BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Ramachandrapuram, Hyderabad, 502032, A.P. India
Phone 040-23184526, 23182322 FAX:040-23021910, 1954

भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत

RFQ NO :

PURCHASE DEPARTMENT
ENQUIRY
क्रय विभाग
जांच (ई मेल : tenderbox@bhelhyd.co.in)

HY17001 C
REV.NO.0

Phone 091-40-23184526
091-40-23182322

FAX : 091-40-23021910
091-40-23021954

PURCHASE DEPARTMENT

GSTIN:

Enq/Collective No :E9AWS00047 | Enq.Dt. : 28.07.2023 | No.Of Items :* | DUE Dt. OF QUOTN. : 08.08.2023

Office Copy

Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No .....) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No .....) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.

SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty
1	1400232706	10	21750100768-00	21750100768-00,00,,,	SUPPORT PLATE	EA	5.000	20.12.2023	5.000
2	1400232707	10	21750100768-06MC	21750100768-06,00,,,	DC BAFFLE	EA	19.000	14.11.2023	19.000
3	1400232770	10	31621800868-03	31621800868-,00,,,	SUPPORT PLATE-1	EA	4.000	26.09.2023	1.000
4	1400232755	10						26.09.2023	1.000
5	1400232760	10						26.09.2023	1.000
6	1400232765	10						26.09.2023	1.000
7	1400232767	10	31621800868-04	31621800868-,00,,,	SUPPORT PLATE-2	EA	8.000	26.09.2023	2.000
8	1400232752	10						26.09.2023	2.000
9	1400232757	10						26.09.2023	2.000
10	1400232762	10						26.09.2023	2.000
11	1400232768	10	31621800868-05	31621800868-,00,,,	SUPPORT PLATE-3	EA	8.000	26.09.2023	2.000

TEST CERTIFICATE REQD:
GUARANTEE REQ :
SAMPLE REQD :
BID TYPE : TWO PART

For and on-behalf of
Bharat Heavy Electricals Limited.

nagarjuna sagar c
Manager/SC/HE

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Ramachandrapuram, Hyderabad, 502032, A.P. India
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12	1400232753	10						26.09.2023	2.000
13	1400232758	10						26.09.2023	2.000
14	1400232763	10						26.09.2023	2.000
15	1400232769	10	31621800868-06	31621800868-,00,,,	SUPPORT PLATE	EA	8.000	26.09.2023	2.000
16	1400232754	10						26.09.2023	2.000
17	1400232759	10						26.09.2023	2.000
18	1400232764	10						26.09.2023	2.000
19	1400232771	10	31621800868-07	31621800868-,00,,,	D.C. BAFFLE-1	EA	7.000	26.08.2023	7.000
20	1400232772	10	31621800868-08	31621800868-,00,,,	D.C. BAFFLE-2	EA	8.000	26.09.2023	8.000
21	1400232766	10	31621800868-10	-,,,,	SUPPORT PLATE-5	EA	12.000	25.08.2023	3.000

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For and on-behalf of
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nagarjuna sagar c
Manager/SC/HE

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22	1400232751	10						25.08.2023	3.000
23	1400232756	10						25.08.2023	3.000
24	1400232761	10						25.08.2023	3.000
25	1400232741	10	31622200572-00	31622200572-,00,,,	SUPPORT PLATE-3	EA	10.000	25.08.2023	10.000
26	1400232743	10	31622200572-00MC	31622200572-,00,,,	DC BAFFLES	EA	8.000	25.08.2023	8.000
27	1400232742	10	31622200572-05	31622200572-,00,,,	SUPPORT PLATE-4	EA	2.000	25.08.2023	2.000
28	1400232744	10	31622600457-00	31622600457-,00,,,	SUPPORT PLATE	EA	14.000	25.08.2023	14.000
29	1400232747	10	31623100100-00MC	31623100100-,00,,,	D.C.BAFFLES	EA	10.000	25.08.2023	10.000
30	1400232745	10	31623100100-01	31623100100-,00,,,	SUPPORT PLATE-3	EA	14.000	25.08.2023	14.000
31	1400232746	10	31623100100-02	31623100100-,00,,,	SUPPORT PLATE-4	EA	1.000	25.08.2023	1.000
							10.000		

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Manager/SC/HE

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32	1400232750	10	31623100110-00MC	31623100110-,00,,,	D.C.BAFFLES	EA		25.08.2023	10.000
33	1400232748	10	31623100110-01	31623100110-,00,,,	SUPPORT PLATE-3	EA	10.000	25.08.2023	10.000
34	1400232749	10	31623100110-02	31623100110-,00,,,	SUPPORT PLATE-4	EA	1.000	25.08.2023	1.000
35	1400232705	10	31750102611-00MC	31750102611-,00,,,	DC BAFFLE(MC)	EA	36.000	25.08.2023	18.000
36	1400232700	10						22.08.2023	18.000
37	1400232701	10	31750102611-03	31750102611-,00,,,	SUPPORT PLATE-1	EA	2.000	14.09.2023	1.000
38	1400232696	10						14.09.2023	1.000
39	1400232702	10	31750102611-04	31750102611-,00,,,	SUPPORT PLATE-2	EA	12.000	26.09.2023	6.000
40	1400232697	10						26.09.2023	6.000
41	1400232703	10	31750102611-05	31750102611-,00,,,	SUPPORT PLATE-3	EA	12.000	26.09.2023	6.000

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BID TYPE : TWO PART

For and on-behalf of
Bharat Heavy Electricals Limited.

nagarjuna sagar c
Manager/SC/HE

BHARAT HEAVY ELECTRICALS LIMITED (A Government of India Undertaking) Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954	भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत	RFQ NO :	PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)	SHEET:5 OF :5

HY17001 C REV.NO.0	Phone 091-40-23184526 091-40-23182322	FAX : 091-40-23021910 091-40-23021954	**PURCHASE DEPARTMENT**

GSTIN:	Enq/Collective No :E9AWS00047	Enq.Dt. : 28.07.2023	No.Of Items :*	DUE Dt. OF QUOTN. : 08.08.2023

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42	1400232698	10						26.09.2023	6.000
43	1400232704	10	31750102611-12	31750102611-,00,,,	SUPPORT PLATE-4	EA	2.000	26.09.2023	1.000
44	1400232699	10						26.09.2023	1.000

Special Remarks

CheckList of Quality Interventions:

BHEL reserves the right to enforce any or all of the following checks during execution of the order.
There is no additional cost to the vendor on account of these checks.

	TEST CERTIFICATE REQD: GUARANTEE REQ : SAMPLE REQD : BID TYPE : TWO PART	For and on-behalf of Bharat Heavy Electricals Limited. nagarjuna sagar c Manager/SC/HE

Sl. No.	PR	ITEM NO	MATERIAL	MAT DESC	QTY	Total no. of Holes (Including tie rod) for one plate	Total No. of Hole	Price /Hole	Total price (Rs.) (Qty*hole/pc)
1	1400232696	10	31750102611-03	Support Plate-1	1	1144	1144		
2	1400232697	10	31750102611-04	Support Plate-2 Half	6	574	3444		
3	1400232698	10	31750102611-05	SUPPORT PLATE-3 (HALF)	6	574	3444		
4	1400232699	10	31750102611-12	Support Plate-4	1	573	573		
5	1400232700	10	31750102611-00MC	DC BAFFFLES MC	18	573	10314		
6	1400232701	10	31750102611-03	Support Plate-1	1	1144	1144		
7	1400232702	10	31750102611-04	Support Plate-2 Half	6	574	3444		
8	1400232703	10	31750102611-05	SUPPORT PLATE-3 (HALF)	6	574	3444		
9	1400232704	10	31750102611-12	Support Plate-4	1	573	573		
10	1400232705	10	31750102611-00MC	DC BAFFFLES MC	18	573	10314		
11	1400232706	10	21750100768-00	SUPPORT PLATE	5	2372	11860		
12	1400232707	10	21750100768-06 MC	DC BAFFLES	19	1186	22534		
13	1400232741	10	31622200572-00	SUPPORT PLATE-3	10	2302	23020		
14	1400232742	10	31622200572-05	SUPPORT PLATE-4 (Half)	2	1151	2302		
15	1400232743	10	31622200572-MC	DC BAFFLES	8	1151	9208		
16	1400232744	10	31622600457-00	Support plate	14	2302	32228		
17	1400232745	10	31623100100-01	SUPPORT PLATE-3	14	2674	37436		
18	1400232746	10	31623100100-02	SUPPORT PLATE-4 (HALF)	1	1337	1337		
19	1400232747	10	31623100100-00MC	DC baffles	10	1337	13370		
20	1400232748	10	31623100110-01	SUPPORT PLATE -3	10	2674	26740		
21	1400232749	10	31623100110-02	SUPPORT PLATE-4 (HALF)	1	1337	1337		
22	1400232750	10	31623100110-00MC	DC baffles	10	1337	13370		
23	1400232751	10	31621800868-10	Support Plate-5	3	576	1728		
24	1400232752	10	31621800868-04	Support Plate-2	2	576	1152		
25	1400232753	10	31621800868-05	Support Plate-3	2	576	1152		
26	1400232754	10	31621800868-06	Support Plate	2	576	1152		
27	1400232755	10	31621800868-03	Support Plate-1	1	576	576		
28	1400232756	10	31621800868-10	Support Plate-5	3	576	1728		
29	1400232757	10	31621800868-04	Support Plate-2	2	576	1152		
30	1400232758	10	31621800868-05	Support Plate-3	2	576	1152		
31	1400232759	10	31621800868-06	Support Plate	2	576	1152		
32	1400232760	10	31621800868-03	Support Plate-1	1	576	576		
33	1400232761	10	31621800868-10	Support Plate-5	3	576	1728		
34	1400232762	10	31621800868-04	Support Plate-2	2	576	1152		
35	1400232763	10	31621800868-05	Support Plate-3	2	576	1152		
36	1400232764	10	31621800868-06	Support Plate	2	576	1152		
37	1400232765	10	31621800868-03	Support Plate-1	1	576	576		
38	1400232766	10	31621800868-10	Support Plate-5	3	576	1728		
39	1400232767	10	31621800868-04	Support Plate-2	2	576	1152		
40	1400232768	10	31621800868-05	Support Plate-3	2	576	1152		
41	1400232769	10	31621800868-06	Support Plate	2	576	1152		
42	1400232770	10	31621800868-03	Support Plate-1	1	576	576		
43	1400232771	10	31621800868-07	DC BAFFLE -1	7	576	4032		
44	1400232772	10	31621800868-07	DC BAFFLE -2	8	576	4608		
							264260	Total	0

SPECIAL CONDITIONS OF CONTRACT (SCC) ENQ. NO. E9AWS00047 Dt:28.07.2023			DUE DATED: 08.08.2023
SI.NO	**DESCRIPTION**	**BHEL REQUIREMENT**	**VENDOR'S CONFIRMATION**
1	TWO-PART BID	Offer shall be submitted in two part bid system against this enquiry. Part-I shall consist of Techno-Commercial bid with all required documents and Price shall be fed in Part-II.	
1.a	TECHNO-COMMERCIAL BID	Techno-Commercial Bid shall essentially consist of: (i) Bidder's confirmation of BHEL drawing/Specification & technological scope. (ii) Bidder's confirmation of BHEL Quality plan (if applicable) (iii) Duly filled in signed and stamped Special Contract Conditions (SCC). (iv) Duly filled in signed and stamped Instructions to Bidder (ITB). (v) Duly filled in and completed in all respect ITB ANNEXURE-II (Framework Confidentiality Agreement cum Underatking) (vi) Udyam Registration Certificate for MSE vendors. (vii) Duly singed and stamped Un-price bid. All the above documents shall be duly authenticated by signature and offcial seal of the company. <u>Note:</u> Bid shall be complete in all respects including all the documents / information required for techno-commercial evaluation. Incomplete offers shall be liable for rejection.	
1.b	PRICE BID	**Rate to be quoted in "Rs/Hole" basis for support plate and DC Baffles separately in price bid format (BOQ)** **I.e. Support Plate (16mm)----------Rs/Hole** **DC Baffles (10mm)----------Rs/Hole** The rate quoted shall be inclusive of conversion charges, all consumables, handling charges and dispatch of finished jobs to BHEL (HPEP) Stores. Quoted price shall be on firm basis. No revision of prices will be entertained after the tender is opened.	
2	DETAILS OF JOB	**Machining of Support Plate & DC Baffle (CS) as per BHEL drawings/DCA and technological scope/Quality plan with BHEL materials & in line with NIT Terms & Conditions**	
3	QUANTITY (Aproximately)	**As per Unpriced Bid format**	
4	DELIVERY	**To be delivered within 45 days from the date of receipt of last PPMIV material for each item.**	
5	SCOPE OF MATERIAL SUPPLY AND TRANSPORTATION CHARGES	**Sending of raw materials from BHEL Hyd to vendor works is in BHEL Hyderabad scope and supply of finished components from vendor works to BHEL Hyd is in vendor scope.**	

6	PAYMENT TERM	75% payment will be made within 45/60/90 (MSE/Medium Enterprise/Non MSME) days from the date of receipt of finished items at our works against GR and 25% will be paid after material accounting is done. Note: A. Above due date is reckoned from the date of Receipt of material or 15 days from the date of submission of complete set of documents as per PO whichever is later. Payment will be made on acceptance of Material. B. MSEs (covered under MSME Act) need to register and renew periodically and update the same with BHEL C. The taxes that are reimbursed are limited to applicable taxes as on the Purchase Order delivery date or the amount actually paid whichever is less. D. Adherence to the above time schedule of payment is contingent upon Bidder complying with GST provisions and availment of Input Tax Credit by BHEL before the date of payment. E. In case of packaged items, 10% of supply value will be retained till completion of total supplies. F. Bidders to comply with clause 11 on GST requirements	
7	VALIDITY OF OFFER	Your Offers must be kept valid for a period of 90 days from the date of part-i bid opening and in the event of our acceptance of your offer the prices finalized should remain firm for ""one year"" from the date of finalisation of tender(approval of PO note).	
8	PENALTY	In the event of delay in supply of goods, a penalty of 0.5% per week or part there of shall be levied on the undelivered portion subject to a maximum of 10% of the order value. Reckoning date for penalty is c-note date.	
9	TOOLS	Tools,gauges,jigs & fixtures and instruments will not be supplied by BHEL	
10	REJECTION OF CONDITIONAL OFFERS	Conditional offers if any submitted by the firms will not be acceptable.	
11	RISK PURCHASE	In case of abnormal delays (beyond the maximum late delivery period as per Penalty clause) in supplies / defective supplies or non-fulfillment of any other terms and conditions given in Purchase Order, BHEL may cancel the Purchase Order in full or part thereof, and may also make the purchase of such material from elsewhere / equivalent market price at the risk and cost of the supplier. BHEL will take all reasonable steps to get the material from alternate source at optimum cost. If bidder does not agree to the above Risk Purchase Clause, BHEL reserves the right to reject the offer. Nonperformance of contract attracts penal provisions inline with BHEL's Suspension of Business dealings	
12	BASIS OF TENDER EVALUATION	**Tender will be evaluated based on lumpsum price i.e. price quoted per hole for Support Plate and DC Baffles.**	

13	QUANTITY DISTRIBUTION	Total quantity under the enquiry will be distributed between two sources as below: A. L1 Vendor will be awarded- Total Holes--- 1,81,678 Numbers (support Plates holes --1,17,612 and DC baffles holes--64,066). B. L2 vendor will be awarded- Total Holes---82,582 Numbers(support Plates holes--58,898 and DC baffles holes--23,684). If L2 vendor does not accept the L1 price through counter offer then the same will be extended to next ranking vendor. If any of the vendor is not accepting the counter offer then same quantity will be loaded on L1 vendor.	
14	SPLITTING SPECIFIC CLAUSE	**As splitting provision is envisaged in this tender, bidders will be provided an opportunity during techno-commercial evaluation.** **a. To withdraw any commercial deviations having loading criteria.** **b. Accept revised common commercial terms with or without impact bid.** **In case any bidder does not agree, his offer will be rejected.**	
15	SCRAP	**There will be no scrap cost deduction at BHEL end at the time of material accountal. Thus, bidder to quote accordingly.**	
16	INSPECTION	Stage and final inspection shall be carried out by BHEL QC/BHEL TPIA and or Customer (as applicable).Tests & Inspection shall be in line with drawing and technological scope/approved quality plan. Vendor shall raise inspection call accordingly.	
17	DRAWINGS	a)These drawings are the property of BHEL. Copying or circulating or misuse of these drawings or parts of it by vendor is not permitted and will have to face legal consequences if found so. b)Assembly drawings shall be provided along with enquiry. However complete drawings will be given at the time of placement of order.	
18	CLARIFICATION	If any further clarification is required kindly depute your representative for discussion before submitting your offer. Contact phone no: 040-23183555 mob: 7799181180/9490758635/9959477023. Mail ID: mithlesh@bhel.in, marisa@bhel.in,nagarjunasagar339@bhel.in	
19	GUARANTEE	Equipment shall be guaranteed against all manufacturing defects for a period of 24 months after supply or 18 months after commissioning whichever is later. Defects noticed shall be replaced / rectified at free of cost by the supplier.	
20	LOADING/UNLOADING FACILITIES	You must have adequate material handling facilities for safe unloading of raw materials/loading of finished products.	
21	INSPECTION	The goods will be cleared for dispatch on provisional basis. On receipt of the goods at our BHEL shop/site, the goods shall be subjected to inspection. And any defects noticed during assembly, testing or use , not withstanding the same may have been passed, certified and paid for – is to be rectified by the subcontractor, in whole or in part, as the case may require, at their own cost. In the event of his failure to do so with in reasonable period, BHEL will rectify or remove and re-execute the work at the risk & cost of subcontractor. The cost of rework or rejection, and any cost of freight incidental to such work will be to the subcontractor's account. Thus, Our acceptability of the goods shall be final.	

22	CONSEQUENCES OF REJECTION	In the event of any rejection arising due to the workmanship or due to mishandling of assemblies or components or any kind of damage which renders the assemblies unfit for use, the cost of each assembly shall be recovered along with taxes & duties as per BHEL norms from the bank guarantee being furnished by vendor.	
23	RIGHT OF CANCELLATION	BHEL shall have the right to cancel the contract wholly or in part in case it is obliged to do so on account of any decline, diminution, curtailment or stoppage of business.	
24	CONSEQUENCE OF FAILURE TO EXECUTE THE ORDER	After placing PO, in case vendor fails to execute the order due to reasons attrributable to vendor, it is vendor's obligation to return the raw material to BHEL, failing which BHEL will bring back material as per transport contract and the amount will be taken/deducted from available bills of vendor. Further action will be initiated on vendor for non performance of contract as per BHEL norms.	
25	PACKING	For any loss or damages arising out of improper packing and dispatch, the vendor will be held responsible	
26	TAXES & DUTIES	Applicable taxes and duties to be mentioned in the offer.	
27	BANK GUARANTEE	For material valuing upto Rs. 50,000/- per SCO no BG is required. For material valuing more than Rs. 50,000/- per SCO , 10% of the material value shall be provided as BG specific to enquiry with sufficient validity minimum six months or any other financial instrument as specified by BHEL without which PO will not be released.	
28	DISCRETION OF ACCEPTANCE	BHEL reserves right to accept or reject any tender or a portion thereof without assigning any reason whatsoever. BHEL has the right to refloat or short-close the Tender if L1 price is not the lowest acceptable price, or for other reasons.	
29	MSE CLAUSE	“MSE suppliers can avail the intended benefits only if they submit along with the offer, Udyam Registration Certificate. Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. If the tender is to be submitted through E-Procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted Officer."	
30	INDEMNITY	Subcontractors shall indemnify BHEL against the following: (A)All claims for injury or damage caused by the sub contractor’s negligence or the negligence of subcontractor’s employees or arising from any defect in the goods supplied or on the work carried out by the subcontractor’s. (B)All claims for injury to the subcontractor employees or agents employed whilst on BHEL premises.	
31	GENERAL	Any change in the address/reduction in qualified workplaces/ownership of the subcontractor’s unit during the operation of the contract will have to be made only after getting the specific written approval from BHEL. Any deviation found later will be dealt with as deemed fit, including cancellation of registration.	

32	ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP	If any work has been executed with unsound, imperfect or bad workmanship or with materials of inferior quality, the Sub-contractor shall on demand in writing from BHEL specifying the work, material/articles complained of, notwithstanding that the same may have been passed, certified and paid for, forthwith, rectify the work so specified in whole or in part as the case may require, at their own cost and in the event of his failure to do so within reasonable period, BHEL will rectify or remove and re-execute the work at the risk and cost of the Sub-contractor.	
33	CONFLICT OF INTEREST	A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidde,: found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if: a) they have controlling partner (s) in common;· or b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or c) they have the same legal representative/agent for purposes of this bid; or d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder,· or e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from. one bidding manufacturer in more than one bid; or f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following: 1. The principal manufacturer directly or through one Indian agent on his behalf; and 2. Indian/foreign agent on behalf of only one principal,· or g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid,· or h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business own'ership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business.	
Note: The above terms and conditions are applicable for this tender. All the remaining terms and conditions are as per ITB.			

VENDOR'S SIGNATURE WITH COMPANY SEAL

	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102031912	07.06.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200055-17501	DVC KODERMA- 2X500MW	17501016

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
21750100768-06	00		21750100768-06MC	DC BAFFLE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0001	19.000	19.000	EA	IS06	21.500		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819074		17501017	MA by QC				
AA10119		942.153	KG	560.000	1.128.000	0.000	F1	19.000	ST12

Material Description : PLATE 10 IS2062 GRE250(FE410W) QLTY-B	Reservation : 0014664447	Item : 0001	Picklist:1000656018

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0101	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

Sales P-1232200055-17501 DC Baffles

DVC Koderma,

Scope of work:

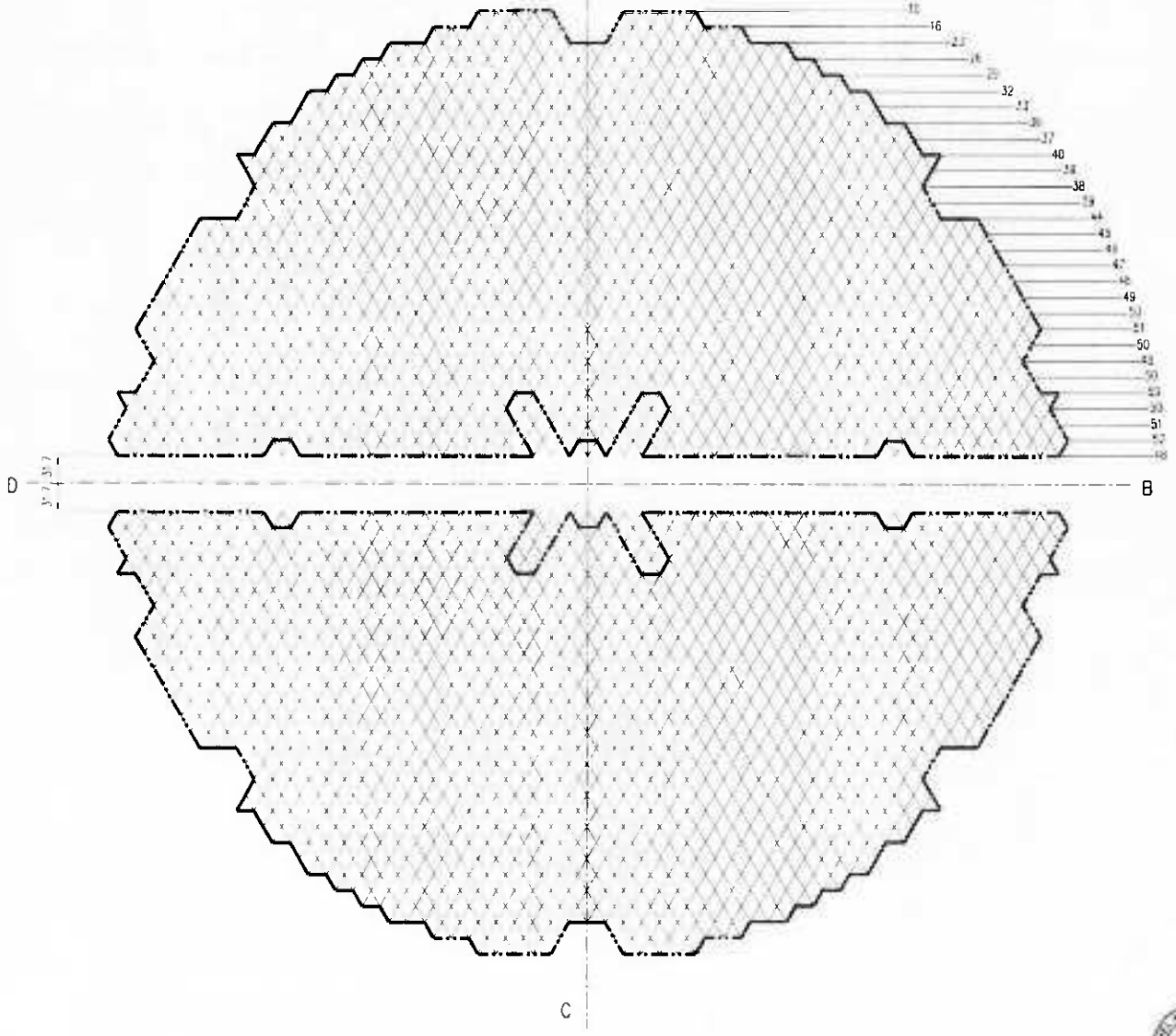
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of 1181 holes X Ø16.5 +0.45/-0.0 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 5 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to R2 on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT
RE-PRINT

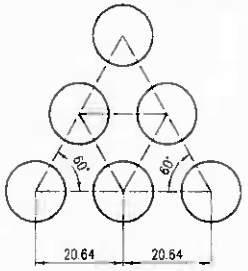
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

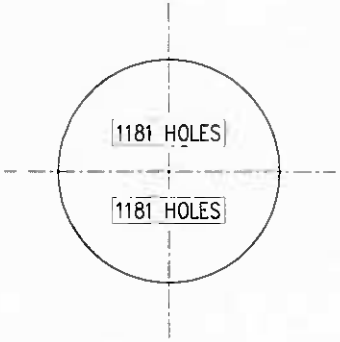
FIRST ANGLE PROJECTION

DRG NO 2-175-01-00696



TUBE PITCH





NOTES :-

1. TOTAL NUMBER OF HOLES = 2362
2. TUBE HOLE SIZE IN TUBE SHEET ø 16.13 ±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05 MM
3. OTL = ø 1115

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GENERAL DIMENSIONAL LIMITS,FITS & TOLERANCES AS PER HY0230261

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR H.P.HEATER 5A/B,6A/B)

CARD CODE:

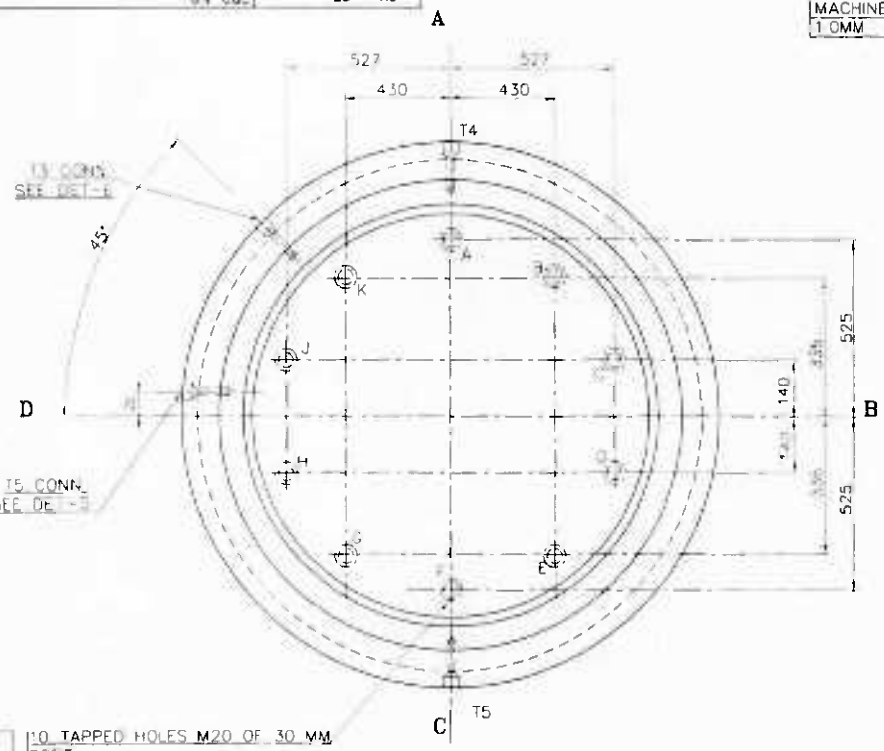
DRAWING NO. 2-175-01-00696

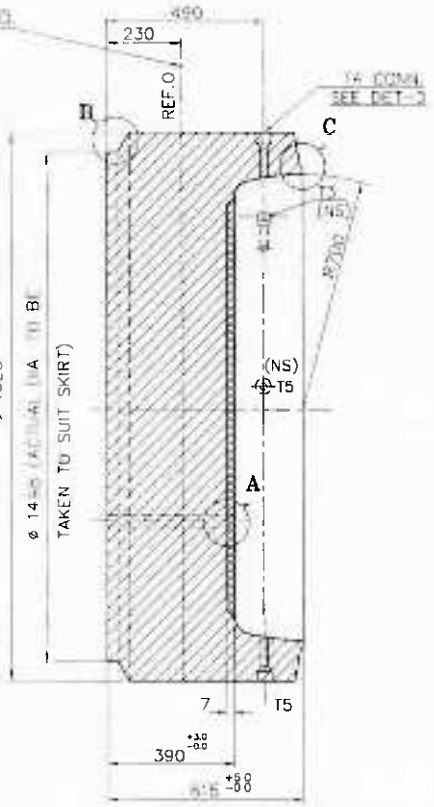
REV. 00

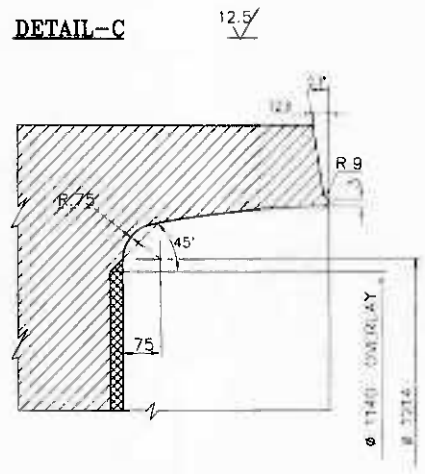
FIRST ANGLE PROJECTION

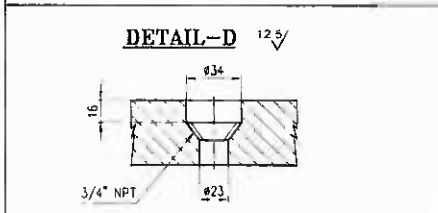
DRG NO 2-175-01-00697

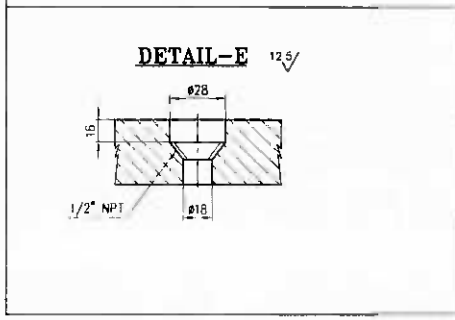
SH 1 OF 1 SHS

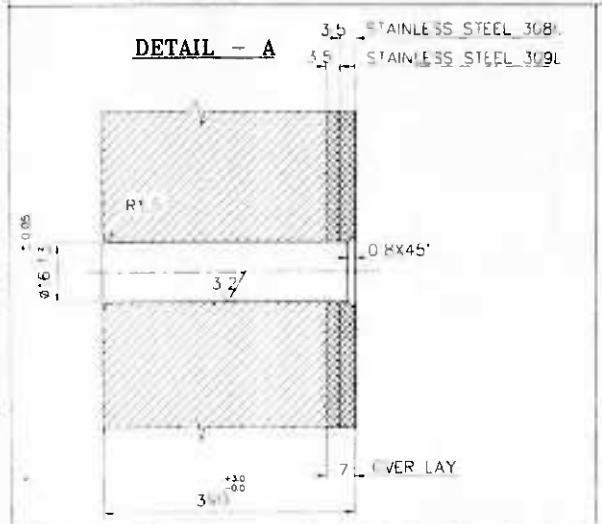


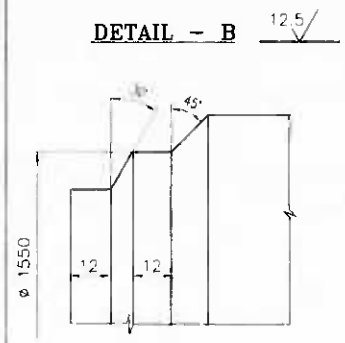












NOTES:-

1. FOR STAIN LESS STEEL OVER LAY FOLLOW WELD DETAIL W1.AFTER OVER LAY U.T. REQUIRED.
2. FOR TUBE LAYOUT REF. DRG No 2-17501-00696
3. FOR WELD SYMBOLS & PROCEDURES SEE DRG No 3-17501-00544
4. M.T REQUIRED FOR WELD END EDGE PREPN.DETAIL-B & C
5. ACCEPTENCE STD OF U.T FOR OVERLAY HE 7 1046.
6. P.W.H.T AFTER OVERLAY REQD
7. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE 7 1036.

GENERAL DIMENSIONAL LIMITS FITS & TOLERANCES AS PER HYDERABAD

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

REV	DATE	ALTERED	DESIGNED	TRACED	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY ORG.	ITEM NO.	REV.
HEE		NTS	NA	NA	23	NA
CODE 405						

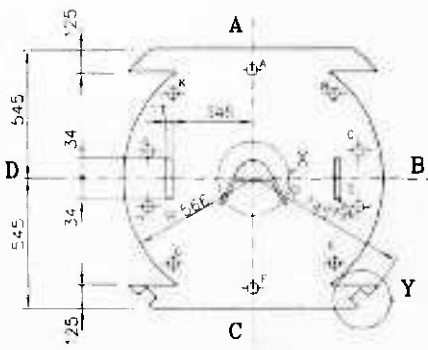
TITLE: TUBE SHEET FOR H.P.HEATERS 5A/B

CARD CODE

DRAWING NO. 2-175-01-00697 REV. 00

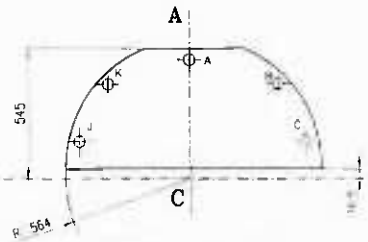
FIRST ANGLE PROJECTION

DRG NO 2-175-01-00768



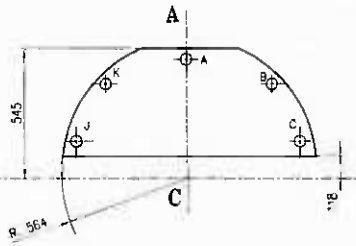
SUPPORT PLATE - 2

5-REQD. 16THK.



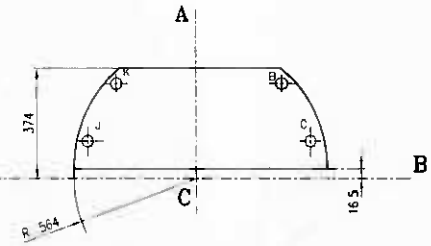
D.S.H.BAFFLE - 3

3-REQD.16 THK.



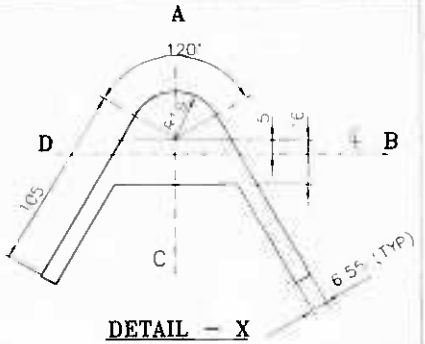
D.S.H.BAFFLE - 4

2-REQD.16 THK.

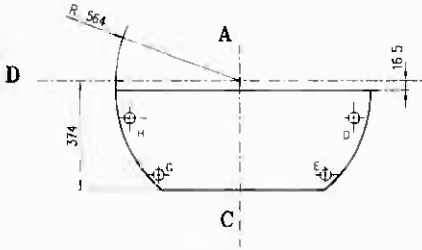


D.S.H.BAFFLE - 5

2-REQD.16 THK.

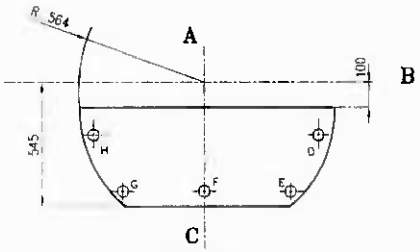


DETAIL - X



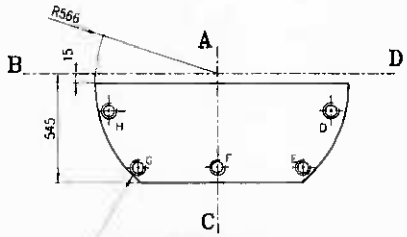
D.C.BAFFLE - 6

9-REQD.10 THK.



D.C.BAFFLE - 7

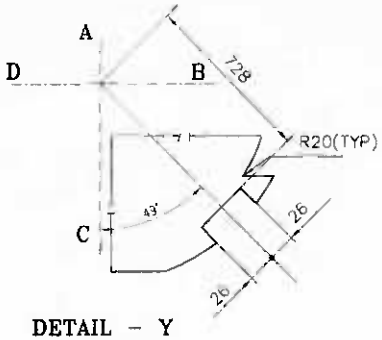
10-REQD.10 THK.



D.C.ENDPLATE - 8

1-REQD.80THK.

5-TAPPED HOLES OF M20 OF DEPTH 30 DO NOT DRILL THROUGH.



DETAIL - Y

NOTES:-

1. PLATE MATERIAL TO BE IS 2062/SA516 GR60 /70
2. TUBE HOLES (BOTH SIDES) OF ALL PLATES TO BE ROUNDED OFF R.2
3. DRILL ø 23 HOLES IN SUPPORT PLATES & BAFFLES FOR ø20 TIE RODS
4. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
5. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
6. DRILL & REAM ø16.27 $^{\pm 0.05}$ HOLES IN D.S.H BAFFLES FOR TUBES
7. FOR TUBE LAYOUT REF DRG NO 2-17501-00696
8. FOR TIE ROD LOCATION REF DRG NO 2-17501-00697.
9. TUBE HOLES IN D.C.ENDPLATE (POS NO 8) TO BE ø16.1 $^{+0.05}$
10. FOR UNSPECIFIED TOLERANCES REFER PRODUCT STD HE 7 1036
11. TUBE HOLE FINISH 6.3 FOR BAFFLES & SUPPORT PLATES

GENERAL DIMENSIONAL LIMITS,FITS & TOLERANCES AS PER HY023026

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

HEE	GRADE OF TOL.DIM. C/M/T	SCALE NTS	WEIGHT (KG) NA	REF TO ASSY DRG. NA		NO.OF ITEMS NA	
TITLE SUPPORT PLATES & BAFFLES DETAILS FOR 5A/B		CARD CODE	DRAWING NO. 2-175-01-00768			REV 00	
			SHEET No. 1	NO OF SHEETS 1			

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This Drawing is printed from Engineering Digital Archive System (EDAS)

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102026700	26.04.2023

Plant	Equipment No.	Customer / Project Name	Part No
P006			17501015

Type	WBS Element	
	P-1232200054-17501	NALCO-ANGUL

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3175010261l	00		3175010261l-00MC	DC BAFFLE (MC)

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0010	18.000	18.000	EA	IS06	18.500		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA10118 19074		17501019	MA BY QC				
AA10119		484.272	KG	420.000	816.000	0.000	F1	18.000	ST12
Material Description : PLATE 10 IS2062 GR I 250(FE410W) QLTY-B				Reservation : 0014620392		Item : 0001		Picklist:1000654451	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0101	DA9995	P006	ZP99	0.000	0.000	0.000	0.000	

Nalco P-1232200054-17501 DC Baffles

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of 567 holes X Ø16.5 +0.45 -0.0 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 5 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to R2 on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

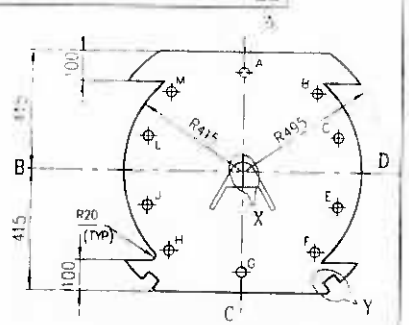
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

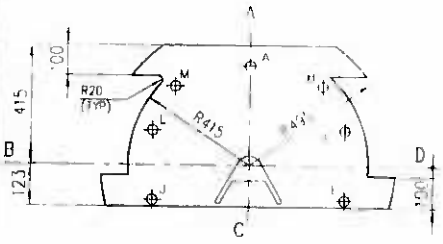
(ALL DIMENSIONS ARE IN mm)

DRG NO. 3-175-01-02611



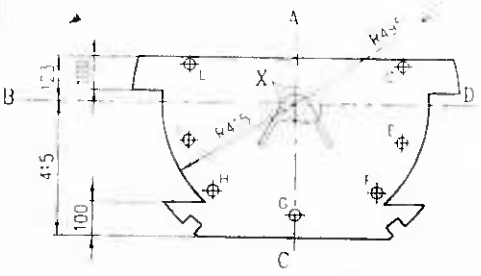
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



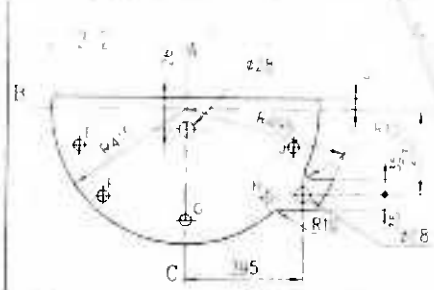
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



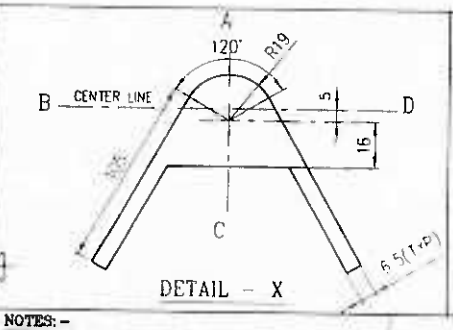
SUPPORT PLATE - 3(POS NO 5)

16 THK - 6 Nos

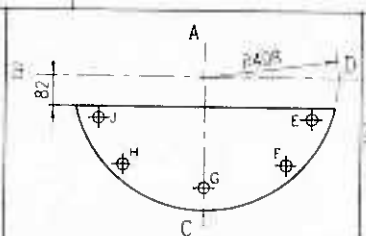


SUPPORT PLATE - 4(POS NO 6)

16 THK - 1No

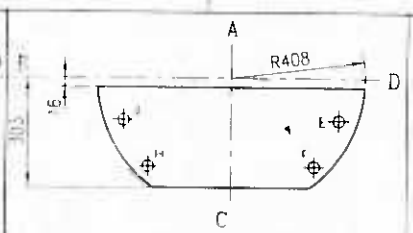


DETAIL - X



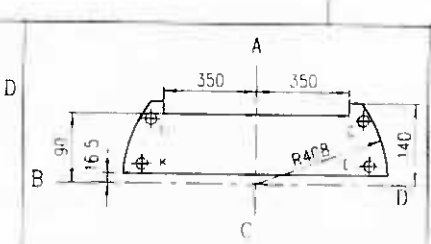
D.C BAFFLE - 1(POS NO 7)

10 THK - 9 Nos.



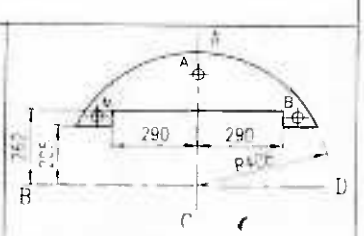
D.C BAFFLE - 2(POS NO 8)

10 THK - 9 Nos



D.S BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

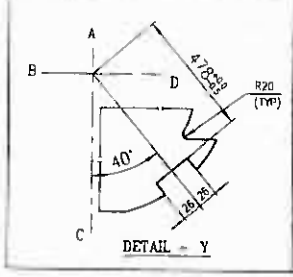


D.S BAFFLE - 2(POS NO 10)

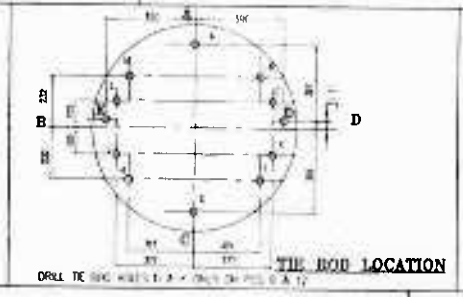
16 THK - 2 Nos

NOTES:-

1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{+0.43}_{-0.68}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.43}_{-0.68}$ HOLES IN SUPPORT PLATES FOR TUBES.
5. DRILL & REAM ø16.27 $^{+0.05}$ HOLES IN D.S BAFFLES FOR TUBES.
6. FOR TUBE LAYOUT REF. DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014
8. TUBE HOLE FINISH $\sqrt{}$ FOR BAFFLES AND SUPPORT PLATES.
9. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE.7.1036.
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING.
11. DRILL TIE ROD HOLES E, H, K ONLY ON POS 9 & 12

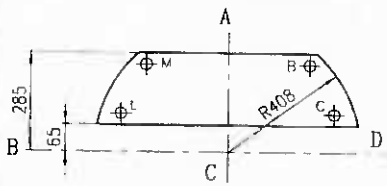


DETAIL - Y



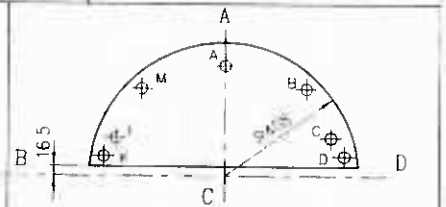
TIE ROD LOCATION

DRILL TIE ROD HOLES E, H & K ONLY ON POS 9 & 12



D.S BAFFLE - 3(POS NO 11)

16 THK - 3 Nos



D.S BAFFLE - 4(POS NO 12)

16 THK - 2 Nos

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	A K SAHOO			N A
CHD	K KISHORE	KKK	09.01.20	
APPD.	S N B	TSNB	09.01.20	

REV.	DATE	ALTERED	CHD/APPD
ZONE			

REV.	DATE	ALTERED	CHD/APPD
ZONE			

REV.	DATE	ALTERED	CHD/APPD
ZONE			

DEPT. CODE	UNTOL. DIMS GR.	SCALE	WEIGHT (KGS)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HE.E 405	9/M/F	N.T.S	NA	NA	N A	N A

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARE CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT No. 1 NO. OF SHT 1

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO. | COMPUTER FILE NAME

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Jan Mon 20 09:40:2020

Printed by : NARESH ERAKAM-RC P-NAME8019 / 6140211 on 06-04-23 10:17:11

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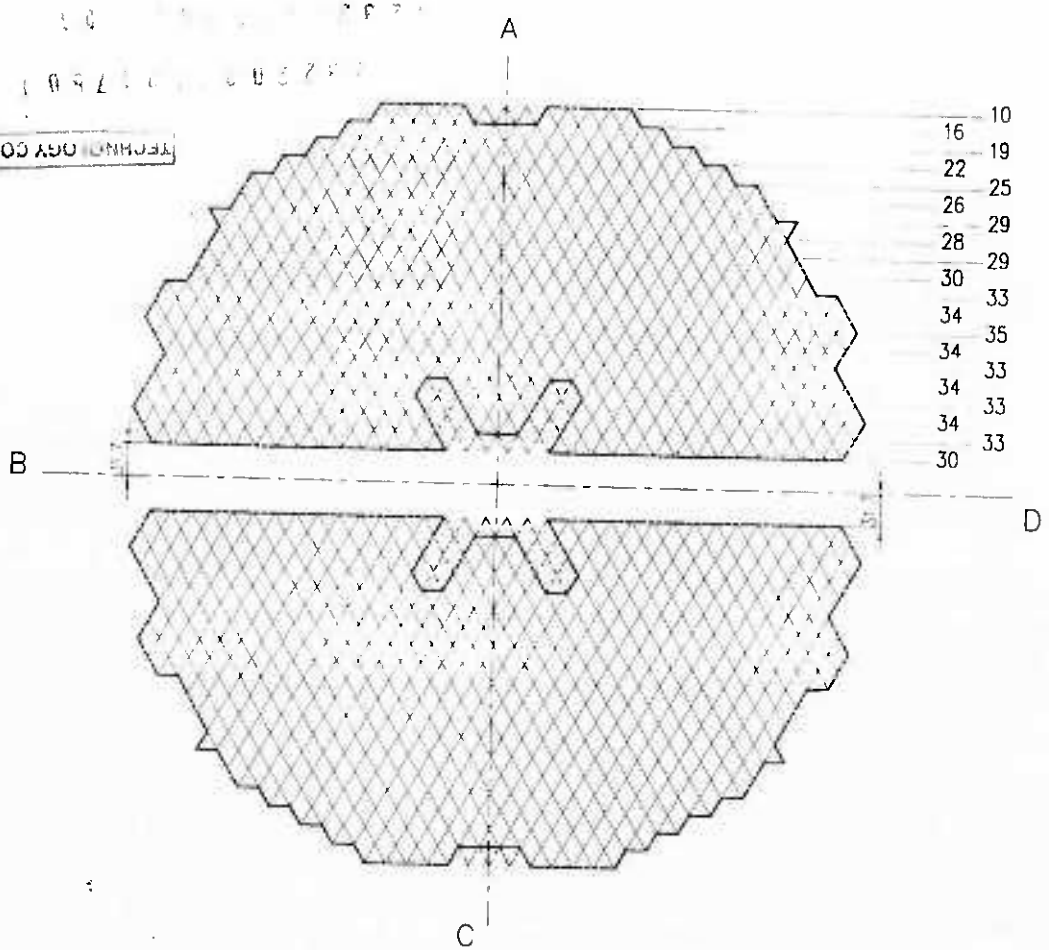
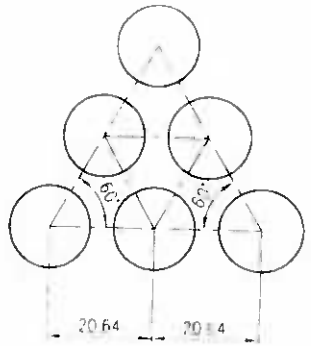
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm

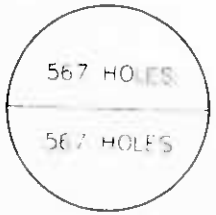
DRG. NO. 3-175-01-01789

TECHNOLOGY COPY





TUBE PITCH



NOTE: –

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05. ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05
3. O.T.L = ø 800

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO OF VAR
DRN	S.RAMA RAO		06.05.10	NA
CHD	J.S.RAO		10.05.10	
APPD	KIRAN KUMAR		10.05.10	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD

DEPT	GRADE OF TOL. DIM.	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405	C/M/F	NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No 1 NO OF SHEETS 1

INVENTORY NO SIGN AND DATE REF DRG NO.

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10-05-2010
15 20 06

Printed by : NARESH BRAKAM RCP WME8019 / 6140211 on 06-04-23 10:16:46

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TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
102026739	26.04.2023

Plant: P006 Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1232200054-17501	NALCO-ANGUL	17501008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	6.000	6.000	EA	IS06	32.200		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		17501009	MA BY QC				
AA10119		619.236	KG	830.000	990.000	0.000	F1	6.000	ST12

Material Description : PLATE 16 IS2062 GR.250(FE410W) QLTY-B | Reservation : 0014620350 | Item : 0001 | Picklist:1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0011	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

Nalco P-1232200054-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X O16.2 -0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3 Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X O28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

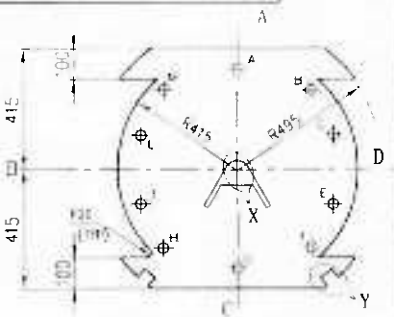
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

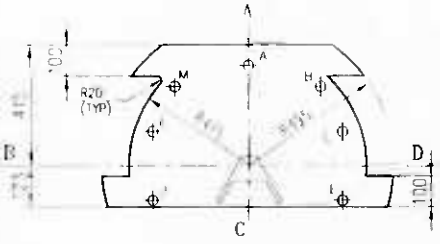
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



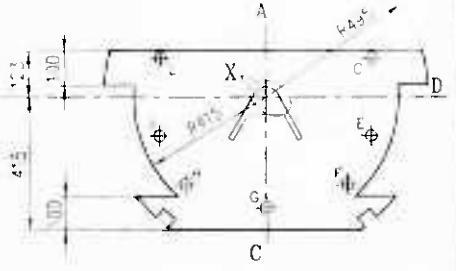
SUPPORT PLATE - 1(POS. NO 3)

16 THK - 1 No



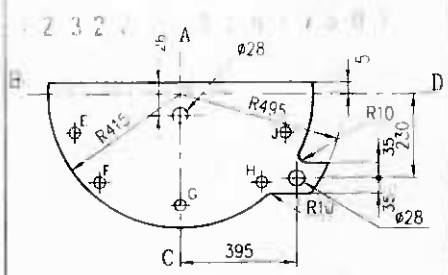
SUPPORT PLATE - 2(POS. NO 4)

16 THK - 6 Nos



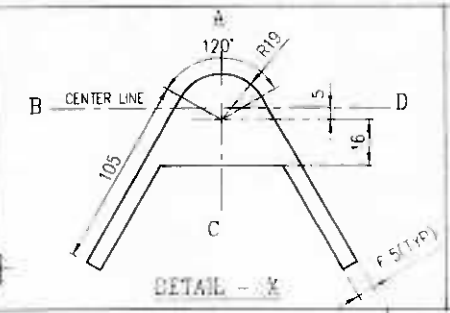
SUPPORT PLATE - 3(POS. NO 5)

16 THK - 6 Nos

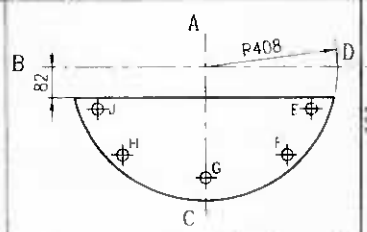


SUPPORT PLATE - 4(POS. NO 6)

16 THK - 1No.

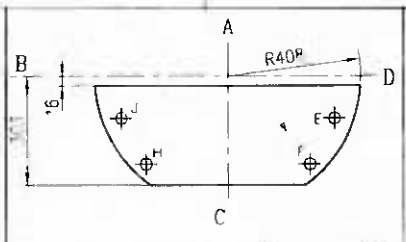


DETAIL - X



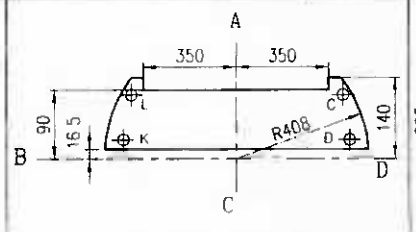
DC BAFFLE - 1(POS. NO 7)

10 THK - 9 Nos



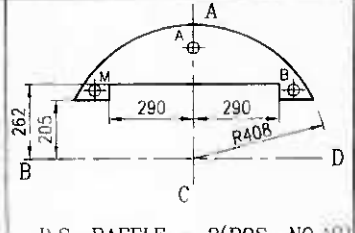
DC BAFFLE - 2(POS. NO 8)

10 THK - 9 Nos



DS BAFFLE - 1(POS. NO 9)

16 THK - 3 Nos

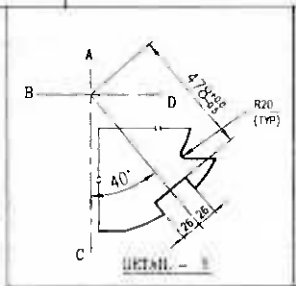


D.S. BAFFLE - 2(POS. NO 10)

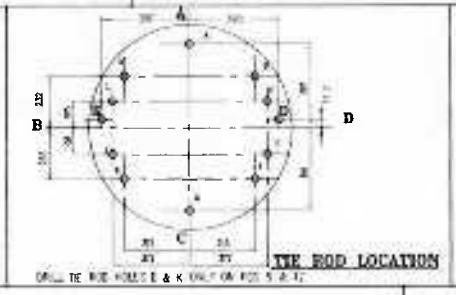
16 THK - 3 Nos

NOTES:-

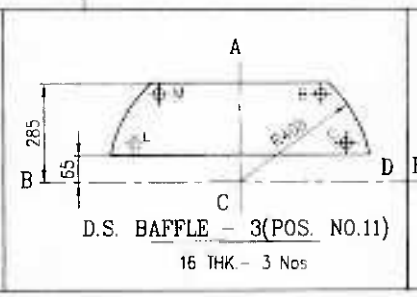
1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ⌀23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE ROD.
3. DRILL ⌀16.50 $^{+0.43}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ⌀16 [illegible] HOLES IN SUPPORT PLATES FOR TUBES.
5. DRILL & REAM ⌀16.27 $^{+0.05}$ HOLES IN D.S. BAFFLES FOR TUBES.
6. FOR TUBE LAYOUT REF. DRG. NO. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7 1014.
8. TUBE HOLE FINISH 3.2 FOR BAFFLES AND SUPPORT PLATES.
9. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE.7 1036.
10. [illegible] & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING.
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12.



DETAIL - Y

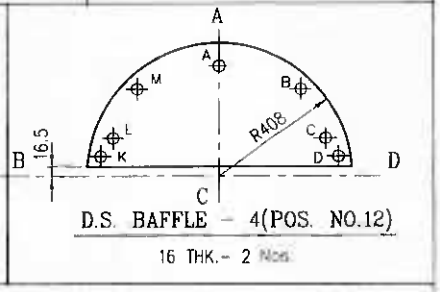


TIE ROD LOCATION



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
DRN.	A K SAHOO		09.01.20	- N A -
CHD.	K KISHORE KUMAR	KKK	09 01 20	
APPD.	S N BHARADWAJ	TSNB	09 01 20	

REV.	DATE	ALTERED	CHD/APPD

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO	NO.OF ITEMS
HEE	¢/M/f	NTS	NA	NA	NA	N A

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH 5)

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT. 1

COMPUTER FILE NAME | REF. DRG. NO. | SIGN. AND DATE | INVENTORY NO

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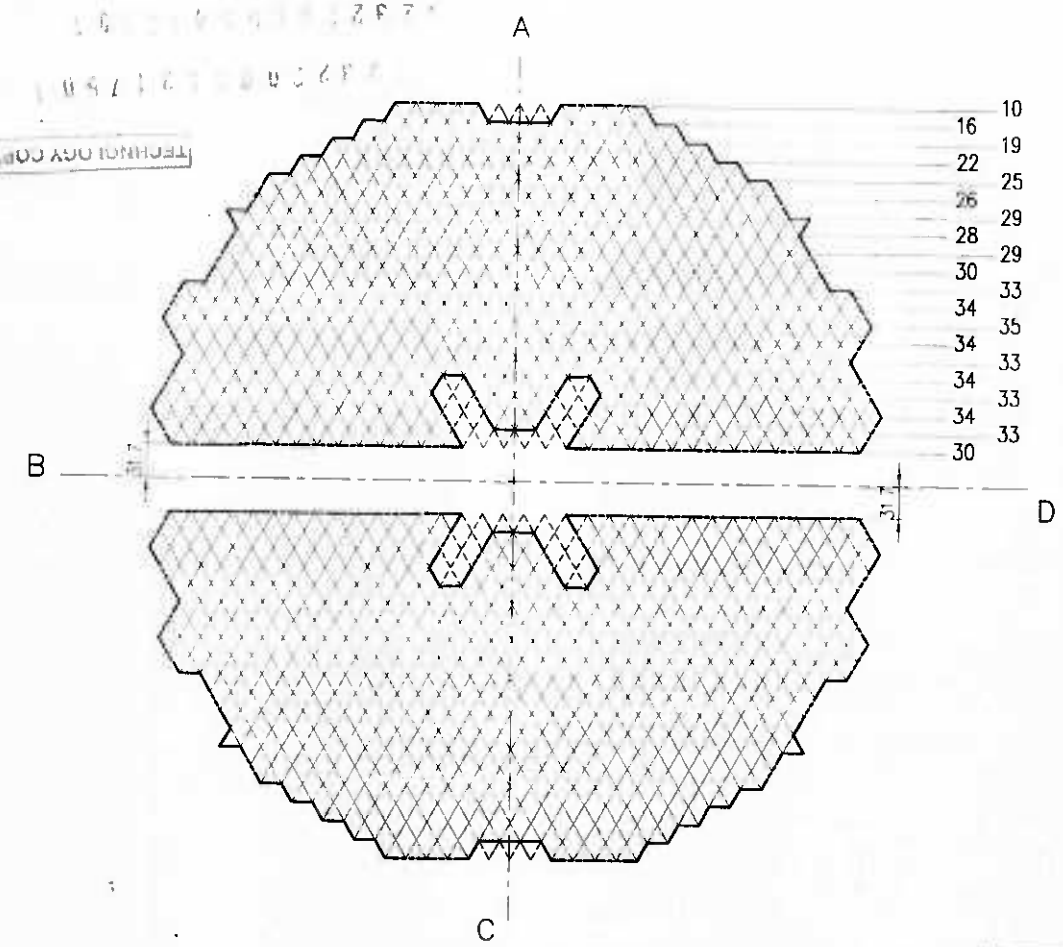
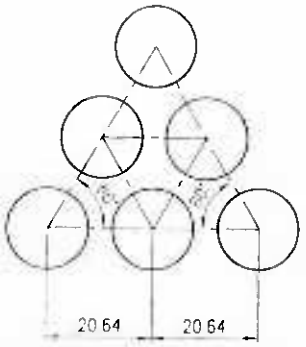
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm

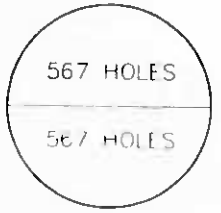
DRG NO. 3-175-01-01789

TECHNOLOGY COPY





TUBE PITCH



NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

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INVENTORY NO SIGN AND DATE DRG. NO.

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	S.RAMA RAO		06.05.10	NA
CHD.	J.S.RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA
CODE 405						

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010
15:20:06

Printed by : NARESH ERAKANI-RC P-WME8019 / 6140211 on 06-04-23 10:16:46

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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102026601	26.04.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200053-17501	NALCO-ANGUL	17501018

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-00MC	DC BAFFLE(MC)

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0010	18.000	18.000	EA	IS06	18.500		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819074	17501019	MA BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		484.272	KG	420.000	816.000	0.000	F1	18.000	ST12

Material Description : PLATE 10 IS2062 GR1.250(FE410W) QLTY-B | Reservation : 0014620492 | Item : 0001 | Picklist:1000654451

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0101	DA9995	P006	ZP04	0.000	0.000	0.650	0.000	

Nalco P-1232200053-17501 DC Baffles

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of 567 holes X O16.5 +0.45 -0.0 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 5 through holes X O23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to R2 on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

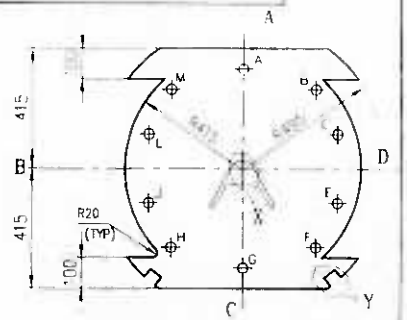
RE-PRINT
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

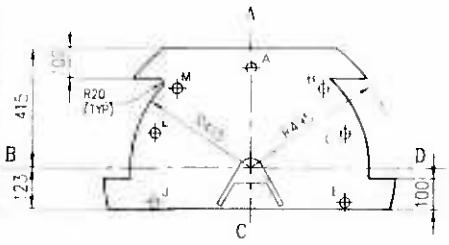
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



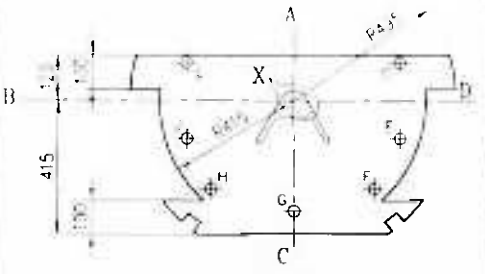
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



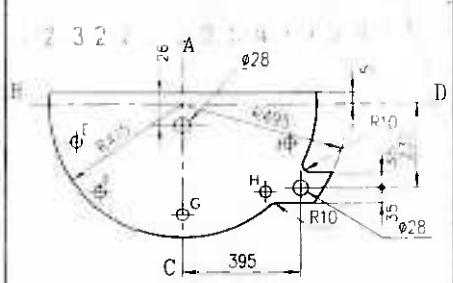
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



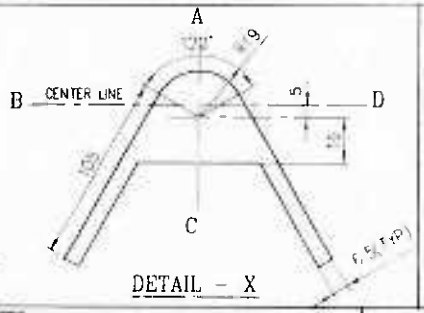
SUPPORT PLATE - 3(POS NO 5)

16 THK - 6 Nos

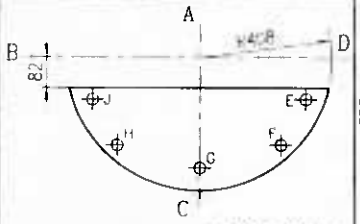


SUPPORT PLATE - 4(POS. NO 6)

16 THK.- 1No

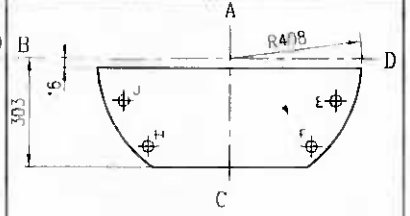


DETAIL - X



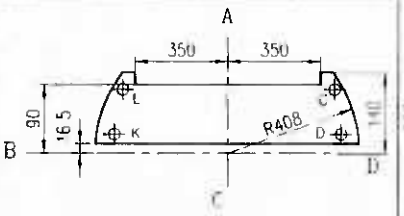
D.C. BAFFLE - 1(POS NO 7)

10 THK - 9 Nos.



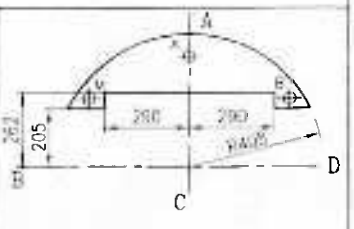
D.C. BAFFLE - 2(POS NO 8)

10 THK - 9 Nos



D.S. BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

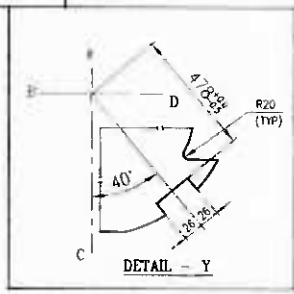


D.S. BAFFLE - 2(POS NO 10)

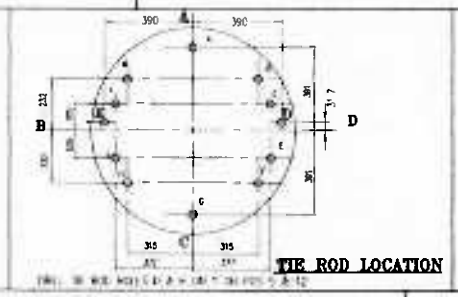
16 THK - 3 Nos

NOTES -

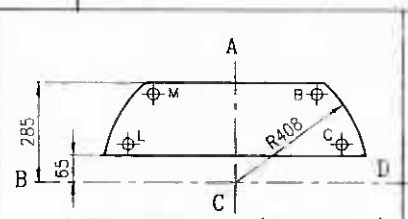
1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{+0.43}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.43}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES
5. DRILL & REAM ø16.27 $\pm$ 0.05 HOLES IN D.S BAFFLES FOR TUBES
6. FOR TUBE LAYOUT REF. DRG. No. 3-175-01-01769
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014
8. TUBE HOLE FINISH $\sqrt{32}$ FOR BAFFLES AND SUPPORT PLATES
9. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE.7.1036.
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12



DETAIL - Y

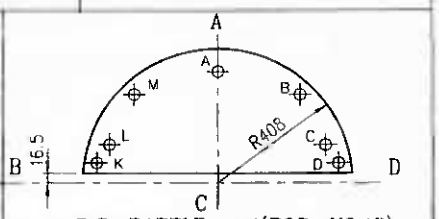


TIE ROD LOCATION



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR
DRN.	A K SAHOO	AKS	09.01.20	
CHD.	K KISHORE	KKK	09.01.20	N A
APPD.	T S N BHA	TSNB	09.01.20	

REV.	DATE	ALTERED	CHD/APPD
ZONE			

DEPT.	UNTOL. DIMS.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
H.E.E	GR.	N.T.S.	NA	NA	NA	N A
CODE 305	ø/M/F					

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CAGE CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT. 1

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COMPUTER FILE NAME | REF. DRG. NO. | SIGN. AND DATE | INVENTORY NO

Printed by : NARESH ERAKANI-RC [illegible] ME8019 / 6140211 on 06-04-23 10:17:11

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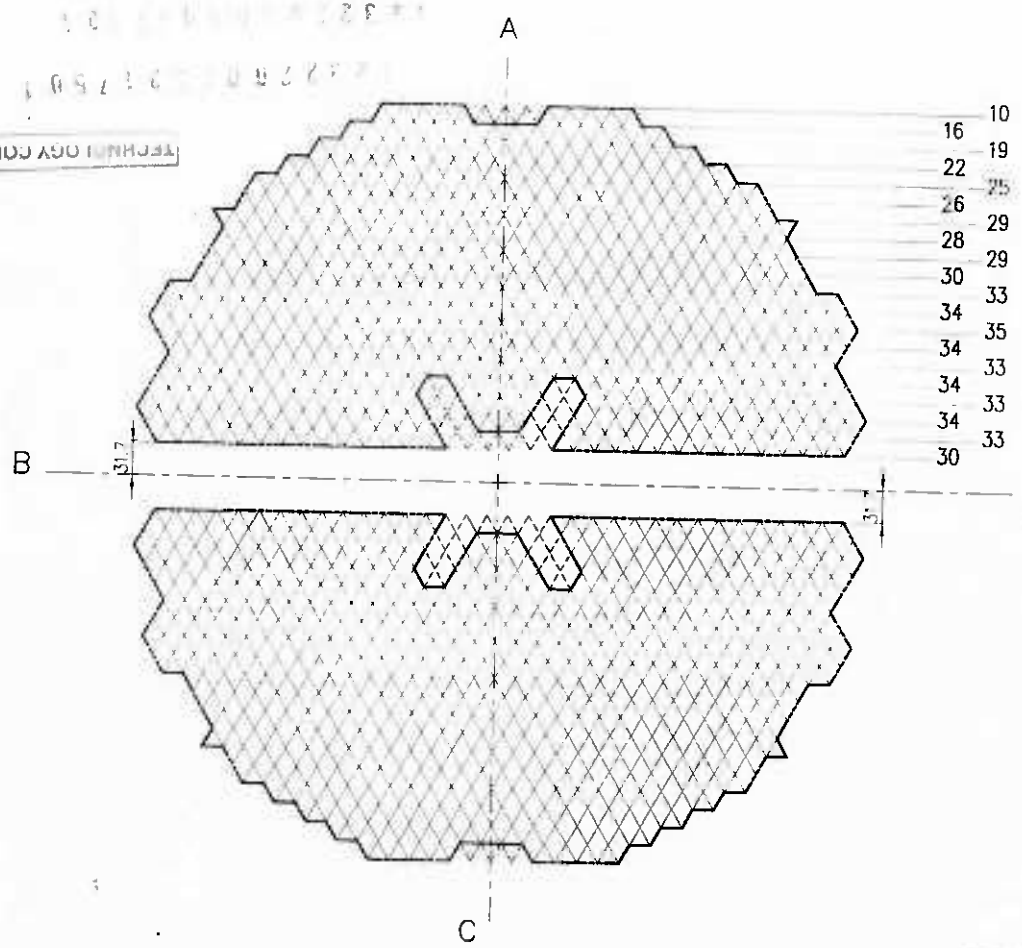
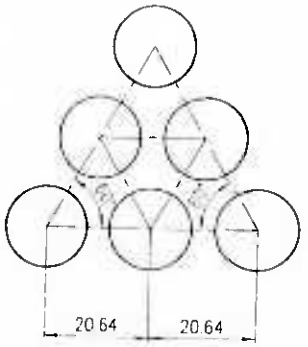
FIRST ANGLE PROJECTION

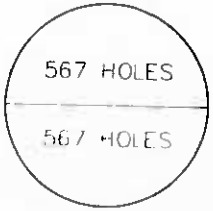
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-01789





TUBE PITCH



NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05
3. O T L = ø 800

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	S RAMA RAO		06.05.10	NA
CHD.	J.S.RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA
CODE 405						

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010
15:20:06

Printed by : NARESH ERAKAM-RC P-WME8019 / 6140211 on 06-04-23 10:16:46

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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102032078	07.06.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200055-17501	DVC KODERMA- 2X500MW	17501004

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
21750100768-00	00		21750100768-00	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0002	5.000	5.000	EA	IS06	73.000		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	17501005	MA by QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		746.125	KG	1,090.000	1,090.000	0.000	F1	5.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(FE410W) QLTY-B	Reservation : 0014663694	Item : 0001	Picklist:1000656028

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0091	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

DVC Koderama P-1232200055-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 2362 holes X Ø16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no. WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION
(ALL DIMENSIONS ARE IN mm)
SH. 1 OF 1
2-175-01-00768
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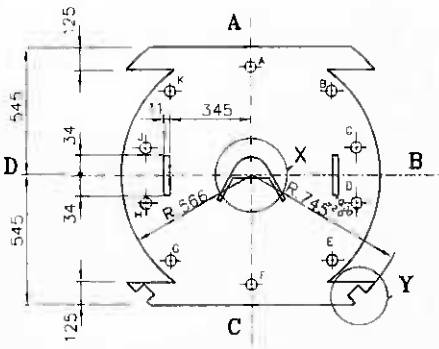
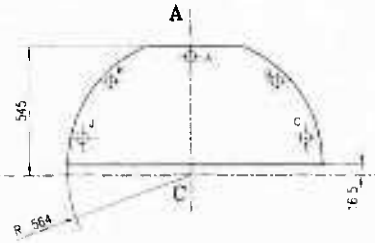
GENERAL DIMENSIONAL LIMITS,FITS & TOLERANCES AS PER HY0230261



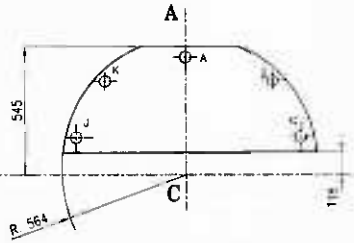
SUPPORT PLATE – 2

5-REQD. 16THK.



