITEM-21 ON SH-2)			
MF	DR	K9	ST-FE410 WB-PLATE			
23				AA1011819236	AA10119	420.0
1(1)			PLATE (ITEM-23 ON SH-2)			
MF	DR	J9	ST-FE410 WB-PLATE			
25				AA1011819236	AA10119	76.0
2(2)			PLATE (ITEM-25 ON SH-2)			
MF	DR	K12	ST-FE410 WB-PLATE			
31				AA1011819236	AA10119	94.0
1(1)			PLATE (ITEM-31 ON SH-2)			
MF	DR	J11	ST-FE410 WB-PLATE			
32				AA1011819236	AA10119	95.0
2(2)			PLATE (ITEM-32 ON SH-2)			
MF	DR	J13	ST-FE410 WB-PLATE			
37				AA1041801343	AA10401	300.0
1(1)			PLATE (ITEM-37 ON SH-2)			
MF	DR	K6	ST-2-N-PLATE			
39				HW1011819953	AA10119	28.7
1(1)			PLATE (ITEM-39 ON SH-2)			
MF	DR	J11	ST-FE410 WB-PLATE			
40				AA1011819236	AA10119	66.0
1(1)			PLATE (ITEM-40 ON SH-2)			
MF	DR	F8	ST-FE410 WB-PLATE			
41				AA1011819210	AA10119	65.0
1(1)			PLATE (ITEM-41 ON SH-2)			
MF	DR	K7	ST-FE410 WB-PLATE			
43				AA1011819236	AA10119	66.0
1(1)			PLATE (ITEM-43 ON SH-2)			
MF	DR	F5	ST-FE410 WB-PLATE			

ENGG

Initial Date

Worked By tgerk 31.07.2002
Checked By tgerk 14.01.2003
Approved By tgercb 22.01.2003



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601010

Var: 00

Revno: 26

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD LOWER HALF TE(WELD)

Tot wt: 8450.0

Item No	Drawingno Var Mvar			Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
44			31393601081 00	AA1011819236	AA10119	80.0
2(2)			PLATE			
MF	DR	E5				
45				AA1011819236	AA10119	62.5
1(1)			PLATE (ITEM-45 ON SH-2)			
MF	DR	E6	ST-FE410 WB-PLATE			
46				AA1011819236	AA10119	62.5
1(1)			PLATE (ITEM-46 ON SH-2)			
MF	DR	E8	ST-FE410 WB-PLATE			
50			41393601185 00 00	W96413903074	AA10740	0.4
1(1)			PROTECTIVE PIPE		CBOM01393601009	
BO	DR	H11				
52				AA1011819139	AA10119	39.4
2(2)			PLATE (ITEM-52 ON SH-2)			
MF	DR	K16	ST-FE410 WB-PLATE			
56				AA1011819139	AA10119	43.6
1(1)			PLATE (ITEM-56 ON SH-2)			
MF	DR	J16	ST-FE410 WB-PLATE			
57				AA1011819139	AA10119	14.7
1(1)			PLATE (ITEM-57 ON SH-2)			
MF	DR	J10	ST-FE410 WB-PLATE			
60			41393601158 00 00	AA1020218142	AA10218	0.4
4(4)			SCREW PLUG		FOR PRESS TEST	
MF	DR	F16				
61				HW1011819953	AA10119	14.0
1(1)			PLATE (ITEM-61 ON SH-2)			
MF	DR	D7	ST-FE410 WB-PLATE			
62				HW1011819953	AA10119	8.6
1(1)			PLATE (ITEM-62 ON SH-2)			
MF	DR	E7	ST-FE410 WB-PLATE			
63				HW1011819953	AA10119	8.6
1(1)			PLATE (ITEM-63 ON SH-2)			
MF	DR	E7	ST-FE410 WB-PLATE			
67			41393601180 00 00	HW1041055730	AA10455	3.0
2(2)			PIPE		CBOM01393601009	
MF	DR	K12				
79			21393601027 00 00	AA1041146108	AA10446	10.5
1(1)			PIPE		CBOM01393601009	
MF	DR	D7				
80			21393601028 00 00	AA1041146108	AA10446	10.5
1(1)			PIPE		CBOM01393601009	
MF	DR	D6				
81			21393601029 00 00	AA1041146108	AA10446	9.6
1(1)			PIPE		CBOM01393601009	
MF	DR	D7				
82			21393601030 00 00	AA1041146108	AA10446	9.6
1(1)			PIPE		CBOM01393601009	
MF	DR	D6				

ENGG

Initial Date

Worked By tgerk 31.07.2002
 Checked By tgerk 14.01.2003
 Approved By tgercb 22.01.2003



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601010 Var: 00 Revno: 26 Rev Date: 07.11.2023

Printed By:

Description: END SHIELD LOWER HALF TE(WELD) Tot wt: 8450.0

Item No	Drawingno Var Mvar		Mat Code	Mat Spec	Weight
Qty(Total)	Description			Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description	GRP	Fab Wt
84			31393601180 00		5.5
1(1)			PIPE ASSEMBLY	CBOM01393601009	
MF	DR	J9		N	
84-1			AA1041055021	AA10455	0.5
1(1)			PIPE 88.9X4 L=56		
MF	DR		ST-B-HFS-PIPES		
84-2			41393601181 00	W96414900656	0.9
1(1)			BEND 54 DEG	TG60123	
BO	DR			CUT TO DRG	
84-3			41393601182 00	W96414900656	0.6
1(1)			BEND 36 DEG	TG60123	
BO	DR			CUT TO DRG	
84-4			AA1041055021	AA10455	3.686
1(1)			PIPE 88.9X4 L=440		
MF	DR		ST-B-HFS-PIPES		
87			41393601183 00	AA1011819279	0.9
2(2)			BRACKET	AA10119	
MF	DR	K14		CBOM01393601009	
90			41393601137 00 00	HW1011819953	3.0
2(2)			LIFTING LUG	AA10119	
MF	DR	L16		CBOM91393601003	
91			AA1011819236	AA10119	11.9
1(1)			PLATE		
MF	DR	K9	ST-FE410 WB-PLATE		
93			41393601184 00 00	HW1011819953	0.4
2(2)			PLATE	AA10119	
MF	DR	L6		CBOM01393601009	
99			AA1011819074	AA10119	0.2
18(18)			PLATE 50X50		
MF	DR	D7	ST-FE410 WB-PLATE		
100			31393601094 00	AA1011819210	21.3
1(1)			PLATE	AA10119	
MF		C15			
101			41350101395 00 00	AA1011819155	0.14
9(9)			EARTHING PIECE	AA10119	
MF				BOR.01350101054	

ENGG

Initial Date

Worked By tgerk 31.07.2002
Checked By tgerk 14.01.2003
Approved By tgercb 22.01.2003



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601011

Var: 00

Revno: 18

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD UPPER HALF TE(WELD)

Tot wt: 7270.0

Item No	Drawingno Var Mvar			Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
0			01393601011 00			7270.0
1(1)			END SHIELD UPPER HALF TE(WELD)			
MF	DR		THDF 115/67		Y	
11				AA1011819279	AA10119	2960.0
1(1)			PLATE (ITEM-11 ON SH-2)			
MF	DR	M7	ST-FE410 WB-PLATE			
13				AA1011819210	AA10119	866.0
1(1)			PLATE (ITEM-13 ON SH-2)			
MF	DR	L9	ST-FE410 WB-PLATE			
17				AA1011819279	AA10119	590.0
2(2)			PLATE (ITEM-17 ON SH-2)			
MF	DR	J9	ST-FE410 WB-PLATE			
22				AA1011819236	AA10119	450.0
1(1)			PLATE (ITEM-22 ON SH-2)			
MF	DR	K9	ST-FE410 WB-PLATE			
27				AA1011819236	AA10119	93.0
2(2)			PLATE (ITEM-27 ON SH-2)			
MF	DR	L11	ST-FE410 WB-PLATE			
29				AA1011819236	AA10119	118.0
1(1)			PLATE (ITEM-29 ON SH-2)			
MF	DR	K11	ST-FE410 WB-PLATE			
30				AA1011819236	AA10119	118.0
1(1)			PLATE (ITEM-30 ON SH-2)			
MF	DR	K14	ST-FE410 WB-PLATE			
33				AA1011819236	AA10119	180.0
1(1)			PLATE (ITEM-33 ON SH-2)			
MF	DR	L7	ST-FE410 WB-PLATE			
34				AA1011819210	AA10119	175.0
1(1)			PLATE (ITEM-34 ON SH-2)			
MF	DR	L7	ST-FE410 WB-PLATE			
36				AA1041801343	AA10401	308.0
1(1)			PLATE (ITEM-36 ON SH-2)			
MF	DR	K7	ST-2-N-PLATE			
42				AA1011819236	AA10119	58.0
4(4)			PLATE (ITEM-42 ON SH-2)			
MF	DR	C14	ST-FE410 WB-PLATE			
47				AA1011819236	AA10119	20.0
1(1)			PLATE (ITEM-47 ON SH-2)			
MF	DR	C13	ST-FE410 WB-PLATE			
48				AA1011819236	AA10119	58.0
1(1)			PLATE (ITEM-48 ON SH-2)			
MF	DR	C15	ST-FE410 WB-PLATE			
49				AA1011819236	AA10119	58.0
1(1)			PLATE (ITEM-49 ON SH-2)			
MF	DR	C11	ST-FE410 WB-PLATE			
51				AA1011819139	AA10119	34.7
2(2)			PLATE (ITEM-51 ON SH-2)			
MF	DR	K10	ST-FE410 WB-PLATE			

ENGG

Initial Date

Worked By tgerk 31.07.2002
Checked By tgerk 14.01.2003
Approved By tgercb 22.01.2003



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601011

Var: 00

Revno: 18

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD UPPER HALF TE(WELD)

Tot wt: 7270.0

Item No	Drawingno Var Mvar			Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
53				AA1011819139	AA10119	50.0
2(2)			PLATE (ITEM-53 ON SH-2)			
MF	DR	L11	ST-FE410 WB-PLATE			
54				AA1011819139	AA10119	62.6
1(1)			PLATE (ITEM-54 ON SH-2)			
MF	DR	M12	ST-FE410 WB-PLATE			
60			41393601158 00 00	AA1020218142	AA10218	0.4
2(2)			SCREW PLUG		FOR PRESS. TEST	
MF	DR					
65			41393601130 00 00	HW1041055676	AA10455	6.0
2(2)			PIPE		CBOM91393601003	
MF	DR	M12				
77			31393601076 00 00	AA1041146108	AA10446	6.52
2(2)			PIPE		CBOM01393601008	
MF	DR	B14				
85			31393601077 00			4.35
1(1)			PIPE ASSEMBLY		CBOM01393601008	
MF	DR	K9			N	
85-1				AA1041055021	AA10455	0.385
1(1)			PIPE 88.9X4, L=46			
MF	DR		ST-B-HFS-PIPES			
85-2				W96414900656	TG60123	1.5
1(1)			BEND 90 DEG 88.9X4			
BO	DR		BEND 90 DEG. 88.9X4 GR-1			
85-3				AA1041055021	AA10455	2.43
1(1)			PIPE 88.9X4, L=290			
MF	DR		ST-B-HFS-PIPES			
89				AA1011819139	AA10119	2.45
2(2)			PLATE (ITEM-89 ON SH-2)			
MF	DR	L4	ST-FE410 WB-PLATE			
90			41393601137 00 00	HW1011819953	AA10119	3.0
2(2)			LIFTING LUG		CBOM91393601008	
MF	DR	K16				
98				AA1011819139	AA10119	0.4
2(2)			PLATE 20 TKX50X50			
MF	DR	K4	ST-FE410 WB-PLATE			
99			41350101395 00 00	AA1011819155	AA10119	0.14
3(3)			EARTHING PIECE		BOR.01350101054	
MF						

ENGG

Initial Date

Worked By tgerk 31.07.2002
Checked By tgerk 14.01.2003
Approved By tgercb 22.01.2003



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601012 Var: 00 Revno: 15 Rev Date: 07.11.2023

Printed By:

Description: END SHIELD UPPER HALF EE(WELD) Tot wt: 8108.0

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
0			01393601012 00			8108.0
1(1)			END SHIELD UPPER HALF EE(WELD)			
MF	DR		THDF-125/67		Y	
11			21393601031 00	AA1011819279	AA10119	3415.0
1(1)			PLATE			
MF	DR					
13			21393601032 00	AA1011819210	AA10119	1069.0
1(1)			PLATE			
MF	DR					
17			21393601033 00	AA1011819279	AA10119	645.0
2(2)			PLATE			
MF	DR					
22			21393601034 00 00	AA1011819236	AA10119	500.0
1(1)			PLATE			
MF	DR					
27			31393601083 00 00	AA1011819236	AA10119	115.0
2(2)			PLATE			
MF	DR					
29			31393601084 00 00	AA1011819236	AA10119	118.0
1(1)			PLATE			
MF	DR					
30			31393601084 01 00	AA1011819236	AA10119	118.0
1(1)			PLATE			
MF	DR					
33			21393601035 00 00	AA1011819236	AA10119	180.0
1(1)			PLATE			
MF	DR					
34			11393601002 00 00	AA1011819210	AA10119	175.0
1(1)			PLATE			
MF	DR					
36			21393601036 00 00	AA1011819341	AA10119	308.0
1(1)			PLATE			
MF	DR					
42			41393601189 00 00	AA1011819236	AA10119	56.0
6(6)			PLATE			
MF	DR					
51			41393601190 00 00	AA1011819139	AA10119	34.7
2(2)			PLATE			
MF	DR					
53			41393601191 00 00	AA1011819139	AA10119	57.5
2(2)			PLATE			
MF	DR					
54			41393601192 00 00	AA1011819139	AA10119	61.0
1(1)			PLATE			
MF	DR					
60			41393601158 00 00	AA1020218142	AA10218	0.4
2(2)			SCREW PLUG		FOR PRESS.TEST	
MF						

ENGG

Initial Date

Worked By tgeam 19.12.2006
Checked By tgeam 19.12.2006
Approved By tgerk 12.01.2007



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601012

Var: 00

Revno: 15

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD UPPER HALF EE(WELD)

Tot wt: 8108.0

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
65			41393601130 00 00	HW1041055676	AA10455	6.0
2(2)			PIPE		CBOM91393601003	
MF						
77			31393601076 00 00	AA1041146108	AA10446	6.52
2(2)			PIPE		CBOM01393601008	
MF	DR					
85			31393601077 00			4.35
1(1)			PIPE ASSEMBLY		CBOM01393601008	
MF	DR				N	
85-1				AA1041055021	AA10455	0.385
1(1)			PIPE 88.9X4, L=46			
MF	DR		ST-B-HFS-PIPES			
85-2				W96414900656	TG60123	1.5
1(1)			BEND 90 DEG 88.9X4			
BO	DR		BEND 90 DEG. 88.9X4 GR-1			
85-3				AA1041055021	AA10455	2.43
1(1)			PIPE 88.9X4, L=290			
MF	DR		ST-B-HFS-PIPES			
89			41393601193 00 00	AA1011819139	AA10119	2.45
2(2)			PLATE			
MF	DR					
90			41393601137 00 00	HW1011819953	AA10119	3.0
2(2)			LIFTING LUG		CBOM91393601008	
MF	DR					
98				AA1011819139	AA10119	0.4
2(2)			PLATE 20TKX50X50			
MF	DR		ST-FE410 WB-PLATE			
99			41350101395 00 00	AA1011819155	AA10119	0.14
3(3)			EARTHING PIECE		BOR.01350101054	
MF						

ENGG

Initial Date

Worked By tgeam 19.12.2006
Checked By tgeam 19.12.2006
Approved By tgerk 12.01.2007



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601013

Var: 00

Revno: 16

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD EE (WLD) LOWER HALF

Tot wt: 9421.0

Item No	Drawingno Var Mvar		Mat Code	Mat Spec	Weight
Qty(Total)	Description			Assy. Remarks	
Type	Cat	Zone	Var/Matl. Description	GRP	Fab Wt
0			01393601013 00		9421.0
1(1)			END SHIELD EE (WLD) LOWER HALF		
MF	DR		THDF-125/67	Y	
12			21393601037 00	AA1011819279	3600.0
1(1)			PLATE		
MF	DR				
14			21393601038 00 00	AA1011819210	1415.0
1(1)			PLATE	AA10119	
MF	DR				
15			21393601039 00	AA1011819279	665.0
2(2)			PLATE		
MF	DR				
19			41393601194 00	AA1011819210	111.0
1(1)			PLATE	AA10119	
MF	DR				
20			41393601195 00	AA1011819210	99.0
1(1)			PLATE		
MF	DR				
21			21393601040 00	AA1011819279	800.0
1(1)			PLATE	AA10119	
MF	DR				
23			21393601041 00 00	AA1011819236	483.0
1(1)			PLATE		
MF	DR				
25			31393601085 00 00	AA1011819236	80.0
2(2)			PLATE	AA10119	
MF	DR				
31			31393601086 00 00	AA1011819236	119.0
1(1)			PLATE		
MF	DR				
32			31393601087 00 00	AA1011819236	120.0
2(2)			PLATE	AA10119	
MF	DR				
37			21393601042 00 00	AA1011819341	300.0
1(1)			PLATE	AA10119	
MF	DR				
39			41393601196 00 00	HW1011819953	32.5
1(1)			PLATE		
MF	DR				
41			31393601088 00	AA1011819210	65.0
1(1)			PLATE	AA10119	
MF	DR				
43			41393601197 00 00	AA1011819236	63.5
4(4)			PLATE		
MF	DR				
45			31393601089 00 00	AA1011819236	68.25
1(1)			PLATE	AA10119	
MF	DR				

