

Bharat Heavy Electricals Limited
Heavy Plates & Vessels Plant
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INVITATION TO TENDER

Ref : OS/19-20/Mach Comp/32/053

Date : 21.09.2019

Sub : Fabrication & Machining of CS Components for various HRSG & Auxiliary Boiler Projects against S.O. 7842, 7843, 7845, 7846, 7850, 7851 & 7885.

Dear Sir,

Sealed tenders are invited for the subject work in **two part bid** system from **Vendors** who are experienced in / capable of carrying out similar works.

1. VENDOR'S SCOPE OF WORK:

- a) Total Quantity of work to be carried out by the vendors is about 1.2 MT and the details of components to be fabricated are given in Annexure . II.
- b) Complete Fabrication & Machining of CS Components as per annexure . II, which involves various operations like Marking, Cutting / Shearing, Profile / Shape Cutting, Bending / Rolling, Edge Preparation / Chamfering, Drilling / Punching, Boring / Turning, Machining, Threading, Assembly, Welding etc. as per the applicable Drawings, GMS, Shipping List, QAP and WPS etc.
- c) NDT like LPI, MPI, RT etc., if applicable, shall be carried out as per approved QAP.
- d) Surface Cleaning and Painting of CS & LAS Components as per the applicable 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) 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.

2. BHEL's SCOPE :

BHEL shall supply the following as free issue :

- i) Plates / Sheets, Tubes / Pipes, Rounds in full / off-cuts.
- ii) Paints and other items as per GMS.
- iii) Drawings, GMS, Shipping List, QAP, WPS and Painting Schedule etc.

3. LOCATION OF WORK SPOT :

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

4. INSPECTION :

Inspection shall be carried out by M/s. BHEL / BHEL Authorized Inspection Agency as per approved QAP.

5. DELIVERY :

Finished items along with inspection documents and all other relevant certificates are to be handed over to Logistics dept. within **6 weeks** from the date of issue of last consignment of raw materials.

6. VALIDITY OF OFFER :

The offer shall be valid for a period of **3 months** from the last date for tender submission.

Contd...2

7. PRICE :

The prices shall be quoted for the detailed scope of work in the Schedule of Rates enclosed at Annexure . I & II. The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.

The quoted price shall be **inclusive of all applicable taxes & duties except GST and** 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.

8. GOODS & SERVICES TAX (GST) :

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

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

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.

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 tax credit.

9. REVERSE AUCTION :

BHEL reserves the right to opt for Reverse Auction at its discretion instead of opening the price bids submitted in sealed envelope and any information regarding the reverse auction shall be decided after technical evaluation and shall be intimated to the bidders at appropriate time.

The bidders are advised to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids in case BHEL decides to go for RA.

In case BHEL decides to go for RA, only those bidders who give their acceptance will be allowed to participate in RA and these bidders shall have to necessarily submit sOnline Sealed Bid in the RA. Non-submission of sOnline Sealed Bid by the bidder will be considered as tampering of the tendering process and will invite action by BHEL as per extent guidelines in vogue.

10. 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.

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

12. 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. One complete set of drawings shall be made available in the office of DGM (Outsourcing) and the same shall be referred during working hours.

For any clarifications required on this tender document, scope of work etc., the bidders shall depute their authorized representatives to BHEL, Visakhapatnam with prior intimation to get clarifications from concerned authorities between 09:00 AM and 04:00 PM.

- b) **Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry. Any deviations to the tender terms & conditions are not acceptable** and BHEL reserves the right to reject such offers without further correspondence.
- c) BHEL reserves the right to modify in part or full or cancel the tender enquiry at any stage without assigning any reasons thereof.

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

- | | |
|---|------------------|
| i) Schedule of Rates | : Annexure - I |
| ii) Details of DUs to be fabricated & applicable drawings | : Annexure – II |
| iii) General Terms & Conditions | : Annexure – III |
| iv) Acceptance to tender terms & conditions | : Annexure – IV |
| v) General Terms & Conditions of Reverse Auction | : Annexure – V |
| vi) GST Compliance for Indigenous Suppliers | : Annexure – GST |

14. TENDER SUBMISSION :

Techno-commercial bids shall be submitted along with the **tender document duly signed by the bidder on all pages**. Techno-Commercial Bid and Price bid shall be placed in two separate envelopes and both shall be kept in another big envelope.

Tenders completed in all respects shall be dropped in the **Outsourcing Tender Box** placed at Reception counter, Admn. Building, BHEL - HPVP, Visakhapatnam latest by **14.00 hrs. on or before 05.10.2019** duly super scribing the Subject, Tender Ref. No. and Technical / Price Bid on the envelopes.

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


Note : Offers sent in any other form will be treated as invalid and will be summarily rejected.

15. OPENING OF TENDERS :

Techno-commercial Bids will be opened on **05.10.2019 at 14.00 Hrs.** at Customer Cell, ADMN. Building, BHEL - HPVP, Visakhapatnam The price bid of the techno-commercially qualified bidders will be opened in presence of representatives of the bidders and the date & time of opening of price bids will be intimated later. The bidders may depute their representatives at the time of opening.

In case of opting for Reverse Auction, intimation shall be given to the qualified bidders in advance at appropriate time.

for Bharat Heavy Electricals Limited,


(B. Venugopal) 21/9/19
Manager (OS)

Schedule of Rates

Sub : Fabrication & Machining of CS Components for various HRSG & Auxiliary Boiler Projects against S.O. 7842, 7843, 7845, 7846, 7850, 7851 & 7885.

Ref : OS/19-20/Mach Comp/32/053

Date : 21.09.2019

SOR Item No.	S.O. No.	Description of Item	Unit	Quantity in KG (A)	Unit Rate (in ₹) (B)	Amount (in ₹) (AxB)
		Fabrication & Machining of the following CS Items as detailed in annexure - II, which involve major operations like Marking, Cutting / Shearing, Profile / Shape Cutting, Bending, Edge Preparation / Chamfering, Drilling / Punching, Boring / Turning, Machining, Threading, Assembly, Welding etc. as per applicable drawings, QAP & Specifications and as per detailed scope of work mentioned in the tender document.				
1	7842, 7843, 7845, 7846, 7850, 7851 & 7885	Adaptor with Temp Stub	KG	70		
2		Bush, Connecting Piece, Coupling, Gland, Gland Cap, Gauge Connector, Pipe Cap, Plug, Screwed Piece, Shaft, Stub, Union etc.	KG	140		
3		Studs, Pins & Load Pins	KG	65		
4		Outer Pipe, Tie Rod etc.	KG	135		
5		U-Bolts, Holding Bars, Holders, Access Door Handle etc.	KG	780		
6		Misc. Items like Drain Pipe & Plug, Spherical Handle, Spacer Rings, etc.	KG	75		
		TOTAL		1265		

Notes :

- 1) L1 Status will be evaluated based on the total quoted value.
- 2) The quantity and weights indicated above are tentative and may vary upto + or - 15% depending upon requirement at the time of ordering / execution or due to revision of drawings / Engg. details. 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) BHEL reserves the right to go for Reverse auction as per the applicable guidelines instead of opening price bids.
- 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 the Bidder with Stamp

DETAILS OF DUs & RELEVANT DRAWINGS

Ref : OS/19-20/Mach Comp/32/053

Date : 21.09.2019

Sl. No.	S. O.	PGMA	DU No.	Description of Item	Qty. (Nos)	Weight (Kg)	Material Spec.	Drawing No.	Rev.
1	Adaptor with Temp Stub								
1	7842	80460	009	ADOPTOR WITH TEMP STUB M33X2(NB 80/50)	1	5.025	CS	3-80-460-U9009	00
2	7842	80460	010	ADOPTOR WITH TEMP STUB M33X2 (NB 80/25)	2	11.952	CS	3-80-460-U9008	01
3	7851	80460	009	ADOPTOR WITH TEMP STUB M33X2(NB 80/50)	1	5.025	CS	3-80-460-U9009	00
4	7851	80460	010	ADOPTOR WITH TEMP STUB M33X2 (NB 80/25)	2	11.952	CS	3-80-460-U9008	01
5	7885	80460	015	ADAPTOR WITH TEMP STUB RC-1" (NB 80/25)	3	19.992	CS	3-80-460-U9020	00
6	7885	80460	016	ADAPTOR WITH TEMP STUB RC-1" (NB 80/50)	1	6.909	CS	3-80-460-U9021	00
2	Bush, Connecting Piece, Coupling, Gland, Gland Cap, Gauge Connector, Pipe Cap, Plug, Screwed Piece, Shaft, Stub, Union etc.								
1	7842	28220	017	BUSH,ROD DIA-25 10MM	1	0.039	SA 105	4-28-220-U0012	00
2	7851	28220	017	BUSH,ROD DIA-25 10MM	1	0.039	SA 105	4-28-220-U0012	00
3	7842	24640	006	CONNECTING PIECE-THREAD R1, L=60	12	1.716	IS 1161 YST 240	4-24-240-06019	00
4	7842	24640	007	CONNECTING PIECE-THREAD R2, L=100	4	2.480	IS 1161 YST 240	4-24-240-06020	00
5	7842	28220	018	GLAND CAP,ROD DIA-63	1	0.489	SA 105	4-28-220-U0013	00
6	7842	28220	020	GLAND,ROD DIA-36	1	0.192	SA 105	4-28-220-U0014	00
7	7851	28220	018	GLAND CAP,ROD DIA-63	1	0.489	SA 105	4-28-220-U0013	00
8	7851	28220	020	GLAND,ROD DIA-36	1	0.192	SA 105	4-28-220-U0014	00
9	7842	41200	012	GAUGE CONNECTOR	4	1.000	CS	3-41-200-U0094	00
10	7842	41200	014	GAUGE CONNECTOR	2	0.540	CS	3-41-200-U0093	00
11	7842	42152	021	GAUGE CONNECTOR-I	2	0.580	CS	3-42-152-U6083	00
12	7851	41200	012	GAUGE CONNECTOR	4	1.000	CS	3-41-200-U0094	00
13	7851	41200	014	GAUGE CONNECTOR	2	0.540	CS	3-41-200-U0093	00
14	7851	42152	021	GAUGE CONNECTOR-I	2	0.580	CS	3-42-152-U6083	00
15	7842	28220	025	PIPE CAP,ROD DIA-140	1	4.592	SA 105	4-28-220-U0017	00
16	7851	28220	025	PIPE CAP,ROD DIA-140	1	4.592	SA 105	4-28-220-U0017	00
17	7843	42076	031	1"SW COUPLING, ROD DIA 50, L=40	20	12.320	SA 105	4-43-200-U0003	00
18	7843	42155	006	SW COUPLING 1", ROD DIA 50, L=40	10	4.560	SA 105	4-43-200-U0003	01
19	7843	42155	007	SW COUPLING 1/2", ROD DIA 32, L=30	25	3.500	SA 105	4-43-200-U0003	01
20	7843	42157	004	CS HALF COUPLING SA105 1"X3000#	12	5.472	SA 105	4-43-200-U0003	01
21	7843	42157	016	SW COUPLING 1", ROD DIA 50, L=40	16	7.296	SA 105	4-43-200-U0003	00
22	7843	42176	014	SW COUPLING 1", ROD DIA 50, L=40	32	18.752	SA 105	4-43-200-U0003	01
23	7850	42076	047	SW COUPLING 1", ROD DIA 50, L=40	10	4.560	SA105	4-42-076-U6019	00
24	7850	42076	048	SW COUPLING 1.5", ROD DIA 63, L=40	4	2.344	SA105	4-42-076-U6019	00
25	7850	42076	061	SW COUPLING 1", ROD DIA 50, L=40	1	0.456	SA105	4-42-076-U6019	00
26	7850	42076	073	SW COUPLING 0.5", ROD DIA 32, L=100	2	0.280	SA105	4-42-076-U6019	00
27	7850	42155	004	SW COUPLING 1/2", ROD DIA 32, L=30	10	1.400	SA105	4-42-156-U6018	00
28	7850	43004	023	2" SW COUPLING, ROD DIA 80, L=50	3	3.600	SA105	4-42-076-U6019	00

Sl. No.	S. O.	PGMA	DU No.	Description of Item	Qty. (Nos)	Weight (Kg)	Material Spec.	Drawing No.	Rev.
29	7850	43004	017	SCREW PLUG 1/2" NPT D34.5, ROD DIA 40, L=35	1	0.140	SA 105	3-43-200-U0006	00
30	7842	80420	017	CS PLUG RC-1" L=35, ROUND DIA 40	3	0.600	SA 105	4-80-417-U9005	00
31	7885	80420	013	CS PLUG RC-1" L=35, ROUND DIA 40	3	0.600	SA 105	4-80-400-58724	00
32	7842	28220	021	SHAFT,ROD DIA-16	1	0.224	SA 105	4-28-220-U0015	00
33	7851	28220	021	SHAFT,ROD DIA-16	1	0.224	SA 105	4-28-220-U0015	00
34	7842	42152	013	1"NPT(M)/1"SW SCREWED PIECE, ROD D 50	2	0.520	SA 105	3-42-152-U6077	00
35	7842	42152	014	1"NPT(F)/1"SW SCREWED PIECE, ROD D 50	2	0.480	SA 105	3-42-152-U6078	00
36	7842	42152	015	3/4" NPT(M)/1"SW SCREWED PIECE, ROD D 50	4	0.920	SA 105	3-42-152-U6077	00
37	7842	42152	016	3/4"NPT.F/1/2"SW SCREWED PIECE, ROD D 40	4	0.600	SA 105	3-42-152-U6079	00
38	7842	42152	019	M20X1.5.M/1/2"SW SCREWED PIECE, ROD D36	2	0.240	SA 105	3-42-152-U6082	00
39	7842	42152	022	1/4"NPT.M/1/2"SW SCREWED PIECE, ROD D36	2	0.200	SA 105	3-42-152-U6084	00
40	7842	42152	023	1/2"NPT.M/1/2"SW SCREWED PIECE, ROD D50	1	0.110	SA 105	3-42-152-U6084	00
41	7850	42155	011	SCREWED PIECE 3/4"NPT(M) X 1/2"SW,ROD D40	4	0.600	SA 182 F 22 CL 3	3-42-156-U6016	00
42	7851	42152	013	1"NPT(M)/1"SW SCREWED PIECE, ROD D 50	2	0.520	SA 105	3-42-152-U6077	00
43	7851	42152	014	1"NPT(F)/1"SW SCREWED PIECE, ROD D 50	2	0.480	SA 105	3-42-152-U6078	00
44	7851	42152	015	3/4" NPT(M)/1"SW SCREWED PIECE, ROD D 50	4	0.920	SA 105	3-42-152-U6077	00
45	7851	42152	016	3/4"NPT.F/1/2"SW SCREWED PIECE, ROD D 40	4	0.600	SA 105	3-42-152-U6079	00
46	7851	42152	019	M20X1.5.M/1/2"SW SCREWED PIECE, ROD D36	2	0.240	SA 105	3-42-152-U6082	00
47	7851	42152	022	1/4"NPT.M/1/2"SW SCREWED PIECE, ROD D36	2	0.200	SA 105	3-42-152-U6084	00
48	7851	42152	023	1/2"NPT.M/1/2"SW SCREWED PIECE, ROD D50	1	0.110	SA 105	3-42-152-U6084	00
49	7842	80420	014	B16.11 SW 15NB STUB CL 3000 L=34, ROD DIA 36	8	1.440	SA 105	3-80-463-15996	01
50	7842	80420	015	B16.11 SW 25NB STUB CL 3000 L=54, ROD DIA 50	1	0.430	SA 105	3-80-999-97333	01
51	7842	80420	016	TEMPERATURE STUB RC-1"; L=64, ROD DIA 63	3	2.100	SA 105	4-80-339-65901	00
52	7842	80420	019	CS TEMP STUB 1" NPT L=64, ROD DIA 63	4	2.800	SA 105	4-80-420-U9006	00
53	7885	80420	011	CS SW STUB NB 15 CL3000 L=34, ROD DIA 36	8	1.440	SA 105	3-80-463-15996	01
54	7885	80420	012	CS TEMP. STUB RC-1" L=64, ROD DIA 63	3	2.100	SA 105	4-80-339-65901	00
55	7842	42152	018	3/4" NPT(M) /1/4"NPT(M)UNION L=60, DIA 36	2	0.600	SA 105	3-42-152-U6081	00
56	7842	80366	008	B16.11 CS 25NB SW STUB CL3000 RND50 L=44	3	1.290	CS	1-80-366-U9051	01
57	7842	80366	009	B16.11 CS 50NB SW STUB CL3000 RND80 L=60	3	3.990	CS	1-80-366-U9051	01
58	7851	42152	018	3/4" NPT(M) /1/4"NPT(M)UNION L=60, DIA 36	2	0.600	SA 105	3-42-152-U6081	00
59	7851	80366	008	B16.11 CS 25NB SW STUB CL3000 RND50 L=44	3	1.290	CS	1-80-366-U9039	01
60	7851	80366	009	B16.11 CS 50NB SW STUB CL3000 RND80 L=60	3	3.990	CS	1-80-366-U9039	01
3	Studs, Pins & Load Pins etc.								
1	7843	07411	008	STUD-M20	4	1.200		0-07-411-U8017	00
2	7843	12904	007	STUD M20;ROUND D25	8	3.200	SA 182 F 22 CL 3	4-12-904-U8139	00
3	7843	19908	006	STUD M12; ROUND D25	8	0.720	SA 105	4-19-908-U8142	00
4	7843	24420	024	STUD WITH NUTS M20 X 140 SA193 GR.B	20	20.000	CS	1-24-420-U0010	00
5	7843	24420	026	STUD WITH NUTS M24 X 170 SA193 GR.B	8	8.000	CS	1-24-420-U0010	00
6	7843	24420	063	STUD WITH NUTS M20 X 140 SA193 GR.B	12	12.000	CS	1-24-420-U0012	00
7	7845	12902	010	STUD M12X90LG	8	0.640	CS	1-12-902-U8035	00
8	7846	12902	010	STUD M12X90LG	8	0.640	CS	1-12-902-U8035	00

Sl. No.	S. O.	PGMA	DU No.	Description of Item	Qty. (Nos)	Weight (Kg)	Material Spec.	Drawing No.	Rev.
9	7850	12902	006	STUD M12; ROUND D25	4	0.360	SA 105	4-19-908-U8142	00
10	7850	19901	014	STUD M12; DIA 25	4	0.360	SA 105	4-19-908-U8142	00
11	7850	19902	006	STUD M12; ROUND D25	4	0.360	SA 105	4-19-908-U8142	00
12	7850	19904	014	STUD M12;DIA 25	4	0.360	CS	4-19-908-U8142	00
13	7850	12902	009	LOAD PIN D6; ROUND D16, L=75	2	0.220	SA 105	4-19-908-U8144	00
14	7850	12902	011	PIN D6; ROD D6	1	0.444	IS 2062	1-12-902-U8039	00
15	7850	12902	012	PIN D20; ROUND D25, L=75	2	0.370	SA 105	4-19-902-U8076	00
16	7850	19901	006	LOAD PIN D24; ROUND DIA 25, L=85	2	0.580	SA 105	4-19-902-U8072	00
17	7850	19901	008	PIN D6; ROUND DIA 6, L=3000	1	0.666	IS 2062	1-19-901-U8060	00
18	7850	19901	011	PIN D24; ROUND DIA 25, L=90	1	0.320	SA 105	4-19-902-U8078	00
19	7850	19901	012	PIN D20; ROUND DIA 25, L=75	1	0.185	SA 105	4-19-902-U8076	00
20	7850	19902	009	LOAD PIN D6; ROUND DIA 16, L=75	2	0.220	SA 105	4-19-908-U8144	00
21	7850	19902	011	PIN D6; ROD DIA 6, L=2000	1	0.444	IS 2062	1-19-902-U8053	00
22	7850	19902	012	PIN D16; ROUND DIA 16, L=75	2	0.240	SA 105	4-19-902-U8251	00
23	7850	19904	006	LOAD PIN D24ROUND D25	2	0.580	CS	4-19-902-U8072	00
24	7850	19904	008	PIN D6ROUND D6	1	0.666	CS	1-19-904-U8062	00
25	7850	19904	011	LOAD PIN D16;ROUND D16	1	0.110	CS	4-19-908-U8144	00
26	7850	19904	012	PIN D20; ROUND D25	1	0.185	CS	4-19-902-U8076	00
4 Outer Pipe, Tie Rod etc.									
1	7842	28220	022	OUTER PIPE - DIA-114.3 X 6.02	1	0.964	SA 106 GR B	4-28-220-U0016	00
2	7851	28220	022	OUTER PIPE - DIA-114.3 X 6.02	1	0.964	SA 106 GR B	4-28-220-U0016	00
3	7843	07411	012	TIE ROD;ROUND D36	2	10.400	SA 105	4-07-411-U8220	00
4	7843	12902	015	TIE ROD I ROUND D36	1	16.050	SA 105	4-12-902-U8160	00
5	7843	12902	025	TIE ROD-II	2	17.720	SA 105	4-12-902-U8161	00
6	7843	12902	027	TIE ROD-III	1	13.250	SA 105	4-12-902-U8162	00
7	7843	12904	004	TIE ROD-I	1	3.110	SA 105	4-12-904-U8141	00
8	7843	12904	022	TIE ROD-2ROUND D36	2	8.140	SA 105	4-12-904-U8143	00
9	7843	12904	023	TIE ROD-3ROUND D36	1	5.590	SA 105	4-12-904-U8145	00
10	7843	19901	018	TIE ROD-II;ROUND D32	1	8.200	SA 105	4-19-901-U8218	00
11	7843	19901	028	TIE ROD-III;ROUND D32	1	1.540	SA 105	4-19-901-U8223	00
12	7843	19901	032	TIE ROD-IV;ROUND D25	2	1.960	SA 105	4-19-901-U8224	00
13	7846	12903	003	TIE ROD-I;ROUND D25	1	1.600	SA 105	4-12-903-U8188	00
14	7846	12903	012	TIE ROD-II;ROUND D32	1	2.450	SA 105	4-12-903-U8189	00
15	7846	19901	002	TIE ROD;ROUND D25	3	10.404	SA 105	4-19-901-U8199	00
16	7846	19901	006	TIE ROD;ROUND D25	3	5.202	SA 105	4-19-901-U8200	00
17	7846	24420	020	TIE ROD M16X800	2	6.168	SA 105	4-24-420-U0201	00
5 U-Bolts, Holding Bars, Holders, Access Door Handle etc.									
1	7842	21700	003	U BOLT (PIPE WITH INSLN)OD33.4(ROD D10)	3	0.615	IS 2062	6124-0236	03
2	7842	21700	004	U BOLT (PIPE WITH INSLN)OD60.3(ROD D10)	10	2.680	IS 2062	6124-0236	03
3	7842	24700	014	U BOLT (PIPE WITH INSLN)OD33.4(D10X372LG	25	5.125	IS 2062	6124-0236	03

Sl. No.	S. O.	PGMA	DU No.	Description of Item	Qty. (Nos)	Weight (Kg)	Material Spec.	Drawing No.	Rev.
4	7842	24700	015	U BOLT (PIPE WITH INSLN)OD48.3(D10X456LG	10	2.560	IS 2062	6124-0236	03
5	7842	24700	016	U BOLT (PIPE WITH INSLN)OD60.3(D10X476LG	5	1.340	IS 2062	6124-0236	03
6	7850	24401	037	U-BOLT(PIPE WITH INSLN.MOUNTED ON SU.PL)	15	17.550	IS 2062	7740-2540	06
7	7851	21700	003	U BOLT (PIPE WITH INSLN)OD33.4(ROD D10)	3	0.615	IS 2062	6124-0236	03
8	7851	21700	004	U BOLT (PIPE WITH INSLN)OD60.3(ROD D10)	5	1.340	IS 2062	6124-0236	03
9	7851	24700	014	U BOLT (PIPE WITH INSLN)OD33.4(D10X372LG	15	3.075	IS 2062	6124-0236	03
10	7851	24700	015	U BOLT (PIPE WITH INSLN)OD48.3(D10X456LG	10	2.560	IS 2062	6124-0236	03
11	7851	24700	016	U BOLT (PIPE WITH INSLN)OD60.3(D10X476LG	5	1.340	IS 2062	6124-0236	03
12	7843	HL301	020	U-BOLT-II M6 (AS); ROUND DIA 10, L=225.5	60	7.200	SA 182 F 12 CL 2	4-HL-301-U0109	00
13	7843	HL301	021	U-BOLT-III M6 (AS); ROUND DIA 10, L=325.5	60	12.000	SA 182 F 12 CL 2	4-HL-301-U0110	00
14	7843	HL301	022	U-BOLT-I M6 (AS); ROUND DIA 10, L=178.5	45	4.500	SA 182 F 12 CL 2	4-HL-301-U0108	00
15	7843	HL302	020	U-BOLT-II M6 (AS); ROUND DIA 10, L=225.5	60	7.200	SA 182 F 12 CL 2	4-HL-301-U0109	00
16	7843	HL302	021	U-BOLT-III M6 (AS); ROUND DIA 10, L=325.5	60	12.000	SA 182 F 12 CL 2	4-HL-301-U0110	00
17	7843	HL302	022	U-BOLT-I M6 (AS); ROUND DIA 10, L=178.5	45	4.500	SA 182 F 12 CL 2	4-HL-301-U0108	00
18	7845	HL301	003	U BOLT-I ROUND DIA 10, L=225.5	75	10.425	IS 2062	4-HL-301-U0293	00
19	7845	HL301	004	U BOLT-II ROUND DIA 10, L=325.5	75	14.625	IS 2062	4-HL-301-U0294	00
20	7845	HL301	010	U BOLT-III ROUND DIA 10, L=178.5	85	9.350	IS 2062	4-HL-301-U0295	00
21	7845	HL351	003	U BOLT-I ROUND DIA 10, L=225.5	70	9.730	IS 2062	4-HL-301-U0293	00
22	7845	HL351	004	U BOLT-II ROUND DIA 10, L=325.5	70	13.650	IS 2062	4-HL-301-U0294	00
23	7845	HL351	010	U BOLT-III ROUND DIA 10, L=178.5	70	7.700	IS 2062	4-HL-301-U0295	00
24	7846	HL301	003	U BOLT-I ROUND DIA 10, L=225.5	75	10.425	IS 2062	4-HL-301-U0293	00
25	7846	HL301	004	U BOLT-II ROUND DIA 10, L=325.5	75	14.625	IS 2062	4-HL-301-U0294	00
26	7846	HL301	010	U BOLT-III ROUND DIA 10, L=178.5	85	9.350	IS 2062	4-HL-301-U0295	00
27	7846	HL351	003	U BOLT-I ROUND DIA 10, L=225.5	70	9.730	IS 2062	4-HL-301-U0293	00
28	7846	HL351	004	U BOLT-II ROUND DIA 10, L=325.5	70	13.650	IS 2062	4-HL-301-U0294	00
29	7846	HL351	010	U BOLT-III ROUND DIA 10, L=178.5	70	7.700	IS 2062	4-HL-301-U0295	00
30	7843	12902	022	U ROD ROUND DIA 32, L=2162.5	2	26.860	SA 182 F 22 CL 3	4-12-902-U8159	00
31	7845	12903	011	U ROD D25;ROUND DIA 25, L=922	1	3.390	SA 105	4-12-903-U8190	00
32	7845	19901	004	U-ROD; ROUND DIA 22, L=876	6	15.684	SA 105	4-19-901-U8198	00
33	7846	12903	011	U ROD; ROUND DIA 25, L=922	1	3.390	SA 105	4-12-903-U8190	00
34	7846	19901	004	U-ROD; ROUND DIA 22, L=876	6	15.684	SA 105	4-19-901-U8198	00
35	7843	12901	003	ROUND DIA 10, L=317	16	3.120	SA 105	2-12-901-U8009	00
36	7843	19908	017	ROUND DIA 25, L=2000	1	7.707	SA 105	1-19-908-U8035	01
37	7845	12901	002	ROUND DIA 10, L=317	4	0.780	SA 105	2-19-901-U8012	00
38	7846	12901	002	ROUND DIA 10, L=317	4	0.780	SA 105	2-19-901-U8012	00
39	7850	12902	016	ROUND DIA 25, L=2000	2	15.414	SA 105	1-12-902-U8039	00
40	7850	19901	019	ROUND DIA 32, L=1000	2	12.620	SA 105	1-19-901-U8060	00
41	7850	19902	015	ROUND DIA 25, L=2000	2	15.414	SA 105	1-19-902-U8053	00
42	7851	28220	034	ROD DIA 6, L=1500	2	0.666	IS 2062		
43	7842	28220	034	ROD DIA 6, L=1500	2	0.666	IS 2062		

Sl. No.	S. O.	PGMA	DU No.	Description of Item	Qty. (Nos)	Weight (Kg)	Material Spec.	Drawing No.	Rev.
44	7843	HL098	020	ACCESS DOOR HANDLE, ROD DIA 25, L=1500	28	161.700	SA 105	4-HL-098-U5001	00
45	7842	28220	003	HOLDING BAR,ROD DIA 22, L=750	2	4.400	SA 105	4-28-220-U0019	00
46	7842	30215	001	HOLDER	85	82.110	SS	3-30-215-U0010	00
47	7851	28220	003	HOLDING BAR,ROD DIA 22, L=750	2	4.400	SA 105	4-28-220-U0019	00
48	7851	30215	001	HOLDER	85	82.110	SS	3-30-215-U0010	00
6	Misc. Items like Drain Pipe & Plug, Spherical Handle, Spacer Rings, etc.								
1	7842	28220	016	SPHERICAL HANDLE	1	0.522	SA 105	3-28-220-U0005	00
2	7851	28220	016	SPHERICAL HANDLE	1	0.522	CS	3-28-220-U0005	00
3	7842	30215	006	DRAIN PIPE & PLUG	4	29.700	CS	3-30-215-U0012	00
4	7851	30215	006	DRAIN PIPE & PLUG	4	29.700	CS	3-30-215-U0012	00
5	7842	24641	003	RING;PL 5 Thk, D150/D115	1	0.286	IS 2062		
6	7850	07411	002	SPACER RING ID 18; ROUND DIA 25, L=20	16	0.640	SA 105	4-07-411-U8363	00
7	7850	12902	014	SPACER RING ID 14; ROUND DIA 25, L=20	2	0.100	SA 105	4-19-908-U8145	00
8	7850	19901	005	SPACER RING OD 20/ID 14; DIA 25, L=20	2	0.100	SA 105	4-19-908-U8145	00
9	7850	19902	014	SPACER RING ROUND DIA 25, L=20	2	0.100	SA 105	4-19-908-U8145	00
10	7850	80600	007	SPACER RING NB 80, PIPE OD 21.3x2.77	10	0.100	SA 106 GR B	7740-1740	05

Note : The quantity and weights indicated above are tentative and may vary upto + or - 15% depending upon requirement at the time of ordering / execution or due to revision of drawings / Engg. details.

