



NOTICE INVITING TENDER

Ref.: OS/26-27/8136&8194/Panels/14/014

Date: 24.06.2026

Sub: Fabrication of Panels against S.O. 8136 & 8194 at Vendor works with free issue materials – Reg.

Dear Sir,

Sealed tenders are invited for the subject work in **Two-part bid** system from Bidders who are having **valid IBR registration certificate issued by DOB of concerned state** for Manufacturing of Boiler components and having manufacturing facility i.e., shop floor / workshop along with required machinery, tools, tackles and skilled manpower and also fulfil the Pre-qualification criteria specified below in clause-1. Scope of work and techno-commercial terms and conditions are as follows:

1. PRE-QUALIFICATION CRITERIA:

- 1.1 Bidders must have an experience of successful completion and continuity of Manufacturing of similar IBR jobs i.e., **Fabrication of Panels for Boilers for Process Industries / Power Plants** during last 7 years ending **31.05.2026** for a minimum of one project. Bidders shall enclose Work Order, Work Completion Certificate and all other relevant documents from the customer and IBR Inspection documents in support of successful & satisfactory completion of the work. The works executed in own name of the individual / firm of the tenderer will only be considered for eligibility criteria.
- 1.2 Bidder shall have 4 - torch / 20 - torch machinery at their works. Bidder shall confirm the availability and provide details of the same.
- 1.3 Average Annual Financial Turnover of the bidder for the last 3 financial years should be a minimum of ₹ **150 Lakhs**. Bidders shall enclose 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.
- 1.4 Bidder shall enclose the documents of **valid IBR Registration certificate issued by DOB of concerned state** for Manufacturing of Boiler equipments & components, PAN, GSTIN, UDYAM Registration Certificate (if registered with MSME) etc.
- 1.5 Any Bidder falling under MSE category shall furnish the following details & submit documentary evidence/ Govt. Certificate etc., in support of the same along with their Techno-commercial offer.

Type under MSE	SC/ST Owned	Women Owned	Others (excluding SC/ST & Women Owned)
Micro			
Small			

Note: *If the bidder does not furnish the above in the tender, offer shall be processed construing that the bidder is not falling under MSE category.*

2. LOCATION OF WORK SPOT:

The fabrication work is to be carried out at vendor works.

3. VENDOR'S SCOPE OF WORK: Detailed scope of the fabrication work will be as follows:

3.1) Fabrication of Panels: 300 MT (approx.)

It may be noted that the weight indicated above is tentative and may vary on both sides. However, payment shall be made for the actual executed quantity only.

3.2) Complete Fabrication of Panels as per relevant drawings, QAP, WPS, Procedures, Painting Schedule, IBR Specifications & Standards. It includes the following activities but not limited to the same:

- 1) Collection and Transportation of all free issue materials from BHEL-HPVP Stores, Visakhapatnam along with relevant IBR documents to Vendor works and Unloading of the same at Vendor works.
- 2) Free issue materials cleared by HPVP-QC (Stores) to be collected within 3 days from the date of intimation without any failure.
- 3) Vendor is responsible for fabrication of Panels strictly as per BHEL issued drawings, approved QAP & WPS.
- 4) The Welding Procedure Specification (WPS) shall be prepared by the vendor. TPI approved PQR along with NABL documents and test reports shall be submitted to BHEL for approval prior to starting of welding.
- 5) All consumables like Electrodes & Filler wires, Gases, Grinding/cutting wheels etc., required for fabrication are in the scope of the Vendor. The welding consumables shall be sourced only from Brand / batches of having valid IBR certificate and the vendor shall submit the Batch Test Certificates to BHEL for verification.
- 6) Welding shall be carried out by IBR certified welders only and the qualification documents are to be submitted to BHEL-HPVP.
- 7) All fabrication, inspection, and testing activities shall comply with relevant quality documents (CQP, SQP, SIP, QCP). Form 3B shall be under vendor scope.
- 8) Coordination and arrangement of IBR inspection for intermediate stages and Final stage of Fabrication is in vendor's scope. Customer stage wise inspections to be cleared as per QAP.
- 9) The vendor shall maintain a history card for each job, documenting all activities including rework. Compliance with manufacturing guidelines and GMS notes is mandatory.
- 10) Submit cutting plans for the collected materials to BHEL for approval before fabrication. Wherever fabrication is done without proper approved cutting plans, any loss of materials arising due to the same will be recovered as per BHEL recovery rates.
- 11) Vendor should return the excess / balance materials including off-cuts and total scrap available with the vendor exclusive of process allowance & invisible wastage to BHEL-HPVP Stores after material reconciliation but before submission of their final bill. In case the same are not returned by the vendor, Recovery shall be made as per BHEL Rates / MSTC rates plus applicable taxes, prevailing at the time of processing of the final bill.
- 12) Marking of all off-cuts with melt numbers & material specifications by letter painting and return them to BHEL HPVP Stores at Visakhapatnam. Transportation and Handing over of off-cut materials and scrap at BHEL-HPVP, Visakhapatnam is in vendor scope.
- 13) Verification of Raw material details and specifications. Report any defects immediately to BHEL. Ensure proper colour coding and melt transfer for material traceability. Vendor shall follow all IBR inspection formalities.
- 14) Cutting and edge preparation of tubes as per drawing. Any butt joint and joint locations must be approved by BHEL Engineering beforehand.
- 15) Preparation of Joint Plan and submission of the same to BHEL for approval.
- 16) Build tubes to the required length by butt welding (TIG or straight tube butt welding machine). Perform 100% Radiographic Testing (RT) using only BHEL-approved sources. RT films shall be evaluated by BHEL NDTL. Repair and re-test until approval.
- 17) Form the panel using a panel forming machine.
- 18) Check the panel thoroughly and identify weld repairs/quantum like under cut, burn through, weld skips and porous etc. The repair tube joints in raw panel must be at least 460 mm away from centre line of buck stays.
- 19) Carryout the weld repair and bow correction (if any).
- 20) Cut the burn through area if any and replace with spool pieces to the minimum length of 300mm and carry out full 100% TIG welding with 100% RT.
- 21) In case any additional tubes or other raw materials are required for repairs arising during fabrication and such repairs are attributable to the vendor, the required materials shall be supplied by BHEL only on chargeable basis at additional cost.
- 22) Mark the panels for insert bends/openings/splits/slots if any as per the drawing. Inspect the marking and check with drawing & gas cut as per marking.
- 23) End scarf the required tubes to suit the inserts/opening bends as per drawing. Bend the tube as per the drawing provided.

- 24) FoT wherever required has to be performed and details of the same has to be submitted along with necessary documents. Tubes for FoT, if required, shall be given once on No Cost basis and shall be treated as Scrap post fabrication for material accounting.
 - 25) Deburr and match the inserts meant for openings/inserts bends. Fit up, tack weld and weld (by full 100% TIG) as per drawing.
 - 26) Preparation of Attachments is in Vendor scope.
 - 27) Prepare the template for void fittings. Mark the plate for gas cutting. Gas cut the plate to shape. Fit-up and weld the shaped plates to the panel as per the drawing.
 - 28) Fit up and tack weld the attachments like v-clips/ plates/ flats/ rods/vertical inclined/ fins/ edge bars If any, as per drawing and weld.
 - 29) Conduct visual inspection on welds. Conduct LPI as per the quality plans on welds in presence of BHEL NDT or BHEL approved TPI agency.
 - 30) Any necessary width corrections and edge bar cutting should be executed. The panel length must be trimmed to the correct dimensions.
 - 31) Carryout ID corrections, if any as per drawing.
 - 32) Conduct hydraulic testing and obtain clearance from BHEL-QC. Wherever required as per drawing/specification, the panel shall also be offered to IBR for necessary inspection and clearance.
 - 33) After all processes, offer the panels to QC/BHEL for final evaluation. The vendor must perform any rework as instructed by BHEL QC.
 - 34) Provide necessary identification by letter painting in a prescribed / specified format on the panels.
 - 35) The vendor shall adhere to all processes and tests outlined in the Quality Plan (QP), including the ball test, LPI, and sponge test, and offer for inspection during the panel processing as specified in the document.
 - 36) IBR inspection Fee payment shall be borne by the vendor and necessary inspection clearances to be obtained at required stages.
 - 37) Put VCI pellets, close the end with end caps and capping channel, provide identification, colour coding on terminal tube ends and painting. Supply of VCI pellets, End caps and capping channels is in vendor's scope
 - 38) Surface preparation by Blast Cleaning and Painting of Primer & Finish Paints by qualified painters as per approved Painting Schedule. All tests required as per Job Specifications and BHEL Painting Procedure shall be carried out by a qualified agency for testing of painting and obtaining stage wise inspection clearance from HPVP (QC) / TPIA / IBR as per approved drawings & QAP. **Paints shall be Free Issue by BHEL.**
 - 39) All tests to be conducted at various stages in NABL approved laboratories is in vendor's scope.
 - 40) Loading of finished items with required packing as per drawing onto the trailer by providing necessary manpower, tools & tackles and Welding of temporary supports required for transportation of the same to the customer.
 - 41) Materials required for Packing and Stacking of Panels for transportation purpose, if any is in vendor's scope.
 - 42) The Vendor shall submit all original inspection documents including all relevant IBR forms duly approved by Director of Boilers of the concerned state, History card, Weld map, Dimension reports, NDE reports, Customer / IBR clearances, IR & DC etc.
 - 43) 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.
- 4. BHEL SCOPE:**
- BHEL – HPVP shall provide the following as free issue:
- 4.1 Drawings, GMS, QAP, Painting Schedule, applicable Procedures, Standards & Specifications.
 - 4.2 All Raw materials e.g., Tubes, BOCs, attachments as per GMS and required Paints as per Painting Schedule at BHEL - HPVP stores, Visakhapatnam.
However, Transportation of these materials from BHEL-HPVP stores to Vendor works is in vendor's scope.
 - 4.3 Transportation of Finished Panels from Vendor works to customer.
- 5. INSPECTION:**
- 5.1 Inspection shall be carried out by M/s. BHEL-HPVP, Vizag / BHEL Authorized Inspection Agency (TPIA) / Customer & IBR as per approved QAP. Vendor's scope includes co-ordination with IBR officials for Stage wise &

Final Inspection and obtaining inspection clearances before proceeding for further operations along with all necessary documentation.

- 5.2 Fabrication Vendor shall be solely responsible for preparation and submission of all Inspection Reports & documents duly certified by Inspection Authority along with the finished items.
- 5.3 All the documentation related to inspection clearance of M/s. BHEL/TPIA/Customer & IBR, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats and IBR Forms is in vendors scope. Vendor shall submit all original inspection documents including all relevant IBR forms duly approved by Director of Boilers of the concerned state, History card, Weld map, Dimension reports, NDE reports, Customer / IBR clearances, IR & DC etc. to BHEL-HPVP.

Note: Drawings enclosed with the tender document are tentative only and may be subject to revision due to incorporation of comments of the approving authority. Hence, the approved drawings and QAP issued to the vendor after ordering shall only be followed for execution and inspection of the job.

6. DELIVERY:

- 6.1 Delivery period shall be **within 4 Months from the date of issue of First consignment of free issue materials (or) 6 weeks from the date of issue of Last consignment of materials at BHEL-HPVP, Visakhapatnam whichever is later.**
- 6.2 Delivery period will be calculated from the date of issue of Raw materials at BHEL-HPVP, Visakhapatnam to the date of completion and readiness of job for dispatch at vendor's works.
- 6.3 All the Original Inspection documents and other relevant certificates are to be handed over to BHEL-HPVP as per the instructions at the time of delivery.
- 6.4 In case the delivery period offered by the vendor is more than the tender delivery, Price quoted by the bidder shall be loaded for additional period @ 0.5% per week or part thereof for the purpose of evaluation of Bidder Status.

7. VALIDITY OF OFFER:

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

8. EARNEST MONEY DEPOSIT (EMD):

- 8.1 The Bidder shall submit EMD for **₹ 6,00,000/- (Rupees Six Lakhs only)** along with their bids in the following forms only:
 - a) Electronic Fund Transfer credited in BHEL account before tender opening (Bank Mandate is enclosed). **Fund Transfer details to be submitted along with the offer.**
 - b) Banker's Cheque/ Pay Order/ Demand Draft, in favour of BHEL, Visakhapatnam (along with offer)
 - c) Fixed Deposit Receipt (FDR) issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Bidder, a/c BHEL)
 - d) Bank Guarantee from any of the Scheduled Banks
 - e) Insurance Surety Bonds
- 8.2 EMD by the Bidder will be forfeited, if:
 - a) The bidder withdraws or amends its/his tender or impairs or derogates from the tender in any respect within the period of validity of the tender or if the successful bidder fails to furnish the required performance security within the specified period as per the order.
 - b) EMD by the bidder shall be withheld in case any action on the bidder is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.
- 8.3 EMD given by all unsuccessful bidders shall be returned after expiry of the final bid validity period or within 30 days of award of the contract.
- 8.4 EMD shall not carry any interest.
- 8.5 EMD of successful bidders shall be refunded on conclusion of the order / receipt of Security Deposit.

Note:

1) Micro & Small Enterprises (MSEs) or Start-ups as recognised by Department for Promotion of Industry and Internal Trade (DPIIT) are eligible for exemption of EMD as given below:

MSE suppliers can avail the intended benefits only if they submit **valid UDYAM Registration for Micro / Small** category and relevant certificate for Start-ups along with the offer. Non-submission of such

documents will lead to consideration of their bid at par with other Non-MSE bidders. No benefits shall be applicable against this tender enquiry if the above required document is not submitted before Price bid opening.

- 2) In case of submission of EMD as per 8.1 (b), (c), (d) & (e) above, the original documents are to be sent through Speed Post to the following address:

The DGM (Outsourcing), DAPG Building, HPVP Unit, BHEL, Visakhapatnam – 530012 (AP).

9. PRICE:

- 9.1 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.
- 9.2 The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 9.3 GST shall be reimbursable to the vendor as detailed in Clause - 11 and as per Annexure – GST.
- 9.4 Income tax will be deducted at applicable rates from RA & Final bills.

10. EVALUATION, COUNTER OFFER & ORDERING:

- 10.1 **L1 status shall be evaluated based on the total quoted value.**
- 10.2 For ordering, **Two (02) bidders** shall be considered and total Quantity shall be distributed to the two bidders in the ratio of 60:40.
- 10.3 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.
- 10.4 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 only.
- 10.5 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.

11. 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 the 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 & 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.

12. REVERSE AUCTION:

- 12.1 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. Refer Guidelines for Reverse Auction which is available on our website, www.bhel.com → supplier registration → Guidelines for Reverse Auction, before submission of offer.
- 12.2 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 price bid along with applicable loading, if any, shall be considered for ranking.
- 12.3 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.
- 12.4 Bidders are advised to read the 'Business Rules' (Annexure – V) indicating details of RA event carefully, before reverse auction event.

13. 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 contract attracts penal provisions in line with BHEL Guidelines for Suspension of Business Dealings.

14. GENERAL:

14.1 The bidders 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. Bidders 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.

14.2 **Conditional / Partial Price Bids** and any other deviations to the tender terms & conditions are not acceptable and BHEL reserves the right to reject such offers without further correspondence. Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry in the Techno-commercial Bids without any deviations.

14.3 BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.

14.4 The General Terms & Conditions, if any, contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.

14.5 Other Terms & Conditions, whichever 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

- | | |
|---|------------------|
| i) Schedule of Quantities | : Annexure – I |
| ii) Details of Panels to be fabricated | : Annexure – II |
| iii) General Terms & Conditions | : Annexure – III |
| iv) Acceptance to tender terms & conditions | : Annexure – IV |
| v) Business Rules for Reverse Auction | : Annexure – V |
| vi) GST Compliance for Indigenous Suppliers | : Annexure – GST |
| vii) Integrity Pact | : Annexure - IP |
| viii) Drawings, MQP, Painting Schedule etc. | |

PART - 2: PRICE BID

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

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

16.1 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 04.07.2026**.

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

16.2 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.

16.3 OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.

17. TENDER OPENING:

17.1 Techno-commercial Bids will be opened on **04.07.2026 at 15:00 Hrs.** in online e-procurement portal.

17.2 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.

18. INTEGRITY PACT:

- a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl. No.	IEM	E-Mail ID
01	Dr. Sarat Kumar Acharya, Ex-CMD, NLC	iem1@bhel.in
02	Shri R. Mukundan, IRPS (Retd.)	iem2@bhel.in
03	Shri Madan Lal Meena, IAS (Retd.)	iem3@bhel.in

- b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/three-part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the panel of IEMs. All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/post/email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name:	1. S N V S Ramesh, DGM	2. D N Murthy, Manager
Dept.:	Outsourcing Dept.	Outsourcing Dept.
Address:	BHEL – HPVP, Visakhapatnam - 12	BHEL – HPVP, Visakhapatnam - 12
Phone:	0891 – 288 1515	0891 – 288 1359
E-mail:	rameshsnvs@bhel.in	dnmurthy@bhel.in

For Bharat Heavy Electricals Limited,



(S N V S Ramesh)
DGM (Comml. & Outsourcing)

S.N.V.S RAMESH
DGM (COMMERCIAL & OUT SOURCING)
BHARAT HEAVY ELECTRICAL LIMITED (BHEL)
HEAVY PLATES & VESSELS PLANT (HPVP)
VISAKHAPATNAM-530 012

SCHEDULE OF QUANTITIES

Tender enquiry ref: OS/26-27/8136&8194/Panels/14/014

Date: 24.06.2026

Sub: Fabrication of Panels against S.O. 8136 & 8194 at Vendor works with free issue materials

Sl. No.	S.O. No.	Description of Work	Unit	Qty.
1	8136 & 8194	Fabrication of Panels	MT	300
		TOTAL	MT	300

Notes :

- 1) **L1 status shall be evaluated based on the total quoted value and Load distribution shall be as per clause no. 10 of the tender enquiry.**
- 2) The quoted price shall be inclusive of all applicable taxes & duties except GST. Income Tax shall be deducted at applicable rates from Bills and GST shall be reimbursable to the vendor as per applicable guidelines.
- 3) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of work.
- 4) The quantity indicated above is tentative and may vary subject to the requirement at the time of ordering / execution. However, payment shall be made for the actual quantity only.
- 5) The bidders are advised to go through all the drawings & documents before quoting the tender.
- 6) The evaluation currency for this tender shall be **INR**.

Signature of the Bidder with stamp

DETAILS OF PANELS TO BE FABRICATED

Tender enquiry ref: OS/26-27/8136&8194/Panels/14/014

Date: 24.06.2026

Sub: Fabrication of Panels against S.O. 8136 & 8194 at Vendor works with free issue materials

Sl. No.	S.O. No.	PGMA	Description of Item	Approx. Wt. (MT)	Qty. (Nos.)	Material
1	8136	06-631	FRONT UPPER WW PNL	34.10	16	CS
2		06-640	REAR UPPER WW PNL	19.31	11	CS
3		06-651	SIDE UPPER WW PNL	38.76	12	CS
4		06-655	SIDE LOWER WW PNL	19.25	16	CS
5		06-670	EXTENDED SIDE WW PNL	6.50	6	CS
6		11-684	SH EXTENDED SIDE WALL PANELS	2.73	4	CS
7		11-694	S.H.EXTENDED BOTTOM PANELS	2.12	4	CS
8	8194	06-631	FRONT UPPER WW PNL	34.10	16	CS
9		06-640	REAR UPPER WW PNL	19.31	11	CS
10		06-651	SIDE UPPER WW PNL	38.76	12	CS
11		06-655	SIDE LOWER WW PNL	19.25	16	CS
12		06-670	EXTENDED SIDE WW PNL	6.50	6	CS
13		11-682	SH REAR WALL PANELS	15.77	14	CS
14		11-683	SH SIDE WALL PANELS	23.65	16	CS
15		11-684	SH EXTENDED SIDE WALL PANELS	2.73	4	CS
16		11-685	SH FRONT WALL PANELS	11.52	7	CS
17		11-694	S.H.EXTENDED BOTTOM PANELS	2.12	4	CS
			TOTAL	296	175	

Note : The above weights are approximate and may vary as per the drawings issued at the time of order / during execution.

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 **10%** of the order value in case of **HPVP ADM / Lovagarden site** (or) **25%** of the material cost in case of Vendor works 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 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 / Owner.

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 (Repo rate + 4%) 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:

Orders issued to the vendors have to be completed in all respects including Material Accounting within a maximum of **180 days** from the **date of issue of material** from BHEL - HPVP stores.

Maximum of 0.5 % on the requirement of materials (**Plates, Sections and Pipes**) is admitted towards **process allowance and invisible wastage**.

Scrap quantity is permissible up to a **maximum of 1% on Structural (Beams, Channels, Angles, Rods, Pipes etc.), 2% on Sheets, 3% for Plates** on the theoretical requirement of materials.

If wastage and scrap is beyond the above limits, 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 as per BHEL recovery rates including applicable taxes & duties.**

Material reconciliation including return of balance materials, off-cuts 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.	CS/AS Sheets & Plates	Below 500 × 250	500 × 250 & above
2.	Rolled sections Rod, angles etc. (other than -tubes, pipes)	Below 1000	1000 & above
3.	Tubes & Pipes	Below 500	500 & above
4.	Universal column	Below 1000	1000 & Above
5.	SS Sheets & Plates	Below 500 × 250	500 × 250 & above
6.	SS Structural, Rods, Tubes, Pipes	Below 250	250 & above
7.	Non – ferrous: sheets & plates, rods & tubes	Below 500 × 250 (S & PL), Below 250 (Rods & Tubes)	500 × 250 & above, 250 & above
8.	Big size Scrap	(2500 & above) × (150 to 249)	-

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 equipments along with all inspection documents to HPVP shops / Logistics dept. / ADM site / Lova Garden site, 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 summarily 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. TAXES & DUTIES:

- a) BOCW Cess if applicable is to be paid by Contractor.
- b) In addition to existing taxes, any new taxes, cess, duties, levies imposed by Central/ State Govt. shall be borne by the contractor.
- b) In case, any new tax is imposed instead of existing tax, difference of the amount shall be reimbursed/ recovered on submission of documentary evidence.
- c) Any new tax is imposed by Central/ State Govt. (or) there is any variation in taxes after expiry of delivery / contract period, the same shall be borne by contractor only.
- d) All terms & conditions of the contract in respect of taxes & duties are subject to new taxation laws introduced from time to time by Govt. and Terms & conditions will deemed to be modified in accordance with the provisions of New Laws.

28. CONTRACTOR's MATERIAL:

Security of Contractor's Equipment, Tools & Tackles, Machinery etc., is in the scope of Contractor. BHEL is not responsible for the same.

29. RETURNING OF BHEL MATERIAL:

All Materials, machinery, equipment etc., of BHEL sent to site from BHEL-HPVP for execution of the Order are to be returned back to BHEL by the Contractor.

30. 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.

31. 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.

- 32.** 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.

- 33.** 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.

34. GRIEVANCE REDRESSAL MECHANISM:

To promote transparency and ensure fair treatment of all bidders, a structured Grievance Redressal Mechanism is in place to address any concerns or issues arising during the tendering process or in subsequent business dealings with the company.

Suppliers/Contractors are requested to follow the below escalation process for grievance resolution:

1. **First Level:** Any grievance should initially be addressed to the designated Dealing Officer, whose contact details are provided in the Notice Inviting Tender (NIT) / Contract.
2. **Second Level:** If the issue remains unresolved, it may be escalated by lodging a formal grievance through the SUVIDHA Portal: <https://suvidha.bhel.in/suvidha/>. Responses will be provided in accordance with the defined escalation matrix."

35. 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 without any deviations 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/26-27/8136&8194/Panels/14/014, dated 24.06.2026**. BHEL shall finalise the Rates for **Fabrication of Panels against S.O. 8136 & 8194 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/26-27/8136&8194/Panels/14/014, dated 24.06.2026**, (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).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/26-27/8136&8194/Panels/14/014, dated 24.06.2026**. 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).
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)*, 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/Warranty 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.

Signature of the Bidder with Stamp

INTEGRITY PACT**Between**

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

and

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

Preamble

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

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

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

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Bharatiya Nyaya Sanhita (BNS) 2023 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

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

- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Bharatiya Nyaya Sanhita (BNS) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

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

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

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above, the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years (to be reckoned from date of bid submission) with any other company in any country conforming to the anti-corruption approach in India that could justify his exclusion from the tender process. The date of such transgression, for the purpose of disclosure by the bidders in this regard, would be the date on which cognizance of the said transgression was taken by the competent authority. The transgression(s), for which cognizance was taken even before the said period of three years, but are pending conclusion, shall also be reported by the bidders.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of a joint venture, all the partners of the joint venture should sign the Integrity Pact. In case of Sub-contracting, the Principal Contractor shall be solely responsible for the adherence to the provisions of IP by the sub-contractor(s).
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

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

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact on receipt of any complaint by them from the bidder(s).
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as /Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.
- 8.5 The role of IEM is advisory and the advice of IEM is non-binding on the Organization. However, as IEMs are invariably persons with rich experience who have retired as senior functionaries of the government, their advice would help in proper implementation of the IP.

- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of the tendering process, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an examination, and submit their joint recommendations to the Management. In case the full panel is not available due to some unavoidable reasons, the available IEM(s) will conduct examination of the complaints. Consent of the IEM(s), who may not be available, shall be taken on record.
- 8.7 The IEMs shall examine all the representations/grievances/ complaints received by them from the bidders or their authorized representative related to any discrimination on account of lack of fair play in modes of procurement and bidding systems, tendering method, eligibility conditions, bid evaluation criteria, commercial terms & conditions, choice of technology/ specifications etc.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Bharatiya Nyaya Sanhita (BNS)/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word `Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.

- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.
- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. If required, the Principal may adopt any mediation rules for this purpose. However, not more than five meetings shall be held for a particular dispute resolution. The fees/expenses on dispute resolution shall be equally shared by both the parties. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract.

Ramesh
S.N.V.S RAMESH
 DGM (COMMERCIAL & OUT SOURCING)
 BHARAT HEAVY ELECTRICAL LIMITED (BHEL)
 HEAVY PLATES & VESSELS PLANT (HPVP)
 VISAKHAPATNAM-530 012

For & On behalf of the Principal
 (Office Seal)

For & On behalf of the Bidder/ Contractor
 (Office Seal)

Place _____
 Date _____

Witness: *[Signature]*
 (Name & Address) _____

D. N. MURTHY
 Manager (OS)
 Bharat Heavy Electricals Ltd
 HPVP Visakhapatnam-530 012

Witness: _____
 (Name & Address) _____



BHARAT HEAVY ELECTRICALS LIMITED
UNIT- HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM – 530 012
(A Govt. of India Enterprise)

MANDATE FORM

OPTION TO RECEIVE E-PAYMENT THROUGH NEFT & RTGS.

1. NAME : **BHARAT HEAVY ELECTRICALS LTD (HPVP)**
2. ADDRESS : **NATHAYYAPALE,**
VISAKHAPATNAM
3. PARTICULARS OF BANK ACCOUNT
 - a) BANK NAME : **STATE BANK OF INDIA**
 - b) BRANCH NAME : **BHPV BRANCH**
 - c) BRANCH ADDRESS : **BHPV POST, VISAKHAPATNAM**
 - d) IFSC CODE : **SBIN0001675**
 - e) ACCOUNT NUMBER ; **33362109398**
 - f) E-MAIL ID FOR RECEIVING SYSTEM GENERATED PAYMENT ADVICE :
vivaan@bhel.in

I hereby further declare that particulars furnished above are correct.

FOR BHARAT HEAVY ELECTRICALS LIMITED

Vivaan Mohanty
(Authorised Signatory)

[Signature]

Bank Certification

This is to certify that the particulars furnished at Point (3), above are correct and complete as per our records.

[Signature]
22/02/26
Seal & Signature of Authorised Bank Official

HACHIT KUMAR
Chief Manager
PF No: 442930 SS No: AD190
SBI BHPV Br. 01675

HPVP Unit, VISAKHAPATNAM – 530 012, A.P.,INDIA. Tel.No: +91(0891)2881280. Fax: +91(0891)2881700.
Registered Office : BHEL House, Siri Fort,NEW DELHI – 110049, India.
Website : <http://www.bhel.com>, Tel.Nos: (91)(11)66337000(Multiple lines),Fax: (91)(11)26493021(Gen.)



भारतीय स्टेट बैंक
State Bank of India

(01675) - BHPV, VISAKHAPATNAM
B.H.P.V.TOWNSHIP CAMPUS, VISAKHAPATNAM DIST.VISAKHAPATNAM
ANDHRA PRADESH 530012
Tel: 891-2547477 IFS Code: SBIN001675



केवल 3 महीने के लिए वैध / VALID FOR 3 MONTHS ONLY

2	8	0	4	2	0	2	5
D	D	M	M	Y	Y	Y	Y

FU4UyL

PAY *YOUR SERVICES*

को या उनके आदेश पर **OR ORDER**

रुपये **RUPEES** *ONE LAH FOURTY TWO THOUSAND SEVENTY HUNDRED AND SIXTY FOUR*

only

अदा करें ₹ *1,42,864/-*

खा. सं.
A/c No. **33362109398**

VALID UPTO ₹ 50 LACS AT NON-HOME BRANCH FOR NON-CASH TRANSACTION ONLY

89390126333

CC ACCOUNT

PREFIX:
1515800003

CASH

R. Prasad, Vice-Chairman

BHARAT HEAVY ELECTRICALS LTD BHEL HPVP-V

MULTI-CITY CHEQUE Payable at Par at All Branches of SBI

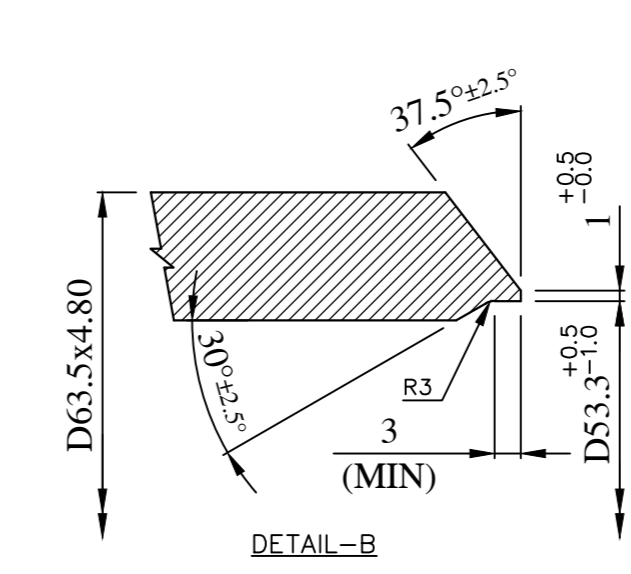
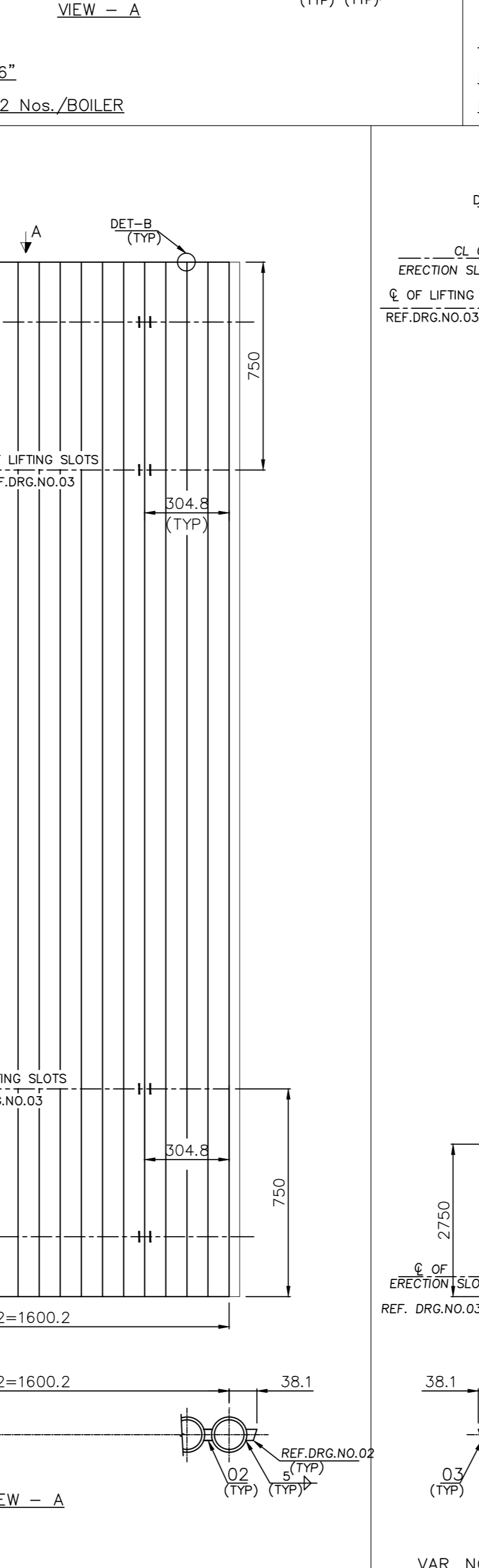
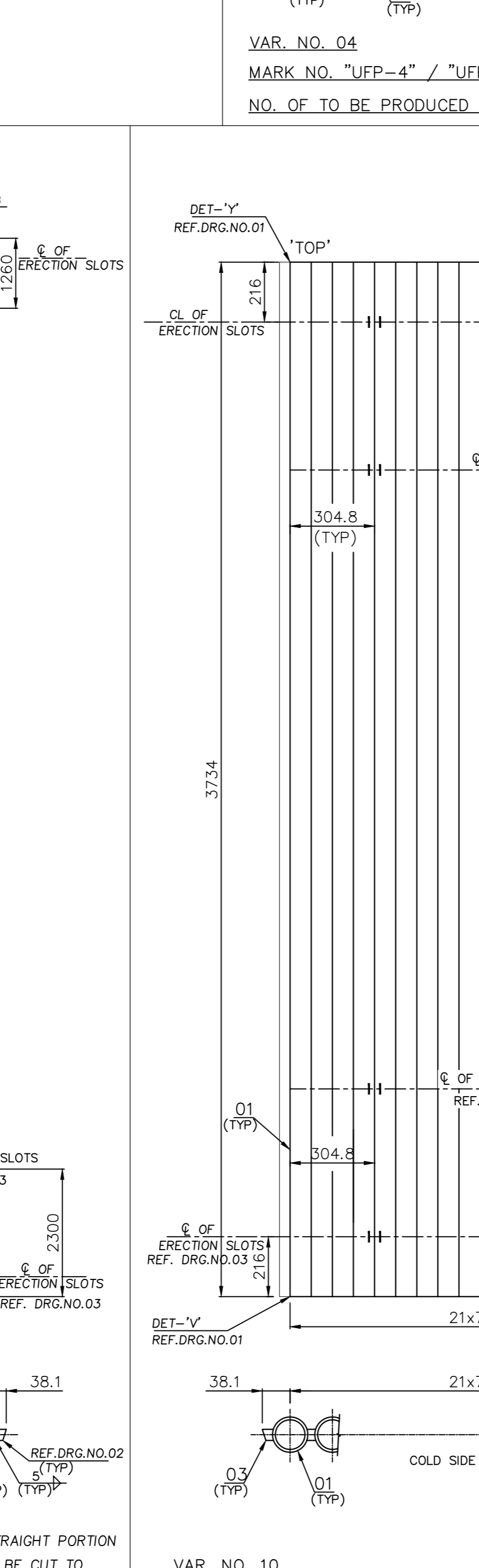
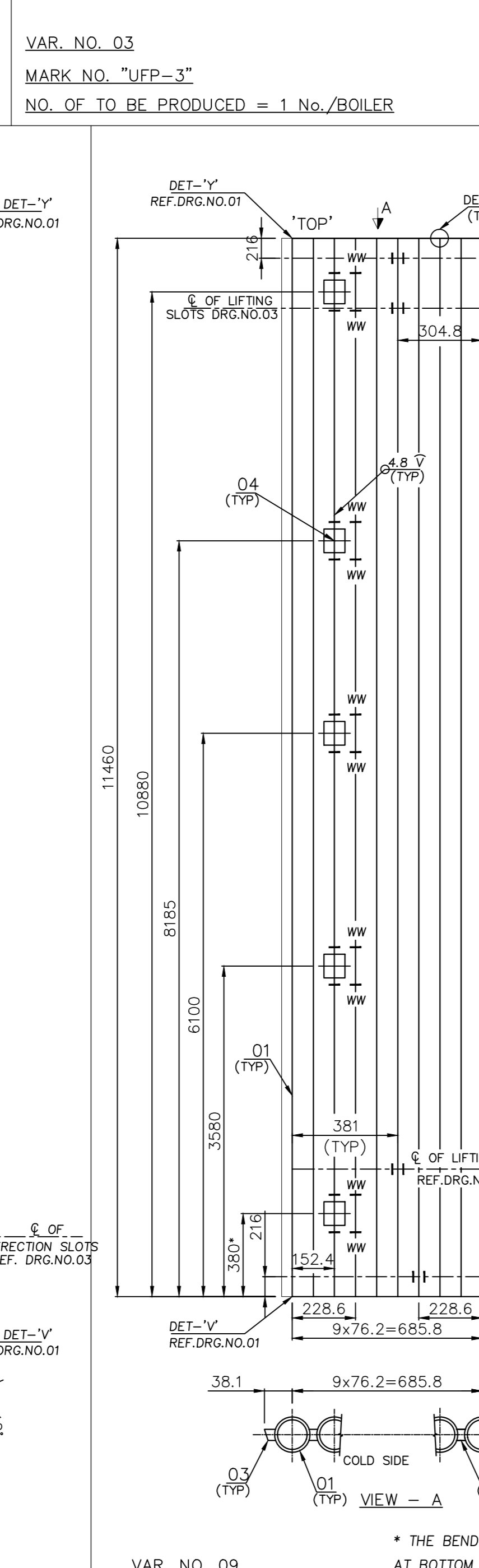
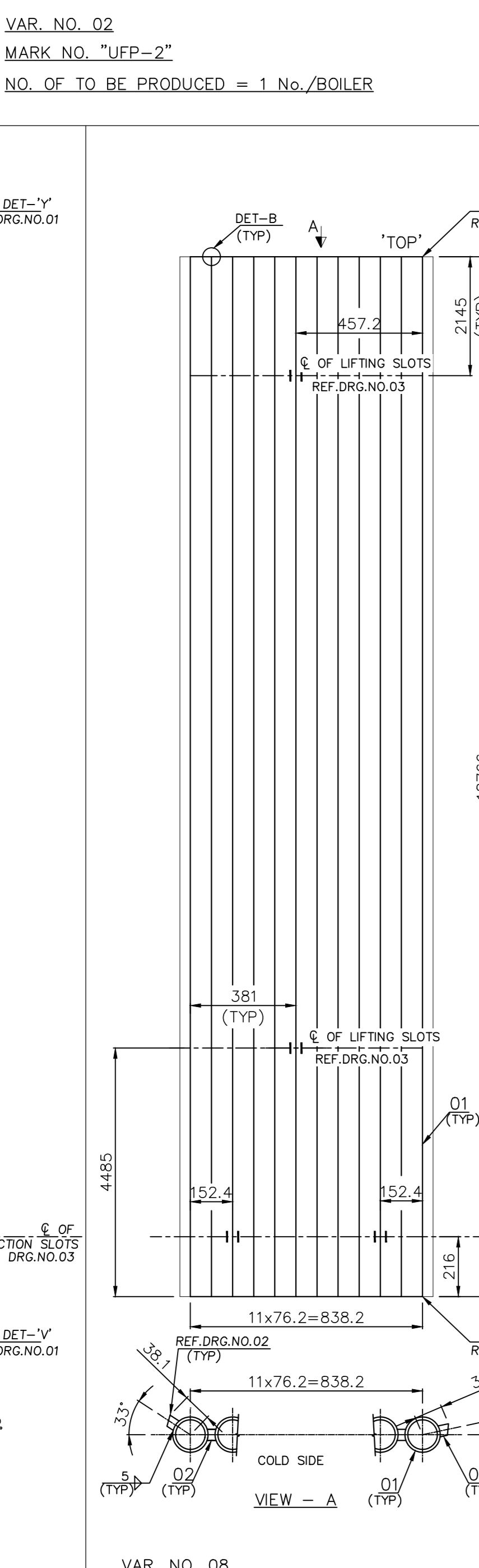
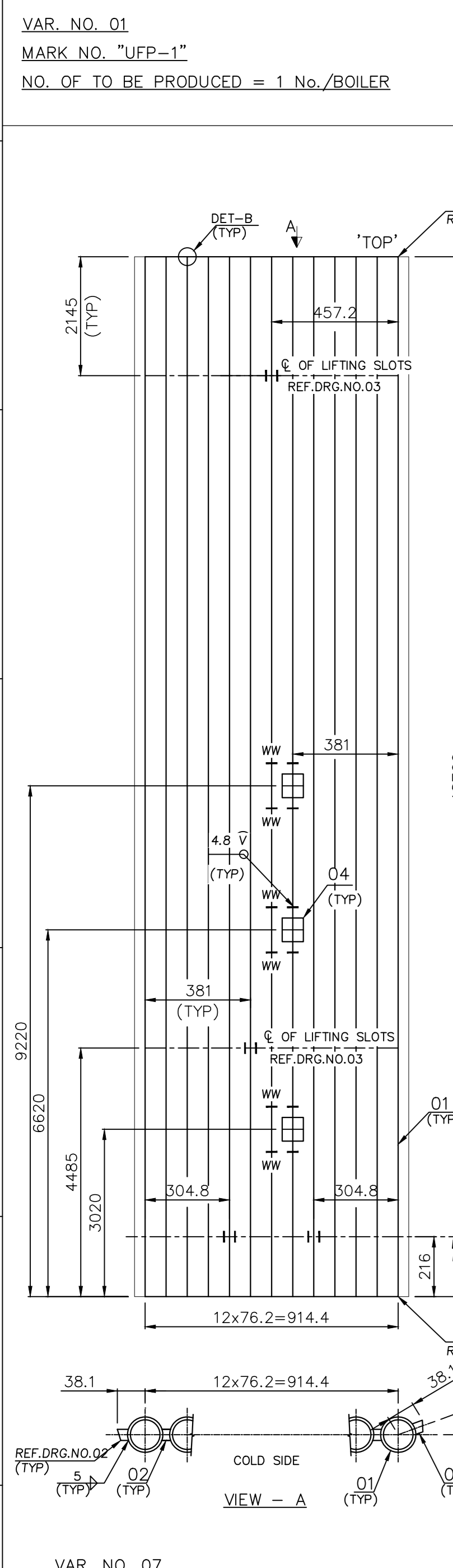
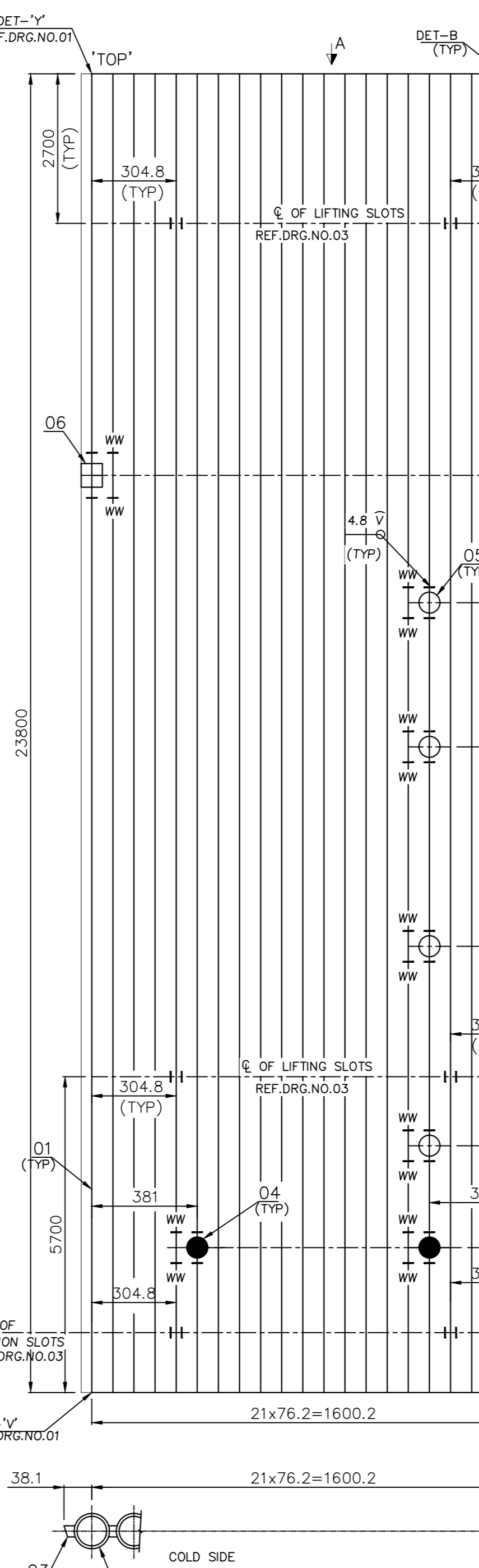
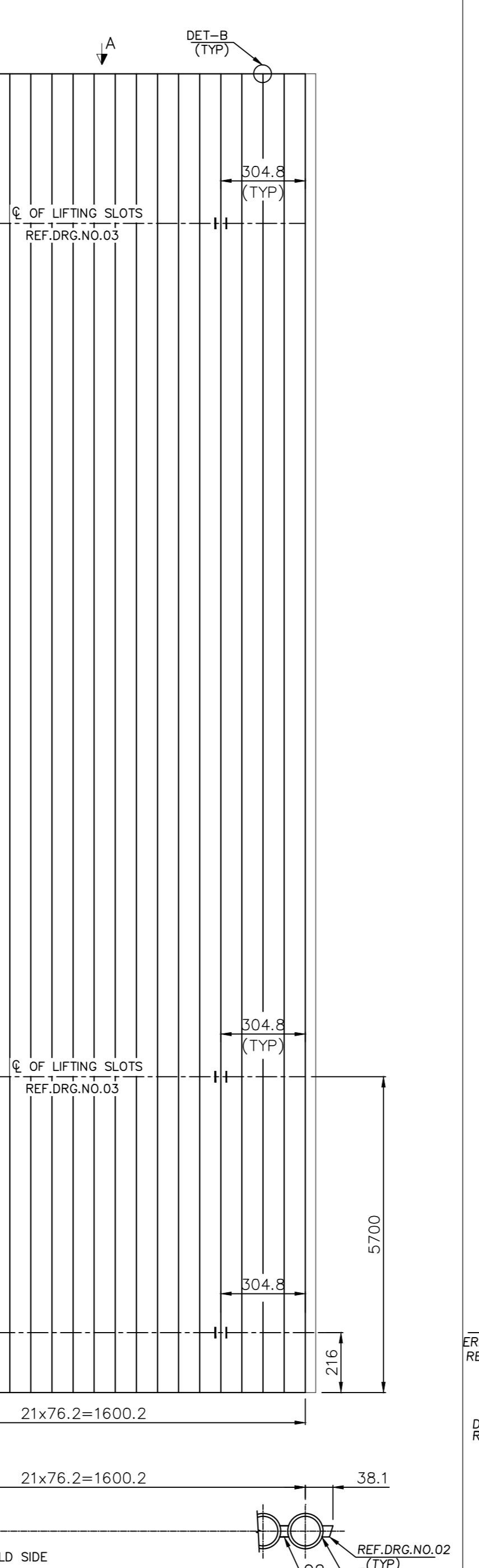
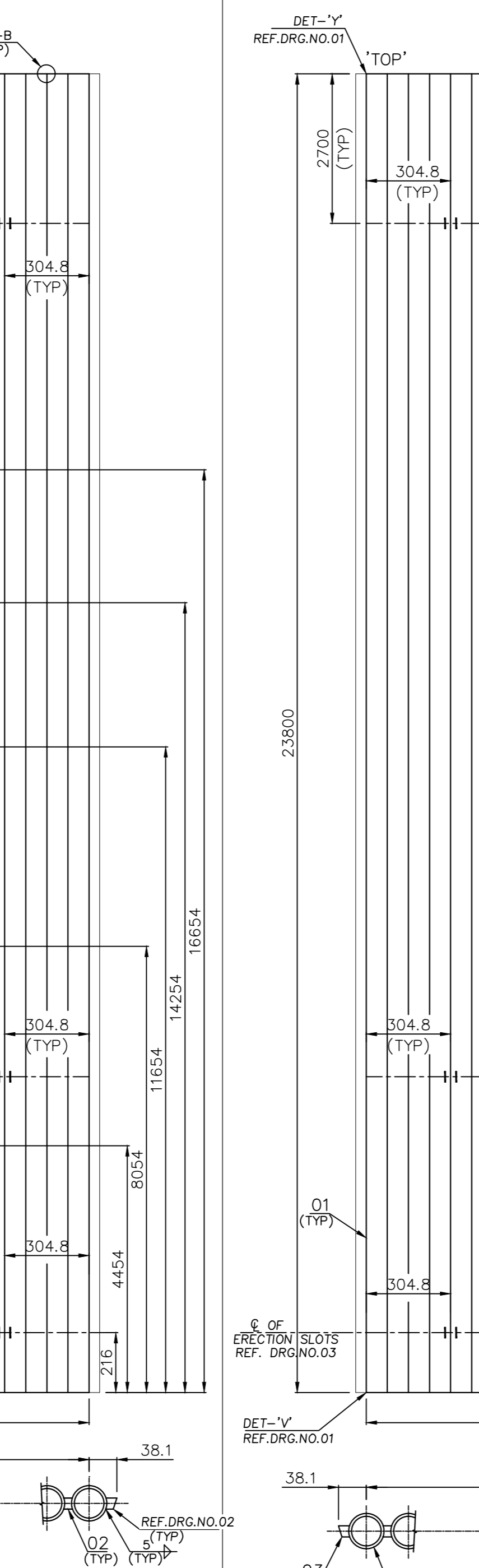
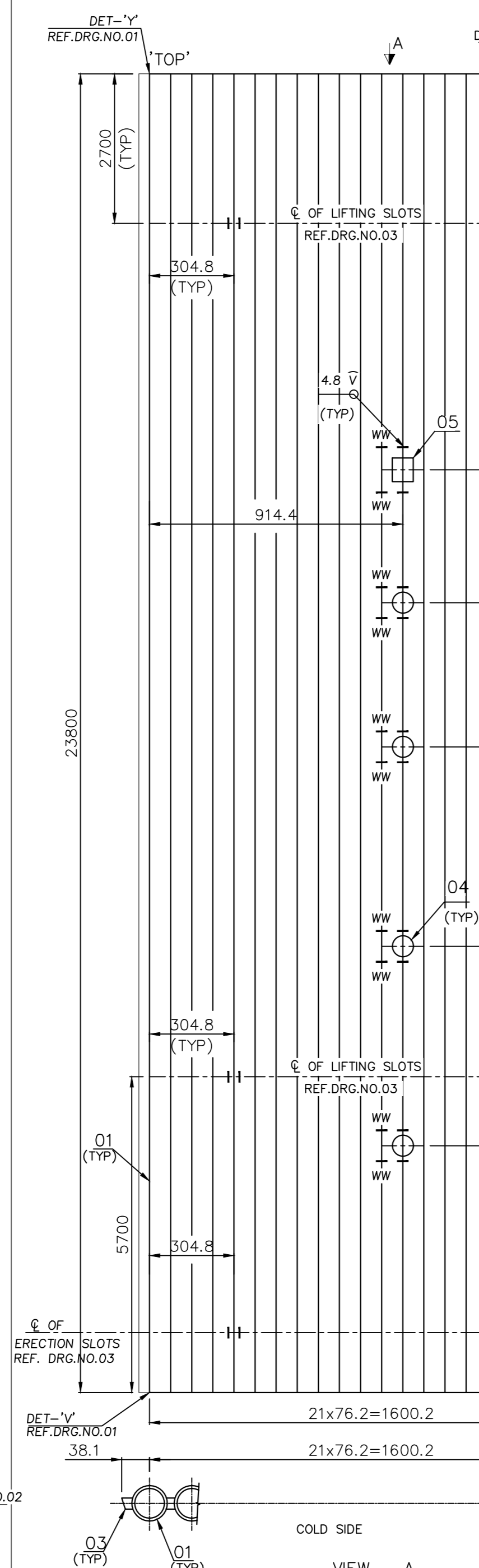
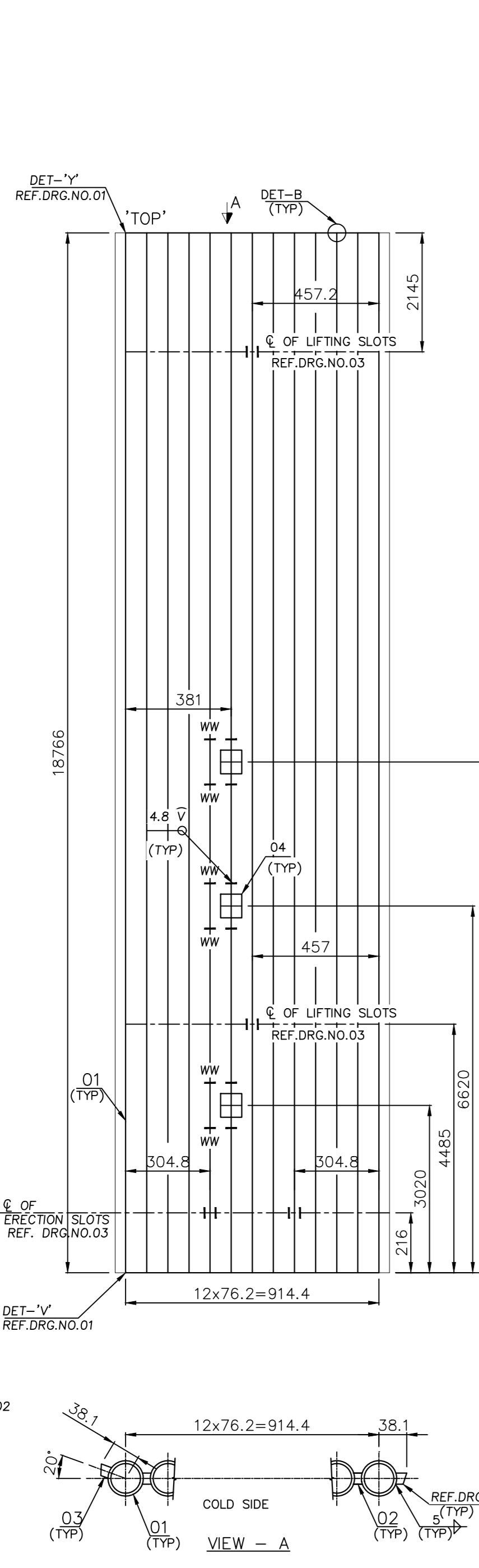
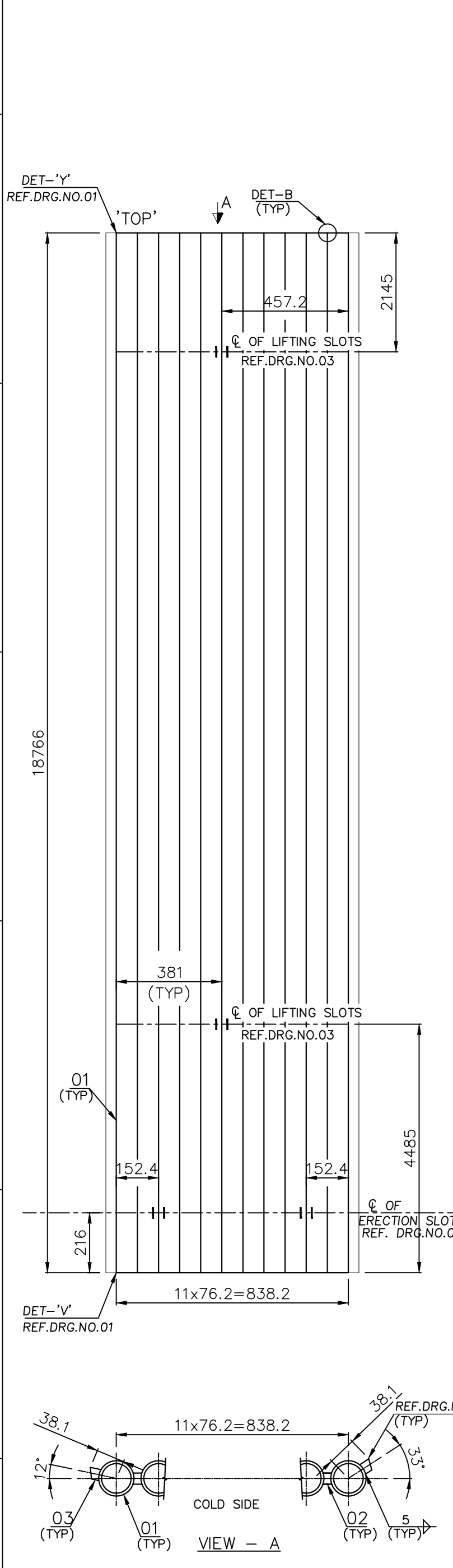
Please sign above

⑈413088⑈ 530002006⑈ 000096⑈ 30

Sum			
Total			

17-10-2022

MTD



MARKET ITEM NUMBER	DESCRIPTION	STD. DRAWING NUMBER	ITEM NO. / VAR. NO.	MATERIAL CODE / MATERIAL SPECN.	UNIT WEIGHT	QUANTITY	ZONE
04	OUT OPENING TYPE-A FOR OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	05	
03	FLAT 12.7x6			15 008 283 0000	3.400		
02	FIN FLAT 13.5x6			15 908 528 0000	7.300		
01	TUBE D63.5x4.80			A576 GR1015	09		
01	11460 LONG			AA1049048032 SA 210 GR.C	84.700	10	
11	UFP-16			ASSY.	1003.500	01	
03	FLAT 12.7x6			15 008 283 0000	1.100		
02	FIN FLAT 13.5x6			15 908 528 0000	2.350		
01	TUBE D63.5x4.80			A576 GR1015	21		
01	3734 LONG			AA1049048032 SA 210 GR.C	27.600	22	
10	UFP-11,12,13,14&15			ASSY.	658.750	01	

- NOTES:-
- DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE : 166.8 kg/cm²(g).
 - DESIGN TEMPERATURE : 310°C
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
 - PAIN THE WORD "TOP" AND "MARK NO." NEAR THE TOP END OF THE PANEL ON COLD SIDE.
 - ERECTOR SLOTS CAN BE SHIFTED BY ONE OR TWO PITCHES ON EITHER SIDE AT SHOP IF IT INTERFERES WITH OPENING.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.
 - TUBE ENDS ARE TO BE CAPPED BEFORE DESPATCH.
 - SHRINKAGE ALLOWANCE FOR FINS IN LENGTH IS NOT INDICATED FINS.
 - TO BUILT-UP IN LENGTH BY HAVING OPTIONAL WELD AS PER DETAIL-B.
 - FOR SHOP WELDING REFER RELEVANT WPS.
- REF.DRGS:-
- PANEL FABRICATION TOLERANCE FOR FUSION WELDED PANEL : 1-03-000-00039.
 - EDGE PREPARATION DETAIL FOR EDGE BAR : 4-06-634-00441.
 - ERECTOR SLOTS & LIFTING SLOTS : 6106 - 5010; DETAIL-C

MARKET ITEM NUMBER	DESCRIPTION	STD. DRAWING NUMBER	ITEM NO. / VAR. NO.	MATERIAL CODE / MATERIAL SPECN.	UNIT WEIGHT	QUANTITY	ZONE
04	OUT OPENING TYPE-B FOR OBD	1-06-000-U8095	02	WELDMENT (SA 210 GR.C)	16.800	05	
03	FLAT 12.7x6			15 008 283 0000	3.400		
02	FIN FLAT 13.5x6			15 908 528 0000	7.300		
01	TUBE D63.5x4.80			A576 GR1015	09		
01	11460 LONG			AA1049048032 SA 210 GR.C	84.700	10	
09	UFP-10			ASSY.	1003.500	01	
03	FLAT 12.7x6			15 008 283 0000	5.600		
02	FIN FLAT 13.5x6			15 908 528 0000	11.250		
01	TUBE D63.5x4.80			A576 GR1015	11		
01	18766 LONG			AA1049048032 SA 210 GR.C	138.700	12	
08	UFP-9			ASSY.	1799.350	01	
04	OUT OPENING TYPE-A FOR OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	03	
03	FLAT 12.7x6			15 008 283 0000	5.600		
02	FIN FLAT 13.5x6			15 908 528 0000	11.250		
01	TUBE D63.5x4.80			A576 GR1015	11		
01	18766 LONG			AA1049048032 SA 210 GR.C	138.700	13	
07	UFP-8			ASSY.	1999.700	01	
05	OUT OPENING TYPE-A FOR OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	01	
04	OUT OPENING TYPE-D WALL BLOWER	1-06-000-U8095	04	WELDMENT (SA 210 GR.C)	14.700	04	
03	FLAT 12.7x6			15 008 283 0000	7.100		
02	23800 LONG			IS 2062 GR.A	14.280		
01	23800 LONG			A576 GR1015	21		
01	TUBE D63.5x4.80			AA1049048032 SA 210 GR.C	175.900	22	
06	UFP-7			ASSY.	4259.512	01	
06	OUT OPENING TYPE-B FOR OBD	1-06-000-U8095	02	WELDMENT (SA 210 GR.C)	16.800	01	
05	OUT OPENING TYPE-D WALL BLOWER	1-06-000-U8095	04	WELDMENT (SA 210 GR.C)	14.700	04	
04	OUT OPENING TYPE-A INST. INSERTS & OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	03	
03	FLAT 12.7x6			15 008 283 0000	7.100		
02	23800 LONG			IS 2062 GR.A	14.280		
01	TUBE D63.5x4.80			A576 GR1015	21		
01	23800 LONG			AA1049048032 SA 210 GR.C	175.900	22	
05	UFP-5			ASSY.	4309.912	01	
03	FLAT 12.7x6			15 008 283 0000	7.100		
02	23800 LONG			IS 2062 GR.A	02		
01	TUBE D63.5x4.80			15 908 528 0000	14.280		
01	23800 LONG			A576 GR1015	21		
01	TUBE D63.5x4.80			AA1049048032 SA 210 GR.C	175.900	22	
04	UFP-4 / UFP-6			ASSY.	4183.880	01	
05	OUT OPENING TYPE-A FOR OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	01	
04	OUT OPENING TYPE-D FOR WALL BLOWER	1-06-000-U8095	04	WELDMENT (SA 210 GR.C)	14.700	04	
03	FLAT 12.7x6			15 008 283 0000	7.100		
02	23800 LONG			IS 2062 GR.A	02		
01	TUBE D63.5x4.80			15 908 528 0000	14.280		
01	23800 LONG			A576 GR1015	21		
01	TUBE D63.5x4.80			AA1049048032 SA 210 GR.C	175.900	22	
03	UFP-3			ASSY.	4259.512	01	
04	OUT OPENING TYPE-A FOR OBD	1-06-000-U8095	01	WELDMENT (SA 210 GR.C)	16.800	03	
03	FLAT 12.7x6			15 008 283 0000	5.600		
02	FIN FLAT 13.5x6			15 908 528 0000	11.250		
01	TUBE D63.5x4.80			A576 GR1015	11		
01	18766 LONG			AA1049048032 SA 210 GR.C	138.700	12	
01	UFP-1			ASSY.	1799.350	01	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136

PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136

DATE: 06.11.2025

DATE: 16.12.2025

DATE: 20.12.2025

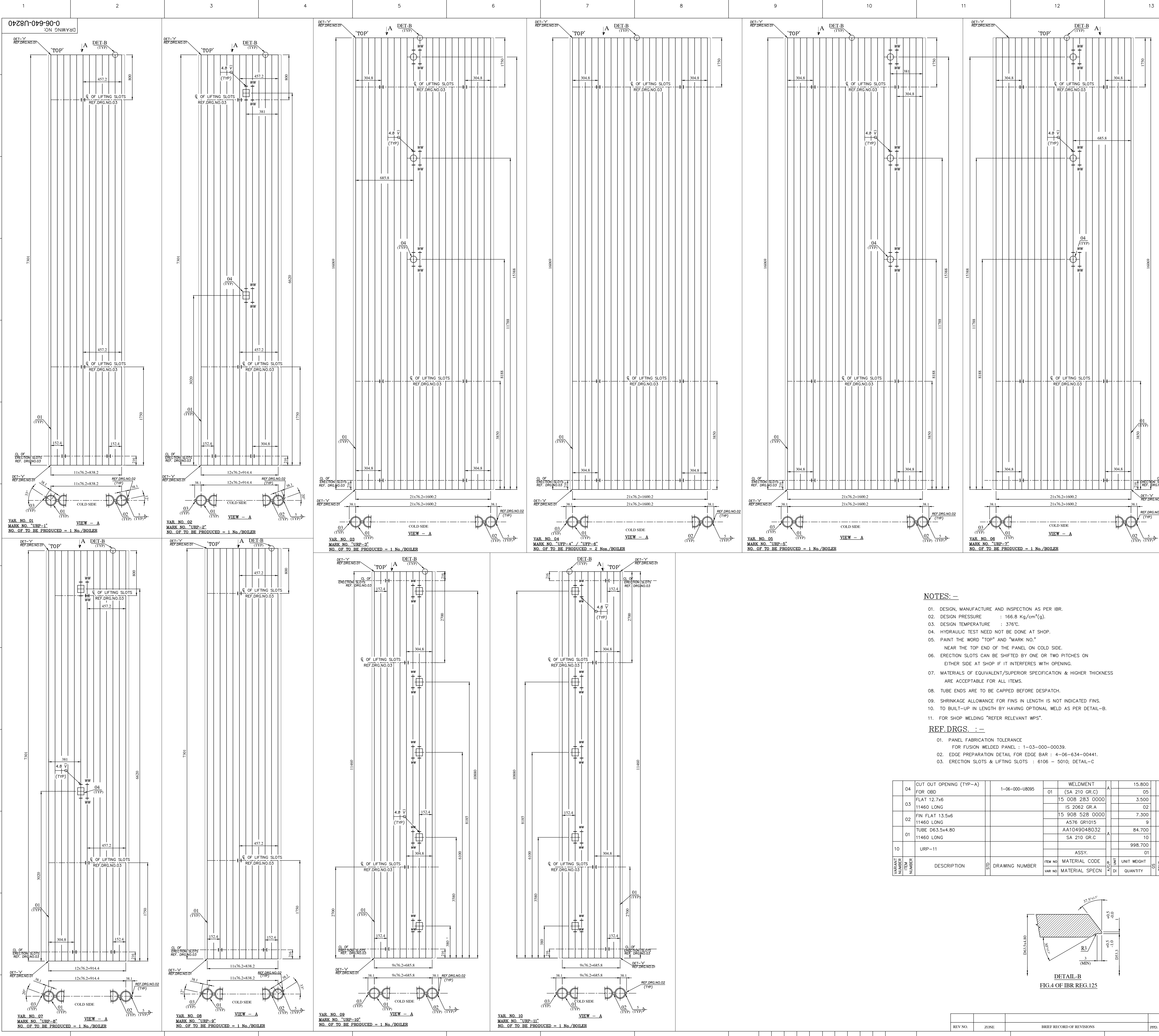
PROJECTION SCALE: N.T.S.

WEIGHT (kg): 0-06-631-00924/02

DRAWING NO.: 0-06-631-U8239

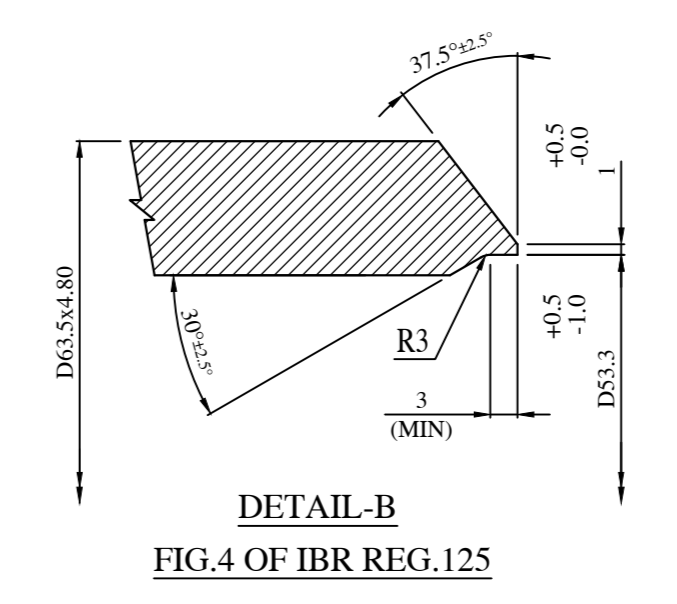
REV: 00

REV. NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.



- NOTES: -**
- DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE : 166.8 Kg/cm²(g).
 - DESIGN TEMPERATURE : 376°C.
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
 - PAINT THE WORD "TOP" AND "MARK NO."
 - NEAR THE TOP END OF THE PANEL ON COLD SIDE.
 - ERECTION SLOTS CAN BE SHIFTED BY ONE OR TWO PITCHES ON EITHER SIDE AT SHOP IF IT INTERFERES WITH OPENING.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.
 - TUBE ENDS ARE TO BE CAPPED BEFORE DESPATCH.
 - SHRINKAGE ALLOWANCE FOR FIN IN LENGTH IS NOT INDICATED FIN.
 - TO BUILD-UP IN LENGTH BY HAVING OPTIONAL WELD AS PER DETAIL-B.
 - FOR SHOP WELDING "REFER RELEVANT WPS".
- REF. DRGS. : -**
- PANEL FABRICATION TOLERANCE FOR FUSION WELDED PANEL : 1-03-000-00039.
 - EDGE PREPARATION DETAIL FOR EDGE BAR : 4-06-634-00441.
 - ERECTION SLOTS & LIFTING SLOTS : 6106 - 5010; DETAIL-C

VARIANT NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QTY	ZONE
04	CUT OUT OPENING (TYP-A) FOR OBD	1-06-000-08095	01	WELDMENT (SA 210 GR.C)	A	15.800	05	
03	FLAT 12.7x6 11460 LONG		15	008 283 0000 IS 2062 GR.A	A	3.500	02	
02	FIN FLAT 13.5x6 11460 LONG		15	908 528 0000 A576 GR1015	A	7.300	9	
01	TUBE D63.5x4.80 11460 LONG		AA1049048032 SA 210 GR.C	A	84.700	10		
10	URP-11			ASSY.		998.700	01	



FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO. TP 023 0299

VARIANT NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QTY	ZONE
04	CUT OUT OPENING (TYP-A) FOR OBD	1-06-000-08095	01	WELDMENT (SA 210 GR.C)	A	15.800	05	
03	FLAT 12.7x6 11460 LONG		15	008 283 0000 IS 2062 GR.A	A	3.500	02	
02	FIN FLAT 13.5x6 11460 LONG		15	908 528 0000 A576 GR1015	A	7.300	9	
01	TUBE D63.5x4.80 11460 LONG		AA1049048032 SA 210 GR.C	A	84.700	10		
09	URP-10			ASSY.		998.700	01	
03	FLAT 12.7x6 7301 LONG		15	008 283 0000 IS 2062 GR.A	A	2.100	02	
02	FIN FLAT 13.5x6 7301 LONG		15	908 528 0000 A576 GR1015	A	4.640	11	
01	TUBE D63.5x4.80 7301 LONG		AA1049048032 SA 210 GR.C	A	53.900	12		
08	URP-9			ASSY.		702.040	01	
04	CUT OUT OPENING (TYP-B) FOR OBD	1-06-000-08095	02	WELDMENT (SA 210 GR.C)	A	16.800	02	
03	FLAT 12.7x6 7301 LONG		15	008 283 0000 IS 2062 GR.A	A	2.100	02	
02	FIN FLAT 13.5x6 7301 LONG		15	908 528 0000 A576 GR1015	A	4.640	12	
01	TUBE D63.5x4.80 7301 LONG		AA1049048032 SA 210 GR.C	A	53.900	13		
07	URP-8			ASSY.		794.180	01	
04	CUT OUT OPENING (TYP-C) FOR WALL BLOWER	1-06-000-08095	03	WELDMENT (SA 210 GR.C)	A	14.708	03	
03	FLAT 12.7x6 16069 LONG		15	008 283 0000 IS 2062 GR.A	A	4.800	02	
02	FIN FLAT 13.5x6 16069 LONG		15	908 528 0000 A576 GR1015	A	10.200	21	
01	TUBE D63.5x4.80 16069 LONG		AA1049048032 SA 210 GR.C	A	118.800	22		
06	URP-7			ASSY.		2881.524	01	
04	CUT OUT OPENING (TYP-C) FOR WALL BLOWER	1-06-000-08095	03	WELDMENT (SA 210 GR.C)	A	14.708	03	
03	FLAT 12.7x6 16069 LONG		15	008 283 0000 IS 2062 GR.A	A	4.800	02	
02	FIN FLAT 13.5x6 16069 LONG		15	908 528 0000 A576 GR1015	A	10.200	21	
01	TUBE D63.5x4.80 16069 LONG		AA1049048032 SA 210 GR.C	A	118.800	22		
05	URP-5			ASSY.		2881.524	01	
03	FLAT 12.7x6 16069 LONG		15	008 283 0000 IS 2062 GR.A	A	4.800	02	
02	FIN FLAT 13.5x6 16069 LONG		15	908 528 0000 A576 GR1015	A	10.200	21	
01	TUBE D63.5x4.80 16069 LONG		AA1049048032 SA 210 GR.C	A	118.800	22		
04	URP-4 / URP-6			ASSY.		2837.400	01	
04	CUT OUT OPENING (TYP-C) FOR WALL BLOWER	1-06-000-08095	03	WELDMENT (SA 210 GR.C)	A	14.708	03	
03	FLAT 12.7x6 16069 LONG		15	008 283 0000 IS 2062 GR.A	A	4.800	02	
02	FIN FLAT 13.5x6 16069 LONG		15	908 528 0000 A576 GR1015	A	10.200	21	
01	TUBE D63.5x4.80 16069 LONG		AA1049048032 SA 210 GR.C	A	118.800	22		
03	URP-3			ASSY.		2881.524	01	
04	CUT OUT OPENING (TYP-B) FOR OBD	1-06-000-08095	02	WELDMENT (SA 210 GR.C)	A	16.800	02	
03	FLAT 12.7x6 7301 LONG		15	008 283 0000 IS 2062 GR.A	A	2.100	02	
02	FIN FLAT 13.5x6 7301 LONG		15	908 528 0000 A576 GR1015	A	4.640	12	
01	TUBE D63.5x4.80 7301 LONG		AA1049048032 SA 210 GR.C	A	53.900	13		
02	URP-2			ASSY.		794.180	01	
03	FLAT 12.7x6 7301 LONG		15	008 283 0000 IS 2062 GR.A	A	2.100	02	
02	FIN FLAT 13.5x6 7301 LONG		15	908 528 0000 A576 GR1015	A	4.640	11	
01	TUBE D63.5x4.80 7301 LONG		AA1049048032 SA 210 GR.C	A	53.900	12		
01	URP-1			ASSY.		702.040	01	

CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. It must not be disclosed to the public or used for any purpose other than that for which it was prepared without the written consent of Bharat Heavy Electricals Ltd.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136

Bharat Heavy Electricals Ltd
 UNIT: HEAVY PLATES & VESSELS PLANT
 VISAKHAPATNAM - 530012

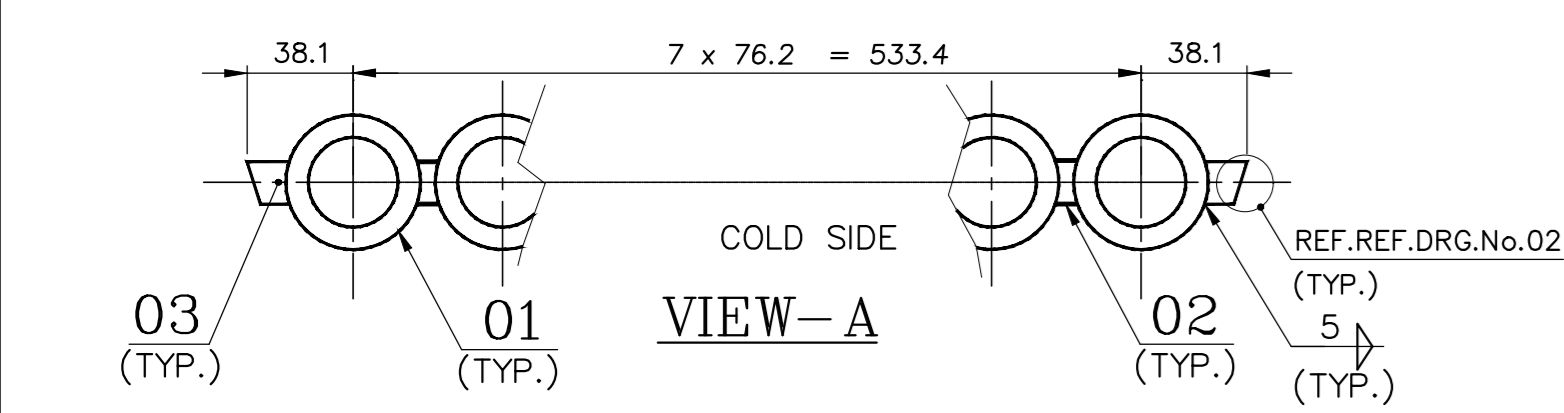
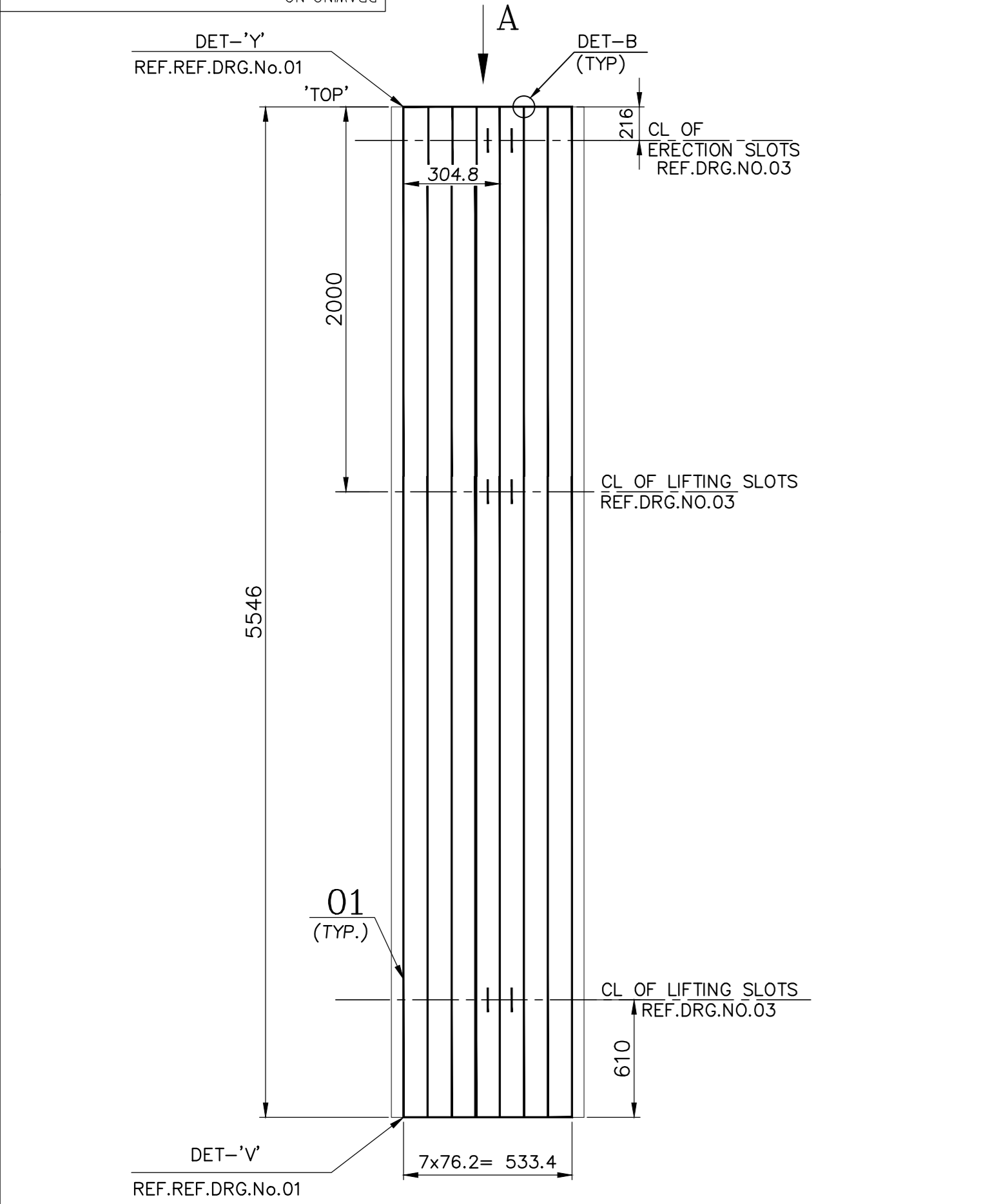
DATE: 07.11.2025
 XX.11.2025
 XX.11.2025

PROJECTION SCALE: N.T.S. WEIGHT (Kg): --- REF TO ASSY / OLD DRG: 0-06-641-00925/01

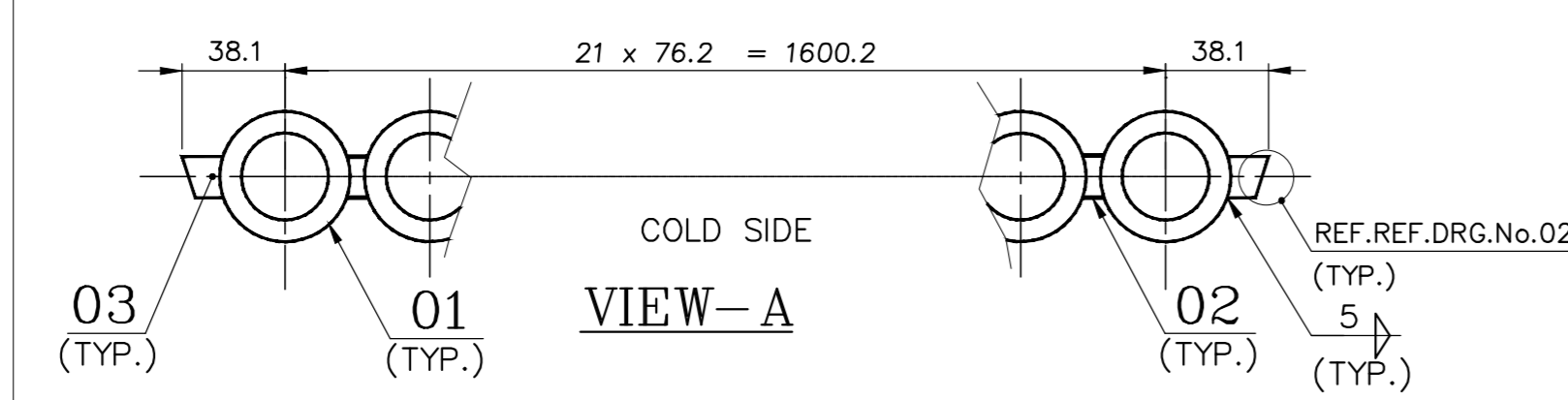
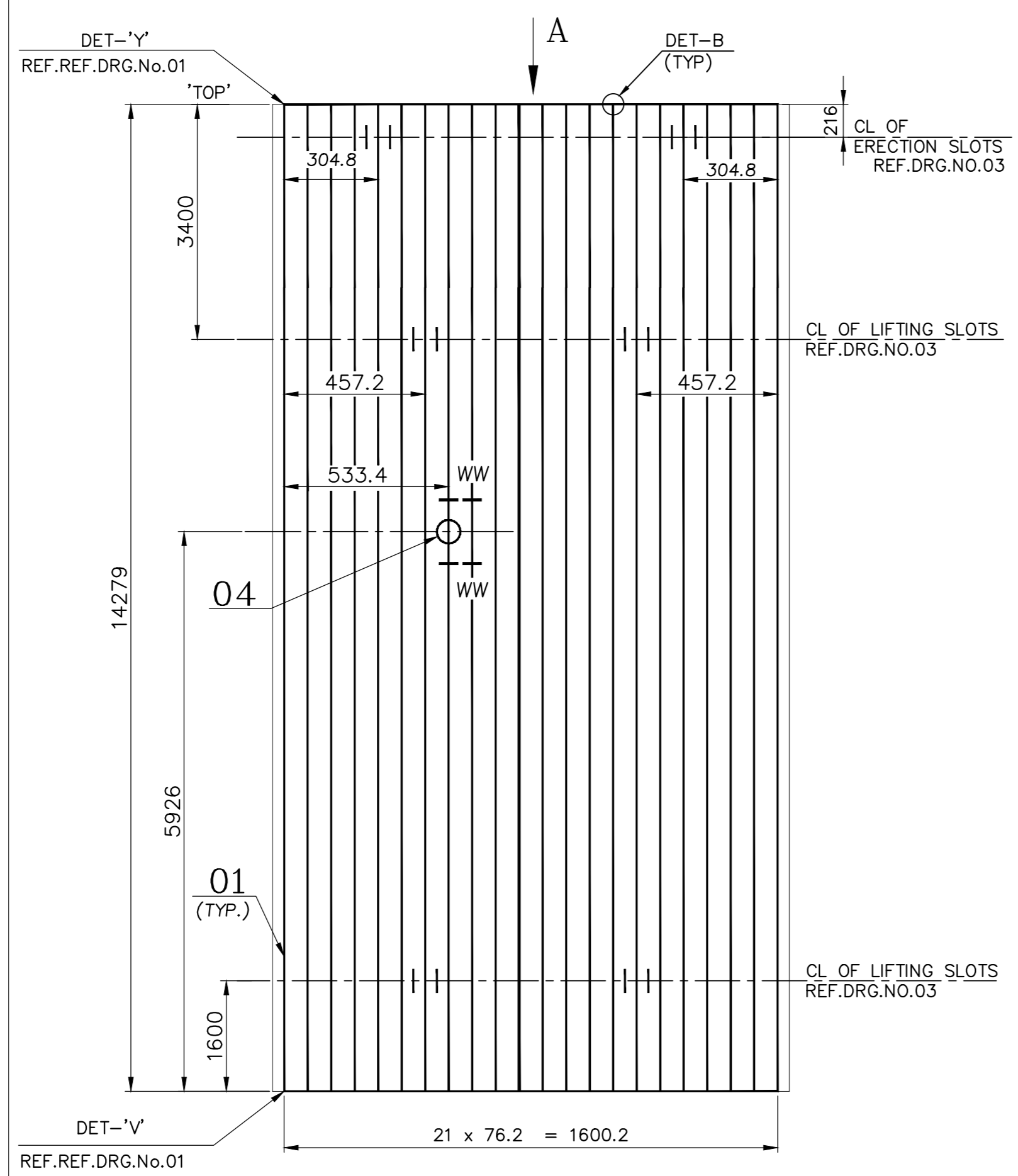
TITLE: UPPER REAR WW PANEL DRAWING NO.: 0-06-640-U8240

REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD	CHD	APPD

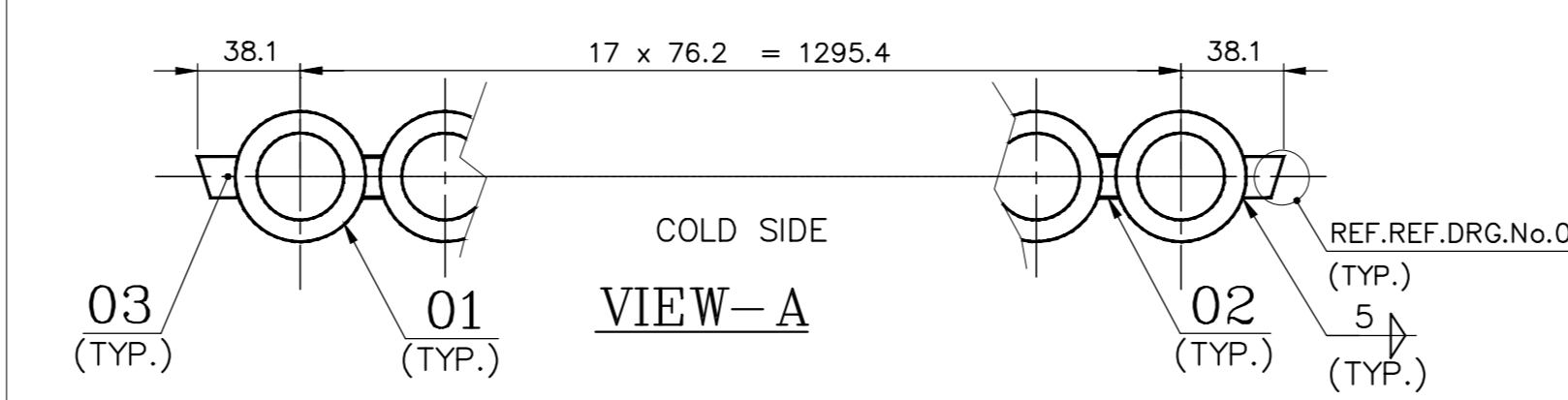
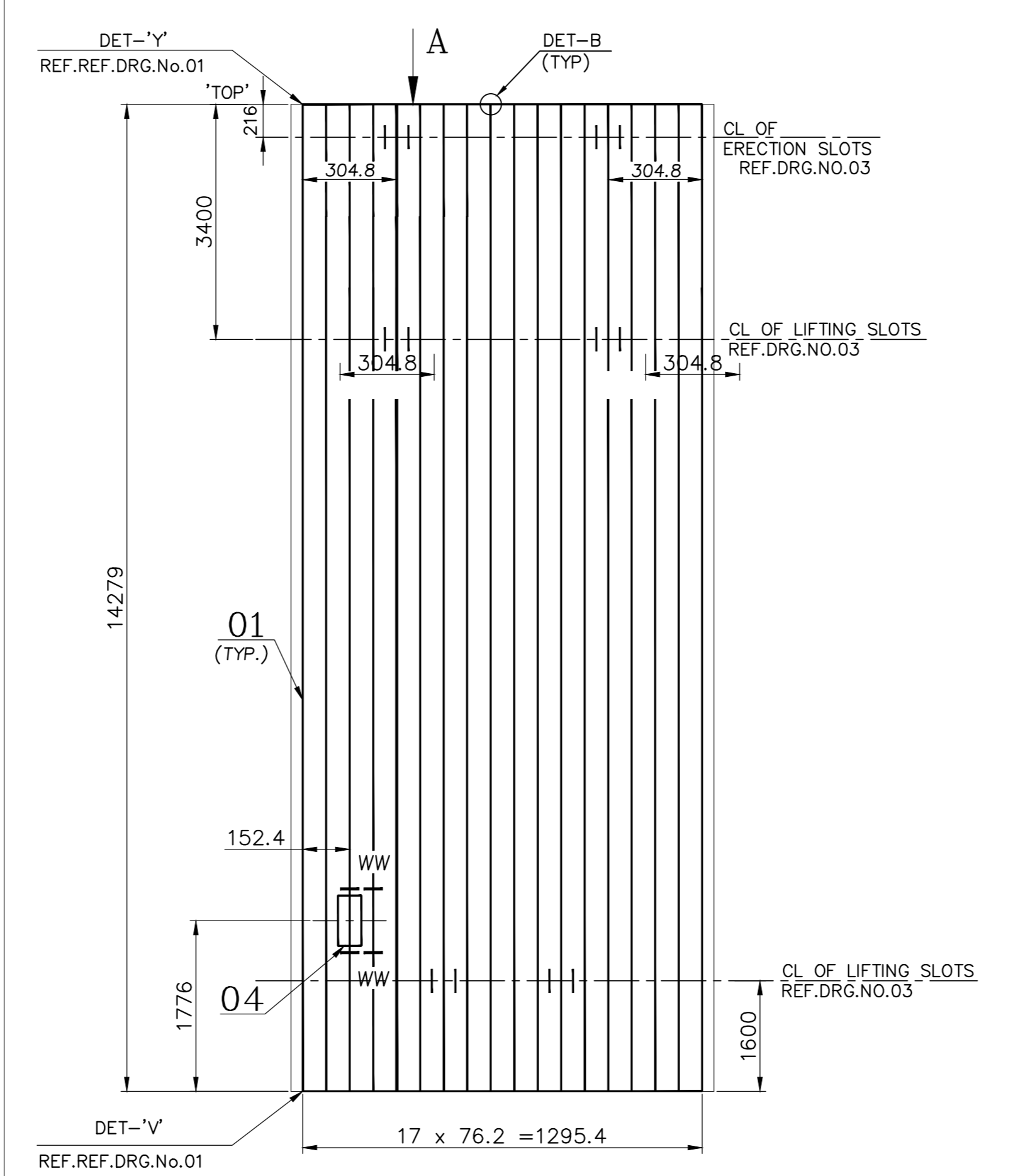
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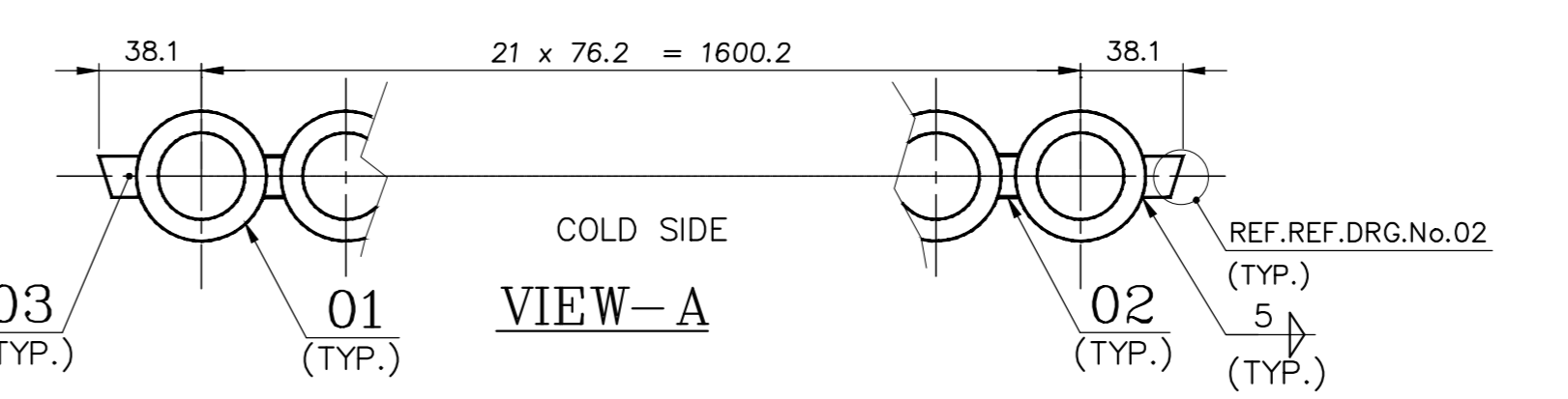
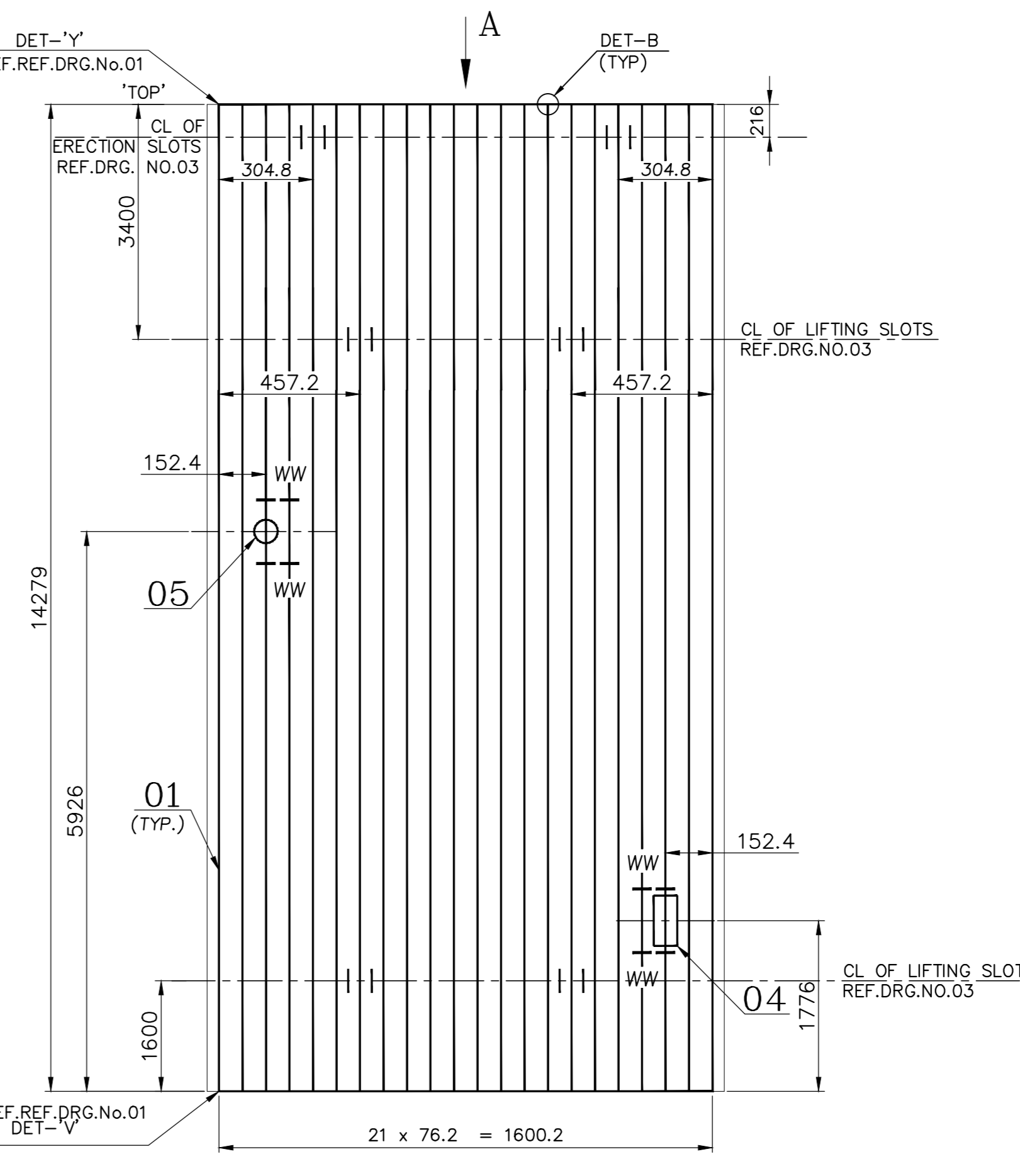
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 MARK No. : 'LSP-1', 'LSP-6', 'LSP-7' & 'LSP-12'.
 No. OF TO BE PRODUCED : 4 Nos./BOILER



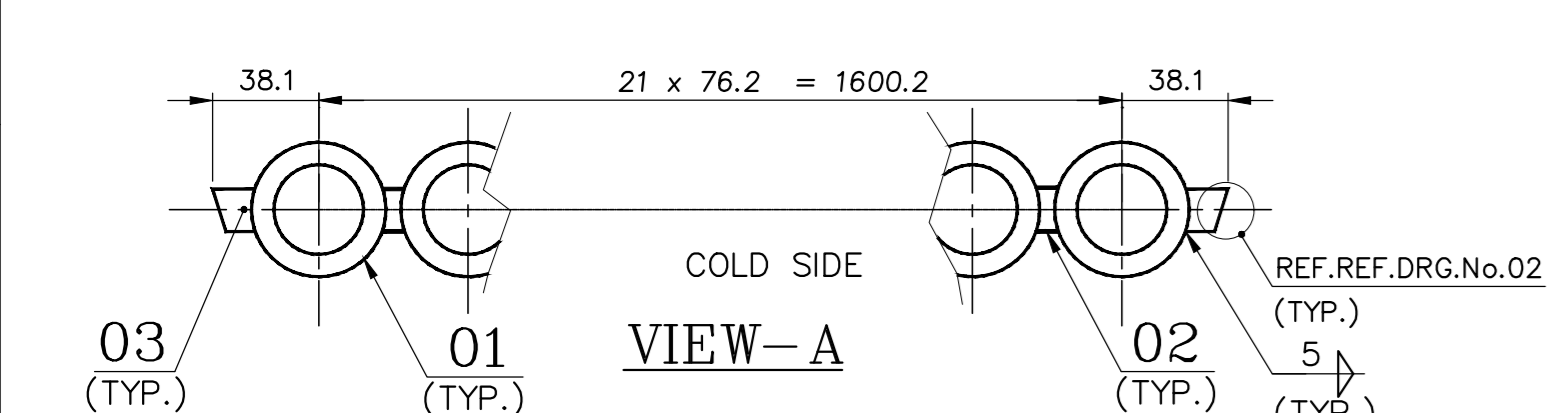
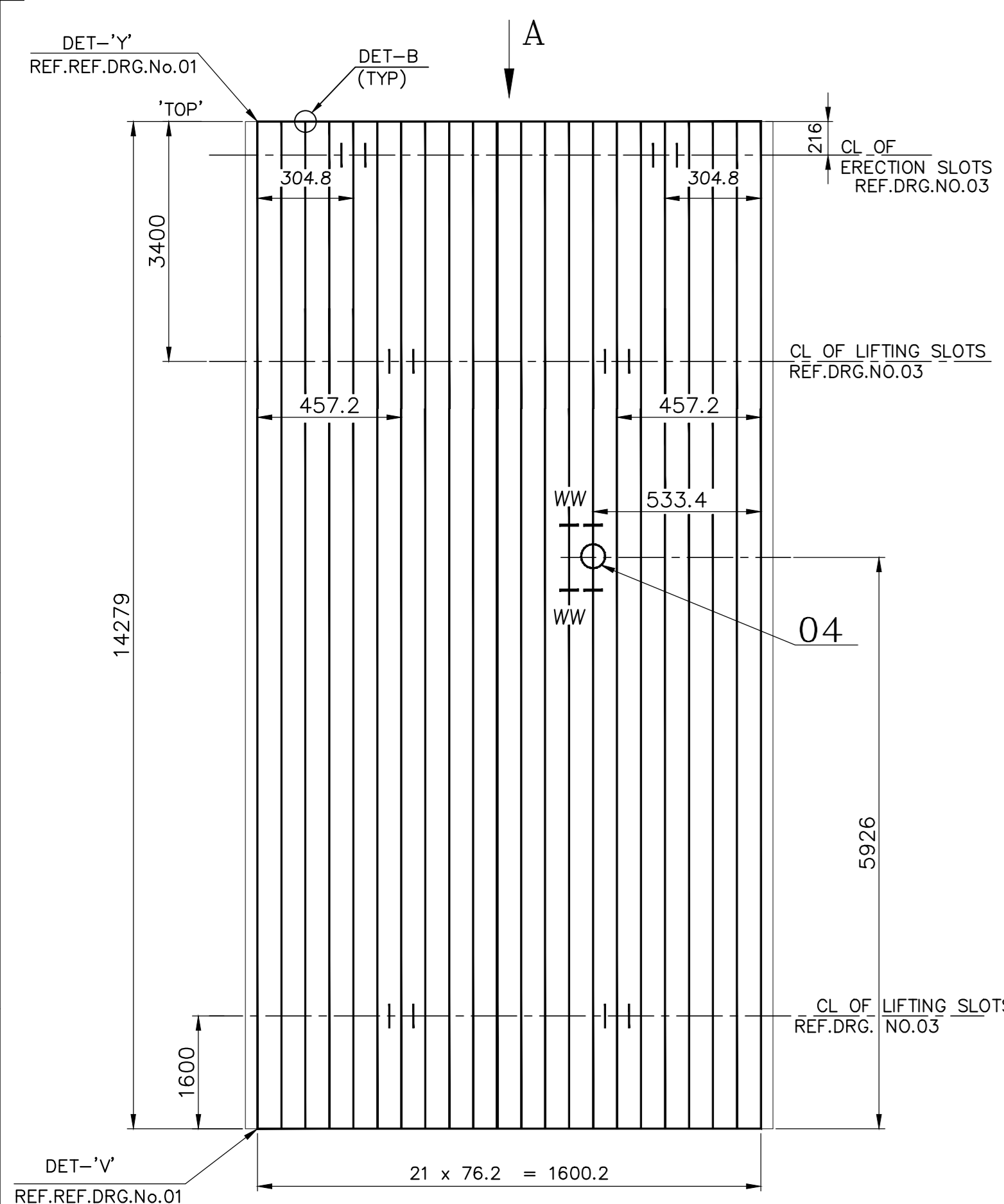
VAR.No. : 02
 MARK No. : 'LSP-2' & 'LSP-11'
 No. OF TO BE PRODUCED : 2 Nos./BOILER



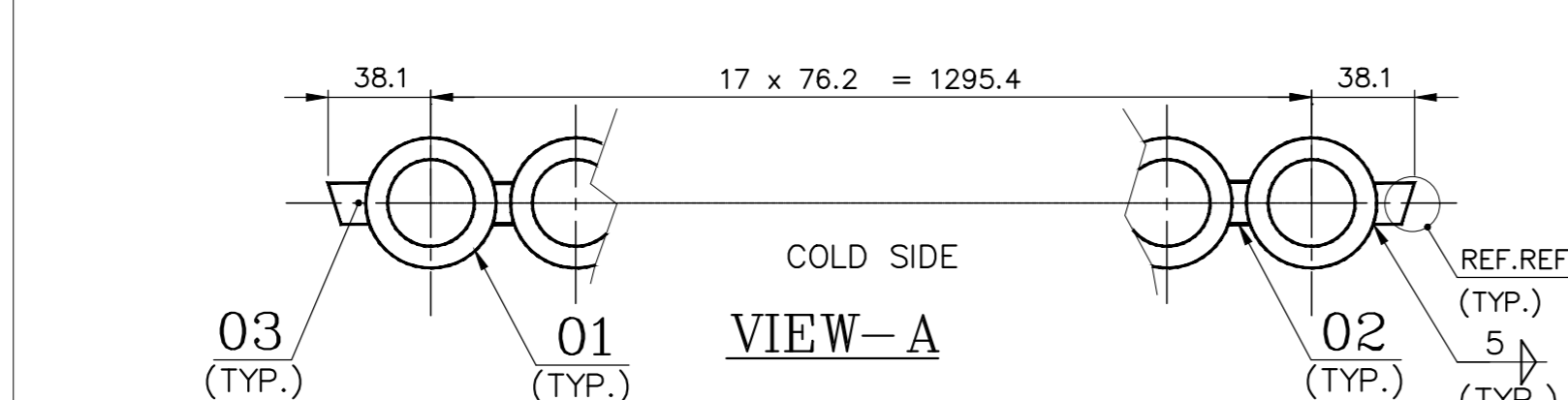
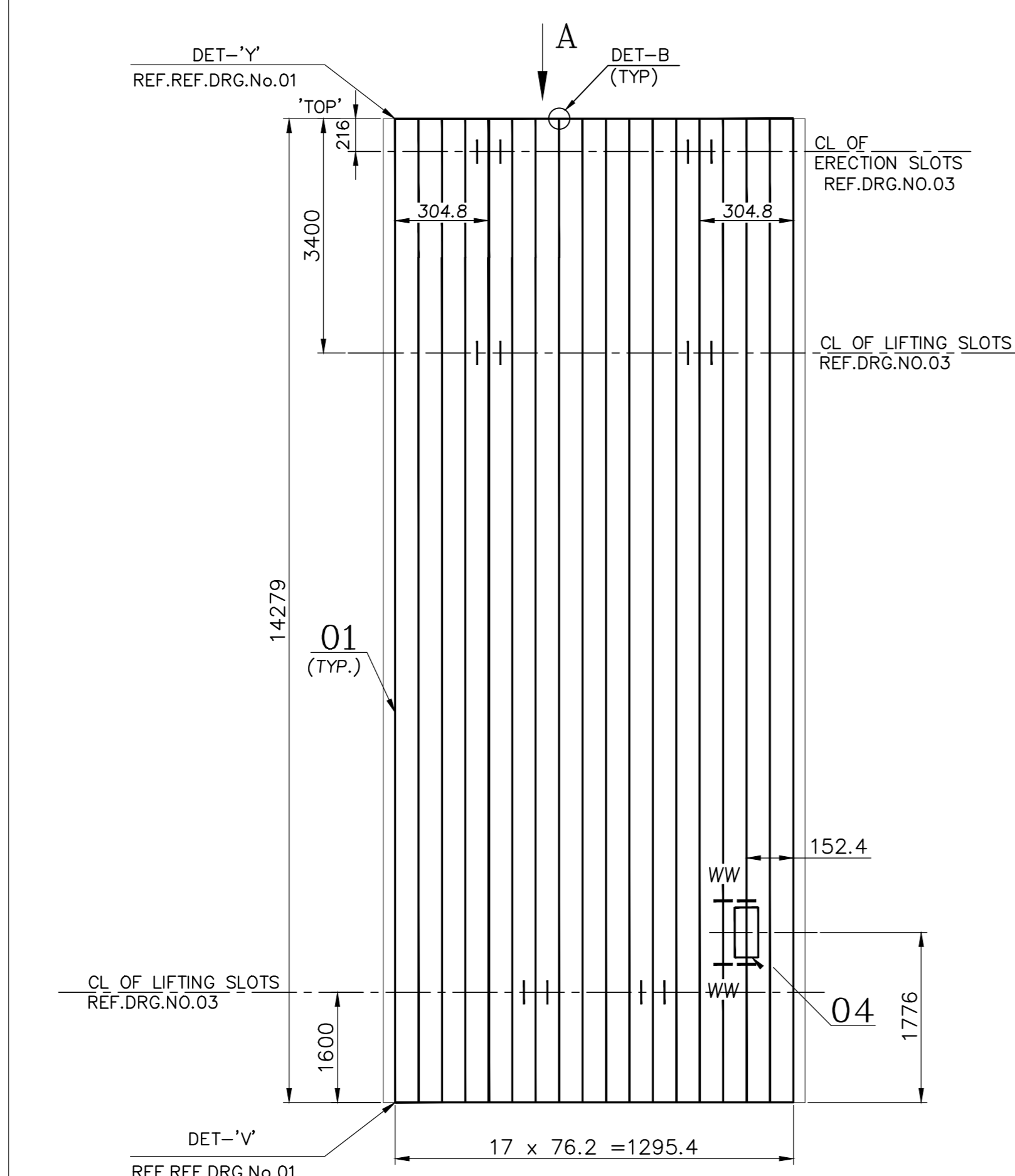
VAR.No. : 03
 MARK No. : 'LSP-3'
 No. OF TO BE PRODUCED : 1 No./BOILER



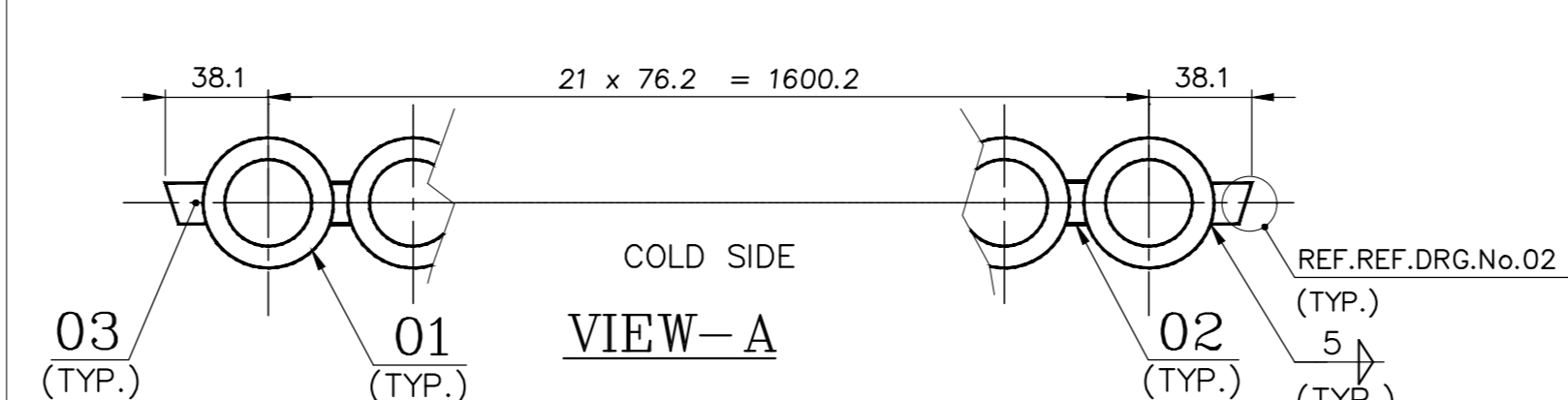
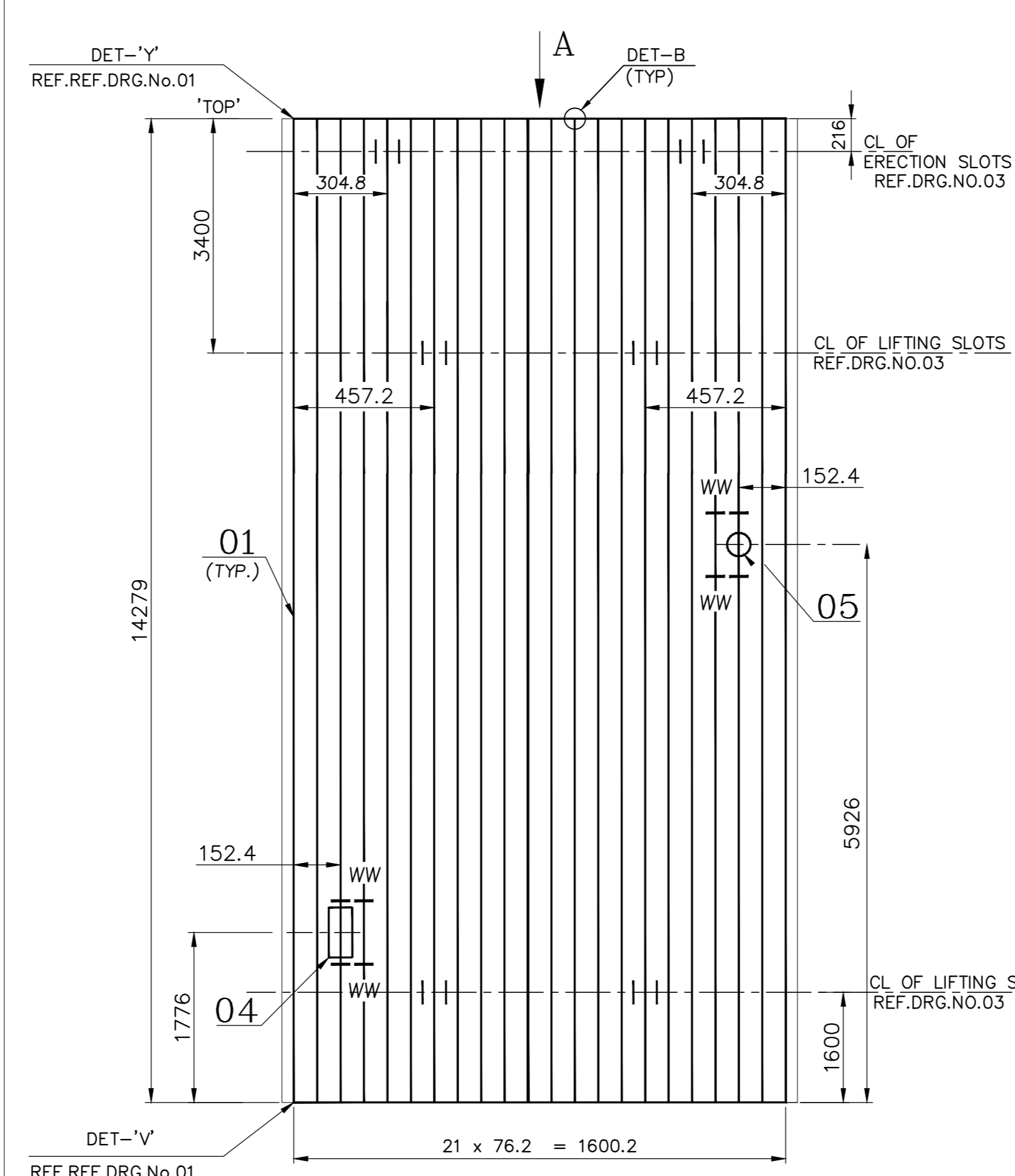
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 MARK No. : 'LSP-4'
 No. OF TO BE PRODUCED : 1 No./BOILER



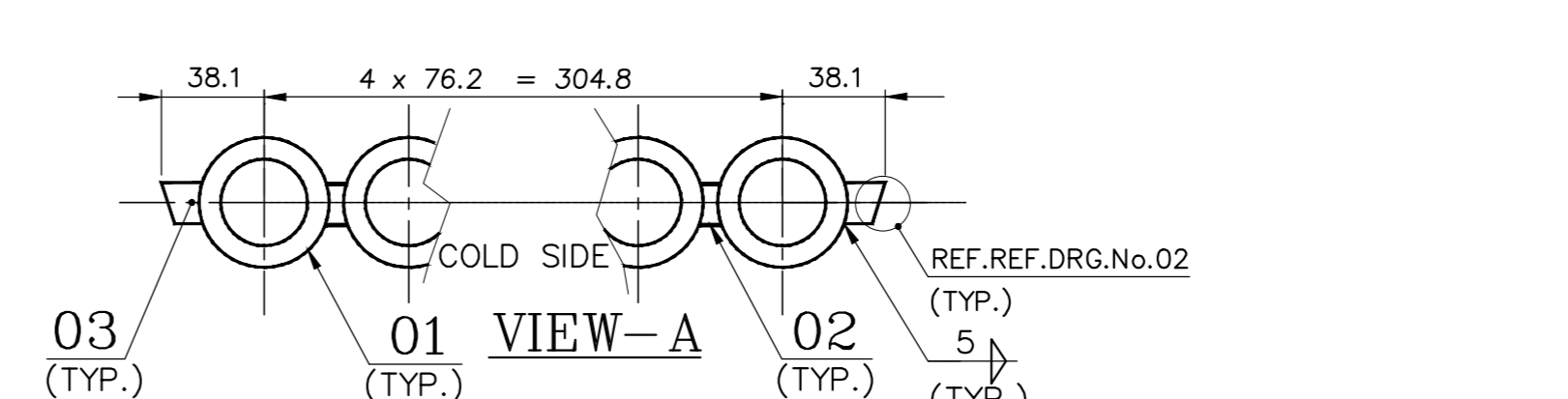
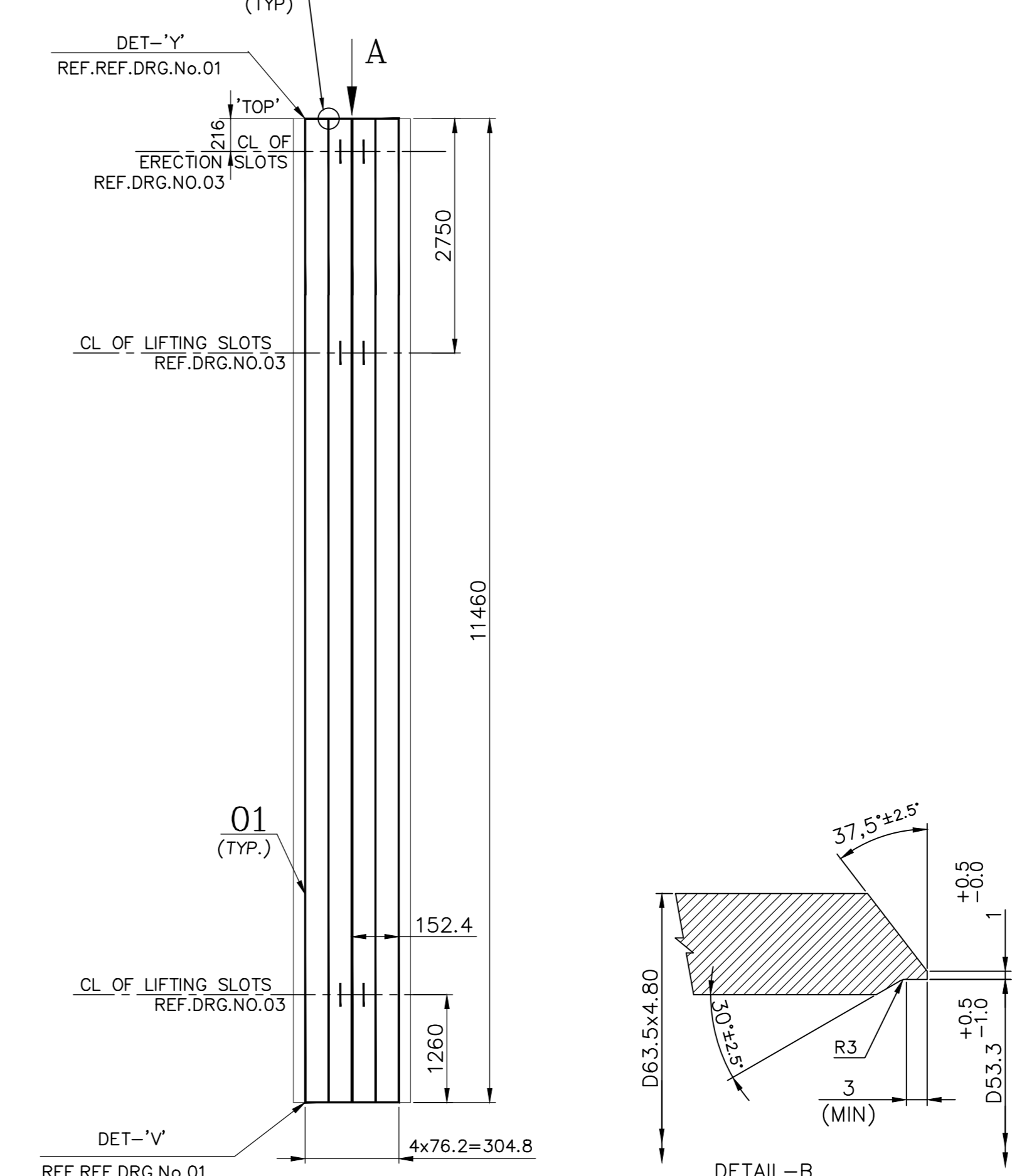
VAR.No. : 05
 MARK No. : 'LSP-5' & 'LSP-8'
 No. OF TO BE PRODUCED : 2 Nos./BOILER



VAR.No. : 06
 MARK No. : 'LSP-9'
 No. OF TO BE PRODUCED : 1 No./BOILER



VAR.No. : 07
 MARK No. : 'LSP-10'
 No. OF TO BE PRODUCED : 1 No./BOILER

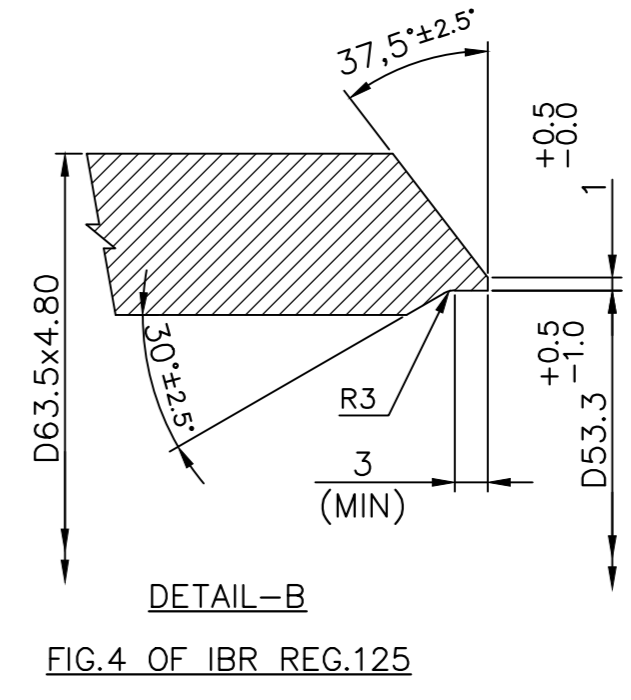


VAR.No. : 08
 MARK No. : 'LSP-13', 'LSP-14', 'LSP-15' & 'LSP-16'.
 No. OF TO BE PRODUCED : 4 Nos./BOILER

- NOTES: -**
- DESIGN, MANUFACTURE AND INSPECTION AS PER I.B.R.
 - DESIGN PRESSURE : 166.8 Kg/cm²(g).
 - DESIGN TEMPERATURE : 376°C.
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
 - PAINT THE WORD "TOP" AND "MARK NO."
 - NEAR THE TOP END OF THE PANEL ON COLD SIDE.
 - ERECTION SLOTS CAN BE SHIFTED BY ONE OR TWO PITCHES ON EITHER SIDE AT SHOP IF IT INTERFERES WITH OPENING.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.
 - TUBE ENDS ARE TO BE CAPPED BEFORE DESPATCH.
 - SHRINKAGE ALLOWANCE FOR FINN IN LENGTH IS NOT INDICATED FINN.
 - TO BUILT-UP IN LENGTH BY HAVING OPTIONAL WELD AS PER DETAIL-B.
 - FOR SHOP WELDING "REFER RELEVANT WPS".

- REF.DRGS. :-**
- PANEL FABRICATION TOLERANCE FOR FUSION WELDED PANEL : 1-03-000-00039.
 - EDGE PREPARATION DETAIL FOR EDGE BAR : 4-06-634-00441.
 - ERECTION SLOTS & LIFTING SLOTS : 6106 - 501G; DETAIL-C

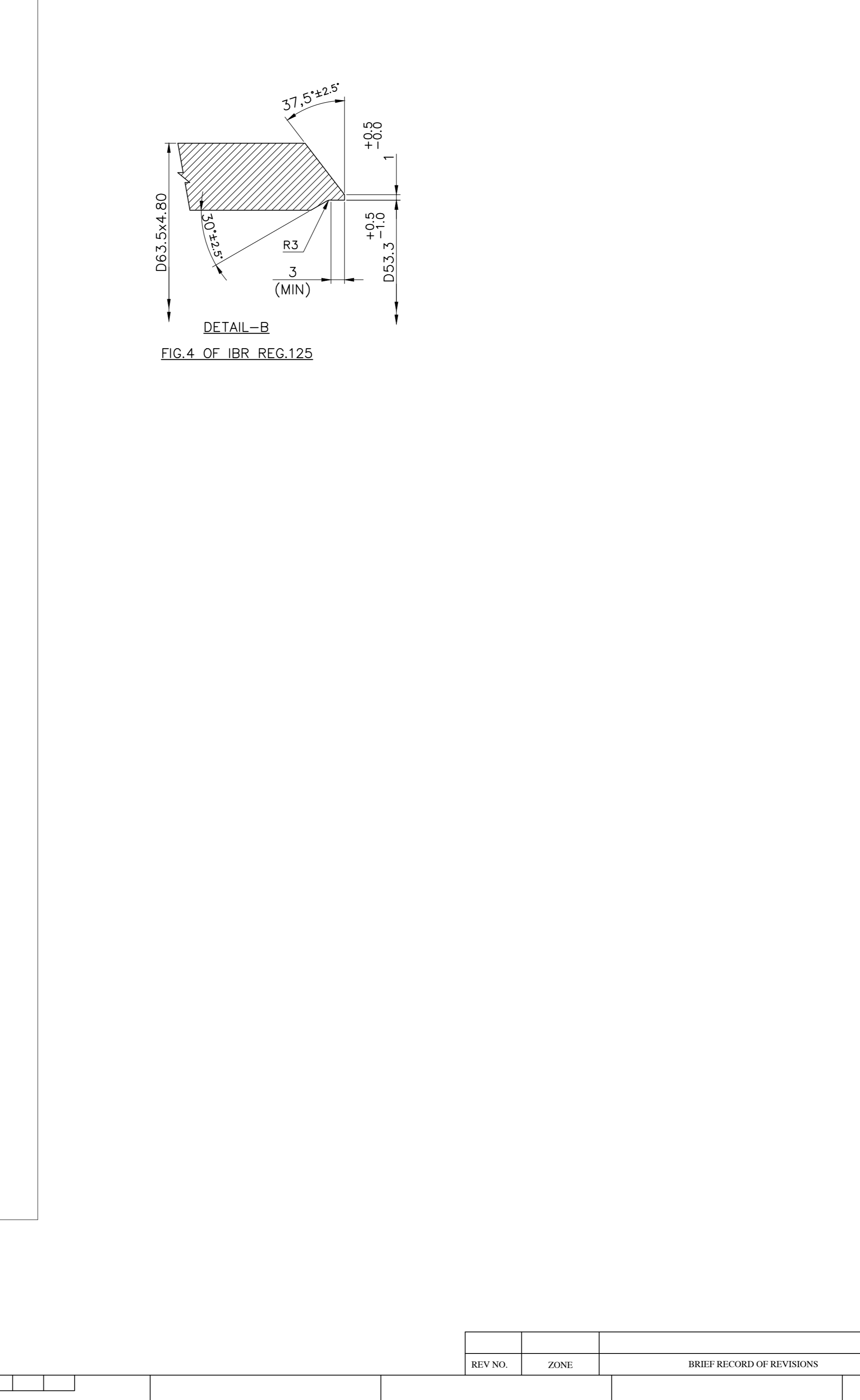
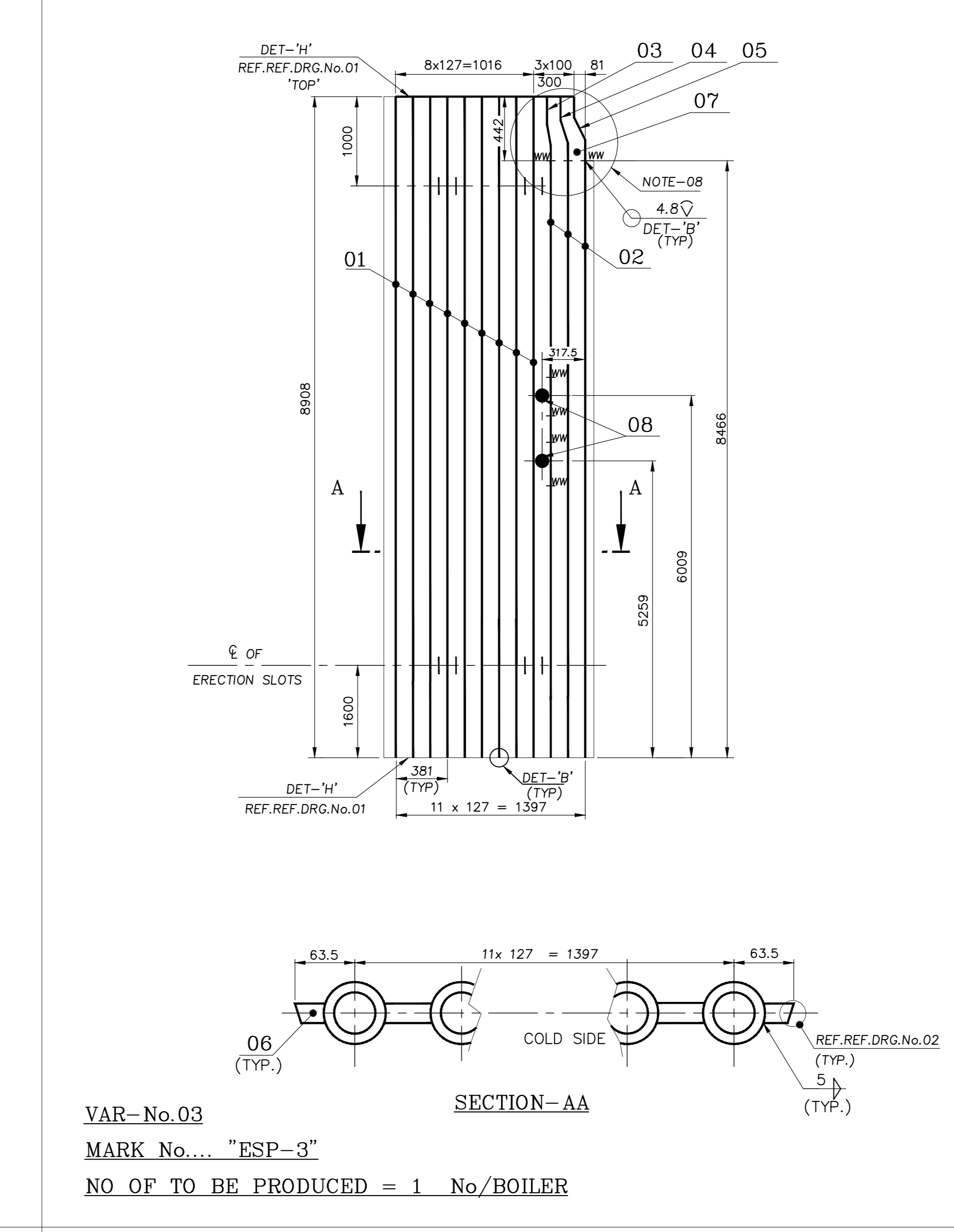
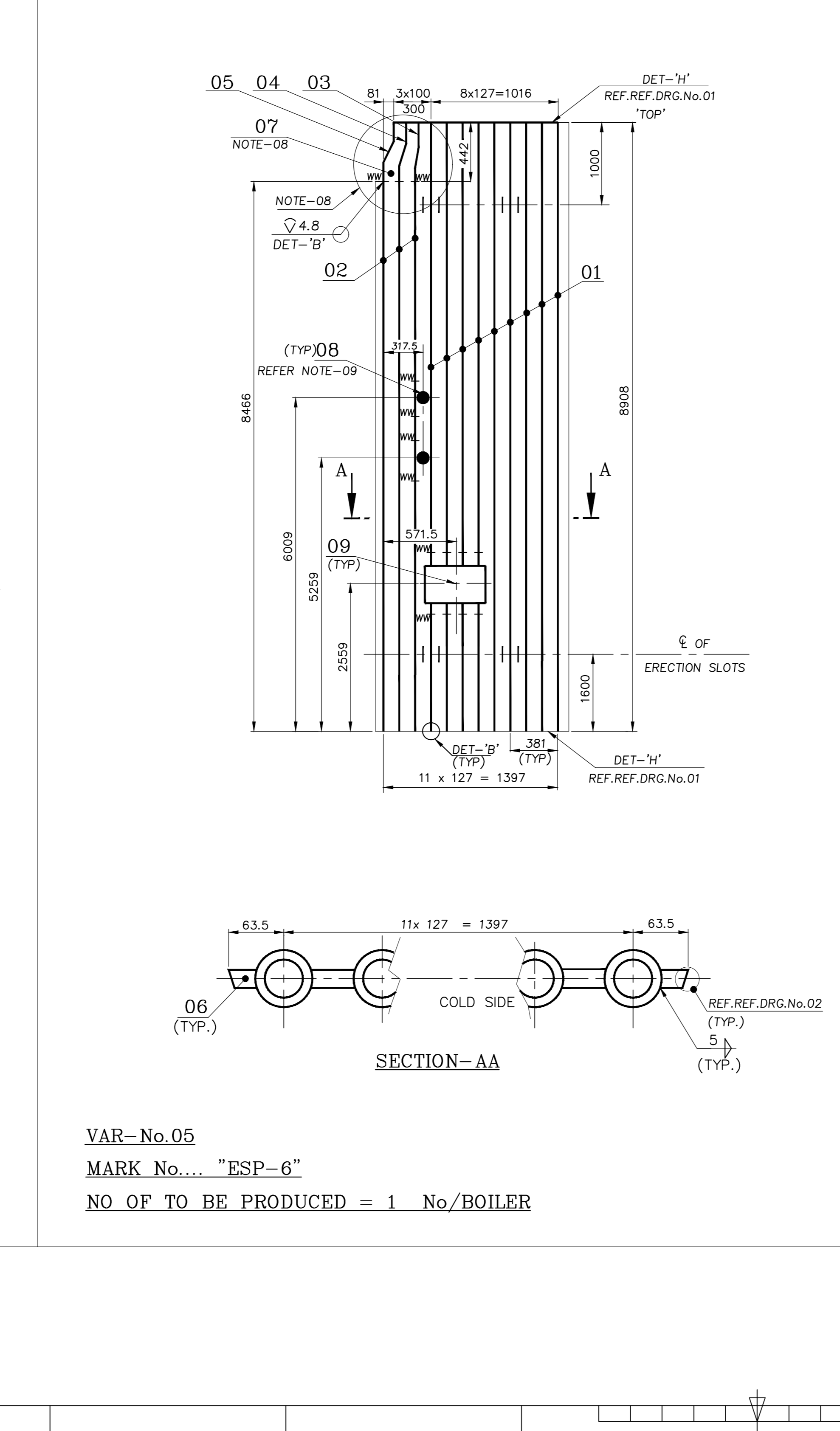
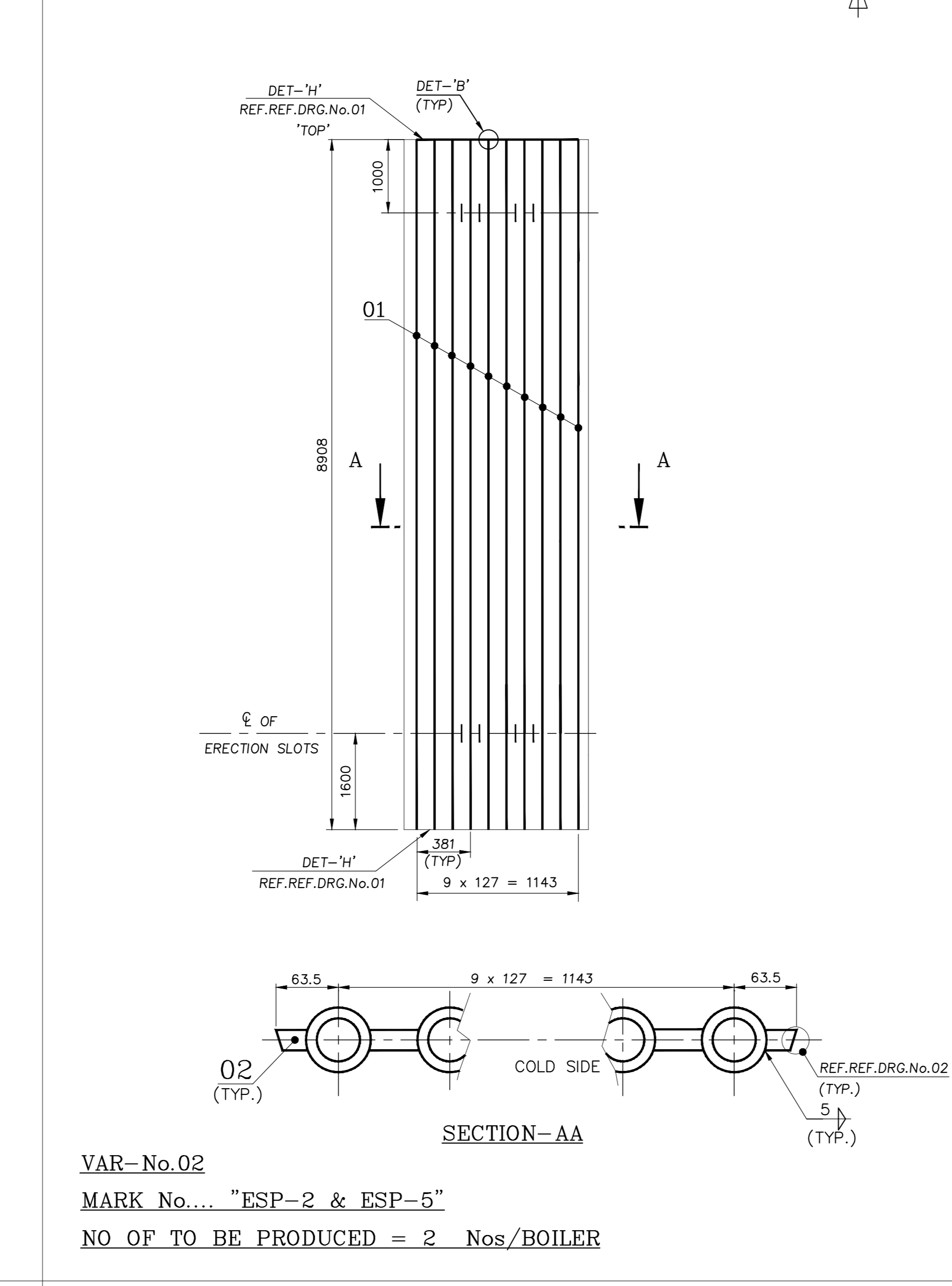
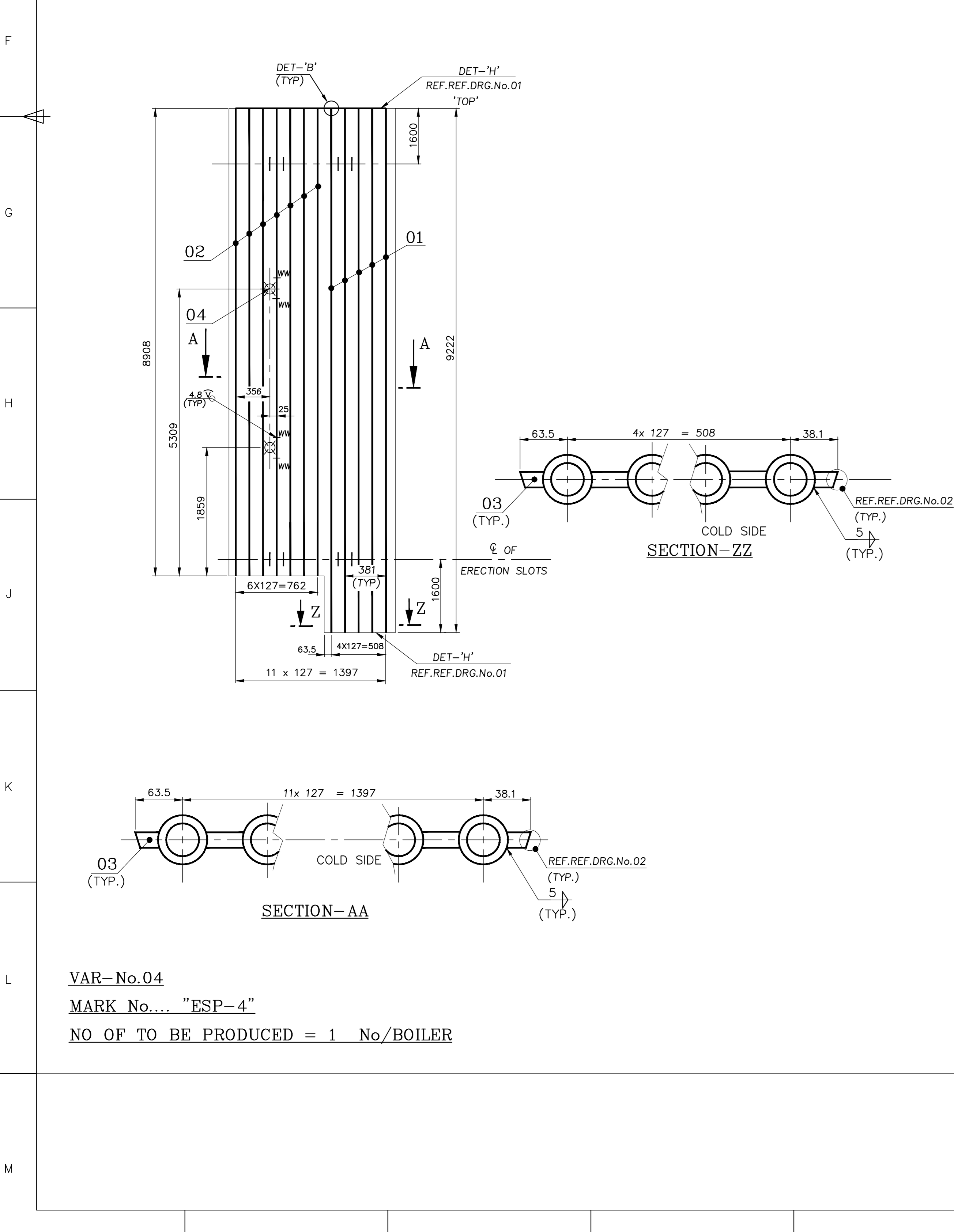
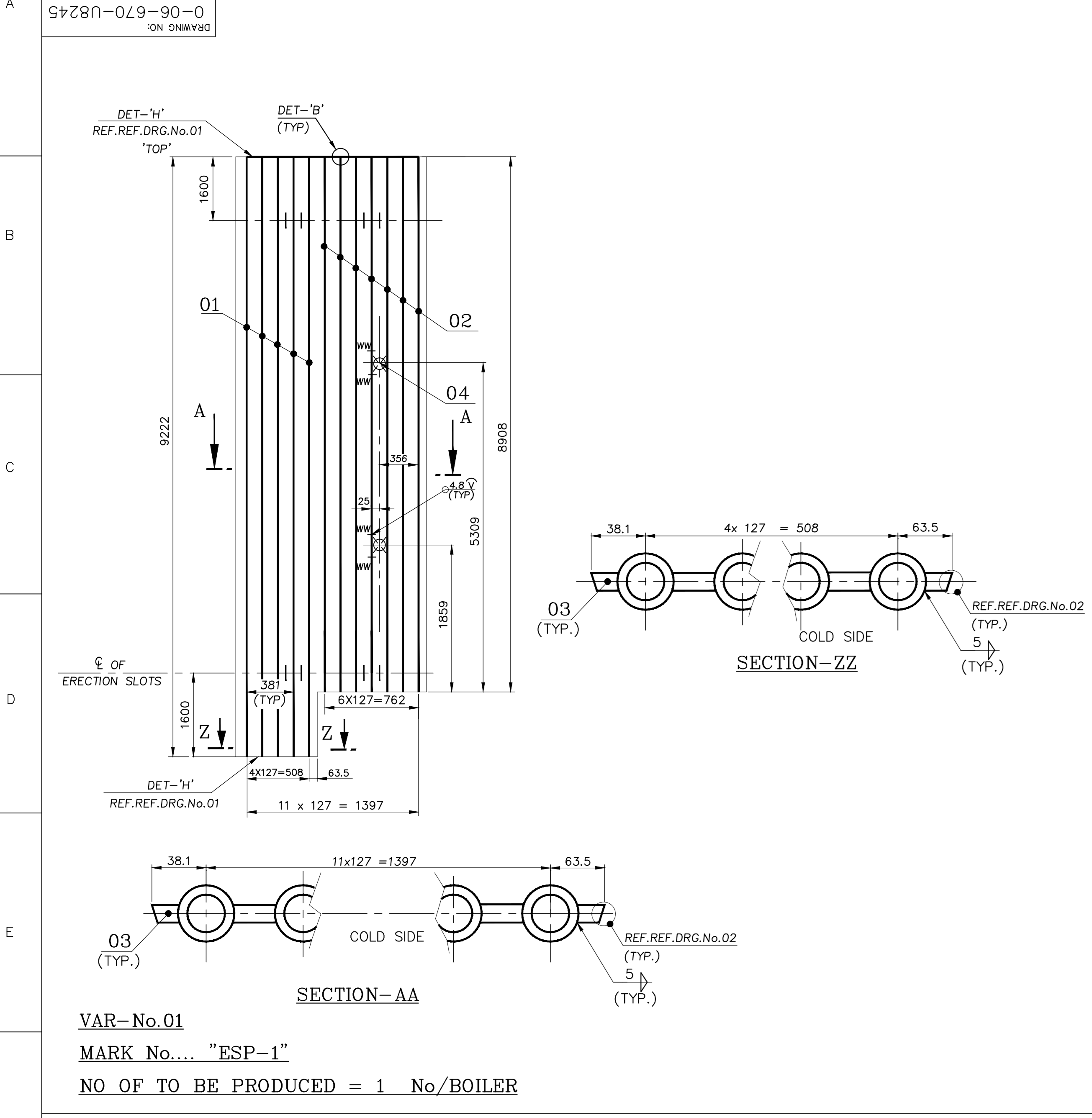
VARIANT NUMBER	DESCRIPTION	SUB.	DRAWING NUMBER	ITEM NO.	MATERIAL CODE	UNIT	WEIGHT	QTY.	ZONE
03	FLAT 12.7x6			15 008 283			3.430	2	
02	FINFLAT 13.5x6			15 908 528			7.300	4	
01	TUBE D63.5x4.80			AA1049048032			84.700	5	
08	LSP-13, LSP-14, LSP-15 & LSP-16							4	
05	CUT OUT OPENING (TYP-D) FOR WALL BLOWER	1-06-000-U8095	04	WELDMENT SA 210 Gr. C	A		14.708	1	
04	CUT OUT OPENING (TYP-B) FOR INST. INSERT	1-06-000-U8095	02	WELDMENT SA 210 Gr. C	A		16.800	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
07	LSP-10							1	
04	CUT OUT OPENING (TYP-A) FOR INST. INSERT	1-06-000-U8095	01	WELDMENT SA 210 Gr. C	A		16.800	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
06	LSP-9							1	
04	CUT OUT OPENING (TYP-C) FOR WALL BLOWER	1-06-000-U8095	03	WELDMENT SA 210 Gr. C	A		14.708	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
05	LSP-5 & LSP-8							2	
05	CUT OUT OPENING (TYP-C) FOR WALL BLOWER	1-06-000-U8095	03	WELDMENT SA 210 Gr. C	A		14.708	1	
04	CUT OUT OPENING (TYP-A) FOR INST. INSERT	1-06-000-U8095	01	WELDMENT SA 210 Gr. C	A		16.800	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
04	LSP-4							1	
04	CUT OUT OPENING (TYP-B) FOR INST. INSERT	1-06-000-U8095	02	WELDMENT SA 210 Gr. C	A		16.800	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
03	LSP-3							1	
04	CUT OUT OPENING (TYP-D) FOR WALL BLOWER	1-06-000-U8095	04	WELDMENT SA 210 Gr. C	A		14.708	1	
03	FLAT 12.7x6			15 008 283			4.300	2	
02	FINFLAT 13.5x6			15 908 528			9.000	2	
01	TUBE D63.5x4.80			AA1049048032			105.600	22	
02	LSP-2 & LSP-11							2	
03	FLAT 12.7x6			15 008 283			1.700	2	
02	FINFLAT 13.5x6			15 908 528			3.500	2	
01	TUBE D63.5x4.80			AA1049048032			41.000	8	
01	LSP-1, LSP-6, LSP-7 & LSP-12							4	



CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. It is to be used only for the purpose for which it is issued and is not to be distributed outside the company.

TYPE OF PRODUCT	PROJECT : HINDALCO-SAMBALPUR
CUSTOMER/PROJECT	BOILER MAKER NO. : 8136
Bharat Heavy Electricals Ltd	DATE : 24-12-2025
UNIT: HEAVY PLATES & VESSELS PLANT	DATE : 24-12-2025
VISAKHAPATNAM - 530012	DATE : 24-12-2025
PROJECTION SCALE	REF TO ASSY / OLD DWG
NTS	0-06-655-00969/03
WEIGHT (Kg)	REF TO ASSY / OLD DWG
-	0-06-655-U8244 00
DRAWING NO. :	REV
0-06-655-00969/03	
TITLE	
SIDE LOWER WW PANEL	

REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPR	CHD.	APPR.



NOTES:-

- DESIGN PRESSURE : 165.1 KG/SQ.CM (C) (164+1.1)
- DESIGN TEMPERATURE : 376°C (348+28)
- HYDRAULIC TEST NEED NOT BE DONE AT SHOP
- DESIGN, MANUFACTURE AND INSPECTION AS PER I.B.R
- PAINT THE WORD 'TOP' AND PANEL IDENTIFICATION No. 'AS SHOWN'
- NEAR THE TOP END OF THE PANEL ON COLD SIDE
- ERECTION SLOTS CAN BE SHIFTED BY ONE OR TWO PITCHES ON EITHER SIDE AT SHOP IF IT INTERFERES WITH OPENING
- TUBE INSERTS TO BE EDGE PREPARED AS PER DETAIL-B.
- IN THIS AREA GAP TO BE CLOSED SUITABLY BY USING 6mm PLATE(ITEM No.07)
- MAINTAIN THE OPENING LOCATION(VAR-05) BY ROTATING THE BEND TOWARDS LEFT SIDE OF THE PANEL
- MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS
- TUBE ENDS ARE TO BE CAPPED BEFORE DESPATCH.
- SHRINKAGE ALLOWANCE FOR FINS IN LENGTH IS NOT INDICATED FINS.
- TO BUILT-UP IN LENGTH BY HAVING OPTIONAL WELD AS PER DETAIL-B.
- FOR SHOP WELDING "REFER RELEVANT WPS".

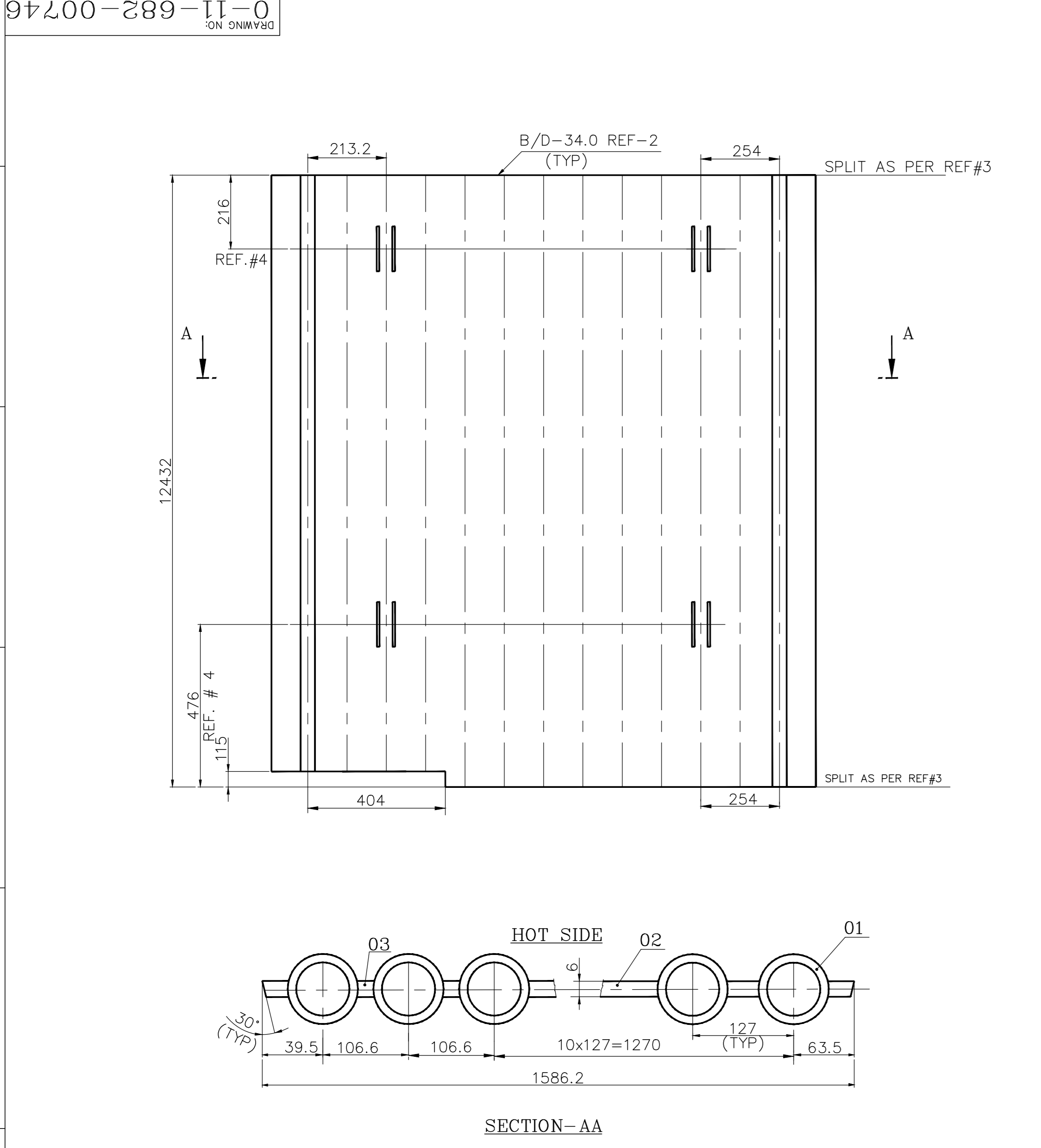
REF. DRGS:-

- PANEL FABRICATION TOLERANCE FOR FIN WELDED PANEL : 1-03-000-00038
- EDGE PREPARATION DETAIL FOR EDGE BAR : 4-06-634-00441
- ERECTION SLOTS & LIFTING SLOTS : 6106 - 5010

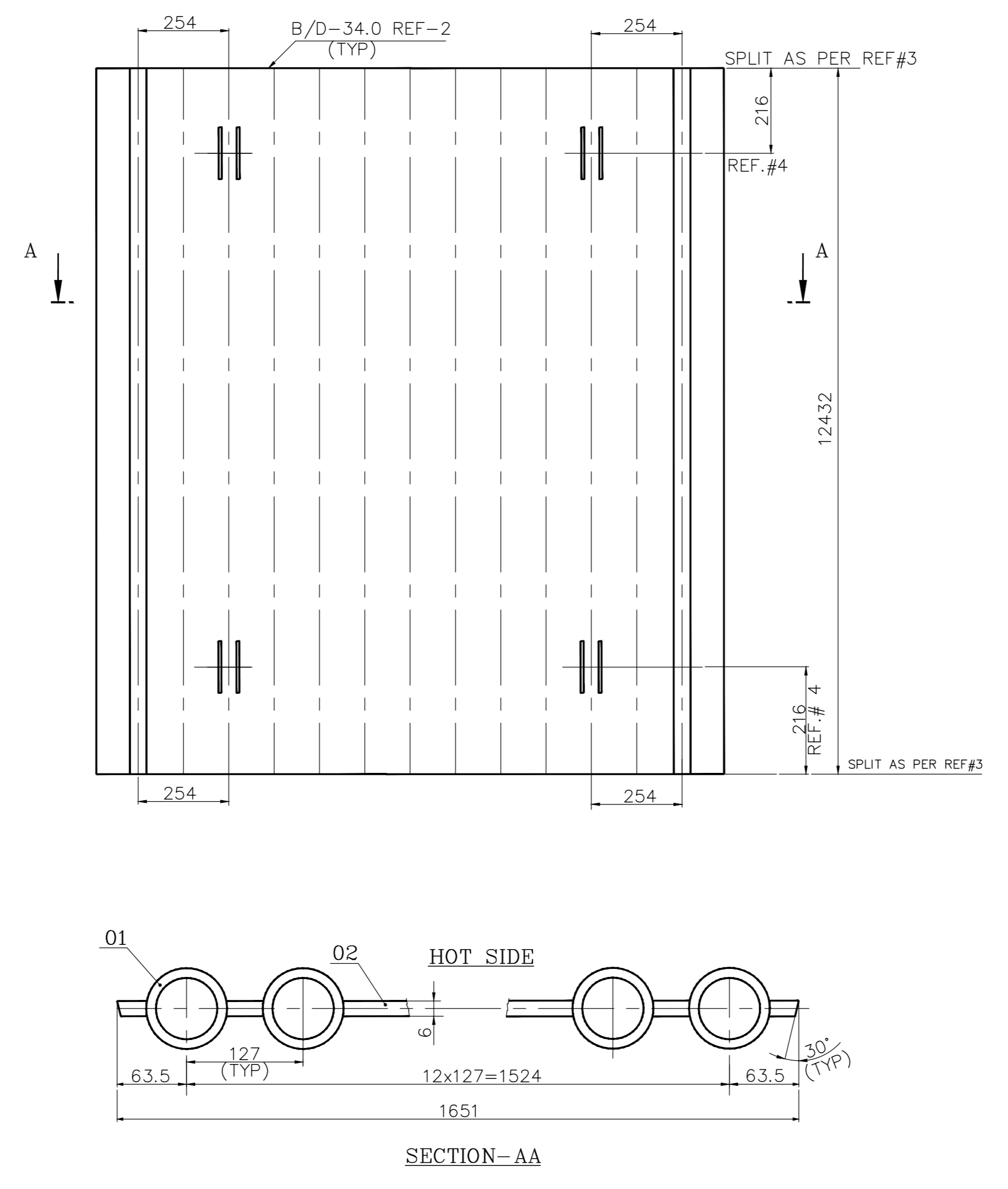
ITEM NO	DESCRIPTION	SUB	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	WEIGHT	QTY	REV
09	ACCESS DOOR OPENING (D63.5x6.3)		1-06-670-U8093	01	WELDMENT (SA 210 GR C)	A	66.620	1	
08	OPENING FOR INST. INSERT (D63.5x6.3)		2-06-670-U8059		WELDMENT SA 210 GR C	A	6.040	2	
07	PLATE 6 ; 442x444.5				IS 2062 Gr.A	A	9.300	1	
06	FLAT 64.1x6 8908 LONG				15 908 527 A576 GR 1015	A	26.900	13	
05	TUBE D63.5x6.3		4-06-670-U8184		AA1049048032 SA 210 GR C	A	4.300	1	
04	TUBE D63.5x6.3		4-06-670-U8183		AA1049048032 SA 210 GR C	A	4.250	1	
03	TUBE D63.5x6.3		4-06-670-U8182		AA1049048032 SA 210 GR C	A	4.200	1	
02	TUBE D63.5x4.80 8466 LONG				AA1049048032 SA 210 GR C	A	62.580	3	
01	TUBE D63.5x4.80 8908 LONG				AA1049048032 SA 210 GR C	A	65.850	9	
05	ESP-6				ASSY		1230.840	1	
04	ESP-4				ASSY		1179.450	1	
08	OPENING FOR INST. INSERT (D63.5x6.3)		2-06-670-U8059		WELDMENT SA 210 GR C	A	6.040	2	
07	PLATE 6 ; 442x444.5				15 211 092 IS 2062 Gr.A	A	9.300	1	
06	FLAT 64.1x6 8908 LONG				15 908 527 A576 GR 1015	A	26.900	13	
05	TUBE D63.5x6.3		4-06-670-U8184		AA1049048032 SA 210 GR C	A	4.300	1	
04	TUBE D63.5x6.3		4-06-670-U8183		AA1049048032 SA 210 GR C	A	4.250	1	
03	TUBE D63.5x6.3		4-06-670-U8182		AA1049048032 SA 210 GR C	A	4.200	1	
02	TUBE D63.5x4.80 8466 LONG				AA1049048032 SA 210 GR C	A	62.580	3	
01	TUBE D63.5x4.80 8908 LONG				AA1049048032 SA 210 GR C	A	65.850	9	
03	ESP-3				ASSY		1164.220	1	
02	FLAT 64.1x6 8908 LONG				15 908 527 A576 GR 1015	A	26.900	11	
01	TUBE D63.5x4.80 8908 LONG				AA1049048032 SA 210 GR C	A	65.850	10	
	ESP-2 & ESP-5				ASSY		954.400	1	
04	OPENING FOR SOOT BLOWER (D63.5x6.3)		2-06-670-U8058	01	AA1049046200 SA 210 GR C	A	7.800	2	
03	FLAT 64.1x6 9222 LONG				15 908 527 A576 GR 1015	A	27.840	13	
02	TUBE D63.5x4.80 8908 LONG				AA1049048032 SA 210 GR C	A	65.850	7	
01	TUBE D63.5x4.80 9222 LONG				AA1049048032 SA 210 GR C	A	68.170	5	
01	ESP-1				ASSY		1179.320	1	

REV NO	ZONE	BRIEF RECORD OF REVISIONS	PPR	CHD	APPR

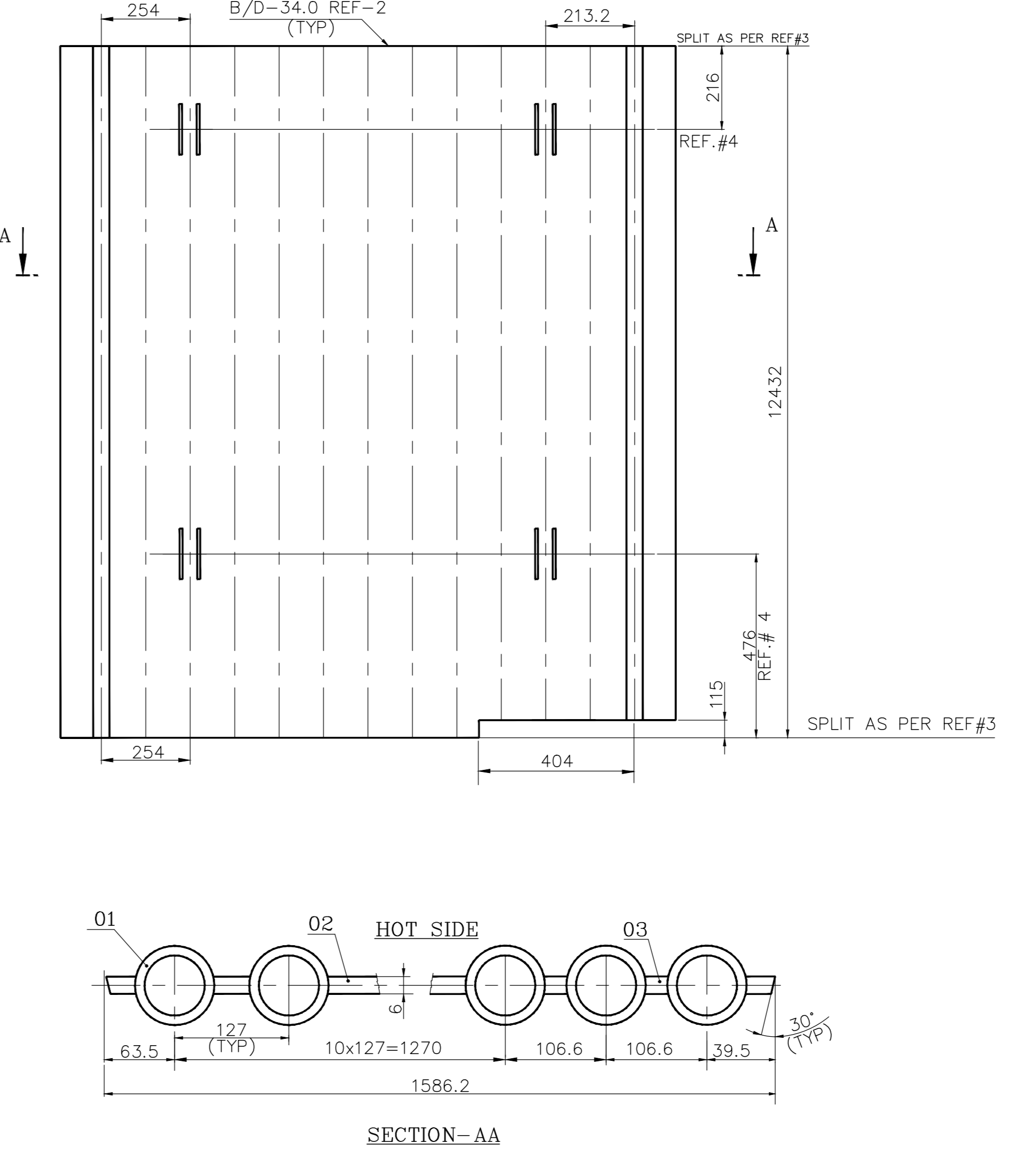
CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. It is to be used only for the purpose for which it is issued and is not to be distributed outside the company.		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136	
Bharat Heavy Electricals Ltd		DIN		DATE	
UNIT: HEAVY PLATES & VESSELS PLANT		RAJU		26-12-2025	
VISAKHAPATNAM - 530012		ANVK KISHORE		26-12-2025	
K TARA KESH		APPR		26-12-2025	
SCALE		WEIGHT (kg)		REF TO ASSY / OLD DWG	
3:20		-		0-06-670-00917/03	
TITLE		DRAWING NO :		REV	
EXTENDED SIDE WW PANEL		0-06-670-U8245		00	



VAR.NO-01
PANEL MARK NO: SCR-1
NO.OFF TO BE MANUFACTURED : 1 NO. /BOILER



VAR.NO-02
PANEL MARK NO: SCR-2
NO.OFF TO BE MANUFACTURED : 5 NOS. /BOILER

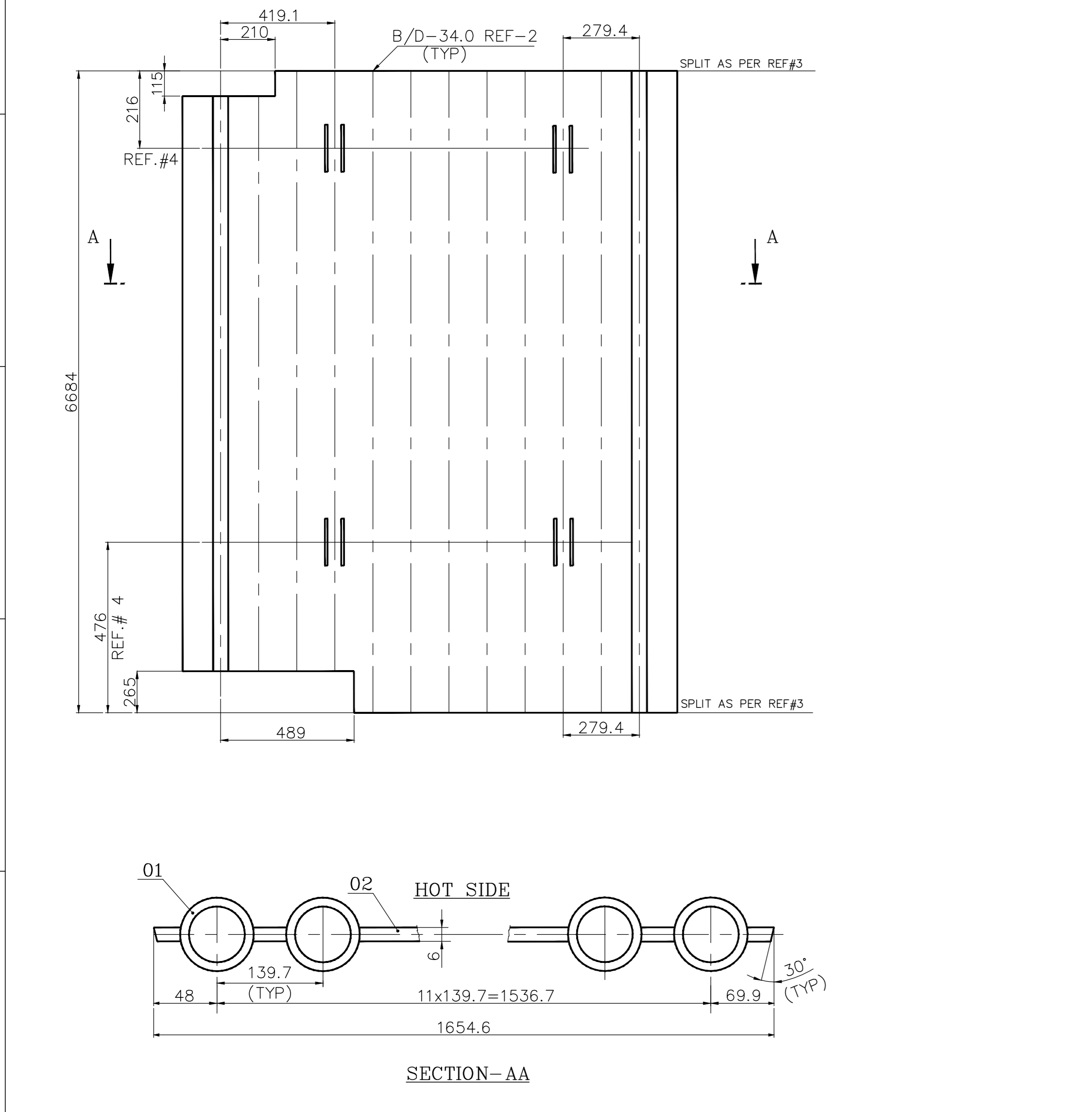


VAR.NO-03
PANEL MARK NO: SCR-3
NO.OFF TO BE MANUFACTURED : 1 NO. /BOILER

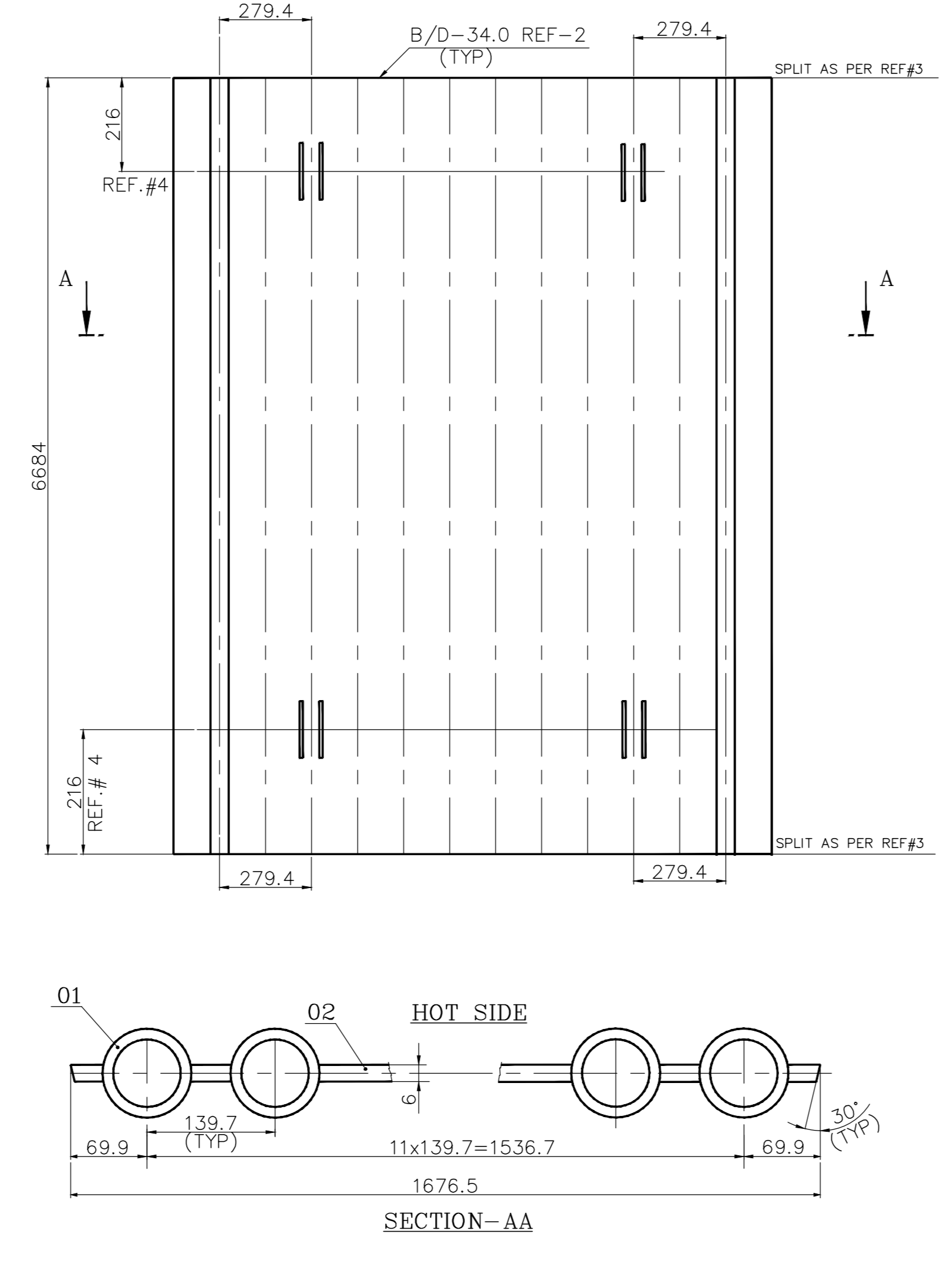
NOTES:
 01. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR
 02. DESIGN PRESSURE :161.6 KG/SQ.CM (G)
 03. DESIGN TEMPERATURE :388 °C (360°C+28°C)
 04. HEAT TREATMENT AS PER IBR
 05. PAINT WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
 06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP

REF. DRAWINGS: -
 01. FABRICATION TOLERANCE AS PER BPS: 1-03-000-00038
 02. TUBE BUTT WELD EDGE PREPARATION AS PER TP 062 05 99
 03. PANEL END PREPARATION AS PER DRG. NO: 4-11-683-00742.
 04. ERECTION SLOTS AS PER BPS: 6106-5010.

