

# TENDER ENQUIRY NO.: X/6620/2023/0520/F/1

## SUB: - TERMS & CONDITIONS FOR FORMING OF AIR GUIDE COVER AND OTHER ITEMS

### NIT-Notice Inviting Tender

Salient Details of Notice Inviting Tender (NIT)		
Sl. No.	Issue	Description
1.	Item details	As per Enquiry Annexure X/6620/2023/0520/F/1
2.	Issue of Tender Documents	From BHEL eProcurement website <a href="https://eprocurebhel.co.in/nicgep/app">https://eprocurebhel.co.in/nicgep/app</a> (Tender documents will be available for downloading from BHEL e-Procurement website till due date of submission)
3.	Due Date Of Offer Submission	<b>Date: 30-11-2023 Time: 13:45 hrs</b> <b><a href="https://eprocurebhel.co.in/nicgep/app">https://eprocurebhel.co.in/nicgep/app</a></b> <b>Offer to be submitted in online only through e-procurement Portal.</b> (Bidders are requested to visit website to view corrigendum/ addenda/ amendments/ extension/ modification etc. before submitting offer).
4.	Opening of Tender (Techno-Commercial Bid)	<b>Date: 30-11-2023 Time: 14.00 Hrs</b> <b>Notes:</b> <b><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></b>
5.	Cost of Tender	INR 2000/- (If hard copy of tender document is required from BHEL otherwise not applicable.)
6.	EMD (Earnest Money Deposit)	NIL
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 <a href="https://eprocurebhel.co.in/nicgep/app">https://eprocurebhel.co.in/nicgep/app</a> 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](http://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, 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).

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**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](http://www.bhel.com).

## **E-Procurement Portal Inputs**

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**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](mailto: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.

**TERMS & CONDITIONS FOR PRE-FAB. M/C & FAB. ONLY OF AIR GUIDE COVER AND OTHER ITEMS**

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 Party & BHEL Material as per drg., QP & other specifications.

Sl. No.	Item Description	Drg. No.	Qty	Party material Weight /Piece (Kg)	BHEL Material Weight /Piece (Kg)	Total Weight/Piece (in kg.)	Total Weight (in Kg.)
1	a. AIR GUIDE COVER	0144040100400	1	558.854	2.216	561.07	561.07
	b. AIR GUIDE COVER (WELDED)	9144040100200	1	1000.94	0.06	1001.0	1001
2	a. RECT. WHEEL AIR GUIDE COVER	0144040101300	1	667.686	3.564	671.25	671.25
	b. COVER (W)	1144040100600	1	51.25	0.28	51.53	51.53
	c. COVER(W)	1144040100601	1	51.25	0.28	51.53	51.53
3	AIR GUIDE COVER (WELDED)	0144040102800	2	1241.51	0.03	1241.54	2483.08
4	a. AIR GUIDE COVER (WELDED)	0144040103100	2	669.515	4.555	674.07	1348.14
	b. COVER (WELDED)	1144040102300	2	64.64	0	64.64	129.28
	c. COVER (WELDED)	1144040103900	2	63.78	0.86	64.64	129.28

**Remarks-**

- T.R. OF THE DRAWINGS ARE TO BE STRICLY FOLLOWED.
- MATERIAL SCOPE FOR ITEM NO. 16, 21, 35 & 36 (AS PER CBOM) OF DRG.NO. 01440401004-00 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.

3. MATERIAL FOR ITEM NO. 20 (AS PER CBOM) OF DRG. NO. 9144040100200 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
4. MATERIAL SCOPE FOR ITEM NO. 10. 25, 26, 27 (AS PER CBOM) OF DRG.NO.0144040101300 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
5. MATERIAL SCOPE FOR ITEM NO. 11 & 12 (AS PER CBOM) OF DRG.NO. 11440401006-00 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
6. MATERIAL SCOPE FOR ITEM NO. 11 & 12 (AS PER CBOM) OF DRG.NO. 11440401006-01 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
7. Item No. 1 (a & b) will be ordered together and L-1 vendor will be decided based on the cumulative cost of these two items.
8. Item No. 2 (a, b & c) will be ordered together and L-1 vendor will be decided based on the cumulative cost of these three items.
9. MATERIAL SCOPE FOR ITEM NO. 6 (AS PER CBOM) OF DRG.NO. 0144040102800 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL
10. MATERIAL FOR ITEM NO. 20, 25, 26, 27 (AS PER CBOM) OF DRG. NO. 0144040103100 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
11. MATERIAL SCOPE FOR ITEM NO. 7-1, 7-2, 7-3 (AS PER CBOM) OF DRG.NO.1144040103900 SHALL BE SUPPLIED BY BHEL AND REST WITH PARTY MATERIAL.
12. Item No. 4 (a, b & c) will be ordered together and L-1 vendor will be decided based on the cumulative cost of these three items.

- **TOTAL LOAD FOR THE Enquiry (Approximately) = 6426.16 Kg.**
- The rate (s) should be quoted in **Rupees/Pc.**
- Shot blasting/Painting if required will be done at BHEL.
- Cleaning of parts, removal of mill scale from components prior to assembly will be in scope of vendor.
- CHP Clearance may be obtained from NTPC/LLOYD/RITES/NPC at party's end.
- Final Assembly shall undergo cleaning to ensure that all parts are free from dents, mills, spatters.
- Customer's seal (if Any on supplied Material) to be transferred.
- Copies of the relevant certificates to be supplied to the receiving shop.
- Quality plan (if any) to be followed for Material induction and CHP.
- All special tests viz., UT, RT, HYDRAULIC & KEROSENE etc. are to be performed as per drg. requirements.
- Aesthetic appearance shall also be ensured and inspected before delivery to BHEL.
- Any Assembly, welding & NDT work as per drg/QP, if reqd. after SR/SB including customer clearance shall be done by supplier at BHEL.
- Vendor should submit manufacturing plan incl. technological support plan to BHEL & get it cleared prior to start of assembly.
- Relevant CBOM, details of material specifications, casting/forging drgs & all cross ref. docs must be send to vendors along with enquiry.
- Material used should be procured from BHEL approved vendors only.
- Supplier must furnish material test certificates for all the items.

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	REMARKS
1	a. AIR GUIDE COVER	0144040100400	1	45 DAYS FROM LAST BHEL MATERIAL SENT
	b. AIR GUIDE COVER (WELDED)	9144040100200	1	
2	a. RECT. WHEEL AIR GUIDE COVER	0144040101300	1	45 DAYS FROM LAST BHEL MATERIAL SENT
	b. COVER (W)	1144040100600	1	
	c. COVER(W)	1144040100601	1	
3	AIR GUIDE COVER (WELDED)	0144040102800	2	45 DAYS FROM LAST BHEL MATERIAL SENT
4	d. AIR GUIDE COVER (WELDED)	0144040103100	2	45 DAYS FROM LAST BHEL MATERIAL SENT
	e. COVER (WELDED)	1144040102300	2	
	f. COVER (WELDED)	1144040103900	2	

**Note: - In case the delivery offered by any vendor is more than above mentioned Delivery days from Last Material Sent from BHEL to Vendor, loading shall be done @ 0.5% per week on the rate quoted by the vendor.**

**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 account 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. 06, 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 18%. However, it will be as applicable as per Govt. guidelines/circulars.

**12. QUALITY REQUIREMENTS: -**

- a. All party material to be procured from BHEL HEEP Haridwar approved sources (attached Annexure C).
- b. Quality plan no. QP/QA/216410 rev 00 dated 30.09.2023 is attached, which is to be followed.

- c. Quality plan no. QP/QA/216411 rev 00 dated 30.09.2023 is attached, which is to be followed.
- d. Quality Plan No. QP/QA/216417 rev 00 dated 03.11.2023 is attached, which is to be followed.
- d. Physical Inspection by BHEL / BHEL nominated inspection agency as per drawing and quality plan requirements.

**13. REVERSE AUCTION: -**

“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://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](http://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.**

L1 Vendor must provide break up of Basic BM & PM rate (in Rs. / Kg) post RA in price confirmation sheet.

In the course of evaluation, in case more than one bidder happens to occupy the L1 status even after soliciting discounts, the 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 MSTC Bulletin/ JPC bulletin/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. 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

Action against Bidders / vendor / supplier / contractor in case of default:

In order to protect the commercial interests of BHEL, BHEL shall act against supplies / 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, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc.

Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier/ contractor or a bidder and shall be as per "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" available at BHEL's website "<https://www.bhel.com/guidelines-suspension-business-dealings-suppliers-contractors>."

### **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:06) the bidder/vendor must ensure compliance of these GISTC (version June-2021, Rev:06). 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](http://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. 06, 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. 06, June 2021. \* Govt. guidelines will supersede all clauses of this tender for MSE benefits to vendor(s).

**20.11** BHEL will deal directly with the manufacturers / principal vendors and no correspondence with the agents will be entertained. The agents will not be permitted to visit / interact with BHEL on behalf of their principals. Subsequently also, no correspondence of any type will be made with any agent. (All individuals / companies - representing / Advisor / retainer ship basis or claimed to be part time employees for many OEMs / claiming to be channel or business partner for BHEL work / stockiest not registered specifically etc. are Agents). Communications with only those agents who have submitted agency agreement with their respective principal may be done. The suppliers or their authorized person may be allowed to attend the tender opening, if duly authorized by their principals, through a specific letter for a particular enquiry for specific price bid opening on that particular day. General authorization letter is not acceptable. However, in case of e-tender, vendor should see the tenders of others on the opening date only. Thereafter, the respective window will get closed.

**20.12** "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 vendors 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 out rightly rejected.
- In view of Covid-19 and present situation, 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**

Authorized Signature:

(with date & seal of company)

Name of Supplier: -

**Annexure - A****PRE-FAB. M/C & FAB. ONLY OF AIR GUIDE COVER AND OTHER ITEMS**

OpenTender Enquiry No.: X/6620/2023/0520/F/1

Sl. No.	Item Description/Drg No.	MATERIAL BY	Qty	Weight in Kg / piece	Quoted/Not Quoted (Tick the correct option)
1	AIR GUIDE COVER	0144040100400	1	561.07	Quoted/Not Quoted
	AIR GUIDE COVER (WELDED)	9144040100200	1	1001.0	Quoted/Not Quoted
2	RECT. WHEEL AIR GUIDE COVER	0144040101300	1	671.25	Quoted/Not Quoted
	COVER (W)	1144040100600	1	51.53	Quoted/Not Quoted
	COVER(W)	1144040100601	1	51.53	Quoted/Not Quoted
3	AIR GUIDE COVER (WELDED)	0144040102800	2	1241.54	Quoted/Not Quoted
4	a. AIR GUIDE COVER (WELDED)	0144040103100	2	674.07	Quoted/Not Quoted
	b. COVER (WELDED)	1144040102300	2	64.64	Quoted/Not Quoted
	c. COVER (WELDED)	1144040103900	2	64.64	Quoted/Not Quoted

**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.

\_\_\_\_\_ 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.

**Annexure C****Approved party scope raw material supplier against items of enquiry**

<b>PMD NO --SL024</b>	
<b>S. NO</b>	<b>VENDORS/SUPPLIERS</b>
1	02851 SHAH BROTHERS ISPAT PVT. LTD. I0007021
2	06244 ARCELORMITTAL NIPPON STEEL I0002265
3	08166 STEEL AUTHORITY OF INDIA LTD I0000443
4	41307 JINDAL STEEL & POWER LTD. I0002230
5	41575 WELSPUN CORP LTD I0000006
6	70089 SUNLION PIPING ENGINEERING CO. F001742
7	72167 SALZGITTER MANNESMANN INTERNAT F001559
8	77007 DILLINGER INTERNATIONAL F000390
9	78004 STEEL FORCE ASIA NV-BEIGIUM F002684
10	78021 NLMK PLATES SALES SA F001330
11	90016 BURWILL RESOURCES LTD. F001060
12	90019 CUMIC STEEL LIMITED F001579
13	91021 DAEWOO INTERNATIONAL CORPORATI F000355
14	96026 SIJ ACRONI D.O.O. F001657
<b>PMD NO --SL039</b>	
<b>S. NO</b>	<b>VENDORS/SUPPLIERS</b>
1	02968 SANDOZ METALS (INDIA) I0000806
2	03598 ARCVAC FORGECAST PRIVATE LTD I0000654
3	04177 MAHAWAR IRON STORES PVT LTD I0005936
4	04191 SKYWAY STEEL INDUSTRIES I0013820
5	06068 STAR WIRE (INDIA) LTD. I0000670
6	08299 ALKA FORGINGS I0005653
7	09169 BHARAT HEAVY ELECTRICALS LTD. I0000185
8	16096 SAURABH METALS PVT. LTD. I0003271
9	19158 LAXCON STEELS LTD I0003509
10	20183 WELSPUN SPECIALTY SOLUTIONS I0002281
11	21050 ISMT LIMITED I0000327
12	21181 SAARLOHA ADVANCED MATERIALS I0001453
13	24025 RASHTRIYA ISPAT NIGAM LIMITED I0003241

14	40303 STEEL AUTHORITY OF INDIA LTD I0000443
15	41122 SUN FLAG IRON & STEEL CO. LTD. I0003923
16	41544 GORADIA SPECIAL STEEL LTD I0002883
<b>PMD NO --SL050</b>	
S. NO	VENDORS/SUPPLIERS
1	02968 SANDOZ METALS (INDIA) I0000806
2	04135 BHAWANI INDUSTRIES PRIVATE LTD I0002972
3	08166 STEEL AUTHORITY OF INDIA LTD I0000443
4	08360 K.L. STEELS (P) LIMITED I0003939
5	15017 RELIABLE SPONGE PVT LTD I0002966
6	17024 MAHAMAYA STEEL INDUSTRIES LTD I0002232
7	17025 NANDAN STEELS AND POWER LIMITE I0003747
8	17026 PRIME ISPAT LIMITED I0003943
9	17027 TOPWORTH STEELS & POWER PRIVAT I0000542
10	17029 MONNET ISPAT & ENERGY LIMITED I0003534
11	24025 RASHTRIYA ISPAT NIGAM LIMITED I0003241
12	41122 SUN FLAG IRON & STEEL CO. LTD. I0003923
13	41307 JINDAL STEEL & POWER LTD. I0002230
14	41353 P.R. ROLLING MILLS (P) LTD. I0006803
15	41642 SKS ISPAT & POWER LTD I0003954
<b>PMD NO --TG077</b>	
1	OMCO ENTERPRISES PRIVATE LIMIT
2	I.S. ENGINEERING WORKS
3	SHRI DURGA OIL & STEEL WORKS
4	AHSAN ALI ENGG. WORKS
5	GURU NANAK ENGG. WORKS
6	EXCEL ENGINEERING
7	WINDLASS ENGINEERS & SERVICES
8	BHARAT HEAVY ELECTRICALS LTD.
9	PRECIHOLE MACHINE TOOLS PVT.LT
10	KISAN MECHANICAL WORKS
11	RUBY ENTERPRISES
12	LPS BOSSARD PVT.LTD.
<b>PMD NO --TG080</b>	

1	I.S. ENGINEERING WORKS
2	AHSAN ALI ENGG. WORKS
3	GURU NANAK ENGG. WORKS
4	PRECIHOLE MACHINE TOOLS PVT.LT
<b>PMD NO --SL014</b>	
1	M J PATEL (INDIA) LTD.
2	SAINEST TUBES PVT LTD.
3	ANAND SEAMLESS TUBES PVT. LTD
4	HEAVY METAL & TUBES (INDIA) PV
5	ISMT LIMITED
6	MOKSHI INDUSTRIES PVT. LTD.
7	BHARAT HEAVY ELECTRICALS LTD.
8	MAHARASHTRA SEAMLESS LIMITED
9	JINDAL SAW LIMITED
10	INDUSTRIAL METAL CORPORATION
11	RATNADEEP METAL & TUBES LTD.
12	JIANGSU CHENGDE STEEL TUBE SHA
13	SHANDONG LIAOCHENG ZGL IMPORT
14	YANGZHOU CHENGDE STEEL PIPE CO
15	T P S TECHNITUBE
16	ARCELORMITTAL TUBULAR PRODUCTS
<b>PMD NO --SL048</b>	
1	STEEL AUTHORITY OF INDIA LTD
2	LALIT PROFILES & STEEL IND.LTD
3	SHYAM METALICS & ENERGY LTD
4	STEEL KRAFTS
5	SURYA ROSHANI LIMITED
6	ASIAN MILLS PRIVATE LIMITED
7	RAHIL METAL
8	INDUSTRIAL METAL CORPORATION

## DRAWING NO : 01440401013 VARIANT NO : 00 FOR BLOCK:: 2

MSMNM	MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
	<a href="#">AA1010308084</a>	ST-A(FE410 WA)FLAT	50X16	AA10108	SL039	1TO4 , 9 TO 10
	<a href="#">AA1010308580</a>	ST-A(FE410 WA)FLAT	40X10	AA10108	SL039	1TO4 , 9 TO 10
	<a href="#">AA1011052067</a>	ST-ERW-TUBE	33.8X2.65	AA10152	SL048	3 TO 5,7,8
	<a href="#">AA1011052580</a>	ST-ERW-TUBE	60.8X4.50	AA10152	SL048	3 TO 5,7,8
	<a href="#">AA1011808013</a>	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1011808030</a>	ST-A(FE410 WA)PLATE	6	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1011808056</a>	ST-A(FE410 WA)PLATE	8	AA10108	SL024	1,3 , 7 TO 11
	<a href="#">AA1011808099</a>	ST-A(FE410 WA)PLATE	12	AA10108	SL024	1,3 , 7 TO 11
	<a href="#">AA1011819074</a>	ST-FE410 WB-PLATE	10	AA10119	SL024	1 TO 11 ,13 TO 14
	<a href="#">AA1011819155</a>	ST-FE410 WB-PLATE	25	AA10119	SL024	1 TO 11 ,13 TO 14
	<a href="#">AA1011819171</a>	ST-FE410 WB-PLATE	32	AA10119	SL024	1 TO 11 ,13 TO 14

## DRAWING NO : 11440401006 VARIANT NO : 00 FOR BLOCK:: 2

MSMNM	MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
	<a href="#">AA1011808013</a>	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1012508056</a>	ST-A(FE410 WA)ANGLE	45X45X5	AA10108	SL050	1 TO 2 ,13

## DRAWING NO : 11440401006 VARIANT NO : 01 FOR BLOCK:: 2

MSMNM	MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
	<a href="#">AA1011808013</a>	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1012508056</a>	ST-A(FE410 WA)ANGLE	45X45X5	AA10108	SL050	1 TO 2 ,13

## DRAWING NO : 01440401004 VARIANT NO : 00 FOR BLOCK:: 2

MSMNM	MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
	<a href="#">AA1011808013</a>	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1011808030</a>	ST-A(FE410 WA)PLATE	6	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1011808056</a>	ST-A(FE410 WA)PLATE	8	AA10108	SL024	1,3 , 7 TO 11
	<a href="#">AA1011819074</a>	ST-FE410 WB-PLATE	10	AA10119	SL024	1 TO 11 ,13 TO 14
	<a href="#">AA1012508030</a>	ST-A(FE410 WA)ANGLE	40X40X5	AA10108	SL050	1 TO 2 ,13
	<a href="#">AA1012508102</a>	ST-A(FE410 WA)ANGLE	65X65X8	AA10108	SL050	1 TO 2 ,13

## DRAWING NO : 91440401002 VARIANT NO : 00 FOR BLOCK:: 2

MSMNM	MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
	<a href="#">AA1010308050</a>	ST-A(FE410 WA)FLAT	50X8	AA10108	SL039	1TO4 , 9 TO 10
	<a href="#">AA1011808013</a>	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
	<a href="#">AA1011819074</a>	ST-FE410 WB-PLATE	10	AA10119	SL024	1 TO 11 ,13 TO 14
	<a href="#">AA1012508102</a>	ST-A(FE410 WA)ANGLE	65X65X8	AA10108	SL050	1 TO 2 ,13
	<a href="#">HW1012808980</a>	ST-A(FE410 WA)BEAM	150 X 75	AA10108	SL050	1 TO 3,6 TO 9,11,12,14,15
	<a href="#">HW1012808998</a>	ST-A(FE410 WA)BEAM	ISMB 100X75	AA10108	SL050	1 TO 3,6 TO 9,11,12,14,15

**AIR GUIDE COVER (WELDED) DRG NO- 01440401028**

MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
AA1010308050	ST-A(FE410 WA)FLAT	50X8	AA10108	SL039	1 TO 4 ,9 TO 10
AA1011808013	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
AA1011819074	ST-FE410 WB-PLATE	10	AA10119	SL024	1 TO 11 ,13 TO 14
AA1012508099	ST-A(FE410 WA)ANGLE	65X65X6	AA10108	SL050	1 TO 3,5TO6,8,13,15
HW1012808980	ST-A(FE410 WA)BEAM	150 X 75	AA10108	SL050	1 TO 3,5TO6,8,13,15

**AIR GUIDE COVER (WELDED) DRG NO- 01440401031**

MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
AA1010308084	ST-A(FE410 WA)FLAT	50X16	AA10108	SL039	1TO4 , 9 TO 10
AA1010308580	ST-A(FE410 WA)FLAT	40X10	AA10108	SL039	1TO4 , 9 TO 10
AA1011808013	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
AA1011808030	ST-A(FE410 WA)PLATE	6	AA10108	SL024	1,3,7 TO 10
AA1011808056	ST-A(FE410 WA)PLATE	8	AA10108	SL024	1,3 , 7 TO 11
AA1011808099	ST-A(FE410 WA)PLATE	12	AA10108	SL024	1,3 , 7 TO 11
AA1011819074	ST-FE410 WB-PLATE	10	AA10119	SL024	1 TO 11 ,13 TO 14
AA1011819155	ST-FE410 WB-PLATE	25	AA10119	SL024	1 TO 11 ,13 TO 14
AA1011819171	ST-FE410 WB-PLATE	32	AA10119	SL024	1 TO 11 ,13 TO 14

**COVER(WELDED DRG NO-11440401023**

MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
AA1011808013	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
AA1011808056	ST-A(FE410 WA)PLATE	8	AA10108	SL024	1,3 , 7 TO 11
AA1012508056	ST-A(FE410 WA)ANGLE	45X45X5	AA10108	SL050	1 TO 2 ,13

**COVER(WELDED DRG NO-11440401039**

MATCODE	Description	Mat Size	Mat Spec	Applicable PMD	Approved supplier*
AA1011808013	ST-A(FE410 WA)PLATE	5	AA10108	SL024	1,3,7 TO 10
AA1011808056	ST-A(FE410 WA)PLATE	8	AA10108	SL024	1,3 , 7 TO 11
AA1012508056	ST-A(FE410 WA)ANGLE	45X45X5	AA10108	SL050	1 TO 2 ,13

**TERMS AND CONDITIONS FOR Enquiry No.X/6620/2023/0520/F/1**

SL.	TERMS	VENDOR'S ACCEPTANCE/ REMARKS
1	Scope of Work: - 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 schedule 45 days 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 <b>18 months</b> . (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	We accept Risk Purchase clause as per standard policy of BHEL.	
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 -20.10)	
21	Conflict of Interest:Confirm acceptance of Clause 21.0 of T & C of Enq.	
22	Duly Filled Annexure A (Unpriced- Quoted / Not Quoted)	
22	We have submitted Make in India certificate (duly filled and signed as per Annexure-B).	
23	We accept all terms and conditions of GISTC Rev. 06.	
24	<b>Rates have been quoted in indian Rupees on per Piece basis.</b>	
25	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)**

Item :Items of Indent no: 20230520 and 20230522

## PRE-QUALIFICATION REQUIREMENT

TECHNICAL REQUIREMENT	Required	Vendor's Offer
Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Air Guide Cover Fabricated assembly or equivalent having size 2000X1000mmX2000mm (LXBXH) and above and weight 1 Tons and above in last 7 years from the date of enquiry.	Vendor to Comply & submit suitable evidence	
<b>Facilities Required:</b> i) Lifting facility and capacity at vendor works should EOT crane 2 Tons and above. ii) Vendor must have levelled bed plate size : Length= 2,500mm and Breadth=1,500mm and above to fabricate the job (Note: Concrete floor not acceptable). (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 cutting facility to cut plate of thickness 10 mm and above. (v) Vendor must have rolling bending facility of plate thickness 10mm and above at width of 1000mm and above. (vi) Vendor must have drilling facility to drill holes of dia.30mm and above in plate thickness of 10mm and above	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.	
03 Vendor to furnish certificate against clause 01.01 from the customer / company or end user duly confirming that Air Guide Cover Fabricated assembly or equivalent having size 2000X1000mmX2000mm (LXBXH) and above and weight 1 Tons and above 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	
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 Air Guide Cover Fabricated assembly or equivalent having size 2000X1000mmX2000mm (LXBXH) and above and weight 1 Tons and above.	Vendor to Comply & submit suitable documents	
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	
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	

E: PQR is not restrictive



17/10/2023  
 [Ravi Deshpande  
 Manager (WT)]

Santosh  
 17/10/23  
 [Santosh Gopal  
 Manager (WT)]

B3  
 17.10.23  
 (MS Am)  
 PCr L-Pwr 40

Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/EQUIPMENTS	RECT. WHEEL AIR G. COVER, COVER (W) (ITEM NO. 1 TO 3 OF INDENT)					Q.P. NO	QP/QA/216410			CONTRACTOR	BHEL (HEEP) HWR
								DATE	30.09.2023				
								REV. NO.	00			SIR	Indent no. 20230520 dated 22.09.2023
								PAGE NO.	1 of 3				
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 Receiving Inspection	Review of Supplier Test Certificate of Material for all the party materials	Major	Visual inspection	100 %	As per drg./ Standard	As per drg./ Standard	TC	✓	P	V	-	All party material to be procured from BHEL, Haridwar approved sources with following condition: In all the cases a mill test certificate correlating with the component for verification of conformance of the material as per the requirement is essential.
2	<b>IN PROCESS-INSPECTION</b>												
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	-	-	

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भुषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/EQUIPMENTS	RECT. WHEEL AIR G. COVER, COVER (W) (ITEM NO. 1 TO 3 OF INDENT)					Q.P. NO	QP/QA/216410			CONTRACTOR	BHEL (HEEP) HWR
								DATE	30.09.2023				
								REV. NO.	00			SIR	Indent no. 20230520 dated 22.09.2023
								PAGE NO.	2 of 3				
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

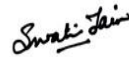

		iii) Edge preparation	Minor	Measurement	100%	As per drg./ Standard	As per drg./ Standard	-	-	P	-	-	
2.3	Welding Operation	i) Fit up	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	V	-	1) BHEL approved electrode shall be used during welding 2) Qualified welders by BHEL /BHEL 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 of welds, as applicable	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	√	P	W		
3	<b>FINAL INSPECTION</b>												
3.1		i) Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	√	P	W	-	
		iii) Painting & preservation	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	W	-	

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>	
		<i>Swati Jain</i>	<i>Braj Bhushan</i>
		स्वाती जैन	ब्रज भूषण त्रिपाठी
		प्रबंधक	वरिष्ठ प्रबंधक
		गुणता आश्वासन	गुणता आश्वासन

Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/EQUIPMENTS	RECT. WHEEL AIR G. COVER, COVER (W) (ITEM NO. 1 TO 3 OF INDENT)					Q.P. NO	QP/QA/216410				
								DATE	30.09.2023				
								REV. NO.	00			CONTRACTOR	BHEL (HEEP) HWR
								PAGE NO.	3 of 3			SIR	Indent no. 20230520 dated 22.09.2023
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



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

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भूषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN									APPLICABILITIES TO		
BHEL Haridwar approved vendors/sub-contractors only		ITEM/ EQUIPM- ENTS	AIR GUIDE COVER, AIR GUIDE COVER (W) (ITEM NO. 1 & 2 OF INDENT)					Q.P. NO	QP/QA/216411			CONTRACTOR	BHEL (HEEP) HWR
								DATE	30.09.2023				
								REV. NO.	00			SIR	Indent no. 20230522 dated 22.09.2023
								PAGE NO.	1 of 3				
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 Receiving Inspection	Review of Supplier Test Certificate of Material for all the party materials	Major	Visual inspection	100 %	As per drg./ Standard	As per drg./ Standard	TC	✓	P	V	-	All party material to be procured from BHEL, Haridwar approved sources with following condition: In all the cases a mill test certificate correlating with the component for verification of conformance of the material as per the requirement is essential.
2	<b>IN PROCESS-INSPECTION</b>												
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	-	-	

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भुषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/ EQUIPM- ENTS	AIR GUIDE COVER, AIR GUIDE COVER (W) (ITEM NO. 1 & 2 OF INDENT)					Q.P. NO	QP/QA/216411			CONTRACTOR	BHEL (HEEP) HWR
								DATE	30.09.2023				
								REV. NO.	00			SIR	Indent no. 20230522 dated 22.09.2023
								PAGE NO.	2 of 3				
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

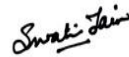

		iii) Edge preparation	Minor	Measurement	100%	As per drg./ Standard	As per drg./ Standard	-	-	P	-	-	
2.3	Welding Operation	i) Fit up	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	V	-	1) BHEL approved electrode shall be used during welding 2) Qualified welders by BHEL /BHEL 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 of welds, as applicable	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	√	P	W		
3	<b>FINAL INSPECTION</b>												
3.1		i) Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	√	P	W	-	
		iii) Painting & preservation	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	W	-	

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>	
		<i>Swati Jain</i>	<i>Braj Bhushan</i>
		स्वाती जैन	ब्रज भूषण त्रिपाठी
		प्रबंधक	वरिष्ठ प्रबंधक
		गुणता आश्वासन	गुणता आश्वासन

Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only		ITEM/ EQUIPM- ENTS	AIR GUIDE COVER, AIR GUIDE COVER (W) (ITEM NO. 1 & 2 OF INDENT)					Q.P. NO	QP/QA/216411				
								DATE	30.09.2023				
								REV. NO.	00			CONTRACTOR	BHEL (HEEP) HWR
								PAGE NO.	3 of 3			SIR	Indent no. 20230522 dated 22.09.2023
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



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

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भूषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only	ITEM/ EQUIPM- ENTS	AIR GUIDE COVER (WELDED), COVER (WELDED) (ITEM NO. 1 TO 4 OF INDENT)						Q.P. NO	QP/QA/216417		CONTRACTOR	BHEL (HEEP) HWR	
								DATE	03.11.2023				
								REV. NO.	00		Indent	Indent no. & date 20230565 dated 02.11.2023	
								PAGE NO.	1 of 2				
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
1	2	3	4	5	6	7	8	9	10	M	B	C	14

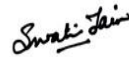

1	Material Receiving Inspection	Review of Supplier Test Certificate of Material for all the party materials	Major	Visual inspection	100 %	As per drg./ Standard	As per drg./ Standard	TC	√	P	V	-	All party material to be procured from BHEL, Haridwar approved sources with following condition: In all the cases a mill test certificate correlating with the component for verification of conformance of the material as per the requirement is essential.
2	<b>IN PROCESS-INSPECTION</b>												
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.

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भूषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN								APPLICABILITIES TO			
BHEL Haridwar approved vendors/sub-contractors only	ITEM/ EQUIPM- ENTS	AIR GUIDE COVER (WELDED), COVER (WELDED) (ITEM NO. 1 TO 4 OF INDENT)						Q.P. NO	QP/QA/216417		CONTRACTOR	BHEL (HEEP) HWR	
								DATE	03.11.2023				
								REV. NO.	00		Indent	Indent no. & date 20230565 dated 02.11.2023	
								PAGE NO.	2 of 2				
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
1	2	3	4	5	6	7	8	9	10	M	B	C	14

		ii) Visual inspection of welds	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	V	-	
		iii) NDT of welds, as applicable	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	√	P	W		
3	<b>FINAL INSPECTION</b>												
3.1		i) Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	√	P	W	-	
		iii) Painting & preservation	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Obs. sheet	√	P	W	-	
		iv) 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.

<b>Manufacturer/Subcontractor</b>	<b>Legends:</b> 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.	<b>For BHEL Use</b>   स्वाती जैन प्रबंधक गुणता आश्वासन	   ब्रज भुषण त्रिपाठी वरिष्ठ प्रबंधक गुणता आश्वासन
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# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 01440401004 CBOM Var: 00  
Description: AIR GUID COVER(WELDED)

Revno: 5

Rev Date: 26.11.2010

Total weight: 561.07

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
01440401004	00	1	13.05.2002	change in item 7,11,12,15,19, 20,28 and 34
01440401004	00	2	14.05.2007	Route for Item 34 Changed.
01440401004	00	3	29.09.2008	Mat. of it. 8,17,25 changed.
01440401004	00	4	27.10.2008	Automatic chg 21440401004/00
01440401004	00	5	17.02.2009	item 34 deleted.
01440401004	00	6	08.07.2014	Route change of It.28 ---- <b>UNDER CHANGE ADVICE</b>

CBOM - 01440401004-00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekrq	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401004 **CBOM Var:** 00  
**Description:** AIR GUID COVER(WELDED)

**Revno:** 5

**Rev Date:** 26.11.2010

**Total weight:** 561.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	01440401004 00			561.07						
1(1)	AIR GUID COVER(WELDED)			Y						
MF DR			Y		0306-0314-0205					
1	41440401078 00 00	AA1012508102	AA10108	11.43	1993.0	1	1	15.6	0.0	15.6
1(1)	PROFILE		CBOM91440401002	Y	65X65X8		L=1993			
MF DR					0072-0301-0317-0306					KG
2		AA1011808013	AA10108	2.5	235.0X281.0	1	1	3.0	0.0	3.0
1(1)	PLATE 5X235X281			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
3	41440401059 00 00	AA1011808013	AA10108	8.5	343.0X762.0	1	2	12.2	0.0	24.4
2(2)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
4	31440401031 00			3.8						
1(1)	FRAME			Y						
MF DR			N		0306-0317-0306					
4-1	31440401030 00 00	AA1012508030	AA10108	0.5	260.0	1	2	0.9	0.0	1.8
2(2)	ANGLE			Y	40X40X5		L=260			
MF DR					0072-0301-0306					KG
4-2	31440401030 01 00	AA1012508030	AA10108	1.4	761.0	1	2	2.5	0.0	5.0
2(2)	ANGLE			Y	40X40X5		L=761			
MF DR					0072-0301-0306					KG
5	41440401080 00 00	AA1012508102	AA10108	11.4	1993.0	1	1	15.6	0.0	15.6
1(1)	PROFILE		CBOM91440401002	Y	65X65X8		L=1993			
MF DR					0072-0301-0317-0306					KG
6	41440401075 00 00	AA1012508102	AA10108	11.4	421.0	1	2	3.3	0.0	6.6
2(2)	PROFILE			Y	65X65X8		L=421			
MF DR					0072-0301-0317-0306					KG
7	41440401082 00 00	AA1011819074	AA10119	5.034	75.0X1306.0	1	2	8.5	0.0	17.0
2(2)	FLAT			Y	PL 10		L=1306			
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekrq	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401004 **CBOM Var:** 00  
**Description:** AIR GUID COVER(WELDED)

**Revno:** 5

**Rev Date:** 26.11.2010

**Total weight:** 561.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
8		AA1011808056	AA10108	2.3	733.0X50.0	1	4	2.5	0.0	10.0
4(4)	PLATE 8X50X733			Y	PL 8					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
9	41440401083 00 00	AA1011819074	AA10119	4.5	75.0X675.0	1	2	5.0	0.0	10.0
2(2)	FLAT			Y	PL 10					
MF DR					0072-0301-0306					KG
10	21440401003 00			1.32						
2(2)	FRAME			Y						
MF DR			N		0321-0306					
10-1	31440401032 00 00	AA1011711141	AA10111	0.193	15.0X536.0	1	4	0.25	0.0	1.0
2(4)	PLATE			Y	SH 3.15					
MF DR					0072-0321					KG
10-2	31440401032 01 00	AA1011711141	AA10111	0.157	15.0X436.0	1	4	0.19	0.0	0.76
2(4)	PLATE			Y	SH 3.15					
MF DR					0072-0321					KG
10-3	31440401033 00 00	AA1011711141	AA10111	0.153	12.0X536.0	1	4	0.2	0.0	0.8
2(4)	PLATE			Y	SH 3.15					
MF DR					0072-0321					KG
10-4	31440401033 01 00	AA1011711141	AA10111	0.125	12.0X436.0	1	4	0.15	0.0	0.6
2(4)	PLATE			Y	SH 3.15					
MF DR					0072-0321					KG
11	41440401065 00 00	HW1012808998	AA10108	10.3	1036.0	1	2	11.4	0.0	22.8
2(2)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=1036			
MF DR					0072-0301-0306					KG
12	41440401069 00 00	HW1012808998	AA10108	6.8	685.0	1	2	7.5	0.0	15.0
2(2)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=685			
MF DR					0072-0301-0306					KG
13		AA1011808013	AA10108	76.5	1040.0X1874.0	1	1	84.1	0.0	84.1
1(1)	PLATE 5X1040X1874			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekrq	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401004 **CBOM Var:** 00  
**Description:** AIR GUID COVER(WELDED)

**Revno:** 5

**Rev Date:** 26.11.2010

**Total weight:** 561.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP	Fab Wt	Route		Spare Code	Unit	
14	41440401079 00 00	AA1012508102	AA10108	6.87	1874.0	1	1	14.6	0.0	14.6
1(1)	PROFILE		CBOM91440401002	Y	65X65X8		L=1874			
MF DR					0072-0301-0317-0306					KG
15	41440401067 00 00	HW1012808998	AA10108	10.3	1036.0	1	3	11.4	0.0	34.2
3(3)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=1036			
MF DR					0072-0301-0317-0306					KG
16	41440401093 00 00	HW1041046715	AA10446	0.03	36.0	1	2	0.036	0.0	0.072
2(2)	COUPLER			Y	PI 26.9X5.56		L=36			
MF DR					0072-0315-0202-0205					MR
17		AA1011808013	AA10108	0.015	20.0X20.0	1	2	0.02	0.0	0.04
2(2)	PLATE 5X20X20			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
18		AA1011808013	AA10108	10.0	140.0X1850.0	1	1	12.0	0.0	12.0
1(1)	PLATE 5X140X1850			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
19	41440401073 00 00	HW1012808998	AA10108	6.87	665.0	1	2	7.3	0.0	14.6
2(2)	PROFILE		CBOM91440401002	Y	ISMB 100X75		L=665			
MF DR					0072-0301-0306					KG
20	41440401072 00 00	HW1012808998	AA10108	2.6	260.0	1	2	2.9	0.0	5.8
2(2)	PROFILE		CBOM91440401002	Y	ISMB 100X75		L=260			
MF DR					0072-0301-0306					KG
21	41440401084 00 00	HW1041046715	AA10446	0.3	505.0	1	1	0.505	0.0	0.505
1(1)	STEEL CONDUIT			Y	PI 26.9X5.56		L=505			
MF DR					0072-0315-0317-0306					MR
22	41440401053 00 00	AA1011808013	AA10108	10.0	140.0X1890.0	1	2	12.5	0.0	25.0
2(2)	PLATE		CBOM91440401002	Y	PL 5					
MF DR					0072-0301-0306					KG
23	41440401051 00 00	AA1011808013	AA10108	50.0	1040.0X1918.0	1	1	94.2	0.0	94.2
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekrq	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401004 **CBOM Var:** 00  
**Description:** AIR GUID COVER(WELDED)

**Revno:** 5

**Rev Date:** 26.11.2010

**Total weight:** 561.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
24		AA1011808013	AA10108	3.7	281.0X343.0	1	1	4.4	0.0	4.4
1(1)	PLATE 5X342X281			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
25		AA1011808056	AA10108	1.3	390.0X50.0	1	2	1.4	0.0	2.8
2(2)	PLATE 8X50X390			Y	PL 8					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
26	41440401076 00 00	AA1012508102	AA10108	1.15	165.0	1	2	1.3	0.0	2.6
2(2)	PROFILE			Y	65X65X8		L=165			
MF DR					0072-0301-0317-0306					KG
27	41440401062 00 00	AA1011819074	AA10119	1.0	60.0X207.0	1	2	1.2	0.0	2.4
2(2)	STRIP		CBOM91440401002	Y	PL 10					
MF DR					0072-0301-0306					KG
28	41440401048 00 00	AA1011819074	AA10119	135.0	1850.0X1918.0	1	1	306.0	0.0	306.0
1(1)	PLATE			Y	PL 10					
MF DR					0072-0301-0306					KG
29	41440401049 00 00	AA1011808013	AA10108	57.8	1040.0X1918.0	1	1	94.2	0.0	94.2
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
30	41440401077 00 00	AA1012508102	AA10108	2.63	444.0	1	1	3.4	0.0	3.4
1(1)	PROFILE			Y	65X65X8		L=444			
MF DR					0072-0301-0317-0306					KG
31		AA1011808013	AA10108	12.4	444.0X710.0	1	1	14.8	0.0	14.8
1(1)	PLATE 5X444X710			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
32	21440401004 00			4.38						
2(2)	FRAME			Y						
MF DR			N		0306-0314-0205					
32-1	31440401028 00 00	AA1012508030	AA10108	1.4	605.0	1	2	2.3	0.0	4.6
1(2)	ANGLE			Y	40X40X5		L=605			
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekr	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401004 **CBOM Var:** 00  
**Description:** AIR GUID COVER(WELDED)

**Revno:** 5

**Rev Date:** 26.11.2010

**Total weight:** 561.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
32-2	41440401091 00 00	AA1011808030	AA10108	0.06	450.0X30.0	1	2	0.7	0.0	1.4
1(2)	FLAT			Y	PL 6					
MF DR					0072-0301-0317-0306					KG
32-3	31440401029 00 00	AA1012508030	AA10108	1.4	605.0	1	2	2.3	0.0	4.6
1(2)	ANGLE			Y	40X40X5		L=605			
MF DR					0072-0301-0306					KG
32-4	41440401087 00 00	AA1011808030	AA10108	1.5	70.0X450.0	1	2	1.7	0.0	3.4
1(2)	STRIP			Y	PL 6					
MF DR					0072-0301-0317-0306					KG
35		AA7121123363	AA7121123	0.041	0.0	0	0	0.0	0.0	32.0
32(32)	SCRU HEX A- 8.8			Y					Standard Item	
SI DR	M12X30				0075-0306					NO
36		AA7151115040	AA7151115	0.017	0.0	0	0	0.0	0.0	32.0
32(32)	NUT HEX. A-8			Y					Standard Item	
SI DR	M12				0075-0306					NO

CBOM - 01

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	05.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	05.10.2001
Approved By	tgekrq	04.12.2001	emtskt	25.10.2001	wtxyss	05.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 91440401002 CBOM Var: 00 Revno: 3 Rev Date: 11.01.2020  
Description: AIR GUIDE COVER (WELDED) Total weight: 1001.0

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
91440401002	00	1	13.05.2002	change in mat.code of item 1,7 ,9,11,12&14
91440401002	00	3	04.12.2019	MAT. CODE OF ITEM 9 IS REVISED.

CBOM - 91440401002 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	06.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	06.10.2001
Approved By	tgekrq	25.10.2001	emtskt	25.10.2001	wtxyss	06.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 91440401002 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 3

**Rev Date:** 11.01.2020

**Total weight:** 1001.0

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	91440401002 00			1001.0						
1(1)	AIR GUIDE COVER (WELDED)			Y						
MF DR			Y		0306-0314-0205					
1	41440401070 00 00	HW1012808998	AA10108	8.81	878.0	1	4	9.8	0.0	39.2
4(4)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=878			
MF DR					0072-0301-0306					KG
2	41440401053 00 00	AA1011808013	AA10108	10.0	140.0X1890.0	1	2	12.5	0.0	25.0
2(2)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
3	41440401052 00 00	AA1011808013	AA10108	40.0	766.0X1330.0	1	2	48.0	0.0	96.0
2(2)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
4	41440401047 00 00	AA1011819074	AA10119	105.9	1850.0X1918.0	1	2	306.0	0.0	612.0
2(2)	PLATE			Y	PL 10					
MF DR					0072-0301-0306					KG
5	41440401046 00 00	AA1011819074	AA10119	102.4	1850.0X1918.0	1	1	306.0	0.0	306.0
1(1)	PLATE			Y	PL 10					
MF DR					0072-0301-0306					KG
6		AA1011808013	AA10108	12.21	171.0X1850.0	1	1	14.7	0.0	14.7
1(1)	PLATE 5X171X1850			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
7	41440401066 00 00	HW1012808998	AA10108	15.5	1549.0	1	3	17.5	0.0	52.5
3(3)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=1549			
MF DR					0072-0301-0317-0306					KG
8		AA1011808013	AA10108	114.0	1553.0X1874.0	1	1	125.4	0.0	125.4
1(1)	PLATE 5X1553X1874			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
9	41440401068 00	HW1012808980	AA10108	14.5	2000.0	1	2	15.0	0.0	30.0
2(2)	PROFILE		CUT TO SIZE	Y	150 X 75		2 no. to be Cut			
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	06.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	06.10.2001
Approved By	tgekr	25.10.2001	emtskt	25.10.2001	wtxyss	06.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 91440401002 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 3

**Rev Date:** 11.01.2020

**Total weight:** 1001.0

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
10	41440401079 00 00	AA1012508102	AA10108	6.87	1874.0	1	1	14.6	0.0	14.6
1(1)	PROFILE			Y	65X65X8		L=1874			
MF DR					0072-0301-0317-0306					KG
11	41440401072 00 00	HW1012808998	AA10108	2.6	260.0	1	2	2.9	0.0	5.8
2(2)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=260			
MF DR					0072-0301-0306					KG
12	41440401073 00 00	HW1012808998	AA10108	6.87	665.0	1	2	7.3	0.0	14.6
2(2)	PROFILE		CUT TO SIZE	Y	ISMB 100X75		L=665			
MF DR					0072-0301-0306					KG
13	41440401063 00 00	AA1011808013	AA10108	113.5	1553.0X1918.0	1	1	141.1	0.0	141.1
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0317-0306					KG
14	41440401071 00 00	HW1012808998	AA10108	6.6	662.0	1	4	7.3	0.0	29.2
4(4)	PROFILE		CUT TO SIZE	Y	ISMB 100X75					
MF DR					0072-0301-0306					KG
15		AA1010308050	AA10108	0.8	250.0	1	8	0.9	0.0	7.2
8(8)	FLAT 50X8 , L=250			Y	REC 50X8		L=250			
MF DR	ST-A(FE410 WA)FLAT				0072-0301-0306					KG
16	41440401062 00 00	AA1011819074	AA10119	1.0	60.0X207.0	1	4	1.2	0.0	4.8
4(4)	STRIP			Y	PL 10					
MF DR					0072-0301-0306					KG
17	41440401080 00 00	AA1012508102	AA10108	11.4	1993.0	1	1	15.6	0.0	15.6
1(1)	PROFILE			Y	65X65X8		L=1993			
MF DR					0072-0301-0317-0306					KG
18	41440401061 00 00	AA1011819074	AA10119	0.5	60.0X150.0	1	2	0.6	0.0	1.2
2(2)	STRIP			Y	PL 10					
MF DR					0072-0301-0306					KG
19	41440401074 00 00	AA1012508102	AA10108	10.8	1549.0	1	2	12.1	0.0	24.2
2(2)	PROFILE			Y	65X65X8		L=1549.00			
MF DR					0072-0301-0317-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	06.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	06.10.2001
Approved By	tgekr	25.10.2001	emtskt	25.10.2001	wtxyss	06.10.2001



## COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 91440401002 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 3

**Rev Date:** 11.01.2020

**Total weight:** 1001.0

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description			Assy. Remarks	Inclusion?	Mat Shape	Remarks					
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP	Fab Wt	Route	Spare Code			Unit		
20				AA7151115024	AA7151115	0.005	0.0	0	0	0.0	0.0	12.0
12(12)			NUT HEX. A-8		Y					Standard Item		
SI	DR		M8				0075-0306					NO
21			41440401050 00 00	AA1011808013	AA10108	113.5	1553.0X1918.0	1	1	141.1	0.0	141.1
1(1)			PLATE		Y	PL 5						
MF	DR						0072-0301-0317-0306					KG
22			41440401078 00 00	AA1012508102	AA10108	11.43	1993.0	1	1	15.6	0.0	15.6
1(1)			PROFILE		Y	65X65X8				L=1993		
MF	DR						0072-0301-0317-0306					KG

CBOM - 91440401002

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	10.09.2001	emtrps	17.10.2001	wtxrsc	06.10.2001
Checked By	tgevk	10.09.2001	emtskk	17.10.2001	wtxrsc	06.10.2001
Approved By	tgekrq	25.10.2001	emtskt	25.10.2001	wtxyss	06.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401013 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 4

**Rev Date:** 04.03.2017

**Total weight:** 671.25

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
01440401013	00	1	22.09.2003	item 12 deleted.
01440401013	00	2	15.09.2008	size of item 25 changed.
01440401013	00	3	25.09.2009	mat. size of it.30 changed
01440401013	00	4	04.03.2017	Auto Revision 41440401017/00

CBOM - 01440401013 00

ENGG

EMT

WTX

Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401013 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 4

**Rev Date:** 04.03.2017

**Total weight:** 671.25

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	01440401013 00			671.25						
1(1)	AIR GUIDE COVER (WELDED)			Y						
MF DR			N		0306-0314-0202					
1	41440401181 00 00	AA1011808099	AA10108	2.8	170.0X310.0	1	4	6.0	0.0	24.0
4(4)	SHEET			Y	PL 12					
MF DR					0072-0301-0317-0306					KG
2	41440401017 00 00	AA1011808013	AA10108	1.2	165.0X285.0	1	10	2.4	0.0	24.0
10(10)	SHEET		BOR 01440401003	Y	PL 5					
MF DR					0072-0301-0306					KG
3	41440401010 00 00	AA1011808030	AA10108	19.5	540.0X766.0	1	2	22.5	0.0	45.0
2(2)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
4	31440401072 00 00	AA1011808099	AA10108	8.4	230.0X1120.0	1	4	27.0	0.0	108.0
4(4)	SHEET			Y	PL 12					
MF DR					0072-0301-0317-0306					KG
5	31440401010 00 00	AA1011808030	AA10108	62.642	540.0X2458.0	1	1	75.2	0.0	75.2
1(1)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
6	31440401008 00 00	AA1011808030	AA10108	25.131	290.0X1920.0	1	1	30.2	0.0	30.2
1(1)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
7	41440401011 00 00	AA1011819074	AA10119	44.5	785.0X1570.0	1	2	97.4	0.0	194.8
2(2)	SHEET		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG
8	41440401020 00 00	AA1011819074	AA10119	0.66	100.0X115.0	1	4	1.0	0.0	4.0
4(4)	LIFTING LUG		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG
9	31440401011 00 00	AA1010308580	AA10108	6.296	1993.0	1	2	7.6	0.0	15.2
2(2)	FLAT		BOR 01440401003	Y	REC 40X10			L=1993		
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekr	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401013 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 4

**Rev Date:** 04.03.2017

**Total weight:** 671.25

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
10	41440401045 00 00	AA1020218070	AA10218	0.013	55.0	1	2	0.049	0.0	0.098
2(2)	STUD		BOR01440401003	Y	RND 12		L=55			
MF DR					0072-0315-0317-0306					KG
11	21440401002 00			0.42						
2(2)	FRAME		BOR 01440401003	Y						
MF DR			N		0321-0306					
11-1	41440401044 00 00	AA1011711141	AA10111	0.054	15.0X160.0	1	8	0.065	0.0	0.52
4(8)	SHEET		BOR 01440401003	Y	SH 3.15					
MF DR					0072-0321					KG
11-2	41440401043 00 00	AA1011711141	AA10111	0.047	12.0X160.0	1	8	0.056	0.0	0.448
4(8)	SHEET		BOR 01440401003	Y	SH 3.15					
MF DR					0072-0321					KG
13		AA1010308084	AA10108	2.3	400.0	1	1	3.0	0.0	3.0
1(1)	FLAT 16X50X400			Y	REC 50X16		L=400			
MF DR	ST-A(FE410 WA)FLAT				0072-0301-0306					KG
14	41440401039 00 00	AA1011808030	AA10108	13.056	290.0X951.0	1	4	15.7	0.0	62.8
4(4)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
15	31440401015 00			18.04						
1(1)	SUPPORT		BOR 01440401003	Y						
MF DR			N		0306					
15-1	31440401014 00 00	AA1011808056	AA10108	14.49	450.0X510.0	1	1	20.6	0.0	20.6
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
15-2		AA1011052580	AA10152	3.45	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 60.8X4.5X510			Y	PI 60.8X4.50		L=510			
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
16	41440401012 00 00	AA1011819074	AA10119	32.0	775.0X785.0	1	4	58.4	0.0	233.6
4(4)	SHEET		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekr	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401013 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 4

**Rev Date:** 04.03.2017

**Total weight:** 671.25

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP	Fab Wt	Route		Spare Code	Unit	
17	31440401012 00 00	AA1010308580	AA10108	3.125	40.0X1388.0	1	4	5.5	0.0	22.0
4(4)	FLAT		BOR 01440401003	Y	REC 40X10					
MF DR					0072-0301-0306					KG
18		AA1011819171	AA10119	12.7	60.0X842.0	1	4	15.4	0.0	61.6
4(4)	STRIP 32X60X842			Y	PL 32					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
19	41440401038 00 00	AA1011819171	AA10119	8.0	60.0X530.0	1	2	8.3	0.0	16.6
2(2)	STRIP		BOR 01440401003	Y	PL 32					
MF DR					0072-0301-0306					KG
20		AA1011052067	AA10152	1.2	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 33.8X2.65X510			Y	PI 33.8X2.65		L=510			
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
21	31440401071 00 00	AA1011808030	AA10108	23.453	290.0X1920.0	1	1	32.2	0.0	32.2
1(1)	SHEET			Y	PL 6					
MF DR					0072-0301-0306					KG
22	31440401016 00			13.85						
1(1)	SUPPORT		BOR 01440401003	Y						
MF DR			N		0306					
22-1	41440401041 00 00	AA1011808056	AA10108	10.301	320.0X510.0	1	1	12.4	0.0	12.4
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
22-2		AA1011052580	AA10152	3.45	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 60.8X4.5X510			Y	PI 60.8X4.50		L=510			
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
23	31440401017 00 00	AA1011808056	AA10108	30.42	510.0X945.0	1	1	36.5	0.0	36.5
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
24	41440401040 00 00	AA1011808056	AA10108	13.52	420.0X510.0	1	1	16.2	0.0	16.2
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401013 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 4

**Rev Date:** 04.03.2017

**Total weight:** 671.25

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
25		AA7121123371	AA7121123	0.039	0.0	0	0	0.0	0.0	58.0
58(58)	SCRU HEX A- 8.8			Y						
SI DR	M12X35				0075-0306					NO
26		HW7169098024	HW7169098	0.005	0.0	0	0	0.0	0.0	58.0
58(58)	WASHER LOCK WITH LUG-ST			Y						
SI DR	13				0075-0306					NO
27		AA7151115040	AA7151115	0.017	0.0	0	0	0.0	0.0	58.0
58(58)	NUT HEX. A-8			Y						
SI DR	M12				0075-0306					NO
28	41440401182 00 00	AA1011715112	AA10115	0.7	170.0X310.0	1	2	1.0	0.0	2.0
2(2)	SHEET		TECHNOLOGICAL	Y	SH 2.00					
MF DR					0072-0321-0317-0306					KG
29	31440401073 00 00	AA1011715112	AA10115	2.1	230.0X1120.0	1	2	4.5	0.0	9.0
2(2)	SHEET		TECHNOLOGICAL	Y	SH 2.00					
MF DR					0072-0321-0317					KG
30	31440401070 00 00	AA1011819155	AA10119	2.39	220.0X220.0	1	1	10.0	0.0	10.0
1(1)	FLANGE			Y	PL 25				DIA 220/116	
MF DR					0072-0301-0317-0306					KG

CBOM

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401006    CBOM Var: 00    Revno: 3    Rev Date: 13.10.2009  
Description: COVER(WELDED)    Total weight: 51.53

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
11440401006	00	1	29.08.2005	Automatic chg 41440401037/00

CBOM - 11440401006 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	22.09.2003	emtskk	29.11.2003	wtxrsc	25.11.2003
Checked By	tguessm	22.09.2003	emtskk	01.12.2003	wtxrsc	25.11.2003
Approved By	tgercb	01.12.2003	emtskt	01.12.2003	wtxyss	25.11.2003



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 11440401006 **CBOM Var:** 00

**Revno:** 3

**Rev Date:** 13.10.2009

**Description:** COVER(WELDED)

**Total weight:** 51.53

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP	Fab Wt	Route			Spare Code	Unit
0	11440401006 00			51.53						
1(1)	COVER(WELDED)			Y						
MF DR			N			0306-0314-0202				
1	31440401020 00 00	AA1012508056	AA10108	2.783	1386.0	1	2	4.7	0.0	9.4
2(2)	ANGLE			Y	45X45X5			L=1386		
MF DR						0072-0301-0306				KG
2	41440401014 00 00	AA1011808013	AA10108	7.6	380.0X860.0	1	2	15.5	0.0	31.0
2(2)	SHEET			Y	PL 5					
MF DR						0072-0301-0306				KG
3	31440401007 00 00	AA1012508056	AA10108	0.7	265.0	1	8	0.9	0.0	7.2
8(8)	ANGLE			Y	45X45X5			L=265		
MF DR						0072-0301-0306				KG
5	41440401024 00 00	AA1011808013	AA10108	14.5	605.0X1210.0	1	1	32.0	0.0	32.0
1(1)	SEGMENT			Y	PL 5					
MF DR						0072-0301-0306				KG
6	31440401018 00 00	AA1011808013	AA10108	2.0	50.0X1014.0	1	1	2.4	0.0	2.4
1(1)	STRIP			Y	PL 5					
MF DR						0072-0301-0306				KG
7	31440401019 00 00	AA1012508056	AA10108	5.544	2372.0	1	1	7.0	0.0	7.0
1(1)	ANGLE			Y	45X45X5			L=2372		
MF DR						0072-0301-0306				KG
8	41440401042 00 00	AA1011808013	AA10108	1.0	50.0X507.0	1	2	1.2	0.0	2.4
2(2)	STRIP			Y	PL 5					
MF DR						0072-0301-0306				KG
9	31440401007 01 00	AA1012508056	AA10108	0.7	265.0	1	2	0.9	0.0	1.8
2(2)	ANGLE			Y	45X45X5			L=265		
MF DR						0072-0301-0317-0306				KG
10	31440401007 02 00	AA1012508056	AA10108	0.7	265.0	1	4	0.9	0.0	3.6
4(4)	ANGLE			Y	45X45X5			L=265		
MF DR						0072-0301-0317-0306				KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	22.09.2003	emtskk	29.11.2003	wtxrsc	25.11.2003
Checked By	tgessm	22.09.2003	emtskk	01.12.2003	wtxrsc	25.11.2003
Approved By	tgercb	01.12.2003	emtskt	01.12.2003	wtxyss	25.11.2003



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: **11440401006** CBOM Var: **00**

Revno: **3**

Rev Date: **13.10.2009**

Description: **COVER(WELDED)**

Total weight: **51.53**

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description			Assy. Remarks	Inclusion?	Mat Shape	Remarks					
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP	Fab Wt	Route	Spare Code			Unit		
11				AA7151115032	AA7151115	0.012	0.0	0	0	0.0	0.0	8.0
8(8)			NUT HEX. A-8		Y							
SI	DR		M10				0075-0306					NO
12				AA7121123215	AA7121123	0.023	0.0	0	0	0.0	0.0	8.0
8(8)			SCRU HEX A- 8.8		Y							
SI	DR		M10X20				0075-0306					NO
13			41440401037 00 00	HW1011711966	AA10111	0.02	90.0X35.0	1	8	0.024	0.0	0.192
8(8)			WASHER		Y		SH 1.0					
MF	DR						0072-0291-0306					KG

CBOM - 11440401006

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	22.09.2003	emtskk	29.11.2003	wtxrsc	25.11.2003
Checked By	tguessm	22.09.2003	emtskk	01.12.2003	wtxrsc	25.11.2003
Approved By	tgercb	01.12.2003	emtskt	01.12.2003	wtxyss	25.11.2003



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401006 CBOM Var: 01 Revno: 4 Rev Date: 13.10.2009  
Description: COVER(WELDED) Total weight: 51.53

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
11440401006	01	1	25.10.2002	change in item 4-1-1,4-1-3, 4-1-7,4-1-9&4-1-10.
11440401006	01	2	29.08.2005	Automatic chg 41440401037/00

CBOM - 11440401006 01

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 11440401006 **CBOM Var:** 01

**Revno:** 4

**Rev Date:** 13.10.2009

**Description:** COVER(WELDED)

**Total weight:** 51.53

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	11440401006 01			51.53						
1(1)	COVER(WELDED)			Y						
MF DR			N		0306-0314-0202					
1	31440401020 00 00	AA1012508056	AA10108	2.783	1386.0	1	2	4.7	0.0	9.4
2(2)	ANGLE		BOR 01440401003	Y	45X45X5		L=1386			
MF DR					0072-0301-0306					KG
2	41440401014 00 00	AA1011808013	AA10108	7.6	380.0X860.0	1	2	15.5	0.0	31.0
2(2)	SHEET		BOR 01440401003	Y	PL 5					
MF DR					0072-0301-0306					KG
3	31440401007 00 00	AA1012508056	AA10108	0.7	265.0	1	2	0.9	0.0	1.8
2(2)	ANGLE		BOR 01440401003	Y	45X45X5		L=265			
MF DR					0072-0301-0306					KG
4	41440401013 00 00	AA1011808013	AA10108	14.5	605.0X1210.0	1	1	32.0	0.0	32.0
1(1)	SEGMENT		BOR 01440401003	Y	PL 5					
MF DR					0072-0301-0306					KG
6	31440401018 00 00	AA1011808013	AA10108	2.0	50.0X1014.0	1	1	2.4	0.0	2.4
1(1)	STRIP		BOR 01440401003	Y	PL 5					
MF DR					0072-0301-0306					KG
7	31440401019 00 00	AA1012508056	AA10108	5.544	2372.0	1	1	7.0	0.0	7.0
1(1)	ANGLE		BOR 01440401003	Y	45X45X5		L=2372			
MF DR					0072-0301-0306					KG
8	41440401042 00 00	AA1011808013	AA10108	1.0	50.0X507.0	1	2	1.2	0.0	2.4
2(2)	STRIP		BOR 01440401003	Y	PL 5					
MF DR					0072-0301-0306					KG
9	31440401007 01 00	AA1012508056	AA10108	0.7	265.0	1	2	0.9	0.0	1.8
2(2)	ANGLE		BOR 01440401003	Y	45X45X5		L=265			
MF DR					0072-0301-0317-0306					KG
10	31440401007 02 00	AA1012508056	AA10108	0.7	265.0	1	4	0.9	0.0	3.6
4(4)	ANGLE		BOR 01440401003	Y	45X45X5		L=265			
MF DR					0072-0301-0317-0306					KG

**ENGG**

**EMT**

**WTX**

	<b>Initial</b>	<b>Date</b>	<b>Initial</b>	<b>Date</b>	<b>Initial</b>	<b>Date</b>
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekr	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401006 CBOM Var: 01

Revno: 4

Rev Date: 13.10.2009

Description: COVER(WELDED)

Total weight: 51.53

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description				Assy. Remarks	Inclusion?	Mat Shape			Remarks		
Typ	Cat	Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
11				AA7151115032	AA7151115	0.012	0.0	0	0	0.0	0.0	8.0
8(8)			NUT HEX. A-8			Y						
SI	DR		M10				0075-0306					NO
12				AA7121123215	AA7121123	0.023	0.0	0	0	0.0	0.0	8.0
8(8)			SCRU HEX A- 8.8			Y						
SI	DR		M10X20				0075-0306					NO
13	41440401037	00	00	HW1011711966	AA10111	0.02	90.0X35.0	1	8	0.024	0.0	0.192
8(8)			WASHER		BOR 01440401003	Y	SH 1.0					
MF	DR						0072-0291-0306					KG

CBOM - 11440401006

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



## COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 01440401028 CBOM Var: 00 Revno: 2 Rev Date: 11.01.2020  
Description: AIR GUIDE COVER (WELDED) Total weight: 1241.54

### RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
01440401028	00	1	05.12.2019	MAT CODE OF ITEM NO. 7,10,14,17 AND 19 ARE CHANGED. ITEM NO. 11 IS REPLACED.

CBOM - 01440401028 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	23.06.2010	emtncg	21.07.2010	wtxtsc	20.07.2010
Checked By	tguessm	28.06.2010	emtsk	21.07.2010	wtxtsc	20.07.2010
Approved By	tgevk	21.07.2010	emtsk	21.07.2010	wtxhpr	21.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401028 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 2

**Rev Date:** 11.01.2020

**Total weight:** 1241.54

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	01440401028 00			1241.54						
1(1)	AIR GUIDE COVER (WELDED)			Y						
MF DR	800MW B'LESS EXCITER		Y	1241.54	0306-0205					
1	31440401141 00 00	AA1011808013	AA10108	145.6	1918.0X1968.0	1	1	155.8	0.0	155.8
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
2	31440401142 00 00	AA1011819074	AA10119	135.0	1850.0X1918.0	1	1	180.0	0.0	180.0
1(1)	PLATE			Y	PL 10					
MF DR					0072-0301-0306					KG
3	41440401052 00 00	AA1011808013	AA10108	40.0	766.0X1330.0	1	2	48.0	0.0	96.0
2(2)	PLATE		CBOM91440401002	Y	PL 5					
MF DR					0072-0301-0306					KG
4	41440401047 00 00	AA1011819074	AA10119	105.9	1850.0X1918.0	1	2	306.0	0.0	612.0
2(2)	PLATE		CBOM91440401002	Y	PL 10					
MF DR					0072-0301-0306					KG
5	41440401046 00 00	AA1011819074	AA10119	102.4	1850.0X1918.0	1	1	306.0	0.0	306.0
1(1)	PLATE		CBOM91440401002	Y	PL 10					
MF DR					0072-0301-0306					KG
6		AA7151115024	AA7151115	0.005	0.0	0	0	0.0	0.0	6.0
6(6)	NUT HEX. A-8			Y						
SI DR	M8				0075-0306					NO
7	41440401302 00	HW1012808980	AA10108	3.8	540.0	1	3	4.0	0.0	12.0
3(3)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0317-0306					KG
8		AA1011808013	AA10108	145.2	1874.0X1968.0	1	1	152.2	0.0	152.2
1(1)	PLATE 5X1874X1968			Y	PL 5					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
9	41440401068 00 00	HW1012808980	AA10108	14.5	2000.0	1	4	15.0	0.0	60.0
4(4)	PROFILE		CBOM91440401002	Y	150 X 75				2 no. to be Cut	
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	23.06.2010	emtncg	21.07.2010	wtxtsc	20.07.2010
Checked By	tgessm	28.06.2010	emtsk	21.07.2010	wtxtsc	20.07.2010
Approved By	tgevk	21.07.2010	emtsk	21.07.2010	wtxhpr	21.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401028 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 2

**Rev Date:** 11.01.2020

**Total weight:** 1241.54

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
10	41440401304 00	HW1012808980	AA10108	7.8	1070.0	1	7	8.0	0.0	56.0
7(7)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0306					KG
11	41440401352 00	HW1012808980	AA10108	13.8	1880.0	1	2	14.0	0.0	28.0
2(2)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0306					KG
12	41440401305 00 00	AA1012508099	AA10108	10.8	1968.0	1	2	14.0	0.0	28.0
2(2)	PROFILE		CUT TO SIZE	Y	65X65X6					
MF DR					0072-0301-0317-0306					KG
13	31440401143 00 00	AA1011808013	AA10108	144.7	1918.0X1968.0	1	1	155.8	0.0	155.8
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0317-0306					KG
14	41440401306 00	HW1012808980	AA10108	2.4	338.0	1	4	3.0	0.0	12.0
4(4)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0317-0306					KG
15		AA1010308050	AA10108	0.8	250.0	1	8	0.9	0.0	7.2
8(8)	FLAT 50X8 , L=250			Y	REC 50X8					
MF DR	ST-A(FE410 WA)FLAT				0072-0301-0306					KG
16	41440401062 00 00	AA1011819074	AA10119	1.0	60.0X207.0	1	6	1.2	0.0	7.2
6(6)	STRIP		CBOM91440401002	Y	PL 10					
MF DR					0072-0301-0306					KG
17	41440401303 00	HW1012808980	AA10108	3.9	540.0	1	4	4.0	0.0	16.0
4(4)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0306					KG
18	41440401061 00 00	AA1011819074	AA10119	0.5	60.0X150.0	1	2	0.6	0.0	1.2
2(2)	STRIP		CBOM91440401002	Y	PL 10					
MF DR					0072-0301-0306					KG
19	41440401307 00	HW1012808980	AA10108	2.4	338.0	1	4	3.0	0.0	12.0
4(4)	PROFILE		CUT TO SIZE	Y	150 X 75					
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	23.06.2010	emtncg	21.07.2010	wtxtsc	20.07.2010
Checked By	tguessm	28.06.2010	emtsk	21.07.2010	wtxtsc	20.07.2010
Approved By	tgevk	21.07.2010	emtsk	21.07.2010	wtxhpr	21.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 01440401028    CBOM Var: 00    Revno: 2    Rev Date: 11.01.2020  
Description: AIR GUIDE COVER (WELDED)    Total weight: 1241.54

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description			Assy. Remarks		Inclusion?	Mat Shape	Remarks				
Typ	Cat	Zone	Var/Matl. Description	ENGG SIZE/GRP		Fab Wt	Route			Spare Code	Unit	

CBOM - 01440401028 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	23.06.2010	emtncg	21.07.2010	wtxtsc	20.07.2010
Checked By	tguessm	28.06.2010	emtsk	21.07.2010	wtxtsc	20.07.2010
Approved By	tgevk	21.07.2010	emtsk	21.07.2010	wtxhpr	21.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 01440401031 CBOM Var: 00  
Description: AIR GUIDE COVER (WELDED)

Revno: 5

Rev Date: 18.05.2020

Total weight: 674.07

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
01440401031	00	1	01.03.2013	IT.14 UPDATED
01440401031	00	2	27.12.2013	Auto Revision 41440401020/00
01440401031	00	3	02.01.2015	Mat. code. of it.20 changed.
01440401031	00	4	24.01.2017	item 12 added & quantity of item 2 updated.
01440401031	00	5	23.11.2019	item-2 replaced.

