

Bharat Heavy Electricals Limited

Heavy Plates & Vessels Plant

Visakhapatnam – 530 012

Andhra Pradesh, INDIA

PAN-AAACB4146P, GSTIN-37AAACB4146P7Z8



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INVITATION TO TENDER

Ref: OS/22-23/7906/Mach_Comp/19/019

Date: 22.02.2023

Sub: Fabrication & Machining of CS, LAS & SS components against S.O. No. 7906 at vendor's works

Dear Sir,

Sealed tenders are invited in two-part bid system from Vendors who are experienced in fabrication of similar jobs and fulfill the eligibility criteria specified below in clause-1. Scope of work and techno-commercial terms and conditions are as follows:

1. ELIGIBILITY CRITERIA:

- a) Bidders must have an experience in successful and satisfactorily execution of similar jobs in the past 7 Years as on 31.01.2023 (i.e. between 01.02.2016 to 31.01.2023). Bidders shall enclose Work Order, Work Completion Certificate and all other relevant documents (duly certified by the customer) in support of their experience in successful & satisfactory execution of similar jobs.
- b) Bidders shall also have to enclose the documents of Registration of Firm/ Factory License/ Certificate of Incorporation, PAN, GSTIN, Udyam Registration (if registered with MSME) etc.
- c) The works executed in own name of the individual / firm of the tenderer will only be considered for eligibility criteria.

2. VENDOR'S SCOPE OF WORK:

- a) Total Quantity of Fabrication & Machining of CS, LAS & SS components to be carried out by the vendors is **18 MT approx.** and the details of components to be fabricated are given in Annexure – II.
- b) Complete Fabrication & Machining of CS, LAS and SS Components as per annexure – II, which involves various operations like Marking, Cutting / Shearing, Profile / Shape Cutting, Bending / Rolling, Edge Preparation, Chamfering, Turning, Drilling / Punching, Boring, Assembly, Welding, Hydro-testing etc., as per the applicable Drawings, GMS, Shipping List, QAP and WPS etc.
- c) NDT like LPI, MPI, RT etc., wherever applicable, shall be carried out as per approved QAP.
- d) Surface Cleaning by Power Tool / Grit blasting and Painting of Components as per approved Painting Schedule.
- e) Collection of Raw materials from HPVP stores and transportation to Vendor's works, Transportation & handing over of finished items to HPVP Logistics dept.
- f) Free issue materials cleared by QC (Stores) are to be collected within 5 days from the date of intimation by Outsourcing dept. without any failure. Any delay beyond 5 days shall be considered for levy of LD.
- g) For cut to size Sheets/ Plates, welding of joints if any required due to issue of shorter dimensions of Sheets/ Plates is included in vendor's scope and no extra cost shall be payable for the same by BHEL.
- h) Hydro-testing of Glycerin Seal Pots, Fill pipes etc., as per relevant drawings.
- i) Any modification work due to revision of the drawings during fabrication is to be carried out by the vendor without any additional cost.
- j) Though not mentioned specifically, any activity which is required for completion of the work as per the drawings and QAP is deemed to be included in the scope of work of vendor. Any modification work due to revision of drawings during fabrication is to be carried out by the vendor without any extra cost.

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3. BHEL's SCOPE:

BHEL shall supply the following as free issue:

- a) Drawings, GMS, Shipping List, QAP, Painting Schedule etc.
- b) Plates and Sheets in full size / off-cuts, Rolled Sections, Pipes / Tubes, Rounds in Running Metres
- c) Paints and other items as per GMS

4. LOCATION OF WORK SPOT:

The fabrication work is to be carried out **at Vendor's works.**

5. INSPECTION:

- a) Inspection shall be carried out by M/s. BHEL-HPVP, Vizag / BHEL Authorized Inspection Agency / Customer as per approved QAP / Inspection procedure. 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.
- b) Fabrication Vendor shall be solely responsible for preparation and submission of all Inspection Reports & documents duly certified by Inspection Authority for with the finished items.
- c) All the documentation related to inspection clearance of M/s. BHEL / TPI / 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.

6. DELIVERY:

Finished items shall be delivered within **Four weeks** along with inspection documents / certificates.

The delivery period will be calculated from the date of issue of last consignment of materials to the date of delivery of finished items against respective DUs. The delivery period includes the time involved in collection of all raw materials, 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.

7. VALIDITY OF OFFER:

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

8. PRICE:

- a) The prices shall be quoted **strictly** as per the Schedule of Rates enclosed at Annexure – I for the detailed scope of work and the quoted price shall be inclusive of all applicable taxes & duties **except GST.**
- b) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- c) GST shall be reimbursable to the vendor as per applicable guidelines.
- d) Income tax will be deducted at applicable rates from RA & Final bills.

9. GOODS & SERVICES TAX (GST):

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

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

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

10. REVERSE AUCTION:

- a) BHEL shall be resorting to Reverse Auction (RA) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Business Rules for Reverse Auction are given at Annexure – V. Bidder may refer Guidelines for Reverse Auction available on our website, www.bhel.com → Supplier Registration → Guidelines for Reverse Auction 2021, before submission of their offer.
- b) 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.
- c) 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.
- d) Bidders are advised to read the 'Business Rules' (Annexure – V) indicating details of RA event carefully, before reverse auction event.

11. 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 as per BHEL's Standard Operating Procedure dtd. 10.10.2017 for Implementation of Risk & Cost Option on Non-performing and/or Defaulting Contractors/ Suppliers.

12. Other Terms & Conditions shall be as per Annexure –III enclosed.

13. GENERAL:

- a) 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 to 04:00 PM on any working day or through e-mail.
- b) **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 for evaluation.
- c) BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.
- d) The General Terms & Conditions, if any, contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.

14. The following documents shall form part of the tender enquiry:

- i) Schedule of Rates : Annexure - I
- ii) Details of Components to be fabricated & drawings : Annexure – II

- iii) General Terms & Conditions : Annexure – III
- iv) Acceptance to tender terms & conditions : Annexure – IV
- v) Business Rules for Reverse Auction : Annexure – V
- vi) GST Compliance for Indigenous Suppliers : Annexure – GST

15. TENDER SUBMISSION (through e-Mail only):

- a) 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 Sr. DGM (Outsourcing), BHEL-HPVP, Visakhapatnam shall be sent through an e-mail to the e-mail ID **technicalbid-hpvp@bhel.in**
- b) Price bid (Annexure-I) shall be sent separately through e-mail to another e-mail ID **pricebid-hpvp@bhel.in**
- c) 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 06.03.2023** duly mentioning the Name of Work, Tender Ref. No. & Date and Technical Bid / Price Bid in the subject of the e-mail.

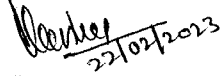
Note: Do not mark CC and BCC while submitting your offer as the system is designed to reject such mails having more than one recipient. Max. file size of the attachment shall be 20 MB only. In case the file size is more, bidder can submit their offer through multiple mails within the due date and time.

- d) 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
- e) **TENDERS RECEIVED AFTER THE DUE DATE & TIME ARE NOT ACCEPTABLE.**
- f) **OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.**

16. TENDER OPENING:

- a) Techno-commercial Bids will be opened **at 14.00 Hrs. on 06.03.2023**. The bidders may depute their representatives at the time of opening of Technical bids.
- b) After evaluation of the Techno-commercial Bids, intimation regarding date & procedure of conducting reverse auction shall be given by the service provider to all eligible techno-commercially qualified bidders through an e-mail in advance at an appropriate time.

For Bharat Heavy Electricals Limited,


22/02/2023
D. N. MURTHY
Dy. Manager (OS)
Bharat Heavy Electricals Ltd
HPVP, Visakhapatnam-530 012

SCHEDULE OF RATES

Ref : OS/22-23/7906/Mach_Comp/19/019

Date: 22.02.2023

Sub : Fabrication of CS, SS & LAS Machining components against S.O. No. 7906 at Vendor's works

SL. No.	Description of Item	Unit	Total Qty.	Unit Rate (Rs.)	Total Amount (Rs.)
	Fabrication of CS, SS & LAS components as detailed in Annexure-II, which involve major operations like Marking, Cutting/ Shearing, Profile / Shape cutting, Bending, Chamfering, Turning, Drilling / Punching, Boring / Turning, Machining, Threading, Assembly, Welding, Hydrotesting etc., as per applicable drawings & QAP and Blasting & Painting as per applicable Painting Schedule. (All consumables are in vendor's scope)				
1	Baffles & U-Clips	KG	8350		
2	Clamps, U-Rods, Saddle Plates, Stiffener Plates	KG	1200		
3	Bearing Plates, Suspension, Guide, Support & Cover Plates	KG	950		
4	Shields, Sealing Plates, Washer Plates, Tie Plates & Drip Pans	KG	1300		
5	Threaded Pieces	KG	350		
6	Lug Plates	KG	200		
7	Sleeves, Spacer Rings, Sockets, Collars, Hanger Assemblies	KG	4800		
8	Cap Assembly, Gauge Connectors, Sealpots, Fill Pipe	KG	200		
	TOTAL		17350		
Total Amount in words :					

Notes :

- 1) **L1 Status will be evaluated on the Total Quoted Value.**
- 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 – 8. 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 bidders are advised to go through all the drawings & documents before quoting the tender.
- 6) The evaluation currency for this tender shall be **INR**.
- 7) 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 Bidder with Stamp

DETAILS OF COMPONENTS TO BE FABRICATED & REFERENCE DRAWINGS

Sub : Fabrication of CS, SS & LAS Machining components against S.O. No. 7906 at vendor works

S.O. No.	PGMA	DU No.	DU DESCRIPTION	UNIT	QTY	WEIGHT	DRG. No.	DRG. REV.	SPECN.
1. Baffles & U-Clips									
7906	19903	001	CASSETTE BAFFLE	NO	74	1619.120	3-19-903-U8140	00	CORTEN
7906	19903	002	U-CLIP-I;SHEET 2.5	NO	320	20.160	4-19-903-U8353	00	CORTEN
7906	19903	003	CASSETTE BAFFLE	NO	74	1619.120	3-19-903-U8141	00	CORTEN
7906	19903	009	CASSETTE BAFFLE	NO	74	1615.420	3-19-903-U8140	00	SS
7906	19903	010	U-CLIP-II;SHEET 2.5	NO	320	20.160	4-19-903-U8356	00	SS
7906	19903	011	CASSETTE BAFFLE	NO	74	1615.420	3-19-903-U8141	00	SS
7906	19903	016	CASSETTE BAFFLE	NO	74	531.320	3-19-903-U8142	00	CS
7906	19903	017	U-CLIP-III;SHEET 2.5	NO	320	19.200	4-19-903-U8359	00	CS
7906	19903	018	CASSETTE BAFFLE	NO	74	531.320	3-19-903-U8143	00	CS
2. Clamps, U-Rods, Saddle Plates, Stiffener Plates etc.									
7906	19906	006	RISER CLAMP;PL.32THK	NO	2	56.600	3-19-906-U8162	00	CS
7906	19906	017	PIPE CLAMP;PL.16 THK	NO	2	14.400	3-19-906-U8164	00	CS
7906	19906	028	U-ROD-IROUND D25	NO	2	14.600	4-19-906-U8406	00	CS
7906	19906	036	PIPE CLAMP-II (D273)PLATE 16	NO	10	72.000	3-19-906-U8167	00	CS
7906	19906	057	U ROD-IIROUND D25	NO	2	14.740	4-19-906-U8411	00	CS
7906	19906	060	U ROD-IIROUND D25	NO	2	73.320	4-19-906-U8412	00	CS
7906	19906	068	PIPE CLAMP-I (D273)PL. 16	NO	10	72.000	3-19-906-U8167	00	CS
7906	19906	094	U ROD-IIROUND D25	NO	4	29.480	4-19-906-U8411	00	CS
7906	19906	105	U ROD-IVROUND D32	NO	1	15.300	4-19-906-U8435	00	CS
7906	19906	113	PIPE CLAMP-I (D273)PL.16THK	NO	4	28.800	3-19-906-U8167	00	CS
7906	19906	129	U-ROD-IIROUND D25	NO	2	14.740	4-19-906-U8411	00	CS
7906	24101	044	6" PIPE CLAMP ASSY (AS)	NO	1	10.935	2-24-346-00918	00	LAS
7906	24101	027	SUPPORT PLATE NB 200	NO	5	27.490	4-24-101-U0354	00	CS
7906	24120	044	PL 5X500X500(FOR SLEEVE)	NO	5	49.065	0-24-120-U0044	00	CS
7906	24120	072	PLATE 10.0 MM -IS2062E250A(FE410W)	NO	1	1.554	1-24-120-U0038	00	CS
7906	47161	041	SADDLE PL 12X80X746	NO	18	101.196	1-47-161-02366	00	CS
7906	47161	043	SADDLE PL 12X80X408	NO	14	43.050	1-47-161-02366	00	CS
7906	47161	044	SADDLE PL 12X80X1008	NO	6	45.576	1-47-161-02366	00	CS
7906	47161	060	SADDLE PL20X1628X100	NO	6	153.354	1-47-161-02367	00	CS
7906	47161	061	SADDLE PL20X1028X100	NO	2	32.278	1-47-161-02367	00	CS
7906	47161	025	STIFFENER PLATE PL 10X60X240	NO	28	32.984	4-47-121-00697	02	CS
7906	47161	040	PL 12X12X100	NO	38	43.662	1-47-161-02366	00	CS
7906	47161	049	ANGLE 100X100X10 - ASME SA/IS2062E250A	NO	20	29.800	1-47-161-02366	00	CS
7906	47161	064	ANGLE 100X100X10 - ASME SA/IS2062E250A	NO	8	11.920	1-47-161-02367	00	CS
7906	47161	077	PLATE 10 MM-IS2062E250A	NO	160	64.000	3-47-161-01951	00	CS
3. Bearing Plates, Suspension, Guide, Support & Cover Plates									
7906	19903	005	BEARING PLATE-I;PLATE 6	NO	60	72.000	4-19-903-U8354	00	LAS
7906	19903	013	BEARING PLATE-II;PLATE 6	NO	60	72.000	4-19-903-U8357	00	SS
7906	19903	020	BEARING PLATE-III;PLATE 6	NO	30	36.000	4-19-903-U8361	00	CS
7906	24101	017	SUSPENSION PLATE 1.5"	NO	40	4.520	4-24-201-03560	02	CS
7906	24101	018	SUSPENSION PLATE 2"	NO	1	0.141	4-24-201-03560	02	CS
7906	24101	020	GUIDE PLATE 1.5" (CS)	NO	75	124.500	4-24-101-U0348	00	CS
7906	24101	022	GUIDE PLATE 1" (CS)	NO	18	31.788	4-24-101-U0349	00	CS
7906	24101	024	GUIDE PLATE 1" (AS)	NO	58	102.428	4-24-101-U0350	00	LAS
7906	24101	026	GUIDE PLATE 2" (CS)	NO	40	63.000	4-24-101-U0353	00	CS
7906	24101	013	CS PIPE GUIDE INSLN& SUPPORT PL OD 60.3	NO	4	6.368	4-24-101-U0345	00	CS
7906	24101	016	AS PIPE GUIDE INSLN& SUPPORT PL OD 60.3	NO	16	25.472	3-24-401-82590	00	LAS
7906	24101	019	SUPPORT PLATE 1.5" (CS)	NO	50	89.700	4-24-101-U0346	00	CS
7906	24101	021	SUPPORT PLATE 1" (CS)	NO	10	18.920	4-24-101-U0347	00	CS
7906	24101	023	SUPPORT PLATE 1" (AS)	NO	26	49.192	4-24-101-U0350	00	LAS
7906	24101	025	SUPPORT PLATE 2" (CS)	NO	20	34.280	4-24-101-U0352	00	CS
7906	24120	040	COVER PL. FOR DRIP PAN AT SV1,SV2 (DRUM)	NO	2	23.746	4-24-120-U0320	00	CS
7906	24120	041	COVER PLATE FOR DRIP PAN AT SV3 (DRUM)	NO	1	11.873	4-24-120-U0320	00	CS
7906	24120	042	COVER PLATE FOR DRIP PAN AT SV4 (SH)	NO	1	14.130	4-24-120-U0320	00	CS
7906	24120	043	COVER PLATE FOR DRIP PAN AT SV5 (ERV)	NO	1	13.204	4-24-120-U0320	00	CS

S.O. No.	PGMA	DU No.	DU DESCRIPTION	UNIT	QTY	WEIGHT	DRG. No.	DRG. REV.	SPECN.
7906	24120	049	GUIDE PLATE (SV-1 &SV-2)	NO	8	22.296	4-24-320-02402	00	CS
7906	24120	050	GUIDE PLATE (SV-3 &SV-4)	NO	8	19.624	4-24-320-02402	00	CS
7906	24120	051	GUIDE PLATE (SV-5)	NO	4	13.108	4-24-320-02402	00	CS
7906	24120	063	COVER PLATE 5 MM	NO	2	3.140	4-24-120-U0321	00	CS
4. Shields, Sealing Plates, Washer Plates, Tie Plates & Drip Pans									
7906	19903	025	SHIELD-II;SH. 3.15	NO	160	153.600	4-19-903-U8376	00	CS
7906	19903	029	SHIELD-IV;SH. 3.15	NO	310	297.600	4-19-903-U8379	00	CORTEN
7906	19903	033	SHIELD-VI;SH. 2.5	NO	310	241.800	4-19-903-U8382	00	SS
7906	19903	036	SEALING PLATE-1; PL.5	NO	2	52.400	3-19-903-U8157	00	CS
7906	19903	037	SEALING PLATE-2; PL.5	NO	2	31.560	3-19-903-U8158	00	CS
7906	19903	041	SEALING PLATE-3;PL.5	NO	2	52.400	3-19-903-U8159	00	LAS
7906	19903	042	SEALING PLATE-4;PL.5	NO	2	31.560	3-19-903-U8160	00	LAS
7906	19903	046	SEALING PLATE-3;PL.5	NO	2	52.400	3-19-903-U8159	00	LAS
7906	19903	047	SEALING PLATE-4;PL.5	NO	2	31.560	3-19-903-U8160	00	LAS
7906	19906	049	WASHER PL.-IPL.20	NO	2	6.940	4-19-906-U8409	00	CS
7906	19906	083	WASHER PLT.-II	NO	2	7.000	4-19-906-U8426	00	CS
7906	19906	088	WASHER PLT.-I	NO	1	3.470	4-19-906-U8409	00	CS
7906	24120	036	DRIP PAN FOR SV1,SV2 (DRUM)	NO	2	25.912	3-24-120-U0092	00	CS
7906	24120	037	DRIP PAN FOR SV3 (DRUM)	NO	1	13.825	3-24-120-U0092	00	CS
7906	24120	038	DRIP PAN FOR SV4 (SH)	NO	1	15.284	3-24-120-U0092	00	CS
7906	24120	039	DRIP PAN FOR SV5 (ERV)	NO	1	19.169	3-24-120-U0092	00	CS
7906	47161	023	TIE PLATE; PLATE 12X200X157	NO	24	63.792	4-47-161-02071	00	CS
7906	47161	024	TIE PLATE; PLATE 12X200X182	NO	16	49.632	4-47-161-02071	00	CS
5. Threaded Pieces									
7906	18001	039	CABLE OPENING TUBETUBE D47.63X4THK.	NO	4	3.280	4-18-001-U8049	00	SS
7906	47161	003	THREADED PIECE M20 LH	NO	18	16.884	3-47-001-00648	00	CS
7906	47161	005	THREADED PIECE M20 RH	NO	18	16.884	3-47-001-00648	00	CS
7906	47161	009	THREADED PIECE CLH M30X3.5	NO	9	24.048	3-47-001-01262	01	CS
7906	47161	011	THREADED PIECE M36X3L LH	NO	9	28.251	3-47-001-00648	00	CS
7906	47161	036	THREADED PIECE M20 RH	NO	38	35.644	3-47-001-00648	00	CS
7906	47161	038	THREADED PIECE M20 LH	NO	38	35.644	3-47-001-00648	00	CS
7906	47161	053	THREADED PIECE M27 RH	NO	8	14.928	3-47-001-00648	00	CS
7906	47161	055	THREADED PIECE M27 LH	NO	8	14.928	3-47-001-00648	00	CS
7906	47161	072	THREADED PIECE M27L RH	NO	12	22.392	3-47-001-00648	00	CS
7906	47161	073	THREADED PIECE M27L LH	NO	12	22.392	3-47-001-00648	00	CS
7906	47161	076	THREADED PIECE ROD M27LH	NO	24	43.608	3-47-001-01952	00	CS
7906	47163	008	THREADED PIECE	NO	35	21.000	4-47-601-00022	02	CS
7906	47163	010	THREADED PIECE	NO	35	0.350	4-47-401-00018	03	CS
6. Lug Plates									
7906	19906	003	LUG;PL.12THK.	NO	8	5.816	4-19-906-U8396	00	CS
7906	19906	015	LUG PLATEPL.8	NO	2	0.560	4-19-902-U8075	00	CS
7906	19906	033	LUG PL.(VLH-SH-09)PLATE 12	NO	14	10.178	4-19-906-U8396	00	CS
7906	19906	065	LUG PL. (VLH-SH-05)PL.6	NO	12	1.860	4-19-906-U8421	00	CS
7906	19906	077	LUG PL. (VLH-SH-09)PL.12	NO	12	8.724	4-19-906-U8396	00	CS
7906	19906	110	LUG PL. (VLH-SH-10)	NO	2	3.120	4-12-936-U8278	00	CS
7906	19906	122	LUG PL. (VLH-SH-11)PL.20THK	NO	2	5.400	4-19-906-U8439	00	CS
7906	19906	125	LUG PL. (VLH-SH-09)PL.12THK	NO	2	1.454	4-19-906-U8396	00	CS
7906	19906	132	LUG PL. (VLH-SH-07)PL.8THK	NO	2	0.560	4-19-906-U8075	00	CS
7906	24101	040	LUG PLATE FOR VLH	NO	4	2.616	4-24-101-U0340	00	CS
7906	24101	047	LUG PLATE FOR VLH 12 THK. X 85 X 100	NO	2	1.602	4-24-101-U0322	00	CS
7906	24101	050	LUG PLATE 10X55X200	NO	4	3.452	4-24-420-86646	00	LAS
7906	24120	071	PLATE 10.0 MM -IS2062E250A(FE410W)	NO	40	43.960	4-24-120-U0308	00	CS
7906	48385	001	LUG ASSEMBLY	NO	4	72.076	3-48-385-U0417	00	CS
7. Sleeves, Spacer Rings, Sockets, Collars, Hanger Assemblies etc.									
7906	19903	006	SLEEVE-I;PLATE 6	NO	120	81.600	4-19-903-U8355	00	LAS
7906	19903	014	SLEEVE-II;PLATE 6	NO	120	84.000	4-19-903-U8358	00	SS
7906	19903	021	SLEEVE-III;PLATE 6	NO	60	40.800	4-19-903-U8360	00	CS
7906	19906	009	SPACER RING D32/ID18	NO	8	1.040	4-19-906-U8399	00	CS
7906	19906	018	SPACER RING-IIOD32/ID22	NO	1	0.090	4-19-906-U8403	00	CS
7906	19906	037	SPACER RING-IIOD32/ID22 RIUND D32	NO	5	0.450	4-19-906-U8403	00	CS
7906	19906	069	SPACER RING-IIOD32/ID22 ROUND D32	NO	5	0.450	4-19-906-U8403	00	CS
7906	19906	114	SPACER RING-IIOD32/ID22: ROUND D32	NO	2	0.180	4-19-906-U8403	00	CS

S.O. No.	PGMA	DU No.	DU DESCRIPTION	UNIT	QTY	WEIGHT	DRG. No.	DRG. REV.	SPECN.
7906	24101	012	SUPPORT PLATE FOR PIPE SADDLE 2"	NO	5	7.805	7740-4330	08	CS
7906	24120	023	1/2" SOCKET FOR SVDRAIN (CS) DIA 50 M	NO	3	3.696	4-24-120-U0316	00	CS
7906	24120	024	1/2" SOCKET FOR SV DRAIN (AS) DIA 50 MM	NO	1	1.232	4-24-120-U0317	00	LAS
7906	24120	025	1/8" SOCKET FOR SVDRAIN (AS) DIA 50 M	NO	2	2.464	4-24-120-U0318	00	LAS
7906	24120	026	1.5" SOCKET FOR SV VENT (CS) DIA 63 MM	NO	3	7.350	4-24-000-04016	00	CS
7906	24120	027	1.5" SOCKET FOR SV VENT (AS) DIA 63 MM	NO	1	2.447	4-24-120-U0315	00	LAS
7906	24120	028	1/2" SOCKET FOR SVVENT (AS) DIA 50 MM	NO	1	0.924	4-24-120-U0319	00	LAS
7906	24120	070	1/2" DRAIN SOCKET(CS)ROUND D50; L=80	NO	2	2.464	4-24-420-80500	00	CS
7906	47161	001	CLH SUPPORT PLATE PL12X150X100	NO	18	23.292	4-47-001-01872	02	CS
7906	47161	012	SPHERICAL ROCKER RODD=125; L= 54	NO	9	18.972	4-47-221-01554	02	CS
7906	47163	003	PIPE COLLER PL.20X60X1337	NO	95	788.500	2-47-914-00001	14	CS
7906	47163	006	SPLIT COLLAR	NO	16	296.000	3-47-163-01205	02	CS
7906	19906	135	ANCHOR PIPE	NO	1	74.250	3-19-906-U8181	00	CS
7906	48145	045	HANGER ASSEMBLY-3	NO	1	28.387	3-48-145-U0642	00	CS
7906	48385	003	HANGER ASSEMBLY-1	NO	4	2863.552	2-48-385-U0205	00	CS
8. Cap Assembly, Gauge Connectors, Sealpots etc.									
7906	18001	037	CAP ASSEMBLY	NO	12	11.772	3-18-001-U8072	00	CS
7906	42005	001	GAUGE CONNECTOR I	NO	46	13.340	3-42-030-00849	03	CS
7906	42005	002	GAUGE CONNECTOR I	NO	60	21.000	3-42-030-00849	03	CS
7906	42005	006	GLYCERIN SEALPOT-A	NO	20	33.720	3-42-000-00831	02	CS
7906	42005	007	GLYCERIN SEALPOT-B	NO	20	30.820	3-42-000-00832	02	CS
7906	42005	008	CONDENSING LOOP M20X1.5	NO	25	34.000	2-42-000-00352	02	CS
7906	42005	011	FILL/VENT/DRAIN PLUG	NO	40	18.600	3-42-005-01180	02	CS
7906	42005	012	FILL PIPE	NO	20	5.320	3-42-005-01181	01	CS

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 (Value of materials shall be as per BHEL calculation) in case of Vendor works towards Security Deposit and safe custody of free issue materials within 15 days from the date of intimation by Outsourcing dept. The BG shall be valid for the contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL / Owner

Bidder agrees to submit performance security required for execution of the contract within the time period mentioned above. In case of delay in submission of performance security, enhanced performance security which would include interest (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 (claim period of 12 months) for 10% of the order value covering for the defect 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 defect 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 for MSE (Micro & Small Enterprise), 60 days for Medium Enterprise and 90 days for non-MSEs from the date of submission of Bill.

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

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

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

19. SECRECY:

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

20. SUB-LETTING:

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

21. FACTORY RULES AND REGULATIONS:

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

22. SAFETY:

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

23. HOUSE KEEPING:

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

24. ACCIDENT / DAMAGE / CONDUCT ETC.:

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

25. TERMINATION OF CONTRACT:

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

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

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

26. CONFLICT OF INTEREST AMONG BIDDERS / AGENTS:

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

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

27. 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.

- 28.** 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.

- 29.** 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 the 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/Mach_Comp/19/019, dated 22.02.2023**. BHEL shall finalize the Rates for **“Fabrication & Machining of CS, LAS & SS components against S.O. No. 7906 at vendor’s works”** 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/Mach_Comp/19/019, dated 22.02.2023**, (b) Bidders’ technical & commercial bid (in case of two-part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

1. Procedure of Reverse Auctioning:

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

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

The above process will continue till completion of Reverse Auction.

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

4. Bid price: The Bidder has to quote the {.....} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document including loading (if indicated by BHEL due to deviations in technical/ commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).**5. Bidding currency and unit of measurement:** Bidding will be conducted in **Indian Rupees per Unit** of the material as per the specifications mentioned in the tender.

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

6. **Validity of bids:** Price shall be valid for **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).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/22-23/7906/Mach_Comp/19/019, dated 22.02.2023**. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
 - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
 - b. Bid Placed by the bidder
 - c. Start Price
 - d. Decrement value
 - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines for suspension of business dealings (as available on www.bhel.com)*, shall be initiated by BHEL.

Signature of the Bidder with Stamp

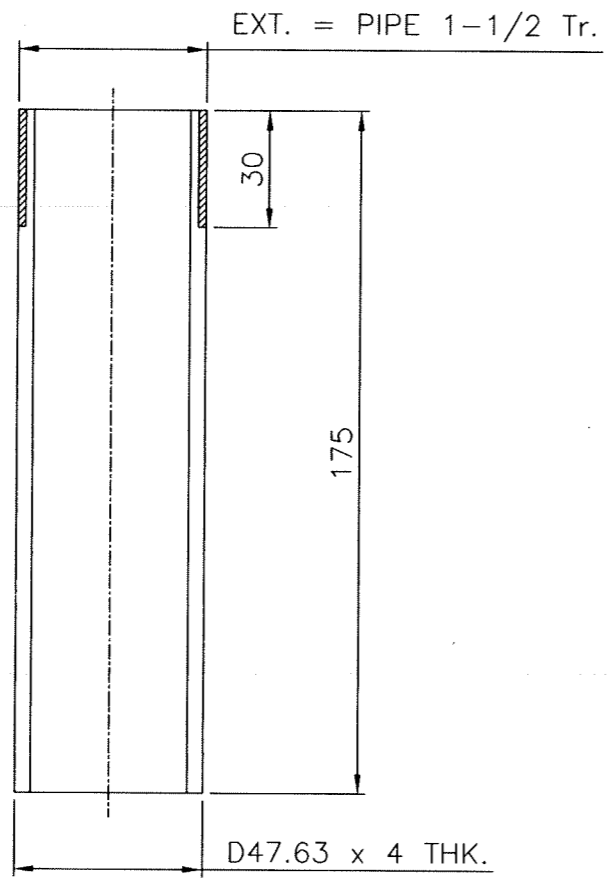
GST COMPLIANCE FOR INDIGENOUS SUPPLIERS

1. In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GSTIN which should be clearly mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
2. Supplier shall mention their GSTIN in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTIN 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 GSTIN 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 GSTIN 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 GSTIN portal or issue credit note (details to be uploaded in GSTIN 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 GSTIN 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 GSTIN 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

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.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
		TUBE D47.63 x 4 THK. L=175 LG.		15 452 130 0001 SA 213 TP 347 H	C		0.820
				MATERIAL SPECN	DI		QUANTITY

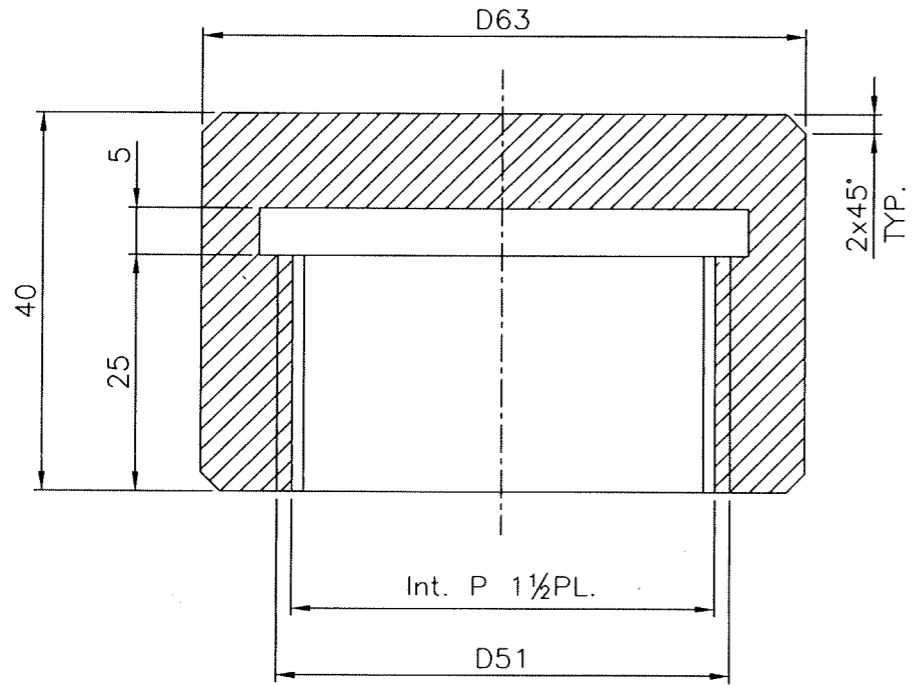
REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

FORM NO. 0420/2

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN T S S RAO	NAME T S S RAO	SIGNATURE 	DATE 26.05.22
DEPT PP ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N T S	WEIGHT (Kg) 0.820	REF TO ASSY / OLD DWG		
CODE 031					APPD A N V K K		DATE 26.05.22
TITLE CABLE OPENING TUBE				DRAWING NO : 4-18-001-U8049		REV 00	

A4 SIZE

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VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
		D63 ; L=40 LG.			15 039 143 0000		C	0.950
					SA 105			
					MATERIAL SPECN		DI	QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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	Bharat Heavy Electricals Ltd		NAME	SIGNATURE	DATE
	UNIT: HEAVY PLATES & VESSELS PLANT		DRN	T S S RAO	26.05.22
	VISAKHAPATNAM-530012		CHD	S M G NAIDU	26.05.22
			APPD	A N V K K	26.05.22

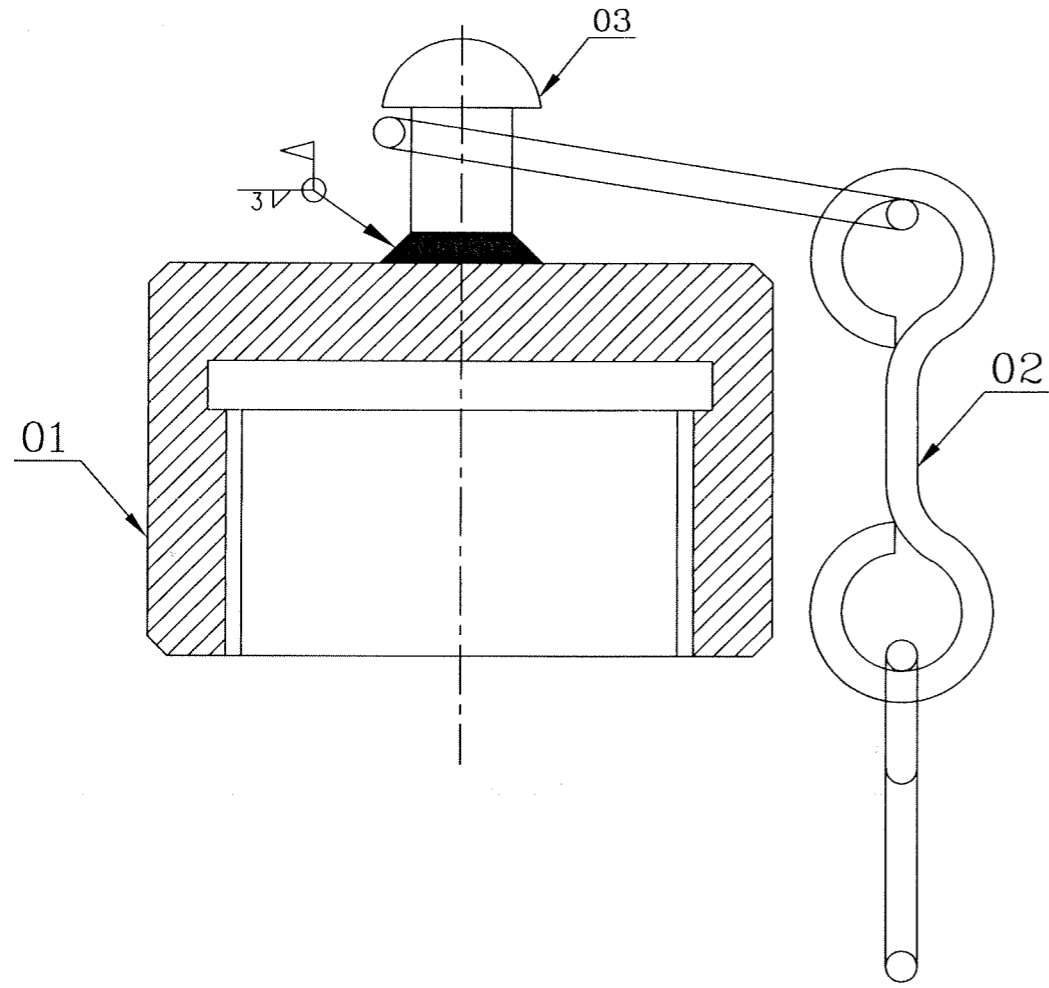
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PP ENGG	031		N T S	0.950	

TITLE	DRAWING NO :	REV
CABLE PIPE CAP	4-18-001-U8051	00

FORM NO. 0420/2

A4 SIZE

DRAWING NO: 3-18-001-U8072



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
								DI	QUANTITY
	03	SNAP HEAD RIVET 10 x 10		----		41 801 100 1000			0.010
	02	CABLE PIPE CAP CHAIN		3-18-001-U8073		(WELDMNT)			0.021
	01	CABLE PIPE CAP		4-18-001-U8051		15 039 143 0000 SA 105	C		0.950

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

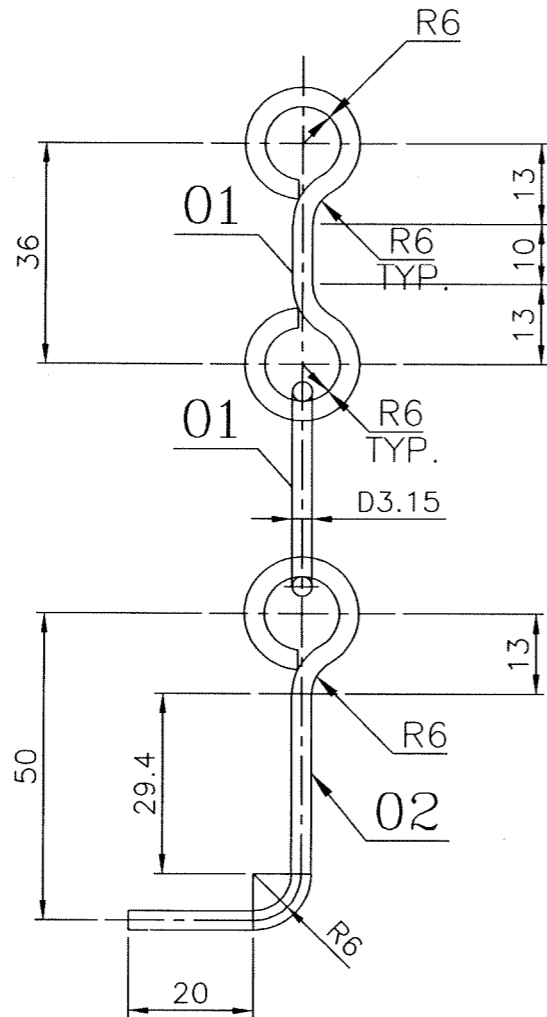
TYPE OF PRODUCT OR NAME OF S.O. 7906 ; PROJECT : NALCO-DAMANJODI

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.	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRW T S S RAO	SIGNATURE	DATE 30.05.22	
	DEPT PP ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 0.980	REF TO ASSY / OLD DWG
	CODE 031	TITLE CAP ASSEMBLY		DRAWING NO : 3-18-001-U8072	REV 00	

FORM NO. 0421/2

3-18-001-U8073

DRAWING NO:



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN		Di	QUANTITY
	02	WIRE D3.15 L=118 LG.				15 036 011 0000 AISI 304		C	0.007 1
	01	WIRE D3.15 L=122 LG.				15 036 011 0000 AISI 304		C	0.007 2

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

TYPE OF PRODUCT OR NAME OF S.O. 7906 ; PROJECT : NALCO-DAMANJODI

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

	NAME	SIGNATURE	DATE
DRN	T S S RAO		30.05.22
CHD	S M G NAIDU		30.05.22
APPD	A N V K K		30.05.22

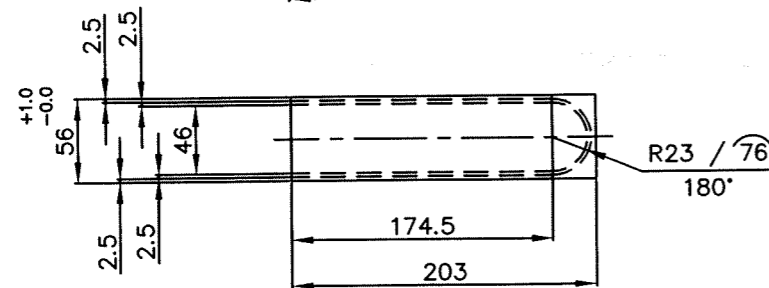
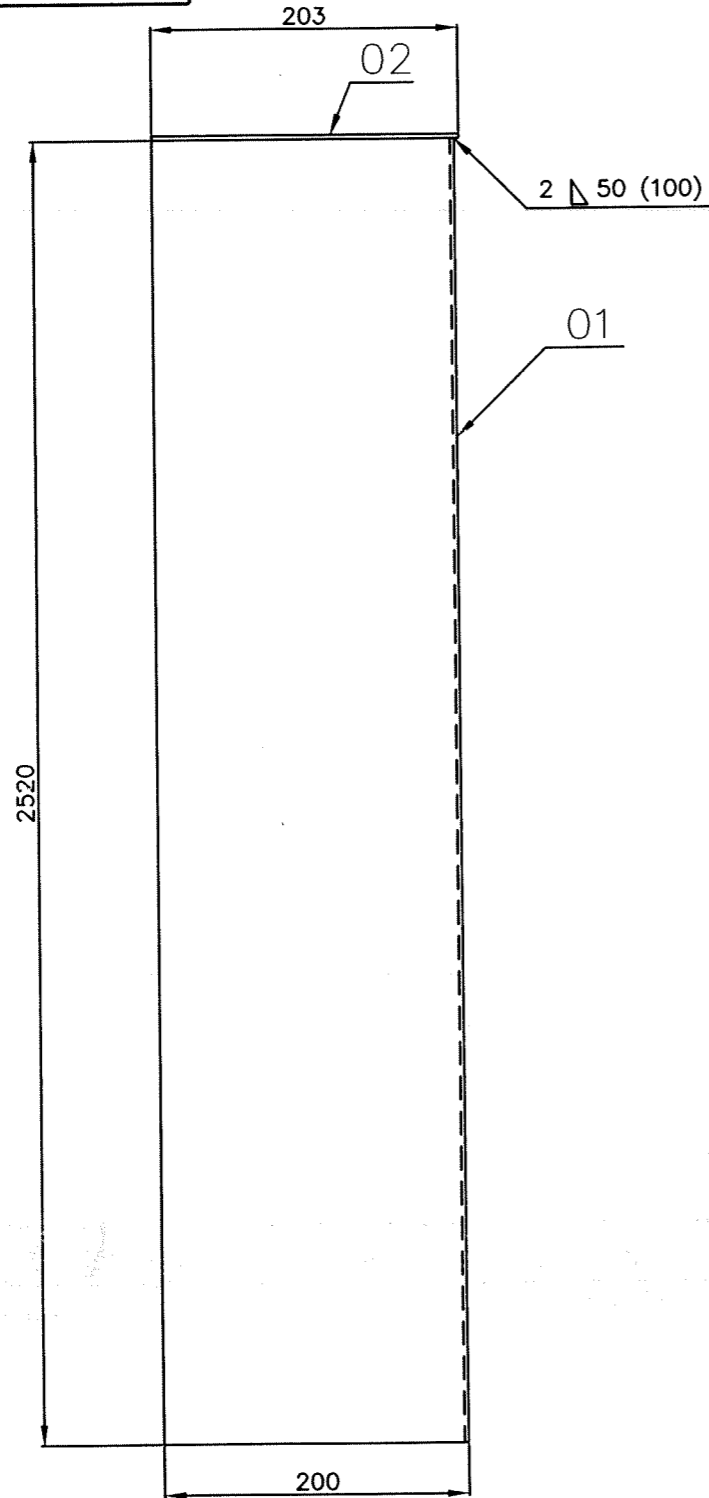
DEPT PP ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 031			N.T.S	0.021	

TITLE	DRAWING NO :	REV
CABLE PIPE CAP CHAIN	3-18-001-U8073	00

FORM NO. 0421/2

DRAWING NO: 3-19-903-U8140

1. SHOP OPTIONAL WELD OF 2 ⌈ SHALL BE MADE TO BUILT LENGTH OF BAFFLE.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT WEIGHT	QTY
					VAR NO	MATERIAL SPECN	DI	QUANTITY	
02	02	SHEET 2.5 x 56 x 203				15 011 485 SA 240 TY 430	C	0.230	1
02	01	SHEET 2.5 x 425 x 2520				15 011 485 SA 240 TY 430	C	21.600	1
01	02	SHEET 3.15 x 56 x 203				15 942 100 A 588 GR A	C	0.280	1
01	01	SHEET 2.5 x 425 x 2520				15 942 099 A 588 GR A	C	21.600	1

DEPT PP ENGG CODE 031		ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) ---	NAME A.SRINIVASA RAO	SIGNATURE	DATE 15.02.22
						CHD A.N.V.K.KISHORE		DATE 15.02.22
						APPD A.N.V.K.KISHORE		DATE 15.02.22
REF TO ASSY / OLD DWG ---						DRAWING NO : 3-19-903-U8140		REV 00

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

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

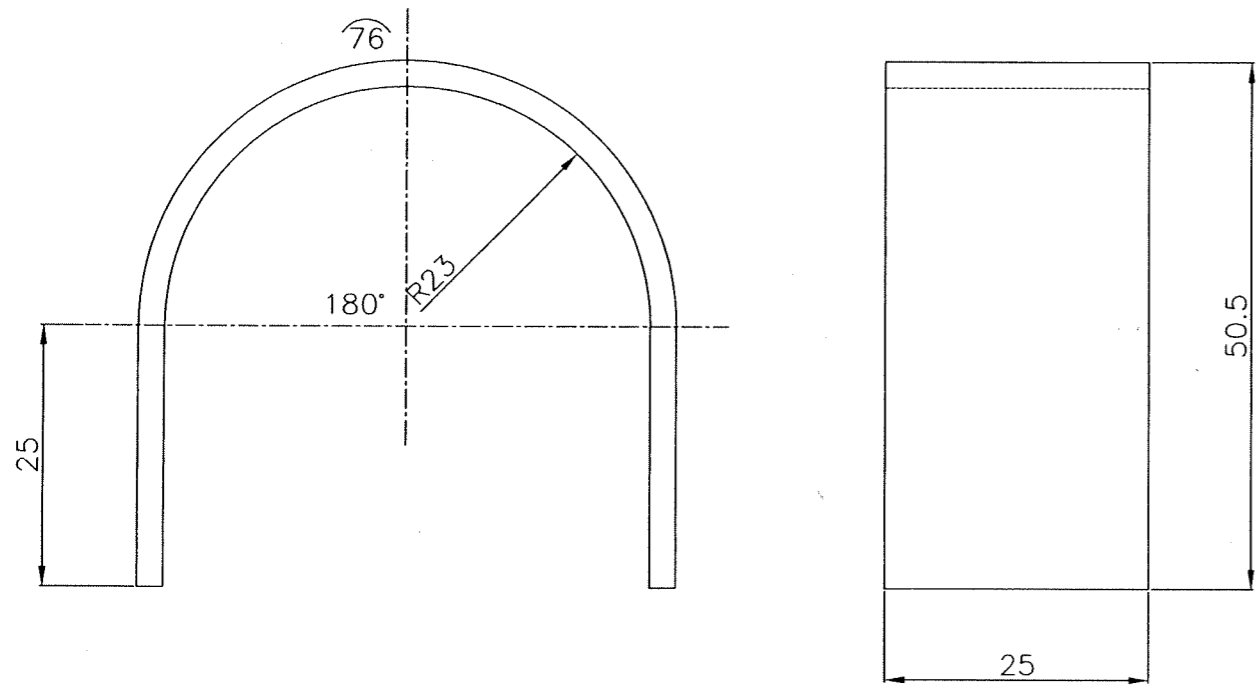
Bharat Heavy Electricals Ltd
 UNIT: HEAVY PLATES & VESSELS PLANT
 VISAKHAPATNAM-530012

TITLE
CASSETTE BAFFLE

FORM NO. 0421/2

A3 SIZE

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OUT

VARIANT NUMBER	2.5 x 25 x 126	STD	DRAWING NUMBER	159420990000	C	UNIT WEIGHT	0.063
				ASTM A588 GR.A	A/C/P	QUANTITY	
				MATERIAL CODE			
				MATERIAL SPECN			

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

	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	A.SRINIVAS RAO	SIGNATURE	DATE	21.02.2022
	CHD	A.N.V.K.KISHORE				21.02.2022	
	APPD	A.N.V.K.KISHORE				21.02.2022	

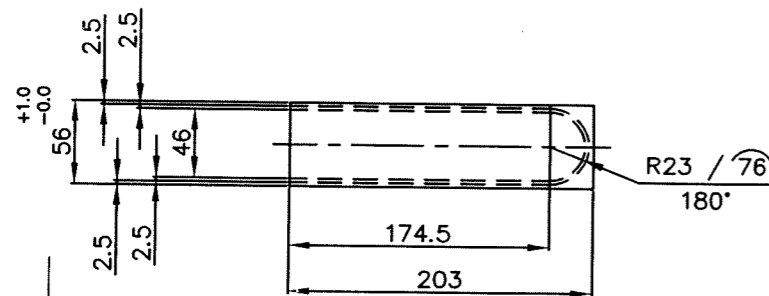
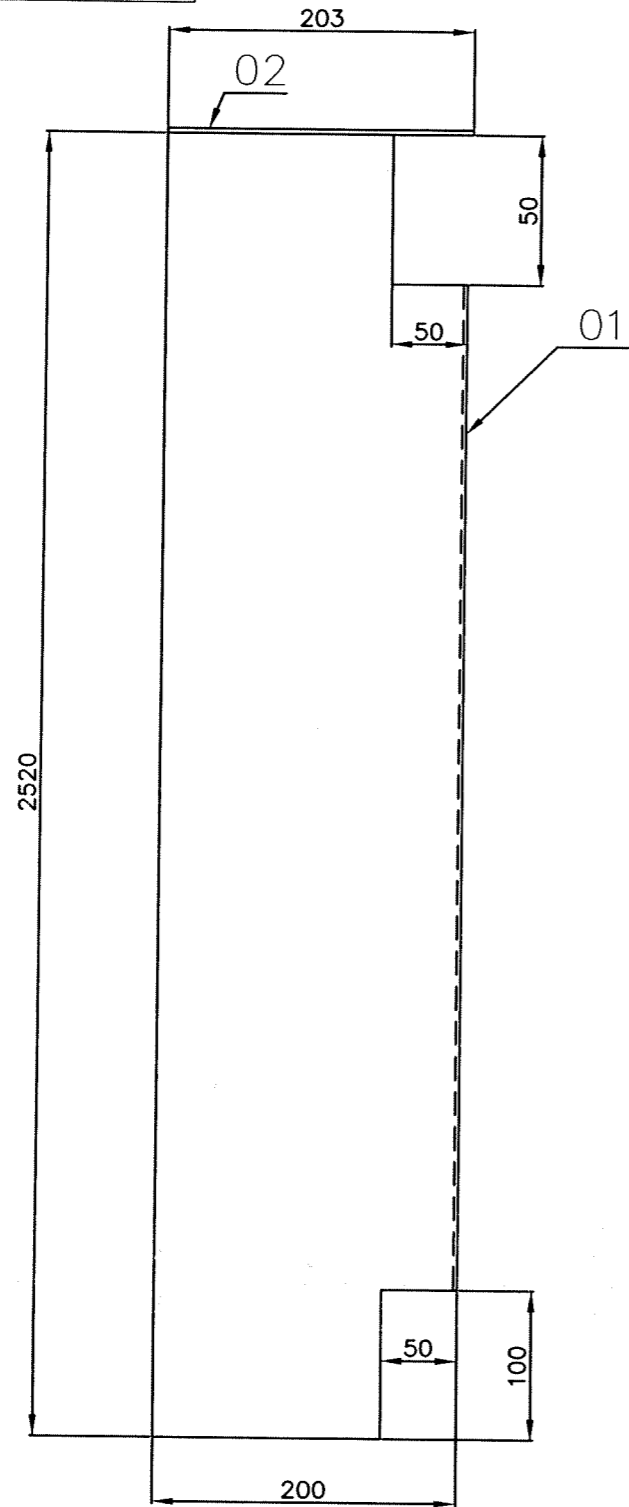
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	0.063	