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.

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 supplied by BHEL during welding. Getting the welds radiographed and getting them cleared by inspection is the responsibility of the party.

6. RECTIFICATIONS / REJECTIONS :

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

7. SECURITY DEPOSIT :

Vendors shall have to submit a Bank Guarantee for **10%** of the order value in case of **HPVP ADM site** or **25%** of the material cost in case of Vendor works towards Security Deposit and safe custody of materials within one week from the date of issue of Order. The BG shall be valid for the contract period with a claim period of 3 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL / Owner and on submission of Performance BG for 10 % of the order value covering for the defects liability period. If PBG is not submitted, 10% of the order value shall be deducted towards PBG from final bill.

8. 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**).

9. 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.

10. 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. This is a statutory requirement under Central Excise Rules and must be strictly complied with.

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.

11. SCRAP & OFFCUT NORMS :

SI. 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)	-

12. 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.

13. WORKMANSHIP GUARANTEE :

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

14. 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.

15. **DELIVERY** :

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

16. **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.

17. **PAYMENT TERMS** :

100% payment will be made against delivery of the finished items duly inspected & cleared by Inspection authority along with all inspection documents to Logistics Dept. Payment shall be made within **45 days** from the date of submission of RA Bill.

Only one bill will be admitted for orders with value less than Rs. 5 lakhs and a maximum of two bills are allowed for orders of value more than Rs. 5 lakhs. In such cases, the first bill value shall be restricted to a maximum of 50 % of the order value and a minimum of 50% of the total DUs of the order.

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

18. **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.

19. **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.

20. **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.

21. 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.*

22. 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.,

23. ACCIDENT / DAMAGE / CONDUCT ETC. :

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

24. 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.

25. 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.

- 26.** 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.

Signature of Bidder with Stamp

Acceptance to Tender Terms & Conditions

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

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

I / We give our acceptance to participate in reverse auction in case BHEL decides to opt for 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

GENERAL TERMS AND CONDITIONS OF RA (REVERSE AUCTION)

BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit ~~Process compliance form~~(to the designated service provider) as well as ~~Online sealed bid~~in the Reverse Auction. Non-submission of ~~Process compliance form~~or ~~Online sealed bid~~by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of the business dealings with suppliers/ contractors (as available on www.bhel.com).

The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers / contractors (as available on ww.bhel.com).

As a reminder to the bidders, system will flash following message **(in RED Colour)** during the course of ~~online sealed bid~~

~~%~~Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL+

Signature of the Bidder with Stamp

GST COMPLIANCE FOR INDIGENOUS SUPPLIERS

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

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

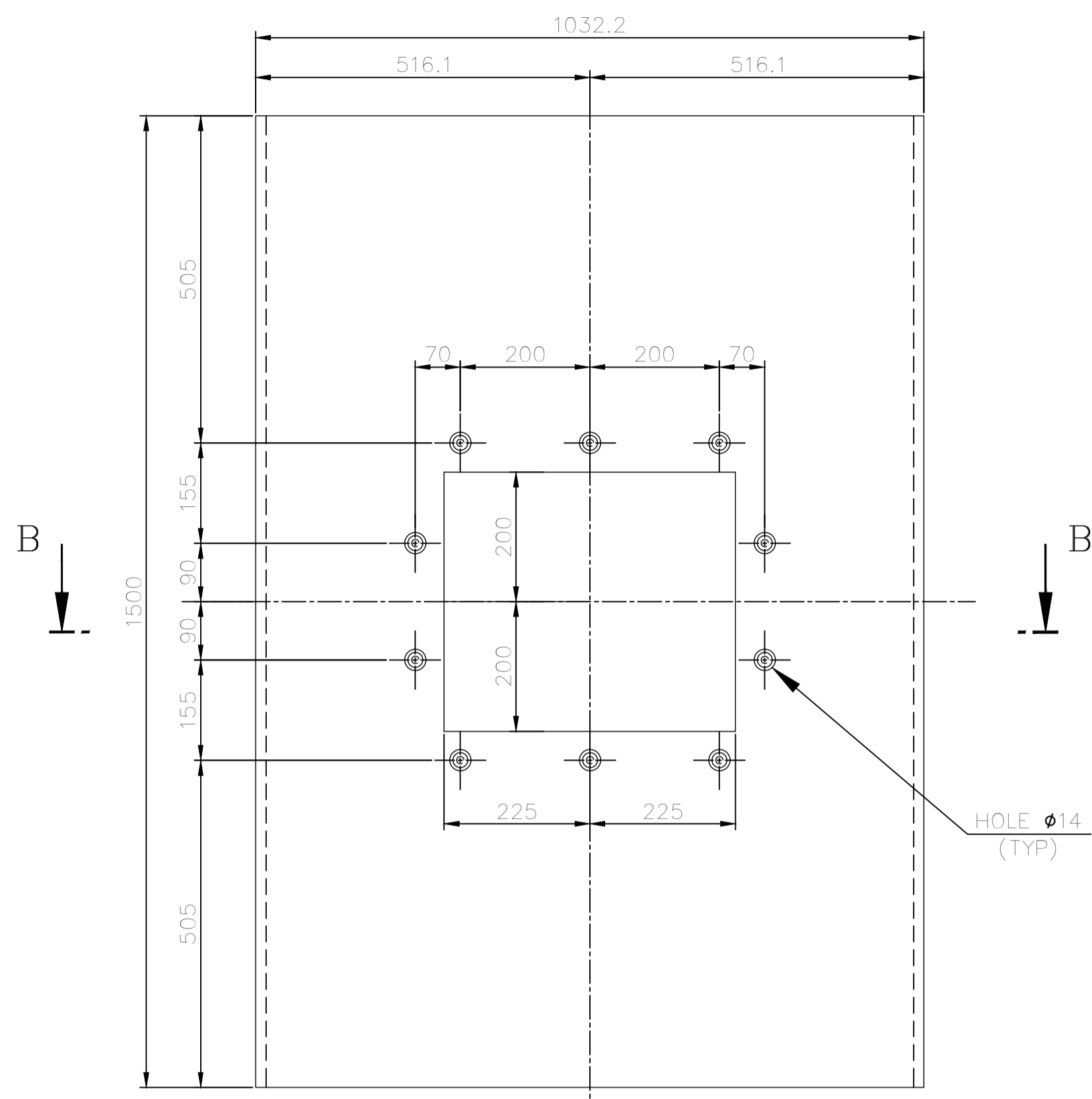
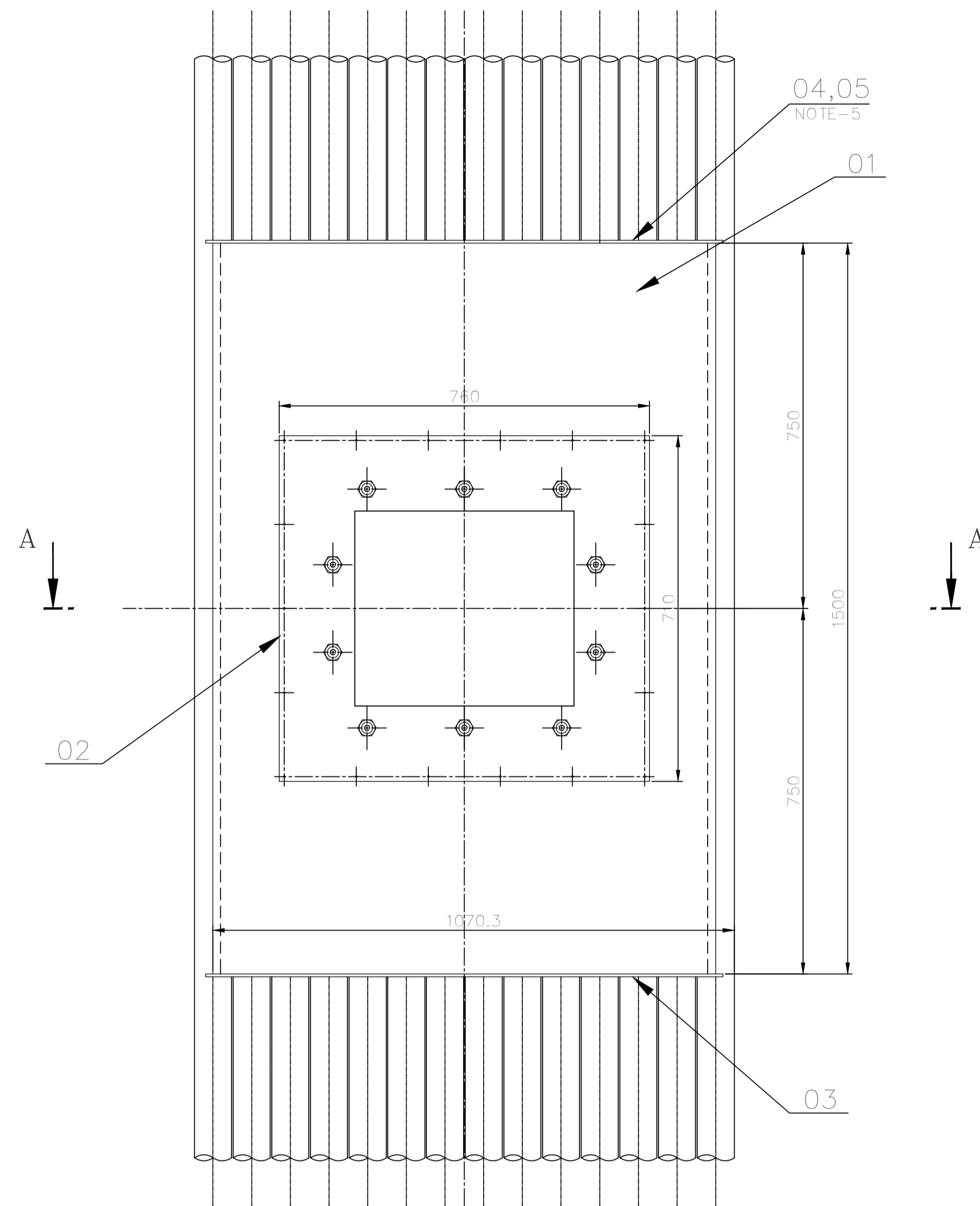
Signature of the Bidder with Stamp

DRG. NO. 1-09-001-U8001

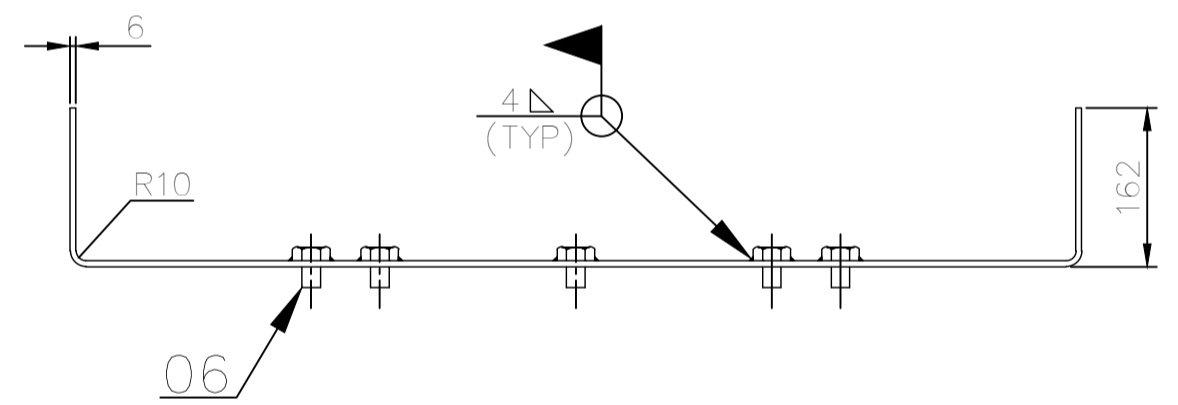
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

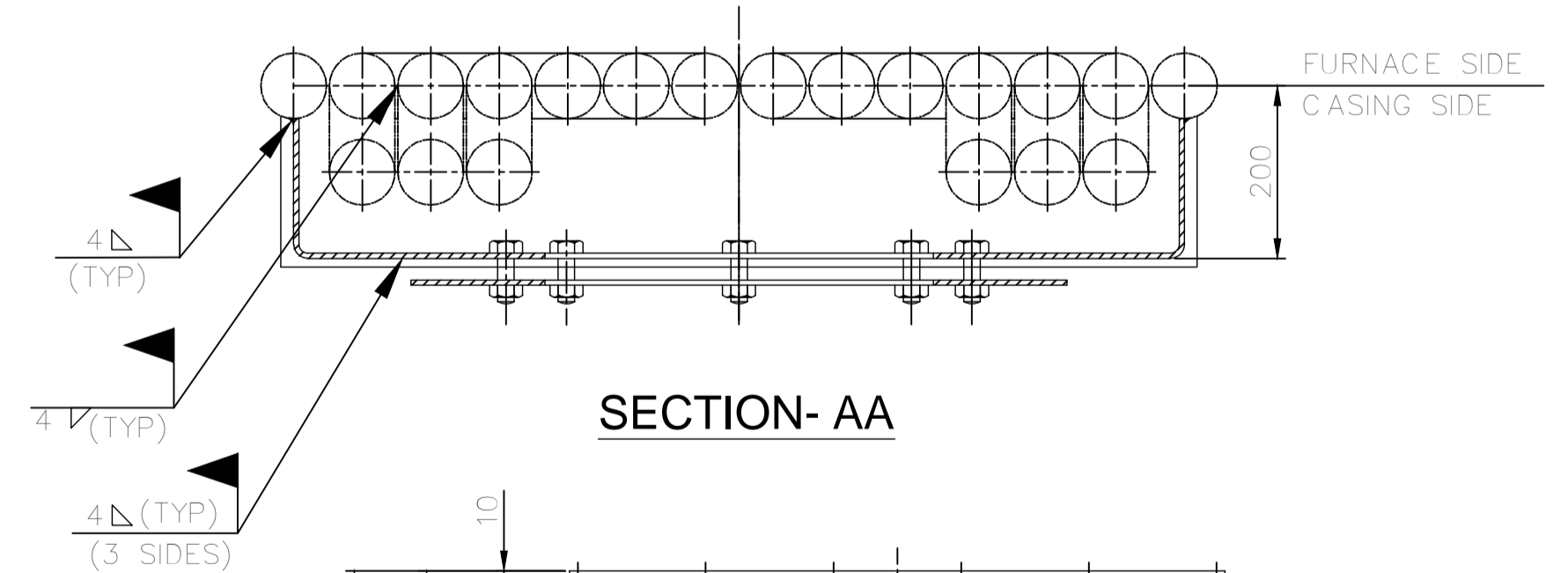
INVENTORY NO. SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME 1381010XXX-500-ROO.DWG



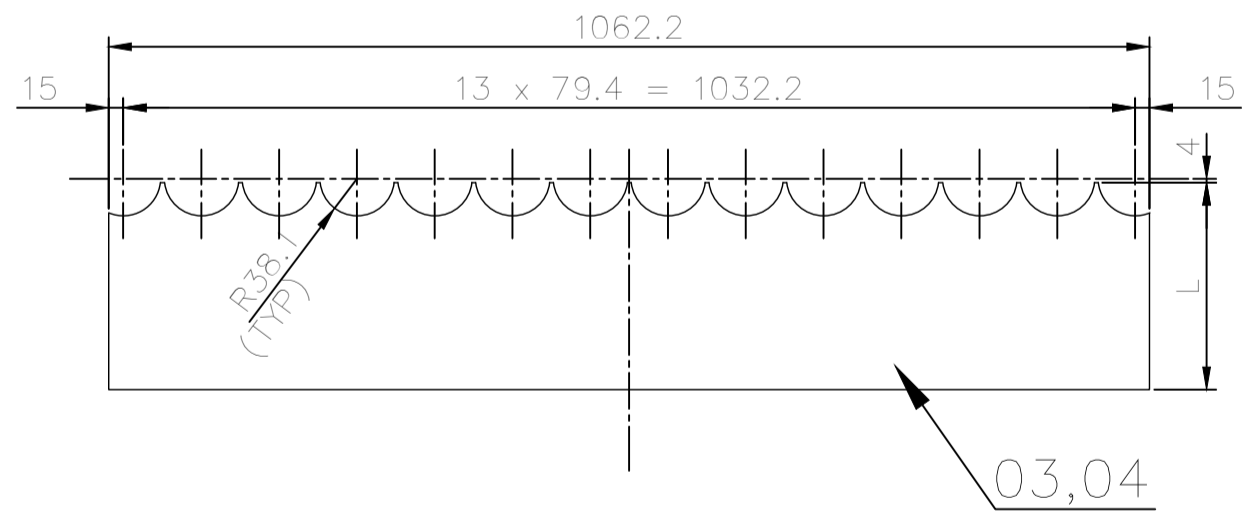
ITEM - 01



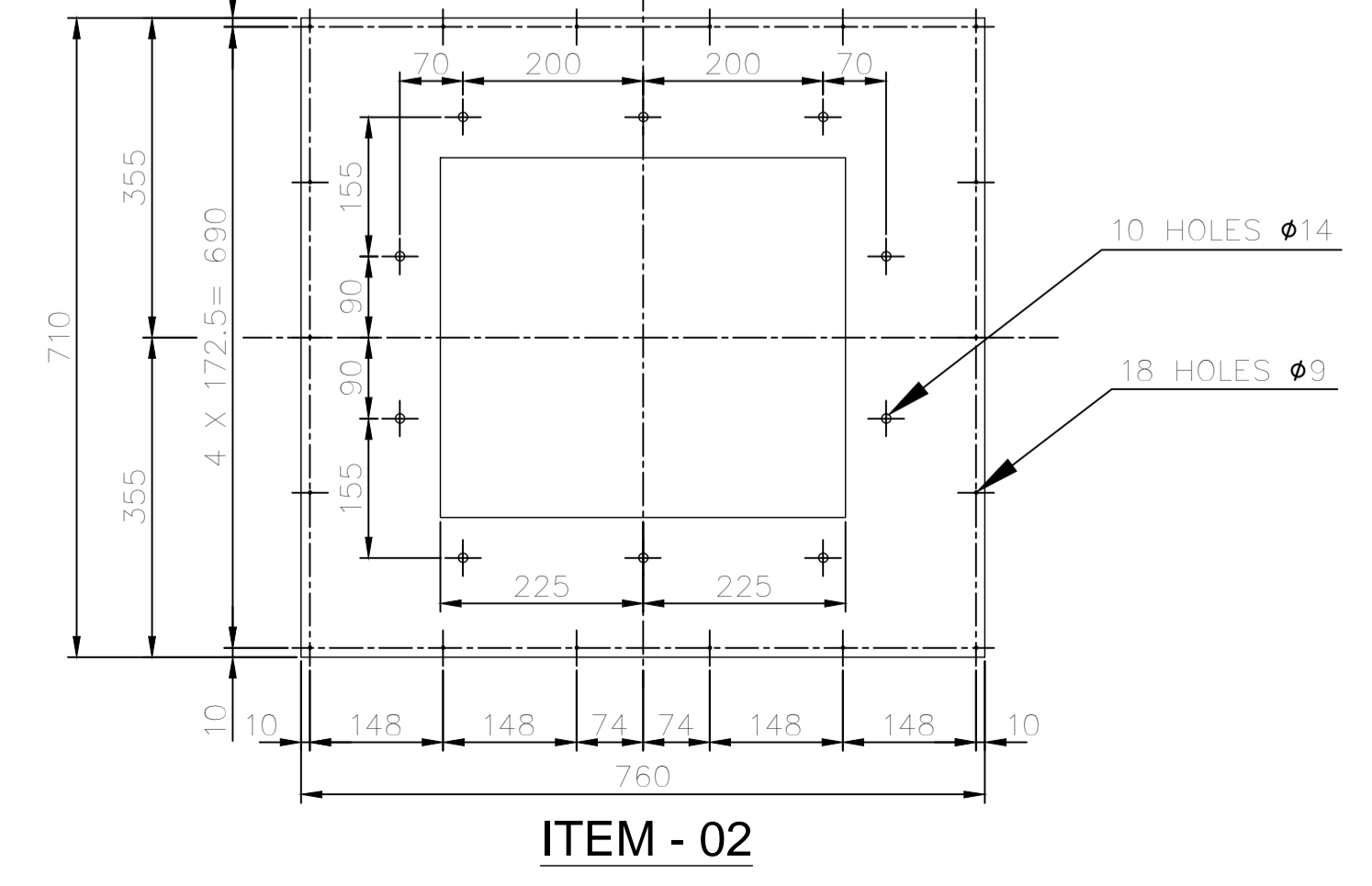
SECTION-BB



SECTION-AA



FOR ITEM NO. 02 ; L = 206
FOR ITEM NO. 06 ; L = 156



ITEM - 02

NOTES:

- ALL WELDS ARE TO BE SEAL WELDED GAS TIGHT UNLESS OTHERWISE SPECIFIED.
- ERECTOR TO CUT THE CORNER OF SCALLOPED BAR SO AS TO PROVIDE A CLEARANCE BETWEEN ADJACENT TUBE AND A COMPLETE SEAL WELD AROUND THE EDGE OF SEAL BOX.
- SEAL BOX IS TO BE FILLED WITH CASTABLE REFRACTORY.
- PAINT THE SURFACE OF ALL TUBE THAT ARE EMBEDDED IN CASTABLE REFRACTORY WITH TWO COATS OF BITUMASTIC PAINT.
- ITEM NO. 05 TO BE WELDED AFTER POURING CASTABLE REFRACTORY.
REFER DRG.NO. 3-09-001-U8003

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD.	DRAWING NUMBER	ITEM NO.	MATERIAL CODE	UNIT WEIGHT	QUANTITY	ZONE
	07	NUT HEX B4 M12			413040001200	IS 1363 (P3)	0.020	10	
	06	BOLT HEX B4.6 M12 x 90			412211209000	IS 1363 (P1)	0.094	10	
	05	PLATE - 6 ; 50 x 1062.2			152110920000	IS2062 Gr.A	2.500	1	
	04	PLATE - 6 ; 156 x 1062.2			152110920000	IS2062 Gr.A	7.800	1	
	03	PLATE - 6 ; 206 x 1062.2			152110920000	IS2062 Gr.A	10.300	1	
	02	PLATE - 6 ; 760 x 710			152110920000	IS2062 Gr.A	25.410	1	
	01	PLATE - 6 ; 1333 x 1500			15 942 277	SA 387 GR.12 CL2	94.170	1	

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

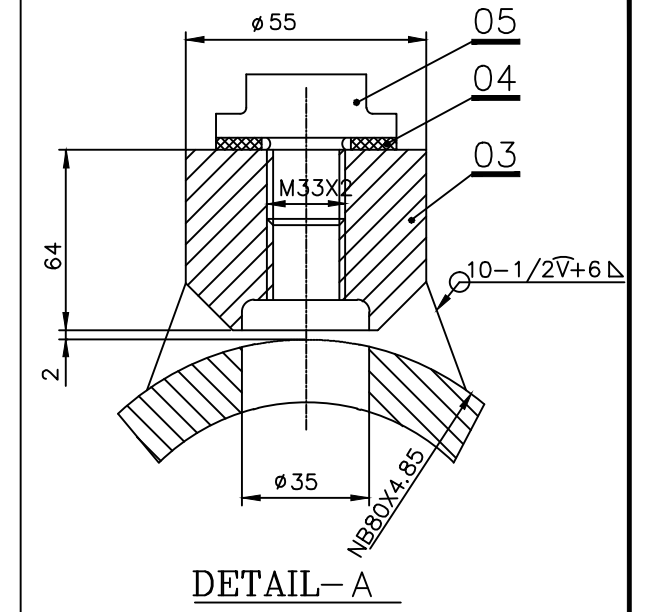
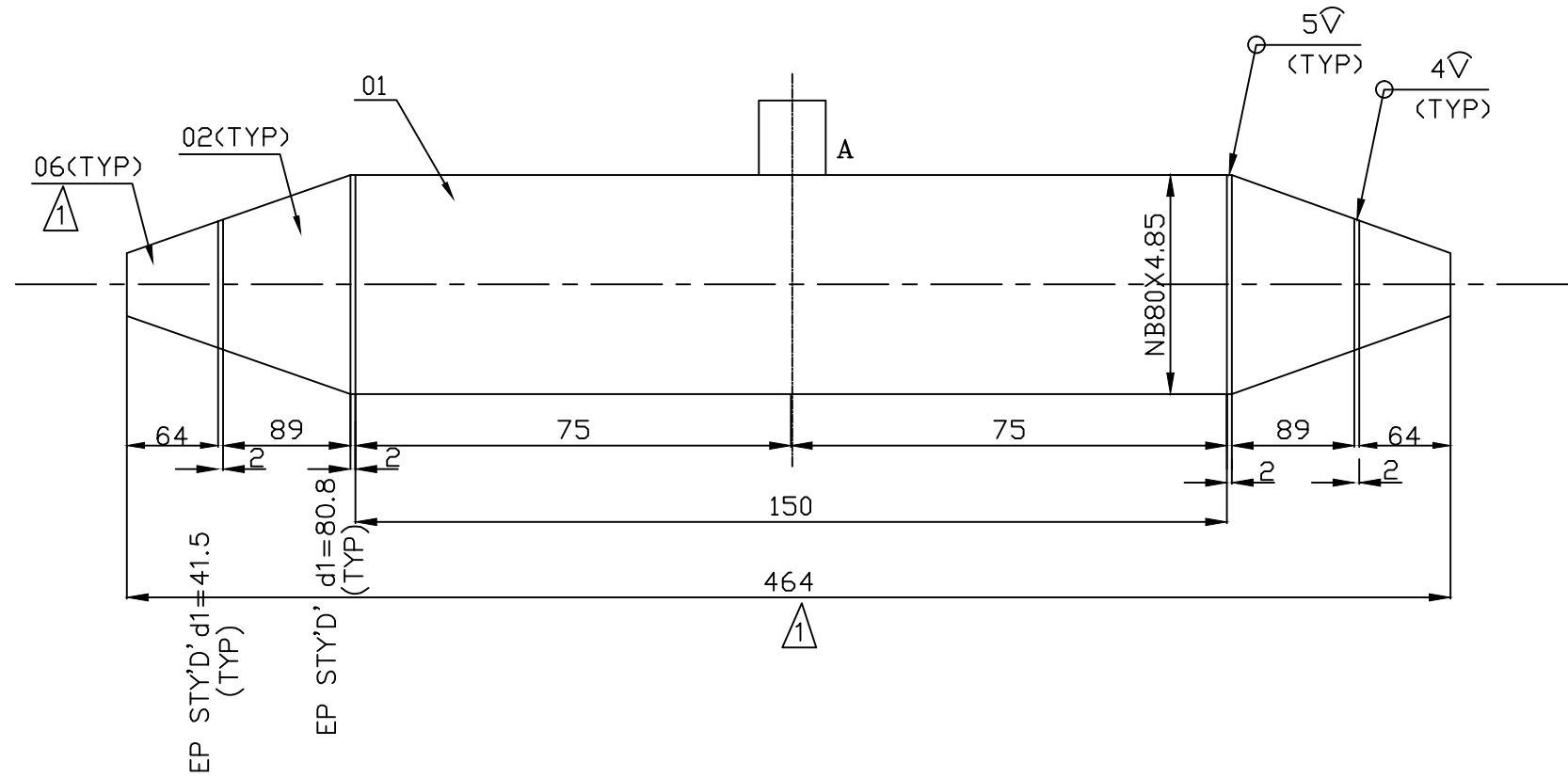
DRN: K.H.THOMAS	DATE: 29.07.2017
CHK: MVRP/GGR	DATE: 29.07.2017
APPD: Y.P.KUMAR	DATE: 29.07.2017

