

## Bharat Heavy Electricals Limited

### Heavy Plates & Vessels Plant

Visakhapatnam – 530 012

Andhra Pradesh, INDIA

PAN - AAACB4146P, GST - 37AAACB4146P7Z8



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## INVITATION TO TENDER

Ref: OS/24-25/R&D/5626/04/004

Date: 16.07.2024

**Sub: Manufacturing of CNC Machining components for ACM Module for 2KW CASDIC LCS against S.O. No. 5626 at Vendor works with free issue materials**

Dear Sir,

Sealed tenders are invited for the subject job in **two-part bid** system from the **Bidders** who are experienced in execution of similar jobs **subject to the following eligibility criteria:**

- (1) Bidder must have an experience in execution of similar jobs with strict dimensional compliance i.e. CNC Machining, Milling, Turning, Drilling, Precision Pressing etc., in Defence / Aero-space for Customers like ADA, BDL, DARE, DRDO, HAL, ISRO, Defence Forces etc., during the past 7 Years as on 30.06.2024. Bidders shall enclose Work Order, Work Completion Certificate and/or other relevant documents like Inspection Reports / Delivery Challans (duly acknowledged by Customer or Authorized Inspection Agency) in support of their experience in successful execution of similar jobs.
- (2) Bidders must have requisite 4-Axis or 5-Axis CNC facilities for Drilling, Milling, Pressing, Surface Grinding operations etc., for machining & processing of high precision jobs and List of Machines & Facilities available with the bidder to be enclosed with the offer.
- (3) Average Annual Financial Turnover of the bidder for the last 3 financial years should be a minimum of ₹ **22.50 Lakhs**. Bidders shall submit Financial turnover certificate for previous three years issued by Chartered Accountant, Audited Profit & Loss Accounts, Balance Sheets and other necessary documents in support of the same.  
*In case audited financial statements are not available for latest financial year, then the applicable audited statements of preceding three financial years shall be considered.*
- (4) Bidder shall also enclose the documents of Registration of Firm/ Certificate of Incorporation/ Factory License, Udyam Registration (if registered with MSME), PAN & GSTIN Registration.
- (5) The works executed in own name of the individual / firm of the tenderer will only be considered for eligibility criteria.

### **1. LOCATION OF WORK SPOT:**

The subject work is to be carried out at **Vendor Works**.

### **2. VENDOR'S SCOPE OF WORK:**

- a) Manufacturing of Machining Components for ACM Module for 2KW CASDIC LCS which involves CNC Cutting, Machining, Milling, Turning, Drilling, Precision Pressing, Grinding etc., with free issue materials as per the drawings listed in Annexure-I, applicable standards & specifications. Details of Components to be manufactured and Raw materials to be issued by BHEL-HPVP are given in the Annexure – I.
- b) All the manufactured components shall conform to the dimension/standards mentioned in respective drawings.
- c) Flatness / Tolerance (Angular/Linear/Positional) / Surface Finish to be maintained strictly as per the drawings. All sharp corners to be rounded off.
- d) The manufactured components shall be free from burrs and surface marks.
- e) Tolerances indicated are non-cumulative.
- f) All the required tools to be arranged by the Vendor at their own cost.
- g) Punch & Die against SOR item nos. 26 (Exit Scoop-1) & 31 (Fan Inlet Plenum Part-B) will be supplied by BHEL-HPVP.
- h) Vendors shall have to strictly follow the dimensions and tolerances mentioned in the drawings.
- i) Calibrated Surface Table, Digital measuring instruments like Vernier Calipers, Height Gauges, Go - No Go Thread Gauges, Radius Gauges etc., shall be made available for inspection of finished components.
- j) The finished components shall be securely packed in suitable lots and are to be delivered by the vendor to DGM (R&D), BHEL-HPVP, Visakhapatnam on door delivery basis.

- k) The vendor should have requisite 4-Axis (or) 5-Axis CNC facilities for Drilling, Milling, Pressing, Surface Grinding operations etc., for machining & processing of high precision jobs.
- l) Any modification work due to revision of drawings during manufacturing is to be carried out by the vendor without any extra cost. Though not mentioned specifically, any activity which is required for completion of the work is deemed to be included in the scope of work of vendor without any price implication.

**3. TRANSPORTATION:**

Collection & Transportation of free issue raw materials from BHEL - HPVP, Visakhapatnam to Vendor works and Transportation of Finished items from Vendor works to R&D Dept., BHEL – HPVP, Visakhapatnam is in Vendor scope.

**4. BHEL SCOPE:**

The following shall be provided by BHEL:

- a) Issue of applicable Drawings & reference Documents, if any.
- b) Free issue raw materials at BHEL-HPVP, Visakhapatnam
- c) Liquid Penetrant Examination & Welding, wherever required

**5. INSPECTION:**

Pre-dispatch inspection shall be carried out at Vendor works by M/s BHEL - HPVP (QC) and / or by BHEL appointed TPI agency / Customer. Instruments required for inspection of finished components are to be arranged by the vendor along with the calibration certificates. All the documentation related to inspection such as BHEL / TPI / Customer Clearance, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats etc., is in the scope of vendor and soft copy as well as hard copy of the same are to be submitted to BHEL-QA.

**6. DELIVERY:**

Finished components along with relevant inspection documents and all other certificates are to be delivered to DGM (R&D Dept.), BHEL-HPVP, Visakhapatnam within **75 Days** from the date of issue of free issue raw materials at BHEL - HPVP, Visakhapatnam.

**Note:**

- a) In case the delivery period offered by the vendor is more than the tender delivery, Price quoted by the bidder shall be loaded for the additional delivery period @0.5 % per week or part thereof for the purpose of evaluation of Bidder Status.
- b) The delivery period will be calculated from the date of issue of materials at BHEL-HPVP, Visakhapatnam to the date of receipt of finished items at R&D dept., BHEL – HPVP Visakhapatnam against respective components. Date of issue and date of receipt will be considered for computation of delivery period.
- c) Free issue materials shall be collected within 3 days from the date of intimation by R&D / Outsourcing dept. without any failure. Any delay beyond 3 days shall be considered for levy of LD.

**7. PRICE:**

- a) The price shall be quoted in the **Price Bid** as per the Schedule of Quantities & Rates for the detailed scope of work and the quoted price shall be inclusive of all applicable taxes & duties except GST.
- b) Part quotation is not acceptable.
- c) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- d) Income tax shall be deducted at applicable rates from the vendor's bills. GST shall be reimbursable to the vendor as per applicable guidelines.

**8. GOODS & SERVICES TAX (GST):**

Bidders shall make a note of the following points of GST before submission of their offer:

- a) Vendors shall have to mention their GSTIN no. (15 Digits) in their Technical Bid. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering their offer.
- b) Semi-finished goods are to be delivered by the Vendors in BHEL, HPVP premises within a maximum period of one year from the date of issue of the material, failing which the whole transaction will be considered as Supply and Sale and GST is required to be paid along with interest (calculated @ SBI Base Rate + 6%) along with penalty, if any, from the date of Challan on the whole value of materials. Hence vendors shall have to ensure that materials issued to them are returned within 365 days.

- c) After fabrication, the vendors shall have to deliver the Semi-Finished Goods by fulfilling the following formalities:
  - i) GST invoice should be raised by the vendors by paying GST on job work charges at applicable rates and by incorporating the HPVP GSTIN no. in the invoice for availing the reimbursement of GST from HPVP.
  - ii) The vendor shall also have to enter in their GST Return -1 (GSTR-1) the details of invoice raised for payment of GST so as to enable HPVP to avail input credit.

**9. REVERSE AUCTION:**

BHEL shall be resorting to Reverse Auction (RA) for this tender. RA shall be conducted among the eligible techno-commercially qualified bidders. Business Rules for Reverse Auction are given at Annexure – V and Guidelines for Reverse Auction are available on our website, [www.bhel.com](http://www.bhel.com) → supplier registration → Guidelines for Reverse Auction, before submission of their offer.

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

BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding. The bidders participating in the Reverse Auction shall have to necessarily submit '**Process Compliance Form**' (PCF) to the designated Service Provider.

Bidders are advised to read the 'Business Rules' (Annexure – V) indicating details of RA event carefully, before reverse auction event.

**10. VALIDITY OF OFFER:**

The offer shall be valid for a period of **3 months** from the date of Reverse Auction.

**11. EVALUATION, COUNTER OFFER & ORDERING:**

- a) **L1 status shall be evaluated based on the total quoted value.**
- b) For ordering, 02 bidders shall be considered. The required qty. of components for 4 sets shall be ordered on L1 Bidder and the required qty. of components for 2 sets shall be ordered on L2 Bidder.
- c) Counter offer of L1 / negotiated rates shall be given to the respective L2 and next lowest bidders for acceptance. Vendor who accept counter offer rates shall only be considered for ordering.
- d) It may be noted that in case any of the next lowest bidders does not accept the counter offered L1 / negotiated rates, Total Quantity shall be ordered on L1 bidder.
- e) BHEL reserves the right to cancel any order partly or in full in case the performance of any of the vendors is not satisfactory in meeting the quality requirements or committed delivery schedules and to distribute the same quantity among the balance eligible vendors.

**12. RISK PURCHASE:**

In case the contractor fails to execute the work within the scheduled time or due to any other reasons, BHEL – HPVP reserves the right to get the same completed through some other party at the risk & cost of the contractor and any additional expenditure incurred due to the same shall be charged to the contractor. Non-performance of contractor attracts penal provisions in line with BHEL Guidelines for Suspension of Business Dealings.

**13. GENERAL:**

- a) The bidder shall study the Tender documents, Drawings, Quality Documents and all other relevant documents in detail for understanding the scope of work and the processes involved before submission of offer. Bidder shall get clarifications, if any, from concerned officials on the scope of work (or) any other details of the tender document, over phone between 09:00 AM and 04:00 PM on any working day or through e-mail.
- b) Drawings, Clarifications, other reference documents etc., shall be sent to the bidder's e-mail address upon their written / e-mail request.
- c) **Conditional / Partial Price Bids** and any other deviations to the tender terms & conditions are not acceptable and BHEL reserves the right to reject such offer without further correspondence. Bidder shall confirm their acceptance to all the terms & conditions of the tender enquiry in the Techno-commercial Bids.

- d) BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.
- e) The General Terms & Conditions, if any, contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.
14. Other Terms & Conditions, whichever are applicable, shall be as per Annexure – III enclosed.
15. The following documents shall form part of the tender enquiry including this Notice Inviting Tender:

**PART - 1: TECHNO-COMMERCIAL BID**

- a) Schedule of Quantities & applicable drawings : Annexure - I
- b) AS9100 Guidelines for Machining Components: Annexure - II
- c) General Terms & Conditions : Annexure - III
- d) Acceptance to Tender terms & conditions : Annexure - IV
- e) Business Rules for Reverse Auction : Annexure - V
- f) GST Compliance for Indigenous Suppliers : Annexure - GST
- g) Drawings

**PART - 2: PRICE BID**

- h) Price Bid (Schedule of Quantities & Rates)

**16. TENDER SUBMISSION (Through e-Procurement system):**

- a) The tender completed in all respects shall be submitted in **Two parts** (Techno-commercial bid and Price Bid) through online e-procurement portal (<https://eprocurebhel.co.in>) latest by **13:00 Hrs. on 26.07.2024**.

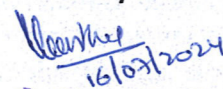
**Note:** Techno-commercial bid along with all the tender documents shall be duly signed & stamped by the bidder on all pages.

- b) Submission of offer by the bidder implies that all the tender documents were read by the bidder and the bidder is aware of the scope and specifications of the job.
- c) **OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.**

**17. TENDER OPENING:**

- a) Techno-commercial Bids will be opened on **26.07.2024 at 15:00 Hrs.** in online e-procurement portal.
- b) After evaluation of the Techno-commercial Bids, intimation regarding date & procedure of conducting Reverse Auction shall be given by the service provider to all the eligible techno-commercially qualified bidders through an e-mail in advance at an appropriate time.

For Bharat Heavy Electricals Limited,

  
**D. N. MURTHY**  
Manager (OS)  
Bharat Heavy Electricals Ltd  
HPVP, Visakhapatnam-530 011



**SCHEDULE OF QUANTITIES**

Ref: OS/24-25/R&amp;D/5626/04/004

DATE: 16.07.2024

Sub: Manufacturing of CNC Machining components for ACM Module for 2KW CASDIC LCS against S.O. No. 5626 at Vendor works with free issue materials

SL. NO.	DESCRIPTION	Unit	QTY.	MATERIAL SPECN.	RAW MATERIALS SIZE TO BE ISSUED	PROCESS	DRAWING NO.
	Manufacturing of Machining Components for ACM Module for 2KW CASDIC LCS which involves CNC Cutting, Machining, Milling, Turning, Drilling, Precision Pressing, Grinding etc., with free issue materials as per the drawings listed in Annexure-I, applicable standards & specifications. Details of Components to be manufactured and Raw materials to be issued by BHEL-HPVP are given in the Annexure – I.						
1	ACM BULK HEAD-1	No.	6	AA2014 T651	RING, $\phi 310 \times \phi 180 \times 60\text{MM}$	MACHINING	RD-41016501-P-176
2	ACM BULK HEAD-2	No.	6	AA2014 T651	RING, $\phi 310 \times \phi 180 \times 60\text{MM}$	MACHINING	RD-41016501-P-177
3	ACM BULK HEAD-3	No.	6	AA2014 T651	RING, $\phi 310 \times \phi 180 \times 60\text{MM}$	MACHINING	RD-41016501-P-178
4	ACM MODULE LONGERON-1	No.	6	AA6061	PLATE, $650 \times 100 \times 10\text{MM}$	MACHINING	RD-41016501-P-179
5	ACM MOUNTING BRACKET	No.	6	AA6061	PLATE, $325 \times 230 \times 25\text{MM}$	MACHINING	RD-41016501-P-105
6	ACM INTERCONNECTING DUCT	No.	6	AA6061	ROUND, $\phi 310 \times 650\text{mm}$ (cut to $120^\circ$ -3 pieces and then machine)	MACHINING	RD-41016501-P-107
7	ACM INTERCONNECTING DUCT CLAMP	No.	6	AA6061	PLATE, $20 \times 150 \times 25\text{mm}$	MACHINING	RD-41016501-P-108
8	INTERCONNECTING DUCT COVER	No.	6	AA6061	PLATE, $420 \times 180 \times 2\text{mm}$	MACHINING	RD-41016501-P-109
9	LOUVER COVER	No.	6	AA6061	PLATE, $150 \times 120 \times 12\text{mm}$	MACHINING	RD-41016501-P-110
10	MOUNTING CHANNEL	No.	6	AA6061	PLATE, $20 \times 80 \times 25\text{mm}$	MACHINING	RD-41016501-P-111
11	COMPRESSOR INLET PLENUM	No.	6	AA6061	PLATE, $250 \times 180 \times 50\text{mm}$	MACHINING	RD-41016501-P-113
12	COMPRESSOR INLET PLENUM COVER	No.	6	AA6061	PLATE, $250 \times 180 \times 2\text{mm}$	EDM WIRE CUT	RD-41016501-P-115
13	HEAT EXCHANGER EXIT PLENUM	No.	6	AA6061	PLATE, $250 \times 200 \times 60\text{mm}$	MACHINING	RD-41016501-P-117
14	HE INLET PART	No.	6	AA6061	ROUND, $\phi 76\text{mm} \times 140$	MACHINING	RD-41016501-P-118
15	AUXILIARY PIPE PART-1	No.	6	AA6061	PLATE, $90 \times 65 \times 40\text{mm}$	MACHINING	RD-41016501-P-126
16	AUXILIARY PIPE PART-2	No.	6	AA6061	PLATE, $90 \times 65 \times 40\text{mm}$	MACHINING	RD-41016501-P-128
17	AUXILIARY PIPE PART-5	No.	6	AA6061	PLATE, $50 \times 50 \times 20\text{mm}$	MACHINING	RD-41016501-P-133
18	ADDITIONAL DUCT PART-1A	No.	6	AA6061	PLATE, $100 \times 75 \times 50\text{mm}$	MACHINING	RD-41016501-P-137
19	ADDITIONAL DUCT PART-2	No.	6	AA6061	PLATE, $85 \times 500 \times 32\text{mm}$	MACHINING	RD-41016501-P-142
20	ADDITIONAL DUCT PART-3	No.	6	AA6061	PLATE, $50 \times 110 \times 25\text{mm}$	MACHINING	RD-41016501-P-148
21	RAM AIR BYPASS DUCT FLANGE	No.	6	AA6061	PLATE, $50 \times 50 \times 5\text{mm}$	MACHINING	RD-41016501-P-153
22	COMPRESSOR OUTLET DUCT-1	No.	6	AA6061	PLATE, $100 \times 100 \times 100\text{mm}$	MACHINING	RD-41016501-P-155
23	RAM AIR SCOOP PANEL	No.	6	AA6061	PLATE, $600 \times 205 \times 120\text{mm}$	MACHINING	RD-41016501-P-157
24	RAM AIR INLET SCOOP PART-1	No.	6	AA6061	PLATE, $100 \times 280 \times 25\text{mm}$	MACHINING	RD-41016501-P-159
25	RAM AIR INLET SCOOP PART-2	No.	6	AA6061	PLATE, $100 \times 280 \times 50\text{mm}$	MACHINING	RD-41016501-P-160

Ref: OS/24-25/R&D/5626/04/004

DATE: 16.07.2024

Sub: Manufacturing of CNC Machining components for ACM Module for 2KW CASDIC LCS against S.O. No. 5626 at Vendor works with free issue materials

SL. NO.	DESCRIPTION	Unit	QTY.	MATERIAL SPECN.	RAW MATERIALS SIZE TO BE ISSUED	PROCESS	DRAWING NO.
26	EXIT SCOOP-1	No.	6	AA6061	PLATE, 300 x 250 x 2mm	PRESSING (PUNCH AND DIE WILL BE SUPPLIED by BHEL)	RD-41016501-P-162
27	EXIT SCOOP-2	No.	6	AA6061	PLATE, 100 x 100 x 5mm	MACHINING	RD-41016501-P-163
28	COMPRESSOR OUTLET DUCT-2	No.	6	AA6061	PLATE, 100 x 100 x 12mm	MACHINING	RD-41016501-P-166
29	ACM TO VALVE INTERFACE	No.	6	AA6061	PLATE, 120 x 110 x 19mm	MACHINING	RD-41016501-P-168
30	CONNECTOR BRACKET	No.	6	AA6061	PLATE, 60 x 80 x 2mm	BENDING AND MACHINING	RD-41016501-P-169
31	FAN INLET PLENUM PART-B	No.	6	AA6061	PLATE, 300x 165 x 2mm	PRESSING (PUNCH AND DIE WILL BE SUPPLIED by BHEL)	RD-41016501-P-172
32	FAN INLET PLENUM PART-C	No.	6	AA6061	PLATE, 150 x 110 x 25mm	MACHINING	RD-41016501-P-173
33	ACM MODULE SIDE COVER	No.	6	AA6061	PLATE, 620 x 180 x 25mm	MACHINING	RD-41016501-P-174
34	ACM MODULE LONGERON-2	No.	6	AA6061	PLATE, 650 x 140 x 20mm	MACHINING	RD-41016501-P-180
35	SENSOR MOUNTING BLOCK	No.	6	AA6061	PLATE, 30 x 30 x 25mm	MACHINING	RD-41016501-P-182
36	GROUND FAN STUDS	No.	24	MDN	ROUND, $\phi$ 15 x 150 mm	MACHINING	RD-41016501-P-190

**Notes:**

- L1 status shall be evaluated based on the total quoted value and Load distribution shall be as per clause no. 11 of the tender enquiry.**
- The quantity indicated above is tentative and may vary slightly subject to the requirement at the time of ordering / execution. However, payment shall be made for the actual quantity only.
- The quoted price shall be inclusive of all applicable taxes & duties **except GST** and Income tax will be deducted from Vendor's bills at applicable rates. However, GST shall be reimbursed by BHEL on submission of proof of GST payment.
- The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of work.
- The bidders are advised to go through all the drawings & documents before quoting the tender.
- The evaluation currency for this tender shall be **INR**.

**Signature of the Bidder with Stamp**

**Terms & Conditions to Comply AS9100 Guidelines for Machining Components**

1. THE SUPPLIER SHOULD HAVE A QUALITY MANAGEMENT SYSTEM.
2. SUPPLIER SHOULD PREVENT USE OF COUNTERFEIT PARTS.
3. SUPPLIER SHALL NOTIFY BHEL OF ANY PRODUCT, PROCESS OR SERVICE CHANGE INCLUDING CHANGES MADE BY THEIR SUPPLIERS OR CHANGE IN LOCATION OF MANUFACTURE AND OBTAIN APPROVAL.
4. SUPPLIER SHALL FLOW DOWN TO THEIR SUPPLY CHAIN TO IMPLEMENT REQUIREMENTS OF BHEL BY SHARING THE SPECIFICATION
5. RETENTION PERIOD OF ALL RECORDS SHALL BE 10 YEARS.
6. SUPPLIER SHALL KEEP RECORDS OF ALL INTERACTION WITH BHEL.
7. SUPPLIER SHALL ENSURE AWARENESS OF THE FOLLOWING TO ALL THE PEOPLE AT SUPPLIER PREMISES:
  - a) CONTRIBUTING TO PRODUCT OR SERVICE CONFORMITY
  - b) CONTRIBUTING TO PRODUCT SAFETY
  - c) IMPORTANCE OF ETHICAL BEHAVIOUR

**Signature of the Bidder with Stamp**

**GENERAL TERMS & CONDITIONS****1. TECHNICAL DELIVERY CONDITIONS:**

The work should conform to the technical data given in our drawings, GMS, Shipping List Specifications, QAP, WPS etc.

**2. PARTY'S SCOPE:**

The scope of the party shall be as follows: -

- a) All welding equipments, baking oven, tools, jigs and fixtures, measuring instruments duly calibrated, handling facilities, testing facilities etc.
- b) All materials other than those mentioned under "Free Issue Materials", which are required for completion of the work.
- c) All consumables such as electrodes, gases, grinding wheels etc.

**Note: Electrodes of specification mentioned in the drawings / WPS and of BHEL approved brands only shall be used and MTCs of the same shall be submitted to BHEL for verification before use.**

**3. REVISION OF DRAWINGS:**

There may be minor changes in the drawings during execution. In such a case, party should accommodate the same without any extra claim.

**4. WELDING QUALIFICATION:** Qualification of required number of Welders is party's responsibility at their cost.**5. X-RAY:**

All welding shall be of X-ray quality where specified on drawings. Inspection would specify the quantum of X-ray based on drawings / code requirement. Party should strictly follow the WPS and QAP issued by BHEL during welding. Getting the welds radiographed and getting them cleared by inspection is the responsibility of the party.

**6. RECTIFICATIONS / REJECTIONS:**

Any rectification due to defective work, if required, shall be done by the party free of charge with a suitable technology approved before hand by BHEL in writing. The cost of material, if any used for rectification work / rejection work, will be estimated by BHEL and the same shall be debited to party's account. In case any rectification / rework is to be carried out due to defective material supplied by BHEL, the replacement material and consumables will be supplied by BHEL free of Cost.

**7. SECURITY DEPOSIT:**

- a) Vendors shall have to submit a Bank Guarantee for **25%** of the material cost towards Security Deposit and safe custody of free issue materials within 15 days from the date of intimation by Outsourcing dept. The BG shall be valid for the entire contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL. Bidder agrees to submit performance security required for execution of the contract within the time period mentioned above. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.
- b) **MODE OF DEPOSIT:** Security Deposit may be furnished in the following forms:
  - i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
  - ii) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
  - iii) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
  - iv) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).
  - v) Insurance Surety Bond.

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).



**8. PERFORMANCE BANK GUARANTEE:**

Vendors shall have to submit Performance Bank Guarantee (claim period of 12 months) for 10% of the order value covering for the defects liability period. If PBG is not submitted, 10% of the order value shall be deducted towards PBG from the final bill and shall be refundable after performance guarantee period, if no defects are found during this period.

**9. RAW MATERIALS ISSUE:**

Raw materials shall be issued with appropriate processing allowance and invisible wastage over the theoretical requirement of raw materials (**Plates, Sheets, Sections and Pipes**).

**10. TRANSFER / RETURN OF LEFT OVER MATERIALS:**

Party should maintain proper records for receipt & use of all free issue materials. The left over materials & scrap as per the material accounting statement shall be returned to HPVP stores along with finished job. Material Transfer Vouchers (MTV) from one order to another or from one vendor to another and Material Return Vouchers should be submitted immediately after transfer / return. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation.

**11. MATERIAL RECONCILIATION:**

**Cutting & Process Allowance:** Maximum of 10% on the requirement of materials (**Sheets, Plates, and Rods**) is admitted towards **cutting & process allowance and invisible wastage**.

**Rejection:** Maximum 5% of rejection is allowed, rejected component shall also be supplied to BHEL, failing which material cost for the rejected components shall be recovered by BHEL from vendor bills. Quantity of rejected components shall be replaced with acceptable quantity without any extra cost.

**Milling & Machining Scrap:** Quantity of scrap generated from Milling & Machining shall be as per applicable drawings. However, quantity of scrap shall be approved by BHEL at the time of material reconciliation. Milling & Machining scrap shall be returned to BHEL at the time of Final bill submission.

**If rejection and scrap is beyond above limits / applicable drawing requirements**, it should be fully justified with cutting diagrams etc., which are to be approved in advance by BHEL. **Otherwise, the cost of raw materials beyond approved limits will be recovered from the contractor bills as per BHEL recovery rates including applicable taxes & duties.**

Material reconciliation including return of balance materials, off-cuts and scrap is to be completed within 20 days from the date of completion of the order. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL-HPVP along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation.

Repeated occurrence of inordinate delays in returning and settling the material accounting will entail BHEL the right to terminate the contract forthwith or impose a temporary suspension on further loading at the discretion of BHEL.

**12. SCRAP & OFF-CUT NORMS:**

Sl. No.	Description	Scrap Size (in mm)	Off-Cut (in MM)
1.	MDN & Aluminium Sheets & Plates	Below 50 × 50	50 × 50 & above
2.	Rolled sections Rod, angles etc. (other than -tubes, pipes)	Below 50 mm length	50 & above
3.	Tubes & Pipes	Below 40	40 & above

**Note:** Scrap & Off-cut mentioned above should be returned to BHEL and the same should be part of material reconciliation.

Minimum 80% of the material issued should be returned back to BHEL in the form of finished component, off-cut & scrap.

**13. INSPECTION:**

Party shall contact our Quality Control Dept. for stages of inspection before commencement of job and should strictly follow the stages of inspection as per QAP.

**14. WORKMANSHIP GUARANTEE:**

The vendors should give workmanship guarantee for fabricated items for a period of 18 months from the date of last delivery of the order. Any defects due to incomplete work, faulty workmanship found in the fabricated items after delivery during the defects liability period shall be rectified / replaced by the vendor free of cost. Otherwise, the expenditure incurred towards the same will be recovered from the pending bills of vendors.

**15. WORK PROGRESS:**

The fabricator shall furnish a weekly report on the progress of work along with the status of availability of free issue materials and requirement of further materials, if any.

Outsourcing dept. personnel will visit vendor's works from time to time to assess and review the work progress. Free access shall be provided to BHEL or its inspection agency at all reasonable times of the day / night.

In case the progress is not satisfactory or supplies are delayed abnormally beyond the contractual delivery date, BHEL-HPVP, Visakhapatnam reserves the right to cancel the order in part or full or get the balance job in as is where is condition completed elsewhere by another agency at the risk and cost of Fabricator. The value of the work carried out by the party will be assessed by BHEL and the same shall be final. No compensation will be given to the fabricator in case of cancellation of order or diversion of balance job even if the jobs have been processed partly.