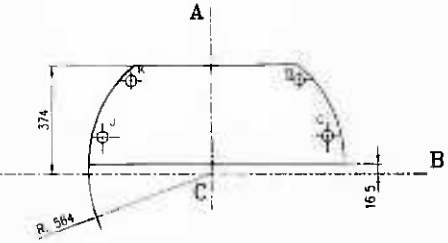
D.S.H.BAFFLE – 3

3-REQD.16 THK.



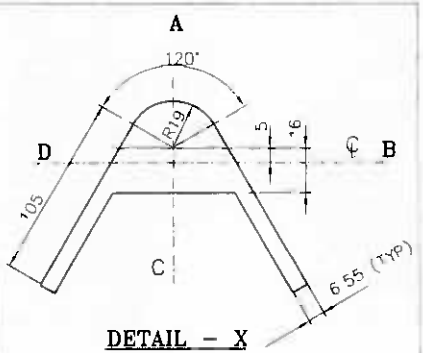
D.S.H.BAFFLE – 4

2-REQD.16 THK.

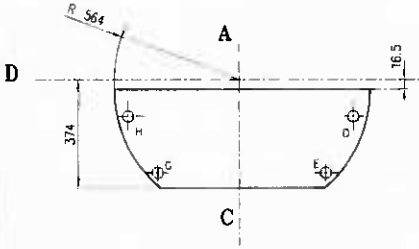


D.S.H.BAFFLE – 5

2-REQD.16 THK.

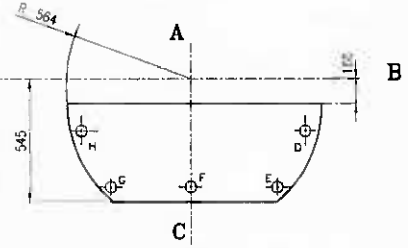


DETAIL – X



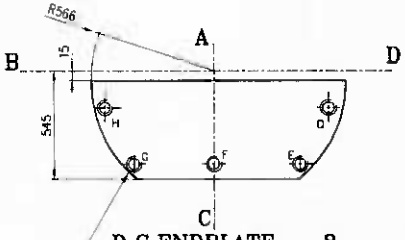
D.C.BAFFLE – 6

9-REQD.10 THK.



D.C.BAFFLE – 7

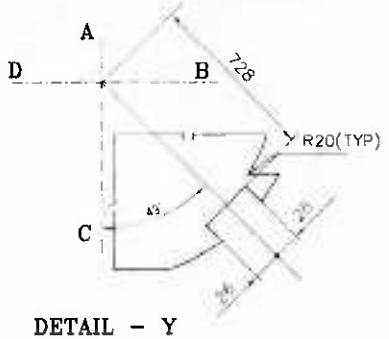
10-REQD.10 THK.



D.C.ENDPLATE – 8

1-REQD.60THK.

5-TAPPED HOLES OF M20 OF DEPTH 30 DO NOT DRILL THROUGH.



DETAIL – Y

NOTES:-

1. PLATE MATERIAL TO BE IS 2062/SAILMA GR60 /70
2. TUBE HOLES (BOTH SIDES) OF ALL PLATES TO BE ROUNDED OFF R.2
3. DRILL ø 23 HOLES IN SUPPORT PLATES & BAFFLES FOR ø20 TIE RODS
4. DRILL ø16.50 $^{+0.45}_{0.00}$ HOLES IN D.C.BAFFLES FOR TUBES
5. DRILL ø16.20 $^{+0.45}_{0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
6. DRILL & REAM ø16.27 $^{\pm 0.05}$ HOLES IN D.S.H. BAFFLES FOR TUBES.
7. FOR TUBE LAYOUT REF DRG NO 2-17501-00696.
8. FOR TIE ROD LOCATION REF DRG NO 2-17501-00697
9. TUBE HOLES IN D.C.END PLATE (POS NO 8) TO BE ø16.13 $^{\pm 0.05}$
10. FOR UNSPECIFIED TOLERANCES REFER PRODUCT STD HE 7 1036
11. TUBE HOLE FINISH $\sqrt{}^{6.3}$ FOR BAFFLES & SUPPORT PLATES

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE					ZONE					ZONE				

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DRN	S.SRINIVAS	DATE 18.12.03	SCALE VAR.
CHD	MATHEW	18.12.03	NA
APPD	T.SRINIVAS	18.12.03	

DEPT	GRADE OF TOL.DIM C/W/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO OF ITEMS
422		NTS	NA	NA	NA	NA

TITLE: SUPPORT PLATES & BAFFLES DETAILS FOR 5A/B

CARD CODE

DRAWING NO. 2-175-01-00768

REV. 00

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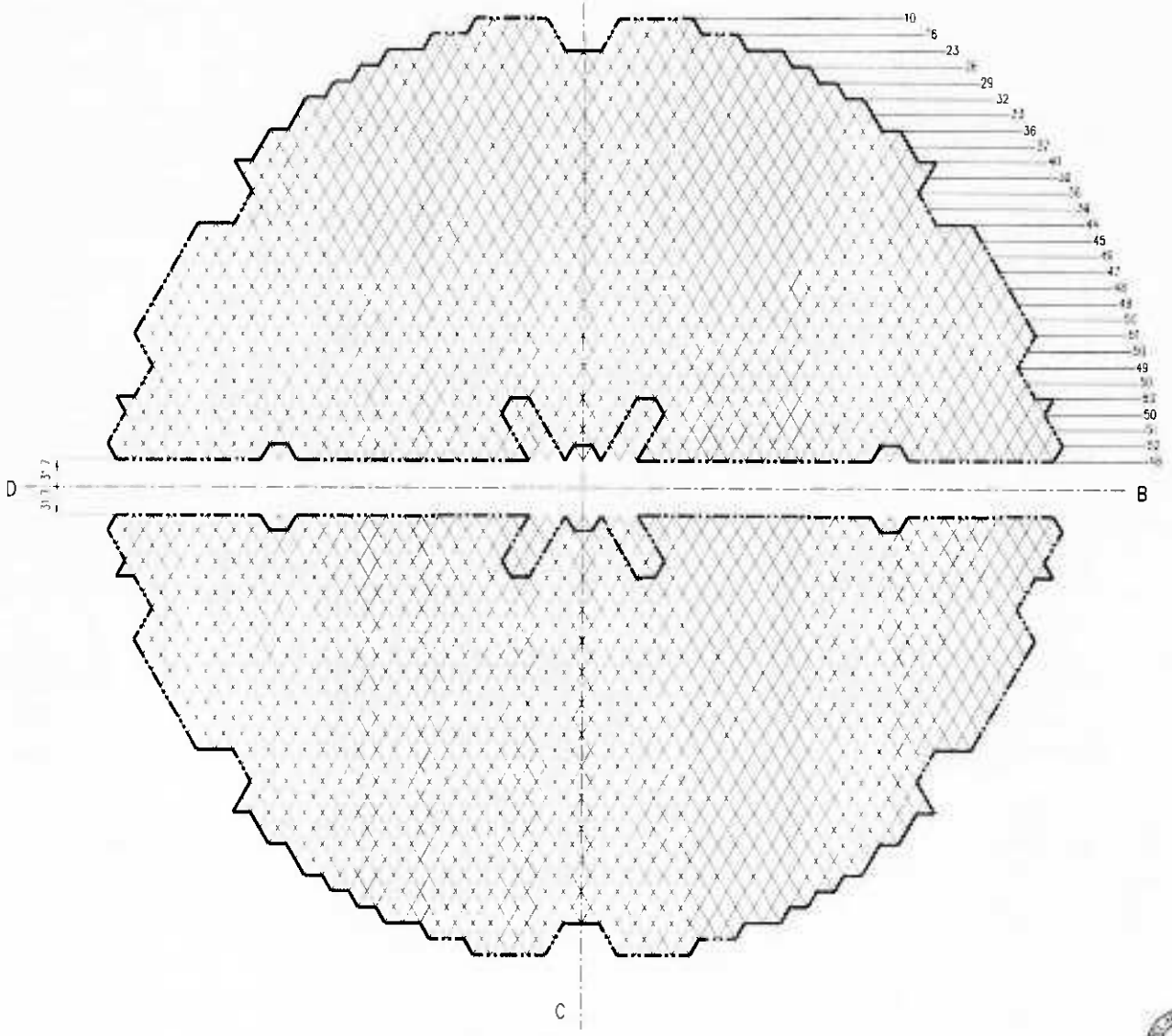
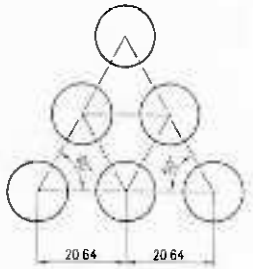
FIRST ANGLE PROJECTION

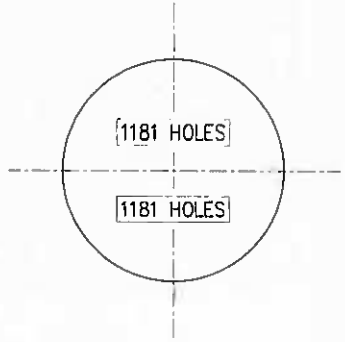
(ALL DIMENSIONS ARE IN MM)

2-175-01-00696



TUBE PITCH





NOTES :-

1. TOTAL NUMBER OF HOLES = 2362.
2. TUBE HOLE SIZE IN TUBE SHEET ø 16.13 ±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05 MM
3. OTL = ø 1115.

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

DRN	[illegible]	[illegible]	[illegible]	29.04.02		NA
CHD	[illegible]	[illegible]		6/7/02		
APPD	[illegible]	[illegible]		6/7/02		

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR H.P HEATER 5A/B,6A/B)

CARD CODE

DRAWING NO: 2-175-01-00696

REV. 00

SHEET NO 1 NO OF SHEETS

GENERAL DIMENSIONAL LIMITS,FITS & TOLERANCES AS PER HYD230261

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COMPUTER FILE NAME

REF DRG NO

SIGN AND DATE

INVENTORY NO

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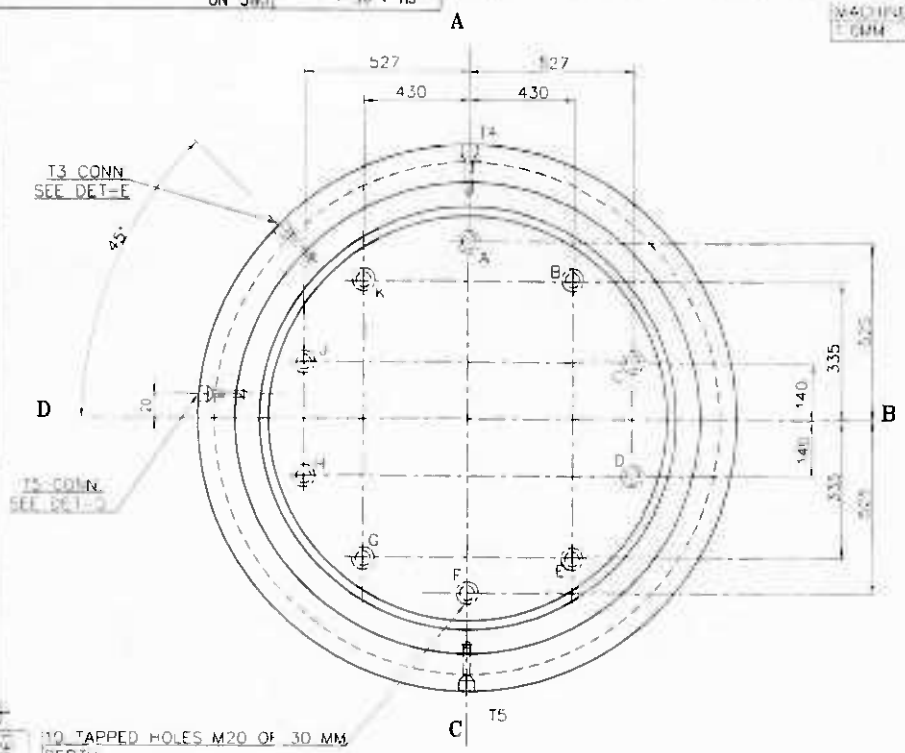
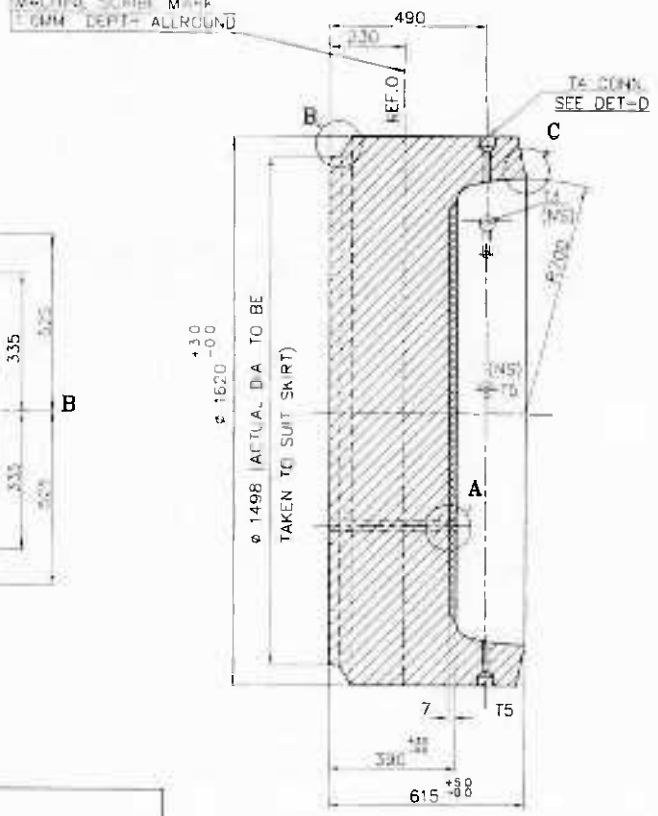
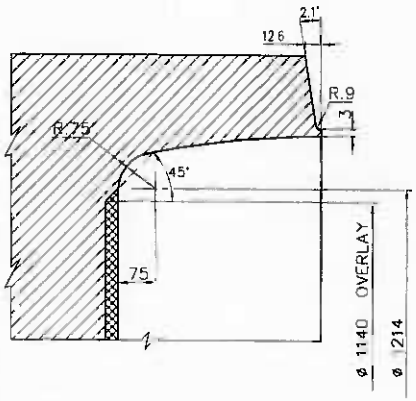
FIRST ANGLE PROJECTION

2-175-01-00697





DETAIL-C 12.5



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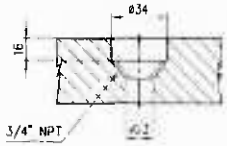

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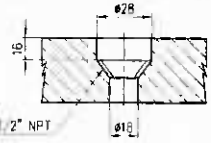
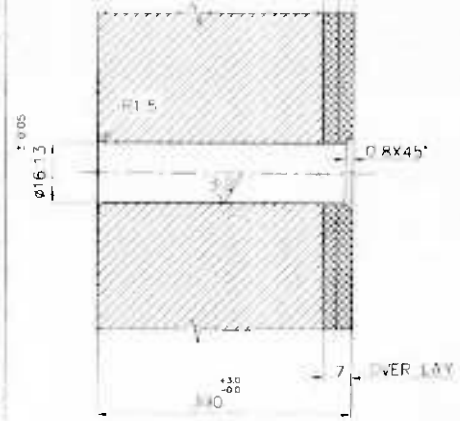
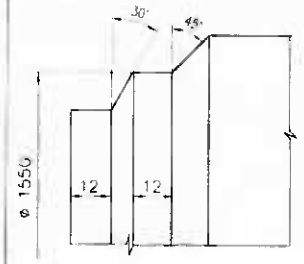


DETAIL – A



DETAIL – B 12.5



NOTES:-

1. FOR STAIN LESS STEEL OVER LAY FOLLOW WELD DETAIL W1 AFTER OVER LAY U.T. REQUIRED
2. FOR TUBE LAYOUT REF. DRG No. 2-17501-00696
3. FOR WELD SYMBOLS & PROCEDURES SEE DRG No. 3-17501-00544
4. M.T REQUIRED FOR WELD END EDGE PREPN. DETAIL-B & C
5. ACCEPTENCE STD. OF U.T. FOR OVERLAY HE 7 1046.
6. P.W.H.T AFTER OVERLAY REQD.
7. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE 7 1036

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER

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NO.	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 500 MW

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DRN	A.ESWARA		DATE 3/9/10	SHEET SIZE A1
CHD	M.A.[illegible]		3/9/10	NA
APPD	[illegible]		3/9/10	

GRADE OF TOLDIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
	NTS	NA	NA	23	NA

TITLE: **TUBE SHEET FOR H.P.HEATERS 5A/B**

CARD CODE

DRAWING NO. 2-175-01-00697 REV. 00

SHEET No. 1 NO OF SHEETS 1

INVENTORY NO

This Drawing is printed from Engineering Digital Archive System (EDAS)

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102026740	26.04.2023

Plant: P006	Equipment No:		
Type	**WBS Element**	**Customer / Project Name**	**Part No**
	P-1232200054-17501	NALCO-ANGUL	17501010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
317501026I1	00		317501026I1-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0005	6.000	6.000	EA	IS06	32.200		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec		SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112			17501011	MA BY QC				
AA10119			619.236	KG	830.000	990.000	0.000	F1	6.000	ST12
Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B					Reservation : 0014620351		Item : 0001		Picklist:1000654698	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0041	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

Nalco P-1232200054-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X O16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X O28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no. WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

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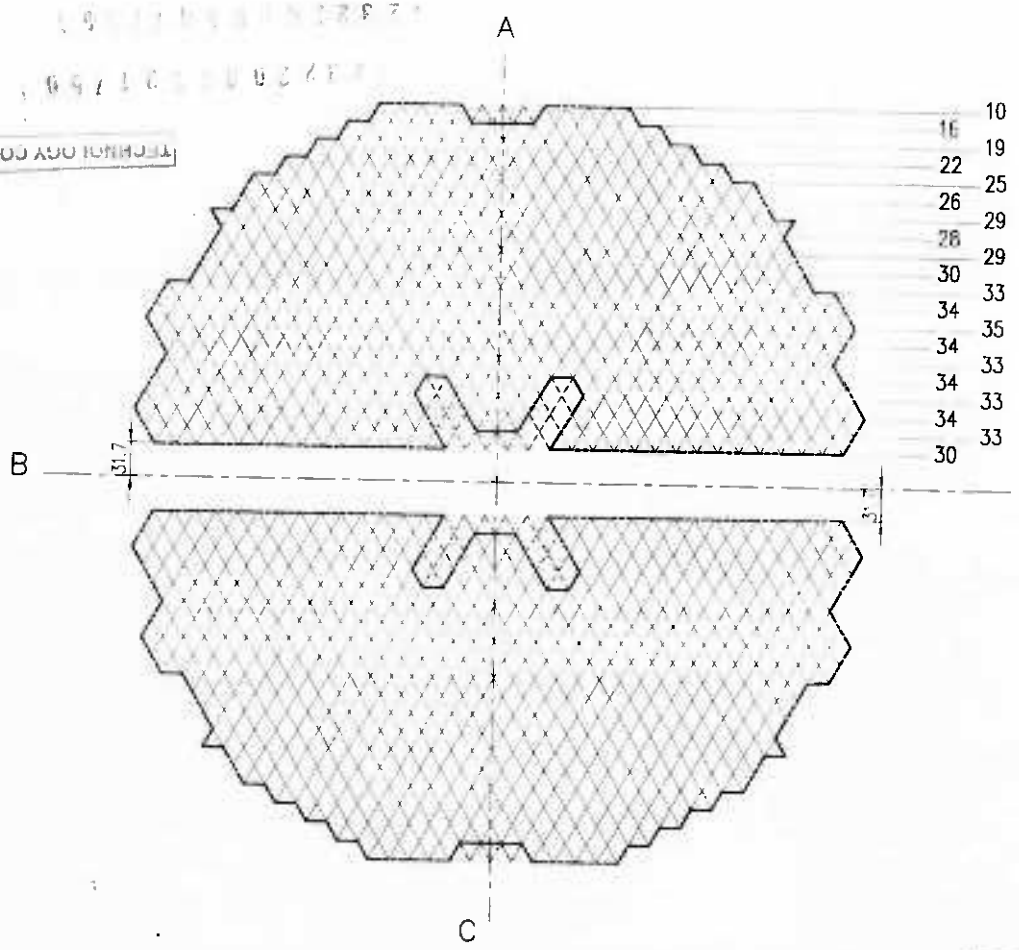
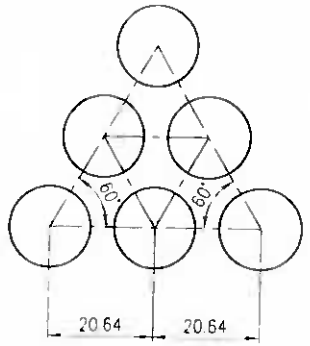
SIGN AND DATE
REF DRG. NO.
INVENTORY NO

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-01789





TUBE PITCH

567 HOLES

567 HOLES

NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	S RAMA RAO		06 05 10	NA
CHD.	J.S RAO		10 05 10	
APPD.	KIRAN KUMAR		10 05 10	

RESTRICTED USE

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010 15:20:06

Printed by : NARESH ERAKANI-RC P-WME8019 / 6140211 on 06-04-23 10:16:46

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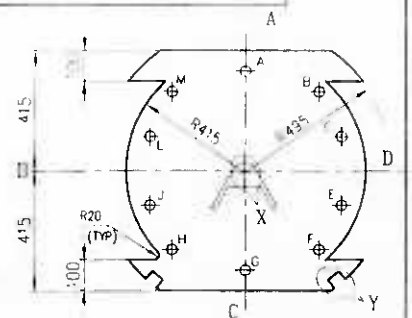
Therefore signatures are not essentially required

FIRST ANGLE PROJECTION

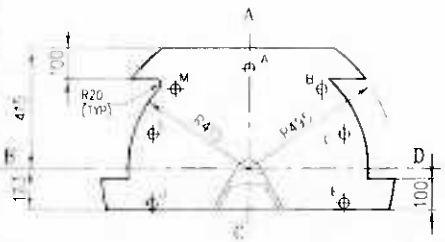
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



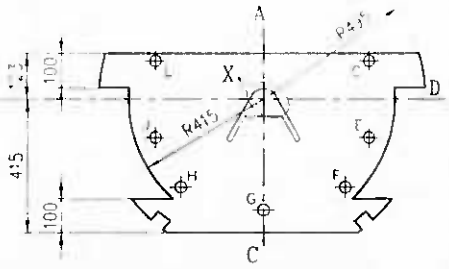
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



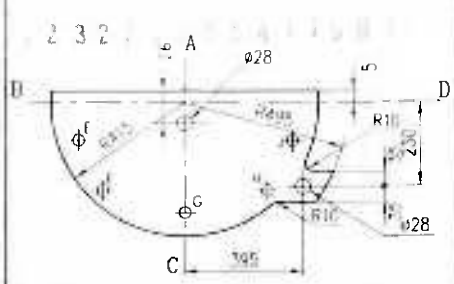
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos.



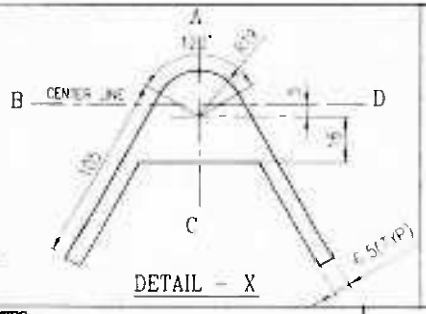
SUPPORT PLATE - 3(POS NO 5)

16 THK - 6 Nos.

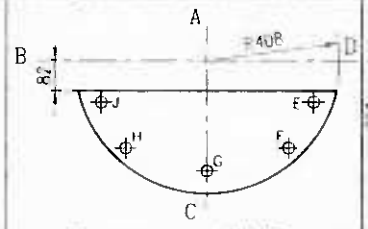


SUPPORT PLATE - 4(POS NO 6)

16 THK - 1No.

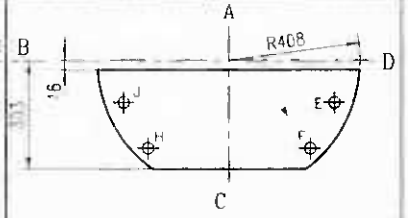


DETAIL - X



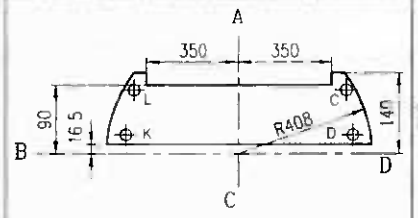
D C BAFFLE - 1(POS NO 7)

10 THK - 9 Nos



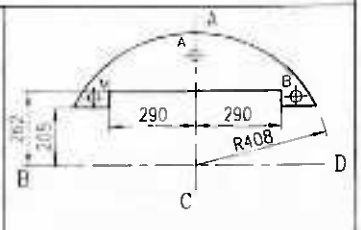
D C BAFFLE - 2(POS NO 8)

10 THK - 9 Nos



D S BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

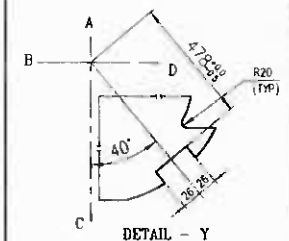


D S BAFFLE - 2(POS NO 10)

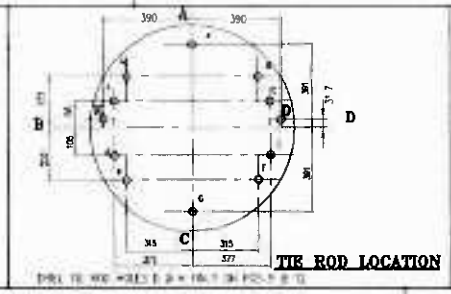
16 THK - 3 Nos

NOTES:-

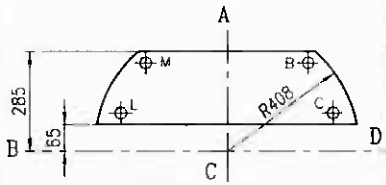
1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{0.45}_{0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{0.45}_{0.00}$ HOLES IN SUPPORT PLATES FOR TUBES
5. DRILL & REAM ø16.27 $^{0.05}_{0.00}$ HOLES IN D.S BAFFLES FOR TUBES
6. FOR TUBE LAYOUT REF DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014
8. [illegible] HOLE FINISH $\sqrt{6.3}$ FOR BAFFLES AND SUPPORT PLATES
9. FOR UNSPECIFIED TOLERANCES REF PROD. STD. HE.7.1036.
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12



DETAIL - Y

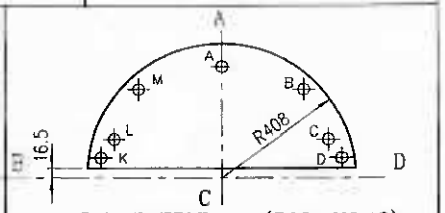


TIE ROD LOCATION



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	A K SAHOO	[illegible]	09.01.20	- N.A. -
CHD.	K. KISHORE KU[illegible]	KKK	09.01.20	
APPD.	T S N BHARADWAJ	TSNB	09.01.20	

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
		DRG/APPD			DRG/APPD			DRG/APPD
ZONE			ZONE			ZONE		

DEPT. H.E.E.	UNTOL. DIMS. GR. ℄/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
		NTS	NA	NA	NA	- N.A. -

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH 5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT. 1

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO. | COMPUTER FILE NAME

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Printed by : NARESH ERAKAM-RCP-[illegible] ME8019 / 6140211 on 06-04-23 10:17:11

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TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
102026729	26.04.2023

Plant: P006 Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1232200054-17501	NALCO-ANGUL	17501006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	EA	IS06	45.420		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	17501007	MA BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		86.526	KG	830.000	830.000	0.000	F1	1.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(FE410W) QUTY-B | Reservation : 0014620349 | Item : 0001 | Picklist:1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
0101	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

Nalco P-1232200054-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X Ø16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X Ø28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION
ALL DIMENSIONS ARE IN mm
DRG. NO. 3-175-01-01789
TECHNOLOGY COPY
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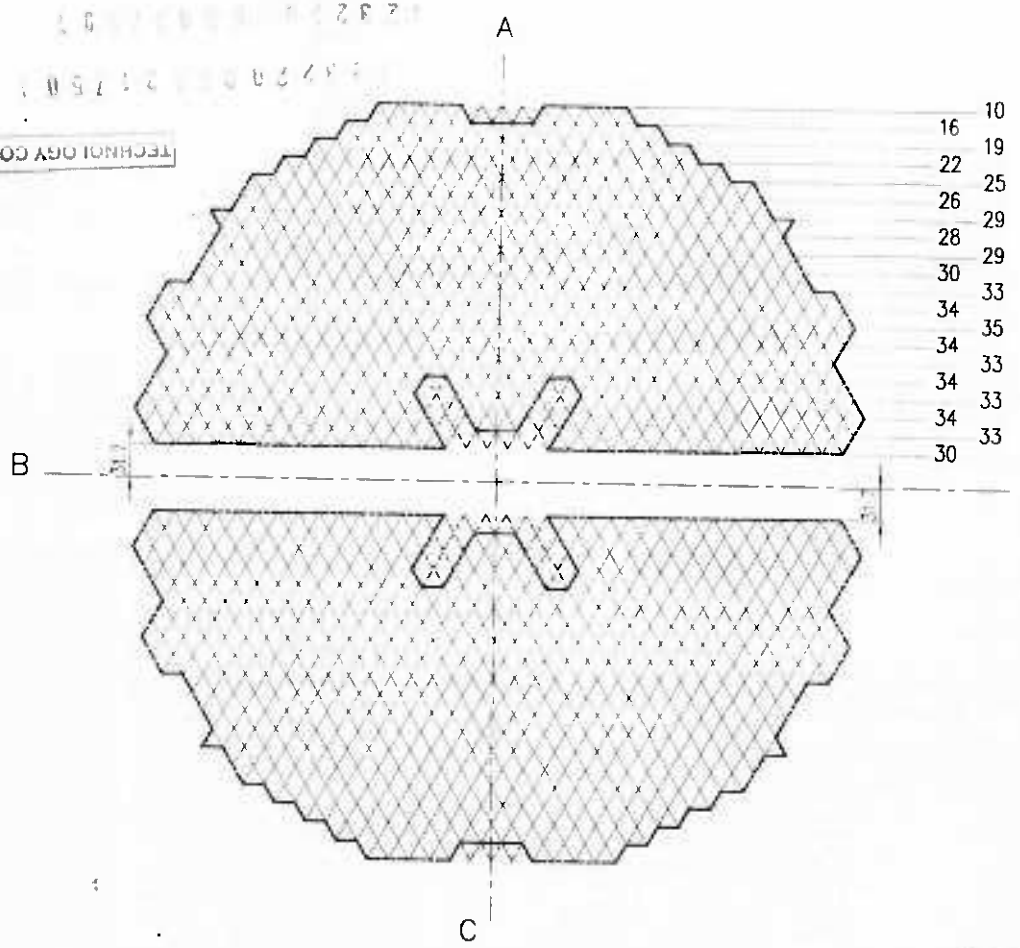
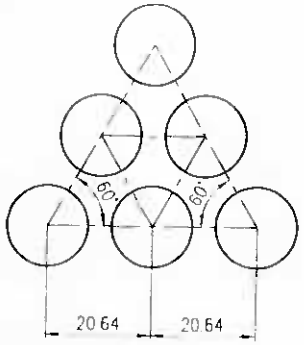
INVENTORY NO | SIGN AND DATE | REF DRG NO.





TUBE PITCH

567 HOLES

567 HOLES

NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134.
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05
3. O T L = ø 800

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	S.RAMA RAO		06.05.10	NA
CHD.	J.S.RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

MATERIAL	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV. 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010
15:20:06

Printed by : NARESH ERAKAM-RC P-WME8019 / 6140211 on 06-04-23 10:16:46
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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102026700	26.04.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200054-17501	NALCO-ANGUL	17501015

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-00MC	DC BAFFLE(MC)

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0010	18.000	18.000	EA	IS06	18.500		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
Matl.Spec	SPK	Qty MU	Size 1	Size 2 Size 3 Formula Key MPcs St.
0001	R	AA1011819074	17501019	MA BY QC
AA10119		484.272 KG	420.000	816.000 0.000 F1 18.000 ST12
Material Description : PLATE 10 IS2062 GR1250(FE410W) QLTY-B			Reservation : 0014620392	Item : 0001 Picklist:1000654451

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0101	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

Nalco P-1232200054-17501 DC Baffles

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of 567 holes X Ø16.5 +0.45 -0.0 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 5 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to R2 on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no. WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

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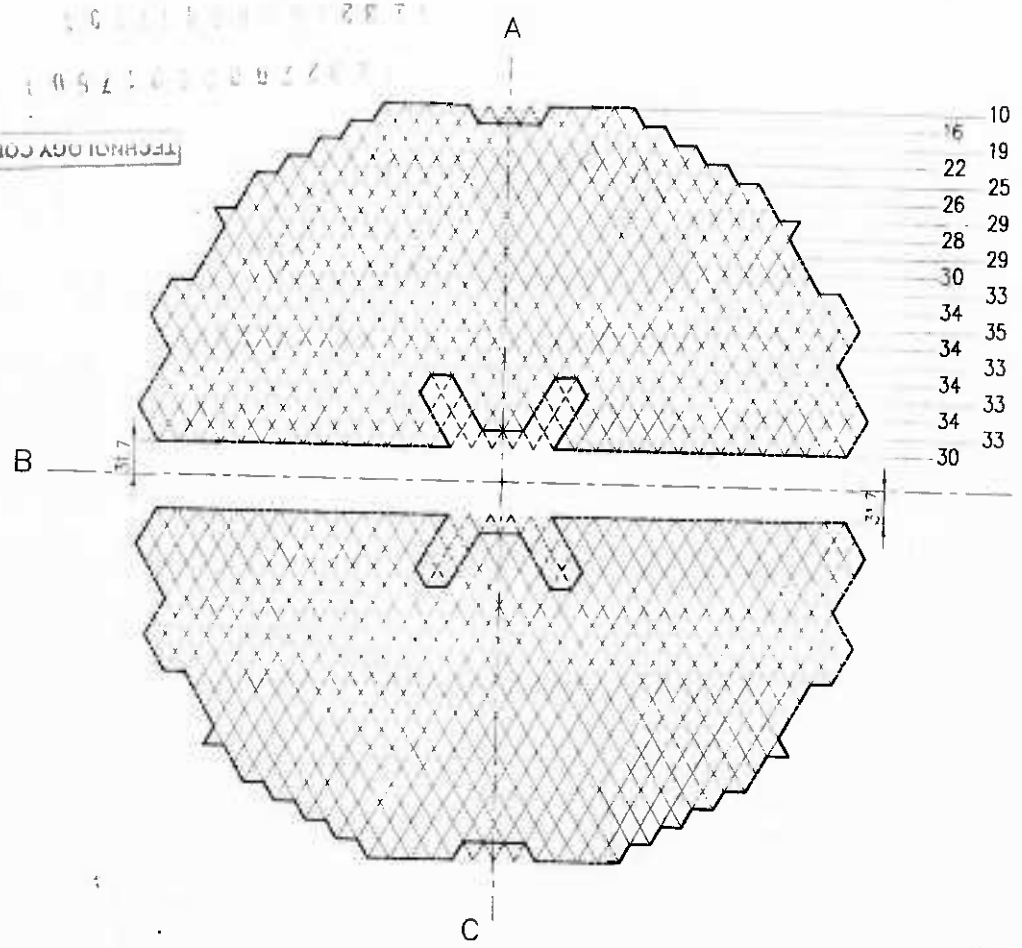
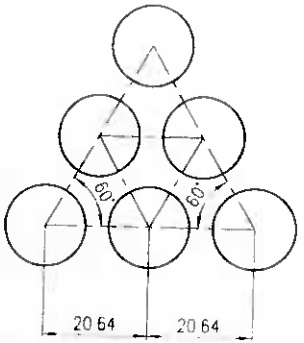
DRG. NO. 3-175-01-01789

(ALL DIMENSIONS ARE IN mm)





TUBE PITCH

567 HOLES

567 HOLES

NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	S.RAMA RAO		06.05.10	NA
CHD.	J.S.RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEC		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No. 1 NO OF SHEETS 1

10.05.2010 15:20:06

Printed by : NARESH ERAKAM-RC P-WME8019 / 6140211 on 06-04-23 10:16:46

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TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
102026745	26.04.2023

Plant	Equipment No.
P006	

Type	WBS Element	Customer / Project Name	Part No
	P-1232200054-17501	NALCO-ANGUL	17501012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-12	SUPPORT PLATE-4

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	1.000	1.000	EA	IS06	18.000		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec		SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112			17501013	MA BY QC				
AA10119			49.147	KG	430.000	910.000	0.000	F1	1.000	ST12

Material Description	Reservation	Item	Picklist
PLATE 16 IS2062 GRE250(FE410W) QLTY-B	0014620358	0001	1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0041	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

Nalco P-1232200054-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X Ø16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X Ø28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-01789

TECHNOLOGY COPY

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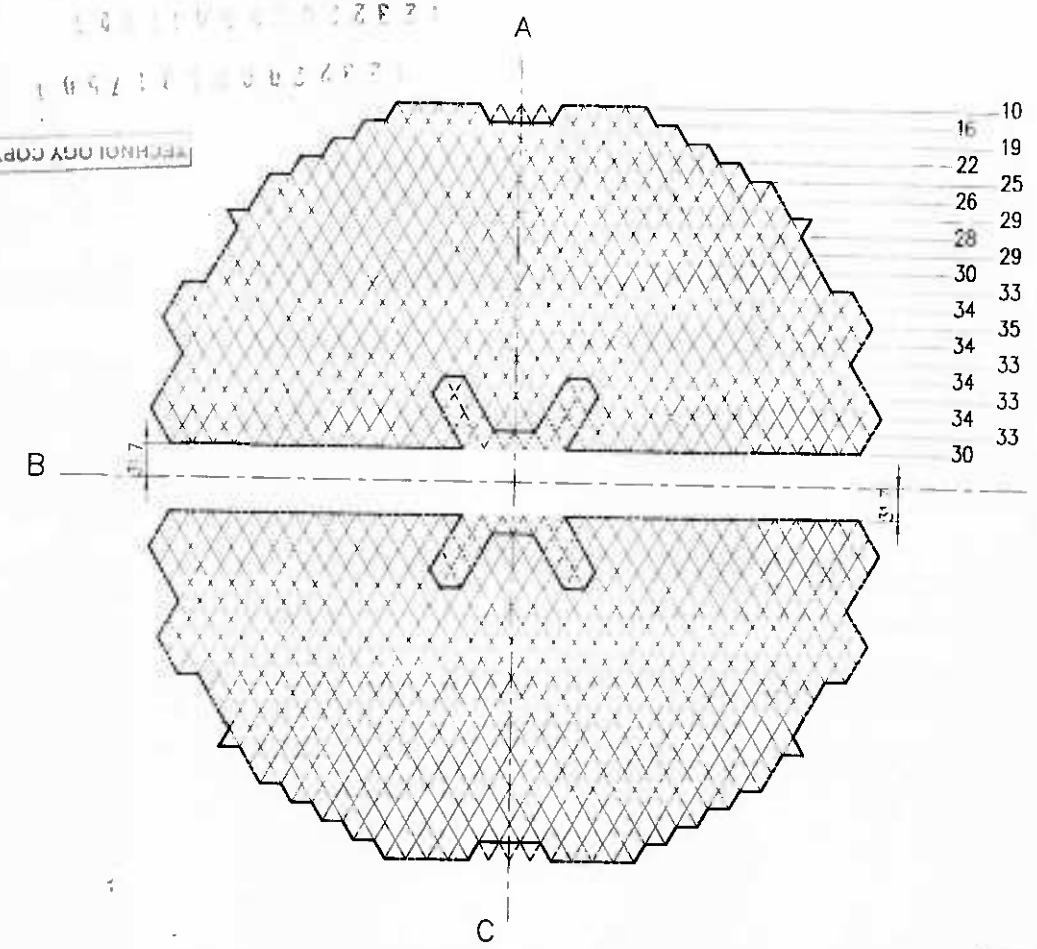
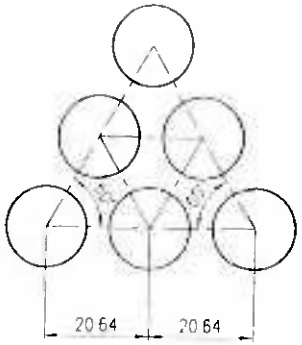
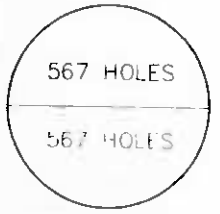
SIGN. AND DATE REF. DRG. NO
INVENTORY NO





TUBE PITCH



NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134.
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	DATE	NO OF VAR.
DRN.	S RAMA RAO	05.05.10	NA
CHD.	J.S.RAO	10.05.10	
APPD.	[illegible]	10.05.10	

DEPT. HE+

GRADE OF TOL.DIM. C/M/F

CODE 405

SCALE: NTS

WEIGHT (KG): NA

REF. TO ASSY DRG.: NA

ITEM NO.: NA

NO.OF ITEMS: NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO.: 3-175-01-01789

REV: 00

SHEET No. 1 NO OF SHEETS 1

10-0[illegible]10
15.20.06

Printed by : NARESH ERAKAM-RCP-WME8019 / 6140211 on 06-04-23 10:16:46

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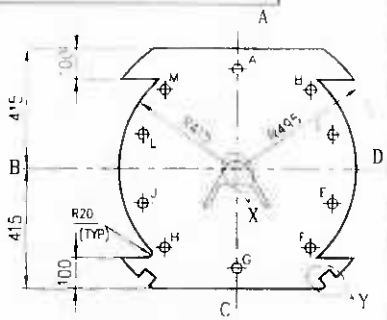
FIRST ANGLE PROJECTION

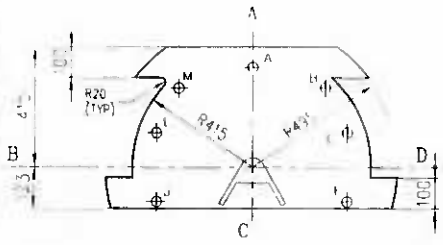
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



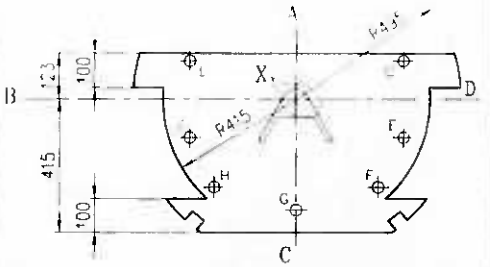
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



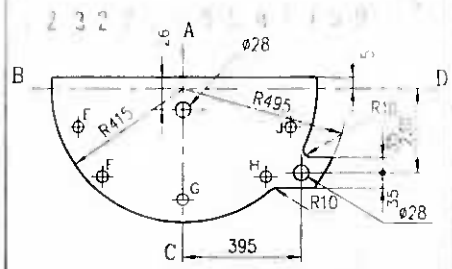
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



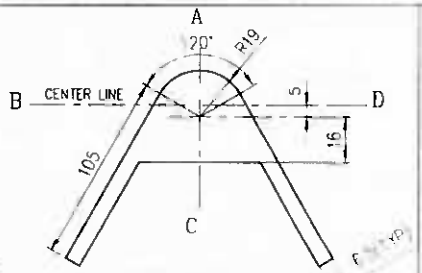
SUPPORT PLATE - 3(POS NO 5)

16 THK.- 6 Nos.

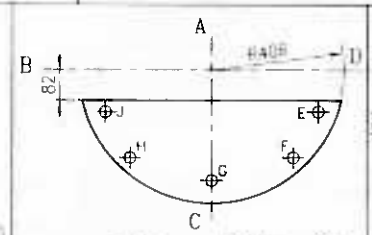


SUPPORT PLATE - 4(POS. NO 6)

16 THK.- 1No.

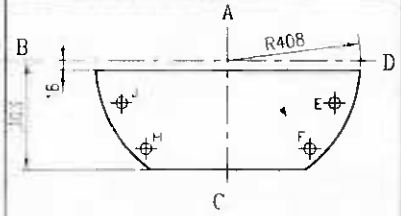


DETAIL - X



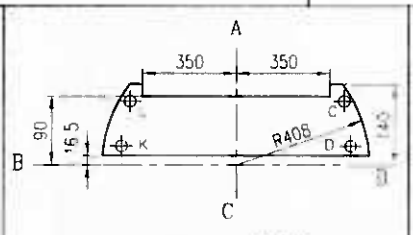
D.C. BAFFLE - 1(POS NO 7)

10 THK - 9 Nos.



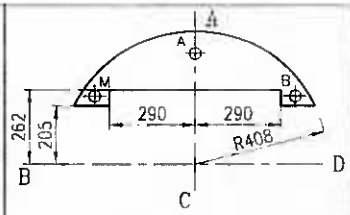
D.C. BAFFLE - 2(POS NO 8)

10 THK - 9 Nos.



D.S. BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

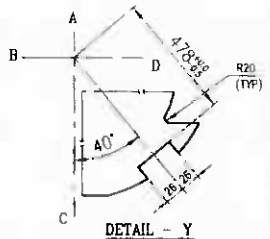


D.S. BAFFLE - 2(POS NO 10)

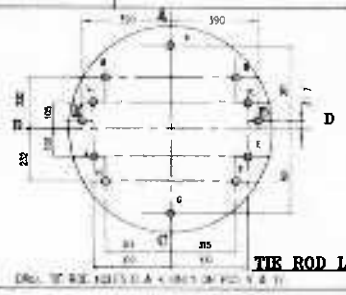
16 THK - 3 Nos

NOTES :-

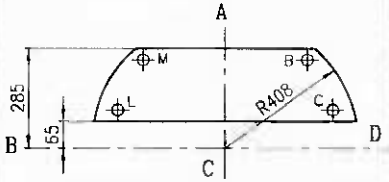
1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL [illegible] HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
5. DRILL & REAM ø16.27 $^{+0.05}_{-0.05}$ HOLES IN D.S. BAFFLES FOR TUBES.
6. FOR TUBE LAYOUT REF. DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014.
8. TUBE HOLE FINISH 6.3 FOR BAFFLES AND SUPPORT PLATES.
9. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE.7.1036.
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING.
11. DRILL TIE ROD HOLES D & K ONLY ON ROD 8 & 12.



DETAIL - Y

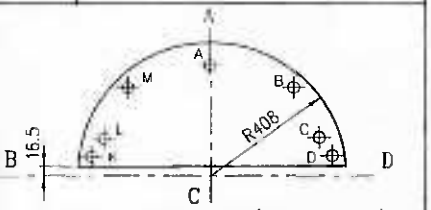


TIE ROD LOCATION



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos.



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR
DRN.	A K SAHOO	[illegible]	09.01.20	
CHD	K KISHORE KUMAR	KKK	09.01.20	N.A.
APPD.	T S N BHARAT	TSNB	09.01.20	

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

DEPT. H.E.E. CODE 405	UNTOL. DIMS. GR ¢/M/F	SCALE N.T.S.	WEIGHT (KG) NA	REF. TO ASSY. DRG. NA	ITEM NO. NA	NO. OF ITEMS N.A.

TITLE SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT. 1

COMPUTER FILE NAME

REF. DRG. NO.

SIGN AND DATE

INVENTORY NO

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Jan Mon 20.09.40 2020

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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102026646	26.04.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200053-17501	NALCO-ANGUL	17501012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-12	SUPPORT PLATE-4

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	1.000	1.000	EA	IS06	18.000		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec		SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112			17501013	MA BY QC				
AA10119			49.147	KG	430.000	910.000	0.000	F1	1.000	ST12
Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B					Reservation : 0014620458		Item : 0001		Picklist:1000654698	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0041	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

Nalco P-1232200053-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X Ø16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X Ø28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

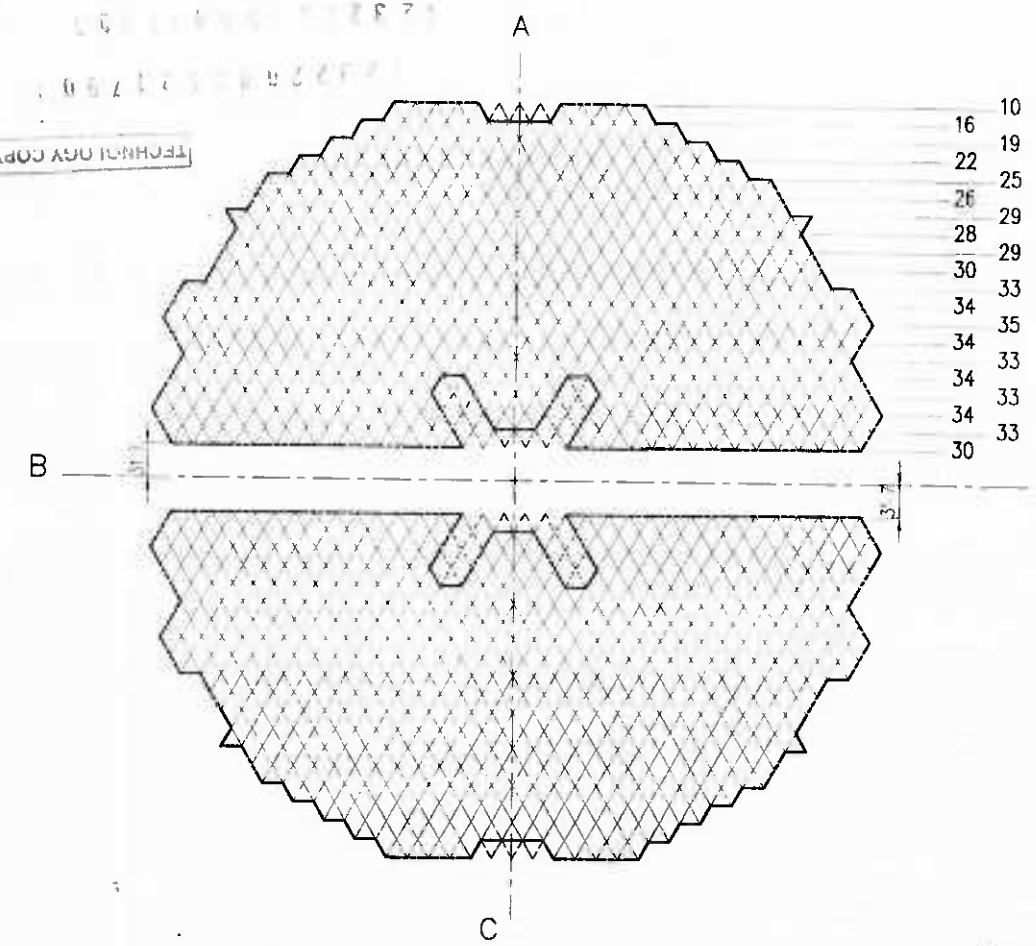
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

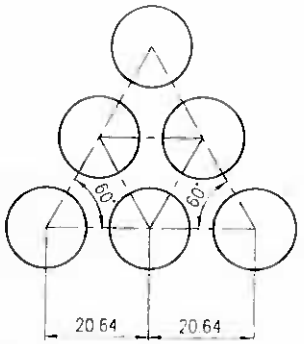
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO 3-175-01-01789

TECHNOLOGY COPY





TUBE PITCH

567 HOLES

567 HOLES

NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134.
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

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INVENTORY NO SIGN AND DATE PER DRG. NO.

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	S.RAMA RAO		06.05.10	NA
CHD.	J.S.RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

TYPE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
HFC		NTS	NA	NA	NA	NA
CODE 4 05						

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV. 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010
15:20:06

Printed by : NARESH ERAKANI-RC P-WME-8019 / 61402 11 on 06-04-23 10:16:46

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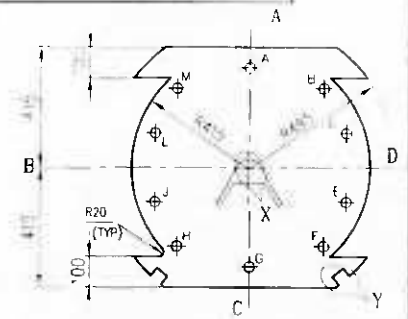
FIRST ANGLE PROJECTION

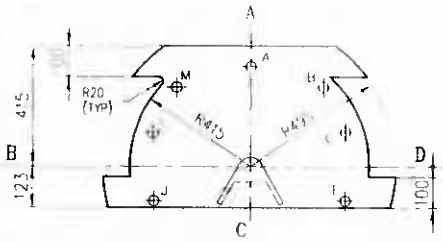
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



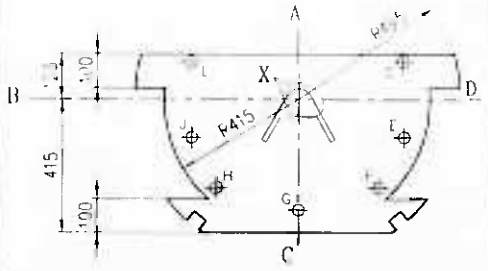
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



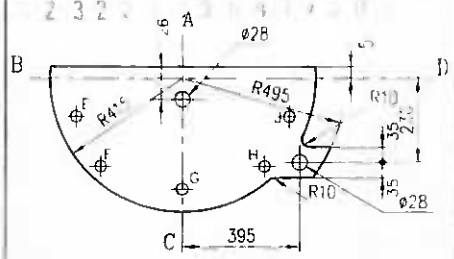
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



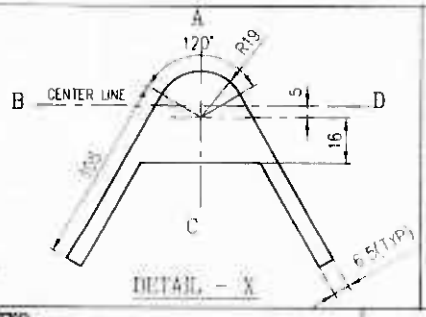
SUPPORT PLATE - 3(POS NO 5)

16 THK - 6 Nos.

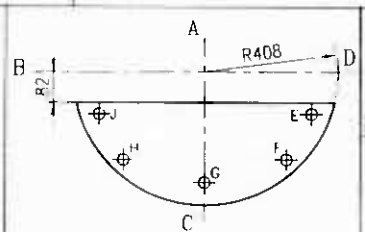


SUPPORT PLATE - 4(POS. NO 6)

16 THK.- 1No.

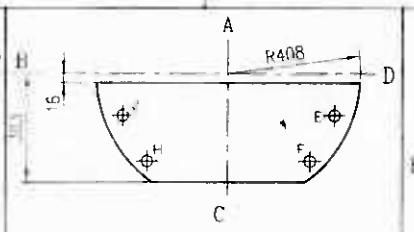


DETAIL - X



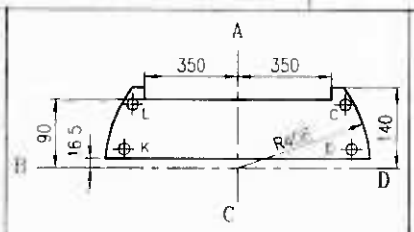
D.C BAFFLE - 1(POS. NO 7)

10 THK - 9 Nos



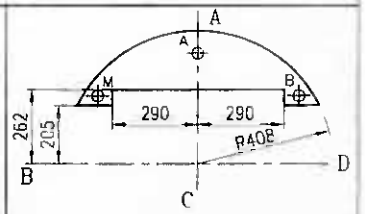
D.C BAFFLE - 2(POS NO 8)

10 THK - 9 Nos



D.S BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

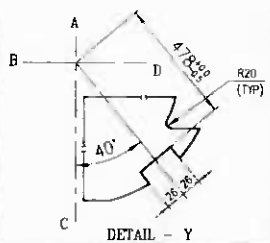


D.S. BAFFLE - 2(POS NO 10)

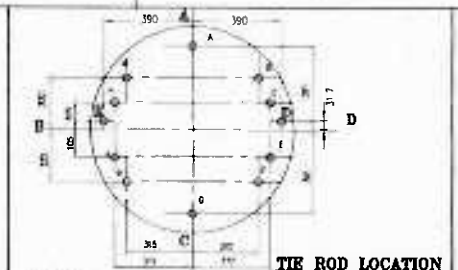
16 THK - 3 Nos

NOTES :-

1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
5. DRILL & REAM ø16.27 $^{+0.05}_{-0.00}$ HOLES IN D.S BAFFLES FOR TUBES.
6. FOR TUBE LAYOUT REF DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE 7 1014
8. TUBE HOLE FINISH 6.3 FOR BAFFLES AND SUPPORT PLATES.
9. FOR UNSPECIFIED TOLERANCES REF PROD STD. HE.7.1
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES E & K ONLY ON POS 9 & 12

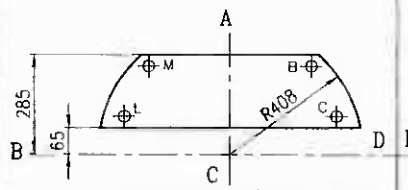


DETAIL - Y



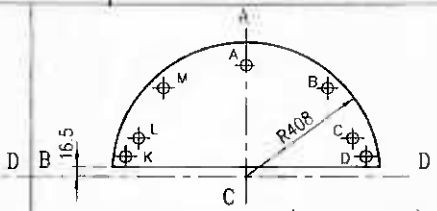
TIE ROD LOCATION

DRILL TIE ROD HOLES E & K ONLY ON POS 9 & 12



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
DRN.	A K SAHOO	[illegible]	09.01.20	N A
CHD.	K KISHORE K[illegible]	KKK	09.01.20	
APPD.	T S N BHARAT	[illegible]	09.01.20	

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

DEPT. H.E.F. CODE 405	UNTOL. DIMS. GR. ¢/M/Y	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
		N.T.S.	NA	NA	NA	N A

TITLE SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT. 1

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COMPUTER FILE NAME | REF. DRG. NO. | SIGN. AND DATE | INVENTORY NO

Jan Mon 20 09 40 2020

Printed by : NARESH ERAKAM-RCP-WME8019 / 6140211 on 06-04-23 10:17:11

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102026641	26.04.2023

Plant: 1006 Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1232200053-17501	NALCO-ANGUL	17501010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31750102611	00		31750102611-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0005	6.000	6.000	EA	IS06	32.200		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	17501011	MA BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		619.236	KG	830.000	990.000	0.000	F1	6.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(FE410W) QUTY-3 | Reservation : 0014620451 | Item : 0001 | Picklist:1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0041	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

Nalco P-1232200053-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X Ø16.2 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X Ø28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

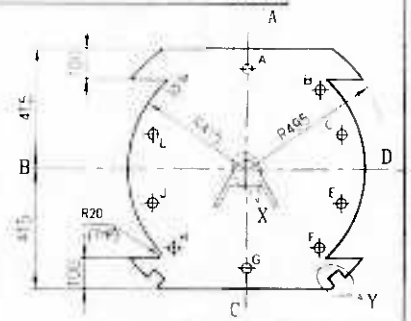
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

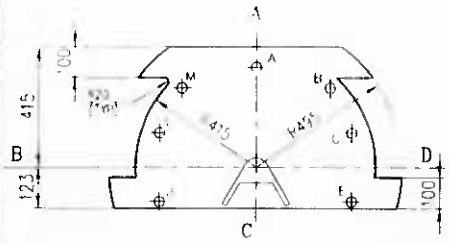
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



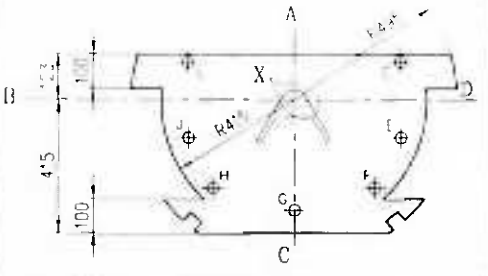
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



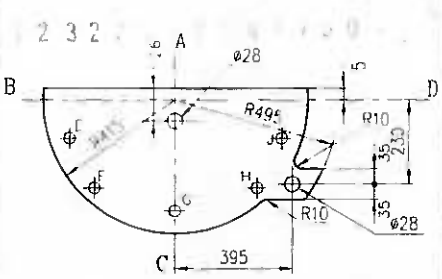
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



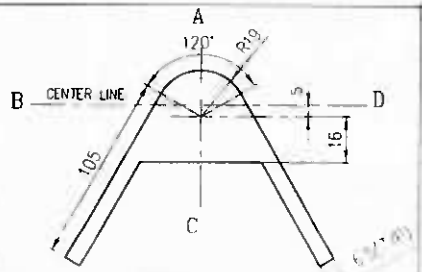
SUPPORT PLATE - 3(POS NO 5)

16 THK - 6 Nos

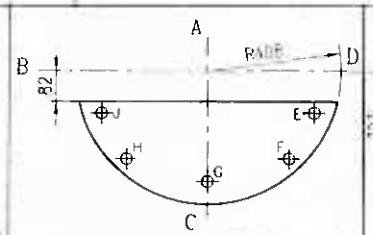


SUPPORT PLATE - 4(POS NO 6)

16 THK - 1No

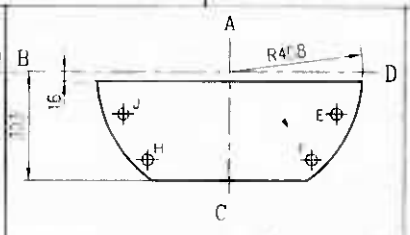


DETAIL - X



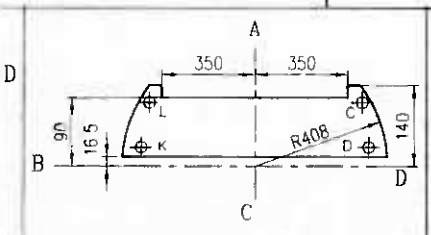
D C BAFFLE - 1(POS NO 7)

10 THK - 9 Nos



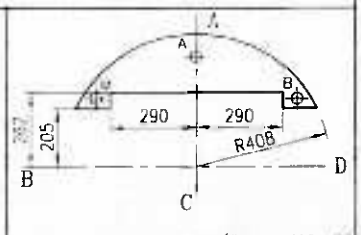
D C BAFFLE - 2(POS NO 8)

10 THK - 9 Nos



D.S BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

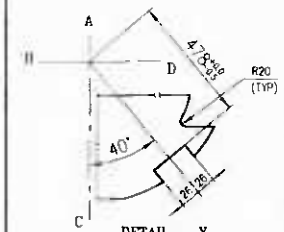


D S BAFFLE - 2(POS NO 10)

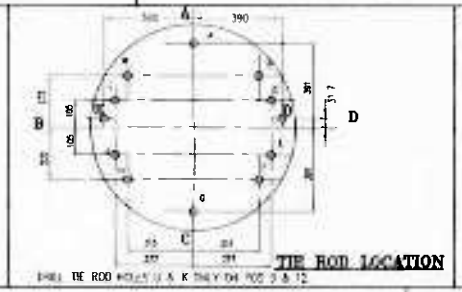
16 THK - 3 Nos

NOTES: -

1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS
3. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES
5. DRILL & REAM ø16.27 $^{+0.05}_{-0.05}$ HOLES IN D S BAFFLES FOR TUBES
6. FOR TUBE LAYOUT REF DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7 1014
8. TUBE HOLE FINISH 6.3 FOR BAFFLES AND SUPPORT PLATES.
9. FOR UNSPECIFIED TOLERANCES REF PROD STD. HE.7 1036
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12

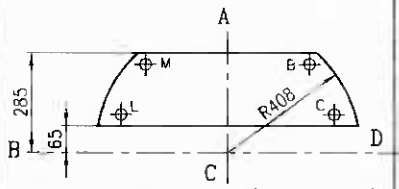


DETAIL - Y



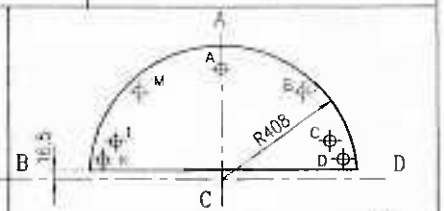
TIE ROD LOCATION

DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos



D.S. BAFFLE - 4(POS. NO 12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	K SAHOO	KKS	09.01.20	N A
CHD.	K KISHORE	KKK	09 01 20	
APPD.	S N BHAKTAV	TSNB	09 01.20	

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

DEPT. H.E.E	UNTOL. DIMS GR.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 405	¢/M/F	N T S	NA	NA	NA	N A

TITLE SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV. 00

SHT. No 1 NO. OF SHT. 1

COMPUTER FILE NAME | REF. DRG. NO. | SIGN AND DATE | INVENTORY NO

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Jan Mon 20 09:40:2020

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Printed by : NARESH ERAKAM-RCP-VAIE8019 / 6140211 on 06-04-23 10:17:11

FIRST ANGLE PROJECTION
ALL DIMENSIONS ARE IN mm
DRG. NO 3-175-01-01789
BHARAT HEAVY ELECTRICALS LIMITED
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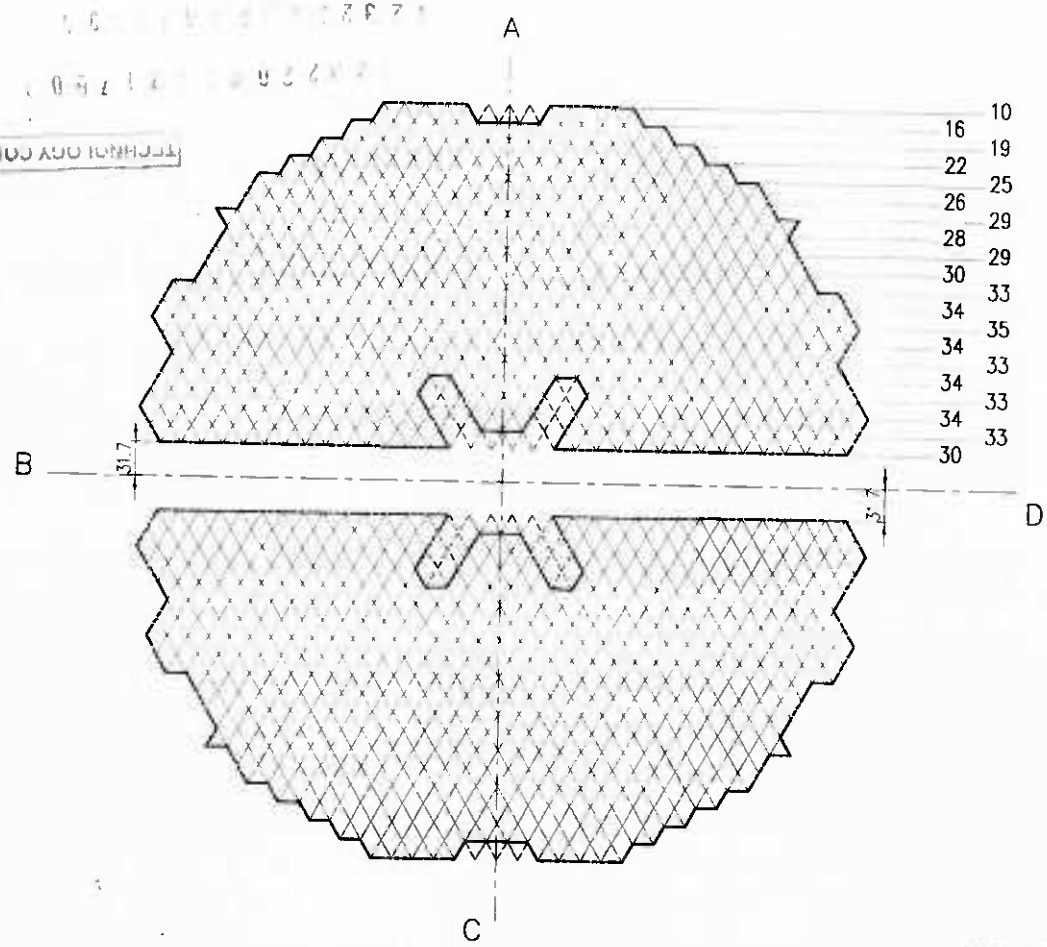
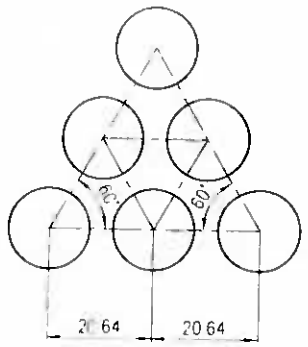
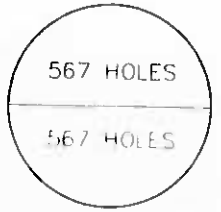
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY
INVENTORY NO SIGN AND DATE REF. DRG. NO.