TITLE	DRAWING NO :	REV
U-CLIP-I	4-19-903-U8353	00

FORM NO. 0420/2

A4 SIZE

DRAWING NO: 3-19-903-U8141



1. SHOP OPTIONAL WELD OF 2 $\bar{\Pi}$ SHALL BE MADE TO BUILT LENGTH OF BAFFLE.

VARIENT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT WEIGHT	QTY
					VAR NO	MATERIAL SPECN	D1	QUANTITY	
02	02	SHEET 2.5 x 56 x 203				15 011 485 SA 240 TY 430	C	0.230	1
02	01	SHEET 2.5 x 425 x 2520				15 011 485 SA 240 TY 430	C	21.600	1
01	02	SHEET 3.15 x 56 x 203				15 942 100 A 588 GR A	C	0.280	1
01	01	SHEET 2.5 x 425 x 2520				15 942 099 A 588 GR A	C	21.600	1

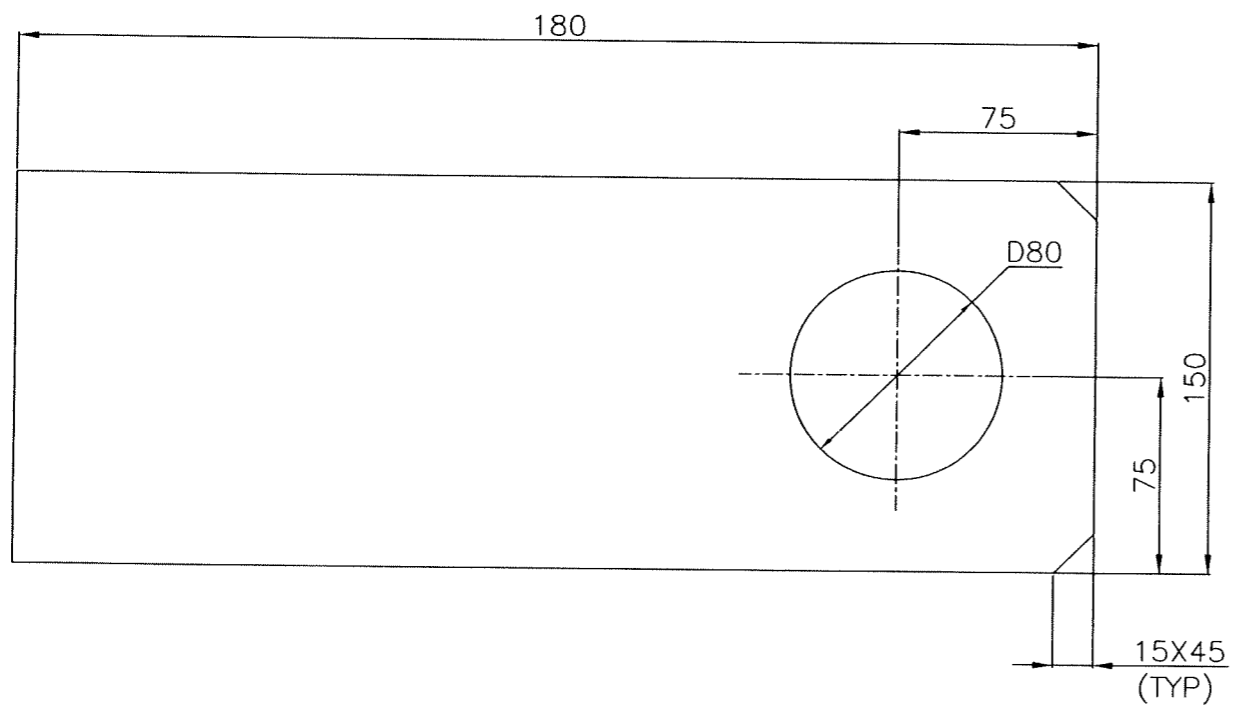
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

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

<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>		DRN	A.SRINIVASA RAO	SIGNATURE	DATE
		CHD	A.N.V.K.KISHORE		15.02.22
		APPD	A.N.V.K.KISHORE		15.02.22
DEPT PP ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) ---	REF TO ASSY / OLD DWG ---
TITLE CASSETTE BAFFLE				DRAWING NO : 3-19-903-U8141	REV 00

FORM NO. 0421/2

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VARIANT NUMBER	PL.6X150X180	STD	DRAWING NUMBER	150422660000	C	UNIT WEIGHT	1.200
				SA 387 GR.22CL2		QUANTITY	
				MATERIAL CODE	A/C/P		
				MATERIAL SPECN	UNIT		

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



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

DRN	A.SRINIVAS RAO	SIGNATURE	DATE
CHD	A.N.V.K.KISHORE		18.02.2022
APPD	A.N.V.K.KISHORE		18.02.2022

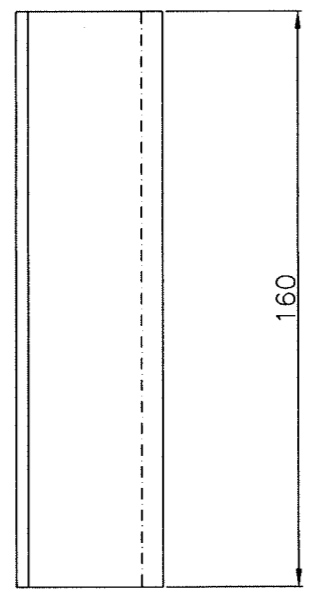
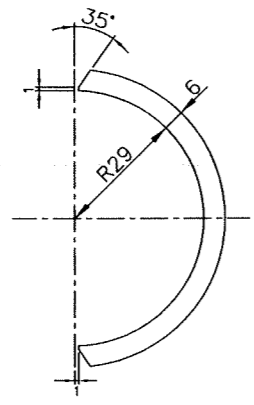
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	1.200	

TITLE	DRAWING NO :	REV
BEARING PLATE-I	4-19-903-U8354	00

FORM NO. 0420/2


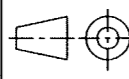
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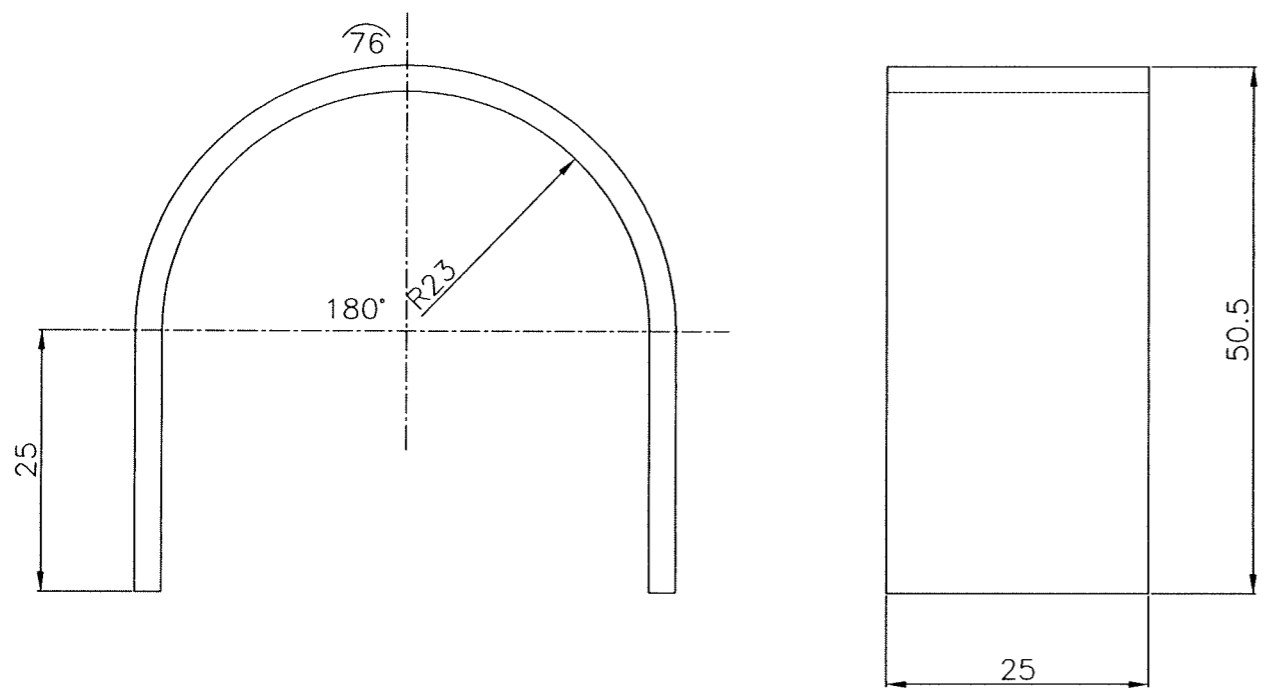
VARIANT NUMBER	PL.6 x 90 x 160	STD	DRAWING NUMBER	150422660000	C	UNIT WEIGHT	0.680
				SA 387 GR.22CL2		QUANTITY	
	DESCRIPTION		MATERIAL CODE	A/C/P	UNIT		
			MATERIAL SPECN				

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

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		NAME A.SRINIVAS RAO	SIGNATURE	DATE 18.02.2022
DEPT	ALL DIMENSIONS ARE IN MM	DRN	CHD	APPD
	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 0.680	REF TO ASSY / OLD DWG
TITLE	SLEEVE-I		DRAWING NO : 4--19--903--U8355	REV 00


FORM NO. 0420/2

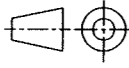
CAUTION : The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.



VARIANT NUMBER	2.5 x 25 x 126	STD	DRAWING NUMBER	15 011 485	A/C/P	UNIT	UNIT WEIGHT
				SA 240 TY 430	C		0.063
							QUANTITY

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

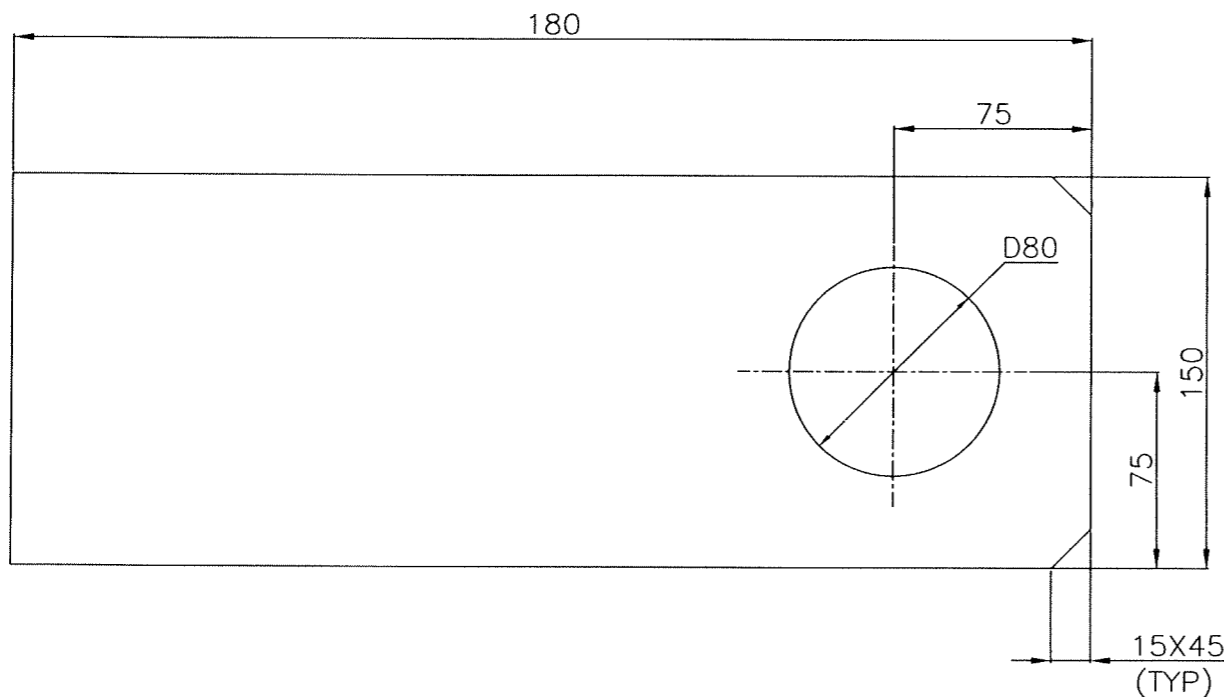
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012	DRN	A.SRINIVAS RAO	SIGNATURE	DATE
	CHD	A.N.V.K.KISHORE		21.02.2022
	APPD	A.N.V.K.KISHORE		21.02.2022

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	0.063	
TITLE			DRAWING NO :		REV
U-CLIP-II			4-19-903-U8356		00

FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	DESCRIPTION	STD	DRAWING NUMBER	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
	PL.6X150X180			150112060000	C		1.200
				SA 240 TY 304			
				MATERIAL SPECN			QUANTITY

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



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

DRN	NAME	SIGNATURE	DATE
	A.SRINIVAS RAO		18.02.2022
	A.N.V.K.KISHORE		18.02.2022
	A.N.V.K.KISHORE		18.02.2022

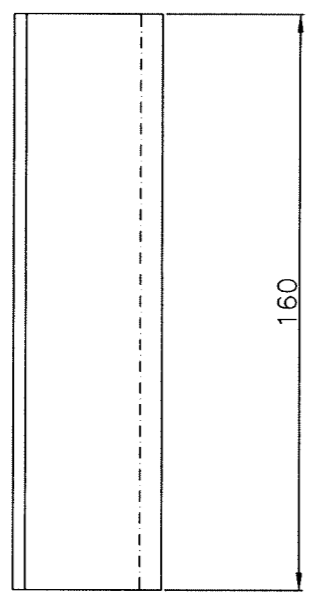
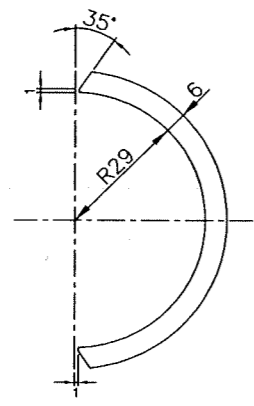
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	1.200	

TITLE	DRAWING NO :	REV
BEARING PLATE-II	4-19-903-U8357	00

FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	DESCRIPTION	STD	DRAWING NUMBER	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
	PL.6 x 90 x 160			150112060000			C	0.700	
				SA 240 TY 304					

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



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

DRN	NAME	SIGNATURE	DATE
	A.SRINIVAS RAO		18.02.2022
	A.N.V.K.KISHORE		18.02.2022
	A.N.V.K.KISHORE		18.02.2022

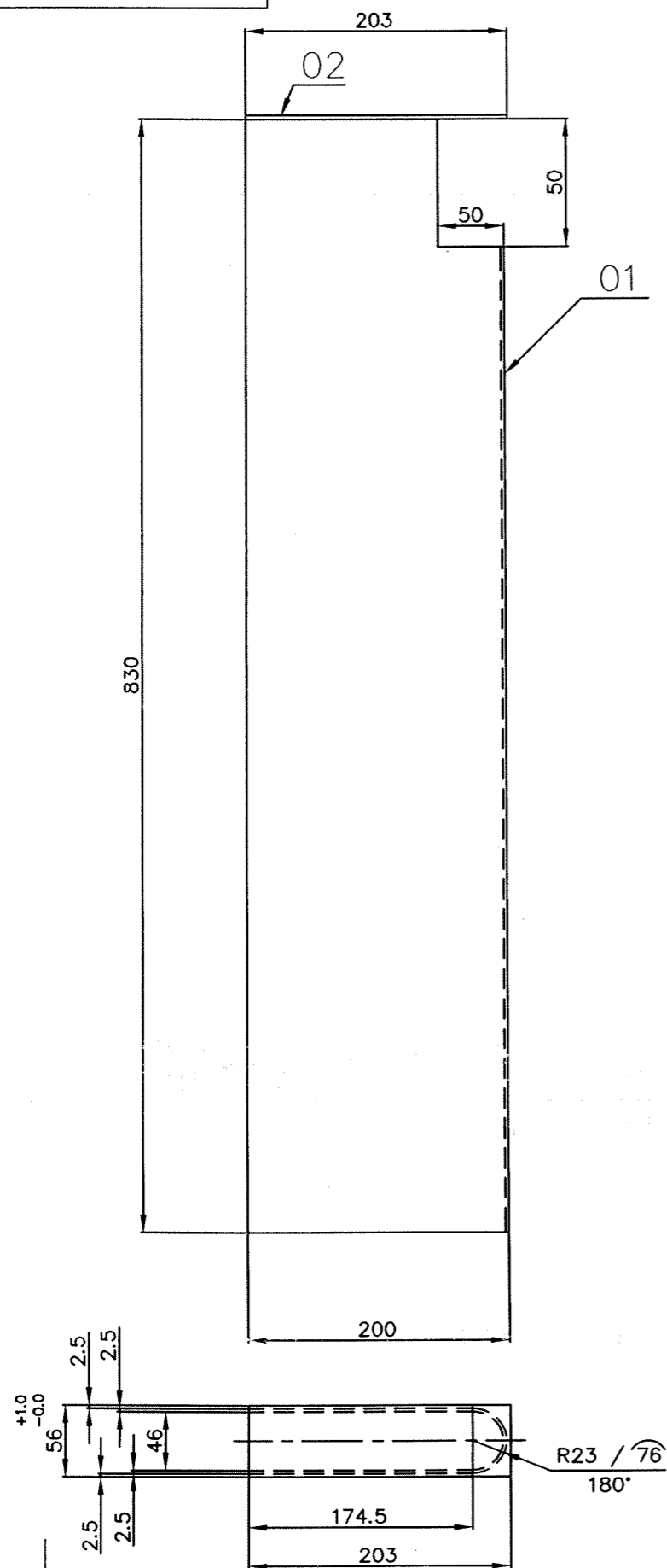
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
			N.T.S	0.700	

TITLE	DRAWING NO :	REV
SLEEVE-II	4-19-903-U8358	00

FORM NO. 0420/2

DRAWING NO: 3-19-903-U8142

1. SHOP OPTIONAL WELD OF 2 ⌈ SHALL BE MADE TO BUILT LENGTH OF BAFFLE.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT WEIGHT	QTY
					VAR NO	MATERIAL SPECN	QTY	QUANTITY	
02	SHEET	3.15 x 56 x 203				150111820000		0.280	1
						IS1079D			1
01	SHEET	2.5 x 425 x 830				150111900000		6.900	1
						IS1079D			1

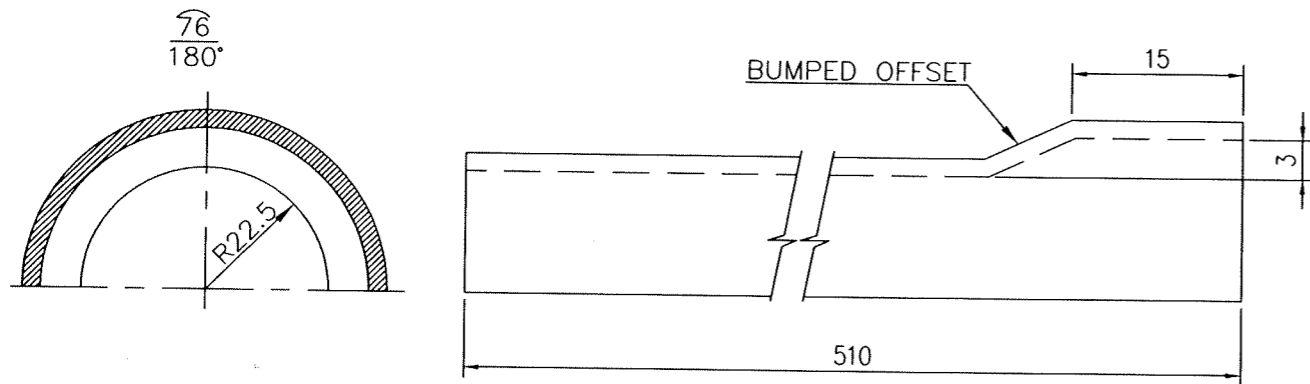
DEPT PP ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 7.180	NAME A.SRINIVASA RAO	SIGNATURE	DATE 15.02.22
					CHD A.N.V.K.KISHORE		DATE 15.02.22
					APPD A.N.V.K.KISHORE		DATE 15.02.22
REF TO ASSY / OLD DWG					DRAWING NO : 3-19-903-U8142		
TITLE CASSETTE BAFFLE					REV 00		

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

FORM NO. 0421/2

A3 SIZE

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.

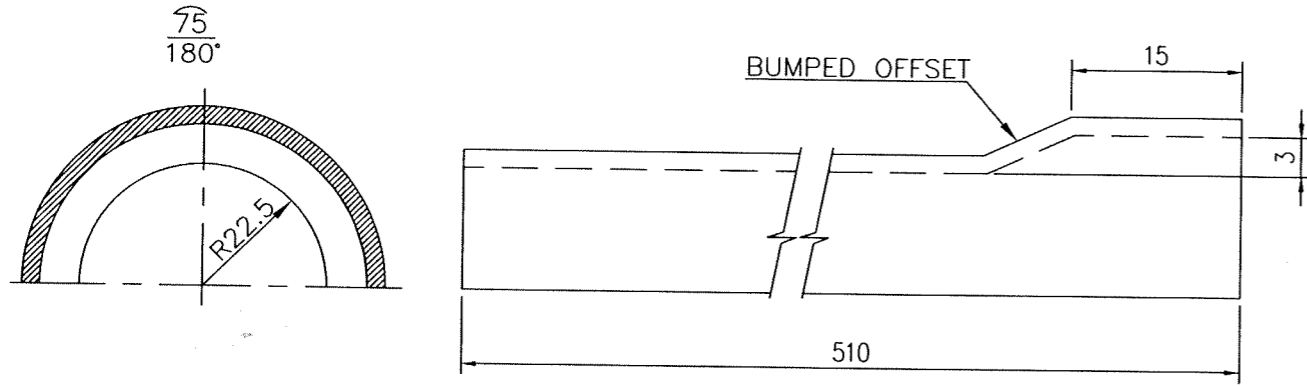


VARIANT NUMBER	SH.3.15X76X510	15 942 100 0000	C	0.960
		A 588 GR.A		
DESCRIPTION		MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN		QUANTITY

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

Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	A.N.V.K.KISHORE		23.05.22
		APPD	A.N.V.K.KISHORE		23.05.22
DEPT PP ENGG. CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 0.960	REF TO ASSY / OLD DWG
TITLE SHIELD-IV			DRAWING NO : 4-19-903-U8379		REV 00

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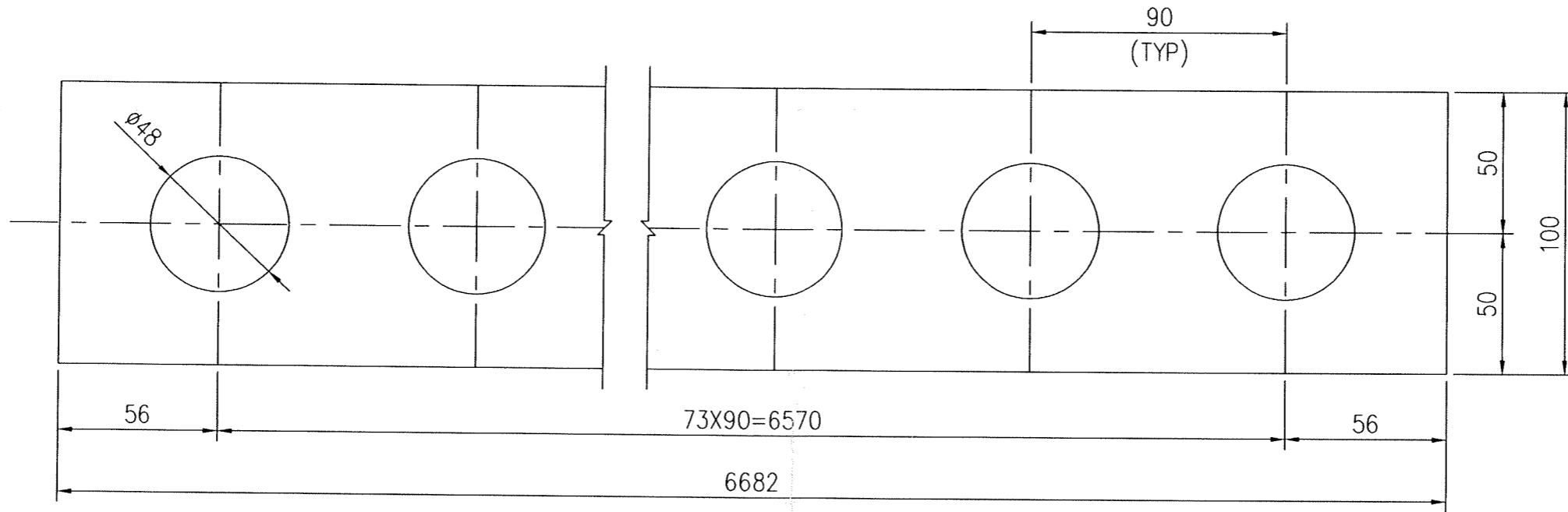


VARIANT NUMBER	SH. 2.5X75X510	15 011 485 0000	C	0.780
		SA 240 TY430		
	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	UNIT	QUANTITY

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

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	RAJU	SIGNATURE	DATE
DEPT	PP ENGG.	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
031				N.T.S	0.780		
TITLE				DRAWING NO :		REV	
SHIELD-VI				4-19-903-U8382		00	

A4 SIZE



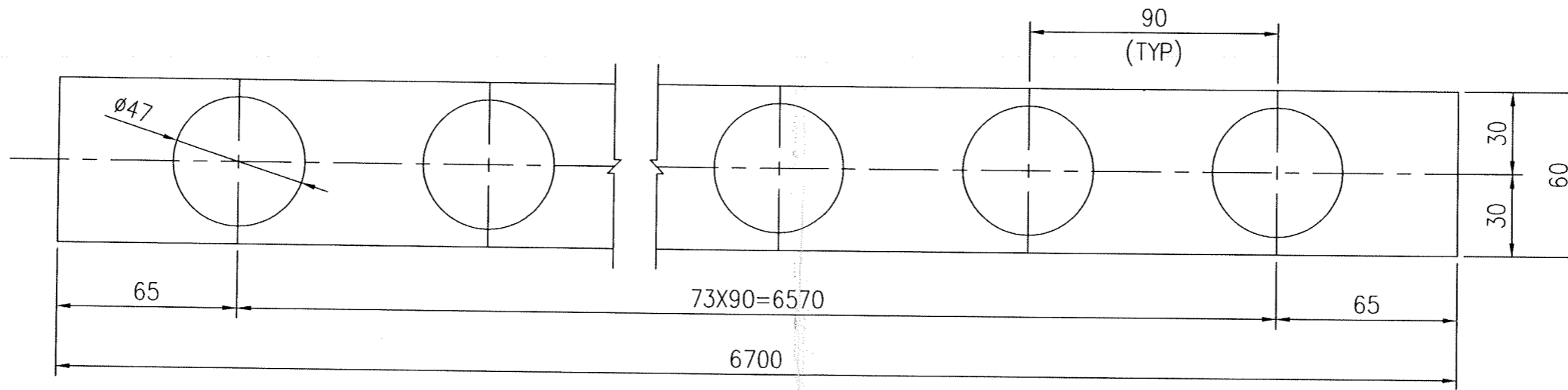
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO VAR NO	MATERIAL CODE MATERIAL SPECN	A/C/P	UNIT D1	UNIT WEIGHT QUANTITY	GS
		PLATE 5X100X6682				15 011 029 IS 2062 FE410WA			26.200	

DEPT CODE ALL DIMENSIONS ARE IN MM PROJECTION SCALE N.T.S WEIGHT (Kg) 26.200 REF TO ASSY / OLD DWG	DRN RAJU	NAME K.KISHORE	SIGNATURE K.KISHORE	DATE 21.05.2022
	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012			
	TITLE SEALING PLATE - 1			
DRAWING NO : 3-19-903-U8157			REV 00	

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

3-19-903-U8158

DRG NO:



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
		PLATE 5X60X6700				15 011 029			15.780	
					VAR NO	MATERIAL SPECN		D1	QUANTITY	
						IS 2062 FE410WA				

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Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	15.780	

DRN	NAME	SIGNATURE	DATE
RAJU			21.05.2022
CHD	K.KISHORE		21.05.2022
APPD	K.KISHORE		21.05.2022

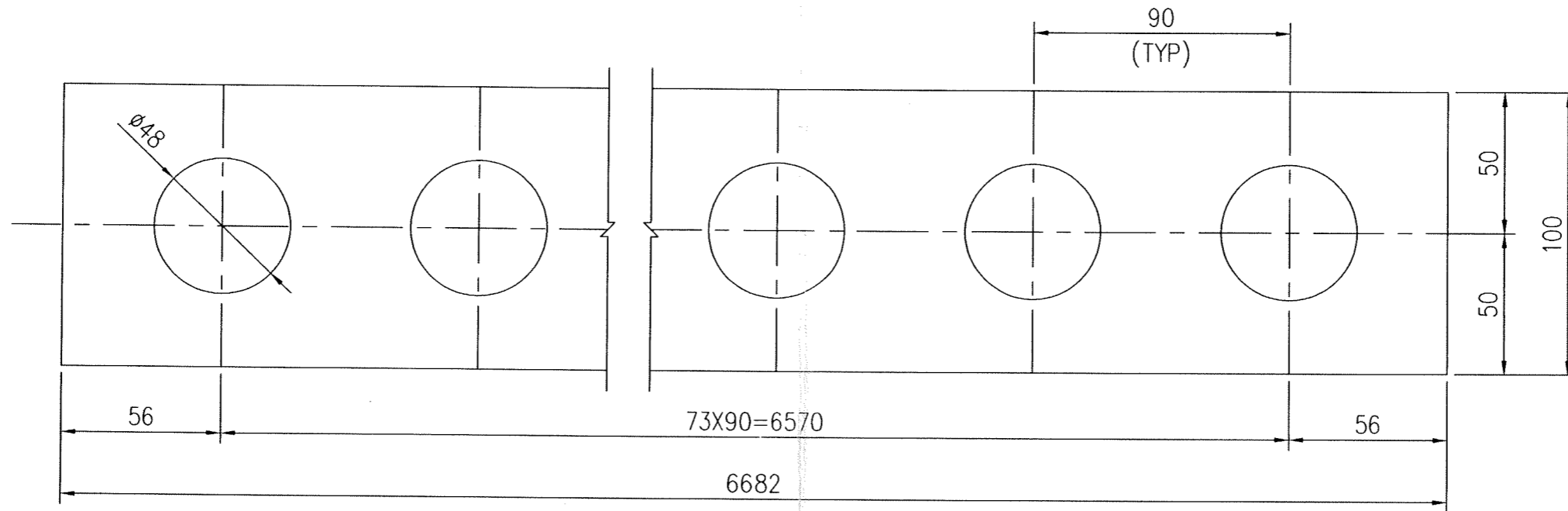
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	DATE	PPD.	CHD.	APPD.

TITLE	DRAWING NO :	REV
SEALING PLATE -2	3-19-903-U8158	00

FORM NO. 0421/2

3-19-903-U8159

DRG.NO:



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
					VAR NO	MATERIAL SPECN		D1	QUANTITY	
		PLATE 5X100X6682				15 042 265 0000		C	26.200	
						SA 387 GR.22CL2				

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.			Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012			DRN	RAJU	SIGNATURE	DATE
	DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	CHD	K.KISHORE		21.05.2022
	CODE			N.T.S	26.200	APPD	K.KISHORE		21.05.2022
TITLE						REF TO ASSY / OLD DWG			
SEALING PLATE -3						DRAWING NO :			REV
						3-19-903-U8159			00

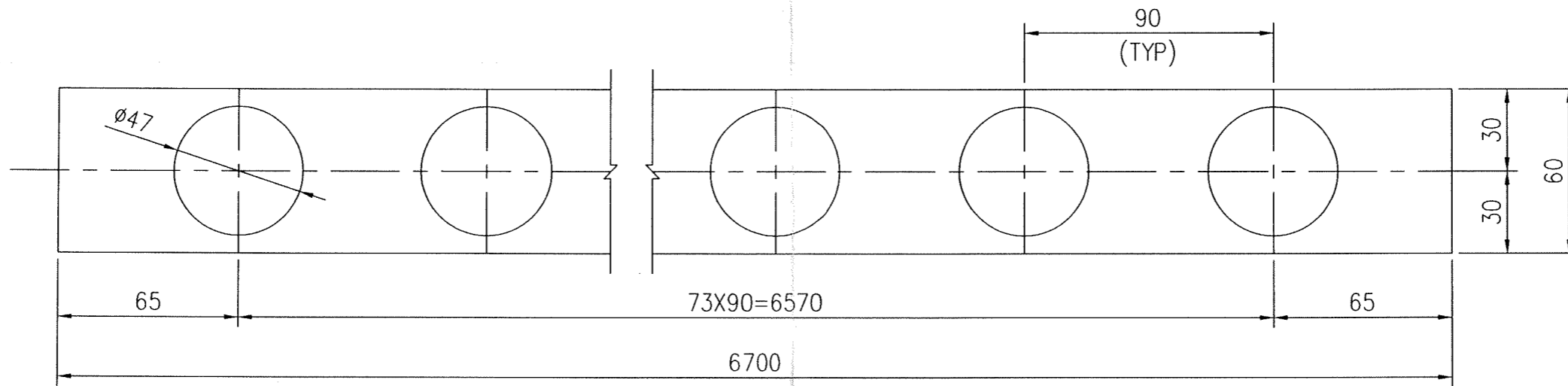
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	DATE	PPD.	CHD.	APPD.

FORM NO. 0421/2

A3 SIZE

3-19-903-U8160

DWG. NO.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
		PLATE 5X60X6700			15 042 265 0000	SA 387 GR.22CL2	C		15.780	
					VAR NO	MATERIAL SPECN	D1		QUANTITY	

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DEPT CODE	Bharat Heavy Electricals Ltd		DRN	RAJU	NAME	SIGNATURE	DATE
	UNIT: HEAVY PLATES & VESSELS PLANT		CHD	K.KISHORE			21.05.2022
	VISAKHAPATNAM-530012		APPD	K.KISHORE			21.05.2022

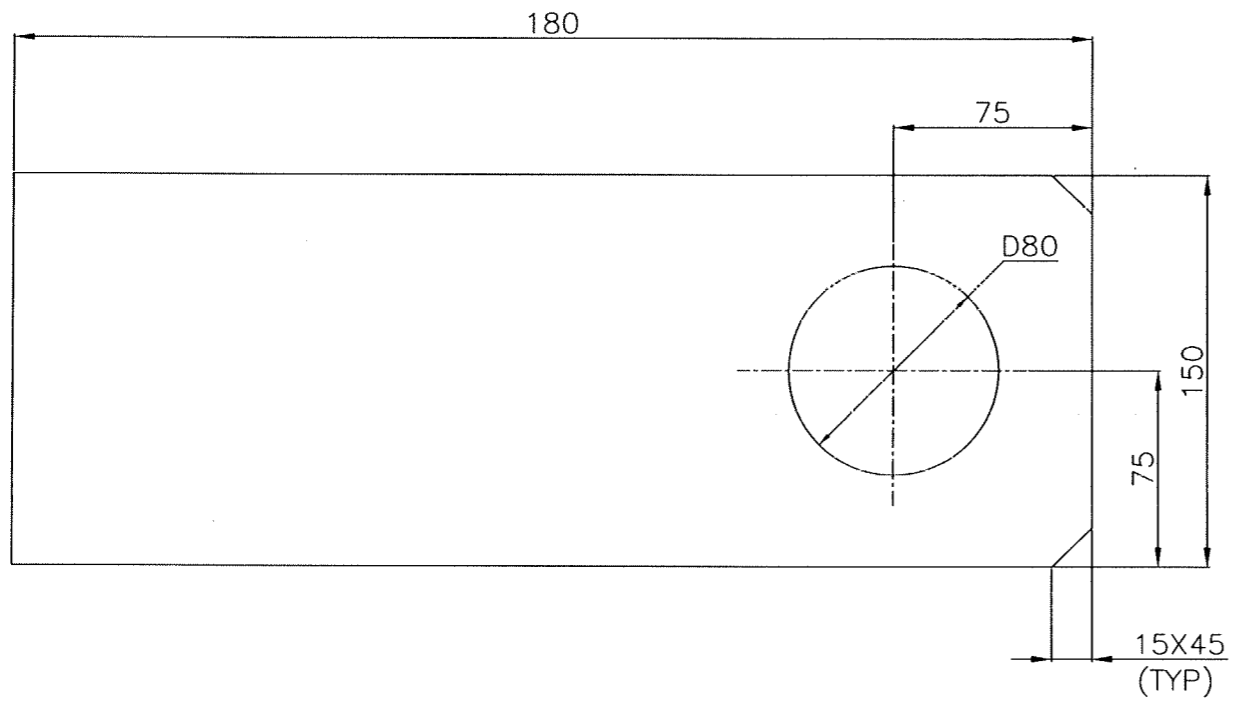
ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DWG
		N.T.S	15.780	
TITLE				REV
SEALING PLATE -4				00
DRAWING NO :				
3-19-903-U8160				

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

FORM NO. 0421/2

A3 SIZE

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VARIANT NUMBER	PL.6X150X180	STD	DRAWING NUMBER	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
				MATERIAL SPECN			QUANTITY
				152110920000			1.200
				IS2062FE410A			

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



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

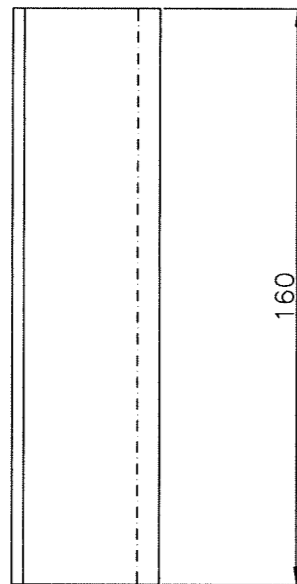
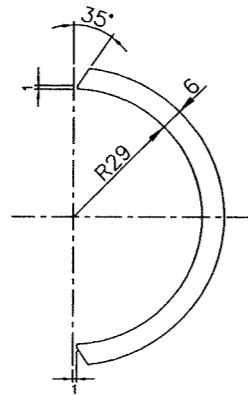
DRN	NAME	SIGNATURE	DATE
	A.SRINIVAS RAO		18.02.2022
	A.N.V.K.KISHORE		18.02.2022
	A.N.V.K.KISHORE		18.02.2022

DEPT PP ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 1.200	REF TO ASSY / OLD DWG
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TITLE BEARING PLATE-III	DRAWING NO : 4-19-903--U8361	REV 00
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FORM NO. 0420/2

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VARIANT NUMBER	PL.6 x 90 x 160	STD	DRAWING NUMBER	152110920000	A/C/P	UNIT	0.680
				IS2062FE410A			
	DESCRIPTION			MATERIAL CODE			UNIT WEIGHT
				MATERIAL SPECN			QUANTITY

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



Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME	SIGNATURE	DATE
	A.SRINIVAS RAO		18.02.2022
	A.N.V.K.KISHORE		18.02.2022
	A.N.V.K.KISHORE		18.02.2022

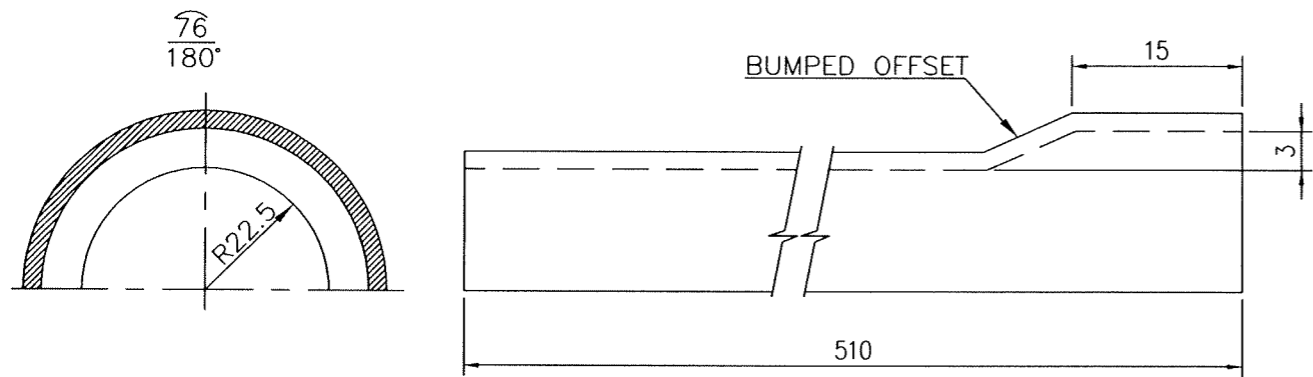
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	0.680	

TITLE	DRAWING NO :	REV
SLEEVE-III	4-19-903-U8360	00

FORM NO. 0420/2


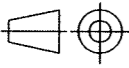
A4 SIZE

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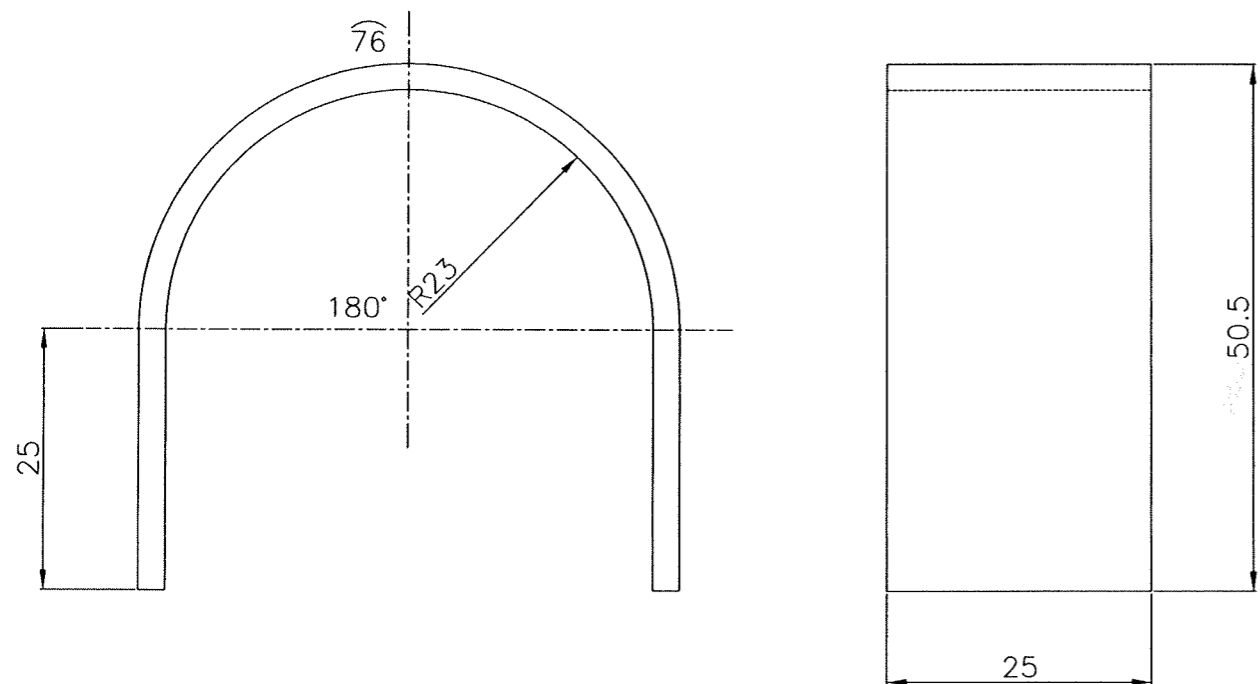
VARIANT NUMBER	SH.3.15X76X510	15 011 182 0000	A/C/P	UNIT	0.960
		IS 1079D			
	DESCRIPTION	MATERIAL CODE			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

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

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	RAJU		23.05.22
		APPD	A.N.V.K.KISHORE		23.05.22
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PP ENGG.	031		N.T.S	0.960	
TITLE			DRAWING NO :		REV
SHIELD-II			4-19-903-U8376		00

A4 SIZE

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VARIANT NUMBER	DESCRIPTION	STD	DRAWING NUMBER	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
				MATERIAL SPECN			QUANTITY
	2.5 x 25 x 126			150111900000			0.060
				IS 1079D			

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



Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME	SIGNATURE	DATE
	A.SRINIVAS RAO		21.02.2022
	A.N.V.K.KISHORE		21.02.2022
	A.N.V.K.KISHORE		21.02.2022

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
			N.T.S	0.060	

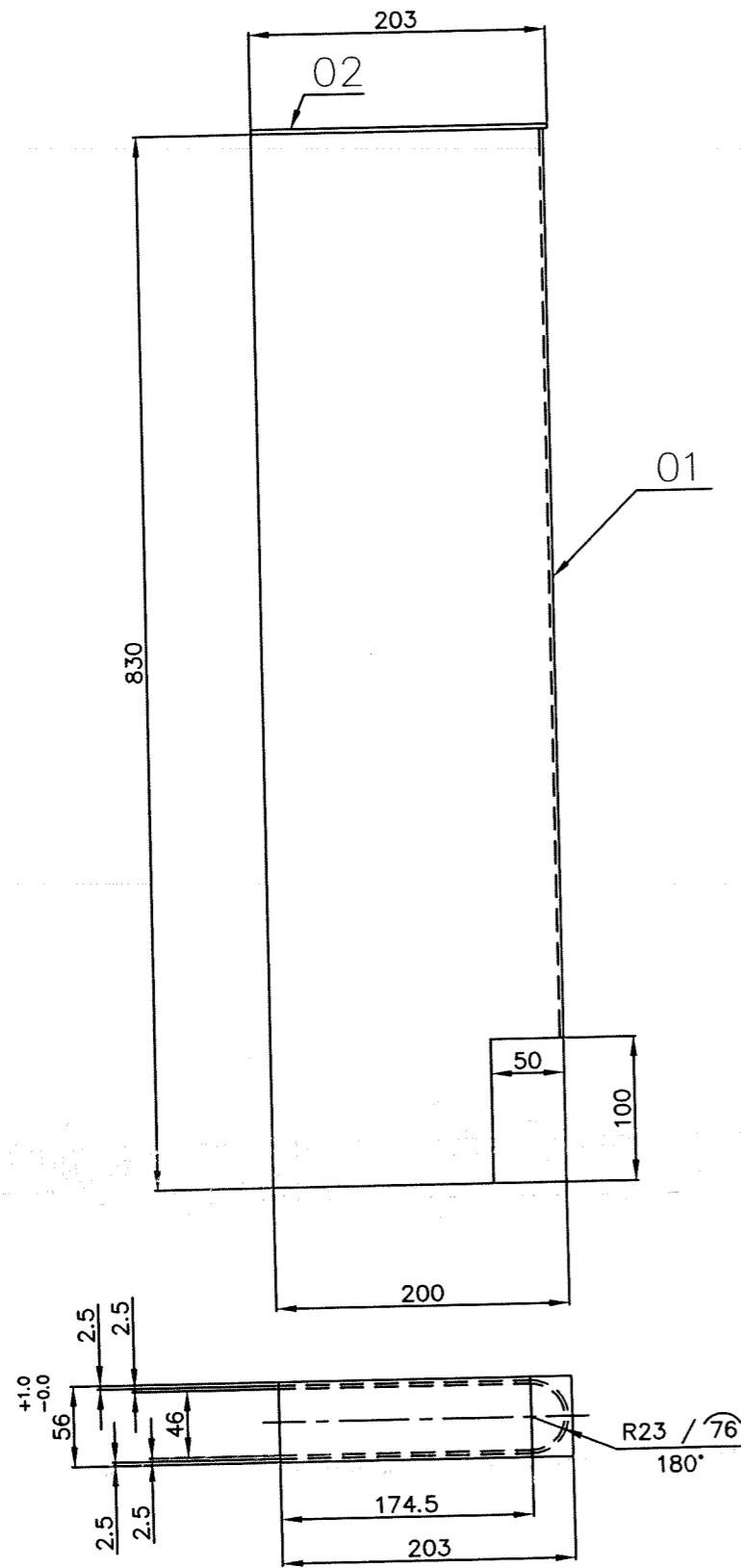
TITLE	DRAWING NO :	REV
U-CLIP-III	4-19-903-U8359	00

FORM NO. 0420/2

A4 SIZE

3-19-903-U8143
DRAWING NO.

