TERMS & CONDITIONS FOR PRE-FAB. M/C & FAB. ONLY OF OUTER TOP COVER, STAY RING ETC.

The tender documents can be downloaded from our web site www.bhel.com or www.bhelhwr.co.in. Before submitting the tender, the bidders are required to go through the details mentioned below. Intending indigenous bidder may remit **Tender Fee of Rs. 2,000.00** against the tender, if documents (in hard copies) are required from BHEL. Bidder requiring tender documents in hard copies should remit currency in the form of Cash (as permissible under Income Tax Act) / Pay Order / Demand draft. **Earnest Money Deposit (EMD) of Rs. 200,000.00 is required to be submitted by the vendors against this tender. Earnest Money Deposit (EMD) is not submitted along with offer, then the offer may be rejected.**

This tender enquiry is for domestic/indigenous vendors only.

Please submit Tender Fee (if required) in an envelope super-scribed with bold letters. Tender Fee (if required) is to be submitted with Part-I.

The date for opening of tender shall be 23.08.2021. Tenders will be received up to **1.45 P.M.** on **23.08.2021** and opened on the same day at **2.00 P.M.** in the Tender Room**. Please note that tender received after due date & time (1.45 PM on 23.08.2021) will not be opened.** BHEL will not be responsible for any type of postal / courier delay / incomplete information from vendor.

Bids shall be opened at 2.00 PM on the due date in the presence of authorized representative of the bidders who may like to be present. The authorized representative should bring authority letter from their parent company for the specific tender no. attending the bid opening.

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-FAB. M/C & FAB. only of following items with BHEL Material as per drg., QP & other specifications exclusively with BHEL Material.

Sl. No.	Item Description	Drg. No.	Qty.
1	STAY RING HALF - 1	0202012150200	2 No.
2	STAY RING HALF - 1	0202012150201	2 No.
3	OUTER RING	0202051840200	2 No.
4	**OUTER TOP COVER(INQUADRANTS)**	**0203012150200**	2 No.
5	**INNER TOP COVER**	**0203012150300**	2 No.
6	**MIV BODY (FABRICATION)**	**0212021780200**	2 No
7	**LEVER ASSEMBLY (L.H.S.)**	**1212022010100**	2 No.
8	**LEVER ASSEMBLY (R.H.S.)**	**1212022010200**	2 No.
9	**DISCHARGE VALVE DOOR**	**1212022010600**	2 No.

ASSLY & WELDING OF ALL TRANSPORT STAYS, STIFFNERS, LIFTING LUGS (IF ANY) IS IN SCOPE OF VENDOR.

OUTER TOP COVER

ASSLY & WELDING OF ITEM NO. 10 (SS PLATE LINER) INCLUDING RAW MATERIAL OF THIS ITEM IS IN SCOPE OF BHEL.

INNER TOP COVER

ASSLY & WELDING OF ITEM NO. 18, 23, 25 (SS PLATE LINER) INCLUDING RAW MATERIAL OF THESE ITEMS IS IN SCOPE OF BHEL.

STAY RING

a) BOTH PARTS (DRG.) OF STAY RING ARE TO BE FABRICATED FROM SAME VENDOR.
Hence, L1 status evaluation for the items at Sl. Nos. 1 to 2 above will be decided accordingly.

b) ASSLY. & WELDING OF ALL TECHNOLOGICAL/TRANSPORT SUPPORTS BEFORE DESPATCH OF ITEM TO BHEL IS IN VENDOR'S SCOPE.

c) SHOT BLASTING OF JOB IS IN SCOPE OF BHEL.

FOUNDATION RING (OUTER RING)

1) ASSLY. & WELDING OF ALL TECHNOLOGICAL/TRANSPORT SUPPORTS BEFORE DESPATCH OF ITEM TO BHEL IS IN VENDOR'S SCOPE.

- **TOTAL LOAD FOR THE Enquiry (Approximately) = 457.566 MT**
- The rate (s) should be quoted in Rupees/Kg. Common rates for all the items covered in this particular enquiry to be quoted.
- Only BHEL/LLOYD approved qualified welders/machinist must be employed on the job.
- Only BHEL approved Brands of Electrodes / consumables/Tools to be used.
- 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. Weld Plan & Technology support plan to Welding Technology & get it cleared prior to start of assembly.
- Vendor should get the fit up of weld joints checked from Welding Technology prior to start of the welding.
- 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.
- CLEANING OF JOB AFTER S/R (IF ANY) AT BHEL HARIDWAR WORKS IS IN SCOPE OF VENDOR.
- PANTING IN SCOPE OF BHEL HAIDWAR.
- FINIAL ACCEPTANCE OF JOB AFTER SUCCESSFUL CONTROL MARKING AT BHEL HARIDWAR.

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: -

The offer is to be submitted in **two parts**.

3.1 The tenders shall be submitted in **two parts** in separate sub-envelopes clearly super scribing type of bid, tender no., due date and the name of vendor with full contact details.
Part I – Tender fee (if hard copy insisted from BHEL), Pre qualifying conditions (PQR), Techno Commercial Bid (It should be the copy of Price Bid without the price part) along with the filled in, signed and stamped annexures uploaded along with the Tender Document.
Part II – Price Bid.

Part I –

A. Will be opened on the date and time specified in the tender notice in the presence of those vendors who wish to attend.
B. Will cover the reply of all points of the enquiry except prices in sealed envelop superscribing on the envelop TECHNO-COMMERCIAL OFFER, the enquiry reference number and date of opening etc.

Part II - Price Bids along with supplementary price bids, if necessary, will be opened at a later date of only those bidders whose PQR and Techno Commercial bid will be found acceptable. The price bid is to be submitted in a format as per Annexure-A duly signed by the authorised person of the firm with rubber stamp in the space provided.

3.2 Part-II will comprise of price bid in separate sealed envelop super-scribing PRICE-BID, the enquiry reference number and date of opening etc.

3.3 All the sub-envelopes (Part-I & Part- II) to be put in a single covering envelope Indicating Tender no., due date and the name of vendor, e-mail id, with full contact details. Offer should be complete in all respect (i.e. Part-I & Part-II).

3.4 Both the sealed envelops (Part-I & Part-II) should be placed together in a single envelop duly sealed super scribing on the envelop "TWO PART BID" with enquiry reference number and date of opening of tender. BHEL will not be responsible for any type of delay in receipt of the tender.

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

4. DELIVERY: -

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

5. DELIVERY SCHEDULE: -

Sl. No.	Item Description	Drg. No.	Qty.	Delivery
1	STAY RING HALF - 1	0202012150200	2 No.	Within 60 days from last BHEL material sent
2	STAY RING HALF - 1	0202012150201	2 No.	Within 60 days from last BHEL material sent
3	OUTER RING	0202051840200	2 No.	Within 45 days from last BHEL material sent
4	**OUTER TOP COVER(INQUADRANT)**	0203012150200	2 No.	Within 60 days from last BHEL material sent

5	**INNER TOP COVER**	**0203012150300**	2 No.	Within 60 days from last BHEL material sent
6	**MIV BODY (FABRICATION)**	**0212021780200**	2 No.	Within 60 days from last BHEL material sent
7	**LEVER ASSEMBLY (L.H.S.)**	**1212022010100**	2 No.	Within 60 days from last BHEL material sent
8	**LEVER ASSEMBLY (R.H.S.)**	**1212022010200**	2 No.	Within 60 days from last BHEL material sent
9	**DISCHARGE VALVE DOOR**	**1212022010600**	2 No.	Within 60 days from last BHEL material sent

6. 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. (excluding NPC) 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.
- Ordering shall be done on BHEL Haridwar agreed / approved sub-contractors only.
- Inspection by BHEL/BHEL nominated inspection agency as per drawing /Standard and quality plan requirements.
- Quality plan no. QP/QA/212014 rev 00 dated 29.07.2021 is attached for item sl. Nos. 1 to 3 above, which is to be followed.
- Quality plan no. QP/QA/212013rev 00 dated 27.07.2021 is attached for item sl. Nos. 4 to 9 above, which is to be followed.
- Remote inspection shall be preferred in place of physical inspection by BHEL/BHEL nominated inspection agency (Due to COVID 19 situation). Remote inspection guidelines are attached. Sub-contractors to offer both remote inspection and physical inspection. BHEL reserve the right to select anyone.

7. GUARANTEE CERTIFICATE: -

The vendor shall warrant that the supplied fabricated assemblies 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.

8. PAYMENT TERMS: -

8.1 90% after acceptance & final clearance of SRIV.10% after FTS and final accountal of material.

8.2 No packing and forwarding charges will be paid extra.

8.3 In case of rejection, total cost of material will be recovered in case of BHEL Material and no labour cost will be paid.

9. 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.

10. GST: -

As applicable against documentary proof. Mention HSN/SAC code & applicable %age of GST.

10.1 The bidder to specify in their offer (part 1 bid) the category of their registration under GST like Registered, Unregistered and composite dealer.

10.2 The provisional GST registration number of Bharat Heavy Electrical Ltd, Heavy Electricals Equipment Plant, Ranipur, Electricals Equipment Plant, Ranipur, Haridwar is '05AAACB4146P1ZL' with state Code as '05' and State Name as 'Uttarakhand'.

10.3 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.

10.4 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.

10.5 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.

10.6 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 account.

10.7 In the event of any change in the status of vendor after 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.

10.8 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.

11. EXTRA/LESS RATES: -

- In case, extra/less work is required due to change in Drawing / any deviation in fabricated weight at a later stage (duly verified by our Engineering Dept.), extra charges may be paid/deducted and purchase order will be amended.
- In case extra/less work is required due to change in Drawing/ technology / extra joints (owing to non-availability of required size of raw material) / defects like laminations if any on BHEL supplied plates etc. / any deviation in fabricated weight (duly verified by WT), extra/less charges will be paid and purchase order may be amended accordingly.
- Amendment due to changes in drg. /CBOM weight will be applicable only if changes are made before supply of material or changes which are under process is provided to vendor in writing by Engg. or AIX before supply of material by vendor.

12. Reverse Auction: -

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

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

Following are some guidelines:

- Start price for RA to be L1 of e-bid/ sealed envelope price bids.
- 2. Minimum two techno-commercially qualified bidders are required to conduct RA.
- Wherever six or more techno-commercially qualified bidders are available, RA would be conducted amongst first 50% of the bidders arranged in the order of prices from lowest to highest. Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of techno-commercially qualified bidders is odd (e.g. if 7 bids are technically qualified, then RA will be conducted amongst lowest four bidders). However, there will be no elimination of bidders who are MSE or qualifying under PPP-MII Order, 2017.

For detailed terms and conditions of RA guidelines, kindly refer www.bhel.com.

All vendors will be assessed on total cost to BHEL basis that includes freight, taxes, ITC etc.

13. Following MSE conditions shall be followed: -

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 (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). 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.

* 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: -

a. Valid NSIC Certificate or

b. Entrepreneurs' Memorandum part II (EM II) certificate (valid based on deemed validity of 5 years) or

c. EM II certificate along with attested copy of CA Certificate (as per prescribed format at annexure 1) applicable for the relevant financial year (latest audited), where the deemed validity of EM II is over. However, credentials of all MSE supplier will be verified before advancing the intended benefits.

* MSE vendors 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.
* In case techno-commercial accepted vendors include MSE source and their prices (based on landed cost to BHEL) are within the price band of 15% w.r.t. L-1 vendor, then BHEL can offer 25% of quantity of respective item (rounded off to nearest number) to MSE vendors at L-1 price and in case, more than one MSE vendor is in 15 % band and the same is accepted by more than one MSE vendors then 25% quantities of respective items will be considered for ordering on proportionate basis amongst MSE vendors.
* While distributing the 25% quantity amongst MSE vendors the decimal points in quantity shall be ignored for all the vendors except the L-1 amongst MSE vendors. Balance quantity after allocating the quantity to other MSE vendors ignoring the quantities in decimal, shall be given to L-1 (amongst MSE) vendor. However, if there are more than one MSE vendor at the same price level than preference for additional quantities due to ignoring off the decimal (as mentioned above) shall be given to the vendor offering favourable terms to BHEL and if the conditions offered are also same then preference will be given to the vendor having high SPR rating.
* In case there are more than one MSE vendors (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 vendor with lowest landed cost.
* In case there are more than one MSE vendors (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 favourable terms in the bid and in case terms are also same, the vendor with high SPR rating shall be given preference.

14. **PRICE VARIATION CLAUSE: -** No PVC is applicable for this enquiry.

15. **Bank Guarantee/Indemnity Bond: -** 25% Bank Guarantee and 75% 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.

16. **GENERAL INSTRUCTIONS: -**

16.1 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.

16.2 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.

16.3 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.

16.4 Subsequent ordering shall be done based on performance and execution of orders in time as per PO. Delivery.

16.5 In the course of evaluation, if more than one bidder happens to occupy L1 status, effective L1 will be decided by soliciting discounts from respective L1 bidders. 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.

16.6 Vendor must fill in the rate per Kg. in Annexure-A and put in the Price Bid envelop.

16.7 EMD submission may be waived for Central/State-PSUs/Government departments.

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

16.9 As per the Office Memorandum 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." 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.

16.10 Approved Vendors registered in PMD AF-081 in HEEP, BHEL Ranipur are exempted from submission of EMD. Vendors may claim the same in their offers.

16.11 Open tender is hoisted on the websites and no hard copy of document is provided by BHEL, no tender fee shall be insisted upon from the bidders.

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

16.13 Please refer general instructions and standard terms & conditions (GISTC) for bidding against tender enquiry (Version December-2020, Rev: 05).the bidder/vendor must ensure compliance of these GISTC (Version December-2020, Rev: 05).

16.14 Unregistered vendors may please visit our site **www.bhel.com** for filing up the Supplier registration Form aginst PMD No. AF081.

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

16.16 PQR uploaded with the tender document 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 Annexure may be ignored.**

16.17 The evaluation currency shall be INR (Indian Rupee).

16.18 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.

16.19 For this procurement, Public procurement (preference to Make in India), Order 2017 dated 04.06.2020 shall be applicable.

For this procurement, the local content to categorize a supplier as 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 the nodal ministry, changing the definition of local content for the items of NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of part-II bids against this NIT.

As defined under public procurement (Make in INDIA) notification dated 04.06.2020, only the 'Class-I local supplier' and 'Class-II local supplier' are eligible to bid against this enquiry. Hence bids of non-local supplier (if any) will not be considered.

Accordingly, the 'Class-I local supplier' / 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to indicate the 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' and shall give details of the location(s) at which the local value addition is made.

Procurements where the Estimated value to be procured is less than Rs. 5 lakhs shall be exempted from Public Procurement (Preference to Make in India) Order 2017 dated 04.06.2020.

16.20 Vendor Contract clause regarding GST ITC and provision for E-Invoices:

(i) E-Invoicing under GST is being implemented w.e.f. 01.10.2020 for all the taxable persons having turnover more than Rs. 100 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.

16.21 **Bidder to necessarily submit duly filled in, signed and stamped Anexures** (attached alongwith the tender document**.**

16.22 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-availibility of concessional forms etc. shall be to the vendor account.

16.23 The bidders against open tender will necessarily have to obtain class – III DSCs. Procedure for application is available on www.bhel.com.

16.24 **RECTIFICATION:-** Any defect (noticed at Shop) arising out of the fabrication/machining 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.

17. Transportation: -

BHEL will send raw material to vendor works on freight paid basis and vendor to deliver fabricated/machined items to BHEL Haridwar at their own cost.

18. 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/any other document under category of scrap MELTING SCRAP. The date of receipt of material will be considered for calculating the scrap value as applicable for that month. 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 shall be given on the finished weight.

19. OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also

reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.

20. Integrity Pact: Supplier must submit Integrity Pact duly signed and stamped along with this offer as per attached annexure.

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.

Amendments/Corrigendum, if any, will be hosted on our web site 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 Document, 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 contrac(s)/ P.O's placed .

Tenders will be received in Tender Box kept in Tender Room and should be addressed to:
THE HEAD OF MATERIAL MANAGEMENT,
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited,
HARIDWAR-249403 (Uttarakhand), INDIA.

Unregistered vendors may please visit our site **www.bhel.com** for filing up the Supplier Registration Form.

KINDLY READ "TERMS & CONDITIONS FOR PRE-FAB. M/C & FAB. ONLY OF OUTER TOP COVER,STAY RING ETC.". QUOTATION NOT IN ACCORDANCE WITH THE INSTRUCTIONS ARE LIABLE TO BE DISQUALIFIED AND IGNORED. Kindly submit Checklist of T&C of this enquiry attached with tendor document.

Annexure - A

PRE-FAB. M/C & FAB. ONLY OF OUTER TOP COVER, STAY RING ETC.

OpenTender Enquiry No.: X/6620/2021/0057/C/1

MATERIAL BY	RATE (Rs. PER Kg.)
BHEL MATERIAL (BM)	

Authorised Signature :

(with date & seal of company)

Name of Supplier :-

TERMS AND CONDITIONS FOR Enquiry No.X/6620/2021/0057/C/1

SL.	TERMS	VENDOR'S ACCEPTANCE/ REMARKS
1	Scope of Work: - Complete Fabrication & machining and painting is to be carried out by the vendor as per Drawing/Standard, QP and Technical requirements. Technical specification and conditions of supply on one/multiple vendors.	
2	Quotation is valid for a minimum period of 90 days from date of opening of enquiry.	
3	Submission of offers (clause no. 3.1 to 3.5 of Terms and Condtions)	
4	Quoted rates are on F.O.R. sub-contract store, HEEP, Haridwar basis.	
5	Delivery schedule:Item wise as per clause 5 of T& C of enquiry	
6	Inspection shall be done as per clause no. 6 of Terms and Condtions of Enquiry	
7	Guarantee Certificate shall be valid for 18 months from reciept of material in BHEL.	
8	90% after acceptance & final clearance of SRIV.10% after FTS and final accountal of material.	
9	LD clause is applicable@0.5% per week or part thereof with a maximum limit of 10% of the delayed portion of the PO.	
10	GST shall be applicable against documentary proof. Input Tax Credit shall be applicable and BHEL can claim benefit as per clause 10. of T & C of enquiry.	
11	Amendments of Extra/Less rates as per clause no. 11 of Terms and Condtions of Enquiryt.	
12	We accept Reverse Auction(RA) clause as per standard policy of BHEL.	
13	We are MSME vendor and have submit CA certificate based on latest audited year (Non MSME vendor to write NA)	
14	We accept Price Variation clause (PVC) as per standard policy of BHEL.	
15	Bank Guarantee/Indemnity Bond: 25% BG & 75% Indemnity bond	
16	We have read clause no. 16 of terms and conditions ofEnquiry and confirm to abide the same.(Clause 16.1 to 16.24)	
17	Transportation:Confirm acceptance of clause 17 of T & C.Manufactured items shall be despatched by BHEL approved transporter only and Insurance shall be borne by BHEL.	
18	Scrap :Conifrm accceptance of Clause 18 of T & C of Enq.	
19	Option Clause: Confirm acceptance of clause 19 of T&C of enuiry.	
20	Signed and stamped Integrity pact is attached alongwith	
21	We accept Risk Purchase clause as per standard policy of BHEL.	
22	We have submitted Make in India certificate (duly filled and signed as per Annexture-II).	
23	**Rates have been quoted in indian Rupees on per Kilo Gram basis.**	

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

(Vendor's signature with Stamp)

PQR

Item : FABRICATION OF Outer Top Cover (In Quadrants)
(KALESHWARAM drg: 02030121502-00)

PRE-QUALIFICATION REQUIREMENT

.00	TECHNICAL REQUIREMENT	Required
.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Outer top cover or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 5000 mm, Breadth/diameter= 2000mm and Height= 1000 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 12 Tons and above. iii) Vendor must have levelled bed plate size : Length= 5500mm, Breadth=2500 mm and above to fabricate the job. iv) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 56mm and above with width 1500mm and above. (v) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (vi) Vendor must have cutting facility to cut plate of thickness 150mm and above. (vii) Vendor must have drilling facility to drill hole size of 30mm and above on a plate of thickness 40mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Outer top cover or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
.03	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 Outer top cover or equivalent.	Vendor to Comply & submit suitable documents
.04	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
.05	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

OTE: PQR is not restricitve

28/07/21
Ravi Deshwal
DY. Mgr (WTX)

28/07/21
BL Meena
AGM (WT)

PQR

Item : FABRICATION OF Inner Top Cover (KALESHWARAM drg:02030121503-00)

	PRE-QUALIFICATION REQUIREMENT	
01.00	**TECHNICAL REQUIREMENT**	**Required**
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Inner top cover or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 5600 mm, Breadth/diameter= 5600mm and Height= 2000 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 45 Tons and above. iii) Vendor must have levelled bed plate size : Length= 6000mm, Breadth=6000 mm and above to fabricate the job. iv) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 70mm and above with width 1500mm and above. (v) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (vi) Vendor must have cutting facility to cut plate of thickness 130mm and above. (vii) Vendor must have drilling facility to drill hole size of 30mm and above on a plate of thickness 40mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Inner top cover or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Inner top cover or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree
NOTE: PQR is not restricitve		

28/07/2021
Ravi Deshwal
DY. Mgr (WTX)

28/07/21
BL Meena
AGM (WT)

PQR

Item : FABRICATION OF MIV Body (Fabrication) (KALESHWARAM drg: 02120217802-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. MIV body or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 4500 mm, Breadth/diameter= 4500mm and Height= 1500 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 25 Tons and above. iii) Vendor must have levelled bed plate size : Length= 5000mm, Breadth=5000 mm and above to fabricate the job. iv) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 56mm and above with width 1500mm and above. (v) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (vi) Vendor must have cutting facility to cut plate of thickness 260mm and above. (vii) Vendor must have drilling facility to drill hole size of 150mm and above on a plate of thickness 260mm and above.	Required Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated MIV Body or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 MIV Body or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree

NOTE: PQR is not restricitve

28/07/21
Ravi Deshwal
Dy. Mgr (WTX)

28/07/21
BL Meena
AGM (WT)

PQR

Item : FABRICATION OF Lever Assembly (LHS)
(KALESHWARAM drg: 12120220101-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Lever Assembly (LHS) or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 2000 mm, Breadth/diameter= 2000mm and Height= 1500 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 5 Tons and above. iii) Vendor must have levelled bed plate size : Length= 2500mm, Breadth=2500 mm and above to fabricate the job. (iv) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (v) Vendor must have cutting facility to cut plate of thickness 260mm and above. (vi) Vendor must have drilling facility to drill hole size of 150mm and above on a plate of thickness 260mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Lever Assembly (LHS) or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Lever Assembly (LHS) or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree

NOTE: PQR is not restricitve

28/07/21
Ravi Deshwal
Dy. Mgr (WLX)

28/07/21
BL Meena
AGM (WLX)

PQR

Item : FABRICATION OF Lever Assembly (RHS)
(KALESHWARAM drg: 12120220102-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Lever Assembly (RHS) or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 2000 mm, Breadth/diameter= 2000mm and Height= 1500 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 5 Tons and above. iii) Vendor must have levelled bed plate size : Length= 2500mm, Breadth=2500 mm and above to fabricate the job. (iv) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (v) Vendor must have cutting facility to cut plate of thickness 260mm and above. (vi) Vendor must have drilling facility to drill hole size of 150mm and above on a plate of thickness 260mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Lever Assembly (RHS) or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Lever Assembly (RHS) or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree

NOTE: PQR is not restricitve

28/07/21
Ravi Deshwal
Dy. Mgr (WEX)

28/07/21
B Laxma
AGM (WT)

PQR

Item : FABRICATION OF Discharge Valve Door (Fabrication & Pre-M/Cing)
(KALESHWARAM drg:12120220106-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Discharge Valve Door or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Length/Diameter = 3500 mm, Breadth/diameter= 3500mm and Height= 1500 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 30 Tons and above. iii) Vendor must have levelled bed plate size : Length= 4500mm, Breadth=4500 mm and above to fabricate the job. (iv) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (v) Vendor must have cutting facility to cut plate of thickness 260mm and above. (vi) Vendor must have suitable milling facility to machine component of size 3500x1500mm.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Discharge Valve Door or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Discharge Valve Door or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree

NOTE: PQR is not restricitve

28/07/21
Ravi Deshwal
DY. Mgr (WTX)

28/07/21
BLMeena
AGM(WT)

PQR

Item : Stay Ring Half-1 (KALESHWARAM drg: 02020121502-00 &01)

PRE-QUALIFICATION REQUIREMENT

01.00	**TECHNICAL REQUIREMENT**	
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Stay Ring half or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Diameter = 7790 mm, and Height= 2500 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 35 Tons and above. iii) Vendor must have levelled bed size: Length= 8000mm, Breadth=4000 mm and above to fabricate the job. iv) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 63mm and above with width 1000mm and above. (v) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (vi) Vendor must have cutting facility to cut plate of thickness 150mm and above. (vii) Vendor must have Horizontal boring machine to carry out milling machining on pre-fabrication machining of components like weld edge preparation and profile machining of stay Vanes and baffle vanes with table size of 6000mmX2000mm (viii) Vendor must have drilling facility to drill hole size of 170mm and above on a plate of thickness 70mm and above and facility to drill hole size of 62mm and above on a plate of 110mm and above.	Required Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Stay Ring half or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Stay Ring half or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree

NOTE: PQR is not restricitve

28/07/21
Ravi Deshwal
DY. Mgr (WTX)

28/07/21
Meena
AGM (WT)

PQR

Item : Outer Ring (KALESHWARAM drg: 02020518402-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required
01.01	Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. Outer Ring or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Diameter=4800 mm and Height= 800 mm and above. ii) Lifting facility and capacity at vendor works should EOT crane 8 Tons and above. iii) Vendor must have levelled bed plate size : Length= 5000mm, Breadth=5000mm and above to fabricate the job. iv) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 56mm or above with width 1000mm or above. (v) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (vi) Vendor must have cutting facility to cut plate of thickness 63mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.
01.02	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated Outer Ring or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.03.	Vendor to Comply & submit suitable documents
01.03	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 Outer Ring or equivalent.	Vendor to Comply & submit suitable documents
01.04	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents
01.05	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree
NOTE: PQR is not restricitve		

28/07/21
Ravi Dethwal
Dy. Mgr (WTX)

28/07/21
B Laneeng
AGM (WT)

Manufacturer Name and Address	MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar approved sub-contractors only	ITEM	OUTER TOP COVER (INQUADRANTS), INNER TOP COVER, MIV BODY (FABRICATION), LEVER ASSEMBLY (L.H.S.), LEVER ASSEMBLY (R.H.S.), DISCHARGE VALVE DOOR	Q.P. NO	QP/QA/212013	PROJECT	
			DATE	29.07.2021		
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR
	WO. No.	20279T20201, 20281T20201	PAGE NO.	Page 1 of 2	Indent	20210057 rev 00 dated 27.07.2021

S. No.	COMPONENT OPERATION	CHARACTRISTIC CHECKED	CATE-GORY	TYPE/ METHED OF CHECKED	QUANT-UM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE DOCUMENT	FORMAT OF RECORD	D	M	B	C	REMARK
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.0	**Material Receiving Inspection**												
1.1		Verification of identification of material	Major	Visual inspection	100 %	As per Drg./ Standard	As per Drg./ Standard	PPMIV/ Q.no.	✔	P	V	-	Material will be supplied by BHEL, transfer of identification to be ensured.
1.2		Verification of dimensions and visual Inspection	Major	Measurement	100 %	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	-	P	-	-	
2.0	**INPROCESS-INSPECTION**												
2.1	WPS, PQR & WPQ Qualification	Scrutinizing	Major	Record check	100%	ASME SEC IX	ASME SEC IX	Test Report	✔	P	V	-	WPS/PQR/WPQ approved by BHEL /BHEL approved agency shall be used.
2.2	Welding Operation	i) Visual inspection of welds	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
2.3		ii) NDT of weld joints	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	✔	P	W	V	1) "V" by customer for "Top Cover" 2) NDT shall be carried out by ASNT/ISNT Level I/II Qualified Operators 3) NDT consumables shall be procured from BHEL approved sources.

Manufacturer/ Subcontractor	Legends:	For BHEL Use		
	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.	Worked by: Deepika Singh Deepika Singh, SE (QAX)	Checked by: Digitally signed by SUGANDH AGARWAL Date: 2021.07.29 12:45:05 +05'30' Sugandh Agrawal, DM (QAX)	Approved by: P.K Bansal, AGM (QAX)

Manufacturer Name and Address	MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar approved sub-contractors only	ITEM	OUTER TOP COVER (INQUADRANTS), INNER TOP COVER, MIV BODY (FABRICATION), LEVER ASSEMBLY (L.H.S.), LEVER ASSEMBLY (R.H.S.), DISCHARGE VALVE DOOR	Q.P. NO	QP/QA/212013	PROJECT	
			DATE	29.07.2021		
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR
	WO. No.	20279T20201, 20281T20201	PAGE NO.	Page 2 of 2	Indent	20210057 rev 00 dated 27.07.2021

3.0	**FINAL INSPECTION**												
3.1	Dimensions	Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	✔	P	W	V	"V" by customer for "Top Cover"
3.2		Coating/ conservation (If applicable)	Major	Visual & measurement	As per drg.	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	✔	P	V	-	
3.3		Completeness of Job, Documentation	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Record	✔	P	V	-	Item shall be dispatched to BHEL after acceptance by BHEL/ BHEL nominated agency after duly identifying by P.O.No., drg no. Plant Order No. and I.R.No

Note: 1. All requirements of P.O., drawing and standard shall be fulfilled.
2. BHEL reserves the right for conducting repeat test, if required.

Manufacturer/ Subcontractor	**Legends:** P Perform by; W Witness by; V Record review; C Customer ; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: documents with tick mark shall be submitted by vendor to BHEL.	**For BHEL Use**		
		Worked by: Deepika Singh Deepika Singh, SE (QAX)	Checked by: Digitally signed by SUGANDH AGARWAL Date: 2021.07.29 13:40:51 +05'30' Sugandh Agrawal, DM (QAX)	Approved by: P.K Bansal, AGM (QAX)

Manufacturer Name and Address	MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar approved sub-contractors only	ITEM	STAY RING HALF – 1, OUTER RING	Q.P. NO	QP/QA/212014	PROJECT	
			DATE	29.07.2021		
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR
	WO. No.	20279T20201, 20281T20201	PAGE NO.	Page 1 of 2	Indent	20210058 rev 00 dated 27.07.2021

S. No.	COMPONENT OPERATION	CHARACTRISTIC CHECKED	CATE-GORY	TYPE/ METHED OF CHECKED	QUANT-UM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE DOCUMENT	FORMAT OF RECORD	D	M	B	C	REMARK
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.0	Material Receiving Inspection												
1.1		Verification of identification of material	Major	Visual inspection	100 %	As per drg./ Standard	As per drg./ Standard	PPMIV/ Q.no.	✔	P	V	-	Material will be supplied by BHEL, transfer of identification to be ensured.
1.2		Verification of dimensions and visual Inspection	Major	Measurement	100 %	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	-	P	-	-	
2.0	**INPROCESS-INSPECTION**												
2.1	WPS, PQR & WPQ Qualification	Scrutinizing	Major	Record check	100%	ASME SEC IX	ASME SEC IX	Test Report	✔	P	V	-	WPS/PQR/WPQ approved by BHEL /BHEL approved agency shall be used.
2.2	Welding Operation	i) Visual inspection of welds	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
2.3		ii) NDT of weld joints	Major	NDT	As per drg.	As per drg./ Standard	As per drg./ Standard	Report	✔	P	W	V	1) NDT shall be carried out by ASNT/ISNT Level I/II Qualified Operators 2) NDT consumables shall be procured from BHEL approved sources. 3) "V" by customer for "Stay Ring"

Manufacturer/ Subcontractor	Legends:	For BHEL Use		
	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.	Worked by: Deepika Singh Deepika Singh, SE (QAX)	Checked by: Digitally signed by SUGANDH AGARWAL Date: 2021.07.29 13:42:31 +05'30' Sugandh Agrawal, DM (QAX)	Approved by: P.K Bansal, AGM (QAX)

Manufacturer Name and Address	MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar approved sub-contractors only	ITEM	STAY RING HALF – 1, OUTER RING	Q.P. NO	QP/QA/212014	PROJECT	
			DATE	29.07.2021		
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR
	WO. No.	20279T20201, 20281T20201	PAGE NO.	Page 2 of 2	Indent	20210058 rev 00 dated 27.07.2021

3.0	**FINAL INSPECTION**												
3.1	Dimensions	Verification of dimension & inspection	Major	Visual & measurement	100%	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	✔	P	W	V	"V" by customer for "Stay Ring"
3.2		Coating/ conservation (If applicable)	Major	Visual & measurement	As per drg.	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	✔	P	V	-	
3.3		Completeness of Job, Documentation	Major	Visual	100%	As per drg./ Standard	As per drg./ Standard	Record	✔	P	V	-	Item shall be dispatched to BHEL after acceptance by BHEL/ BHEL nominated agency after duly identifying by P.O.No., drg no. Plant Order No. and I.R.No

Note: 1. All requirements of P.O., drawing and standard shall be fulfilled.
2. BHEL reserves the right for conducting repeat test, if required.

Manufacturer/ Subcontractor	**Legends:** P Perform by; W Witness by; V Record review; C Customer ; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: documents with tick mark shall be submitted by vendor to BHEL.	**For BHEL Use**		
		Worked by: Deepika Singh Deepika Singh, SE (QAX)	Checked by: Agarwal Digitally signed by SUGANDH AGARWAL Date: 2021.07.29 13:42:44 +05'30' Sugandh Agrawal, DM (QAX)	Approved by: P.K Bansal, AGM (QAX)

LOGSHEET MANUFACTURING
HEEP- HARIDWAR

DIMENSIONAL INSPECTION REPORT

PROJECT : KALESHWARAM PROJECT LINK-II PACKAGE-II **WORKORDER No.**	TYPE/RATING: 4X130 MW SINGLE STAGE VERTICAL PUMP
DESCRIPTION : STAY RING HALF-1	CONTRACTOR : MEIL,HYDRABAD
DRAWING NO. 02020121502 (BHOPAL REF. DRG. NO. 02020120202)	
ASSY. DRG.- 02020121501 (BHOPAL REF. DRG. NO.02020120101)	

OPN./ SL. No.	DRG. SIZE	OBSERVATION	REMARKS
I/D	Ø6660 (+2.0)		
I/D	Ø6520 (+/-1.0)		
I/D	Ø6400 (+1.0)		
I/D	Ø4540		
STEP I/D	Ø4770		
GROOVE DIA	Ø6560		(MAIN PLATE UPPER- IT 01)
GROOVE WIDTH	20 (+0.5)		
GROOVE DEPTH	10 (+/-0.1)		
GROOVE DIA	Ø4560		(SUPPORT RING -IT 06)
GROOVE WIDTH	18 (-0.5)		
GROOVE DEPTH	10.5 (+/-0.1)		
HT.	2075 (+0.7)		
100 HOLES EQUISPACED DRILL & TAP M90 X 110 ON PCD 6860 (FOR BOLTING WITH OUTER TOP COVER)			(TOP RING- IT 05)
40 HOLES,EQUISPACED OFFCNTR ON PCD 4670,DRILL 42 DEEP AND TAP M36X4, 36 DEEP			(SUPPORT RING -IT 06)
20 HOLES, EQUISPACED ONCNTR ON GV.PCD 58529,DRILL 70 DEEP AND TAP M56X55,65 DEEP			(SUPPORT RING -IT 06)
20 HOLES OF 2 ½ " BSP ON PCD 7000 (FOR AIR RELEASE AND PRESSURE GROUTING)			(MAIN PLATE LOWER- IT 02)
40 HOLES OF 1 " BSP ON PCD 7000 (FOR AIR RELEASE AND PRESSURE GROUTING)			(MAIN PLATE LOWER- IT 02)
20 HOLES OF 1 " BSP ON PCD 5852.9 (FOR AIR RELEASE AND PRESSURE GROUTING)			(SUPPORT RING -IT 06)
10 HOLES OF Ø170 ON PCD 5852.9 (FOR CONCRETING)			(SUPPORT RING -IT 06)

NOTE : ALL DIMENSIONS ARE IN mm.

ISSUING DEPT.	NAME	SIGN	DATE					INSPECTED BY:-
PREPARED BY:-	SKR	sd/-	04/08/21					FILLED IN BY :-
CHECKED BY:-	PS	sd/-	04/08/21	REV.				CHECKED BY :-
				DATE				
APPROVED BY:-	SA	sd/-	04/08/21	REV.				APPROVED BY :-
				DATE				

AIX to inform following to sub-contractor in case Remote Inspection along with routine inspection is required (due to covid-19 situation):.

Procedure for Remote inspections (Purchased / sub-contracted items)-

- Vendor will submit remote inspection call similar to routine inspection call (alongwith internal inspection reports, records of calibration of measuring instruments).
- Digital display measuring instruments to be preferred, if available.
- Illumination by minimum 100 Watt bulb is to be done on the job near the location of inspection.
- Remote inspection will start with verification of identification numbers available on the item.
- Remote inspection will be offered by vendor through live videography, and videos, important pictures to be included as records of inspection, which will be submitted to BHEL(QC-Materials).
- The online inspection shall be performed using video call on Lifesize, Webex, WHATSAPP, Microsoft Teams application.

a) For **MPI**, first calibration using field indicator will be shown. After that room will be covered for darkness and MPI using Yoke or Prod as per applicable specification shall be performed on casting. The inspector at the other end will see it through WHATSAPP video call. As MPI is with Fluorescent method, the indication are visible in the dark and can be seen through video call.

b) For **UT**, first the calibration of UT machine will be shown to the inspector through video call. After that 02 NO. mobile phones will be used for showing the UT on the job. 01 mobile is used for showing the probe movement and other is used for showing the screen of UT machine for indications.

c) The **HARDNESS** on material shall be shown using EQUOTIP HARDNESS TESTER. Before start of testing calibration on standard test block will be shown.

d) **DIMENSION & WALL THICKNESS** will be shown on marking table through video call.

e) For **MECHANICAL TESTING**, first “0” setting of machines will be shown to the inspector. After that dimension of each sample will be shown. The tensile test and impact tests shall be performed on test sample and inspector will witness the same through video call. After completion of test, all measurement on test samples, as applicable, shall be shown to the inspector on video call.

- Remote Inspection to be performed on job, should have no difference w.r.t. routine inspection performed in case of personal attendance of inspector.

- In case, interruption / loss of connectivity is reported by BHEL/ UPRVUNL/NTPC/TANGEDCO/MAHAGENCO etc. during inspection, the process will be repeated by the vendor.
- Any clarification raised during remote inspection, will be responded immediately by vendor.

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 Â _____(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.