TUBE PITCH



NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134.
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05.
3. O T L = ø 800

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE
DRN	S.RAMA RAO		06.05.10
CHD.	J.S.RAO		10.05.10
APPD.	KIRAN KUMAR		10.05.10

NO.OF VAR: NA

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD

DEPT. HEE
CODE 405

GRADE OF TOL.DIM. C/M/F

SCALE: NTS

WEIGHT (KG): NA

REF. TO ASSY DRG.: NA

ITEM NO.: NA

NO.OF ITEMS: NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789

REV 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010 15:20:06

Printed by : NARESH FRAKAMRC P-WME8019 / 6140211 on 06-04-23 10:16:46
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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No:	102026640	26.04.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1232200053-17501	NALCO-ANGUL	17501008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3175010261 1	00		3175010261 1-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	6.000	6.000	EA	IS06	32.200		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec		SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112			17501009	MA BY QC				
AA10119			619.236	KG	830.000	990.000	0.000	F1	6.000	ST12

Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B	Reservation : 0014620450	Item : 0001	Picklist:1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0041	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

Nalco P-1232200053-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X Ø16.2 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X Ø28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

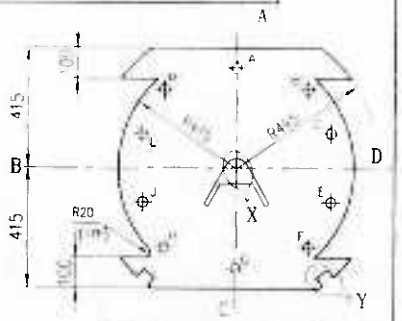
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

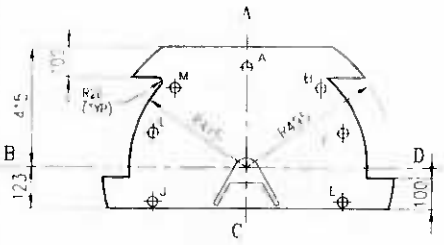
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



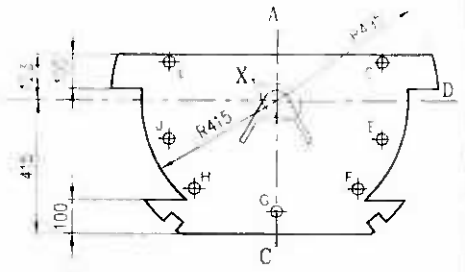
SUPPORT PLATE - 1(POS NO 3)

16 THK - 1 No



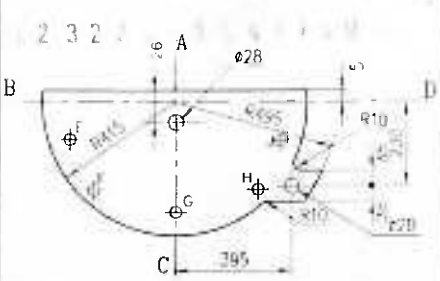
SUPPORT PLATE - 2(POS NO 4)

16 THK - 6 Nos



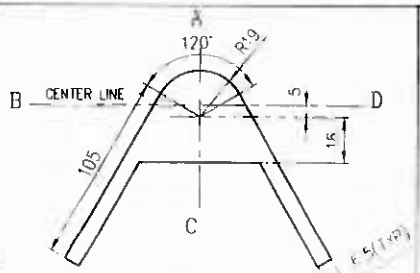
SUPPORT PLATE - 3(POS NO 5)

16 THK.- 6 Nos

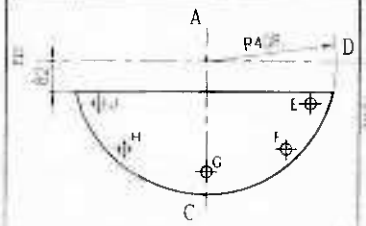


SUPPORT PLATE - 4(POS NO 6)

16 THK.- 1No.

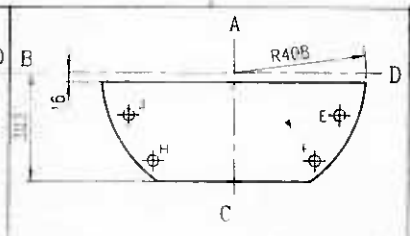


DETAIL - X



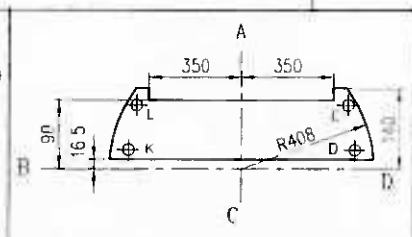
D.C BAFFLE - 1(POS NO 7)

10 THK - 9 Nos



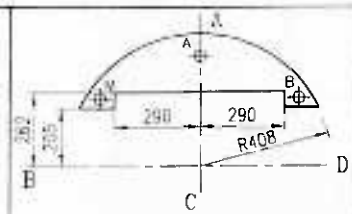
D.C BAFFLE - 2(POS NO 8)

10 THK - 9 Nos.



D.S BAFFLE - 1(POS NO 9)

16 THK - 3 Nos

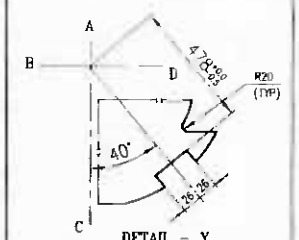


D.S BAFFLE - 2(POS NO 10)

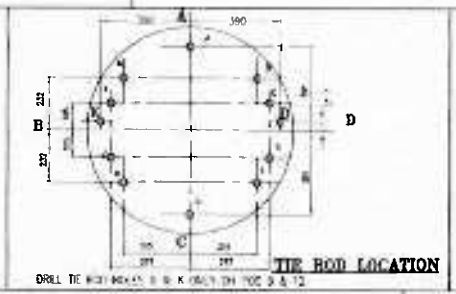
16 THK - 3 Nos

NOTES:-

1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS.
3. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
5. DRILL & REAM ø16.27 $^{+0.05}_{-0.05}$ HOLES IN D.S BAFFLES FOR TUBES
6. FOR TUBE LAYOUT REF DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014
8. TUBE HOLE FINISH 6.3 FOR BAFFLES AND SUPPORT PLATES
9. FOR UNSPECIFIED TOLERANCES REF PROD STD. HE.7.1036
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12

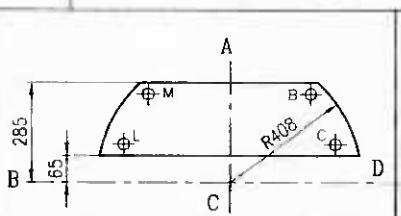


DETAIL - Y



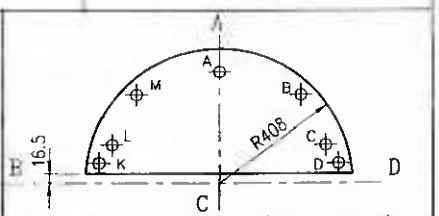
TIE ROD LOCATION

DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12



D.S. BAFFLE - 3(POS. NO.11)

16 THK.- 3 Nos.



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
DRN.	A K SAHOO	AKS	09.01.20	N A
CHD.	K KISHORE KUMAR	KKK	09.01.20	
APPD.	T S N BHARAT	TSNB	09.01.20	

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

DEPT. H.E.E	UNTOL. DIMS. GR. ¢/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	REV NO	NO.OF ITEMS
CODE 405		N.T.S.	NA	NA	NA	N A

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV. 00

SHT. No 1 NO. OF SHT. 1

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COMPUTER FILE NAME | REF. DRG. NO. | SIGN. AND DATE | INVENTORY NO

Jan Mon 20 09 40 2020

Printed by : NARESH ERAKAM RCP & ME8019 / 6140211 on 06-04-23 10:17:11

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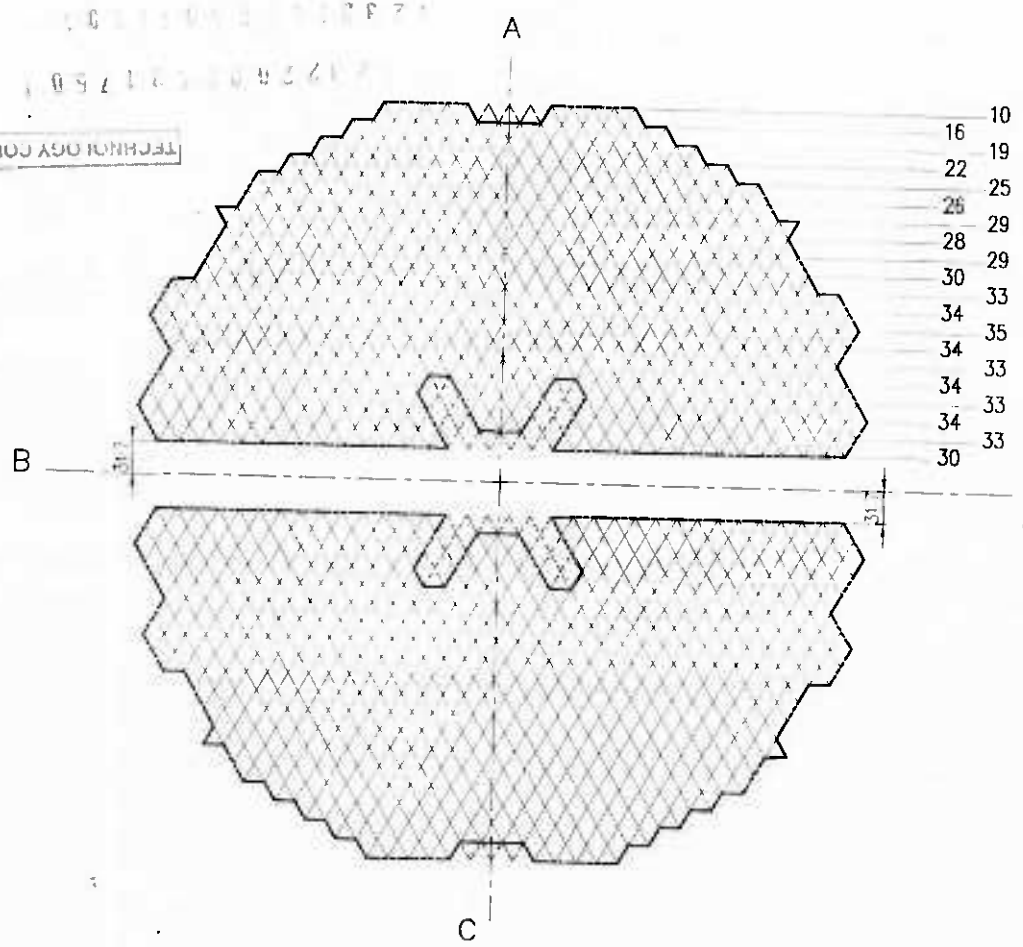
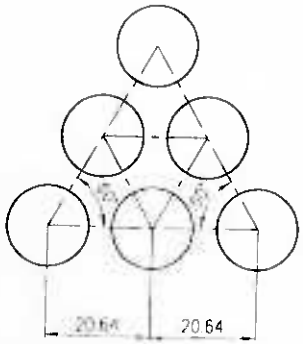
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-01789

TECHNOLOGY COPY





TUBE PITCH

567 HOLES

567 HOLES

NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

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INVENTORY NO | SIGN AND DATE | REF. DRG. NO.

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE
DRN.	S.RAMA RAO		06.05.10
CHD.	J.S.RAO		10.05.10
APPD.	KIRAN KUMAR		10.05.10

NO OF VAR. NA

RESTRICTED USE

DEPT. CODE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HFE 400		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010 15:20:06

Printed by : NARESH ERAKAM-RCP-WME8019 / 6140211 on 06-04-23 10:16:46

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Therefore signatures are not essentially required

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102026630	26.04.2023

Plant: P006	Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1232200053-17501	NALCO-ANGUL	17501006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3175010261 1	00		3175010261 1-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	EA	IS06	45.420		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA10118 9112	17501007	MA BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		86.526	KG	830.000	830.000	0.000	F1	1 000	ST12

Material Description : PLATE 16 IS2062 GR I 250(FE410W) QUTY-B	Reservation : 0014620449	Item : 0001	Picklist:1000654698

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
0101	DA9995	P006	ZP04	0.000	0.000	0.000	0.000	

PRT Cat	PRT No.	PRT Description

Sub Operation Text

Nalco P-1232200053-17501 Support plates

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1134 holes X O16.2 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 10 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack. Drill 1 X O28 mm hole on pos.6.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to R2 on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

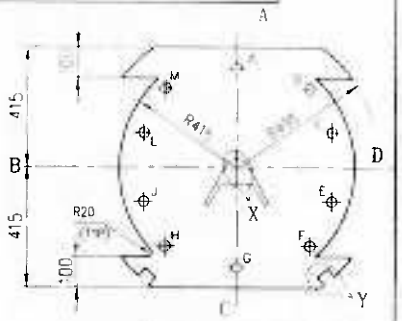
RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	14.07.2023					1	2

FIRST ANGLE PROJECTION

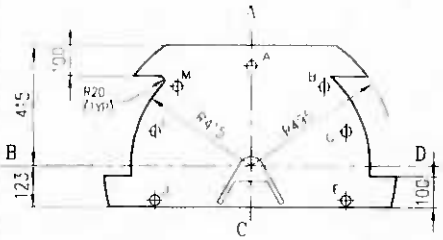
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-175-01-02611



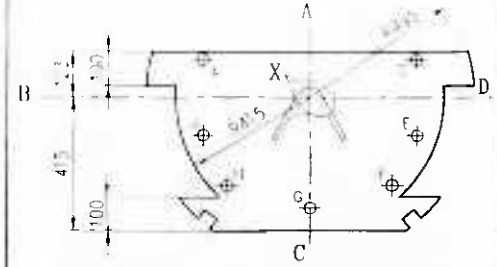
SUPPORT PLATE - 1(POS. NO 3)

16 THK - 1 No



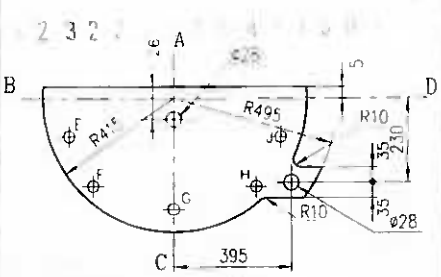
SUPPORT PLATE - 2(POS. NO 4)

16 THK - 6 Nos



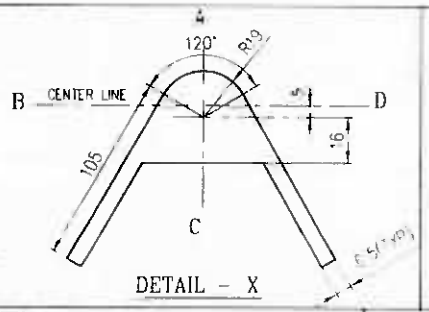
SUPPORT PLATE - 3(POS. NO 5)

16 THK - 6 Nos.

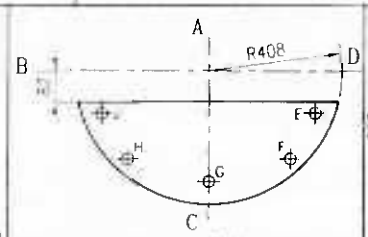


SUPPORT PLATE - 4(POS. NO 6)

16 THK - 1No

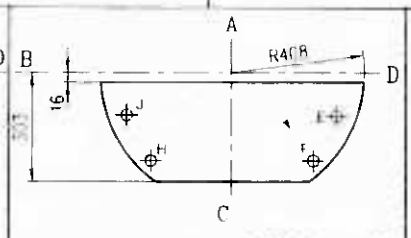


DETAIL - X



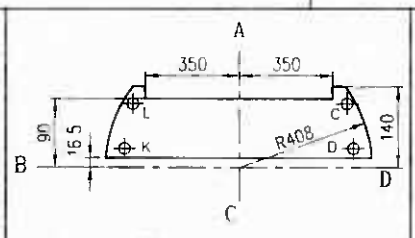
D.C. BAFFLE - 1(POS. NO 7)

10 THK - 9 Nos



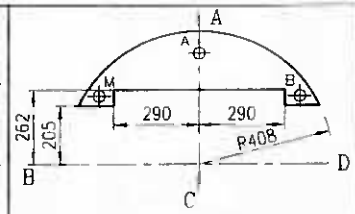
D.C. BAFFLE - 2(POS. NO 8)

10 THK - 9 Nos



D.S. BAFFLE - 1(POS. NO 9)

16 THK - 3 Nos

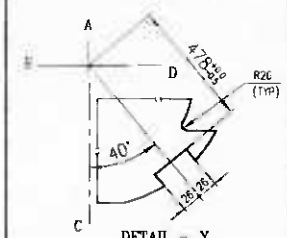


D.S. BAFFLE - 2(POS. NO 10)

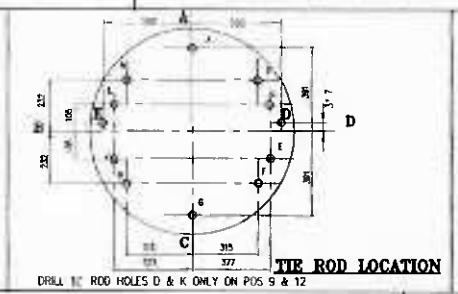
16 THK - 3 Nos

NOTES: -

1. CHAMFER TUBE HOLES ON BOTH SIDES OF ALL PLATES.
2. DRILL ø23 HOLES IN SUPPORT PLATES & BAFFLES FOR TIE RODS
3. DRILL ø16.50 $^{+0.45}_{-0.00}$ HOLES IN D.C. BAFFLES FOR TUBES.
4. DRILL ø16.20 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES
5. DRILL & REAM ø16.27 $^{+0.05}_{-0.05}$ HOLES IN D.S BAFFLES FOR TUBES
6. FOR TUBE LAYOUT REF. DRG. No. 3-175-01-01789.
7. CLEAN SUPPORT PLATES & BAFFLES AS PER HE.7.1014
8. TUBE HOLE FINISH 6.3 FOR BAFFLES AND SUPPORT PLATES
9. FOR UNSPECIFIED TOLERANCES REF. PROD. STD. HE.7.1036
10. DS & DC BAFFLES ARE TO BE TURNED TO REQUIRED RADIUS AFTER GAS CUTTING
11. DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12

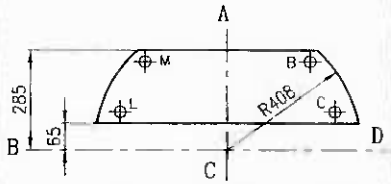


DETAIL - Y



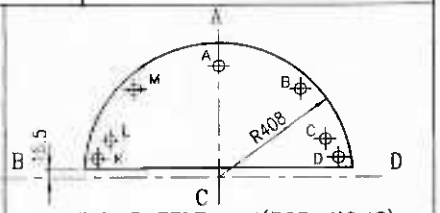
TIE ROD LOCATION

DRILL TIE ROD HOLES D & K ONLY ON POS 9 & 12



D.S. BAFFLE - 3(POS. NO 11)

16 THK.- 3 Nos.



D.S. BAFFLE - 4(POS. NO.12)

16 THK.- 2 Nos.

TECHNOLOGY COPY

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 120MW NALCO SPARE (FOR UNIT-3)

BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
DRN.	A K SAHOO	[illegible]	09.01.20	N A
CHD.	K KISHORE K[illegible]	KKK	09.01.20	
APPD.	T S N BHA[illegible]	TSNB	09.01.20	

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

DEPT.	UNTOL. DIMS. GR	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE 405	¢/M/F	N.T.S	NA	NA	NA	N A

TITLE: SUPPORT PLATES & BAFFLES DETAILS (FOR HPH-5)

CARD CODE

DRAWING NO. 3-175-01-02611 REV 00

SHT. No 1 NO. OF SHT 1

COMPUTER FILE NAME | REF. DRG. NO. | SIGN. AND DATE | INVENTORY NO

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Jan Mon 20 09 40 2020

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FIRST ANGLE PROJECTION
(ALL DIMENSIONS ARE IN mm)
DRG. NO. 3-175-01-01789
TECHNOLOGY COPY
BHARAT HEAVY ELECTRICALS LIMITED
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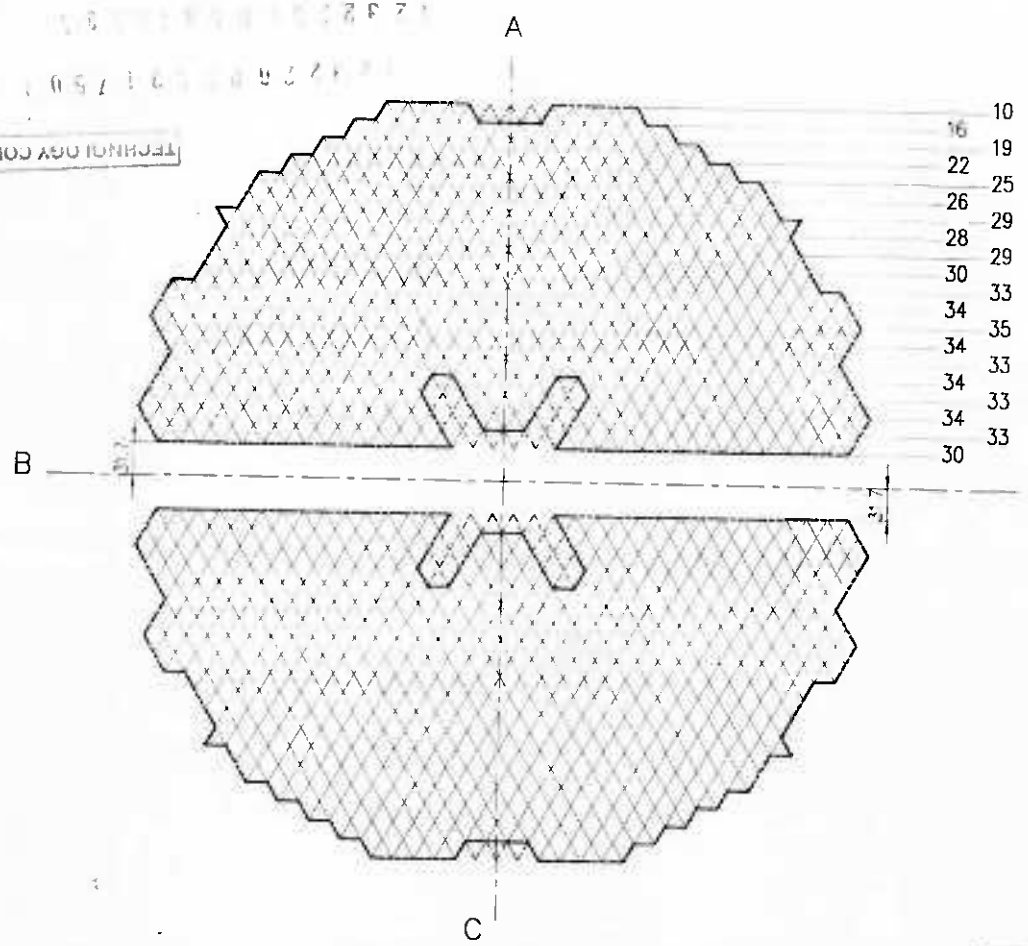
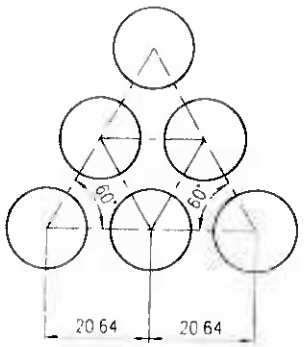
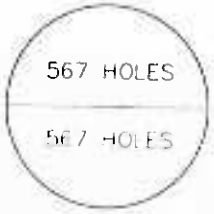
INVENTORY NO SIGN AND DATE REF. SER. NO.





TUBE PITCH



NOTE:-

1. TOTAL No. OF TUBE HOLE (2x567) = 1134.
2. TUBE HOLE SIZE IN TUBE SHEET IS ø 16.13 ±0.05, ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITH IN 0.05.
3. O T L = ø 800

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: 150 MW

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	S RAMA RAO		06.05.10	NA
CHD.	J S RAO		10.05.10	
APPD.	KIRAN KUMAR		10.05.10	

RESTRICTED USE

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
HEE		NTS	NA	NA	NA	NA
CODE 405						

TITLE: TUBE LAYOUT (FOR HPHs)

CARD CODE

DRAWING NO. 3-175-01-01789 REV. 00

SHEET No. 1 NO OF SHEETS 1

10-05-2010
15:20:06

Printed by : NARESH ERAKAM-RC P-WME8019 / 6140211 on 06-04-23 10:16:46
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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
101866672	22.01.2020

Plant	Routing No	Type	WBS Element	Customer / Project Name	Part No
P006			P-1032331000-16222	3X800 MW PATRATU STP EXPANSION PHAS	16222006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162220057	00		3162220057-00	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	10.000	10.000	EA	IS06	106.870		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16222007	MA BY QC.Verification by NTPC				
AA10119		2,188.450	KG	1,320.000	1,320.000	0.000	F1	10.000	ST12

Material Description : PLATE 16 IS2062 GR:250(E 410W)
QUALITY-B

Reservation	Item	Picklist
0013226689	0001	100651060

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3,, LPH-2,,,,P-1032331000-16222,, Support plate-3

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 2290 holes X Ø19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 12 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-22-00572

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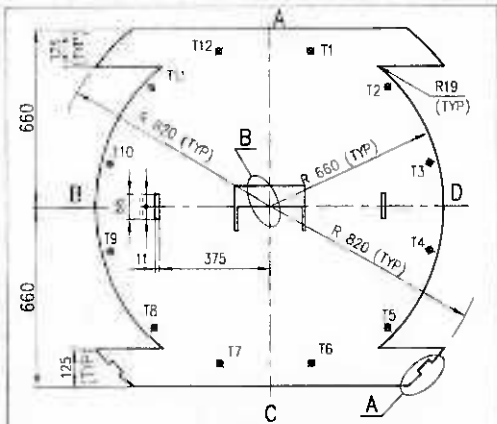
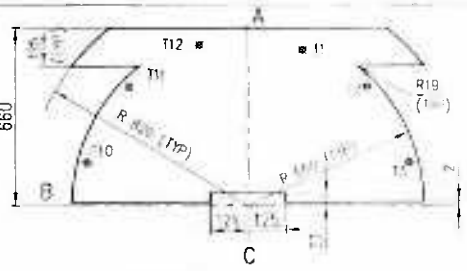
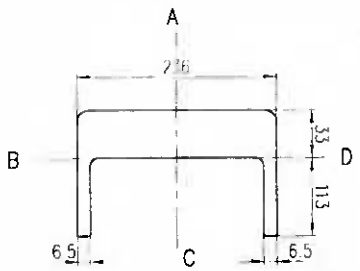
INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.



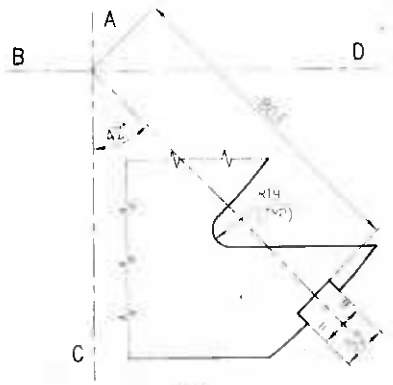
SUPPORT PLATE POS.No.3
10-REQD. 16 THK.



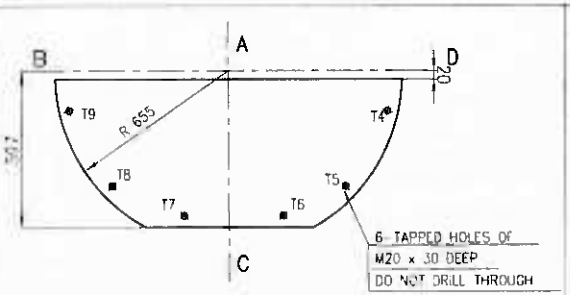
SUPPORT PLATE POS.No.4
2-REQD. 16 THK.



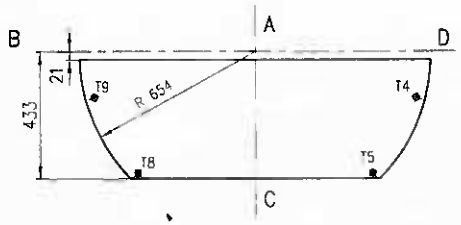
DETAIL 'B'



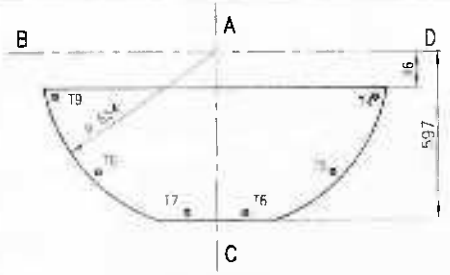
DETAIL 'A'



D.C.END PLATE POS.No.7
1-REQD. 50 THK.



D.C.BAFFLE POS.No.6
6-REQD. 10 THK.



D.C.BAFFLE POS.No.5
4 REQD. 10 THK.

NOTES:-

1. PLATE MATERIAL IS.2062
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16226-00307.
5. FOR TIE ROD LOCATION REF. DRG. NO. 3-162-26-00455
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE
10. TUBE HOLE FINISH $\frac{6.3}{\sqrt{}}$
11. FOR UNSPECIFIED TOLERANCES REF PRODUCT STD. HE71016.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN.	M. RAJESH		10.12.19	NA
CHD	A.K.SAHOO	A K S	10.12.19	
APPD	K.KISHORE BABU	K K K	10.12.19	

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

DEPT. HEF	GRADE OF TOL DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO OF ITEMS
CODE 405		NTS	NA	NA	NA	NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR L.P.H-2)

CARD CODE

DRAWING NO. 3-162-22-00572 REV 00

SHEET No. 1 NO OF SHEETS 4

Dec Mon 16 14:15:2019

Printed by : M. RAJESH-RC P-I ME3031 / 6102654 on 16-12-19 14:32:21

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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-26-00307

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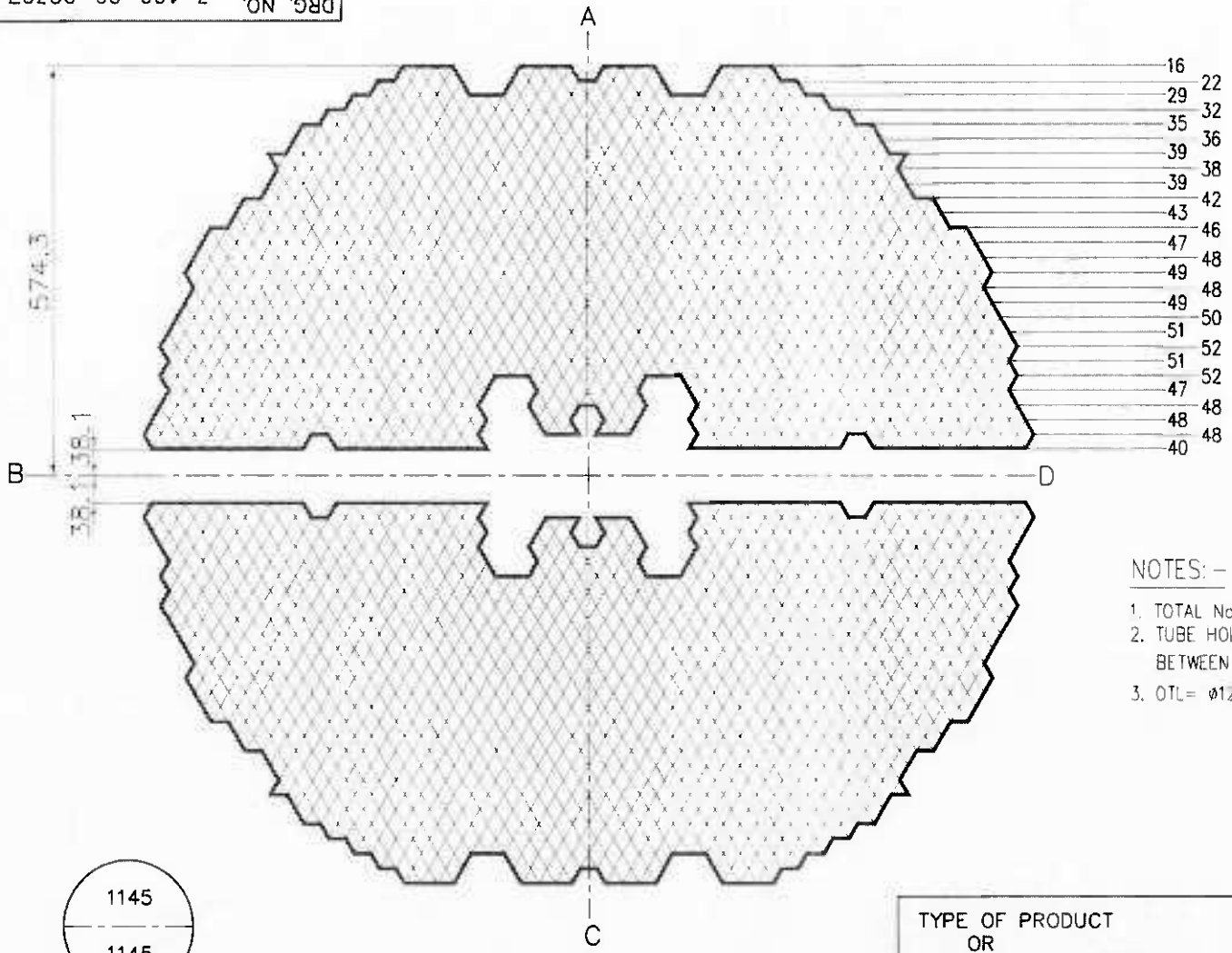

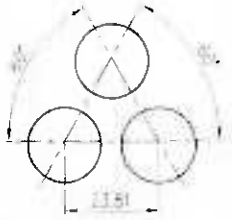

TUBE PITCH DETAIL

NOTES: –

1. TOTAL No. OF TUBE HOLES=2290
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1297

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	RAJESH M	M RAJESH	02.09.12	NA
CHD	K KIRAN KUMAR		02.09.12	
APPD	B.SR.NIVAS		02.09.12	

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-26-00307 REV 00

SHEET No NO OF SHEETS

INVENTORY NO. SIGN. AND DATE REF. DRG. NO.

13.09.2012
14.27.15

Printed by : M. RAJESH RCP-I MI 3031 / 6102654 on 15-07-23 12:20:24

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
10186667 6	22.01.2020

ROUTE CARD

Plant	Equipment No		
P006			
Type	**WBS Element**	**Customer / Project Name**	**Part No**
	P-1032331000-16222	3X800 MW PATRATU STP EXPANSION PHAS	16222008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162220057 2	00		3162220057 2-05	SUPPORT PLATE-4

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	2.000	2.000	EA	IS06	53.000		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16222009	MA BY QC.Verification by NTPC				
AA10119		218.846	KG	660.000	1,320.000	0.000	FI	2.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(E 410W) QUTY-B | Reservation : 0013226692 | Item : 0001 | Picklist:1000651060

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3,, LPH-2,,,,P-1032331000-16222.. Support plates-4

Scope of work:

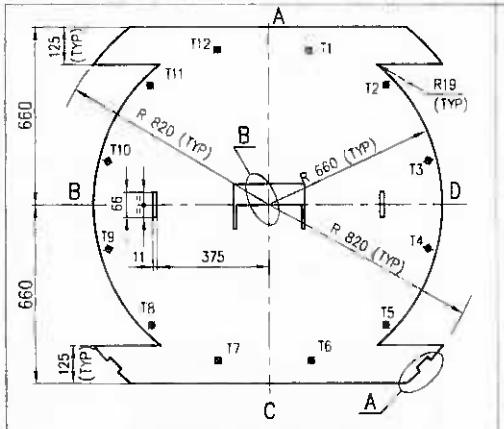
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1145 holes X Ø19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 6 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

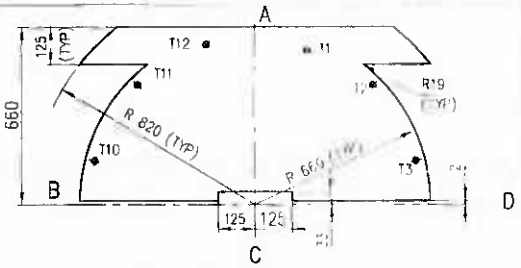
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-22-00572



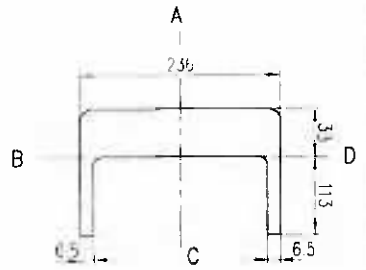
SUPPORT PLATE POS.No.3

10-REQD. 16 THK

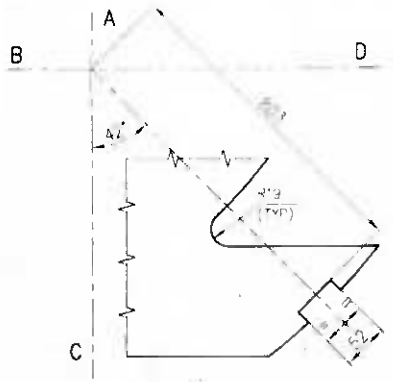


SUPPORT PLATE POS.No.4

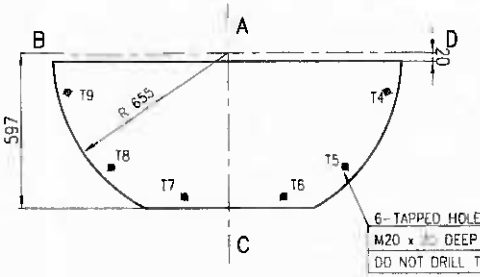
2-REQD. 16 THK



DETAIL 'B'

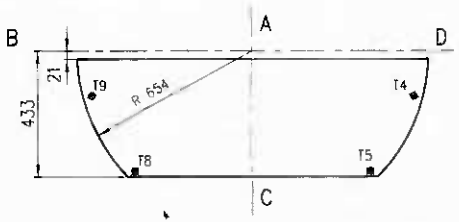


DETAIL 'A'



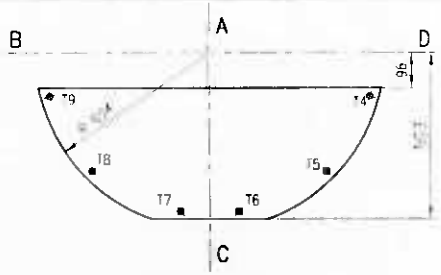
D.C.END PLATE POS.No.7

1-REQD. 50 THK.



D.C.BAFFLE POS.No.6

4-REQD. 10 THK.



D.C.BAFFLE POS.No.5

4. REQD. 10 THK.

NOTES:-

1. PLATE MATERIAL IS.2062
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG NO. 3-16226-00307.
5. FOR TIE ROD LOCATION REF. DRG. NO. 3-162-26-00456
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO. |

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TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR
DRN			10.12.19	NA
CHD				
APPD		K K K		

REV.	DATE	ALTERED	CHECKED	APPD
ZONE				

DEPT.	CREATE OF TOL DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA
CODE 405						

TITLE
SUPPORT PLATES & BAFFLES
(FOR LP.H-2)

CARD CODE

DRAWING NO. 3-162-22-00572 REV 00

SHEET No 1 NO OF SHEETS 1

Printed by : M. RAJESH-RCP-HME3031 / 6102654 on 16-12-19 14:32:21

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Dec Mon 16 14:18 2019

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-26-00307

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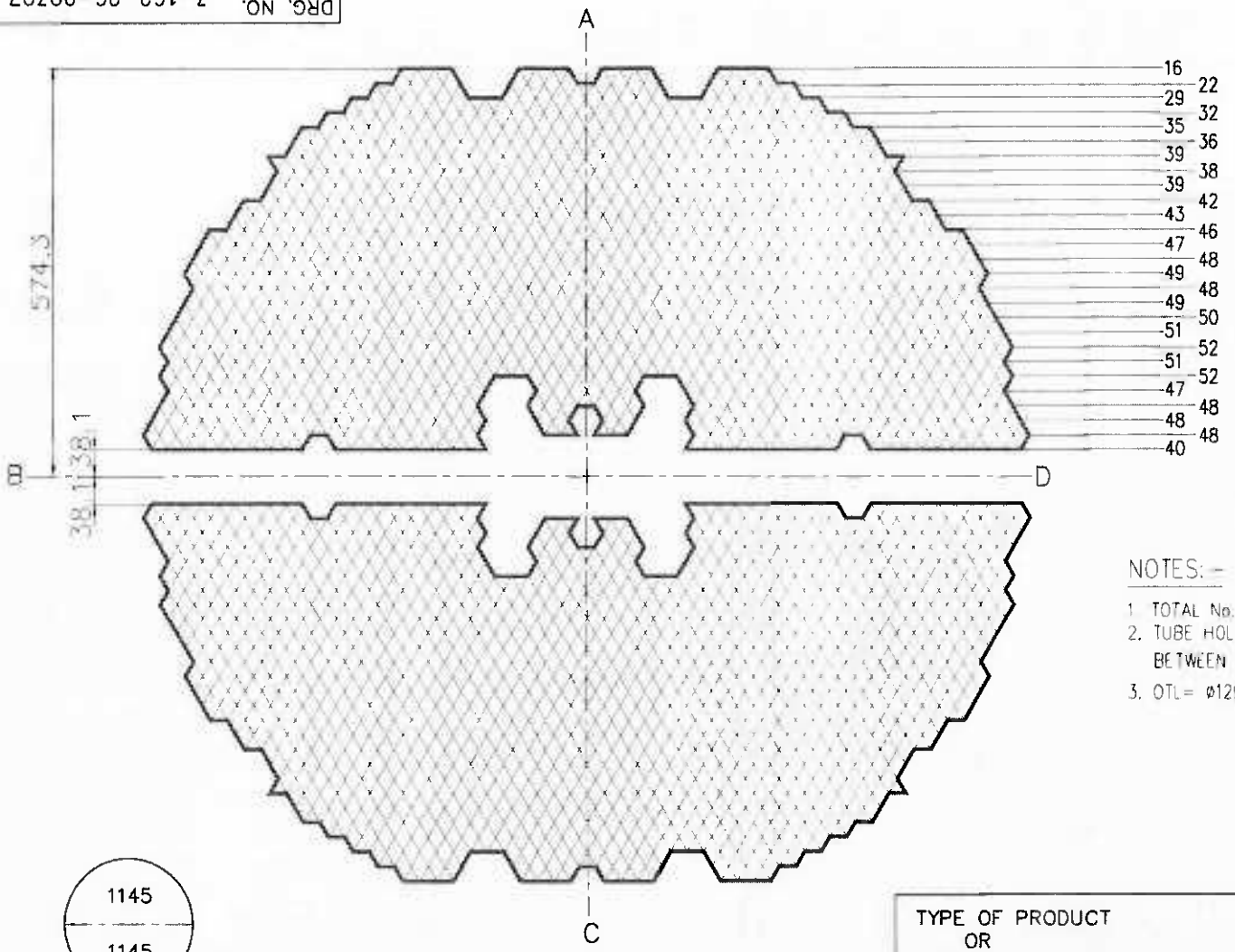
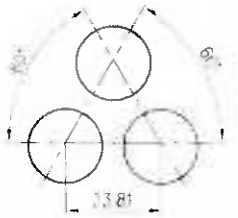
INVENTORY NO. | SIGN. AND DATE | REF. DRG. NO.





TUBE PITCH DETAIL

NOTES:-

1. TOTAL No. OF TUBE HOLES=2290
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1297

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	M RAJESH	02.09.12	NA
CHD	K KIRAN KUMAR		02.09.12	
APPD	B SRINIVAS		02.09.12	

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-26-00307 REV 00

SHEET No | NO OF SHEETS

13-09-2012
14 27 15

Printed by : M. RAJESH RCP-I ME 3031 / 6102654 on 15-07-23 12:20:24

This Drawing is printed from Engineering Digital Archive System (EDAS)
Therefore signatures are not essentially required

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
1001866646	22.01.2020

Plant 9006 Equipment No

Type	WBS Element	Customer / Project Name	Part No
	P-1032331000-16222	4X800 MW PATRATU STP EXPANSION PHAS	16222011

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31622200572	00	316222005	DC BAFFLES	

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0001	8.000	8.000	EA	IS06	25.200		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819074	16222015	MA BY QC.Verification by NTPC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		547.112	KG	660.000	1.320.000	0.000	FI	8.000	ST12

Material Description PLATE 10 IS2062 GR E250(FE410W) QUTY-B | Reservation : 0013226723 | Item : 0001 | Picklist 1000656018

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC (L)	Total Time	QC Signature
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

PATRATU-3 ,,,LPH-2,, P-1032331000-16222 ,,DC Baffles

Scope of work:

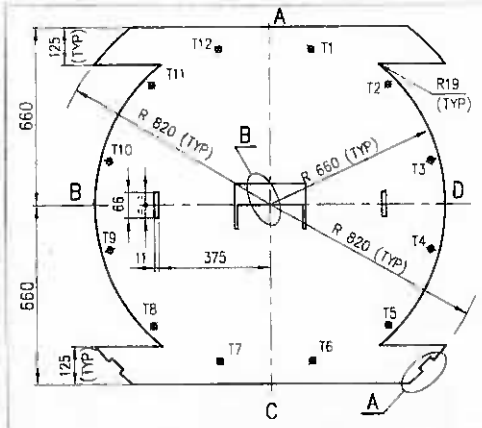
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of tube holes 1145 x dia. 19.75 +0.45 -0.00 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 6 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to 1x45° on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

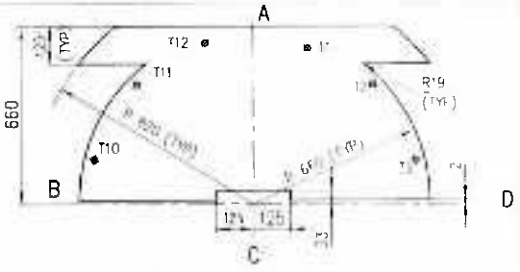
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

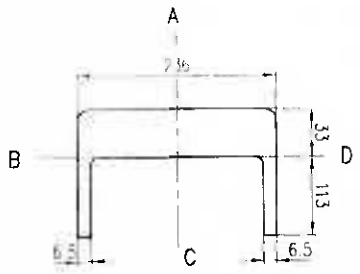
DRG. NO. 3-162-22-00572



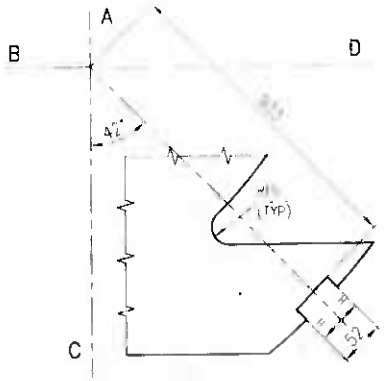
SUPPORT PLATE POS.No.3
10-REQD. 16 THK



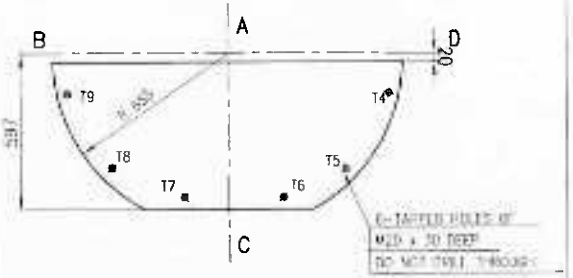
SUPPORT PLATE POS.No.4
2-REQD. 16 THK.



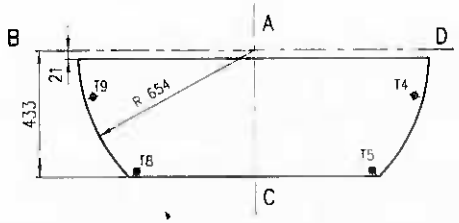
DETAIL 'B'



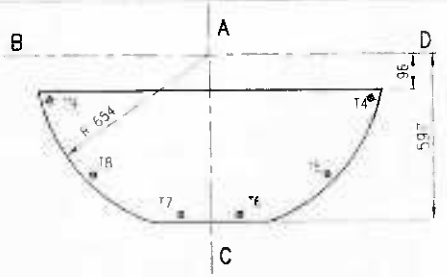
DETAIL 'A'



D.C.END PLATE POS.No.7
1-REQD. 50 THK.



D.C.BAFFLE POS.No.6
4-REQD. 10 THK.



D.C.BAFFLE POS.No.5
4 REQD. 10 THK.

NOTES:-

1. PLATE MATERIAL IS 2062
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG NO 3-16226-00307.
5. FOR TIE ROD LOCATION REF. DRG. NO. 3-162-26-00455
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR THE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	RAJESH M	RESTRICTED	10.12.19	
CHD.	A K S	A K S	10.12.19	NA
APPD.	K K K	K K K	10.12.19	

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

CERT. MET	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO.	NO OF ITEMS
CODE 605		NTS	NA	NA	NA	NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR L.P.H-2)

CARD CODE

DRAWING NO. 3-162-22-00572 REV 00

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF. DRG. NO.

Printed by : M. RAJESH-ROP-EME3031 / 6102654 on 16-12-19 14:32:21

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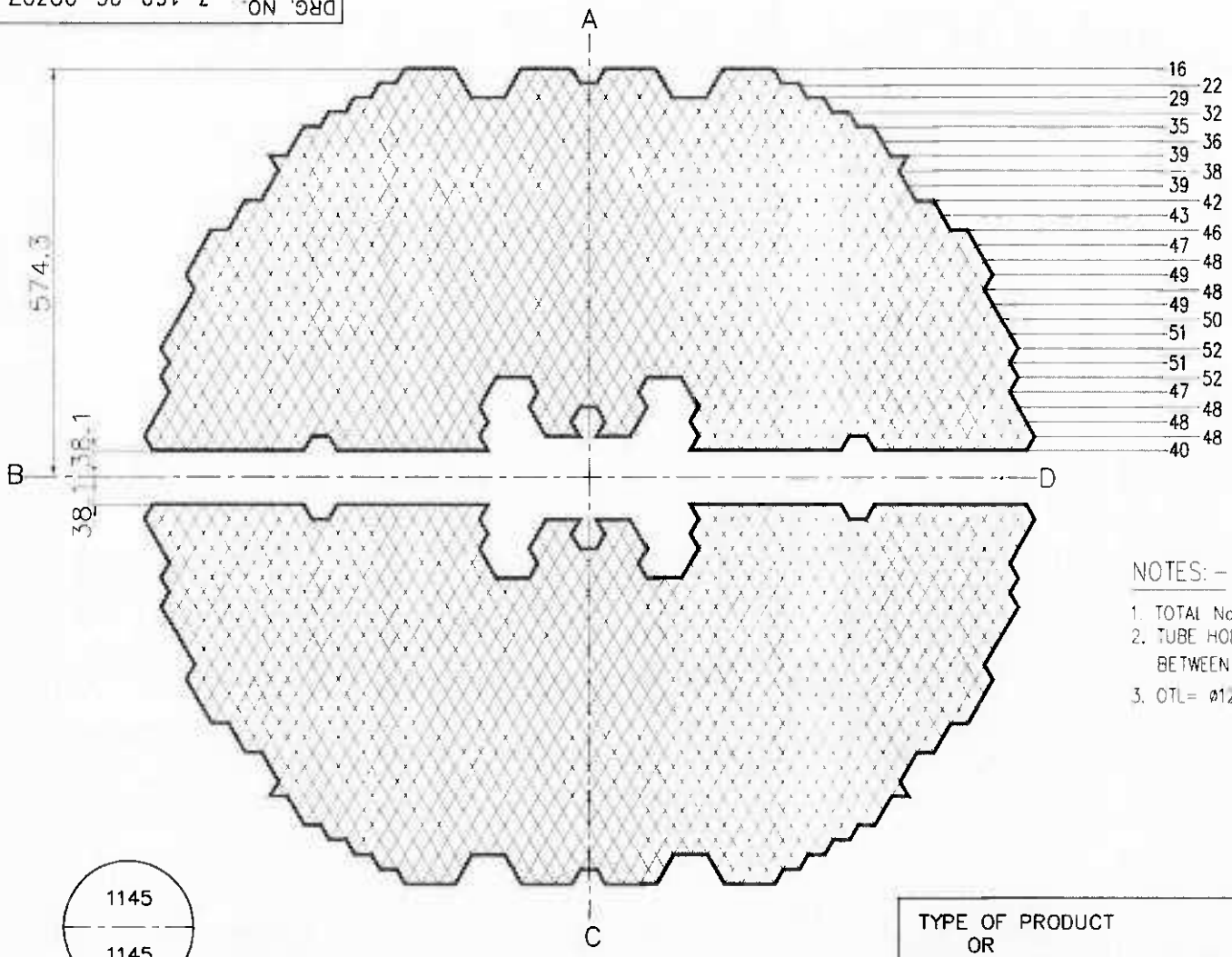
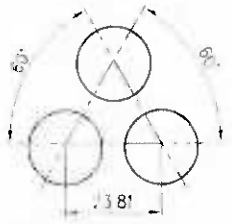
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-26-00307





TUBE PITCH DETAIL

NOTES:-

1. TOTAL No. OF TUBE HOLES-2290
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1297

1145
1145

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	RAJESH M	M Raj	02.09.12	NA
CHD	K KIRAN KUMAR		02.09.12	
APPD	B SRINIVAS		02.09.12	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-26-00307 REV 00

SHEET No | NO OF SHEETS

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INVENTORY NO | SIGN AND DATE | REF. DRG. NO.

13-09-2012
14 27 15

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
101865154	14.01.2020

Plant	Inspection No		
P006			
Type	**WBS Element**	**Customer / Project Name**	**Part No**
	P-1032328800-16226	3X800MW PATRATU STPP EXPANSION PHAS	16226006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162260045?--	00		3162260045?-00	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	St.Wt.	Remarks	MDCC
0003	14.000	14.000	EA	IS06	106.000		Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks			
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPes	St.
0001	R	AA1011819112		16226007	MA BY QC & verification by STPC				
AA10119		3,063.830	KG	1,320.000	1,320.000	0.000	FI	14.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(E 410W) QUTY-B | Reservation : 0013217791 | Item : 0001 | Picklist : 1000646643

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC (L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3,, LPH-3,,,,P-1032328800-16226,, Support plates

Scope of work.

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 2290 holes X O19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 12 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-26-00457

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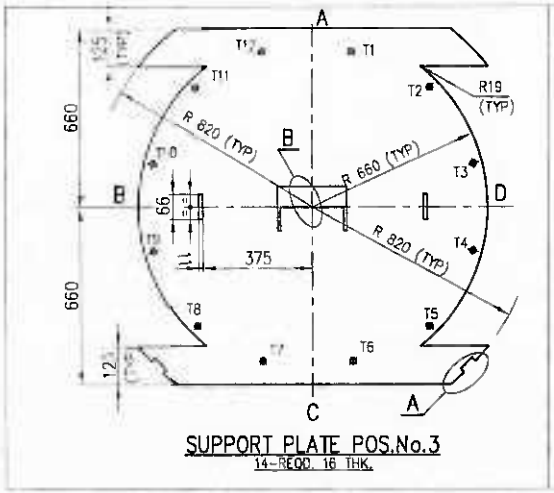
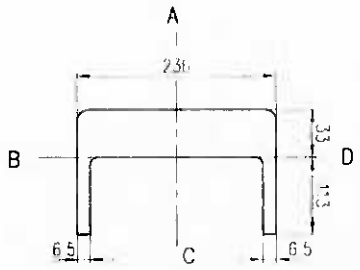
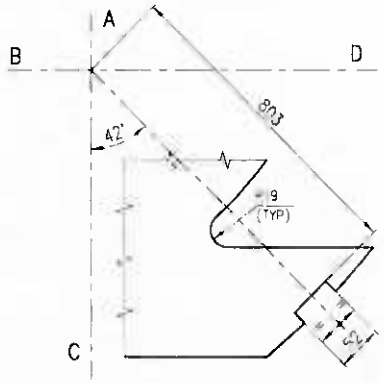
INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.



SUPPORT PLATE POS.No.3
14-REQD. 16 THK.



DETAIL 'B'



DETAIL 'A'

NOTES:-

1. PLATE MATERIAL IS.2062.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF DRG. NO. 3-162-26-00307.
5. FOR TIE ROD LOCATION REF DRG NO. 3-162-26-00455.
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. TUBE HOLE FINISH 6.3
9. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	M RAJESH	23.11.19	NA
CHD	A K SAHU		23.11.19	
APPD	K K GHORE KUMAR	K K K	23.11.19	

REV	DATE	ALTERED	CHECKED	APPD

ZONE

DEPT HEE

CODE

SPACE OF TOL DIM. C/M/F

SCALE NTS

WEIGHT (KG) NA

REF TO ASSY DRG NA

ITEM NO. NA

NO OF ITEMS NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR LP.H-3)

CARD CODE

DRAWING NO. 3-162-26-00457

REV 00

SHEET No 1 NO OF SHEETS 1

RESTRICTED USE

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-26-00307

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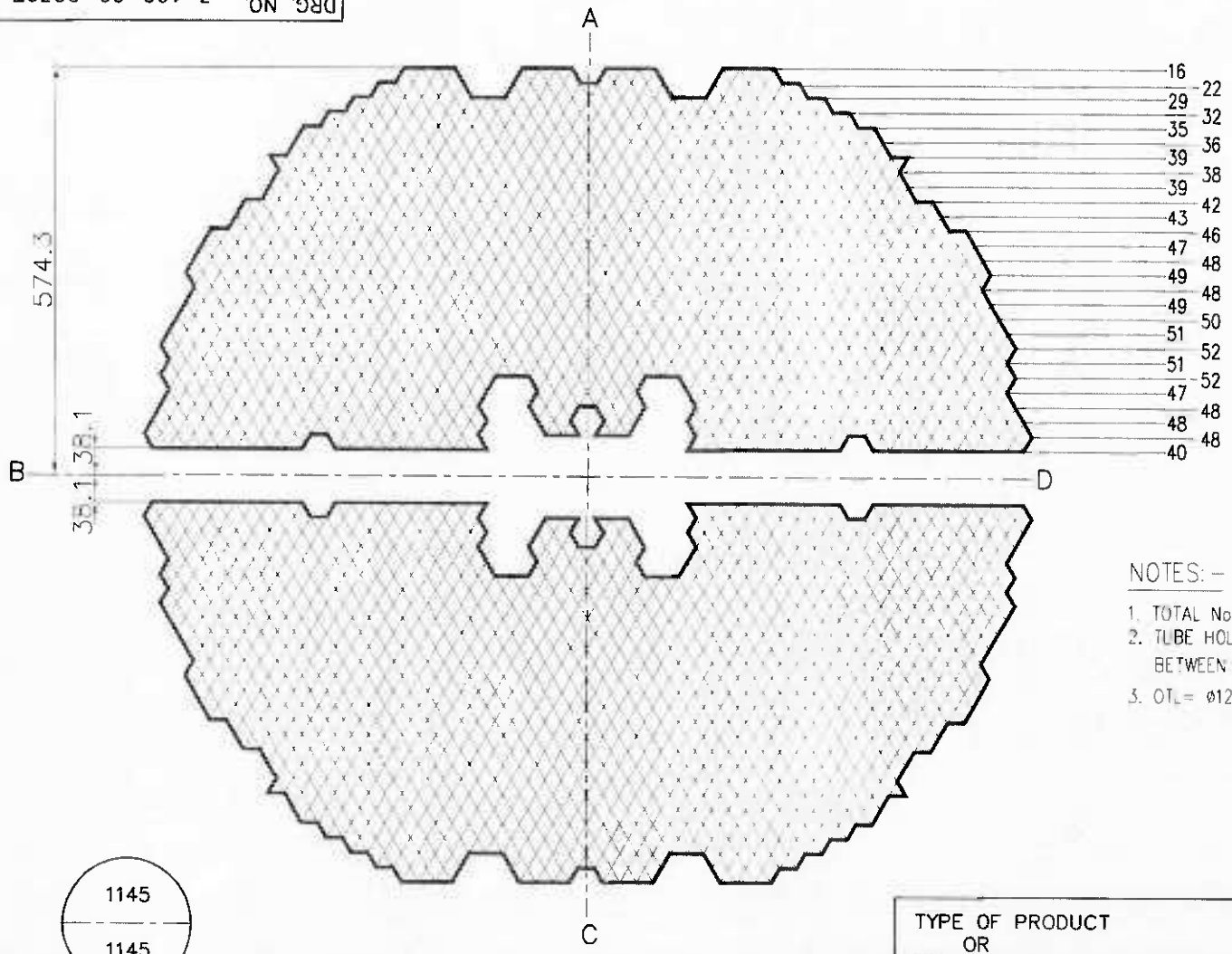

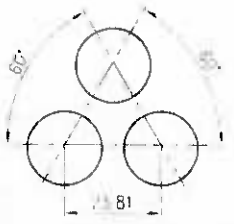

TUBE PITCH DETAIL

NOTES: -

1. TOTAL No. OF TUBE HOLES=2290
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1297

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	RAJESH M	M RA	02.09.12	NA
CHD.	K KIRAN KUMAR		02.09.12	
APPD.	B.SRINIVAS		02.09.12	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-26-00307 REV 00

SHEET No NO OF SHEETS

13-09-2012
14 27 15

Printed by : M. RAJESH-RCP-EMI 3031 / 6102654 on 15-07-23 12:20:24

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
10187911	13.03.2020

Plant: P006 Equipment No

Type	WBS Element	Customer / Project Name	Part No
	P-1032328900-16231	3X800 MW PATRATU STPP EXPANSION PHAS	16231006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
316231001[00	00		316231001[00-01	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	N.Wt.	Remarks	MDCC
0003	14.000	14.000	EA	IS06	142.560		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16231007	MA by QC verification by NTPC				
AA10119		3,631.698	KG	1,388.000	1,488.000	0.000	FI	14.000	ST12
Material Description : PLATE 16 IS2062 GR I 250(E 410W) QUALITY-B				Reservation : 0013336670		Item : 0001		Picklist:1000647418	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3., I.PH-4,...P-1032328900-16231.. Support plate-3

Scope of work:

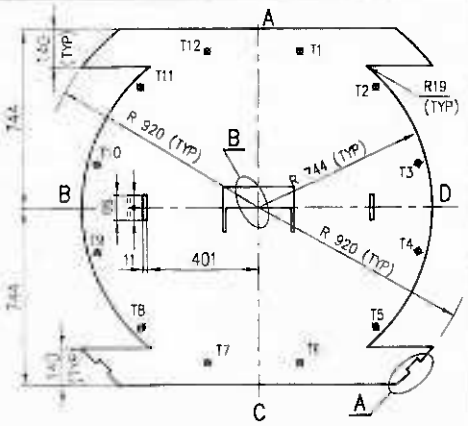
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 2662 holes X Ø19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 12 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

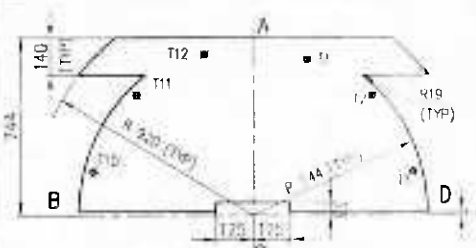
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00100



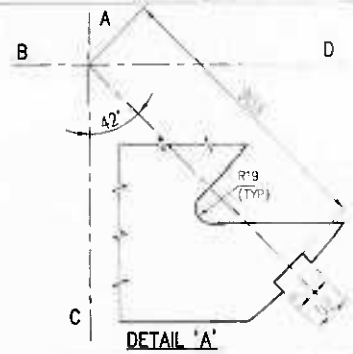
SUPPORT PLATE POS.No.3

14-REQD. 16 THK.

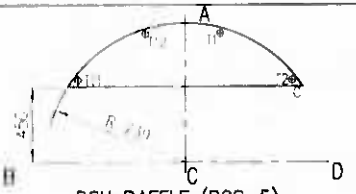


SUPPORT PLATE POS.No.4

1-REQD. 16 THK



DETAIL 'A'

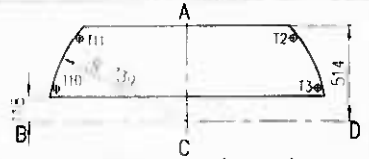


DSH BAFFLE (POS-5)

2-REQD., 16THK.

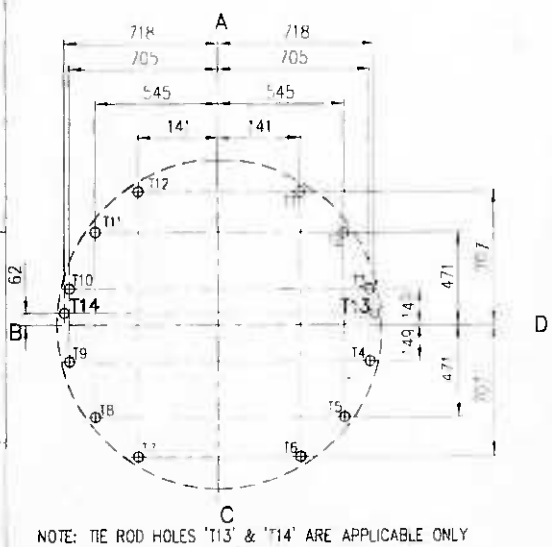
DSH BAFFLE (POS-6)

2-REQD., 16THK.



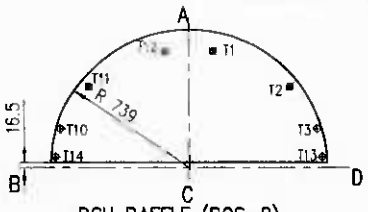
DSH BAFFLE (POS-7)

2-REQD. 16THK.



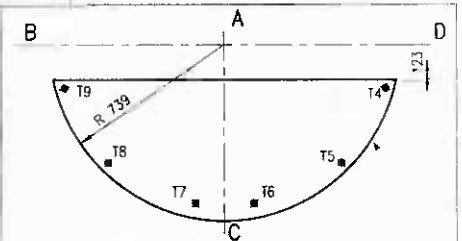
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No 6 & 8 - DSH BAFFLE

TIE ROD LOCATIONS



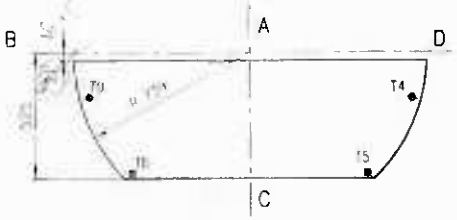
DSH BAFFLE (POS-8)

1-REQD., 16THK.



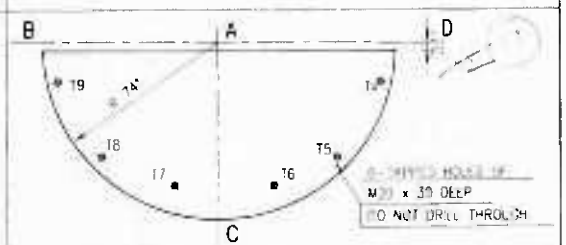
D.C.BAFFLE POS.No.9

5-REQD. 10 THK.



D.C.BAFFLE POS.No.10

5-REQD. 10 THK.

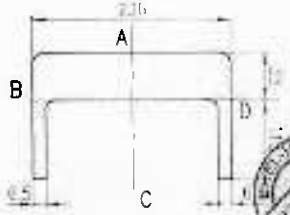


D.C.END PLATE POS.No.11

1-REQD. 50 THK.

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096.
5. DRILL ø19.44 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES.
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.



DETAIL 'B'

REV.	DATE	ALTERED	CHECKED	APPD

ZONE

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN	RAJESH M	RAJESH	21.12.19	
CHD	A.K.SAHOO	A.K.S	21.12.19	NA
APPD	K. KISHORE KUMAR	K.K.K	21.12.19	

DEPT. HEE

CODE 405

GRADE OF TOL DIM C/M/F

SCALE NTS

WEIGHT (KG) NA

REF. TO ASSY DRG. NA

ITEM NO. NA

NO OF ITEMS NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR L.P.H-4)

CARD CODE

DRAWING NO. 3-162-31-00100

REV 00

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO. TSGN. AND DATE REF. DRG. NO.

Jan Sat 25 10:12 2020

Printed by : M. RAJESH-RCP-HME3031 / 6102654 on 25-01-20 10:30:20

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FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00096

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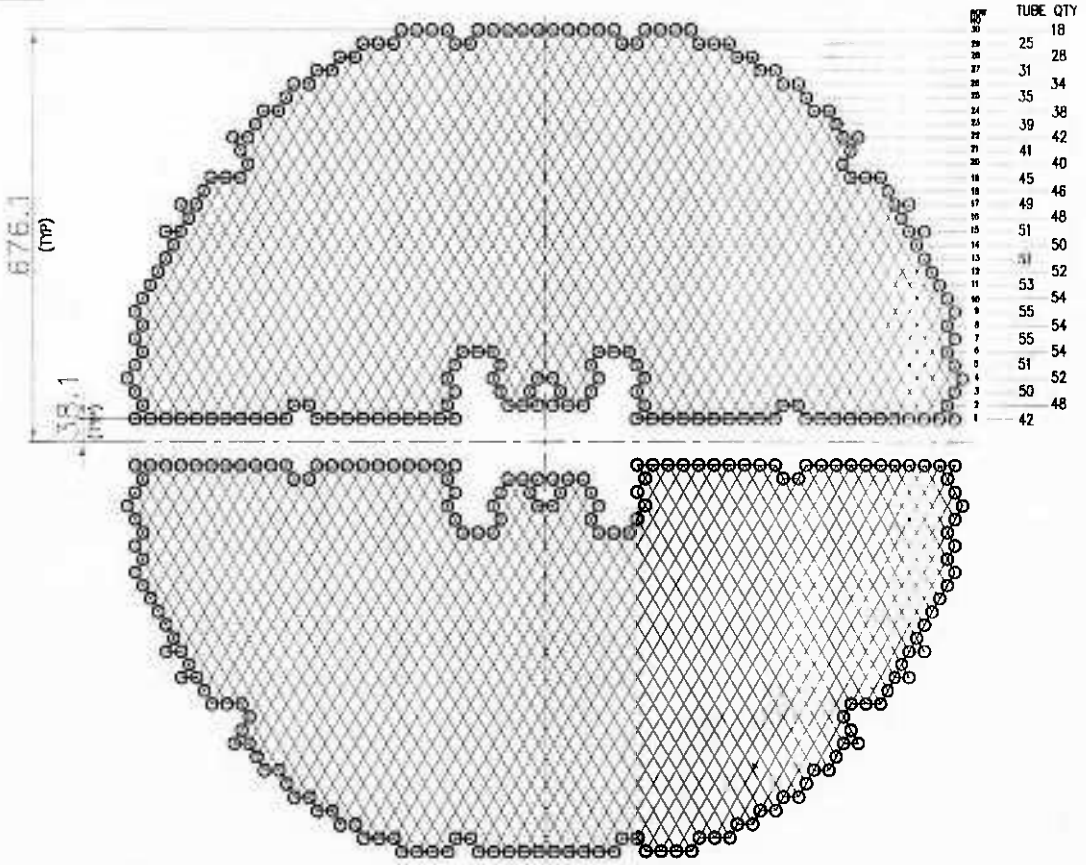
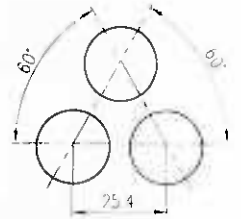
INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.