1. SHOP OPTIONAL WELD OF 2 π SHALL BE MADE TO BUILT LENGTH OF BAFFLE.



ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT WEIGHT
VAR NO	MATERIAL SPECN						QUANTITY
02	SHEET 3.15 x 56 x 203				150111820000 IS1079D		0.280 1
01	SHEET 2.5 x 425 x 830				150111900000 IS1079D		6.900 1

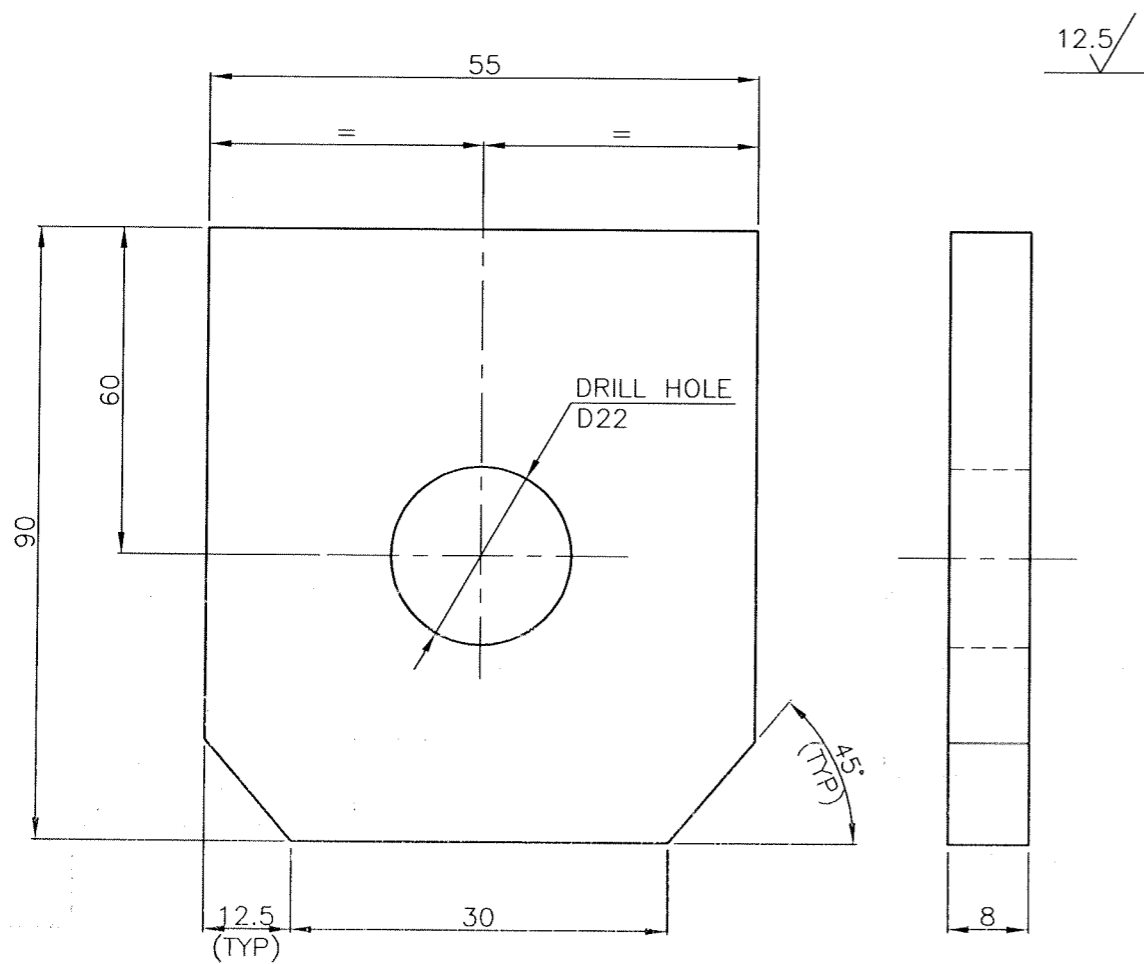
DEPT PP ENGG CODE 031 TITLE CASSETTE BAFFLE	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 7.180	NAME A.SRINIVASA RAO	SIGNATURE	DATE 15.02.22
					CHD A.N.V.K.KISHORE		DATE 15.02.22
					APPD A.N.V.K.KISHORE		DATE 15.02.22
REF TO ASSY / OLD DWG					DRAWING NO : 3-19-903-U8143		REV 00

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

FORM NO. 0421/2

A3 SIZE

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VARIANT NUMBER	PL.8x55x90	15 011 027 0000	A/C/P	UNIT	0.280
	DESCRIPTION	MATERIAL CODE			IS 2062 FE 410A
		MATERIAL SPECN			QUANTITY

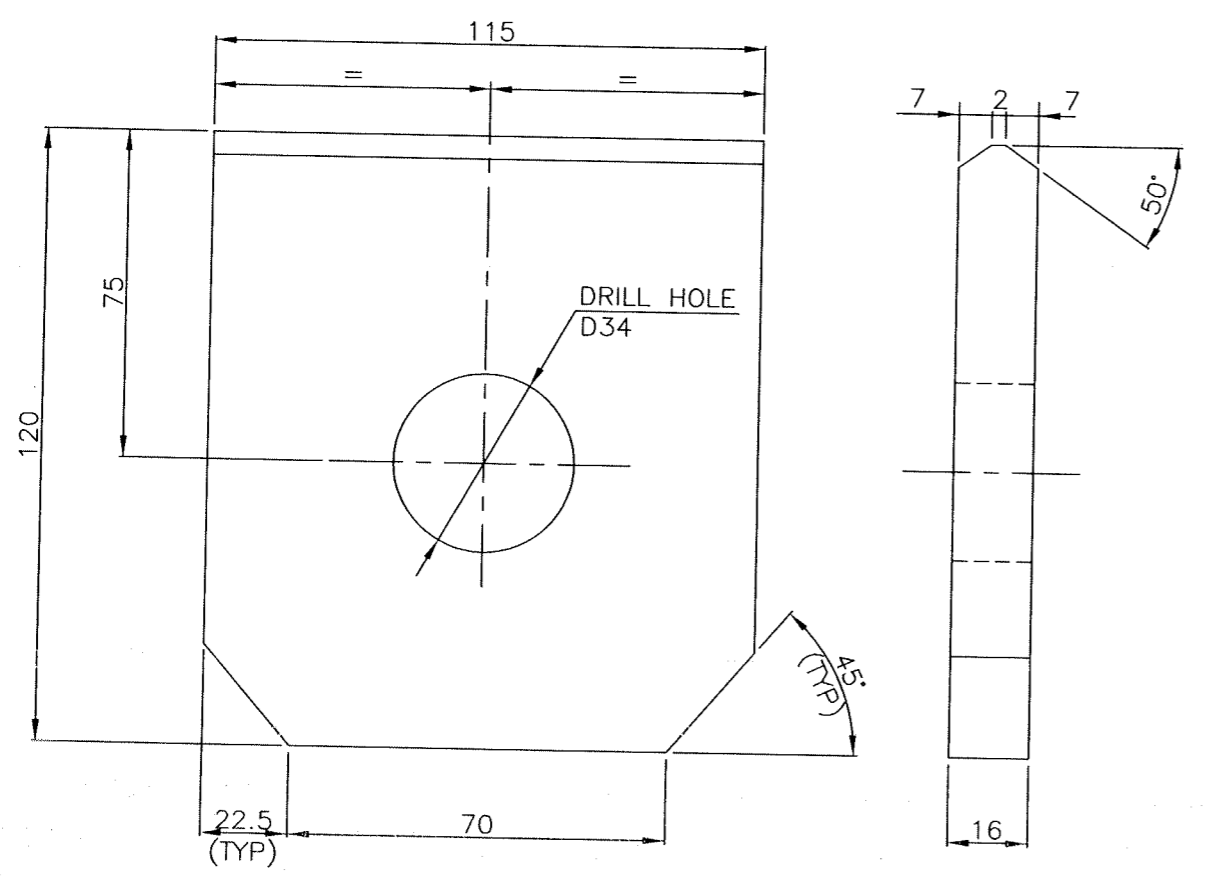
REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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FORM NO. 0420/2

<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>		DRN	S.S.N.MURTY	SIGNATURE	DATE	18.10.17
		CHD	K.KISHORE		18.10.17	
		APPD	K.KISHORE		18.10.17	
DEPT PCPS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
1322			N.T.S.	0.280		
TITLE			DRAWING NO :		REV	
LUG PLATE(VLH-SH-07)			4-19-902-U8075		00	

A4 SIZE

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VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	15 011 026 0000	1.560
						IS 2062 FE 410A	

S.O.7906
PROJECT: NALCO-DAMANJODI

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



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

DRN	K.H.THOMAS	SIGNATURE	DATE
CHD	S.M.G.NAIDU		20.05.22
APPD	A.N.V.K.KISHORE		20.05.22

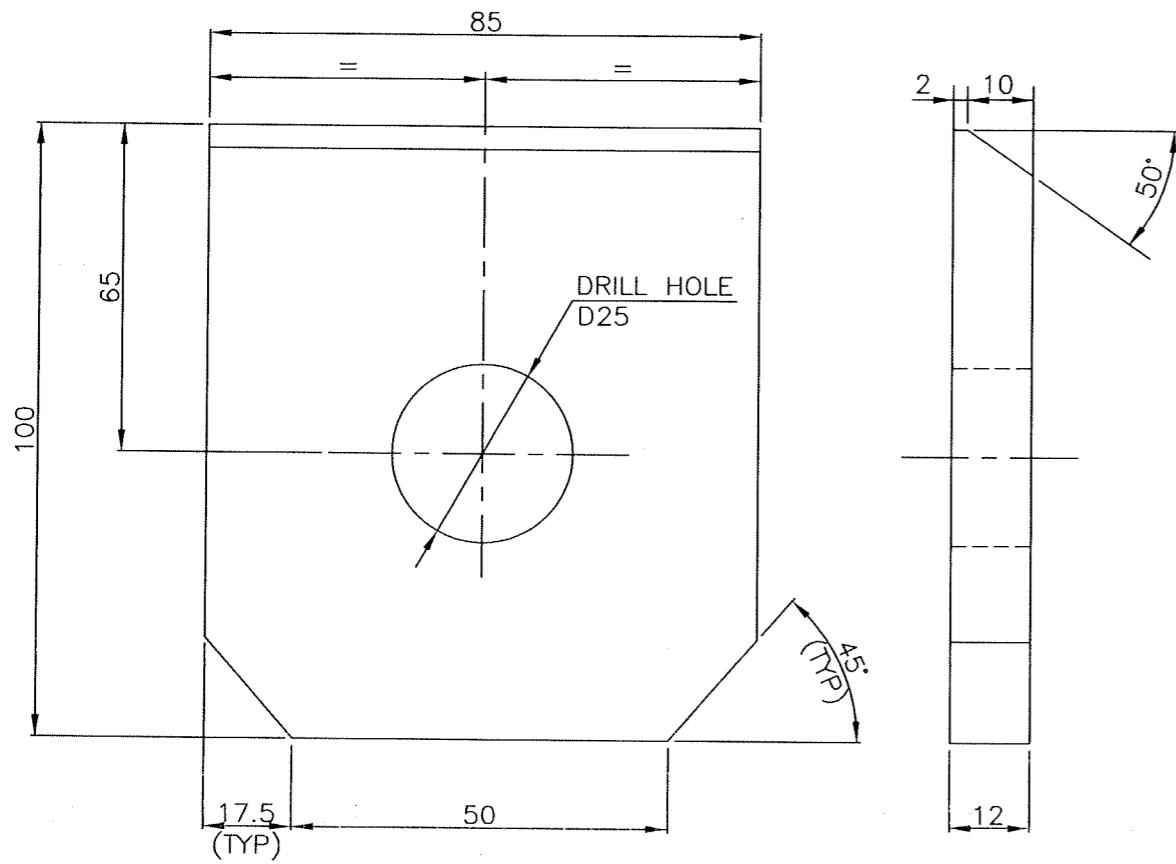
DEPT P.P.ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S.	WEIGHT (Kg) 1.560	REF TO ASSY / OLD DWG
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TITLE LUG PLATE(VLH-SH-10)	DRAWING NO : 4-12-936-U8278	REV 00
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FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	PL.12x85x100	15 011 132 0000	A/C/P	UNIT	0.727
	DESCRIPTION	IS 2062 FE 410A			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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Bharat Heavy Electricals Ltd
UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

NAME	SIGNATURE	DATE
DRN K.H.THOMAS		20.05.22
CHD S.M.G.NAIDU		20.05.22
APPD A.N.V.K.KISHORE		20.05.22

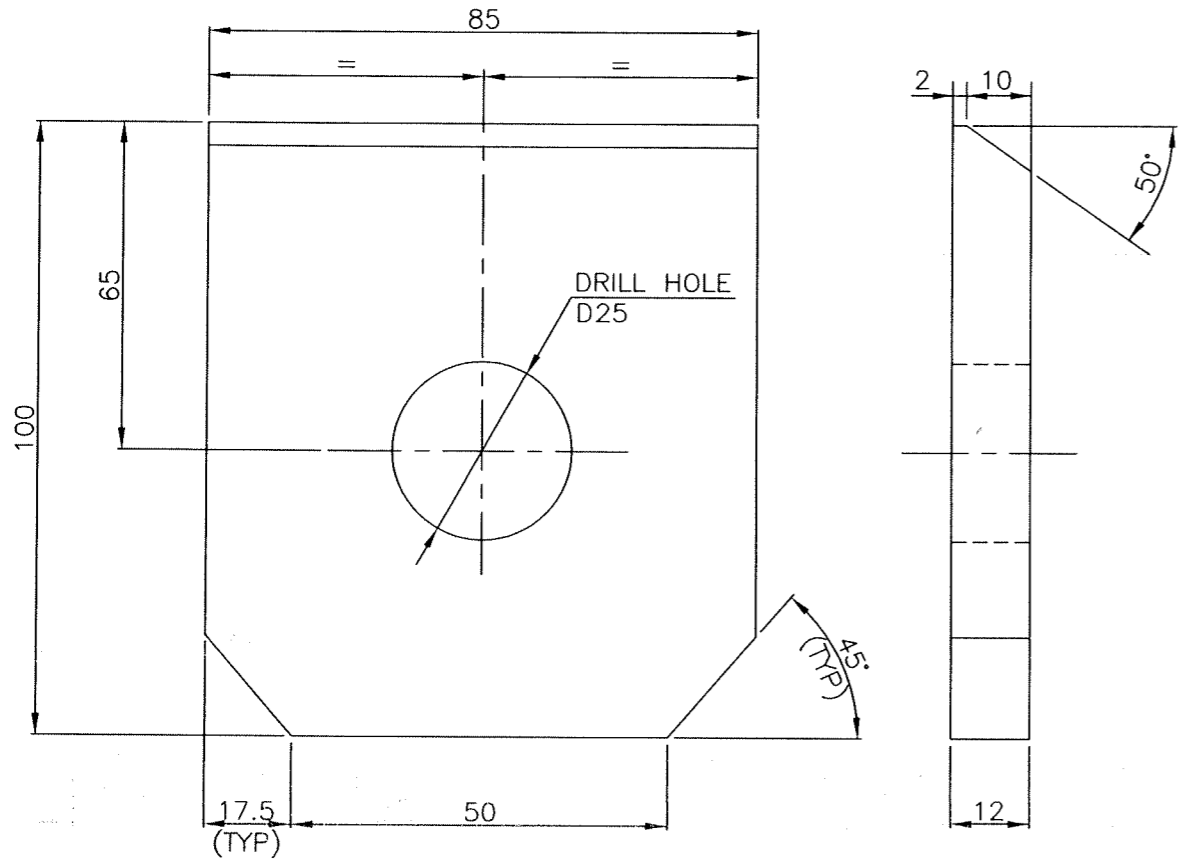
DEPT P.P.ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S.	WEIGHT (Kg) 0.727	REF TO ASSY / OLD DWG
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TITLE LUG PLATE (VLH-SH-09)	DRAWING NO : 4-19-906-U8396	REV 00
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FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	PL.12x85x100	15 011 132 0000	A/C/P	UNIT	0.727
	DESCRIPTION	IS 2062 FE 410A			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

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

<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>	DRN	K.H.THOMAS	SIGNATURE	DATE
	CHD	S.M.G.NAIDU		20.05.22
	APPD	A.N.V.K.KISHORE		20.05.22

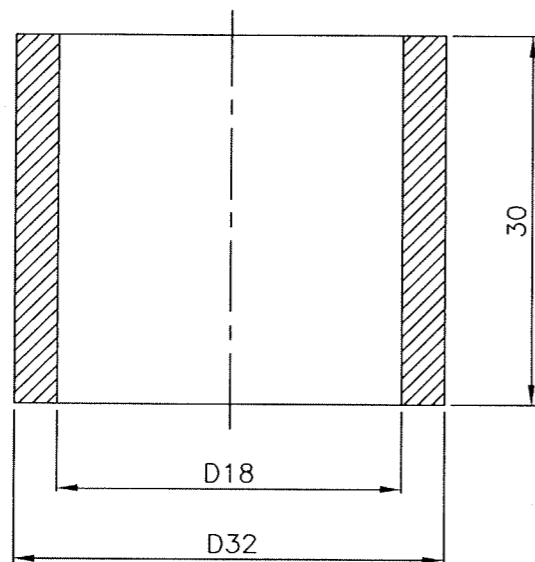
DEPT P.P.ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S.	WEIGHT (Kg) 0.727	REF TO ASSY / OLD DWG
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TITLE LUG PLATE (VLH-SH-09)	DRAWING NO : 4-19-906-U8396	REV 00
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FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	ROUND D32 , L=30	150391400000	C	0.130
	DESCRIPTION	SA 105		UNIT WEIGHT
		MATERIAL SPECN	A/C/P	QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME	SIGNATURE	DATE
DRN	THOMAS		29.06.22
CHD	S.M.G.NAIDU		29.06.22
APPD	ANVK KISHORE		29.06.22

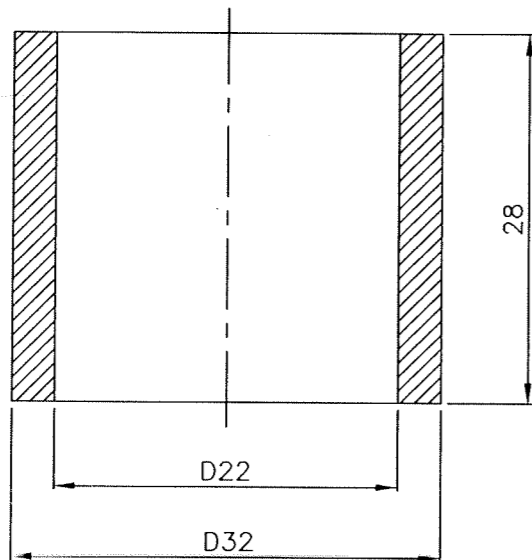
DEPT P.P.ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 0.130	REF TO ASSY / OLD DWG
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TITLE SPACER RING OD32/ID18	DRAWING NO : 4-19-906-U8399	REV 00
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FORM NO. 0420/2

A4 SIZE

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VARIANT NUMBER	ROUND D32 , L=28	150391400000	C	UNIT	0.090
	DESCRIPTION	SA 105			UNIT WEIGHT
		MATERIAL CODE			QUANTITY
		MATERIAL SPECN			

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME	SIGNATURE	DATE
CHD	THOMAS		29.06.22
APPD	S.M.G.NAIDU		29.06.22
	ANVK KISHORE		29.06.22

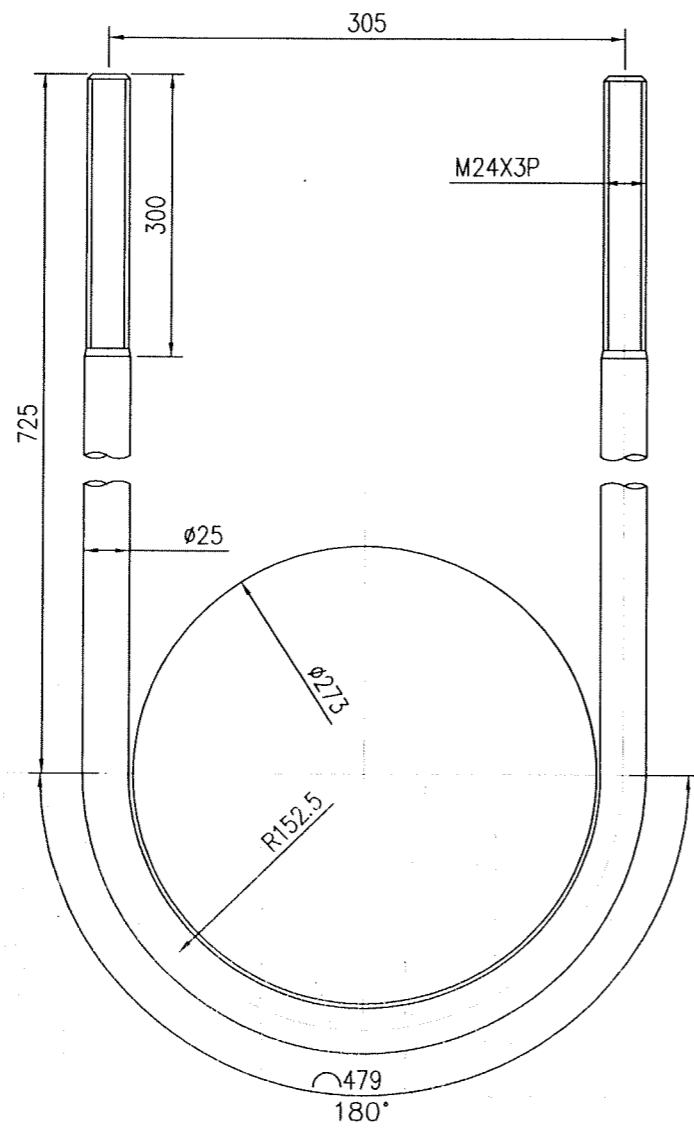
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TITLE SPACER RING-II OD32/ID22	DRAWING NO : 4-19-906-U8403	REV 00
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FORM NO. 0420/2


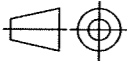
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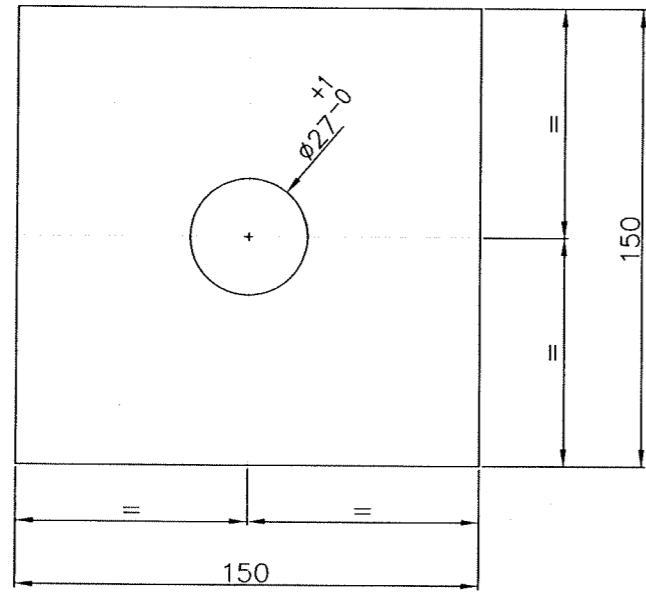


VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY
	ROD ø25 1929 LONG.		150391390000 SA 105	C		7.300

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

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	RAJU		29.06.22
		APPD	A.N.V.K.KISHORE		29.06.22
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PP ENGG.	031		1:5	7.300	
TITLE			DRAWING NO :		REV
U ROD-I			4-19-906-U8406		00


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VARIANT NUMBER	DESCRIPTION	150111500000	A/C/P	UNIT	3.470
		IS 2062 FE 410A			QUANTITY
		MATERIAL CODE			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012	DRN	K.H.THOMAS	SIGNATURE	DATE
	CHD	S.M.G.NAIDU		29.06.22
	APPD	A.N.V.K.KISHORE		29.06.22

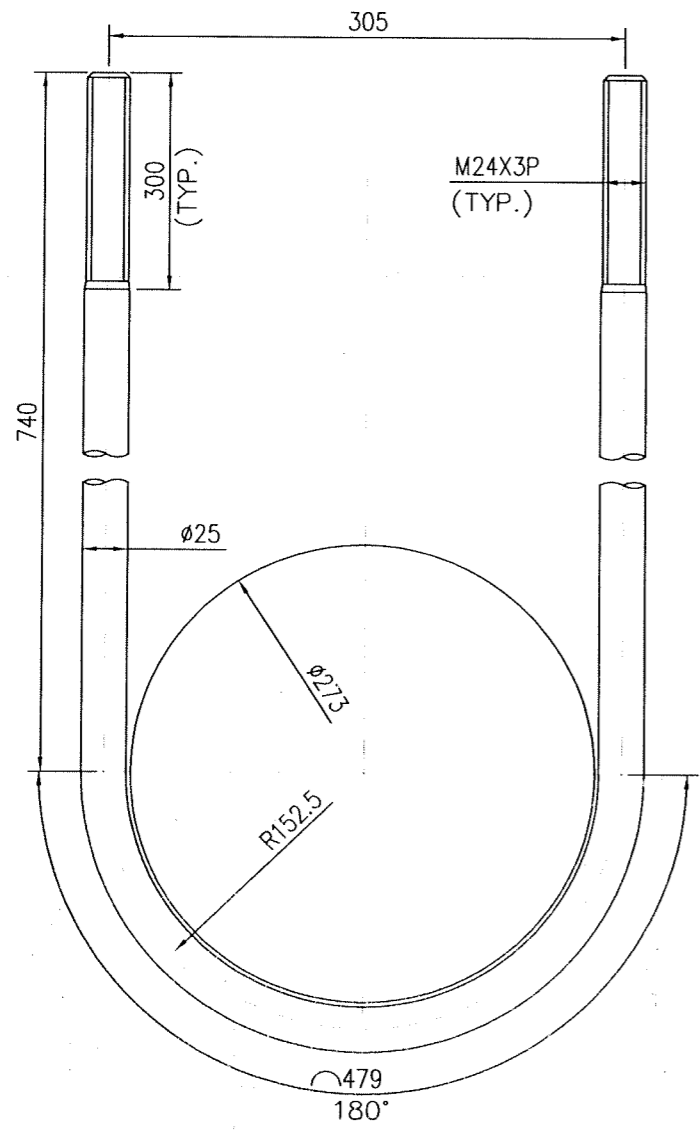
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	3.470	—

TITLE	DRAWING NO :	REV
WASHER PLATE-I	4-19-906-U8409	00

FORM NO. 0420/2

A4 SIZE

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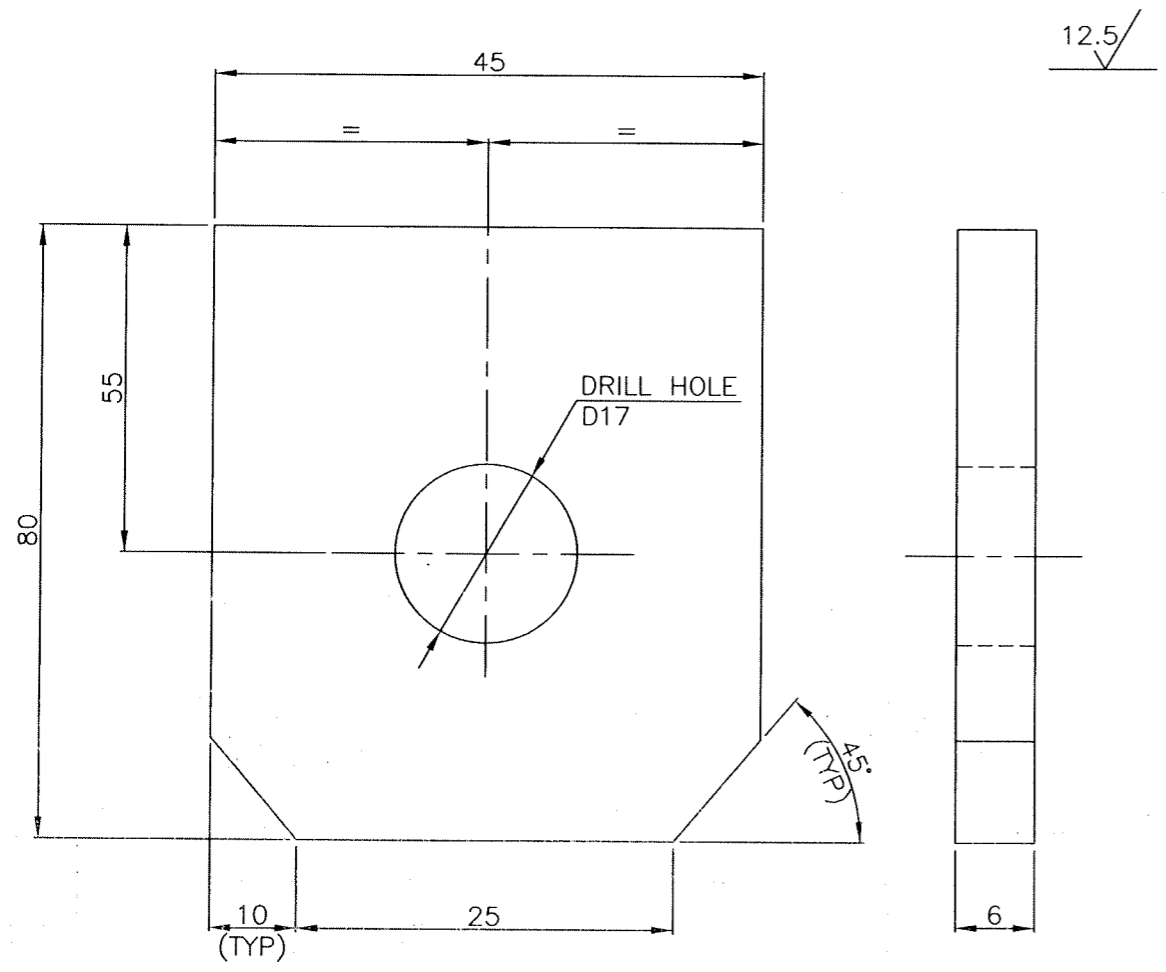
	ROD ø25 1959 LONG.	150391390000 SA 105	C	7.370
VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	UNIT	QUANTITY

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

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		NAME THOMAS	SIGNATURE	DATE 29.06.22
DEPT PP ENGG. CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE 1:5	WEIGHT (Kg) 7.370	REF TO ASSY / OLD DWG	
TITLE U ROD-II				DRAWING NO : 4-19-906-U8411		REV 00

A4 SIZE

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VARIANT NUMBER	PL.6x45x80	15 211 092 0000	A/C/P	UNIT	0.155
		IS 2062 FE 410A			
	DESCRIPTION	MATERIAL CODE			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

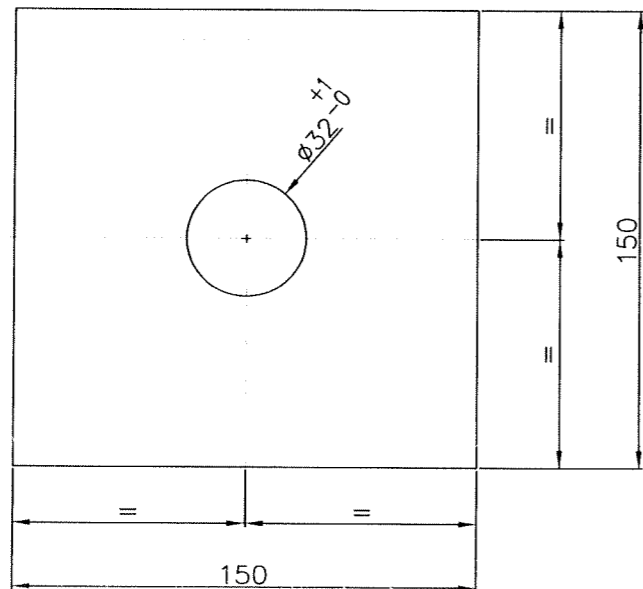
REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	THOMAS	SIGNATURE	DATE
				CHD	S.M.G.NAISU		29.06.22
				APPD	A.N.V.K.K.		29.06.22
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
PCPS			N.T.S.	0.155			
CODE							
1322							
TITLE				DRAWING NO :		REV	
LUG PLATE(VLH-SH-05)				4-19-906-U8421		00	

FORM NO. 0420/2

A4 SIZE


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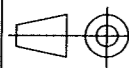


VARIANT NUMBER	PL. 20x150x150	150111500000	A/C/P	UNIT	3.500
	DESCRIPTION	IS 2062 FE 410A			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012	DRN	K.H.THOMAS	SIGNATURE	DATE
	CHD	S.M.G.NAIDU		29.06.22
	APPD	A.N.V.K.KISHORE		29.06.22

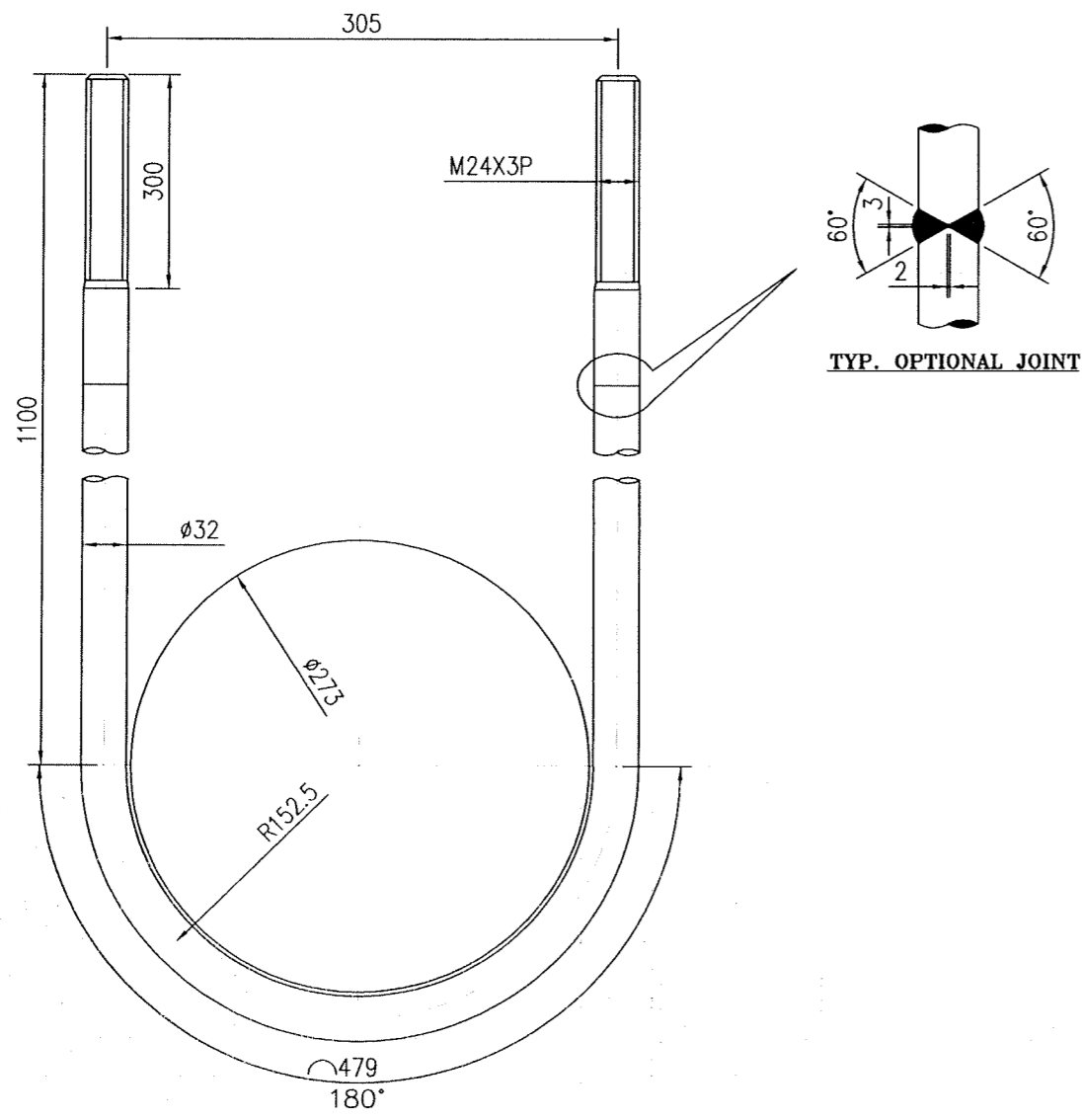
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CODE			N.T.S	3.500	—

TITLE	DRAWING NO :	REV
WASHER-II	4-19-906-U8426	00

FORM NO. 0420/2

A4 SIZE

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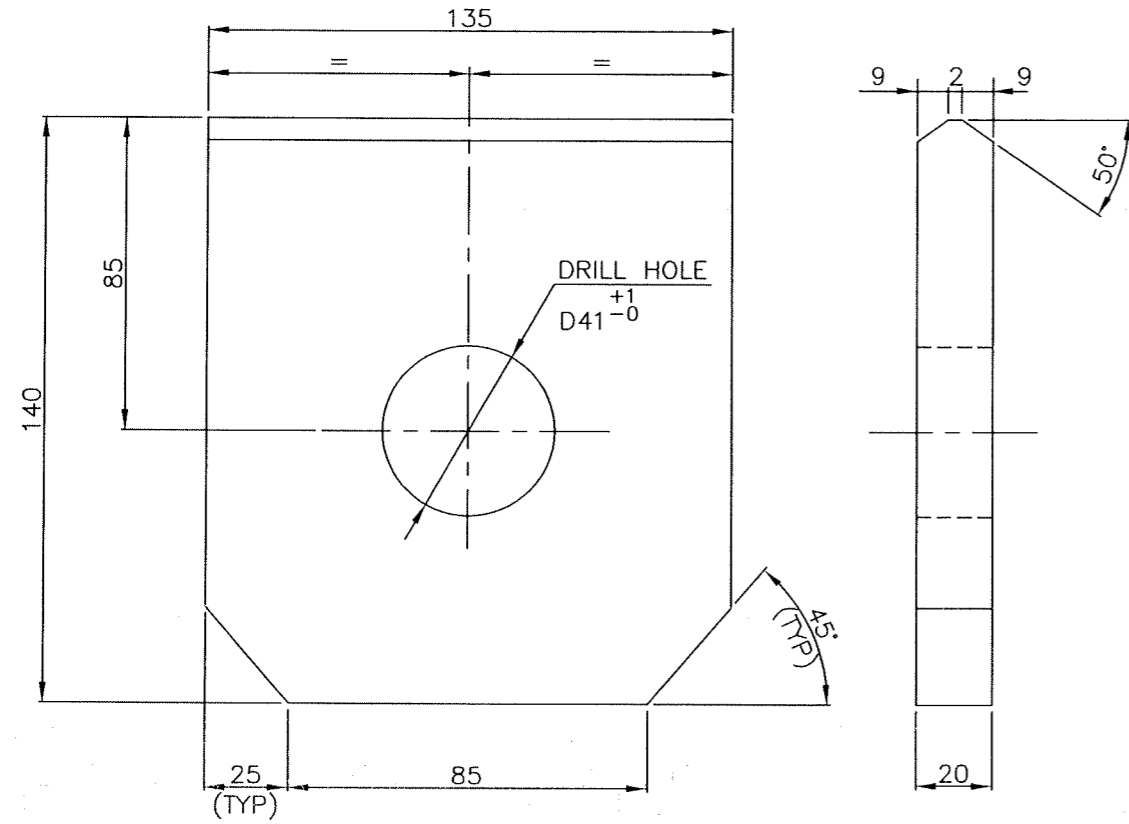
VARIANT NUMBER	ROD Ø32 2679	150391400000	C	15.300
		SA 105		
	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	UNIT	QUANTITY

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

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		NAME THOMAS	SIGNATURE	DATE 29.06.22
DEPT PP ENGG.	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE 1:5	WEIGHT (Kg) 15.300	REF TO ASSY / OLD DWG	
CODE 031						
TITLE U ROD-IV				DRAWING NO : 4-19-906-U8435		REV 00

A4 SIZE

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VARIANT NUMBER	PL.20x135x140	15 011 150 0000	2.700
		IS 2062 FE 410A	
DESCRIPTION		MATERIAL CODE	UNIT WEIGHT
		MATERIAL SPECN	QUANTITY

S.O.7906
PROJECT: NALCO-DAMANJODI

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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Bharat Heavy Electricals Ltd
UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	K.H.THOMAS	SIGNATURE	DATE
CHD	S.M.G.NAIDU		28.06.22
APPD	A.N.V.K.KISHORE		28.06.22

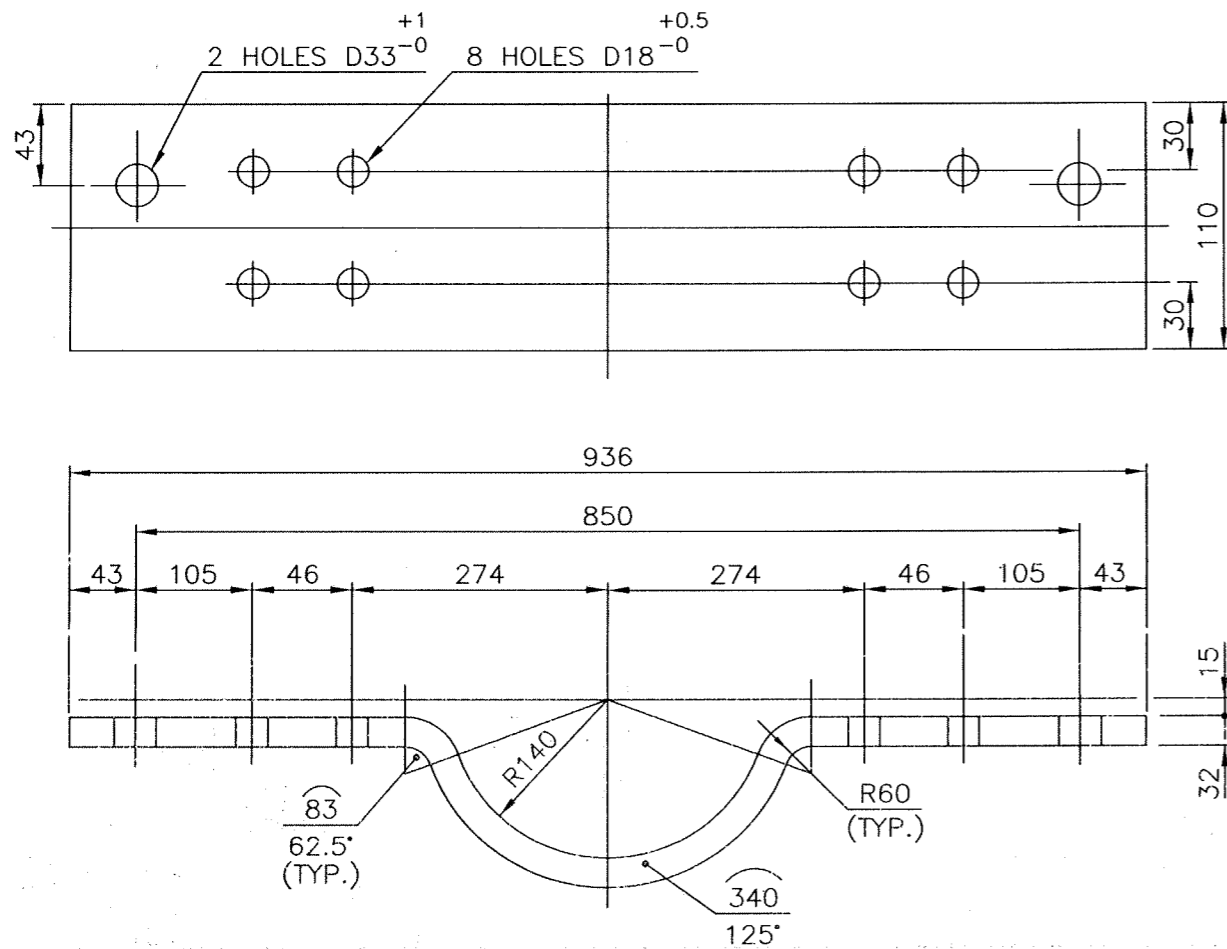
DEPT P.P.ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S.	WEIGHT (Kg) 2.700	REF TO ASSY / OLD DWG
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TITLE LUG PLATE(VLH-SH-11)	DRAWING NO : 4-19-906-U8439	REV 00
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FORM NO. 0420/2

A4 SIZE

3-19-906-U8162
DRAWING NO.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN		QTY	
		PL.32x110x1031				159421150000		28.300	
						SA 515 GR.70	C		

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

Project: NALCO-DAMANJODI
S.O. No.: 7906

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

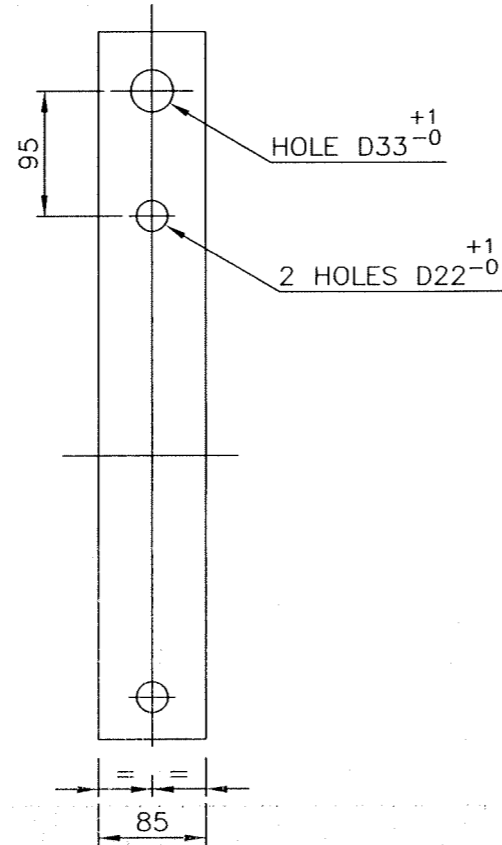
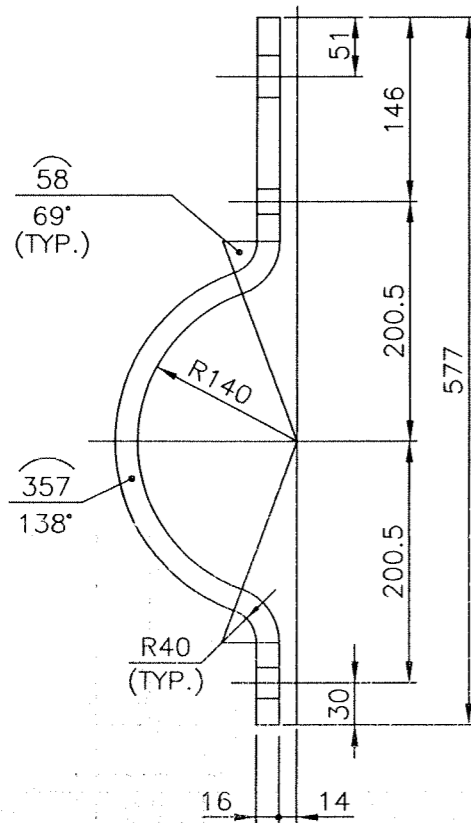
DRN	NAME	SIGNATURE	DATE
THOMAS			29.06.22
CHD	S.M.G.NAIDU		29.06.22
APPD	K.KISHORE		29.06.22

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
				28.300	

TITLE	DRAWING NO :	REV
RISER CLAMP (D273); PL.32	3-19-906-U8162	00

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

DRAWING NO: 3-19-906-U8164



ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QTY
	PL.16x85x683				1549421120000	C		7.200	
				VAR NO	MATERIAL SPECN			QUANTITY	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: Project: NALCO-DAMANJODI S.O. No.: 7906

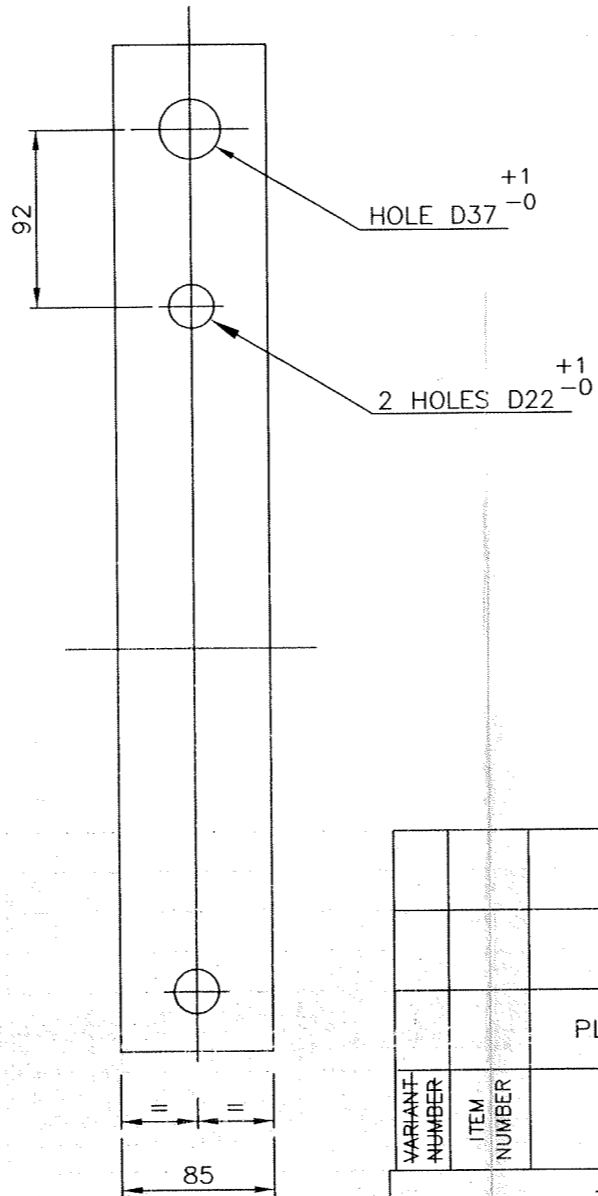
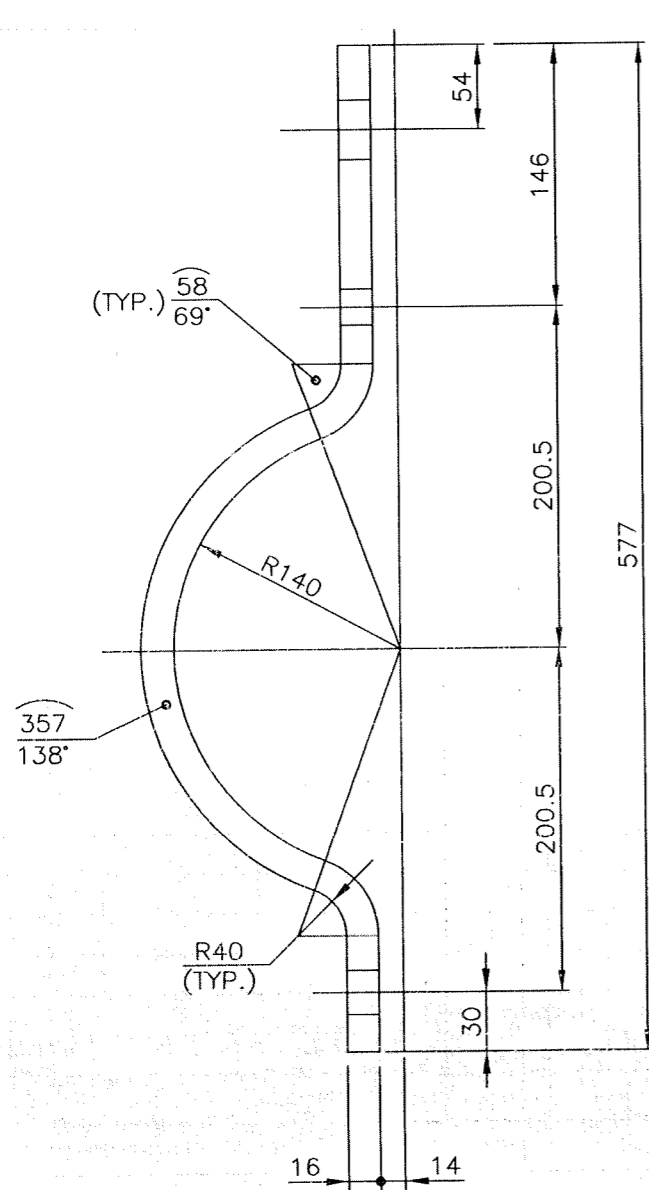
Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012	DRN	THOMAS	SIGNATURE	DATE
	CHD	S.M.G.NAIDU		29.06.22
	APPD	K.KISHORE		29.06.22

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE				7.200	

TITLE	DRAWING NO :	REV
PIPE CLAMP; D273; PL.16	3-19-906-U8164	00

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

3-19-906-U8167
DRAWING NO.