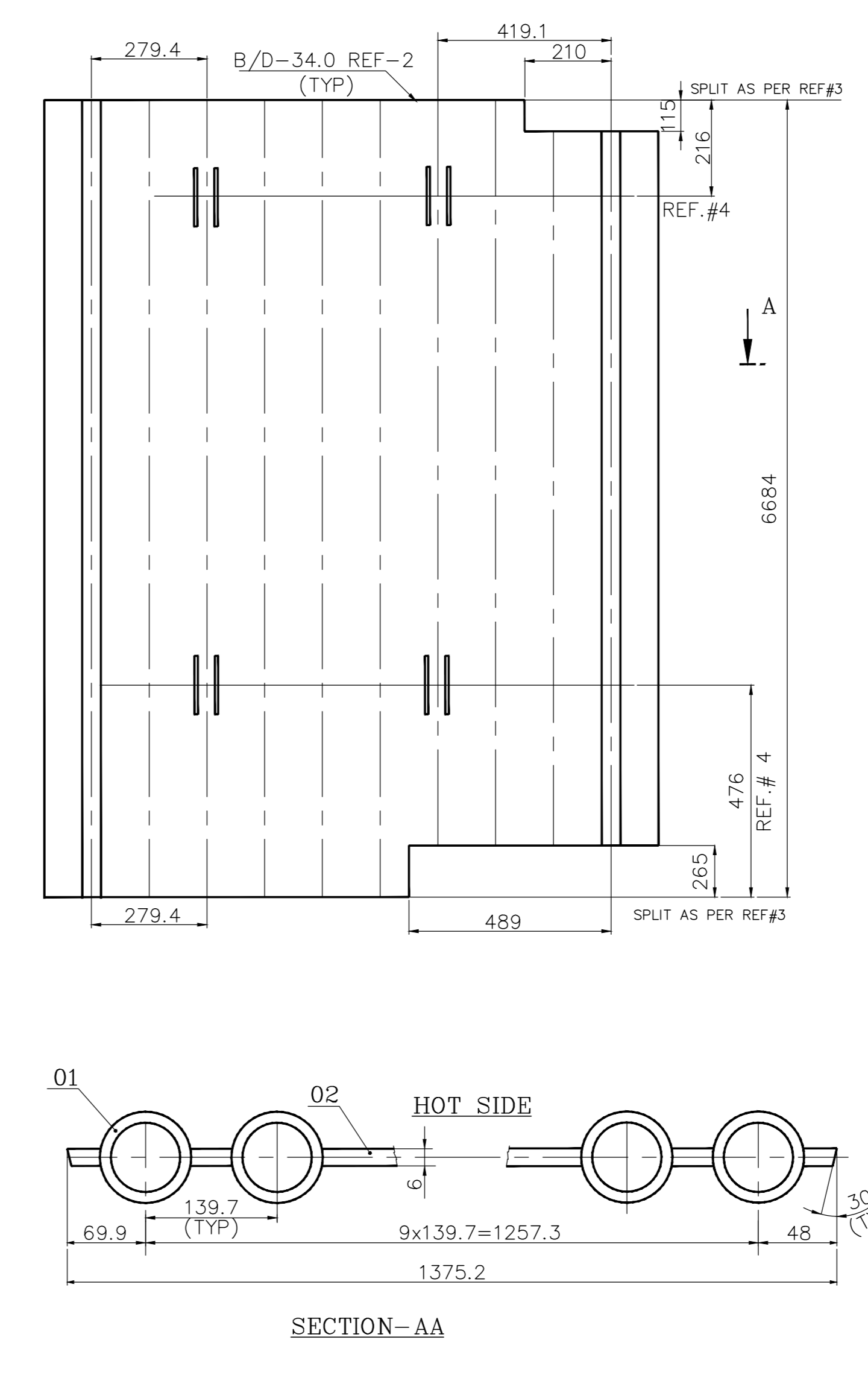
ITEM NO	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
02	FIN FLAT 6X96.2X6684			15-908-474	A576 Gr.1015	30.000	11	
01	TUBE D44.5X5.0; 6684 LONG.			15-487-011	SA 210 Gr.C	34.500	10	
06	SCR-3						675.000	
02	FIN FLAT 6X96.2X6684			15-908-474	A576 Gr.1015	30.000	13	
01	TUBE D44.5X5.0; 6684 LONG.			15-487-011	SA 210 Gr.C	34.500	12	
05	SCR-2						804.000	
02	FIN FLAT 6X96.2X6684			15-908-474	A576 Gr.1015	30.000	13	
01	TUBE D44.5X5.0; 6684 LONG.			15-487-011	SA 210 Gr.C	34.500	12	
04	SCR-1						804.000	
03	FIN FLAT 6X63X12342			15-908-536	A576 Gr.1015	36.360	2	
02	FIN FLAT 6X84X12432			15-908-464	A576 Gr.1015	48.300	12	
01	TUBE D44.5X5.0 12432 LONG.			15-487-011	SA 210 Gr.C	64.200	13	
03	SCR-3						1486.920	
02	FIN FLAT 6X84X12432			15-908-464	A576 Gr.1015	48.300	14	
01	TUBE D44.5X5.0 12432 LONG.			15-487-011	SA 210 Gr.C	64.200	13	
02	SCR-2						1510.800	
03	FIN FLAT 6X63X12432			15-908-536	A576 Gr.1015	36.360	2	
02	FIN FLAT 6X84X12432			15-908-464	A576 Gr.1015	48.300	12	
01	TUBE D44.5X5.0; 12432 LONG.			15-487-011	SA 210 Gr.C	64.200	13	
01	SCR-1						1486.920	



VAR.NO-04
PANEL MARK NO: SCR-1
NO.OFF TO BE MANUFACTURED : 1 NO. /BOILER

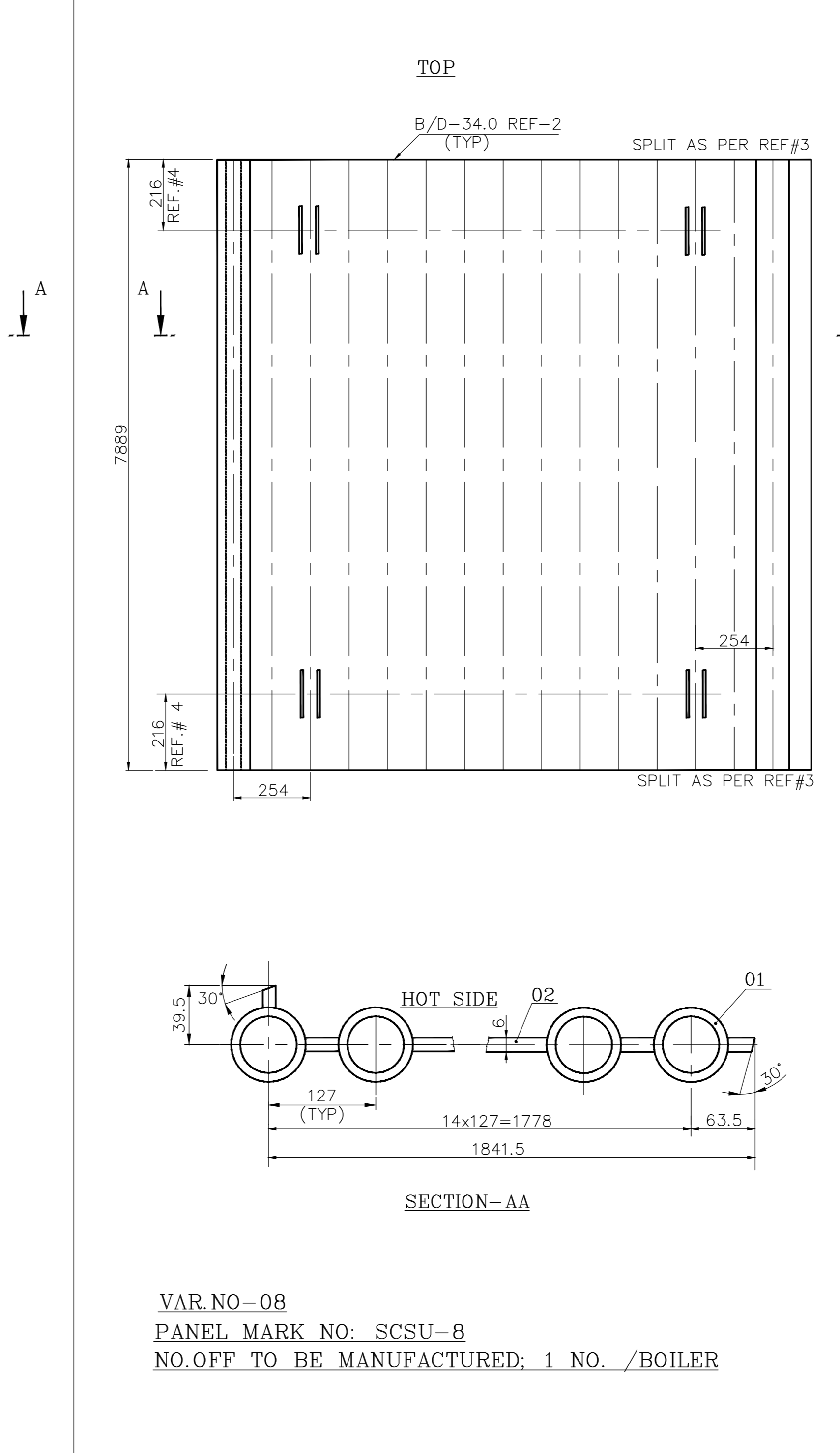
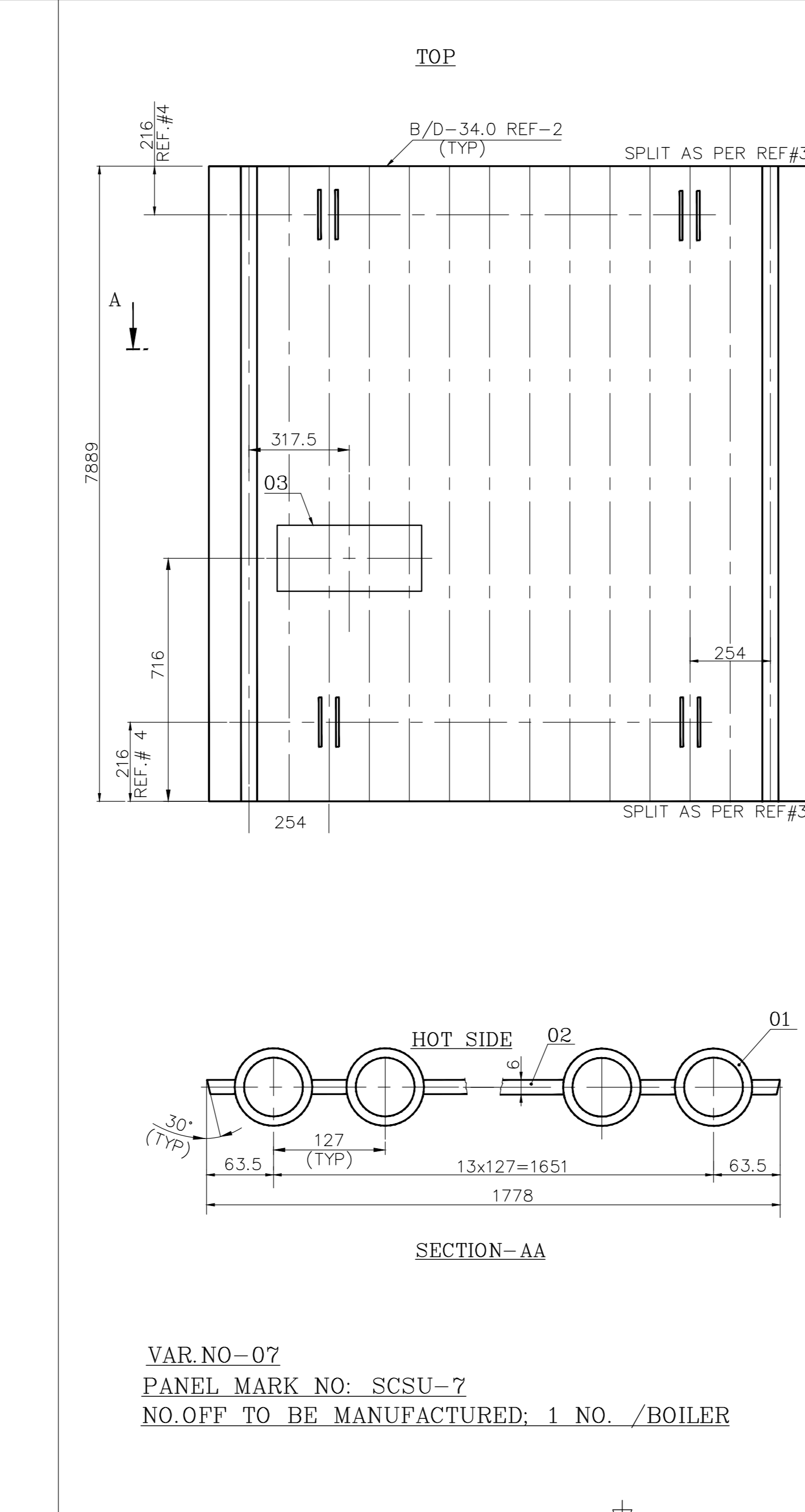
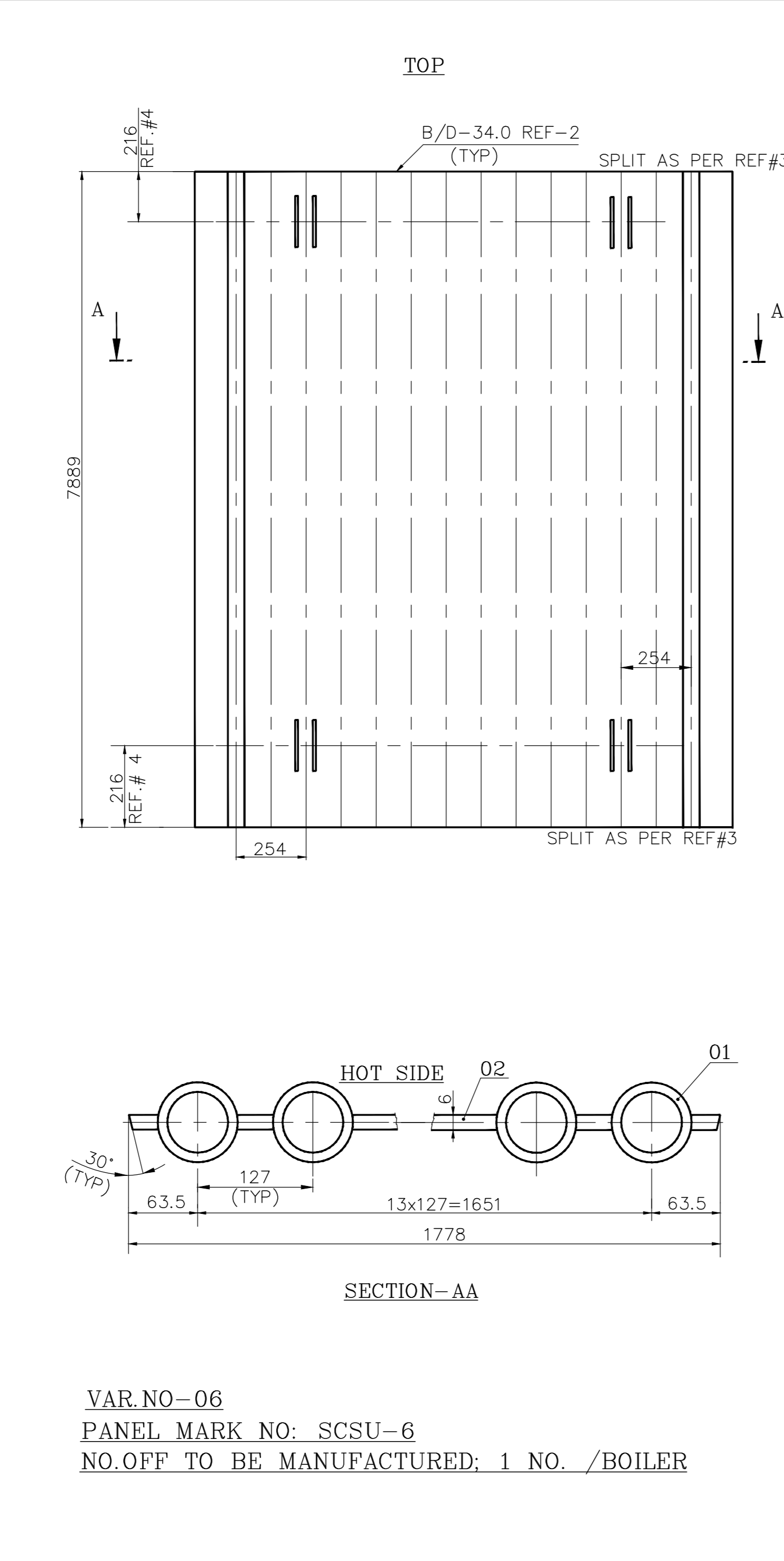
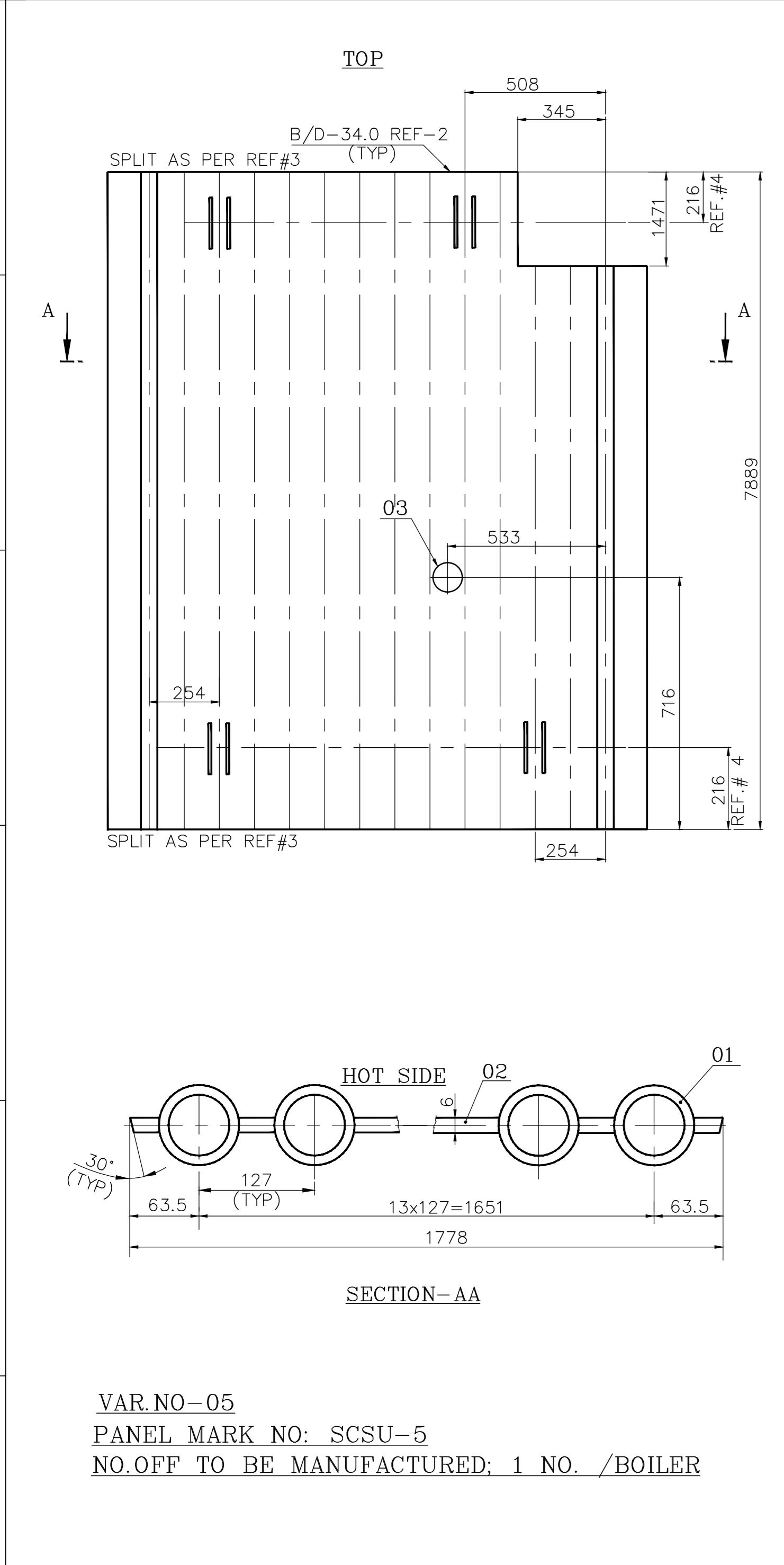
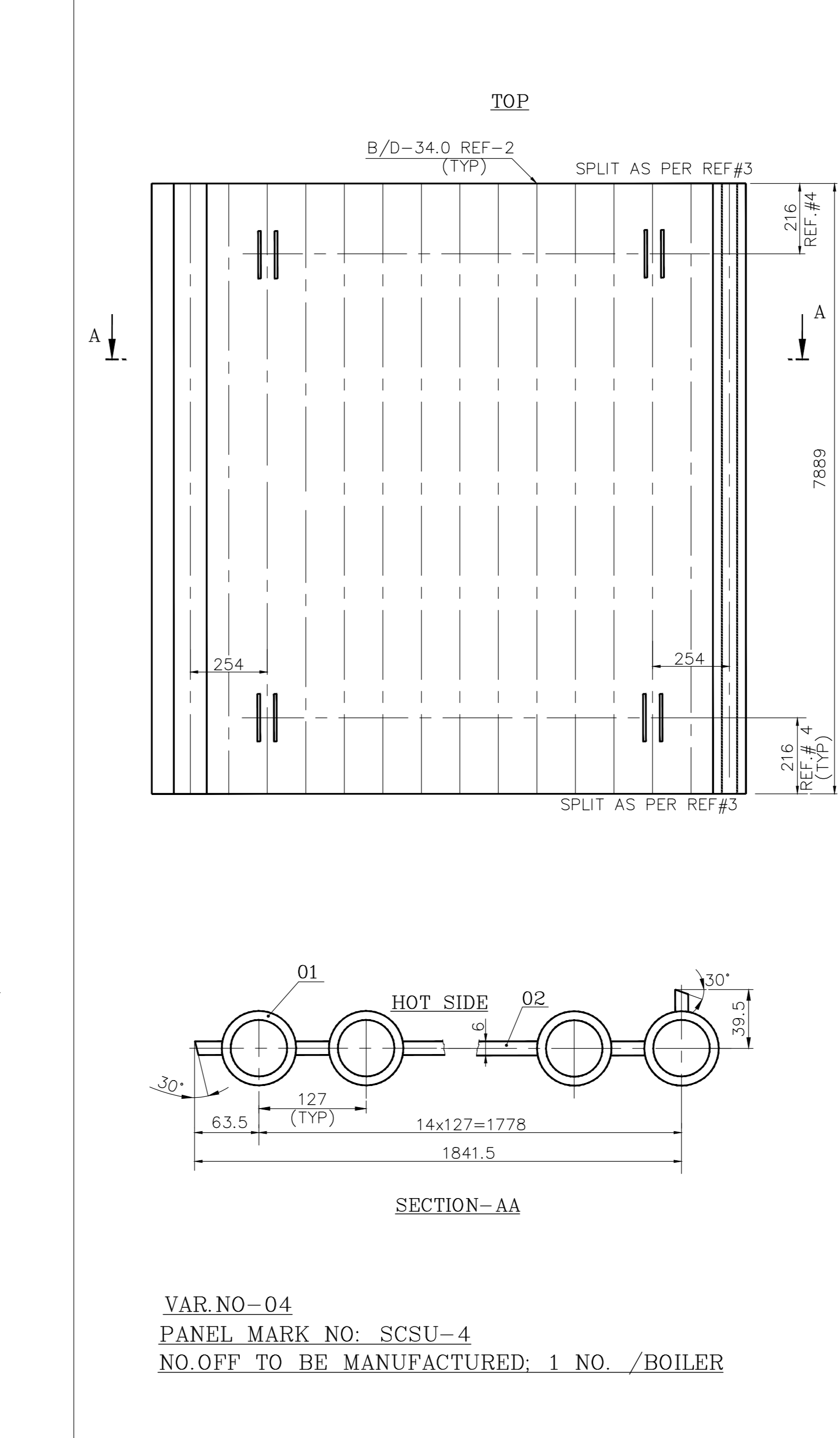
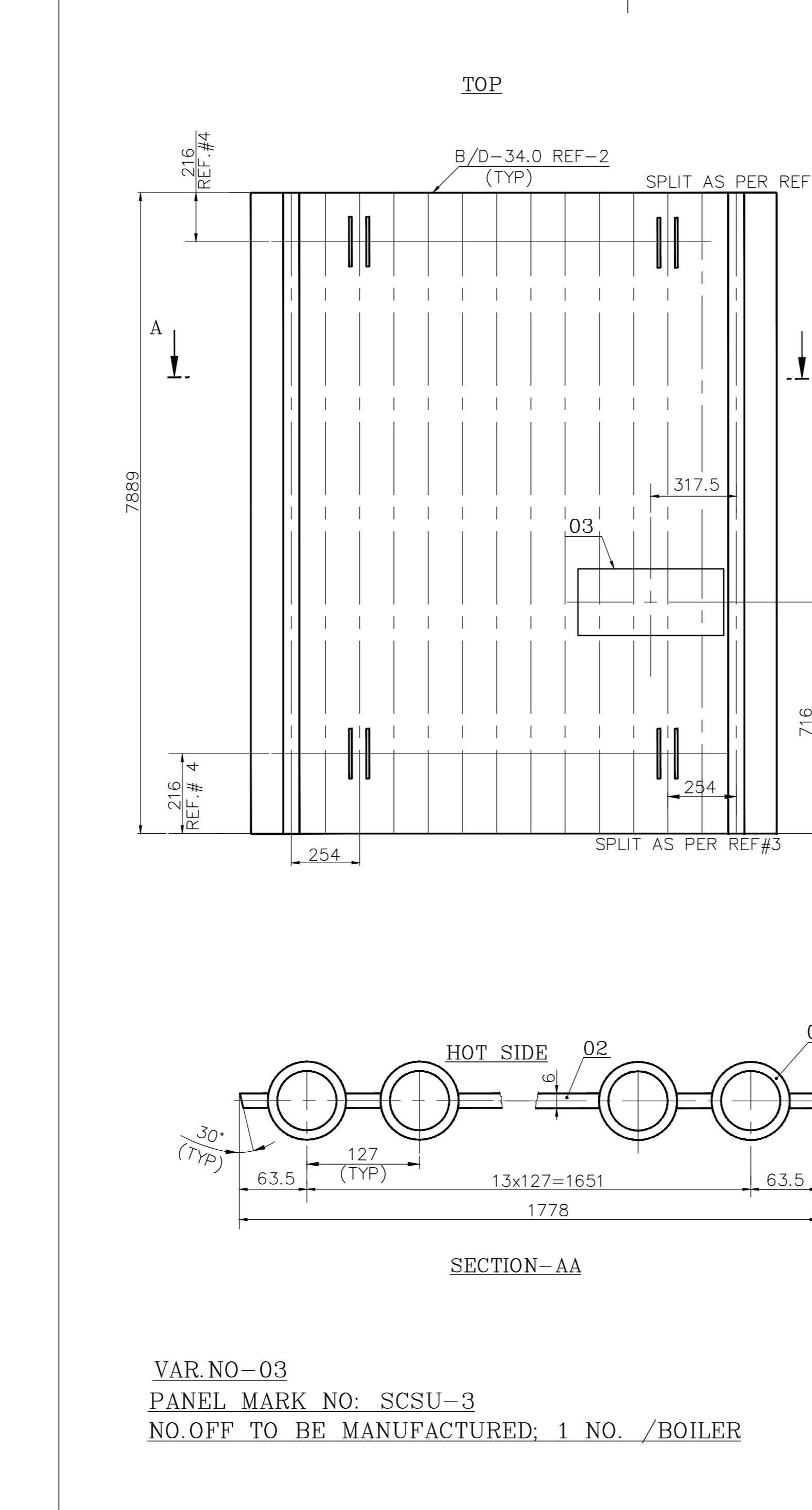
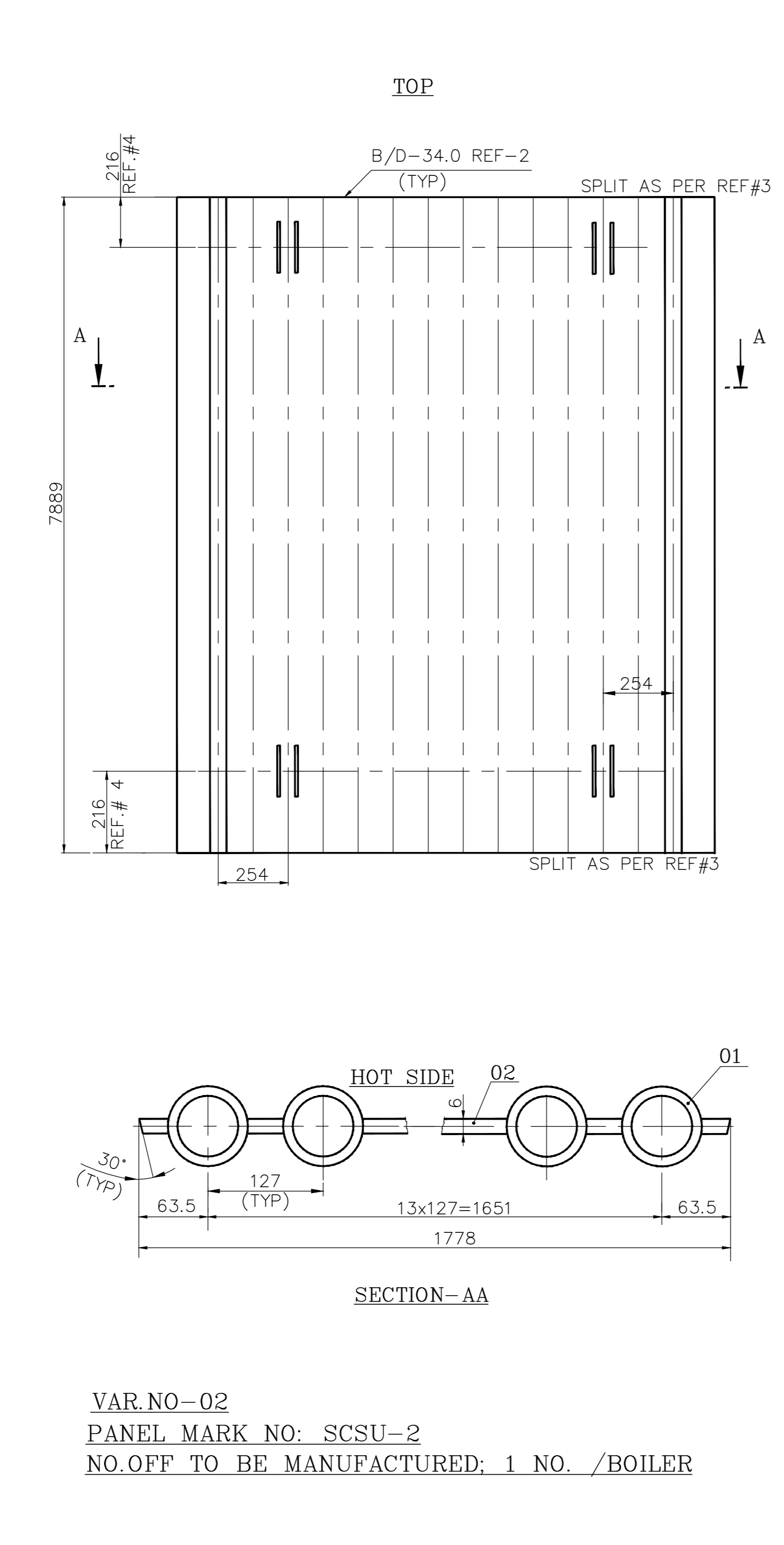
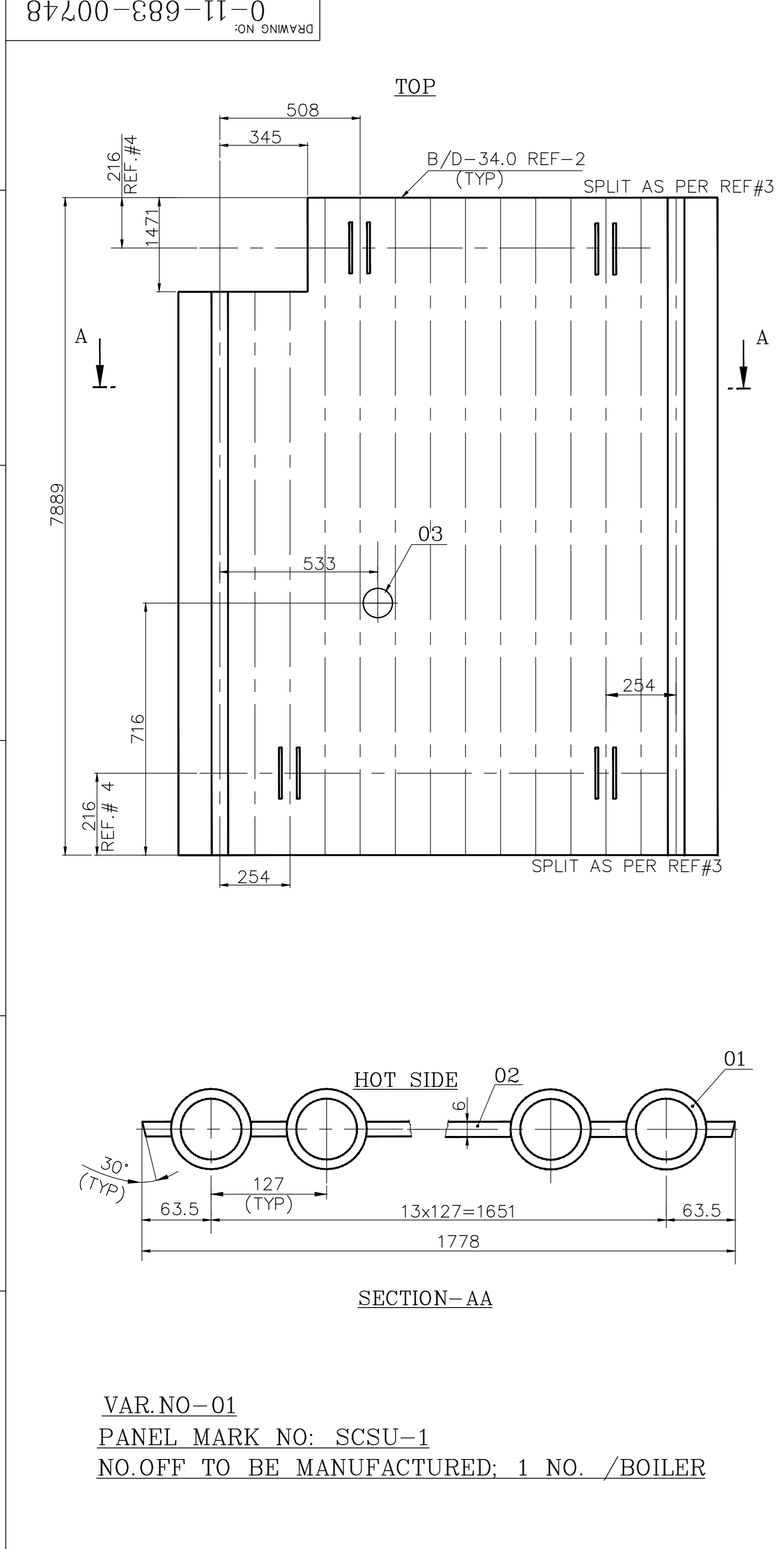


VAR.NO-05
PANEL MARK NO: SCR-2
NO.OFF TO BE MANUFACTURED : 5 NOS. /BOILER



VAR.NO-06
PANEL MARK NO: SCR-3
NO.OFF TO BE MANUFACTURED : 1 NO. /BOILER

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DATE	17.11.09
DESIGNER	M. ANJANARAJU	CHECKED	M. ANJANARAJU	DATE	18.11.09
APPROVED	M. ANJANARAJU	DATE	18.11.09	REF TO ASSY / OLD DWG	0-11-682-00576
SCALE	N.T.S	WEIGHT (kg)	-	DRAWING NO :	0-11-682-00746
TITLE				REV	01
SH.REAR WALL PANELS UPPER & LOWER					



NOTES:
 01. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR
 02. DESIGN PRESSURE :163 KG/SQ.CM (G)
 03. DESIGN TEMPERATURE :387 °C (359°C + 28°C)
 04. HEAT TREATMENT AS PER IBR
 05. PAINT WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
 06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP

REF. DRAWINGS: -
 01. FABRICATION TOLERANCE AS PER BPS: 1-03-000-00038
 02. TUBE BUTT WELD EDGE PREPARATION AS PER TP 062 05 99
 03. PANEL END PREPARATION AS PER DRG. NO: 4-11-683-00742.
 04. ERECTION SLOTS AS PER BPS: 6106-5010.

VARIANT NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QTY	ZONE
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	16	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	15	
08	SCSU-8					1101.650	1	
03	MAN HOLE DOOR OPENING TUBE D44.5x5	S	1-03-000-00007/05	03	SA 210 Gr.C	41.383	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
07	SCSU-7					1071.633	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
06	SCSU-6					1030.250	1	
03	SOOT BLOWER OPENING (RH)TUBE D44.5x5	S	6106-2060/04	05	SA 210 Gr.C	5.020	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
05	SCSU-5					1035.270	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	16	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	15	
04	SCSU-4					1101.650	1	
03	MAN HOLE DOOR OPENING TUBE D44.5x5	S	1-03-000-00007/05	03	SA 210 Gr.C	41.383	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
03	SCSU-3					1071.633	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
02	SCSU-2					1030.250	1	
03	SOOT BLOWER OPENING (LH)TUBE D44.5x5	S	6106-2060/04	06	SA 210 Gr.C	5.020	1	
02	FIN FLAT 84x6x7889				15-908-464 A576 Gr.1015	30.650	15	
01	TUBE D44.5X5.0; 7889 LONG.				15-487-011 SA 210 Gr.C	40.750	14	
01	SCSU-1					1035.270	1	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

Bharat Heavy Electricals Ltd
 UNIT: HIGH PRESSURE BOILER PLANT
 TRUCHIRAPALLI - 620014

DATE: 02.12.09
 T.S.SAJIN

DATE: 03.12.09
 M.ANVARALI

DATE: 03.12.09
 M.ANVARALI

SCALE: N.T.S

WEIGHT (kg):

REV: 01 DATE: 25.05.10 CHD & APPD: M.ANVARALI

DESCRIPTION: EP STYLE'B' UPDATED AS 'B/D'.

TITLE: SH SIDE WALL PANEL UPPER

REF TO ASSY / OLD DWG: 0-11-683-00572

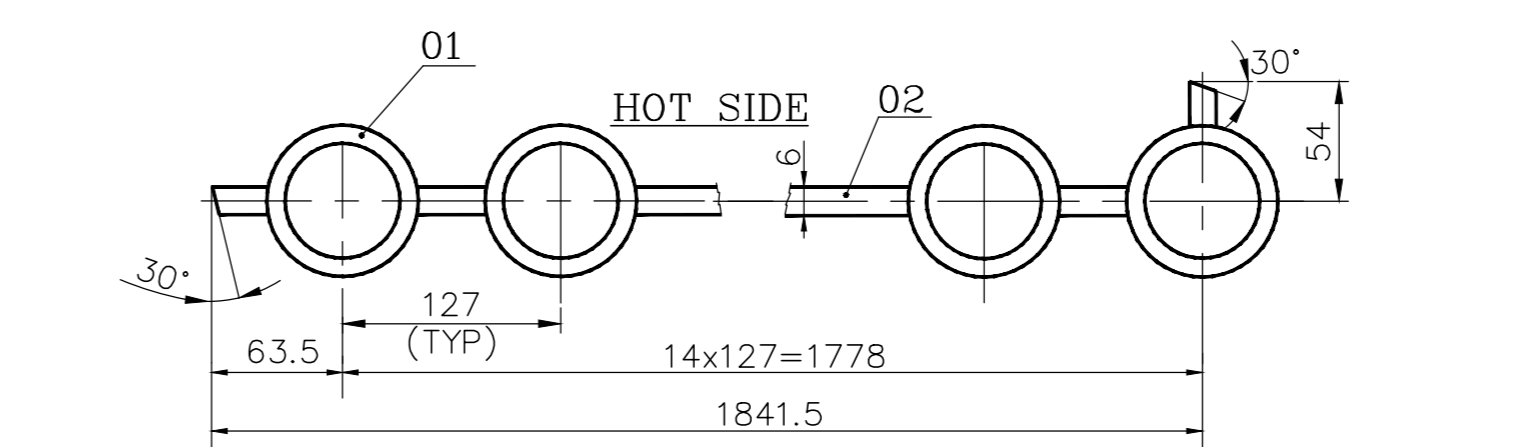
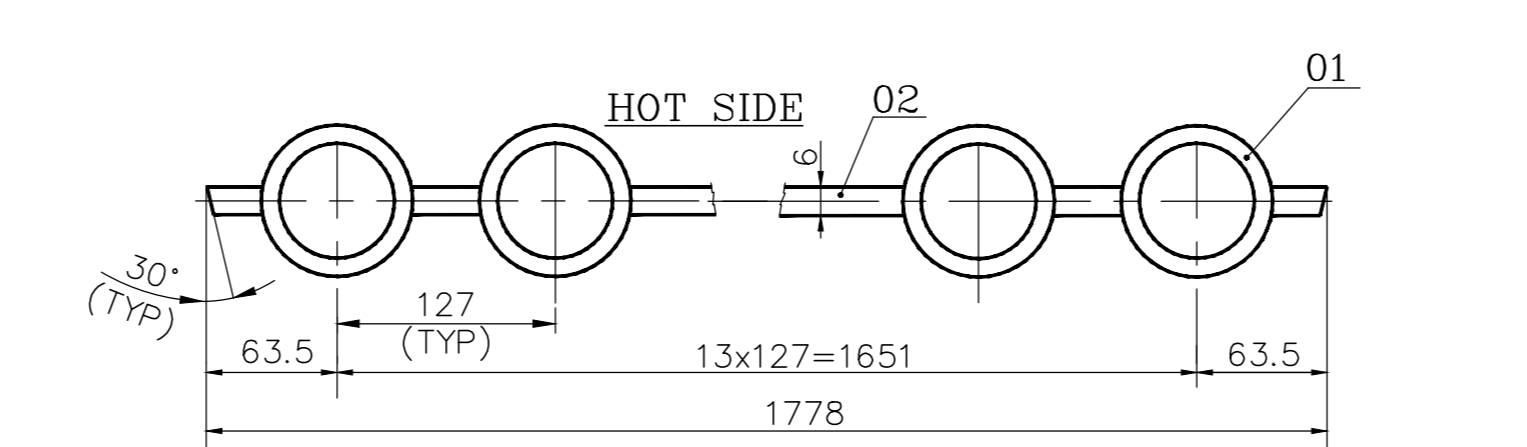
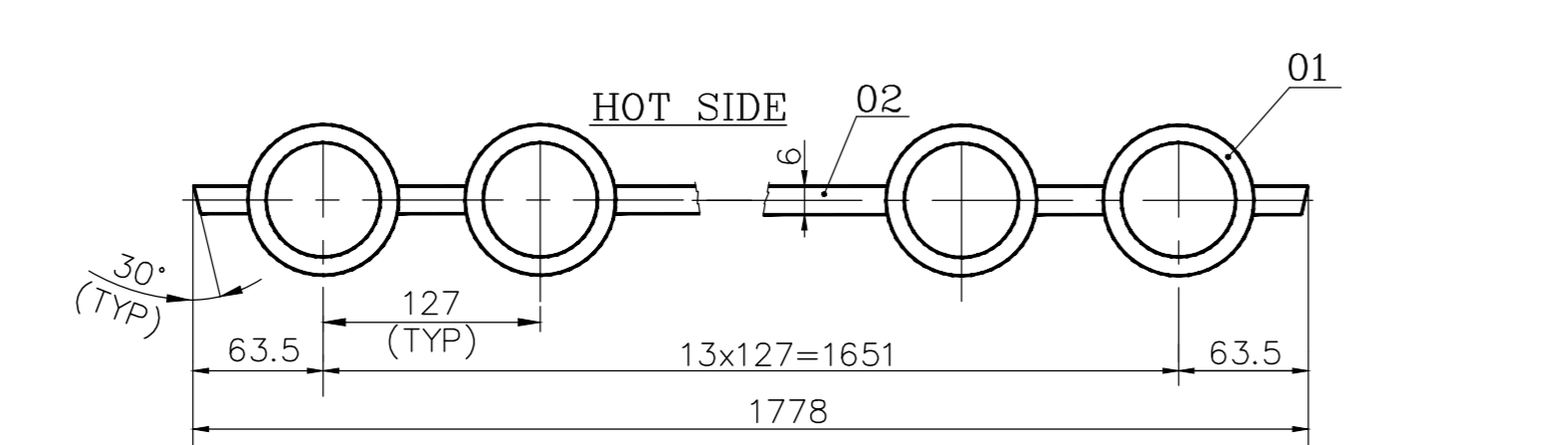
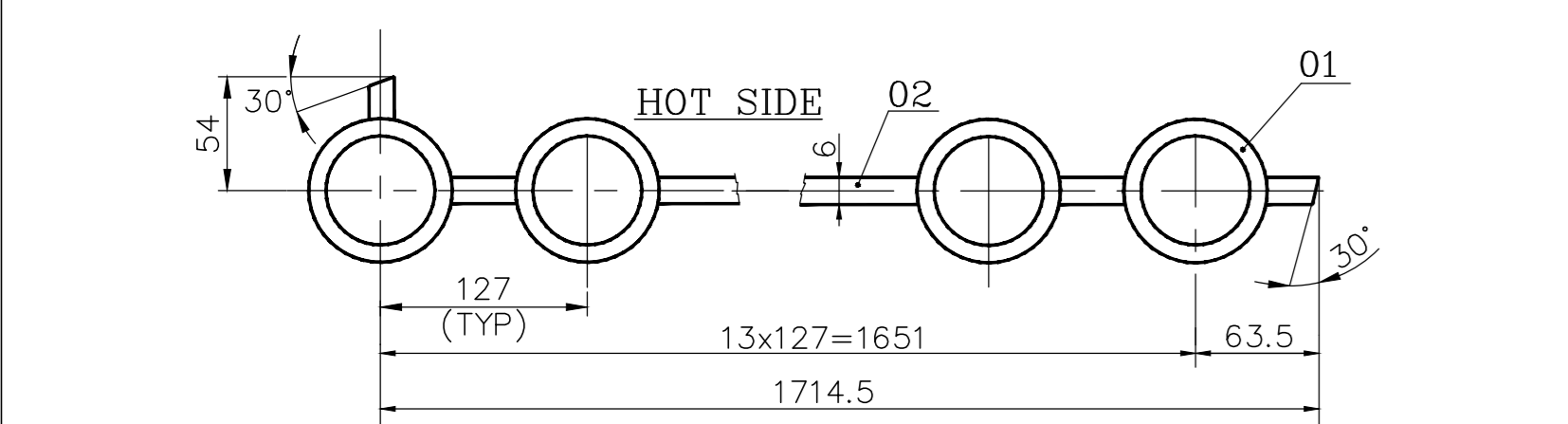
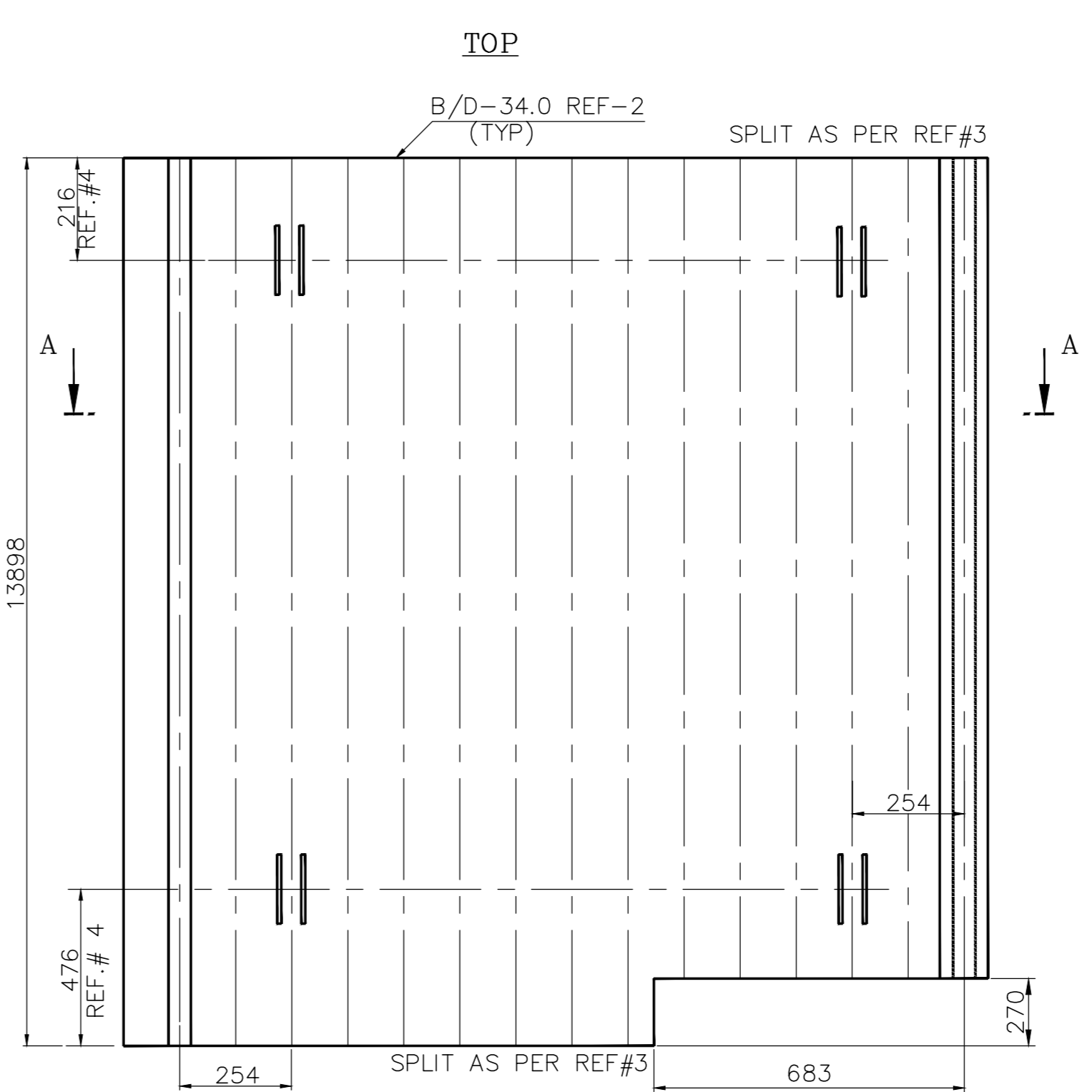
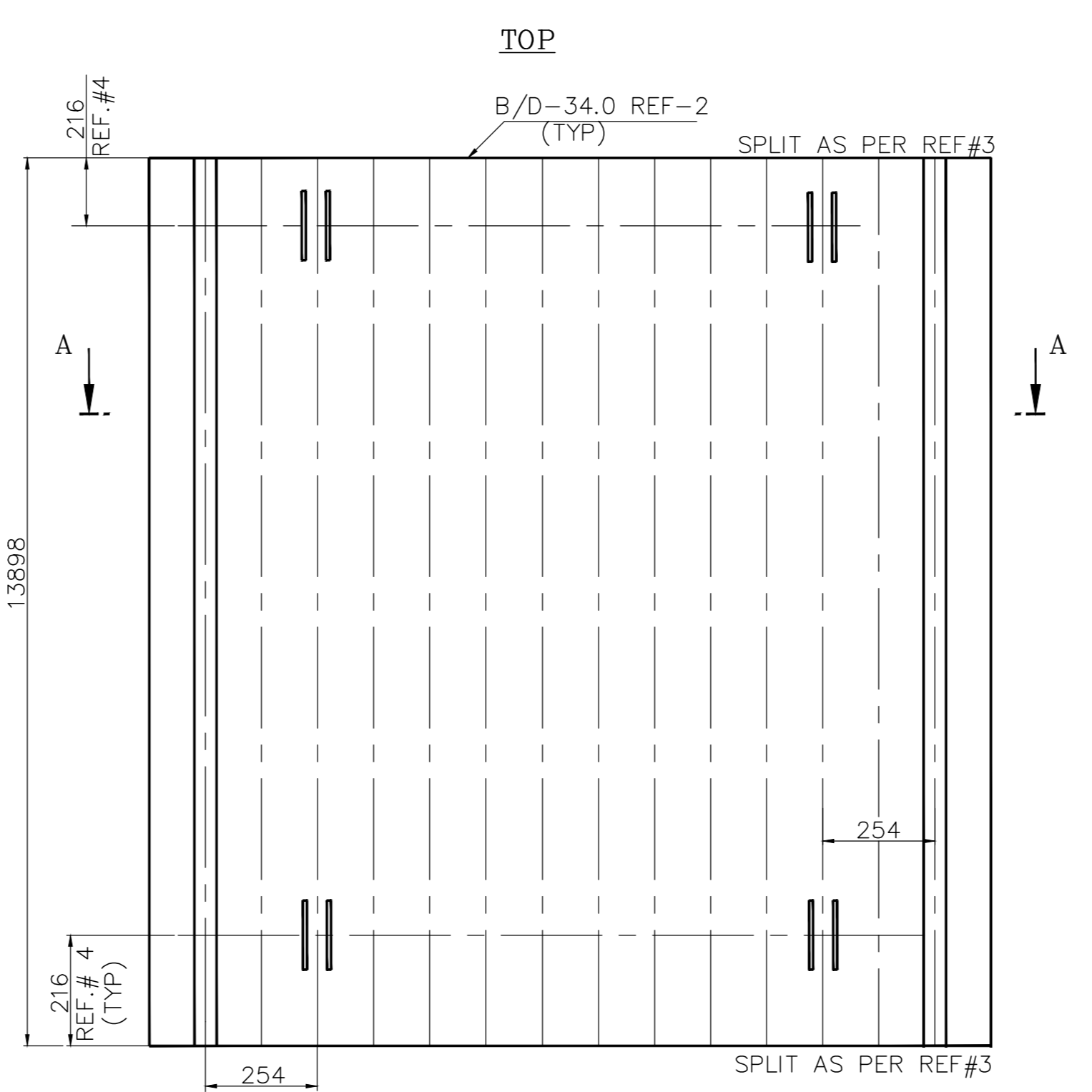
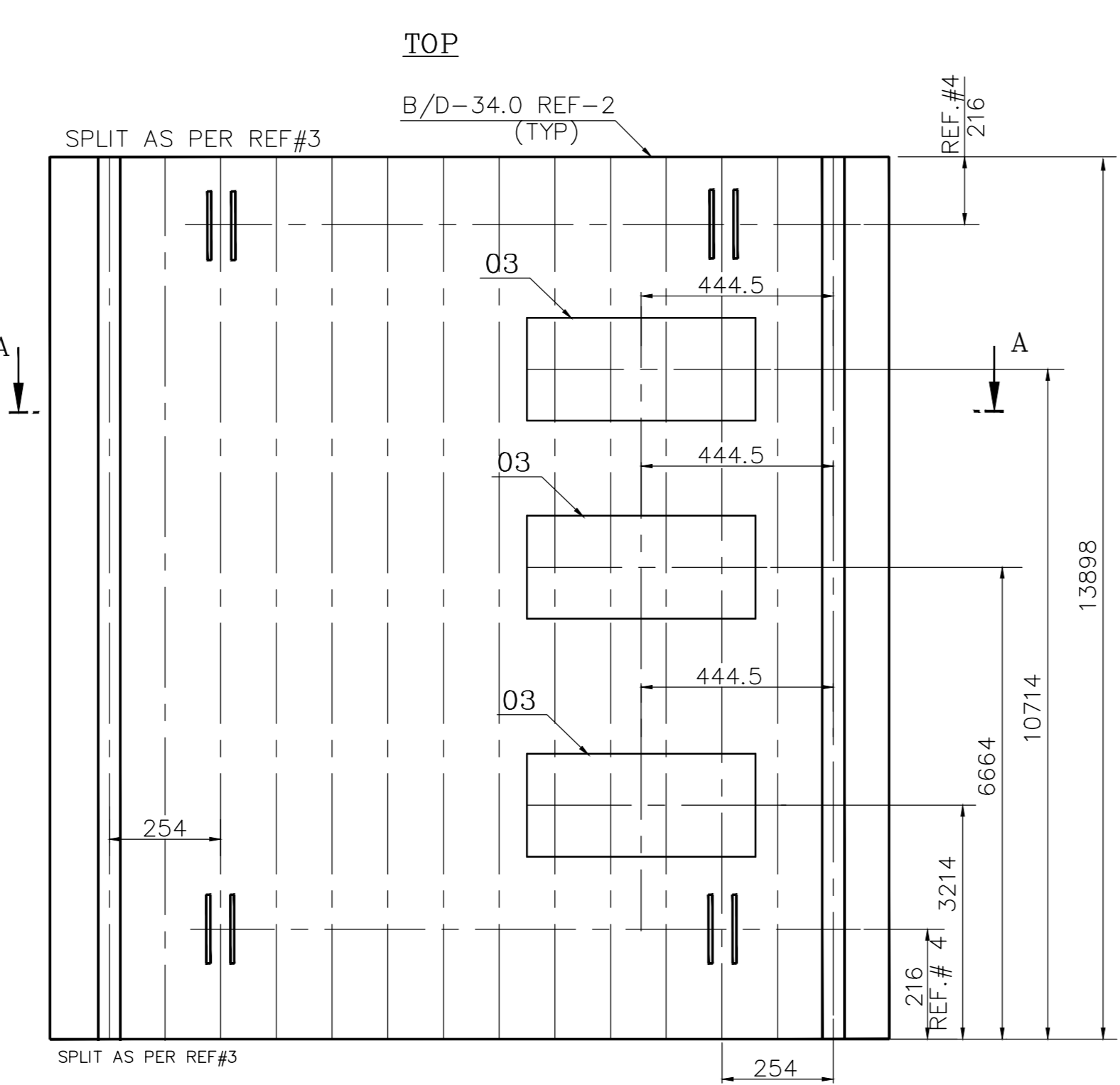
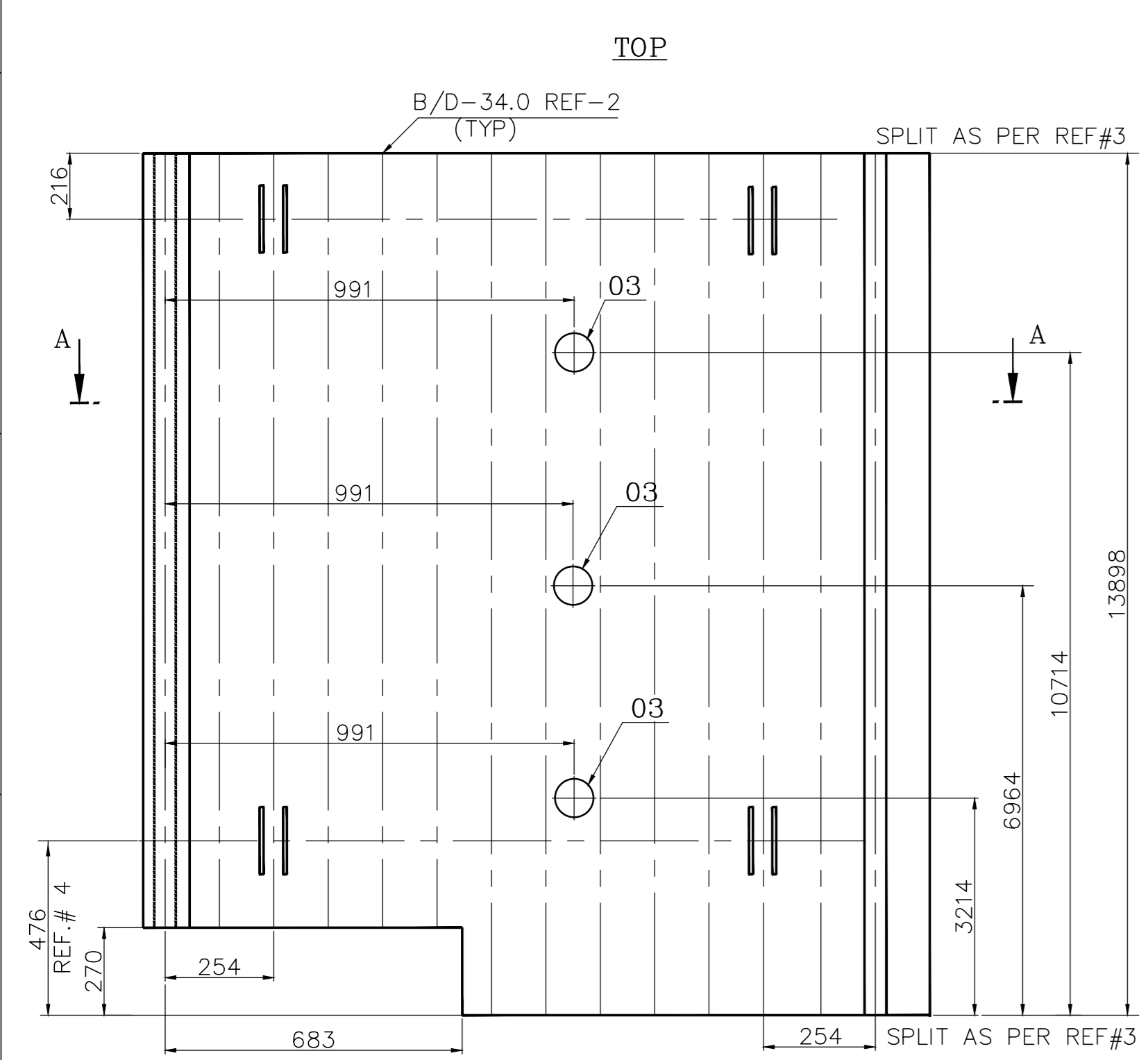
DRAWING NO: 0-11-683-00748

6+L00-889-00749

FOR TOLERANCES OF UNTOOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO. TP 023 0299

- NOTES:**
01. DESIGN, MANUFACTURE AND INSPECTION AS PER IBR
 02. DESIGN PRESSURE : 163 KG/SQ.CM (G)
 03. DESIGN TEMPERATURE : 387 °C (359°C + 28°C)
 04. HEAT TREATMENT AS PER IBR
 05. PAINT WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
 06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP

- REF. DRAWINGS: -**
01. FABRICATION TOLERANCE AS PER BPS: 1-03-000-00038
 02. TUBE BUTT WELD EDGE PREPARATION AS PER TP 062 05 99
 03. PANEL END PREPARATION AS PER DRG. NO: 4-11-683-00742.
 04. ERECTION SLOTS AS PER BPS: 6106-5010.

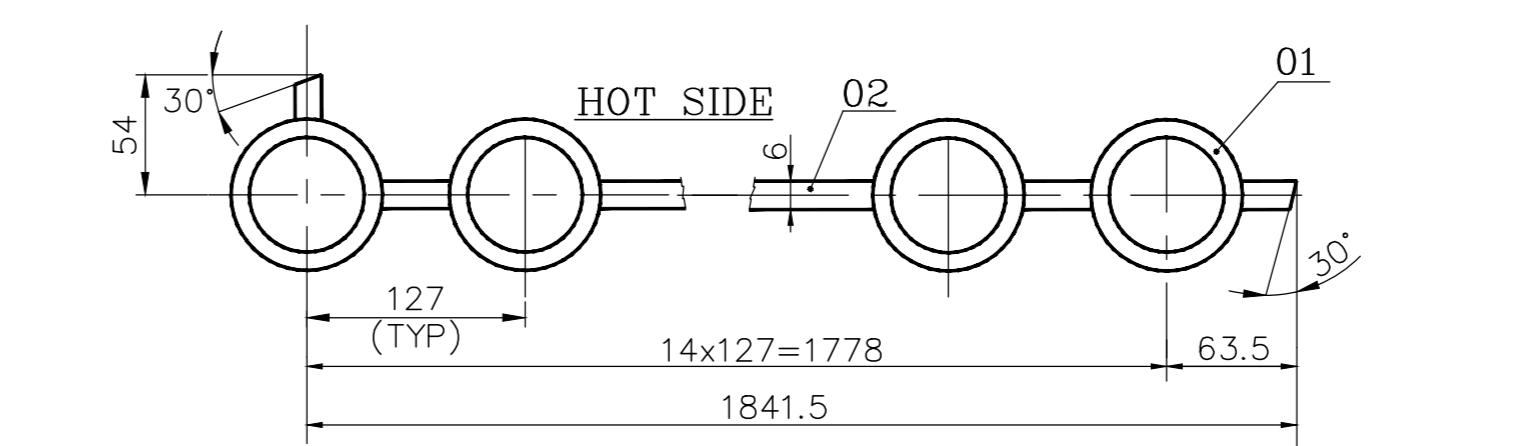
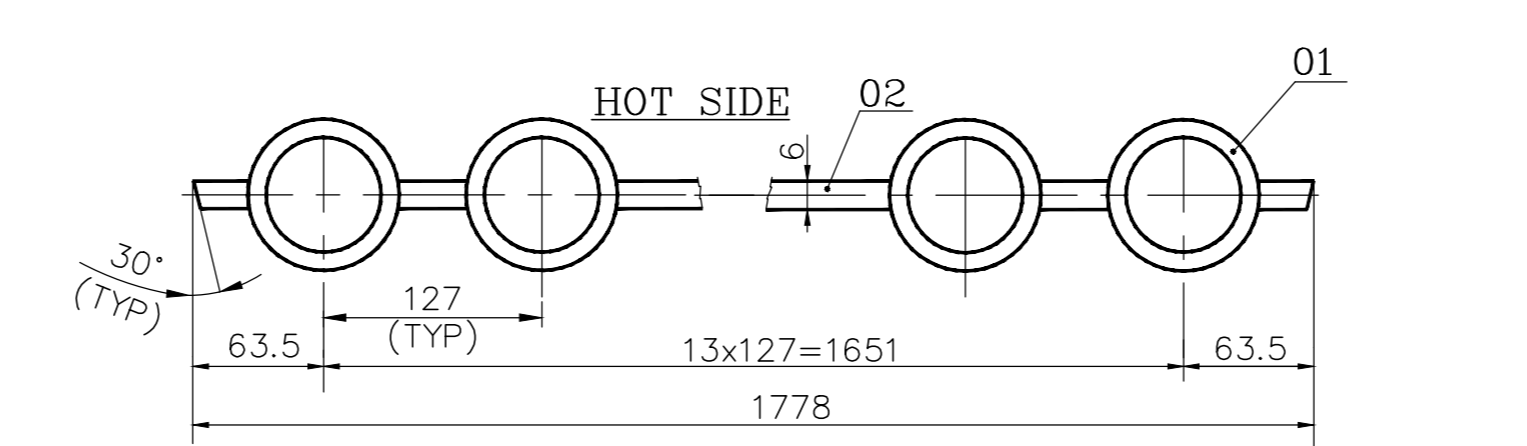
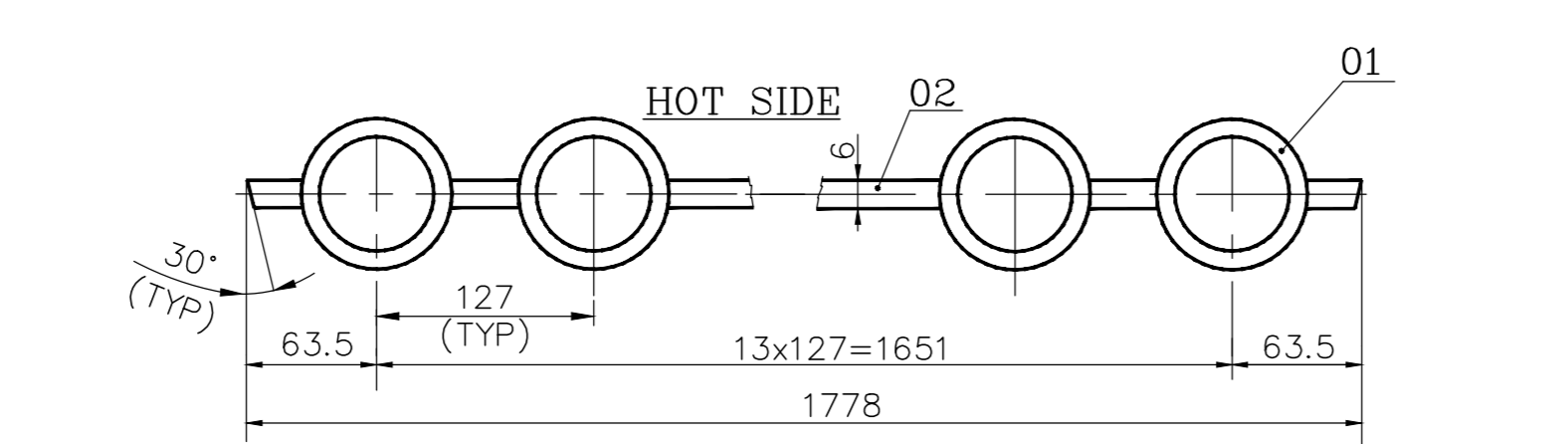
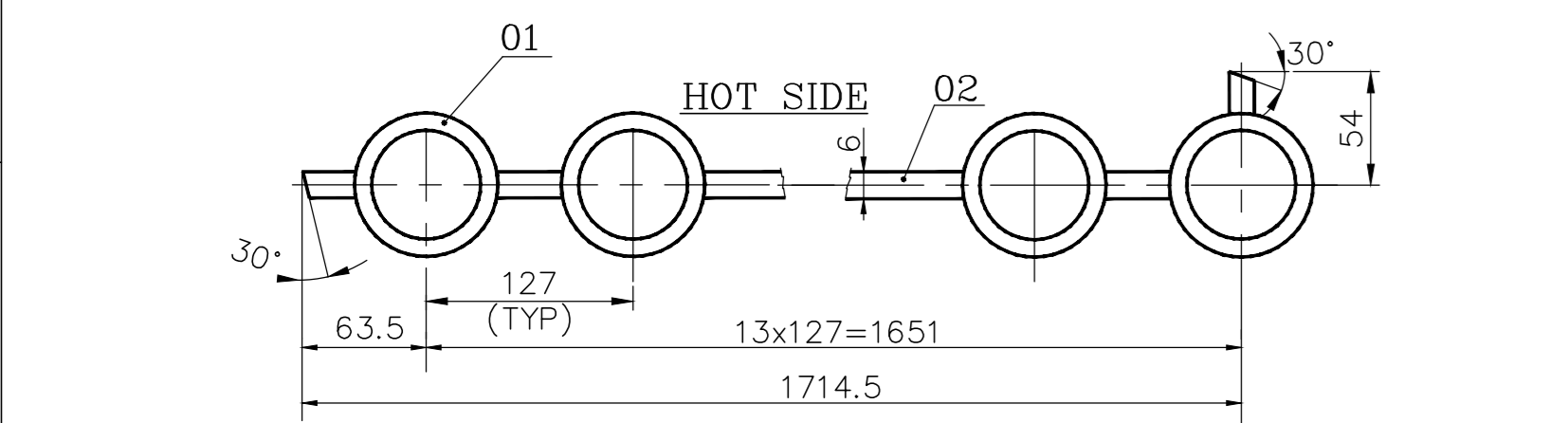
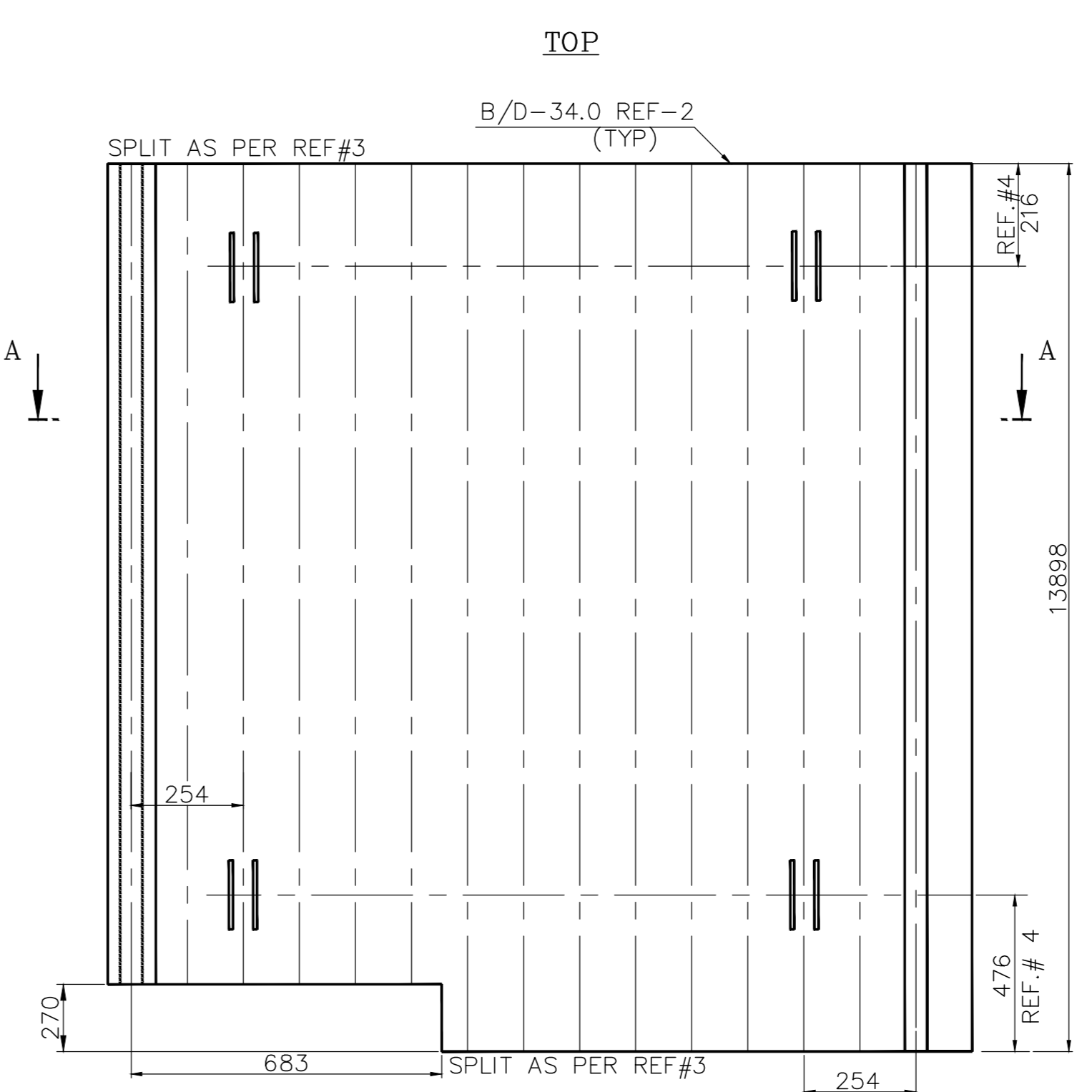
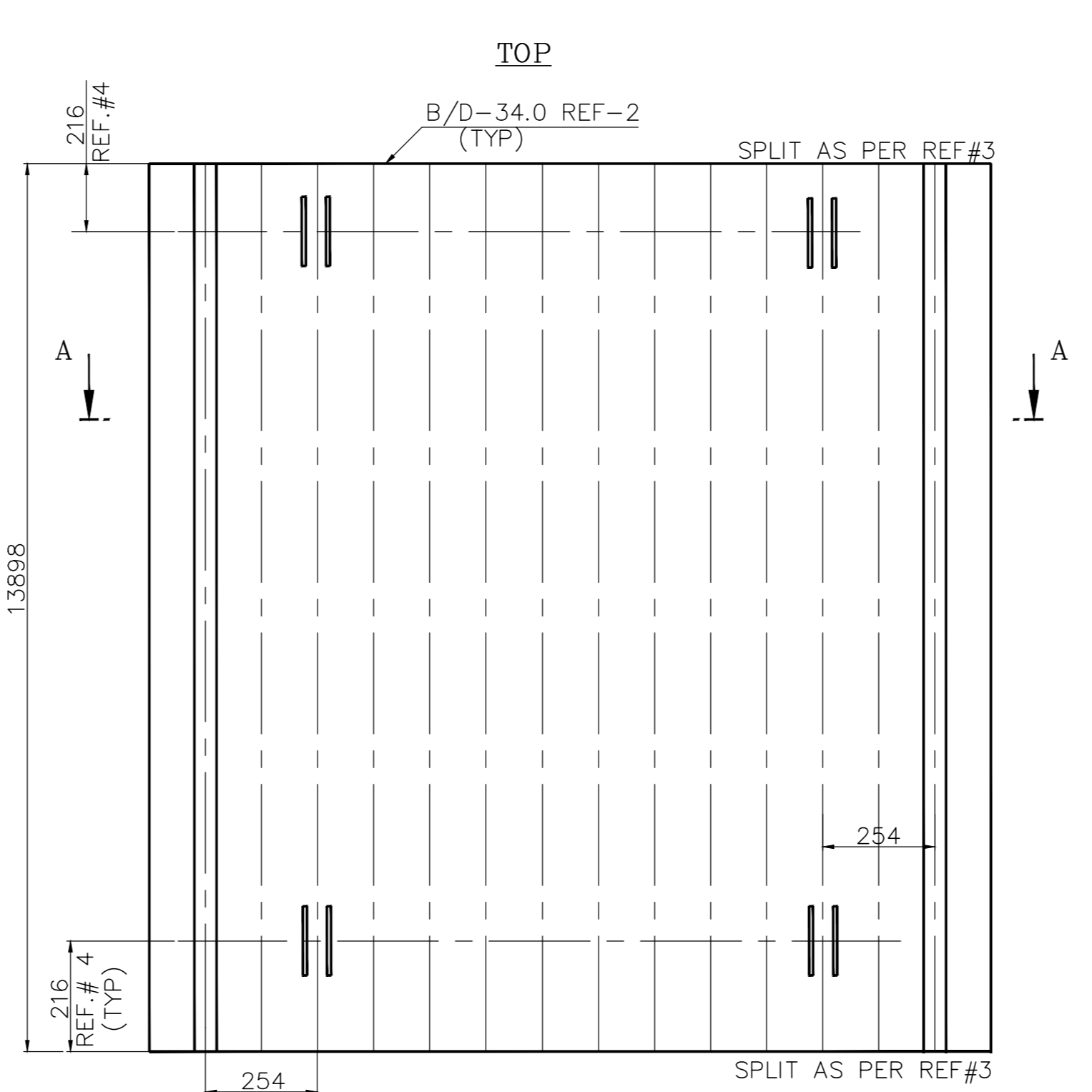
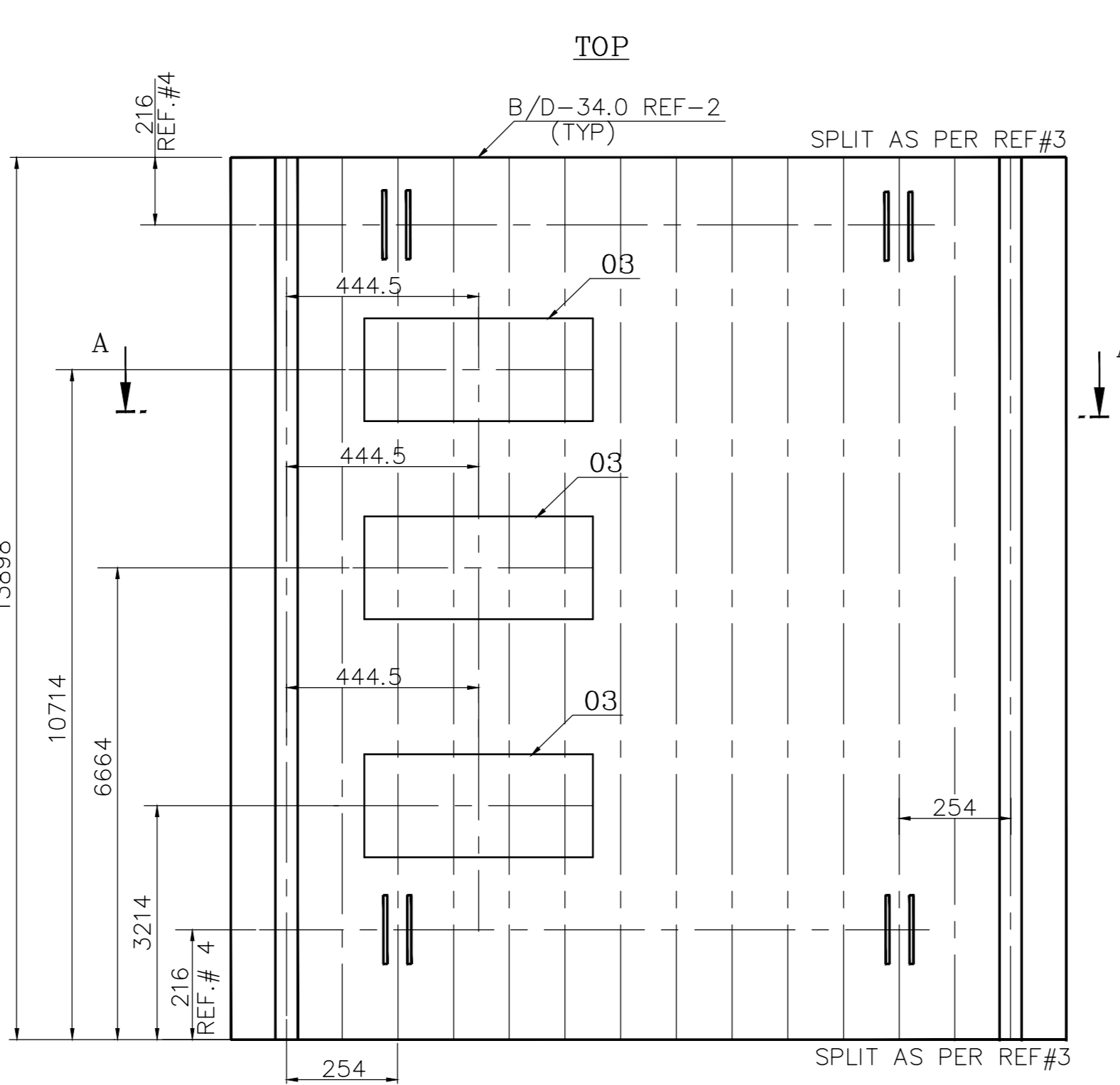
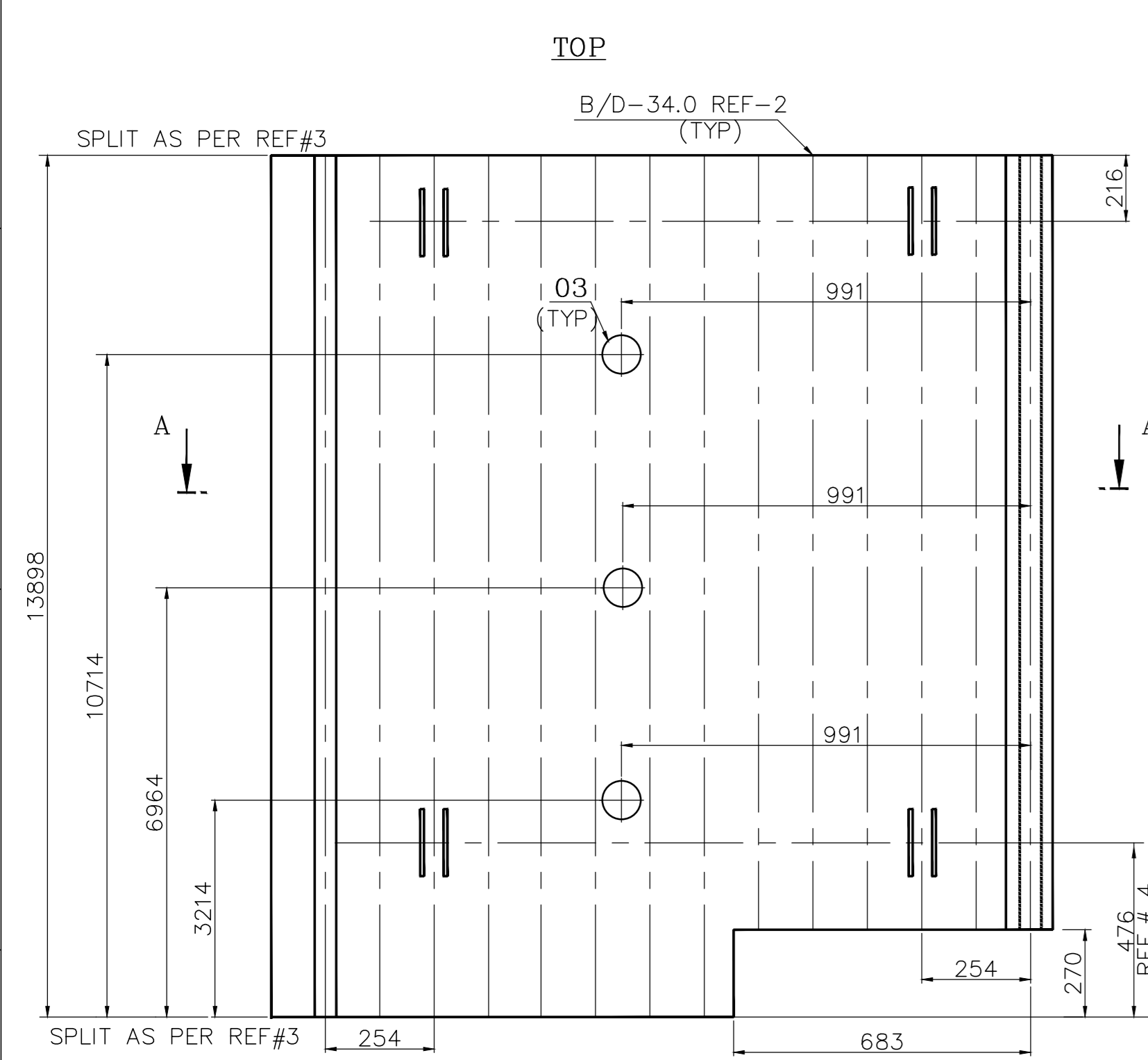


VAR.NO-01
PANEL MARK NO: SCSL-1
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VAR.NO-02
PANEL MARK NO: SCSL-2
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VAR.NO-03
PANEL MARK NO: SCSL-3
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VAR.NO-04
PANEL MARK NO: SCSL-4
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER



VAR.NO-05
PANEL MARK NO: SCSL-5
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VAR.NO-06
PANEL MARK NO: SCSL-6
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VAR.NO-07
PANEL MARK NO: SCSL-7
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