TUBE PITCH DETAIL

NOTES: -

1. TOTAL No. OF TUBE HOLES=2662
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	M RAJESH	21.12.19	NA
CHD	A K SAHOO		21.12.19	
APPD	K KISHORE KUMAR	K K K	21.12.19	

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO	NO OF ITEMS
CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No | NO OF SHEETS

Jan Sat 25 10:12:2020

Printed by : M RAJESH-RCP-EME3031 / 6102654 on 05-02-20 07:36:47

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
101876004	13.03.2020

Plant	Equipment No.		
P006			
Type	**WBS Element**	**Customer / Project Name**	**Part No**
	P-1032328900-16231	3X800 MW PATRATU STPP EXPANSION PHAS	16231008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
316231001100	00		316231001100-02	SUPPORT PLATE-4

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	1.000	1.000	EA	IS06	70.510		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112	16231009	MA by QC, verification by NTPC					
AA10119		129.704	KG	1,388.000	744.000	0.000	F1	1.000	ST12
Material Description : PLATE 16 IS2062 GR I 250(FE 410W) QUALITY-B				Reservation : 0013336671		Item : 0001		Picklist.1000615898	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3,, 1 PH-4,,,,P-1032328900-16231,, Support plate-4

Scope of work.

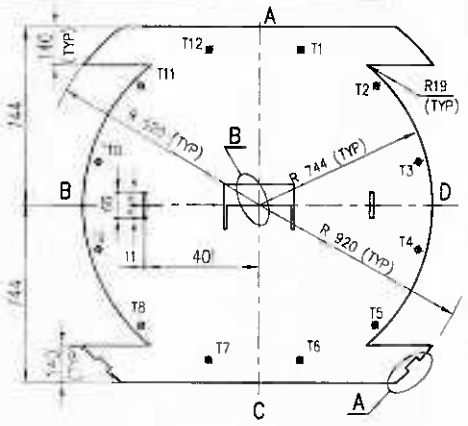
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1331 holes X Ø19.3 -0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 6 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

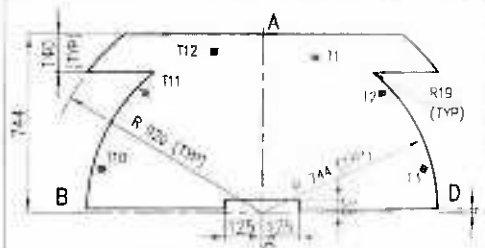
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00100



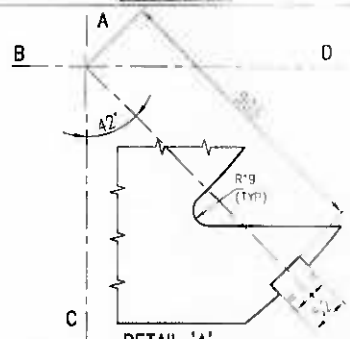
SUPPORT PLATE POS.No.3

14-REQD. 16 THK.

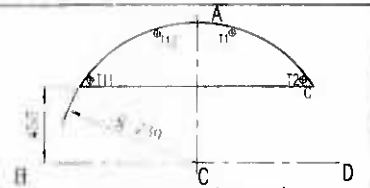


SUPPORT PLATE POS.No.4

2-REQD. 16 THK.

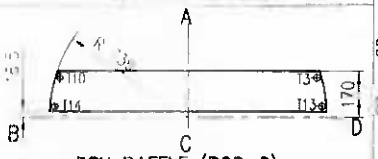


DETAIL 'A'



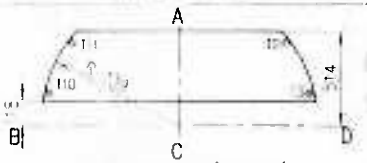
DSH BAFFLE (POS-5)

2-REQD., 16THK.



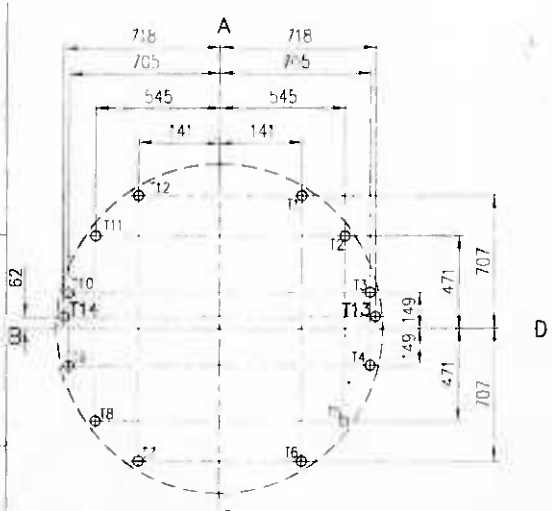
DSH BAFFLE (POS-6)

2-REQD., 16THK.



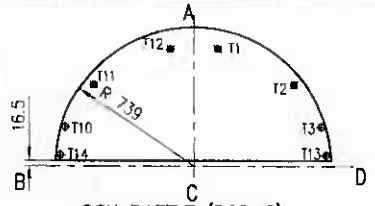
DSH BAFFLE (POS-7)

2-REQD. 16THK.



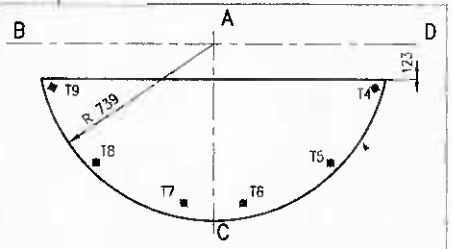
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No 6 & 8 - DSH BAFFLE

TIE ROD LOCATIONS



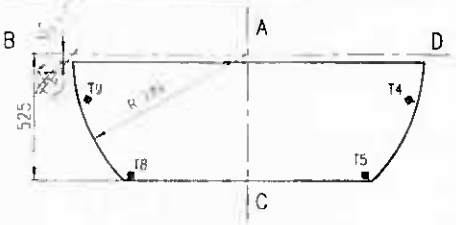
DSH BAFFLE (POS-8)

1-REQD., 16THK.



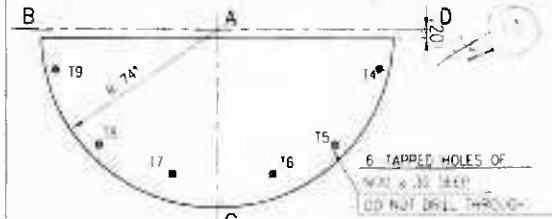
D.C.BAFFLE POS.No.9

1-REQD. 10 THK.



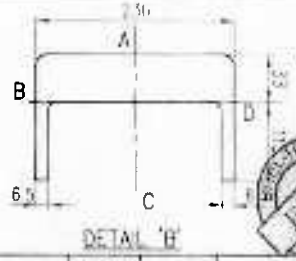
D.C.BAFFLE POS.No.10

1-REQD. 10 THK.



D.C.END PLATE POS.No.11

1-REQD. 25 THK.



DETAIL 'B'

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096.
5. DRILL ø19.44 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES.
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

REV.	DATE	ALTERED	CHECKED	APPD
ZONE				

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN.	RAJESH M	RAJESH	21.12.19	NA
CHD	A.K SAHOO	A.K.S	21.12.19	
APPD.	K KISHORE KUMAR	K.K.K	21.12.19	

DEPT	GRADE OF TOL DIM	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO OF ITEMS
HE	C/M/F	NTS	NA	NA	NA	NA
CODE 405						

TITLE
SUPPORT PLATES & BAFFLES
(FOR LP.H-4)

CARD CODE

DRAWING NO. 3-162-31-00100 REV 00

SHEET No 1 NO OF SHEETS 1

RESTRICTED

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INVENTORY NO | SIGN AND DATE | REF. DRG. NO.

Jan Sat 25 10:12:2020

Printed by : M. RAJESH-RCP-PME3031 / 6102654 on 25-01-20 10:30:20

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FIRST ANGLE PROJECTION

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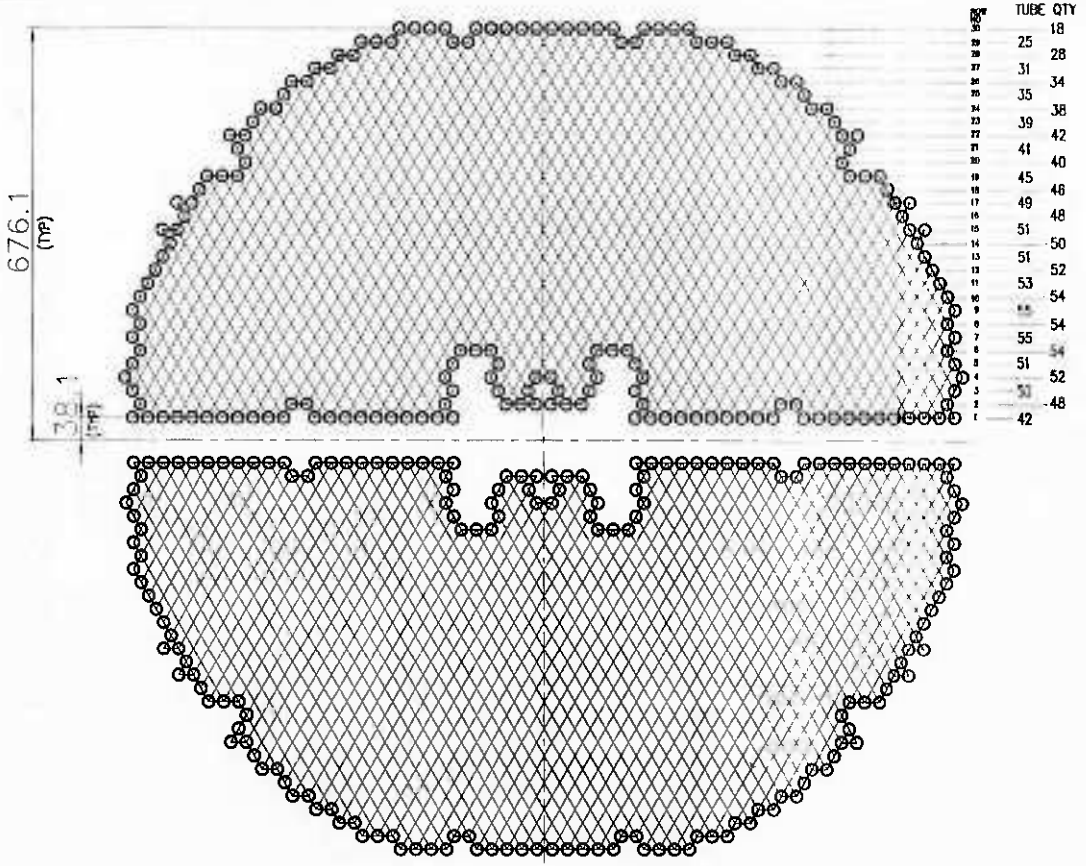
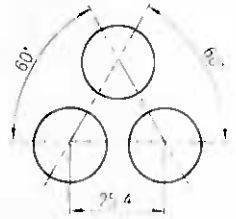
DRG. NO. 3-162-31-00096





TUBE PITCH DETAIL

NOTES: -

1. TOTAL No OF TUBE HOLES = 2662
2. TUBE HOLE SIZE IN TUBE SHEET ø19.3 ±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	RAJESH M	M RAJESH	21.12.19	NA
CHD	A K [illegible]	[illegible]	21.12.19	
APPD	K KISHORE KUMAR	K K K	21.12.19	

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
CODE		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No | NO OF SHEETS

Jan Sat 25 10:12:2020

Printed by : M. RAJESH RCP-FME30.1 / 6102654 on 05-02-20 07:36:47

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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No	101875910	13.03.2020

ROUTE CARD

Type	WBS Element	Customer / Project Name	Part No
	P-1032328900-16231	3X800 MW PATRATU STPP EXPANSION PHAS	16231019

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
316231001100	00		316231001100-00MC	DC BAFFLES

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0001	10.000	10.000	EA	IS06	35.370		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819074	16231023	MA by QC, verification by NTPC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		883.130	KG	750.000	1,500.000	0.000	FI	10.000	ST12

Material Description : PLATE 10 IS2062 GR E250(E 410W) QUALITY-B	Reservation : 0013336703	Item : 0001	Picklist: 1000641933

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3 ,,,LPH-4,, P-1032328900-16231 ,,DC Baffles

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of tube holes 1331 x dia. 19.75 +0.45 -0.00 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 6 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to 1x45° on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

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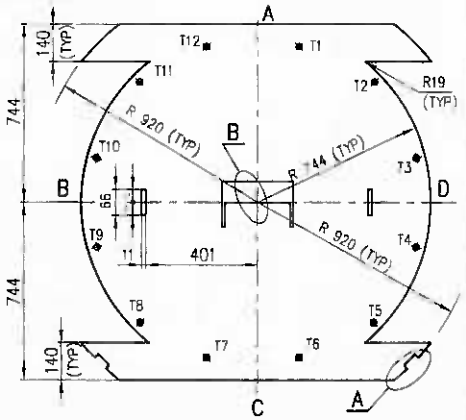
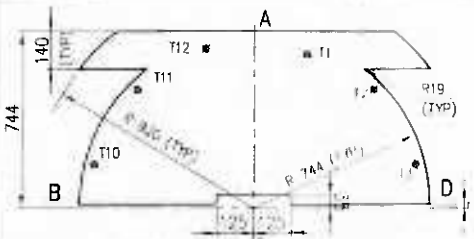
DRG. NO. 3-162-31-00100



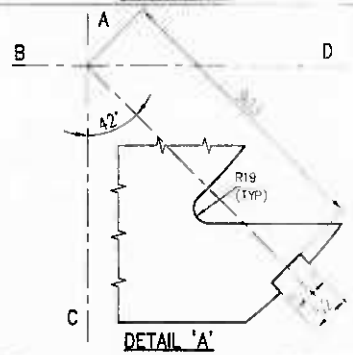
SUPPORT PLATE POS.No.3

14-REQD. 16 THK.

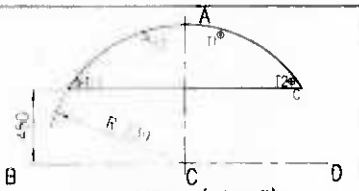


SUPPORT PLATE POS.No.4

1-REQ. 16 THK.

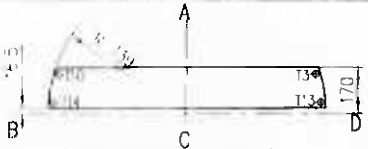


DETAIL 'A'



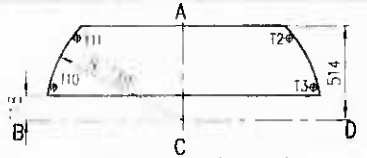
DSH BAFFLE (POS-5)

2-REQD., 16THK.



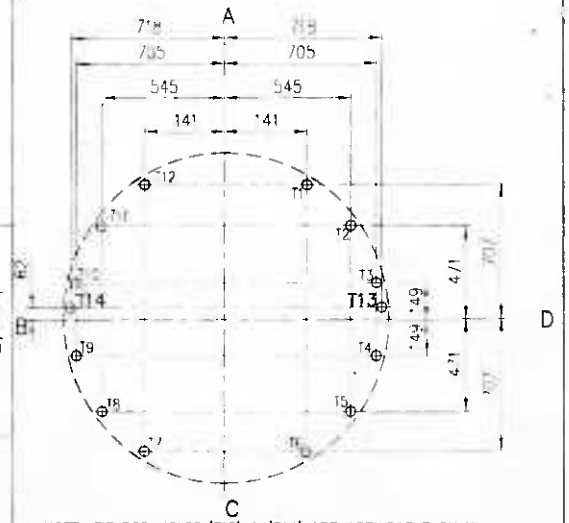
DSH BAFFLE (POS-6)

2-REQD., 16THK.



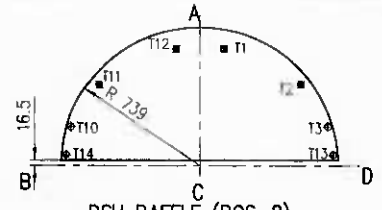
DSH BAFFLE (POS-7)

2-REQD.16THK



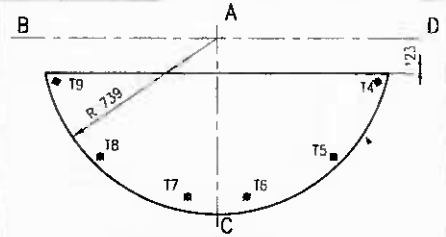
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No. 6 & 8 - DSH BAFFLE

TIE ROD LOCATIONS



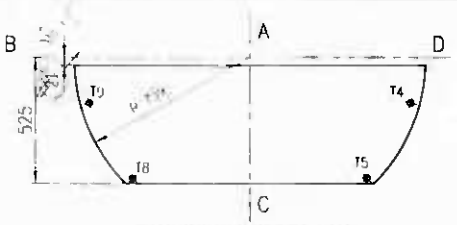
DSH BAFFLE (POS-8)

1-REQD., 16THK.



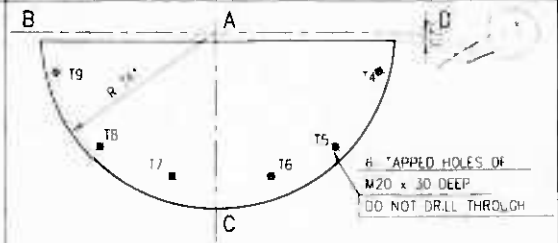
D.C.BAFFLE POS.No.9

5-REQD. 10 THK.



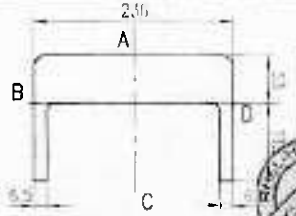
D.C.BAFFLE POS.No.10

5-REQD. 10 THK.



D.C.END PLATE POS.No.11

1-REQD 50 THK



DETAIL 'B'

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096.
5. DRILL ø19.44 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES.
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD HE71036.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN.	DATE	NO OF VAR.
DRN	[illegible]	RAJESH	21.12.19	NA
CHD	A.K.SAHOO	A.K.S	21.12.19	
APPD	K KISHORE KUMAR	K.K.K	21.12.19	

REV.	DATE	ALTERED	CHECKED	APPD

ZONE

DEPT. HEE
CODE 405

GRADE OF TOL DIM C/M/F

SCALE NTS

WEIGHT (KG) NA

REF TO ASSY DRG NA

ITEM NO. NA

NO OF ITEMS NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR L.P.H-4)

CARD CODE

DRAWING NO. 3-162-31-00100

REV 00

SHEET No 1 NO OF SHEETS 1

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.

Jan Sat 25 10:12:2020

Printed by : M. RAJESH-RCP-FME3031 / 6102654 on 25-01-20 10:30:20

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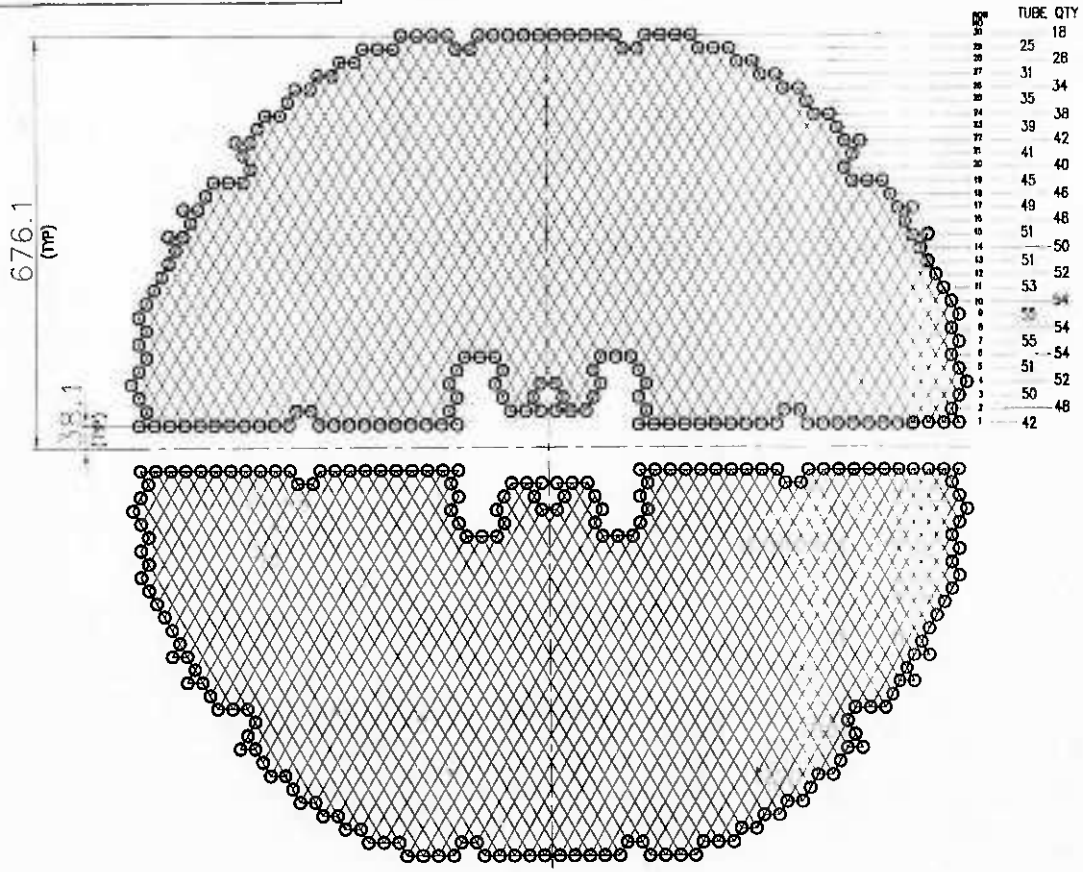
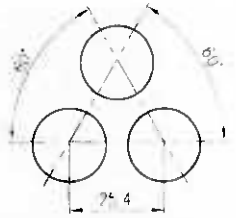
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00096





TUBE PITCH DETAIL

NOTES:-

1. TOTAL No. OF TUBE HOLES=2662
2. TUBE HOLE SIZE IN TUBE SHEET ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	R.V.S.H.M		21.12.19	NA
CHD	K.K.SHARMA		21.12.19	
APPD	K.KISHORE KUMAR	R.K.K	21.12.19	

REV	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE CODE 405		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No. NO OF SHEETS

DRAWING NO. SIGN. AND DATE REF. DRG. NO. 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

TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
101876175	14.03.2020

Plant 0006 Equipment No

Type	WBS Element	Customer / Project Name	Part No
	P-1032329000-16235	3X800 MW PATRATU STPT EXPANSION PHAS	16235006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162310011O	00		3162310011O-01	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	Mt	St.	Nt.Wt.	Remarks	MDCC
0003	10.000	10.000	EA	IS06	142.560		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	16235007	MA by QC. verification by NTPC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		2.594.070	KG	1.388.000	1.488.000	0.000	F1	10.000	ST12

Material Description	Reservation	Item	Picklist
PLATE 16 IS2062 GR1 250(E410W) QUTY-B	0013338038	0001	1000647418

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

PATRATU-3,, LPH-5,,,,P-1032329000-16235,, Support plate-3

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 2662 holes X Ø19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 12 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

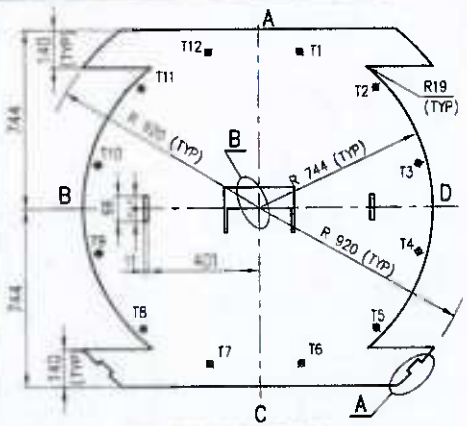
PRE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

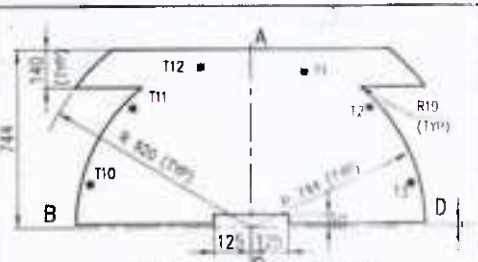
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00110



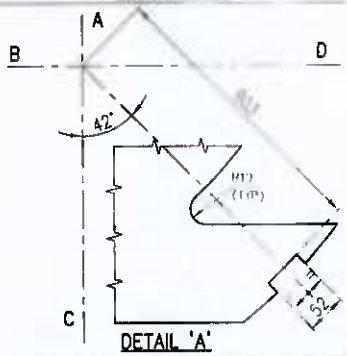
SUPPORT PLATE POS.No.3

2-REQD., 16 THK.

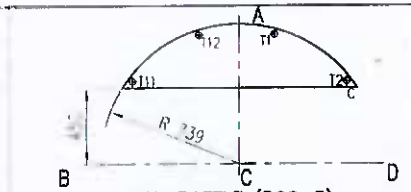


SUPPORT PLATE POS.No.4

1-REQD. 16 THK.

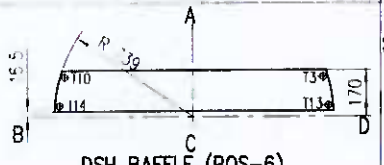


DETAIL 'A'



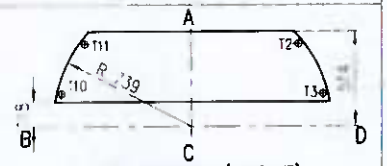
DSH BAFFLE (POS-5)

2-REQD., 16THK.



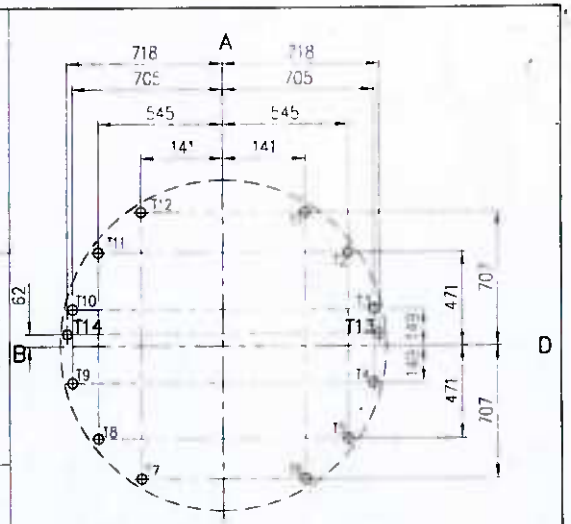
DSH BAFFLE (POS-6)

2-REQD., 16THK



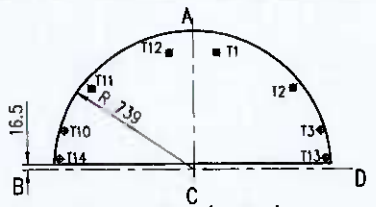
DSH BAFFLE (POS-7)

2-REQD. 16THK



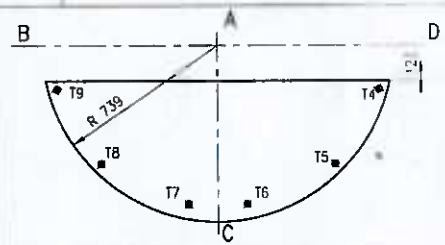
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No. 6 & 8 - DSH BAFFLE

TIE ROD LOCATIONS



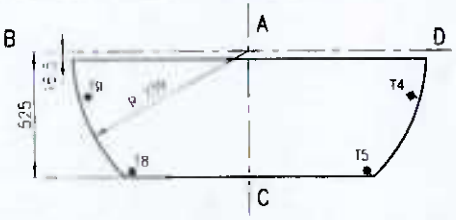
DSH BAFFLE (POS-8)

1-REQD., 16THK.



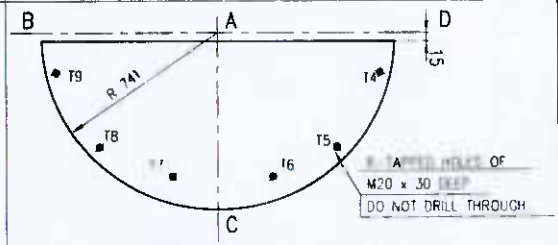
D.C.BAFFLE POS.No.9

5-REQD. 10 THK.



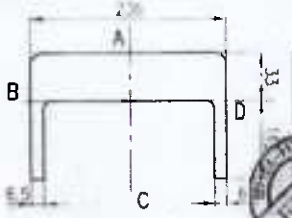
D.C.BAFFLE POS.No.10

5-REQD. 10 THK.



D.C.END PLATE POS.No.11

1-REQD. 50 THK.



DETAIL 'B'

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096
5. DRILL ø19.45 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES.
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE 71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR
DRN.	RAJESH M	M RAJESH	21.12.19	NA
CHD	A.K.SAHOO	A K S	21.12.19	
APPD.	K KISHORE KUMAR	K K K	21.12.19	

REV.	DATE	ALTERED	CHECKED	APPD
ZONE				

DEPT.	GRADE OF TOL.DIM	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO.	NO OF ITEMS
HEE CODE 4015	C/M/F	NTS	NA	NA	NA	NA

TITLE
SUPPORT PLATES & BAFFLES
(FOR LP.H-4)

CARD CODE

DRAWING NO. 3-162-31-00110 REV 00

SHEET No. 1 NO OF SHEETS 1

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INVENTORY NO. | SIGN. AND DATE | REF. DRG. NO.

Mar Wed 11 09:45 2020

Printed by : M. RAJESH-RCP-FME3031 / 6102654 on 11-03-20 12:15:24

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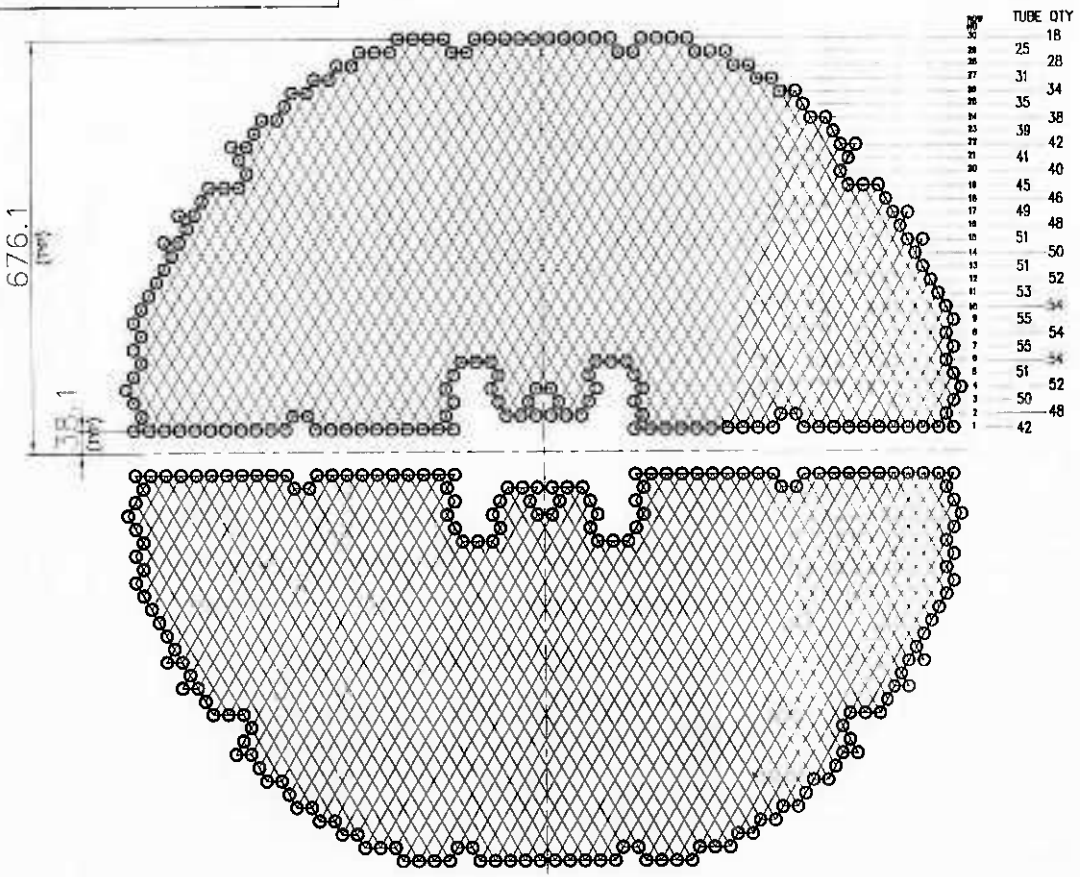
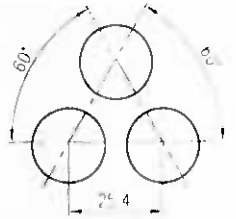
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00096





TUBE PITCH DETAIL

NOTES: -

1. TOTAL No. OF TUBE HOLES = 2662
2. TUBE HOLE SIZE IN TUBE SHEET ¢19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	M RAJESH	21.12.19	
CHD	A K SAHOO	A K S	21.12.19	NA
APPD	K KISHORE KUMAR	K K K	21.12.19	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED	APPD
ZONE					ZONE				

DEPT.	GRADE OF TOL.DIM C/M/F		SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO	NO OF ITEMS
HEE			NTS	NA	NA	NA	NA
CODE 405							

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No | NO OF SHEETS

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.

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Jan Sat 25 10:12 2020

Printed by : M. RAJESH-RCP-FME3031 / 6102654 on 05-02-20 07:36:47

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Therefore signatures are not essentially required

TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
1018776190	14.03.2020

Plant: P006 Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1032329000-16235	3X800 MW PATRATU STPT EXPANSION PHAS	16235008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
316231001110	00		316231001110-02	SUPPORT PLATE-4

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	1.000	1.000	EA	IS06	70.510		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16235009	MA by QC, verification by NTPC				
AA10119		129.704	KG	1,388.000	744.000	0.000	F1	1.000	ST12

Material Description: PLATE 16 IS2062 GR I 250(E410W) QLTY-B | Reservation: 0013338039 | Item: 0001 | Picklist: 1000641780

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3.. I PH-5,...P-1032329000-16235.. Support plates-4

Scope of work:

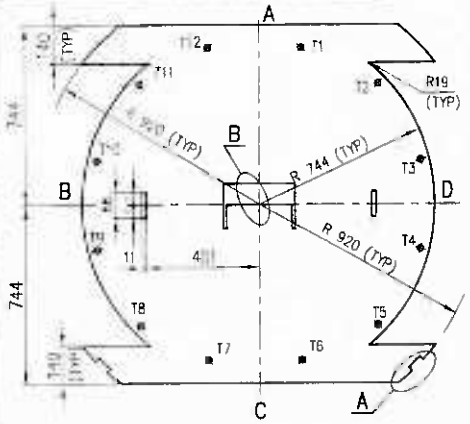
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 1331 holes X Ø19.3 +0.45 -0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 6 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

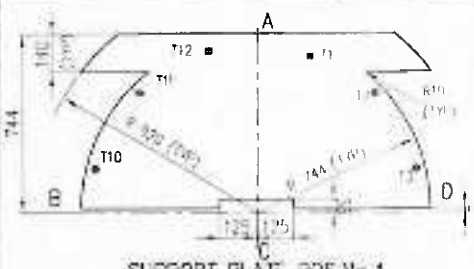
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00110



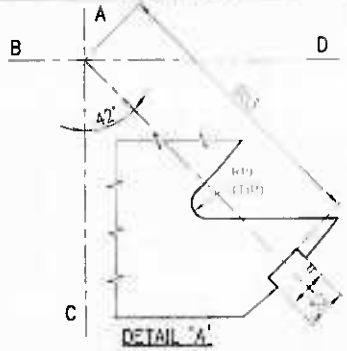
SUPPORT PLATE POS.No.3

10-REQD. 16 THK.

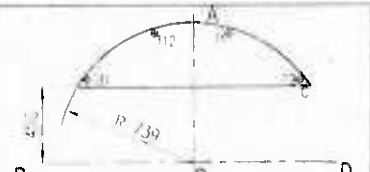


SUPPORT PLATE POS.No.4

1-REQD. 16 THK.

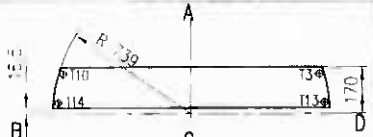


DETAIL 'A'



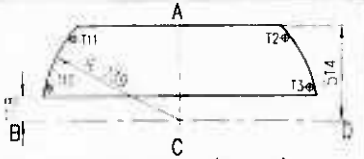
DSH BAFFLE (POS-5)

2-REQD., 16THK



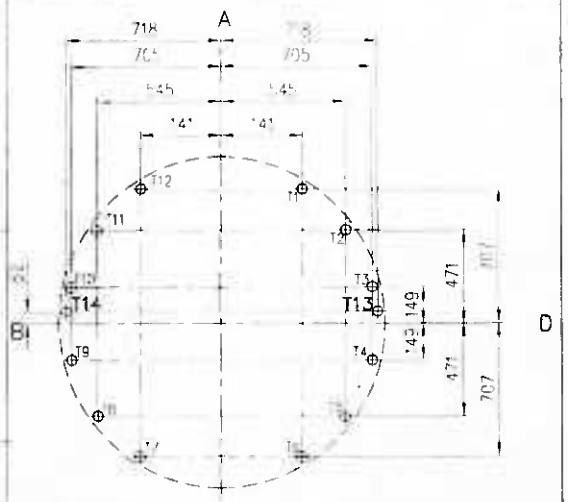
DSH BAFFLE (POS-6)

2-REQD. 16THK



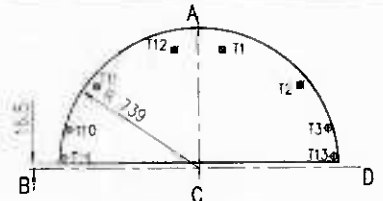
DSH BAFFLE (POS-7)

2-REQD '6THK



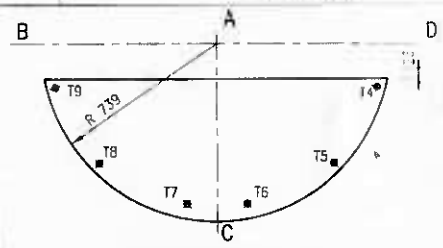
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No. 6 & 8 – DSH BAFFLE

TIE ROD LOCATIONS



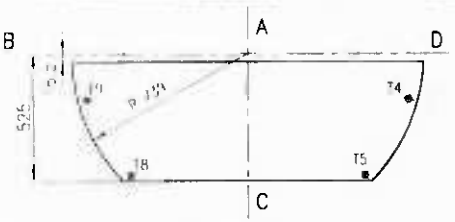
DSH BAFFLE (POS-8)

1-REQD., 16THK.



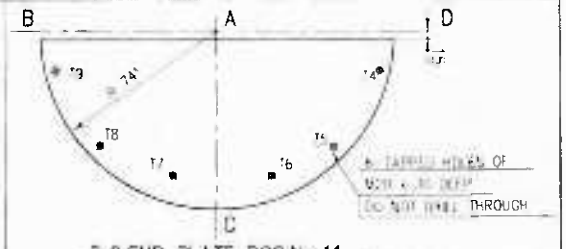
D.C.BAFFLE POS.No.9

5-REQD. 10 THK.



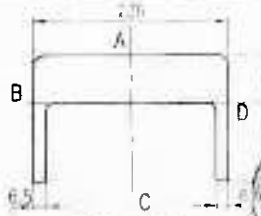
D.C.BAFFLE POS.No.10

5-REQD. 10 THK.



D.C.END PLATE POS.No.11

1-REQD. 50 THK.



DETAIL 'B'

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096.
5. DRILL ø19.45 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES
6. DRILL ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL ø19.30 $^{\pm0.05}$ HOLES IN D.C.END PLATE
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

M.V.	DATE	ALTERED	CHECKED	APPD
ZONE				

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	RAJESH	21.12.19	NA
CHD	A K SAHOO	A K S	21.12.19	
APPD	K KISHORE K KKK	K K K	21.12.19	

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE		NTS	NA	NA	NA	NA
CODE 403						

TITLE
SUPPORT PLATES & BAFFLES
(FOR LPH-4)

CARD CODE

DRAWING NO. 3-162-31-00110 REV 00

SHEET No 1 NO OF SHEETS 1

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO.

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Mar Wed 11 09:45 2020

Printed by : M RAJESH-RCP-FMH 303 on 11-03-20 12:15:24

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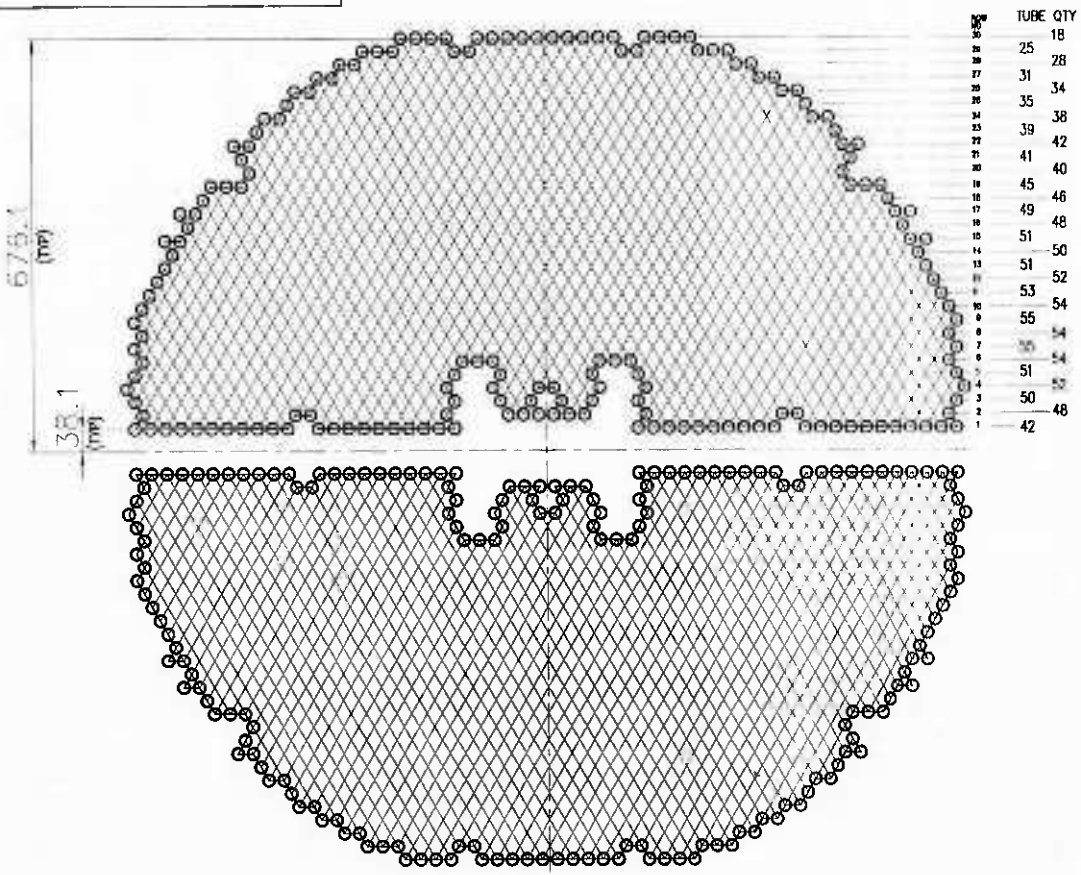
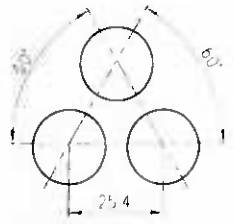
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00096





TUBE PITCH DETAIL

NOTES: -

1. TOTAL No. OF TUBE HOLES=2662
2. TUBE HOLE SIZE IN TUBE SHEET ø19.3±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN	RAJESH M	M RAJESH	21.12.19	NA
CHD	A K SAHOO		21.12.19	
APPD	K. KISHORE K.K.K.	K.K.K.	21.12.19	

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED	APPD

DEPT.	GRADE OF TOL./DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY ORG.	ITEM NO	NO OF ITEMS
401 405		NTS	NA	NA	NA	NA

ZONE

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No NO. OF SHEETS

INVENTORY NO | SIGN. AND DATE | REF. DRG. NO. |

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	TECHNOLOGICAL PROCESS RE-PRINT	Production Order	Date
Plant: P006	Equipment No	101876140	14.03.2020

ROUTE CARD

Type	WBS Element	Customer / Project Name	Part No
	P-1032329000-16235	3X800 MW PATRATU STP EXPANSION PHAS	16235022

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31623100110	00		31623100110-00MC	D C BAFFLES

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0001	10.000	10.000	EA	IS06	35.370		Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819074		16235023	MA by QC, verification by NTPC				
AA10119		883.130	KG	750.000	1,500.000	0.000	F1	10.000	ST12

Material Description : PLATE 10 IS2062 GRE250(LE410W) QLTY-B	Reservation : 0013338072	Item : 0001	Picklist 1000641933

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0095	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PATRATU-3 ,,,,LPH-5,, P-1032329000-16235 ,,DC Baffles

Scope of work.

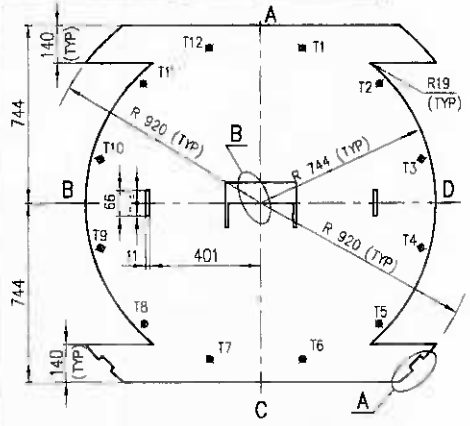
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of tube holes 1331 x dia. 19.75 +0.45 -0.00 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 6 through holes X O23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to 1x45° on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no. WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION

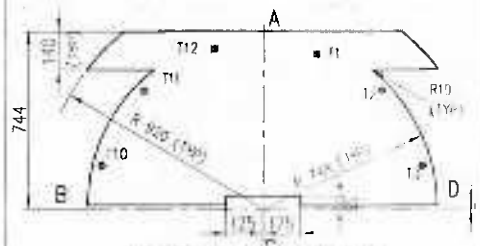
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00110



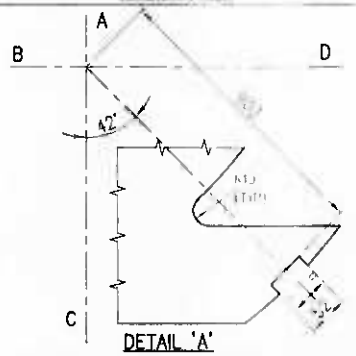
SUPPORT PLATE POS.No.3

10-REQD. 16 THK.

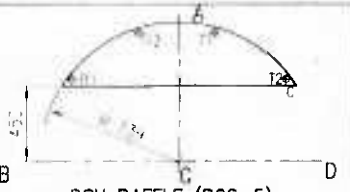


SUPPORT PLATE POS.No.4

1-REQD. 20 THK

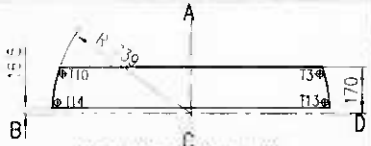


DETAIL 'A'



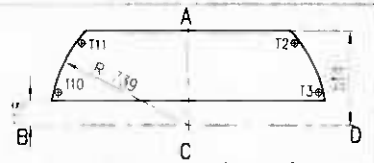
DSH BAFFLE (POS-5)

2-REQD. 16THK



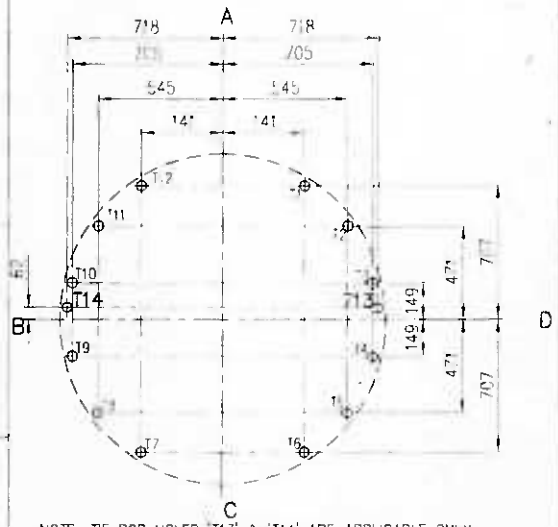
DSH BAFFLE (POS-6)

2-REQD. 16THK



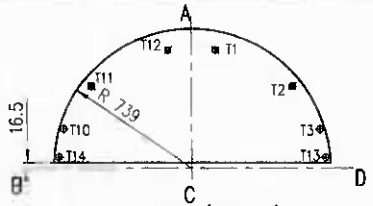
DSH BAFFLE (POS-7)

2-REQD 16THK



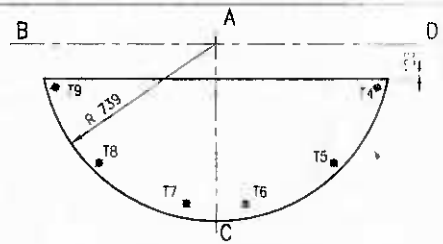
NOTE: TIE ROD HOLES 'T13' & 'T14' ARE APPLICABLE ONLY FOR POS No 6 & 8 - DSH BAFFLE

TIE ROD LOCATIONS



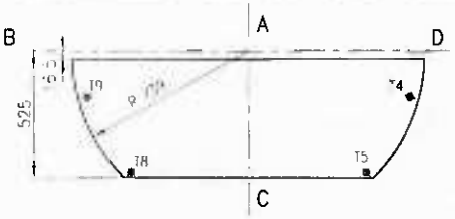
DSH BAFFLE (POS-8)

1-REQD., 16THK.



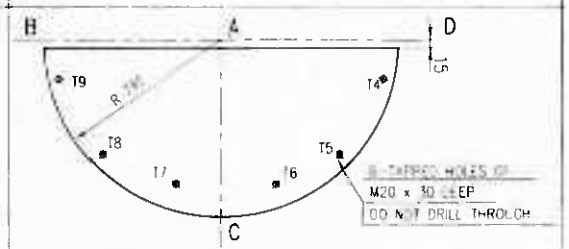
D.C.BAFFLE POS.No.9

5-REQD. 10 THK.



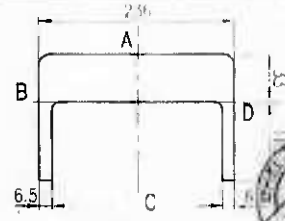
D.C.BAFFLE POS.No.10

5-REQD. 10 THK.



D.C.END PLATE POS.No.11

1-REQD. 10 THK.



DETAIL 'B'

NOTES:-

1. DELETED.
2. CHAMFER 1x45° TUBE HOLES ON BOTH SIDES OF ALL PLATES.
3. DRILL Ø19.30 $^{+0.45}_{0.00}$ HOLES IN SUPPORT PLATES FOR TUBES.
4. FOR TUBE LAYOUT REF. DRG. NO. 3-16231-00096.
5. DRILL Ø19.45 $^{+0.05}_{-0.05}$ HOLES IN DSH BAFFLES FOR TUBES.
6. DRILL Ø23 HOLES IN SUPPORT PLATES FOR TIE RODS OF Ø20.
7. CLEAN SUPPORT PLATES AS PER HE71014.
8. DRILL Ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES.
9. DRILL Ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE.
10. TUBE HOLE FINISH 6.3
11. FOR UNSPECIFIED TOLERANCES REF. PRODUCT STD. HE71036.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN.	DATE	NO OF VAR
DRN	RAJESH P		11.3.19	
CHD	A K SAHOO			
APPD	K KISHORE	K K K	11.3.19	NA

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

DEPT	GRADE OF TOL. DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO OF ITEMS
HEF		NTS	NA	NA	NA	NA
CODE 405						

TITLE
SUPPORT PLATES & BAFFLES
(FOR LPH-4)

CARD CODE

DRAWING NO.
3-162-31-00110

REV 00

SHEET No. 1 NO OF SHEETS 1

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MACHINERY NO | SIGN. AND DATE | REF. DRG. NO.

Mar Wed 11.03.45 2020

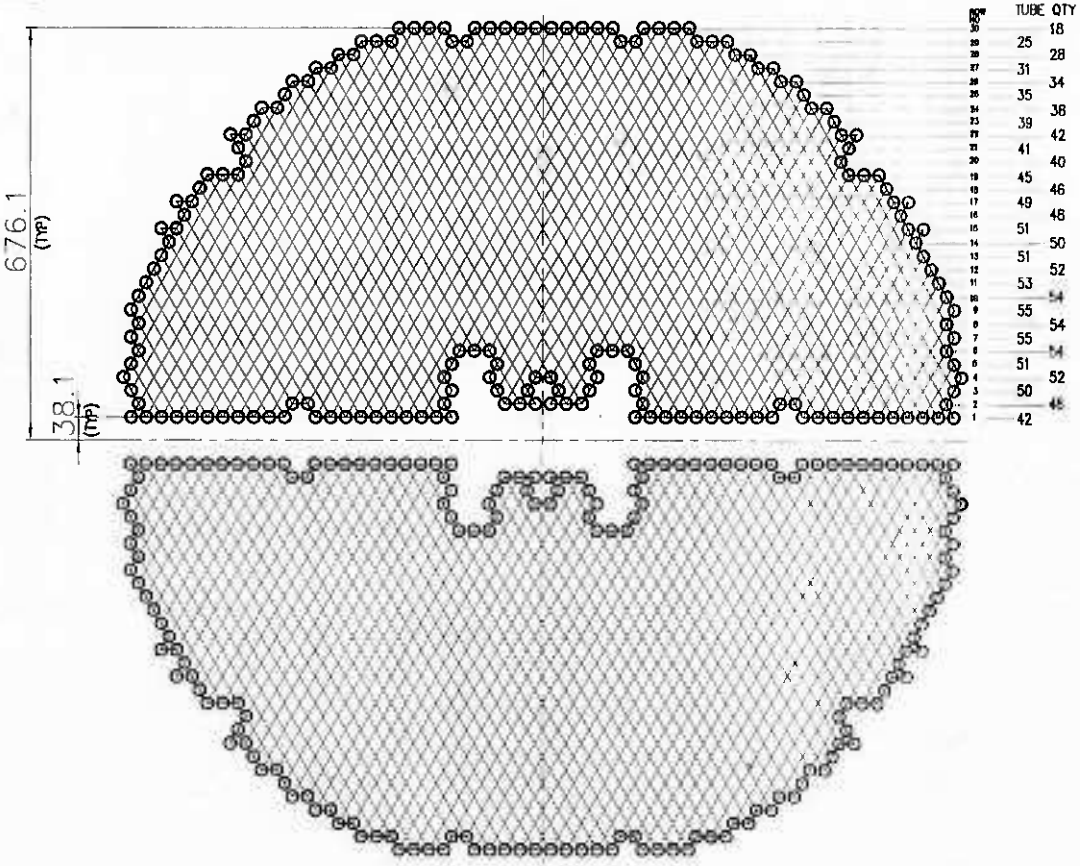
Printed by : M. RAJESH-RCP-FME3031 / 4102651 on 11-03-20 12:15:24

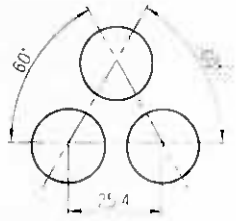
This Drawing is printed from Engineering Digital Archive System (EDAS). Therefore signatures are not essentially required

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-31-00096





TUBE PITCH DETAIL

NOTES:-

1. TOTAL No. OF TUBE HOLES=2662
2. TUBE HOLE SIZE IN TUBE SHEET Ø19.30±0.05 ALSO THE VARIATION BETWEEN SPINDLE TO SPINDLE MAY BE RESTRICTED WITHIN 0.05
3. OTL= Ø1467

1331
1331

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	RAJESH M	M RAJESH	21.12.19	NA
CHD	A K SAHOO	A K S	21.12.19	
APPD.	K KISHORE KUMAR	K K K	21.12.19	

REV.	DATE	ALTERED	CHECKED	APPD.	REV.	DATE	ALTERED	CHECKED	APPD.
ZONE					ZONE				

DEPT. CODE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
		NTS	NA	NA	NA	NA

TITLE: TUBE LAYOUT

CARD CODE

DRAWING NO. 3-162-31-00096 REV 00

SHEET No. NO. OF SHEETS

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NOTICE NO. | SIGN. AND DATE | REF. DRG. NO.

Jan Sat 25 19:12 2020

Printed by : M. RAJESH-RCP-FME3031 / 6102654 on 05-02-20 07:36:47

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
1020166885	08.07.2023

Plant P006 Equipment No. III 112700

Type	WBS Element	Customer / Project Name	Part No
	P-1032338800-16218	Rungta Mines Ltd. Dhenkanal Steel	16218075

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-10	SUPPORT PLATE-5

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0027	3.000	3.000	EA	IS06	40.430	SUPPORT PLATE-5	Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks		
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218076					
AA10119		332.940	KG	940.000	940.000	0.000	F1	3.000	ST12

Material Description : PLATE 16 IS2062 GR-250(E410W) QLTY-B | Reservation : 0014699175 | Item : 0001 | PickList:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1,, LPH,,,,P-1032338800-16218,, Support plate-5

Scope of work:

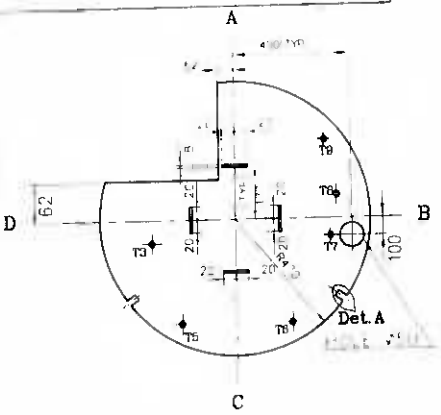
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

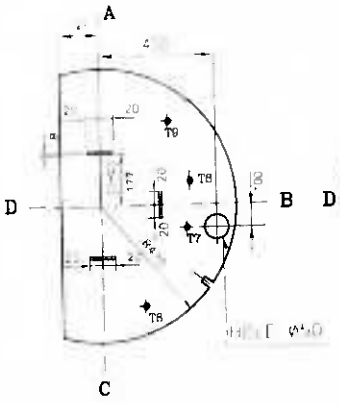
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

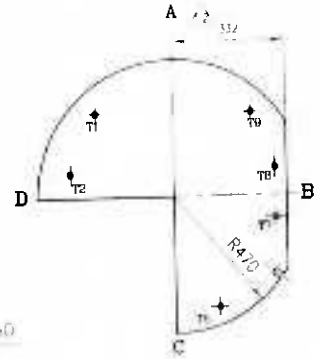
DRG. NO. 3-162-18-00868



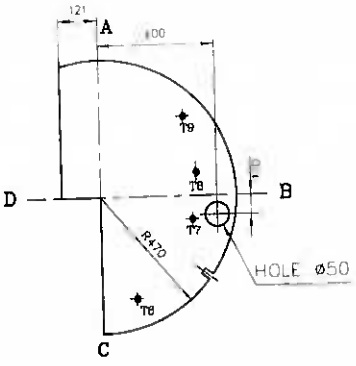
POS No.3
REQD 1, 16 THK



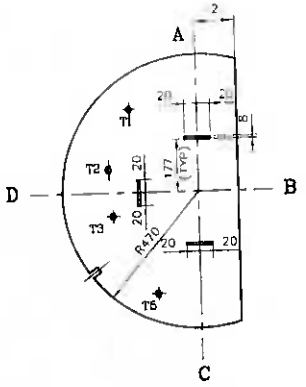
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

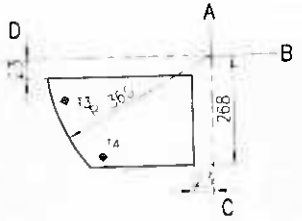


POS No.6
REQD 2, 16 THK

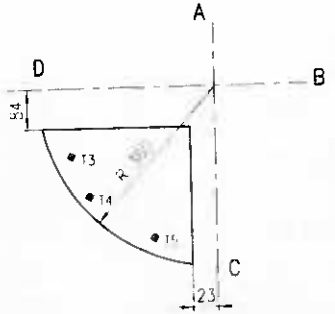


POS No.27
REQD 3, 16 THK

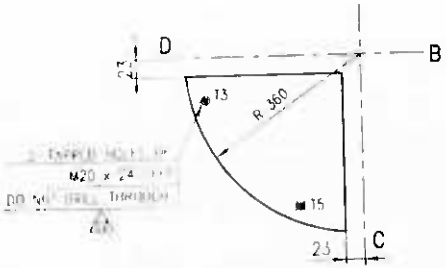
TECHNOLOGY COPY



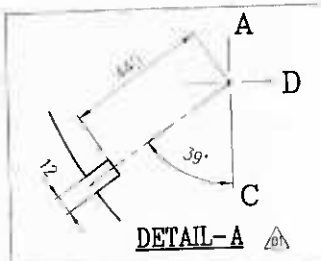
D.C.BAFFLE POS.No.7
1-REQD. 10 THK



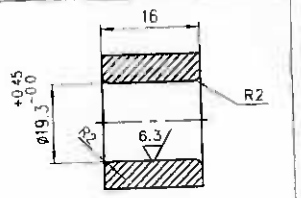
D.C.BAFFLE POS.No.8
8-REQD. 10 THK.



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.45 -0.00 HOLES IN D.C END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO.OF VAR.
CHD	[illegible]		[illegible]	NA
CHD	[illegible] KUMAR		12.08.11	
APPD	B.SRINIVAS		[illegible]	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					[illegible]	[illegible]	[illegible]	A K S	[illegible]	[illegible]	[illegible]	A K S	[illegible]	[illegible]

DRAWING REVISED & SHOWN AS [illegible]

ZONE

DETAIL 'A' REVISED & SHOWN AS [illegible]

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO	NO.OF ITEMS
HEC		NTS	-	N A	NA	NA

CODE A05

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868

REV 02

SHEET No

NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

Printed by NARESH ERAKAM-RCP WMF8019 6140211 on 10-06-23 11:05:13

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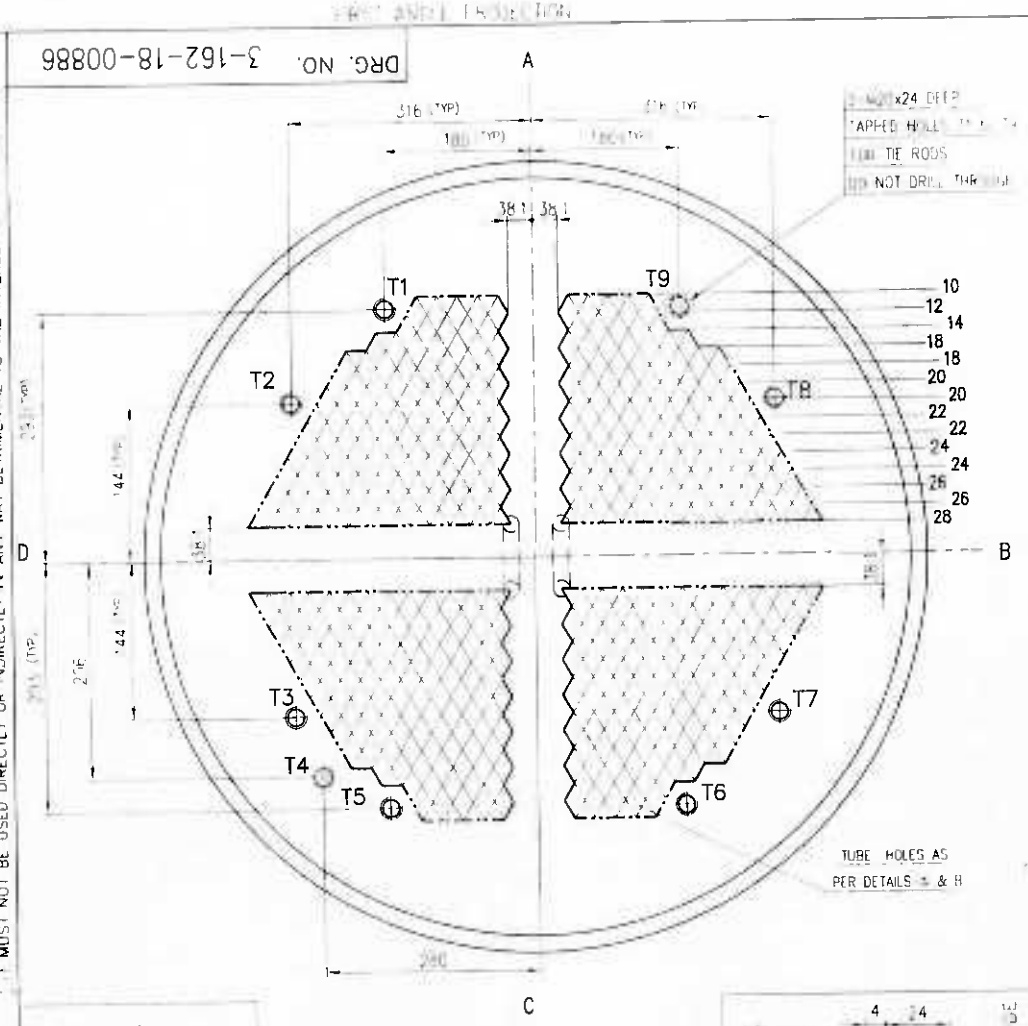
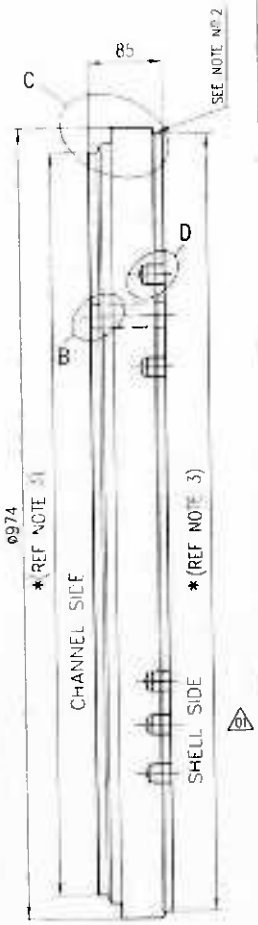
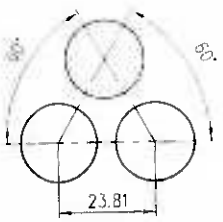
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00886

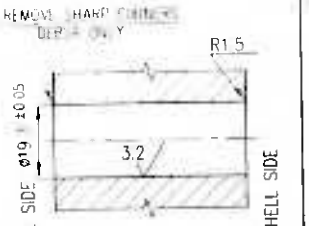




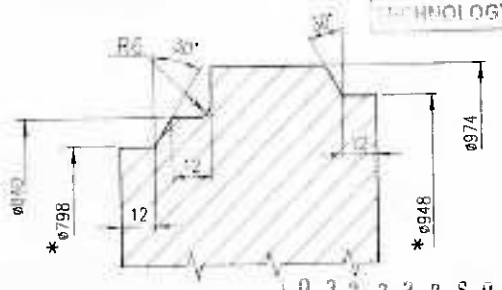


PITCH DETAIL

DETAIL-A



DETAIL-B

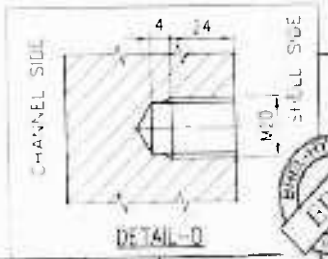


DETAIL-C

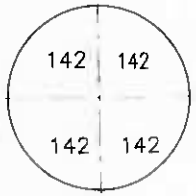
TECHNOLOGY COPY

NOTE:

1 No. OF TUBE HOLES 568
2 LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
*3 EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5 OTL = 719



DETAIL-D



REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED	CHECKED/APPD
01	04.04.12	HHAMU	
ZONE	DRAWING REVISED AS SHOWN AS AT THE HOLE SHOWN IN SIDE VIEW		

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A.K.SAHOO		17.08.11	NA
CHD	K.KIRAN K.MAR		17.08.11	
APPD	B.SRINIVAS		17.08.11	

RESTRICTED USE

DEPT CODE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
		NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

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Printed by : NARESH ERAKAM-RCP-WMF8019 / 6140211 on 10-06-23 11:05:30

TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Plant	Material No.	Production Order	Date
P006	40112700	102036936	08.07.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1032338800-16218	Rungta Mines Ltd., Dhenkanal Steel	16218008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162180086	00		3162180086-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	ML	St.	Nt.Wt.	Remarks	MDCC
0004	2.000	2.000	FA	IS06	40.180	SUPPORT PLATE-2	Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks			
Matl.Spec	SPK	Qty	ML	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218009	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR-250(E410W) QLTY-B | Reservation : 0014699169 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation	Text							
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1., LPH....P-1032338800-16218,. Support plate-2

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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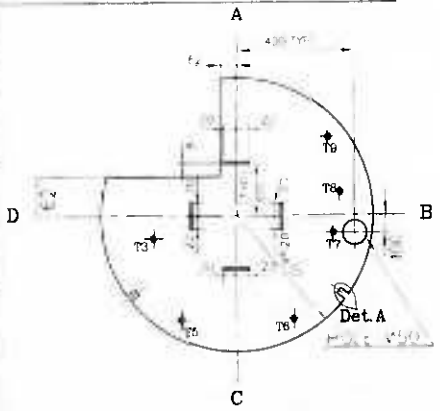
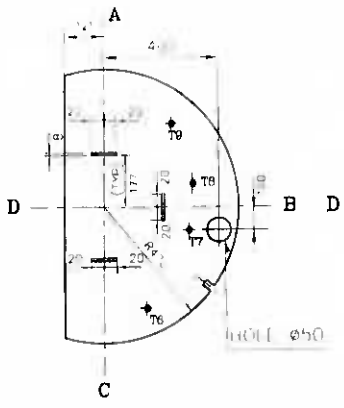


POS No.3
REQD 1, 16 THK



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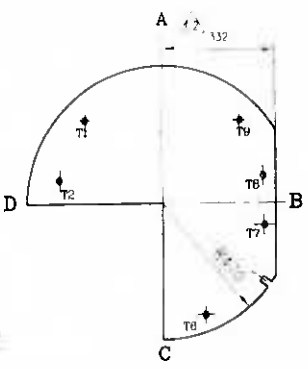
REQD 2, 16 THK



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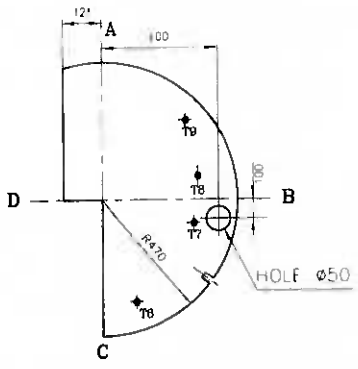

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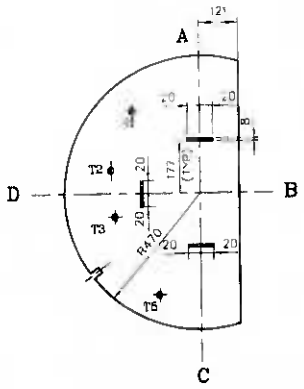
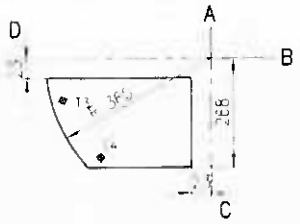
REQD 2, 16 THK

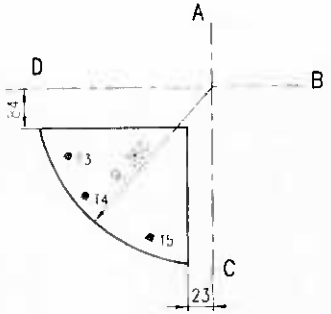


POS No.27
REQD 3, 16 THK

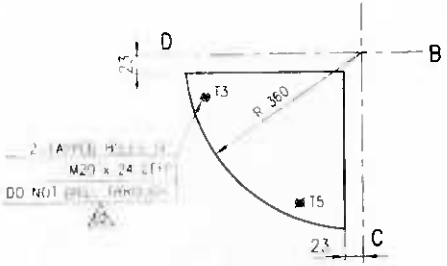
TECHNOLOGY COPY



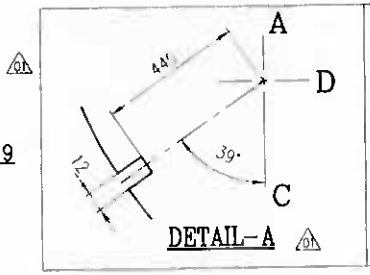
D.C.BAFFLE POS.No.7
7-REQD 10 THK



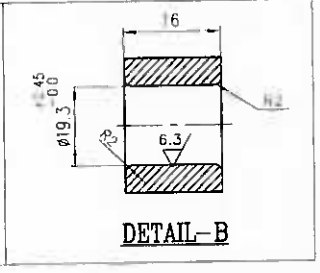
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A 01