ENGG

Initial Date

Worked By tgeam 19.12.2006
Checked By tgeam 08.01.2007
Approved By tgerk 12.01.2007



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601013

Var: 00

Revno: 16

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD EE (WLD) LOWER HALF

Tot wt: 9421.0

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
46			31393601090 00 00	AA1011819236	AA10119	68.25
1(1)			PLATE			
MF	DR					
50			41393601185 00 00	W96413903074	AA10740	0.4
1(1)			PROTECTIVE PIPE		CBOM01393601009	
BO						
52			41393601198 00 00	AA1011819139	AA10119	39.4
2(2)			PLATE			
MF	DR					
56			41393601199 00 00	AA1011819139	AA10119	53.5
1(1)			PLATE			
MF	DR					
57			41393601200 00 00	AA1011819139	AA10119	22.0
1(1)			PLATE			
MF	DR					
60			41393601158 00 00	AA1020218142	AA10218	0.4
4(4)			SCREW PLUG		FOR PRESS TEST	
MF						
61			31393601091 00 00	HW1011819953	AA10119	14.0
1(1)			PLATE			
MF	DR					
62			41393601201 00 00	HW1011819953	AA10119	32.5
1(1)			PLATE			
MF	DR					
63			41393601202 00 00	HW1011819953	AA10119	32.5
1(1)			PLATE			
MF	DR					
67			41393601180 00 00	HW1041055730	AA10455	3.0
2(2)			PIPE		CBOM01393601009	
MF						
79			21393601043 00 00	AA1041146108	AA10446	11.15
1(1)			PIPE			
MF	DR					
80			21393601044 00 00	AA1041146108	AA10446	11.15
1(1)			PIPE			
MF	DR					
81			21393601045 00 00	AA1041146108	AA10446	10.16
1(1)			PIPE			
MF	DR					
82			21393601046 00 00	AA1041146108	AA10446	10.16
1(1)			PIPE			
MF	DR					
84			31393601180 00			5.5
1(1)			PIPE ASSEMBLY		CBOM01393601009	
MF	DR				N	
84-1				AA1041055021	AA10455	0.5
1(1)			PIPE 88.9X4 L=56			
MF	DR		ST-B-HFS-PIPES			

ENGG

Initial

Date

Worked By

tgeam

19.12.2006

Checked By

tgeam

08.01.2007

Approved By

tgerk

12.01.2007



BILL OF MATERIAL

Printed
On:13.05.2024

BOM No: 01393601013

Var: 00

Revno: 16

Rev Date: 07.11.2023

Printed By:

Description: END SHIELD EE (WLD) LOWER HALF

Tot wt: 9421.0

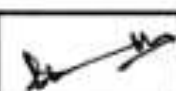
Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight
Qty(Total)	Description				Assy. Remarks	
Typ	Cat	Zone	Var/Matl. Description		GRP	Fab Wt
84-2			41393601181 00	W96414900656	TG60123	0.9
1(1)			BEND 54 DEG		CUT TO DRG	
BO	DR					
84-3			41393601182 00	W96414900656	TG60123	0.6
1(1)			BEND 36 DEG		CUT TO DRG	
BO	DR					
84-4				AA1041055021	AA10455	3.686
1(1)			PIPE 88.9X4 L=440			
MF	DR		ST-B-HFS-PIPES			
87			41393601183 00	AA1011819279	AA10119	0.9
2(2)			BRACKET		CBOM01393601009	
MF						
90			41393601137 00 00	HW1011819953	AA10119	3.0
2(2)			LIFTING LUG		CBOM91393601003	
MF						
91				AA1011819236	AA10119	11.869
1(1)			PLATE			
MF	DR		ST-FE410 WB-PLATE			
93			41393601184 00 00	HW1011819953	AA10119	0.4
2(2)			PLATE		CBOM01393601009	
MF						
99				AA1011819074	AA10119	0.2
18(18)			PLATE 10X50X50			
MF	DR		ST-FE410 WB-PLATE			
100			41350101395 00 00	AA1011819155	AA10119	0.14
9(9)			EARTHING PIECE		BOR.01350101054	
MF						

ENGG

Initial Date

Worked By tgeam 19.12.2006
Checked By tgeam 08.01.2007
Approved By tgerk 12.01.2007

SIGN & DATE 		SIGN & DATE 		SIGN & DATE 	
SUPERSEDES INVENTORY NO. 05		SUPERSEDES INVENTORY NO. 05		SUPERSEDES INVENTORY NO. 05	
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	
संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP: HARIDWAR)		HW0425199 पृष्ठ 12 का 1 Page 1 of 12		SUPERSEDED OLD PLANT STANDARD 0600.043 BASED ON CORPORATE STANDARD AA0425101	
REVISION SYSTEM OF DRAWING					
1.0 SCOPE					
1.0.1 This standard stipulates the system to be adopted for revising the production /manufacturing drawings, erection drawing, layout drawings, schematic drawings and all other drawings prepared by the Engineering departments and under the custody of Central Technical Archive (CTA).					
1.0.2 The change advice form (see Annexure - 1) shall be applicable to other documents also. However, the actual procedure for introducing changes in all documents other than drawing shall be dealt with separately.					
1.0.3 This supersedes the existing practice on the subject in the plant.					
1.0.4 In this document by tracing is meant, all originals under the custody of C.T.A.					
1.1 GENERAL					
1.1.1 The information marked chain -dotted (though appearing in Corporate standard AA0425101 "Revision System of Drawing" shall not be applicable at BHEL Haridwar)					
1.1.2 The information marked { is not a part of Corporate Standard AA0452101 but has been added to meet the requirements of HEEP, Hardwar.					
2.0 NECESSITY AND THE EFFECT OF REVISION OF DRAWINGS:					
2.1 The following situations may call for revision of a drawing and the situations are codified as follows:					
सहायक विभाग AGREED DEPT.		नाम NAME		दिनांक एवं हस्ताक्षर SIGNATURE & DATE	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04/08/17		04/08/17	
Revision No.		05		05	
Date		12/08/17		12/08/17	
CHANGE ADVICE NO.		TSX-17-41		04/08/17	
05		05		05	
12/08/17		12/08/17		12/08/17	
TSX-17-41		04			

Here to person SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)		HW0425199	
				पृष्ठ 12 का 2 Page 2 of 12	
Here to person SIGN & DATE	SUPERSEDES INVENTORY	Reason for making changes Code no. 2.1.1 Engineering error including D.O. Errors 01 2.1.2 Design up gradation (including addition of variant) 02 2.1.3 Design review including changes due to change advice in other document 03 2.1.4 To meet manufacturing requirements 04 2.1.5 To meet Technological modifications 05 2.1.6 To suit customer's demands 06 2.1.7 To suit statutory requirements 07 2.1.8 To replace a damaged / torn out originals by a fresh originals. 08 2.1.9 Any other 09 2.2 Whenever any of the above contingencies arise the item conforming to the drawing may be in any of the following stages of manufacture : 2.2.1 Only drawings released, no action initiated for production. 2.2.2 Action for tooling etc. initiated and tooling under manufacture. 2.2.3 Manufacturing activity on items already started and items in advanced stages of manufacture. 2.2.4 Manufactured items shipped to site from the works and the items assembled and commissioned within the warrantee period / after the warrantee period . 2.3 Except for the cases falling under 2.2.1, it is necessary to identify the head to which the cost arising due to the revision of the drawing shall be booked. For making changes in a drawing the CHANGE ADVICE (See Annexure - 1.1) shall be used. 3.0 NON APPLICABILITY OF STANDARD 3.1 The changes shall not be introduced in the drawing under the following conditions :			
Here to person SIGN & DATE	Here to person SIGN & DATE	Revision No. 05	निर्माणकर्ता WORKED BY G K Sethi		10/03/17
Here to person SIGN & DATE	Here to person SIGN & DATE	Revision No. 05	जांचकर्ता CHECKED BY L Kumar		12/03/17



संस्थान मानक (हीप : हरिद्वार)

HW0425199

PLANT STANDARD (HEEP : HARIDWAR)

पृष्ठ 12 का 3
Page 3 of 12

3.1.1 If the proposed change is of temporary nature like the change in material specifications due to non-availability of material as per specifications in design documents, shop deviations etc. The change shall not be introduced in the drawing. However, any change in the drawings which have got statutory regulations and are to be approved by boiler inspectorate will be treated as permanent change only irrespective of the situation warranting the change. This shall be intimated to all concerned by the usual method of Deviation / concession request or non-conformity reports.

3.1.2 If a particular drawing has been adopted in more than one assembly / product and the proposed change disturbs its adaptability.

3.1.3 If the interchangeability of the part (production or operational) in assembly / product under production or already produced is lost with the proposed change.

4.0 METHOD OF RECORDING THE REVISIONS ON THE DRAWING

4.1 The first change on a drawing shall be designated revision 01. The succeeding revisions are to be numbered as 02, 03 etc. in the revision panel of the title block as provided in the unified drawing formats.

4.1.1 The revision columns as per Corporate Standard AA0420201 shall be drawn on the old tracing format as far as possible. These revision columns may also be allowed to be drawn in other horizontal directions where space may be available, but these should be drawn in such a manner that the overall importance of the record is not lost. It shall also be open to the designer to add the additional sheet to the drawing for entering changes in the revision columns if it is considered necessary from the point of the clarity and general appearance of the drawing as well as from the importance of the changes being introduced.

The revision numbers shall be starting for new revisions from 01, 02 etc., For example, if a, b revision have been made in a drawings, then the next revision shall start from 01 onwards.

4.2 The changes to dimensions, figures, words etc., shall be made by striking out the existing entries with two even thin lines and writing the new ones close to them except in case of Title Block & Bill of Material.

Changes in the original drawing by this method can be introduced till legibility and printability remains. The changes in the Title Block & BOM shall be done by erasing the old information & writing the new one in place of it.

4.2.1 If as a result of changes introduced:

- the drawing becomes illegible
- There is not enough space for introducing changes.
- Complicated and labour consuming changes arise.

In such cases, a new tracing under same number superseding the old one shall be prepared.

दिनांक
SIGN & DATE

सुपरसेडिंग
INVENTORY

संशोधन
अनुसंधान

COPYRIGHT AND CONFIDENTIAL
The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.

संशोधन एवं विकास
संशोधन एवं विकास

दिनांक
SIGN & DATE

संशोधन
INVENTORY NO.

Revision No. 05

निर्मापक
WORKED BY

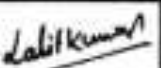
G K Sethi

10/03/17

जांचकर्ता
CHECKED BY

L Kumar

12/3/17

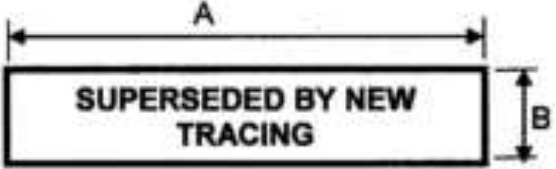
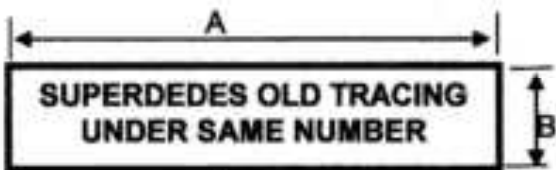
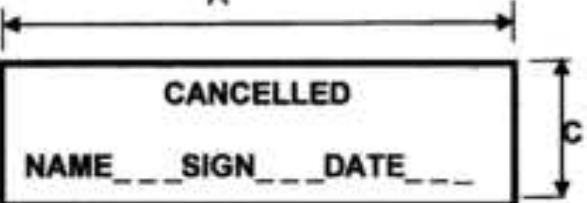
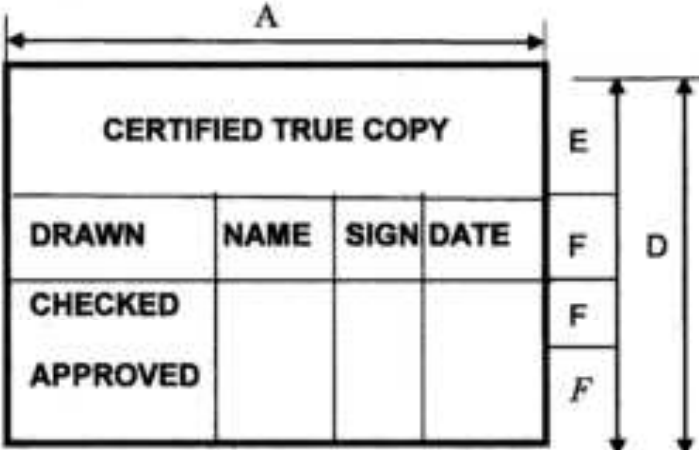
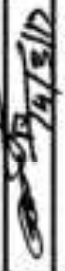
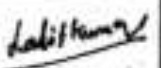
Date of change SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)		HW0425199 पृष्ठ 12 का 4 Page 4 of 12	
SUPERSEDES INVENTORY अवस्थापित करी अवस्थापित करी	4.3 The particulars of revision along with the revision number, date, no. of changes and change advice number shall be recorded in the appropriate revision panel. The revised information (i.e. dimensions, figures, words etc.) shall be marked with revision number enclosed in a circle. The leader line shall emerge from the circle towards several revised information. From one circle, more than one leader lines may emerge towards several revised information without disturbing the aesthetic beauty of the drawing. The number of changes shall be counted from the number of leader lines.				
COPYRIGHT AND CONFIDENTIAL The information on this document 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.	4.4 On the drawing sizes A2 and above, the changes made shall be suitably indicated in the zone column in the revision panel e.g. if a change has taken place in zone E6, then in zone column "E6" shall be written. 4.5.1 If a drawing is having more than one sheet, the changes shall be recorded in the revision panel of the affected sheet and the cross reference is given in sheet No. 1. The other sheets which are not affected by change, shall carry no information about the change. The change advice number shall be written on 1st sheet and on the affected sheet only in the respective revision columns. It shall be allowed to supersede one or more or all the sheets of such drawing. The prints shall be supplied of the sheet no. 1 and the revised / supersede sheet only to all concerned as per the existing practice.				
	4.6 Print of every revised drawing / a set of drawings shall be sent to all concerned depts. as per existing practice. 4.7 Cancelled items in the Bill of Materials shall be crossed through a single line and not to be erased. 4.8 While retracing the drawings the particulars of the cancelled (ruled out) items, in the Bills of Materials, shall be omitted But against the corresponding item number in the BOM the word "CANCELLED" shall be written. 4.9 Item number of a cancelled part shall not be allotted in future for another part. 4.10 Numbering of Revision panels shall be from right to left i.e. Revision panel no. 1 shall be adjacent to the title block. 4.11 To introduce changes in the notes or technical requirements, the old entries shall be struck out with a cross (the lines of the cross shall be even & thin) and new entries be written at a convenient place on the drawing preferably near to the old ones and recorded accordingly in the revision panel.				
Date of change SIGN & DATE 					
INVENTORY NO. P.1070	Revision No. 05		निर्माणकर्ता WORKED BY	G K Sethi	 10/03/17
			जांचकर्ता CHECKED BY	L Kumar	 12/3/17