SCALE: N.T.S. WEIGHT (Kg): 141.320

TITLE: SEAL BOX ASSLY. FOR ACCESS DOOR (TUBE ϕ 76.1 ; PITCH 79.4)

DRAWING NO: 1-09-001-U8001 REV: 00

REV	DATE	ALTERED	REV	DATE	ALTERED
02		CHD & APPD:	01		CHD & APPD:
ZONE			ZONE		



VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
					VAR NO	MATERIAL SPECN		DI	QUANTITY
	06	REDUCER NB 40 / 25, Sch. 40		3-80-460-U9008		15 610 040 0000 SA 234 WPB	C		2 0.450
	05	PLUG M33 x 2		6110 8031 06		15 627 256 0000 SA 105	C		1 0.010
	04	PACKING RING		6110 8041 06		94 824 001 0000 IS : 1972			1 0.700
	03	TEMP. STUB M33 x 2		4-80-401-37696		15 039 143 0000 SA 105	C		1 1.800
	02	REDUCER NB 80 / 40, Sch. 40		3-80-460-U9008		18 930 001 0950 SA 234 WPB	C		2 1.515
	01	PIPE NB 80 x 4.85 ; L = 150		3-80-460-U9008		15 838 018 0000 IS 1239 BL. HEAVY	C		1

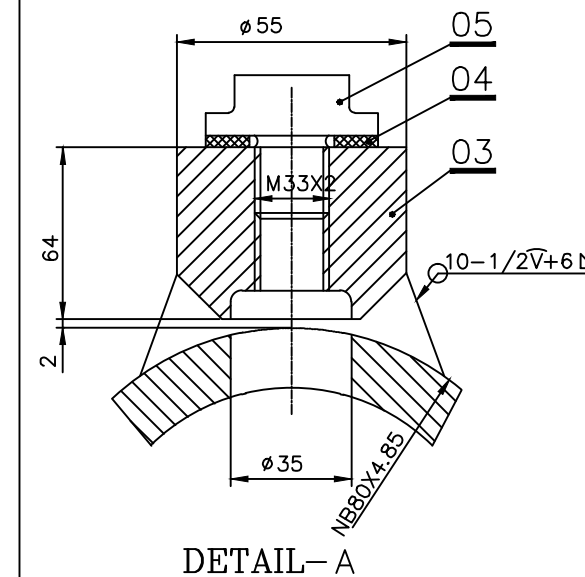
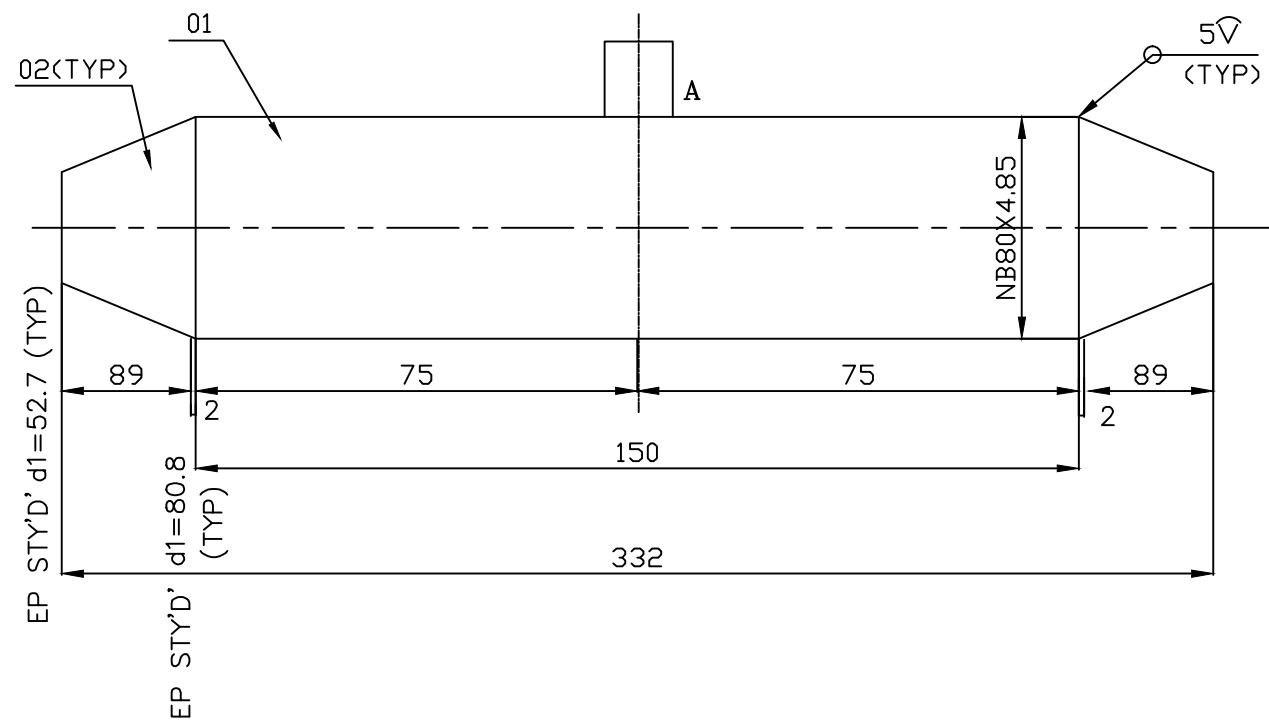
PGMA-80-460 CUSTOMER NO: 7781

<p>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				NAME	SIGNATURE	DATE	
		UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012				DRN	A V RAO	Sd/- XXX	18-10-17
						CHD	AVR	Sd/- XXX	18-10-17
						APPD	AC MOHANTY	Sd/- XXX	18-10-17
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG				
CODE			NTS	7.525	3-80-999-97669				
TITLE					DRAWING NO :			REV	
ADOPTER WITH TEMP STUB M33X2 (NB 80/25)					3-80-460-U9008			01	

1		ITEM NO 06-REDUCER ADDED			
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

FORM NO. 0421/2

3-80-460-U9009
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
	05	PLUG M33 x 2		6110 8031 06		15 627 256 0000 SA 105		C	0.800 1
	04	PACKING RING		6110 8041 06		94 824 001 0000 IS : 1972			0.010 1
	03	TEMP. STUB M33 x 2		4-80-401-37696		15 039 143 0000 SA 105		C	0.700 1
	02	REDUCER NB 80 / 50, Sch. 40		3-80-460-U9009		18 930 001 2303 SA 234 WPB		C	1.800 2
	01	PIPE NB 80 x 4.85 ; L = 150		3-80-460-U9009		15 838 018 0000 IS 1239 BL. HEAVY		C	1.515 1

PGMA-80-460

CUSTOMER NO: 7781

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

	NAME	SIGNATURE	DATE
DRN	A V RAO	Sd/- XXX	18-10-17
CHD	AVR	Sd/- XXX	18-10-17
APPD	AC MOHANTY	Sd/- XXX	18-10-17

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)
			NTS	6.625

REF TO ASSY / OLD DWG
3-80-999-97670

TITLE
**ADOPTER WITH TEMP STUB
M33X2 (NB 80/50)**

DRAWING NO :	REV
3-80-460-U9009	00

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

FORM NO. 0421/2

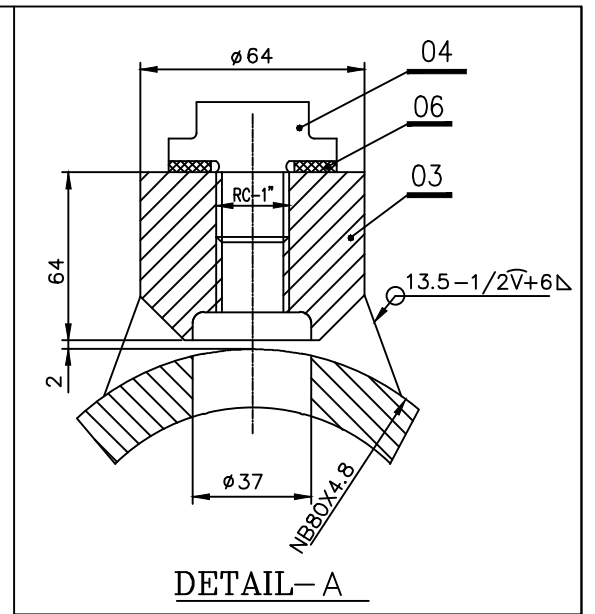
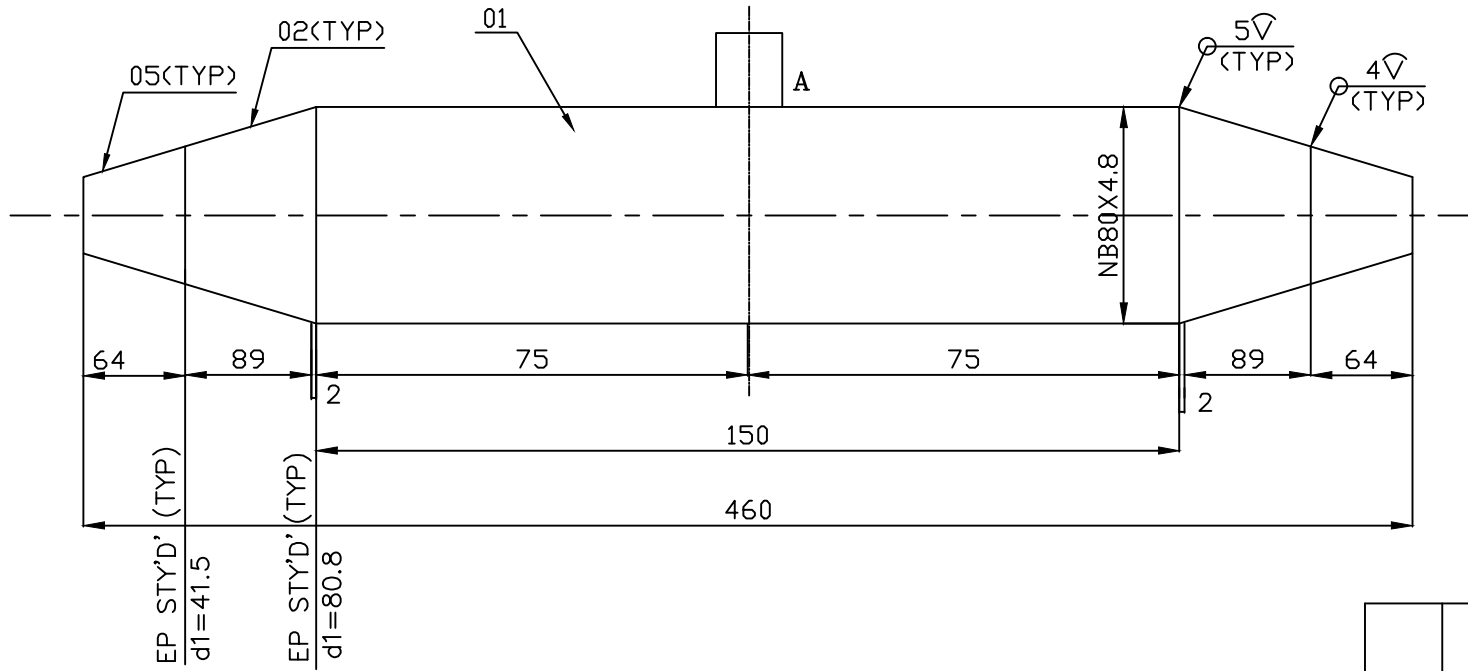
A3 SIZE

FIRST ANGLE PROJECTION(ALL DIMENSIONS IN MILLIMETRES)

3-80-460-U9020

DRAWING No

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ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A	UNIT WT.
VAR NO.			VAR NO.	MATERIAL SPEC.	C	QTY.
06	PACKING RING	6110 8041 06	94 824 001 0000	IS : 1972		0.010
05	CS CON REDUCER NB 40 / 25 SCH40	3-80-460-U9020	15 610 040 0000	SA234WPB		0.26
04	PLUG R-1"	4-80-463-23358	15 039 143 0000	SA 105	C	0 500
03	TEMP. STUB RC-1" L=64	4-80-463-23357	15 339 144 0000	SA 105	C	1 200
02	CS CON REDUCER NB 80 / 40 SCH40	3-80-460-U9020	18 930 001 0950	SA234WPB	C	1 00
01	PIPE NB 80 x 4.8 ; L = 150	3-80-460-U9020	15 838 018 0000	IS 1239 BL. HEAVY	C	1 515

	BHARAT HEAVY ELECTRICALS LTD.,		DRN	NAME	SIGN	DATE	NO OF ITEMS
	HEAVY PLATE & VESSELS PLANT		CHD	Haritha	-Sd.xxx	20.12.17	
	VISAKHAPATNAM-530012		APPD	A V Rao	-Sd.xxx	29.12.17	
				ACM/Tarakesh	-Sd.xxx	30.12.17	

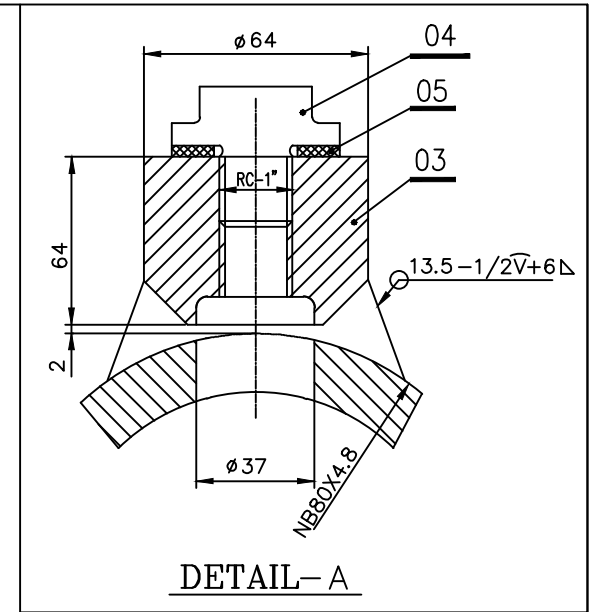
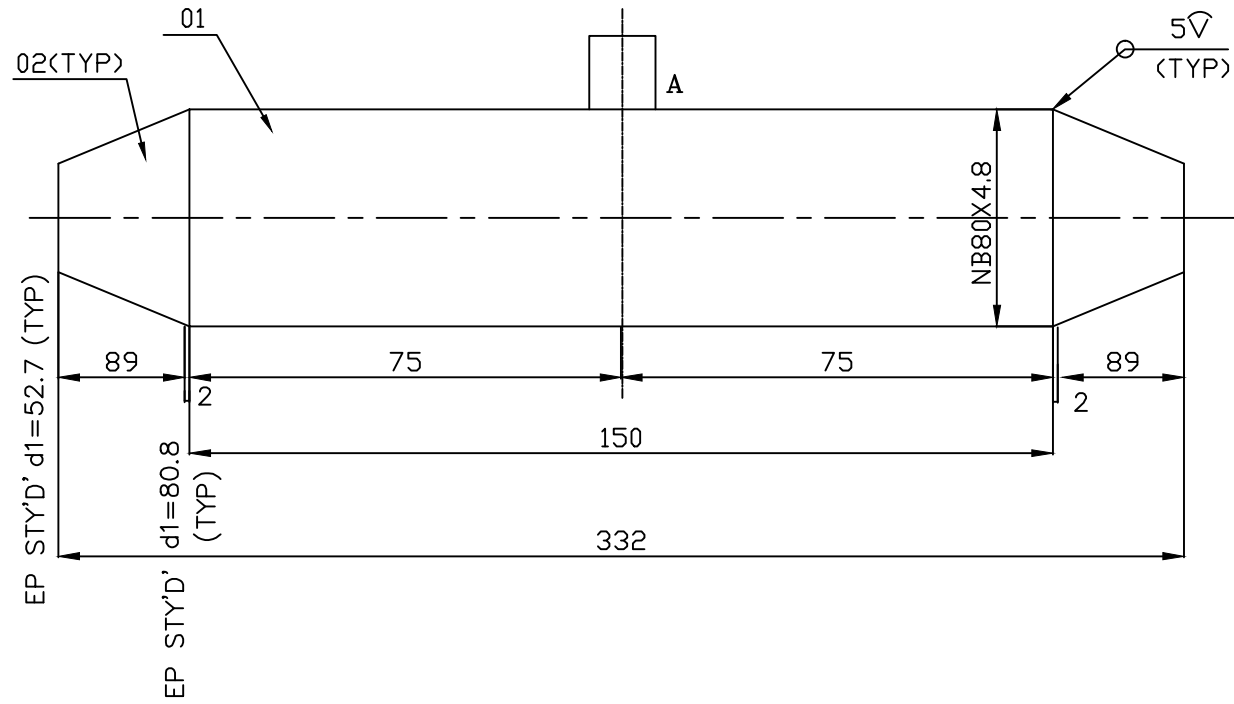
REV	DATE	ALTERED	DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg.)	REF TO ASSY / OLD DRG	ITEM No.
		APPROVED	CODE		NTS	5.80	3-80-999-97669	
ZONE			TITLE			CARD CODE	DRAWING No.	REV
			ADAPTOR WITH TEMP STUB RC-1" (NB 80/25)				3-80-460-U9020	00

FIRST ANGLE PROJECTION(ALL DIMENSIONS IN MILLIMETRES)

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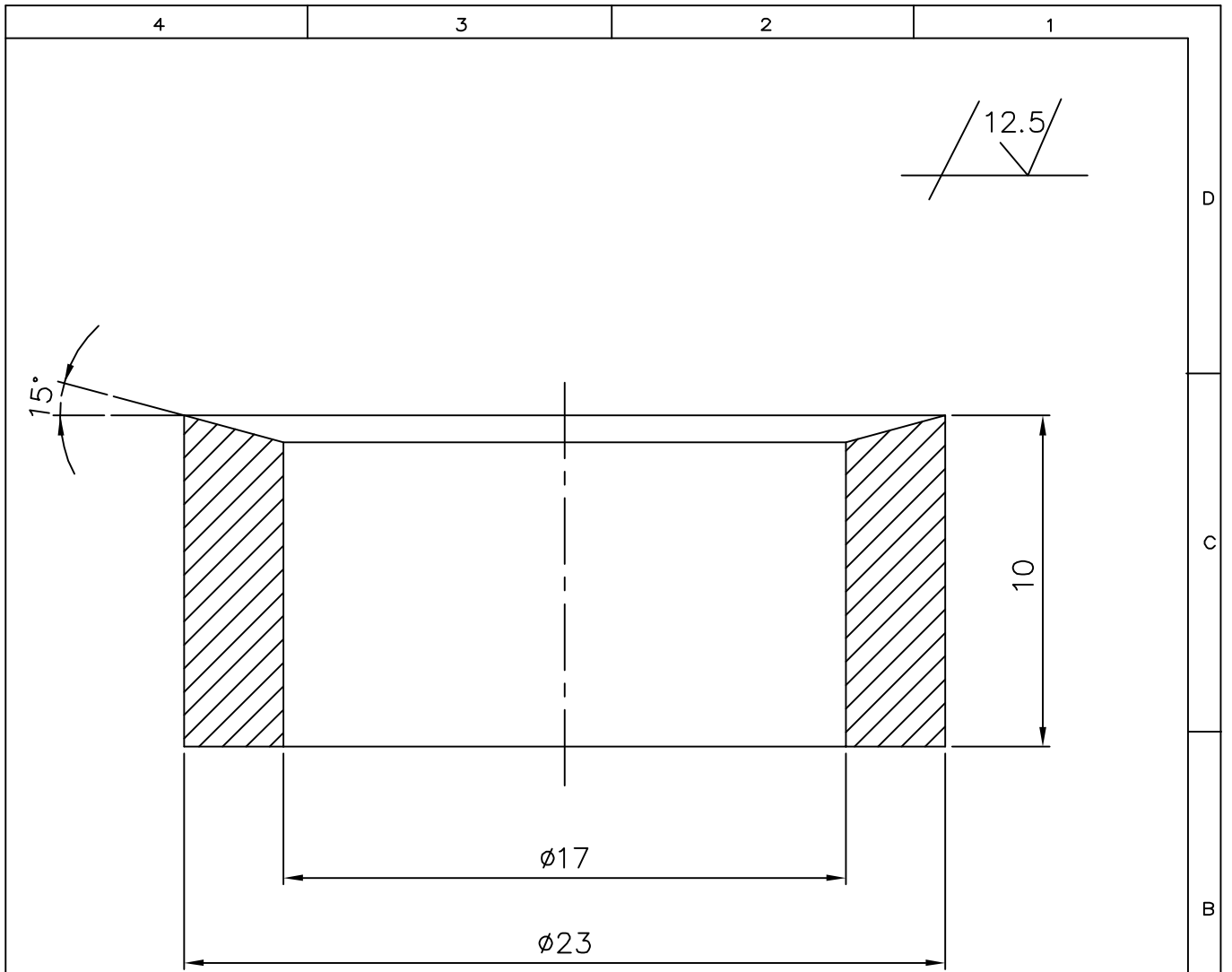
3-80-460-U9021

DRAWING No



ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL CODE	A	UNIT WT.
			VAR NO.	MATERIAL SPEC.	C	QTY.
05	PACKING RING	6110 8041 06		94 824 001 0000 IS : 1972		0.010 1
04	PLUG R-1"	4-80-463-23358		15 039 143 0000 SA 105	C	0 500 1
03	TEMP. STUB RC-1" L=64	4-80-463-23357		15 339 144 0000 SA 105	C	1 200 1
02	CS CON REDUCER NB 80 / 50 SCH40	3-80-460-U9021		18 930 001 2303 SA234WPB	C	1 00 2
01	PIPE NB 80 x 4.8 ; L = 150	3-80-460-U9021		15 838 018 0000 IS 1239 BL. HEAVY	C	1 515 1

	BHARAT HEAVY ELECTRICALS LTD., HEAVY PLATE & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGN	DATE	NO OF ITEMS	
			CHD	Haritha	-Sd.xxx	20.12.17		
			APPD	A V Rao	-Sd.xxx	29.12.17		
				ACM/Tarakesh	-Sd.xxx	30.12.17		
REV	DATE	ALTERED APPROVED	DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DRG	ITEM No.
ZONE			CODE		NTS	5.225	3-80-999-97670	
TITLE						CARD CODE	DRAWING No.	REV
ADAPTOR WITH TEMP STUB RC-1" (NB 80/50)							3-80-460-U9021	00



	ROD ø25		15 339 139			0.039
			SA105			
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
			MATERIAL SPECN			QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00544

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



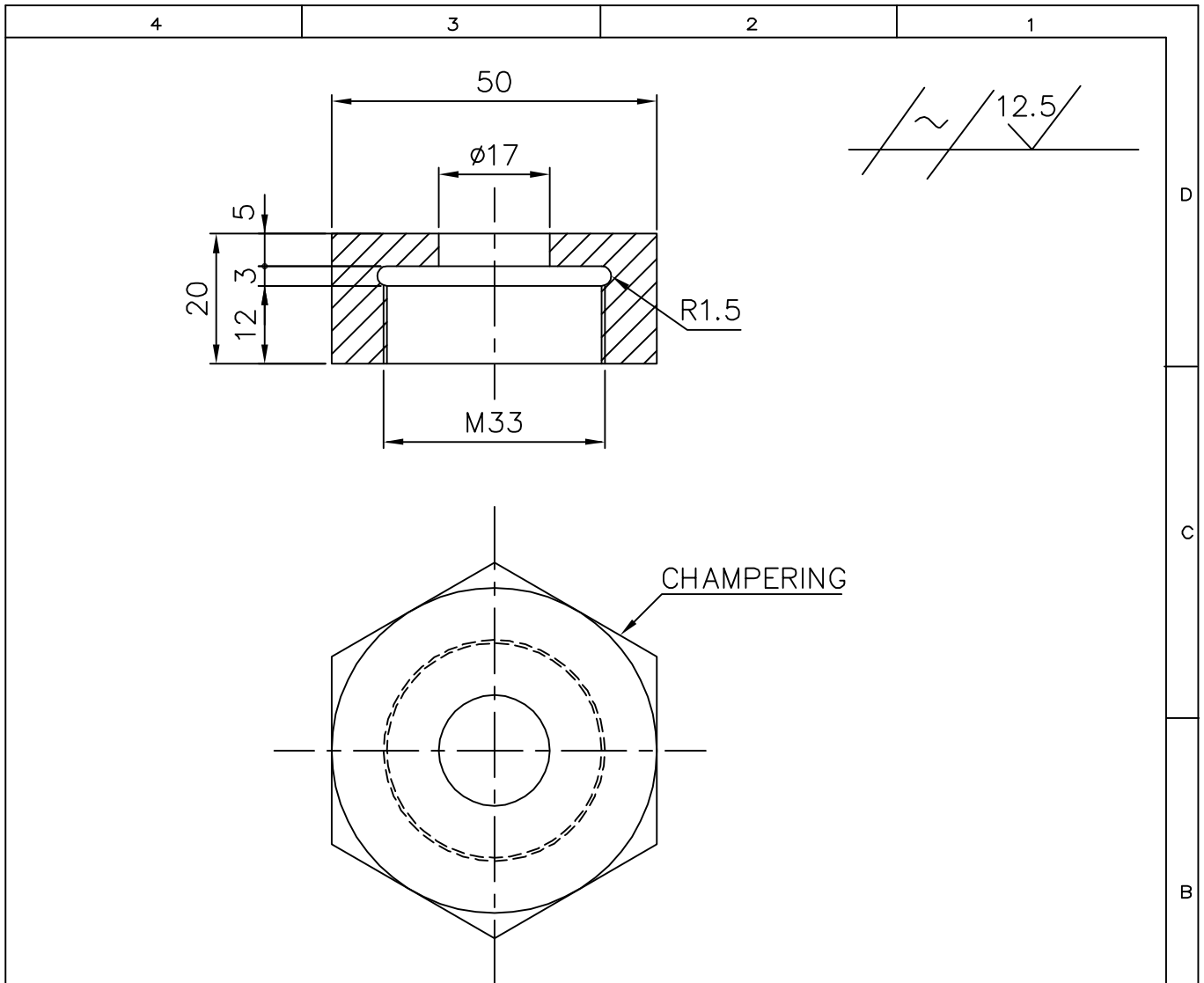
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.
ITEM NO.
MATL.