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. REAMER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROC STD HE 7 1036
4. DRILL ø19.33 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL
5. DRILL ø19.7 +0.4 -0.00 HOLES IN D.C BAFFLES FOR TUBES
6. DRILL ø19.30 ±0.05 HOLES IN D.C END PLATE POS NO 9
7. TIE ROD HOLES (T1 T9) ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3 162-18 00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN.	A K SAHOO	AKS	17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD

REV	DATE	ALTERED	CHD	APPD
02	17.08.11	DRAWING REVISED & SHOWN AS 02	AKS	

REV	DATE	ALTERED	CHECKED	APPD
01	16.08.11	DETAIL 'A' REVISED & SHOWN AS 01	AKS	

ZONE

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO.
3-162-18-00868

REV 02

SHEET No 1 NO OF SHEETS 1

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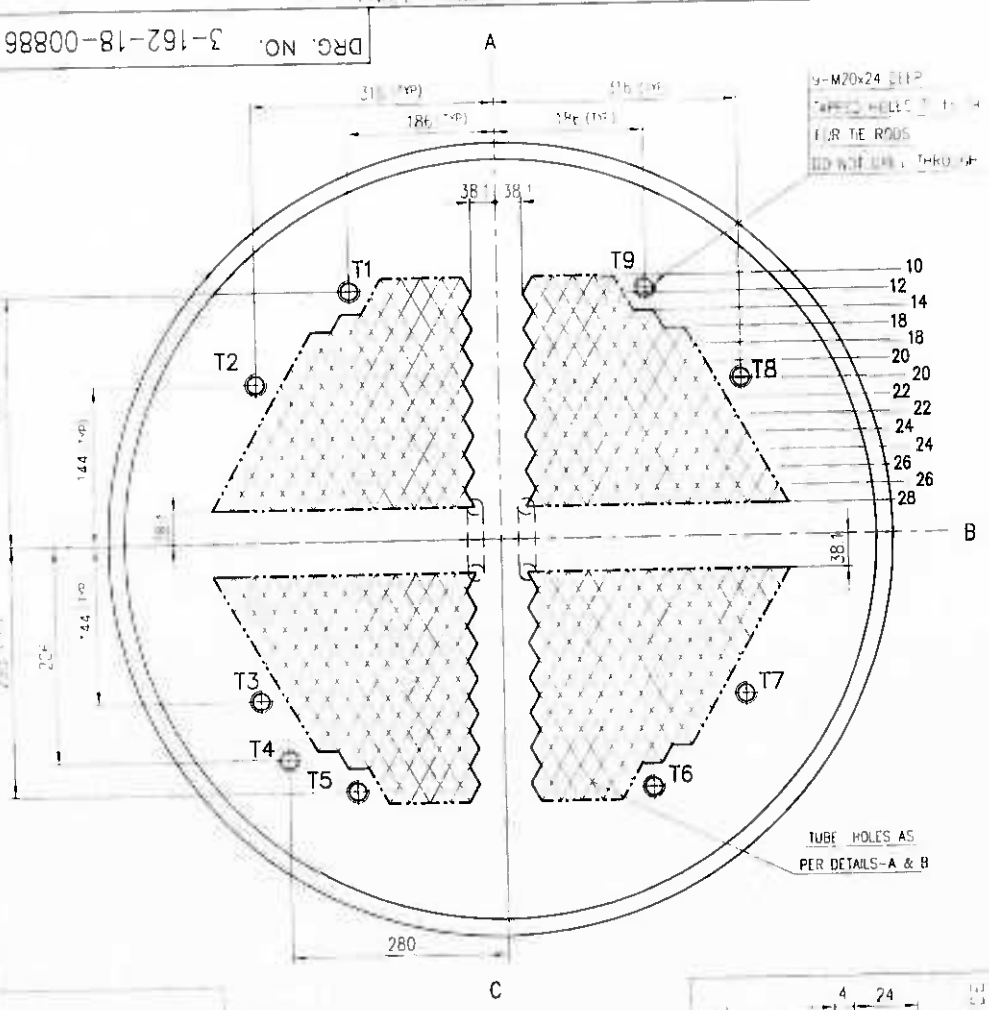
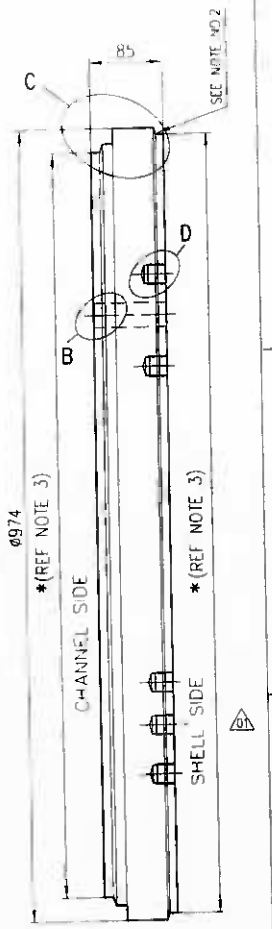
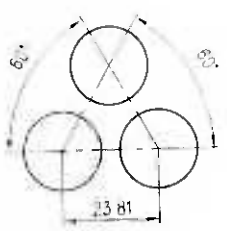
DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

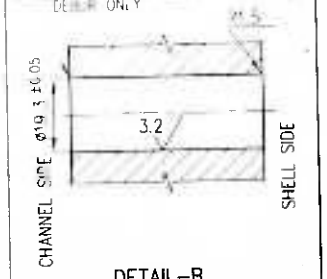






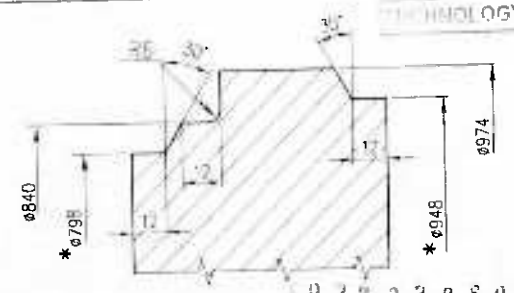
PITCH DETAIL

DETAIL-A



DETAIL-B

TECHNOLOGY COPY



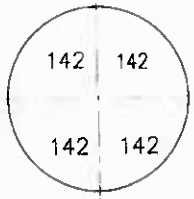
DETAIL-C

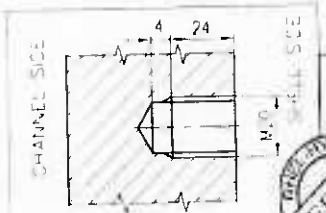
0 3 2 3 3 9 0 0 0 1 6 2 1 8

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

0 3 2 3 3 9 0 0 0 1 6 2 1 8
0 3 2 3 3 9 1 0 0 1 6 2 1 8





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	[illegible]		17.08.11	
CHD	K KIRAN KUMAR		17.08.11	NA
APPD	B.SR.N.VAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED	CHECKED/APPD
01	[illegible]		
ZONE	DRAWING REVISED AS SHOWN A... T4 HOLE SHOWN IN SIDE VIEW		

DEPT	GRADE OF TOL.DIM. C/M/f	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
CODE 405		NA	—	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HDR7 LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No. NO OF SHEETS 1

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TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
102036937	08.07.2023

Plant: P006 Equipment No: HI H2700

Type	WBS Element	Customer / Project Name	Part No
	P-1032338800-16218	Rungta Mines Ltd., Dhenkanal Steel	16218010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0005	2.000	2.000	EA	IS06	50.690	SUPPORT PLATE-3	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218011	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B	Reservation : 0014699170	Item : 0001	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1,, LPH,,,,P-1032338800-16218,, Support plate-3

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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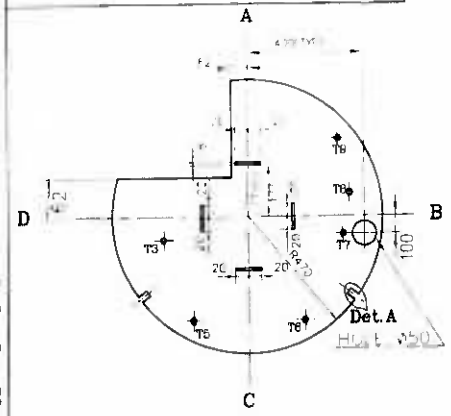
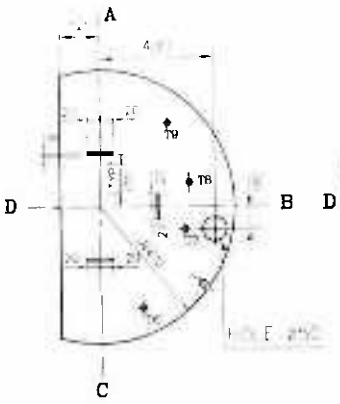
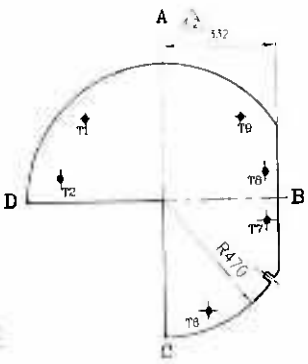


POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



POS No.5
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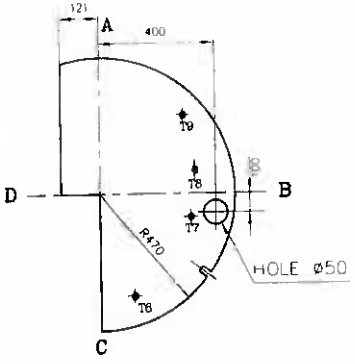

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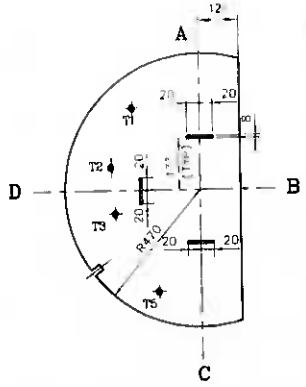
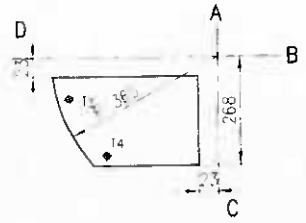
REQD 2, 16 THK

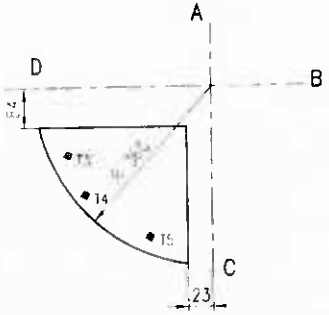


POS No.27
REQD 3, 16 THK

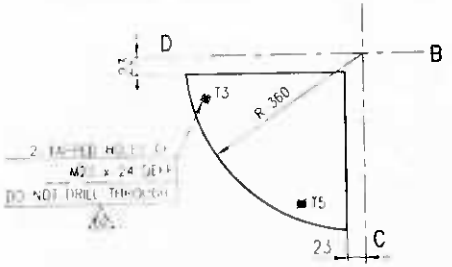
TECHNOLOGY COPY



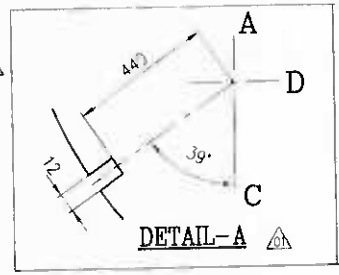
D.C.BAFFLE POS.No.7
1-REQD. 10 THK



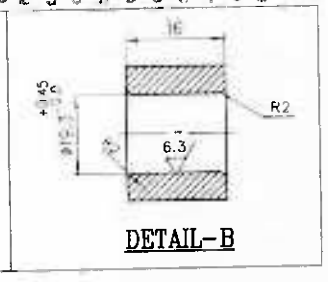
D.C.BAFFLE POS.No.8
8-REQD. 10 THK.



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 ±0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					0	07.02.12	FRADEEP	A K S		01	4.12.11	A K S		

DRAWING REVISED & SHOWN AS

DETAIL 'A' REVISED & SHOWN AS

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	A K SAHOO	AKS	17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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08.02.2012
07.33.51

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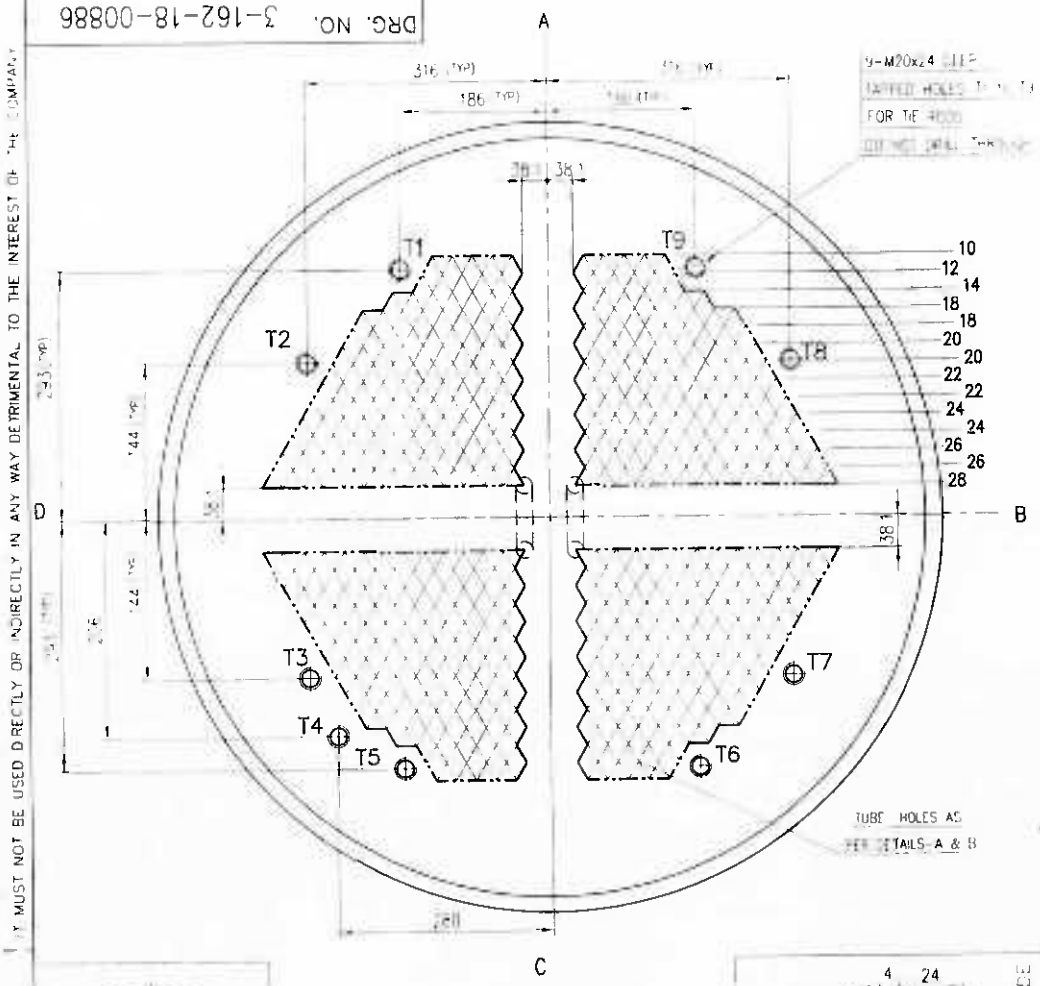
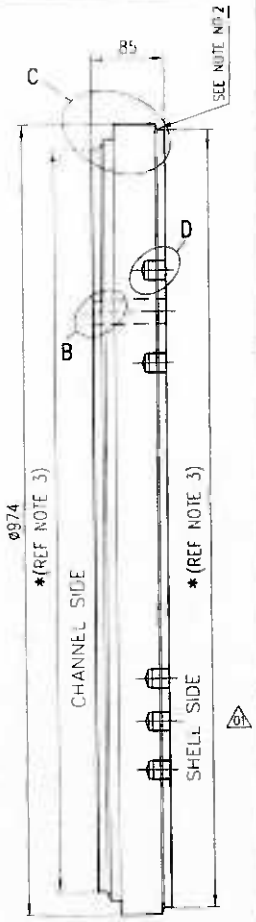
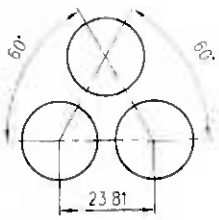
DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

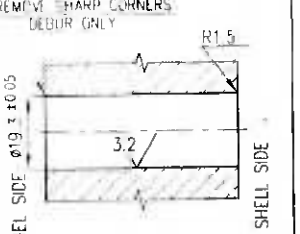




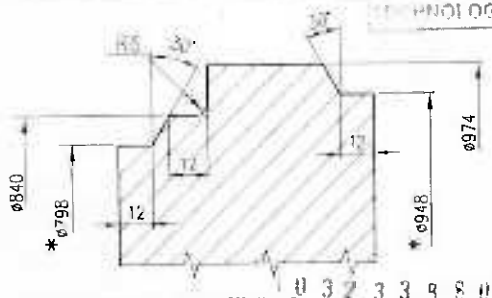


PITCH DETAIL

DETAIL-A



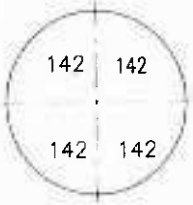
DETAIL-B

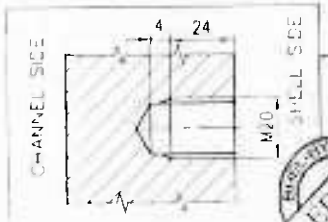


DETAIL-C

NOTE:

1 No. OF TUBE HOLES 568
2 LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3 EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4 FOR UNSPECIFIED TOLERANCE REF PROD STD HE/ 1036
5 OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD

REV	DATE	ALTERED/CHECKED/APPD
01	04.11.11	BHANU

ZONE

DRAWING REVISED AS SHOWN AS 01.
T4 HOLE SHOWN IN SIDE VIEW

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
		NA	–	-N.A-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HOR7 LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

INVENTORY NO SIGN AND DATE REF DRG NO

16.06.2012
16:36:04

Printed by : NARESH ERAKAM-RCP-WME-8019 / 6140211 on 10-06-23 11:05:30

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ROUTE CARD

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102036938	08.07.2023

Plant: 0006 Equipment No: HEH2700

Type	WBS Element	Customer / Project Name	Part No
	P-1032338800-16218	Rungta Mines Ltd., Dhenkanal Steel	16218012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-06	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	2.000	2.000	EA	IS06	36.540	SUPPORT PLATE	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218013	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description	Reservation	Item	Picklist
PLATE 16 IS2062 GR E250(FE410W) QLTY-B	0014699171	0001	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1., LPH....P-1032338800-16218,. Support plate

Scope of work:

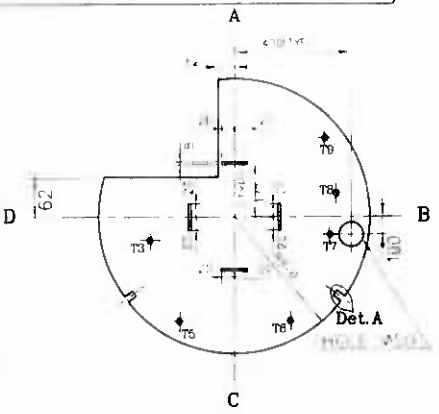
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

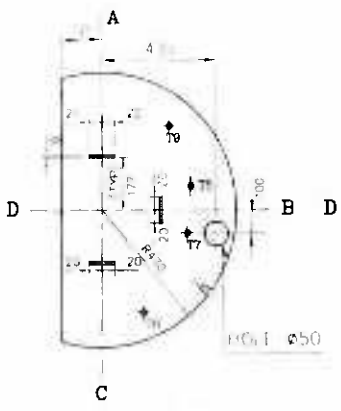
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868



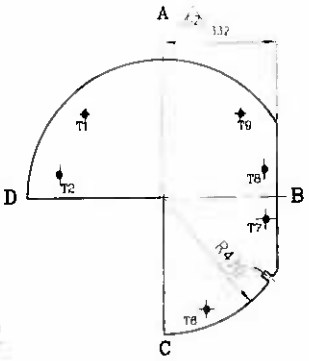
POS No.3

REQD 1, 16 THK



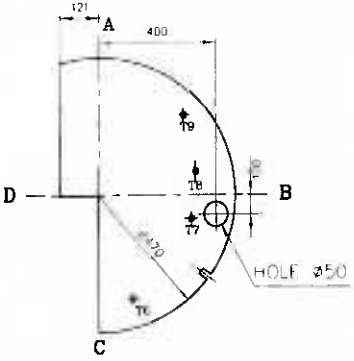
POS No.4

REQD 2, 16 THK



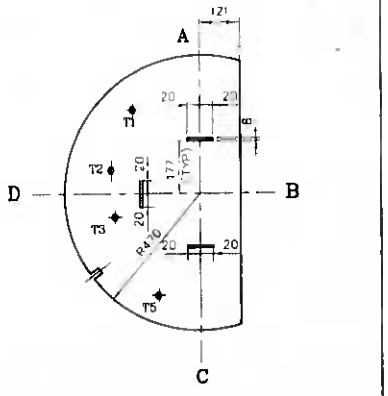
POS No.5

REQD 2, 16 THK



POS No.6

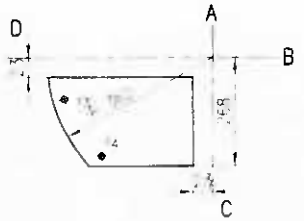
REQD 2, 16 THK



POS No.27

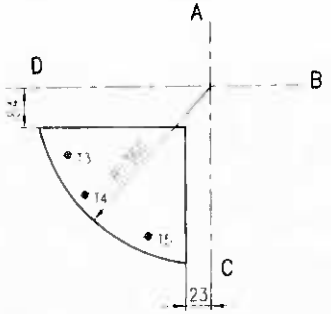
REQD 2, 16 THK

TECHNOLOGY COPY



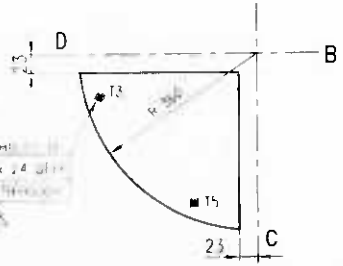
D.C.BAFFLE POS.No.7

2-REQD. 16 THK



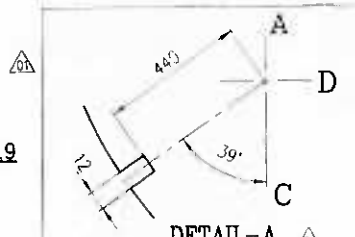
D.C.BAFFLE POS.No.8

8-REQD. 16 THK

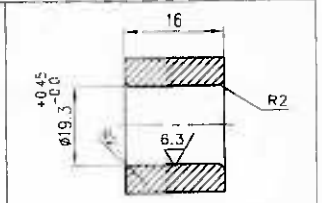


D.C.END PLATE POS.No.9

1-REQD. 50 THK



DETAIL-A 01



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL ø19.3 $^{+0.45}_{0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL -
5. DRILL ø19.3 $^{+0.45}_{-0.00}$ HOLES IN D.C BAFFLES FOR TUBES
6. DRILL ø19.3 $^{+0.45}_{-0.00}$ HOLES IN D.C END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 TO T9)ø22
8. FOR TIE ROD LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					01	07.08.12	DRAWING REVISED & SHOWN AS 02			02	16.08.12	DETAIL 'A' REVISED & SHOWN AS 01		

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO.OF ITEMS
		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO
3-162-18-00868

REV 02

SHEET No 1 | NO OF SHEETS 1

RESTRICTED USE

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08.02.2012

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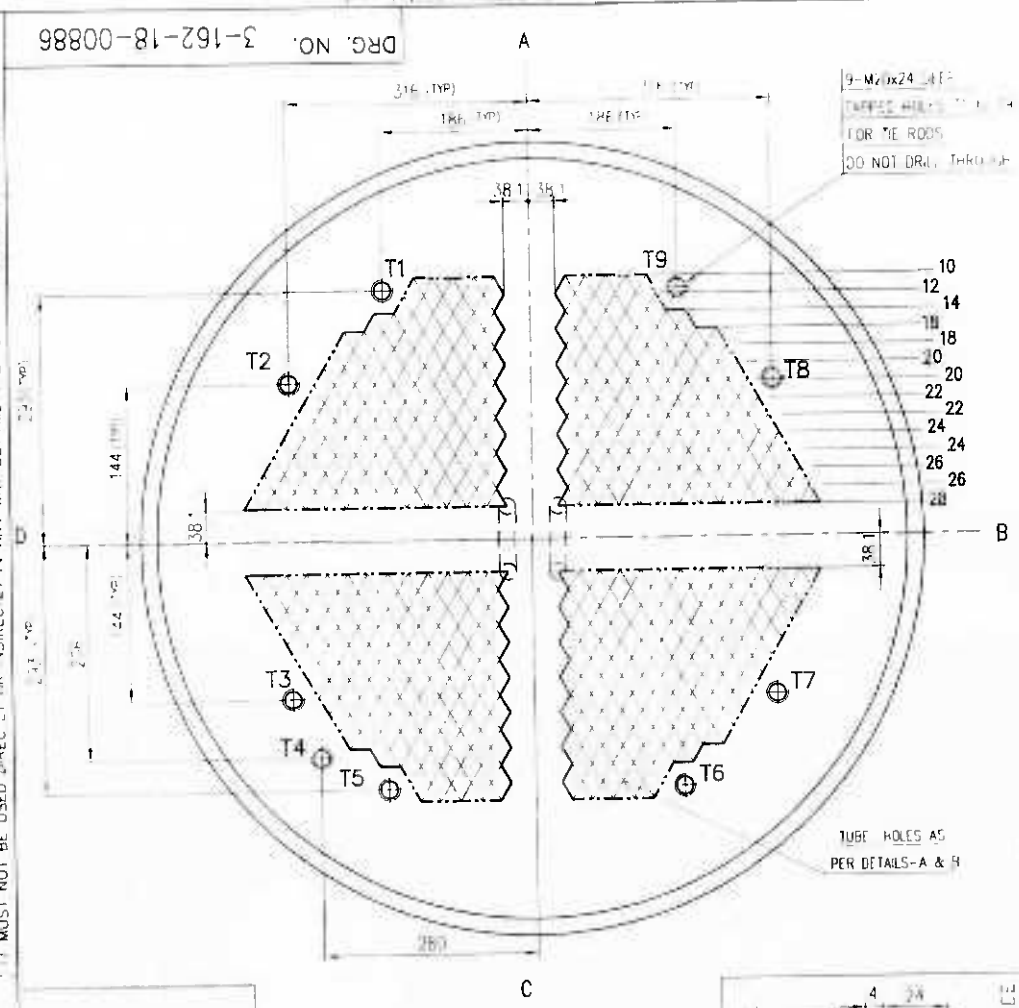
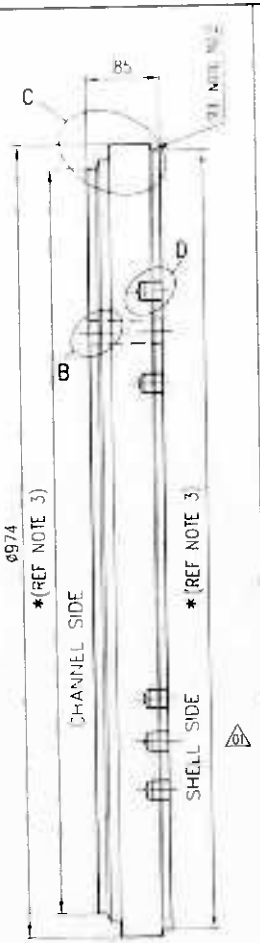
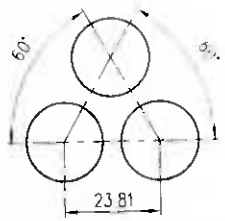
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00886

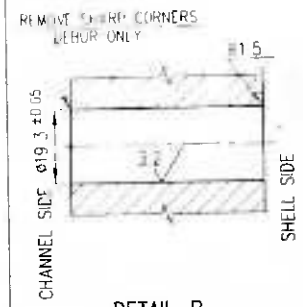




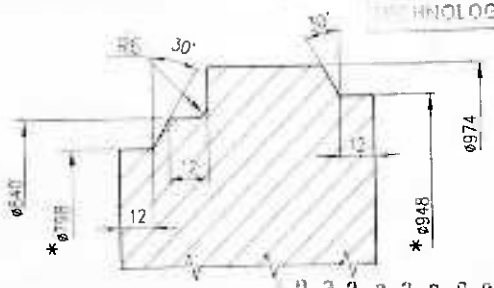


PITCH DETAIL

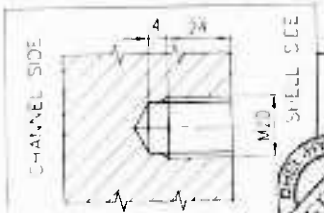
DETAIL-A



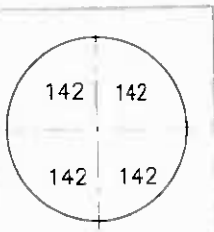
DETAIL-B



DETAIL-C



DETAIL-D



NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VARS
DRN.	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12	CHANG	

ZONE

DRAWING REVISED AS SHOWN AS ON THE HOLE SHOWN IN SIDE VIEW

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 405		NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

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16.05.2012
16.36.04

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
1020036940	08.07.2023

Plant P006 Equipment No: HH12700

Type	WBS Element	Customer / Project Name	Part No
	P-1032338800-16218	Rungta Mines Ltd., Dhenkanal Steel	16218006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	Mt	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	EA	IS06	54.340	SUPPORT PLATE-1	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	Mt	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218007	MA BY QC				
AA10119		110.980	KG	940.000	940.000	0.000	F1	1.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(E 410W) QUALITY-B | Reservation : 0014699168 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC (L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1,, LPH,,,,P-1032338800-16218,, Support plate-1

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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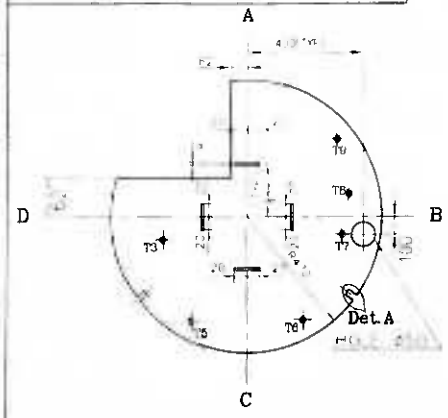
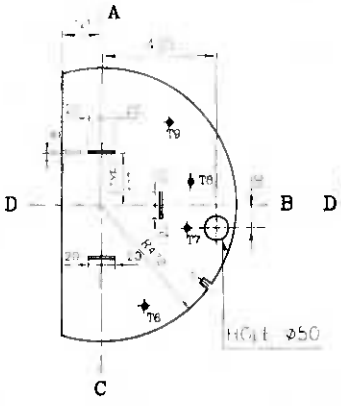
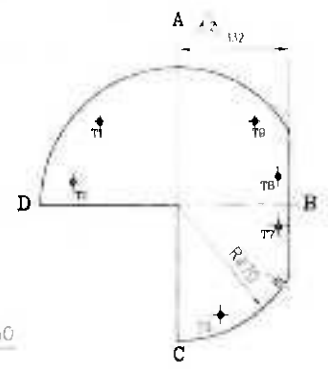


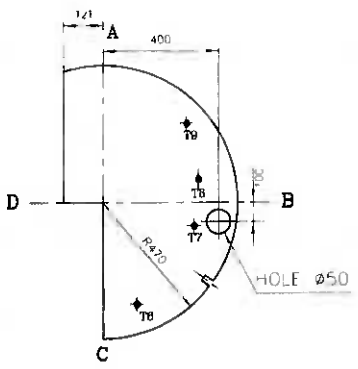
POS No.3
REQD 1, 16 THK



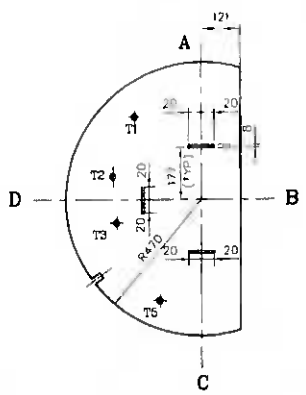
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

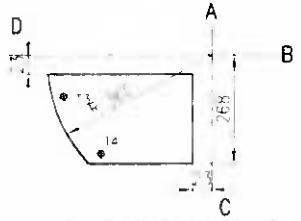


POS No.6
REQD 2, 16 THK

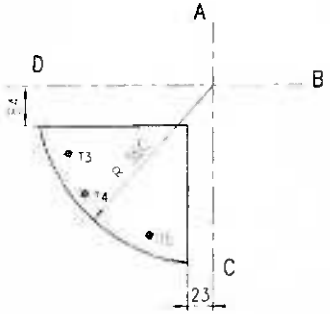


POS No.27
REQD 3, 16 THK

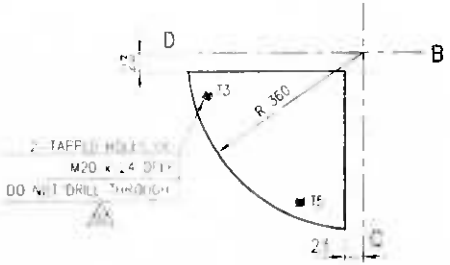
TECHNOLOGY COPY



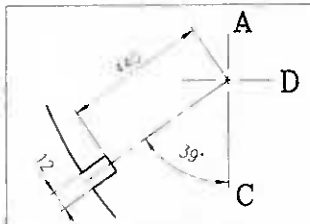
D.C.BAFFLE POS.No.7
1-REQD. 10 THK



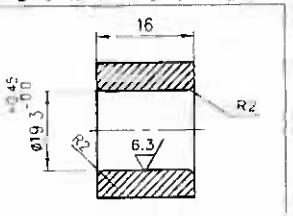
D.C.BAFFLE POS.No.8
8-REQD. 10 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No. 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	A K SAHOO	AKS	17.08.11	NA
CHD.	K KIRAN KUMAR		17.08.11	
APPD.	B [illegible]		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
						[illegible]	[illegible]	A K S	[illegible]	01	14.12.11	[illegible]	[illegible]	[illegible]

DRAWING REVISED & SHOWN AS [illegible]

DETAIL A REVISED & SHOWN AS [illegible]

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO OF ITEMS
HEE CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

08.02.2012
07:33:51

Printed by : NARESH ERAKAM-RCP WMI 8019 / 6140211 on 10-06-23 11:05:13

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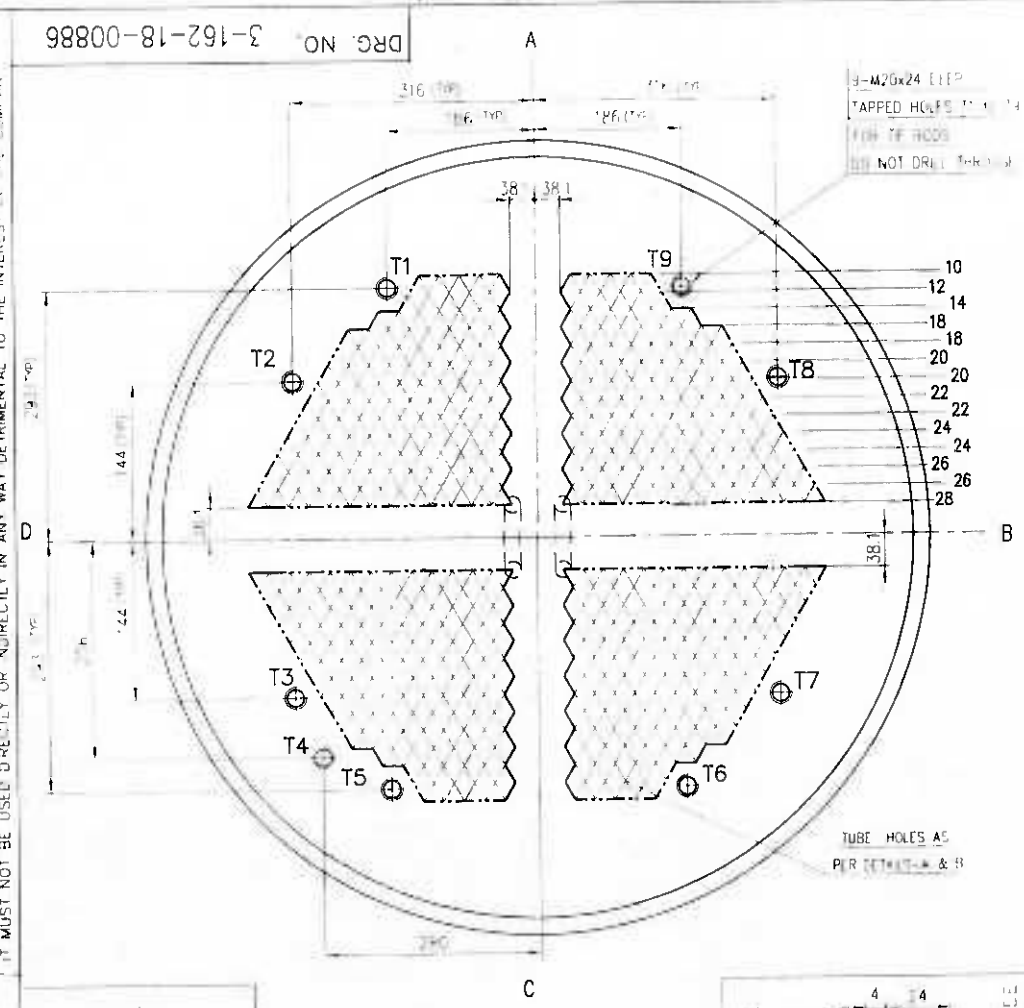
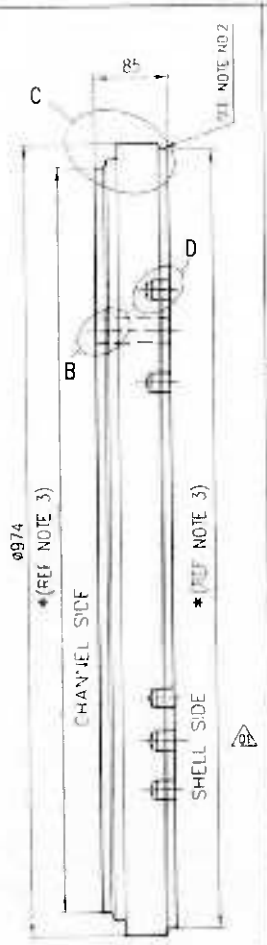
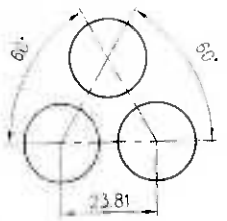
DRG. NO. 3-162-18-00886

ALL DIMENSIONS ARE IN mm

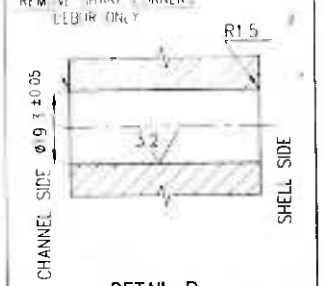




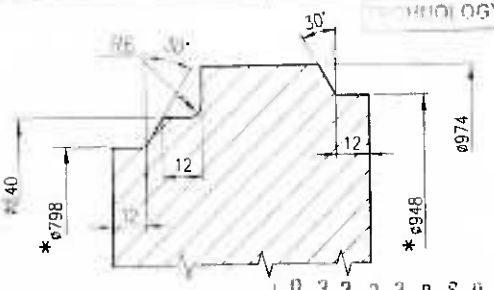


PITCH DETAIL

DETAIL-A



DETAIL-B



DETAIL-C

TECHNOLOGY COPY

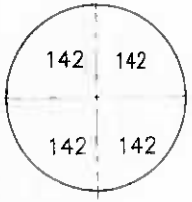
0 3 2 3 3 9 0 0 0 1 6 2 1 8

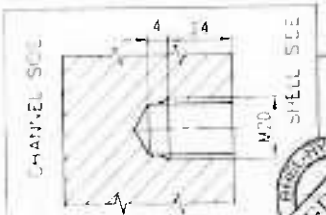
0 3 2 3 3 9 0 0 0 1 6 2 1 8

0 3 2 3 3 9 1 0 0 1 6 2 1 8

NOTE:

1 No. OF TUBE HOLES 568
2 LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3 EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4 FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5 OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO.OF VAR.
DRN	A.K. SAHU		3.11	
CHD	K. KIRAN KUMAR		17.08.11	NA
APPD	G. SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED	CHECKED	APPD
01	14.04.11		CHANU	
ZONE		DRAWING REVISED AS SHOWN AS T4 HOLE SHOWN IN SIDE VIEW		

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE		NA	–	– N.A –	NA	NA
CODE 4						

TITLE: TUBE PLATE & LAYOUT (FOR HOR. TPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET NO. 1 NO OF SHEETS 1

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16.05.2012
16.36.14

TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
102036741	08.07.2023

Plant	Equipment No.	Customer / Project Name	Part No
P006		Rungta Mines Ltd., Dhenkanal Steel	16218075

Type	WBS Element
	P-1032339000-16218

Drawing No.-Var	E.Rev.	I.Rev	Material No.	Name Of The Part
3162180086	00		3162180086-10	SUPPORT PLATE-5

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0027	3.000	3.000	EA	IS06	40.430	SUPPORT PLATE-5	Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks		
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112	16218076						
AA10119		332.940	KG	940.000	940.000	0.000	F1	3.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(E410W) QUTY-B

Reservation : 0014698654

Item : 0001

Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	/P01	0.000	0.000	0.000	0.000	

RUNGTA-1,, LPH,,,,P-1032339000-16218,, Support plate-5

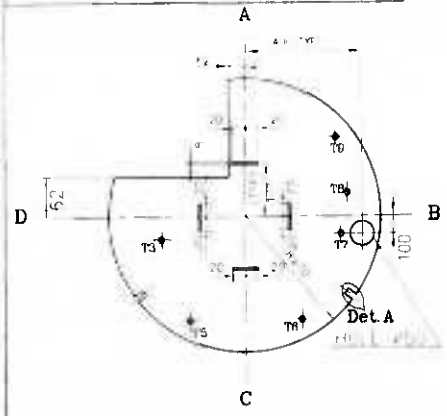
Scope of work.

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

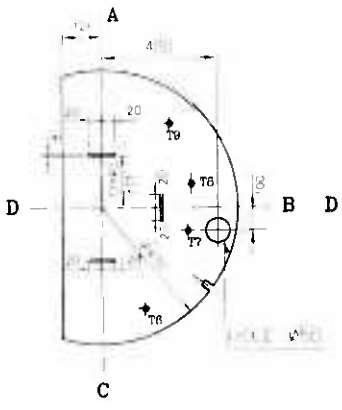
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

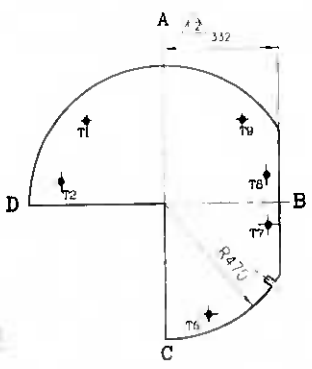
DRG. NO. 3-162-18-00868



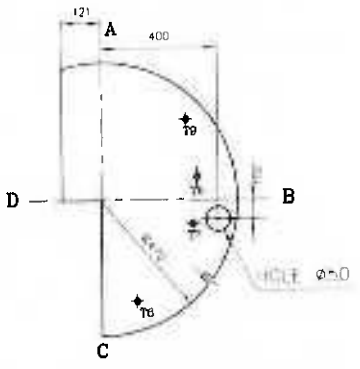
POS No.3
REQD 1, 16 THK



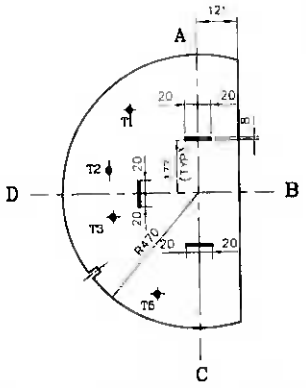
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

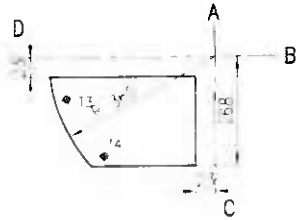


POS No.6
REQD 2, 16 THK

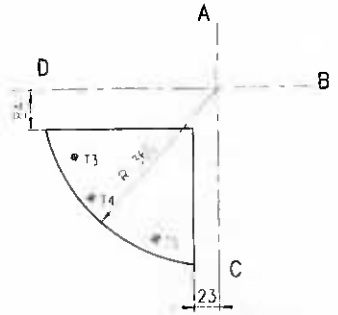


POS No.27
REQD 3, 16 THK

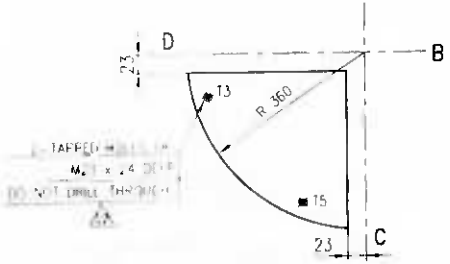
TECHNOLOGY COPY



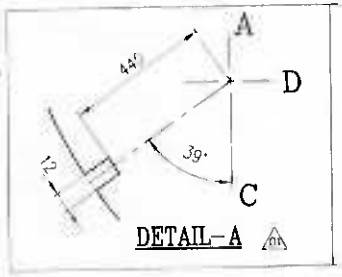
D.C.BAFFLE POS.No.7
7-REQD 10 THK



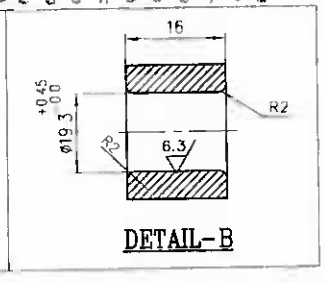
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1-REQD 50 THK



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1016
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (11-19)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN	A K DAHOD	AKS	17 08 11	NA
CHD	K KIRAN KUMAR		17 08 11	
APPD	S SRINIVAS		17 08 11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					02	01 08 12	PRADEEP	A K S		01	01 08 12	A K S		

DRAWING REVISED & SHOWN AS 02

ZONE

DETAIL A REVISED & SHOWN AS 02

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

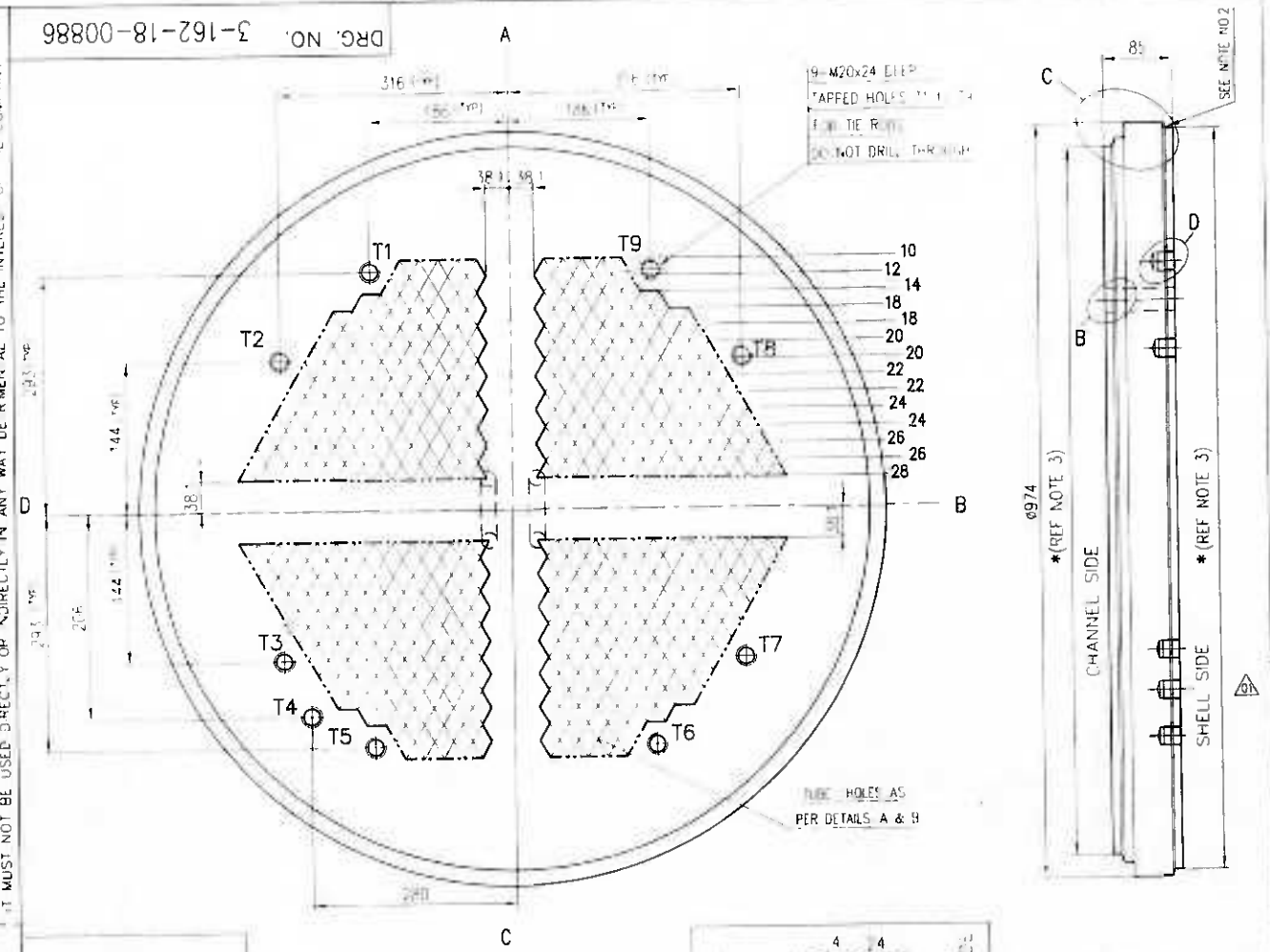
08 08 2012
07 03 51

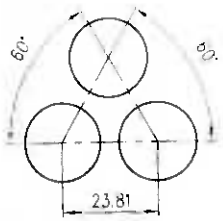
Printed by : NARESH ERAKAM-RCP-WME 8019 / 140211 on 10-06-23 11:05:13

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

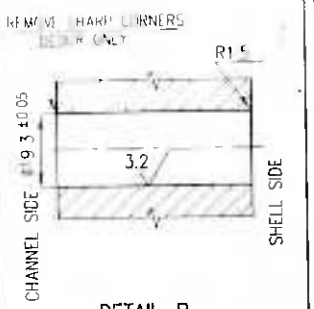
DRG. NO. 3-162-18-00886



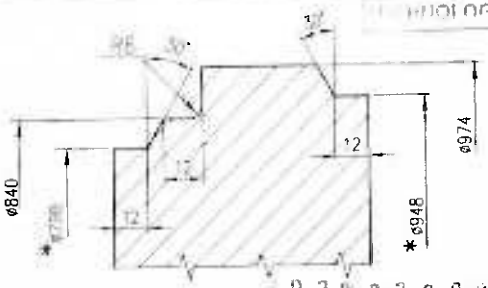


PITCH DETAIL

DETAIL-A



DETAIL-B



DETAIL-C

0 3 2 3 3 9 8 0 0 1 6 2 1 8

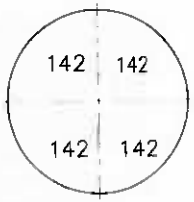
0 3 2 3 3 9 0 0 0 1 6 2 1 8

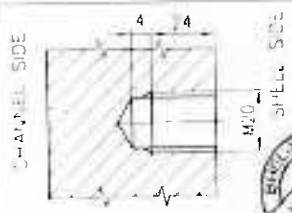
0 3 2 3 3 9 0 0 0 1 6 2 1 8

0 3 2 3 3 9 1 0 0 1 6 2 1 8

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO.OF VAR.
DRN	K.K. SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12	BHANU	
ZONE					ZONE	DRAWING REVISED AS SHOWN AS ON (T4 HOLE SHOWN IN SIDE VIEW)		

DEPT HEE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 405		NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

16.05.2012
16:36:04

Printed by : NARESH ERAKAM-RCP-WMI 8019 / 6140211 on 10-06-23 11:05:30

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102036797	08.07.2023

Plant Proto. E. Equipment No.

Type	WBS Element	Customer / Project Name	Part No
	P-1032339000-16218	Rungta Mines Ltd . Dhenkanal Steel	16218008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDC
0004	2.000	2.000	EA	IS00	40.180	SUPPORT PLATE-2	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218009	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(1 410W) QLTY-B | Reservation : 0014698648 | Item : 0001 | Picklist

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1,, LPH,...P-1032339000-16218,. Support plate-2

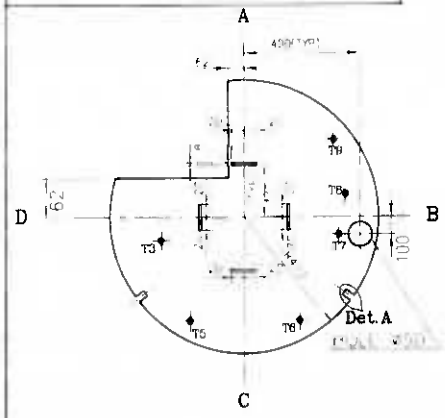
Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

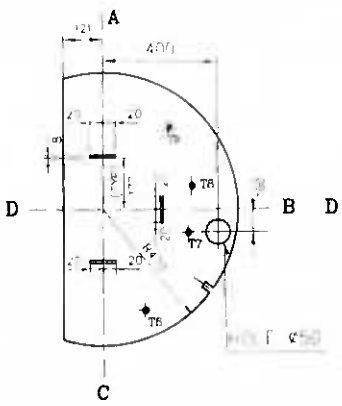
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

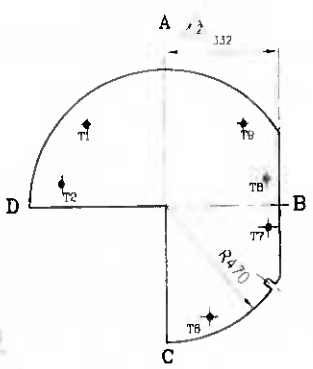
DRG. NO. 3-162-18-00868



POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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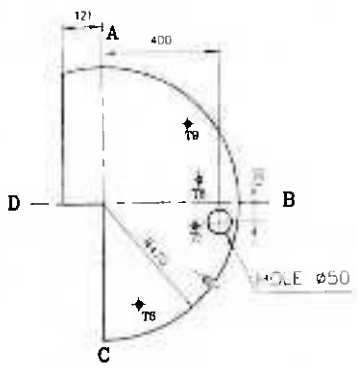
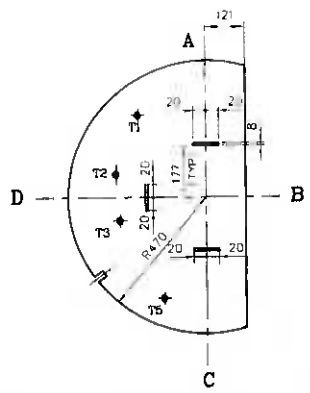
REQD 2, 16 THK

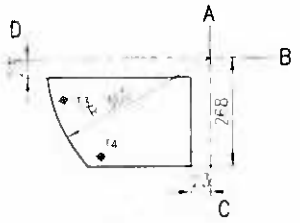


POS No.6
REQD 2, 16 THK

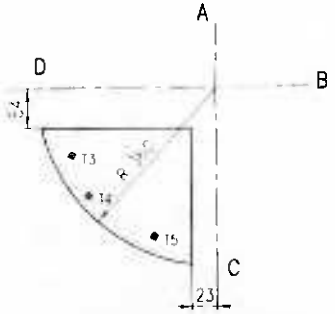


POS No.27
REQD 3, 16 THK

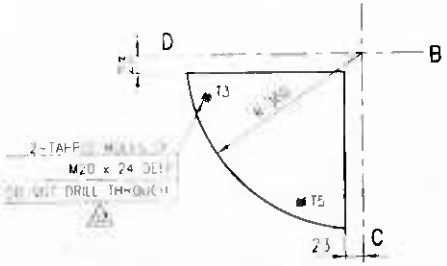
TECHNOLOGY COPY



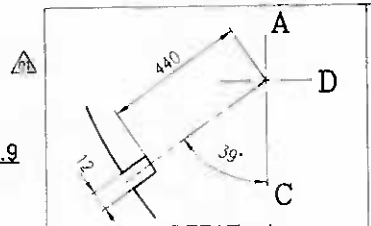
D.C.BAFFLE POS.No.7
7-REQD 10 THK



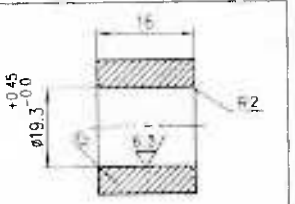
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1-REQD 50 THK



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1030
4. DRILL Ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 $^{\pm 0.05}$ HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (11.79)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No. 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	DATE	NO. OF VAR.
DRN	[illegible]	17.08.11	NA
CHD	K KIRAN KUMAR	17.08.11	
APPD	[illegible]	17.08.11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD

SHOWN REVISED & SHOWN AS

DETAIL A REVISED & SHOWN AS

DEPT HEE	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO. OF ITEMS
CODE 405		NTS	–	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV D2

SHEET No 1 NO OF SHEETS

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Printed by : NARESH ERAKAM-RCP WME8019 / 6140211 on 10-06-23 11:05:13

08.02.2012
07:33:51

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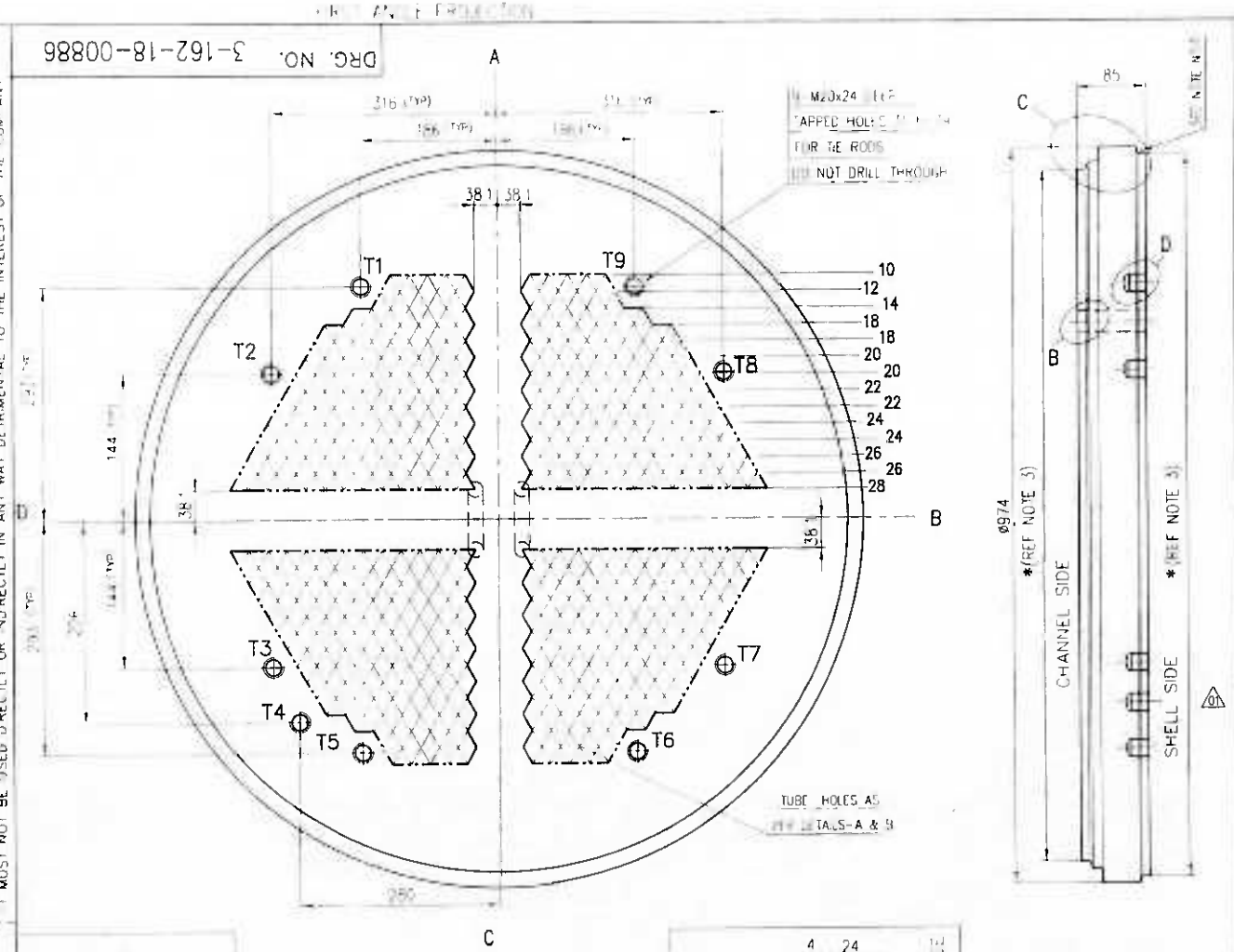
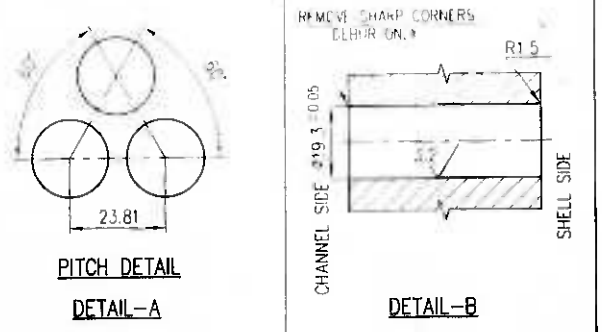
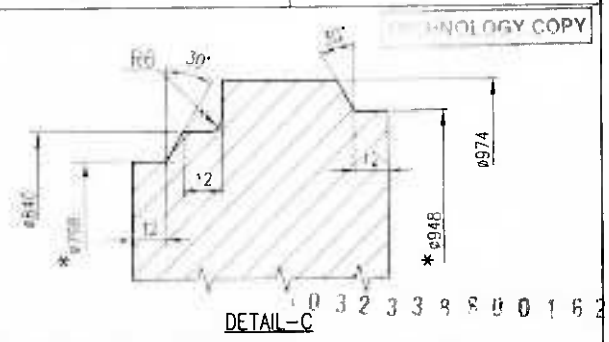
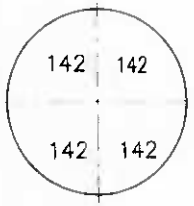
INVENTORY NO. SIGN AND DATE REF DRG NO

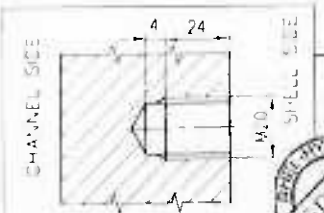






TECHNOLOGY COPY





NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

0 3 2 3 3 9 0 0 0 1 6 2 1 8

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12	RHANU	
ZONE					ZONE	DRAWING REVISED AS SHOWN AS SEE (SE HOLE SHOWN IN SIDE VIEW)		

DEPT	GRADE OF TOL. DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO. OF ITEMS
HEL		NA	–	-NA-	NA	NA
CODE 405						

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO | SIGN AND DATE | REF DRG NO

16.06.2012
16.06.04

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
102036798	08.07.2023

Plant	Equipment No		
Type	WBS Element	Customer / Project Name	Part No
	P-1032339000-16218	Rungta Mines Ltd . Dhenkanal Steel	16218010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162180086 8	00		3162180086 8-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	NLWt.	Remarks	MDCC
0005	2.000	2.000	EA	IS06	50.690	SUPPORT PLATE-3	Yes

BOM Details

Pos No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPes	St.
0001	R	AA1011819112		16218011	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(FE 410W) QUALITY-B

Reservation : 0014698649

Item : 0001

Picklist

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

RUNGTA-1,, LPH,,,,P-1032339000-16218,, Support plate-3

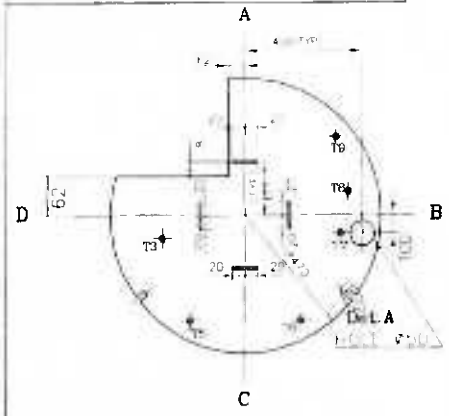
Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

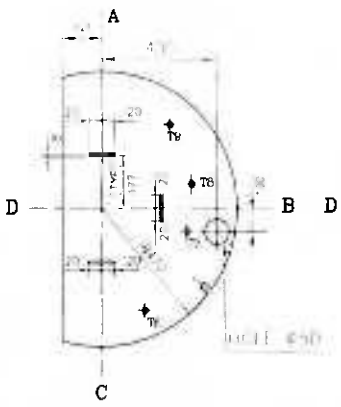
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

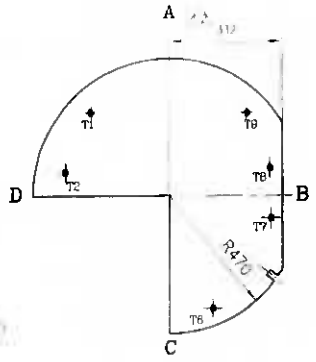
DRG. NO. 3-162-18-00868



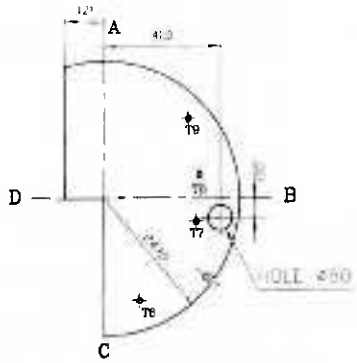
POS No.3
REQD 1, 16 THK



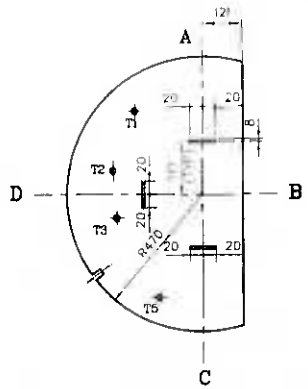
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

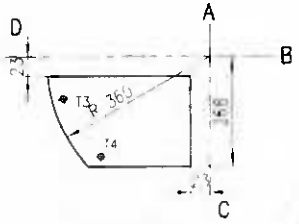


POS No.6
REQD 2, 16 THK

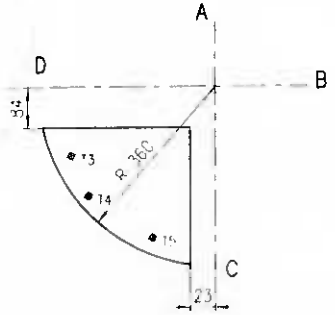


POS No.27
REQD 3, 16 THK

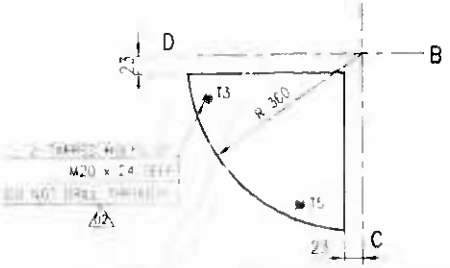
TECHNOLOGY COPY



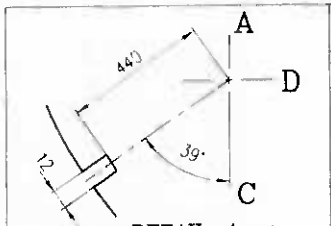
D.C.BAFFLE POS.No.7
7-REQD 10 THK



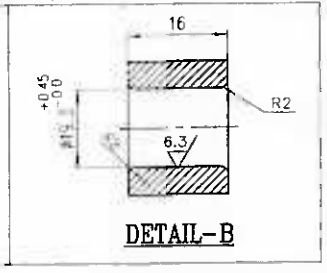
D.C.BAFFLE POS.No.8
8-REQD. 10 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.50 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL 6
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 ±0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR THE LAYOUT AND TIE ROD LOCATION REF DRG No. 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KRISHNA KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
							PLADED	A K S		01				

DRAWING REVISED & SHOWN AS 02

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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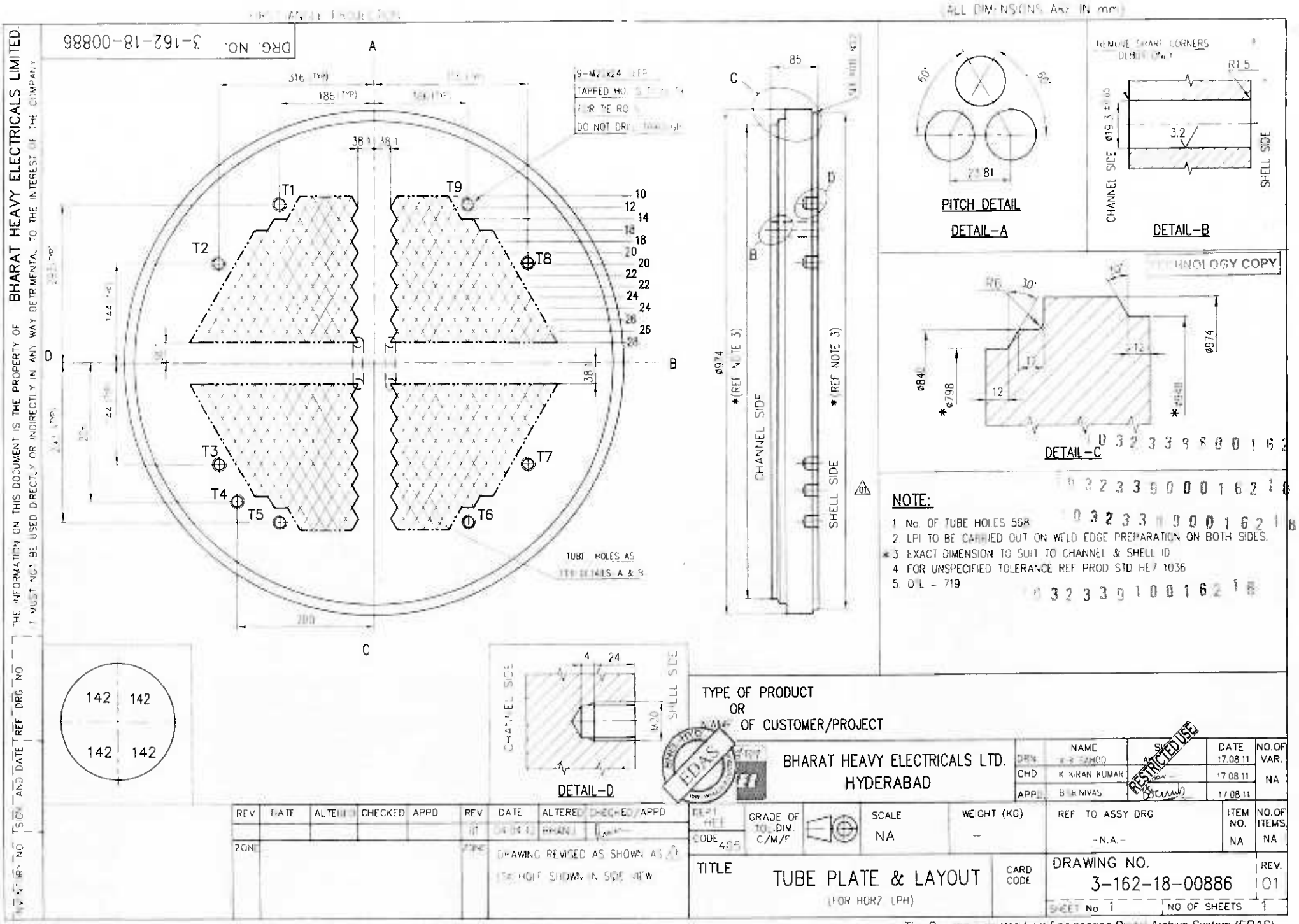
INVENTORY NO | SIGN AND DATE | REF DRG NO