ITEM NO	DESCRIPTION	STD	DRAWING NUMBER	MATERIAL CODE	UNIT	UNIT WEIGHT
	PL.16x85x683			159421120000 SA 515 Gr.70	C	7.200
VAR NO	MATERIAL SPECN	A/C/P	QTY	QTY	QTY	QTY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

Project: NALCO-DAMANJODI
S.O. No.: 7906

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

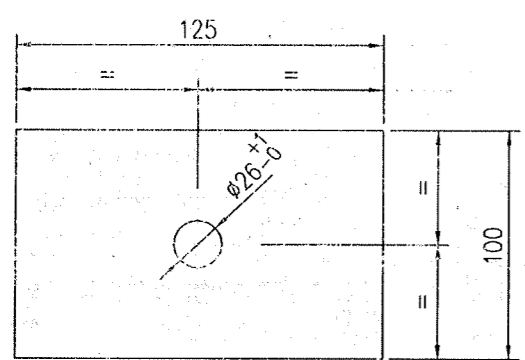
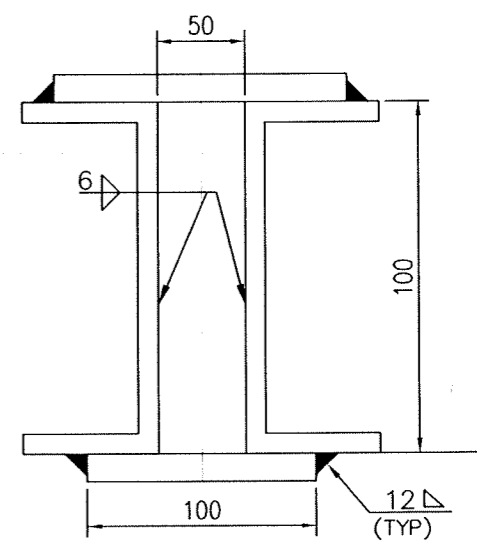
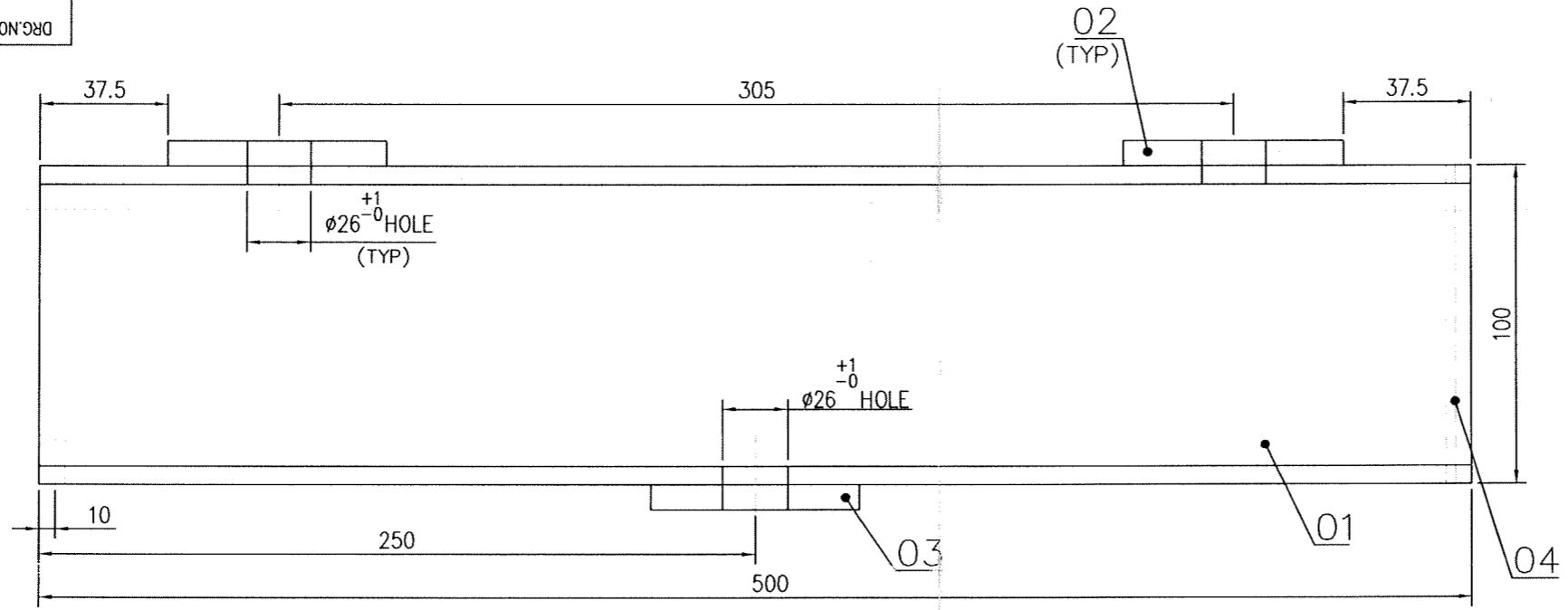
DRN	NAME	SIGNATURE	DATE
	THOMAS		20.05.22
	S.M.G.NAIDU		20.05.22
	K.KISHORE		20.05.22

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
				7.200	

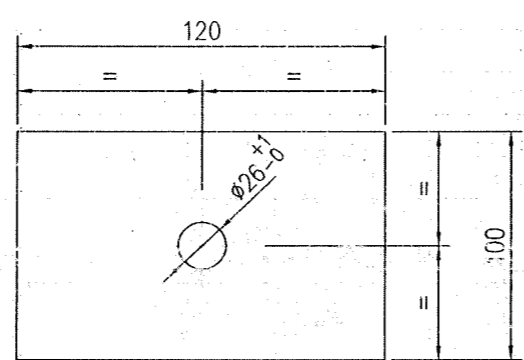
TITLE	DRAWING NO :	REV
PIPE CLAMP-I; D273; PL.16	3-19-906-U8167	00

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

3-19-906-U8165
DRG NO:



ITEM NO: 03



ITEM NO: 02

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
VAR NO						MATERIAL SPECN		D1	QUANTITY	
	04	PL. 6X60X100				152110920000			0.3	
						IS 2062 FE 410A			2	
	03	PL. 16X100X125				150110260000			1.500	
						IS 2062 FE 410A			1	
	02	PL. 16X100X120				150110260000			1.440	
						IS 2062 FE 410A			2	
	01	ISMC 100 500 LONG.				150100030000			4.780	
						IS 2062 FE 410A			2	

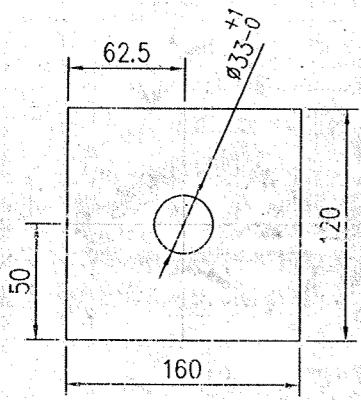
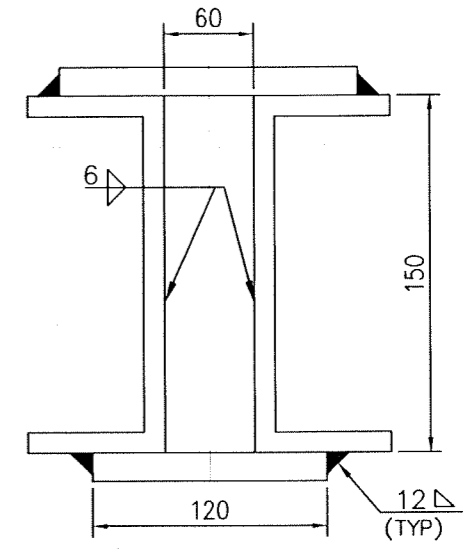
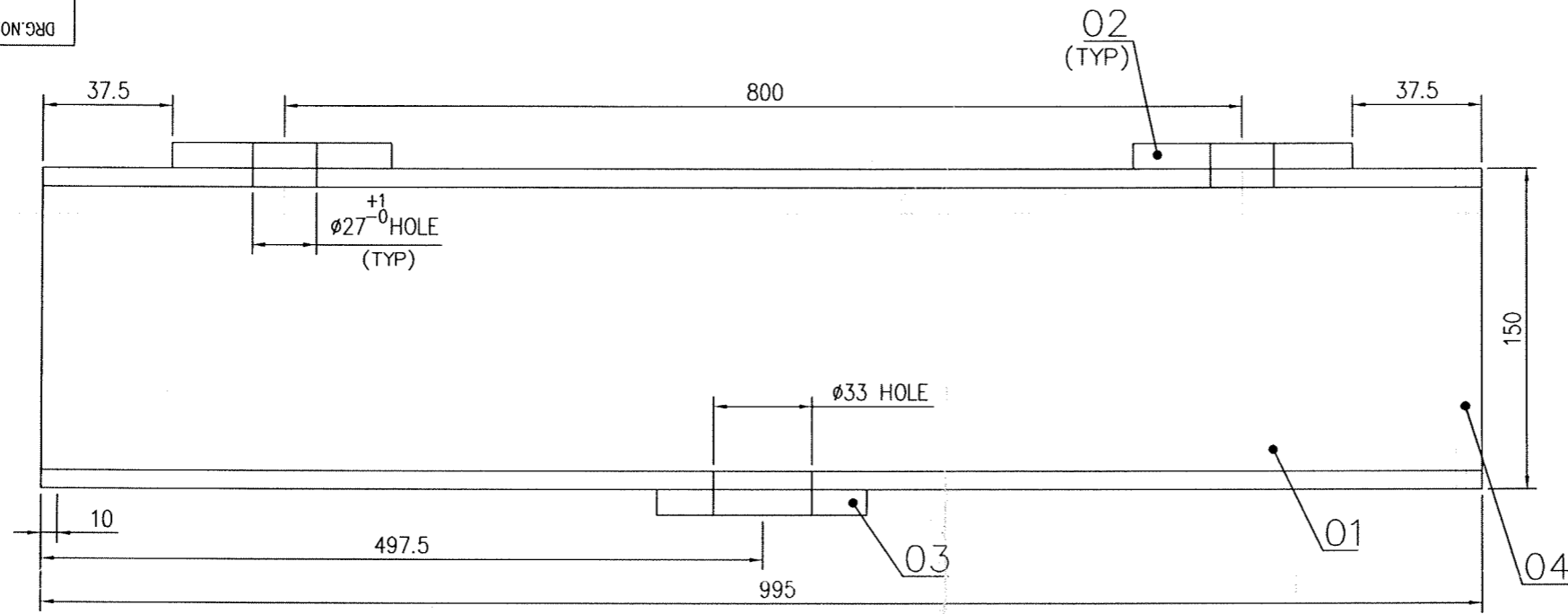
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Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	K.KISHORE		29.06.22
		APPD	K.KISHORE		29.06.22
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S.	14.540	
TITLE			DRAWING NO :		REV
COLLECTOR CHANNEL-I			3-19-906-U8165		00

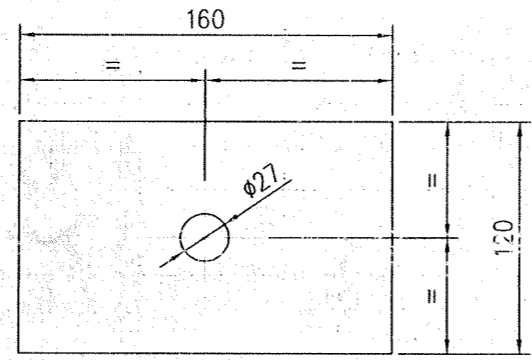
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	DATE	PPD.	CHD.	APPD.

FORM NO. 0421/2

3-19-906-U8177
DRG.NO.



ITEM NO: 03



ITEM NO: 02

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
	04	PL. 6X60X150				152110920000			0.423	
						IS 2062 FE 410A			2	
	03	PL. 16X120X160				150110260000			2.340	
						IS 2062 FE 410A			1	
	02	PL. 16X160X120				150110260000			2.340	
						IS 2062 FE 410A			2	
	01	ISMC 150 995 LONG.				150100350000			16.720	
						IS 2062 FE 410A			2	
					VAR NO	MATERIAL SPECN		D1	QUANTITY	

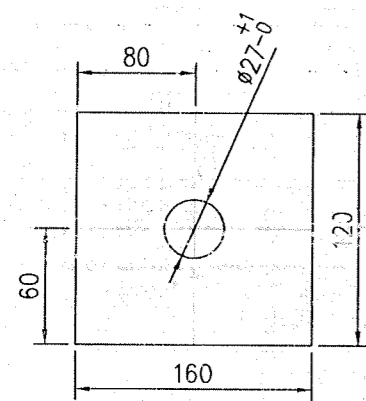
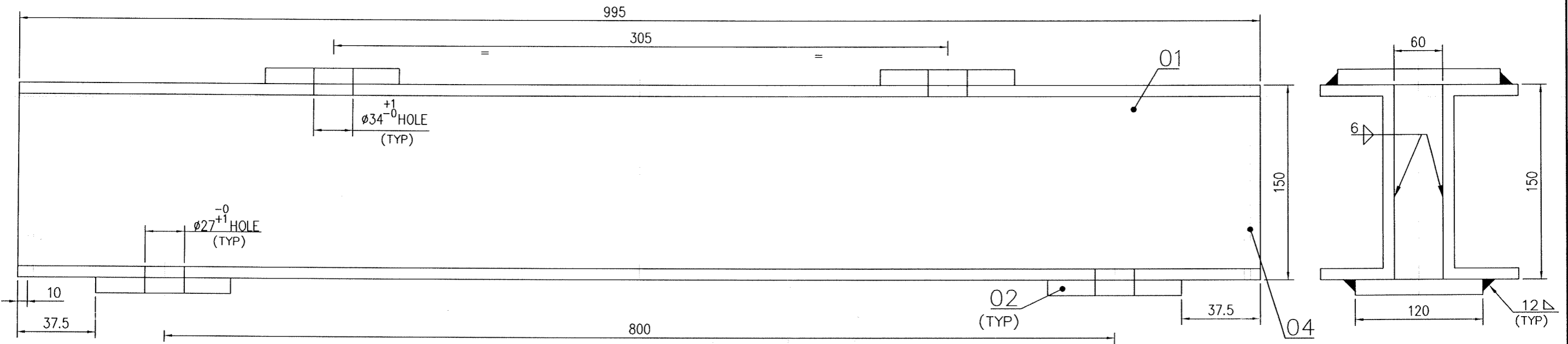
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	DATE	PPD.	CHD.	APPD.

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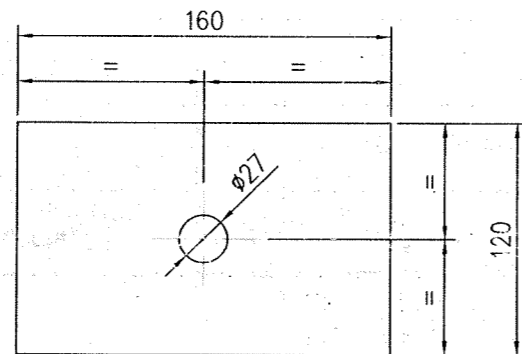
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		CHD	S.M.G.NAIDU		29.06.22
		APPD	A.N.V.K.K		29.06.22
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S.	41.036	
TITLE					REV
COLLECTOR CHANNEL-II					00
DRAWING NO :					
3-19-906-U8177					

FORM NO. 0421/2

8218U-906-61-Σ
DRG.NO.



ITEM NO: 03



ITEM NO: 02

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
					VAR NO	MATERIAL SPECN	D1	QUANTITY		
	04	PL. 6X60X150				152110920000			0.423	
						IS 2062 FE 410A			2	
	03	PL. 16X120X160				150110260000			2.340	
						IS 2062 FE 410A			2	
	02	PL. 16X160X120				150110260000			2.340	
						IS 2062 FE 410A			2	
	01	ISMC 150 995 LONG.				150100030000			16.720	
						IS 2062 FE 410A			2	

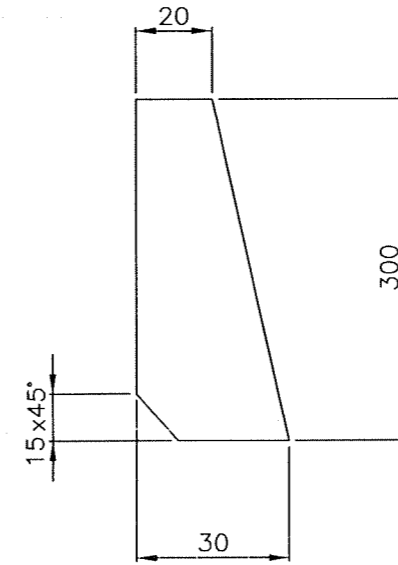
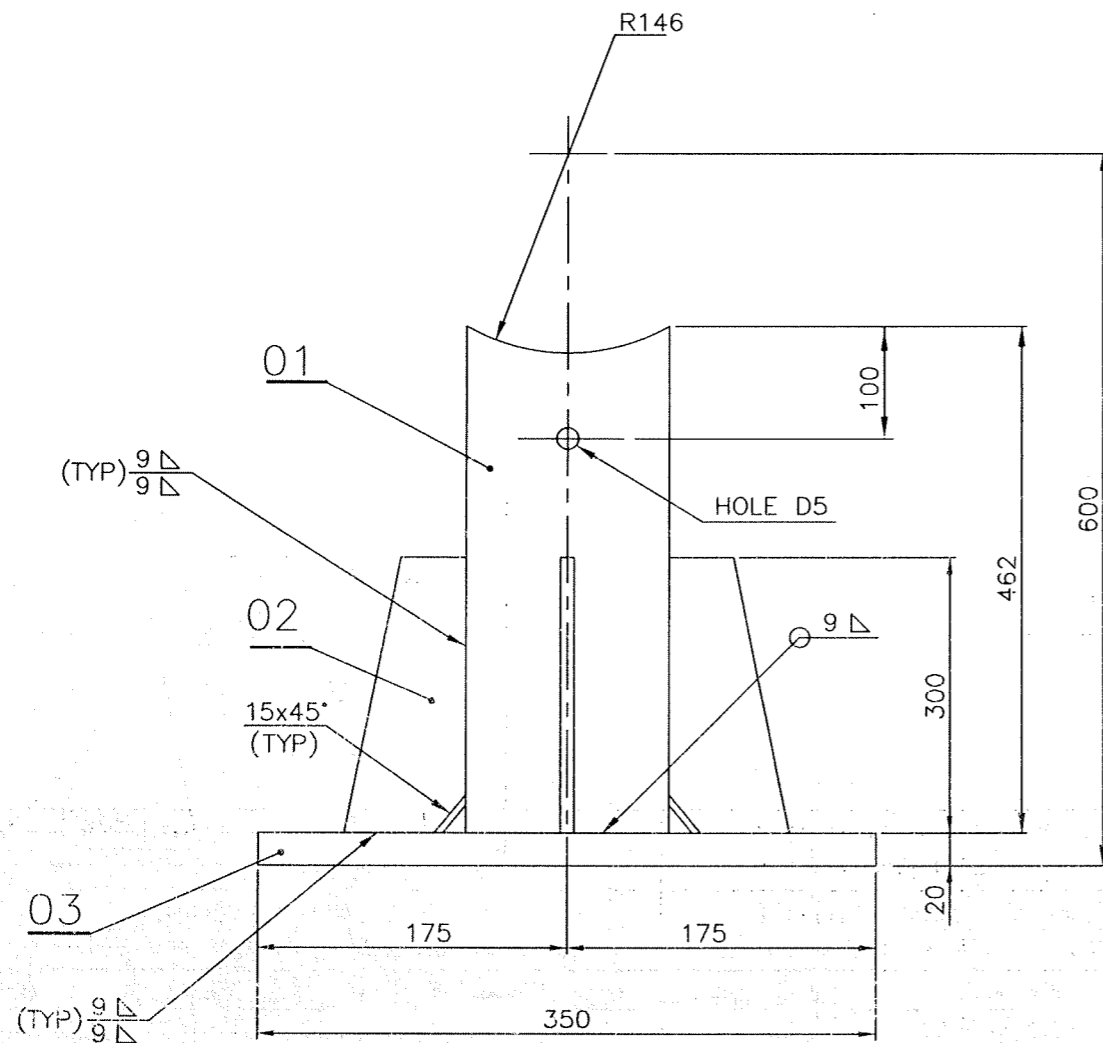
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	DATE	PPD.	CHD.	APPD.

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<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>		DRN	THOMAS	SIGNATURE	DATE	
		CHD	S.M.G.NAIDU		29.06.22	
		APPD	A.N.V.K.K		29.06.22	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE			N.T.S.	43.646		
TITLE					DRAWING NO :	REV
COLLECTOR CHANNEL-III					3-19-906-U8178	00

FORM NO. 0421/2

DRAWING NO: 3-19-906-U8181



DETAIL OF ITEM No.02

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
	03	BASE PLATE PL.20 X 350 X 350				150111500000			19.232
						IS 2062 FE 410A			1
	02	STIFFENER PLATE PL. 16 X 30 X 300				150110260000			0.917
						IS 2062 FE 410A			4
	01	PIPE D219.1 X 23.01; L=462				150824080000	C		51.350
						SA 106 Gr.B			1
					VAR NO	MATERIAL SPECN			QUANTITY

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

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		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN THOMAS	SIGNATURE	DATE 23.05.22
DEPT P.P.ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg.) 74.250	REF TO ASSY / OLD DWG	
CODE 031	TITLE ANCHOR PIPE			DRAWING NO : 3-19-906-U8181		REV 00

FORM NO. 0421/2

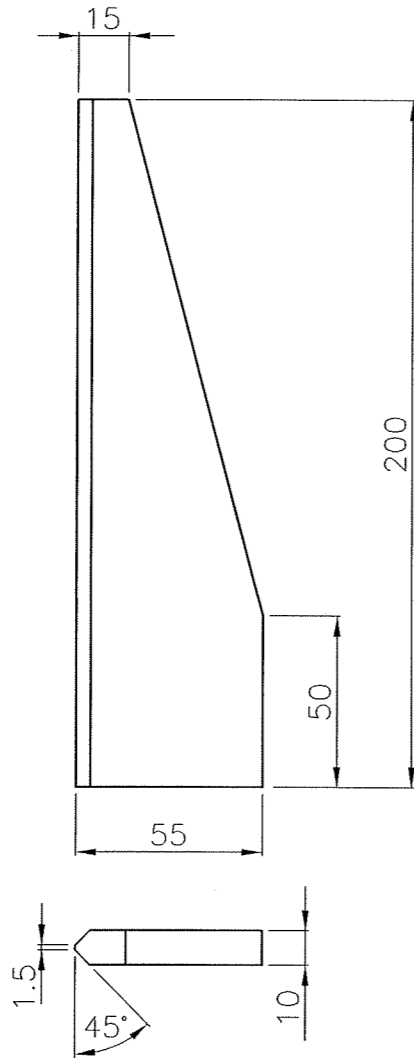
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REV	DATE	ALTERED
		CHD & APPD


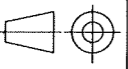
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING

MANUFACTURE REFER RELEVANT Q.C.P\Q.P
MANUFACTURING AS PER RELEVANT Q.C.P\S.Q.P

12.5/ / ~ /

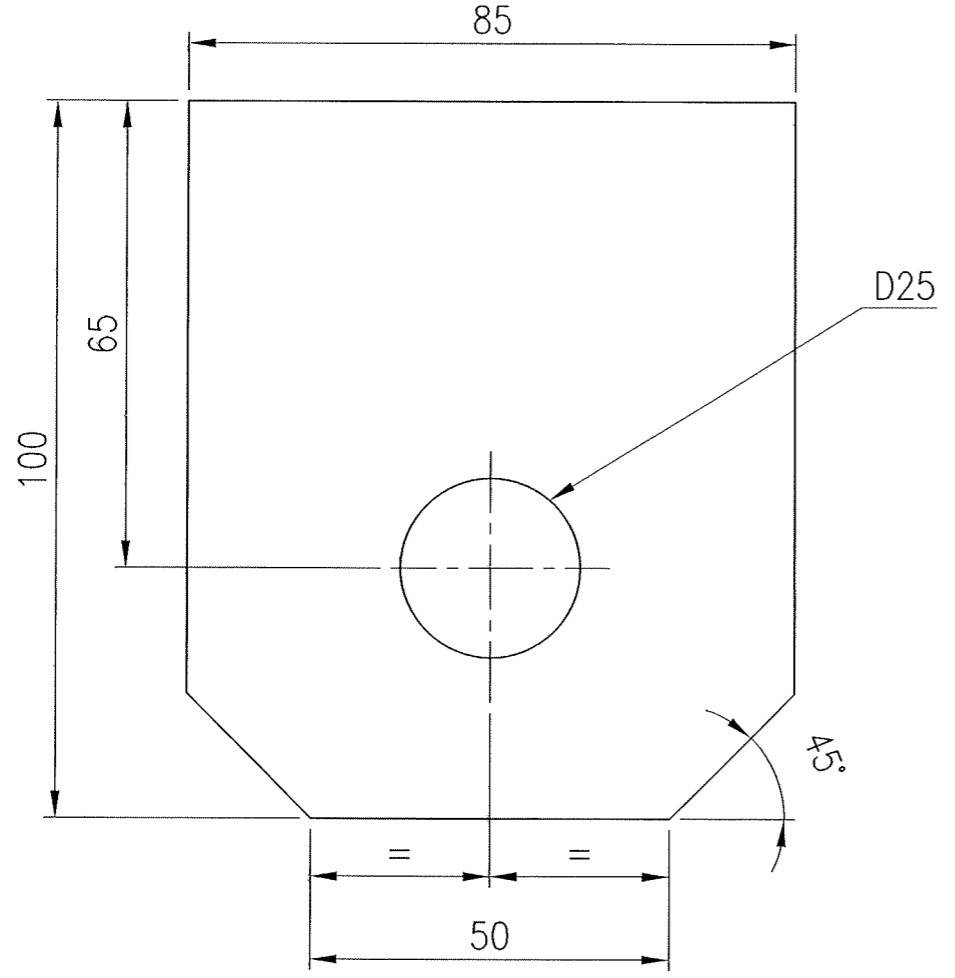


VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	15942268	0.900
						SA387 GR.22 CL.2	-
						UNIT WEIGHT	
						QUANTITY	

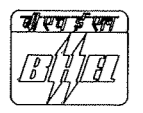
 Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014 361-321		DRN	NAME	SIGNATURE	DATE	
		CHD	G.SRINIVASAN	Sd/-XXX	10.08.10	
		APPD	R.KARUNANITHI	Sd/-XXX	10.08.10	
DEPT	FBC/HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
1322				N.T.S	0.900	
TITLE			DRAWING NO :		REV	
LUG PLATE			4-24-420-86646		00	

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
		CHD & APPD :



01	PLATE 100 x 85 x 12	STD	15011320000	C	NO	0.725
			IS2062E250A			1
ITEM NO.	DESCRIPTION	STD	MATERIAL CODE	AC/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY



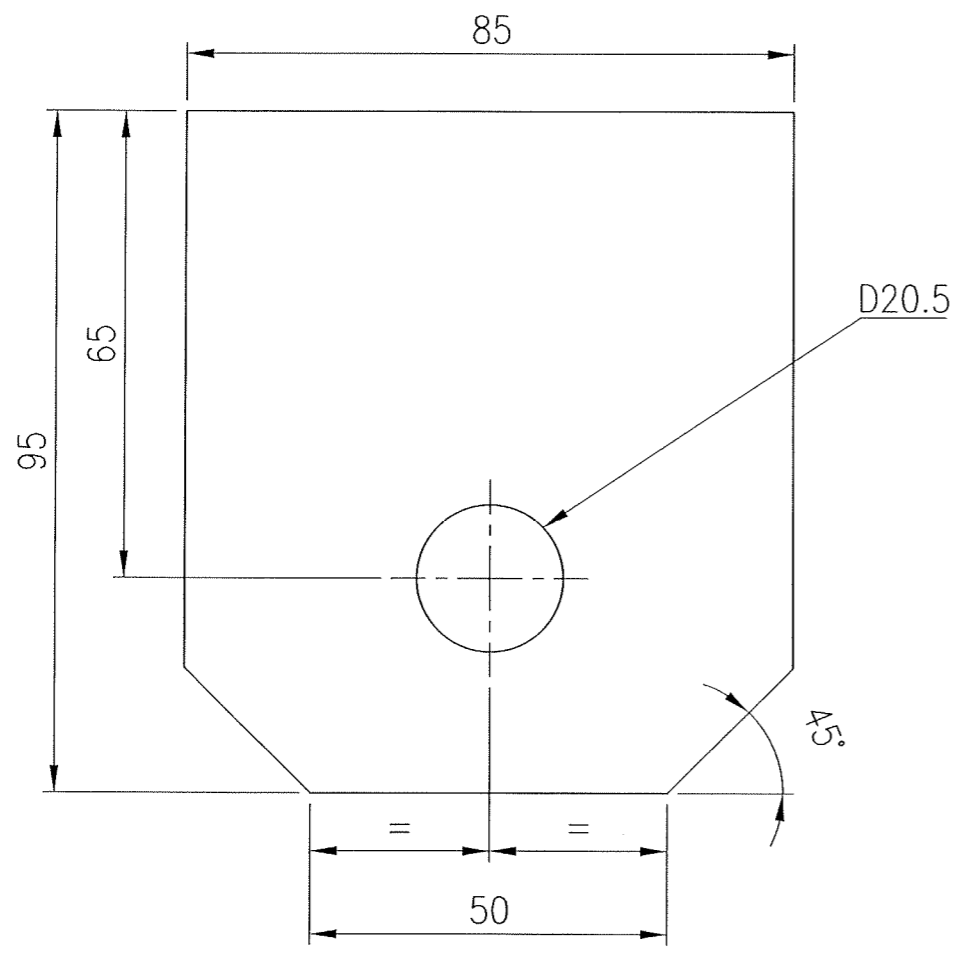
Bharat Heavy Electricals Ltd
UNIT: HEAVY PLATES AND VESSELS PLANT
VISAKHAPATNAM - 530012

DRN	NAME	DATE
CHD	K MUNAYYA	14.07.2022
APPD	V R PAVAN	14.07.2022
	TARAKESH K	14.07.2022

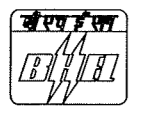
DEPT : BM	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (kg) 0.725	REF TO ASSY / OLD DWG —
TITLE LUG PLATE FOR VLH					DRAWING No. : 4-24-101-U0322
					REV 00

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
		CHD & APPD :



01	PLATE 95 x 85 x 10	STD	150110980000	C	NO	0.583
			IS2062E250A			1
ITEM NO.	DESCRIPTION	STD	MATERIAL CODE	AC/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY



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

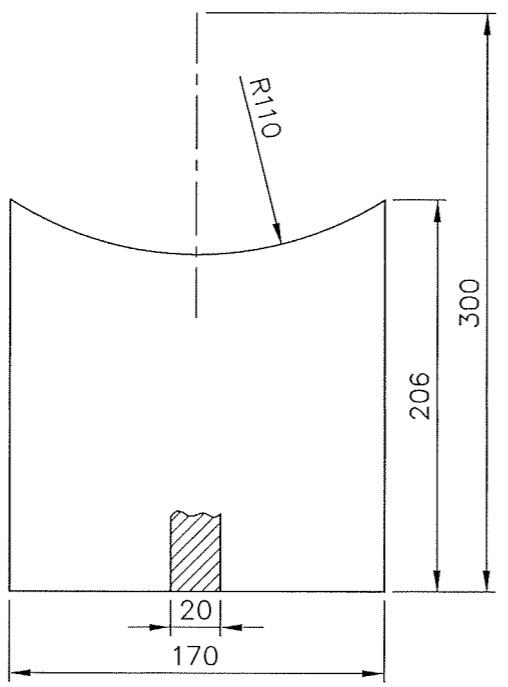
DRN	NAME	DATE
CHD	K MUNAYYA	11.07.2022
APPD	V R PAVAN	11.07.2022
	TARAKESH K	11.07.2022

DEPT : BM	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DWG
CODE			NTS	0.583	
TITLE			DRAWING No. :		REV
LUG PLATE FOR VLH			4-24-101-U0340		00



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REV	DATE	ALTERED :
01		CHD & APPD :

12.5/ ~ /

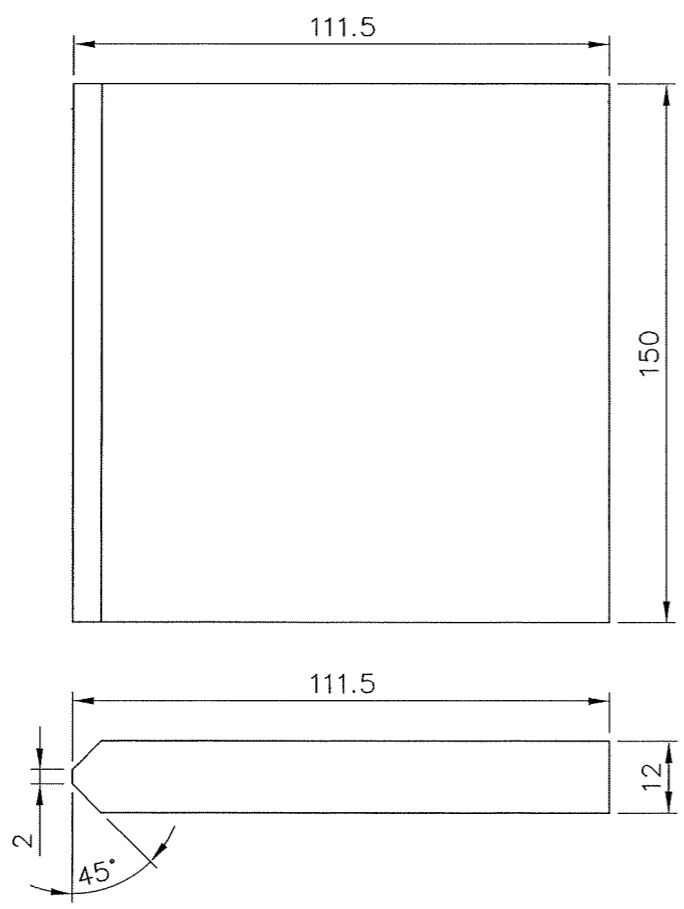


01	PLATE 20 x 170 x 206	150111500000	4.744			
		IS2062FE410A	1			
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY


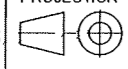
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME K.MUNAYYA	DATE 25.07.2022	
		CHD	V.R.PAVAN	25.07.2022	
		APPD	K.TARAKESH	25.07.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	4.744	
TITLE			DRAWING NO :		REV
SUPPORT PLATE NB 200			4-24-101-U0354		00

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REV	DATE	ALTERED :
01		CHD & APPD :

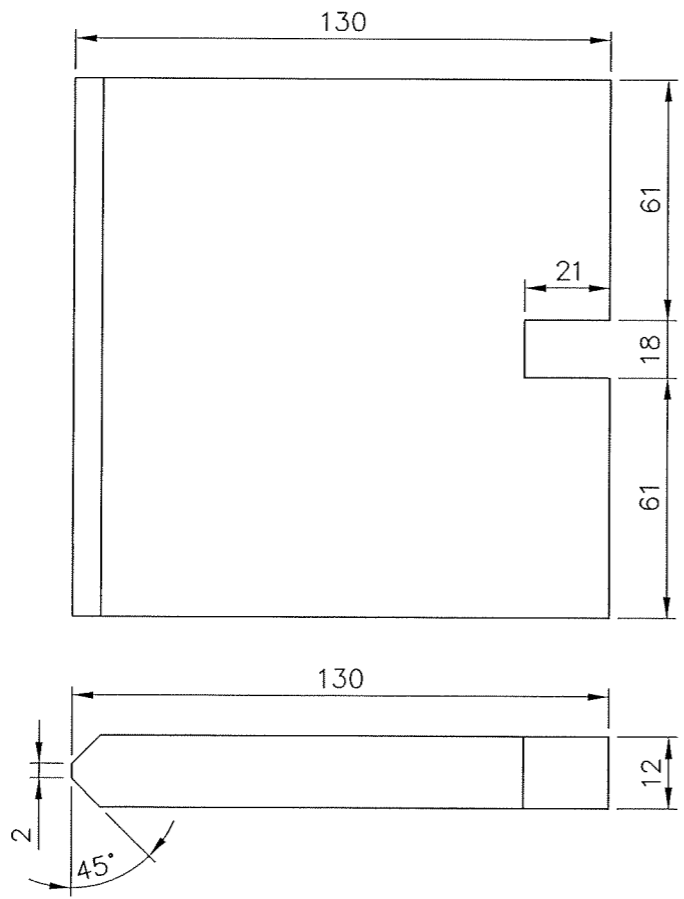


01	PLATE 12 x 111.5 x 150	150111320000		1.575		
		IS2062Fe410A		1		
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			


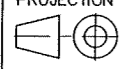
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	K.MUNAYYA	23.08.2022	
		APPD	V.R.PAVAN	23.08.2022	
DEPT	ALL	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE	DIMENSIONS ARE IN MM		NTS	1.575	
TITLE				DRAWING NO :	REV
GUIDE PLATE 2" (CS)				4-24-101-U0353	00

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REV	DATE	ALTERED :
01		CHD & APPD :

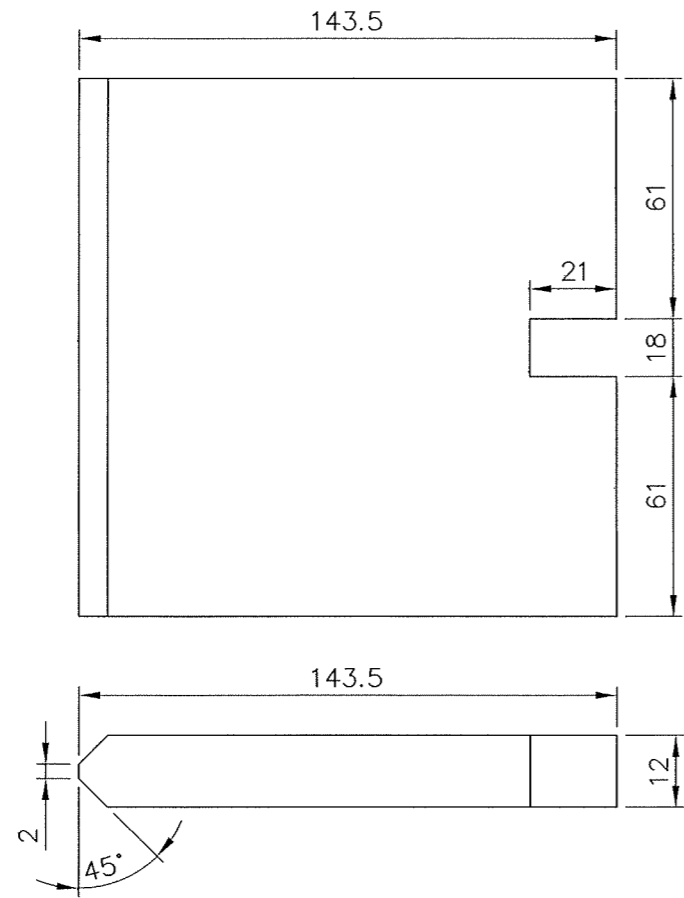


01	PLATE 12 x 140 x 130	STD	15011320000	A/C/P	UNIT	1.679
			IS2062Fe410A			1
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	K.MUNAYYA	DATE	25.07.2022
				CHD	V.R.PAVAN	DATE	25.07.2022
				APPD	K.TARAKESH	DATE	25.07.2022
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE			NTS	1.679			
TITLE				DRAWING NO :		REV	
SUPPORT PLATE 2" (CS)				4-24-101-U0352		00	

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REV	DATE	ALTERED :
01		CHD & APPD :



01	PLATE 12 x 140 x 143.5	159422690000			1.857	
		SA387Gr.22			1	
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY



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

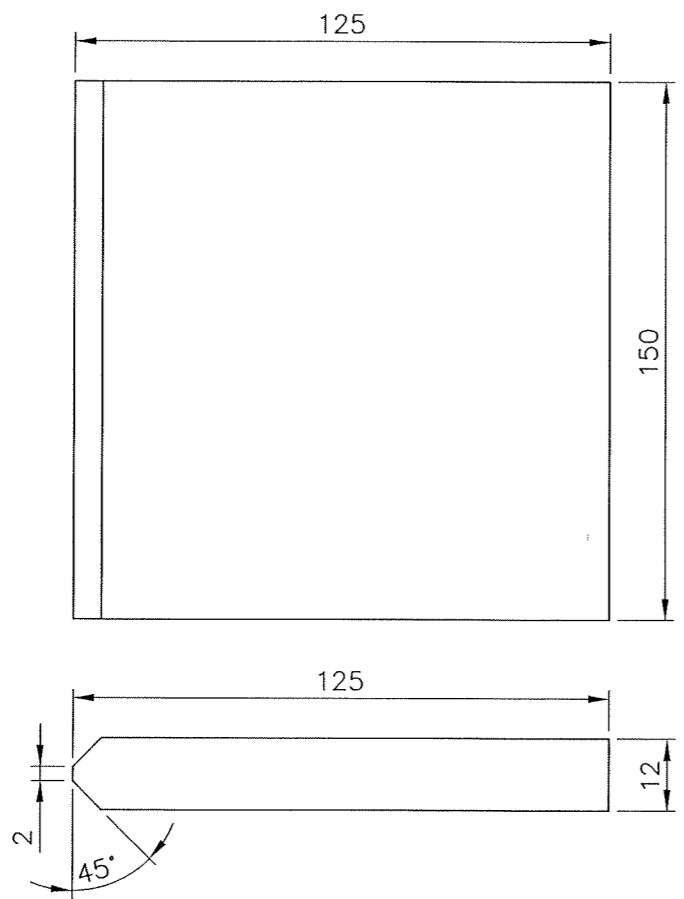
DRN	NAME	DATE
CHD	K.MUNAYYA	25.07.2022
APPD	V.R.PAVAN	25.07.2022
	K.TARAKESH	25.07.2022

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.857	


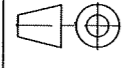
TITLE	DRAWING NO :	REV
SUPPORT PLATE 1" (AS)	4-24-101-U0350	00

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REV	DATE	ALTERED :
01		CHD & APPD :

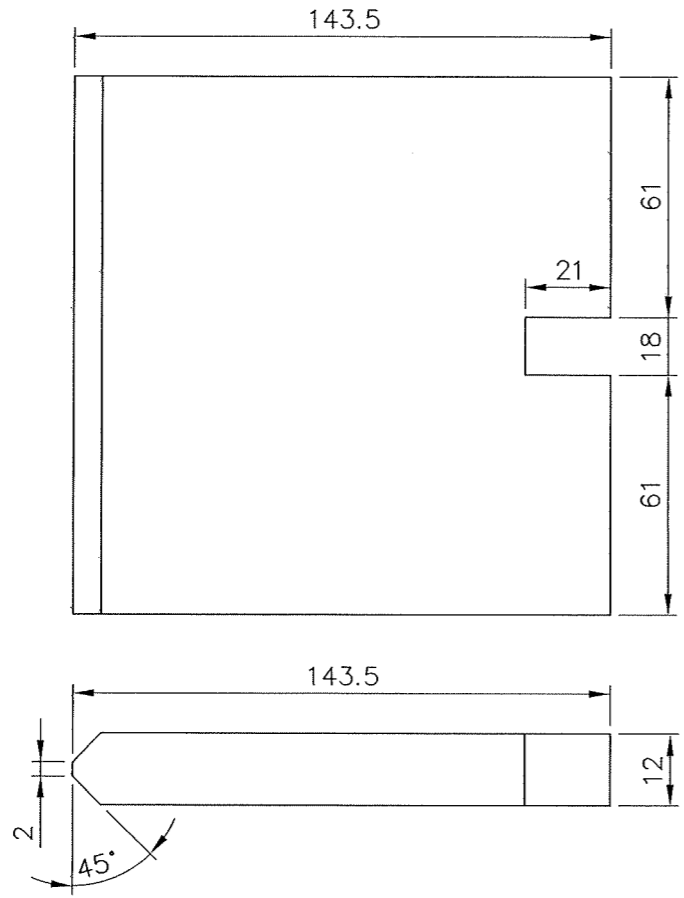


01	PLATE 12 x 125 x 150	STD	150111320000	A/C/P	UNIT	1.766
			IS2062Fe410A			1
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY


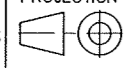
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	K.MUNAYYA	23.08.2022	
		APPD	V.R.PAVAN	23.08.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.766	
TITLE			DRAWING NO :	REV	
GUIDE PLATE 1" (CS)			4-24-101-U0349	00	

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REV	DATE	ALTERED :
01		CHD & APPD :

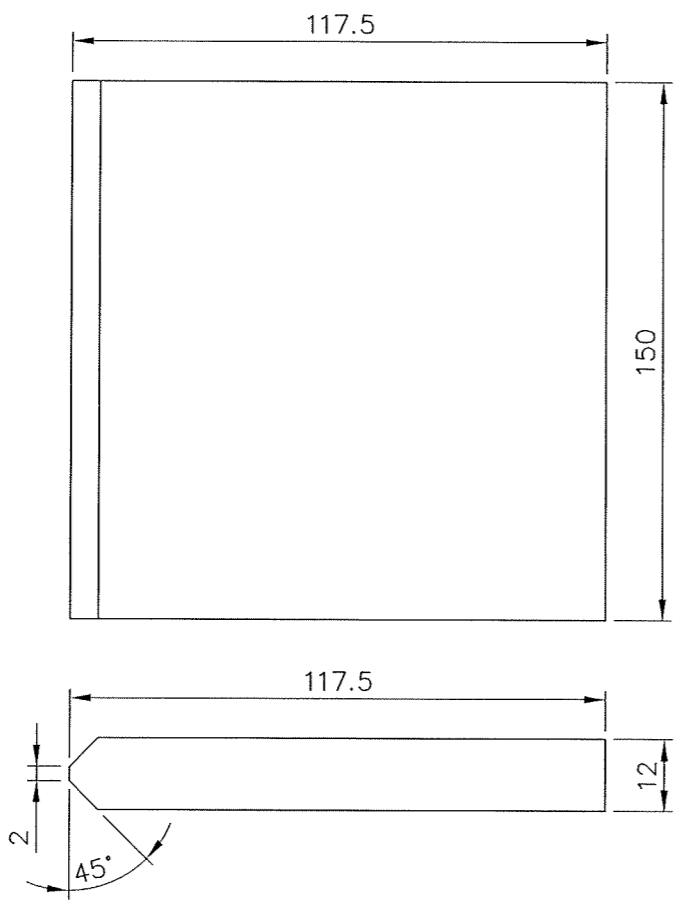


01	PLATE 12 x 140 x 143.5	150111320000			1.857
		IS2062Fe410A			1
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WEIGHT
			MATERIAL SPECN	UNIT	QUANTITY


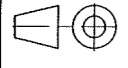
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	K.MUNAYYA	25.07.2022	
		APPD	V.R.PAVAN	25.07.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.857	
TITLE			DRAWING NO :		REV
SUPPORT PLATE 1" (CS)			4-24-101-U0347		00

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REV	DATE	ALTERED :
01		CHD & APPD :

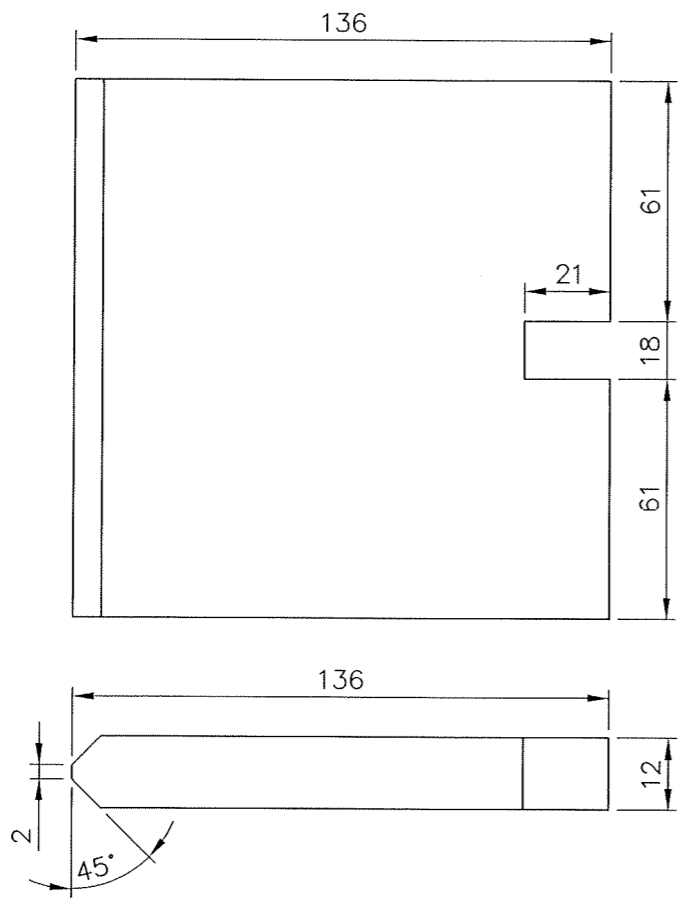


01	PLATE 12 x 117.5 x 150	150111320000	1.660
		IS2062Fe410A	1
VARIANT NUMBER	DESCRIPTION	STD	UNIT WEIGHT
		MATERIAL CODE	QUANTITY
		MATERIAL SPECN	UNIT


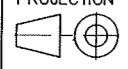
		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN K.MUNAYYA 23.08.2022	DATE 23.08.2022
		CHD V.R.PAVAN 23.08.2022			
		APPD K.TARAKESH 23.08.2022			
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.660	
TITLE			DRAWING NO :		REV
GUIDE PLATE 1.5" (CS)			4-24-101-U0348		00

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REV	DATE	ALTERED :
01		CHD & APPD :



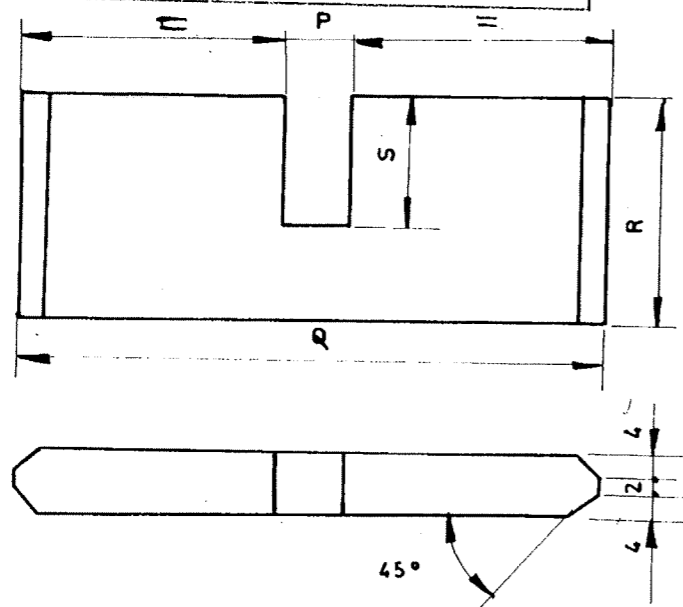
01	PLATE 12 x 140 x 136	15011320000	1.758
		IS2062Fe410A	1
VARIANT NUMBER	DESCRIPTION	STD	UNIT WEIGHT
		MATERIAL CODE	UNIT WEIGHT
		MATERIAL SPECN	QUANTITY

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN K.MUNAYYA 25.07.2022	DATE 25.07.2022
DEPT CODE	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg) 1.758	REF TO ASSY / OLD DWG
TITLE SUPPORT PLATE 1.5" (CS)				DRAWING NO : 4-24-101-U0346	REV 00

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

REV	DATE	ALTERED	REV	DATE	ALTERED
01	17-11-87	B. Sing. CHD & APPD: K. S. R.	02	27/3/98	H. S. R. CHD & APPD: K. S. R.
MACHINING SYMBOL ADDED.			MATERIAL SPECN. ALTERED.		

12.5



VAR NO.	PIPE SIZE	P	Q	R	S
01	1 1/2" (D 48.3)	12	48	30	20
02	2" (D 60.3)	12	60	30	20
03	2 1/2" (D 73)	12	74	30	20
04	N B 100 (D 108)	14	109	35	25

1039 00 24

VARIANT NO.	DESCRIPTION	STD	MATL CODE	A	UNIT	UNIT WT.
04	PL 10 X 109 X 35		15 - 011 - 098			0.299
			IS 2062 Fe 410A			
03	PL 10 X 74 X 30		15 - 011 - 098			0.174
			IS 2062 Fe 410A			
02	PL 10 X 60 X 30		15 - 011 - 098			0.141
			IS 2062 Fe 410A			
01	PL 10 X 48 X 30		15 - 011 - 098			0.113
			IS 2062 Fe 410A			
			MATL SPEC.	C	DI	QTY.