SIGN & DATE 	SIGN & DATE 		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)	HW0425199 पृष्ठ 12 का 5 Page 5 of 12	
4.12 SUPERSESSION OF DRAWING. 4.12.1 When a tracing is superseded for major modifications / other reasons , a new tracing under the same number but with a new revision number shall be made. In such cases, the description of the changes shall be recorded in the respective revision column of the new tracing, duly endorsed and dated by the concerned design deptt. All the changes of the superseded tracing shall be transformed in the final for only on the new tracing . If e.g. revision taken place say for the fifth time the right hand revision panel, of the new tracing shall have the mention of all the changes at the 5th revision. Original names and date of issue shall be carried over in the space provided in the title block of the new tracing. The stamp No.1 and stamp No.2 (as per Annexure – 2) shall be put on the superseded and the new tracing respectively. The old superseded tracing with stamp No.1 shall be deposited in the CTA .The prints of superseded tracing shall not be supplied, and the old prints of superseded tracing available in WTA shall be destroyed immediately on receipt of revised prints / changes advice. When required for reference by any deptt. , The fresh prints of superseded tracing with due stamp No.1 shall be obtained from CTA. 4.12.1.1 The change advice shall be moved. 4.13.1 CANCELLATION OF DRAWING 4.13.1 When a drawing is cancelled , then the tracing shall be duly stamped (Stamp No. 3 of annexure – 2) and returned to CTA. 4.13.1.1 Cancelled drawing number shall not be allocated to any other drawing . 4.13.1.2 The Change advice shall be moved .The prints of the change advice Performa only shall be sent to the concerned departments .The prints of the cancelled drawing shall not be supplied and the old prints available in various Working Technical Archive (WTA) shall be destroyed on receipt of change Advice information. When required for reference by any deptt, fresh prints with due stamp of cancellation (Stamp No. 5) shall be obtained from CTA 4.14 The superseded or the cancelled stamps shall preferably be put near the title block of tracing . In other words drawings with superseded or cancelled stamps shall be treated as being out of circulation. 4.12 SUPERSESSION OF DRAWING. 4.12.1 When a tracing is superseded for major modifications / other reasons , a new tracing under the same number but with a new revision number shall be made. In such cases, the description of the changes shall be recorded in the respective revision column of the new tracing, duly endorsed and dated by the concerned design deptt. All the changes of the superseded tracing shall be transformed in the final for only on the new tracing . If e.g. revision taken place say for the fifth time the right hand revision panel, of the new tracing shall have the mention of all the changes at the 5th revision. Original names and date of issue shall be carried over in the space provided in the title block of the new tracing. The stamp No.1 and stamp No.2 (as per Annexure – 2) shall be put on the superseded and the new tracing respectively. The old superseded tracing with stamp No.1 shall be deposited in the CTA .The prints of superseded tracing shall not be supplied, and the old prints of superseded tracing available in WTA shall be destroyed immediately on receipt of revised prints / changes advice. When required for reference by any deptt. , The fresh prints of superseded tracing with due stamp No.1 shall be obtained from CTA. 4.12.1.1 The change advice shall be moved. 4.13.1 CANCELLATION OF DRAWING 4.13.1 When a drawing is cancelled , then the tracing shall be duly stamped (Stamp No. 3 of annexure – 2) and returned to CTA. 4.13.1.1 Cancelled drawing number shall not be allocated to any other drawing . 4.13.1.2 The Change advice shall be moved .The prints of the change advice Performa only shall be sent to the concerned departments .The prints of the cancelled drawing shall not be supplied and the old prints available in various Working Technical Archive (WTA) shall be destroyed on receipt of change Advice information. When required for reference by any deptt, fresh prints with due stamp of cancellation (Stamp No. 5) shall be obtained from CTA 4.14 The superseded or the cancelled stamps shall preferably be put near the title block of tracing . In other words drawings with superseded or cancelled stamps shall be treated as being out of circulation.					
INVENTORY NO. 0070	Revision No. 05		निर्माता WORKED BY G K Sethi		10/03/17
			जांचकर्ता CHECKED BY L Kumar		12/31/17

Revision No 05	Revision No 05	निर्माणकर्ता WORKED BY G K Sethi	जांचकर्ता CHECKED BY L Kumar	10/03/17 12/3/17	12/3/17	संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)	HW0425199 पृष्ठ 12 का 6 Page 6 of 12
						संप्रदाय मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)	HW0425199 पृष्ठ 12 का 6 Page 6 of 12
4.15 CERTIFIED TRUE COPY							
4.15.1 When the original tracing has been lost / misplaced or damaged , the retracing shall be done by the concerned design deptt. ,from the blue print without marking any changes on receipt of the information from CTA. However , in case of damaged / torn out originals, the concerned design deptt. may take on RTF and if possible may improve the same ensuring good quality of print from the RTF. Such improved RTF may be deposited in CTA as originals.							
4.15.2 The stamp No. 4 (refer annexure -2) duly filled - in shall be put on the new tracing . In such cases the note re-traced shall be put in the respective revision column of the new tracing duly endorsed and dated by the concerned designer. If for example , the re -tracing takes place after the 5 th revision of drawing, then the first right hand revision panel of the new tracing shall state re - traced at the 6 th revisions. Original names and dates shall be carried over in the space provided in the title block of the new tracing . Dash shall be put in the zone column of the respective revision column of the new tracing.							
4.15.3 The old damaged tracing shall be withdrawn from CTA by moving a change advice and stamp No.5 shall be put on it and revision columns shall be filled . In case the old tracing has been misplaced , the entries as per this clause shall be made when it has been found and on being requested by CTA. in writing.							
4.15.4 The new tracing shall be without any changes and all previous changes in the old tracing shall be carried over to this new tracing in the final form only.							
4.15.5 The prints of this new tracing shall be supplied to all concerned.							
4.15.6 The change advice shall be moved .							
5. TERMINOLOGY							
5.1 <u>Change Advice</u> : A document for adding , deleting or altering any information in the drawing which are lying in Central Technical Archive.							
5.2 <u>Type of product</u> : Abbreviated name of type of product or name of project or Power House as being mentioned in the Corresponding drawing / Group manufacturing specification.							
6. SPECIAL INSTRUCTIONS OF CHANGE ADVICE							
6.0 No. deptt. shall be authorized to move change advice for drawing except the concerned product design deptt.							
6.1 No drawing to shall be handed over to any deptt. by CTA except for introducing changes in it and that only by moving change advice.							

Name of person SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)		HW0425199	
				पृष्ठ 12 का 7 Page 7 of 12	
SUPERSEDES INVENTORY	SUPERSEDES INVENTORY	6.2 When changes have been introduced in drawing tracing, the revised prints shall be sent to all concerned deptt. as per the existing practice. The old prints shall be destroyed. In case of superseded drawings, the fresh prints with superseded stamp shall be supplied if asked for by Working Technical Archives(WTA) for back reference. 6.3 Whenever a change advice is moved for a particular drawing, sufficient care shall be taken by the concerned division (i.e. the division moving the change advice) to make corresponding changes in the other drawings / documents which are affected because of this change. 6.4 Whenever a change advice is moved for a particular drawing, the reference of all the GMS/ Gr. Sp. in which it is called for, may be written in column No. 15 of change advice form (see Annexure 1.1). 6.5 CHANGES IN THE AREA OF INSULATION & WINDING. 6.5.1 Any changes in the design documentation relating to alternative materials, their specifications, norms for dielectric testing of windings and insulation details and process regimes shall be done with the participation of and in agreement with Insulation System and CPL Division. (The above clause 6.5.1 have been incorporated in accordance with latter No.GE/528/ 1065 of GM (E&C)). 7. Registration of change advices (To be done in CTA). 7.1 Under one change advice number the drawings pertaining to a particular GMS/Gr.Sp shall be permitted only. 7.2 The changes advice number shall be as explained below:- 1 – Abbreviated name of deptt. moving the change advice as per SMI-702(A). - Last two digits of the calendar year in which change advice has been moved. - The serial number (from 001 to 999) of change advice. Example – Steam Turbine Engineering (STE) moving the first change advice in the year 2010 & 2012 shall have change advice number ; STE – 10 – 001 , STE – 12 – 001 8. Due to any unforeseen reason, if the proposed change is withdrawn after drawing the original from CTA the inscription "no change made" shall be written in the revision panel of the drawing / document and also in the change – advice. Revision number shall be allocated in such cases also. The prints of drawings and change advice shall be supplied to all concerned. 9. Reference standards : (1) HW0425198 (2) SMI 702			
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.	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.				
Name of person SIGN & DATE	Name of person SIGN & DATE	Revision No. 05			
INVENTORY NO. R-1070	INVENTORY NO. R-1070	निर्माणकर्ता WORKED BY G K Sethi	जांचकर्ता CHECKED BY L Kumar	10/03/17	12/31/17

[illegible]

संस्थान मानक SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)	HW0425199 पृष्ठ 12 का 9 Page 9 of 12
SUPERSEDES INVENTORY संस्थान मानक अधिकार संख्या	ANNEXURE - 2 STAMP No.1  STAMP No.2  STAMP No.3  STAMP No.4 		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.			
संस्थान मानक एवं गोपनीय यह दस्तावेज संस्थान की संपत्ति है। इसमें दी गई जानकारी गोपनीय है। इसका उपयोग केवल संस्थान के अंतर्गत ही किया जाना चाहिए।			
SIGN & DATE 			
INVENTORY NO. R-170	Revision No. 05	निर्माणकर्ता WORKED BY G K Sethi	 10/08/17
INVENTORY NO. R-170	जांचकर्ता CHECKED BY L Kumar		12/3/17



संस्थान मानक (हीप : हरिद्वार)

HW0425199

PLANT STANDARD (HEEP : HARIDWAR)

पृष्ठ 12 का 11

Page 11 of 12

शेड्यूल नं. 1

शेड्यूल नं. 2

COPYRIGHT AND CONFIDENTIAL
The information on this document 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.

संस्थापक एवं निदेशक
शेड्यूल नं. 3

शेड्यूल नं. 4
SIGN & DATE

शेड्यूल नं. 5
INVENTORY NO.

Col 8 : Total No. of sheets of the drawing / document.

Col 9 : Revision number of drawing / document under which the revision is being made.

Col 10 : Code number for reason of change shall be filled as given in clause 2.1 on page 2.

Col 11 : Description of graphic form as to how it exists in the drawing /document before Change.

Col 12 : Description of graphic form as to how it should be after change.

Col 13 : Chargeable head number (This column shall be optional).

Col 14 : In case of drawing mentioned in column 7 pertains to different variants of GMS/CBOM (mentioned in column 4) then all the variant numbers of GMS/CBOM shall be entered in this column . The basic GMS/CBOM number without variant numbers shall be written in column 4.

Col 15 : If the drawing being revised is called for in GMS / Gr. Sp./ CBOM other than that mentioned in column 4, then, all the GMS/ Gr. Sp./CBOM numbers may be written in this column. This column shall be optional.

Col 16 : If required this column may be used to write information such as work order number to which the change is applicable in case of Thermal and Hydro products. In all other products, the date from which the change advice shall come into force, may be informed if required . Any other related / useful information may be mentioned in this column.

Col 17-19 : The name, sign, date, of same persons working /checking /standard control shall be filled in. Worked by shall be filled in up to Sr. Engineer and checked by shall be filled in by Sr. Engineer or above (but different person in worked by).

Col 20 : Signature of Executives of concerned agreeing departments before approval of Change Advice.

Col 21 : Signature of Standards Section for authorization to release the document from CTA .

Col 22 : Signature of in charge CTA at the time of issue of document.

Col 23 : Signature of Standards Section at the time of receipt of document

Col 24 : Signature of in charge CTA at the time of receipt of document.

Col 25-26 : Sheet number and total number of sheets in change advices.

Revision
No. **05**

निर्माणकर्ता
WORKED BY

G K Sethi

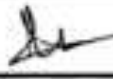
जांचकर्ता
CHECKED BY

L Kumar

10/03/17

12/3/17

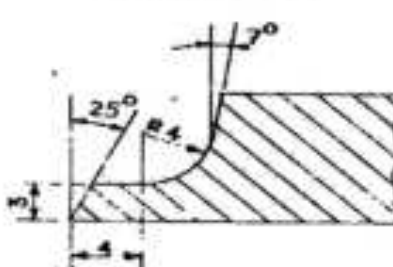
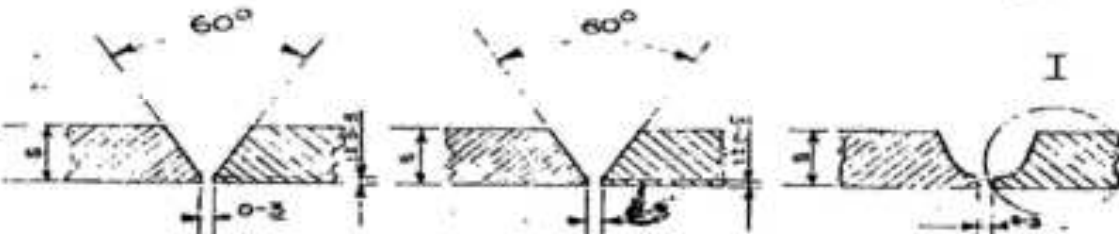
R 1070

SIGNATURE SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)	HW0425199 पृष्ठ 12 का 12 Page 12 of 12	
SUPERSEDES INVENTORY	मशीन नं. के अनुसार	NOTE: 1. All column mentioned above shall be filled in by department moving the change advice, except column number 1,5,21 and 22 which shall be filled in by CTA. 2. The original change advices of all design documents shall be maintained in CTA for a period of three years after which the same shall be destroyed. 3. The language of change advice shall be that of the original language.		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.		CHANGE ADVICE NUMBER : The change advice number shall be as explained below:- XXX - XX - XXX Running serial number (from 001 to 999) of change advice within a calendar year. Last two digits of the calendar year in which change advice has been moved (Example for the year 2005 it should be 05) Abbreviated name of the department moving the change advice as per SMI 702.		
मशीन नं. के अनुसार				
SIGNATURE SIGN & DATE				
INVENTORY NO. P-1070	Revision No. 05		निर्माणकर्ता WORKED BY G K Sethi	
			जांचकर्ता CHECKED BY L Kumar	 10/03/19

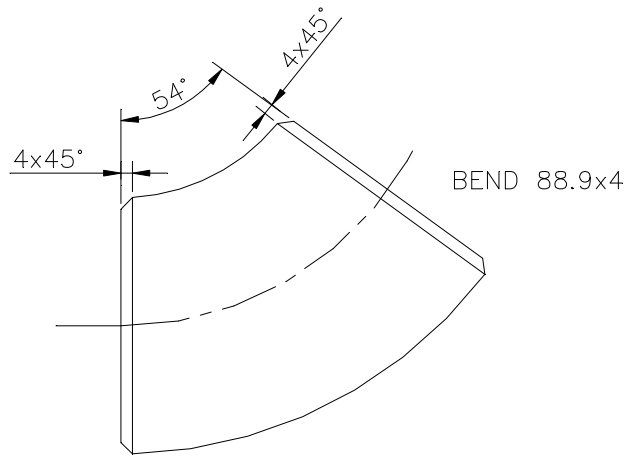
Revision of drawing SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP: HARIDWAR)		HW0620099	
				पृष्ठ Page 1	का of 1
SUPERSEDES INVENTORY NO.	Welding — Fusion-welded joints in steel, nickel, titanium and their alloys — Quality levels for imperfections				
मशीनरी के लिए मशीनरी के लिए	1. Scope: This Standard provides quality levels of imperfections in fusion-welded joints in all types of steel, nickel, titanium and their alloys. It applies to material thickness ≥ 0.5 mm. It covers fully penetrated butt welds and all fillet welds. Its principles can also be applied to partial-penetration butt welds.				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	2. Classification Group: The classification group is the level of quality based on ISO 5817. The limits of imperfections for its various quality levels for all the stated cases are to be followed in accordance with ISO 5817.				
	3. Weld Classification: 3.1 Three levels of weld quality — B, C & D have been established as per ISO 5817. 3.2 The type of weld shall be indicated with suffix 'S' for butt weld and suffix 'K' for fillet weld in the drawing 3.3 A two letter code utilising the above letters will comprise the classification groups indicating quality grade and type of weld. For Example: BS, BK, CS, CK, DS, DK 3.4 Quality of weld seam is to be indicated in drawing, eg : "Quality grade as per HW0620099 BS, BK"				
	4. Acceptance Criteria: The acceptance criteria are based on ISO 5817 for its different quality levels. This standard does not address NDT methods to be used for detection of surface and internal discontinuity. For the same, standard HW0850199 is to be referred. HW0850199 gives the correlation between the quality levels of ISO5817 and the NDT testing technique, testing level and acceptable level for surface and internal discontinuities. If welds are subjected to fatigue load, the same shall be indicated in the drawing. The same will be evaluated as per Table C.1 of ISO 5817.				
	विलंबित रूप से विलंबित रूप से				
Revision of drawing SIGN & DATE	TSX - QC - NDT	D. GANGWAR AMIT KUMAR	20/03/18 Amit Kumar 20/03/18	अनुवाद TRANSLATED BY विकसित WORKED BY जांच CHECKED BY पर्यवेक्षण SUPERVISED BY	नाम NAME SUSHANT KR. THAKUR VIVEK SRIVASTAVA BS ARORA
मशीनरी के लिए INVENTORY NO.	P-2209	सहमत AGREED DEPT. नाम NAME तिथि एवं हस्ताक्षर DATE & SIGNATURE	SUPERSEDES REV. NO. 2 Dt. 30/03/2018 CHANGE ADVISE NO. TSX (WT) -18-65	मंजूर संस्थान मानकीकरण समिति APPROVED : PLANT STANDARDIZATION COMMITTEE तैयार PREPARED : WTX	तिथि एवं हस्ताक्षर SIGNATURE & DATE 20/03/2018 20/03/18 13/03/18 Gr. NO. 1.42 तिथि DATE : 29/1/1983