Printed by : NARESH ERAKAM-RCP-WME8019 / 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS RE-PRINT

Plant	Equipment No	Production Order	Date
P006		102036799	08.07.2023

ROUTE CARD

Type	WBS Element	Customer / Project Name	Part No
	P-1032339000-16218	Rungta Mines Ltd . Dhenkanal Steel	16218012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-06	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	2.000	2.000	EA	IS06	36.540	SUPPORT PLATE	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218013	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR1 250(T) 410(W) QLTY-B | Reservation : 0014698650 | Item : 0001 | PickList:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1., LPH,...P-1032339000-16218,. Support plate

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

RE-PRINT

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO 3-162-18-00868

BHARAT HEAVY ELECTRICALS LIMITED
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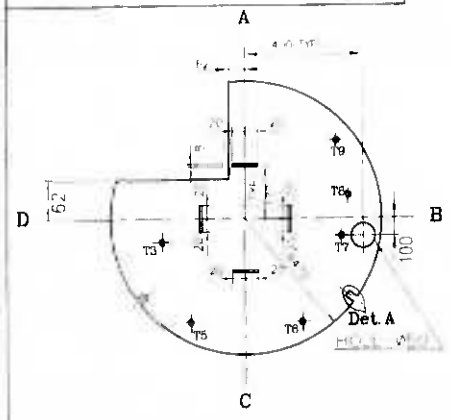
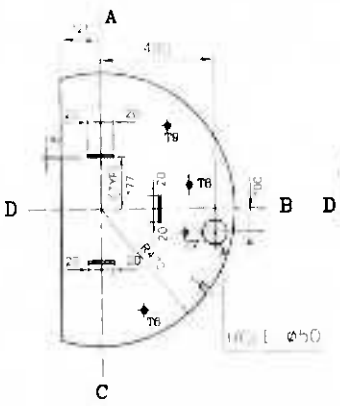
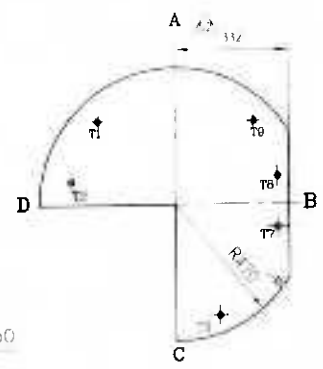


POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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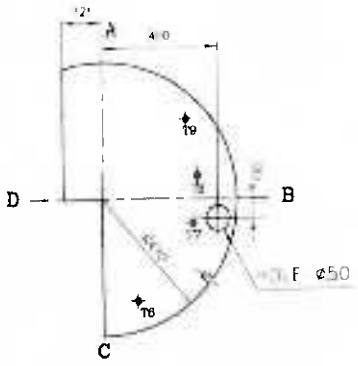
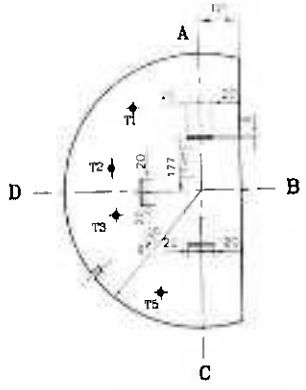
REQD 2, 16 THK

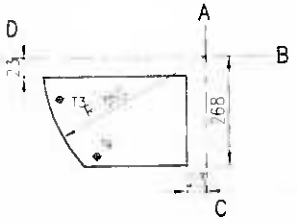


POS No.6
REQD 2, 16 THK

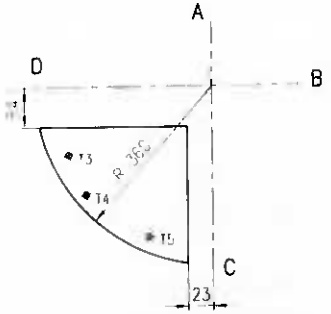


POS No.27
REQD 3, 16 THK

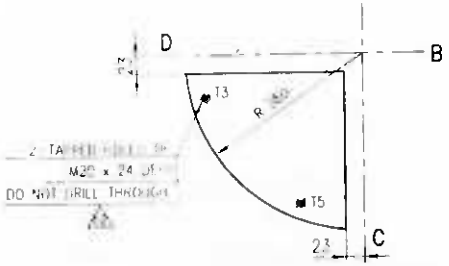
TECHNOLOGY COPY



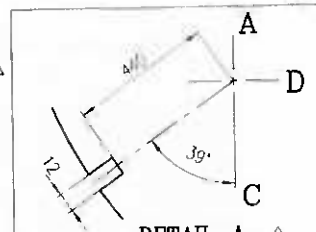
D.C.BAFFLE POS.No.7
1-REQD 10 THK



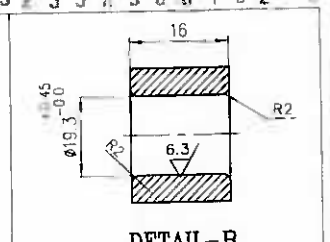
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.05 -0.00 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (11-19)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO OF VAR
DRN.	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B [illegible]		17.08.11	

NEV	DATE	ALTERED	CHD	APPD	NEV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					[illegible]	[illegible]	[illegible]	A K S	[illegible]	01	4.12.11	A K S	[illegible]	[illegible]

DRAWING REVISED & SHOWN AS 02

ZONE

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO OF ITEMS
CODE 405		NTS	–	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868

REV. 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

Printed by : NARESH ERAKAM-RCP-WMF8019 / 6140211 on 10-06-23 11:05:13

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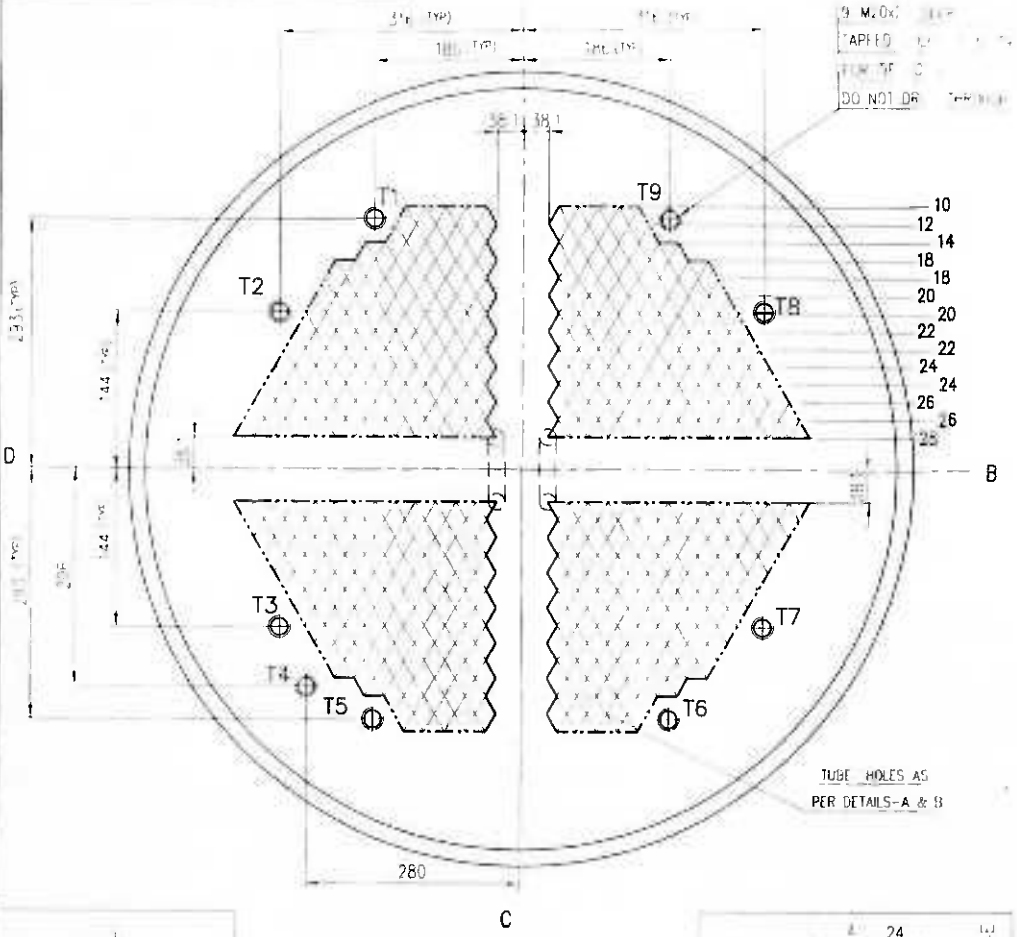
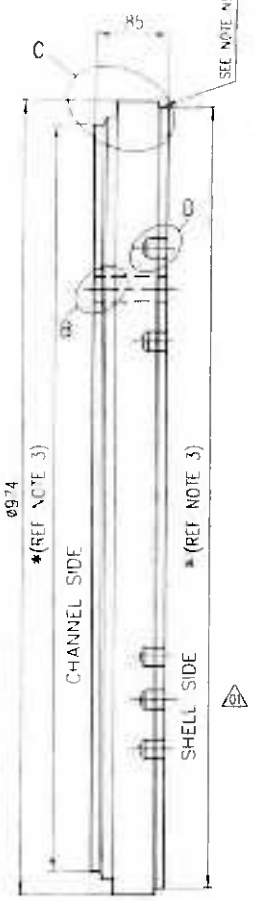
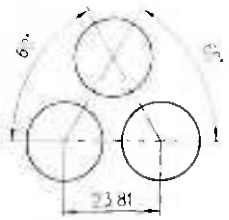
INVENTORY NO TO SIGN AND DATE THIS DRG NO

DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

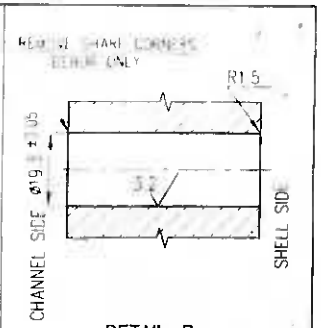




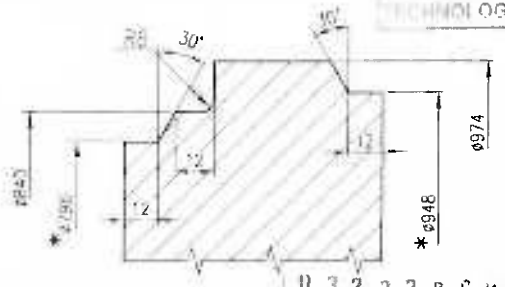


PITCH DETAIL

DETAIL-A

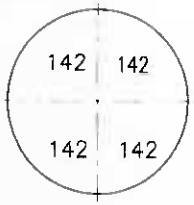


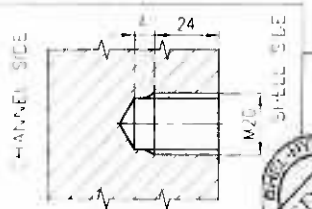
DETAIL-B



DETAIL-C

TECHNOLOGY COPY





DETAIL-D

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	
CHD	K [illegible] KUMAR		17.08.11	NA
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED/CHECKED/APPD
01	[illegible]	[illegible]
ZONE	DRAWING REVISED AS SHOWN AS /A	
	T4 HOLE SHOWN IN SIDE VIEW	

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
CODE 405		NA	–	– N.A –	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HERZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

16.05.2012
18:36:04

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
102036801	08.07.2023

Plant	Equipment No.
P006	

Type	WBS Element	Customer / Project Name	Part No
	P-1032339000-16218	Rungta Mines Ltd , Dhenkanal Steel	16218006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	EA	IS06	54.340	SUPPORT PLATE-1	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPes	St.
0001	R	AA1011819112	16218007	MARK QC					
AA10119		110.980	KG	940.000	940.000	0.000	F1	1.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(FE410W) QUALITY-B | Reservation 0014698647 | Item 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-1., LPH,...P-1032339000-16218,. Support plate-1

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

BHARAT HEAVY ELECTRICALS LIMITED
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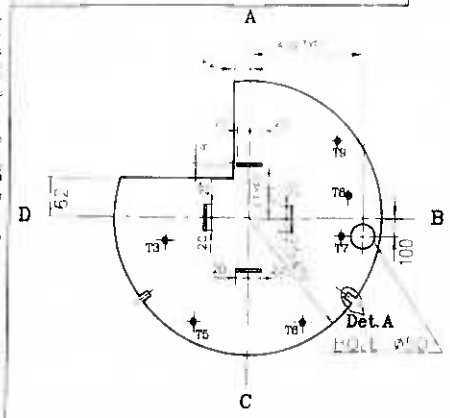
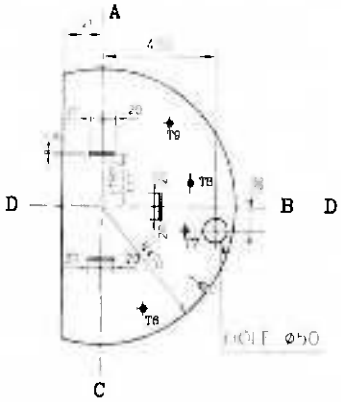
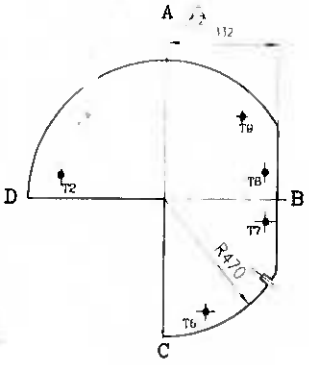


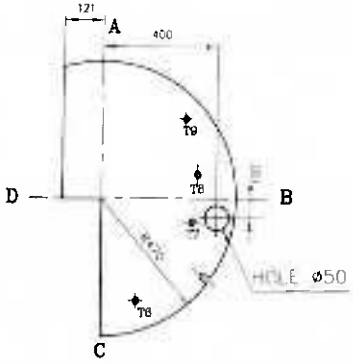
POS No.3
REQD 1, 16 THK



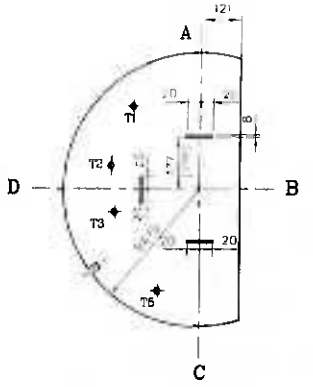
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

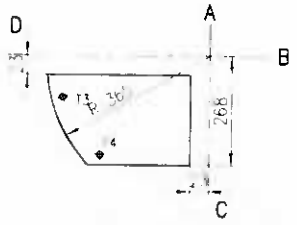


POS No.6
REQD 2, 16 THK

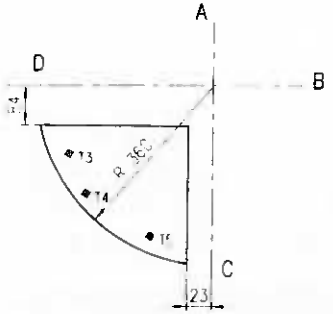


POS No.27
REQD 3, 16 THK

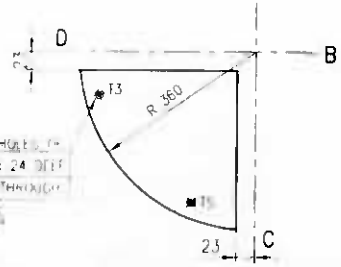
TECHNOLOGY COPY



D.C.BAFFLE POS.No.7
2-REQD 10 THK

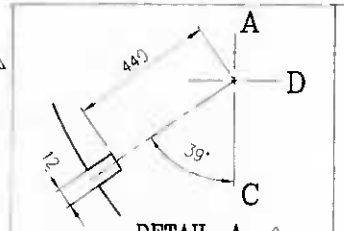


D.C.BAFFLE POS.No.8
8-REQD 10 THK

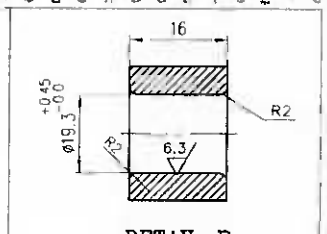


2-TAPPED HOLES OF M20 x 24 DEEP DO NOT DRILL THROUGH

D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL A
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO.OF VAR
DRN.	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
						07.02.12		A K S				A K S		

DRAWING REVISED & SHOWN AS

DETAIL 'A' REVISED & SHOWN AS

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO.OF ITEMS
HPE		NTS	-	N A	NA	NA
CODE 405						

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

INVENTORY NO SIGN AND DATE REF DRG NO

08.02.2012

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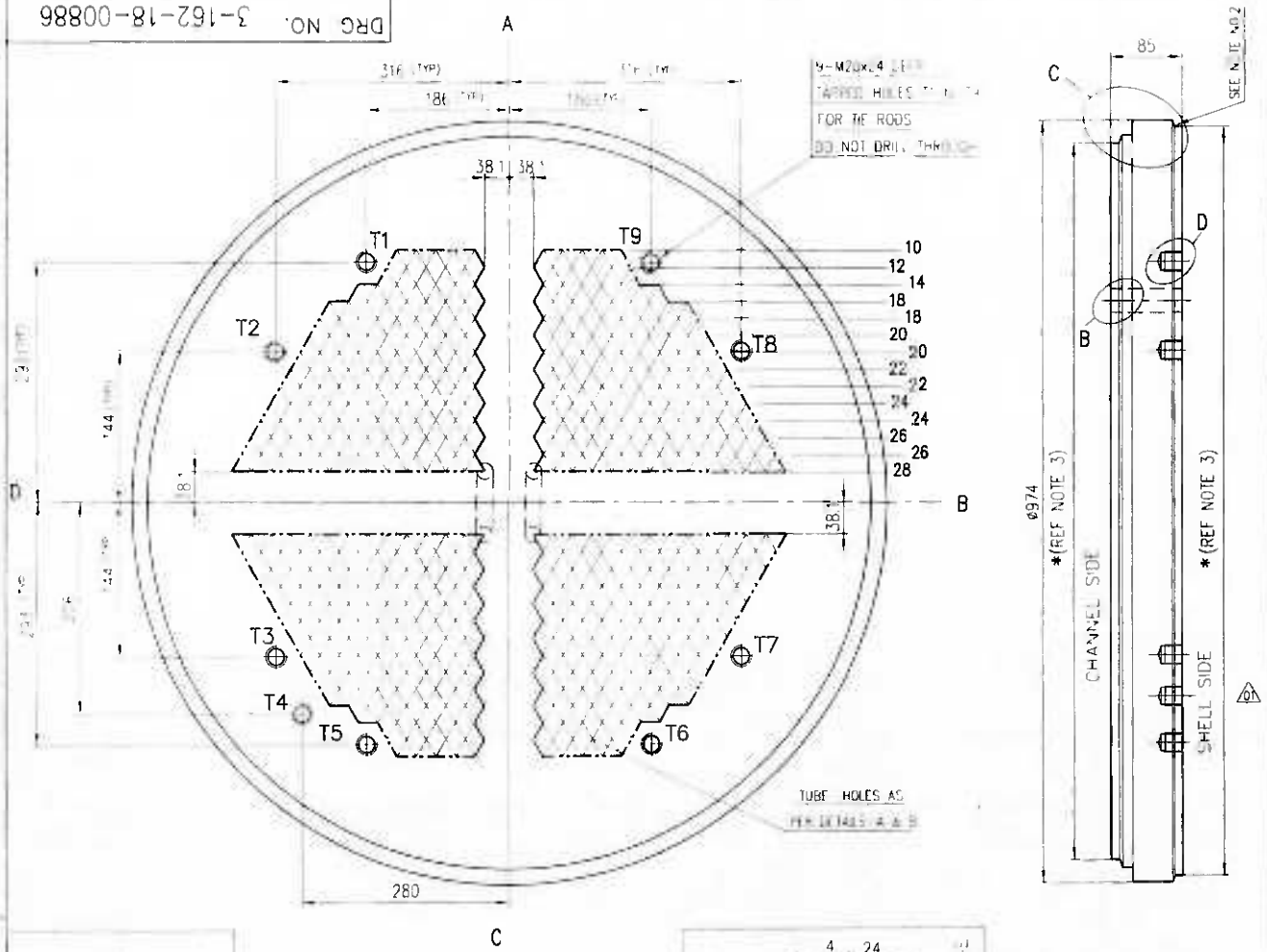
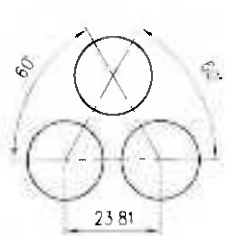
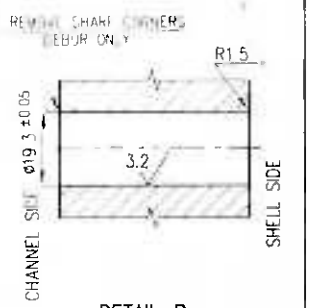
DRG NO. 3-162-18-00886



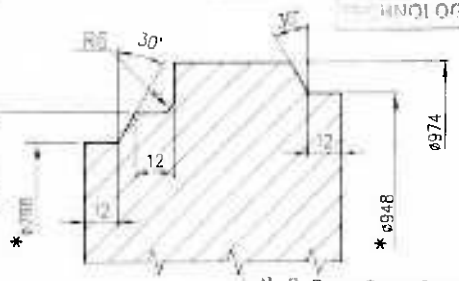


PITCH DETAIL

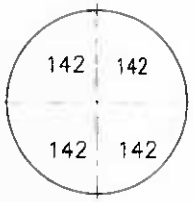
DETAIL-A

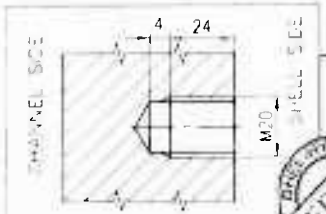


DETAIL-B



DETAIL-C





DETAIL-D

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	14.04.12	BHANU	

ZONE

DRAWING REVISED AS SHOWN AS ON
T4 HOLE SHOWN IN SEE VIEW

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE		NA	–	N.A.	NA	NA

CODE 405

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO | SIGN AND DATE | REF DRG NO

16.06.2012

Printed by : NARESH ERAKAM-RCP-WME8019 : 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Plant	Equipment No	Production Order	Date
P006	10142702	102036665	08.07.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1032338900-16218	Rungta Mines Ltd., Kamanda, Odisha	16218075

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162180868	00		3162180868-10	SUPPORT PLATE-5

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0027	3.000	3.000	EA	IS06	40.430	SUPPORT PLATE-5	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218076					
AA10119		332.940	KG	940.000	940.000	0.000	F1	3.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(L410W) QLTY-B | Reservation : 0014698571 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9905	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2,, LPH,,,P-1032338900-16218,. Support plate-5

Scope of work:

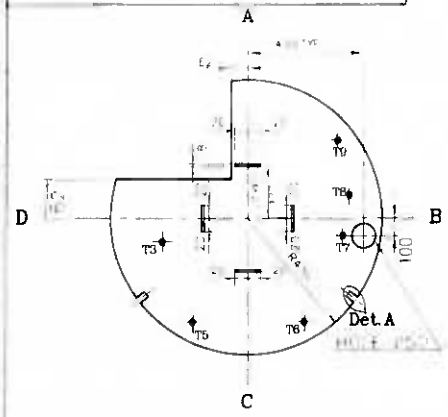
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

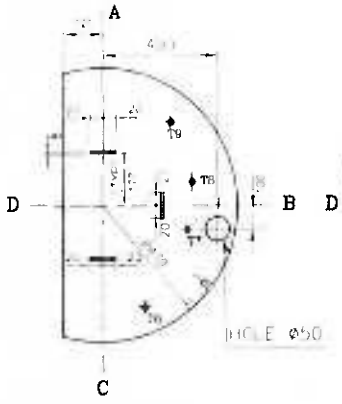
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

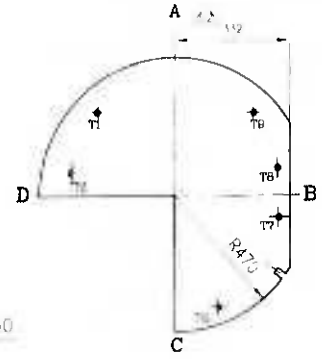
DRG. NO. 3-162-18-00868



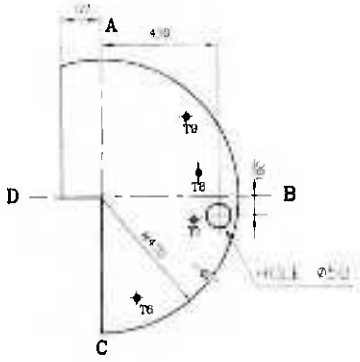
POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK



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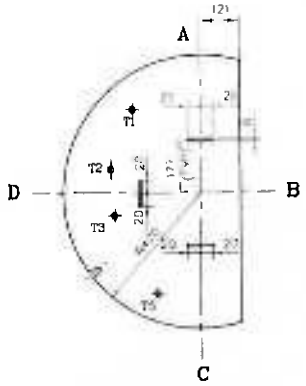
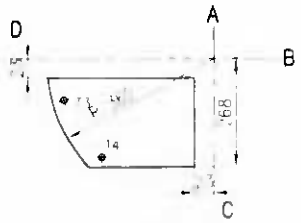
REQD 2, 16 THK

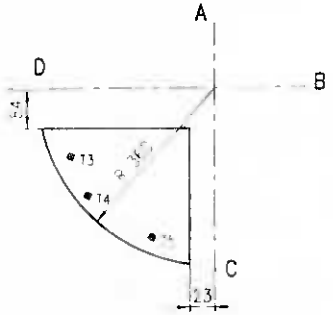


POS No.27
REQD 3, 16 THK

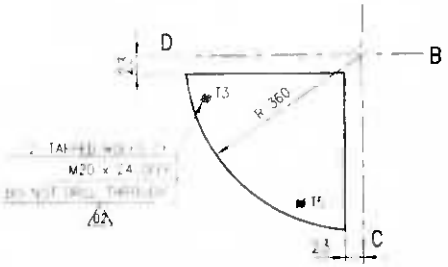
TECHNOLOGY COPY



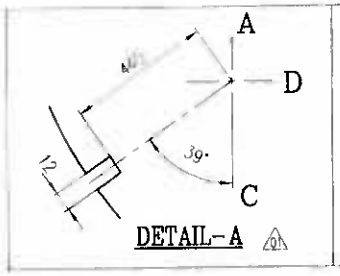
D.C.BAFFLE POS.No.7
7-REQD, 16 THK



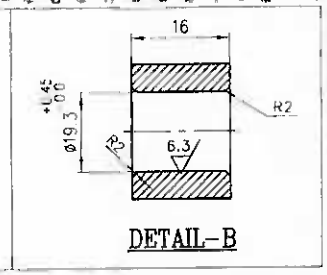
D.C.BAFFLE POS.No.8
8-REQD, 16 THK



D.C.END PLATE POS.No.9
1-REQD, 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.3 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL A
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.05 -0.00 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (11 T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3 162 18 00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR
DRN	A R SHOC	AKS	17 08 11	NA
CHD	K KIRAN KUMAR		17 08 11	
APPD	B SRIN VAS		17 08 11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD

DRAWING REVISED & SHOWN AS 02.

ZONE

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
FSE CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO | SIGN AND DATE | REF DRG NO

08 02 2012
07 33 51

Printed by : NARESH ERAKAM-RCP WME8019 / 6140211 on 10-06-23 11:05:13

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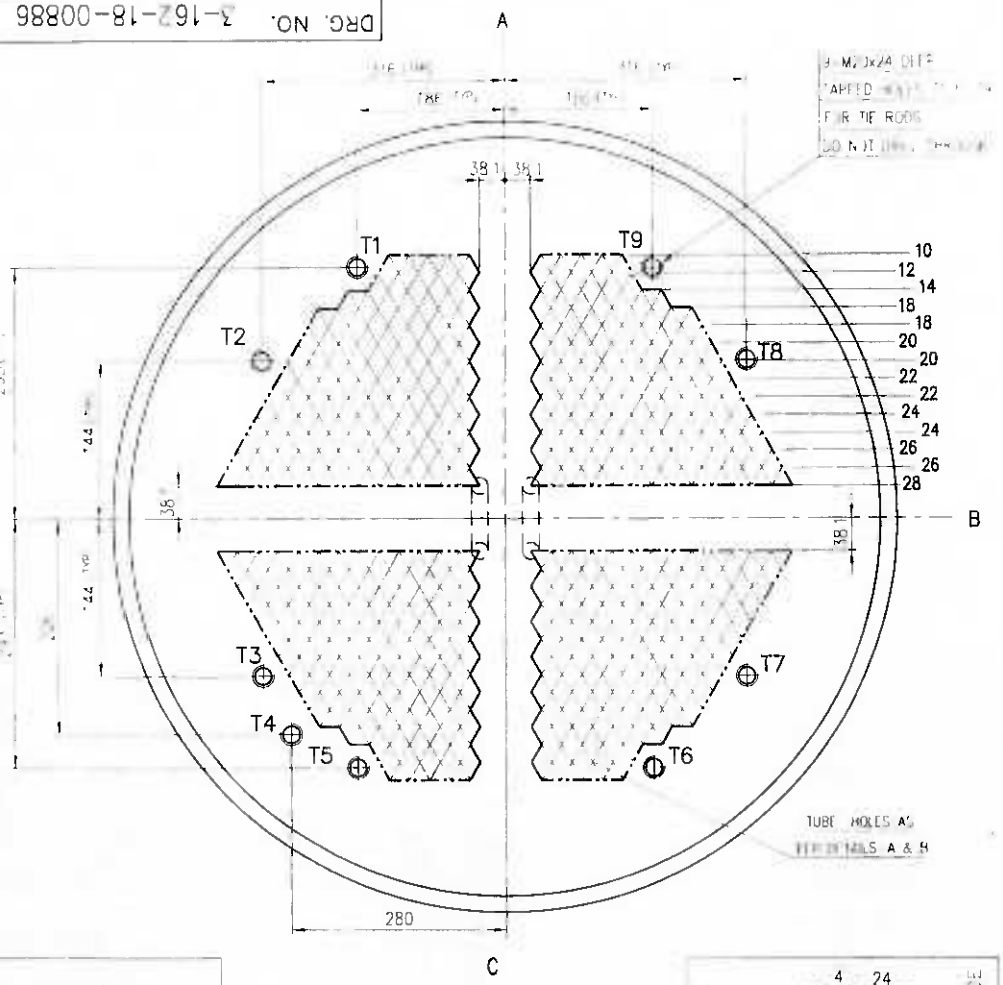
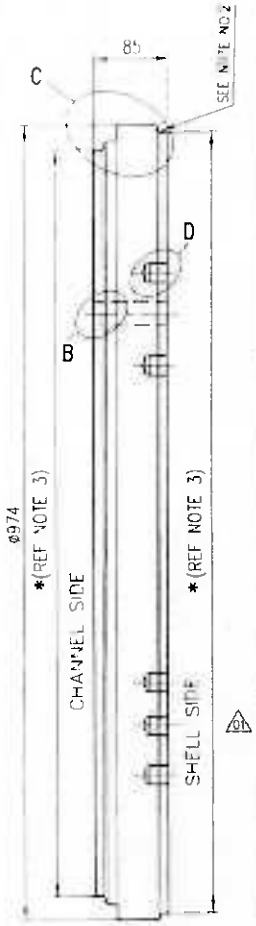
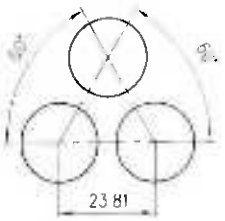
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm

DRG. NO. 3-162-18-00886

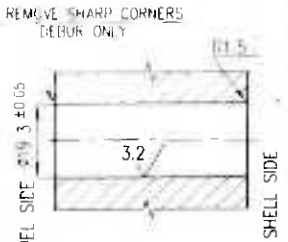




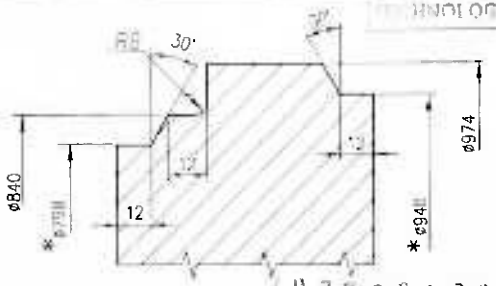


PITCH DETAIL

DETAIL-A



DETAIL-B

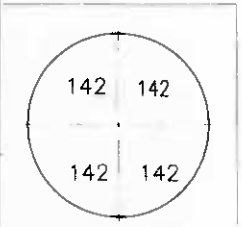


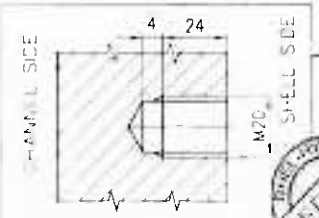
DETAIL-C

TECHNOLOGY COPY

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED	CHECKED / APPD
01	14.04.12	SHANU	
ZONE			

DRAWING REVISED AS SHOWN AS 'A'. T4 HOLE SHOWN IN SIDE VIEW.

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	DATE	NO. OF VAR.
DRN	A K SAHOO	17.5.11	
CHD	K KIRAN KUMAR	17.05.11	NA
APPD	H SRINIVAS	17.05.11	

RESTRICTED USE

DEPT CODE	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO. OF ITEMS
405		NA	–	-N.A-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HOR7 LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

16.05.2012
16:36:04

Printed by : NARESH ERAKAM-RCP-WME8019 / 6140211 on 10-06-23 11:05.30

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
1020036716	08.07.2023

Equipment No: IH 112702

Type	WBS Element	Customer / Project Name	Part No
	P-1032338900-16218	Rungta Mines Ltd., Kamanda, Odisha	16218008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt	Remarks	MDCC
0004	2.000	2.000	EA	IS06	40.180	SUPPORT PLATE-2	Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks		
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218009	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(E410W) QLTY-B | Reservation : 0014698565 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2,, LPH,,,,P-1032338900-16218,, Support plate-2

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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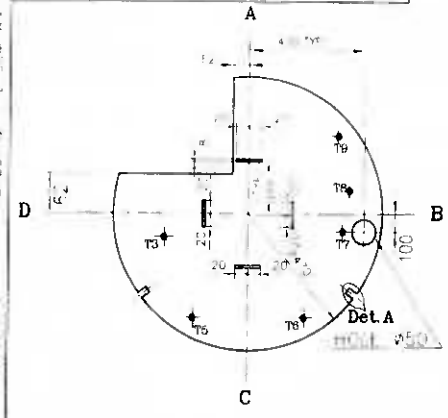
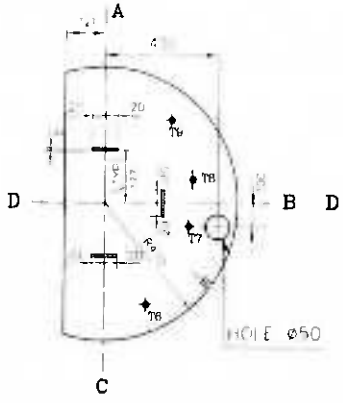
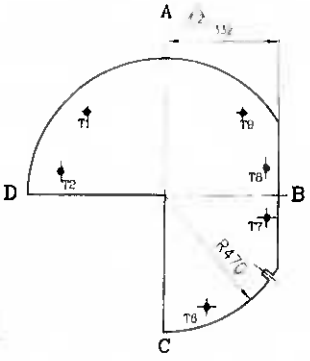


POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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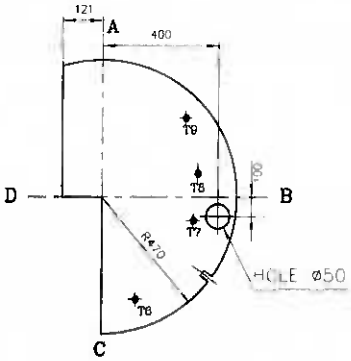
REQD 2, 16 THK



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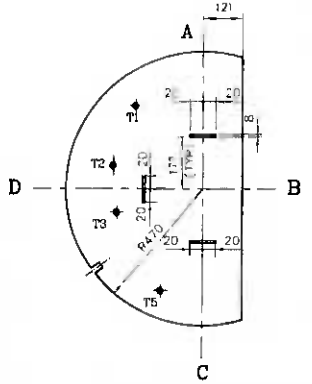
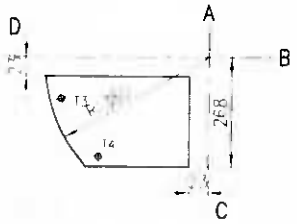
REQD 2, 16 THK

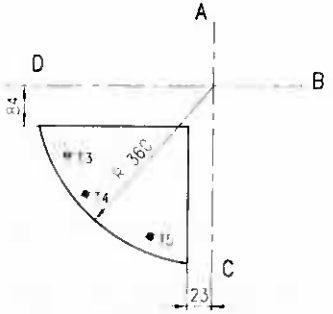


POS No.27
REQD 3, 16 THK

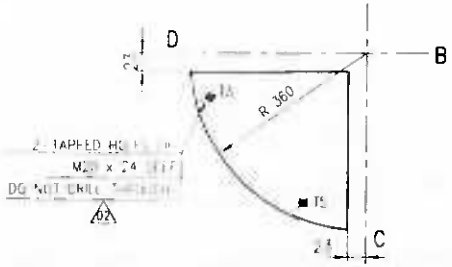
TECHNOLOGY COPY



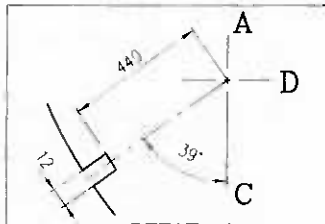
D.C.BAFFLE POS.No.7
7-REQD 1, THK



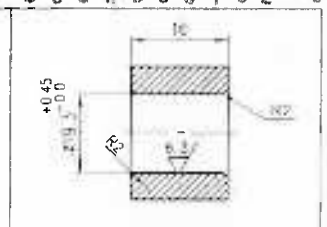
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1-REQD 50 THK



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.35 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.50 ±0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 T9)Ø22
8. [illegible] LAYOUT AND TIE [illegible] LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	A K SANGO		17 08 11	NA
CHD	K KIRAN KUMAR		17 08 11	
APPD	B SRINIVAS		17 08 11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					01	17.08.11	PRADEEP	A K S		01	14.12.11	A K S		

DRAWING REVISED & SHOWN AS 02

ZONE

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

08 02 2012
07 33 51

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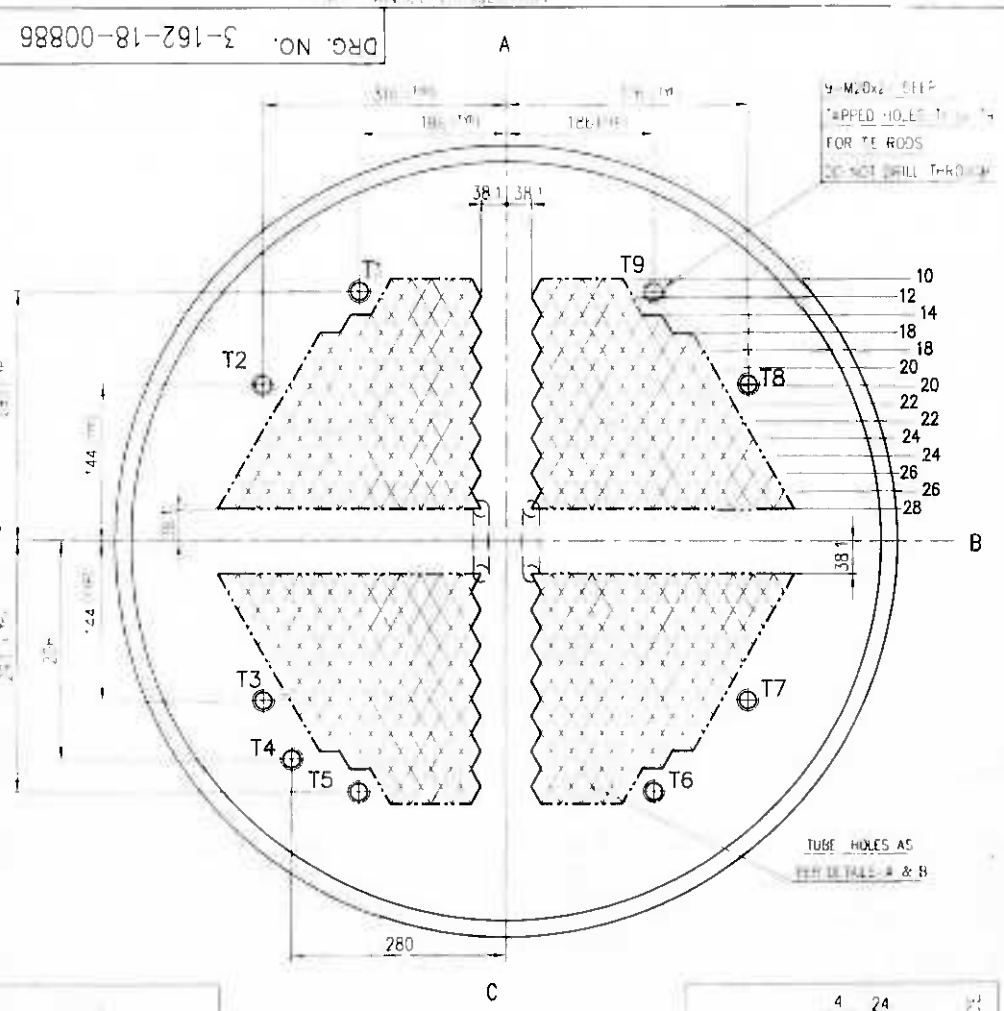
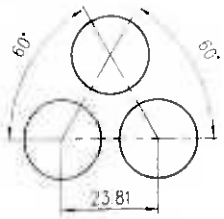
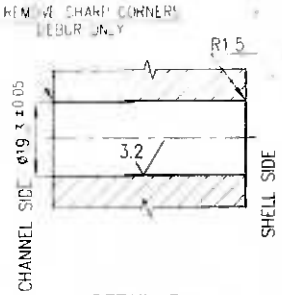
DRG. NO. 3-162-18-00886



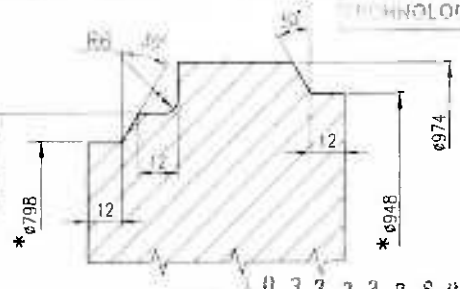


PITCH DETAIL

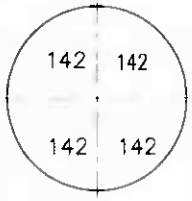
DETAIL-A

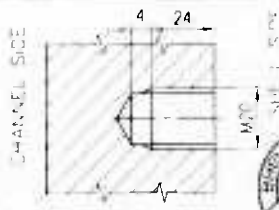


DETAIL-B



DETAIL-C





DETAIL-D

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
*3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

TECHNOLOGY COPY

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12		
ZONE					ZONE	DRAWING REVISED AS SHOWN AS ON (14 HOLE SHOWN IN SIDE VIEW)		

SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ. LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

16.05.2012
16:36:04
Printed by : NARESH ERAKAM-RCP-WMF8019 / 6140211 on 10-06-23 11:05:30
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TECHNOLOGICAL PROCESS
RE-PRINT

ROUTE CARD

Production Order	Date
102036717	08.07.2023

Plant: 1000 Equipment No: 111112702

Type	WBS Element	Customer / Project Name	Part No
	P-1032338900-16218	Rungta Mines Ltd Kamanda, Odisha	16218010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0005	2.000	2.000	EA	IS06	50.690	SUPPORT PLATE-3	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	16218011	MACHY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description: PLATE 16 IS2062 GR E 250(E 410W) QUTY-B | Reservation: 0014698566 | Item: 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

RUNGTA-2,, LPH,,,,P-1032338900-16218,. Support plate-3

Scope of work:

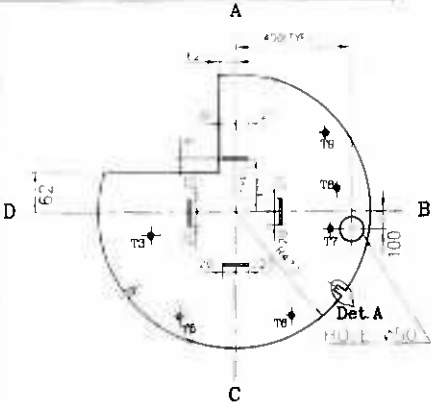
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

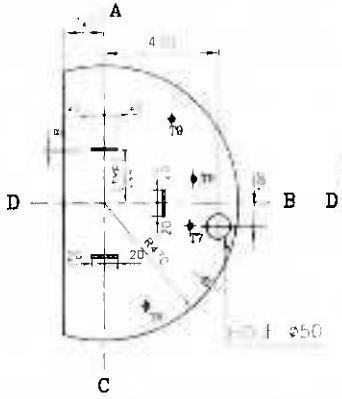
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

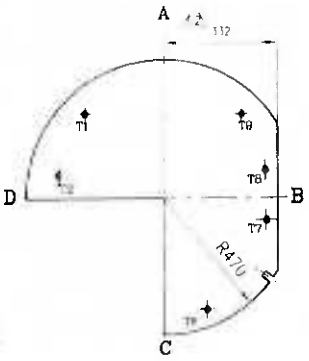
DRG. NO. 3-162-18-00868



POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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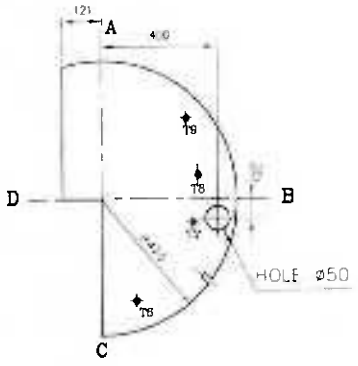
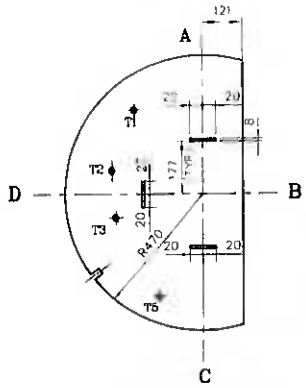
REQD 2, 16 THK

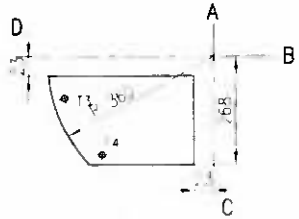


POS No.6
REQD 2, 16 THK

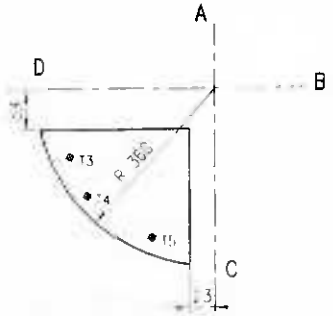


POS No.27
REQD 3, 16 THK

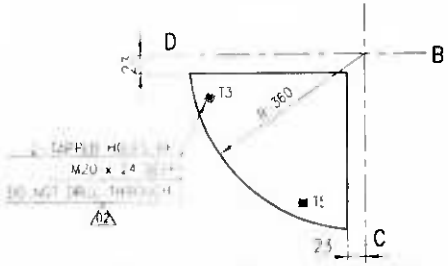
TECHNOLOGY COPY



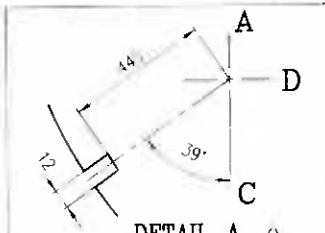
D.C.BAFFLE POS.No.7
7-REQD. 16 THK



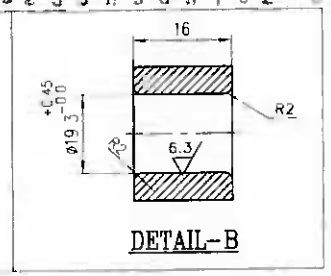
D.C.BAFFLE POS.No.8
8-REQD. 16 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES -

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL ø19.30 +0.05 -0.00 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					02	02.12.12	[illegible]	A K	[illegible]	01	02.12.12	A K	[illegible]	[illegible]

DRAWING REVISED & SHOWN AS 02

DETAIL 'A' REVISED & SHOWN AS 01

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO. OF VAR
DRN	A. A. SANGO		17.08.11	NA
CHD	K. KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO	NO. OF ITEMS
HEE		NTS	-	N A	NA	NA
CODE 405						

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868

REV 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO 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

Printed by NARESH ERAKAM-RCP-WME8019 / 614021 on 10-06-23 11:05:13

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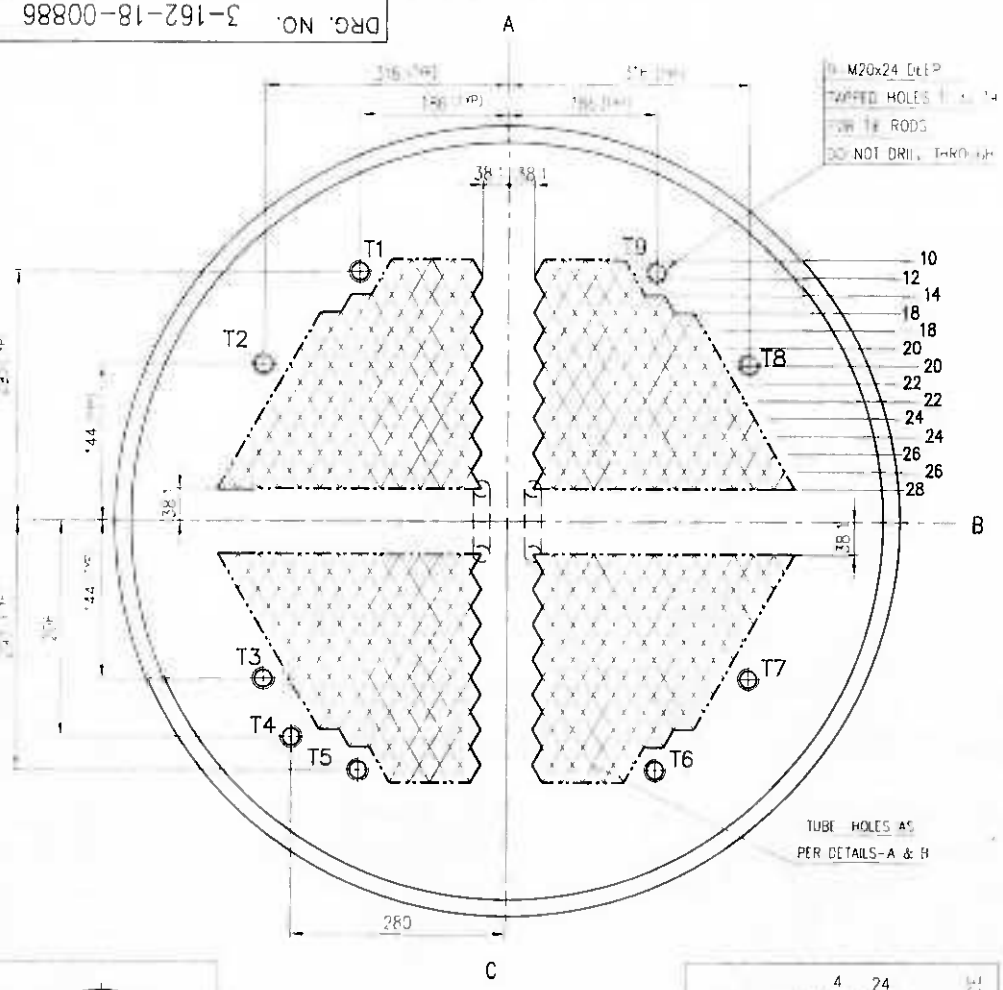
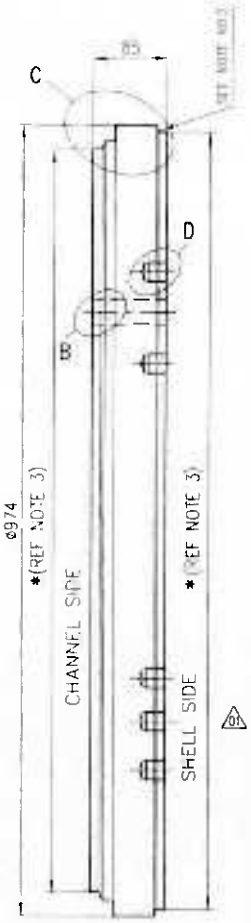
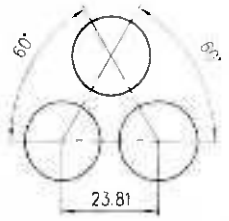
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

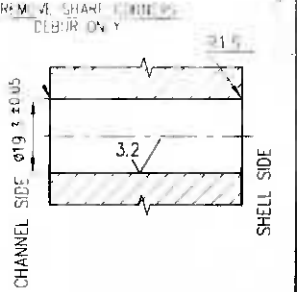




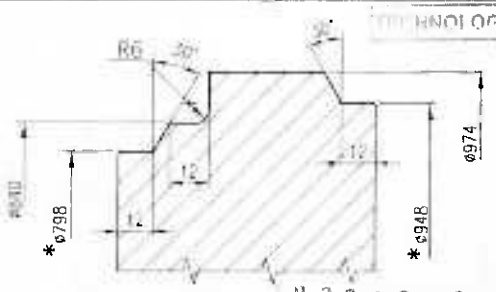


PITCH DETAIL

DETAIL-A



DETAIL-B

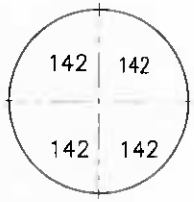


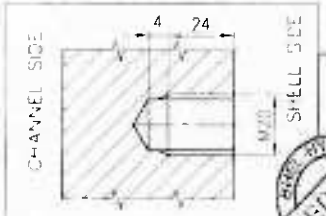
DETAIL-C

TECHNOLOGY COPY

NOTE:

1. No. OF TUBE HOLES 56
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1636
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD.	B SRINIVAS		17.08.11	

RESTRICTED USE

REV.	DATE	ALTERED	CHECKED	APPD

DESC:

REV.	DATE	ALTERED	CHECKED/APPD
01	16.08.11	DRAWING	

DESC: DRAWING REVISED AS SHOWN AT 'A' 14 HOLE SHOWN IN SIDE VIEW

DEP.	GRADE OF TOL DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO.	NO.OF ITEMS
CODE 405		NA	–	– N.A –	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HOR? LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No. 1 NO OF SHEETS 1

16.05.2012 16:36:14

Printed by NARESH ERAKAM-RCP-WME-8019 / 6140211 on 10-06-23 11:05:30

This Drawing is printed from Engineering Digital Archive System (EDAS). Therefore signatures are not essentially required.

TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
102036718	08.07.2023

Plant : P006 Equipment No : 10 H2702

Type	WBS Element	Customer / Project Name	Part No
	P-1032338900-16218	Rungta Mines Ltd., Kamanda, Odisha	16218012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-06	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	2.000	2.000	EA	IS06	36.540	SUPPORT PLATE	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	16218013	MA BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B	Reservation : 0014698567	Item : 0001	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2., LPH,,,.P-1032338900-16218,, Support plate

Scope of work:

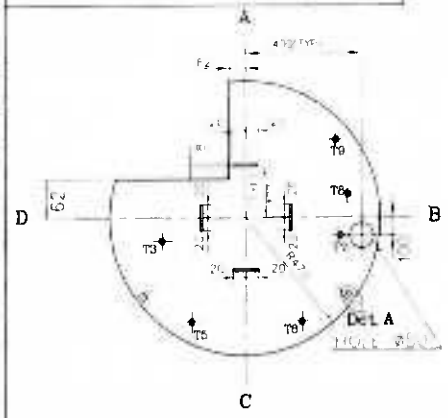
1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

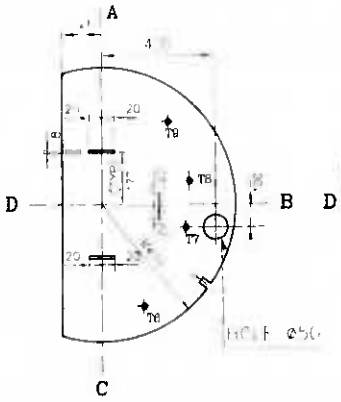
(ALL DIMENSIONS ARE IN mm)

DRG. NO 3-162-18-00868



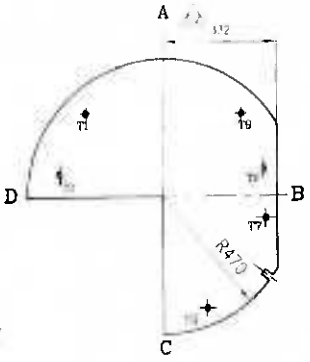
POS No.3

REQD 1, 16 THK



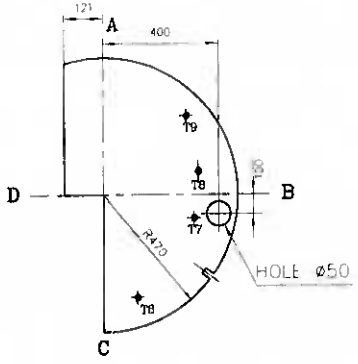
POS No.4

REQD 2, 16 THK



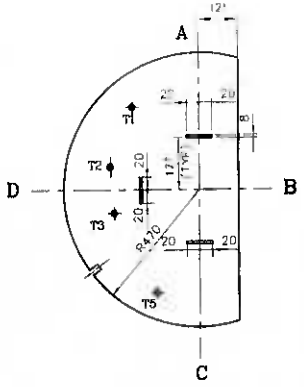
POS No.5

REQD 2, 16 THK



POS No.6

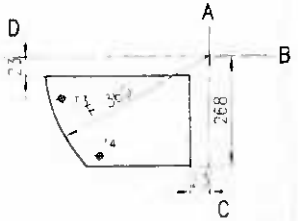
REQD 2, 16 THK



POS No.27

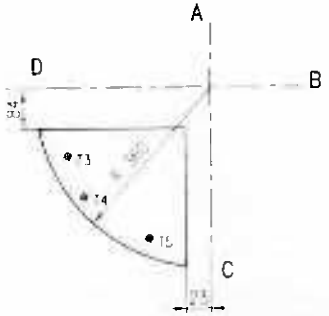
REQD 3, 16 THK

TECHNOLOGY COPY



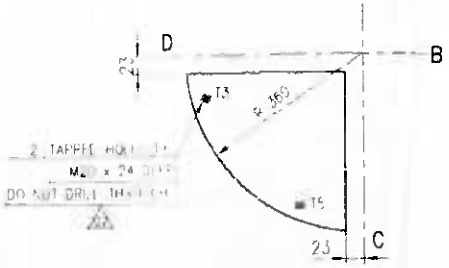
D.C.BAFFLE POS.No.7

REQD 10 THK



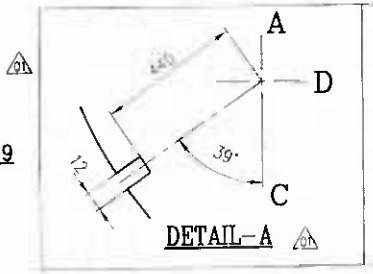
D.C.BAFFLE POS.No.8

8-REQD 10 THK

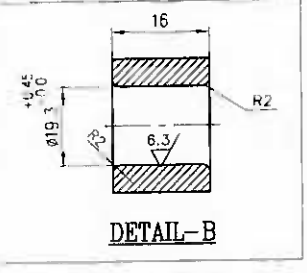


D.C.END PLATE POS.No.9

1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROC STD HE 7 1036
4. DRILL ø19.30 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL ø19.30 $^{+0.05}_{-0.05}$ HOLES IN D.C.END PLATE POS NO. 9
7. TIE ROD HOLES (T1-T9)ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

REV	DATE	ALTERED	CHD	APPD

REV	DATE	ALTERED	CHD	APPD
			PRADEEP	A.K.S.

DRAWING REVISED & SHOWN AS 02

REV	DATE	ALTERED	CHECKED	APPD
01	4 [illegible]	A.K.S.		

DETAIL 'A' REVISED & SHOWN AS 01

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE
DRN.	[illegible]		17.08.11
CHD.	K.KIRAN KUMAR		[illegible]
APPD.	B.SRINIVAS		17.08.11

NO. OF VAR. NA

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
CODE 405		NTS	-	N.A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO.
3-162-18-00868

REV 02

SHEET No 1 NO OF SHEETS 1

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Printed by : NARESH ERAKAM-RCP WMF-8019 / 6140211 on 10-06-23 11:05:13

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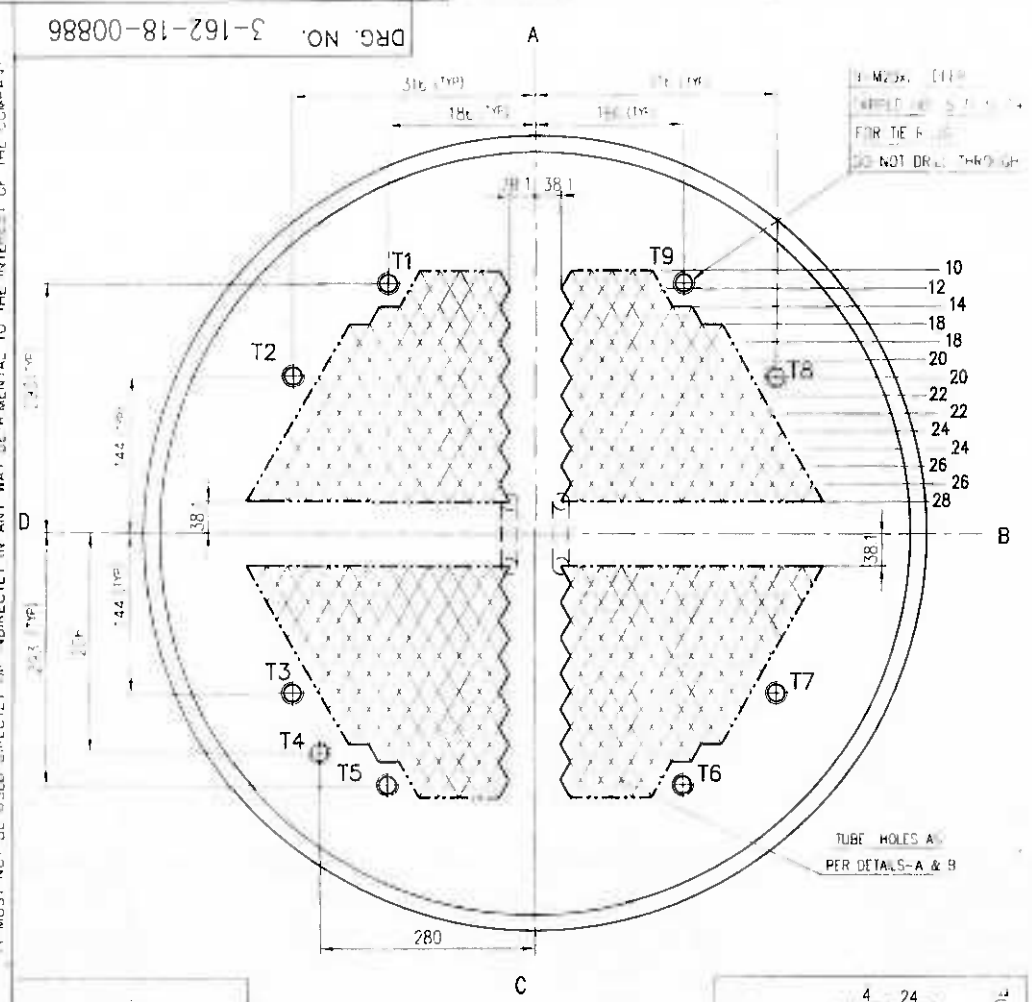
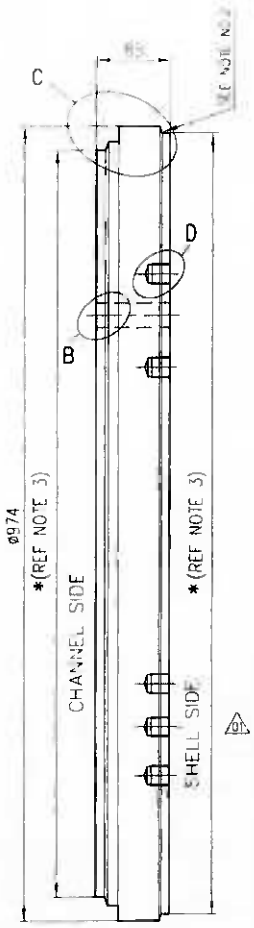
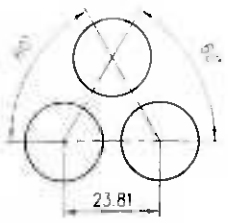
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

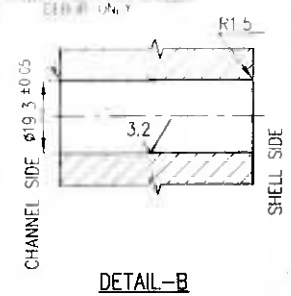




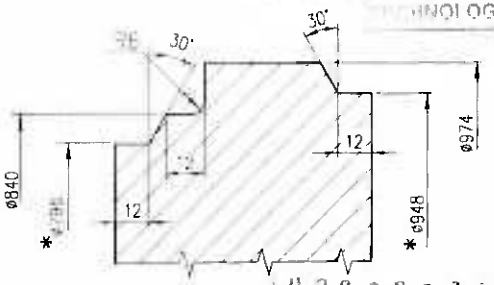


PITCH DETAIL

DETAIL-A



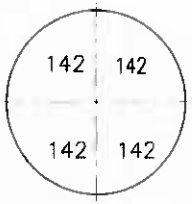
DETAIL-B

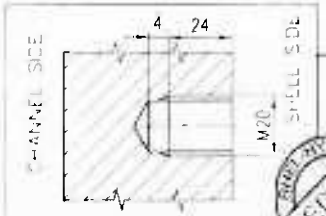


DETAIL-C

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A.K.SAHOO		17.08.11	
CHD	K.KIRAN KUMAR		17.08.11	NA
APPD	B.SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD

REV	DATE	ALTERED	CHECKED/APPD
01	14.04.12	BHARAT	

ZONE: DRAWING REVISED AS SHOWN AT ZONE
#14 HOLE SHOWN IN SIDE VIEW

DEPT CODE 405 | GRADE OF TOL DIM. C/M/F | SCALE NA | WEIGHT (KG) –

REF. TO ASSY DRG. -N.A.- | ITEM NO. NA | NO.OF ITEMS NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ PH)

CARD CODE

DRAWING NO. 3-162-18-00886 | REV. 01

SHEET No. 1 | NO OF SHEETS 1

16.05.2012

Printed by NARESHERAKAM-RCP-WXP-8019 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
1020367291	08.07.2023

Plant: P006 Equipment No: III 112702

Type	WBS Element	Customer / Project Name	Part No
	P-1032338900-16218	Rungta Mines Ltd , Kamanda, Odisha	16218006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162180086 8	00		3162180086 8-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	EA	IS06	54.340	SUPPORT PLATE-1	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218007	MA BY QC				
AA10119		110.980	KG	940.000	940.000	0.000	F1	1.000	ST12

Material Description : PLATE 16 IS2062 GR1:250(FE 410W) QUALITY-B	Reservation : 0014698564	Item : 0001	Picklist

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2., I.PH,...P-1032338900-16218,. Support plate-1

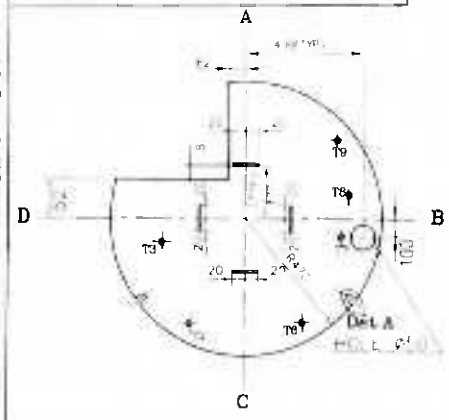
Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

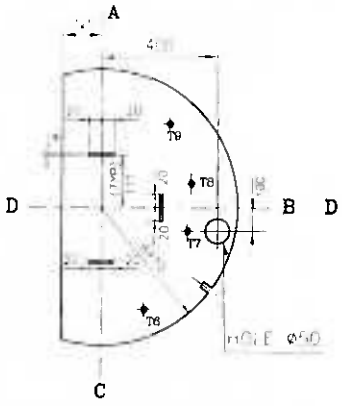
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868



POS No.3
REQD 1, 16 THK



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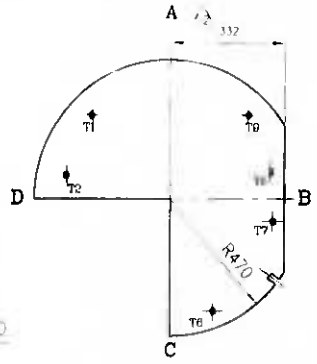

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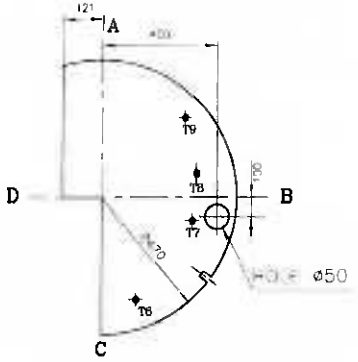
REQD 2, 16 THK



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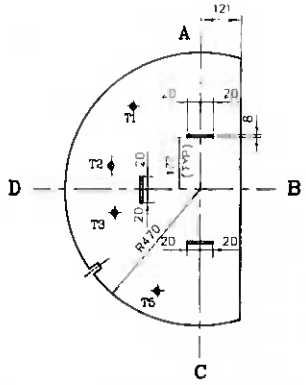
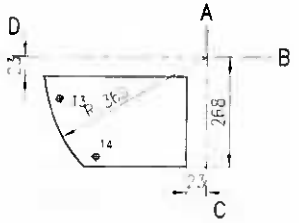
REQD 2, 16 THK

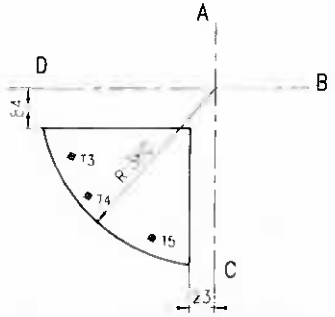


POS No.27
REQD 3, 16 THK.

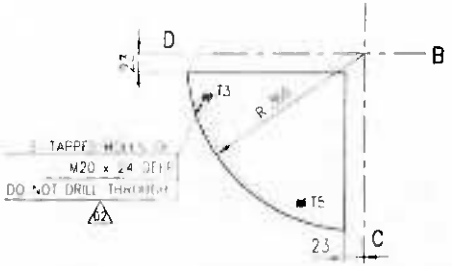
TECHNOLOGY COPY



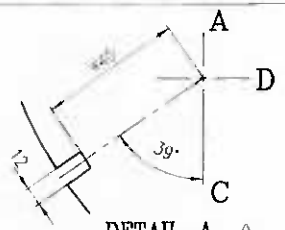
D.C.BAFFLE POS.No.7
7-REQD. 10 THK.



