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## INVITATION TO TENDER

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Ref: OS/22-23/7906/Burner\_Windbox/06/006

Date: 16.06.2022

**Sub: Fabrication of Burner & Windbox Assemblies and associated components against S.O. No. 7906 at vendor's works with free issue materials**

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Dear Sir,

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

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### **ELIGIBILITY CRITERIA:**

- (1) Bidders should have an experience in successful execution of similar works for a minimum of one project as on 31<sup>st</sup> May'2022. Bidders shall have to enclose Work Order and Work Completion Certificate in support of the same.
  - (2) Bidders shall also have to enclose the documents of Registration of Firm/ Factory License/ Certificate of Incorporation, PAN, GSTIN, Udyog Aadhar Memorandum / Udyam Registration (if registered with MSME).
  - (3) The works executed in own name of the individual / firm of the tenderer will only be considered for eligibility criteria.
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### **1. LOCATION OF WORK SPOT:**

- 1.1 The subject job is to be carried out at Vendor's works.

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

- 2.1 The total quantity of Burner & Wind box Assemblies and associated components is **35 MT approx.** The details of items are given in Annexure-II.
  - 2.2 **Fabrication of Burner & Wind box Assemblies and associated components** which involves fabrication and various machining operations e.g., Marking, Cutting / Shearing, Profile / Shape Cutting, Bending / Rolling, Edge Preparation / Chamfering, Drilling / Punching, Boring, Assembly, Welding etc., Trial Assembly wherever required, NDT, Surface Preparation by Power Tool / Grit Blast Cleaning, Painting etc., as per relevant drawings, Painting Schedule, QAP, Inspection Procedure, WPS, NDE procedures, Standards & Specifications etc., and it includes the following activities but not limited to the same:
    - (1) Collection & Transportation including Transit Insurance of Free Issue Raw materials, BOCs etc., from BHEL-HPVP stores to Vendor's works. The raw materials, BOCs etc., required for fabrication shall be free issue by BHEL-HPVP.
    - (2) Transportation including Transit Insurance and Handing over of Fabricated items, excess / balance materials from vendor's works to BHEL-HPVP, Visakhapatnam.
    - (3) Rectification of Raw materials such as straightening etc., if required.
    - (4) Trial assembly of Fabricated items after fabrication wherever required as per Drawings / QAP.
    - (5) The fabricated items shall strictly conform to the dimensions and tolerances indicated in the drawings. It must be ensured that correct dimensions and deviations, if any, are recorded properly and is made available to BHEL officials or their authorized agencies.
    - (6) Submission of economic cutting plans for all plate materials and sections issued by BHEL and obtaining approval of competent authority is mandatory before taking up for 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.
    - (7) Welding is to be carried out by qualified welders only.
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- (8) The work is to be executed as per the latest approved Drawings, Group Manufacturing Specification (GMS), Shipping List released for each PGMA, QAP, WPS, Standards & Specifications etc.
- (9) Any modification work due to revision of the drawings during fabrication is to be carried out by the vendor without any additional cost.
- (10) No extra rates are applicable for any additional joints made in Plates / Rolled sections etc.
- (11) All indirect materials, consumables like electrodes, gases, grinding wheels etc., required for fabrication are in the scope of the Vendor.
- (12) Supply of all applicable Paints from reputed manufacturers like Asian paints, Berger paints, Kansai Nerolac, Akzo Nobel, Nippon paint, Shalimar paints etc., is in vendor's scope. Application of total no. of coats of Paints as per approved Painting Schedule after Power Tool / Grit blast cleaning is in Vendor's scope. The Paint Manufacturer's certificates for the supply of paints shall be submitted to BHEL-HPVP.
- (13) Identification of all items shall be hard stamped by encircling with paint and stencilled in a specific format with details of Project name, Customer No., Work Order No., PGMA No., DU No., Qty., etc., for identification and dispatch as per the instructions of the concerned. Completed job without proper identification will not be accepted by HPVP - Stores / Logistics.
- (14) Free issue materials should be collected within 5 days from the date of intimation by Outsourcing without failure. Any delay beyond 5 days shall be considered for levying of LD.
- (15) Vendors shall have to return the excess / balance materials including off-cuts and total scrap available with them exclusive of process allowance & invisible wastage to HPVP Stores after material reconciliation but before submission of their final bill. In case the same are not returned by the vendors, Recovery shall be made as per BHEL Rates / MSTC rates plus applicable taxes, prevailing at the time of processing of the final bills.
- (16) 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 bidders.

### **3. BHEL SCOPE:**

3.1 BHEL – HPVP shall provide the following as free issue:

- (1) Supply of Drawings, GMS, QAP, Inspection Procedure, NDE Procedures, WPS, Painting Schedule etc.
- (2) Raw materials like Plates as full / off-cuts as per requirement, Pipes, Rounds & Sections in running meters, BOCs etc., as per requirement.
- (3) Inspection as per approved QAP shall be arranged by HPVP at Vendor's works.

### **4. INSPECTION:**

- 4.1 Inspection shall be carried out by M/s. BHEL-HPVP/ BHEL Authorized Inspection Agency (TPIA)/ Customer as per approved QAP. Contractor shall have to offer for Stage wise and Final inspection as per approved QAP and obtain necessary stage wise & final clearances before proceeding for further operations.
- 4.2 Fabrication Vendor shall be solely responsible for preparation and submission of all Inspection Reports & documents duly certified by Inspection Authority along with the finished equipments.
- 4.3 All the documentation related to inspection clearance of M/s. BHEL/TPIA/Customer, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats etc., are included in the scope of vendor and scanned copy as well as hard copy of the same is to be submitted to BHEL-QA.

### **5. DELIVERY:**

5.1 Finished items shall be delivered within **8 weeks from the date of issue of First consignment of free issue materials or 4 weeks from the date of issue of Last consignment of materials, whichever is later.**

The delivery period will be calculated from the date of issue of First / Last consignment of materials to the date of delivery of finished items **against respective DUs**. The delivery period includes the time involved in cutting plan approval, handing over of finished items at HPVP- Logistics.

**Note:** 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.

**6. PRICE:**

- 6.1 The price shall be quoted as per the Schedule of Rates enclosed at Annexure – I for the detailed scope of work of each item and the quoted price shall be inclusive of all applicable taxes & duties except GST.
- 6.2 The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 6.3 GST shall be reimbursable to the vendor as detailed in Clause – 7 and as per Annexure – GST.
- 6.4 Income tax will be deducted at applicable rates from RA & Final bills.

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

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

- a) Vendors registered under GST Act shall have to mention their GSTIN no. (15 Digits) in their Technical Bid. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering their offer.
- b) Semi-finished goods are to be delivered by the Vendors in BHEL, HPVP premises within a maximum period of one year from the date of issue of the material, failing which the whole transaction will be considered as Supply and Sale and GST is required to be paid along with interest (calculated @ SBI Base Rate + 6%) along with penalty, if any, from the date of Challan on the whole value of materials. Hence vendors shall have to ensure that materials issued to them are returned within 365 days.
- c) After fabrication, the vendors shall have to deliver the Semi-Finished Goods by fulfilling the following formalities:
  - i) GST invoice should be raised by the vendors by paying GST on job work charges at applicable rates and by incorporating the HPVP GSTIN no. in the invoice for availing the reimbursement of GST from HPVP.
  - ii) The vendor shall also have to enter in their GST Return -1 (GSTR-1) the details of invoice raised for payment of GST so as to enable HPVP to avail input credit.

**8. 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.

**9. REVERSE AUCTION:**

- 9.1 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 and Guidelines for Reverse Auction are available on our website, [www.bhel.com](http://www.bhel.com) → supplier registration → Guidelines for Reverse Auction 2021, before submission of their offer.
- 9.2 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 / Electronic price bid along with applicable loading, if any, shall be considered for ranking.
- 9.3 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.
- 9.4 Bidders are advised to read the 'Business Rules' (Annexure – V) indicating details of RA event carefully, before reverse auction event.

**10. VALIDITY OF OFFER:**

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

11. General Terms & Conditions, whichever applicable, shall be as per Annexure – III.

**12. GENERAL:**

- 12.1 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, clarifications related to welding 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.
- 12.2 Drawings, QAP, Clarifications related to Welding, other reference documents etc., shall be sent to the bidder's e-mail address upon their written/e-mail request.
- 12.3 **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 and **any deviations mentioned in the Price Bids shall not be considered.**
- 12.4 BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.
- 12.5 The general terms & conditions, if any contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.
13. The following documents shall form part of the tender enquiry:
- a) Schedule of Rates : Annexure – I
  - b) Details of items to be fabricated : Annexure – II
  - c) General Terms & Conditions : Annexure – III
  - d) Acceptance to tender terms & conditions : Annexure – IV
  - e) Business Rules for Reverse Auction : Annexure – V
  - f) GST Compliance for Indigenous Suppliers : Annexure – GST

**14. TENDER SUBMISSION (Through E - Mail):**

- 14.1 Techno-commercial bids along with the tender document duly signed & stamped by the bidder on all pages and a covering letter on Company's Letter Head addressed to DGM (Outsourcing), BHEL –HPVP, Visakhapatnam shall be sent through an e-mail to the e-mail ID [technicalbid-hpvp@bhel.in](mailto:technicalbid-hpvp@bhel.in)
- 14.2 Price bid (Annexure-I) shall be sent separately through e-mail to another e-mail ID [pricebid-hpvp@bhel.in](mailto:pricebid-hpvp@bhel.in)
- 14.3 Offers completed in all respects along with all the supporting documents shall be sent to the above e-mails only **latest by 14.00 Hrs. on 27.06.2022** duly mentioning the Name of Work, Tender Ref. No. & Date and Technical Bid / Price Bid in the subject of the e-mail.

**Note:** Do not mark CC and BCC while submitting your offer as the system is designed to reject such mails having more than one recipient. Max. file size of the attachment shall be 20 MB only. In case the file size is more, bidder can submit their offer through multiple mails within the due date and time.

Bidders shall ensure correctness of the e-mail addresses while submitting their offer. There shall be no other e-mail address at the receiving end while submission of the above bids otherwise the system will reject such mails. Bidder shall be solely responsible for non-receiving of such mails at the above mentioned e-mail addresses and no communication in this regard will be entertained.

**14.4 TENDERS RECEIVED AFTER THE DUE DATE & TIME ARE NOT ACCEPTABLE.**

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

**15. TENDER OPENING:**

- 15.1 Techno-commercial Bids will be opened at **14.00 Hrs on 27.06.2022**. The bidders may depute their representatives at the time of opening of Techno-commercial bids.
- 15.2 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.

For Bharat Heavy Electricals Limited,

*Murthy*  
16/06/2022  
D. N. MURTHY  
Dy. Manager (OS)  
Bharat Heavy Electricals Ltd  
HPVP, Visakhapatnam-530 012

**SCHEDULE OF RATES**

Ref : OS/22-23/7906/Burner\_Windbox/06/006

Date: 16.06.2022

Sub : Fabrication of Burner &amp; Windbox Assemblies and associated components against S.O. No. 7906 at vendor's works with free issue materials

Sl. No.	S.O. No.	Description of Work	Unit	Qty.	Unit Rate (excl. GST) (Rs.)	Total Amount (Rs.)
		Fabrication of Burner & Windbox Assemblies and associated components against S.O. No. 7906 at vendor's works with free issue materials as per applicable drawings, approved QAP, Procedures, Painting Schedule, Specifications & Standards etc., as per detailed scope of work mentioned in the tender. <b>(All consumables are in vendor's scope)</b>				
1	7906	Burner & Windbox assemblies and associated components as per Annexure-II	MT	35		
<b>Total Amount in Words : Rupees _____ only</b>						

**Notes :**

- 1) **L1 Status will be evaluated based on the total quoted amount.**
- 2) The quantity and weights indicated above are tentative and may slightly vary on both sides depending upon the requirement at the time of ordering / execution. However, payment shall be made for the actual quantities & weights only.
- 3) The quoted price shall be inclusive of all applicable taxes & duties **except GST**. GST shall be reimbursable to the vendor as detailed in Clause – 7. Income tax shall be deducted at applicable rates from the vendor's bills.
- 4) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 5) The evaluation currency for this tender shall be **INR**.
- 6) Tenderer should quote the amount in figures & words. It may be noted that corrections, overwriting etc. are not allowed. If there is a discrepancy between amount in figures & words, the amount in words shall prevail unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. If there is an error in the total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and total shall be corrected accordingly. In case of any mismatch between quoted rate and amount in figures, rate in figures shall be taken into consideration for further evaluation and processing.

**Signature of the Bidder with Stamp**

Ref: OS/22-23/7906/Burner\_Windbox/06/006

Date: 16.06.2022

**DETAILS OF ITEMS TO BE FABRICATED**

Sub : Fabrication of Burner & Winbox Assemblies and associated components against S.O. No. 7906 at Vendor's works with free issue materials

SL No.	S.O. No.	PGMA No.	DU No.	Item Description	DU UNIT	QTY. (No.)	Weight (Kgs)	Drawing No.
1	7906	41350	001	OIL GUN ASSY COMPLETE	NO	8	421.776	2-41-350-00790
2		41350	002	END CAP	NO	8	14.760	3-41-350-00270
3		41350	003	SPRAY PLATE 90 J 11	NO	8	2.000	2-41-000-00319
4		41350	004	OIL GUN TRAY	NO	8	16.864	4-41-000-01063
5		41350	005	OIL GUN REMOVABLE PART-J	NO	2	21.416	1-41-350-00451
6		41350	006	SPRAY PLATE 90 J 11	NO	6	1.500	2-41-000-00319
7		41350	007	OIL GUN SET UP TOOL	NO	1	16.000	2-41-310-00171
8		41390	001	OIL GUN VICE RACK	NO	2	226.084	1-41-390-00150
9		41390	002	PLATE II	NO	8	6.280	4-41-390-00873
10		41390	006	OIL TRAY	NO	2	6.260	4-41-390-00893
11		41390	007	KEROSENE TRAY	NO	2	9.860	4-41-390-00892
12		41390	008	OIL GUN VICE	NO	2	43.900	2-41-390-00625
13		41390	009	ISMC 75 X 40 ; 1200L	NO	4	34.272	3-41-390-00376
14		41390	010	PIPE OD 33.4 X 3.38 - SA106GRB	M	70	175.000	3-41-390-00376
15		41390	011	OIL GUN HYDRO TEST TIP	NO	2	0.800	4-41-310-00786
16		41390	012	OIL GUN ERECTION "TOOL.2""SCH40;3RM"	NO	1	16.320	4-41-390-02140
17		41390	013	TRAY 360X300X190	NO	4	19.048	4-41-125-00026
18		41390	014	BOX WRENCH	NO	2	4.560	3-41-390-00491
19		41390	015	TOOL	NO	2	0.260	4-41-350-01166
20		42070	001	OIL BURNER ASSY- LDO& HFO	NO	4	1871.116	1-42-070-02619
21		42070	002	OIL BURNER ASSY-HFO	NO	4	1217.424	1-42-070-02620
22		42070	003	1" SCH 40 PIPE	M	24	60.000	1-42-070-02617
23		42070	004	1/2" SCH 40 PIPE	M	24	30.480	1-42-070-02617
24		42070	005	1" SW ELL	NO	35	20.615	1-42-070-02617
25		42070	006	1/2" SW ELL	NO	35	8.365	1-42-070-02617
26		42070	007	1" NPT(M) SCREWED PIECE	NO	8	2.080	3-42-000-00873
27		42070	008	1" NPT(F) SCREWED PIECE	NO	8	1.920	3-42-000-00875
28		42070	009	3/4" NPT(M) SCREWED PIECE	NO	8	1.200	3-42-000-00872
29		42070	010	3/4" NPT(F) SCREWED PIECE	NO	8	2.080	3-42-000-00875
30		42070	011	1" SW COUPLING	NO	8	2.976	4-42-000-02445
31		42070	012	SHEET 3.15X20X4000	NO	2	0.990	1-42-070-02617
32		42070	013	ISA 50X50X6	M	15	67.500	1-42-070-02617
33		42070	014	TUBE OD 14 X 2	M	10	6.260	1-42-070-02617
34		45180	001	WINDBOX CORNER 1	NO	1	6189.996	0-45-180-03493
35		45180	002	WINDBOX CORNER 2	NO	1	5808.754	0-45-180-03493
36		45180	003	WINDBOX CORNER 3	NO	1	6188.496	0-45-180-03493
37		45180	004	WINDBOX CORNER 4	NO	1	5807.254	0-45-180-03493
38		45181	001	PLATE WELDMENT-1 CORNERS 1&3	NO	2	99.082	2-45-181-02241
39		45181	002	PLATEWELDMENT-11 CORNERS 2&4	NO	2	151.364	2-45-181-02242
40		45181	003	PL:10X100X350	NO	2	5.500	1-45-181-02481
41		45181	004	PL:10X100X428	NO	2	6.720	1-45-181-02481
42		45181	005	SLOTTED PLATEPL:20X160X300	NO	12	84.000	3-45-181-00529
43		45181	006	SLOTTED PLATEPL:20X160X320	NO	12	90.000	3-45-181-00529
44		45181	007	SLOTTED PLATEPL:20X160X350	NO	12	94.800	3-45-181-00529
45		45181	008	SLOTTED PLATEPL:20X160X380	NO	12	103.200	3-45-181-00529
46		45181	009	SLOTTED PLATEPL:20X160X280	NO	12	75.600	3-45-181-00529

**Sub : Fabrication of Burner & Winbox Assemblies and associated components against S.O. No. 7906 at Vendor's works with free issue materials**

SL No.	S.O. No.	PGMA No.	DU No.	Item Description	DU UNIT	QTY. (No.)	Weight (Kgs)	Drawing No.
47	7906	45181	010	SLOTTED PLATEPL:12X120X275	NO	24	67.200	3-45-181-00529
48		45181	011	LINKPL:12X120X385	NO	12	48.000	3-45-181-00530
49		45181	012	LINKPL:12X120X380	NO	24	93.600	3-45-181-00530
50		45181	013	LINKPL:12X120X325	NO	12	39.600	3-45-181-00530
51		45181	014	LINKPL:12X120X520	NO	8	44.000	3-45-181-00530
52		45181	015	SHIMPL:10X150X150	NO	8	14.000	4-45-261-00656
53		45181	016	SPACERPL:32X50X108	NO	4	5.400	1-45-181-02481
54		45181	017	LINK PINASSEMBLY	NO	60	56.820	3-45-221-00282
55		45181	018	LINK PINASSEMBLY	NO	8	8.536	3-45-221-00282
56		45181	027	4"X4" AIRCYLINDER	NO	40	720.000	1-45-181-02482
57		45181	028	DAMPER LEVER ARMPL:12X140X122	NO	40	16.800	4-45-321-00724
58		45181	029	PLATEPL:6X75X100	NO	80	20.000	4-45-221-00479
59		45181	030	TUBED42.9X4.05; 130	NO	40	16.080	1-45-181-02482
60		45181	031	ANCHOR PIVOT PIND33;L=244	NO	40	44.000	4-45-321-00725

**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:**

Vendors shall have to submit a Bank Guarantee for **10% of the order value in case of HPVP ADM 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 entire contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL.

Bidder agrees to submit performance security required for execution of the contract within the time period mentioned above. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.

**8. PERFORMANCE BANK GUARANTEE:**

Vendors shall have to submit Performance Bank Guarantee (with 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 the first 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:**

If delivery exceeds the stipulated delivery schedule, penalty 1/2 % of the total value of order per week or part there of subject to a maximum of 10% on the total value of the order 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 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. 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.

27. 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.

28. 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.

**Signature of the Bidder with Stamp**

**Acceptance to Tender Terms & Conditions**

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

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

I / We give our acceptance to participate in reverse auction for this tender.

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

**Signature of the Bidder with Stamp**

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

This has reference to tender no. **OS/22-23/7906/Burner\_Windbox/06/006 dated 16.06.2022**. BHEL shall finalize the Rates for **Fabrication of Burner & Windbox Assemblies and associated components against S.O. No. 7906 at vendor's 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/22-23/7906/Burner\_Windbox/06/006 dated 16.06.2022**, (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 all the eligible 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 3 months from the date of reverse auction. These shall not be subjected to any change whatsoever.
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.
9. **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
10. Any commercial/ technical loading shall be separately intimated to respective bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during Reverse Auction.  
Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.
11. Reverse auction shall be conducted by BHEL (through M/s {*Service Provider*}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

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

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

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

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

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

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

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

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

14. M/s. {*Service provider*}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {*Service provider*}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.
15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure – VI) for price breakup, quoted during the Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {*Service provider*} besides BHEL within two working days of Auction without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/22-23/7906/Burner\_Windbox/06/006 dated 16.06.2022**. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
  - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
  - b. Bid Placed by the bidder
  - c. Start Price
  - d. Decrement value
  - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {*Service provider*}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines for suspension of business dealings (as available on www.bhel.com)*, shall be initiated by BHEL.