कर्मचारी सूची संख्या INVENTORY NO.	P-2503	कर्मचारी सूची संख्या INVENTORY NO.	संस्थान मानक (हीप – हरिद्वार) PLANT STANDARD (HEEP - HARDWAR)	HW0620599 पृष्ठ का Page 2 of 4								
कर्मचारी सूची संख्या INVENTORY NO.	P-2503	कर्मचारी सूची संख्या INVENTORY NO.	4.0 <u>PIPES ROLLED FROM PLATES</u> 4.1 Weld seams of rolled pipes are welded by shielded metal Arc welding. The root is gouged/ground and welded from back side. 5.0 <u>INSPECTION:</u> 5.1 The weld seams are subjected to internal examination in accordance with HW 0850199. The external characteristics are examined in accordance with HW 0620099.									
कर्मचारी सूची संख्या INVENTORY NO.	P-2503	कर्मचारी सूची संख्या INVENTORY NO.	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of this company.									
कर्मचारी सूची संख्या INVENTORY NO.	P-2503	कर्मचारी सूची संख्या INVENTORY NO.	स्वतंत्राधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स लि. की संपत्ति है। इसका प्रयोग केवल भारत भारती इलेक्ट्रिकल्स लि. के लिए ही किया जा सकता है। इस दस्तावेज को किसी भी प्रकार से प्रसारित करना या इसकी प्रतिलिपि बनाना गैर कानूनी है।									
कर्मचारी सूची संख्या INVENTORY NO.	P-2503	कर्मचारी सूची संख्या INVENTORY NO.	REV. NO. 01	<table border="1"> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>V K VERMA</td> <td><i>V K Verma</i></td> <td>31.03.09</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>V KUMAR</td> <td><i>V Kumar</i></td> <td>31.03.09</td> </tr> </table>	निर्माणकर्ता WORKED BY	V K VERMA	<i>V K Verma</i>	31.03.09	जांचकर्ता CHECKED BY	V KUMAR	<i>V Kumar</i>	31.03.09
निर्माणकर्ता WORKED BY	V K VERMA	<i>V K Verma</i>	31.03.09									
जांचकर्ता CHECKED BY	V KUMAR	<i>V Kumar</i>	31.03.09									

[illegible]

संस्थान मानक (हीप-हरिद्वार) PLANT STANDARD (HEEP - HARDWAR)		HW0620599 पृष्ठ का Page 4 of 4	
SUPERVISOR INVENTORY NO. मंडी पूर्ण मंडी से			
COPYRIGHT AND CONFIDENTIAL The information on this document 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.	<u>FINE WELDS AT SITE</u> <u>APPENDIX VI</u> <u>DETAIL I</u>   $\theta > 2 \text{ mm}$ V Groove Root : TIG $\theta \leq 2 \text{ mm}$ 'I' Groove Filler : SMAW Root and Filler : SMAW Root : TIG/MIG © Filler : SMAW Process 4.5 11.0 'S' WALL THICKNESS (mm) TIG - Tungsten Inert Gas Welding SMAW - Shielded Metal Arc Welding		
स्वत्वाधिकार एवं गोपनीयता इस दस्तावेज में दी गई सूचना भारत भारती परमाणु निगम की संप्रतिष्ठा के लिए है। इस दस्तावेज को बिना अनुमति के किसी भी प्रकार प्रसारित करने से निषेध है।			
SIGN & DATE <i>[Signature]</i> 31/03/09			
INVENTORY NO. P-2503	REV. NO. 01	निर्माणकर्ता WORKED BY जांचकर्ता CHECKED BY	V K VERMA V KUMAR <i>[Signature]</i> 31-03-09

WT RSC Sd/-2.1.2003



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

PAWAN SD/- 7.2.2002
R.KUMAR SD/- 7.2.2002
R.C.BAJPAI SD/- 8.1.2003

TGE
4133

1:2

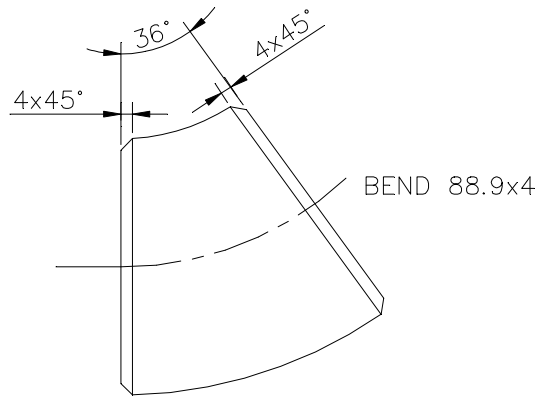
0.9

3-13936-01180 2

BEND 54°

4-13936-01181

WT RSC Sd/-2.1.2003



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

PAWAN SD/- 7.2.2002
R.KUMAR SD/- 7.2.2002
R.C.BAJPAI SD/- 8.1.2003

TGE
4133

1: 2

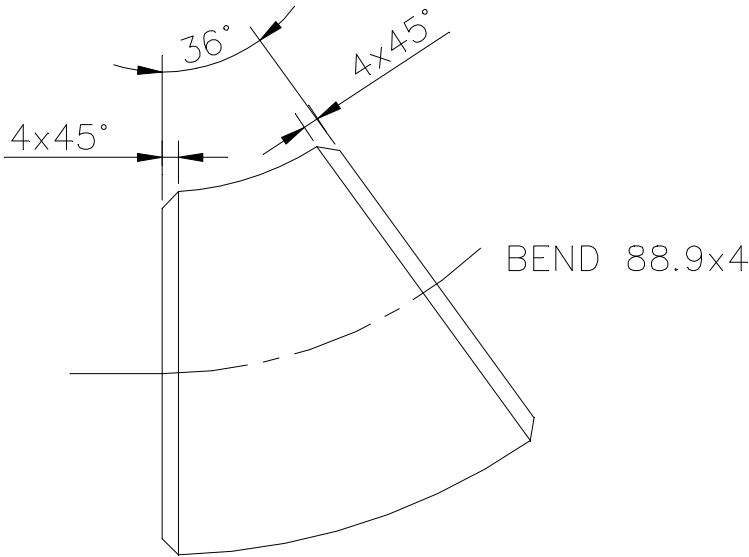
0.6

3-13936-01180

3

BEND 36°

4-13936-01182



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

24—2101—119149

PAWAN	SD/—	7.2.2002
R.KUMAR	SD/—	7.2.2002
R.C.BAJPAI	SD/—	8.1.2003

TGE
4133

1: 2

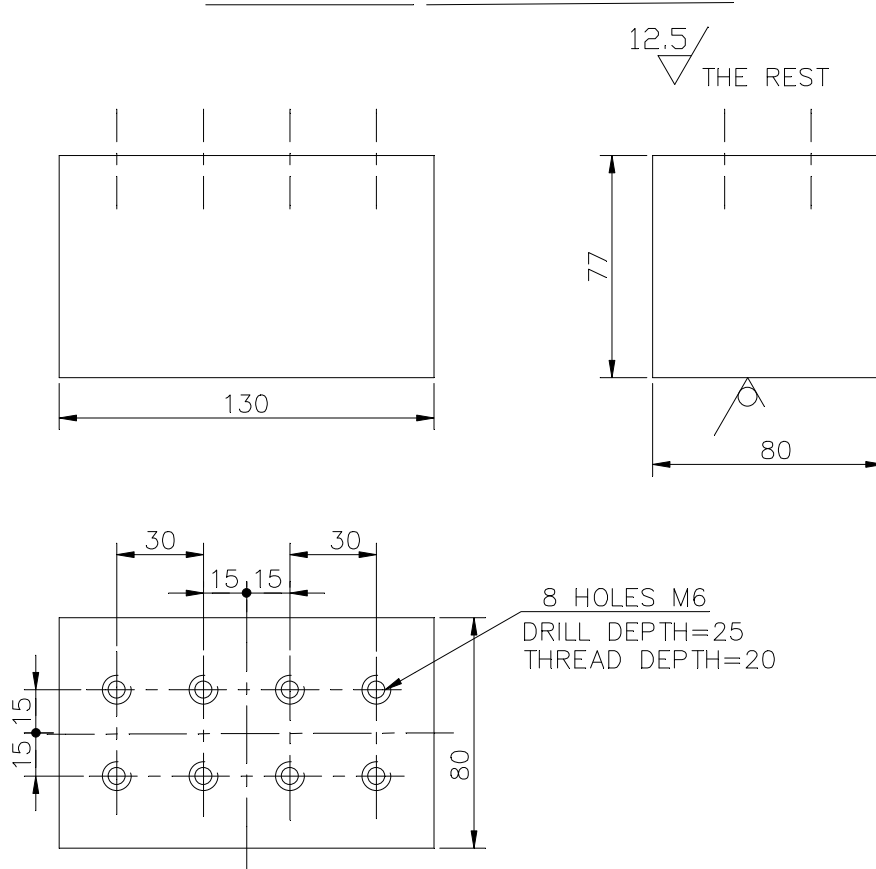
0.6

3—13936—01180 3

BEND 36°

4—13936—01182

PKA00694



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

PAWAN SD/- 7.2.2002
R.KUMAR SD/- 7.2.2002
R.C.BAJPAI SD/- 8.1.2003

TGE
4133

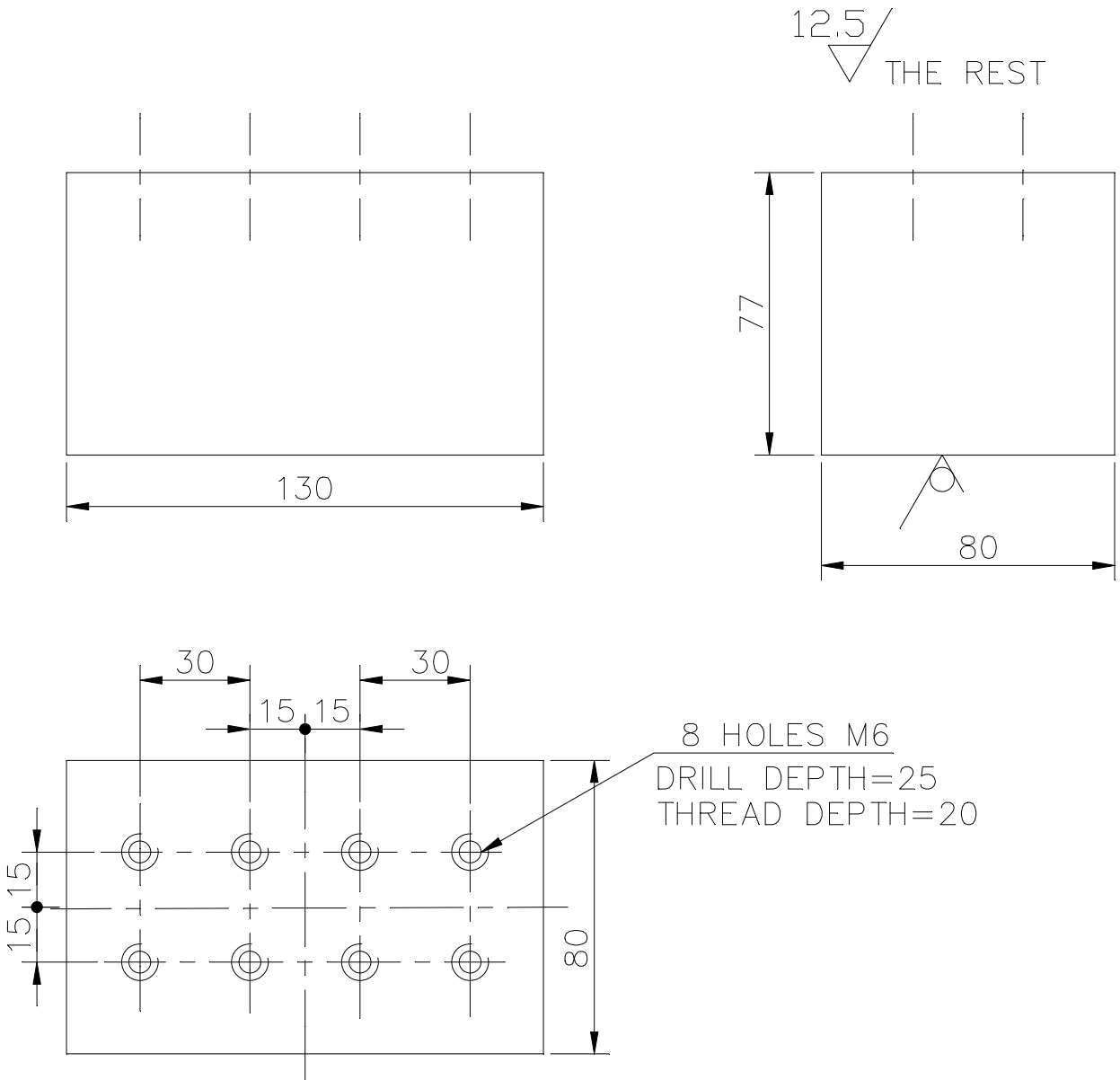
1:2

0.9

0-13936-01009 87

BRACKET

4-13936-01183



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

PAWAN	SD/—	7.2.2002
R.KUMAR	SD/—	7.2.2002
R.C.BAJPAI	SD/—	8.1.2003

TGE
4133

1:2

0.9

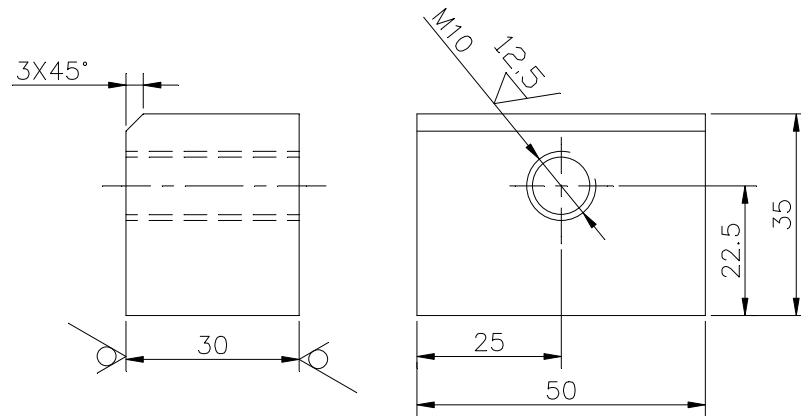
0-13936-01009 87

BRACKET

4-13936-01183

WT RSC Sd/-2.1.2003

50/
√ THE REST



TECHNICAL REQUIREMENT

1. IDENTIFICATION ACCORDING TO HW0400397

PAWAN	SD/-	7.2.2002
R.KUMAR	SD/-	7.2.2002
R.C.BAJPAI	SD/-	8.1.2003

TGE
4133

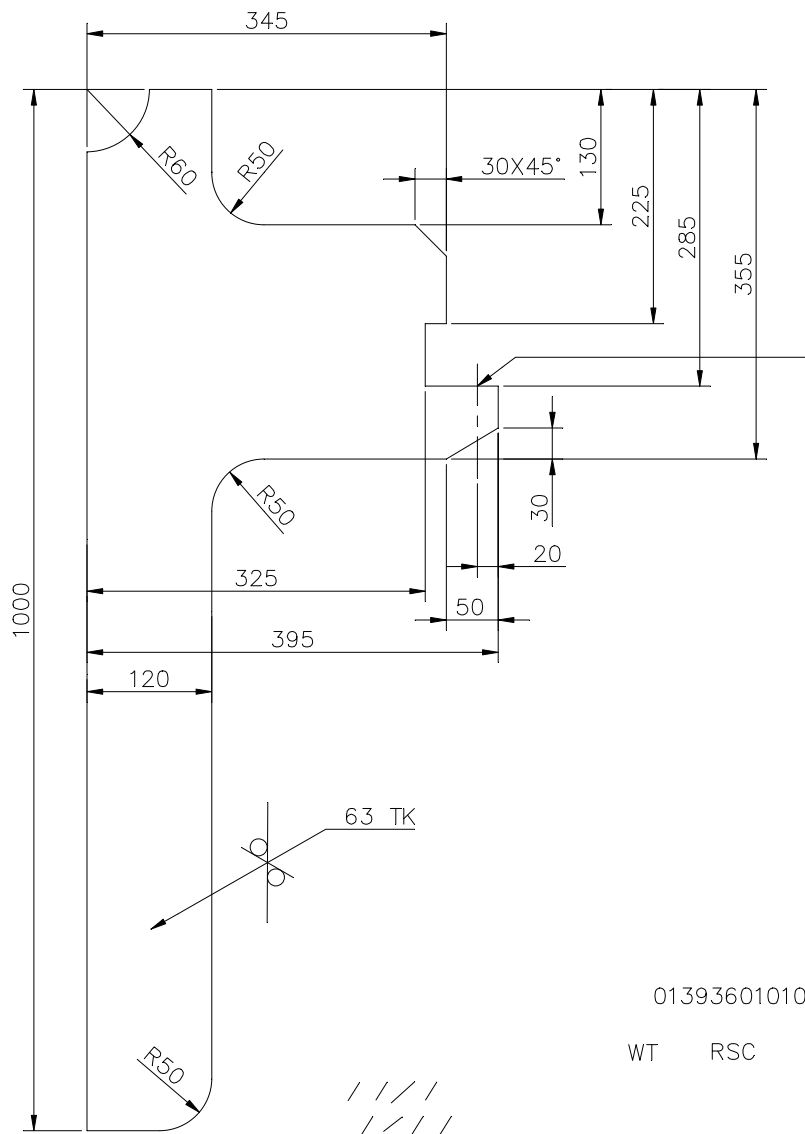
2:1

0.4

0-13936-01009 93

PLATE

4-13936-01184



TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW0400397

M20 (1 HOLE IN THE MIDDLE OF THICKNESS)