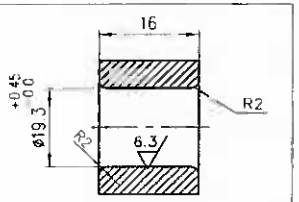
D.C.BAFFLE POS.No.8
8-REQD. 16 THK.



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.3 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL A
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 +0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 T9)Ø22
8. FOR THE LAYOUT AND TIE ROD LOCATION REF DRG No 3 162-18 00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO. OF VAR.
DRN.	A K SAHOO	AKS	17 08 11	NA
CHD	K KIRAN KUMAR		17 08 11	
APPD.	B SRINVAS		17 08 11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					01	17 08 11	PRADEEP	A K S		02	4 12 11	A K S		

DRAWING REVISED & SHOWN AS 02

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO OF ITEMS
HEE		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

08 02 2012
07 33 51

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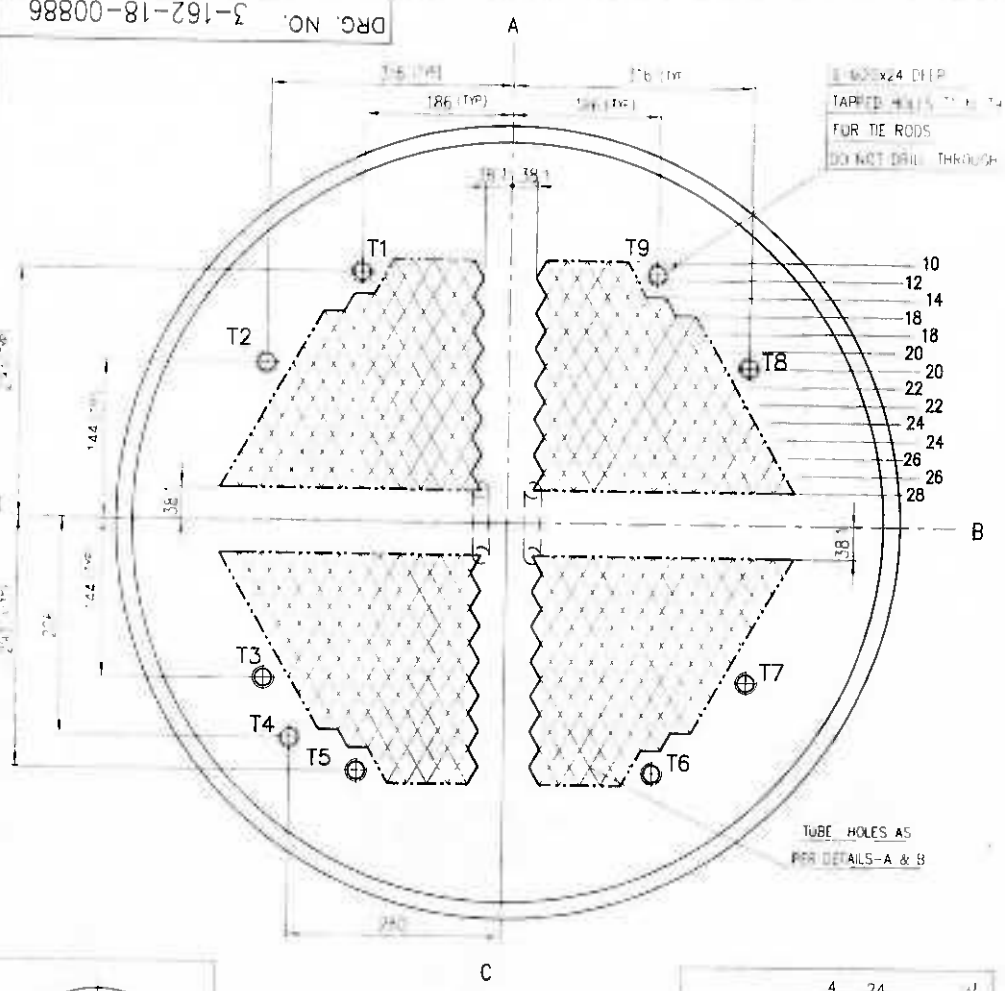
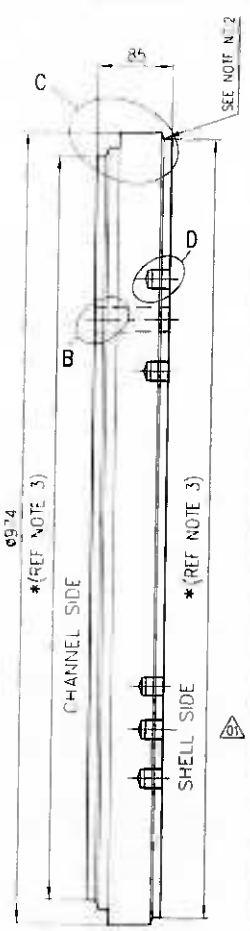
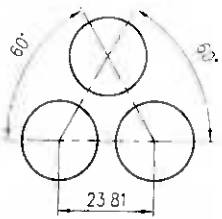
DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

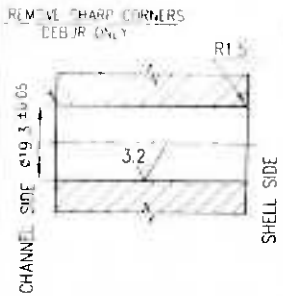




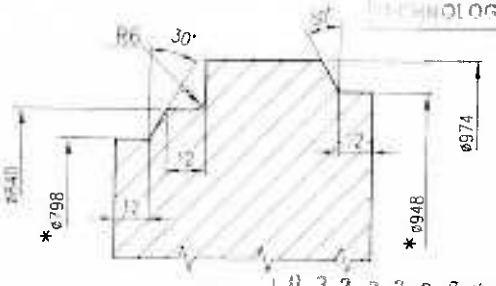


PITCH DETAIL

DETAIL-A



DETAIL-B



DETAIL-C

TECHNOLOGY COPY

0 3 2 3 3 9 8 0 0 1 6 2 1 8

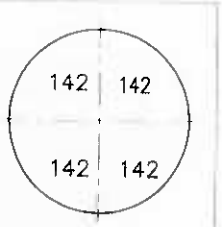
NOTE:

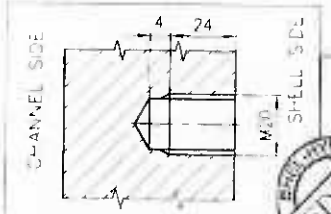
1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

0 3 2 3 3 9 0 0 0 1 6 2 1 8

0 3 2 3 3 9 0 0 1 6 2 1 8

0 3 2 3 3 9 1 0 0 1 6 2 1 8





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO. OF VAR
DRN	A K [illegible]		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED / APPD
					01	04.04.12	BHANU	
ZONE					ZONE	DRAWING REVISED AS SHOWN AS [illegible] 74 HOLE SHOWN IN SIDE VIEW		

DEPT	GRADE OF TOL DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO. OF ITEMS
HEE		NA	–	-N.A-	NA	NA
CODE 405						

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Production Order	Date
1020306943	08.07.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Runeta Mines Ltd., Kamanda, Odisha	16218075

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868 10	SUPPORT PLATE-5

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0027	3.000	3.000	EA	IS06	40.430	SUPPORT PLATE-5	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPk	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218076					
AA10119		332.940	KG	940.000	940.000	0.000	F1	3.000	ST12

Material Description : PLATE 16 IS2062 GR:250(FE410W) QUALITY-B	Reservation : 0014699258	Item : 0001	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2., I.PH.,..P-1032339100-16218,. Support plate-5

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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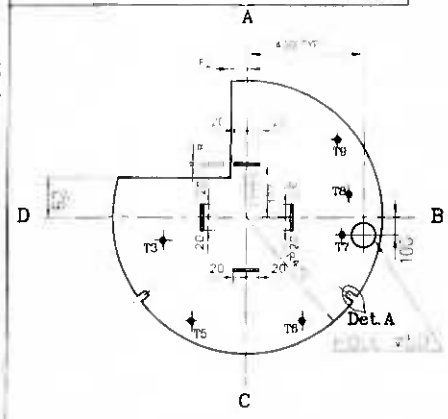
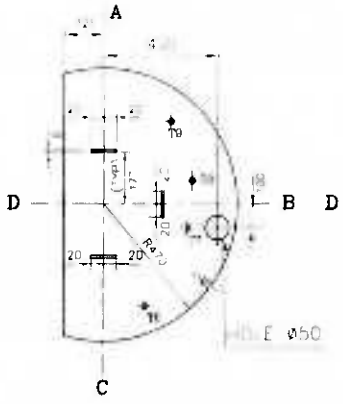
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY
INVENTORY NO TO SIGN AND DATE THIS DRG NO



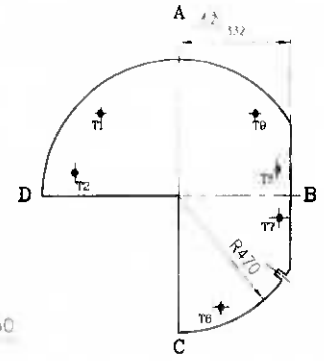
POS No.3

REQD 1, 16 THK



POS No.4

REQD 2, 16 THK



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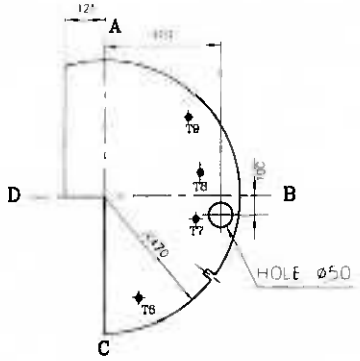

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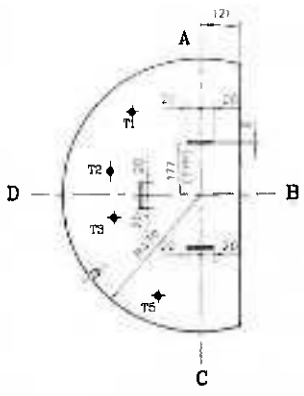
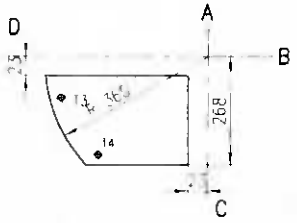


POS No.27

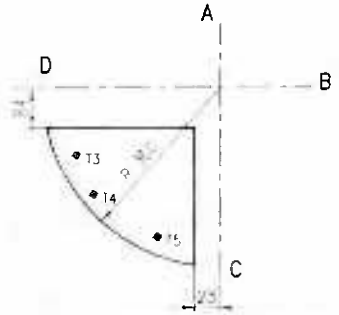
REQD 3, 16 THK

TECHNOLOGY COPY



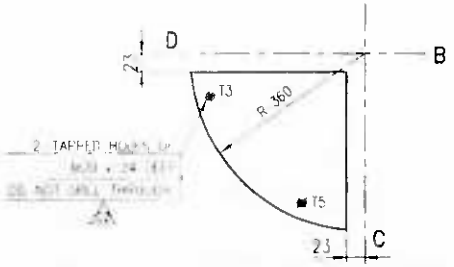
D.C.BAFFLE POS.No.7

1-REQD. 16 THK



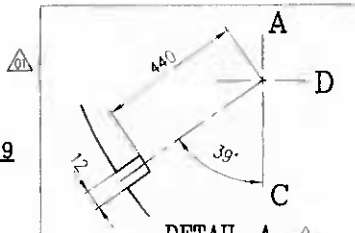
D.C.BAFFLE POS.No.8

8 REQD. 10 THK.

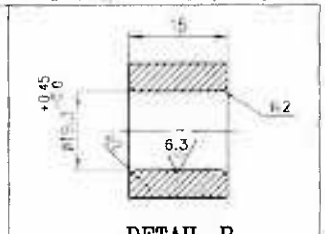


D.C.END PLATE POS.No.9

1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.3 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL 'A'
5. DRILL Ø16.7 +0.45 -0.00 HOLES IN D.C BAFFLES FOR TUBES
6. DRILL Ø14.3 ±0.05 HOLES IN D.C END PLATE POS NO 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR TIE ROD LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO	AKS	17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHE	APPD

REV	DATE	ALTERED	CHD	APPD
00	17.02.12	PRADEEP	A K S	

DRAWING REVISED & SHOWN AS Δ2.

REV	DATE	ALTERED	CHECKED	APPD
01	14.12.01	A K S		

DETAIL 'A' REVISED & SHOWN AS Δ1.

DEPT	GRADE OF OL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
HEE		NTS	-	NA	NA	NA
CODE A05						

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO.
3-162-18-00868

REV 02

SHEET NO 1 NO OF SHEETS 1

Printed by : NARESH ERAKAM-ROPAVM-8019 6140211 on 10-06-23 11:05:13

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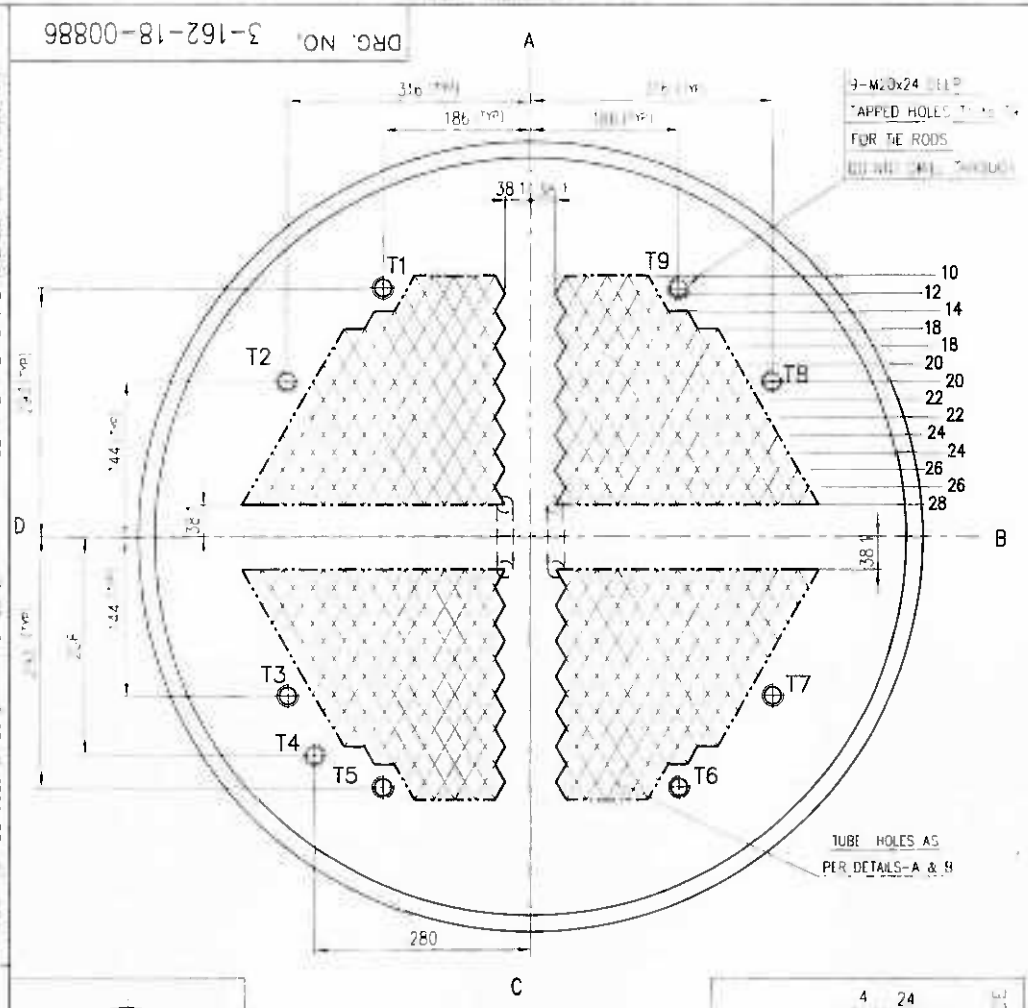
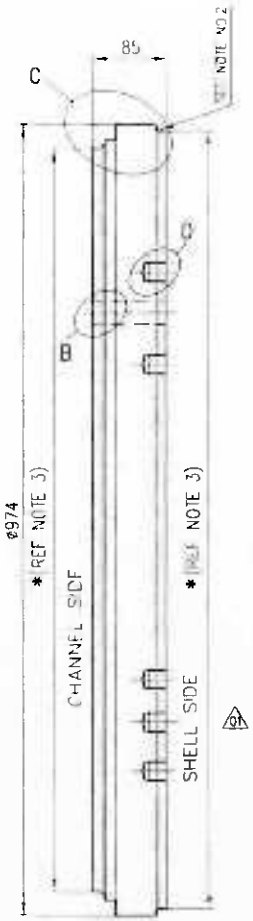
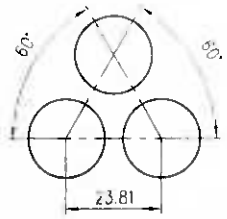
DRG. NO. 3-162-18-00886

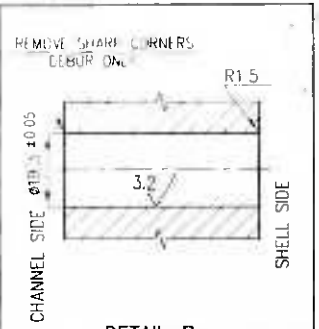




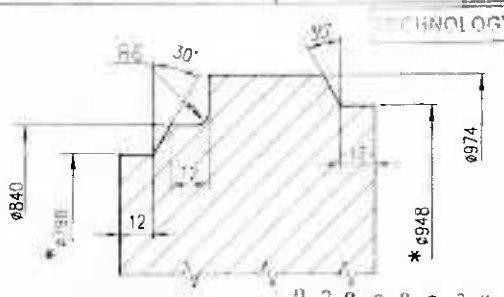


PITCH DETAIL

DETAIL-A



DETAIL-B

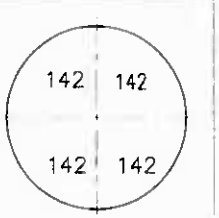


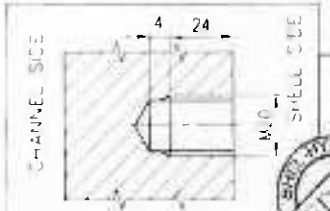
DETAIL-C

TECHNOLOGY COPY

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	DATE	NO.OF VAR.
DRN	[illegible]	[illegible]	
CHD	K.KIRAN KUMAR	17.08.11	NA
APPD	B.SRINIVAS	[illegible]	

REV	DATE	ALTERED	CHECKED	APPD

REV	DATE	ALTERED	CHECKED/APPD
01	04.04.12	RHANU	

DRAWING REVISED AS SHOWN AS PER (14 HOLES SHOWN IN SIDE VIEW

DEPT	GRADE OF TOLERANCE	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE		NA	–	-N.A-	NA	NA

CODE 4-5

TITLE: TUBE PLATE & LAYOUT
(FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No. 1 NO OF SHEETS 1

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102037002	08.07.2023

Plant: P006 | Equipment No:

Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd., Kamanda, Odisha	16218008

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-04	SUPPORT PLATE-2

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0004	2.000	2.000	EA	IS06	40.180	SUPPORT PLATE-2	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218009	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	FT	2.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(E 410W) QUTY-B | Reservation 0014699252 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

PRT Cat | PRT No. | PRT Description

Sub Operation Text

RUNGTA-2,, LPH,,,,P-1032339100-16218,, Support plate-2

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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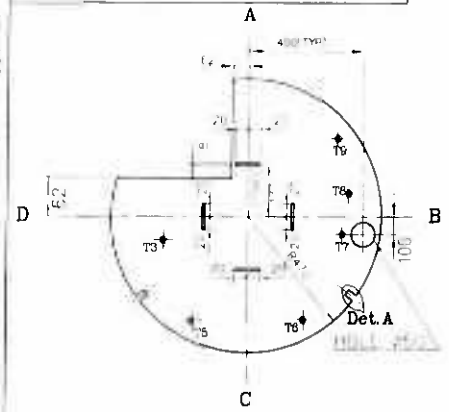
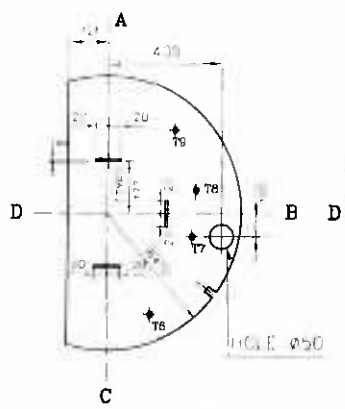
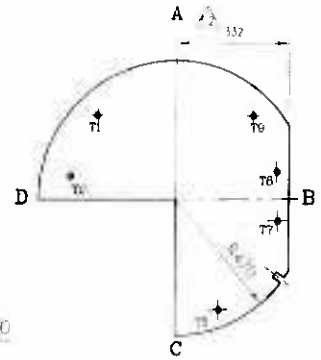


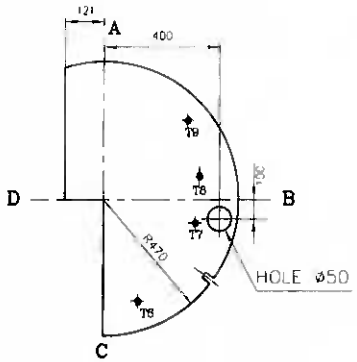
POS No.3
REQD 1, 16 THK



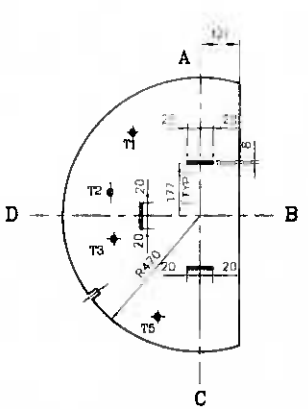
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

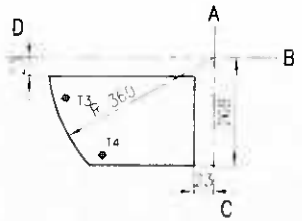


POS No.6
REQD 2, 16 THK

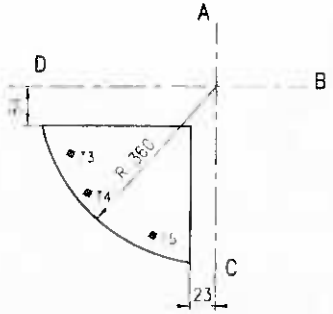


POS No.27
REQD 3, 16 THK

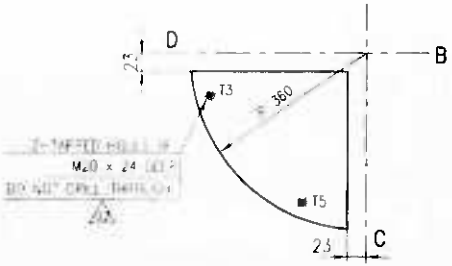
TECHNOLOGY COPY



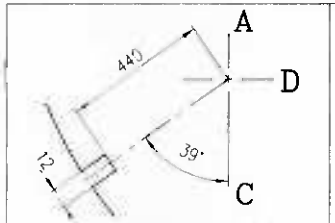
D.C.BAFFLE POS.No.7
7-REQD 16 THK



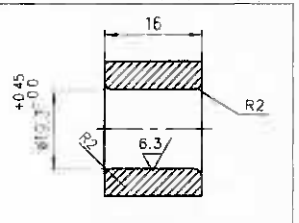
D.C.BAFFLE POS.No.8
8-REQD. 10 THK.



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL A
5. DRILL Ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.30 ±0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3 162-18 00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR
DRN.	K K SAUDI	AKS	17 08 11	NA
CHD	K KUMAR KUMAR		17 08 11	
APPD	B SRINIVAS		17 08 11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					02	07 08 11	PRADEEP	A K S		01	14 12 11	A K S		

DRAWING REVISED & SHOWN AS 02 — ZONE — DETAIL 'A' REVISED & SHOWN AS 01

DEPT HEE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO.OF ITEMS
CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

INVENTORY NO SIGN AND DATE REF DRG NO

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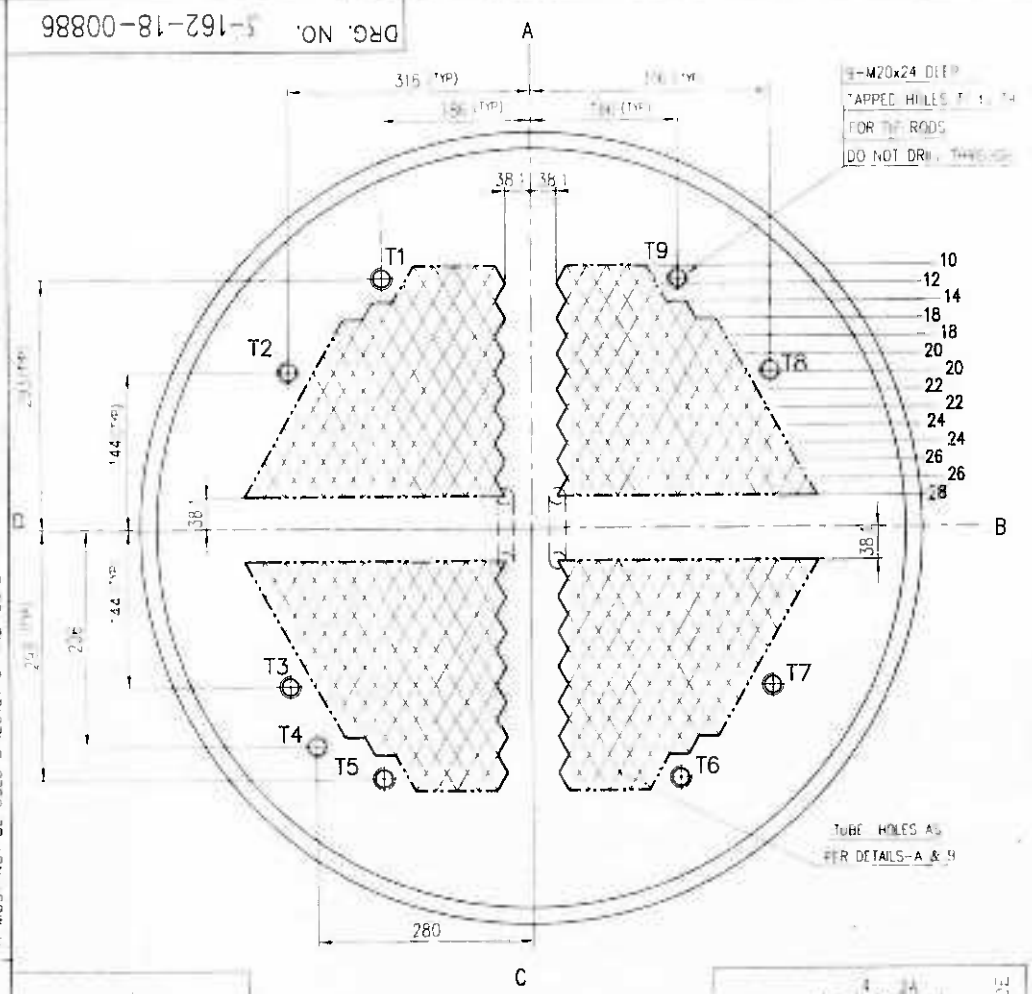
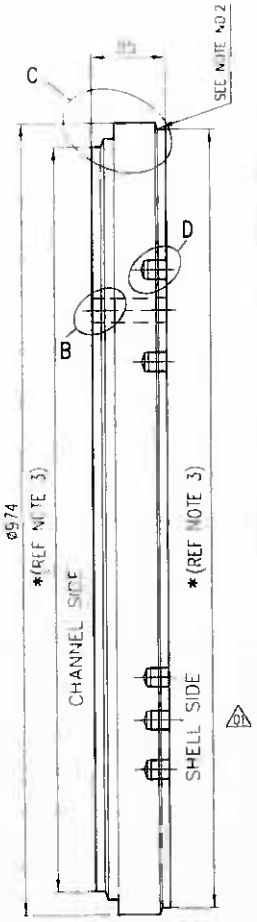
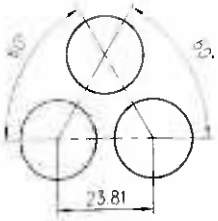
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00886

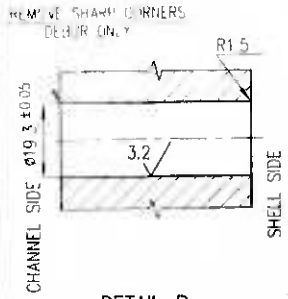




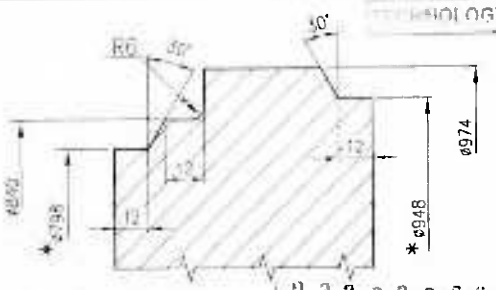


PITCH DETAIL

DETAIL-A



DETAIL-B



DETAIL-C

TECHNOLOGY COPY

0 3 2 3 3 9 8 0 0 1 6 2 1 8

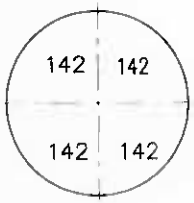
0 3 2 3 3 9 0 0 0 1 6 2 1 8

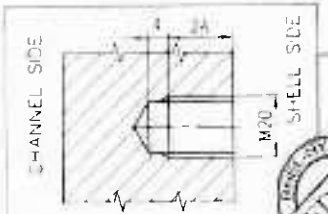
0 3 2 3 3 9 0 0 0 1 6 2 1 8

0 3 2 3 3 9 1 0 0 1 6 2 1 8

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12	BHANU	

ZONE

ZONE

DRAWING REVISED AS SHOWN AS 1.6
(T4 HOLE SHOWN IN SIDE VIEW)

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEZ		NA	–	-N.A.-	NA	NA

CODE 405

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

INVENTORY NO | SIGN AND DATE | REF DRG. NO

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16.05.2012
16.36.04

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ROUTE CARD

TECHNOLOGICAL PROCESS RE-PRINT

Plant	Equipment No	Production Order	Date
P006		102037003	08.07.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd., Kamanda, Odisha	16218010

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-05	SUPPORT PLATE-3

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0005	2.000	2.000	EA	IS06	50.690	SUPPORT PLATE-3	Yes

BOM Details

Pos.No	IC	Material Code	P.No			Remarks		
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218011	MA BY QC				
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR I 250(I) 410(W) QUALITY-B | Reservation : 0014699253 | Item : 0001 | Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC (M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2., LPH,...P-1032339100-16218,. Support plate-3

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

RE-PRINT

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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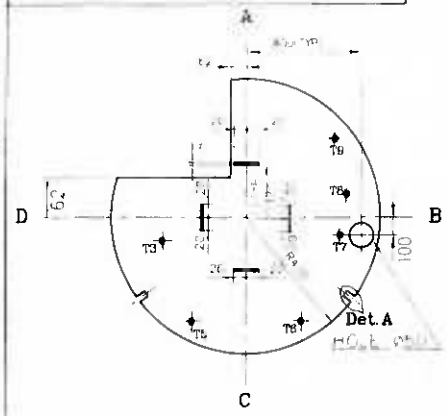
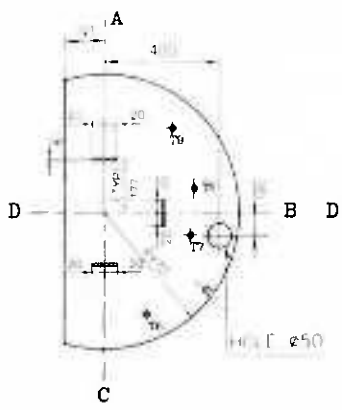
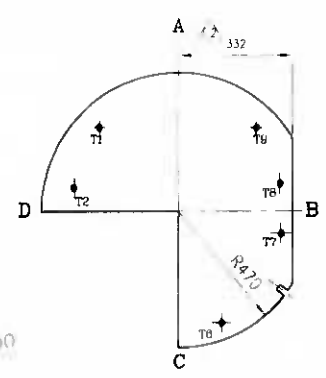


POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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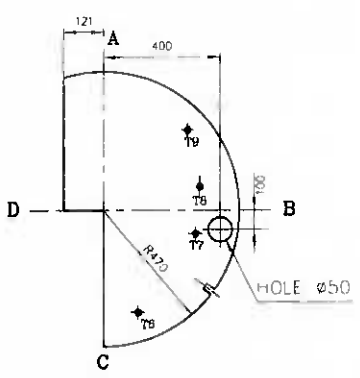
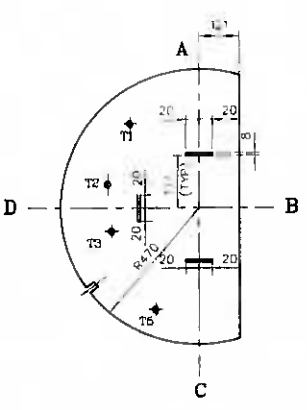
REQD 2, 16 THK

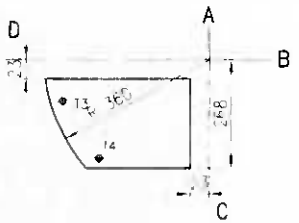


POS No.6
REQD 2, 16 THK

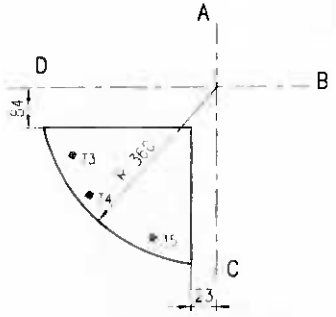


POS No.27
REQD 3, 16 THK

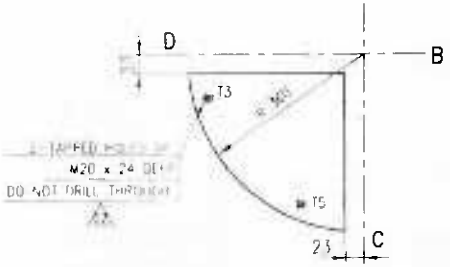
TECHNOLOGY COPY



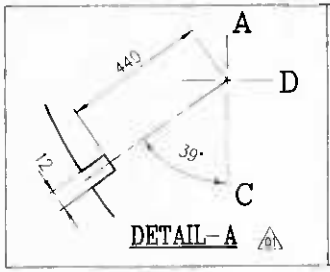
D.C.BAFFLE POS.No.7
REQD 1, 16 THK



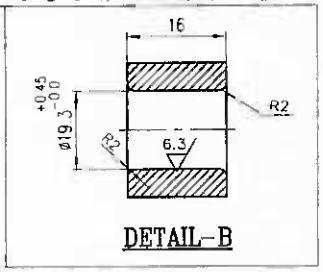
D.C.BAFFLE POS.No.8
8-REQD. 16 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL $\phi 31.3^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL $\phi 19.75^{+0.45}_{-0.00}$ HOLES IN D.C BAFFLES FOR TUBES
6. DRILL $\phi 19.30^{+0.05}$ HOLES IN D.C END PLATE POS NO 9
7. TIE ROD HOLES (TH T9) $\phi 22$
8. FOR TIE ROD LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					01	07.12.11	DRAWING REVISED & SHOWN AS 02	A K		ZONE	04.12.11	DETAIL 'A' REVISED & SHOWN A		

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO OF VAR.
DRN.	A K SAHOO	AKS	17.08.11	NA
CHD.	K KIRAN KUMAR		17.08.11	
APPD.	B SRINIVAS		17.08.11	

RESTRICTED USE

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG	ITEM NO	NO.OF ITEMS
		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO.
3-162-18-00868

REV 02

SHEET No 1 NO OF SHEETS 1

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Therefore signatures are not essentially required

Printed by : NARESH ER on AMI-RCP-WME8019 / 6140211 on 10-06-23 11:05:13

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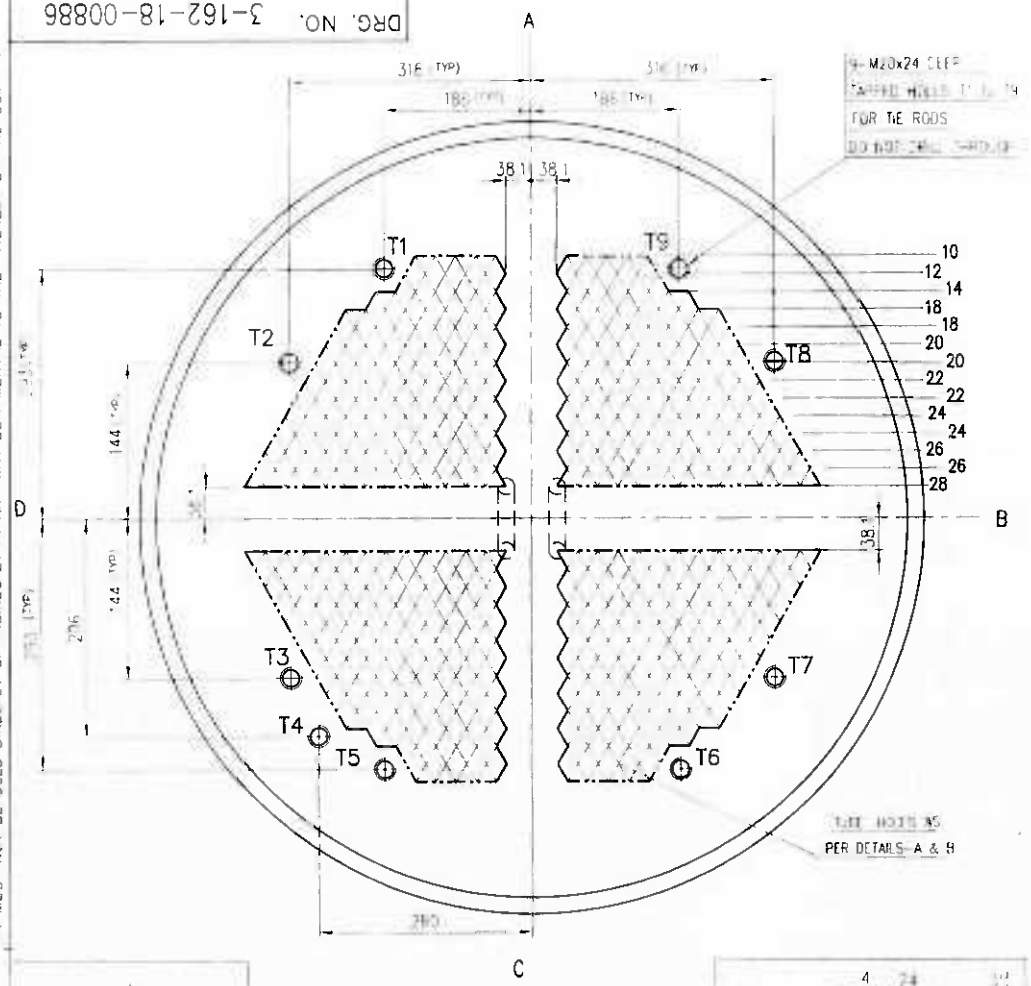
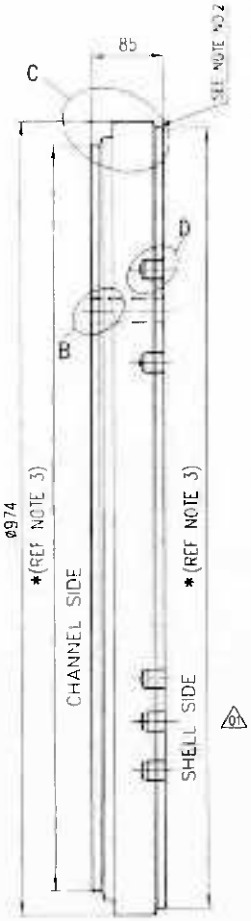
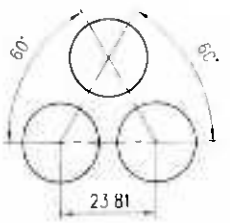
DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

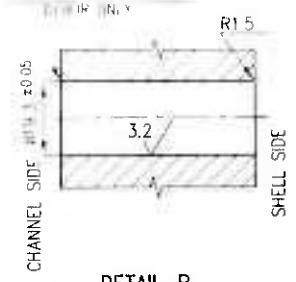




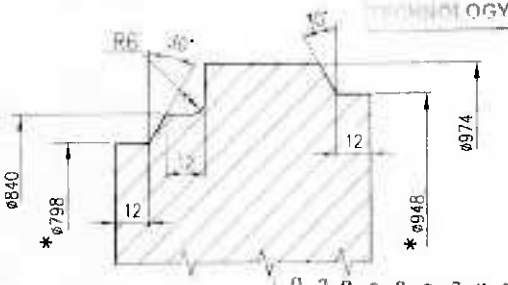


PITCH DETAIL

DETAIL-A



DETAIL-B

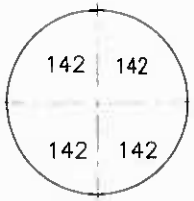


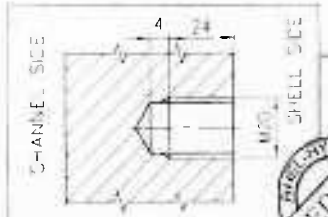
DETAIL-C

TECHNOLOGY COPY

NOTE:

1. No. OF TUBE HOLES 968
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A.K.SAHOO		17.08.11	NA
CHD	K.KIRAN		17.08.11	
APPD			17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD
ZONE				

REV	DATE	ALTERED	CHECKED/APPD
01	04.04.12	D.RANJ	
ZONE	DRAWING REVISED AS SHOWN AND (TA NOT SHOWN IN SIDE VIEW)		

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEL		NA	–	-N.A-	NA	NA
CODE 405						

TITLE: TUBE PLATE & LAYOUT (FOR HOR7 LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

16.09.2012 16:36:04

Printed by : NARESH ERAKAM-RC P WME 8019 / 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102037004	08.07.2023

Plant	Equipment No		
Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd., Kamanda, Odisha	16218012

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
3162180086	00		3162180086-06	SUPPORT PLATE

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0006	2.000	2.000	EA	IS06	36.540	SUPPORT PLATE	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks
0001	R	AA1011819112	16218013	MS BY QC

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
AA10119		221.960	KG	940.000	940.000	0.000	F1	2.000	ST12

Material Description : PLATE 16 IS2062 GR.E250(E410W) QLTY-B	Reservation : 0014699254	Item : 0001	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	/P01	0.000	0.000	0.000	0.000	

RUNGTA-2., I.PH.,,,P-1032339100-16218,. Support plate

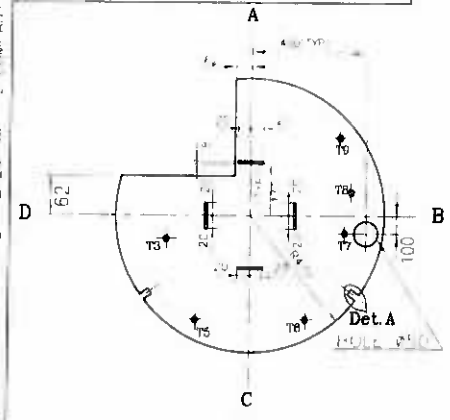
Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

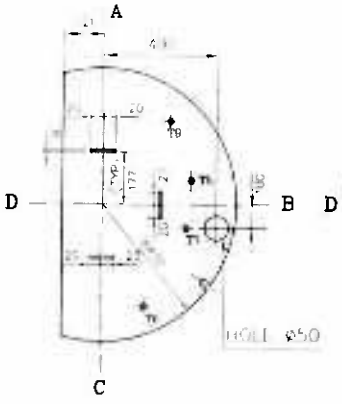
Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

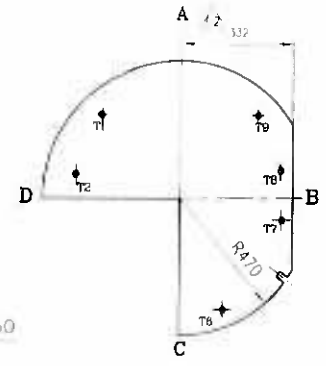
DRG. NO. 3-162-18-00868



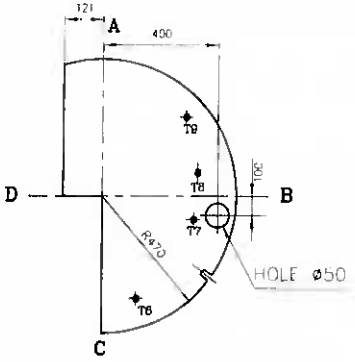
POS No.3
REQD 1, 16 THK



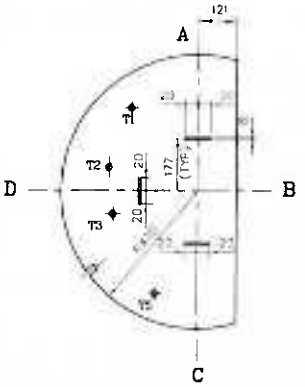
POS No.4
REQD 2, 16 THK



POS No.5
REQD 2, 16 THK

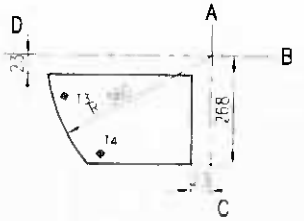


POS No.6
REQD 2, 16 THK

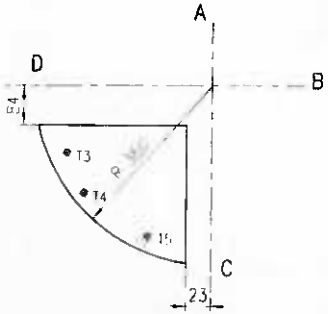


POS No.27
REQD 3, 16 THK

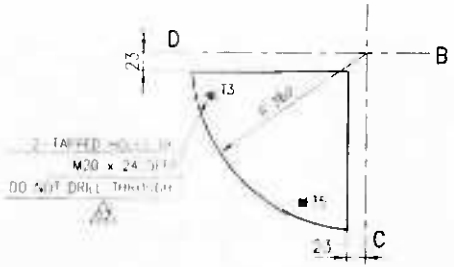
TECHNOLOGY COPY



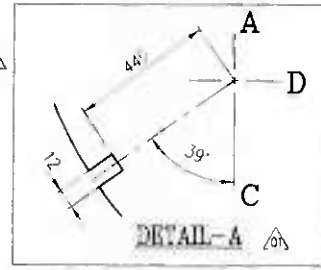
D.C.BAFFLE POS.No.7
[illegible] REQD [illegible] THK



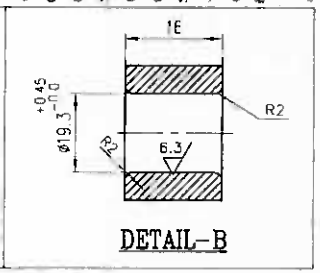
D.C.BAFFLE POS.No.8
8-REQD 10 THK



D.C.END PLATE POS.No.9
1 REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL Ø19.3 $^{+0.45}_{-0.00}$ HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL Ø19.75 $^{+0.45}_{-0.00}$ HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL Ø19.3 $^{+0.05}$ HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1-T9)Ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No. 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	[illegible]		17.08.11	NA
CHD	[illegible]		17.08.11	
APPD	[illegible]		17.08.11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					[illegible]	[illegible]	[illegible]	A K S	[illegible]	01	[illegible]	A K S	[illegible]	[illegible]

DRAWING REVISED & SHOWN AS 02

DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE CODE 405		NTS	-	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO. SIGN AND DATE REF DRG NO

08.02.2012
07:33:51

Printed by : NARESH ERAKAM-RCP-WME8014 / 6140211 on 10-06-23 11:05:13

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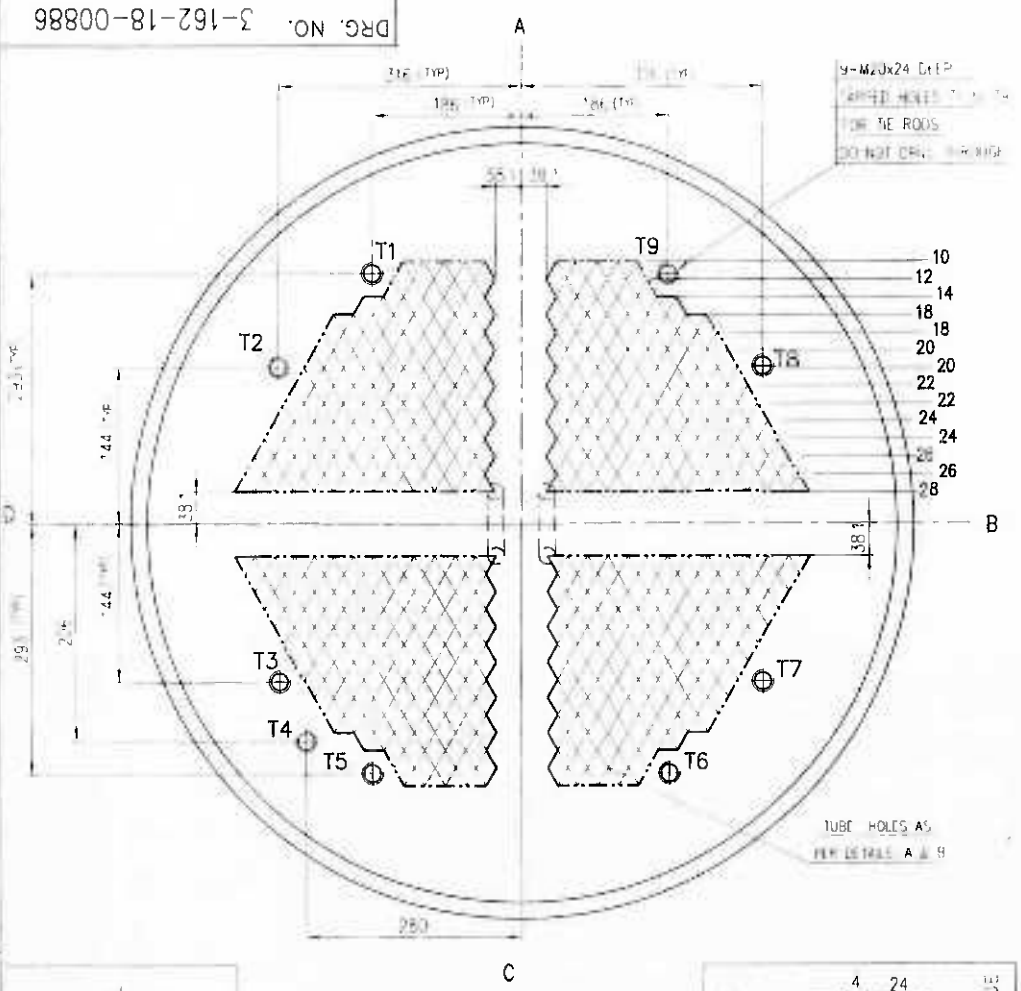
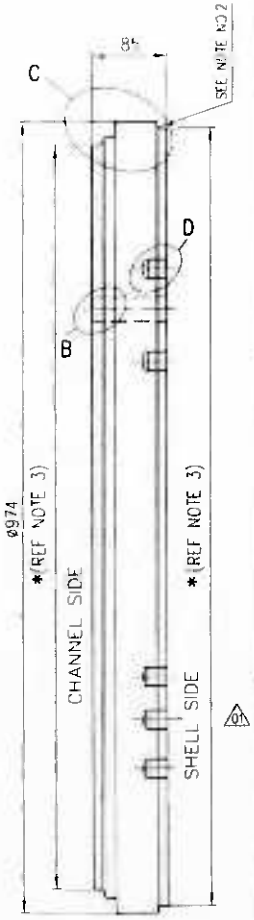
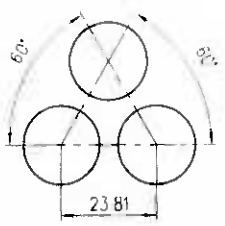
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN mm

DRG. NO. 3-162-18-00886

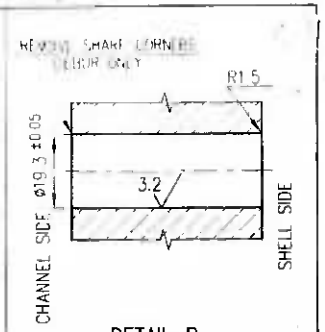




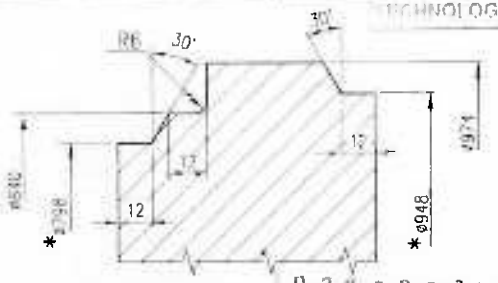


PITCH DETAIL

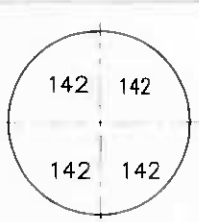
DETAIL-A

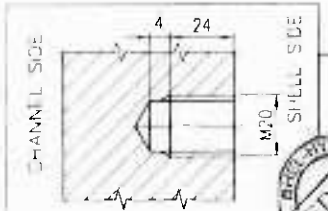


DETAIL-B



DETAIL-C





DETAIL-D

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
* 3. EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719

TECHNOLOGY COPY

0 3 2 3 3 9 0 0 0 1 6 2 1 8

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD.	B SRINIVAS		17.08.11	

RESTRICTED USE

REV.	DATE	ALTERED	CHECKED	APPD	REV.	DATE	ALTERED	CHECKED/APPD
					01	4.04.12	BHARAT	
ZONE					ZONE	DRAWING REVISED AS SHOWN AS A (T4 HOLE SHOWN IN SIDE VIEW		

DEPT	HEE	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE	405		NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

16.35.2011
16.36.04

Printed by : NARESH ERAKAM-RCP-WMF-8019 / 6140211 on 16-06-23 11:05:30

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ROUTE CARD

TECHNOLOGICAL PROCESS RE-PRINT

Production Order	Date
102037013	08.07.2023

Plant	P006	Equipment No	
Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd., Kamanda, Odisha	16218006

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-03	SUPPORT PLATE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0003	1.000	1.000	LA	IS06	54.340	SUPPORT PLATE-1	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0001	R	AA1011819112		16218007	MA BY QC				
AA10119		110.980	KG	940.000	940.000	0.000	F1	1.000	ST12

Material Description : PLATE 16 IS2062 GRE250(FE410W) QLTY-B	Reservation : 0014699251	Item 0001	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2., LPH.,.,P-1032339100-16218,. Support plate-1

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout.
2. Drilling of 568 holes X Ø19.3 +0.45/-0.0 as per pre-drilling. Each plate thickness is 16mm.
3. Drilling of 8 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the plates
6. Chamfering of tube holes to 1X45° on both sides of plates. Also chamfer tie rod holes.
7. GO-NOGO checking of each plate.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the plate.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the plates.
11. Re-stacking the support plates according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL HYD.

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	2

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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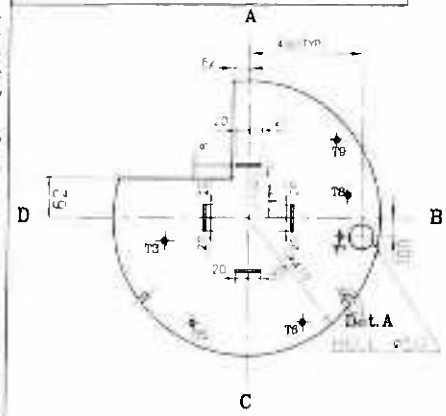
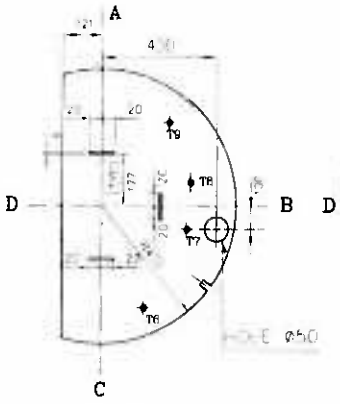


POS No.3
REQD 1, 16 THK



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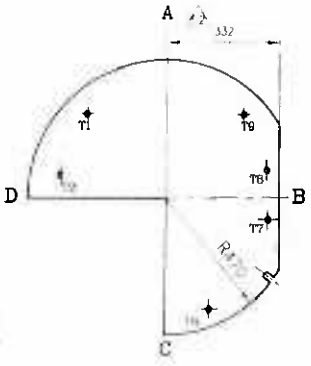
REQD 2, 16 THK



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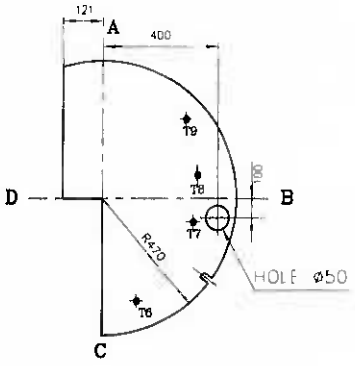
REQD 2, 16 THK



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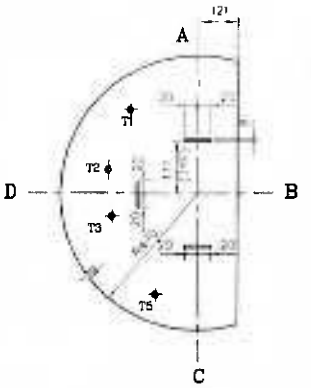
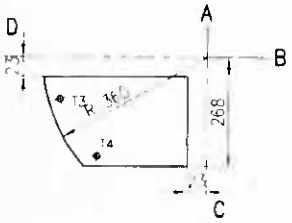
REQD 2, 16 THK

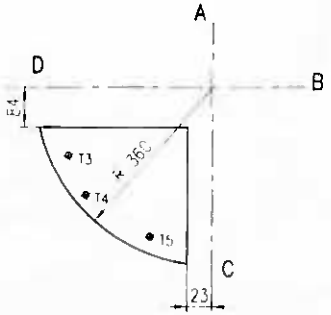


POS No.27
REQD 3, 16 THK

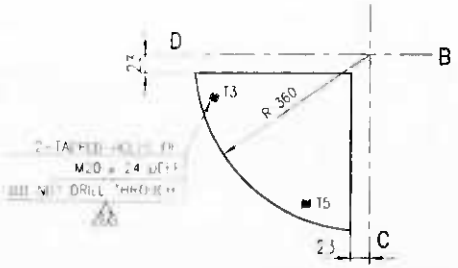
TECHNOLOGY COPY



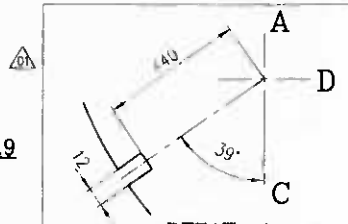
D.C.BAFFLE POS.No.7
2-REQD 10 THK



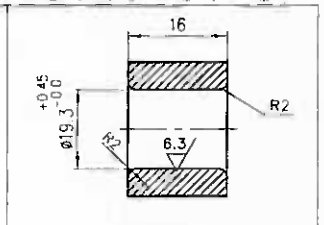
D.C.BAFFLE POS.No.8
8-REQD. 16 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROC STD HE 7 1036
4. DRILL ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL ø19.75 +0.45 -0.00 HOLES IN D.C BAFFLES FOR TUBES
6. DRILL ø19.30 +0.05 HOLES IN D.C END PLATE POS NO 9
7. TIE ROD HOLES (T1 T9)ø22
8. FOR TIE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF WAR
DRN.	A K [illegible]	AKS	17.08.11	NA
CHD.	K KIRAN KUMAR		17.08.11	
APPD	B [illegible]		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					0.	[illegible] 12	PROCESS	A K S		01	[illegible] 12	A K S		

DRAWING REVISED & SHOWN AS 02 ZONE: DETAIL 'A' REVISED & SHOWN AS 01

DEPT CODE	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
HCE 405		NTS		N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO.
3-162-18-00868

REV 02

SHEET No 1 NO OF SHEETS 1

Printed by : NARESH ERAKAM-RCP WME8019 / 6140211 on 10-06-23 11:05:13

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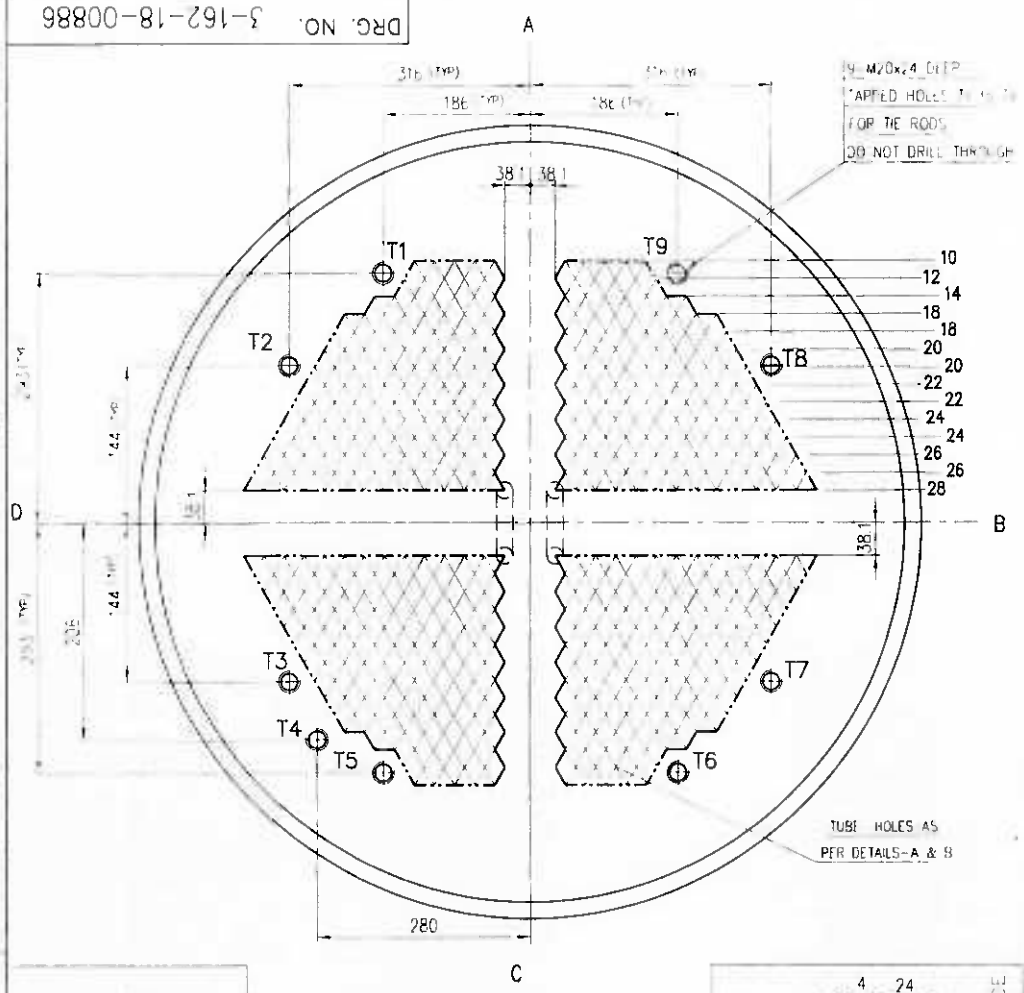
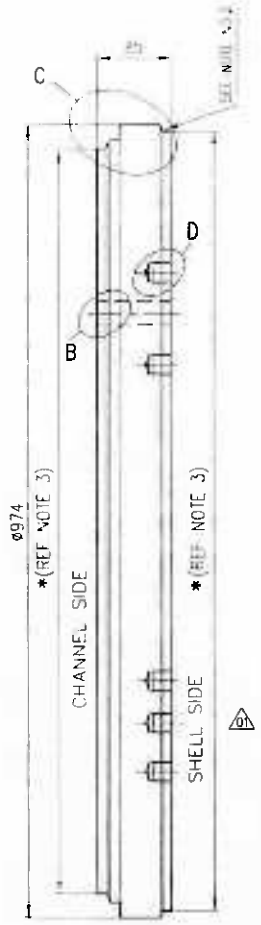
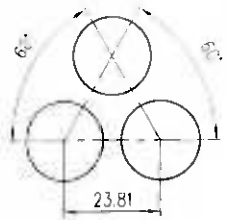
DRG. NO. 3-162-18-00886

(ALL DIMENSIONS ARE IN mm)

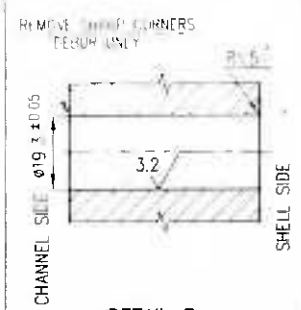




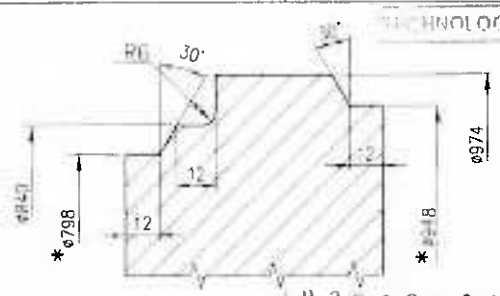


PITCH DETAIL

DETAIL-A



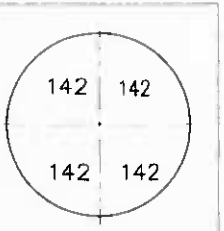
DETAIL-B

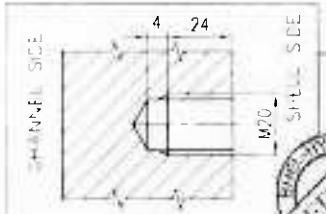


DETAIL-C

NOTE:

1 No OF TUBE HOLES
2 LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3 EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4 FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	
CHD	K KIRAN KUMAR		17.08.11	NA
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD
01	04.04.12	BHANU		

ZONE

DRAWING REVISED AS SHOWN AS (A)
(T4 HOLE SHOWN IN SIDE VIEW

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF. TO ASSY DRG.	ITEM NO.	NO.OF ITEMS
CODE		NA	--	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

INVENTORY NO | SIGN AND DATE | REF DRG NO

16.05.2012
16:30:04

Printed by NARASIMHARAKAM-RCP WMI 8019 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS
RE-PRINT

Production Order	Date
102036942	08.07.2023

Plant	Equipment No		
P006			

Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd., Kamanda, Odisha	16218014

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
31621800868	00		31621800868-07	D.C. BAFFLE-1

Pos.No	BOM Qty	Ord Qty	MU	St.	Nt.Wt.	Remarks	MDCC
0007	7.000	7.000	EA	IS06	2.590	D.C. BAFFLE-1	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks					
Matl.Spec	SPK	Qty	MU	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0020	R	AA1011819074		16218015					
AA10119		284.858	KG	720.000	720.000	0.000		7.000	ST12

Material Description : PLATE 10 IS2062 GRE250(EE410W) QLTY-B	Reservation : 0014699255	Item : 0002	Picklist:

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.			PRT Description				
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2 ,,,,LPH,,,, P-1032339100-16218 ,,DC Baffle-1

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of tube holes 568 x dia. 19.75 +0.45/-0.00 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 12 through holes X O23mm for tie rod holes as per marked on pre-drilled layout on each stack.
(T3, T4 & T5 only on each quadrant of the plates. Total 12 holes on each plate).
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to 1x45° on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no. WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00868

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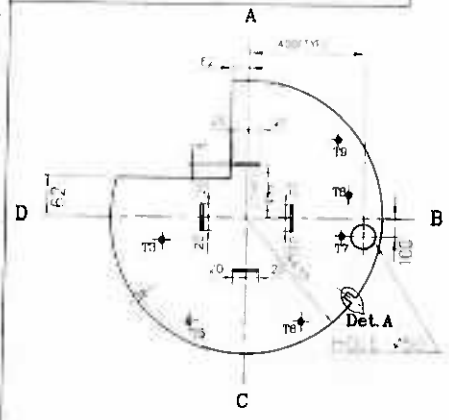
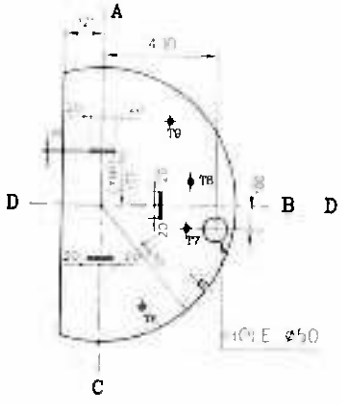
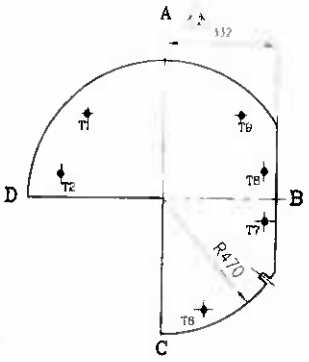


POS No.3
REQD 1, 16 THK



POS No.4
REQD 2, 16 THK



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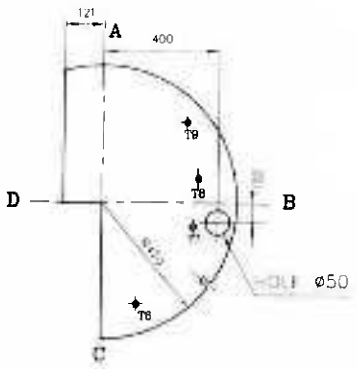
REQD 2, 16 THK



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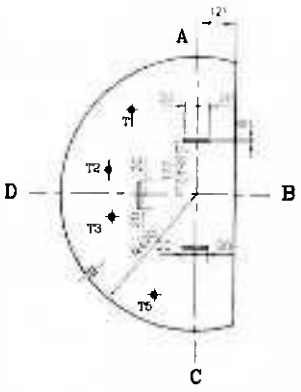
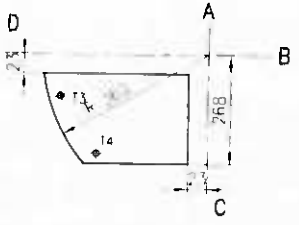
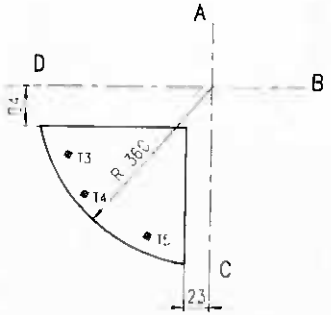


POS No.27
REQD 3, 16 THK

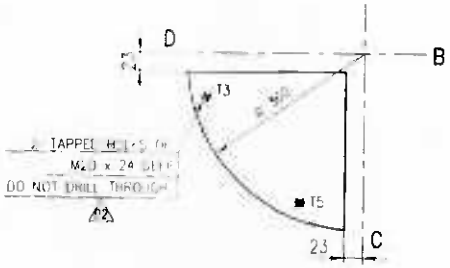
TECHNOLOGY COPY



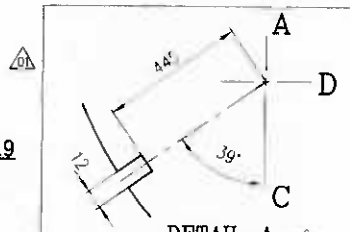
D.C.BAFFLE POS.No.7
7-REQD. 10 THK



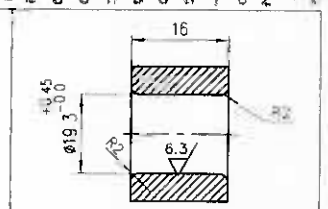
D.C.BAFFLE POS.No.8
8-REQD. 10 THK.