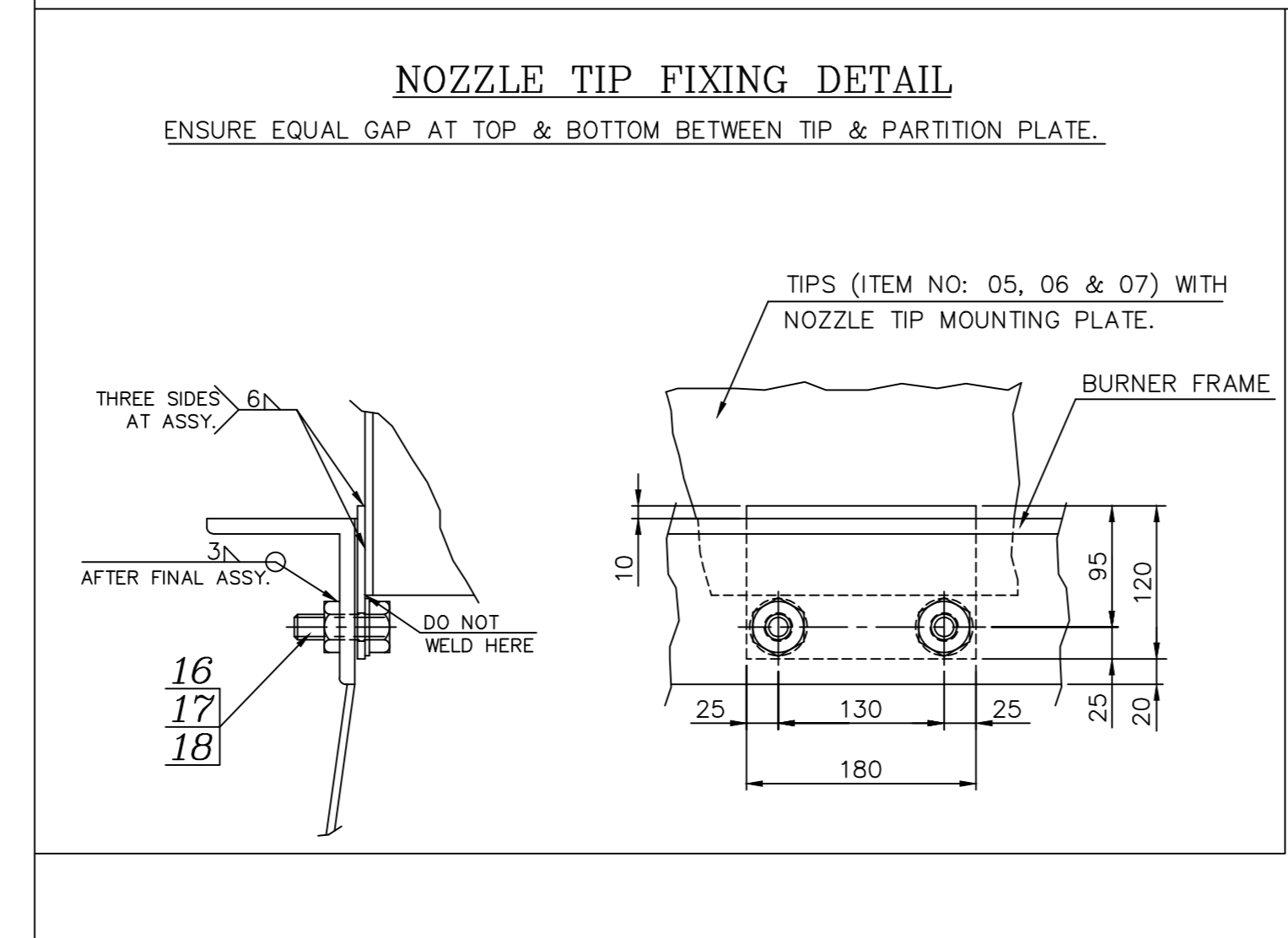
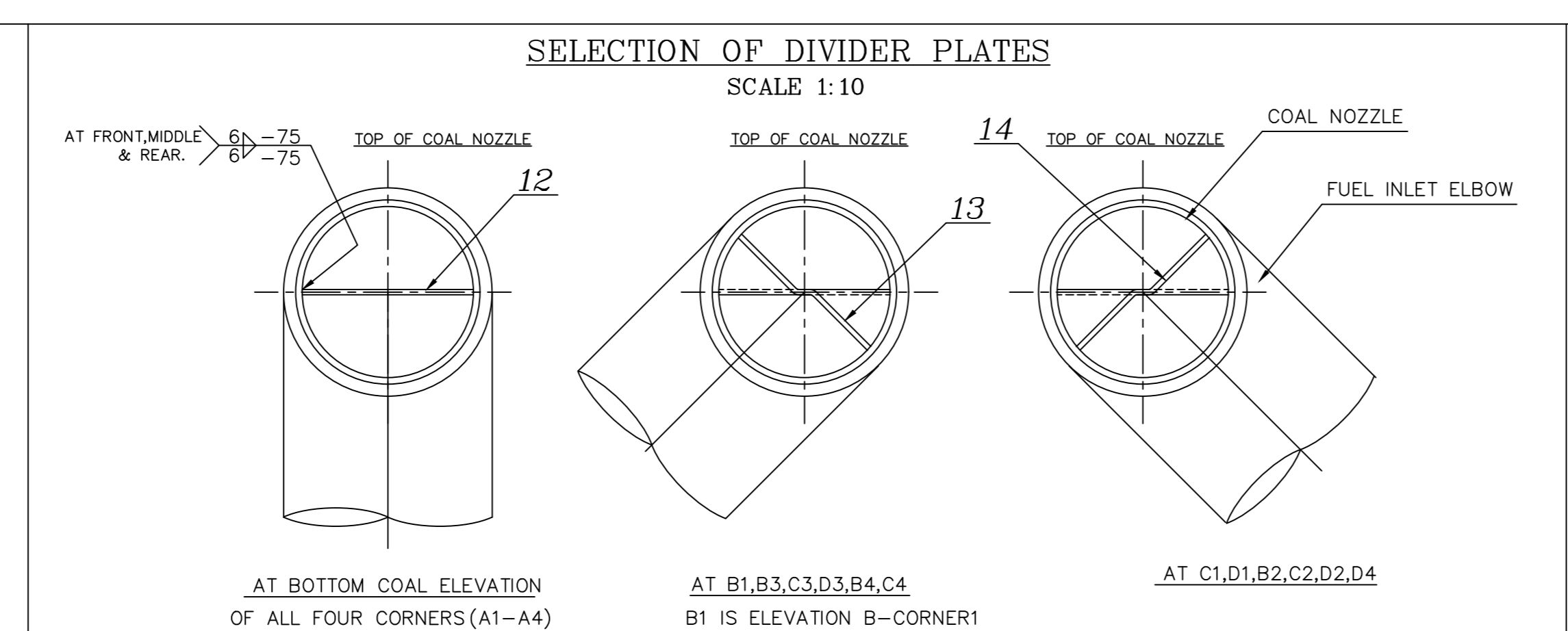
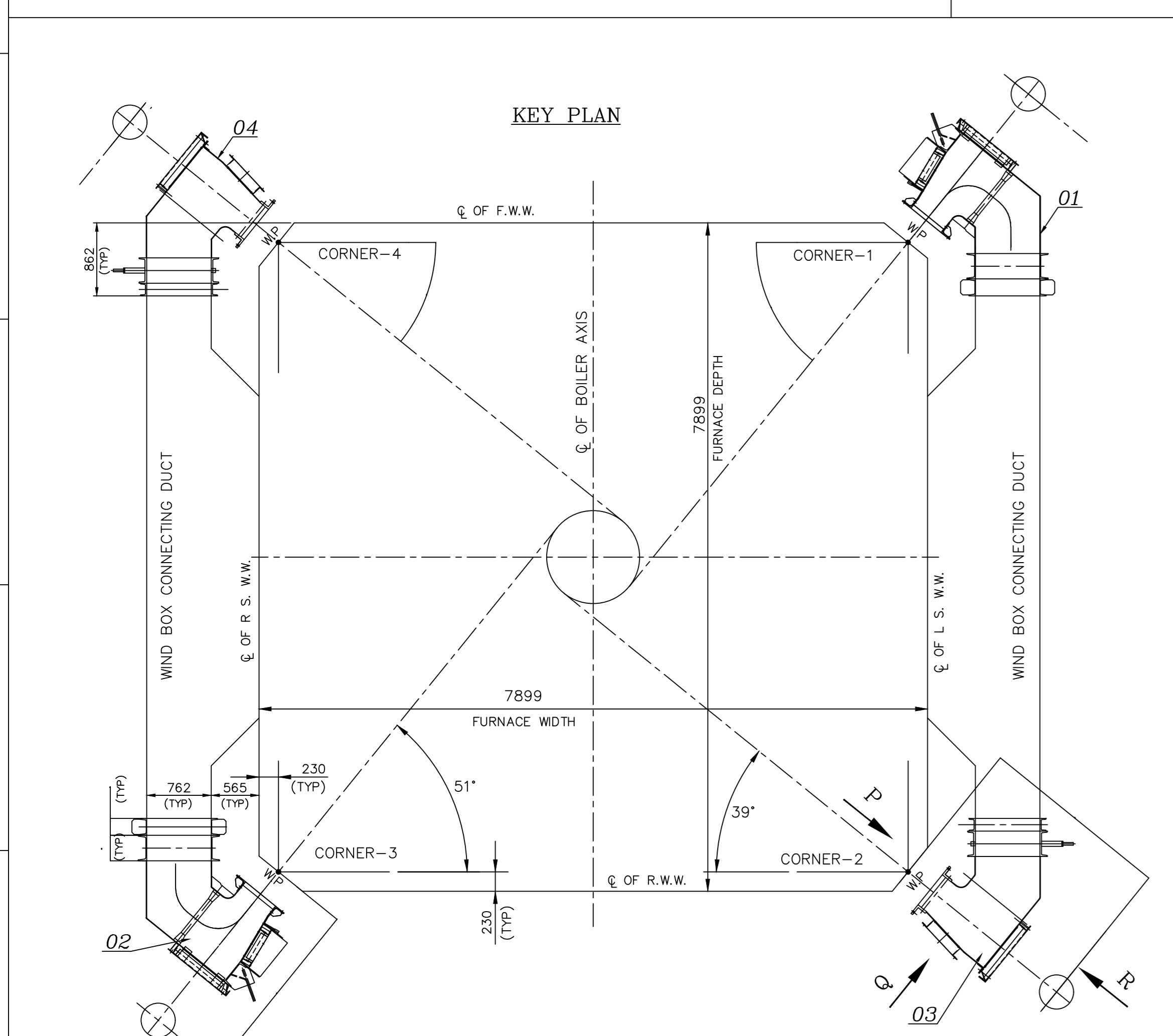
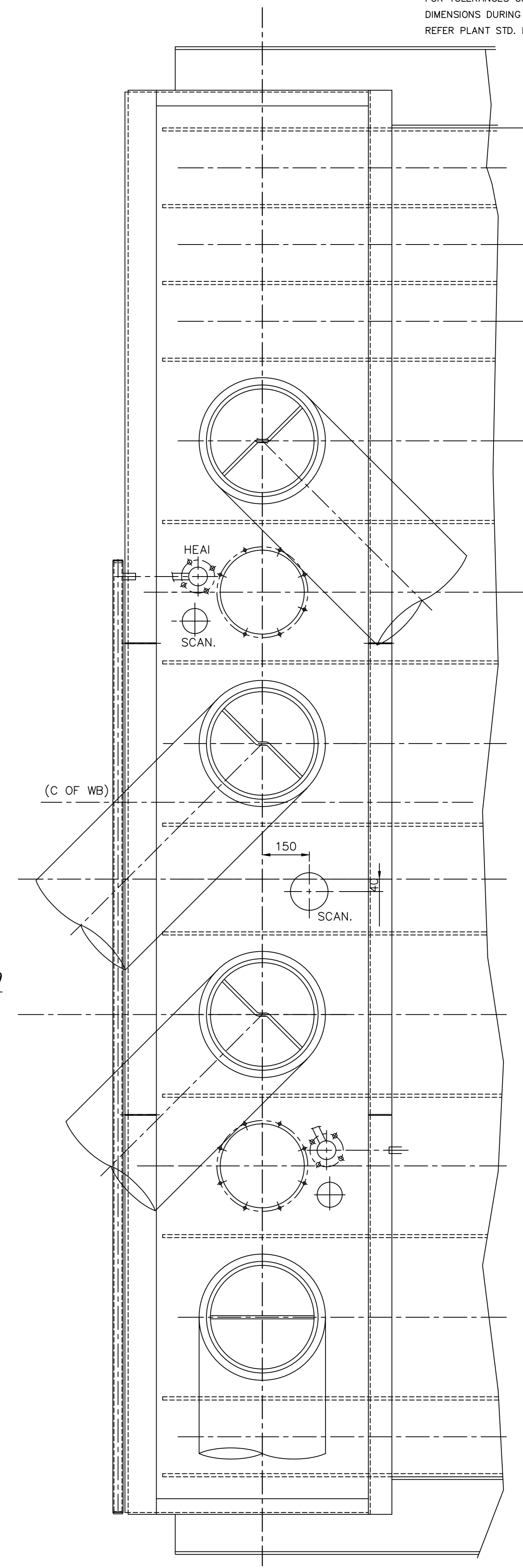
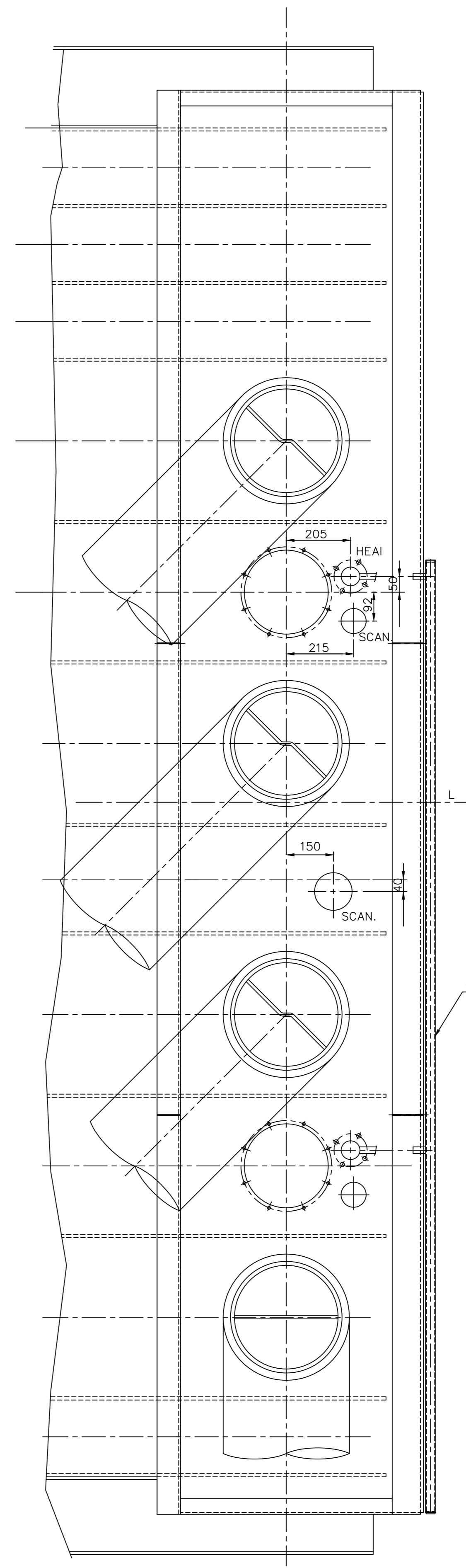
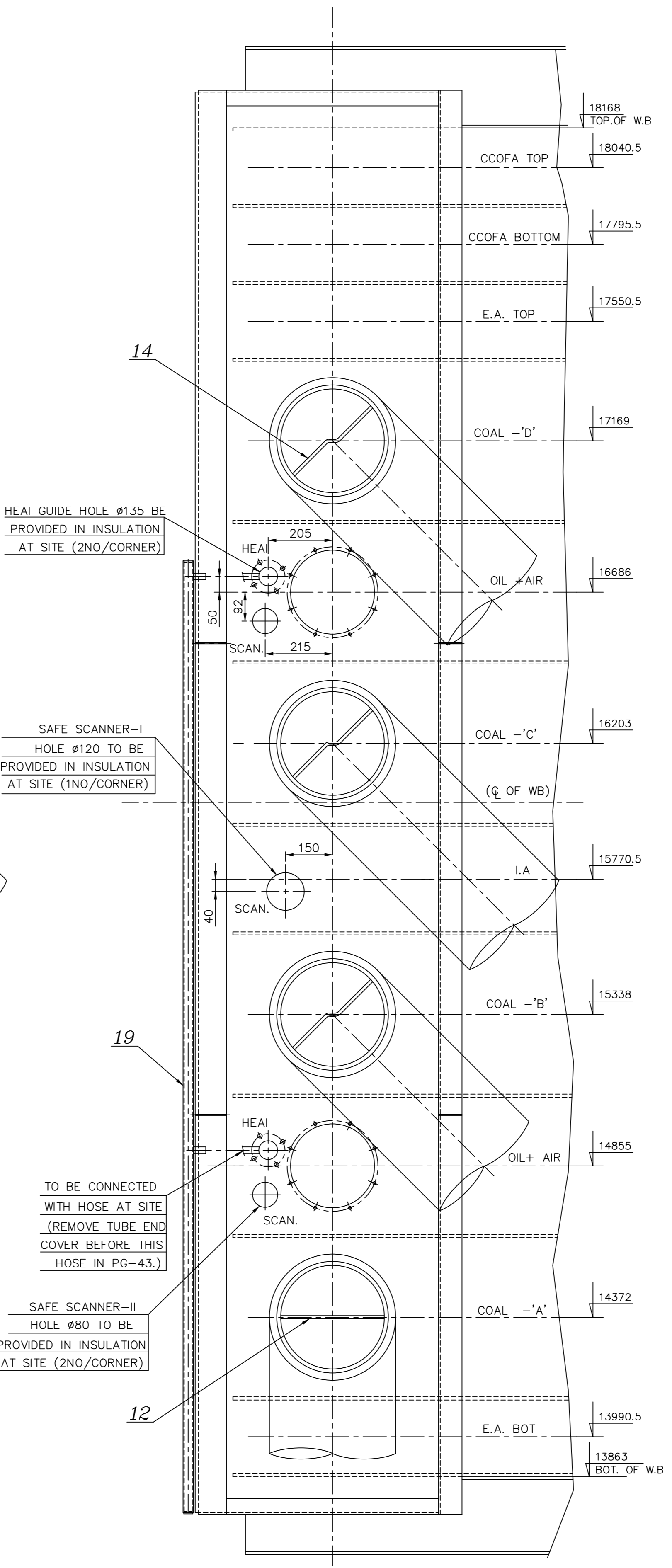
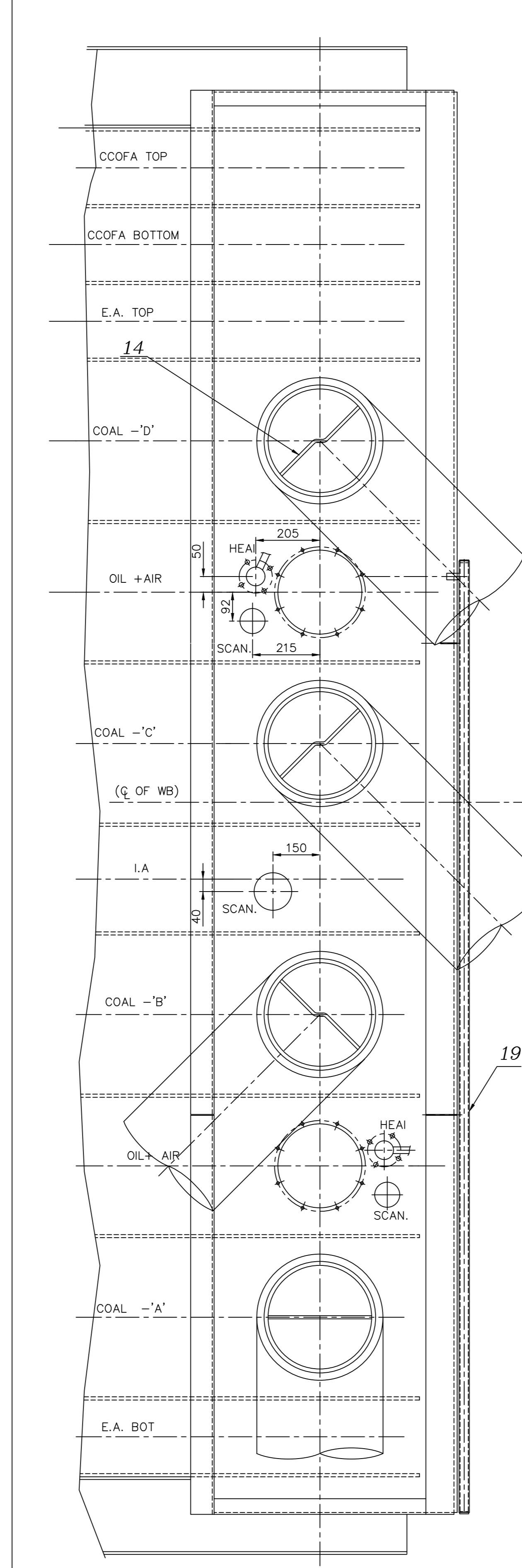
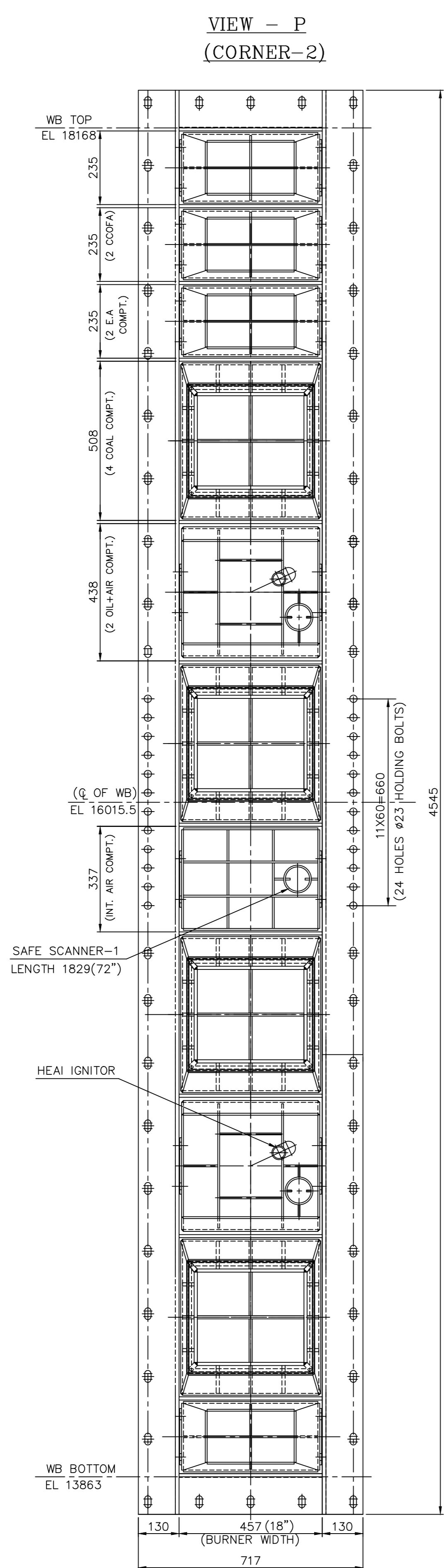
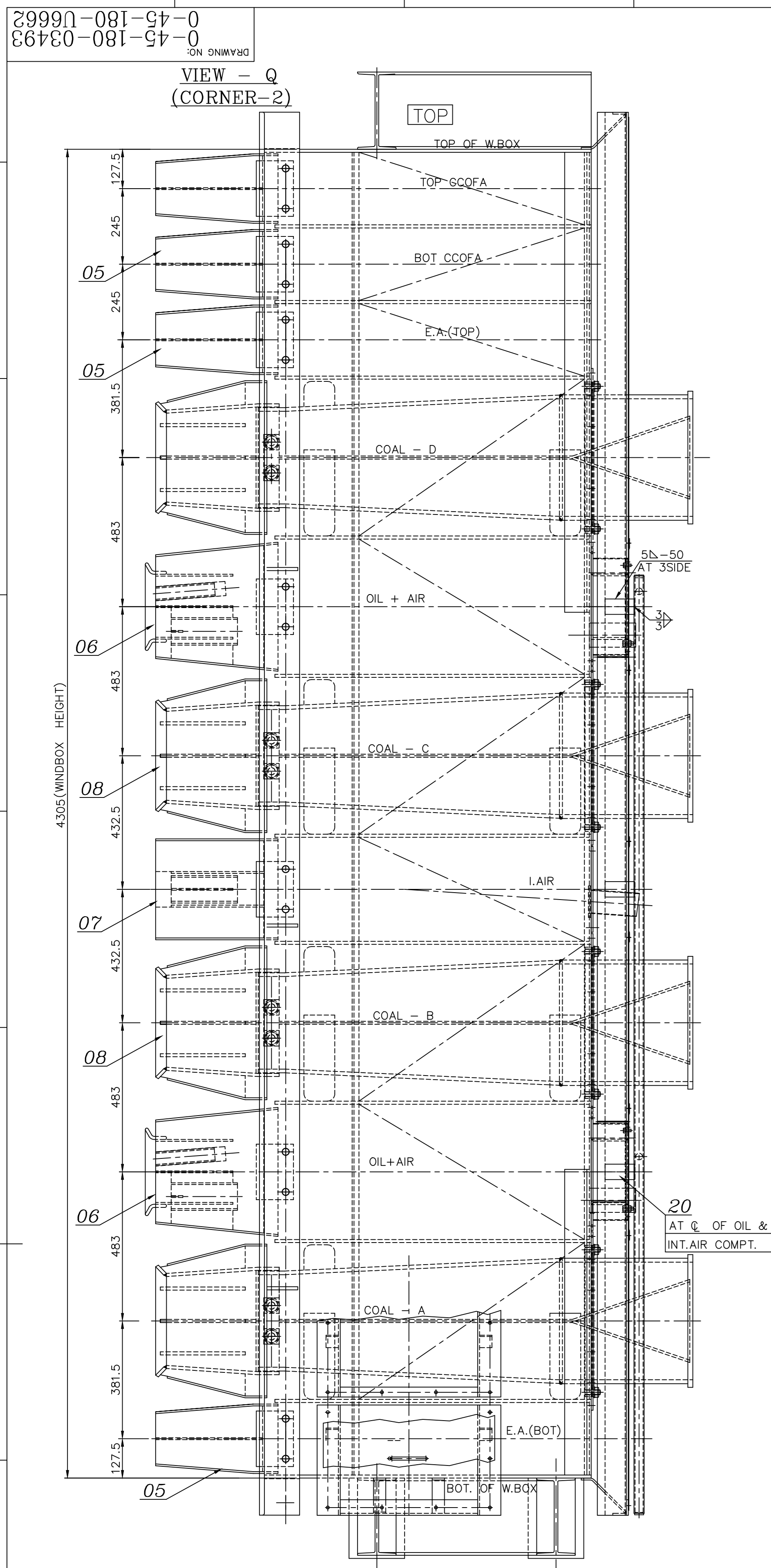
**Signature of the Bidder with Stamp**

**PROCEDURE FOR GST PAYMENT**

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

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

**Signature of the Bidder with Stamp**



**SHOP NOTES:-**

- ONE COAT OF CERAC SP 110 (ITEM NO 15) TO BE SPRAYED ON ALL BEARING SURFACE.
- ALL BEARING SURFACE TO BE THOROUGHLY CLEANED AND DRIED PRIOR TO SPRAY.
- RESPECTIVE CORNER DESIGNATION & 'TOP' TO BE CLEARLY PAINTED ON THE TOP OF THE FRONT COVER PLATE IN BOLD LETTERS.
- USE APPROPRIATE WPS/ELECTRODE FOR ALL THE WELDS.
- APPLY ANTI-SEIZE COMPOUND (ITEM NO:-22) TO ALL THREADED CONNECTIONS.
- TOP TO BE CLEARLY PAINTED ON WIND BOX.
- TOTAL WEIGHT:
  - a. CORNER - 1 & 3 : 5421.969KGS.
  - b. CORNER - 2 & 4 : 5144.422KGS.

**NOTES:-**

- ALL FRONT AND SIDE OUTER PANELS TO BE INSULATED WITH UNBONDED SLAGWOOL MATTRESS (DETAIL-H).
- FOR STORAGE OF THE ASSEMBLY FOLLOW THE RELEVANT INSTRUCTION MANUALS.
- EQUAL GAP TO BE ENSURED BETWEEN ALL NOZZLE TIP AND PARTITION PLATE/BURNER FRAME WHENEVER THE ASSEMBLY IS REPLACED AT SITE.
- END FLANGE OF HEAI GUIDE TUBE TO BE WELDED AT SITE AFTER FINAL ADJUSTMENTS/ASSEMBLING HEAI RETRACT MECH. WITH GUIDE TUBE.
- ALL SCANNER GUIDE PIPES & HEAI GUIDE TUBES ARE LOCATED OPPOSITE TO THE INCOMING COAL PIPES TO AVOID INTERFERENCE.

REFER 2-45-180-02224 FOR SECTION THROUGH COAL, OIL AND INT AIR COMPARTMENTS. ITEMS 08,10,11,21 ARE SHOWN IN THE ABOVE DRAWING.