01393601010

WT RSC SD/- 21.2003

THDF 115/67

PAWAN	SD/-	27.6.02
RK	SD/-	27.6.02
R.C.BAJPAI	SD/-	8.1.2003

TGE
4133

1:5

80

0-13936-01010 44 -

PLATE

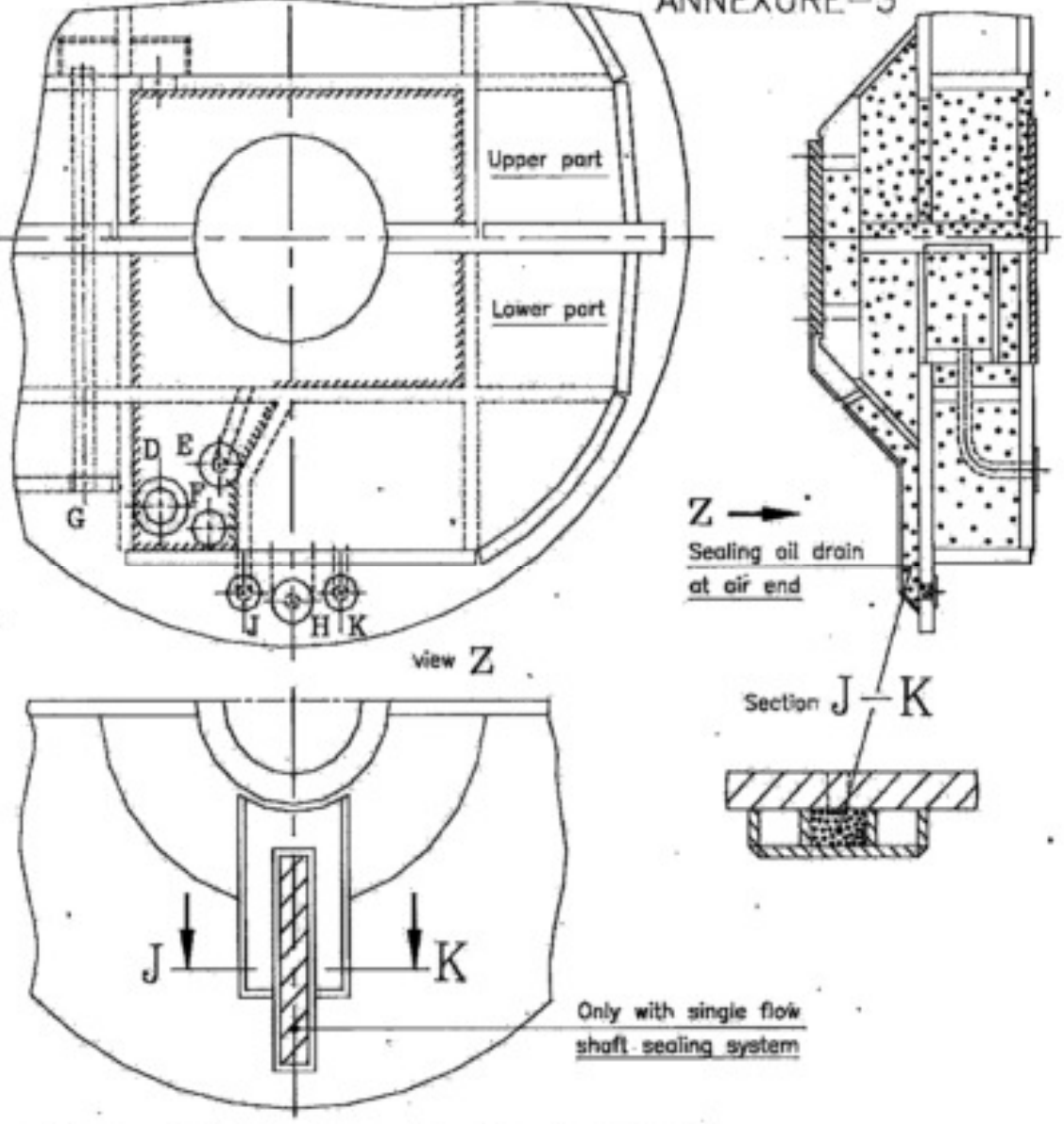
3-13936-01081

नमूना संख्या Sample No.		उत्पाद मानक PRODUCT STANDARD		TG40116	
		TURBOGENERATOR ENGINEERING		पृष्ठ 11 का 1 Page 1 of 11	
सुपरसेस INVENTORY NO.	Generally based on KWU. PV No 0025.2-2100/KWU				
नमूना, पूर्ण नाम व अधिकृत नाम	PRESSURE AND AIR LEAKAGE TESTING OF END SHIELDS OF THRI 108/44, THRI 108/44A, THRI 108/44-GTG, THRI 108/44B, THRI 108/55, THRI 108/39, THDF 115/67, THDF 125/67 TURBOGENERATORS				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	1.0 SCOPE : This instruction covers pressure and air leakage testing of End Shields of THRI 108/44, THRI 108/44-GTG, THRI 108/44A, THRI 108/44B, THRI 108/39, THRI 108/55, THDF 115/67 and THDF 125/67.				
	2.0 PURPOSE OF TESTING: To test the stator End Shields for soundness of weld seams and oil chambers against leakage during different stages of manufacturing.				
	3.0 TEST SCOPE :				
	3.1 Weld Seams (Annexure-1&5)				
स्वत्वधिकार एवं गोपनीय All rights reserved. This document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	Test Medium : Air Test Pressure : 6 bar Test Period : 30 minutes				
	3.2 Hydrogen Separator as per (Annexure-2&6)				
	(I) Test Medium : Water Test Pressure : 10 bar Test Period : 15 minutes				
	(II) Test Medium : Air Test Pressure : 6 bar Test Period : 30 minutes				
	3.3 Bearing Oil Chamber with related pipe lines (Annexure-3&7)				
	(I) Test Medium : Water Test Pressure : 3 bar Test Period : 15 minutes		Water 5 bar (Refer cl - 6.9) 15 minutes		
	(II) Test Medium : Air Test Pressure : 2 bar (Refer cl - 6.9) Test Period : 30 minutes				
	TSX B. CHOUDHARY QAX B. B. Tripathy PSC Rakesh Kumar				
	AGREED DEPT. NAME DATE & SIGNATURE				
	REAFFIRMED				
नमूना संख्या INVENTORY NO.	21/10/13	20/11/19	20/11/19	20/11/19	20/11/19
REV. NO. 05 DL30/12/19	C/A. NO.	TGE-19-66	APPROVED : AGM(EME) PREPARED : TGE	ISSUED : TSX	DATE : 14.9.93

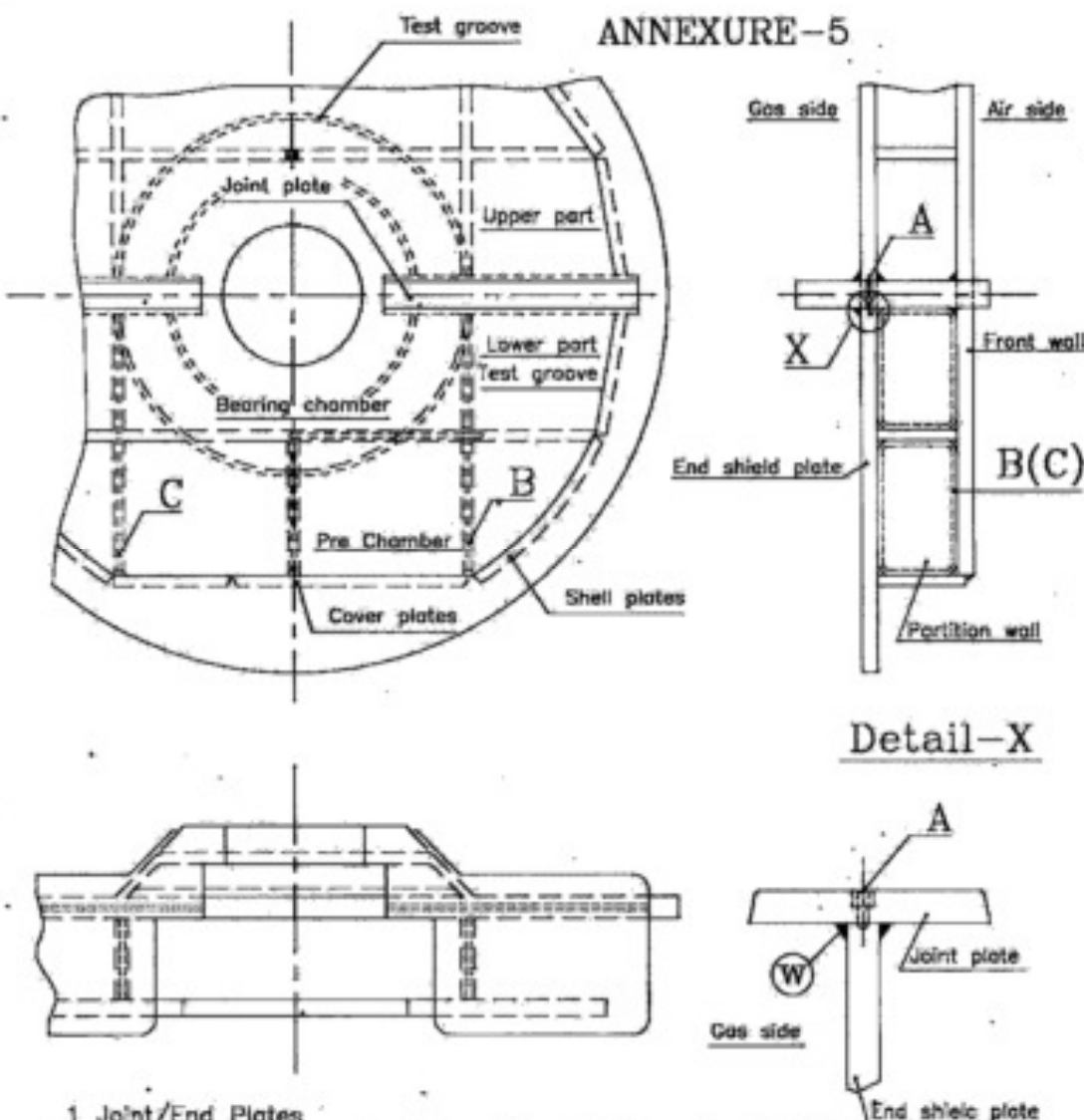
Review of design SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG40116 पृष्ठ 11 का 2 Page 2 of 11	
SUPERSEDES INVENTORY NO. समूची हुई विषय की संज्ञा के समीप	3.4 <u>Seal Oil inlet pipe lines</u> (I) Test Medium : Water (Refer cl – 6.9) Test Pressure : 5 bar (10 Bar for THDF-115/67 & THDF125/67) Test Period : 15 minutes (II) Test Medium : Air (Refer cl – 6.9) Test Pressure : 2 bar (6 bar for THDF 115/67, 125/67) Test Period : 30 minutes			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	4.0 REQUIREMENTS : The air / water leakage test is termed satisfactory when no leakage can be established with the given test norms. No pressure drop should be detected at the pressure gauge mentioned in clause 5.1 during holding time duration. 5.0 TESTING AND APPARATUS : 5.1 <u>Testing Apparatus and Auxiliaries</u> : Pressure gauge 0-16 bar range, closing valve, associated clamping devices and compressed air connections. 5.2 <u>Test Media</u> : Compressed air, leak test medium (soap bubble solution) such as Soap Solution, water etc.			
स्वतंत्रताधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना स्वतंत्रताधिकार की अवधि के अंतर्गत है। इस दस्तावेज को बिना अनुमति के किसी भी रूप में प्रसारित नहीं किया जा सकता है।	6.0 TEST PROCEDURE : 6.1 All internal and external weld joints should remain without any protective coating till the pressure & air testing is complete. 6.2 This test is conducted prior to and after stress relieving. 6.3 Test the weld seams with Soap Solution. Remove any leakage and repeat the test. 6.4 Test bearing chambers & related pipe lines with Soap Solution. Remove leakage and repeat the test. 6.5 Air leakage / hydraulic test cycle should be continued till satisfactory result (no leakage) is achieved. 6.6 This air leakage test / hydraulic test are carried out in the presence of QA / QC engineer. All the safety precautions and working norms to be observed. 6.7 Annexure-1 to 3, 5, 6, and 7 shows the state of manufacture with individual test step. Care must be taken when the welds are being tested before stress relieving to Annexure-1. The shell plate and cover plates have not already been welded on.			
प्रमाणित की तिथि SIGN & DATE 21/10/13	REV.NO. 6		निर्माणकर्ता WORKED BY Ashok Kumar	24/9/13
समूची हुई विषय INVENTORY NO. P-5705			जांचकर्ता CHECKED BY Amit Mittal	22/9/13

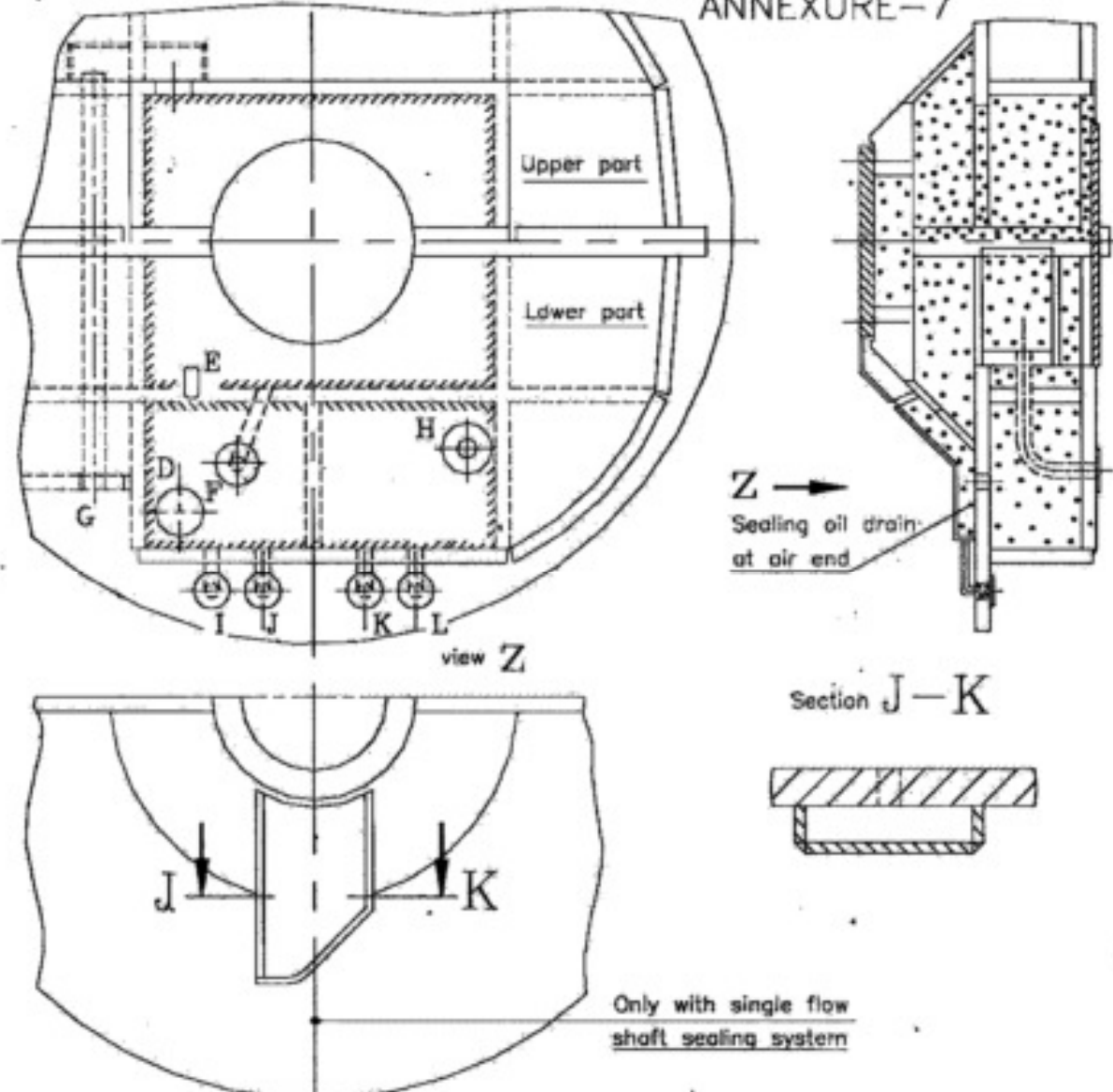
दिनांक एवं प्रमाण SIGN & DATE			उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING		TG40116 पृष्ठ 11 का 3 Page 3 of 11	
सुपरसेड्स INVENTORY NO.			6.8 The leakage test on the welds by means of test grooves is to be performed both before and after the stress relieving. This test has to be repeated in the area of the joint / end shield plates (test bore 'A') after machining.			
कॉपीराइट एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.			6.9 TESTING AS PER ANNEXURE-3&7 : I. Testing of "Bearing Oil Chamber" : (a) i) Prepare end shield and subject it to a water pressure of 3 bar for 15 minutes. No leakage is permitted. Weld seams should be sound. ii) Increase water pressure to 5 bar. Small leakage from technological covers and parting plane is allowed. Weld seams to be checked for soundness to the best possible extent. (b) Repeat test with air at 2 bar for 30 minutes. No leakage is permitted. Check weld seams for soundness. II. Testing of "Seal Oil Inlet Pipe Lines" : (a) The pipeline is to be subjected to 5 bar/10 bar water pressure for 15 minutes. No leakage is permitted. Weld seams to be checked for soundness (b) Test to be repeated with air pressure at 2/6 bar for 30 minutes. No leakage is permitted. Weld seams are to be checked for soundness.			
स्वाम्यधिकार एवं गोपनीय This document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.			7.0 TEST CERTIFICATES : The execution of pressure and air leakage test is recorded in the Quality Control Test Certificate (Annexure-4). 8.0 LIST OF CROSS REFERED STANDARD NO. : NIL			
दिनांक एवं प्रमाण SIGN & DATE 21/10/13						
सुपरसेड्स INVENTORY P. 5705	REV.NO. 05			प्रमाणित WORKED BY Ashok Kumar	Ashok 24/9/13	24/9/13
				जांच CHECKED BY Amit Mittal	Amit 24/9/13	24/9/13