DATE	17-11-2017				
DRN.	Prabhakar T	BUSH			
CHD.	Uma Sankaram				
APPD.	Kumar Manikyam	WORK ORDER NO.	NO. OFF		
SCALE	N.T.S.	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.
			A4	4-28-220-U0012	0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



VARIANT NUMBER	ROD ϕ 63	STD	15 339 143	A/C/P	UNIT	0.489	A
	DESCRIPTION		SA105			UNIT WEIGHT	
			MATERIAL SPECN			QUANTITY	

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00545

REV. No.	ZONE	BRIEF RECORD	PPD.	CHD.	APPD.
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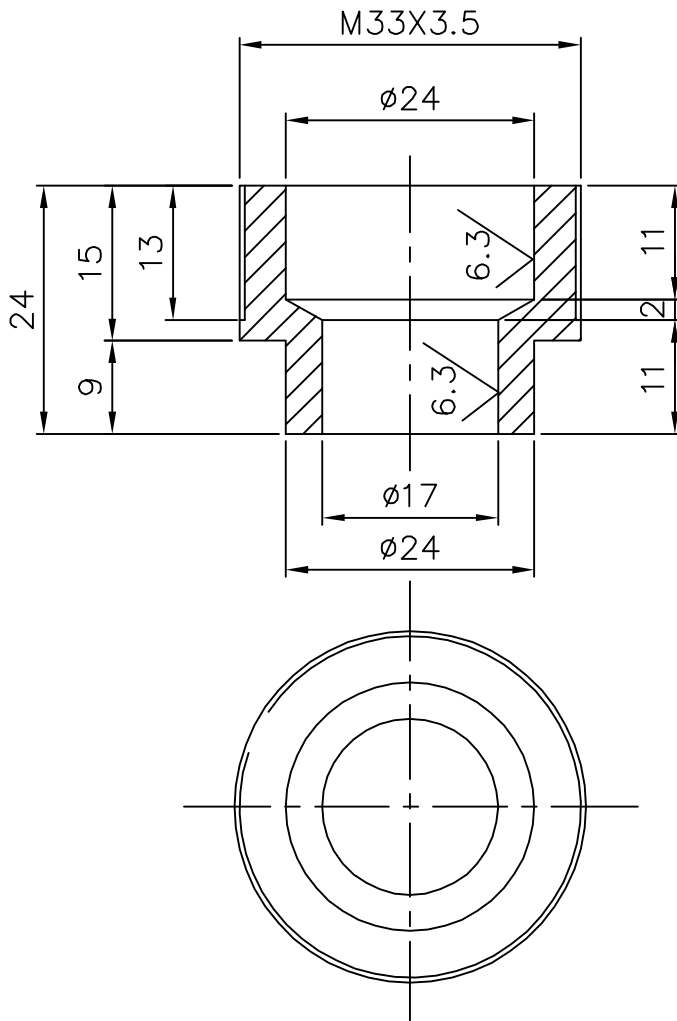
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.	
ITEM NO.	
MATL.	

DATE	17-11-2017	GLAND CAP			
DRN.	Prabhakar T				
CHD.	Uma Sankaram	WORK ORDER NO.	NO. OFF		
APPD.	Kumar Manikyam	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.
SCALE	N.T.S.		A4	4-28-220-U0013	0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



12.5 / 12.5
 DEBURR SHARP CORNER

(FOR THREAD DETAIL REFER
 IS: 4218 (PART III))

	ROD ϕ 36	15 339 280		0.192
		SA105		
VARIANT NUMBER	DESCRIPTION	STD	A/C/P UNIT	UNIT WEIGHT
				QUANTITY

REF. DRG.
 BHEL TRICHY DRG. NO.
 4-28-220-00546

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
 Bharat Heavy Electricals Ltd.
 UNIT : HEAVY PLATES & VESSELS PLANT
 VISAKHAPATNAM - 530012 (A.P)

QTY.
 ITEM NO.
 MATL.

DATE 17-11-2017

DRN. Prabhakar T

CHD. Uma Sankaram

APPD. Kumar Manikyam

SCALE N.T.S.

GLAND

WORK ORDER NO.

NO. OFF

YEAR OF ORD. SIZE

DRAWING NO.

REV. No.

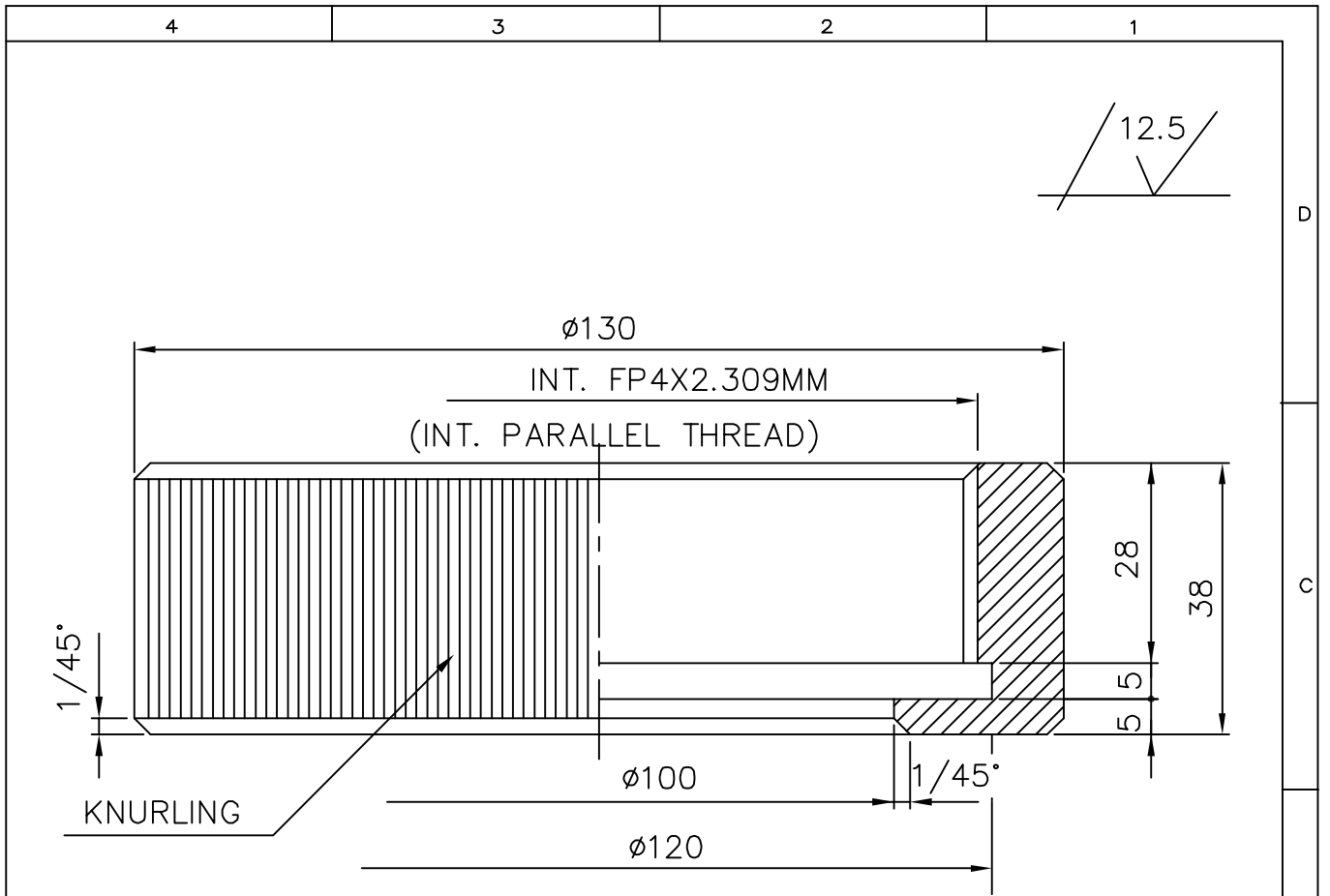
A4

4-28-220-U0014

0

NOTES:
 1. DRAWING NOT TO BE SCALED
 2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



(FOR THREAD DETAIL REFER
IS: 2643- SIZE DESIGNATION PF-4)

VARIANT NUMBER	ROD ϕ 140	STD	15 339 145	A/C/P	UNIT	4.592
	DESCRIPTION		SA105			UNIT WEIGHT
			MATERIAL SPECN			QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00549

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.
ITEM NO.
MATL.

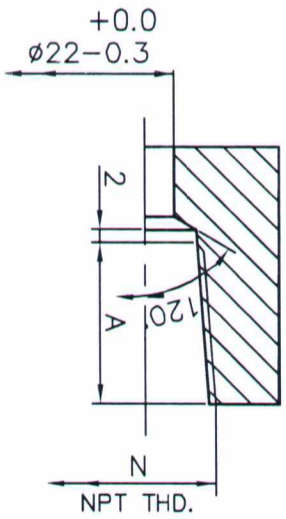
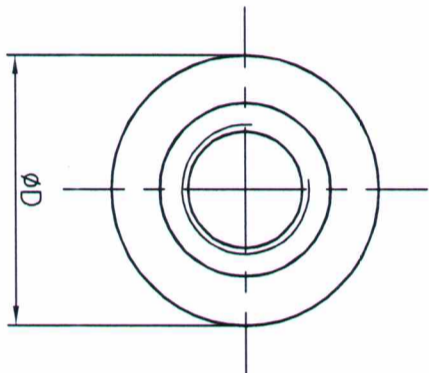
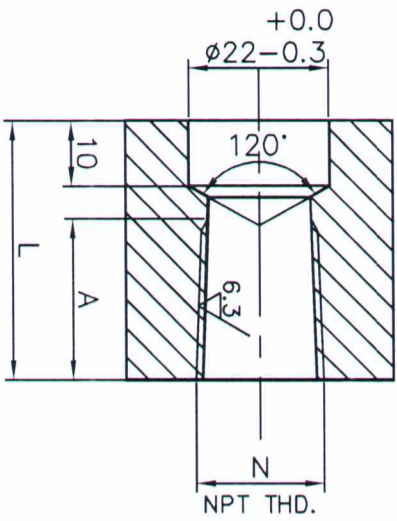
DGN.		PIPE CAP			
DRN.	Prabhakar T				
CHD.	Uma Sankaram	WORK ORDER NO.	NO. OFF		
APPD.	Kumar Manikyam	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.
SCALE	N.T.S.		A4	4-28-220-U0017	0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0

6209N-251-24-3

DRAWING NO:



*(FOR STYLES 05 & 06 ONLY)

STYLE	NPT THD.	A	L	ØD
01	1/8"	10	25	30
02	1/4"	15	30	30
03	3/8"	15	30	30
04	1/2"	20	35	30
05 *	3/4"	20	35	35
06 *	1"	25	40	42

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	QTY	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QTY
06		S.W. SCREWED PIECE 1" NPT; ROD D42; 40L				15 339 142	0.250	
05		S.W. SCREWED PIECE 3/4" NPT; ROD D35; 35L				15 339 141	0.150	
04		S.W. SCREWED PIECE 1/2" NPT; ROD D30; 35L				15 339 140	0.120	
03		S.W. SCREWED PIECE 3/8" NPT; ROD D30; 30L				15 339 140	0.110	
02		S.W. SCREWED PIECE 1/4" NPT; ROD D30; 30L				15 339 140	0.120	
01		S.W. SCREWED PIECE 1/8" NPT; ROD D30; 25L				15 339 140	0.100	

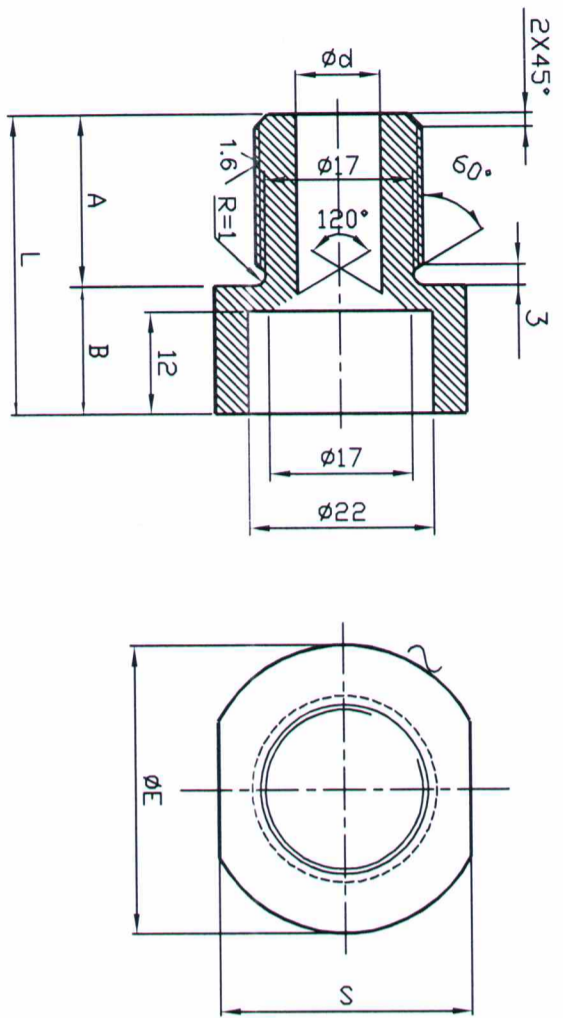
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REV	DATE	ALTERED :
01		CHD & APPD:

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012	
DEPT ENGG.	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE
320			NTS
TITLE S.W SCREWED PIECE NPT(F)x1/2"		WEIGHT (Kg)	Ref:BOM
		DRN	NAME
		CHD	G P LATHA
		APPD	S VIJAY
		REF TO ASSY / OLD DWG	DATE
		3-42-000-00874	15.02.19
		DRAWING NO :	REV
		3-42-152-U6079	00

6.3 / 12.5
 Item - 2
 S.No - 38, 40

28091U-251-24-3
DRAWING NO:



12.5 / 16 / N /

Enquiry - 86
Item 2
S.No : 33,41

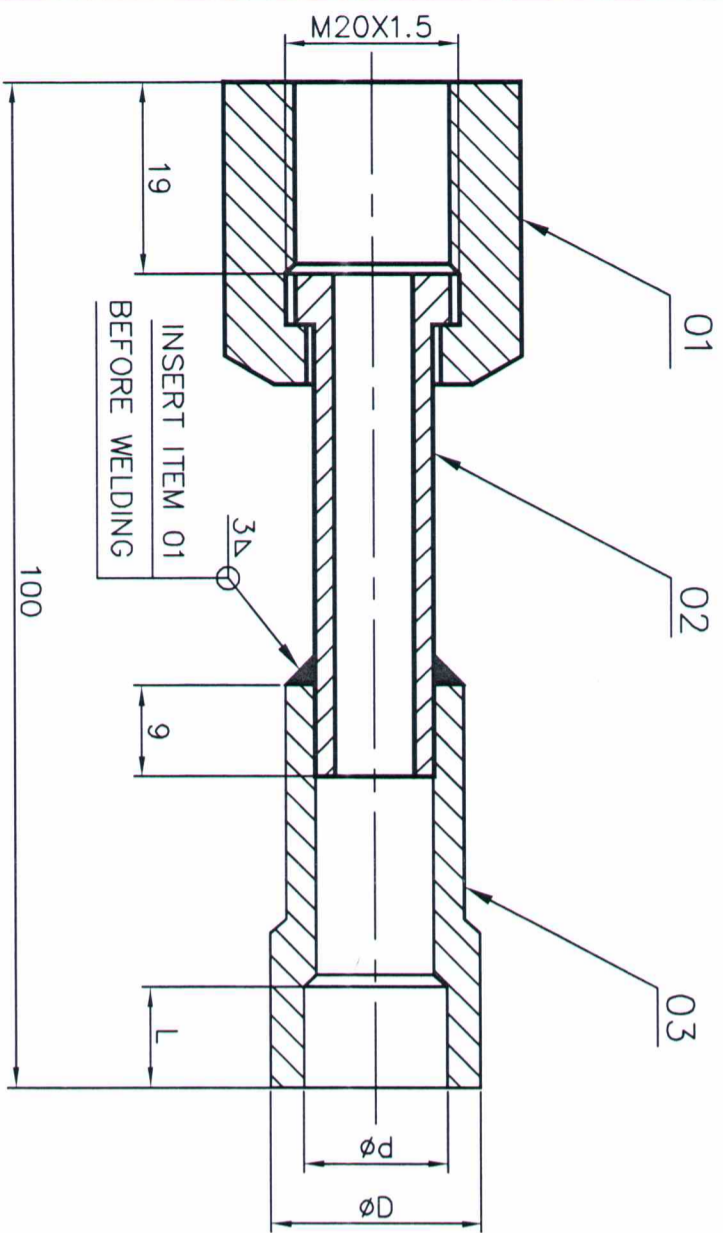
STYLE	NPT THDNIS	A	B	Ød	L	ØE	S
01	M20 X 1.5	20	15	10	35	34	30
02							
03							
04							
05							
06							

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	GS	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	SS
01		DIA 34 ; 35L				15 339 280	C		0.120	
						SA 105				

REV	DATE	ALTERED :
01		CHD & APPD:

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bhart Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN G P LATHA 15.02.19	NAME G P LATHA 15.02.19
DEPT: ENGG. CODE: 320	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG 3-42-000-02081
TITLE SCREWED PIECE-1 (PARALLEL THREAD)				APPD S VIJAY 15.02.19	DRAWING NO : 3-42-152-U6082
					REV 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	PS	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY
03	03	MACHINED REDUCER D 48 ; 40L		4-42-152-U6025	03	15 339 142 SA 105	0.300	1
03	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
03	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1
02	03	MACHINED REDUCER D 42 ; 40L		4-42-152-U6025	02	15 339 142 SA 105	0.200	1
02	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
02	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1
01	03	MACHINED REDUCER D 33.4 ; 40L		4-42-152-U6025	01	15 339 280 SA 105	0.140	1
01	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
01	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1

Enquiry - 36
Item - 2
S.No - 9,

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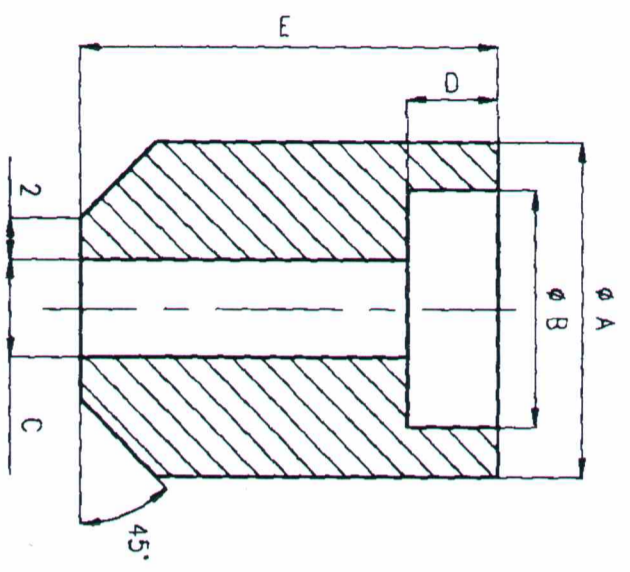
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012	
DEPT ENGG. CODE 320	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE NTS
WEIGHT (Kg) REF. TABLE		DRN G PAVANI LATHA	DATE 14.02.19
DRAWING NO : 3-42-152-U6083 00		CHD G PAVANI LATHA	DATE 14.02.19
TITLE GAUGE CONNECTOR I		Appd S VIJAY	DATE 14.02.19
REF TO ASSY / QAD DWG 3-42-030-00849			

REV	DATE	ALTERED :
01		CHD & APPD:

FIRST ANGLE PROJECTION(ALL DIMENSIONS IN MILLIMETRES)

3-80-63-15996
DRAWING NO

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



VAR. NO.	SIZE	phi A	phi B	phi C	D	E	REMARKS
01	NB 50	76	61.2	53	16	60	
02	NB 40	62	48.8	41	13	48	
03	NB 25	46	33.9	27	13	44	
04	NB 15	32	21.8	16	10	34	

REV	DATE	ALTERED	APPROVED
01	20.8.97		

DESCRIPTION COLUMN -
ROD DIA & LENGTH ALTD.

VAR NO.	ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO.	MATERIAL SPEC.	UNIT WT.	QTY.
04		ROD phi 36 L = 34	3-80-463-15996		SA 105	0.180	1
03		ROD phi 50 L = 44	3-80-463-15996		SA 105	0.430	1
02		ROD phi 63 L = 48	3-80-463-15996		SA 105	0.750	1
01		ROD phi 80 L = 60	3-80-463-15996		SA 105	1.330	1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
PGMA 80-420
S.O. NO.-7773

BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI 600 017		DRN	S SENTHIL	DATE	17.7.97
CHD	C KUMAR	APPD	C K KARAN	DATE	17.7.97

DEPT. CODE	GRADE OF UN TOL. DIM C/M/F	SCALE N.T.S	WEIGHT (Kg)	REF TO ASSY / OLD DRG	CARD CODE	DRAWING No.	REV
					U 01	3-80-463-15996	01

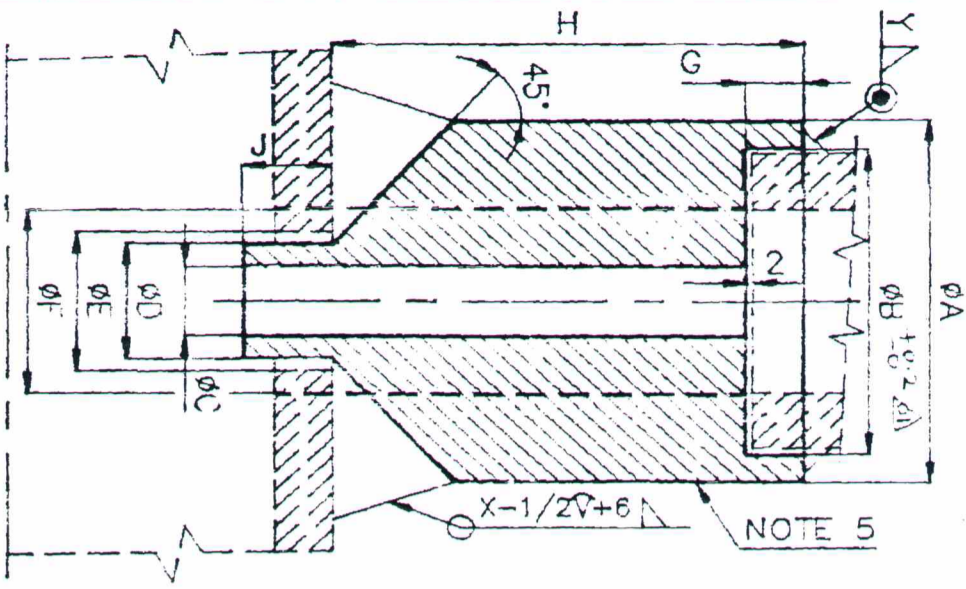
Enq^y - 36
Item - 2
S.No - 47, 48,

SIZE A3

CCC26-666-08-2
ON SHIMWARD

6.3

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 INDETERMINATE TO THE INTEREST OF THE COMPANY



VAK NO.	NIB	CLASS	CONN. PIPE SIZE	φA	φB	φC	φD	φE	φF	G	H	J	RAW MATL SIZE	MATL CODE	WEIGHT (kg)	X	Y
01	15	3000	21.3x3.73	32	21.8	6	10	11	16	10	34	10	36	15 339 280 0000	0.18	11	4
02	15	6000	21.3x4.78	34	21.8	4	7	8	12	10	34	10	36	15 339 280 0000	0.21	14	6
03																	
04	20	3000	26.7x3.91	38	27.2	10	15	16	21	13	38	10	40	15 339 141 0000	0.26	12	5
05	20	6000	26.7x5.56	42	27.2	6	10	11	16	13	38	10	50	15 339 142 0000	0.35	16	6
06																	
07	25	3000	33.4x4.55	46	33.9	16	22	23	27	13	44	10	50	15 339 142 0000	0.43	12	5
08	25	6000	33.4x6.35	50	33.9	10	15	16	21	13	44	10	63	15 339 143 0000	0.57	18	7
09	25	9000	33.4x9.09	58	33.9	6	11	12	15	13	44	10	63	15 339 143 0000	0.81	24	10
10	40	3000	48.3x5.08	62	48.8	30	35	36	41	13	48	15	63	15 339 143 0000	0.75	14	6
11	40	6000	48.3x7.14	68	48.8	22	28	29	34	13	48	15	80	15 339 144 0000	1.07	20	8
12	40	9000	48.3x10.15	76	48.8	16	22	23	28	13	48	15	80	15 339 144 0000	1.46	27	11
13	50	3000	60.3x5.54	76	61.2	40	46	47	53	16	60	15	80	15 339 144 0000	1.33	15	6
14	50	6000	60.3x8.74	84	61.2	32	37	38	43	16	60	15	100	15 339 134 0000	1.96	24	10
15	50	9000	60.3x11.07	90	61.2	26	32	33	38	16	60	15	100	15 339 134 0000	2.44	28	12

NOTES:

- 1) TOLERANCE ON DIAMETERS ±0.1mm, EXCEPT ON φB.
- 2) TOLERANCE ON LENGTH: +1mm, -0mm.
- 3) BORES SHALL BE CONCENTRIC WITHIN ±0.4mm.
- 4) COINCIDENCE OF AXES: THE MAXIMUM ALLOWABLE VARIATION IN THE ALIGNMENT OF FITTING BORE AND SOCKET BORE AXES SHALL BE 0.5%.
- 5) STAMP IDENTIFICATION MARK: EX. FOR VAR. NO. 01: "SA105 A B16 CL 3000-15".
- 6) DRILL TO φF AFTER WELDING.
- 7) THE WELDMENTS SHOWN ARE ONLY FOR THE PURPOSE OF INFORMATION AND GUIDANCE ONLY.
- 8) RAW MATERIAL OF DIFFERENT SIZE IS ACCEPTABLE IF THE FINAL DIMENSIONS ARE MAINTAINED.
- 9) THE ABOVE STUBS ARE IN LINE WITH ASME B16.11 (HALF COUPLING).

MATERIAL: SA105(A)

STANDARD

BHARAT HEAVY ELECTRICALS LTD.
PIPING CENTRE, MADRAS, 600 017

DRN	NAME	DATE
DRN	R. ANANTH	15-08-95
CHD	R. ANANTH	15-08-95
APPD	S. JAYALAKSHI	26-08-95

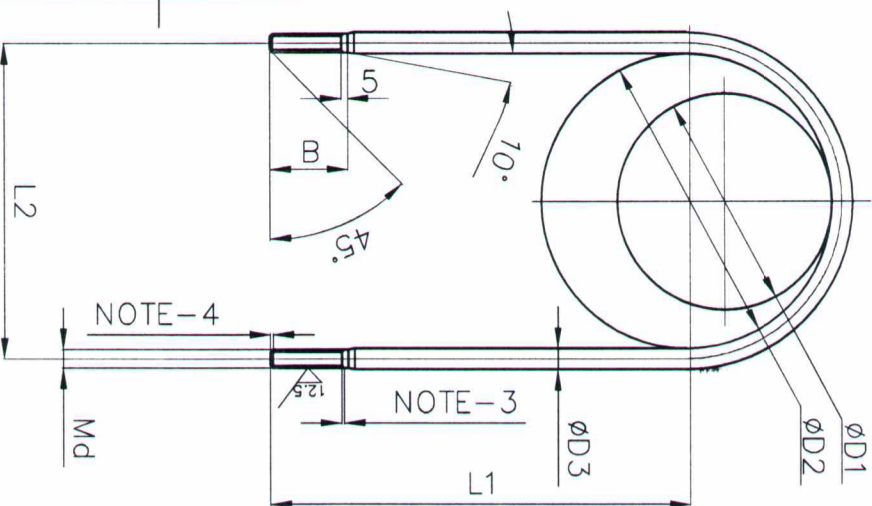
REV	DATE	ALTERED BY	APPROVED BY
01	15/08/95	[Signature]	[Signature]

SOCKET WELDED STUBS GS
U 01
3-80-899-97333 01

9620-4219

ON INWARD

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



NOTES:-

1. THREAD: METRIC THREAD ACCORDING TO TOLERANCE CLASS 8g AA 023 0403 -IS:14962 (PART-3)--2001.
- *2. MARK THE ITEM BY BPS CODE NO. AND BIN CODE NO.
3. FOR RUNOUT REFER AA 023 18 50.
4. FOR ENDS REFER AA 023 18 52.