**16. DELIVERY:**

Finished items should be handed over to BHEL-HPVP on party's delivery challans along with Job completion certificate / Final Inspection Report from inspection agency / HPVP-QC department.

**17. PENALTY:**

Penalty calculations will be done on DU wise (Dispatchable Unit) delivery. If delivery exceeds the stipulated delivery schedule, penalty @ 1/2 % of the value of each DU per week (or) part thereof subject to a maximum of 10% of the value of each DU will be levied. However, time taken for the following will not be considered as delay on the part of the Sub-Contractor.

- 1) Intermediate operations, if any, carried out by BHEL.
- 2) Waiting time for BHEL / Third party Inspection beyond a normal time of 3 days.

**18. PAYMENT TERMS:**

Payment shall be made against RA Bills within 45 days for MSE (Micro & Small Enterprise), 60 days for Medium Enterprise and 90 days for non-MSEs from the date of submission of Bill.

90% payment will be made after handing over of the finished items along with all inspection documents to BHEL-HPVP, R&D Dept. duly inspected & cleared by Inspection authority. Balance 10% payment shall be made along with the Final Bill against completion of total order in all respects including documentation.

Vendors shall have to submit the bills in the formats specified by HPVP-Outsourcing and the bills submitted in the specified format along with necessary supporting documents are only admitted for processing. The following documents shall be submitted along with the Final Bill: -

1. No Claim Certificate from the contractor
2. No Dues Certificate from BHEL
3. Work Completion Certificate from BHEL
4. Material Reconciliation Statement submitted by the Contractor and certified by concerned authority of BHEL (if applicable)
5. Workmanship Guarantee certificate from the contractor

**19. SECRECY:**

All the documents of BHEL inclusive of Drawings, GMS and Standards made available to the fabricator should be kept in strict confidence and under no circumstance be made available to others or allow others to make use of them. Such documents shall be returned to BHEL on demand after completion of the job. This secrecy clause is binding on the employees of the fabricators also. Violation of the same may lead to suspension of business with the vendor and necessary legal action.

**20. SUB-LETTING:**

In general, sub-letting of jobs will not be permitted. But in special circumstances, this may be allowed. In such case, the party should obtain written approval from BHEL-HPVP, Visakhapatnam before sub-letting.

**21. FACTORY RULES AND REGULATIONS:**

Party shall abide by all the rules and statutory regulations in force from time to time as per factories act. It shall be party's responsibility to ensure the safety of their workmen and fulfilling the ESI, PF and other relevant statutory regulations.

**22. SAFETY:**

- a) Contractor shall adhere to safe construction practices, guard against hazardous & unsafe working conditions and shall comply with the safety rules of BHEL and local authorities. He shall maintain First Aid facilities for all his employees and labour. Contractor's responsibility includes supply of welder kit, all safety items such as safety belts, white and colour glasses, goggles, safety helmets, safety shoes etc.
- b) Contractor and his employees shall follow all fire & safety, security regulations of BHEL.

**23. HOUSE KEEPING:**

During execution of work, the contractor at all times keep the working place and storage area clean and free from accumulation of waste materials, rubbish etc.,

**24. ACCIDENT / DAMAGE / CONDUCT ETC.:**

Contractor will be held responsible for any disorderly conduct / misconduct, indiscipline, theft, smoking etc., on the part of his men. He will ensure summary eviction of such men from his premises failing which BHEL would remove them from the factory on his responsibility. Any damage to and or loss of equipment, machinery, building etc., to BHEL or BHEL employees, visitors or other contractors resulting from his own or any of his men's negligence shall be liable to be made good by him. Contractor shall be solely responsible for any accident in which you or your men or your equipment may be involved during the execution of contract on account of any reason what so ever.

**25. TERMINATION OF CONTRACT:**

In the event of any failure on the part of the contractor, BHEL reserves the right to terminate the contract by giving a notice of 2 weeks for any of the following lapses and contractual violations: -

- a) Failure to make labour payments in time as per the rules
- b) Failure to progress the job according to the agreed schedule
- c) Failure to mobilize adequate man power, tools & tackles and consumables in time
- d) Failure to adhere to Quality Standards of BHEL
- e) Refused to co-operate with other agencies working in the same area
- f) Failure to resolve labour disputes like strikes etc., within 7 days of occurrence
- g) Failure to comply with statutory regulations applicable at BHEL

BHEL shall also be free to intervene and take necessary remedial measures. All costs incurred with interest and overheads shall be recovered from contractor by such foreclosing or off-loading any part of the contract work.

**26. CONFLICT OF INTEREST AMONG BIDDERS / AGENTS:**

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

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

**27. OVER RUN COMPENSATION (ORC) / IDLE CHARGES:**

The contractor shall not be entitled to claim and the company shall not be liable to pay any amount on account of overrun compensation and idle charges, the overrun/ idling may be for whatsoever reasons.

**28. DISPUTES:**

Head of BHEL- HPVP Unit will be the final authority for any disputes arising out of this contract. The disputes / arbitration / settlement of contractual or legal issues shall be under the Jurisdiction of Visakhapatnam Court.

- 29.** For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of Contract / PO / WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

- 30.** 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.

**31. Order Acceptance:**

If the order acceptance is not received within 03 days from the date of release of Sub-contract order, it shall be assumed that the same has been accepted by you thereof.

**Signature of the Bidder with Stamp**



**Acceptance to Tender Terms & Conditions**

I / We hereby confirm that the Tender documents, Drawings, Quality documents etc. have been studied in detail and we have fully understood the scope of work.

I / We accept to all the Terms and Conditions of the Tender Enquiry and the prices quoted are in accordance with the same.

I / We give our acceptance to participate in Reverse Auction for this tender.

Tender documents duly signed on all the pages by the Owner / authorized representative of the bidder are attached herewith.

**Signature of the bidder with Stamp**

**BUSINESS RULES FOR REVERSE AUCTION (RA)**

This has reference to tender no. **OS/24-25/R&D/5626/04/004, dated 16.07.2024**. BHEL shall finalise the Rates for **Manufacturing of CNC Machining components for ACM Module for 2KW CASDIC LCS against S.O. No. 5626 at Vendor works with free issue materials** through Reverse Auction mode. BHEL has made arrangement with an authorized Service provider (details will be shared before reverse auction) for conducting RA. Bidders should go through the instructions given below and submit acceptance of the same.

The technical & commercial terms are as per (a) BHEL Tender Enquiry No. **OS/24-25/R&D/5626/04/004, dated 16.07.2024**, (b) Bidders' technical & commercial bid (in case of two-part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

**1. Procedure of Reverse Auctioning:**

- i) Price bids of all techno-commercially qualified bidders shall be opened.
- ii) **Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iii) The lowest bidder in sealed envelope price bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.
- iv) Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v) After the completion of the reverse auction, the Closing Price shall be available for further processing.
- vi) Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

**2. Schedule for reverse auction:** The Reverse Auction schedule will be intimated to the techno-commercially qualified bidders at a later stage.

**3. Auction extension time:** If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc. The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Reverse Auction.

**4. Bid price:** The Bidder has to quote the {...} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document including loading (if indicated by BHEL due to deviations in technical/ commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).

**5. Bidding currency and unit of measurement:** Bidding will be conducted in *Indian Rupees per Unit* of the material as per the specifications mentioned in the tender.

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

6. **Validity of bids:** Price shall be valid for 90 days from the date of reverse auction. These shall not be subjected to any change whatsoever.
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.
9. **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
10. Any commercial/ technical loading shall be separately intimated to respective bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during Reverse Auction.  
Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.
11. Reverse auction shall be conducted by BHEL (through M/s {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

In order to ward-off contingent situation of connectivity failure bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

12. Proxy bids: Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

13. Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc. from M/s. {Service provider}.

14. M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.
15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure – VI) for price breakup, quoted during the Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL within two working days of Auction without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/24-25/R&D/5626/04/004, dated 16.07.2024**. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
  - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
  - b. Bid Placed by the bidder
  - c. Start Price
  - d. Decrement value
  - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com))*, shall be initiated by BHEL.

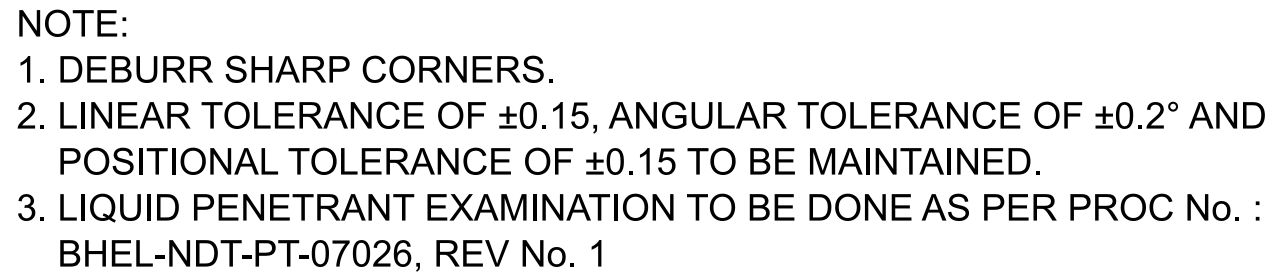
**Signature of the Bidder with Stamp**




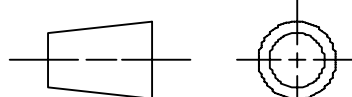
**GST COMPLIANCE FOR INDIGENOUS SUPPLIERS**

1. In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GSTIN which should be clearly mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
2. Supplier shall mention their GSTIN in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.
3. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
4. A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.
5. All documents like Test Certificate, LR copy, Guarantee/Warrantee certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment where ever applicable. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so.
6. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL.
7. For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.
8. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.
9. This is to inform that GST portion of invoice, shall be released only upon Vendor declaring such invoice in his GSTR-1 and receipt of goods and Tax invoice by BHEL and Confirmation of payment of GST thereon by vendor on GSTN portal. Alternatively, BG of appropriate value may be obtained from vendor which shall be valid At least one month after the confirmation of date of payment of GST by vendor on GSTN portal and receipt of Tax invoice and receipt of goods, whichever is later. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.
10. That in case vendor delays Declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

***Note: The above will be followed strictly for processing vendor payments to ensure GST Compliance.***



TYPE OF HOLE	HOLE SIZE
B	Ø5.2
C	Ø8.4

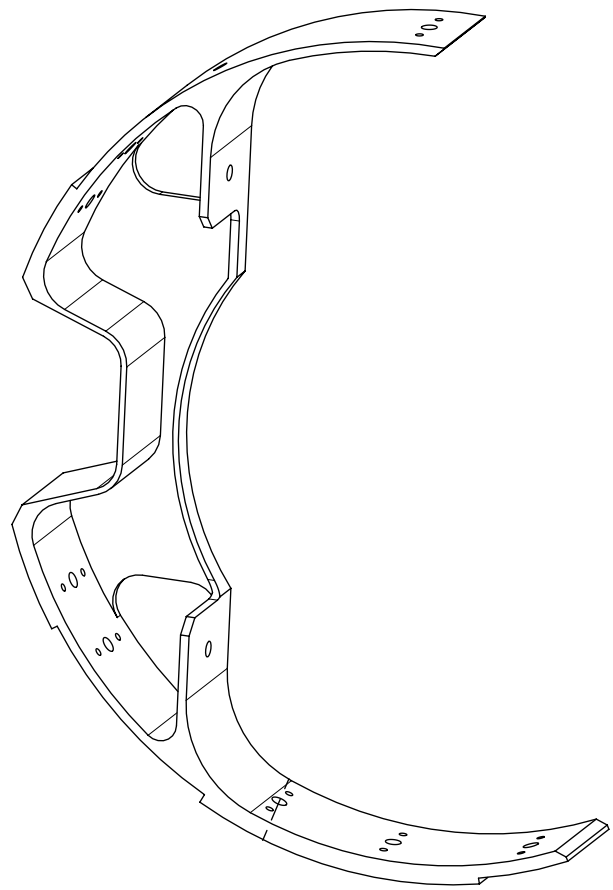
		<b>BHARAT HEAVY ELECTRICALS LTD.</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.		
DRAWN	ANAND <i>[Signature]</i> 27.07.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL <i>[Signature]</i> 27.07.2021	CUSTOMER	DARE	
APPROVED	SVS SRINIVAS <i>[Signature]</i> 27.07.2021	TITLE	ACM BULK HEAD-1	
SCALE	1:2			
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED		REF DRAWING NO	RD-41016501-A-101	
		YEAR OF ORDER	DRAWING NUMBER	REV.
		2019	RD-41016501-P-176	02
		SHEET 1 OF 1		SIZE: A2

<p><b>* AS PER IS2102, PART-1</b></p> <p><b>FOLLOW TOLERANCE CLASS-C</b></p> <p><b>UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE</b></p>				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR		± 4.5°		
SURFACE FINISH	SYMBOL	▽▽	▽▽	▽
	TOL (µm)	0.025 to 1.6	1.6 to 8	8 to 25


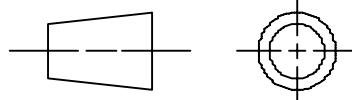
THE INFORMATION IN THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL TO INTEREST OF THE COMPANY

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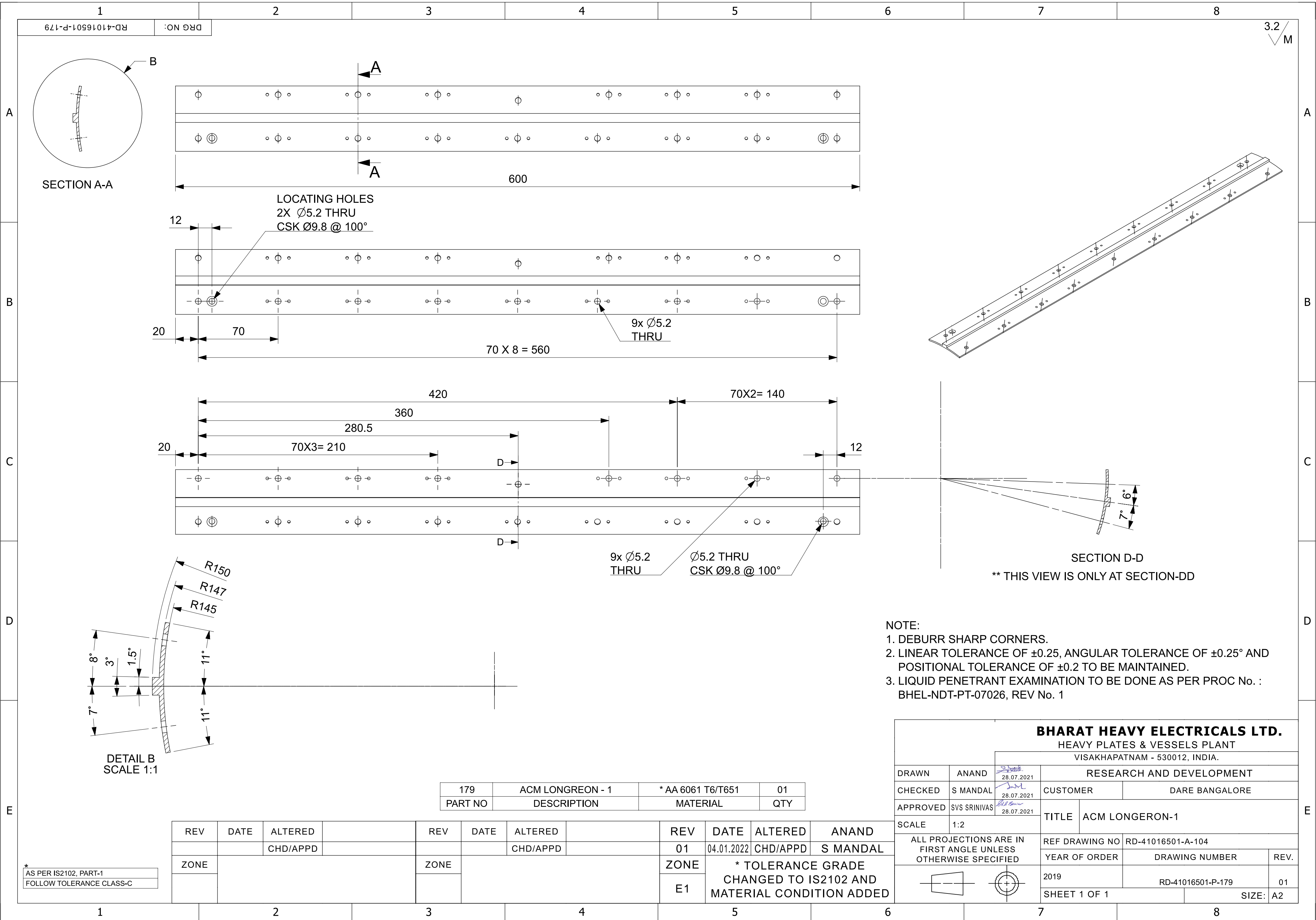




178	ACM BULK HEAD-3	* AA2014 T6/ T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

		<b>BHARAT HEAVY ELECTRICALS LTD.</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	<i>Shree</i> 27.07.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	<i>Shree</i> 27.07.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	<i>SVS Srinivas</i> 27.07.2021	TITLE    ACM MODULE BULK HEAD-3		
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-103	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-178	02
			SHEET 1 OF 1		SIZE: A2




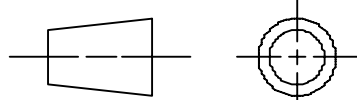
THE INFORMATION IN THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.  
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL TO INTEREST OF THE COMPANY

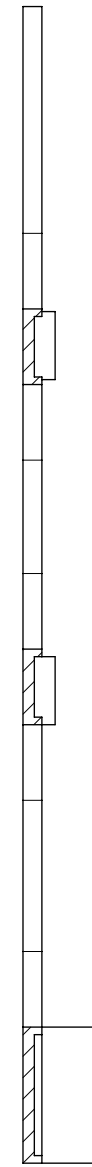


\* AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

179	ACM LONGREON - 1	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD		01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE		* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED	
								E1			

BHARAT HEAVY ELECTRICALS LTD.									
HEAVY PLATES & VESSELS PLANT									
VISAKHAPATNAM - 530012, INDIA.									
DRAWN	ANAND	 28.07.2021	RESEARCH AND DEVELOPMENT						
CHECKED	S MANDAL	 28.07.2021	CUSTOMER			DARE BANGALORE			
APPROVED	SVS SRINIVAS	 28.07.2021	TITLE		ACM LONGERON-1				
SCALE	1:2								
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO		RD-41016501-A-104				
			YEAR OF ORDER		DRAWING NUMBER			REV.	
			2019		RD-41016501-P-179			01	
			SHEET 1 OF 1				SIZE: A2		



Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and coordinate markers.

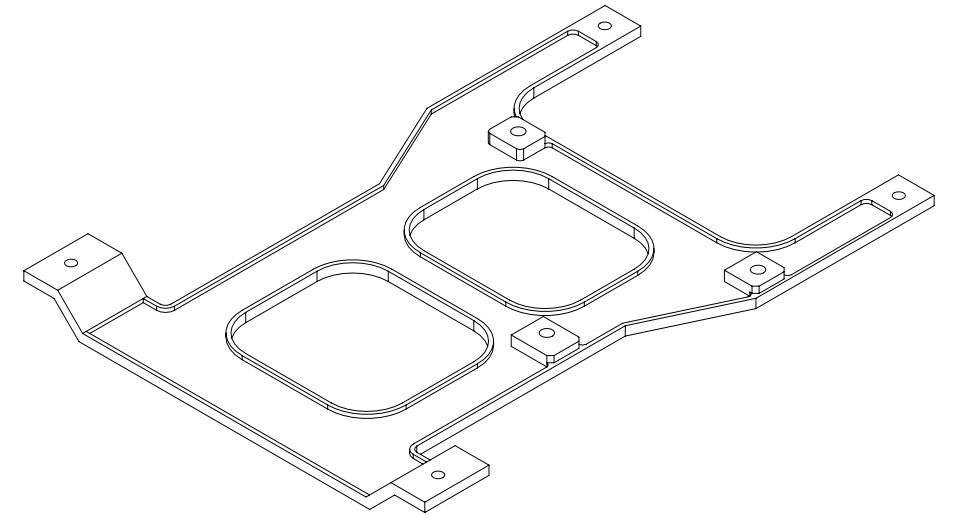
**Dimensions:**

- Overall width: 206
- Overall height: 279
- Top horizontal distance from left edge to centerline: 165
- Distance from left edge to centerline of the top hole: 10
- Distance from left edge to centerline of the middle hole: 134.5
- Distance from left edge to centerline of the bottom hole: 110
- Distance from left edge to centerline of the bottom hole (bottom section): 9.5
- Distance from left edge to centerline of the middle hole (bottom section): 15
- Distance from left edge to centerline of the bottom hole (bottom section): 17

**Coordinate Markers:**

- Top holes: Marked with 'X' and a center point.
- Middle holes: Marked with 'Y' and a center point.
- Bottom holes: Marked with 'X' and a center point.

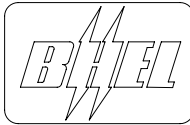



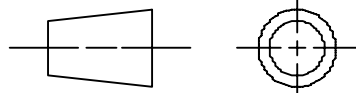
The drawing includes a central vertical dashed line and a horizontal dashed line indicating the center of the part.



## SECTION B-B

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.25$  AND POSITIONAL TOLERANCE  $\oplus$  OF  $\pm 0.2$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