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

DRN	NAME	SIGN.	DATE
	B. SIVARAS	<i>B. Sivaras</i>	
CHD.	G. S. R.	<i>G. S. R.</i>	27/9/87
APPD.	G. S. R.	<i>G. S. R.</i>	29/9/87

DEPT	GRADE OF UNTOLO DIM.	SCALE	WEIGHT (kg.)	REF TO ASSY./OLD DRG.	ITEM NO.
PP/BM	C/M/F	NTS			

TITLE	CARD CODE	DRAWING NO.	REV.
SUSPENSION PLATE	U 01	4.24.201.03560	02

Size A4

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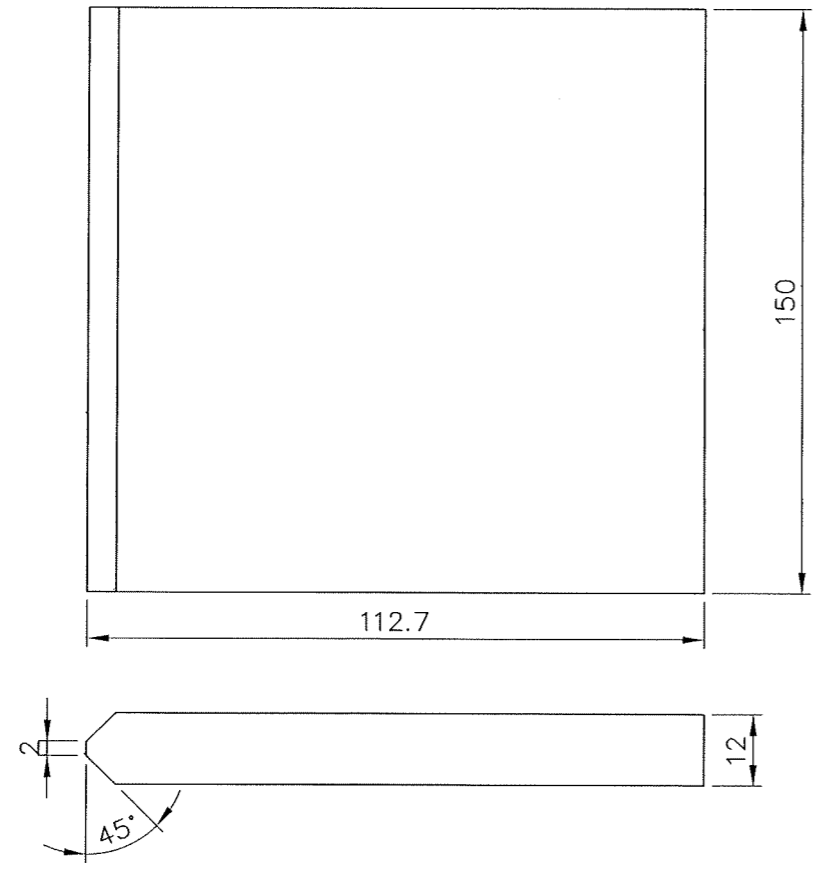
05-245 C

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REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT Q.C.P\Q.P
MANUFACTURING AS PER RELEVANT Q.C.P\Q.P

12.5/
√

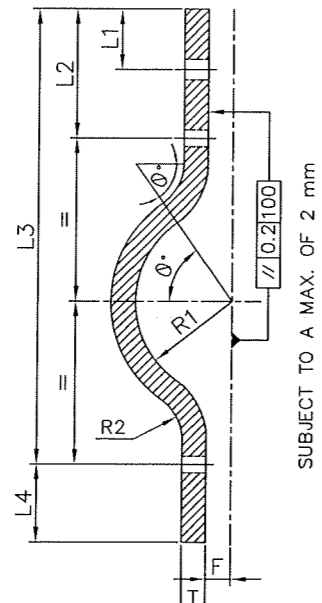


VARIANT NUMBER	DESCRIPTION	STD	150111320000	A/C/P	UNIT	1.574
			IS2062Fe410A			1
			MATERIAL CODE			UNIT WEIGHT
			MATERIAL SPECN			QUANTITY

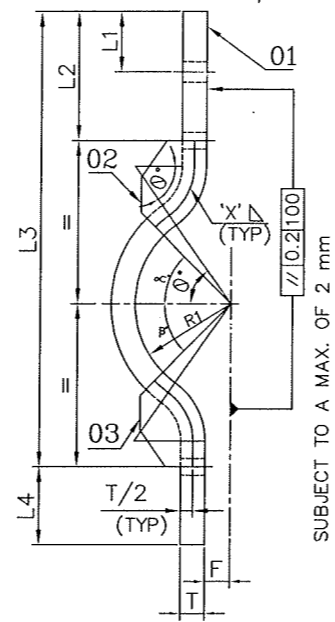
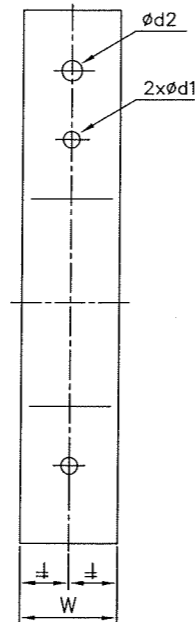
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME K.MUNAYYA	DATE 21.07.2022	
		CHD	V.R.PAVAN	21.07.2022	
		APPD	K.TARAKESH	21.07.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE NTS	WEIGHT (Kg) 1.574	REF TO ASSY / OLD DWG
TITLE PIPE GUIDE OD 60.3		DRAWING NO : 4-24-101-U0345		REV 00	

DRAWING NO: 2-24-346-00917

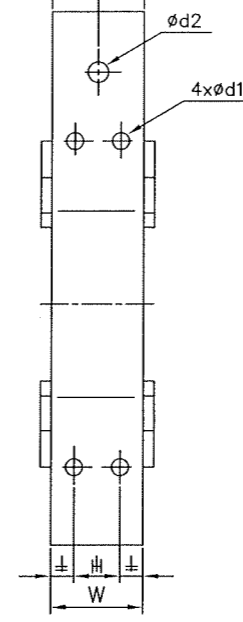
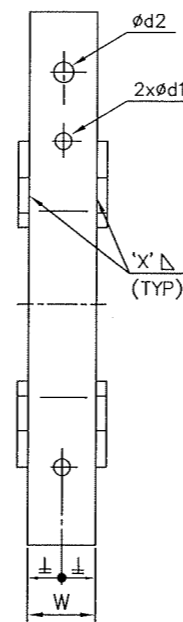
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299



TYPE-A



TYPE-B



TYPE-C

VAR NO	PIPE SIZE	L ₁	L ₂	L ₃	L ₄	ø _{d1}	ø _{d2}	F	H	R ₁	R ₂	θ°	α°	β°	TYPE	ITEM NO:01 (QTY:01)		2-24-346-00921				WT (Kg) 1/2 CLAMP	WELD SIZE 'X' Δ	REMARKS	
																RAW MATERIAL SIZE T x W x DL	MATERIAL CODE	WT (Kg)	ITEM NO:02 VAR.NO.	QTY	ITEM NO:03 VAR.NO.				QTY
01	73.0	34	147	291	20	15	18	10	-	38.2	20	54	-	-	A	10 x 50 x 329	15-942-279	1.290	-	-	-	-	1.290	-	
02	88.9	34	158	320	20	15	18	10	-	46.2	20	58	-	-	A	10 x 55 x 366	15-942-279	1.580	-	-	-	-	1.580	-	
03	114.3	34	163	355	20	15	18	10	-	59.2	20	63	-	-	A	10 x 55 x 413	15-942-279	1.780	-	-	-	-	1.780	-	
04	168.3	42	176	458	26	19	26	10	-	86.7	32	64	-	-	A	16 x 60 x 544	15-942-281	4.100	-	-	-	-	4.100	-	
05	219.1	26	197	495	20	15	18	10	-	112.5	16	76	-	-	A	8 x 50 x 611	15-942-278	1.920	-	-	-	-	1.920	-	
06	219.1	51	213	529	38	27	30	12.5	-	112.5	16	74	36	36	B	8 x 100 x 659	15-942-278	4.140	01	2	01	2	5.448	4	
07	273.0	26	199	563	20	15	18	10	-	140	20	76	-	-	A	10 x 40 x 706	15-942-279	2.220	-	-	-	-	2.220	-	
08	273.0	51	215	597	38	27	30	12.5	-	140	20	76	39	39	B	10 x 90 x 754	15-942-279	5.330	02	2	02	2	7.482	5	
09	323.9	42	198	666	26	19	26	10	-	165.8	40	72	-	-	A	20 x 60 x 830	15-942-252	7.820	-	-	-	-	7.820	-	
10	323.9	61	233	669	32	23	36	15	50	165.8	24	75	41	41	C	12 x 125 x 842	15-942-280	9.910	03	2	03	2	12.906	6	
11	406.4	43	244	742	26	19	26	10	-	207.8	16	82	50	50	B	8 x 65 x 970	15-942-278	3.960	05	2	05	2	5.616	4	
12	406.4	54	239	769	38	27	36	12.5	-	207.8	24	79	45	45	B	12 x 85 x 998	15-942-280	7.990	06	2	06	2	11.926	6	
13	406.4	64	235	793	47	33	41	15	-	207.8	32	76	41	41	B	16 x 100 x 1021	15-942-281	12.820	07	2	07	2	16.456	8	
14	457.0	43	253	803	26	19	26	10.5	-	233.7	16	82	52	52	B	8 x 65 x 1059	15-942-278	4.320	09	2	09	2	6.120	4	
15	457.0	54	248	830	38	27	36	12.5	-	233.7	24	80	47	47	B	12 x 85 x 1087	15-942-280	8.700	10	2	10	2	12.976	6	
16	457.0	64	243	855	47	33	41	15	-	233.7	32	77	43	43	B	16 x 100 x 1111	15-942-281	13.950	11	2	11	2	18.678	8	
17	508.0	43	262	864	26	19	26	11	-	259.5	16	83	53	53	B	8 x 65 x 1148	15-942-278	4.690	13	2	13	2	6.630	4	
18	508.0	54	246	902	38	27	36	12.5	-	259.5	32	79	46	46	B	16 x 80 x 1181	15-942-281	11.870	14	2	14	2	17.394	8	
19	508.0	64	261	907	32	23	41	15	50	259.5	32	78	47	47	C	16 x 125 x 1177	15-942-281	18.480	16	2	16	2	25.536	8	
20	508.0	72	260	924	47	33	48	17.5	70	259.5	32	78	44	44	C	16 x 160 x 1204	15-942-281	24.200	17	2	17	2	32.640	8	
21	559.0	43	301	955	26	19	26	12	-	285.5	16	83	54	54	B	8 x 65 x 1267	15-942-278	5.170	19	2	19	2	7.246	4	
22	559.0	54	285	993	38	27	36	12.5	-	285.5	32	80	48	48	B	16 x 80 x 1301	15-942-281	13.070	20	2	20	2	17.006	8	
23	559.0	64	299	999	32	23	41	15	50	285.5	32	79	48	48	C	16 x 125 x 1297	15-942-281	20.360	21	2	21	2	27.900	8	
24	559.0	72	299	1015	47	33	48	17.5	70	285.5	32	79	46	46	C	16 x 160 x 1325	15-942-281	26.630	22	2	22	2	35.654	8	

NOTES: -

- PIPE CLAMPS SHALL BE MANUFACTURED FROM FLATS OR FROM PLATES SHEARED ALONG THE GRAINS AND THE EDGES DRESSED OFF SHARP CORNERS.
- SUBSTITUTION OF PLATE MATERIAL SA387 GR22 CL2 (P) IN PLACE OF SA387 GR12 CL2 (P) IS ACCEPTABLE.
- ALL HOLES SHALL BE MATCH DRILLED BY ASSEMBLING THE HALF CLAMPS.
- MANUFACTURE AND INSPECTION SHALL BE AS PER QCP:06 OF PIPING CENTRE.
- DIMENSIONS W, H, L₁, L₂, L₃ & L₄ SHALL BE MAINTAINED WITH TOLERANCE OF ±1mm FROM THE EDGE.
- REFER DRAWING NO.2-24-346-00918 & 2-24-346-00931 FOR B.O.M. DETAILS AND DRG NO.2-24-346-00929 FOR CLAMP SELECTION.
- ALLOY STEEL CLAMP SHALL HAVE FINAL COATING OF WHITE PAINT.
- CLAMP SHALL BE SUPPLIED IN ASSEMBLED CONDITION WITH FASTENERS PROPERLY TIGHTENED AS PER THE DRAWING NOS. 2-24-346-00918 & 2-24-346-00931.
- TOP AND BOTTOM RIBS SHALL NOT BE INTERCHANGED.

MATERIAL: SA387 Gr12 CL2 (P)

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		STANDARD					
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.	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	C.Rengaraju	SIGNATURE	DATE	06-10-2004
			CHD	K.Periasamy			06-10-2004
			APPD	K.Periasamy			
DEPT	BM	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE	121			N.T.S.	REFER TABLE	2-80-999-99253/04	
TITLE						DRAWING NO :	
PIPE CLAMP (AS)						2-24-346-00917 00	
						SHEET 01 OF 02	

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

2-24-346-00918
DRAWING NO.

A

A

B

B

C

C

D

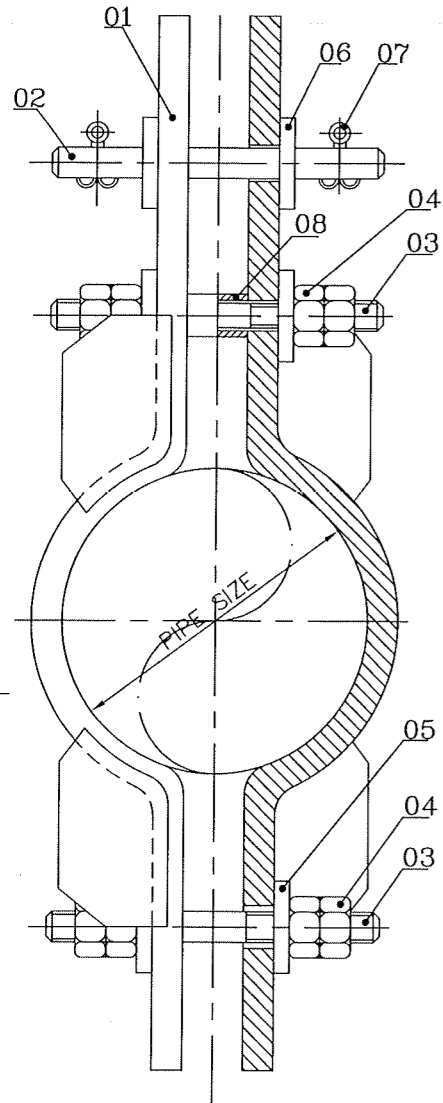
D

E

E

F

F



ASSY. VAR. NO.	PIPE SIZE	ITEM NO:1 PIPE CLAMP			ITEM NO:2 LOAD PIN			ITEM NO:3 STUD			ITEM NO:4 NUT			ITEM NO:5 STUD WASHER			ITEM NO:6 LOAD PIN WASHER			ITEM NO:7 SPLIT PIN			ITEM NO:8 SPACER RING			TOTAL WT(Kg)	BIN CODE	REMARKS
		DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY	DRAWING NO	VAR NO	QTY			
01	73.0	2-24-346-00917	01	2	4-24-346-06287	08	1	4-24-346-06286	04	2	413-24-12000	-	8	414-08-12000	-	4	414-08-16000	-	2	417-04-04025	-	2	4-24-346-06288	01	1	3.221		
02	88.9	2-24-346-00917	02	2	4-24-346-06287	08	1	4-24-346-06286	04	2	413-24-12000	-	8	414-08-12000	-	4	414-08-16000	-	2	417-04-04025	-	2	4-24-346-06288	01	1	3.801		
03	114.3	2-24-346-00917	03	2	4-24-346-06287	08	1	4-24-346-06286	04	2	413-24-12000	-	8	414-08-12000	-	4	414-08-16000	-	2	417-04-04025	-	2	4-24-346-06288	01	1	4.201		
04	168.3	2-24-346-00917	04	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	02	1	9.679		
05	219.1	2-24-346-00917	05	2	4-24-346-06287	08	1	4-24-346-06286	04	2	413-24-12000	-	8	414-08-12000	-	4	414-08-16000	-	2	417-04-04025	-	2	4-24-346-06288	01	1	4.481		
06	219.1	2-24-346-00917	06	2	4-24-346-06287	10	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-27000	-	2	417-04-06045	-	2	4-24-346-06288	09	1	14.062		
07	273.0	2-24-346-00917	07	2	4-24-346-06287	08	1	4-24-346-06286	04	2	413-24-12000	-	8	414-08-12000	-	4	414-08-16000	-	2	417-04-04025	-	2	4-24-346-06288	01	1	5.081		
08	273.0	2-24-346-00917	08	2	4-24-346-06287	10	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-27000	-	2	417-04-06045	-	2	4-24-346-06288	09	1	18.130		
09	323.9	2-24-346-00917	09	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	02	1	17.119		
10	323.9	2-24-346-00917	10	2	4-24-346-06287	11	1	4-24-346-06286	06	4	413-24-20000	-	16	414-08-20000	-	8	414-08-33000	-	2	417-04-08056	-	2	4-24-346-06288	08	2	30.418		
11	406.4	2-24-346-00917	11	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	02	1	12.711		
12	406.4	2-24-346-00917	12	2	4-24-346-06287	11	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-33000	-	2	417-04-08056	-	2	4-24-346-06288	09	1	27.656		
13	406.4	2-24-346-00917	13	2	4-24-346-06287	12	1	4-24-346-06286	02	2	413-24-30000	-	8	414-08-30000	-	4	414-08-39000	-	2	417-04-08056	-	2	4-24-346-06288	11	1	39.577		
14	457.0	2-24-346-00917	14	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	03	1	13.723		
15	457.0	2-24-346-00917	15	2	4-24-346-06287	11	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-33000	-	2	417-04-08056	-	2	4-24-346-06288	09	1	29.756		
16	457.0	2-24-346-00917	16	2	4-24-346-06287	12	1	4-24-346-06286	02	2	413-24-30000	-	8	414-08-30000	-	4	414-08-39000	-	2	417-04-08056	-	2	4-24-346-06288	11	1	44.021		
17	508.0	2-24-346-00917	17	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	04	1	14.747		
18	508.0	2-24-346-00917	18	2	4-24-346-06287	11	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-33000	-	2	417-04-08056	-	2	4-24-346-06288	09	1	38.592		
19	508.0	2-24-346-00917	19	2	4-24-346-06287	12	1	4-24-346-06286	06	4	413-24-20000	-	16	414-08-20000	-	8	414-08-39000	-	2	417-04-08056	-	2	4-24-346-06288	08	2	56.188		
20	508.0	2-24-346-00917	20	2	4-24-346-06287	13	1	4-24-346-06286	02	4	413-24-30000	-	16	414-08-30000	-	8	414-08-45000	-	2	417-04-10063	-	2	4-24-346-06288	12	2	77.704		
21	559.0	2-24-346-00917	21	2	4-24-346-06287	09	1	4-24-346-06286	05	2	413-24-16000	-	8	414-08-16000	-	4	414-08-24000	-	2	417-04-06045	-	2	4-24-346-06288	05	1	15.988		
22	559.0	2-24-346-00917	22	2	4-24-346-06287	11	1	4-24-346-06286	01	2	413-24-24000	-	8	414-08-24000	-	4	414-08-33000	-	2	417-04-08056	-	2	4-24-346-06288	09	1	37.816		
23	559.0	2-24-346-00917	23	2	4-24-346-06287	12	1	4-24-346-06286	06	4	413-24-20000	-	16	414-08-20000	-	8	414-08-39000	-	2	417-04-08056	-	2	4-24-346-06288	08	2	60.916		
24	559.0	2-24-346-00917	24	2	4-24-346-06287	13	1	4-24-346-06286	02	4	413-24-30000	-	16	414-08-30000	-	8	414-08-45000	-	2	417-04-10063	-	2	4-24-346-06288	12	2	83.732		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: STANDARD

355-054

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

DRN	C.Rengaraju	SIGNATURE	DATE	06-10-2004
CHD	K.Periasamy			06-10-2004
APPD	K.Periasamy			06-10-2004

DEPT: BM
CODE: 121

ALL DIMENSIONS ARE IN MM

PROJECTION:

SCALE: N.T.S.

WEIGHT (Kg): REFER TABLE

REF TO ASSY / OLD DWG: 2-80-999-99254/02 SHEET 01 OF 02

TITLE: PIPE CLAMP ASSY (AS)

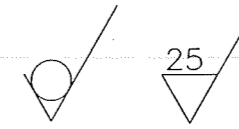
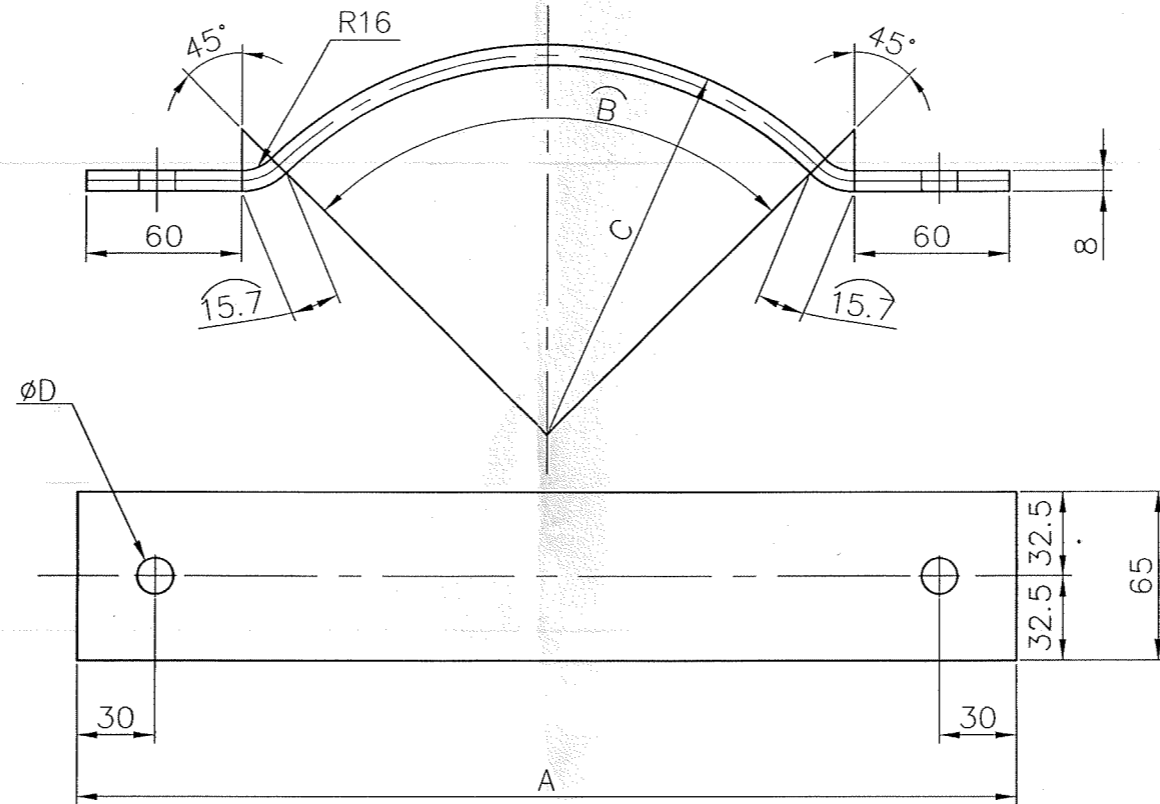
DRAWING NO: 2-24-346-00918

REV: 00

7740 4330

DRAWING NO:

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



01	76.1 63.5 57.0 44.5 31.8	14	362	151	231	382.4
VAR NO.	PIPE OUTER DIA	ØD	A	C	B	DEVELOPED LENGTH

01		SUPPORT PLATE	7740 4330 21	94 286 002	1.541					
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
					VAR NO	MATERIAL SPECN		DI	QUANTITY	

MATERIAL: IS 2062 FE410WA CERTIFIED

NOTES: -

- 1. BIN CODE AND BPS CODE SHALL BE PUNCHED.

REV 08	DATE 04.08.10	ALTERED :A.SATHISH CHD & APPD:N.KIRUBAKARAN
ZONE	MATERIAL SPECIFICATION ALTERED. CONVERTED TO AUTOCAD DWG	

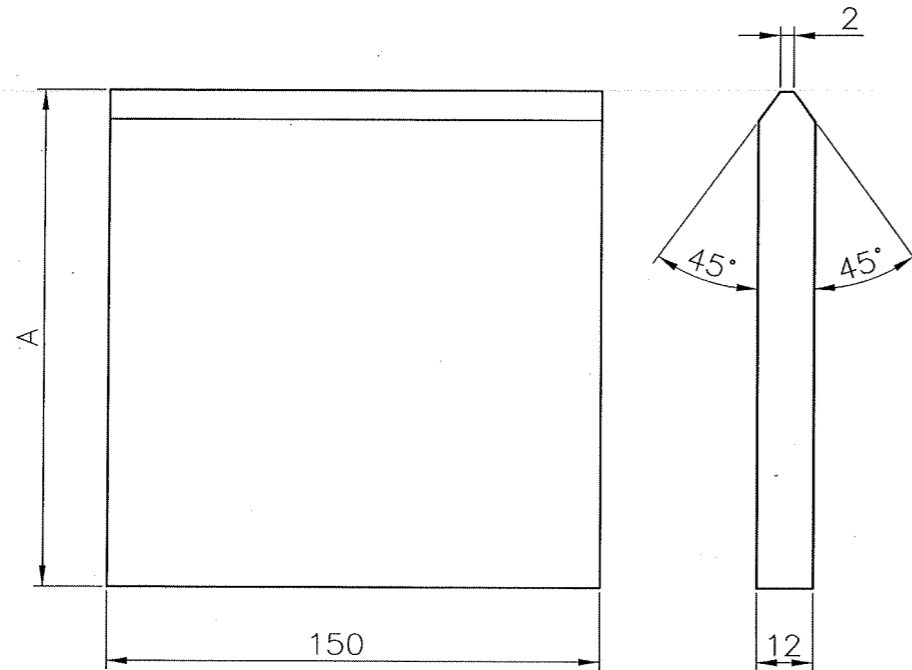
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT							
	Bharat Heavy Electricals Ltd		DRN	T.KRISHNAN	SIGNATURE	DATE	02.08.72
	UNIT: HIGH PRESSURE BOILER PLANT		CHD	S.KALIBULLA			02.08.72
	TIRUCHIRAPALLI - 620014		APPD	R.C.SEKAR			
DEPT SS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE 850			N.T.S	1.541			
TITLE					DRAWING NO :		REV
SUPPORT PLATE					7740 4330		08

06528-101-82590
DRAWING NO:

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT Q.C.P\Q.P
MANUFACTURING AS PER RELEVANT Q.C.P\S.Q.P


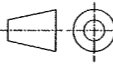
12.5/



A	VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
						VAR NO	MATERIAL SPECN	D1	QUANTITY		
98.4	04		PIPE GUIDE INSLN & SUP PL OD 88.9				159422690000 SA387Gr.22 CL2			1.390 1	
106.2	03		PIPE GUIDE INSLN & SUP PL OD 73				159422690000 SA387Gr.22 CL2			1.501 1	
112.7	02		PIPE GUIDE INSLN & SUP PL OD 60.3				159422690000 SA387Gr.22 CL2			1.592 1	
126	01		PIPE GUIDE INSLN & SUP PL OD 33.4				159422690000 SA387Gr.22 CL2			1.780 1	

REV	DATE	ALTERED
		CHKD & APPD
ZONE		

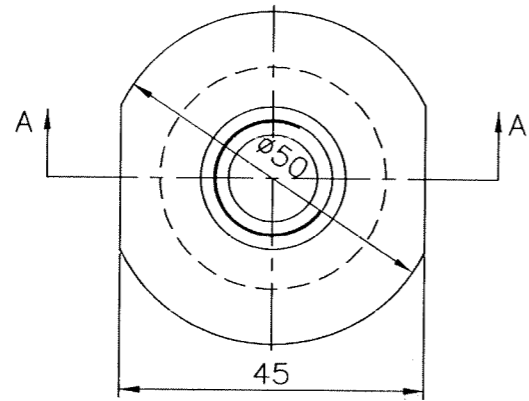
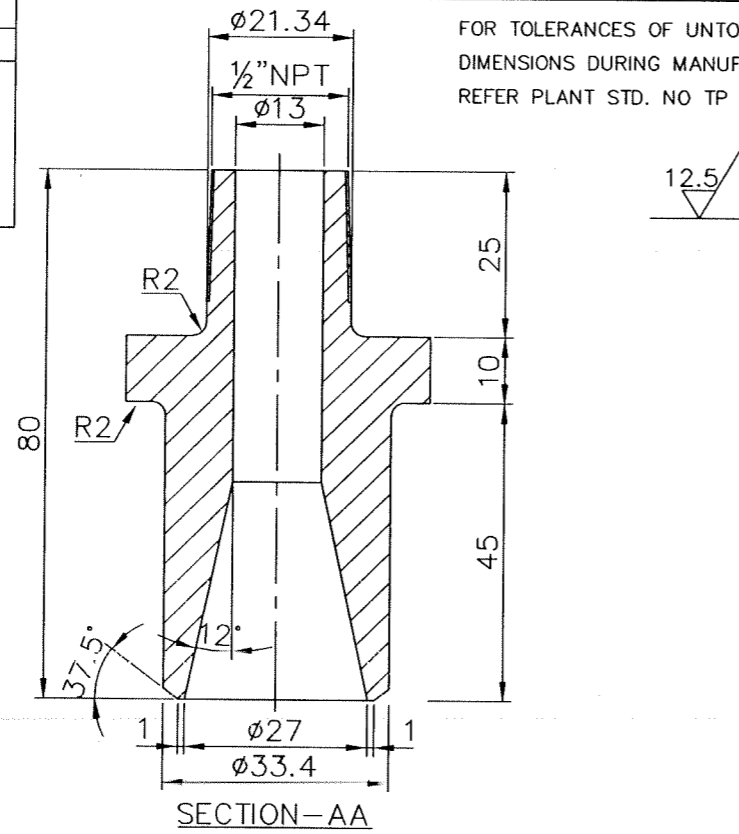
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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT			
 Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014 361-320	DRN	G.Srinivasan	Sd/- xx 09.09.2015
	CHD	M.SHYAM SUNDAR	Sd/- xx 09.09.2015
	APPD	N.Kathirvel	Sd/- xx 09.09.2015
DEPT PCPS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S.
CODE 1322		WEIGHT (Kg) 18.000	REF TO ASSY / OLD DWG
TITLE PIPE GUIDE (WITH SUPPORT PLATE & INSULATION)		DRAWING NO : 3-24-401-82590	
		REV 00	

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REV	DATE	ALTERED :
01		CHD & APPD :

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



01	ROUND D50 ;	153391420000	A	NO	1.230
	L = 80	SA 105			1
VARIANT NUMBER	DESCRIPTION	STD	A/C/P	UNIT	UNIT WEIGHT
					MATERIAL SPECN



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

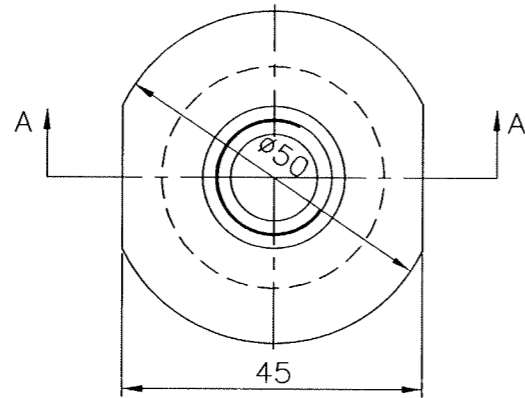
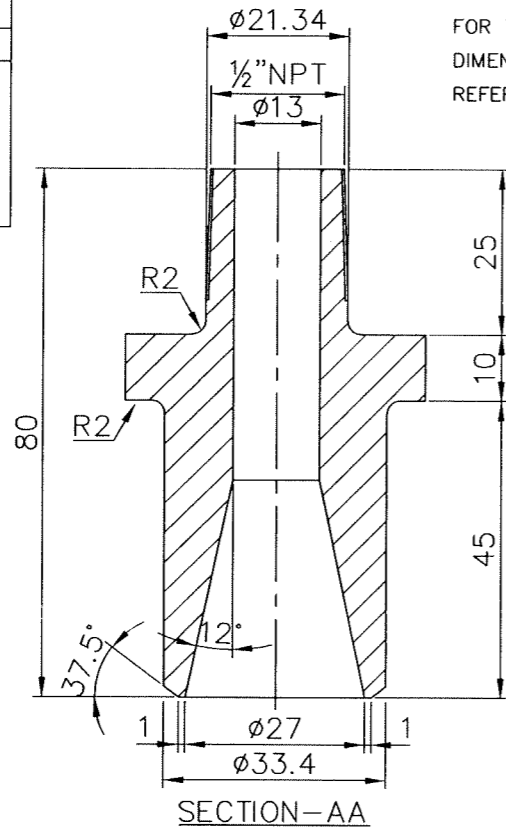
DRN	NAME	DATE
CHD	K.MUNAYYA	03.06.2022
APPD	V.R.PAVAN	03.06.2022
	K.TARAKESH	03.06.2022

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.230	
TITLE			DRAWING NO :		REV
1/2" DRAIN SOCKET (CS)			4-24-120-U0316		00

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REV	DATE	ALTERED :
01		CHD & APPD :

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



VARIANT NUMBER	01	ROUND D50 ; L = 80	153393080000	C	NO	1.230
		DESCRIPTION	SA 182F22CL3	A/C/P	UNIT	1
			MATERIAL CODE			UNIT WEIGHT
			MATERIAL SPECN			QUANTITY



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

DRN	NAME	DATE
CHD	K.MUNAYYA	03.06.2022
APPD	V.R.PAVAN	03.06.2022
	K.TARAKESH	03.06.2022

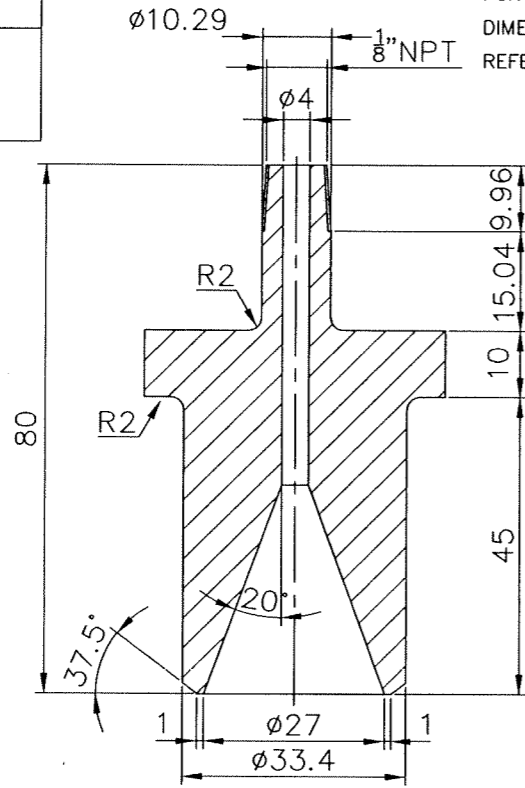
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.230	

TITLE	DRAWING NO :	REV
1/2" DRAIN SOCKET (AS)	4-24-120-U0317	00

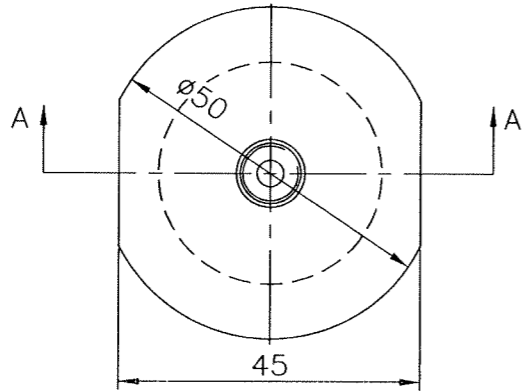
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
01		CHD & APPD :

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



SECTION-AA



01	ROUND D50; L = 80	153393080000	A	NO	0.413
		SA 182F22 CL.3			1
VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
		MATERIAL SPECN			QUANTITY



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

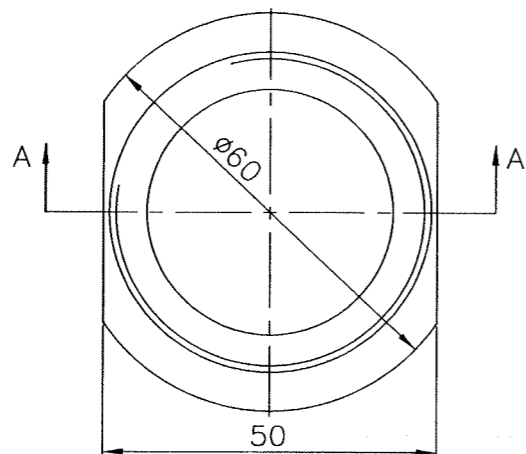
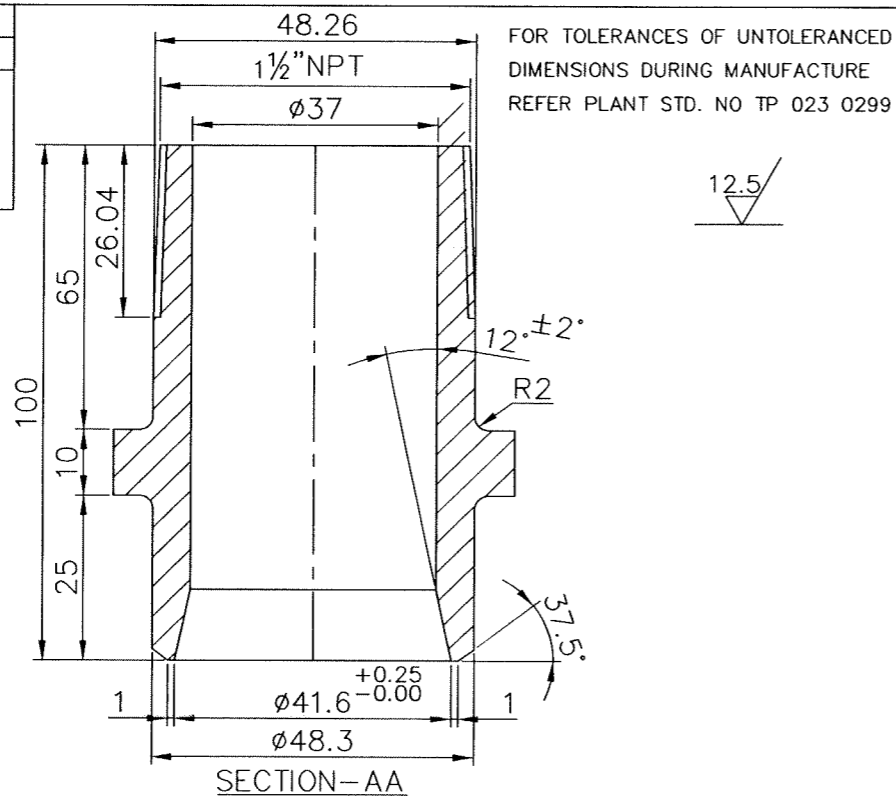
DRN	NAME	DATE
CHD	K.MUNAYYA	03.06.2022
APPD	V.R.PAVAN	03.06.2022
	K.TARAKESH	03.06.2022

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	1.468	

TITLE	DRAWING NO :	REV
1/8" DRAIN SOCKET (AS)	4-24-120-U0318	00

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REV	DATE	ALTERED :
01		CHD & APPD :



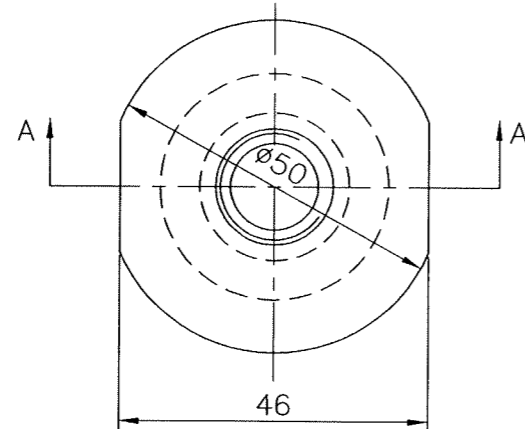
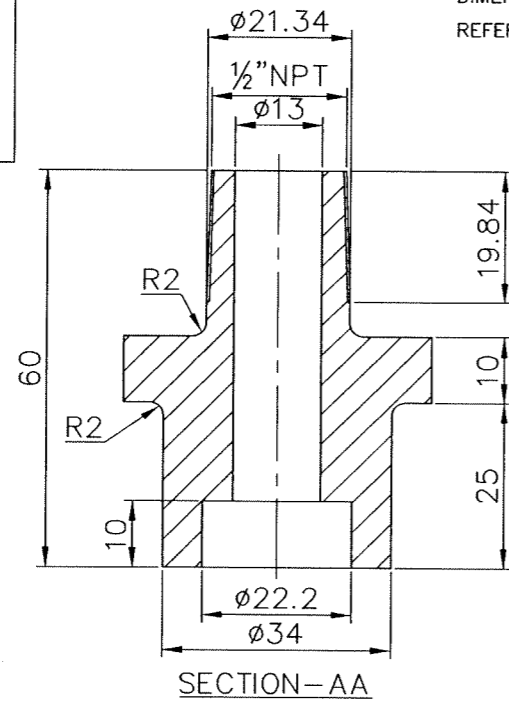
01	ROUND D63 ; L = 100	153391730000	A	No	0.590
				UNIT	1
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WEIGHT
				MATERIAL SPECN	QUANTITY

Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	K.MUNAYYA	DATE	03.06.2022
		CHD	V.R.PAVAN	DATE	03.06.2022
		APPD	K.TARAKESH	DATE	03.06.2022
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	0.590	
TITLE			DRAWING NO :		REV
1 1/2" SOCKET FOR S.V. VENT (AS)			4-24-120-U0315		00

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
01		CHD & APPD :

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

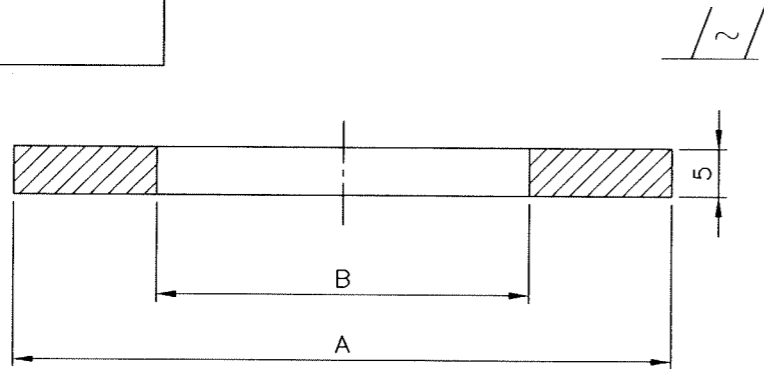


01	ROUND D50 ; L = 60	153393080000	A	NO	0.318
		SA182F22CL3			1
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN			UNIT

		Bharat Heavy Electricals Ltd		DRN	K.MUNAYYA	DATE	03.06.2022
		UNIT: HEAVY PLATES & VESSELS PLANT		CHD	V.R.PAVAN	DATE	03.06.2022
		VISAKHAPATNAM - 530012		APPD	K.TARAKESH	DATE	03.06.2022
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE			NTS	0.318			
TITLE					DRAWING NO :		REV
1/2" DRAIN SOCKET (AS)					4-24-120-U0319		00



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REV	DATE	ALTERED :
01		CHD & APPD :



VAR NO.	COVER PLATE LOCATION	A	B	UNIT WT.	MATERIAL SPECIFICATION	MATERIAL CODE
01	SV1,SV2 (DRUM)	Ø550	Ø326	6.05	IS2062E250A	150110290000
02	SV3 (DRUM)	Ø550	Ø358	5.37		
03	SV4 (MS LINE SV)	Ø600	Ø358	7.15		
04	SV5 (ERV)	Ø580	Ø275	8.04		

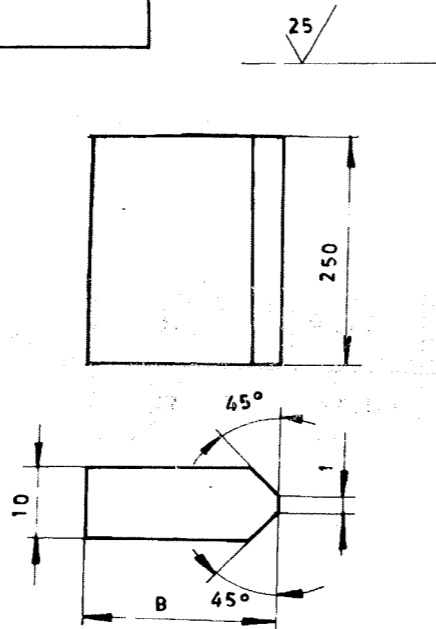
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME	DATE	
		CHD	K.MUNAYYA	24.05.2022	
		APPD	V.R.PAVAN	24.05.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	-	
TITLE				DRAWING NO :	REV
COVER PLATE FOR DRIP PAN				4-24-120-U0320	00

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

REV	DATE	ALTERED	REV	DATE	ALTERED
01	19/4/98	CHGD & APPD: <i>R. Manaligam</i>	02		CHECKED
1 VAR NOS 01 TO 05 MATL. SPEC. REVISED.					

VARIANT NO.	FOR EXHAUST PIPE	B
01	φ 273	187
02	φ 323.9	142
03	φ 355.6	125
04	φ 406.4	100
05	φ 457	75



VARIANT NO	DESCRIPTION	MATL CODE	UNIT	UNIT WT
05	PL 10 ; 250 X 75	15 / 011 / 098 IS 2062 Fe 410A	C	1 47
04	PL 10 ; 250 X 100	15 / 011 / 098 IS 2062 Fe 410A	C	1 96
03	PL 10 ; 250 X 125	15 / 011 / 098 IS 2062 Fe 410A	C	2 45
02	PL 10 ; 250 X 142	15 / 011 / 098 IS 2062 Fe 410A	C	2 79
01	PL 10 ; 250 X 187	15 / 011 / 098 IS 2062 Fe 410A	C	3 28
		MATL SPEC		QTY



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

DRN	NAME	SIGN	DATE
CHD	R. MANALIGAM	<i>R. Manaligam</i>	12.5.84
APPD	R. MANALIGAM	<i>R. Manaligam</i>	

DEPT. CODE	GRADE OF UNTOLED DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
PP / BM 121	C / M / F	NTS			

TITLE	CARD CODE	DRAWING NO.	RI
GUIDE PLATE	U 01	4-24-320-02402	01

Size A4

06-249/C

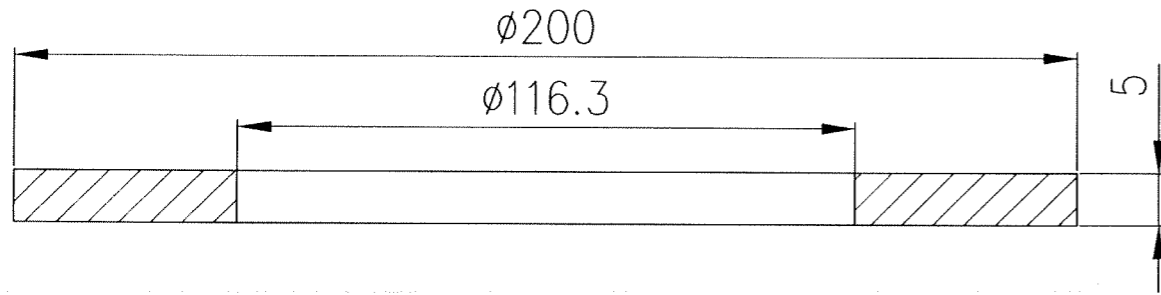
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CORPORATE DRG ID
TP-DG-4-24-320-02402



CORPORATE DRG ID
TP-DG-4-24-320-02402

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :
01		CHD & APPD :



VARIANT NUMBER	PL.5x200x200	150110290000	0.816
		IS2062E250A (Fe410W)	1
	DESCRIPTION	MATERIAL CODE	UNIT WEIGHT
		MATERIAL SPECN	QUANTITY

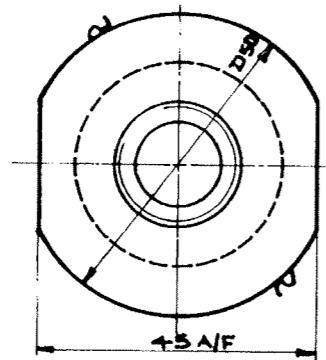
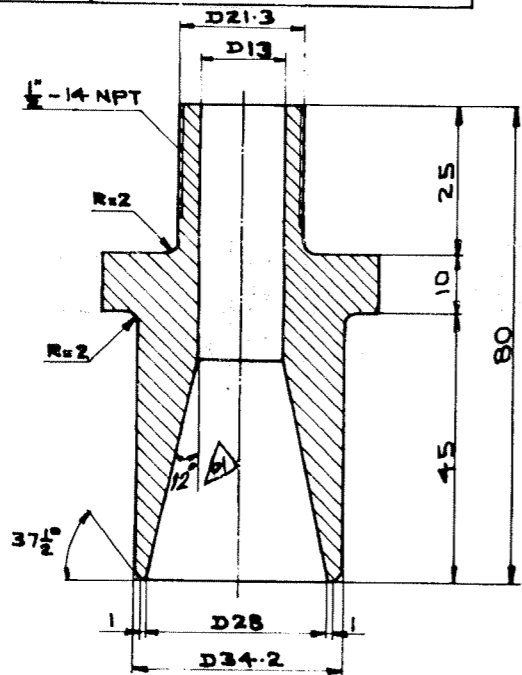
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	NAME K.MUNAYYA	DATE 18.06.2022	
		CHD	V.R.PAVAN	18.06.2022	
		APPD	K.TARAKESH	18.06.2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	0.816	
TITLE			DRAWING NO :	REV	
COVER PLATE FOR ECO SRV ESCAPE PIPE			4-24-120-U0321	00	

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

REV	DATE	ALTERED	REV	DATE	ALTERED
01	13.6.89	CHECKED	02		CHECKED

ANGLE OF TAPER INDICATED

12.5
2



VARIANT NO.	DESCRIPTION	STD	15 339 142	C	1 230
			SA 105		
			MATL CODE	A	UNIT WT.
			MATL SPEC	C	QTY.



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

DRN	NAME	SIGN.	DATE
CHD	A. RAJENDRAN	[Signature]	12.12.89
APPD	KRH	[Signature]	5/1/89

DEPT	GRADE OF UNTOOL DIM.	SCALE	WEIGHT (kg.)	REF TO ASSY / OLD DRG	ITEM NO.
IPP/BM	C/M/F	[Scale symbols]	1.230		

TITLE	CARD CODE	DRAWING NO.	REV
1/2" DRAIN SOCKET	U 01	4-24-420-80500	01

Size A4

05-248/C

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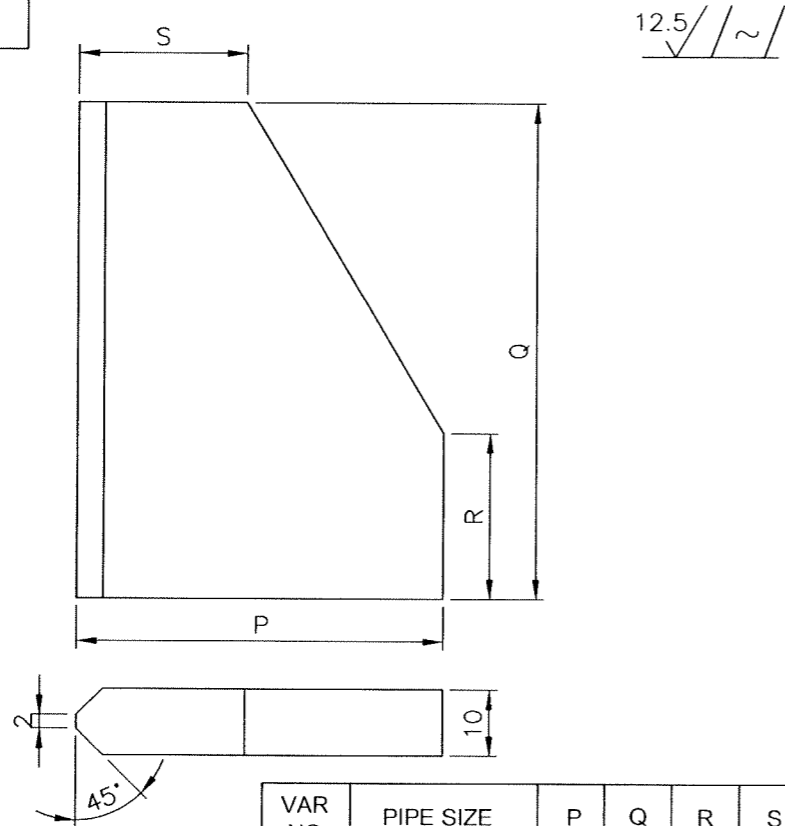
CORPORATE DRG ID
TP-DG-4-24-420-80500

CORPORATE DRG ID
TP-DG-4-24-420-80500

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REV	DATE	ALTERED :
01		CHD & APPD :

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT Q.C.PIQ.P
MANUFACTURING AS PER RELEVANT Q.C.PIS.Q.P

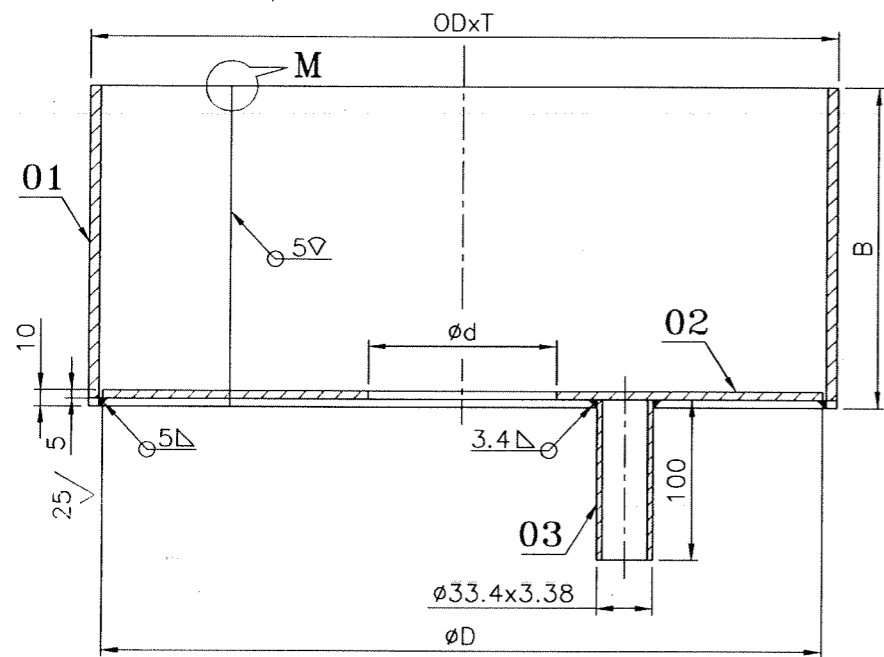


VAR NO.	PIPE SIZE	P	Q	R	S
01	D323.9 & D355.6	75	200	65	25
02	D273 & D168.3	70	200	55	15

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
02	PL.10x70x200		150110980000			0.860	
			IS2062Fe410A			1	
01	PL.10x75X200		150110980000			0.913	
			IS2062Fe410A			1	

		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN	K.MUNAYYA	DATE	24.06.2022
		CHD	V.R.PAVAN	DATE	24.06.2022		
		APPD	K.TARAKESH	DATE	24.06.2022		
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
CODE			NTS	-			
TITLE				DRAWING NO :		REV	
LUG PLATE FOR FIXED SUPPORT				4-24-120-U0308		00	

DRAWING NO: 3-24-120-U0092

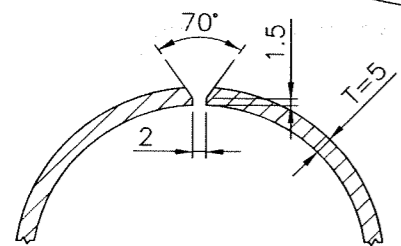
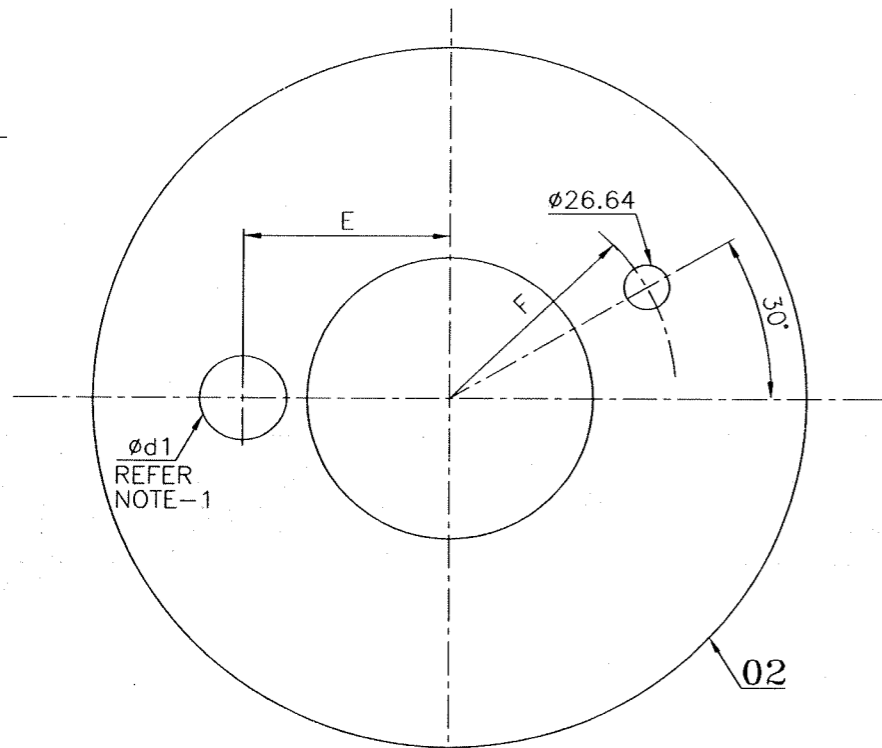


VAR. No.	VALVE TAG No.	LOCATION	VALVE OUTLET SIZE	ODxT	DEVELOPED LENGTH	B	ØD	Ød	F	E	Ød1 REFER NOTE-1	WT/PIECE (kg) ITEM No.01	WT/PIECE (kg) ITEM No.02	WT/PIECE (kg) ITEM No.03	ASSY. WT.
01	SV-5	MS LINE ERV	4"	Ø457x5	1420.0	200	445	116	150	100.0	23.3	11.16	6.07	0.25	17.48
02	SV-4	MS LINE	6"	Ø480x5	1490.3	110	468	171	160	130.0	50.3	6.44	6.65	0.25	13.34
03	SV-1,2	DRUM	6"	Ø430x5	1333.2	110	418	171	148	121.0	50.3	5.76	4.39	0.25	10.40
04	SV-3	DRUM	6"	Ø450x5	1396.0	110	438	171	148	121.0	50.3	6.03	5.82	0.25	12.10

VAR. NO.	MATL.CODE FOR ITEM No.01&02	MATL.SPECN. FOR ITEM No.01&02	MATL.CODE FOR ITEM No.03	MATL.SPECN. FOR ITEM No.03
01	150110290000	IS2062E250A	151820100000	SA106GRB
02	150110290000	IS2062E250A	151820100000	SA106GRB
03	150110290000	IS2062E250A	151820100000	SA106GRB
04	150110290000	IS2062E250A	151820100000	SA106GRB

NOTE:

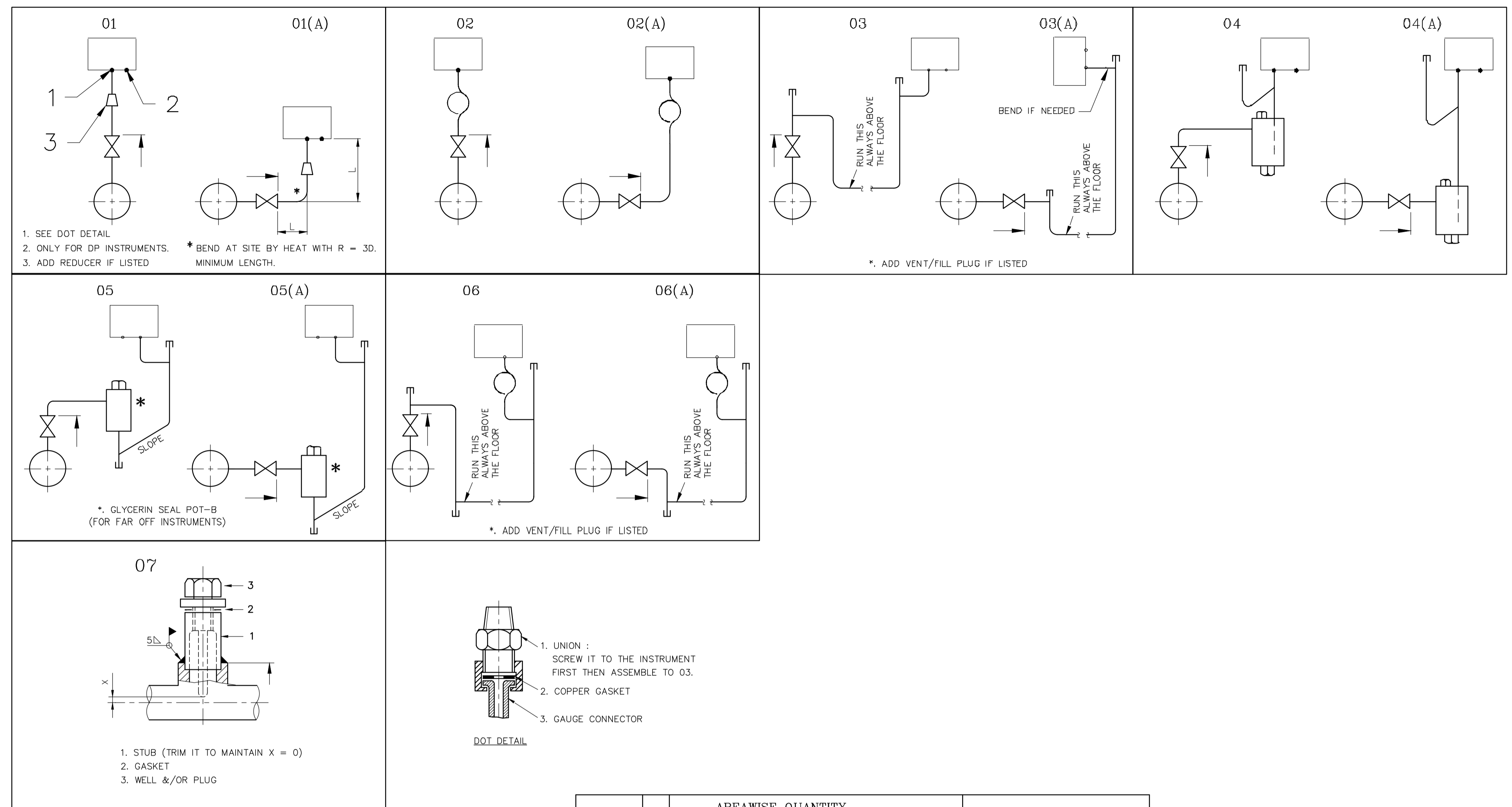
1. THE HOLE - Ød1 FOR SAFETY VALVE VENT SHALL BE DRILLED AT SITE.
2. REFER RELEVANT WPS FOR WELDING.