Seal and Signature of Supplier

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 36165.0

R E C O R D OF C H A N G E S

Drawing No	Var	Revno	Rev Date	Description
02020121502	00	1	15.07.2021	For item no. 9: Material code changed to W96321301159 from HXEW10102086 **---- UNDER CHANGE ADVICE**

CBOM - 02020121502 00

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 36165.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02020121502 00			36165.0						
1(1)	STAY RING HALF - 1			Y						
MF			N		0306-0236					
1	32020118401 00	HXEW10102264		6280.0	3620.0X2050.0	1	1	6734.6	0.0	6734.6
1(1)	MAIN PLATE HALF- UPPER			Y	T			Make in 6 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
2	32020118402 00	HXEW10102264		6800.0	3910.0X2050.0	1	1	7274.1	0.0	7274.1
1(1)	MAIN PLATE HALF- LOWER			Y	T			Make in 6 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
3	32020118403 00	AA1011819236	AA10119	2880.0	548.0X11433.0	1	1	3256.4	0.0	3256.4
1(1)	CYLINDER HALF-UPPER			Y	PL 63			In 2 parts & BA 800mm incl.		
MF DR					0072-0301-0306-0236-0306					KG
4	32020118404 00	AA1011819236	AA10119	1510.0	289.0X11370.0	1	1	1707.9	0.0	1707.9
1(1)	CYLINDER HALF - LOWER			Y	PL 63			In 2 parts & BA 800mm incl.		
MF DR					0072-0301-0306-0236-0306					KG
5	32020118405 00	AA1011819341	AA10119	3790.0	2800.0X1650.0	1	1	5717.25	0.0	5717.25
1(1)	TOP RING HALF			Y	PL 150			Make in 4 segments		
MF DR					0072-0301-0306-0301-0306					KG
6	32020118406 00	AA1011819244	AA10119	5660.0	5100.0X2640.0	1	1	7775.5	0.0	7775.5
1(1)	SUPPORT RING HALF			Y	PL 70			Make in 4 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
7	22020121501 01	HXEW10102086		600.0	930.0X868.0	1	9	799.2	0.0	7192.8
9(9)	STAY VANE			Y	120			Machined by Block-3		
MF DR	STAY VANE				0072-0301-0236-0306					KG
9	22020121502 00	HXEW10102086		930.0	1470.0X868.0	1	1	1263.2	0.0	1263.2
1(1)	BAFFLE VANE			Y	120			Machined by Block-3		
MF DR					0072-0301-0236-0306					KG
10	42020118407 00	AA1011819295	AA10119	88.0	548.5X185.0	1	2	92.1	0.0	184.2
2(2)	JOINT FLANGE- TOP			Y	PL 110					
MF DR					0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 36165.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
11	32020118407 00	AA1011819295	AA10119	293.0	1280.0X570.0	1	2	662.1	0.0	1324.2
2(2)	JOINT FLANGE BOTTOM			Y	PL 110					
MF DR					0072-0301-0306					KG
13		AA1010412167	AA10112	73.6	7500.0X50.0	1	1	77.4	0.0	77.4
1(1)	25tk x 50 x 7.5M LG		Strip	Y	SQ 25					
MF DR	ST-CD-SQ				0072-0301-0306					KG
14	42020118408 00	AA1010212311	AA10112	0.95	80.0	1	2	3.991	0.0	7.982
2(2)	DOWEL			Y	RND 90					
MF DR					0072-0236-0306					KG
15	42020118409 00	AA1011819171	AA10119	24.0	549.0X180.0	1	18	26.1	0.0	469.8
18(18)	TOP RIB			Y	PL 32					
MF DR					0072-0301-0306					KG
16	32020118408 00	AA1011819171	AA10119	8.1	289.0X120.0	1	9	9.2	0.0	82.8
9(9)	BOTTOM RIB-1			Y	PL 32					
MF DR					0072-0301-0306					KG
17	32020118409 00	AA1011819171	AA10119	83.0	1280.0X570.0	1	8	192.6	0.0	1540.8
8(8)	BOTTOM RIB-2			Y	PL 32					
MF DR					0072-0301-0306					KG
19		AA1930231318	AA19331	12.0	50.0	1	10	20.0	0.0	200.0
10(10)	Dia 200 x 50LG		Dia 200 x 50LG	Y	RND 250			L=50mm		
MF DR	CARBON STEEL FORGINGS CLASS-2				0072-0315-0317-0306					MR

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 01 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 35820.0

R E C O R D OF C H A N G E S

Drawing No	Var	Revno	Rev Date	Description
02020121502	01	1	15.07.2021	1) For Item no. 1 & 2: Material code-HXEW10102264 changed to W96321301140 2) For Item no. 7 & 9: Material code-HXEW10102086 changed to W96321301159 **---- UNDER CHANGE ADVICE**

CBOM - 02020121502 01

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 01 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 35820.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02020121502 01			35820.0						
1(1)	STAY RING HALF - 1			Y						
MF	STAY RING HALF - 2		N		0306-0236					
1	32020118401 00	HXEW10102264		6280.0	3620.0X2050.0	1	1	6734.6	0.0	6734.6
1(1)	MAIN PLATE HALF- UPPER			Y	T			Make in 6 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
2	32020118402 00	HXEW10102264		6800.0	3910.0X2050.0	1	1	7274.1	0.0	7274.1
1(1)	MAIN PLATE HALF- LOWER			Y	T			Make in 6 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
3	32020118403 00	AA1011819236	AA10119	2880.0	548.0X11433.0	1	1	3256.4	0.0	3256.4
1(1)	CYLINDER HALF-UPPER			Y	PL 63			In 2 parts & BA 800mm incl.		
MF DR					0072-0301-0306-0236-0306					KG
4	32020118404 00	AA1011819236	AA10119	1510.0	289.0X11370.0	1	1	1707.9	0.0	1707.9
1(1)	CYLINDER HALF - LOWER			Y	PL 63			In 2 parts & BA 800mm incl.		
MF DR					0072-0301-0306-0236-0306					KG
5	32020118405 00	AA1011819341	AA10119	3790.0	2800.0X1650.0	1	1	5717.25	0.0	5717.25
1(1)	TOP RING HALF			Y	PL 150			Make in 4 segments		
MF DR					0072-0301-0306-0301-0306					KG
6	32020118406 00	AA1011819244	AA10119	5660.0	5100.0X2640.0	1	1	7775.5	0.0	7775.5
1(1)	SUPPORT RING HALF			Y	PL 70			Make in 4 segments		
MF DR					0072-0301-0306-0301-0317-0306					KG
7	22020121501 01	HXEW10102086		600.0	930.0X868.0	1	7	799.2	0.0	5594.4
7(7)	STAY VANE			Y	120			Machined by Block-3		
MF DR	STAY VANE				0072-0301-0236-0306					KG
8	22020121501 02	HXEW10102086		0.0	930.0X868.0	1	3	799.2	0.0	2397.6
3(3)	STAY VANE			Y	120			Machined by Block-3		
MF DR	STAY VANE (WITH HOLE)				0072-0301-0236-0306					KG
10	42020118407 00	AA1011819295	AA10119	88.0	548.5X185.0	1	2	92.1	0.0	184.2
2(2)	JOINT FLANGE- TOP			Y	PL 110					
MF DR					0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 01 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 35820.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
11	32020118407 00	AA1011819295	AA10119	293.0	1280.0X570.0	1	2	662.1	0.0	1324.2
2(2)	JOINT FLANGE BOTTOM			Y	PL 110					
MF DR					0072-0301-0306					KG
12		AA1012708039	AA10108	9.56	0.0	0	0	0.0	0.0	0.0
1(1)	ST-A(FE410 WA)CHANEL		cut to suit	Y				L=1000mm		
MF DR	ISMC 100X50				0072-0301-0306					KG
13		AA1010412167	AA10112	73.6	7500.0X50.0	1	1	77.4	0.0	77.4
1(1)	25tk x 50 x 7.5M LG		Strip	Y	SQ 25					
MF DR	ST-CD-SQ				0072-0301-0306					KG
14	42020118408 00	AA1010212311	AA10112	0.95	80.0	1	2	3.991	0.0	7.982
2(2)	DOWEL			Y	RND 90					
MF DR					0072-0236-0306					KG
15	42020118409 00	AA1011819171	AA10119	24.0	549.0X180.0	1	18	26.1	0.0	469.8
18(18)	TOP RIB			Y	PL 32					
MF DR					0072-0301-0306					KG
16	32020118408 00	AA1011819171	AA10119	8.1	289.0X120.0	1	9	9.2	0.0	82.8
9(9)	BOTTOM RIB-1			Y	PL 32					
MF DR					0072-0301-0306					KG
17	32020118409 00	AA1011819171	AA10119	83.0	1280.0X570.0	1	8	192.6	0.0	1540.8
8(8)	BOTTOM RIB-2			Y	PL 32					
MF DR					0072-0301-0306					KG
18		AA1011808030	AA10108	0.28	110.0X55.0	1	3	0.3	0.0	0.9
3(3)	6 x 55 x 110			Y	PL 6					
MF DR	ST-A(FE410 WA)PLATE				0072-0301-0306					KG
19		AA1930231318	AA19331	12.0	50.0	1	10	20.0	0.0	200.0
10(10)	BOSS : Dia 200 x 50LG		Machine to Dia 200 x 50LG	Y	RND 250			L=50mm		
MF DR	CARBON STEEL FORGINGS CLASS-2				0072-0315-0317-0306					MR
20		HW1041255772	AA10455	5.5	1000.0	1	1	1.0	0.0	1.0
1(1)	60.3 x 4 : L=1M		Seamless 60.3 x 4 : L=1M	Y	PI 60.3X4.0			L=1000mm		
MF DR	ST-B-HFS-PIPE				0072-0315-0306					MR

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020121502 **CBOM Var:** 01 **Revno:** 0 **Rev Date:** 30.06.2021
Description: STAY RING HALF - 1 **Total weight:** 35820.0

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

CBOM - 02020121502 01

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stegdl	19.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Checked By	stegdl	21.06.2021	ttxsso	29.06.2021	bk2rd	29.06.2021
Approved By	stedkr	30.06.2021	tbmrkr	29.06.2021	wtxblm	29.06.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: OUTER TOP COVER(INQUADRANTS) **Total weight:** 38800.0

CBOM - 02030121502 00

	ENGG		MTE		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	mteasr	07.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: OUTER TOP COVER(INQUADRANTS) **Total weight:** 38800.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02030121502 00			38800.0						
1(1)	OUTER TOP COVER(INQUADRANTS)			Y						
MF			N		0306-0236-0306-0236					
1		W96321301027		5170.0	5042.0X1743.0	1	0	0.0	0.0	4.0
4(4)			refer drg 02030121502	Y	150 TK X 2500 X 5500					
MF DR	PLATE IS2062 E300 (BR) - 150TK				0072-0301-0306					NO
2		W96320301015		3725.0	4724.0X1554.0	1	0	0.0	0.0	4.0
4(4)			Refer Drg. 02030121502	Y	140 TK X 2500 X 6000					
MF DR	PLATE IS2062 E300 (BR) - 140TK				0072-0301-0306					NO
3		AA1011819260	AA10119	248.0	634.0X625.0	1	8	261.5	0.0	2092.0
8(8)			refer drg 02030121502	Y	PL 80					
RM DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
4		AA1011819198	AA10119	124.0	634.0X625.0	1	16	131.0	0.0	2096.0
16(16)			refer drg 02030121502	Y	PL 40					
RM DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
5		AA1011819228	AA10119	1435.0	5561.0X634.0	1	4	1629.0	0.0	6516.0
4(4)			refer drg 02030121502	Y	PL 56					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
6	32030118416 00	W92320301011	AA19521	100.0	460.0X460.0	1	20	1.0	0.0	20.0
20(20)	BOSS			Y						
CE CD					0073-0317-0306					NO
7		AA1011819155	AA10119	5.3	534.0X50.0	1	8	5.5	0.0	44.0
8(8)				Y	PL 25					
RM DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
8		AA1011819155	AA10119	2.5	250.0X50.0	1	16	2.6	0.0	41.6
16(16)				Y	PL 25					
RM DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
9	42030118402 00	AA1070223190	AA10723	0.35	55.0	1	12	1.1	0.0	13.2
12(12)	DOWEL			Y	RND 56			L=55		
MF DR					0072-0236					KG

	ENGG		MTE		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	mteasr	07.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121502 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: OUTER TOP COVER(INQUADRANTS) **Total weight:** 38800.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
10		W96321501166		6.5	665.0X85.0	1	0	0.0	0.0	24.0
24(24)			refer drg.02030121502	Y	12TK X 1200 WIDTH X 4200 LONG					
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
11		AA1011819210	AA10119	4.0	100.0X100.0	1	2	4.2	0.0	8.4
2(2)	100*100;T=50MM			Y	PL 50					
RM DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
12		AA1010112198	AA10112	0.25	40.0	1	2	0.35	0.0	0.7
2(2)	DIA.40MM		refer drg.02030121502	Y	HEX 46					
MF DR	ST-CD-HEX				0072-0301-0317-0306					KG

CBOM - 02030121

	ENGG		MTE		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	mtesub	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	mteasr	07.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No:	02030121503	**CBOM Var:**	00	**Revno:**	0	**Rev Date:**	12.07.2021
Description:	INNER TOP COVER					**Total weight:**	38100.0

CBOM - 02030121503 00

	ENGG		TTX		WTX	
	Initial	**Date**	**Initial**	**Date**	**Initial**	**Date**
Worked By	stemoh	18.06.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121503 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: INNER TOP COVER **Total weight:** 38100.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02030121503 00			38100.0						
1(1)	INNER TOP COVER			Y						
MF			N		0306-0236-0306-0236					
1		W96321501018		1180.0	1220.0X1320.0	1	0	0.0	0.0	1.0
1(1)			Refer drg. 02030121503	Y	130 TK X 2000 X 6000			Make in 6 parts.		
MF DR	PLATE IS2062 E300 (BR) - 130TK				0072-0301-0306					NO
2		AA1011819228	AA10119	52.5	600.0X200.0	1	8	55.5	0.0	444.0
8(8)			Refer Drg.02030121503	Y	PL 56					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
3		AA1011819244	AA10119	4510.0	2460.0X4510.0	1	1	6407.0	0.0	6407.0
1(1)			Refer Drg. 02030121503	Y	PL 70			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
4		HW1011819970	AA10119	5555.0	3130.0X2128.0	1	1	7144.0	0.0	7144.0
1(1)			Refer Drg.02030121503	Y	PL 130			Make in 8 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
5		AA1011819244	AA10119	4226.0	662.0X13218.0	1	1	5053.0	0.0	5053.0
1(1)			Refer Drg.02030121503	Y	PL 70			make in 4 parts. BA. included		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
6		W96321501131		165.0	55.0X12745.0	1	0	0.0	0.0	1.0
1(1)			Ref Drg. 02030121503	Y	32TK X 1200 WIDTH X 5000 LG;			make in 8 parts. BA included		
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
7		W96321501131		255.0	1990.0X905.0	1	0	0.0	0.0	1.0
1(1)			Ref Drg. 02030121503	Y	32TK X 1200 WIDTH X 5000 LG;			Make in 6 parts.		
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
8		AA1011819155	AA10119	2.7	177.0X78.0	1	20	2.85	0.0	57.0
20(20)			Refer Drg no. 02030121503	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
9		AA1011819210	AA10119	4695.0	17551.0X751.0	1	1	5437.0	0.0	5437.0
1(1)			Ref Drg. 02030121503	Y	PL 50			Make in 4 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121503 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: INNER TOP COVER **Total weight:** 38100.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
10		AA1011819171	AA10119	220.0	1535.0X908.0	1	8	368.0	0.0	2944.0
8(8)			Refer Drg. 02030121503	Y	PL 32					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
11		AA1011819244	AA10119	1121.0	2630.0X1280.0	1	1	1944.0	0.0	1944.0
1(1)			REFER DRG NO. 02030121503	Y	PL 70			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
12		AA1011819244	AA10119	5469.0	4082.0X3575.0	1	1	8427.0	0.0	8427.0
1(1)			Refer Drg. 02030121503	Y	PL 70			Make in 4 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
13		AA1011819201	AA10119	15.0	318.0X318.0	1	10	37.6	0.0	376.0
10(10)			Refer Drg. 02030121503	Y	PL 45					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
14		AA1011819244	AA10119	3139.0	3370.0X2545.0	1	1	4953.0	0.0	4953.0
1(1)			Ref Drg. 02030121503	Y	PL 70			Make in 4 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
15		AA1011819244	AA10119	1278.0	1764.0X1030.0	1	1	1342.0	0.0	1342.0
1(1)			REFER DRG. 02030121503	Y	PL 70			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
16		AA1011819198	AA10119	95.0	1707.0X200.0	1	2	113.0	0.0	226.0
2(2)			Refer Drg. 02030121503	Y	PL 40					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
17		AA1011819260	AA10119	812.0	1935.0X1070.0	1	1	1366.0	0.0	1366.0
1(1)			Refer Drg. 02030121503	Y	PL 80			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
18		W96321501166		5.0	1568.0X70.0	1	0	0.0	0.0	6.0
6(6)			Ref Drg. 02030121503	Y	12TK X 1200 WIDTH X 4200 LONG					
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
19		AA1011819155	AA10119	24.5	627.0X200.0	1	8	26.0	0.0	208.0
8(8)			Refer Drg. 02030121503	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 02030121503 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 12.07.2021
Description: INNER TOP COVER **Total weight:** 38100.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
20		AA1011819171	AA10119	85.0	680.0X500.0	1	16	90.0	0.0	1440.0
16(16)			Refer Drg. 02030121503	Y	PL 32					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
21		AA1011819236	AA10119	1030.0	13807.0X165.0	1	1	1184.0	0.0	1184.0
1(1)			Refer Drg. 02030121503	Y	PL 63			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
22		AA1011819236	AA10119	343.0	12777.0X60.0	1	1	398.0	0.0	398.0
1(1)			Refer Drg. 02030121503	Y	PL 63			Make in 6 parts.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
23		W96321501166		5.0	1327.0X80.0	1	0	0.0	0.0	18.0
18(18)			Ref Drg. 02030121503	Y	12TK X 1200 WIDTH X 4200 LONG					
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
24		AA1011819155	AA10119	1.5	152.0X152.0	1	4	4.7	0.0	18.8
4(4)			Refer Drg. 02030121503	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
25		W96321501166		24.0	1971.0X271.0	1	0	0.0	0.0	8.0
8(8)			Ref Drg. 02030121503	Y	12TK X 1200 WIDTH X 4200 LONG					
MF DR	S. S PLATES (13% CR - 4% NI)				0072-0301-0306					NO
26		AA1041055749	AA10455	56.5	2000.0	1	1	2.0	0.0	2.0
1(1)			LENGTH=2000MM	Y	PI 168.3X7.10			L=2000		
RM DR	ST-B-HFS-PIPES				0072-0301-0306					MR
27		AA1010209183	AA10109	0.15	50.0X50.0	1	50	0.21	0.0	10.5
50(50)			THICKNESS=10MM	Y	RND 50					
RM DR	ST-C20-HR-RND				0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stemoh	18.06.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Checked By	stemun	07.07.2021	ttxsk	08.07.2021	bk2rd	03.07.2021
Approved By	stevsh	12.07.2021	tbmrkr	08.07.2021	wtxblm	03.07.2021

COMBINED BILL OF MATERIAL

Printed On:23.07.2021
Printed By:

CBOM No:	02120217802	**CBOM Var:**	00	**Revno:**	0	**Rev Date:**	01.07.2021
Description:	MIV BODY (FABRICATION)					**Total weight:**	21735.0

CBOM - 02120217802 00

	ENGG		TTX		WTX	
	Initial	**Date**	**Initial**	**Date**	**Initial**	**Date**
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	01.07.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	01.07.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	01.07.2021

COMBINED BILL OF MATERIAL

Printed On:23.07.2021
Printed By:

CBOM No: 02120217802 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021
Description: MIV BODY (FABRICATION) **Total weight:** 21735.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02120217802 00			21735.0						
1(1)	MIV BODY (FABRICATION)			Y						
MF DR			N		0306					
1		W96321301043		5070.0	4400.0X4400.0	1	0	0.0	0.0	1.0
1(1)	U/S FLANGE			Y	4200X1700X90			Make in 8 parts offcut left		
RM DR	PLATE 90TK ASTM A 537 CL-2		4400.0X4400.0		0072-0301-0306-0301-0317-0306					NO
2		W96321301043		5300.0	4400.0X4400.0	1	0	0.0	0.0	1.0
1(1)	D/S FLANGE			Y	4200X1700X90			Make in 8 parts offcut left		
RM DR	PLATE 90TK ASTM A 537 CL-2		4400.0X4400.0		0072-0301-0306-0301-0317-0306					NO
3		AA1011819228	AA10119	1750.0	5109.0X852.0	1	2	2011.0	0.0	4022.0
2(2)	CYLINDER HALF			Y	PL 56			BA included		
RM DR	ST-FE410 WB-PLATE		4700.0X852.0		0072-0301-0306					KG
4		W96321301094		1067.0	856.0X1000.0	1	0	0.0	0.0	2.0
2(2)	TRUNNION HOUSING			Y	1800X1000X260					
RM DR	PLATE 260TK ASTM A 516 GR-60		1000.0X856.0		0072-0301-0317-0306					NO
5		AA1011819260	AA10119	115.0	1478.0X240.0	1	4	234.0	0.0	936.0
4(4)	TRUNNION HOUSING RING HALF			Y	PL 80			BA included		
RM DR	ST-FE410 WB-PLATE		1200.0X240.0		0072-0301-0306					KG
6		AA1011819228	AA10119	1026.0	4200.0X1771.0	1	1	3600.0	0.0	3600.0
1(1)	CENTRAL RIB HALF UPPER			Y	PL 56			Use left offcut		
RM DR	ST-FE410 WB-PLATE		4400.0X1771.0		0072-0301-0306					KG
7		AA1011819228	AA10119	1227.0	4400.0X1771.0	1	1	3600.0	0.0	3600.0
1(1)	CENTRAL RIB HALF LOWER			Y	PL 56			Use left offcut		
RM DR	ST-FE410 WB-PLATE		4400.0X1771.0		0072-0301-0306					KG
8		AA1011819228	AA10119	59.6	399.0X340.0	1	8	62.7	0.0	501.6
8(8)	RIB-1			Y	PL 56					
RM DR	ST-FE410 WB-PLATE		399.0X340.0		0072-0301-0306					KG
9		AA1011819228	AA10119	81.6	399.0X455.0	1	20	83.8	0.0	1676.0
20(20)	RIB-2			Y	PL 56					
RM DR	ST-FE410 WB-PLATE		455.0X399.0		0072-0301-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	01.07.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	01.07.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	01.07.2021

COMBINED BILL OF MATERIAL

Printed On:23.07.2021
Printed By:

CBOM No: 02120217802 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021
Description: MIV BODY (FABRICATION) **Total weight:** 21735.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty / Remarks	Norm/pc	Extra Norm / Spare Code	Total Norm / Unit
10		W96321301043		302.0	855.0X500.0	1	0	0.0	0.0	2.0
2(2)	BASE PLATE			Y	4200X1700X90					
RM DR	PLATE 90TK ASTM A 537 CL-2		855.0X500.0		0072-0301-0306					NO
11		W96321301060		340.0	946.0X400.0	1	0	0.0	0.0	4.0
4(4)	LIFTING BLOCK			Y	3500X1700X130					
RM DR	PLATE 130TK ASTM A 537 CL-2		946.0X400.0		0072-0301-0317-0306					NO

CBOM - 02120217802

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	01.07.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	01.07.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	01.07.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No:	02020518402	**CBOM Var:**	00	**Revno:**	0	**Rev Date:**	17.06.2021
Description:	OUTER RING					**Total weight:**	7120.0

CBOM - 02020518402 00

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stefir	05.06.2021	ttxdee	16.06.2021	wtxman	10.06.2021
Checked By	steram	11.06.2021	ttxdee	16.06.2021	bk2rd	10.06.2021
Approved By	stesun	17.06.2021	ttxdk	16.06.2021	wtxblm	10.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020518402 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 17.06.2021
Description: OUTER RING **Total weight:** 7120.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	02020518402 00			7120.0						
1(1)	OUTER RING			Y						
MF			N		0306-0313-0236					
1	32020518404 00	AA1011819236	AA10119	2580.0	2410.0X2980.0	1	1	3732.7	0.0	3732.7
1(1)	TOP RING			Y	PL 63			Make in 6 segments		
MF DR					0072-0301-0306					KG
2	32020518405 00	AA1011819201	AA10119	1347.0	2160.0X2640.0	1	1	2117.0	0.0	2117.0
1(1)	MIDDLE RING			Y	PL 45			Make in 5 segments		
MF DR					0072-0301-0306					KG
3	32020518406 00	AA1011819210	AA10119	860.0	1515.0X2370.0	1	1	1481.0	0.0	1481.0
1(1)	LOWER RING			Y	PL 50			Make in 5 segments		
MF DR					0072-0301-0306					KG
4	32020518407 00	AA1011819201	AA10119	1681.0	13308.0X394.0	1	1	1946.6	0.0	1946.6
1(1)	TOP CYLINDER			Y	PL 45			Make in 2 half size 6654x394		
MF DR					0072-0301-0306					KG
5	32020518409 00	AA1011819228	AA10119	916.0	12922.0X196.0	1	1	1170.1	0.0	1170.1
1(1)	BOTTOM CYLINDER			Y	PL 56			Make in 2 half size 6461x196		
MF DR					0072-0301-0306					KG
6	42020518404 00	AA1011819171	AA10119	18.0	393.0X180.0	1	18	18.7	0.0	336.6
18(18)	RIB-I			Y	PL 32					
MF DR					0072-0301-0306					KG
7	42020518405 00	AA1011819171	AA10119	12.5	235.0X214.0	1	18	13.3	0.0	239.4
18(18)	RIB-II			Y	PL 32					
MF DR					0072-0301-0306					KG
8	42020518406 00	AA1011819139	AA10119	45.0	770.2X394.0	1	2	50.0	0.0	100.0
2(2)	BACK PLATE			Y	PL 20					
MF DR					0072-0301-0306					KG
9	32302949140 04	AA1011819201	AA10119	5.35	165.0X130.0	1	4	7.96	0.0	31.84
4(4)	LIFTING LUG			Y	PL 45					
MF DR	5.5 T				0072-0301-0317-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stefir	05.06.2021	ttxdee	16.06.2021	wtxman	10.06.2021
Checked By	steram	11.06.2021	ttxdee	16.06.2021	bk2rd	10.06.2021
Approved By	stesun	17.06.2021	ttxdk	16.06.2021	wtxblm	10.06.2021

COMBINED BILL OF MATERIAL

Printed On:16.07.2021
Printed By:

CBOM No: 02020518402 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 17.06.2021
Description: OUTER RING **Total weight:** 7120.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
10		HW1041055668	AA10455	11.3	410.0	1	4	0.41	0.0	1.64
4(4)	PIPE 150NBx410 LG			Y	PI 168.3X7.11			L=410mm		
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
11	42020518407 00	AA1011819139	AA10119	6.0	200.0X200.0	1	2	6.6	0.0	13.2
2(2)	BOSS			Y	PL 20			Dia=200/150		
MF DR					0072-0301-0317-0306					KG

CBOM - 02020518402

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	stefir	05.06.2021	ttxdee	16.06.2021	wtxman	10.06.2021
Checked By	steram	11.06.2021	ttxdee	16.06.2021	bk2rd	10.06.2021
Approved By	stesun	17.06.2021	ttxdk	16.06.2021	wtxblm	10.06.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 12120220101 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021

Description: LEVER ASSEMBLY (L.H.S.) **Total weight:** 4750.0

CBOM - 12120220101 00

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	30.06.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	30.06.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	30.06.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 12120220101 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021
Description: LEVER ASSEMBLY (L.H.S.) **Total weight:** 4750.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	12120220101 00			4750.0						
1(1)	LEVER ASSEMBLY (L.H.S.)			Y						
MF DR			N		0306-0236					
1	32120220102 00	AA1011819228	AA10119	1337.0	3359.0X2429.0	1	1	3769.0	0.0	3769.0
1(1)	LEVER ARM-1			Y	PL 56			Use left offcut		
MF DR					0072-0301-0317-0306					KG
2	32120220104 00	AA1011819228	AA10119	1337.0	3359.0X2429.0	1	1	3769.0	0.0	3769.0
1(1)	LEVER ARM-2			Y	PL 56			Use left offcut		
MF DR					0072-0301-0317-0306					KG
3	42120220101 00	AA1011819198	AA10119	1201.35	1439.0X1100.0	1	524	1.0	522.4	523.4
1(1)	CLOSING WEIGHT		ACHIEVE THICKNESS 138 mm	Y	PL 40					
MF DR					0072-0301-0317-0306					KG
4		W96321301094		1100.0	860.0X860.0	1	0	0.0	0.0	1.0
1(1)	BOSS			Y	1800X1000X260					
RM DR	PLATE 260TK ASTM A 516 GR-60		860.0X860.0		0072-0301-0317-0306					NO
5		W96321501077		42.0	2325.0X60.0	1	0	0.0	0.0	1.0
1(1)	RING		REFINISH TO 40 THICKNESS	Y	50TK X 1250 WIDTH X 6000 LG					
RM DR	S. S PLATES (13% CR - 4% NI)		2325.0X60.0		0072-0236-0306					NO
6	32302949140 04	AA1011819201	AA10119	5.35	165.0X130.0	1	4	7.96	0.0	31.84
4(4)	LIFTING LUG			Y	PL 45					
MF DR	5.5 T				0072-0301-0317-0306					KG
7		AA1011819228	AA10119	27.0	445.0X138.0	1	1	28.4	0.0	28.4
1(1)	RIB 56TK X 138 X 445			Y	PL 56					
RM DR	ST-FE410 WB-PLATE		445.0X138.0		0072-0301-0306					KG
8	32302949140 02	AA1011819155	AA10119	1.6	115.0X95.0	1	1	2.3	0.0	2.3
1(1)	LIFTING LUG			Y	PL 25					
MF DR	2.0 T				0072-0301-0317-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	30.06.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	30.06.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	30.06.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 12120220102 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021

Description: LEVER ASSEMBLY (R.H.S.) **Total weight:** 4750.0

CBOM - 12120220102 00

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	30.06.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	30.06.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	30.06.2021

COMBINED BILL OF MATERIAL

Printed On:22.07.2021
Printed By:

CBOM No: 12120220102 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021
Description: LEVER ASSEMBLY (R.H.S.) **Total weight:** 4750.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	12120220102 00			4750.0						
1(1)	LEVER ASSEMBLY (R.H.S.)			Y						
MF DR			N		0306-0236					
1	32120220102 00	AA1011819228	AA10119	1337.0	3359.0X2429.0	1	1	3769.0	0.0	3769.0
1(1)	LEVER ARM-1			Y	PL 56			Use left offcut		
MF DR					0072-0301-0317-0306					KG
2	32120220104 00	AA1011819228	AA10119	1337.0	3359.0X2429.0	1	1	3769.0	0.0	3769.0
1(1)	LEVER ARM-2			Y	PL 56			Use left offcut		
MF DR					0072-0301-0317-0306					KG
3	42120220101 00	AA1011819198	AA10119	1201.35	1439.0X1100.0	1	524	1.0	522.4	523.4
1(1)	CLOSING WEIGHT		ACHIEVE THICKNESS 138 mm	Y	PL 40					
MF DR					0072-0301-0317-0306					KG
4		W96321301094		1100.0	860.0X860.0	1	0	0.0	0.0	1.0
1(1)	BOSS			Y	1800X1000X260					
RM DR	PLATE 260TK ASTM A 516 GR-60		860.0X860.0		0072-0301-0317-0306					NO
5		W96321501077		42.0	2325.0X60.0	1	0	0.0	0.0	1.0
1(1)	RING		REFINISH TO 40 THICKNESS	Y	50TK X 1250 WIDTH X 6000 LG					
RM DR	S. S PLATES (13% CR - 4% NI)		2325.0X60.0		0072-0236-0306					NO
6	32302949140 04	AA1011819201	AA10119	5.35	165.0X130.0	1	4	7.96	0.0	31.84
4(4)	LIFTING LUG			Y	PL 45					
MF DR	5.5 T				0072-0301-0317-0306					KG
7		AA1011819228	AA10119	27.0	445.0X138.0	1	1	28.4	0.0	28.4
1(1)	RIB 56TK X 138 X 445			Y	PL 56					
RM DR	ST-FE410 WB-PLATE		445.0X138.0		0072-0301-0306					KG
8	32302949140 02	AA1011819155	AA10119	1.6	115.0X95.0	1	1	2.3	0.0	2.3
1(1)	LIFTING LUG			Y	PL 25					
MF DR	2.0 T				0072-0301-0317-0306					KG

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	30.06.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	30.06.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	30.06.2021

COMBINED BILL OF MATERIAL

Printed On:23.07.2021
Printed By:

CBOM No:	**12120220106**	**CBOM Var:**	**00**	**Revno:**	**0**	**Rev Date:**	**01.07.2021**
Description:	**DISCHARGE VALVE DOOR**					**Total weight:**	**28610.0**

CBOM - 12120220106 00

	ENGG		TTX		WTX	
	Initial	**Date**	**Initial**	**Date**	**Initial**	**Date**
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	01.07.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	01.07.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	01.07.2021

COMBINED BILL OF MATERIAL

Printed On:23.07.2021
Printed By:

CBOM No: 12120220106 **CBOM Var:** 00 **Revno:** 0 **Rev Date:** 01.07.2021
Description: DISCHARGE VALVE DOOR **Total weight:** 28610.0

Item No / Qty(Total) / Typ Cat Zone	Drawingno Var Mvar / Description / Var/Matl. Description	Mat Code	Mat Spec / Assy. Remarks / ENGG SIZE/GRP	Weight / Inclusion? / Fab Wt	Blank Sizes / Mat Shape / Route	Nos	Qty	Norm/pc / Remarks	Extra Norm / Spare Code	Total Norm / Unit
0	12120220106 00			28610.0						
1(1)	DISCHARGE VALVE DOOR			Y						
MF	(FABRICATION & PRE M/CING)		N		0306					
1		W96321301060		4450.5	3450.0X1422.0	1	0	0.0	0.0	2.0
2(2)	DISC SEGMENT - I			Y	3500X1700X130					
RM DR	PLATE 130TK ASTM A 537 CL-2		3450.0X1422.0		0072-0301-0317-0306					NO
2		W96321301078		2515.5	3086.0X703.0	1	0	0.0	0.0	4.0
4(4)	DISC SEGMENT - II			Y	3000X2700X180					
RM DR	PLATE 180TK ASTM A 537 CL-2		3086.0X703.0		0072-0301-0317-0306					NO
3		W96321301094		2950.0	1670.0X980.0	1	0	0.0	0.0	1.0
1(1)	TRUNNION BLOCK-1			Y	1800X1000X260					
RM DR	PLATE 260TK ASTM A 516 GR-60		1670.0X980.0		0072-0301-0317-0306					NO
4		AA1011819228	AA10119	1011.0	3334.0X700.0	1	1	1078.0	0.0	1078.0
1(1)	RIB-I			Y	PL 56					
RM DR	ST-FE410 WB-PLATE		3334.0X700.0		0072-0301-0317-0306					KG
5		AA1011819260	AA10119	1298.0	2986.0X700.0	1	2	1380.0	0.0	2760.0
2(2)	RIB-II			Y	PL 80					
RM DR	ST-FE410 WB-PLATE		2986.0X700.0		0072-0301-0317-0306					KG
6		W96321301094		2950.0	1670.0X980.0	1	0	0.0	0.0	1.0
1(1)	TRUNNION BLOCK-2			Y	1800X1000X260					
RM DR	PLATE 260TK ASTM A 516 GR-60		1670.0X980.0		0072-0301-0317-0306					NO

	ENGG		TTX		WTX	
	Initial	Date	Initial	Date	Initial	Date
Worked By	hxesko	21.06.2021	ttxdee	01.07.2021	bk2rd	01.07.2021
Checked By	stenn	01.07.2021	ttxdk	01.07.2021	bk2rd	01.07.2021
Approved By	sterr1	01.07.2021	tbmrkr	01.07.2021	wtxblm	01.07.2021

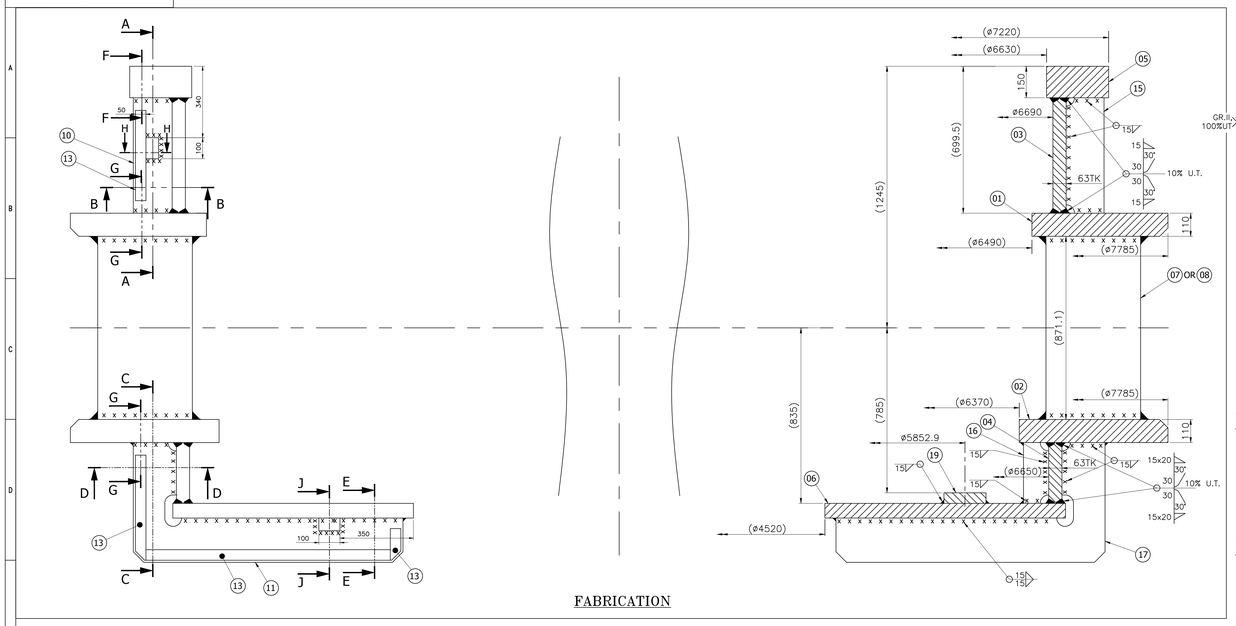
FIRST ANGLE PROJECTION

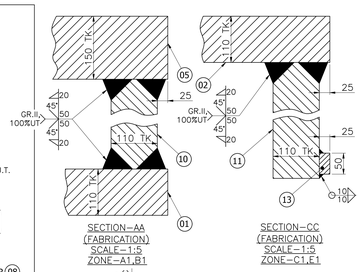
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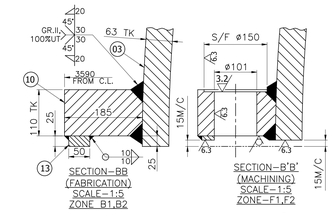
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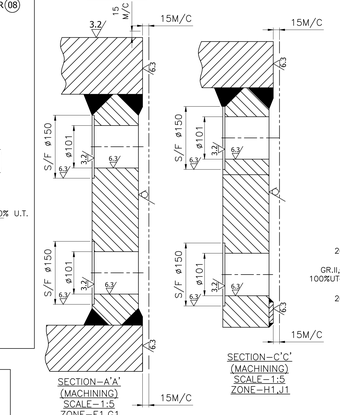
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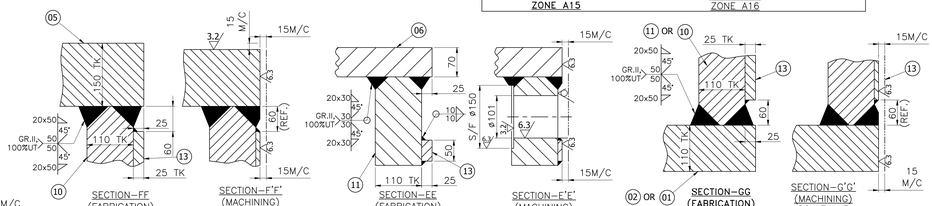
FABRICATION

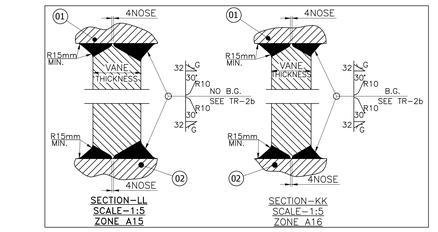


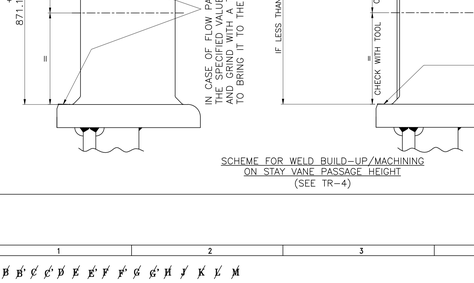


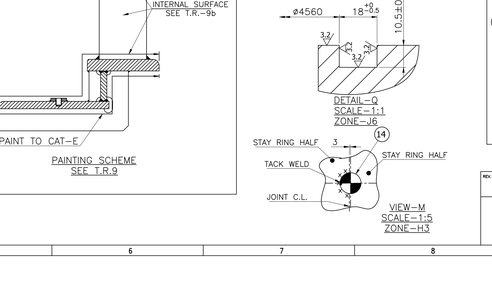




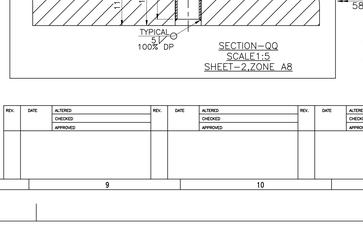


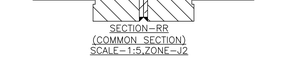


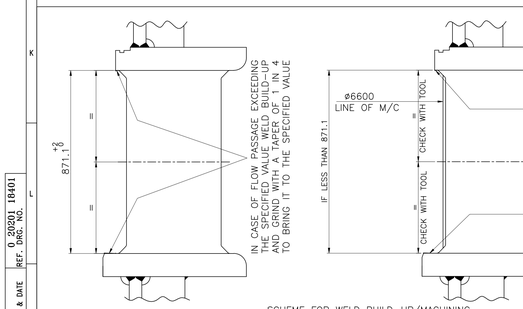


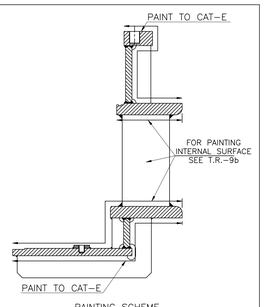


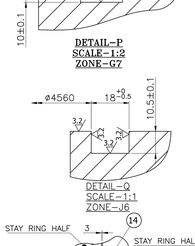
SECTION–PP
FINISH MACHINING

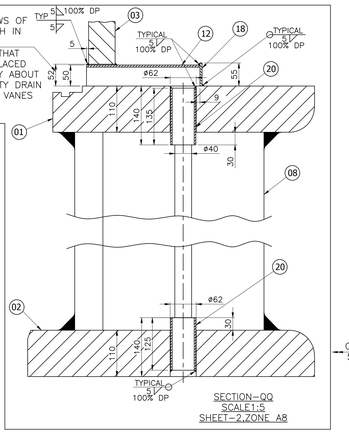


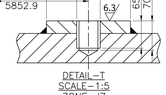


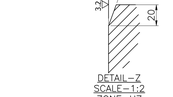












REV.	DATE	ALTERED / CHECKED / APPROVED

ADDITIONAL INFORMATION	
STATUS OF DRAWING 'U'	
DISTRIBUTION OF PRINTS	HTE–2, WTM(P)–1, WTM(S)–4 FGM – 7, THX – 1
CUSTOMER	GOVERNMENT OF TELANGANA IRRIGATION & CAD DEPARTMENT
CONTRACTOR	MEGHA ENGINEERING & INFRASTRUCTURES LTD. HYDERABAD
PROJECT	KALESHWARAM PROJECT LINK–II PACKAGE–2 (NAMAPUR)
SUPPLIER	BHARAT HEAVY ELECTRICALS LTD. BHOPAL
TYPE/ RATING	4X130 MW SINGLE STAGE VERTICAL PUMP

	NAME	SIGN	DATE
DRN	SKB		09.03.2021
CKD	PM		09.03.2021
APPD	AM		09.03.2021

NO. OF VAR. 02

DEPT	UNTOL.DIMS. GR.	SCALE	WEIGHT (KG.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEM
HTE		1:10	SEE SHEET–2	0 20201 21501	01	020
CODE 402	32000049014			DRAWING NO.		REV
TITLE: STAY RING (FABRICATION & MACHINING)				0 20201 21502		00
				SHT. No. 1	NO. OF SHT. 2	

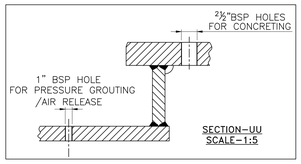
REF. DRG. NO. 0 20201 18401
SIGN. & DATE
INVENTORY NO.