CBOM - 01440401031 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tguessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401031 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 5

**Rev Date:** 18.05.2020

**Total weight:** 674.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	01440401031 00			674.07						
1(1)	AIR GUIDE COVER (WELDED)			Y						
MF DR			N	674.25	0306-0314-0202					
1	41440401311 00 00	AA1011808099	AA10108	2.87	170.0X320.0	1	4	5.39	0.0	21.56
4(4)	SHEET			Y	PL 12					
MF DR					0072-0301-0317-0306					KG
2	41440401351 00	AA1011808013	AA10108	1.255	295.0X165.0	1	9	2.0	0.0	18.0
9(9)	SHEET			Y	PL 5					
MF DR					0072-0301-0306					KG
3	41440401010 00 00	AA1011808030	AA10108	19.5	540.0X766.0	1	2	22.5	0.0	45.0
2(2)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
4	31440401145 00 00	AA1011808099	AA10108	8.482	230.0X1140.0	1	4	30.0	0.0	120.0
4(4)	SHEET			Y	PL 12					
MF DR					0072-0301-0317-0306					KG
5	31440401010 00 00	AA1011808030	AA10108	62.642	540.0X2458.0	1	1	75.2	0.0	75.2
1(1)	SHEET		BOR 01440401003	Y	PL 6					
MF DR					0072-0301-0306					KG
6	31440401147 00 00	AA1011808030	AA10108	26.031	300.0X1920.0	1	1	28.5	0.0	28.5
1(1)	SHEET			Y	PL 6					
MF DR					0072-0301-0306					KG
7	41440401011 00 00	AA1011819074	AA10119	44.5	785.0X1570.0	1	2	97.4	0.0	194.8
2(2)	SHEET		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG
8	41440401020 00 00	AA1011819074	AA10119	0.66	100.0X115.0	1	4	1.0	0.0	4.0
4(4)	LIFTING LUG		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG
9	31440401011 00 00	AA1010308580	AA10108	6.296	1993.0	1	2	7.6	0.0	15.2
2(2)	FLAT		BOR 01440401003	Y	REC 40X10			L=1993		
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tgessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401031 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 5

**Rev Date:** 18.05.2020

**Total weight:** 674.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
10	41440401045 00 00	AA1020218070	AA10218	0.013	55.0	1	2	0.049	0.0	0.098
2(2)	STUD		BOR01440401003	Y	RND 12		L=55			
MF DR					0072-0315-0317-0306					KG
11	21440401002 00			0.42						
2(2)	FRAME		BOR 01440401003	Y						
MF DR			N		0321-0306					
11-1	41440401044 00 00	AA1011711141	AA10111	0.054	15.0X160.0	1	8	0.065	0.0	0.52
4(8)	SHEET		BOR 01440401003	Y	SH 3.15					
MF DR					0072-0321					KG
11-2	41440401043 00 00	AA1011711141	AA10111	0.047	12.0X160.0	1	8	0.056	0.0	0.448
4(8)	SHEET		BOR 01440401003	Y	SH 3.15					
MF DR					0072-0321					KG
12	41440401338 00 00	AA1011808013	AA10108	1.18	295.0X165.0	1	1	2.0	0.0	2.0
1(1)	SHEET			Y	PL 5					
MF DR					0072-0301-0306					KG
13		AA1010308084	AA10108	2.3	400.0	1	1	3.0	0.0	3.0
1(1)	FLAT 16X50X400			Y	REC 50X16		L=400			
MF DR	ST-A(FE410 WA)FLAT				0072-0301-0306					KG
14	41440401324 00 00	AA1011808030	AA10108	13.379	951.0X300.0	1	4	14.2	0.0	56.8
4(4)	SHEET			Y	PL 6					
MF DR					0072-0301-0306					KG
15	31440401015 00			18.04						
1(1)	SUPPORT		BOR 01440401003	Y						
MF DR			N		0306					
15-1	31440401014 00 00	AA1011808056	AA10108	14.49	450.0X510.0	1	1	20.6	0.0	20.6
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
15-2		AA1011052580	AA10152	3.45	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 60.8X4.5X510			Y	PI 60.8X4.50		L=510			
MF DR	ST-ERW-TUBE				0072-0315-0306					MR

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tgessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

**CBOM No:** 01440401031 **CBOM Var:** 00  
**Description:** AIR GUIDE COVER (WELDED)

**Revno:** 5

**Rev Date:** 18.05.2020

**Total weight:** 674.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
16	41440401012 00 00	AA1011819074	AA10119	32.0	775.0X785.0	1	4	58.4	0.0	233.6
4(4)	SHEET		BOR 01440401003	Y	PL 10					
MF DR					0072-0301-0306					KG
17	31440401012 00 00	AA1010308580	AA10108	3.125	40.0X1388.0	1	4	5.5	0.0	22.0
4(4)	FLAT		BOR 01440401003	Y	REC 40X10					
MF DR					0072-0301-0306					KG
18		AA1011819171	AA10119	12.7	60.0X842.0	1	4	15.4	0.0	61.6
4(4)	STRIP 32X60X842			Y	PL 32					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
19	41440401038 00 00	AA1011819171	AA10119	8.0	60.0X530.0	1	2	8.3	0.0	16.6
2(2)	STRIP		BOR 01440401003	Y	PL 32					
MF DR					0072-0301-0306					KG
20		HW1041046839	AA10446	1.017	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 33.7X2.6X510			Y	PI 33.7X2.6			L=510		
MF DR	ST-BQ-A1-CDS-TUBE				0072-0315-0306					MR
21	31440401144 00 00	AA1011808030	AA10108	24.353	300.0X1920.0	1	1	28.5	0.0	28.5
1(1)	SHEET			Y	PL 6					
MF DR					0072-0301-0306					KG
22	31440401016 00			13.85						
1(1)	SUPPORT		BOR 01440401003	Y						
MF DR			N		0306					
22-1	41440401041 00 00	AA1011808056	AA10108	10.301	320.0X510.0	1	1	12.4	0.0	12.4
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
22-2		AA1011052580	AA10152	3.45	510.0	1	1	0.51	0.0	0.51
1(1)	TUBE 60.8X4.5X510			Y	PI 60.8X4.50			L=510		
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
23	31440401017 00 00	AA1011808056	AA10108	30.42	510.0X945.0	1	1	36.5	0.0	36.5
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	01.07.2010	emptpkp	26.07.2010	wtxis	30.07.2010
Checked By	tgessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 01440401031 CBOM Var: 00  
Description: AIR GUIDE COVER (WELDED)

Revno: 5

Rev Date: 18.05.2020

Total weight: 674.07

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
24	41440401040 00 00	AA1011808056	AA10108	13.52	420.0X510.0	1	1	16.2	0.0	16.2
1(1)	SHEET		BOR 01440401003	Y	PL 8					
MF DR					0072-0301-0306					KG
25		AA7121123371	AA7121123	0.039	0.0	0	0	0.0	0.0	58.0
58(58)	SCRU HEX A- 8.8			Y						
SI DR	M12X35				0075-0306					NO
26		HW7169098024	HW7169098	0.005	0.0	0	0	0.0	0.0	58.0
58(58)	WASHER LOCK WITH LUG-ST			Y						
SI DR	13				0075-0306					NO
27		AA7151115040	AA7151115	0.017	0.0	0	0	0.0	0.0	58.0
58(58)	NUT HEX. A-8			Y						
SI DR	M12				0075-0306					NO
28	41440401312 00 00	AA1011715112	AA10115	0.71	170.0X320.0	1	2	0.9	0.0	1.8
2(2)	SHEET		TECHNOLOGICAL	Y	SH 2.00					
MF DR					0072-0321-0317-0306					KG
29	31440401146 00 00	AA1011715112	AA10115	2.182	230.0X1140.0	1	2	4.3	0.0	8.6
2(2)	SHEET		TECHNOLOGICAL	Y	SH 2.00					
MF DR					0072-0321-0317-0306					KG
30	31440401070 00 00	AA1011819155	AA10119	2.39	220.0X220.0	1	1	10.0	0.0	10.0
1(1)	FLANGE		CBOM01440401011	Y	PL 25					
MF DR					0072-0301-0317-0306					KG

CB

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tgessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401023 CBOM Var: 00

Revno: 1

Rev Date: 22.11.2002

Description: COVER(WELDED)

Total weight: 64.64

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
11440401023	00	1	25.10.2002	change in item 8-1-1,8-1-3

CBOM - 11440401023 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: **11440401023** CBOM Var: **00**

Revno: **1**

Rev Date: **22.11.2002**

Description: **COVER(WELDED)**

Total weight: **64.64**

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	11440401023 00			64.64						
1(1)	COVER(WELDED)			Y						
MF DR			N		0306-0314-0202					
1	31440401068 00 00	AA1012508056	AA10108	2.81	1396.0	1	2	4.3	0.0	8.6
2(2)	ANGLE			Y	45X45X5			L=1396		
MF DR					0072-0301-0306					KG
2	41440401177 00 00	AA1011808056	AA10108	12.26	390.0X885.0	1	2	23.84	0.0	47.68
2(2)	SHEET			Y	PL 8					
MF DR					0072-0301-0306					KG
3	31440401069 00 00	AA1012508056	AA10108	5.57	2382.0	1	1	7.1	0.0	7.1
1(1)	ANGLE			Y	45X45X5			L=2382		
MF DR					0072-0301-0306					KG
4	41440401178 00 00	AA1011808056	AA10108	24.36	610.0X1210.0	1	1	50.9	0.0	50.9
1(1)	SEGMENT			Y	PL 8					
MF DR					0072-0301-0306					KG
5	31440401074 00 00	AA1011808013	AA10108	2.0	270.0X1028.0	1	1	11.98	0.0	11.98
1(1)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG
6	31440401075 00 00	AA1011808013	AA10108	1.0	220.0X600.0	1	2	2.85	0.0	5.7
2(2)	PLATE			Y	PL 5					
MF DR					0072-0301-0306					KG

CB

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgevk	11.09.2001	emtrps	17.10.2001	wtxrsc	04.10.2001
Checked By	tgevk	11.09.2001	emtskk	17.10.2001	wtxrsc	04.10.2001
Approved By	tgekrq	12.11.2001	emtskt	06.11.2001	wtxyss	04.10.2001



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401039 CBOM Var: 00

Revno: 2

Rev Date: 31.01.2015

Description: COVER (WELDED)

Total weight: 64.64

## RECORD OF CHANGES

Drawing No	Var	Revno	Rev Date	Description
11440401039	00	1	15.01.2015	Auto Revision 31440401150/00
11440401039	00	2	31.01.2015	Auto Revision 31440401150/00

CBOM - 11440401039 00

### ENGG

### EMT

### WTX

	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tguessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: **11440401039** CBOM Var: **00**

Revno: **2**

Rev Date: **31.01.2015**

Description: **COVER (WELDED)**

Total weight: **64.64**

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description		Assy. Remarks	Inclusion?	Mat Shape		Remarks			
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	11440401039 00			64.64						
1(1)	COVER (WELDED)			Y						
MF DR			N		0306-0202					
1	31440401068 00 00	AA1012508056	AA10108	2.81	1396.0	1	2	4.3	0.0	8.6
2(2)	ANGLE		CBOM01440401011	Y	45X45X5			L=1396		
MF DR					0072-0301-0306					KG
2	41440401177 00 00	AA1011808056	AA10108	12.26	390.0X885.0	1	2	23.84	0.0	47.68
2(2)	SHEET		CBOM01440401011	Y	PL 8					
MF DR					0072-0301-0306					KG
3	31440401069 00 00	AA1012508056	AA10108	5.57	2382.0	1	1	7.1	0.0	7.1
1(1)	ANGLE		CBOM01440401011	Y	45X45X5			L=2382		
MF DR					0072-0301-0306					KG
4	41440401310 00 00	AA1011808056	AA10108	24.36	610.0X1210.0	1	1	48.7	0.0	48.7
1(1)	PLATE			Y	PL 8					
MF DR					0072-0301-0306					KG
5	31440401074 00 00	AA1011808013	AA10108	2.0	270.0X1028.0	1	1	11.98	0.0	11.98
1(1)	PLATE		CBOM01440401011	Y	PL 5					
MF DR					0072-0301-0306					KG
6	31440401075 00 00	AA1011808013	AA10108	1.0	220.0X600.0	1	2	2.85	0.0	5.7
2(2)	PLATE		CBOM01440401011	Y	PL 5					
MF DR					0072-0301-0306					KG
7	31440401150 00			0.86						
1(1)	PIPE ASSY.			Y						
MF DR			N		0315					
7-1	41440401313 00 00	AA1041146108	AA10446	0.24	55.0	1	1	0.055	0.0	0.055
1(1)	PIPE			Y	PI 48.3X5					
MF DR					0072-0315-0317-0315					MR
7-2	41440401315 00 00	W96413901683	TG60123	0.2	0.0	0	0	0.0	0.0	1.0
1(1)	BEND		CUT TO DRG.	Y	48.3X3.2					
MF DR					0074-0315					NO

**ENGG**

**EMT**

**WTX**

	Initial	Date	Initial	Date	Initial	Date
Worked By	tguessm	01.07.2010	emptpkp	26.07.2010	wtxis	30.07.2010
Checked By	tguessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



# COMBINED BILL OF MATERIAL

Printed On:08.11.2023

Printed By:

CBOM No: 11440401039 CBOM Var: 00

Revno: 2

Rev Date: 31.01.2015

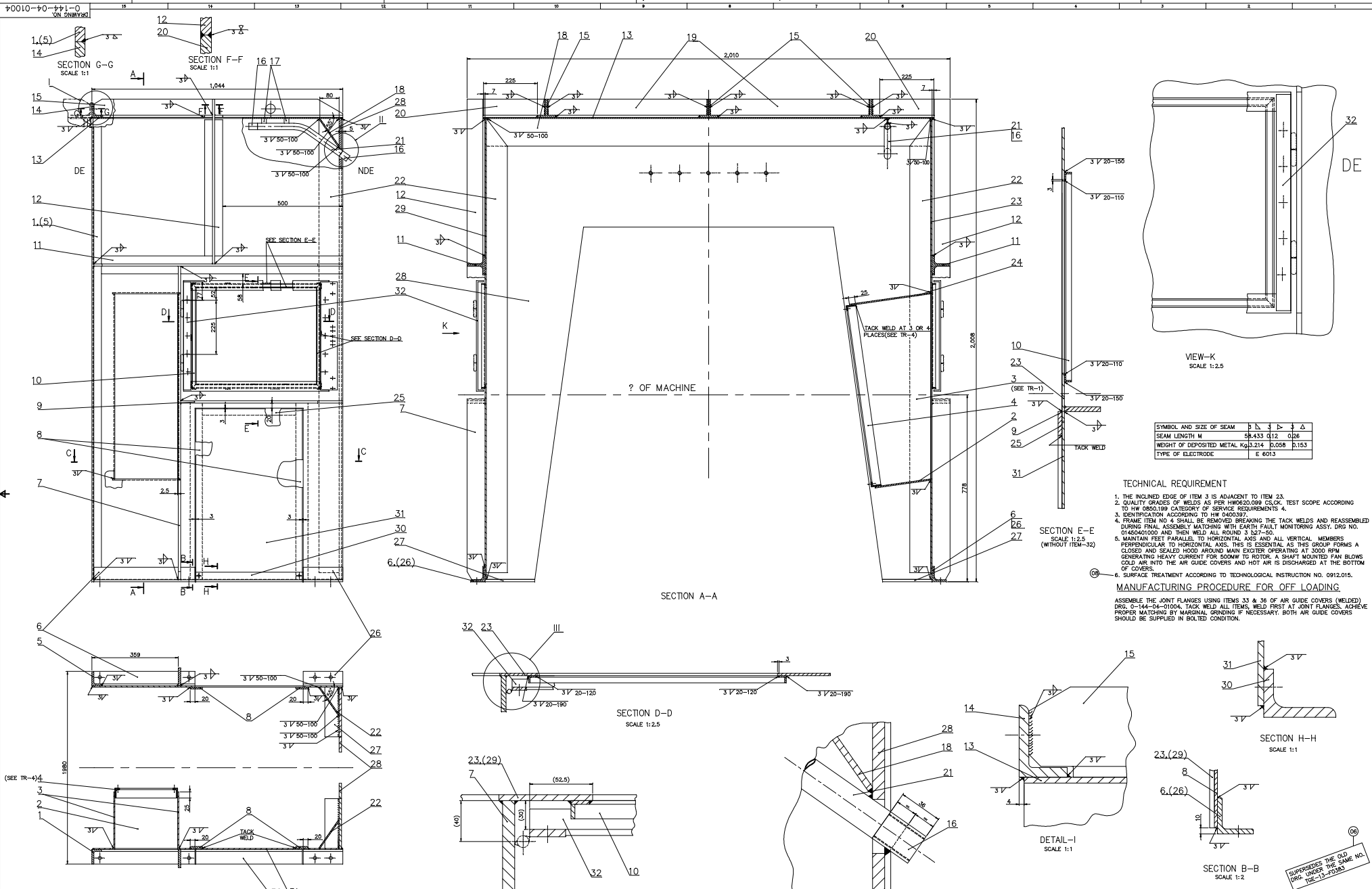
Description: COVER (WELDED)

Total weight: 64.64

Item No	Drawingno	Var	Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty( Total )	Description				Assy. Remarks	Inclusion?	Mat Shape			Remarks		
Typ	Cat	Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
7-3	41440401314	00	00	AA1041146108	AA10446	0.42	110.0	1	1	0.11	0.0	0.11
1(1)			PIPE			Y	PI 48.3X5					
MF	DR						0072-0315-0317-0315					MR

CBOM - 11440401039 00

	ENGG		EMT		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	tgessm	01.07.2010	emptkp	26.07.2010	wtxis	30.07.2010
Checked By	tgessm	01.07.2010	emtajt	03.08.2010	wtxhpr	30.07.2010
Approved By	tgevk	05.08.2010	emtsk	03.08.2010	wtxhpr	30.07.2010



SYMBOL AND SIZE OF SEAM	Δ	∇	▷	◁	△
SEAM LENGTH M	08.433	012	026		
WEIGHT OF DEPOSITED METAL Kg/3.214	0.058	0.153			
TYPE OF ELECTRODE	E 6013				

- TECHNICAL REQUIREMENT**
1. THE INCLINED EDGE OF ITEM 3 IS ADJACENT TO ITEM 23.
  2. QUALITY GRADES OF WELDS AS PER HW0820.099 CS/CLC TO HW 0820.199 CATEGORY OF SERVICE REQUIREMENTS 4.
  3. IDENTIFICATION ACCORDING TO HW 0403.097.
  4. FRAME ITEM NO. 4 SHALL BE REMOVED BREAKING THE TACK WELDS AND REASSEMBLED DURING FINAL ASSEMBLY MATCHING WITH EARTH FAULT MONITORING ASSY. DRG NO. 0144-04-01004 AND THEN WELD ALL ROUND 3 167-50.
  5. MAINTAIN FEET PARALLEL TO HORIZONTAL AXIS AND ALL VERTICAL MEMBERS PERPENDICULAR TO HORIZONTAL AXIS. THIS GROUP FORMS A CLOSED AND SEALED HOOD AROUND MAIN EXCITER OPERATING AT 3000 RPM GENERATING HEAVY CURRENT FOR SOOAW TO ROTOR. A SHAFT MOUNTED FAN BLOWS COLD AIR INTO THE AIR GUIDE COVERS AND HOT AIR IS DISCHARGED AT THE BOTTOM OF COVERS.
  6. SURFACE TREATMENT ACCORDING TO TECHNOLOGICAL INSTRUCTION NO. 0912.015.

**MANUFACTURING PROCEDURE FOR OFF LOADING**

ASSEMBLE THE JOINT FLANGES USING ITEMS 33 & 36 OF AIR GUIDE COVERS (WELDED) DRG. 0-144-04-01004. TACK WELD ALL ITEMS, WELD FIRST AT JOINT FLANGES, ACHIEVE PROPER MATCHING BY MARGINAL GRINDING IF NECESSARY. BOTH AIR GUIDE COVERS SHOULD BE SUPPLIED IN BOLTED CONDITION.

SUPERSEDES THE OLD DRG. NO. 0-144-04-01004 UNDER THE SAME NO. (REV. 13-70383)

DRG. NO. 0144-04-01004	REV. NO. 05	DATE 15/08/2008	BY BHABHA L.S.D. - 15/08/08	NAME BHABHA L.S.D.	DATE 15/08/08	BY BHABHA L.S.D.	DATE 15/08/08
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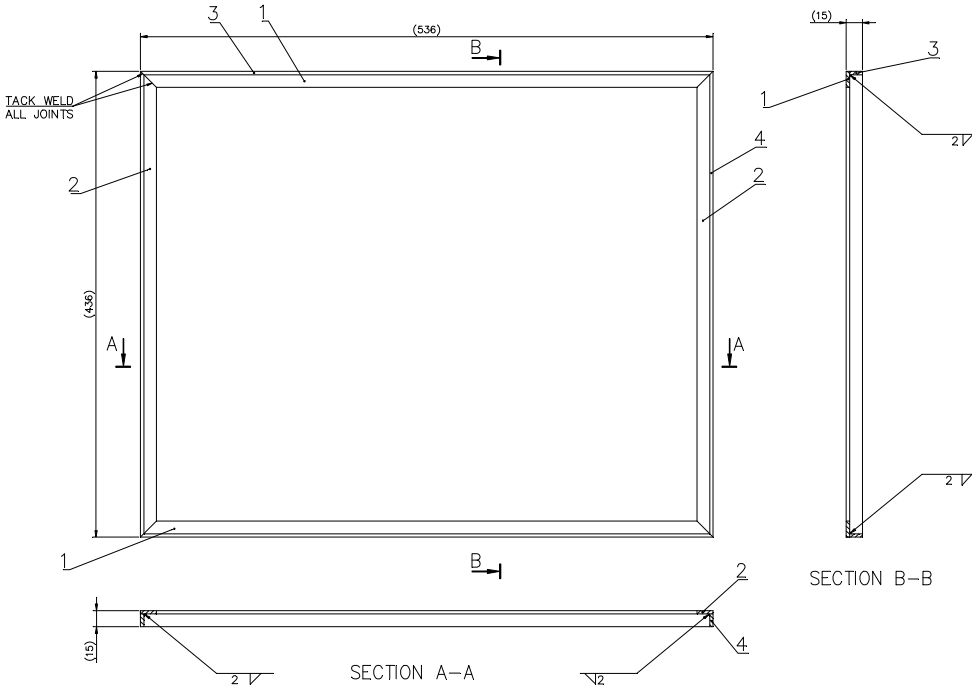
GRADE OF UNTIL DRG. NO. 0144-04-01004	REV. NO. 05	DATE 15/08/2008	BY BHABHA L.S.D. - 15/08/08	NAME BHABHA L.S.D.	DATE 15/08/08	BY BHABHA L.S.D.	DATE 15/08/08
---------------------------------------	-------------	-----------------	-----------------------------	--------------------	---------------	------------------	---------------

REV. DATE 15/08/08	ALTERED P.A. NO. 07	CHECKED BY S.S.M. - 15/08/08	DATE 15/08/08	ALTERED P.A. NO. 07	CHECKED S.S.M. - 15/08/08	DATE 15/08/08	ALTERED P.A. NO. 07	CHECKED S.S.M. - 15/08/08	DATE 15/08/08
--------------------	---------------------	------------------------------	---------------	---------------------	---------------------------	---------------	---------------------	---------------------------	---------------

CHANGES AS PER S/A NO. TCE-14-F0326	CHANGES ACCORDING TO CH. NO. TCE-14-F0326	CHANGES ACCORDING TO CH. NO. TCE-13-F0383	CHANGES ACCORDING TO CH. NO. TCE-13-F0383
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DRG. NO. 0144-04-01004	REV. NO. 05	DATE 15/08/2008	BY BHABHA L.S.D. - 15/08/08	NAME BHABHA L.S.D.	DATE 15/08/08	BY BHABHA L.S.D.	DATE 15/08/08
------------------------	-------------	-----------------	-----------------------------	--------------------	---------------	------------------	---------------

00010-70-44-2-144-04-01000  
DRAWING NO.



SYMBOL AND SIZE OF SEAM	2
SEAM LENGTH M	1.92
WEIGHT OF DEPOSITED METAL Kg	0.059
TYPE OF ELECTRODE	IE6013

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

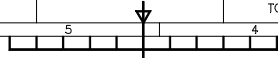
TECHNICAL REQUIREMENTS

1. DIMENSIONS IN THE BRACKETS ARE FOR REFERENCE ONLY.
2. CLASSIFICATION GROUPS ACCORDING TO HW 0620099 : CK.
3. TEST SCOPE ACCORDING TO HW 0850199 : CATEGORY OF SERVICE REQUIREMENTS 4.
4. MARK IDENTIFICATION ACCORDING TO HW0400397.

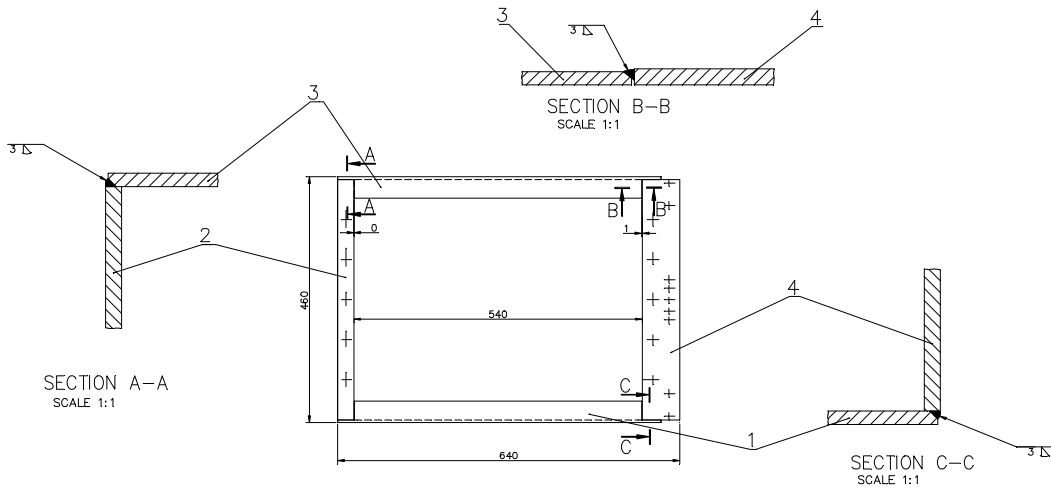
INVENTORY NO. SIGN. & DATE  
 26-5606-83433/KNW  
 REF. DRAWING NO. 718  
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GRADE OF UNTOL. DIM:--		CBOM NO.		STATUS	
M/CG- V7/N/F AA	0230208	0-144-04-01004		P.D.	
WELDING-A/B/C/D--AA621104		APPROV	NAME	SIGN	DATE
GAS CUTTINGS--T3AA0621101		WT	CHHABRA	-SD-	26.2.83
REV. DATE	ALTERED	REV. DATE	ALTERED	P.A.	-S/D-
	CHECKED	01	19.12.13	CHECKED	SSM -S/D-
CHANGES ACCORDING TO CH. AD. NO. -- TGE-13-F0383					

TYPE OF PRODUCT		B'LESS EXCITER FOR 500MW TG.			
OR		NAME OF CUSTOMER/ PROJECT			
BHARAT HEAVY ELECTRICALS LTD.		DRN	NAME	SIGN	DATE
HARDWAR		TNG		-SD-	30.11.82
		CHD	SM/KNW	-SD-	28.2.83
		APP	N.P. GUPTA	-SD-	28.2.83
		REF. TO ASSY. DRG.			ITEM NO. OF
		0-144-04-01004			010
		DRAWING NO.			NO. OF
		2-144-04-01003			004
		SHEET NO. 1			NO. OF SHEETS 1



0010-04-01004  
2-144-04-01004  
DRAWING NO.



SYMBOL AND SIZE OF SEAM	3 Δ
SEAM LENGTH M	0.277
WEIGHT OF DEPOSITED METAL Kg	0.015
TYPE OF ELECTRODE	E6013

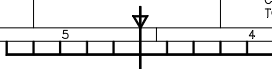
TECHNICAL REQUIREMENTS

1. QUALITY GRADES OF WELDS AS PER HW 0620.039CS,CK. TEST SCOPE ACCORDING TO HW0850.199. CATEGORY OF SERVICE REQUIREMENTS 4.
2. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F8383

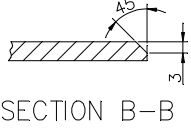
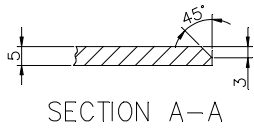
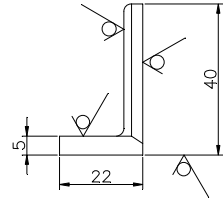
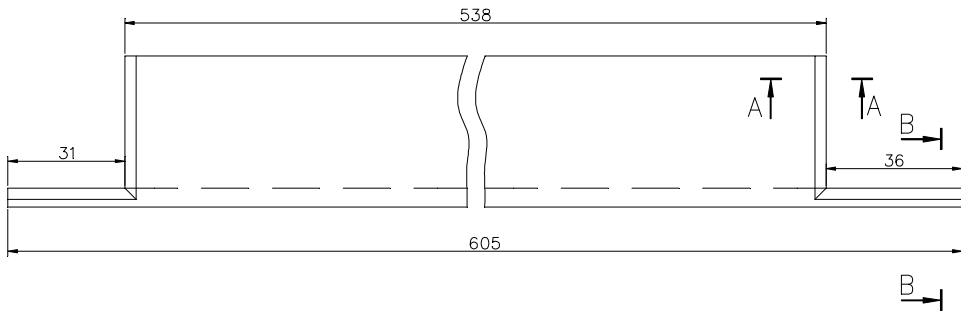
INVENTORY NO. SIGN. & DATE REF. DRG. NO.

CBOM NO. 0-144-04-01004		STATUS P.D.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.	
AGREEP WT	NAME CHHABRA	SIGN -SD-	DATE 26.2.83	DEPT. TGE CODE 4133	SCALE 1:5	WEIGHT(Kg.) 4.375	REF. TO ASSY. DRG. 0-144-04-01004
GRADE OF UNTOL DIM:--				DEPT. TGE			
M/CG- V <sup>1/2</sup> /N/F AA 0230208				BHARAT HEAVY ELECTRICALS LTD HARDWAR			
WELDING-A/B/C/D-AA621104				DRN TNG -SD- 13.12.82			
GAS CUTTINGS-T3AA0621101				CHD SM/KNW -SD- 6.4.83			
REV. DATE ALTERED P.A. -S/D-				APPD N.P. GUPTA -SD- 6.4.83			
CHECKED SSM -S/D-				ITEM NO. OF			
CHANGES ACCORDING TO CH. AD. NO. - TGE-13-F0383				032 19.17			
TITLE FRAME				DRAWING NO. 2-144-04-01004			
				SHEET NO. 1 NO. OF SHEETS 1			



DRAWING NO. 3-144-04-01028

50°  
THE REST



02  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HWO400397.

26-5606-83433/KWU  
REF. DRG/No.4  
SIGN & DATE  
INVENTORY NO.

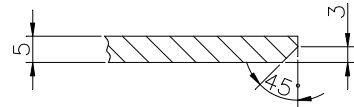
CBOM NO. 0-144-04-01004		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.				
AGREED	NAME	SIGN	DATE	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
WT	CHHABRA	-SD-	26.2.83	DEPT. TGE		CHD	TNG	-SD-	8.3.83	
GRADE OF UNTOL. DIM.: -				CODE 4133		APD	SM/KNW	-SD-	6.4.83	
M/CG- V/C/M/F AA 0230208				CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383		SCALE		WEIGHT(Kg.)		
WELDING-A/B/C/D-AA621104				REV. DATE ALTERED P.A. -S/D- CHECKED SSM -S/D-		1:1		1.400		
GAS CUTTING-'T3'AA0621101				REV. DATE 02 10.12.13		DEPT. TGE		REF. TO ASSY. DRG.		ITEM NO.
REV. DATE ALTERED CHECKED				CHECKED SSM -S/D-		TITLE		2-144-04-01004		NO.OF ITEMS
						ANGLE		75, 74		
								DRAWING NO. 3-144-04-01028		75, 77
								SHEET NO. 1		NO.OF SHEETS 1

SIZE A3

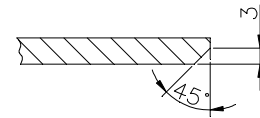
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DRAWING NO. 3-144-04-01029

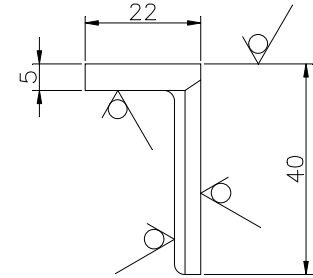
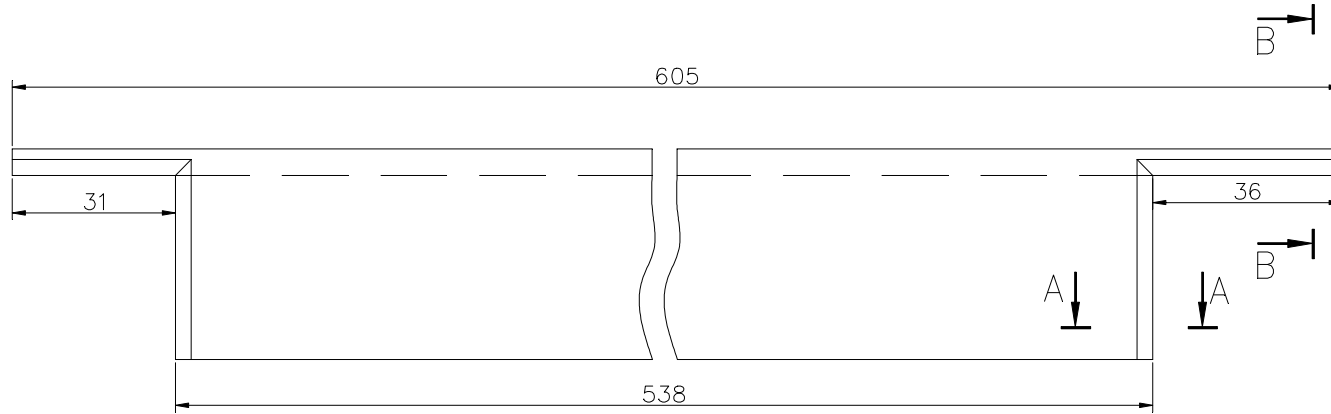
50  
THE REST



SECTION A-A



SECTION B-B



02  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5606-83433g/KWU  
REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 0-144-04-01004		STATUS OF DRG.	
M/CG- <del>V/D/M/F</del> AA 0230208	AGREED DEPT.		NAME	SIGN	DATE
WELDING-A/B/C/D-AA621104	WT	CHHABRA	-SD-	26.2.83	
GAS CUTTING-'T3'AA0621101		REV.	DATE	ALTERED P.A.	-S/D-
	02	10.12.13	CHECKED	SSM	-S/D-
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383					

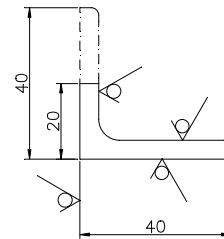
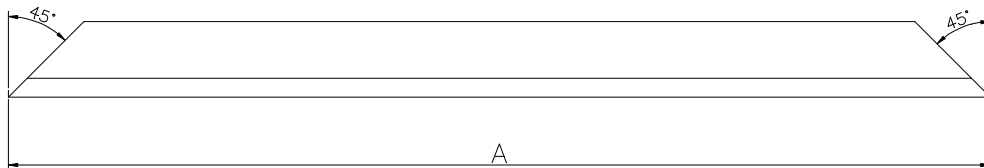
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	TNG	-SD-	8.3.83	
	APD	SM/KNW	-SD-	6.4.83	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1:1	1.400	2-144-04-01004		
TITLE		DRAWING NO.			
ANGLE		3-144-04-01029			
SHEET NO. 1		NO.OF SHEETS 1			

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DRAWING NO. 3-144-04-01030

500  
THE REST

VAR NO.	DIMENSION 'A'	REF. TO ASST. DRG.	ITEM NO.
00	260	31440401031	001
01	761	31440401031	002



01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

TECHNICAL REQUIREMENT

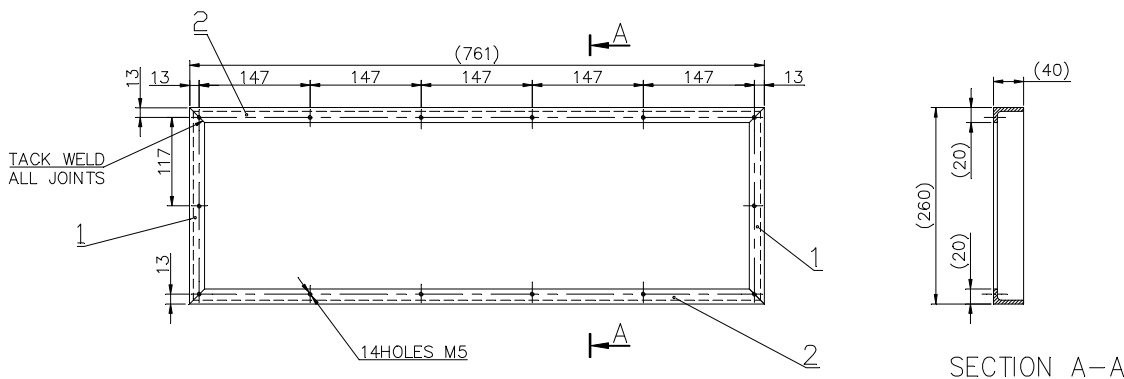
1. MARK IDENTIFICATION ACCORDING TO HWO400397.

26-5907-87558/KWU  
REF. DRG. No. 4, 15  
SIGN & DATE  
INVENTORY NO.

CBOM NO. 0-144-04-01004		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.		
AGREED	NAME	SIGN	DATE	DRN	NAME	SIGN	DATE	NO. OF VAR.
WT	S.K.K.	-SD-	26.2.83	CHD	SM/KNW	-SD-	26.2.83	73, 74
GRADE OF UNTOL. DIM.: -				APD		N.P.GUPTA	-SD-	28.2.83
M/CG- V/C/M/F AA 0230208				DEPT. TGE		SCALE		WEIGHT(Kg.)
WELDING-A/B/C/D-AA621104				CODE 4133		SEE BOM		REF. TO ASSY. DRG.
GAS CUTTING-'T3'AA0621101				TITLE		DRAWING NO.		ITEM NO. OF
REV.	DATE	ALTERED	REV. DATE	ALTERED P.A. -S/D-	ANGLE		3-144-04-01030	TABLE 75, 77
		CHECKED	01 10.12.13	CHECKED SSM -S/D-			7	22, 23, 24
CHANGES ACCORDING TO CH. AD. NO. - TGE-13-F0383						SHEET NO. 1		NO. OF SHEETS 1

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DRAWING NO. 3-144-04-01031



TECHNICAL REQUIREMENT

1. DIMENSIONS IN THE BRACKETS ARE FOR REFERENCE ONLY.
2. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5907-87558/KWU REF. DRG NO.  
SIGN & DATE  
INVENTORY NO.

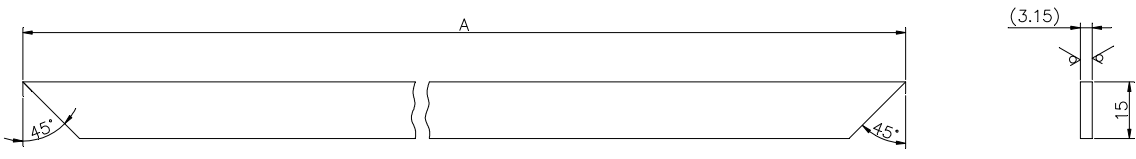
GRADE OF UNTOL. DIM.: -		CBOM NO. 0-144-04-01004		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT B'LESS EXCITER FOR 500MW TG.				
M/CG- V/Ø/M/F AA 0230208		AGREED	NAME	SIGN	DATE	BHARAT HEAVY ELECTRICALS LTD. HARDWAR				
WELDING-A/B/C/D-AA621104		WT	S.K.K.	-SD-	26.2.83	DRN	TNG	-SD-	27.11.82	NO.OF VAR.
GAS CUTTING-'T3'AA0621101						CHD	SM/KNW	-SD-	26.2.83	
REV. DATE	ALTERED	REV. DATE	ALTERED P.A.	-S/D-	DEPT. TGE	APD	N.P.GUPTA	-SD-	28.2.83	73, 74
CHECKED		01	10.12.13	CHECKED SSM -S/D-	CODE 4133	SCALE	1:5	WEIGHT(Kg.)	3.800	REF. TO ASSY. DRG.
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383					TITLE	FRAME		REF. TO ASSY. DRG.	0-144-04-01004	ITEM NO. 002
							DRAWING NO.		3-144-04-01031	NO.OF ITEMS 22, 23, 24
							SHEET NO. 1		NO.OF SHEETS 1	

SIZE A3

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DRAWING NO. 3-144-04-01032

500  
✓ THE REST



VAR NO.	DIMENSION 'A'	REF. TO ASST. DRG.	ITEM NO.
00	536	2-144-04-01003	001
01	436	2-144-04-01003	002

TECHNICAL REQUIREMENT

- MARK IDENTIFICATION ACCORDING TO HW0400397.

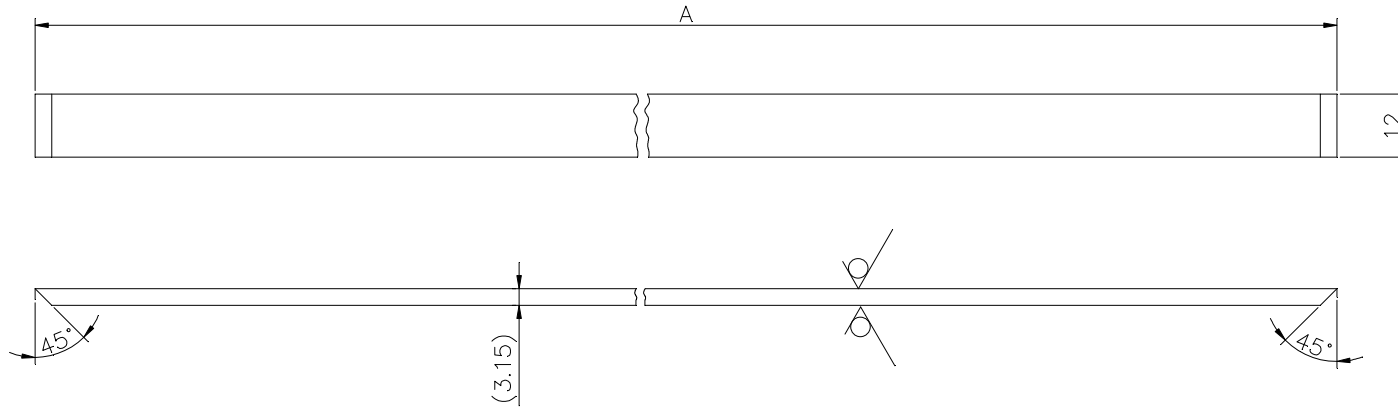
01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

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 26-5606-83433/KVJ  
 REF. DRAWING NO. 7/8  
 INVENTORY NO. SIGN & DATE

CBOM NO. 0-144-04-01004		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
AGREED	NAME	SIGN	DATE	DRN	NAME	SIGN	DATE	NO.OF	
WT	CHHABRA	-SD-	26.2.83	TNG		-SD-	30.11.82	VAR.	
GRADE OF UNTOL. DIM.: -				BHARAT HEAVY ELECTRICALS LTD.		SM/KNW		28.2.83	001
M/CG- V/C/M/F AA 0230208				HARDWAR		N.P.GUPTA		28.2.83	73, 74
WELDING-A/B/C/D-AA621104				DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM	NO.OF
GAS CUTTING-'T3'AA0621101				CODE 4133	1:1	SEE BOM	SEE TABLE	NO.	ITEMS
REV.	DATE	ALTERED	REV.	DATE	ALTERED P.A.	-S/D-			
		CHECKED	01	10.12.13	CHECKED SSM	-S/D-			
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383				TITLE		DRAWING NO.		NO.OF	
				PLATE		3-144-04-01032		SHEETS	
						SHEET NO. 1		NO.OF SHEETS 1	

DRAWING NO. 3-144-04-01033

500/  
THE REST



VAR NO.	DIMENSION 'A'	REF. TO ASST. DRG.	ITEM NO.
00	536	2-144-04-01003	003
01	436	2-144-04-01003	004

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

26-5606-83433g/KWU  
ITEM NO. 7,8  
REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

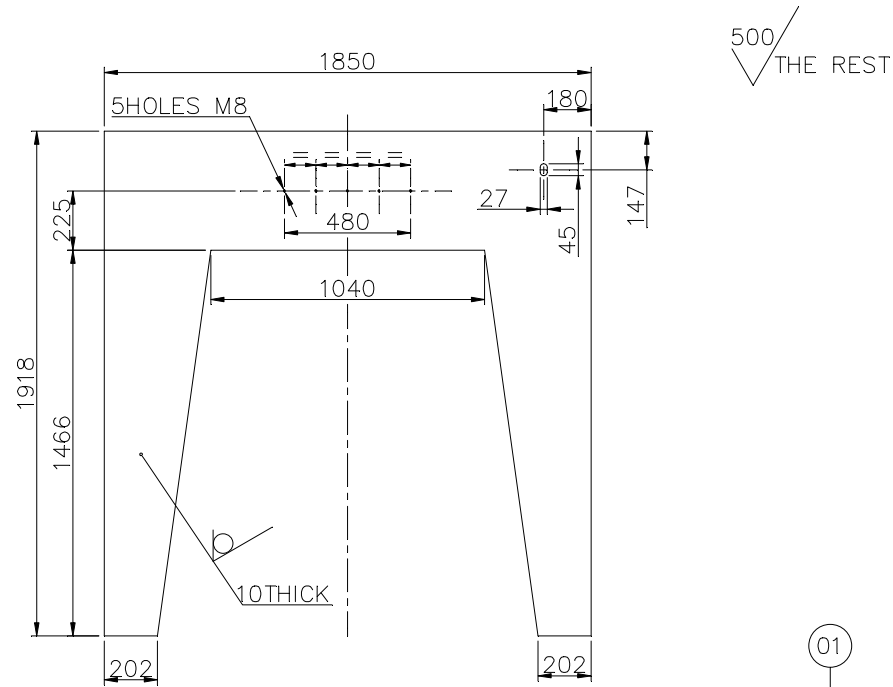
GRADE OF UNTOL. DIM.: -		CBOM NO. 0-144-04-01004		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.				
M/CG- <del>V/D/M/F</del> AA 0230208		AGREED DEPT.	NAME	SIGN	DATE	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
WELDING-A/B/C/D-AA621104		WT	CHHABRA	-SD-	26.2.83	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		CHD	TNG	-SD-	30.11.82	001
GAS CUTTING-'T3'AA0621101		REV. DATE		ALTERED P.A.	-S/D-	DEPT. TGE		APD	SM/KNW	-SD-	28.2.83	73, 74
REV.	DATE	ALTERED	01	10.12.13	CHECKED SSM	-S/D-	SCALE	WEIGHT(Kg.)	N.P.GUPTA	-SD-	28.2.83	NO.OF ITEMS
		CHECKED			CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383	-S/D-	1:1	SEE BOM	REF. TO ASSY. DRG.		SEE TABLE	002
							TITLE	1	DRAWING NO.		3	NO.OF SHEETS
							PLATE		3-144-04-01033			1
									SHEET NO. 1			NO.OF SHEETS
												1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE	ALTERED	REVDATE	ALTERED P.A.	-S/D-	CBOM No.	STATUS
	CHECKED	01	10.12.13	CHECKED SSM -S/D-	0-144-04-01004	OF DRG
CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
CH. AD. NO.-			WT	S.K.K.	-SD-	26.2.83
TGE-13-F0383						

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



01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5605-86399a/KWU  
 REF.DRG.No.I.T. 3

SIGN & DATE

BHARAT HEAVY ELECTRICALS LTD HARDWAR	NAME	SIGN	DATE	NO. OF VAR	
	DRN	Y.C.GARG	-SD-		13.5.81
	CHD	SM/KNW	-SD-		26.2.83
APD	N.P.GUPTA	-SD-	28.2.83		

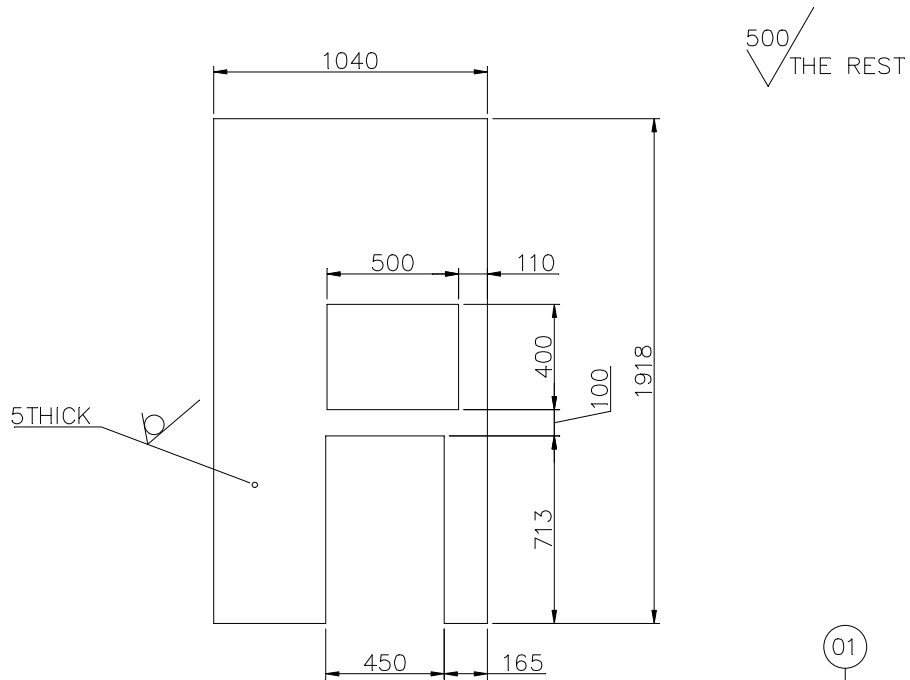
INVENTORY No.	DEPT. TGE	SCALE 1:20	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		135.000	0-144-04-01004	028	
	TITLE PLATE		DRAWING No. 4-144-04-01048			
BRUSHLESS EXCITER FOR 500MW TG.			SHEET No. 1	No.OF SHEETS 1		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
			CH. AD. NO.-			DEPT.	S.K.K.	-SD-	26.2.83
			TGE-13-F0383			WT			

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



01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5605-86399a/KWU  
 REF.DRG.No.I.T. 4

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
 HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	14.5.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE	SCALE 1:20	WEIGHT(Kg) 57.800	REF.TO ASSY.DRG. 0-144-04-01004	ITEM No. 029	No OF ITEMS
	CODE 4133					
	TITLE PLATE	DRAWING No. 4-144-04-01049	SHEET No. 1	No.OF SHEETS 1		
BRUSHLESS EXCITER FOR 500MW TG.						

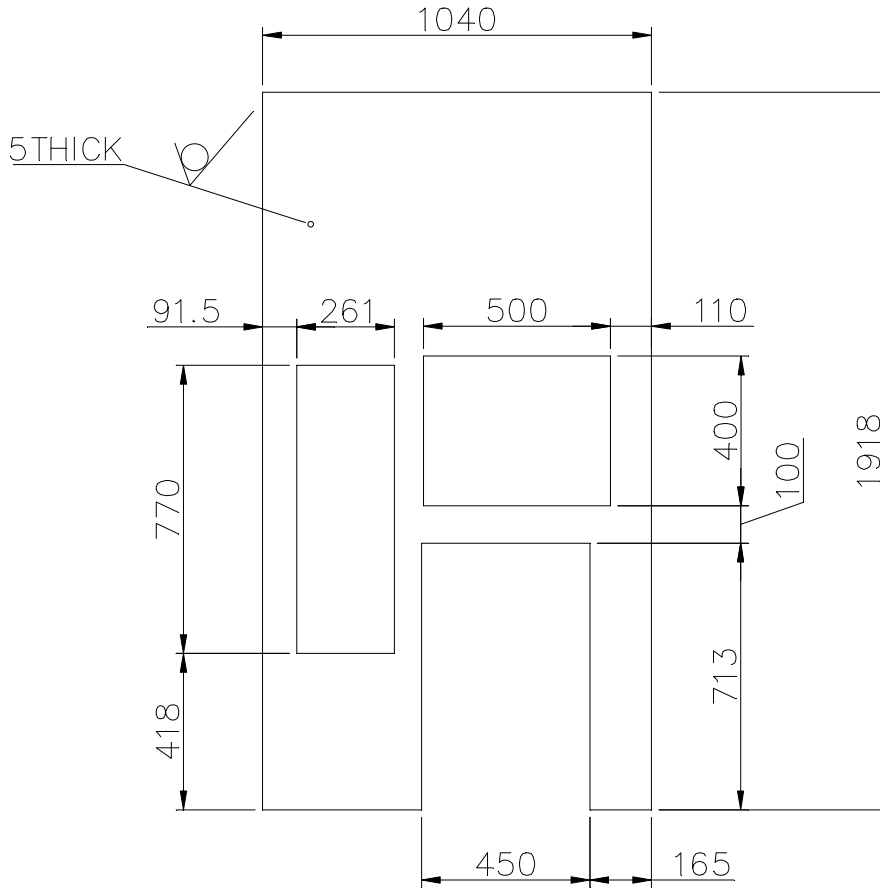
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004		
CHANGES ACCORDING TO							AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO.-							WT	S.K.K.	-SD-	26.2.83
TGE-13-F0383										
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			

500  
THE REST



01

SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

TECHNICAL REQUIREMENT

- MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5605-86399a/KWU  
REF.DRG.No.I.T. 6

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
Y.C.GARG		-SD-	22.5.81	
SM/KNW		-SD-	28.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

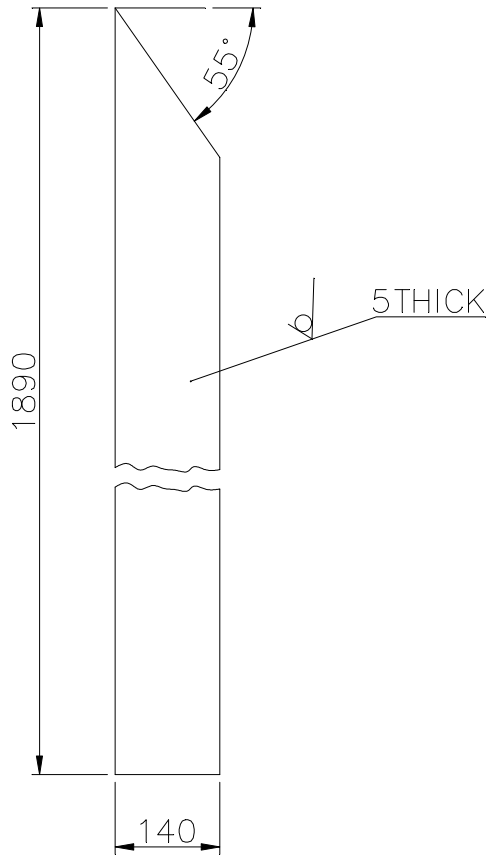
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:20	50.000	0-144-04-01004	023	
	TITLE PLATE					DRAWING No. 4-144-04-01051	
BRUSHLESS EXCITER FOR 500MW TG.					SHEET No. 1	No.OF SHEETS 1	

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



500  
THE REST

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.IT. 11

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	24.5.81	
CHD	SM	-SD-	26.2.83	
APD	KNW	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:10	10.000	9-144-04-01002	002	
	TITLE PLATE				DRAWING No. 4-144-04-01053		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1		No.OF SHEETS 1	

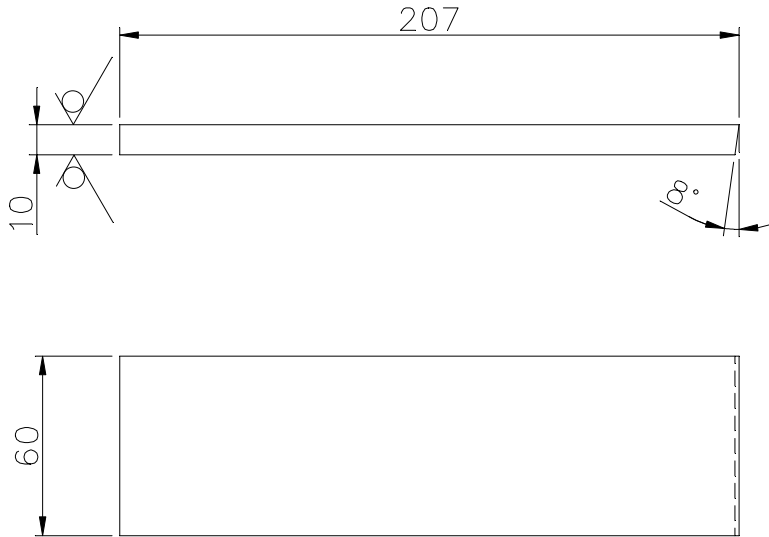
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	
CHANGES ACCORDING TO						AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO.-						WT	S.K.K.	-SD-	26.2.83
TGE-13-F0383									
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		

500  
THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.I.T. 25

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	31.5.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 2.5	1.000	9-144-04-01002	016	
	TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01062			
					SHEET No. 1	No.OF SHEETS	1

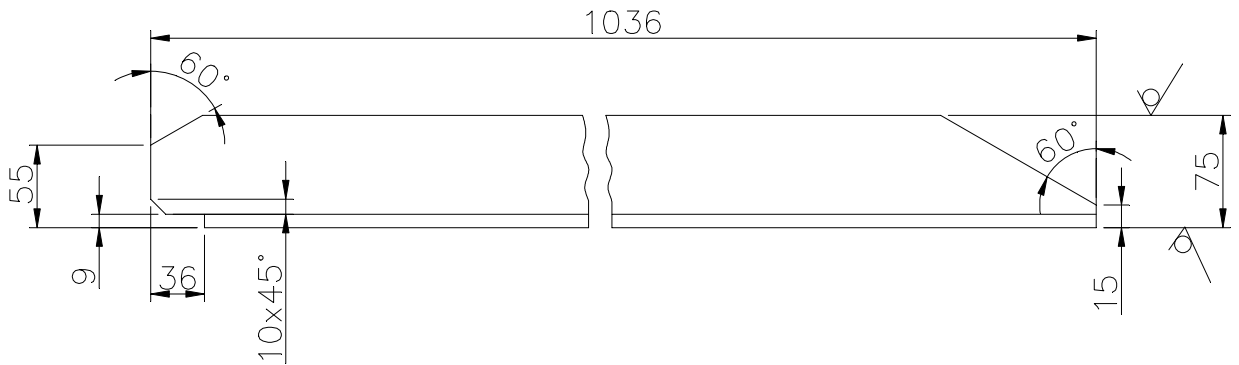
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	
CHANGES ACCORDING TO						AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO.-						WT	S.K.K.	-SD-	28.2.83
TGE-13-F0383									
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			

500/  
√ THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.IT. 29

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	3.6.81	
CHD	SM	-SD-	28.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.

DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1:5	10.300	0-144-04-01004	011	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01065		
				SHEET No. 1	No.OF SHEETS 1	

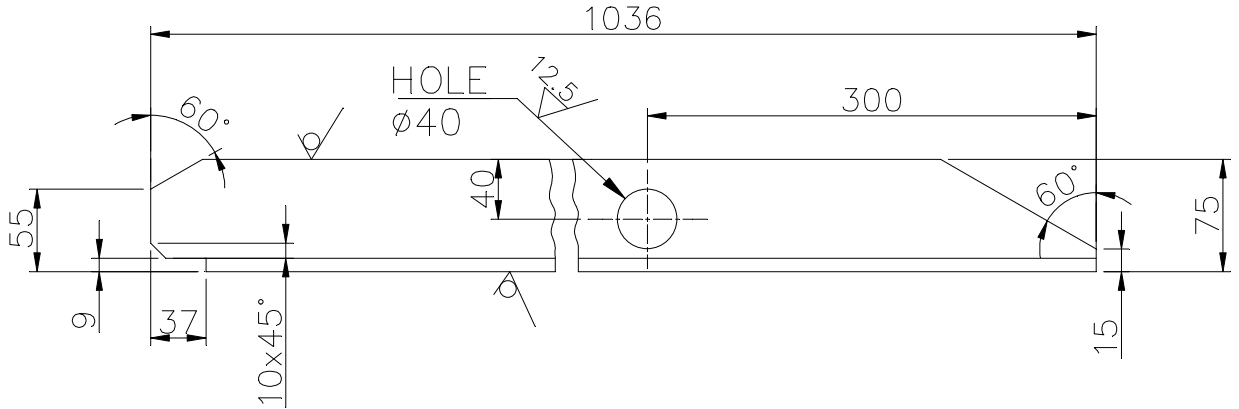
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004		
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383							AGREED DEPT.	NAME	SIGN	DATE
							WT	S.K.K.	-SD-	28.2.83
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				

500 THE REST



### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No. IT. 31

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	5.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.