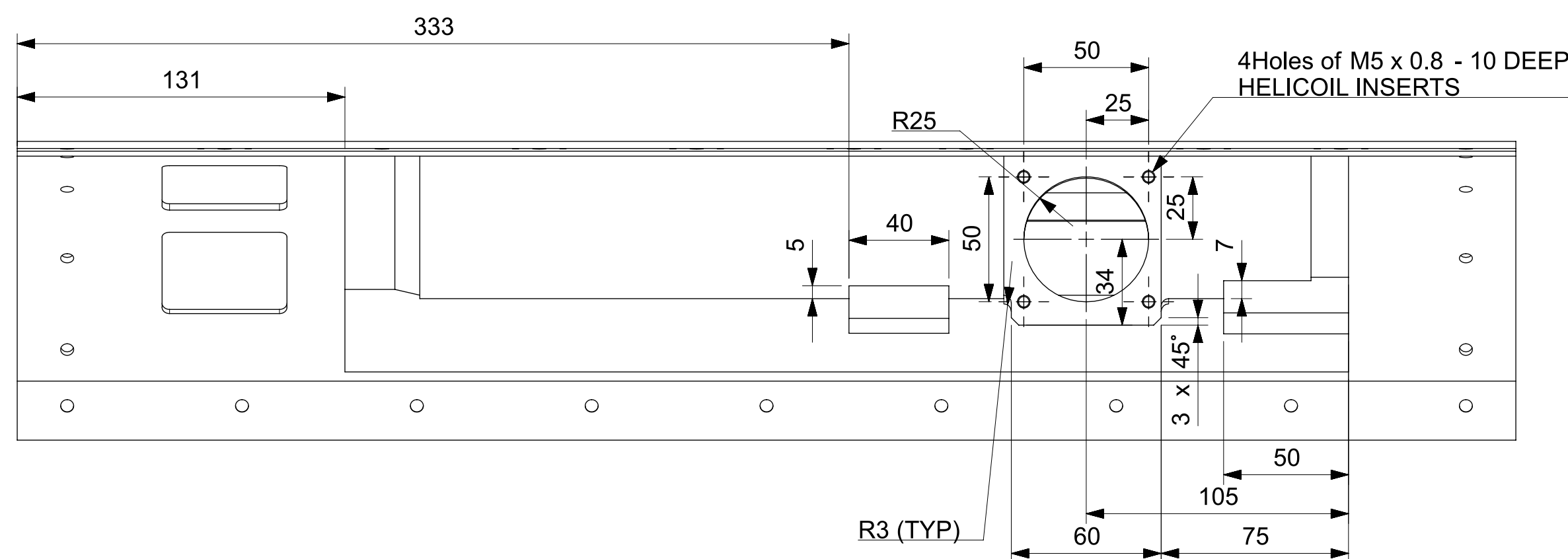
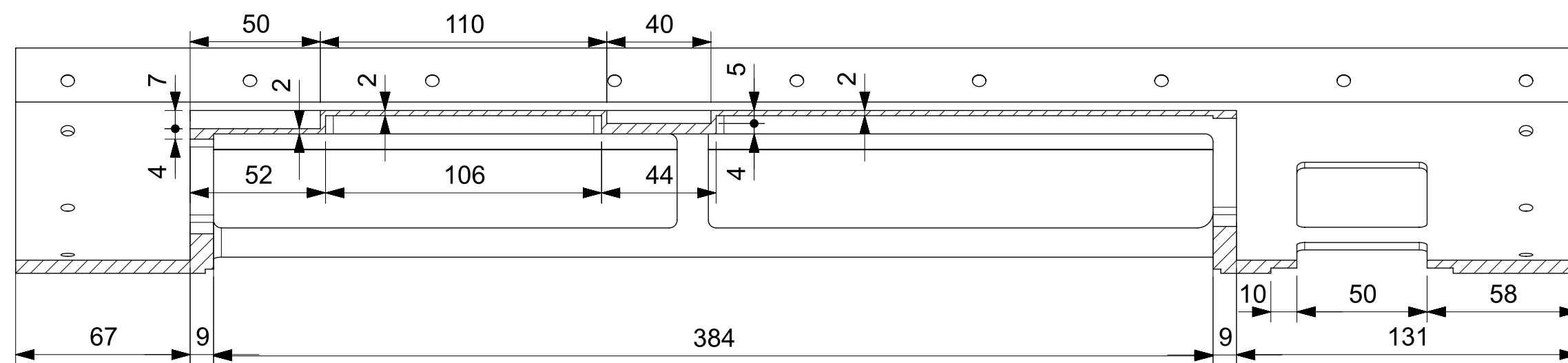
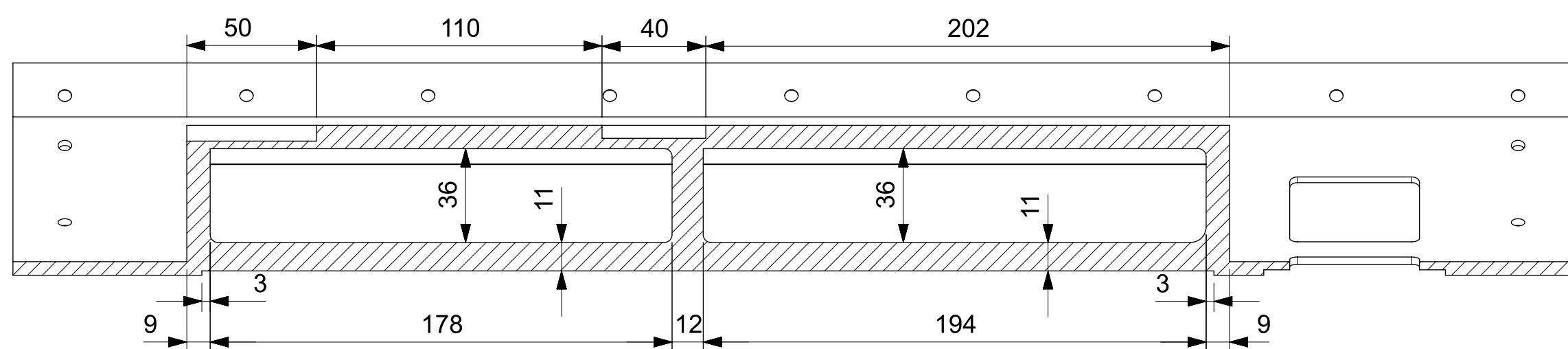
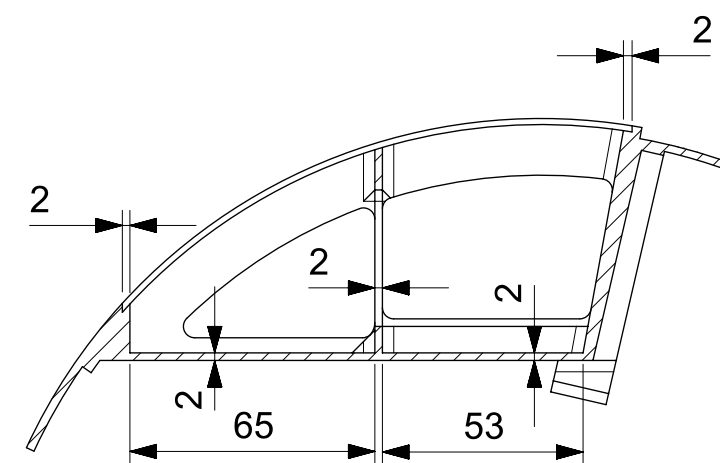
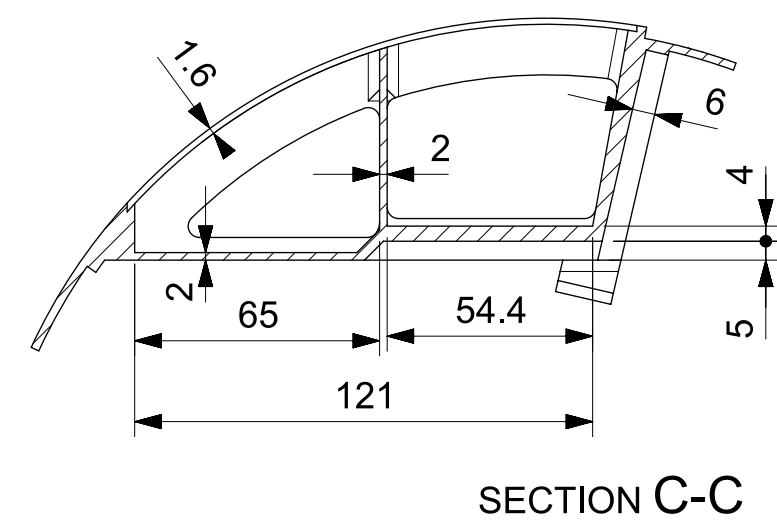
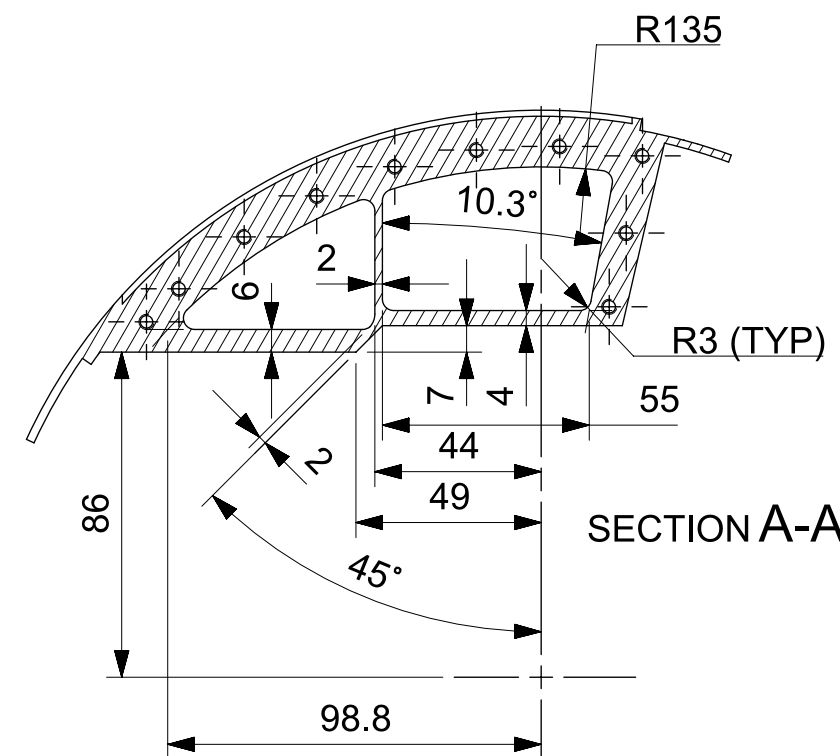
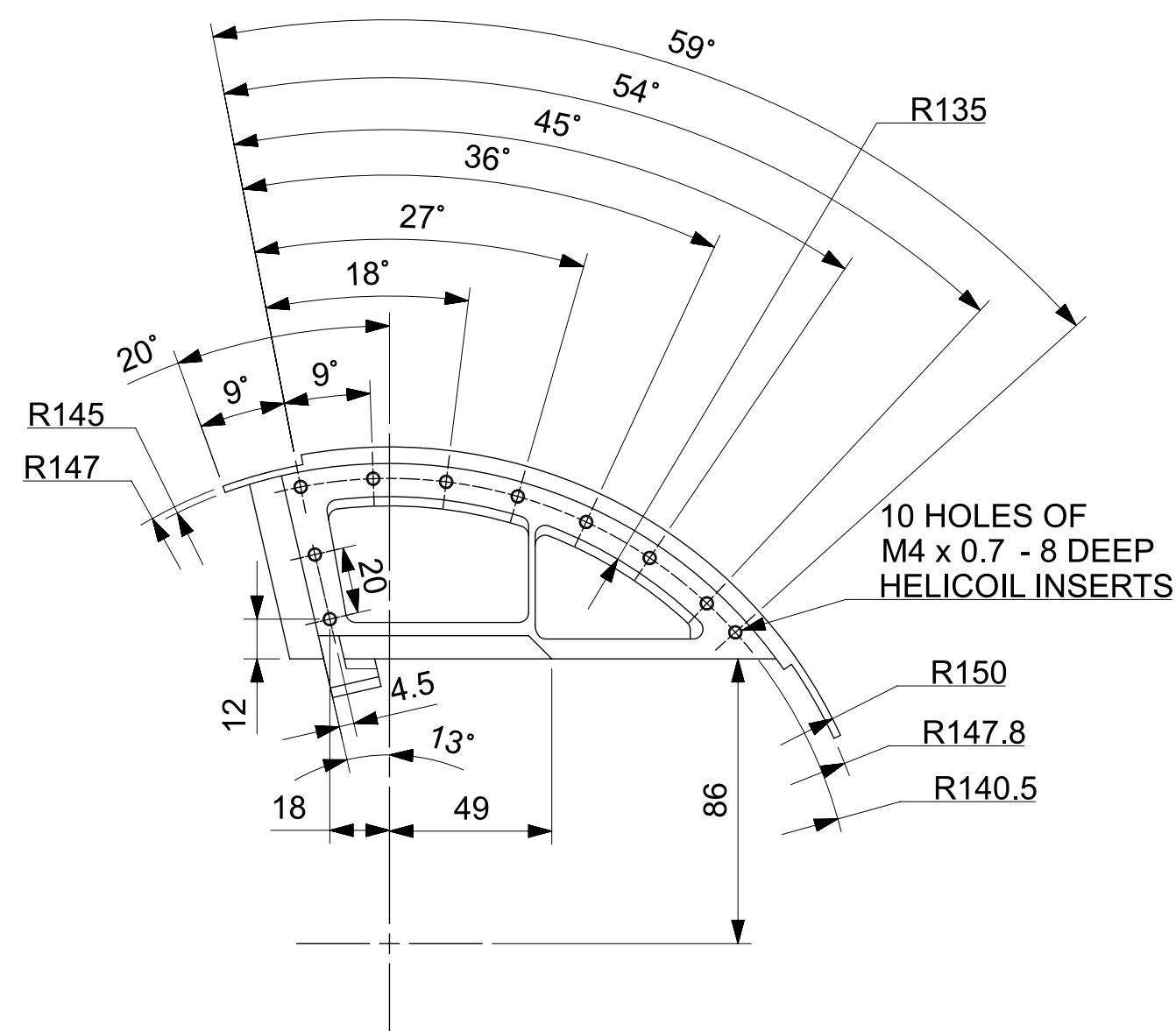
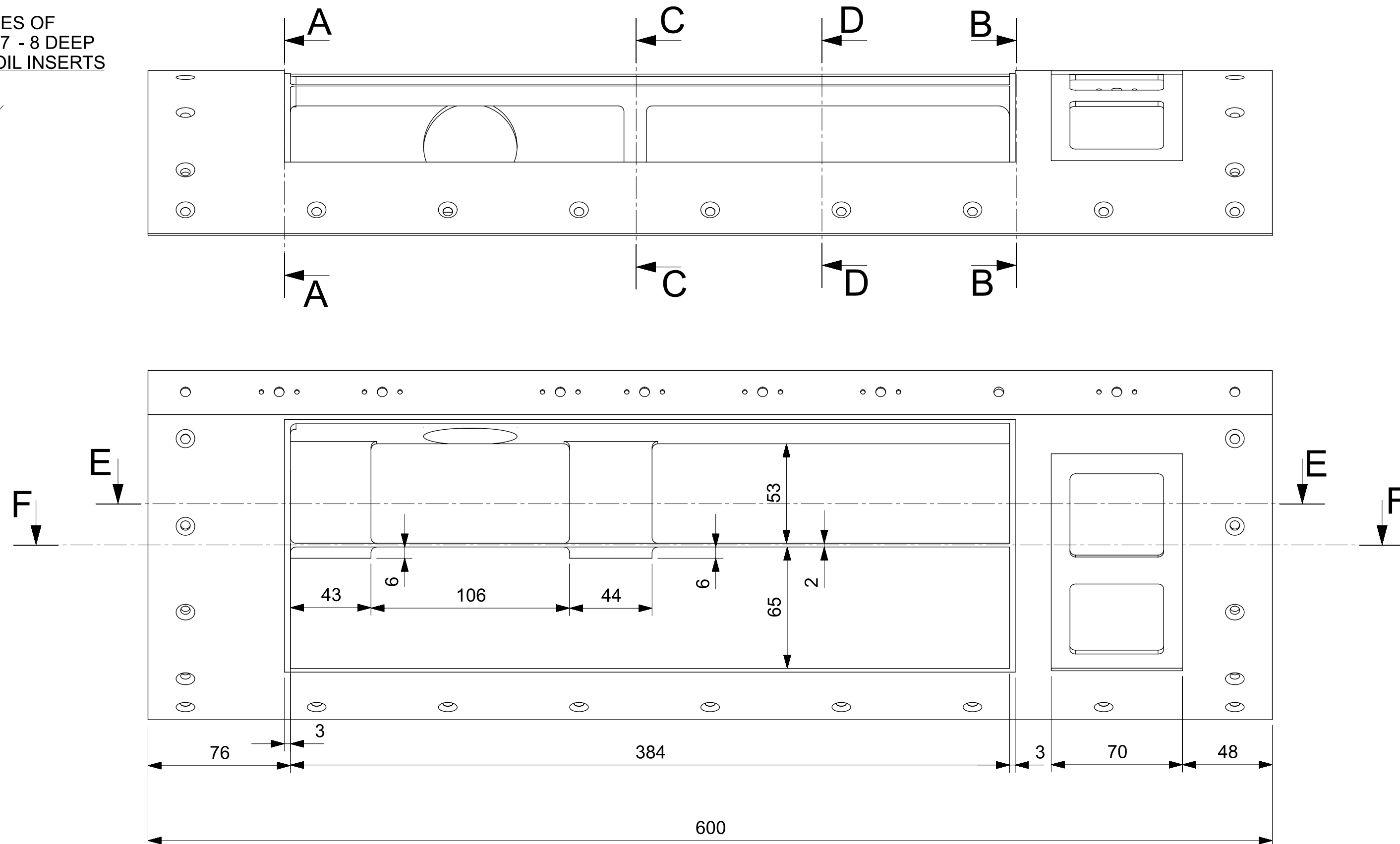
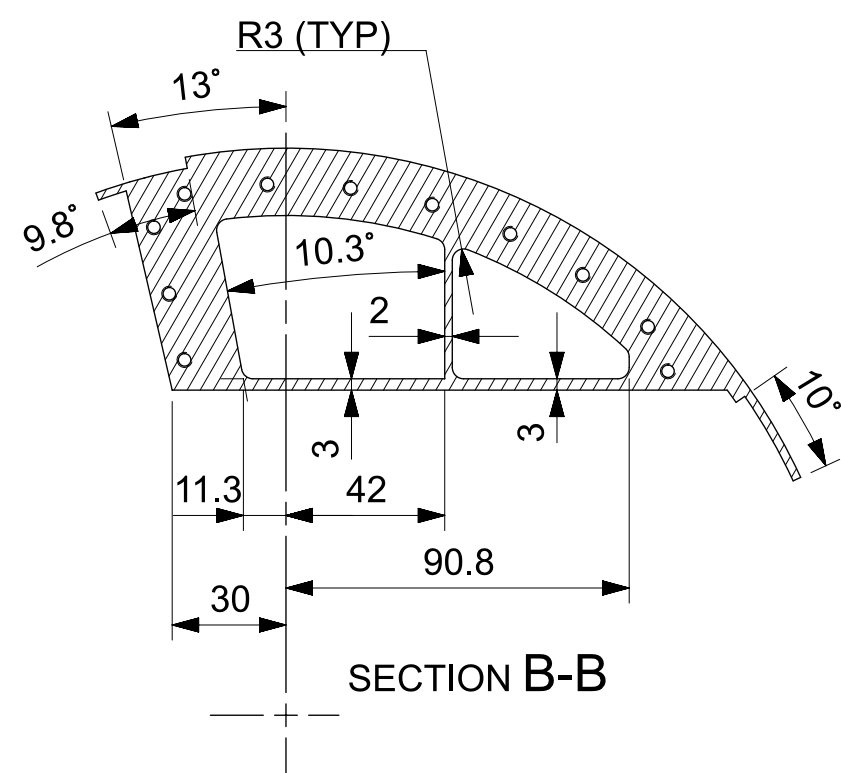
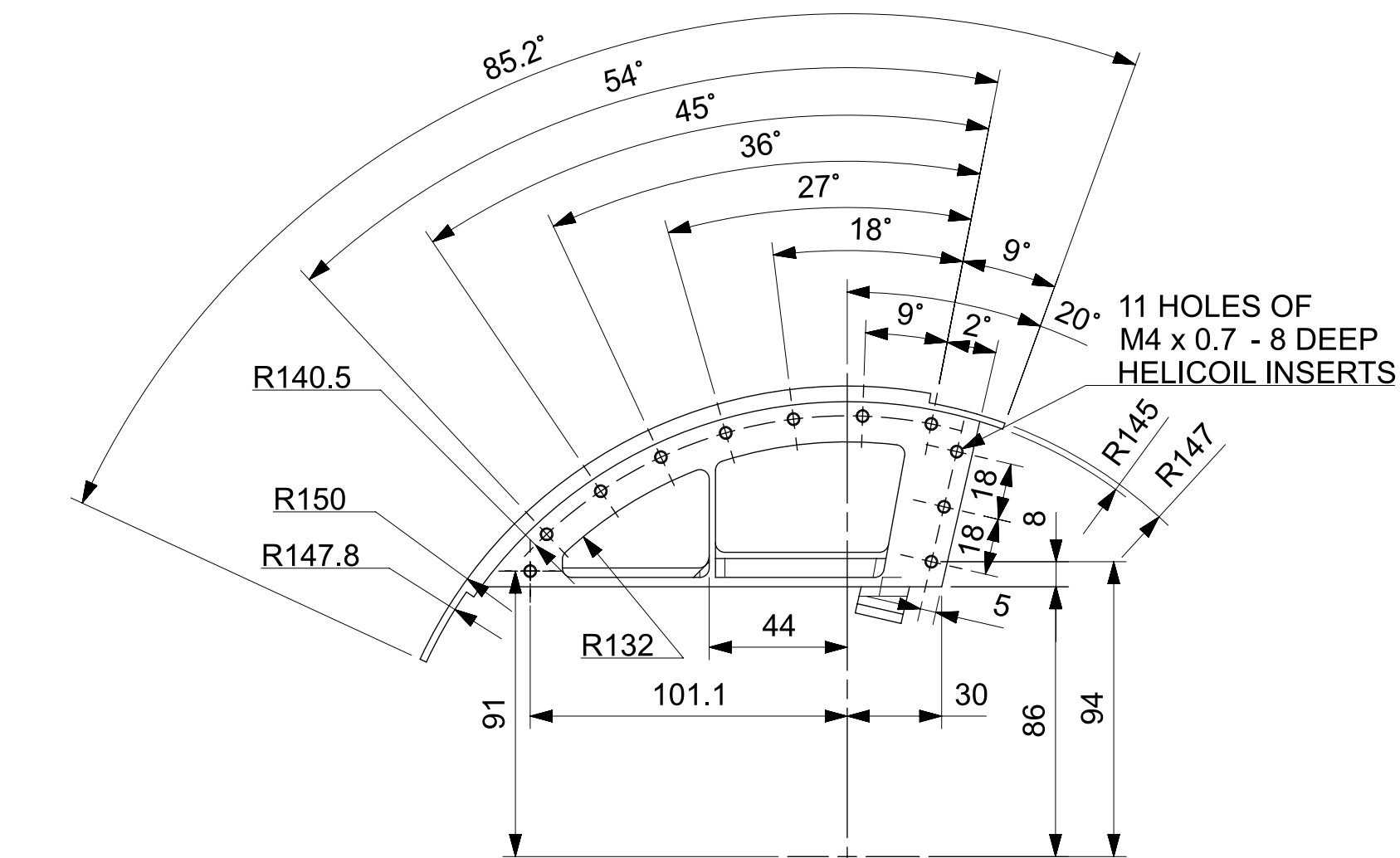
TYPE OF HOLE	HOLE SIZE
X	Ø5.3
Y	Ø6.2

		<b>BHARAT HEAVY ELECTRICALS LTD.</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	 28.07.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 28.07.2021	CUSTOMER	DARE	
APPROVED	SVS SRINIVAS	 28.07.2021	TITLE	ACM MOUNTING BRACKET	
SCALE	1:1				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-100	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-105	01
			SHEET 1 OF 1		SIZE: A2

* AS PER IS2102, PART-1 FOLLOW TOLERANCE CLASS-C				
<del>UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE</del>				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	<del>±0.5</del>	<del>±1.5</del>	<del>±2.5</del>
ANGULAR	<del>± 1.5°</del>			
SURFACE FINISH	SYMBOL	<del>√√√</del>	<del>√√</del>	<del>√</del>
	TOL (µm)	0.025 to 1.6	1.6 to 8	8 to 25

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RD-41016501-P-107  
DRG NO:3.2  
MA  
B  
C  
D  
E  
F  
G  
HA  
B  
C  
D  
E  
F  
G  
H

- NOTE:  
1. DEBURR SHARP CORNERS.  
2. TOLERANCES ON ANGULAR  $\pm 0.2^\circ$ , LINEAR  $\pm 0.25$ . AND POSITIONAL  $\pm 0.25$  TO BE MAINTAINED.  
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No.: BHEL-NDT-PT-07026, REV No. 1

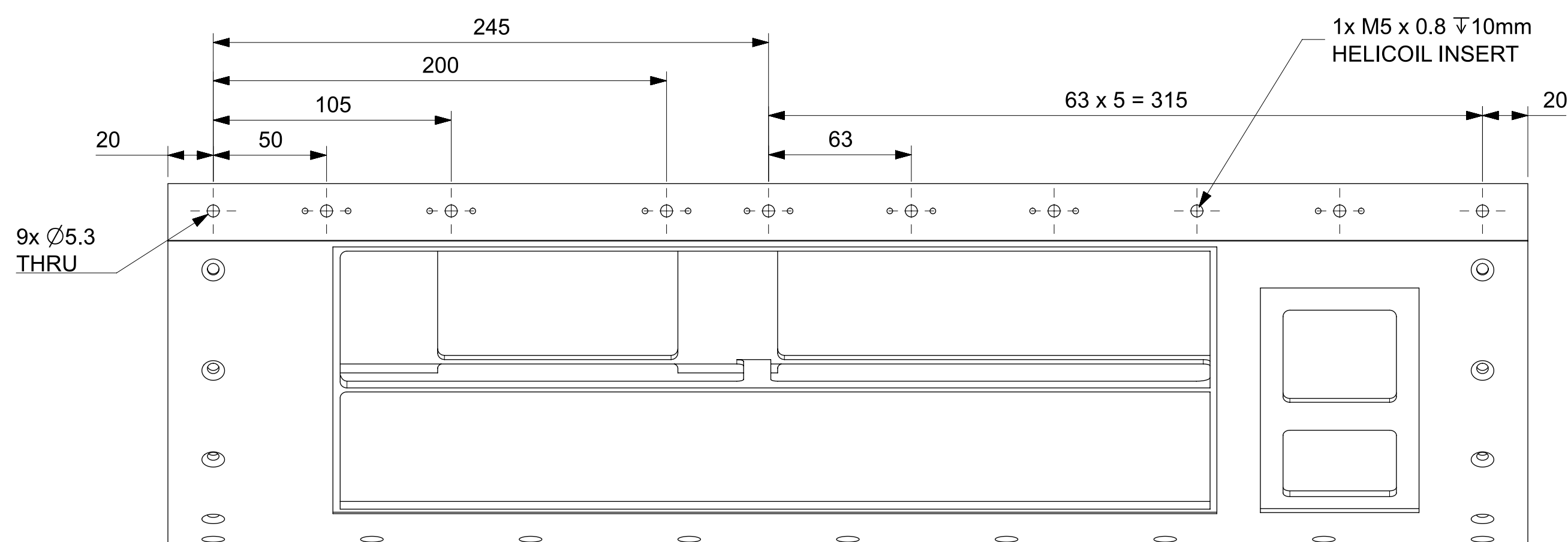
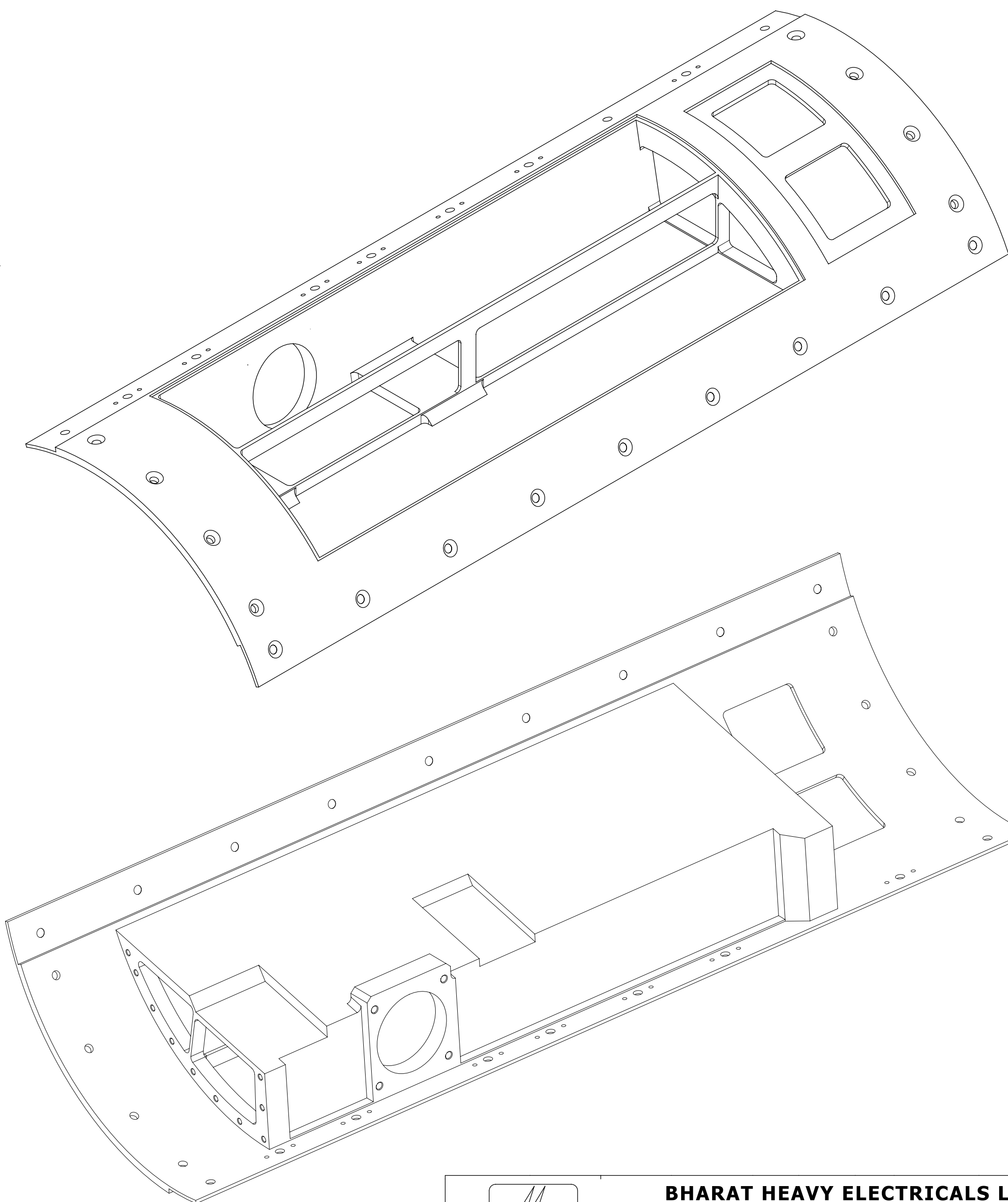
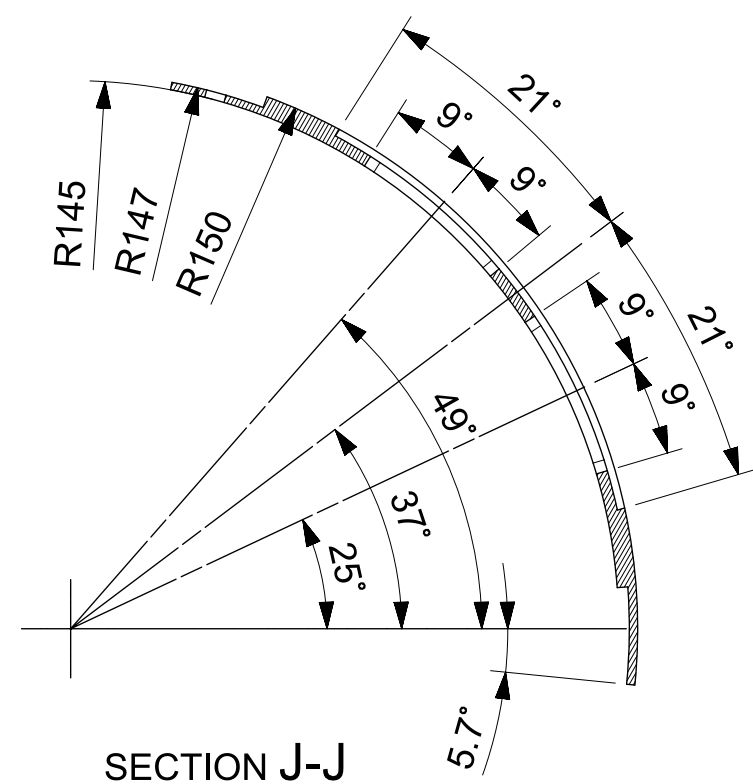
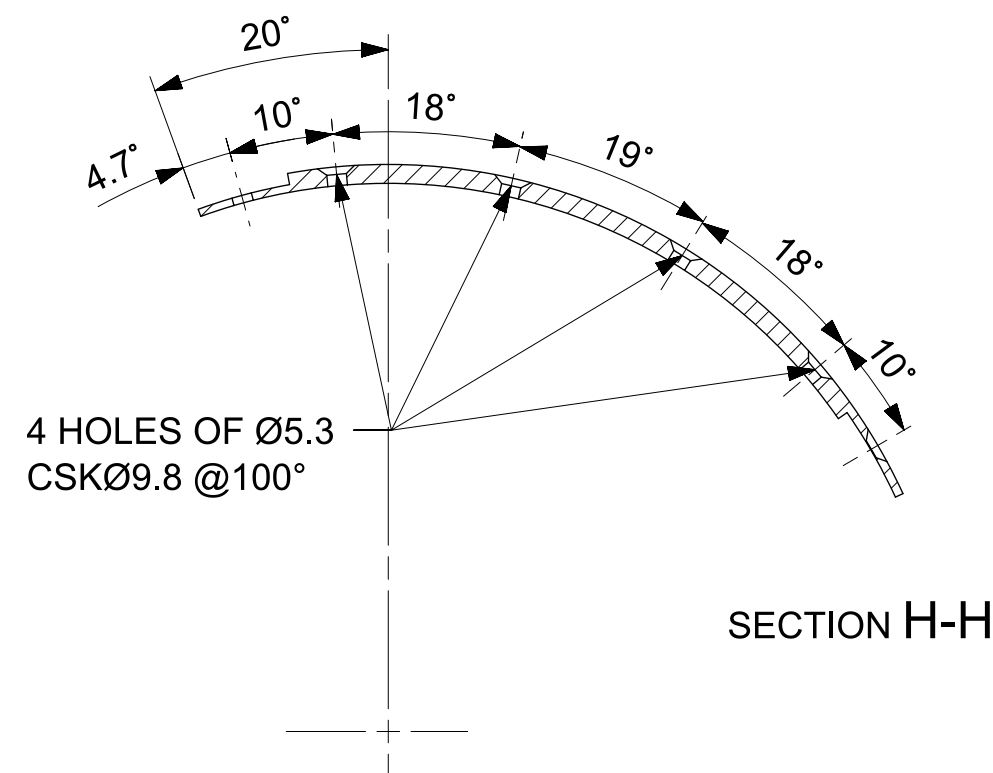
* AS PER IS2102, PART-1 FOLLOW TOLERANCE CLASS-C			
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE			
LINEAR	RANGE	5 - 50	51 - 250
	TOL (MM)	$\pm 0.5$	$\pm 1.5$
ANGULAR		$\pm 1.5^\circ$	
SURFACE FINISH	SYMBOL	VVV	V
	TOL (um)	0.025 to 1.6	1.6 to 8