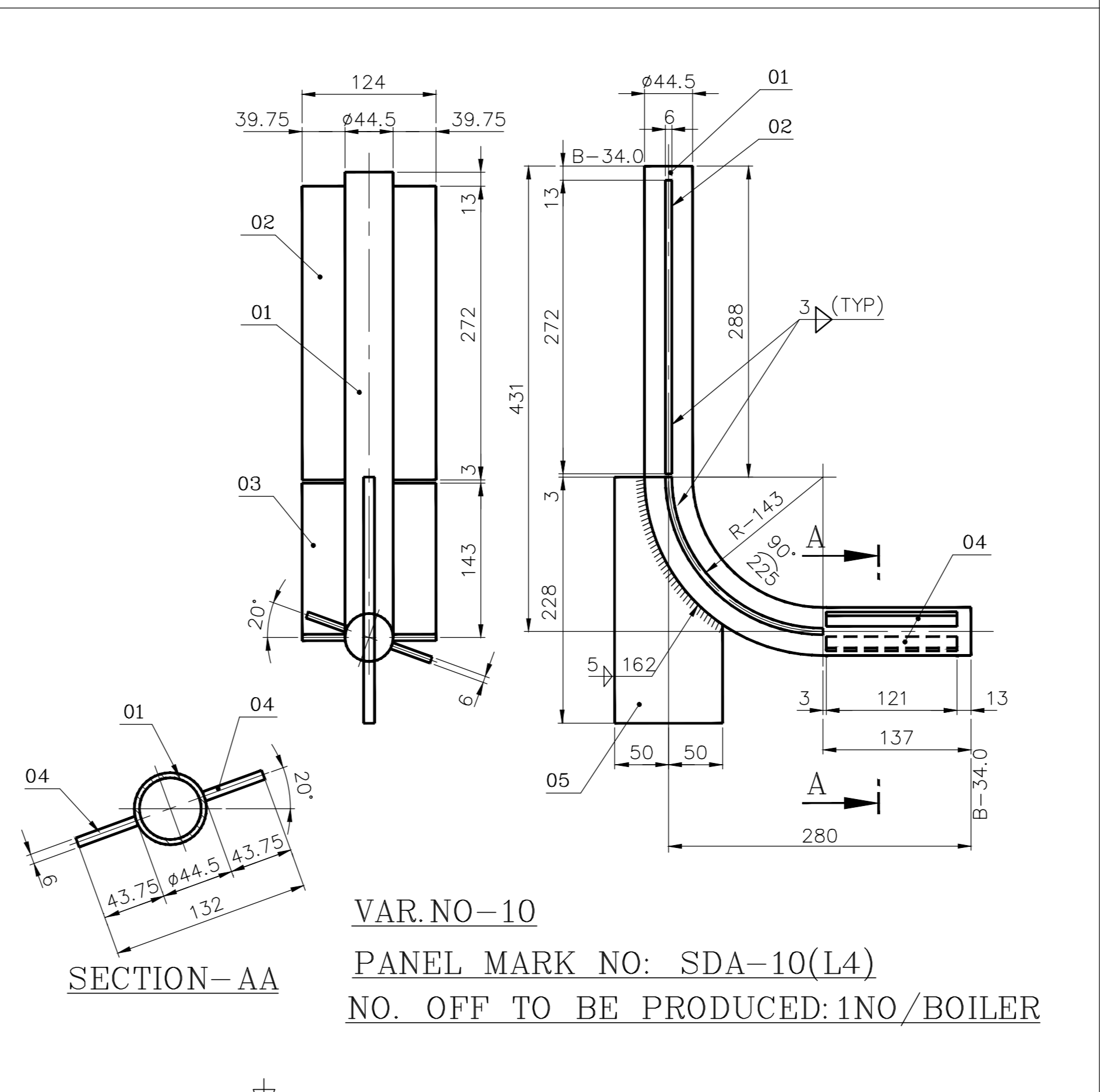
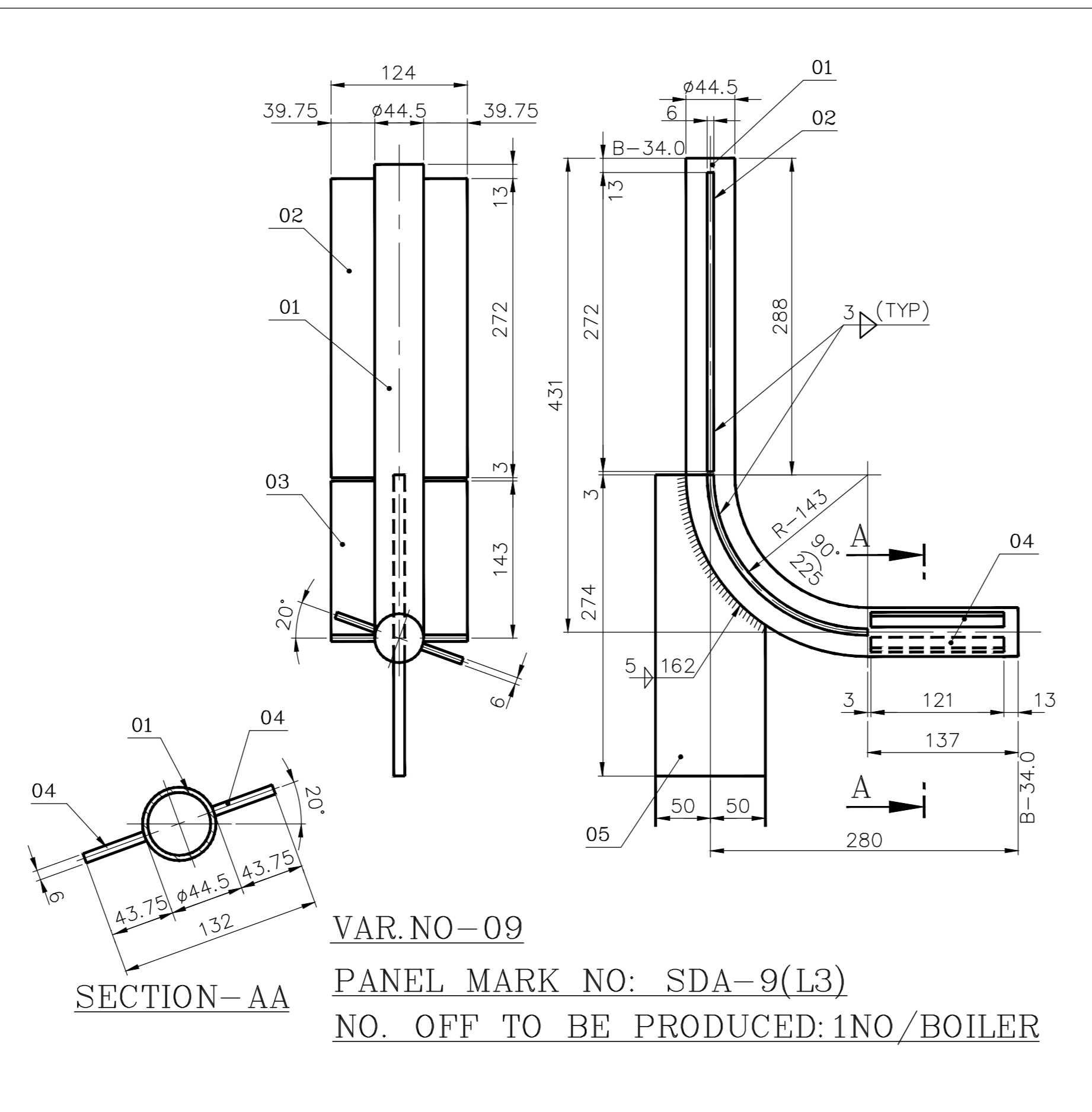
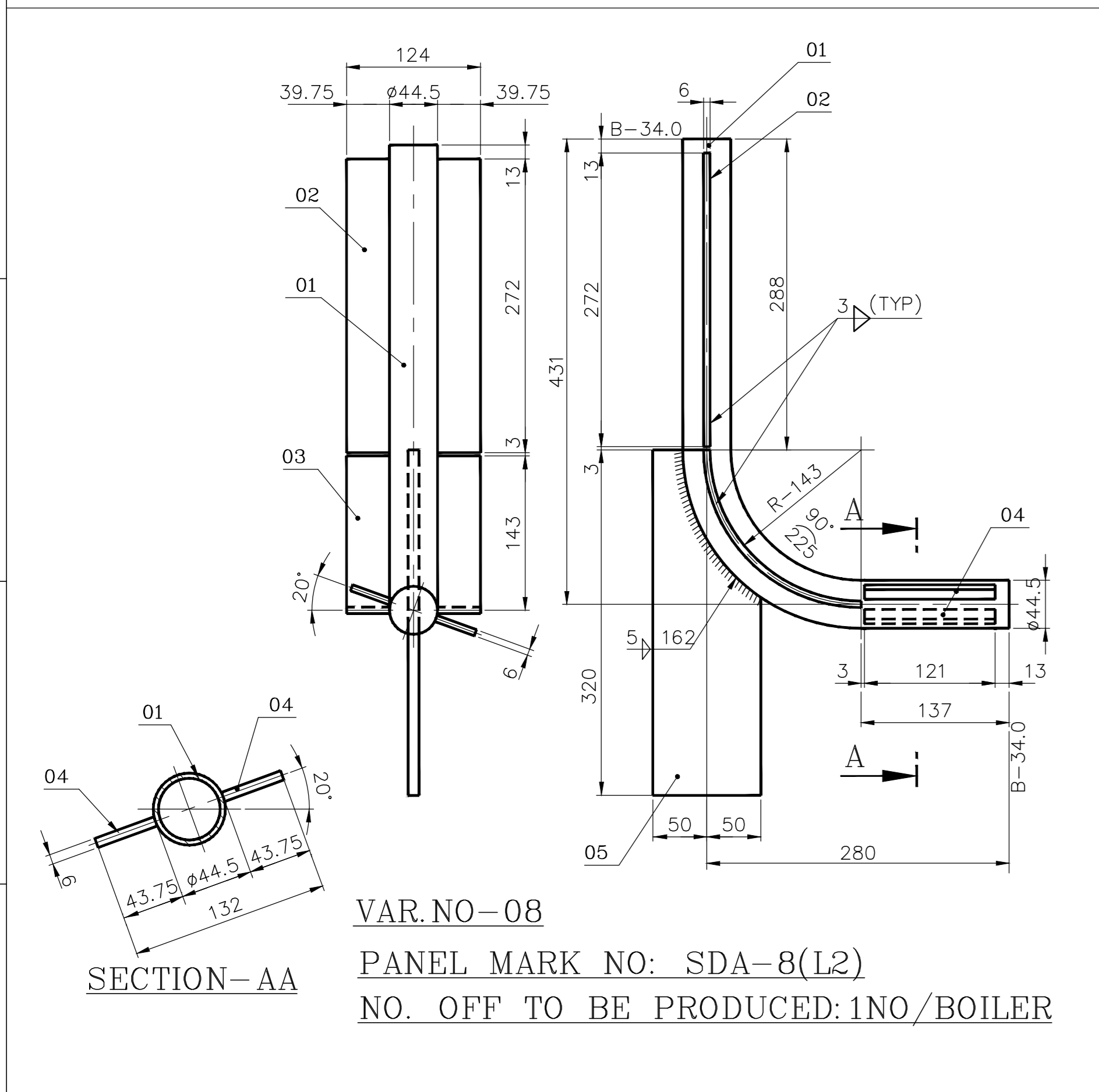
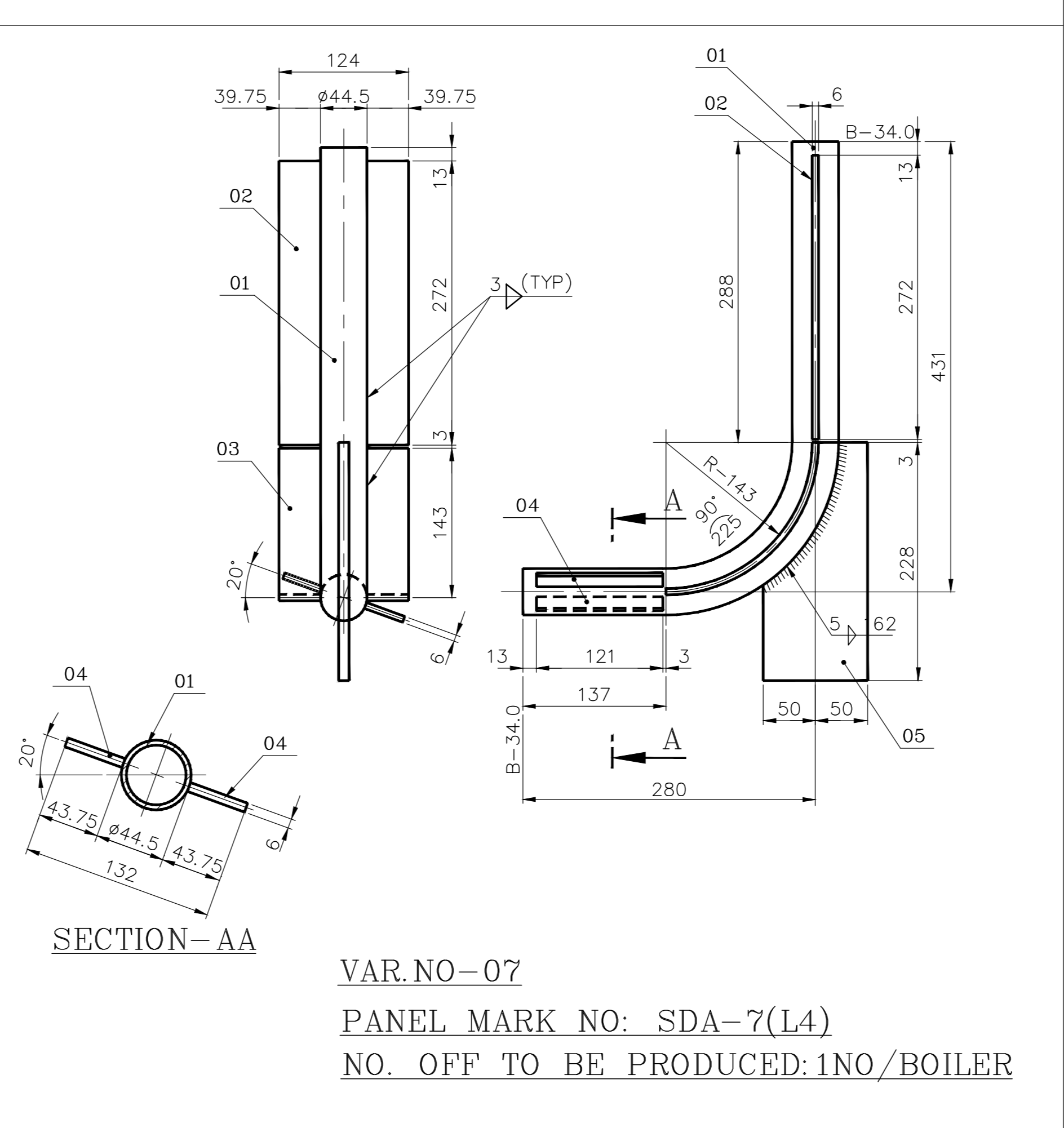
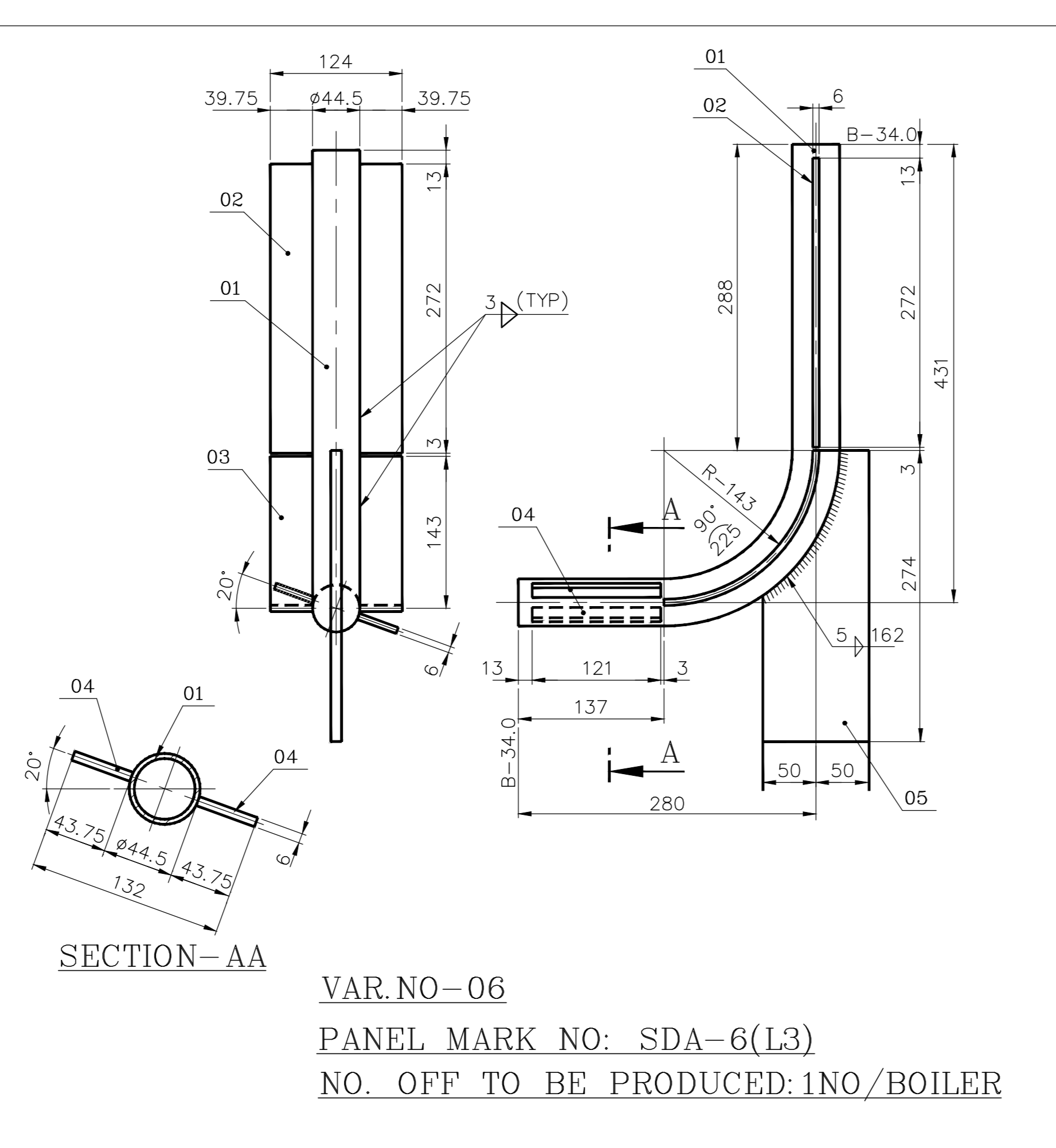
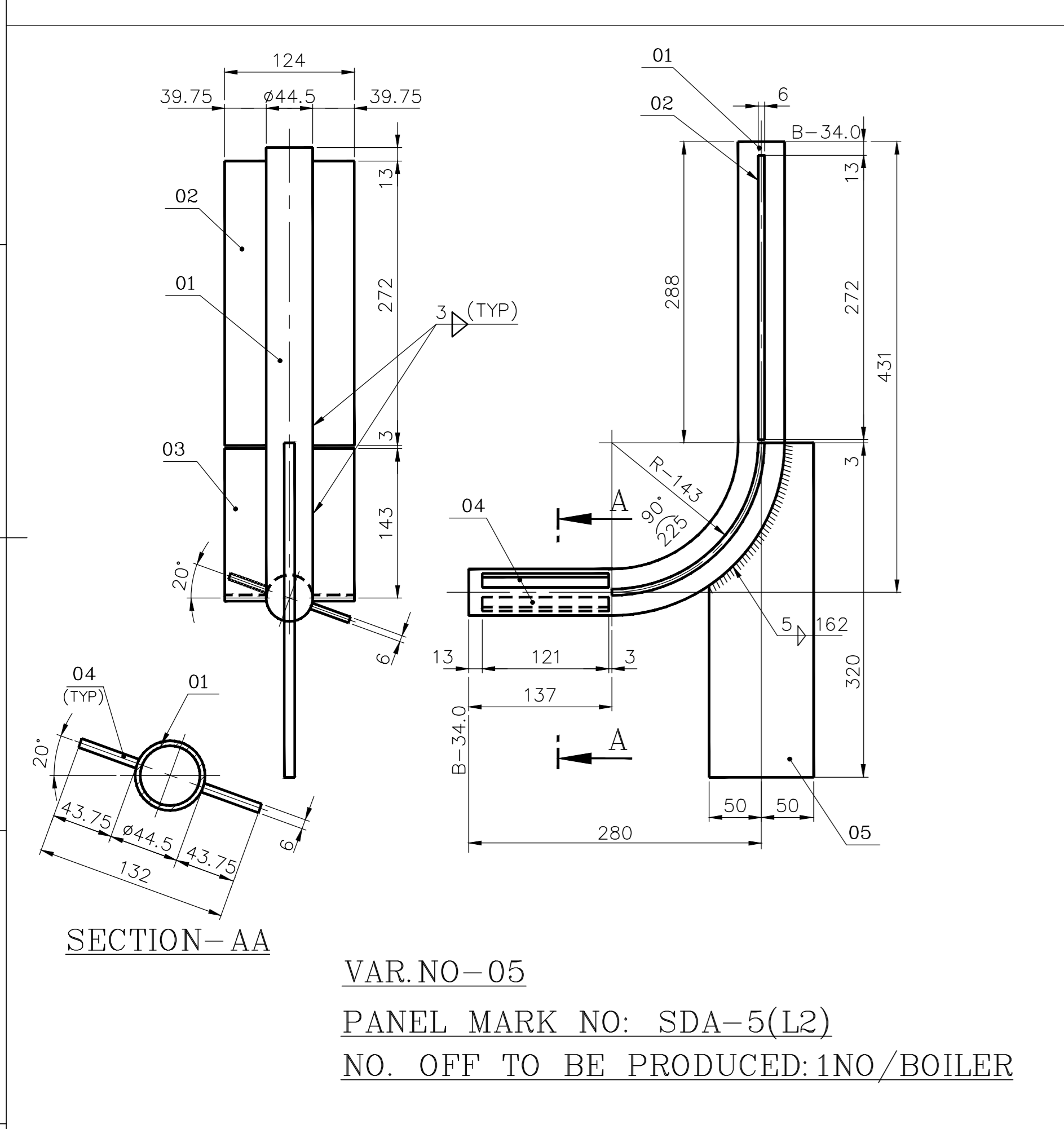
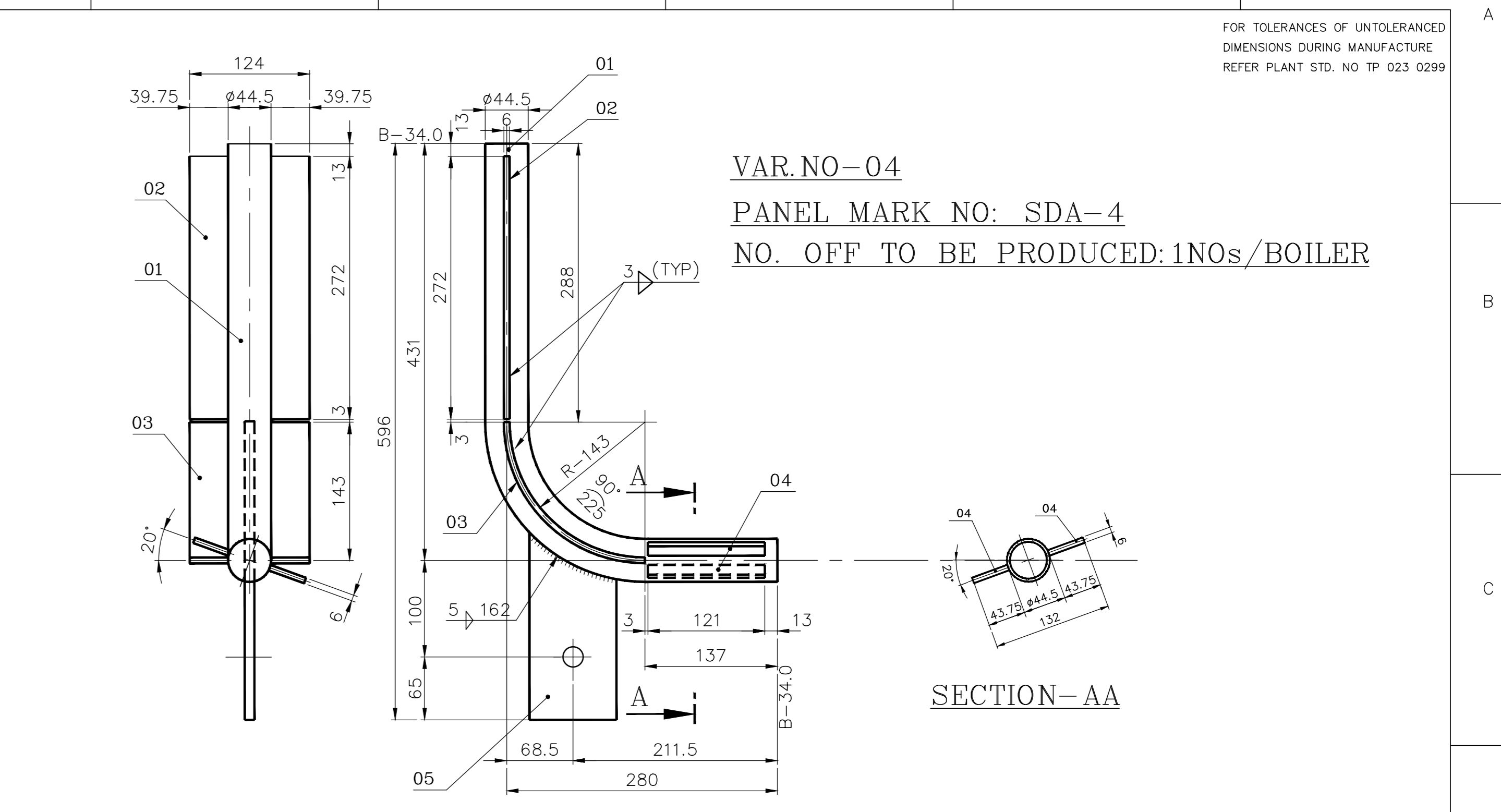
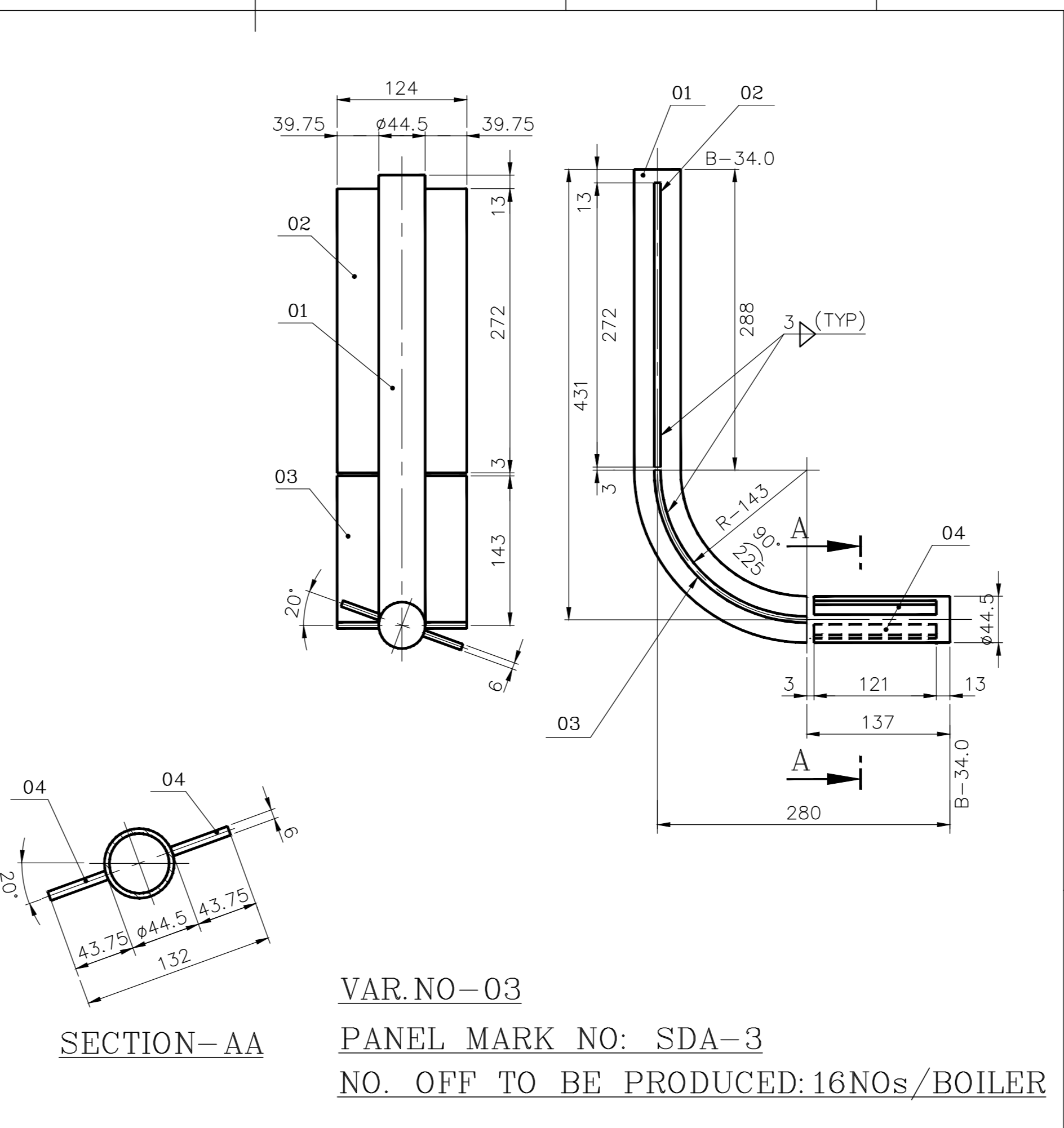
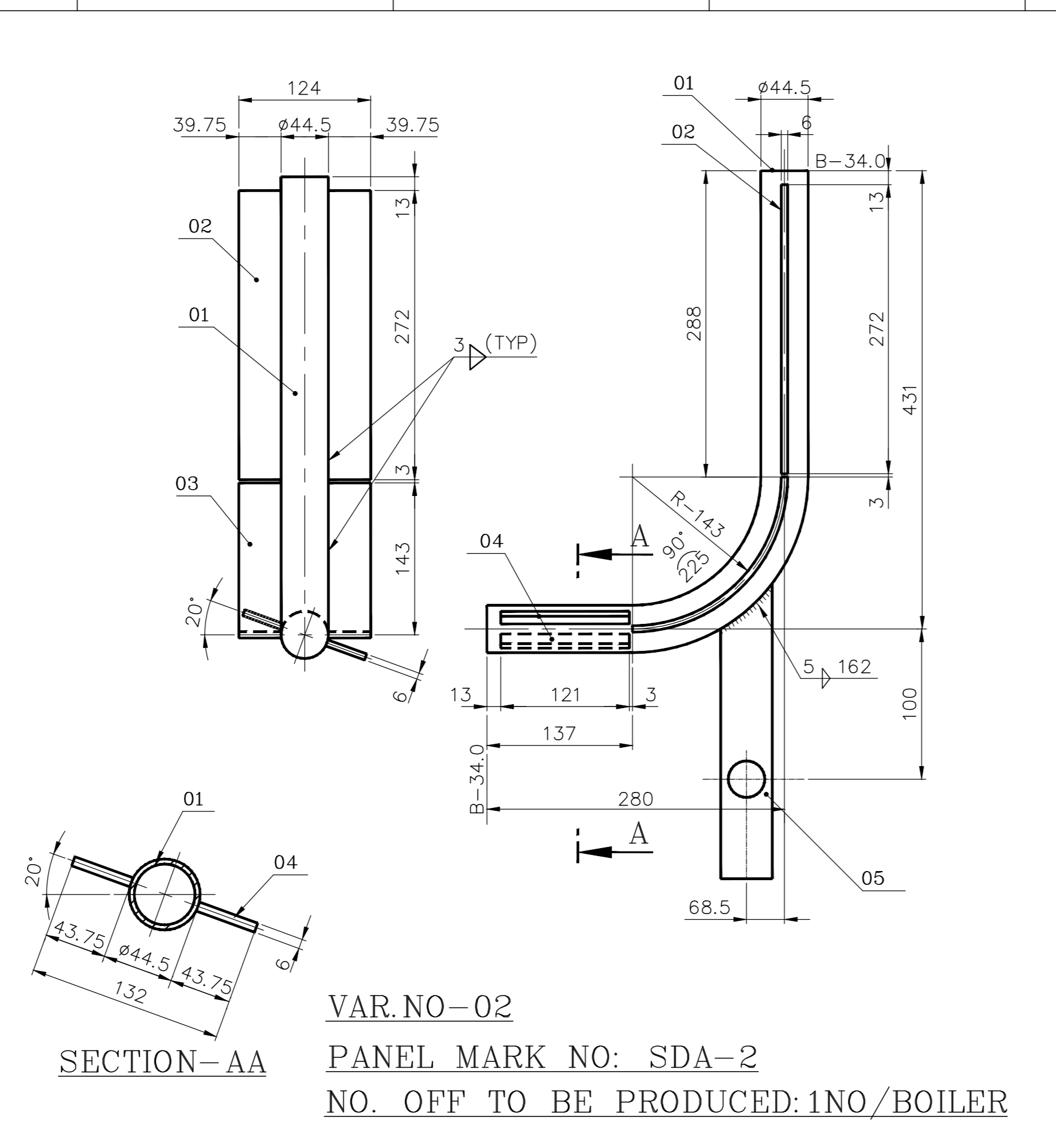
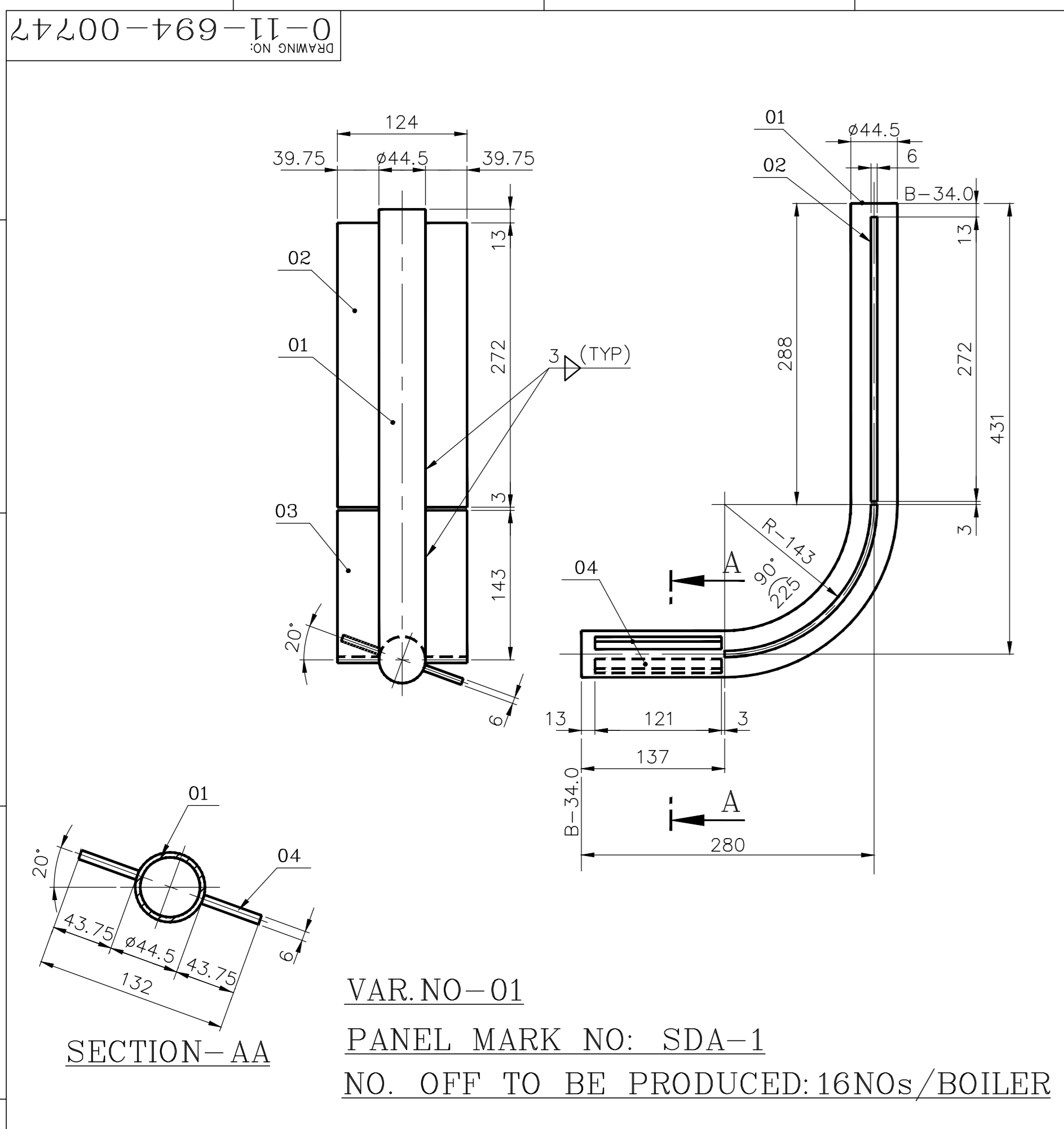
VAR.NO-08
PANEL MARK NO: SCSL-8
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

VARIANT NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO.	MATERIAL CODE	UNIT	WEIGHT	QTY	ZONE
02	FIN FLAT 84x6X3898				15-908-464 A576 Gr.1015		54.000	16	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	15	
08	SCSL-8						1941.000	1	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	15	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	14	
07	SCSL-7						1815.200	1	
03	MAN HOLE DOOR OPENING TUBE D44.5x5	S	1-03-000-00007/05	03	SA 210 Gr.C ASSY		41.383	3	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	15	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	14	
06	SCSL-6						1939.349	1	
03	SOOT BLOWER OPENING (LH) TUBE D44.5x5	S	6106-2060/04	06	SA 210 Gr.C ASSY		5.020	3	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	16	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	15	
05	SCSL-5						1830.260	1	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	16	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	15	
04	SCSL-4						1941.000	1	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	15	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	14	
03	SCSL-3						1815.200	1	
03	MAN HOLE DOOR OPENING TUBE D44.5x5	S	1-03-000-00007/05	03	SA 210 Gr.C ASSY		41.383	3	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	15	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	14	
02	SCSL-2						1939.349	1	
03	SOOT BLOWER OPENING (RH) TUBE D44.5x5	S	6106-2060/04	05	SA 210 Gr.C ASSY		5.020	3	
02	FIN FLAT 84x6X13898				15-908-464 A576 Gr.1015		54.000	15	
01	TUBE D44.5X5.0; 13898 LONG.				15-487-011 SA 210 Gr.C		71.800	14	
01	SCSL-1						1830.260	1	

REV	DATE	ALTERED	BY	REASON
01	25.05.10	CHD & APPD	M.ANVARALI	

CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. It must not be disclosed, copied, or reproduced in any form without the written consent of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014
DESIGNER	M.ANVARALI
CHECKER	M.ANVARALI
DATE	05.12.09
SCALE	N.T.S
PROJECTION	1ST ANGLE
WEIGHT (kg)	
REF TO ASSY / OLD DWG	0-11-683-00573
TITLE	SH SIDE WALL PANEL LOWER
DRAWING NO	0-11-683-00749



NOTES:
 01. DESIGN, MANUFACTURE AND INSPECTION AS PER I.B.R.
 02. DESIGN PRESSURE : 162.1 KG/SQ.CM(G).
 03. DESIGN TEMPERATURE : 386°C(358°C+28°C).
 04. HEAT TREATMENT AS PER I.B.R.
 05. BUTT WELD EDGE PREPN. AS PER TP: 062-05-99.
 06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP.

ITEM NO	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	QTY	UNIT WEIGHT	ZONE
05	LUG PLATE	4-11-694-02862		15-942-110	SA 515 GR.70	1	2.150	
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
07/10	SDA-7/SDA-10					1	8.020	
05	LUG PLATE	4-11-694-02861		15-942-110	SA 515 GR.70	1	2.580	
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
06/09	SDA-6/SDA-9					1	8.450	
05	LUG PLATE	4-11-694-02860		15-942-110	SA 515 GR.70	1	3.000	
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
05/08	SDA-5/SDA-8					1	8.870	
05	LUG PLATE	4-11-694-02866		15 011 098	IS2062FE410WA	1	1.400	
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
02/04	SDA-2/SDA-4					1	7.270	
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
01/03	SDA-1/SDA-3					1	5.870	

REV	DATE	ALTERED BY	DESCRIPTION	SCALE	WEIGHT (kg)	REV TO ASSY / OLD ENG
01	16.5.12	CHD & APPD. ANVARALI		N.T.S	---	0-11-694-00575

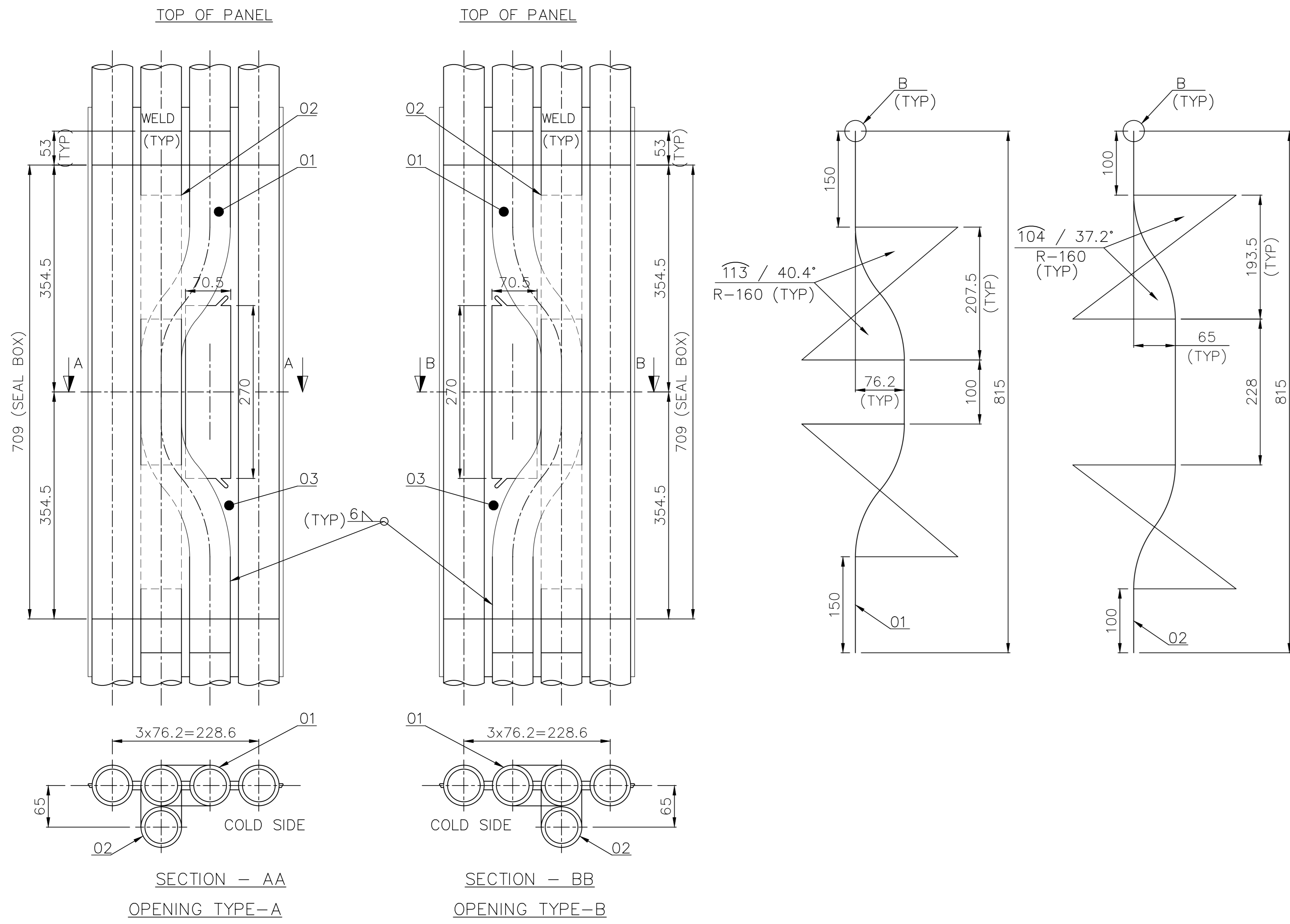
ITEM NO	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	QTY	UNIT WEIGHT	ZONE
04	SAW CUT FIN 6X43.75X121	4-11-694-02864		15-011-092	IS2062FE410WA	2	0.240	
03	SAW CUT FIN 6X39.75X225	4-11-694-02865/01		15-011-092	IS2062FE410WA	2	0.420	
02	SAW CUT FIN 6X39.75X272	4-11-694-02863		15-011-092	IS2062FE410WA	2	0.500	
01	TUBE D44.5X5.0; 650 LONG			15-487-011	SA 210 GR.C	1	3.550	
01/03	SDA-1/SDA-3					1	5.870	

FINNED TUBES

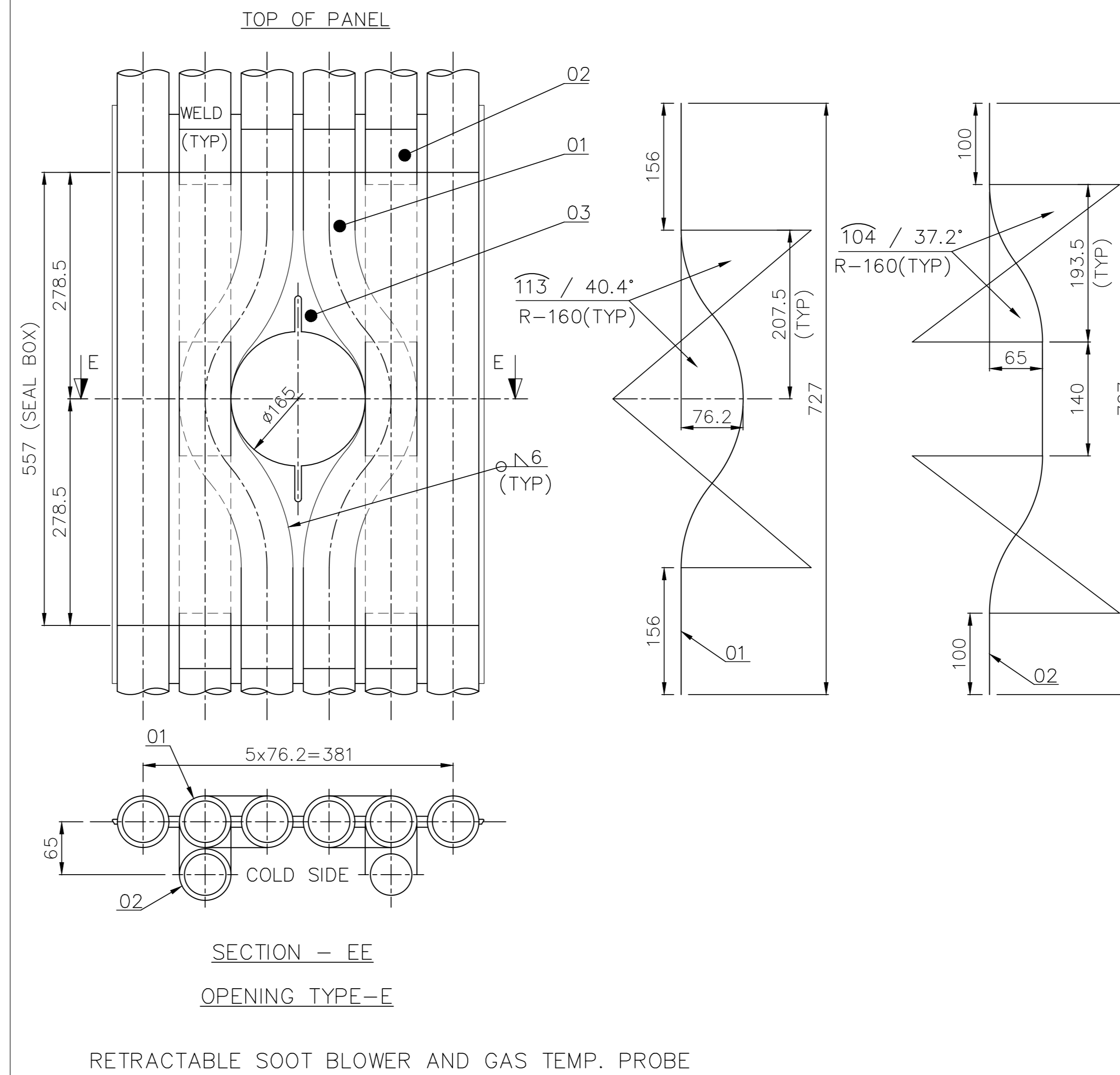
0-11-694-00747 01

6608n-000-90-1
ON 5N1WY8G

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299

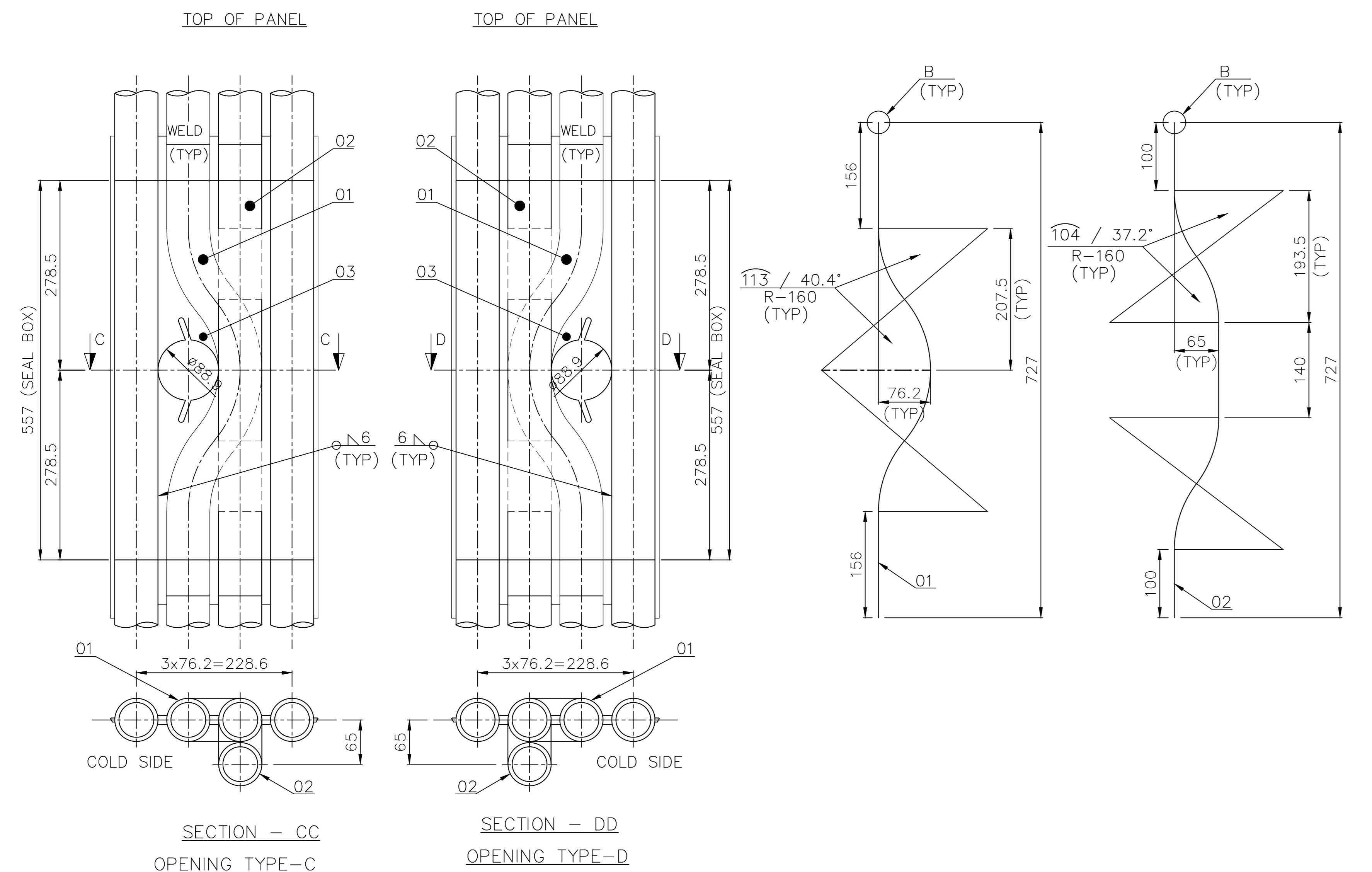
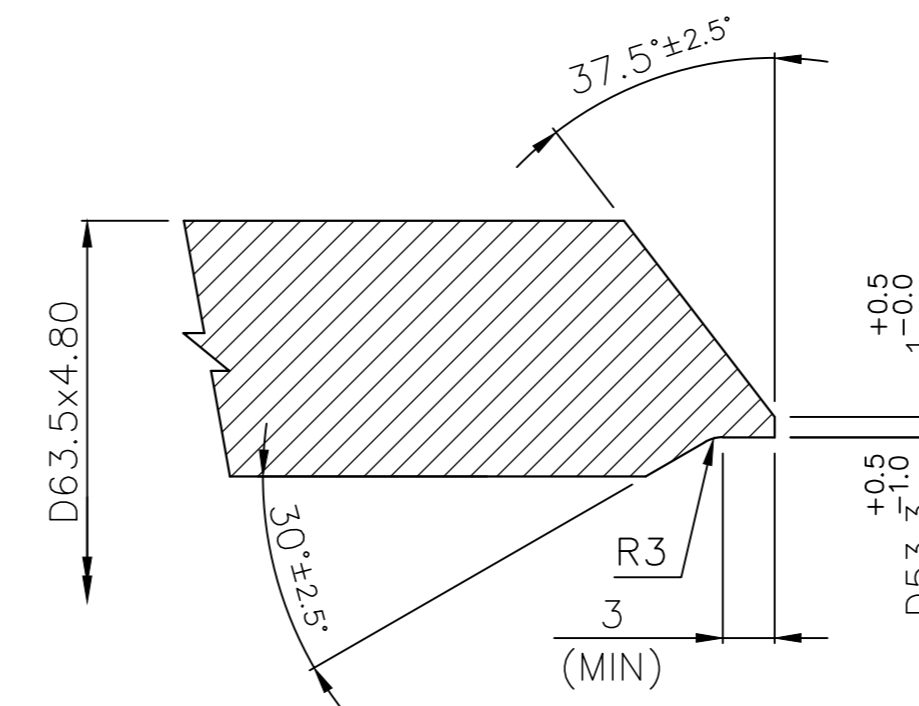


FOR 101.5x254 & 101.5x50 OBS DOOR AND INSTRUMENT INSERTS



NOTES:-

01. DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
02. FOR DESIGN PARAMETER REFER ASSEMBLY DRAWING.
03. FINS SHALL BE WELDED TO TUBES FROM HOT SIDE ONLY UNLESS OTHERWISE SPECIFIED.
04. EDGE PREPARATION OF TUBE ENDS INDICATED IN CONTRACT DRAWINGS.
05. TOLERANCE UNLESS OTHERWISE SPECIFIED; LINEAR :- ±1.5mm AND ANGULAR:- ±1°.
06. CUT OUT AREAS TO BE GROUND FLUSH WITH THE SURFACE OF THE TUBE. DO NOT UNDERCUT THE TUBES.
07. ROD DIA 6 TO BE CUT TO REQUIRED LENGTH FROM ITEM NO.04 OF EACH ASSY. AND TO BE WELDED TO FIN ONLY FROM HOT SIDE TO CLOSE THE VOID SUITABLY.
08. FIN (ITEM NO.03) TO BE CUT APART SHOWN AFTER WELDING IN PLACE.



FOR WALL BLOWER

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	UNIT WEIGHT	QTY	ZONE
04	ROD D6; 700 LONG				15 004 026 0000		0.100		
					IS 2062 GR.A		01		
03	PL. 6; 80x90				15 211 092 0000		0.330		
					IS 2062 GR.A		01		
02	PIPE D63.5x6.3; 756 LONG				AA1049046200	A	7.100		
					SA 210 GR.C		02		
01	PIPE D63.5x6.3; 764 LONG				AA1049046200	A	7.200		
					SA 210 GR.C		02		
05	TYPE-E OPENING				ASSY.		29.030		
							01		
04	ROD D6; 350 LONG				15 004 026 0000		0.078		
					IS 2062 GR.A		01		
03	PL. 6; 80x90				15 211 092 0000		0.330		
					IS 2062 GR.A		01		
02	PIPE D63.5x6.3; 756 LONG				AA1049046200	A	7.100		
					SA 210 GR.C		01		
01	PIPE D63.5x6.3; 764 LONG				AA1049046200	A	7.200		
					SA 210 GR.C		01		
04	TYPE-D OPENING				ASSY.		14.708		
							01		
04	ROD D6; 504 LONG				15 004 026 0000		0.078		
					IS 2062 GR.A		01		
03	PL. 6; 80x90				15 211 092 0000		0.330		
					IS 2062 GR.A		01		
02	PIPE D63.5x6.3; 756 LONG				AA1049046200	A	7.100		
					SA 210 GR.C		01		
01	PIPE D63.5x6.3; 764 LONG				AA1049046200	A	7.200		
					SA 210 GR.C		01		
03	TYPE-C OPENING				ASSY.		14.708		
							01		
04	ROD D6; 504 LONG				15 004 026 0000		0.100		
					IS 2062 GR.A		01		
03	PL. 6; 80x80				15 211 092 0000		0.300		
					IS 2062 GR.A		02		
02	PIPE D63.5x6.3; 844 LONG				AA1049046200	A	8.000		
					SA 210 GR.C		01		
01	PIPE D63.5x6.3; 852 LONG				AA1049046200	A	8.100		
					SA 210 GR.C		01		
02	TYPE-B OPENING				ASSY.		16.800		
							01		
04	ROD D6; 504 LONG				15 004 026 0000		0.100		
					IS 2062 GR.A		01		
03	PL. 6; 80x80				15 211 092 0000		0.300		
					IS 2062 GR.A		02		
02	PIPE D63.5x6.3; 844 LONG				AA1049046200	A	8.000		
					SA 210 GR.C		01		
01	PIPE D63.5x6.3; 852 LONG				AA1049046200	A	8.100		
					SA 210 GR.C		01		
01	TYPE-A OPENING				ASSY.		16.800		
							01		

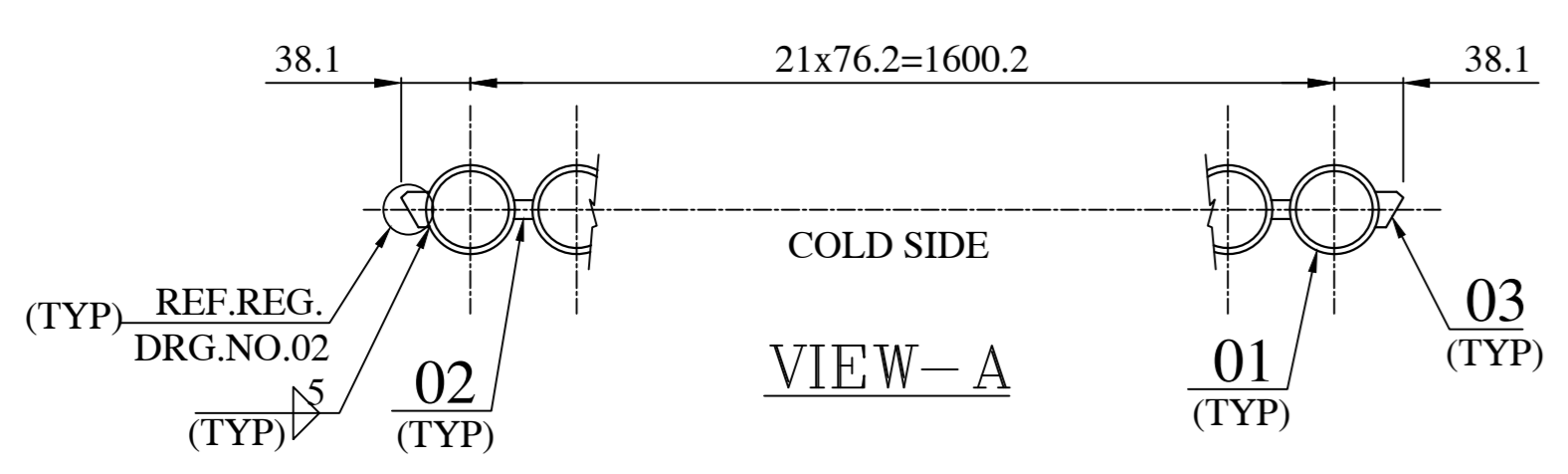
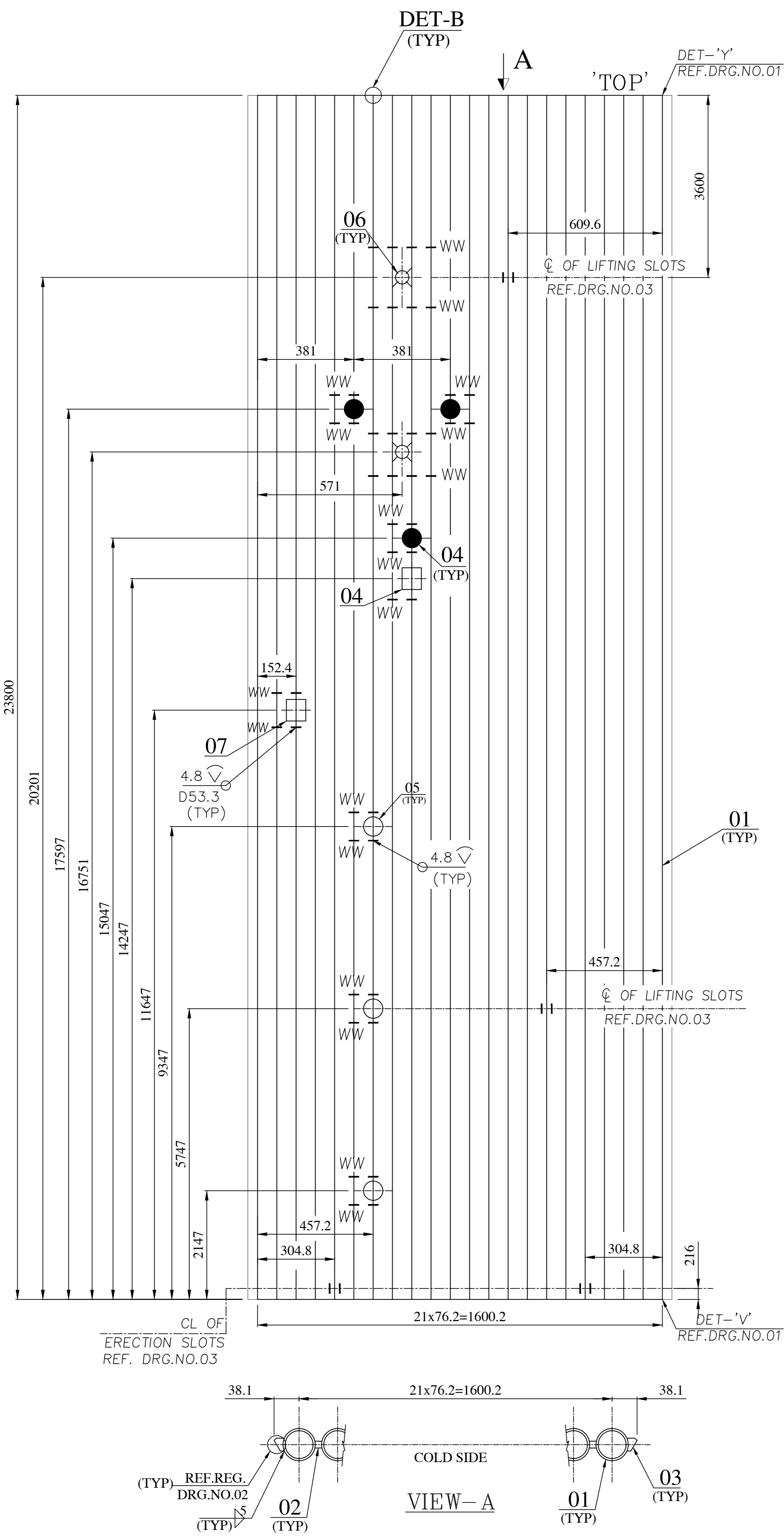
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DEPT HTE	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (kg)
CODE 320			N.T.S	--

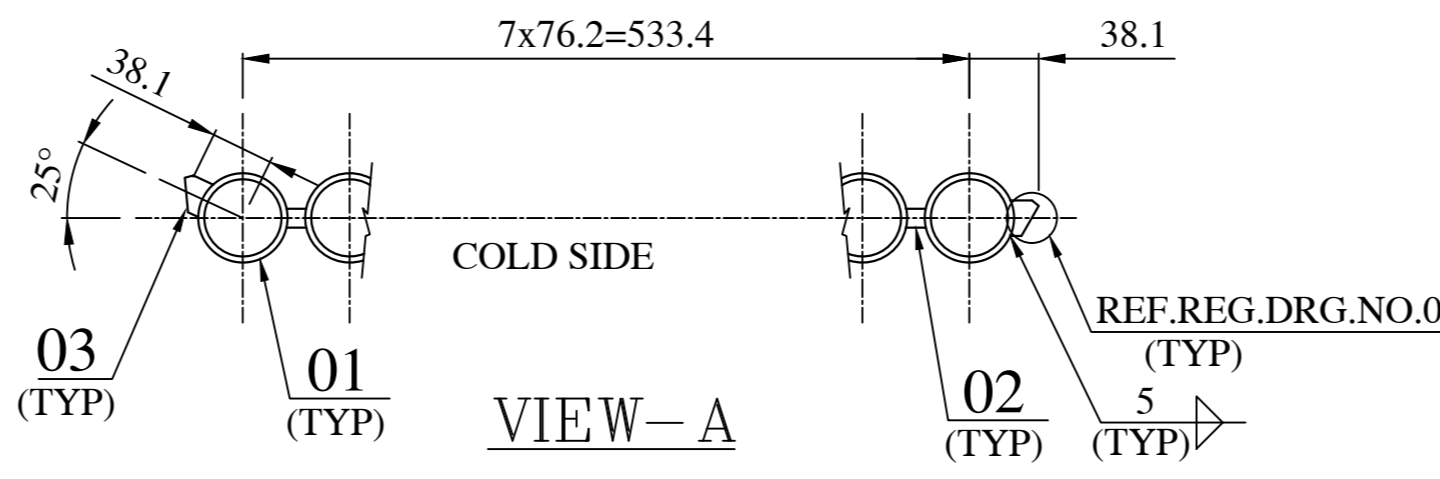
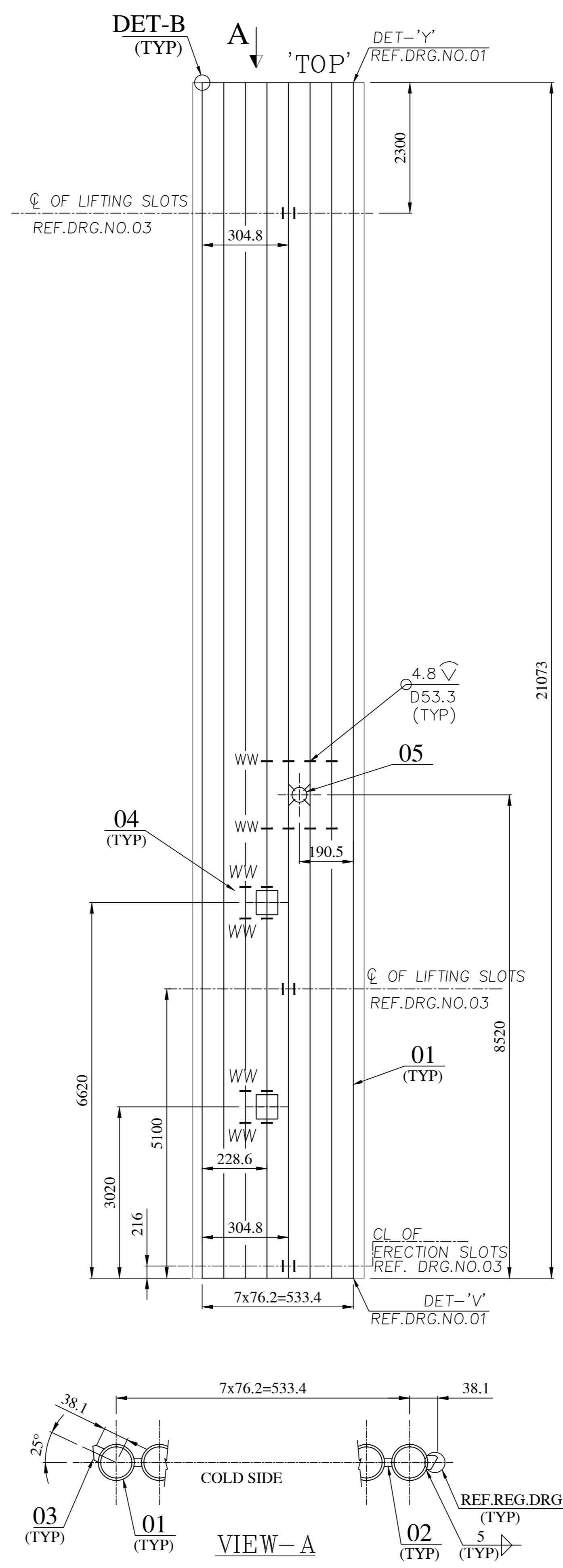
TITLE: CUTOUT OPENING

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136
Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012	DRN RAJU CHD ANVK KISHORE APPD K TARAKESH
DATE: 20-11-2025	DATE: 17-12-2025
DATE: 20-12-2025	DATE: 20-12-2025
REF TO ASSY / OLD DWG	REF TO ASSY / OLD DWG
1-06-000-01043/03	1-06-000-U8095

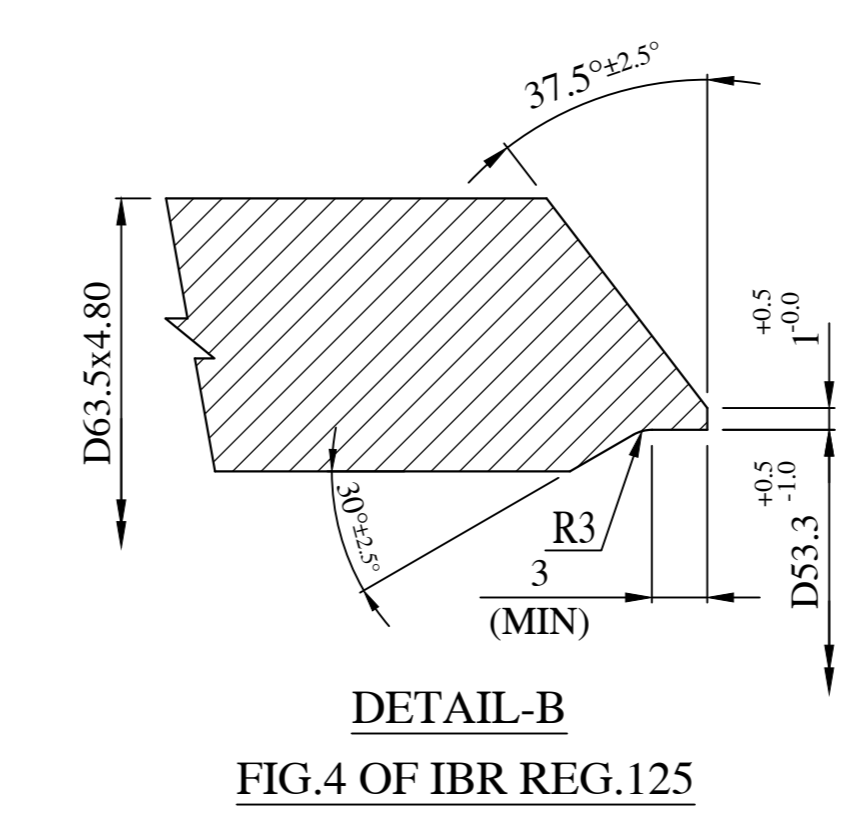
REV 01 DATE ALTERED : CHD & APPD :



VAR. NO. 01
 MARK NO. "USP-11"
 NO. OF TO BE PRODUCED = 1 No./BOILER



VAR. NO. 02
 MARK NO. "USP-12"
 NO. OF TO BE PRODUCED = 1 No./BOILER

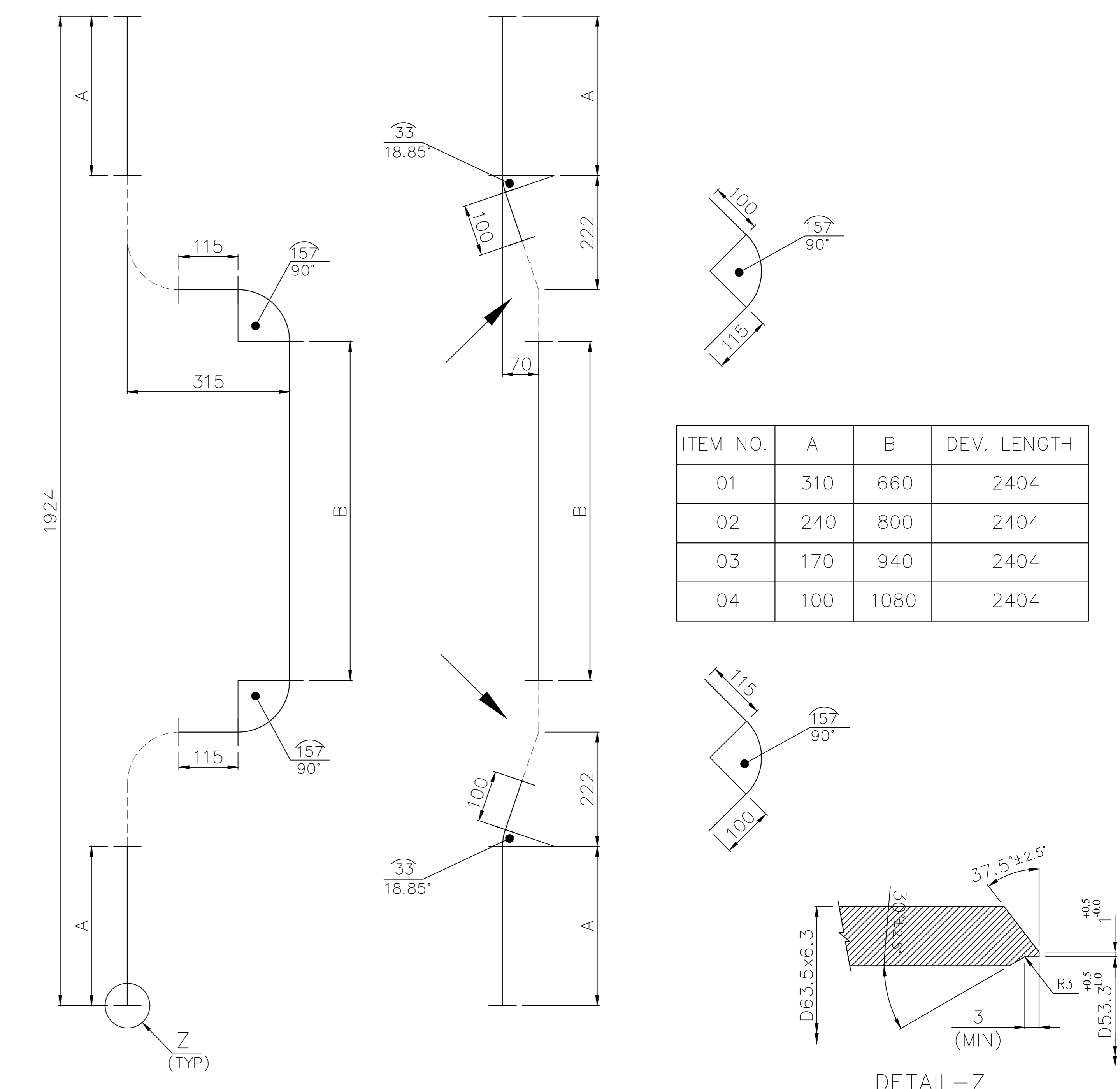
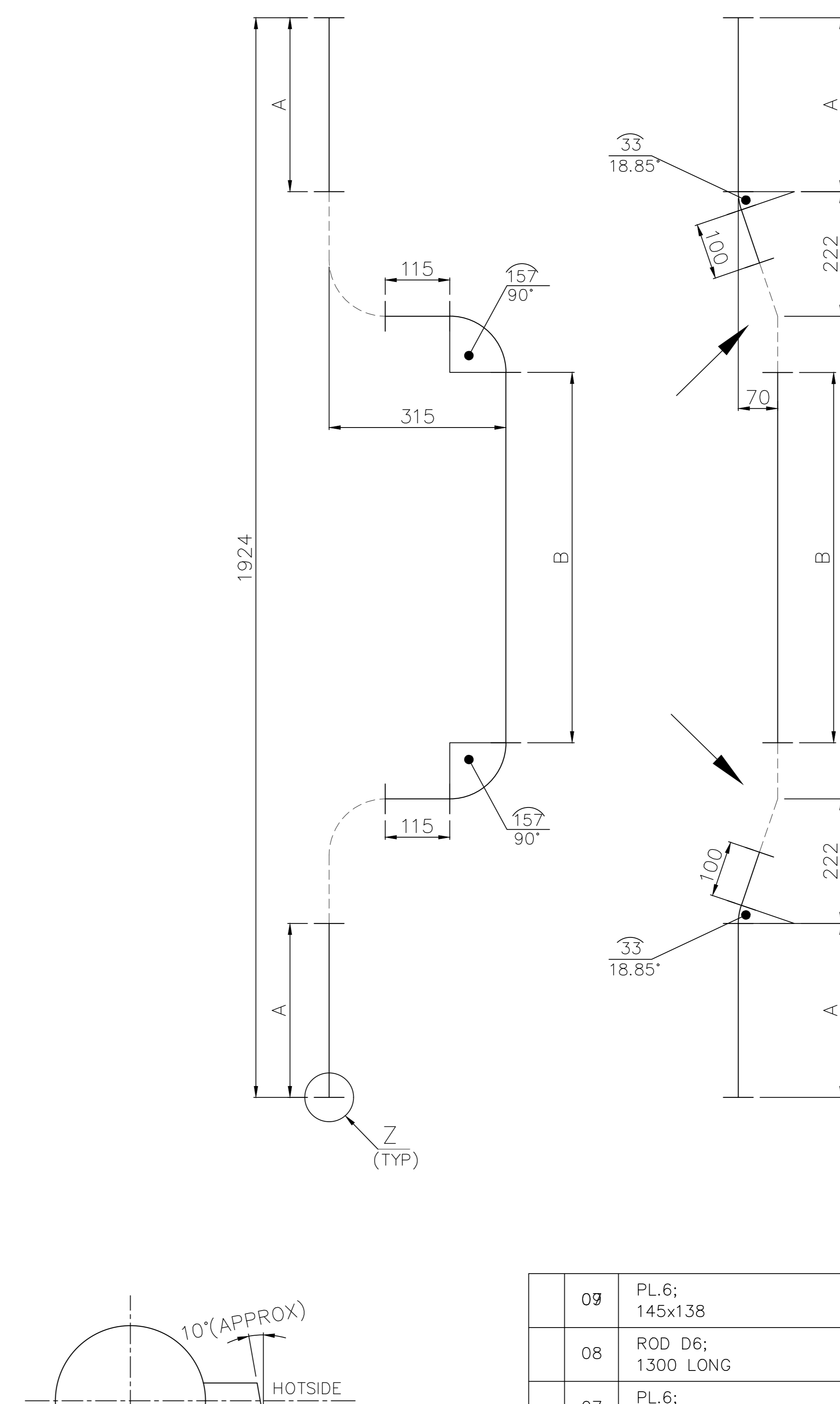
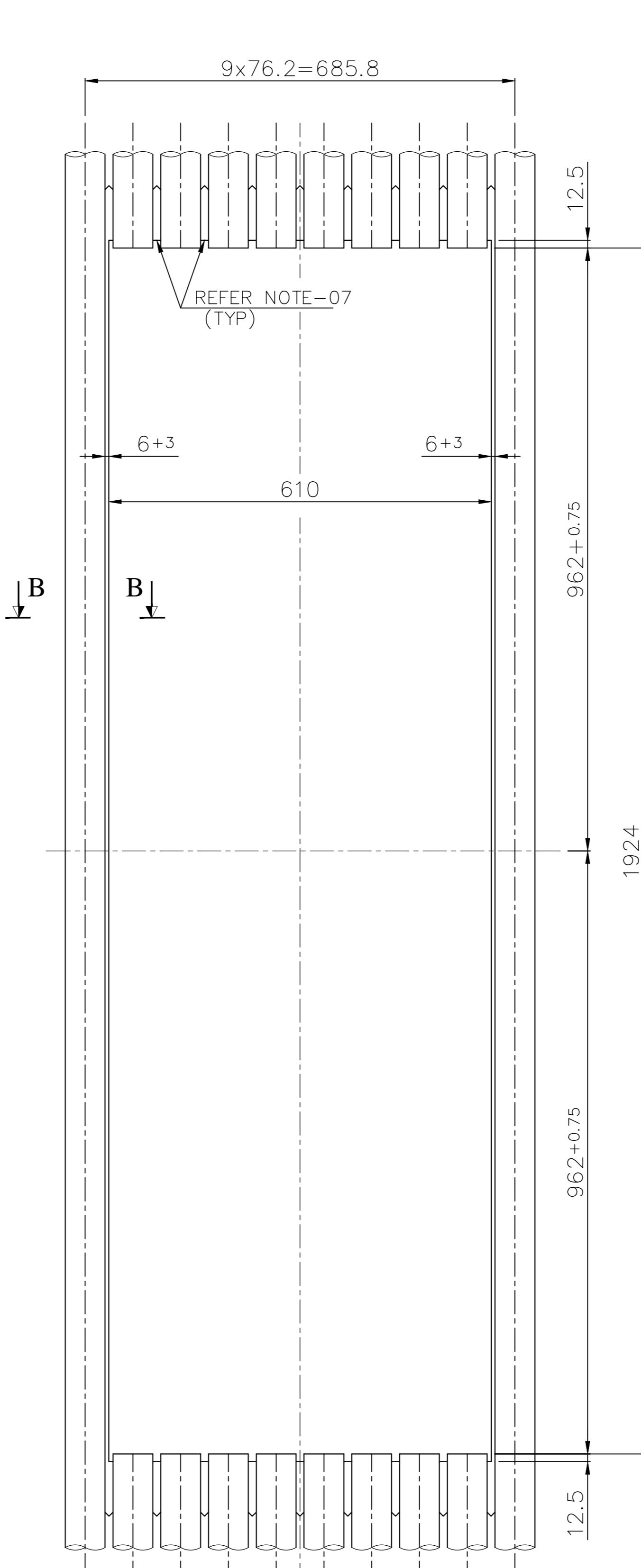
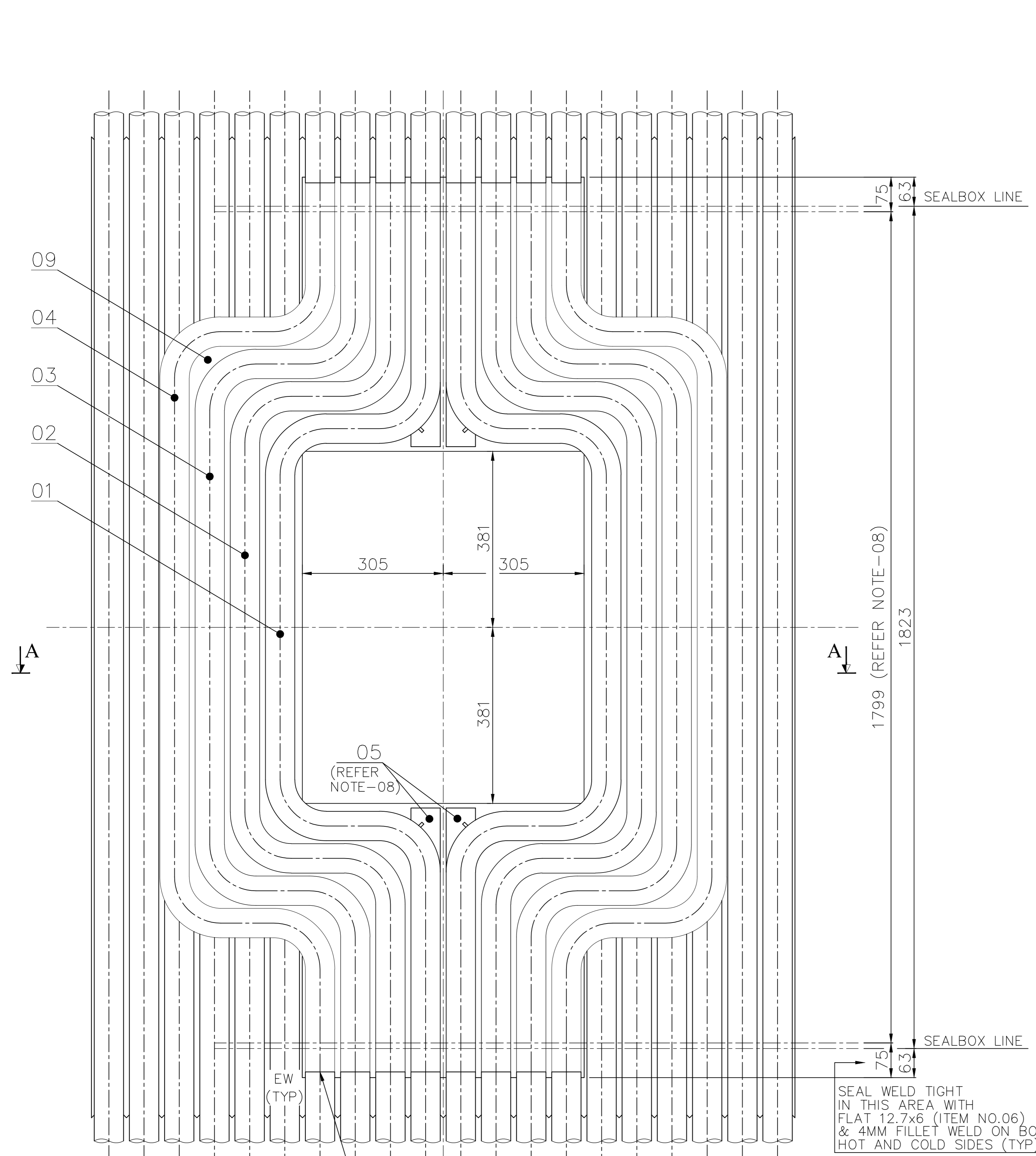


- NOTES: -
- DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE : 166.8 Kg/cm²(g).
 - DESIGN TEMPERATURE : 376°C.
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
 - PAINT THE WORD "TOP" AND "MARK NO." NEAR THE TOP END OF THE PANEL ON COLD SIDE.
 - ERECTION SLOTS CAN BE SHIFTED BY ONE OR TWO PITCHES ON EITHER SIDE AT SHOP IF IT INTERFERES WITH OPENING.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.
 - TUBE ENDS ARE TO BE CAPPED BEFORE DESPATCH.
 - SHRINKAGE ALLOWANCE FOR FINS IN LENGTH IS NOT INDICATED FINS.
 - TO BUILT-UP IN LENGTH BY HAVING OPTIONAL WELD AS PER DETAIL-B.
 - FOR SHOP WELDING "REFER RELEVANT WPS".

- REF. DRGS. :-
- PANEL FABRICATION TOLERANCE FOR FUSION WELDED PANEL : 1-03-000-00039.
 - EDGE PREPARATION DETAIL FOR EDGE BAR : 4-06-634-00441.
 - ERECTION SLOTS & LIFTING SLOTS : 6106 - 5010; DETAIL-C

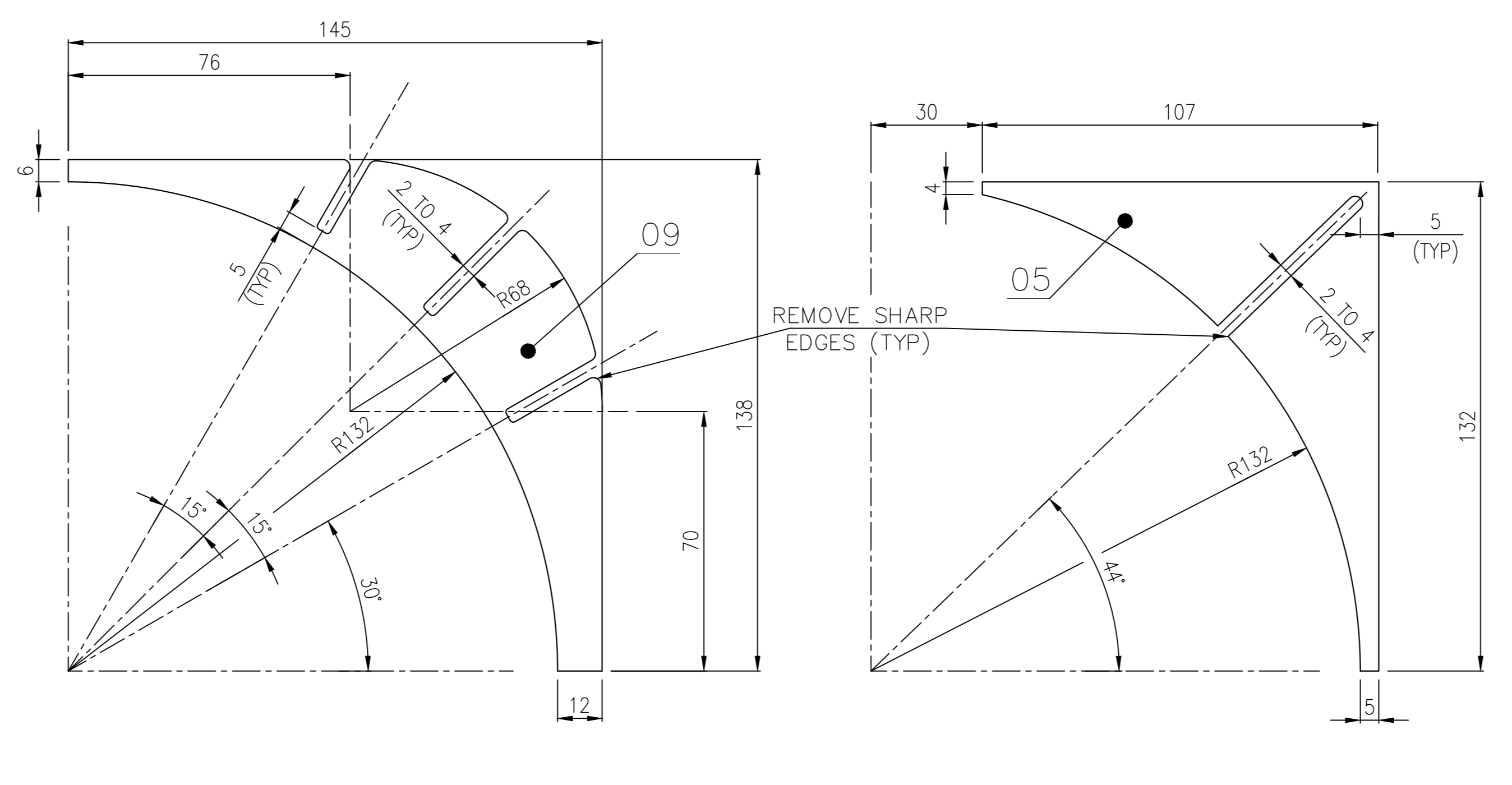
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO. VAR NO.	MATERIAL CODE MATERIAL SPECN	UNIT DI	UNIT WEIGHT QUANTITY	ZONE
	05	CUT OUT OPENING (TYP-E) FOR SOOT BLOWER		1-06-000-U8095	05	SA 210 GR.C	A	29.030 01	
	04	CUT OUT OPENING (TYP-A) FOR OBD		1-06-000-U8095	01	SA 210 GR.C	A	15.800 02	
	03	FLAT 12.7x6 21073 LONG				15 008 283 0000 IS 2062 GR.A		6.300 02	
	02	FIN FLAT 13.5x6 21073 LONG				15 908 528 0000 A576 GR1015		13.400 07	
	01	TUBE D63.5x4.80 21073 LONG				AA1049048032 SA 210 GR.C	A	155.800 08	
	02	USP-12						1413.430 01	
	07	CUT OUT OPENING (TYP-A) FOR OBS DOOR		1-06-000-U8095	01	SA 210 GR.C	A	15.800 01	
	06	CUT OUT OPENING (TYP-E) FOR SOOT BLOWER		1-06-000-U8095	05	SA 210 GR.C	A	29.030 02	
	05	CUT OUT OPENING (TYP-D) FOR WALL BLOWER		1-06-000-U8095	04	SA 210 GR.C	A	14.708 03	
	04	CUT OUT OPENING (TYP-A) FOR OBD/INST.		1-06-000-U8095	01	SA 210 GR.C	A	15.800 04	
	03	FLAT 12.7x6 23800 LONG				15 008 283 0000 IS 2062 GR.A		7.100 02	
	02	FIN FLAT 13.5x6 23800 LONG				15 908 528 0000 A576 GR1015		15.100 21	
	01	TUBE D63.5x4.80 23800 LONG				AA1049048032 SA 210 GR.C	A	175.900 22	
	01	USP-11						4382.284 01	

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It is to be used directly or indirectly in any way detrimental to the interest of the company.	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136	
	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		NAME RAJU	DATE 17-11-2025
	DEPT: HTE CODE: 320		DRN ANVK KISHORE	APPD K TARAKESH
	TITLE UPPER SIDE WW PANEL		REF TO ASSY / OLD DWG 1-06-651-01190/02	
REV 01	DATE CHD & APPD :	DRAWING NO : 1-06-651-U8092		REV 00



ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	UNIT WEIGHT	QTY	ZONE
09	PL.6; 145x138			15 211 092 0000	IS 2062 GR.A	L	0.500	24	E
08	ROD D6; 1300 LONG			15 004 026 0000	IS 2062 GR.A	L	0.300	01	E
07	PL.6; 250x250			15 211 092 0000	IS 2062 GR.A	L	3.000	01	E
06	FIN FLAT 12.7x6; 7000 LONG			15 008 283 0000	IS 2062 GR.A	L	4.200	01	E
05	PL.6; 107x132			15 211 092 0000	IS 2062 GR.A	L	0.220	04	E
04	TUBE D63.5x6.3 2404 LONG			AA1049046200	SA 210 GR.C	A L	22.700	02	F
03	TUBE D63.5x6.3 2404 LONG			AA1049046200	SA 210 GR.C	A L	22.700	02	F
02	TUBE D63.5x6.3 2404 LONG			AA1049046200	SA 210 GR.C	A L	22.700	02	F
01	TUBE D63.5x6.3 2404 LONG			AA1049046200	SA 210 GR.C	A L	22.700	02	F

- NOTES: -
- DESIGN MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE : 166.8 kg/cm²(g)
 - DESIGN TEMPERATURE : 376°C
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
 - RADIUS OF BEND : 100
 - TOLERANCE UNLESS OTHERWISE SPECIFIED.
LINEAR : ±1.5MM
ANGULAR : ±1°
 - CUT OUT AREAS SHOULD BE GROUND FLUSH WITH THE SURFACE OF THE TUBES. DO NOT UNDERCUT TUBES.
 - ALL VOIDS MORE THAN 6MM GAP SHOULD BE SUITABLY FILLED UP WITH FLAT 12.7x6, PLATE 6 AND ROD 6 (ITEM NOS. 05 TO 09). EACH FLAT/PLATE/ROD SHOULD BE ATTACHED TO ONE TUBE & ON ONE SIDE ONLY WITH A 6MM FILLET WELD. THE SAME SHOULD NOT BE WELDED TO TWO ADJOINING TUBES.
 - TUBE AND PIPE OF HIGHER THICKNESS/SUPERIOR SPECIFICATION ARE ACCEPTABLE.
 - QUANTITY TO BE PRODUCED : 2 NOS.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.