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	VAR NO	MATERIAL SPECN	UNIT WEIGHT	QUANTITY	ZONE
22	ANIT-SEIZE COMPOUND	S		13007117				L	1.000	
21	GASKET SH: D130/D60		4-45-000-00798	22020 64900				NO	0.030	
20	PL: 50 X 6: 96			15 008 011				NO	0.226	
19	HEAI/PURGE AIR HEADER ASSEMBLY.		3-45-180-00975	15 011 379				NO	7.469	
18	ST.STL. WASHER SH 3.25: 040/D22	S	4-45-180-00776	SA240 TYP 304				NO	0.040	
17	ST.STL. NUT M20 AF 30: 16	S	4-45-180-00775	SA479 TYP 304				NO	0.065	
16	ST.STL. SCRU. M20 X 45	S	4-45-180-00774	15 024 326				NO	0.170	
15	CERAC - SP110	S		13010031				KG	0.500	
14	DIVIDER PLATE		2-45-180-02223	15 011 098				NO	37.693	
13	DIVIDER PLATE		2-45-180-02223	03 IS 2062 GRA				NO	6	
12	DIVIDER PLATE		2-45-180-02223	15 011 098				NO	37.693	
				02 IS 2062 GRA				NO	6	
				01 IS 2062 GRA				NO	36.764	
				01 IS 2062 GRA				NO	4	

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	VAR NO	MATERIAL SPECN	UNIT WEIGHT	QUANTITY	ZONE
	11	HEAI GUIDE TUBE ASSY		3-45-000-00534					NG	7.781	
	10	HOUSING ASSY.		3-45-999-00298					ASSY	3.078	
	09	FLAME SCANNER GUIDE PIPE ASSY.		2-45-999-00298					ASSY	11.09	
	08	COAL COMPT.ASSY		1-45-180-02464					WELDMENT	269.737	
	07	INT. AIR NOZZLE TIP		2-45-180-02234					WELDMENT	55.156	
	06	OIL NOZZLE TIP		2-45-180-02233					WELDMENT	58.325	
	05	END AIR/COOFA NOZZLE TIP		2-45-180-02222					WELDMENT	33.088	
	04	WINDBOX-CORNER 4		0-45-180-03495					NO	4182.809	
	03	WINDBOX-CORNER 2		0-45-180-03495					NO	4182.809	
	02	WINDBOX-CORNER 3		0-45-180-03494					NO	4564.051	
	01	WINDBOX-CORNER 1		0-45-180-03494					NO	4564.051	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NATIONAL ALUMINIUM COMPANY LIMITED : DAMANJODI UNDER PHASE-3 EXPANSION OF M&R COMPLEX 1X300 t/h : 69.5 kg/cm (g): 487°C

PRODUCTION SCALE: NTS

WEIGHT (kg): 23924.408

REF TO ASSY / Q.D SHEET: 0-45-180-03493

0-45-180-U6662

DATE: 20.07.2021

BY: SAURAM N

CHECKED: SAURAM N

APPROVED: SAURAM N

DESIGNER: SAURAM N

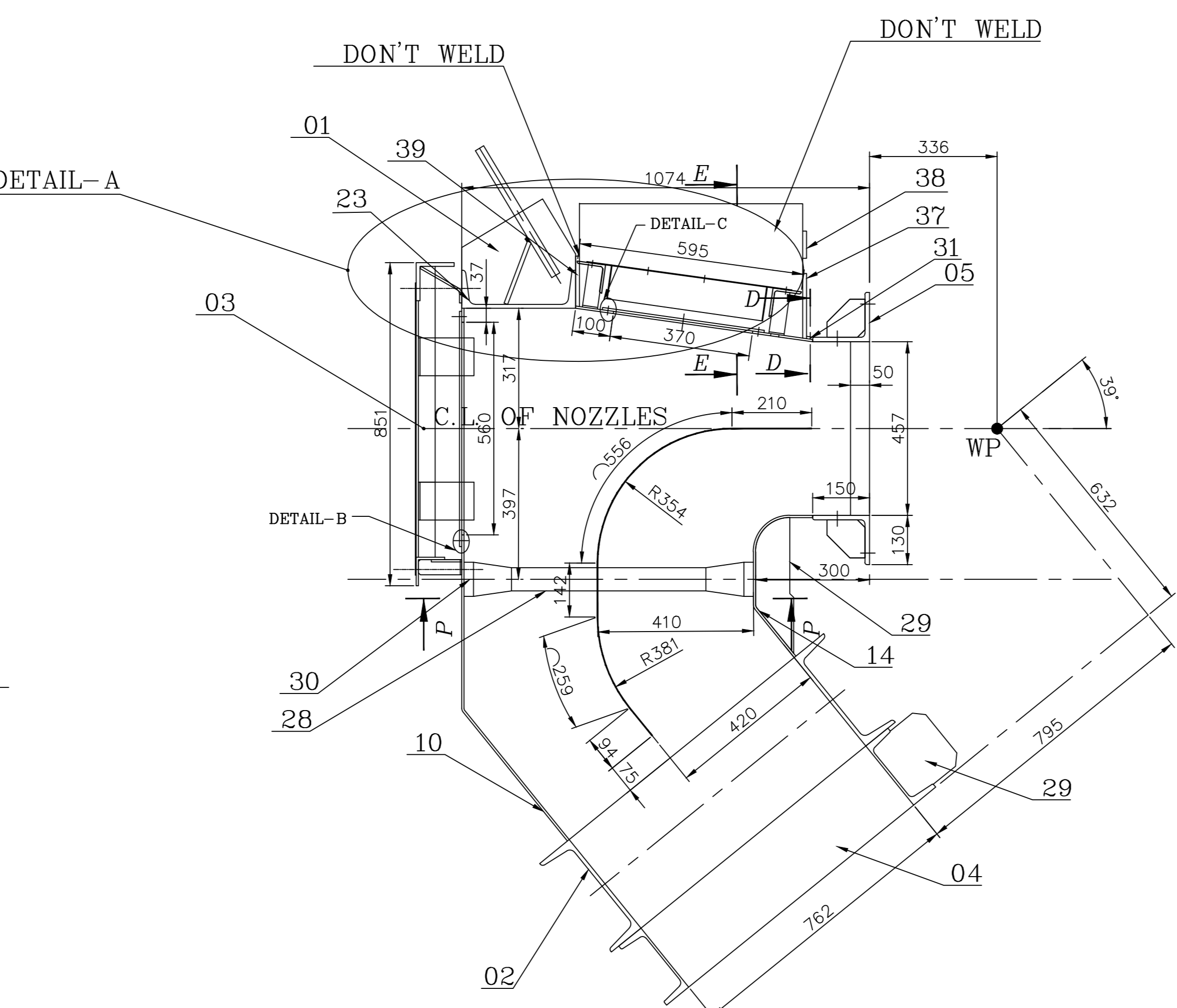
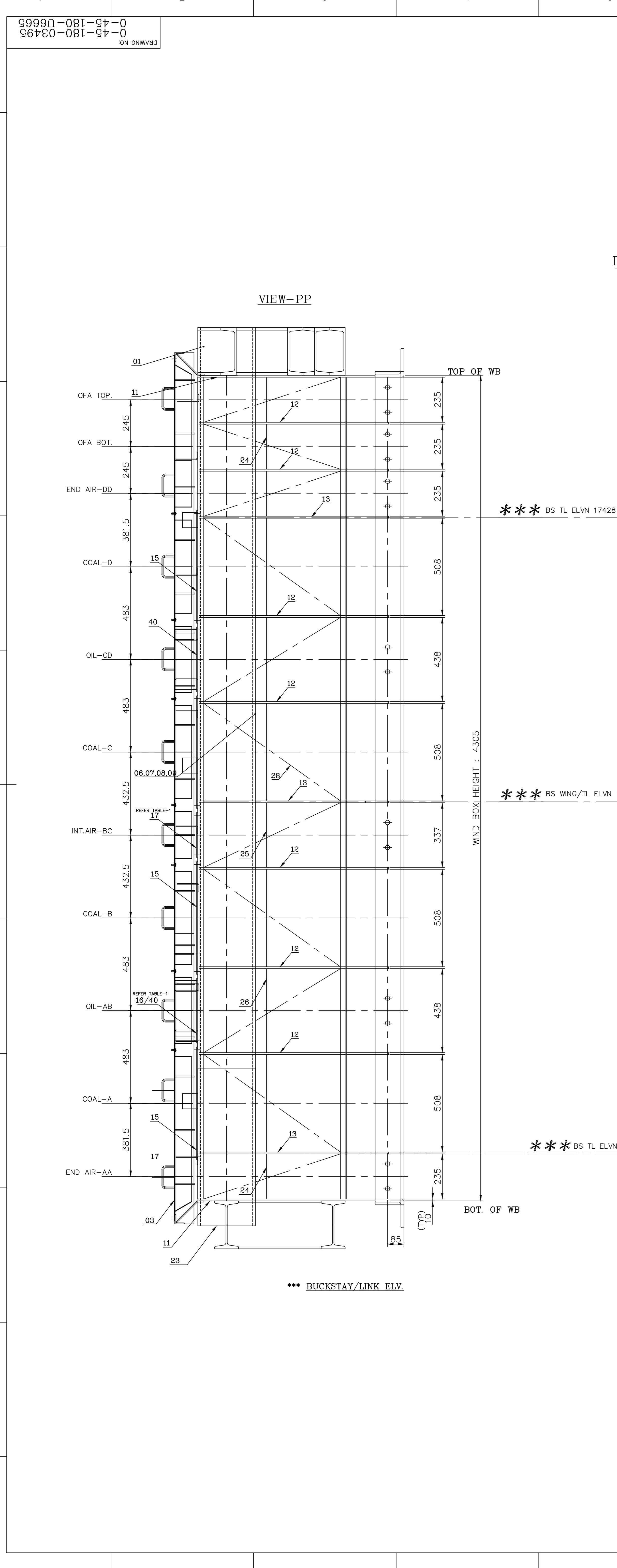
SCALE: NTS

WEIGHT (kg): 23924.408

REF TO ASSY / Q.D SHEET: 0-45-180-03493

0-45-180-U6662

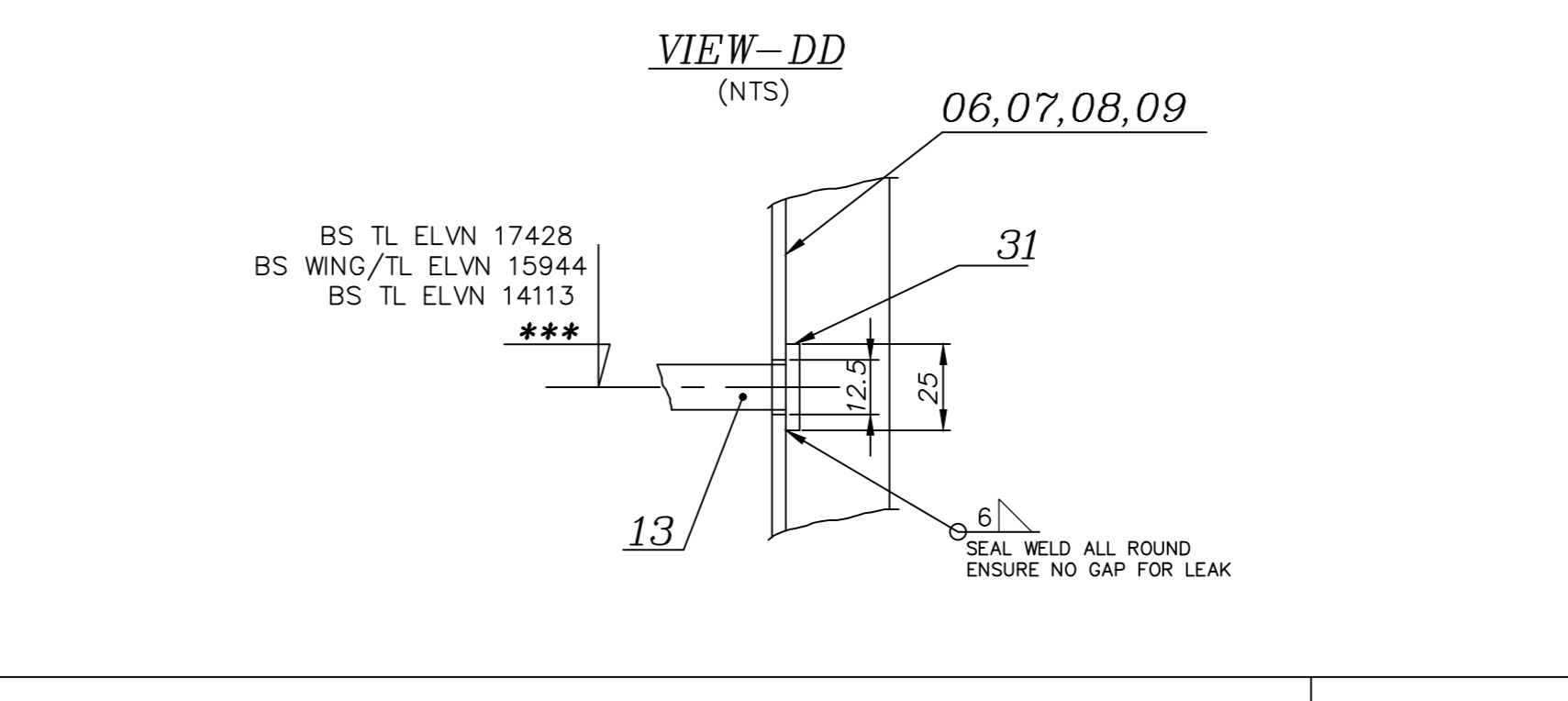
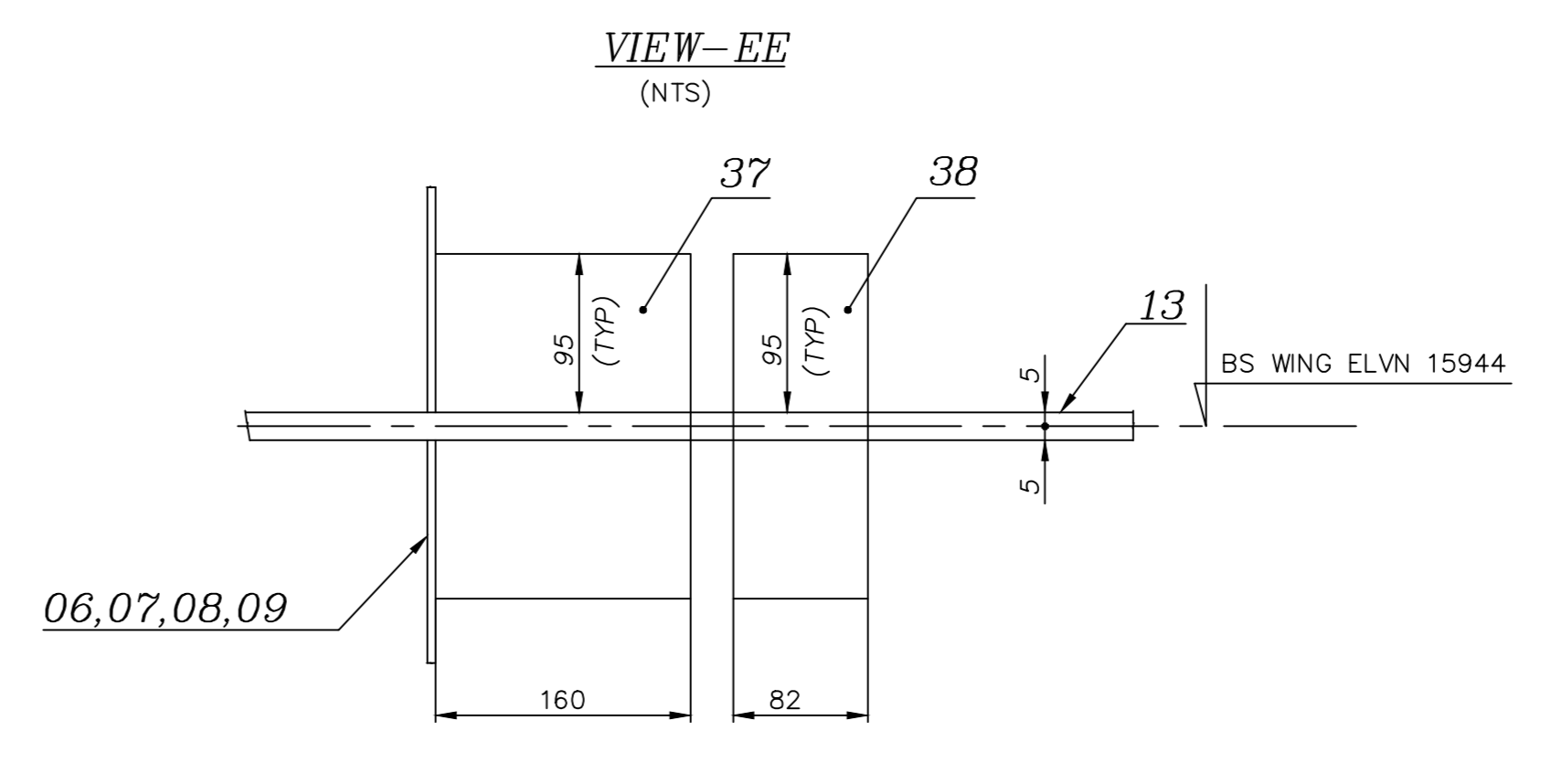
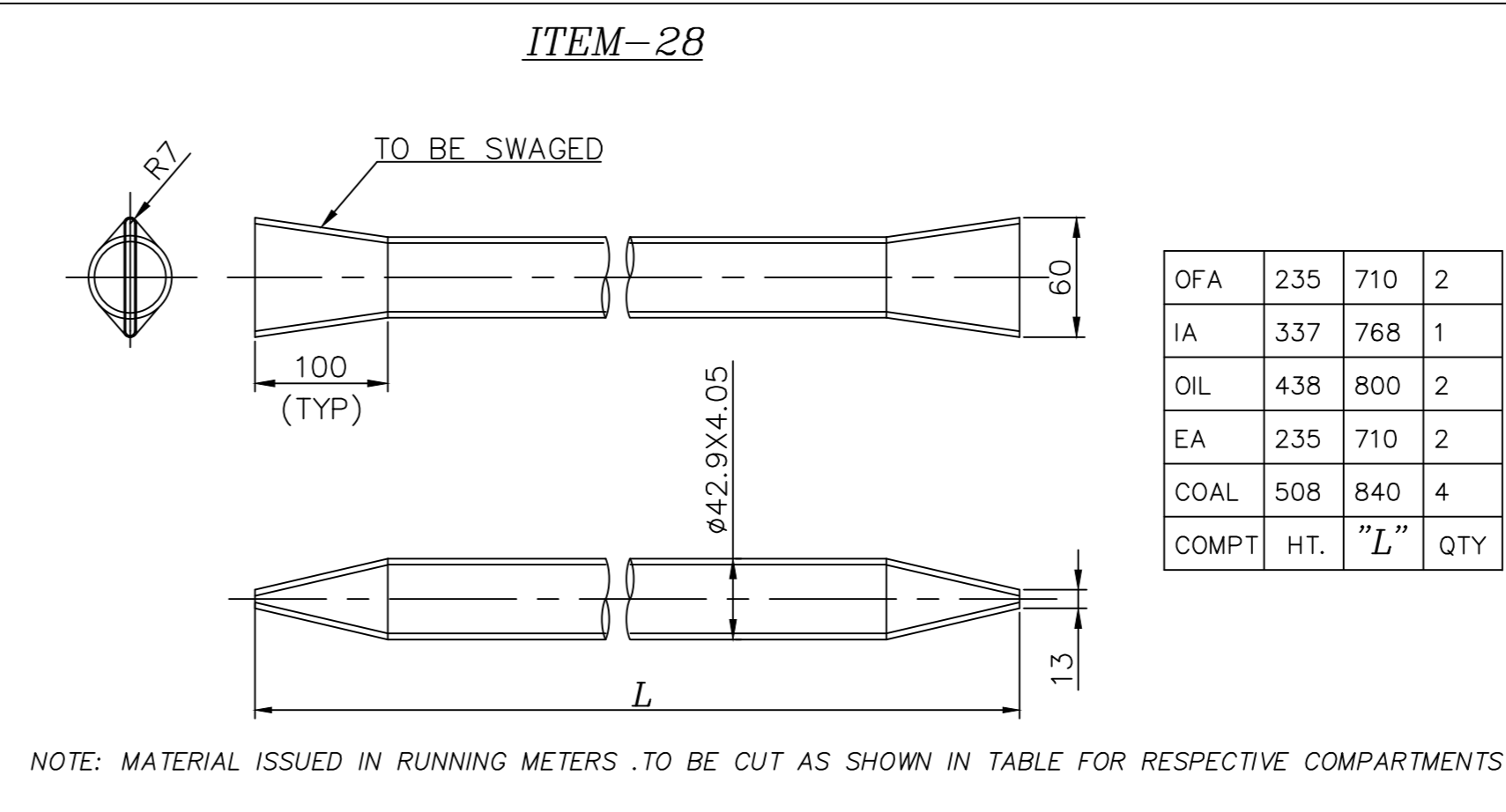




- NOTES:-**
- ONE COAT OF CERAC SP110 (37) TO BE SPRAYED ON ALL BEARING SURFACES. ALL BEARING SURFACES TO BE THOROUGHLY CLEANED AND DRIED PRIOR TO SPRAY.
  - USE E7018 FOR ALL WELDS.
  - WELD BOTH SIDES OF COAL COMPT. BOTTOM PARTITION PLATES AND "\*\*\*" MARKED PARTITION PLATES WITH COVER PLATES. WELD OTHER PARTITION PLATES ON ONE SIDE (A/OIL COMPT. SIDE).
  - WELDS TO BE AIR TIGHT. IF GAP IS FOUND SEAL WELD MAY BE DONE FROM INSIDE.
  - \*\*\* = BUCKSTAY/LINK ELEVATION.
  - APPLY ANTI-SEIZE COMPOUND (36) TO ALL THREADED CONNECTIONS.
  - TOP TO BE CLEARLY PAINTED ON WIND BOX.
  - FOR WELDING DETAILS REFER DRAWING NOS:
    - a. 3-45-000-00662
    - b. 3-45-000-00663
    - c. 4-45-000-00967 to 4-45-000-00974.
  - OPTIONAL JOINT FOR PARTITION PLATE, REAR COVER PLATE, FRONT COVER PLATE.
    - a. PARTITION PLATE: ONE JOINT AT 500 mm (MIN.) FROM EDGE OF PLATE AT DAMPER SIDE.
    - b. REAR COVER PLATE: MAX. TWO JOINTS (PLATE WIDTH SIDE).
    - c. FRONT COVER PLATE: MAX. TWO JOINTS (PLATE WIDTH SIDE). JOINT SHOULD BE AWAY FROM BOLT HOLE.
  - CHANNELS AND ANGLES: ONE JOINT.
  - IMPORTANT: JOINTS SHALL BE AS PER BHEL STANDARDS.**
    - ONE JOINT ONLY (LONGITUDINAL); 500 mm AWAY FROM BEND LINE.
  - FASTENERS (ITEMS 32,33,34) ARE PROVIDED IN EXTRA FOR EMERGENCY PURPOSE.
  - REFER TABLE-1 FOR VARIANT DETAILS.