AO SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0 20201 21502

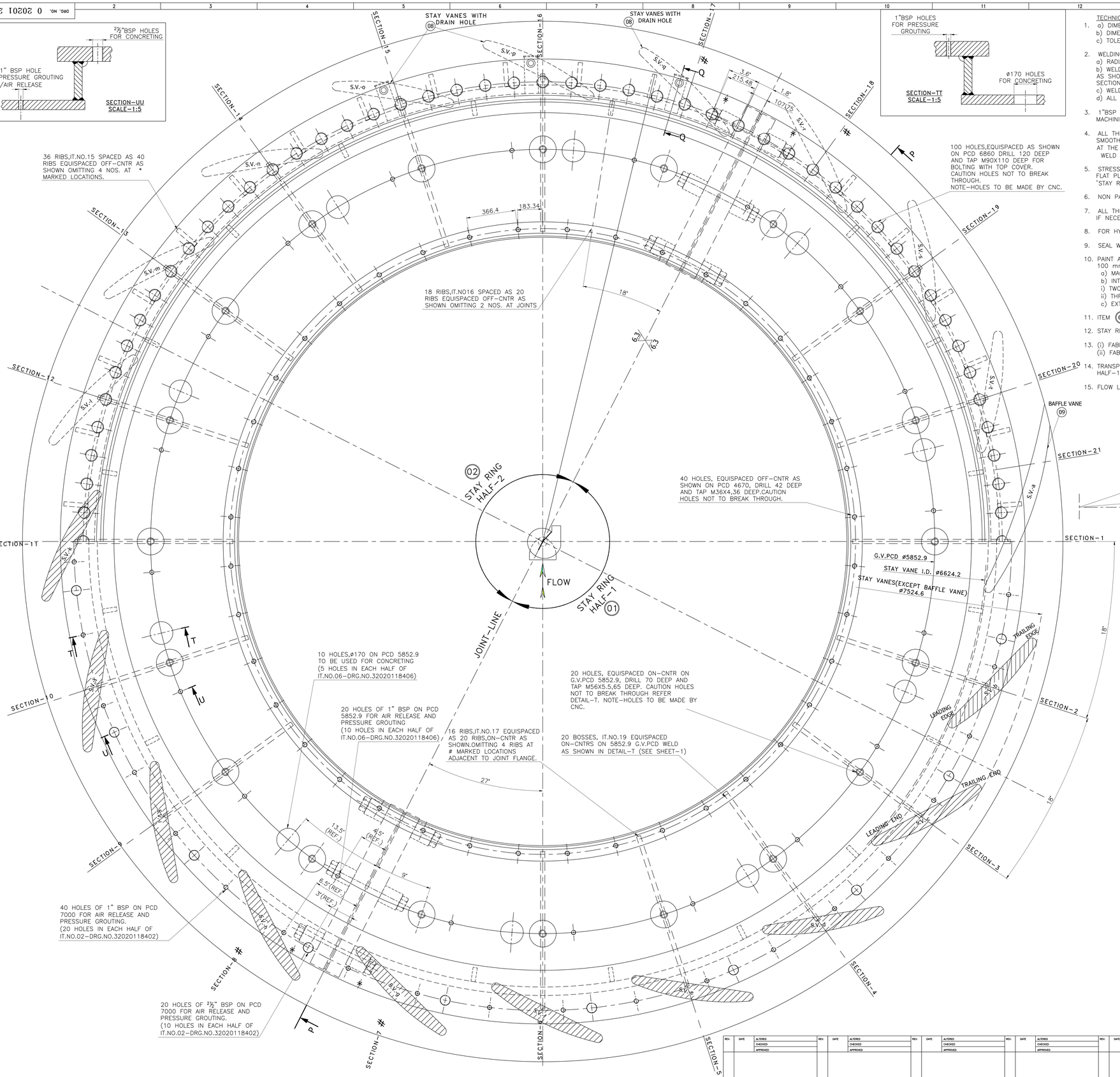


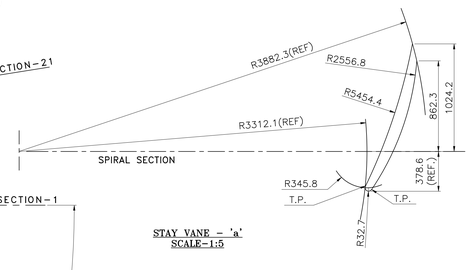
SECTION–UU
SCALE–1:5

SECTION–TT
SCALE–1:5

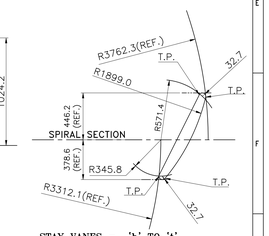
TECHNICAL REQUIREMENTS

1. a) DIMENSIONS GIVEN IN THE BRACKET [ ] ARE FABRICATION DIMENSIONS.
   b) DIMENSIONS IN THE DRAWING DO NOT INCLUDE ANY TECHNOLOGICAL ALLOWANCES FOR FABRICATION.
   c) TOLERANCE ON ALL FAB. DIMENSIONS SHALL BE AS PER BHEL CORPORATE STANDARD AA0621104 AND AA0621105.
2. WELDING TO BE AS PER BHEL STD. AA 0622101 GRADE AS SPECIFIED BELOW,
   a) RADIAL JOINTS WELDED BETWEEN PART OF ITEMS 1 TO 6 SHALL BE GRADE –II WITH 100% U.T.
   b) WELDING BETWEEN STAY VANES WITH TOP AND BOTTOM FLAT PLATES FOR 230 mm LENGTH FROM LEADING AND TRAILING EDGES AS SHOWN IN SECTION KK TO GRADE–I WITH 100 % UT, MCD AND D.P TESTING REMAINING LENGTH TO GRADE–II AS SHOWN IN SECTION–LL WITH 100% UT, MCD & DP TESTING.
   c) WELDS OF JOINT FLANGES AND OTHER ITEMS TO BE GRADE–II WITH 100% U.T., UNLESS OTHERWISE SPECIFIED IN DRG.
   d) ALL FILLET WELDS TO GRADE–III WITH 100% D.P. TESTING.
3. 1"BSP & 2–1/2" BSP HOLES FOR CONCRETING GROUTING & AIR RELEASE CAN BE MADE EITHER AT COMPONENT STAGE OR AFTER MACHINING DEPENDING UPON TECHNOLOGICAL CONVENIENCE.
4. ALL THE STEPS/CAVITIES IN THE WATER PATH SHALL BE CHIPPED/BUILT–UP BY WELDING AND GROUND FLUSH TO PROPERLY FOR SMOOTH FLOW.
   AT THE PROOF MARKING STAGE, IF THE PASSAGE HEIGHT EXCEEDS THE VALUES GIVEN AT ZONE L–2 (SHEET–1) WELD BUILD–UP TO BE DONE AND BROUGHT TO DIMENSIONS AS SHOWN IN THE SCHEME AT ZONE L–4(SHEET–2).
5. STRESS RELIEVING TO BE AS PER BP 0640299 & SUBSEQUENT SHOT BLASTING TO BE CARRIED OUT. ALL TAPPED HOLES IN LOWER FLAT PLATES TO BE PROTECTED DURING STRESS RELIEVING BY ASBESTOS CLAY AND DURING SHOT BLASTING BY PLUGS CALLED IN 'STAY RING INSTALLATION' DRG. 02020121501.
6. NON PARALLELITY BETWEEN DATUM FACE AND TOP MACHINED FACE NOT TO EXCEED 0.05.
7. ALL THE 2–1/2" BSP AND 1" BSP HOLES IN LOWER FLAT PLATES TO BE PROVED BY ITEM 15 & 16 OF DRG. 0–20201–21501. IF NECESSARY RETAPPING IS TO BE DONE.
8. FOR HYDRAULIC PATH DIMENSIONS OF STAY RING & STAY VANES REFER DRG. NO. 0 20200 71601.
9. SEAL WELD PREPARATION TO BE DONE AS PER SECTION RR (SEE SHEET–1) BEFORE DISPATCH.
10. PAINT AND PROTECT AS PER PRODUCT STD. HT 00005 CATEGORIES AS SPECIFIED IN VIEW FOR PAINTING & AS FOLLOWS. LEAVE 100 mm UNPAINTED NEAR SITE WELDING EDGES.
    a) MACHINED SURFACES TO CAT.'G'.
    b) INTERNAL SURFACES TO BE AS FOLLOWS,
    i) TWO COATS OF ZINC RICH EPOXY PRIMER WITH THICKNESS OF 40 MICRONS MINIMUM EACH COAT.
    ii) THREE COATS OF COALTAR EPOXY PAINT WITH THICKNESS OF 100 MICRONS MINIMUM EACH COAT.
    c) EXTERNAL SURFACES AS SHOWN IN ADJOINING SCHEME TO CAT–E.
11. ITEM (01) TO (02) HAVE BEEN MARKED TO INDICATE DESPATCHABLE UNITS.
12. STAY RING HALF 1 TO BE RETAINED FOR PROVING WITH PARTITION PLATE AND SPIRAL SEGMENTS 18–19, 19–20 & 20–21.
13. (i) FABRICATED WEIGHT OF HALF–1= 36165 kg
    (ii) FABRICATED WEIGHT OF HALF–2= 35820 kg
14. TRANSPORT DIMENSIONS
    HALF–1 & 2 – 7770x3885x2350
15. FLOW LINE TO BE MARKED ON ø7220, (IN TOP RING) ON STAY RING HALF–2.





STAY VANE – 'a'
SCALE–1:5



STAY VANES – 'b' TO 't'
SCALE–1:5

01	–	CUT TO SUIT	20	SEAMLESS PIPE (60.3 O/DX4TKX1M LG.)			BP 1041155930		5.5	
							AA 10455			001
10	10	ø200x50LG.	19	BOSS			AA 1930231210		12.0	
							AA 19331			020
03	–		18	PLATE 6TKX55X110			AA 1011808030		0.28	
							AA 10108			003
08	08	32 TK	17	BOTTOM RIB–2	3 20201 184 09				83.0	
							IS 2062 GR.B			016
09	09	32 TK	16	BOTTOM RIB–1	3 20201 184 08				8.1	
							IS 2062 GR.B			018
18	18	32 TK	15	TOP RIB	4 20201 184 09				24.2	
							IS 2062 GR.B			036
02	02	ø56 BAR	14	DOWEL	4 20201 184 08		BP1010212257		0.95	
							AA 10112			004
01	01	25 TK	13	STRIP (25TKX50X7.5M LG.)			AA 1010312405		73.6	
							AA 10112			002
01	–	CUT TO SUIT	12	CHANNEL ISMC (100X50X1M LG.)			AA 1012708039		9.56	
							AA 10108			001
02	02	110 TK	11	JOINT FLANGE (BOTTOM)	3 20201 184 07		IS:2062, E300BR/ ASTM A516 Gr.70		293	
										004
02	02	110 TK	10	JOINT FLANGE (TOP)	4 20201 184 07		IS:2062, E300BR/ ASTM A516 Gr.70		88.0	
										004
–	01	120 TK	09	BAFFLE VANE	2 20201 215 02		IS:2062, E300BR/ ASTM A516 Gr.70		930	
										001
03	–	120 TK	08	STAY VANE (WITH HOLE)	2 20201 215 01	02	IS:2062, E300BR/ ASTM A516 Gr.70		590	
										003
07	09	120 TK	07	STAY VANE	2 20201 215 01	01	IS:2062, E300BR/ ASTM A516 Gr.70		600	
										016
01	01	70 TK	06	SUPPORT RING HALF	3 20201 184 06				5660	
							IS 2062 GR.B			002
01	01	150 TK	05	TOP RING HALF	3 20201 184 05		IS:2062, E300BR/ ASTM A516 Gr.70		3790	
										002
01	01	63 TK	04	CYLINDER HALF (LOWER)	3 20201 184 04				1510	
							IS 2062 GR.B			002
01	01	63 TK	03	CYLINDER HALF (UPPER)	3 20201 184 03				2880	
							IS 2062 GR.B			002
01	01	110 TK	02	MAIN PLATE HALF (LOWER)	3 20201 184 02		IS:2062, E300BR/ ASTM A516 Gr.70		6800	
										002
01	01	110 TK	01	MAIN PLATE HALF (UPPER)	3 20201 184 01		IS:2062, E300BR/ ASTM A516 Gr.70		6280	
										002

59 VAR.01	VAR.00 64	65 REMARKS	75 ITEM NO.	78 79 VAR. NO.	58 59 60 DRAWING NO.	77 78 IT.NO.	51 54 MATL. CODE	45 50 A C. UNIT	56 58 UNIT WT.	65 72 TOTAL
(02)	(01)					32 33 VAR.	46 MATL. SPCN.	54	68 QTY.	71

STAY RING HALF NO.–02 | STAY RING HALF NO.–01

ADDITIONAL INFORMATION		CUSTOMER	GOVERNMENT OF TELANGANA IRRIGATION & CAD DEPARTMENT
STATUS OF DRAWING 'U'		CONTRACTOR	MEGHA ENGINEERING & INFRASTRUCTURES LTD. HYDERABAD
DISTRIBUTION OF PRINTS HTE–2, WTM(P)–1, WTM(S)–4 FGM – 7, THX – 1		PROJECT	KALESHWARAM PROJECT LINK–II PACKAGE–2 (NAMAPUR)
NAME / SIGN / DATE / NO. OF VAR.		SUPPLIER	BHARAT HEAVY ELECTRICALS LTD. BHOPAL
DRN SKB 09.03.2021	02	TYPE/ RATING	4X130 MW SINGLE STAGE VERTICAL PUMP
CKD PM 09.03.2021			
APPD AM 09.03.2021			

DEPT HTE	UNTOLDWG. OR. 32000049014	SCALE 1:10	WEIGHT (KG.) 66740	REF. TO ASSY. DRG. 0 20201 21501	ITEM NO. 01&02	NO. OF SETS 020
CODE 402	TITLE STAY RING (FABRICATION & MACHINING)			DRAWING NO. 0 20201 21502		REV 00
				SHT. No. 2	NO. OF SHT. 2	

REV.	DATE	ALTERED / CHECKED / APPROVED

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INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 20201 18402

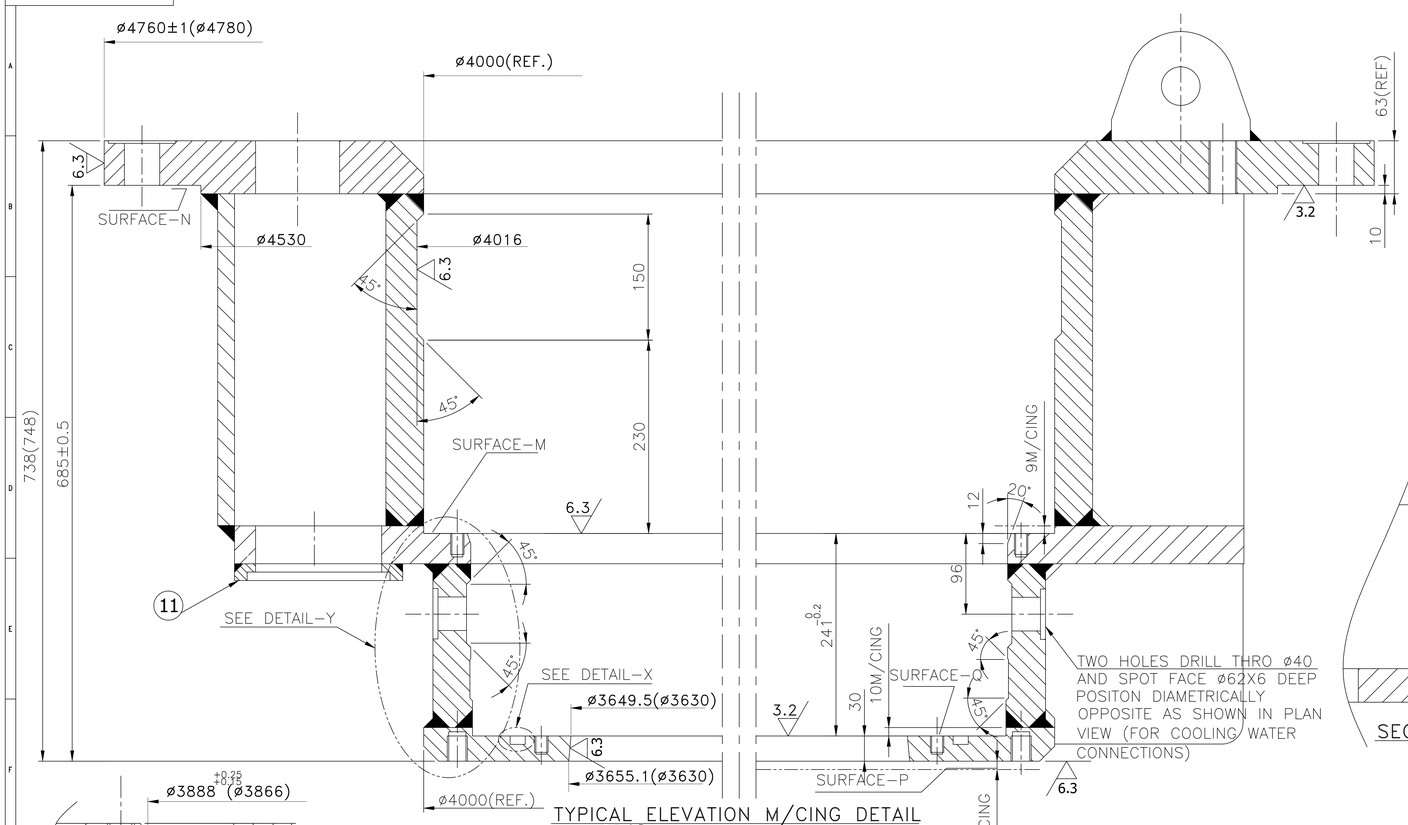
A0 SIZE

FIRST ANGLE PROJECTION

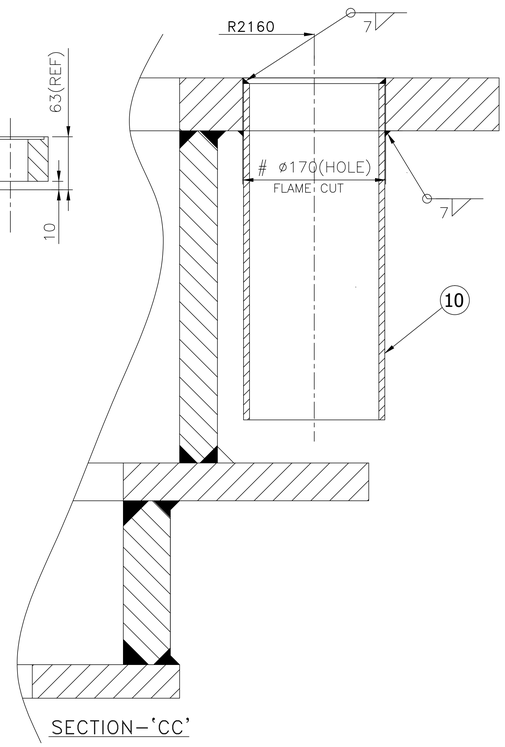
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0202051840 2

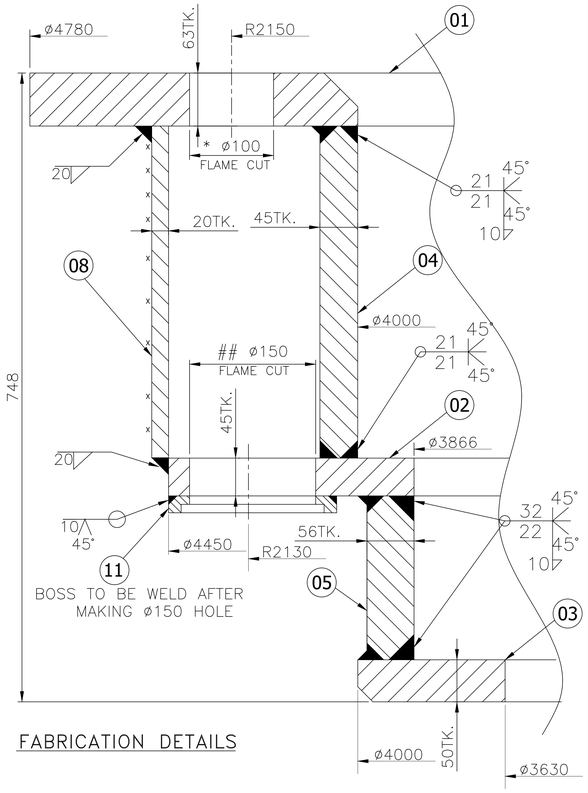
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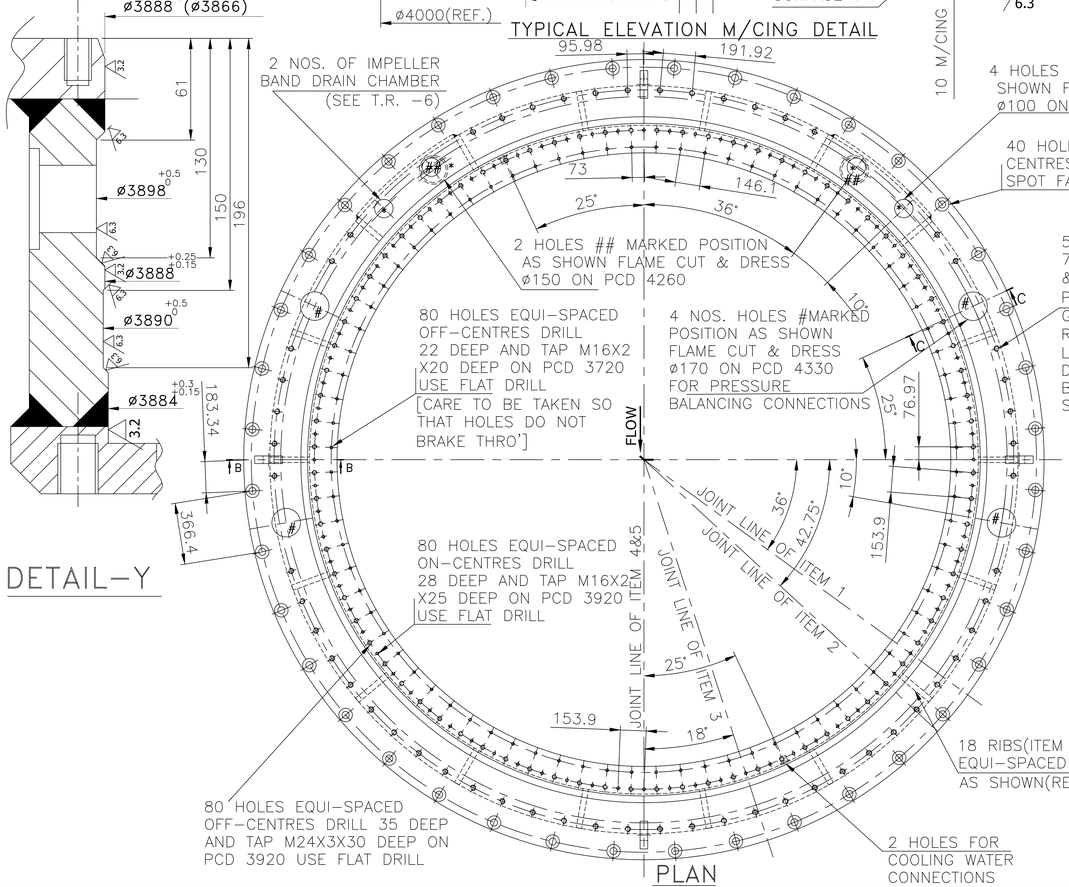
TYPICAL ELEVATION M/CING DETAIL



SECTION–'CC'

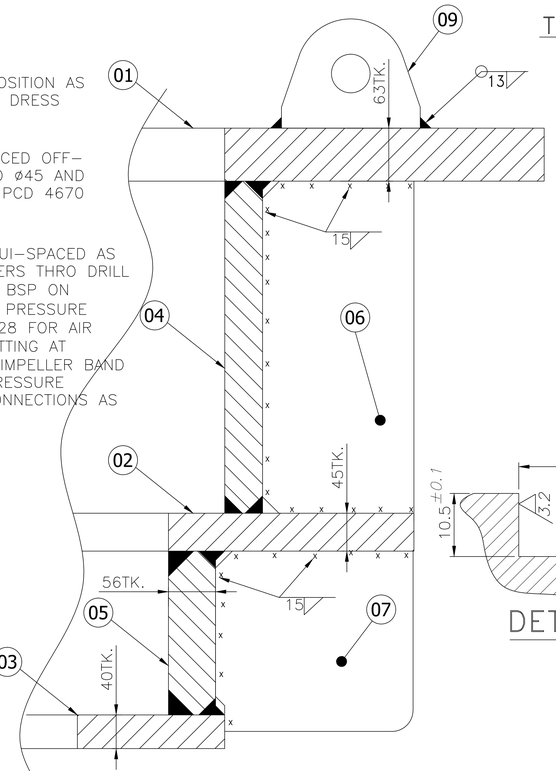


FABRICATION DETAILS

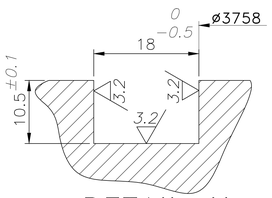


PLAN

DETAIL–Y



SECTION–'BB'



DETAIL–X

TECHNICAL REQUIREMENTS

1. DIMENSIONS GIVEN IN [ ] ARE FOR FABRICATION.
2. WELDING TO BE AS PER CORPORATE STANDARD AA0622101 GRADE–II WITH 100 % U.T.EXCEPT FILLET WELD WHICH ARE TO BE GRADE–III. ALL GRADE–III WELD TO 100 % D.P. TESTED.
3. STRESS RELIEVING TO BE DONE AS PER BHEL STANDARD BP0640299.
4. PAINT AND PROTECT AS PER HT00005 :–
   i. ALL INTERNAL UNMACHINED SURFACE TO CAT.–C.
   ii. EXTERNAL UNMACHINED SURFACES TO CAT.–F.
   iii. MACHINED SURFACES TO CAT.–G
5. PERPENDICULARITY OF SURFACES M, N AND P WITH RESPECT TO COMMON AXIS SHALL BE MAINTAINED WITHIN 0.03 mm.
6. LEAKAGE TEST (GRAVITY TEST) TO WELD JOINTS SHALL BE CARRIED OUT FOR BOTH THE IMPELLER BAND DRAIN CHAMBERS.
7. FABRICATED WEIGHT = 8200 Kg.

	11	BOSS	4 202 05 18407				6.0	002
	10	PIPE 150NBX400LG	–		C.S.SEAMLESS ASTM A106Gr.B		11.30	004
	09	LIFTING LUG 5.5 T	3 230 29 49140	04			5.35	004
20TK.	08	BACK PLATE	4 202 05 18406				45.0	002
32TK.	07	RIB–II	4 202 05 18405				12.50	018
32TK.	06	RIB–I	4 202 05 18404				18.0	018
56TK.	05	BOTTOM CYLINDER	3 202 05 18409				916.0	001
45TK.	04	TOP CYLINDER	3 202 05 18407				1681.0	001
50TK.	03	LOWER RING	3 202 05 18406				860.0	001
45TK.	02	MIDDLE RING	3 202 05 18405				1347.0	001
63TK.	01	TOP RING	3 202 05 18404				2580.0	001

ADDITIONAL INFORMATION	TYPE/ RATING	6x124.4 MW–SINGLE STAGE VERTICAL FRANCIS PUMP			
STATUS OF DRAWING 'U'	PROJECT	Dr.B.R.AMBEDKAR PRANAHITA–CHEVELLA–SUJALA SRAVANTHI–L.I.S. LINK–II PACKAGE–VI			
DISTRIBUTION OF PRINTS HTE–2, WTM(P)–1, WTM(S)–4 FBM – 7, THX. – 1	CUSTOMER	IRRIGATION & CAD DEPARTMENT, GOVT. OF TELANGANA			
NAME / SIGN / DATE / NO. OF VAR.	CONTRACTOR	BHARAT HEAVY ELECTRICALS LTD. BHOPAL	M/S NAVAYUGA–PATEL–BHEL (CONSORTIUM)		
DRN 31.10.15					
CKD 31.10.15					
APPD 31.10.15					
DEPT HTE	UNTOL.DIMS. GR.	SCALE 1:5	WEIGHT (K.G.) 7120	REF. TO ASSY. DRG. 0 202 05 18401	ITEM NO. 001
CODE 402	32000049014				SQ. OF ITEM 011
TITLE OUTER RING				DRAWING NO. 0 20205 184 02	REV 02
				SHT. No. 1	NO. OF SHT. 1

REV.	DATE	ALTERED / CHECKED / APPROVED	DESCRIPTION
01	04.11.16		J–4 PCD 3720 WAS 3750. J–13 SEAL I.D. ø3758 WAS ø3790.
02	23.12.16		J–5 DIRECTION OF FLOW MODIFIED.

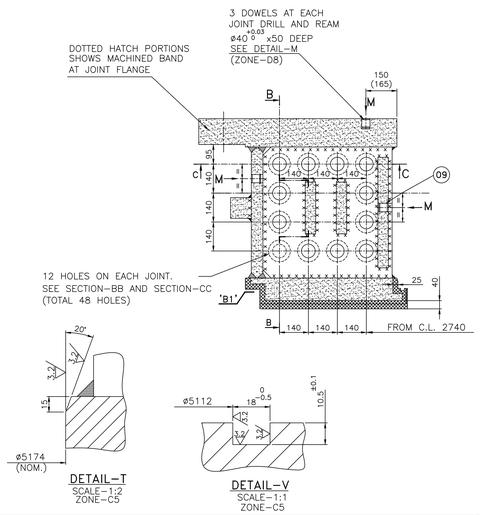
A0 SIZE

FIRST ANGLE PROJECTION

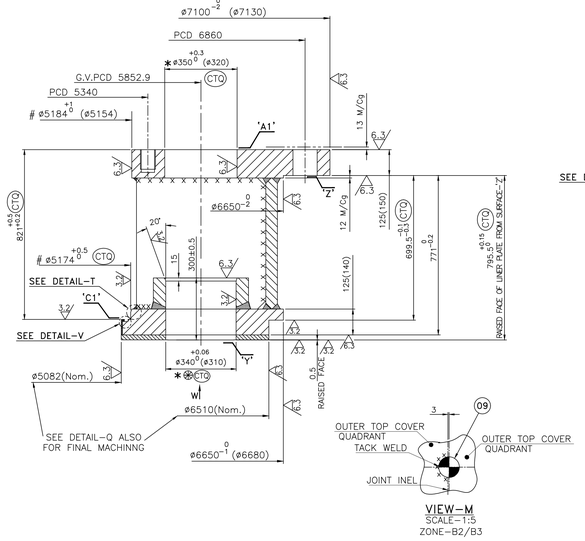
(ALL DIMENSIONS ARE IN mm)

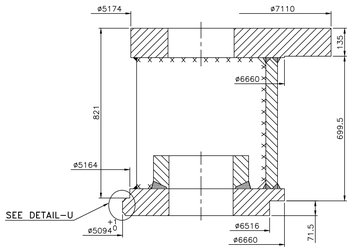
DRG. NO. 0 20301 21502

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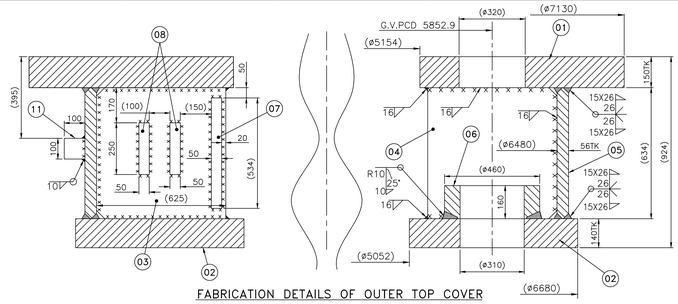


SECTION-AA
ZONE-F11,K3, SHEET-2
FINAL MACHINING





ROUGH MACHINING
STAGE-2

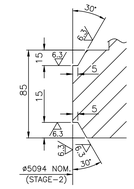


FABRICATION DETAILS OF OUTER TOP COVER
STAGE-1

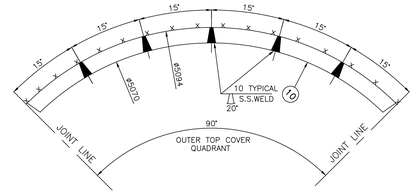
DETAIL-T
SCALE-1:2
ZONE-C5

DETAIL-V
SCALE-1:1
ZONE-C5

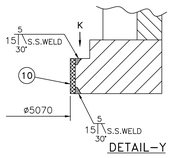
VIEW-M
SCALE-1:5
ZONE-B2/B3



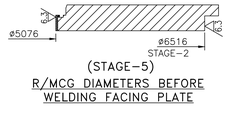
DETAIL-U
PRELIMINARY M/C ON I/D
(FOR WELDING OF S.S.LINER)
SCALE-1:2



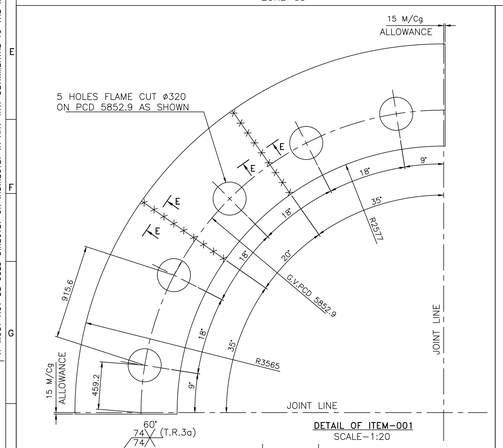
VIEW-K
(STAGE-3)
WELDING OF IT.NO.10 TO
OUTER TOP COVER QUADRANT
SCALE-NTS
ZONE-D15



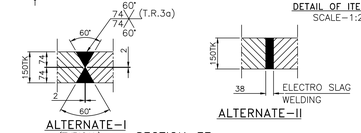
DETAIL-Y
(STAGE-4)
(WELDING OF S.S.LINER)
SCALE-1:5



(STAGE-5)
R/MCG DIAMETERS BEFORE
WELDING FACING PLATE



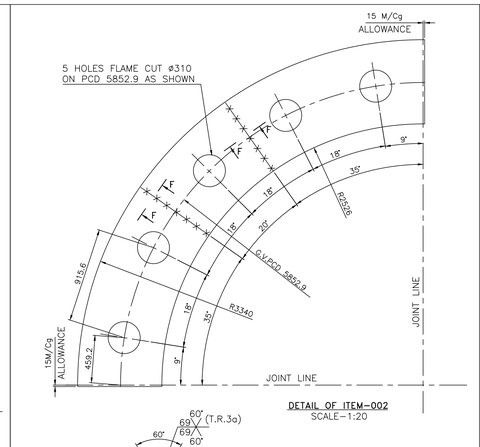
DETAIL OF ITEM-001
SCALE-1:20



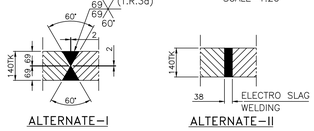
ALTERNATE-I
(TYPICAL)

ALTERNATE-II

SECTION-EE
ZONE-F1,F2



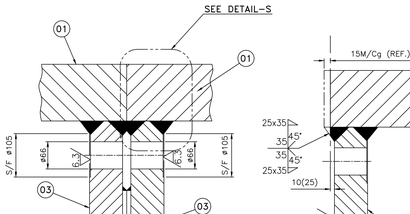
DETAIL OF ITEM-002
SCALE-1:20



ALTERNATE-I

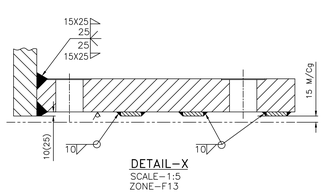
ALTERNATE-II

SECTION-FF
ZONE-F5



DETAIL-S
SCALE-1:5
ZONE-E8,E9

SECTION-BB
SCALE-1:5
ZONE-B2,C2



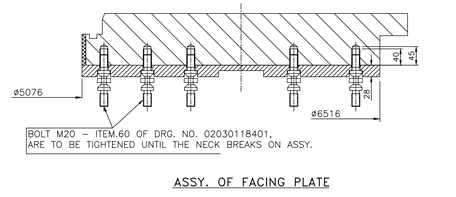
DETAIL-X
SCALE-1:5
ZONE-F13

SECTION-CC
SCALE-1:5
ZONE-B2,B3

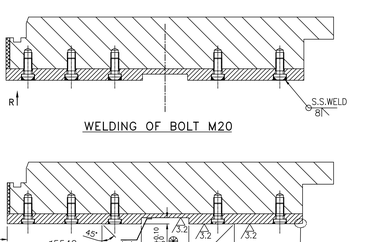
VIEW-R
SCALE-1:20
ZONE-G14

SECTION-C1C1
SCALE-1:2
ZONE-H11

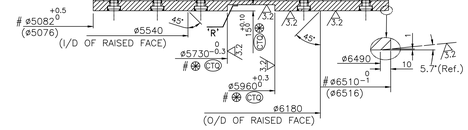
WELD BETWEEN LINER PLATES



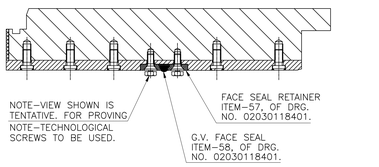
ASSY. OF FACING PLATE



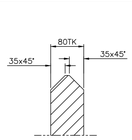
WELDING OF BOLT M20



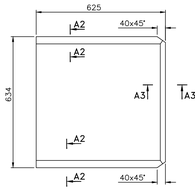
DETAIL-Q
FINAL MACHINING OF FACING PLATE
(ALSO SEE SECTION-AA)



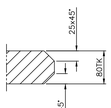
VIEW SHOWING PROOF ASSY. OF G.V. FACE SEAL AT SHOP
SCALE-1:5



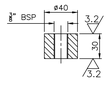
SECTION-A2A2
SCALE-1:5



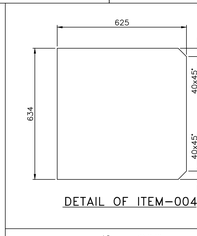
DETAIL OF ITEM-003



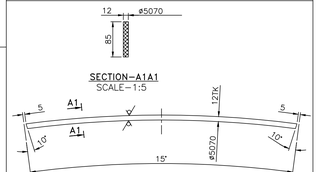
SECTION-A3A3
SCALE-1:5



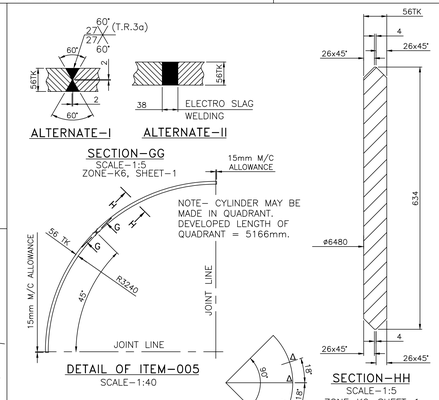
DETAIL OF ITEM-013



DETAIL OF ITEM-004



DETAIL OF ITEM-010
SCALE-1:5
DEVELOPED LENGTH=655mm

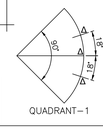


ALTERNATE-I

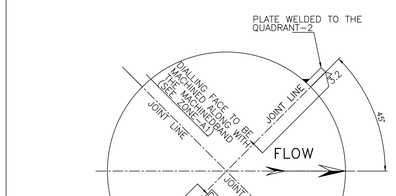
ALTERNATE-II

DETAIL OF ITEM-005
SCALE-1:40

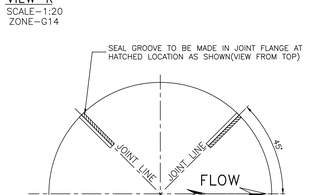
SECTION-HH
SCALE-1:5
ZONE-K6, SHEET-1



NOTE- 3 NOS. CUT OUT AS SHOWN IN VIEW-P,SHEET 2 ,AT Δ MARKED LOCATIONS TO BE MADE IN CYLINDER QUADRANT-1



KEY PLAN SHOWING PLATES (IT.NO.11)
WELDED FOR DIALLING PURPOSE
(TECHNOLOGICAL PURPOSE)



KEY PLAN FOR LOCATION OF
SEAL GROOVE IN ITEM NO. 002
DETAIL-Z

VAR.OO	REMARKS	VAR. NO.	ITEM NO.	DESCRIPTION	STKS	DRAWING NO.	IT.NO.	MATL. CODE	MATL. SPCN.	UNIT	QTY.	CS	ZONE
28 — CARD TYPE-3				28 — CARD TYPE-1			28 — CARD TYPE-2						

ADDITIONAL INFORMATION	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	KALESHWARAM LINK-II PACKAGE-2 (4x130 MW)	
STATUS OF DRAWING 'U'	BHARAT HEAVY ELECTRICALS LTD. BHOPAL	NAME / SIGN / DATE	NO. OF VAR.
DISTRIBUTION OF PRINTS HTE-2, WTM(P)-1, WTM(S)-4 FGM - 7, THX - 1	DRN	SKB / 02.04.2021	-
	CKD	PM / 02.04.2021	
	APPD	HK —sd— 02.04.2021	

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G)	REF.TO ASSY.DRG.	ITEM NO	NO.OF ITEM
H.T.E.		1:10 AND AS STATED	SEE SHEET-2	0 20301 21501	—	—
CODE 402	32000049014					

TITLE: OUTER TOP COVER(IN QUADRANTS) (M/Cg AND FAB)

DRAWING NO. 0 20301 21502 — REV. 00

SHT. NO. 01 — NO. OF SHT. 02

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE

INVENTORY NO. 0 20301 18402 — REF. DRG. NO. — SIGN. & DATE

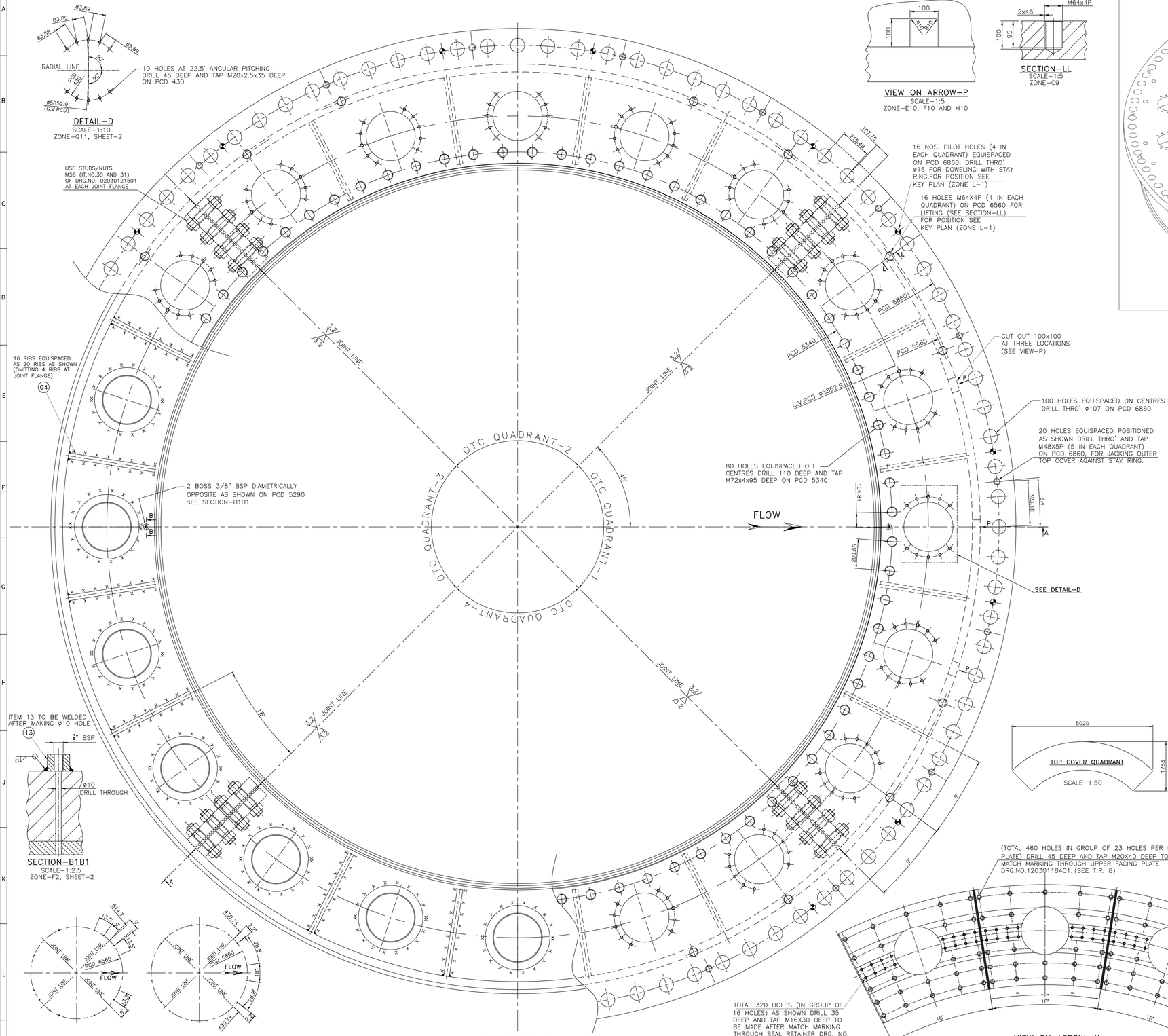
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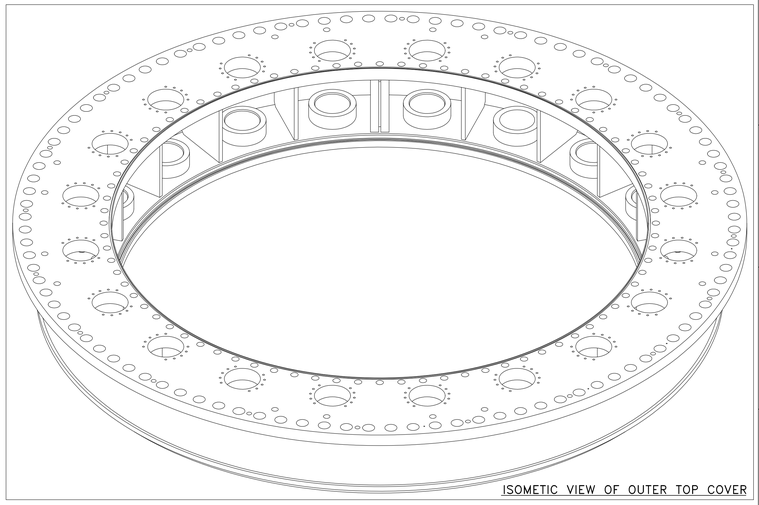
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0 20301 21502

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ISOMETIC VIEW OF OUTER TOP COVER

TECHNICAL REQUIREMENTS:–

1. DIMENSIONS GIVEN IN DRAWING DO NOT INCLUDE ANY TECHNOLOGICAL ALLOWANCE FOR FABRICATION. DIMENSIONS IN () ARE FOR WELDED ASSEMBLY/BEFORE MACHINING.
2. MATERIAL:– ASTM A 516 Gr–70 FOR IT.NO. 01 AND 02. THEREFORE NECESSARY PRECAUTION FOR PRE–HEATING AND WELDING ELECTRODES ARE TO BE TAKEN BY FBM.
3. WELDING TO CORPORATE STD. AA0622101 TO GRADES AS SPECIFIED BELOW AND NDT TO BE CARRIED OUT BEFORE STRESS RELIEVING.
   a) ALL RADIAL JOINTS BETWEEN PARTS OF IT.NO.01,02 AND 05 SHALL BE GRADE–II WITH 100% U.T., MCD AND D.P.TESTING.
   b) WELDS OF JOINT FLANGES (IT.NO.03) WITH OTHER ITEMS TO BE GRADE–II WITH 100% U.T., MCD AND D.P.TESTING.
   c) WELD JOINTS BETWEEN IT.NO.01 AND 05 AND IT.NO.02 AND 05 TO BE OF GRADE–II.
   d) ALL FILLET WELDS TO GRADE–III WITH 100% D.P. TESTING.
   e) EXTENT OF EXAMINATION BY U.T. FOR PARTIAL PENETRATION WELD SHALL BE WELD SIZE–5mm.
4. STRESS RELIEVING TO BE CARRIED OUT AS PER PROCESS SPCN. BP640299 AND SUBSEQUENT SHOT BLASTING TO BE DONE.
5. DURING FABRICATION BORES ø320 IN IT.NO. 01AND ø310 IN IT. NO. 02 ON GV PCD 5852.9 TO BE KEPT ALIGNED. ALLOWABLE NONALIGNMENT 3mm. VARIATION IN PITCH OF EACH PAIR OF ADJACENT HOLES IN PLATES IT.NO.01 AND 02 NOT TO BE MORE THAN ± 3mm DURING FABRICATION.
6. PRELIMINARY MACHINING OF OUTER TOP COVER TO BE CARRIED OUT FOR WELDING OF S.S. LINER IT.NO.10. REFER DETAIL–U, DETAIL–Y AND VIEW–K.
7. 20 G.V. HOLES SHALL BE MACHINED IN SUCH A WAY THAT THESE ARE CONCENTRIC W.R.T. CORRESPONDING HOLES IN PIVOT RING M/Cg (DRG.NO. 0 20301 21504) WITHIN 0.05mm.
8. HOLES FOR FIXING OF UPPER FACING PLATE TO BE MADE AT LOCATIONS MATCH MARKED FROM UPPER FACING PLATE.
9. HOLES FOR FIXING OF SEAL RETAINER TO BE MADE AT LOCATIONS MATCH MARKED FROM SEAL RETAINER.
10. FINAL MACHINING OF UPPER FACING PLATES ARE TO BE CARRIED OUT AFTER ASSEMBLY WITH OUTER TOP COVER. FINAL MACHINING OF FACE SEAL GROOVE IN FACING PLATE TO BE CARRIED OUT ON ASSEMBLY.
11. (a) ✱ MARKED DIAMETERS ARE TO BE CONCENTRIC WITHIN 0.03.
    (b) # MARKED DIAMETERS ARE TO BE CONCENTRIC TO PUMP AXIS WITHIN 0.10.
    (c) SURFACES A1, C1, Y AND Z SHALL BE BE PERPENDICULAR TO PUMP AXIS WITHIN 0.05.
    (d) DIMENSIONS MARKED ⊛ ARE TO BE MAINTAINED AS PER DRAWING FOR INTERCHANGEABILITY OF BUSH HOUSING, GUIDE VANE FACE SEAL AND FACE SEAL RETAINERS.
    (e) DIMENSIONS MARKED (CTQ) ARE CRITICAL FOR INSPECTION REVALIDATION DURING DURING MEASUREMENT IN SHOP.
12. FACE SEAL AND SEAL RETAINERS ARE TO BE PROOF ASSEMBLED WITH OUTER TOP COVER AT BHEL WORKS BEFORE DISPATCH.
13. FLOW LINE TO BE MARKED IN QUADRANT–1 EITHER AT ø7100 FOR LOCATING AND INSTALLATION AT SITE.
14. PLATE IT.NO.11 TO BE CUT AND REMOVED BEFORE DISPATCH.
15. PAINT AND PROTECT TO PROCESS SPECIFICATION NO. HT00005 AS FOLLOWS:
    a. ALL MACHINED SURFACES TO CAT–G.
    b. ALL UNMACHINED SURFACES TO CAT–C.
16. USE 20 STUDS AND 40 NUTS (IT.NO.30 AND IT.NO.31) OF DRG.NO. 02030121501 FOR JOINING QUADRANTS.
17. ALL TAPPED HOLES ARE TO BE CHECKED BY USING RELEVANT R.H. PLUG GAUGES.
18. FABRICATION WEIGHT OF OUTER TOP COVER=47820 KG
19. DIMENSIONS OF OUTER TOP COVER QUADRANT = 5020 x 1753 x 925

		012	BOSS ø40		SEE DETAIL	AA1010212206	0.250	
						AA10112		002
	50 TK	011	PLATE 50TKx100x100		——	AA1011819210	4.00	
						AA10119		002
	12 TK	010	S.S. LINER		SEE DETAIL	UNS 41500	6.50	
						ASTM A240		024
		009	DOWEL ø40X45 LG.		42030118402		0.350	
								012
	25 TK	008	STRIP 25TKx50Wx250LG		——	AA1011819155	2.50	
						AA10119		016
	25 TK	007	STRIP 25TKx50Wx534LG		——	AA1011819155	5.30	
						AA10119		008
	PATTERN NO.1239826	006	BOSS		32030118416		100.0	
						AA19521		020
	56 TK	005	CYLINDER (IN QUADRANT)		SEE DETAIL	AA1011819228	1435.0	
						AA10119		004
	40 TK	004	RIB		SEE DETAIL	AA1011819198	124.0	
						AA10119		016
	80 TK	003	JOINT FLANGE		SEE DETAIL	AA1011819260	248.0	
						AA10119		008
	140 TK	002	BOTTOM RING (IN QUADRANT)		SEE DETAIL	IS:2062	3725.0	
						E300 BR		004
	150 TK	001	TOP RING (IN QUADRANT)		SEE DETAIL	IS:2062	5170.0	
						E300 BR		004

59 64 VAR.OO | 65 75 REMARKS | 76 78 VAR NO. | 25 27 ITEM NO. | 29 58 DESCRIPTION | 59 60 STD. | DRAWING NO. 77 | 29 31 IT.NO. | 34 MATL. CODE 45 | 50 54 MATL. SPCN. | 55 56 UNIT | 58 UNIT WT. 65 | 68 QTY. 71 | 72 CS | ZONE

28 — CARD TYPE–3 | 28 — CARD TYPE–2 | 28 — CARD TYPE–1

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2, WTM(P)–1, WTM(S)–4, FGM – 7, THX – 1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK–II PACKAGE–2 (4x130 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	SKB		02.04.2021	
CKD	PM		02.04.2021	
APPD	HK	–sd–	02.04.2021	-

DEPT. H.T.E. | UNTOL. DIMS. GR. | SCALE 1:10 AND AS STATED | WEIGHT(K.G.) 38800 | REF.TO ASSY.DRG. 0 20301 21501 | ITEM NO. 001 | NO.OF ITEM 012

CODE 402 | 32000049014

TITLE: OUTER TOP COVER(IN QUADRANTS) (M/Cg AND FAB)

DRAWING NO. 0 20301 21502 | REV. 00

SHT. NO. 02 | NO. OF SHT. 02

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE

INVENTORY NO. | SIGN. & DATE | O 20301 18402 | IFD DRG. NO.