MATERIAL : IS 2062 FE 410WA

VAR NO.	PIPE OUT DIA øD1	L1	B	L2	øD2	øD3	Md	DEVP. LENGTH
06	168.3	200	100	186	180	12	10	702
05	114.3	160	80	123	120	12	10	565
04	73.0	170	100	88	76	12	10	478
03	60.3	180	70	74	64	10	8	476
02	48.3	180	70	61	51	10	8	456
01	33.4	150	55	46	36	10	8	372

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	PS	DRAWING NUMBER	ITEM NO VAR NO	MATERIAL CODE	MATERIAL SPECN	A/C P	UNIT WEIGHT	QUANTITY
06		U BOLT (PIPE WITH INSLN) NB 168.3		6124 0236 26		94 221 025		C	0.570	
05		U BOLT (PIPE WITH INSLN) NB 114.3		6124 0236 25		94 221 024		C	0.460	
04		U BOLT (PIPE WITH INSLN) OD 73.0		6124 0236 24		94 221 023		C	0.370	
03		U BOLT (PIPE WITH INSLN) OD 60.3		6124 0236 23		94 221 022		C	0.268	
02		U BOLT (PIPE WITH INSLN) OD 48.3		6124 0236 22		94 221 021		C	0.256	
01		U BOLT (PIPE WITH INSLN) OD 33.4		6124 0236 21		94 221 020		C	0.205	

E. 36
I. 5
S. 1, 2, 3, 4, 5, 7, 8, 9, 10, 11

(12.5) ✓

REV	DATE	ALTERED : G.S.N	REV	DATE	ALTERED : S.SATHIS
04	03.05.13	CHD & APPD: N.KATHIRVEL	03	03.08.10	CHD & APPD:N.KIRUBAKARAN

NOTE NO.1 CORRECTED. MATERIAL SPECIFICATION ALTERED

CONVERTED TO AUTOCAD DWG

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

DEPT	SS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg) REFER UNIT WT	DRN	NAME	SIGNATURE	DATE
355-055				N.T.S		T.KRISHNAN	T.KRISHNAN		16.08.82
						S.KALIBULLA			16.08.82

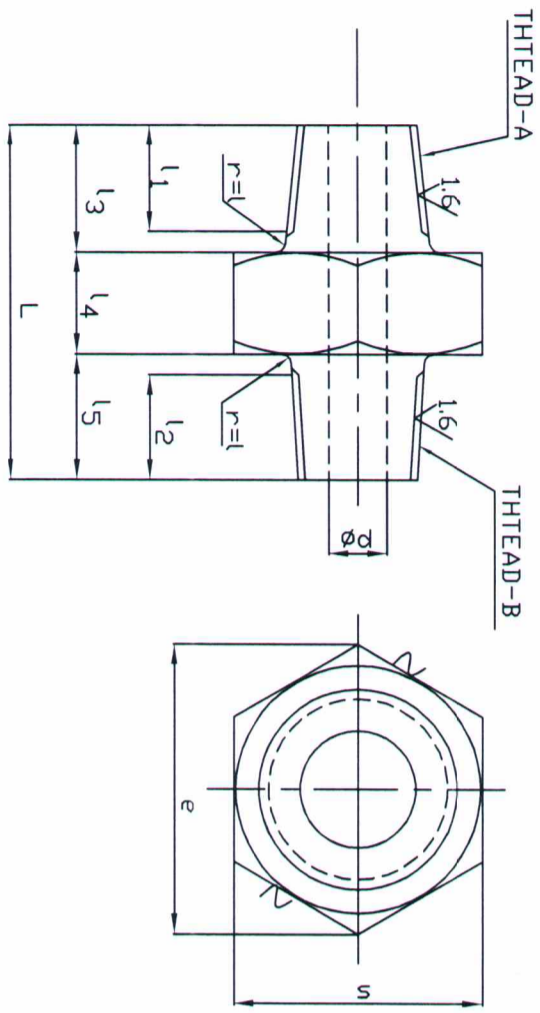
U-BOLT
(PIPE WITH INSULATION)

DRAWING NO : 6124-0236

REV 04

1809N-251-24-3
DRAWING NO:

12.5 / 16 / N /



C-36
I-2
S-50/61

STYL NO	THREAD/A' TYPE & SIZE	THREAD/B' TYPE & SIZE	l1	l2	l3	l4	l5	L	e	s	d
01	1/4" NPT	3/8" NPT	10	10.5	15	12	15	42	34.6	30	7
02	1/4" BSP	3/8" NPT	15	15	20	10	20	50	27.7	24	7
03	3/4" NPT	1/4" NPT	20	15	25	17	18	60	34.6	30	7

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT
03		DIA 34.6; 60L			15-339-280 SA 105	0.300
02		DIA 27.7; 50L			15-339-140 SA 105	0.130
01		DIA 34.6; 42L			15-339-280 SA 105	0.070

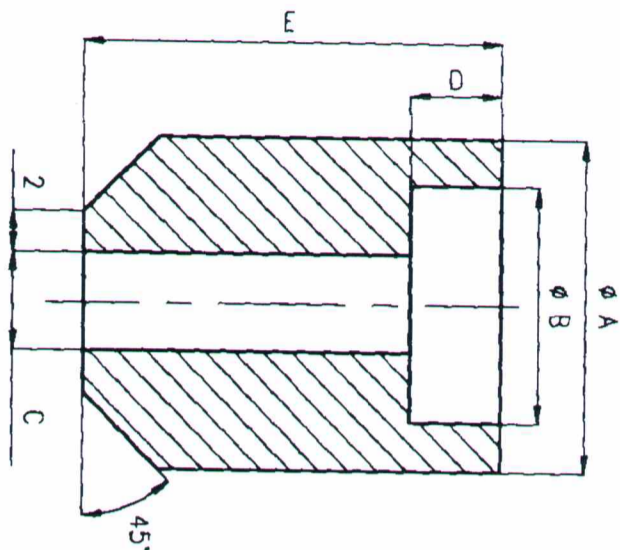
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DEPT ENGG. CODE 320 ALL DIMENSIONS ARE IN MM PROJECTION SCALE NTS WEIGHT (Kg) NTS TITLE UNION-III		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012		DRN NAME G P LATHA GHD G P LATHA APPD S VIJAY REF TO ASSY / OLD DWG 3-42-900-00152		DATE 15.02.19 DATE 15.02.19 DATE 15.02.19	
UNION-III				DRAWING NO : 3-42-152-U6081		REV 00	

96651-394-08-2

ON DIMENSIONS

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VAR. NO.	SIZE	Ø A	Ø B	Ø C	D	E	REMARKS
01	NB 50	76	61.2	53	16	60	
02	NB 40	62	48.8	41	13	48	
03	NB 25	46	33.9	27	13	44	
04	NB 15	32	21.8	16	10	34	

G-36
I-2
S-44, 48

VAR. NO.	ITEM NO.	DESCRIPTION	DRAWING NO.	ITEM NO. MR	MATERIAL CODE	MATERIAL SPEC.	UNIT WT.	QTY.
04		ROD Ø 36 L = 34	3-80-463-15996		SA 105		0.180	
03		ROD Ø 50 L = 44	3-80-463-15996		SA 105		0.430	
02		ROD Ø 63 L = 48	3-80-463-15996		SA 105		0.750	
01		ROD Ø 80 L = 60	3-80-463-15996		SA 105		1.330	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

PGMA 80-420
S.O. NO.-7773



BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE,
CHENNAI 600 017

DRN	NAME	SIGN	DATE	NO OF ITEMS
CHD	S SENTHIL	[Signature]	17.7.97	
APPD	C KUMAR	[Signature]	17.7.97	
	C K KARAN	[Signature]	17.7.97	

REV	DATE	ALTERED	APPROVED	ZONE
01	20.8.97	[Signature]	[Signature]	

DESCRIPTION COLUMN -
ROD DIA & LENGTH ALTD.

DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg)
	C/M/F	N.T.S	

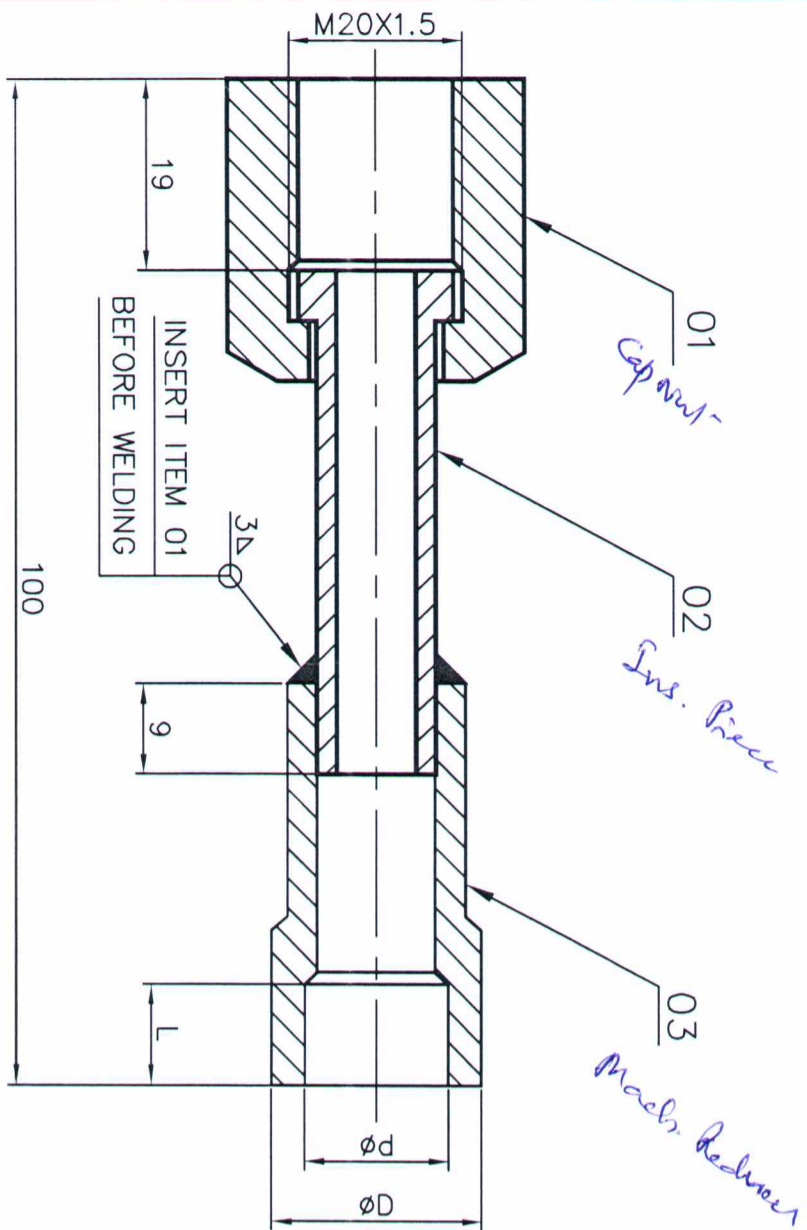
SOCKET WELDED STUB

CL. 3000

DRN	NAME	SIGN	DATE	NO OF ITEMS
CHD	S SENTHIL	[Signature]	17.7.97	
APPD	C KUMAR	[Signature]	17.7.97	
	C K KARAN	[Signature]	17.7.97	

REV	DRAWING NO.	ITEM No.
U 01	3-80-463-15996	01

SIZE A3



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

e-36
I-2
s-9

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	PL	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY
03	03	MACHINED REDUCER D 48 ; 40L		4-42-152-U6025	03	15 339 142 SA 105	0.300	1
03	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
03	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1
02	03	MACHINED REDUCER D 42 ; 40L		4-42-152-U6025	02	15 339 142 SA 105	0.200	1
02	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
02	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1
01	03	MACHINED REDUCER D 33.4 ; 40L		4-42-152-U6025	01	15 339 280 SA 105	0.140	1
01	02	INSERT PIECE D 17.5 ; 50L		4-42-152-U6024		15 339 343 SA 105	0.030	1
01	01	CAP NUT M20X1.5 D 34.6 ; 30L		4-42-152-U6023	01	15 339 141 SA 105	0.120	1

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TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT



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

DEPT ENGG. 320
ALL DIMENSIONS ARE IN MM
PROJECTION
SCALE
NTS
WEIGHT (Kg)
REF. TABLE

NAME
G PAVANI LATHA
G PAVANI LATHA
S VIJAY
DATE
14.02.19
14.02.19
14.02.19

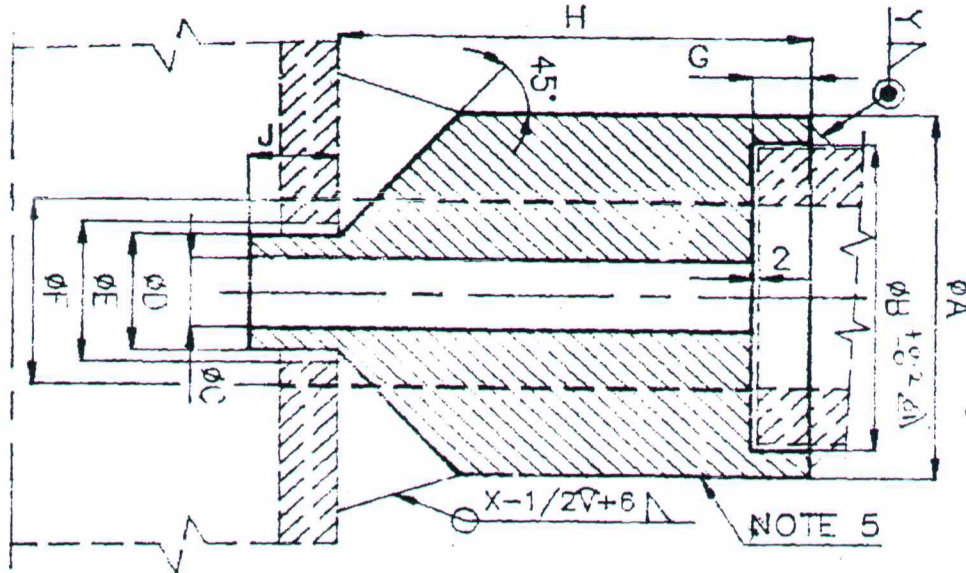
TITLE
GAUGE CONNECTOR I

REF TO ASSY / OLD DWG
3-42-030-00849
DRAWING NO :
3-42-152-U6083 00

REV	DATE	ALTERED :
01		CHD & APPD:

REV

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VAR NO.	NB	CLASS	CONN. PIPE SIZE	phi A	phi B	phi C	phi D	phi E	phi F	G	H	J	RAW MATL SIZE	MATL CODE	WEIGHT (kg)	X	Y
01	15	3000	21.3x3.73	32	21.8	6	10	11	16	10	34	10	36	15 339 280 0000	0.18	11	4
02	15	6000	21.3x4.78	34	21.8	4	7	8	12	10	34	10	36	15 339 280 0000	0.21	14	6
03																	
04	20	3000	26.7x3.91	38	27.2	10	15	16	21	13	38	10	40	15 339 141 0000	0.26	12	5
05	20	6000	26.7x5.56	42	27.2	6	10	11	16	13	38	10	50	15 339 142 0000	0.35	16	6
06																	
07	25	3000	33.4x4.55	46	33.9	16	22	23	27	13	44	10	50	15 627 256 0000	0.43	12	5
08	25	6000	33.4x6.35	50	33.9	10	15	16	21	13	44	10	63	15 339 143 0000	0.57	18	7
09	25	9000	33.4x9.09	58	33.9	6	11	12	15	13	44	10	63	15 339 143 0000	0.81	24	10
10	40	3000	48.3x5.08	62	48.8	30	35	36	41	13	48	15	63	15 339 143 0000	0.75	14	6
11	40	6000	48.3x7.14	68	48.8	22	28	29	34	13	48	15	80	15 339 144 0000	1.07	20	8
12	40	9000	48.3x10.15	76	48.8	16	22	23	28	13	48	15	80	15 339 144 0000	1.46	27	11
13	50	3000	60.3x5.54	76	61.2	40	46	47	53	16	60	15	80	15 339 144 0000	1.33	15	6
14	50	6000	60.3x8.74	84	61.2	32	37	38	43	16	60	15	100	15 339 134 0000	1.96	24	10
15	50	9000	60.3x11.07	90	61.2	26	32	33	38	16	60	15	100	15 339 134 0000	2.44	28	12

- NOTES:
- 1) TOLERANCE ON DIAMETERS $\pm 0.1mm$, EXCEPT ON ϕB .
 - 2) TOLERANCE ON LENGTH: $+1mm, -0mm$.
 - 3) BORES SHALL BE CONCENTRIC WITHIN $\pm 0.4mm$.
 - 4) COINCIDENCE OF AXES: THE MAXIMUM ALLOWABLE VARIATION IN THE ALIGNMENT OF FITTING BORE AND SOCKET BORE AXES SHALL BE 0.5%.
 - 5) STAMP IDENTIFICATION MARK: EX. FOR VAR. NO. 01: "SA105 A B16 CL 3000-15".
 - 6) DRILL TO ϕF AFTER WELDING.
 - 7) THE WELDMENTS SHOWN ARE ONLY FOR THE PURPOSE OF INFORMATION AND GUIDANCE ONLY.
 - 8) RAW MATERIAL OF DIFFERENT SIZE IS ACCEPTABLE IF THE FINAL DIMENSIONS ARE MAINTAINED.
 - 9) THE ABOVE STUBS ARE IN LINE WITH ASME B16.11 (HALF COUPLING).

PGMA 80-420
S.O. NO.-7773

6-36
I-2
S-45

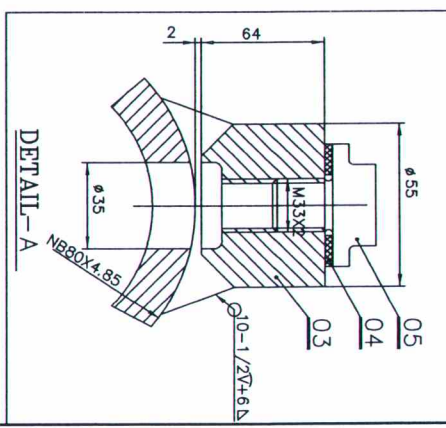
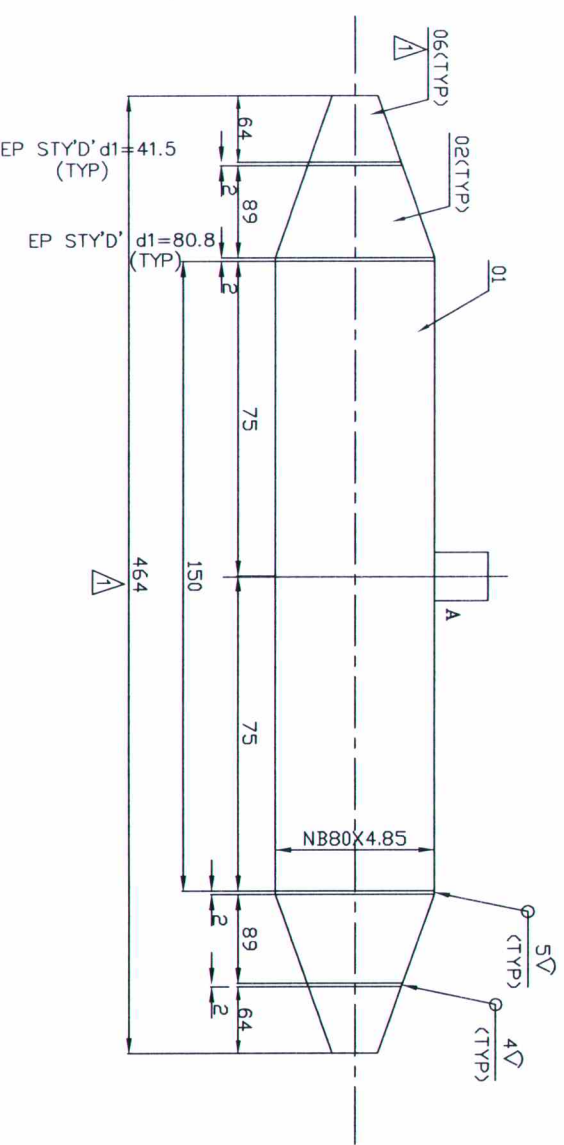
MATERIAL: SA105(A)

STANDARD

BHARAT HEAVY ELECTRICALS LTD.		DRN	R. RAVANTH	DATE	15-08-95
PIPING CENTRE, MADRAS, 600 017		CDR	R. RAVANTH	DATE	15-08-95
		APPD	S. JAYAJITHAN	DATE	26-08-95

DATE	14/11/95	APPROVED	[Signature]
REV	01	ZONE	
NOTE 1 ALTD. TOLERANCE ON ϕB AND FROM $\phi B \pm 0.1$ TO $\phi B \pm 0.2$			

TITLE	SOCKET WELDED STUBS GS	CLASS CODE	U 01	DRAWING No.	3-80-899-97333	REV	01
-------	------------------------	------------	------	-------------	----------------	-----	----



6-36
I-1
S. Q. 4

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	QTY	DRAWING NUMBER	ITEM NO	MATERIAL CODE	MATERIAL SPECN	UNIT WEIGHT
06	REDUCER NB 40 / 25, Sch. 40	3-80-460-U9008		15 610 040 0000	C	SA 234 WPB	0.450	
05	PLUG M33 x 2	6110 8031 06		15 627 256 0000	C	SA 105	0.010	
04	PACKING RING	6110 8041 06		94 824 001 0000		IS : 1972	0.700	
03	TEMP. STUB M33 x 2	4-80-401-37696		15 039 143 0000	C	SA 105	1.800	
02	REDUCER NB 80 / 40, Sch. 40	3-80-460-U9008		18 930 001 0950	C	SA 234 WPB	1.515	
01	PIPE NB 80 x 4.85 ; L = 150	3-80-460-U9008		15 838 018 0000	C	IS 1239 BL. HEAVY	1	

REV NO.	ZONE	ITEM NO 06-REDUCER ADDED	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
A						

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

PGMA-80-460

ADOPTER WITH TEMP STUB
 M33X2 (NB 80/25)

DETAILS:
 DEPT: ALL DIMENSIONS ARE IN MM
 PROJECTION: FIRST ANGLE
 SCALE: NTS
 WEIGHT (kg): 7.525

APPROVALS:
 DNR: A V RAO
 CHD: AVR
 APPD: AC MOHANTY

CUSTOMER NO: 7781

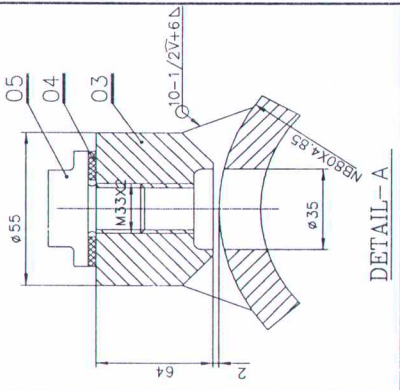
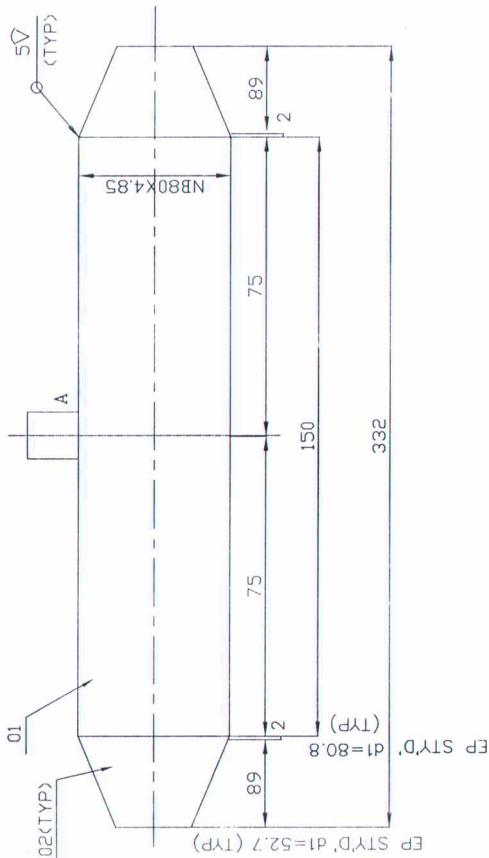
DRAWING NO: 3-80-460-U9008

DATE: 18-10-17

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3-80-460-U9009

DRAWING NO.



DETAIL-A

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	UNIT WEIGHT	QUANTITY
05	PLUG M33 x 2		6110 8031 06	15 627 256 0000	C	0.800	1
				SA 105		0.010	1
04	PACKING RING		6110 8041 06	94 824 001 0000		0.700	1
				IS : 1872		1.800	2
03	TEMP. STUB M33 x 2		4-80-401-37696	15 039 143 0000	C	1.515	1
				SA 105		1.800	2
02	REDUCER NB 80 / 50, Sch. 40		3-80-460-U9009	18 930 001 2303	C	1.515	1
				SA 234 WPB		1.800	2
01	PIPE NB 80 x 4.85 ; L = 150		3-80-460-U9009	15 838 018 0000	C	1.515	1
				IS 1239 BL. HEAVY		1.800	2

PGMA-80-460

CUSTOMER NO: 7781



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

DRM	A V RAO	NAME	DATE
DD	A/R	SCALE	18-10-17
APPD	AC MOHANTY	NTS	18-10-17
		WEIGHT (Kg)	18-10-17
		6.625	

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REV	00
DRAWING NO :	3-80-460-U9009

TITLE
ADOPTER WITH TEMP STUB
 M33X2 (NB 80/50)

REV NO.	ZONE	PPD.	CHD.	APPD.