REV	DATE	ALTERED :
01		CHD & APPD :

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136

Bharat Heavy Electricals Ltd
UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012

DRN	NAME	DATE
RAJU		01-12-2025
CHD	ANVK KISHORE	XX-12-2025
APPD	K TARAKESH	XX-12-2025

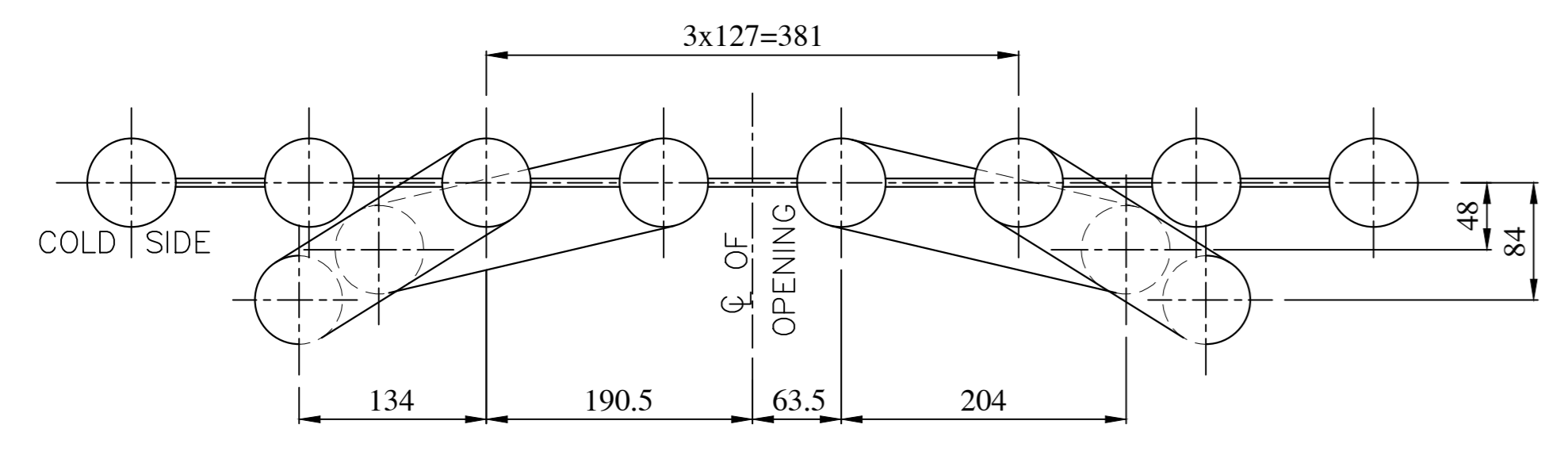
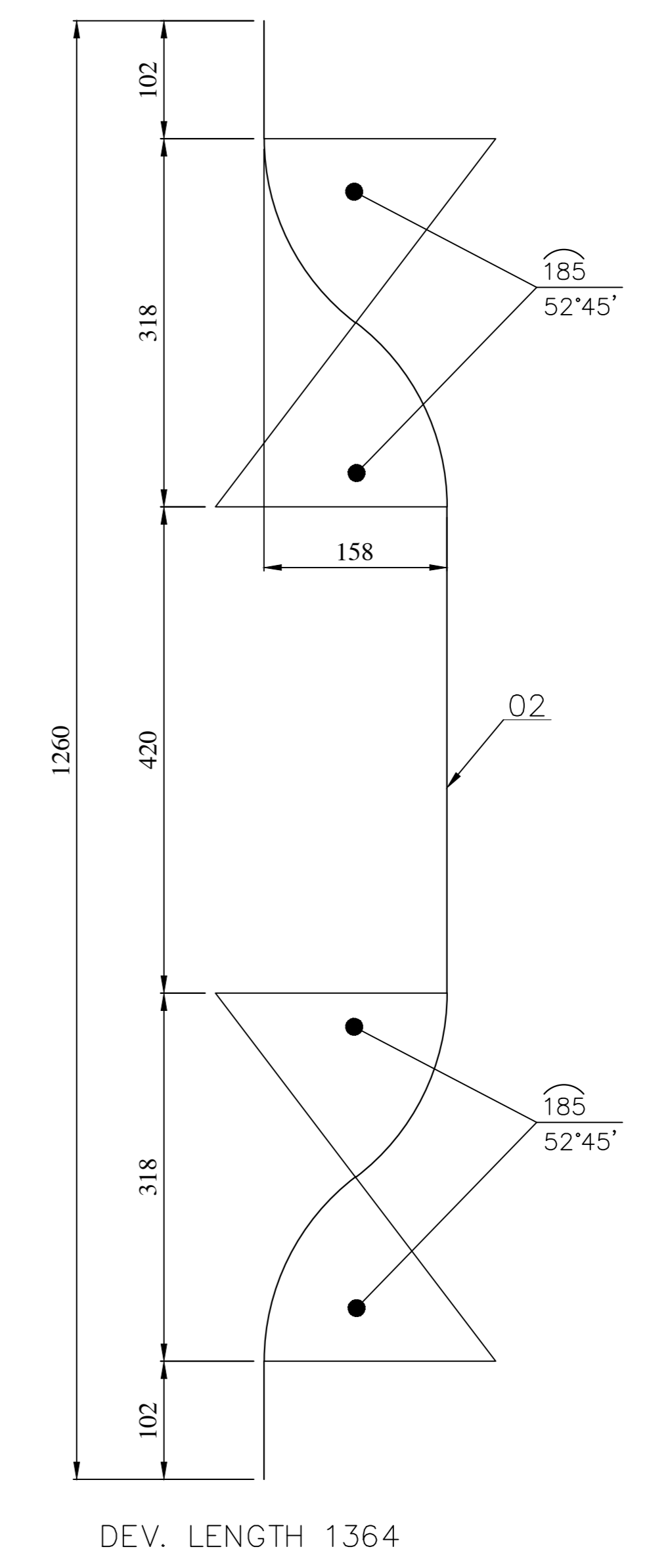
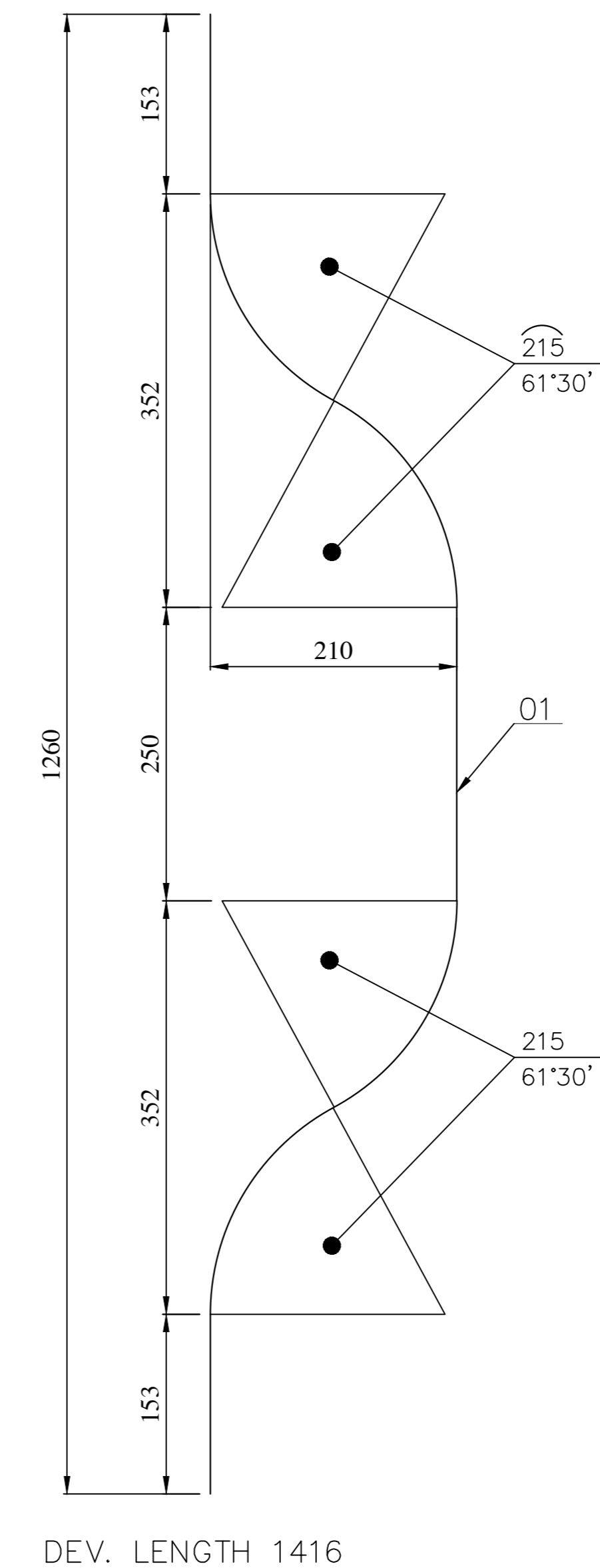
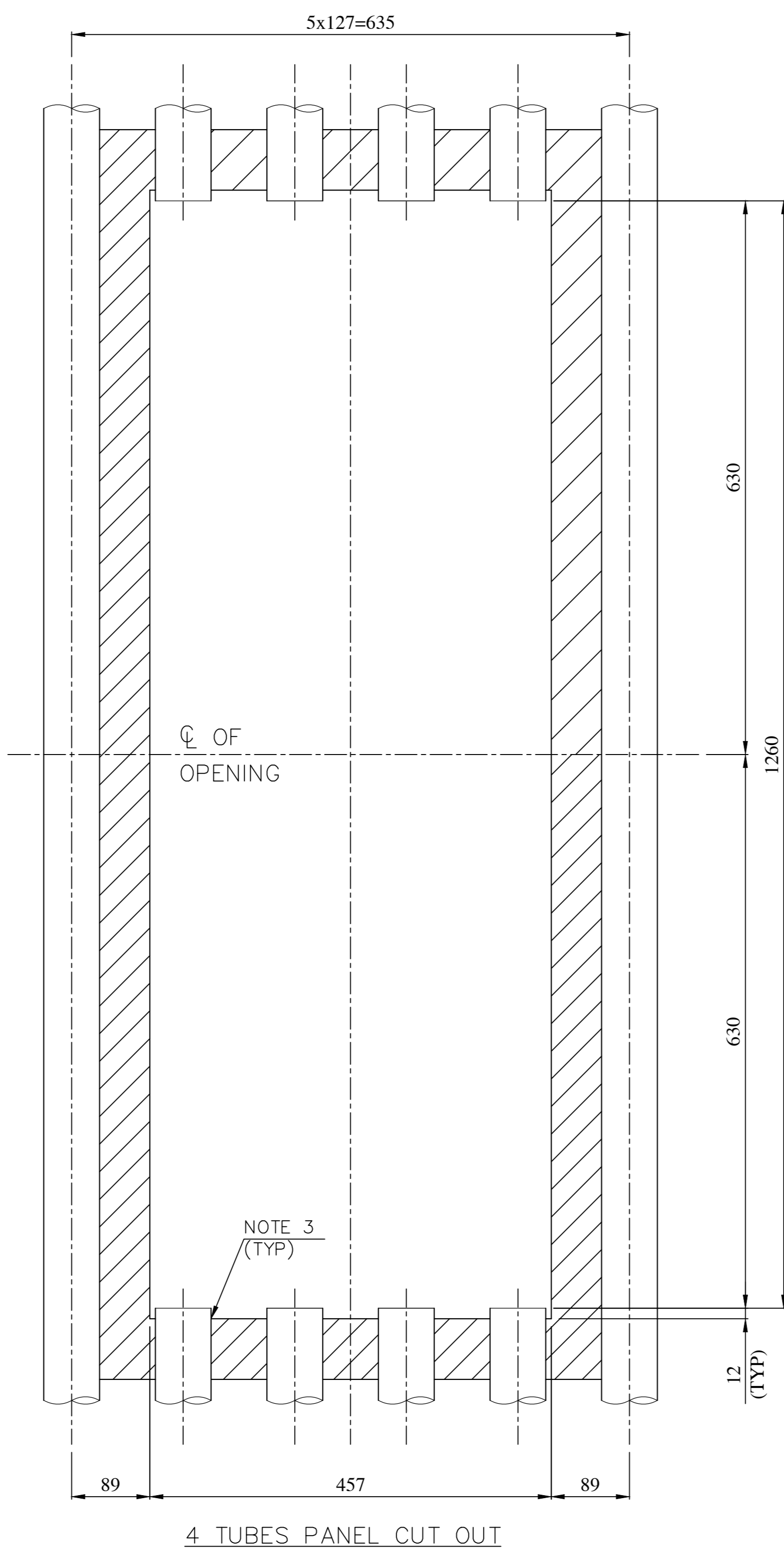
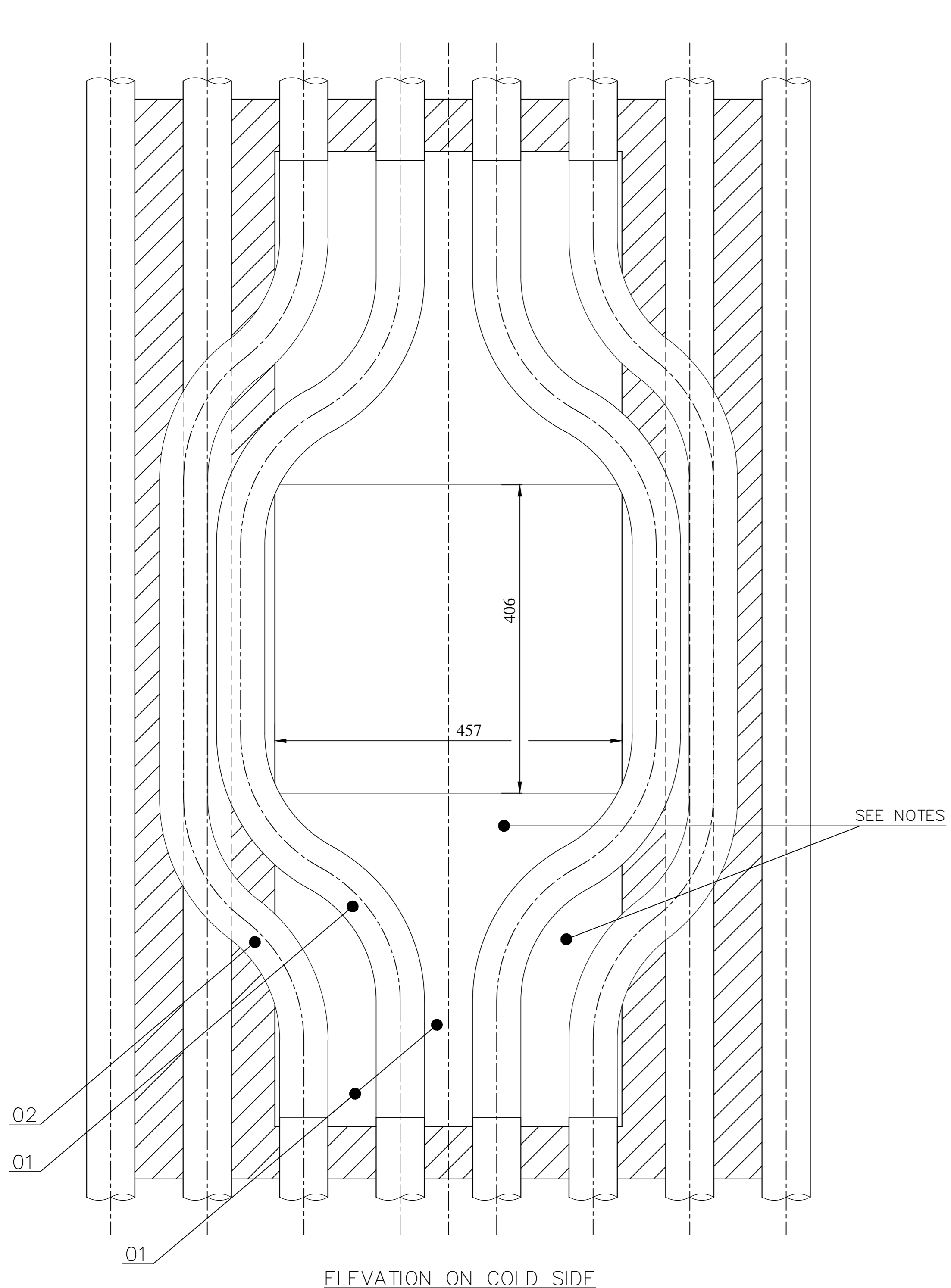
DEPT: HTE ALL DIMENSIONS ARE IN MM PROJECTION: N.T.S SCALE: REF TO ASSY / OLD DWG WEIGHT (Kg): 201.980

DRAWING NO: 1-06-655-01193

TITLE: ACCESS DOOR OPENING (610 x 762)

DRAWING NO: 1-06-655-U8094

REV: 00



ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	UNIT WEIGHT	QTY	ZONE
03	PL. 6; 300x1000			15 211 092 0000	IS 2062 GR.A		14.100	01	
02	TUBE D63.5x7.1; 1364 LONG			AA1049046226	SA 210 GR.A1	A	14.300	02	
03	01 TUBE D63.5x7.1; 1416 LONG			AA1049046226	SA 210 GR.A1	A	14.830	02	
03	PL. 6; 300x1000			15 211 092 0000	IS 2062 GR.A		14.100	01	
02	TUBE D63.5x6.3; 1364 LONG			AA1049046200	SA 210 GR.A1	A	12.900	02	
02	01 TUBE D63.5x6.3; 1416 LONG			AA1049046200	SA 210 GR.A1	A	13.360	02	
03	PL. 6; 300x1000			15 211 092 0000	IS 2062 GR.A		14.100	01	
02	TUBE D63.5x6.3; 1364 LONG			AA1049046200	SA 210 GR.A1	A	12.900	02	
01	01 TUBE D63.5x6.3; 1416 LONG			AA1049046200	SA 210 GR.A1	A	13.360	02	

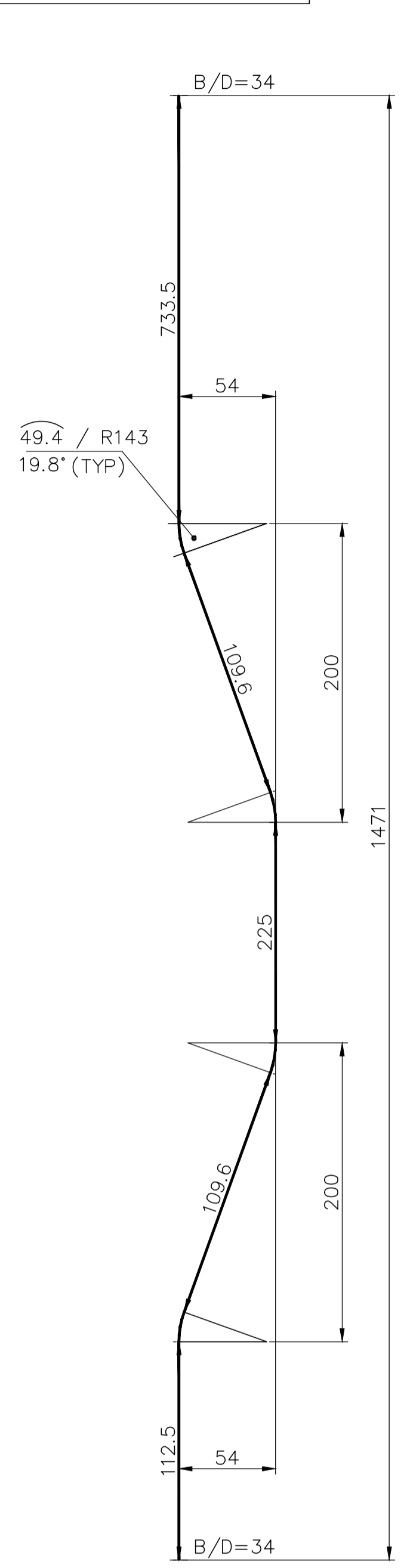
- NOTES: -**
- RADIUS OF BEND 200.
 - TOLERANCE UNLESS OTHERWISE SPECIFIED FRACTIONAL ±1.5mm AND ANGULAR ±1'.
 - CUT OUT AREA SHOULD BE GROUND FLUSH WITH THE SURFACE OF THE TUBES. DO NOT UNDER CUT THE TUBES.
 - FOR INSERT TUBE END SCAFFOLDING DETAILS REFER CONTRACT DRAWINGS.
 - FILL VOIDS OVER 6mm WITH FINS SUITABLY CUT FROM 6mm PLATE ISSUED UNDER ITEM NO.03.
 - FINS SHALL BE ATTACHED TO THE TUBES WITH A 6mm FILLET WELD. WELDING IS TO BE DONE ON HOT SIDE ONLY.
 - DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE AND DESIGN TEMPERATURE REFER ASSY. DRG.
 - MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

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	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012	NAME RAJU	DATE 21-11-2025
	DEPT HTE	CHD ANVK KISHORE	APPD K TARAKESH
	CODE 320	REF TO ASSY / OLD DWG 1-06-670-00413/03	REF TO ASSY / OLD DWG 1-06-670-U8093
TITLE ACCESS DOOR OPENING (437x406 TUBE D63.5 PITCH 127)		DRAWING NO : 1-06-670-U8093	
		REV 00	

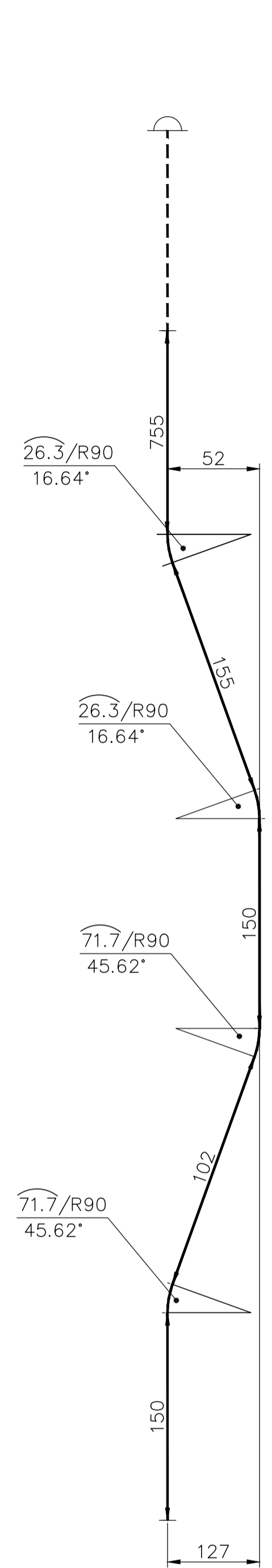
96920-389-11-11-683-02696
DRAWING NO.

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



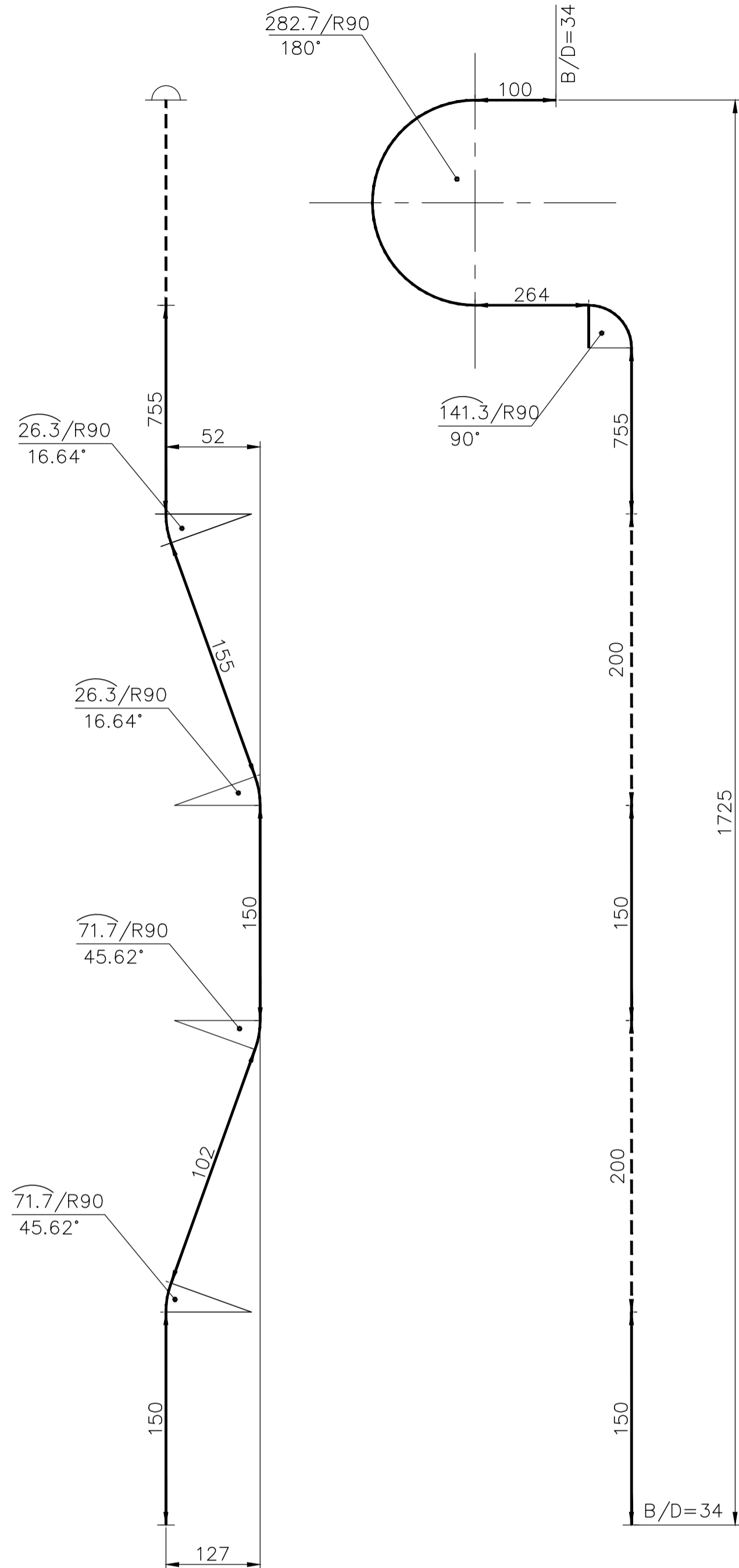
VAR.NO-01

NO.OFF TO BE MANUFACTURED: 2 NOS. /BOILER



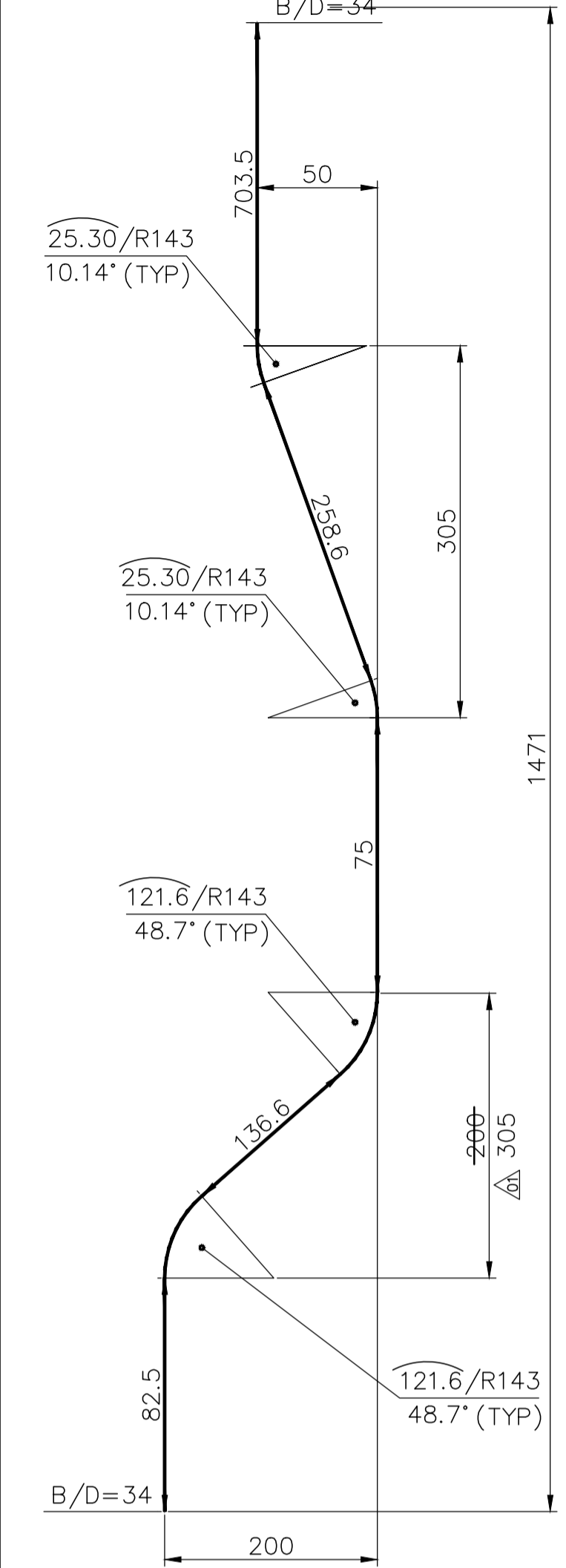
VAR.NO-02

NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER



VAR.NO-03

NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER



VAR.NO-04

NO.OFF TO BE MANUFACTURED: 2 NOS. /BOILER

NOTES:

01. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR
02. DESIGN PRESSURE :163 KG/SQ.CM (G)
03. DESIGN TEMPERATURE :387 °C (359°C+28°C)
04. HEAT TREATMENT AS PER IBR
05. EDGE PREPN AS PER : TP 062 05 99
06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	QUANTITY	ZONE
04	04	TUBE D44.5X5.0 1550 LONG			15 187 011	SA 210 Gr.C	A	8.000	
03	03	TUBE D44.5X5.0 2296 LONG			15 187 011	SA 210 Gr.C	A	11.800	
02	02	TUBE D44.5X5.0 2296 LONG			15 187 011	SA 210 Gr.C	A	11.800	
01	01	TUBE D44.5X5.0 1487.8 LONG			15 187 011	SA 210 Gr.C	A	7.600	

REV 01	DATE 25.06.11	ALTERED : B.SASI
ZONE		CHD & APPD : M.ANVARALI

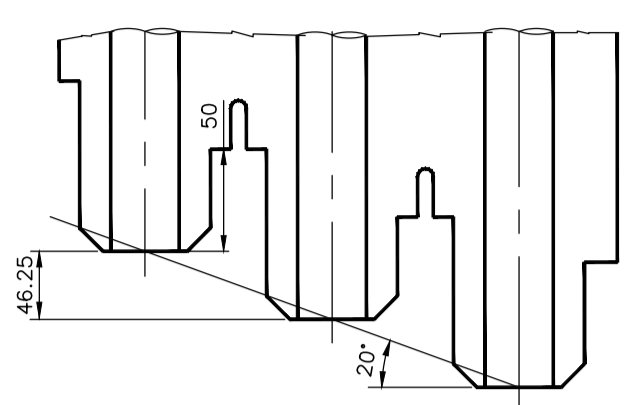
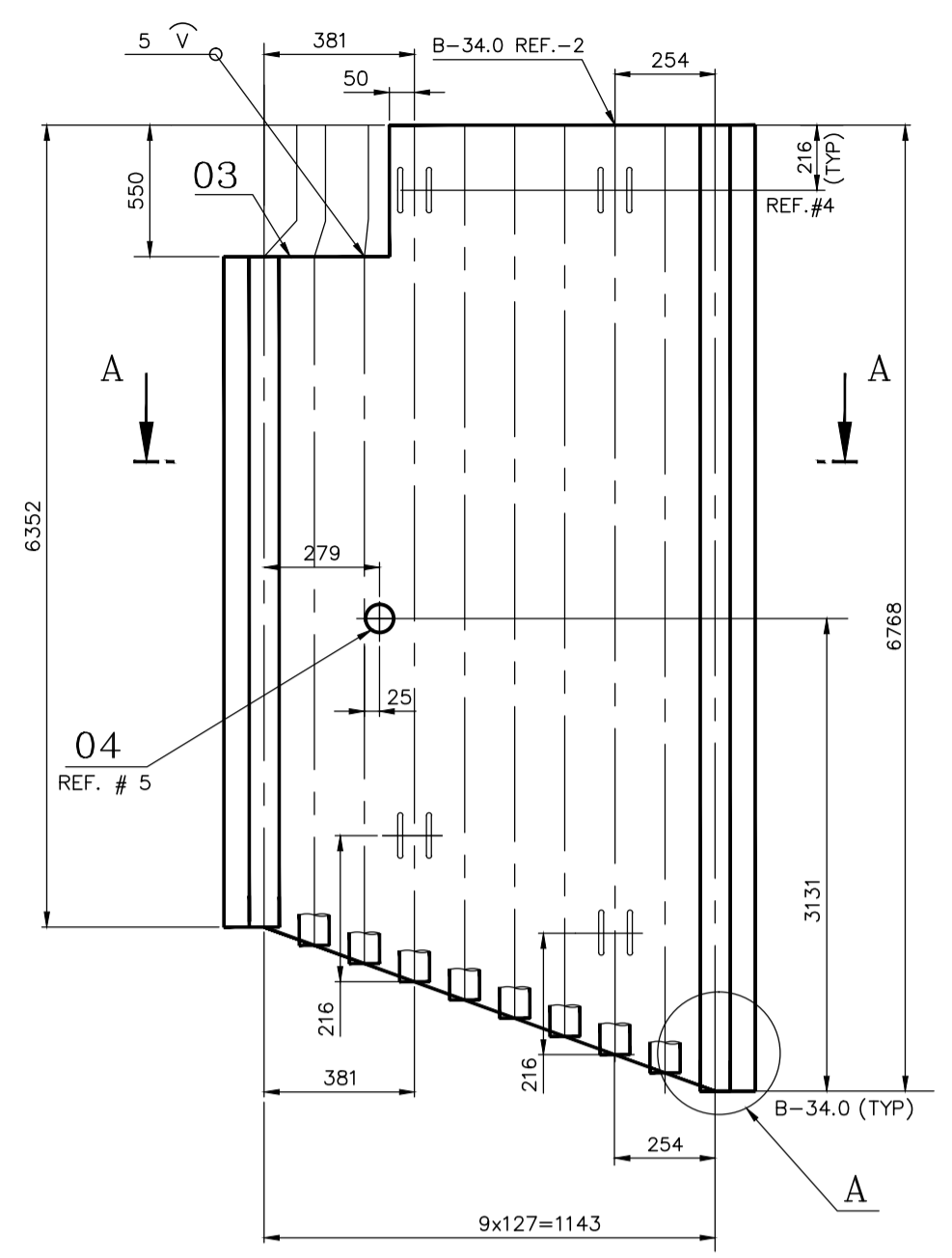
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way without the consent of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DRN	T.S.SAJIN	SIGNATURE	03.12.09
CHD	M.ANVARALI	SIGNATURE	04.12.09
APPD	M.ANVARALI	SIGNATURE	04.12.09
DEPT	PP	ALL DIMENSIONS ARE IN MM	PROJECTION
CODE	121	SCALE	NTS
TITLE	BENT TUBES		WEIGHT (Kg)
DRAWING NO :	1-11-683-02696		REV
			01

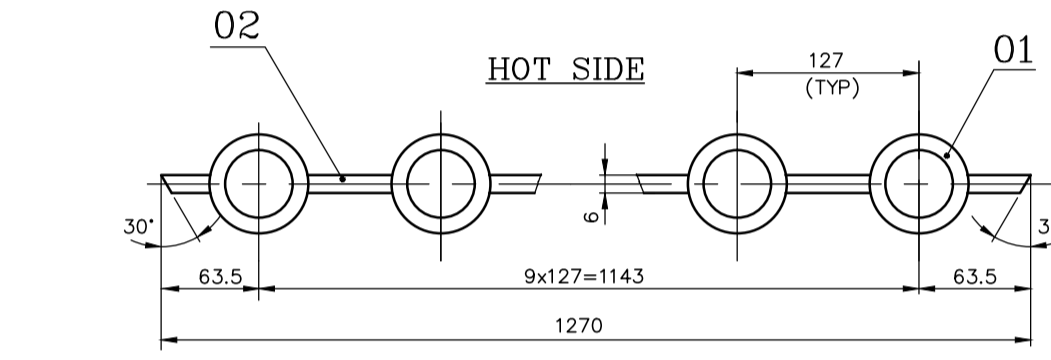


1-11-684-02692
ION DWY98

FOR TOLERANCES OF UNTOOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299

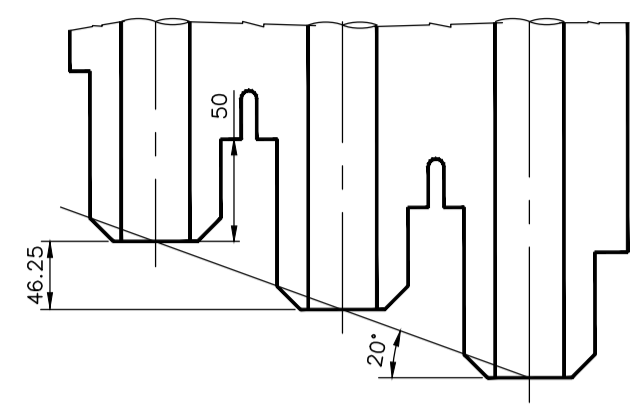
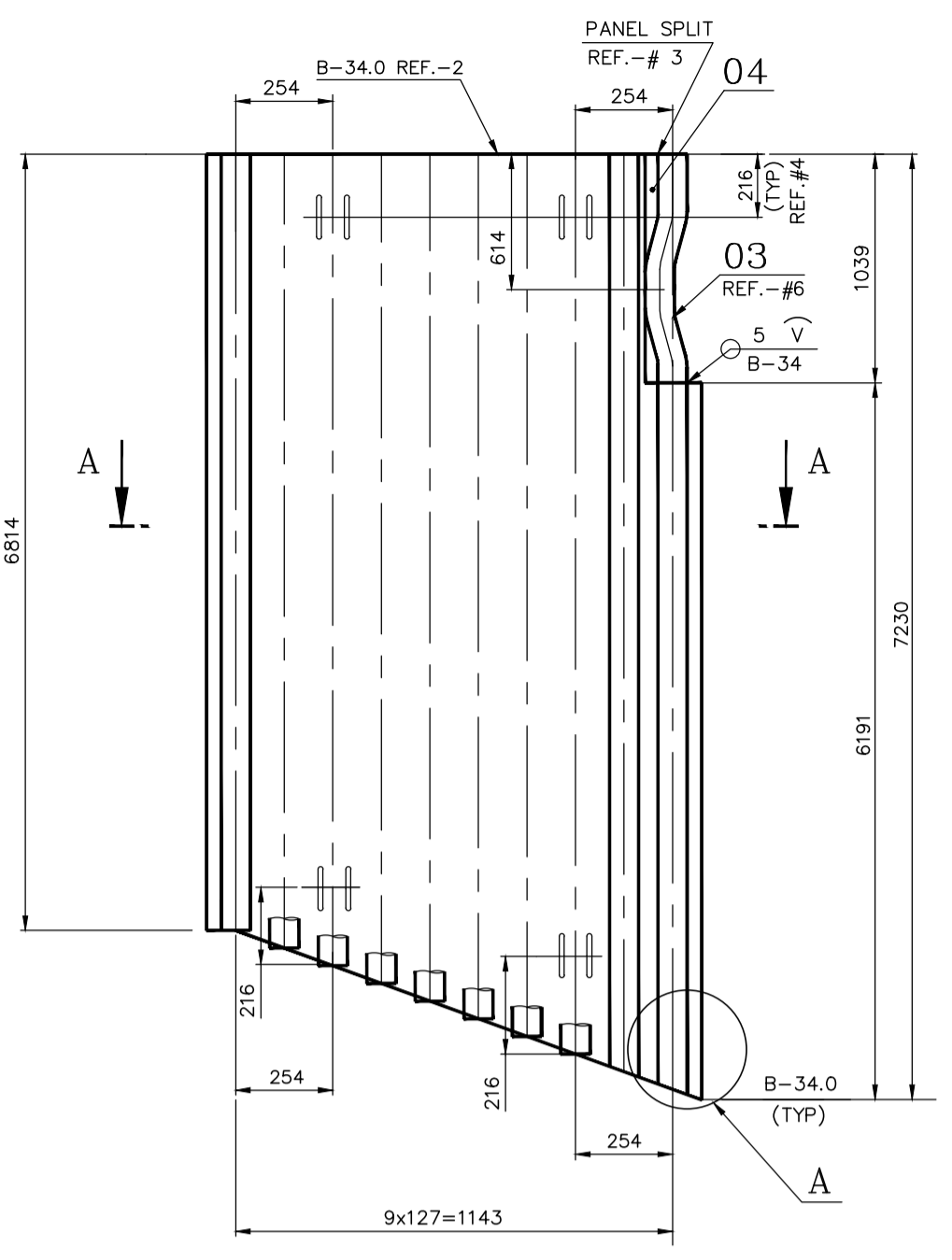


DETAIL-A

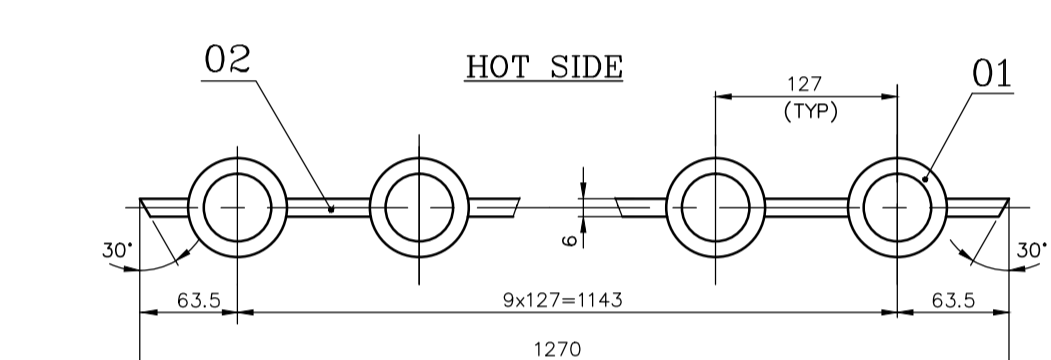


SECTION-AA

VAR.NO-01
PANEL MARK NO: SES-1
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER



DETAIL-A



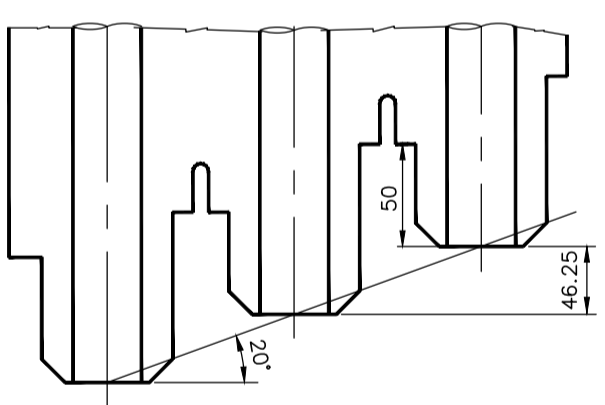
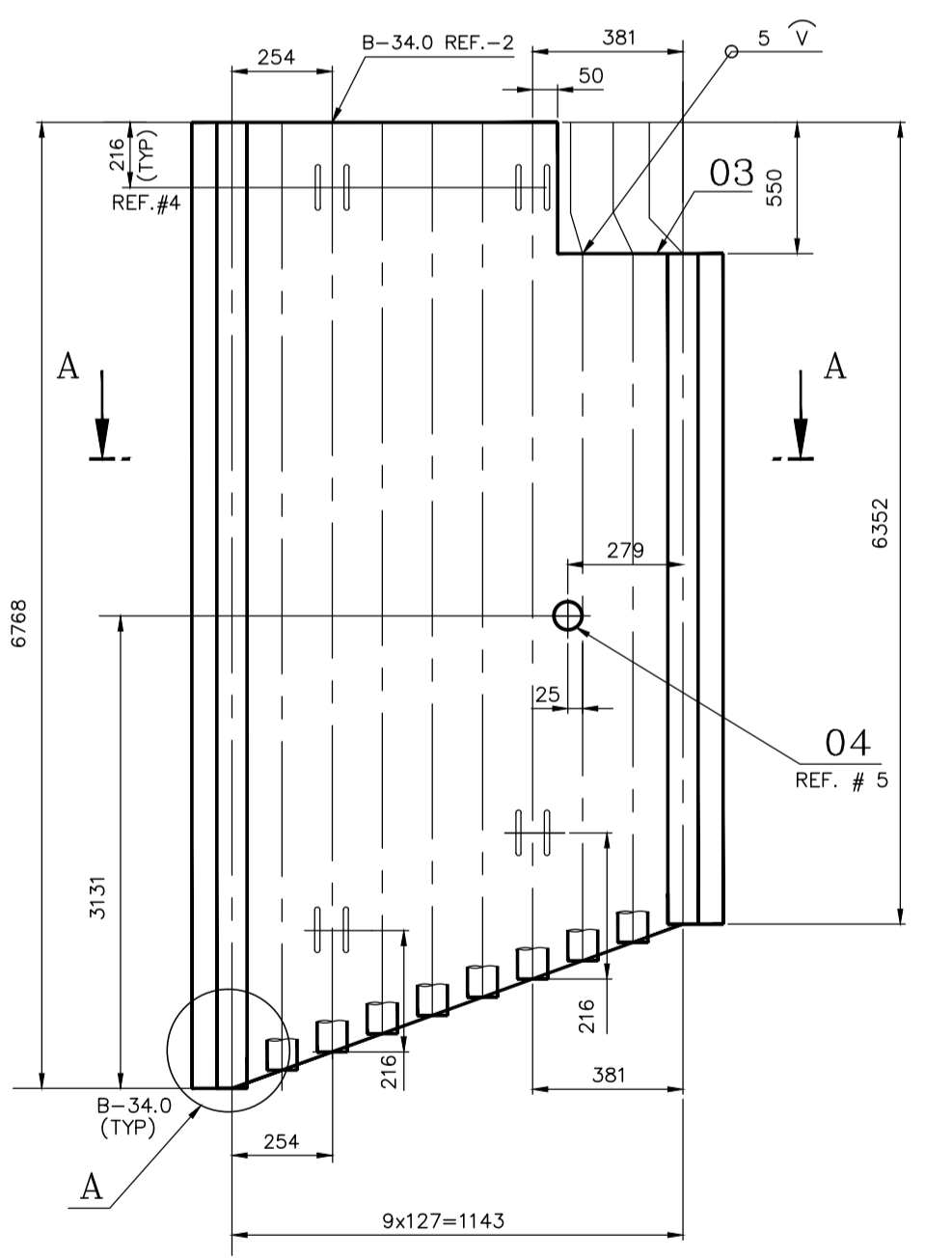
SECTION-AA

VAR.NO-02
PANEL MARK NO: SES-2
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

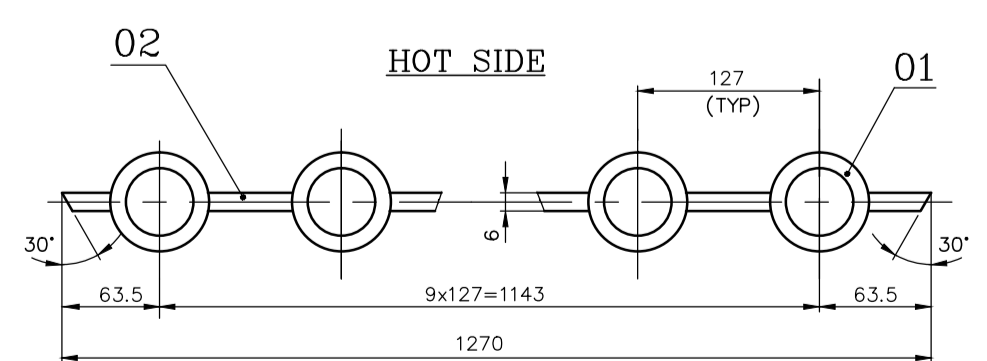
- NOTES:**
- DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
 - DESIGN PRESSURE : 162.1 KG/SQ.CM(G).
 - DESIGN TEMPERATURE : 386°C (358°C+28°C)
 - HEAT TREATMENT AS PER IBR.
 - PAIN WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
 - HYDRAULIC TEST NEED NOT BE DONE AT SHOP.

- REF. DRAWINGS**
- FABRICATION TOLERANCE AS PER BPS 1-03-000-00038.
 - TUBE BUTT WELD EDGE PREPN. AS PER TP:062-05-99.
 - PANEL SPLIT AS PER DRG. No.: 4-11-683-00742.
 - ERECTION SLOTS AS PER BPS: 6106-5010.
 - OPENING AS PER 6106-2060.
 - PANEL INSERT AS PER DRG. No.: 4-11-684-01974.

ITEM NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO.	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
04	PLATE 6x73x1039				15-011-092	3.570		
					IS2062FE410WA	1		
					15-487-011	5.840		
					SA 210 GR.C	1		
03	BENT TUBE D44.5x5.0	4-11-684-01974			15-908-464	28.090		
					SA 210 GR.C	1		
02	FIN FLAT B4X6 LONG 7230				A576 GR.1015	11		
					15-487-011	37.340		
01	TUBE D44.5x5.0; 7230 LONG				SA 210 GR.C	10		
						691.800		
SES-4								
04	SB PANEL INSERT(RH) TUBE D44.5x5.0	S	6106-2060/04		SA 210 GR.C	5.020		
					WELDMENT	1		
03	PANEL INSERT TUBE D44.5x5.0		3-11-684-01841		SA 210 GR.C	15.90		
					WELDMENT	1		
02	FIN FLAT B4X6 LONG 6768				15-908-464	26.300		
					A576 GR.1015	11		
01	TUBE D44.5x5.0; 6768 LONG				15-487-011	34.960		
					SA 210 GR.C	10		
SES-3								
								1
04	PLATE 6x73x1039				15-011-092	3.570		
					IS2062FE410WA	1		
					15-487-011	5.840		
					SA 210 GR.C	1		
03	BENT TUBE D44.5x5.0	4-11-684-01974			15-908-464	28.090		
					SA 210 GR.C	1		
02	FIN FLAT B4X6 LONG 7230				A576 GR.1015	11		
					15-487-011	37.340		
01	TUBE D44.5x5.0; 7230 LONG				SA 210 GR.C	10		
						691.800		
SES-2								
								1
04	SB PANEL INSERT(LH) TUBE D44.5x5.0	S	6106-2060/04		SA 210 GR.C	5.020		
					WELDMENT	1		
03	PANEL INSERT TUBE D44.5x5.0		3-11-684-01841		SA 210 GR.C	15.90		
					WELDMENT	1		
02	FIN FLAT B4X6 LONG 6768				15-908-464	26.300		
					A576 GR.1015	11		
01	TUBE D44.5x5.0; 6768 LONG				15-487-011	34.960		
					SA 210 GR.C	10		
SES-1								
								1
								659.820

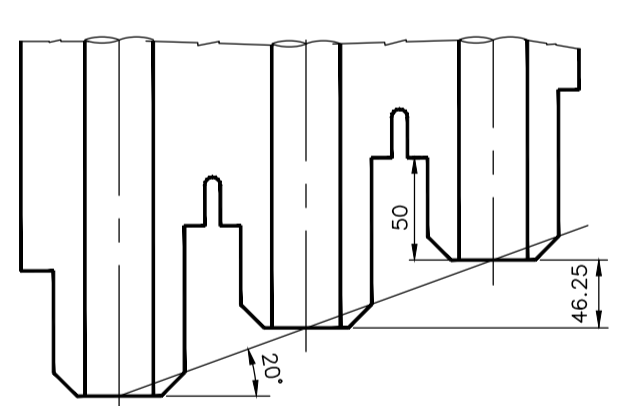
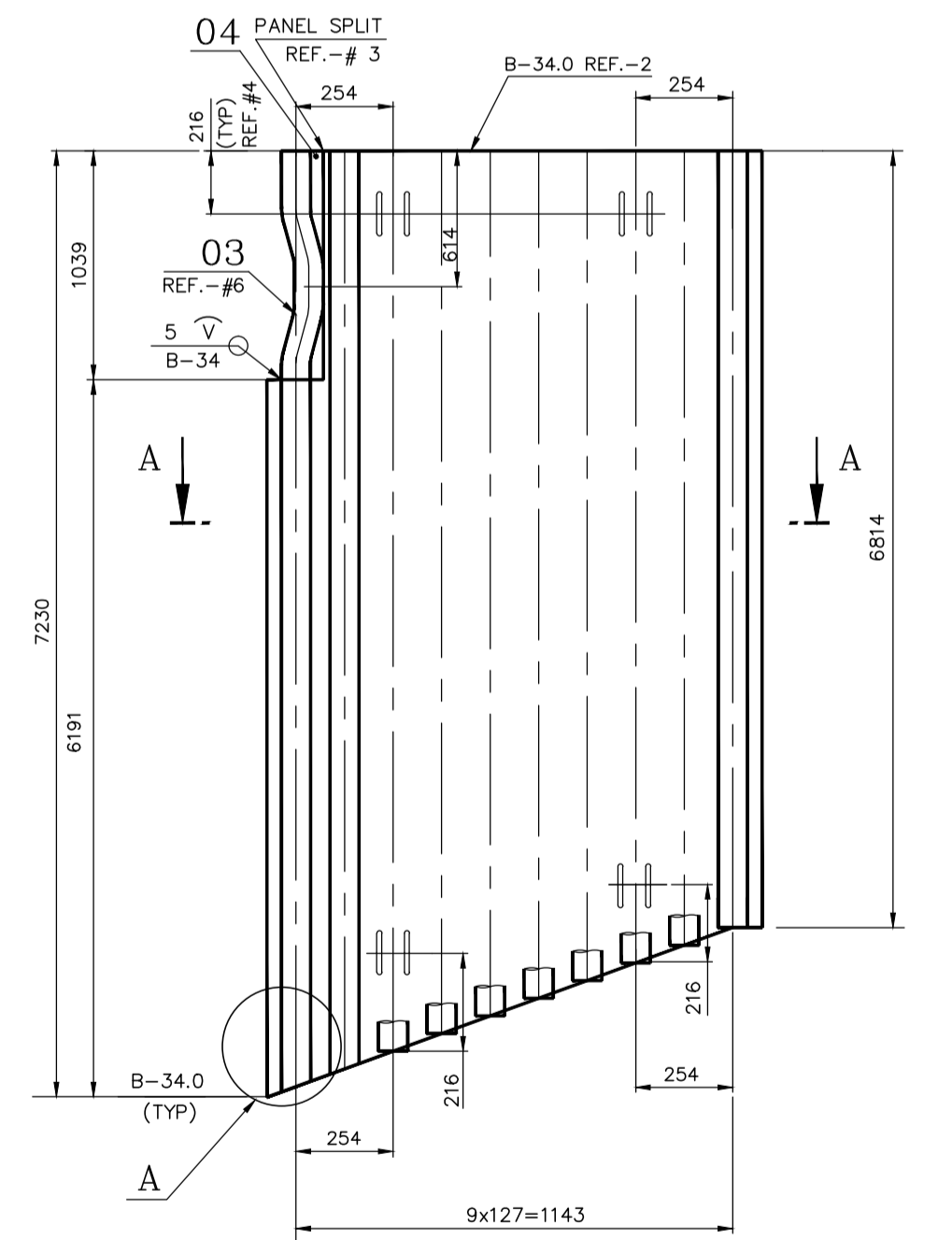


DETAIL-A

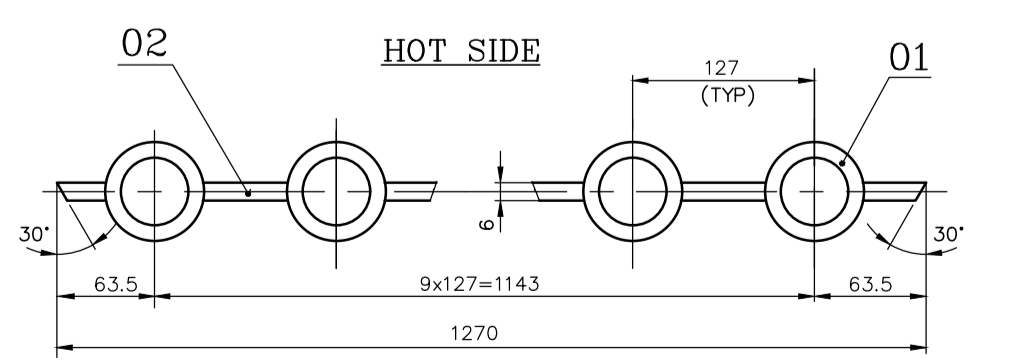


SECTION-AA

VAR.NO-03
PANEL MARK NO: SES-3
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER



DETAIL-A



SECTION-AA

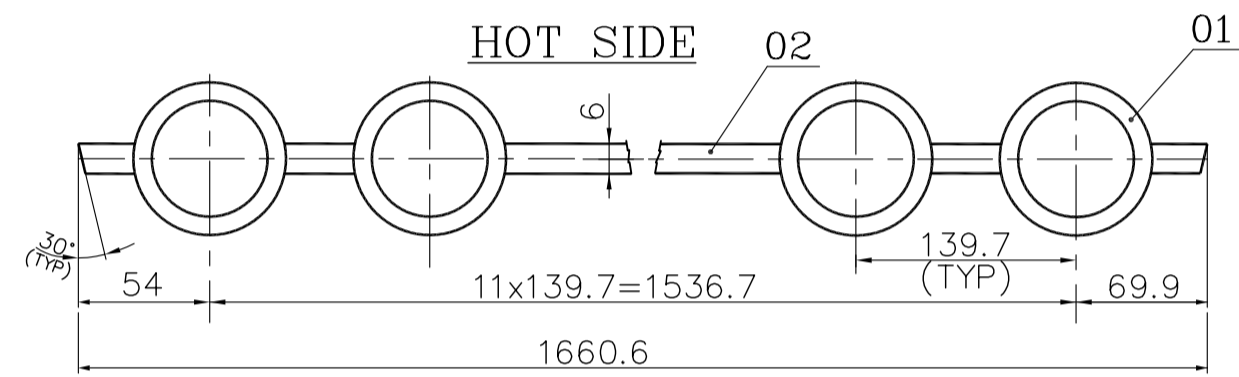
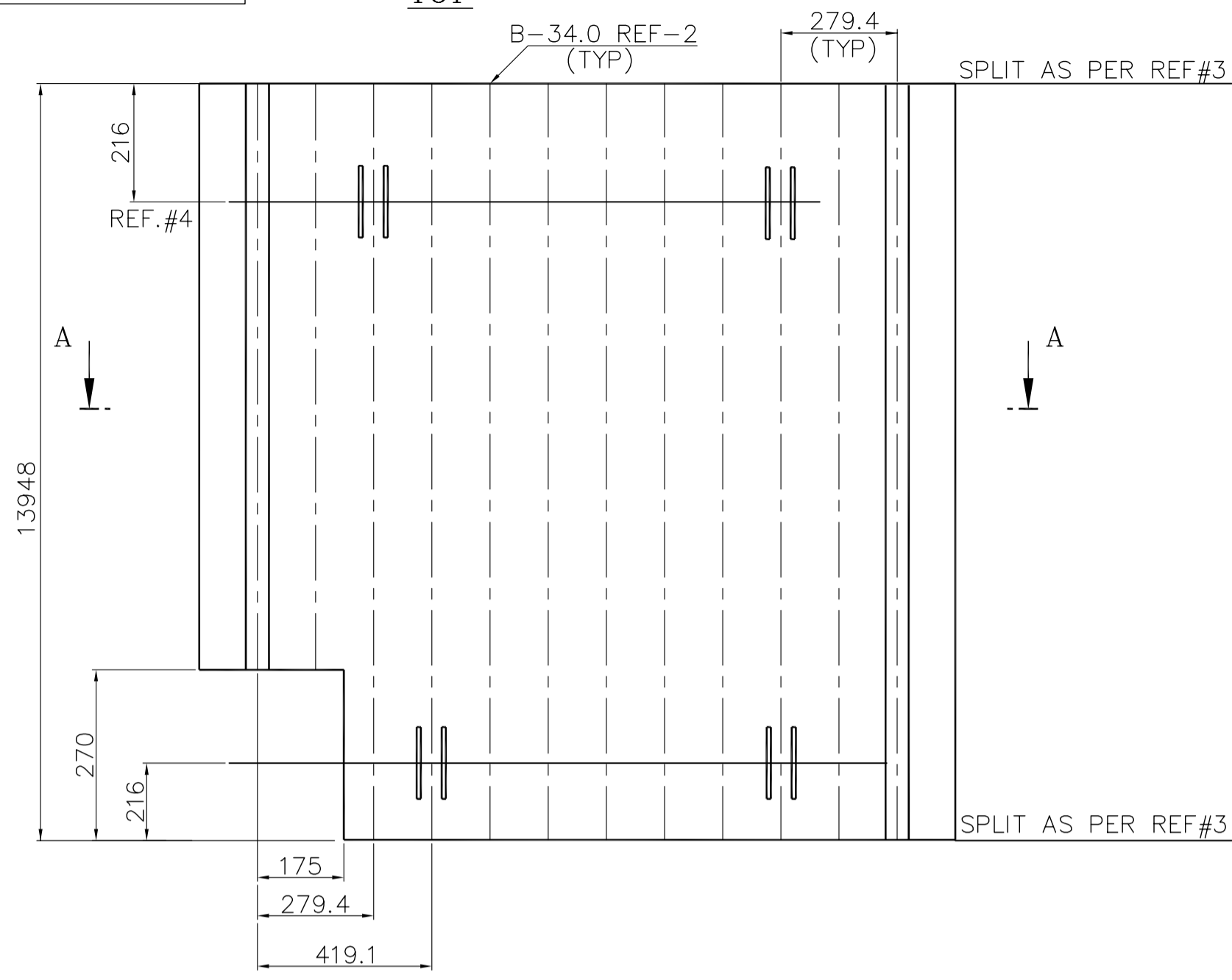
VAR.NO-04
PANEL MARK NO: SES-4
NO.OFF TO BE MANUFACTURED: 1 NO. /BOILER

REV. DATE	ALTERED :	REV. DATE	ALTERED :
02	CHD & APPC:	01	22.11.01 CHD & APPC: ANVARALI
ZONE		ZONE	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT THRUCHIRAPALLI - 620014	
APP. NO.	SCALE	WEIGHT (kg)	REF TO REV / OLD DWG
121	NTS	-	0-11-684-00574
TITLE		DRAWING NO :	REV
SH. EXTD. SIDEWALL PANELS		1-11-684-02692	01

11-685-02684

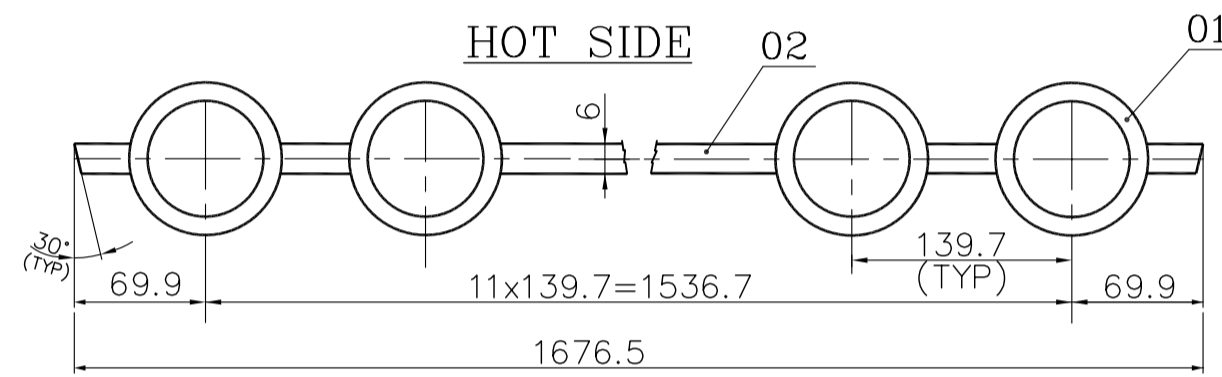
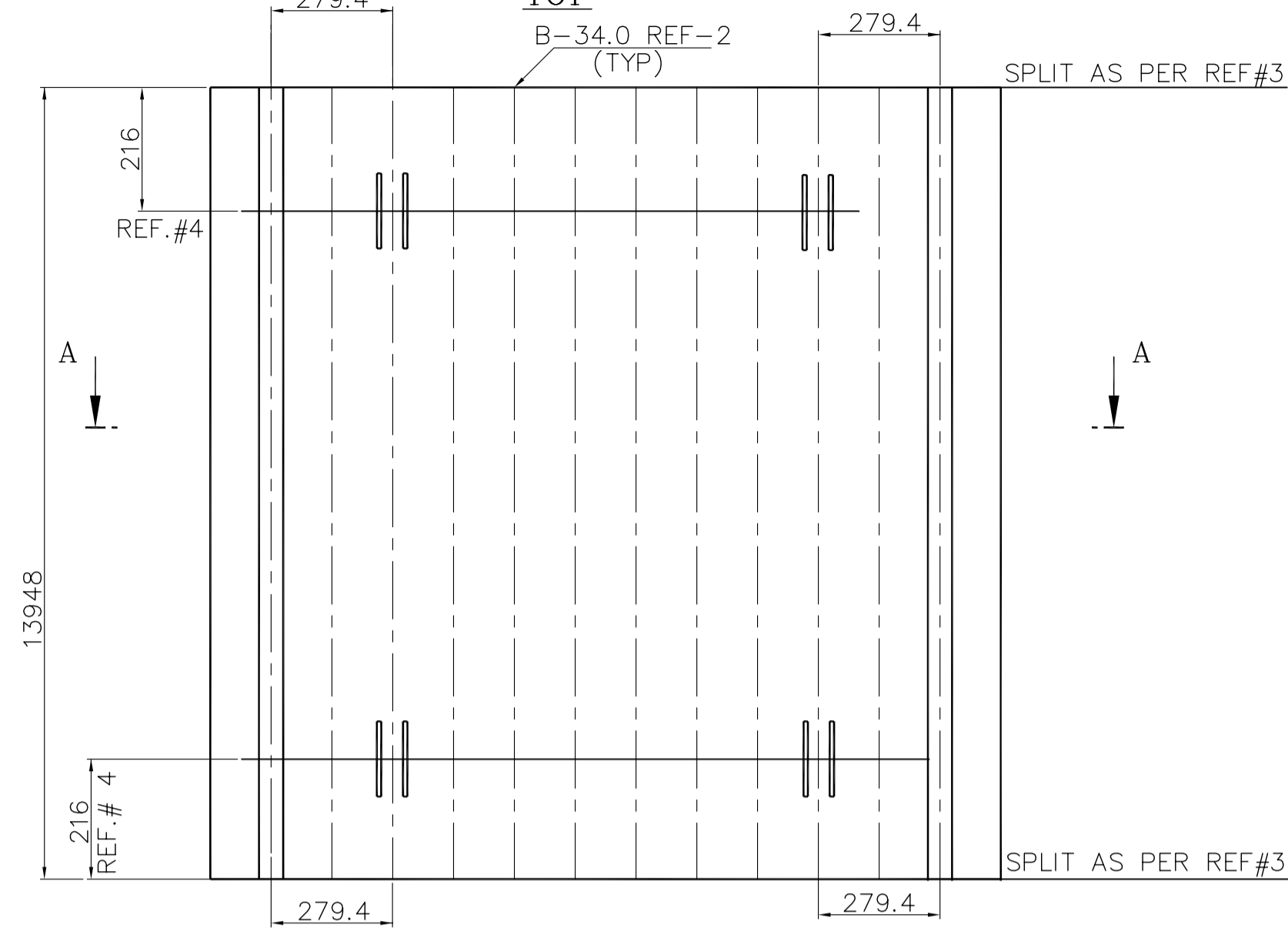
TOP



SECTION-AA
 VAR.NO-01
 PANEL MARK NO: SCF-1
 NO.OFF TO BE MANUFACTURED; 1 NO. /BOILER

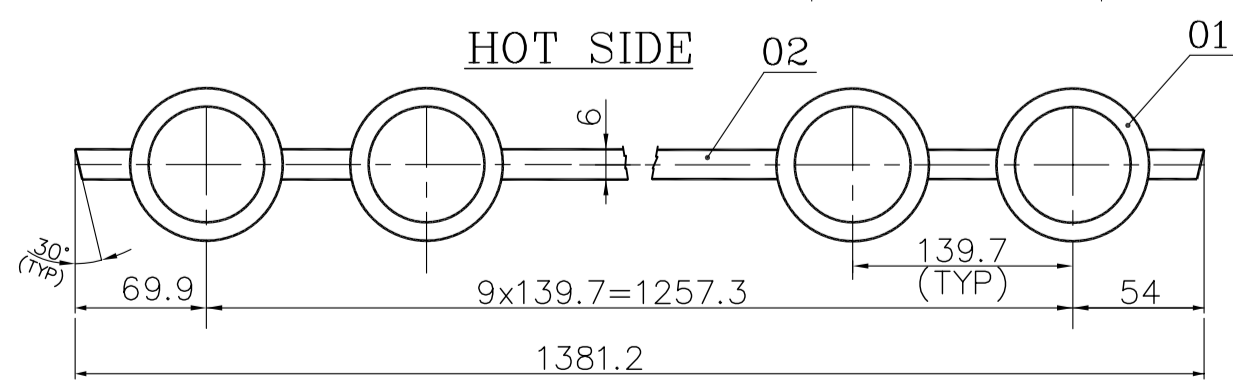
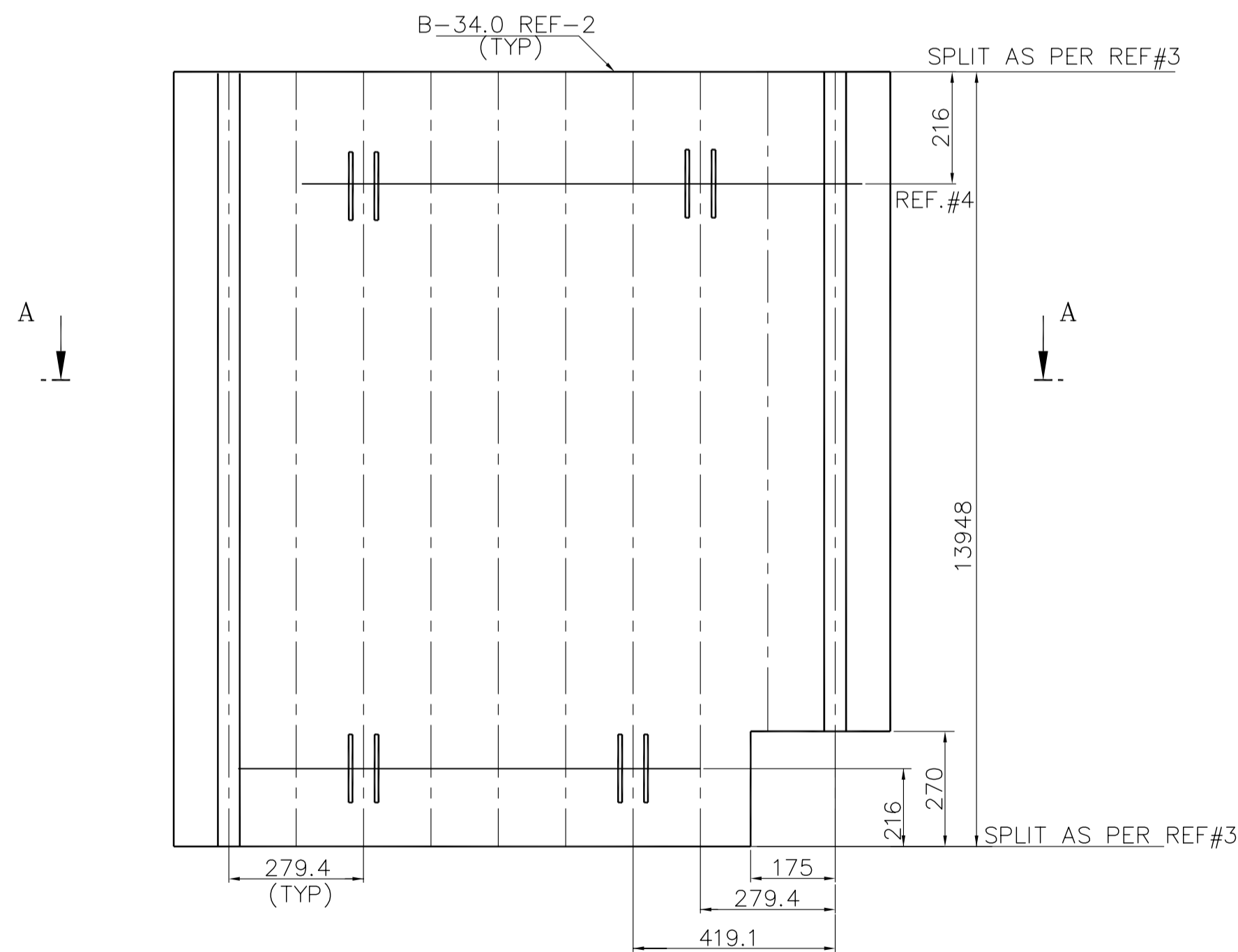
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299

TOP



SECTION-AA
 VAR.NO-02
 PANEL MARK NO: SCF-2
 NO.OFF TO BE MANUFACTURED; 5NOS. /BOILER

TOP



SECTION-AA
 VAR.NO-03
 PANEL MARK NO: SCF-3
 NO.OFF TO BE MANUFACTURED; 1NO. /BOILER

NOTES:

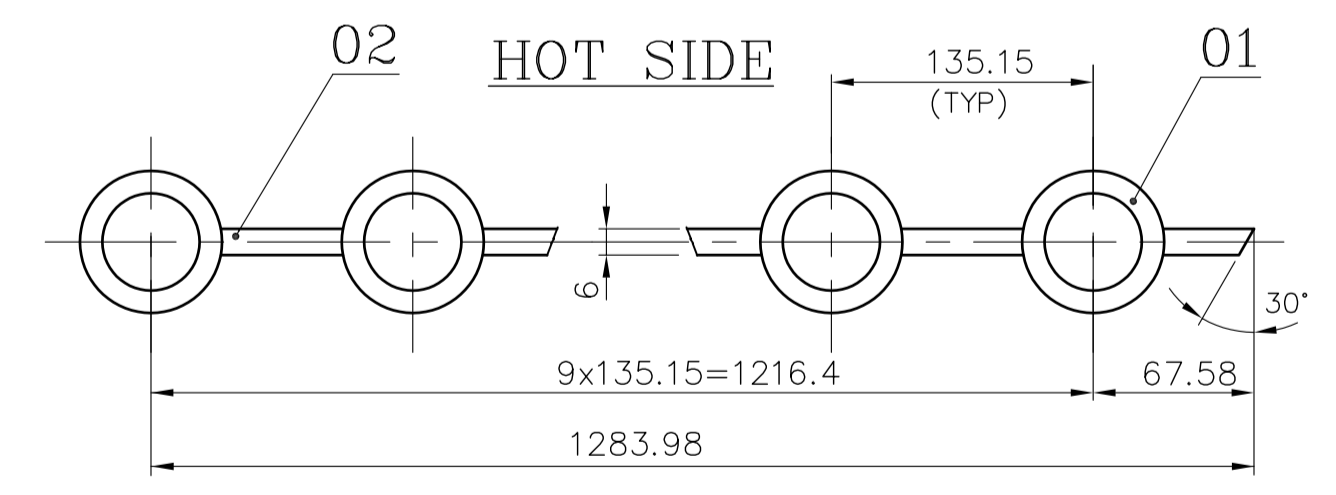
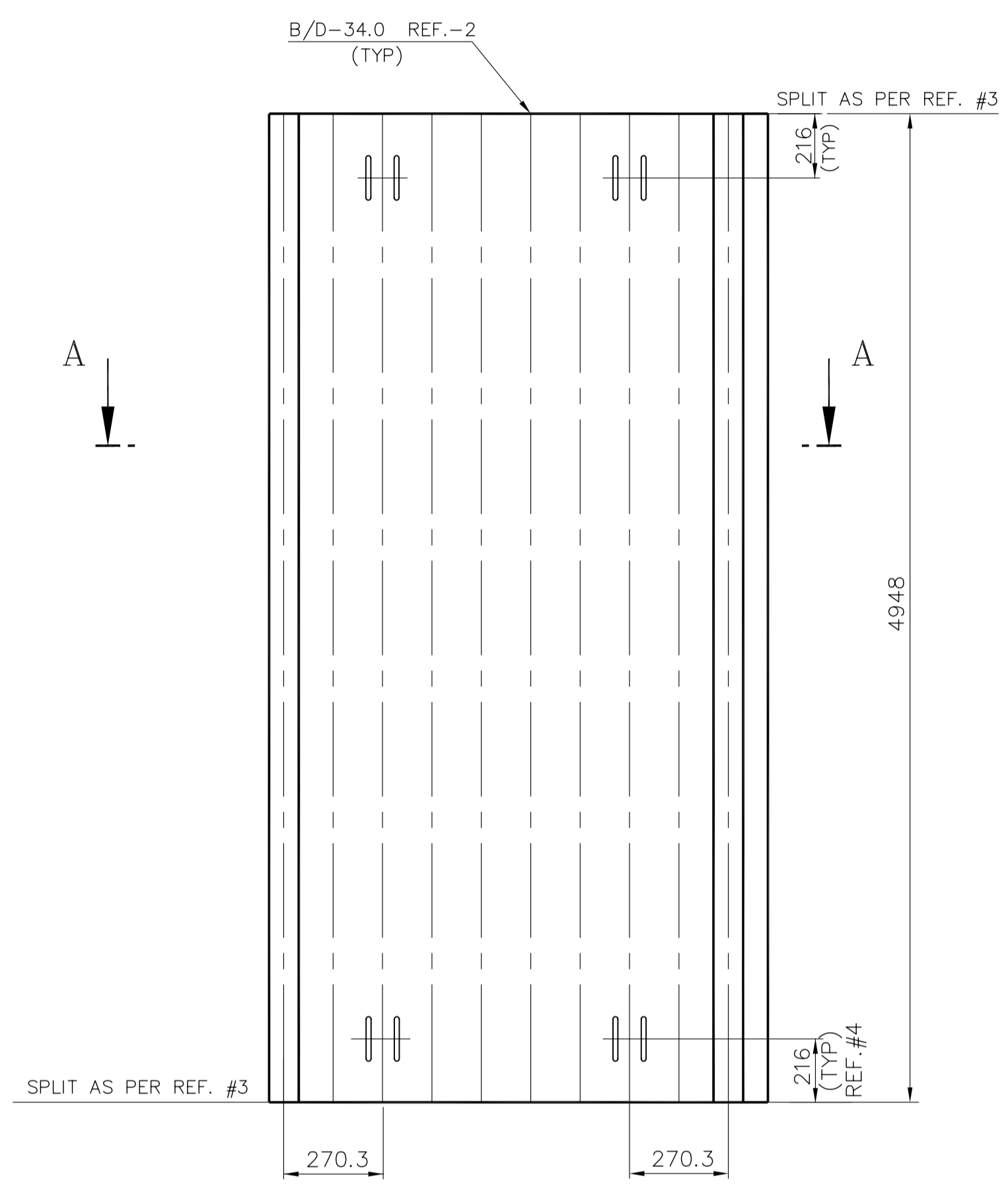
01. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR
02. DESIGN PRESSURE :162.2 KG/SQ.CM (G)
03. DESIGN TEMPERATURE :386 °C (358°C+28°C)
04. HEAT TREATMENT AS PER IBR
05. PAINT WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
06. HYDRAULIC TEST NEED NOT BE DONE AT SHOP

REF. DRAWINGS: -

01. FABRICATION TOLERANCE AS PER BPS: 1-03-000-00038
02. TUBE BUTT WELD EDGE PREPARATION AS PER TP 062 05 99
03. PANEL END PREPARATION AS PER DRG. NO: 4-11-683-00742.
04. ERECTION SLOTS AS PER BPS: 6106-5010.

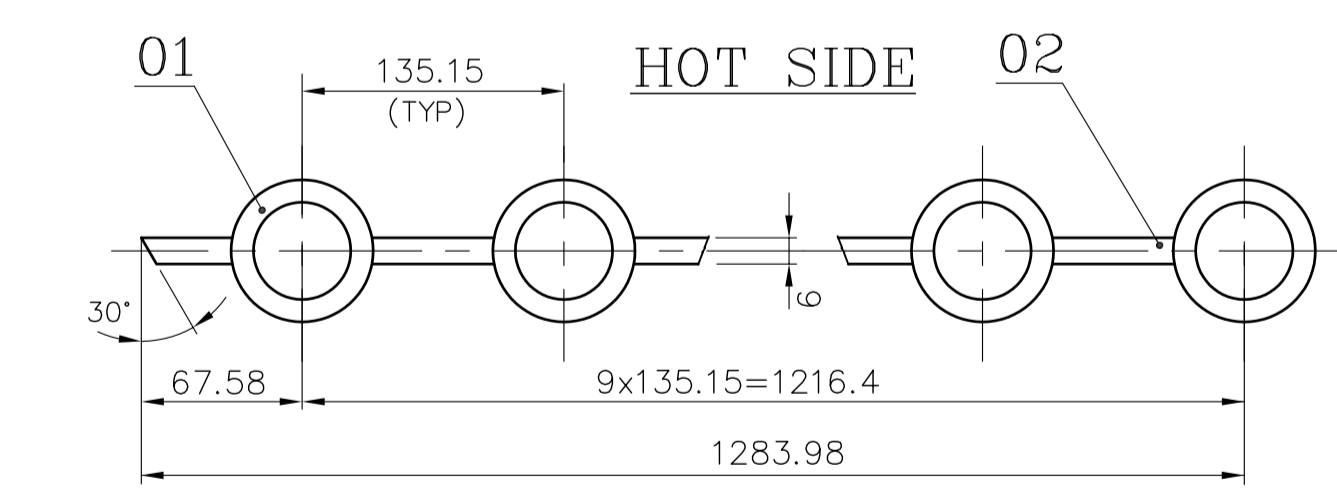
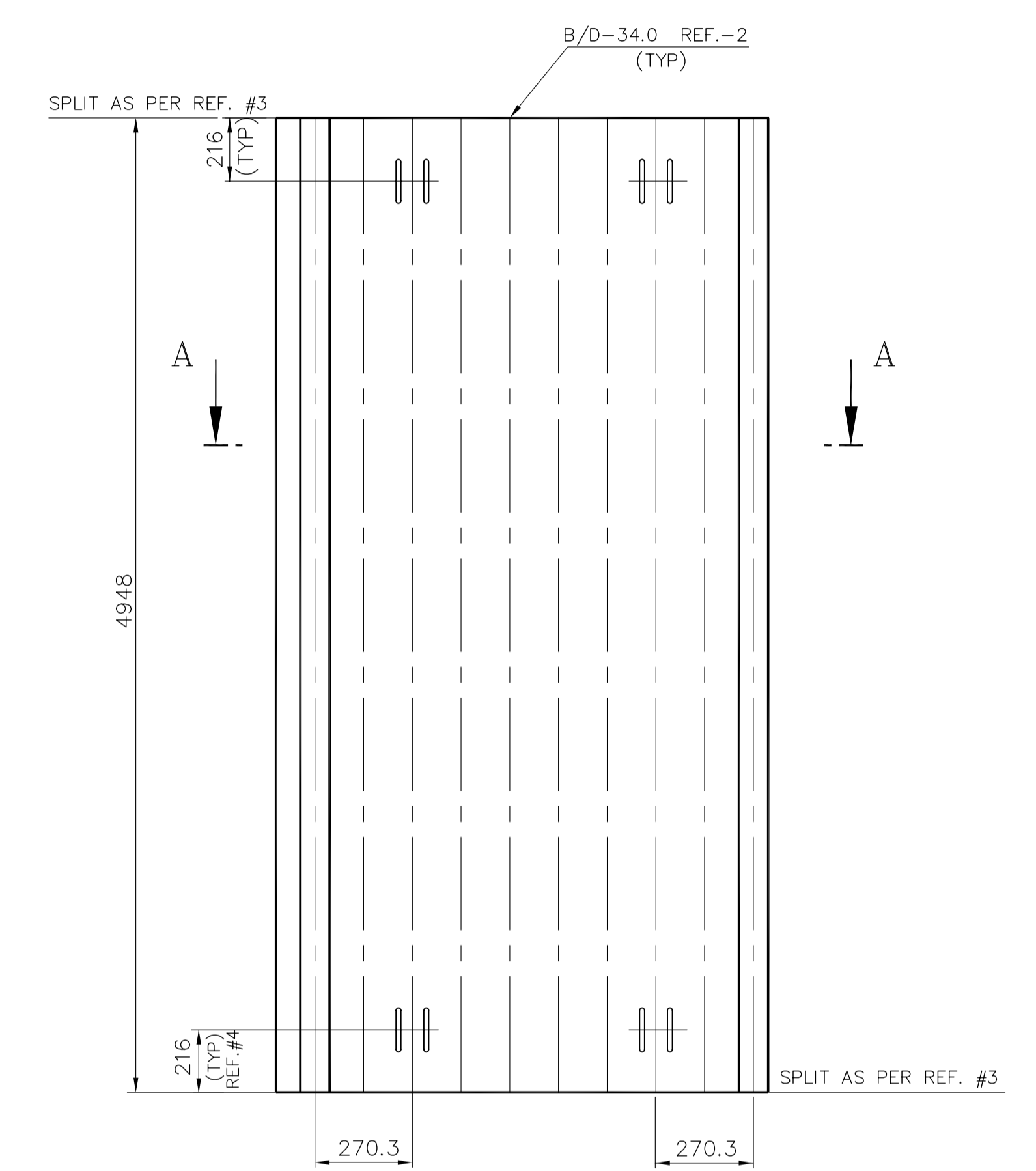
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QTY	ZONE
02	FLAT 6x96.2x13948				15-908-474	A576 Gr.1015			62.500	11	
					15-487-011	SA 210 Gr.C		72.000	10		
01	TUBE D44.5X5.0; 13948 LONG.				15-487-011	SA 210 Gr.C			72.000	10	
					15-908-474	A576 Gr.1015		72.000	12		
03	SCF-3								1407.500	1	
02	FIN FLAT 6x96.2x13948				15-908-474	A576 Gr.1015			62.500	13	
					15-487-011	SA 210 Gr.C		72.000	12		
01	TUBE D44.5X5.0; 13948 LONG.				15-487-011	SA 210 Gr.C			72.000	12	
					15-908-474	A576 Gr.1015		72.000	13		
02	SCF-2								1676.500	5	
02	FIN FLAT 6x96.2x13948				15-908-474	A576 Gr.1015			62.500	13	
					15-487-011	SA 210 Gr.C		72.000	12		
01	TUBE D44.5X5.0; 13948 LONG.				15-487-011	SA 210 Gr.C			72.000	12	
					15-908-474	A576 Gr.1015		72.000	13		
01	SCF-1								1676.500	1	

DEPT: PP CODE: 121 ZONE:		DATE: ALTERED: CHD & APPD:		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		NAME: T.S.SAJIN SIGNATURE: M.ANVARALI DATE: 18.11.09 DATE: 19.11.09 DATE: 19.11.09		REF TO ASSY / OLD DWG 0-11-685-00571		WEIGHT (Kg) N.T.S	
TITLE: FRONT WALL PANEL				DRAWING NO: 1-11-685-02684		REV: 00					



SECTION-AA

VAR.NO-01
PANEL MARK NO: SCA-1
NO. OFF TO BE MANUFACTURED: 2NOs/BOILER



SECTION-AA

VAR.NO-02
PANEL MARK NO: SCA-2
NO. OFF TO BE MANUFACTURED: 2NOs/BOILER

NOTES:

- DESIGN, MANUFACTURE AND INSPECTION AS PER IBR.
- DESIGN PRESSURE : 162.1 KG/SQ.CM(G).
- DESIGN TEMPERATURE : 386°C(358°C+28°C).
- HEAT TREATMENT AS PER IBR.
- PAINT WORD "TOP" AND PANEL MARK NO. NEAR TOP END OF PANEL ON COLD SIDE.
- HYDRAULIC TEST NEED NOT BE DONE AT SHOP.