**WEIGHT TABLE**

CORNER	WT IN KG
02	4182.809
04	4182.809

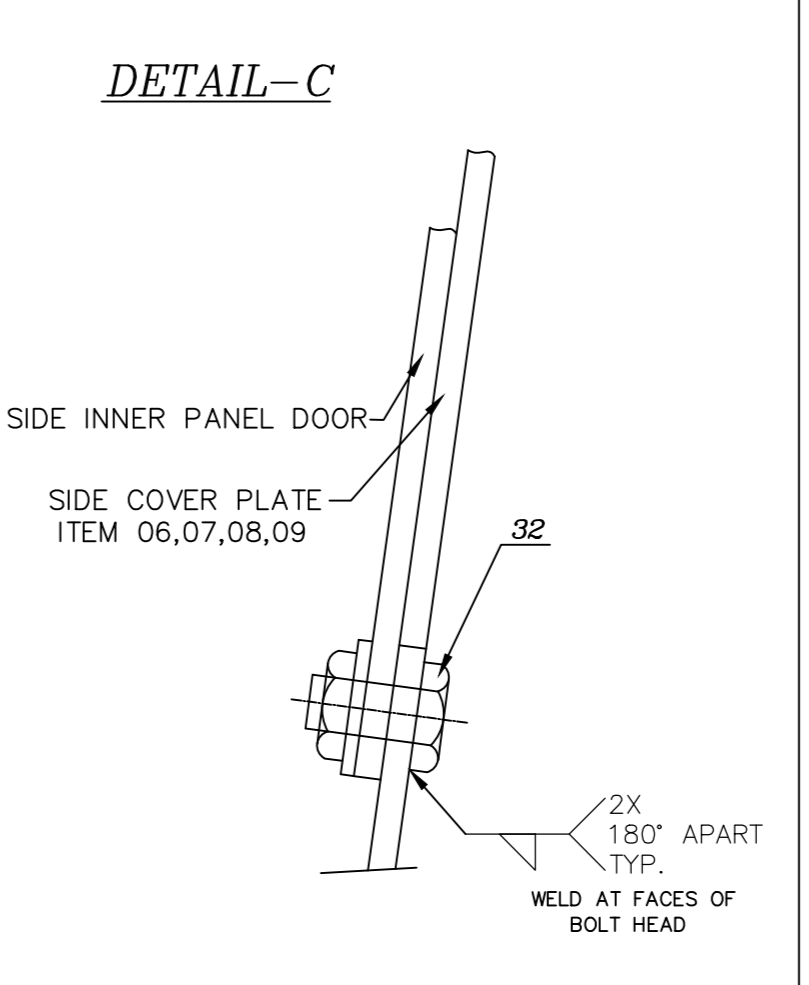
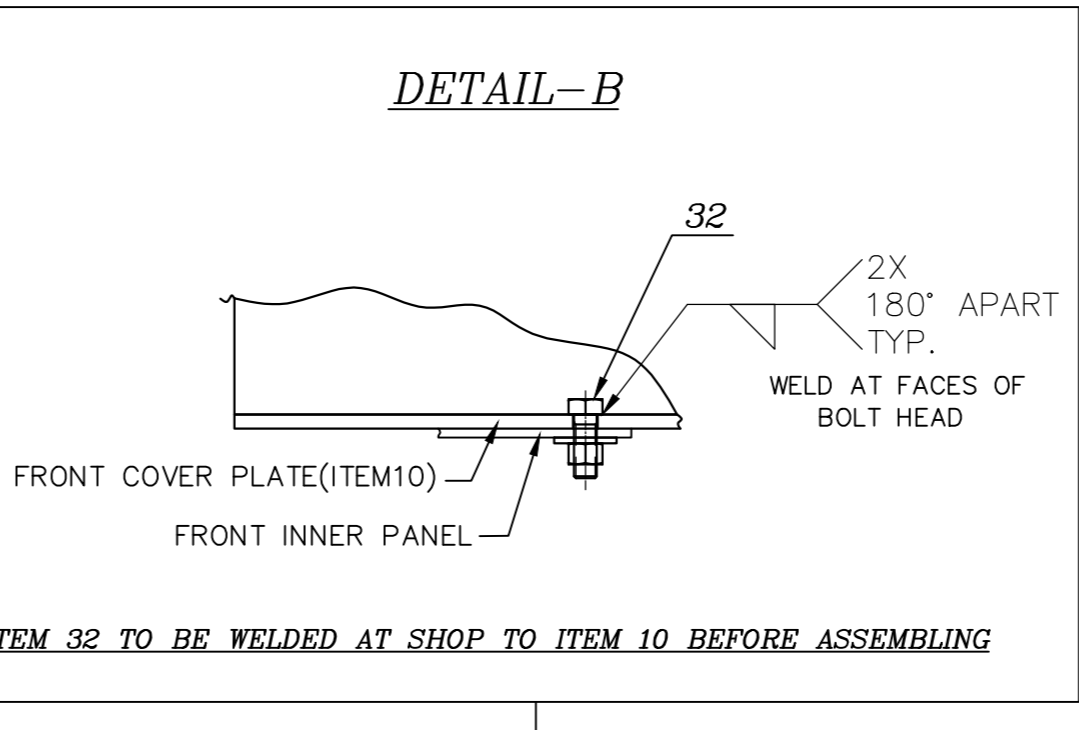
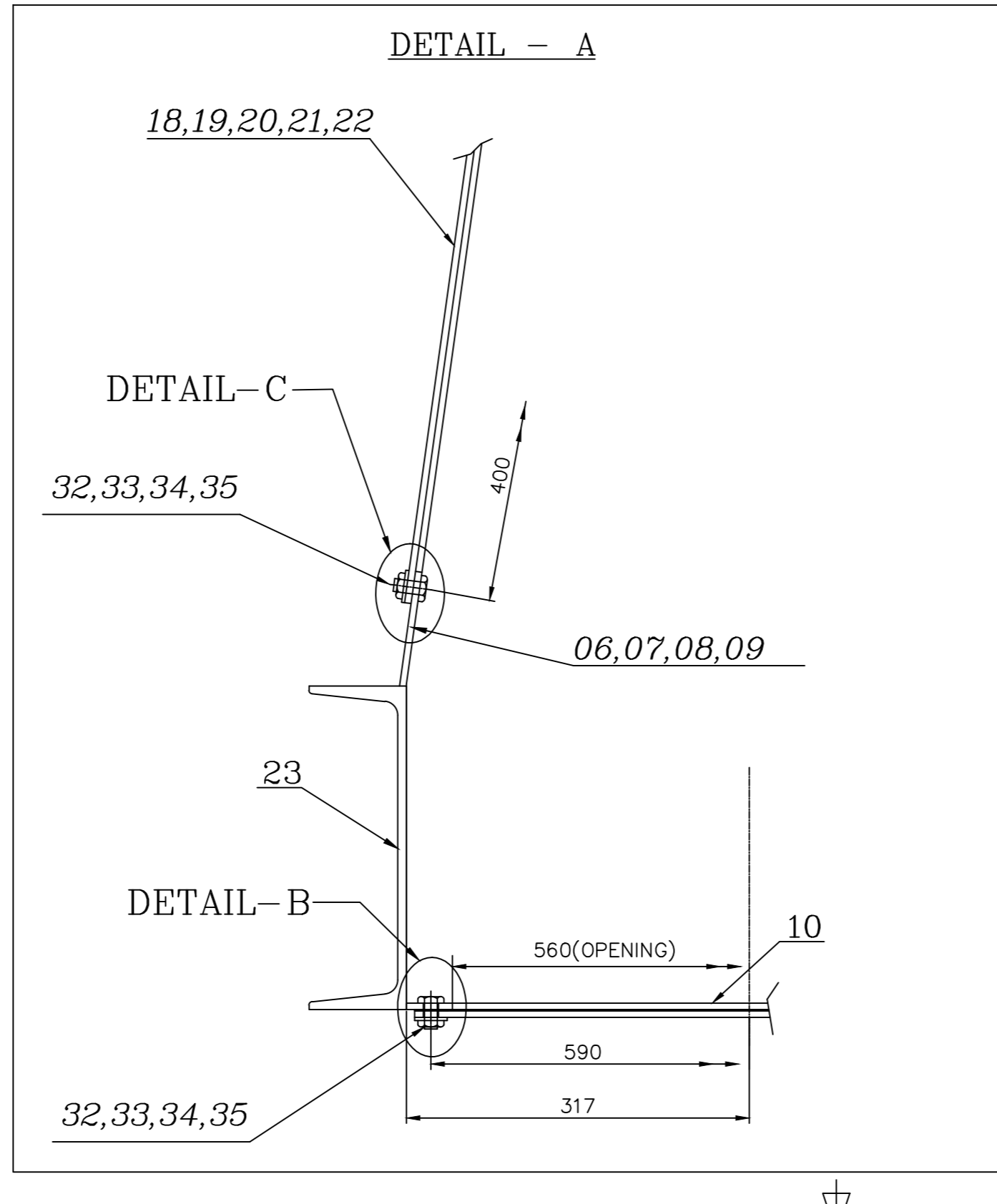


**FRONT INNER & OUTER PANEL VARIANT DETAILS**

VARIANT OF INNER/OUTER PANEL IN	BOTTOM OIL ELEVN-AB	TOP OIL ELEVN-CD	INT AIR ELEVN-BC	OUTER PANEL ASSEMBLY
CORNER-2	VAR 02(ITEM 40)	VAR 02(ITEM 40)	VAR 02 OF ITEM 17	VAR 02 OF ITEM 03
CORNER-4	VAR 01(ITEM 16)	VAR 02(ITEM 40)	VAR 01 OF ITEM 17	VAR 04 OF ITEM 03

OIL		INT AIR	
QTY OF VAR01 ITEM 16	QTY OF VAR02 ITEM 40	QTY OF VAR01 ITEM 17	QTY OF VAR02 ITEM 17
CORNER-2	2 NOS.	-	1 NO.
CORNER-4	1 NO.	1 NO.	-



ALL ITEMS OTHER THAN ITEMS 03,16,17 AND 40 ARE COMMON FOR CORNERS 2&4. REFER TABLE-1 FOR VARIANT DETAILS OF ITEMS 03,16,17 AND 40 PERTAINING TO CORNER 2 AND CORNER 4.

ITEM NO	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QTY	ZONE
40	FRONT INNER PANEL ASSY-OIL	2-45-180-02227	02	ASSY	NO	18.807		
39	STIFFENER PLATE-III PL. 10X200X283			IS2062GRA	NO	4.443		
38	STIFFENER PLATE-II PL. 10X200X82			IS2062GRA	NO	1.287		
37	STIFFENER PLATE-I PL. 10X200X160			IS2062GRA	NO	2.512		
36	ANTI-SEIZE COMPOUND			IS:2016	L	1.000		
35	PACKING CLOTH SH. 3X40X80MR			2203005000000	NO	7.68		
34	WASHER PUNCHD A12			414080001200	NO	0.010		
33	NUT HEX M12			413040001200	NO	0.020		
32	SCRU.HEX M12X30			412221203000	NO	0.041		
31	BUCK. SLOT COVER PL. 6X25X20			IS:1363	NO	340		
30	TRUSS SUPPORT CHORD. PLATE PL. 25X90X4285			IS2062GRA	NO	0.023		
29	EXTN. PLATE PL.10X168X180			IS2062GRA	NO	75.684		
28	INTERNAL TRUSSTUBE OD 42.4X5.3			IS2062GRA	M	3.294		
27	EXTN. PLATE-I	4-45-180-02193	02	IS2062GRA	NO	2.023		
26	GUIDEVANE-OIL	2-45-180-02230	02	IS:1079	NO	9.070		
25	GUIDEVANE-INT AIR	2-45-180-02231	02	IS:1079	NO	9.922		
24	GUIDEVANE-COFA/ENDAIR	2-45-180-02229	02	IS:1079	NO	7.265		
23	SUPPORT CHANNEL ISMC 300X90,L=4685			IS2062GRA	NO	170.065		
22	SIDE DOOR-TOP EA&OFA	4-45-180-02192		IS2062GRA	NO	14.408		
21	SIDE DOOR-IA	3-45-180-01913	04	IS2062GRA	NO	6.582		
20	SIDE DOOR-BOTTOM EA	3-45-180-01913	03	IS2062GRA	NO	4.571		
19	SIDE DOOR-OIL	3-45-180-01913	02	IS2062GRA	NO	8.781		
18	SIDE DOOR-COAL	3-45-180-01913	01	IS2062GRA	NO	9.591		
17	FRONT INNER PANEL ASSY-IA	2-45-180-02228	##	ASSY	M	9.103		
16	FRONT INNER PANEL ASSY-OIL	2-45-180-02227	01	ASSY	M	18.807		
15	FRONT INNER PANEL-COAL	4-45-180-02191		IS2062GRA	NO	9.495		
14	REAR COVER PLATE	3-45-180-01912	02	IS2062GRA	NO	104.948		
13	PARTITION PLATE (BUCKSTAY)	3-45-180-01911	02	IS2062GRA	NO	125.913		
12	PARTITION PLATE (NON BUCKSTAY)	1-45-180-02467	04	IS2062GRA	NO	99.262		
11	PARTITION PLATE (TOP AND BOTTOM)	1-45-180-02467	02	IS2062GRA	NO	77.730		
10	FRONT COVER PLATE	2-45-180-02226	02	IS2062GRA	NO	226.383		
09	SIDE COVER PLATE (BOTTOM EA)	2-45-180-02225	04	IS2062GRA	NO	3.911		
08	SIDE COVER PLATE (IA+COAL+OIL)	2-45-180-02225	03	IS2062GRA	NO	27.586		
07	SIDE COVER PLATE (COAL+OIL)	2-45-180-02225	02	IS2062GRA	NO	1		
06	SIDE COVER PLATE (OFA&TOP EA)	2-45-180-02225	01	IS2062GRA	NO	22.076		
05	BURNER FRAME	0-45-180-03497		ASSY	M	276.878		
04	END FRAME	3-45-180-01910		ASSY	M	231.786		
03	ASSEMBLY OF OUTER PANELS	0-45-180-03498	##	ASSY	M	331.417		
02	DAMPER ASSEMBLY	0-45-180-03496	01	ASSY	M	736.366		
01	WB EXTERNAL STRUCTURE	1-45-180-02470	02	ASSY	M	348.039		

CAUTION: The information on this drawing is the property of Bharat Heavy Electricals Ltd. and shall not be disclosed to any third party without the written consent of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: Bharat Heavy Electricals Ltd. UNIT: HEAVY PLATES & VESSELS PLANT. VISAKHAPATNAM-530012

DATE: 17.07.2021

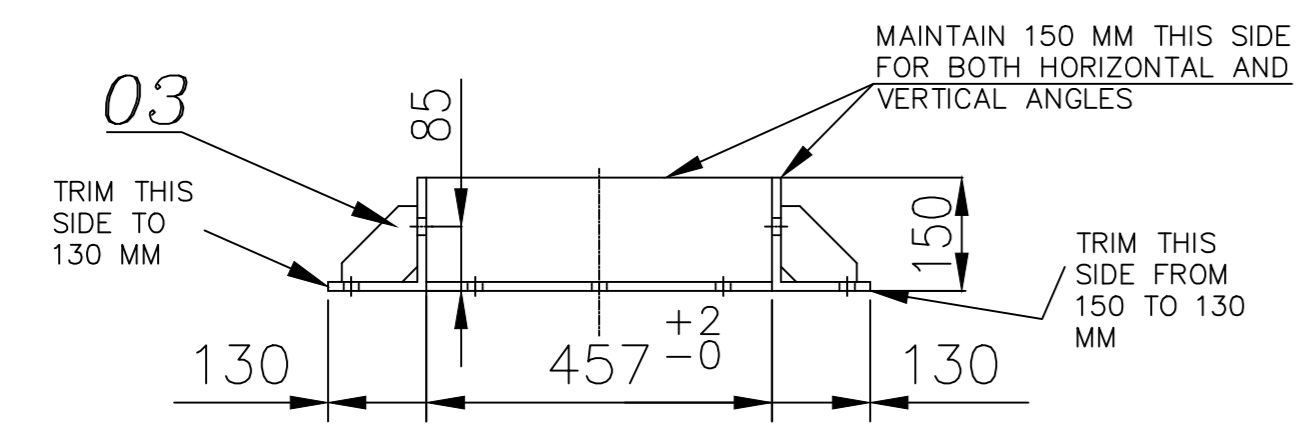
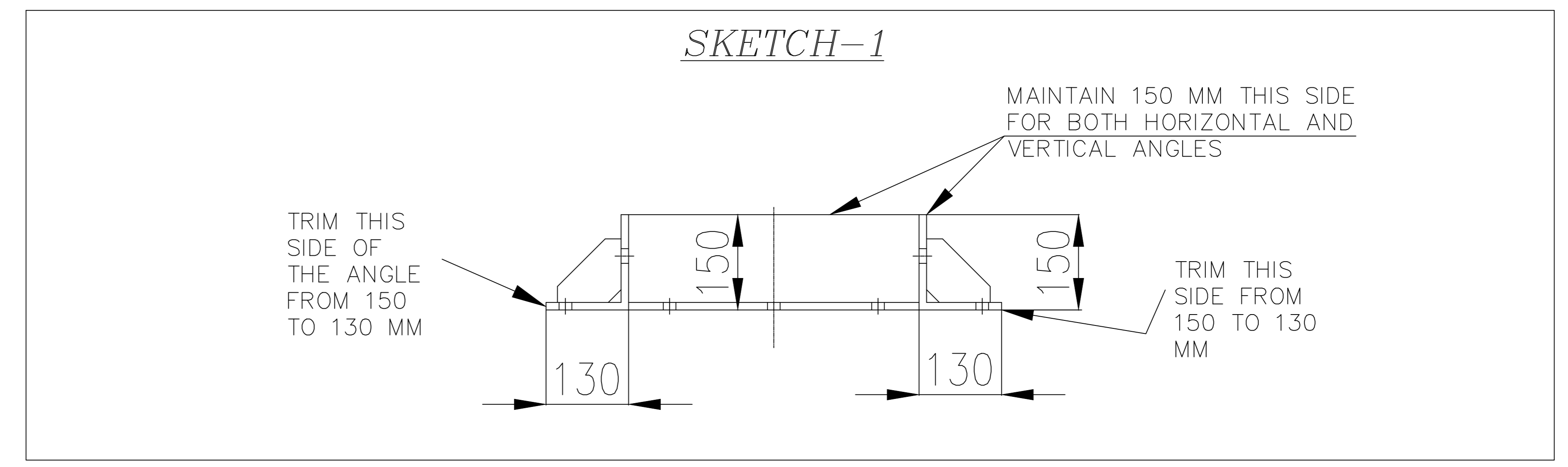
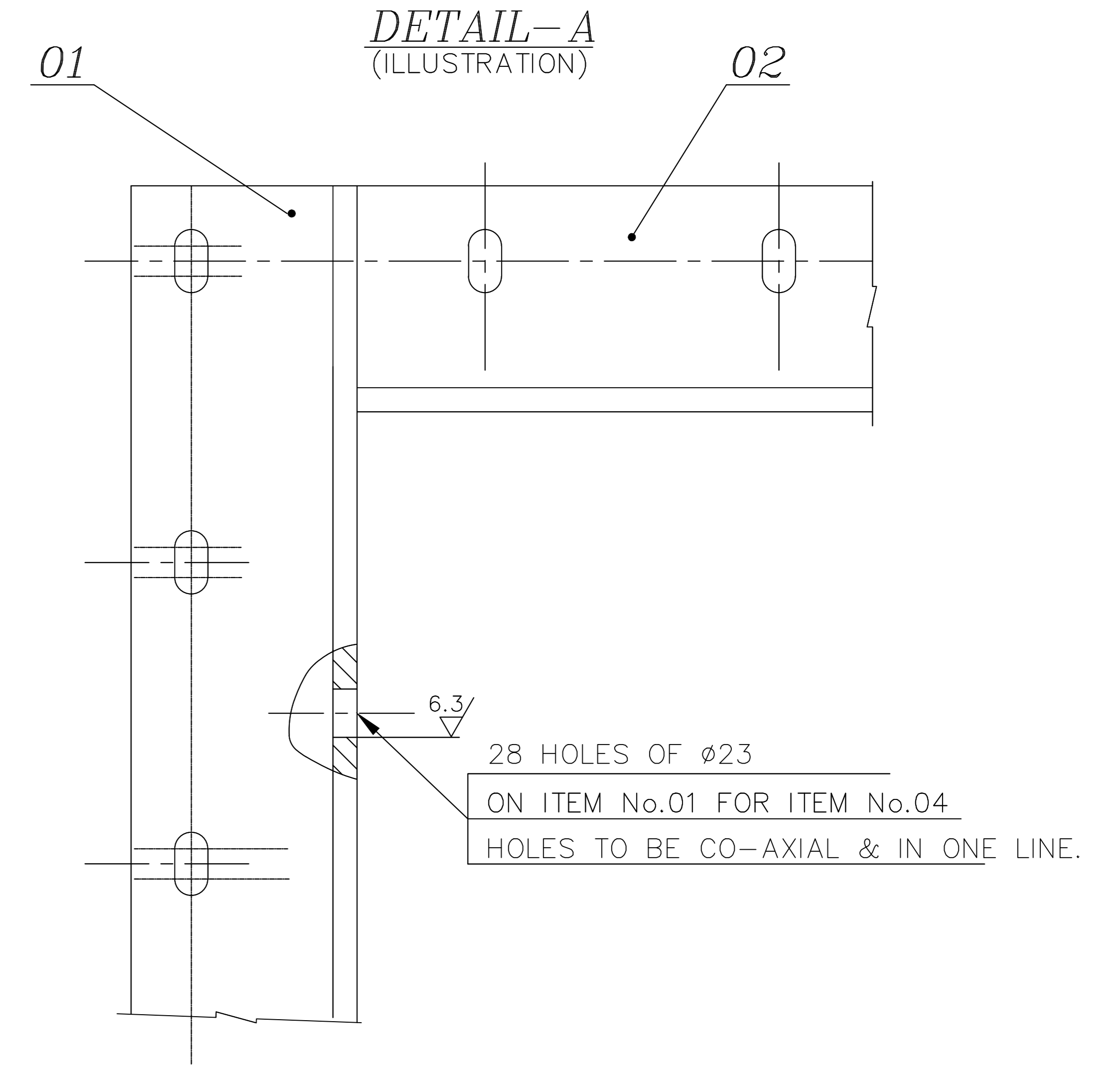
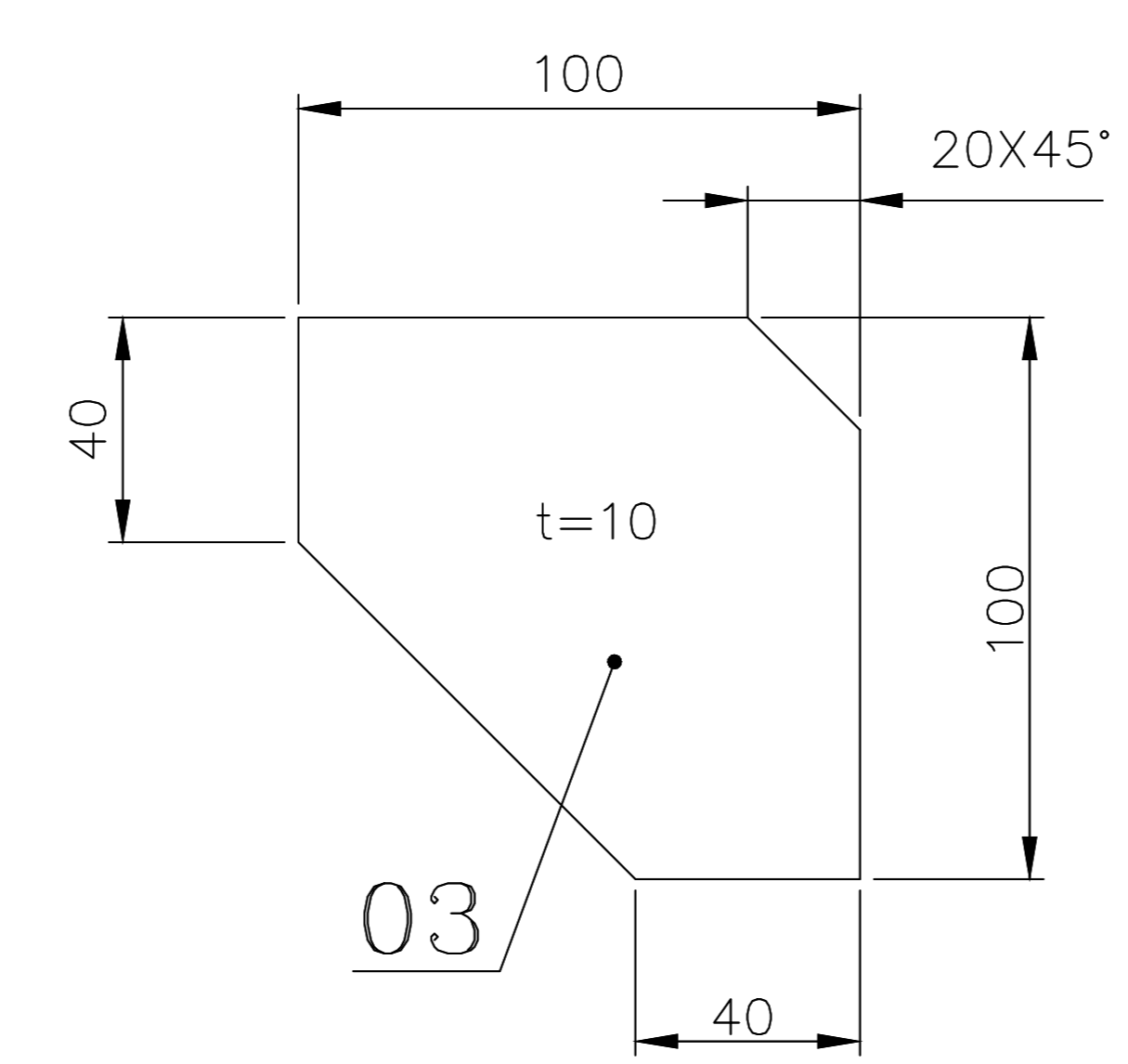
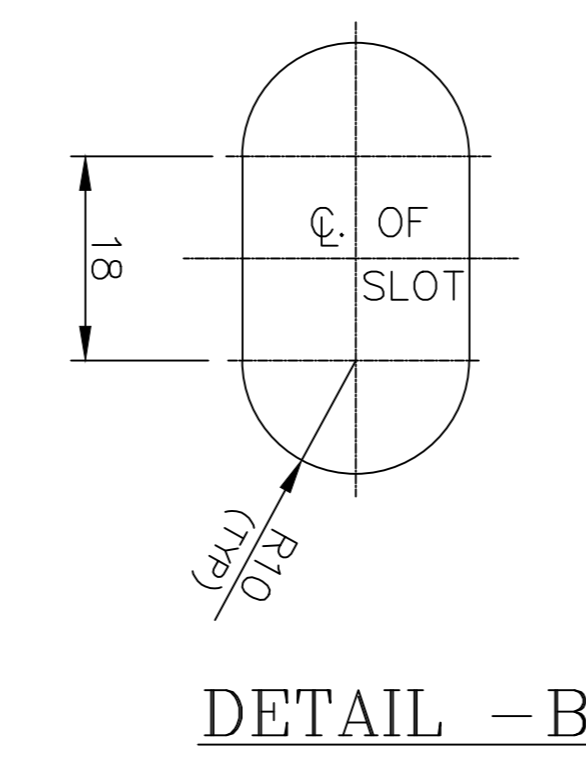
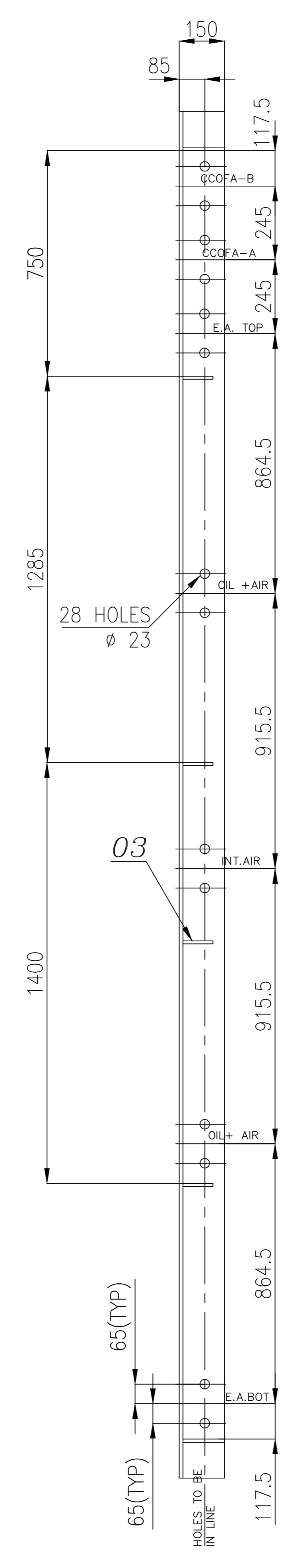
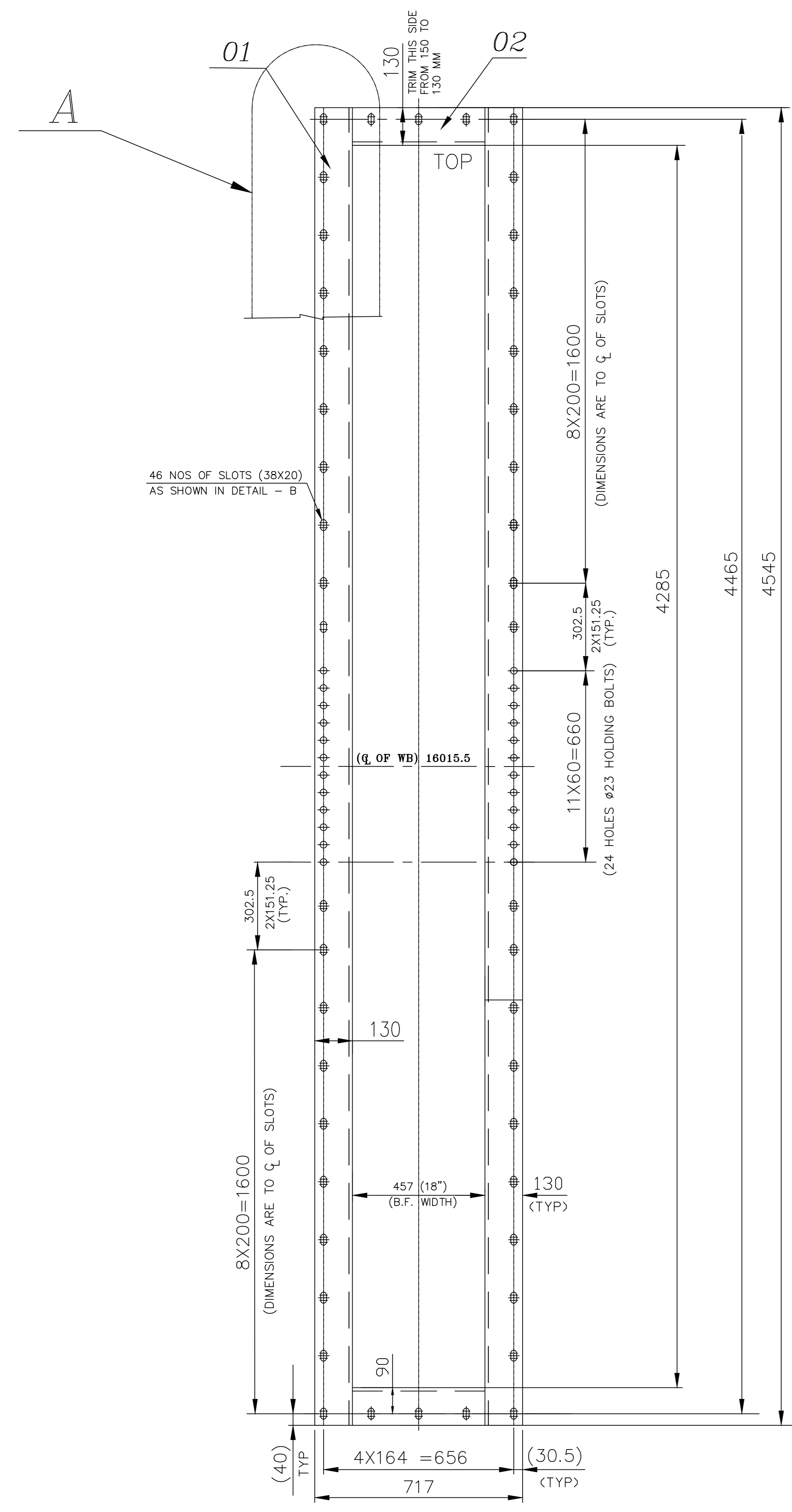
SCALE: N.T.S.