DETAIL-M

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

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	355-055	Bharat Heavy Electricals Ltd UNIT : HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012 (A.P)			
		DRN	K.MUNAYYA	DATE	16-06-2022
		CHD	V.R.PAVAN		16-06-2022
	APPD	K.TARAKESH		16-06-2022	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			NTS	-	
TITLE				DRAWING NO :	REV
DRIP PAN FOR SAFETY VALVES SV1, SV2, SV3, SV4 & SV5				3-24-120-U0092	00



NOTES :

01. MATERIALS UPTO ARROW MARK AND INSTRUMENTS ARE RELEASED IN OTHER PGMA's.

02. REQUIRED ITEMS ARE GIVEN IN SERIATIM IN THE CHART.

03. OVER HEAD WELDING TO BE AVOIDED.
REFER TO LISTED STYLE : TRIAL ASSEMBLY BY TACK WELDING TO SUIT THE LAYOUT AND FULL WELD THE ASSY. ON THE FLOOR ; FINALLY WELD IN POSITION TO THE ISOLATING VALVE.

04. DO NOT USE EXTENSION PIPE UNLESS LISTED

05. REFERENCE DRGS. : WELDING NOTES : 2-00-056-10106
SEAL POT ERECTION : 4-42-005-02589

06. ADOPT ALTERNATIVE STYLES, AS REQD USE THE MATLS. RELEASED

07. BEND AT SITE WITH R=3D, IF REQUIRED.

08. USE ITEM NOS. 01 TO 05, IF REQUIRED.

09. THE REQUIRED QUANTITY OF GLYCERIN/GLYCOL SHALL BE PROCURED BY SITE

10. THE INSTRUMENT FITTINGS FOR REMOTE INSTRUMENTS ARE SUPPLIED BY BHEL-FEM AND EDN BANGALORE. HOWEVER THE ITEMS RELEASED HERE MAY BE USED, IF REQUIRED

INSTRUMENTS	CONNECTION STYLE NO.	AREAWISE QUANTITY								REQUIRED ITEM NOS. IN SERIATIM											
		LDO PUMP SET	HFO PUMP SET	HFO HEATER SET-OIL	HFO HEATER-STEAM	LDO BOILER FRONT	HFO BOILER FRONT	AIR BOILER FRONT	STEAM BOILER FRONT	HFO BURNER(SKID)	STEAM BURNER(SKID)	TOTAL QTY									
												06	09	10							
PRESSURE INDICATOR PI/PP	01	8				3	2					13	06	09	10						
	01		7	4			4					15	07	09	10						
	02				2				3		8	13	13	09	10						
	04									8	8	11	17	07	09	10					
DPT	LP 01	2										2	06	09	10						
	HP 03	2										2	16	01	16	06	09	10			
	LP 04	2				1					3	11	17	07	09	10					
	HP 05	2				1					3	12	16	01	16	07	09	10			
PT	03	5				3	1				9	16	01	06	09	10					
	05		5	3			3				11	12	16	01	16	07	09	10			
	06							3			3	16	13	09	10						
PS/PSAL PSCL/PSCH	01	3	3			5	4				15	09	10	06	09	10					
	02								4		4	13	09	10							
	04							5			5	11	17	07	09	10					
TI/TE/TSAL/TSCL/TSCH	07		2	8	3		6	2		21	14	08	15	19							
TW/TP	07			2		1					3	14	08	18	19	20					

PGMA	WEIGHT
42-005	207.695
42-710	78.020
42-858	271.200

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT	QUANTITY	CS	ZONE
	20	HEX SCREW PLUG M 20 X 1.5		3-42-000-00877	01	SA 105	C	15 339 280	NO	0.110
	19	GASKET SH2 X D32 / D22		4-42-900-00073		16 011 245	C		NO	0.018
			01		COPPER	L	30			
	18	THERMOMETER WELL		3-42-900-00558		15 339 142	C		NO	0.400
			02		SA 105	L	03			
	17	FILL PIPE		3-42-005-01181		01 TO 04	C		NO	0.266
					ASSY.	L	20			
	16	FILL/VENT/ DRAIN PLUG		3-42-005-01180		01 TO 04	C		NO	0.465
					WELDMENT	L	40			
	15	HEX SCREW PLUG M33 X 2 (M)		3-42-000-00877		15 339 143	C		NO	0.420
			04		SA 105	L	30			
	14	THREADED STUB M33 X 2 (F)		4-42-005-02643		15 339 142	C		NO	0.500
			01		SA 105	L	30			
	13	CONDENSING LOOP M 20 X 1.5		2-42-000-00352		01 TO 04	C		NO	1.360
					WELDMENT	L	25			
	12	GLYCERIN SEALPOT-B		3-42-000-00832		01 TO 06	C		NO	1.541
					WELDMENT	L	20			
	11	GLYCERIN SEALPOT-A		3-42-000-00831		01 TO 08	C		NO	1.686
					WELDMENT	L	20			
	10	UNION M20X1.5-M 1/2" NPT (F)		3-42-000-00871		15 339 280	C		NO	0.150
			04		SA 105	L	135			
	09	GASKET SH2 X D17 / D7		4-42-900-00073		16 011 245	C		NO	0.005
			03		COPPER	L	135			
	08	GASKET SH2 X D46 / D34		4-42-900-00073		16 011 245	C		NO	0.010
			05		COPPER	L	30			
	07	GAUGE CONNECTOR I		3-42-030-00849		01 TO 03	C		NO	0.350
			02		WELDMENT	L	60			
	06	GAUGE CONNECTOR I		3-42-030-00849		01 TO 03	C		NO	0.290
			01		WELDMENT	L	46			
	05	SW ELL 1/2"CL3000 ANSIB16.11				92 104 425	C		NO	0.239
					SA 105	L	80			
	04	SW ELL 1"CL3000 ANSI B16.11				92 104 426	C		NO	0.589
					SA 105	L	100			
	03	TUBE 33.4X3.38				15 082 010	C		MR	2.500
					SA 106 GR.B	L	50			
	02	PIPE OD 21.3 X 2.77				15 182 001	C		MR	1.270
					SA 106 GR.B	L	100			
	01	TUBE D 14 X 2				15 186 005	C		MR	0.600
					SA 210 GR.A1	L	32			

HPVP CUSTOMER NO : 7906 CUSTOMER NO. : 2622

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 SIGNATURE -SD- DATE 9/12/21 NO. OF VAR ---
CHD SAIRAM N -SD- 9/12/21 ---
APPD GANGADHAR MCHS -SD- 9/12/21 ---

DEPT FS SCALE NTS WEIGHT (Kg) REF TO ASSY / OLD DWG ITEM NO No. OF ITEMS
CODE 129 REFER TABLE --- ---

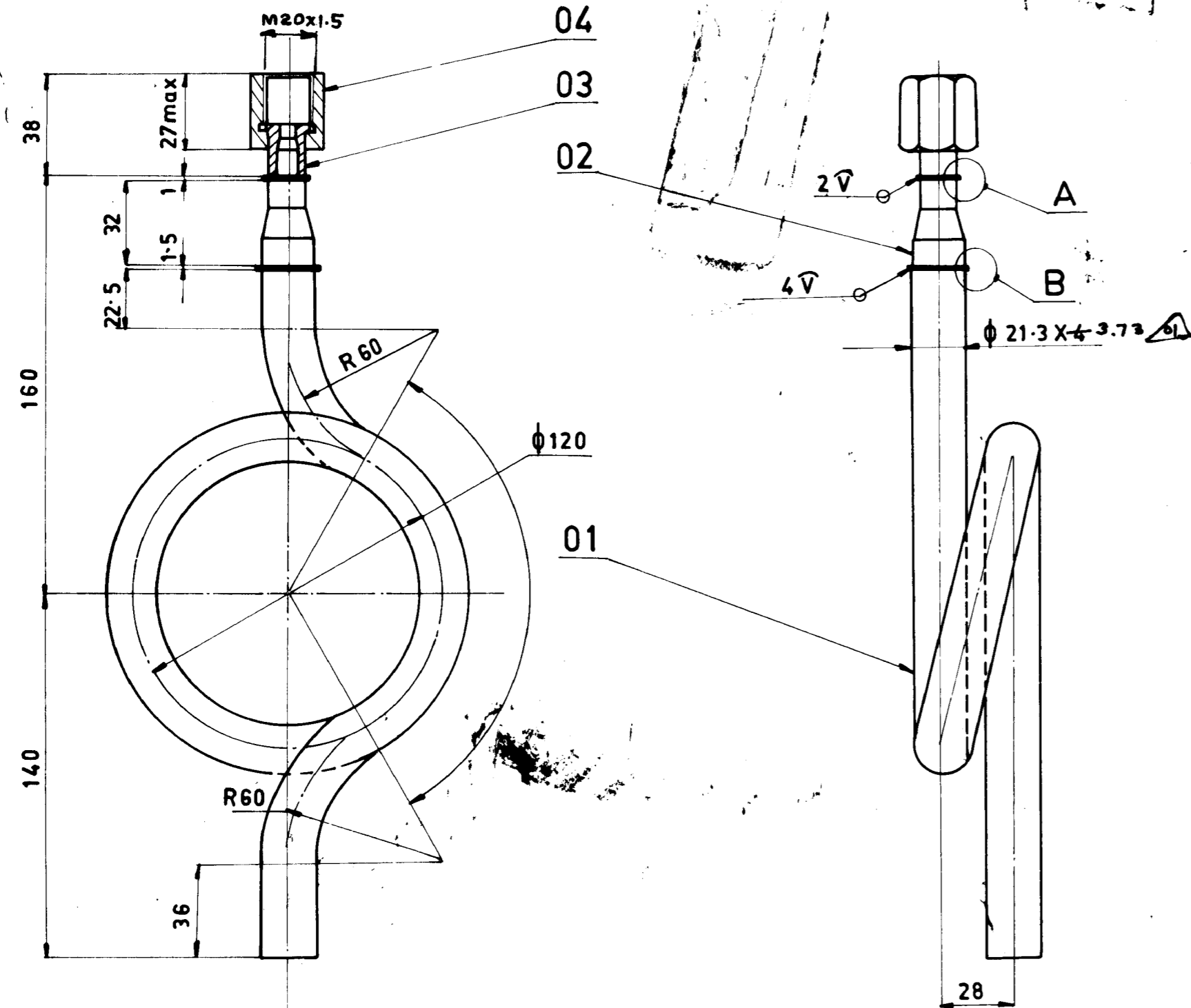
TITLE INSTRUMENT FITTINGS CARD CODE U 01 DRAWING NO : 1-42-005-02623 REV 00
U 01 1-42-005-U0002

REV	DATE	ALTERED :
01		CHD & APPD :

2-42-000-00352
DRAWING No. 2-42-005-U0001

12.5

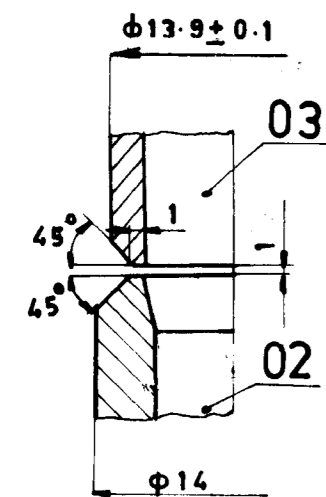
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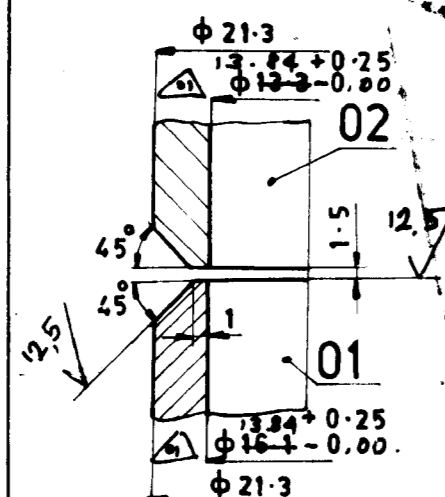
NOTES:

- UNION NUT M 20 X 1.5 IS TO BE INSERTED BEFORE WELDING THE PARTS 03 AND 02.
- FOR WELDING, A CERTIFIED WELDER SHALL BE EMPLOYED.
- FOLLOW THE INSTRUCTIONS FOR HEAT TREATMENT OF MATERIAL AND OTHER REQUIREMENTS AS PER TDC 5-028.
- THIS ASSEMBLY IS RECOMMENDED FOR THE WORKING TEMPERATURE 425°C AND BELOW.
- TYPE OF ELECTRODE USED IS RT- 1/2 Mo.

DETAIL - A



DETAIL - B



VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL CODE	A	UNIT	UNIT WT	ITEM NO.
	04	UNION NUT M20 X1.5 ROD D31.2; 27L		4-42- 000 ⁵¹³ -02037		15-339-140 SA-105	C			
	03	TAIL PIPE D18.1; 18.7L		4-42- 000 ⁵¹³ -02036		15-339-343 SA-105	C			
	02	FORGED REDUCER Nb 15/Nb10 TU-D21.3x4-32L ROD D 21.3 x 32L		4-42- 000 ⁵¹³ -02035		15-339-139 SA-105 SA-210 CR-A1	C		0.040	
	01	LOOP 1/2" SCH80 TU-D21.3x4; 74.0L				15-082-002 15-086-017 SA-105 Gr B SA-210 CR-A1	C		1.260	

HPVP CUSTOMER NO: 7906

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
PRESSURE GAUGE CONNECTING LOOPS

	DRN	NAME	SIGN	DATE	NO. OF VAR
	SS	S.B.S.	Schwartz		
	850		M.F. Gokhale	31/07/87	

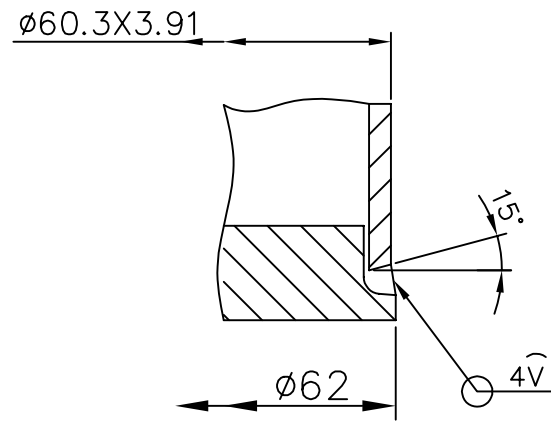
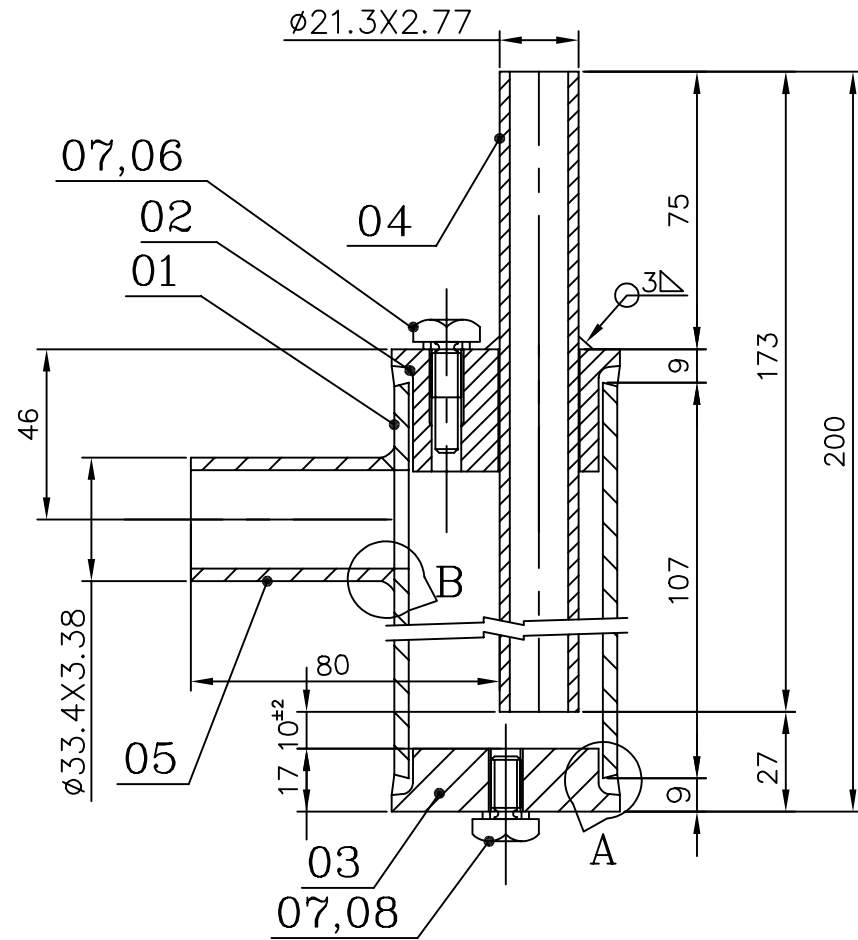
REV	DATE	ALTERED	CHECKED
02	28-7-89	ALTD: S. Manoj	CHD: CR. Jeyaraj
01	27-4-87	ITEM NO. 02. MATL. CODE ZONE SPECIFICATION AND DESCRIPTION ALTD.	ITEM NO. 01. ROD MAT'L SPEC. N. ALTERED.

DEPT	GRADE OF UNTO. DIM C/M/F	WEIGHT (kg)	REF TO ASSY / OLD DRG
SS	M.T.S	1.360	
TITLE		CARD CODE	DRAWING NO.
CONDENSING LOOP ASSY (CARBON STEEL)		U 01	2-42-000-00352 2-42-005-U0001

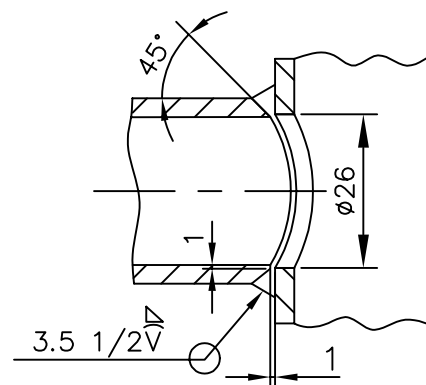
Size EC-8

DRAWING NO: 3-42-005-U0093 3-42-000-00831

TYPE OF WELD	TYPE OF ELECTRODE	LEN. OF WELD
3 ∇	E7018 IBR	66MM
4 ∇	E7018 IBR	358MM
3.51/2 ∇ +	E7018 IBR	100MM



DETAIL-A



DETAIL-B

NOTE: -

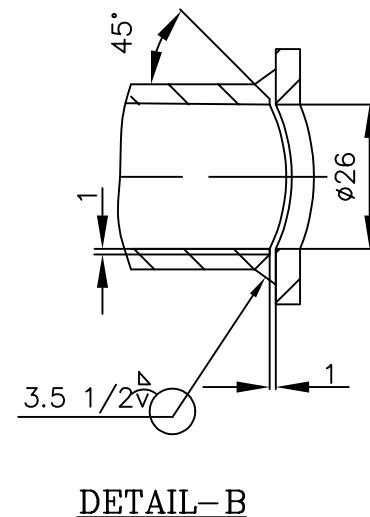
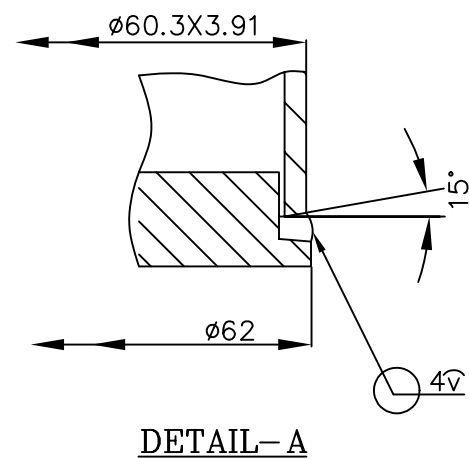
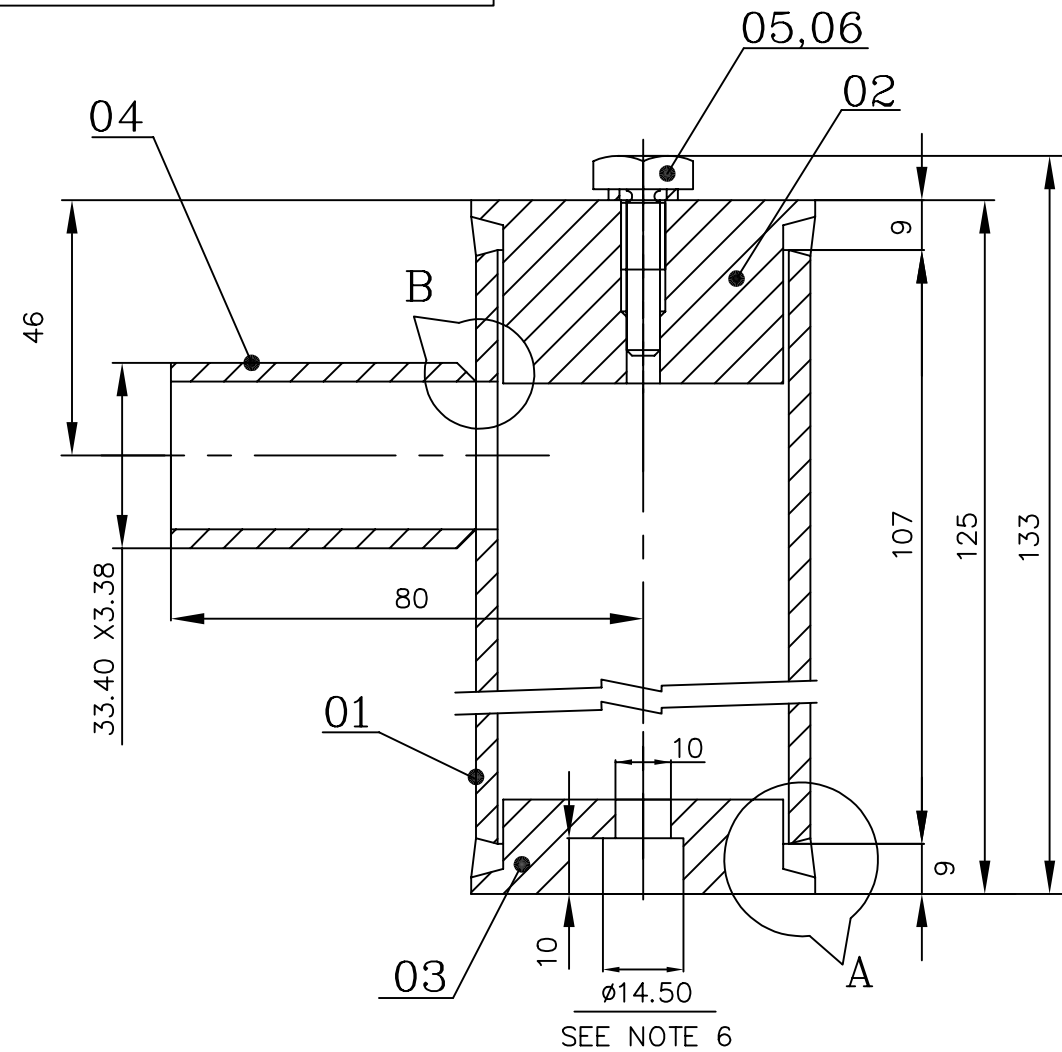
- EMPLOY QUALIFIED WELDERS & FOLLOW BPS STANDARD 529003 FOR WELDING.
- PARAMETRES
 DESIGN PRESSURE 32KG/Sq.cm
 HYD. TEST PRESSURE 48 KG/ Sq.cm
 DESIGN TEMPERATURE 250°C
- APPLY ANTI CORROSIVE AGENTS FOR THREADS BEFORE ASSY.
- COVER ALL OPENINGS WITH PROTECTIVE CAPS BEFORE SHIPPING.
- CARRY OUT HYD. TEST AT SHOP, INDEPENDENTLY FOR THE TUBE ITEM 04 BEFORE ASSY. & FOR THE FINAL ASSY.
- INSPECT 10MM GAP BETWEEN ITEM 03&04 AFTER ASSY.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QTY
					VAR NO	MATERIAL SPECN	DI	QUANTITY		
01	08	SQ.HD.SCREW M8X1.25 ROUND D18; 23L	4-42-000-02020		15 339 343	SA 105	C	NO	0.010	1
01	07	WASHER SH.2XD12.5	4-42-000-02021		16 011 025	COPPER		NO	0.010	2
01	06	SQ.HD.SCREW M8X1.25 ROUND D18; 36L	4-42-000-02019		15 339 343	SA 105	C	NO	0.020	1
	05	TUBE 1" SCH40; 55L	-		15 082 010	SA 106 Gr.B	C	NO	0.130	1
	04	TUBE 1/2" SCH40; 173L	-		15 082 001	SA 106 Gr.B	C	NO	0.220	1
	03	SEAL POT END COVER 3 ROUND D62; 17L	4-42-000-02098		15 339 143	SA 105	C	NO	0.300	1
	02	SEAL POT END COVER 1 ROUND D62; 33L	4-42-000-02096		15 339 143	SA 105	C	NO	0.400	1
	01	TUBE 2" SCH40; 107L	-		15 082 030	SA 106 Gr.B	C	NO	0.600	1

HPVP CUSTOMER NO : 7906

REV	DATE	ALTERED :	REV	DATE	ALTERED :
02	31/03/06	P.D.S CHD & APPD:M.A & S.V.S	01	03/01/85	CHD & APPD:
ZONE GENERALLY REVISED AND AUTO CAD DRAWING GENERATED.			ZONE ITEM NO.06&08 THREAD SIZE M8X1.25 WAS M8X1.		

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				DEPT FS CODE 123		ALL DIMENSIONS ARE IN MM	
WEIGHT (Kg) 1.700		REF TO ASSY / OLD DWG		NAME M.S SIGNATURE -sd- DATE			
TITLE GLYCERIN SEAL POT - A (FOR LINE INSTRUMENTS)ANSI		DRAWING NO : 3-42-000-00831 3-42-005-U0093/00		REV 02			



NOTE :

1. EMPLOY QUALIFIED WELDERS & FOLLOW APS STANDARD 529003 FOR WELDING.
2. PARAMETERS: -
DESIGN PRESSURE 32KG/Sq.CM
HYD. TEST PRESSURE 48KG/Sq.CM
DESIGN TEMPERATURE 250°C
3. CARRY OUT HYDRAULIC TEST AT SHOP.
4. APPLY ANTI CORROSSIVE AGENTS FOR THREADS BEFORE ASSY.
5. COVER ALL OPENINGS WITH PROTECTIVE CAPS BEFORE SHIPPING.
6. DRILL END COVER ITEM No. 03 AFTER HYDRAULIC TEST.


TYPE OF WELD	TYPE OF ELECTROD	LEN. OF WELD
4V	E 7018 IBR	358 MM
3.5 1/2V+Δ	E 7018 IBR	100 MM

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
					VAR NO	MATERIAL SPECN		DI	QUANTITY	
	06	WASHER SH 2 X D 12.5		4-42-00002021		16 011 025		NO	0.010	
						COPPER			1	
	05	SQ.HD.SCREW M8X1.25 ROUND D 18;36L		4-42-00002019		15 339 343		C NO	0.020	
						SA 105			1	
	04	TUBE 1" SCH 40;55L		-		15 082 010		C NO	0.180	
						SA 106 GR.B			1	
	03	SEAL POT END COVER2 D 62;33 L		4-42-00002097		15 339 143		C NO	0.210	
						SA 105			1	
	02	SEAL POT END COVER4 D 62 ; 33 L		4-42-00002099		15 339 143		C NO	0.500	
						SA 105			1	
	01	TUBE 2" SCH 40;107L		-		15 082 030		C NO	0.600	
						SA106 GR.B			1	

HPVP CUSTOMER NO : 7906

REV	DATE	ALTERED :	REV	DATE	ALTERED :
02	31/03/06	CHD & APPD:M.A & S.V.S	01	04/01/85	CHD & APPD:
ZONE	GENERALLY REVISED AND AUTO CAD DRAWING GENERATED.		ZONE	ITEM NO 05 SCREW M8X1.25 WAS M8X1.	

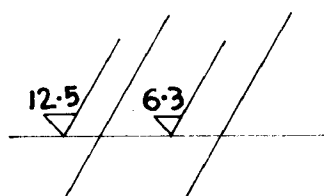
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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				DRN	NAME	SIGNATURE	DATE
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELES PLANTS, VBAKHAPATNAM-530012 355-055				CHD	M.A	-sd-	
				APPD	S.V.S	-sd-	
				DEPT	FS	ALL DIMENSIONS ARE IN MM	PROJECTION
CODE	123			1:2	1.540		
TITLE				DRAWING NO :		REV	
GLYCERIN SEAL POT-B (FOR LOCAL PANNEL INSTRUMENT) ANSI				3-42-000-00832 02 3-42-005-U0094 /00			

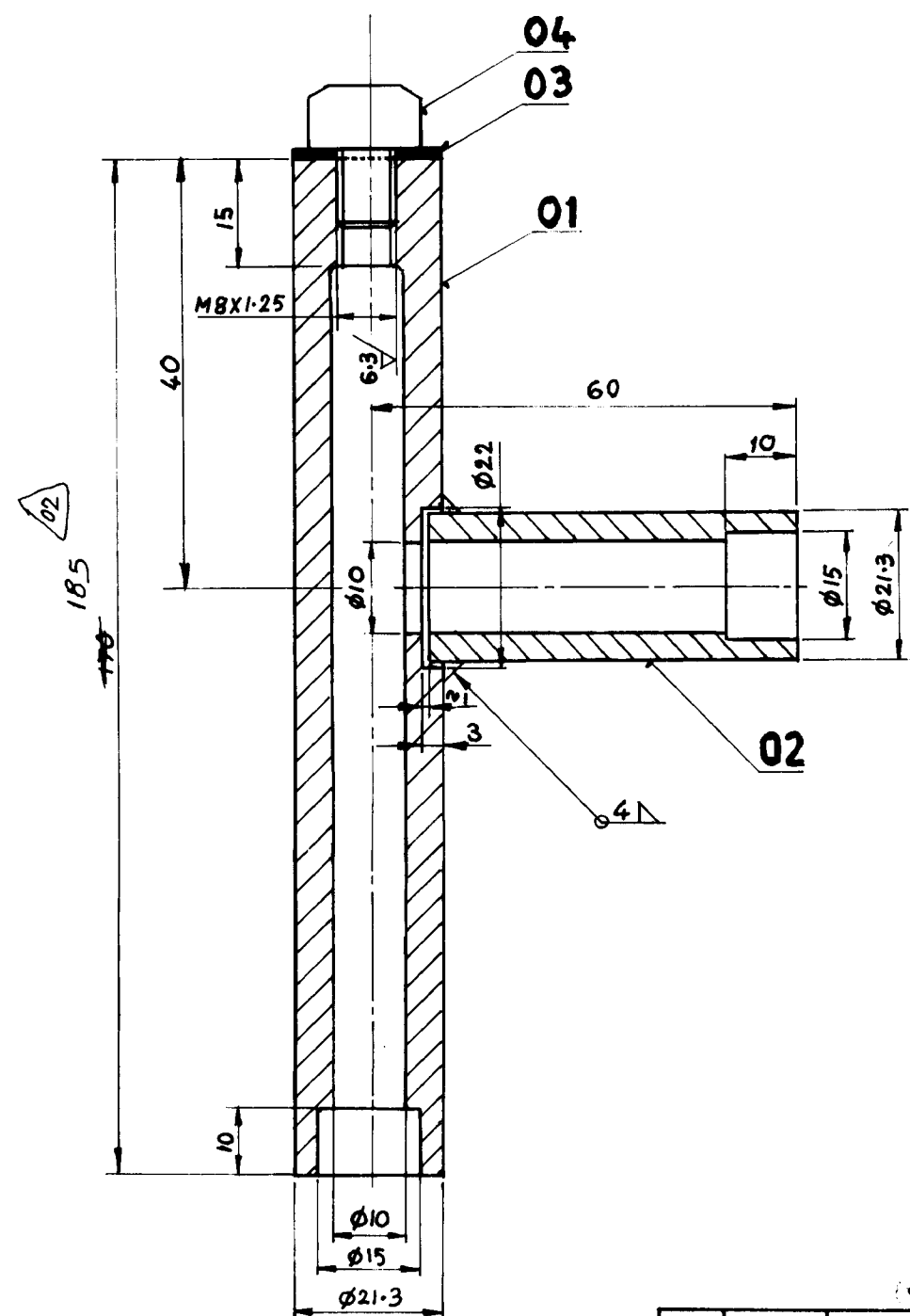
05-229 / C

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DRAWING NO. 3-42-005-U0095
 3-42-005-24-3
 08110-005-24-3



- NOTE:**
1. ONLY QUALIFIED WELDER SHOULD WELD.
 2. APPLY ANTI CORROSIVE AGENTS FOR THREADS BEFORE ASSY
 3. CARRYOUT HYD. TEST AT SHOP SITE.
 4. PARAMETERS
 DESIGN PR. 32. KG/CM²
 HYD. TEST. PR. 48 KG/CM²
 DESIGN TEMP. 200°C.



VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL. CODE	A	UNIT	UNIT WT.	QTY.
	04	SQ. HD. SCREW M8x1-25		4-42-005-02622/01	15-011-440	SA 304 TYPE 304			0.053	1
	03	GASKET D 18 / D 8.5 SH 2xD 18 / D 8.5		4-42-005-02623	16 011 245	COPPER			0.019	1
	02	ROD D 21.3 ; 51L			15-339-139	SA 105	C		0.086	1
	01	ROD D 21.3 ; 185L			15-339-139	SA 105	C		0.320	1

HPVP CUSTOMER NO : 7906

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

DRN.	NAME	SIGN	DATE	NO. OF VAR
CHD.	MAC	<i>[Signature]</i>	31.03.87	
APPD.	Jk1		3.4.87	

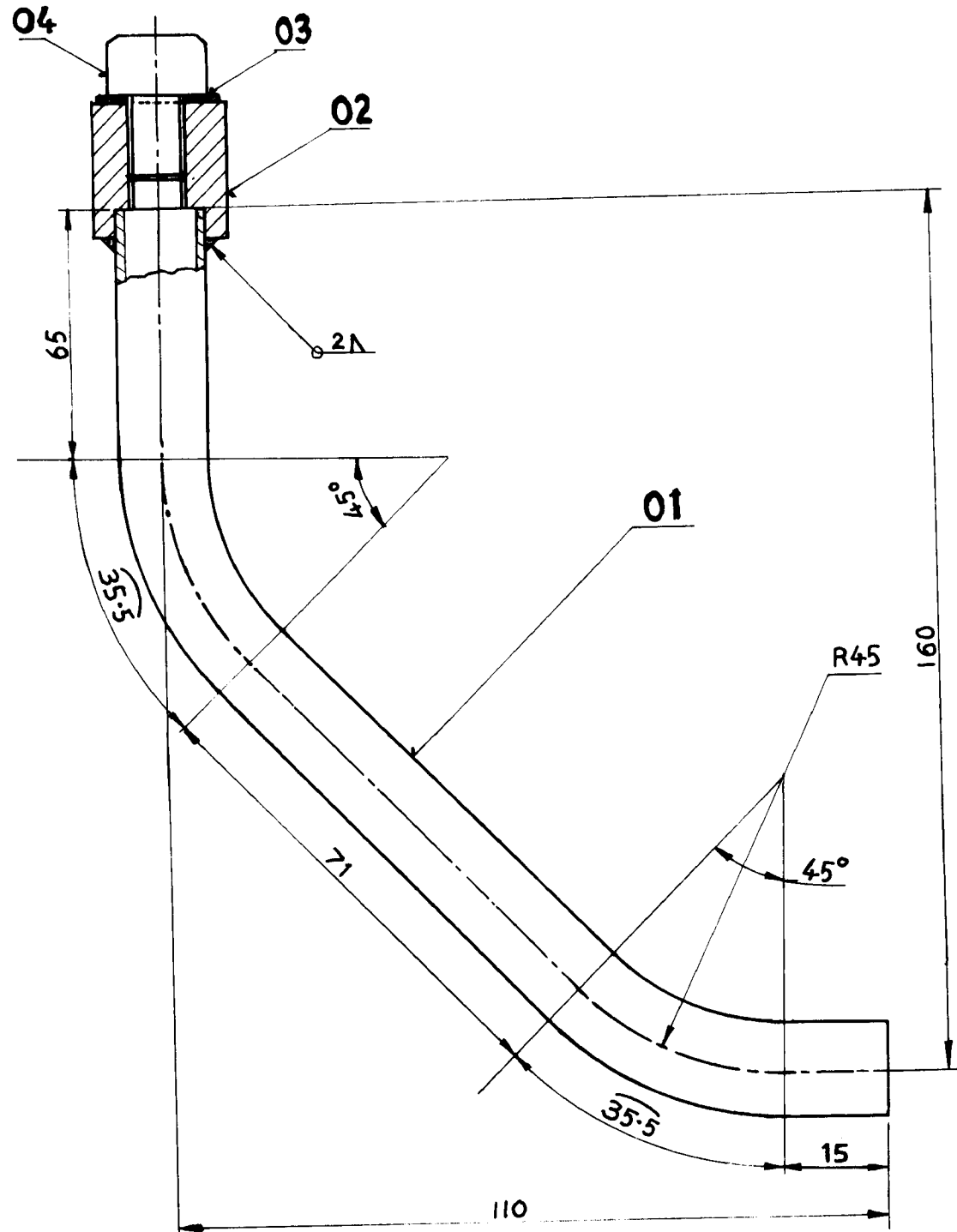
REV 01	DATE 2.2.88	ALTERED	CHECKED	DEPT FF/05	GRADE OF UNTOL DIM 2/M/F	SCALE NTS	WEIGHT (kg) 0.469	REF TO ASSY/OLD DRG	ITEM NO.
ITEM 04 MATL CODE & SPECN				CODE 123					
ALTERED				TITLE			CARD CODE	DRAWING NO.	REV.
REV 02 DATE 5/1/96 ALTD. CHKD.				FILL / VENT / DRAIN PLUG			U 01	3-42-005-01180 3-42-005-U0095	02 / 00
ITEM NO: 01 LENGTH ALTD.									

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-229 / C

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DRAWING NO. 3-42-005 - 01181
3-42-005 - U0096



- NOTE :**
1. ONLY QUALIFIED WELDER SHOULD WELD
 2. APPLY ANTI CORRODSIVE AGENTS FOR THREADS BEFORE ASSY
 3. CARRYOUT HYD. TEST AT SHOP
 4. PARAMETERS.
DESIGN PR. 32 KG/CM²
HYD. TEST PR. 48 KG/CM²
DESIGN TEMPR. 200° C

VARIANT NO.	ITEM NO.	DESCRIPTION	STD	DRAWING NO.	ITEM NO.	MATL. CODE	A	UNIT	UNIT WT.	GS
					VAR NO.	MATL. SPEC.	C		QTY.	
	04	SQ. HD. SCREW M 8 X 1.25		4-42-005-02622		15-011-440 SA 332 TYPE 304			0.053	1
	03	GASKET D 18 / D 8.5		4-42-005-02623	01	16-011-245 COPPER			0.010	1
	02	THREADED PIECE M 8 X 1.25		4-42-005-02606		15-339-343 SA 105	C		0.300	1
	01	TU D14X2; 222L				15-086-005 SA 210 Gr. A1	C		0.147	1

HPVP CUSTOMER NO : 7906

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

Bharat Heavy Electricals Ltd.,
UNIT: HEAVY PLATES & VESSELES PLANTS,
VISAKHAPATNAM-530012

DRN.	NAME	SIGN	DATE	NO. OF VAR
	L. SRINIVASAN	L. Srinivasan	01-04-87	
CHD.	MAL		3.4.87	
APPD.				

REV	DATE	ALTERED	DEPT	GRADE OF UNTOLO DIM	SCALE	WEIGHT (kg)	REF TO ASSY/OLD DRG	ITEM NO.
01	2.2.88	CHECKED	FF/OS	Ø/M/F	NTS	0.51		

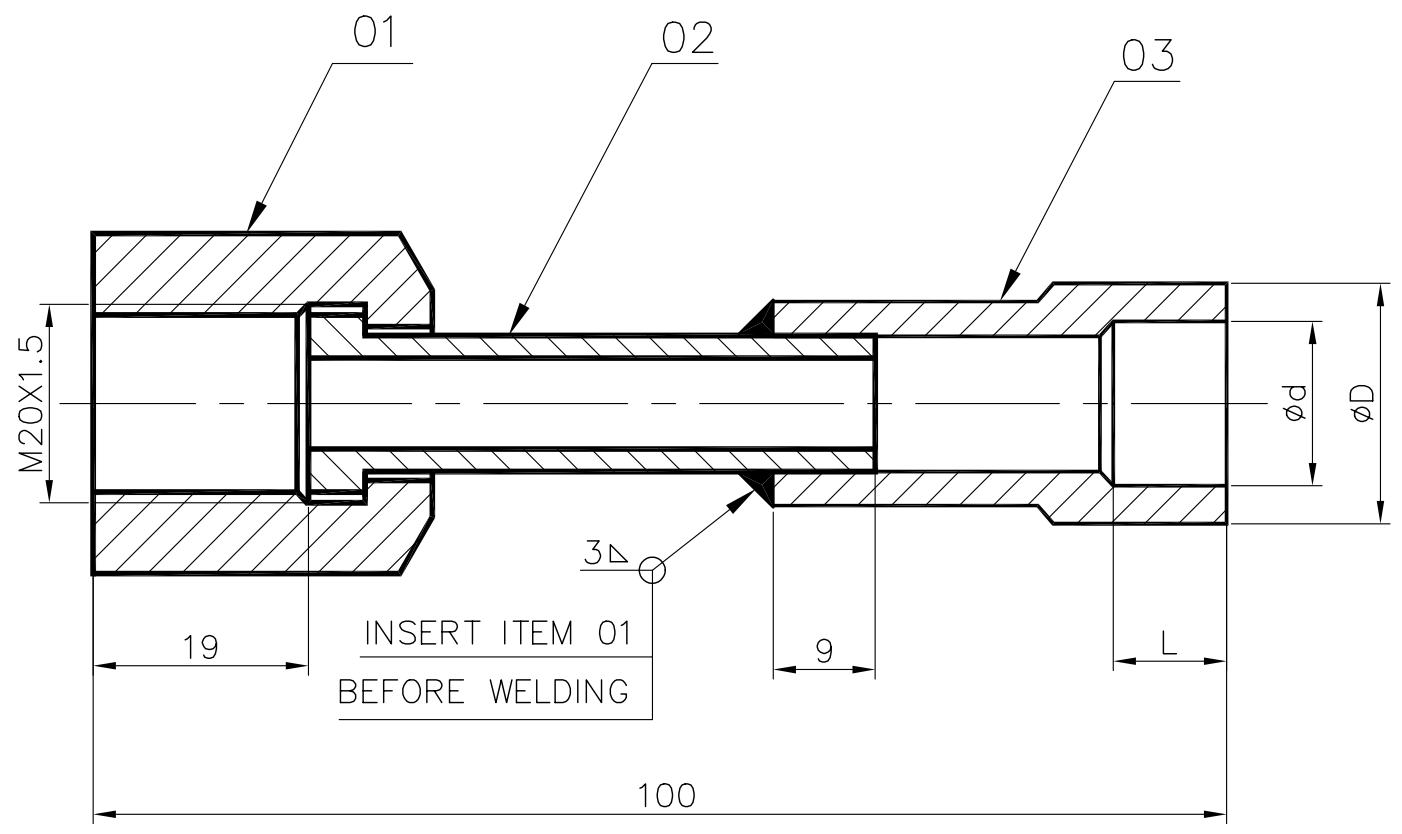
MATL CODE & SPECN ALTERED

TITLE: **FILL PIPE**

CARD CODE: U 01

DRAWING NO.: 3-42-005-01181
3-42-005-U0096

REV. NO.: 01/00



STYLE NO	ød	øD	L	TOTAL WT.
01	21.7	33.4	10	0.290
02	33.8	42	13	0.350
03	33.8	48	15	0.450

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/G/P	UNIT	UNIT WEIGHT	QTY
					VAR NO	MATERIAL SPECN		DI	QUANTITY	
03	03	MACHINED REDUCER D 48 ; 40L		4-42-030-02115	03	15 339 142 SA 105		c	0.300	1
03	02	INSERT PIECE D 17.5 ; 50L		4-42-000-01891		15 339 343 SA 105		c	0.030	1
03	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-900-00074	01	15 339 141 SA 105		c	0.120	1
02	03	MACHINED REDUCER D 42 ; 40L		4-42-030-02115	02	15 339 142 SA 105		c	0.200	1
02	02	INSERT PIECE D 17.5 ; 50L		4-42-000-01891		15 339 343 SA 105		c	0.030	1
02	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-900-00074	01	15 339 141 SA 105		c	0.120	1
01	03	MACHINED REDUCER D 33.4 ; 40L		4-42-030-02115	01	15 339 280 SA 105		c	0.140	1
01	02	INSERT PIECE D 17.5 ; 50L		4-42-000-01891		15 339 343 SA 105		c	0.030	1
01	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-900-00074	01	15 339 141 SA 105		c	0.120	1

HPVP CUSTOMER NO : 7906

REV	DATE	ALTERED : -Sd-	REV	DATE	ALTERED : -Sd-
03	31.03.06	CHD & APPD: M.AN	01	30.11.85	CHD & APPD: -Sd-
02	22.12.95	CHD & APPD: -Sd-			

ZONE	DESCRIPTION
	DRAWING REGENERATED IN AUTO CAD
	DIMENSION øD ALERED
	VAR. NO. 03 ADDED

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

DRN	S.JOHN	SIGNATURE	-Sd-	DATE	27.08.82
CHD	C.M.S	SIGNATURE	-Sd-	DATE	27.08.82
APPD	S.K.S	SIGNATURE	-Sd-	DATE	05.09.82

DEPT FS ALL DIMENSIONS ARE IN MM PROJECTION SCALE NTS WEIGHT (Kg) REF.TABLE

TITLE: **GAUGE CONNECTOR I**

DRAWING NO : 3-42-030-00849 03
 3-42-005-U0092/00

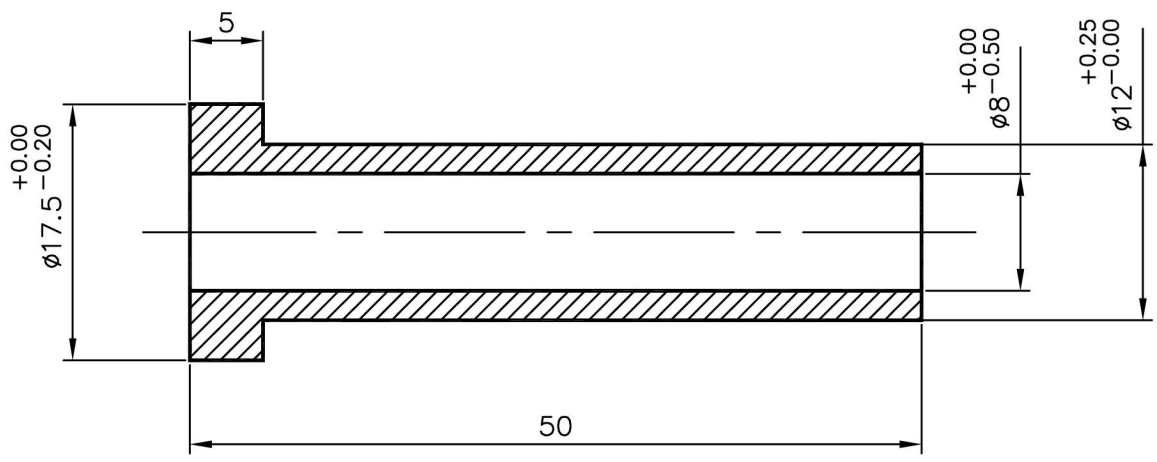
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REV 01	DATE 11.01.91	ALTERED : -Sd- CHD & APPD : -Sd-	REV 02	DATE 12.03.94	ALTERED : -Sd- CHD & APPD : -Sd-
CERTIFIED MATL CHANGED TO ATTESTED MATL.			ATTEST MATL CHANGED TO CERTIFIED MATL.		
REV 03	DATE 16.03.01	ALTERED : -Sd- CHD & APPD : -Sd-	REV 04	DATE 31.03.06	ALTERED : V.R.PRAKASH CHD & APPD : M.AN
REDRAW			DRAWING REGENERATED IN AUTO CAD		

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


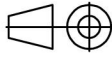
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CAUTION:



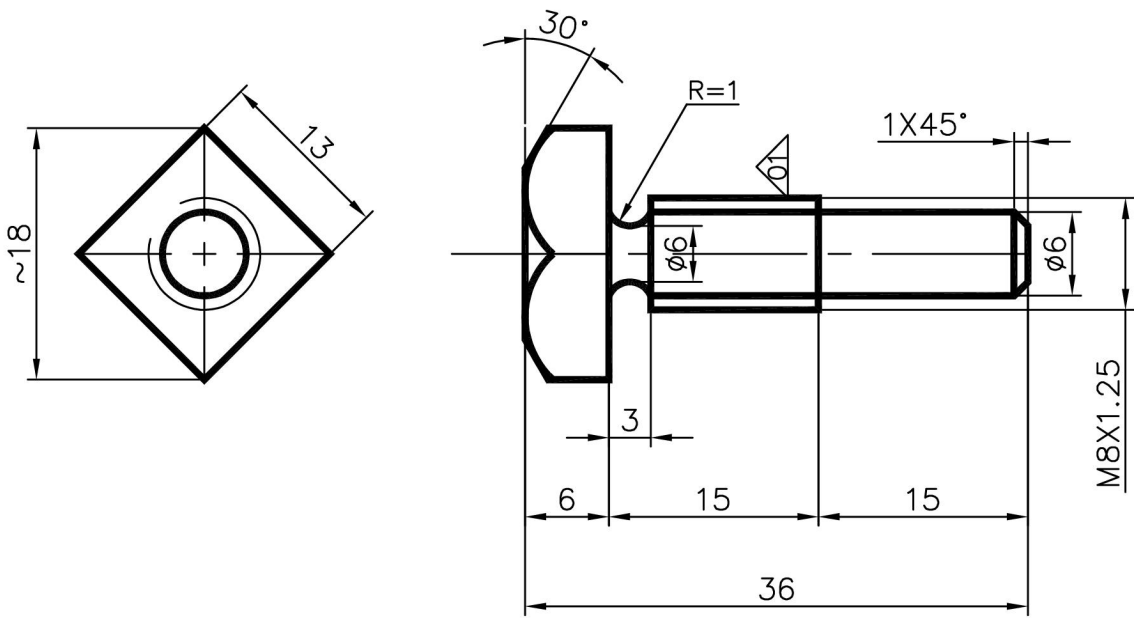
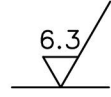
VARIANT NUMBER	DESCRIPTION	STD	15 339 343		C	UNIT	0.030	
			SA 105					
			MATERIAL CODE					UNIT WEIGHT
			MATERIAL SPECN				A/C/P	QUANTITY

HPVP CUSTOMER NO : 7906

 355-056	Bharat Heavy Electricals Ltd UNIT : HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN	NAME T.THANGARAJ	SIGNATURE -Sd-	DATE 17.03.83
			CHD	M.J.S	-Sd-	17.03.83
			APPD	K.C	-Sd-	17.03.83
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg) 0.030	REF TO ASSY / OLD DWG	
CODE 123	TITLE INSERT PIECE			DRAWING NO : 4-42-000-01891 4-42-005-U0001		REV 04/00


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REV	DATE	ALTERED :	REV	DATE	ALTERED :
01	03/01/85	CHD & APPD :	02	31/03/06	P.D.S CHD & APPD : M.A&S.V.S
THREAD SIZE M8X1.25 WAS M8X1			AUTO CAD DRG GENERATED.		