BRIEF RECORD OF REVISIONS

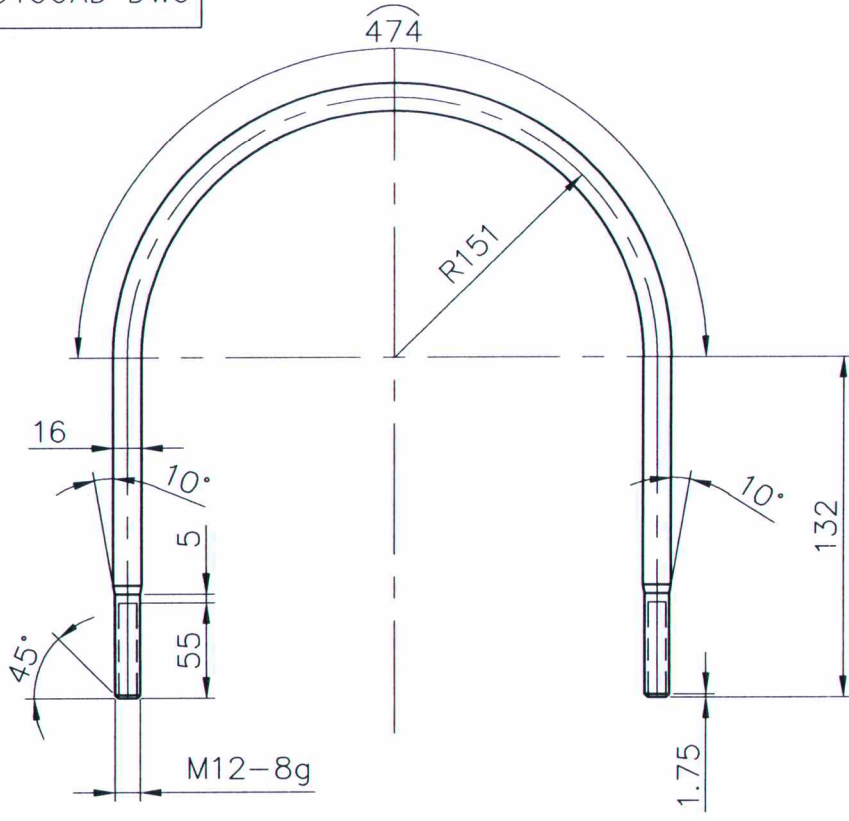
THE INFO ON THIS DOCUMENT IS THE PROPERTY OF BHEL. CAUTION: IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF BHEL

REV	DATE	ALTERED : A.SATHISH
05	04.08.10	CHD & APPD : N.KIRUBAKARAN

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

MATERIAL SPECIFICATION ALTERED
 CONVERTED TO AUTOCAD DWG

E-36
 I-5
 S-6


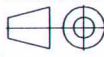


NOTES: -

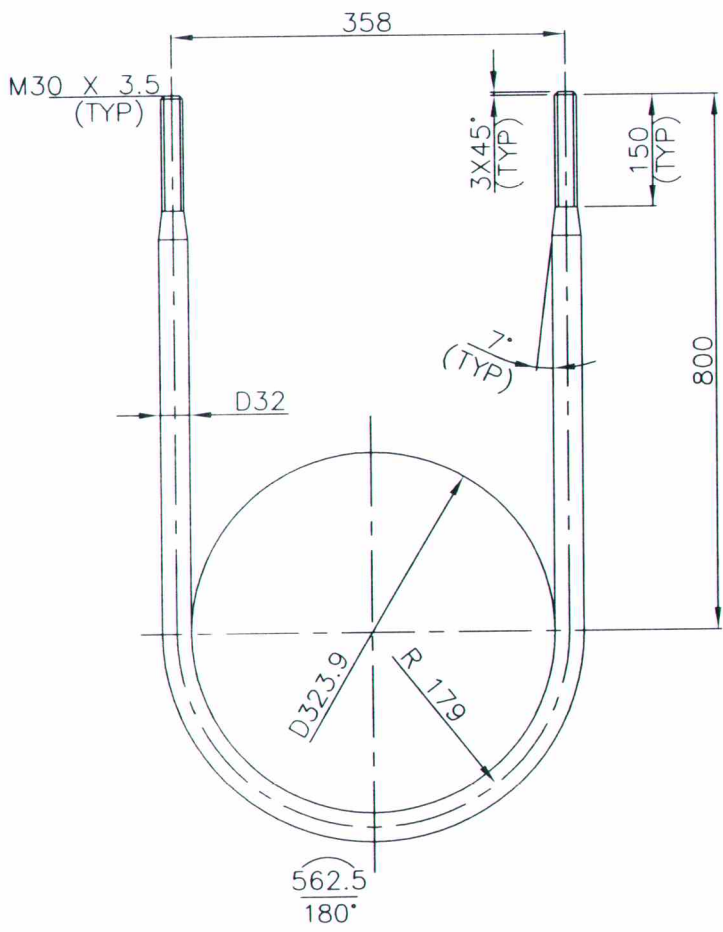
1. THREAD: METRIC THREAD ACCORDING TO TOLERANCE CLASS 8g OF (BPS 412-514-73XX)
2. BPS CODE AND BIN CODE AND SHALL BE PUNCHED.
3. BPS CODE FOR VAR No.1 IS 7740 2540 21

01	U BOLT DM SUP.PL NB 65	94 255 118	C	1.170
VARIANT NUMBER	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	UNIT	QUANTITY

MATERIAL: IS 2062 FE410WA CERTIFIED

 355-056	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN	T.KRISHNAN	SIGNATURE	DATE	31.07.78
			CHD	S.KALIBULLA			31.07.78
			APPD	R.C.SEKAR			31.07.78
DEPT	SS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG	
CODE	850			N.T.S	1.170		
TITLE					DRAWING NO :		REV
U-BOLT (PIPE WITH INSULATION MOUNTED ON SUPPORT PLATE)					7740-2540		05


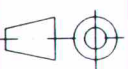
6.3/2/



E-36
I-5
S-30,

VARIANT NUMBER	DESCRIPTION	STD	153393160000	C	UNIT WEIGHT	13.430
			SA 182 F22 CL.3			QUANTITY
			MATERIAL CODE	A/C/P		
			MATERIAL SPECN	UNIT		

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	V.KAVIKUMAR	SIGNATURE	DATE
		CHD	A.N.V.K.KISHORE		13.11.18
		APPD	A.N.V.K.KISHORE		13.11.18
DEPT P.P.ENGG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 13.430	REF TO ASSY / OLD DWG —
CODE 031	TITLE U-ROD - D32	DRAWING NO : 4-12-902-U8159			REV 00

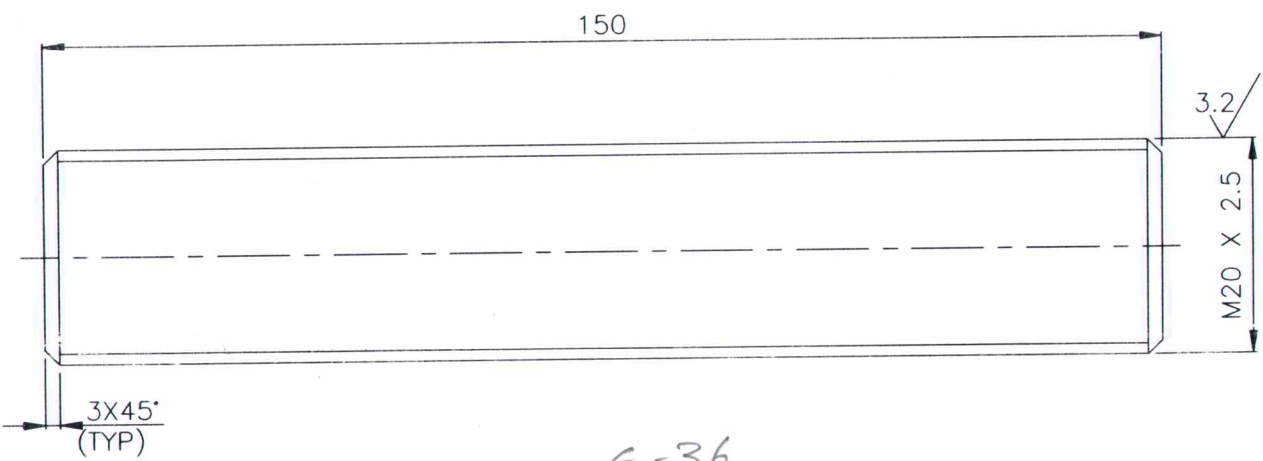
FORM NO. 0420/2

A4 SIZE

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6.3 / 3.2



G-36
I-3
S-1,

VARIANT NUMBER	DESCRIPTION	MATERIAL SPECN	150393410000	C	0.400
			SA 182 F22 CL.3		
			MATERIAL CODE	A/C/P	UNIT WEIGHT
				D/W	QUANTITY

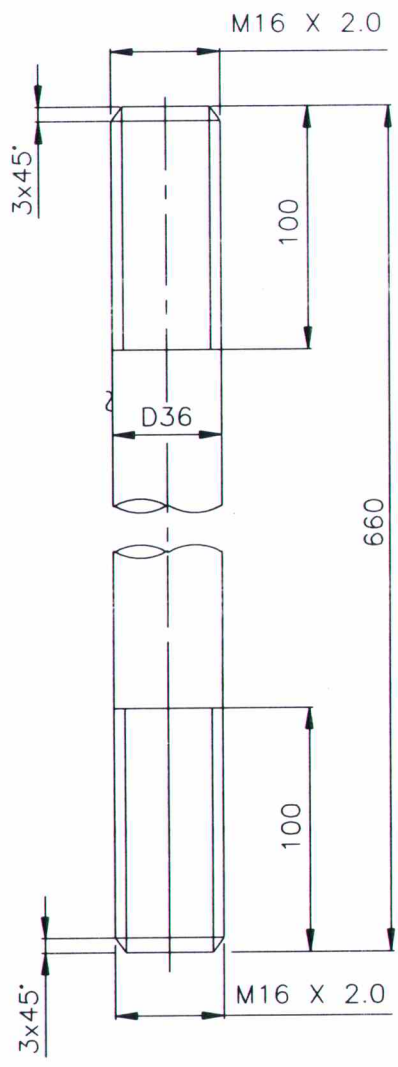
REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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		Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
				CHD	KAVI		15.10.18
				APPD	K.KISHORE		15.10.18
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG		
PCPS			N.T.S	0.400			
CODE							
1322							
TITLE				DRAWING NO :			REV
STUD M20 (AS)				4-12-904-U8139			00

FORM NO. 0420/2

A4 SIZE

6.3/12/1



G-36
I-4
S-9,

VARIANT NUMBER	DESCRIPTION	STD	150392800000	C	UNIT	5.590
			SA 105			UNIT WEIGHT
			MATERIAL SPECN	A/C/P		QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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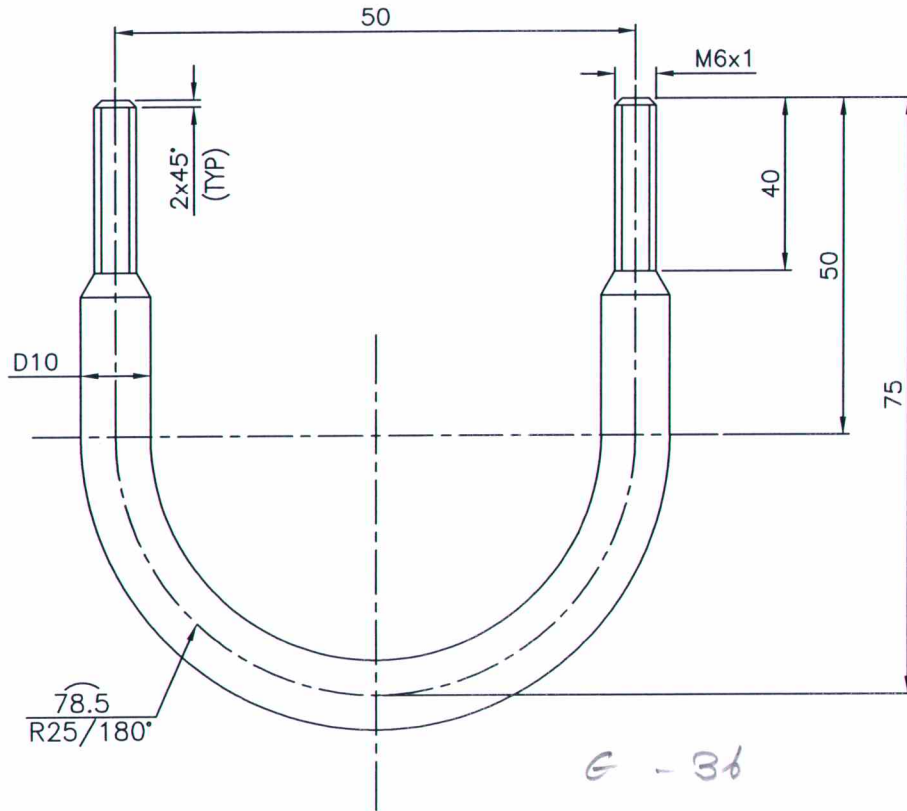
<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>		DRN	KAVI	SIGNATURE	DATE
		CHD	K.KISHORE		15.10.18
		APPD	K.KISHORE		15.10.18
DEPT P.P. ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 5.590	REF TO ASSY / OLD DWG
TITLE TIE ROD-III				DRAWING NO : 4-12-904-U08145	REV 00

FORM NO. 0420/2

A4 SIZE

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E - 36

I - 5

S - 23, 26, 29, 20

NOTE

- 01. THIS IS NOT A LOAD CARRYING MEMBER.
- 02. FOR TOLERANCES REFER IS1367(PART-2)
- 03. FOR GENERAL REQUIREMENTS REFER IS1363(PART-1)

VARIANT NUMBER	ROUND D10 ; L=178.5	150040420000	A/C/P	UNIT	0.110
		IS2062FE410A			
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	K.H.THOMAS	SIGNATURE	DATE
CHD	MVR PRASAD		06.03.19
APPD	ANVK KISHORE		06.03.19

DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	0.110	

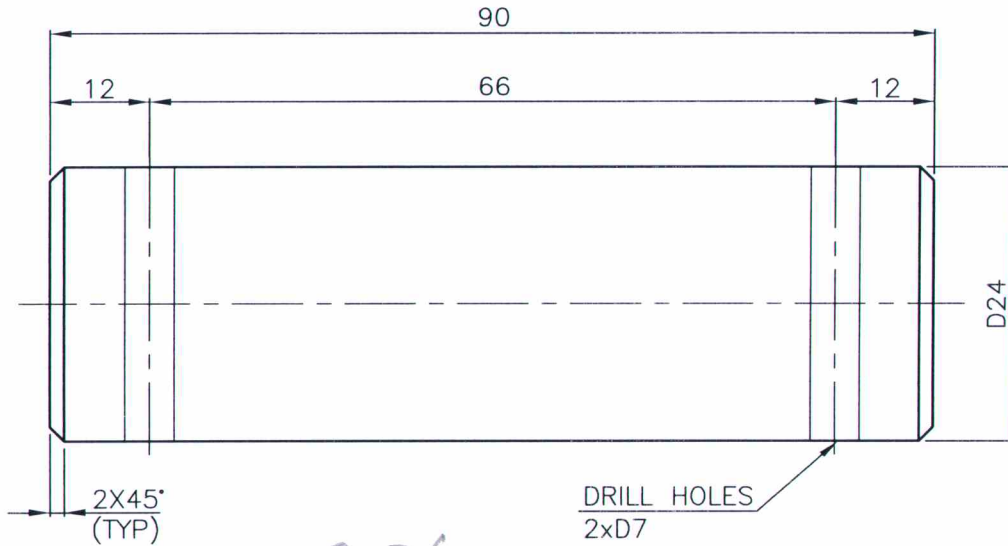
TITLE	DRAWING NO :	REV
U-BOLT-III M6	4-HL-301-U0295	00

FORM NO. 0420/2

A4 SIZE

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6.3/2/



E-36

I-3

S-11)

VARIANT NUMBER	ROUND D25; L=90	15 339 139 0000	C	0.320
		SA 105		
DESCRIPTION		MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	D/T	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	NAME	SIGNATURE	DATE
CHD	S.S.N.MURTY		18.10.17
APPD	K.KISHORE		18.10.17

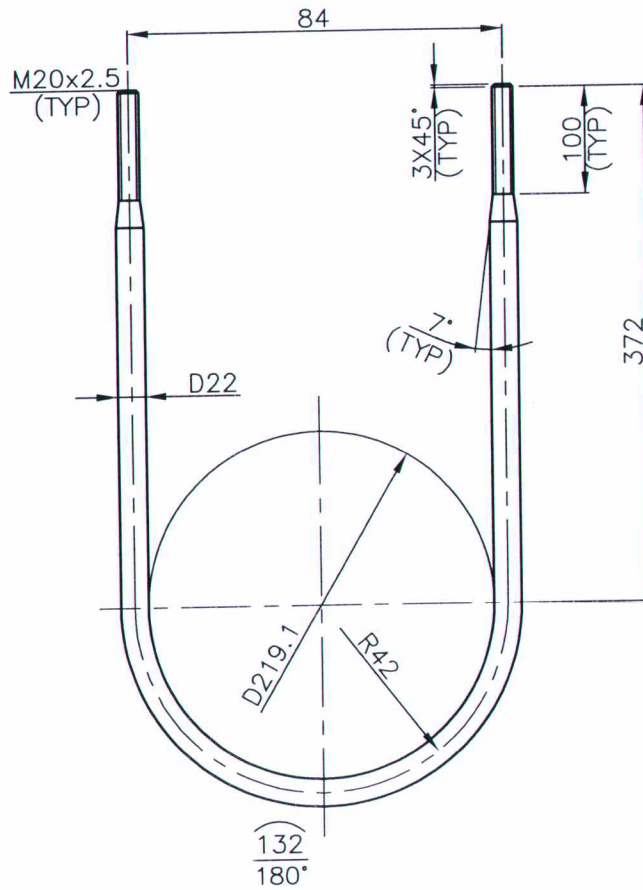
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE			N.T.S	0.320	
TITLE					REV
PIN D24(VLH-SH-08)					00
DRAWING NO :					
4-19-902-U8078					

FORM NO. 0420/2

A4 SIZE

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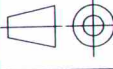
6.3/12/



G-36
I-5
S-32,34

VARIANT NUMBER	DESCRIPTION	-STD-	150393430000	C	2.614
			SA105		
			MATERIAL CODE	A/C/P	UNIT WEIGHT
			MATERIAL SPECN	UNIT	QUANTITY

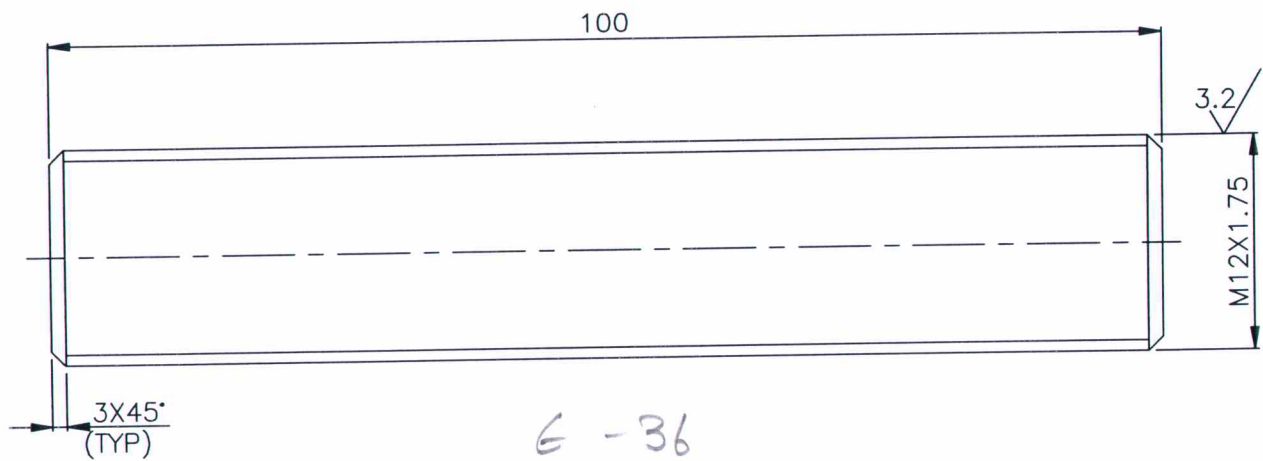
FORM NO. 0420/2

 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	NAME	SIGNATURE	DATE
		CHD	A.SRINIVASA RAO		28.02.19
		APPD	K.KISHORE		28.02.19
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PCPS CODE	1322		N.T.S	2.614	
TITLE				DRAWING NO :	REV
U-ROD-D22				4-19-901-U8198	00

A4 SIZE

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6.3 / 3.2 /



E - 36

I - 3

S - 2, 3, 4, 5

VARIANT NUMBER	ROUND D25; L=100	153391390000	C	0.090
		SA 105		
	DESCRIPTION	MATERIAL CODE	A/C/P	UNIT WEIGHT
		MATERIAL SPECN	D/S	QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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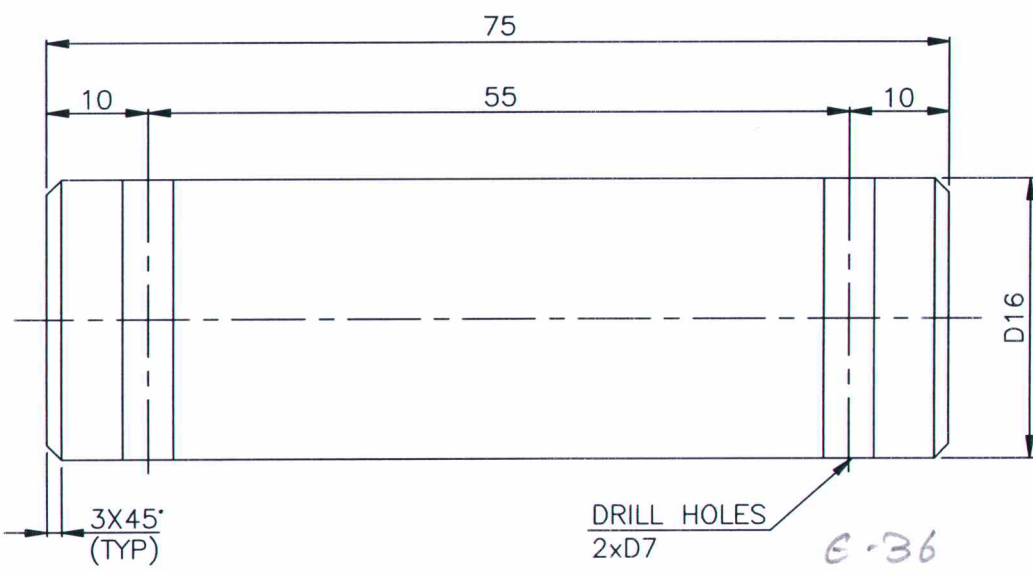
	Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN	KAVI	SIGNATURE	DATE
			CHD	K.KISHORE		18.10.18
			APPD	K.KISHORE		18.10.18
DEPT P.P.ENGG CODE 031	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 0.090	REF TO ASSY / OLD DWG	
TITLE STUD M12					DRAWING NO : 4-19-908-U8142	REV 00

FORM NO. 0420/2

A4 SIZE

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6.3 / 3.2



DRILL HOLES
2xD7
E-36
I-3
S-6,13

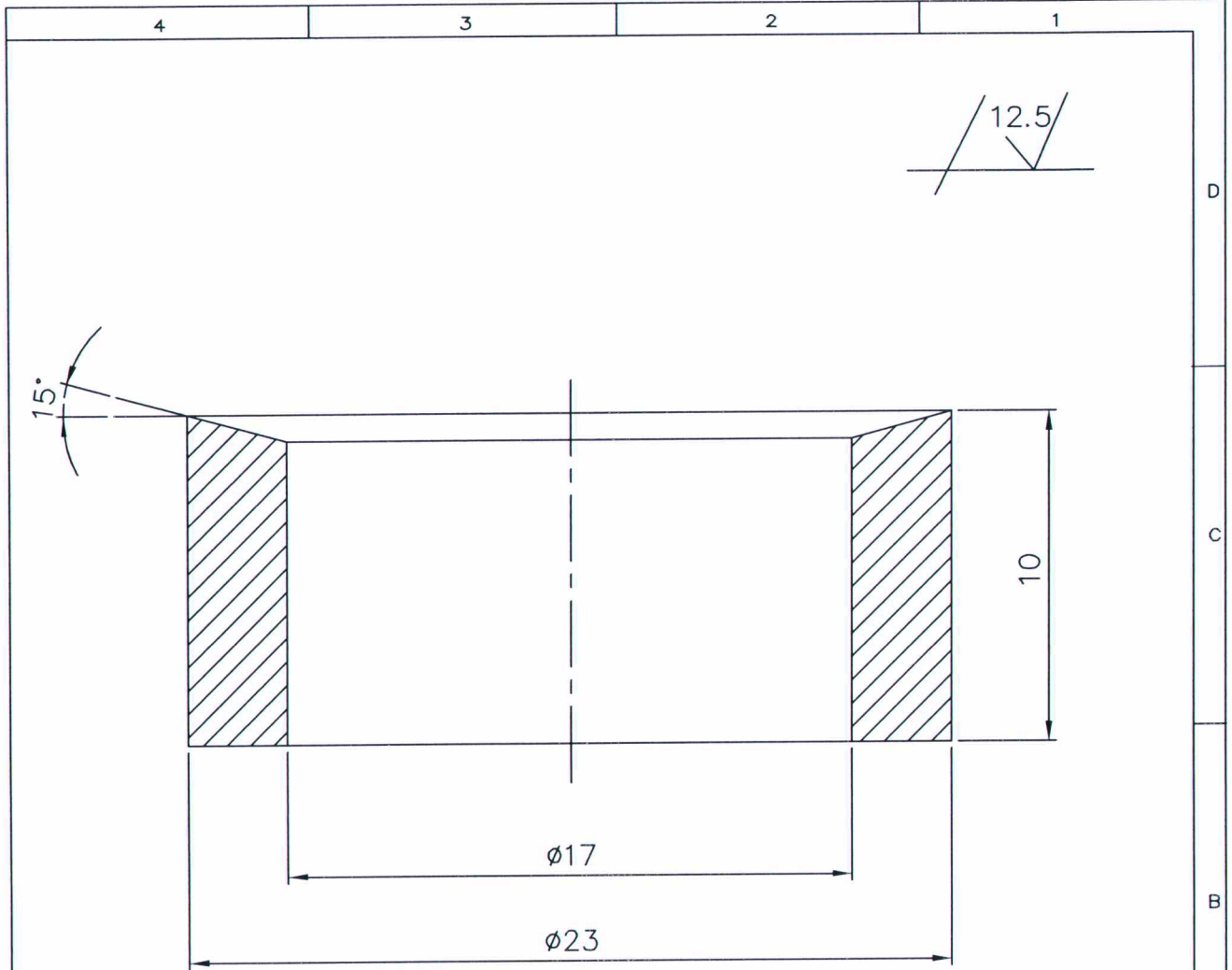
VARIANT NUMBER	ROUND D16; L=75	153391380000	C	0.110
		SA 105		
DESCRIPTION	MATERIAL SPECN	MATERIAL CODE	A/C/P	UNIT WEIGHT
			D/W/T	QUANTITY

REV NO.	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
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<p>Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012</p>		NAME	SIGNATURE	DATE	
		DRN	S.S.N.MURTY	18.10.17	
		CHD	K.KISHORE	18.10.17	
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
P.P.ENGG	031		N.T.S	0.110	
TITLE			DRAWING NO :		REV
LOAD PIN D16			4-19-908-U8144		00

FORM NO. 0420/2

A4 SIZE



E-36
I-Q
S-1, Q

	ROD $\phi 25$	15 339 139			0.039
		SA105			
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT WEIGHT
			MATERIAL SPECN	UNIT	QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00544

REV. No.	ZONE	BRIEF RECORD	PPD.	CHD.	APPD.
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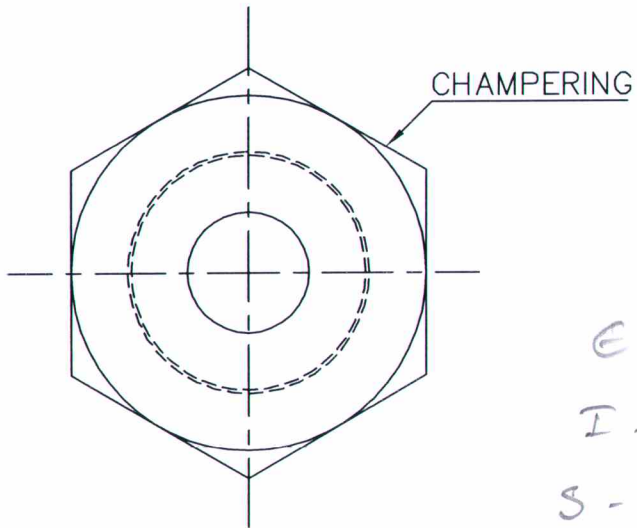
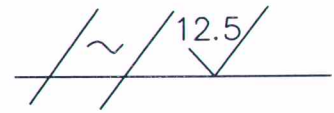
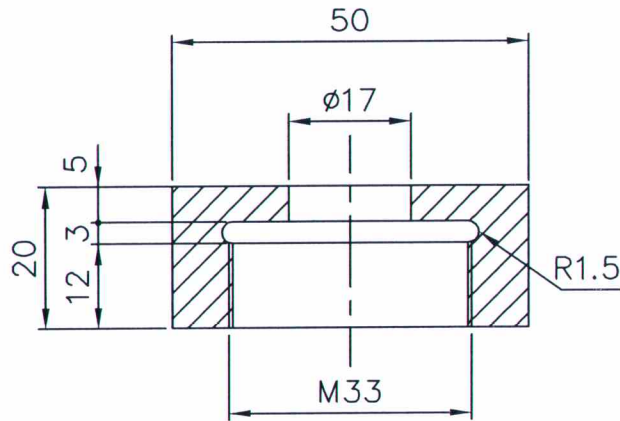
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.	
ITEM NO.	
MATL.	