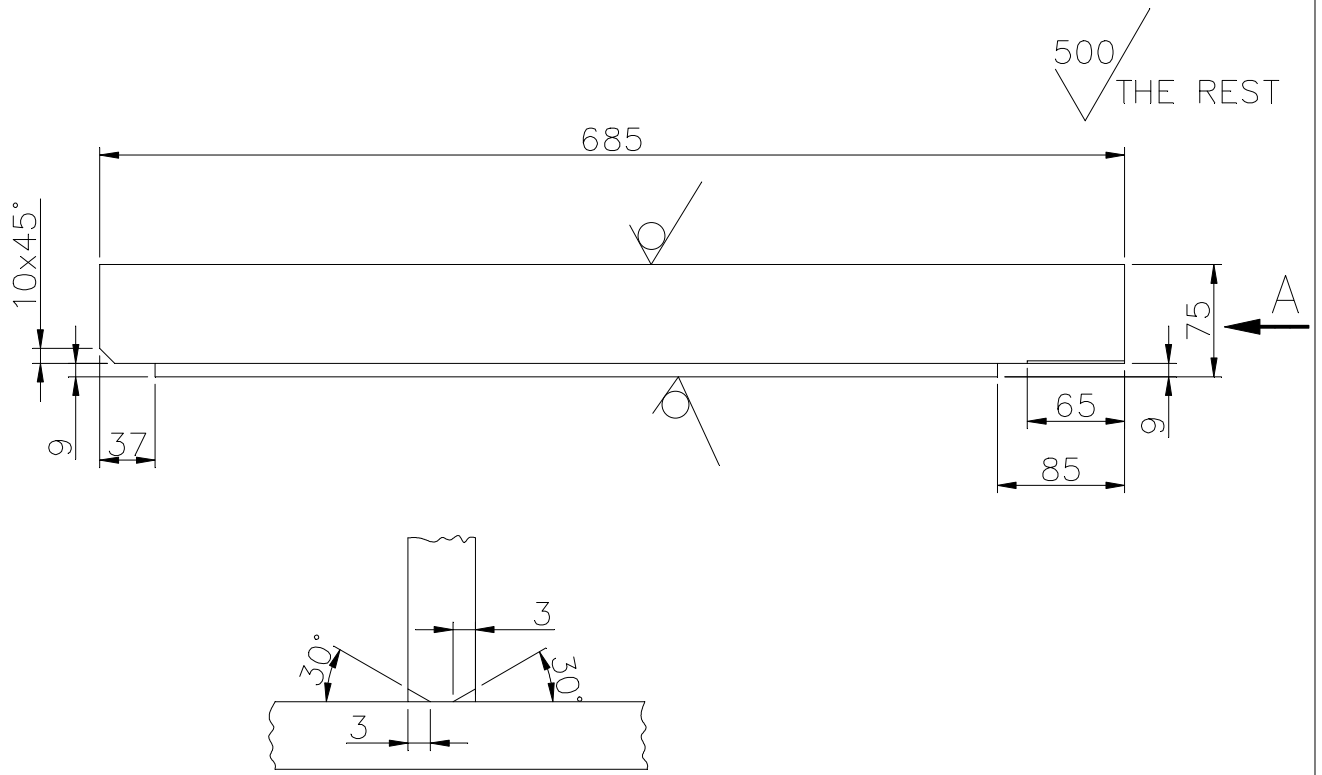
DEPT. TGE		SCALE	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1:5	10.300	0-144-04-01004	015	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01067		
				SHEET No. 1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	28.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



VIEW-A  
SCALE 1:1

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.IT. 33

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	3.6.81	
CHD	SM	-SD-	28.2.83	
APD	KNW	-SD-	28.2.83	

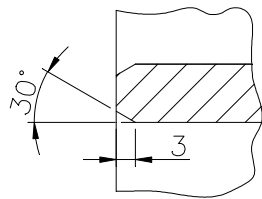
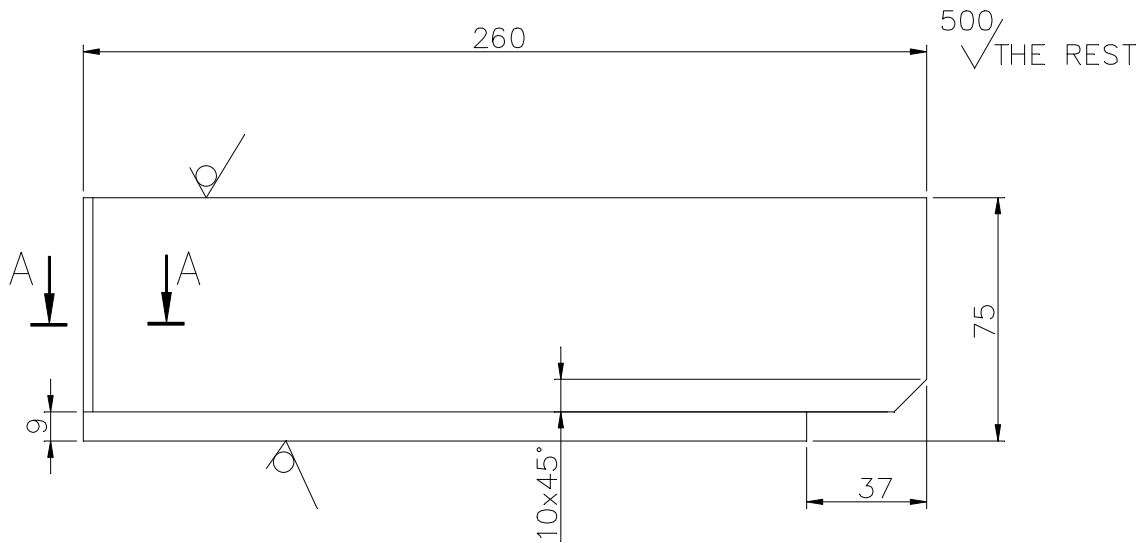
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg) 6.800	REF.TO ASSY.DRG.	ITEM No. 012	No OF ITEMS
	CODE 4133		1:5		0-144-04-01004		
	TITLE PROFILE				DRAWING No. 4-144-04-01069		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1		No.OF SHEETS 1	

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	
CHANGES ACCORDING TO						AGREED	NAME	SIGN	DATE
CH. AD. NO.-						DEPT.	S.K.K.	-SD-	28.2.83
TGE-13-F0383						WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



SECTION A-A  
SCALE 1:1


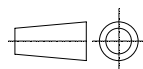
TECHNICAL REQUIREMENT

- MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

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26-5605-86399a/KWU  
REF.DRG.No. I.T. 37

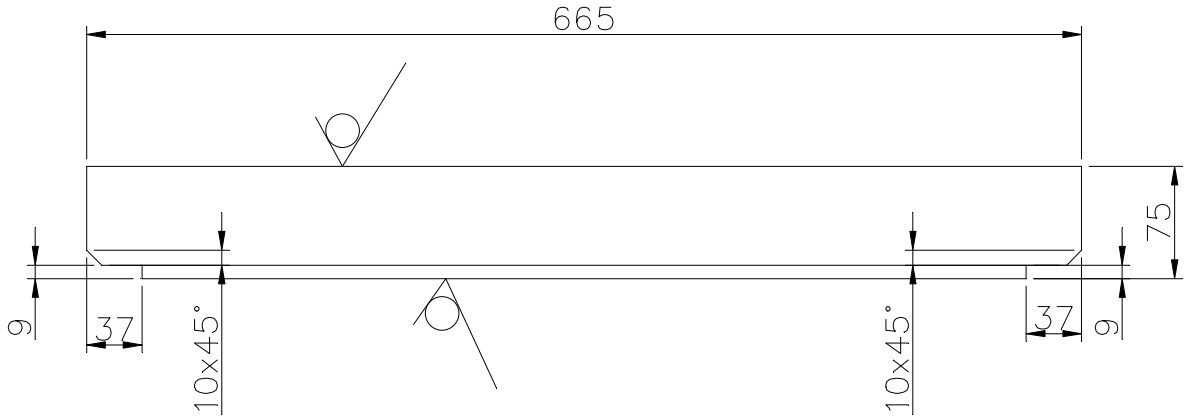
SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	NAME	SIGN	DATE	NO. OF VAR
			CHD	Y.C.GARG	-SD-	9.6.81	
			APD	SM/KNW	-SD-	26.2.83	
INVENTORY No.	DEPT. TGE	 SCALE 1:2	WEIGHT(Kg)	REF. TO ASSY.DRG.		ITEM No.	No OF ITEMS
	CODE 4133		2.600	9-144-04-01002			
	TITLE			DRAWING No.			
BRUSHLESS EXCITER FOR 500MW TG.			4-144-04-01072				
			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	P.A.	-S/D-	CBOM No.	STATUS OF DRG	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002		
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383							AGREED DEPT.	NAME	SIGN	DATE
							WT	S.K.K.	-SD-	28.2.83
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208					WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		

500  
THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.IT. 38

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	10.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:5	6.620	9-144-04-01002	012	
	TITLE PROFILE				DRAWING No. 4-144-04-01073		
BRUSHLESS EXCITER FOR 500MW TG.					SHEET No. 1	No.OF SHEETS 1	

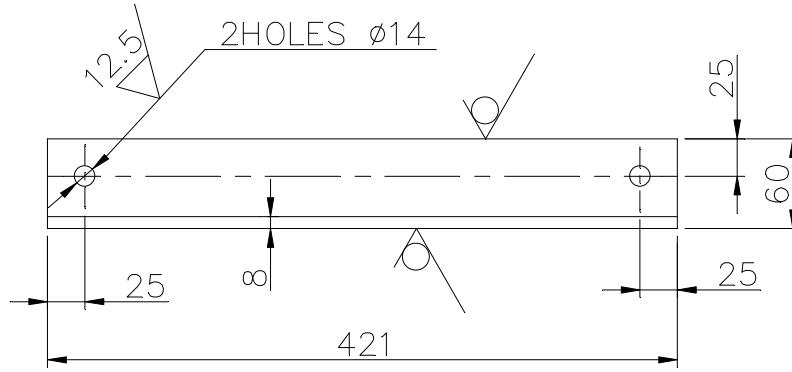
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				

500  
THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No. | T. 46

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	12.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:5	2.950	0-144-04-01004	006	
	TITLE PROFILE				DRAWING No. 4-144-04-01075		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1   No.OF SHEETS 1			

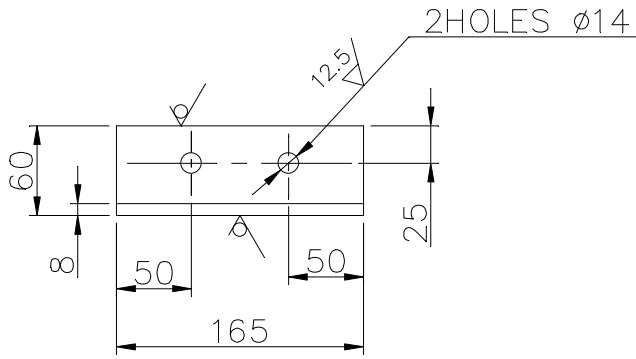
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				

500  
✓ THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86399a/KWU  
 REF.DRG.No. I.T. 47

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
 HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	13.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:5	1.150	0-144-04-01004	026	
	TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01076			
					SHEET No. 1	No.OF SHEETS 1	

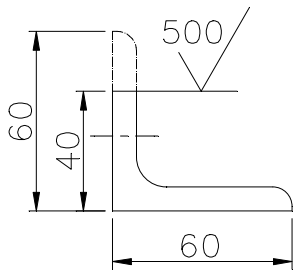
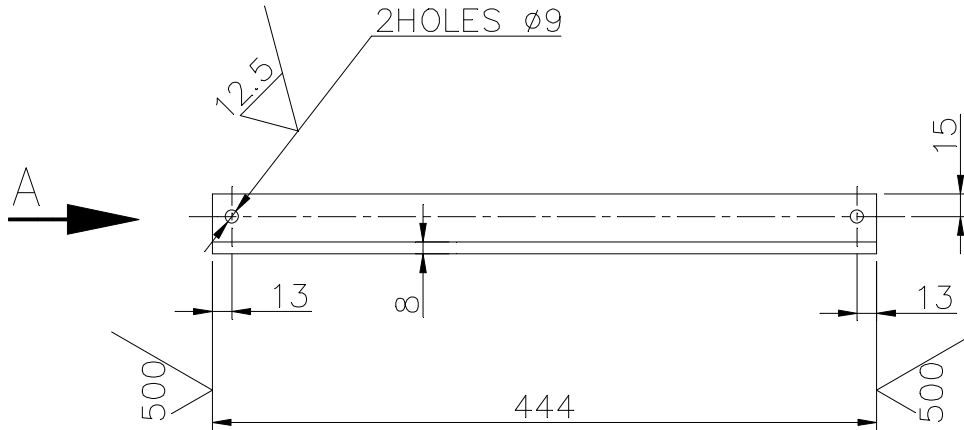
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004		
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383							AGREED DEPT.	NAME	SIGN	DATE
							WT	S.K.K.	-SD-	26.2.83
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208					WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		

✓ THE REST



VIEW-A  
SCALE 1: 2.5

01  
SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397

26-5605-86399a/KWU  
REF.DRG.No. I.T. 48

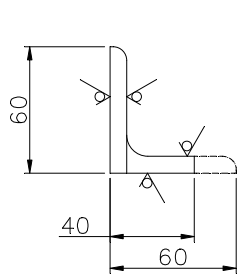
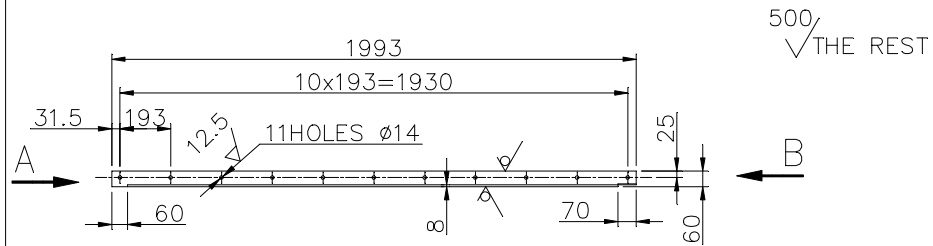
SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		NAME	SIGN	DATE	NO. OF VAR
			DRN	Y.C.GARG	-SD-	
CHD	SM/KNW	-SD-	26.2.83			
			APD	N.P.GUPTA	-SD-	28.2.83
INVENTORY No.	DEPT. TGE	SCALE 1: 5	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		2.630	0-144-04-01004	030	
	TITLE PROFILE			DRAWING No. 4-144-04-01077		
BRUSHLESS EXCITER FOR 500MW TG			SHEET No. 1		No.OF SHEETS 1	

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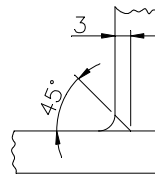
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE	ALTERED	REVDATE	ALTERED P.A.	-S/D-	CBOM No.	STATUS
	CHECKED	01	10.12.13	CHECKED SSM -S/D-	9-144-04-01002	OF DRG
CHANGES ACCORDING TO				AGREED	NAME	SIGN
CH. AD. NO.-				DEPT.	WT	S.K.K.
TGE-13-F0383						-SD-
						26.2.83

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



VIEW-A  
SCALE 1:2.5



VIEW-B  
SCALE 1:1

01

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5605-86399a/KWU  
REF.DRG.No.I.T. 49

SIGN & DATE

	BHARAT HEAVY ELECTRICALS LTD HARDWAR	NAME	SIGN	DATE	NO. OF VAR	
		DRN	Y.C.GARG	-SD-		14.6.81
		CHD	SM/KNW	-SD-		26.2.83
		APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:20	11.430	9-144-04-01002	022	
	TITLE PROFILE				DRAWING No. 4-144-04-01078		
BRUSHLESS EXCITER FOR 500MW TG.					SHEET No. 1	No.OF SHEETS 1	

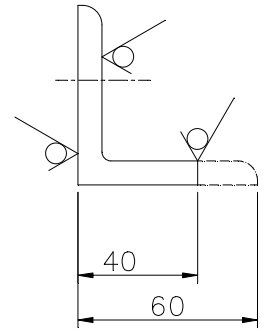
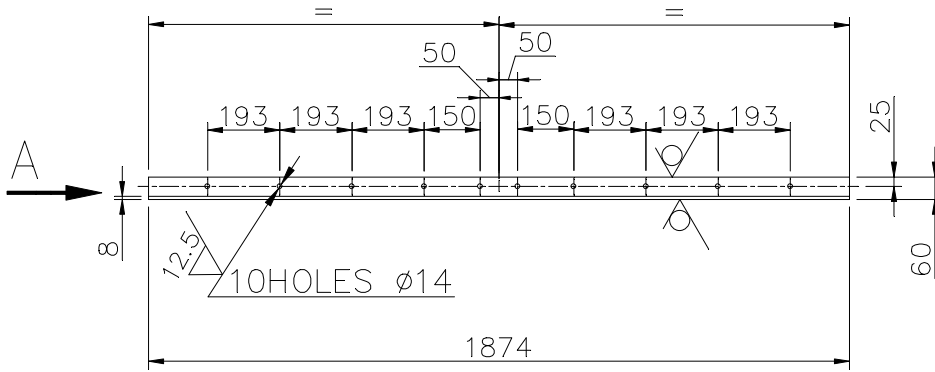
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			

500/  
✓ THE REST



VIEW-A  
SCALE 1:2.5

### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No. I.T. 50

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
Y.C.GARG	Y.C.GARG	-SD-	15.6.81	
SM/KNW	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.

DEPT. TGE		SCALE	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1:20	6.870	9-144-04-01002	010	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01079		
				SHEET No. 1	No.OF SHEETS	1

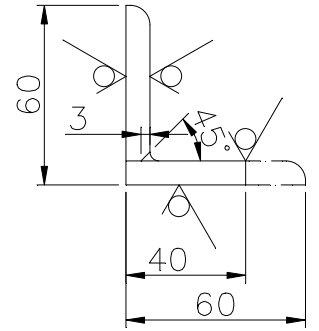
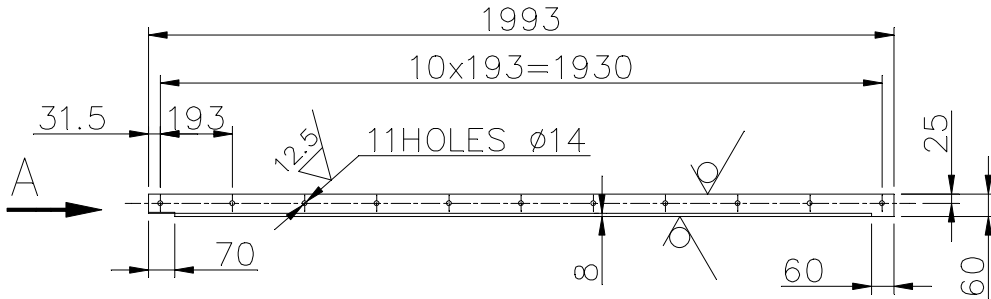
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	OF DRG
CHANGES ACCORDING TO						AGREED	NAME	SIGN	DATE
CH. AD. NO.-						DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383						WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101			

500/  
✓ THE REST



VIEW-A  
SCALE 1:2.5

### TECHNICAL REQUIREMENT

- MARK IDENTIFICATION ACCORDING TO HW0400397.

(01)

**SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383**

26-5605-86399a/KWU  
REF.DRG.No. IT. 51

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	14.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.

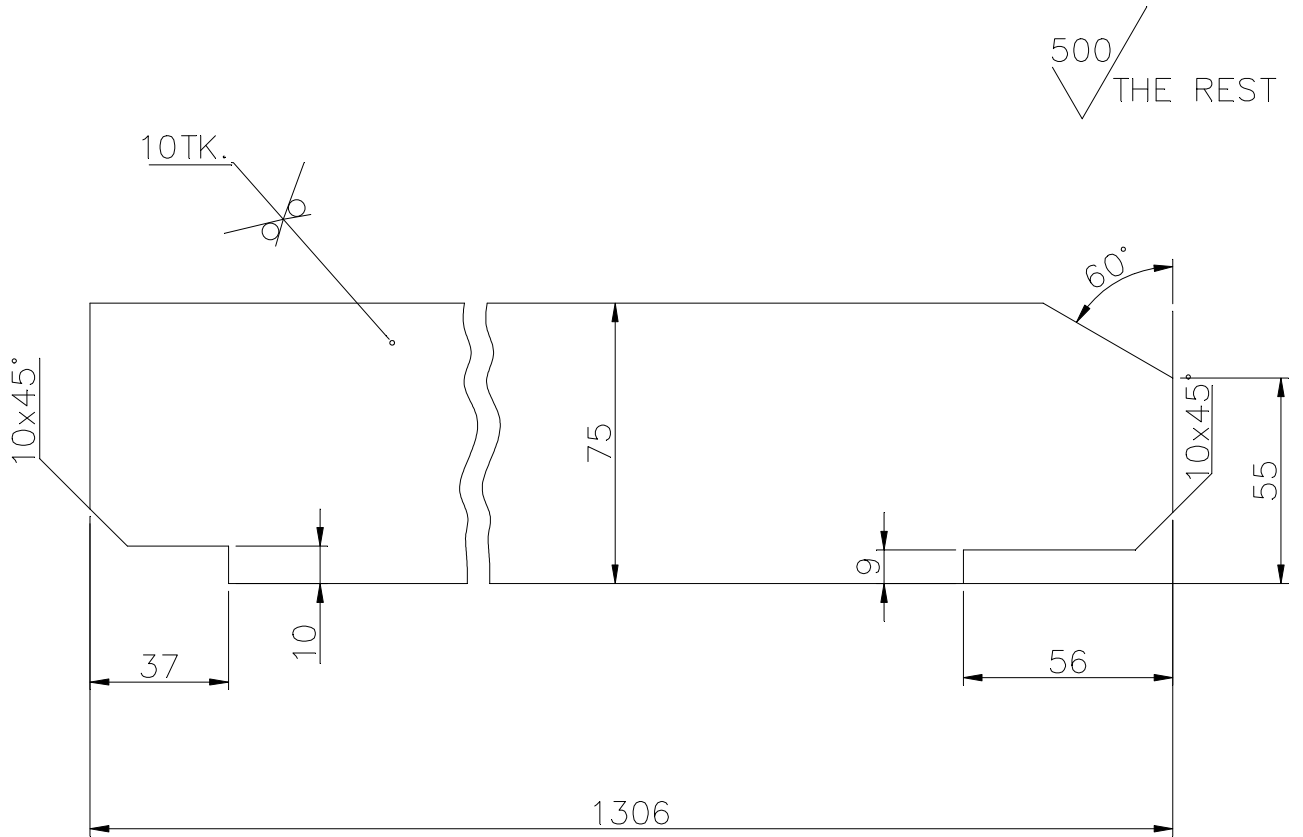
DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM	No OF ITEMS
CODE 4133		1:20	11.400	9-144-04-01002	No. 017	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01080		
				SHEET No. 1	No.OF SHEETS 1	

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG
		CHECKED	02	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	
CHANGES ACCORDING TO						AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO.-						WT	P GOYAL.	-SD-	19.5.86
TGE-13-F0383									
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.IT. 55

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	16.4.86	
CHD	SM	-SD-	24.4.86	
APD	KNW	-SD-	23.5.86	

INVENTORY No.

DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1: 2	5.034	0-144-04-01004	007	
TITLE FLAT				DRAWING No. 4-144-04-01082		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1 No.OF SHEETS 1		

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				



### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86398/KWU  
REF.DRG.No.IT. 56

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	3.5.82	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.G.	-SD-	28.2.83	

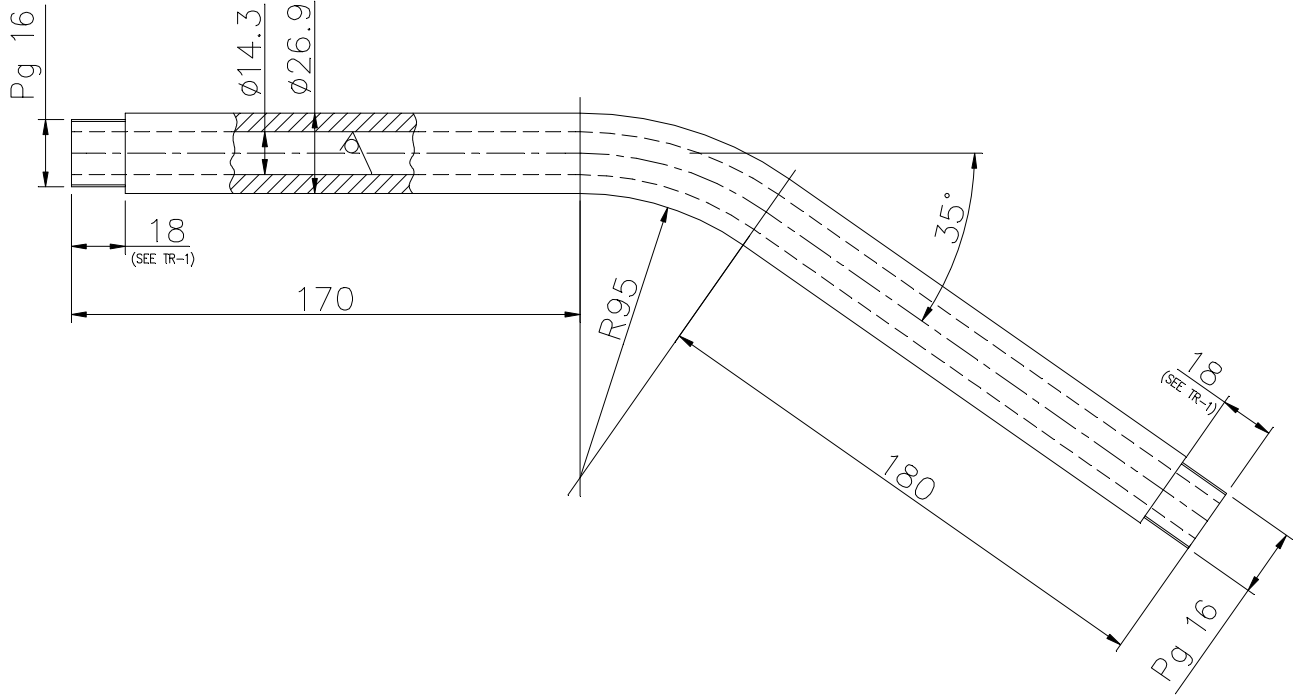
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:5	4.500	0-144-04-01004	009	
	TITLE FLAT				DRAWING No. 4-144-04-01083		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1		No.OF SHEETS 1	

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	03	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208				WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



### TECHNICAL REQUIREMENTS

- MACHINE DOWN THE TUBE O/D AT ENDS TO 22.5<sup>+0.2</sup> TO MAKE THEM SUITABLE FOR CUTTING Pg16 THREADS AS PER DIN 40430.
- MARK IDENTIFICATION ACCORDING TO HW0400397.

03

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0383

DEVELOPED LENGTH=405 APPROX.

26-5605-86398/KWU  
REF.DRG.No. | T. 61

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	4.5.82	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

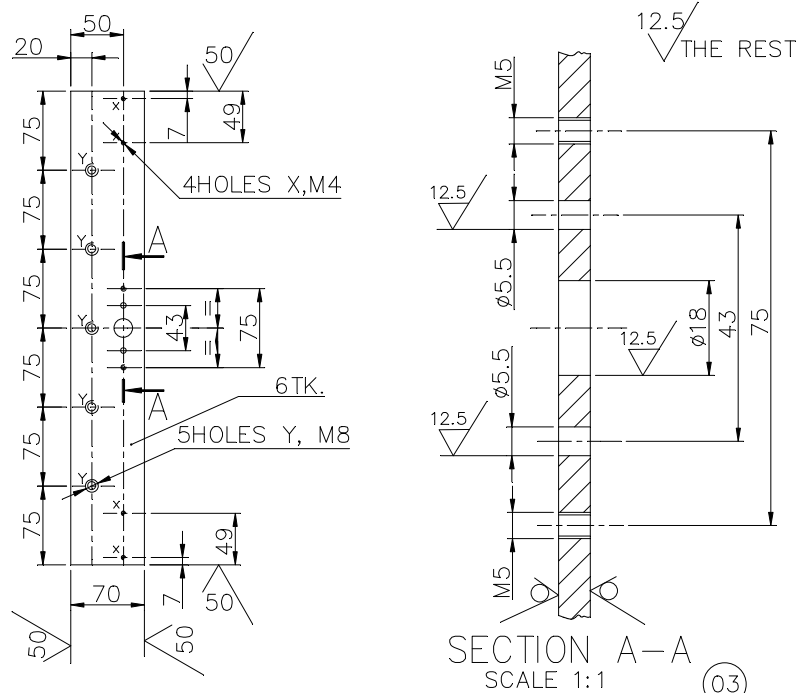
INVENTORY No.

DEPT. TGE		SCALE	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1: 2	0.300	0-144-04-01004	021	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01084		
				SHEET No. 1	No.OF SHEETS 1	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE	ALTERED	REVDATE	ALTERED P.A.	-S/D-	CBOM No.	STATUS
	CHECKED	03	10.12.13	CHECKED SSM -S/D-	0-144-04-01004	OF DRG
CHANGES ACCORDING TO				AGREED	NAME	SIGN
CH. AD. NO.-				DEPT.	CHHABARA	SD-
TGE-13-F0383				WT		28.2.83
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208		WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101		



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-83433/KWU  
REF.DRG.No.I.T. 13

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

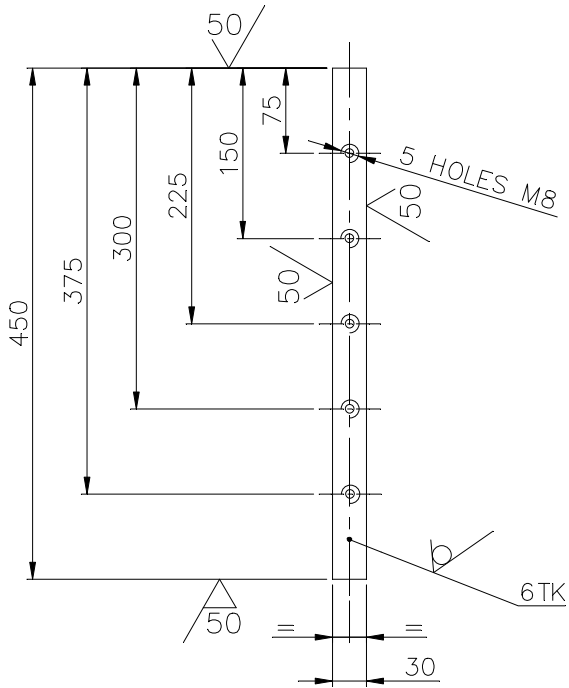
	NAME	SIGN	DATE	NO. OF VAR
DRN	S.K.	-SD-	28.1.82	
CHD	SM	-SD-	6.4.83	
APD	KNW	-SD-	6.4.83	

INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:5	1.500	2-144-04-01004	004	
	TITLE STRIP			DRAWING No. 4-144-04-01087		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS 1	

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03 TNG  
SSM 0-144-04-01004 U  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME  
NO. TGE-08-F0269 WT TSC -s/d- 14.10.08

12.5/  
▽ THE REST



### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

03

SUPERSEDES THE OLD  
DRG. UNDER THE SAME  
NO. TGE-08-F0269

VIJAY -S/D- 6.10.08  
RAWAT -S/D- 6.10.08  
VIVEK -S/D- 22.10.08  
KUMAR

EME 4133 1:5 0.060 2-144-04-01004 002

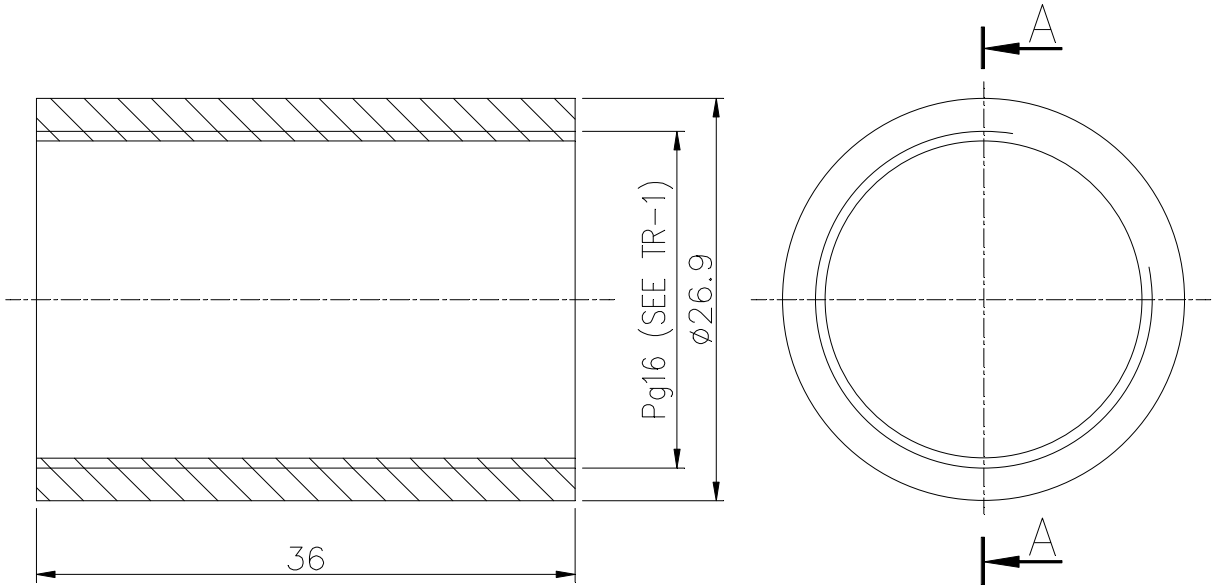
FLAT

4-144-04-01091 03

FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS	
		CHECKED	02	10.12.13	CHECKED	SSM	-S/D-	0-144-04-01004	OF DRG	
CHANGES ACCORDING TO							AGREED	NAME	SIGN	DATE
CH. AD. NO.-							DEPT.	S.K.K.	-SD-	28.2.83
TGE-13-F0383							WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				



SECTION A-A

TECHNICAL REQUIREMENTS:

1. MACHINE THE TUBE I/D TO  $20.96 \pm 0.02$  TO MAKE IT SUITABLE FOR CUTTING Pg 16 THREADS AS PER DIN 40430.
2. MARK IDENTIFICATION ACCORDING TO HW0400397.

02

SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86398/KWU  
REF.DRG.No.IT. 68

SIGN & DATE



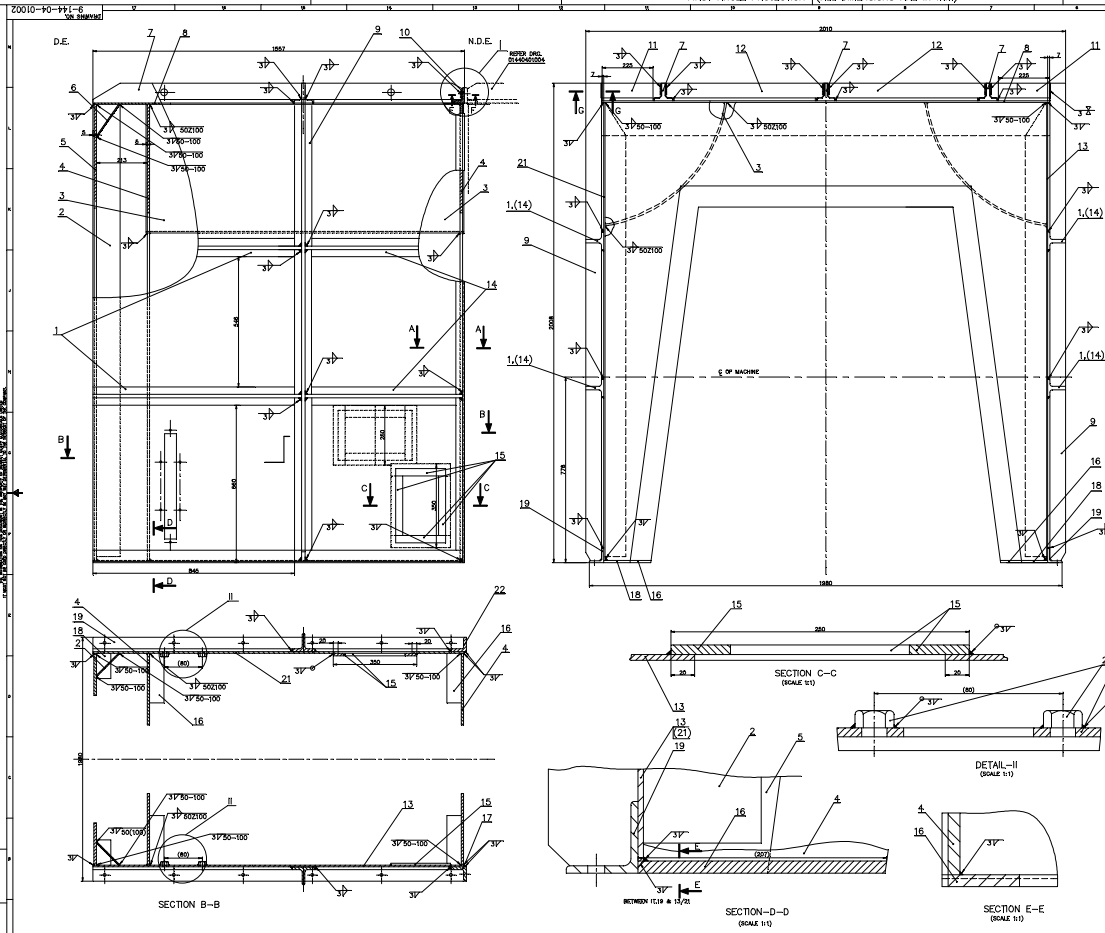
BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
CHD	T.N.G	-SD-	4.5.82	
APD	SM/KNW	-SD-	28.2.83	
	N.P.GUPTA	-SD-	28.2.83	

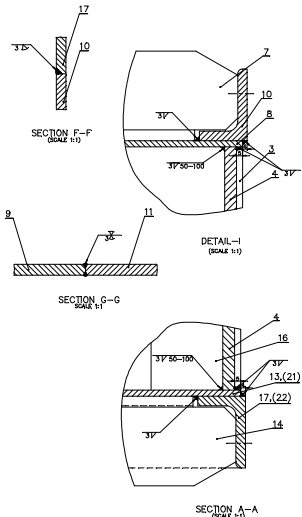
INVENTORY No.

DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		2:1	0.030	0-144-04-01004	016	
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01093		
				SHEET No. 1	No.OF SHEETS	1

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STANDARD & SIZE OF SEAM	3.1.	3.2.	3.3.
SEAM LENGTH IN	75000	5200	5100
WT OF DEPOSITED METAL, KG	4.200	0.200	0.200
TYPE OF ELECTRODE			E-4013



**TECHNICAL REQUIREMENTS**

- QUALITY GRADES OF WELDS AS PER INTERNATIONAL CODES. BEST QUALITY ACCORDING TO INTERNATIONAL PRACTICES OF SERVICE REQUIREMENTS &.
- WELD BEHAVIOR ACCORDING TO INTERNATIONAL.
- WARRANTY FREE FROM DEFECTS, UNLESS OTHERWISE STATED. ALL METALS, MATERIALS PERPENDICULAR TO HORIZONTAL AXIS. THIS IS ESSENTIAL. AS THE JOINTS FORM A CLOSED AND SEALED JOINT. THESE MUST BE KEPT OPERATING AT 3000MM, GENERATING HEAVY CURRENT FOR POWER TO BE USED.
- AIR IS HEATED AND BEING COOL AIR WITH THE AIR GUIDE COVER & AIR IS ENCLOSED AT THE SECTION OF COVER.
- SURFACE TREATMENT ACCORDING TO TECHNICAL INSTRUCTION NO. 00218.

**MANUFACTURING PROCEDURE FOR OFF LOADING**

ASSEMBLE THE JOINT FLANGES USING FITTED 30 & 30 OF AIR GUIDE COVER (MATERIAL) 3Y 50-100-1000. CHECK WELD ALL FROM WELD POINT AT JOINT FLANGES. SURFACE PROTECT WELDING BY METAL. OTHERWISE IF NECESSARY, BOTH AIR GUIDE COVERS SHOULD BE SUPPLIED IN SOLID CONCRETE.

DO NOT REMOVE THIS LABEL

DATE	REV.	DESCRIPTION	BY	CHK.	APP.	DATE
19-11-2008	01	ISSUED FOR MANUFACTURE	...	...	...	...
19-11-2008	02	...	...	...	...	...
19-11-2008	03	...	...	...	...	...
19-11-2008	04	...	...	...	...	...
19-11-2008	05	...	...	...	...	...
19-11-2008	06	...	...	...	...	...
19-11-2008	07	...	...	...	...	...
19-11-2008	08	...	...	...	...	...
19-11-2008	09	...	...	...	...	...
19-11-2008	10	...	...	...	...	...
19-11-2008	11	...	...	...	...	...
19-11-2008	12	...	...	...	...	...
19-11-2008	13	...	...	...	...	...
19-11-2008	14	...	...	...	...	...
19-11-2008	15	...	...	...	...	...
19-11-2008	16	...	...	...	...	...
19-11-2008	17	...	...	...	...	...
19-11-2008	18	...	...	...	...	...
19-11-2008	19	...	...	...	...	...
19-11-2008	20	...	...	...	...	...
19-11-2008	21	...	...	...	...	...
19-11-2008	22	...	...	...	...	...
19-11-2008	23	...	...	...	...	...
19-11-2008	24	...	...	...	...	...
19-11-2008	25	...	...	...	...	...
19-11-2008	26	...	...	...	...	...
19-11-2008	27	...	...	...	...	...
19-11-2008	28	...	...	...	...	...
19-11-2008	29	...	...	...	...	...
19-11-2008	30	...	...	...	...	...
19-11-2008	31	...	...	...	...	...
19-11-2008	32	...	...	...	...	...
19-11-2008	33	...	...	...	...	...
19-11-2008	34	...	...	...	...	...
19-11-2008	35	...	...	...	...	...
19-11-2008	36	...	...	...	...	...
19-11-2008	37	...	...	...	...	...
19-11-2008	38	...	...	...	...	...
19-11-2008	39	...	...	...	...	...
19-11-2008	40	...	...	...	...	...
19-11-2008	41	...	...	...	...	...
19-11-2008	42	...	...	...	...	...
19-11-2008	43	...	...	...	...	...
19-11-2008	44	...	...	...	...	...
19-11-2008	45	...	...	...	...	...
19-11-2008	46	...	...	...	...	...
19-11-2008	47	...	...	...	...	...
19-11-2008	48	...	...	...	...	...
19-11-2008	49	...	...	...	...	...
19-11-2008	50	...	...	...	...	...
19-11-2008	51	...	...	...	...	...
19-11-2008	52	...	...	...	...	...
19-11-2008	53	...	...	...	...	...
19-11-2008	54	...	...	...	...	...
19-11-2008	55	...	...	...	...	...
19-11-2008	56	...	...	...	...	...
19-11-2008	57	...	...	...	...	...
19-11-2008	58	...	...	...	...	...
19-11-2008	59	...	...	...	...	...
19-11-2008	60	...	...	...	...	...
19-11-2008	61	...	...	...	...	...
19-11-2008	62	...	...	...	...	...
19-11-2008	63	...	...	...	...	...
19-11-2008	64	...	...	...	...	...
19-11-2008	65	...	...	...	...	...
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19-11-2008	72	...	...	...	...	...
19-11-2008	73	...	...	...	...	...
19-11-2008	74	...	...	...	...	...
19-11-2008	75	...	...	...	...	...
19-11-2008	76	...	...	...	...	...
19-11-2008	77	...	...	...	...	...
19-11-2008	78	...	...	...	...	...
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19-11-2008	80	...	...	...	...	...
19-11-2008	81	...	...	...	...	...
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19-11-2008	84	...	...	...	...	...
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19-11-2008	87	...	...	...	...	...
19-11-2008	88	...	...	...	...	...
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19-11-2008	90	...	...	...	...	...
19-11-2008	91	...	...	...	...	...
19-11-2008	92	...	...	...	...	...
19-11-2008	93	...	...	...	...	...
19-11-2008	94	...	...	...	...	...
19-11-2008	95	...	...	...	...	...
19-11-2008	96	...	...	...	...	...
19-11-2008	97	...	...	...	...	...
19-11-2008	98	...	...	...	...	...
19-11-2008	99	...	...	...	...	...
19-11-2008	100	...	...	...	...	...

TYPE OF PRODUCT: BRUSHLESS EXCITER FOR 500 MW TG.

NAME OF CUSTOMER/PROJECT: ...

SCALE: 1:5

DATE: 19-11-2008

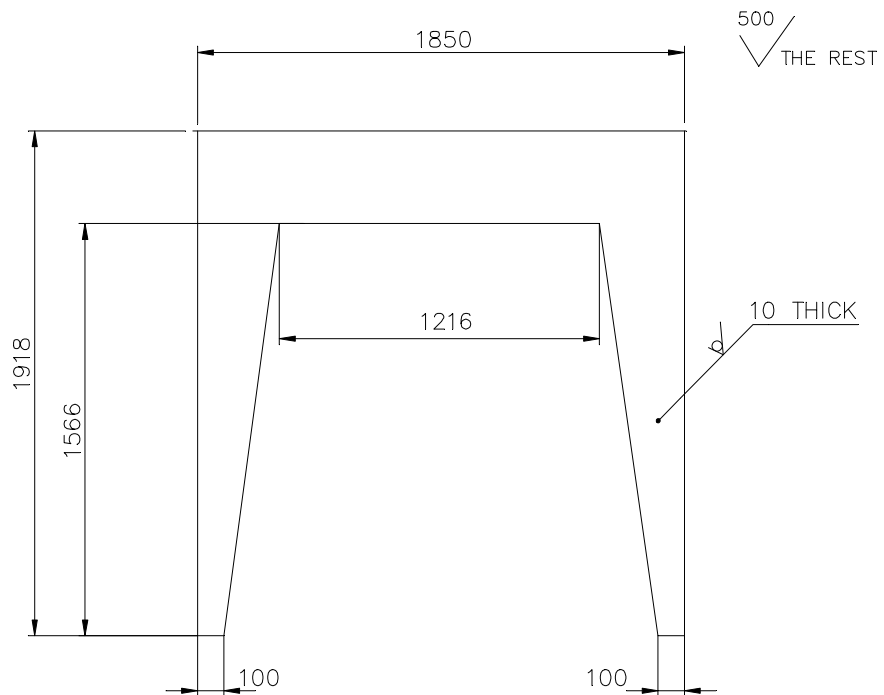
PROJECT NO.: 19-144-04-01002

ISSUE NO.: 1

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	RM	-S/D-	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
			CH. AD. NO.-			DEPT.	SKC	SD/-	5/02/83
			TGE-13-F0359			WT			

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



### TECHNICAL REQUIREMENTS

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

26-5605-86399a/KWU  
 REF.DRG.No. IT.1

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
 HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	11/5/81	
CHD	SM/KNW	SD/-	26/2/83	
APD	N.P.GUPTA	SD/-	28/02/83	

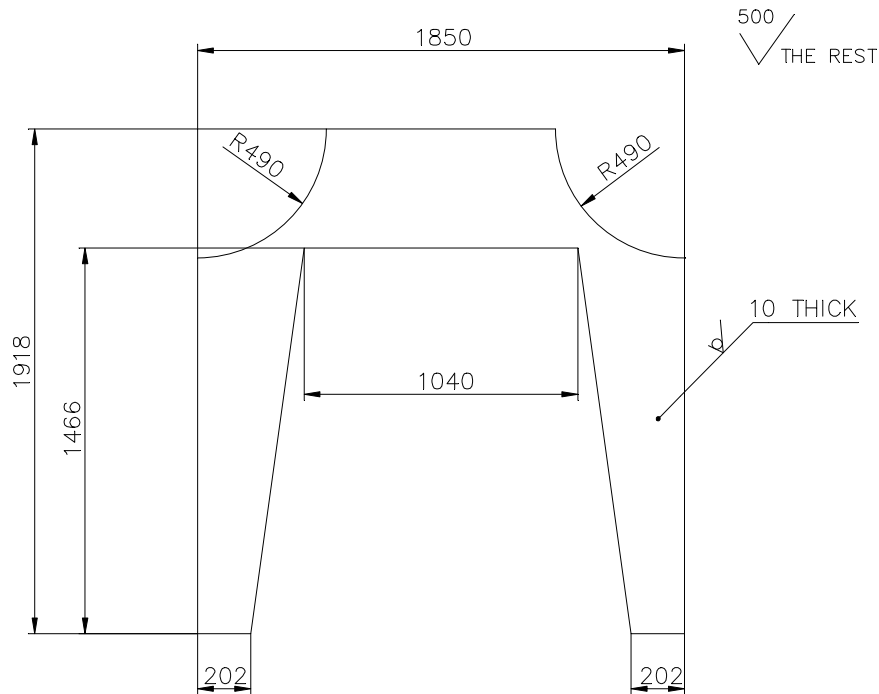
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	CODE 4133	1: 20	102.40	91440401002	005	-
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				41440401046		
				SHEET No. 1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	RM	-S/D-	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
			CH. AD. NO.-			DEPT.	WT	SKC	SD/-
			TGE-13-F0359						5/02/83

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



### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01

SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0359

26-5605-86399g/KWU REF.DRG.No. IT.2

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	12/5/81	00
CHD	SM/KNW	SD/-	26/2/83	
APD	N.P.GUPTA	SD/-	28/02/83	

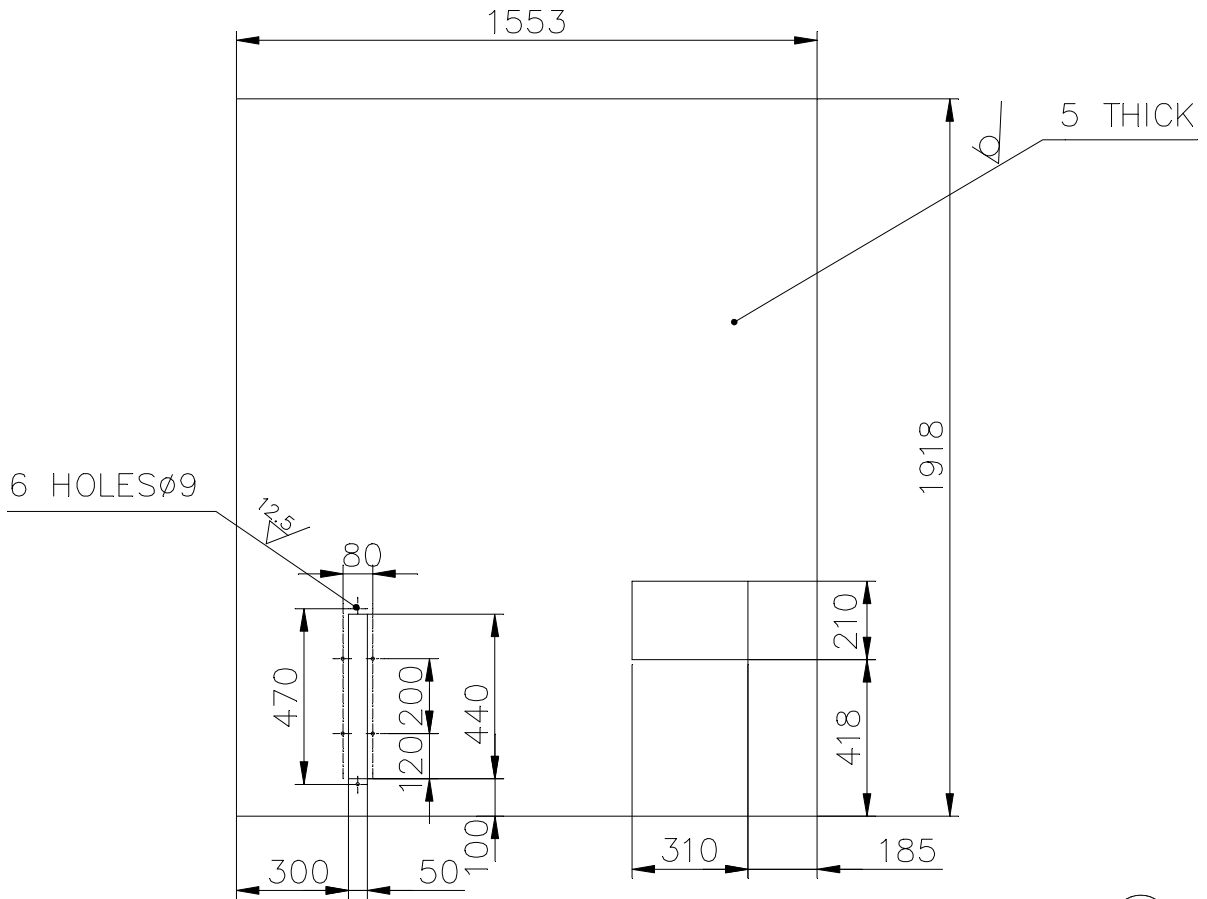
INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
PLATE				41440401047		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1		No.OF SHEETS 1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED RM CHECKED SSM -S/D-	CBOM No. 91440401002		STATUS OF DRG
			02	15.11.13		AGREED DEPT.	NAME	SIGN
CHANGES ACCORDING TO CH. AD. NO. - TGE-13-F0359						WT	SKC	SD/-
GRADE OF UNTOL.DIM.M/C/C/M/F.AA0230208						WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101

500  
✓ THE REST



# TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

02  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

26-5605-86399a/KWU REF.DRG.No. IT.5

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
Y.C.GARG	Y.C.GARG	SD/-	15/5/81	00
SM/KNW	SM/KNW	SD/-	26/2/83	00
N.P.GUPTA	N.P.GUPTA	SD/-	28/02/83	00

INVENTORY No.	DEPT. TGE	SCALE 1:20	WEIGHT(Kg) 113.50	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS -
	CODE 4133			91440401002	021	
	TITLE PLATE				DRAWING No. 41440401050	
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

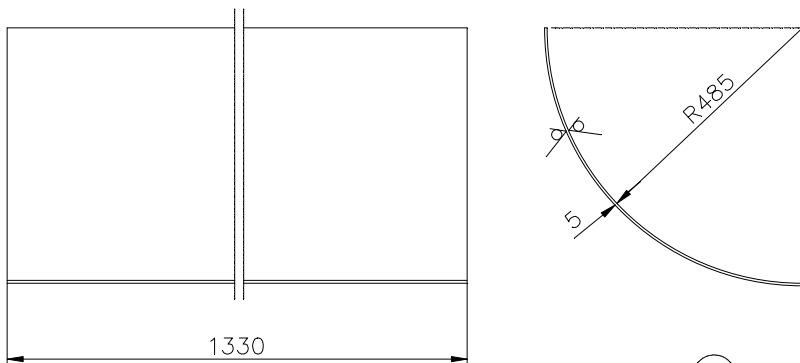
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED RM	-S/D+	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN
			CH. AD. NO.-			DEPT.	WT	SKC
			TGE-13-F0359				SD/-	5/02/83

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

500 /  
✓ THE REST



SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

### TECHNICAL REQUIREMENT

- 1- MARK IDENTIFICATION ACCORDING TO HW 0400397.
- 2- MEAN DEVELOPED LENGTH=766.

26-5605-86399c/KWU  
REF.DRG.No. IT.9

SIGN & DATE

	BHARAT HEAVY ELECTRICALS LTD HARDWAR		NAME	SIGN	DATE	NO. OF VAR
	DRN	Y.C.GARG	SD/-	23/5/81	00	
	CHD	SM/KNW	SD/-	26/2/83		
APD	N.P.GUPTA	SD/-	28/02/83			

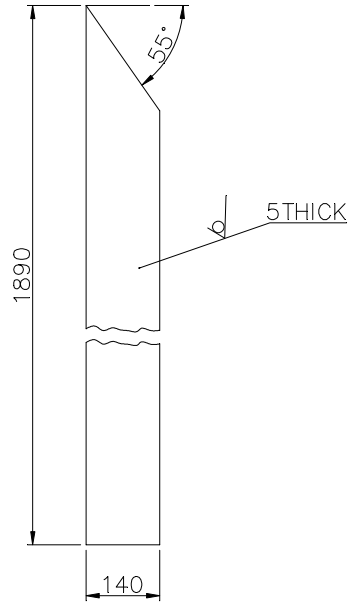
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:10	40.000	91440401002	003	-
	TITLE PLATE				DRAWING No. 41440401052		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1		No.OF SHEETS 1	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE	ALTERED	REVDATE	ALTERED P.A.	-S/D-	CBOM No.	STATUS
	CHECKED	01	10.12.13	CHECKED SSM -S/D-	9-144-04-01002	OF DRG
CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
CH. AD. NO.-			WT	S.K.K.	-SD-	26.2.83
TGE-13-F0383						

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



500 / THE REST

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.I.T. 11

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	24.5.81	
CHD	SM	-SD-	26.2.83	
APD	KNW	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:10	10.000	9-144-04-01002	002	
	TITLE PLATE				DRAWING No. 4-144-04-01053		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS 1		

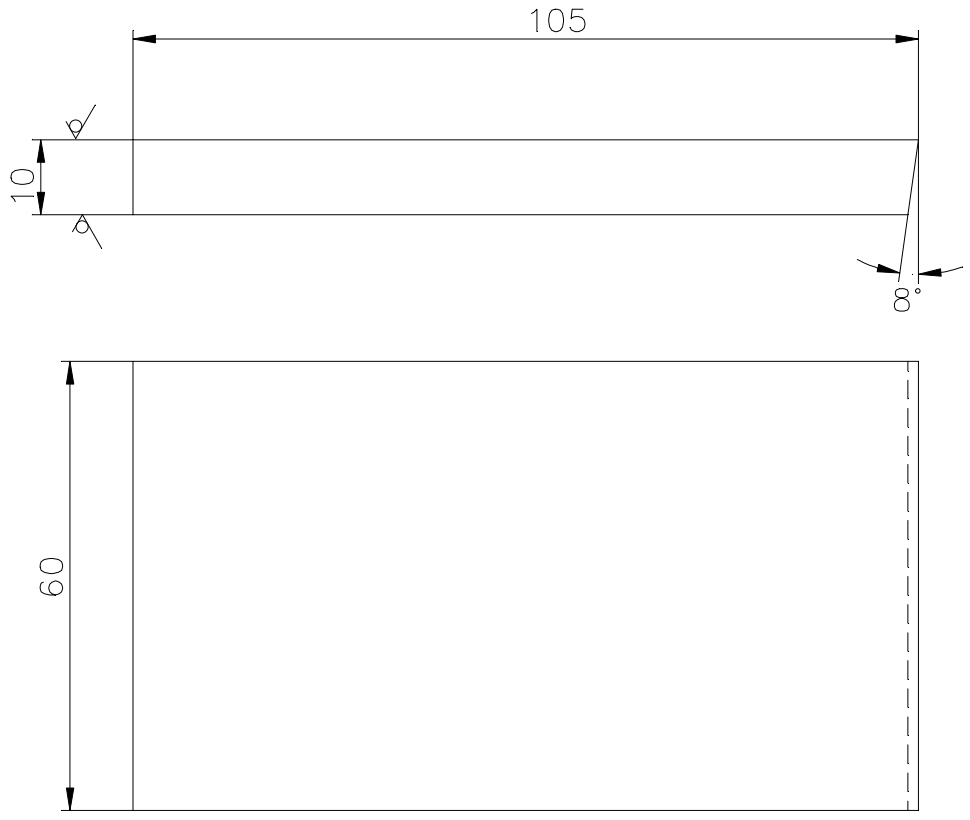
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED RM -S/D- CHECKED SSM-S/D-	CBOM No. 91440401002		STATUS OF DRG
			01	15.11.13		AGREED DEPT.	NAME	SIGN
CHANGES ACCORDING TO						WT	SKC	SD/-
CH. AD. NO.-								15/02/83
TGE-13-F0359								
GRADE OF UNTOL.DIM.M/CSC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		

500  
✓ THE REST



### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

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26-5605-86399a/KWU  
REF.DRG.No. IT.24

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR 00
CHD	Y.C.GARG	SD/-	31/5/81	
APD	SM/KNW	SD/-	26/2/83	
	N.P.GUPTA	SD/-	28/02/83	

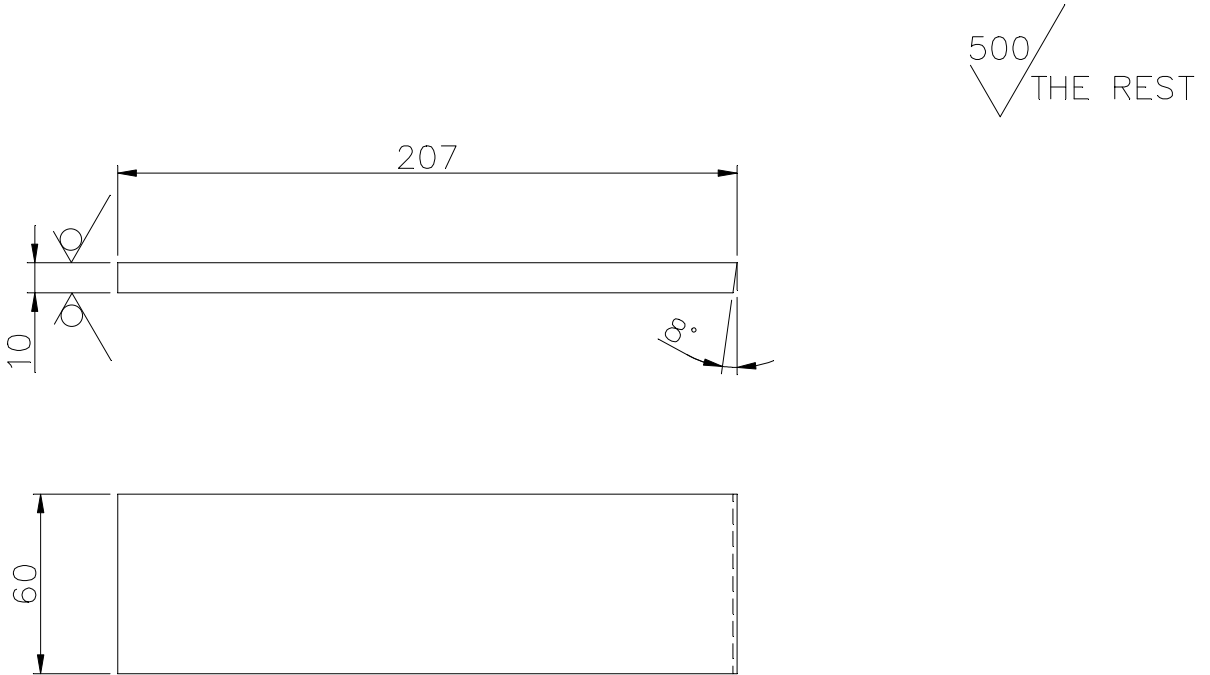
INVENTORY No.

DEPT. TGE CODE 4133		SCALE 1:1	WEIGHT(Kg) 0.500	REF.TO ASSY.DRG. 91440401002	ITEM No. 018	No OF ITEMS -
TITLE STRIP				DRAWING No. 41440401061		
BRUSHLESS EXCITER FOR 500MW TG.				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	P.A.	-S/D-	CBOM No.	STATUS
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	OF DRG
CHANGES ACCORDING TO						AGREED	NAME	SIGN	DATE
CH. AD. NO.-						DEPT.	S.K.K.	-SD-	26.2.83
TGE-13-F0383						WT			
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.I.T. 25

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	31.5.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

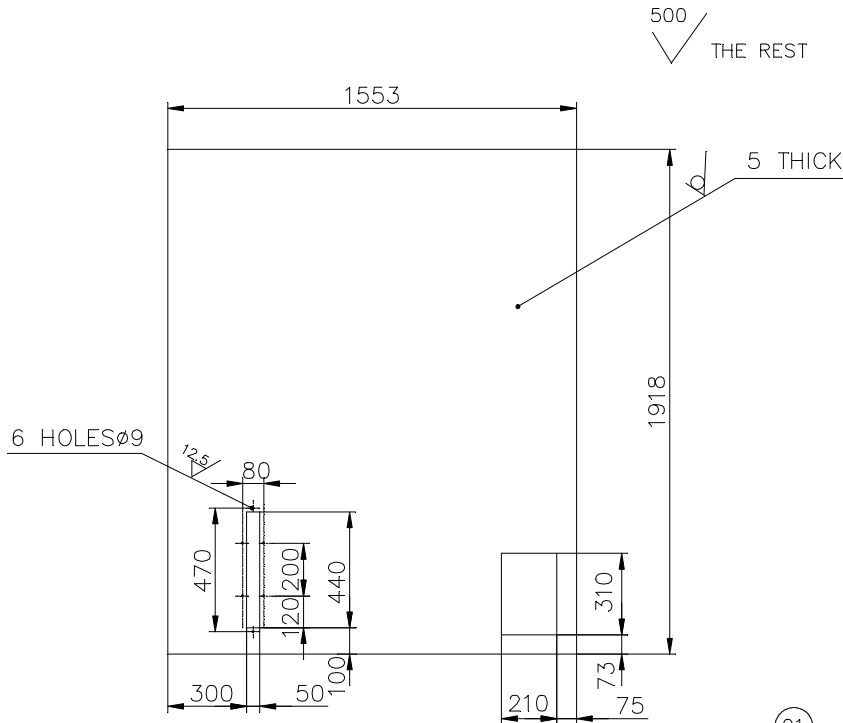
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 2.5	1.000	9-144-04-01002	016	
	TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01062			
					SHEET No. 1	No.OF SHEETS 1	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED RM	-s/d-	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM -s/d-	91440401002	OF DRG
CHANGES ACCORDING TO					AGREED	NAME	SIGN	DATE
CH. AD. NO.-					DEPT.	WT	SKC	SD/-
TGE-13-F0359								5/02/83

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



### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

01

26-5605-86399g/KWU  
 REF.DRG.No. IT.26

SIGN & DATE



**BHARAT HEAVY ELECTRICALS LTD**  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	1/6/81	00
CHD	SM/KNW	SD/-	26/2/83	
APD	N.P.GUPTA	SD/-	28/02/83	

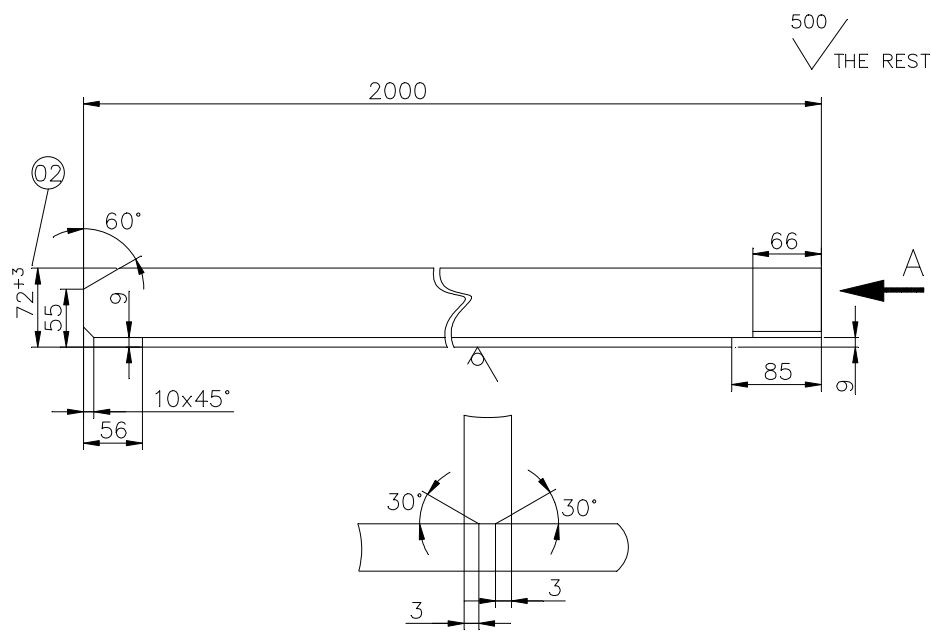
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	CODE 4133	1:20	113.5	91440401002	013	-
	TITLE <b>PLATE</b>			DRAWING No. <b>41440401063</b>		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV 02	DATE 7.2.20	ALTERED STG E PA CHECKED STG ERY	REV 01	DATE 15.11.13	ALTERED RM -S/D- CHECKED SSM -S/D-	CBOM No. 91440401002	STATUS OF DRG		
CHANGES AS PER C/A NO TGE-20-F0028			CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0359			AGREED DEPT. WT	NAME SKC	SIGN SD/-	DATE 5/02/83
GRADE OF UN TOL. DIM. M/ G C/ M/ F. AA0230208		WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101					

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VIEW-A  
SCALE 1:1

### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

26-5605-86399a/KWU  
 REF.DRG.No. IT.32

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	06/6/81	00
CHD	SM/KNW	SD/-	26/2/83	00
APD	N.P.GUPTA	SD/-	28/02/83	00

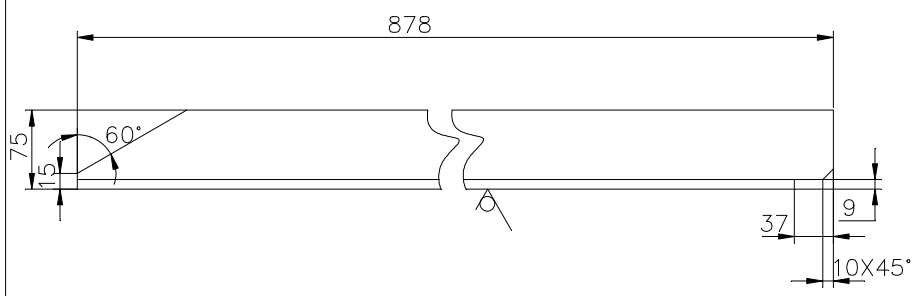
INVENTORY No.	DEPT. TGE	SCALE 1:5	WEIGHT(Kg) 14.5	REF.TD ASSY.DRG. 91440401002	ITEM No. 009	No OF ITEMS -
	CODE 4133					
TITLE PROFILE				DRAWING No. 41440401068		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1   No.OF SHEETS 1		

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED SSM	91440401002	OF DRG
			CHANGES ACCORDING TO		AGREED	NAME	SIGN
			CH. AD. NO.-		DEPT.	SKC	DATE
			TGE-13-F0359		WT	SD/-	5/02/83

GRADE OF UNTO L.DIM.M/GGC/M/F.AA0230208 | WELDING A/B/C/D AA0621104 | GAS CUTTING-T3 AA0621101

500  
✓ THE REST



TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

26-5605-86399a/KWU  
REF.DRG.No. IT.34

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

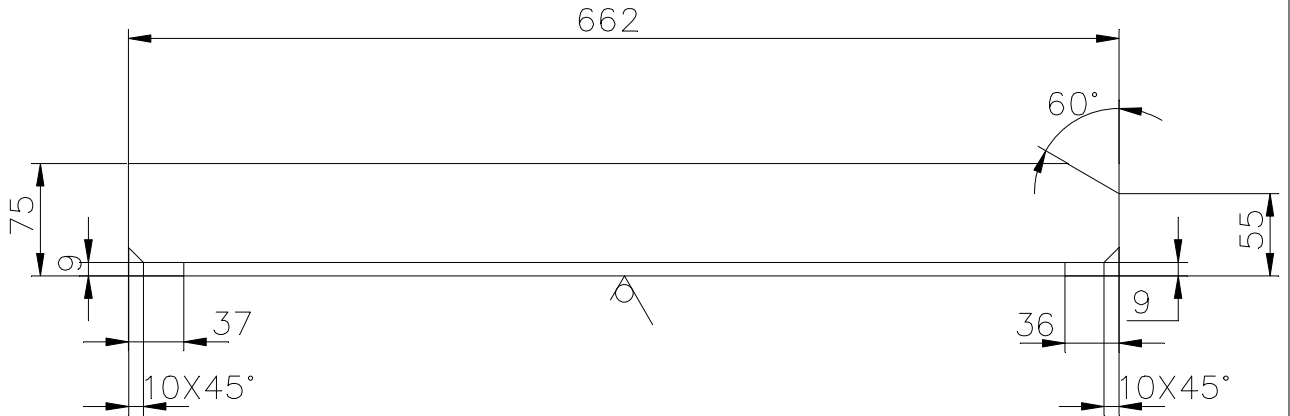
	NAME	SIGN	DATE	NO. OF
DRN	Y.C.GARG	SD/-	07/6/81	VAR
CHD	SM/KNW	SD/-	26/2/83	00
APD	N.P.GUPTA	SD/-	28/02/83	

INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:5	8.810	91440401002	001	-
TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				41440401070		
				SHEET No. 1	No.OF SHEETS	1

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REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED RM CHECKED SSM -S/D-	CBOM No. 91440401002		STATUS OF DRG		
			01	15.11.13		AGREED DEPT.	NAME	SIGN		
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0359						WT	SKC	SD/-		
GRADE OF UNTOL.DIM.M/CSC/M/F			AA0230208			WELDING A/B/C/D		AA0621104	GAS CUTTING-T3	AA0621101

500  
✓ THE REST



# TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

01

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

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26-5605-86399a/KWU  
REF.DRG.No. IT.35

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
CHD	Y.C.GARG	SD/-	08/6/81	00
APD	SM/KNW	SD/-	26/2/83	
	N.P.GUPTA	SD/-	28/02/83	

INVENTORY No.	DEPT. TGE	SCALE 1:5	WEIGHT(Kg) 6.600	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS -
	CODE 4133			91440401002	014	
	TITLE PROFILE				DRAWING No. 41440401071	
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

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26-5605-86399G/KWU  
 REF.DRG.No.II. 37

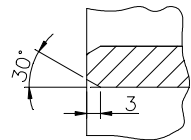
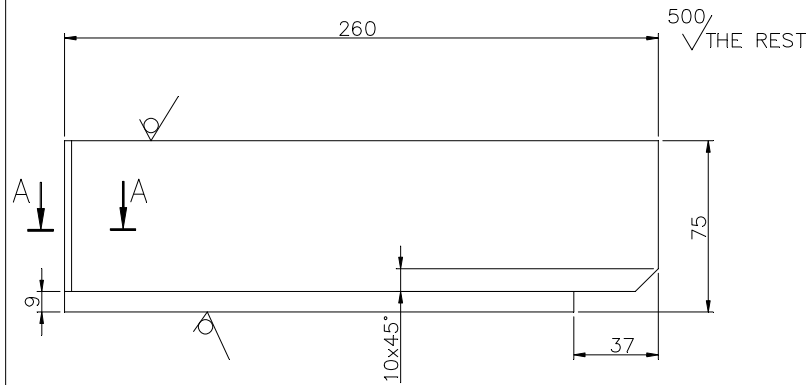
SIGN & DATE

INVENTORY No.