PROJECT: WINDBOX CORNERS-2&4

DRAWING NO: 0-45-180-03495

REV: 00





**NOTES: -**

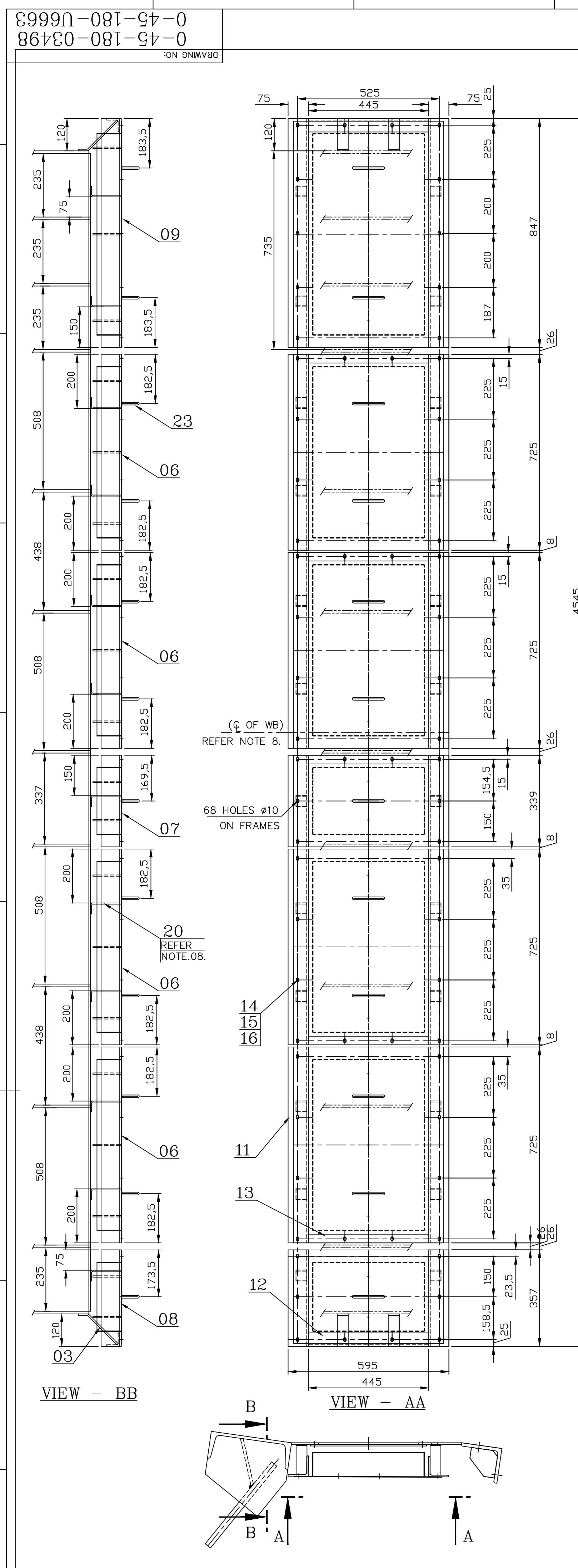
1. TOLERANCE ON PITCHES OF HOLES FOR NOZZLE TIP PIN BEARING TO BE WITHIN ±0.5mm & TO BE NON-CUMULATIVE.
2. PITCHES OF HOLES Ø23 AND SLOTS TO BE WITHIN ±1.0mm AND TO BE NON CUMULATIVE
3. FOR WELDING DETAILS REFER DRG.No.4-45-000-00972
4. ALL CUT SURFACES, DRILLED HOLES & SLOTS ARE TO BE FREE OF BURRS.
5. ITEM-01 SHOULD BE JOINT-FREE.
6. USE E 7018 FOR WELDS
7. ITEM-01 AND ITEM-02 SHALL BE CUT FROM 150 MM TO 130 MM AS MARKED IN SKETCH-1 STRICTLY MAINTAIN 150 MM ON ONE SIDE AS ILLUSTRATED.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	VAR NO	MATERIAL SPECN	QTY	UNIT	WEIGHT	ZONE
	03	PLATE 10X100X100				152110980000					0.628	
						IS2062GRA			6			
	02	ANGLE 150X150X12; 457				150130020000					12.476	
						IS2062GRA			2			
	01	ANGLE 150X150X12; 4545				150130020000					124.079	
						IS2062GRA			2			

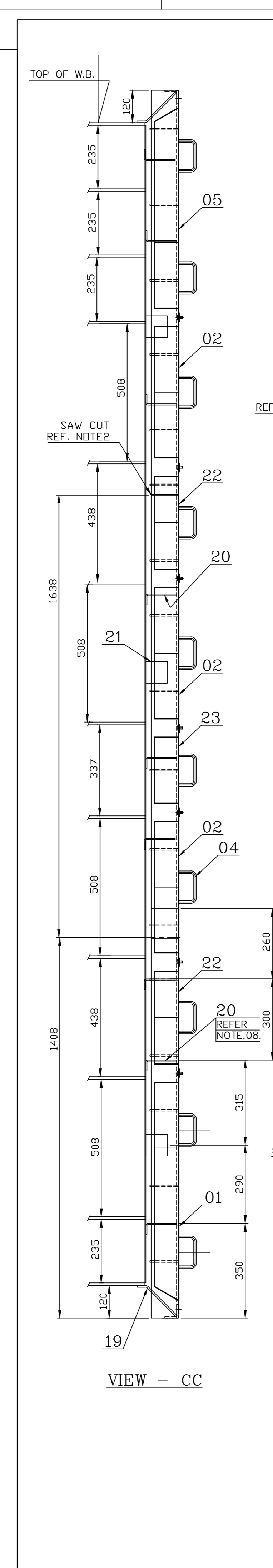
REV	DATE	ALTERED :	CHD & APPD :	DEPT	F/S	ALL MEMORIS ARE IN MM	PROJECTION	SCALE	WEIGHT (kg)	REF TO ASST / OLD DWG
01							N.T.S		276.878	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	NAME	SIGNATURE	DATE
Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012	SARJAM N	-SD-	02.07.2021
	GANGADHAR MDS	-SD-	02.07.2021
	SARJANMAMRO	-SD-	02.07.2021

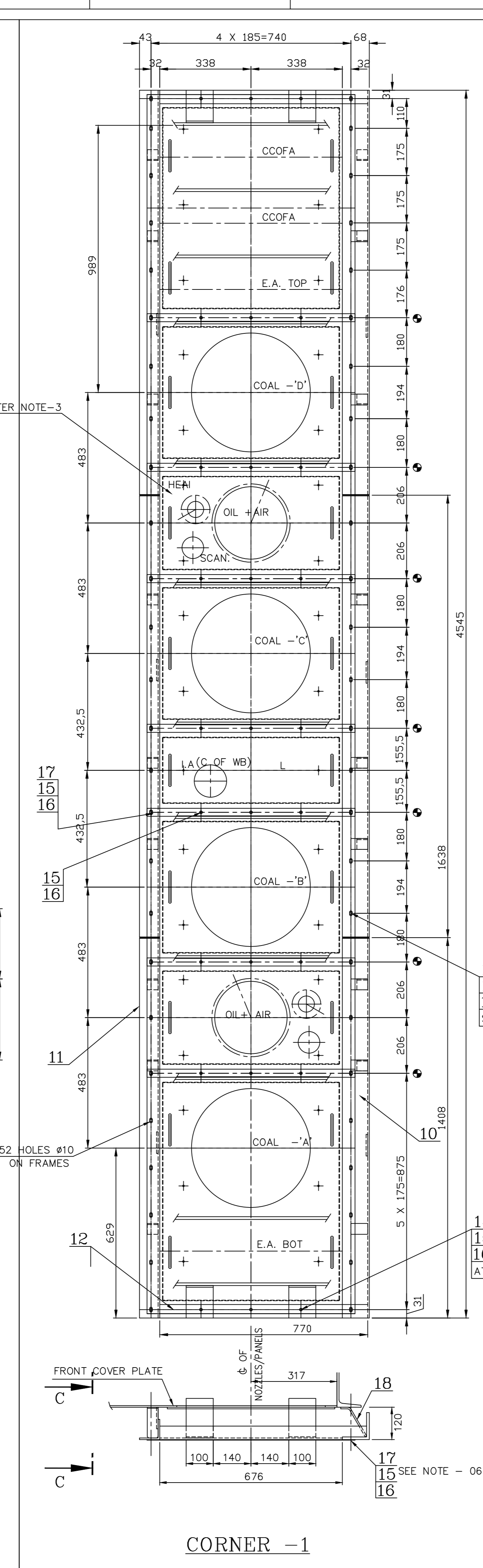
TITLE	DRAWING NO :	REV
BURNER FRAME	0-45-180-03497 0-45-180-U6667	00



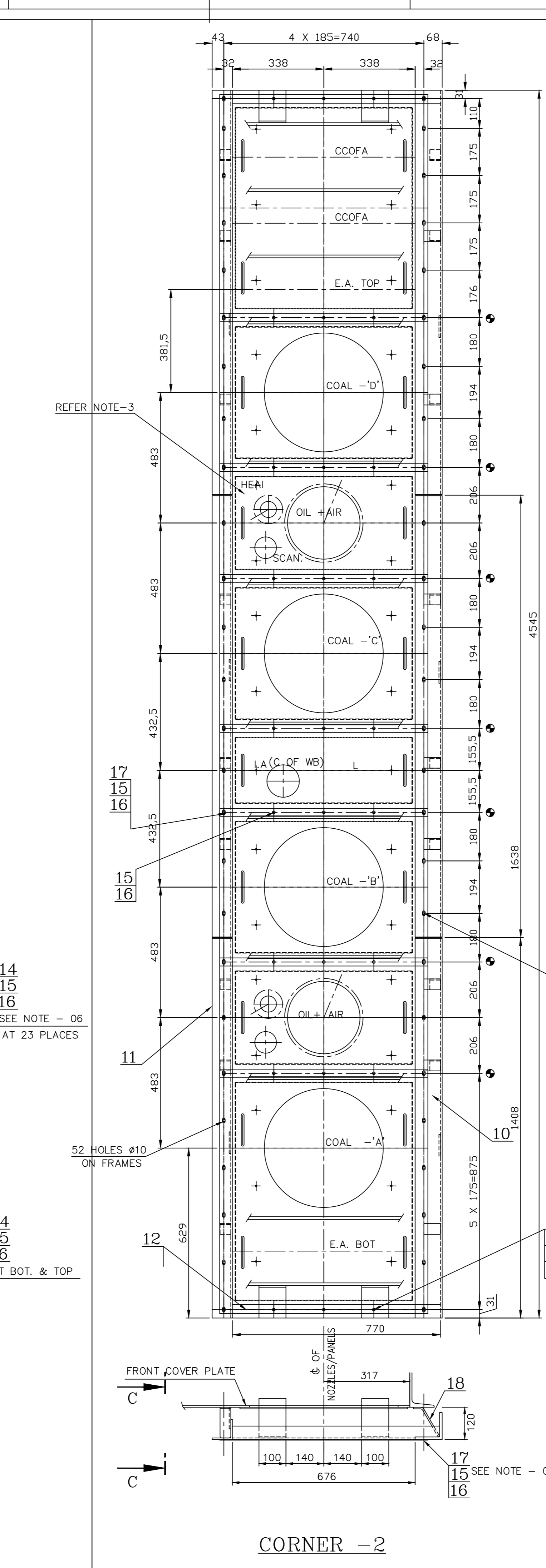
ASSY. OF SIDE OUTER PANEL



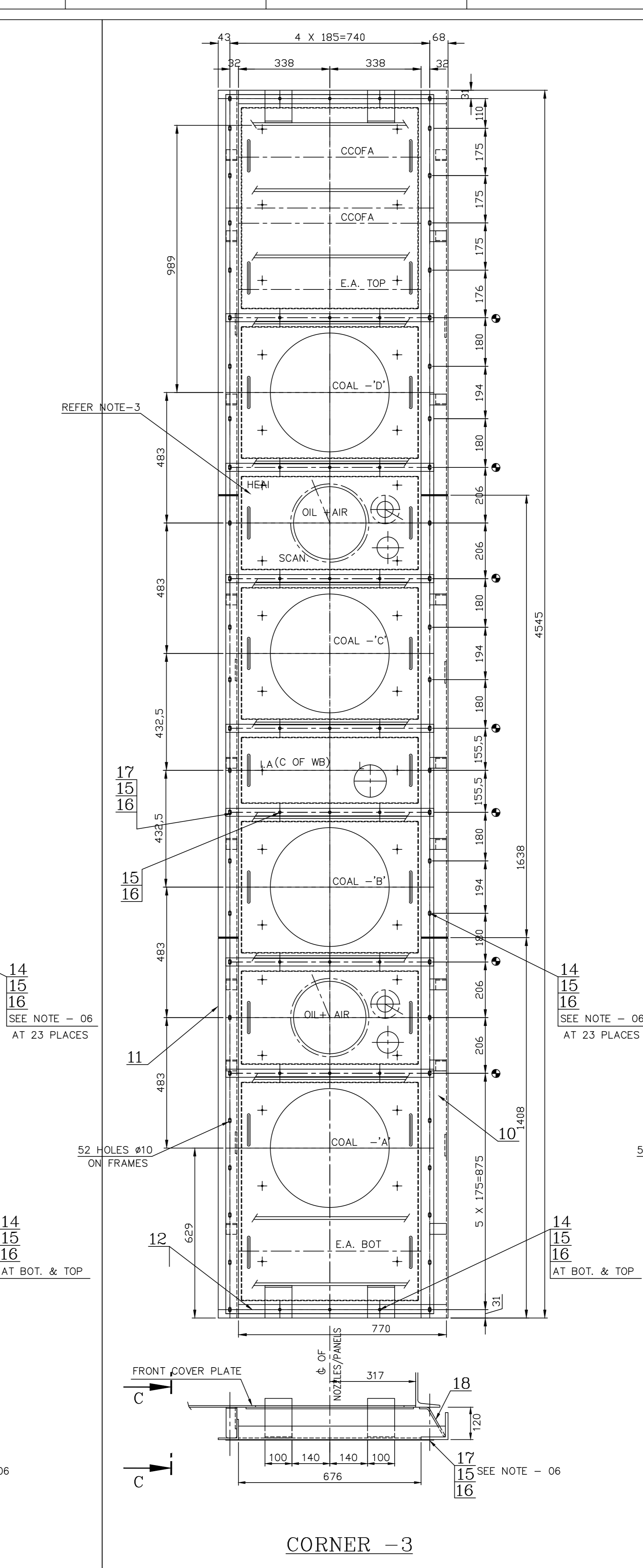
ASSY. OF FRONT OUTER PANEL



ASSY. OF FRONT OUTER PANEL



ASSY. OF FRONT OUTER PANEL



ASSY. OF FRONT OUTER PANEL

- NOTES:-**
- TOLERANCES ON PITCHES OF HOLES TO BE WITHIN 1mm & NON-CUMULATIVE.
  - 3 TO 5mm SAW CUT TO BE MADE IN ITEM NO 10 & 11 AFTER ASSEMBLING WITH WINDOW AS SHOWN.
  - FOR WELDING ITEM NOS 03, 18 TO 21 REFER DRAWING: 3-45-000-00664 & FOR ITEM NO 04 REFER DRAWING NO:4-45-000-00974.
  - ITEMS 10,11 & 12 ARE GIVEN IN FULL LENGTH: TO BE CUT TO DRG.LENGTH & USED.
  - POSITION OF ITEM NO. 20 MAY BE ALTERED TO AVOID SCREW HEADS. ALL SCREW HEADS TO BE WELDED TO ANGLE. (ON 3 FACES).
  - SCREW M8 X 20 (ITEM - 17) TO BE USED FOR A 100 X 100 X 10 (ITEM NO. 10) & A 75 X 75 X 6 (ITEM NO.11) WHERE PANELS OVERLAP. SCREW M8 X 16 (ITEM NO.14) TO BE USED FOR OTHER PANELS.
  - ORIENTATION OF LUG PLATE (ITEM NO 20) TO BE UP FOR THE PORTION ABOVE THE C.L. OF WB AND DOWN FOR THE PORTION BELOW THE C.L. OF WB.
- PLACES WHERE PANELS OVERLAP. (USE ITEM NO:17)

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
	24	FRONT OUTER PANEL (INT.AIR.)		3-45-180-01917	01	WELDMENT	6.523	1	
	23	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	02	WELDMENT	7.193	1	
	04	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	01	WELDMENT	7.193	1	
	23	FRONT OUTER PANEL (INT.AIR.)		3-45-180-01917	01	WELDMENT	6.523	1	
	03	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	01	WELDMENT	7.193	2	

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
	23	FRONT OUTER PANEL (INT.AIR.)		3-45-180-01917	02	WELDMENT	6.523	1	
	02	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	02	WELDMENT	7.193	2	
	24	FRONT OUTER PANEL (INT.AIR.)		3-45-180-01917	02	WELDMENT	6.523	1	
	23	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	02	WELDMENT	7.193	1	
	01	FRONT OUTER PANEL (OIL + AIR)		3-45-180-01916	01	WELDMENT	7.193	1	
	21	PL 6 X 80 X 80				15 211 092 IS 2062 GRA	0.301	6	
	20	LUG PLATE SH.4 X 40 X 147		3-45-220-00273	04	IS 1079 FE330	0.180	33	

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
	19	LUG PLATE PL: 6 X 100 X 190		3-45-220-00273	03	15 011 092 IS 2062 GRA	0.895	4	
	18	LUG PLATE PL: 6 X 80 X 152.5		3-45-220-00273	02	15 211 092 IS 2062 GRA	0.570	9	
	17	SCRU HEX. M8 X 20		41222 08 020		41222 08 020	0.012	30	
	16	NUT CAP P6 M8		41303 08 000		41303 00 008	0.012	134	
	15	WASHER PNCHD. A12 B		41408 08 000		41408 00 008	0.002	100	
	14	SCRU HEX. M8 X 16		41222 08 016		41222 08 016	0.011	100	
	13	PL 8 X 32 : 445				15 011 027 IS 2062 GRA	0.890	5	
	12	A50X50X6: L=2500				15 013 056 IS 2062 GRA	11.250	1	
	11	A75X75X 6: L=13635				15 013 005 IS 2062 GRA	92.718	1	

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
	10	A100X100X10: L=4545				15 013 018 IS 2062 GRA	67.721	1	
	09	SIDE OUTER PANEL-IV		3-45-180-01914		WELDMENT	10.624	1	
	08	SIDE OUTER PANEL-III		3-45-180-00968		WELDMENT	4.930	1	
	07	SIDE OUTER PANEL-II		3-45-180-00967		WELDMENT	4.838	1	
	06	SIDE OUTER PANEL-I		3-45-180-00966		WELDMENT	9.298	1	
	05	FRONT OUTER PANEL (COAL & TOP EA.)		3-45-180-01915		WELDMENT	14.288	1	
	23	04	LIFTING HANDLE		S	6181 0131 21	01	94 006 019	0.134
	22	03	LUG PLATE PL.6 X 40 X 190			3-45-220-00273	05	15 211 092 IS 2062 GRA	0.358
	02	FRONT OUTER PANEL (COAL)		3-45-180-00971		WELDMENT	8.026	3	
	01	FRONT OUTER PANEL (EA + COAL)		3-45-180-00970		WELDMENT	12.915	1	

VARIANT	CORNER	WEIGHT (KG)
01	01	331.417
02	02	331.417
03	03	331.417
04	04	331.417

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

DATE: 14.07.2021  
SIGNATURE: [Signature]  
DATE: 14.07.2021  
SIGNATURE: [Signature]