Date of issue SIGN & DATE		उत्पाद मानक		TG40116	
		PRODUCT STANDARD TURBOGENERATOR ENGINEERING		पृष्ठ 11 का 5 Page 5 of 11	
Date of issue SIGN & DATE	Date of issue SIGN & DATE	THRI TYPE TGS			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	ANNEXURE-2			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	Section C-D			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	view Y			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	Section E-F			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	With single flow shaft sealing system			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	(omitted) with double flow shaft sealing system			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	Cover plate for the sealing oil drain on the air end not to be welded on until the H ₂ separator and the sealing oil drains on the H ₂ end have been pressure tested.			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	H ₂ Separator			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	1. H ₂ separator and sealing oil drain on the H ₂ end to be pressure tested with water (10 bar). This includes testing the filled welds which close the H ₂ separator underneath and the weld which enclose the sealing oil drains on the H ₂ end.			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	2. Test repeated with compressed air (6 bar).			
Date of issue SIGN & DATE	Date of issue SIGN & DATE	REV.NO. 05	WORKED BY Ashok Kumar	CHECKED BY Amit Mittal	24/9/13 24/9/13

Revision of drawing SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG40116 पृष्ठ 11 का 6 Page 6 of 11	
Revision of drawing SIGN & DATE	SUPERSEDES INVENTORY NO	THRI TYPE TGS ANNEXURE-3		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.				
स्वतन्त्रतापूर्वक एवं गोपनीय इस दस्तावेज में दी गई सूचना बारात भारी विद्युत यंत्रों की स्वतन्त्रता है। इसका प्रयोग केवल बारात भारी विद्युत यंत्रों के लिए ही किया जा सकता है। अन्य किसी भी उद्देश्य के लिए इसका प्रयोग नहीं किया जा सकता है।		Bearing Oil Chamber with Associated Piping 1. Bearing chamber of the bracket bearing to be closed by cover and the flange connections D, E, F, G, H, by means of blind flanges and a pressure test to be performed with water. Connection G (oil vapour extraction) can also be situated in the upper part of the bracket bearing. 2. Piping above the flange connection J and K to be pressure tested with water. 3. Test repeated with compressed air (2 bar).		
Revision of drawing SIGN & DATE 21/10/13	REV. NO. 05	निर्माण WORKED BY Ashok Kumar 24/9/13 जाँच CHECKED BY Amit Mittal 24/9/13		
Revision of drawing INVENTORY P-5705				

		उत्पाद मानक										TG40116	
		PRODUCT STANDARD TURBOGENERATOR ENGINEERING										पृष्ठ 11 का 7 Page 7 of 11	
जमा की तिथि RECEIVED INVENTORY NO.		ANNEXURE-4											
QUALITY CONTROL TEST CERTIFICATE ON AIR / HYDRAULIC LEAKAGE TEST OF END SHIELD (THRI 108/44, THRI 108/44A, THRI 108/44B, THRI 108/39, THRI 108/55)													
PROJECT:- _____ DRAWING NO.- _____ W.O.No. :- _____ Leak test on welds by means of Test groove (after machining)													
Weld Seams	Test Medium	END SHIELD (TE)				END SHIELD (EE)				QC			
		TEST PRESSURE (IN BAR)		DURATION (IN MIN.)		TEST PRESSURE (IN BAR)		DURATION (IN MIN.)					
		NOM.	ACT.	NOM.	ACT.	NOM.	ACT.	NOM.	ACT.	NOM.	ACT.	Test Date	Inspector
Upper Half as per Annexure- I&5	AIR	Approx 6		30		Approx 6		30			TE (Left)-		
											TE (Right)-		
											EE (Left)-		
											EE (Right)-		
Lower Half as per Annexure- I&5	AIR	Approx 6		30		Approx 6		30			TE (Left)-		
											TE (Right)-		
											EE (Left)-		
											EE (Right)-		
Remarks - Pressure & Leak test on Hydrogen separator, Bearing Oil Chamber & Seal Oil inlet pipes													
Hydrogen Separator as per Annexure- 2&6	Water	10		15		10		15		TE			
	Air	Approx 6		30		Approx 6		30		EE			
Bearing Oil Chamber as per Annexure- 3&7	WATER	3 & 5		15 & 15		3 & 5		15 & 15		TE			
	AIR	2		30		2		30		EE			
										TE			
										EE			
Seal oil inlet pipes	Water	5		15		5		15		TE			
	Air	Approx 2		30		2		30		EE			
Remarks : Leak test medium used :													
जमा की तिथि INVENTORY NO.		REV.NO. 05		निर्धारित WORKED BY Ashok Kumar		जांचकर्ता CHECKED BY Amit Mittal		24/9/13		24/9/13			

Design of bearing SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG40116 पृष्ठ 11 का 8 Page 8 of 11
SUPERSEDES INVENTORY NO	THDF TYPE TGS		
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	ANNEXURE-5 		
स्वसाधिकाए एवं गोपनीय इस दस्तावेज़ में दी गई सूचना स्वतंत्र रूप से प्रयोग करने की अनुमति नहीं है। इसका उपयोग केवल उसी उद्देश्य के लिए किया जा सकता है जिसके लिए यह तैयार किया गया था।	1 Joint/End Plates 1.1 Fillet welds between the joint plate and the end shield plate above openings "A" to be tested with compressed air 1.2 Repeat test after machining of joint. 2 Partition/Front Wall 2.1 Fillet welds which enclose the H2 separator and close the bearing Chamber on the right to be pressure tested above opening "B". 2.2 Fillet welds which close the bearing chamber on the left to be pressure tested above opening "C".		
Design of bearing SIGN & DATE 21/10/13	REV.NO. 05		निर्देशक WORKED BY Ashok Kumar 24/9/13
INVENTORY P. 5705		जांचकर्ता CHECKED BY Amit Mittal 24/9/13	

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक PRODUCT STANDARD TURBOGENERATOR ENGINEERING	TG40116 पृष्ठ 11 का 10 Page 10 of 11	
संशोधन एवं परिवर्तन REVISIONS INVENTORY NO.	THDF TYPE TGS ANNEXURE-7			
COPYRIGHT AND CONFIDENTIAL The information in this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.				
स्वतंत्रतापूर्वक एवं गोपनीय इस दस्तावेज़ में दी गई जानकारी केवल केवल के उपयोग के लिए है। इसे किसी भी अन्य उद्देश्य के लिए प्रयोग नहीं किया जाना चाहिए।	Bearing Oil Chamber with Associated Piping 1. Bearing chamber of the bracket bearing to be closed by cover and the flange connections D,E,F,G,H, by means of blind flanges and a pressure test to be performed with water. Connection G (oil vapour extraction) can also be situated in the upper part of the bracket bearing. 2. Piping above the flange connection I,J,K and L to be pressure tested with water. 3. Test repeated with compressed air (2 bar).			
दिनांक एवं हस्ताक्षर SIGN & DATE 21/10/13	REV.NO. 05			
संशोधन एवं परिवर्तन INVENTORY P.5705	REV.NO. 05	निर्माणकर्ता WORKED BY आशोक Ashok Kumar	जांचकर्ता CHECKED BY अमित मिश्रा Amit Mittal	दिनांक DATE 24/9/13 24/9/13



उत्पाद मानक

TG40116

पृष्ठ 11 का 11

Page 11 of 11

PRODUCT STANDARD **TURBOGENERATOR ENGINEERING**

ANNEXURE-B

QUALITY CONTROL TEST CERTIFICATE **ON AIR / HYDRAULIC LEAKAGE TEST OF END SHIELD** **(THDF 125/67, THDF 115/67)**

PROJECT:-

DRAWING NO.-

W.O.No. :-

Leak test on welds by means of Test groove (after machining)

Weld Seams	Test Medium	END SHIELD (TE)				END SHIELD (EE)				QC	
		TEST PRESSURE (IN BAR)		DURATION (IN MIN.)		TEST PRESSURE (IN BAR)		DURATION (IN MIN.)		Test Date	Inspector
		NOM.	AC T.	NOM.	ACT.	NOM.	AC T.	NOM.	ACT.		
Upper Half as per Annexure-185	AIR	Approx 6		30		Approx 6		30		TE (Left)-	
										TE (Right)-	
										EE (Left)-	
										EE (Right)-	
Lower Half as per Annexure-185	AIR	Approx 6		30		Approx 6		30		TE (Left)-	
										TE (Right)-	
										EE (Left)-	
										EE (Right)-	

Remarks -

Pressure & Leak test on Hydrogen separator, Bearing Oil Chamber & Seal Oil inlet pipes

Hydrogen Separators per Annexure-286	Water	10		15		10		15		TE	
	Air	Approx 6		30		Approx 6		30		EE	
Bearing Oil Chamber as per Annexure-367	WATER	3 & 5		15 & 15		3 & 5		15 & 15		TE	
	AIR	2		30		2		30		EE	
Seal oil Inlet pipes	Water	10		15		10		15		TE	
	Air	Approx 2		30		6		30		EE	

Remarks :

Leak test medium used :

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of Ashok Kumar Engineering Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.

स्वातंत्र्य एवं गोपनीय

यह सूचना कि यह दस्तावेज आशोक कुमार इंजीनियरिंग लिमिटेड की संपत्ति है और इसे बिना अनुमति के किसी भी प्रकार का उपयोग नहीं किया जाना चाहिए।

 प्रमाणित की तिथि
 SIGN & DATE

21/10/13

 प्रमाणित की तिथि
 INVENTORY

P.5705

REV.NO.

C5

निर्माणकर्ता
WORKED BYAshok
Kumar

Ashok

24/9/13

जांचकर्ता
CHECKED BYAmit
Mittal

Amit

24/9/13

संशोधित संस्करण पर प्रमाणित कर दी गई है। DOCUMENT RELEASED FROM SERVER/CTA		प्रस्तावित दिनांक SIGN & DATE		संशोधित संस्करण पर प्रमाणित कर दी गई है। DOCUMENT DEPOSITED IN SERVER		प्रस्तावित दिनांक SIGN & DATE		संशोधित संस्करण पर प्रमाणित कर दी गई है। CHANGE ADVICE FORM			
 संशोधित संस्करण संख्या CHANGE ADVICE NO.		जारीकर्ता विभाग ISSUING DEPTT.		उत्पाद का प्रकार TYPE OF PRODUCT		उपकरण/वैकल्पिक GMS / GRSP / CROM NO.		मुद्रण दिनांक PRINT DELIVERY DATE		प्रमाणित करने वाला APPROVED BY 16/11/19	
TGE-19-66		TUE		TURBOMOTOR (PS)		(4)		(5)		RAJEEV KUMAR SHARMA	
संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.	
ROUTE (7a)		(8)		(9)		(10)		(11)		(12)	
NA		OS / 07		Reaffirmed		(13)		(14)		(15)	
TGA0116		NA		Reaffirmed		(16)		(17)		(18)	
CODES FOR REASON OF CHANGES:- 01- ENGINEERING ERROR INCLUDING D.C. ERROR, 02- DESIGN UNREASONABLE (INCLUDING ADDITION OF WEIGHT), 03- DESIGN REVIEW INCLUDING CHANGES DUE TO CHANGE ADVICE IN OTHER DOCUMENTS, 04- TO MEET MANUFACTURING REQUIREMENTS, 05- TO MEET TECHNOLOGICAL MODIFICATIONS, 06- TO SUIT CUSTOMER DEMANDS, 07 TO SUIT STATUTORY REQUIREMENTS, 08 TO REPLACE DAMAGED TURN OUT ORIGINALS BY A FRESH ORIGINALS, 09- ANY OTHER											
AGREED संशोधन (20)											
नाम NAME		पद SIGN		दिनांक DATE		जारीकर्ता ISSUING DEPTT.		संशोधित संस्करण संख्या REV. NO.		संशोधित संस्करण संख्या REV. NO.	
(17)		(18)		(19)		(20)		(21)		(22)	
(23)		(24)		(25)		(26)		(27)		(28)	
(29)		(30)		(31)		(32)		(33)		(34)	
(35)		(36)		(37)		(38)		(39)		(40)	
(41)		(42)		(43)		(44)		(45)		(46)	
(47)		(48)		(49)		(50)		(51)		(52)	
(53)		(54)		(55)		(56)		(57)		(58)	
(59)		(60)		(61)		(62)		(63)		(64)	
(65)		(66)		(67)		(68)		(69)		(70)	
(71)		(72)		(73)		(74)		(75)		(76)	
(77)		(78)		(79)		(80)		(81)		(82)	
(83)		(84)		(85)		(86)		(87)		(88)	
(89)		(90)		(91)		(92)		(93)		(94)	
(95)		(96)		(97)		(98)		(99)		(100)	



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

Table of Contents

1. GENERAL.....	1
2. ORIGIN OF QUOTATION	1
3. SUBMISSION OF TENDER.....	1
4. TENDER OPENING.....	2
5. SPECIFICATION, DRAWINGS & STANDARD	2
6. PRICE SCHEDULE.....	3
7. REVERSE AUCTION.....	3
8. DELIVERY TERMS	3
9. LD FOR LATE DELIVERY	4
10. PAYMENT TERMS.....	4
11. TAXES & DUTIES.....	5
12. BANK GUARANTEE.....	6
13. GUARANTEE / WARRANTY AND CORRESPONDING REPAIRS / REPLACEMENT OF GOODS	6
14. QUALITY REQUIREMENT.....	6
15. VALIDITY	6
16. RIGHT OF ACCEPTANCE	6
17. TRANSIT INSURANCE	7
18. RISK PURCHASE	7
19. FORCE MAJEURE CLAUSE.....	7
20. NON-DISCLOSURE AGREEMENT	8
21. SETTLEMENT OF DISPUTES / ARBITRATION.....	8
22. WHARFAGE / DEMURRAGE RESPONSIBILITY.....	8
23. CONDITIONS FOR AVAILING MICRO & SMALL ENTERPRISES (MSE'S) BENEFITS	8
24. INFORMATION TO THE BIDDERS	10
25. MAKE IN INDIA (GOVT-NOTIFICATION)	10
26. RESTRICTIONS UNDER RULE 144(XI) OF THE GENERAL FINANCIAL RULES (GFRs), 2017	12
27. NOTE.	12

1. GENERAL.

These general terms & conditions shall apply to all the Tender Enquiries, notice inviting tenders, request for quotations concerning the supply of goods and / or rendering of services to Bharat Heavy Electricals Ltd., HEEP, Haridwar (hereinafter referred to as BHEL or the Purchaser). In case of placement of order these conditions will become part of Purchase Order (P.O) until unless the deviations are specifically agreed by BHEL.