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REVDATE ALTERED CHECKED	REVDATE ALTERED P.A. -S/D- 01 10.12.13 CHECKED SSM -S/D-	CBOM No. 9-144-04-01002	STATUS OF DRG
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383		AGREED DEPT. WT	NAME SIGN DATE S.K.K. -SD- 28.2.83

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



SECTION A-A  
SCALE 1:1

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

TECHNICAL REQUIREMENT

- MARK IDENTIFICATION ACCORDING TO HW0400397.

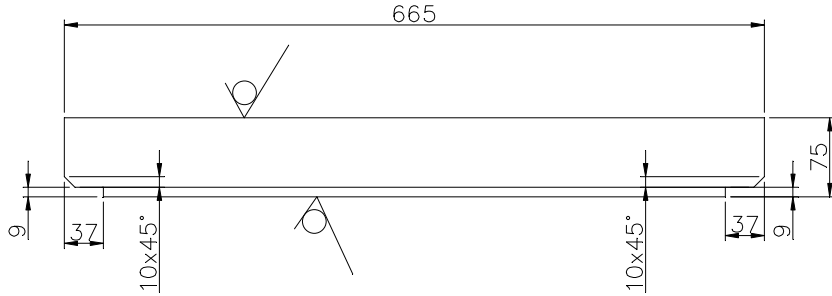
BHARAT HEAVY ELECTRICALS LTD HARDWAR	NAME	SIGN	DATE	NO. OF VAR
	DRN Y.C.GARG	-SD-	9.6.81	
	CHD SM/KNW	-SD-	26.2.83	
	APD N.P.GUPTA	-SD-	28.2.83	
DEPT. TGE	SCALE	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No. No OF ITEMS
CODE 4133	1:2	2.600	9-144-04-01002	
TITLE PROFILE			DRAWING No. 4-144-04-01072	
BRUSHLESS EXCITER FOR 500MW TG.			SHEET No. 1	No.OF SHEETS 1

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REVD	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	OF DRG
CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE			
CH. AD. NO.-			WT	S.K.K.	-SD-	28.2.83			
TGE-13-F0383									

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

500  
THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0383

26-5605-86399a/KWU  
 REF.DRG.No.I.T. 38

SIGN & DATE



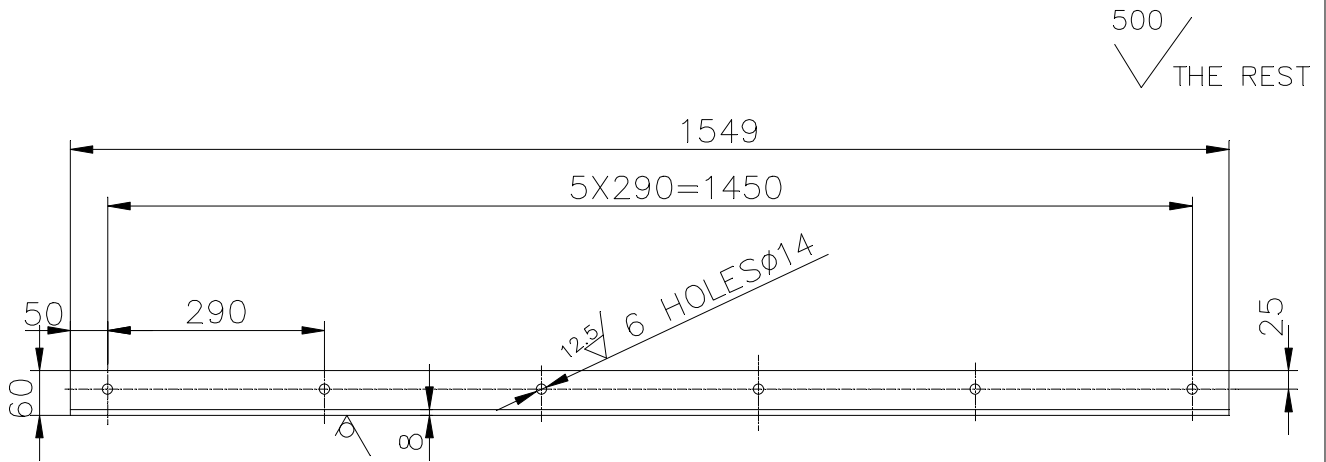
BHARAT HEAVY ELECTRICALS LTD  
 HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	10.6.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

INVENTORY No.	DEPT. TGE	SCALE 1:5	WEIGHT(Kg) 6.620	REF.TO ASSY.DRG. 9-144-04-01002	ITEM No. 012	No OF ITEMS
	CODE 4133					
	TITLE PROFILE	DRAWING No. 4-144-04-01073	SHEET No. 1 No.OF SHEETS 1			

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REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED RM CHECKED SSM	-S/D-	CBOM No.	STATUS OF DRG	
01	15.11.13						91440401002		
CHANGES ACCORDING TO						AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO. - TGE-13-F0359						WT	SKC	SD/-	5/02/83
GRADE OF UNTOL.DIM.M/CSC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



# TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

26-5605-86399a/KWU  
REF.DRG.No. IT.45

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
CHD	Y.C.GARG	SD/-	11/6/81	00
APD	SM/KNW	SD/-	26/2/83	
	N.P.GUPTA	SD/-	28/02/83	

INVENTORY No.

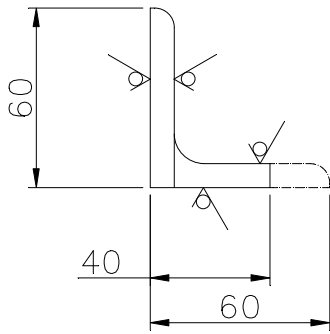
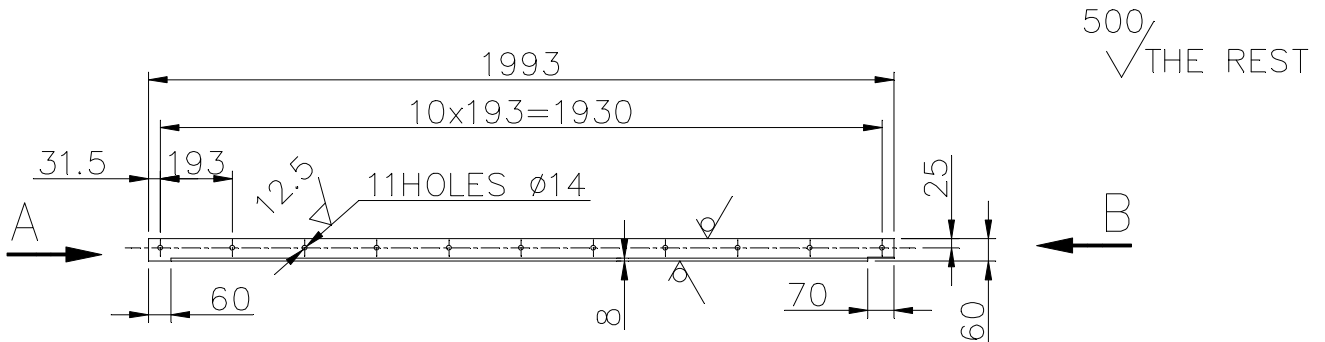
DEPT. TGE CODE 4133		SCALE 1:10	WEIGHT(Kg) 10.800	REF.TO ASSY.DRG. 91440401002	ITEM No. 019	No OF ITEMS -
TITLE PROFILE				DRAWING No. 41440401074		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

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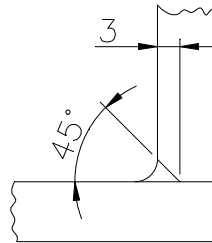
FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG	
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002		
CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0383							AGREED DEPT.	NAME	SIGN	DATE
							WT	S.K.K.	-SD-	26.2.83
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208					WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		



VIEW-A  
SCALE 1: 2.5



VIEW-B  
SCALE 1: 1

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

### TECHNICAL REQUIREMENT

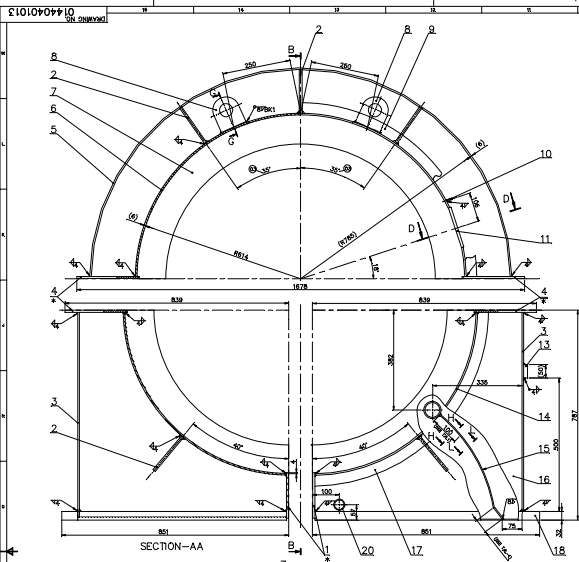
- MARK IDENTIFICATION ACCORDING TO HW0400397.

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		NAME	SIGN	DATE	NO. OF VAR
			DRN	Y.C.GARG	-SD-	
CHD	SM/KNW	-SD-	26.2.83			
APD	N.P.GUPTA	-SD-	28.2.83			
INVENTORY No.	DEPT. TGE	SCALE 1: 20	WEIGHT(Kg)	REF. TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		11.430	9-144-04-01002	022	
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BRUSHLESS EXCITER FOR 500MW TG.			SHEET No. 1	No.OF SHEETS 1		

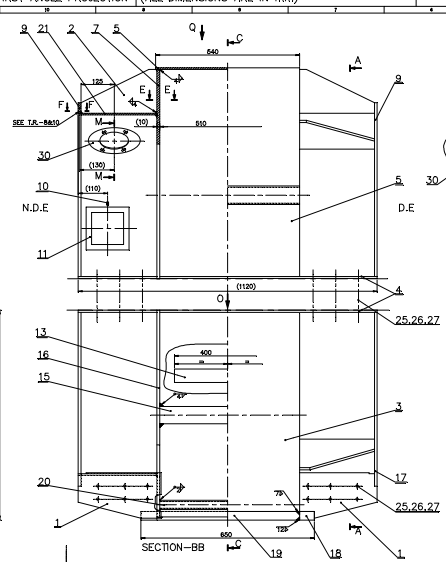
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26-5605-86399a/KWU  
 REF.DRG.No.I.T. 49

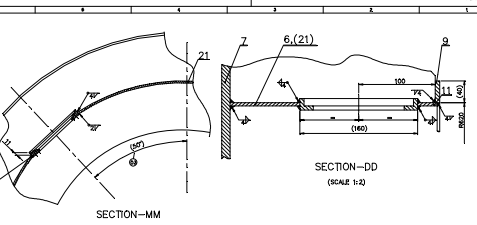




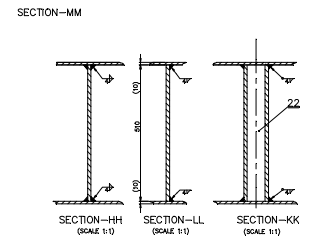
SECTION-AA



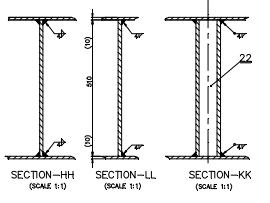
SECTION-BB



SECTION-DD (SCALE 1:2)



SECTION-MM

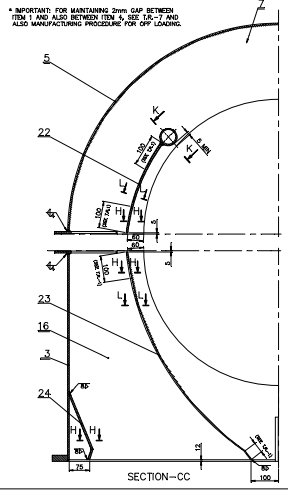


SECTION-HH (SCALE 1:1)

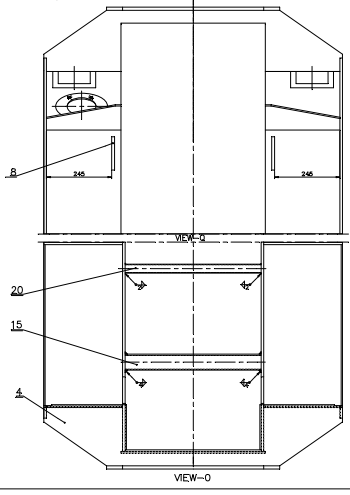
SECTION-LL (SCALE 1:1)

SECTION-KK (SCALE 1:1)

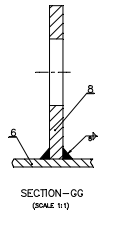
SYMBOL AND SIZE OF BEAM	2x	4x	6x	7x	8x	12x
SEAM LENGTHS M	0.472	0.138	0.880	0.120	2.040	0.120
WEIGHT OF DEPOSITED METAL KG	0.020	7.650	0.206	0.245	0.313	0.103
TYPE OF ELECTRODE	E-7018					



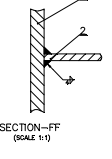
SECTION-CC



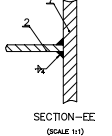
VIEW-O



SECTION-GG (SCALE 1:1)



SECTION-FF (SCALE 1:1)



SECTION-EE (SCALE 1:1)

TECHNICAL REQUIREMENTS

1. 4x WELD IN THIS AREA.
2. CLASSIFICATION GROUPS ACCORDING TO ISW4000098: CALCULATED.
3. TEST SIZES ACCORDING TO ISW4000098: CATEGORY OF SERVICE REQUIREMENTS (S1).
4. SURFACE TREATMENT (i.e. SHOT-BLASTING, PAINTING ETC) AS PER ISW4000098.
5. MARK IDENTIFICATION ACCORDING TO ISW4000097.
6. MARK IDENTIFICATION ACCORDING TO ISW4000097.
7. ITEM 7 IN THE HALF SHOULD REST ON ITEM 16 OF BOTTOM HALVES AT THE HORIZONTAL CENTER LINE UNLESS ITEM 16 IN BOTH BOTTOM HALVES SPREAD OUTSIDE AT THE VERTICAL CENTER LINE. MINIMUM ALLOWABLE GAP mm. A MINIMUM GAP OF 2mm IS TO BE MAINTAINED BETWEEN ITEM 16 AND BETWEEN ITEM 1 FOR THIS PURPOSE. USE ITEM 26 IN 2x.
8. THE OUTER FACE OF ITEM 8 SHOULD BE PERPENDICULAR TO THE HORIZONTAL CENTER LINE.
9. THIS JOB SHOULD BE OFF-LOADED IN CONJUNCTION WITH COVER (WELDED) DRG: 114404000-00 & 114404000-01 ONLY (IF OFF-LOADED).
10. TRANSFER 27 INCHES MAX ON RCD 107000400 (RCD) FROM COVER DRG: 11440400007. FOR ASSEMBLY, USE ITEM 8 AND OF DRG: 0144040101.

MANUFACTURING PROCEDURE FOR OFF LOADING

- BEFORE STARTING WELDING CLAMP ALL JOINT FLANGES USING ITEMS 25 TO 26. TACK WELD ALL ITEMS. WELD FIRST AT JOINT FLANGES.
- CHECK PROPER MATING AT JOINT FLANGES BY MANUAL OPENING IF NECESSARY.

APPROVED FOR THE PROJECT  
DATE: 01/11/2010

DATE OF UNCL. ONLY:	UNCL. DATE:	UNCL. BY:	UNCL. FOR:	UNCL. NO.:	UNCL. REASON:	UNCL. STATUS:	UNCL. TYPE:	UNCL. VALUE:	UNCL. UNIT:	UNCL. PERCENTAGE:	UNCL. COMMENTS:

TYPE OF PRODUCT: B'LESS EXCITER FOR 500MW TO

NAME OF CUSTOMER/PROJECT: BHARAT HEAVY ELECTRICALS LTD. VARANASI

SCALE: 1:5

DRG NO: 0144040101

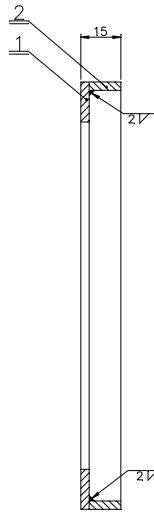
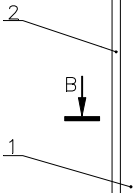
DATE: 07.12.53

FILE: AIR GUIDE COVER (WELDED)

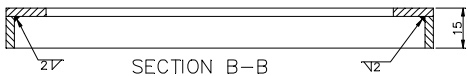
PROJECT NO: 0144040101

21440401002  
DRAWING NO.

TACK WELD ALL JOINTS



SECTION A-A



SECTION B-B

SYMBOL & SIZE OF SEAM	2 ∇
SEAM LENGTH M.	0.607
WT. OF DEPOSITED METAL KG.	0.018
TYPE OF ELECTRODE	E-42

①  
SUPERSEDES

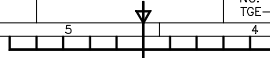
TECHNICAL REQUIREMENTS

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099 : CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. IDENTIFICATION ACCORDING TO HW0400397.

GRADE OF UNTOL DIM:--		CBOM NO. 01440401003		STATUS OF DWG	
M/CG- <i>W/C/N/P</i> AA 0230208	APPROV	NAME	SIGN	DATE	
WELDING- <i>A/B/C/D</i> -AA0621104	WT	CHHABRA	-SD-	23.9.81	
GAS CUTTING- <i>T3</i> AA0621101	REV	DATE	ALTERED	PA	-SD-
	CHECKED	01.06.02.22	CHECKED	RM	-SD-
CHANGES AS PER C/A NO. TGE-22-F0039					

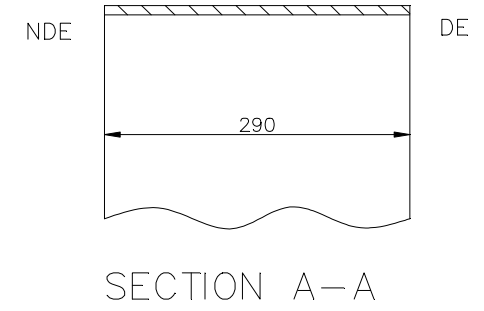
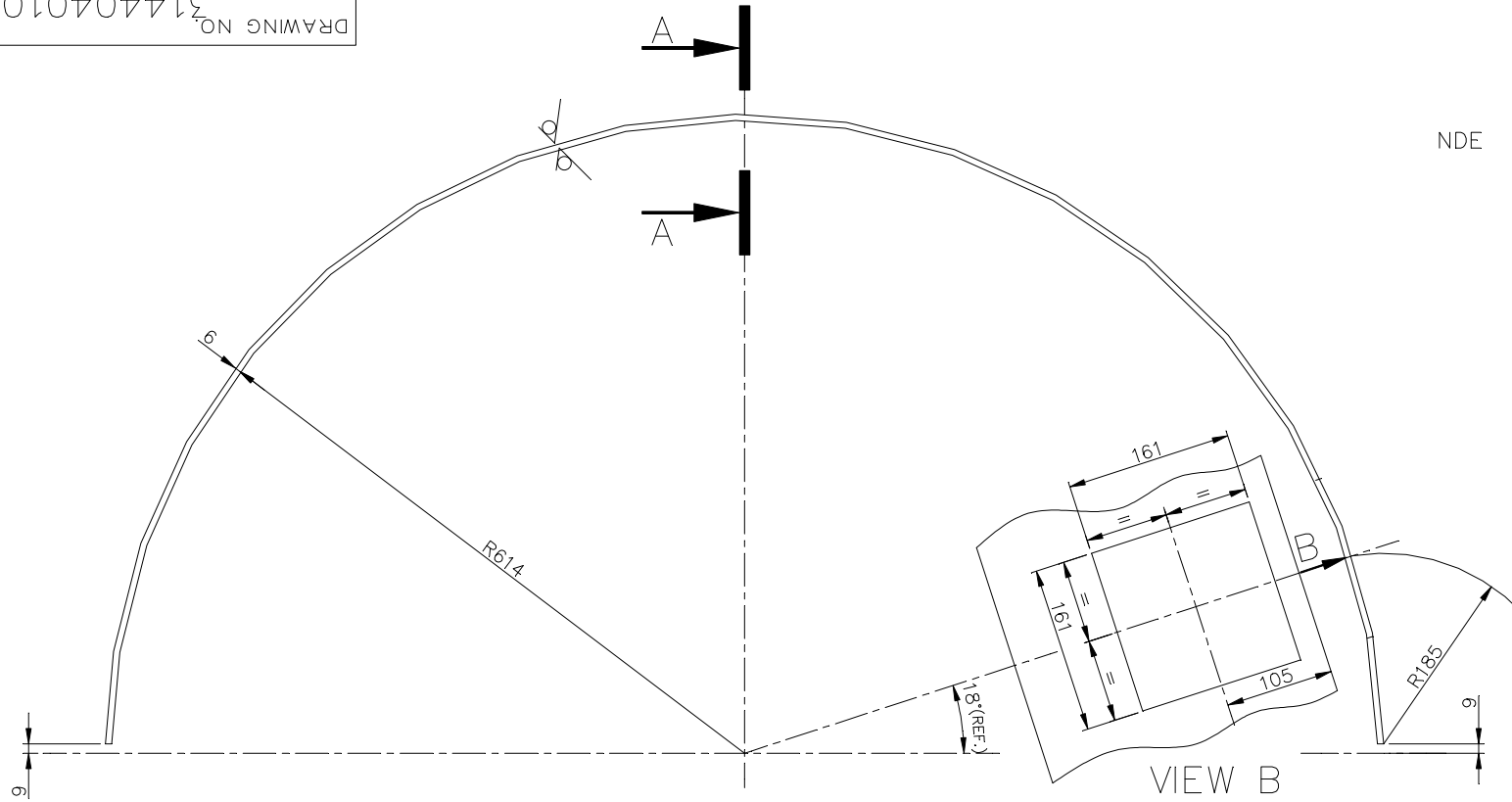
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		BRUSHLESS EXCITER FOR 500MW TG			
BHARAT HEAVY ELECTRICALS LTD HARDWAR	DRN	NAME	SIGN	DATE	NO. OF VAR.
	CHD	KSR/KNW	-SD-	25.4.81	-
	APD	NFG	-SD-	22.9.81	25.34
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
CODE 41.33	1:1	0.422	01440401001	011	25.177
TITLE		FRAME			
DRAWING NO. 21440401002		SHEET NO. 1 NO. OF SHEETS 1			

INVENTORY NO. SIGN. & DATE  
 REF. DRG. NO.  
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DRAWING NO. 31440401008

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OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



DEVELOPED LENGTH=1920

TECHNICAL REQUIREMENTS: -

- 1. IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

26-8607-86545c/k/wd (ITEM No.5)  
REF. DRG NO.  
SIGN & DATE  
INVENTORY NO.

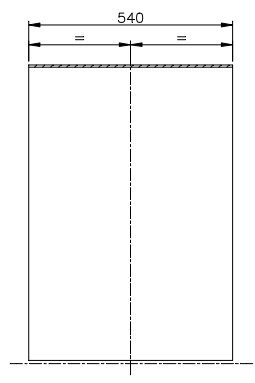
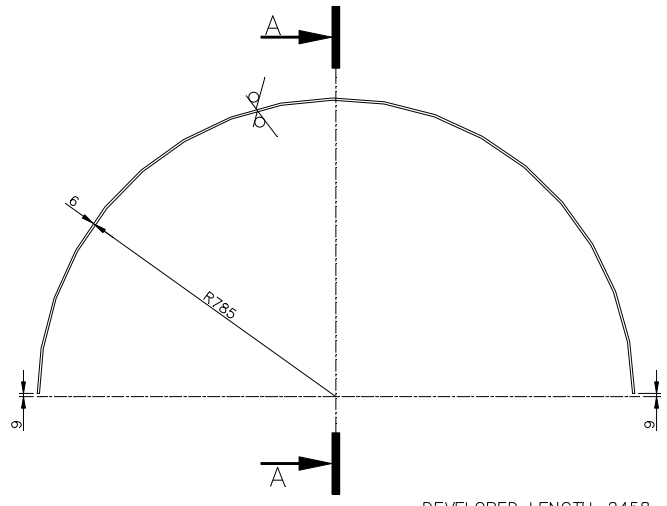
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- V/□/M/∇ AA 0230208	AGREED DEPT.		NAME	SIGN	DATE
WELDING-A/B/C/D-AA0621104	WT	CHHABRA	-SD-	3.9.81	
GAS CUTTING-'T3'AA0621101	REV.	DATE	ALTERED PA	-SD-	
	02	26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO.		TGE-22-F0039			

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		BRUSHLESS EXCITER FOR 500MW TG			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	TNG	-SD-	11.4.81	-
	APD	KSR/KNW	-SD-	22.9.81	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	25.131	01440401001	006	75, 77
TITLE		DRAWING NO.			
SHEET		31440401008			
SHEET NO. 1		NO.OF SHEETS 1			

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DRAWING NO. 31440401010

500/  
THE REST



SECTION A-A

DEVELOPED LENGTH=2458

TECHNICAL REQUIREMENT: -

1. IDENTIFICATION ACCORDING TO HW0400397.

SUPERSEDES 02

26-5807-86456/MS (ITEM No.1)  
 REF. DRG NO.

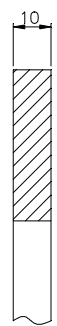
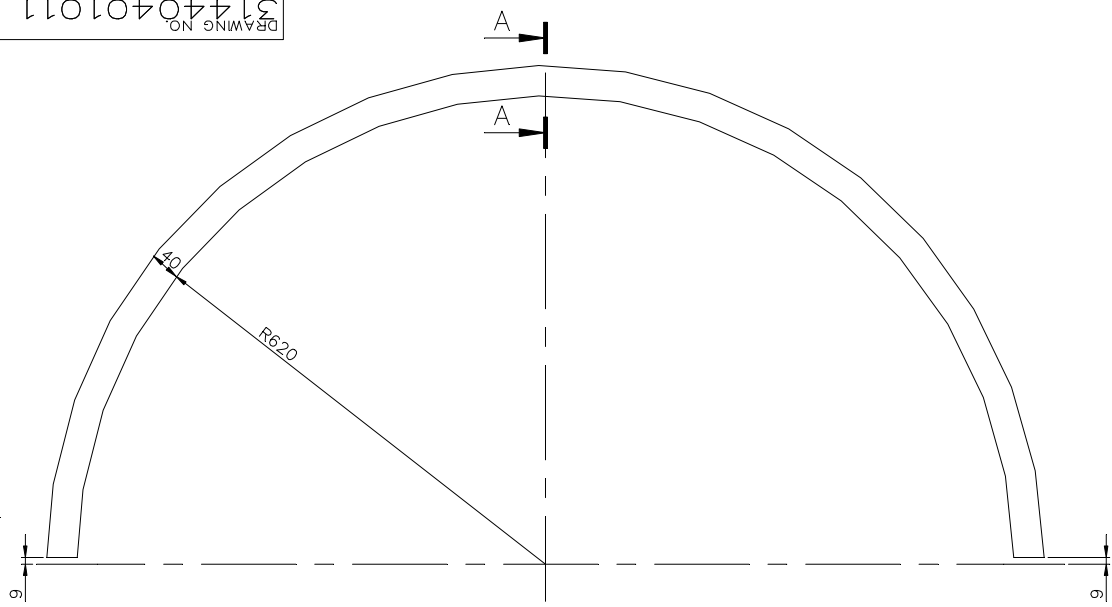
CBOM NO. 01440401003 STATUS OF DRG.		TYPE OF PRODUCT BRUSHLESS EXCITER FOR OR 500MW TG			
		NAME OF CUSTOMER/ PROJECT 500MW TG			
GRADE OF UNTOL. DIM.: - M/CG- Y/q/M/φ AA 0230208 WELDING- A/B/C/D-AA0621104 GAS CUTTING-'T3'AA0621101	AGREED WT CHHABRA SIGN -SD- DATE 23.9.81	DEPT. TGE CODE 4133	SCALE 1:10	WEIGHT(Kg.) 62.642	NAME SIGN DATE NO.OF VAR. TNG -SD- 18.4.81 - KSR/KNW -SD- 22.9.81 - NPG -SD- 28.9.81 73,74 - REF. TO ASSY. DRG. 01440401001 ITEM NO. 005 NO.OF ITEMS - 75,77
REV. DATE 02 26.02.22 ALTERED CHECKED	ALTERED PA CHECKED RM -SD- -SD-	CHANGES AS PER C/A NO. TGE-22-F0039	TITLE SHEET	DRAWING NO. 31440401010 SHEET NO. 1 NO.OF SHEETS 1	7, 22, 23, 24

SIZE A3

11010401011  
DRAWING NO. 31440401011

✓ ALL OVER

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SECTION A-A  
SCALE 1:1

DEVELOPED LENGTH=1993

TECHNICAL REQUIREMENT: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-268450/KWU  
(ITEM NO.19)  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

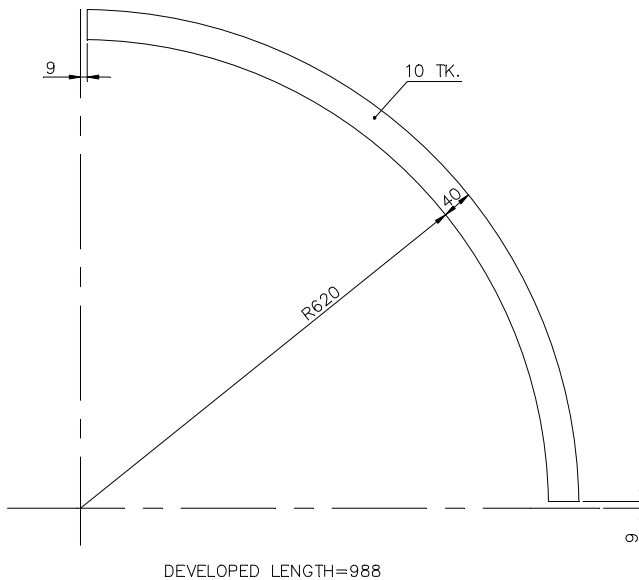
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <i>v/c/M/f</i> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING-A/B/C/D-AA621104					
GAS CUTTING-T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	01 26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	TNG	-SD-	18.4.81	-
	APD	KSR/KNW	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	6.296	01440401001	009	75, 77
TITLE		DRAWING NO.			
FLAT		31440401011			
		SHEET NO.1		NO.OF SHEETS 1	

SIZE A3

DRAWING NO. 31440401012

✓ ALL OVER



TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

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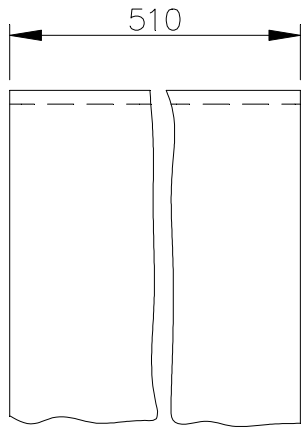
26-5607-868450/KWU (ITEM NO.20)  
REF. DRG NO.  
SIGN & DATE  
INVENTORY NO.

CBOM NO. <b>01440401003</b>		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		<b>B'LESS EXCITER FOR 500MW TG.</b>				
AGREED DESI.	NAME	SIGN	DATE	NAME OF CUSTOMER/ PROJECT		DRN	NAME	SIGN	DATE	NO.OF VAR.
WT	CHHABRA	-SD-	23.9.81			CHD	TNG	-SD-	18.4.81	-
GRADE OF UNTOL. DIM.: -						APD	KSR/KNW	-SD-	22.9.81	-
M/CG- <i>v/c/M/v</i> AA 0230208							NPG	-SD-	28.9.81	73, 74
WELDING- <i>A/B/C/D</i> -AA621104						DEPT. TGE		SCALE		WEIGHT(Kg.)
GAS CUTTING- <i>T3</i> AA0621101						4133	1:5	3.125		REF. TO ASSY. DRG.
REV.	DATE	ALTERED	PA	-SD-	DEPT. TGE	TITLE		REF. TO ASSY. DRG.		ITEM NO.
		CHECKED	RM	-SD-		FLAT		01440401001		017
CHANGES AS PER C/A NO. TGE-22-F0039								DRAWING NO.		NO.OF ITEMS
								31440401012		75, 77
								SHEET NO.1		NO.OF SHEETS 1

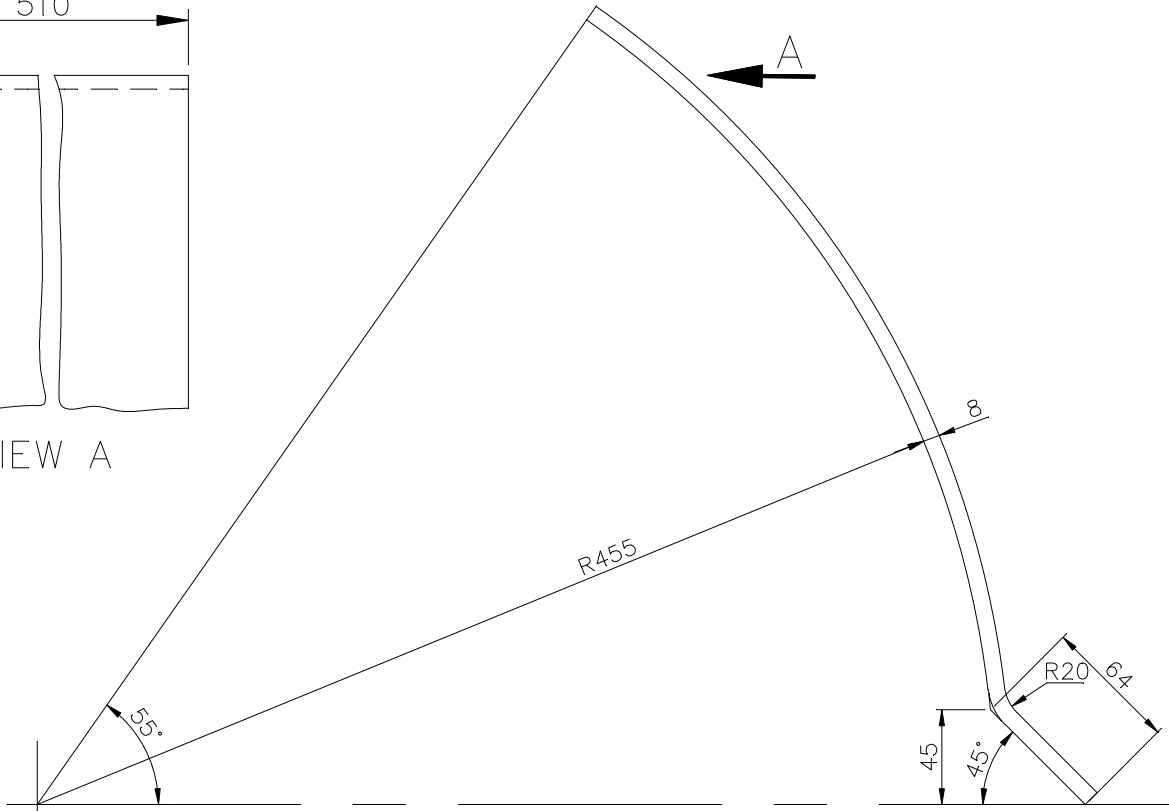
SIZE A3

DRWING NO. 31440401014

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VIEW A



DEVELOPED LENGTH=450

TECHNICAL REQUIREMENTS: -  
 1. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
 SUPERSEDES

26-5607-86545a/KWU  
 (ITEM NO:12)  
 REF. DRG NO.

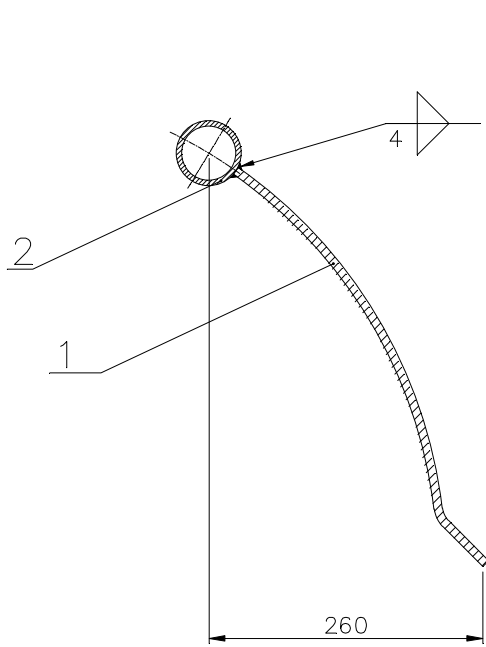
SIGN & DATE

INVENTORY NO.

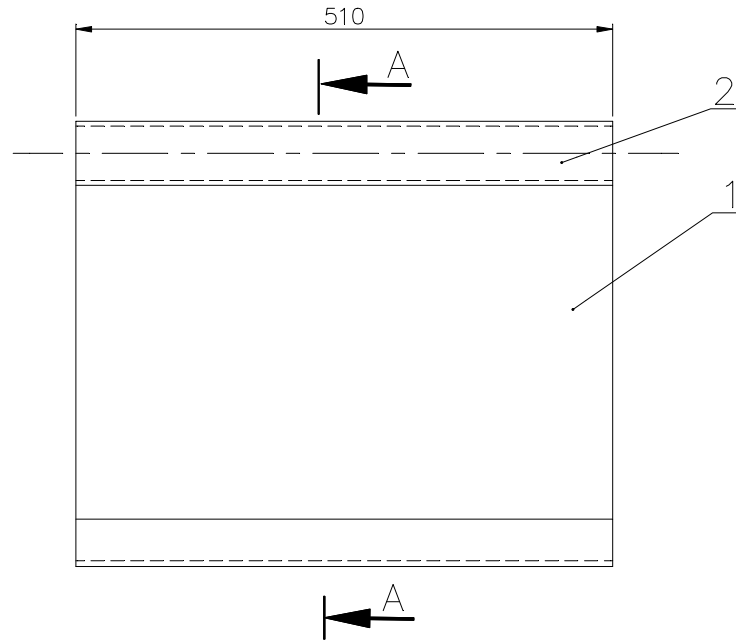
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- v/c/m/v AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING-A/B/C/D-AA621104					
GAS CUTTING-T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	02	26.02.22	CHECKED RM	-SD-
CHANGES AS PER C/A NO. TGE-22-F0039					

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	TNG	-SD-	18.4.81	NO.OF VAR.
	CHD	KSR/KNW	-SD-	22.9.81	-
	APD	NPG	-SD-	28.9.81	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1: 2.5	14.490	31440401015		
TITLE		SHEET		1	3
		DRAWING NO.		31440401014	
		SHEET NO.1		NO.OF SHEETS 1	

DRAWING NO. 31440401015



SECTION A-A



SYMBOL & SIZE OF WELD SEAM	4 $\nabla$
SEAM LENGTH IN METER	1.020
WT. OF DEPOSITED METAL IN KG.	0.096
TYPE OF ELECTRODE	E-42

TECHNICAL REQUIREMENTS: -

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099: CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

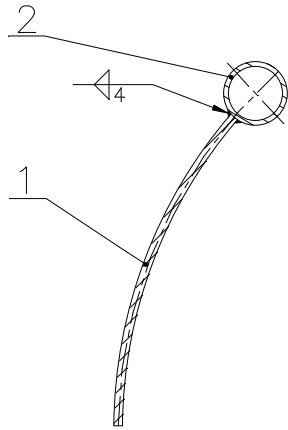
INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-86545a/KWU

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>Y/E/M/P</del> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	02 26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

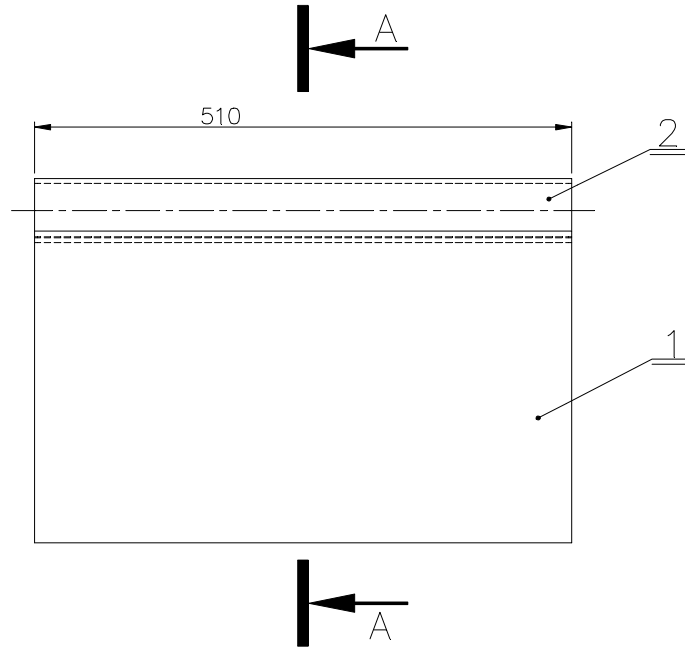
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.					
	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
			CHD	TNG	-SD-	18.4.81	-
			APD	KSR/KNW	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS		
CODE 4133	1:5	18.036	01440401001	015	-	73, 74	
TITLE			DRAWING NO.				
SUPPORT			31440401015				
			SHEET NO.1		NO.OF SHEETS 1		

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DRAWING NO. 31440401016



SECTION A-A



SYMBOL & SIZE OF WELD SEAM	4 $\nabla$
SEAM LENGTH M.	1.020
WT. OF DEPOSITED METAL KG.	0.096
TYPE OF ELECTRODE	E-42

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TECHNICAL REQUIREMENTS: -

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099: CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. IDENTIFICATION ACCORDING TO HW0400397.

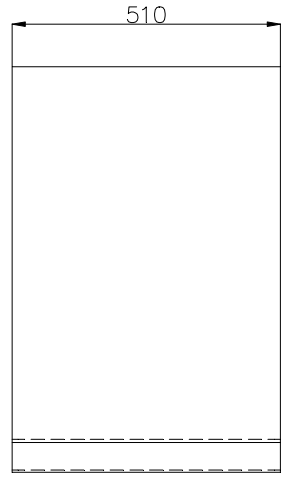
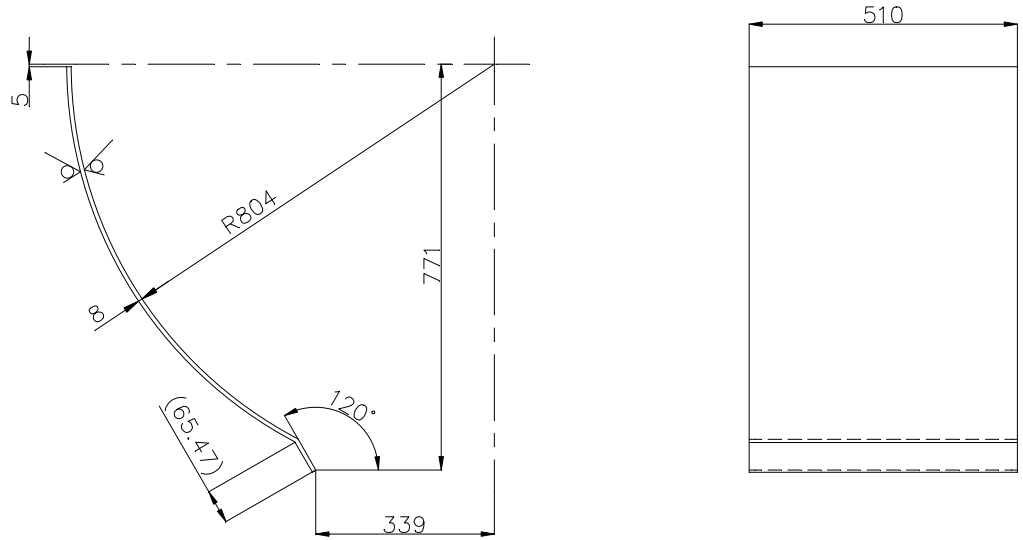
SUPERSEDES 02

INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-86459/K.W.U.

GRADE OF UNTOL. DIM.: - M/CG- <del>V/C/M/P</del> AA 0230208 WELDING- <del>A/B/C/D</del> -AA0621104 GAS CUTTING- 'T3' AA0621101		CBOM NO. 01440401003		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT BRUSHLESS EXCITER FOR 500MW TG					
REV. DATE ALTERED CHECKED 02 26.02.22 ALTERED PA -SD- CHECKED RM -SD-		AGREED DEPT. NAME SIGN DATE WT CHHABRA -SD- 23.09.81		DEPT. TGE CODE 4133		SCALE 1:5		WEIGHT(Kg.) 13.847		REF. TO ASSY. DRG. 01440401001	
CHANGES AS PER C/A NO. TGE-22-F0039		BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN T.N.G. SIGN -SD- DATE 18.4.81 NO.OF VAR. - CHD K.S.R./K.N.W. -SD- 22.9.81 - APD N.P.G. -SD- 28.9.81 73, 74		ITEM NO. 022 NO.OF ITEMS - 75, 77		DRAWING NO. 31440401016		SHEET NO. 1 NO.OF SHEETS 1	

DRAWING NO. 31440401017

500 THE REST



DEVELOPED LENGTH= 945

TECHNICAL REQUIREMENTS: -

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397.

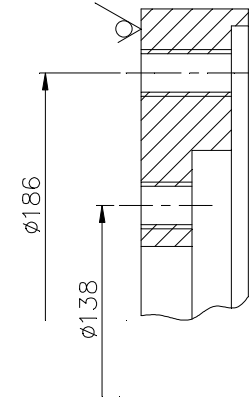
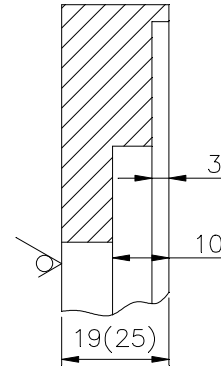
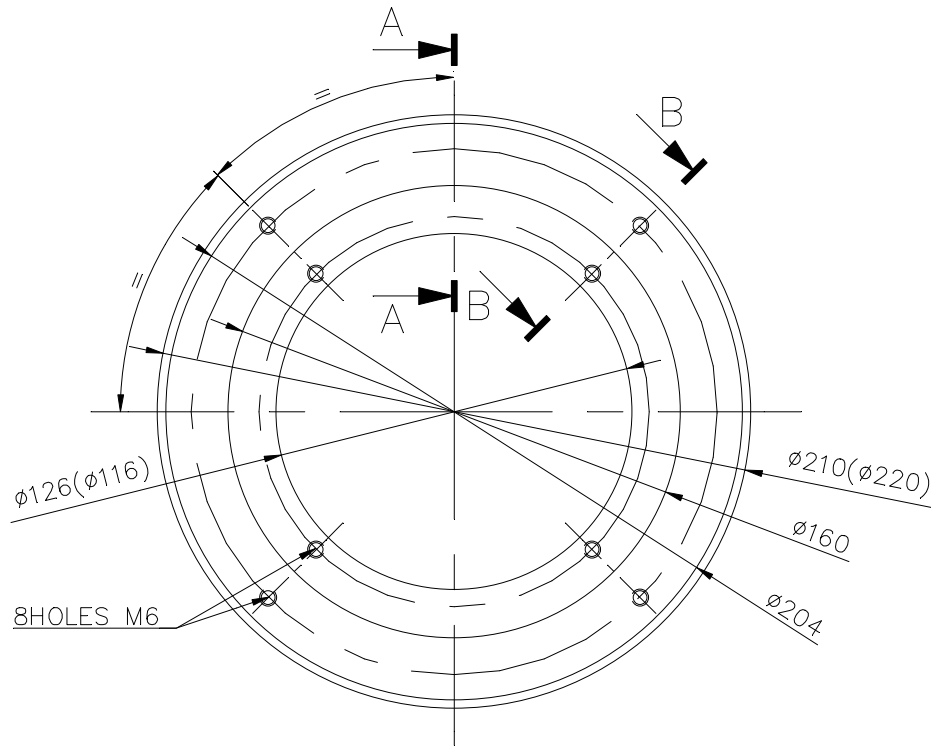
SUPERSEDES 02

INVENTORY NO. SIGN & DATE 26-5607-86545a/kwu (ITEM NO. 10) REF. DRG NO.

CBOM NO. 01440401003		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WT	CHHABRA	-SD-	23.9.81
GRADE OF UNTOL. DIM.: -			
M/CG- <i>v/c/m/r</i> AA 0230208			
WELDING- <i>A/B/C/D</i> -AA621104			
GAS CUTTING- 'T3' AA0621101			
REV.	DATE	ALTERED	PA -SD-
02	26.02.22	CHECKED	RM -SD-
CHANGES AS PER C/A NO. TGE-22-F0039			

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	TNG	-SD-	18.4.81	-
	APD	KSR/KNW	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:10	30.420	01440401001	023	-
TITLE		SHEET		DRAWING NO. 31440401017	
		SHEET NO.1		NO.OF SHEETS 1	

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### TECHNICAL REQUIREMENTS

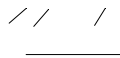
1. MARK IDENTIFICATION ACCORDING TO HW 0400397.
2. DIMENSIONS IN BRACKETS ARE BEFORE MACHINING.

01  
SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-10-F0018

0-144-04-01011

B'LESS EXCITER FOR 500MW TG.

WT ROY -S/D- 21.5.90



TNG -S/D- 24.3.90  
SM -S/D- 29.3.90  
IC RAO -S/D- 16.6.90

01 16.1.10 VJAY -S/D-  
TNG -S/D-  
CHANGES ACCORDING TO

TGE  
4133

1:2 2.390

0-144-04-01013 030

CH.AD. NO.-  
TGE-10-F0018

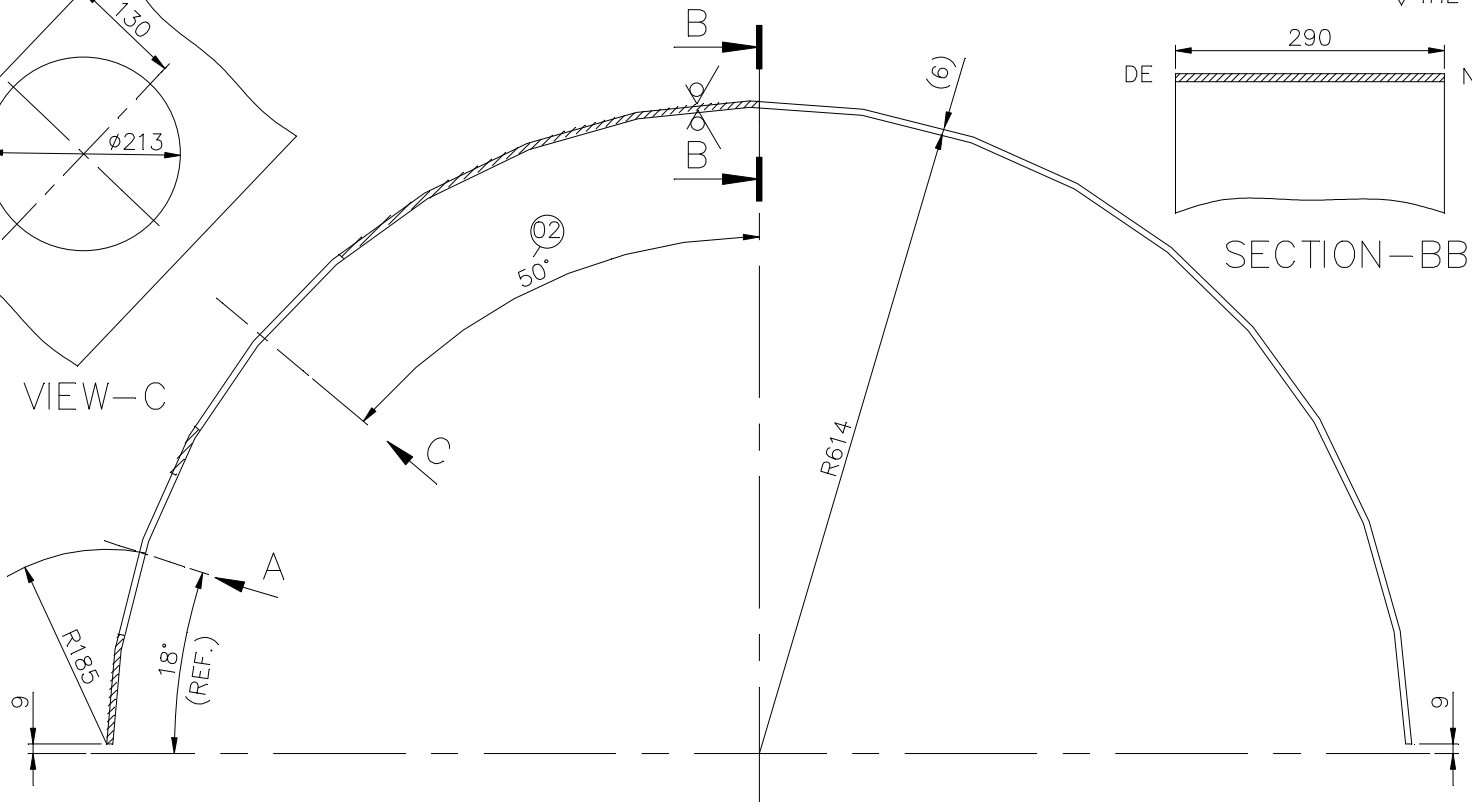
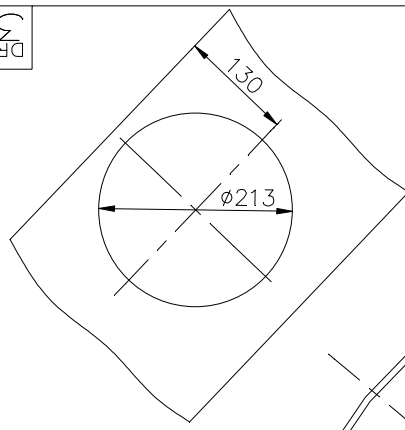
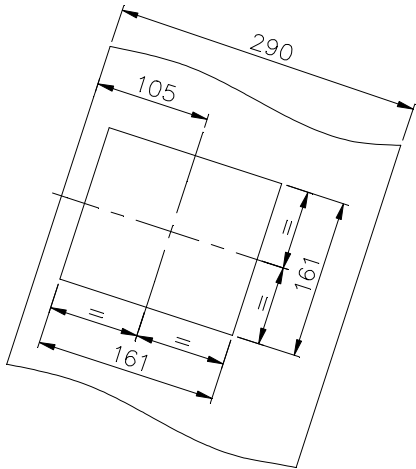
FLANGE

3-144-04-01070 01

31440401071  
DRAWING NO.

500/ THE REST

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DEVELOPED LENGTH=1920

02  
SUPERSEDES

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

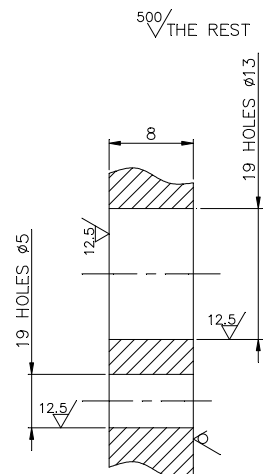
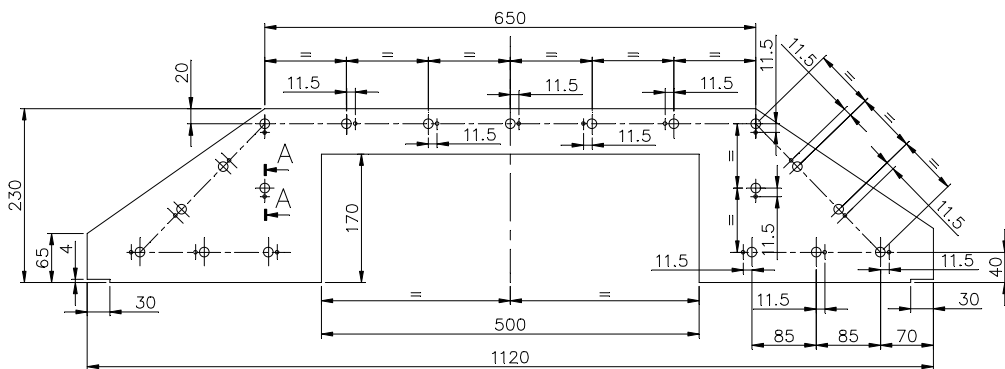
INVENTORY NO. SIGN & DATE REF. DRG NO. (ITEM NO. 60) 26-5607-98976b/KWU

CBOM NO. 01440401011		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WT	ROY	-SD-	25.5.90
GRADE OF UNTOL. DIM.: -			
M/CG- V/C/M/P AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-T3'AA0621101			
REV.	DATE	ALTERED	ALTERED PA
02	13.03.21	CHECKED	RM
		-SD-	
		-SD-	
CHANGE AS PER C/A NO. TGE-21-F0048			

TYPE OF PRODUCT B'LESS EXCITER FOR 500MW TG				OR		NAME OF CUSTOMER/ PROJECT	
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.		
	CHD	TNG	-SD-	24.3.90	-		
	APD	SM	-SD-	28.3.90	-		
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS		
CODE 4133	1:5	23.453	01440401013	021	73, 74 - 75, 77		
TITLE				DRAWING NO.		NO.OF SHEETS	
SHEET				31440401071		1 23, 24	
				SHEET NO.1		NO.OF SHEETS 1	

DRAWING NO. 31440401072

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SECTION-AA  
(SCALE 2:1)

TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES

26-5607-989/6 P/WHU  
 REF. (DRG NO. 13)

SIGN & DATE

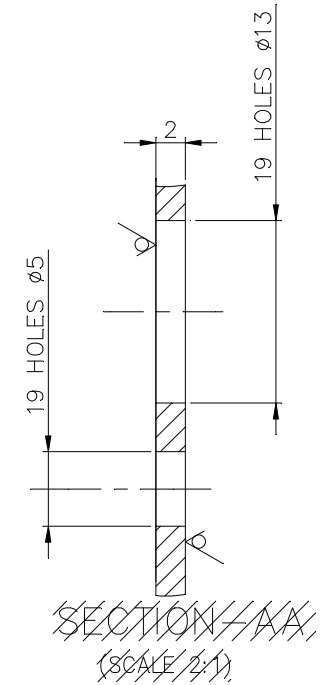
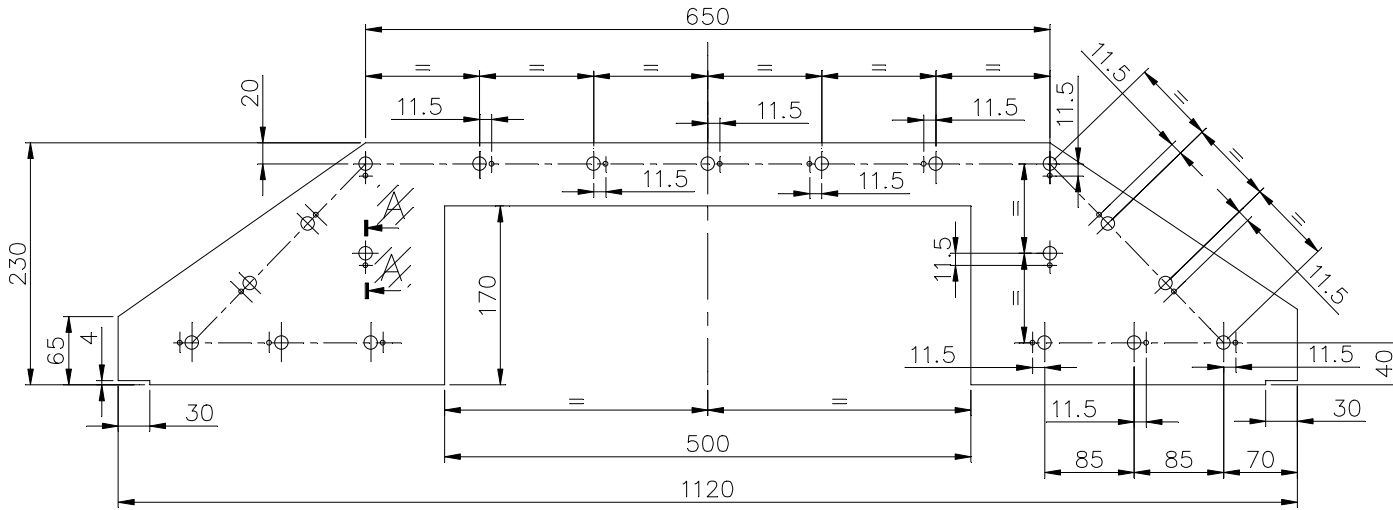
INVENTORY NO.

CBOM NO. 01440401011		STATUS OF DRG.	
APPROVED	NAME	SIGN	DATE
WT	ROY	-SD-	21.5.90
GRADE OF UNTOL. DIM.: -	M/CG- V/c/M/P AA 0230208		
WELDING -A/B/C/B-AA621104	GAS CUTTING-T3'AA0621101		
REV.	DATE	ALTERED	PA -SD-
		CHECKED	RM -SD-
CHANGES AS PER C/A NO. TGE-21-F0048			

TYPE OF PRODUCT B'LESS EXCITER FOR 500MW TG						
OR NAME OF CUSTOMER/ PROJECT						
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO. OF VAR.	
	CHD	ING	-SD-	26.3.90		-
	APD	SM	-SD-	28.3.90		-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.			
CODE 4133	1:5	8.40	IC RAO	-SD-	16.6.90	
TITLE SHEET			ITEM NO.	NO. OF ITEMS		
			004	75, 77		
			DRAWING NO. 31440401072			
			SHEET NO. 1 NO. OF SHEETS 1			

DRAWING NO. 31440401073

200/  
THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

INVENTORY NO. SIGN & DATE REF. DRG NO.

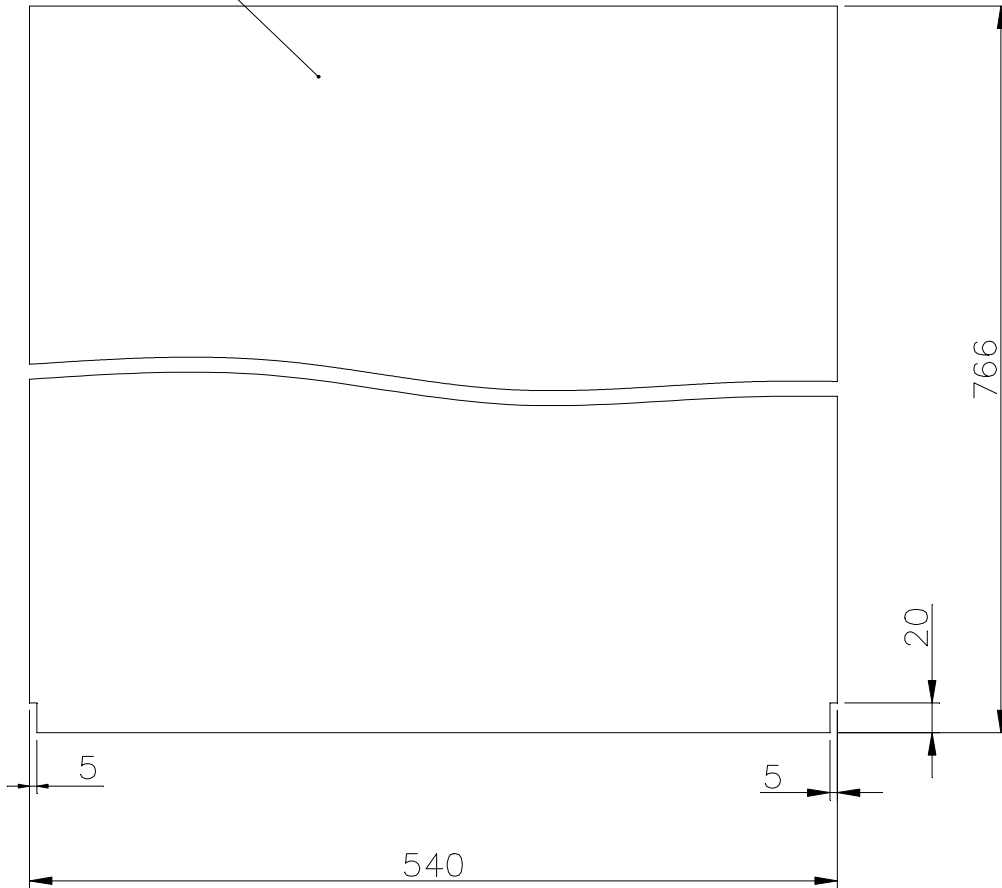
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401011		STATUS OF DRG.	
M/CG- V/C/M/F AA 0230208	WT	ROY	NAME	SIGN	DATE
WELDING-A/B/C/D-AA621104				-SD-	21.5.90
GAS CUTTING-T3'AA0621101	REV.	DATE	ALTERED BY	SD	
	01	13.03.21	CHECKED RM	SD	
	CHANGES AS PER C/A NO. TGE-21-F0048				

TYPE OF PRODUCT B'LESS EXCITER FOR 500MW TG					
OR NAME OF CUSTOMER/ PROJECT					
BHARAT HEAVY ELECTRICALS LTD. HARDWAR					
DRN	TNG	SIGN	DATE	NO. OF VAR.	
CHD	SM	-SD-	26.3.90	-	
APD	IC RAO	-SD-	16.6.90	73, 74	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.
CODE 4133	1:5	2.10	01440401013		029
TITLE SHEET			DRAWING NO. 31440401073		
			SHEET NO.1 NO. OF SHEETS 1		

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBOM No. 01440401003		STATUS OF DRG	
			01	26.02.22			AGREED DEPT.	NAME CHHABRA	SIGN -SD-	DATE 3.9.81
CHANGES AS PER C/A NO. TGE-22-F0039						WT				
GRADE OF UNTOL.DIM.M/CG/M/F			AA0230208			WELDING A/B/C/D		AA0621104		
						GAS CUTTING-T3		AA0621101		

6 THICK

500 / THE REST



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 a/kwu  
REF.DRG.No. IT.2

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
CHD	YC GARG	-SD-	29.1.81	
APD	KSR/KNW	-SD-	22.9.81	
	NP GUPTA	-SD-	28.9.81	-

INVENTORY No.