REV	DATE	ALTERED	REV	DATE	ALTERED
		CHD/APPD			CHD/APPD
ZONE			ZONE		

REV	DATE	ALTERED	REV	DATE	ALTERED
		CHD/APPD			CHD/APPD
ZONE			ZONE		

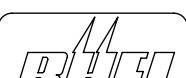





REV	DATE	ALTERED	REV	DATE	ALTERED
02	20.01.2024	CHD/APPD	01	04.01.2022	CHD/APPD
ZONE			ZONE		

107	ACM INTERCONNECTING DUCT	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY
Bharat Heavy Electricals Ltd.			
HEAVY PLATES & VESSELS PLANT			
VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	RESEARCH AND DEVELOPMENT	
CHECKED	S MANDAL	CUSTOMER	DARE BANGALORE
APPROVED	SVS SRINIVAS	TITLE	ACM INTERCONNECTING DUCT
SCALE	1:2	REF DRAWING NO	RD-41016501-A-106
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED		YEAR OF ORDER	DRAWING NUMBER
		2019	RD-41016501-P-107
		SHEET 1 OF 2	SIZE: A1



UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR	± 1.5°			
SURFACE FINISH	SYMBOL	▽▽	▽	▽
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25

REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	Anand	REV	DATE	ALTERED	Anand
		CHD/APPD				CHD/APPD				CHD/APPD		02	20.01.2024	CHD/APPD	S Mandal	01	04.01.2022	CHD/APPD	S Mandal
ZONE				ZONE				ZONE				ZONE	M3 HOLES CHANGED TO M4, M4 ANCHORNUT HOLES CHANGED TO M5, CSK CHANGED TO 100°			ZONE			
												SH1 B4, B11, SH2 F1, D5				H1			* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED

		<h1 style="text-align: center;">BHARAT HEAVY ELECTRICALS LTD.</h1> <h2 style="text-align: center;">HEAVY PLATES &amp; VESSELS PLANT</h2> <h3 style="text-align: center;">VISAKHAPATNAM - 530012, INDIA.</h3>			
DRAWN	ANAND	 28.07.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 28.07.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	 28.07.2021	TITLE	ACM INTERCONNECTING DUCT	
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-106	
			YEAR OF ORDER	DRAWING NUMBER	REV.
 			2019	RD-41016501-P-107	02
			SHEET 2 OF 2		SIZE: A1

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A

B

C

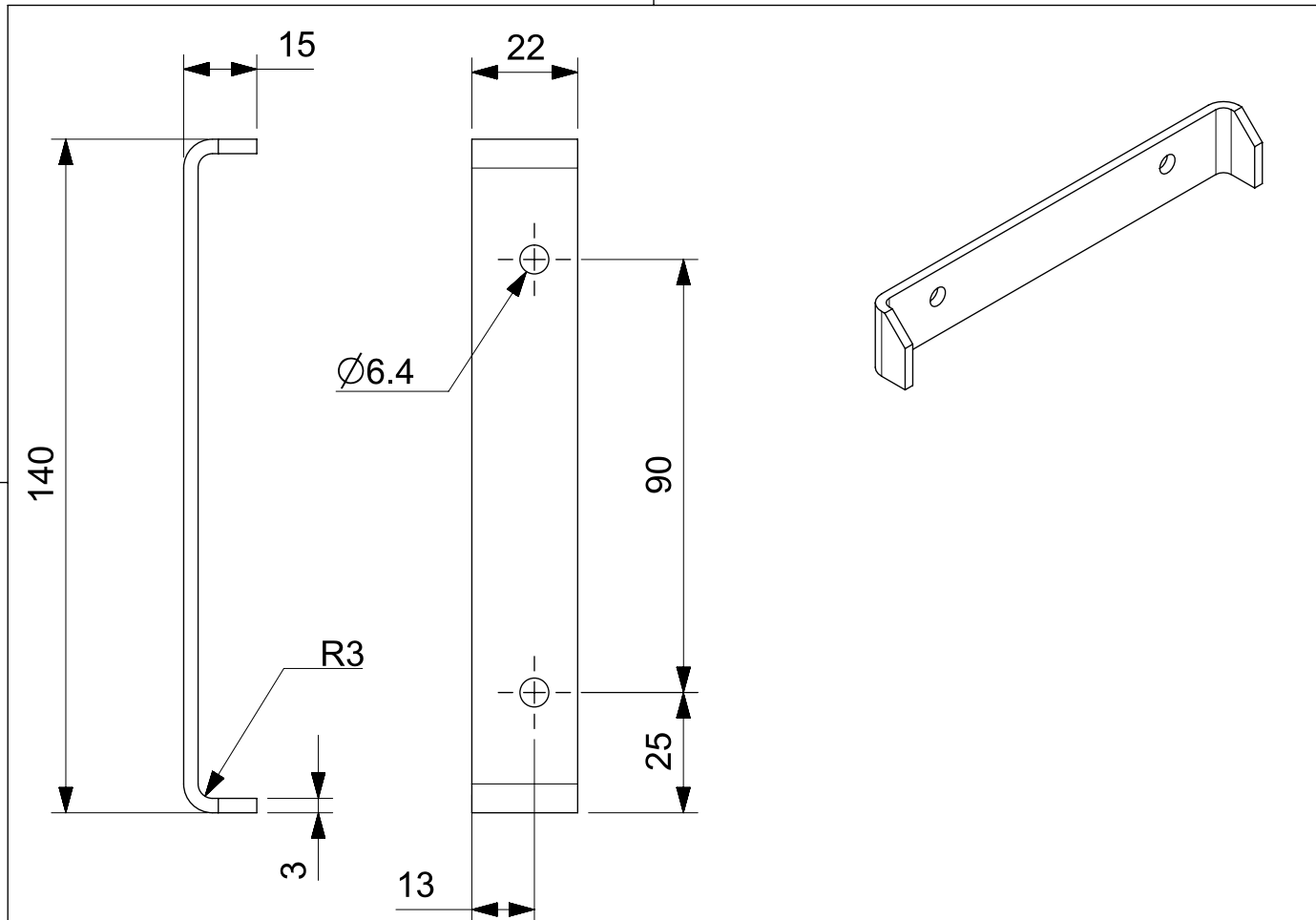
A

B

C

D

D



## NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.5$  AND POSITIONAL TOLERANCE  $\oplus$  OF  $\pm 0.25$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

\*

As Per IS2102, Part-1
Follow Tolerance Class-C

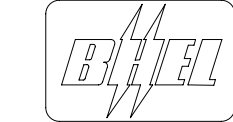
108	ACM INTERCONNECTING DUCT CLAMP	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

REV	DATE	ALTERED	ANAND
		CHD/APPD	S MANDAL
ZONE			
		D1	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED

PART NO	108			<b>BHARAT HEAVY ELECTRICALS LTD</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.		
MATERIAL	AA6061 T6/T651					
QTY	1	DRN	ANAND	03.08.2021	RESEARCH AND DEVELOPMENT	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE		CHK	S MANDAL	03.08.2021	CUSTOMER	
		APD	S MANDAL	03.08.2021	DARE BANGALORE	
		SCALE		1:1	TITLE	
					ACM INTERCONNECTING DUCT CLAMP	
LINEAR	RANGE	5 - 50	51 - 250	> 250	REF DRAWING NO	
	TOL (MM)	$\pm 0.5$	$\pm 1.5$	$\pm 2.5$	RD-41016501-A-106	
					YEAR OF ORDER	
					DRAWING NUMBER	
					REV.	
					2019	
					RD-41016501-P-108	
					01	
					SHEET 1 OF 1	
					SIZE: A4	




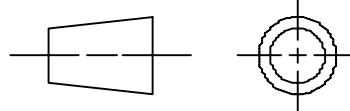
1

2

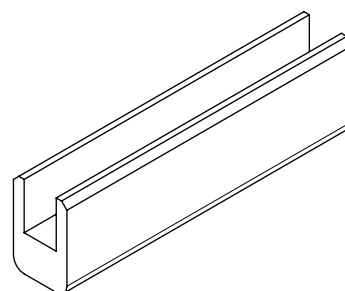
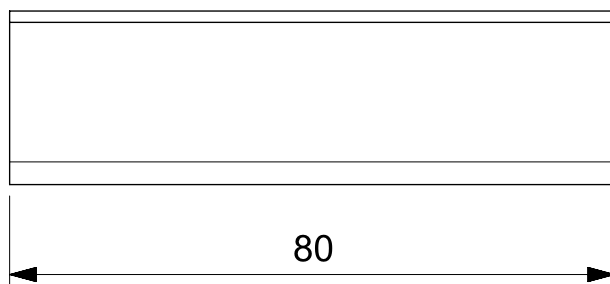
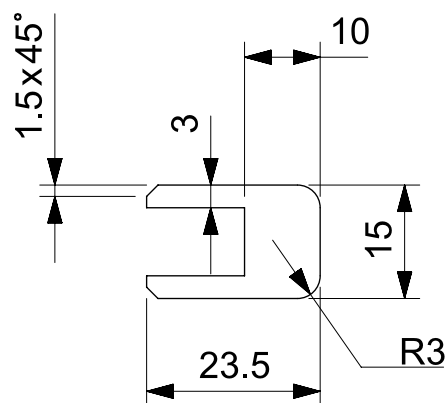
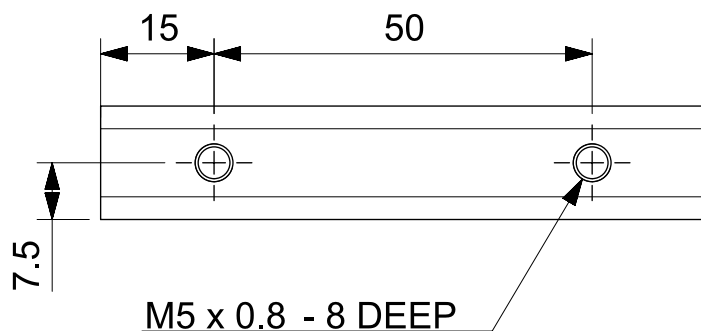


## HEAVY PLATES & VESSELS PLANT

VISAKHAPATNAM - 530012, INDIA.

DRAWN	ANAND	<div> 03.08.2021</div>	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	<div> 03.08.2021</div>	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	<div> 03.08.2021</div>	TITLE	INTERCONNECTING DUCT COVER	
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-106	
			YEAR OF ORDER	DRAWING NUMBER	REV.
<div></div>			2019	RD-41016501-P-109	01
			SHEET 1 OF 1		SIZE:





## NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.5$  AND POSITIONAL TOLERANCE  $\oplus$  OF  $\pm 0.25$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

\*

AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

111

MOUNTING CHANNEL

\* AA 6061  
T6/T651

01


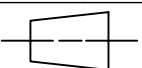
PART NO

DESCRIPTION

MATERIAL

QTY

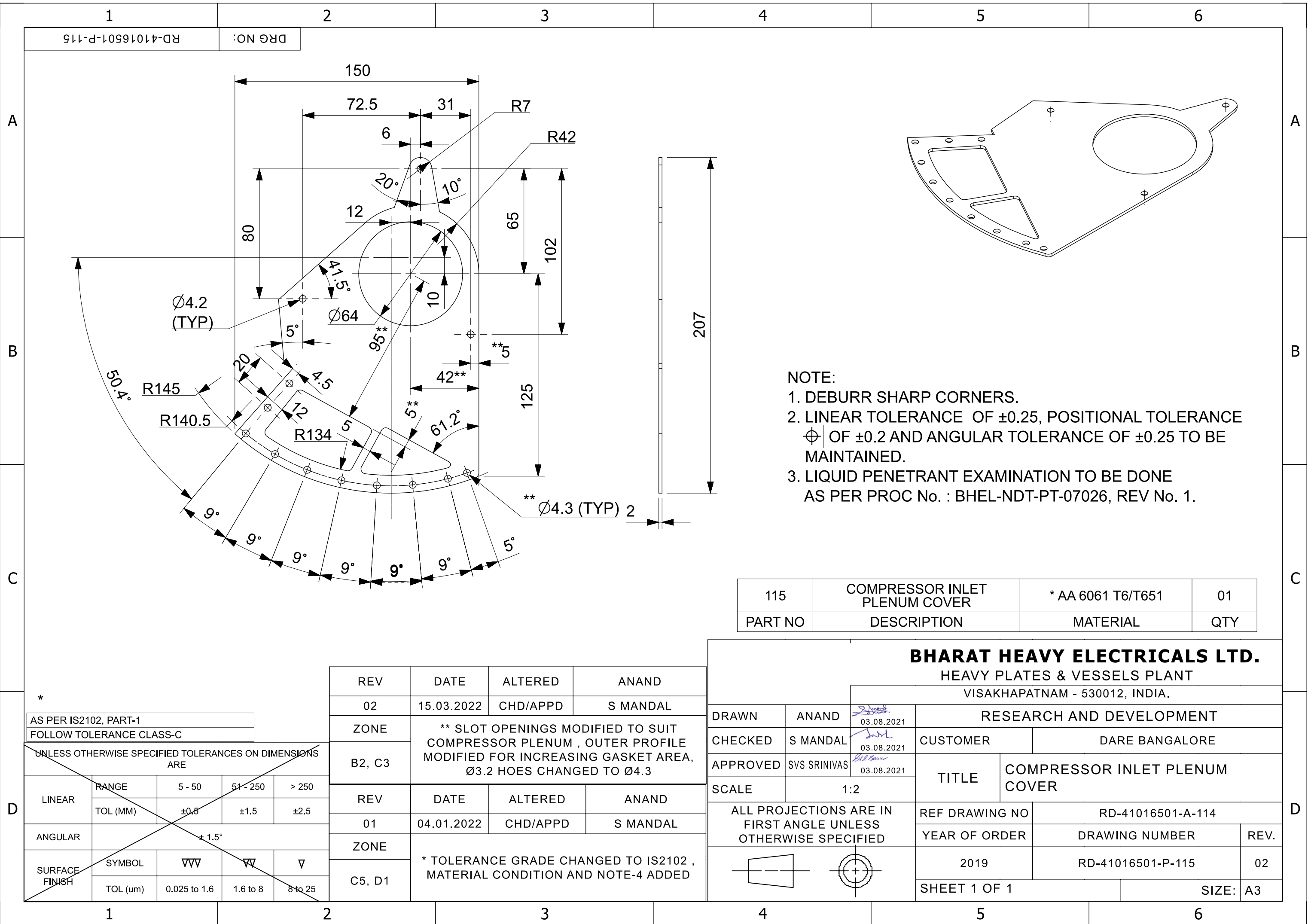
REV	DATE	ALTERED	Anand	REV	DATE	ALTERED	Anand
02	20.01.2024	CHD/APPD	S Mandal	01	04.01.2022	CHD/APPD	S Mandal
ZONE	Threaded hole given, Thickness changed			ZONE	* TOLERANCE GRADE CHANGED TO		
A2	to 3mm			C1	IS2102 AND MATERIAL CONDITION ADDED		

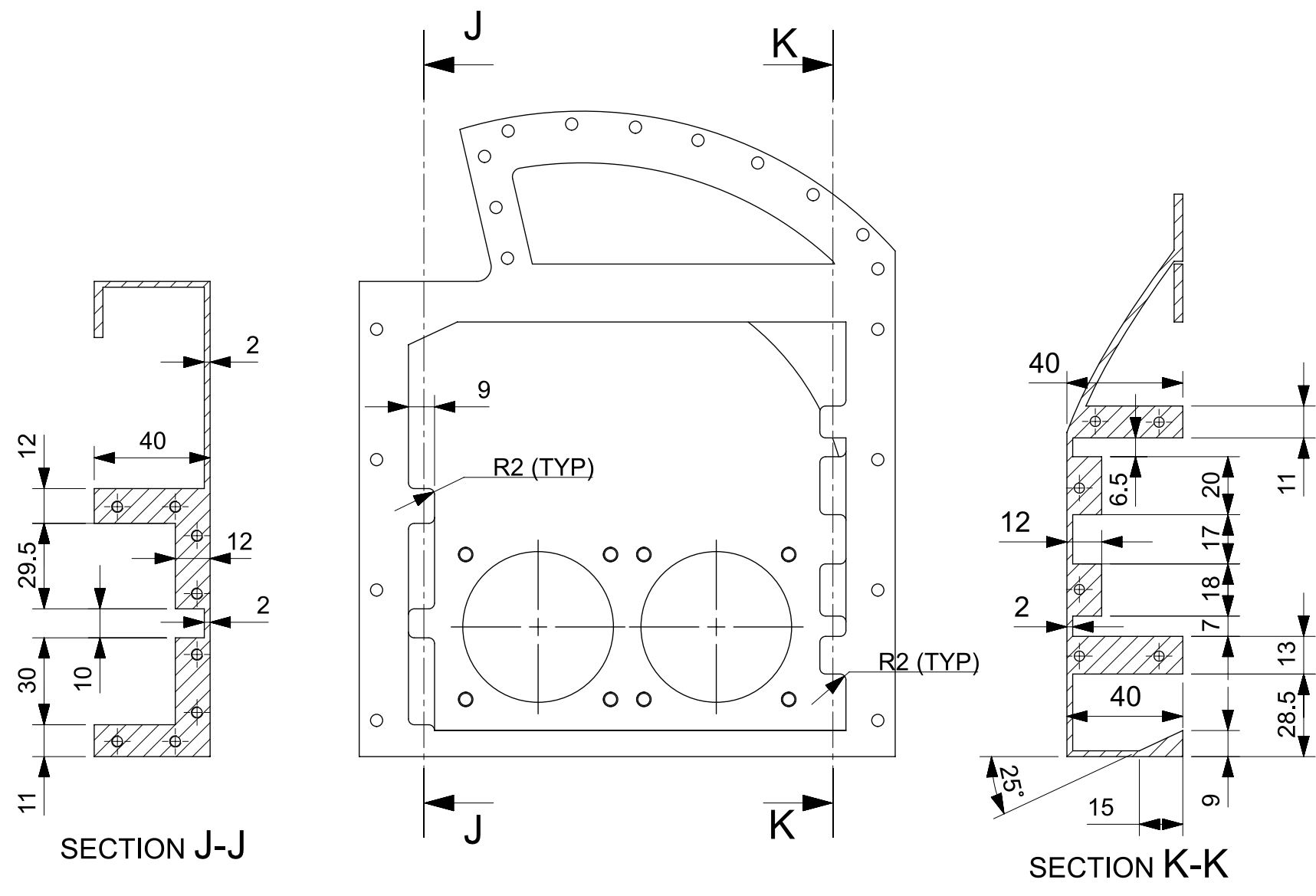
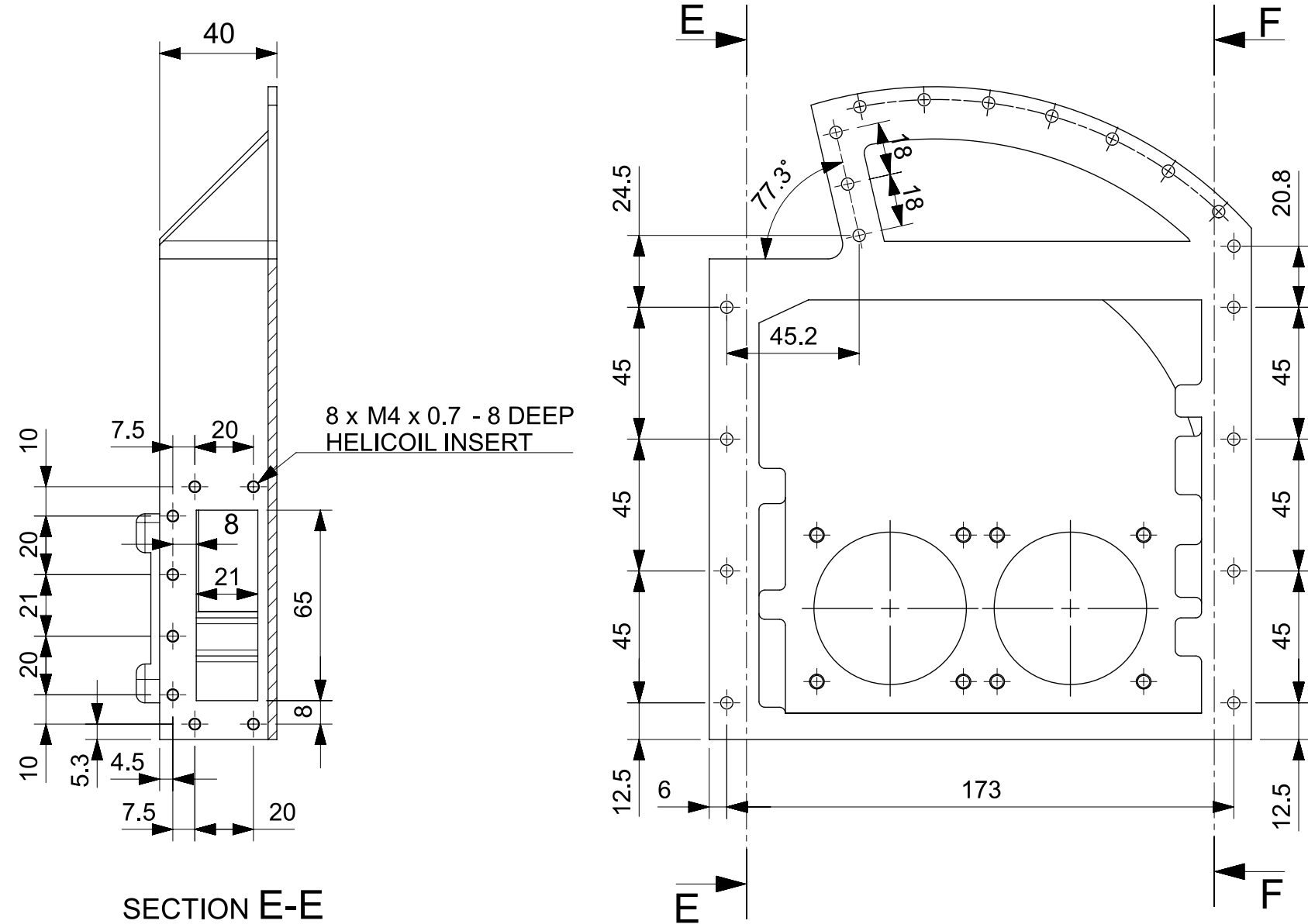
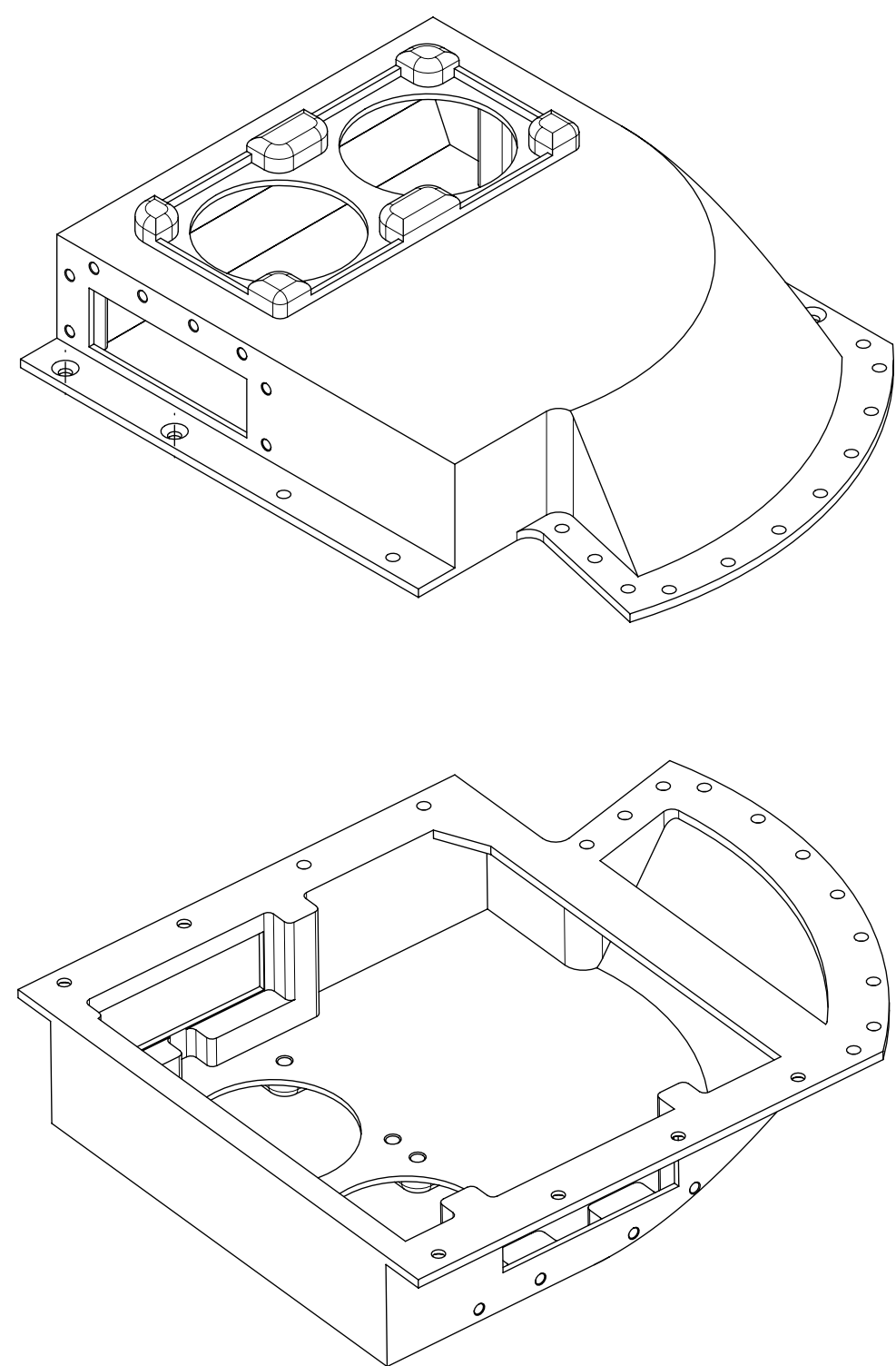
PART NO	111				<b>BHARAT HEAVY ELECTRICALS LTD</b>							
MATERIAL	AA6061 T6/T651				HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.							
QTY	1											
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE					DRN	ANAND	03.08.2021	RESEARCH AND DEVELOPMENT				
					CHK	S MANDAL	03.08.2021	CUSTOMER		DARE BANGALORE		
					APD	SVS SRINIVAS	03.08.2021	TITLE		MOUNTING CHANNEL		
					SCALE	1:1						
LINEAR	RANGE	5 - 50	51 - 250	> 250	ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO		RD-41016501-A-106		
	TOL (MM)	±0.5	±1.5	±2.5				YEAR OF ORDER		DRAWING NUMBER		REV.
ANGULAR	± 1.5°							2019		RD-41016501-P-111		02
SURFACE FINISH	SYMBOL							SHEET 1 OF 1		SIZE: A4		
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25								