2. ORIGIN OF QUOTATION.

A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. **The bidder found to have a conflict of interest shall be disqualified.** A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- they have controlling partner (s) in common; **or**
- they receive or have received any direct or indirect subsidy/ financial stake from any of them; **or**
- they have the same legal representative/agent for purposes of this bid; **or**
- they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or
- Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; or
- In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following:
 - The principal manufacturer directly or through one Indian agent on his behalf; and
 - Indian/foreign agent on behalf of only one principal;**or**
- A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; **or**
- In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/similar line of business. "

3. SUBMISSION OF TENDER.

- Bid / Quotation must be enclosed in sealed cover on which tender enquiry number and the due date MUST BE written and be invariably sent under REGISTERED POST / SPEED POST / COURIER / Dropped in the Tender Box: addressed as follows:

Quotation against Enquiry No. _____

Dated: _____

Due on: _____

To,

**THE HEAD OF MATERIALS MANAGEMENT,
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited,
HARIDWAR-249403 (Uttarakhand), INDIA.**

- TENDER ROOM is located at: Room No. - 415, 4th Floor, Main Admin. Building, BHEL-HEEP, Haridwar.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

- c) In case of Three / Two Part Bid, technical bid containing technical offer, duly signed and un-priced copy of the Price Bid should be kept in one envelope. Price Bid containing only the price should be kept in a separate envelope. All envelopes indicating Part-1 or Part-2 or Part-3 as the case may be to be put in a bigger envelope. Please note that un-priced bid should be the exact replica of price bid but without prices.
- d) The bid / quotation must be posted before due date, keeping allowance for postal transit time. Quotations sent by any mode but not received in time will be ignored. Tender received through authorized E-mail is also acceptable. However, in time submission of tender in tender box shall be the responsibility of the bidder, sent through any mode. Documents submitted with the offer / bid shall be signed and stamped in each page by authorized representative of the bidder.
- e) Any additional documents submitted by supplier / bidder, during processing of registration application / tender or after placement of order shall not be accepted unless it is submitted with forwarding letter and duly signed and stamped.
- f) The bids of the bidders who are on the banned list and also the bids of the bidders, who engage the services of the banned firms, shall be rejected. The cutting / overwriting in the bid / offer must be duly attested by the signatories to the bid. The list of firms banned by BHEL is available on BHEL web site www.bhel.com.
- g) Being PMD vendor, if you are not quoting against this tender enquiry, please send your regret letter positively for our reference with valid reasons for not participating in the tender enquiry. Repeated lack of response on the part of bidder may lead to deletion such PMD vendor from BHEL's approved vendor list.
- h) The bidders will submit Integrity Pact, duly signed by its authorized signatory, along with their bids wherever estimated tender value is Rs. 2 Crore or more.
- i) In case of open tender, technically qualified unregistered bidders may apply online for registration through <http://www.bhel.com/index.php/vender>.
- j) BHEL reserves the right to award tendered quantities among more than one bidder (after acceptance of L1 price by the other bidders). BHEL can also consider awarding of part of the tendered quantity to other than L-1 bidder at L1 counter offered rates, if the quantity offered by the L-1 bidder is less than the quantity tendered for.
- k) In case of e-Tendering (Online bidding through e-portal), offline bid submitted in hard copy or in any other form by the vendor / supplier will not be accepted and will be rejected out rightly. Only e-portal bid will be accepted.

4. TENDER OPENING.

Tender opening is scheduled to start in the Tender Room at 2:00 PM, on the due date. Therefore, bid / quotations must reach this office / tender Box latest by 1:45 PM on due date. Only participating bidders are allowed to attend tender opening. **TENDERS RECEIVED AFTER THE SPECIFIED TIME OF THEIR 'SUBMISSION' WILL BE TREATED AS LATE TENDERS AND SHALL NOT BE CONSIDERED UNDER ANY CIRCUMSTANCES.** The bidders or their authorized representatives may be allowed to attend tender opening if duly authorized by their principals, through a tender specific letter on that particular day. General authorization letter is not acceptable.

Note: - Foreign bidders willing to attend the bid opening has to provide the requisite documents to the concerned Purchase executives for arranging gate pass for them.

5. SPECIFICATION, DRAWINGS & STANDARD.

- a) Bidders must give their detailed specification in the quotation along with relevant technical literature / catalogue etc. against the tender enquiry.
- b) The Bid should be accompanied with relevant copies of catalogues, drawings or specification as per tender enquiry.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

If these documents are not furnished, the offer is liable to be rejected.

- c) Wherever national / international (N/IN) standards are referred, the latest N/IN standards are to be followed. Mention year & date of standard revision that shall be followed for the supply.
- d) All Drawings and Standards are proprietary of BHEL. It must not be used in anyway detrimental to the interest of BHEL or without permission of BHEL.

6. PRICE SCHEDULE.

- a) Kindly quote your prices in figures and words both. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 status.
- b) Prices quoted should not be more than the prices quoted to any other BHEL units / offices / divisions. Vendor to submit copy of latest Purchase Order placed by any unit of BHEL for similar items in the technical bid. In case no order has been placed on such items, specific confirmation that no order has been placed on such items should be provided.
- c) Prices should be quoted on F.O.R. Destination basis. Transit insurance shall be arranged by BHEL and not to be included in the prices. The offers quoted on other than F.O.R destination basis may result in non-consideration of such bids.
- d) In case BHEL accepts the EX-Works prices, such offers will be loaded by 1.5% of EX-Works value towards freight or with actual freight charges as per BHEL freight rate contract whichever is higher.
- e) In case of Indigenous items covered by DGS & D Rate Contract, the bidders should submit latest valid copy of the rate contract along with bid / quotation
- f) Applicable **IGST / CGST / SGST** and any other statutory levy should be indicated separately and clearly in the bid / quotation.

- g) Bidders can dispatch goods through any Indian Bank Association approved transporters having their branch at HARIDWAR / destination. If material is dispatched through other than Indian Bank Association approved transporter, material to be delivered on door delivery BHEL Stores basis.
- h) In case of dispatch of material through any other unapproved transporter, payment shall be made only after receipt of material and any additional charges payable to the transporter shall be to the bidder's account.
- i) Any demurrage / godown rent payable to the transporter / or to godown's owner due to any delay attributed by the supplier shall be recovered from supplier's account.
- j) Currency of Evaluation shall be INR.

NB: Financial evaluation of L1, L2 Status will be on the basis of Landed Cost to BHEL.

7. REVERSE AUCTION.

Wherever RA is declared in the special terms and conditions of tender enquiry, following shall be applicable and Bidders to confirm the same:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

8. DELIVERY TERMS.

- a) Goods shall be delivered on 'FOR Destination' basis to the named destination unless otherwise called for in the tender enquiry.
- b) Loading on account of 3rd party inspection charges in case of Indian bidders shall be 0.20%.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

9. LIQUIDATED DAMAGES (LD) FOR LATE DELIVERY.

a) Where items of Purchase Order are independently usable.

Liquidated Damages (LD) for Late Deliveries shall be applicable @0.5% per week or part thereof on the value of respective delayed supplies subject to a maximum of 10% of the value of respective delayed supplies. Value of delayed supplies will mean the Gross Value payable to the vendor (Before LD) against such supplies excluding taxes and duties.

b) Where the total items are required for a main equipment and items are interdependent.

Liquidated Damages (LD) for Late Deliveries shall be applicable @0.5% per week or part thereof on total value of Purchase Order subject to maximum of 10% of the total value of Purchase Order. Purchase Order value for this purpose shall be the Total Gross Value payable to the vendor (Before LD) excluding taxes and duties.

c) Bidders are requested to quote the best delivery meeting the delivery requirements. BHEL reserves the right to reject the offers not meeting BHEL's delivery requirement.

d) Commencement of delivery period shall be reckoned from the date of PO / LOI or any other agreed milestone.

e) Bidder shall deliver the goods in the manner and schedule agreed under the terms and conditions of Purchase order.

f) DELIVERY IN CASE OF REJECTION: In case the material is rejected, then date of replacement will be considered as the actual date of delivery.

g) DELIVERY AGAINST BANK DOCUMENTS: In case payment terms quoted by bidder are documents through bank, and the delivery terms being "FOR Haridwar / FOR Transporter Go-down" then date of delivery will be date of intimation by transporter / bidder of delivery of material at Haridwar for the LD purpose.

h) Where the payments are through bank, the documents may be presented for negotiation to BHEL authorized / nominated bank.

i) Payment of Liquidated Damages (LD) shall not in any way relieve the vendor from any of its obligations & liabilities under the contract.

10. PAYMENT TERMS.

a) BHEL's standard payment term is Payment after receipt and acceptance of materials / items at HEEP, BHEL-Store or at desired destination unless otherwise specified in Special Terms attached to the tender enquiry.

b) BHEL reserves the right to accept or reject the offer of the bidder who quotes the payment term other than BHEL's standard payment term.

c) Loading on account of deviation in payment terms shall be done as per extant rules of BHEL-Haridwar.

d) 100% payment along with taxes, freight & insurance will be made after receipt and acceptance of material and within 75 days from the date of invoice subject to submission of non-discrepant documents within 15 days of supply as per terms and conditions of Purchase Order. In case any discrepancy found in the documents, BHEL will notify the same to vendor within 7 days of receipt. Vendor has to clear all the discrepancies in one go within 7 days thereafter else the payment of vendor may get delayed.

e) For MSEs (covered under MSME Act) which are registered and periodically renewed with BHEL, the payment will be made within 45 days or as prescribed in the relevant act.

f) Adherence to the above time schedule of payment is contingent upon Vendor complying with GST Rules w.r.t availment of Input Tax Credit by BHEL.

g) In case GST credit is delayed / denied to BHEL, due to non / delayed receipt of goods and / or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reason not attributable to BHEL, GST amount shall be recoverable from Vendor along with interest levied / leviable on BHEL.

h) The taxes and duties that are reimbursed would be the ones applicable as on the contractual Purchase order delivery date or the amount actually paid whichever is less.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

i) **The loading criteria for the different payment terms shall be as under:**

Payment Terms	Days of Loading
After Receipt & Acceptance of material within 75 days of supply.	No Loading
Against Delivery at BHEL-Stores Haridwar.	45
Against documents through bank (CAD):	45
Letter of Credit (LC)	120
Usance LC	No Loading if usance period is > 120 Days.
	Loading of days' difference i.e. difference between 120 days and usance period if the usance period is < 75 days.
Advance	Delivery Period + 120 Days - Advance Payment Days.

11. TAXES & DUTIES.

- a) The bidder to specify in their offer (part 1 bid) the category of their registration under GST like Registered, Unregistered and composite dealer.
- b) The provisional GST registration number of Bharat Heavy Electrical Ltd, Heavy Electricals Equipment Plant, Ranipur, Haridwar is "05AAACB4146P1ZL" with state Code as "05" and State Name as "Uttarakhand".
- c) Please quote our provisional GST registration number in all invoices raised for supply of goods and services under GST regime and also ensure filing of timely return and payment of tax and compliance of other applicable provisions on supplier under GST regime.
- d) No GST will be reimbursed to unregistered or composite dealer. In the event, any GST is quoted by composite dealer, the same shall be added to the cost of supply in evaluating the bid.
- e) Since, input credit of GST will be available to BHEL-Haridwar only after correct filing of return and payment of applicable GST by supplier, reimbursement of GST shall be made by

BHEL-Haridwar on matching of vendor inputs at GST portal, ensuring availability of input credit to BHEL Haridwar. Payment of GST will be made to vendor after matching of input credit and vendor to ensure submission of their invoices along with consent to accept payment of tax after such matching in all cases where bills are submitted directly to BHEL-Haridwar or through bank or under LC or through any other mode.

- f) In the event of any disallowance of input credit or applicability of interest or any other financial liability arises on BHEL-Haridwar due to any default of supplier under GST, such implication shall be to supplier's account.
- g) In the event of any change in the status of the vendor after the submission of the bid but before the supply, GST applicable at the time of supply or in the bid, based on the registration status of the vendor, whichever is lower shall be payable.
- h) Where ever applicable If PAN (Permanent Account Number) of the recipient is not available, income tax is deductible either at the normal rate or at the rate of 20 percent, whichever is higher as per Section 206AA of Indian Income Tax Act 1961.
- i) The bidder shall clearly indicate HSN (*Harmonised System Nomenclature*) / SAC (*Service Accounting Code*), its description and applicable rate of GST for each item in his techno-commercial bid.
- j) Statutory Variation in Taxes & duties as applicable at the time of supply shall be payable. However, in the event of no change in law but bidder quoting certain tax structure in bid document which is lower than the applicable one, such amount shall be the maximum amount of tax that can be claimed by bidder.
- k) **IMPORTED GOODS OFFERED BY INDIAN BIDDERS AGAINST DEALER INVOICE:** Wherever the material being offered is imported, the bidder must quote the prices inclusive of IGST. The rate and value of IGST as included in the price must be indicated separately. In case quantum of IGST is not mentioned by the bidder the same will not be considered for



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

evaluation. However, bidder will have to pass on the benefit of IGST to BHEL at the time supply.

- l) In case of directly dispatchable items to Customer's Site, BHEL-Haridwar will inform the GST registration number of the respective customer which must be mentioned on the vendor's invoice. Vendor to ensure availability of such information from BHEL-Haridwar before dispatch of any material. However, while filing GSTN-1, BHEL Haridwar GSTN number to be quoted.

Note: - Vendors must ensure compliance of all the applicable rules and procedure as envisaged in the GST Regime. Any loss to BHEL-Haridwar due to fault / non-compliance by the vendor will be to the vendor's account.

12. BANK GUARANTEE.

In case the bank guarantees are required to be deposited towards security deposit/performance guarantee or for any other purpose as per the terms of this tender enquiry, such bank guarantees of the requisite value in the denominated currency of the purchase order should be from one of the Indian branch of BHEL consortium banks and the bank guarantee should be in the proforma as prescribed by BHEL. The proforma of bank guarantee and the list of consortium banks are displayed at BHEL website www.bhelhwr.co.in. However, in case the bank guarantee is not from BHEL consortium banks, then the bidder has to get the bank guarantee confirmed from one of the Indian branch of BHEL consortium banks and the bank charges for such confirmation will be borne by the bidder.

13. GUARANTEE / WARRANTY AND CORRESPONDING REPAIRS / REPLACEMENT OF GOODS.

Goods shall comply with the specifications for material, workmanship and performance. Unless otherwise specified, the warranty shall be for a period of 18 months from the date of receipt. If the delivery is found non-compliant during the warranty period, leading to rejection, the Seller shall arrange free replacement / repair of goods, within one month from the date of intimation or any mutually agreed period. The rejected goods shall be taken away by the Seller at his cost and

replaced on Delivered Duty Paid (DDP) (FOR - BHEL Stores / designated destination basis) within such period. In the event of the Seller's failure to comply, Purchaser may take action as appropriate, including Repair / Replenish rejected goods & disposal of rejections, at the risk & cost of the Seller. In case the defects attributable to Seller are detected during processing of the goods at BHEL or at our subcontractor's works, the Seller shall be responsible for free replacement / repair of the goods as required by BHEL.

- b) **RETURN OF REJECTED MATERIAL FOR REPLACEMENT:** The bidder shall have to pay 5% incidental charges while taking back supplied material if it is found rejected on receipt. The rejected material shall be sent back only after receipt of replacement / submission of BG / refund of amount paid.

14. QUALITY REQUIREMENT.

Your bid / quotation should have specific confirmation regarding meeting all our quality requirements such as. (i) Test Certificate (TC), (ii) Guarantee Certificate (GC) / Warranty Certificate (WC), (iii) Quality Plan (QP) (if applicable); and (iv) Pre-Dispatch Inspection at your works (if applicable).

15. VALIDITY.

The quotation should be valid for a minimum period of 90 days effective from the date of opening of tender, unless otherwise specified in the tender enquiry.

16. RIGHT OF ACCEPTANCE.

- a) **BHARAT HEAVY ELECTRICALS LIMITED HARIDWAR** reserves the right to reject any or all the bids / quotations without assigning any reason thereof. BHEL also reserves the right to increase or decrease the tendered quantities. Bidders should be prepared to accept order for reduced quantity without any extra charges.
- b) Any discount / revised offer / bids submitted by a bidder on its own shall be considered, provided it is received on or before the due date and time of offer / bid submission (Part-1). Conditional discounts shall not be considered for evaluation of tenders.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

- c) Unsolicited discounts / revised offers / bids given after Part-1 bid opening shall not be accepted. No change in price will be permitted within the validity period asked for in the tender enquiry.
- d) In case of changes in scope and / or technical specification and / or commercial terms & conditions having price implication, techno-commercially acceptable bidders shall be asked by BHEL to submit the impact of such changes on their price bids. In case a bidder opts to submit revised price bid instead of impact called for then the latest price bid shall prevail. However, in both situations, original price bid will be necessarily opened.
- e) The bidder whose bid is technically not accepted will be informed & EMD wherever submitted shall be returned after finalization of contract. EMD shall be forfeited in the event of bidder opting out after tender opening.
- f) BHEL reserves the right to short close the existing Purchase Order / Rate Contract / Work Order or any extension thereof at any stage.