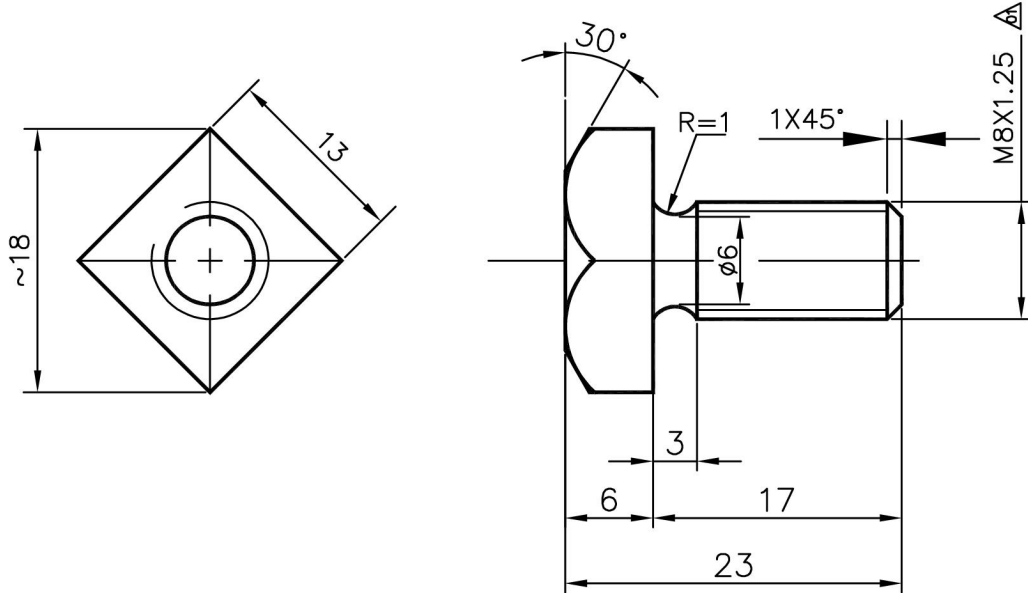
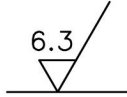
VARIANT NUMBER	DESCRIPTION	STD	15 339 343	C	UNIT	0.020
			SA 105			UNIT WEIGHT
			MATERIAL CODE	A/C/P		QUANTITY
			MATERIAL SPECN			

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
			CHD	M.S	-sd-	
			APPD	M.A	-sd-	
			APPD	S.V.S	-sd-	
DEPT	FS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE	123			2:1	0.020	-
TITLE				DRAWING NO :		REV
SQ. HEAD SCREW				4-42-000-02019		02
				4-42-005-U0002		/00


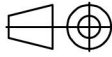
CAUTION: THE INFOM ON THIS DOCUMENT IS THE PROPERTY OF BHEL. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED :	REV	DATE	ALTERED : P.D.S
01	03/01/85	CHD & APPD :	02	31/03/06	CHD & APPD : M.A&S.V.S
THREAD SIZE M8X1.25 WAS M8X1			AUTO CAD DRG GENERATED.		



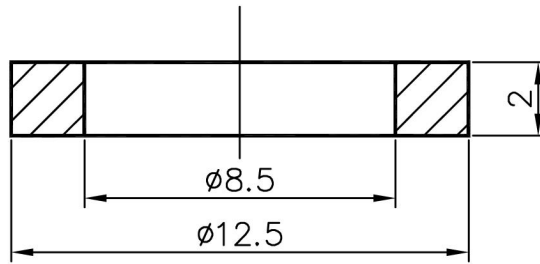
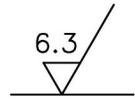
VARIANT NUMBER	DESCRIPTION	STD	15 339 343	A/C/P	UNIT	0.010
			SA105			UNIT WEIGHT
			MATERIAL CODE			QUANTITY
			MATERIAL SPECN			

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELES PLANTS, VISAKHAPATNAM-530012			DRN	NAME M.S	SIGNATURE -sd-	DATE
				CHD	M.A	-sd-	
				APPD	S.V.S	-sd-	
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE 2:1	WEIGHT (Kg) 0.010	REF TO ASSY / OLD DWG -		
CODE 123	TITLE SQ. HEAD SCREW			DRAWING NO : 4-42-000-02020 4-42-005-U0003			REV 02 /00


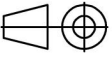
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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY
IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED : P.D.S
01	31/03/06	CHD & APPD : M.A&S.V.S
AUTO CAD DRG GENERATED.		



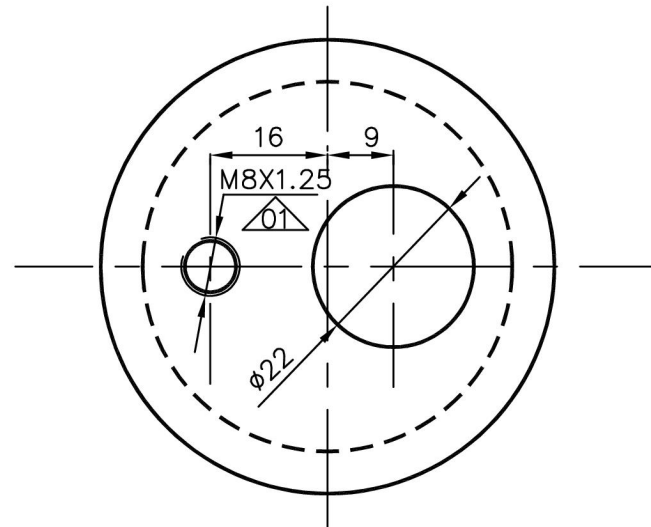
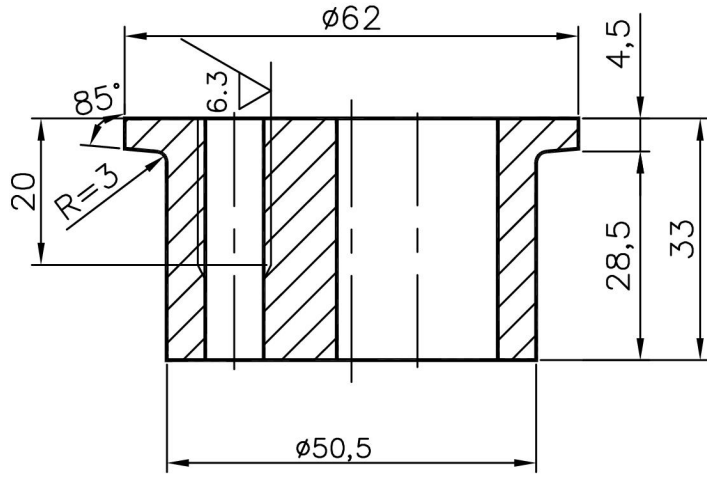
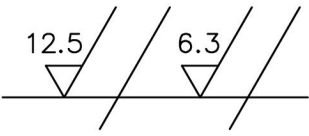
VARIANT NUMBER	SHEET 2XD12.5	STD	16 011 245	A/C/P	UNIT	0.010
			COPPPER			UNIT WEIGHT
	DESCRIPTION		MATERIAL CODE			QUANTITY
			MATERIAL SPECN			

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELES PLANTS, VISAKHAPATNAM-530012			DRN	NAME M.S	SIGNATURE -sd-	DATE
				CHD	M.A	-sd-	
				APPD	S.V.S	-sd-	
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE 5:1	WEIGHT (Kg) 0.010	REF TO ASSY / OLD DWG -		
CODE 123	TITLE WASHER				DRAWING NO : 4-42-000-02021 4-42-005-U0004		REV 01 /00


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

REV 01	DATE 03/01/85	ALTERED : CHD & APPD :	REV 02	DATE 31/03/06	ALTERED : P.D.S CHD & APPD : M.A&S.V.S
THREAD SIZE M8X1.25 WAS M8X1			AUTO CAD DRG GENERATED.		



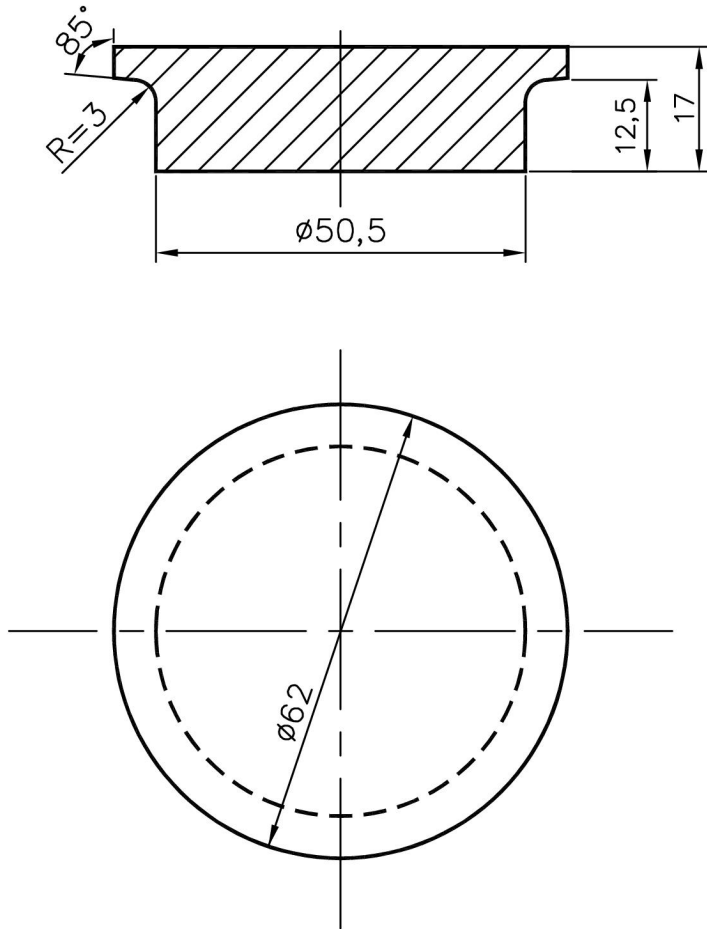
VARIANT NUMBER	DESCRIPTION	STD	ROUND D62; 33L		15 339 143	C	UNIT	0.400
					SA 105			UNIT WEIGHT
					MATERIAL SPECN	A/C/P	UNIT	QUANTITY

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELES PLANTS, VISAKHAPATNAM-530012			DRN	NAME M.S	SIGNATURE -sd-	DATE
				CHD	M.A	-sd-	
				APPD	S.V.S	-sd-	
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE 1:1	WEIGHT (Kg) 0.400	REF TO ASSY / OLD DWG -		
CODE 123					DRAWING NO : 4-42-000-02096 4-42-005-U0005		REV 02 /00
TITLE SEAL POT END COVER 1 ANSI							


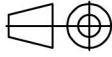
THE INFMN ON THIS DOCUMENT IS THE PROPERTY OF BHEL.
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED : P.D.S
01	31/03/06	CHD & APPD : M.A&S.V.S
AUTO CAD DRG GENERATED.		



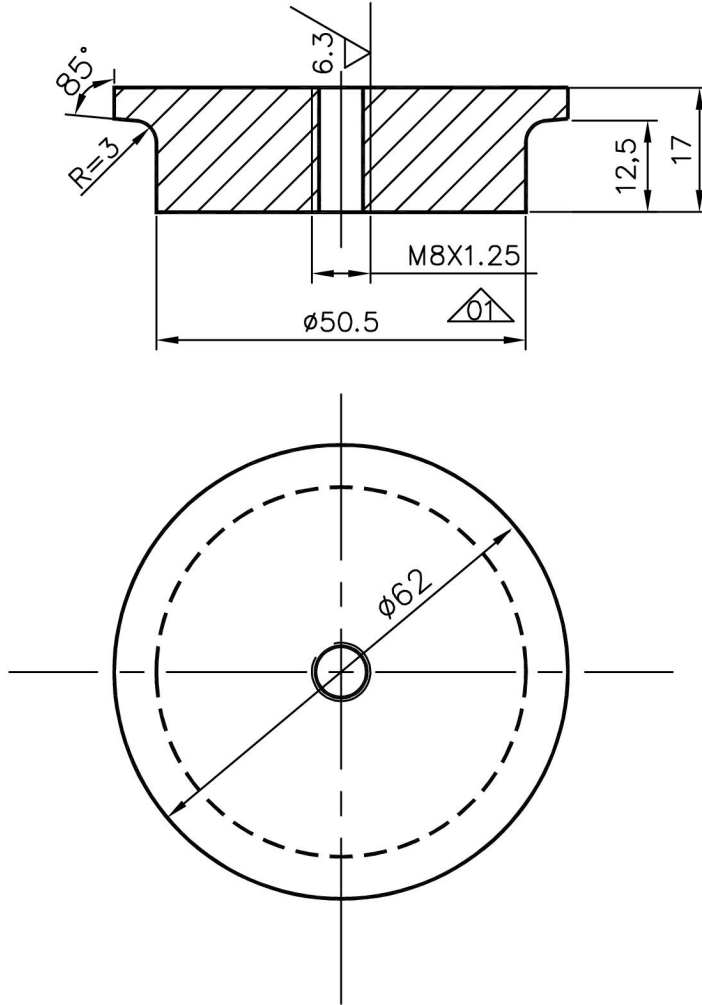
VARIANT NUMBER	DESCRIPTION	STD	15 339 143	C	UNIT	0.280
			SA 105			UNIT WEIGHT
			MATERIAL CODE	A/C/P		QUANTITY
			MATERIAL SPECN			

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
			CHD	M.A	-sd-	
			APPD	S.V.S	-sd-	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
FS			1:1	0.280	-	
CODE	123				DRAWING NO :	REV
TITLE				4-42-000-02097		01
SEAL POT END COVER 2				4-42-005-U0006		/00
ANSI						


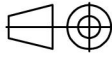
CAUTION: THE INFO ON THIS DOCUMENT IS THE PROPERTY OF BHEL. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV 01	DATE 03/01/85	ALTERED : CHD & APPD :	REV 02	DATE 31/03/06	ALTERED : P.D.S CHD & APPD : M.A&S.V.S
THREAD SIZE M8X1.25 WAS M8X1			AUTO CAD DRG GENERATED.		



VARIANT NUMBER	DESCRIPTION	STD	15 339 143	C	UNIT	0.300
			SA 105			UNIT WEIGHT
			MATERIAL CODE	A/C/P		QUANTITY
			MATERIAL SPECN			

HPVP CUSTOMER NO:7906

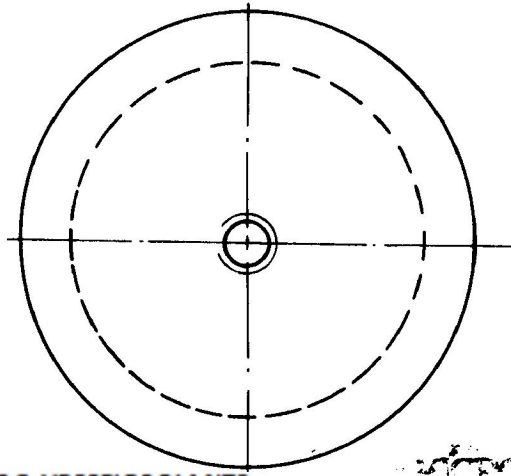
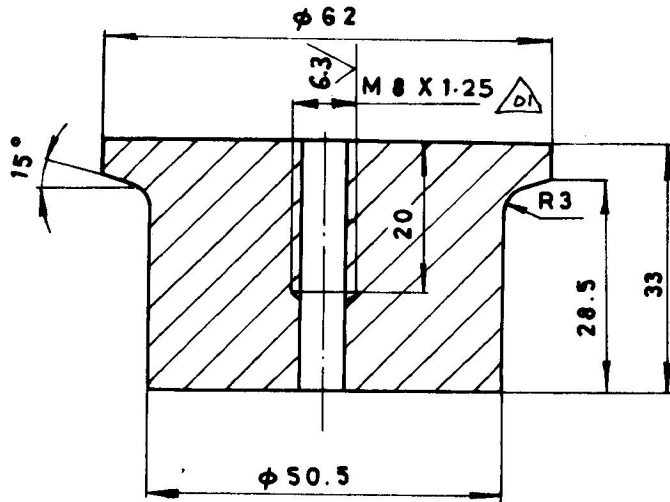
 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN	NAME M.S	SIGNATURE -sd-	DATE
			CHD	M.A	-sd-	
			APPD	S.V.S	-sd-	
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE 1:1	WEIGHT (Kg) 0.300	REF TO ASSY / OLD DWG -	
CODE 123	TITLE SEAL POT END COVER 3 ANSI			DRAWING NO : 4-42-000-02098 4-42-005-U0007		REV 02 /00

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

06-249/C

REV 01	DATE 3/1/85	ALTERED S. Jha	REV 02	DATE	ALTERED
		CHECKED Mhamid			CHECKED
THREAD SIZE M8X1.25 WAS M8X1					

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UNIT: HEAVY PLATES & VESSELS PLANTS,
VISAKHAPATNAM-530012

50232 498

VARIANT No.	DESCRIPTION	STD	15 339 143	C	UNIT	0.50
			SA 105			UNIT WT
			MATL CODE	A		QTY
			MATL SPEC	C		

HPVP CUSTOMER NO:7906



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

DRN	NAME R. Mambur	SIGN R. Mambur	DATE 10/1/85
CHD			
APPD		S. Swank	

DEPT. CODE	GRADE OF UNTOL DIM C/M/F		SCALE /	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
TITLE SEALPOT END COVER 4 ANSI			CARD CODE U 01	DRAWING NO. 4-42-000-02099 4-42-005-U0008		REV 01 /00

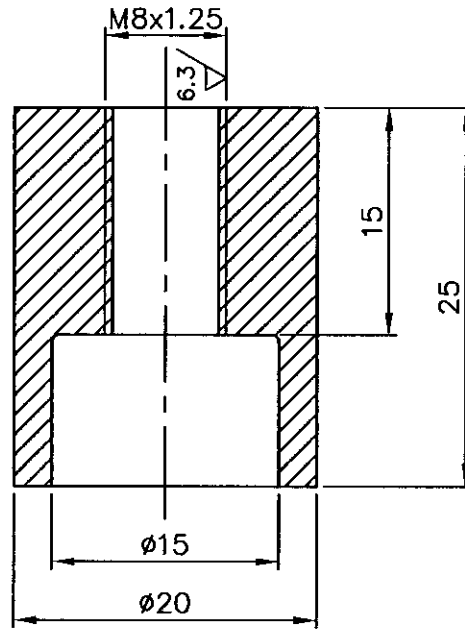
THE INFO ON THIS DOCUMENT IS THE PROPERTY OF BHEL
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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

CAUTION:

REV 01	DATE 13.4.04	ALTERED : S.MANI CHD&APPD:	REV 02	DATE	ALTERED : CHD&APPD:
REDRAWN IN AUTOCAD					


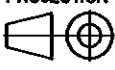
FOR TOLERANCES OF UNTOLERANCED
DIMENSIONS DURING MANUFACTURE
REFER PLANT STD. NO TP 023 0299

12.5 / 6.3



VARIANT NUMBER	DESCRIPTION	STD	15-339-343	A/C/P	UNIT	0.300
			SA 105			UNIT WEIGHT
			MATERIAL CODE			QUANTITY
			MATERIAL SPECN			

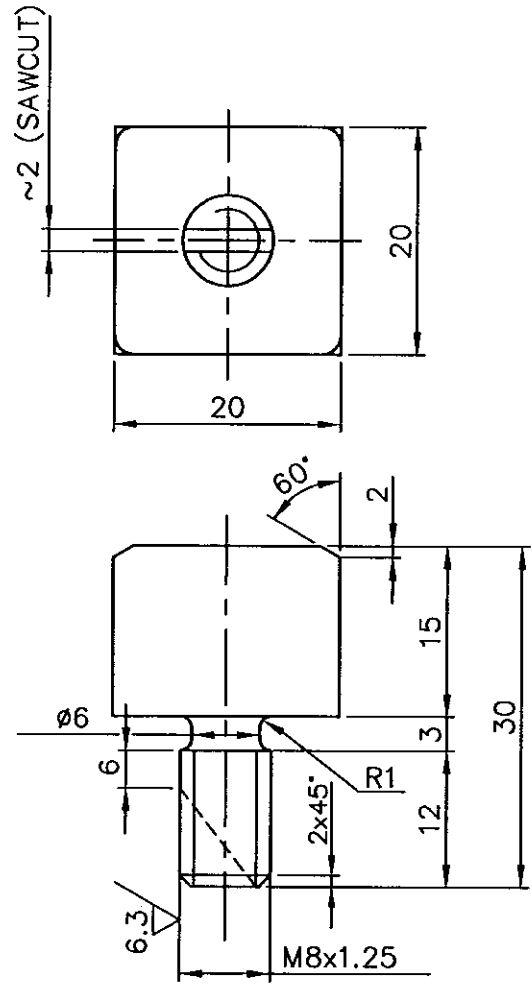
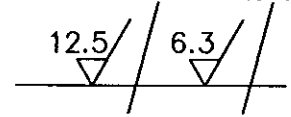
HPVP CUSTOMER NO:7906

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELES PLANTS, VISAKHAPATNAM-530012 355-056		DRN	NAME S.JOHN	SIGNATURE -Sd-	DATE 17/1/87
		CHD	M.A.L	-Sd-	17/1/87
		APPD		-Sd-	
DEPT FF/OS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE 2:1	WEIGHT (Kg) 0.300	REF TO ASSY / OLD DWG
CODE 123					
TITLE THREADED PIECE			DRAWING NO : 4-42-005-02606 4-42-005-U0009		REV 01 /00

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REV 01	DATE 2.2.88	ALTERED : M.A.L/-Sd- CHD&APPD: S.K.S/-Sd-	REV 02	DATE 13.4.04	ALTERED : S.MANI CHD&APPD:
DESCRIPTION WAS PL.20x20x30 MATL. CODE WAS 15-011-194 MATL.SPEC.WAS SA240 TYPE304			REDRAWN IN AUTOCAD		

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



VARIANT NUMBER	01	ROD D29; 30L	STD	15-024-194	A/C/P	UNIT	0.053
				SA 479 TYPE 304			1
		DESCRIPTION		MATERIAL CODE			UNIT WEIGHT
				MATERIAL SPECN			QUANTITY

HPVP CUSTOMER NO: 7906



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

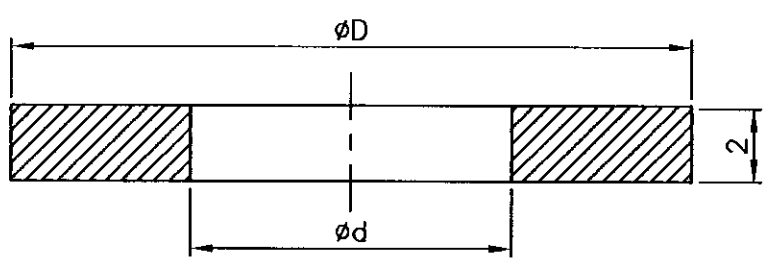
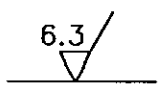
DRN	NAME L.SRINIVASAN	SIGNATURE -Sd-	DATE 30.03.87
CHD	M.A.L	-Sd-	03.04.87
APPD	S.K.S	-Sd-	

DEPT EDC/FF	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE NTS	WEIGHT (Kg) 0.053	REF TO ASSY / OLD DWG
CODE 123					
TITLE SQ. HD. SCREW					DRAWING NO : 4-42-005-02622 4-42-005-U0010/00
					REV 02

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 CAUTION:

REV 01	DATE 13.4.04	ALTERED : S.MANI CHD&APPD:	REV 02	DATE	ALTERED : CHD&APPD:
REDRAWN IN AUTOCAD					



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



VAR. No.	øD	ød
01	18	8.5
02	12.5	8.5

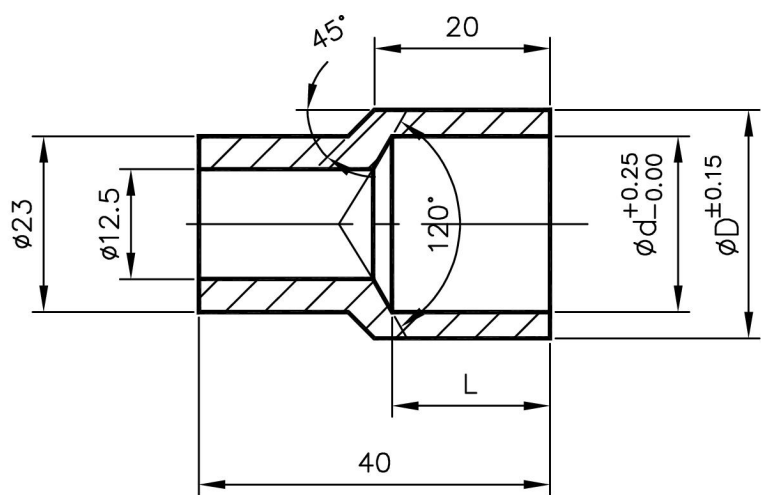
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
02	SH.2 x D12.5/D8.5		16-011-245			0.010	
			COPPER				1
01	SH.2 x D18/D8.5		16-011-245			0.010	
			COPPER				1

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT : HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN	NAME L.SRINIVASAN	SIGNATURE -Sd-	DATE 01.04.87
			CHD	M.A.L	-Sd-	03.04.87
			APPD	S.K.S	-Sd-	
DEPT FF/OS	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg) -	REF TO ASSY / OLD DWG	
CODE 123						
TITLE GASKET				DRAWING NO :		REV
				4-42-005-02623		01
				4-42-005-U0011		00

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IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV 01	DATE 08.10.91	ALTERED : -Sd- CHD & APPD : -Sd-	REV 02	DATE 31.03.06	ALTERED : V.R.PRAKASH CHD & APPD : M.AN	FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER PLANT STD. NO TP 023 0299
NOTE ADDED			DRAWING REGENERATED IN AUTO CAD			




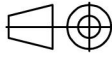
STYLE NO	ϕd	ϕD	L
01	21.7	33.4	10
02	33.8	42	13
03	40	48	15

NOTE:

USE ATTESTED MATERIAL FOR CUSTOMER NO.2350 TO 2354.

03	ROUND D 48 ; 40L	15 339 142	C		0.300
		SA 105			
02	ROUND D 42 ; 40L	15 339 142	C		0.200
		SA 105			
01	ROUND D 33.4 ; 40L	15 339 280	C		0.100
		SA 105			
VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

HPVP CUSTOMER NO:7906

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012			DRN	NAME S.JOHN	SIGNATURE -Sd-	DATE 26.08.82
				CHD	C.M.S	-Sd-	26.11.82
				APPD	S.K.S	-Sd-	26.11.82
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)		REF TO ASSY / OLD DWG	
CODE 123			NTS	Ref.BOM			
TITLE MACHINED REDUCER				DRAWING NO :			REV
				4-42-030-02115			02
				4-42-005-U0013			/00

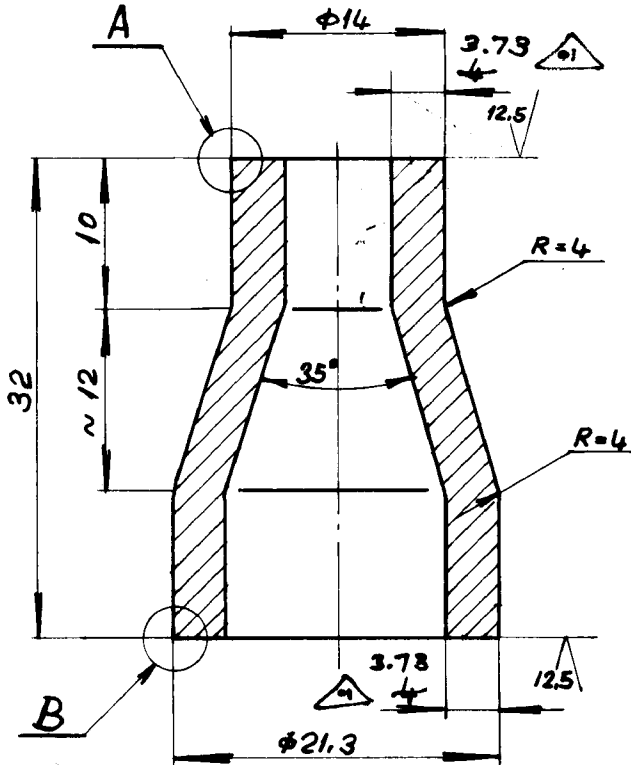
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

98-249/C

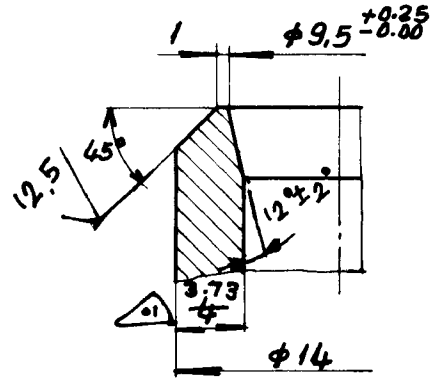
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REV 01	DATE 27.6.87	ALTERED <i>Sobhan</i>	REV 02	DATE 28.7.87	ALTERED <i>Sobhan</i>
MATEL SPECN. & DIMENSIONS REVISED			MATEL. DESCRIPTION, CODE AND SPECIFICATION ALTD.		

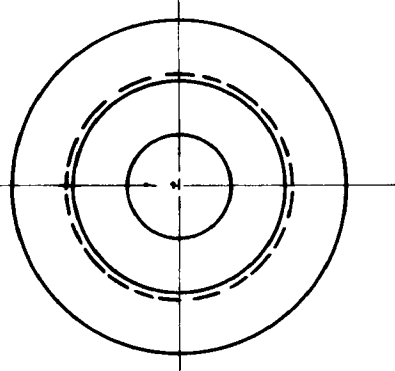
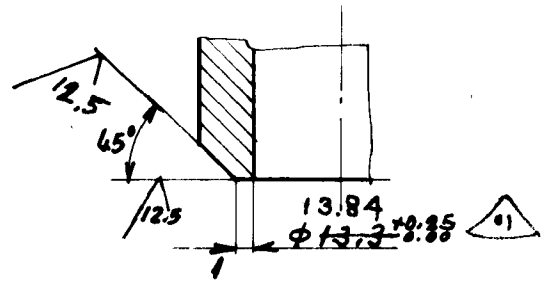
125



DETAIL - A



DETAIL - B



COPIED FROM FILE NO. 439 FRAME 552

VARIANT NO.	DESCRIPTION	STD	15 339 139		UNIT	0,040
			MATL CODE	SA 105		
			MATL SPEC	A C	UNIT	QTY

HPVP CUSTOMER NO: 7906



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

DRN	NAME	SIGN	DATE
CHD	S.B.S.	<i>Sobhan</i>	31/8/82
APPD		<i>Sankar</i>	5/9/82

DEPT.	GRADE OF UNTOL DIM	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	REV
CODE	C/M/F				02
TITLE			CARD CODE	DRAWING NO.	REV
FORGED REDUCER N615/N610			U 01	4-42-513-02035 4-42-005-U0014	02 /00

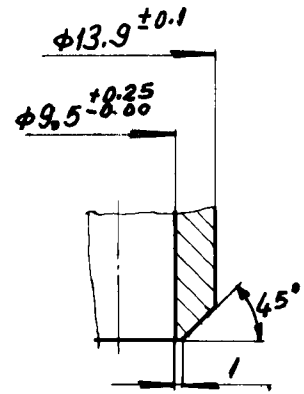
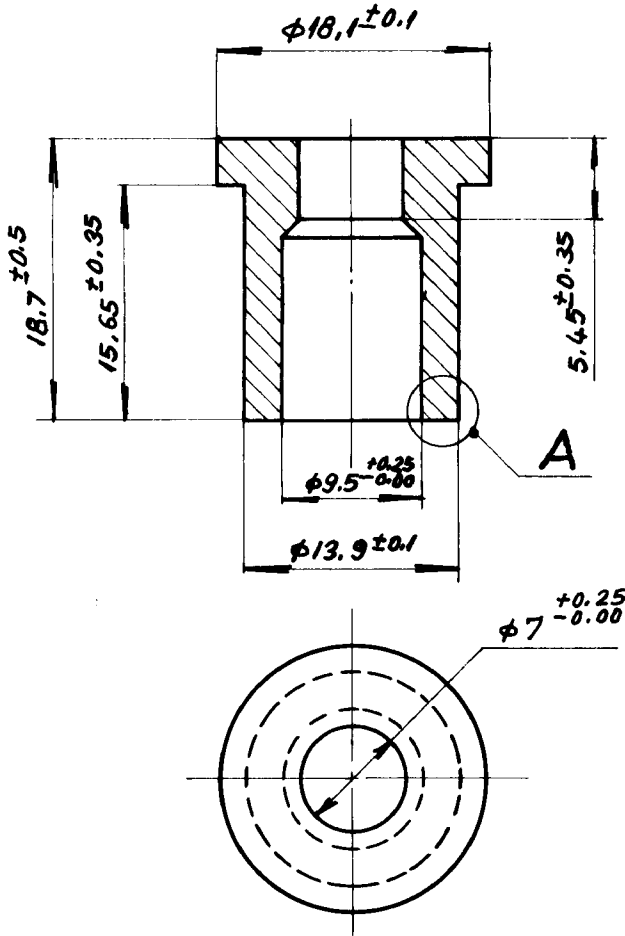
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

05-249/C

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REV 01	DATE	ALTERED	REV 02	DATE	ALTERED
		CHECKED			CHECKED

12.5



DETAIL - A

MICROFILMED ON
ROLL 66331 FRAME 551

VARIANT NO.	DESCRIPTION	STD	15-339-343	C	UNIT	0.020
			SA 105			UNIT WT
			MATL CODE	A		QTY
			MATL SPEC	C		

HPVP CUSTOMER NO: 7906

<p>Bharat Heavy Electricals Ltd., UNIT: HEAVY PLATES & VESSELS PLANT, VISHAKHAPATNAM-530012</p>	DRN	NAME	SIGN	DATE
	CHD	S. B. S.	<i>Sankar</i>	31/3/82
	APPD		<i>Sankar</i>	5/4/82

DEPT. CODE	GRADE OF UNTOL. DIM C/M/F	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG	ITEM NO.
TITLE			CARD CODE	DRAWING NO.	
TAIL PIPE			U 01	4-42-513-02036 4-42-005-U0015	00

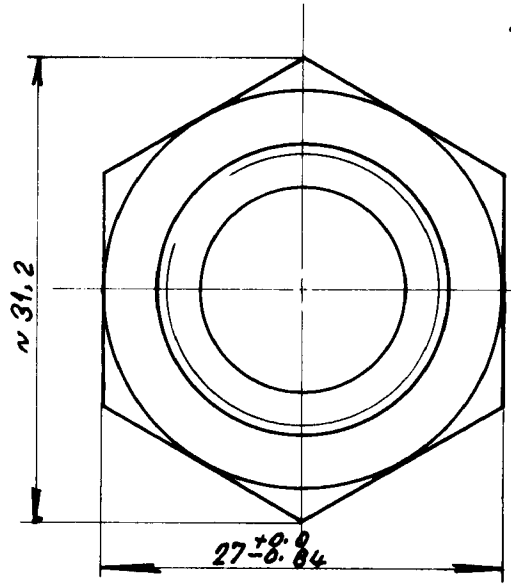
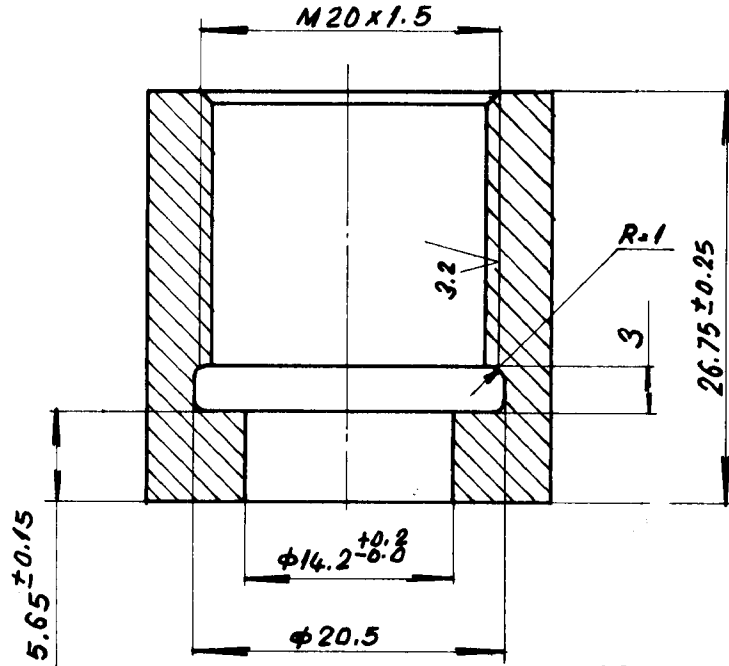
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIME).

08-249/C

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REV 01	DATE	ALTERED	REV 02	DATE	ALTERED
		CHECKED			CHECKED

12,5 / 3,2



NOTE:
TOLERANCE ON PITCH DIAMETER IS $\phi 19.026^{+0.80}_{-0.00}$

50432 550

VARIANT No.	DESCRIPTION	STD	15-339-140	C	UNIT	0.040
			SA105			QTY
			MATL CODE	A		UNIT WT
			MATL SPEC	C		QTY

HPVP CUSTOMER NO-7906

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

DRN	NAME	SIGN	DATE
CHD	S.B.S	Sankar	3/13/02
APPD		Sankar	5/4/02

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

TITLE	CARD CODE	DRAWING NO.	REV
UNION NUT (M20x1.5)	U 01	4-42-513-02037 4-42-005-U0016	00

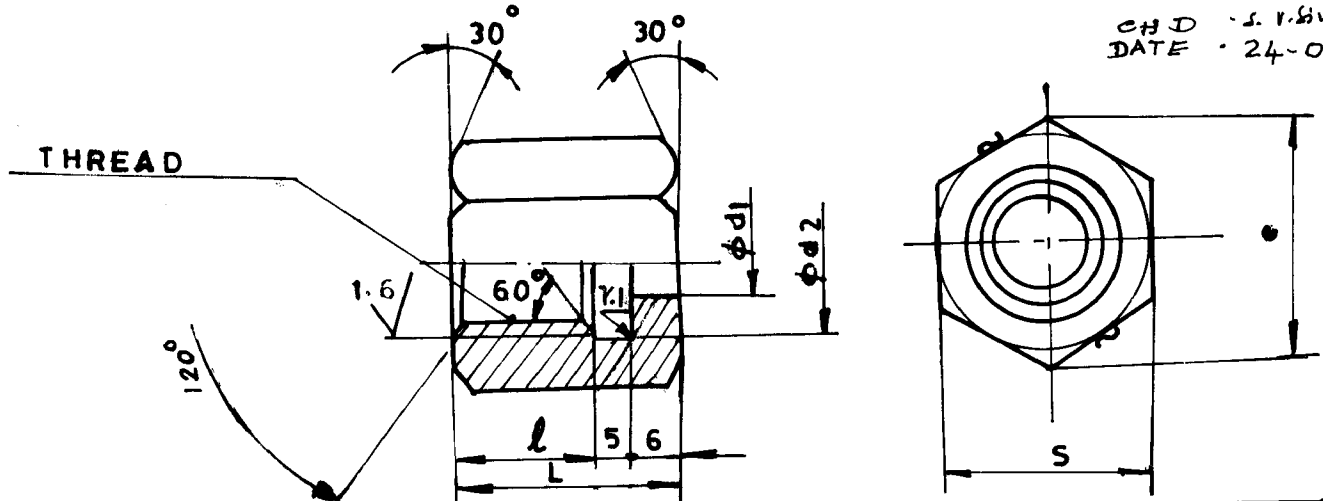
REV	DATE	ALTERED	7Th
01	24-12-91	CHECKED	S.V. Sivam
ALTERNATE MATL NOTES ADDED			
03. STYLE 07. DIM ALTERED 15-2-92			

REV-02

ALL DIMENSIONS ARE IN MILLIMETRES

ALTERNATE MATERIAL FOR ATTEST QUALITY USE
SA105 REFER SPL

ALTD. 7Th
CHD - S.V. Sivam
DATE - 24-01-92



NO	THREAD	d1	d2	l	L	S	e	UNIT WT IN K.G	MTL DESCRIPTION	RAW MAT. CODE	SER
12	M20X1.5	12.5	21	19	50	26	30	0.10	D 30L 30L	15.339.140 SA105	
11	M 20X1.5	15.5	21	19	30	30	34.6	0.15	D 34.6, 30L	15.339.140 SA105	
10	1/4" BSP	7	13	14	25	30	34.6	0.12	D 34.6, 25L	15.039.141 SA105	
09	M20X1.5	14.5	22	19	30	30	34.6	0.15	HEX 30, 30L	15.040.114	
08	M36 X 3	26	37	19	30	55	63.5	0.40	D63.5 X 30 L BM-C Q.45	15.004.116	
07	1/2" BSP	12.5	21.5	19	30	30	34.6	0.10	HEX 30, 23L	15.040.114	
06	M 20X1.5	22	22	19	30	30	34.6	0.12	HEX 30, 30L	15.040.114	
05	M 20X1.5	10	21	19	30	30	34.6	0.12	HEX 30, 30L	15.040.114	
04	1" BPS	26	33.5	15	26	41	47.3	0.25	HEX 41, 26 L	15.040.121	
03	3/4 BPS	14.5	27.5	21	32	36	41.6	0.21	HEX 36, 22 L	15.040.120	
02	3/8 BPS	10	18	19	30	30	34.6	0.13	HEX 30, 30L	15.040.114	
01	M 20X1.5	12.5	21	19	30	30	34.6	0.12	D 34.6, 30L BM-C Q.45	15.004.144	
13	M 27 X 2	16	28	19	30	41	47.3	0.30	D 47.3, 30L	15 339 142 SA105	

MATERIAL - SA 184, GR. 2H CERTIFIED

HPVP CUSTOMER NO: 7906

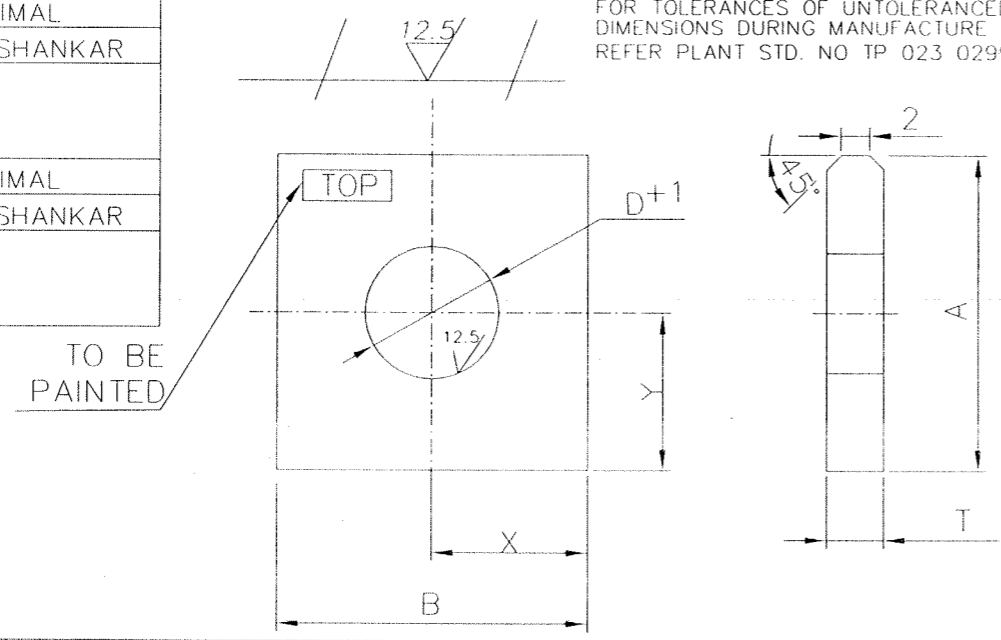
		BHARAT HEAVY ELECTRICALS LTD. UNIT: HEAVY PLATES & VESSELS PLANT, VISAKHAPATNAM-530012		DRN CHD APPD	NAME E.P.C. M.A.L. S.V. Sivam	SIGN 7Th M.A.L.	DATE 24-10-91 24-10-91 24-10-91	NO. OF VAR
DEPT PE (FB) CODE 123	GRADE OF UNTO L DIM N / M / F		SCALE N.T.S.	WEIGHT (KG)	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS	
TITLE CAP NUT.				CARD CODE 01	DRAWING NO. 4-42-900-00074 4-42-005-U0018	REV 03		

Size

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REV	DATE	ALTERED :	BIMAL
01	121217	CHD & APPD :	SHANKAR
VARIANT 05 ADDED			
REV	DATE	ALTERED :	BIMAL
02	301217	CHD & APPD :	SHANKAR
DIMENSION ALTERED			



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



05	220	150	20	60	75	70
04	200	150	20	58	75	70
03	170	110	16	48	55	60
02	150	100	12	40	50	50
01	120	80	8	33	40	40
VAR NO	A ^{±2}	B ^{±2}	T	D	X	Y

NOTES:-
Apply suitable preservative to machined portion and store the lug suitably.

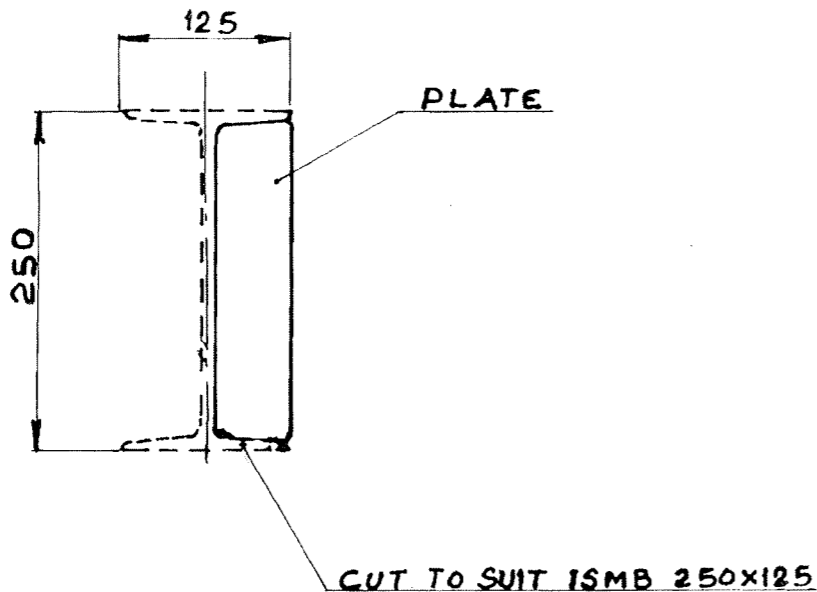
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY
05	PL 220x150x20		15011150			4.737
			IS2062GRA			
04	PL 200x150x20		15011150			4.295
			IS2062GRA			
03	PL 170x110x16		15011026			2.121
			IS2062GRA			
02	PL 150x100x12		15011132			1.294
			IS2062GRA			
01	PL 120x80x8		15011027			0.549
			IS2062GRA			

 355-056	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
			CHD	GSK	-sd-	01.11.07
			APPD	MTP	-sd-	02.11.07
DEPT FS/PE(B) CODE 129	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg) -	REF TO ASSY / OLD DWG	
TITLE CLH SUPPORT PLATE			DRAWING NO : 4-47-001-01872 4-47-161-U5029		REV 02 /00	

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

REV	DATE	ALTERED	REV	DATE	ALTERED
01	24/4/99	<i>Beingsha</i>	02		<i>Beingsha</i>
		CHECKED <i>Beingsha</i>			CHECKED <i>Beingsha</i>

MATL SPEC HAS BEEN CHANGED



01	PL 10 X 60 X 200	15 011 098	1.178
		IS 2062 Fe410 WA	
VARIANT NO.	DESCRIPTION	MATL CODE	UNIT WT
		MATL SPEC	QTY

		Bharat Heavy Electricals Ltd.,		DRN	NAME	SIGN	DATE
UNIT: HEAVY PLATES & VESSELS PLANT		VISAKHAPATNAM-530012		CHD	U. ANTONSAM	<i>Anton</i>	
				APPD	Jopal Swamy	<i>Jopal</i>	9-4-84
DEPT. CC	GRADE OF UNTOLO DIM C/M/F	SCALE	WEIGHT (kg)	REF TO ASSY / OLD DRG		ITEM NO.	
123		NTS	1.178			70	
TITLE			CARD CODE	DRAWING NO.		REV	
PLATE			U 01	4-47-121-00697, 4-47-161-U5031		02 /00	

06-249/C

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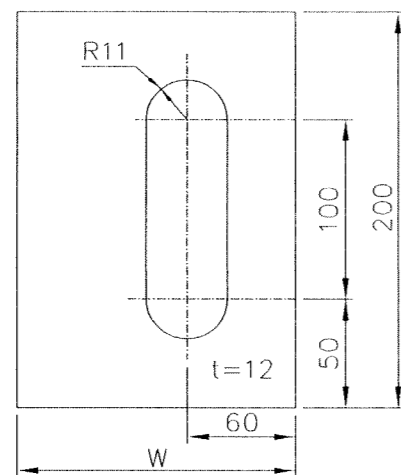
THE INFO ON THIS DOCUMENT IS THE PROPERTY OF BHEL. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL.

REV	DATE	ALTERED :
01		CHD & APPD :

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

Note

DEBUR THE EDGES OF THE SLOT PROPERLY TO ALLOW FREE MOVEMENT OF BOLT FITTED INTO THE SLOT.