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NOTE:

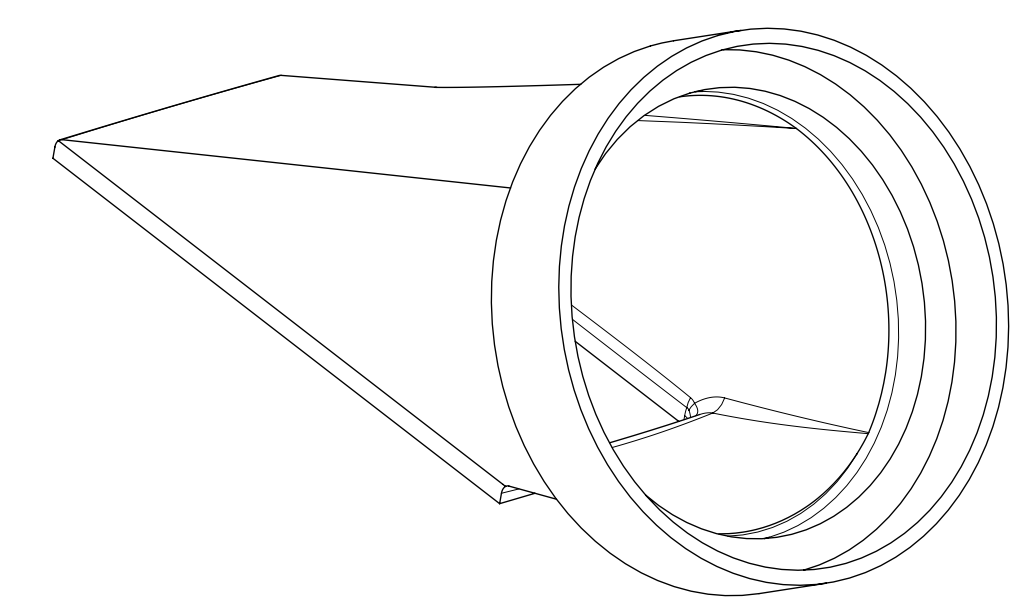
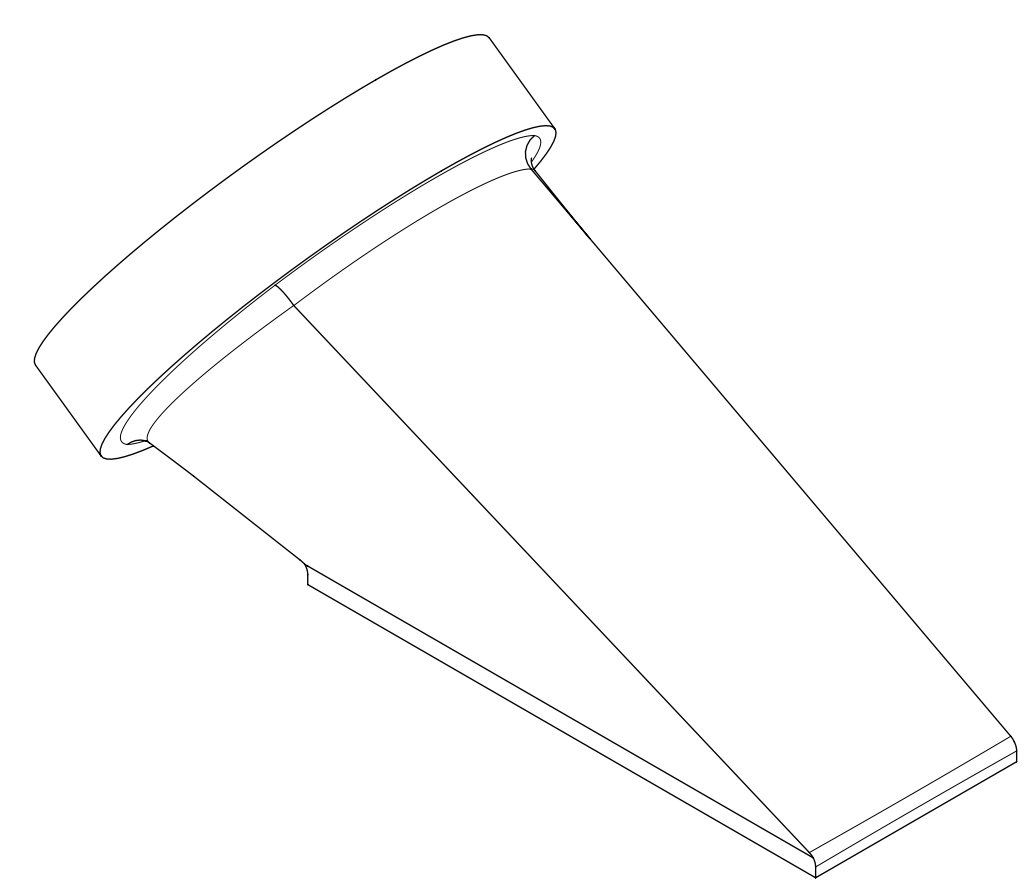
1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.25$ , POSITIONAL TOLERANCE  $\oplus$  OF  $\pm 0.15$  AND ANGULAR TOLERANCE OF  $\pm 0.15$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

117	HEAT EXCHANGER EXIT PLENUM	* AA 6061 T6 / T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

		<b>BHARAT HEAVY ELECTRICALS LTD.</b> <b>HEAVY PLATES &amp; VESSELS PLANT</b> <b>VISAKHAPATNAM - 530012, INDIA.</b>			
<b>DRAWN</b> ANAND	03.08.2021 <i>ANAND</i>	<b>RESEARCH AND DEVELOPMENT</b>			
<b>CHECKED</b> S MANDAL	03.08.2021 <i>S MANDAL</i>	<b>CUSTOMER</b>	<b>DARE BANGALORE</b>		
<b>APPROVED</b> SVS SRINIVAS	03.08.2021 <i>SVS SRINIVAS</i>	<b>TITLE</b>	<b>HEAT EXCHANGER EXIT PLENUM</b>		
<b>SCALE</b>	1:2				
<b>ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED</b>		<b>REF DRAWING NO</b>	<b>RD-41016501-A-100</b>		
		<b>YEAR OF ORDER</b>	<b>DRAWING NUMBER</b>	<b>REV.</b>	
		2019	RD-41016501-P-117	03	
		<b>SHEET 1 OF 1</b>			<b>SIZE: A1</b>
					

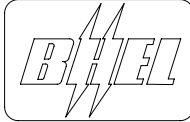
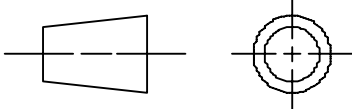
[illegible]

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NOTES:

1. DEBURR ALL SHARP CORNERS
2. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1
- 3.

		<h1 style="text-align: center;">BHARAT HEAVY ELECTRICALS LTD.</h1> <h2 style="text-align: center;">HEAVY PLATES &amp; VESSELS PLANT</h2> <h3 style="text-align: center;">VISAKHAPATNAM - 530012, INDIA.</h3>			
DRAWN	ANAND	<i>Signature</i>	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL		CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	<i>Signature</i>	TITLE	HE INLET PART	
SCALE	1:1				
Unless Otherwise Specified, follow IS 2102 Tolerance Class-C on All Dimensions			REF DRAWING NO	RD-41016501-A-100	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-118	01
			SHEET 1 OF 1		SIZE: A2

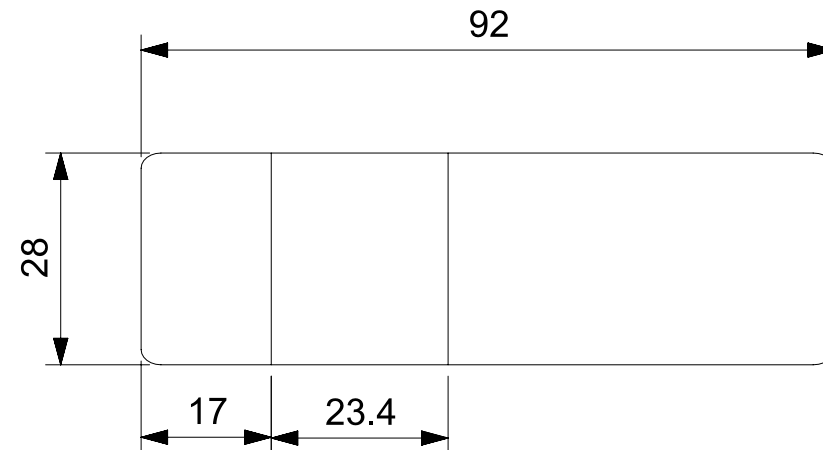
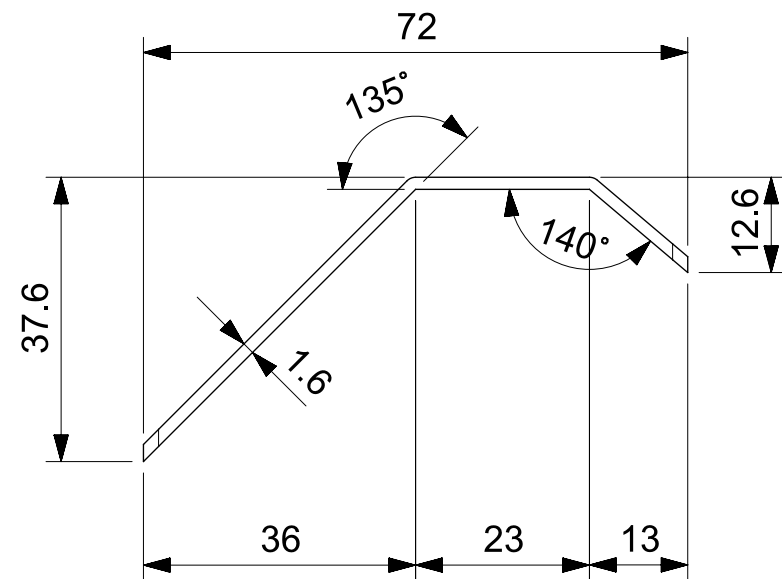
REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND	REV	DATE	ALTERED	ANAND
		CHD/APPD		02	20.01.2021	CHD/APPD	S MANDAL	01	04.012022	CHD/APPD	S MANDAL
ZONE				ZONE	MADE AS A SINGLE COMPONENT			ZONE	* TOLERANCE GRADE CHANGED TO IS2102, MATERIAL CONDITION AND NOTE-4 ADDED		
				B2, C2,C5				C1, D1			

\*  
AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

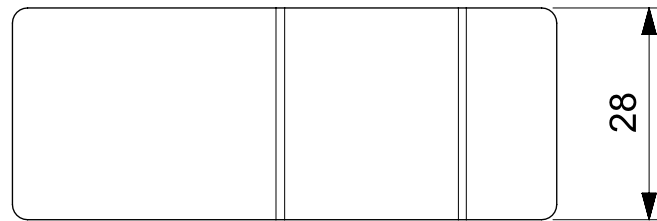
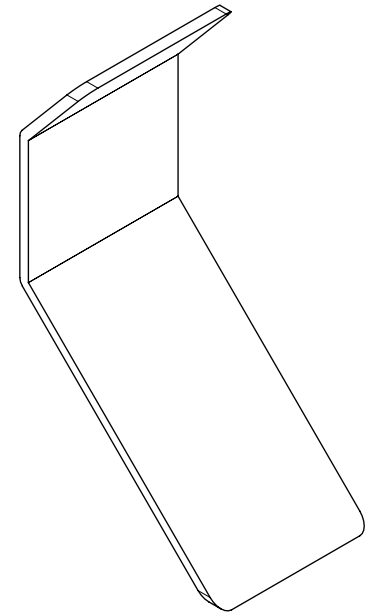
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## DEVELOPMENT DRAWING



NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.5$  AND ANGULAR TOLERANCE OF  $\pm 0.25^\circ$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

126	AUXILIARY PIPE PART-1	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

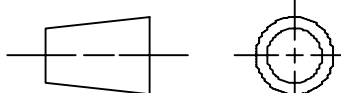
<div>*<div>AS PER IS2102, PART-1</div><div>FOLLOW TOLERANCE CLASS-C</div></div>					REV	DATE	ALTERED	
							CHD/APPD	
					ZONE			
<del>UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE</del>								
LINEAR	RANGE	5 - 50	51 - 250	> 250	REV	DATE	ALTERED	ANAND
	TOL (MM)	±0.5	±1.5	±2.5	01	04.01.2022	CHD/APPD	S MANDAL
ANGULAR	± 1.5°				ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
SURFACE FINISH	SYMBOL	▽▽▽	▽▽	▽	D1			
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25				



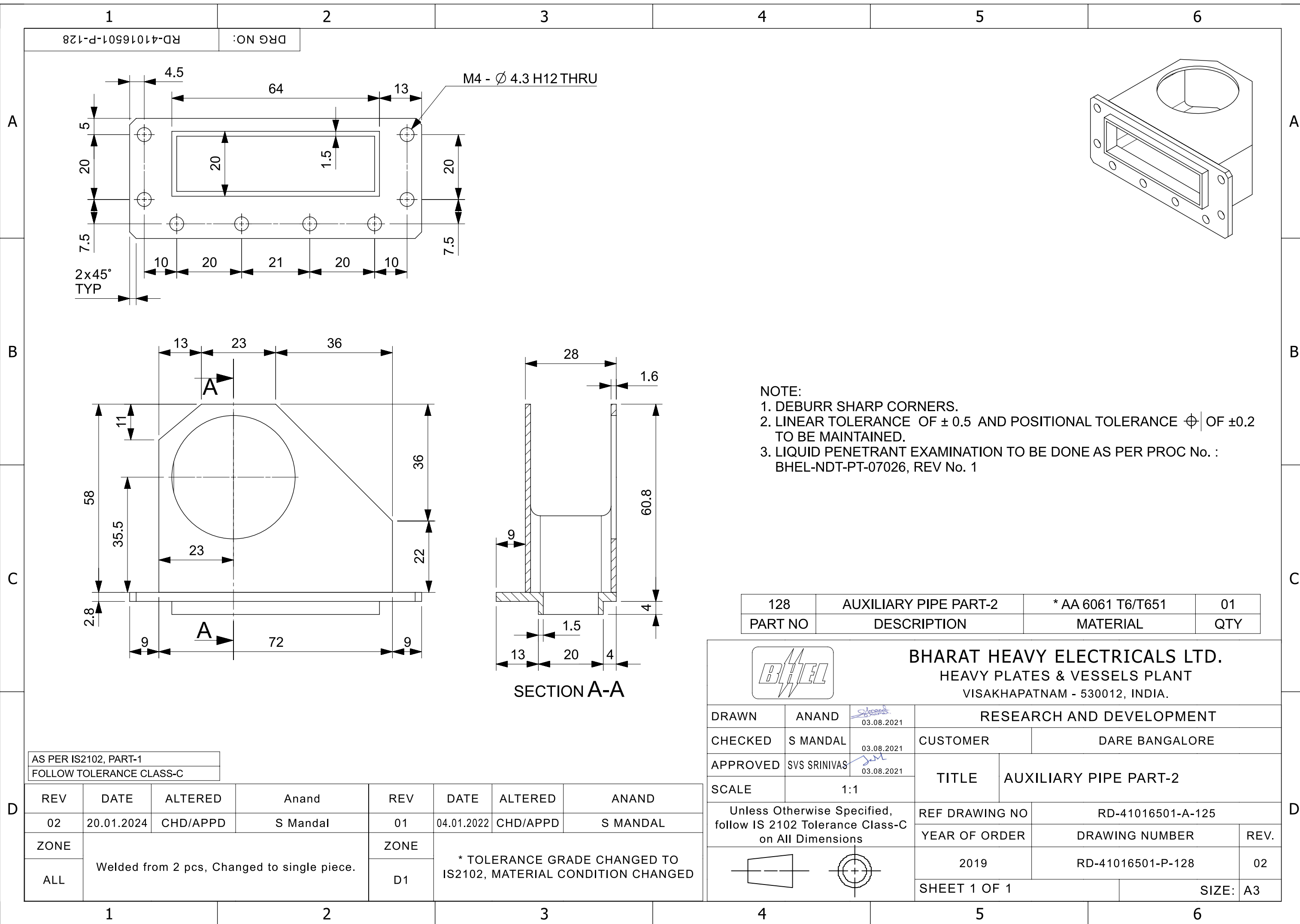
**BHARAT HEAVY ELECTRICALS LTD.**

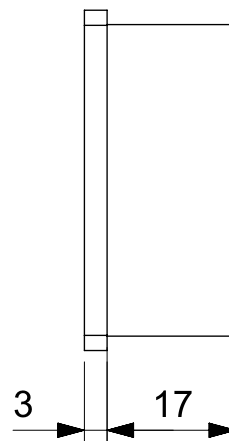
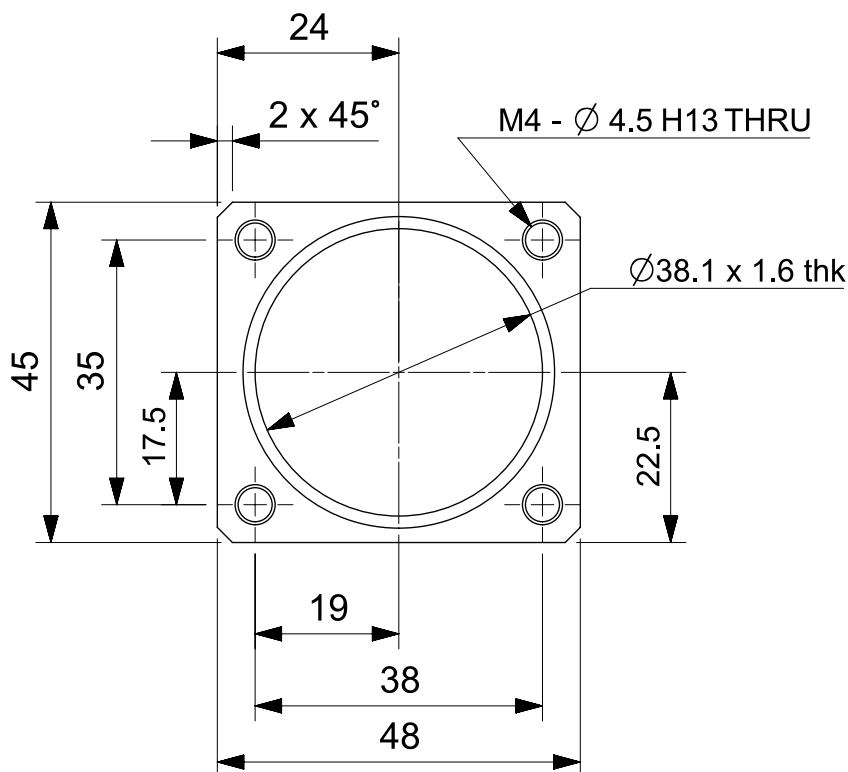
## HEAVY PLATES & VESSELS PLANT

VISAKHAPATNAM - 530012, INDIA.

DRAWN	ANAND	<div><div><div></div><div></div><div></div></div><div>S. Anand 03.08.2021</div></div>	RESEARCH AND DEVELOPMENT				
CHECKED	S MANDAL	<div><div><div></div><div></div><div></div></div><div>S. Mandal 03.08.2021</div></div>	CUSTOMER		DARE BANGALORE		
APPROVED	SVS SRINIVAS	<div><div><div></div><div></div><div></div></div><div>SVS Srinivas 03.08.2021</div></div>	TITLE	AUXILIARY PIPE PART-1			
SCALE	1:1						
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO		RD-41016501-A-125		
			YEAR OF ORDER		DRAWING NUMBER		REV.
<div><div><div></div><div></div><div></div></div><div></div></div>			2019		RD-41016501-P-126		01
			SHEET 1 OF 1				SIZE:

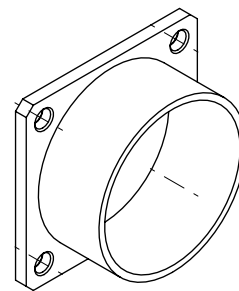
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3.2  
M


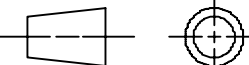
## NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.25$  AND POSITIONAL TOLERANCE  $\oplus$  OF  $\pm 0.2$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

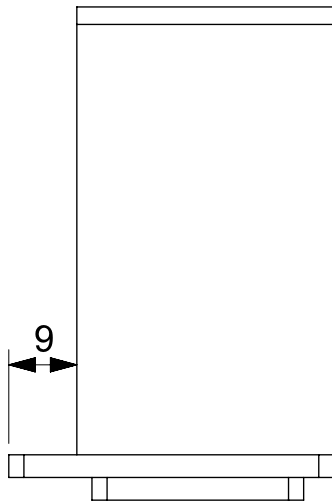
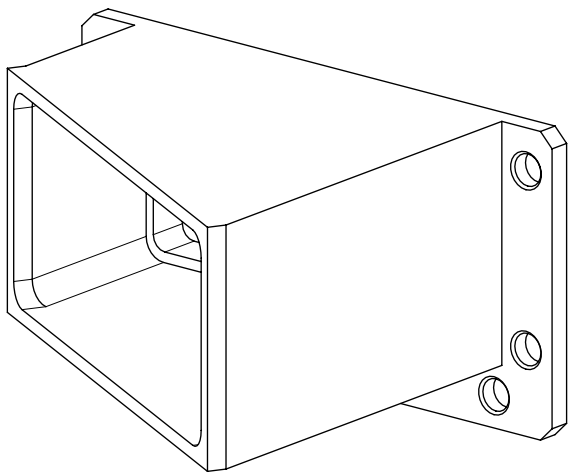
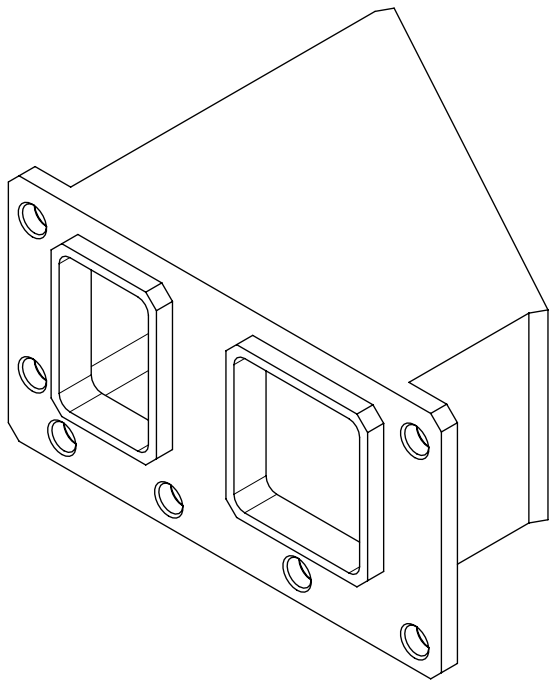


AS PER IS2102, PART-1
FOLLOW TOLERANCE CLASS-C

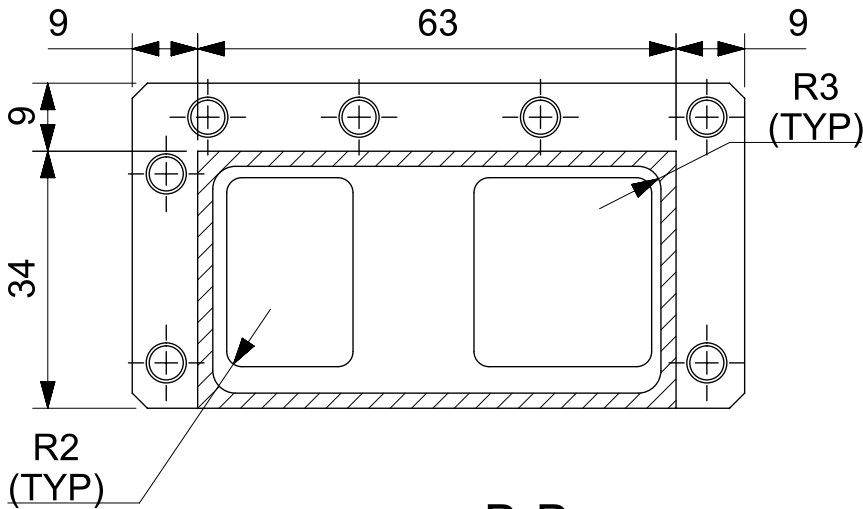
133	AUXILIARY PIPE PART-5A	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

REV	DATE	ALTERED	Anand	REV	DATE	ALTERED	Anand			
02	20.01.2024	CHD/APPD	S Mandal	01	04.01.2022	CHD/APPD	S Mandal			
ZONE	Welded from 2 part nos, changed to single piece.			ZONE	* Tolerance grade changed to IS2102 and material condition added.					
B1, B2				C1						
PART NO	133			<b>BHARAT HEAVY ELECTRICALS LTD</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.						
MATERIAL	AA6061 T6/T651									
QTY	1			DRN	ANAND	05.08.2021	RESEARCH AND DEVELOPMENT			
<del>UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE</del>				CHK	S MANDAL	05.08.2021	CUSTOMER			
			APD	SVS SRINIVAS	05.08.2021	DARE BANGALORE				
			SCALE		1:1		TITLE			
							AUXILIART PIPE PART-5A			
LINEAR	RANGE	5 - 50	51 - 250	> 250	ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-132	
	TOL (MM)	±0.5	±1.5	±2.5				YEAR OF ORDER	DRAWING NUMBER	REV.
ANGULAR	± 1.5°						2019	RD-41016501-P-133	02	
SURFACE FINISH	SYMBOL							SHEET 1 OF 1		SIZE: A4
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25						