DATE	17-11-2017				
DRN.	Prabhakar T	BUSH			
CHD.	Uma Sankaram				
APPD.	Kumar Manikyam	WORK ORDER NO.	NO. OFF		
SCALE	N.T.S.	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.
			A4	4-28-220-U0012	0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



E-36
I-2
S-577,

	ROD ϕ 63	15 339 143		0.489
		SA105		
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P UNIT
			MATERIAL SPECN	UNIT WEIGHT
				QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00545

REV.No. ZONE BRIEF RECORD PPD. CHD. APPD.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

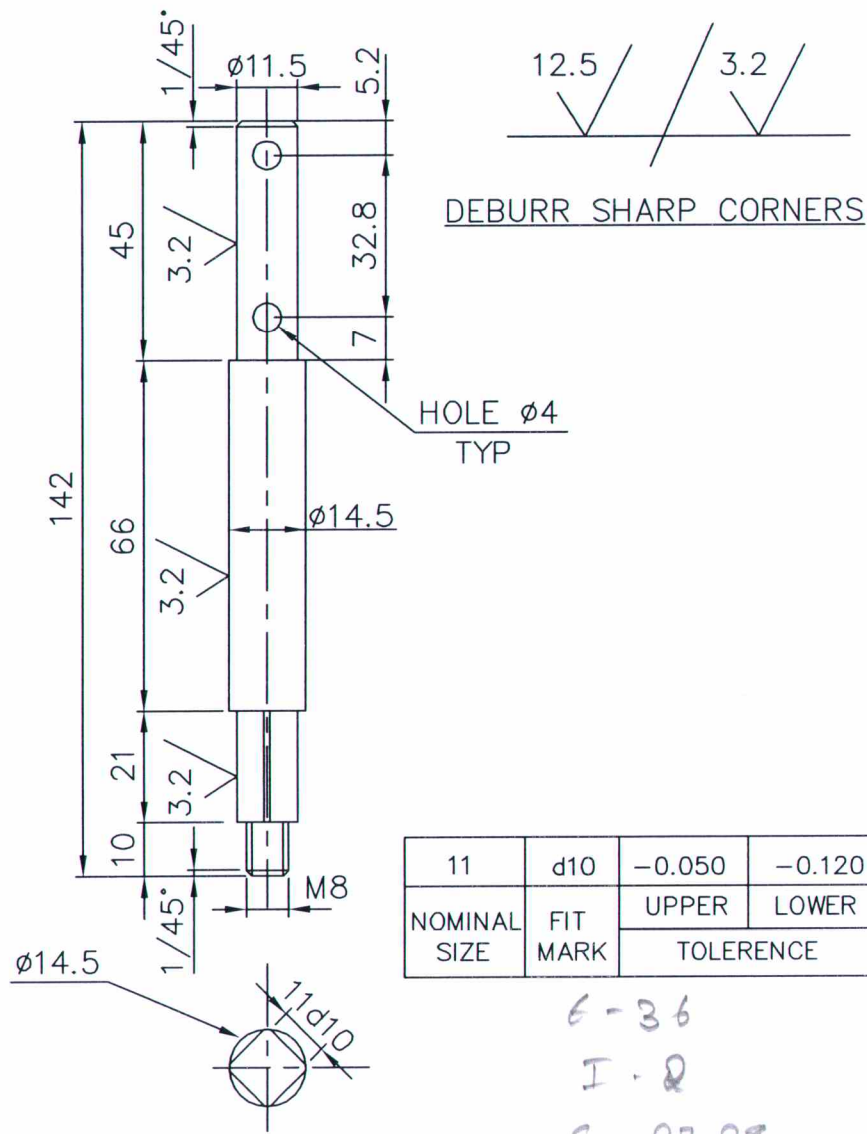
QTY.
ITEM NO.
MATL.

DATE 17-11-2017
DRN. Prabhakar T
CHD. Uma Sankaram
APPD. Kumar Manikyam
SCALE N.T.S.

GLAND CAP
WORK ORDER NO. NO. OFF
YEAR OF ORD. SIZE DRAWING NO. REV. No.
A4 4-28-220-U0013 0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



11	d10	-0.050	-0.120
NOMINAL SIZE	FIT MARK	UPPER	LOWER
		TOLERANCE	

6-36
I-2
S-27,28

ROD ϕ 16	15 339 138	0.224
	SA 105	
VARIANT NUMBER	DESCRIPTION	UNIT WEIGHT
	MATERIAL CODE	QUANTITY
	MATERIAL SPECN	

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00547

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



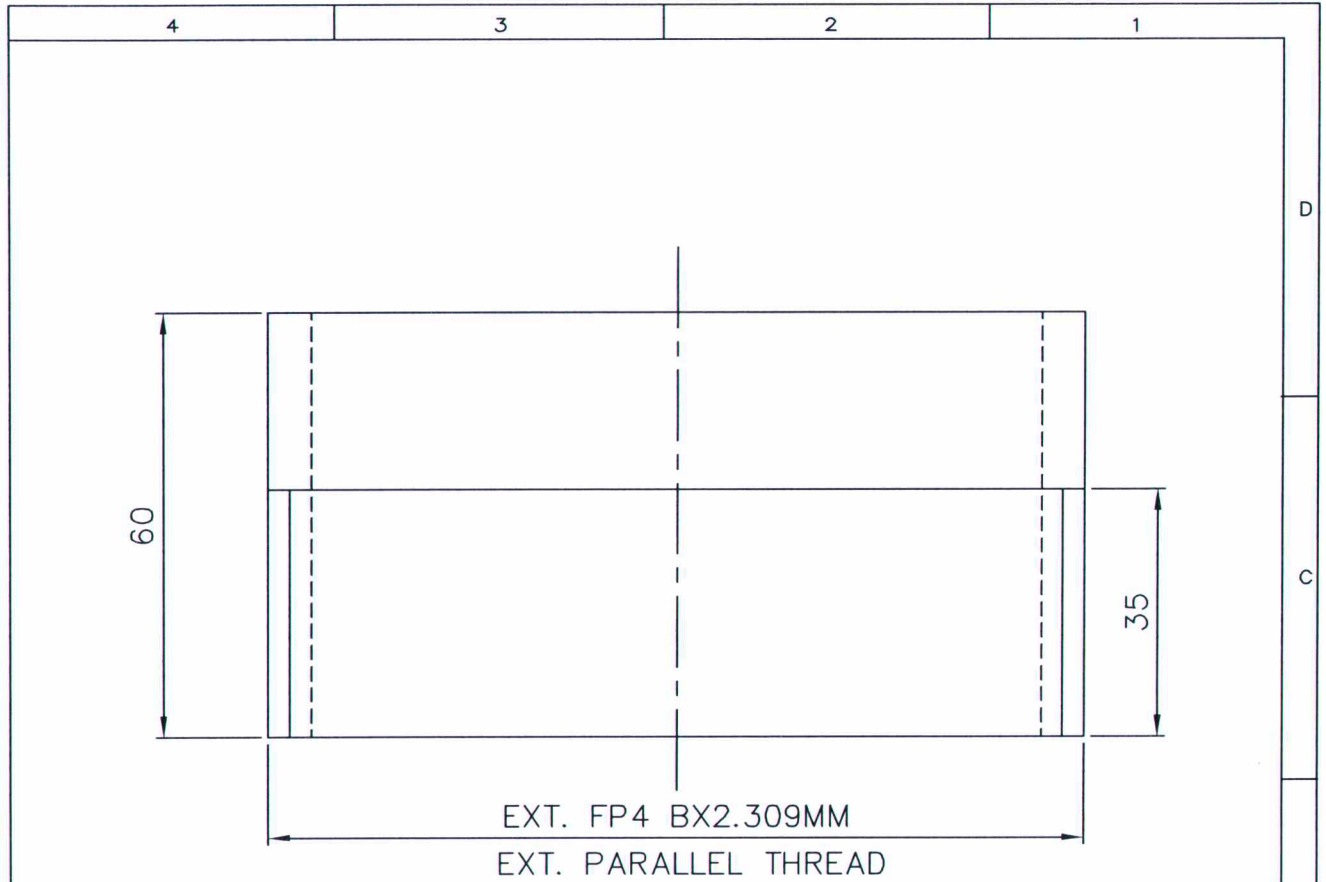
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.
ITEM NO.
MATL.

DATE	17-11-2017	SHAFT	
DRN.	Prabhakar T		
CHD.	Uma Sankaram	WORK ORDER NO.	NO. OFF
APPD.	Kumar Manikyam	YEAR OF ORD.	SIZE
SCALE	N.T.S.	DRAWING NO.	REV. No.

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



FOR THREAD DETAIL REFER IS: 2643-SIZE DESIGNATION PF-4.

E-36
I-4
S-1,2

	PIPE ϕ 114.3X6.02	151820900001		0.964
		SA 106 GR.B		
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P UNIT
			MATERIAL SPECN	UNIT WEIGHT
				QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00548

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

QTY.

ITEM NO.

MATL.

DGN.

DRN.

CHD.

APPD.

SCALE

Prabhakar T

Uma Sankaram

Kumar Manikyam

N.T.S.

OUTER PIPE

WORK ORDER NO.

NO. OFF

YEAR OF ORD.

SIZE

DRAWING NO.

REV. No.

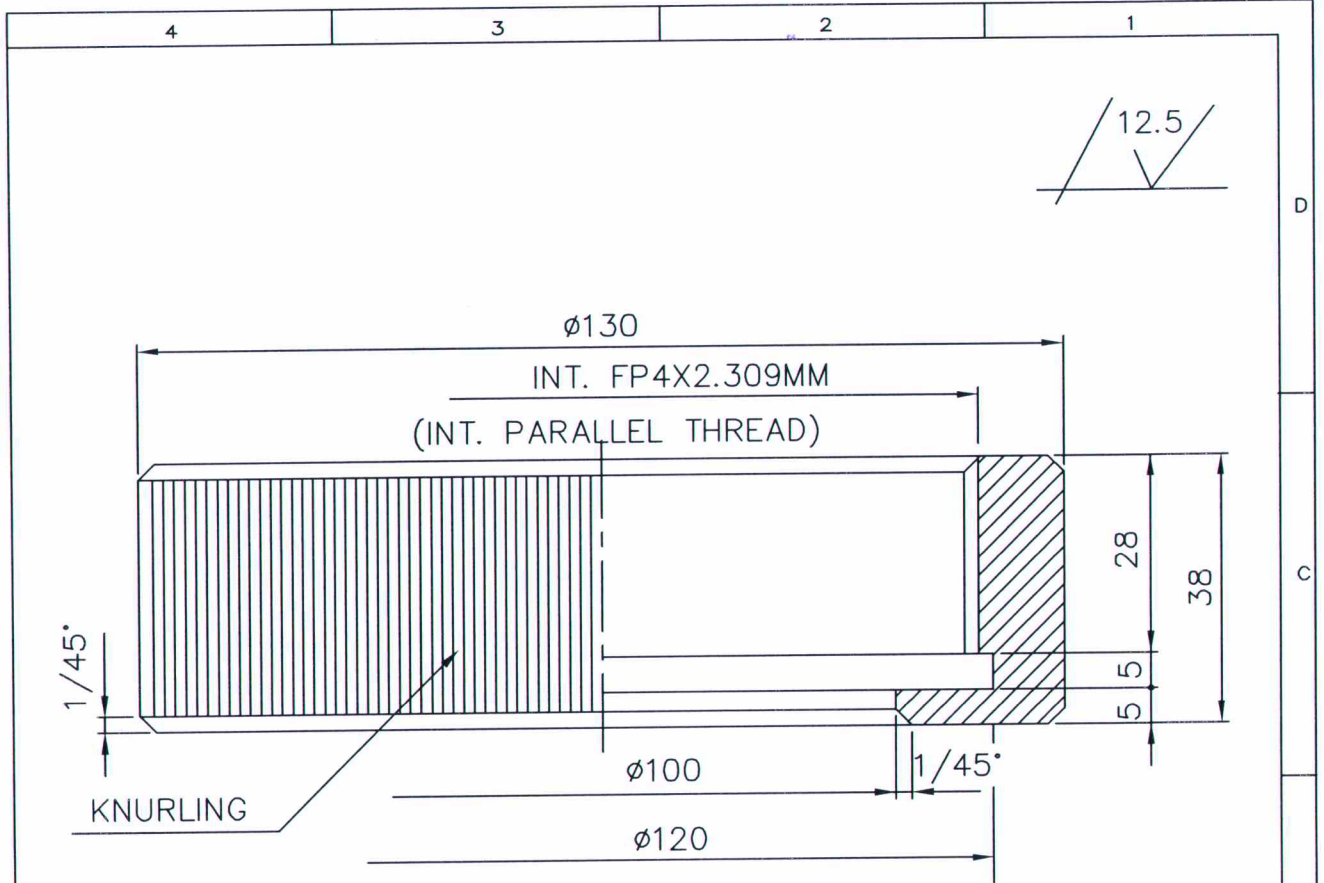
A4

4-28-220-U0016

0

NOTES:
1. DRAWING NOT TO BE SCALED
2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

FORM NO. 0420/0



(FOR THREAD DETAIL REFER
IS: 2643- SIZE DESIGNATION PF-4)

e-36
I-2
S-10,11

VARIANT NUMBER	ROD ϕ 140	15 339 145	A/C/P	UNIT	4.592
	DESCRIPTION	SA105			UNIT WEIGHT
		MATERIAL SPECN			QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00549


QTY.

ITEM NO.

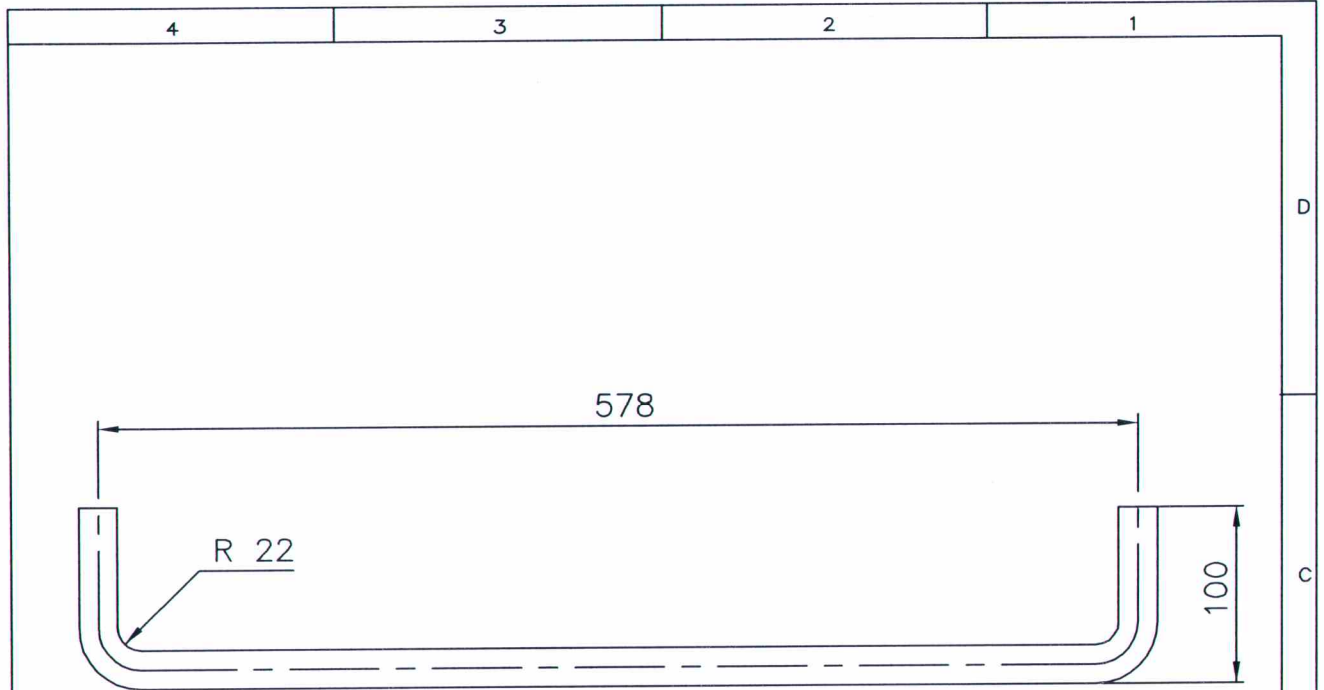
MATL.

NOTES:

- DRAWING NOT TO BE SCALED
- ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

REV.No.	ZONE	BRIEF RECORD			PPD.	CHD.	APPD.
		भारत हेवी इलेक्ट्रिकल्स लिमिटेड Bharat Heavy Electricals Ltd. UNIT : HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012 (A.P)					
DGN.		PIPE CAP					
DRN.	<i>Prabhakar T</i>						
CHD.	<i>Uma Sankaram</i>	WORK ORDER NO.	NO. OFF				
APPD.	<i>Kumar Manikyan</i>	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.		
SCALE	N.T.S.		A4	4-28-220-U0017	0		

FORM NO. 0420/0



E-36
I-5
S-45,47.

	ROD ϕ 22	15 339 343		2.200
		SA 105		
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P UNIT
			MATERIAL SPECN	UNIT WEIGHT
				QUANTITY

REF. DRG.
BHEL TRICHY DRG. NO.
4-28-220-00570

QTY.
ITEM NO.
MATL.

REV. No. ZONE BRIEF RECORD PPD. CHD. APPD.



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.
UNIT : HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM - 530012 (A.P)

NOTES:

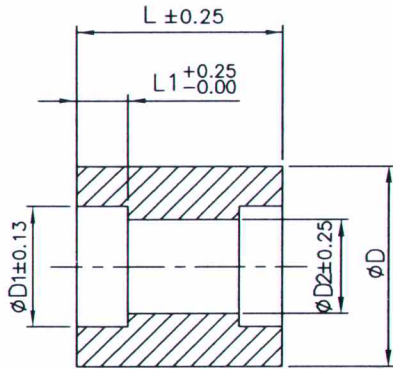
- DRAWING NOT TO BE SCALED
- ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

DGN.		HOLDING BAR			
DRN.	Prabhakar T				
CHD.	Uma Sankaram				
APPD.	Kumar Manikyam	WORK ORDER NO.	NO. OFF		
SCALE	N.T.S.	YEAR OF ORD.	SIZE	DRAWING NO.	REV. No.
			A4	4-28-220-U0019	0

FORM NO. 0420/0

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.

REV	DATE	ALTERED
		CHD & APPD




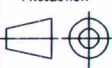
VAR NO.	NBS	D	D1	D2	L	L1
01	1/2"	32	21.84	15.75	30	9.65
02	1"	50	33.91	26.65	40	12.70
03	1 1/2"	63	48.77	40.95	40	12.70
04	2"	80	61.21	52.50	50	15.75

NOTE:

- DIMENSIONS D1,D2 & L1 ARE AS PER ANSI B16.11
- RATING 3000 LBS

E-36
I-2
B-22,

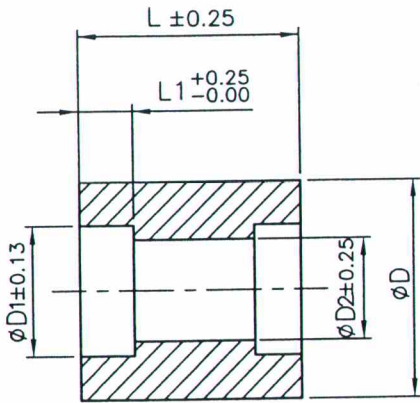
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT
04	2" SW COUPLING ROD D80; 50L		15 339 144	C		1.200
			SA 105			1
03	1 1/2" SW COUPLING ROD D63; 40L		15 339 143	C		0.586
			SA 105			1
02	1" SW COUPLING ROD D50; 40L		15 339 142	C		0.456
			SA 105			1
01	1/2" SW COUPLING ROD D32; 30L		15 339 140	C		0.140
			SA 105			1
			MATERIAL SPECN			QUANTITY

		Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014		DRN S.SANKARARAO	NAME S.SANKARARAO	SIGNATURE	DATE 26.09.08
DEPT FBC&HRSG CODE 1322	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) \	REF TO ASSY / OLD DWG 4-42-156-80271		
TITLE SW COUPLING				DRAWING NO : 4-42-156-U6018		REV 00	

REV	DATE	ALTERED	G.P.LATHA
01	20.06.18	CHD & APPD	S.VIJAY

FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING

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




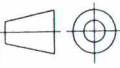
VAR NO.	NBS	D	D1	D2	L	L1
01	1/2"	32	21.84	15.75	30	9.65
02	1"	50	33.91	26.65	40	12.70
03	1 1/2"	63	48.77	40.95	40	12.70
04	2"	80	61.21	52.50	50	15.75
05	1"	50	33.91	26.65	40	12.70
06	1/2"	32	21.84	15.75	30	9.65

NOTE:

01. DIMENSIONS D1,D2 & L1 ARE AS PER ANSI B16.11
02. RATING 3000 LBS

E-36
I-2
S-12,13,14,
15,16,17

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
06	1/2" SW COUPLING ROD D32; 30L		15 324 194 SA 182 F304	C		1.200	1
05	1" SW COUPLING ROD D50; 40L		15 324 424 SA 182 F304	C		0.586	1
04	2" SW COUPLING ROD D80; 50L		15 339 144 SA 105	C		1.200	1
03	1 1/2" SW COUPLING ROD D63; 40L		15 339 143 SA 105	C		0.586	1
02	1" SW COUPLING ROD D50; 40L		15 339 142 SA 105	C		0.456	1
01	1/2" SW COUPLING ROD D32; 30L		15 339 140 SA 105	C		0.140	1

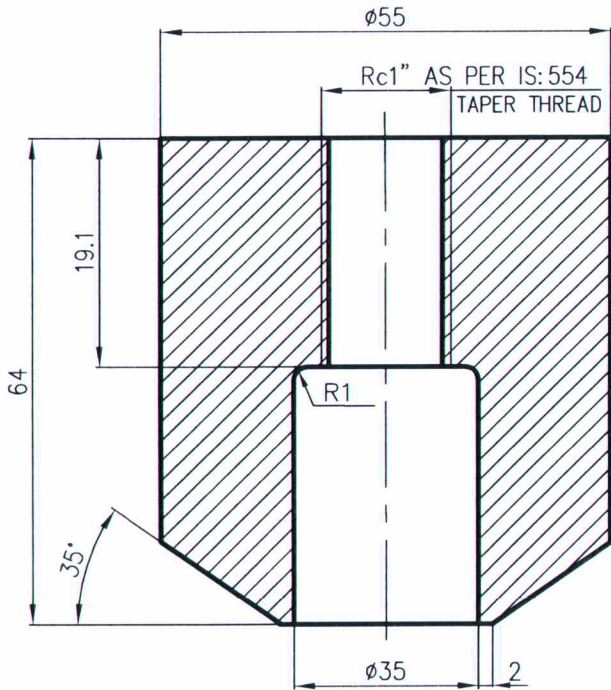
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012 361-321	DRN	NAME	SIGNATURE	DATE
	CHD	P.AYYAKKANNU		29.9.08
	APPD	T.K.RAMAKRISHNAN		29.9.08
DEPT	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)
HT-ENGG			N.T.S	
CODE				REF TO ASSY / OLD DWG
320				4-42-156-80271
TITLE	DRAWING NO :			REV
SW COUPLING	4-43-200-U0003			01

ALL DIMENSIONS ARE IN MILLIMETRES

REV	DATE	ALTERED
		APPROVED

- DESIGN PRESSURE : 40 Kg/Cm² (g)
- DESIGN TEMPERATURE : 350° C

12.5



E-36
 I-2
 S-46,49,

PGMA 80-420
S.O. NO.-7773

	ROD ø63; L=64	15 039 143 0000	A	0 700
		SA 105		
VAR NO.	DESCRIPTION	MATL. CODE	A/C	UNIT. WT.(Kg)
		MATL. SPECN.	DI	QTY.

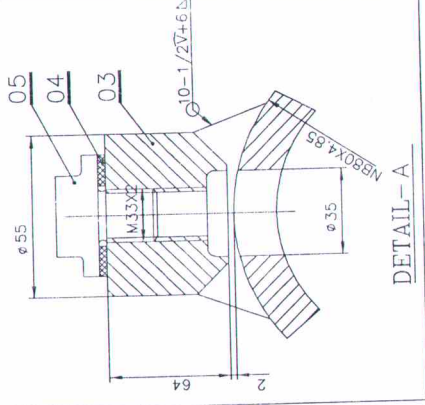
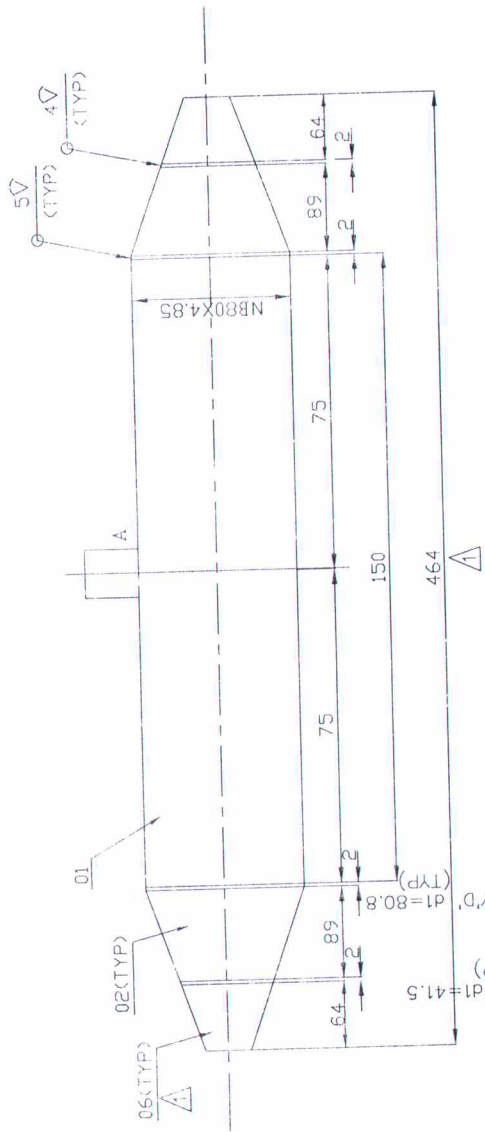
		BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE CHENNAI 600 017		DRN	M.C.SEKARAN.	SIGN		DATE	05-10-07	NO. OF VAR
				CHD	M.C.SEKARAN.			05-10-07		
				APPD	C.SARAVANAN.			05-10-07		
DEPT	GRADE OF UNTOL DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.		ITEM NO.	NO. OF ITEMS		
CODE	C / M / F		N.T.S	0.700						
TITLE				CARD CODE	DRAWING NO.				REV	
TEMPERATURE STUB Rc 1" L=64 (CS)				U 01	4-80-339-65901				00	

Size A4

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80060-3-80-460-U9000

DRAWING NO.