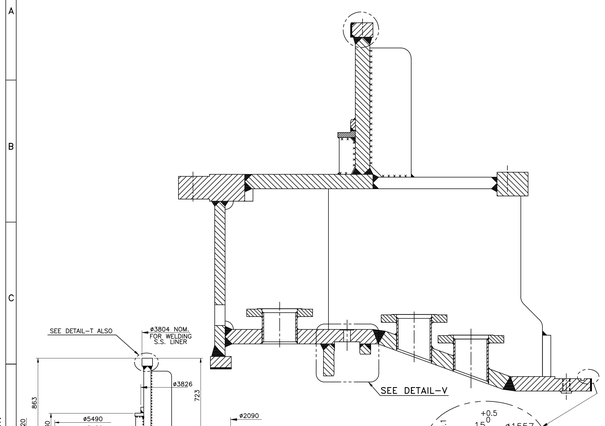
A0 SIZE

FIRST ANGLE PROJECTION

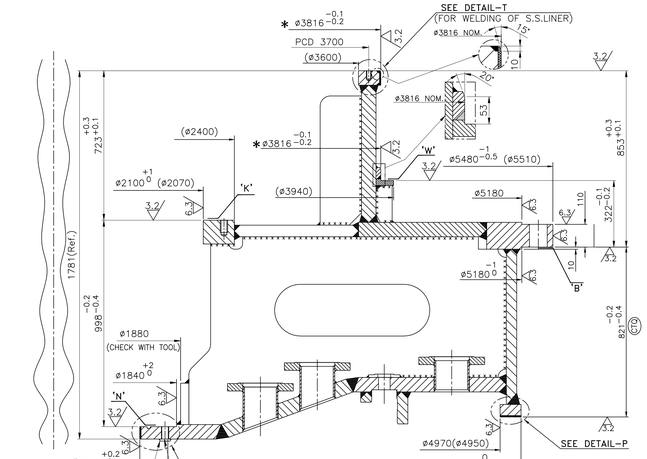
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0 20301 21503

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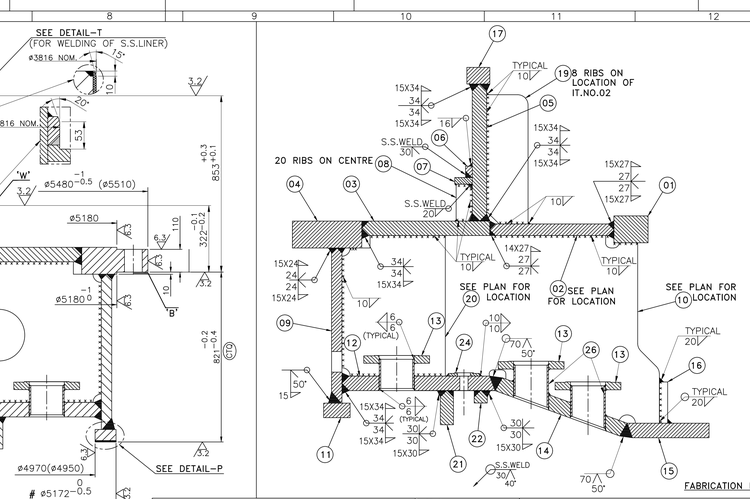


ROUGH MACHINING DETAIL

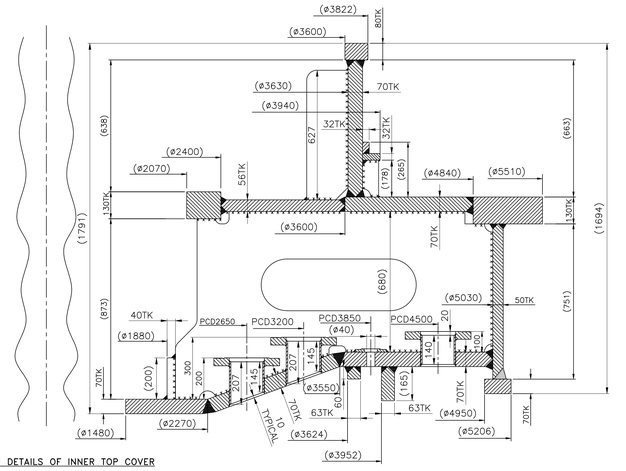


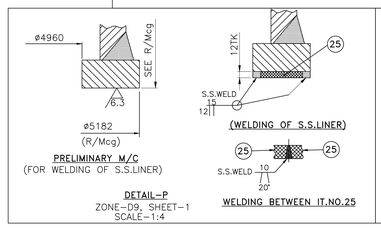
SECTION-AA
(MACHINING DETAILS)
ZONE G8,F1, SHT.2

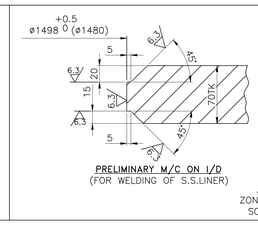
(IT. 27 TO BE WELDED AFTER MAKING TAPPED HOLES)

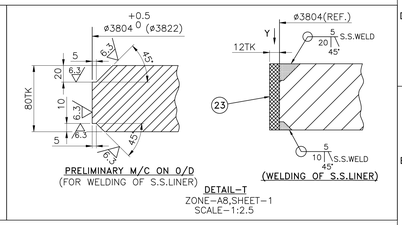


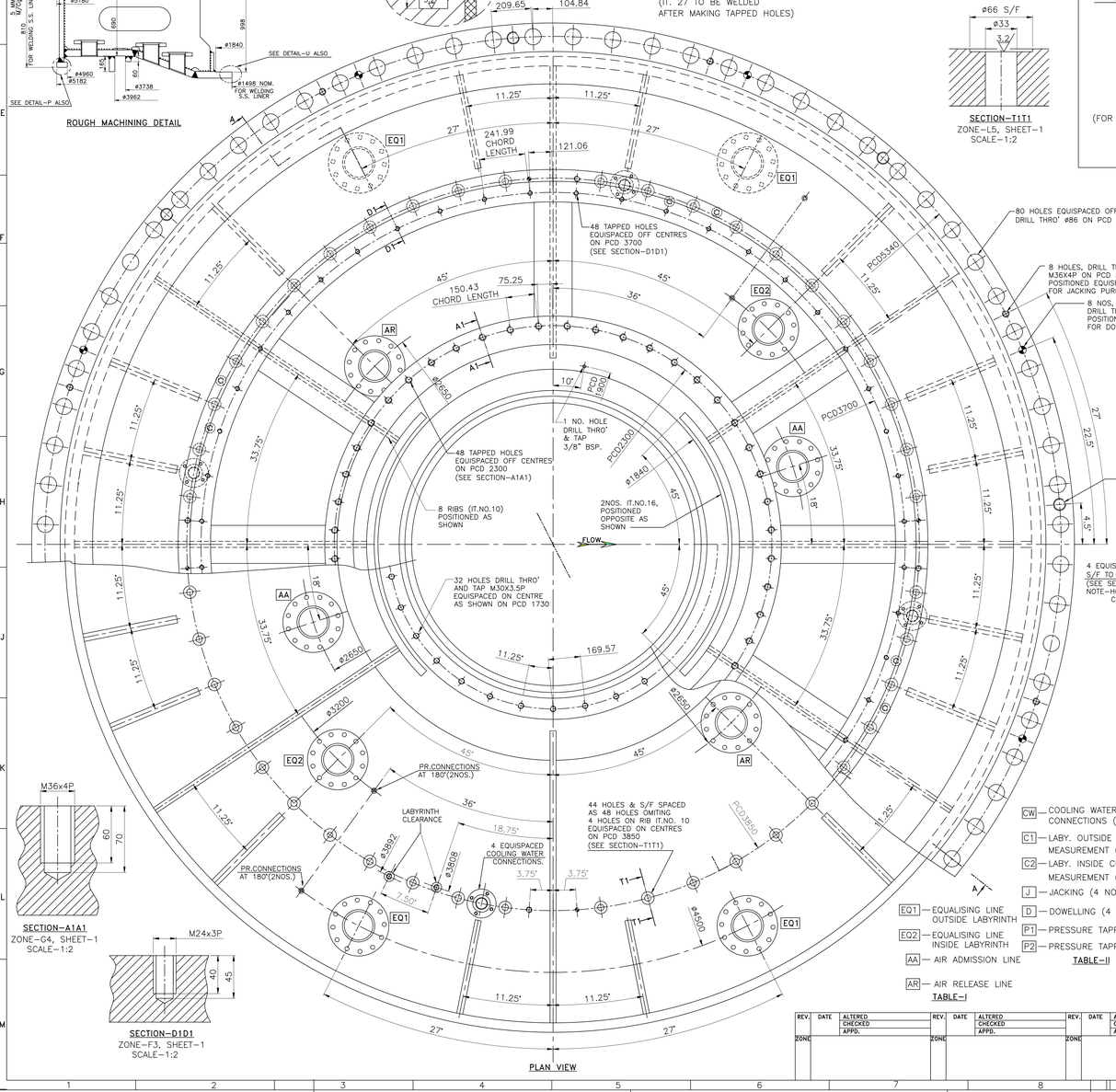
FABRICATION DETAILS OF INNER TOP COVER



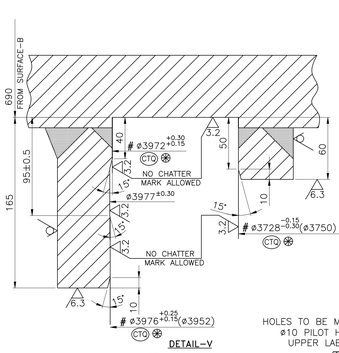




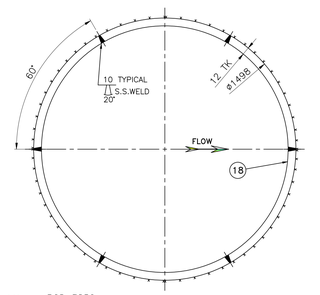




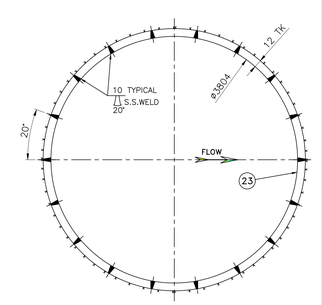
PLAN VIEW



DETAIL-V
ZONE-C2, SHEET-1
SCALE-1:2



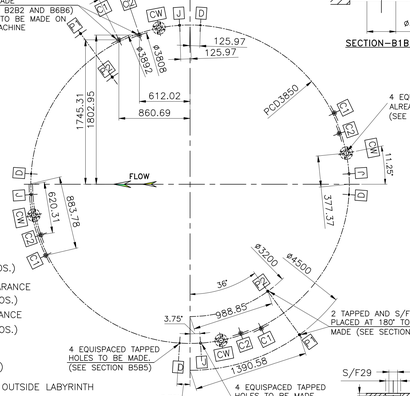
VIEW ON ARROW-X
ZONE-D13, SHEET-2
SCALE-NTS



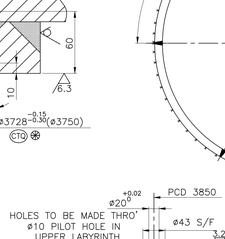
VIEW ON ARROW-Y
ZONE-D16, SHEET-2
SCALE-NTS

SECTION-A1A1
ZONE-G4, SHEET-1
SCALE-1:2

SECTION-D1D1
ZONE-F3, SHEET-1
SCALE-1:2

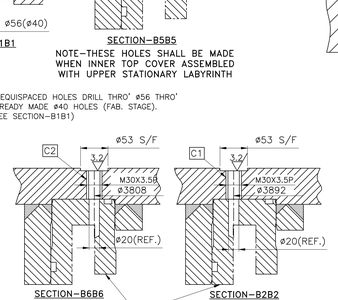


PLAN VIEW
NOTE-VIEW FROM BOTTOM
(HOLES AS PER TABLE II TO BE MADE KEEPING INNER TOP COVER WITH UPPER LABYRINTH ON TOP SIDE)



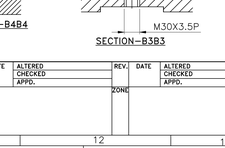
SECTION-B1B1

SECTION-B5B5
NOTE-THESE HOLES SHALL BE MADE WHEN INNER TOP COVER ASSEMBLED WITH UPPER STATIONARY LABYRINTH



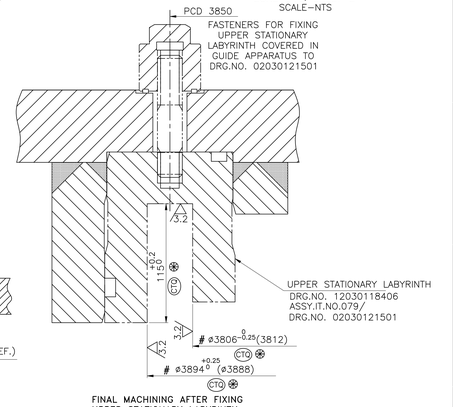
SECTION-B6B6

SECTION-B2B2



SECTION-B4B4

SECTION-B3B3



FINAL MACHINING AFTER FIXING UPPER STATIONARY LABYRINTH
SCALE-1:2

UPPER STATIONARY LABYRINTH
DRG.NO. 12030118406
ASSY.IT.NO.079/
DRG.NO. 02030121501

REV.	DATE	ALTERED CHECKED APPD.	ZONE

28 — CARD TYPE-3	28 — CARD TYPE-1	28 — CARD TYPE-2

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE-2, WTM(P)-1, WTM(S)-4
FGM - 7, THX - 1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK-II PACKAGE-2 (4x130 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	SKB		02.04.2021	–
CKD	PM		02.04.2021	
APPD	HK	–sd–	02.04.2021	

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
H.T.E.		1:10 AND AS STATED	SEE SHEET-2	0 20301 21501	002	–
CODE 402	32000049014					

TITLE: INNER TOP COVER (FAB & M/Cg)

DRAWING NO. 0 20301 21503 REV. 00

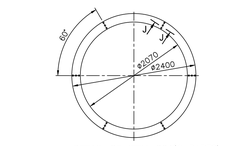
SHT. NO. 01 NO. OF SHT. 02

AO SIZE

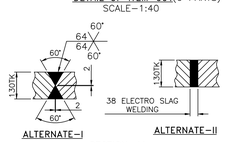
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0 20301 21503

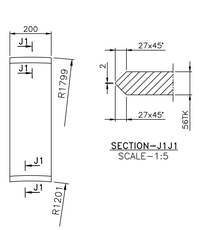


DETAIL OF ITEM-001(6 PARTS)
SCALE-1:40



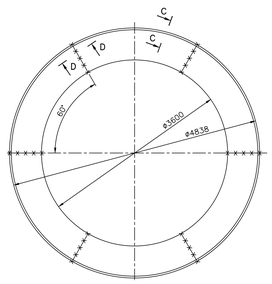
ALTERNATE-I ALTERNATE-II

SECTION-JJ
SCALE-1:10

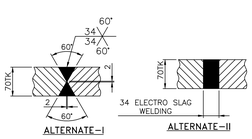


DETAIL OF ITEM-002
SCALE-1:10

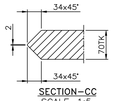
SECTION-J1J1
SCALE-1:5



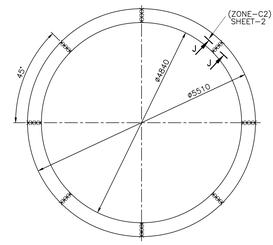
DETAIL OF ITEM-003 (6 PARTS)
SCALE-1:40



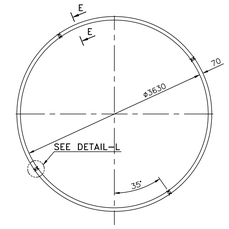
SECTION-DD
SCALE-1:5



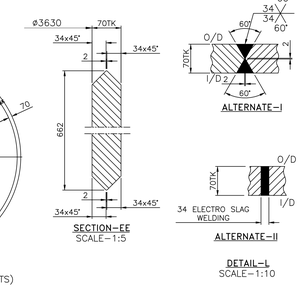
SECTION-CC
SCALE-1:5



DETAIL OF ITEM-004 (8 PARTS)
SCALE-1:50

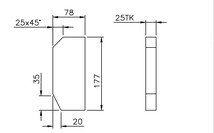


DETAIL OF ITEM-005 (4 PARTS)
SCALE-1:40

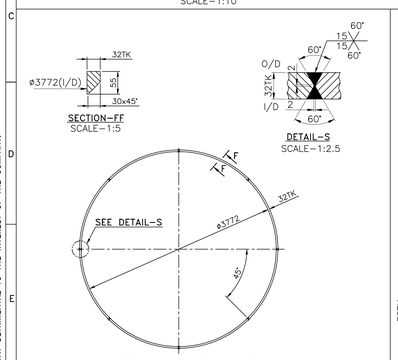


SECTION-EE
SCALE-1:5

DETAIL-L
SCALE-1:10



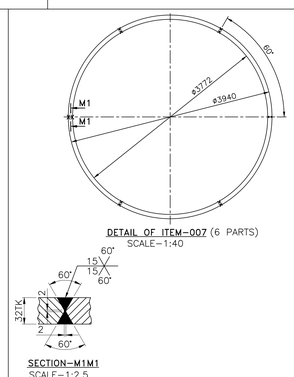
DETAIL OF ITEM-008
SCALE-1:5



SECTION-FF
SCALE-1:5

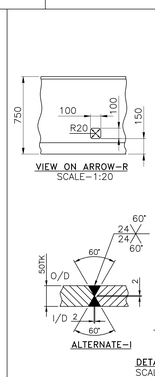
DETAIL-S
SCALE-1:2.5

DETAIL OF ITEM-006 (8 PARTS)
SCALE-1:40

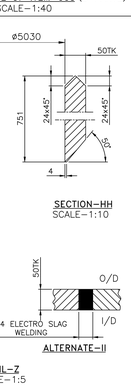


DETAIL OF ITEM-007 (6 PARTS)
SCALE-1:40

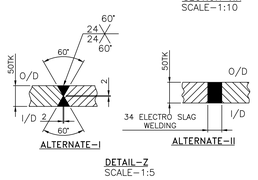
SECTION-M1M1
SCALE-1:2.5



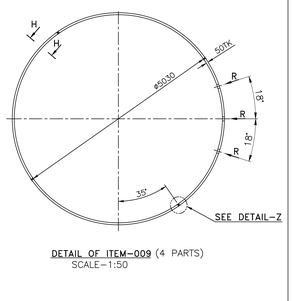
SCALE-1:20



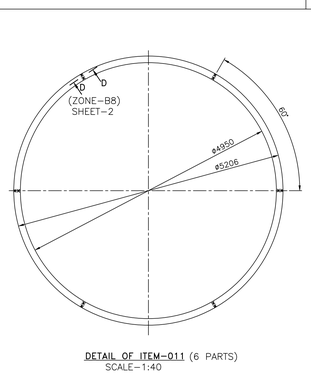
SECTION-HH
SCALE-1:10



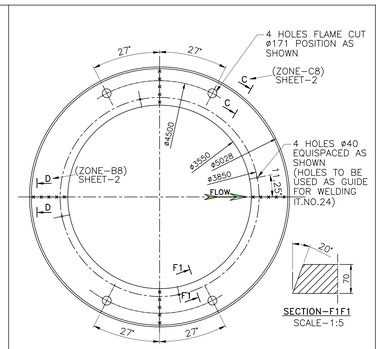
DETAIL-Z
SCALE-1:5



DETAIL OF ITEM-009 (4 PARTS)
SCALE-1:50

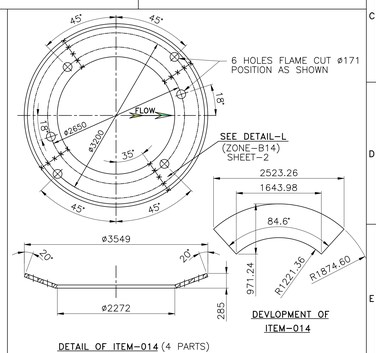


DETAIL OF ITEM-011 (6 PARTS)
SCALE-1:40



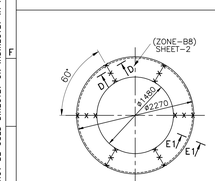
DETAIL OF ITEM-012 (4 PARTS)
SCALE-1:40

SECTION-F1F1
SCALE-1:5

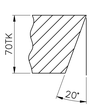


DETAIL OF ITEM-014 (4 PARTS)
SCALE-1:40

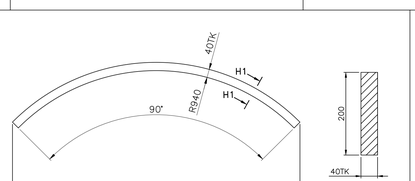
DEVLOPMENT OF ITEM-014



DETAIL OF ITEM-015 (6 PARTS)
SCALE-1:40

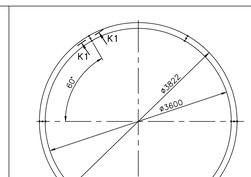


SECTION-E1E1
SCALE-1:2.5

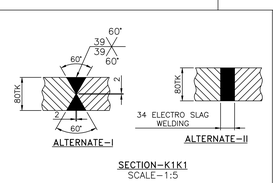


DETAIL OF ITEM-016
SCALE-1:10

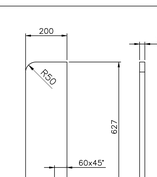
SECTION-H1H1



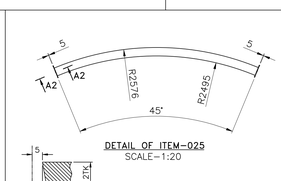
DETAIL OF ITEM-017 (6 PARTS)
SCALE-1:40



SECTION-K1K1
SCALE-1:5



DETAIL OF ITEM-019
SCALE-1:10



DETAIL OF ITEM-025
SCALE-1:20

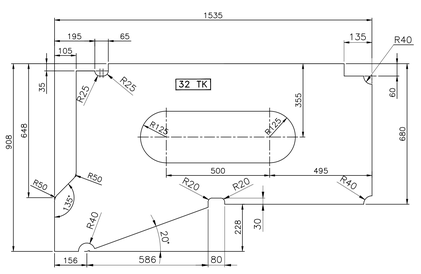


SECTION-A2A2
SCALE-1:1
ZONE-F11, SHEET-2

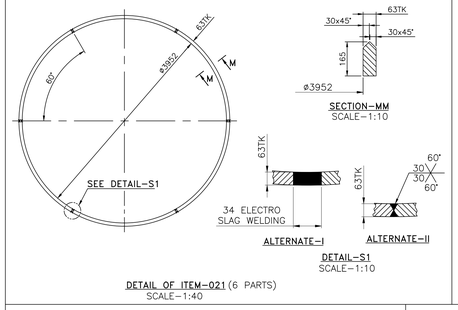
	10 TK	027	BLANK PLATE ø50		——	AA1011808153	0.15
						AA10108	050
	2000 LG. CUT TO SUIT	026	SEAMLESS PIPE,150 NB 168.3 O/0x7.11K, SCH40				56.5
						ASTM A53/A106	001
	12 TK	025	S.S.LINER-III		SEE DETAIL	ASTM A 240	24.0
						UNS 41500	008
	25 TK	024	FLANGE 50NB CLASS 150		SEE DETAIL	AA1011808153	1.50
						AA10108	004
	12 TK	023	S.S.LINER-II		SEE DETAIL	ASTM A 240	5.00
						UNS 41500	018
	63 TK	022	RING-X		SEE DETAIL	AA1011819236	343.0
						AA10119	001
	63 TK	021	RING -IX		SEE DETAIL	AA1011819236	1030.0
						AA10119	001
	32 TK	020	RIB-IV		SEE DETAIL	AA1011819171	85.0
						AA10119	016
	25 TK	019	RIB-III		SEE DETAIL	AA1011819155	24.50
						AA10119	008
	12 TK	018	S.S.LINER-I		SEE DETAIL	ASTM A 240	5.00
						UNS 41500	006
	80 TK	017	RING -VIII		SEE DETAIL	AA1011819260	812.00
						AA10119	001
	40 TK	016	SEGMENT-I		SEE DETAIL	AA1011819198	95.00
						AA10119	002
	70 TK	015	RING -VII		SEE DETAIL	AA1011819244	1278.0
						AA10119	001
	70 TK	014	CONE SEGMENT		SEE DETAIL	AA1011819244	3139.0
						AA10119	001
	45 TK	013	FLANGE 150NB CLASS 300		SEE DETAIL	AA1011808200	15.00
						AA10108	010
	70 TK	012	RING -VI		SEE DETAIL	AA1011819244	5469.0
						AA10119	001
	70 TK	011	RING -V		SEE DETAIL	AA1011819236	1121.0
						AA10119	001
	32 TK	010	RIB-II		SEE DETAIL	AA1011819171	220.00
						AA10119	008
	50 TK	009	CYLINDER -I		SEE DETAIL	AA1011819210	4695.00
						AA10119	001
	25 TK	008	RIB-I		SEE DETAIL	AA1011819155	2.70
						AA10119	020
	32 TK	007	S.S.RING -II		SEE DETAIL	ASTM A 240	255.0
						UNS 41500	001
	32 TK	006	S.S.RING -I		SEE DETAIL	ASTM A 240	165.0
						UNS 41500	001
	70 TK	005	TOP CYLINDER		SEE DETAIL	AA1011819244	4226.0
						AA10119	001
	130 TK	004	RING -II		SEE DETAIL	IS: 2062	5555.0
						E300 BR	001
	70 TK	003	RING -I		SEE DETAIL	AA1011819244	4510.0
						AA10119	001
	56 TK	002	T-PLATE		SEE DETAIL	AA1011819228	52.50
						AA10119	008
	130 TK	001	TOP RING		SEE DETAIL	IS: 2062	1180.0
						E300 BR	001

59 64 VAR.OO | 65 75 REMARKS | 76 78 VAR NO. | 25 27 ITEM NO. | 29 DESCRIPTION 58 | 59 60 STD. | 60 77 DRAWING NO. | 29 31 IT.NO. | 34 MATL. CODE | 45 52 SIZE | 50 UNIT | 58 60 UNIT WT. | 65 72 QTY. | 68 71 | 72 GS | ZONE

28 → CARD TYPE-3 | 28 → CARD TYPE-1 | 28 → CARD TYPE-2



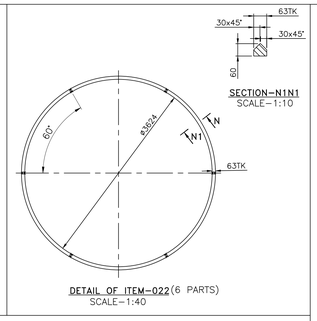
DETAIL OF ITEM-010
SCALE-1:10



SECTION-MM
SCALE-1:10

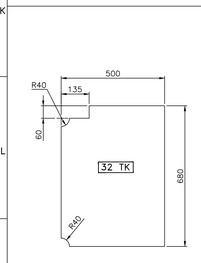
DETAIL-S1
SCALE-1:10

DETAIL OF ITEM-021 (6 PARTS)
SCALE-1:40

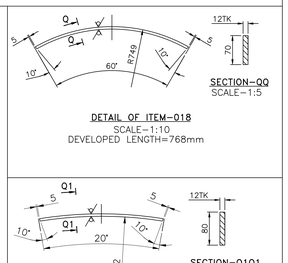


SECTION-N1N1
SCALE-1:10

DETAIL OF ITEM-022(6 PARTS)
SCALE-1:40

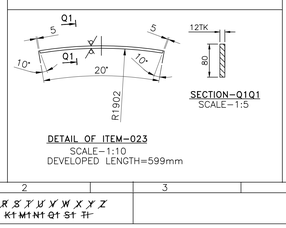


DETAIL OF ITEM-020
SCALE-1:10



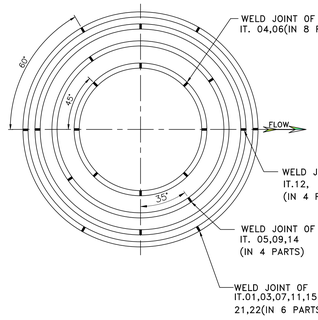
DETAIL OF ITEM-018
SCALE-1:10
DEVELOPED LENGTH=768mm

SECTION-QQ
SCALE-1:5

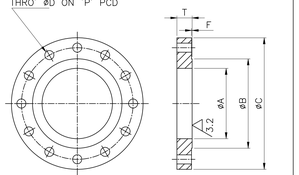


DETAIL OF ITEM-023
SCALE-1:10
DEVELOPED LENGTH=599mm

SECTION-Q1Q1
SCALE-1:5



KEY PLAN FOR LOCATION OF WELD JOINTS



ITEM NO.	NOM. BORE	øA	øB	øC	P (PCD)	F	T	øD	N	WEIGHT Kg.
13	150	170	216	318	270	1.6	37	22	12	15.0
24	50	62	92	152	120.6	1.6	16	19	4	1.5

DETAIL OF ITEM-013 & 024
SCALE-1:5

TECHNICAL REQUIREMENTS:-

1. DIMENSIONS GIVEN IN DRAWING DO NOT INCLUDE ANY TECHNOLOGICAL ALLOWANCE FOR FABRICATION. DIMENSIONS IN () ARE FOR WELDED ASSEMBLY/BEFORE MACHINING.
2. MATERIAL:- ASTM A 516 Gr-70 FOR IT.NO. 01 AND 04. THEREFORE NECESSARY PRECAUTION FOR PRE-HEATING AND WELDING ELECTRODES ARE TO BE TAKEN BY FBM.
3. WELDING TO CORPORATE STD. AA0622101 TO GRADES AS SPECIFIED BELOW AND NDT TO BE CARRIED OUT BEFORE STRESS RELIEVING.
   a) ALL RADIAL JOINTS SHALL BE GRADE-II WITH 100% U.T., MCD AND D.P.TESTING.
   b) ALL OTHER WELDS BETWEEN ITEMS ,OTHER THAN FILLET WELD TO BE GRADE-II.
   c) ALL FILLET WELDS TO GRADE-III WITH 100% D.P. TESTING.
   d) EXTENT OF EXAMINATION BY U.T. FOR PARTIAL PENETRATION WELD SHALL BE WELD SIZE-5mm.
4. STRESS RELEVING TO BE CARRIED OUT AS PER PROCESS SPCN. BP640299 AND SUBSEQUENT SHOT BLASTING TO BE DONE.
5. a-PRELIMINARY MACHINING OF INNER TOP COVER TO BE CARRIED OUT FOR WELDING OF S.S. LINER IT.NO.18 & 23. REFER DETAIL-U & DETAIL-T ON SHEET-1. FOR WELDING DETAILS REFER VIEW-X AND VIEW-Y ON SHEET-1.
   b-PRELIMINARY MACHINING OF INNER TOP COVER TO BE CARRIED OUT FOR WELDING OF S.S. PLATE IT.NO.25. REFER DETAIL-P ON SHEET-1.
6. a) * MARKED DIAMETERS ARE TO BE CONCENTRIC WITHIN 0.02.
   B) # MARKED DIAMETERS ARE TO BE CONCENTRIC TO PUMP AXIS WITHIN 0.10.
7. SURFACES B,N,K &W ARE TO BE PERPENDICULAR TO PUMP AXIS WITHIN 0.05.
8. DIMENSIONS MARKED ⊛ ARE TO BE MAINTAINED AS PER DRAWING FOR INTERCHANGEABILITY OF LABYRINTH.
9. DIMENSIONS MARKED (CTG) ARE CRITICAL FOR INSPECTION REVALIDATION DURING DURING MEASUREMENT IN SHOP.
10. FLOW LINE TO BE MARKED IN INNER TOP COVER AT ø5480 FOR LOCATING AND INSTALLATION AT SITE.
11. FINAL MACHINING OF UPPER STATIONARY LABYRINTH TO BE CARRIED OUT AFTER ASSY. WITH INNER TOP COVER.
12. MATCHING OF ALL HOLES AS PER TABLE-C1 ON SHEET-1 TO BE VERIFIED IN INNER TOP COVER & UPPER LABYRINTH. THIS IS IMPORTANT FOR INTERCHANGEABILITY OF UPPER LABYRINTH.
13. ALL THE TAPPINGS ARE TO BE CHECKED BY RELEVANT R.H. PLUG GAUGES.
14. PAINT & PROTECT TO HT00005 AS FOLLOWS:
    a. ALL MACHINED SURFACES TO CAT-G.
    b. ALL UNMACHINED SURFACES TO CAT-C.
15. FABRICATION WEIGHT OF INNER TOP COVER = 39700 KG
16. DIMENSIONS OF INNER TOP COVER = ø5480 X 1781 HIGH
17. FOR LIFTING/TURNING SUITABLE LIFTING LUGS TO BE WELDED DURING FABRICATION.