3.2	DRG NO:	RD-41016501-P-137
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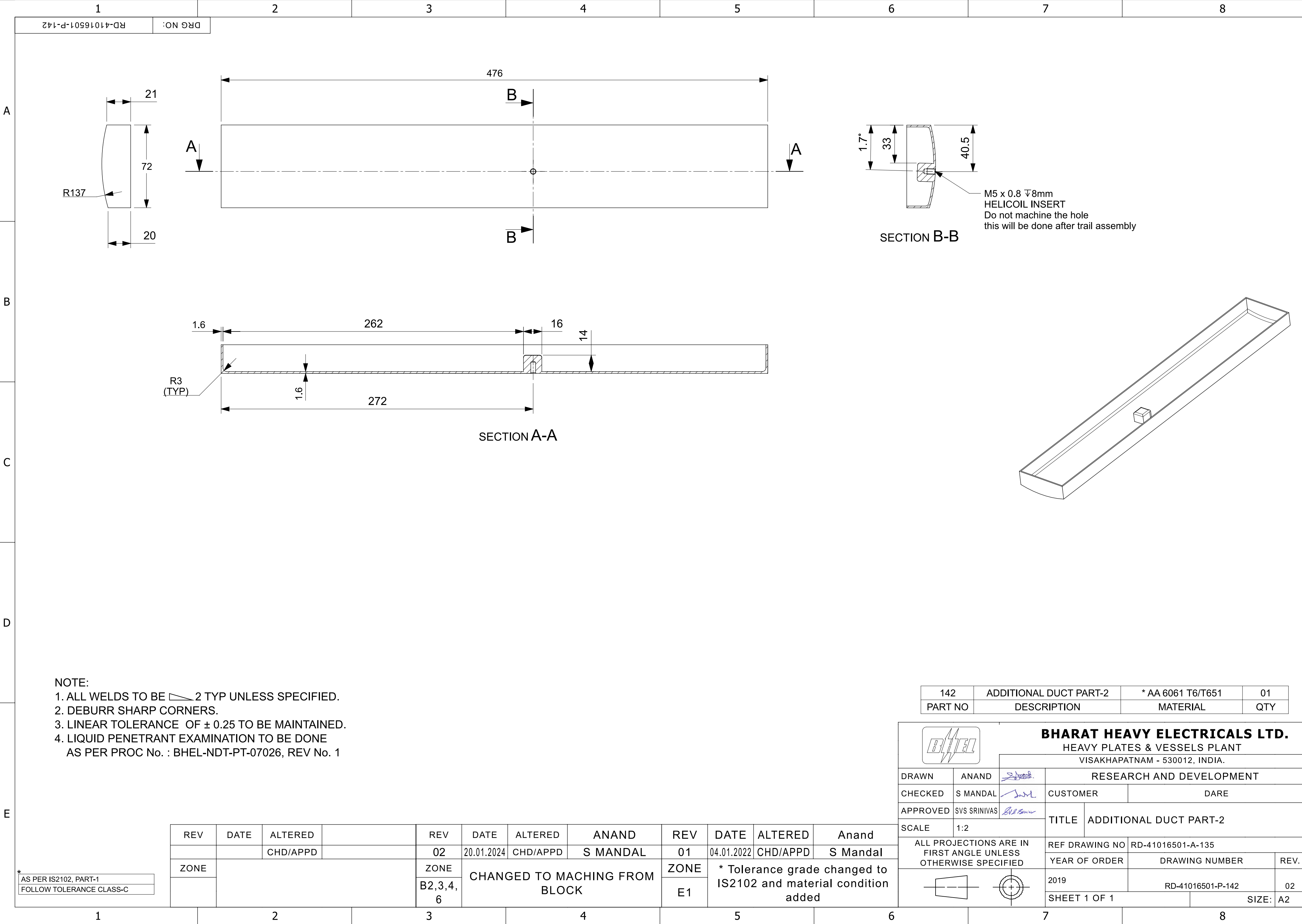
## SECTION B-B



137	ADDITIONAL DUCT PART-1	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

AS PER IS2102, PART-1
FOLLOW TOLERANCE CLASS-C

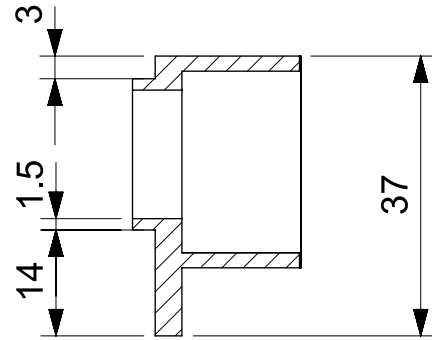
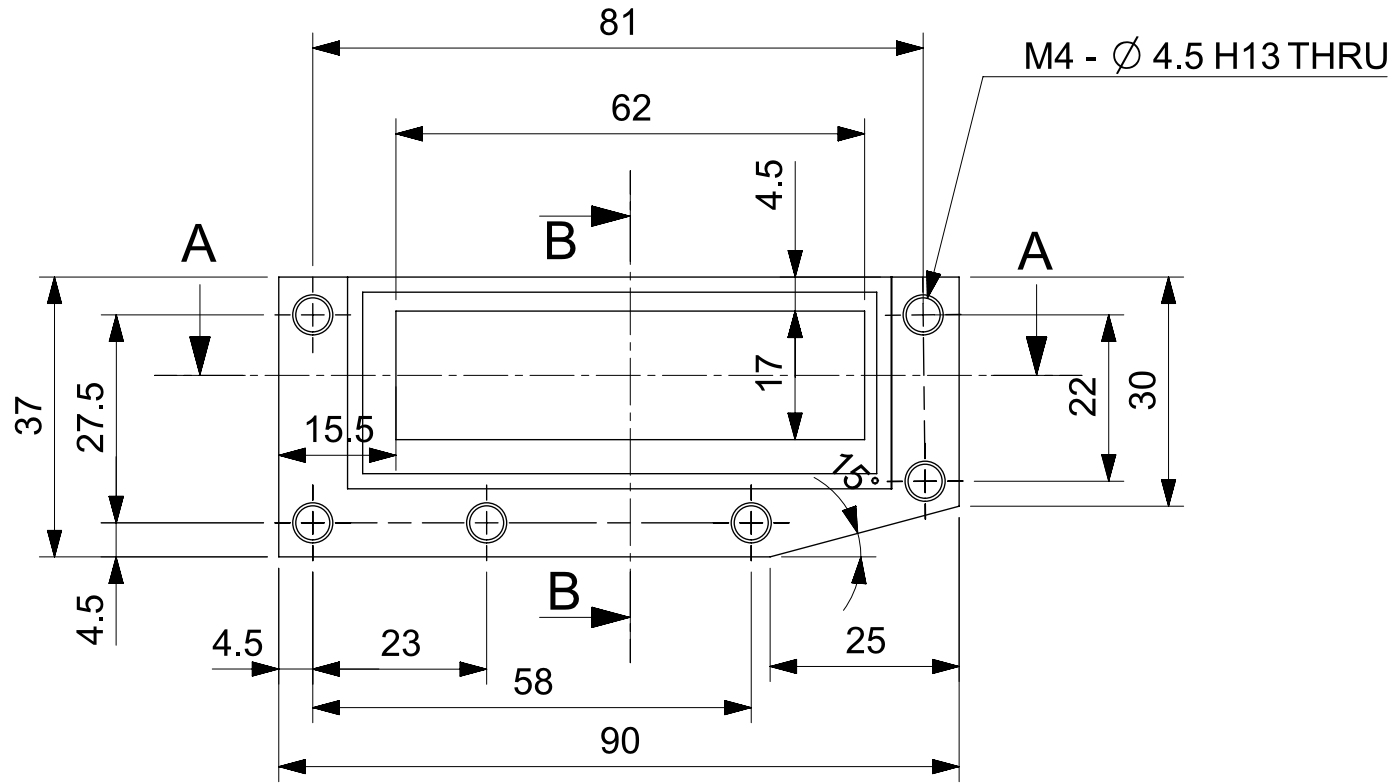
1	2	3	4	5	6	7	8
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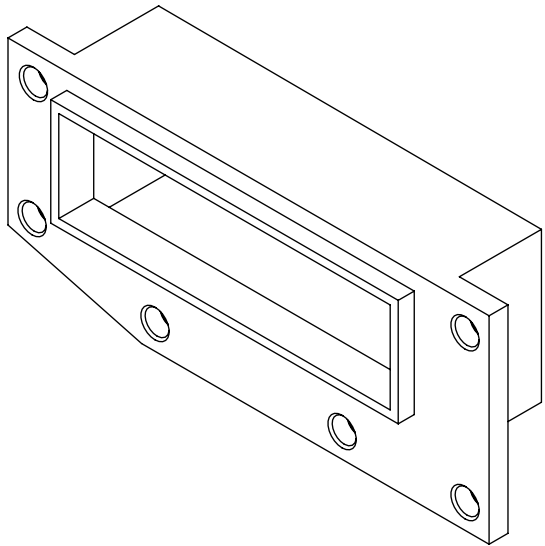
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\* AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

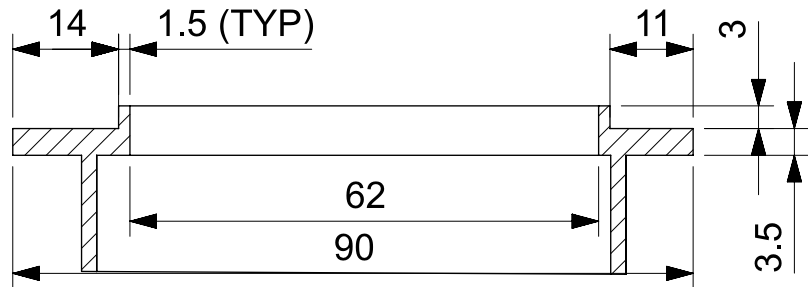
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SECTION B-B





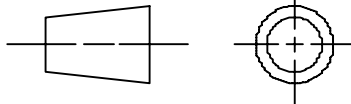


- NOTE:
- 1. DEBURR SHARP CORNERS.
  - 2. LINEAR TOLERANCE OF  $\pm 0.25$ , POSITIONAL TOLERANCE OF  $\pm 0.2$  AND ANGULAR TOLERANCE OF  $\pm 0.25^\circ$  TO BE MAINTAINED.
  - 3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1



SECTION A-A

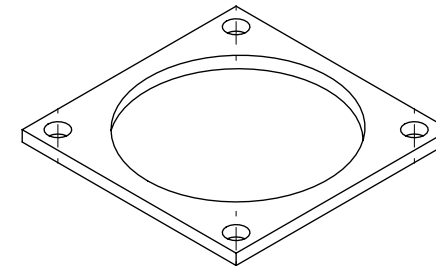
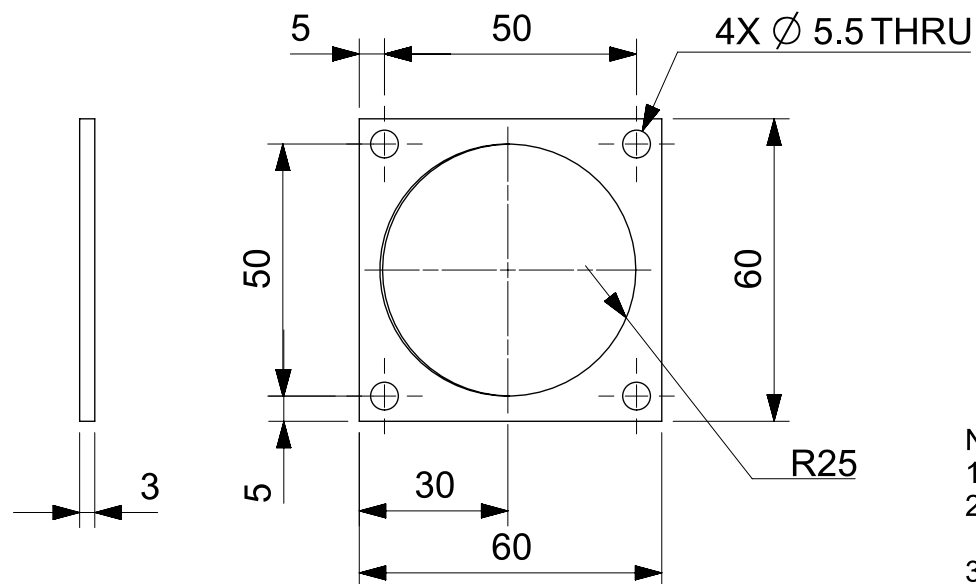
148	ADDITIONAL DUCT PART-3	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

		<b>BHARAT HEAVY ELECTRICALS LTD.</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	 06.08.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 06.08.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	 06.08.2021	TITLE	ADDITIONAL DUCT PART-3	
SCALE	1:2				
<div>ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED</div> <div></div>			REF DRAWING NO	RD-41016501-A-135	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-148	02
SHEET 1 OF 1			SIZE:		A3

REV	DATE	ALTERED	ANAND	REV	DATE	ALTERED	ANAND
02	20.01.2024	CHD/APPD	S MANDAL	01	04.01.2022	CHD/APPD	S MANDAL
ZONE	PART 3A & 3B MADE AS A SINGLE COMPONENT			ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
B2,C2				D1			

\* AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C





## NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.5$  AND POSITIONAL TOLERANCE OF  $\pm 0.2$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

153	RAM AIR BYPASS DUCT FLANGE	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY





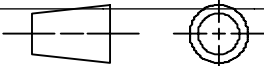
**BHARAT HEAVY ELECTRICALS LTD**

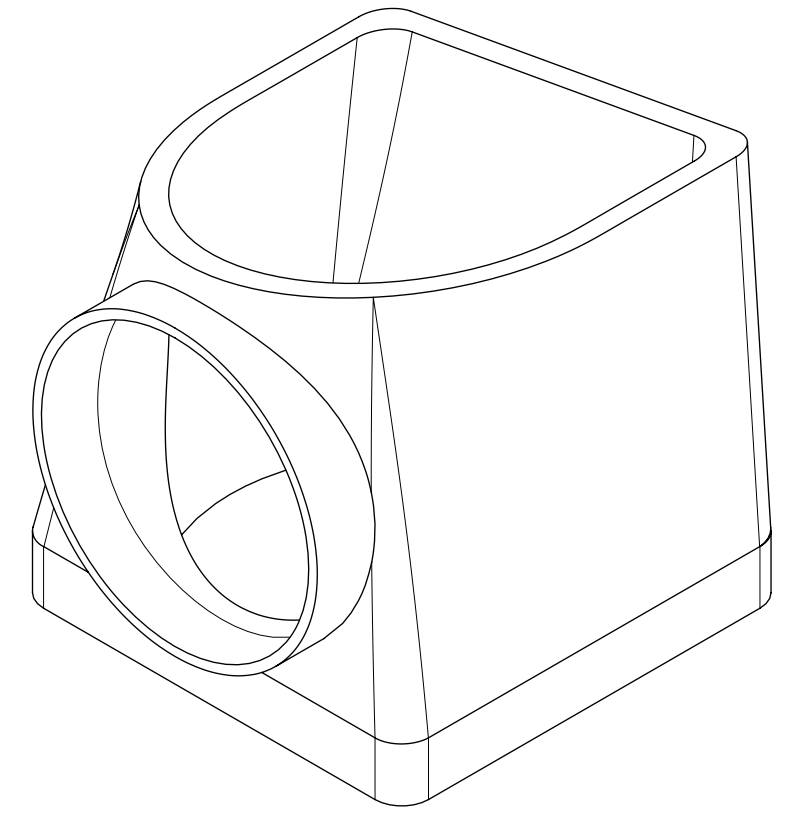
HEAVY PLATES &amp; VESSELS PLANT

VISAKHAPATNAM - 530012, INDIA.

\*  
AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

REV	DATE	ALTERED	ANAND
01	04.01.2022	CHD/APPD	S MANDAL
ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
B1			

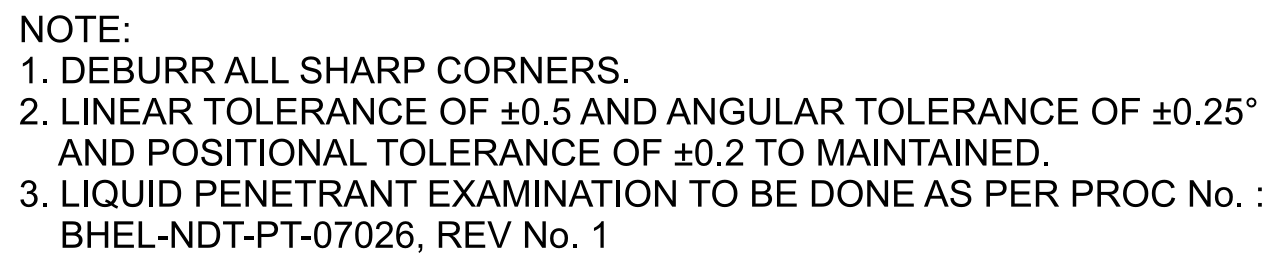
			<b>BHARAT HEAVY ELECTRICALS LTD</b>		
			HEAVY PLATES & VESSELS PLANT		
			VISAKHAPATNAM - 530012, INDIA.		
DRAWN	ANAND	 06.08.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 06.08.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	 06.08.2021	TITLE	RAM AIR BYPASS DUCT FLANGE	
SCALE	1:1				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-152	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-153	01
			SHEET 1 OF 1		SIZE:



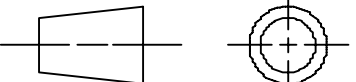
Technical drawing of a semi-circular flange. The drawing shows a cross-section of the part with the following dimensions:

- Outer diameter: 67
- Inner diameter: 30
- Thickness: 4
- Outer radius: R37
- Inner radius: R5

## SECTION B-B



**BHARAT HEAVY ELECTRICALS LTD.**  
HEAVY PLATES & VESSELS PLANT  
VISAKHAPATNAM - 530012, INDIA.

DRAWN	ANAND	<i>Shankar</i> 06.08.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	<i>Smt</i> 06.08.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	<i>SVS Srinivas</i> 06.08.2021	TITLE	COMPRESSOR OUTLET DUCT-1	
SCALE	1:1				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-100	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-155	02
			SHEET 1 OF 1		SIZE: A2

* AS PER IS2102, PART-1				
FOLLOW TOLERANCE CLASS-C				
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR	± 1.5°			
SURFACE FINISH	SYMBOL	∇∇	∇∇	∇
	TOL (µm)	0.025 to 1.6	1.6 to 8	8 to 25

REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND	REV	DATE	ALTERED	ANAND
		CHD/APPD		02	20.01.2024	CHD/APPD	S MANDAL	01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE	STRAIGHT FACE 10MM HT ADDED FOR HOLE DEPTH			ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
				B2				E1			




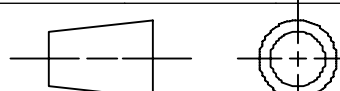
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR		± 1.5°		
SURFACE FINISH	SYMBOL	▽▽	▽	▽
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25

REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	Anand	REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD				CHD/APPD		02	20.01.2024	CHD/APPD	S Mandal	01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE				ZONE				ZONE			
												Sheet-2 B9	M4 Anchor nut holes changed to M5, and CSK to 100°			H1	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		

NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.15$ , ANGULAR TOLERANCE OF  $\pm 0.2^\circ$  AND POSITIONAL TOLERANCE OF  $\pm 0.15$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

157	RAM AIR SCOOP PANEL	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

		<h1 style="text-align: center;">BHARAT HEAVY ELECTRICALS LTD.</h1> <h2 style="text-align: center;">HEAVY PLATES &amp; VESSELS PLANT</h2>			
VISAKHAPATNAM - 530012, INDIA.					
DRAWN	ANAND	28/07/2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	28/07/2021	CUSTOMER	DARE	
APPROVED	SVS SRINIVAS	28/07/2021	TITLE		RAM AIR SCOOP PANEL
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-156	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-157	02
SHEET 1 OF 2				SIZE: A1	

B

C

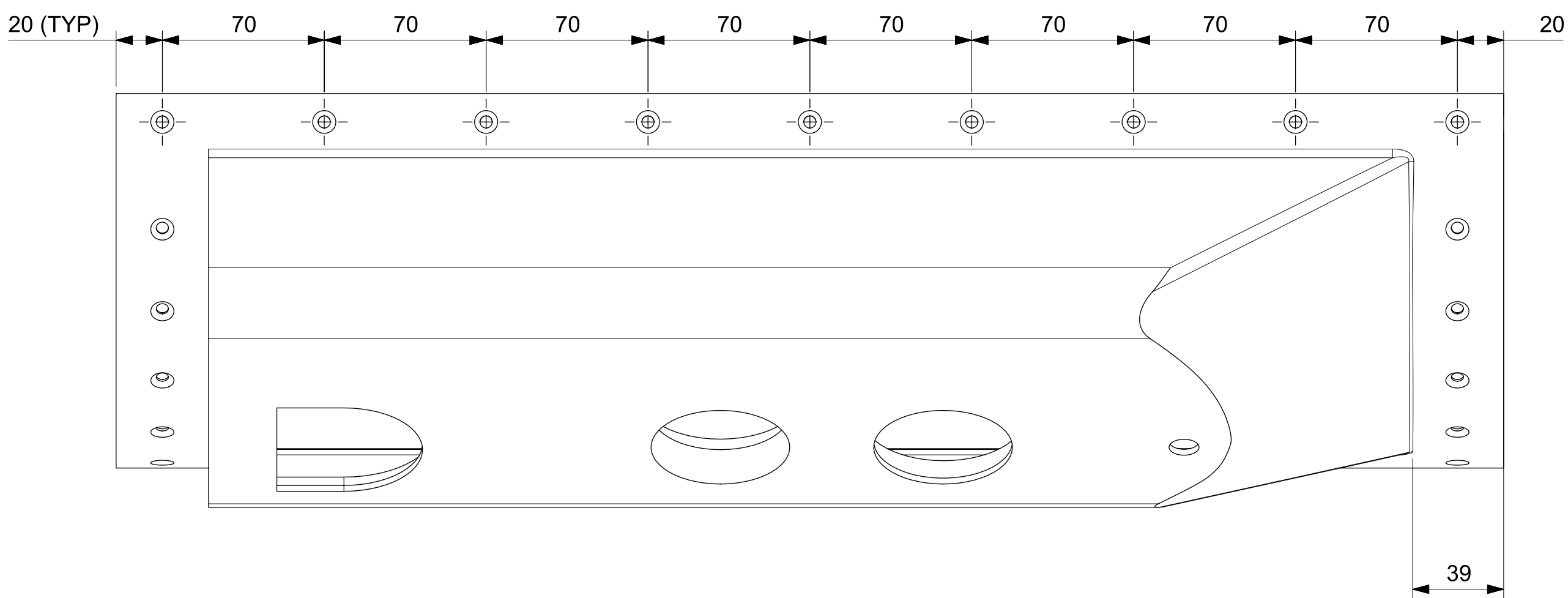
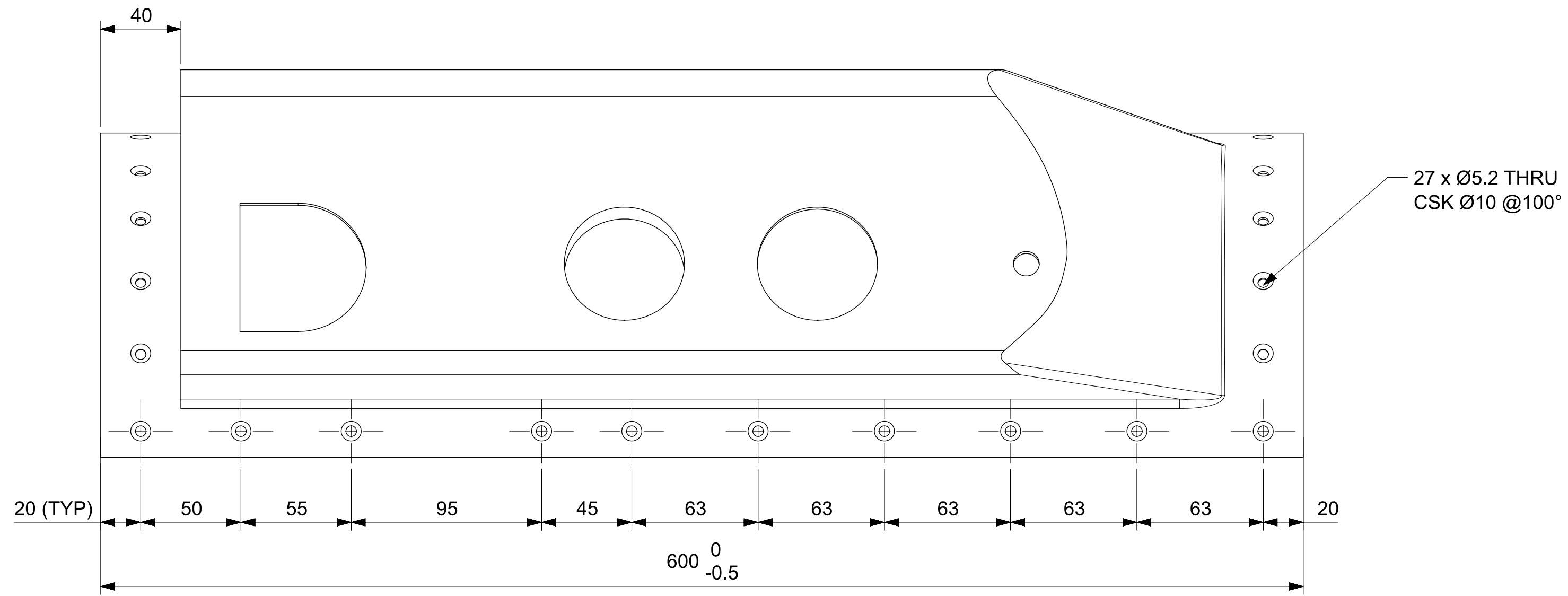
D

F

F

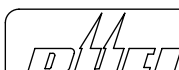
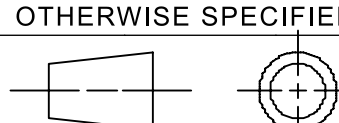
G