17. TRANSIT INSURANCE.

- a) Transit Insurance will be covered by BHEL under its open Insurance Policy. Seller shall inform dispatch particulars (Purchase Order, RR /GR, Invoice value etc.) to "Finance department (Store bill Section), BHEL Ranipur, Haridwar (Uttarakhand-India) with value of consignment to the Purchaser within 07 days of dispatch for BHEL to arrange insurance coverage in its policy. Failure on the part of seller to inform dispatch particulars will make him liable to pay for any transit damages / losses suffered by the Purchaser.
- b) If Quoted Prices are inclusive of transit insurance, no weightage shall be given while evaluating the bids for Cost of Insurance, being in BHEL Scope.

18. RISK PURCHASE.

In case of abnormal delays (beyond the maximum late delivery period as per LD clause) in supplies / defective supplies or non-fulfillment of any other terms and conditions given in Purchase Order, BHEL may cancel the Purchase Order in full or part thereof, and may also make the purchase of such material from elsewhere / alternative source at the risk and cost of the supplier. BHEL will take all reasonable steps to get the material from alternate source at optimum cost. If bidder does not agree to the above Risk Purchase Clause, BHEL reserves the right to reject the offer. In case for compelling reasons BHEL accepts the offer without acceptance of this clause by the bidder and in the eventuality of Risk Purchase, appropriate action will be taken as per BHEL extant rules. This will be without prejudice to any other right of BHEL under the contract or under General Law.

19. FORCE MAJEURE CLAUSE.

Notwithstanding any other thing contained anywhere else in the contract or PO (Purchase Order), In case the discharge of obligation under the contract by either party is impeded or made unreasonably onerous, neither party shall be considered in breach of the contract to the extent that performance of their respective obligation is prevented by an event of Force Majeure that arises after the effective date (PO date).

In the above clause, Force Majeure means an event beyond the control of the parties to the contract which prevents a party from complying with any obligation of the contract including but not limited to:

- a) Act of God (Such as but not limited to earthquake, drought, tidal waves, floods etc.).
- b) War (whether war be declared or not), Hostilities Invasion, Act of foreign enemy etc.
- c) Rebellion, revolution, insurrection, civil war etc.
- d) Contamination of Radio Activity from any nuclear fuel or from any other nuclear waste or any other hazardous materials.
- e) Riots, commotions, strike unless restricted to the employees of supplier.
- f) Acts of terrorism.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

- g) Other unforeseeable circumstances beyond the control of the parties and which the affected party cannot avoid even by using its best efforts.
- h) Cancellation of contract by customer.
- i) Change in law / government. Regulation making the performance impossible.
- j) Pandemic or Epidemic.

The party claiming to be affected by force majeure shall notify the other party in writing immediately without delay on the intervention and on the cessation of such circumstances.

Irrespective of any extension of time, if an event of force majeure occurs and its effect continues for more than 180 days the affected party shall have right to cancel the contract.

As soon as reasonably practicable following the date of commencement of a Force Majeure Event, and within a reasonable time following the date of termination of a Force Majeure Event, either Party invoking it shall submit to the other Party reasonable proof of the nature of the Force Majeure Event and of its effect upon the performance of the Party's obligations under this Agreement.

The party shall, and shall ensure that its Subcontractors shall, at all times take all reasonable steps within their respective powers and consistent with Good Operating Practices (but without incurring unreasonable additional costs) to:

- a) Prevent Force Majeure Events affecting the performance of the party's obligations under this Agreement.
- b) mitigate the effect of any Force Majeure Event and
- c) Comply with its obligations under this Agreement.

If the war like situation has developed in a country where a seller's works is located in this P.O. or there is political instability and Indian Embassy located in that country forbids or advises for not having any business dealing with the sellers located in such zone / region/ country, then BHEL reserves the right to cancel the order.

20. NON-DISCLOSURE AGREEMENT.

All Drawing and Technical Documents relating to the product or its manufacture submitted by one party to the other, prior or

subsequent to the formation of contract, shall remain property of the submitting party. Drawing, technical documents or other technical information received by one party, shall not without the consent of the other party, be used for any other purpose than that, for which they were provided. Such technical information shall not without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to a third party. Patterns supplied by BHEL will remain BHEL's property which shall be returned by the bidder on demand to BHEL. Bidder shall in no way share or use such intellectual property of BHEL to promote his own business with others or to gain a commercial advantage. BHEL reserves the right to claim damages from the bidder, or take appropriate action as deemed fit against the bidder, for any infringement of the provisions contained herein as available under law or equity.

21. SETTLEMENT OF DISPUTES / ARBITRATION.

In case of any dispute arising out of as in connection with this contract, the same shall be referred to arbitration under Arbitration & Conciliation Act 1996 of a sole arbitrator who shall be appointed by mutual consent of the parties. The seat & venue of arbitration shall be Haridwar.

The proceedings shall be conducted in English. The Governing law of contract shall be the substantive law of India.

22. WHARFAGE / DEMURRAGE RESPONSIBILITY.

In the event of delay in receipt of documents by Manager (Stores-Shipping) BHEL-Haridwar and in case where dispatches are made through Unapproved Transporter the sole responsibility for wharfage / demurrage for such delay shall be that of supplier.

23. CONDITIONS FOR AVAILING MICRO & SMALL ENTERPRISES (MSE'S) BENEFITS.

- a) "MSE Suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (**five years** from the date of issue of acknowledgement in EM II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

(Format enclosed at annexure-1 where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two-part bid) or vendor has to give Udyog Adhar Memorandum (UAM). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents is found or the requisite documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. **UAM need not required to be notarized or attested.**

b) Any new supplier will be eligible for registration with BHEL as MSE supplier provided at least any one of the following documents are submitted along with application for registration: -

1. Udyog Adhar Memorandum (UAM).
2. Valid National Small Industries Commission (NSIC) Certificate.
3. Entrepreneurs Memorandum part II (EM II) certificate (valid based on deemed validity of 5 years) or
4. EM II certificate along with attested copy of CA Certificate (as per prescribed format at annexure-A) applicable for the relevant financial year (latest audited), where the deemed validity of EM II is over.
5. However, credentials of all MSE suppliers will be verified before advancing the intended benefits.
6. MSE bidders claiming SC/ST status will have to submit SC/ST certificate of the Proprietor from competent authority. Attested (notarized or attested by Gazetted officer) copy to be submitted along with the offer.
7. In case techno-commercial accepted bidders include MSE source and their prices (based on landed cost – considering quoted prices) are within the price band of 15% w.r.t. L-1 bidder, then BHEL can offer **25%** of quantity of respective item (rounded off to nearest number) to MSE bidders at L-1 price and in case, more than one MSE bidder is in 15 % band and the same is accepted by more than one MSE bidders then **25%** quantities of respective items will be considered for ordering on proportionate basis amongst MSE bidders.

8. There will be minimum of **3%** reservation for women owned MSEs within the above mentioned 25% reservation.
9. The reservation for MSEs owned by SC/ST will be **6.25%** { 25% out of target of 25% - refer para 4 of Public Procurement Policy for the Micro and Small Enterprises(MSEs)}.
10. The definition of MSEs owned by Women Entrepreneurs is clarified as under:
 - a) In case of proprietary MSE, proprietor shall be Woman.
 - b) In case of partnership MSE, the Woman partners shall be holding at least 51% of share in the unit.
 - c) In case of Private Limited companies, at least 51% share shall be held by Women promoters.
11. The definition of MSEs owned by SC/ST is clarified as under:
 - a) In case of proprietary MSE, proprietor(s) shall be SC/ST.
 - b) In case of partnership MSE, the SC/ST partners shall be holding at least 51% of shares in the unit.
 - c) In case of Private Limited companies, at least 51% share shall be held by SC/ST promoters.
12. While distributing the **25%** quantity amongst MSE bidders the decimal points in quantity shall be ignored for all the bidders except the L-1 amongst MSE bidders. Balance quantity after allocating the quantity to other MSE bidders ignoring the quantities in decimal, shall be given to L-1 (amongst MSE) bidder. However, if there are more than one MSE bidder at the same price level than preference for additional quantities due to ignoring off the decimal (as mentioned above) shall be given to the bidder offering favorable terms to BHEL and if the conditions offered are also same then preference will be given to the bidder having high SPR rating.
13. In case there are more than one MSE bidders (with different landed cost to BHEL) within 15% price band of lowest bidder and quantity to be offered is 1 no. only, then preference shall be given to the MSE bidder with lowest landed cost.
14. In case there are more than one MSE bidders (with same landed cost to BHEL) within 15% price band of lowest bidder and quantity to be offered is 1 no. only, then preference shall be given first, based on the favorable terms in the bid and in case terms are also same, the bidder with high SPR rating shall be given preference.
15. If L1 bidder is MSE bidder, entire quantity will be given to such MSE bidder only.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

16. Note: It may however be noted that MSE guidelines as on date (Date of Technical Bid Opening Part-1) shall prevail.

17. "As per the OM No. F.No. 1(2)(1)/2016-MA dtd. 09.02.2017 issued from the Office of Development Commissioner (Micro, Small & Medium Enterprises), "Traders and agents should not be allowed to avail the benefits extended under the PP Policy."

In view of this, it is clarified that benefits of MSE (such as EMD Waiver, Tender fee exemption, Price preference, Payment preference etc.) will be given only to those MSE Vendors who are manufacturers of offered items against the NIT. No MSE benefits shall be provided to Agents / Stockists / Dealers / Traders etc. for the items offered but not manufactured by themselves."

24. INFORMATION TO THE BIDDERS.

a) Purchase related information is available at our Business-to-Business (B2B) Portal available on our website <https://hwr.bhel.com>. The user ID & password can be obtained by sending a request to concerned purchase executives.

b) Intimate your change in mail address or communication address or changes, if any, by email to AGM (SDX/MM) giving your bidder Code.

c) Please resolve your rejections and unexecuted overdue purchase order immediately which are posted at our B2B Portal, which can be visited through our site <https://hwr.bhel.com>

d) Copy of this Tender Enquiry is being sent through the post.

e) The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/guidelines.

f) Supplier must upload digitally signed e-Invoice on B2B portal for processing of Bills.

In other cases, inked signed hard copy of Invoice to be submitted for processing of Bills.

25. MAKE IN INDIA (GOVT-NOTIFICATION).

A. This tender enquiry shall be governed by notification no. P-45021/2/2017-PP (BE-II) dated 04.06.2020 of government of INDIA and subsequent circulars issued afterwards. Accordingly, the minimum local content, the margin of purchase preference and the procedure for preference to make in INDIA shall be adhered.

B. The margin of purchase preference shall be 20%.

- 'Class-I local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under this order.
- 'Class-II local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this order.
- 'Non- local Supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this order.

C. Vendor to specifically confirm if they are Class-I or Class-II local supplier or not as per above mentioned notification.

Accordingly, the 'Class-I local supplier' / 'Class-II local Supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I local supplier' / 'Class-II local Supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made.

D. In cases of Procurement for a Value in Excess of Rs. 10 Crores, the 'Class-I local supplier' / 'Class-II local Supplier' shall be required to provide a Certificate from the Statutory Auditor or Cost Auditor of the Company (in the case of companies) or from a practicing Cost Accountant or practicing Chartered Accountant (in respect of suppliers other than companies) giving the percentage of Local Content.



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

E. Requirement of Purchase Preference:

Purchase preference shall be given to 'Class-I local supplier' in procurements undertaken by procuring entities in the manner specified hereunder -

a. In the procurements of goods or works, which are covered by para 3(b) of mentioned Govt. circular and which are divisible in nature, the 'class-I local supplier' shall get purchase preference over 'Class-II supplier' as well as 'Non-local supplier', as per following procedure:

- i. Among All qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract for full quantity will be awarded to L1.
- ii. If L1 bid is not a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the class-I local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local supplier, then such balance quantity may also be ordered on the L1 bidder".

b. In the procurements of goods or works, which are covered by para 3(b) of mentioned Govt. circular and which are not divisible in nature, and in procurement of services where the bid is evaluated on price alone, the 'class-I local supplier' shall get purchase preference over 'Class-II supplier' as well as 'Non-local supplier', as per following procedure:

- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.
- ii. If L1 is not 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier', will be invited to match the L1 price subject to Class-I local supplier's quoted price falling

within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.

iii. In case such lowest eligible 'Class-I local supplier', fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local supplier' within the margin of purchase preference matches the L1 prices, the contract may be awarded to the L1 bidder.

c. 'Class-II local supplier' will not get purchase preference in any procurement, undertaken by procuring entities.

F. For this procurement, the local content to categorize a supplier as a Class-I local supplier/ Class-II local supplier/ Non-local supplier and purchase preference to Class-I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

G. Procurements where estimated value to be procured is less than Rs. 5 lakhs shall be exempted from GOI order No. P-45021/2/2017-PP (BE-II) dated 04.06.2020.

H. For procurement of Goods & Services which are divisible in nature, following shall be operated for **MSE bidders** under Public procurement Policy for the Micro and Small Enterprises (MSEs) Amendment Order, 2019, Ref. No. AA: SSP: MSE: Amndt, dtd. 30.11.2018, Circular No. 44 of 2018-19:-

a. If L1 bid is not from "Class-I local Supplier" and price quoted by MSE bidder falls within the margin of Purchase preference (L1+15% for MSEs), then 25 % of total order quantity of respective item (rounded off to nearest number) shall be awarded to MSE bidder, subject to MSE bidder matching the L1 Price. Out of Remaining 75% quantity, distribution shall be operated as per below sub-clause (2) -

b. If "Class- I Local Supplier" (Next to L1, other than MSE) quoted price falling within the Margin of Purchase Preference, and "Class-I local supplier" matches the L1 price,



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

then 50% of remaining Quantity (after allocation of 25% to MSE) i.e. 37.5% shall be awarded to local supplier and 37.5% shall be awarded to foreign bidder.

Note: L1 Price refers to lowest evaluated / landed cost to Company.

For Further details, please refer GOI order no. P-45021 / 2 / 2017 - PP (BE-II) dated 04.06.2020.

26. RESTRICTIONS UNDER RULE 144(XI) OF THE GENERAL FINANCIAL RULES (GFRs), 2017

All provisions of Order No. F.No.6/18/2019-PPD of Department of Expenditure (DoE) shall be applicable for this tender enquiry (Order copy is available at <https://doe.gov.in/procurement-policy-divisions>). Accordingly, any bidder from a country which shares a land border with India (except the countries to which the Govt. of India has extended lines of credit or in which the Govt. of India is engaged in development projects for which list is available at <https://www.mea.gov.in/>) will be eligible to bid in this tender only if the bidder is registered with the Competent Authority as specified in Annex I of the said Order of DoE.

Updated list of the countries to which lines of credit have been extended or in which development projects are undertaken are available on the Ministry of External affairs website (<https://www.mea.gov.in/>)

For the purpose of this order, definition of Bidder from a country which shares a land border with India shall be same as defined in the Annex III of the said order.

Registration with the competent authority as stipulated in the said order is responsibility of bidder. Bidder has to submit a certificate certifying following along with offer:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India;

I certify that bidder (.... Name of Bidder) is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that bidder (.....Name of bidder) fulfils all requirements in this regard and is eligible to be considered"

If the bidder is from such country which shares a land border with India evidence of valid registration by the Competent Authority shall also be attached along with offer."

27. NOTE.

- a) Special conditions of enquiry, if enclosed by BHEL, will supersede the respective standard / general terms of enquiry.
- b) Any other Standard terms and Conditions of the bidder attached / referred against the tender enquiry will be treated as null and void ab initio.
- c) In order to protect the commercial interests of BHEL, it becomes necessary to take action against suppliers / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business / money / reputation, indulged in malpractices, cheating, bribery, fraud or any other misconducts or formation of cartel so as to influence the bidding process or influence the price etc. Guidelines for Suspension of Business Dealings with Suppliers / Contractors shall prevail over which is available at BHEL website <http://www.bhel.com>
- d) The bidder along with its associate / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL-Management about any fraud or suspected fraud as soon as it comes to their notice.
- e) "BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life / permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employees as detailed below;
 1. **Victim:** Any person who suffers permanent disablement or dies in an accident as defined below.
 2. **Accident:** Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious



BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

General Instructions and Standard Terms & Conditions for bidding against Tender Enquiry (GISTC)

For Indian Bidders (Version May-2024, Rev: 07)

occurrence caused during the manufacturing / operation and works incidental thereto at BHEL factories/ **offices and precincts** thereof , project execution , erection and commissioning, services, repairs and maintenance, trouble shooting, serving , overhaul, renovation and retrofitting , trial operation, performance guarantee testing undertaken by the company or during any works / during working at BHEL Units/ Offices/ townships and premises/ project sites.

3. Compensation in respect of each of the victims:

- (i) In the event of death or **permanent disability** resulting from **Loss of both limbs**: Rs. 10,00,000/-(Rs. Ten Lakh).
- (ii) In the event of **other permanent disability**: Rs. 7,00,000/- (Rs. Seven Lakh).

4. Permanent Disablement: A disablement that is classified as a permanent total disablement under the proviso to Section 2(l) of the Employees Compensation Act, 1923.”

f) The bidder shall be in compliance with applicable laws, rules and regulations throughout the terms of the contract for conducting its business generally and to perform its obligations under this contract.