REF. DRAWINGS

- FABRICATION TOLERANCE AS PER BPS 1-03-000-00038.
- TUBE BUTT WELD EDGE PREPN. AS PER TP:062-05-99.
- PANEL END PREPARATIONS AS PER DRG. No.: 4-11-683-00742.
- ERECTION SLOTS AS PER BPS: 6106-5010.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO VAR NO	MATERIAL CODE MATERIAL SPECN	A/C/P DI	UNIT QUANTITY	UNIT WEIGHT	GS	ZONE
	02	FIN FLAT 91.7X6 4948 LONG				15-908-498 A576 GR.1015		21.370 10			
	02	TUBE D44.5x5.0; 4948 LONG				15-487-011 SA 210 GR C	A	25.560 10			
		SCA-2						469.300 1			
	02	FIN FLAT: 91.7X6 4948 LONG				15-908-498 A576 GR.1015		21.370 10			
	01	TUBE D44.5x5.0; 4948 LONG				15-487-011 SA 210 GR C	A	25.560 10			
		SCA-1						469.300 1			

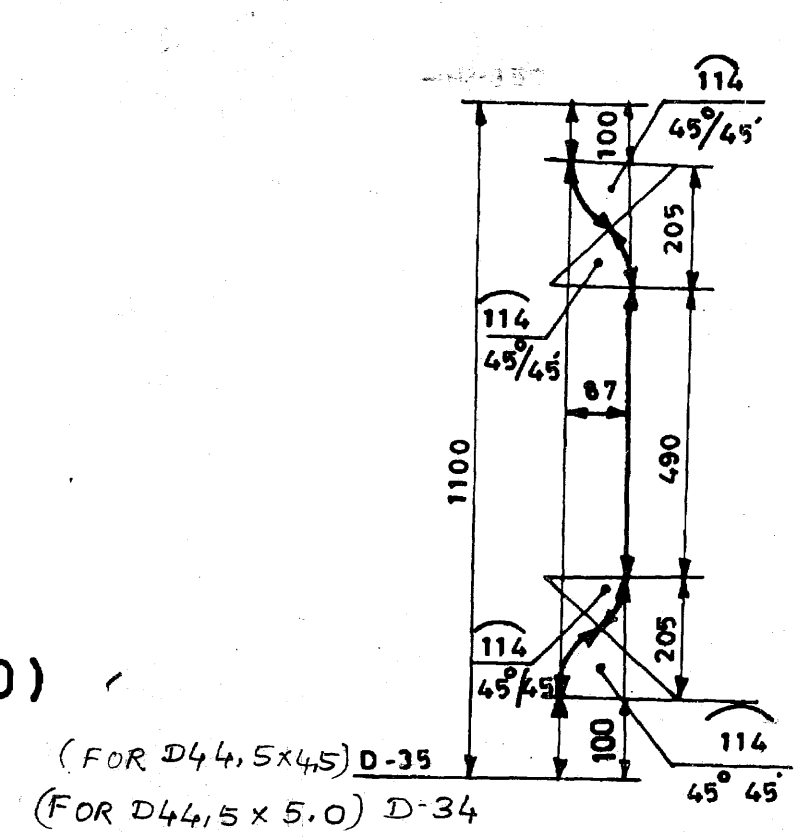
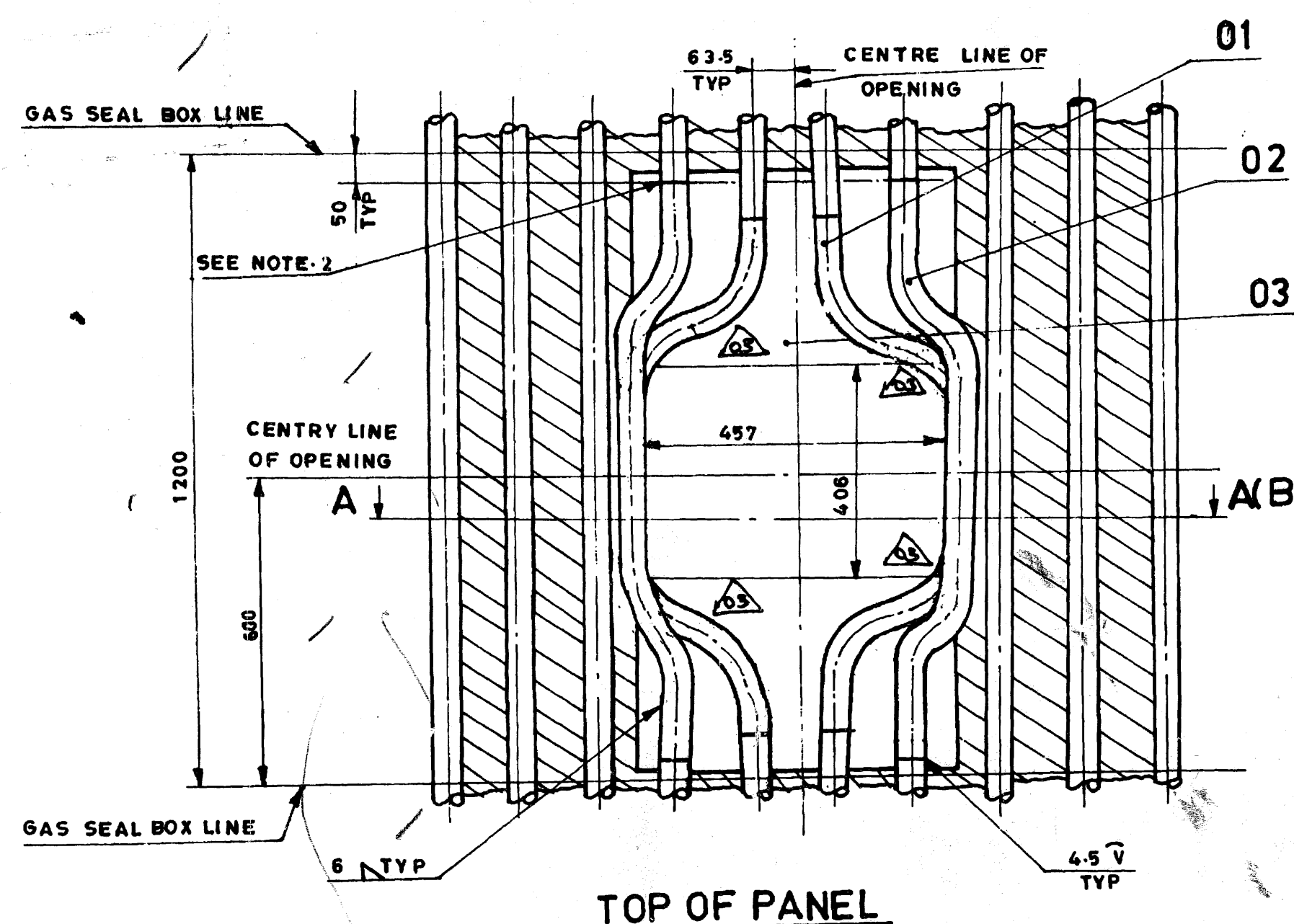
REV 01		DATE	ALTERED :	CHD & APPD :	
ZONE					
DEPT PP		ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)
CODE 121				N.T.S	
TITLE		SH. EXT. SIDE BOTTOM PANELS		DRAWING NO : 1-11-694-02695 00	
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME K.S
355-053		MATERIAL CODE		CHD	M.ANVARALI
MATERIAL SPECN		A/C/P		APPD	M.ANVARALI
UNIT		DI		DATE 03.12.09	
QUANTITY		UNIT WEIGHT		04.12.09	
ZONE		REF TO ASSY / OLD DWG		1-11-694-02000	

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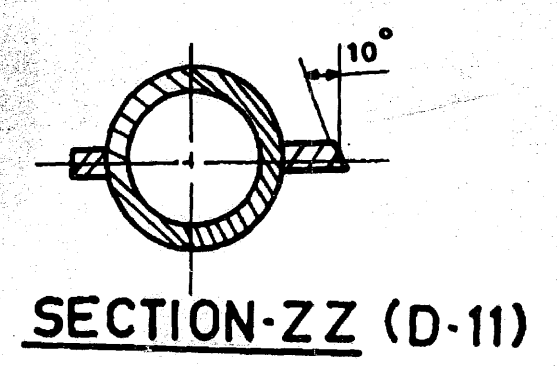
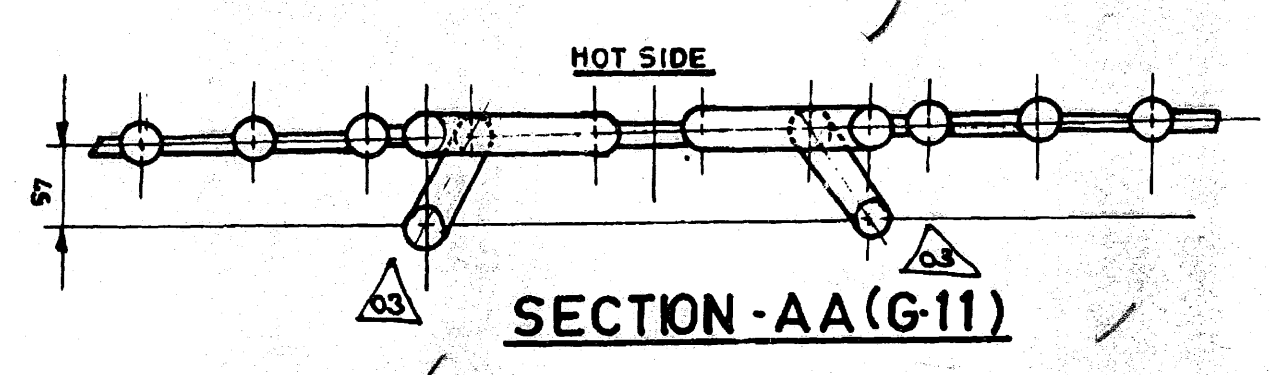
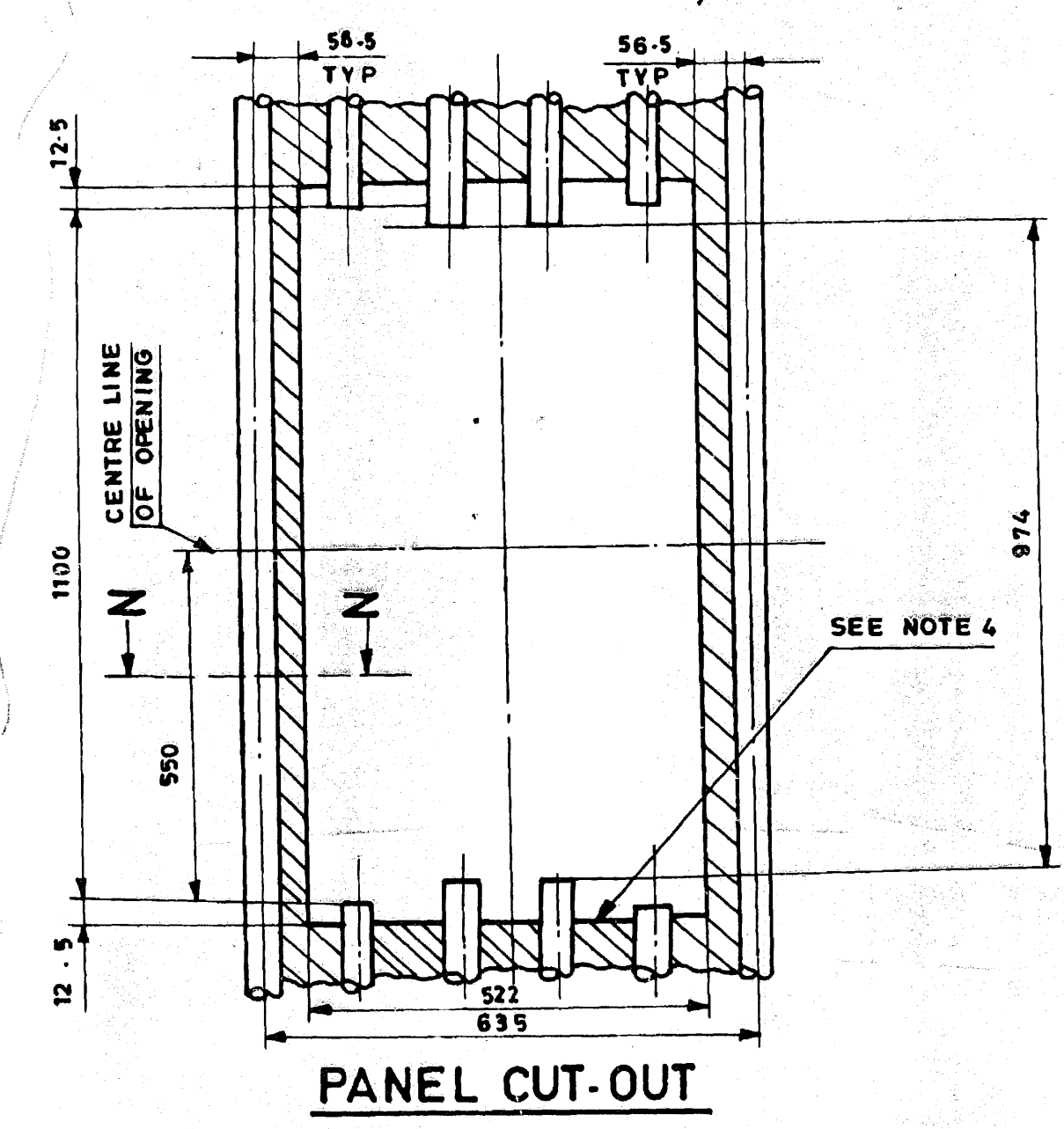
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

40000-000-00-1
ON DNMMVMD



R-143 ITEM NO:02 (G-9)

R-143 ITEM NO:01 (G-10)

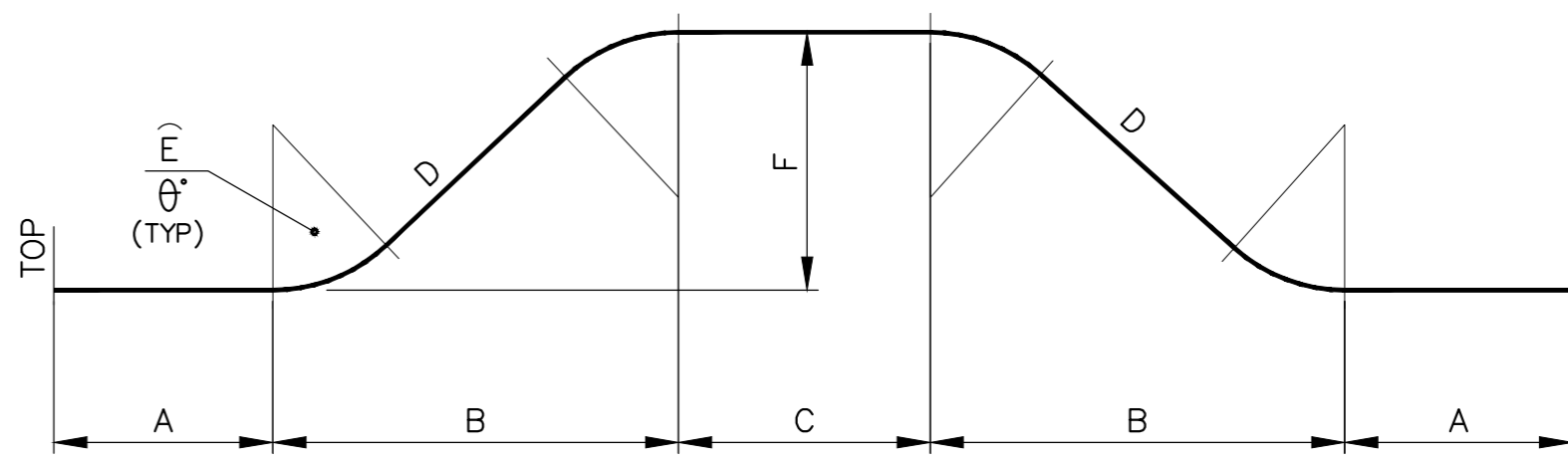
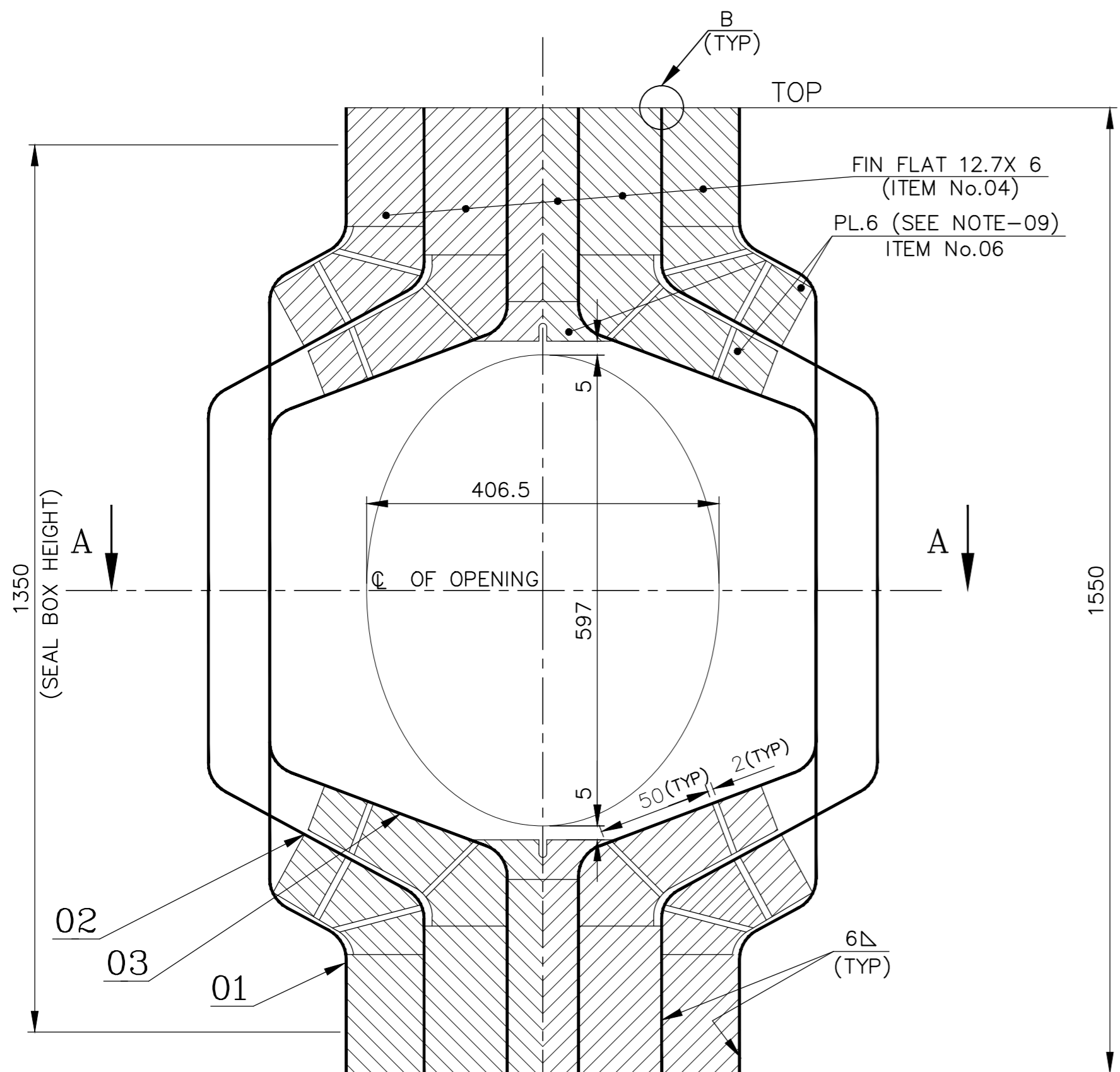


- NOTES:-**
- FIN SHALL BE ATTACHED TO TUBES WITH A MINIMUM OF 6 MM WELD AND WELDED FROM HOT SIDE ONLY.
 - FOR INSERT TUBE END SCARFING DETAILS SEE TP 062 05 99
 - ALL TUBULAR MATERIAL ARE OF ATTEST QUALITY
 - CUT AREA TO BE GROUND FLUSH WITH THE SURFACE OF THE TUBE DO NOT UNDER CUT TUBE
 - TOLERANCE UNLESS OTHERWISE SPECIFIED LINEAR ± 1.5MM ANGULAR ± 1
 - TUBE BENDING RADIUS R-143
 - ITEM 03 TO BE CUT TO SUIT THE GAP
 - ELECTRODE
6 Δ - E 7018 (CERTIFIED)
4.5 ∇ - E 7018 (ATTEST)
 - C.E REFERENCE-INDEX NO.1-2-1.4
STD NO:65-76-1
ORG. NO: D-980-060-1

ITEM NO.	DESCRIPTION	DWG NO.	ITEM NO.	MATL CODE	UNIT WT
03	PLATE 6x250x1500		15-011-092		17.663
			IS 2062 FE410WA		1
02	TUBE D44.5x4.5 1146 LONG		15-087-011	A	5.920
			SA 210 GR.C		2
01	TUBE D44.5x4.5 1150 LONG		15-087-011	A	5.940
			SA 210 GR.C		2
03	ACCESS DOOR 457x406				41.383
	OPENG ARRGT		ASSY		
03	PLATE 6x250x1500		15-011-092		17.663
			IS 2062 FE410WA		1
02	TUBE D44.5x4.5 1146 LONG		15-087-009	A	5.710
			SA 210 GR.C		2
01	TUBE D44.5x4.5 1150 LONG		15-087-009	A	5.730
			SA 210 GR.C		2
02	ACCESS DOOR 457x406				40.540
	OPENG ARRGT		ASSY		
03	PLATE 6x250x1500		15-011-092		17.663
			IS 2062 FE410WA		1
02	TUBE D44.5x4.5 L 1146		15-086-063-55	A	5.710
			SA 210 GR.A1		2
01	TUBE D44.5x4.5 L 1150		15-086-063-55	A	5.730
			SA 210 GR.A1		2
01	ACCESS DOOR 457x406				40.540
	OPENG ARRGT		ASSY		

REV DATE: 03.03.07 ACT: 03.03.07 VAR. 03 ADDED.	REV DATE: 11.10.99 ALT: CHD-APP.	REV DATE: 11.10.99 ALT: CHD-APP.	REV DATE: 11.10.99 ALT: CHD-APP.	REV DATE: 11.10.99 ALT: CHD-APP.	REV DATE: 11.10.99 ALT: CHD-APP.
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT Bharat Heavy Electricals Ltd., BOILER PLANT UNIT TIRUCHIRAPALLI-620 014			DWG NAME: B-5-R DATE: 13.10.99 APPD: CW		
REV DATE: 03.09.91 ACT: 03.09.91 VIEW CORRECTED.	REV DATE: 02.03.91 ALT: 02.03.91 ITEM 01 & 02 DETAILS CHANGED LENGTH AND WEIGHT REVISED.	REV DATE: 04.06.91 ALT: 04.06.91 ITEM 04 TO 07 ARE COMBINED WITH ITEM 03 MATL SPEC AND WEIGHT ARE CHANGED.	DEPT: SS GRADE: C/M/P	SCALE: NTS	WEIGHT (KG): 6105-2019-00 DT 20-11-80
TITLE: F.W. ACCESS DOOR 457x406 OPENG ARRGT (44.5 TUBES ON 127 CTRS)			CARD CODE: U 01	NO. IN DRAWING: 1-03-000-00007	REV: 05

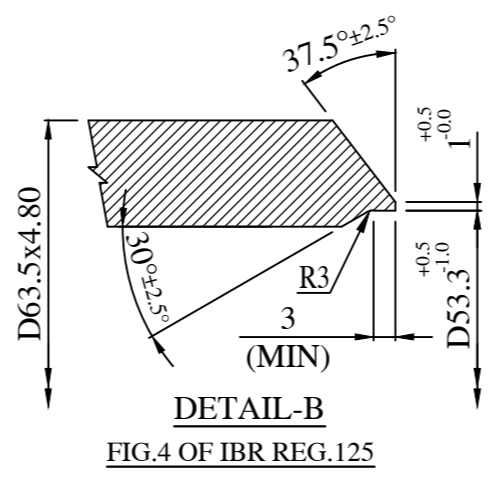
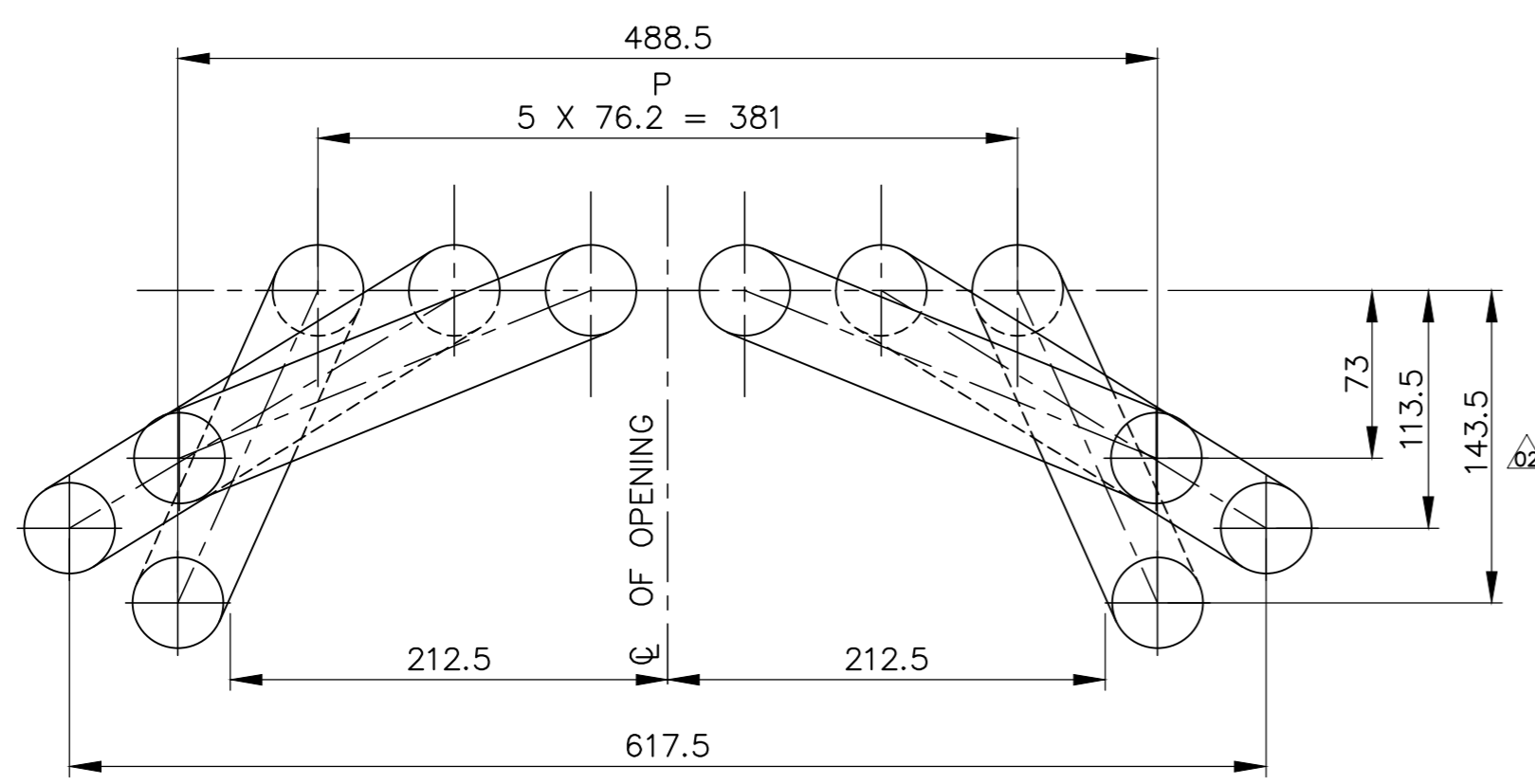
SCANNED ON: 06.07.2001



ITEM No.	A	B	C	D	E	θ	OFFSET F
01	205.5	293	553	106	117	42°	153
02	275.5	332	335	130	145	52°	225
03	335.5	327	225	121	145	52°	218.5

NOTES: -

- DESIGN PARAMETERS REFER ASSY DRAWING.
- MANUFACTURE AND INSPECTION AS PER IBR
- TUBE ENDS SHALL BE SCARFED AS PER STYLE INDICATED IN THE ASSY DRAWING.
- HYDRAULIC TEST NEED NOT BE DONE AT SHOP.
- ALL BENDING RADII = 160
- ITEM NO 04 SHOULD BE WELDED BETWEEN THE STRAIGHT PORTIONS OF THE TUBE.
- ITEM NO 05&06 SHOULD BE WELDED ON TO THE BEND PORTIONS OF THE TUBE TO CLOSE VOIDS.
- TUBE EDGE PREPARATION AS PER DETAIL-B.
- WELDING ON HOT SIDE ONLY.
- IF THE GAP EXCEEDS UNIFORMLY OVER 25 MM, WELD TO BOTH THE TUBES AND SUIT IN THE MIDDLE AND ACROSS. IF THE GAP IS LESS THAN 25 MM, DO AS PER DRAWING.
- MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	UNIT WEIGHT	GS
	06	PLATE 6 450x1000			15 211 092	IS 2062 Gr.A		21.100	
	05	ROD D10 5000 LONG			15 004 042	IS 2062 Gr.A		3.000	
	04	FIN FLAT 12.7x6 3000 LONG			15 008 283	IS 2062 Gr.A		1.800	
	03	TUBE D63.5x5.6 1718 LONG			AA1049048040	SA 210 GR.C	A	14.600	
	02	TUBE D63.5x5.6 1726 LONG			AA1049048040	SA 210 GR.C	A	14.600	
	01	TUBE D63.5x5.6 1644 LONG			AA1049048040	SA 210 GR.C	A	14.000	

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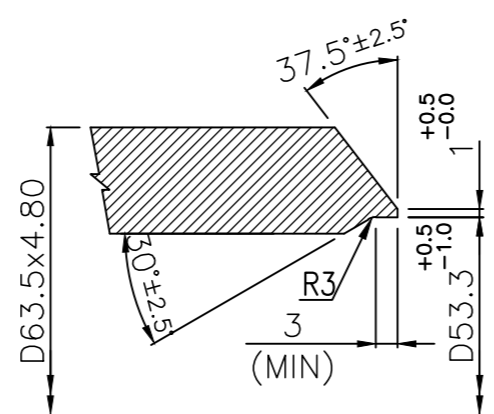
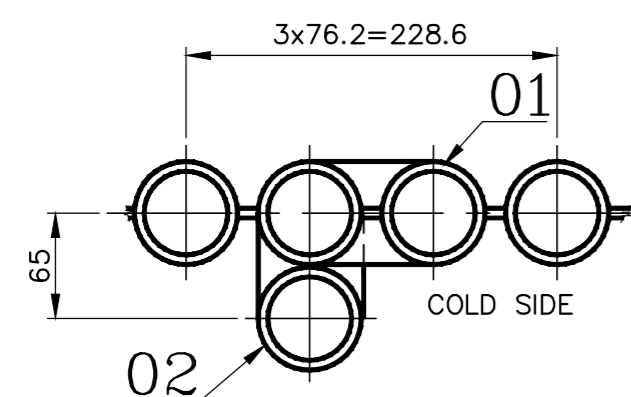
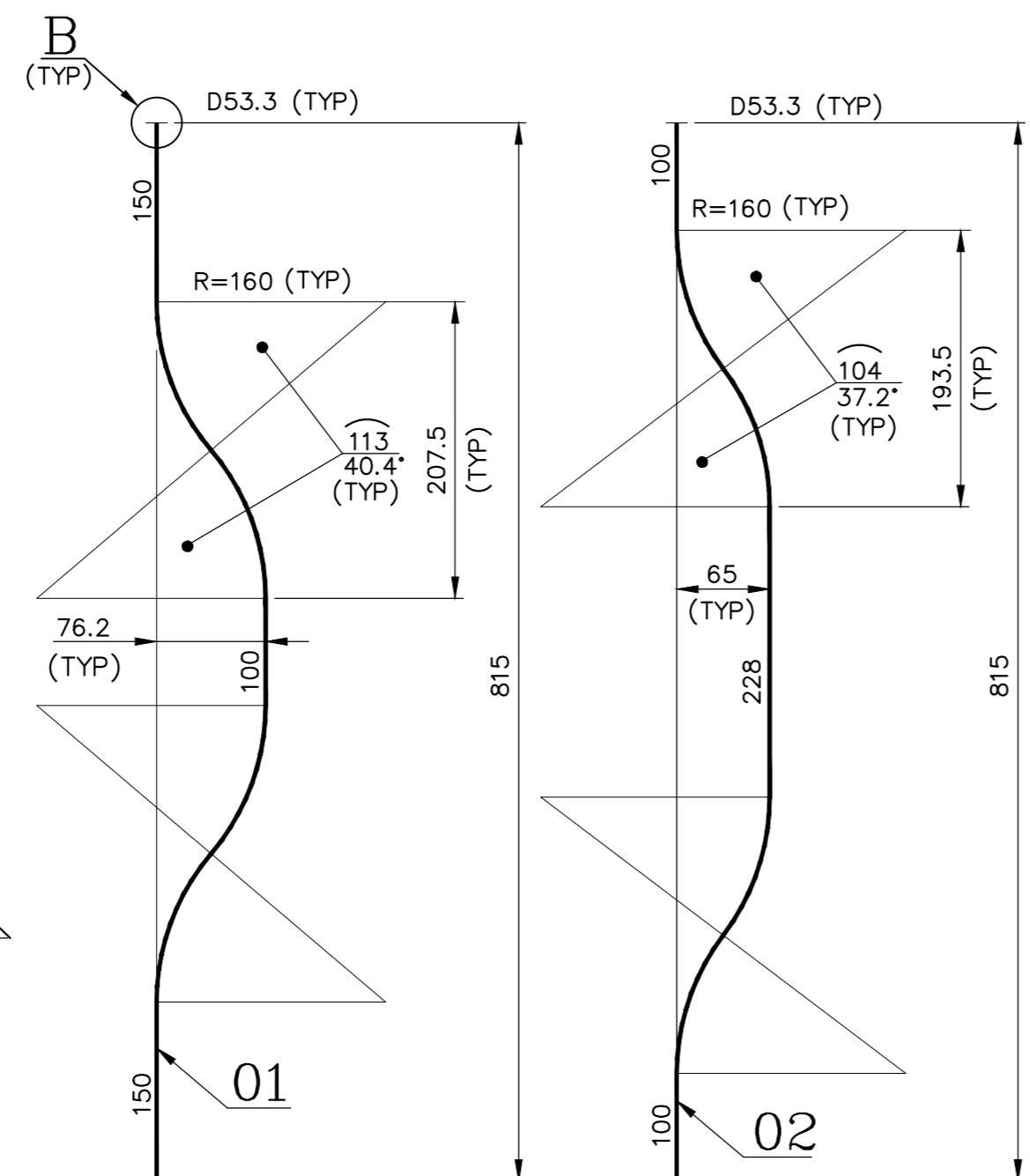
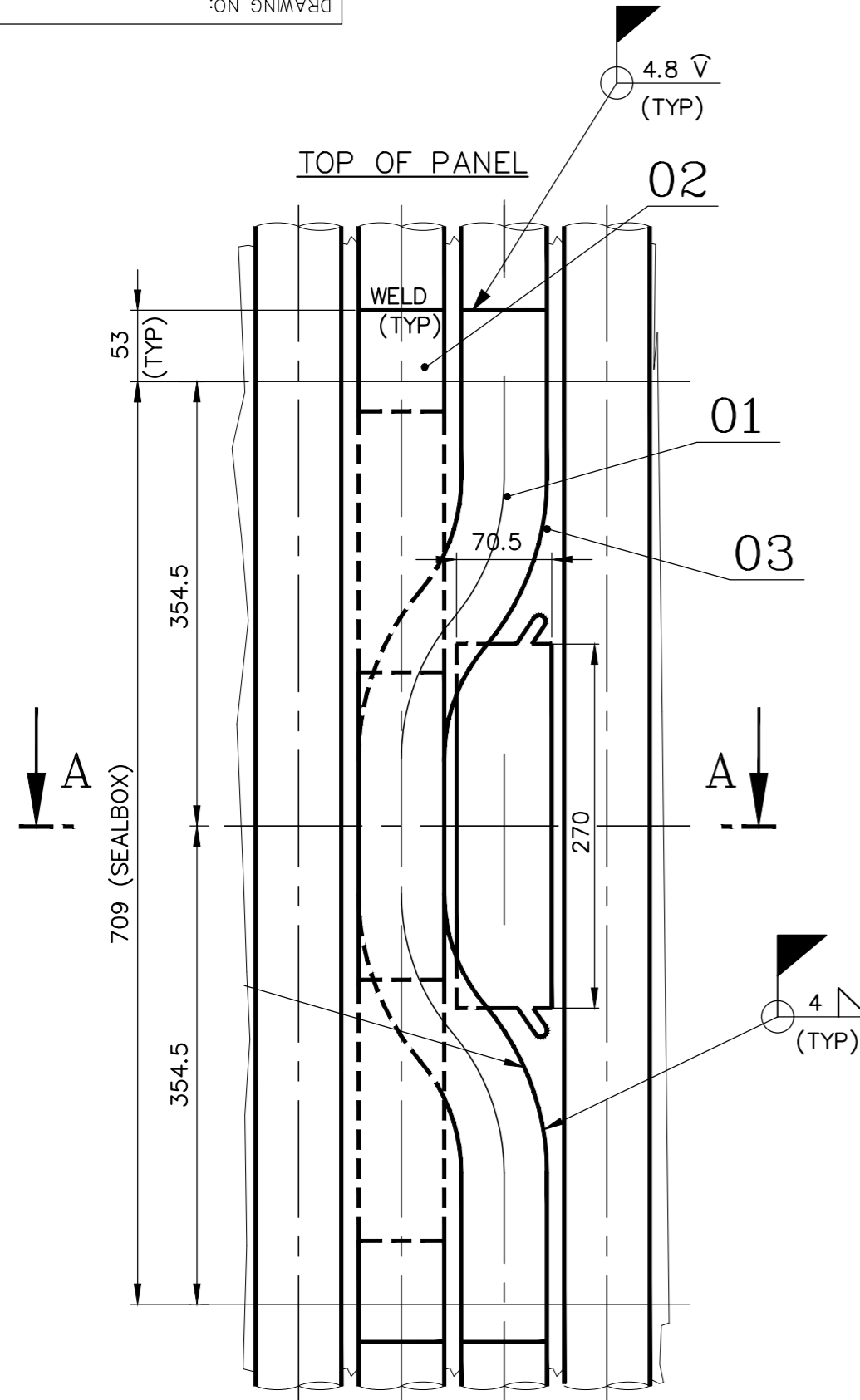
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO - SAMBALPUR BOILER SPARES MAKER NO. : 8136	
DEPT	HTE	PROJECTION	SCALE
CODE	320	N.T.S	N.T.S
WEIGHT (Kg)		REF TO ASSY / OLD DWG	
112.300		2-06-651-08578/03	
TITLE			REV
OVAL ACCESS DOOR OPENING ASSY.			00

REV	DATE	ALTERED :
01		CHD & APPD:

NOTES:

01. DESIGN PRESSURE : 166.8 KG/SQ.CM (G) (164+2.8).
02. DESIGN TEMPERATURE : 376°C (348+28).
03. DESIGN, MANUFACTURING & INSPECTION AS PER IBR.
04. FINS SHALL BE WELDED TO TUBES FROM HOTSIDE ONLY UNLESS OTHERWISE SPECIFIED.
05. EDGE PREPARATION OF TUBE ENDS AS PER DETAIL-B.
06. TOLERABNCE UNLESS OTHERWISE SPECIFIED; LINER : ±1.5MM, ANGULAR : ±1°
07. CUT OUT AREAS TO BE GROUND FLUSH WITH THE SURFACE OF THE TUBE. DO NOT UNDERCUT THE TUBES.
08. ROD DIA 6 (ITEM No.:04) TO BE CUT TO REQUIRED LENGTH AND TO BE WELDED TO FIN ONLY FROM HOT SIDE TO CLOSE THE VOID SUITABLY.
09. FIN (ITEM.No.:03) TO BE CUT APART SHOWN AFTER WELDING IN PLACE.
10. MATERIALS OF EQUIVALENT/SUPERIOR SPECIFICATION & HIGHER THICKNESS ARE ACCEPTABLE FOR ALL ITEMS.
11. QUANTITY TO BE PRODUCED : 8 NOS.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS	ZONE
					VAR NO	MATERIAL SPECN		DI	QUANTITY		
	04	ROD D6; 504 LONG				15 004 026 IS 2062 Gr.A		L	0.110		
	03	PL.6; 80X80				15 211 092 IS 2062 Gr.A		L	0.300		
	02	TUBE D63.5X6.3 844 LONG				AA1049046200 SA210 GR.C	A	L	8.000		
	01	TUBE D63.5X6.3 852 LONG				AA1049046200 SA210 GR.C	A	L	8.100		

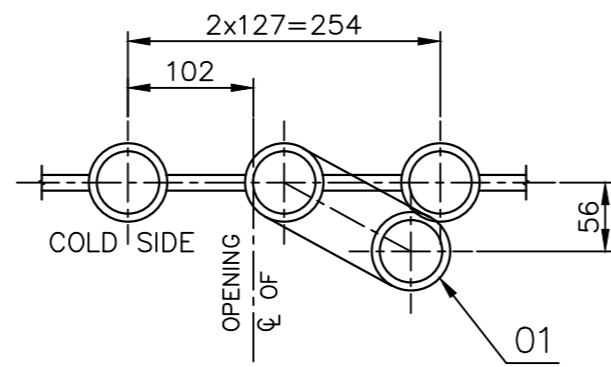
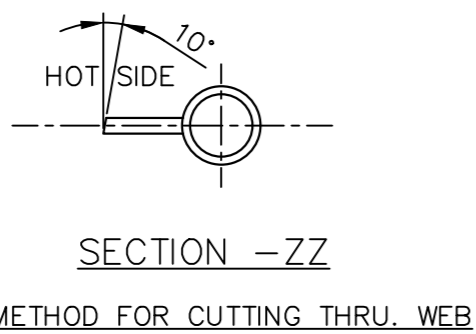
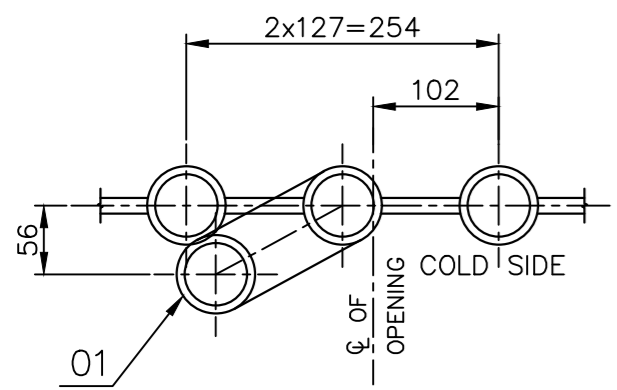
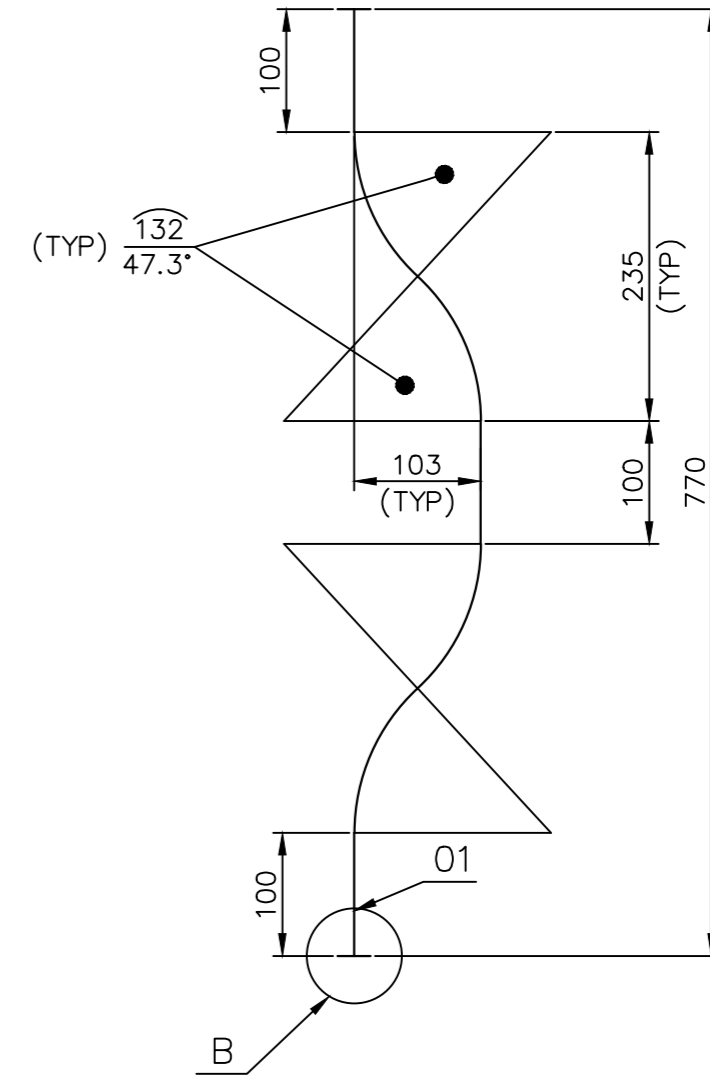
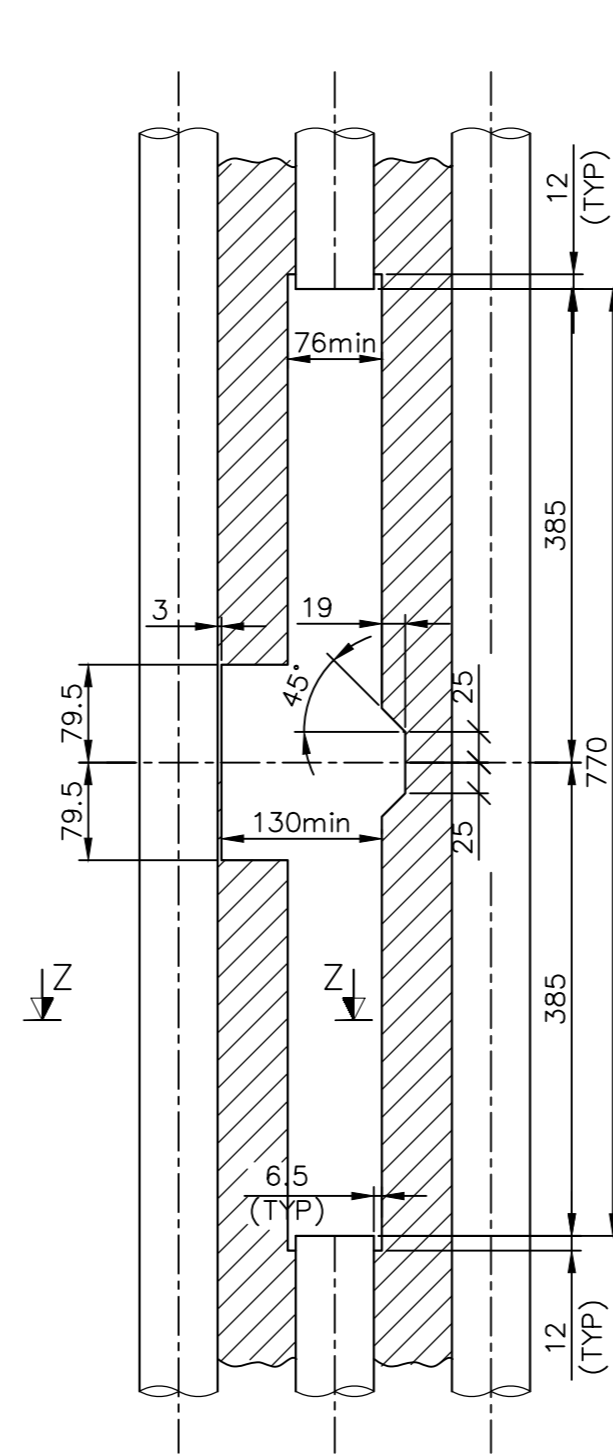
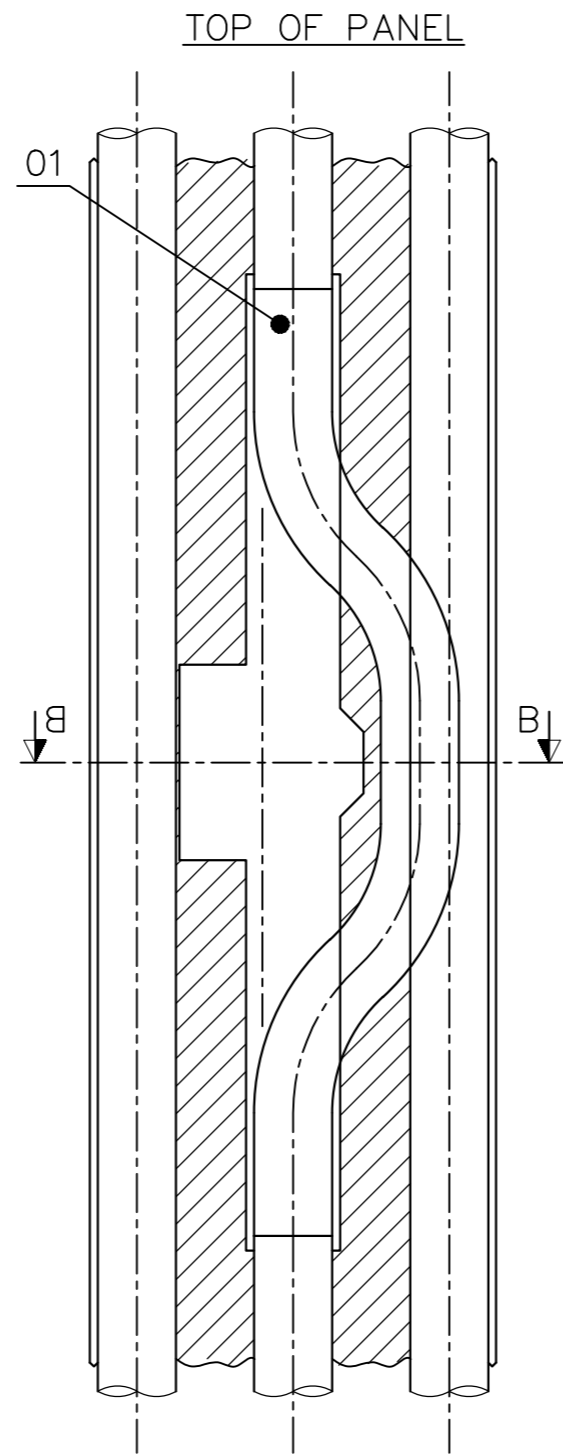
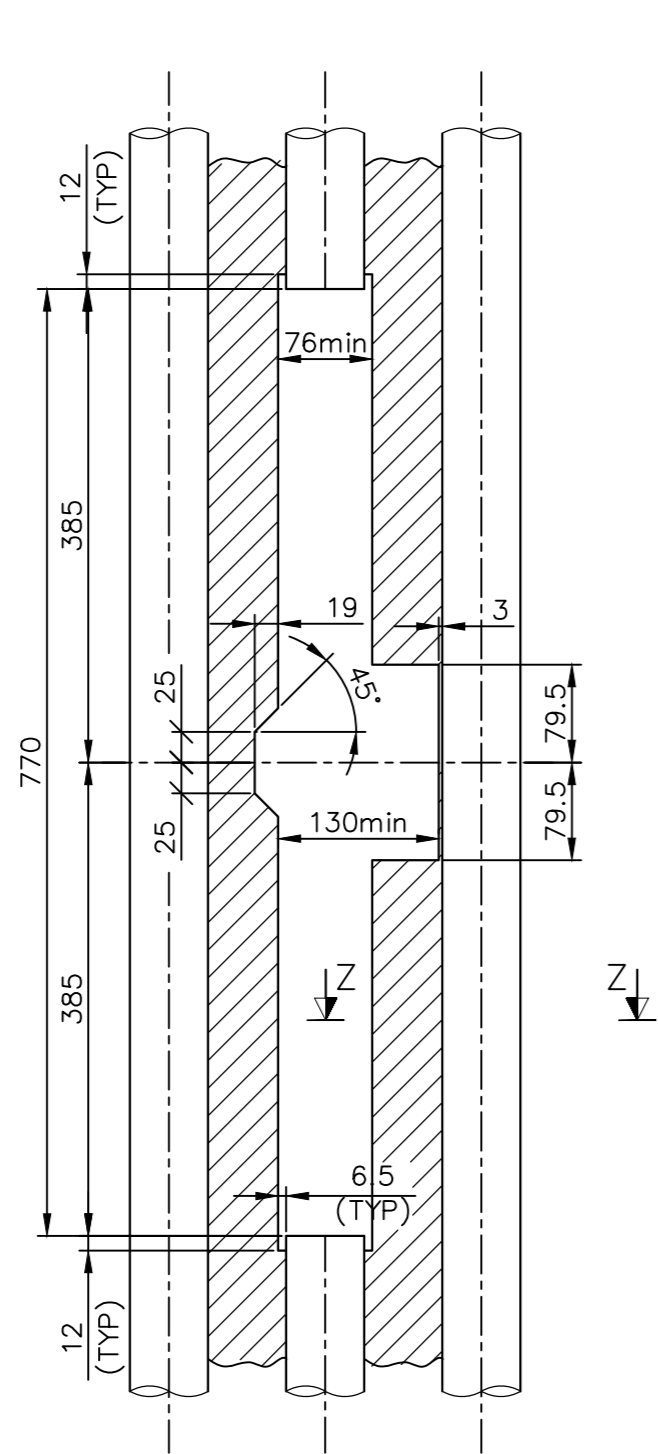
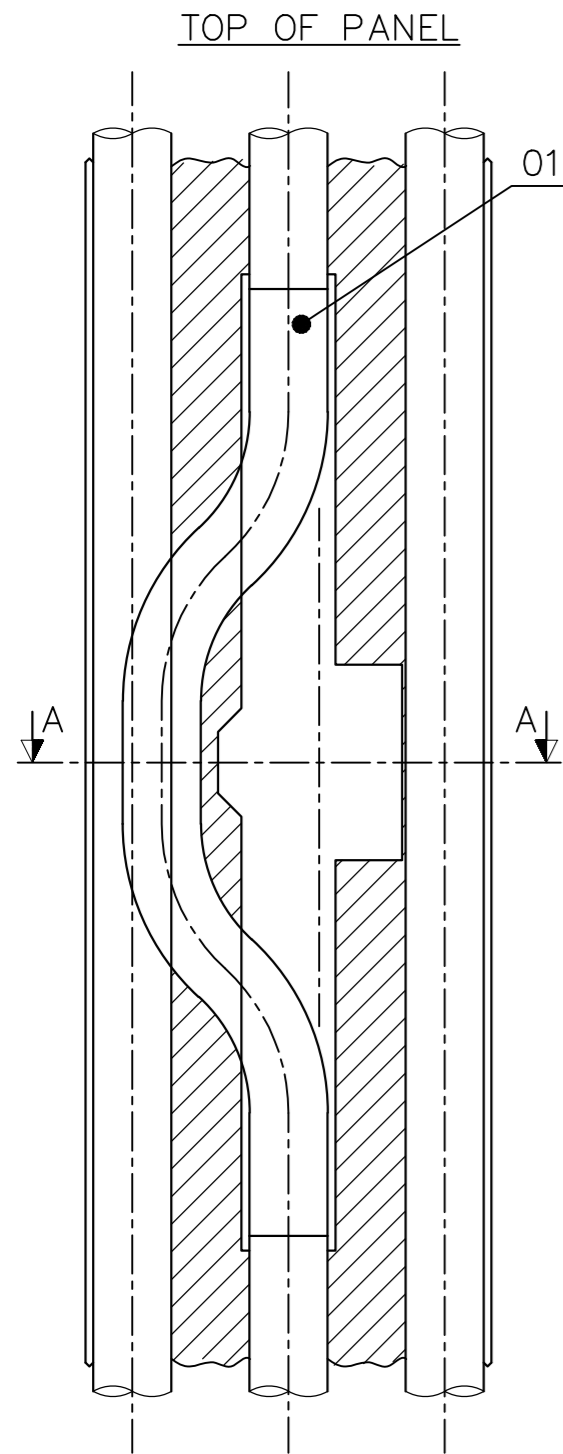


DETAIL-B
FIG.4 OF IBR REG.125
(ON BOTH SIDES)

FOR OBS.DOORS
AND INSTRUMENT INSERTS

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO-SAMBALPUR BOILER MAKER NO. : 8136			
	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
			CHD	KRANTHI KISHORE	24-12-2025	
	DEPT	HTE	APPD	K.TARAKESH	24-12-2025	
CODE	320	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
			N.T.S		16.810	2-06-655-10874
TITLE					DRAWING NO :	REV
CUTOUT OPENING					2-06-655-U8057	00

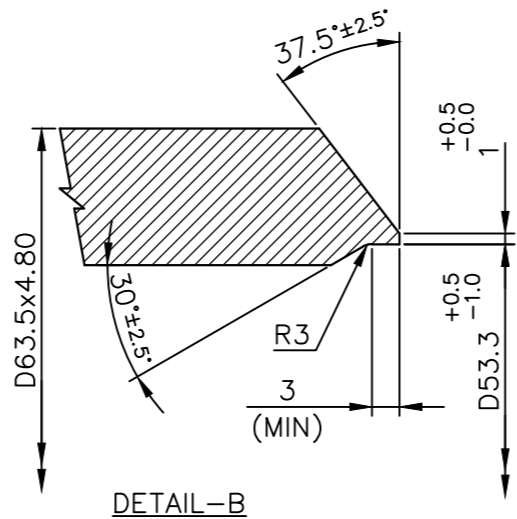
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.



SECTION -AA
VAR-01

SECTION -ZZ
METHOD FOR CUTTING THRU. WEB

SECTION -BB
VAR-02



DETAIL-B
FIG.4 OF IBR REG.125

NOTES: -

- DESIGN PARAMETERS AS PER ASSEMBLY DRAWING.
- EDGE PREPARATION AS PER DETAIL-B.
- TOLERANCE UNLESS OTHERWISE SPECIFIED; LINER: - ±1.5MM, ANGULAR: - ±1'.
- CUTOUT AREAS TO BE GROUND FLUSH WITH THE SURFACE OF THE TUBE. DO NOT UNDERCUT THE TUBES.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C	UNIT	UNIT WEIGHT	CS	ZONE
					VAR NO	MATERIAL SPECN		D1	QUANTITY		
02	01	TUBE D63.5x6.3 828 LONG				AA1049046200 SA 210 GR.C	A		7.800 01		
01	01	TUBE D63.5x6.3 828 LONG				AA1049046200 SA 210 GR.C	A		7.800 01		

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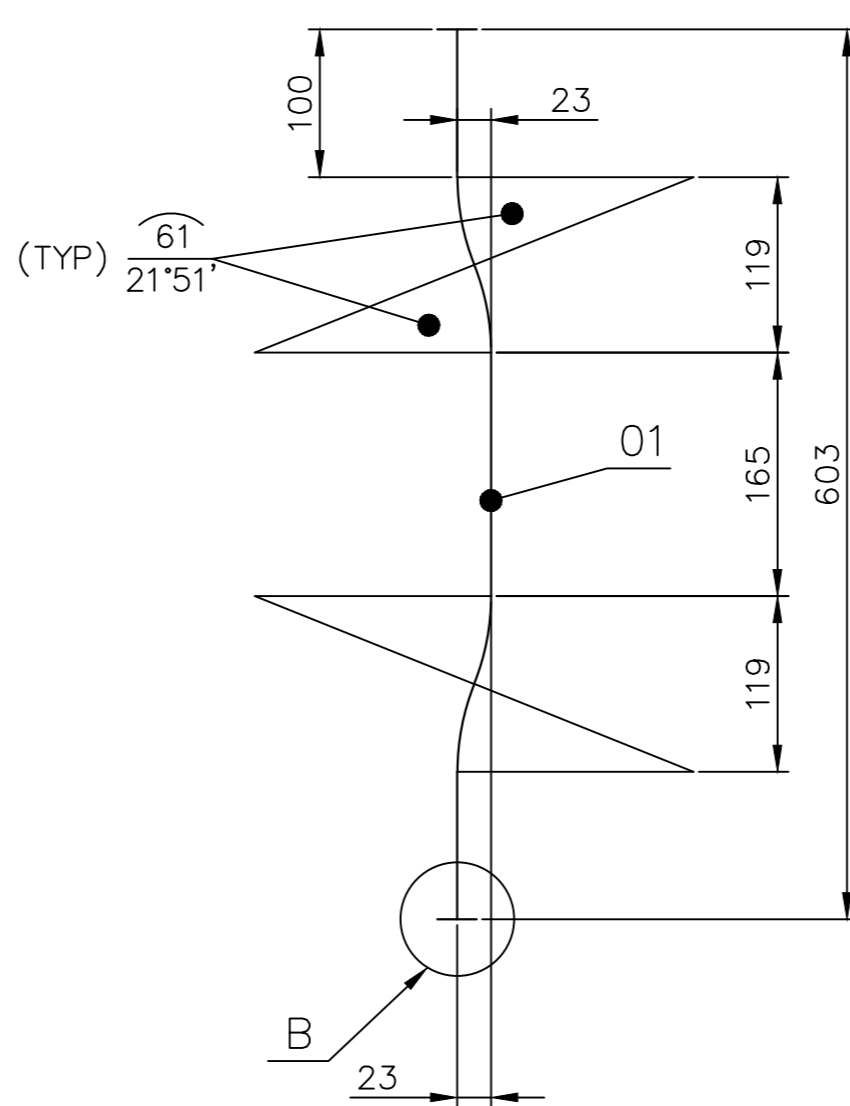
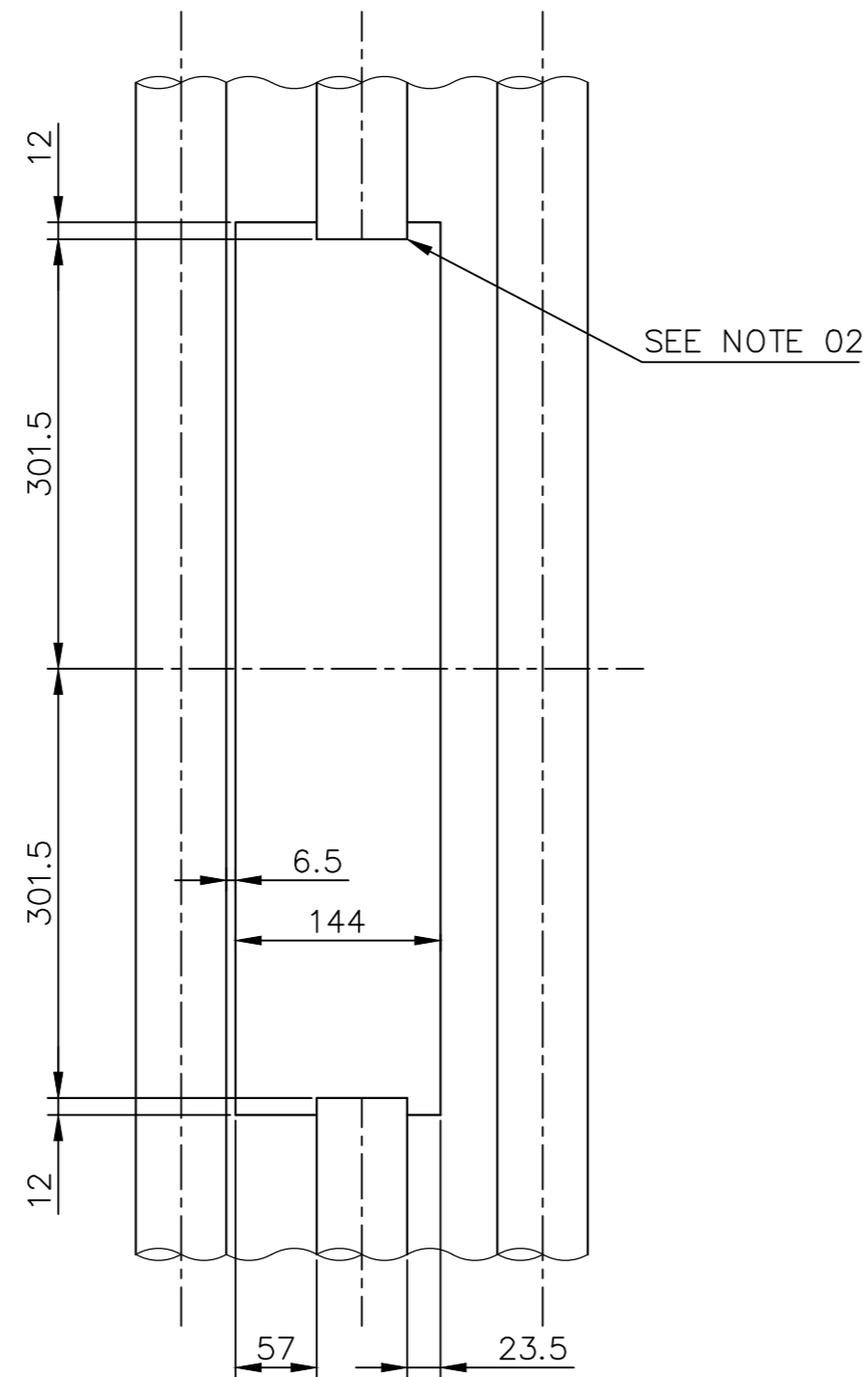
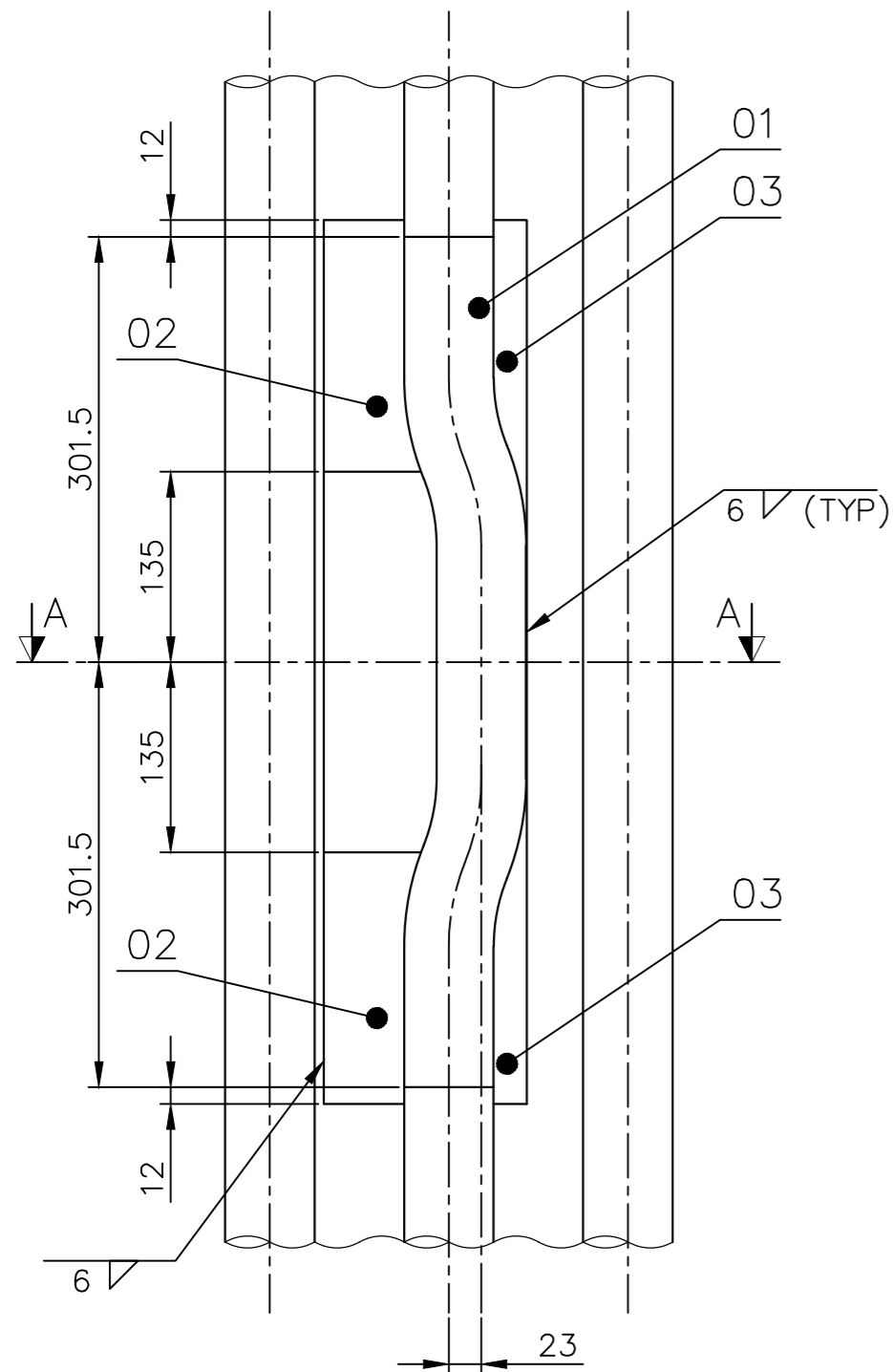
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PROJECT : HINDALCO - SAMBALPUR
BOILER SPARES MAKER NO. : 8136

DEPT	HTE	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE	320			N.T.S	7.800	2-06-670-08174

DRN	NAME	DATE
CHD	RAJU	26.12.2025
APPD	ANVK KISHORE	26.12.2025
	K TARAKESH	26.12.2025

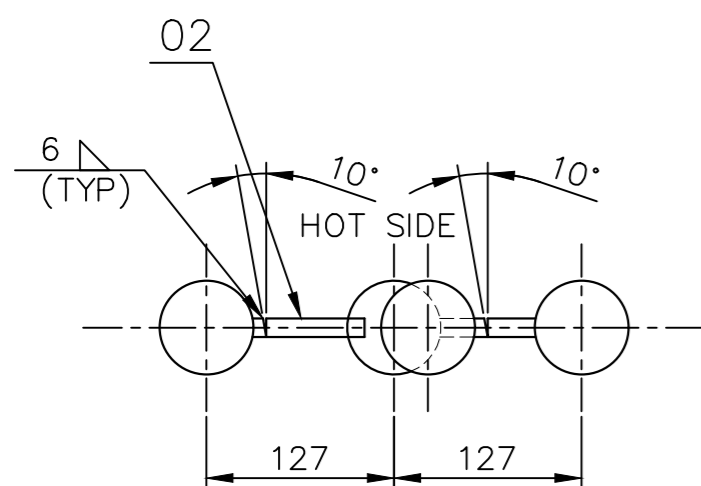
TITLE	DRAWING NO :	REV
OPENING FOR SOOT BLOWER	2-06-670-U8058	00

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

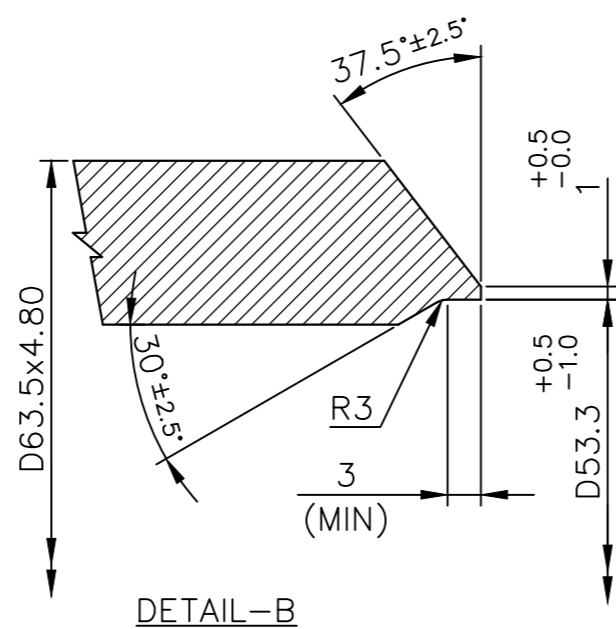
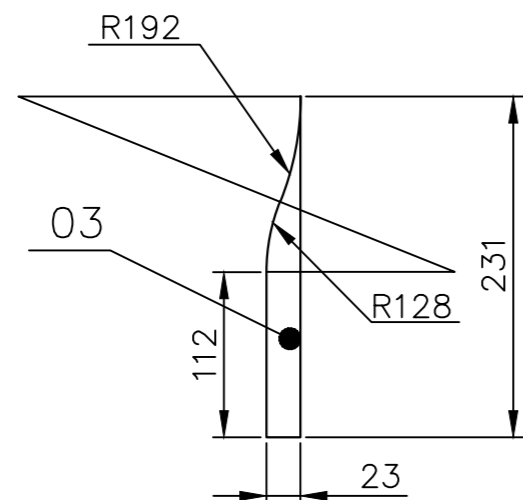
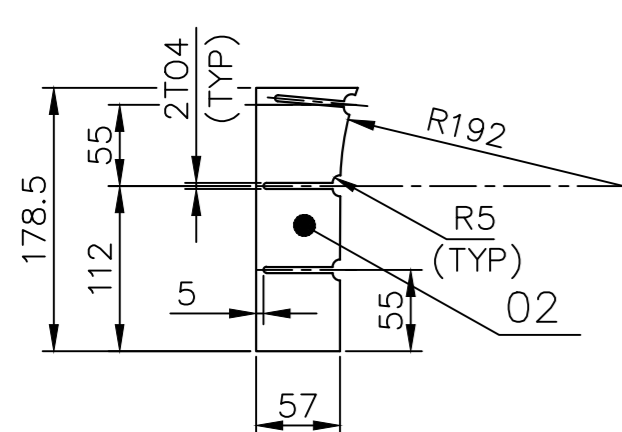


NOTES:-

1. FINS SHALL BE ATTACHED TO TUBES WITH A MIN OF 5 ∇ WELD AND WELDED FROM HOT SIDE ONLY.
2. DO NOT UNDER CUT TUBES.
3. DESIGN MANUFACTURE AND INSPECTION AS PER IBR.
4. FOR DESIGN PRESSURE & DESIGN TEMPERATURE REFER ASSY. DRG.
5. RADIUS OF BEND : 160



SECTION -AA



DETAIL-B
FIG.4 OF IBR REG.125

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C	UNIT	UNIT WEIGHT	CS	ZONE
					VAR NO	MATERIAL SPECN		D1	QUANTITY		
	03	PL 6; 23x231				15 211 092 0000 IS 2062 GR.A			0.220		02
	02	PL 6; 178.5x75				15 211 092 0000 IS 2062 GR.A			0.550		02
	01	TUBE D63.5x4.8 609 LONG				AA1049048032 SA 210 GR.C	A		4.500		01

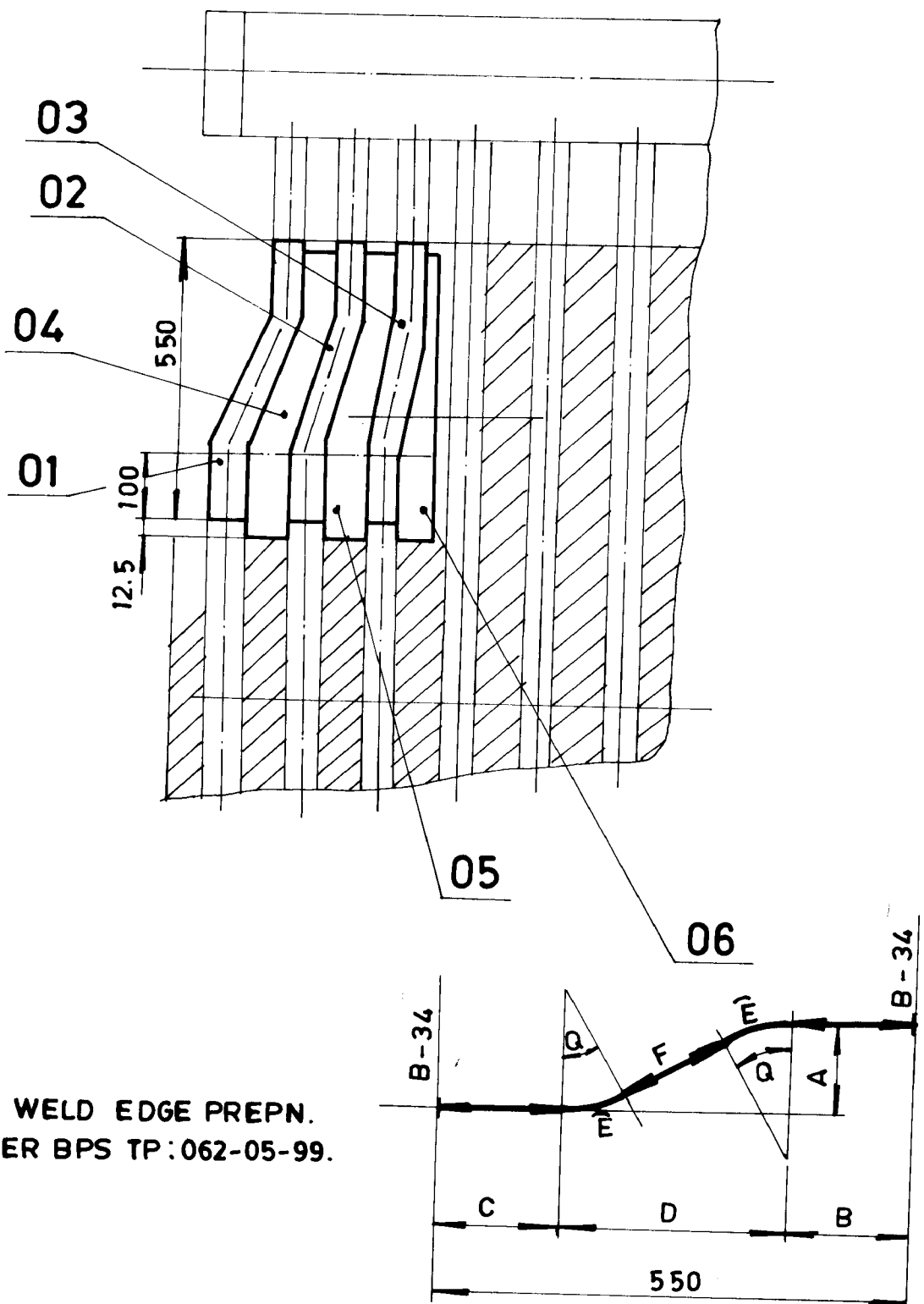
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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO - SAMBALPUR BOILER SPARES MAKER NO. : 8136	
DEPT HTE CODE 320	ALL DIMENSIONS ARE IN MM	PROJECTION N.T.S	SCALE N.T.S
DRN RAJU	NAME ANVK KISHORE	DATE 26.12.2025	DATE 26.12.2025
APPD K TARAKESH	DATE 26.12.2025	REF TO ASSY / OLD DWG 2-06-670-05312/02	
TITLE OPENING FOR DOUBLE INST. INSERT		DRAWING NO : 2-06-670-U8059	REV 00

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

17810-789-11-3
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETRES



BUTT WELD EDGE PREPN.
AS PER BPS TP:062-05-99.

ITEM	Q	A	B	C	D	E	F	TOTAL LENGTH	REV	DATE	ALTERED CHECKED
01	15°	90	100	76.5	373.5	37.5	310	561.500			
02	15°	60	100	188.5	261.5	37.5	194	557.500			
03	7°	30	100	188	262	17.5	228.5	551.500			

VAR NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO. / VAR NO.	MATL CODE / MATL SPECN	A / C	UNIT / DI	UNIT WT. / QTY.	G.S.
	06	FIN PL. 6X54.75X553		4-11-684-01603		15-011-092			1 200	
	05	FIN PL. 6X112.5X553		4-11-684-01602		15-011-092			2 500	
	04	FIN PL. 6X142.5X553		4-11-684-01601		15-011-092			3 070	
	03	TUBE D44.5X5.0; 551.5 LONG				15-087-011 SA210 GR.C	A		3 010	
	02	TUBE D44.5X5.0; 557.5 LONG				15-087-011 SA210 GR.C	A		3 050	
	01	TUBE D44.5X5.0; 561.5 LONG				15-087-011 SA210 GR.C	A		3 070	

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 1205 463

BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT, TRUCHIRAPALLI-620014.

DRN: Dmk. Velu. SIGN: [Signature] DATE: 16/1/99. NO. OF VAR: 1

CHD: Dmk. Velu. SIGN: [Signature] DATE: 17/2/99. NO. OF VAR: 1

APPD: KR SIGN: [Signature]

DEPT: PP GRADE OF UNTOL. DIM: C/M/F SCALE: N.T.S. WEIGHT (KG): 15.900 REF. TO ASSY/OLD DRG.

TITLE: PANEL INSERT CARD CODE: U 01 DRAWING NO.: 3-11-684-01841 REV: 00

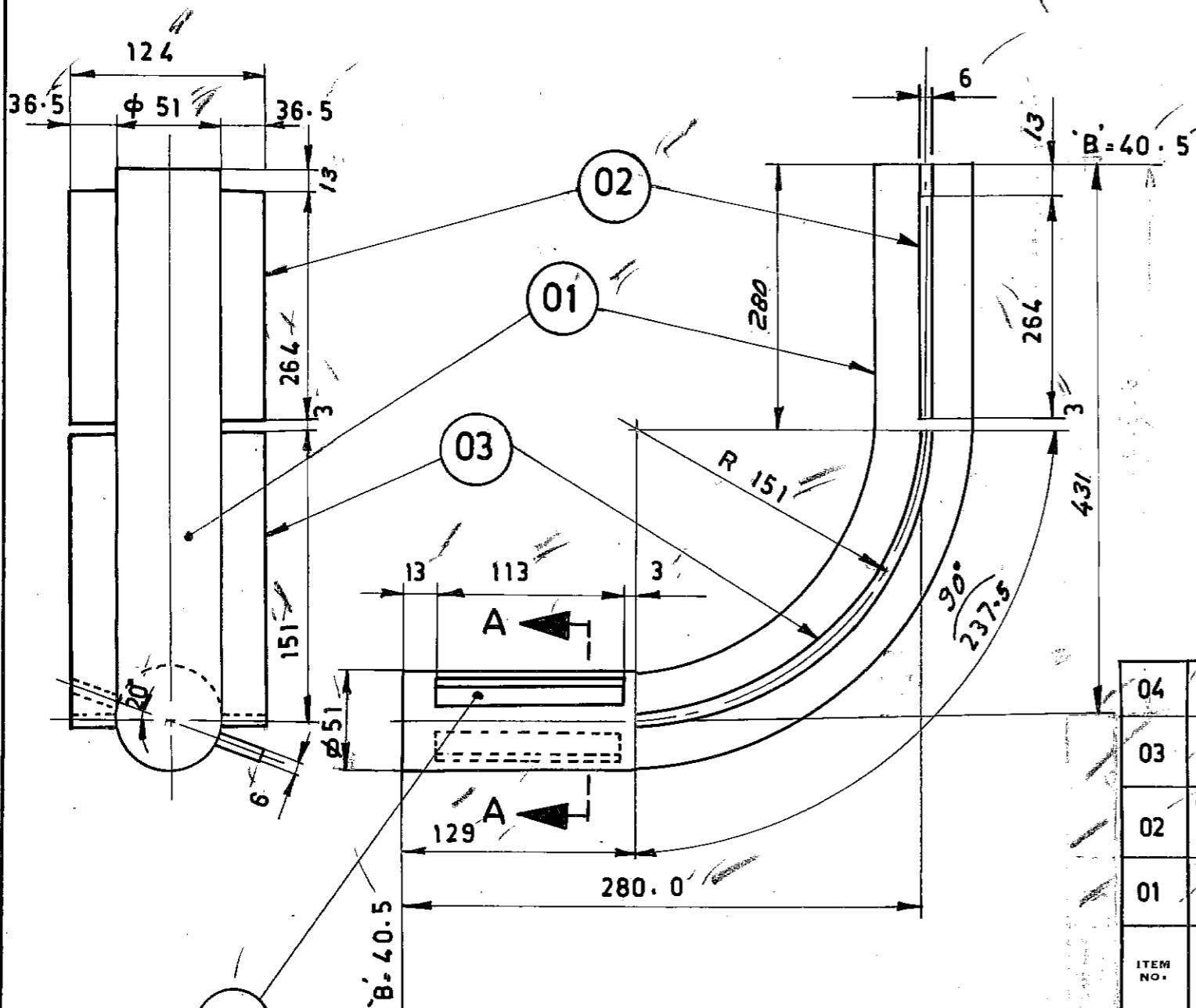
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229 / C

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3.11.694 - 00521

DRAWING No.



R = 151

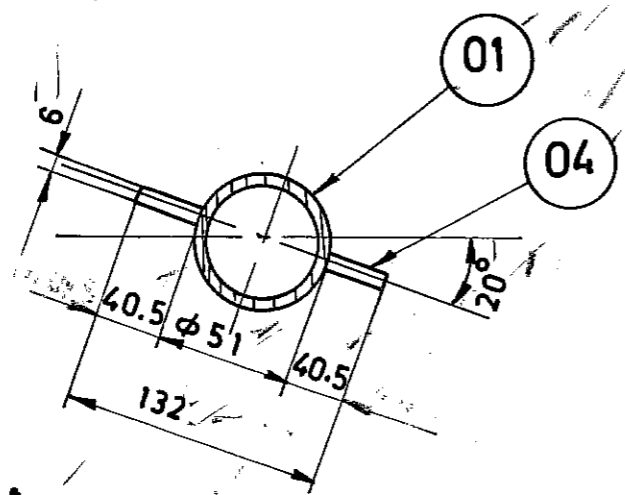
REFERENCE

BUTT WELD EDGE PREPARATION AS PER
BPS 710004 - 76XX 'B' 40.5

TO BE PRODUCED : 13 NOS/ BOILER.
MARK NO. SDA-1

ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A/C	UNIT	UNIT WT	QTY
04	SAW CUT FIN 6 X 40.5 X 113		4 - 11 - 694 - 00744	15 - 011 - 092	BM - CC 20			0.22	2
03	SAW CUT FIN 6 X 36.5 X 237.5		4 - 11 - 694 - 00745	15 - 011 - 092	BM - CC 20			0.41	2
02	SAW CUT FIN 6 X 36.5 X 264		4 - 11 - 694 - 00743	15 - 011 - 092	BM - CC 20			0.45	2
01	D 51 X 5 ; 646.5 LONG.			15 - 086 - 095 - 65	SA 210 GRA I	A		4.12	1

04



SECTION-AA

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **BOM**

MICROFILMED ON ROLL **00354** FRAME **382**

Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN	NAME	DATE	NO. OF VAR
CHD	G.R.		
APPD	G.U.		

REV	DATE	ALTERED	CHECKED	DEPT.	GRADE OF UNTOL. DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
01	14/5/89			PP	C/M/F	N.T.S.	6.28		

no. of pieces reduced. (qty)

TITLE: **FINNED TUBES**

CARD CODE: U 01

DRAWING NO.: 3.11.694.00521

RE: 01

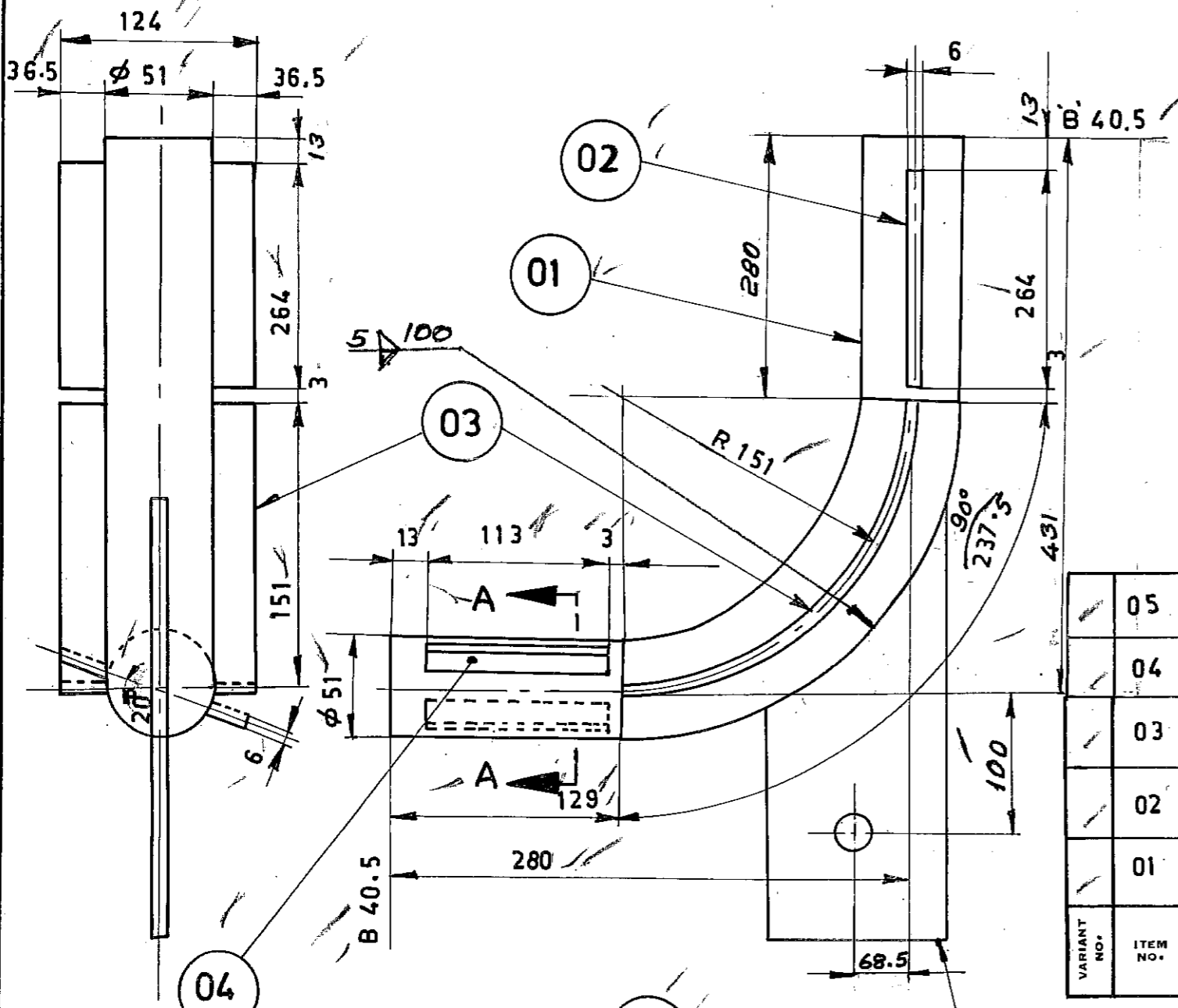
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229 / C

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3-11-694-00522

DRAWING No.



R = 151

REFERENCE:

BUTT WELD EDGE PREPARATION
AS PER BPS 710004-76 XX B 40.5

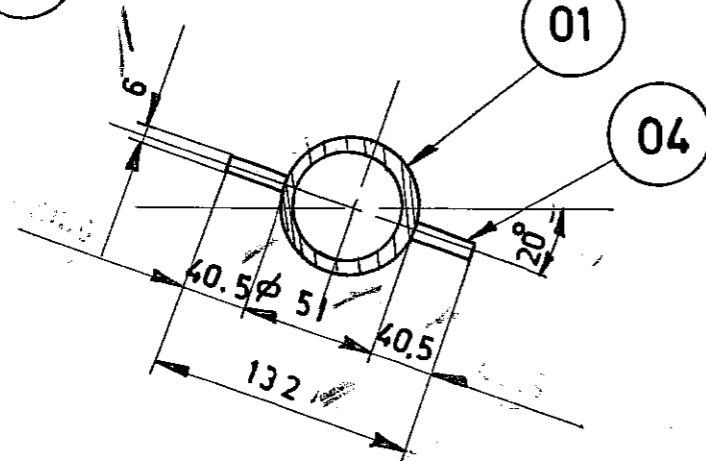
TO BE PRODUCED: 1 NO/BOILER.

MARK NO. SDA-2

FOR LUG WELDING REFER DRG. NO. 4-11-694-00746.

WELD: 5D - E 7018 (A) - 0, 2 m - CERTIFY.

VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	QTY
	05	LUG PLATE. PL. 10x 90x 194		4-11-694-00746	15/01/098	BM C 20			1.40	1
	04	SAW CUT FIN 6 X 40.5 X 113		4-11-694-00744	15-011-092	BM C-20			0.22	2
	03	SAW CUT FIN 6 X 36.5 X 237.5		4-11-694-00745	15-011-092	BM C-20			0.41	2
	02	SAW CUT FIN 6 X 36.5 X 264		4-11-694-00743	15-011-092	BM C-20			0.45	2
	01	D 51 X 5 ; 646.5 LONG			15-086-095-65	SA 210 GR A1	A		4.12	1



SECTION. AA

LUG WELDING PER DRG.
4-11-694-00746

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		MICROFILMED ON ROLL 00354 FRAME 3811	
BOM			
Bharat Heavy Electricals Ltd., BOILER PLANT UNIT TIRUCHIRAPALLI-620 014		DRN D. M. YELU	DATE
		CHD G. R.	
		APPD G. O.	
DEPT. PP	GRADE OF UNTOL. DIM C/M/F	SCALE NTS	WEIGHT (kg) 7.68
CODE 121			REF TO ASSY / OLD DRG
TITLE FINNED TUBES		CARD CODE U 01	DRAWING NO. 3-11-694-00522

REV	DATE	ALTERED	CHECKED
01			

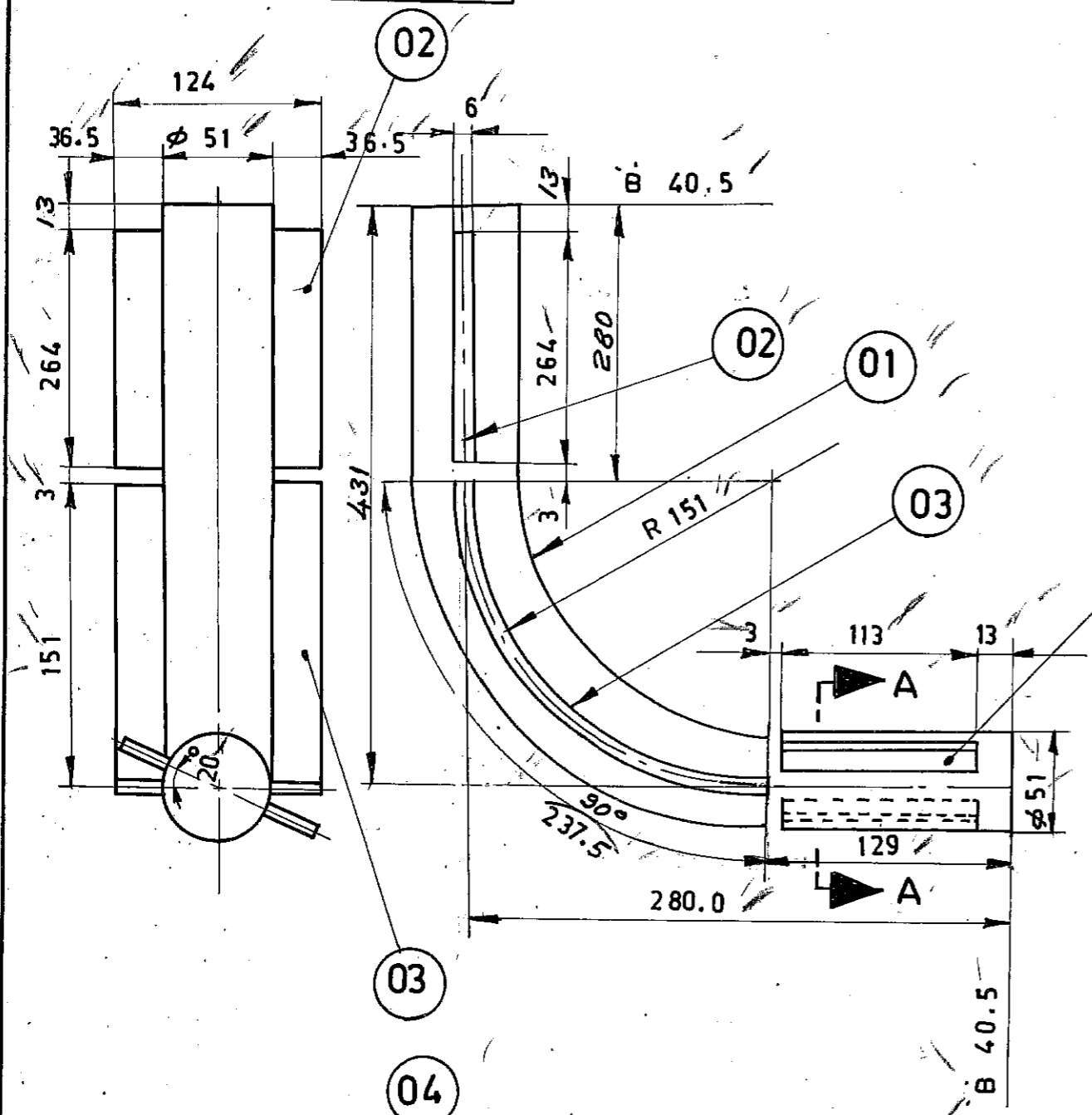
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229 / C

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3 - 11-694 - 00523

DRAWING NO.