W	VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
				MATERIAL SPECN			QUANTITY
182	02	PLATE 12x200x182		150111320000			3.102
				IS2062GRA			1
157	01	PLATE 12x200x157		150111320000			2.658
				IS2062GRA			1



355-056

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

DRN	NAME	SIGNATURE	DATE
CHD	SAIRAM N	-SD-	08.11.2021
APPD	GANGADHAR MCHS	-SD-	08.11.2021

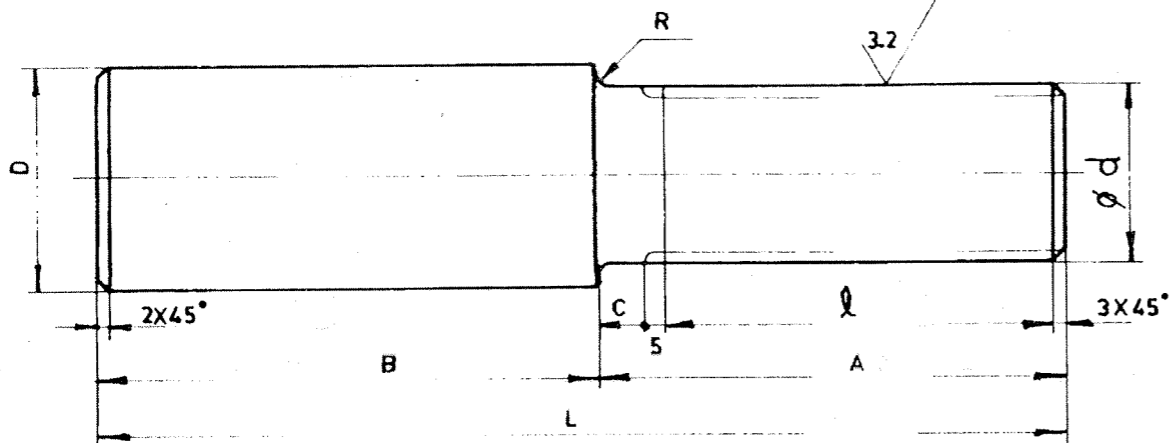
DEPT FS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 129			NTS	---	4-47-201-01918

TITLE	DRAWING NO :	REV
TIE PLATE	4-47-161-02071 4-47-161-U5032	00

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

05-229/C

3-47-001-00648
3-47-001-U5025
DRAWING NO.



14	140	255	15	48	395	1.5	117	M 45 X 3 LH	∅ 63.5 X 6.3
13	140	255	15	48	395	1.5	117	M 45 X 3 RH	∅ 63.5 X 6.3
12	140	170	15	48	310	1.5	117	M 45 X 3 LH	∅ 63.5 X 6.3
11	140	170	15	48	310	1.5	117	M 45 X 3 RH	∅ 63.5 X 6.3
10	131	235	12	38	366	1	111	M 36 X 3 LH	∅ 51 X 5
09	131	235	12	38	366	1	111	M 36 X 3 RH	∅ 51 X 5
08	131	170	12	38	301	1	111	M 36 X 3 LH	∅ 51 X 5
07	134	170	12	38	301	1	111	M 36 X 3 RH	∅ 51 X 5
06	122	185	8	34	307	1.5	106	M 27 LH	∅ 44.5 X 4
05	122	185	8	34	307	1.5	106	M 27 RH	∅ 44.5 X 4
04	122	135	8	32	257	2	106	M 27 LH	∅ 42.5 X 4.05
03	122	135	8	32	257	2	106	M 27 RH	∅ 42.5 X 4.05
02	115	170	8	25	285	2	99	M 20 LH	∅ 34.2 X 3.2
01	115	170	8	25	285	2	99	M 20 RH	∅ 34.2 X 3.2
VAR NO	A	B	C	D	L	R	∅ d	TUBE SIZE	

ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	ITEM NO.	MATL. CODE	UNIT	UNIT WT.
14	01	THREADED PIECE M45 (LH)		15 339 142	SA 105	1	5.370
13	01	THREADED PIECE M45 (RH)		15 339 142	SA 105	1	5.370
12	01	THREADED PIECE M45 (LH)		15 339 142	SA 105	1	4.163
11	01	THREADED PIECE M45 (RH)		15 339 142	SA 105	1	4.163
10	01	THREADED PIECE M36 (LH)		15 339 141	SA 105	1	3.139
9	01	THREADED PIECE M36 (RH)		15 339 141	SA 105	1	3.139
8	01	THREADED PIECE M36 (LH)		15 339 141	SA 105	1	2.560
7	01	THREADED PIECE M36 (RH)		15 339 141	SA 105	1	2.560
6	01	THREADED PIECE M27 (LH)		15 339 280	SA 105	1	1.866
5	01	THREADED PIECE M27 (RH)		15 339 280	SA 105	1	1.866
4	01	THREADED PIECE M27 (LH)		15 339 280	SA 105	1	1.401
3	01	THREADED PIECE M27 (RH)		15 339 280	SA 105	1	1.401
2	01	THREADED PIECE M20 (LH)		15 339 139	SA 105	1	0.938
1	01	THREADED PIECE M20 (RH)		15 339 139	SA 105	1	0.938

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT



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

DRN.	NAME	SIGN.	DATE	NO. OF VAR.
CHD.	K.T. JAWA-HAR	K.T. JAWA-HAR	26/2/88	
APPD.	P.R.R.	P.R.L.	28/2/88	

REV. 01	DATE	ALTERED	CHECKED
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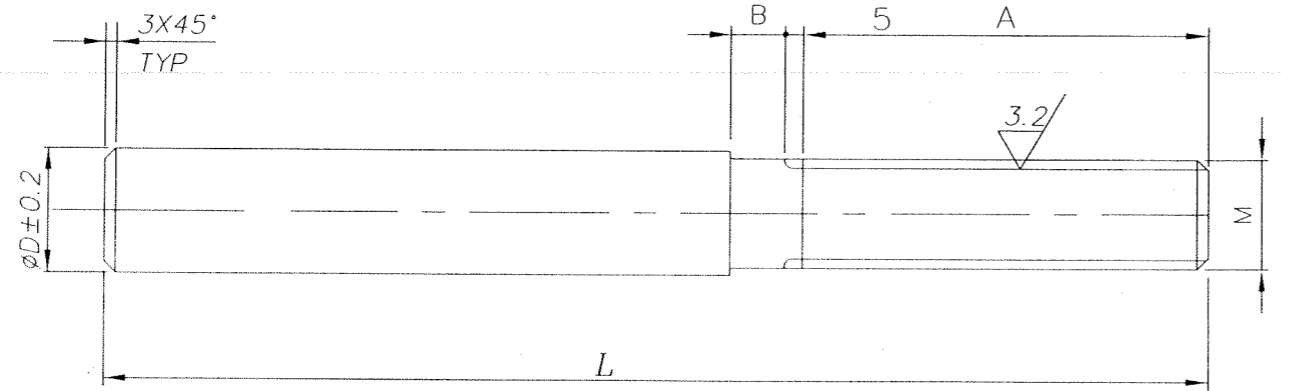
DEPT. CC	GRADE OF UNTOL. DIM. C/M/F	SCALE NTS	WEIGHT (kg.)
CODE 123			

REF. TO ASSY./OLD DRG.	REV.
3-47-999-00395 3-47-602-00119 3-47-241-00727	0

TITLE	CARD CODE	DRAWING NO.
THREADED PIECE	U 01	3-47-001-00648 3-47-001-U5025

DRAWING NO: 3-47-001-01262
3-47-161-U5026

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



M48x5	500	48	220	20	01	TIE ROD M48x5 ROD DIA 50			153391420000		7.700		
									SA105				
M20x2.5	285	25	120	20	06	TIE ROD M20x2.5 ROD DIA 25			153391390000		0.896		
									SA105				
M24x3	300	32	120	20	05	TIE ROD M24x3 ROD DIA 36			153392800000		1.621		
									SA105				
M30x3.5	300	38	110	20	04	TIE ROD M30x3.5 ROD DIA 40			153391410000		2.219		
									SA105				
M36x4	300	38	110	20	03	TIE ROD M36x4 ROD DIA 40			153391410000		2.549		
									SA105				
M42x4.5	400	48	120	20	02	TIE ROD M42x4.5 ROD DIA 50			153391420000		5.194		
									SA105				
M48x5	395	48	120	-	01	TIE ROD M48x5 ROD DIA 50			153391420000		5.606		
									SA105				
<i>M</i>	<i>L</i>	<i>D</i>	<i>A</i>	<i>B</i>	VARIANT NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
									VAR NO	MATERIAL SPECN		DI	QUANTITY

NOTES:

1. Thread shall conform to applicable IS stds.
2. Apply suitable preservative to threaded portion and store the lug suitably.

REV	DATE	ALTERED : BIMAL CHOWDHURY
01	29.05.14	CHD & APPD: GANGADHAR MCH

ZONE VARIANT 07 ADDED

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TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT



355-055

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

DRN	NAME	SIGNATURE	DATE
KPV		-sd-	01.11.07
GSK		-sd-	01.11.07
MTP		-sd-	02.11.07

DEPT FS/PE(B)	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE NTS	WEIGHT (Kg) -
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TITLE
THREADED PIECE FOR CLH

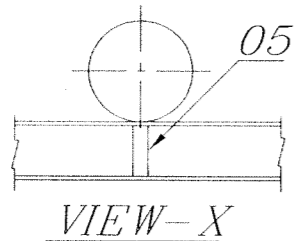
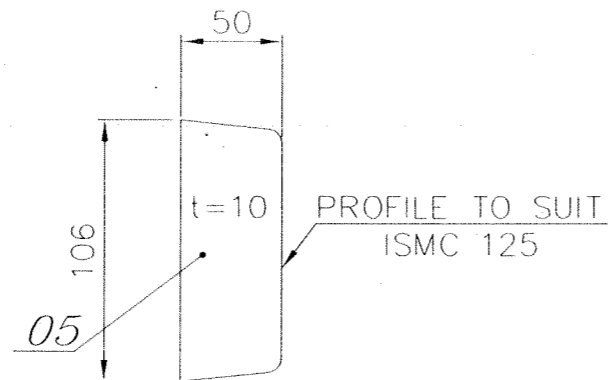
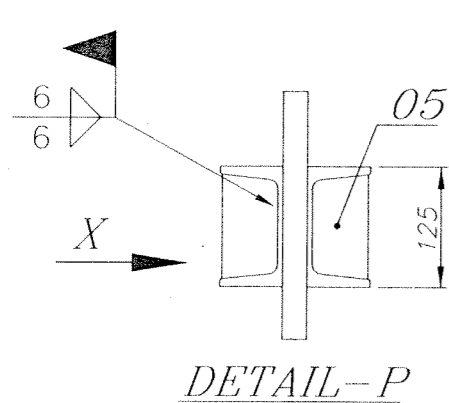
DRAWING NO :	REV
3-47-001-01262	01
3-47-161-U5026	/00

NOTES: -

1. PRESERVE THE MACHINED ITEMS LIKE CONSTANT LOAD HANGER (CLH), THREADED CLEVIS, THREADED PIECE, FASTENERS CAREFULLY.
2. IF IN DOUBT REGARDING COAL PIPE SUPPORT DRAWINGS, GET IT CLARIFIED WITH HPVP/VIZAG.
3. IF ANY INTERFERENCE IS OBSERVED BETWEEN COAL PIPE SUPPORT MEMBERS AND NEAR BY COAL PIPES OR ANY BOILER COMPONENTS, THE SUPPORT MEMBER LOCATION MAY BE ALTERED TO SUIT SITE CONDITION.
4. COAL PIPE SUPPORT TUBES ARE SENT IN RUNNING METERS; TO BE CUT TO SIZE & SHAPE AS GIVEN IN THE DRAWINGS. FOR MORE DETAILS REFER 3-47-001-00647
5. USE E7018 FOR ALL WELDS; UNLESS SHOWN WELD SIZE = 6 FILLET.
6. IF ANY INTERFERENCE IS OBSERVED BETWEEN CLH AND NEAR BY BOILER COMPONENTS, THE CLH ELEVATION MAY BE ALTERED TO SUIT KEEPING LOAD POINT AT THE SAME LOCATION; THE CLH ITSELF MAY BE ROTATED ABOUT THE VERTICAL AXIS WITHOUT DISTURBING LOAD POINT.
7. ITEM-05 IS TO BE WELDED AS SHOWN IN DETAIL-P, TO AVOID CHANNEL SAGGING. IN LINE WITH THE SUPPORTED PIPE.

REFERENCE DRAWINGS: -

1. 0-47-160-02799 --- LAYOUT OF PULVERISED COAL PIPING.
2. 0-47-160-02800 --- PULVERISED COAL PIPING LOADING PLAN.
3. 3-47-001-00647 --- CLEVIS TYPE SUPPORT DETAILS.



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN		DI	QUANTITY
	05	PLATE 10X50X106				150110980000		NO	0.400
						IS2062GRA		L	160
	04	PULVERISED COAL PIPE SUPPORT RIFLE DISTRIBUTOR		2-47-161-01966			ASSY	NO	606.028
									1
	03	PULVERISED COAL PIPE SUPPORTS - M27		1-47-161-02367			ASSY	NO	761.756
									1
	02	PULVERISED COAL PIPE SUPPORTS - M20		1-47-161-02366			ASSY	NO	2118.654
									1
	01	CORNER PULVERISED COAL PIPE SUPPORTS (ARRGT.)		0-47-161-02806			ASSY	NO	3499.803
									1

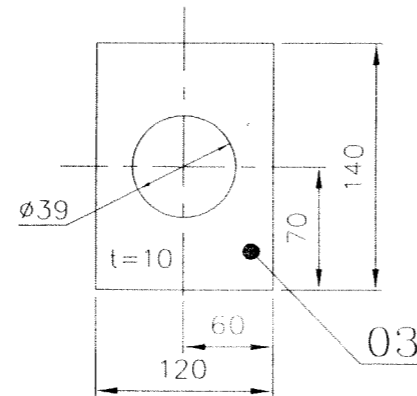
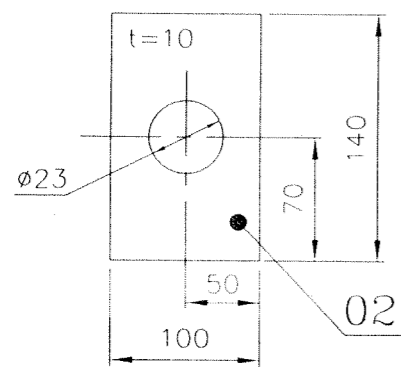
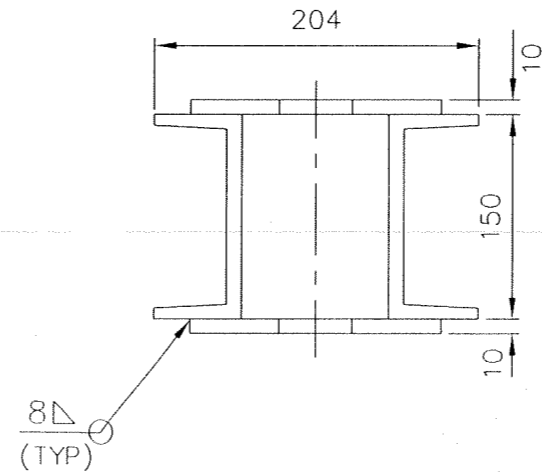
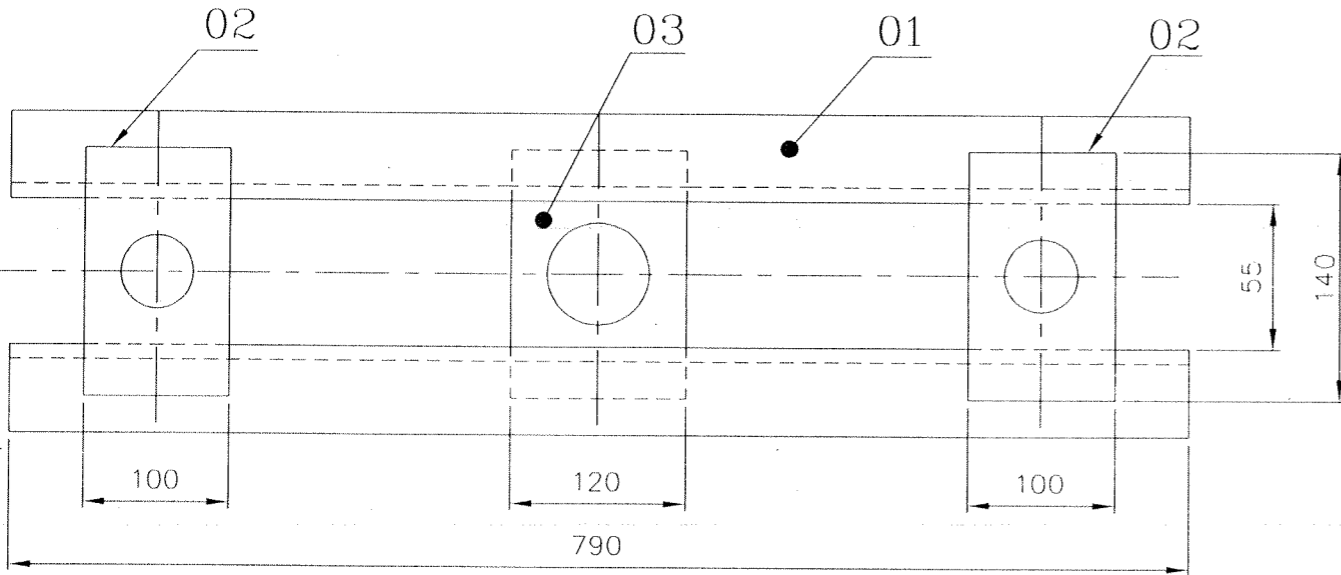
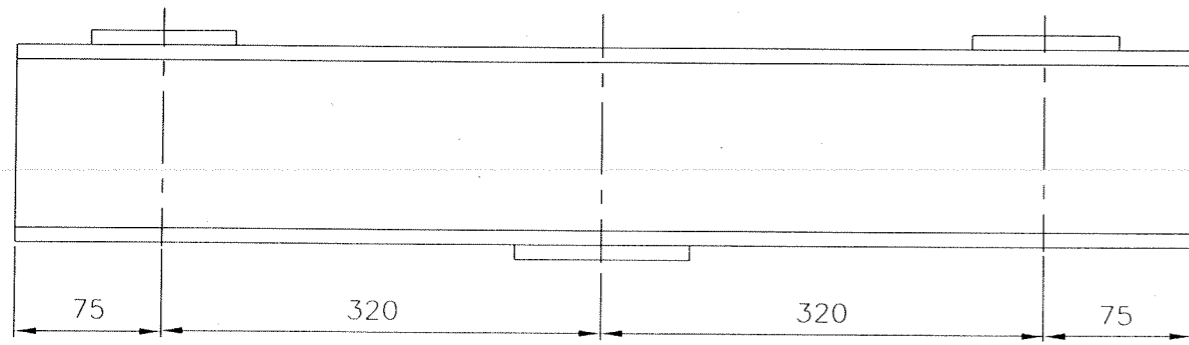
CUSTOMER NO. : 2622

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

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		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 355-055		DRN	NAME	SIGNATURE	DATE
				CHD	SAIRAM N	-SD-	25.11.2021
				APPD	GANGADHAR MCHS	-SD-	25.11.2021
DEPT	FS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE	129			NTS	7050.241	3-47-161-70007	
TITLE				DRAWING NO :		REV	
BOM OF PULVERISED COAL PIPE SUPPORTS & ERECTION				3-47-161-01951 3-47-161-U5028		00	

DRAWING NO: 3-47-161-70008
3-47-161-U5029

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



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	CS
					VAR NO	MATERIAL SPECN		DI	QUANTITY	
01	03	PLATE 10x140x120				150110980000		NO	1.098	
						IS2062GRA			1	
01	02	PLATE 10x140x100				150110980000		NO	1.099	
						IS2062GRA			2	
01	01	ISMC 150x75x790				150100350000		NO	13.272	
						IS2062GRA			2	

REV	DATE	ALTERED :
01		CHD & APPD:
ZONE		

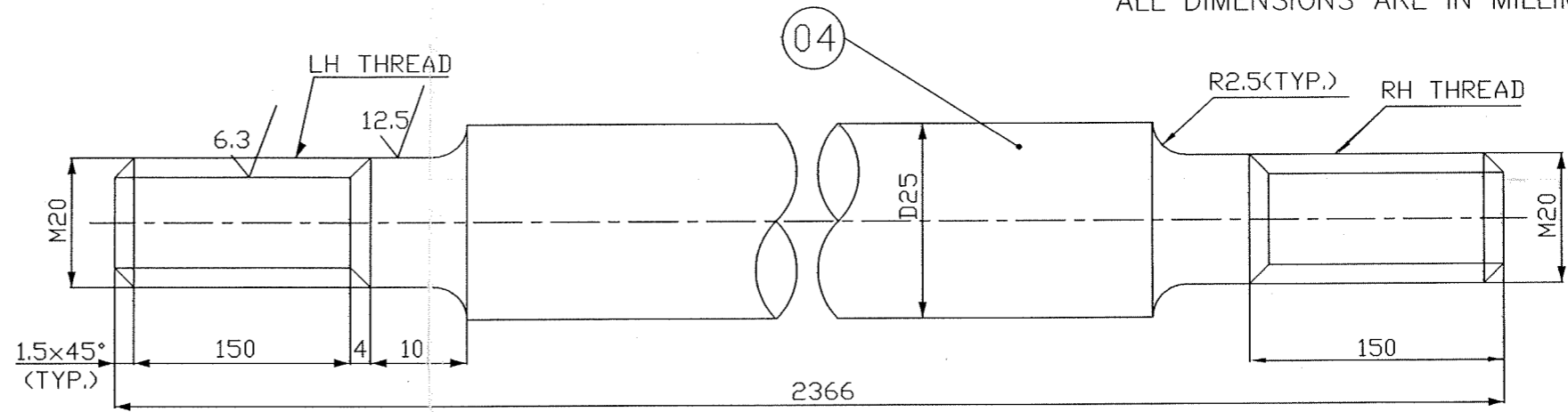
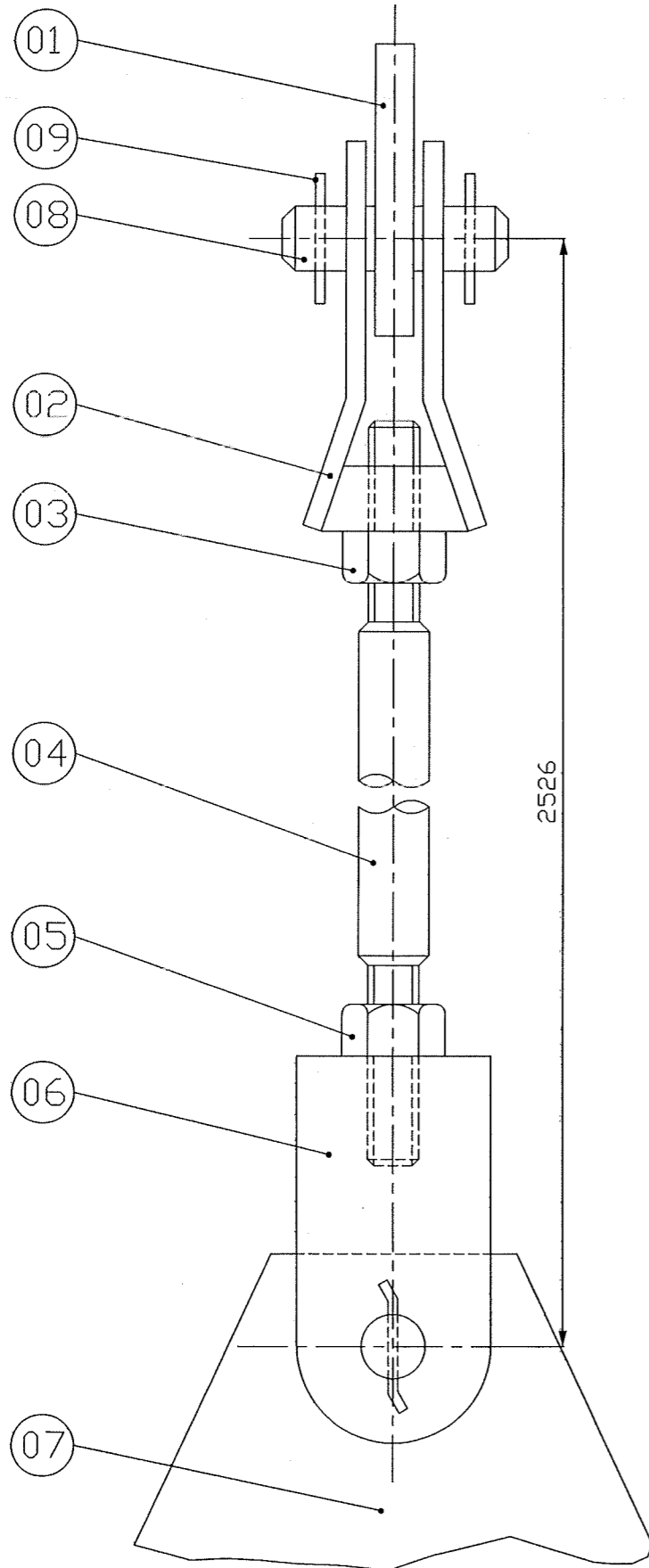
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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	CHD	P.Ayyakannu		21.07.14
CODE			NTS	29.840	3-47-201-01417	APPD	N.Sudarsson		21.07.14
							H.M.Farook Basha		21.07.14
TITLE								DRAWING NO	REV
COLLECTOR CHANNEL								3-47-161-70008	00
								3-47-161-U5029	

3-48-145-U0642

DRAWING NO:

ALL DIMENSIONS ARE IN MILLIMETERS



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
					VAR NO	MATERIAL SPECN		DI	QUANTITY	
	09	BENT PIN ROD D6; 71		3-48-999-U0292	01	15004026 0000 IS 2062			0.016 4	
	08	CLEVIS PIN ROD D31.5; 82		3-48-999-U0301	01	15339140 0000 SA 105			0.500 2	
	07	BRACKET ASSY S-218		2-48-999-U0130	01	WELDMENT			7.900 1	
	06	THREADED CLEVIS M20 LH TYPE-B				94 076 116			2.336 1	
	05	NUT M20 LH	S			41304 00220			0.065 1	
	04	TIE ROD ROD D25; 2366				15339139 0000 SA 105			9.108 1	
	03	NUT M20 RH	S			41304 00020			0.065 1	
	02	THREADED CLEVIS M20 RH TYPE-A	S			94 076 115			2.336 1	
	01	LUG PLATE PL12X80X110		3-48-999-U0296	01	15011132 0000 IS 2062 Fe410A			0.800 1	

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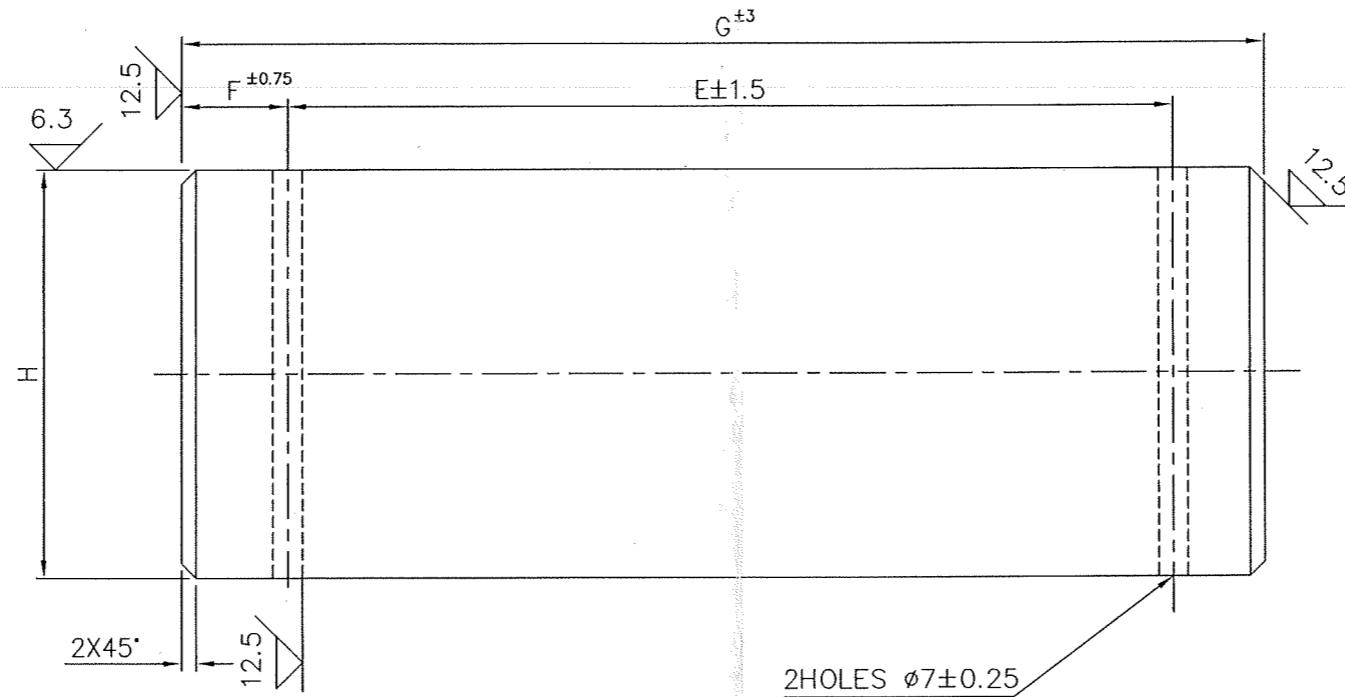
Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	EOL/KUMAR		9-10-21
		APPD	T.RAM/T.K.RAO		3-11-21
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE				16.895	
TITLE				DRAWING NO :	REV
HANGER ASSEMBLY-3 ø25				3-48-145-U0642	00

FORM NO. 0421/2

3-48-999-U0301

DRAWING NO:

ALL DIMENSIONS ARE IN MILLIMETERS



STYLE NO	E	F	G	H
01	62	10	82	$31.5^{+0.4}$
02	79	10	99	$38.5^{+0.4}$
03	98	10	118	$46.5^{+0.4}$
04	122	12.5	147	$56^{+0.75}_{-0.00}$
05	54	10	74	$24^{+0.35}$

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN	DI	QUANTITY	
5	01	CLEVIS PIN ROD ϕ 25;74				15 339 139			0.300
						SA 105			1
4	01	CLEVIS PIN ROD ϕ 56;147				15 339 143			2.800
						SA 105			1
3	01	CLEVIS PIN ROD ϕ 46.5;118				15 339 142			1.600
						SA 105			1
2	01	CLEVIS PIN ROD ϕ 38.5;99				15 339 141			0.900
						SA 105			1
1	01	CLEVIS PIN ROD ϕ 31.5;82				15 339 140			0.500
						SA 105			1

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Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DRN	NAME	SIGNATURE	DATE
EOL/KUMAR			9-10-21
T.RAM/K.K.RAO			3-11-21
P.K.SAHOO			20-11-21

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

TITLE	DRAWING NO :	REV
CLEVIS PIN	3-48-999-U0301	00

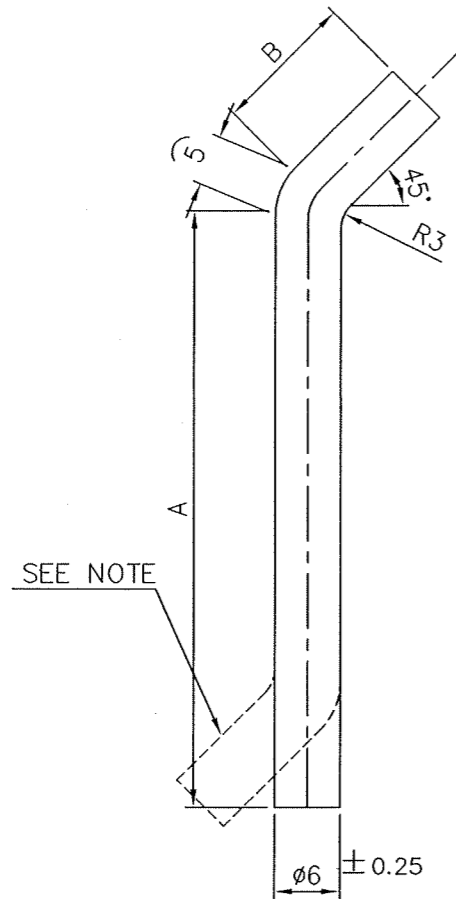
FORM NO. 0421/2

3-48-999-U0292
DRAWING NO:

ALL DIMENSIONS ARE IN MILLIMETERS

NOTES:

THIS END IS TO BE SUITABLE BENT AFTER ASSY AT SHOP



STYLE NO	HANGER ROD DIA	A	B
01	25	53	13
02	32	63	16
03	40	75	20
04	50	90	25

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN			DI
4	01	ROD ø6;120				15-004-026			0.027
						IS2062IS2062		1	
3	01	ROD ø6;100				15-004-026			0.022
						IS2062IS2062		1	
2	01	ROD ø6;84				15-004-026			0.019
						IS2062IS2062		1	
1	01	ROD ø6;71				15-004-026			0.016
						IS2062IS2062		1	

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

DRN	NAME	SIGNATURE	DATE
	EOL/KUMAR		9-10-21
	T.RAM/K.K.RAO		3-11-21
	P.K.SAHOO		20-11-21

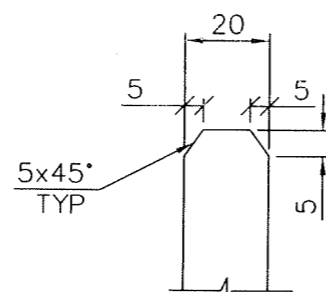
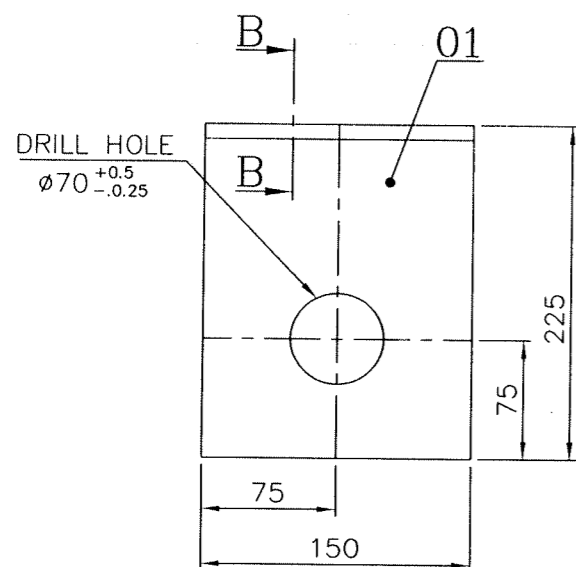
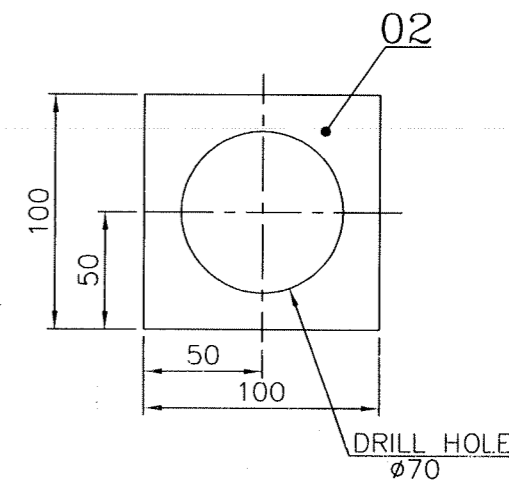
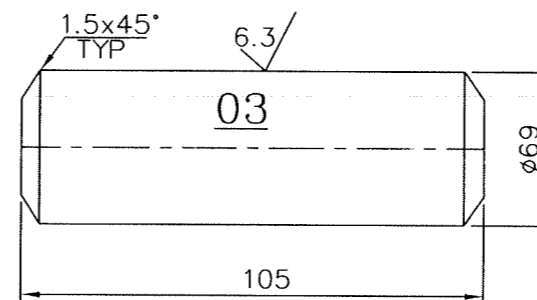
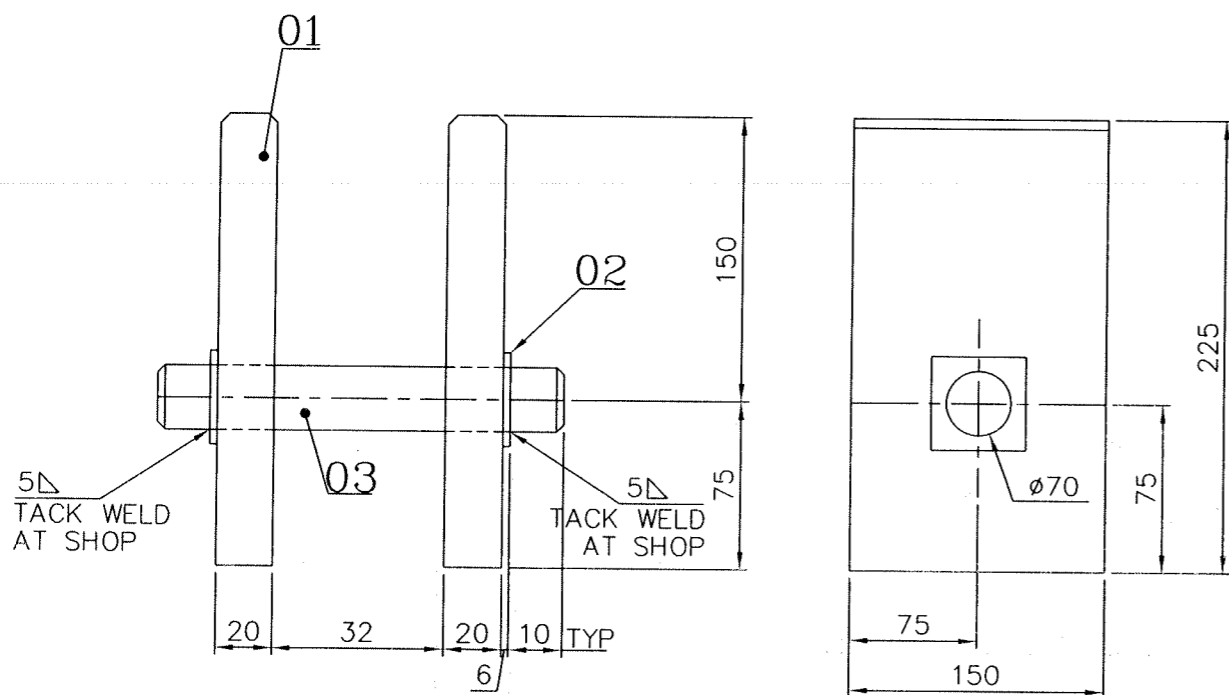
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG

TITLE	DRAWING NO :	REV
BENT PIN	3-48-999-U0292	00

FORM NO. 0421/2

3-48-385-U0324
DRAWING NO.

ALL DIMENSIONS ARE IN MILLIMETERS



SECTION-BB

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS
					VAR NO	MATERIAL SPECN	DI	QUANTITY		
	3	ROD 100 105				153391340000 SA105			4.121 1	
	2	PLATE 6 100X100				152110920000 IS2062E250A			0.471 2	
	1	PLATE 20 150X225				150111500000 IS2062E250A			5.299 2	

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Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	EOL/KUMAR	SIGNATURE	DATE
		CHD	T.RAW/T.K.RAO		9-10-21
		APPD	P.K.SAHOO		3-11-21
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE				15.661	
TITLE					DRAWING NO :
LUG ASSY					3-48-385-U041700
					REV
					00

FORM NO. 0421/2



Date:21/12/2021

PROJECT: NALCO DAMAJODI 18.5 MW BTG (UNIT-6) PROJECT
CONSULTANT: M N DASTUR & CO
TRANSMITTAL NO.: ID/PMG/552/HPVP/No.9/C

सेवा में /To
Shri Anirban Biswas (M N Dastur & Co)

महोदय/Sir,

विषय: दस्तावेज़/ड्राइंगप्रस्तुती
Sub: Drawings/Documents Submission.

निम्न सूची के दस्तावेज़/ड्राइंग संलग्न हैं :-

Please find the enclosed drawing/documents as per list given below:

क्रम संख्या Sr. No.	दस्तावेज़ / ड्राइंगसंख्या शीर्षक Document/Drawing Title	भेल दस्तावेज़ / ड्राइंग संख्या BHEL Document/Drawing No.	विषय Discipline	वर्ग CAT (A/I)	संशोधन संख्या Rev No.
1	Painting Schedule	PAINT-7906-DOC-00001	Mechanical	A	03
2					
3					
4					
5					
6					
7					

A :स्वीकृति/ APPROVAL I : सूचना/ INFORMATION

आपको धन्यवाद /Thanking you

Y Prasanna Kumar

Senior Manager

भारत हैवी इलेक्ट्रीकल्स लिमिटेड की ओर से

For Bharat Heavy Electricals Limited

BHARAT HEAVY ELECTRICALS LIMITED

HPVP UNIT - VISAKHAPATNAM - 530012



M/S. NALCO DAMANJODI (Unit-6) 18.5 MW CGPP-1x300 TPH COAL FIRED BOILER HPVP S.O. No. 7906 PAINTING SCHEDULE

Prepared by	Y. PRASANNA KUMAR Sr Manager/Engg.	Y. PRASANNA KUMAR Sr Manager/Engg.	Y. PRASANNA KUMAR Sr Manager/Engg.	Y. PRASANNA KUMAR Sr Manager/Engg.	
Reviewed by	L RAJASEKHAR DGM /HT-Engg.	S.K BISWAS AGM /HOD/Engg	S.K BISWAS AGM /HOD/Engg	S.K BISWAS AGM /Engg	
Approved by	S.K BISWAS AGM /HOD/Engg.	S.K BISWAS AGM /HOD/Engg	S.K BISWAS AGM /HOD/Engg	M.N Srinivasarao AGM /HOD/Engg	
Rev No	00	01	02	03	

RECORD OF REVISIONS

Document Ref no: PAINT-7906-DOC-00001/Rev03 Dated 21-12-2021

REVIEWED FOR REFERENCE	
SIGNATURE:	<i>K. Ramani</i>
LETTER REF.:	28812-MD-PWR03-275A
DATE:	24.12.2021
M. N. DASTUR & COMPANY (P) LTD KOLKATA	

Rev. No	Date	Details of revision	Remarks
00	24.04.2021	New. Painting specification shall be read in conjunction with Annexure-III of Standard painting scheme document no: SIP: H: PP :22, dated:04.08.2018.	
01	07.08.2021	Shade of the paint for structural items (For SI No's 3&4) have been added based on the M/S NALCO suggestion.	
02	21.08.2021	PG-MA's of 66-100,66-200&66-300 have been added in the SI No:3 for coal Bunker and PG-MA of 34-610 has been added in the SI No:4.	
03	21.12.2021	Miscellaneous PG-MA's added in appropriate SI No's(Highlighted in Red colour).	

Nalco - Damanjodi – Painting schemes

Sl.No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
1 1a	Drum (Except Internals), Drum suspension 04-116,04-210 ,04-146	SSPC – SP3 Power tool cleaning	Red oxide Zinc Phosphate Primer to IS 12744 DFT=30 μm per coat	2	--	--	--	--	--	60
2 5	Drum internals of both Upper and Lower Drums	SSPC-SP1/ or SSPC – SP3 Solvent / Power Tool Cleaning	Rust Preventive Fluid to PR: CHEM: 09 – 04 DFT=25 μm per coat	1	--	--	--	--	--	25

Sl.No.	PGMA / Description	Surface Prepn & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μ m (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3 1a	Buck stays, Boiler structures Galleries Stair-ways Walkways ID system structures, all the areas of Ducting except Hot air ducts & dampers, Piping and other components in Fuel firing area 08-101,08-107,08-400,08-900,19-901,21-600,21-601,21-700,24-346, 24-700 35-410,35-420,35-430,35-510, 35-520,35-610,35-611,35-612,35-700,35-810,35-820,35-991,36-210, 36-220,36-230,36-240,36-250,36-260,,36-390, 36-820,37-010,37-810, 37-510,38-010,38-110,38-210,38-310,38-410,38-510,38-610, 38-611, 38-993,39-010,39-110, 39-111,39-112,39-210,39-301,39-302,39-303, 39-700,41-390,41-500,41-988,42-010,42-020,42-988, 43-004,43-005,43-104, 43-105,43-200,47-141,47-143,47-149,48-012, 48-482,48-484,48-485,48-492,48-494,48-495, 48-535,48-532,48-700,48-993,48-392,48-997, 65-200,65-710,65-724,65-736,65-997,66-100,66-200,66-300,67-200,67-204,67-251,67-252,67-256,67-272,67-276, 67-283,67-710,67-801,67-802,67-803,67-997	SSPC-SP3/ Power Tool Cleaning	PVC copolymer based (or) synthetic enameling alkyd resin based paint with 30 DFT(At Shop)	2			PVC copolymer based (or) synthetic enameling alkyd resin based paint with 30 DFT(At Site)	2**	Smoke grey shade no. 692 of IS 5	120

Sl.No.	PGMA / Description	Surface Prepn &- Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μ m (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
4 30	Structures 34-010,34-110,34-120,34-210,34-310,34-410,34-420,34-430,34-510,34-610,35-110,35-120,35-130,35-140,35-150 ,35-160,35-210,35-220,35-230 35-310,35-320,35-330,35-340,35-530 & 35-540 SEE NOTES BELOW	SSPC – SP3 Power tool cleaning	Red oxide Zinc Phosphate Primer to IS 12744 DFT=30 μ m per coat	2			High build epoxy polyamide anamel paint to a DFT of 40 μ m / coat (At Site)	2**	(shade of the paint is Light Grey for 1 st coat) (shade of the paint is Smoke grey shade no. 692 of IS 5 for 2 nd coat)	100
5 2	Loose tubes, SH & Eco.coils, 11-274,11-278 19-114,19-124	SSPC – SP3 Power tool cleaning	Red oxide Zinc Phosphate Primer to IS 12744 DFT=30 μ m per coat	2	-	--	--	--	--	60

6 3	WW, SH ,Eco Headers, SH & Eco lines & links Hot air ducts/dampers 05-137,05-147,05-155,05-175,06-400,06-611,06-631,06-637,06-647,06-651,06-655,06-997,07-101,07-200,07-201,07-211, 07-212,07-222,07-226,07-420, 07-401,07-601,07-993,07-997,10-174,10-178, 10-274,10-278, 12-803,12-850, 12-852,12-900,12-901, 12-993,12-997,18-001, 19-701,19-702,19-850,19-851,19-901,19-903,19-906,19-997,19-993,24-100,24-101,24-120,24-125,24-135,24-140,24-145,24-150,24-155,24-175,24-180,24-185,24-350,24-351,24-993,24-994,30-103,30-105,30-211,3-215,30-218,30-228,31-010,31-104,31-108,43-004,43-005,43-104,43-105,43-200,43-710,45-180,45-181	SSPC-SP3/ Power Tool Cleaning	Alkyd Base Red Oxide or Zinc phosphate pigments as Primer to IS 12744 DFT= 40 µm per coat	2	--	--	--	--	--	80
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** : To be applied at site

NOTE: ONLY SOME DUS OF THESE COMPONENTS UPTO 1 ST MBL SHALL BE APPLIED WITH THIS SPECIAL PAINT SYSTEM . FOR THE REST OF THE DUS, PAINT SYSTEM SPECIFIED IN SI.No. 3 SHALL BE APPLIED.

Sl.No.	PGMA / Description	Surface Prepn & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
7 3	32-010,32-110,32-120,32-310,32-410,32-510,32-520,32-530,33-975,35-993,36-993,39-993,41-350,42-001,42-002,42-005,42-010,42-020,42-030,42-046,42-065,42-070,42-120,42-128,42-150,42-152,42-154,42-157,42-158,42-200,42-300,42-358,42-700,42-710,42-858,42-988,42-997,45-200,45-802,45-805,45-858,45-997,47-200,47-141,47-143,47-149,47-161,47-301,47-163,47-953,47-710,47-858,48-012,48-014,48-015,48-019,48-112,48-114,48-115,48-141,48-142,48-144,48-145,48-200,48-202,48-204,48-205,48-207,48-212,48-214,48-222,48-224,48-232,48-234,48-382,48-384,48-385,48-432,48-434,48-435,48-462,48-464,48-465,48-662,48-664,48-667,48-862,48-864,48-867,48-993,95-088,97-084,97-088,97-282,97-298,97-283,97-590,97-090,97-100,97-591,97-577,97-59204-988,20-988,21-987,21-988,24-987,24-988,24-989,41-988,42-988,95-988	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	--	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 μm per coat	2	--	105

8.9	09-001,09-002,09-003,20-511,21-800,21-825,21-850,24-420,24-425,24-435,24-460,24-465,24-480,24-485,42-300,42-358,97-195	SSPC-SP3/ Power Tool Cleaning	Heat resistant Aluminium paint to IS 13183 Gr. II	2	--	--	--	--	--	40
9 1a	Floor Grills, Hand Rails etc 34-810,34-850,35-811,35-820,35-850,36-810, 36-850,38-810,38-850,39-810,39-850, 39-850	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zn PO4 Primer to IS 12744 DFT= 30 µm per coat	1	--	--	Synthetic Enamel to IS 2932	2**	Black	70

PAINTING SCHEME FOR VALVES

Sl.No.	PGMA / Description	Surface Prepara- tion & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT µm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
10	Cast carbon steel valves Cast alloy steel valves All API valves, QCNRV, SV & SRV Silencers	SSPC-SP3/ Power Tool Cleaning	Heat resistant Aluminum paint to IS 13183 Gr. I	2	--	--	Heat resistant Aluminum paint to IS 13183 Gr. I	2	Aluminum	80
	Forged valves	Phosphating	Coating weight 1500 mg per sq.ft.	--	--	--	--	--	--	--
	Soot Blower components 20-001,20-004,20-201,20-204,20-998	SSPC-SP6/ Comml. Blast Cleaning 35-50µm	Red oxide ZnPO4 Primer paint to IS 12744 DFT = 30 µm/coat	1	--	--	Syn. Enamel paint to IS 2932 DFT= 20µm per coat	2	Verdigris Green Shade No. 280 of IS5	70

	HP / LP system	SSPC-SP6/ Comml. Blast Cleaning 35-50µm	Heat Resistant Aluminium Paint to IS 13183 Gr.I	2	--	--	--	--	--	40
11	For CLH & VLH PGs 07,12,19,21,24,47,48 &80	Abrasive blast cleaning to Sa 2 ½ 35 50 microns	Alkyd Base Red Oxide or Zinc phosphate pigments as Primer to IS 12744 DFT= 40 µm per coat	2	--	--	-	-	Phirozi Blue Shade No. 176 of IS5	80

Painting Scheme – Details for procurement & application purposes

SL.No.	Generic nature of paint	Theoretical Covering Capacity Sq.m per Litre.	No. of pack	Volume solids, % (min)**	DFT in microns (min) per coat	Shade	Shade No. to IS5	Mode of appln.	Over coating interval, Hrs.
1	Inorganic zinc silicate coating (F9)	8	2	57	65	Phiroji Blue/ Required shade	176	Spray	12
2	Heat resistant Silicone Aluminium paint (F12)	15	1	-	18	--	--	Brush / Spray	24
3	Red oxide zinc phosphate primer paint as per IS 12744	10	1	As per IS 12744	30	Red Oxide	--	Brush / Spray	12
5	Epoxy zinc phosphate primer (P6)	8	1	49	15-20	Reqd. shade	Corrpd g. Shade no.	Brush / Spray	12
6	Temporary Rust preventive fluid to PR: CHE: 09 – 04	10	1	--	--	Amber	--	--	12

7	Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B	10	2	57	30	Phiroji Blue	176	Spray	24
9	Acrylic Polyurethane finish paint (F2)	8	1	40	30	Phiroji Blue	176	Brush / Spray	12
10	Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B	10	2	57		Light Orange	557	Spray/ Brush	12
11	Acrylic Polyurethane finish paint (F2)					Light Orange	557	Spray	24

Brush painting is accepted, if recommended by the Paint suppliers. The covering capacity of paints specified is only approximate. The paints and Rust Preventive fluid shall be procured from Customer's specific approved suppliers. ** Values are indicative.

NOTES:

1. Rust Preventive Coating should be given on HSFG Bolt threads.
2. Machined surfaces are to be applied with a coating of Temporary Rust Preventive oil.
3. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves shall be coated with Temporary Rust Preventive Fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.
4. All shade numbers are as per IS 5. Unless otherwise specified Colour / Shade of the finish coat shall be Smoke gray Shade No. 692 of IS 5.
5. PGMA's under Sub-Vendor items are not indicated. Please refer respective Engg. Document.
6. These Painting Schemes are valid for only Sale order No: 7906
07. No painting is required for Stainless Steel components.
08. Wherever inside surfaces of components under PGMA 48 – XXX, need protection till erection, two coats of Red-oxide zinc chrome primer paint to IS 12744 to a DFT of 60 microns shall be applied.
09. In components, wherever plates / sheets of thickness less than or equal to 5 mm and rods are used, power tool / hand tool cleaning to SSPC - SP3 / SP2 shall be followed and the painting shall be done as described in Scheme No: 05.
10. All PGMA s are deemed to have been included in relevant schemes. Any missing PGMA will be added to the relevant scheme, as and when required.