REV.	DATE	ALTERED / CHECKED / APPD.
03	30.6.16	CHECKED

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE-2, WTM(P)-1, WTM(S)-4
FGM - 7, THX - 1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK-II PACKAGE-2 (4x130 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	SKB		02.04.2021
CKD	PM		02.04.2021
APPD	AM	-sd-	02.04.2021

DEPT. H.T.E | UNTOL. DIMS. GR. | SCALE 1:10 AND AS STATED | WEIGHT(K.G.) 38,100 | REF.TO ASSY.DRG. 0 20301 21501 | ITEM NO. 002 | NO.OF ITEM 027

CODE 402 | 32000049014

TITLE: INNER TOP COVER (FAB & M/Cg)

DRAWING NO. 0 20301 21503 | REV. 00

SHT. NO. 02 | NO. OF SHT. 02

A0 SIZE

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INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 20301 18403

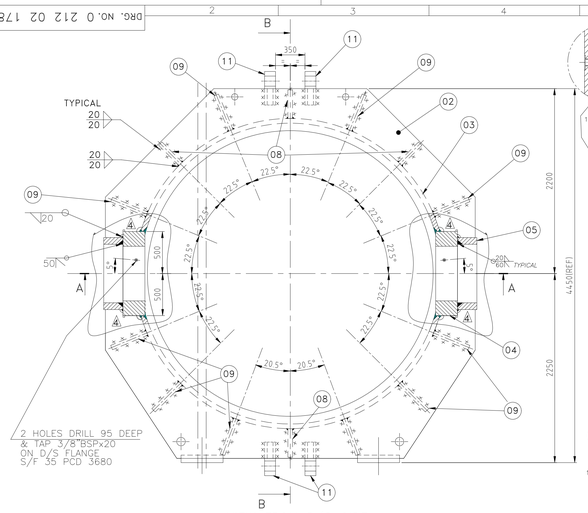
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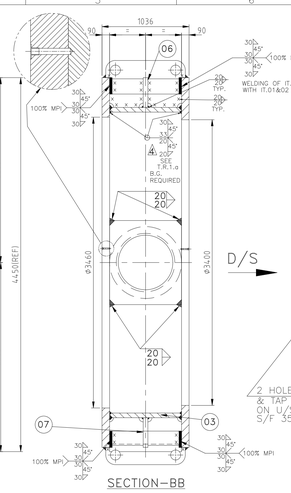
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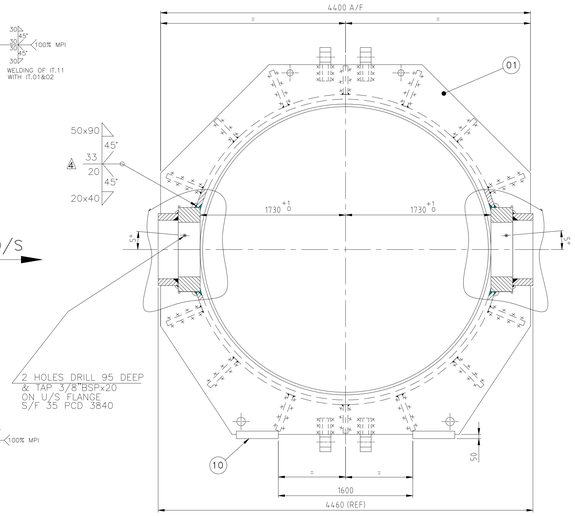
(ALL DIMENSIONS ARE IN mm)

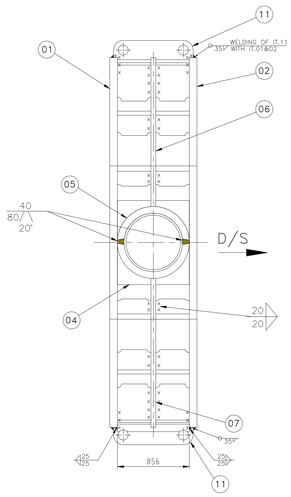
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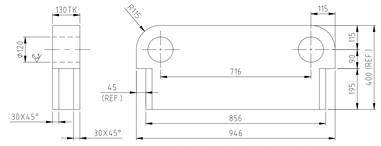
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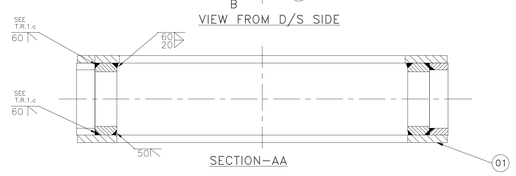


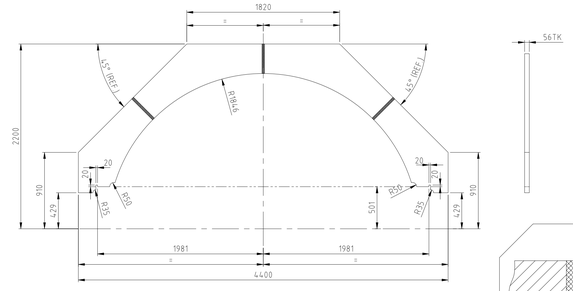


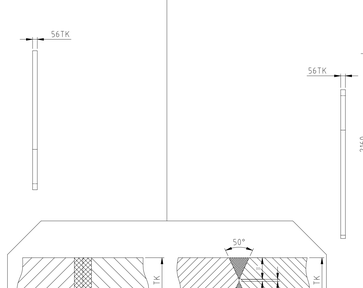


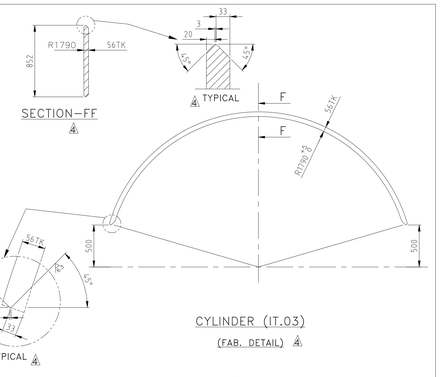


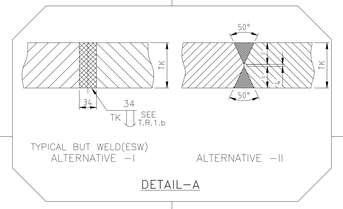


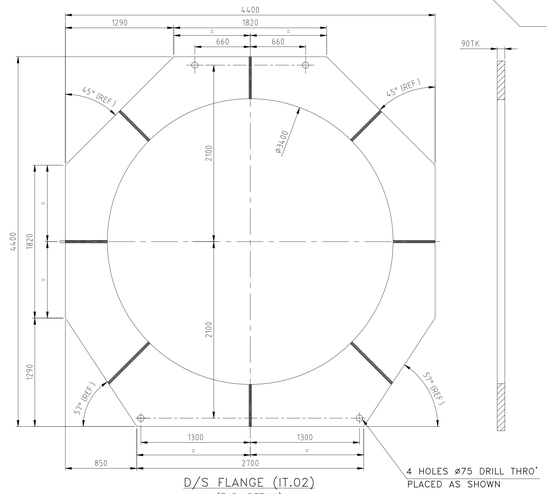


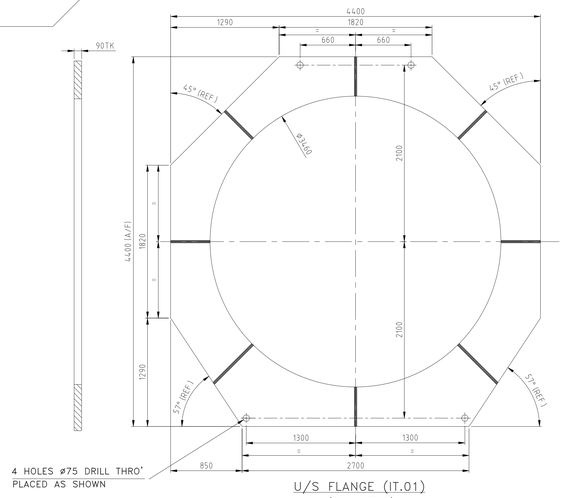


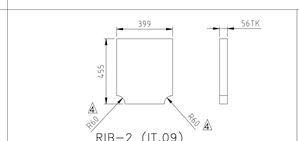


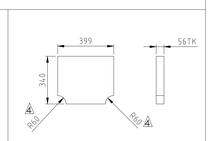


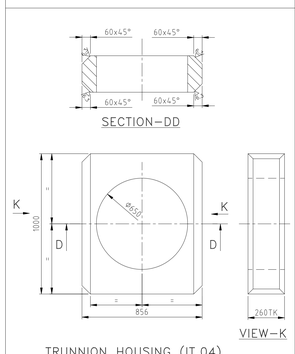


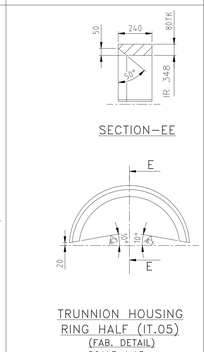












TECHNICAL REQUIREMENTS:–

1. WELDING TO BE DONE AS PER CORP. STD. AA0622101 Gr. AS FOLLOWS
   a. WELDS OF CYLINDER ITEM–03 WITH U/S & D/S FLANGES AND WITH ITEMS 04 TO Gr.–II , B.G. REQUIRED FOR THESE WELDS.
   b. BUTT WELD JOINTS OF QUADRANTS OF U/S & D/S FLANGES TO GRADE–II
   c. BUTT WELDS OF ITEMS 04 WITH U/S AND D/S FLANGES TO Gr.–II WITH DEPTH OF INSPECTION BY U. T.= WELD SIZE MINUS 5 mm.
   d. REMAINING WELDS TO GRADE–III UNLESS OTHERWISE STATED.
2. STRESS RELIVING TO BE CARRIED OUT AS PER BP0640299 & SHOT BLAST SUBSEQUENTLY.
3. AFTER SHOT BLASTING PAINT ALL SURFACES TO HT00005 CAT. AS FOLLOWS:–
   3.1. EXTERNAL SURFACES:
   (i) PRIME COAT:1xZINC DUST PRIMER, 2–COMPONENT MAIN DRY FILM TK. 1x50 MICRONS, BASE: EPOXY RESIN
   (ii) INTERMEDIATE COAT:2xMICACEOUS IRON OXIDE PAINT, 2–COMPONENT MAIN DRY FILM TK. 2x80 MICRONS, BASE: EPOXY RESIN
   (iii) FINISH COAT:1xMICACEOUS IRON OXIDE PAINT, COLOURED,2–COMPONENT MAIN DRY FILM TK. 1x80 MICRONS, BASE: EPOXY RESIN
   3.2. INTERNAL SURFACES:
   (i) INTERMEDIATE COAT: 2xMICACEOUS IRON OXIDE PAINT, 2–COMPONENT,MAIN DRY FILM TK. 2x100 MICRONS, BASE: EPOXY RESIN
   (ii) FINISH COAT:1x TOPCOAT COMPONENT MAIN DRY FILM TK. 1x100 MICRONS, BASE: EPOXY RESIN

	130TK	11	LIFTING BLOCK		USE OFF–CUTS	340	
					ASTM A537 CL–2		04
	90TK	10	BASE PLATE 855x500			302	
					ASTMA 537 CL.2		02
	56TK	09	RIB–2		AA 1011808226	81.6	
					AA 10108		20
	56TK	08	RIB–1		AA 1011808226	59.6	
					AA 10108		08
	56TK	07	CENTRAL RIB HALF LOWER		AA 1011808226	1227	
					AA 10108		01
	56TK	06	CENTRAL RIB HALF UPPER		AA 1011808226	1026	
					AA 10108		01
	80TK	05	TRUNNION HOUSING RING HALF		AA 1011819260	115	
					AA 10119		04
	260TK	04	TRUNNION HOUSING			1067	
					ASTM 516 GR.60		02
	56TK	03	CYLINDER HALF		AA 1011819228	1750	
					AA 10119		02
	90TK	02	D/S FLANGE			5300	
					ASTMA 537 CL.2		01
	90TK	01	U/S FLANGE			5070	
					ASTMA 537 CL.2		01

VAR.OO	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	IT.NO.	MATL. CODE	UNIT	UNIT WT.	GS	ZONE
								MATL. SPCN. VAR.		QTY.		

28 → CARD TYPE–3 | 28 → CARD TYPE–2 | 28 → CARD TYPE–1

ADDITIONAL INFORMATION
38305P20212

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 FBM–7 THX–1
WTM(S)–4 WTM(P)–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: RAMPUR HEP. 6X68.67 MW, VERTICAL FRANCIS TURBINE SATLUJ JAL VIDYUT NIGAM LTD.

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	RPS		29.06.11	–
CKD	KP		29.06.11	
APPD	KP		29.06.11	

DEPT.	H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	AS PER DRG	32000049014	1:25	22760	1 212 02 17801	01	11

TITLE: MIV BODY (FABRICATION)

DRAWING NO. 0 212 02 17802 REV. 05

SHT. NO. 01 NO. OF SHT. 01

REV.	DATE	ALTERED CHECKED APPD.	REV.	DATE	ALTERED CHECKED APPD.	REV.	DATE	ALTERED CHECKED APPD.	REV.	DATE	ALTERED CHECKED APPD.	REV.	DATE	ALTERED CHECKED
05	17.03.21	DKJ –sd– AR –sd– HK –sd–	04	22.02.21	DKJ –sd– AR/HK –sd– AM –sd–	03	20.09.12	RPS KP KP	02	03.01.12	RPS KP KP	01	03.09.11	APPD.
ZONE	ITEM NO–11 MODIFIED BASED ON STM FEEDBACK.		ZONE	DRAWING REVISED AS PER FGM EMAIL DATED 23.01.2021. ITEM–03, 08 & 09 UPDATED. WELDING BETWEEN ITEM–03 & 04 AND ITEM–01,02 & 03 UPDATING IN VIEW FROM U/S SIDE AND SECTION–BB.	ZONE	C:7 C:2	2 HOLES (3/8"BSP) ADDED ON U/S FLANGE 2 HOLES (3/8"BSP) ADDED ON D/S FLANGE	ZONE	IT.11 ADDED DIM. 4460 WAS 4440		ZONE	B:8	DIM 1730 +5 0 WAS 1720 +5 0 IN IT.3 CYL. ID 1790 +5 0 WAS 1780 IN DIM 455 WAS 465 IN IT.2 DIM. 1981 WAS 1971 IN IT. 6&7 DETAIL A MODIFIED

INVENTORY NO.

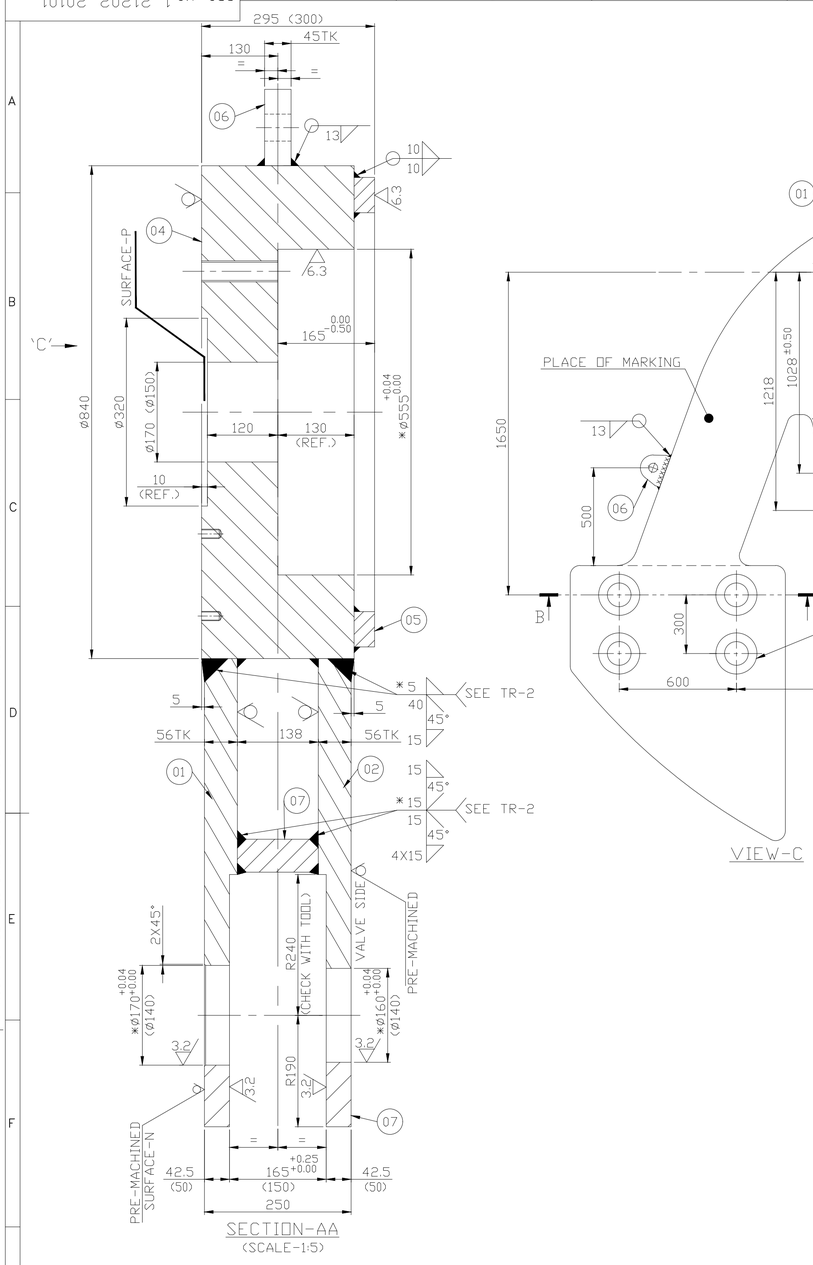
A0 SIZE

FIRST ANGLE PROJECTION

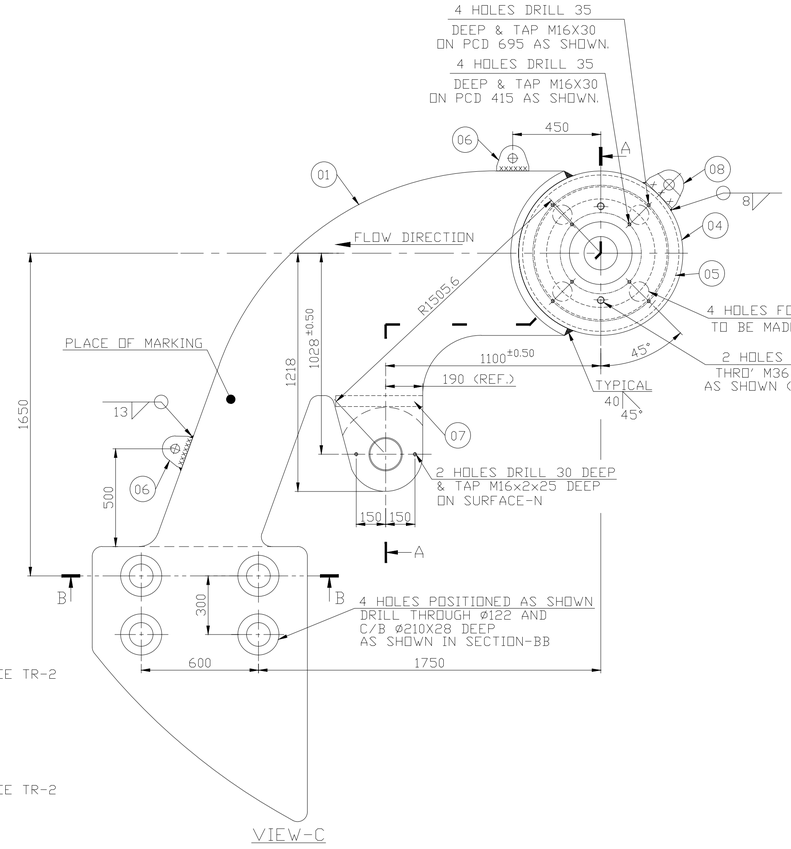
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 1 21202 20101

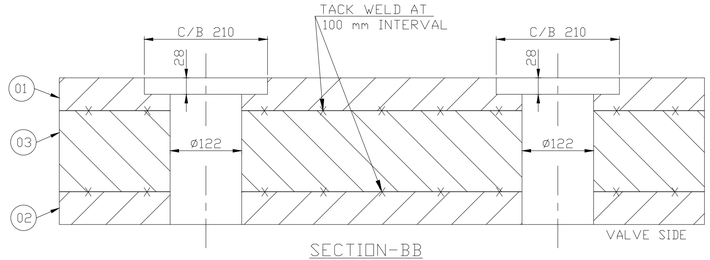
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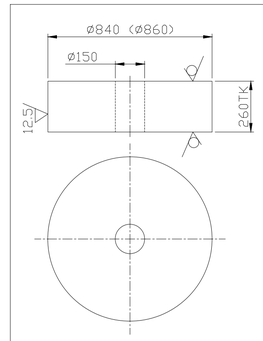
SECTION-AA
(SCALE-1:5)



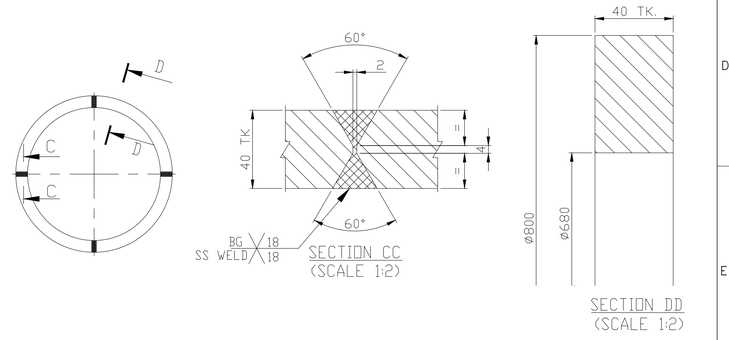
VIEW-C



SECTION-BB
(WELDING DETAIL)
(SCALE-1:5)



FAB. DETAIL OF IT.04



SECTION CC
(SCALE 1:2)

SECTION DD
(SCALE 1:2)

FAB. DETAIL OF IT.05

	–		08	LIFTING LUG 2.0T	32302949140	02	AA1011808153		1.60		
							AA10108		01		
	–		07	RIB 56TK X 138 X 445	–		AA1011808226		27.00		
							AA10108		01		
	–		06	LIFTING LUG 5.5T	32302949140	04	AA1011808200		5.35		
							AA10108		04		
	40TK		05	RING	SEE DETAIL		FGM TO BE ARRANGE		42.00		
							SS		01		
	260TK PLATE		04	BOSS	SEE DETAIL		HU4362019014		1100.00		
							INDENT		01		
	–		03	CLOSING WEIGHT	42120220101		–		1201.35		
							–		01		
	56TK		02	LEVER ARM-2	32120220104		–		1337.00		
							–		01		
	56TK		01	LEVER ARM-1	32120220102		–		1337.00		
							–		01		

59–64 VAR.OO | 65–75 REMARKS | 78 79 VAR NO. | 25–27 ITEM NO. | 29–58 DESCRIPTION | 59 STD. | 60–77 DRAWING NO. | 29 31 IT.NO. | 34–45 MATL. CODE | 32 VAR. | 33 46–54 MATL. SPCN. | 55 A/C | 56–57 UNIT | 58–65 UNIT WT. | 68–71 QTY. | 72 GS | ZONE

28 → CARD TYPE-3 | 28 → CARD TYPE-1 | 28 → CARD TYPE-2

TECHNICAL REQUIREMENTS:-

1. FLAME CUTTING TO BE AS PER BHEL STD. AA0621101.
2. WELDING TO BE AS PER CORP. STD. AA0622101 (GRADES AS SPECIFIED).
   a) * MARK WELD TO GR-II WITH 100% UT AND 100% MCD/DP.
      DEPTH OF INSPECTION OF PARTIAL PENETRATION BUTT JOINTS BY U.T= WELD SIZE-5mm.
   b) FILLET WELDS GR-III WITH 100% DP EXCEPT FILLET WELD OF LIFTING LUG.
   c) FILLET WELD OF LIFTING LUG GR-III WITH 100% DP & MCD.
3. STRESS RELIEVING TO BE CARRIED OUT AS PER BHEL STD. BP0640299.
   AND SUBSEQUENT SHOT BLASTING TO BE CARRIED OUT.
4. MACHINING OF DIAMETERS MARKED THUS * TO BE DONE AFTER WELDING AND STRESS RELIEVING.
5. NON-COAXIALITY OF AXIS OF SERVO PIN HOLES ø170(NOM) AND ø160(NOM) SHOULD NOT BE MORE THAN 0.03mm.
6. REMOVE ALL BURRS AND SHARPE EDGES.
7. PAINT & PROTECT TO HT 00005 AS FOLLOWS :-
   a) ALL MACHINED SURFACE CAT-G.
   b) ALL EXTERNAL SURFACES CAT-F.

DRAWING REVIEW			
DEPT.	NAME	SIGN.	DATE

ADDITIONAL INFORMATION –

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE-2, WTM (P)-1, WTM(ST)-4
THX-1, FGM-7

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PALAMURU RANGAREDDY-2 LIS (9X145 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	DKJ	-sd-	09.11.20	
CKD	AR/HK	-sd-	09.11.20	
APPD	AM	-sd-	09.11.20	

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE
03	22.04.21	DKJ -sd- / AR -sd- / HK -sd-	DIMENSION ø122 ADDED IN SECTION-BB AND VIEW-C.
02	09.02.21	DKJ -sd- / AR/HK-sd- / AM -sd-	DIMENSION 28 WAS 25 IN SECTION-BB.
01	09.01.21	DKJ -sd- / AR/HK-sd- / AM -sd-	DRAWING REVISED BASED ON FGM FEEDBACK.

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO	NO.OF ITEM
H.T.E. CODE 402	AS PER DRG. 32000049014	1:15	4854.0	0 21202 20101	13	08

TITLE: LEVER ASSEMBLY (L.H.S) (LOOKING FROM UPSTEAM SIDE) (i.e FROM PUMP SIDE)

DRAWING NO. 1 21202 20101 REV. 03

SHT. NO. 01 NO. OF SHT. 01

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

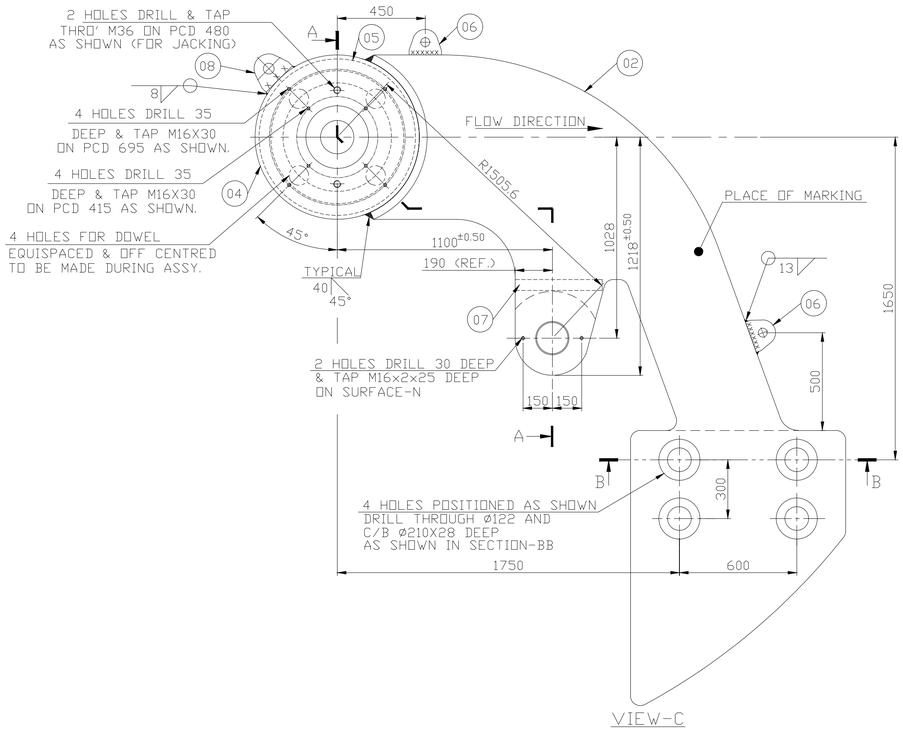
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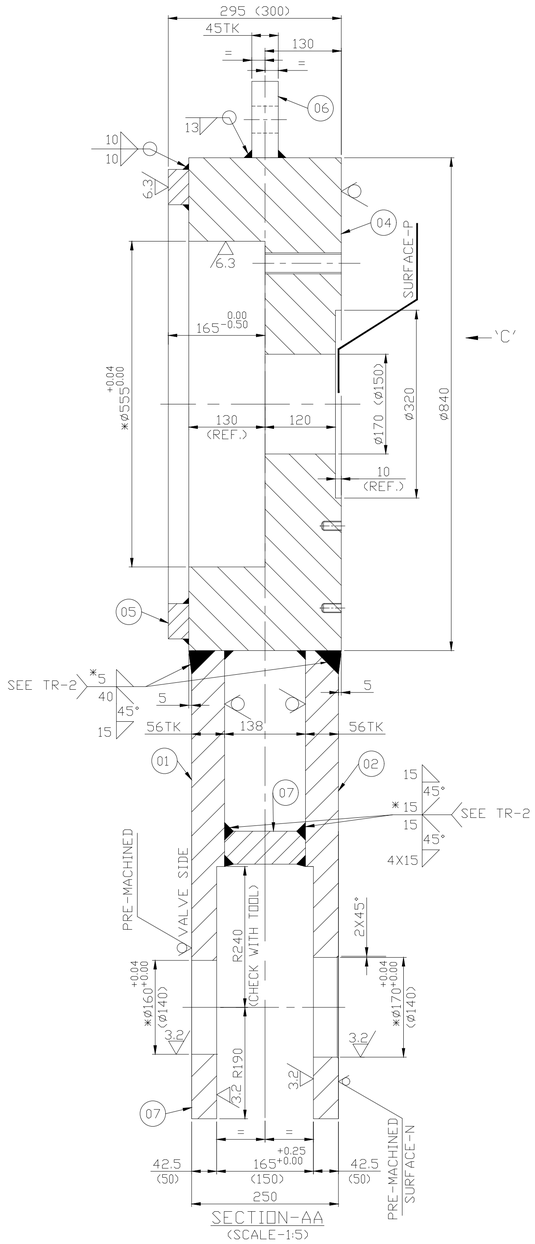
FIRST ANGLE PROJECTION

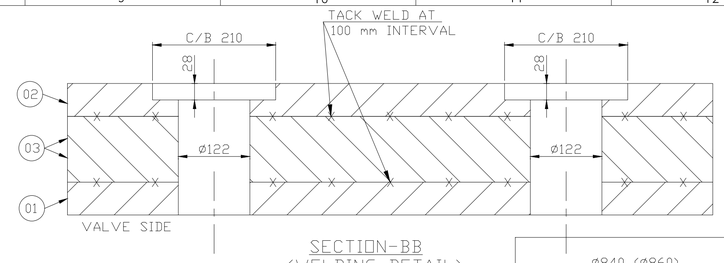
(ALL DIMENSIONS ARE IN mm)

DRG. NO.1 21202 20102

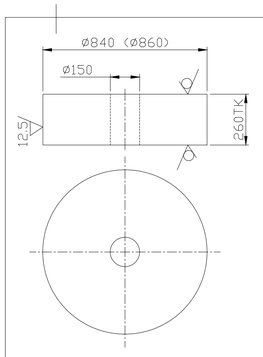
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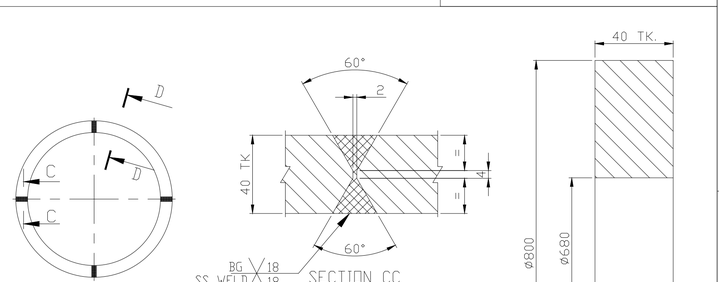




SECTION-BB
(WELDING DETAIL)
(SCALE-1:5)



FAB. DETAIL OF IT.04



FAB. DETAIL OF IT.05

TECHNICAL REQUIREMENTS:-

1. FLAME CUTTING TO BE AS PER BHEL STD. AA0621101.
2. WELDING TO BE AS PER CORP. STD. AA0622101 (GRADES AS SPECIFIED).
   a) * MARK WELD TO GR-II WITH 100% UT AND 100% MCD/DP.
      DEPTH OF INSPECTION OF PARTIAL PENETRATION BUTT JOINTS BY U.T= WELD SIZE-5mm.
   b) FILLET WELDS GR-III WITH 100% DP EXCEPT FILLET WELD OF LIFTING LUG.
   c) FILLET WELD OF LIFTING LUG GR-III WITH 100% DP & MCD.
3. STRESS RELIEVING TO BE CARRIED OUT AS PER BHEL STD. BP0640299.
   AND SUBSEQUENT SHOT BLASTING TO BE CARRIED OUT.
4. MACHINING OF DIAMETERS MARKED THUS * TO BE DONE AFTER WELDING AND STRESS RELIEVING.
5. NON-COAXIALITY OF AXIS OF SERVO PIN HOLES ø170(NOM) AND ø160(NOM) SHOULD NOT BE MORE THAN 0.03mm.
6. REMOVE ALL BURRS AND SHARPE EDGES.
7. PAINT & PROTECT TO HT 00005 AS FOLLOWS :-
   a) ALL MACHINED SURFACE CAT-G.
   b) ALL EXTERNAL SURFACES CAT-F.

	–			08	LIFTING LUG 2.0T	32302949140		02	AA1011808153			1.60											
									AA10108			01											
	–			07	RIB 56TK X 138 X 445				AA1011808226			27.00											
									AA10108			01											
	–			06	LIFTING LUG 5.5T	32302949140		04	AA1011808200			5.35											
									AA10108			04											
	40TK			05	RING	SEE DETAIL			FGM TO BE ARRANGE			42.00											
									SS			01											
	260TK PLATE			04	BOSS	SEE DETAIL			HU4362019014			1100.00											
									INDENT			01											
	–			03	CLOSING WEIGHT	42120220101			–			1201.35											
									–			01											
	56TK			02	LEVER ARM-2	32120220104			–			1337.00											
									–			01											
	56TK			01	LEVER ARM-1	32120220102			–			1337.00											
									–			01											

59–64 VAR.OO | 65–75 REMARKS | 78 VAR NO. | 79–25–27 ITEM NO. | 29–58 DESCRIPTION | 59 STD. | 60–77 DRAWING NO. | 29 31 IT.NO. | 32 33 VAR. | 34–45 MATL. CODE | 46–54 MATL. SPCN. | 55 CA | 56–57 UNIT | 58–65 UNIT WT. | 68–71 QTY. | 72 GS | ZONE

28 → CARD TYPE-3 | 28 → CARD TYPE-1 | 28 → CARD TYPE-2

DRAWING REVIEW

DEPT.	NAME	SIGN.	DATE

ADDITIONAL INFORMATION –

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE-2, WTM (P)-1, WTM(ST)-4
THX-1, FGM-7

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PALAMURU RANGAREDDY-2 LIS (9X145 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	DKJ	-sd-	09.11.20
CKD	AR/HK	-sd-	09.11.20
APPD	AM	-sd-	09.11.20

NO. OF VAR.

REV.	DATE	ALTERED	CHECKED	APPD.	ZONE
03	22.04.21	DKJ -sd-	AR -sd-	HK -sd-	DIMENSION ø122 ADDED IN SECTION-BB AND VIEW-C.
02	09.02.21	DKJ -sd-	AR/HK-sd-	AM -sd-	DIMENSION 28 WAS 25 IN SECTION-BB.
01	09.01.21	DKJ -sd-	AR/HK-sd-	AM -sd-	DRAWING REVISED BASED ON FGM FEEDBACK.

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
H.T.E.	AS PER DRG.	1:15	4854.0	0 21202 20101	14	08
CODE 402	32000049014					

TITLE LEVER ASSEMBLY (R.H.S) (LOOKING FROM DOWN STEAM SIDE) (i.e FROM PUMP SIDE)

DRAWING NO. 1 21202 20102 REV. 03

SHT. NO. 01 NO. OF SHT. 01

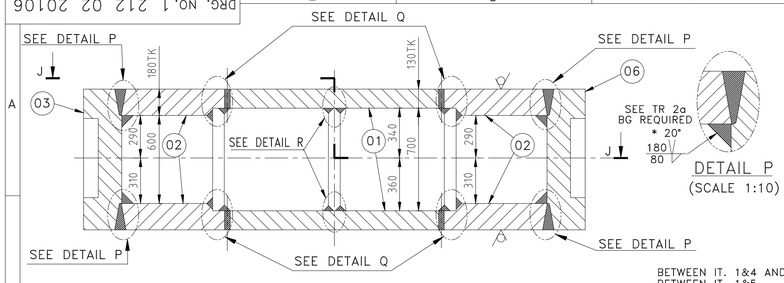
A1 SIZE

FIRST ANGLE PROJECTION

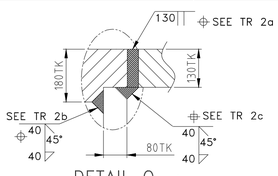
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 1 212 02 20106

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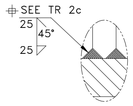


SECTION AA

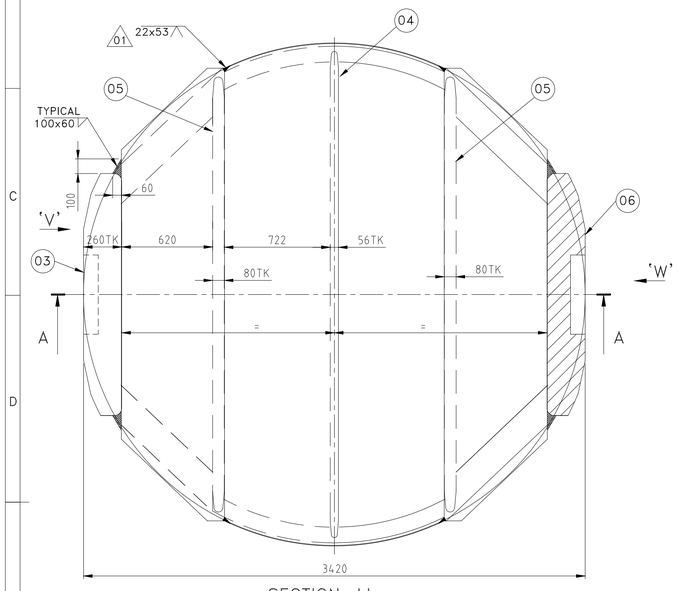


DETAIL P
(SCALE 1:10)

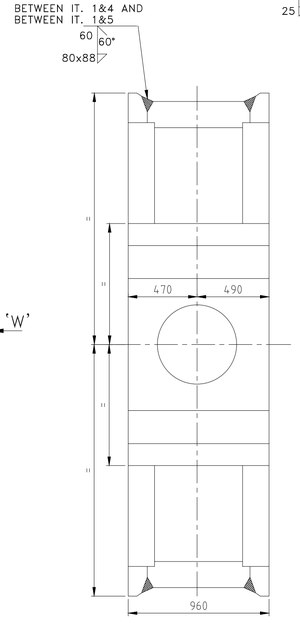
DETAIL Q
(SCALE 1:10) 01

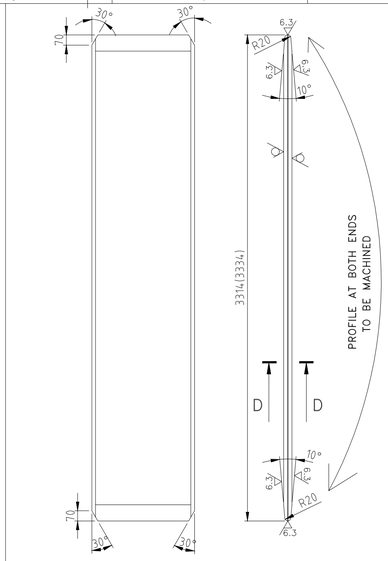


DETAIL R
(SCALE 1:10)



SECTION JJ

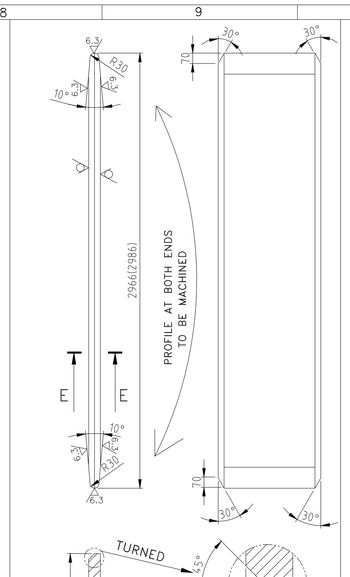




(SCALE 1:5)

SECTION DD

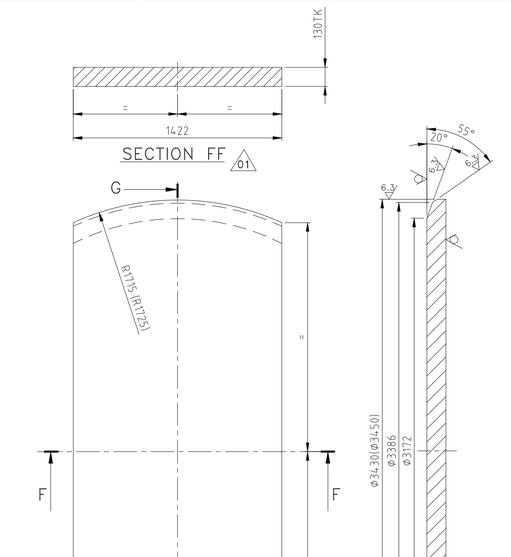
DETAIL OF ITEM 04



SECTION EE

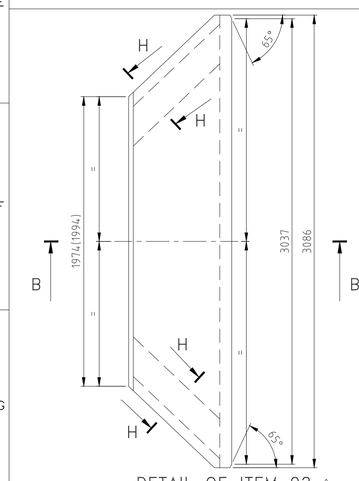
(SCALE 1:5)

DETAIL OF ITEM 05

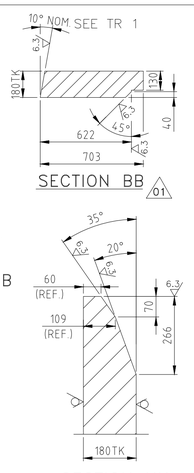


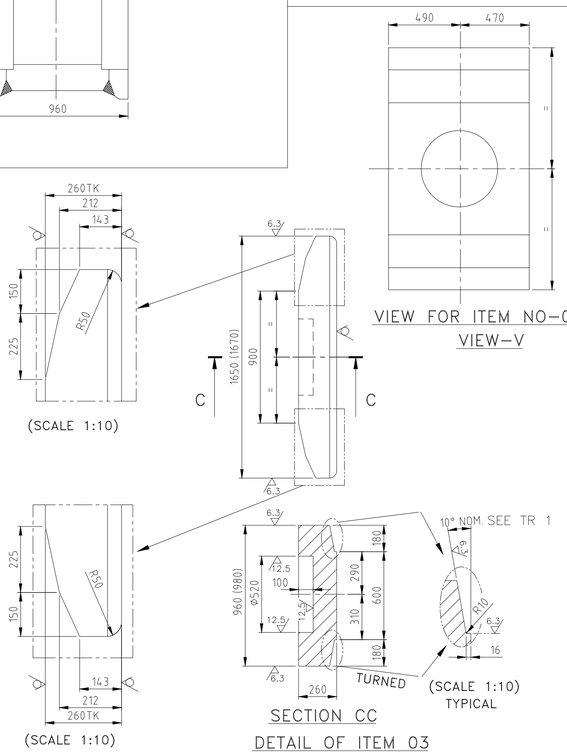
DETAIL OF ITEM 01 01

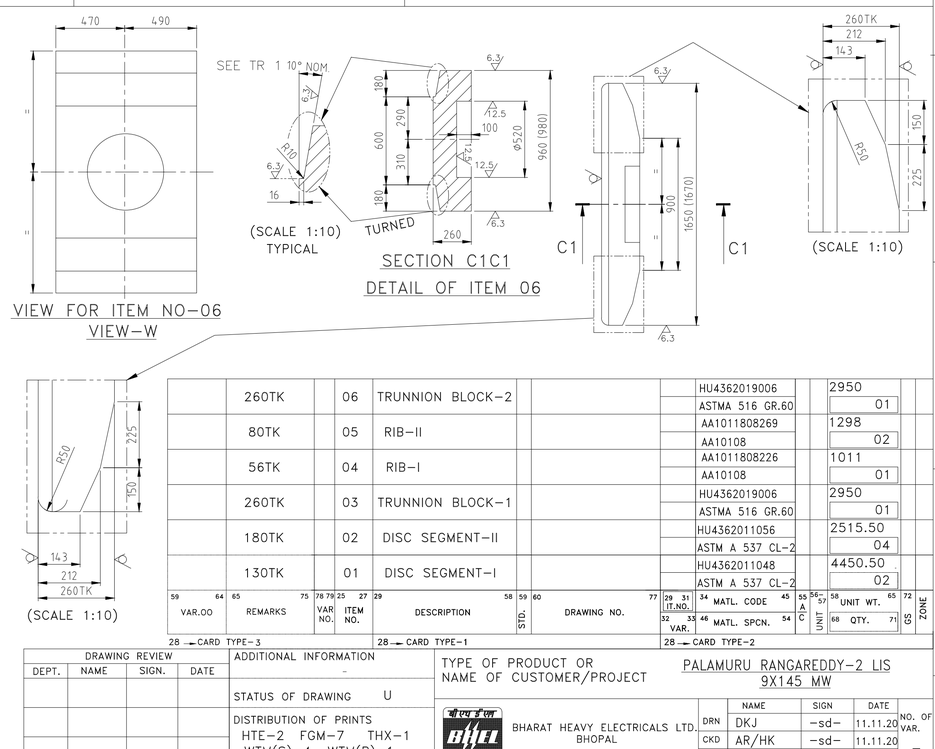
SECTION GG



DETAIL OF ITEM 02 01







| | | |

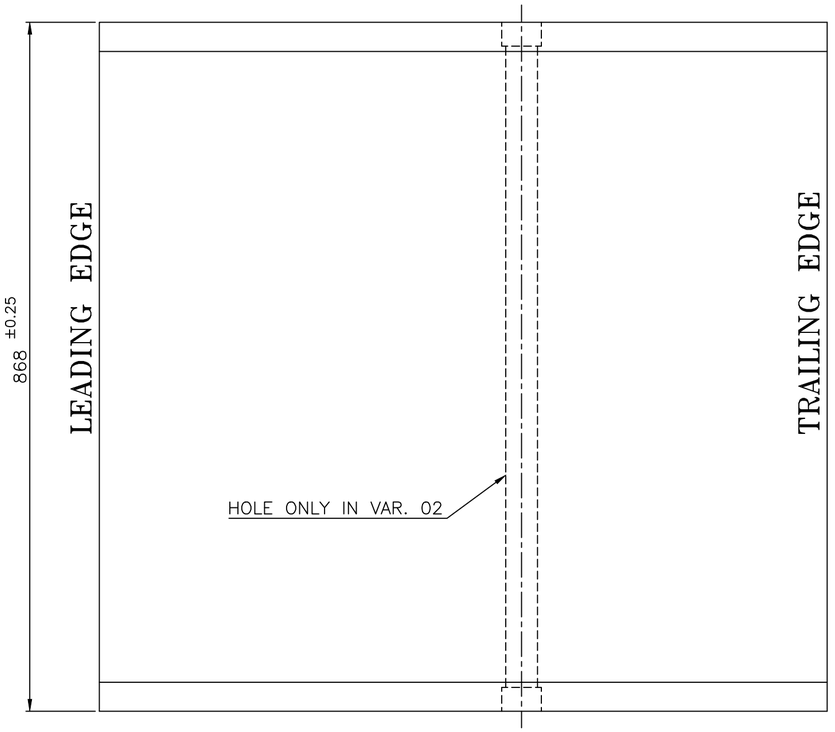
FIRST ANGLE PROJECTION

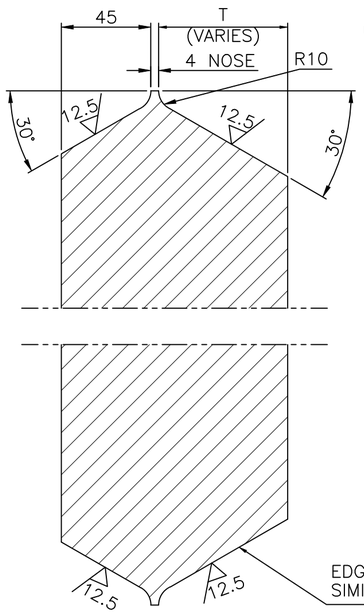
(ALL DIMENSIONS ARE IN mm)

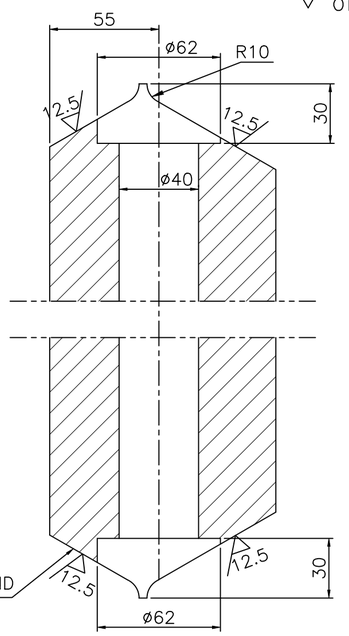
DRG. NO. 2-202-01-215-01

6.3 ALL OVER UNLESS OTHERWISE STATED

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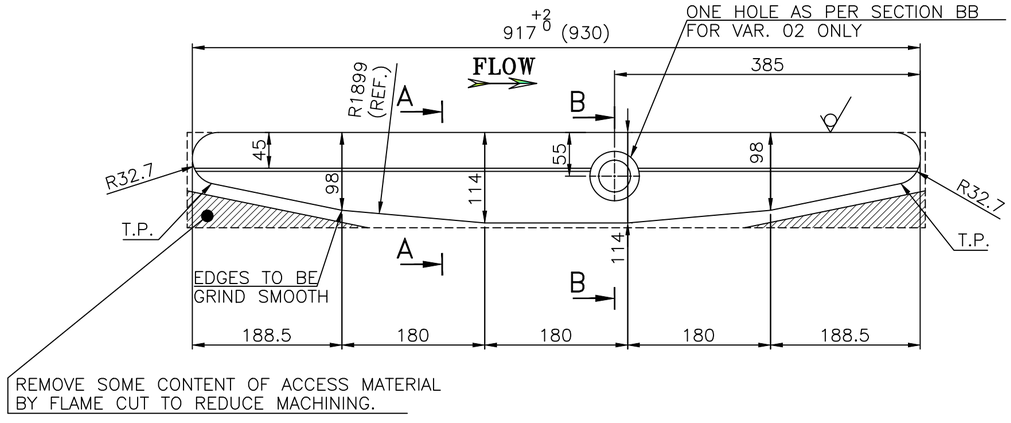




SECTION–AA (TYP.)
(SCALE 1:2)

SECTION–BB (FOR VAR. 02 ONLY)
(SCALE 1:2)

VAR.01	WITHOUT HOLE	ITEM 07 OF DRG. 02020121502	16 NOS./UNIT	Wt.–600Kg
VAR.02	WITH HOLE	ITEM 08 OF DRG. 02020121502	3 NOS./UNIT	Wt.–590Kg



TECHNICAL REQUIREMENTS:–

1. TOLERANCE ON MACHINE PORTION OF PROFILE IS +1/–0.
2. AFTER MACHINING OF PROFILE BLEND STEPS AND REMOVE SHARP EDGES BY GRINDING. THE SURFACE FINISH OBTAINED BY GRINDING SHALL BE 6.3 MICRONS.
3. WELD PREPARATIONS AT THE ENDS (SECTION–AA & SECTION–BB) TO BE MADE AFTER MACHINING OF PROFILE AND DRILLING OF HOLE (IN VAR. 02 ONLY).