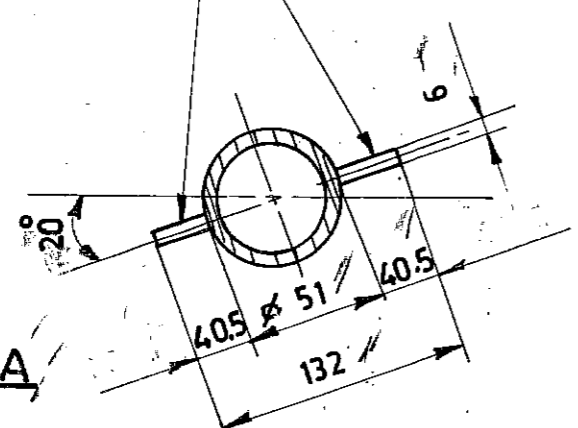
R = 151

REFERENCE:

1 BUTT WELD EDGE PREPARATION AS PER BPS. 710004 - 76 XX 'B' 40.5
TO BE PRODUCED. : 13 NOS/BOILER. Δ

MARK NO. SDA - 3

VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A/C	UNIT	UNIT WT	QTY
	04	SAW CUT FIN 6X40.5 X 113		4-11-694-00744	15-011-092	BMC-20			0.22	2
	03	SAW CUT FIN 6X36.5 X 237.5		4-11-694-00745	15-011-092	BMC-20			0.41	2
	02	SAW CUT FIN 6 X 36.5 X 264		4-11-694-00743	15-011-092	BMC-20			0.45	2
	01	D 51 X 5 ; 646.5 LONG			15-086-095-65	SA210 GR A 1	A		4.12	1



SECTION AA

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **BOM**
MICROFILMED ON ROLL 00354 FRAME 380

Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: D.M. VELLU
CHD: G.R.
APPD: G.U.

REV	DATE	ALTERED	CHECKED	DEPT.	GRADE OF UNTO. DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
01				PP	C/M/F	NTS.	6.28		
Qty of pieces reduced.				CODE					
TITLE: FINNED TUBES							CARD CODE: U 01	DRAWING NO.: 3-11-694-00523	REV: 01

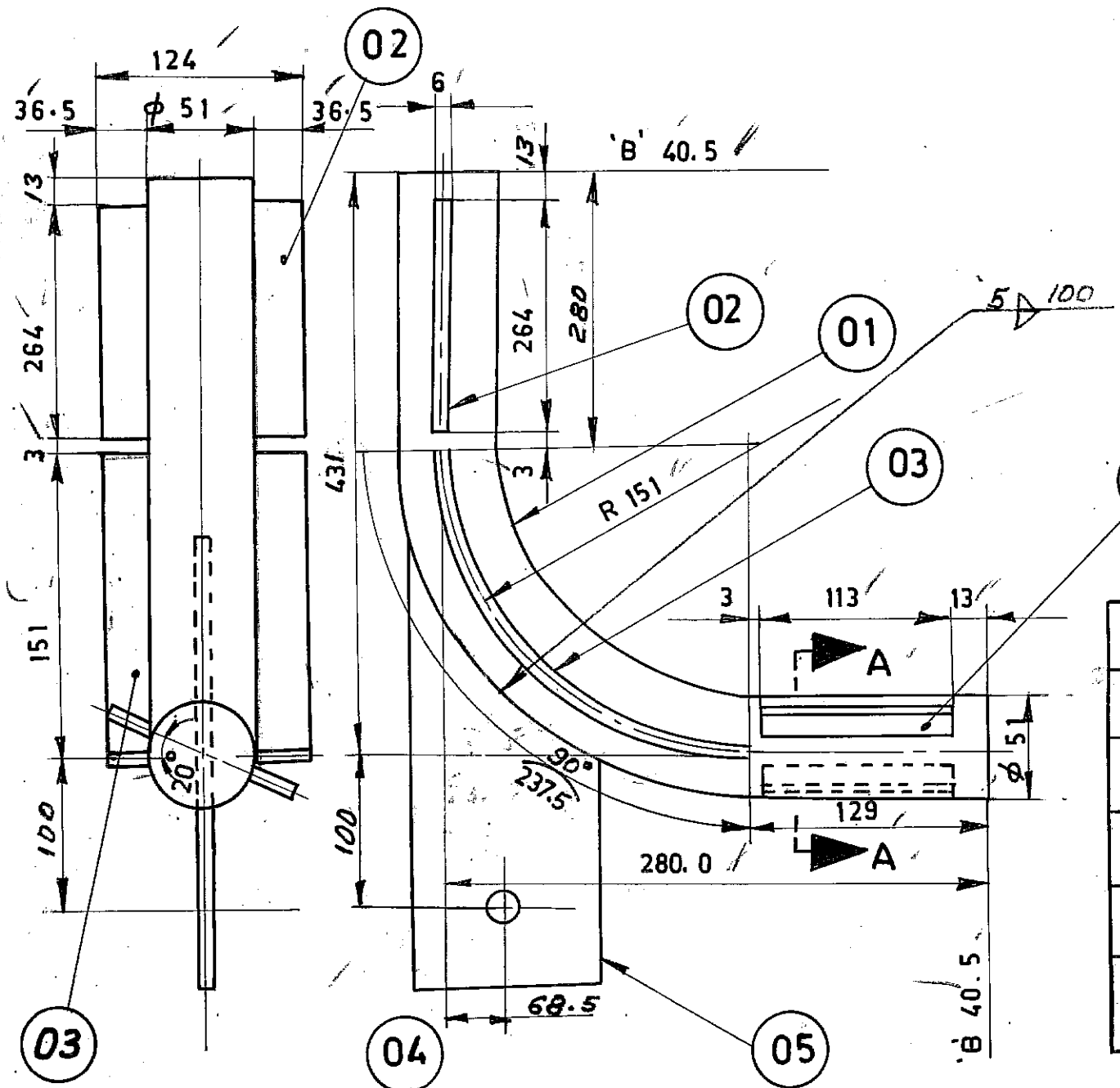
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229/C

3.11.694.00524

DRAWING No.

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R=151

REFERENCE:

1. BUTT WELD EDGE PREPARATION AS PER BPS.710004 -76XX'B-40.5 TO BE PRODUCED:- INO/BOILER.

MARK NO. SDA-4
FOR LUG WELDING REFER DRG. NO. 4.11.694.00746

WELD:
5Δ-E7018(A) - 0,2m - CERTIFY.

VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	QTY
	05	LUG PLATE PL. 10 x 90 x 194		4-11-694-00746	15/011/098	BMC-20			1.40	1
	04	SAW CUT FIN 6 X 40.5 X 113		4-11-694-00744	15-011-092	BMC-20			0.22	2
	03	SAW CUT FIN 6 X 36.5 X 237.5		4-11-694-00745	15-011-092	BMC-20			0.41	2
	02	SAW CUT FIN 6 X 36.5 X 264		4-11-694-00743	15-011-092	BMC-20			0.45	2
	01	D 51 X 5 ; 646.5 LONG			15/086/095/65A	SA 210 G.T.A1			4.12	1

LUG WELDING AS PER DRG.
4-11-694-00746

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **BOM**

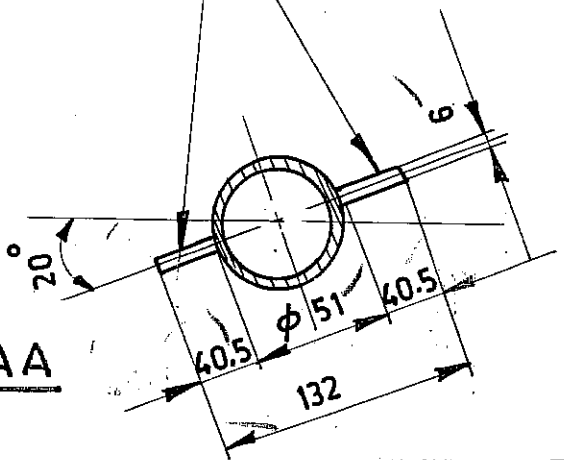
MICROFILMED ON ROLL **100354** FRAME **3719**

Bharat Heavy Electricals Ltd.
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: **D.M.VELU.**
CHD: **G.R.**
APPD: **G.U.**

REV	DATE	ALTERED	CHECKED	DEPT.	GRADE OF UNTOL. DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
01				PP	C/M/F	NTS	7.68		
TITLE: FINNED TUBE							CARD CODE: U 01	DRAWING NO.: 3.11-694.00524	REV

SECTION-AA



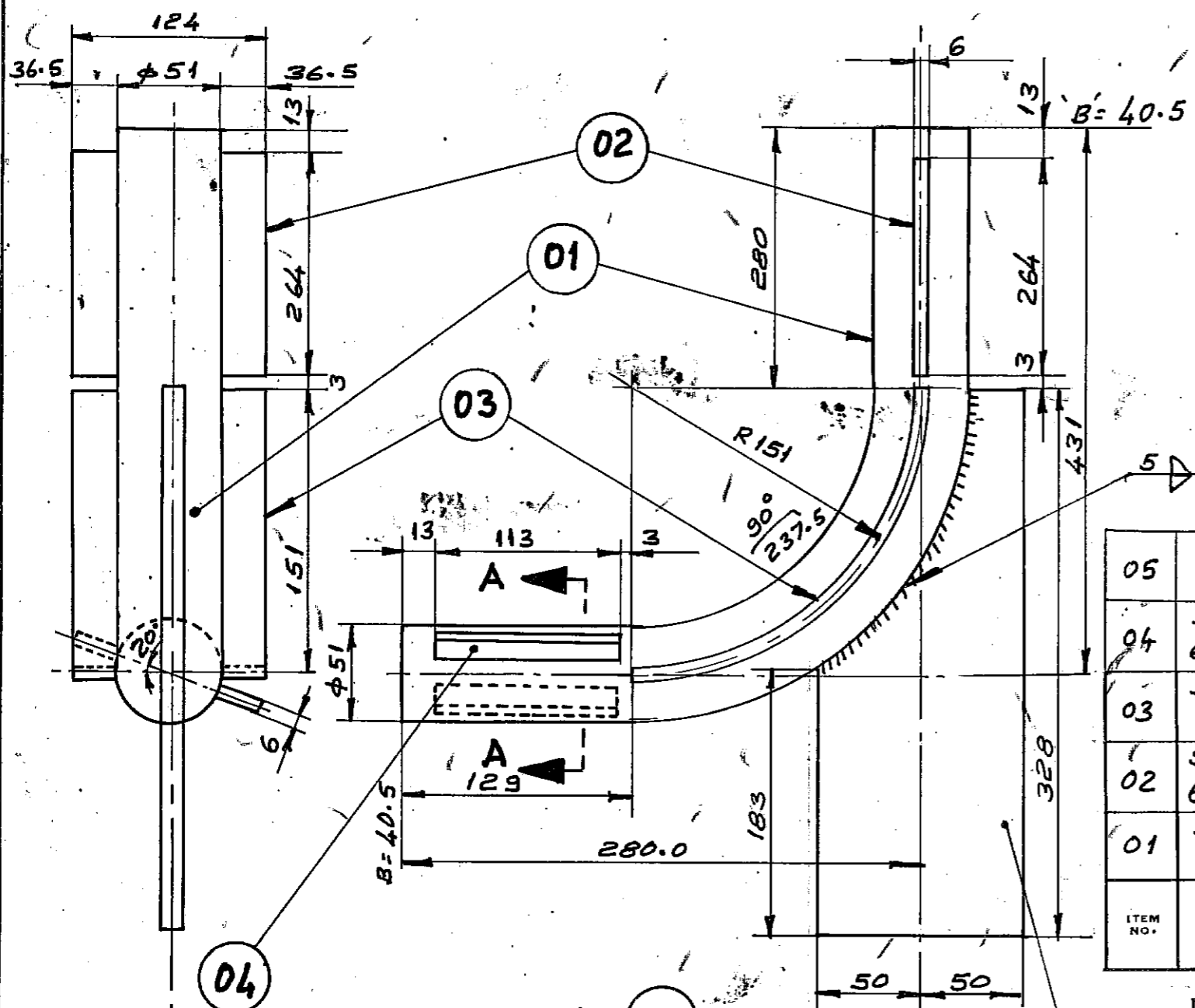
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229/C

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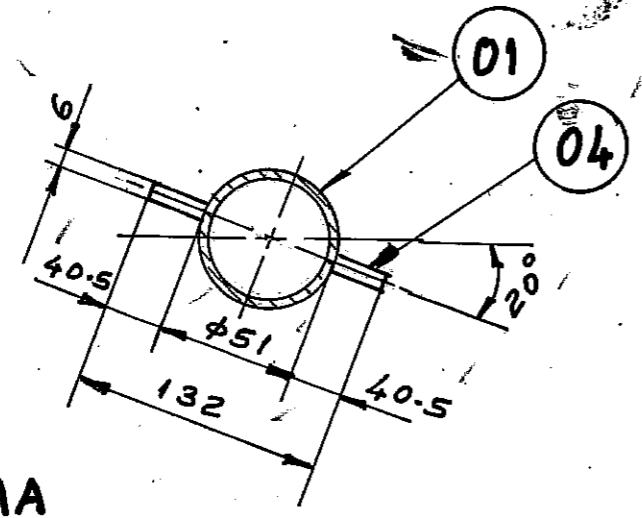
DRAWING NO.

R 151



REFERENCE:
 BUTT WELD EDGE PREPN. AS PER BPS.710004-76 XX.
 MARK NO. SDA-5 [L2] B=40.5
 TO BE PRODUCED: 1 No.
WELD:
 5D-E7018(A)-0,218M-CERTIFY.

ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	QTY
05	LUG STYLE-L2		4-11-694-00773	15/042/110	SA515Gr.70	C		3.10	1
04	SAW CUT FIN 6x40.5x113		4-11-694-00744	15/011/092	BM C-20			0.22	2
03	SAW CUT FIN 6x36.5x237.5		4-11-694-00745	15/011/092	BMC-20			0.41	2
02	SAW CUT FIN 6x36.5x264		4-11-694-00743	15/011/092	BMC-20			0.45	2
01	D 51x5 646.5 LONG.			15/086/095/65	SA 210Gr-A1	A		4.12	1



SECTION. AA

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
 MICROFILMED ON BOM
 ROLL 00354 FRAME 346

Bharat Heavy Electricals Ltd., BOILER PLANT UNIT TIRUCHIRAPALLI-620 014	DRN	NAME	SIGN	DATE	NO. OF VAR
	CHD	G.R.			
	APPD	N.S.C.M.			

REV 01	DATE	ALTERED	DEPT. PP	GRADE OF UNTOL. DIM C/M/F	SCALE NTS	WEIGHT (kg) 3.38	REF TO ASSY / OLD DRG	ITEM NO.
		CHECKED	CODE 121					
TITLE FINNED TUBES						CARD CODE U 01	DRAWING NO. 3-11-694-00559	REV

05-229/C

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DRAWING NO.

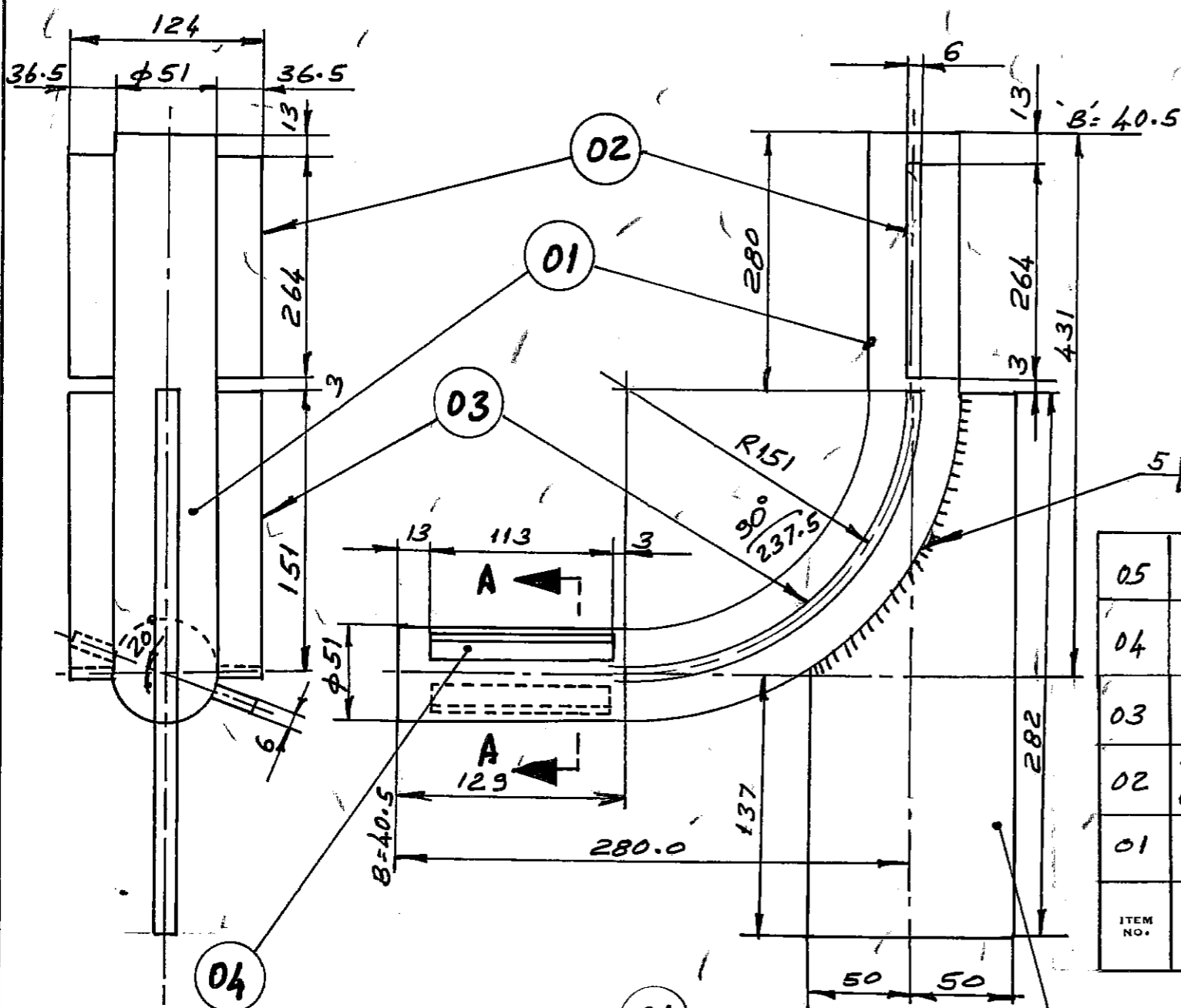
R=151

REFERENCE:

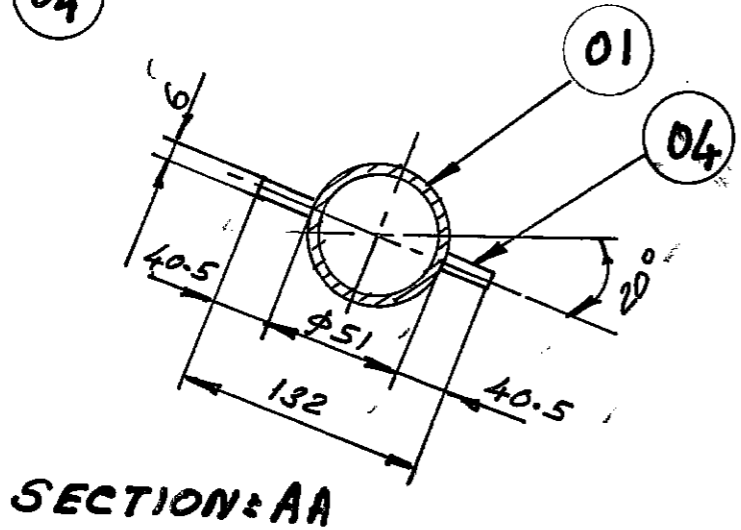
BUTT WELD EDGE PREPN. AS PER BPS.710004-76XX
MARK NO. SDA-6 [L3]
TO BE PRODUCED: 1 NO.

WELD:

5A-E7018(A)-0,218M - CERTIFY.



ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	GS
VAR NO.					MATL SPEC	C		QTY	
05	LUG STYLE-L3		4-11-694-00773	15/042/110	SASIS Gr.70	C		2.66	
04	SAW CUT FIN 6X40.5 X 113		4-11-694-00744	15/011/092	BMC-20			0.22	
03	SAW CUT FIN 6X36.5 X 237.5		4-11-694-00745	15/011/092	BMC-20			0.41	
02	SAW CUT FIN 6X36.5 X 264		4-11-694-00743	15/011/092	BMC-20			0.45	
01	Ø 51 X 5 646.5 LONG.			15/086/095/65	SA 210 Gr. A1	A		4.12	



TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

MICROFILMED ON **BOI**

ROLL **00354** FRAME **3A0**

Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: D.M.K.Vdn
CHD: G.R.
APPD: N.S.C.M.

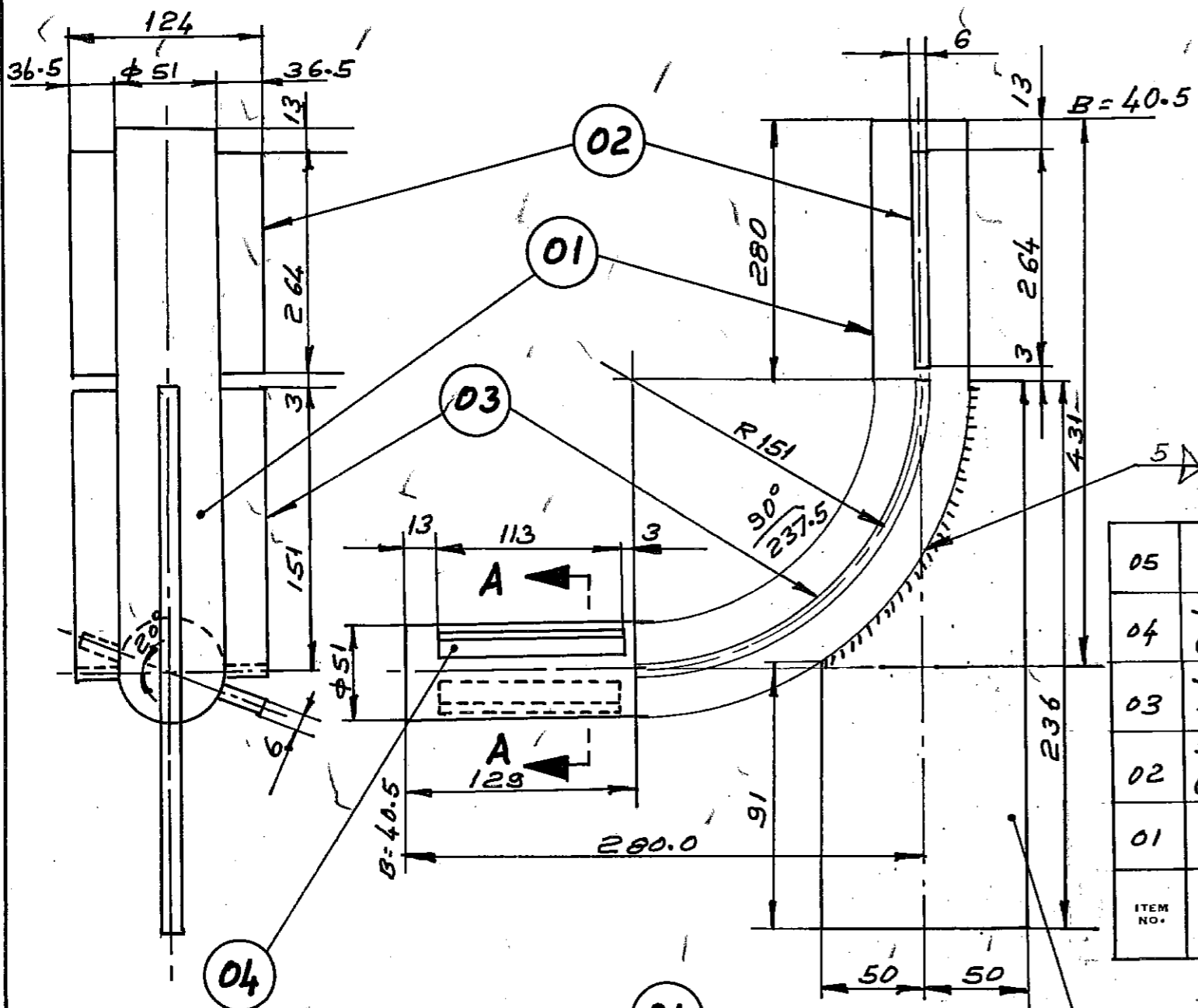
NAME: [Signature]
SIGN: [Signature]
DATE: [Signature]
NO. OF VAR: [Signature]

REV 01	DATE	ALTERED	DEPT. PP	GRADE OF UNTOI. DIM C/M/F	SCALE NTS	WEIGHT (kg) 8.94	REF TO ASSY / OLD DRG	ITEM NO.
		CHECKED	CODE 121					
TITLE: FINNED TUBES.						CARD CODE: U 01	DRAWING NO.: 3-11-694-00560	REV

05-229/C

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DRAWING No.



R 151

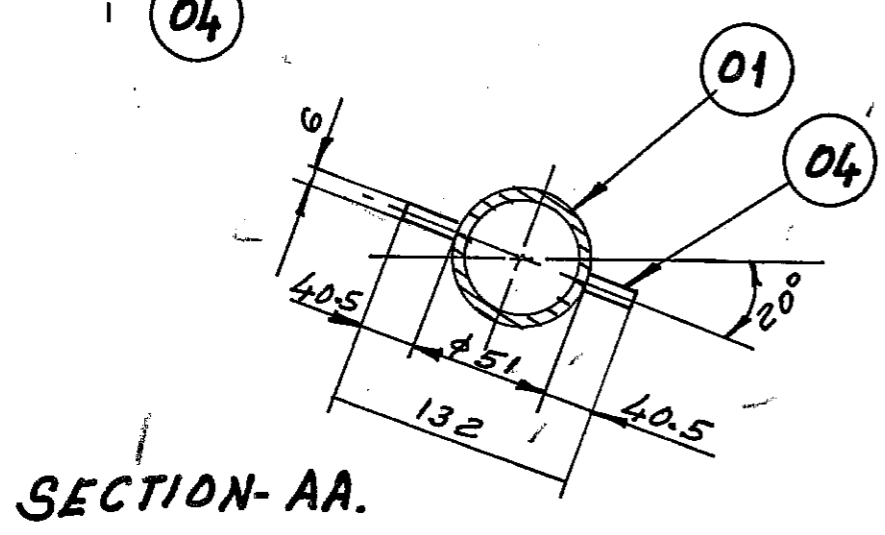
REFERENCE.

BUTT WELD EDGE PREPN. AS PER BPS.
MARK NO. SDA-7[L4] 710004-76XX.B40.5
TO BE PRODUCED: 1 NO.

WELD:

5A-E7018(A)-0,216m - CERTIFY.

ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	QTY
05	LOG STYLE - L4		4-11-694-00773	15/042/110	SASISGr. 70	C		2.22	1
04	SAW CUT FIN 6X40.5X113		4-11-694-00744	15/011/092	BM C-20			0.22	2
03	SAW CUT FIN 6X36.5X237.5		4-11-694-00745	15/011/092	BMC-20			0.41	2
02	SAW CUT FIN 6X36.5X264		4-11-694-00743	15/011/092	BMC-20			0.45	2
01	Ø 51 X 5 646.5 LONG		-	15/086/095/65	SA 210Gr. A1	A		4.12	1



SECTION-AA.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

MICROFILMED ON ROLL 100354 FRAME 3144

Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: D.M.K. Velu, CHD: G.R., APPD: N.S.C.M.

WEIGHT (kg): 8.50

REF TO ASSY/OLD DRG

DEPT. PP, CODE 121, GRADE OF UNTOL. DIM C/M/F, SCALE NTS

TITLE: **FINNED TUBES.**

CARD CODE U 01, DRAWING NO. 3-11-694-00561

REV	DATE	ALTERED	CHECKED
01			

05-229 / C

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DRAWING NO.

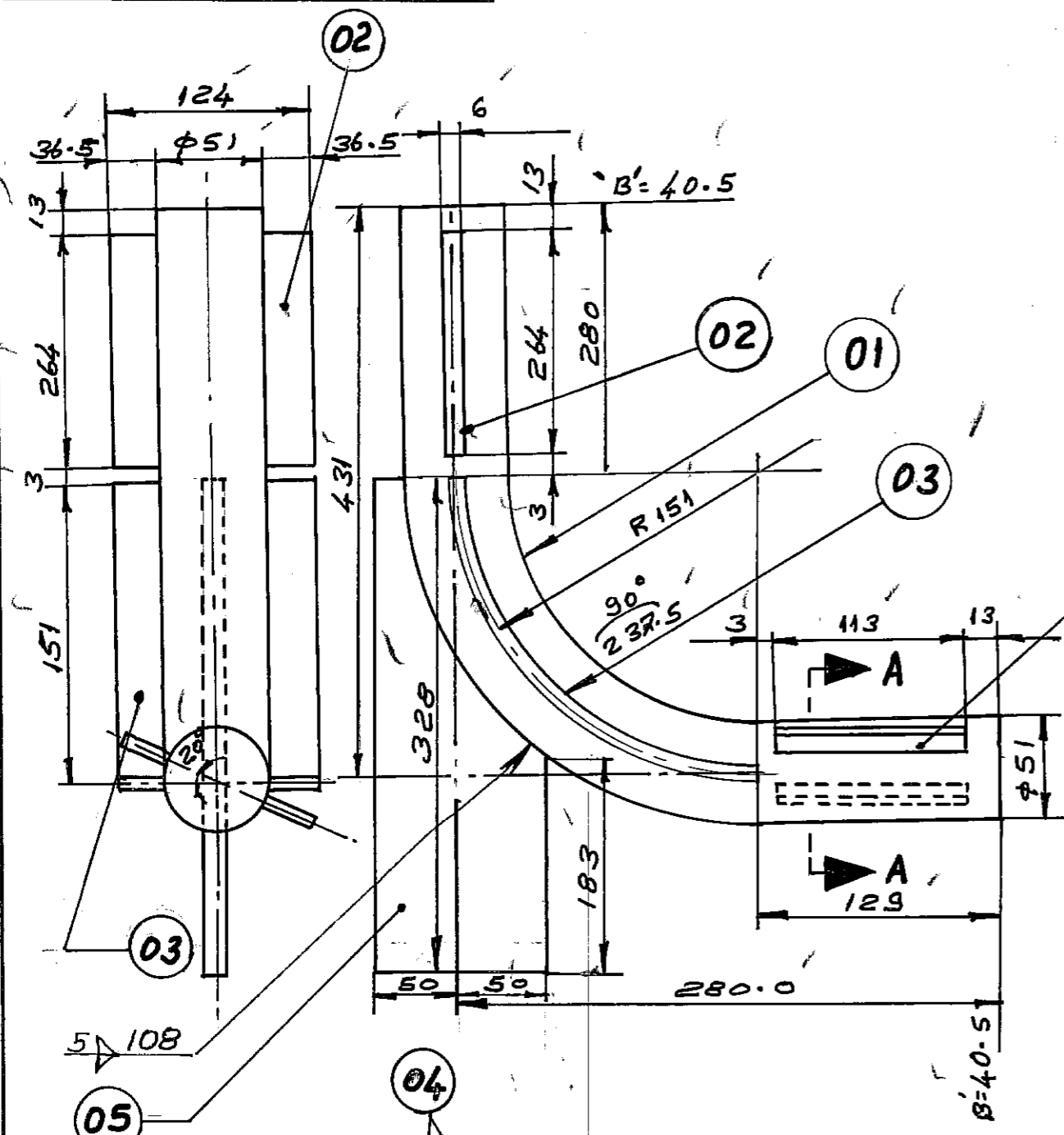
R 151

REFERENCE:

BUTT WELD EDGE PREPN. AS PER BPS. 710004-76xx
B 40.5
MARK NO. SDA-8 [L2]
TO BE PRODUCED: 1 NO.

WELD:

5Δ - E7018(A) - 0,216m - CERTIFY.



VARIANT NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	ITEM NO.	MATL CODE	A/C	UNIT	UNIT WT	QTY
	05	LUG STYLE: L2		4-11-694-00773	15/042/110	SAS15Gr.70	C		3.10	1
	04	SAW CUT FIN 6x40.5x113		4-11-694-00744	15/011/092	BMC-20			0.22	2
	03	SAW CUT FIN 6x36.5x237.5		4-11-694-00745	15/011/092	BMC-20			0.41	2
	02	SAW CUT FIN 6x36.5x264		4-11-694-00743	15/011/092	BMC-20			0.45	2
	01	D 51x5; 646.5 LONG.		-	15/086/095/65	SA210Gr. A1	A		4.12	1

SECTION-AA

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

BOM

MICROFILMED ON
ROLL 010354 FRAME 3AB



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN	NAME	SIGN	DATE	NO. OF VAR
	D.M.K. Velu.	[Signature]	5/16/58	
CHD	G.R.	[Signature]		
APPD	N.S.R.M.	[Signature]		

REV	DATE	ALTERED	CHECKED
01			

DEPT.	GRADE OF UNTOL. DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
PP	C/M/F	NTS	9.38		
CODE					
121					
TITLE	CARD CODE	DRAWING NO.	REV		
FINNED TUBES	U 01	3-11-694-00562			

Size A3

05-229/C

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DRAWING No.

R 151

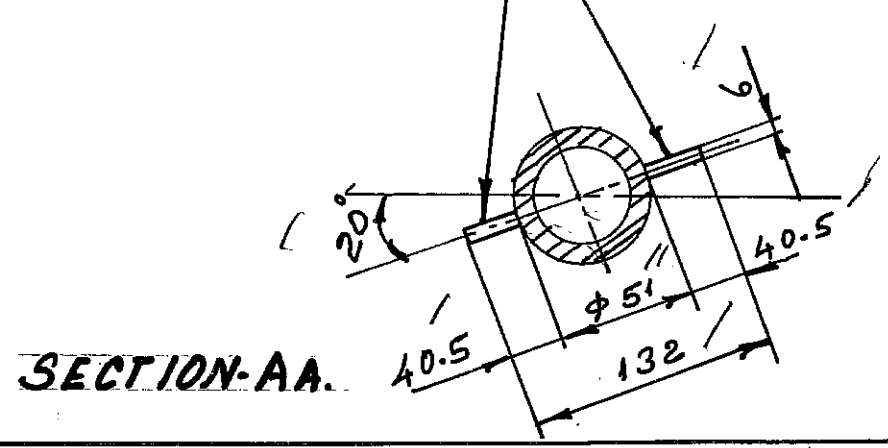
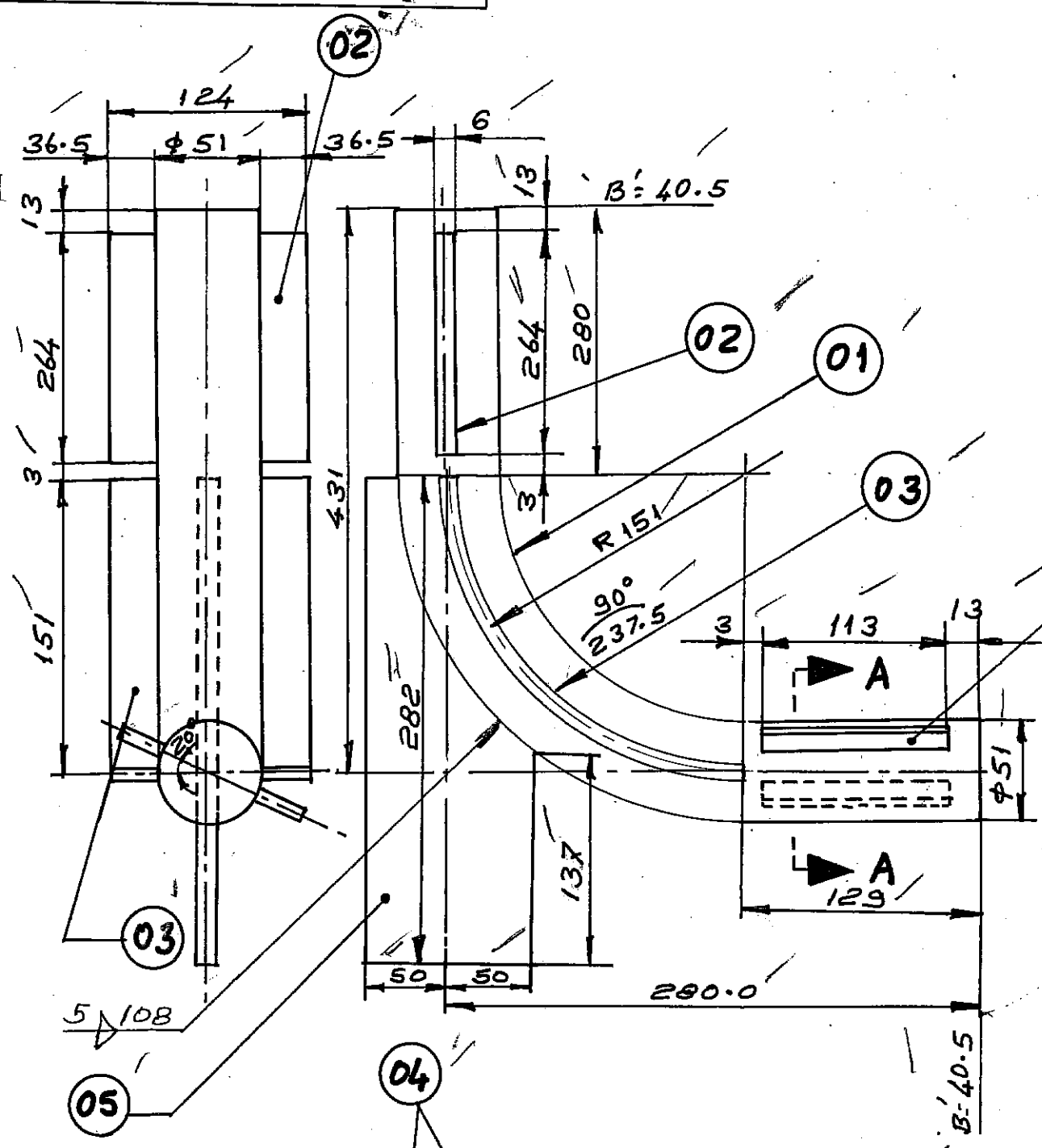
REFERENCE:

BUTT WELD EDGE PREPN. AS PER BPS: 710004-76XX.
MARK NO. SDA-9 [L3].
B: 40.5

TO BE PRODUCED: 1 No.

WELD:

5D - E 7018 (A) - 0,216 m - CERTIFY.



VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A/C	UNIT	UNIT WT	QTY
	05	LUG STYLE - L3		4-11-694-00773	15/042/110	SASIS Gr.70	C		2.66	1
	04	SAW CUT FIN 6x40.5x113		4-11-694-00744	15/011/092	BMC-20			0.22	2
	03	SAW CUT FIN 6x36.5x237.5		4-11-694-00745	15/011/092	BMC-20			0.41	2
	02	SAW CUT FIN. 6x36.5x264		4-11-694-00743	15/011/092	BMC-20			0.45	2
	01	Ø51x5; 646.5 LONG.		-	15/086/095/65	SAB10 Gr.A1	A		4.12	1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **BOM**

MICROFILMED ON ROLL 010354 [FRAME 3412]

Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: D.M.K. Velu
CHD: G.R.
APPD: S.C.A.

DATE: 16/5/94

DEPT. PP
CODE 121

GRADE OF UNTOL. DIM C/M/F

SCALE: NTS

WEIGHT (kg): 8.94

REF TO ASSY/OLD DRG

TITLE: **FINNED TUBES.**

CARD CODE: U 01

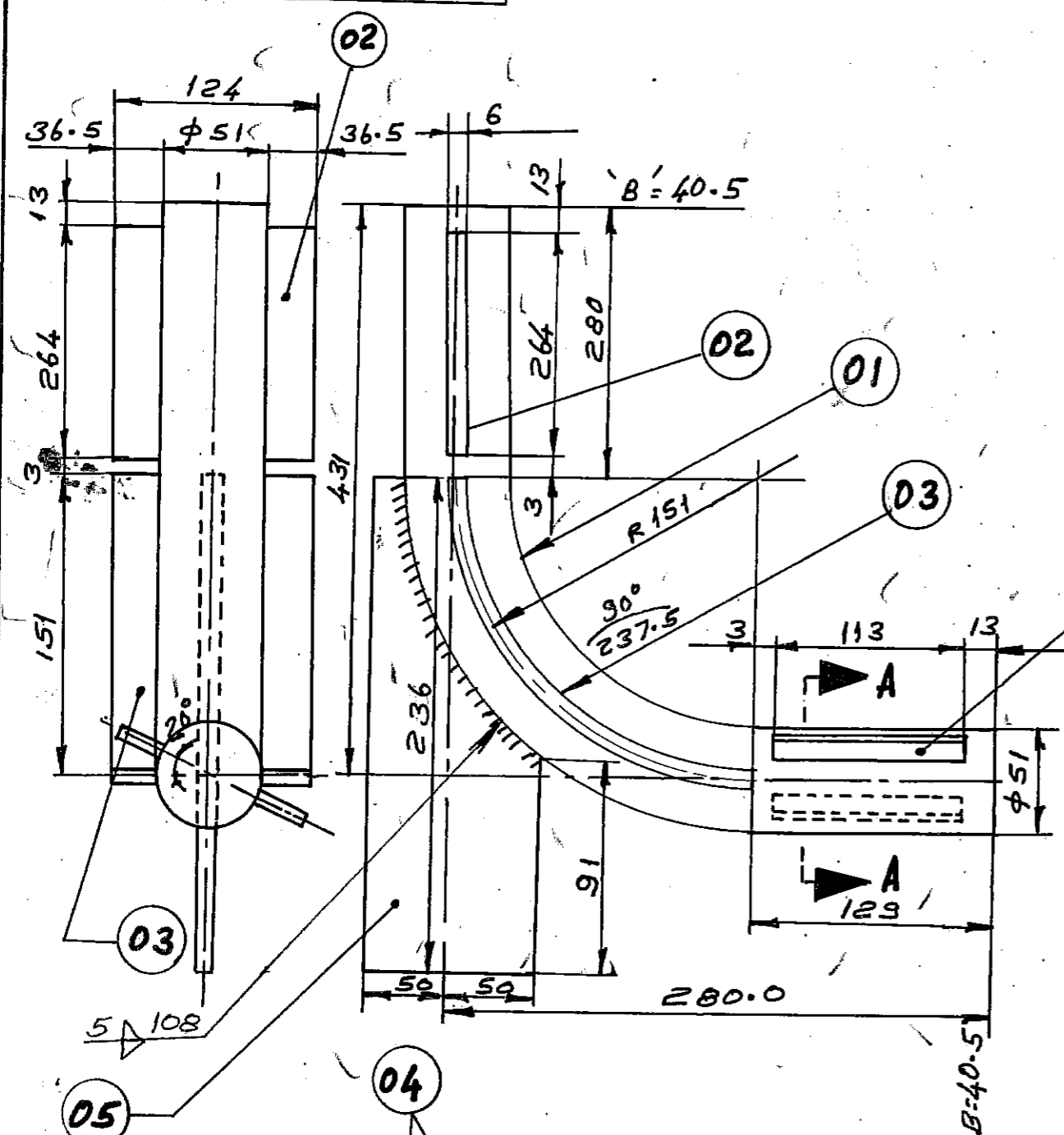
DRAWING NO.: 3-11-694-00563

REV	DATE	ALTERED	CHECKED
01			

05-229/C

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DRAWING No.



REFERENCE: **R151**
BUTT WELD EDGE PREPN. AS PER BPS. 710004-76XX
MARK NO. SDA-10 [L4].
TO BE PRODUCED: 1 No.

WELD:
 5A - E7018 (A) - 0,216m - CERTIFY.

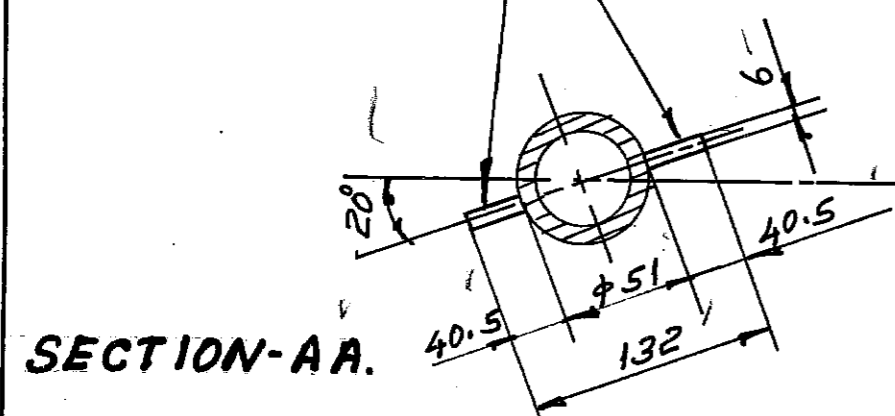
VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	C	UNIT	UNIT WT	QTY
	05	LUG STYLE: L4		4-11-694-00773	15/042/110	SASISGr.70		C		2.22	1
	04	SAW CUT FIN 6x40.5x113		4-11-694-00744	15/011/092	BMC-20				0.22	2
	03	SAW CUT FIN. 6x36.5x237.5		4-11-694-00745	15/011/092	BMC-20				0.41	2
	02	SAW CUT FIN 6x36.5x264		4-11-694-00743	15/011/092	BMC-20				0.45	2
	01	Ø51x5; 646.5 LONG.		-	15/086/095/65	SA 210 Gr. A1		A		4.12	1

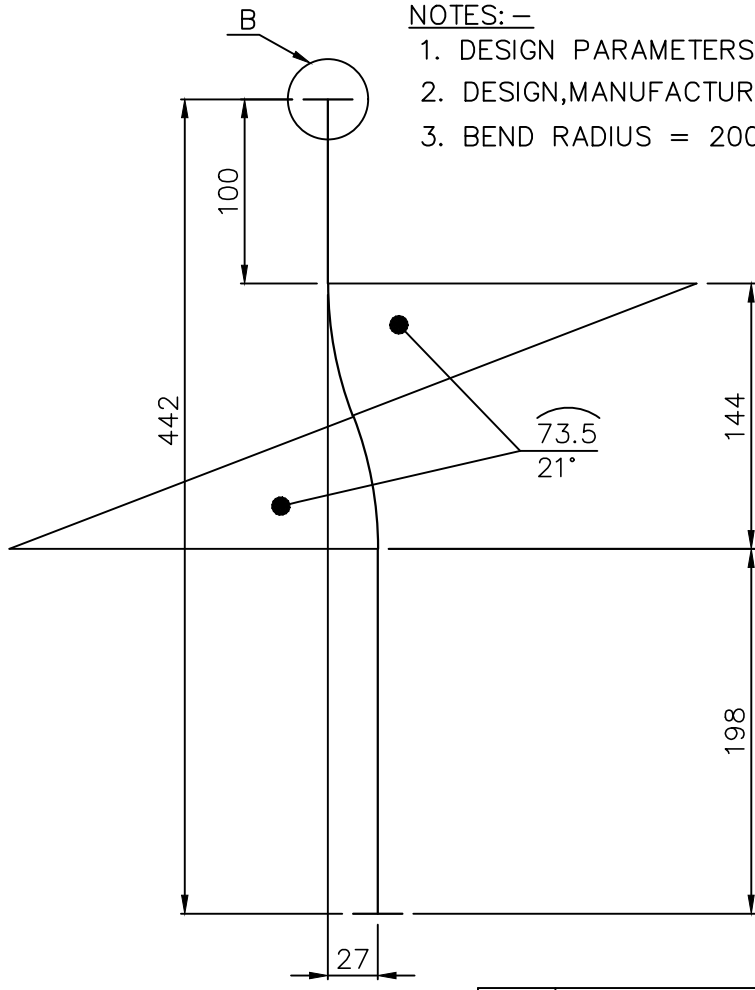
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **BOM**
 MICROFILMED ON ROLL **00354** FRAME **3411**

Bharat Heavy Electricals Ltd.
 BOILER PLANT UNIT
 TIRUCHIRAPALLI-620 014

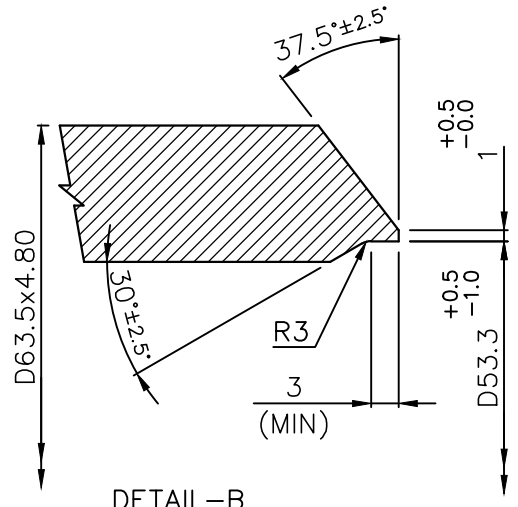
DRN: D.M.K. Vela
 CHD: G.R.
 APPD: P.S.C.M.

REV 01	DATE	ALTERED	CHECKED	DEPT. PP	GRADE OF UNTOL. DIM 'C/M/F	SCALE NTS	WEIGHT (kg) 8.50	REF TO ASSY / OLD DRG	ITEM NO.
				TITLE	CARD CODE	DRAWING NO.			
				FINNED TUBES.	U 01	3-11-694-00564			





- NOTES: -**
1. DESIGN PARAMETERS REFER ASSY. DRG.
 2. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR.
 3. BEND RADIUS = 200





DETAIL-B
FIG.4 OF IBR REG.125

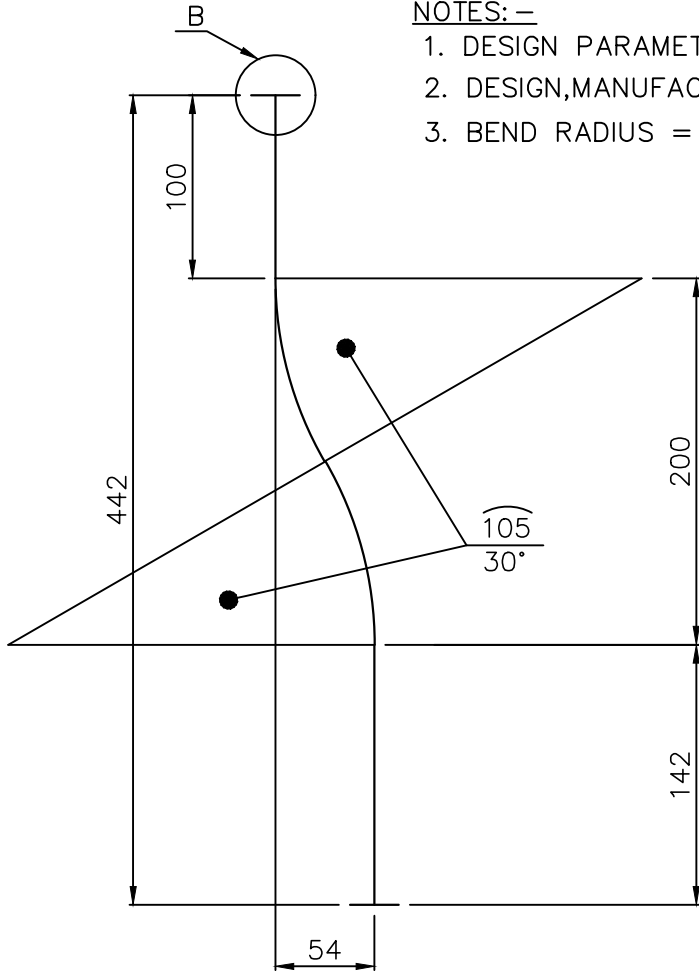
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
	TUBE D63.5x6.3; 445 LONG		AA1049046200 SA 210 Gr. C			4.200
			MATERIAL SPECN			QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

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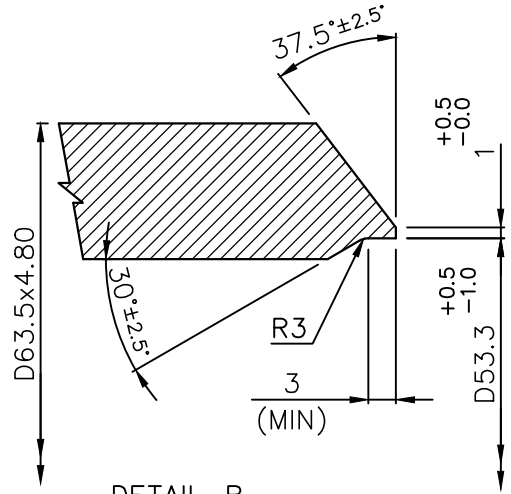
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO - SAMBALPUR			
		BOILER MAKER NO. : 8136			
	Bharat Heavy Electricals Ltd		DRN	NAME	DATE
	UNIT: HEAVY PLATES & VESSELS PLANT		CHD	RAJU	26-12-2025
	VISAKHAPATNAM - 530012		APPD	K.TARAKESH	26-12-2025
DEPT HTE	ALL DIMENSIONS ARE IN MM		SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 320			N.T.S	4.200	4-06-670-01488/01
TITLE			DRAWING NO :		REV
BENT TUBE -I			4-06-670-U8182		00

FORM NO. 0420/2



NOTES: -

1. DESIGN PARAMETERS REFER ASSY. DRG.
2. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR.
3. BEND RADIUS = 200



DETAIL-B

FIG.4 OF IBR REG.125

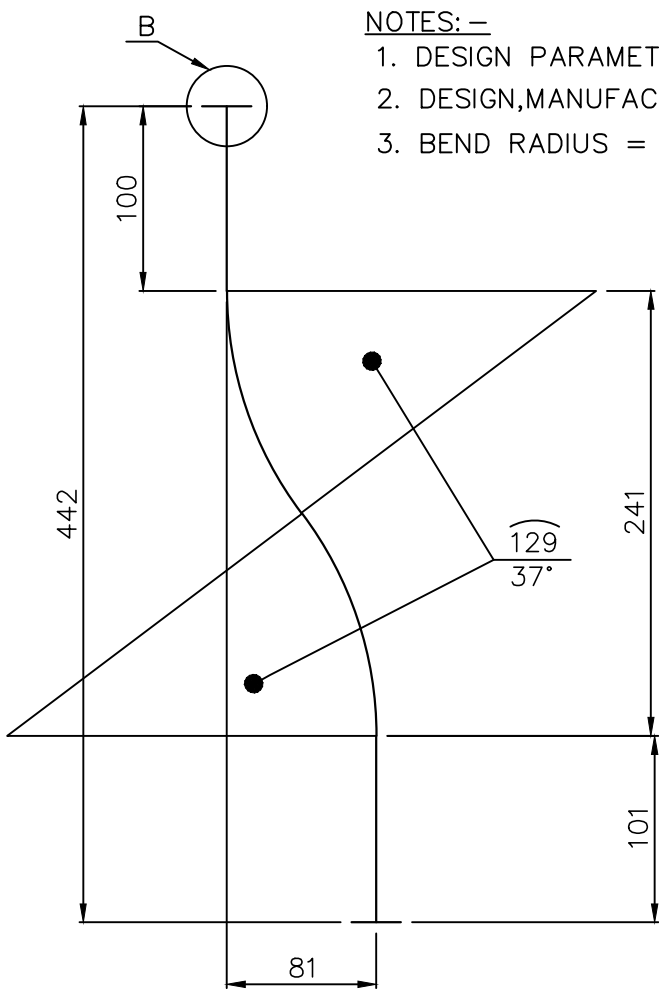
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
	TUBE D63.5x6.3; 452 LONG		AA1049046200 SA 210 Gr. C			4.250
			MATERIAL SPECN			QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

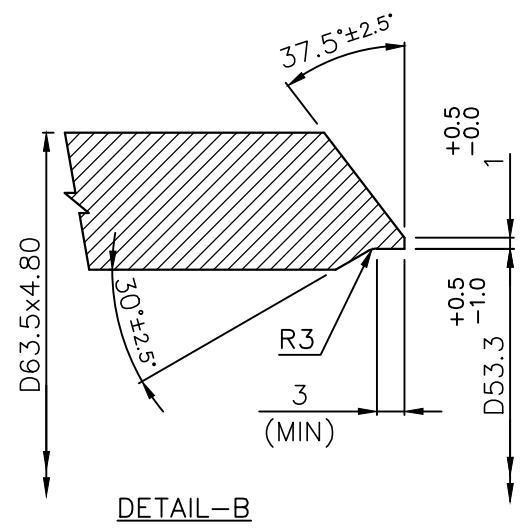
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO - SAMBALPUR			
		BOILER MAKER NO. : 8136			
Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	RAJU	26-12-2025	
		APPD	K.TARAKESH	26-12-2025	
DEPT HTE	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 320			N.T.S	4.250	4-06-670-01489/01
TITLE			DRAWING NO :		REV
BENT TUBE - II			4-06-670-U8183		00

FORM NO. 0420/2



- NOTES: -**
1. DESIGN PARAMETERS REFER ASSY. DRG.
 2. DESIGN,MANUFACTURE AND INSPECTION AS PER IBR.
 3. BEND RADIUS = 200





DETAIL-B
FIG.4 OF IBR REG.125

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
	TUBE D63.5x6.3; 459 LONG		AA1049046200 SA 210 Gr. C			4.300
			MATERIAL SPECN			QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		PROJECT : HINDALCO - SAMBALPUR			
		BOILER MAKER NO. : 8136			
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	RAJU	26-12-2025	
		APPD	K.TARAKESH	26-12-2025	
DEPT HTE	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 320			N.T.S	4.300	4-06-670-01614/01
TITLE			DRAWING NO :		REV
BENT TUBE -III			4-06-670-U8184		00

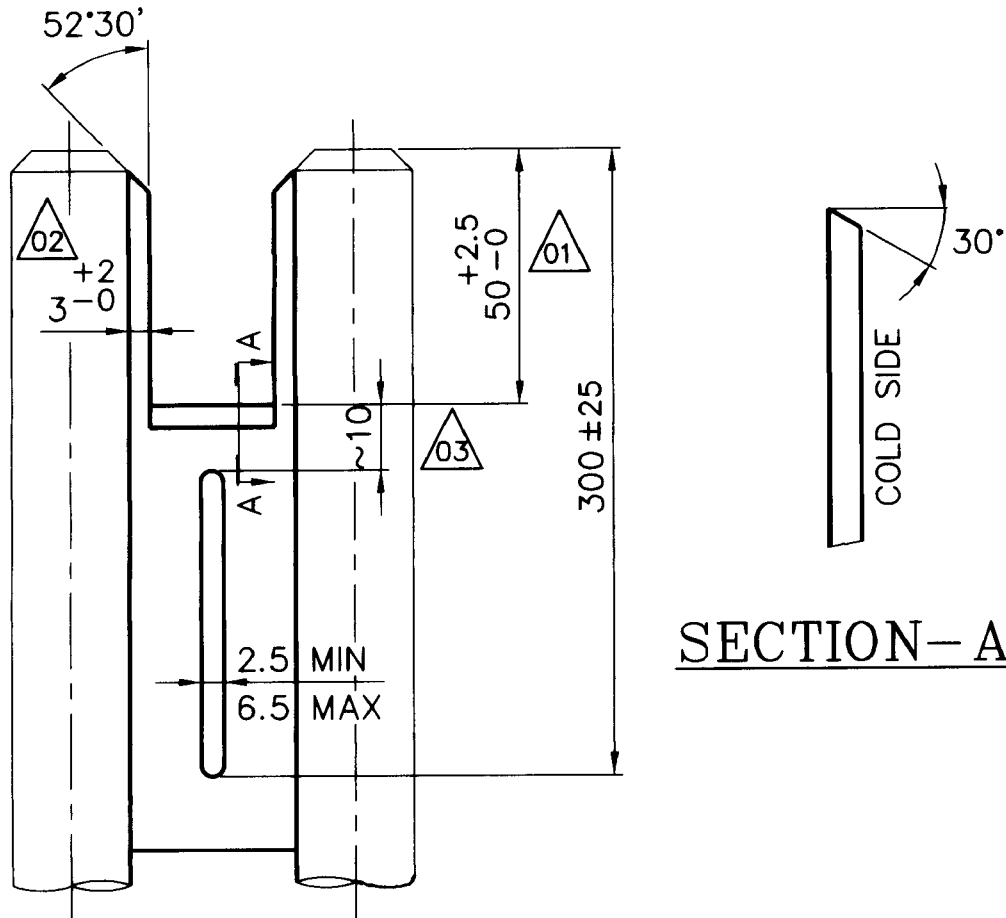
FORM NO. 0420/2

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REV 01	DATE 07.12.81	ALTERED : Sd. CHD & APPD : Sd.	REV 02	DATE 20.01.82	ALTERED : Sd. CHD & APPD : Sd.
Tolerance Revised			Tolerance Revised		

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO. TP 023 0299

REV 03	DATE 21.3.2001	ALTERED : P. Kw CHD & APPD : <i>[Signature]</i>
Drawing Revised On Shop Feed Back		



VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
						QUANTITY

 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME P.G	SIGNATURE <i>[Signature]</i>	DATE 27.06.2001
			CHD	R.B	<i>[Signature]</i>	28.06.2001
			APPD	N.K	<i>[Signature]</i>	28.06.2001
DEPT PP	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE 121						
TITLE					DRAWING NO :	REV
SPLITTING OF FIN					4-11-683-00742	03

TRACING RETRACED ON 27.06.2001

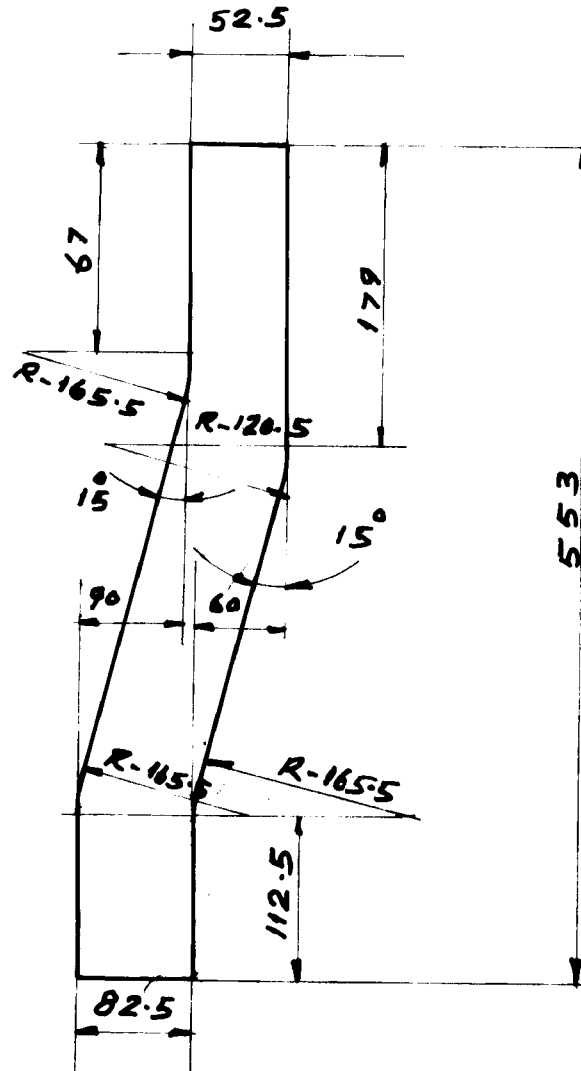


FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

05-249/C

REV	DATE	ALTERED	REV	DATE	ALTERED
01		CHECKED	02		CHECKED

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1144 135

VARIANT NO.		DESCRIPTION		STD.	MATL. CODE	A/C	UNIT	UNIT WT.
		PLATE 6x142.5x553			15011092			3.07
					152062 FE410WA			
						DI		QTY.

<p>Bharat Heavy Electricals Ltd., BOILER PLANT UNIT TIRUCHIRAPALLI - 620 014</p>	DRN.	NAME	SIGN.	DATE
	CHD.	R.S.R	[Signature]	13/5/88
	APPD.	M.A.S	[Signature]	

DEPT	GRADE OF UNTOL DIM.	SCALE	WEIGHT (kg.)	REF. TO ASSY./OLD DRG	ITEM NO.
PP	C/M/F	N.T.S	3.07		

TITLE	CARD CODE	DRAWING NO.	REV
FIN PLATE	U 01	4-11-684-01601	

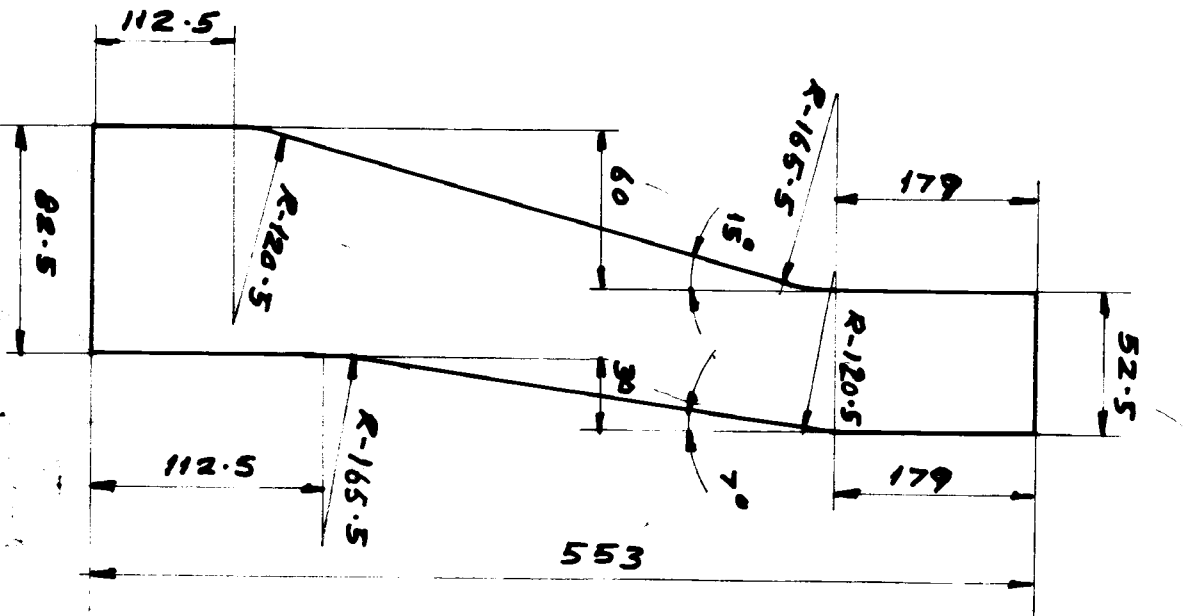


Size A4

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

REV	DATE	ALTERED	REV	DATE	ALTERED
01		CHECKED	02		CHECKED



11/11/14 13/5/14

VARIANT NO	PL. 6x112.5x 553	STD	15011 092	UNIT WT	2.50
DESCRIPTION	152062 FE 410 WA	MATL CODE	A	UNIT	DI
		MATL SPEC.	C	QTY.	



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI - 620 014

DRN	NAME	SIGN	DATE
R.S.R	R. S. R	[Signature]	13/5/14
CHD			
APPD	KRS	[Signature]	

DEPT	GRADE OF UNTOOL DIM.	SCALE	WEIGHT (Kg.)	REF. TO ASSY. OLD DRG.	ITEM NO.
PP	C/M/F	N.T.S	2.50		1
CODE					
121					

FIN PLATE

CARD CODE U 01
DRAWING NO 4-11-684-01602

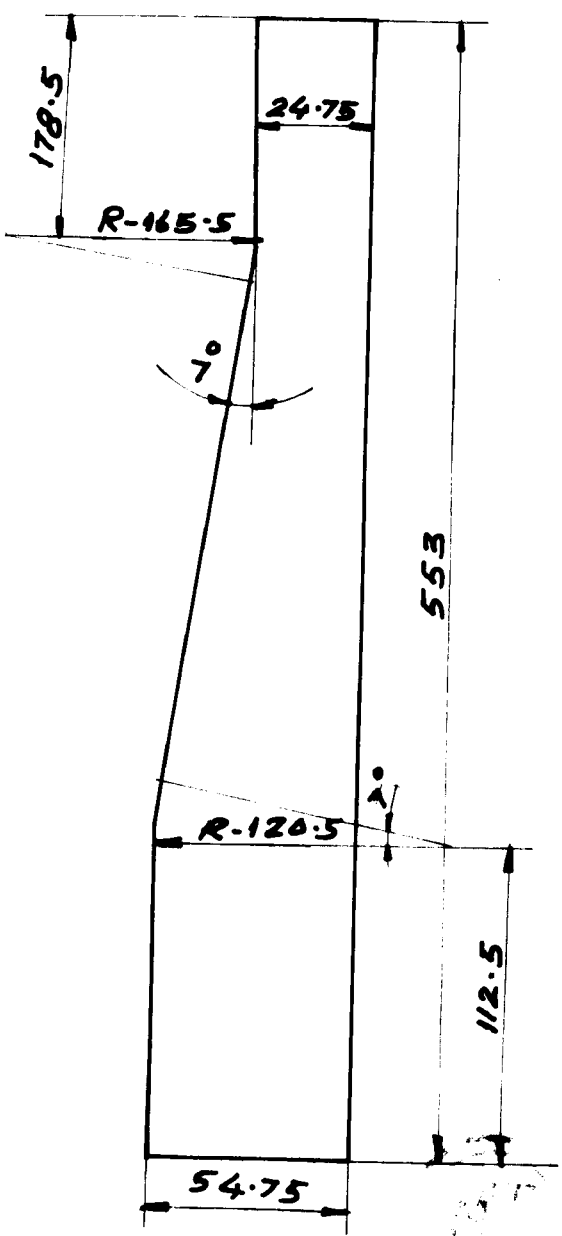


FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

C5-249 C

REV 01	DATE 14.9.2001	ALTERED <i>R. An</i>	REV 02	DATE	ALTERED
CHECKED			CHECKED		
MATL. SPECN. CHANGED.					

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1144 133

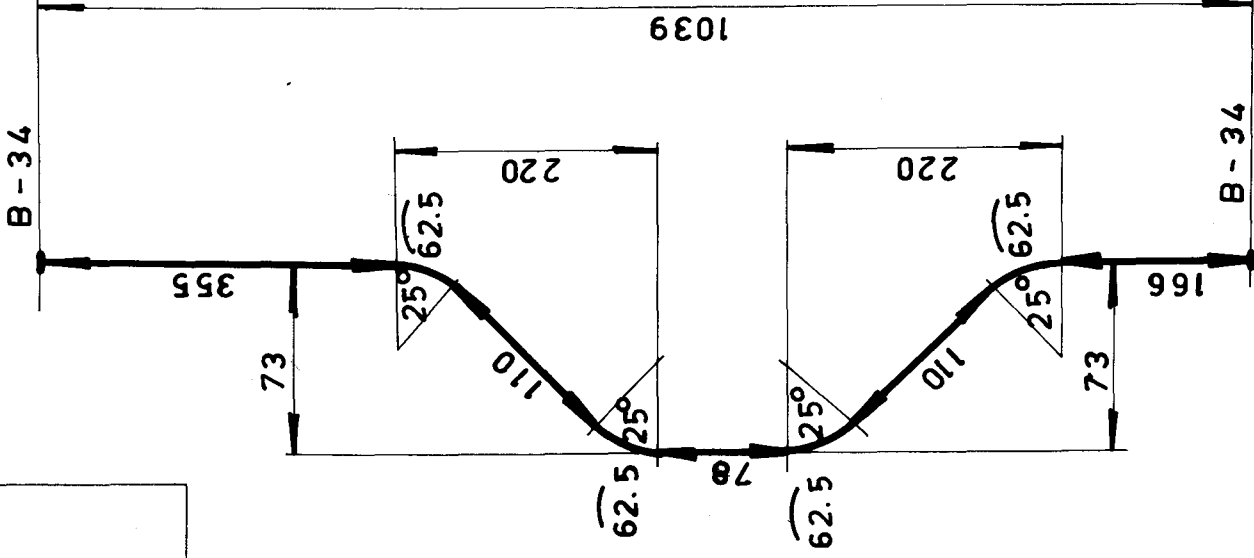
VARIANT NO	DESCRIPTION	STD.	MATL CODE	A/C	UNIT	UNIT WT.
	PL. 6x54.75x553		15 011 092			1 20
			7S2062 REGIONA			
			MATL SPEC.	DI		QTY.

		Bharat Heavy Electricals Ltd., BOILER PLANT UNIT TIRUCHIRAPALLI - 620 014		NAME DRN. <i>R.S.R</i>	SIGN. <i>Rivagan</i>	DATE 13/5/88
DEPT <i>PD</i>	GRADE OF UNTOL. DIM. C/M/F		SCALE <i>N.T.S</i>	WEIGHT (kg) 1.20	REF. TO ASSY / OLD DRG	ITEM NO
CODE 121						
TITLE FIN PLATE			CARD CODE U 01	DRAWING NO. 4-11-684-01603	REV 01	

Size A4

REV	DATE	ALTERED
		CHECKED

ALL DIMENSIONS ARE IN MILLIMETRES



R = 143

1205179

EDGE PREPN. AS PER BPS TP: 062-05-99.

VAR NO.	DESCRIPTION	15 - 087 - 011	5 040
		SA 210 GR.C	
		MATL CODE	UNIT WT.
		MATL SPECN.	QTY



		BHARAT HEAVY ELECTRICALS LTD. UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014.		DRN CHD APPD	NAME SIGN DATE	NO. OF .VAR
DEPT CODE 121	GRADE OF UNTOL.DIM C / M / F	SCALE N.T.S.	WEIGHT (KG). 5.040	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS
TITLE BENT TUBE			CARD CODE U 01	DRAWING NO. 4-11-684-01974	REV 00	

EC-009 Size A4

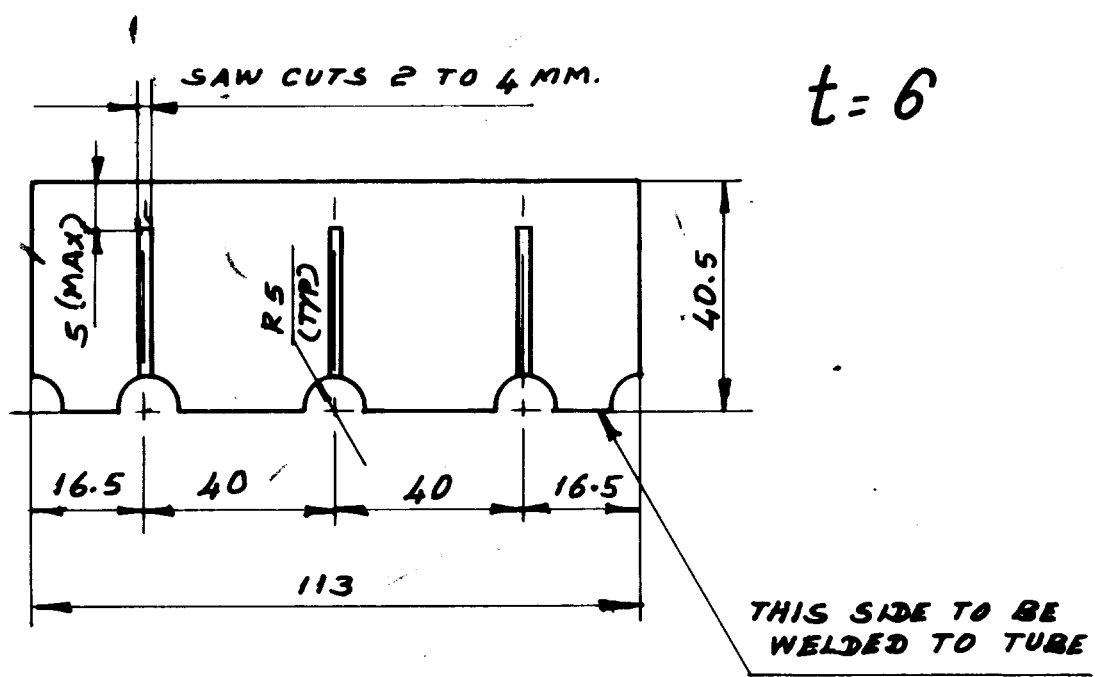
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CORPORATE DRG ID
 TP-DG-4-11-684-01974

TP-DG-4-11-684-01974
 CORPORATE DRG ID

REV	DATE	ALTERED
02		CHECKED

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MICROFILMED ON
ROLL 00373 FRAME 1113

PL. 6x40.5x113	15/011/092	0.22
	BMC-20	
VARIANT NO.	DESCRIPTION	UNIT WT
		QTY



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN	NAME	DATE
CHD	D.M. VELU.	25/09/02
APPD	G.R.	
	G.U.	

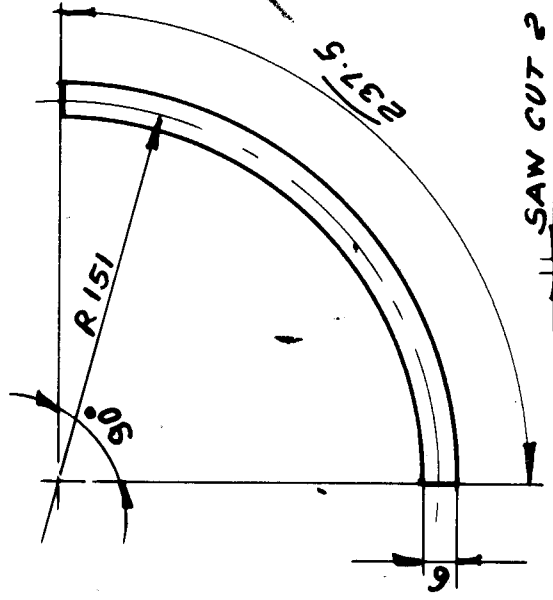
DEPT. P.P	GRADE OF UNTO. DIM C/M/F	SCALE JVTs.	WEIGHT (kg) 0.22	REF TO ASSY / OLD DRG	ITEM NO.
CODE 121					

TITLE	CARD CODE	DRAWING NO.
SAW CUT FIN	U 01	4-11-694-00744

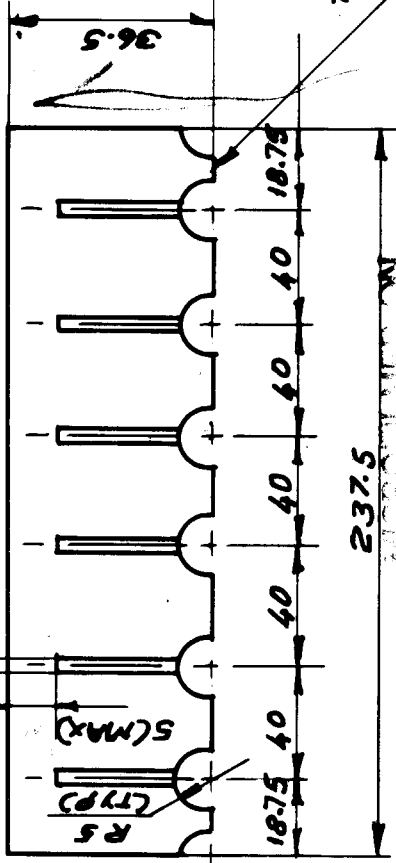
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REV	02	DATE	BY	CHKD
REV	01	DATE	BY	CHKD



SAW CUT 2 TO 4 MM. $t = 6$



ROLL 00353 FIN



PL. 6x36.5x237.5	15/01/092	0.41
BMC-20		
DESCRIPTION	MATL CODE	UNIT WT
	MATL SPEC	QTY



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN D. M. VELU
CHD G. R.
APPD G. U.
DATE 25/05/18

DEPT. P.P
CODE 121

GRADE OF UNTOOL. DIM C/M/F



SCALE NTS.

WEIGHT (kg) 0.41

REF TO ASSY / OLD DRG

ITEM NO. **IDX**

TITLE

SAW CUT FIN

CARD CODE U 01

REV

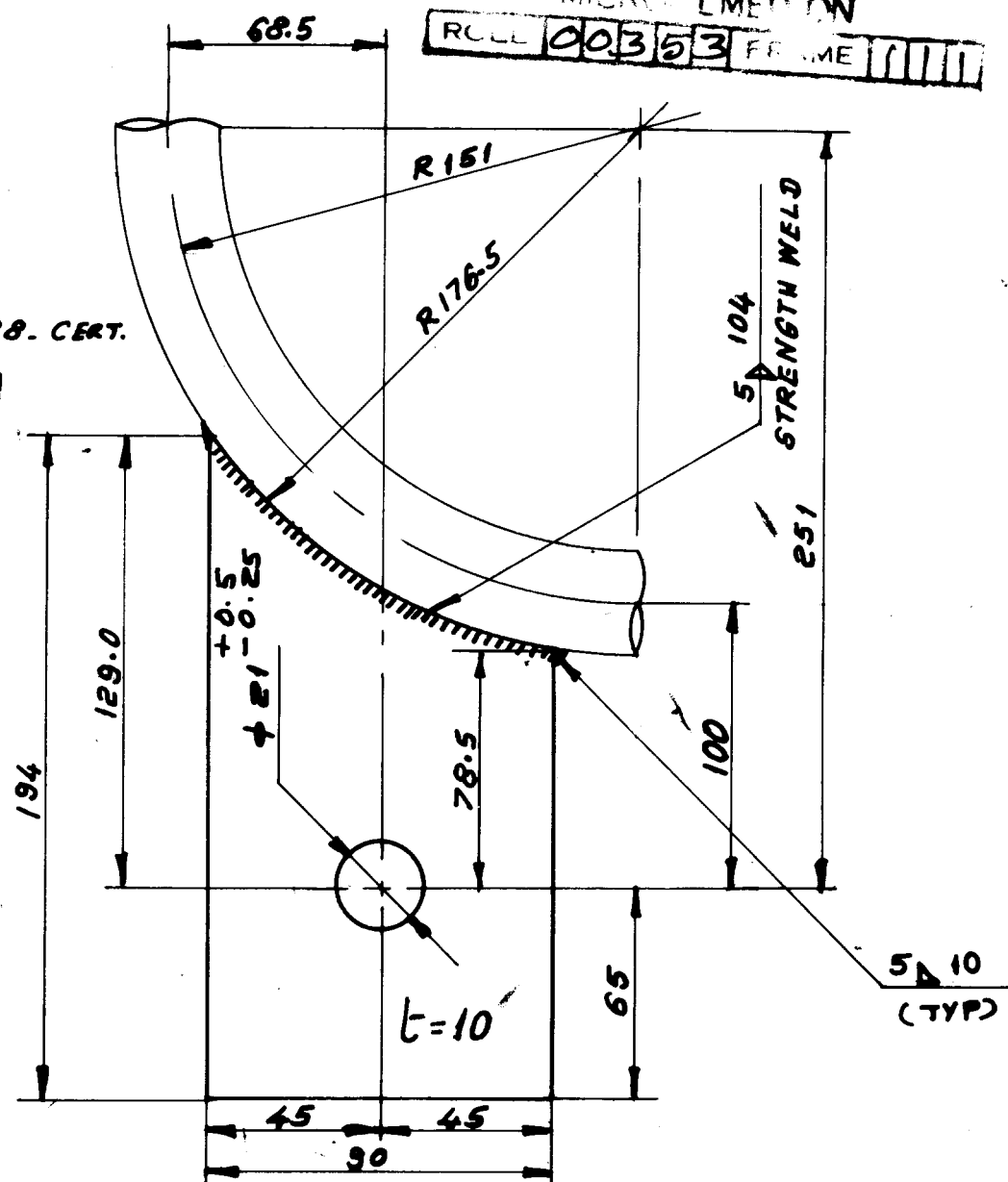
DRAWING NO. 4-11-694-00745

REV	ALTERNED	DATE	ALTERNED
	CHECKED		CHECKED
02			

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WELD:
5 Δ - E7018 - 0.228. CERT.

MICROFILMED ON
ROLL 00353 FRAME 1111



VARIANT No.	DESCRIPTION	STD	PL. 10 X 90 X 194	15/011/098	1.40
			BMC-20		
			MATL CODE	A	UNIT
			MATL SPEC	C	QTY



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN	NAME	DATE
CHD	G.R.	20/9/81
APPD	G.U.	

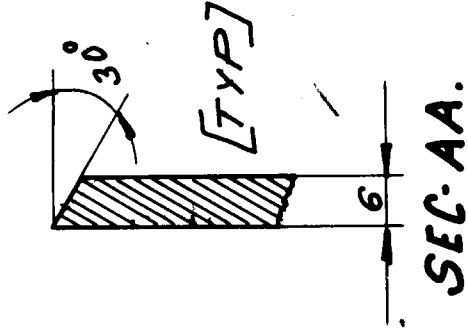
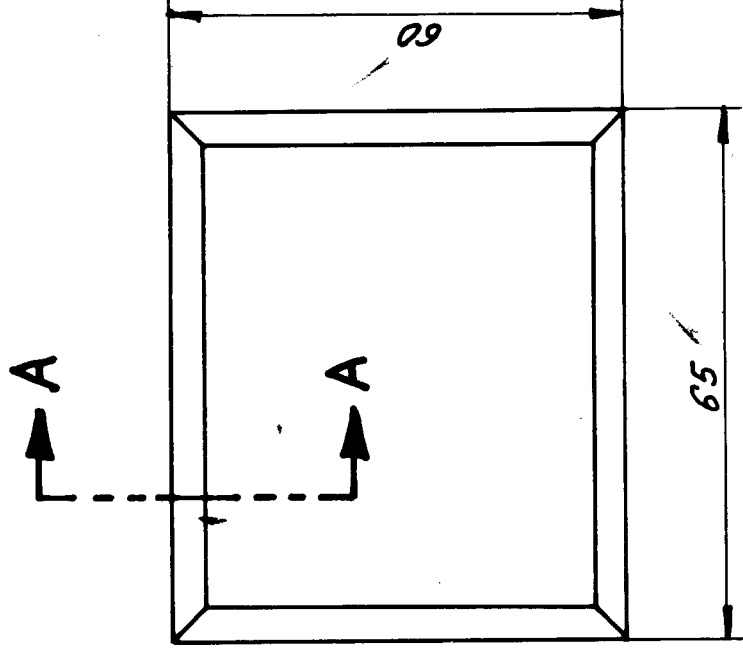
DEPT. PP	GRADE OF UN TOL. DIM C/M/F	SCALE NTS	WEIGHT (kg) 1.40	REF TO ASSY / OLD DR	ITEM No. IDX
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TITLE LUG PLATE	CARD CODE U 01	DRAWING NO. 4-11-694-00746	REV
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FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

DATE	REV	DATE	ALTERED
19	02		ALTERED
			CHECKED

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SEC-AA.



MICROFILMED ON
 FULL 00353 FRAME 106

PL. 6x60x65	15/01/092	0.18				
	BMC-20					
VARIANT	DESCRIPTION	ST	MATERIAL		UNIT WT	QTY
			A	C		



Bharat Heavy Electricals Ltd.,
 BOILER PLANT UNIT
 TIRUCHIRAPALLI-620 014

DRN D.M.VELU.

CHD G.R.

APPD G.U.K.