H

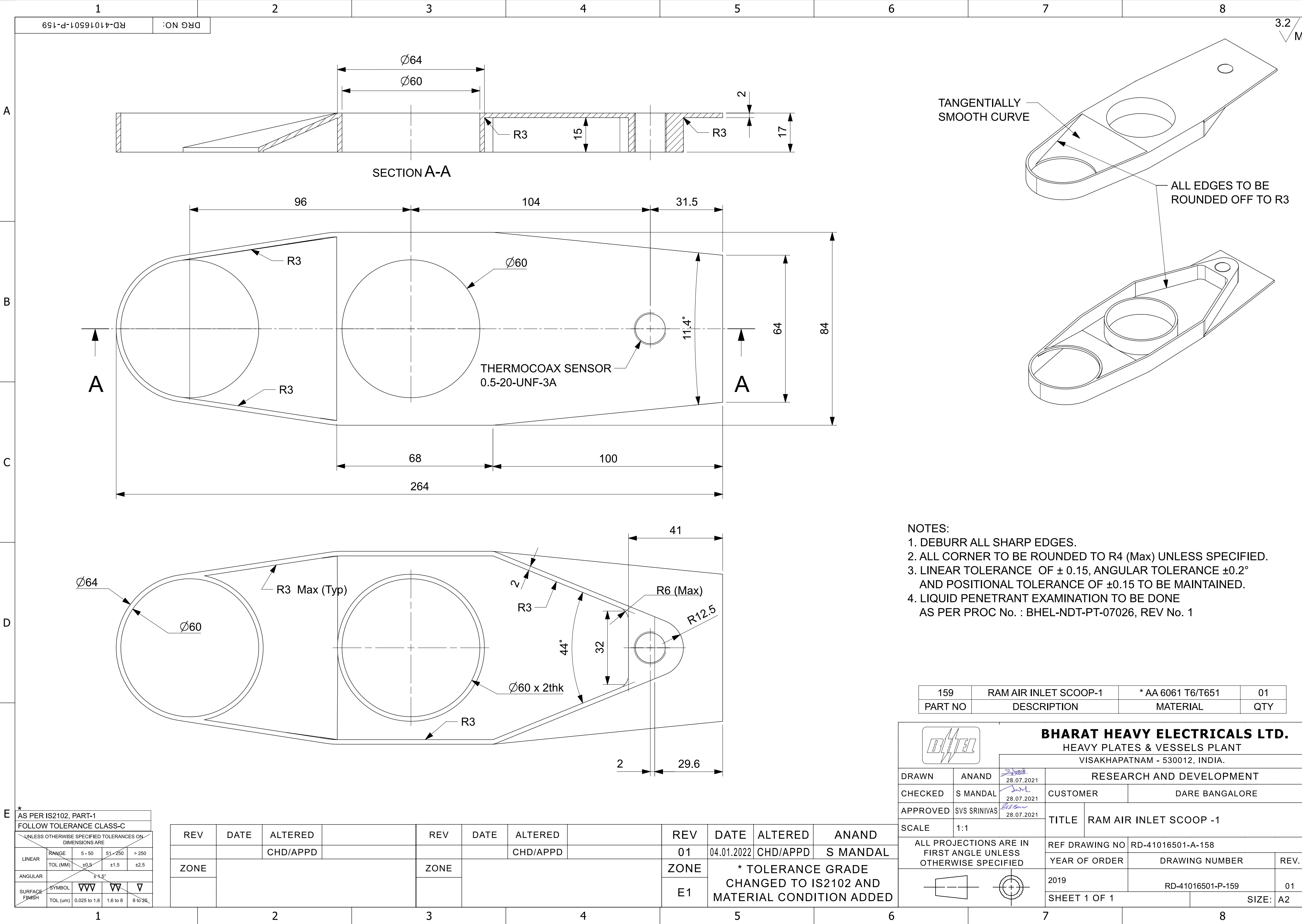


UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR	± 1.5°			
SURFACE FINISH	SYMBOL	▽▽▽	▽▽	▽
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25

REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	Anand	REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD				CHD/APPD		02	20.01.2024	CHD/APPD	S Mandal	01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE				ZONE				ZONE			
												Sheet-2 B9			M4 Anchor nut holes changed to M5, and CSK to 100°	H1			* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED

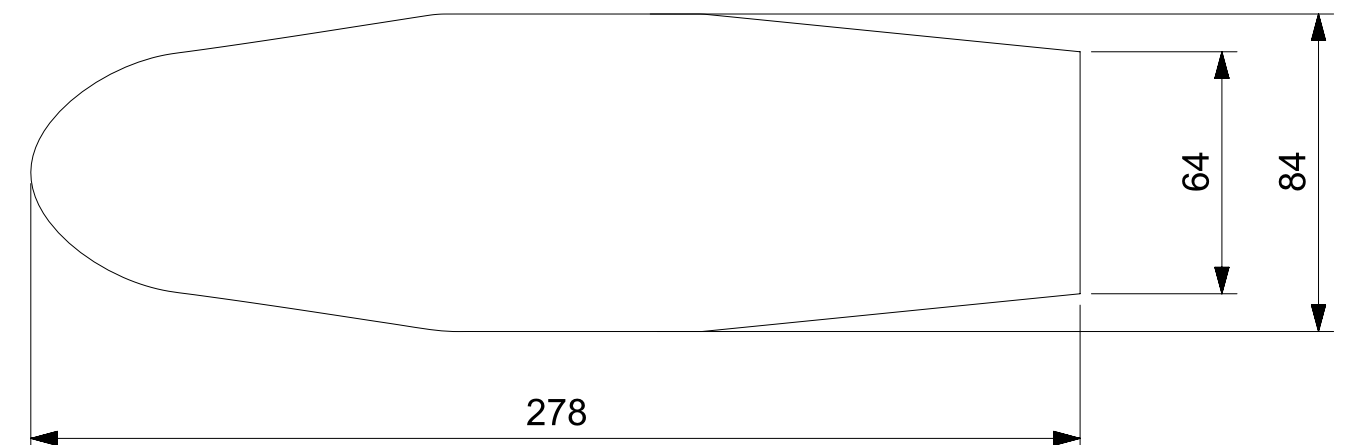
		<h1 style="text-align: center;">BHARAT HEAVY ELECTRICALS LTD.</h1> <h2 style="text-align: center;">HEAVY PLATES &amp; VESSELS PLANT</h2> <p style="text-align: center;">VISAKHAPATNAM - 530012, INDIA.</p>			
DRAWN	ANAND	28/07/2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	28/07/2021	CUSTOMER	DARE	
APPROVED	SVS SRINIVAS	28/07/2021	TITLE	RAM AIR SCOOP PANEL	
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-156	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-157	02
			SHEET 2 OF 2		SIZE: A1

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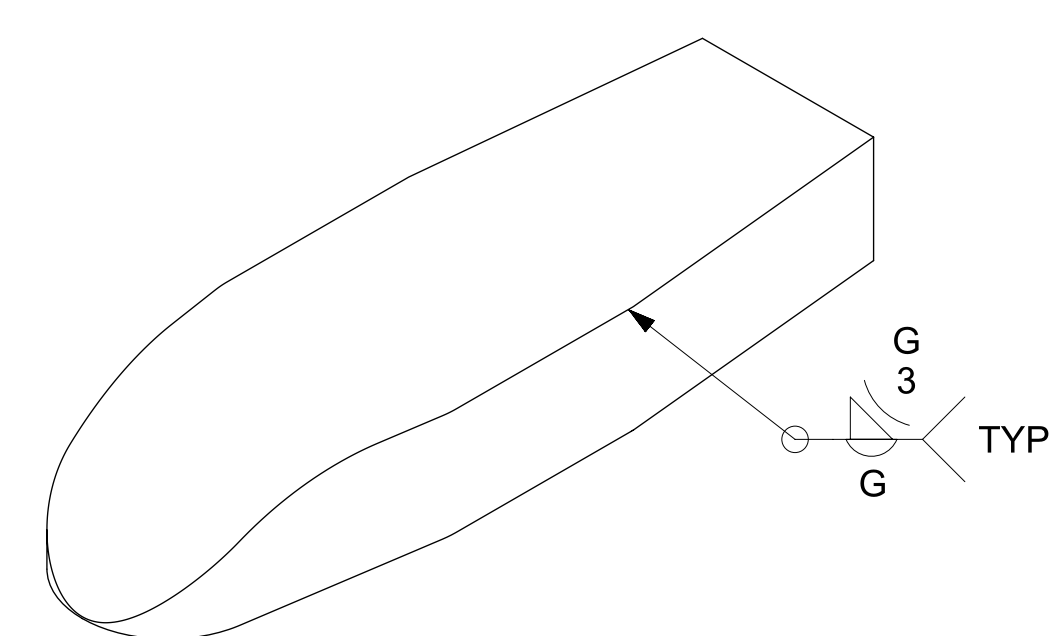




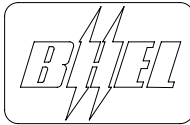



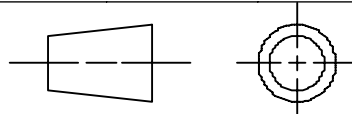
## DEVELOPMENT OF SIDE PLATE

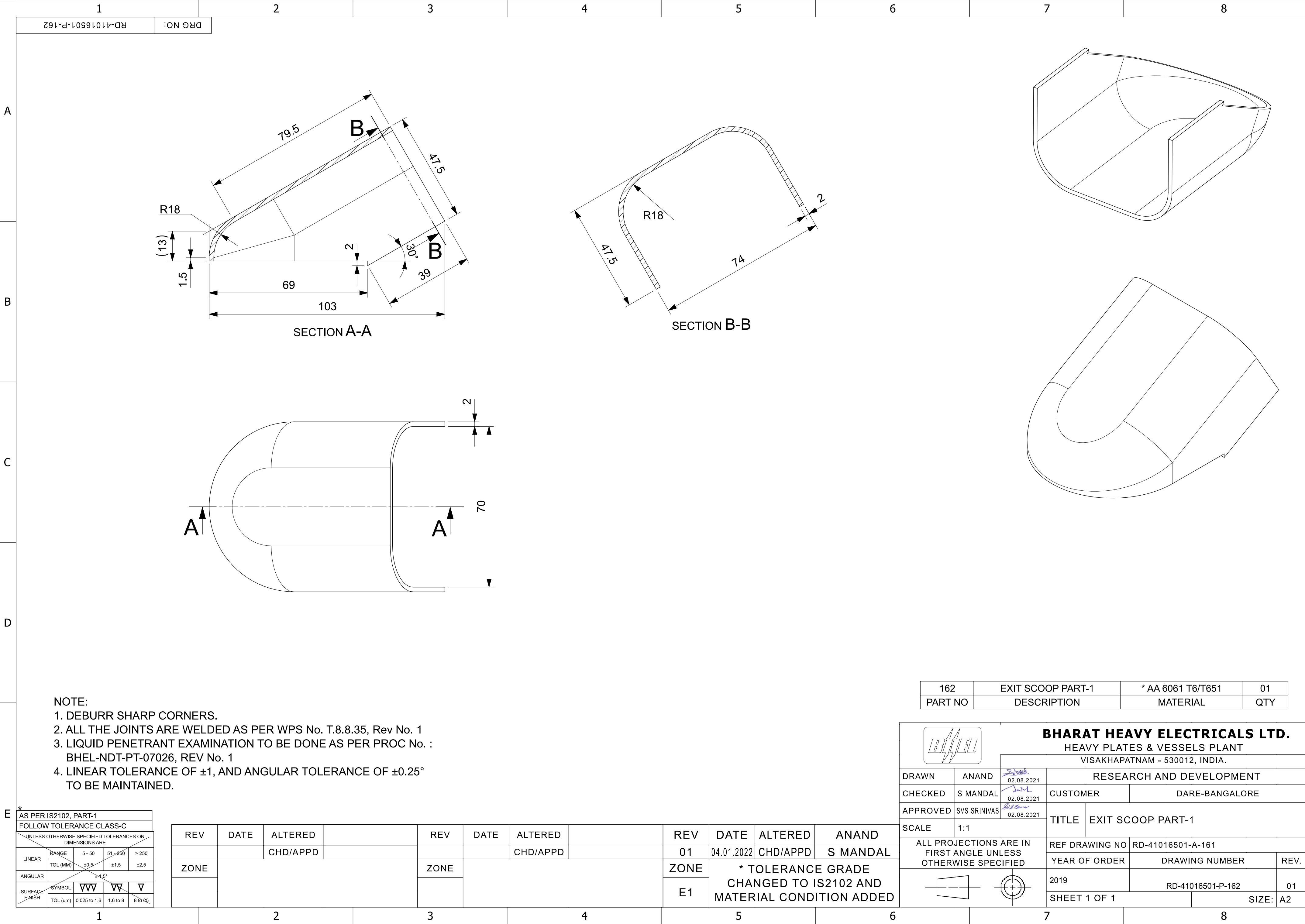


SECTION B-B

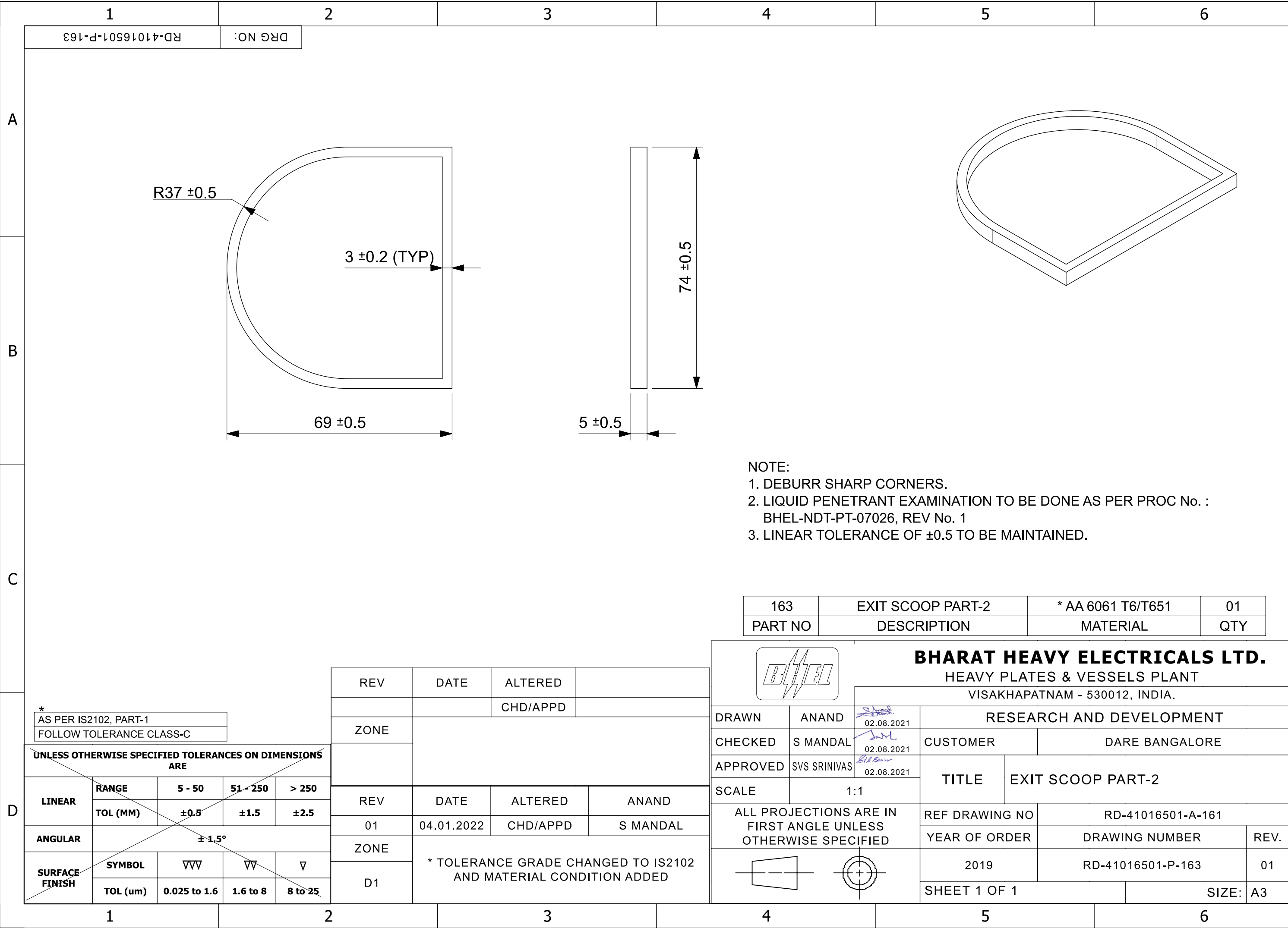


160	RAM AIR INLET SCOOP-2	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

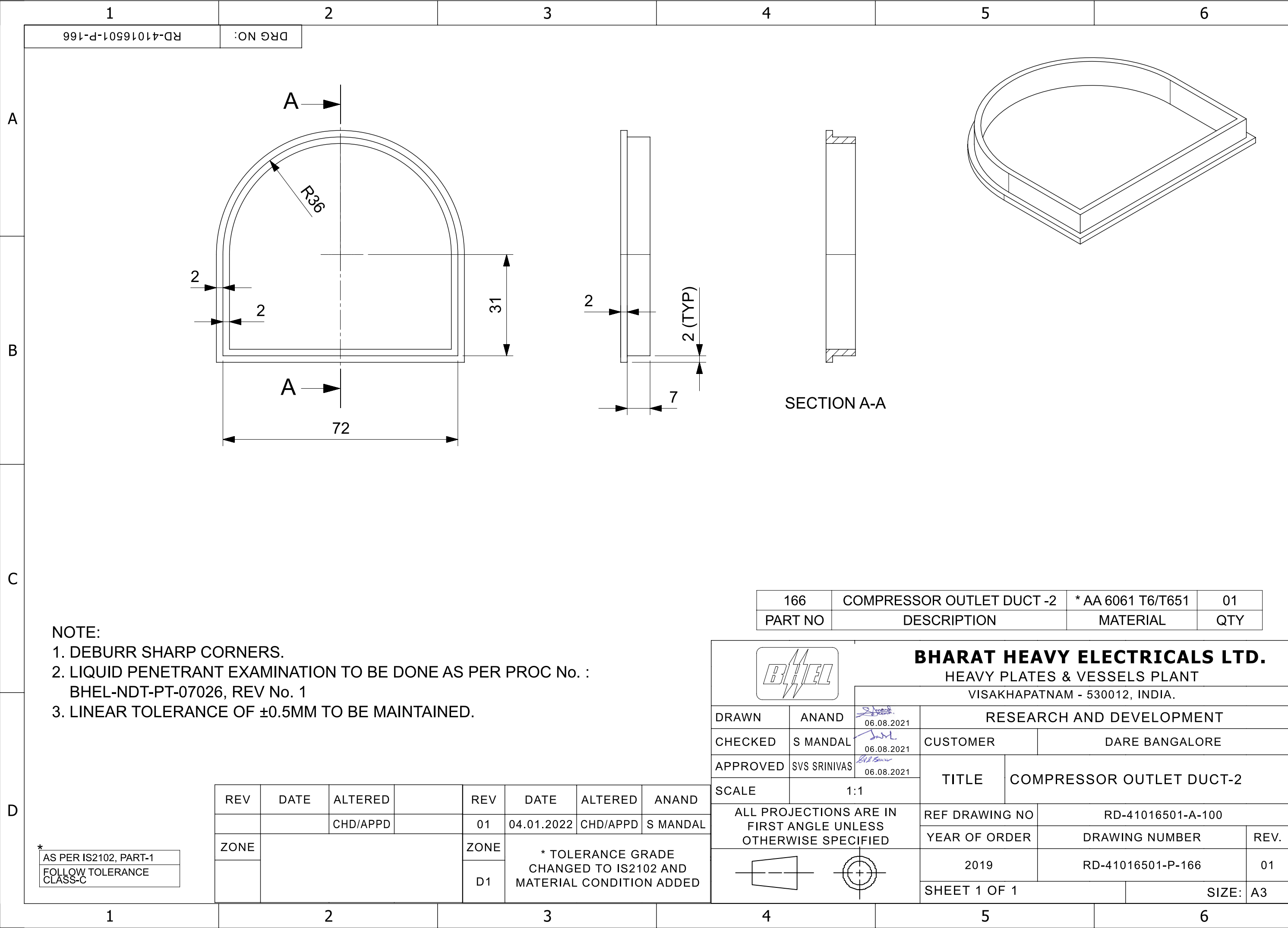
		<b>BHARAT HEAVY ELECTRICALS LTD.</b>			
		HEAVY PLATES & VESSELS PLANT			
		VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	 28.07.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 28.07.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	 28.07.2021	TITLE	RAM AIR INLET SCOOP-2	
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-158	
			YEAR OF ORDER	DRAWING NUMBER	REV.
			2019	RD-41016501-P-160	02
			SHEET 1 OF 1		SIZE: A2

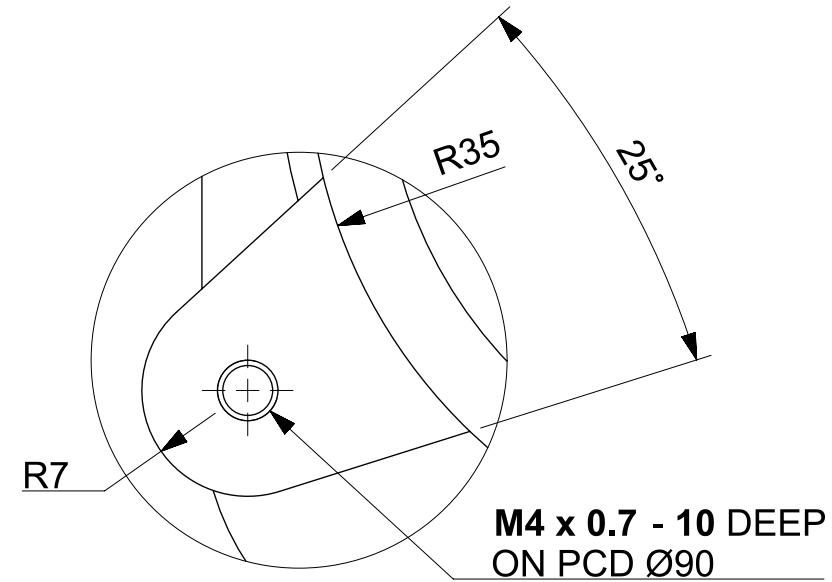
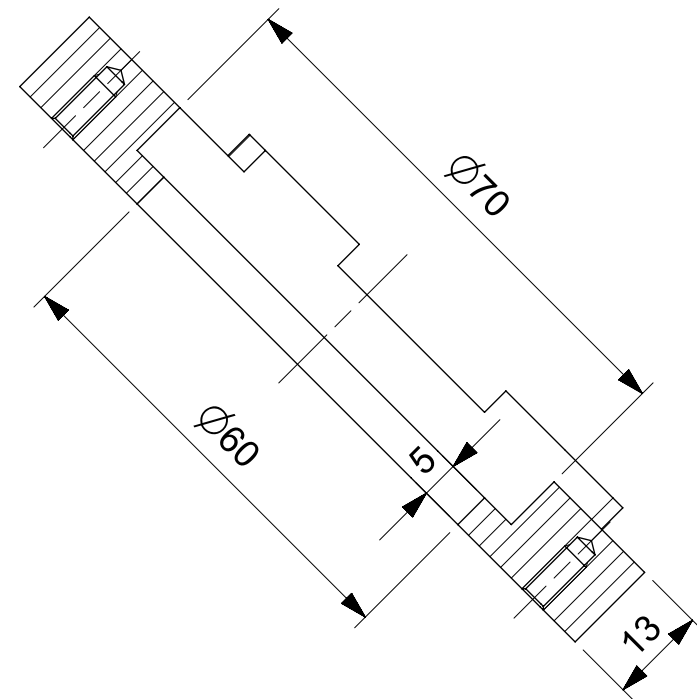
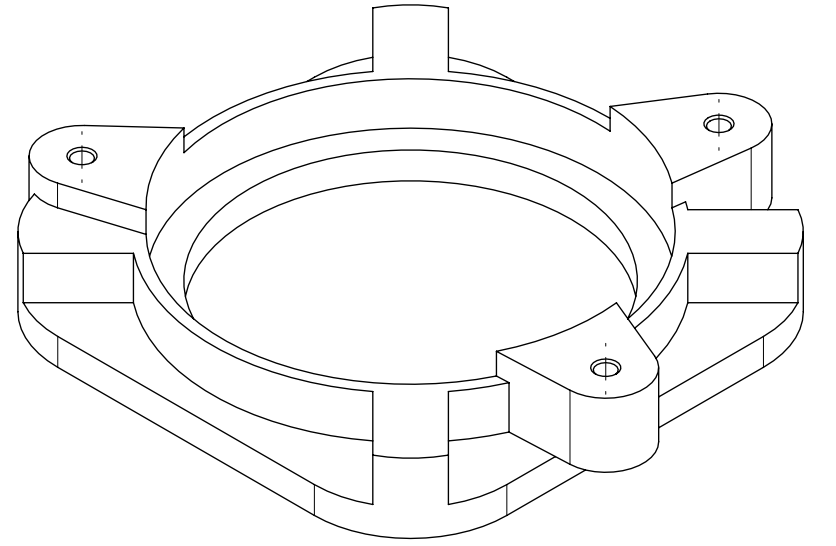
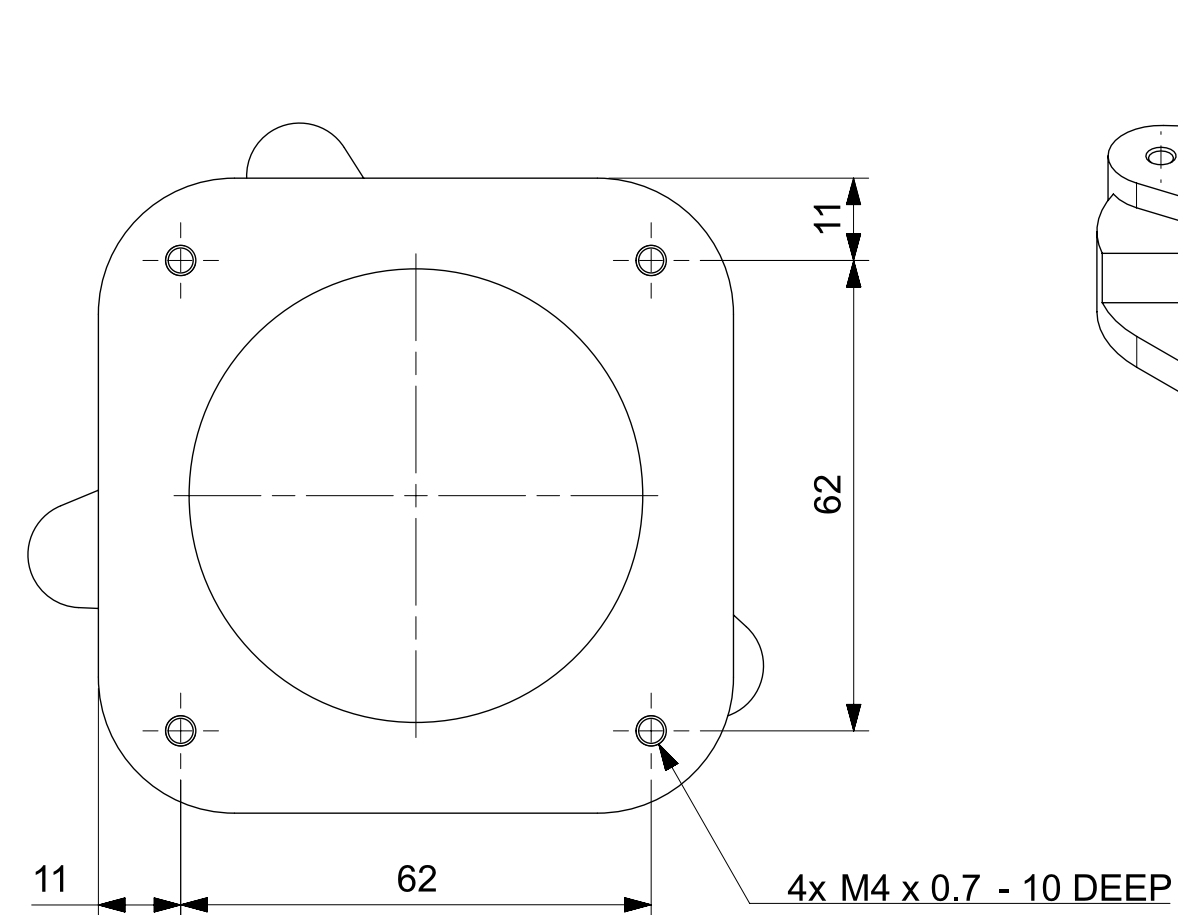
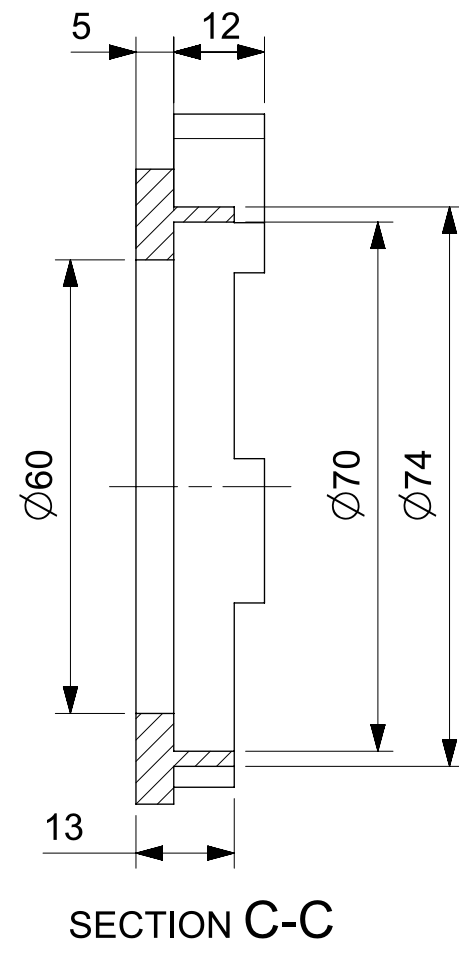


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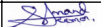

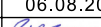
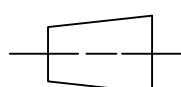





NOTE:

1. DEBURR SHARP CORNERS.
2. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1
3. LINEAR TOLERANCE OF  $\pm 0.25$ , ANGULAR TOLERANCE OF  $\pm 0.25^\circ$ , AND POSITIONAL TOLERANCE OF  $\pm 0.2$  TO BE MAINTAINED.