VAR.OO	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	IT.NO. / VAR.	MATL. CODE / MATL. SPCN.	A/C	UNIT WT. / QTY.	GS	ZONE
	120 TK		001	STAY VANE				ASTM 516 Gr.70		KG / NO		
28 — CARD TYPE–3				28 — CARD TYPE–1			28 — CARD TYPE–2					

DRAWING REVIEW			
DEPT.	NAME	SIGN.	DATE

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK–II PS–2 (4x130 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	SKB		18.02.21
CKD	PM		18.02.21
APPD	AM		18.02.21

NO. OF VAR. –

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE

DEPT. H.T.E. CODE 402 | UNTOL. DIMS. GR. 32000049014 | SCALE 1:5 | WEIGHT(K.G.) SEE TABLE | REF.TO ASSY.DRG. 0 20201 21501 | ITEM NO. 07&08 | NO.OF ITEM 01

TITLE: STAY VANE

DRAWING NO. 2–202–01–215–01 | REV. 00

SHT. NO. 1 | NO. OF SHT. 1

REF. DRG. NO.	SIGN. & DATE	INVENTORY NO.
2 20201 18401		

A2 SIZE

FIRST ANGLE PROJECTION

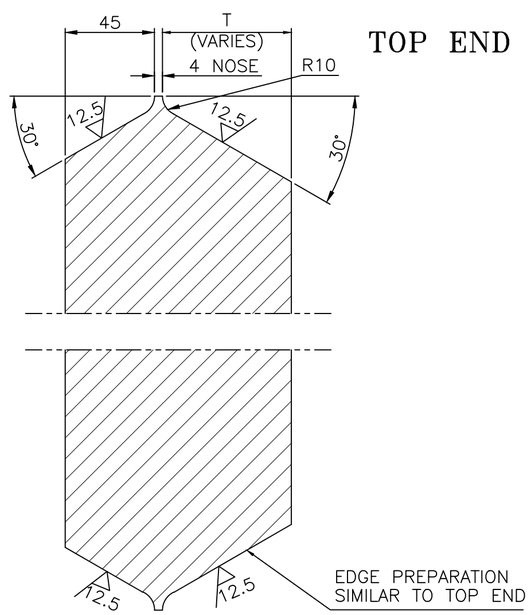
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 2-202-01-215-02

6.3 ALL OVER UNLESS OTHERWISE STATED

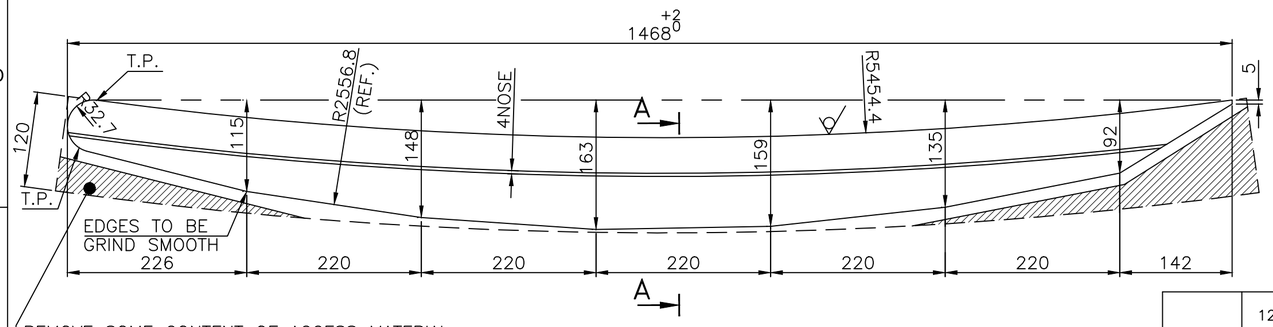
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TOP END

SECTION–AA
(SCALE 1:2)



REMOVE SOME CONTENT OF ACCESS MATERIAL BY FLAME CUT TO REDUCE MACHINING.

TECHNICAL REQUIREMENTS:–

1. TOLERANCE ON MACHINE PORTION OF PROFILE IS +1/–0.
2. AFTER MACHINING OF PROFILE BLEND STEPS AND REMOVE SHARP EDGES BY GRINDING. THE SURFACE FINISH OBTAINED BY GRINDING SHALL BE 6.3 MICRONS.
3. WELD PREPARATIONS AT THE ENDS (SECTION–AA) TO BE MADE AFTER MACHINING OF PROFILE.
4. DEVELOPED LENGTH =1492mm (INCLUDING 12mm MACHINING ALLOWANCE ON EACH SIDE).

	120TK		001	BAFFLE VANE					KG	930.000	
							ASTM A516 Gr.70		NO	001	
VAR.OO	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	IT.NO.	MATL. CODE	A/C	UNIT WT.	ZONE
							VAR.	MATL. SPCN.		QTY.	
28 — CARD TYPE–3				28 — CARD TYPE–1			28 — CARD TYPE–2				

DRAWING REVIEW			
DEPT.	NAME	SIGN.	DATE

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK–II PS–2 (4x130 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	SKB		18.02.21	–
CKD	PM		18.02.21	
APPD	AM		18.02.21	

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:5	930.00	0 20201 21502	009	01

TITLE: BAFFLE VANE

DRAWING NO. 2–202–01–215–02 REV. 00

SHT. NO. 1 NO. OF SHT. 1

REF. DRG. NO. 2 20201 18402

SIGN. & DATE

INVENTORY NO.

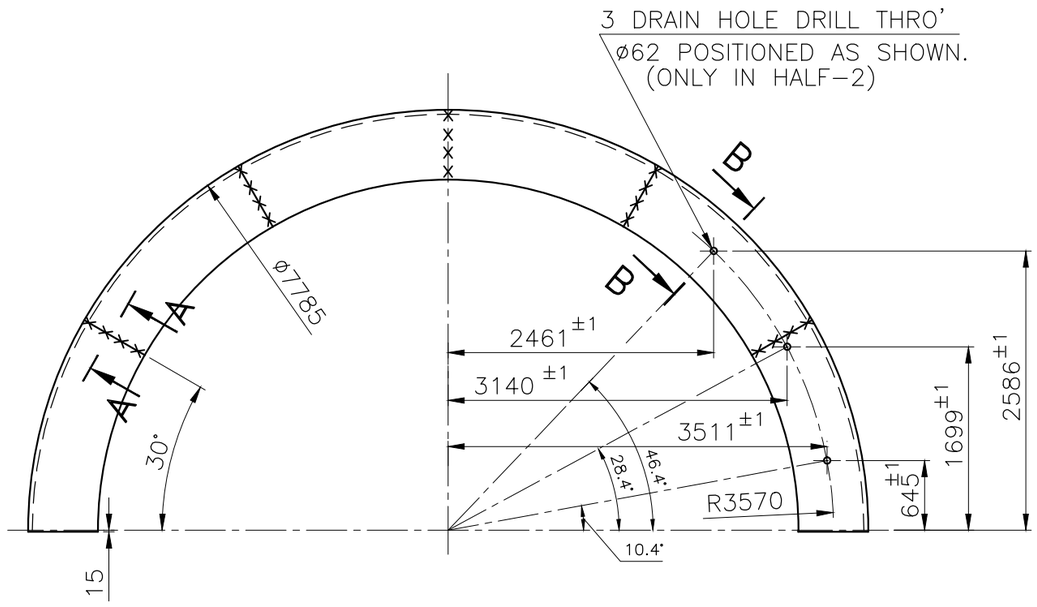
A2 SIZE

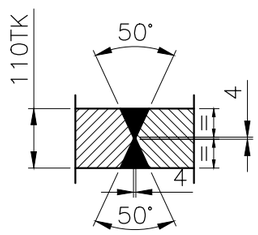
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

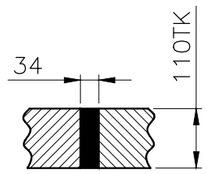
DRG. NO. 3 202 01 184 01

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ALTERNATIVE–I

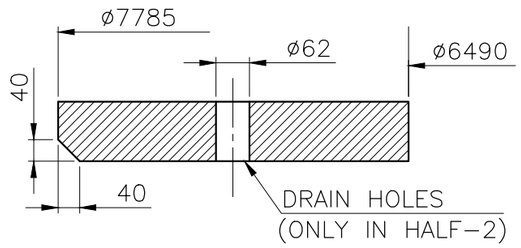


ALTERNATIVE–II
(ELECTRO SLAG WELDING)

SECTION–AA
(SCALE 1:10)

TECHNICAL REQUIREMENTS:–

1. FLAME CUT SURFACES TO BE NEAT IN APPERANCE.
2. REMOVE ALL BURRS AND SHARP EDGES.
3. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.



SECTION–BB
(SCALE 1:10)

110 TK		001	MAIN PLATE HALF (UPPER) (IN SIX SEGMENTS)						ASTM A516 Gr70				6280.000	
													001	
65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.	29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56–57 UNIT	58 UNIT WT. 65	72 GS
						32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
			28 → CARD TYPE–1			28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	
						01	22.10.16	ALTERED	NEERAJ
								CHECKED	ND
								APPD.	SK

ANGULAR LOCATION OF DRAIN HOLE ADDED

DEPT.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
H.T.E.							
CODE 402	32000049014		1 : 50	6280.0	0 202 01 18402	001	001

TITLE: MAIN PLATE HALF (UPPER) (IN SIX SEGMENTS)

DRAWING NO. 3 202 01 18401 REV. 01

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 202 01 18102

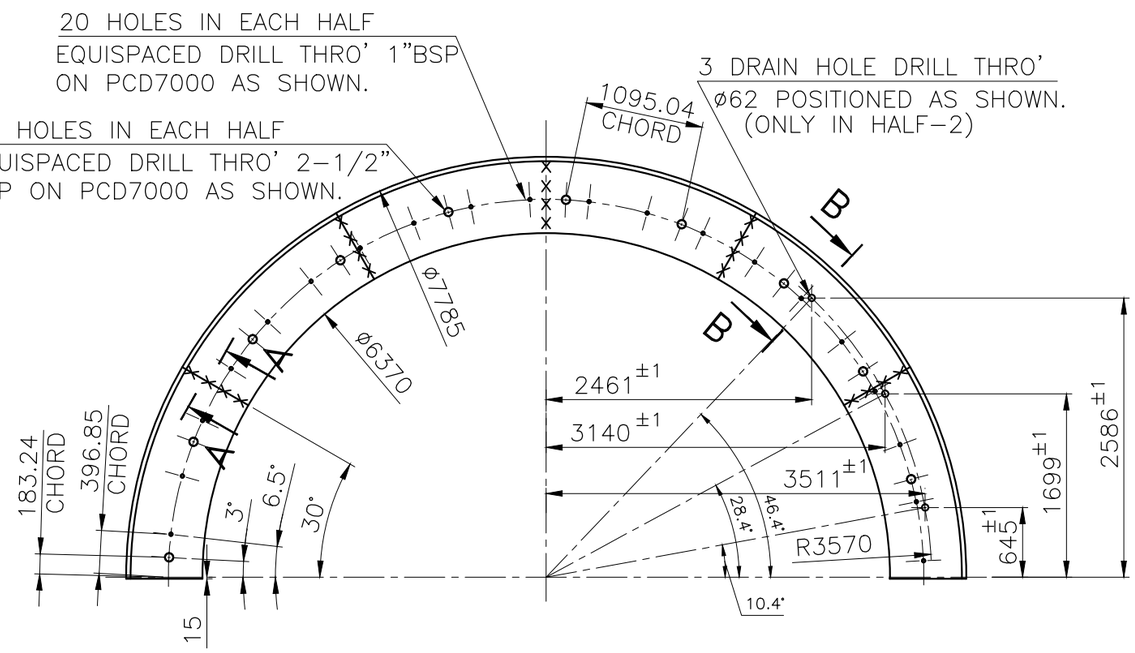
A3 SIZE

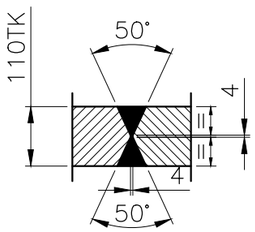
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

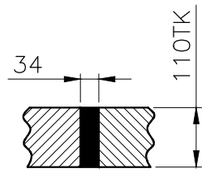
DRG. NO. 3 202 01 184 02

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ALTERNATIVE–I

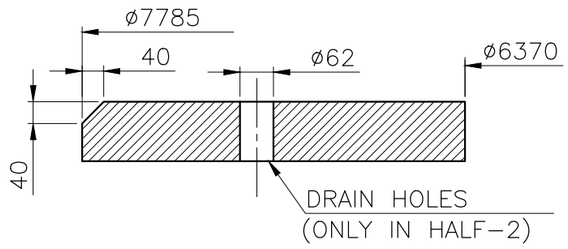


ALTERNATIVE–II
(ELECTRO SLAG WELDING)

SECTION–AA
(SCALE 1:10)

TECHNICAL REQUIREMENTS:–

1. FLAME CUT SURFACES TO BE NEAT IN APPERANCE.
2. REMOVE ALL BURRS AND SHARP EDGES.
3. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.



SECTION–BB
(SCALE 1:10)

110 TK		001	MAIN PLATE HALF (LOWER) (IN SIX SEGMENTS)				ASTM A516 Gr70			6800.000	
65 REMARKS 75	78 79 VAR NO.	25 27 ITEM NO.	29 DESCRIPTION 58	59 STD.	60 DRAWING NO. 77	29 31 IT.NO. / 32 33 VAR.	34 MATL. CODE 45 / 46 MATL. SPCN. 54	55 A C	56–57 UNIT	58 UNIT WT. 65 / 68 QTY. 71	72 GS
			28 → CARD TYPE–1			28 → CARD TYPE–2				001	

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REMARKS
03	22.10.16	NEERAJ / N.D. / S.K.	ANGULAR LOCATION OF DRAIN HOLE ADDED
02	15.04.16	NEERAJ / N.D. / S.K.	– ø7004 DELETED
01	10.10.15	NEERAJ / N.D. / S.K.	– ø7785 WAS ø7794

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 50	6800.0	0 202 01 18402	002	001

TITLE: MAIN PLATE HALF (LOWER) (IN SIX SEGMENTS)

DRAWING NO. 3 202 01 18402 REV. 03

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 202 01 18102

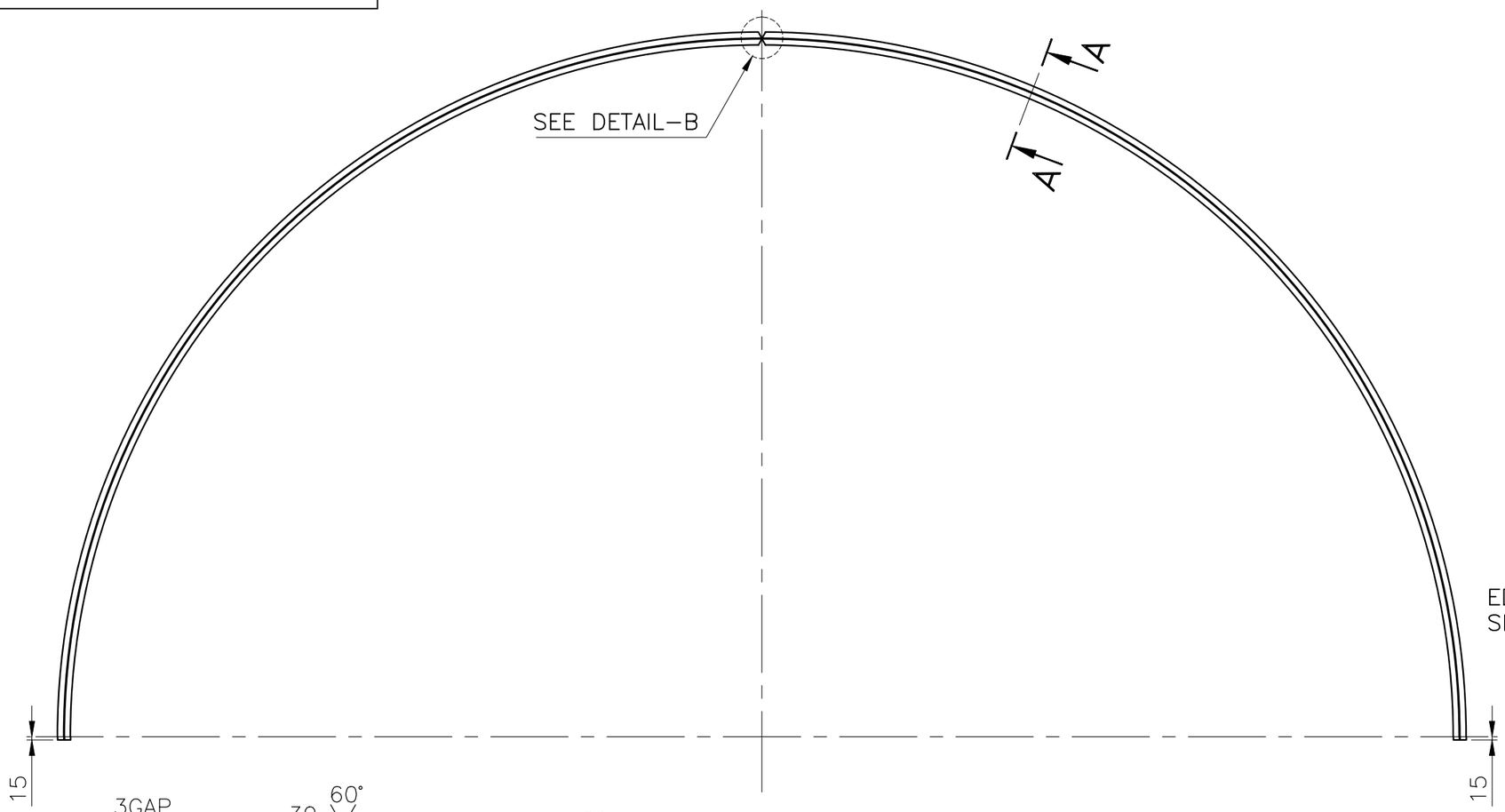
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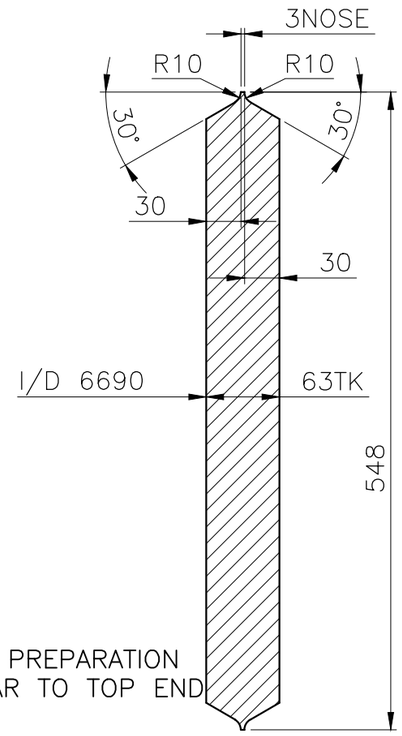
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

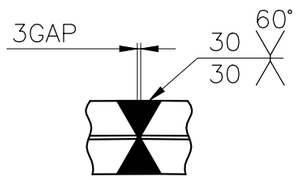
DRG. NO. 3 202 01 184 03

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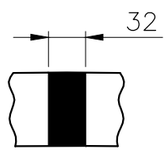




SECTION–AA
(SCALE 1:5)



ALTERNATIVE–I OR



ALTERNATIVE–II
(ELECTRO SLAG WELDING)

DETAIL–B
(SCALE 1:5)

TECHNICAL REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.

63 TK		001	CYLINDER HALF (UPPER)					AA1011819236			2880.000	
								AA10119			001	
65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A C	56–57 UNIT	58 UNIT WT. 65	72 GS
							32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
			28 → CARD TYPE–1				28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014		1 : 25	2880.0	0 202 01 18402	003	001

TITLE: CYLINDER HALF (UPPER)

DRAWING NO. 3 202 01 18403 REV. 00

SHT. NO. 01 NO. OF SHT. 01

0 202 01 18102 REF. DRG. NO.

SIGN. & DATE

INVENTORY NO.

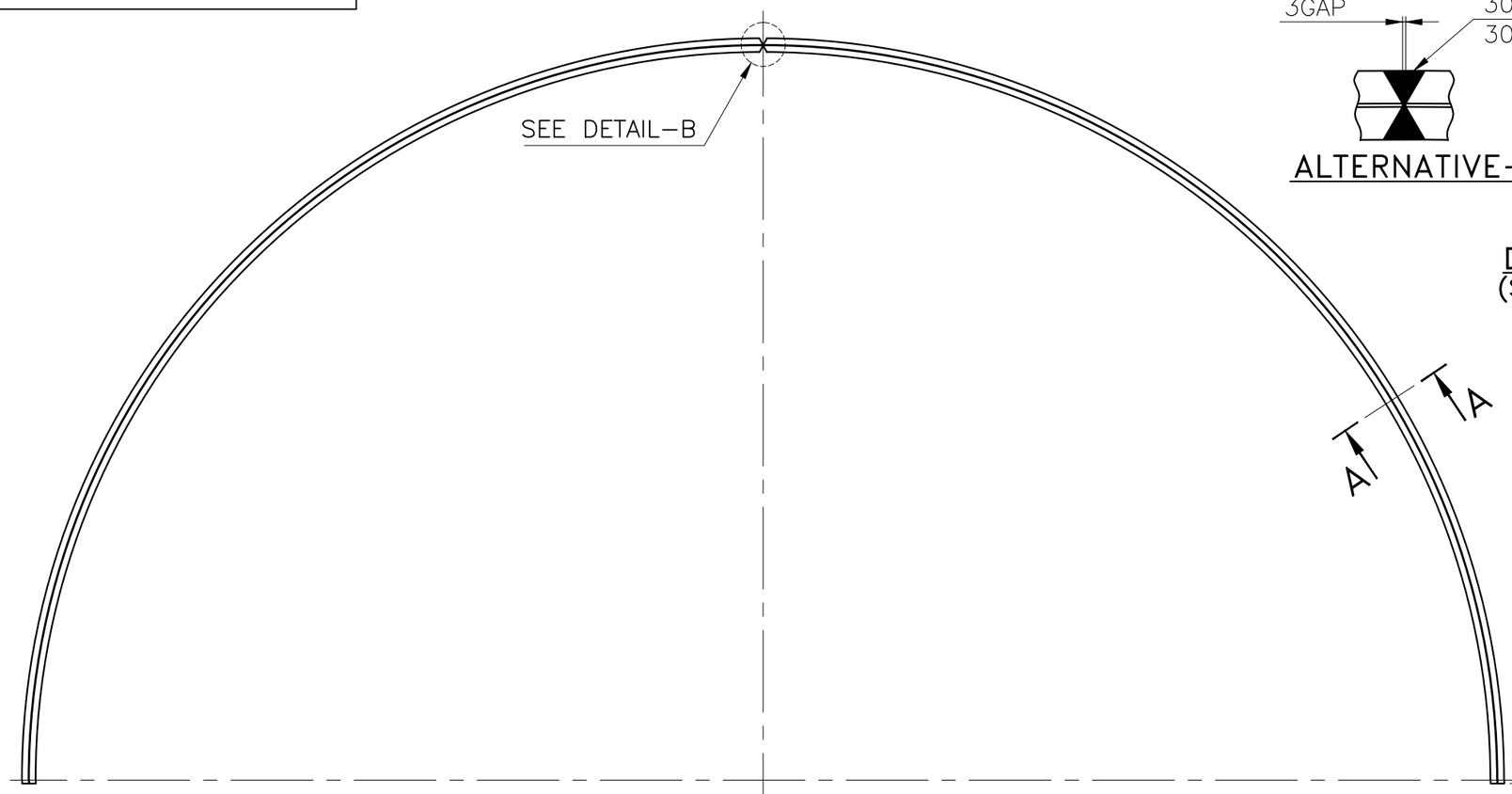
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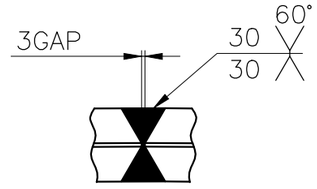
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

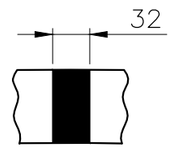
DRG. NO. 3 202 01 184 04

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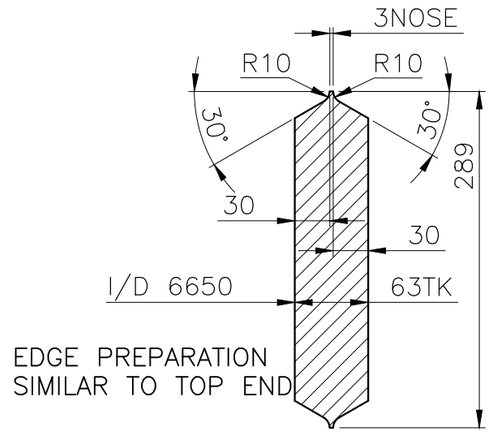




ALTERNATIVE–I OR ALTERNATIVE–II (ELECTRO SLAG WELDING)



DETAIL–B
(SCALE 1:5)



SECTION–AA
(SCALE 1:5)

TECHNICAL REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.

63 TK		001	CYLINDER HALF (LOWER)				AA1011819236			1510.000	
							AA10119			001	
65–75 REMARKS	78 79 VAR NO.	25–27 ITEM NO.	29–58 DESCRIPTION	59 STD.	60–77 DRAWING NO.	29 31 IT.NO. / 32 33 VAR.	34–45 MATL. CODE	55 A/C	56–57 UNIT	58–65 UNIT WT. / 68–71 QTY.	72 GS
			28 → CARD TYPE–1			28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E. / CODE 402	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
	32000049014	1 : 25	1510.0	0 202 01 18402	004	001

TITLE: CYLINDER HALF (LOWER)

DRAWING NO. 3 202 01 18404 REV. 00

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO.	SIGN. & DATE	REF. DRG. NO.
		0 202 01 18102

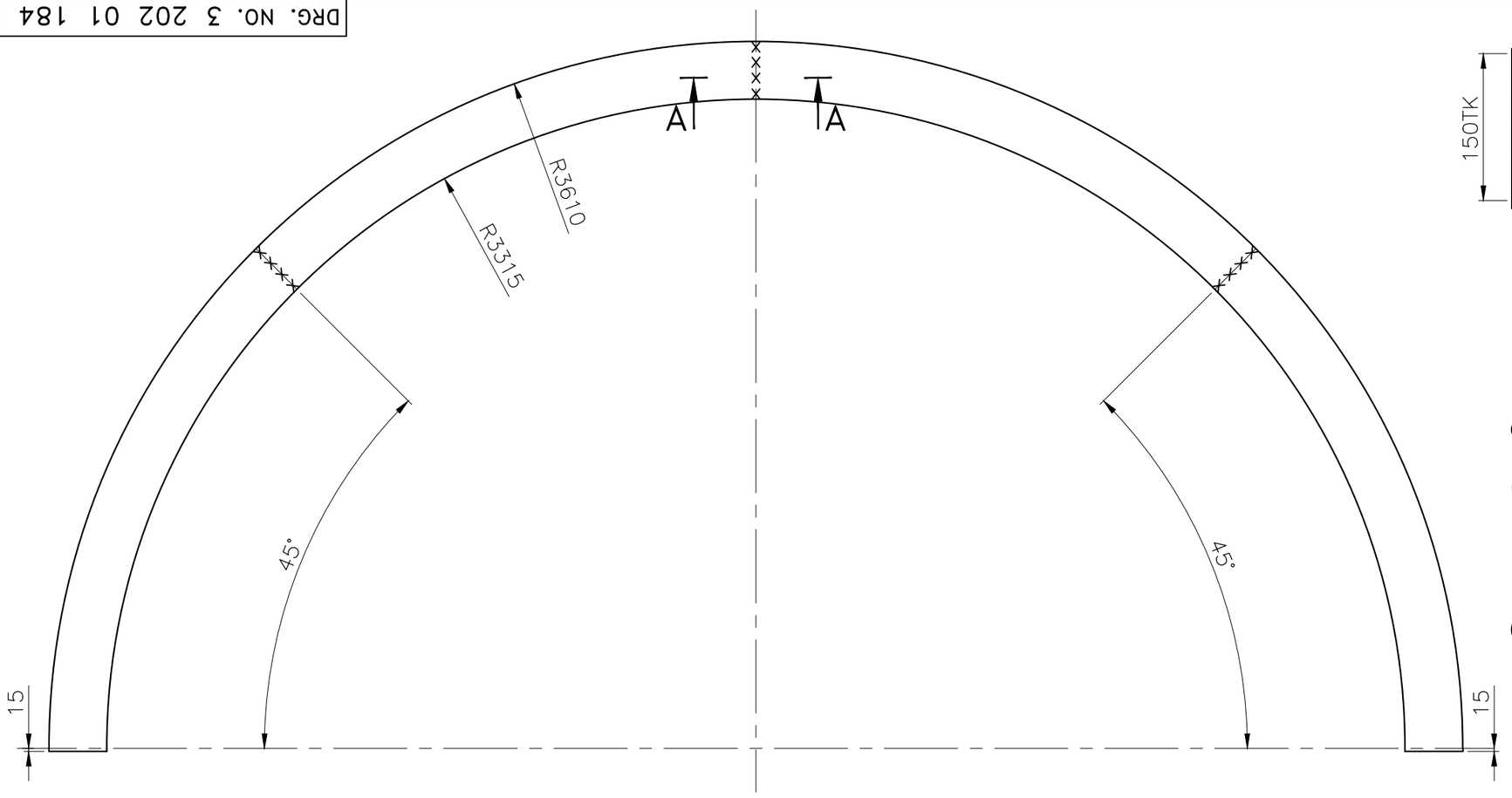
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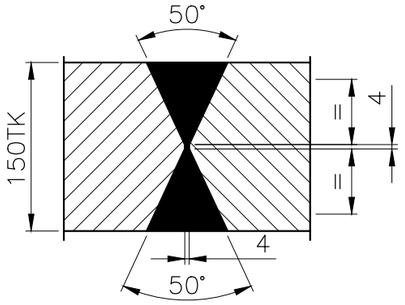
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

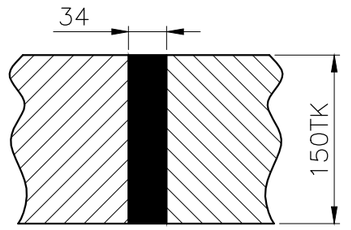
DRG. NO. 3 202 01 184 05

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ALTERNATIVE–I



ALTERNATIVE–II
(ELECTRO SLAG WELDING)

SECTION–AA
(SCALE 1:5)

TECHNICAL REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.
3. 150 TK PLATE HAVE BEEN BOOKED WITH FPM.

150 TK		001	TOP RING HALF (IN FOUR SEGMENTS)				SEE T.R.–3			3790.000	
							AA 10119			001	
65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.	29 31 IT.NO. / 32 33 VAR.	34 45 MATL. CODE / 46 54 MATL. SPCN.	55 A/C	56–57 UNIT	58 65 UNIT WT. / 68 71 QTY.	72 GS
			28 → CARD TYPE–1			28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		10.02.15	—
CKD	N.D.		10.02.15	
APPD	S.K.		10.02.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 25	3790.0	0 202 01 18402	005	001

TITLE: TOP RING HALF (IN FOUR SEGMENTS)

DRAWING NO. 3 202 01 18405 REV. 00

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 202 01 18102

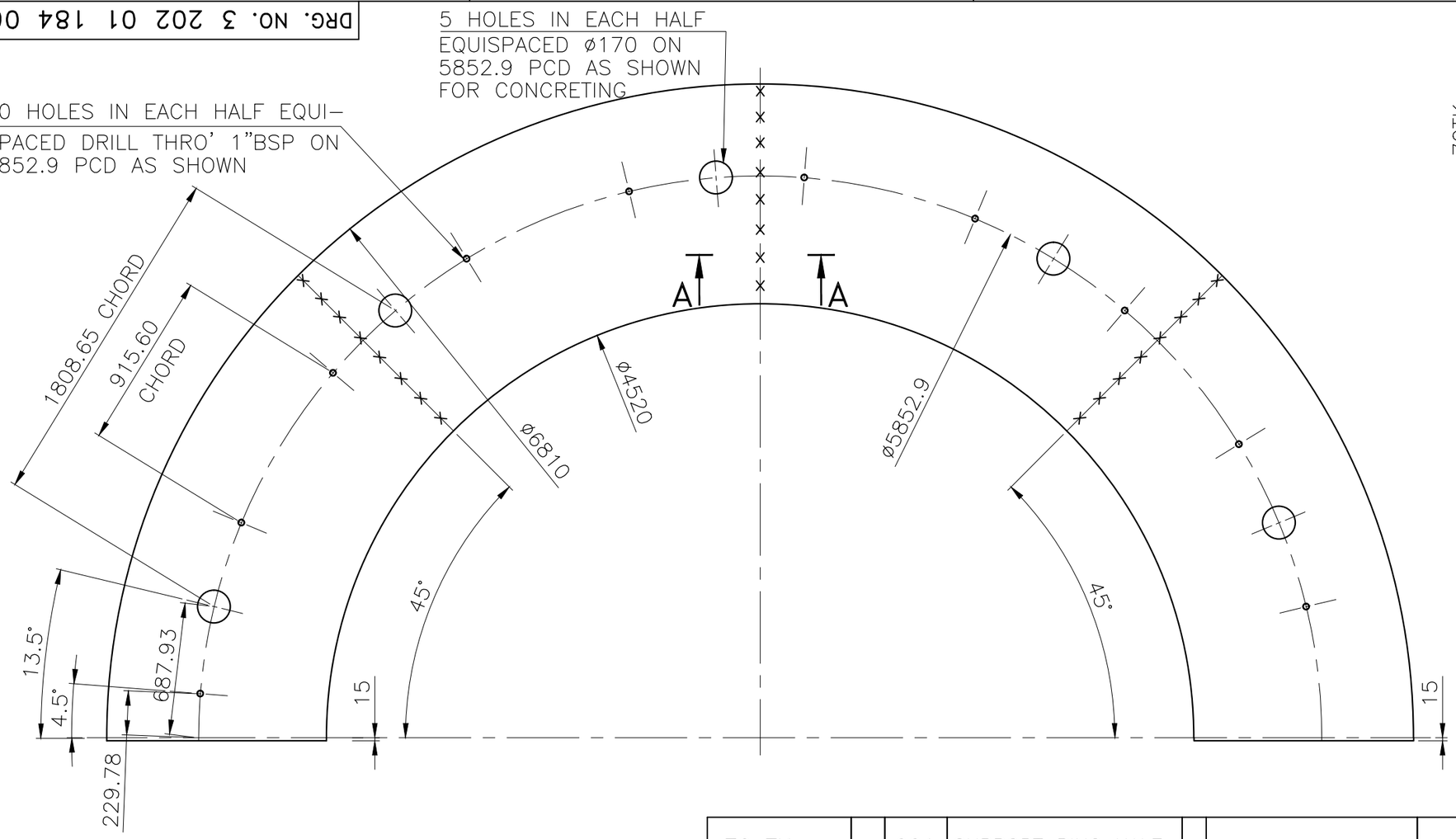
A3 SIZE

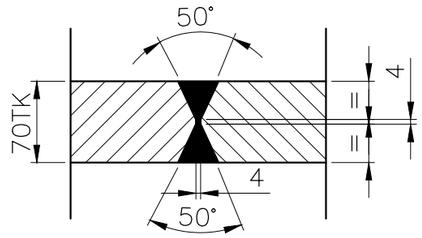
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

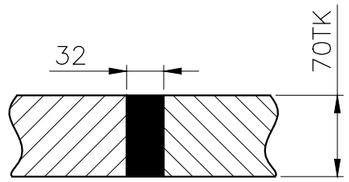
DRG. NO. 3 202 01 184 06

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ALTERNATIVE–I



ALTERNATIVE–II
(ELECTRO SLAG WELDING)

SECTION–AA
(SCALE 1:5)

TECHNICAL REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.

70 TK		001	SUPPORT RING HALF					AA1011819244			5660.000	
								AA10119			001	
65 REMARKS 75	78 79 VAR NO.	25 27 ITEM NO.	29 DESCRIPTION 58	59 STD.	60 DRAWING NO. 77		29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56–57 UNIT	58 UNIT WT. 65	72 CS
							32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
			28 → CARD TYPE–1				28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
						01	29.09.15	ALTERED NEERAJ CHECKED N.D. APPD. S.K.

– ø4520 WAS ø4400

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 25	5660.0	0 202 01 18402	006	001

TITLE: SUPPORT RING HALF (IN FOUR SEGMENTS)

DRAWING NO. 3 202 01 18406 REV. 01

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO. | SIGN. & DATE | REF. DRG. NO. 0 202 01 18102

A3 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

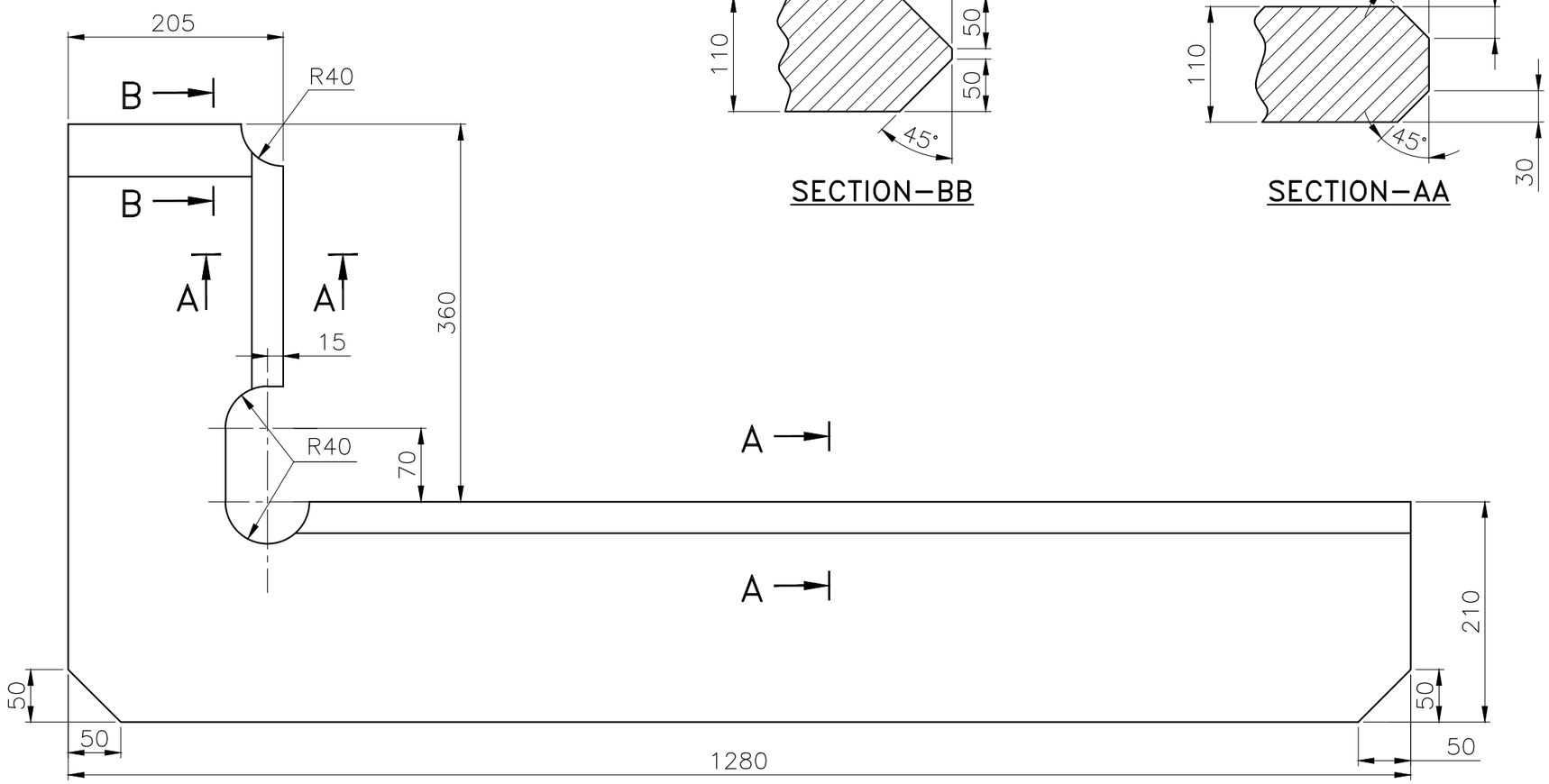
DRG. NO. 3 202 01 184 07

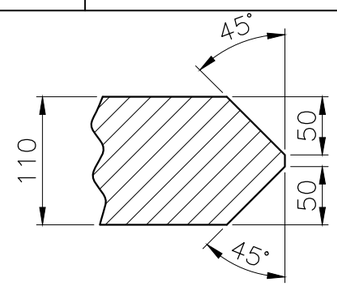
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REF. DRG. NO. 0 202 01 18102

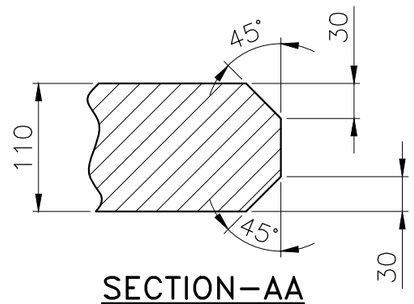
SIGN. & DATE

INVENTORY NO.





SECTION–BB



SECTION–AA

TECHNICAL REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING BETWEEN SEGMENTS TO BE AS PER CORP. STD. AA 0622101 OF Gr.II WITH 100% ULTRASONIC TESTING.
3. 110 TK PLATE HAVE BEEN BOOKED WITH FPM.