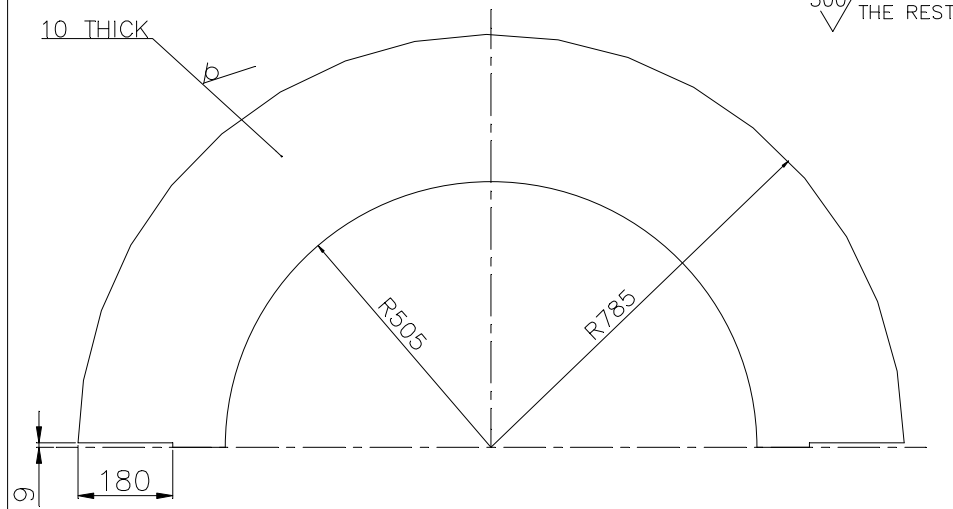
DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133	1:5	19.50	01440401001	003	-
TITLE			DRAWING No.		
SHEET			41440401010		
(B'LESS EXCITER FOR 500MW TG)			SHEET No.1	No.OF SHEETS1	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS	
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG	
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE			
TGE-22-F0039			WT	CHHABRA	-SD-	3.9.81			
GRADE OF UNTO		DIM/M/CGE/M/F	AA0230208	WELDING	A7B/C/D	AA0621104	GAS CUTTING	T3	AA0621101

500/ THE REST




TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5607-86545 a/kwu  
REF.DRG.No. IT.3

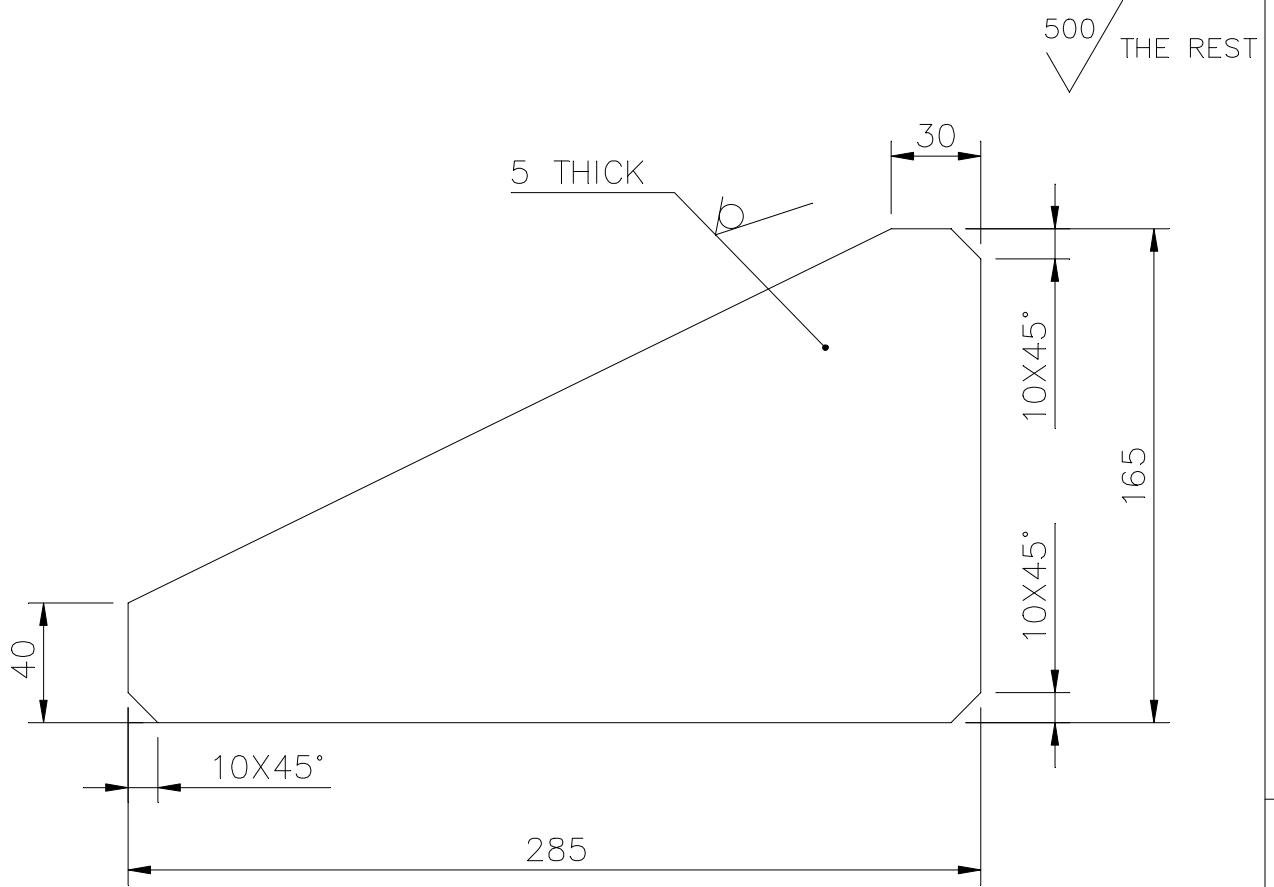
01  
SUPERSEDES

SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR		NAME	SIGN	DATE	NO. OF VAR
	DRN	YC GARG	-SD-	30.1.81	1	
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:10	44.5	01440401001	007	-
TITLE				DRAWING No.		
SHEET				41440401011		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBOM No. 01440401003		STATUS OF DRG	
			01	26.02.22			AGREED DEPT.	NAME CHHABRA	SIGN -SD-	DATE 3.9.81
			CHANGES AS PER C/A NO. TGE-22-F0039				WT			
GRADE OF UNTOL.			DIM.M/CGG/M/F		AA0230208		WELDING A/B/C/D		AA0621104	
							GAS CUTTING-T3		AA0621101	



TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES

26-5607-86545 a/kwu  
 REF.DRG.No. IT.15

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	YC GARG	-SD-	10.2.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NP GUPTA	-SD-	28.9.81	-

INVENTORY No.

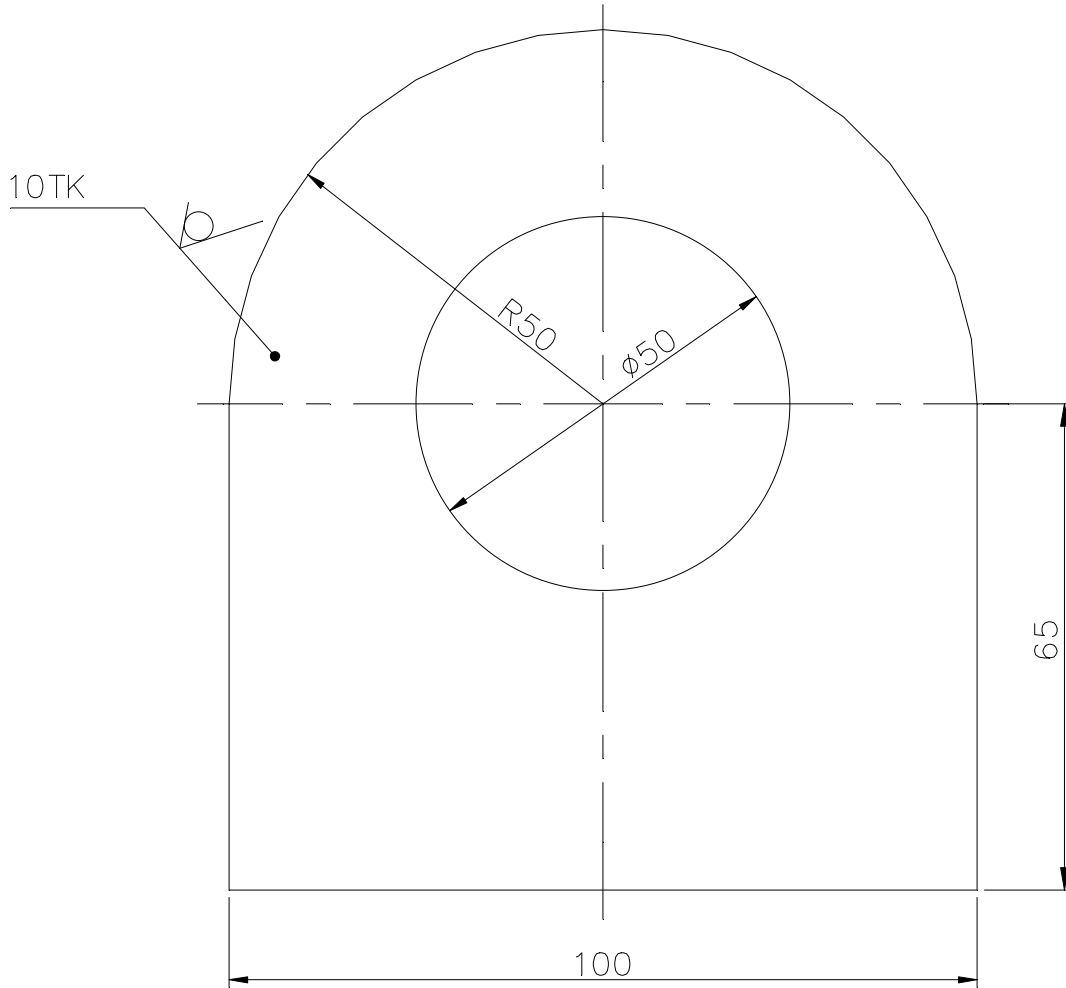
DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1:2.5	1.20	01440401001	002	-
TITLE				DRAWING No.		
SHEET				41440401017		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBOM No. 01440401003		STATUS OF DRG					
			01	26.02.22			AGREED DEPT.	NAME	SIGN	DATE				
CHANGES AS PER C/A NO. TGE-22-F0039							WT	CHHABRA-SD		23.9.81				
GRADE OF UNTOL.DIM.M/CG/M/F			AA0230208			WELDING A/B/C/D		AA0621104			GAS CUTTING-T3		AA0621101	

500 / THE REST



TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

EMT 307-110/kwu  
REF.DRG.No. IT. 23

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
	YC GARG	-SD-	14.2.81	
	KSR/KNW	-SD-	22.9.81	
	NPG	-SD-	28.9.81	

INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1:1	0.66	01440401001	008	-
	TITLE LIFTING LUG (B'LESS EXCITER FOR 500MW TG)					DRAWING No. 41440401020	
					SHEET No.1	No.OF SHEETS 1	

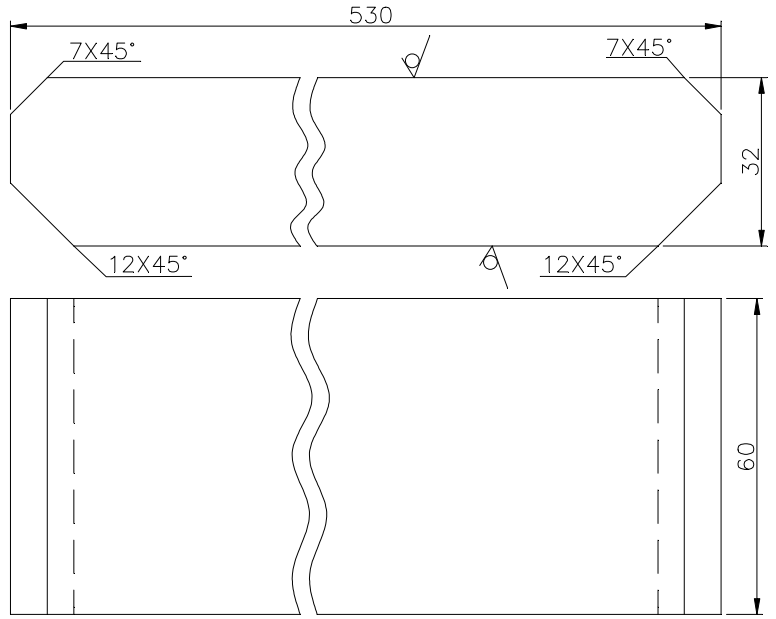
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED PA CHECKED RM	-SD-	CBOM No. 01440401003	STATUS OF DRG
			03	26.02.22				
CHANGES AS PER C/A NO. TGE-22-F0039			AGREED DEPT.	NAME	SIGN	DATE		
			WT	B.CHOUDHARY	-SD-	11.6.88		

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

500 / THE REST



TECHNICAL REQUIREMENTS: -

1. IDENTIFICATION ACCORDING TO HW0400397.

SUPERSEDES 03

26-5907-865450/KW3 (ITEM No.22) REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	SCS	-SD-	19.4.88	-
CHD	KSR	-SD-	21.4.88	-
APD	DRC	-SD-	21.6.88	-

INVENTORY No.	DEPT. TGE	SCALE 1:1	WEIGHT(Kg) 8.00	REF.TD ASSY.DRG.	ITEM No. 019	No OF ITEMS -
	CODE 4133			01440401001		
TITLE STRIP (B'LESS EXCITER FOR 500MW TG)				DRAWING No. 41440401038		
				SHEET No.1	No.OF SHEETS 1	

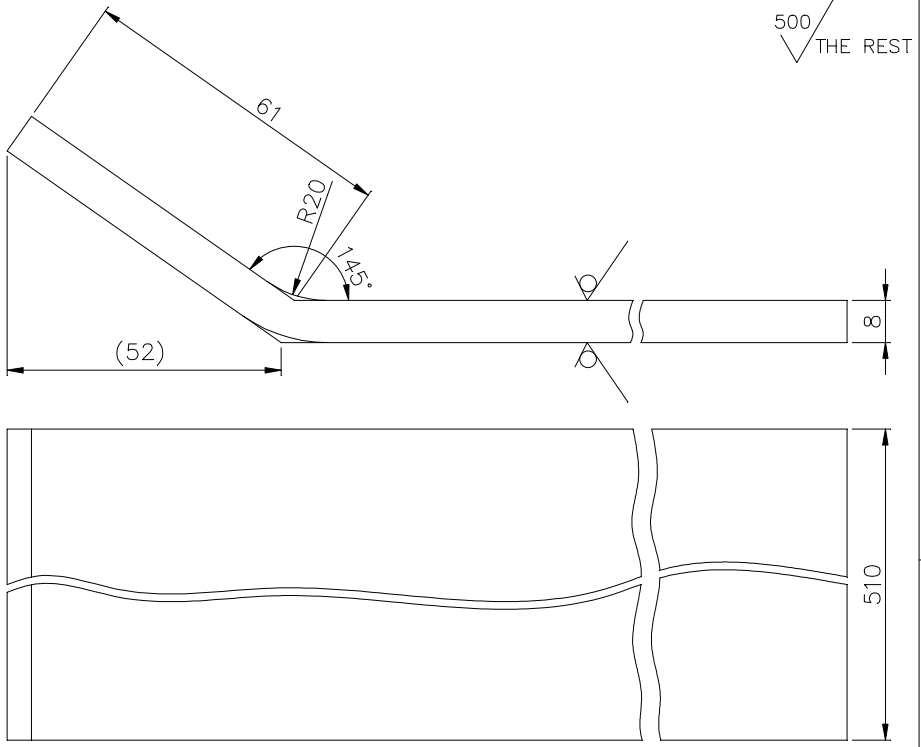
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	02	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			DEPT.	WT	CHHABRA	-SD-	23.9.81	

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

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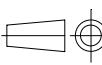
TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
 SUPERSEDES

DEVELOPED LENGTH=420

 BHARAT HEAVY ELECTRICALS LTD HARDWAR	DRN	TNG	-SD-	18.4.81	NO. OF VAR
	CHD	KSR/KNW	-SD-	22.9.81	-
	APD	NPG	-SD-	28.9.81	-

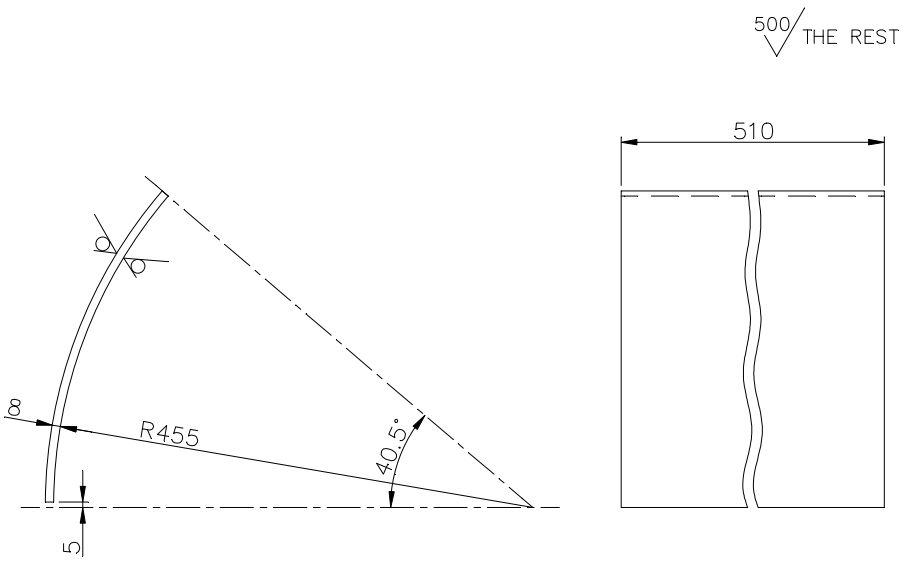
INVENTORY No.	DEPT.TGE	 SCALE 1:1	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		13.520	01440401001	024	-
TITLE SHEET (B'LESS EXCITER FOR 500MW TG)				DRAWING No. 41440401040		
				SHEET No.1	No.OF SHEETS!	

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED PA -SD- CHECKED RM -SD-	CBOM No. 01440401003	STATUS OF DRG
			01	26.02.22			
CHANGES AS PER C/A NO. TGE-22-F0039					AGREED DEPT. WT	NAME CHHABRA -SD-	SIGN DATE 23.9.81

GRADE OF UNTO L.DIM.M/CGE/M/F.AA0230208 WELDING A/B/C/D AA0621104 GAS CUTTING-T3 AA0621101

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TECHNICAL REQUIREMENTS: -  
1. IDENTIFICATION ACCORDING TO HW 0400397.

01  
SUPERSEDES

DEVELOPED LENGHT=320

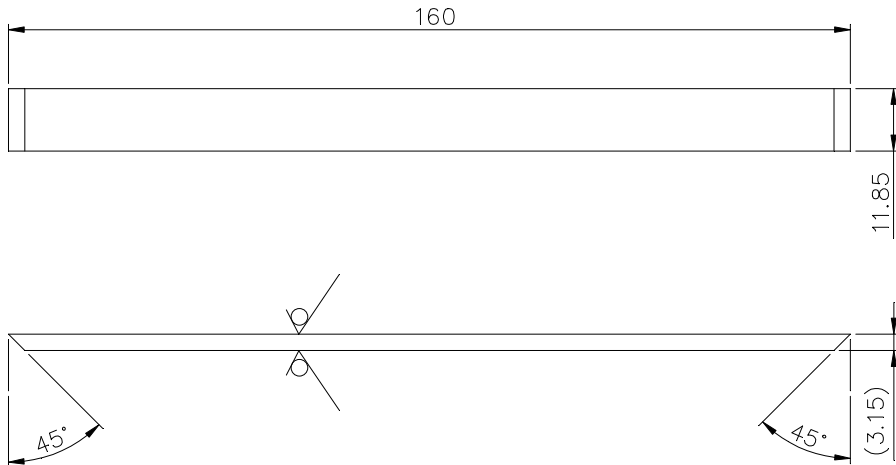
SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	TNG	-SD-	25.4.81	NO. OF VAR
			CHD	KSR/KNW	-SD-	22.9.81	
			APD	NPG	-SD-	28.9.81	
INVENTORY No.	DEPT. TGE	SCALE 1:5	WEIGHT(Kg)	REF.TD ASSY.DRG.		ITEM No.	No OF ITEMS
	CODE 4133		10.301	31440401016		001	-
	TITLE SHEET (B'LESS EXCITER FOR 500MW TG)		DRAWING No. 41440401041				
		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	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			DEPT.	WT	CHHABRA	-SD-	23.9.81	

GRADE OF UNTOOL.DIM.M/CGG/M/F.AA0230208 WELDING A7B/C/D.AA0621104 GAS CUTTING-T3 AA0621101

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THE REST



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SUPERSEDES

TECHNICAL REQUIREMENT: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5607-865450/kwu  
REF.DRG.No. IT.28

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	25.4.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NPG	-SD-	28.9.81	-

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
SHEET				41440401043		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

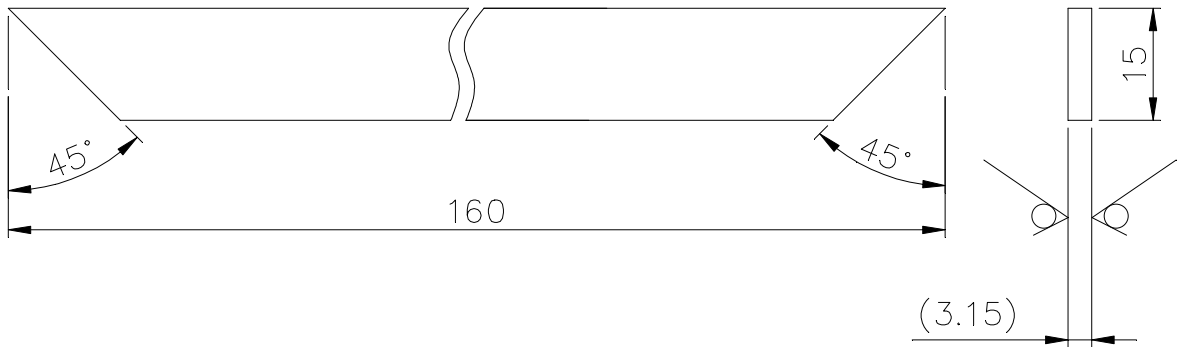
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBOM No. 01440401003		STATUS OF DRG	
			01	26.02.22			AGREED DEPT.	NAME	SIGN	DATE
			CHANGES AS PER C/A NO. TGE-22-F0039				WT	CHHABRA	-SD-	23.9.81
GRADE OF UNTOL.DIM.M/CG/M/F			AA0230208			WELDING A/B/C/D	AA0621104		GAS CUTTING-T3 AA0621101	

500 / THE REST



TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES

26-5607-86545 a/kwu  
 REF.DRG.No. IT.28

SIGN & DATE



**BHARAT HEAVY ELECTRICALS LTD**  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
TNG		-SD-	25.4.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NPG	-SD-	28.9.81	-

INVENTORY No.

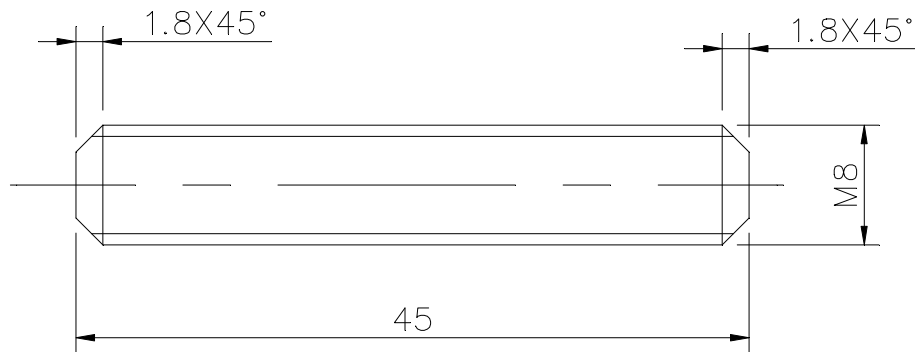
DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133		1:1	0.054	21440401002	001	-
TITLE				DRAWING No.		
SHEET				41440401044		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBOM No. 01440401003		STATUS OF DRG					
			01	26.02.22			AGREED DEPT.	NAME	SIGN	DATE				
CHANGES AS PER C/A NO. TGE-22-F0039							WT	CHHABRA	-SD-	23.9.81				
GRADE OF UNTOL.DIM.M/CG/M/F			AA0230208			WELDING A/B/C/D		AA0621104			GAS CUTTING-T3		AA0621101	

12.5  
ALL OVER



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

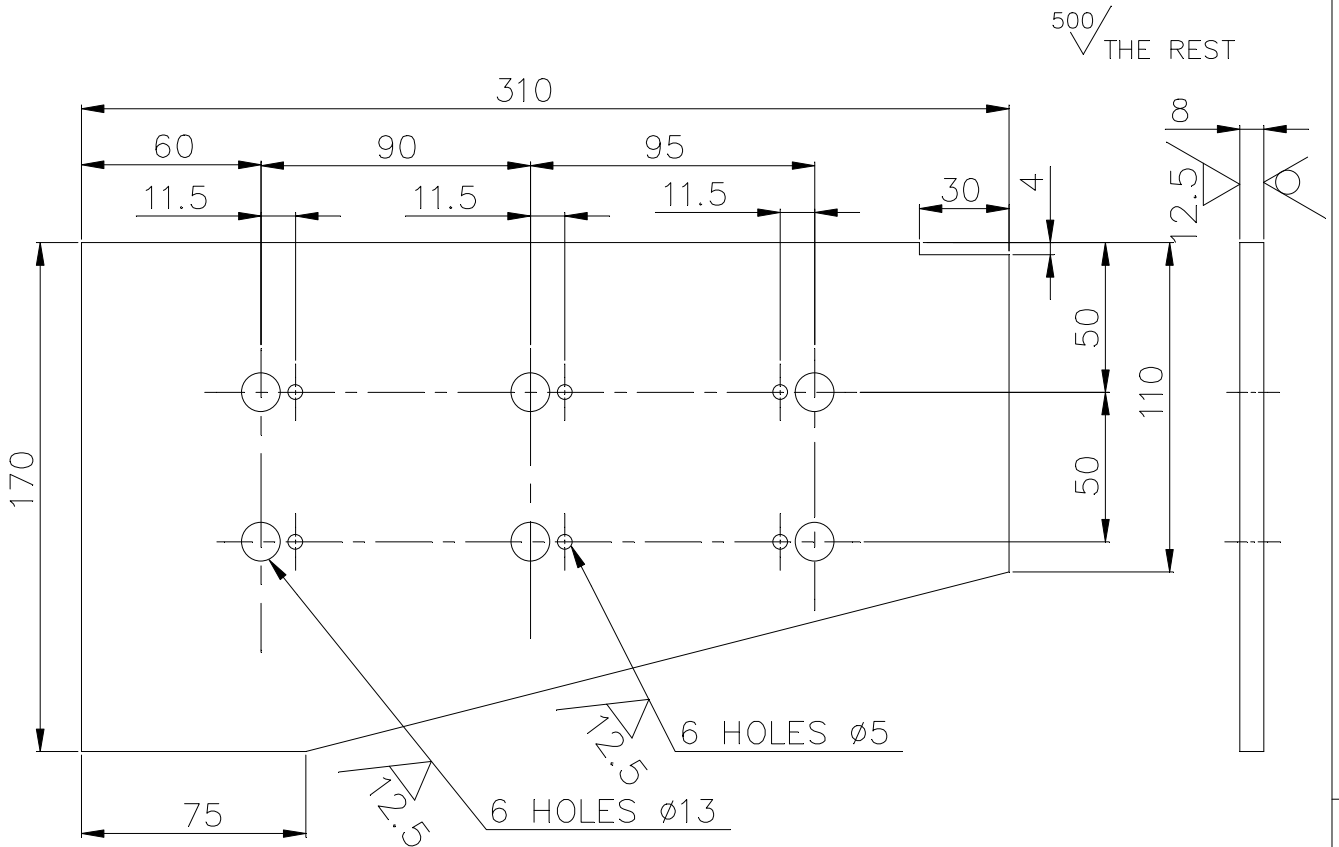
01  
SUPERSEDES

26-5607-865450K.W.U.  
T.45REF.DRG.No. (DIN976)

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	NAME	SIGN	DATE	NO. OF VAR	
			CHD	KSR/KNW	-SD-	22.9.81		
			APD	NPG	-SD-	28.9.81		
INVENTORY No.	DEPT.TGE	SCALE 2:1	WEIGHT(Kg) 0.013	REF.TO ASSY.DRG.			ITEM No. 010	No OF ITEMS -
	CODE 4133			01440401001				
	TITLE STUD (B'LESS EXCITER FOR 500MW TG)				DRAWING No. 41440401045			
				SHEET No.1		No.OF SHEETS1		

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REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED PA CHECKED RM	-SD-	CBDM No. 01440401011		STATUS OF DRG	
			01	13.03.21			AGREED DEPT.	NAME	SIGN	DATE
CHANGES AS PER C/A NO. TGE-21-F0048							WT	ROY	-sd-	21.5.90
GRADE OF UNTOL.DIM.M/CGØ/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101				



TECHNICAL REQUIREMENT:

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 a/kwu  
REF.DRG.No.ITEM-14

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	4.4.90	
CHD	SM	-SD-	4.4.90	
APD	ICR	-SD-	16.6.90	

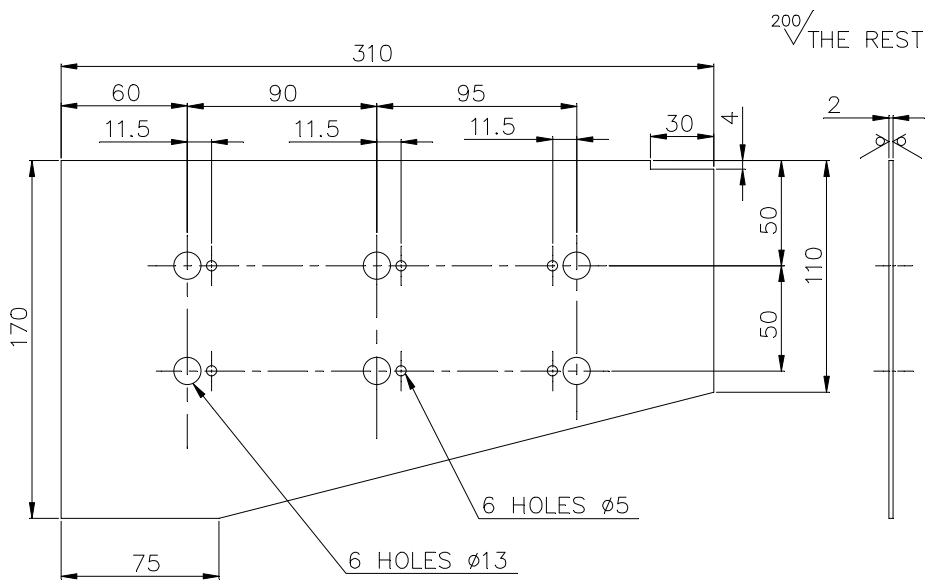
INVENTORY No.

DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133	1:2.5	2.80	01440401013	001	-
TITLE			DRAWING No.		
SHEET			41440401181		
(B'LESS EXCITER FOR 500MW TG)			SHEET No.1 No.OF SHEETS1		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED PA CHECKED RM	-SD-	-SD-	CBOM No. 01440401011	STATUS OF DRG
			01	13.03.21					
CHANGES AS PER C/A NO. TGE-21-F0048						AGREED DEPT. WT	NAME ROY	SIGN -sd-	DATE 21.5.90
GRADE OF UNTOOL		DIM.M/CGØ/M/F		AA0230208		WELDING A/B/C/D		AA0621104	
						GAS CUTTING-T3		AA0621101	




TECHNICAL REQUIREMENT:

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

41440401016 VAR.01  
REF.DRG.No.

01  
SUPERSEDES

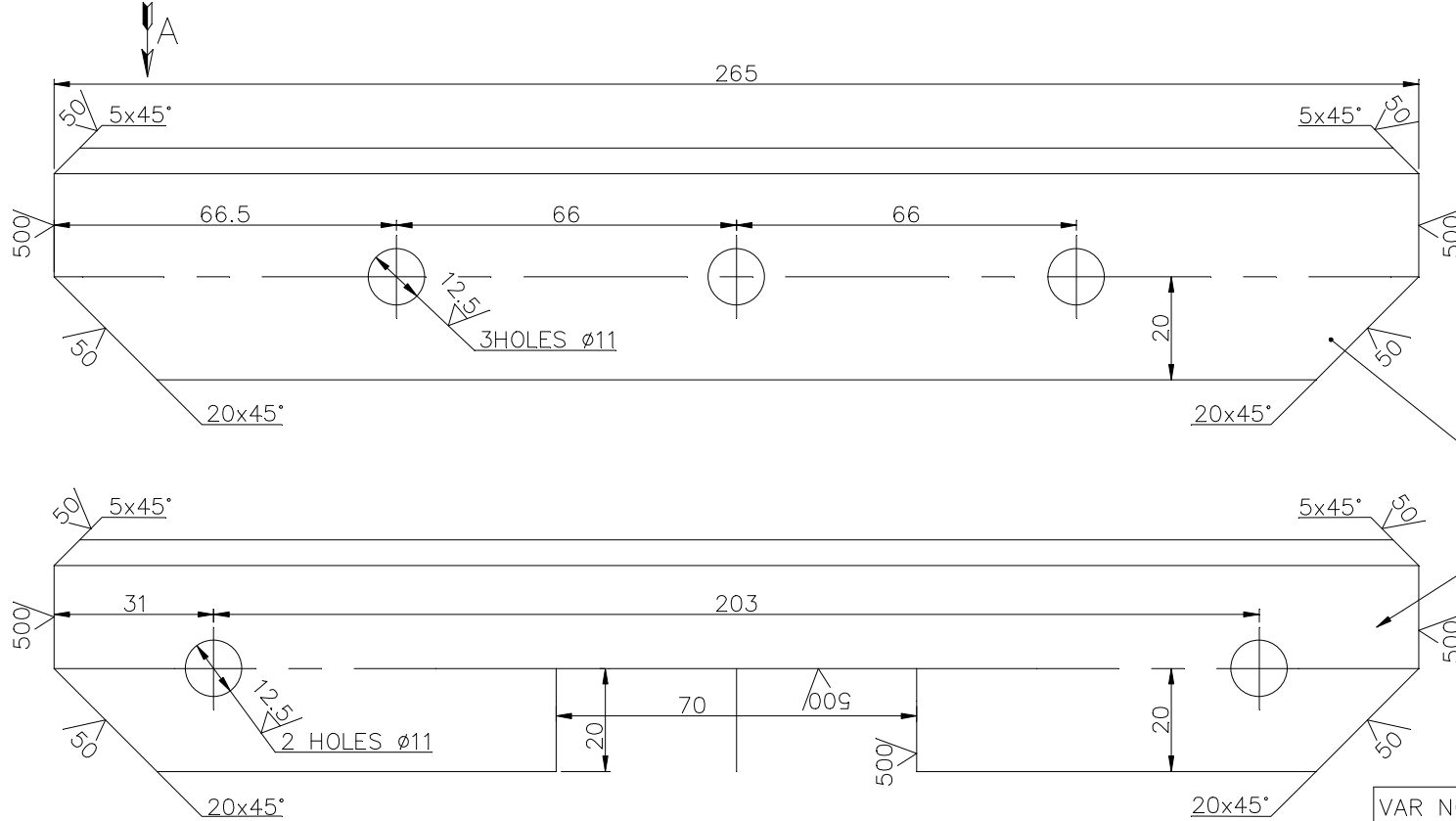
SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR	DRN	TNG	-SD-	4.4.90	NO. OF VAR
		CHD	SM	-SD-	4.4.90	
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:2.5	0.70	01440401013	028	-
TITLE				DRAWING No.		
SHEET				41440401182		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1		No.OF SHEETS!

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DRAWING NO. 31440401007

✓ THE REST



VAR 02  
VAR 00 (NO HOLES)

VAR 01

VAR NO.	NO. OF HOLES	IT NO. OF ASSY DRG	REFER TO ASSY. DRG.
00	-	003	11440401006
01	02	009	11440401006
02	03	010	11440401006

TECHNICAL REQUIREMENTS: -  
1. IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-865450/KWU

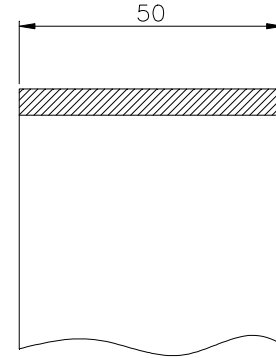
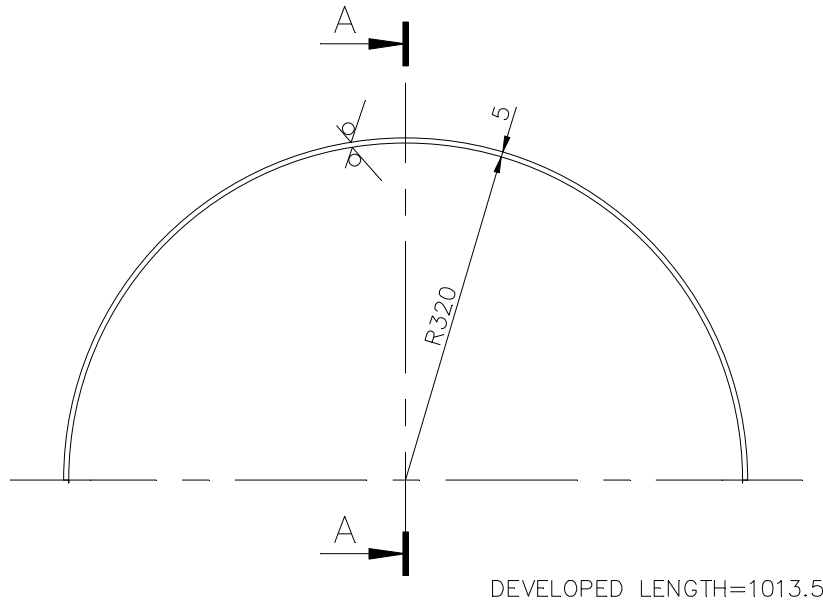
CBOM NO. 01440401003		STATUS OF DRG.	
AGREED DEPT. WT	NAME B. CHOUDHARY	SIGN -SD-	DATE 11.6.88
GRADE OF UNTOL. DIM.: -			
M/CG- <del>V/C/M/R</del> AA 0230208			
WELDING- <del>A/B/C/D</del> -AA0621104			
GAS CUTTING- 'T3' AA0621101			
REV.	DATE	ALTERED	NO.
	02	26.02.22	
CHANGES AS PER C/A NO. TGE-22-F0039		REV. DATE ALTERED PA --SD-- 02 26.02.22 CHECKED RDM -SD-	

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		BRUSHLESS EXCITER FOR 500MW TG			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME SCS	SIGN -SD-	DATE 19.4.88	NO. OF VAR.
	CHD	KSR	-SD-	28.4.88	-
	APD	KSR	-SD-	21.6.88	73, 74
DEPT. TGE CODE 4133	SCALE 1:1	WEIGHT (Kg.) 0.700	REF. TO ASSY. DRG. SEE TABLE		ITEM NO. SEE TABLE
TITLE ANGLE		DRAWING NO. 31440401007		NO. OF SHEETS 23, 24	
SHEET NO. 1		NO. OF SHEETS 1			

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DRAWING NO. 31440401018

50%  
THE REST



SECTION A-A  
SCALE 1:1

TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545a/KWU  
(ITEM NO. 18)  
REF. DRG NO.

SIGN & DATE

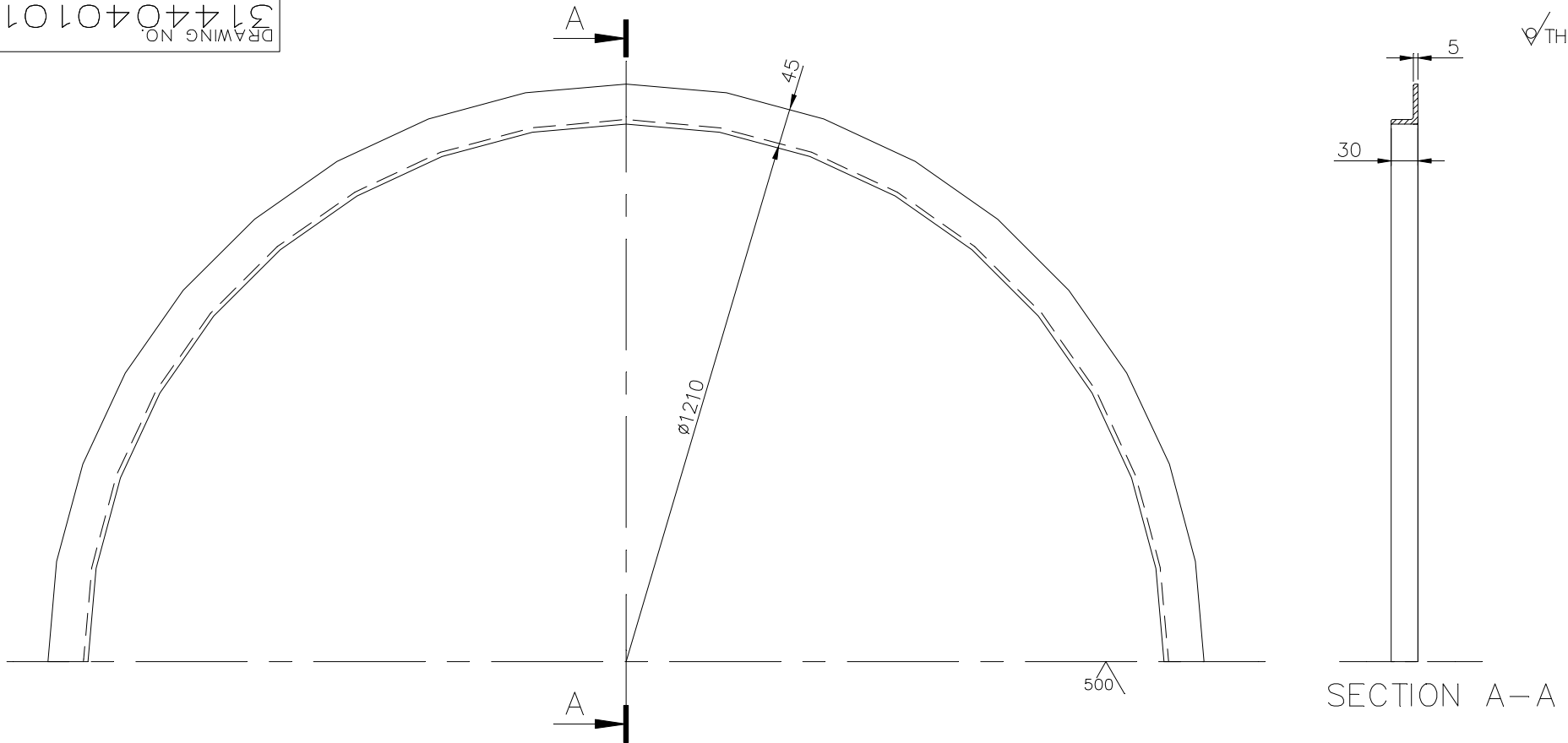
INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>V/C/M/R</del> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	01 26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.					
	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
			CHD	T.N.G.	-SD-	25.4.81	-
			APD	K.S.R./K.N.W.	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS		
CODE 4133	1:5	2.000	11440401006	006	-	73, 74	
TITLE			DRAWING NO.				
STRIP			31440401018				
			SHEET NO.1		NO.OF SHEETS 1		

31440401019  
DRAWING NO.

✓ THE REST



TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

DEVELOPED LENGTH=1972

01  
SUPERSEDES

26-5607-86545a/KWU  
(ITEM NO. 25)  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

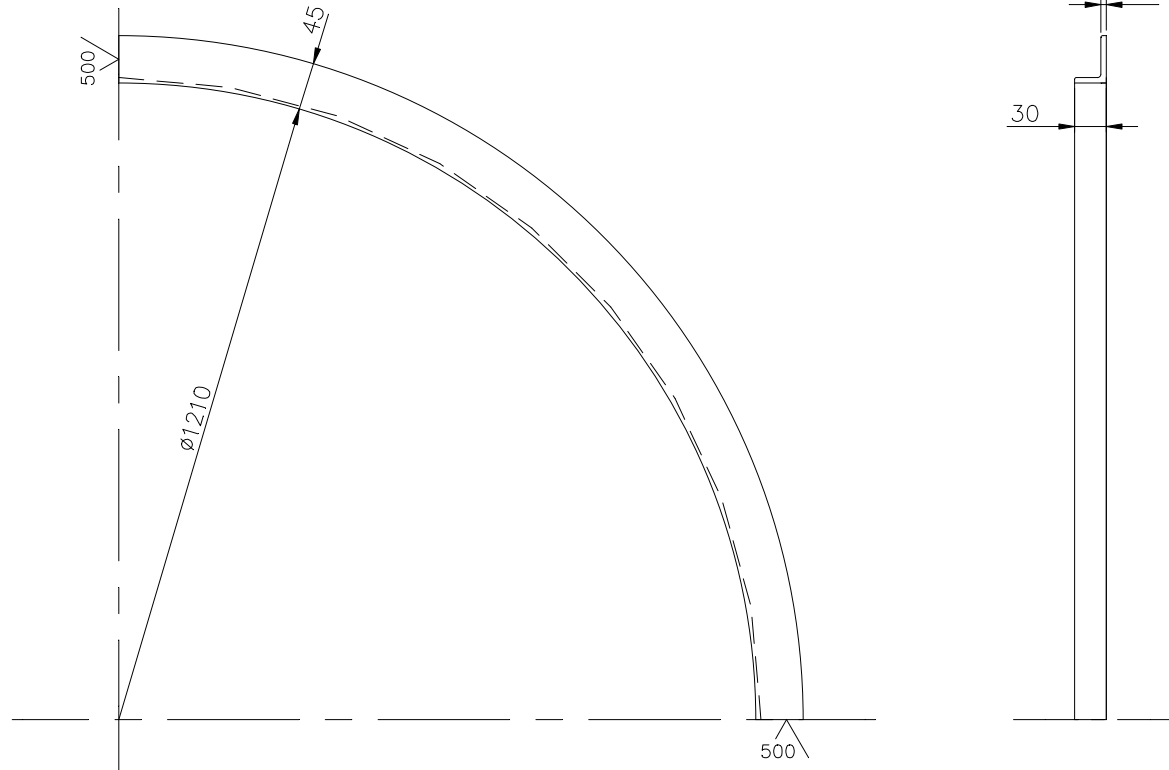
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>V/C/M/R</del> AA 0230208	WT	CHHABRA	SIGN	DATE	-SD- 23.9.81
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	01 26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	T.N.G.	-SD-	25.4.81	-
	APD	K.S.R./K.N.W.	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	5.544	11440401006	007	-
TITLE		DRAWING NO.		NO.OF SHEETS	
ANGLE		31440401019		1	
		SHEET NO.1		NO.OF SHEETS 1	

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DRWING NO. 31440401020

THE REST



01  
SUPERSEDES

TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

DEVELOPED LENGTH=986

26-5607-86545a/KWU  
(ITEM NO. 30)  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>V/C/M/R</del> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	01 26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

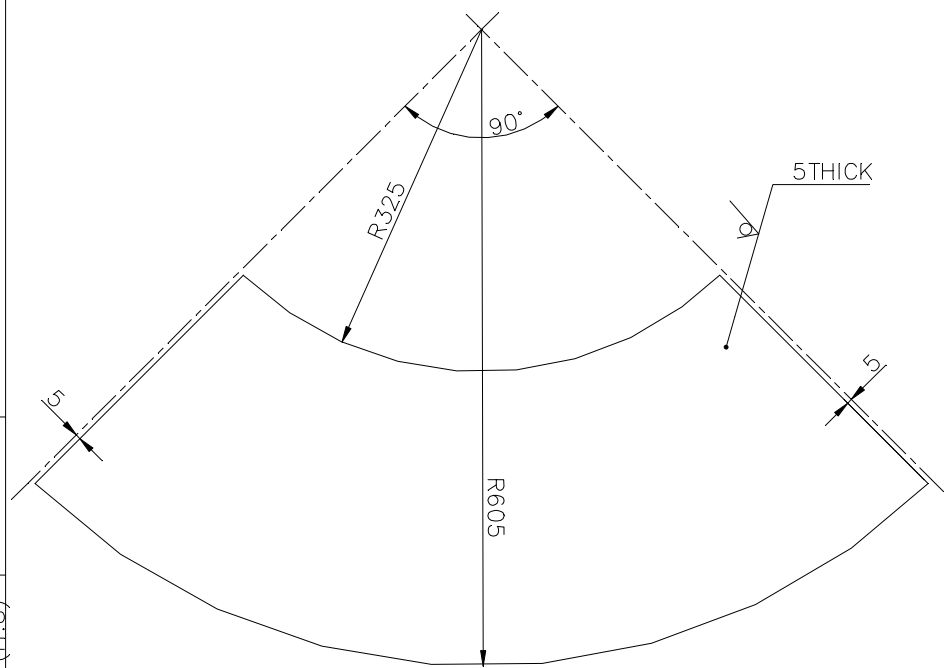
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	T.N.G.	-SD-	25.4.81	-
	APD	K.S.R./K.N.W.	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	2.783	11440401006	001	-
TITLE			DRAWING NO.		
ANGLE			31440401020		
			SHEET NO.1 NO.OF SHEETS 1		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			WT	CHHABRA	-SD-	23.9.81		
GRADE OF UNTOOL		DIM/M/CGC/M/F	AA0230208	WELDING	A7B/C/D	AA0621104	GAS CUTTING-T3	AA0621101

500/ THE REST




TECHNICAL REQUIREMENTS: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

**SUPERSEDES** 01

26-5607-86545 a/kwu  
REF.DRG.No. (I.T.8)

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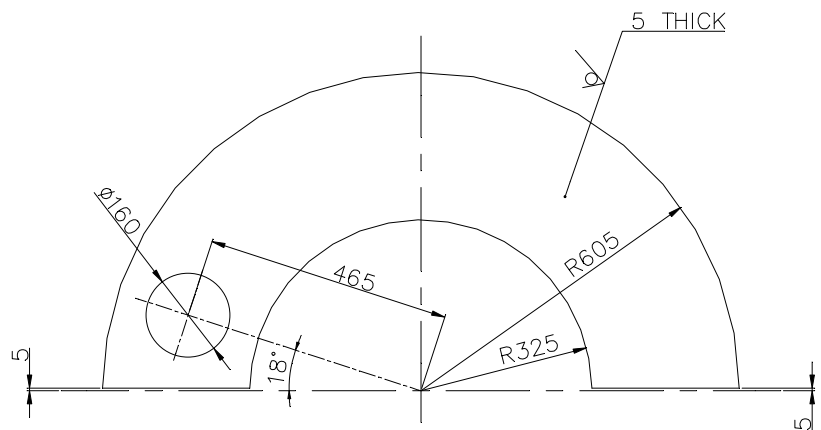
SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR	DRN	NAME	SIGN	DATE	NO. OF VAR
		CHD	Y.C. GARG	-SD-	7.2.81	-
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:5	7.60	11440401006	002	-
TITLE			DRAWING No.			
SHEET			41440401014			
(B'LESS EXCITER FOR 500MW TG)			SHEET No.1		No.OF SHEETS!	

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS	
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG	
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE			
TGE-22-F0039			WT	CHHABRA	-SD-	23.9.81			

GRADE OF UNTO L.DIM.M/CG/M/F.AA0230208 WELDING A7B/C/D AA0621104 GAS CUTTING-T3 AA0621101

500/ THE REST



TECHNICAL REQUIREMENTS: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 g/kwu (1T.7)  
REF.DRG.No.

SIGN & DATE



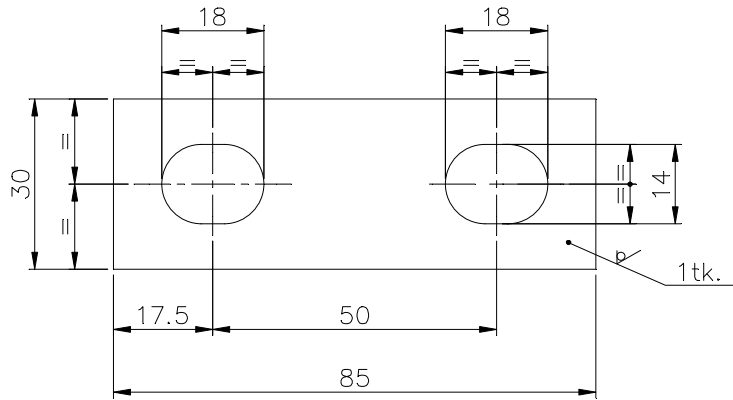
BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C. GARG	-SD-	13.2.81	
CHD	KSR/KNW	-SD-	22.9.81	
APD	NPG	-SD-	28.9.81	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:10	14.50	11440401006	005	-
TITLE				DRAWING No.		
SEGMENT				41440401024		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1	No.OF SHEETS!	

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01 29.9.09 VIJAY-S/D- 0-144-04-01003  
TNG -S/D-  
CHANGES ACCORDING TO  
CH. AD. NO. ACG KANT -S/D-09.9.81  
TGE-09-F0266



### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

01

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-09-F0266

TNG -S/D- 09.4.81  
KSR/KNW -S/D- 22.4.81  
NPG -S/D- 28.9.81

TGE 4133 1:1 0.020 1-144-04-01007 005

REV.

### WASHER

4-144-04-01037 01

B'LESS EXCITER FOR 500MW TG.

1

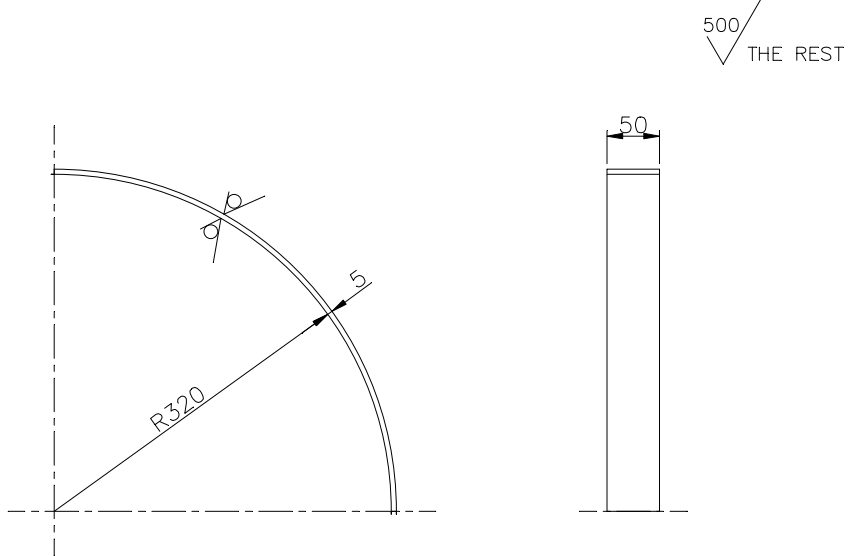
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26-5607-86545a/KWU

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS OF DRG
	01	26.02.22	CHECKED	DRM	-SD-		01440401003	
CHANGES AS PER C/A NO. TGE-22-F0039			AGREED DEPT.	NAME	SIGN	DATE		
			WT	CHHABRA	-SD-	23.9.81		

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



TECHNICAL REQUIREMENTS: -

- IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

DEVELOPED LENGHT=507

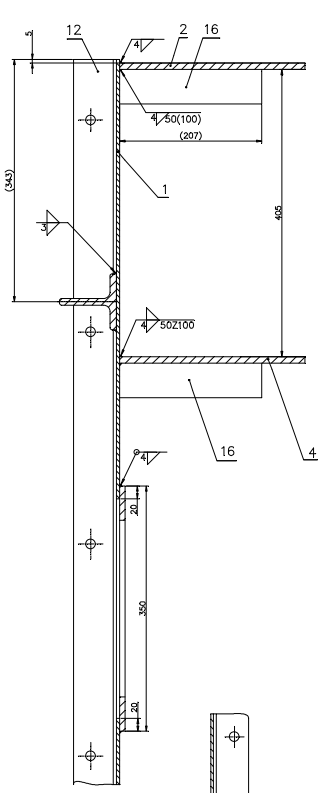
INVENTORY No.	DEPT. TGE	SCALE 1:5	WEIGHT(Kg) 1.000	REF.TD ASSY.DRG. 11440401006	ITEM No. 008	No OF ITEMS -	
	CODE 4133						
	TITLE STRIP (B'LESS EXCITER FOR 500MW TG)						
Bharat Heavy Electricals Ltd Hardwar				NAME	SIGN	DATE	NO. OF VAR
				DRN	TNG	-SD-	25.4.81
				CHD	KSR/KNW	-SD-	22.4.81
				APD	N.P.GUPTA	-SD-	28.9.81
				SHEET No.1	No.OF SHEETS 1		

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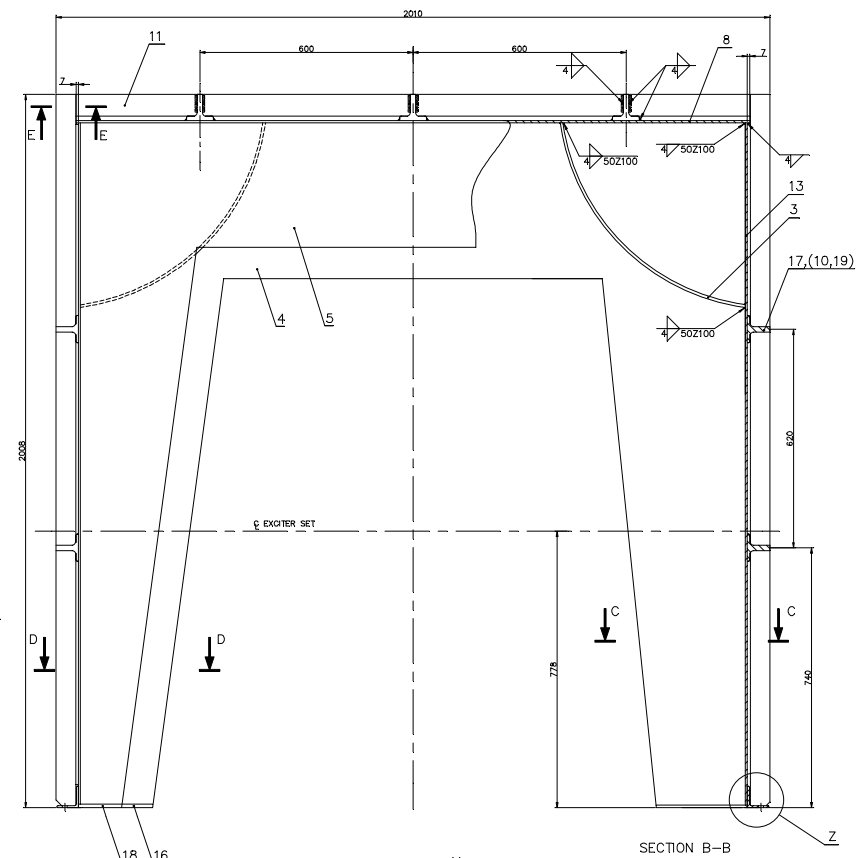
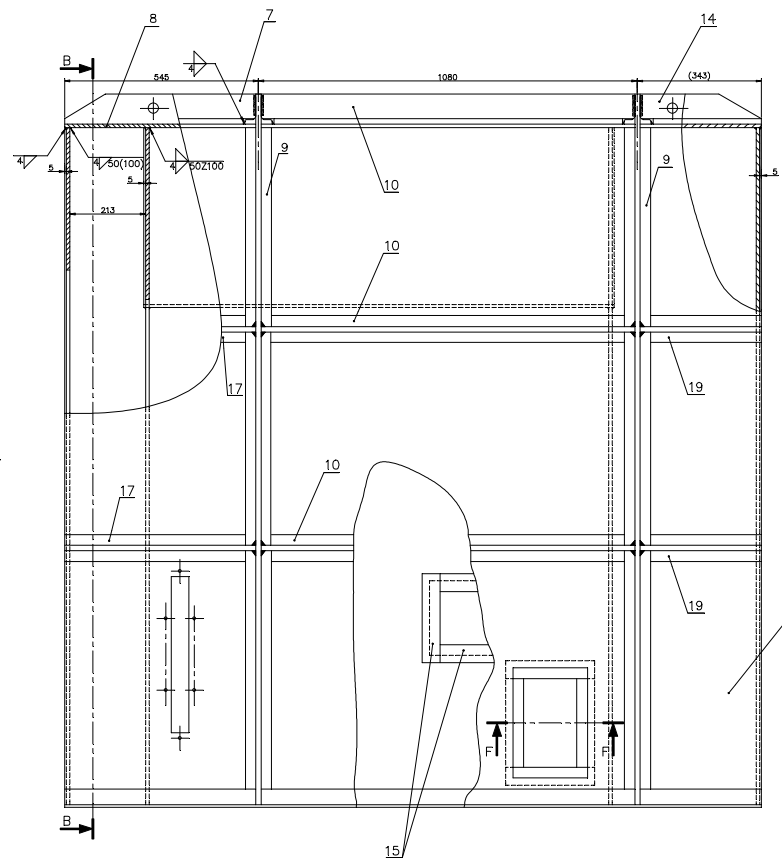
26-8607-865459/KW (ITEM NO.27)  
REF.DRG.No.

SIGN & DATE

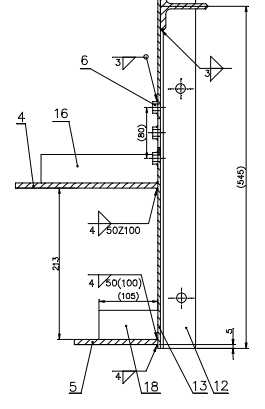
01440401028



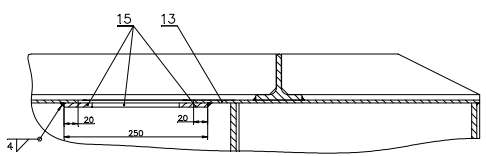
SECTION D-D (SCALE 1:2.5)



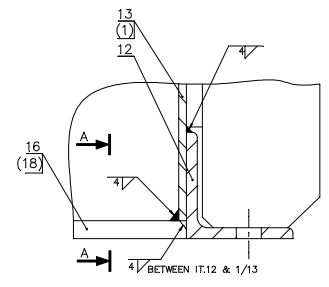
SECTION B-B



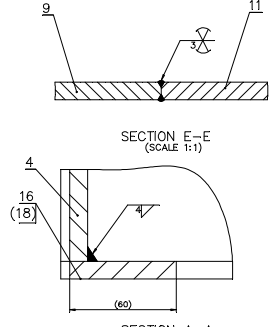
SECTION C-C (SCALE 1:2.5)



SECTION F-F (SCALE 1:2.5)



DETAIL-Z (SCALE 1:1)



SECTION A-A (SCALE 1:1)

SECTION E-E (SCALE 1:1)

TECHNICAL REQUIREMENTS

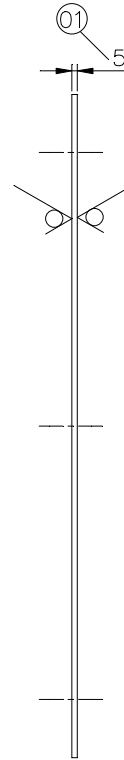
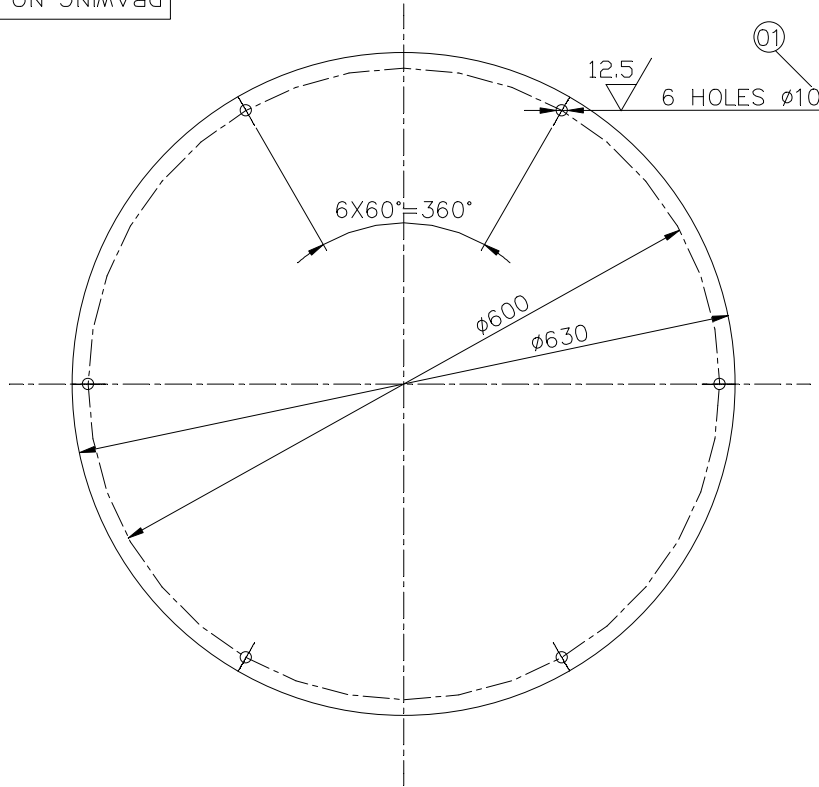
1. MARK IDENTIFICATION ACCORDING TO HW0400397.
2. QUALITY GRADES OF WELDS AS PER HW0620099 CK.CS. TEST SCOPE ACCORDING TO HW0850199, CATEGORY OF SERVICE REQUIREMENTS 4.
3. MAINTAIN FEET PARALLEL TO HORIZONTAL AXIS AND ALL VERTICAL MEMBERS PERPENDICULAR TO HORIZONTAL AXIS. THIS IS ESSENTIAL AS THIS GROUP FORMS A CLOSED AND SEALED HOOD AROUND MAIN EXCITER OPERATING AT 3000RPM, GENERATING HEAVY CURRENT FOR 800MW TG ROTOR.
4. A SHAFT MOUNTED FAN BLOWS AIR INTO THE AIR GUIDE COVERS & HOT AIR IS DISCHARGED AT THE BOTTOM OF COVERS.
5. DIMENSIONS IN BRACKETS ARE FOR REFERENCE ONLY.
6. SURFACE TREATMENT ACCORDING TO TECHNOLOGICAL INSTRUCTION NO. 0912.015.

SYMBOL & SIZE OF SEAM	4 $\nabla$	3 $\nabla$	4 $\nabla$
SEAM LENGTH M	85.500	0.740	0.250
WT. OF DEPOSITED METAL Kg.	5.370	0.500	0.150
TYPE OF ELECTRODE	E-701B		

DRAWING NO. 01440401028 SHEET NO. 1 NO. OF SHEETS 1	TITLE AIR GUIDE COVER (WELDED)	SCALE 1:5 WEIGHT 1241.5 Kg	CODE 4133	NAME OF CUSTOMER/PROJECT BHARAT HEAVY ELECTRICALS LTD. HARDWAR	TYPE OF PRODUCT B'LESS EXCITER FOR 800MW TG
---	--------------------------------	-------------------------------	-----------	--	---

DWG. NO. 01440401028  
 SHEET NO. 1 OF 1  
 DATE: 14/07/2018  
 DESIGNED BY: S. S. SINGH  
 CHECKED BY: S. S. SINGH  
 APPROVED BY: S. S. SINGH  
 PROJECT: BHARAT HEAVY ELECTRICALS LTD. HARDWAR  
 DRAWING NO. 01440401028  
 SHEET NO. 1 OF 1

DRAWING NO. 31440401140



50 / THE REST

TECHNICAL REQUIREMENTS

1. IDENTIFICATION ACCORDING TO HW 0400397.

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2-439043/A/KWU  
REF. DRG NO.