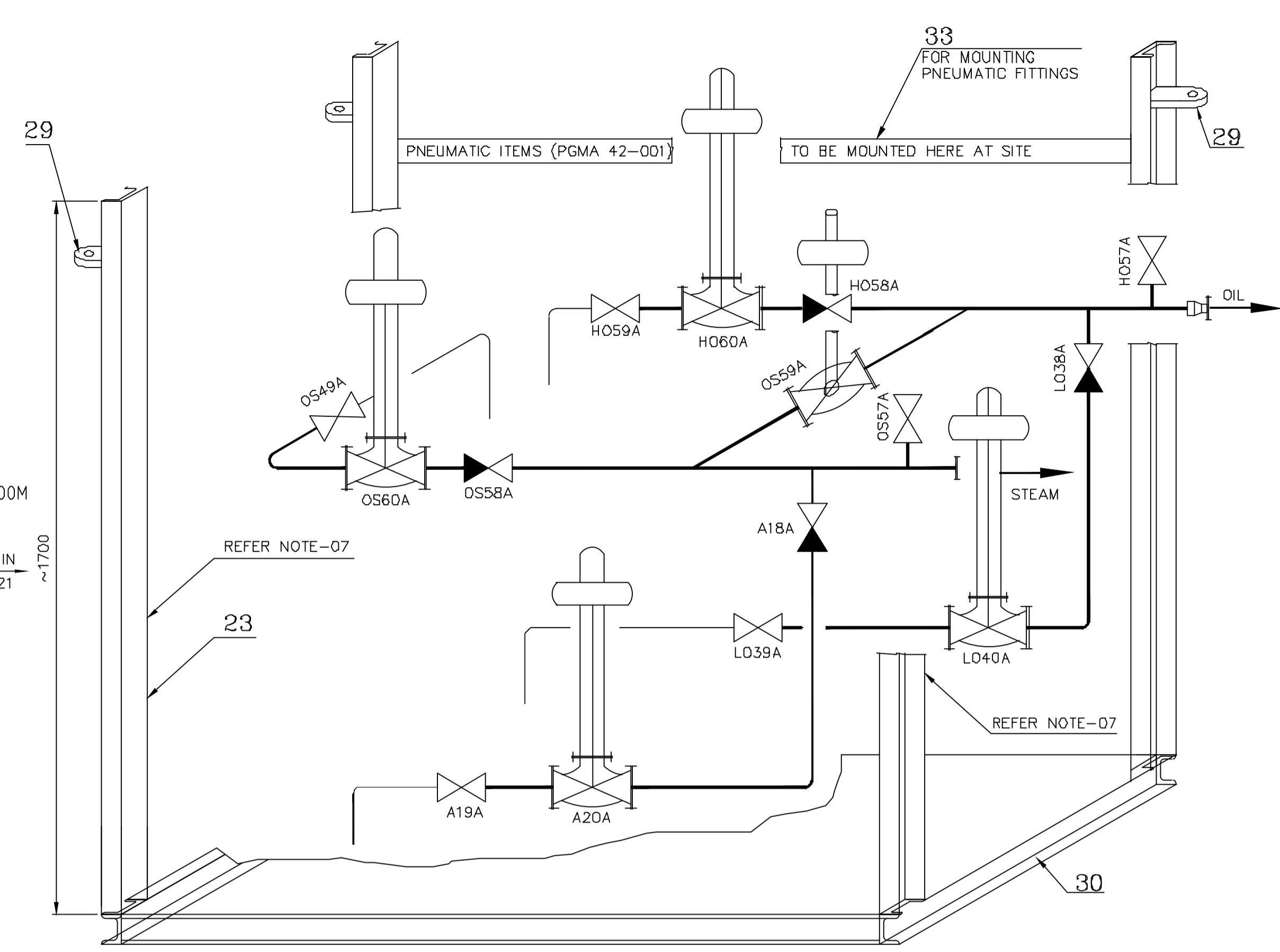
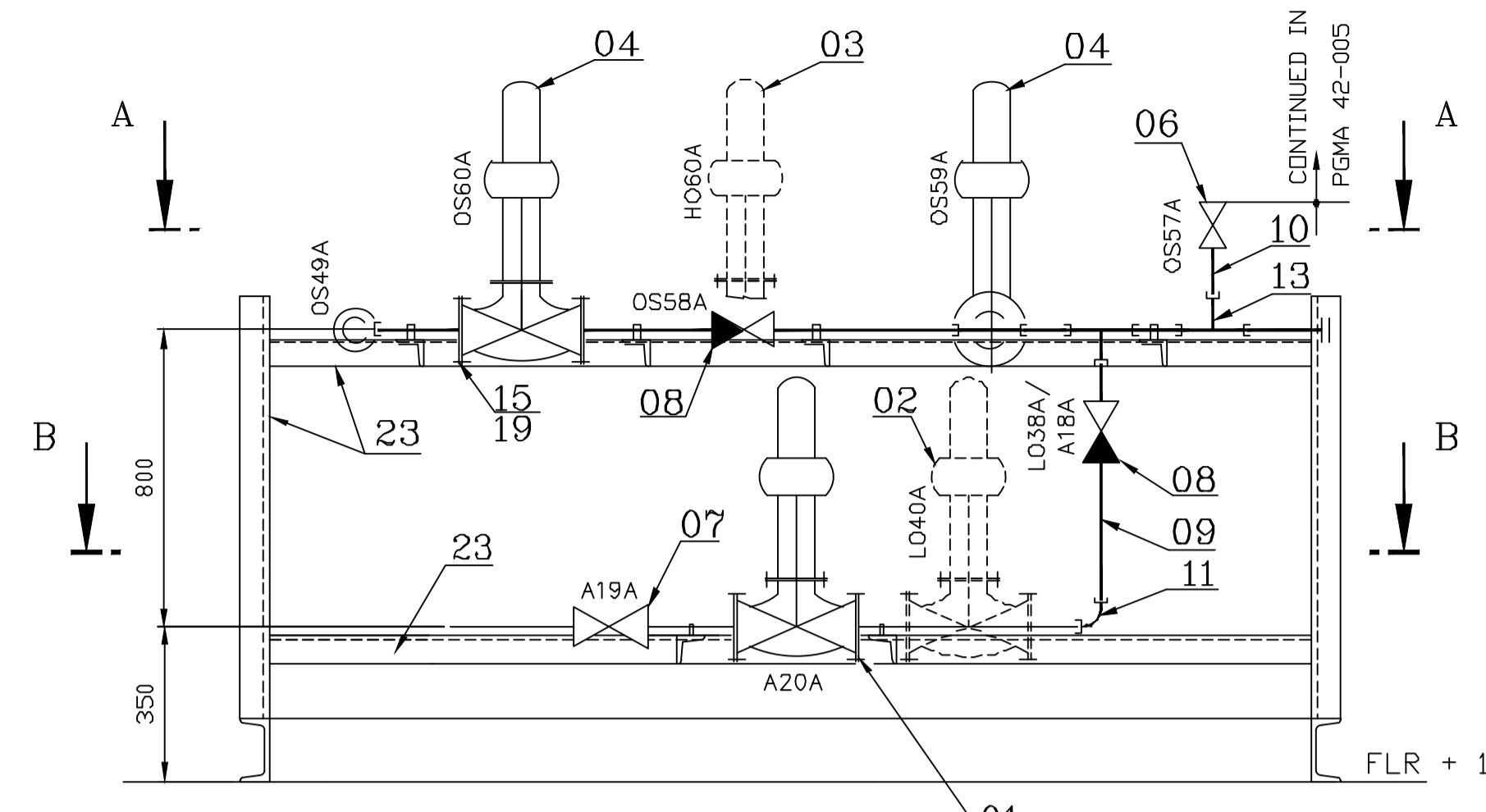
PRODUCTION SCALE: NTS  
WEIGHT (KG): REF. TABLE

REVISION: 00  
DRAWING NO: 0-45-180-03498  
0-45-180-U6663

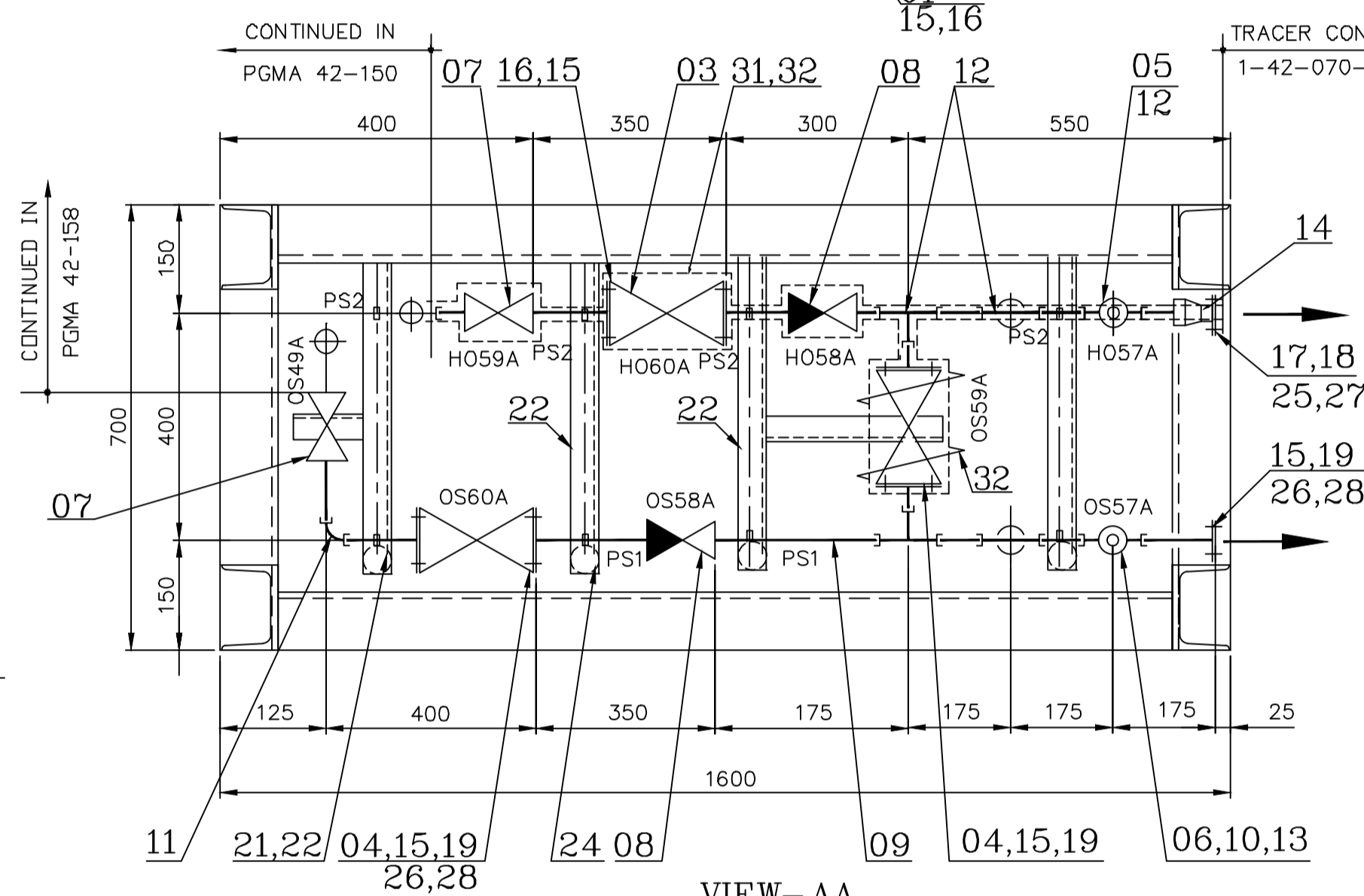


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1-42-070-U4502  
DRAWING NO.

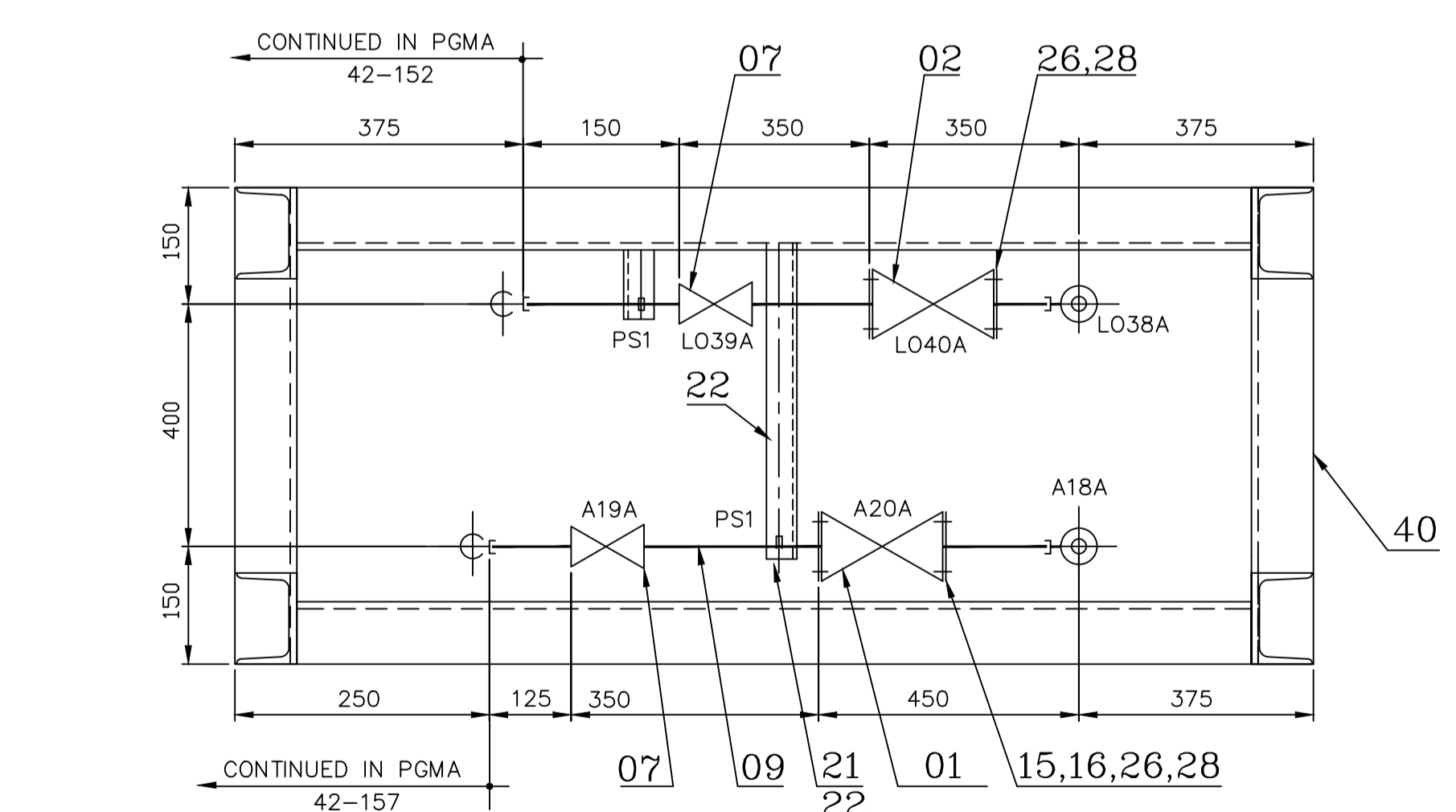
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



AT OIL ELEVATION AB

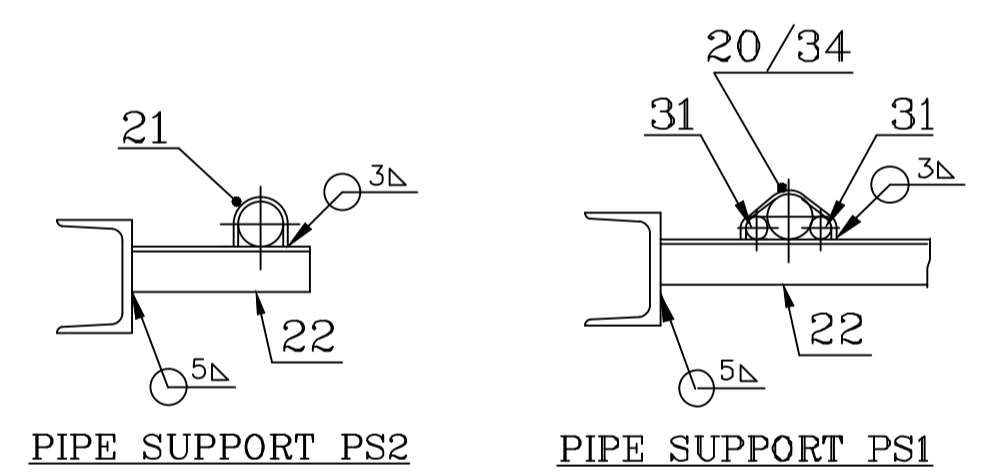


VIEW-AA



BURNER FITTINGS VALVE TAG REFERENCE: TABLE-2 (4 ASSEMBLIES)

CORNER-1	CORNER-2	CORNER-3	CORNER-4
A19A,A20A,A18A	A19B,A20B,A18B	A19C,A20C,A18C	A19D,A20D,A18D
LO39A,LO40A,LO38A	LO39B,LO40B,LO38B	LO39C,LO40C,LO38C	LO39D,LO40D,LO38D
HO59A,HO60A,HO58A	HO59B,HO60B,HO58B	HO59C,HO60C,HO58C	HO59D,HO60D,HO58D
OS49A,OS60A,OS58A,OS59A	OS49B,OS60B,OS58B,OS59B	OS49C,OS60C,OS58C,OS59C	OS49D,OS60D,OS58D,OS59D
HO57A,OS57A	HO57B,OS57B	HO57C,OS57C	HO57D,OS57D



PIPE SUPPORT PS2 PIPE SUPPORT PS1

NOTES:

- REFERENCE DRGS : SCHEME OF FO SYSTEM : 0-00-056-U8017 SCHEDULE OF FO SYSTEM VALVES : DOC NO. FS/7906/VLV/001
- FOR WELDING AND PRODUCTION NOTES DWG NO. 2-42-000-00606.
- PERFORM TIG ROOT WELDING FOR BUTT AND BRANCH JOINTS.
- FOR HFO LINE STEAM TRACING REF.DWG. NO. 2-42-000-00338.
- HYDRAULIC TEST TO BE DONE AT SITE.
- VALVES SHOWN ARE FOR ONE ASSY. ONLY. FOR OTHER ASSEMBLIES, REF. TABLE-2.
- THE FRONT CHANNELS SHOWN ARE ONLY FOR SHIPPING. TO BE REMOVED AT SITE.

TABLE-1 VALVE TAG REFERENCE

TAG Nos.	ITEM No.	SIZE	MAKE	APPLICATION
LO39A-D; HO59A-D; A19A-D ;OS49A-D	07	NB25	BHEL	BNR ISOLATION W/LSO
LO40A - D	02	NB25	SUB-DELY.	BNR TRIP W/LSO/LSC
HO60A - D	03	NB25	SUB-DELY.	BNR TRIP W/LSO/LSC
A20A - D	01	NB25	SUB-DELY.	BNR TRIP W/LSO
OS59A-D; OS60A-D	04	NB25	SUB-DELY.	BNR TRIP W/LSO/LSC
LO38A-D; HO58A-D; A18A-D; OS58A-D	08	NB25	BHEL	BNR NRV
HO57A-D	05	NB25	BHEL	FO PI ISOL
OS57A-D	06	NB15	BHEL	ATOMISER PI ISOL

PARAMETERS

	HFO	STEAM	LDO	AIR
MAX.WORKING PR. KG/SQ.CM (G)	9	6	3.6	6
HYDRAULIC TEST PR. KG/SQ.CM (G)	14	9	5.5	9
MAX.WORKING TEMP. (°C)	120	220	41	41

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO VAR NO	MATERIAL CODE MATERIAL SPECN	UNIT WEIGHT QUANTITY	ZONE
34	TRACER U-CLAMP NB 10		4-42-000-02125		15011040000 IS 1079	NO 0.010 4	
33	FL 50 x6; 1600L				150080110000 IS2062Fe410W	NO 3.600 1	
32	GALVANISED WIRE				15 017 018 IS280 (COMML)	MFR 0.009 2	
31	TU D 14 x 2				15 186 005 SA210 GRA1	MFR 0.626 5	
30	FRAME FOR OIL BURNER ASSY		3-42-170-02056		WELDMENT	NO 76.614 1	
29	LIFTING EYE		3-42-900-00523		02 WELDMNT	NO 2.495 4	
28	NUT HEX GR A M 16				41320 00016	NO 0.030 44	
27	NUT HEX GR A M 12				41320 00012	NO 0.017 4	
26	BOLT HEX GR A M 16 X 60				41237 16060	NO 0.123 44	
25	BOLT HEX GR A M 12 X 50				41237 12050	NO 0.059 4	
24	ERW TUBE 25 x 3.2				150386325300 IS 1239	MFR 2.378 4	
23	ISM 75 x 40				15 010 036 IS2062Fe410W	MFR 7.140 13	
22	ISA 50 x 50 x 6				15 013 156 IS2062Fe410W	MFR 4.500 7	
21	1" U CLAMP		3-42-000-00839		15 011 182 IS1079Fe330	NO 0.050 12	
20	SH 3.15 x 20 x 2000				15 011 182 IS1079Fe330	NO 0.989 1	
19	1" CAF JOINTING ANSI 300#		3-42-000-00833		22 020 099 CAF Gr.A/S	NO 0.010 5	
18	1/2" CAF JOINTING ANSI 300#		3-42-000-00835		22 020 374 CAF GR A/O	NO 0.010 1	
17	1/2" SW FLANGE ANSI 300 #				92 037 692 SA105	NO 0.690 2	
16	1" CAF JOINTING ANSI 300#		3-42-000-00835		22 020 374 CAF Gr.A/O	NO 0.010 6	
15	1" SW FLANGE ANSI 300#				92 037 690 SA105	NO 1.510 12	
14	1" x 1/2" BW REDUCER				92 117 082 SA234 WPB	NO 0.110 1	
13	1" x 1/2" SW TEE				92 105 462 SA105	NO 0.330 1	
12	1" SW TEE				92 105 451 SA105	NO 0.652 5	
11	1" SW ELL				92 104 426 SA105	NO 0.589 3	
10	1/2" SCH40 PIPE				15 182 001 SA106 Gr.B	MFR 1.270 1	
09	1" SCH40 PIPE				15 182 010 SA106 Gr.B	MFR 2.500 6	
08	NON RET VALVE NB25-C800-SW-FCS		HO58=1; LO38=1 A18=1; OS58=1		REFER GMS	NO 3.000 4	
07	GLOBE VALVE W/LS NB25-C800-SW-FCS		HO59=1; LO39=1 A19=1; OS49=1		REFER GMS	NO 4.760 4	
06	GLOBE VALVE NB15-C800-SW-FCS		OS57		REFER GMS	NO 1.600 1	
05	GATE VALVE NB25-C800-SW-FCS		HO57		REFER GMS	NO 3.600 1	
04	BURNER TRIP VALVE - STEAM		OS59=1;OS60=1		REF.GMS	NO 30.000 2	
03	BURNER TRIP VALVE - HFO		HO60		REF.GMS	NO 30.000 1	
02	BURNER TRIP VALVES - LDO		LO40		REF.GMS	NO 30.000 1	
01	BURNER TRIP VALVES - AIR		A20		REF.GMS	NO 30.000 1	

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 prior written consent of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NATIONAL ALUMINIUM COMPANY LIMITED ; DAMANJODI UNDER PHASE-3 EXPANSION OF M&R COMPLEX 1X300 t/h ; 69.5 kg/cm (g); 487°C