110 TK		001	JOINT FLANGE (BOTTOM)				SEE T.R.–3			293.000
							AA 10119			001
65 REMARKS 75	78 79 VAR NO.	25 27 ITEM NO.	29 DESCRIPTION 58	59 STD.	60 DRAWING NO. 77	29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56–57 UNIT	58 UNIT WT. 65	72 GS
						32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
			28 → CARD TYPE–1				28 → CARD TYPE–2				

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2 FGM–7 THX–1
WTM(PLANNING)–1 WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.	REMARKS
01	28.1.16	ALTERED NEERAJ / CHECKED N.D. / APPD. S.K.	–DIM. 70 ADDED.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 5	293.00	0 202 01 18402	011	001

TITLE: JOINT FLANGE (BOTTOM)

DRAWING NO. 3 202 01 18407 REV. 01

SHT. NO. 01 NO. OF SHT. 01

A3 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3 202 01 184 08



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REF. DRG. NO. 0 202 01 18102

SIGN. & DATE

INVENTORY NO.

TECHNICAL REQUIREMENTS:-

1. REMOVE ALL BURRS AND SHARP EDGES.

32 TK		001	BOTTOM RIB-1				AA1011819171			8.100	
							AA 10119			001	
REMARKS 65–75	VAR NO. 78 79	ITEM NO. 25 27	DESCRIPTION 29 58	STD. 59	DRAWING NO. 60 77	IT.NO. 29 31	MATL. CODE 34 45	A/C 55	UNIT 56–57	UNIT WT. 58 65	GS 72
			28 → CARD TYPE-1			VAR. 32 33	MATL. SPCN. 46 54			QTY. 68 71	
						28 → CARD TYPE-2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE-2 FGM-7 THX-1
WTM(PLANNING)-1 WTM(STORE)-4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA-VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 2	8.100	0 202 01 18402	016	001

TITLE: BOTTOM RIB-1

DRAWING NO. 3 202 01 18408 REV. 00

SHT. NO. 01 NO. OF SHT. 01

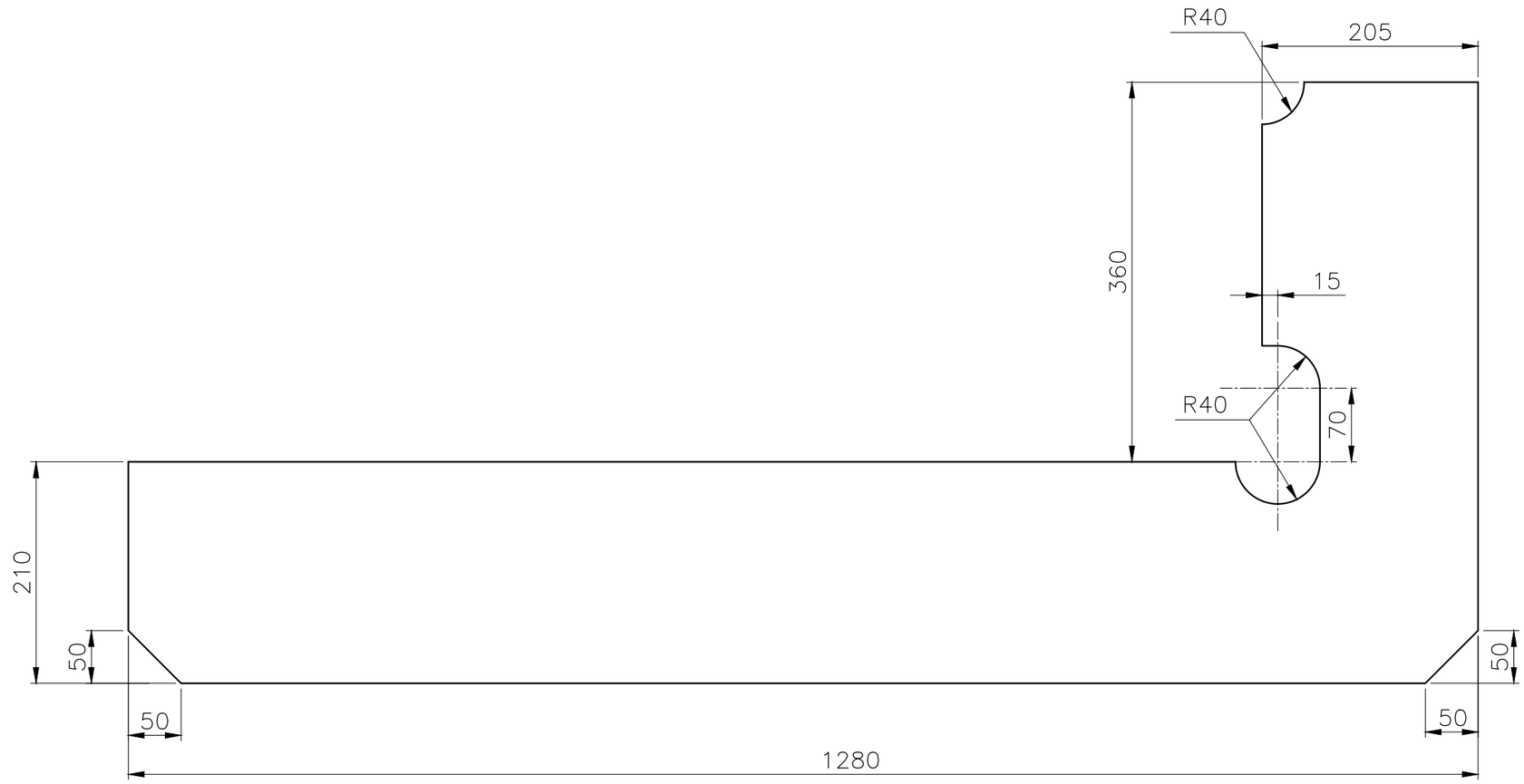
A3 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3 202 01 184 09

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



TECHNICAL REQUIREMENTS:-

1. REMOVE ALL BURRS AND SHARP EDGES.

32 TK		001	BOTTOM RIB-2					AA1011819171			83.000	
								AA 10119			001	
65 REMARKS 75	78 79 VAR NO.	25 27 ITEM NO.	29 DESCRIPTION 58	59 STD.	60 DRAWING NO. 77	29 31 IT.NO.	34 MATL. CODE 45	55 A C	56-57 UNIT	58 UNIT WT. 65	72 GS
						32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
			28 → CARD TYPE-1			28 → CARD TYPE-2					

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE-2 FGM-7 THX-1
WTM(PLANNING)-1 WTM(STORE)-4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA-VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		15.04.15	—
CKD	N.D.		15.04.15	
APPD	S.K.		15.04.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 5	83.00	0 202 01 18402	017	001

TITLE: BOTTOM RIB-2

DRAWING NO. 3 202 01 18409 REV. 00

SHT. NO. 01 NO. OF SHT. 01

SIGN. & DATE

REF. DRG. NO. 0 202 01 18102

INVENTORY NO.

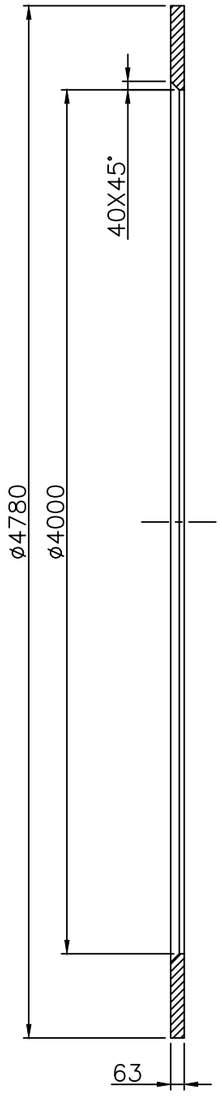
A3 SIZE

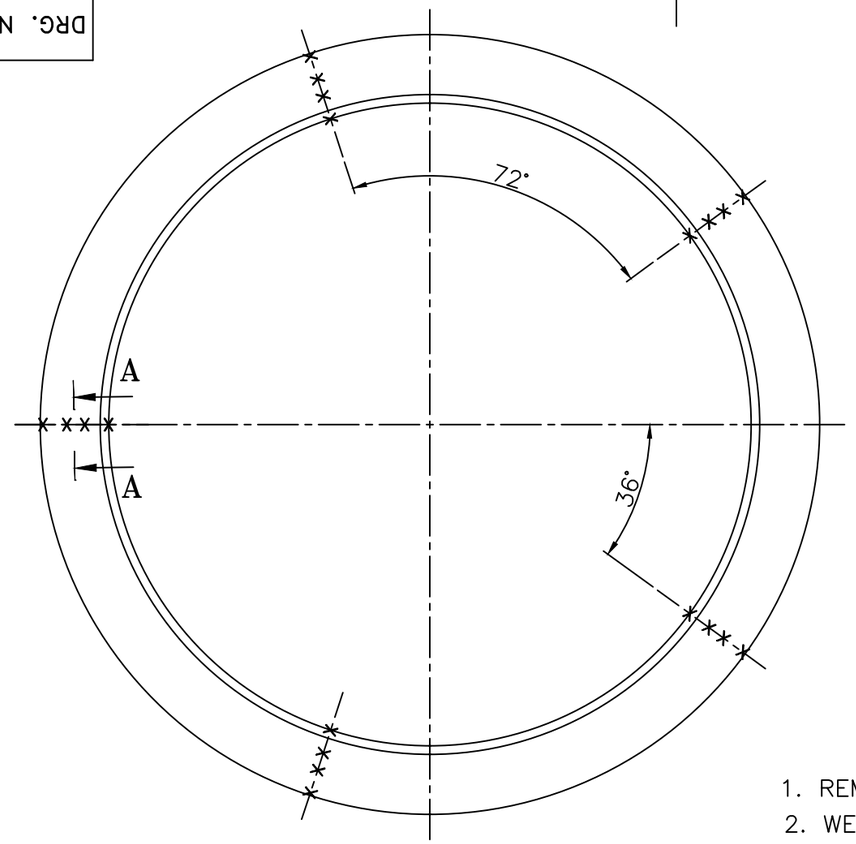
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

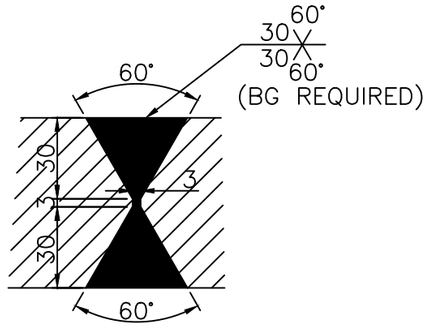
DRG. NO. 3 202 05 18404

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SCALE–NTS



SECTION–AA

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING TO BE GRADE–II OF CORP. STD. AA 0622101 WITH 100% U.T.

	63 TK		001	TOP RING (IN FIVE SEGMENTS)				AA1011819236			2580	
								AA10119			001	
59 64 VAR.OO	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56–57 UNIT	58 65 UNIT WT.
								32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2				72 GS

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 WTM(P)–1 WTM(S)–4
FGM–7 THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT PRANAHITA–VI (6X124.4 MW)

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	RAMESH		31.10.15	–
CKD	OND		31.10.15	
APPD	SK		31.10.15	

REV.	DATE	ALTERED / CHECKED / APPD.

REV.	DATE	ALTERED / CHECKED / APPD.

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:25	2580	0 202 05 18402	001	001

TITLE

TOP RING

DRAWING NO. 3 202 05 18404 REV. 00

SHT. NO. 01 NO. OF SHT. 01

A3 SIZE

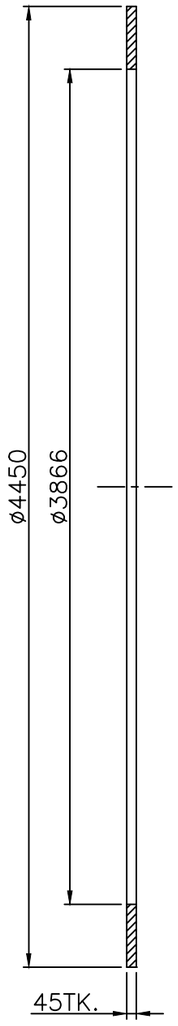
REF. DRG. NO. | SIGN. & DATE | INVENTORY NO.

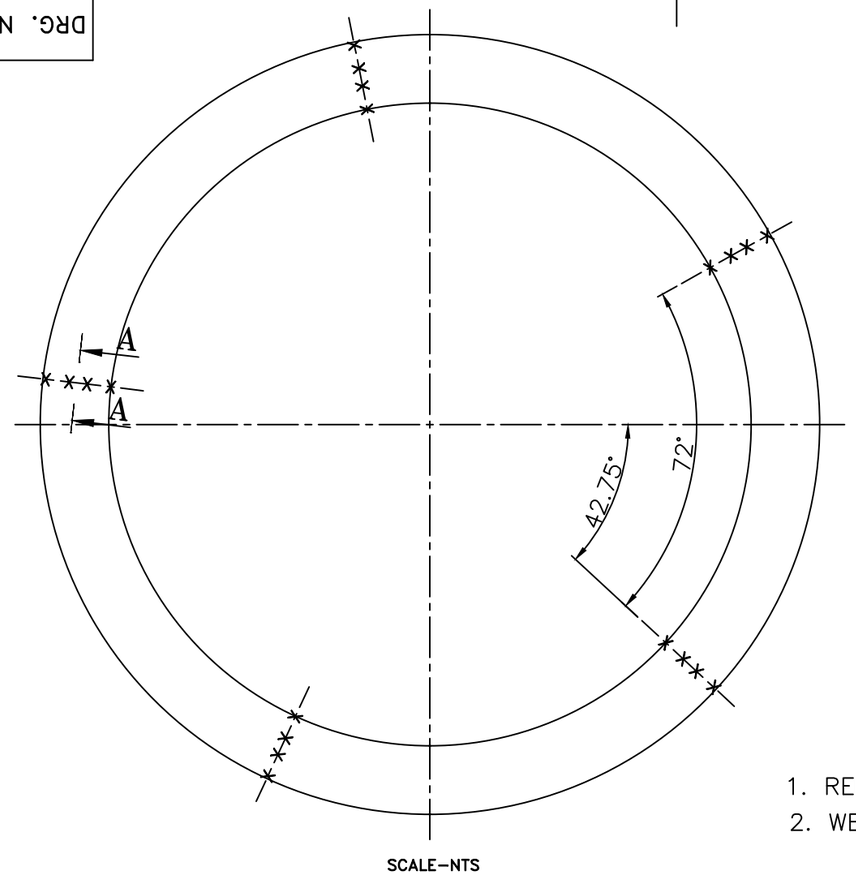
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

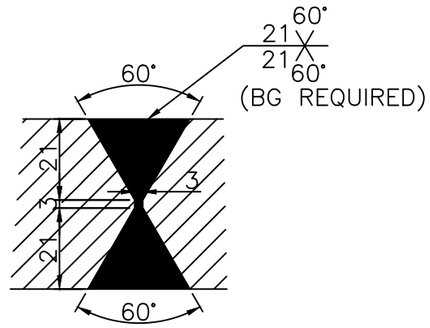
DRG. NO. 3 202 05 18405

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SCALE–NTS



SECTION–AA

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING TO BE GRADE–II OF CORP. STD. AA 0622101 WITH 100% U.T.

	45 TK		001	MIDDLE RING (IN FIVE SEGMENTS)				AA1011819201				1347	
								AA10119				001	
59 64 VAR.OO	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A C	56–57 UNIT	58 UNIT WT. 65	72 GS
								32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 WTM(P)–1 WTM(S)–4
FGM–7 THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT PRANAHITA–VI (6X124.4 MW)

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	RAMESH		31.10.15	–
CKD	OND		31.10.15	
APPD	SK		31.10.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:25	1347	0 202 05 18402	002	001

TITLE
MIDDLE RING

DRAWING NO. 3 202 05 18405 REV. 00

SHT. NO. 01 NO. OF SHT. 01

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

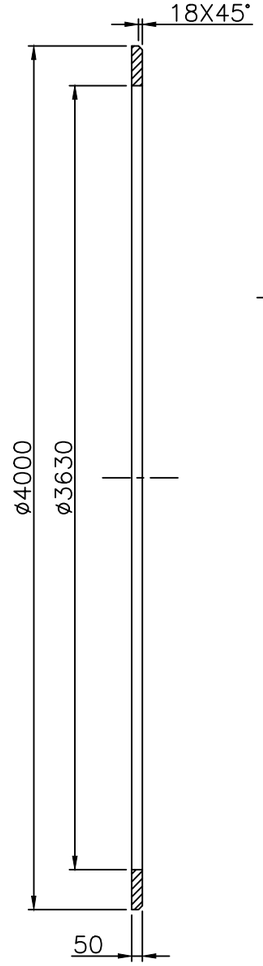
A3 SIZE

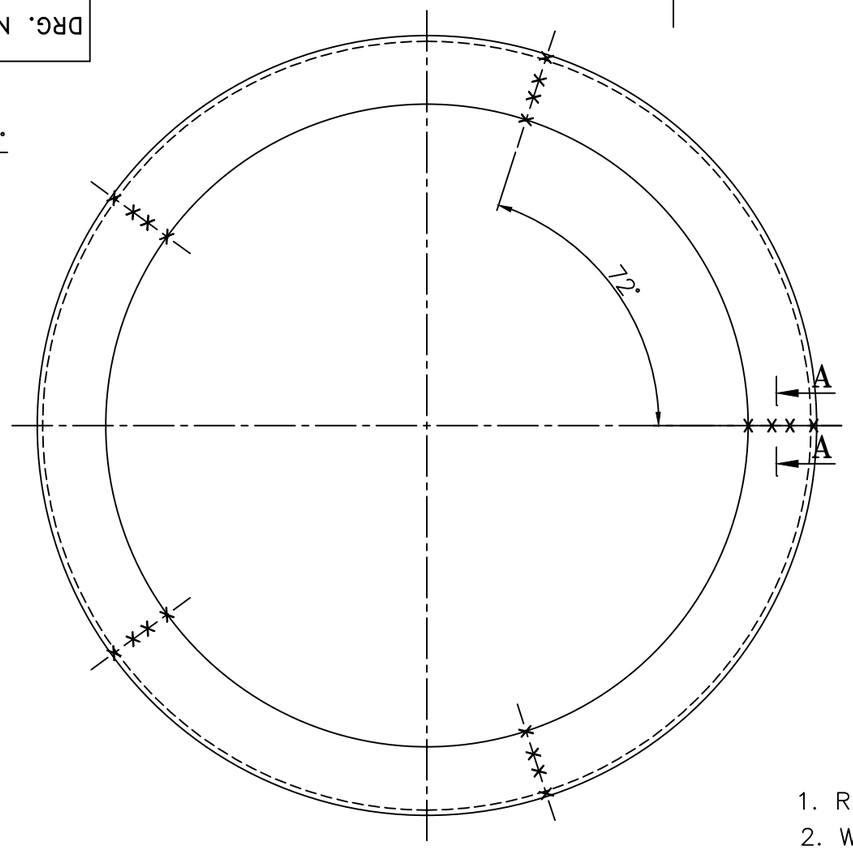
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

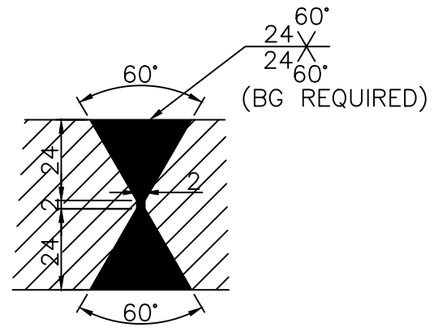
DRG. NO. 3 202 05 18406

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SCALE–NTS



SECTION–AA

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING TO BE GRADE–II OF CORP. STD. AA 0622101 WITH 100% U.T.

	50 TK		001	LOWER RING (IN FIVE SEGMENTS)				AA1011819210				860.0	
								AA10119				001	
59 64 VAR.00	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A C	56–57 UNIT	58 65 UNIT WT.		72 GS
								32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71		
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2						

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 WTM(P)–1 WTM(S)–4
FGM–7 THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT PRANAHITA–VI (6X124.4 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	RAMESH		31.10.15	
CKD	OND		31.10.15	–
APPD	SK		31.10.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:25	860.0	0 202 05 18402	003	001

TITLE
LOWER RING

DRAWING NO. 3 202 05 18406 REV. 00

SHT. NO. 01 NO. OF SHT. 01

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

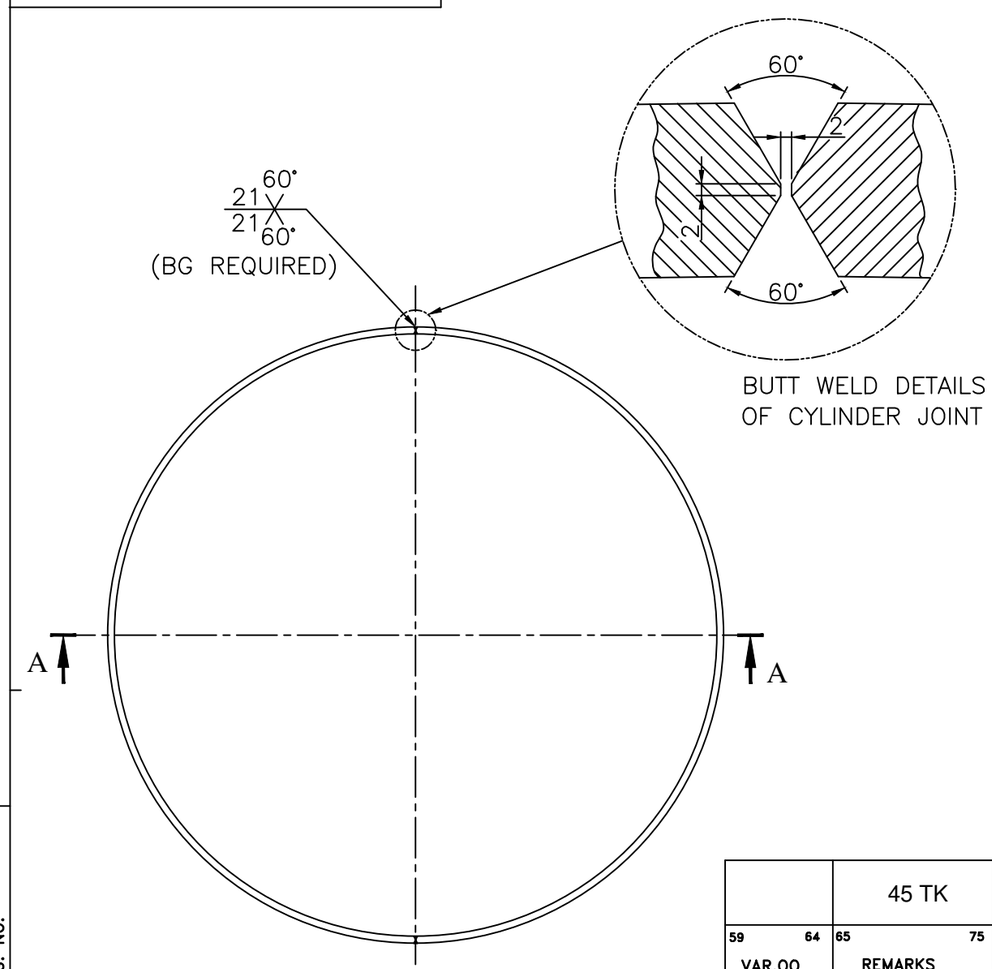
A3 SIZE

FIRST ANGLE PROJECTION

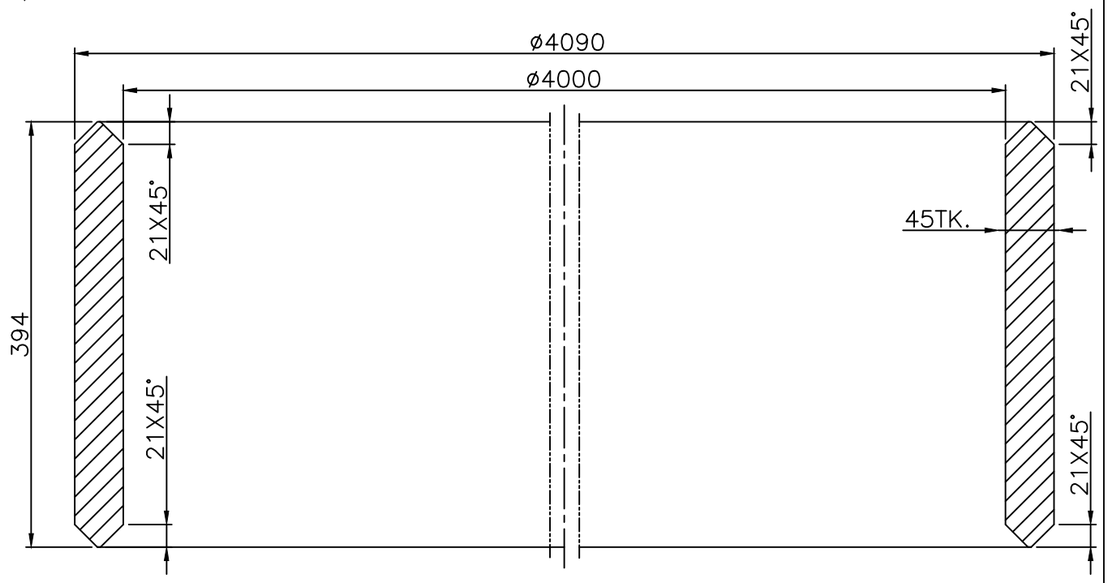
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3 202 05 18407

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BUTT WELD DETAILS
OF CYLINDER JOINT



SECTION–AA
SCALE 1:5

TECH. REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING TO BE GRADE–II OF CORP. STD.
   AA 0622101 WITH 100% U.T.
3. DEVELOPED LENGTH OF HALF CYLENDER = 6354 mm

	45 TK		001	CYLINDER				AA1011819201				1681.0	
								AA10119				001	
59 64 VAR.00	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A C	56–57 UNIT	58 65 UNIT WT.	72 GS
								32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 WTM(P)–1 WTM(S)–4
FGM–7 THX–1

TYPE OF PRODUCT OR
NAME OF CUSTOMER/PROJECT PRANAHITA–VI (6X124.4 MW)

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	रमेश सिंह		31.10.15	–
CKD	ओमेश्वर दहीकर		31.10.15	
APPD	शिवेन्द्र कुमार		31.10.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:25	1681.0	0 202 02 18402	004	001

TITLE
TOP CYLINDER

DRAWING NO. 3 202 05 18407 REV. 00

SHT. NO. 01 NO. OF SHT. 01

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

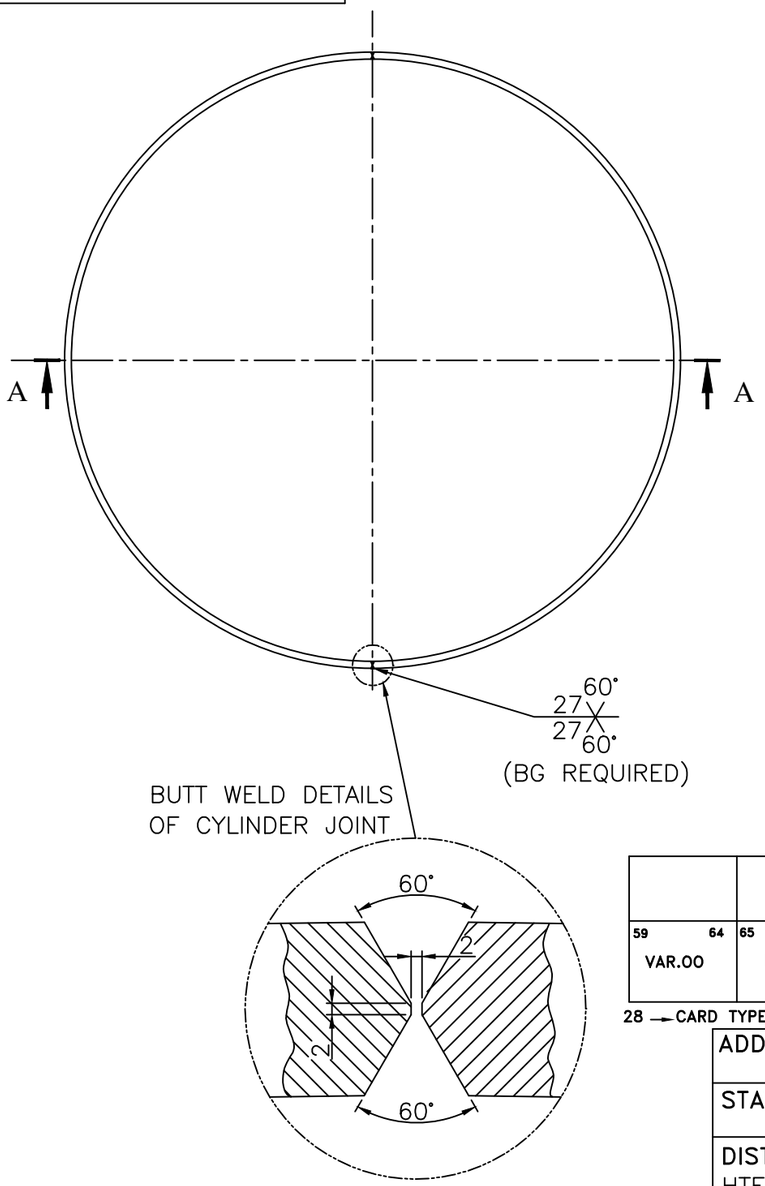
A3 SIZE

FIRST ANGLE PROJECTION

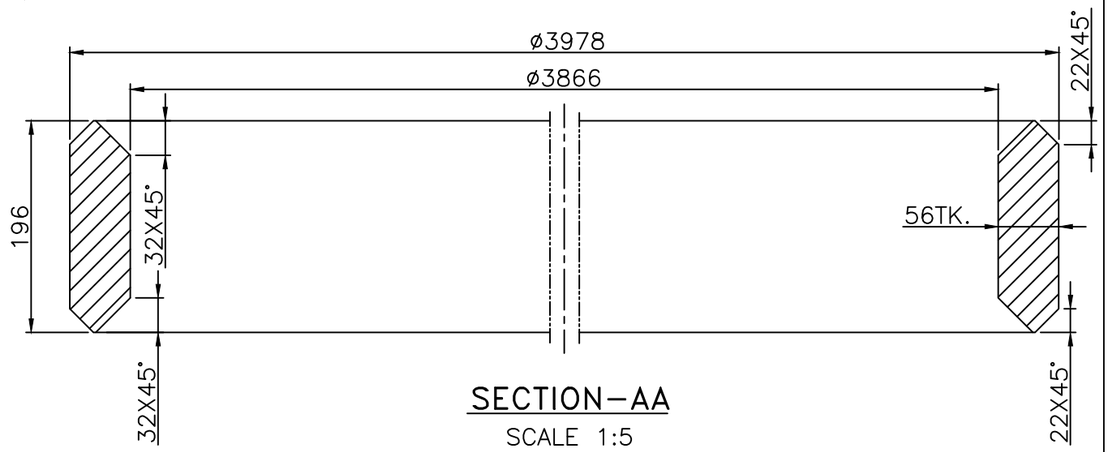
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3 202 05 18409

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BUTT WELD DETAILS
OF CYLINDER JOINT



SECTION–AA
SCALE 1:5

TECH. REQUIREMENTS:–

1. REMOVE ALL BURRS AND SHARP EDGES.
2. WELDING TO BE GRADE–II OF CORP. STD. AA 0622101 WITH 100% U.T.
3. DEVELOPED LENGTH OF HALF CYLINDER = 6161mm

	56 TK		001	CYLINDER				AA1011819228				916.0	
								AA10119				001	
59 64 VAR.OO	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.	29 31 IT.NO.	34 MATL. CODE 45	55 A C	56–57 UNIT	58 65 UNIT WT.	72 CS
							32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71	
28 → CARD TYPE–3				28 → CARD TYPE–1			28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2 WTM(P)–1 WTM(S)–4
FGM–7 THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI (6X124.4 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	रमेश सिंह	रमेश	31.10.15	–
CKD	ओमेश्वर दहीकर	Omeshwar	31.10.15	
APPD	शिवेन्द्र कुमार	Shiv	31.10.15	

REV.	DATE	ALTERED / CHECKED / APPD.

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1:25	916.0	0 202 02 18402	005	001

TITLE: BOTTOM CYLINDER

DRAWING NO. 3 202 05 18409 REV. 00

SHT. NO. 01 NO. OF SHT. 01

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

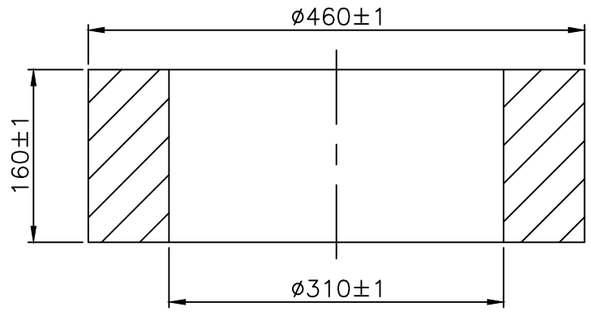
A3 SIZE

FIRST ANGLE PROJECTION

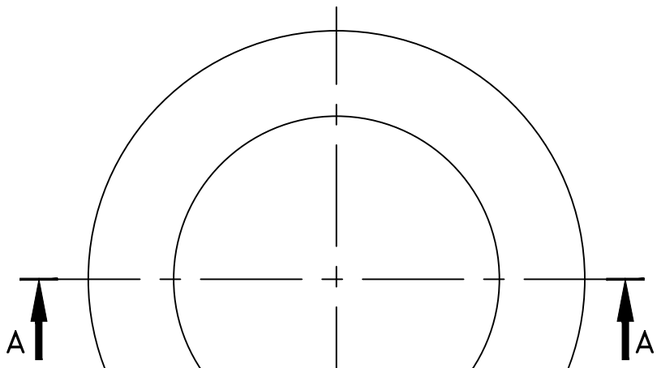
(ALL DIMENSIONS ARE IN mm)

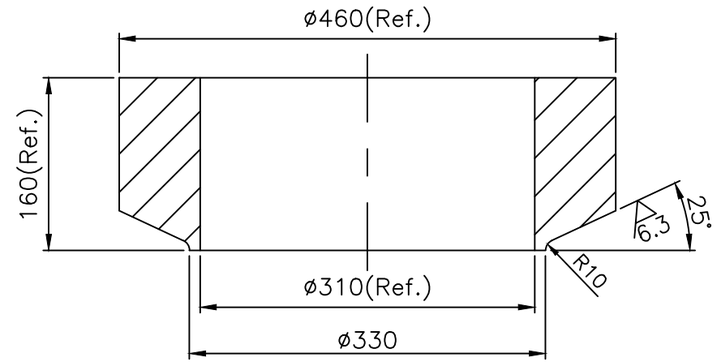
DRG. NO. 3-203-01-18416

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SECTION–AA





PRE–MACHINING DETAILS

TECHNICAL REQUIREMENTS

1. DRG. SHOWS THE CASTING IN ROUGH M/CED CONDITION.
2. SURFACE FINISH OF THE ROUGH M/CED CASTING TO BE 12.5 MICRONS.
3. FOLLOWING NDT TO BE DONE ON ROUGH M/CED CASTING
   100% UT AS PER LEVEL–III OF AA 0850104
   100% MPI AS PER LEVEL–III OF AA 0850134
4. PATTERN NO.1239826.
5. CASTING WEIGHT=114 KG.

			001	BOSS CASTING		——		AA19521				114.00	
VAR.00	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	IT.NO.	MATL. CODE	A/C	UNIT	UNIT WT.	GS
							VAR.	MATL. SPCN.			QTY.	001	
28 → CARD TYPE–3			28 → CARD TYPE–1				28 → CARD TYPE–2						

REF. DRG. NO. 32030116818

SIGN. & DATE

INVENTORY NO.

DRAWING REVIEW			
DEPT.	NAME	SIGN.	DATE

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2, FYM–4, THX–1
WTM(PLANNING)–1, WTM(STORE)–4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHITA–VI LIS (6x124.4 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	AB		30.10.15
CKD	ND		30.10.15
APPD	SK		30.10.15

NO. OF VAR.

REV.	DATE	
		ALTERED
		CHECKED
		APPD.

REV.	DATE	
		ALTERED
		CHECKED
		APPD.

REV.	DATE	
01	9.2.16	ALTERED AB
		CHECKED ND
		APPD. SK

DRAWING REVISED ON ADVISE OF WTM–PLANNING PRE–M/Cg DETAIL ADDED.

DEPT. H.T.E.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014		1:5	100.00	02030118402	006	001

TITLE: BOSS

DRAWING NO. 3–203–01–18416 REV. 01

SHT. NO. 1 NO. OF SHT. 1

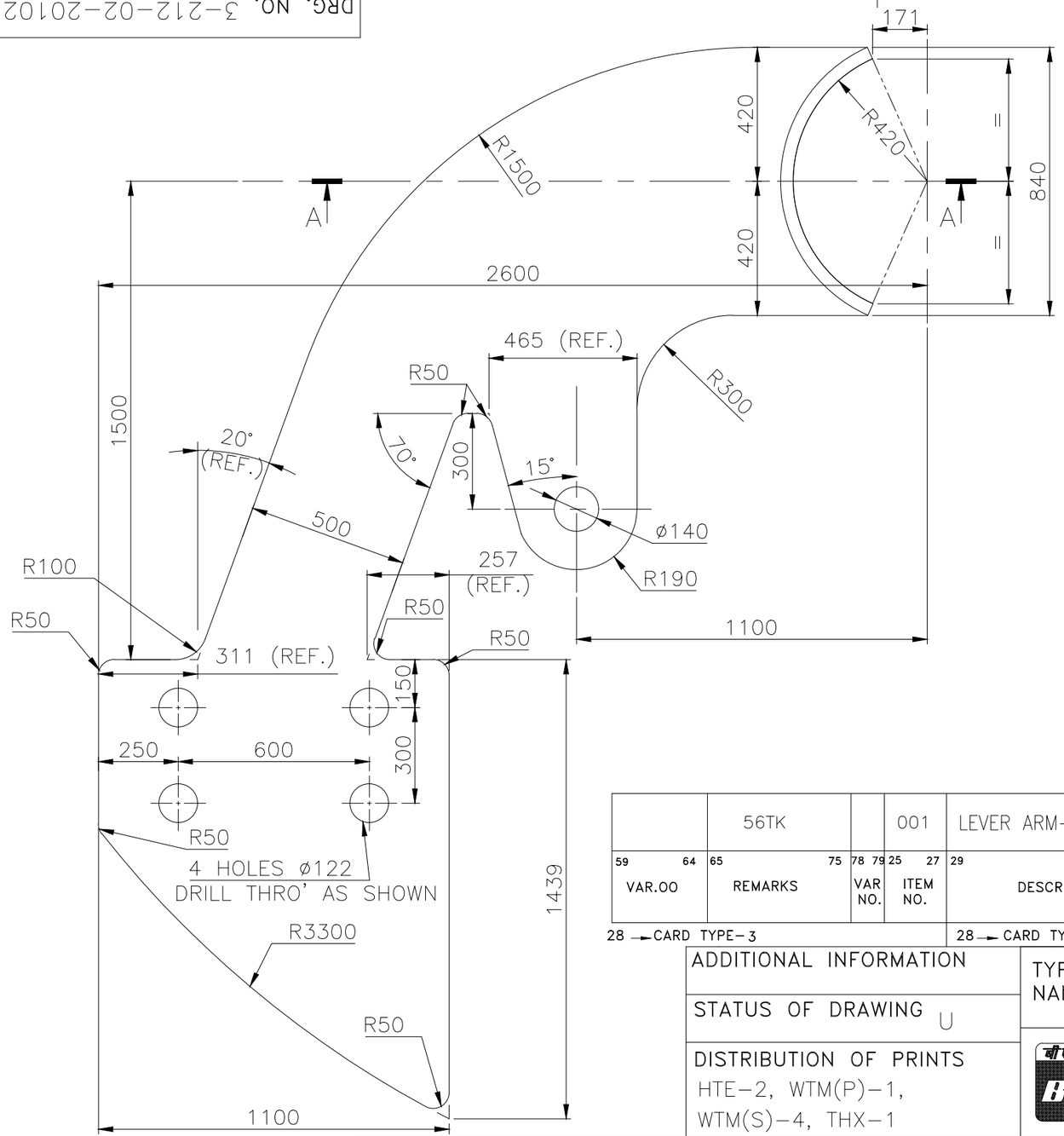
A3 SIZE

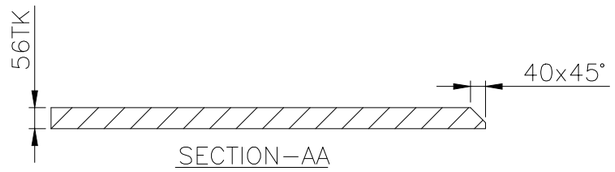
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-212-02-20102

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TECH REQ.:

1. FLAME CUTTING TO BE AS PER BHEL STD. AA0621101.
2. REMOVE ALL BURRS AND SHARP EDGES.

	56TK		001	LEVER ARM–1				AA1011808226		Kg	1337.00	
								AA10108		NO	001	
59 64 VAR.OO	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO. / 32 33 VAR.	34 45 MATL. CODE / 46 MATL. SPCN. 54	55 A C	56–57 UNIT	58 65 UNIT WT. / 68 QTY. 71	72 GS
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2					

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2, WTM(P)–1,
WTM(S)–4, THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PALAMURU RANGAREDDY LIS STAGE–II

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	DKJ	–sd–	07.10.20	
CKD	AR/HK	–sd–	07.10.20	
APPD	AM	–sd–	07.10.20	

REV.	DATE	ALTERED / CHECKED / APPD.		
02	09.02.21	ALTERED	DKJ	–sd–
		CHECKED	AR/HK	–sd–
		APPD.	AM	–sd–

DIMENSION 2359 (REF.) DELETED AND DIMENSION 311 (REF.) ADDED.

REV.	DATE	ALTERED / CHECKED / APPD.		
01	09.01.21	ALTERED	DKJ	–sd–
		CHECKED	AR/HK	–sd–
		APPD.	AM	–sd–

DRAWING REVISED BASED ON FGM FEEDBACK.

DEPT. H.T.E.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	AS PER DRG. 32000049014		1:1	1337.00	1–212–02–20101 1–212–02–20102	01	1

TITLE: LEVER ARM–1

DRAWING NO. 3–212–02–20102 REV. 02

SHT. NO. 1 NO. OF SHT. 1

REF. DRG. NO.

SIGN. & DATE

INVENTORY NO.