SIGN & DATE

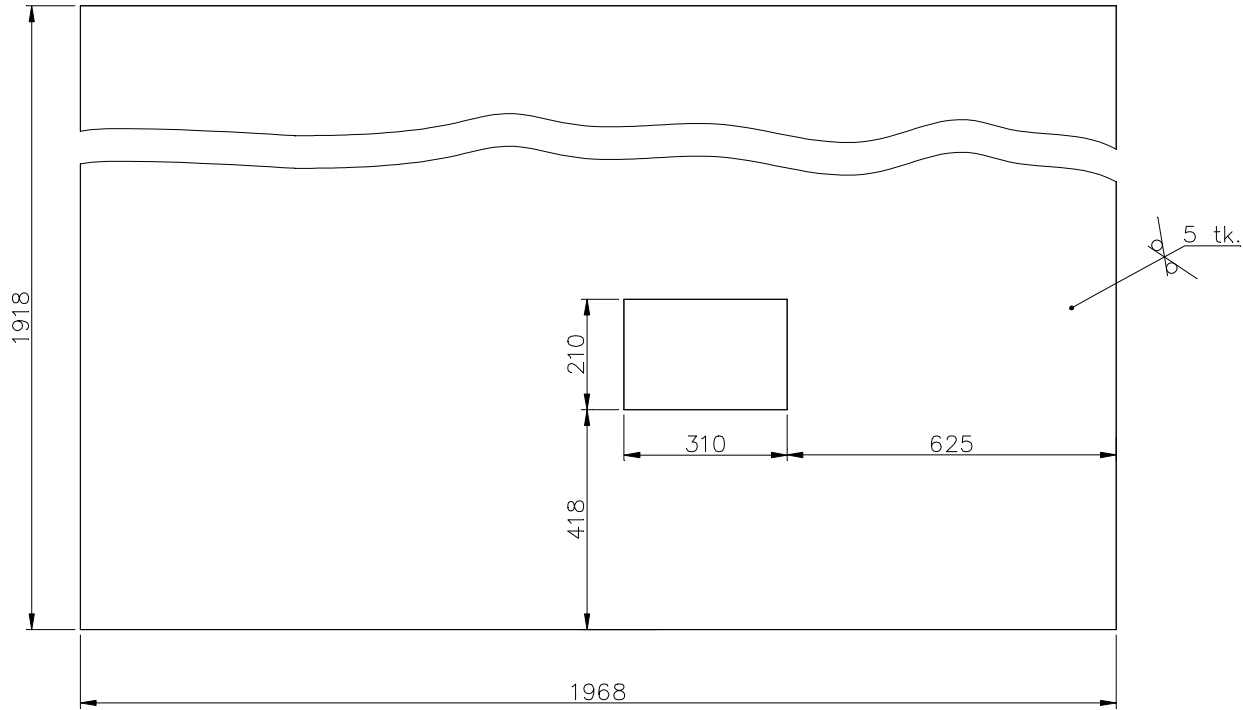
INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401033		STATUS OF DRG.	
M/CG- V/C/M/P AA 0230208	WTX	AWTXTSC	AWTXTSC	28/08/2010	
WELDING-A/B/C/D-AA621104					
GAS CUTTING-T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED	A.V. -SD-	
01	CHECKED	27.12.13	CHECKED	SSM -SD-	
CHANGES AS PER C/A NO. TGE-13-F0396					

TYPE OF PRODUCT		B'LESS EXCITER FOR			
OR		800 MW TG			
NAME OF CUSTOMER/ PROJECT					
BHARAT HEAVY ELECTRICALS LTD.		DRN	NAME	SIGN	DATE
HARDWAR		CHD	STGEAV	STGEAV	19/08/2010
		APD	STGESSM	STGESSM	20/08/2010
			ATGEVK	ATGEVK	31/08/2010
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1:5	12.22	31440401139		
TITLE		PLATE		ITEM NO.	NO.OF ITEMS
				01	75, 77
			DRAWING NO.		
			31440401140		
			SHEET NO.1		
			NO.OF SHEETS 1		

DRAWING NO. 31440401141

50/ THE REST



TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397
2. ALLOWED TO BE MADE IN PARTS WITH WELD SEAM  $\nabla$  5MM.

26-5605-114441/015 REF. DRG NO.

SIGN & DATE

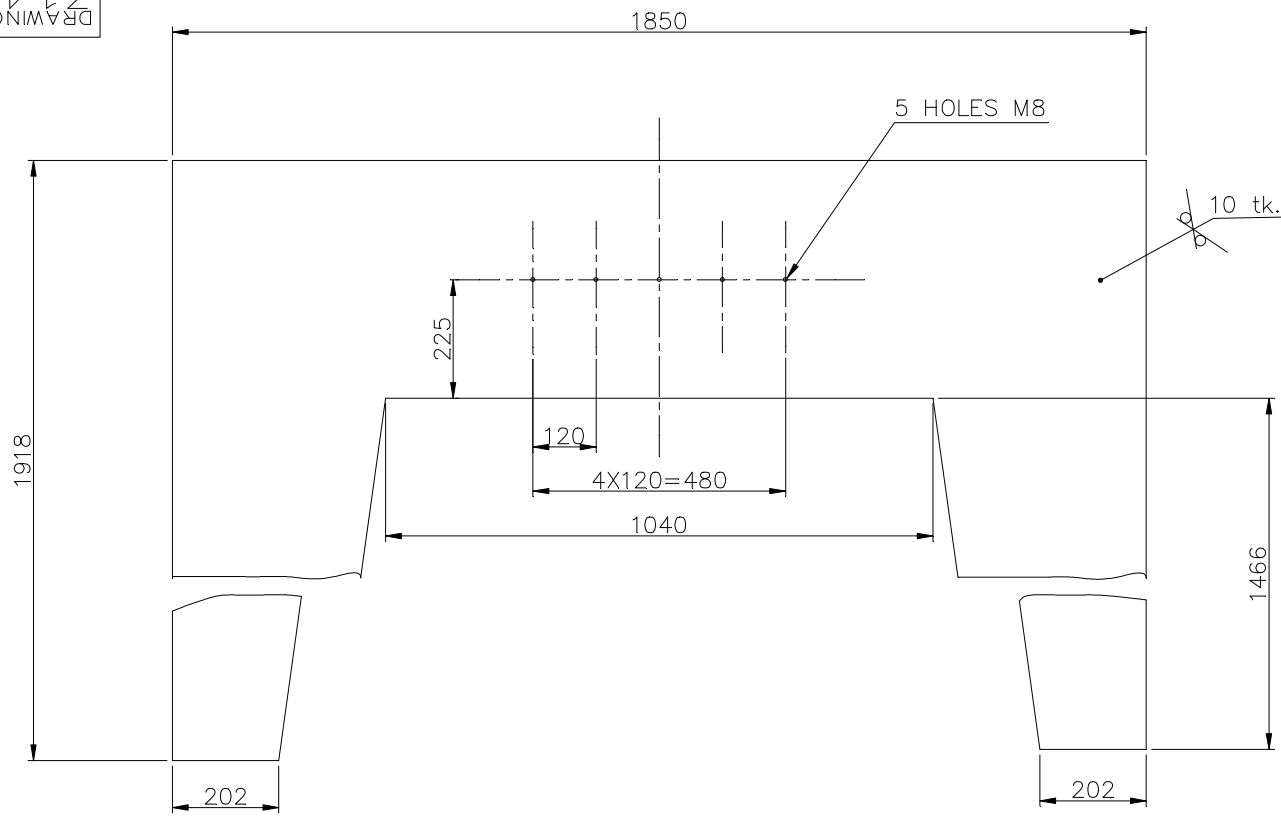
INVENTORY NO.

GRADE OF UNTOL. DIM.: -				CBOM NO. 01440401028		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				B'LESS EXCITER FOR 800MW TG					
M/CG- V/C/M/F AA 0230208				AGREED DEPT.	NAME	SIGN	DATE	BHARAT HEAVY ELECTRICALS LTD. HARDWAR				DRN	NAME	SIGN	DATE	NO.OF VAR.	
WELDING-A/B/C/D-AA621104				WTX	AWTXTSC	AWTXTSC	24/07/2010	DEPT. TGE				CHD	STGEVVK	STGEVVK	23/07/2010		
GAS CUTTING-T3'AA0621101								CODE 4133				APD	STGESSM	STGESSM	23/07/2010		
REV. DATE ALTERED CHECKED				REV. DATE ALTERED CHECKED				SCALE 1:10				WEIGHT(Kg.) 145.6		REF. TO ASSY. DRG. 01440401028		ITEM NO. 001	NO.OF ITEMS 75, 77
								TITLE PLATE				DRAWING NO. 31440401141		SHEET NO.1 NO.OF SHEETS 1			

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DRAWING NO. 31440401142

50 THE REST



TECHNICAL REQUIREMENTS

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397

26-5605-114441/013  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -			CBOM NO. 01440401028			STATUS OF DRG.											
M/CG- V/C/M/F AA 0230208	WELDING-A/B/C/D-AA621104		GAS CUTTING-'T3'AA0621101		AGREED DEPT.			NAME			SIGN			DATE			
REV.	DATE	ALTERED	REV.	DATE	ALTERED	WTX	AWTXTSC	AWTXTSC	24/07/2010								
		CHECKED			CHECKED												

TYPE OF PRODUCT						B'LESS EXCITER FOR													
OR						800MW TG													
NAME OF CUSTOMER/ PROJECT																			
DEPT. TGE						SCALE						WEIGHT(Kg.)		REF. TO ASSY. DRG.		ITEM NO.		NO.OF ITEMS	
CODE 4133						1:10						135		01440401028		002		75, 77	
TITLE												DRAWING NO.		SHEET NO.1		NO.OF SHEETS 1			
PLATE												31440401142							

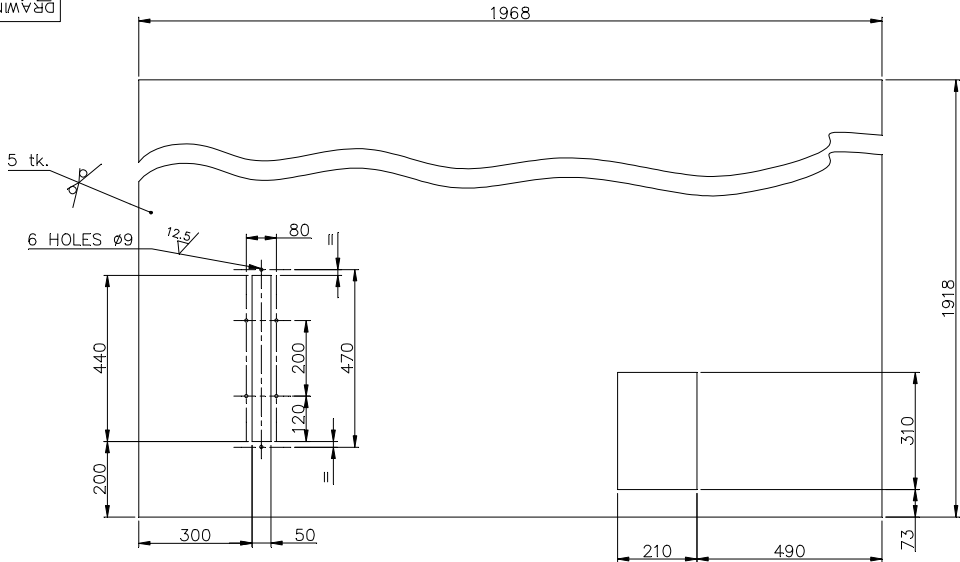


BHARAT HEAVY ELECTRICALS LTD.  
HARDWAR

DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	STGEVK	STGEVK	23/07/2010	
APD	STGESSM	STGESSM	23/07/2010	
	ATGEVK	ATGEVK	26/07/2010	73, 74

DRAWING NO. 31440401143

50°  
THE REST



TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397
2. ALLOWED TO BE MADE IN PARTS WITH WELD SEAM  $\nabla$  5MM.

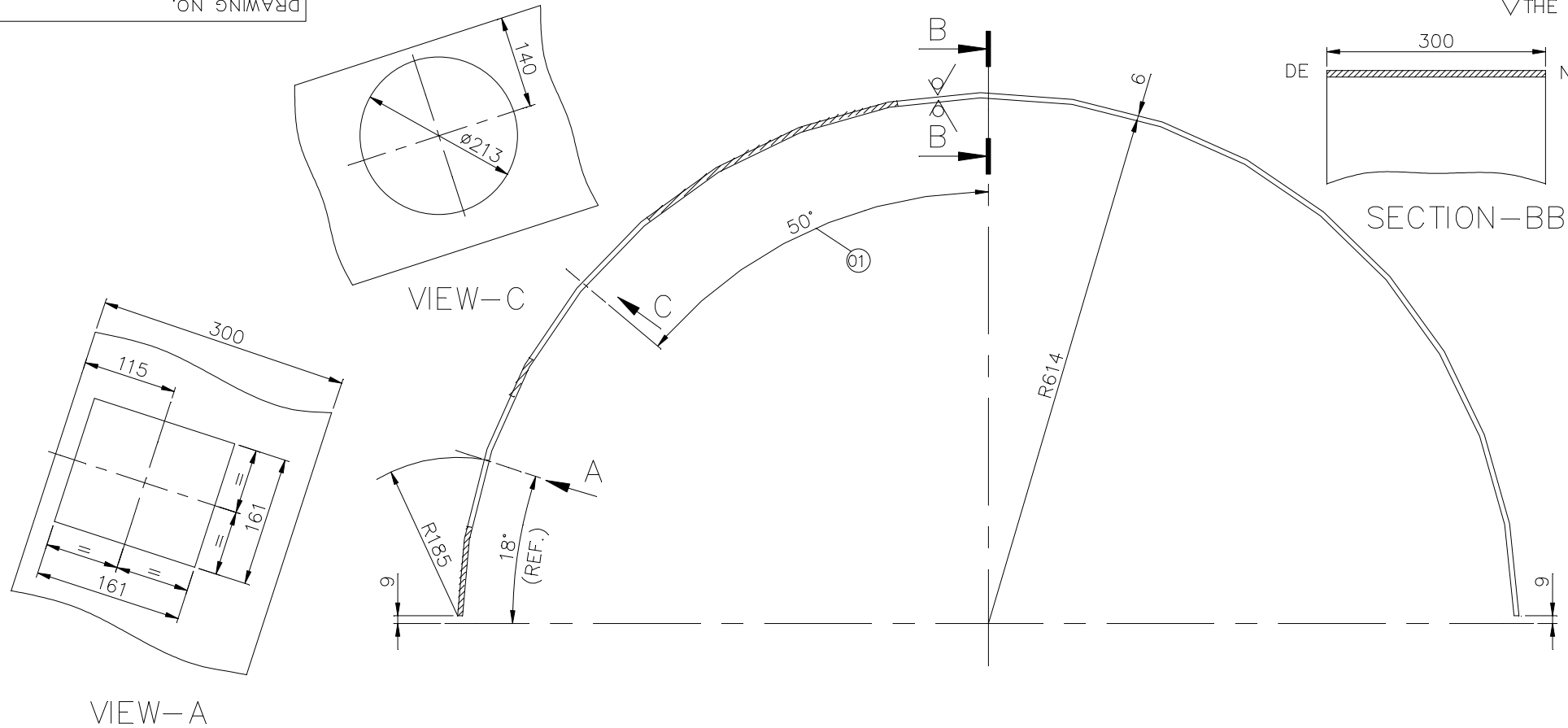
26-5605-11444/014 REF. DRG NO. SIGN & DATE INVENTORY NO.

CBOM NO. 01440401028		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG				
GRADE OF UNTOL. DIM.: -	APPROVED DES.	NAME	SIGN	DATE	BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
M/CG- V/C/M/F AA 0230208	WTX	AWTXTSC	AWTXTSC	24/07/2010		CHD	STGEVK	STGEVK	23/07/2010	73, 74
WELDING-A/B/C/D-AA621104						APD	STGEVSM	STGEVSM	23/07/2010	75, 77
GAS CUTTING-'T3'AA0621101	REV. DATE	ALTERED CHECKED	REV. DATE	ALTERED CHECKED	DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
					CODE 4133	1:10	144.7	01440401028	013	
					TITLE		DRAWING NO.		SHEET NO.1	
					PLATE		31440401143		NO.OF SHEETS 1	

DRAWING NO. 31440401144

500/√THE REST

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DEVELOPED LENGTH=1920

TECHNICAL REQUIREMENTS

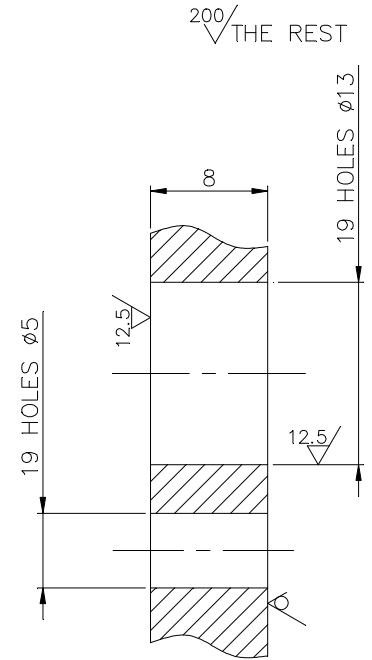
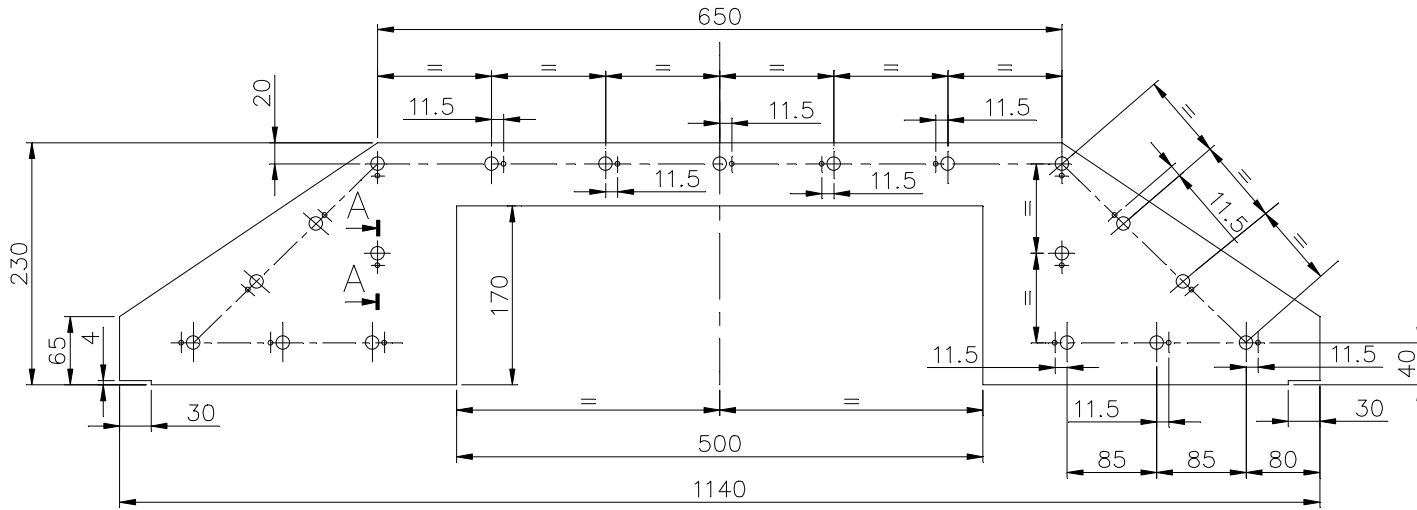
- MARK IDENTIFICATION ACCORDING TO HW 0400397.

INVENTORY NO.	SIGN & DATE	26-5607-122988 b/KWU REF. DRG NO.	CBOM NO. 01440401029		STATUS OF DRG.	
			AGREED DEPT.	NAME	SIGN	DATE
			WTX	AWTXIS	AWTXIS	28/08/2010
			GRADE OF UNTOL. DIM.: -			
			M/CG- <del>V/C/M/R</del> AA 0230208			
			WELDING-A/B/C/D-AA621104			
			GAS CUTTING-T3'AA0621101			
			REV.	DATE	ALTERED	P.ANAND -SD
			01	7.3.17	CHECKED	SSM -SD-
			CHANGE AS PER C/A NO. TGE-17-F0057.			

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	STGEVVK	STGEVVK	05/08/2010	
	APD	STGESSM	STGESSM	05/08/2010	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	24.353	01440401031	021	75, 77
TITLE		SHEET		DRAWING NO. 31440401144	
		SHEET NO.1		NO.OF SHEETS 1	

DRAWING NO. 31440401145

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SECTION-AA

TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5607-122988 b/kwu  
REF. DRG NO.

SIGN & DATE

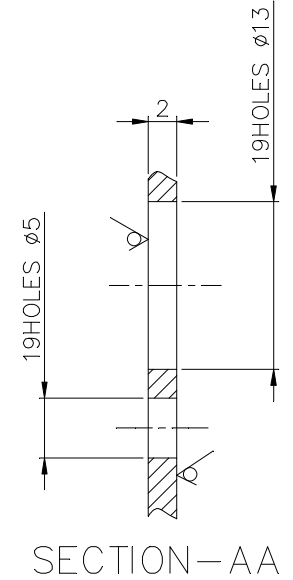
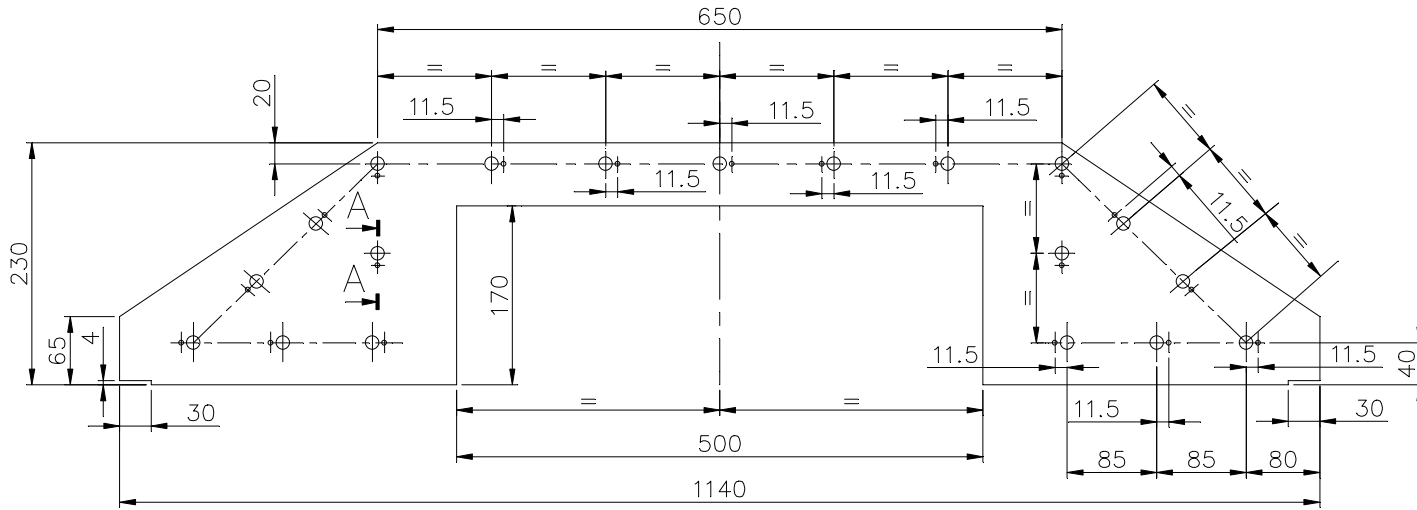
INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401029		STATUS OF DRG.	
M/CG- v/c/M/V AA 0230208	WELDING-A/B/c/D-AA621104	GAS CUTTING-T3'AA0621101	REV.	DATE	ALTERED
					CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG				
BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME STGEVK	SIGN STGEVK	DATE 05/08/2010	NO.OF VAR.
		CHD	STGESSM	STGESSM	05/08/2010	
		APD	ATGEVK	ATGEVK	01/10/2010	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	8.482	01440401031		004	75, 77
TITLE		SHEET		DRAWING NO. 31440401145		
				SHEET NO.1		NO.OF SHEETS 1

DRAWING NO. 31440401146

200/  
√ THE REST



TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5607-122988 b/kwu  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401029		STATUS OF DRG.	
M/CG- v/c/M/F AA 0230208	WTX	AWTXIS	A	AWTXIS	28/08/2010
WELDING-A/B/C/D-AA621104	AGREED DEPT.	NAME	SIGN	DATE	
GAS CUTTING-T3'AA0621101					
REV. DATE	ALTERED CHECKED	REV. DATE	ALTERED CHECKED		

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG.			
DEPT. TGE		SCALE		WEIGHT(Kg.)	
CODE 4133		1:5	2.182		
TITLE		SHEET		DRAWING NO. 31440401146	
		1 3		SHEET NO.1 NO.OF SHEETS 1	

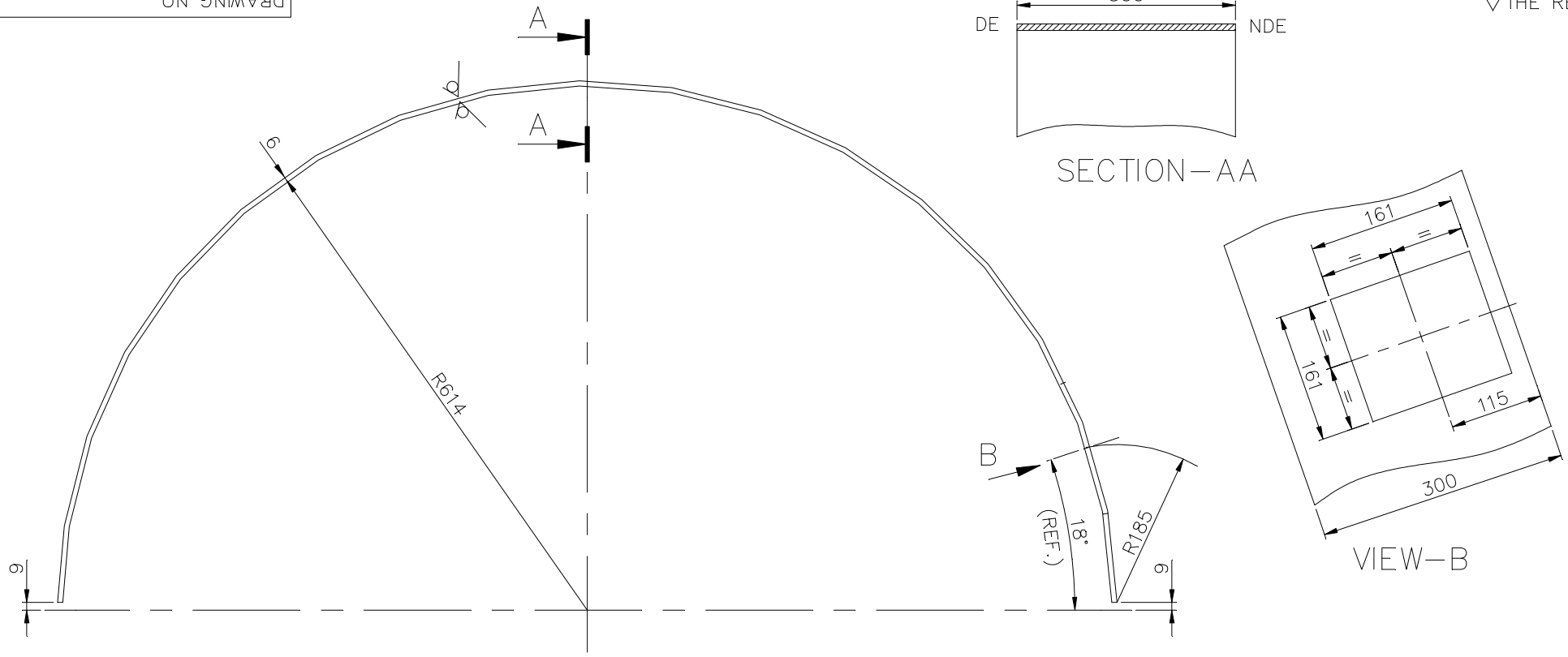
	BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
			CHD	STGEVK	STGEVK	05/08/2010	
			APD	STGESSM	STGESSM	05/08/2010	

REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
01440401031	029	75, 77

DRAWING NO. 31440401147

500% THE REST

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DEVELOPED LENGTH=1920

TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

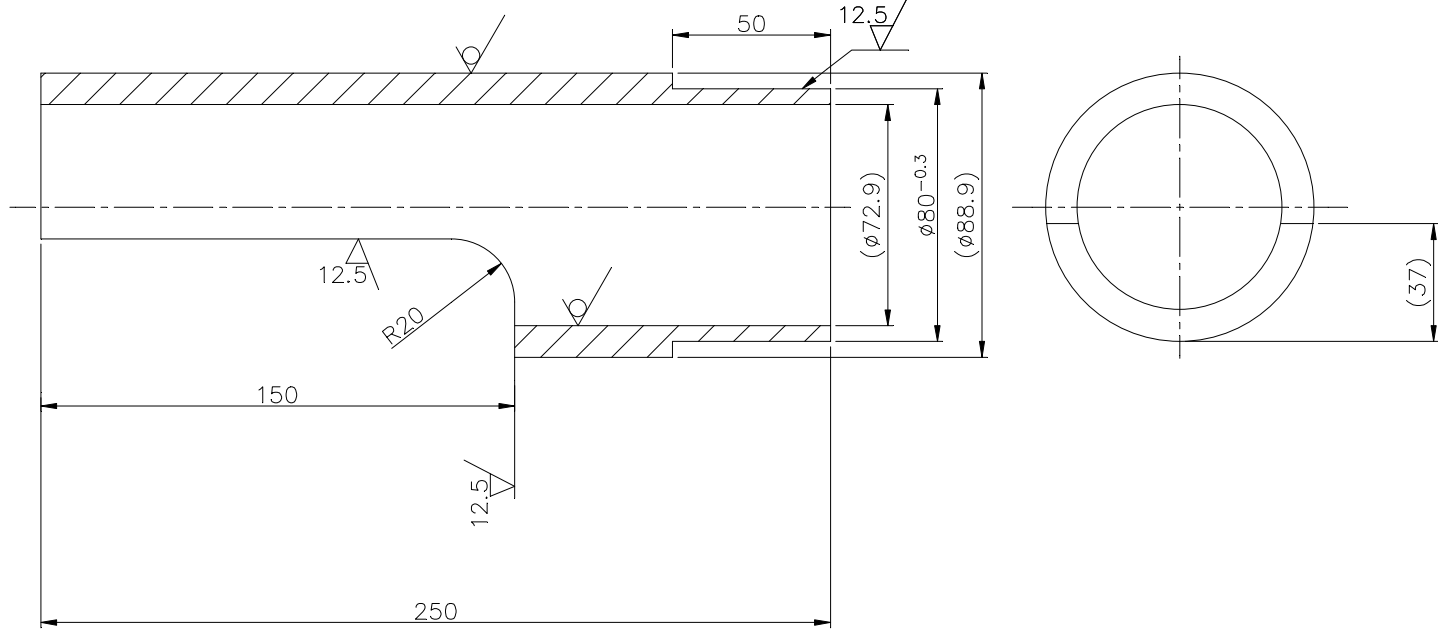
INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-122988 a/KWU

CBOM NO. 01440401029		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WTX	AWTXIS	AWTXIS	28/08/2010
GRADE OF UNTOL. DIM.: -			
M/CG- <del>W/E/M/P</del> AA 0230208			
WELDING- <del>A/B/C/D</del> -AA621104			
GAS CUTTING- 'T3' AA0621101			
REV.	DATE	ALTERED	CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	STGEVK	STGEVK	05/08/2010	
	APD	STGESSM	STGESSM	05/08/2010	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	26.031	01440401031	006	75, 77
TITLE			DRAWING NO.		
SHEET			31440401147		
SHEET NO.1			NO.OF SHEETS 1		

DRAWING NO. 31440401148

50° THE REST



TECHNICAL REQUIREMENTS

- MARK IDENTIFICATION ACCORDING TO HW0400397

2-256528  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

GRADE OF UNTOL. DIM.: -			CBOM NO. 91440401007			STATUS OF DRG.		
M/CG- V/C/M/F AA 0230208	EMT	AEMTNCG	AEMTNCG	23/02/2011	AGREED DEPT.	NAME	SIGN	DATE
WELDING-A/B/C/D-AA621104	WTX	AWXTSC	AWXTSC	13/08/2010				
GAS CUTTING-T3'AA0621101								
REV.	DATE	ALTERED	REV.	DATE	ALTERED			
		CHECKED			CHECKED			

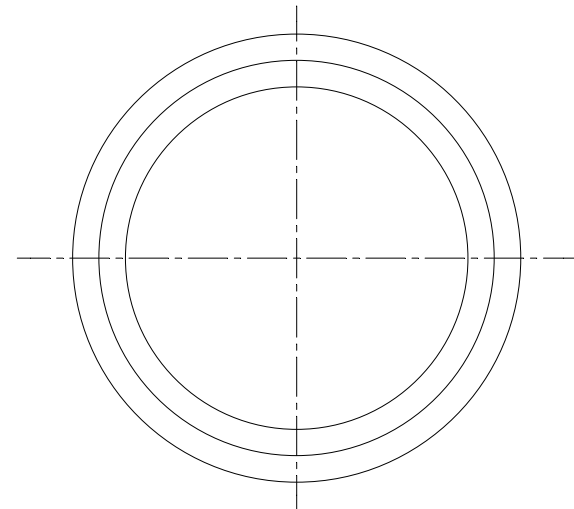
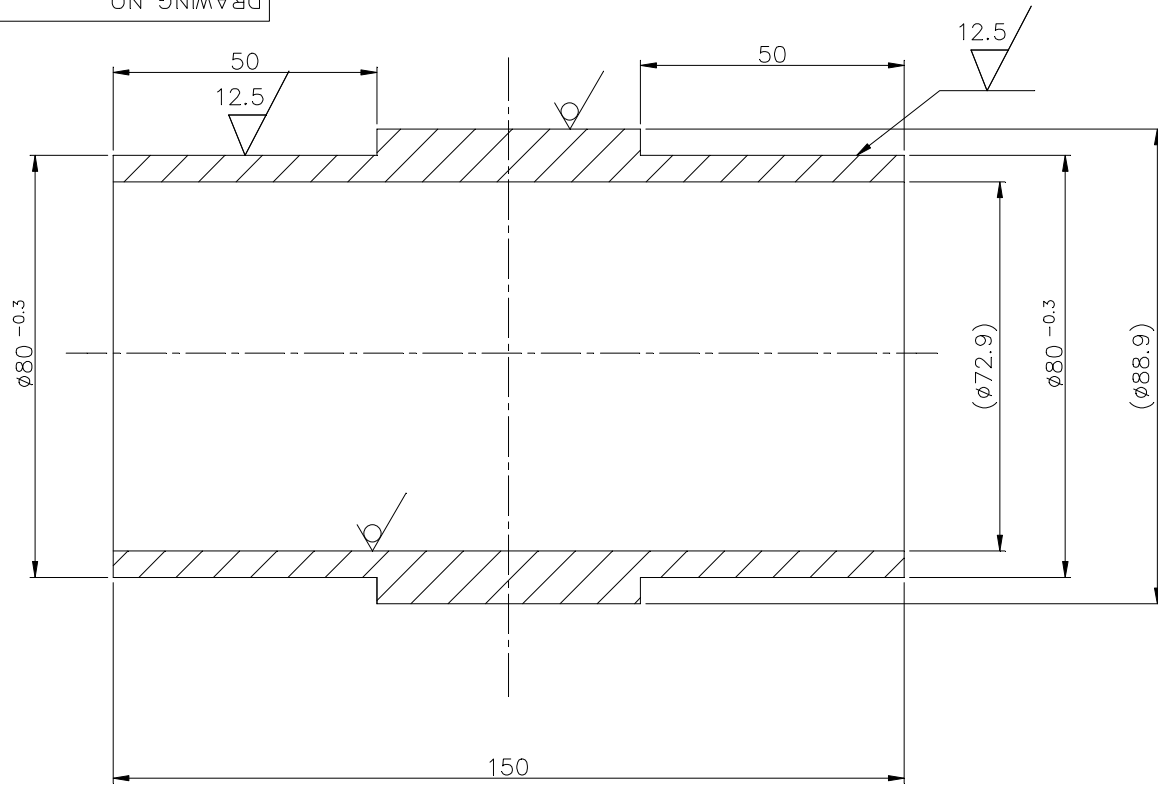
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG						
DEPT. TGE		SCALE		WEIGHT(Kg.)		REF. TO ASSY. DRG.		
CODE 4133		1:5		2.5		91440401007		
TITLE		PIPE		1 3		DRAWING NO. 31440401148		
						SHEET NO.1 NO.OF SHEETS 1		

**BHARAT HEAVY ELECTRICALS LTD.**  
HARDWAR

DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	STGETNG	STGETNG	23/07/2010	
APD	STGESSM	STGESSM	23/07/2010	
	ATGEVK	ATGEVK	07/03/2011	73, 74

DRAWING NO. 31440401149

50° THE REST



TECHNICAL REQUIREMENTS

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397

0-5907-256435/SH1 REF. DRG NO.  
SIGN & DATE  
INVENTORY NO.

GRADE OF UNTOL. DIM.: -				CBOM NO. 91440401007		STATUS OF DRG.	
M/CG- V/C/M/F AA 0230208	EMT	AEMTNCG	AEMTNCG	23/02/2011			
WELDING-A/B/C/D-AA621104	WTX	AWXTSC	AWXTSC	13/08/2010			
GAS CUTTING-T3'AA0621101							
REV.	DATE	ALTERED	REV.	DATE	ALTERED		
		CHECKED			CHECKED		

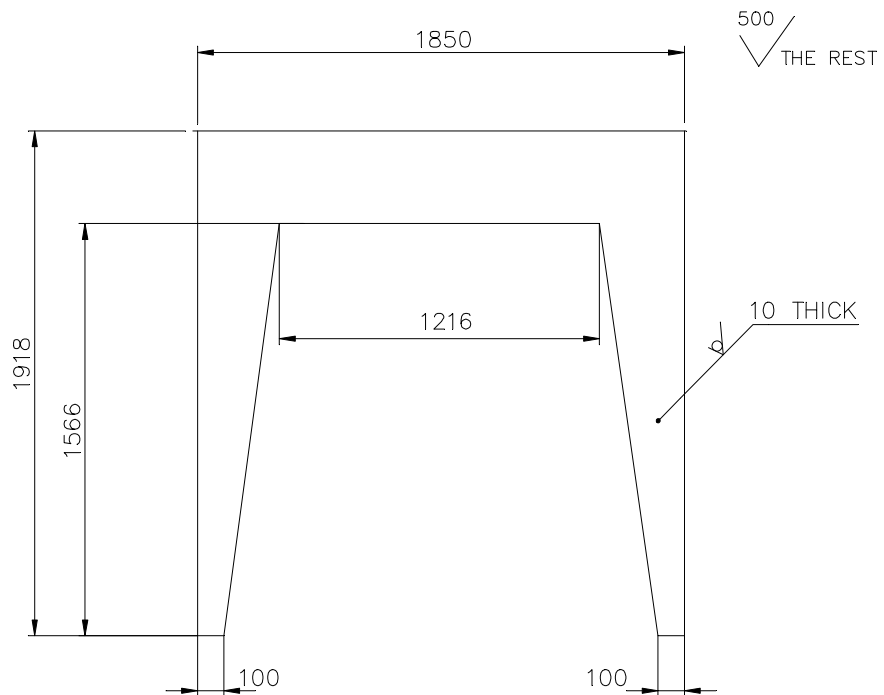
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				B'LESS EXCITER FOR 800MW TG				
BHARAT HEAVY ELECTRICALS LTD. HARDWAR				DRN	STGETNG	STGETNG	23/07/2010	NO.OF VAR.
				CHD	STGESSM	STGESSM	23/07/2010	
				APD	ATGEVK	ATGEVK	07/03/2011	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.		NO.OF ITEMS	
CODE 4133	1:1	2	91440401007		022		75, 77	
TITLE PIPE				DRAWING NO. 31440401149				
				SHEET NO.1		NO.OF SHEETS 1		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	RM	-S/D-	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
			CH. AD. NO.-			DEPT.	SKC	SD/-	5/02/83
			TGE-13-F0359			WT			

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



### TECHNICAL REQUIREMENTS

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

26-5605-86399a/KWU  
 REF.DRG.No. IT.1

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
 HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	11/5/81	
CHD	SM/KNW	SD/-	26/2/83	
APD	N.P.GUPTA	SD/-	28/02/83	

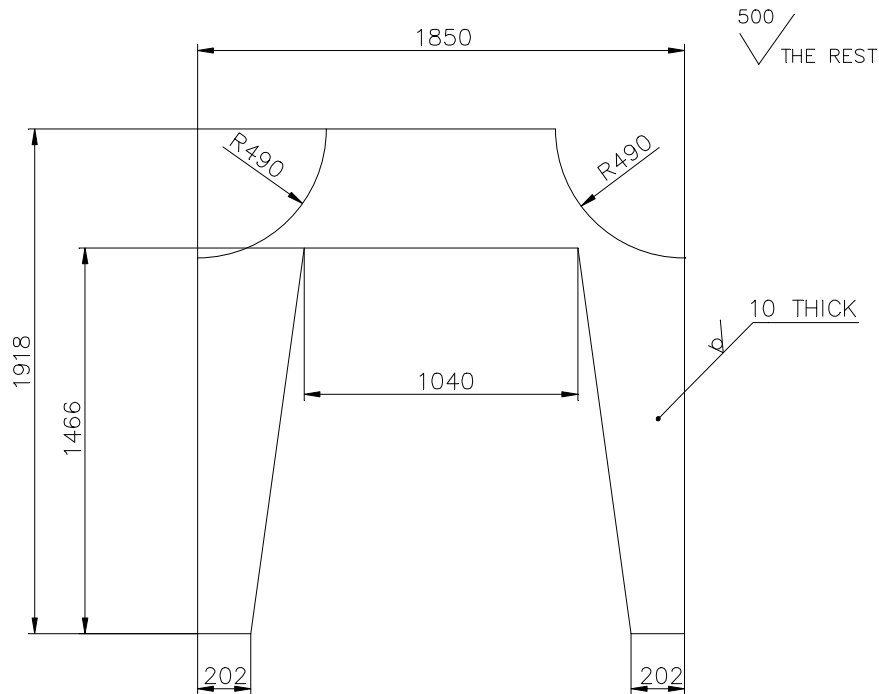
INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1: 20	102.40	91440401002	005	-
TITLE				DRAWING No.		
PLATE				41440401046		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	RM	-S/D-	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN	DATE
			CH. AD. NO.-			DEPT.	WT	SKC	SD/-
			TGE-13-F0359						5/02/83

GRADE OF UNTOOL	DIM.M/C/C/M/F	AA0230208	WELDING A/B/C/D	AA0621104	GAS CUTTING-T3	AA0621101
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### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

26-5605-86399g/KWU  
REF.DRG.No. IT.2

SIGN & DATE



**BHARAT HEAVY ELECTRICALS LTD**  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	12/5/81	00
CHD	SM/KNW	SD/-	26/2/83	00
APD	N.P.GUPTA	SD/-	28/02/83	00

INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1: 20	105.90	91440401002	004	-
	TITLE <b>PLATE</b>			DRAWING No. <b>41440401047</b>		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

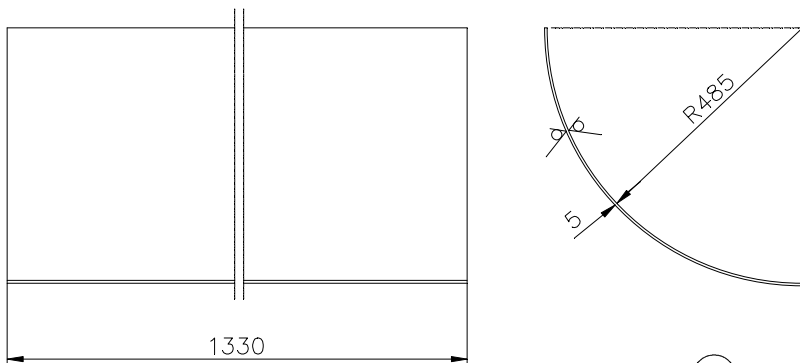
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED RM	-S/D+	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO			AGREED	NAME	SIGN
			CH. AD. NO.-			DEPT.	WT	SKC
			TGE-13-F0359				SD/-	5/02/83

GRADE OF UNTO L.DIM.M/C&C/M/F.AA0230208 | WELDING A/B/C/D AA0621104 | GAS CUTTING-T3 AA0621101

500 /  
✓ THE REST



SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-13-F0359

### TECHNICAL REQUIREMENT

- 1- MARK IDENTIFICATION ACCORDING TO HW 0400397.
- 2- MEAN DEVELOPED LENGTH=766.

26-5605-86399c/KWU  
REF.DRG.No. IT.9

SIGN & DATE

	BHARAT HEAVY ELECTRICALS LTD		NAME	SIGN	DATE	NO. OF	
	HARDWAR		DRN	Y.C.GARG	SD/-	23/5/81	VAR
			CHD	SM/KNW	SD/-	26/2/83	00
		APD	N.P.GUPTA	SD/-	28/02/83		

INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:10	40.000	91440401002	003	-
	TITLE PLATE			DRAWING No. 41440401052		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

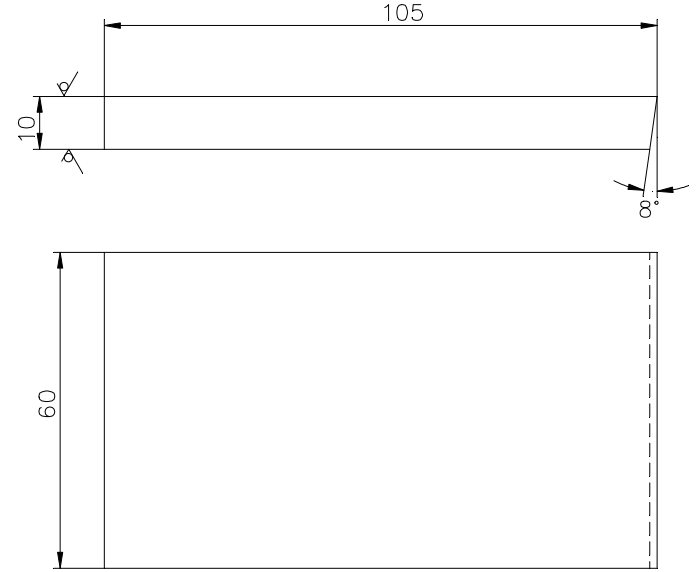
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	RM	-S/D+	CBOM No.	STATUS
		CHECKED	01	15.11.13	CHECKED	SSM	-S/D-	91440401002	OF DRG
			CHANGES ACCORDING TO		AGREED	NAME	SIGN	DATE	
			CH. AD. NO.-		DEPT.	WT	SKC	SD/-	15/02/83
			TGE-13-F0359						

GRADE OF UNTO	DIM.M/C	C/C/M/F	AA0230208	WELDING A/B/C/D	AA0621104	GAS CUTTING-T3	AA0621101
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500  
✓ THE REST



### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400.397.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-13-F0359

26-5605-86399a/KWU  
REF.DRG.No. IT.24

SIGN & DATE



**BHARAT HEAVY ELECTRICALS LTD**  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	31/5/81	00
CHD	SM/KNW	SD/-	26/2/83	
APD	N.P.GUPTA	SD/-	28/02/83	

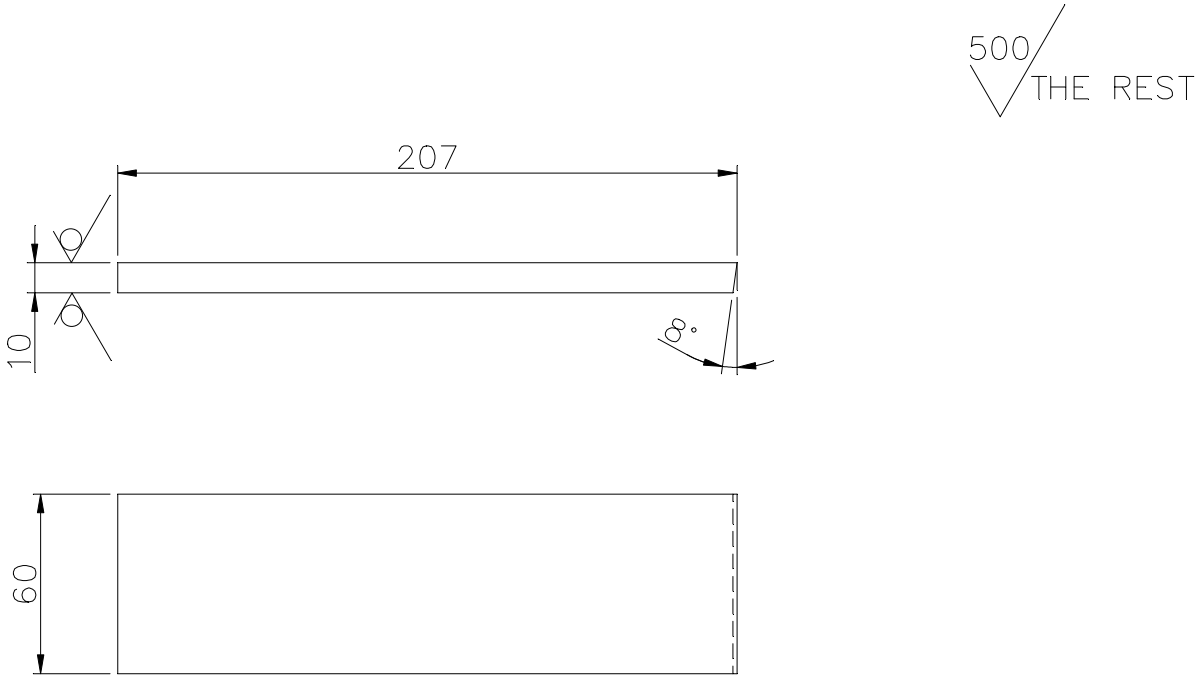
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	CODE 4133			91440401002		
	TITLE <b>STRIP</b>			DRAWING No. 41440401061		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED	REV	DATE	ALTERED	P.A.	-S/D-	CBOM No.	STATUS OF DRG
		CHECKED	01	10.12.13	CHECKED	SSM	-S/D-	9-144-04-01002	
CHANGES ACCORDING TO						AGREED DEPT.	NAME	SIGN	DATE
CH. AD. NO.-						WT	S.K.K.	-SD-	26.2.83
TGE-13-F0383									
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0383

26-5605-86399a/KWU  
REF.DRG.No.I.T. 25

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	-SD-	31.5.81	
CHD	SM/KNW	-SD-	26.2.83	
APD	N.P.GUPTA	-SD-	28.2.83	

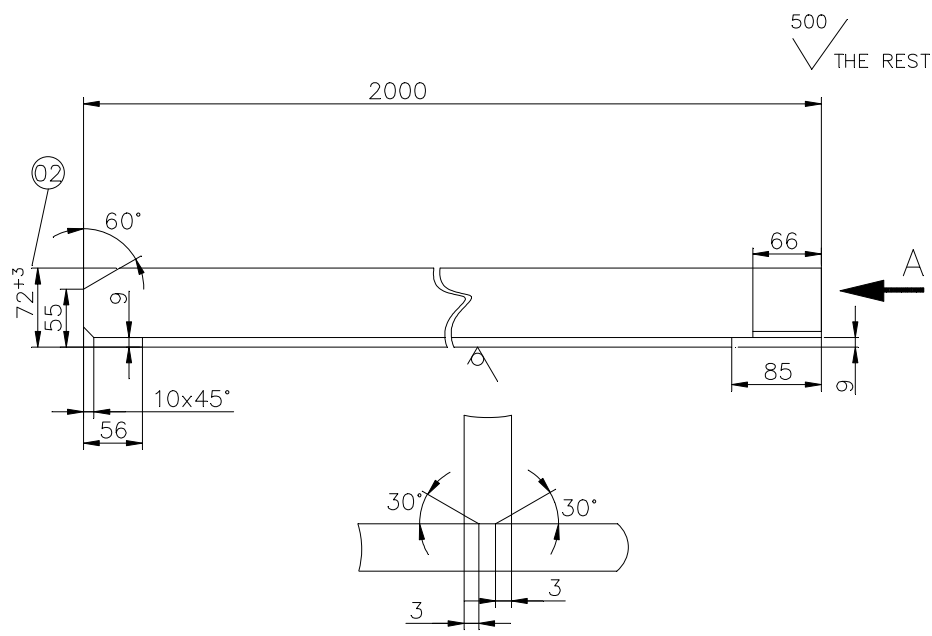
INVENTORY No.	DEPT. TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 2.5	1.000	9-144-04-01002	016	
	TITLE				DRAWING No.		
BRUSHLESS EXCITER FOR 500MW TG.				4-144-04-01062			
					SHEET No. 1	No.OF SHEETS 1	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV 02	DATE 7.2.20	ALTERED STG E PA CHECKED STG ERY	REV 01	DATE 15.11.13	ALTERED RM -S/D- CHECKED SSM -S/D-	CBOM No. 91440401002	STATUS OF DRG		
CHANGES AS PER C/A NO TGE-20-F0028			CHANGES ACCORDING TO CH. AD. NO.- TGE-13-F0359			AGREED DEPT. WT	NAME SKC	SIGN SD/-	DATE 5/02/83
GRADE OF UN TOL. DIM. M/ G C/ M/ F. AA0230208		WELDING A/B/C/D AA0621104		GAS CUTTING-T3 AA0621101					

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VIEW-A  
SCALE 1:1

### TECHNICAL REQUIREMENT

1- MARK IDENTIFICATION ACCORDING TO HW 0400397.

01  
 SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0359

26-5605-86399a/KWU  
 REF.DRG.No. IT.32

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	Y.C.GARG	SD/-	06/6/81	00
CHD	SM/KNW	SD/-	26/2/83	00
APD	N.P.GUPTA	SD/-	28/02/83	00

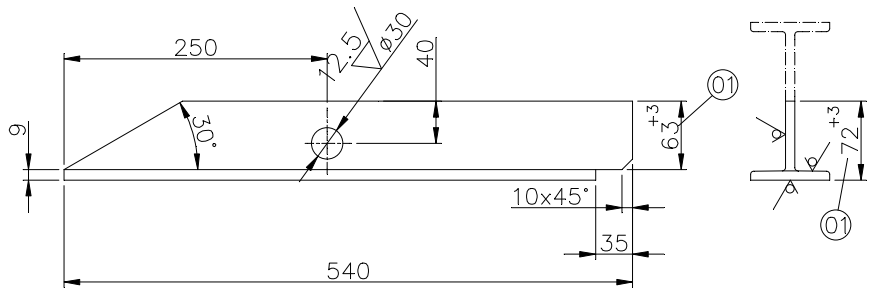
INVENTORY No.	DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:5	14.5	91440401002	009	-
	TITLE PROFILE			DRAWING No. 41440401068		
BRUSHLESS EXCITER FOR 500MW TG.				SHEET No. 1	No.OF SHEETS	1

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	STGEPA	CBOM No.	STATUS	
		CHECKED	01	7.2.20	CHECKED	STGERY	01440401028	OF DRG	
CHANGES AS PER C/A NO			AGREED	NAME	SIGN	DATE			
TGE-20-FO026			DEPT.	AWT	TSCA	WTXTSCA	24/07/2010		
			WTX	AWT	TSCA	WTXTSCA			

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

50/  
THE REST



TECHNICAL REQUIREMENTS

- 1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5605-114441/032  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	23/07/2010	
CHD	STGESSM	STGESSM	23/07/2010	
APD	ATGEVK	ATGEVK	26/07/2010	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
PROFILE				41440401302		
(B'LESS EXCITER FOR 800MW TG)				SHEET No.1 No.OF SHEETS1		

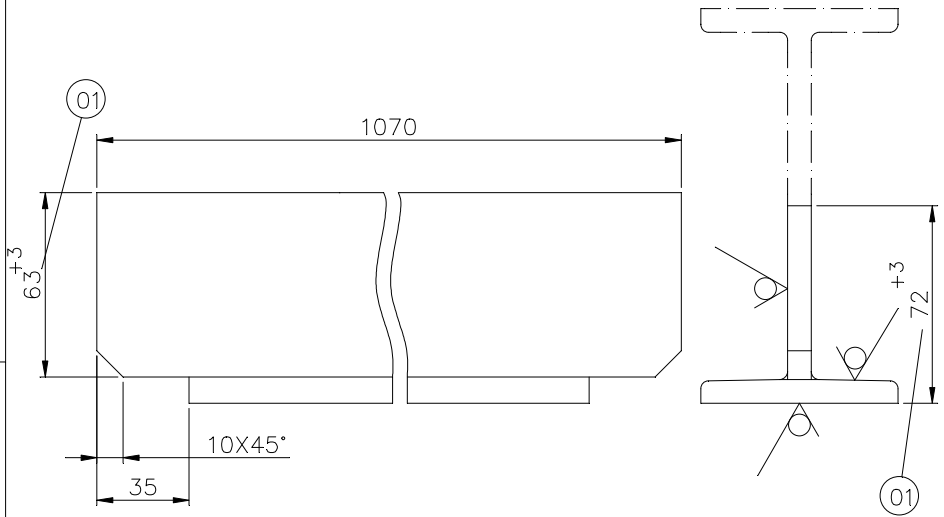
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	STGEPA	CBOM No.	STATUS	
		CHECKED	01	7.2.20	CHECKED	STGERY	01440401028	OF DRG	
			CHANGES AS PER C/A NO		AGREED	NAME	SIGN	DATE	
			TGE-20-FO026		DEPT.	AWTXTSCA	AWTXTSCA	24/07/2010	
					WTX				

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

50/ THE REST



TECHNICAL REQUIREMENTS

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397

26-5605-114441/031 REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

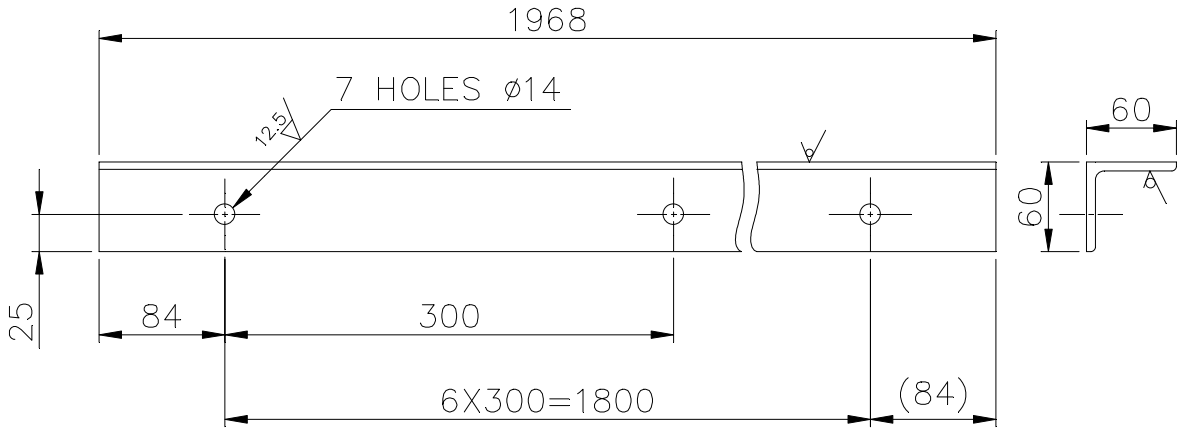
	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	23/07/2010	
CHD	STGESSM	STGESSM	23/07/2010	
APD	ATGEVK	ATGEVK	26/07/2010	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
PROFILE				41440401304		
(B'LESS EXCITER FOR 800MW TG)				SHEET No.1 No.OF SHEETS1		

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REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01440401028		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXTSC	AWTXTSC	24/07/2010
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101			

50/ THE REST



### TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 0400397

26-5605-114441/038  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	23/07/2010	
CHD	STGESSM	STGESSM	23/07/2010	
APD	ATGEVK	ATGEVK	26/07/2010	

INVENTORY No.	DEPT.TGE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133		1: 5	10.8	01440401028	012	
	TITLE PROFILE					DRAWING No. 41440401305	
					SHEET No.1	No.OF SHEETS <sup>1</sup>	

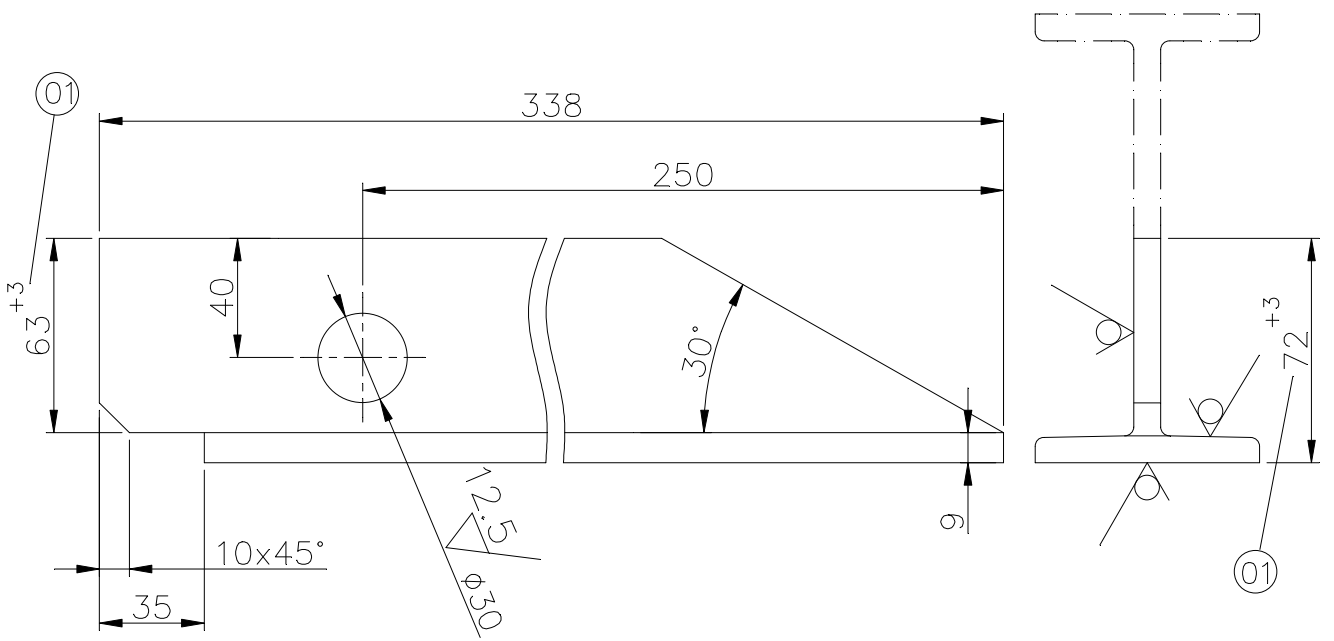
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FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED STG CHECKED STGERY	CBOM No. 01440401028		STATUS OF DRG
			01	7.2.20		AGREED DEPT. WTX	NAME AWTXTSCAWTXTSC	SIGN DATE 24/07/2010
			CHANGES AS PER C/A NO TGE-20-FO026					
GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208			WELDING A/B/C/D AA0621104			GAS CUTTING-T3 AA0621101		

50 THE REST



TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

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26-5605-114441/033  
REF.DRG.No.

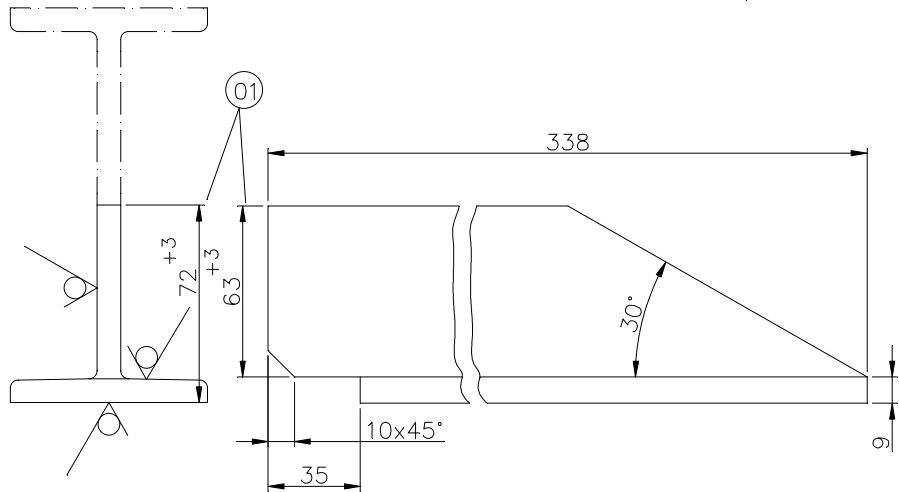
SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	NAME STGEVK	SIGN STGEVK	DATE 23/07/2010	NO. OF VAR
			CHD	STGESSM	STGESSM	23/07/2010	
			APD	ATGEVK	ATGEVK	26/07/2010	
INVENTORY No.	DEPT.TGE	SCALE 1:2.5	WEIGHT(Kg) 2.4	REF.TO ASSY.DRG.		ITEM No. 014	No OF ITEMS
	CODE 4133			01440401028			
TITLE PROFILE (B'LESS EXCITER FOR 800MW TG)			DRAWING No. 41440401306		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	STG	EP	CBOM No.	STATUS	
		CHECKED	01	17.2.20	CHECKED	STGERY		01440401028	OF DRG	
CHANGES AS PER C/A NO TGE-20-FO026						AGREED DEPT.	NAME	SIGN	DATE	
						WTX	AWTXTSCA	AWTXTSCA	24/07/2010	

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

50/ THE REST



TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5605-114441/035 REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	23/07/2010	
CHD	STGESSM	STGESSM	23/07/2010	
APD	ATGEVK	ATGEVK	26/07/2010	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
PROFILE				41440401307		
(B'LESS EXCITER FOR 800MW TG)				SHEET No.1 No.OF SHEETS1		

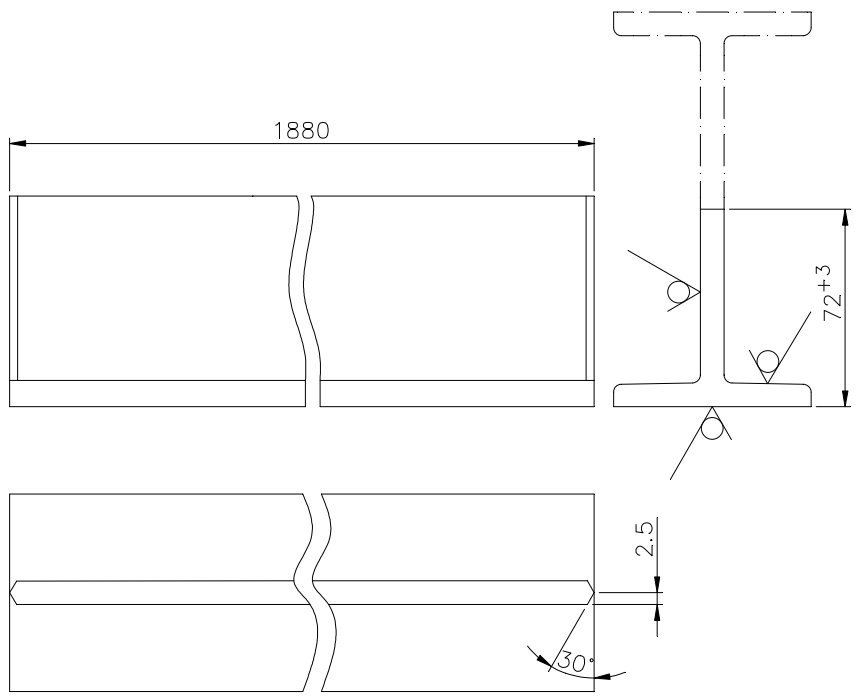
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01440401028	STATUS OF DRG
						AGREED DEPT. WTX	NAME AWTXAS
						SIGN AWTXAS	DATE 24/08/2021

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

50° THE REST



TECHNICAL REQUIREMENT:

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397.