ITEM NUMBER	DESCRIPTION	DRAWING NUMBER	QTY	UNIT WEIGHT	QUANTITY
06	REDUCER NB 40 / 25, Sch. 40	3-80-460-U9008	15 610 040 0000	C	0.450
05	PLUG M33 x 2	6110 8031 06	15 627 256 0000	C	0.010
04	PACKING RING	6110 8041 06	94 824 001 0000	1	0.700
03	TEMP. STUB M33 x 2	4-80-401-37696	15 039 143 0000	C	1.800
02	REDUCER NB 80 / 40, Sch. 40	3-80-460-U9008	18 930 001 0950	C	2
01	PIPE NB 80 x 4.85 ; L = 150	3-80-460-U9008	15 838 018 0000	C	1.515
			IS 1239 BL. HEAVY	C	1
			SA 105	C	1.800
			SA 234 WPB	C	2
			SA 105	C	1.515
			IS : 1972	C	1
			SA 105	C	1.800
			SA 234 WPB	C	2
			IS 1239 BL. HEAVY	C	1

PGMA-80-460

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

DEPT: _____ CODE: _____

ALL DIMENSIONS ARE IN MM

PROJECTION SCALE: _____

WEIGHT (kg): 7.525

NTS

TITLE: **ADOPTER WITH TEMP STUB**
 M33X2 (NB 80/25)

CUSTOMER NO: 7781

DATE: 18-10-17

SIGNATURE: _____

REF TO ASSY / OLD DWG: 3-80-999-97669

DRAWING NO.: 3-80-460-U9008

REV: 01

4'8-0ns
 Item - 1
 Enquiry - 36

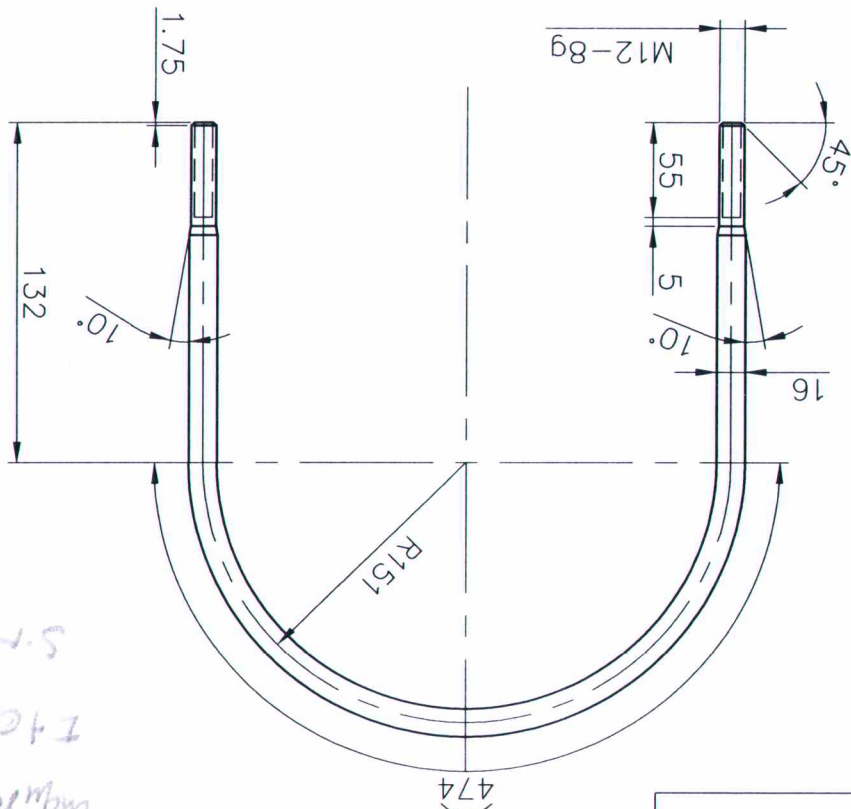
REV. NO.	ZONE	ITEM NO. 06-REDUCER ADDED	BRIEF RECORD OF REVISIONS	APPD.
01				

A3 SIZE

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REV	05	DATE	04.08.10	CHD & APPD	N.KIRUBAKARAN
				ALTERED	A.SATHISH

MATERIAL SPECIFICATION
 ALTERED
 CONVERTED TO AUTOCAD DWG



NOTES: -
 1. THREAD: METRIC THREAD ACCORDING TO TOLERANCE CLASS 8g
 OF (BPS 412-514-73XX)
 2. BPS CODE AND BIN CODE AND SHALL BE PUNCHED.
 3. BPS CODE FOR VAR No.1 IS 7740 2540 21

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	QUANTITY
01	U BOLT DM SUP.PL		94 255 118		C		1.170
	NB 65						

MATERIAL: IS 2062 FE410WA CERTIFIED

DEPT	SS	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	N.T.S	WEIGHT (kg)	REF TO ASSY / OLD DWG	DATE	SIGNATURE	NAME	DRN	T.KRISHNAN
	CHD										S.KALIBULLA	
Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014 355-056												

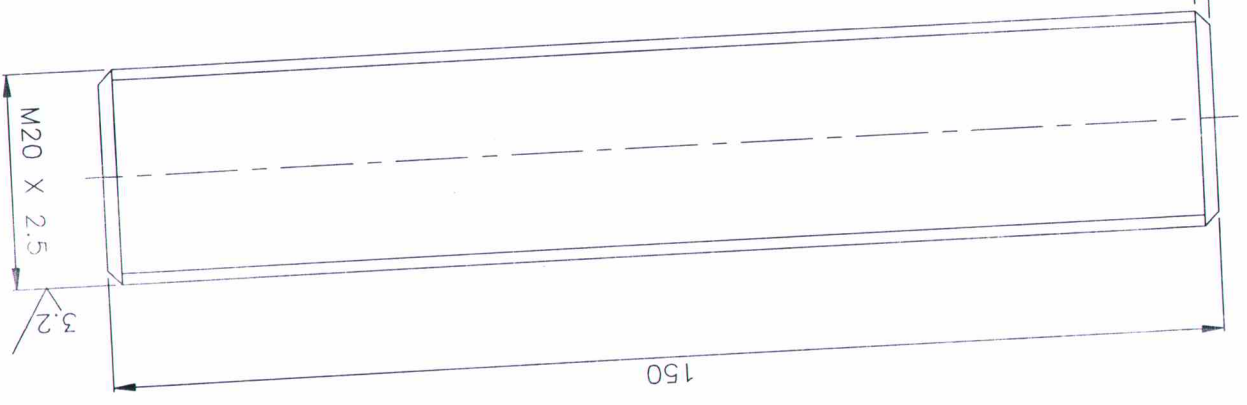
TITLE	U-BOLT (PIPE WITH INSULATION MOUNTED ON SUPPORT PLATE)	
DRAWING NO :	7740-2540	
REV	05	

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

Quantity - 36
 Item - 5
 S.No - 61

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3X45 (TP)



6.3
3.2

5200 - 1
ITEM - 3
Enquiry - 36

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL SPECN	A/C/P	UNIT	QUANTITY
	ROUND D25 , L=150		SA 182 F22 CL.3	C	UNIT WEIGHT	0.400
			150393410000			

REV NO.	BRIEF RECORD OF REVISIONS		
	APPD	CHD	PPD

DATE	SIGNATURE	NAME	DRN	CHD	APPD
15.10.18		KAVI			
15.10.18		K.KISHORE			
15.10.18		K.KISHORE			

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



DEPT	PCPS	CODE	TITLE
		1322	STUD M20 (AS)

REF TO ASSY / OLD DWG	WEIGHT (kg)	SCALE	PROJECTION
	0.400	N.T.S	


DRAWING NO : 4-12-904-U8139

REV 00

A4 SIZE

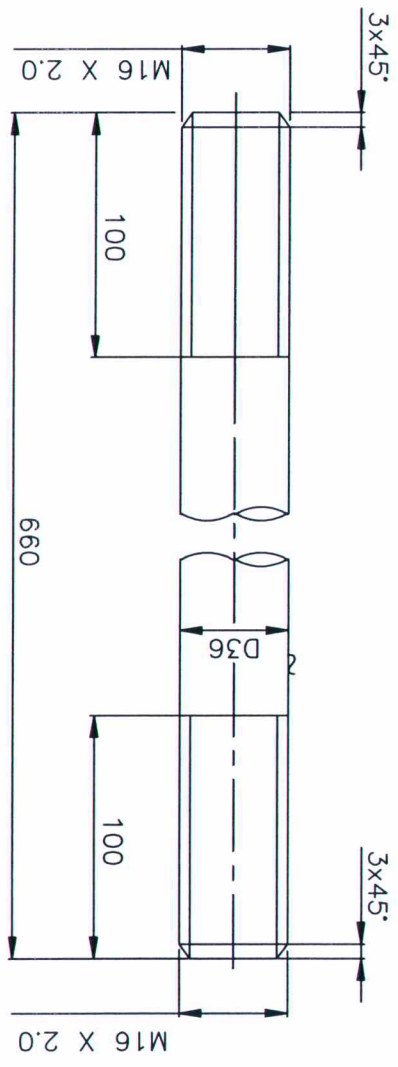
FORM NO. 0420/12

THE ROD-III

TITLE		DRAWING NO :		REV	
031		4-12-904-U08145		00	
DEPT	P.P. ENGG	ALL DIMENSIONS ARE IN MM	SCALE	N.T.S	WEIGHT (kg)
					5.590
REF TO ASSY / OLD DWG					
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012					
DRN	CHD	APPD	NAME	SIGNATURE	DATE
KAVI	K.KISHORE	K.KISHORE	K.KISHORE		15.10.18
					15.10.18
					15.10.18

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


VARIANT NUMBER	DESCRIPTION	STD	MATERIAL SPECN	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
	ROUND D36, L=660		SA 105	150392800000	C		5.590	



Handwritten notes:

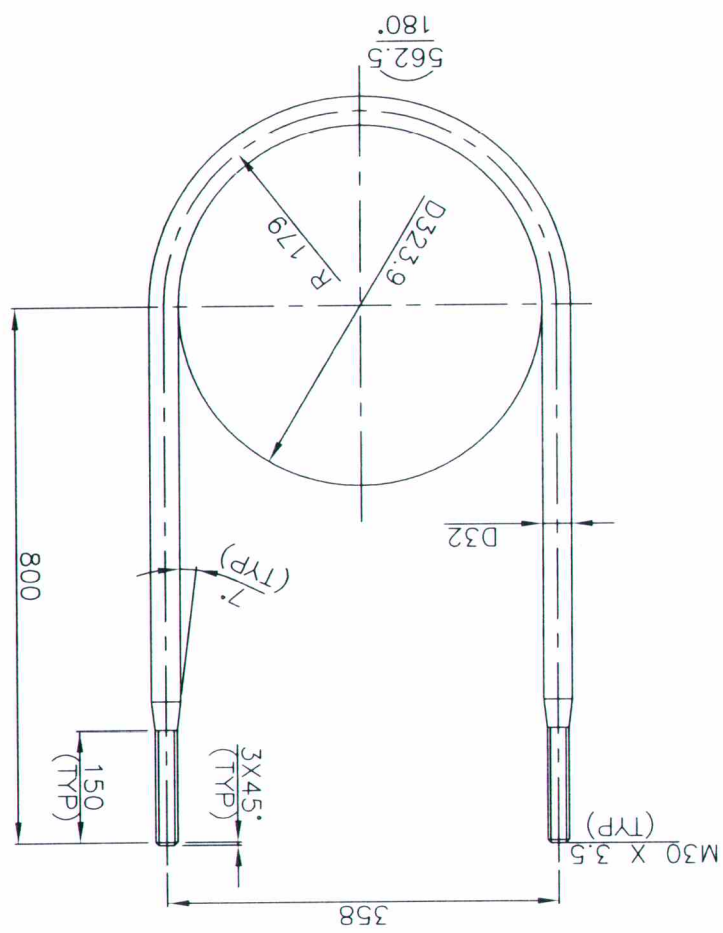
IT em-4
 Engg 29-36
 SPO-91

6.3/1/21

TITLE U-ROD - D32		DRAWING NO : 4-12-902-U8159		REV 00
DEPT P.P. ENGG	ALL DIMENSIONS ARE IN MM	SCALE N.T.S	WEIGHT (kg) 13.430	REF TO ASSY / OLD DWG —
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012				
DRN V.KAVIKUMAR	CHD A.N.V.K.KISHORE	APPD A.N.V.K.KISHORE	DATE 13.11.18	DATE 13.11.18
BRIEF RECORD OF REVISIONS				
REV NO.				


REV NO.	DESCRIPTION	APPD.	CHD.	PPD.

VARIANT NUMBER	DESCRIPTION	S/D	MATERIAL SPECN		UNIT WEIGHT	QUANTITY
			MATERIAL CODE	A/C/P		
	ROUND D32; L=2162.5		SA 182 F22 CL.3	C	13.430	
			153393160000			



520-30
Item-5
Length-86

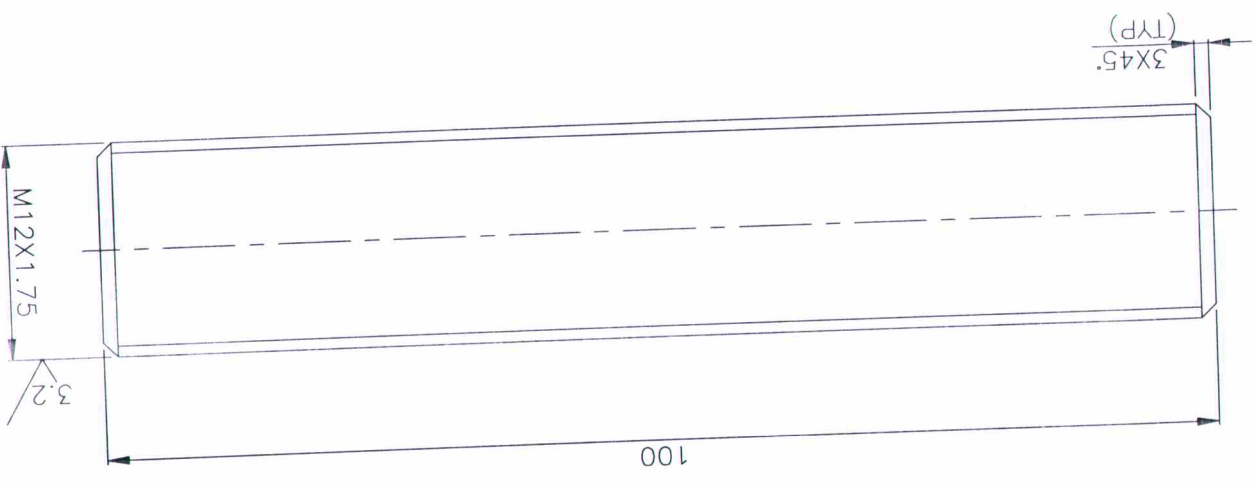
6.3/12/18

TITLE STUD M12		DRAWING NO : 4-19-908-U8142		REV 00
DEPT P.P. ENGG	CODE 031	ALL DIMENSIONS ARE IN MM	SCALE N.T.S	WEIGHT (kg) 0.090
REF TO ASSY / OLD DWG				
 Bharat Heavy Electricals Ltd UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM-530012		DRN KAVI	CHD K.KISHORE	APPD K.KISHORE
DATE 18.10.18		SIGNATURE		DATE 18.10.18
DATE 18.10.18		SIGNATURE		DATE 18.10.18
DATE 18.10.18		SIGNATURE		DATE 18.10.18

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

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL SPECN	MATERIAL CODE	A/C/P	UNIT	QUANTITY	UNIT WEIGHT
	ROUND D25; L=100		153391390000	SA 105	C			0.090

4/15
S.No - 815
ITEM - 3
Engg - 36



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NOTES:
 1. DRAWING NOT TO BE SCALED
 2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

REF. DRG. BHEL TRICHY DRG. NO. 4-28-220-00545



भारत हेवी इलेक्ट्रिकल्स लिमिटेड
 Bharat Heavy Electricals Ltd.
 UNIT : HEAVY PLATES & VESSELS PLANT
 VISAKHAPATNAM - 530012 (A.P.)

DATE 17-11-2017

DRN. Prabhakar T

CHD. Uma Sankaram

APPD. Kumar Manikyam

SCALE N.T.S.

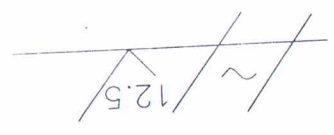
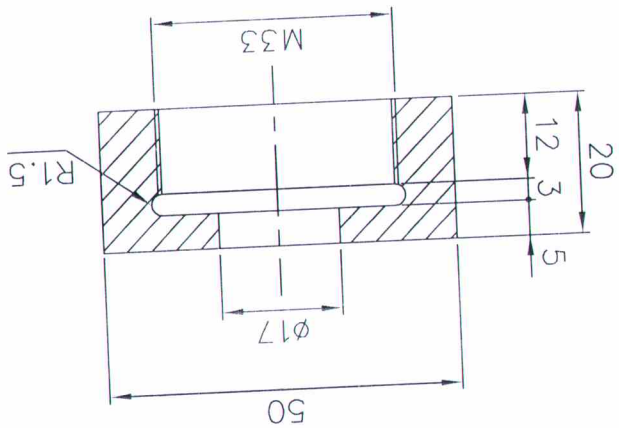
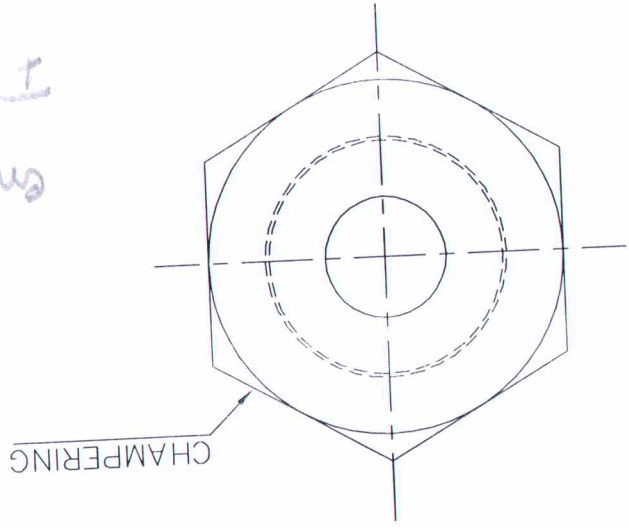
GLAND CAP

REV. NO.	DRAWING NO.	WORK ORDER NO.	NO. OFF.
0	4-28-220-U0013		

REV. No.	ZONE	BRIEF RECORD

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL SPECN		QUANTITY
			MATERIAL CODE	A/C/P UNIT	
	ROD ϕ 63		SA105		0.489
			15 339 143		

Quantity - 36
 Item - 2
 S No - 5, 7



A
B
C
D
1
2
3
4

REF. DRG. BHEL TRICHY DRG. NO. 4-28-220-00547
 QTY. ITEM NO. MATL.
 NOTES:
 1. DRAWING NOT TO BE SCALED
 2. ALL DIMENSIONS ARE IN MILLI METRES UNLESS OTHERWISE STATED.

DATE: 17-11-2017
 DRN: Prabhakar T
 CHD: Uma Sankaram
 APPD: Kumar Manikyam
 SCALE: N.T.S.
 WORK ORDER NO. SHAFT
 YEAR OF ORD. SIZE A4
 DRAWING NO. 4-28-220-U0015
 REV. NO. 0

भारत हेवी इलेक्ट्रिकल्स लिमिटेड
 Bharat Heavy Electricals Ltd.
 UNIT : HEAVY PLATES & VESSELS PLANT
 VISAKHAPATNAM - 530012 (A.P.)

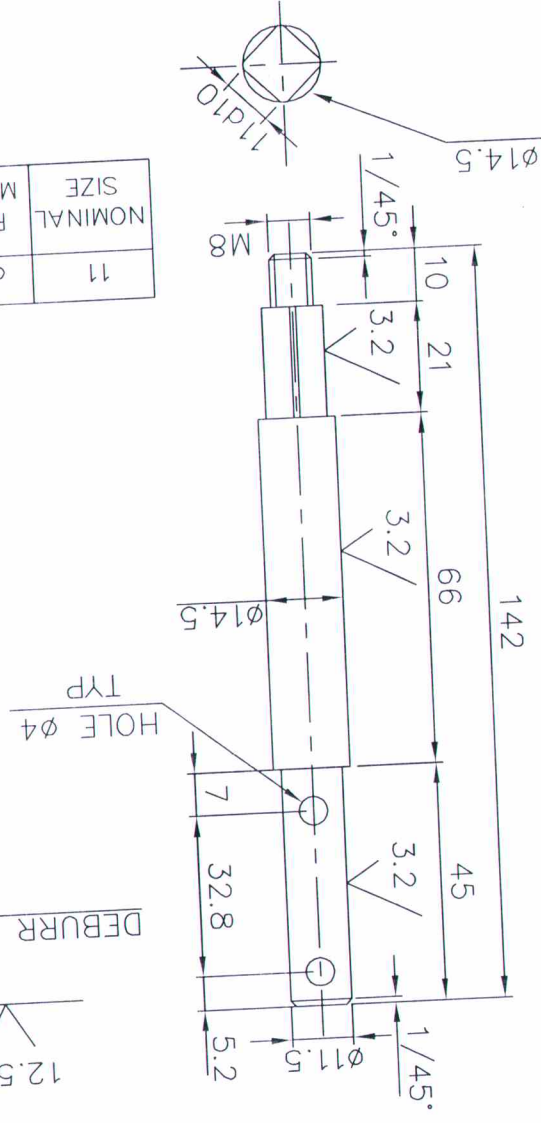


REV. No.	ZONE	BRIEF RECORD
PPD.	CHD.	APPD.

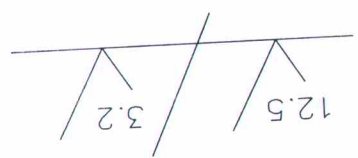
VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	UNIT WEIGHT	QUANTITY
	ROD ϕ 16		SA 105				0.224	
			15 339 138					

Handwritten notes: 28, 27, 28, 86, 8

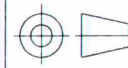
NOMINAL SIZE	FIT		TOLERANCE
	UPPER	LOWER	
d10	-0.050	-0.120	



DEBURR SHARP CORNERS



A B C D

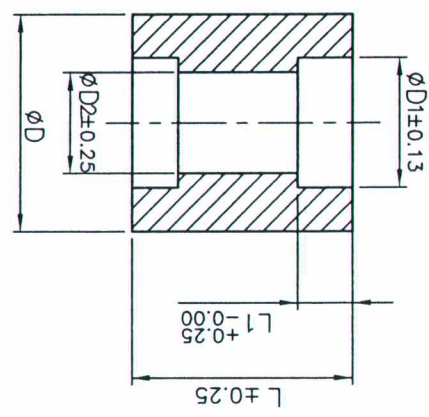
SW COUPLING		TITLE	
DRAWING NO : 4-43-200-U0003		REV 01	
REF TO ASSY / OLD DWG 4-42-156-80271		WEIGHT (kg)	SCALE
DEPT: 361-321 UNIT: HEAVY PLATES & VESSELS PLANT VISAKHAPATNAM - 530012 Bharat Heavy Electricals Ltd		PROJECTION 	CODE 320 ALL DIMENSIONS ARE IN MM
DATE: 29.9.08	SIGNATURE: P. ARYAKANNU	DRN: P. ARYAKANNU	
DATE: 29.9.08	SIGNATURE: T.K. RAMAKRISHNAN	CHD: T.K. RAMAKRISHNAN	
DATE: 29.9.08	SIGNATURE: T.K. RAMAKRISHNAN	APPD: T.K. RAMAKRISHNAN	

VARIANT NUMBER	DESCRIPTION	STD	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT	QUANTITY	UNIT WEIGHT
01	1/2" SW COUPLING ROD D32: 30L		15 339 140	SA 105	C	1	0.140	
02	1" SW COUPLING ROD D50: 40L		15 339 142	SA 105	C	1	0.456	
03	1 1/2" SW COUPLING ROD D63: 40L		15 339 143	SA 105	C	1	0.586	
04	2" SW COUPLING ROD D80: 50L		15 339 144	SA 105	C	1	1.200	
05	1" SW COUPLING ROD D50: 40L		15 324 424	SA 182 F304	C	1	0.586	
06	1/2" SW COUPLING ROD D32: 30L		15 324 194	SA 182 F304	C	1	1.200	

Item - 2
 Qty - 36
 14, 15, 16
 5-100-10.13

01. DIMENSIONS D1, D2 & L1 ARE AS PER ANSI B16.11
 02. RATING 3000 LBS

NOTE:



VAR NO.	NBS	D	D1	D2	L	L1
01	1/2"	32	21.84	15.75	30	9.65
02	1"	50	33.91	26.65	40	12.70
03	1 1/2"	63	48.77	40.95	40	12.70
04	2"	80	61.21	52.50	50	15.75
05	1"	50	33.91	26.65	40	12.70
06	1/2"	32	21.84	15.75	30	9.65

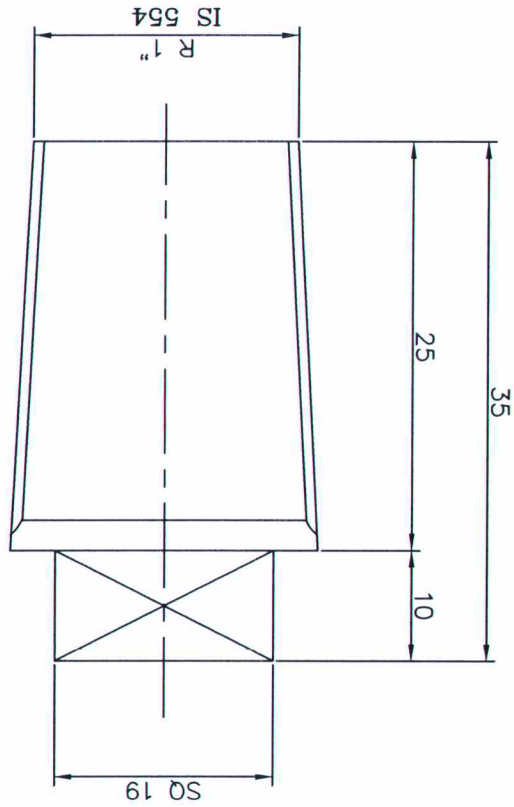
FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING
 MANUFACTURE REFER RELEVANT Q.C.P.\S.O.P
 MANUFACTURING AS PER RELEVANT Q.C.P.\S.O.P

REV	DATE	ALTERED	G.P. LATHA
01	20.06.18	CHD & APPD S.VJAY	

BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any
 detrimental to the interest of the company.

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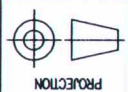
NOTE:-
01 ALL SHARP CORNERS ARE TO BE ROUNDED OFF.



Quantity = 36
Item - 8
Size - 25

12.5

PGMA-80-417

TITLE PLUG R 1" CS		DRAWING NO : 4-80-417-U9005		REV 00
DEPT	ALL DIMENSIONS ARE IN MM	SCALE N.T.S	WEIGHT (kg) 0.200	REF TO ASSY / OLD DWG 4-80-400-58724
		VISAKHAPATNAM-530012 UNIT: HEAVY PLATES & VESSELS PLANT Bharat Heavy Electricals Ltd		
DRN	AVR	AC MOHANTY	SD/- XXX	18-10-17
CHD	AVR	AC MOHANTY	SD/- XXX	18-10-17
APPD	AC MOHANTY	AC MOHANTY	SD/- XXX	18-10-17
DATE	SIGNATURE	NAME	SIGNATURE	DATE
18-10-17	A V RAO	A V RAO	SD/- XXX	18-10-17

REV NO.	BRIEF RECORD OF REVISIONS

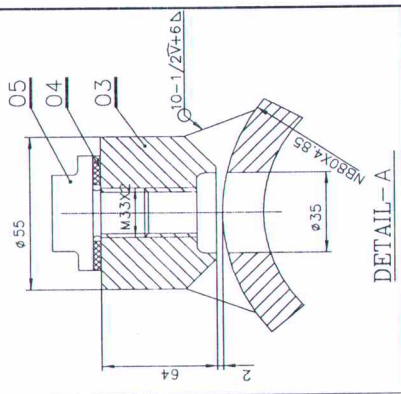
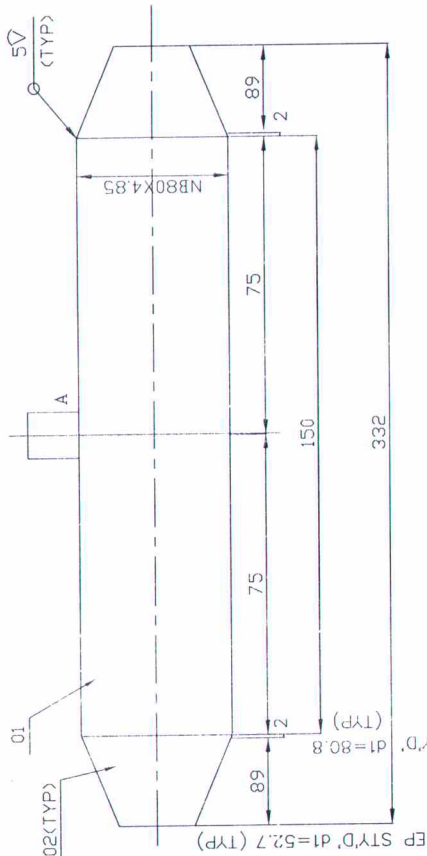
VAR NO.	DESCRIPTION	STD	MATL. CODE		MATL. SPECN.	UNIT	UNIT.WT.(kg)	QTY.
			A	C				
	ROD ϕ 40 ; L=35		SA 105					
			15 339 141 0000	A			0.200	

FORM NO. 0420/2

A4 SIZE

6006U-160-08-E

ON DRAWING



ITEM NUMBER	DESCRIPTION	QTY	DRAWING NUMBER	ITEM NO	MATERIAL CODE	MATERIAL SPECN	UNIT WEIGHT
05	PLUG M33 x 2	1	6110 8031 06	15 627 256 0000	C	SA 105	0.800
04	PACKING RING	1	6110 8041 06	94 824 001 0000		IS : 1972	0.010
03	TEMP. STUB M33 x 2	1	4-80-401-37696	15 039 143 0000	C	SA 105	0.700
02	REDUCER NB 80 / 50, Sch. 40	2	3-80-460-U9009	18 930 001 2303	C	SA 234 WPB	1.800
01	PIPE NB 80 x 4.85 ; L = 150	1	3-80-460-U9009	15 838 018 0000	C	IS 1239 BL. HEAVY	1.515

PGMA-80-460

CUSTOMER NO: 7781



Bharat Heavy Electricals Ltd

UNIT: HEAVY PLATES & VESSELS PLANT
VISAKHAPATNAM-530012

DEF: CODE: PROJECTION: SCALE: NTS: WEIGHT (Kg): 6.625

REF TO ASSY / OLD DWG: 3-80-999-97670

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.

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

TITLE: **ADOPTER WITH TEMP STUB**
M33X2 (NB 80/50)

DRAWING NO: **3-80-460-U9009**

REV: **00**

A3 SIZE

FORM NO. 0421/2