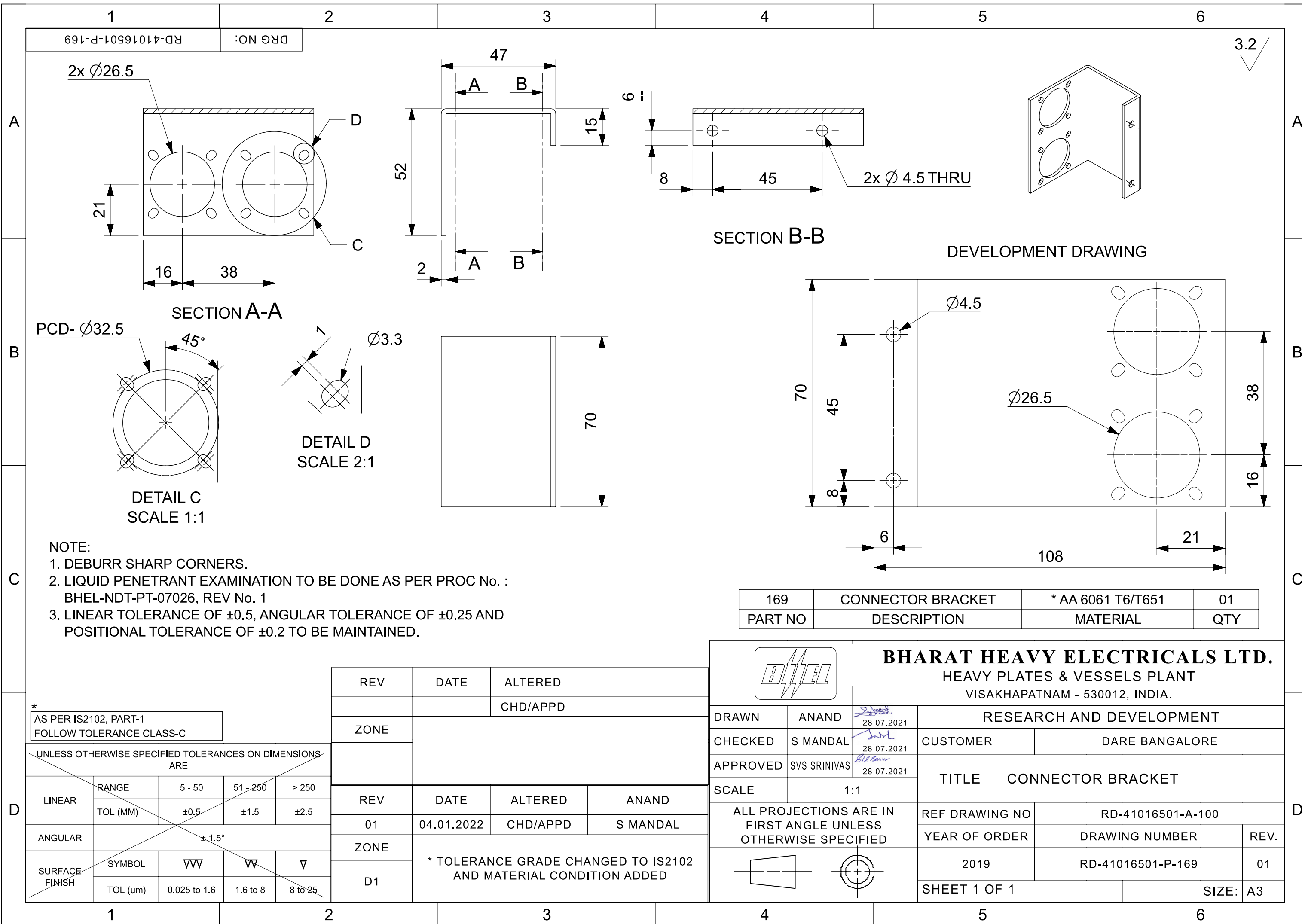
168	ACM TO VALVE INTERFACE	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

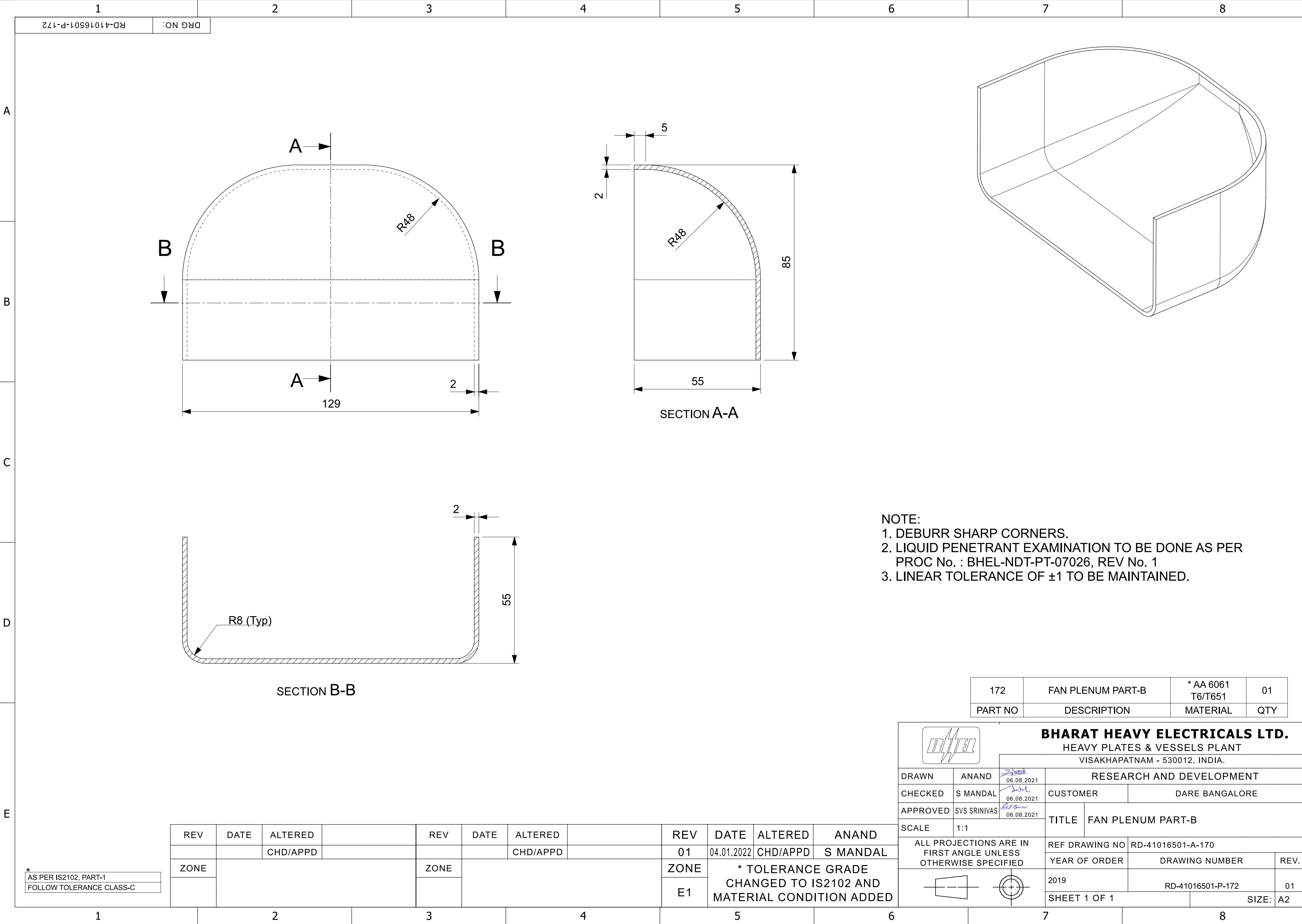
		<b>BHARAT HEAVY ELECTRICALS LTD.</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.			
DRAWN	ANAND	 06.08.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	 06.08.2021	CUSTOMER	DARE BANGALORE	
APPROVED	SVS SRINIVAS	 06.08.2021	TITLE	ACM TO VALVE INTERFACE	
SCALE	1:1				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-100	
			YEAR OF ORDER	DRAWING NUMBER	REV.
 			2019	RD-41016501-P-168	01
			SHEET 1 OF 1		SIZE: A2

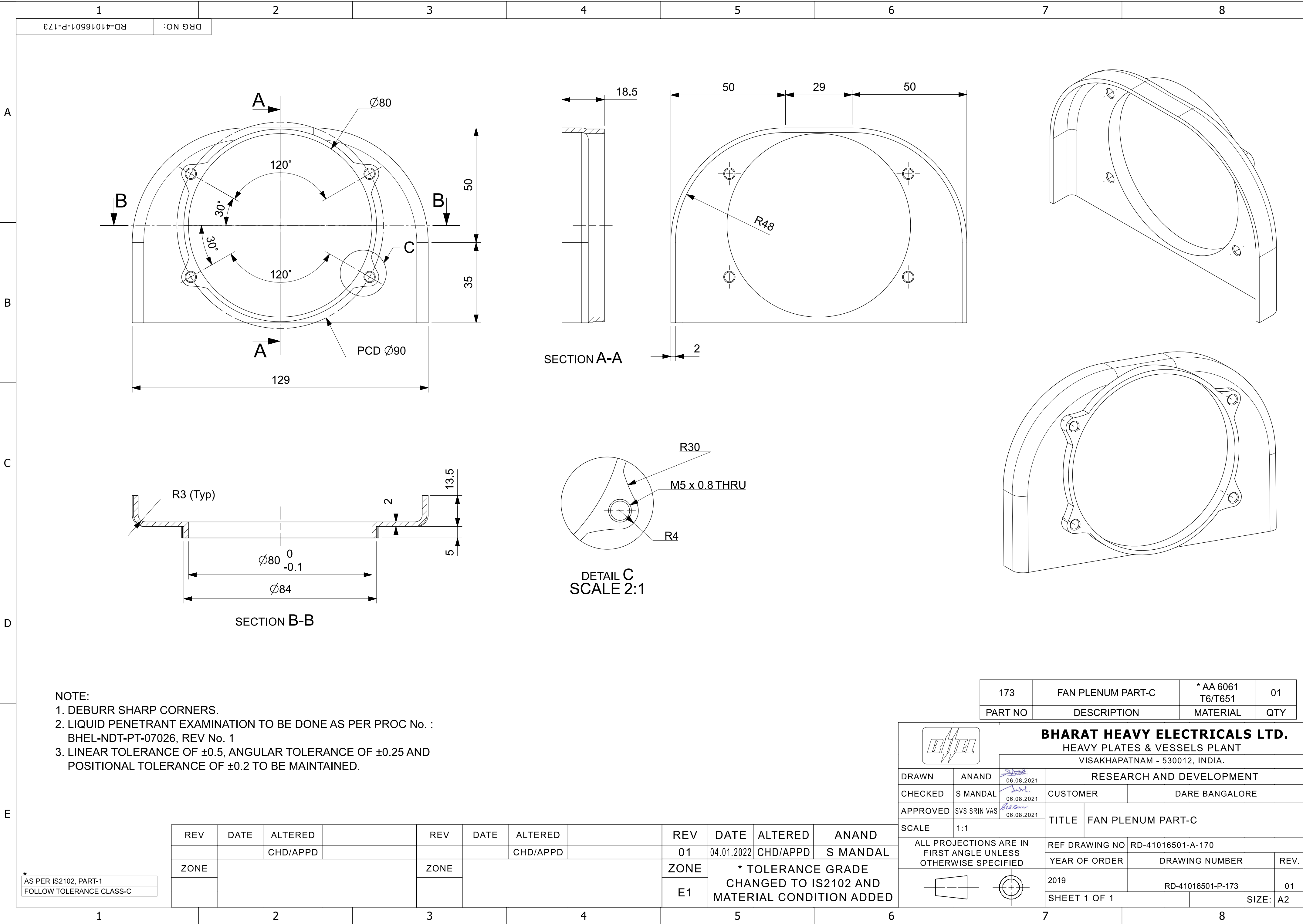
* AS PER IS2102, PART-1				
FOLLOW TOLERANCE CLASS-C				
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE				
LINEAR	RANGE	5 - 50	51 - 250	> 250
	TOL (MM)	±0.5	±1.5	±2.5
ANGULAR	≥ 1.5°			
SURFACE FINISH	SYMBOL	▽▽	▽▽	▽
	TOL (um)	0.025 to 1.6	1.6 to 8	8 to 25

REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD		01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
								E1			









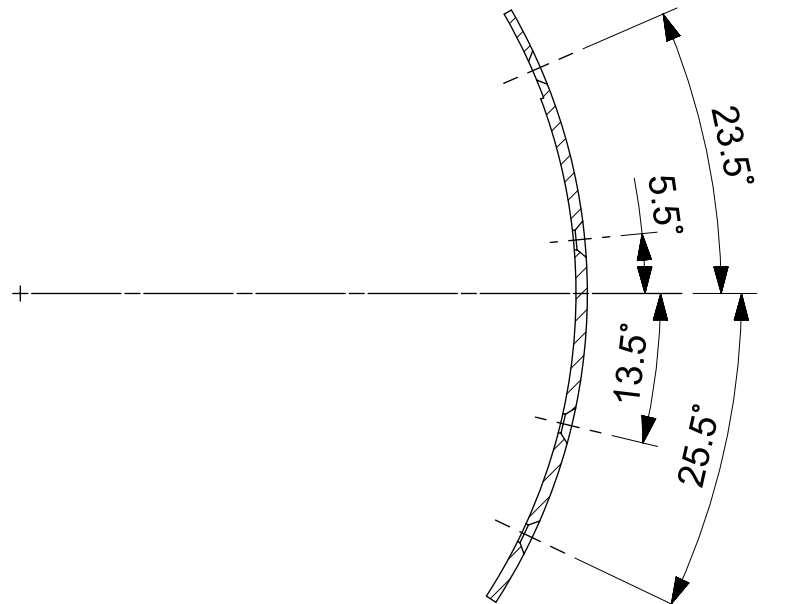
- NOTE:
1. DEBURR SHARP CORNERS.
  2. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1
  3. LINEAR TOLERANCE OF  $\pm 0.5$ , ANGULAR TOLERANCE OF  $\pm 0.25$  AND POSITIONAL TOLERANCE OF  $\pm 0.2$  TO BE MAINTAINED.

\* AS PER IS2102, PART-1  
FOLLOW TOLERANCE CLASS-C

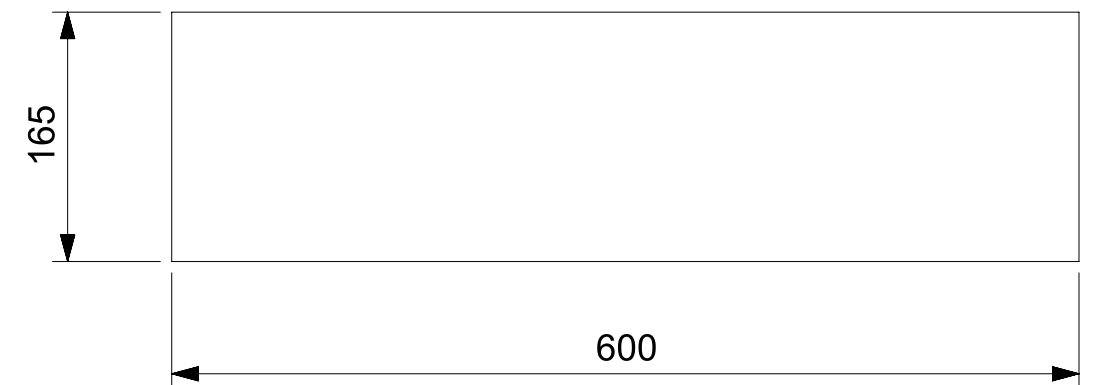
173	FAN PLENUM PART-C	* AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

<div><div><div></div></div><div><div></div></div></div> <div><div><div></div></div><div><div></div></div></div>				<div><div><div></div></div><div><div></div></div></div> <div><div><div></div></div><div><div></div></div></div>				
DRAWN		ANAND	<div><div></div><div>06.08.2021</div></div>	RESEARCH AND DEVELOPMENT				
CHECKED		S MANDAL	<div><div></div><div>06.08.2021</div></div>	CUSTOMER		DARE BANGALORE		
APPROVED		SVS SRINIVAS	<div><div></div><div>06.08.2021</div></div>	TITLE		FAN PLENUM PART-C		
SCALE		1:1		REF DRAWING NO		RD-41016501-A-170		
<div><div><div></div></div><div><div></div></div></div> <div><div><div></div></div><div><div></div></div></div>				YEAR OF ORDER		DRAWING NUMBER		REV.
				2019		RD-41016501-P-173		01
				SHEET 1 OF 1		SIZE: A2		

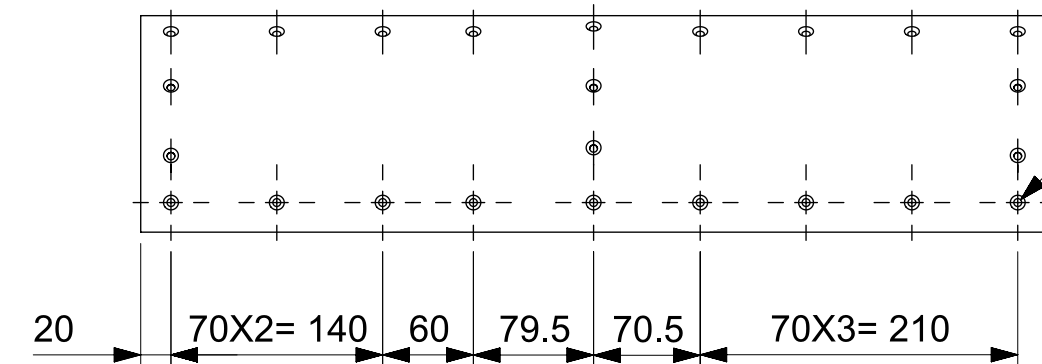
REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD		01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
								E1			



## SECTION B-B



SECTION C-C




NOTE:

1. DEBURR SHARP CORNERS.
2. LINEAR TOLERANCE OF  $\pm 0.5$ , ANGULAR TOLERANCE OF  $\pm 0.25^\circ$  AND POSITIONAL TOLERANCE OF  $\pm 0.25$  TO BE MAINTAINED.
3. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. : BHEL-NDT-PT-07026, REV No. 1

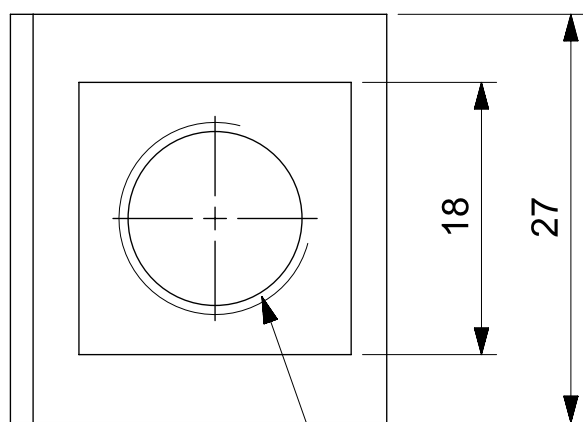
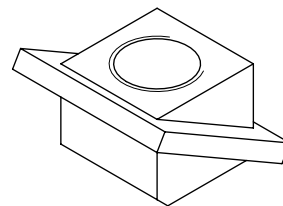
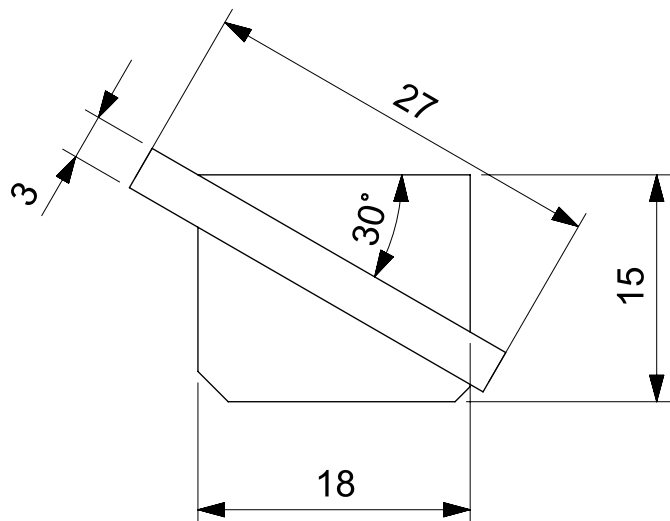
REV	DATE	ALTERED		REV	DATE	ALTERED		REV	DATE	ALTERED	ANAND
		CHD/APPD				CHD/APPD		01	04.01.2022	CHD/APPD	S MANDAL
ZONE				ZONE				ZONE	* TOLERANCE GRADE CHANGED TO IS2102 AND MATERIAL CONDITION ADDED		
								E1			



DRAWN	ANAND	<i>S. Anand</i> 06.08.2021	RESEARCH AND DEVELOPMENT		
CHECKED	S MANDAL	<i>S. Mandal</i> 06.08.2021	CUSTOMER		DARE BANGALORE
APPROVED	SVS SRINIVAS	<i>S. Srinivas</i> 06.08.2021	TITLE	ACM MODULE SIDE COVER	
SCALE	1:2				
ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-100	
			YEAR OF ORDER	DRAWING NUMBER	REV
			2019	RD-41016501-P-174	01
			SHEET 1 OF 1		SIZE: A2








1/2" UNF, THRU

## NOTE:

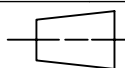
1. DEBURR SHARP CORNERS.
2. LIQUID PENETRANT EXAMINATION TO BE DONE AS PER PROC No. :  
BHEL-NDT-PT-07026, REV No. 1
3. LINEAR TOLERANCE OF  $\pm 0.5$  TO BE MAINTAINED.

182	SENSOR MOUNTING BLOCK	AA 6061 T6/T651	01
PART NO	DESCRIPTION	MATERIAL	QTY

REV	DATE	ALTERED		REV	DATE	ALTERED		
		CHD/APPD				CHD/APPD		
ZONE				ZONE				
PART NO	182			<b>BHARAT HEAVY ELECTRICALS LTD</b> HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.				
MATERIAL	AA6061 T6/T651							
QTY	01			DRN	ANAND	01.02.2022	RESEARCH AND DEVELOPMENT	
				CHK	S MANDAL	01.02.2022	CUSTOMER	
			APD	SVS SRINIVAS	01.02.2022	DARE BANGALORE		
			SCALE	1:1		TITLE		
<div>AS PER IS2102, PART-1</div> <div>FOLLOW TOLERANCE CLASS-C</div>			ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			SENSOR MOUNTING BLOCK		
						REF DRAWING NO		
			YEAR OF ORDER		RD-41016501-A-100			
			2019		DRAWING NUMBER			
		RD-41016501-P-182						
		REV.						
		00						
		SHEET 1 OF 1						
		SIZE: A4						

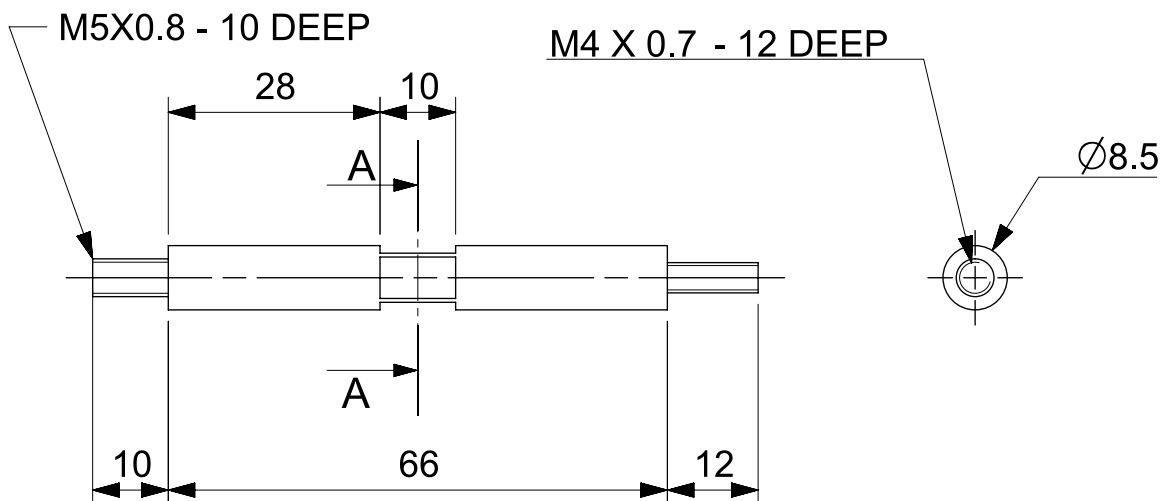
AS PER IS2102, PART-1

FOLLOW TOLERANCE CLASS-C

ALL PROJECTIONS ARE IN  
FIRST ANGLE UNLESS  
OTHERWISE SPECIFIED

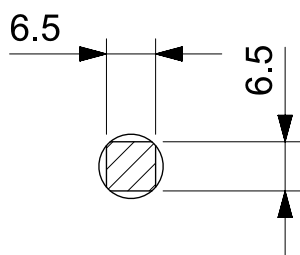
A

A



B

B



## SECTION A-A


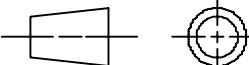
NOTE:

1. DEBURR ALL SHARP CORNERS.

C

C

190	GROUND FAN STUDS	MDN 347	04
PART NO	DESCRIPTION	MATERIAL	QTY

REV	DATE	ALTERED		REV	DATE	ALTERED	
		CHD/APPD				CHD/APPD	
ZONE				ZONE			
PART NO	190			<b>BHARAT HEAVY ELECTRICALS LTD</b>			
MATERIAL	MDN 347			HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012, INDIA.			
QTY	04			RESEARCH AND DEVELOPMENT			
				DARE BANGALORE			
			DRN	ANAN	06.04.2022		
			CHK	S MANDAL	06.04.2022	CUSTOMER	
			APD	SRINIVAS	06.04.2022		
			SCALE	1:1		TITLE	GROUND FAN STUDS
			ALL PROJECTIONS ARE IN FIRST ANGLE UNLESS OTHERWISE SPECIFIED			REF DRAWING NO	RD-41016501-A-100
						YEAR OF ORDER	DRAWING NUMBER
						2019	RD-41016501-P-190
						SHEET 1 OF 1	
AS PER IS2102, PART-1							
FOLLOW TOLERANCE CLASS-C							

D

D

1

2