INVENTORY No.	DEPT.TGE	SCALE 1:2	WEIGHT(Kg) 13.80	REF.TD ASSY.DRG. 01440401028	ITEM No. 011	No OF ITEMS
	CODE 4133					
	TITLE PROFILE (B'LESS EXCITER FOR 800MW TG)			DRAWING No. 41440401352		
				SHEET No.1 No.OF SHEETS1		



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEP A	STGEP A	24/08/2021	
CHD	STGESSM	STGESSM	24/08/2021	
APD	STGESSM	STGESSM	24/08/2021	

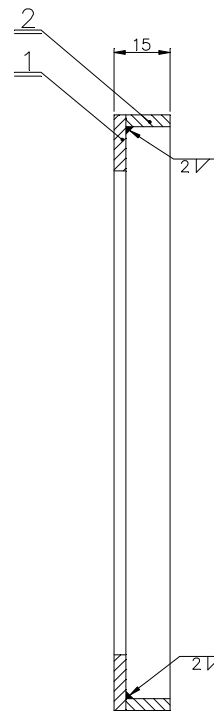
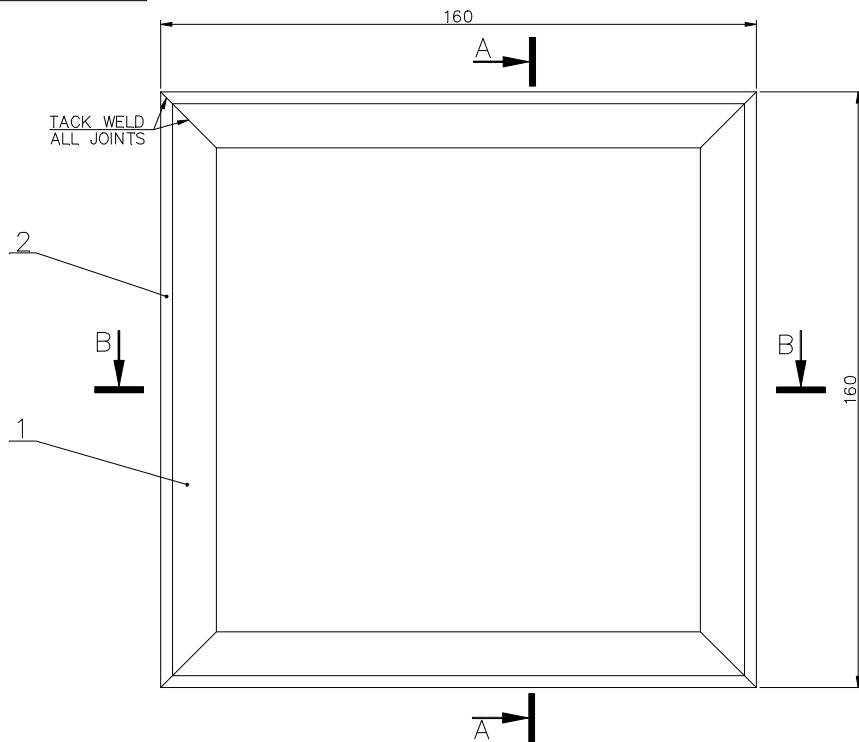
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REF.DRG.No.

SIGN & DATE



DRAWING NO. 21440401002



SECTION A-A



SECTION B-B

SYMBOL & SIZE OF SEAM	2△
SEAM LENGTH M.	0.607
WT. OF DEPOSITED METAL KG.	0.018
TYPE OF ELECTRODE	E-42

01  
SUPERSEDES

TECHNICAL REQUIREMENTS

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099 : CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. IDENTIFICATION ACCORDING TO HW0400397.

INVENTORY NO. SIGN & DATE REF. DRG NO. 28-5607-86456/KW

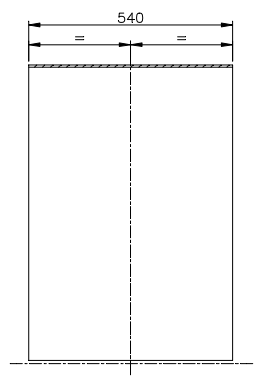
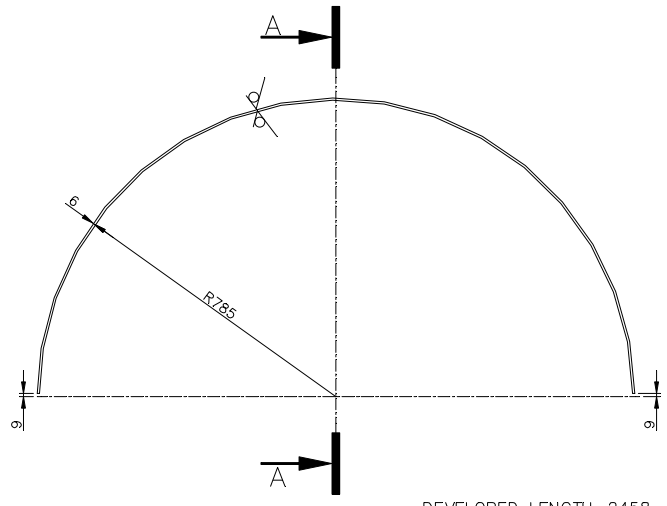
CBOM NO. 01440401003		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WT	CHHABRA	-SD-	23.9.81
GRADE OF UNTOL. DIM.: -			
M/CG- V/C/M/P' AA 0230208			
WELDING-A/B/C/D-AA0621104			
GAS CUTTING-'T3'AA0621101			
REV. DATE	ALTERED	REV. DATE	ALTERED PA
	CHECKED	01 26.02.22	CHECKED RM
		-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039			

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		BRUSHLESS EXCITER FOR 500MW TG			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	NAME	SIGN	DATE	NO. OF VAR.	
	DRN	TNG	-SD-	25.4.81	-
	CHD	KSR/KNW	-SD-	22.9.81	-
APD	NPG	-SD-	28.9.81	73, 74	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	
CODE 4133	1:1	0.422	01440401001	011	
TITLE		DRAWING NO.		NO. OF ITEMS	
FRAME		21440401002		22, 23, 24	
SHEET NO. 1		NO. OF SHEETS 1		SIZE A2	

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DRAWING NO. 31440401010

500/  
THE REST



SECTION A-A

DEVELOPED LENGTH=2458

TECHNICAL REQUIREMENT: -

- 1. IDENTIFICATION ACCORDING TO HW0400397.

SUPERSEDES 02

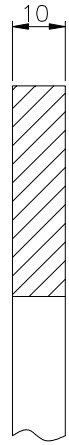
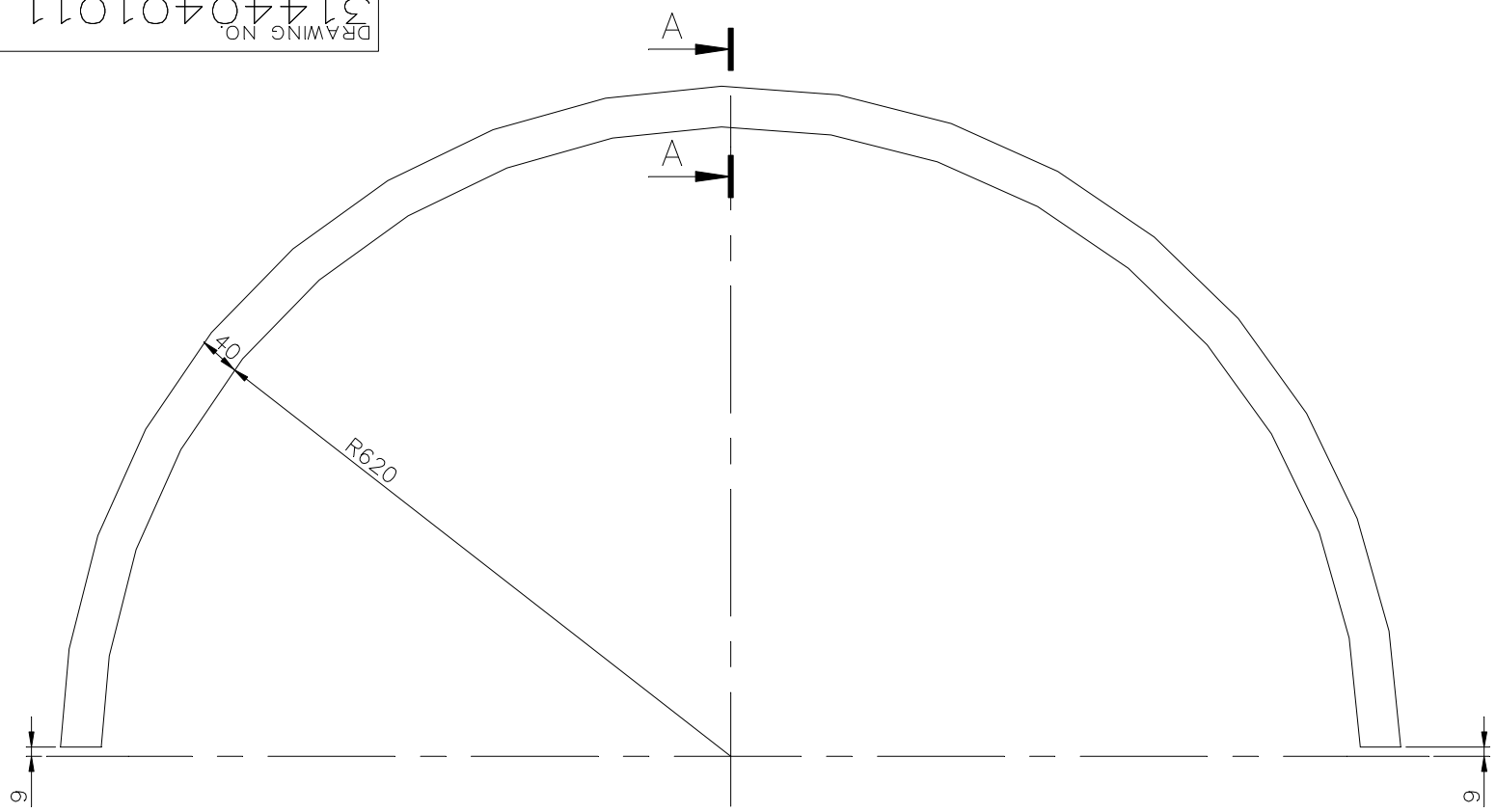
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 26-5807-86456/MS (ITEM No.1)  
 REF. DRG NO.  
 SIGN & DATE  
 INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT						
M/CG- V/q/M/φ AA 0230208		APPROVED	NAME	SIGN	DATE	BRUSHLESS EXCITER FOR 500MW TG						
WELDING-A/B/C/D-AA0621104		WT	CHHABRA	-SD-	23.9.81	BHARAT HEAVY ELECTRICALS LTD. HARDWAR						
GAS CUTTING-'T3'AA0621101		REV. DATE		ALTERED PA	-SD-	DEPT.	TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
REV. DATE	ALTERED	02	26.02.22	CHECKEDRM	-SD-	CODE	4133	1:10	62.642	01440401001	005	73, 74
CHECKED		CHANGES AS PER C/A NO. TGE-22-F0039		TITLE		SHEET		DRAWING NO. 31440401010		SHEET NO. 1		NO.OF SHEETS 1

SIZE A3

31440401011  
DRAWING NO.

ALL OVER



SECTION A-A  
SCALE 1:1

DEVELOPED LENGTH=1993

TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

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26-5607-865459/KWU  
 (ITEM NO:19)  
 REF. DRG NO.

SIGN & DATE

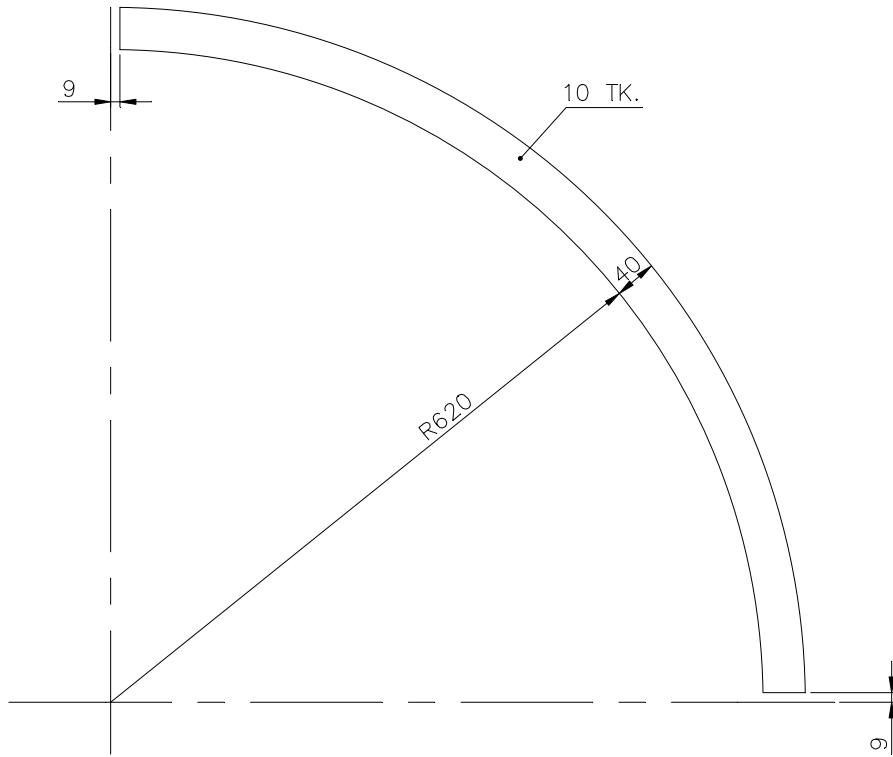
INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>Y/E/M/P</del> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
01	CHECKED	26.02.22	CHECKED RM	-SD-	
CHANGES AS PER C/A NO. TGE-22-F0039					

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	TNG	-SD-	18.4.81	NO.OF VAR.
	CHD	KSR/KNW	-SD-	22.9.81	-
	APD	NPG	-SD-	28.9.81	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1:5	6.296	01440401001	ITEM NO.	NO.OF ITEMS
TITLE FLAT			1	3	009
			DRAWING NO. 31440401011		
			SHEET NO.1 NO.OF SHEETS 1		

DRAWING NO. 31440401012

ALL OVER



DEVELOPED LENGTH=988

TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-865459/KWU  
(ITEM NO.20)

REF. DRG NO.

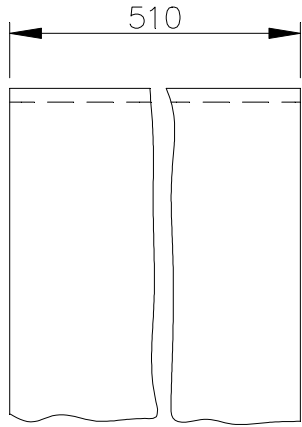
SIGN & DATE

INVENTORY NO.

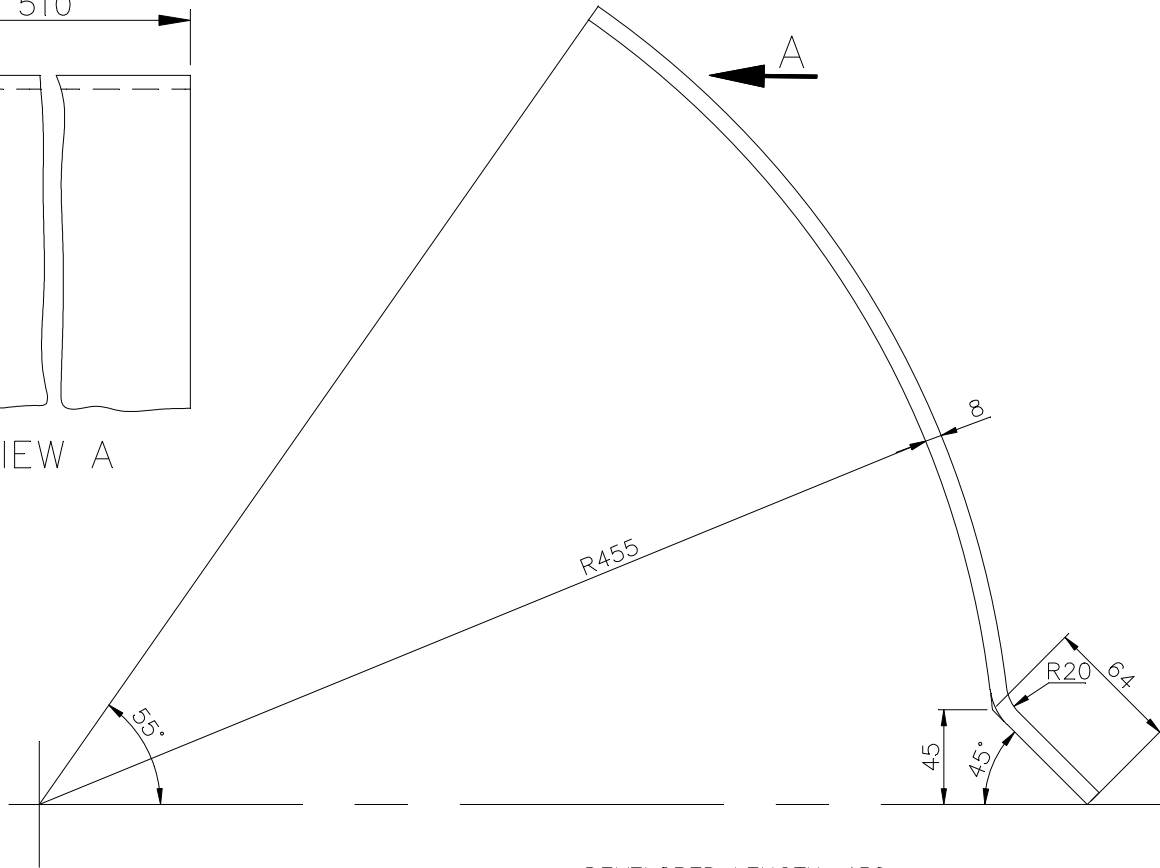
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.				
M/CG- <i>vtc/m/v</i> AA 0230208	WT	CHHABRA	-SD-	23.9.81				DRN	TNG	-SD-	18.4.81	NO.OF VAR.
WELDING- <i>A/B/C/D</i> -AA621104								CHD	KSR/KNW	-SD-	22.9.81	-
GAS CUTTING-'T3'AA0621101								APD	NPG	-SD-	28.9.81	73, 74
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS	
01	CHECKED	26.02.22	CHECKED RM	-SD-	CODE 4133	1:5	3.125	01440401001		017	-	75, 77
CHANGES AS PER C/A NO. TGE-22-F0039				TITLE		FLAT		DRAWING NO.		31440401012		
								SHEET NO.1		NO.OF SHEETS 1		

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31440401014  
DRAWING NO.



VIEW A



DEVELOPED LENGTH=450

TECHNICAL REQUIREMENTS: -

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

26-5607-86545a/KWU  
(ITEM NO:12)  
REF. DRG NO.

SIGN & DATE

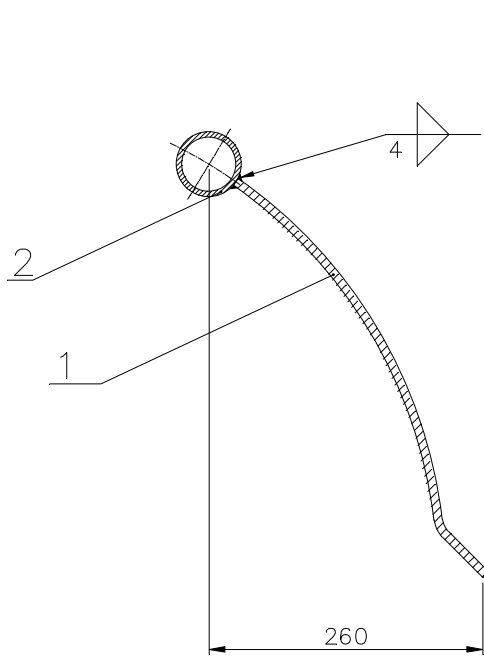
INVENTORY NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <i>vtc/m/v</i> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <i>A/B/C/D</i> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	02	26.02.22	CHECKED RM	-SD-
CHANGES AS PER C/A NO. TGE-22-F0039					

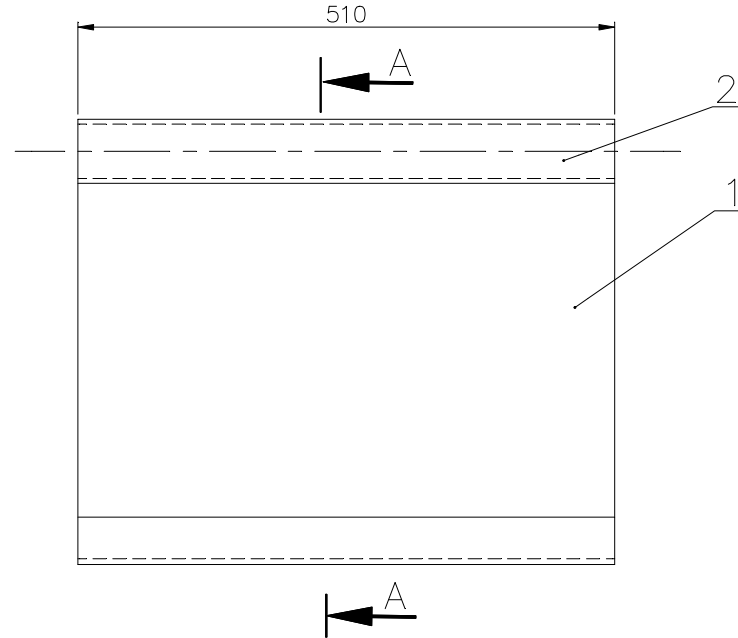
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	TNG	-SD-	18.4.81	NO.OF VAR.
	CHD	KSR/KNW	-SD-	22.9.81	-
	APD	NPG	-SD-	28.9.81	73, 74
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		
CODE 4133	1: 2.5	14.490	31440401015		
TITLE		SHEET		1	3
DRAWING NO.		31440401014			
SHEET NO.1		NO.OF SHEETS 1			

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DRAWING NO. 31440401015



SECTION A-A



SYMBOL & SIZE OF WELD SEAM	4 $\nabla$
SEAM LENGTH IN METER	1.020
WT. OF DEPOSITED METAL IN KG.	0.096
TYPE OF ELECTRODE	E-42


TECHNICAL REQUIREMENTS: -

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099: CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

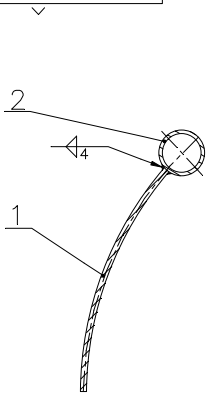
INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-86545a/KWU

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>Y/E/M/P</del> AA 0230208	WT	CHHABRA	-SD-	23.9.81	
WELDING- <del>A/B/C/D</del> -AA621104					
GAS CUTTING-'T3'AA0621101					
REV. DATE	ALTERED	REV. DATE	ALTERED PA	-SD-	
	CHECKED	02	26.02.22	CHECKED RM	-SD-
CHANGES AS PER C/A NO. TGE-22-F0039					

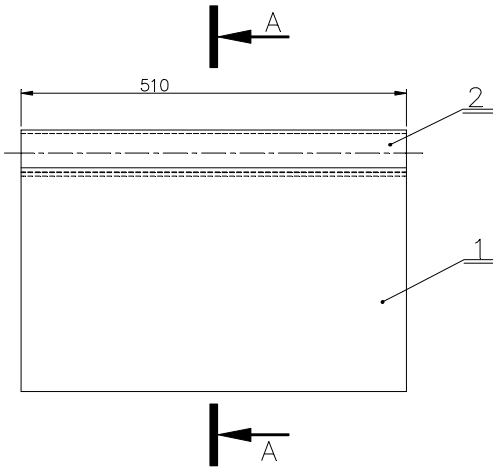
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.			
 BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	TNG	-SD-	18.4.81	-
	APD	KSR/KNW	-SD-	22.9.81	-
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	18.036	01440401001	015	-
TITLE			DRAWING NO.		
SUPPORT			31440401015		
			SHEET NO.1 NO.OF SHEETS 1		

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DRAWING NO. 31440401016



SECTION A-A



SYMBOL & SIZE OF WELD SEAM	4 Δ
SEAM LENGTH M.	1.020
WT. OF DEPOSITED METAL KG.	0.096
TYPE OF ELECTRODE	E-42

TECHNICAL REQUIREMENTS: -

1. CLASSIFICATION GROUPS ACCORDING TO HW0620099: CK.
2. TEST SCOPE ACCORDING TO HW0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
3. IDENTIFICATION ACCORDING TO HW0400397.

02  
SUPERSEDES

26-3607-86456/K.W.U. REF. DRG NO. SIGN & DATE INVENTORY NO.

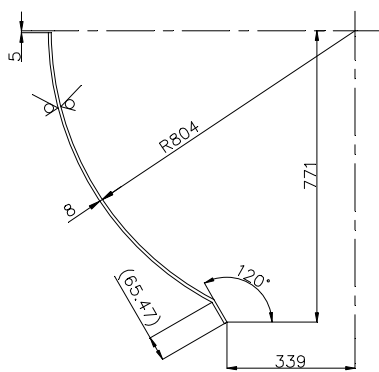
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401003		STATUS OF DRG.	
M/CG- <del>V/C/M/P</del> AA 0230208		AGREED DESI.	NAME	SIGN	DATE
WELDING- <del>A/B/C/D</del> -AA0621104		WT	CHHABRA	-SD-	23.09.81
GAS CUTTING-'T3'AA0621101		CHANGES AS PER C/A NO. TGE-22-F0039			
REV.	DATE	ALTERED	REV.	DATE	ALTERED PA
		CHECKED	02	26.02.22	CHECKED RM -SD-

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		BRUSHLESS EXCITER FOR 500MW TG			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE
		CHD	T.N.G.	-SD-	18.4.81
		APD	K.S.R./K.N.W.	-SD-	22.9.81
			N.P.G.	-SD-	28.9.81
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF VARS.
CODE 4133	1:5	13.847	01440401001	022	-
TITLE		DRAWING NO. 31440401016			
SUPPORT		SHEET NO. 1 NO.OF SHEETS 1			

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DRWING NO. 31440401017

500 THE REST



DEVELOPED LENGTH= 945

TECHNICAL REQUIREMENTS: -

- 1. MARK IDENTIFICATION ACCORDING TO HW0400397.

**SUPERSEDES** 02

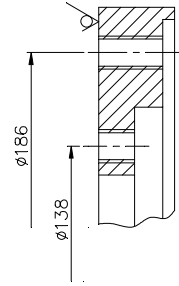
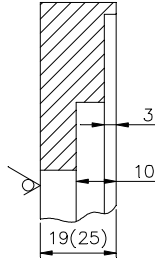
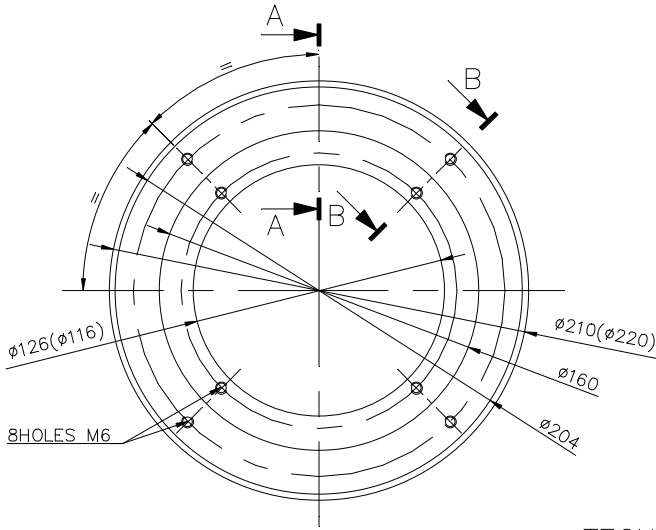
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26-5607-85455/KWU  
(ITEM NO. 10)  
REF. DRG NO.

SIGN & DATE  
INVENTORY NO.

CBOM NO. 01440401003		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 500MW TG.					
AGREED	NAME	SIGN	DATE	DRN	NAME	SIGN	DATE	NO.OF	VAR.		
WT	CHHABRA	-SD-	23.9.81	TNG	-SD-	18.4.81	-	-	-		
GRADE OF UNTOL. DIM.: -				CHD	KSR/KNW	-SD-	22.9.81	-	-		
M/CG- v/e/M/ AA 0230208				APD	NPG	-SD-	28.9.81	73, 74	-		
WELDING-A/B/e/B-AA621104				DEPT. TGE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM	NO.OF	
GAS CUTTING-'T3'AA0621101				CODE 4133	1:10	30.420	01440401001	023	75, 77		
REV.	DATE	ALTERED	REV. DATE	ALTERED	PA	-SD-	CHANGES AS PER C/A NO. TGE-22-F0039				
		CHECKED	02	26.02.22	CHECKED	RM	-SD-	TITLE SHEET			
								DRAWING NO. 31440401017			
								SHEET NO.1		NO.OF SHEETS 1	

SIZE A3



### TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.
2. DIMENSIONS IN BRACKETS ARE BEFORE MACHINING.

01  
 SUPERSEDES THE OLD  
 DRG. UNDER THE SAME NO.  
 TGE-10-F0018

0-144-04-01011

B'LESS EXCITER FOR 500MW TG.

WT ROY -S/D- 21.5.90



01 16.1.10 VJAY -S/D-  
 TNG -S/D-  
 CHANGES ACCORDING TO  
 CH.AD. NO.-  
 TGE-10-F0018

TGE  
4133

1:2 2.390

FLANGE

TNG -S/D- 24.3.90  
 SM -S/D- 29.3.90  
 IC RAO -S/D- 16.6.90

0-144-04-01013 030

3-144-04-01070 01

1

REV. 1

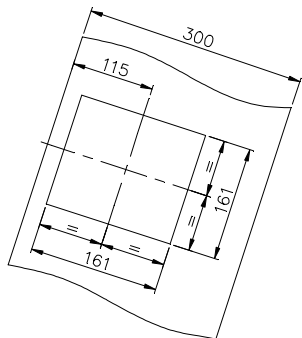
24/07/98/MB/KMU  
(NEW No.1)

DRAWING NO. 31440401144

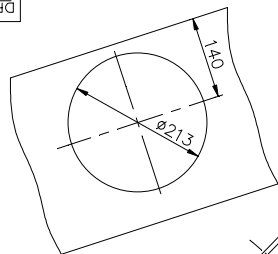
500/  
THE REST

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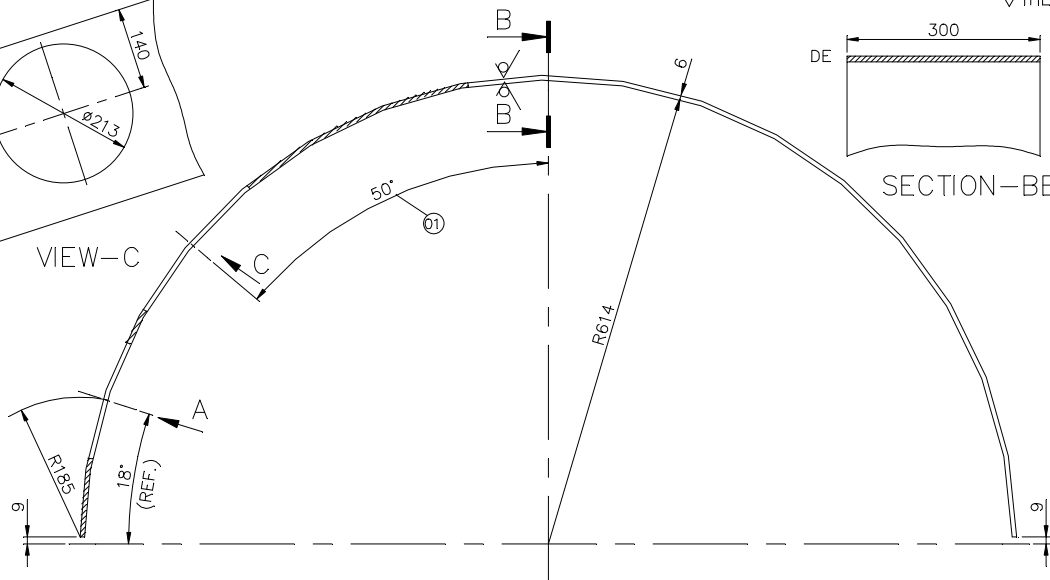
26-5607-122988 b/kwu  
REF. DRG NO.



VIEW-A



VIEW-C



DEVELOPED LENGTH=1920

TECHNICAL REQUIREMENTS

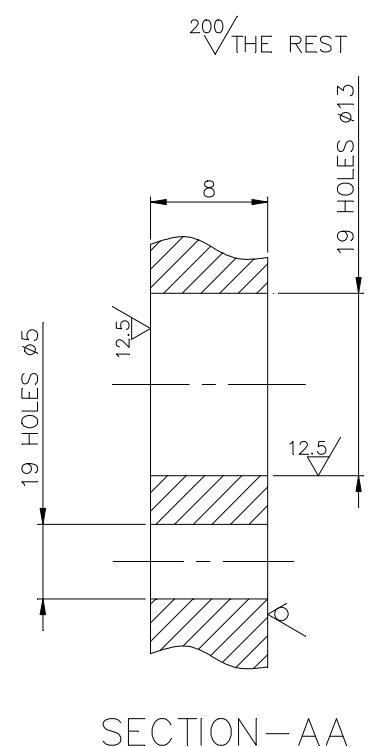
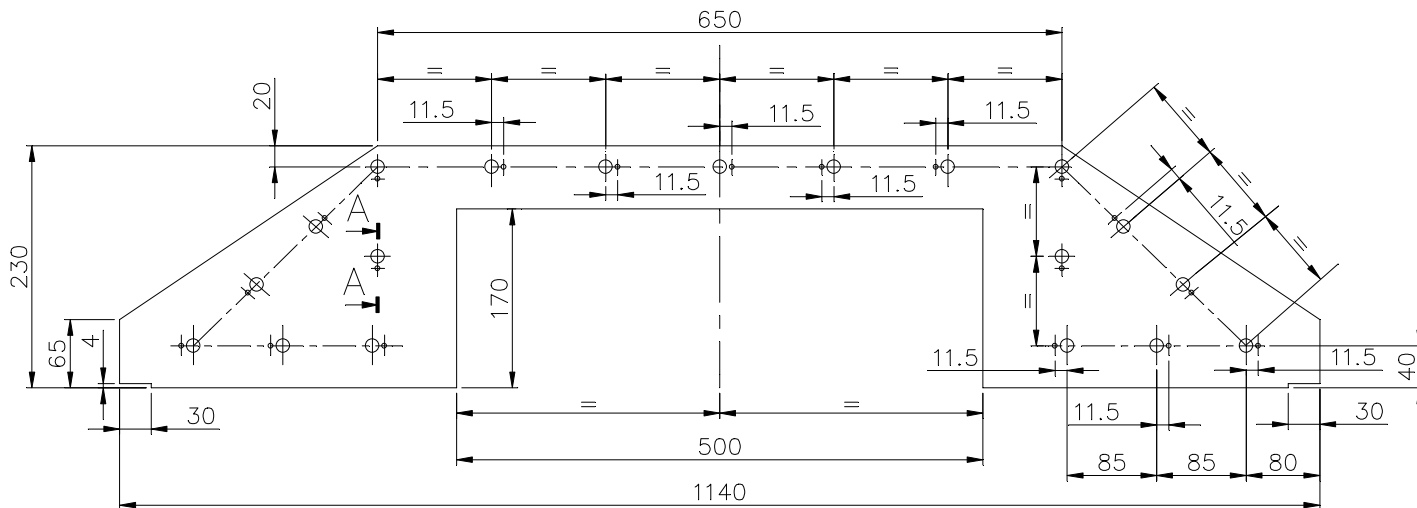
1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

CBOM NO. 01440401029		STATUS OF DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG.				
GRADE OF UNTOL. DIM.: -	AGREED WTX	NAME AWTXIS	SIGN AWTXIS	DATE 28/08/2010		DRN	NAME STGEVK	SIGN STGEVK	DATE 05/08/2010	NO.OF VAR.
M/CG- W/C/M/P AA 0230208						CHD	STGEVSM	STGEVSM	05/08/2010	73, 74
WELDING- A/B/C/D-AA621104						APD	ATGEVK	ATGEVK	01/10/2010	75, 77
GAS CUTTING- T3'AA0621101	REV. DATE	ALTERED	REV. DATE	ALTERED	DEPT. TGE	SCALE	WEIGHT(K.g.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
	01	7.3.17	01	7.3.17	DEPT. TGE	1:5	24.353	01440401031	021	75, 77
	CHECKED		CHECKED	SSM -SD-	CODE 4133					
	CHANGE AS PER C/A NO. TGE-17-F0057.				TITLE SHEET		DRAWING NO. 31440401144		SHEET NO.1 NO.OF SHEETS 1	

SIZE A3

DRAWING NO. 31440401145

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TECHNICAL REQUIREMENTS

- MARK IDENTIFICATION ACCORDING TO HW 0400397.

INVENTORY NO. SIGN & DATE REF. DRG NO. 26-5607-122988 b/kwu

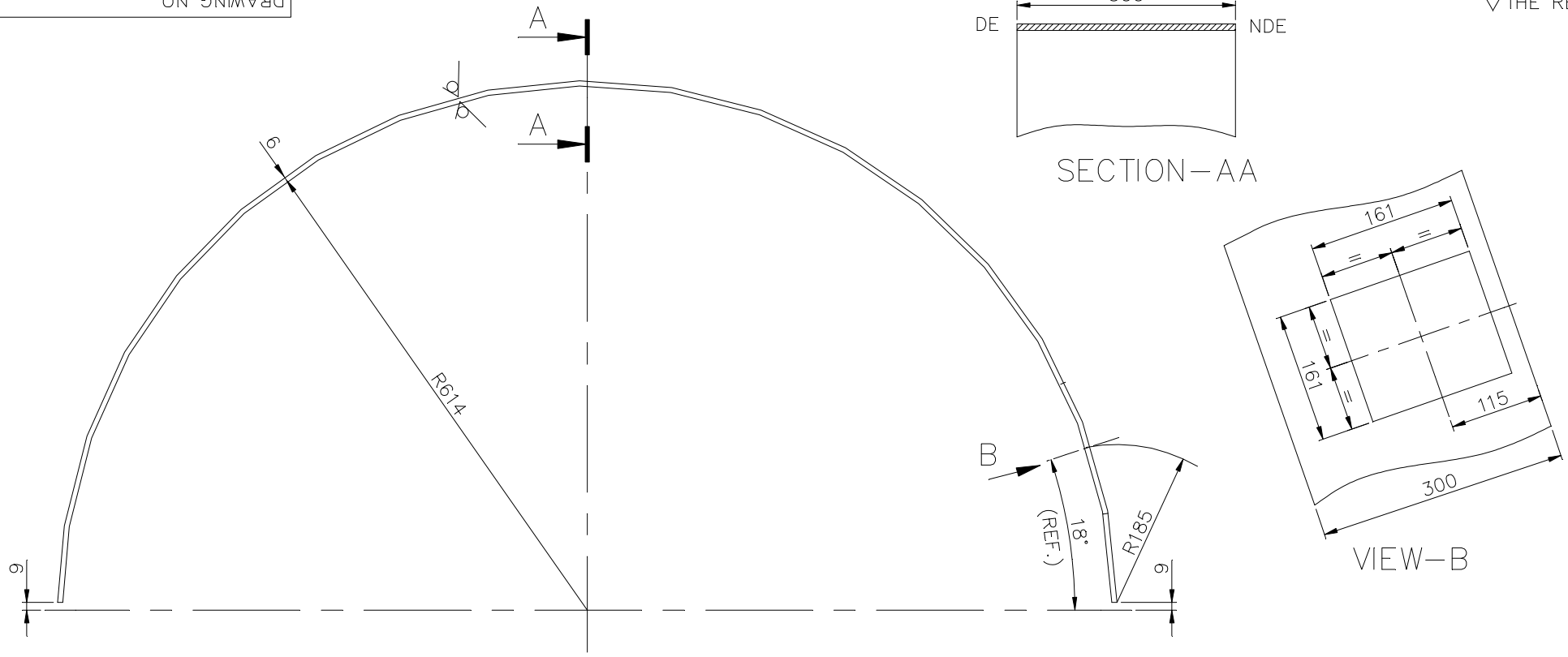
GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401029		STATUS OF DRG.	
M/CG- V/c/M/V AA 0230208	WELDING-A/B/c/D-AA621104	GAS CUTTING-'T3'AA0621101	AGREED DEPT. WTX	NAME AWTXIS	SIGN AWTXIS
REV.	DATE	ALTERED	REV.	DATE	ALTERED
		CHECKED			CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG			
DEPT. TGE		SCALE		WEIGHT(Kg.)	
CODE 4133		1:5		8.482	
TITLE		SHEET		DRAWING NO. 31440401145	
REV. DATE		ALTERED		ITEM NO.	
				004	
REF. TO ASSY. DRG.		01440401031		NO.OF ITEMS	
				75, 77	
SHEET NO.1		NO.OF SHEETS 1			

DRAWING NO. 31440401147

500% THE REST

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DEVELOPED LENGTH=1920

TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

INVENTORY NO. SIGN & DATE 26-5607-122988 a/KWU REF. DRG NO.

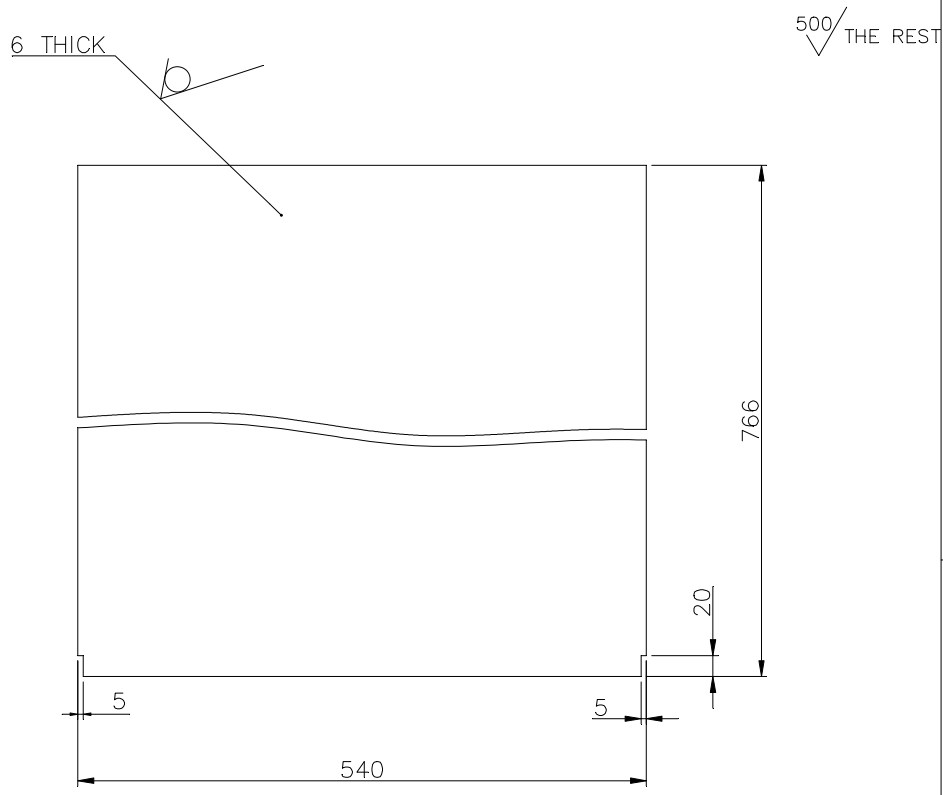
CBOM NO. 01440401029		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN	DATE
WTX	AWTXIS	AWTXIS	28/08/2010
GRADE OF UNTOL. DIM.: -			
M/CG- <del>W/E/M/V</del> AA 0230208			
WELDING- <del>A/B/C/D</del> -AA621104			
GAS CUTTING- 'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG.			
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN	NAME	SIGN	DATE	NO.OF VAR.
	CHD	STGEVK	STGEVK	05/08/2010	
	APD	STGESSM	STGESSM	05/08/2010	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 4133	1:5	26.031	01440401031	006	75, 77
TITLE			DRAWING NO.		
SHEET			31440401147		
			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	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			DEPT.	WT	CHHABRA	-SD-	3.9.81	

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



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 a/kwu  
REF.DRG.No. IT.2

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

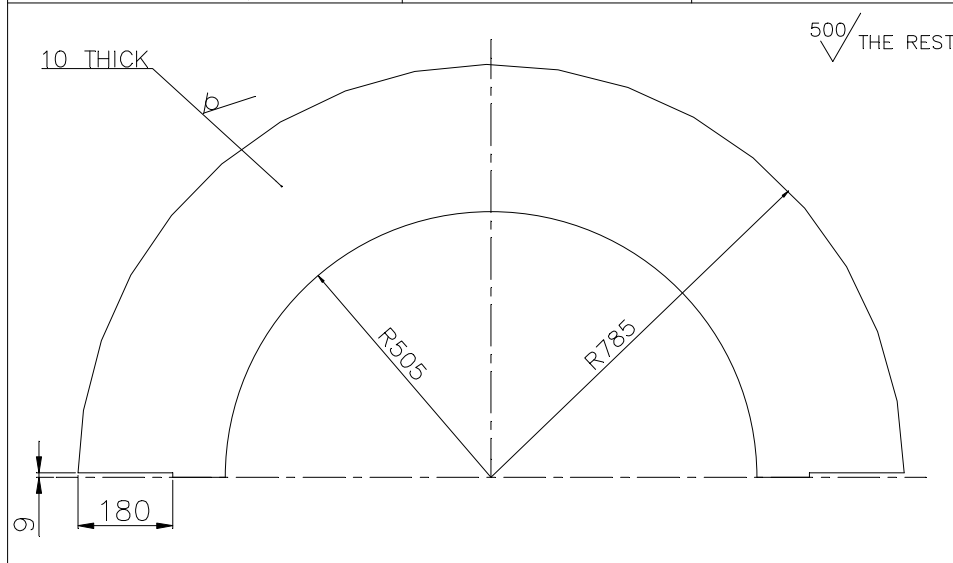
	NAME	SIGN	DATE	NO. OF VAR
DRN	YC GARG	-SD-	29.1.81	
CHD	KSR/KNW	-SD-	22.9.81	
APD	NP GUPTA	-SD-	28.9.81	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:5	19.50	01440401001	003	-
TITLE				DRAWING No.		
SHEET				41440401010		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS	
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG	
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE			
TGE-22-F0039			WT	CHHABRA	-SD-	3.9.81			
GRADE OF UNTOOL		DIM/M/CGC/M/F	AA0230208	WELDING	A7B/C/D	AA0621104	GAS CUTTING	T3	AA0621101



TECHNICAL REQUIREMENT: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
 SUPERSEDES

26-5607-86545 a/kwu REF.DRG.No. IT.3

SIGN & DATE



**BHARAT HEAVY ELECTRICALS LTD**  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	YC GARG	-SD-	30.1.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NP GUPTA	-SD-	28.9.81	-

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TD ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:10	44.5	01440401001	007	-
TITLE				DRAWING No.		
SHEET				41440401011		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

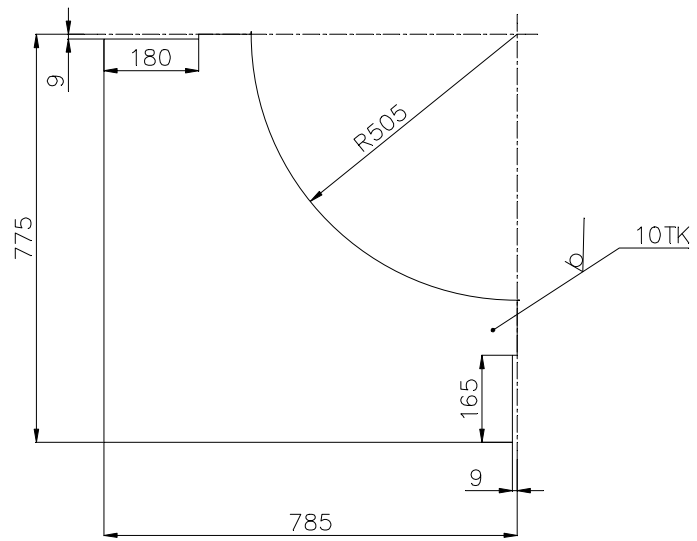
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG
			CHANGES AS PER C/A NO.		AGREED	NAME	SIGN	DATE
			TGE-22-F0039		WT	CHHABRA	-SD-	23.9.81

GRADE OF UNTO L.DIM.M/CGC/M/F.AA0230208 WELDING A7B/C/D AA0621104 GAS CUTTING-T3 AA0621101

500/ THE REST



TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 a/kwu  
REF.DRG.No. IT. 4

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SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	YC GARG	-SD-	6.2.81	
CHD	KSR/KNW	-SD-	22.9.81	
APD	NP GUPTA	-SD-	28.9.81	

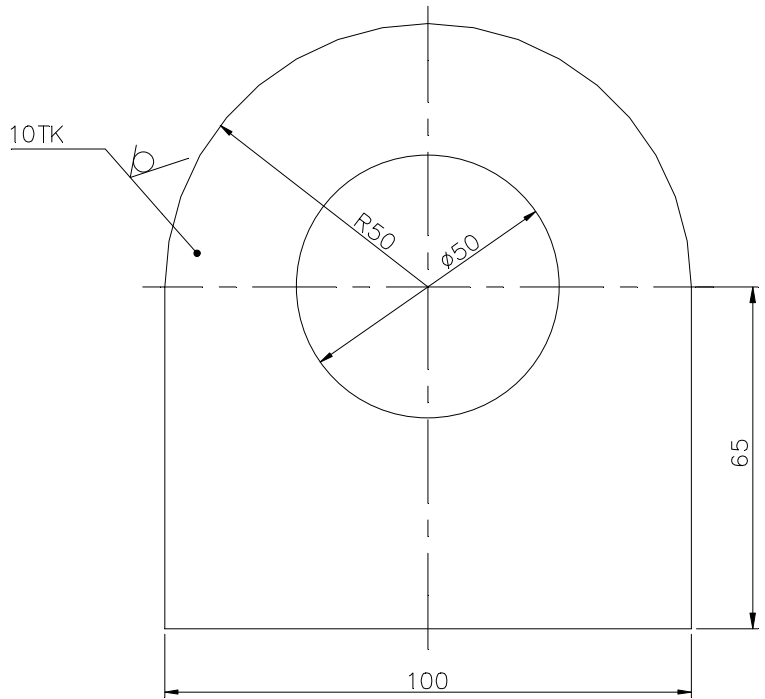
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
SHEET				41440401012		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG
			CHANGES AS PER C/A NO.		AGREED	NAME	SIGN	DATE
			TGE-22-F0039		DEPT.	WT	CHHABRA-SD-	23.9.81

GRADE OF UNTO	DIM/M/CG	M/F	AA0230208	WELDING	A/B/C/D	AA0621104	GAS CUTTING-T3	AA0621101
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500 / THE REST



TECHNICAL REQUIREMENT: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

EMT 307-110/kwu  
REF.DRG.No. IT. 23

SIGN & DATE



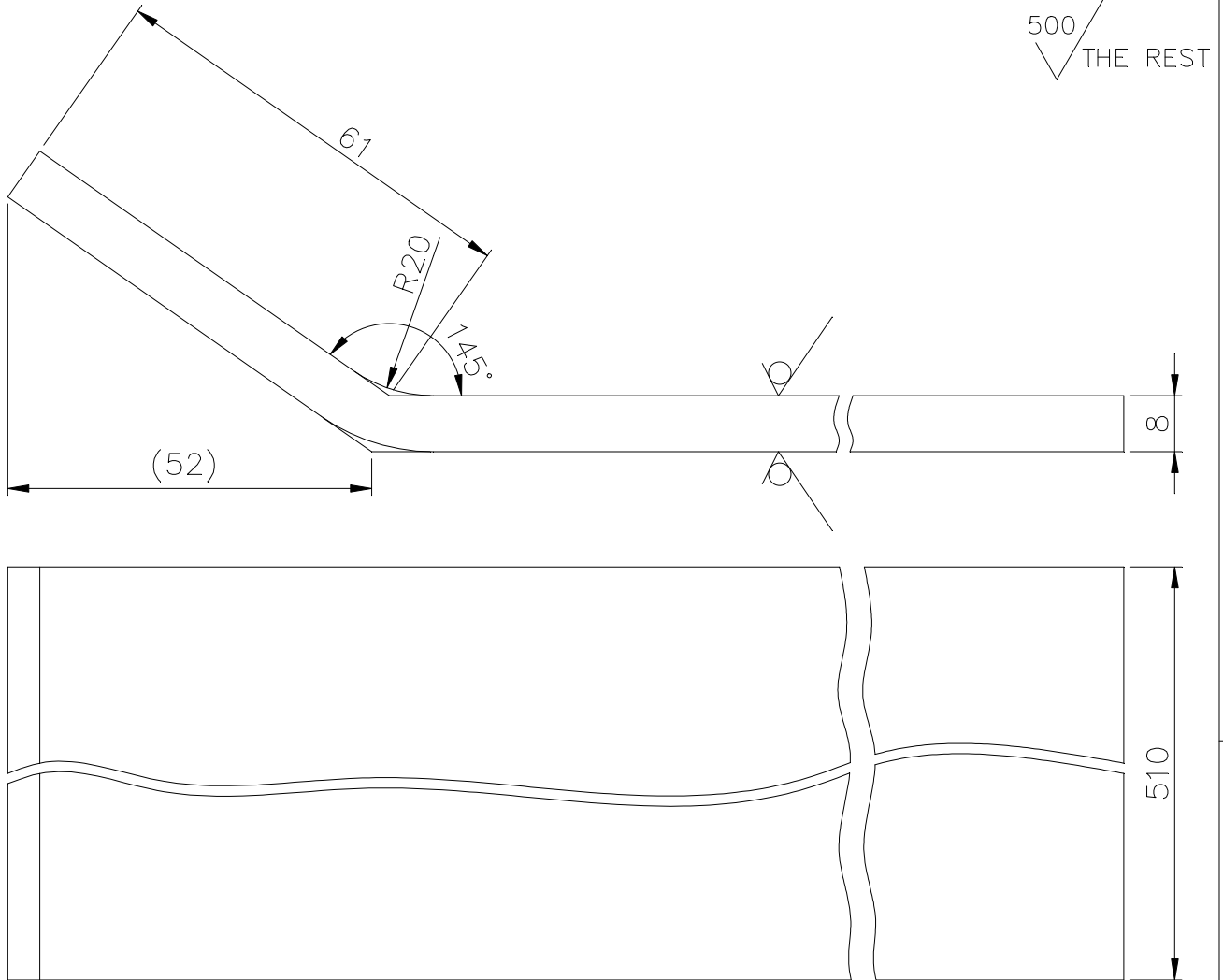
BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	YC GARG	-SD-	14.2.81	
CHD	KSR/KNW	-SD-	22.9.81	
APD	NPG	-SD-	28.9.81	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
LIFTING LUG				41440401020		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

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REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	PA -SD- DRM -SD-	CBDM No. 01440401003		STATUS OF DRG
			02	26.02.22			CHANGES AS PER C/A NO. TGE-22-F0039		
			AGREED DEPT.		NAME	SIGN	DATE		
			WT		CHHABRA	-SD-	23.9.81		
GRADE OF UNTOL.DIM.M/CG/M/F			AA0230208		WELDING A/B/C/D		AA0621104 GAS CUTTING-T3 AA0621101		



TECHNICAL REQUIREMENTS: -

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

02  
 SUPERSEDES

DEVELOPED LENGTH=420

SIGN & DATE	BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	TNG	NAME	SIGN	DATE	NO. OF VAR
			CHD	KSR/KNW	-SD-	-SD-	22.9.81	
INVENTORY No.	DEPT.TGE	SCALE 1:1	APD	NPG	-SD-	-SD-	28.9.81	No OF ITEMS -
	CODE 4133		WEIGHT(Kg)	REF.TO ASSY.DRG.		ITEM No.	No OF SHEETS	
	TITLE SHEET (B'LESS EXCITER FOR 500MW TG)		13.520	01440401001		024		
			DRAWING No. 41440401040		SHEET No.1		No.OF SHEETS 1	

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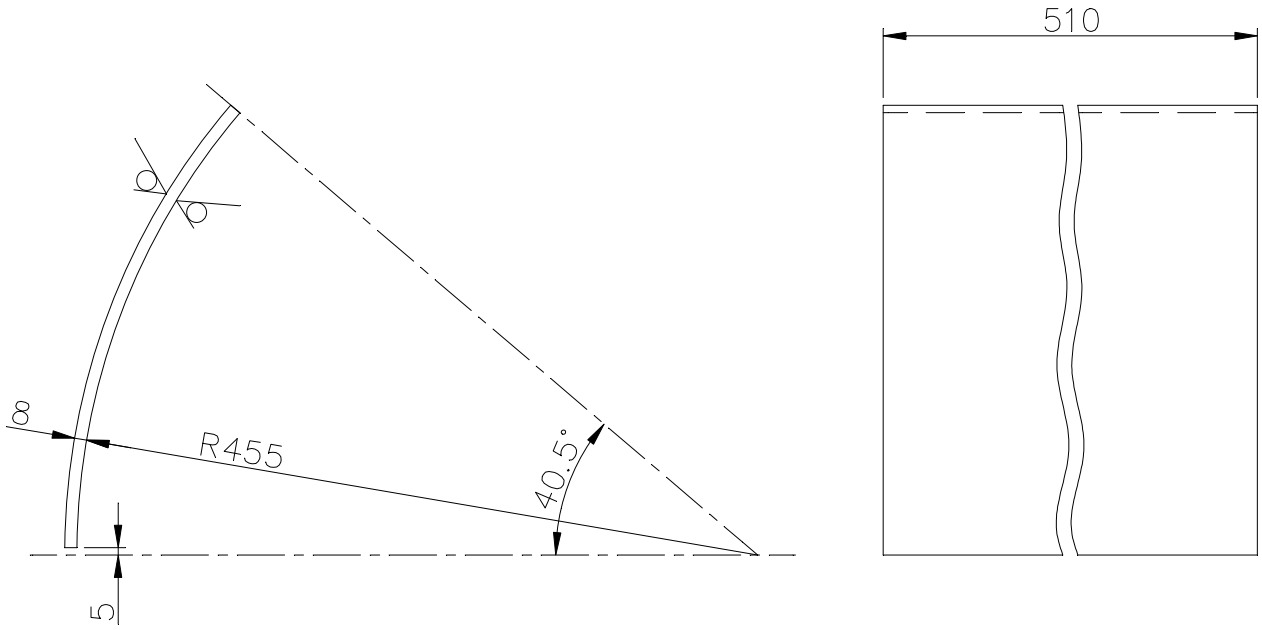
26-5607-86545 a/kwu  
 REF.DRG.No. IT. 11

FIRST ANGLE PROJECTION

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

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED PA CHECKED RM	-SD-	CBOM No. 01440401003		STATUS OF DRG		
			01	26.02.22			AGREED DEPT.	NAME	SIGN	DATE	
			CHANGES AS PER C/A NO. TGE-22-F0039				WT	CHHABRA	-SD-	23.9.81	
GRADE OF UNTOL.DIM.M/CGG/M/F			AA0230208			WELDING A/B/C/D	AA0621104		GAS CUTTING-T3 AA0621101		

500/  
THE REST



TECHNICAL REQUIREMENTS: -

1. IDENTIFICATION ACCORDING TO HW 0400397.

01  
SUPERSEDES

DEVELOPED LENGHT=320

26-5607-86545a/KWU (ITEM No.09)  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

DRN	NAME	SIGN	DATE	NO. OF VAR
CHD	TNG	-SD-	25.4.81	
APD	KSR/KNW	-SD-	22.9.81	
	NPG	-SD-	28.9.81	

INVENTORY No.

DEPT. TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
CODE 4133	1:5	10.301	31440401016	001	-
TITLE SHEET (B'LESS EXCITER FOR 500MW TG)			DRAWING No. 41440401041		
			SHEET No.1 No.OF SHEETS 1		

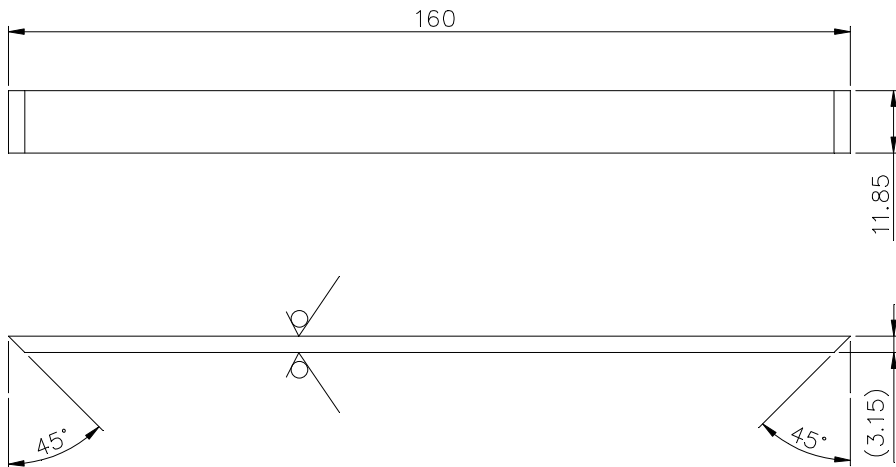
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			DEPT.	WT	CHHABRA	-SD-	23.9.81	

GRADE OF UNTO L.DIM.M/CGC/M/F.AA0230208 WELDING A7B/C/D AA0621104 GAS CUTTING-T3 AA0621101

500  
THE REST



01  
SUPERSEDES

TECHNICAL REQUIREMENT: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

26-5607-865450/kwu  
REF.DRG.No. IT.28

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	25.4.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NPG	-SD-	28.9.81	-

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:2	0.047	21440401002	002	-
TITLE				DRAWING No.		
SHEET				41440401043		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

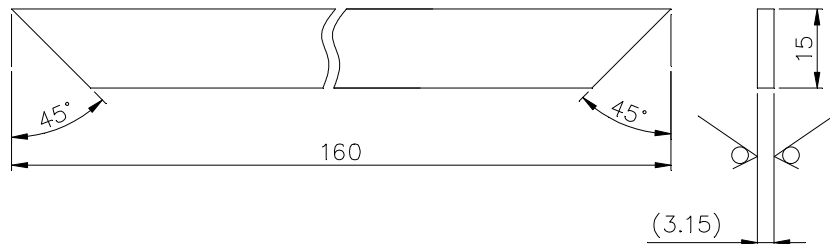
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS
		CHECKED	01	26.02.22	CHECKED	DRM -SD-	01440401003	OF DRG
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE		
TGE-22-F0039			DEPT.	CHHABRA	-SD-	23.9.81		
			WT					

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

500  
THE REST



TECHNICAL REQUIREMENT: -  
1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-86545 a/kwu  
REF.DRG.No. IT.28

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	25.4.81	-
CHD	KSR/KNW	-SD-	22.9.81	-
APD	NPG	-SD-	28.9.81	-

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
SHEET				41440401044		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS!		

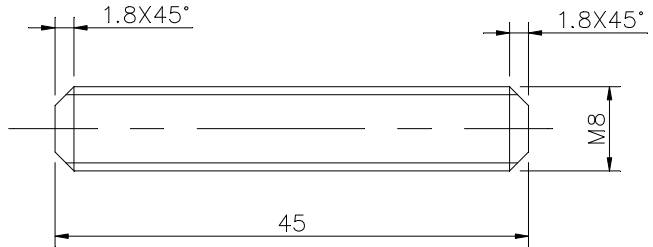
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	PA -SD-	CBOM No.	STATUS	
		CHECKED	01	26.02.21	CHECKED	DRM -SD-	01440401003	OF DRG	
CHANGES AS PER C/A NO.			AGREED	NAME	SIGN	DATE			
TGE-22-F0039			DEPT.	WT	CHHABRA	-SD-	23.9.81		

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

12.5  
▽ ALL OVER



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

01  
SUPERSEDES

26-5607-865450K.W.U.  
IT.45REF.DRG.No. (DIN976)

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	TNG	-SD-	25.4.81	
CHD	KSR/KNW	-SD-	22.9.81	
APD	NPG	-SD-	28.9.81	

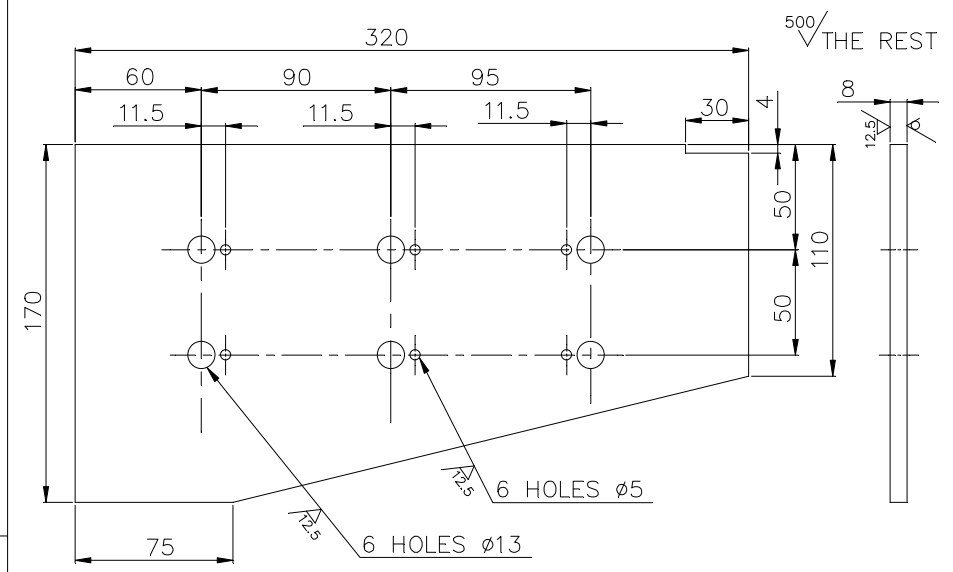
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
STUD				41440401045		
(B'LESS EXCITER FOR 500MW TG)				SHEET No.1 No.OF SHEETS1		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01440401029	STATUS OF DRG
						AGREED DEPT. WTX	NAME AWTXIS SIGN DATE 28/08/2010

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



TECHNICAL REQUIREMENT :

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5607-122988 b/kwu  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	05/08/2010	
CHD	STGESSM	STGESSM	05/08/2010	
APD	ATGEVK	ATGEVK	01/10/2010	

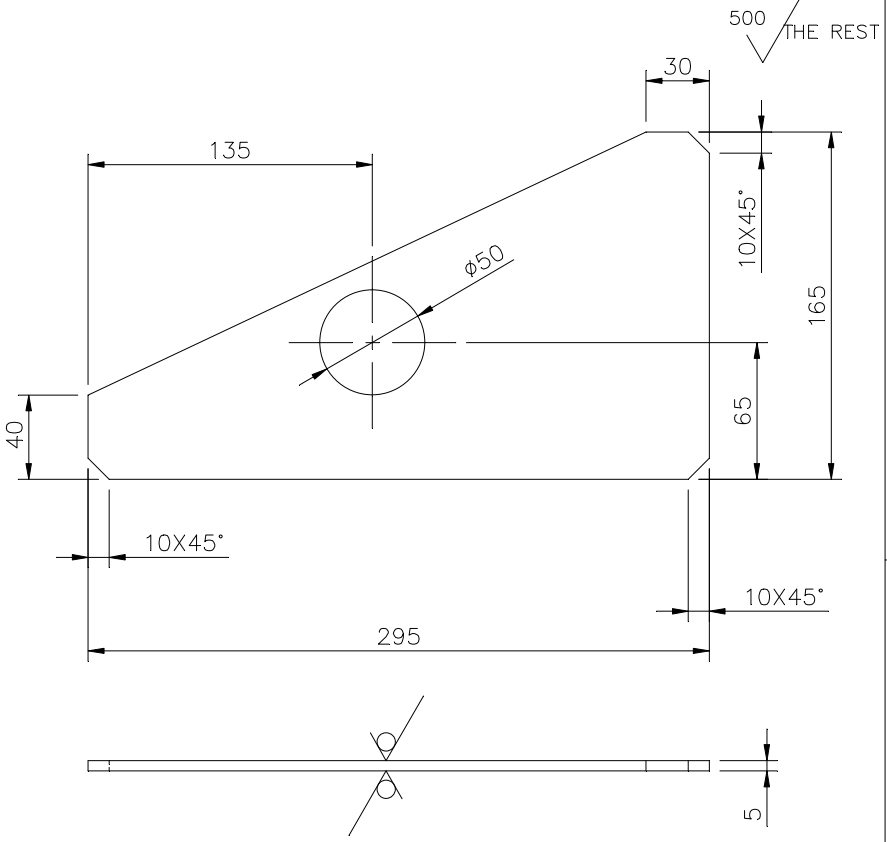
INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133	1:2.5	2.87	01440401031	001	
TITLE				DRAWING No.		
SHEET				41440401311		
(B'LESS EXCITER FOR 800MW TG)				SHEET No.1 No.OF SHEETS!		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01440401029	STATUS OF DRG
						AGREED DEPT. WTX	NAME SIGN DATE AWTXBLM AWTXBLM 28/07/2020

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



TECHNICAL REQUIREMENT  
1. IDENTIFICATION ACCORDING TO HW0400397.