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

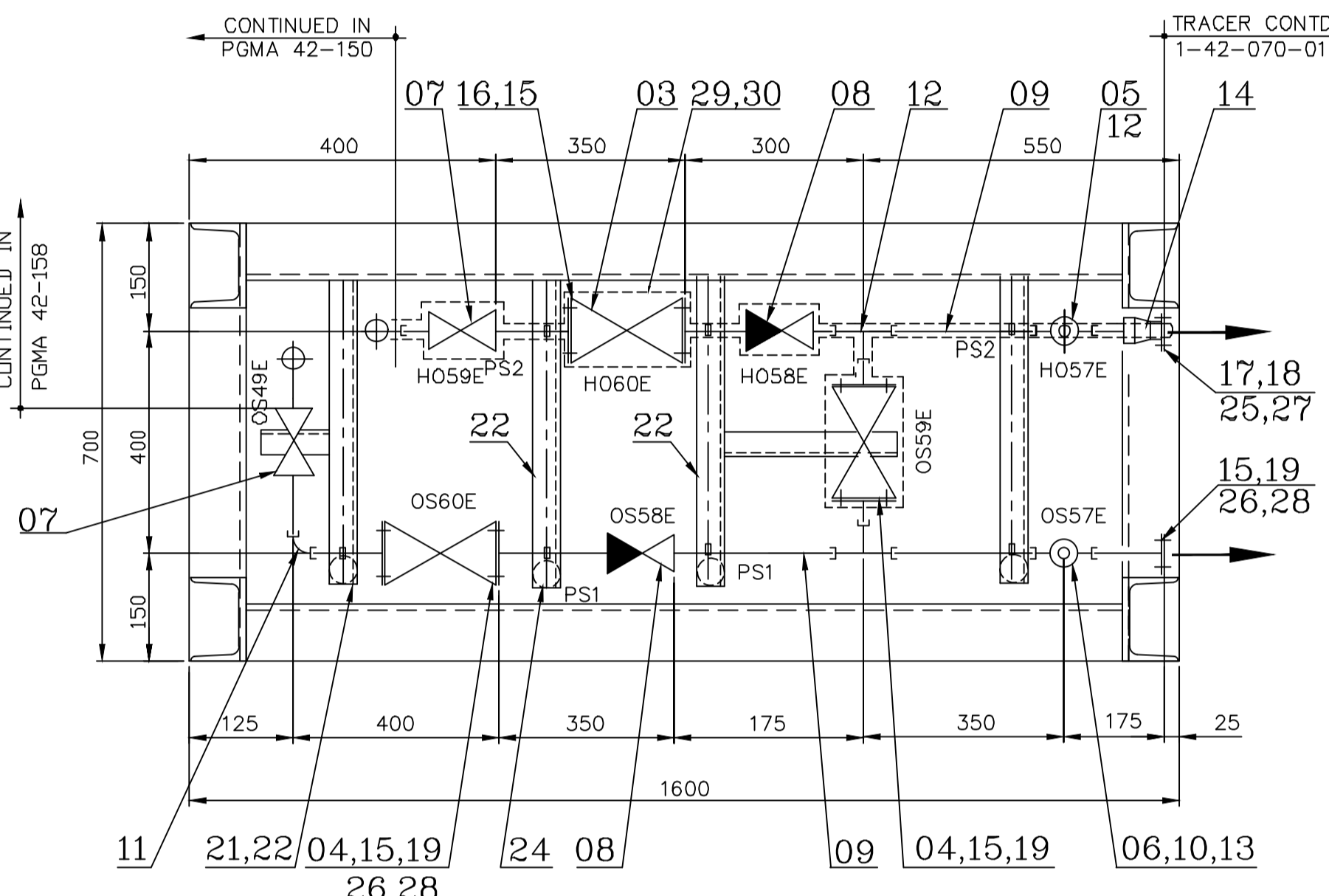
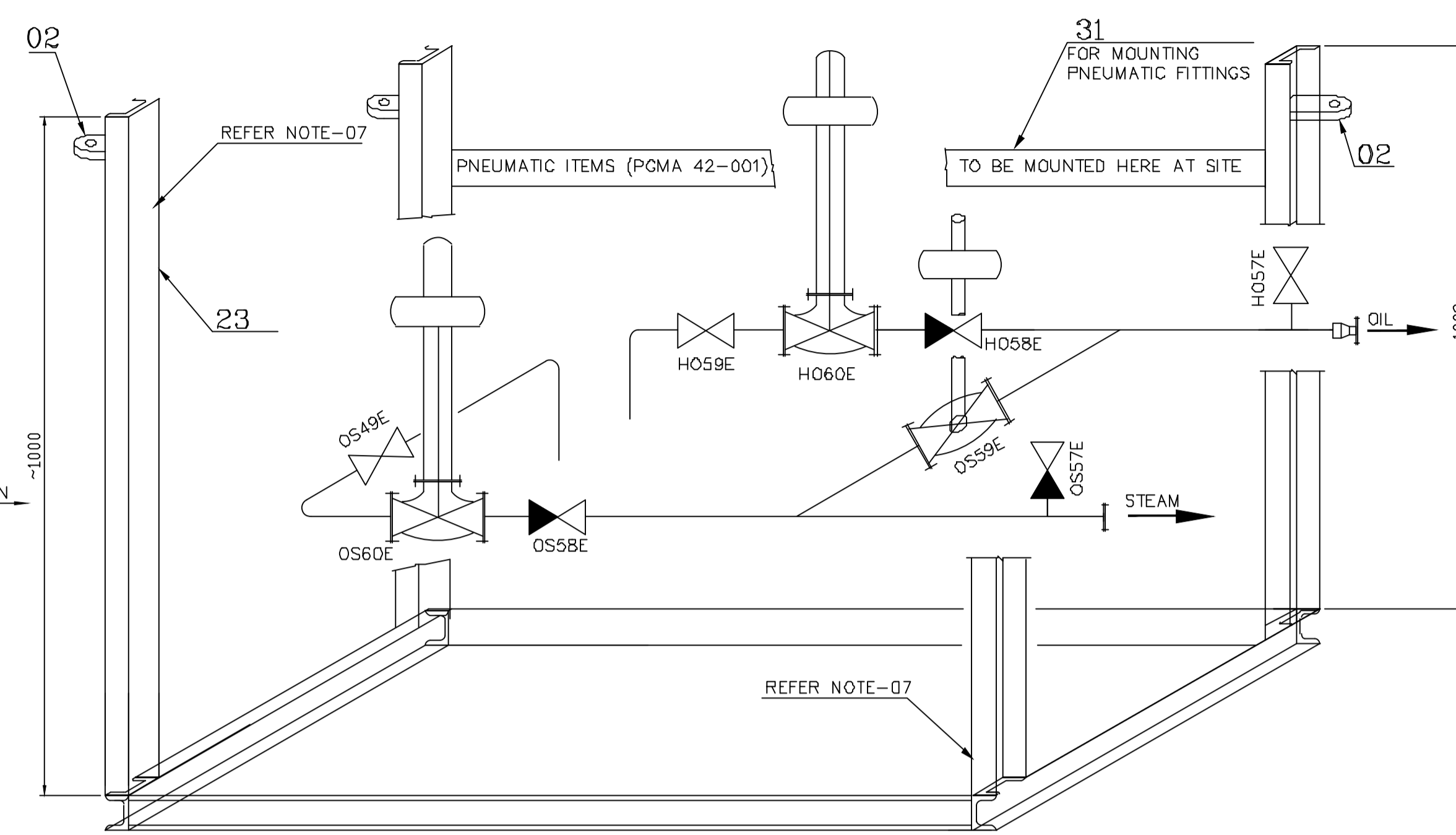
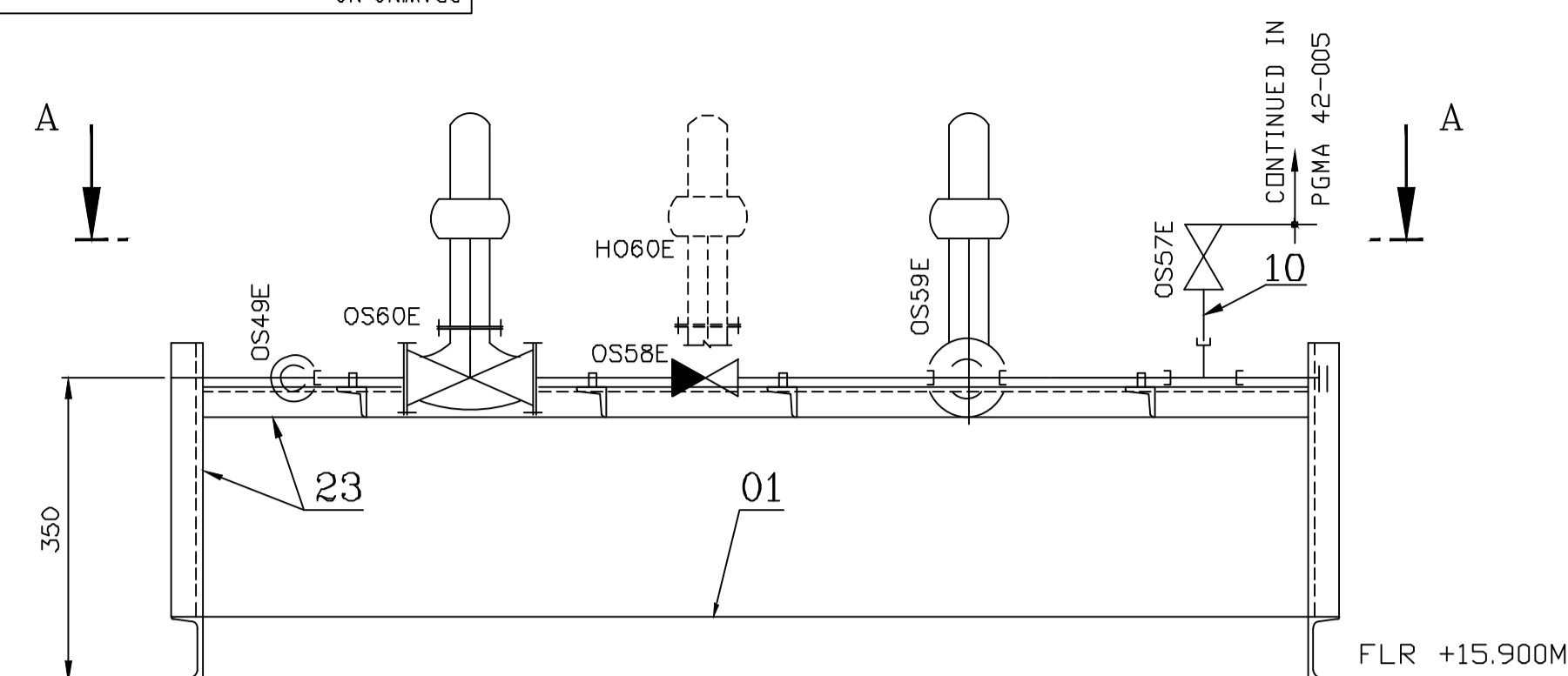
DRN SAIRAM N -SD- 11.10.2021  
CHD SAIRAM N -SD- 11.10.2021  
APPD GANGADHAR WCHS -SD- 11.10.2021

DEPT: PE(B)/FS ALL DIMENSIONS ARE IN MM SCALE: N.T.S. WEIGHT (Kg): 463.436 REF TO ASSY / QUD DWG: -

TITLE: OIL BURNER ASSEMBLY LDO&HFO  
DRAWING NO: 1-42-070-02619  
REV: 1-42-070-U4502

1-42-070-02620  
1-42-070-U4503  
DRAWING NO. ON

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



AT OIL ELEVATION CD

NOTES:

- 01. REFERENCE DRGS :  
SCHEME OF FO SYSTEM 0-00-056-U8017  
SCHEDULE OF FO SYSTEM VALVES DOC NO. FS/7906/VLV/001
- 02. FOR WELDING AND PRODUCTION NOTES DWG NO. 2-42-000-00606.
- 03. PERFORM TIG ROOT WELDING FOR BUTT AND BRANCH JOINTS.
- 04. FOR HFO LINE STEAM TRACING REF.DRG. NO. 2-42-000-00338.
- 05. HYDRAULIC TEST TO BE DONE AT SITE.
- 06. VALVES SHOWN ARE FOR ONE ASSEMBLY ONLY. FOR OTHER ASSEMBLIES, REF. TABLE-1.
- 07. THE FRONT CHANNELS SHOWN ARE ONLY FOR SHIPPING. TO BE REMOVED AT SITE.

PARAMETERS

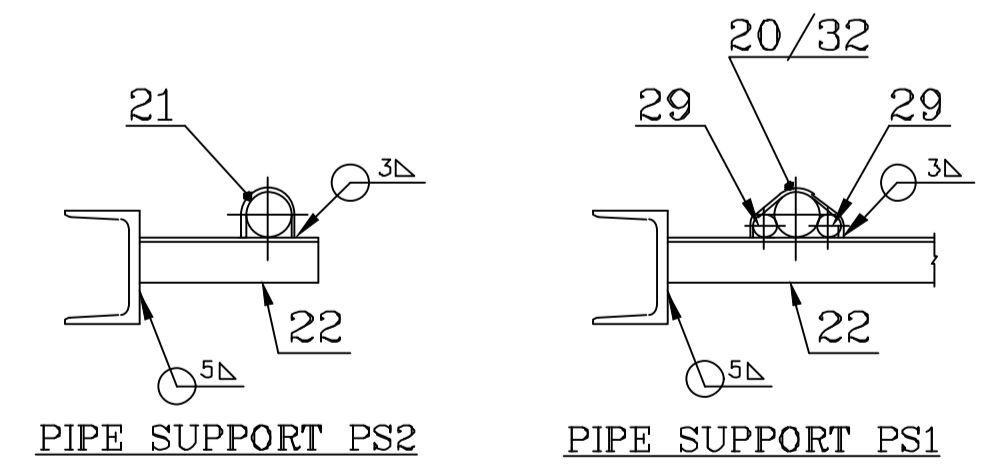
	HFO	STEAM
MAX.WORKING PR. KG/SQ.CM (G)	9	6
HYDRAULIC TEST PR. KG/SQ.CM (G)	14	9
MAX.WORKING TEMP. (°C)	120	220

TABLE-1  
BURNER FITTINGS VALVE TAG REFERENCE  
(4 ASSEMBLIES)

	CORNER-1	CORNER-2	CORNER-3	CORNER-4
ELEVATION-CD	HO59E,HO60E,HO58E OS49E,OS60E,OS58E,OS59E HO57E,OS57E	HO59F,HO60F,HO58F OS49F,OS60F,OS58F,OS59F HO57F,OS57F	HO59G,HO60G,HO58G OS49G,OS60G,OS58G,OS59G HO57G,OS57G	HO59H,HO60H,HO58H OS49H,OS60H,OS58H,OS59H HO57H,OS57H

VALVE TAG REFERENCE

TAG Nos.	SIZE	MAKE	APPLICATION
HO59E-H; OS49E-H	NB25	BHEL	BNR ISOLATION W/LSO
HO60 E - H	NB25	SUB-DELY.	BNR TRIP W/LSO/LSC
OS59E-H; OS60E-H	NB25	SUB-DELY.	BNR TRIP W/LSO/LSC
HO58E-H; OS58E-H	NB25	BHEL	BNR NRV
HO57E-H	NB25	BHEL	FO PI ISOL
OS57E-H	NB15	BHEL	ATOMISER PI ISOL



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	UNIT WEIGHT	QTY	ZONE
	32	TRACER U-CLAMP NB 10		4-42-000-02125	01	150111040000	IS 1079	NG	0.010	
	31	FL 50 x6; 1600L				150080010000	IS2062Fe410W	NG	3.600	
	30	GALVANISED WIRE				15 017 018	IS280 (COMML)	MR	0.009	
	29	TU D 14 X 2				15 186 005	SA210 GRA1	MR	0.626	
	28	NUT HEX GR A M 16				41320 00016		NG	0.030	
	27	NUT HEX GR A M 12				41320 00012		NG	0.017	
	26	BOLT HEX GR A M 16 X 60				41237 16060		NG	0.123	
	25	BOLT HEX GR A M 12 X 50				41237 12050		NG	0.059	
	24	ERW TUBE 25 x 3.2				150386325300	IS 1239	MR	2.378	
	23	ISMC 75 x 40				15 010 036	IS2062Fe410W	MR	7.140	
	22	ISA 50 x 50 x 6				15 013 156	IS2062Fe410W	MR	4.500	
	21	1" U CLAMP		3-42-000-00839	04	15 011 182	IS1079Fe330	NG	0.050	
	20	SH 3.15 x 20 x 2000				15 011 182	IS1079Fe330	NG	0.989	
	19	1" CAF JOINTING ANSI 300#		3-42-000-00833	03	22 020 099	CAF Gr.A/S	NG	0.010	
	18	CAF JOINTING 1/2" - 300 #		3-42-000-00835	01	22 020 374	CAF GR A/O	NG	0.010	
	17	1/2" SW FLANGE ANSI 300 #				92 037 692	SA105	C	0.690	
	16	1" CAF JOINTING ANSI 300#		3-42-000-00835	03	22 020 374	CAF Gr.A/O	NG	0.010	
	15	1" SW FLANGE ANSI 300#				92 037 690	SA105 Gr.70	C	1.510	
	14	1" x 1/2" BW REDUCER				92 117 082	SA234 WPB	C	0.110	
	13	1" x 1/2" SW TEE				92 105 462	SA105	C	0.330	
	12	1" SW TEE				92 105 451	SA105	C	0.652	
	11	1" SW ELL				92 104 426	SA105	C	0.589	
	10	1/2" SCH40 PIPE				15 182 001	SA106 Gr.B	C	1.270	
	09	1" SCH40 PIPE				15 182 010	SA106 Gr.B	C	2.500	
	08	NON RET VALVE NB25-C800-SW-FCS		HO58=1; OS58=1		REF.GMS		NG	3.000	
	07	GLOBE VALVE-W/LS NB25-C800-SW-FCS		HO59=1; OS49=1		REF.GMS		NG	4.760	
	06	GLOBE VALVE NB15-C800-SW-FCS		OS57		REF.GMS		NG	1.600	
	05	GATE VALVE NB25-C800-SW-FCS		HO57		REF.GMS		NG	3.600	
	04	BURNER TRIP VALVE - STEAM		OS59=1; OS60=1		REF.GMS		NG	30.000	
	03	BURNER TRIP VALVE - HFO		HO60		REF.GMS		NG	30.000	
	02	LIFTING EYE		3-42-900-00523	02	WELDMNT		NG	2.495	
	01	FRAME FOR OIL BURNER FITTINGS		3-42-170-02056		WELDMNT		NG	76.614	

HPVP C.NO. 7906 CUSTOMER NO. : 2622

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NATIONAL ALUMINIUM COMPANY LIMITED : DAMANJODI UNDER PHASE-3 EXPANSION OF M&R COMPLEX 1X300 t/h ; 69.5 kg/cm (g); 487°C

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

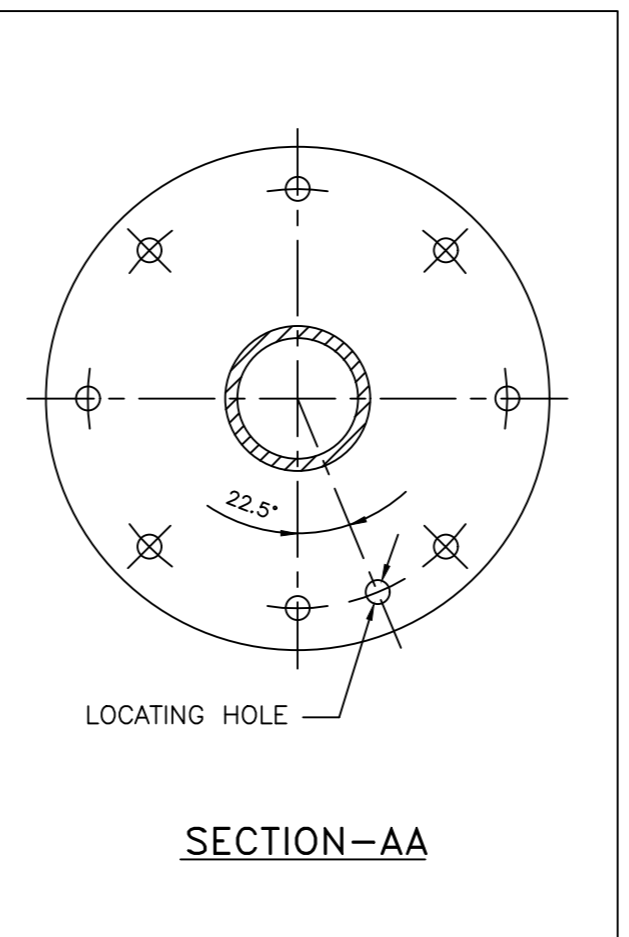
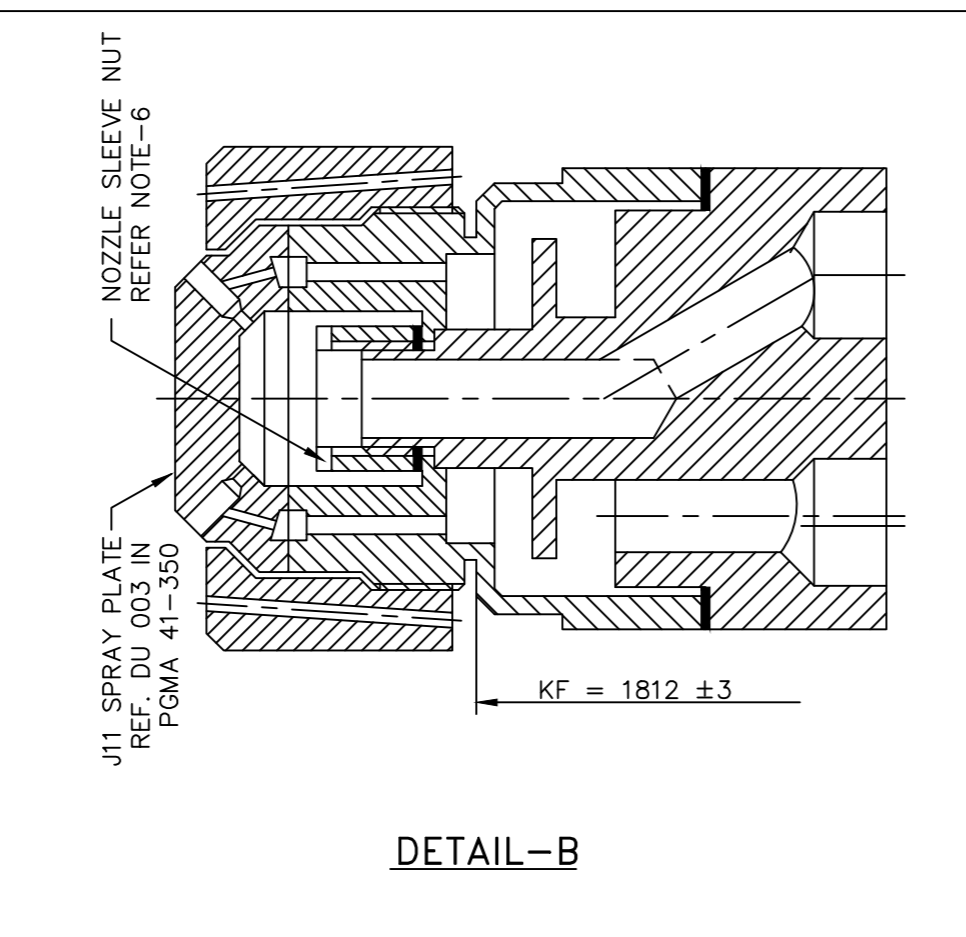
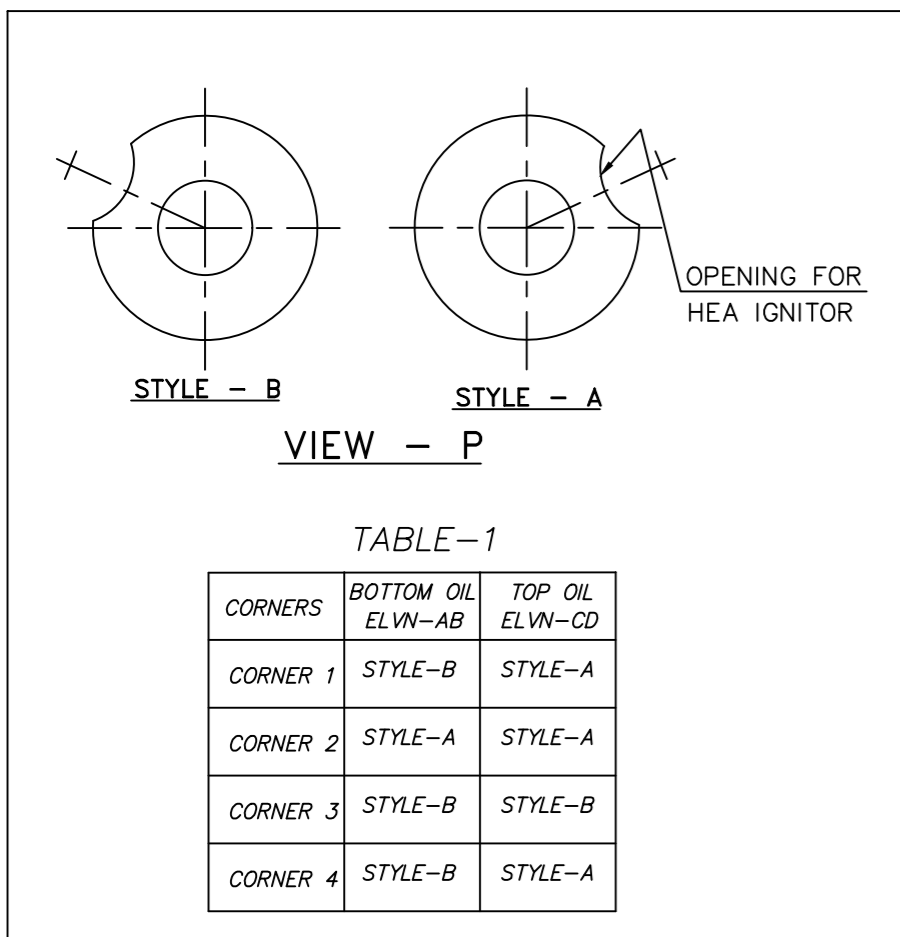
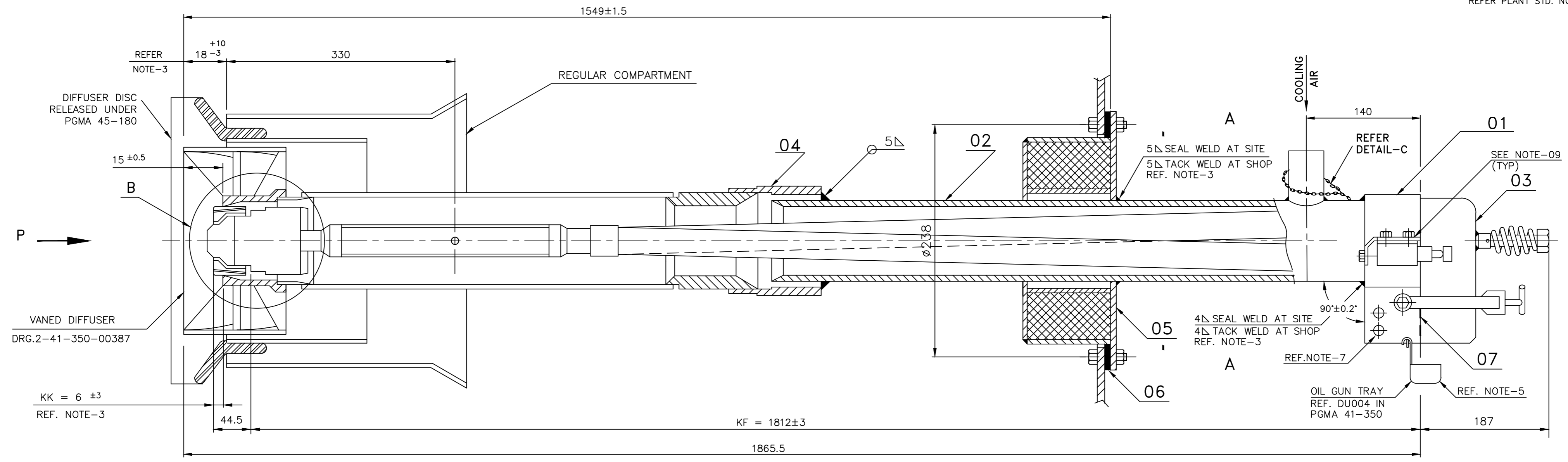
DRN SAIRAM N -SD- 11.10.2021  
CHD SAIRAM N -SD- 11.10.2021  
APPD GANGADHAR WCHS -SD- 11.10.2021

DEPT: 365-053  
SCALE: N.T.S.  
WEIGHT (Kg): 302.156

TITLE: OIL BURNER ASSEMBLY HFO

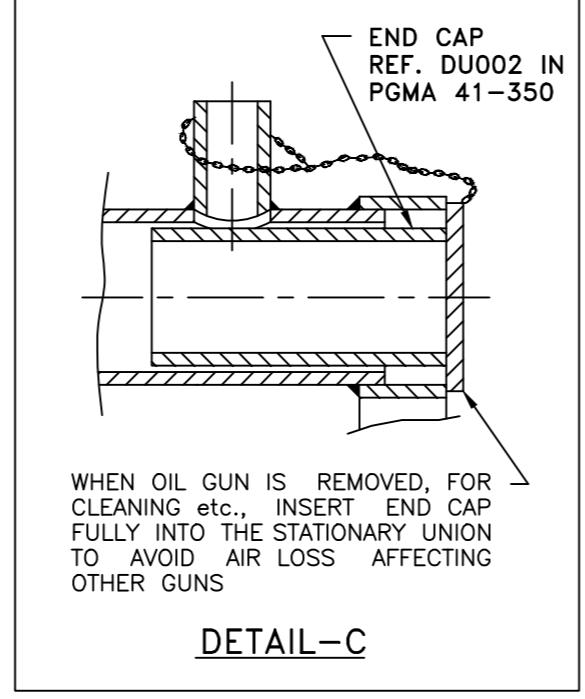
DRAWING NO: 1-42-070-02620  
REV: 1-42-070-U4503

REV	DATE	ALTERED :
01		CHD & APPD :



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS	ZONE
	07	CU.CLAD ASBESTOS GASKET				22-021-329 SDQ-580		NO	0.003 2		
	06	GASKET	4-41-310-00998			220300010000 NON ASBESTOS		NO	0.193 1		
	05	GUIDE PIPE FLANGE ASSY.	3-41-350-00366			01-05 WELDMNT		NO	7.727 1		
	04	GUIDE PIPE AND DIFFUSER ASSY.	2-41-350-00313			01-07 06 WELDMNT		NO	17.344 1		
	03	OIL GUN REMOVABLE PART-J	1-41-350-00451			01-14 WELDMNT		NO	11.208 1		
	02	CONNECTING TUBE	2-41-350-00624			01-03 WELDMNT		NO	8.970 1		
	01	STATIONARY UNION ASSY.	2-41-350-00445			01-15 WELDMNT		NO	8.264 1		

- NOTES:**
- 01 ALL OIL GUNS MUST BE INTER CHANGEABLE IN ALL FIRING POSITIONS, WITH OUT EXCEEDING TOLERANCES.
  - 02 TIGHTEN CAP NUT BY USING BOX WRENCH AT SITE. TORQUE AROUND 35 Kg-M
  - 03 IF NECESSARY BREAK SHOP WELDS AT SITE TO MAINTAIN DIMENSIONS 18±1.5, KK AND THEN SEAL WELD.
  - 04 THE PERPENDICULARITY OF CONNECTING TUBE WITH STATIONARY UNION SHALL BE ENSURED AT SHOP AND AT SITE AFTER WELDING.
  - 05 KEEP THE TRAY ALWAYS IN POSITION EXCEPT DURING EMPTYING.
  - 06 TIGHTEN NOZZLE SLEEVE NUT USING TOOL. (RELEASED IN PGMA 41-390).
  - 07 CONNECTIONS ARE PROVIDED ON EITHER SIDE, PRESSURE WELD THE PLUGS OF THE UNUSED CONNECTIONS.
  - 08 USE SET UP TOOL OF DIMENSION B = KF + 44.5 WITH GASKET TO ADJUST ITEM No. 02 SO AS TO MAINTAIN DIMENSION KK. KK SHOULD MEASURE 6±3.
  - 09 TACK WELD AT SITE AFTER ENSURING THE GUN ENGAGEMENT.