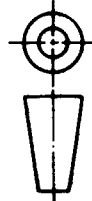
NAME D.M.VELU. DESIGNER

DATE 12/12/01

1810

DEPT. PP
 CODE 121

GRADE OF
 UNTOL. DIM
 C/M/F



SCALE
 NTS

WEIGHT (kg)
 0.18

REF TO ASSY / OLD

ITEM NO.
IDX

TITLE

PLATE

CARD CODE

U 01

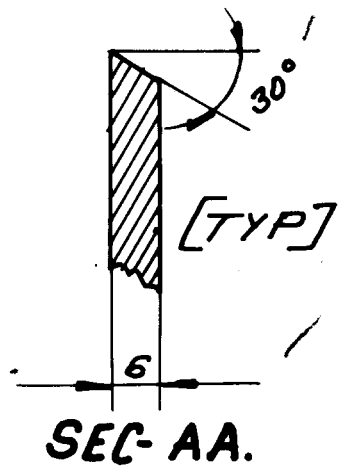
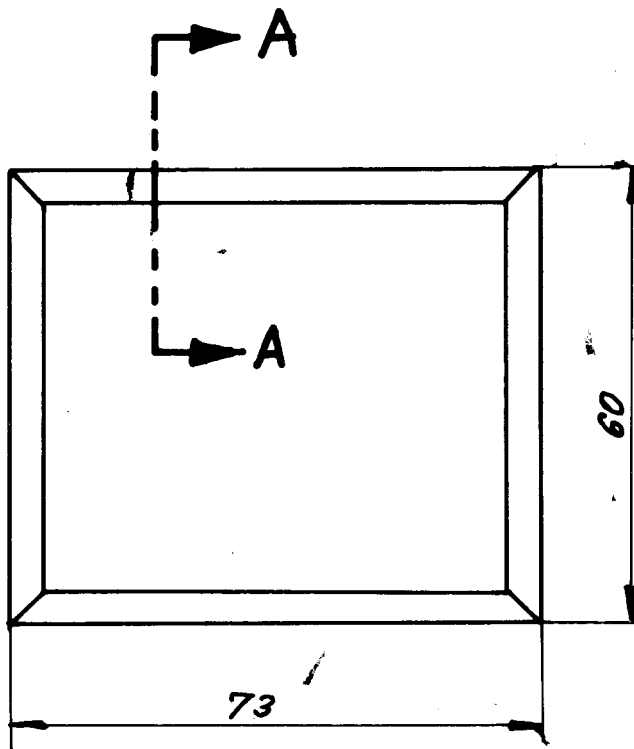
DRAWING NO.

4-11-694-00751

REV

REV 01	DATE	ALTERED	REV 02	DATE	ALTERED
		CHECKED			CHECKED

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MICROFILMED ON

ROLL 00353 FRAME 101a

✓	PL. 6x60x73	15/01/92	0.21
		BMC-20	
VARIANT NO.	DESCRIPTION	MATL CODE	UNIT WT
		MATL SPEC	QTY



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN	NAME	DATE
CHD		
APPD		
	D. M. VELU	12/12/01
	G. R.	
	G. U.	

DEPT. P.P	GRADE OF UNTOL. DIM C/M/F	SCALE NTS	WEIGHT (kg) 0.21	REF TO ASSY / OLD DRG
CODE 121				

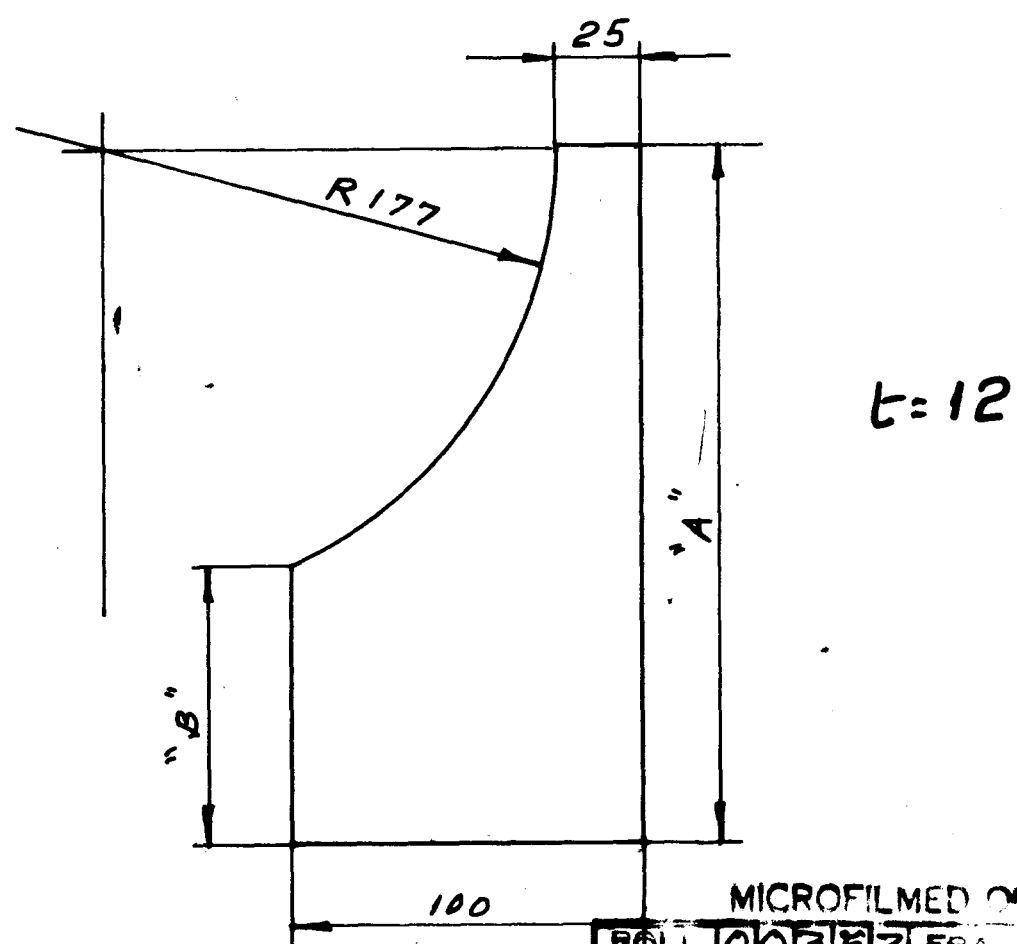
TITLE PLATE	CARD CODE U 01	DRAWING NO. 4-11-694-00752	REV
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10X



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01	ALTERED	REV	DATE	ALTERED
	CHECKED	02		CHECKED



MICROFILMED ON

ROLL 00383 FRAME 086

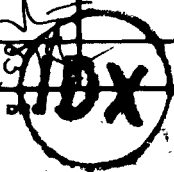
LUG STYLE	"A"	"B"	MATL. SIZE	MATL. SPEC.	WEIGHT	MATL. CODE
L2	328	183	12x100x328	SA515G-70C	3.10	15/042/110
L3	282	137	12x100x282	SA515G-70C	2.66	15/042/110
L4	236	91	12x100x236	SA515G-70C	2.22	15/042/110

VARIANT NO.	DESCRIPTION	MATL. CODE	A	UNIT	UNIT WT
					QTY



Bharat Heavy Electricals Ltd.,
BOILER PLANT UNIT
TIRUCHIRAPALLI-620 014

DRN: D.M.K. [Signature]
CHD: G.R. [Signature]
APPD: T.S.C.M. [Signature]



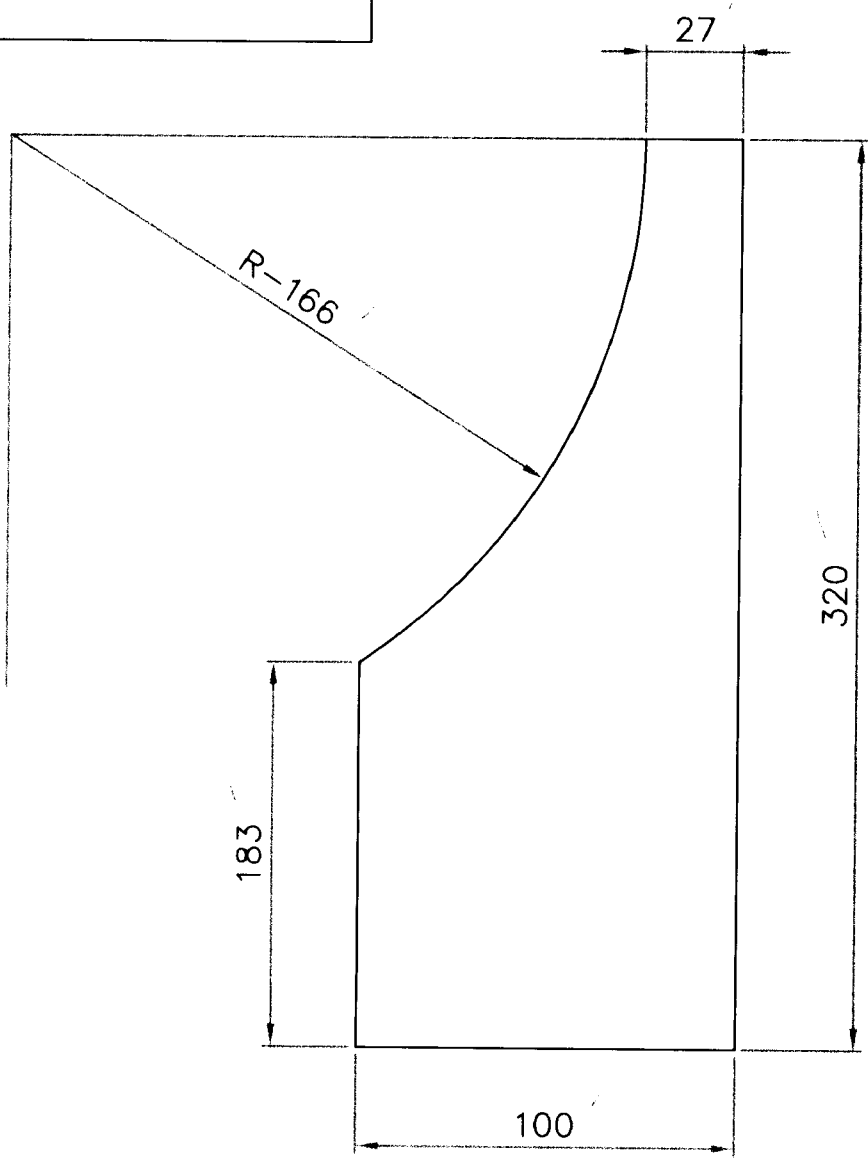
DEPT. PP	GRADE OF UNTOL. DIM C/M/F	SCALE NTS.	WEIGHT (kg)	REF TO ASBY / OLD DRG	ITEM NO.
CODE 721					

TITLE LUG	CARD CODE U 01	DRAWING NO. 4-11-694-00773
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REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



VARIANT NUMBER	DESCRIPTION	STD	PL.12x100x320	15-042-110	C	UNIT	3.000
				SA 515 Gr 70			
			MATERIAL CODE	A/C/P			UNIT WEIGHT
			MATERIAL SPECN				QUANTITY

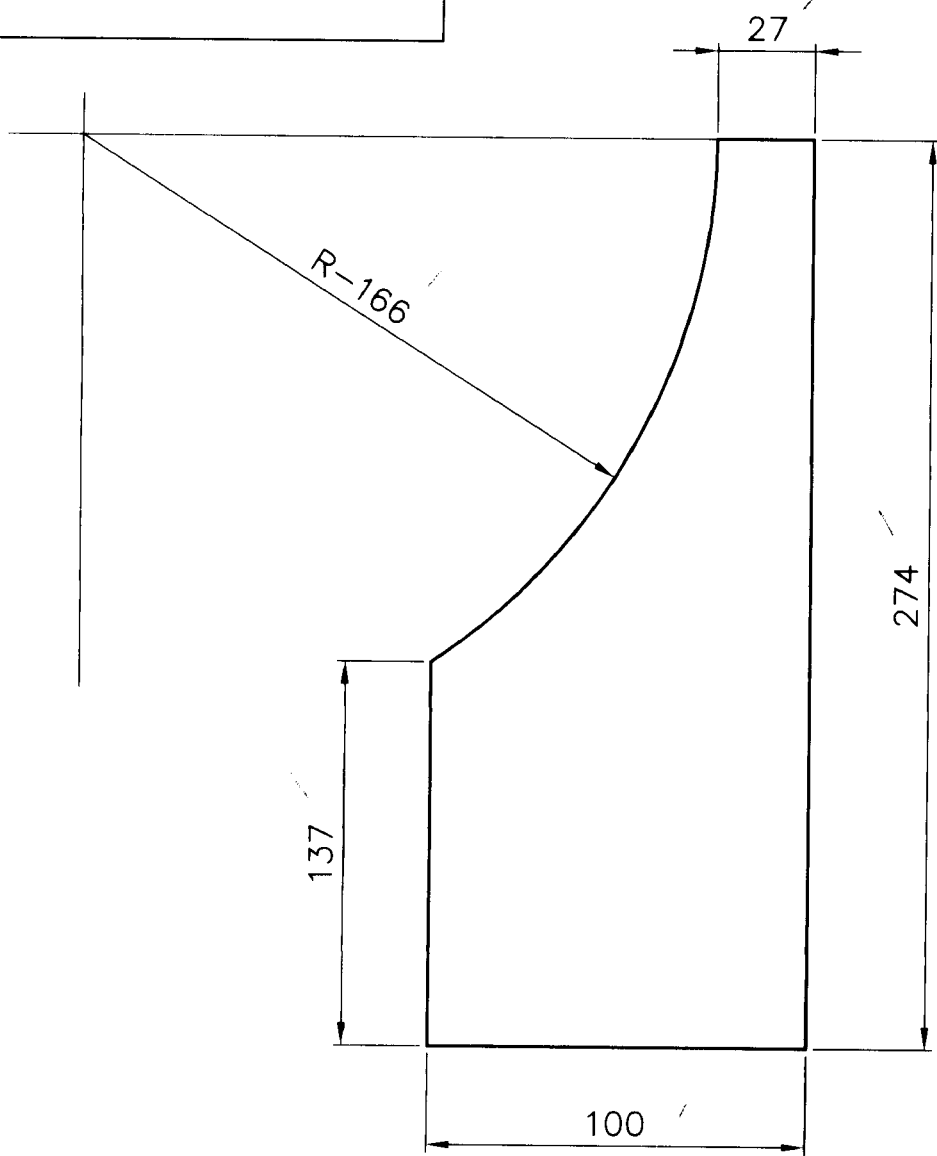
 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME	SIGNATURE	DATE
			CHD	V.R	<i>V.R</i>	17/8/24
			APPD	R.S.R	<i>R.S.R</i>	17/8/24
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
PP			N.T.S	3.000		
CODE						
121						
TITLE				DRAWING NO :		REV
LUG				4-11-694-02860		00



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REV	DATE	ALTERED :
		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



	PL.12x100x274		15-042-110		2.580
			SA 515 Gr 70	C	
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WEIGHT
			MATERIAL SPECN	UNIT	QUANTITY



Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

DRN	NAME	SIGNATURE	DATE
	V.R	<i>v.Ram</i>	17/8/2K
CHD	R.S.R	<i>R.S.R</i>	17/8/2K
APPD	S.R	<i>S.R</i>	12/9/2K

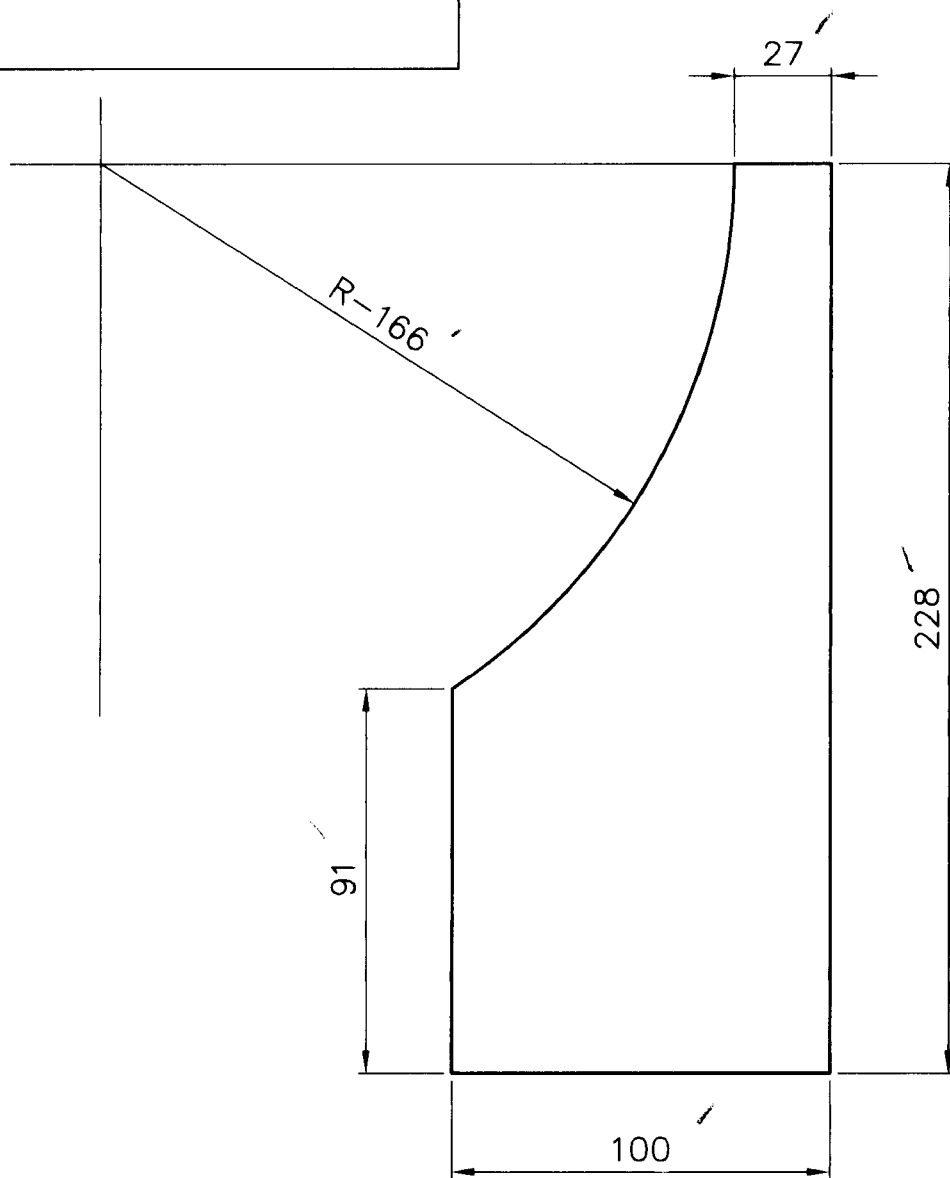
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PP			N.T.S	2.580	
CODE					
121					
TITLE					DRAWING NO :
LUG					4-11-694-02861
					REV
					00




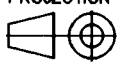
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED
DIMENSIONS DURING MANUFACTURE
REFER PLANT STD. NO TP 023 0299



VARIANT NUMBER	DESCRIPTION	STD	15-042-110 SA 515 Gr 70	C	UNIT WEIGHT	2.150
			MATERIAL SPECN	A/C/P	UNIT	QUANTITY

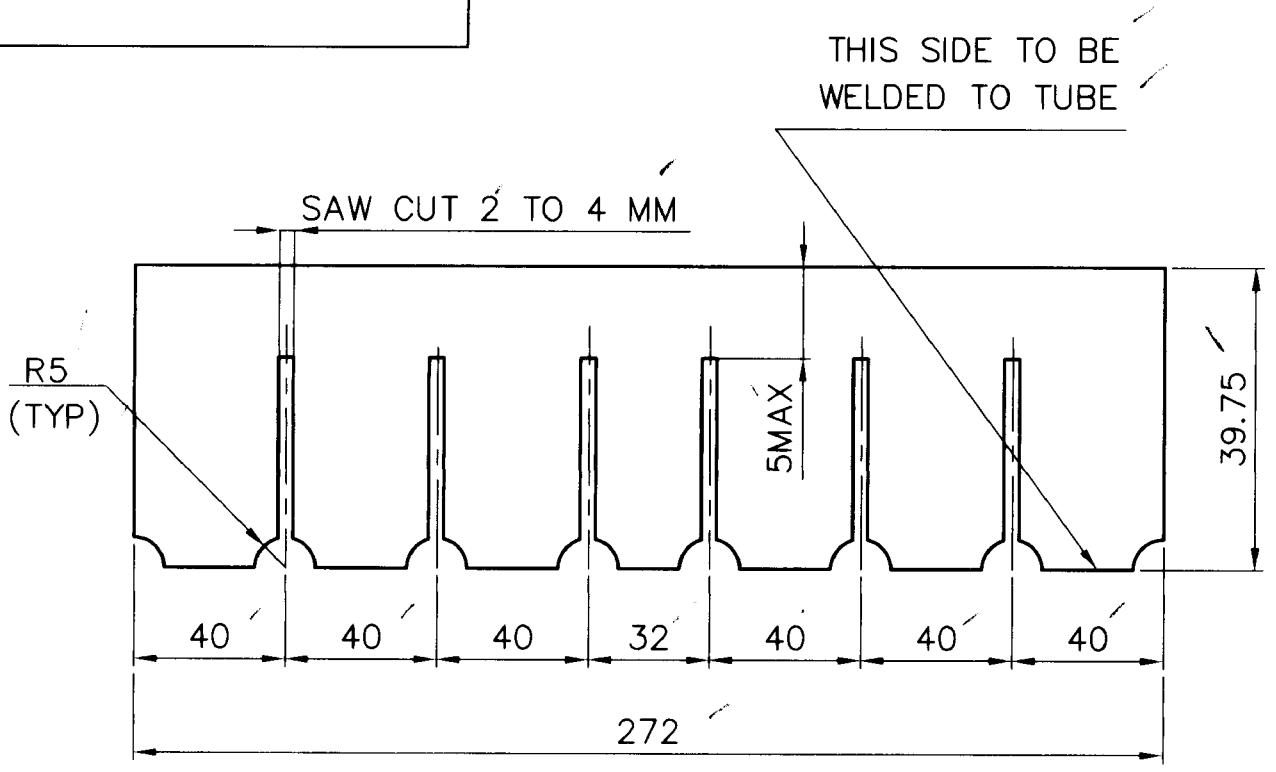
 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME	SIGNATURE	DATE
			CHD	V.R	<i>[Signature]</i>	17/8/2K
			APPD	R.S.R	<i>[Signature]</i>	17/8/2K
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
PP			N.T.S	2.150		
CODE						
121						
TITLE				DRAWING NO :		REV
LUG				4-11-694-02862		00



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REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



	PL.6x39.75x272	15-011-092	0.500
		S2062FE410WA	
VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	UNIT WEIGHT
		MATERIAL SPECN	QUANTITY

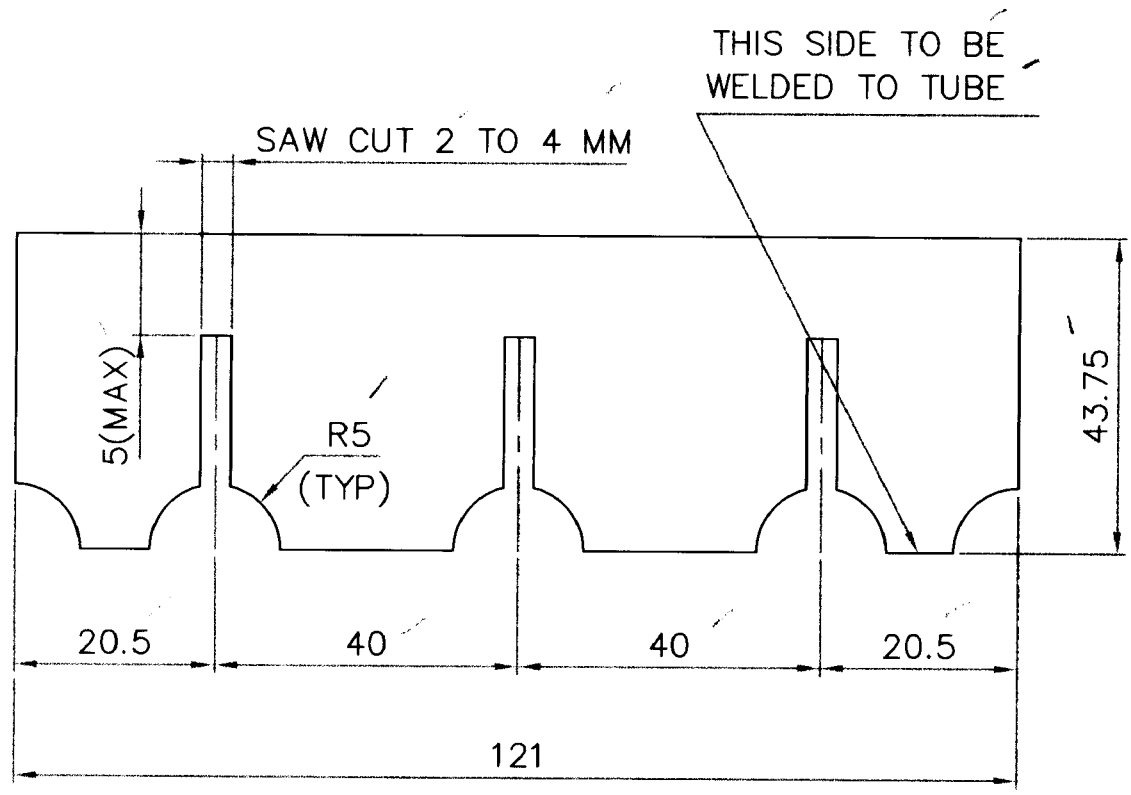
Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014 355-056	DRN	NAME	SIGNATURE	DATE
	CHD	V.R	<i>Raw</i>	17/8/2k
	APPD	R.S.R	<i>WTP</i>	17/8/2k
DEPT	ALL DIMENSIONS	PROJECTION	SCALE	WEIGHT (Kg)
CODE	121		N.T.S	0.500
TITLE			DRAWING NO :	REV
SAW CUT FIN			4-11-694-0286300	



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REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



T=6

VARIANT NUMBER	DESCRIPTION	STD	15-011-092	A/C/P	UNIT	0.240
			S2062FF410WA			UNIT WEIGHT
						QUANTITY

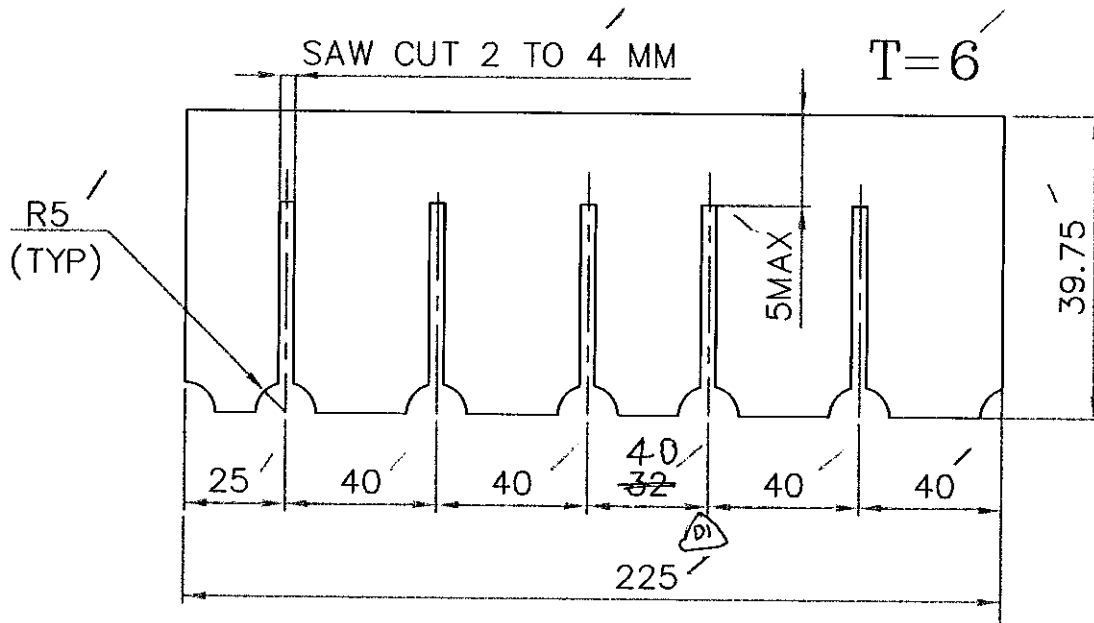
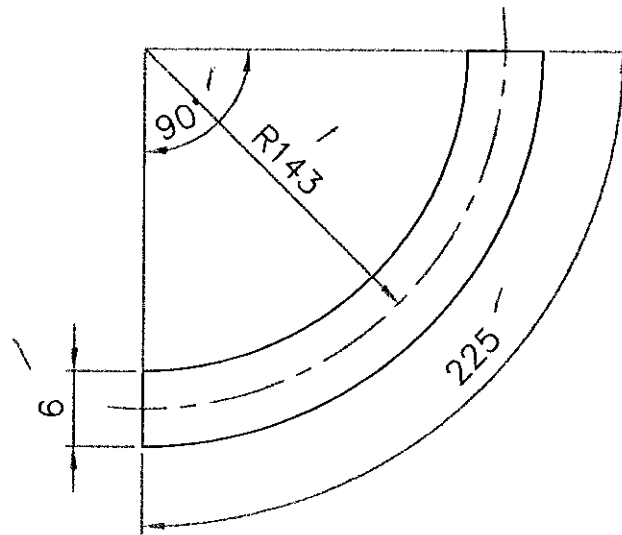
 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME	SIGNATURE	DATE
			CHD	V.R	<i>Ramesh</i>	17/8/24
			APPD	R.S.R	<i>Ramesh</i>	17/8/24
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE	121		N.T.S	0.24		
TITLE				DRAWING NO :		REV
SAW CUT FIN				4-11-694-0286400		




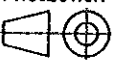
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED : <i>R. S. Ramam</i>
01	15.7.06	CHD & APPD : <i>MM</i>
DIMENSIONAL ERROR CORRECTED.		

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



	PL.6x39.75x225	15-011-092	0.420
		IS2062FE410WA	
VARIANT NUMBER	DESCRIPTION	STD	UNIT WEIGHT
			QUANTITY

 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME	SIGNATURE	DATE
			CHD	V.R	<i>R. S. Ramam</i>	17/8/2K
			APPD	R.S.R	<i>u</i>	17/8/2K
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE	12		N.T.S	0.420		
TITLE				DRAWING NO :		REV
SAW CUT FIN				4-11-694-02865		01

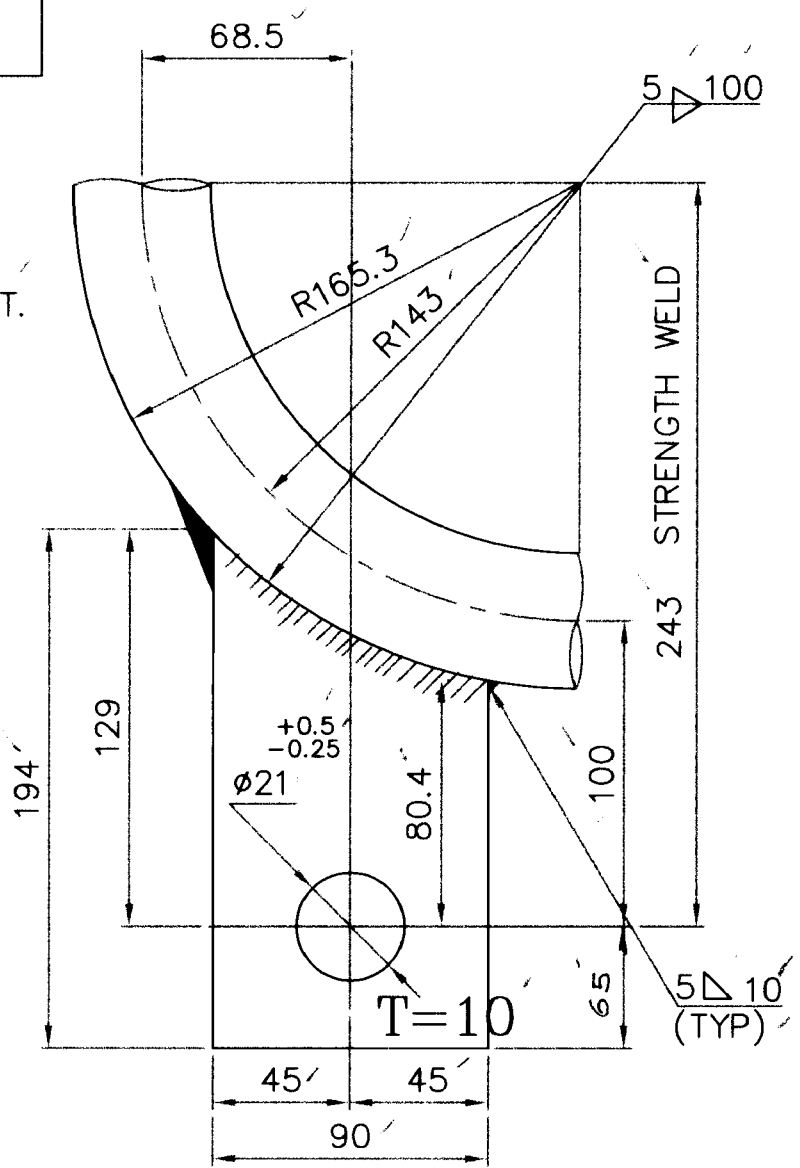


THE INFOM ON THIS DOCUMENT IS THE PROPERTY OF BHEL
 IT MUST NOT BE USED DIRECTLY OR INDIRECTLY
 IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL
 CAUTION:


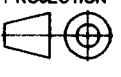
REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED
DIMENSIONS DURING MANUFACTURE
REFER PLANT STD. NO TP 023 0299

WELD: -
5D - E7018-0.344-CERT.



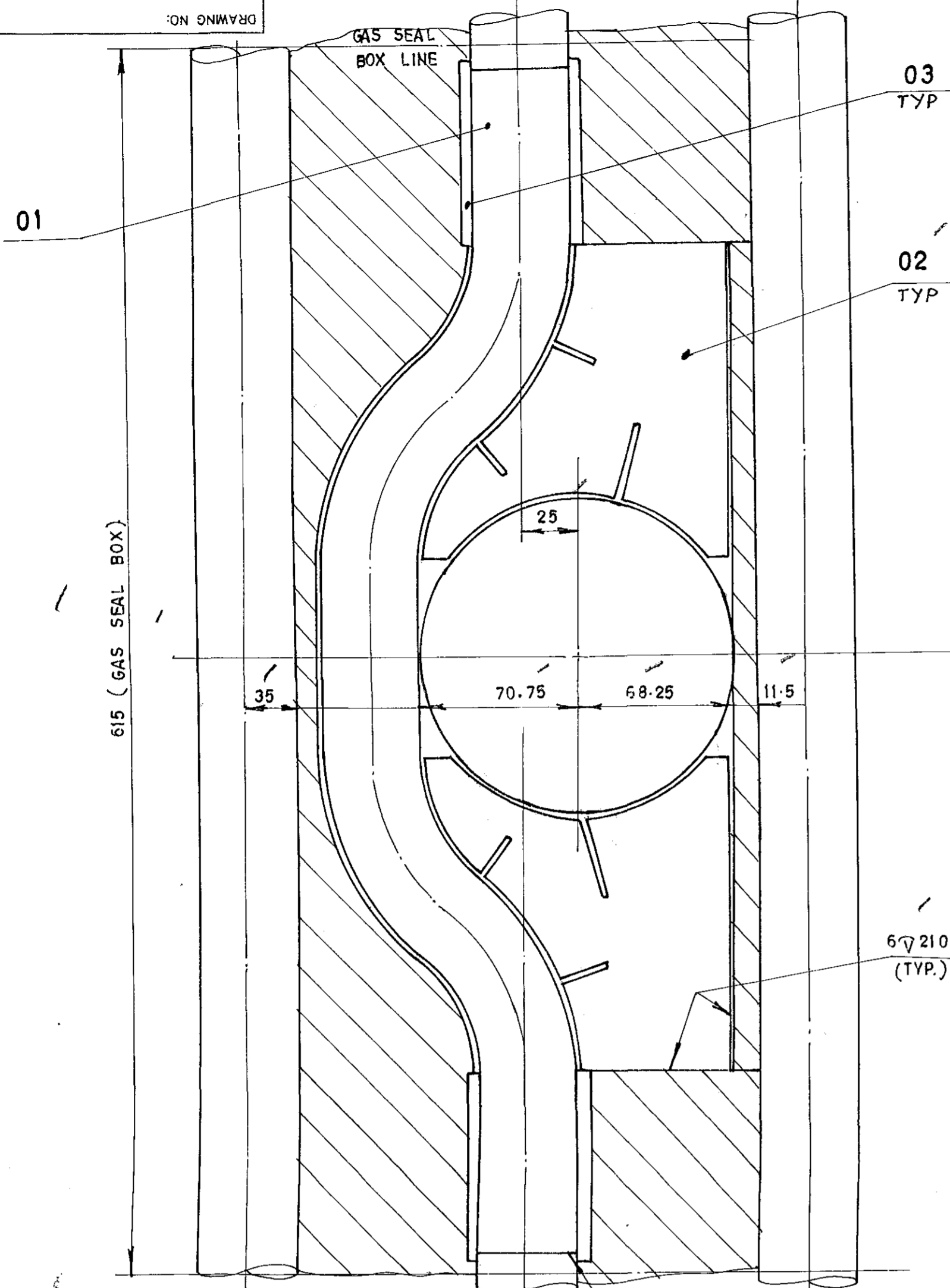
VARIANT NUMBER	DESCRIPTION	STD	PL.10x90x194 ✓	15-011-098 ✓	A/C/P	UNIT	1.400 ✓
				IS2062FE410WA			
				MATERIAL CODE			UNIT WEIGHT
				MATERIAL SPECN			QUANTITY

 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	NAME	SIGNATURE	DATE
			CHD	V.R	<i>V.R</i>	17/8/2K
			APPD	R.S.R	<i>R.S.R</i>	17/8/2K
DEPT	PP	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE	121			N.T.S	1.400 ✓	
TITLE					DRAWING NO :	REV
LUG PLATE					4-11-694-02866	00

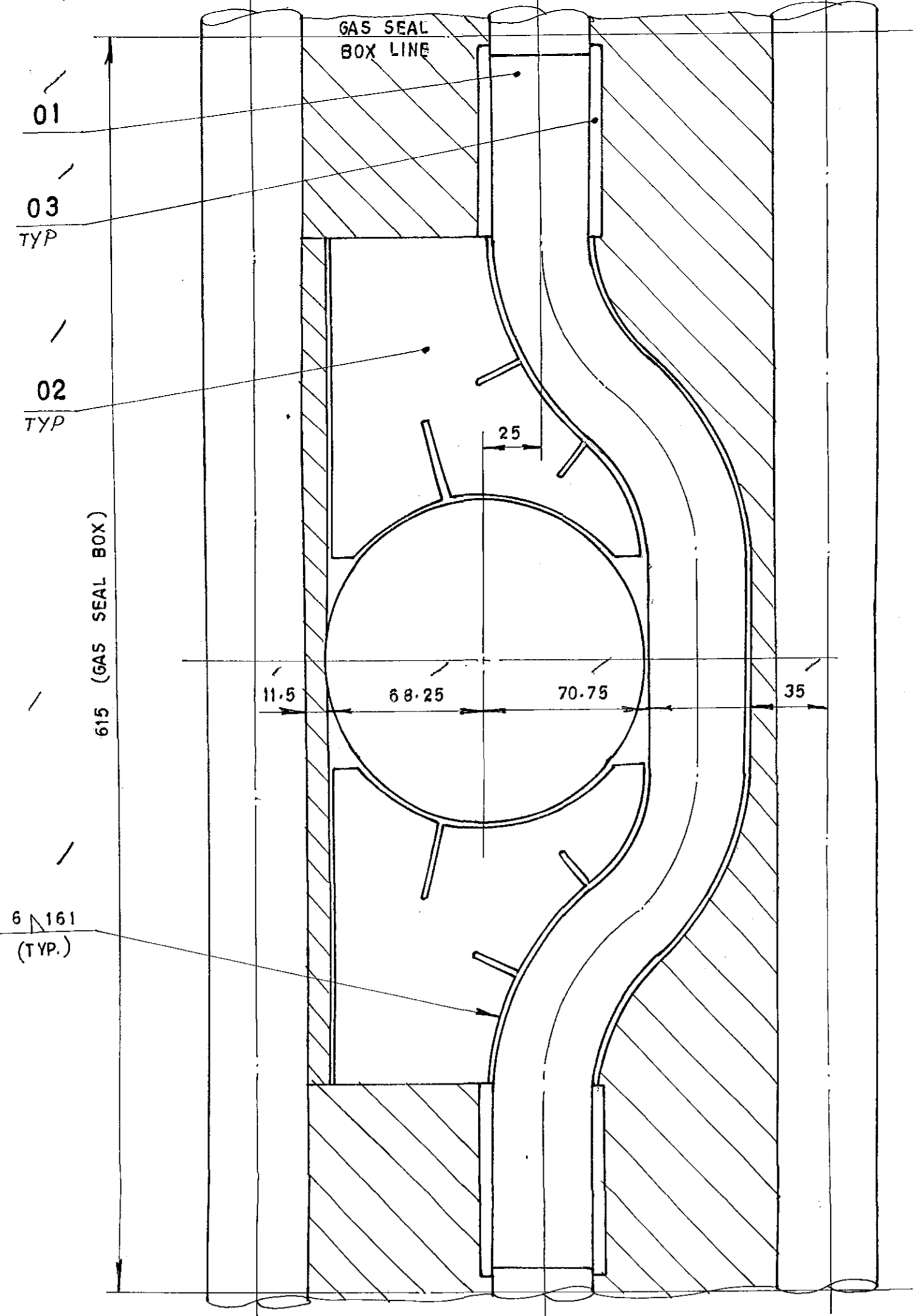


WELD:
 6Δ. E 7018 (C) - 1.2M
 6Δ. E 7018 (C) - 0.42M
 4.5∇. E 7018 (A) - 2NOS.

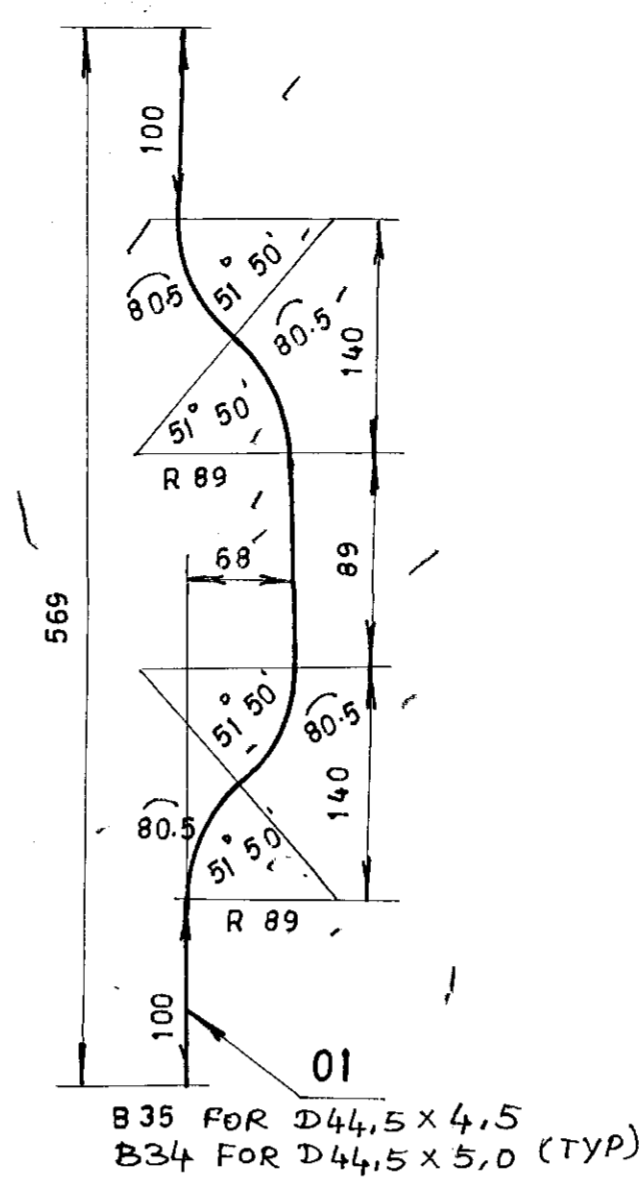
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0289



LEFT HAND DESIGN

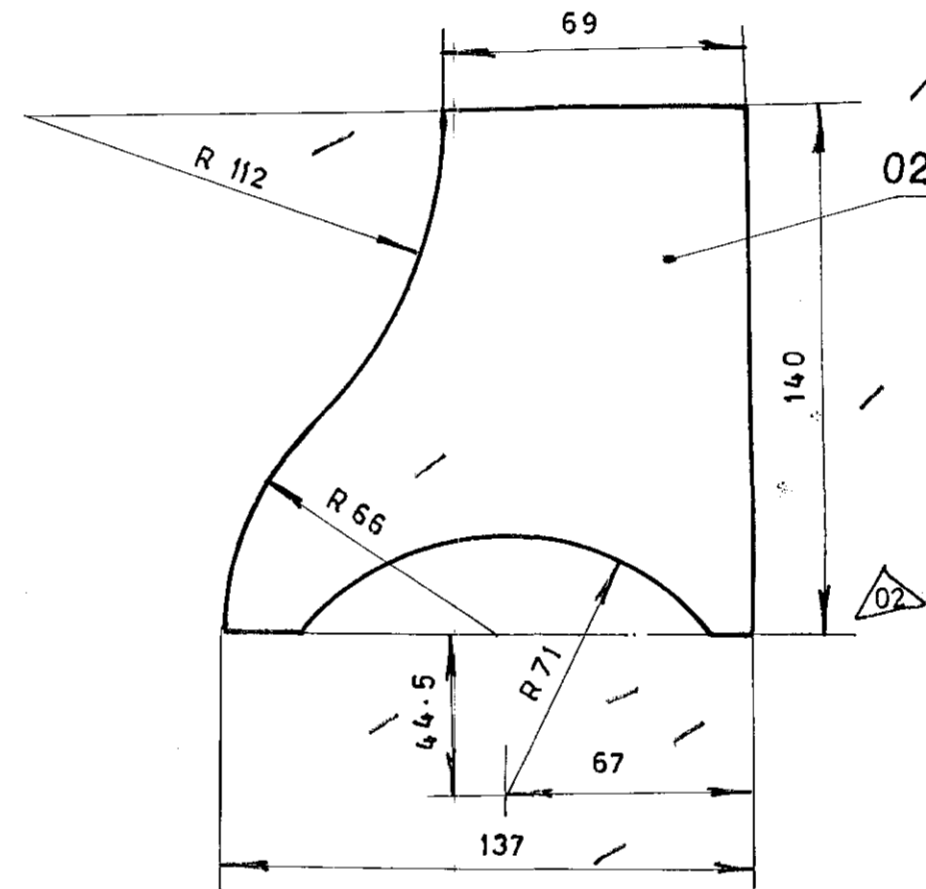


RIGHT HAND DESIGN



NOTES:

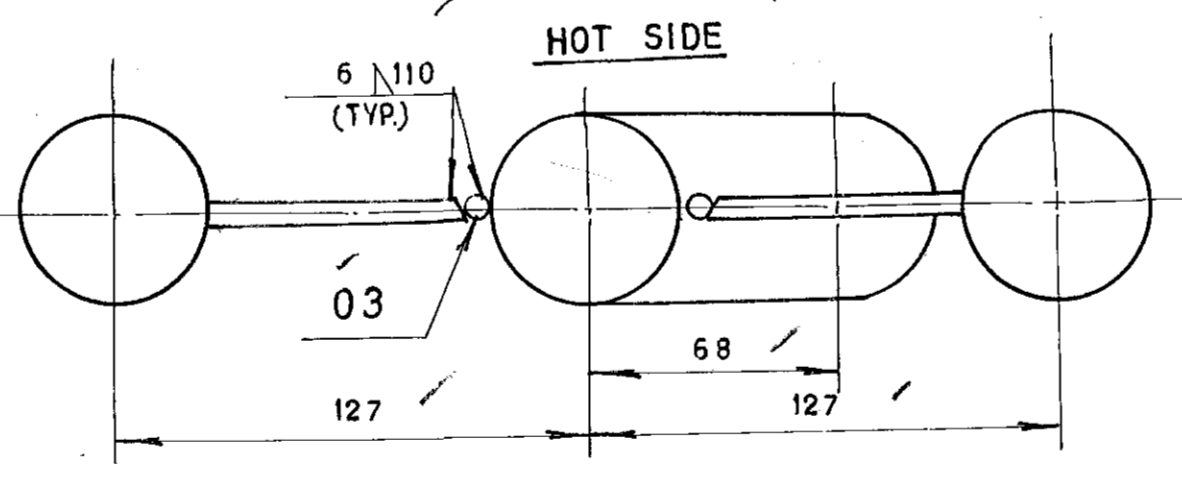
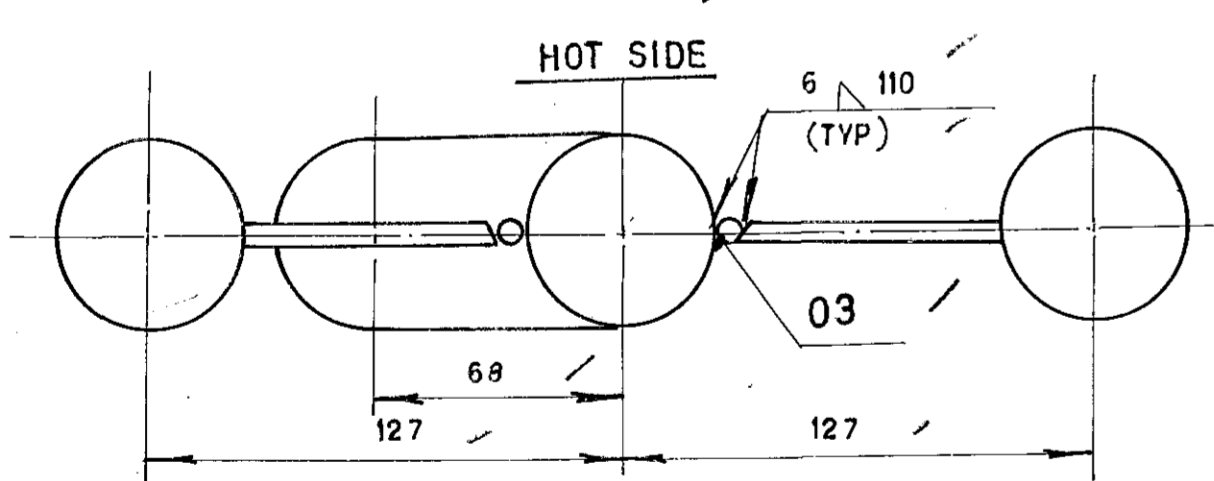
- FIN SHALL BE ATTACHED TO TUBE WITH A MIN OF 6mm FILLET AND WELDED FROM ONE SIDE ONLY.
- FOR INSERT TUBE END SCARFING DETAILS SEE CONTRACT DRAWINGS.
- CUT OUT AREA SHOULD BE GROUND FLUSH WITH THE SURFACE OF THE TUBE. DO NOT UNDERCUT TUBES.
- TOLERANCE UNLESS OTHERWISE SPECIFIED.
- FRACTIONAL ±1.5mm. ANGULAR ±1°. TO CLOSE THE VOIDS, ROD DIA 6 (ITEM No.03) SHALL BE CUT TO REQUIRED LENGTH AND WELDED IN POSITION AS PER DRAWING.



HOT SIDE

SECTION - ZZ

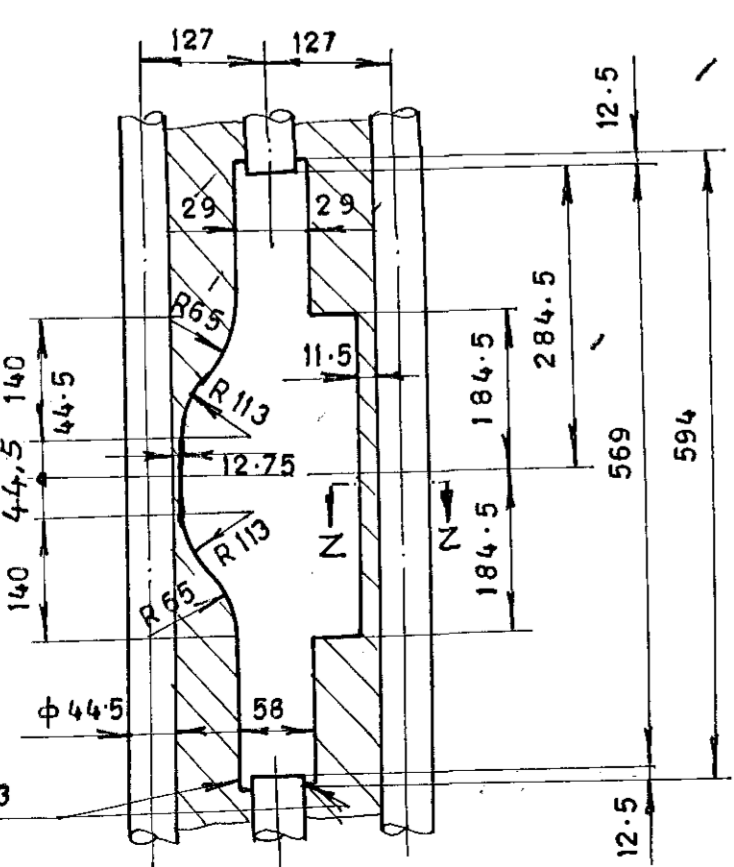
(TYP. FOR PANEL CUT OUT)



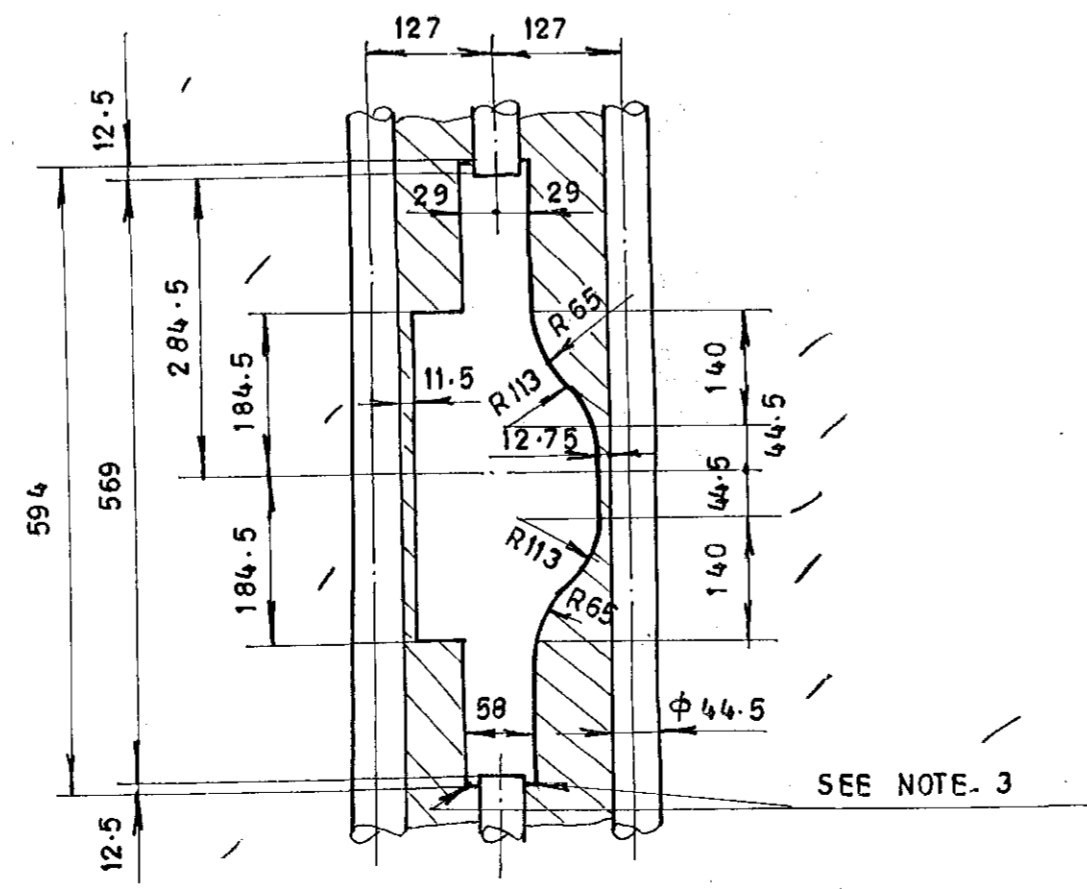
F

G

H



PANEL CUT-OUT



PANEL CUT-OUT

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM No.	MATERIAL CODE	UNIT	UNIT WEIGHT	QTY	ZONE
03	ROD D6; 500LONG	6106-2060-23		15-004-026	IS 2062 GR.A		0.100	1	
02	PL. 6 X 137 X 140	6106-2060-22		15-011-092	IS 2062 GR.A		0.880	2	
01	TUBE D44.5 X 5.0; 611 LONG	6106-2060-29		15-187-011	SA 210 GR.C		3.160	1	
06	PANEL OPENING ARRGT. FOR SB (LH)	6106-2060-30		ASSY.			5.020	1	
03	ROD D6; 500LONG	6106-2060-23		15-004-026	IS 2062 GR.A		0.100	1	
02	PL. 6 X 137 X 140	6106-2060-22		15-011-092	IS 2062 GR.A		0.880	2	
01	TUBE D44.5 X 5.0; 611 LONG	6106-2060-29		15-187-011	SA 210 GR.C		3.160	1	
05	PANEL OPENING ARRGT. FOR SB (RH)	6106-2060-28		ASSY.			5.020	1	
03	ROD D6; 500LONG	6106-2060-23		15-004-026	IS 2062 FE 410S		0.100	1	
02	PL. 6 X 137 X 140	6106-2060-22		15-011-092	IS 2062 FE 410A		0.880	2	
01	TUBE D44.5 X 4.5; 611 LONG	6106-2060-26		15-087-009	SA 210 GR.C		3.050	1	
04	PANEL OPENING ARRGT. FOR SB (LH)	6106-2060-27		ASSY.			4.910	1	
03	ROD D6; 500LONG	6106-2060-23		15-004-026	IS 2062 FE 410S		0.100	1	
02	PL. 6 X 137 X 140	6106-2060-22		15-011-092	IS 2062 FE 410A		0.880	2	
01	TUBE D44.5 X 4.5; 611 LONG	6106-2060-26		15-087-009	SA 210 GR.C		3.050	1	
03	PANEL OPENING ARRGT. FOR SB (RH)	6106-2060-25		ASSY.			4.910	1	
03	ROD φ 6; L 500	6106-2060-23		15-004-026	IS 226 FE 410 S		0.100	1	
02	PL. 6; 137 X 140	6106-2060-22		15-011-092	IS 226 FE 410 A		0.880	2	
01	TUBE φ 44.5 X 4.5 L 611	6106-2060-21		15-086-063-55	SA 210 GR. A1		3.050	1	
02	PANEL OPENG. ARRGT. FOR SB LH	6106-2060-24		ASSY.			4.910	1	
03	ROD φ 6; L-500	6106-2060-23		15-004-026	IS 226 FE 410S		0.100	1	
02	PL. 6; 137 X 140	6106-2060-22		15-011-092	IS 226 FE 410 A		0.880	2	
01	TUBE φ 44.5 X 4.5 L-611	6106-2060-21		15-086-063-55	SA 210 GR. A1		3.050	1	
01	PANEL OPENG. ARRGT. FOR SB RH	6106-2060-20		ASSY.			4.910	1	

REV.	DATE	ALTD.	BY	REV.	DATE	ALTD.	BY
04	12-8-09	CHD & APPD.	M.F.A	03	30-4-2001	CHD & APPD.	R.H.S
02	04-9-98	CHD & APPD.	SIGNER	01	10-2-95	CHD & APPD.	SIGNER

TYPE OF PRODUCT ARRGT. & DETAIL OF WELDED PANEL OPENING FOR OR NAME OF SOOT BLOWER - STANDARD

CUSTOMER/PROJECT φ 44.5 TUBES AT 127 CENTERS

Bharat Heavy Electricals Ltd
 UNIT: HIGH PRESSURE BOILER PLANT
 TRUCHIRAPALLI - 620014


DRN: R. BOSEAN
 CHD: R. NATARAJAN
 APPD: R. NATARAJAN

DEPT: PP
 CODE: 121
 ALL DIMENSIONS ARE IN MM
 PROJECTION: NTS
 SCALE: NTS
 WEIGHT (Kg):
 REF TO ASSY / OLD DWG:



TITLE: WELDED PANEL OPENING ARRGT. FOR SOOT BLOWER

DRAWING NO: 6106-2060

REV: 04

 MANUFACTURER'S NAME & ADDRESS BHEL-VISAKHAPATNAM & Approved Subcontractors		MANUFACTURING QUALITY PLAN					PROJECT: M/s HINDALCO, Sambalpur PACKAGE: 1x510 TPH COAL FIRED BOILER PACKAGE BHEL SO NO: 8136						
		ITEM: Tubular Products (Panels, Coils, loose tubes etc)			QP NO: 2569 REV: 02 Date: 21-03-2026 Page: 1 of 5								
SL No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
					C N				M	C	N		
1	2	3	4	5	6	7	8	9	D	10	11	12	13

1.0 RAW MATERIALS												
1.1	Seamless steel tubes	Chemical, Mechanical tests, NDT	A	TC verification	100%	Material standard	Mfg TC	√	P	V	V	
1.2	Attachments (All materials)	Chemical, Mechanical tests	A	TC verification	100%	Material standard	Mfg TC	√	P	V	-	
2.0 IN PROCESS CONTROL												
2.1 BENDING, SQUEEZING, SIZING & SWAGING												
A	Heat treatment	Time Vs. Temperature control	B	Review of HT charts	100%	Heat treatment technology sheet	R	√	P	V	V	
B	First off inspection of Bends	Ovality, Thickness, Flow Area, Surface Quality	B	Visual & measurement.	First off trials	SIP:PP:12, Drawing	R	√	P	V*	V	*Witness for new qualification

 V.Vamsi Krishna PREPARED BY BHEL	 Santanu Sarkar REVIEWED & APPROVED BY BHEL	LEGEND: *Records identified with "Tick" (√) mark under column "D" shall be essentially included in documentation. M:BHEL/Approved subcontractor C: BHEL QC/BHEL Authorized inspection agency N:Customer P: Perform V: Verification of documents W: Witness R Report/Record as applicable; TC: Test certificate ECT: Eddy current test HT: Heat treatment PFHT: Post formed heat treatment PWHT: Post weld heat treatment WPS: Welding procedure specification PQR: Procedure Qualification Record WQR: Welder Qualification Record NDE: Non destructive examination LPI: Liquid Penetrant Inspection RT: Radiographic testing UT: Ultrasonic Testing; DFT: Dry film thickness; R-Report/Record as applicable; Class: A: Critical B: Major C: Minor	DOC NO.: 8136-HPVP-GOP-2569 CAT: I
		REVIEWED BY CUSTOMER	APPROVED BY CUSTOMER

TATA CONSULTING ENGINEERS LIMITED
CONTRACTOR DOCUMENT REVIEW STATUS

1 Approved, Further work can Proceed

1* Approved with minor comments. No resubmission is required incorporated in As-Built. Good for Manufacturing/Construction / Fabrication subject to incorporation of comments.

2 Approved with comments. Work can proceed subject to incorporation of comments


3 Not Approved. Revise according to comments & resubmit

4 Retained for Information

4* Incorporate Comments & resubmit for Information & records



Approval conveyed herein neither relieves CONTRACTOR of his contractual obligations and his responsibilities for correctness of design/materials of construction, weights, quantities, design details, assembly fit, system performance requirements or any liability of supplies under any local/international statutory laws as may be applicable, nor does it limit the Employer's rights under the contract.


Reviewed by: DN/BP/GA(HIL) Date: 01-04-2026

	MANUFACTURER'S NAME & ADDRESS BHEL-VISAKHAPATNAM & Approved Subcontractors	MANUFACTURING QUALITY PLAN					PROJECT: M/s HINDALCO, Sambalpur PACKAGE: 1x510 TPH COAL FIRED BOILER PACKAGE BHEL SO NO: 8136
		ITEM: Tubular Products (Panels, Coils, loose tubes etc)	QP NO: 2569 REV: 02 Date: 21-03-2026 Page: 2 of 5				

SL No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					C	N				D	M	C	N	
1	2	3	4	5	6		7	8	9	D	10	11	12	13

C	Production bends	Ovality, thickness#, flow area, surface quality\$	B	Visual	100%	Drawing	R	V	P	W	V	* For the total lot of single PGMA #check thickness using D-meter \$ Free from Tool marks.
				Measurement.	10%*							
D	Swaged ends	Thickness, ID boring, hardness, Swaged lengths, surface quality	B	Measurement	10%	Drawing BHE:NDT:PT-07026	R	V	P	W	V	
				LPI	10%							
E	PFHT (if applicable)	Time vs. temperature control	B	Review of HT charts	100%	As per HT instruction sheet	R	V	P	V	V	



 V.Vamsi Krishna PREPARED BY BHEL	 Santanu Sarkar REVIEWED & APPROVED BY BHEL	LEGEND: *Records identified with "Tick" (√) mark under column "D" shall be essentially included in documentation. M:BHEL/Approved subcontractor C: BHEL QC/BHEL Authorized inspection agency N:Customer P: Perform V: Verification of documents W: Witness R Report/Record as applicable; TC: Test certificate ECT: Eddy current test HT: Heat treatment PFHT: Post formed heat treatment PWHT: Post weld heat treatment WPS: Welding procedure specification PQR: Procedure Qualification Record WQR: Welder Qualification Record NDE: Non destructive examination LPI: Liquid Penetrant Inspection RT: Radiographic testing UT: Ultrasonic Testing; DFT: Dry film thickness; R-Report/Record as applicable; Class: A: Critical B: Major C: Minor	DOC NO.: 8136-HPVP-CQP-2569 CAT: I		
					REVIEWED BY CUSTOMER

	MANUFACTURER'S NAME & ADDRESS BHEL-VISAKHAPATNAM & Approved Subcontractors	MANUFACTURING QUALITY PLAN					PROJECT: M/s HINDALCO, Sambalpur PACKAGE: 1x510 TPH COAL FIRED BOILER PACKAGE BHEL SO NO: 8136
		ITEM: Tubular Products (Panels, Coils, loose tubes etc)	QP NO: 2569 REV: 02 Date: 21-03-2026 Page: 3 of 5				



SL No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					C	N			D	M	C	N		
1	2	3	4	5	6		7	8	9	D	10	11	12	13

2.2	Welding	Procedure Qualification, Personnel Qualification	B	WPS, PQR review	100 %		ASME Sec IX	WPS	√	P	V	V	Only qualified procedure and personnel shall be used
			B	WQR review	100 %		IBR	WQR	√	P	V	V	
2.3	Welding inspection	Profile, size, reinforcement necessary	B	Visual	100 %		ASME Sec I & Drawing	-		P	W	-	

2.4	NDE BEFORE PWHT													
A	Straight tube butt joints	Weld Quality	B	Fluoroscopy /RT	100 %	20 %	BHE:NDT:PB:FT-01/ BHE:NDT:RT:07023	R	√	P	V/ W	V	V-for RT film review; W- for Fluoroscopy	
B	Other butt welds	Weld Quality	B	RT	100 %	20 %	BHE:NDT:RT:07023	R	√	P	V	V	RT Film review	
C	Attachment welds	Weld Quality	B	LPI	100%		BHE:NDT:PT-07026	R	√	P	W	V		
2.5	PWHT	Time & Temperature	B	Review of HT charts	100 %		As per HT instruction sheet	R	√	P	V	V		



 V.Vamsi Krishna PREPARED BY BHEL	 Santanu Sarkar REVIEWED & APPROVED BY BHEL	LEGEND: *Records identified with "Tick" (√) mark under column "D" shall be essentially included in documentation. M:BHEL/Approved subcontractor C: BHEL QC/BHEL Authorized inspection agency N:Customer P: Perform V: Verification of documents W: Witness R Report/Record as applicable; TC: Test certificate ECT: Eddy current test HT: Heat treatment PFHT: Post formed heat treatment PWHT: Post weld heat treatment WPS: Welding procedure specification PQR: Procedure Qualification Record WQR: Welder Qualification Record NDE: Non destructive examination LPI: Liquid Penetrant Inspection RT: Radiographic testing UT: Ultrasonic Testing; DFT: Dry film thickness; R-Report/Record as applicable; Class: A: Critical B: Major C: Minor	DOC NO.: 8136-HPVP-CQP-2569 CAT: I		
		REVIEWED BY CUSTOMER	APPROVED BY CUSTOMER	APPROVED SEAL	

SL No		COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
1		2	3	4	5	6	7	8	9	D	10	11	12	13
2.6	Dimensional inspection of coils and Panels	Length, width, dia (d1), location of attachments, pitch, terminal dimensions, thickness (random check)	B	Measurement	100%	Drawing, conformance to fixture (where ever applicable)	R	V	P	W	W	#	#10% of each PGMA	
2.7	Dimensional inspection of loose tubes	Dimensions Thickness (random check), Dia (d1)	B	Measurement	100%	Drawing	R	V	P	W	V			
2.8	PMI (for LAS only)#	Chemical composition	B	Verification	#	Drawing	R	V	P	W	V		#100% for weldment 10% for parent metal	
2.9	Hydro Test (Except loose tubes & loose bends without welds)	Strength & Leak Tightness	A	Visual	100%	Drawing & IBR	R	V	P	W	W	#	#10% of each PGMA	

 V. Vamsi Krishna PREPARED BY BHEL	 Santanu Sarkar REVIEWED & APPROVED BY BHEL	LEGEND: *Records identified with "Tick" (√) mark under column "D" shall be essentially included in documentation. M:BHEL/Approved subcontractor C: BHEL QC/BHEL Authorized inspection agency N:Customer P: Perform V: Verification of documents W: Witness R Report/Record as applicable; TC: Test certificate ECT: Eddy current test HT: Heat treatment PFHT: Post formed heat treatment PWHT: Post weld heat treatment WPS: Welding procedure specification PQR: Procedure Qualification Record WQR: Welder Qualification Record NDE: Non destructive examination LPI: Liquid Penetrant Inspection RT: Radiographic testing UT: Ultrasonic Testing; DFT: Dry film thickness; R-Report/Record as applicable; Class: A: Critical B: Major C: Minor	DOC NO.: 8136-HPVP-CQP-2569 CAT: I
		REVIEWED BY CUSTOMER	APPROVED BY CUSTOMER

SL No		COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK C N	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	D	10	11	12	13
2.10	Ball test* & sponge test	Free Passage	B	Visual	100%	SIP:PP:15		R	√	P	W	W #	#10% of each PGMA *Ball test applicable only for flash butt welded, straight tube butt welded and fusion welded jobs only

3.0 FINAL INSPECTION													
3.1	Verification of completion	Verification of documents.	B	Verify	100 %	Drawing & In-process records		R		P	V	√	
3.2	Painting & Preservation	Appearance, End capping, DFT	C	Visual Measure	100 %	Approved painting scheme		R	√	P	V	V	
3.3	Identification	WO. No., DU No.,	B	Visual	100 %	Drawing		R	√	P	V	V	
3.4	Data folder	Compilation of records	B	Compilation of records	100 %	As per IBR		R	√		P/V	-	Applicable IBR forms will be sent to site.

 V.Vamsi Krishna PREPARED BY BHEL	 Santanu Sarkar REVIEWED & APPROVED BY BHEL	LEGEND: *Records identified with "Tick" (√) mark under column "D" shall be essentially included in documentation. M:BHEL/Approved subcontractor C: BHEL QC/BHEL Authorized inspection agency N:Customer P: Perform V: Verification of documents W: Witness R Report/Record as applicable; TC: Test certificate ECT: Eddy current test HT: Heat treatment PFHT: Post formed heat treatment PWHT: Post weld heat treatment WPS: Welding procedure specification PQR: Procedure Qualification Record WQR: Welder Qualification Record NDE: Non destructive examination LPI: Liquid Penetrant Inspection RT: Radiographic testing UT: Ultrasonic Testing; DFT: Dry film thickness; R-Report/Record as applicable; Class: A: Critical B: Major C: Minor	DOC NO.: 8136-HPVP-CQP-2569 CAT: I		
		REVIEWED BY CUSTOMER	APPROVED BY CUSTOMER	APPROVED SEAL	

Comment Resolution Sheet

Project Title : 1x510 TPH COAL FIRED BOILER PACKAGE, HINDALCO, SAMBALPUR
Drawing/Document No : 8136-HPVP-CQP-2569
Revision No : 1

Sr.No.	HINDALCO Comments	BHEL Resolution	Status (Open/Close)
1	Type of check and quantum of check to be clarified. Visual - ? % and Measurement - ? %. Kindly clarify	Clarified as Visual 100%, Measurement 10% in quantum of check against SL No 2.1.C.	Close
2	Specify the thickness of the PFHT.	HT instruction sheet will be prepared complying to ASME requirement.	Close
3	quantum of check required 100%.	Incorporated.	Close
4	Required 100% of each PGMA.	BHEL will witness 100% Hydro test.Witness by customer is 10%.	Close
5	Required 100% of each PGMA.(SL No 2.10)	BHEL will witness 100% ball test wherever applicable.Witness by customer is 10%.	Close
6	Scope "V" to be maintained against SL NO 3.1	Incorporated.	Close

BHARAT HEAVY ELECTRICALS LIMITED

HPVP UNIT - VISAKHAPATNAM - 530012

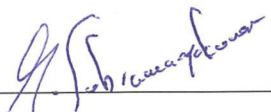




M/S. Hindalco, Sambalpur 1x510 TPH UTILITY COAL FIRED BOILER PACKAGE

HPVP S.O. No. 8136

PAINTING SCHEDULE

Doc. no: PAINT-8136-DOC-00001

04	 S KUMAR MANIKYAM Sr Manager/Engg.	Pabitra Kumar Sahoo DGM /-Engg. 	Pabitra Kumar Sahoo DGM /-Engg. 
Rev No	Prepared by	Reviewed by	Approved by

Rev. No	Date	Details of revision	Remarks
00	09-01-2026	NEW	Prepared in line with BHEL standard painting scheme applicable for normal environment.
01	27-01-2026	UPDATED INLINE WITH COMMENTS	
02	07-02-2026	UPDATED INLINE WITH COMMENTS	Painting Schedule approved in code-1 dated 10-02-2026
03	13-02-2026	Shade for Inorganic zinc silicate updated in Page 11	Updated inline with spec
04	16-03-2026	SI No 3.5, micron rating was changed from 40 microns to 100 microns and updated inline with Rev02. Remaining micron ratings and paints are maintained inline with TCE Spec TCE-13807B-ME-6002-6001	

RECORD OF REVISIONS

Sl. NO.	Scheme No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT μ m (min)
				Paint	No. of coats /DFT	Paint	No. of coats	Paint	No. of coats	Shade	
1.1	1AC	Drum (Except Internals) 04 – 124	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 / DFT= 30m per coat	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932	2 DFT= 20m per coat	Inter- national Orange Shade No: 592 of IS 5	70
1.2	1AC	Drum Suspension 04 - 144	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1/ DFT= 30m per coat	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932	2 DFT= 20m per coat	Inter- national Orange Shade No: 592 of IS 5	70
1.3	5	Drum Internals 04 – 134, 136, 138 Other Machine Components 43 – 101, 102, 103, 104, 105, 106, 107	Blasting according to SIS 055900 GRADE: SA 2 1/2	Rust Preventive Fluid to PR: CHEM: 09 – 04	1 DFT=20m per coat	--	--	--	--	--	20
1.4	1AE	Drum Transport Structures 04 - 194, 196, 35 - 810	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 DFT= 30m per coat	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932	2 DFT= 20m per coat	Yellow Shade No: 356 of IS 5	70
2.1	11	Foundation Materials and Pin: 35 - 010, 190 – 39 – 010, 020, 48 – 019 & Columns below “0” level of PG 35,36, 38 & 39	Blasting according to SIS 055900 GRADE: SA 2 1/2	--	Red Oxide (Rust preventive paint required)	--	--	No Paint	--	--	--

Sl. No.	Scheme No.	PGMA / Description	Surface Preparation &- Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT µm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
22	1A	<p>Buck Stays and Structural Items: Buck stays 08 – 001, 101, 104, 107, 111, 400,700, 900,904 Boiler Supporting Structures 35, 36, 38,39,66 (EXCEPT FLOOR GRILS, LADDERS & STAIRS, HANDRAILS & POSTS)</p> <p>For No paint zones Refer note no: 19</p> <p>Duct Supports 48 – 005, 015, 025, 045, 055, 065, 085, 105, 115, 125, 145, 155, 185, 195, 200,205, 215, 225, 235, 245, 255, 265, 275, 295, 305, 315, 325, 335, 345, 355, 365, 375, 385, 415, 425, 435, 445, 455, 465, 475, 485, 495, 665, 805, 815, 825, 845, 855, 865, 875, 885, 995 Piping Centre: 80-800 to 882, 920 to 933, 940</p>	Blasting according to SIS 055900 GRADE: SA 2 1/2	Inorganic Zinc silicate	1 / DFT= 75 µm per coat	High build micaceous iron oxide epoxy	1 DFT= 75 µm per coat	High build micaceous epoxy polyamide (pigmented)	2 / DFT= 75 µm per coat	Dark Admiralty Grey Shade no. 632 is5	300

Sl. No.	Scheme No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT μm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
23	1AB	Floor grills, 35 – 811 36 - 810, 38 - 810, 811 39 – 810, Hand Rails 35 - 850, 36 - 850 38 - 850, 851 39 - 850, Ladders 35 – 820 36 – 820 38 – 820 39 – 820	Hot dip Galvanizing to a coating weight of 610 gm per sq. m (minimum) and to a coating thickness of 85.0 microns (minimum). Any damaged portion post preparation of components to be cold spray galvanized with Zinc rich primer (2 coats with each of 75 μm)								

Sl. No.	Scheme No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT μm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3.1	10	Components >95 C Un-insulated other than components coming in Gas Path 09 - 001, 002, 003 24 – 220, 28 – 220 42 – 300,358 07-401,410,420,431,700 17-904,919,928 19-901,905,906,907 12- 901, 903, 906, 914, 917, 924, 928, 944, 948, 954,	Blasting according to SIS 055900 GRADE: SA 2 1/2	Heat Resistant Aluminium Paint to IS 13183 Grade-I	1 (DFT =15 microns)	--	--	Heat Resistant Aluminium Paint to IS 13183 Grade-I	1 (DFT =15 m per coat)	Aluminium	30

3.2	3	Components >95 C Insulated 05 - 137, 147,155,175, 227, 229, 231,251, 07 - 108, 109, 215, 216,218, 223, 225, 226, 229, 231, 232 10 – 135, 174, 178, 191, 235, 274, 278, 283, 284, 291,687 15 –174, 274,18 – 001,010, 020 19 – 701, 702, 753,763, 21 – 600 24 – 200, 215, 275, 500 42 - 128, 158, 48 –202, 204, 207,212, 214, 222, 224, 382,384, 432, 434, 462, 464 , 482, 484, 492, 494, 499, 662, 664, 667, 38011,120,250,360,211,212,213,451,4 52,541,543,304,810,820,850,440,48 – 380.	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 DFT= 30m per coat	-	--	--	--	Red Oxide	60
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Sl. No.	Scheme No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT μm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3.3	2	Heat Transfer Exchanger Coils: (SH, RH & Economiser Coils) Panels: 11- 682, 683, 684, 685, 687, 691, 694, Pipes: 11 - 236, 237,274, 278, 12 – 174, 184, 187, 535,803, 805, 850, 851, 852, 900, 16 –275, 277 19 -114, 124, 802	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Dip coat primer to PR: CHEM: 09 – 03	1 DFT= 35m per coat	--	--	--	--	--	35
3.4	3	Components coming in Gas Path other than Coils 06 -400, 631, 637, 640, 647, 651, 655, 10 – 182, 183, 184, 185 16 – 988, 999 19 – 802,850,851 30 – 105, 211, 212, 219, 220, 31 –102,104, 105, 32 –310, 42 - 129	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 DFT= 30m per coat	--	--	--	--	Red Oxide	60

3.5	8A	Uninsulated Fuel Pipes 47 – 229, 265, 266, 267, 268, 269 Duct for Tube Mill: 48 – 802, 804, 812, 814, 817, 822, 824, 832, 834, 842, 844, 852, 854, 857, 862, 864, 867, 872,874, 882, 884,	Blasting according to SIS 055900 GRADE: SA 2 1/2	In organic Zinc ethyl zinc silicate	2 / DFT = 50µm per coat	--	--	--	--	Light Brown	100 µm
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SL. No.	Schem e No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT µm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
4	15	Constant Load and Variable Load Hangers (CLH / VLH) (See NOTE 14) 07 - 401, 410, 420, 431 10 – 200 17 – 904, 919, 19 –904, 905, 906, 907 24 - 351	Blasting according to SIS 055900 GRADE: SA 2 1/2	Epoxy zinc rich primer to IS 14589 Gr. II %VS=35 (min)	1 DFT=40 m / coat	--	--	Aliphatic acrylic Poly- urethane paint %VS=40 (min) t	1 DFT=30 m per coat	Phirozi Blue Shade No. 176 of IS5	70
5.1		Miscellaneous and Casing Sheets: 07-500, 501, 601, 997, ,21 - 601, 24 - 201, 225, 235, 240, 350, 470, 471, 473, 501, 525, 535, 540, 570, 601, 625, 635, 640, 800, 801, 815, 850, , 36 - 613, 37 - 010, Fuel Firing: 41 –350, 390, Steam Blowing Piping: 42 – 002, 005, 010 42 –065, 070, 120,152, 154, 157, 43 –, 004, 005, 45 –220, 221,47 –201, 209, Duct Plates and Expansion Joints: 48 –012, 014, 112, 114, 142, 144 Coal Handling: 65 –736, 276, 283, 801, 802, 803,	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 DFT= 30m per coat	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932	2 DFT= 20	Smoke Grey Shade No: 692 of IS 5	70
5.2	3	Erection Materials and Commissioning Components: 04 - 988, 05-993, 06-993, 07 – 993, 12-993, 24 – 993, 28 – 993, 35 – 993, 36 – 993, 37 – 993, 38 – 993, 39 – 993, 48- 993, 65 – 988, 97-585,99 – 045, 099, 501, 50	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	2 DFT= 30m / coat	--	--	--	--	Red Oxide	60

SL. No	Scheme No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat at site		Finish coat at site			Total DFT μ m (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
6.1	10	Cast carbon steel valves (Conventional) Cast alloy steel valves (Conventional) All API valves, QCNRV, SV & SRV Silencers, Water Level gauge HP / LP system 22-101,889	Blasting according to SIS 055900 GRADE: SA 2 1/2	Resistant Aluminium Paint to IS 13183 Gr.I	2	--	--	--	--	--	40
6.2	--	Forged valves	Blasting according to SIS 055900 GRADE: SA 2 1/2	Coating weight of 1500 mg per sq.ft.	--	--	--	--	--	--	--
6.3	1AS	Soot Blower components 20-001,003,004,021,051,054,201,204,301,304,331,511,794,801,821,831,962,972	Blasting according to SIS 055900 GRADE: SA 2 1/2	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744	1 DFT= 30m per coat	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932	2 DFT= 20	Verdigris Green Shade No. 280 of IS5	70
6.6	8A	Hand Wheels	Blasting according to SIS 055900 GRADE: SA 2 1/2	General Purpose Aluminium Paint to IS 2339	2 DFT= 100m per coat	--	--	--	--	--	40

PS for Arrows shall be as per valves and the final shade will be „Post Office Red-Shade No. 538 of I

NOTES:

1. This painting scheme covers a comprehensive list of PGMA's being used in 125 / 150/ 210 / 250 / 500 MW and Industrial Boilers under Fossil Boilers working in normal environment, in an effort to standardise the painting scheme. Therefore, the entire list of PGMA's will not be applicable for any specific project and only those PGMA's applicable for the project may be used, while choosing the painting scheme applicable.
2. Rust Preventive coating should be given on HSFG Bolt and Nut threads at site.
3. All threaded and machined surfaces & Retainers are to be applied with a coating of Temporary Rust Preventive oil.
4. All surfaces of foundation materials, insulation pins, Anchor channels, Sleeves shall be coated with Temporary Rust Preventive Fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents at site.
5. PGMA's under Sub-Vendor items are not indicated. Please refer respective Engineering Document for all sub-vendor items. Wherever it is not specified, it shall be as per the painting scheme of the applicable PGMA.
6. No painting is required for Aluminium, Stainless Steel components and galvanized items. Abrasive blast cleaning to SSPC-SP6 (Sa 2) grade shall be done to prepare the surface of hot worked pipes prior to application of primer.
7. Wherever inside surfaces of components under PGMA 48 – XXX, need protection till erection, and all running meter items for spares and main item two coats of Red-oxide zinc phosphate primer paint to IS12744 to a DFT of 60 microns shall be applied, after power tool cleaning. For items meant for Spares and subcontracting where no further processing is involved, the painting scheme selected shall be the same as that of similar product configuration/ description.
8. The Temporary Rust Preventive coating that has already been applied on any component, tubes, pipes etc., shall be visually inspected for good adherence. If the coating is intact, direct coating of alkyd-based paints over the coating is permitted. In case, the coating has peeled off over a large area, then the coating is to be removed by suitable solvents / heating to 350 –400 C for an hour before primer paint application –but, in this case, it should be ensured that the minimum surface cleanliness required for primer paint application shall be SSPC – SP2 (equivalent – Hand Tool cleaning).
9. All currently active PGMA's are covered. Requirements for Missing / new PGMA s will be included under the relevant section, following the appropriate paint logic.
10. Ground shade/colour finish paints & identification tag/ band for equipment's, piping, pipe service, boiler supporting structures and other boiler components shall be followed as per tender.
11. In components, wherever plates/sheets of thickness less than or equal to 5 mm, tubes/ rods/drain pipe are used, power tool /hand tool cleaning to SSPC-SP3/ SSPC-SP-2 shall be followed and the painting shall be done as described in SI no: 5.1.
12. Touch-up painting of damaged areas shall be carried out as per clause applicable painting scheme.
13. Only weldable primer shall be applied on surfaces, which require to be welded subsequently at site. At those locations no other paint shall be applied.
14. DUs coming under Constant Load Hangers (CLH) shall be painted as per the system - PS 15 indicated in SI. No. 4 of the table. However, for DUs coming under Variable Load Hangers (VLH), the painting shall be as per Painting Scheme PS 1A indicated in SI. No. 5.1 of the table. (i.e., one coat of Zinc Phosphate Primer followed by two coats of Synthetic Enamel Paint –shade smoke grey, total DFT – 70 microns)
15. For internal protection of Pipes, tubes, headers and other pressure parts, Volatile Corrosion Inhibitor (VCI) pellets shall be put (after sponge testing/ draining/ or drying) and subsequently end capped. The dosage of VCI pellets shall be approximately 100 gm/ Ch.M. For tubes typically 4 – 5 tablets per end are to be put. For C & I items the dosage of self-indicating Silica Gel (colourless) shall be 250 gm/ cu.m. (About 2 to 3 bags weighing approximately 100 grams each) . VCI pellets shall not be used for stainless steel components and its composite associates.
16. All threaded components of spring assemblies and turnbuckles shall be galvanized and achromatized to 15 microns minimum thickness.
17. Painting scheme for all temporary structures shall be PS 1AE i.e. 1 coat of Zinc Phosphate primer (Alkyd Base) to IS 12744-DFT-30 and 2 coats of Synthetic Enamel paint (Long Oil Alkyd) to IS 2932-DFT-2X20 Shade Yellow –Shade No. 356 of IS 5- Total DFT 70.
18. One no. of primer to be coated at shop only. Balance primer, intermediate or finish paint to be coated at site only.
19. The matching faces of HSFG Bolt connections should not be painted (If required rust preventive temporary coating can be applied to the max DFT of 30 µm)

Painting Scheme – Details for procurement & application purposes

Sl. No	Material Code of Paint	Generic nature of paint	Theoretical Covering Capacity Sq. m per Litre	No. of pack	Volume solids, % (min) **	DFT in microns (min) per coat	Shade	Shade No. to IS5	Mode of appln	Over coating interval, Hrs.
1	120016131800	Heat Resistant Aluminium paint to IS 13183 Grade I	10	1	-	-	Aluminium	-	Brush / Spray	24
2	120011111900	Red oxide Zinc Phosphate primer paint to IS 12744	10	1	-	-	Red Oxide	-	Brush / Spray	12
3	120011121900	Red oxide Zinc Phosphate Dip coat primer paint to PR: CHEM: 09-03	10	1	-	-	Red Oxide	-	Dip	12
4	120011311200	Long oil alkyd synthetic enamel finish paint to IS2932	10	1	-	-	Reqd. shade	Corrpdg. Shade no.	Brush / Spray	12
5	120011140000	Temporary Rust preventive fluid to PR: CHE: 09 – 04	10	1	-	-	Amber	-	Brush / Spray	12
6	120012141700	Epoxy Zinc rich primer to IS14589 Gr. II	8	2	35	40	GREY	-	Brush / Spray	24
7	120013310200	Aliphatic acrylic polyurethane paint to IS13213	10	2	40	30	Phirozi – Blue. /French Blue	176/166	Brush / Spray	24
8	120017101800	De Oxy Aluminate Weldable Primer- Colour Aluminium	10	1	-	-	Aluminium	-	Brush / Spray	24
9	120014111700	HB CR Based Zinc Phosphate Primer	10	1	40	50	GREY	-	Brush / Spray	12
10	120014300100	CR Based Finish Paint	10	1	30	30	French Blue	166	Brush / Spray	12

11	12001213800	High Build Epoxy Mastic Aluminium Primer-	10	1	80	100	Aluminium	-	Brush / Spray	24
12	180030810000	Inorganic zinc silicate	8	2	57	65	Grey	-	Spray	12

The covering capacity of paints specified is only approximate.

The paints and Rust Preventive fluid shall be procured from BHEL"s approved suppliers. ** Values are indicative.

CRS on PAINTING SCHEDULE for M/S. Hindalco, Sambalpur 1x510 TPH UTILITY COAL FIRED BOILER PACKAGE

SI No	Drawing No	Comment by Customer	BHEL Reply
1	PAINT-8136-DOC-00001	<p>There are many changes with respect to the approved Rev. 02 painting schedule. In many areas, the specified DFT for painting has been reduced, and in sl. No. 3.5, the type of paint has been changed and there is no revision marks. Such changes are not acceptable.</p> <p>BHEL must specify the reason for the change in the specification. While the inclusion of previously missed items can be considered acceptable, any reduction in paint quality or specification is not acceptable.</p> <p>R02 painting spec also attached along with this for the ready reference</p>	<p>It may be noted that Painting schedule Rev02, has been made inline with earlier Hindalco Project supplied by BHEL.</p> <p>In Rev03, painting schedule was changed inline with tender paint specification no. TCE-13807B-ME-6002-6001. However, as per TCE comment, in Rev04 SI No 3.5, micron rating was changed from 40 microns to 100 microns and updated inline with Rev02. Remaining micron ratings and paints are maintained inline with TCE Spec TCE-13807B-ME-6002-6001</p>