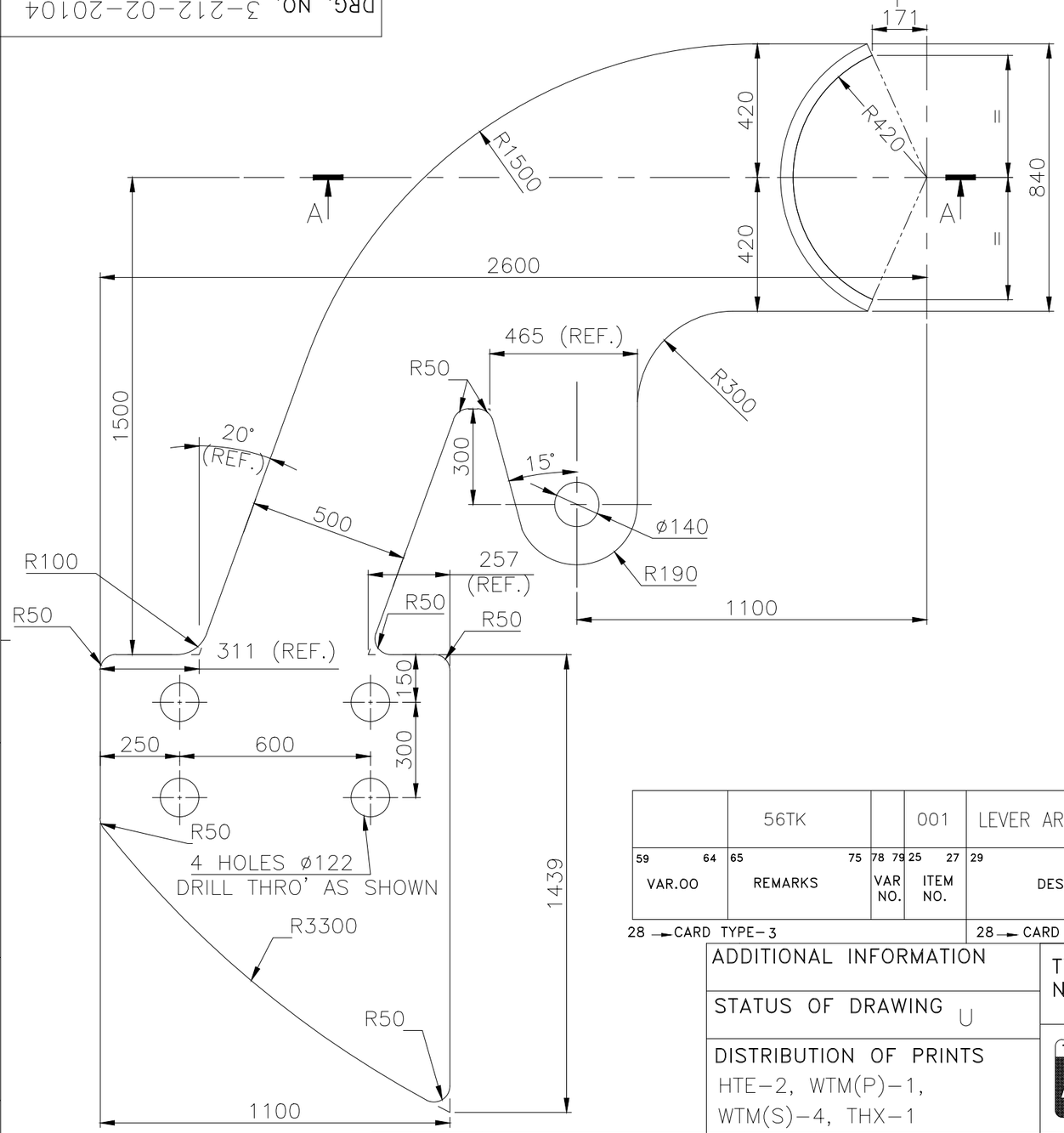
A3 SIZE

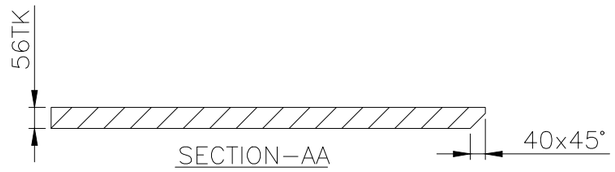
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-212-02-20104

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TECH REQ.:

1. FLAME CUTTING TO BE AS PER BHEL STD. AA0621101.
2. REMOVE ALL BURRS AND SHARP EDGES.

	56TK		001	LEVER ARM–2				AA1011808226		Kg	1337.00	
								AA10108		NO	001	
59 64 VAR.OO	65 75 REMARKS	78 79 VAR NO.	25 27 ITEM NO.	29 58 DESCRIPTION	59 STD.	60 77 DRAWING NO.		29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56–57 UNIT	58 UNIT WT. 65		72 GS
								32 33 VAR.	46 MATL. SPCN. 54			68 QTY. 71		
28 → CARD TYPE–3				28 → CARD TYPE–1				28 → CARD TYPE–2						

ADDITIONAL INFORMATION

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS
HTE–2, WTM(P)–1,
WTM(S)–4, THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PALAMURU RANGAREDDY LIS STAGE–II

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	DKJ	–sd–	07.10.20	
CKD	AR/HK	–sd–	07.10.20	
APPD	AM	–sd–	07.10.20	

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	AS PER DRG. 32000049014	1:1	1337.00	1–212–02–20101 1–212–02–20102	02	1

TITLE: LEVER ARM–2

DRAWING NO. 3–212–02–20104 REV. 02

SHT. NO. 1 NO. OF SHT. 1

REV.	DATE		
02	09.02.21	ALTERED	DKJ –sd–
		CHECKED	AR/HK –sd–
		APPD.	AM –sd–

DIMENSION 2359 (REF.) DELETED AND DIMENSION 311 (REF.) ADDED.

REV.	DATE		
01	09.01.21	ALTERED	DKJ –sd–
		CHECKED	AR/HK –sd–
		APPD.	AM –sd–

DRAWING REVISED BASED ON FGM FEEDBACK.

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

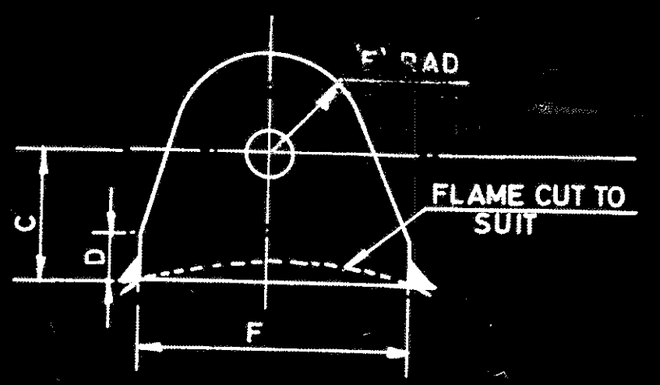
A3 SIZE

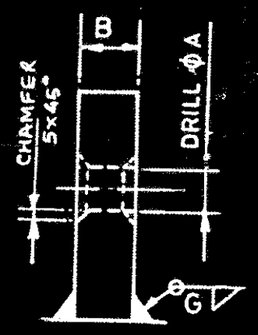
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3 230 29 49140

ITEM NO.	SHACKLE SIZE (S.W.L.)	A	B	C	D	E	F	G	MATL CODE / MATL. SPEC	WT. KG.
1	1· TONNE	22	20	35	15	35	90	7	AA10108	0·77
2	2·0 TONNES	30	25	50	20	45	115	8	AA10108	1·60
3	3·5 TONNES	38	36	65	25	60	150	13	AA10108	3·85
4	5·5 TONNES	46	45	65	25	65	165	13	AA10108	5·35
5	7 TONNES TO 8·5	55	50	75	30	75	190	15	AA10108	7·80
6	10 TONNES TO 12	58	70	80	40	90	225	20	AA10108	14·90
7	14 TONNES TO 16	70	85	95	40	105	265	20	AA 10108	24·70
8	20·0 TONNES	81	95	110	40	120	300	20	AA 10108	35·88
9	25·0 TONNES	91	100	120	40	135	340	20	AA 10108	46·96
10	30·0 TONNES	96	115	140	55	150	375	35	AA 10108	69·50
11	40·0 TONNES	110	125	150	55	165	415	35	AA 10108	89·20
12	50·0 TONNES	125	125	170	55	190	470	35	AA 10108	116·20
13	80·0 TONNES	150	125	200	55	225	560	35	AA 10108	161·8





TECH. REQ.

1. FLAME CUT TO BE OF NEAT APPEARANCE.
2. S.W.L. TO BE CLEARLY STAMPED ON BOTH FACES.
3. FLAME CUT THE LUG TO SUIT THE MOUNTING PROFILE AS REQUIRED.
4. FOR EQUIVALENT / SUPERIOR MATERIAL SPECIFICATION REFER DRG. NO. 3-200-00-49019.
5. FOR TOLERANCES ON UNTOLERANCED DIMENSIONS REFER DRG. NO. 3-200-00-49014.

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REF. DRG. NO. C 350469

SIGN & DATE

INVENTORY NO.

001 LIFTING LUG.

AA10108

58 VAR.00	64 65 REMARKS 75	78 79 VAR. NO.	25 27 ITEM NO.	29 DESCRIPTION 58	59 STD.	60 DRAWING NO. 77	29 31 IT.NO.	34 MATL. CODE 45	55 A/C	56 UNIT	58 UNIT WT. 65	72 GS
28 → CARD TYPE - 3			28 → CARD TYPE - 1				32 33 VAR	46 MATL SPCN. 54			68 QTY. 71	
							28 → CARD TYPE - 2					

DRG. REVIEW			
DEPT.	NAME	SIGN	DATE
FBM	KCG		26/3/98

ADDITIONAL INFORMATION

STATUS OF DRAWING

DISTRIBUTION OF PRINTS

HTE - 2 , FBM - 7

WTM - 5 , THX - 1

REV.	DATE	ALTERED
		CHECKED
		APPROVED
ZONE		

उत्पाद का प्रकार या ग्राहक/परियोजना का नाम
TYPE OF PRODUCT OR NAME OF CUSTOMER / PROJECT: STANDARD

भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल
BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	नाम / NAME	हस्ता. / SIGN	दि. / DATE	वेरि. की संख्या NO. OF VAR.
बनाया DRN.	AV.		26-3-98	—
जांचा CKD.	A		26-3-98	
स्वीकृत APPD.	S. CB		26-3-98	

विभाग DEPT.	अन., टाल., नाप की श्रेणी UNTOL. DIMS. GR.	अनुपात SCALE	भार (कि.ग्रा.) WEIGHT (K.G.)	असे. ड्राईंग का संदर्भ REF. TO ASSY. DRG.	मद क. ITEM NO.	मद संख्या NO. OF ITEM
कोड CODE 402	SEE TR 5	N.T.S.	SEE TABLE	—	—	013

शीर्षक / TITLE: LIFTING LUG

ड्राईंग क्र. / DRAWING NO.: 3-230-29-49140 — पुन./REV. 00

पृष्ठ क्र. / SHT. NO. 1 — पृष्ठों की सं. / NO. OF SHT. 1

A3 SIZE

P.O. No. 3766199

3-230-29-49-140

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

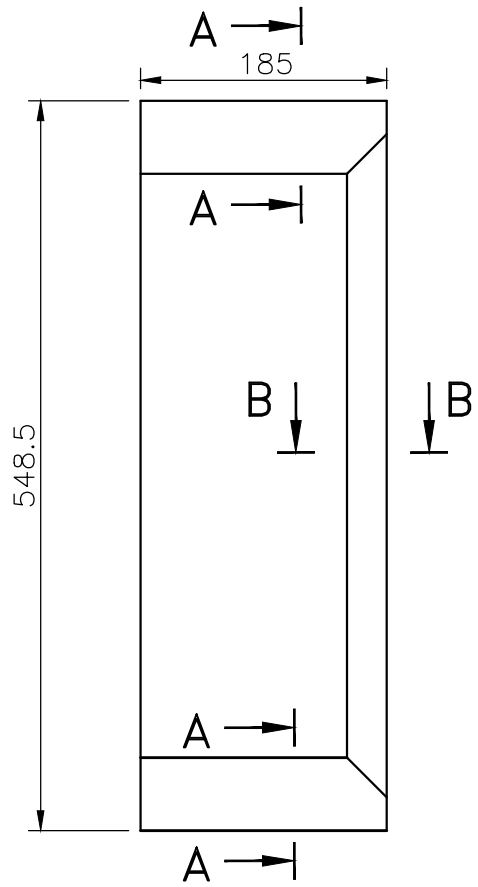
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

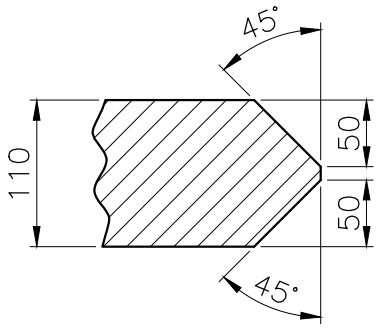
ADDITIONAL INFORMATION ——

STATUS OF DRAWING 'U'

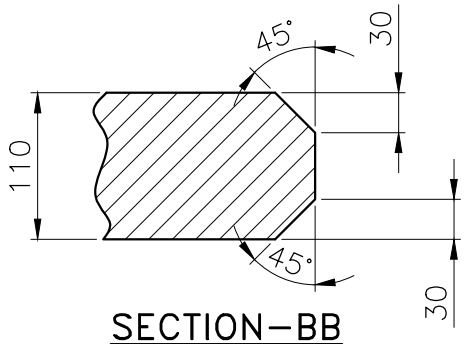
DISTRIBUTION OF PRINTS HTE–2 FGM–7 THX–1 WTM(PLANING)–1 WTM(STORE)–4

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





SECTION–AA



SECTION–BB

TECHNICAL REQUIREMENTS

1. REMOVE ALL BURRS AND SHARP EDGES.
2. 110 TK PLATE HAVE BEEN BOOKED WITH FPM.

110 TK	001	JOINT FLANGE (TOP)		SEE T.R.–2 AA 10119			88.000 001
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE MATL. SPCN.	A/C	UNIT	UNIT WT. QTY.

REF. DRG. NO. 0–202–01–181–02

SIGN. & DATE

INVENTORY NO. PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	NEERAJ		04.02.15
CKD	ND		04.02.15
APPD	SK		04.02.15

NO. OF VAR. —

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 5	88.00	0–202–01–184–02	010	001

TITLE

JOINT FLANGE (TOP)

DRAWING NO. 4–202–01–184–07

REV. 00

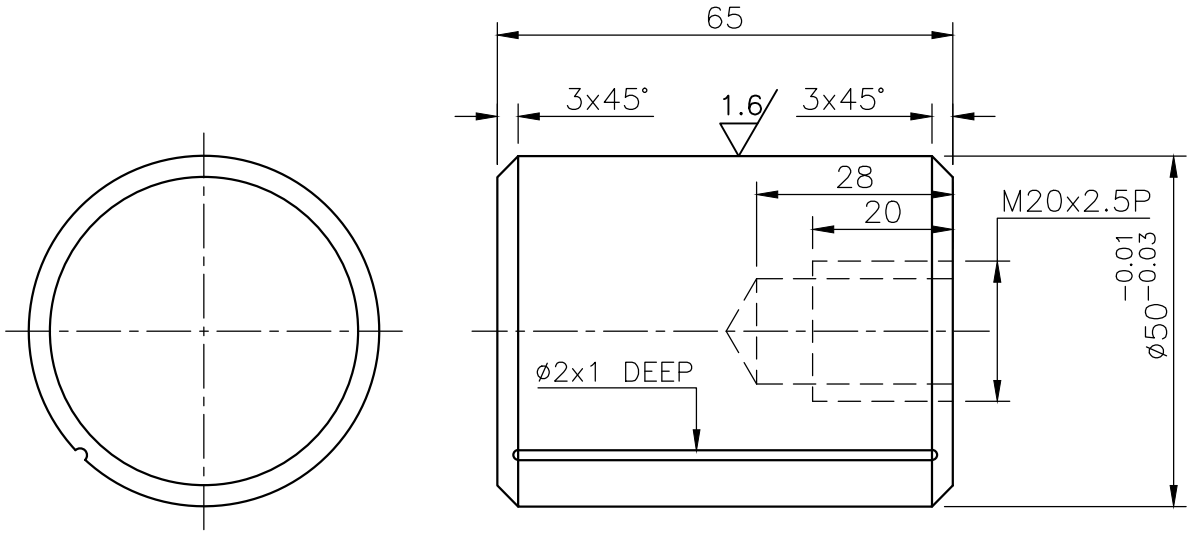
SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	ADDITIONAL INFORMATION
			01	19.10.15	ALTERED NEERAJ / CHECKED ND / APPD. SK	STATUS OF DRAWING 'U'
					SURFACE FINISH NOTE ADDED.	DISTRIBUTION OF PRINTS HTE–2 THX–1 WTM(PLANING)–1 WTM(STORE)–4

3.2 ALL OVER UNLESS OTHERWISE STATED



TECHNICAL REQUIREMENTS

1. REMOVE ALL BURRS AND SHARP EDGES.
2. PAINT & PROTECT TO HT 00005 ALL OVER CAT.'G'.

ø56 BAR	001	DOWEL		BP 1010212257 / AA 10112			0.950 / 001	
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN.	A/C	UNIT	UNIT WT. / QTY.	

REF. DRG. NO. 0–202–01–181–02

SIGN. & DATE

INVENTORY NO.

PRANAHITA–VI LIS (6x124.4 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		04.02.15	—
CKD	ND		04.02.15	
APPD	SK		04.02.15	

DEPT. H.T.E. / CODE 402	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
	32000049014	1 : 1	0.950	0–202–01–184–02	014	001

TITLE

DOWEL

DRAWING NO. 4–202–01–184–08 REV. 01

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

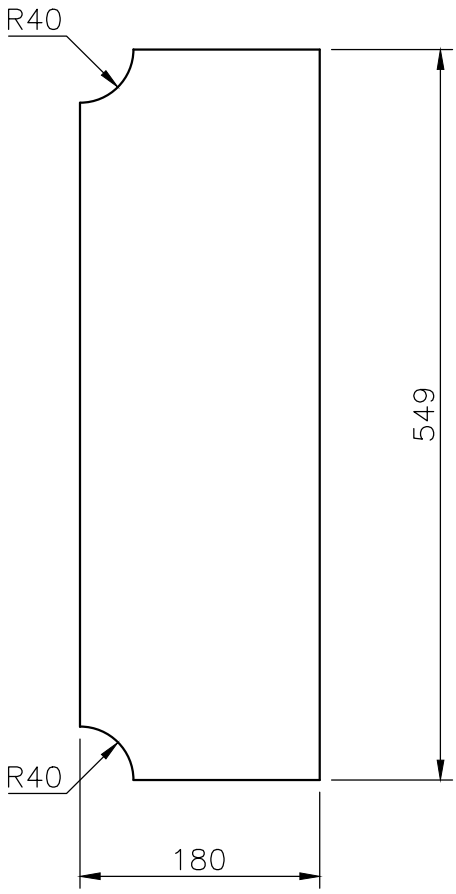
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

ADDITIONAL INFORMATION ——

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS HTE–2 FGM–7 THX–1 WTM(PLANING)–1 WTM(STORE)–4

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



TECHNICAL REQUIREMENTS

1. REMOVE ALL BURRS AND SHARP EDGES.

REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN.	A/C	UNIT	UNIT WT. / QTY.
32 TK	001	TOP RIB		AA 1011819171 AA 10119			24.200 001

REF. DRG. NO. 0–202–01–181–02

SIGN. & DATE

INVENTORY NO. PRANAHITA–VI LIS (6x116 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	NEERAJ		04.02.15
CKD	ND		04.02.15
APPD	SK		04.02.15

NO. OF VAR. —

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 5	24.200	0–202–01–184–02	015	001

TITLE

TOP RIB

DRAWING NO. 4–202–01–184–09

REV. 00

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

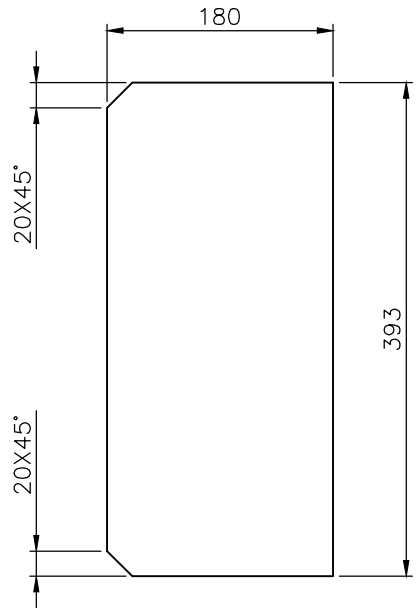
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

ADDITIONAL INFORMATION ——

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS HTE–2 THX–1 WTM–5 FGM–7

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



TECHNICAL REQUIREMENT

1. REMOVE ALL BURRS AND SHARP EDGES.

REF. DRG. NO.

32TK.	001	RIB–I		AA 1011819171			18.0
				AA 10119			001
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN.	A/C	UNIT	UNIT WT. / QTY.

SIGN. & DATE

	NAME	SIGN	DATE
DRN	रमेश सिंह	रमेश	31.10.15
CKD	ओ.दहीकर	Dahiker	31.10.15
APPD	शिवेन्द्र कुमार	Shivendra	31.10.15

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

NO. OF VAR. —

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
H.T.E. CODE 402	32000049014	1:5	18.0	0–202–05–184–02	006	001

TITLE

RIB–I

DRAWING NO. 4–202–05–184–04 REV. 00

SHT. NO. 01 NO. OF SHT. 01

INVENTORY NO. PRANAHITA–VI

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

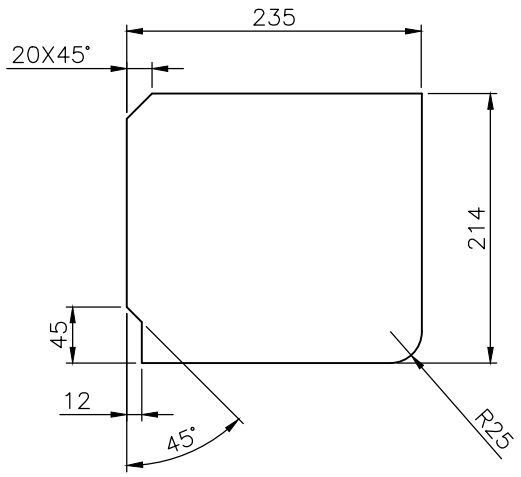
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

ADDITIONAL INFORMATION ——

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS HTE–2 THX–1 WTM–5 FGM–7

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



TECHNICAL REQUIREMENT

1. REMOVE ALL BURRS AND SHARP EDGES.

REF. DRG. NO.

32TK.	001	RIB–II		AA 1011819171 AA 10119			12.50 001
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE (46–54) MATL. SPCN.	A/C	UNIT (57)	UNIT WT. (58–65) QTY. (68–71)

SIGN. & DATE

	NAME	SIGN	DATE
DRN	रमेश सिंह	रमेश	31.10.15
CKD	ओ.दहीकर	Dahiker	31.10.15
APPD	शिवेन्द्र कुमार	Shivendra	31.10.15

NO. OF VAR. —

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

PRANAHITA–VI

INVENTORY NO.

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
H.T.E. CODE 402	32000049014	1:5	12.50	0–202–05–184–02	007	001

TITLE

RIB–II

DRAWING NO. 4–202–05–184–05 REV. 00

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

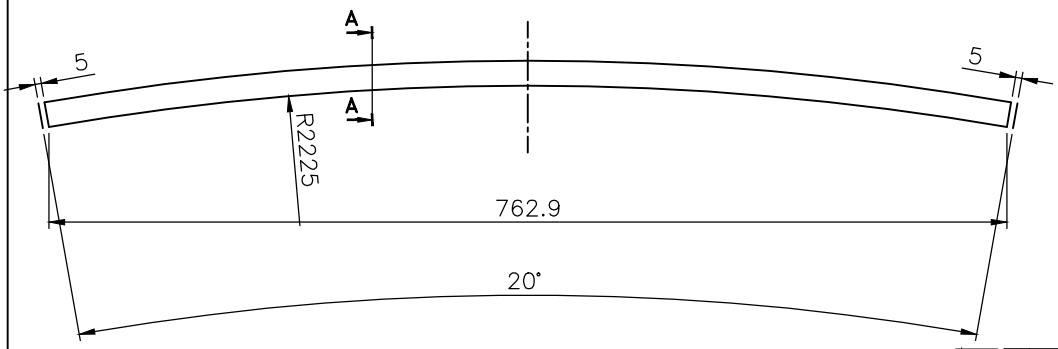
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

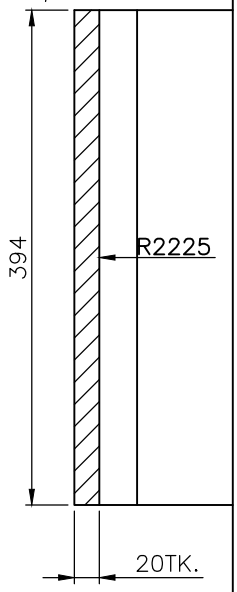
ADDITIONAL INFORMATION ——

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS HTE–2 THX–1 WTM–5 FGM–7

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.





SECTION–AA

TECHNICAL REQUIREMENTS

1. REMOVE ALL BURRS AND SHARP EDGES.

DEVELOPMENT LENGTH = 770.2MM

20TK.	001	BACK PLATE		AA 1011819139 / AA 10119			45.0 / 001	
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN.	A/C	UNIT	UNIT WT. / QTY.	

REF. DRG. NO.

SIGN. & DATE

INVENTORY NO. PRANAHITA–VI

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	रमेश सिंह		31.10.15	—
CKD	ओ.दहीकर		31.10.15	
APPD	शिवेन्द्र कुमार		31.10.15	

DEPT. H.T.E.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014		1:5	45.0	0–202–05–184–02	008	001

TITLE

BACK PLATE

DRAWING NO. 4–202–05–184–06 REV. 00

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

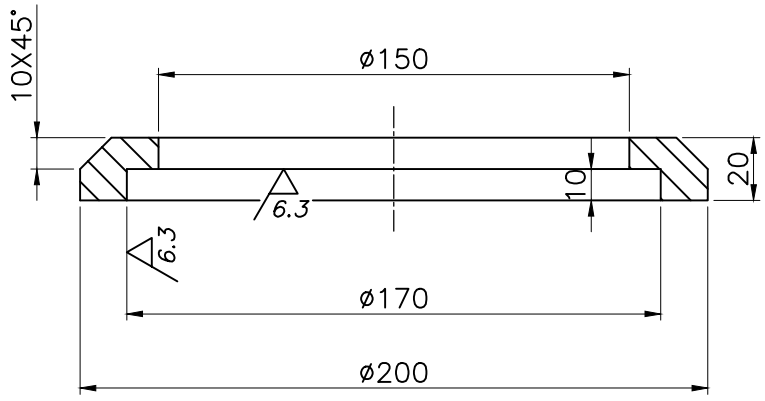
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

ADDITIONAL INFORMATION ——

STATUS OF DRAWING U

DISTRIBUTION OF PRINTS HTE–2 THX–1 WTM–5 FGM–7

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



TECHNICAL REQUIREMENT

1. REMOVE ALL BURRS AND SHARP EDGES.

REF. DRG. NO.								
20TK.	001	BOSS		AA 1011819139 / AA 10119			6.0 / 001	
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN.	A/C	UNIT	UNIT WT. / QTY.	

SIGN. & DATE

INVENTORY NO.

PRANAHITA–VI

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	रमेश सिंह	रमेश	31.10.15	—
CKD	ओ.दहीकर	Dahiker	31.10.15	
APPD	शिवेन्द्र कुमार	Shivendra	31.10.15	

DEPT. H.T.E.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014		1:2	6.0	0–202–05–184–02	011	001

TITLE

BOSS

DRAWING NO. 4–202–05–184–07 REV. 00

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

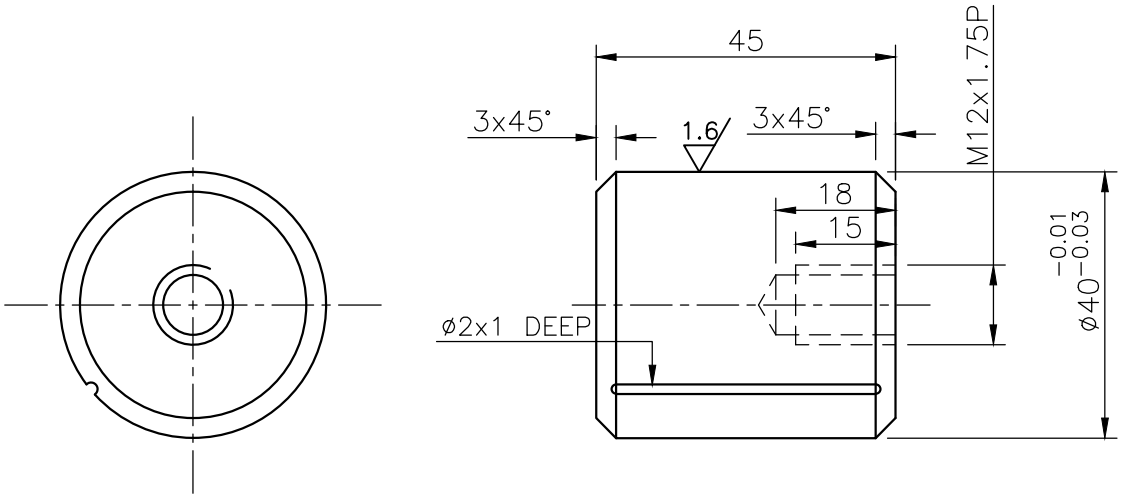
REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.

ADDITIONAL INFORMATION ——

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS HTE–2 WTM(PLANING)–1 THX–1 WTM(STORE)–4

3.2 ▽ ALL OVER UNLESS OTHERWISE STATED



TECHNICAL REQUIREMENTS

1. REMOVE ALL BURRS AND SHARP EDGES.

ø56 BAR	001	DOWEL		AA 1070223190			0.350	
				AA 10723			001	
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE / MATL. SPCN. (46–54)	A/C	UNIT (57)	UNIT WT. (58–65) / QTY. (68–71)	

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REF. DRG. NO. 4–202–01–184–08

SIGN. & DATE

INVENTORY NO.

PRANAHITA–VI LIS (6x124.4 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	NEERAJ		30.10.15	—
CKD	ND		30.10.15	
APPD	SK		30.10.15	

DEPT. H.T.E.	UNTOL. DIMS. GR.	SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
CODE 402	32000049014	1 : 1	0.350	0–203–01–184–01	047	001

TITLE

DOWEL

DRAWING NO. 4–203–01–184–02 REV. 00

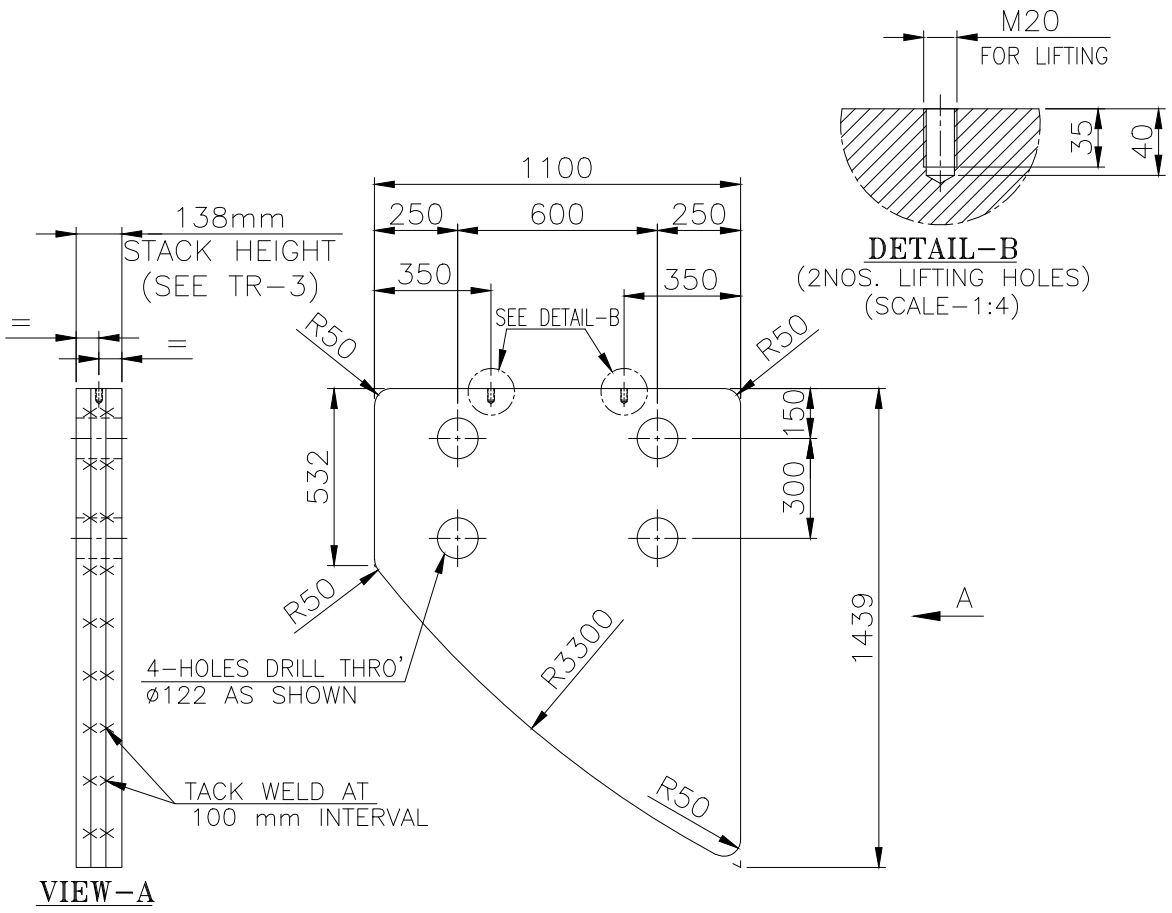
SHT. NO. 01 NO. OF SHT. 01

SIZE A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	ADDITIONAL INFORMATION
		ALTERED DKJ −sd−	01	09.01.2020	DRAWING REVISED BASED ON FGM FEEDBACK.	–
		CHECKED AR/HK −sd−				STATUS OF DRAWING: U
		APPD. AM −sd−				DISTRIBUTION OF PRINTS: HTE−2 WT(S)−4 WT(P)−1 FGM−7 THX−1

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



TECHNICAL REQUIREMENTS:−

1. REMOVE BURRS & SHARP EDGES.
2. PAINT & PROTECT AS PER HT00005 CAT. 'G'.
3. FGM MAY CHOOSE MULTIPLE PLATES OF SMALLER THICKNESS TO ACHIEVE THE REQUIRED STACK HEIGHT/ THICKNESS.

–	001	CLOSING WEIGHT		FGM TO ARRANGE AA10108	Kg. 1201.35 / No. 001	
REMARKS	ITEM NO.	DESCRIPTION	STD	MATL. CODE (46–54) / MATL. SPCN.	A/C	UNIT (57) / UNIT WT. (58–65) / QTY. (68–71)

REF. DRG. NO. 4−212−02−17811

SIGN. & DATE

INVENTORY NO. PALAMURU RANGAREDDY−2 LIS

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE	NO. OF VAR.
DRN	DKJ	−sd−	21.09.20	–
CKD	AR/HK	−sd−	21.09.20	
APPD	AM	−sd−	21.09.20	

DEPT.	UNTOL. DIMS. GR.		SCALE	WEIGHT(K.G.)	REF.TO ASSY.DRG.	ITEM NO.	NO.OF ITEM
HTE	REF.DRG.NO.		1:20	1201.35	1−212−02−20101 1−212−02−20102	03	001
CODE 402	32000049014						

TITLE

CLOSING WEIGHT

DRAWING NO. 4−212−02−20101 REV. 01

SHT. NO. 01 NO. OF SHT. 01

SIZE A4

BHARAT HEAVY ELECTRICALS LIMITED

HEEP-HARIDWAR, UTTARAKHAND (249403)

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

For Indian Bidders (Version December-2020, Rev: 05)

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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, 4th Floor, Main Admin. Building, BHEL-HEEP, Haridwar.

c) In case of Three / Two Part Bid, technical bid containing technical offer, duly signed and un-priced copy of the Price Bid should be kept in one envelope. Price Bid containing only the price should be kept in a separate envelope. All envelopes indicating Part-1 or Part-2 or Part-3 as the case may be to be put in a bigger envelope. Please note that un-priced bid should be the exact replica of price bid but without prices.

d) The bid / quotation must be posted before due date, keeping allowance for postal transit time. Quotations sent by any mode but not received in time will be ignored. Tender received through authorized E-mail is also acceptable. However, in time submission of tender in tender box shall be the responsibility of the bidder, sent through any mode. Documents submitted with the offer / bid shall be signed and stamped in each page by authorized representative of the bidder.

e) Any additional documents submitted by supplier / bidder, during processing of registration application / tender or after placement of order shall not be accepted unless it is submitted with forwarding letter and duly signed and stamped.

f) The bids of the bidders who are on the banned list and also the bids of the bidders, who engage the services of the banned firms, shall be rejected. The cutting / overwriting in the bid / offer must be duly attested by the signatories to the bid. The list of firms banned by BHEL is available on BHEL web site www.bhel.com.

g) Being PMD vendor, if you are not quoting against this tender enquiry, please send your regret letter positively for our reference with valid reasons for not participating in the tender enquiry. Repeated lack of response on the part of bidder may lead to deletion such PMD vendor from BHEL's approved vendor list.

h) The bidders will submit Integrity Pact, duly signed by its authorized signatory, along with their bids wherever estimated tender value is Rs. 2 Crore or more.

i) In case of open tender, technically qualified unregistered bidders may apply online for registration through http://www.bhel.com/index.php/vender.

j) BHEL reserves the right to award tendered quantities among more than one bidder (after acceptance of L1 price by the other bidders). BHEL can also consider awarding of part of the tendered quantity to other than L-1 bidder at L1 counter offered rates, if the quantity offered by the L-1 bidder is less than the quantity tendered for.

k) In case of e-Tendering (Online bidding through e-portal), offline bid submitted in hard copy or in any other form by the vendor / supplier will not be accepted and will be rejected out rightly. Only e-portal bid will be accepted.

4. TENDER OPENING.

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

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

5. SPECIFICATION, DRAWINGS & STANDARD.

a) Bidders must give their detailed specification in the quotation along with relevant technical literature / catalogue etc. against the tender enquiry.

b) The Bid should be accompanied with relevant copies of catalogues, drawings or specification as per tender enquiry.

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 the company.

6. PRICE SCHEDULE.

a) Kindly quote your prices in figures and words both. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 status.

b) Prices quoted should not be more than the prices quoted to any other BHEL units / offices / divisions. Vendor to submit copy of latest Purchase Order placed by any unit of BHEL for similar items in the technical bid. In case no order has been placed on such items, specific confirmation that no order has been placed on such items should be provided.

c) Prices should be quoted on F.O.R. Destination basis. Transit insurance shall be arranged by BHEL and not to be included in the prices. The offers quoted on other than F.O.R destination basis may result in non-consideration of such bids.

d) In case BHEL accepts the EX-Works prices, such offers will be loaded by 1.5% of EX-Works value towards freight or with actual freight charges as per BHEL freight rate contract whichever is higher.

e) In case of Indigenous items covered by DGS & D Rate Contract, the bidders should submit latest valid copy of the rate contract along with bid / quotation

f) Applicable **IGST / CGST / SGST** and any other statutory levy should be indicated separately and clearly in the bid / quotation.

g) Bidders can dispatch goods through any Indian Bank Association approved transporters having their branch at HARIDWAR / destination. If material is dispatched through other than Indian Bank Association approved transporter, material to be delivered on door delivery BHEL Stores basis.

h) In case of dispatch of material through any other unapproved transporter, payment shall be made only after receipt of material and any additional charges payable to the transporter shall be to the bidder's account.

i) Any demurrage / godown rent payable to the transporter / or to godown's owner due to any delay attributed by the supplier shall be recovered from supplier's account.

j) Currency of Evaluation shall be INR.

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

7. REVERSE AUCTION.

Wherever RA is declared in the special terms and conditions of tender enquiry, following shall be applicable and Bidders to confirm the same:
"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

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

8. DELIVERY TERMS.

a) Goods shall be delivered on 'FOR Destination' basis to the named destination unless otherwise called for in the tender enquiry.

b) Loading on account of 3rd party inspection charges in case of Indian bidders shall be 0.20%.

9. PENALTY FOR LATE DELIVERY.

a) Where items of Purchase Order are independently usable.

Penalty 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.

Penalty 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 penalty purpose.

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

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.

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

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

11. TAXES & DUTIES.

a) The bidder to specify in their offer (part 1 bid) the category of their registration under GST like Registered, Unregistered and composite dealer.

b) The provisional GST registration number of Bharat Heavy Electrical Ltd, Heavy Electricals Equipment Plant, Ranipur, Haridwar is "05AAACB4146P1ZL" with state Code as "05" and State Name as "Uttarakhand".

c) Please quote our provisional GST registration number in all invoices raised for supply of goods and services under GST regime and also ensure filing of timely return and payment of tax and compliance of other applicable provisions on supplier under GST regime.

d) No GST will be reimbursed to unregistered or composite dealer. In the event, any GST is quoted by composite dealer, the same shall be added to the cost of supply in evaluating the bid.

e) Since, input credit of GST will be available to BHEL-Haridwar only after correct filing of return and payment of applicable GST by supplier, reimbursement of GST shall be made by BHEL-Haridwar on matching of vendor inputs at GST portal, ensuring availability of input credit to BHEL Haridwar. Payment of GST will be made to vendor after matching of input credit and vendor to ensure submission of their invoices along with consent to accept payment of tax after such matching in all cases where bills are submitted directly to BHEL-Haridwar or through bank or under LC or through any other mode.

f) In the event of any disallowance of input credit or applicability of interest or any other financial liability arises on BHEL-Haridwar due to any default of supplier under GST, such implication shall be to supplier's account.

g) In the event of any change in the status of the vendor after the submission of the bid but before the supply, GST applicable at the time of supply or in the bid, based on the registration status of the vendor, whichever is lower shall be payable.

h) Where ever applicable If PAN (Permanent Account Number) of the recipient is not available, income tax is deductible either at the normal rate or at the rate of 20 percent, whichever is higher as per Section 206AA of Indian Income Tax Act 1961.

i) The bidder shall clearly indicate HSN (*Harmonised System Nomenclature)* / SAC (*Service Accounting Code*), its description and applicable rate of GST for each item in his techno-commercial bid.

j) Statutory Variation in Taxes & duties as applicable at the time of supply shall be payable. However, in the event of no change in law but bidder quoting certain tax structure in bid document which is lower than the applicable one, such amount shall be the maximum amount of tax that can be claimed by bidder.

k) **IMPORTED GOODS OFFERED BY INDIAN BIDDERS AGAINST DEALER INVOICE:** Wherever the material being offered is imported, the bidder must quote the prices inclusive of IGST. The rate and value of IGST as included in the price must be indicated separately. In case quantum of IGST is not mentioned by the bidder the same will not be considered for evaluation. However, bidder will have to pass on the benefit of IGST to BHEL at the time supply.

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

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

12. BANK GUARANTEE.

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

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

Goods shall comply with the specifications for material, workmanship and performance. Unless otherwise specified, the warranty shall be for a period of 18 months from the date of receipt. If the delivery is found non-compliant during the warranty period, leading to rejection, the Seller shall arrange free replacement / repair of goods, within one month from the date of intimation or any mutually agreed period. The rejected goods shall be taken away by the Seller at his cost and replaced on Delivered Duty Paid (DDP) (FOR - BHEL Stores / designated destination basis) within such period. In the event of the Seller's failure to comply, Purchaser may take action as appropriate, including Repair / Replenish rejected goods & disposal of rejections, at the risk & cost of the Seller. In case the defects attributable to Seller are detected during processing of the goods at BHEL or at our subcontractor's works, the Seller shall be responsible for free replacement / repair of the goods as required by BHEL.

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

14. QUALITY REQUIREMENT.

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

15. VALIDITY.

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

16. RIGHT OF ACCEPTANCE.

a) **BHARAT HEAVY ELECTRICALS LIMITED HARIDWAR** reserves the right to reject any or all the bids / quotations without assigning any reason thereof. BHEL also reserves the right to increase or decrease the tendered quantities. Bidders should be prepared to accept order for reduced quantity without any extra charges.

b) Any discount / revised offer / bids submitted by a bidder on its own shall be considered, provided it is received on or before the due date and time of offer / bid submission (Part-1). Conditional discounts shall not be considered for evaluation of tenders.

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 Penalty 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.

19. FORCE MAJEURE CLAUSE.

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

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

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

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. BHEL reserves the right to claim damages from the bidder, or take appropriate penal action as deemed fit against the bidder, for any infringement of the provisions contained herein.

21. SETTLEMENT OF DISPUTES / ARBITRATION.

In all cases of dispute, the mater shall be referred for ARBITRATION by sole arbitrator to be appointed by the Unit Head of Bharat Heavy Electricals Ltd., at HARIDWAR. The award of the Arbitrator shall be final and binding on both the parties. The place of Arbitration shall be Haridwar.

JURIDICTION: The courts of Haridwar, India, shall have exclusive jurisdiction.

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 (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.
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.

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, 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 supervision 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 biding 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 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(I) of the Employees Compensation Act, 1923."

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. 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.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.

Section 4 – Compensation for Damages

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).

6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place----------

Date----------

Witness: _____

(Name & Address) _____

_____

Witness: _____

(Name & Address)_____

_____