REV	DATE	ALTERED :
01		CHD & APPD :

CUSTOMER NUMBER: 2622

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NATIONAL ALUMINIUM COMPANY LIMITED ; DAMANJODI UNDER PHASE-3 EXPANSION OF M&R COMPLEX 1X300 t/h ; 69.5 kg/cm (g); 487°C

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

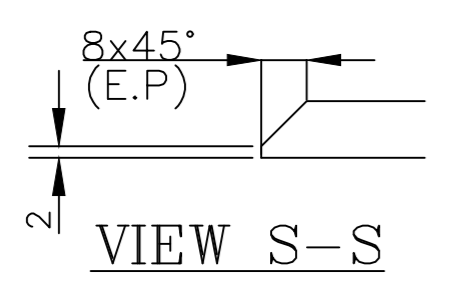
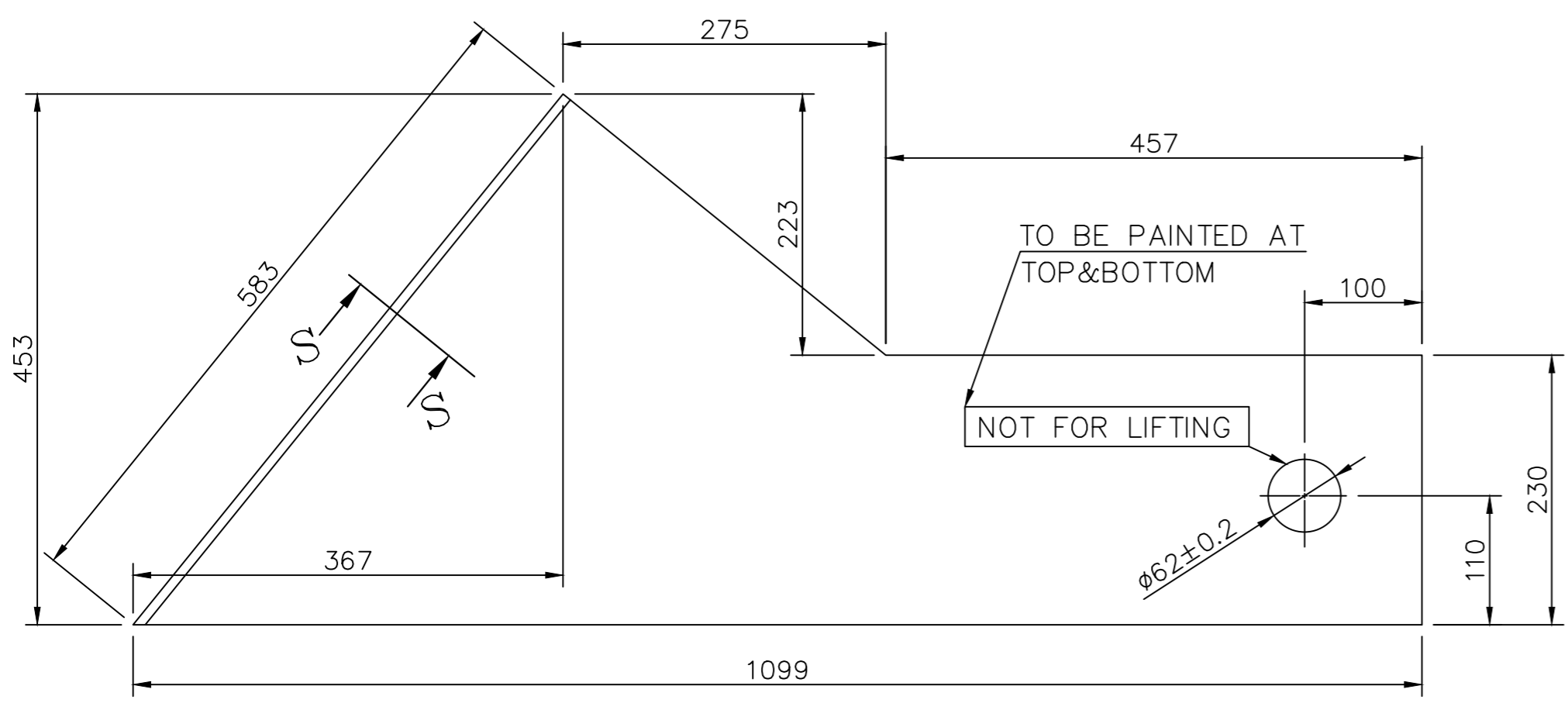
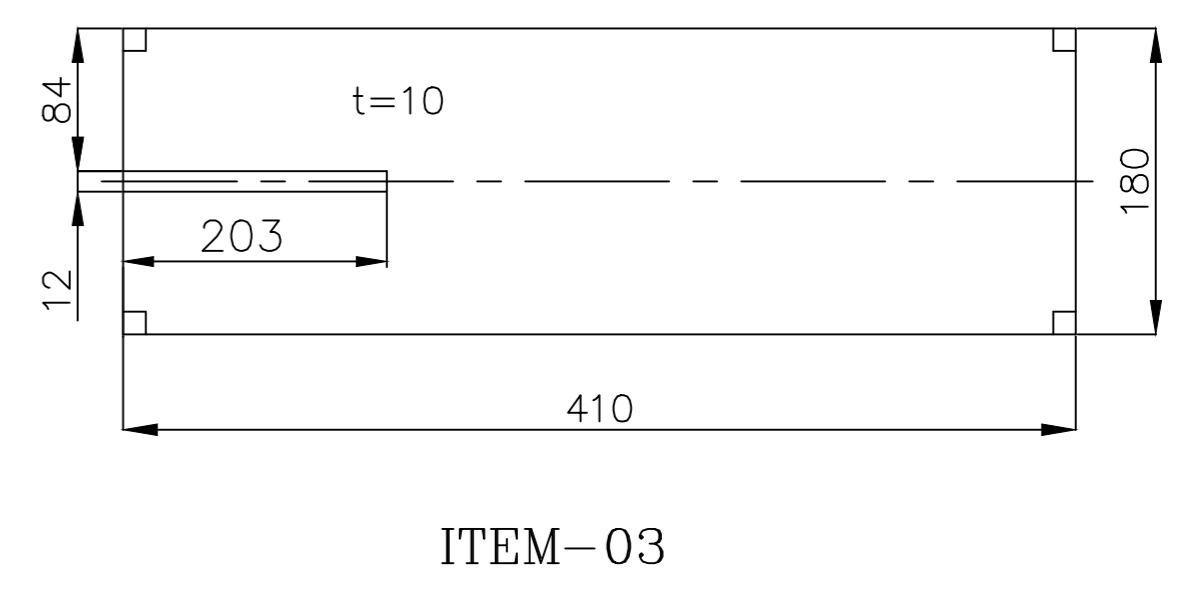
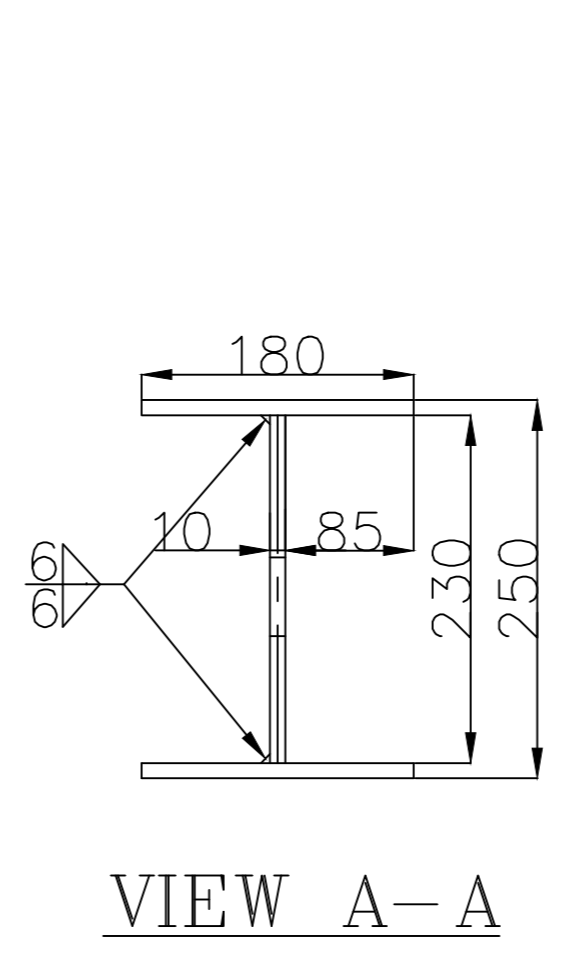
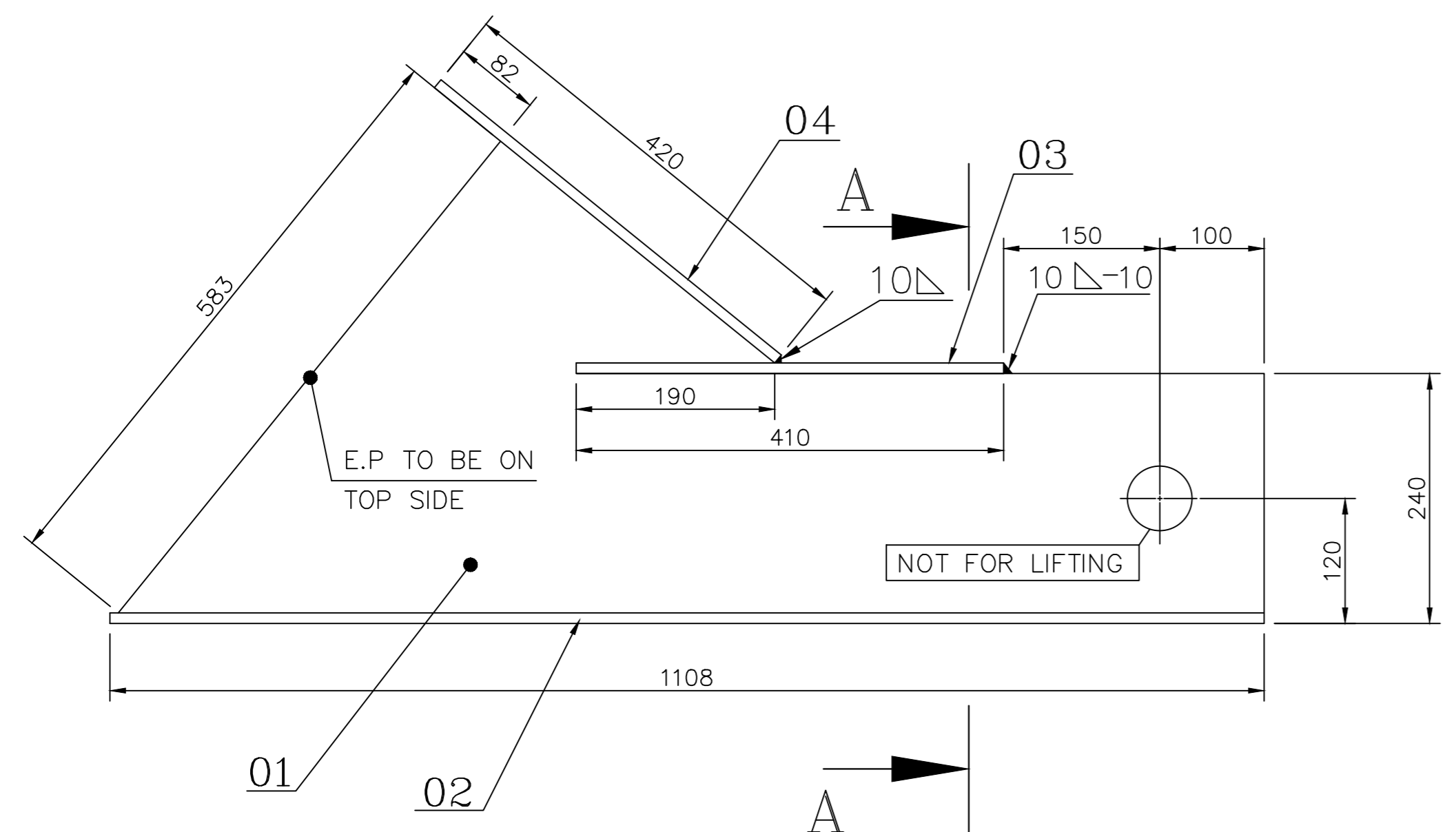
DRN	NAME	SIGNATURE	DATE
BIMAL CHOWDHURY	-SD-		11.08.2021
SAIRAM N	-SD-		11.08.2021
GANGADHAR MCHS	-SD-		11.08.2021

DEPT PE(B) ALL DIMENSIONS ARE IN MM PROJECTION SCALE WEIGHT (Kg) REF TO ASSY / OLD DWG

CODE 129 N.T.S 53.712

TITLE: OIL GUN ASSEMBLY (AIR COOLED, CROSS TUBE TYPE)

DRAWING NO : 2-41-350-00790 REV 00



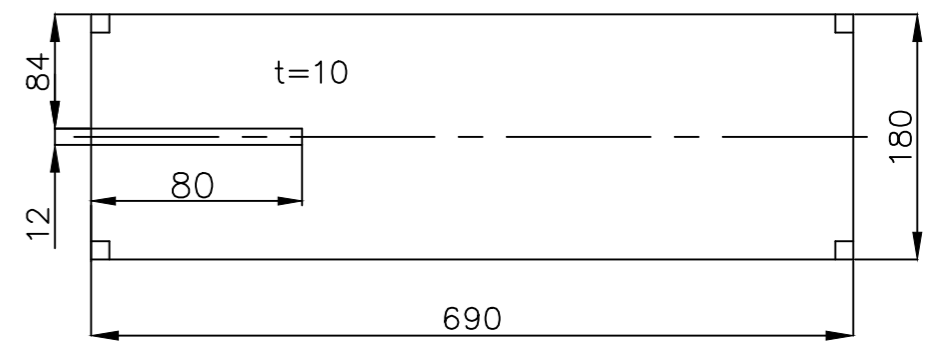
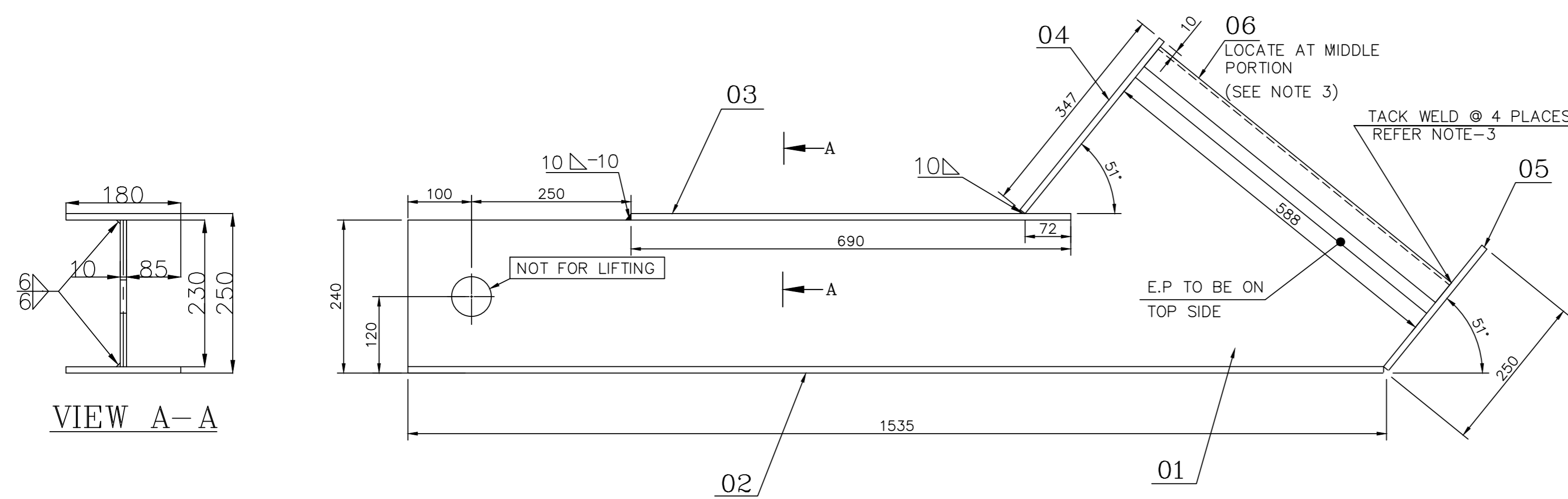
- NOTES: -**
1. USE E 7018 FOR ALL WELDS
  2. CUT EDGES TO BE FREE OF BURRS.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS	ZONE
VAR NO		MATERIAL SPECN					DI	QUANTITY			
	04	PL: 10X180X420				15 011 098			5.934		
						IS2062E250A		1			
	03	PL: 10X180X410				15 011 098			5.793		
						IS2062E250A		1			
	02	PL: 10X180X1108				15 011 098			15.656		
						IS2062E250A		1			
	01	PL: 10X453X1099				15 011 098			22.158		
						IS2062E250A		1			

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		NAME		SIGNATURE		DATE	
Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	N.Sairam	-SD-	20.09.2021		
		CHD	N.Sairam	-SD-	20.09.2021		
		APPD	Gangadhar MCHS	-SD-	20.09.2021		
DEPT CC	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE 129			N.T.S	49.541			
TITLE				DRAWING NO :		REV	
PLATE WELDMENT-I (FOR CORNERS 1&3)				2-45-181-02241		00	

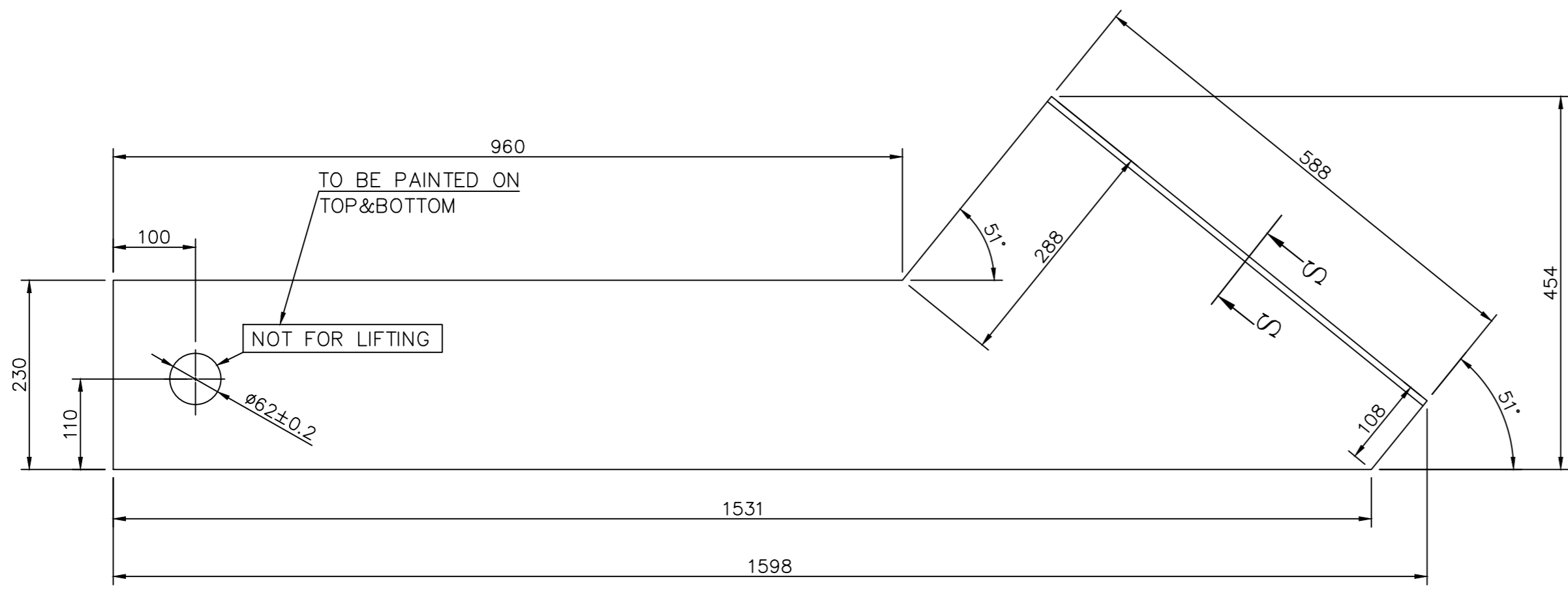


ITEM-03

VIEW A-A

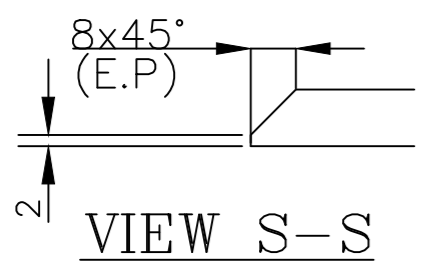
NOTES: -

1. USE E 7018 FOR ALL WELDS
2. CUT EDGES TO BE FREE OF BURRS.
3. ITEM-06 TO BE YELLOW PAINTED AND TACK WELDED TO ITEMS 04 AND 05



ITEM-01

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		
06	C 75X40; 588L				15 010 036				4.198		
					IS2062E250A				1		
05	PL: 10X180X250				15 011 098				3.532		
					IS2062E250A				1		
04	PL: 10X180X347				15 011 098				4.903		
					IS2062E250A				1		
03	PL: 10X180X690				15 011 098				9.749		
					IS2062E250A				1		
02	PL: 10X180X1535				15 011 098				21.689		
					IS2062E250A				1		
01	PL: 10X454X1598				15 011 098				31.611		
					IS2062E250A				1		



VIEW S-S

REV 01	DATE	ALTERED :
ZONE		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					
	Bharat Heavy Electricals Ltd		DRN N.Sairam	SIGNATURE	DATE 20.09.2021
	UNIT: HIGH PRESSURE BOILER PLANT		CHD N.Sairam		20.09.2021
	TIRUCHIRAPALLI - 620014		APPD Gangadhar MCHS		20.09.2021
DEPT CC	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 129			N.T.S	75.682	
TITLE				DRAWING NO :	
PLATE WELDMENT-II (FOR CORNERS 2&4)				2-45-181-02242	
				REV	00