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3-436749/KWU REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

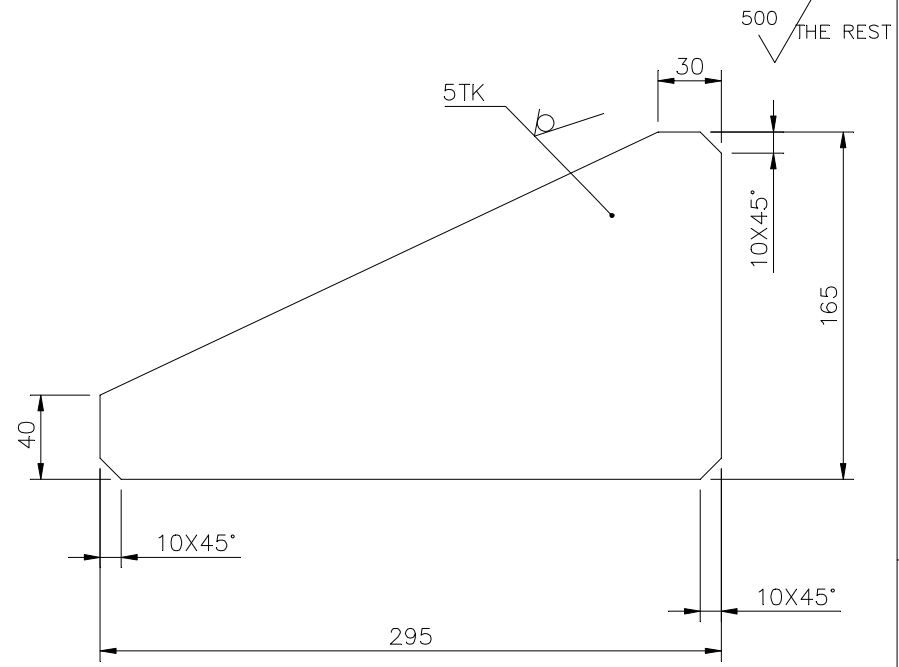
	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEP A	STGEP A	07/03/2017	
CHD	STGESSM	STGESSM	07/03/2017	
APD	STGESSM	STGESSM	20/10/2020	

INVENTORY No.	DEPT.TGE	SCALE 1:2.5	WEIGHT(Kg) 1.18	REF.TO ASSY.DRG. 01440401031	ITEM No. 012	No OF ITEMS
	CODE 4133					
TITLE SHEET				DRAWING No. 41440401338		REV
				SHEET No.1		No.OF SHEETS!

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBOM No. 01440401029	STATUS OF DRG
						AGREED DEPT. WTX	NAME SIGN DATE AWTXBLM AWTXBLM 28/09/2020

GRADE OF UNTOL.DIM.M/CGC/M/F.AA0230208 WELDING A7B/C/D AA0621104 GAS CUTTING-T3 AA0621101



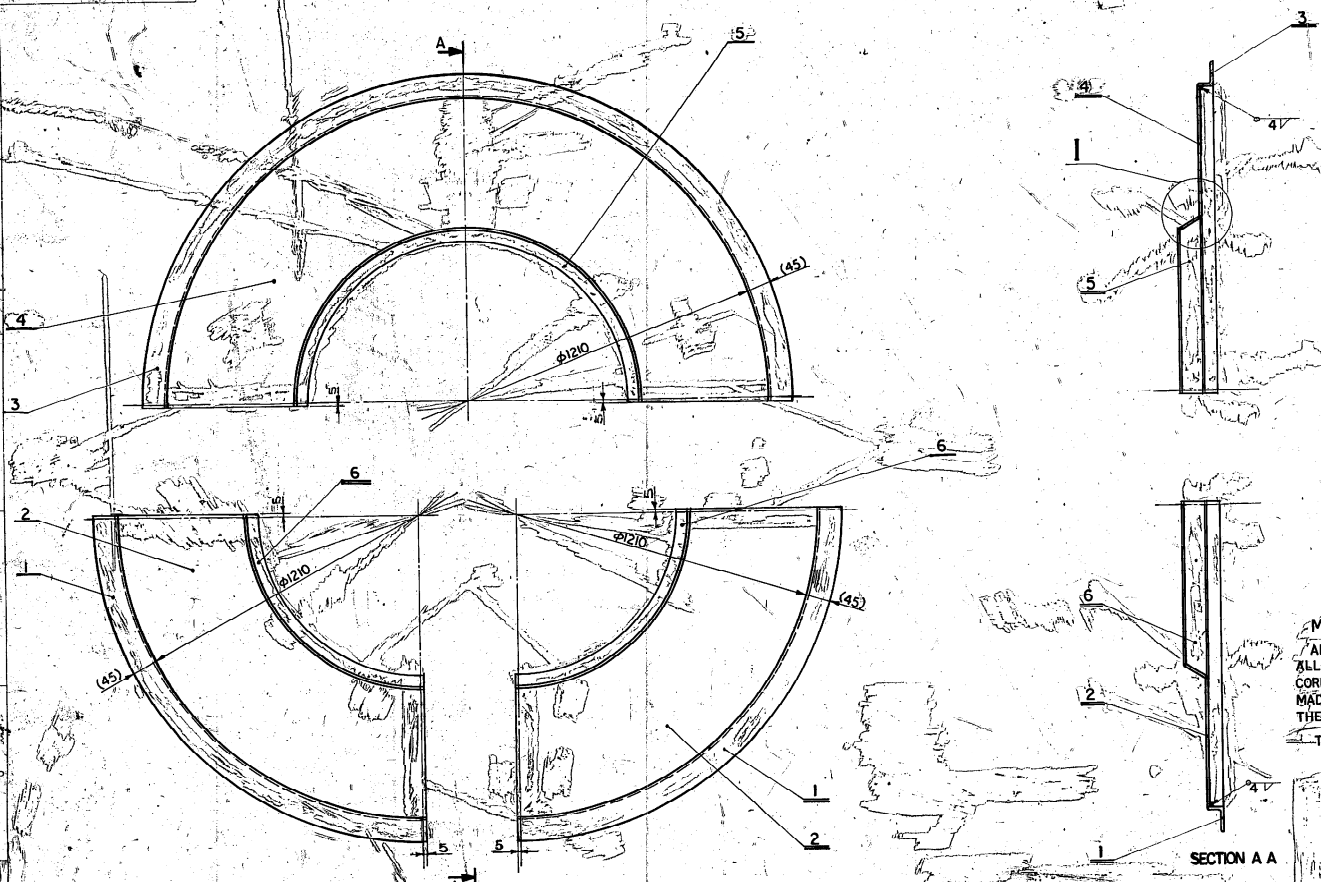
TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW0400397.

SIGN & DATE	REF.DRG.No.	BHARAT HEAVY ELECTRICALS LTD HARDWAR		DRN	STGEPA	SIGN	STGEPA	DATE	18/05/2020	NO. OF VAR
		CHD	STGERY	SIGN	STGERY	DATE	07/09/2020			
APD	STGESSM	SIGN	STGESSM	DATE	20/10/2020					
INVENTORY No.	DEPT.TGE	SCALE 1:2.5	WEIGHT(Kg) 1.255	REF.TO ASSY.DRG.		ITEM No. 002	No OF ITEMS			
	CODE 4133			01440401031						
TITLE SHEET				DRAWING No. 41440401351						
				SHEET No.1		No.OF SHEETS!				

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02010-00-001-1  
(FOR COMPANY)



SYMBOL AND SIZE OF SEAM	4 ▽
SEAM LENGTH M	6:050
WEIGHT OF DEPOSITED METAL Kg	0:570
TYPE OF ELECTRODE	E:6013

**MANUFACTURING PROCEDURE**  
 ANGLES ITEM 1 & 3 TO BE BENT TO I.D. OF 1210 KEEPING BENDING ALLOWANCE OF 200 mm AT BOTH ENDS. CHECK THE BENDING CORRECTNESS OF THE ANGLES WITH TECHNOLOGICAL TEMPLATE (TO BE MADE BY SUBCONTRACTOR) AND RECTIFY IF NECESSARY. CUT OFF THE EXTRA LENGTH.  
 TACK WELD ALL THE ITEMS FOLLOWED BY REGULAR WELDING.

**TECHNICAL REQUIREMENTS**

- DIMENSIONS IN THE BRACKETS ARE FOR REFERENCE ONLY.
- CLASSIFICATION GROUPS ACCORDING TO HW 0620099: CK.
- TEST SCOPE ACCORDING TO HW 0850199: CATEGORY OF SERVICE REQUIREMENTS 4.
- SURFACE TREATMENT (I.E. SHOT BLASTING/PAINTING ETC.) AS PER TECHNOLOGICAL INSTRUCTION NO. 0912:015.
- CHECK ALL THE 3 SEGMENTS BY TACK WELDING TOGETHER FOR COMPLETE DIMENSIONS AND FLATNESS OF THE COVER.
- THIS JOB IS TO BE OFF LOADED IN CONJUNCTION WITH AIR GUIDE COVER (WELDED) TO DRG. 0-144-04-01013, (APPLICABLE IF OFF LOADED).
- FOR COVER MACHINED REFER DRG. 1-144-04-01022.
- IDENTIFICATION ACCORDING TO HW 0400397.
- ALL THE THREE SEGMENTS OF COVER OF EACH PO ARE MATCHED & SUITABLY IDENTIFIED SO THAT MIXING OF SEGMENTS OF COVERS OF OTHER PLANT ORDER IS AVOIDED.

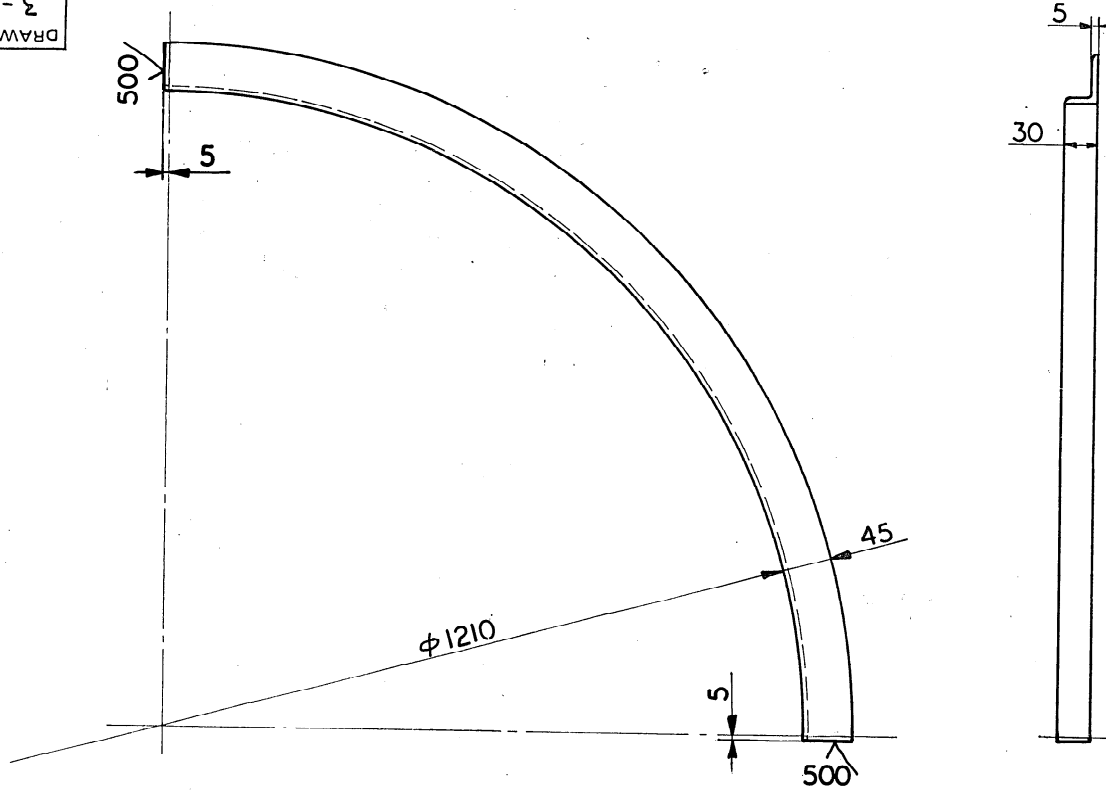
10. TECHNOLOGICAL SUPPORTS TO BE PROVIDED DURING WELDING TO MINIMISE DISTORTION.

SCALE: 1:1

002	---	006 PLATE	3-144-04-01075	AA101808013	NO	1:000	F
001	---	005 PLATE	3-144-04-01074	AA101808013	NO	2:000	H
001	---	004 SEGMENT	4-144-04-01178	AA101808056	NO	24:360	G
001	---	003 ANGLE	3-144-04-01069	AA101808056	NO	1:570	F
002	---	002 SHEET	4-144-04-01177	AA101808056	NO	12:260	E
002	---	001 ANGLE	3-144-04-01068	AA101808056	NO	2:810	E

VAR.00	REMARKS	FEED	DESCRIPTION	DATE	VAR.	MATERIAL SPEC.
0						
CARD TYPE: 23 STATUS: 01 TYPE OF PRODUCT OR NAME OF CUSTOMER / PROJECT: <b>BRUSHLESS EXCITER FOR 500 MW TG.</b> NAME OF CUSTOMER / PROJECT: <b>BHARAT HEAVY ELECTRICALS LTD. RANIPUR HARDWAR.</b> T.N.G. <b>SM</b> DATE <b>24/10/16</b> I.C. RAO SCALE: 1:5 WEIGHT: 64:640 I-144-04-01022 001:006 T.G.F. 4133 C.M.F. TITLE: <b>COVER (WELDED)</b> SHEET NO. 1 NO. OF SHEETS: 1						

89010-04-01068  
DRAWING NO.



DEVELOPED LENGTH = 996

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26-5607-98976 b (ITEM No. 30) Ref. Drg No.  
18/7/90 Sign & Date  
E-1-14700 Inventory No.

TECHNICAL REQUIREMENT

I. IDENTIFICATION ACCORDING TO HW 0400397.

VAR. 00	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	HW 012608964	2810
59	64 65	75 25 27 29	58 59 60	77	29 31 34	55 57 58 65
CARD TYPE-3			CARD TYPE-1		CARD TYPE-2	

GMS/GR. SP. NO. 0-144-04-01011		STATUS OF DRG.	
AGREED DEPT.	NAME	SIGN.	DATE
WT	ROY	[Signature]	21/5/90

TYPE OF PRODUCT OR BRUSHLESS EXCITER FOR 500MW TG.				
NAME OF CUSTOMER/PROJECT				
DRN.	NAME T. N. G.	SIGN. [Signature]	DATE 20/3/90	NO. OF VAR.
CHD.	S.M.	[Signature]	27-3-90	-
APPD.	I.C. RAO	[Signature]	16-6-90	73/74

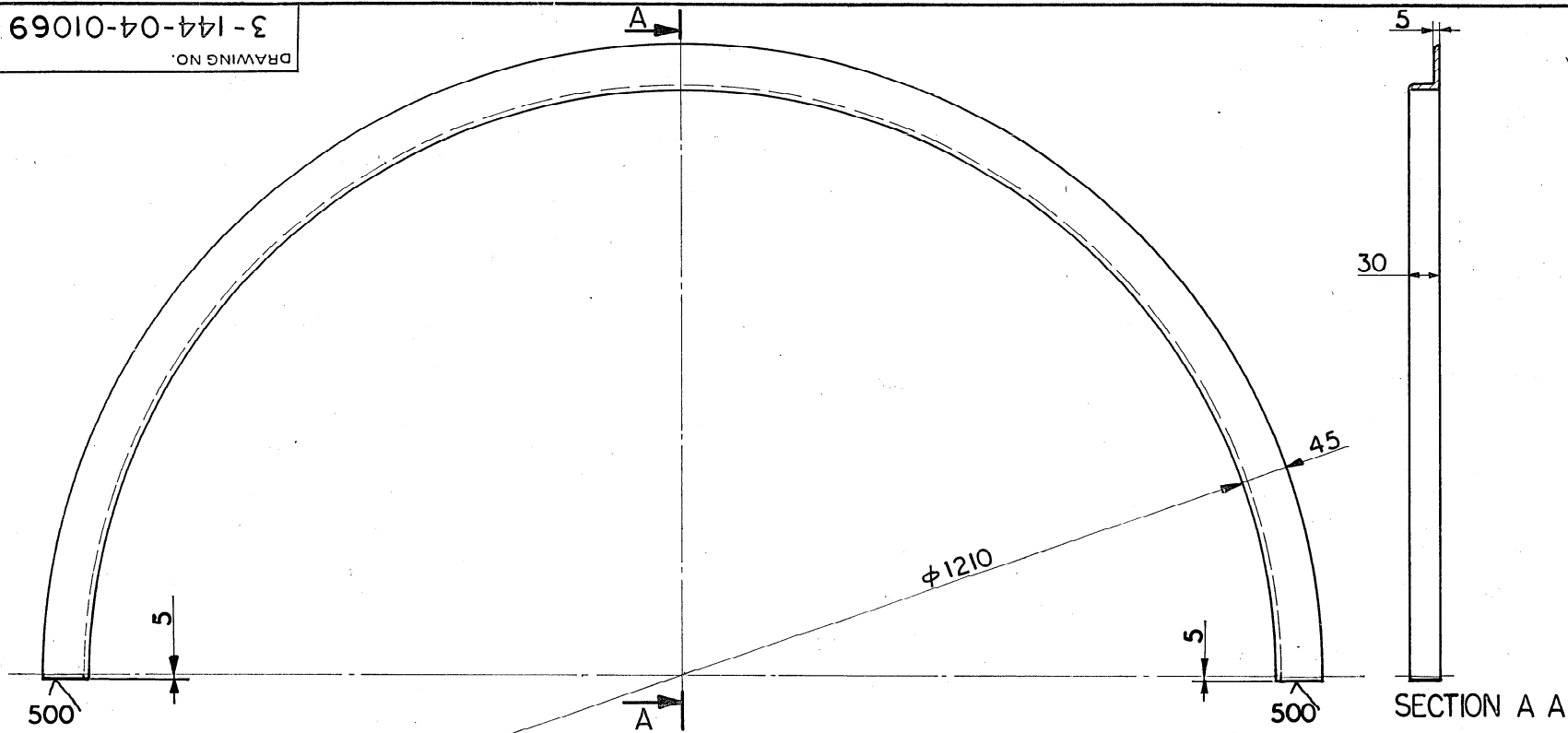
REV	DATE	ALTERED	CHECKED

DEPT. CODE T.G.E. 4133	GRADE OF UNTO DIM φ/M/F	SCALE 1:5	WEIGHT (Kg) 2.810	REF. TO ASSY. DRG. 1-144-04-01023	ITEM NO. 001	NO. OF ITEMS 75/77
TITLE ANGLE				DRAWING NO. 3-144-04-01068	REV.	
				CARD CODE	SHEET NO.   NO. OF SHEETS:-	

69010-4-04-01069

DRAWING NO.

✓ THE REST ✓



DEVELOPED LENGTH = 1982

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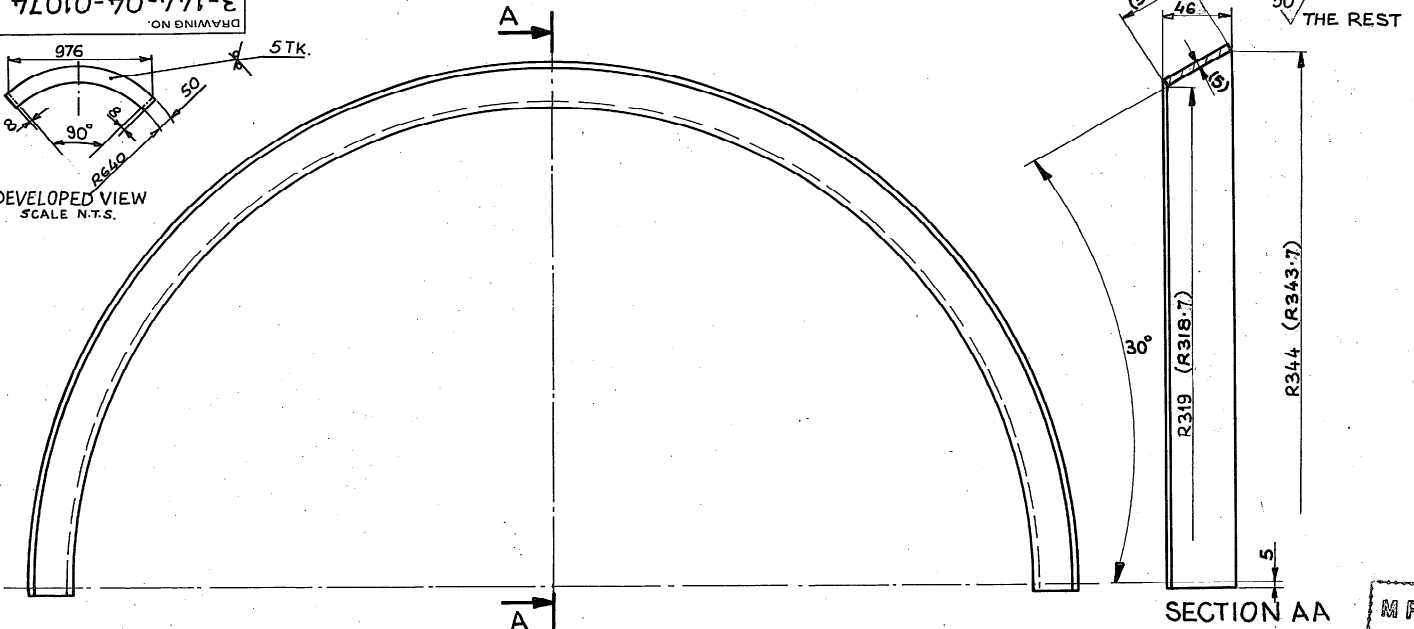
TECHNICAL REQUIREMENT  
I. IDENTIFICATION ACCORDING TO HW 0400397.

VAR. 00	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	HW 1012608964	5570
59	04 65	75 25 27 29	58 STD. 60	77 32 33 46	55 57	UNIT WT. (Kg.) 65
CARD TYPE-3					CARD TYPE-2	

GMS/GR. SP. NO. <b>0-144-04-01011</b>				STATUS OF DRG.				TYPE OF PRODUCT OR <b>BRUSHLESS EXCITER FOR 500 MW TG.</b>			
AGREED DEPT. WT				NAME Roy				SIGN. <i>[Signature]</i>			
DATE 21/5/90				DATE 20/3/90				DATE 16/6/90			
REV				DATE				ALTERED			
CHECKED				DEPT. T.G.E.				GRADE OF UNFOLD DIM			
				CODE 4135				SCALE 1:5			
				TITLE <b>ANGLE</b>				WEIGHT (Kg) <b>5-570</b>			
				REF. TO ASSY. DRG. 1-144-04-01023				ITEM NO. <b>003</b>			
				DRAWING NO. <b>3-144-04-01069</b>				NO. OF SHEETS 1			
				SHEET NO.				NO. OF SHEETS			

Inventory No. 661-14701  
Sign & Date 18/7/90  
Ref. Drg. No. 25-5607-98976 b (ITEM NO. 25)

3-144-04-01074-3  
DRAWING NO.



**TECHNICAL REQUIREMENTS**

1. IDENTIFICATION ACCORDING TO HWO400397.
2. DIMENSIONS IN BRACKETS ARE THEORETICAL.

VAR. 00	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	AA1011808013	2000
59	64 65	75 25 27 29	58 60 60	77	AA 10108	57
CARD TYPE-3			CARD TYPE-1		CARD TYPE-2	

GMS/CR. SP. NO. 0-144-04-01011 STATUS OF DRG. TYPE OF PRODUCT OR BRUSHLESS EXCITER FOR 500 MW TG. NAME OF CUSTOMER/PROJECT

AGREED BY	NAME	SIGN.	DATE	DRN.	NAME	SIGN.	DATE	NO. OF VAR.
WT	Roy	[Signature]	21/5/90	T.N.G.	[Signature]	15-5-90		
				CHD.	S.M.	[Signature]	15-5-90	
				APPD.	I.C. RAO	[Signature]	16-6-90	73, 74

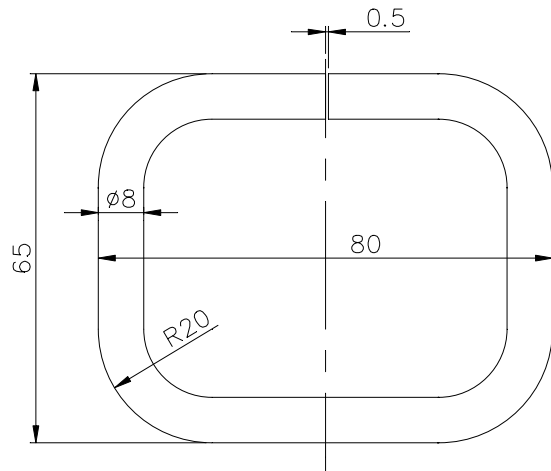
REV	DATE	ALTERED	DEPT. T.G.E. CODE 4223	GRADE OF INTOLDIM G/M/V	SCALE 1:2.5	WEIGHT (Kg) 2.000	REF. TO ASSY. DRG. 1-144-04-01023	ITEM NO. 005	NO. OF ITEMS 001
		CHECKED	TITLE PLATE		CARD CODE	DRAWING NO. 3-144-04-01074		REV.	
							SHEET NO. 1	NO. OF SHEETS: 1	

26-5607-99390/KWU (ITEM NO. 68) Ref. Drg. No. Sign & Date Inventory No. 3-144-04-01074

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01 31.3.10 VIJAY-S/D- 0-144-04-01009  
TNG -S/D-  
CHANGES ACCORDING TO  
CH. AD. NO. WT B.CHAUDHARY -S/D- 5.8.88  
TGE-10-F0111



CALCULATED STRAIGHTENED LENGTH = 261mm

### TECHNICAL REQUIREMENTS

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.
2. TO BE ZINC PLATED AS PER AA0673603 .

(01)

SUPERSEDES THE OLD  
DRG. UNDER THE SAME NO.  
TGE-10-F0111

SCS	-S/D-	10.6.88
SM	-S/D-	11.6.88
DRC	-S/D-	2.9.88

TGE 4133 1:1 0.075 2-144-04-01010 003

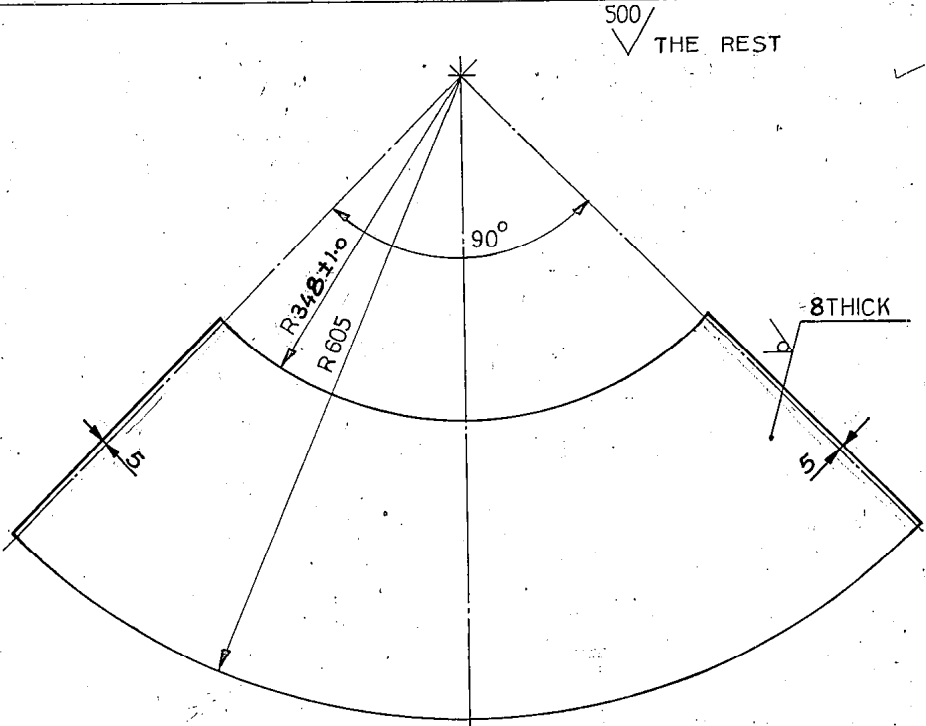
REV.

RING

4-144-04-01171 01

FIRST ANGLE PROJECTION ( ALL DIMENSIONS ARE IN mm )

REV	DATE	ALTERED	REV	DATE	ALTERED	G.M.S. NO.	STATUS OF DRG.
		CHECKED			CHECKED	0-144-04-01011	U
AGREED DEPT.	NAME	SIGN	DATE				
WT	ROY	<i>[Signature]</i>	21/5/90				



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 04 00 397.



REMARKS.	ITEM NO.	DESCRIPTION	STD.	VAR.	MATERIAL SPECN	A	C	UNIT WEIGHT
		SHEET			AA1011808056	-	-	12.260
					AA10108	-	-	
					MATERIAL CODE			
					MATERIAL SPECN			

CARD TYPE-3 → → → CARD TYPE-1 → → → CARD TYPE-2

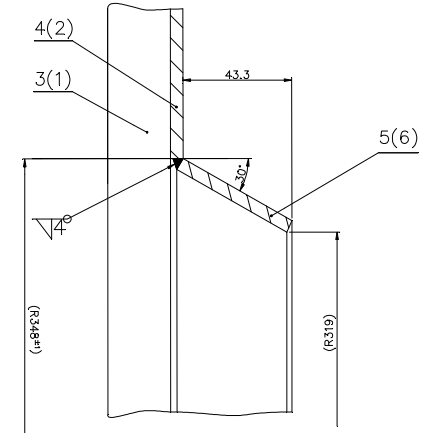
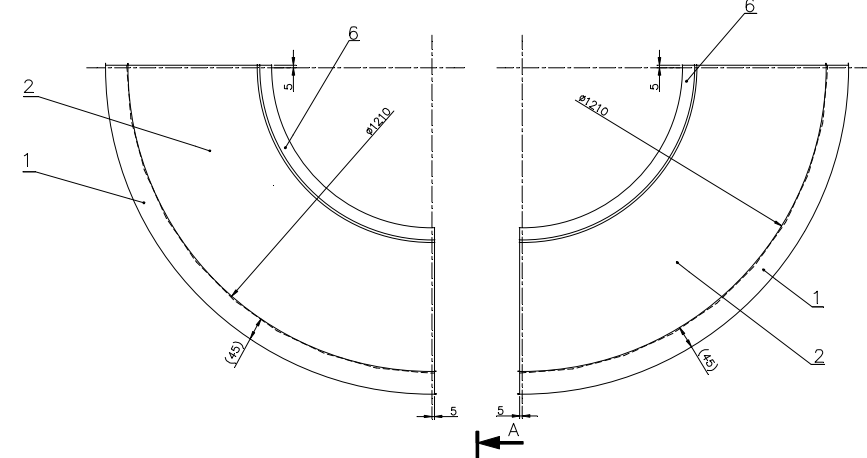
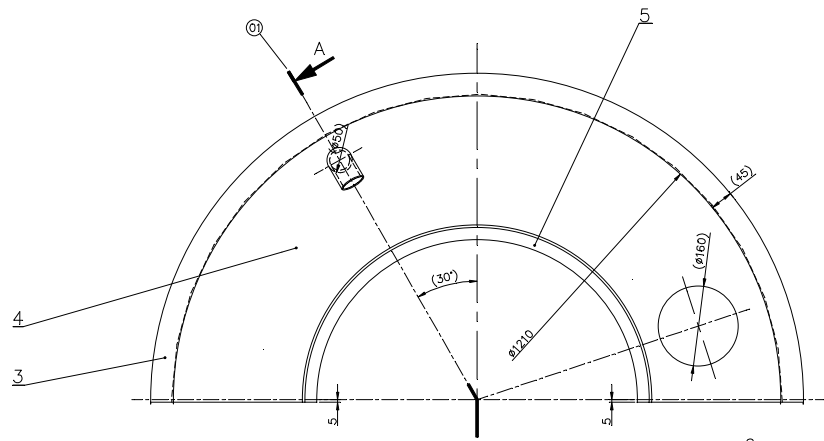
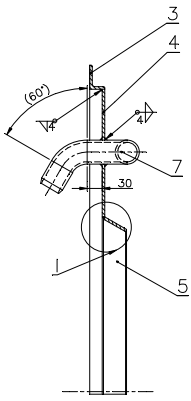
26-5607-99390/KWU (ITEM No. 67)  
 Ref. Drg. No.  
 18/7/90  
 Sign & Date  
 14696  
 Inventory No.

DG-39 **BHARAT HEAVY ELECTRICALS LTD.**  
 HARDWAR  
**RANIPUR - HARDWAR.**

DEPT TGE	CODE 4133		SCALE 1:5	WEIGHT (KG) 12.260	REF. TO ASSY. DRG. 1-144-04-01023	ITEM NO. 002
SHEET						
(BRUSHLESS EXCITER FOR 500 MW TG.)						
DRAWN	T.N.G.	<i>[Signature]</i>	DATE	24.3.90		
CHECKED	S.M.	<i>[Signature]</i>	DATE	2.4.90		
APPROVED	I.C.RAO	<i>[Signature]</i>	DATE	16.6.90		

Dimensions to be Controlled Within Limits as Shown.	CARD CODE	DRAWING NO.
Machining Tolerance ± 0.25 mm Unless Otherwise Shown.		4-144-04-01177
Shown Non-Machining Tolerance ± DIM & M/F		
	SHEET NO. 1	NO. OF SHEETS. 1

11440401039  
DRAWING NO.



DETAIL-1  
SCALE 1:1

SYMBOL AND SIZE OF SEAM	4
SEAM LENGTH M	6.050
WEIGHT OF DEPOSITED METAL Kg	0.570
TYPE OF ELECTRODE	E-7018

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SECTION A A

TECHNICAL REQUIREMENTS

- DIMENSIONS IN THE BRACKETS ARE FOR REFERENCE ONLY.
- CLASSIFICATION GROUPS ACCORDING TO HW 0620099 : CK.
- TEST SCOPE ACCORDING TO HW 0850199 : CATEGORY OF SERVICE REQUIREMENTS 4.
- SURFACE TREATMENT (I.E. SHOT BLASTING/PAINING ETC.) AS PER TECHNOLOGICAL INSTRUCTION NO. 0912.015 .
- CHECK ALL THE 3 SEGMENTS BY TACK WELDING TOGETHER FOR COMPLETE DIMENSIONS AND FLATNESS OF THE COVER.
- THIS JOB IS TO BE OFF LOADED IN CONJUNCTION WITH AIR GUIDE COVER (WELDED) TO DRG. 0-144-04-01031.
- FOR COVER MACHINED REFER DRG. 1-144-04-01040.
- IDENTIFICATION ACCORDING TO HW 0400397.
- ALL THE THREE SEGMENTS OF COVER OF EACH P.O ARE MATCHED & SUITABLY IDENTIFIED SO THAT MIXING OF SEGMENTS OF COVERS OF OTHER PLANT ORDER IS AVOIDED.
- TECHNOLOGICAL SUPPORTS TO BE PROVIDED DURING WELDING TO MINIMISE DISTORTION.

MANUFACTURING PROCEDURE

- ANGLES ITEM 1&3 TO BE BENT TO I.D. OF 1210 KEEPING BENDING ALLOWANCE OF 200mm AT BOTH ENDS. CHECK THE BENDING CORRECTNESS OF THE ANGLES WITH TECHNOLOGICAL TEMPLATE (TO BE MADE BY SUBCONTRACTOR) AND RECTIFY IF NECESSARY. CUT OFF THE EXTRA LENGTH.
- TACK WELD ALL THE ITEMS FOLLOWED BY REGULAR WELDING.

SUPERSEDES THE OLD DRG. UNDER THE SAME NO. TGE-13-F0393

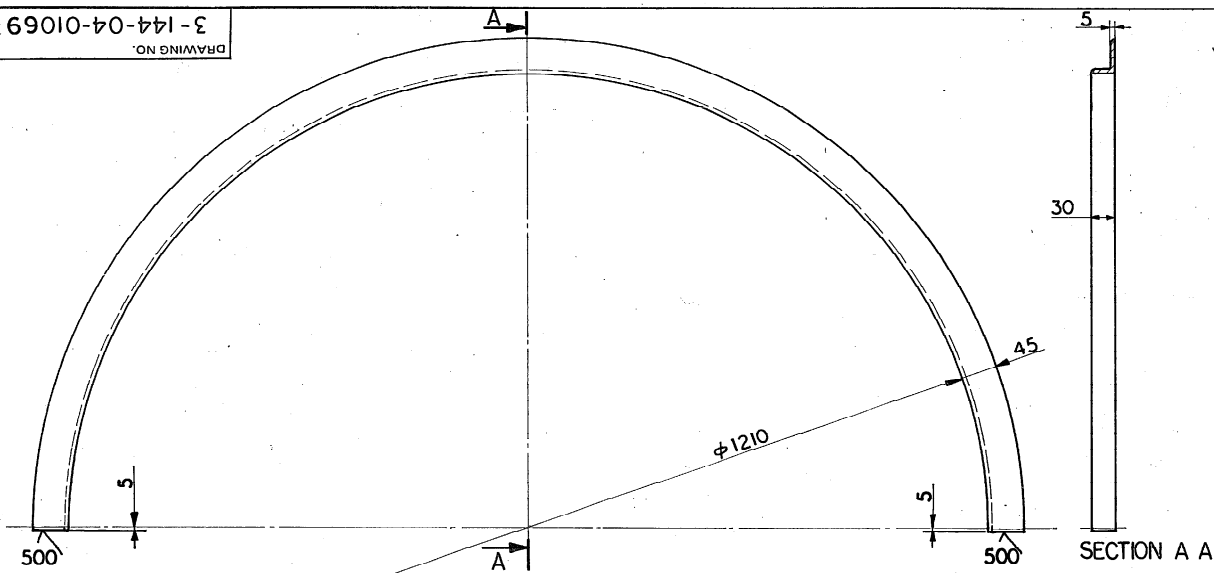
INVENTORY NO. 26-5607-122988  
SIGN. & DATE  
REF. DRG. NO.

GRADE OF UNTOL. DIM.: -		CBOM NO. 01440401029		STATUS FOR DRG.		TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		B'LESS EXCITER FOR 800MW TG		
M/CS- W/C/N/F AA 0230208	WELDING-K/B/C/P-AA621104	GAS CUTTING-13'AA0621101	REV DATE 01	ALTERED CHECKED	PA 21.12.13	SD -	DEPT. TGE	SCALE 1:5	WEIGHT(Kg.) 64.64	
CHANGE AS PER C/A NO. TGE-13-F0393		REV DATE 01		ALTERED CHECKED	PA 21.12.13	SD -	CODE 4133	SCALE 1:5	WEIGHT(Kg.) 64.64	
Bharat Heavy Electricals Ltd. HARDWAR							DRN STGEVK 05/07/00	SIGN STGEVK 05/07/00	DATE 05/07/00	NO. OF VARS. 01
TITLE COVER (WELDED)							DRN STGEVK 05/07/00	SIGN STGEVK 05/07/00	DATE 05/07/00	NO. OF VARS. 01
DRAWING NO. 11440401039							DRN STGEVK 05/07/00	SIGN STGEVK 05/07/00	DATE 05/07/00	NO. OF VARS. 01
SHEET NO.1							DRN STGEVK 05/07/00	SIGN STGEVK 05/07/00	DATE 05/07/00	NO. OF VARS. 01



3-144-04-01069  
DRAWING NO.

✓ THE REST ✓



DEVELOPED LENGTH = 1982

TECHNICAL REQUIREMENT

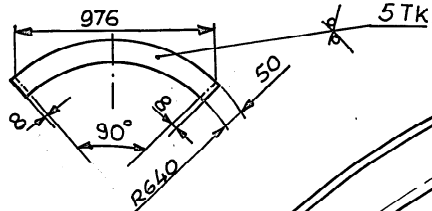
I. IDENTIFICATION ACCORDING TO HW 0400397.

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 26-5607-98976.5 (K.W.U.) (ITEM NO. 25) Ref. Dra. No.  
 18/10/90 Sign & Date  
 661-14701 Inventory No.

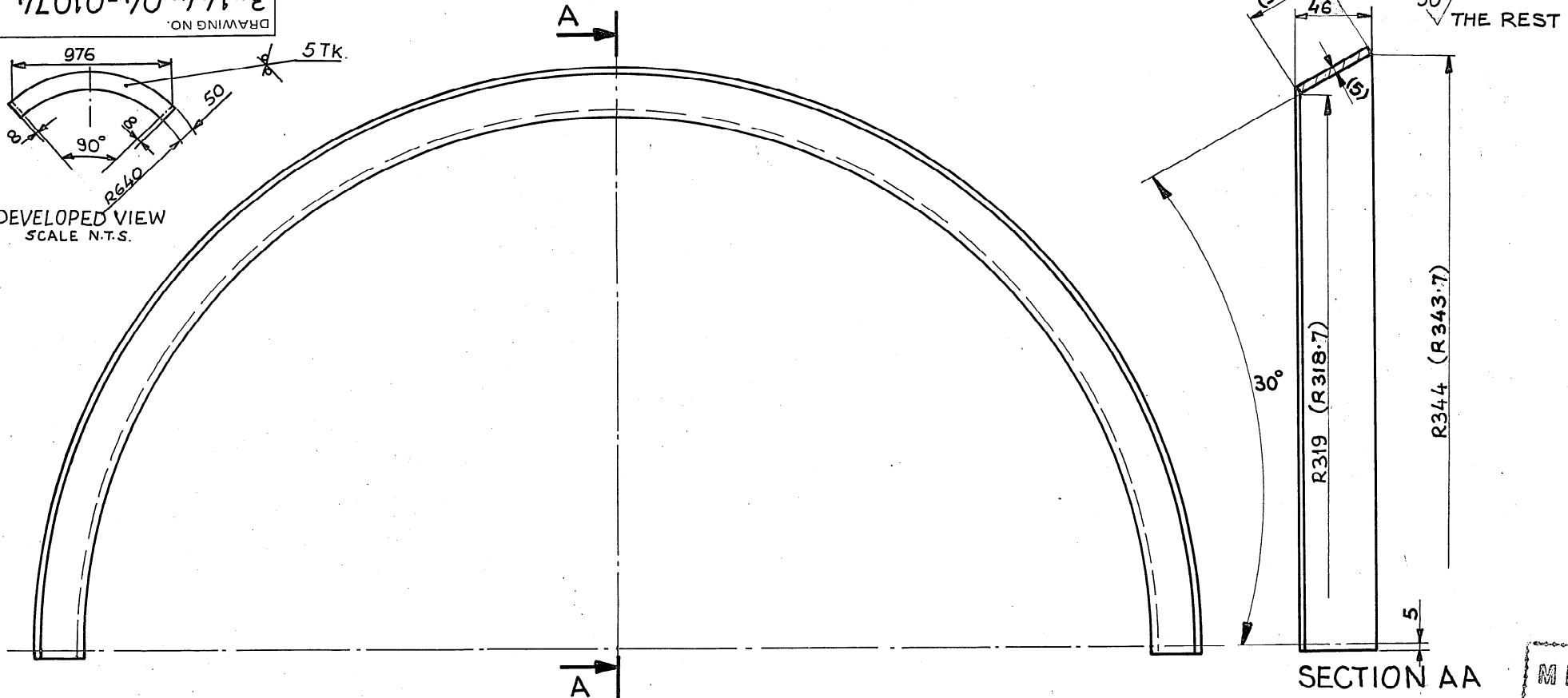
VAR. 00		REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	HW 012608964 AA 10108	5570
59	04	65	75	25	27	29	59
CARD TYPE-3				CARD TYPE-1		CARD TYPE-2	
GMS/GR. SP. NO.		STATUS OF DRG.		TYPE OF PRODUCT			
0-144-04-01011				OR BRUSHLESS EXCITER FOR 500 MW TG.			
AGREED DEPT.		NAME	SIGN.	DATE	NAME OF CUSTOMER/PROJECT		
VT		Roy	[Signature]	21/3/90			
REV		DATE	ALTERED	DEPT.	GRADE OF UNTO DIM	SCALE	WEIGHT (Kg)
			CHECKED	T.C.F.	φ/M/φ	1:5	5.570
				CODE 4133			
				TITLE		CARD CODE	DRAWING NO.
				ANGLE			3-144-04-01069
							REF. TO ASSY. DRG.
							1-144-04-01023
							ITEM NO.
							003
							NO. OF SHEETS
							122, 23, 24
							NO. OF ITEMS
							73, 74
							25122
							REV.

SIZE A3

3-144-04-01074  
DRAWING NO.



DEVELOPED VIEW  
SCALE N.T.S.



SECTION AA

MF

TECHNICAL REQUIREMENTS

- IDENTIFICATION ACCORDING TO HWO400397.
- DIMENSIONS IN BRACKETS ARE THEORITICAL.

VAR. 00	REMARKS	ITEM NO.	DESCRIPTION	DRAWING NO.	AA1011808013	2000
59	64 65	75 25 27 29	58 59 60	77 32 33 46	54 55 56 57 58 59 60	66 67 68 69 70 71 72
CARD TYPE-3			CARD TYPE-1		CARD TYPE-2	

GMS/DRG. NO. <b>0-144-04-01011</b>				STATUS OF DRG.				TYPE OF PRODUCT OR <b>BRUSHLESS EXCITER FOR 500 MW TG.</b>					
AGREED DEPT.	NAME	SIGN.	DATE	NAME OF CUSTOMER/PROJECT				DRN.	NAME	SIGN.	DATE	NO. OF VAR.	
WT	ROY	[Signature]	21.5.90	BHARAT HEAVY ELECTRICALS LTD. RANIPUR - HARDWAR.				CHD.	S.M.	[Signature]	15.5.90	-	
REV	DATE	ALTERED	DEPT. T.G.E.	GRADE OF UNFOLDIM	SCALE	WEIGHT (Kg)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS	DATE			
		CHECKED	4233	d/m/y	1:2.5	2000	1-144-04-01023	005	001	15.5.90			
				TITLE <b>PLATE</b>				DRAWING NO. <b>3-144-04-01074</b>		NO. OF SHEETS:- <b>1</b>			

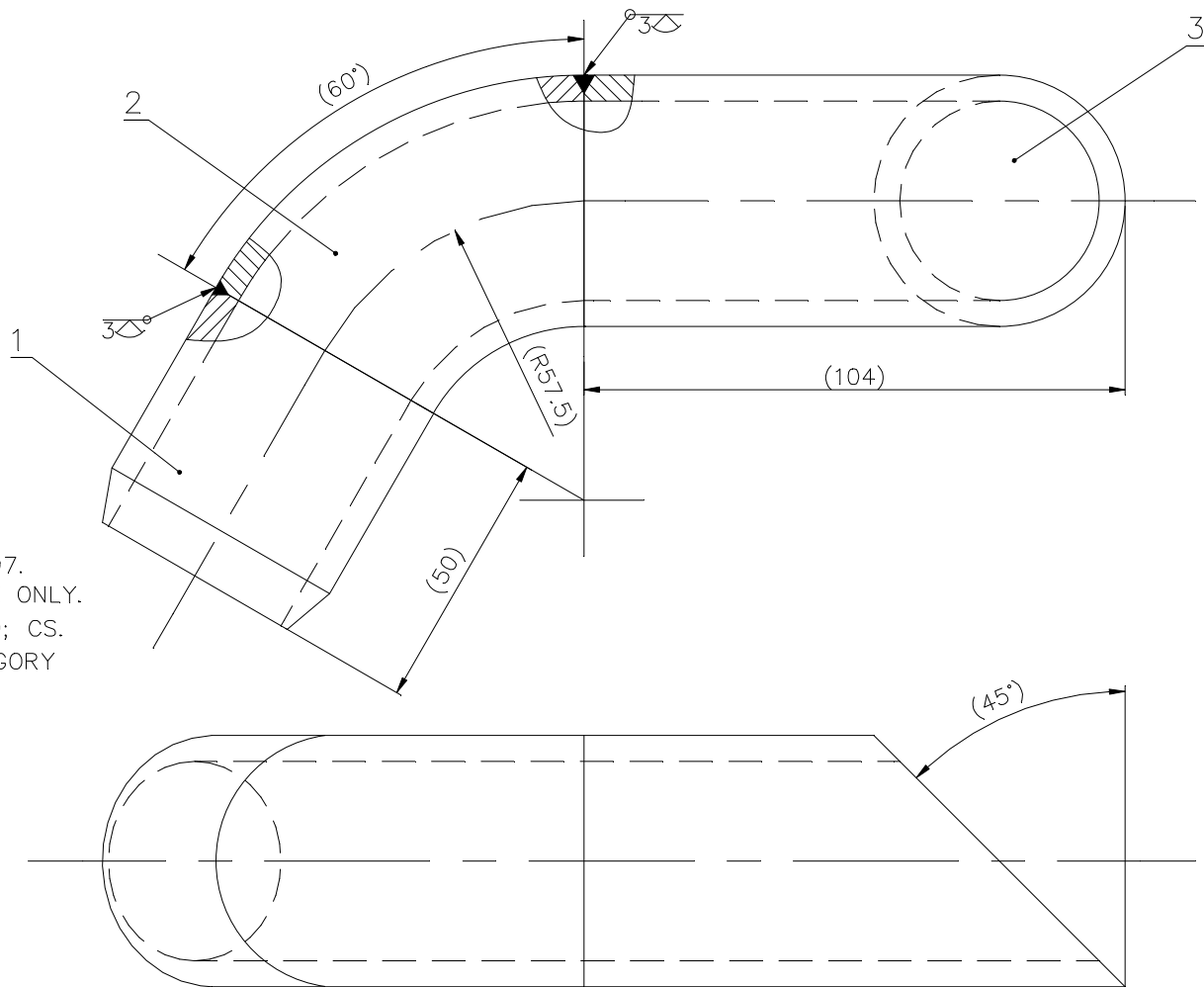
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26-5607-99390/KWJ (ITEM NO. 68) Ref. Drg. No.

Sign & Date

Inventory No. 661-14706

DRAWING NO. 31440401150



TECHNICAL REQUIREMENTS:

1. MARK IDENTIFICATION ACCORDING TO HW0400397.
2. DIMENSIONS IN BRACKETS ARE FOR REFERENCE ONLY.
3. QUALITY GRADE OF WELDS AS PER HW0620099; CS.
4. TEST SCOPE ACCORDING TO HW0850199, CATEGORY OF SERVICE REQUIREMENT 4.

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26-5607-124552/KWU  
(ITEM 1,2&3)  
REF. DRG NO.

SIGN & DATE

INVENTORY NO.

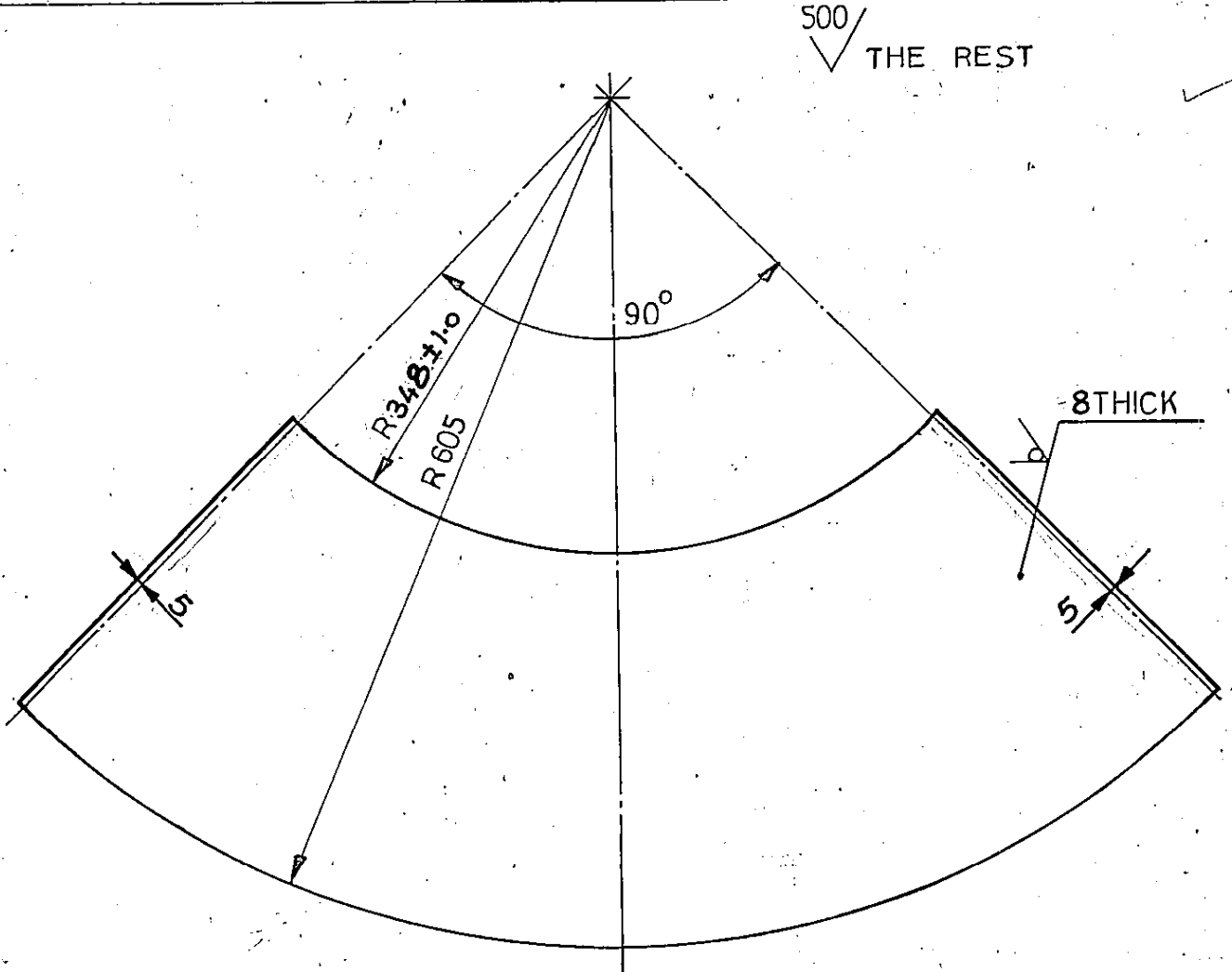
GRADE OF UNTOL. DIM.: -				CBOM NO. 01440401029		STATUS OF DRG.		
M/CG- V/C/M/F AA 0230208	WELDING-A/B/C/D-AA621104		GAS CUTTING-'T3'AA0621101		AGREED DEPT.	NAME	SIGN	DATE
REV.	DATE	ALTERED	REV.	DATE	AWTXTSC	AWTXTSC	AWTXTSC	30/09/2010
		CHECKED						

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				B,LESS EXCITER FOR 800MW TG.				
BHARAT HEAVY ELECTRICALS LTD. HARDWAR				DRN	NAME	SIGN	DATE	NO.OF VAR.
				CHD	STGEAV	STGEAV	05/08/2010	
				APD	ATGEVK	ATGEVK	07/09/2010	
DEPT. TGE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.		NO.OF ITEMS	
CODE 4133	1:1	.86	11440401039		007			
TITLE				DRAWING NO.		NO.OF SHEETS		
PIPE ASSY.				31440401150		1		
				SHEET NO.1		NO.OF SHEETS 1		

FIRST ANGLE PROJECTION ( ALL DIMENSIONS ARE IN mm )

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REV	DATE	ALTERED	REV	DATE	ALTERED	GMS. NO.	STATUS of DRG.		
		CHECKED			CHECKED	0-144-04-01011	U		
						AGREED DEPT.	NAME	SIGN	DATE
						WT	ROY	<i>[Signature]</i>	21/5/90



TECHNICAL REQUIREMENT

1. MARK IDENTIFICATION ACCORDING TO HW 04 00 397.

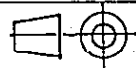


REMARKS.	ITEM NO.	DESCRIPTION	STD.	VAR.	AA1011808056	-	-	12.260
		SHEET			AA10108	-	-	
					MATERIAL CODE	A	C	UNIT WEIGHT
					MATERIAL SPECN			

CARD TYPE-3      CARD TYPE-1      CARD TYPE-2

26-5607-99390/KWU (ITEM NO. 67) Ref Drg. No

DG-39  **BHARAT HEAVY ELECTRICALS LTD.**  
RANIPUR - HARDWAR.

DEPT TGE	CODE 4133		SCALE 1:5	WEIGHT (KG) 12.260	REF. TO ASSY. DRG. 1-144-04-01023	ITEM NO. 002
SHEET				DRAWN T.N.G. <i>[Signature]</i> 24.3.90		
(BRUSHLESS EXCITER FOR 500 MW TG.)				CHECKED S.M. <i>[Signature]</i> 2.4.90		
				APPROVED I.C.RAO <i>[Signature]</i> 16.6.90		

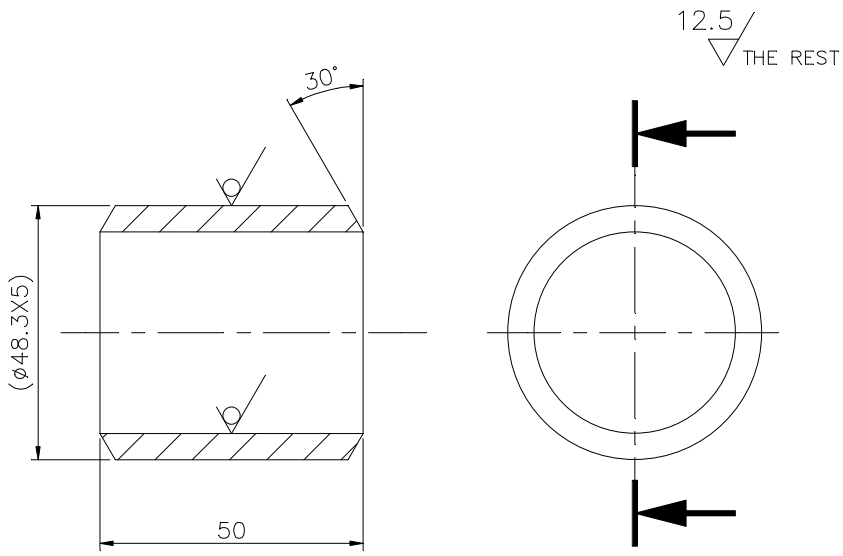
Dimensions to be Controlled Within Limits as Shown.	CARD CODE	DRAWING NO. 4-144-04-01177	
Machining Tolerance ± .25 mm Unless Otherwise GRADE OF UNTOL Shown. Non-Machining Tolerance ± DIM φ/M/∅		SHEET NO. 1	NO. OF SHEETS. 1

Inventory No. E-1-14696 Sign & Date 18/7/90

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.	STATUS
		CHECKED			CHECKED	01440401029	OF DRG
						AGREED DEPT.	NAME
						WTX	AWTXIS
							SIGN
							DATE
							28/08/2010

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



TECHNICAL REQUIREMENT:  
1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5607-124522/001  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

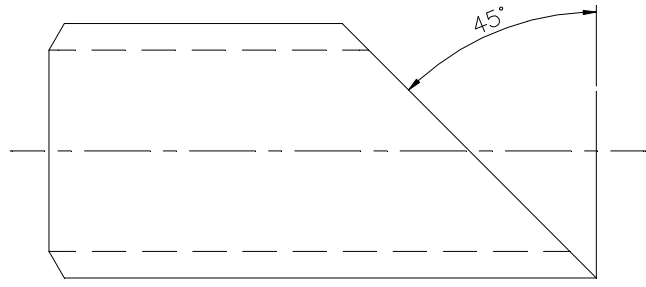
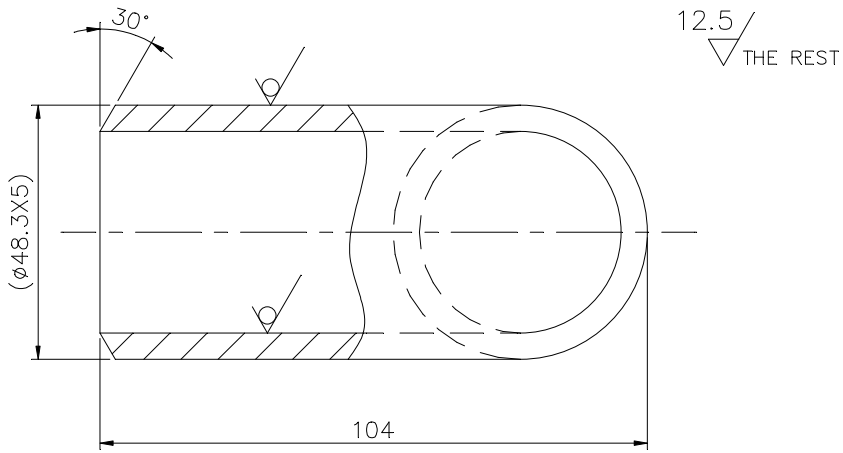
	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	05/08/2010	
CHD	STGESSM	STGESSM	05/08/2010	
APD	ATGEVK	ATGEVK	01/10/2010	

INVENTORY No.	DEPT.TGE	SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.	ITEM No.	No OF ITEMS
	CODE 4133					
TITLE				DRAWING No.		
PIPE				41440401313		
(B'LESS EXCITER FOR 800MW TG)				SHEET No.1		
				No.OF SHEETS!		

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED CHECKED	REV	DATE	ALTERED CHECKED	CBDM No. 01440401029		STATUS OF DRG	
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	AWTXIS	AWTXIS	28/08/2010
GRADE OF UNTOOL.DIM.M/CG/M/F.AA0230208			WELDING-A/B/C/D-AA0621104			GAS CUTTING-T3 AA0621101			



TECHNICAL REQUIREMENT:

1. MARK IDENTIFICATION ACCORDING TO HW 0400397.

26-5607-124522/003  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	05/08/2010	
CHD	STGESSM	STGESSM	05/08/2010	
APD	ATGEVK	ATGEVK	01/10/2010	

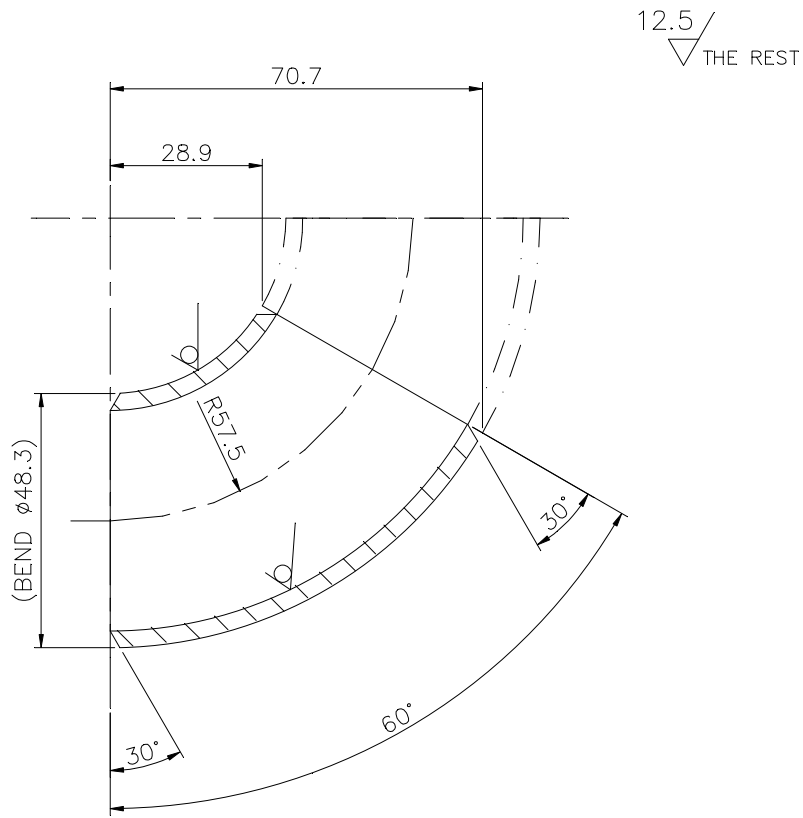
INVENTORY No.	DEPT.TGE	SCALE 1:1	WEIGHT(Kg) .42	REF.TO ASSY.DRG. 31440401150	ITEM No. 003	No OF ITEMS
	CODE 4133					
	TITLE PIPE (B'LESS EXCITER FOR 800MW TG)			DRAWING No. 41440401314		
			SHEET No.1		No.OF SHEETS!	

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.		STATUS OF DRG
		CHECKED			CHECKED	01440401029		
					AGREED DEPT.	NAME	SIGN	DATE
					WTX	AWTXIS	AWTXIS	28/08/2010

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



TECHNICAL REQUIREMENT:

1. MARK IDENTIFICATION ACCORDING TO HW 0400397 AT BHEL WORKS.

26-5607-124522/002  
REF.DRG.No.

SIGN & DATE



BHARAT HEAVY ELECTRICALS LTD  
HARDWAR

	NAME	SIGN	DATE	NO. OF VAR
DRN	STGEVK	STGEVK	15/07/2010	
CHD	STGESSM	STGESSM	05/08/2010	
APD	ATGEVK	ATGEVK	01/10/2010	

INVENTORY No.	DEPT.TGE	SCALE 1:1	WEIGHT(Kg) .2	REF.TO ASSY.DRG. 31440401150	ITEM No. 002	No OF ITEMS
	CODE 4133					
TITLE BEND (B'LESS EXCITER FOR 800MW TG)				DRAWING No. 41440401315		
				SHEET No.1   No.OF SHEETS!		

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## BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

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

For Indian Bidders (Version June-2021, Rev: 06)

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### 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) The quotation should preferably be from the principal bidder. However tender specific authorized registered dealer/agent can also submit the bid on their behalf, failing which the quotation is liable to be ignored. BHEL prefers to deal directly with the principal manufacturers.
- b) An agent cannot quote on behalf of more than one principal in the same Tender Enquiry.

### 3. SUBMISSION OF TENDER.

- a) 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.**

- b) TENDER ROOM is located at: Room No. - 415, 4<sup>th</sup> Floor, Main Admin. Building, BHEL-HEEP, Haridwar.

## Quotations / Bids not in accordance with General Instructions and Standard Terms & Conditions are likely to be ignored.



## BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

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

For Indian Bidders (Version June-2021, Rev: 06)

- 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](http://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.

## Quotations / Bids not in accordance with General Instructions and Standard Terms & Conditions are likely to be ignored.



## BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

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

For Indian Bidders (Version June-2021, Rev: 06)

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](http://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%.

**## Quotations / Bids not in accordance with General Instructions and Standard Terms & Conditions are likely to be ignored.**



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### 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.

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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.	<b>No Loading</b>
Against Delivery at BHEL-Stores Haridwar.	<b>45</b>
Against documents through bank (CAD):	<b>45</b>
Letter of Credit (LC)	<b>120</b>
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



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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](http://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.



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- 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:

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



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- 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 it's 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



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(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 require document 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.

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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.



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### 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,



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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. Guide- lines 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

## Quotations / Bids not in accordance with General Instructions and Standard Terms & Conditions are likely to be ignored.



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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.