D.C.END PLATE POS.No.9
1-REQD. 50 THK



DETAIL-A



DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL ø19.30 +0.45 -0.00 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL B
5. DRILL ø19.75 +0.45 -0.00 HOLES IN D.C.BAFFLES FOR TUBES
6. DRILL ø19.30 +0.05 HOLES IN D.C.END PLATE POS. NO. 9
7. TIE ROD HOLES (T1 T9)ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

1 0 3 2 3 3 9 1 0 0 1 6 2 1 8

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO OF VAR
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHD	APPD	REV	DATE	ALTERED	CHECKED	APPD
					02	17.02.12	PRADEEP	A K S		01	14.12.11	A K S		

DRAWING REVISED & SHOWN AS 02 — ZONE — DETAIL 'A' REVISED & SHOWN AS 01

DEPT	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO OF ITEMS
HEE						
CODE 405		4T5	–	N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

Printed by : NARESH ERAKAM-RCP & ME8019 / 6140211 on 10-06-23 11:05:13

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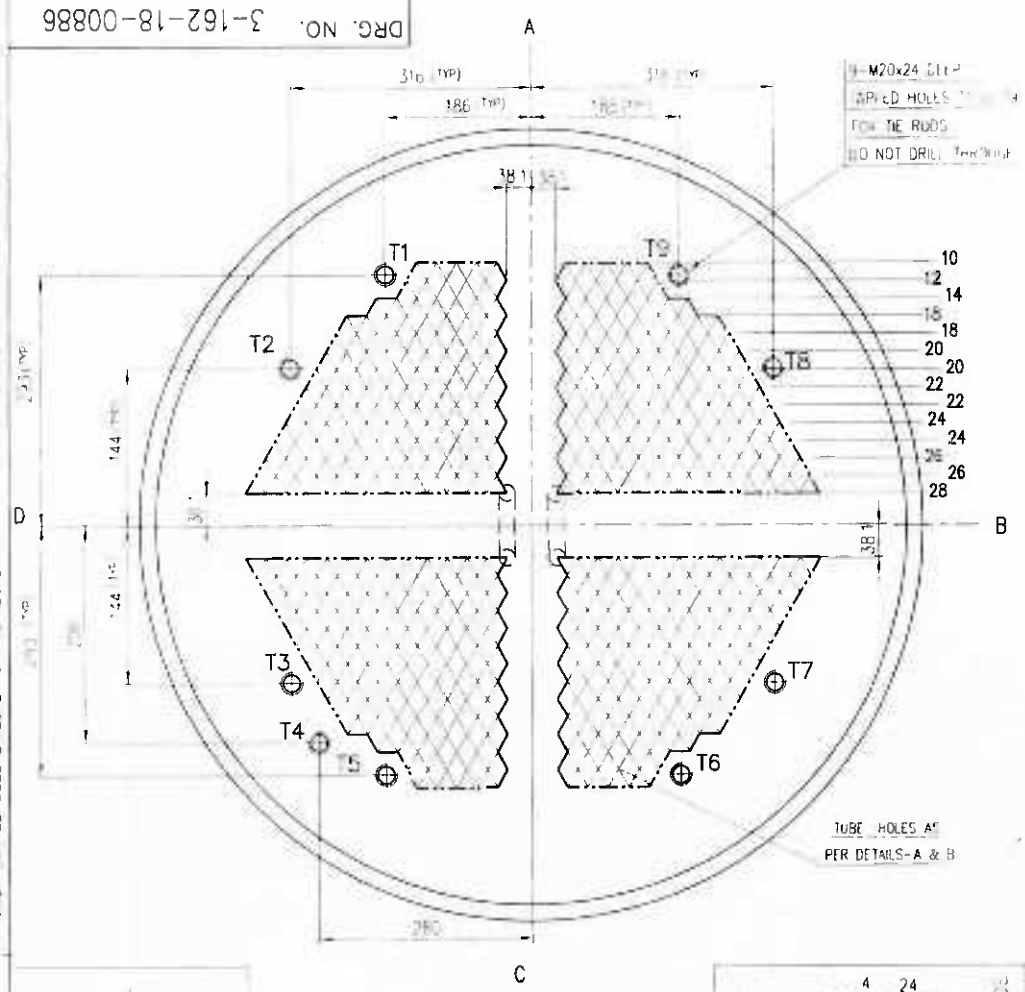
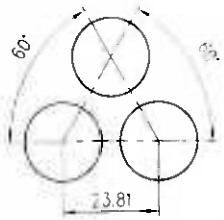
DRG. NO. 3-162-18-00886

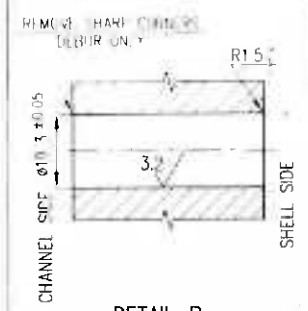
(ALL DIMENSIONS ARE IN mm)



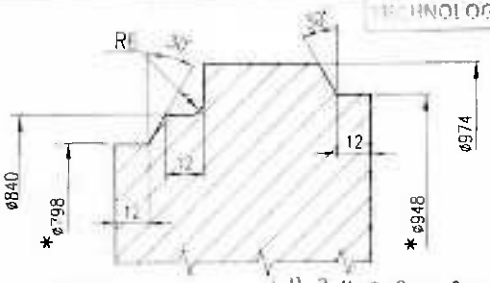


PITCH DETAIL

DETAIL-A



DETAIL-B



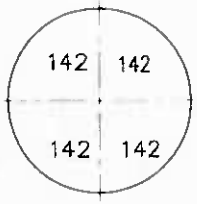
DETAIL-C

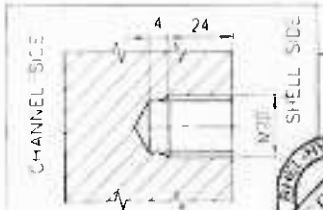
TECHNOLOGY COPY

0 3 2 3 3 9 8 0 0 1 6 2 1 9
0 3 2 3 3 9 0 0 0 1 6 2 1 8
0 3 2 3 3 9 0 0 0 1 6 2 1 8
0 3 2 3 3 9 1 0 0 1 6 2 1 8

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN.	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	R ERNIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.11	BHANU	
ZONE					ZONE	DRAWING REVISED AS SHOWN AS (1) (T4 HOLE SHOWN IN SIDE VIEW		

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO.OF ITEMS
HEE CODE 405		NA	–	-N.A.-	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV 01

SHEET No 1 NO OF SHEETS 1

INVENTORY NO | SIGN AND DATE | REF DRG NO

16.05.2012
16:36:04

Printed by : NARESH ERAKAM-RCP-WMI 8019 / 6140211 on 10-06-23 11:05:30

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TECHNOLOGICAL PROCESS RE-PRINT

ROUTE CARD

Plant	Equipment No	Production Order	Date
P006		102037005	08.07.2023

Type	WBS Element	Customer / Project Name	Part No
	P-1032339100-16218	Rungta Mines Ltd Kamanda, Odisha	16218016

Drawing No.-Var	E.Rev.	T.Rev	Material No.	Name Of The Part
316218000868	00		316218000868-08	D.C. BAFFLE-2

Pos.No	BOM Qty	Ord Qty	MI	St.	N.Wt.	Remarks	MDCC
0008	8.000	8.000	EA	IS06	2.580	D.C. BAFFLE-2	Yes

BOM Details

Pos.No	IC	Material Code	P.No	Remarks

Matl.Spec	SPK	Qty	MI	Size 1	Size 2	Size 3	Formula Key	MPcs	St.
0020	R	AA1011819074		16218017					
AA10119		325.552	KG	720.000	720.000	0.000		8.000	ST12

Material Description	Reservation	Item	Picklist
PLATE 10 IS2062 GR.E250(FE410W) QUALITY-B	0014699256	0002	

Operation Details

Opr No	W.C.	Plant	Ctl. ky	Prep Time	Time/ PC(M)	Time/ PC(L)	Total Time	QC Signature
PRT Cat	PRT No.		PRT Description					
Sub Operation Text								
0105	DA9995	P006	ZP01	0.000	0.000	0.000	0.000	

RUNGTA-2 ,,,,LPH,,,, P-1032339100-16218 ,,DC Baffle-2

Scope of work:

1. Material will be supplied in tack welded, stacked and pre-drilled condition. Tie rod holes shall be marked on pre-drilled layout. Each stack will have a bottom plate of 16mm thickness. It is an auxiliary plate and shall be returned in loose.
2. Drilling of tube holes 568 x dia. 19.75 +0.45/-0.00 as per pre-drilling. Each plate thickness is 10mm.
3. Drilling of 12 through holes X Ø23mm for tie rod holes as per marked on pre-drilled layout on each stack.
(T3, T4 & T5 only on each quadrant of the plates. Total 12 holes on each plate).
4. Punching plate nos. and direction of drilling at two places on each plate on periphery.
5. Grinding of tack welds and separating the DC baffles and auxiliary plates.
6. Chamfering of tube holes to 1x45° on both sides of DC baffles. Also chamfer tie rod holes.
7. GO-NOGO checking of each DC baffle.
8. Punching of PO number, PO Item no, WO number, Part number, Qty on right bottom corner of the DC baffle.
9. Inspection by QC (GO-NOGO Check, to ensure all the punch details mentioned in the scope are punched as per the location mentioned in the scope).
10. Application of Temporary rust preventive on all the DC baffles.
11. Re-stacking the DC baffles according to the plate numbers punched and get them tightened using stud with nuts preferably in tie rod holes.
11. Write the PO NO and WO NO on the top plate of the stack with white marker in bold letters.
12. Pack the stack with a transparent polythene wrap and send to BHEL

Chkd. By	Dt.	ECR/ Rev No	Dt.	Pro.Plnr	Rate Fixr / Tool Plnr	Pg no	No.of Pgs
	15.07.2023					1	3

RE-PRINT

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DRG NO. 3-162-18-00868

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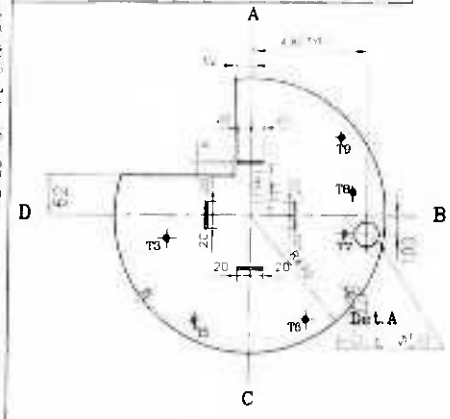
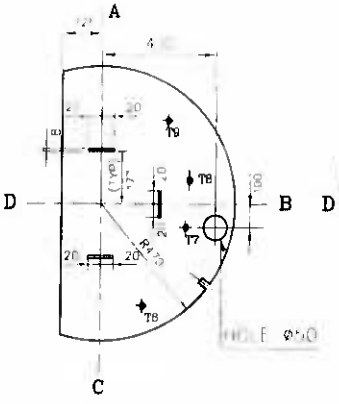
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



POS No.3
REQD 1, 16 THK



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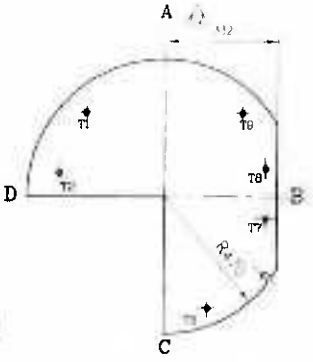
REQD 2, 16 THK



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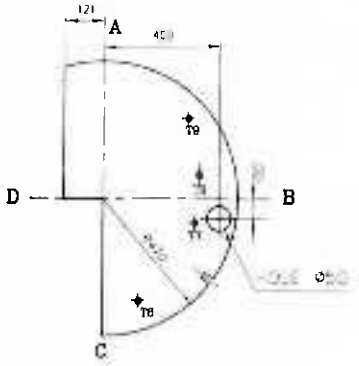
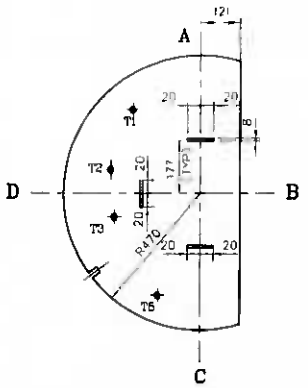
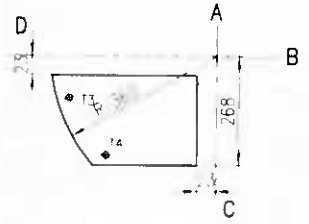


POS No.6
REQD 2, 16 THK

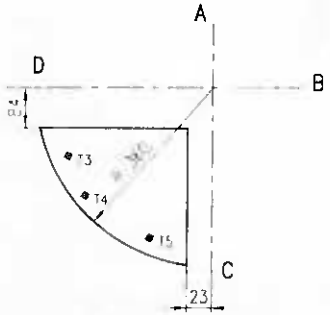


POS No.27
REQD 3, 16 THK

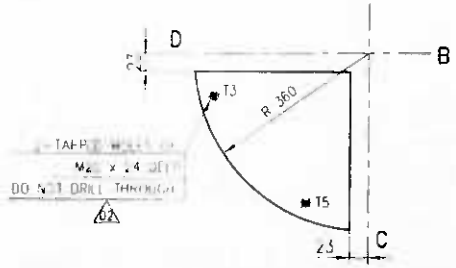
TECHNOLOGY COPY



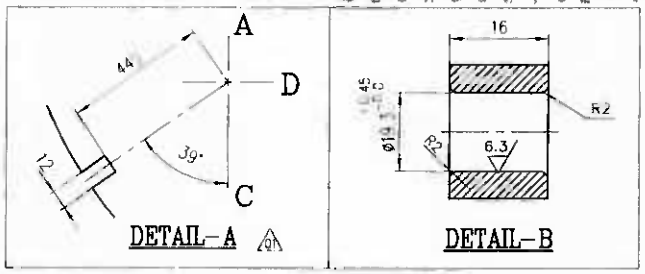
D.C.BAFFLE POS.No.7
7-REQD. 10 THK



D.C.BAFFLE POS.No.8
8-REQD. 10 THK



D.C.END PLATE POS.No.9
1-REQD. 50 THK.



DETAIL-A

DETAIL-B

NOTES:-

1. CLEAN SUPPORT PLATES AS PER HE 7 1014
2. CHAMFER TUBE HOLES ON BOTH SIDE OF ALL PLATES
3. FOR UNSPECIFIED TOLERANCE REF PROD STD HE 7 1036
4. DRILL ø19.3 +0.45 +0.300 HOLES IN SUPPORT PLATES FOR TUBES AS PER DETAIL 'A'
5. DRILL ø19.75 +0.45 +0.300 HOLES IN D.C BAFFLES FOR TUBES
6. DRILL ø19.3 +0.45 +0.300 HOLES IN D.C END PLATE POS NO 9
7. TIE ROD HOLES (T1 T9)ø22
8. FOR TUBE LAYOUT AND TIE ROD LOCATION REF DRG No 3-162-18-00886

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN	DATE	NO.OF VAR.
DRN	A K SAHOO		17.08.11	NA
CHD	K KIRAN KUMAR		17.08.11	
APPD	B SRINIVAS		17.08.11	

RESTRICTED USE

REV	DATE	ALTERED	CHD	APPD
02	07.08.12	PRADEEP	A K S	
01	4.12.11	A K S		

DRAWING REVISED & SHOWN AS 02

DETAIL 'A' REVISED & SHOWN AS 01

DEPT.	GRADE OF TOL.DIM. C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO	NO.OF ITEMS
HEE		NTS		N A	NA	NA

TITLE
SUPPORTS PLATES & BAFFLES
(FOR LPH)

CARD CODE

DRAWING NO. 3-162-18-00868 REV 02

SHEET No 1 NO OF SHEETS 1

Printed by : NARESH ERAKAM-RC P-WME8019 / 6140211 on 10-06-23 11:05:13

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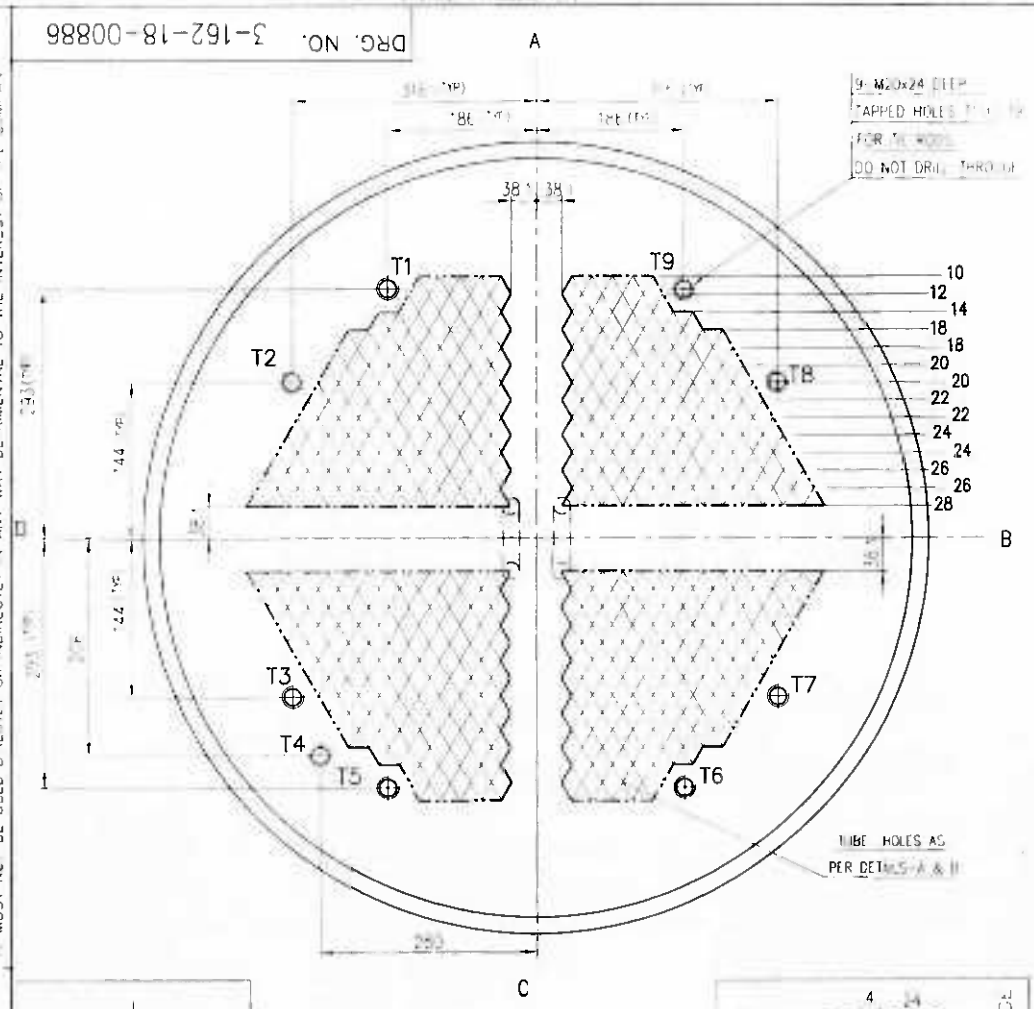
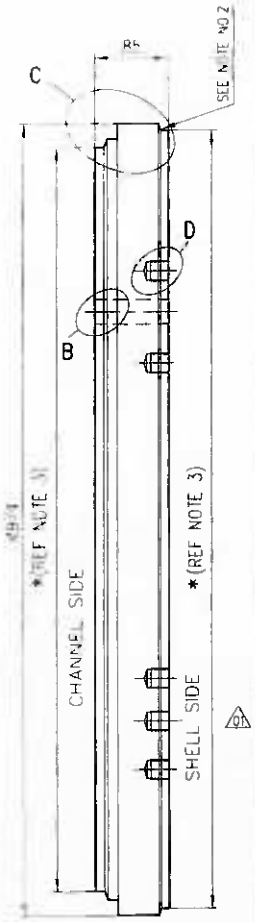
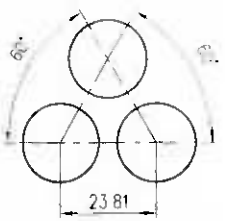
(ALL DIMENSIONS ARE IN mm)

DRG. NO. 3-162-18-00886

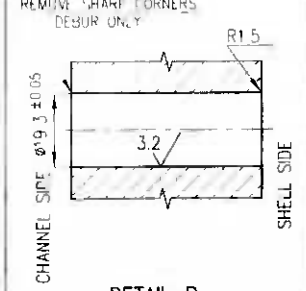




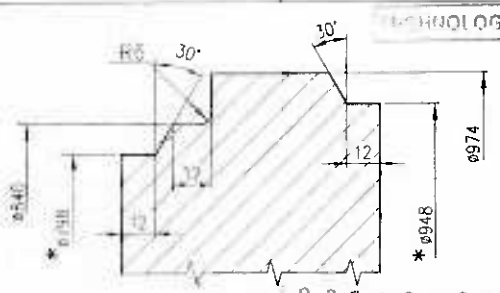


PITCH DETAIL

DETAIL-A



DETAIL-B

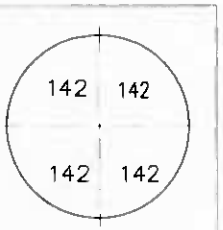


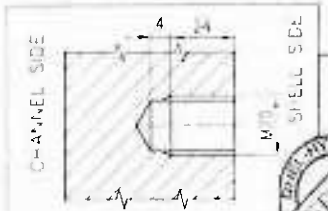
DETAIL-C

TECHNOLOGY COPY

NOTE:

1. No. OF TUBE HOLES 568
2. LPI TO BE CARRIED OUT ON WELD EDGE PREPARATION ON BOTH SIDES.
3. * EXACT DIMENSION TO SUIT TO CHANNEL & SHELL ID
4. FOR UNSPECIFIED TOLERANCE REF PROD STD HE7 1036
5. OTL = 719





DETAIL-D

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME		DATE	NO OF VAR
DRN	K. K. SAHOO			NA
CHD	K KIRAN KUMAR			
APPD	B SRINIVAS			

REV	DATE	ALTERED	CHECKED	APPD	REV	DATE	ALTERED	CHECKED/APPD
					01	04.04.12	BHANU	

ZONE

DRAWING REVISED AS SHOWN AS ON (T4 HOLE SHOWN IN SIDE VIEW)

DEPT	GRADE OF TOL.DIM C/M/F	SCALE	WEIGHT (KG)	REF TO ASSY DRG	ITEM NO.	NO OF ITEMS
CODE 405		NA	–	N.A.	NA	NA

TITLE: TUBE PLATE & LAYOUT (FOR HORZ LPH)

CARD CODE

DRAWING NO. 3-162-18-00886 REV. 01

SHEET No 1 NO OF SHEETS 1

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INVENTORY NO SIGN AND DATE REF DRG NO

16.05.2012
16:30:04

Printed by NARESH ERAKAM-RCP-WME8019 / 6140211 on 10-06-23 11:05:30

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(Attachment to Enquiry No. **E9AWS00047** Due on Date **08.08.2023** for submission by 11.00 hrs to open from 14.00 hrs.)			
INSTRUCTIONS TO BIDDER (ITB)			
NOTE: Bidder to confirm in affirmative by typing "YES" or "Applicable Data" in the response column. Deviations, if any shall be recorded in deviations/comments column (Separate sheet can be attached if needed). Non deviatable clauses are indicated as "NON DEVIATABLE".			
Sl. No.	**DETAILED TERMS & CONDITIONS**	**BIDDER RESPONSE (YES/NO)**	**DEVIATIONS / COMMENT**
1	**SCOPE OF SUPPLY:**		
	Signed & Sealed offers are invited for the Scope of Supply of goods or services or both as detailed in the enquiry. Relevant enclosures/supporting documents / catalogue, if any shall be enclosed to the technical offer.		
2	**DEFINITIONS**		
A	'The Buyer' means BHEL-HPEP, Ramachandrapuram, Hyderabad-502 032 of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the companies Act having its registered office at BHEL House, Siri fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.		
B	'The Bidder' means the persons, firm, company or organization on whom the Purchase order is placed and shall be deemed to include the bidder's successors, representatives, heirs, executors and administrator as the case may be. It may also be referred to as Contractor, supplier or bidder.		
C	'Contract' shall mean and include the Purchase order incorporating various documents viz., Notice Inviting Tender (NIT), Offer, Letter Of Intent/Acceptance (LOI/LOA), Instruction to Bidders (ITB) and Special Conditions of Contract (SCC), specifications, inspection/quality plan, schedule of prices and quantities, drawings, if any, enclosed by Bidder/ provided by the Buyer or his authorized nominee and the samples or patterns if any to be provided under the provision of the contract. In case of any inconsistency or contradiction between any of the documents, the order of precedence shall be Purchase Order, LOI/LOA followed by Minutes Of Meeting (MOM), NIT, SCC, ITB.		
D	'Parties to the contract' shall mean the bidder and the buyer as named in the main body of the Purchase Order.		
E	'Goods/Material' shall include Works and Services which are incidental or consequential to supply.		
3	**GENERAL INSTRUCTIONS:**		
A	Mode of submission of offer shall be as indicated in SCC		**Non Deviatable**
B	The quotation should be neatly typed and free from over writing/ erasures. Any correction or addition must be authenticated. The offer including annexures and brochures should be submitted in English / Hindi. All Pages of Techno Commercial Bids (Main Pages), ITB, SCC should be signed and Stamped. If there is a conflict in case of bilingual submission, the submission in English will be final. Prices shall be quoted both in figures and words. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 Status. Any discount / revised offer / bids submitted by a bidder on his own shall be considered, provided it is received on or before the due date and time of offer / bid submission (Part-1). Conditional discounts shall not be considered for evaluation of tenders.		**Non Deviatable**
C	Incomplete offers are liable for rejection.		**Non Deviatable**
D	Bidders to please note that the Terms & conditions contained in this document and SCC are to be read fully before submission of quotations.		**Non Deviatable**
E	Bidders are advised to comply with ITB and SCC, should there be any deviations (where deviations are permitted), it shall be entered in the deviation column. BHEL reserves the right to reject such offers or load the bid suitably for evaluation.		**Non Deviatable**
F	Offers shall be submitted directly, only by the bidder or by their authorized representative / agent and the offer should be in line with the regulatory guidelines (i.e. A valid Agency agreement between principal bidder and agent / representative shall be attached and the agreement shall cover the scope of services rendered by Agent, Agency Commission and any other information called for as per the regulatory guidelines). OEM / Mill details shall be provided if bidder is not a manufacturer. Bid envelops shall bear the name of Bidder. In case of submission through authorized representative/agent, the name of representative/agent should also be mentioned apart from bidder name.		**Non Deviatable**
G	Offer received after the specified time and date of submission will be rejected. No further correspondence shall be entertained.		**Non Deviatable**
H	Unsolicited offers will not be considered.		**Non Deviatable**
4	**OTHER PARTICULARS (Please indicate applicable data)**		

A	Name of the Bid currency (freely tradable foreign currency for imports and Indian Rupees for indigenous purchase).		
B	Name of the Port of loading and Port of Discharge (applicable to imports).		

5	**BID SUBMISSION PROCEDURE FOR CONVENTIONAL TENDER:**		
A	**For Single Part Bids:**		
	The complete bid shall be submitted in a single sealed cover superscribing the Tender number and due date, addressed to Sr DGM/CMM, Vendor Complex, BHEL, Hyderabad and sent by appropriate mode to above address or dropped in tender box located at vendor complex on or before the specified time and date of submission of offers, preferably in the bidder's envelope. E- mail bids shall be sent to mail ID pricebid_hyd@bhel.in only as an attachment.		**Non Deviatable**
B.	**For two-Part Bids:**		
i	The offer is to be submitted in two parts viz., Techno-commercial Bid - (Part-I), with all technical specification & scope including bill of material etc., Earnest Money Deposit (EMD)(wherever applicable) and unpriced bid with all applicable Commercial Terms and Conditions, rates of agency commission, duties, taxes and other charges, Signed and Stamped ITB and SCC, except the price, shall be kept in a separate sealed cover, superscribing enquiry No. (Techno-Commercial Bid) and due date AND Price Bid (Part-II), containing ONLY the price (including agency commission, if any) and the applicable duties/taxes/other charges shall be kept in a separate sealed cover superscribing Enquiry no. (Price bid) & due date. Both the above covers (Part –I & II) shall be kept in a Third cover superscribing Enquiry no. & due date. Bidder can also submit offer through email. Technical offer to be submitted to mail ID technicalbid_hyd@bhel.in, and price bid to be submitted to mail ID pricebid_hyd@bhel.in only as an attachment. Interchanging the information in the mails may lead to rejection of the offer. Bidder shall have no claim on e-mail offers sent to any other e-mail ID. In case of e-mail offers, the mail subject should contain Enquiry Number, Due date and Bidder name. Bidder address including contact details shall be mentioned in the content of the mail. Without these details, the offer is liable for rejection. All techno commercial terms & conditions mutually agreed prior to price bid opening shall prevail and supersede any terms and conditions specified otherwise in price bid.		**Non Deviatable**
ii	The bidders whose bids are techno commercially not accepted will be informed and EMD shall be returned wherever submitted.		
iii	Bidders will be allowed to submit the impact on their quoted prices due to changes in technical scope, specifications, and commercial terms/conditions as specified in NIT which in the opinion of BHEL , warrant changes in prices.		**Non Deviatable**
C	Bids shall be opened on due time and date in the presence of bidders who may like to be present Only one representative of each bidder shall be permitted to attend the bid opening. Only the price bids of bidder (in case of two part bid) whose techno commercial bids are accepted will be opened later on a specified date.		**Non Deviatable**
6	**DELIVERY TERMS**		
A	**Indigenous Purchase**		
	a. Terms of Delivery for dispatches to BHEL Hyderabad (HPEP) shall be FOR Destination. b. Terms of Delivery for Direct Dispatch (DD) items shall be Ex Works. i. Incase specified in SCC that insurance is in customer/BHEL scope, price quoted shall include Freight charges up to Destination. ii. Otherwise, price quoted shall include Freight and Insurance upto Destination. However, beneficiary for insurance shall be BHEL.		
B.	**Imports**		
	The goods shall be delivered on FCA capital airport basis in case of freight by Air and CIP basis in case of freight by Sea.		
7	**Documentation for Payment**		
A	**Indigenous Purchase**		

	Following documents shall be submitted immediately on dispatch of material to BHEL HPEP / Site a. Original Tax Invoice (Refer ITB clause no 11 for Tax Compliance) b. Packing List - clearly showing number of packages, gross weight and net weight. c. Test/Warranty/Guarantee certificates, O&M Manual (If specified in SCC) d. Insurance intimation/declaration certificate e. Pre-dispatch Inspection report /Third Party Inspection Certificates. f. Consignee copy of LR signed & stamped by Customer/Site representative for DD Items g. e-waybill h. Any other documents as specified in SCC. Softcopies of the above documents shall be uploaded in Pradan portal https://hpep.bhel.com/mm immediately after dispatch of the material.		**Non Deviatable**

B **Imports**

i) Bidder shall inform BHEL the readiness of material along with packing details 30 days in advance from the date of delivery. ii). Bidder shall also upload the soft copy of the dispatch documents consisting of BL / AWB, Invoice, delivery note, packing list, country of origin & Test certificates and other documents as specifically indicated in the SCC in PRADAN Portal (https://hpep.bhel.com/mm) within Five days from the B/L date for sea shipment and One day from AWB date for Air shipment and sent to email ids: mssea@bhel.in, msair@bhel.in, cmmfe@bhel.in.

iii) AWB/BL must contain the information of BHEL GST no., and PAN no.

iv) **Air Shipments:**
Bidder shall ensure the following
a) Port of discharge -- Mumbai/Chennai/Hyderabad (as indicated in SCC).
b) Consignee shall be BHEL, Hyderabad. Material shall be air freighted through cargo mode only and not through Courier.
c) Upon handing over the cargo to the forwarder, bidder shall ensure the acknowledgement receipt with wordings" Cargo handed over in sound condition for Air freighting".
Note: Warehouse receipt will not be considered for penalty calculations.
d) In case of CIF/ shipments, bidder shall also inform BHEL the information about discharge port agent details and cargo arrival information within one day from the date of Shipment.
e) Following dimensions of single package may be noted.
i). Maximum dimension of the cargo(ODC) -- 125" x 88" x 63"
ii). Maximum weight of the cargo -- 3.5 MT.
If any package dimension or weight exceeds the above set limits, it will be treated as Over Dimension Cargo (ODC) or Over Weight Cargo and bidder shall inform BHEL 30 days in advance to the delivery date to enable BHEL to finalize the freight forwarder.
f). If package falls under Hazardous category, bidder shall communicate BHEL 30 days in advance period with document support.

v) **Sea Shipments:-**
bidder shall ensure the following
a). Port of discharge -- Nhavaseva/Mumbai/Chennai.
b). Place of Delivery / Final Destination for CIP shipments - Nhavaseva CFS / Chennai CFS.
c). In case of FOB shipments, bidder shall handover the material to BHEL nominated forwarder and obtain the cargo receipt.
d). If the material cannot be containserised in 20 or 40 GP containers, an advance information of 30 days prior to the delivery date shall be communicated to BHEL for necessary arrangements and finalisation of freight forwarder. e). **For CIP shipments**
1. In case of FCL shipments, Detention free period must be 14 days.
2. Bidder shall also inform BHEL the information about discharge port agent details and cargo arrival information within 5 days from the date of Shipment.
3. No charges for the services rendered till place of destination will be payable by BHEL. Incase liner / forwarder insist for charges, not in the scope of BHEL, the same will be adjusted from bidder account.
4. In case of CIF shipments -- Bidder must select a forwarder/liner whose discharge port published tariff for THC and other services is available. Any charges over and above the published tariff will not be borne by BHEL or will be adjusted from the bidder's bill.
5. bidder must insure the cargo for 110% of material value including the freight amount.
(vi). Recovery charges for non-submission of documents: -
Bidder shall submit all the required documents to BHEL as prescribed in the Purchase order and NIT.

If BHEL incurs any charges such as Penalty, demurrage, container detention, wharfage, storage, Ground rent etc., due to non - compliance / non - submission of documents prescribed in Purchase Order/ NIT/Letter of credit, the same shall be recovered from the bidder as under:
1. EUROPE/USA/Black Sea/ Far East/Middle East/South East sector
A. **For FOB Sea Consignments:-**

Penalty for late submission / negotiation of documents beyond 14 days shall be as under:

Sl. no	Period (From Date of Bill of Lading)	Recoverable Charges	Recoverable Charges per day per container	
		LCL per week/ Break bulk cargo per day	20FT Container	40FT Container
i	Upto 14th day	Nil	Nil	Nil
ii	15th day onward	USD 10	USD 110	USD 200

	B. **For CIP Sea Shipments: -** Bidder shall provide rates for detention charges after free period at the time of offer itself in case of engagement of 20FT Container and 40FT category. In case of late presentation of documents to the bank recovery will be effected from the Bidder as per the rates quoted by the Bidder at the time of offer in this regard. In case of Break bulk cargo and LCL, Demurrage charges shall be recovered at the rate of USD 1 per Ton per day and storage charges at the rate of USD 10 per week respectively shall be charged as late presentation charges. (vii)Description of items in invoice, packing list, BL / AWB or LR shall be same as PO item description. Bidders shall ensure that invoice shall contain PAN nos. of both bidder and BHEL along with other tax related numbers. BHEL PAN AAACB4146P and BHEL TAN HYDB00086C Any other additional documents sought by the statutory authorities, the same shall be produced by the bidder on priority basis. (viii) Bidder shall provide package details including number of packages, gross weight, net weight etc. (ix) The bidder shall provide the following documents at the time of submission of offer: a) No Business Connection in India declaration issued by the bidder as per the format specified. (or) b) (i) No Permanent Establishment in India declaration issued by the bidder as per the format specified. (ii) Tax Residence Certificate issued by the bidder's tax authorities. (iii) Form 10F, as attached in Annexure V, to be issued by the bidder. c) In case the bidder has a Business Connection in India as per Section 9 of Income Tax Act or significant economic presence in India as per rule 11 UD of IT Act or Permanent Establishment in India as per Article 5 of Double Taxation Avoidance Agreement between India and the bidder's country, the bidder shall provide a withholding tax order issued by the Indian Income Tax authority for recovery of applicable tax.		
8	**Delivery Schedule**		
	The tendered goods shall be delivered within the period stipulated in NIT/ SCC as accepted. Inordinate delay/early supply are liable for rejection/Hold on payment.		**Non Deviatable**
9	**Pricing Terms**		
	Quoted price shall be inclusive of Packing & Forwarding and shall remain firm and valid during the execution of PO. Offers with PVC will be rejected outright except in cases where specifically called for in the SCC.	**Non Deviatable**	
10	**PRICE VALIDITY :**		
	Unless otherwise specified, offer shall be valid for a period of 90 days from the date of bid opening (Technical bid /part-I in case of two part bid). However the prices quoted for spare parts of the Main equipment shall be kept valid for a period as specified in SCC.	**Non Deviatable**	
11	**Taxes & Duties (RATE TO BE INDICATED by the bidder against the space provided)**		
			Non Deviatable
A	**Indigenous Purchase** i) Only valid GST registered bidders will be considered for the tender. The GSTIN of the bidder should be clearly mentioned in the offer. ii) If bidder is exempted from GST registration under any provision of the GST Law, a declaration with due supporting documents should be furnished for considering the offer. iii) Bidder to quote the applicable taxes in the following manner: - Harmonized System of Nomenclature (HSN) of Goods - Services Accounting Code(SAC) of Services. - IGST/CGST/SGST/UTGST: Rate of Tax to be quoted as extra in % against the space provided iv) Bidders to ensure correct applicability of IGST/CGST/SGST/UTGST based on the Inter / Intra state movement of goods/services. v) In case Bidder has opted for GST Composition Scheme, the same may be stated explicitly both in their technical and price bids. An undertaking to the effect that any change in the status of the bidder will be intimated. vi) Any other taxes & duties not covered anywhere above may be indicated separately. **Taxes deducted at source:** - TDS as per the extant statutes shall be deducted. - In case bidder does not provide PAN details, higher rate of tax shall be deducted as per the Act. - Concessional certificates, if any, should be provided well in time for lower deduction of tax.		

	Terms & Conditions to be complied 1. All invoices (incl. Credit Notes, Debit Notes) to contain BHEL HPEP GSTIN ie 36AAACB4146P1ZG. Invoices submitted should be in the format as specified under GST Law. All details as mentioned in Invoice Rules including Dealer GST registration number (GSTIN), invoice number with date of issue, quantity, rate, value, taxes with nomenclature – CGST, SGST, UGST, IGST mentioned separately, HSN Code / SAC Code etc. 2. Reimbursement of GST amount will be made only upon completion of the following: i. Bidder declaring such invoice in their GSTR-1 Return/ IFF ii. Receipt of Goods or Services and Submission of Tax invoice by BHEL iii. The tax invoice is reflected in the GSTR2B of BHEL, HPEP (buyer). Payment of GST will be made only if it is matching with data uploaded by the Bidder in GST portal. 3. In case of discrepancy in the data uploaded by the bidder in the GSTN portal vis-a-vis the tax invoice or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit. The same would be available in PRADAN Portal for the bidder's information. Bidder has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims for processing of such invoices. 4. In cases where invoice details have been uploaded by the bidder but failed to remit the GST amount to GST Department within stipulated time, then GST on the invoices in default will be recovered from the bidder along with the applicable interest. 5. In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, such GST amount will be recoverable from bidder along with interest levied/ leviable on BHEL. 6. Under GST regime, BHEL has to discharge GST liability on LD recovered from bidders. Hence applicable GST shall also be recoverable from bidders on LD amount. For this Tax Invoice digitally signed will be issued by BHEL indicating the respective supply invoice number. The same can be downloaded from PRADAN Portal. 7. GST TDS deducted as per GST Act, is uploaded in GSTN portal along GSTR7. Bidders can directly download the GST TDS Certificate from the GSTN Portal. 8. Bidders to note that Rules & Regulations pertaining to E-way bill system are to be strictly adhered to, as and when notified by Govt. authorities.		
B.	**Foreign Purchase (Imports)**		
	The offered price shall be inclusive of all the Taxes and duties as applicable in country of export / country of dispatch for the quoted price. Taxes deducted at source: a. In case of goods or services subject to Income tax in India, such tax as per the extant statute shall be recovered. b. In case bidder does not provide necessary documents for beneficial taxation (Refer clause 7-B-(ix) a-c of ITB), the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.		**Non Deviatable**
12	**Payment Terms: Unless otherwise specified in SCC, following shall be the terms of Payment.**		
A	**Indigenous:** a. Micro & Small Enterprises (MSEs) - 100% Direct EFT payment within 45 days b. Medium Enterprises - 100% Direct EFT payment within 60 days c. Non MSME Bidders - 100% direct EFT Payment within 90 Days Note A. Above due date is reckoned from the date of Receipt of material or 15 days from the date of su of complete set of documents as per PO whichever is later. Payment will be made on acceptance Material. B. MSEs (covered under MSME Act) need to register and renew periodically and update the sameBHEL C. The taxes that are reimbursed are limited to applicable taxes as on the Purchase Order deliverythe amount actually paid whichever is less. D. Adherence to the above time schedule of payment is contingent upon Bidder complying with Gprovisions and availment of Input Tax Credit by BHEL before the date of payment. E. In case of packaged items, 10% of supply value will be retained till completion of total supplies. F. Bidders to comply with **clause 11** on GST requirements		
B	**Imports:** i) 100% payment (less Indian Agency Commission, if any) shall be through Wire Transfer with a crperiod of 60 days - Cash Against Documents (CAD) ii) In case Bidder opts for Letter of Credit payment, the LC Usance period shall be 90 days with resbank charges to respective accounts and loading of 0.50% iii) Indian Agency commission if payable and so specified in the Purchase order shall be paid in In Rupees, considering the SBI TT selling exchange rate~~,~~ as on the date of payment after successful completion of the contract.		

C	**Conditions for both Inland & Foreign LC:** a. LC validity period will be 90 days and for any extension, applicable charges will be to bidder's account. b. LC will be opened 7 working days after receipt of request along with successful pre dispatch inspection completion report / material readiness intimation with Material Test Certificate (MTC), prior to the scheduled / agreed delivery date.		**Non Deviatable**
D	**Conditions for both Indigenous & Foreign Bidders:** a. In case Bidders insist for lesser Credit period, loading of 0.60% for every 15 days reduction will be applicable. b. In case PBG as required is not furnished, Payment will be released deducting the BG amount, which will be paid after expiry of warranty period against submission of supplementary claim. c. Payment does not imply in any respect whatsoever a waiver of Buyer's right to performance of the Order. Buyer is entitled to set off claimable debts against claimable liabilities with the bidder by means of a setoff Note.		**Non Deviatable**
E	Wherever EMD is applicable, the EMD will be paid back to unsuccessful bidders within fifteen days after award of the contract. Successful bidder's EMD will be retained till submission of Performance Bank Guarantee (PBG). Tender Fee wherever applicable is not refundable. No interest shall be payable by BHEL on earnest money or security deposit or any money due to the contractor by BHEL.		**Non Deviatable**
13	**Penalty clause:**		
	In the event of delay in supply /part-supply of goods, Penalty as detailed below is leviable a. Penalty of 0.5% per week or part there of shall be levied, limited to a max of 10% (ten percent) of delayed portion value / order value (as specified in SCC). b. Penalty applicable for delay in documentation is as per SCC. c. Date Reckoned for Penalty - Indigenous Orders with delivery terms FOR HPEP: C Note date. - Indigenous Orders (Others): Date of e-waybill. - Imports: For CIP/CIF Orders: IGM date - Imports: For FOB Orders: AWB / BL date - Imports: For FCA/Ex Work Orders: Date of acknowledgement from Freight Forwarder. d. In case of Deviation to above Penalty clause, loading applicable to the extent to which not agreed by Bidder. e. Timelines as mentioned in the Annexure 1 will be considered for reckoning delivery. Penalty amount so determined along with applicable GST (for Indigenous orders) thereon shall be recovered. Imposition, recovery or settlement of this penalty shall not affect BHEL's right to performance, compensation and termination of the order.		
14	**Excess materials** supplied beyond tolerance limit as specified in PO will not be paid and bidder may raise credit note for the excess/unaccepted material as per GST law.		**Non Deviatable**
15	**Rejected materials**, if any, shall be collected by the bidder within 90 days of such communication to the bidder. Beyond this period the bidder forfeits their right to the materials.		**Non Deviatable**

16	**Guarantee / Warranty Period:** Wherever required, and so provided in the specifications/SCC/Purchase Order, the bidder shall guarantee that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance. a. Guarantee period shall be 12 months from the date of commissioning or 18 months from the date of supply whichever is earlier. b. In case erection & commissioning is involved, guarantee period shall be 12 months from the date of commissioning. c. In case of equipment bought as a package which are intended to be incorporated in installations or systems, the guarantee period shall be 12 months from the date of commissioning of such equipment. The guarantee period shall be extended by the period during which the goods are not in compliance. If the delivery is found to be non-complaint, bidder shall replace, repair or re-execute the as requested by BHEL. If the bidder defaults on his obligations, buyer has the right to proceed to replace, repair or re-execute at the bidder's expense. A guarantee period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. **Loading for deviation:** In case warranty specified in SCC is over and above the period mentioned in b & c above; loading will be 1% per annum for the deviation in warranty end period, on the contract value. Expected commissioning period is as indicated in SCC.		**Non Deviatable**

17	**PERFORMANCE BANK GUARANTEE (PBG) (Applicable in case mentioned in SCC)** In case enquiry specifically spells out PBG requirement, PBG is to be submitted by Bidder in requisite format as per Annexure VII. Further detailing on PBG as specified in SCC. The PBG shall be for the performance of the goods and shall remain binding not withstanding such variations, alterations or extensions of item as may be made, give, conceded or agreed to between the Bidder and BHEL under these Terms and conditions or otherwise.		**Non Deviatable**
NOTE: Deviations (Commercial as well as Technical) from the tender specifications and conditions are generally not acceptable. However, deviation if any, shall be brought out clearly with proper justification in the offer. The deviation, if considered by BHEL, shall be loaded for comparison, while evaluating the offer. If a bidder unconditionally withdraws any deviation before price bid opening, the same shall not be loaded. Loading criteria in respect of major commercial conditions where deviations if any are accepted shall be as per clause No.18. ***The Bidders may specifically note the following.***			
18	**Evaluation and Loading Criteria:**		

i) Evaluation Currency for this tender shall be “INR”.
ii) Evaluation of prices shall be done item-wise unless otherwise specified in the SCC. iii) Evaluation shall be on the basis of delivered cost, i.e. “Total Cost to BHEL” w.r.t the finalized technical scope and commercial conditions (after considering incidence of applicable taxes and duties and loading). iv) In the course of evaluation, if more than one Bidder happens to occupy L1 status, effective L1 will be decided by soliciting discounts from the respective L1 Bidders. In case more than one Bidder happens to occupy the L1 status even after soliciting discounts, the L1 Bidder shall be decided by a toss/draw of lots, in the presence of the respective L1 Bidders or their representatives. Ranking will be done accordingly. BHEL decision in such situations shall be final and binding.

I**NDIGENOUS**

a. Bidder shall ensure to indicate the applicable taxes against each line item, failing which the same will be considered as inclusive/NIL.
b. Ex-works offers received (as against FOR Destination mentioned in enquiry) shall be loaded by 2% of Ex-works value.
c. GST and any other charges quoted will be added to the base price. However, in case input credit is available for GST (SGST, CGST/IGST), the same shall be excluded for arriving at “Total Cost to BHEL"

IMPORTS

For evaluation of offers in foreign currency, exchange rate (TT selling rate of State Bank of India) as on the date of bid opening (Part-I, in case of two-part bids) shall be considered. If the relevant day happens to be a bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.
In case of foreign Bidders, the quoted CIP price shall be loaded by the following factors to arrive at “Total Cost to BHEL":
- Import duty as applicable on the date of Part-I bid opening.

- Loading will be as per the table below

	Ex Works	FOB/FCA	CIF/CFR	CIP
Foreign Inland freight and insurance	2%			
Marine freight and marine insurance	3%	3%		
Destination Port handling charges	0.50%	0.50%	0.50%	
clearing charges & inland freight and insurance	2%	2%	2%	2%

COMMON LOADING FOR IMPORTS & INDIGENOUS that will be added for arriving the "Total Cost to BHEL"
A. Loading on Deviated Penalty clause shall be 10% or to the extent to which the bidder has opted for deviation.
B. Loading for payment terms as per clause 12 of ITB
C. Loading for deviation in Warranty & PBG as per clause 16,17.

19	Procurement directly from the manufacturers/ suppliers shall be preferred. However, no agent shall be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from both from the manufacturer/ supplier and the agent, bid received from the agent shall be ignored.
20	**RIGHT OF REJECTION /NON- PLACEMENT OF PO:** BHEL reserves the right to accept or reject any or all bid/s in full or part without assigning any reason whatsoever.
21	**INTEGRITY PACT** Bidders shall have to enter into Integrity Pact with BHEL as per Annexure VI - for Tender value of rupees two crores and above and shall be signed by the authorized signatory along with the offer, failing which Bidder’s offer will be rejected.
22	**Public Procurement**
A	**Make in India** For this Procurement, the local content to categorize a bidder as a Class I local bidder / Class II local bidder / Non-Local bidder and purchase preference to Class I local bidder, is as defined in Public Procurement (Preference to Make in India) order No P45021/2/2017-PP(BE-II) dated 04-06-2020 issued by DPIIT as amended from time to time. Proforma for self-certification for minimum local content and auditor’s certification is given in Annexure III.

B	Any Bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with competent authority. GOI website https://www.mea.gov.in/ to be referred for latest details of competent authority and exemptions . Proforma for self-certification for compliance is given in Annexure IV.
C	**Startups:** For Start-ups duly registered with DPIIT (Copy of certificate to be provided), condition of prior turnover and prior experience in Public Procurement may be relaxed subject to meeting of Quality and Technical Specifications. Startups are exempt from paying EMD.
23	**Benefits earmarked for Purchase from Micro & Small Enterprises (MSEs) – Indigenous Purchase**

A	All Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy are exempt from Paying EMD. NSIC/UDYAM registered bidders shall submit NSIC/UDYAM Certificate along with bid documents. Date to be reckoned for determining the deemed validity will be the last date of Technical bid submission. Non- submission of such document will lead to consideration of their bid, at par with other bidders and MSE status of such bidders shall be shifted to Non- MSE Category till the bidder submits these documents.
B	In tender, MSEs quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply at least 25% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately. Out of these 25% minimum 3% shall be earmarked for MSEs owned by women and 6.25% for MSEs owned by SC/STs who submit the relevant documents.
C	If an enterprise falling under MSME category as defined in the Act, graduates to a higher category from its original category or beyond the purview of the Act, it shall continue to avail all non-tax benefits of its original category notified by the Ministry of Micro, Small and Medium Enterprise for a period of three years from the date of such graduation to the higher category.
D	BHEL HPEP is registered with RXIL (TReDS) platform. MSME bidders are requested to get registered with RXIL (TReDS) platform to avail the facility as per the GOI guidelines.
24	Inspection Measuring and Test Equipment (IMTE) used by the Bidder/ Contractor or sub-contractor shall be calibrated, maintained and controlled. Calibration shall be valid and IMTE maintained in sound condition during usage.
25	ISO-9001, ISO14001 & OHSMS 45001 shall be complied.
26	If BHEL registered supplier is not quoting against this NIT, supplier shall send regret letter positively with valid reasons for not participating. Repeated lack of response on the part of supplier may lead to deletion of such registered supplier from BHEL's approved supplier's list as per BHEL SEARP Guidelines.
27	**Risk Purchase clause:** In case bidder fails/delays to supply whole or part of the ordered items or supplies defective items or fails to fulfil any other terms and conditions given in Purchase Order/Contract, BHEL has the right to terminate the order/contract or withdraw balance scope of work/supply and make the purchase of such material / services from elsewhere at the risk and cost of the defaulted bidder. The bidder is liable for the additional expenditure / difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the order/contract. Non-performance of contract attracts penal provisions in line with BHEL guidelines for Suspension of Business Dealings (SBD).
28	Any other terms and conditions of the bidder attached / referred against the tender enquiry will not be considered.
29	All drawings, patterns and tools supplied by BHEL or made at BHEL's expense are BHEL's property. These cannot be used or referred to any other party and must be used only in the execution of BHEL's orders.
30	Any amount payable by the bidder under any of the conditions of this contract shall be liable to be adjusted against any amount payable to the bidder under any other work / contract awarded by BHEL HPEP or any other BHEL Units. This is without prejudice to any other action as may be deemed fit by BHEL.
31	The bids of the bidders who are on the banned list and also the bids of the bidders, who engage the services of the banned firms, will be rejected. The list of firms banned by BHEL is available on BHEL web site: www.bhel.com
32	**Ordering and confirmation of order**
	The bidder shall send the order acceptance within one week from the date of LOI/Purchase order or such other period as specified/agreed by the Buyer. Buyer reserves the right to revoke the order placed if the order confirmation differs from the original order placed. Buyer shall be legally bound, only if agreed for any deviation explicitly in writing. The acceptance of deliverables or supplies by Buyer as well as payments made in this regard shall not imply acceptance of any deviations. The Purchase order will be deemed to have been accepted if no communication to the contrary is received within one week (or the time limit as specified /agreed by the Buyer) from the date of P.O. Buyer, is at liberty to send signed P.O. through electronic media such as e-mail and the receipt of which shall be treated as receipt of order.
33	**Execution**
	The whole contract is to be executed in the most workman like manner, substantial and approved as per the contracted terms.
34	**Progress Report**
	The bidder shall render such report as to the progress of work and in such form as may be called for by the Buyer from time to time. The submission and acceptance of such reports shall not prejudice the rights of the buyer in any manner. Bidder shall communicate to BHEL immediately, the change of address, ownership, contact person(s), the mobile numbers and e-mail of the dealing person concerned. Milestones shall be periodically updated by bidder through PRADAN Portal **(https://hpep.bhel.com/mm/).** Non updation will adversely affect service rating of bidder performance.

35	**Non-disclosure Obligations**

	Drawings, technical documents or other technical information received by one party shall not without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are confidential and binding only to the extent that they are by reference expressly included in the contract. The bidder shall, as per agreed date/s but not later than the date of delivery, provide free of charge any information and/or drawings which are necessary to permit the Buyer to erect, commission, operate and maintain the product. Such information and drawings shall be supplied as specified in technical specification. All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the contract shall continue to be the property of the submitting party. The bidder shall provide Buyer with all information pertaining to the delivery in so far as it could be of importance to Buyer. The bidder shall not reveal confidential information to its own employees not involved with the tender/contract and its execution and delivery or to third parties, unless Buyer has agreed to this in writing beforehand. The bidder shall not be entitled to use the Buyer's name in advertisements and other commercial publications including website without prior written permission from Buyer. In the event of violation of the confidentiality as agreed, BHEL will take legal action as deemed fit. Non-disclosure agreement to be entered as per **Annexure- II** wherever applicable.
36	**Inspection and Testing**
A	The goods and stores shall be manufactured by approved quality system and each part/component may be inspected and tested by the Buyer prior to shipment and shall comply with relevant requirements. Buyer has the right to inspect at any stage during manufacture/ delivery.
B	Buyer or his authorized representative shall be entitled at all reasonable times during execution to inspect, examine and test at the bidder's premises the material and workmanship of all stores to be supplied under the contract, and if the part of the stores are being manufactured at other premises, the bidder shall obtain for buyer or his authorized representative permission to inspect, examine and test as if the said stores are being manufactured at the bidder's premises. Such inspection, examination and testing, if made shall not release the bidder from any obligation under the contract. For indigenous bidders all costs related to first inspection request shall be borne by the buyer and the cost of subsequent inspections due to non-readiness of material/rework/ rejections shall be borne by the bidder. In case of imports all inspection charges including third party inspections if any shall be borne by the bidder. The cost of inspection staff/third party specified by the Buyer shall be borne by bidder unless otherwise specifically agreed. If the contract provides for tests on the premises of the bidder or any of his sub-contractor/s, bidder shall be responsible to provide such assistance, labor, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by the bidder unless otherwise specifically agreed in the contract. The Bidder shall give the authorized representative of the buyer reasonable notice in writing of the date on and the place at which any stores will be ready for inspection/ testing as provided in the Contract. Annexure – I, may strictly be complied with for the time lines. Any delay in submission of the documents by the bidder will not alter the delivery date.
37	**Quality and Condition of the Deliverables**
	The bidder shall be responsible for compliance with applicable technical, safety, quality, environmental requirements and other regulations in relation to products, packaging and raw and ancillary materials.
38	**Packaging and Dispatch**
	The bidder shall package the deliverables safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by sea/air/rail/road to its destination suitably protected against loss, damage, corrosion in transit and the effect or tropical salt laden atmosphere. The packages shall be provided with fixtures/hooks and sling marks as may be required for easy and safe handling by mechanical means. Special packaging conditions/ environmental conditions as defined in the NIT shall be fully complied. Each package must be marked with consignee name, address, P.O. number, Package Number, gross weight & net weight, dimensions (Lx B x H) and bidder's name. The packing shall allow for easy removal and checking of goods on receipt and comply with carrier's conditions of packing or established trade practices. Packing list for goods inside each package with P.O. item No. & quantity must also be fixed securely outside the box to indicate the contents. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols/instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
39	**Contract variations; Increase or decrease in the scope of supply**
	Buyer may vary the contracted scope during execution due to exigencies of project requirement. If the bidder is of the opinion that the variation has an effect on the agreed price or delivery period, Buyer shall be informed of this immediately in writing along with technical details, and in the event of additional work, submit a quotation with regards to the price and period involved, as well as the effect this additional work will have on the other work to be performed by the bidder. Wherever unit rates are available in the contract, the same shall be applied to such additional work. The bidder shall not perform additional work before buyer has issued written instructions/amendment to the purchase order to that effect. The work which the bidder should have or could have anticipated in terms of delivering the service (s) and functionality (ies) as described in this agreement should be executed by the bidder without any price implication. In case of no change in the scope / technical specifications, bidder shall endeavor to keep the material ready and intimate the same to BHEL within the contractual delivery date, failing which, the delay if any will be attributed to supplier, and any upward price variation thereof for delivery at a later date is not admissible.
40	**Rejected/Short shipments/ warranty/guarantee replacements**
	In case of any short shipment during initial supply which is subsequently dispatched by the bidder or any guarantee / warranty replacements shall be dispatched on "DDP-Delivered duty paid BHEL stores" basis for imported items and "FOR-BHEL Stores/designated destination" basis for indigenous items.
41	**Export Administration Regulations**

	If a delivery includes such technology and / or supply that is subjected to the export regulations the bidder shall obtain due permissions, approvals, license etc.
42	**Force Majeure**
	The bidder shall not be considered in default if delay occurs due to causes beyond their control such as Acts of God, Natural calamities, Fire, Frost, Flood, Civil War, civil commotion, riot, Government Restrictions. Only those causes that have duration of more than seven days shall be considered cause of force majeure. Notification to this effect duly certified by local chamber of commerce/statutory authorities with supporting documents shall be given by the bidder to BHEL by registered letter/courier service immediately without loss of time. In the event of delay due to such causes the delivery schedule shall be extended for a length of time equal to the period of Force Majeure or at the option of BHEL the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of BHEL. In the event of such cancellation the bidder shall refund any amount advanced or paid to the bidder by BHEL and deliver back any material issued to him by BHEL and release facilities, if any provided by BHEL.
43	**Non-waiver of Defaults**
	If any individual provision of the contract is invalid, the other provisions shall not be affected.
44	**Settlement of Disputes**
	Except as otherwise specifically provided in the contract, all disputes concerning questions of the facts arising under the contract, shall be decided by the Buyer, subject to written appeal by the bidder to the buyer, whose decision shall be final. Any disputes of differences shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration The bidder shall continue to perform the contract, pending settlement of disputes(s).
45	**Conciliation clause**
	CONCILIATION CLAUSE FOR CONDUCTING CONCILIATION PROCEEDINGS UNDER THE BHEL CONCILIATION SCHEME, 2018: The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract or the Memorandum of Understanding, penalty deduction, time extension), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure in http://www.bhel.com/index.php/story_details?story=2454 . The Procedure together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this ITB
46	**ARBITRATION (WITH SOLE ARBITRATOR)**
	Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, penalty deduction, validity or execution of the Contract; time extension, or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration . Sole arbitrator to be appointed by Head of the Unit - BHEL , HPEP .
	The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties.
	Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Sangareddy / Hyderabad, Telangana. The language of arbitration shall be English and the documents shall be submitted in English.
	The cost of arbitration shall initially be borne equally by the Parties subject to the final apportionment of the cost of the arbitration in the award of the Arbitrator.
	Subject to the arbitration in terms of clause 45, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract. Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.
	ARBITRATION FOR CONTRACT WITH PUBLIC SECTOR ENTERPRISE (PSE) OR A GOVERNMENT DEPARTMENT
	In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE 0M No 4(1)/2013DPE(GM/FTS 1835 dated 22-05-2018
47	**Applicable Laws and jurisdiction of Courts**
	This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.
48	**BHEL-Fraud prevention policy shall be adhered to.**
	The Bidder along with its associate/ Collaborators/ Sub-contractors/ sub-bidders/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention policy displayed on BHEL Website http://www.bhel.com and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice. List of nodal officers is hosted on BHEL Hyderabad website https://hpep.bhel.com/.
49	**Suspected Cartel Formation**

	The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case , the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies / guidelines .

Note: Purchase officer has to fill Annexure-I while sending enquiry

(To be executed on Non- Judicial Stamp Paper for an appropriate value.
To be stamped as an agreement)

(For Suppliers on Unit's / Division's PMD) **ANNEXURE-II**

Framework Confidentiality Agreement Cum Undertaking

This Agreement made on this the _____ day of (month) _____ 20 ___ ("Effective Date") by and between M/s. BHARAT HEAVY ELECTRICALS LIMITED, having registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India), acting through its _____ Unit (hereinafter may be referred to as "BHEL" or "the company").

And

M/s. _____ (address) _____ represented by authorized representative Sri _____ (herein after referred to as the "Supplier").

The supplier and the company may, unless the context otherwise requires, hereinafter be collectively referred to as "Parties" or singly as the "Party".

RECITALS

Whereas, BHEL is engaged in the design, engineering, manufacturing, construction, testing, commissioning and servicing of a wide range of products, systems and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable energy, Oil & Gas and Defence and providing associated services to varied customers in relation to which BHEL / its affiliates own valuable information of a secret and confidential nature.
Whereas the Company may, in connection with contract(s) (as defined hereunder) placed or to be placed upon the supplier, or otherwise, from time to time, make available, Technical Information as is defined hereunder.

And Whereas BHEL is willing to provide such Technical Information to the Supplier from time to time and the Supplier understands and acknowledges that such Technical Information is valuable for the Company and as such is willing to protect confidentiality of such information, subject to the terms and conditions set out hereunder.

Now therefore, in view of the foregoing premises and in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as under:

1. Definitions:

Unless the context so requires, in this Agreement, the following terms will bear the meaning ascribed to the said term in this clause.

A. **"Contract"** means the contract entered into with a supplier and includes a Purchase Order, or a Work Order for procurement of any goods or for provision of any services.

B. **"Effective Date"** means the date of this Agreement as mentioned in the preamble of this Agreement.

C. **"Supplier"** includes a Contractor or a Vendor of the Company whether for supplying of goods or for providing any services under a Contract or both.

D. **"Technical Information"** includes Drawings, and / or Product Standards and / or Specifications and / or Corporate / Plant Specifications and / or Technological Process Sheets and / or Technical Data Sheets and / or Jigs & Fixtures and / or Pattern & Dies and / or Special Gauges and / or Tools etc. Belonging to or wherein the Company has acquired from a third party a right of user and includes any improvement thereto from time to time whether carried out by the Company or by the Suppliers.

E. **"Intended Purpose"** means the purpose for which the Technical Information is provided to the supplier under or in connection with a contract.

F. **"Improvement"** includes any modification made to, or adaptation of, the Technical Information which enhances or is calculated to enhance the performance (Whether in terms of effectiveness or in terms of efficiency or both) of the product and / or the service to be provided by the Supplier under a Contract.

2. This Agreement shall come into force / deemed to have come into force, as the case may be, on the Effective Date; or, on the first date when the Technical Information or any part thereof is provided by BHEL to the supplier; whichever is earlier.

3. **<u>Agreement deemed to be incorporated in each contract:</u>** Unless and to the extent otherwise stipulated in the Contract, the conditions of this Agreement are deemed to be incorporated in all Contracts which may be entered into between the Company and the Supplier. Further, unless otherwise stipulated, the obligations under this Agreement are and will be independent of the obligations under the Contracts and such obligations of the Supplier hereunder will remain of full effect and validity notwithstanding that the period of validity of the Contract has expired by efflux of time stipulated therein; or, the contract has been discharged by performance or breach; or, the termination of the Contracts for any reason whatsoever.

4. **<u>Ownership:</u>**

4.1 The Company may, from time to time, make available to the Supplier, Technical Information on a non-exclusive basis by way of loan.

4.2 The Supplier acknowledges and agrees that all Technical Information and copies thereof that are or may be provided by the Company to the Supplier, are and shall remain the property of BHEL or that of the concerned entity from whom BHEL has

obtained the Technical Information and such Technical Information are and shall constitute trade secrets of the BHEL. Nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the Supplier any patent, copyright or design or any other intellectual property rights of whatsoever description that subsists or may hereinafter exist in the Technical Information. Furthermore, nothing in this Agreement or in any disclosures made hereunder by or on behalf of the Company shall be construed as granting upon the supplier any license or right of use of such patent, copyright or design or any other intellectual property rights of whatsoever description which may now or hereafter exist in the Technical Information except for use of the Technical Information strictly in accordance with this Agreement and the contract and / or as directed in writing by the Company, solely for the Intended Purpose under the Contract.

4.3 Neither party is obligated by or under this Agreement to purchase from or provide to the other party any service or product and that any such purchase / sale of any product and / or service by one party to the other party will be governed by the Contract if any, that may be entered into by and between the Company and the Supplier.

4.4 The Supplier is / has been made well aware and acknowledges that the Technical Information being / which may be shared with it by the Company has been either generated by the Company by incurring huge investment and cost or obtained from foreign collaborators under Technical Collaboration Agreement (TCA) with stringent confidentiality conditions.

4.5 The supplier agrees and undertakes to adhere to confidentiality requirements as applicable to BHEL under a TCA and also ensure that the confidentiality requirements are adhered to by all its concerned employees or sub-contractors /suppliers (where permitted to be engaged by BHEL). Any damages, losses, expenses of any description whatsoever, arising out of or in connection with a breach of the confidentiality requirements under a TCA owing to any act or omission on the part of the supplier or its employees or sub-contractors / suppliers that is claimed by a foreign collaborator from the Company shall be wholly borne by the Supplier and it shall keep BHEL fully indemnified in this behalf. The demand by the Company shall be conclusive upon the Supplier who shall thereupon forthwith pay to the Company without demur, dispute or delay the amount as demanded without demanding any further proof thereof.

4.6 The Supplier agrees and undertakes that unless so decided and advised by the Company in writing all rights / title to any Improvement to the Technical Information shall vest in the Company. The Supplier undertakes and agrees to inform forthwith to the Company of any such Improvement made to the Technical Information and transfer all drawings / documents or other materials connected with such

Improvement to the Company and also agrees to fully cooperate with the Company for protecting the Company's interests in such Improvements

in the Technical Information including but not limited to obtaining necessary protection for the intellectual property rights in such improvement, if so desired by the Company. If a question arises whether a modification amounts to improvement to the Technical Information, the same shall be decided by the Company and such decision shall be final and binding upon the supplier.

5. Use and Non – Disclosure:

5.1 Unless otherwise stipulated by the Company, all Technical Information made available to the supplier, by the Company shall be treated as Confidential irrespective of whether the same is marked or otherwise denoted to be Confidential or not.

5.2 The Supplier undertakes and agrees that the Technical Information in its possession shall be held in strict confidence and will be used strictly in accordance with this Agreement and solely for the Intended Purpose under the Contract. Use of the Technical Information for any other purpose other than Intended Purpose is prohibited.

5.3 In particular, the Supplier shall not use Technical Information or any Improvement in its possession for the manufacture or procurement of the product(s) or components or parts thereof or use the Technical Information or any portion thereof or any modification or adaptation thereof in any form to provide any product and / or service to any third party, without the prior written consent of the Company.

5.4 The Supplier shall not disclose any of such Technical Information to any third party without the prior written consent of the Company. The Supplier agrees that without prior written consent of the Company, the supplier shall not disclose to a third party about the existence of this Agreement, or of the fact that it is / was in possession of or has experience in the use of any Technical Information nor shall the Supplier share in any manner whatsoever, with a third party, the name or details of any Contract(s) awarded by the Company to it or performed by the Supplier or the scope of work thereof or share any document or correspondence by and between the Company and the supplier in or in connection with this Agreement or such Contract(s). Notwithstanding what is stated elsewhere, the overall responsibility of any breach of the confidentiality provisions under this Agreement shall rest with the Supplier.

5.5 This Supplier undertakes and agrees not to make copies or extracts of and not to disclose to other any or all of the Technical Information in its possession, except as follows:

(a) The Supplier may disclose the Technical Information to such of its officers and employees strictly to the extent as is necessary for such officer or employee for the Intended Purpose, provided that the Confidential Information (or copies thereof) disclosed shall be marked clearly as the confidential and proprietary information of Company and that such officers and employees shall similarly be bound by undertakings of confidence, restricted use and nondisclosure in respect of the Technical Information. The Supplier shall be responsible for any breach of such confidentiality provisions by such officers and employees.

(b) With the prior written consent of Company, the supplier may disclose for the Intended Purpose such Technical Information as is provided for in such consent to such of its professional advisers: consultants, insurers and subcontractors who shall be similarly bound by undertakings of confidence, restricted use and non-disclosure in respect of such Technical Information.

(c) The Supplier shall not be prevented to make any disclosure required by (i) order of a court of competent jurisdiction or (ii) any competent regulatory authority or agency where such disclosure is required by law, provided that where the supplier intends to make such disclosure, it shall first consult Company and take all reasonable steps requested by it to minimize the extent of the Technical Information disclosed and to make such disclosure in confidence and also shall cooperate with the Company in seeking any protective order or any other remedy from proper authority in this matter.

6. <u>Exceptions:</u>

The Obligations of the Supplier pursuant to the provisions of this agreement shall not apply to any Confidential Information that:

a) was / is known to, or in the possession of the Supplier prior to disclosure thereof by the Company;
b) is or becomes publicly known, otherwise than as a result of a breach of this agreement by the Supplier.
c) is developed independently of the Disclosing party by the Supplier in circumstances that do not amount to a breach of the provisions of this Agreement or the Contract;
d) is received from a third party in circumstances that do not result in a breach of the provisions of this Agreement.

7. The Obligation of maintaining confidentiality of the Technical Information on each occasion, shall subsist for the entire duration during which the Technical Information / equipment is in possession of the Supplier and shall thereafter subsist for a further period of _____ years from the date when the complete Technical Information has been returned in portions on different dates, the period of ____ years will be reckoned from the date when the last portion of the Technical Information has

been returned. Notwithstanding the expiry of the confidentiality obligation, the obligation of the Supplier under clause 5.4 shall continue to subsist for a further period of _____ years.

8. <u>Warranties & Undertakings</u>:

a) The Supplier undertakes to ensure the due observance of the undertakings of confidence, restricted use and non-disclosure by its persons to whom it discloses or releases copies or extracts of the Technical Information.

b) The Supplier shall keep the Technical Information or improvement made therein properly segregated and not mix up the same with any other material / documents belongings to him / it or to any other third party.

c) The Supplier further undertakes that he / it shall not hypothecate or give on lease or otherwise alienate or do away with any of the Technical Information and / or equipment of the Company, made available to him / it, and undertakes that he / it shall hold the same as a trustee, in capacity of custodian thereof and use / utilise the same solely for the purpose of executing the contract awarded by the Company.

d) The Supplier further undertakes that he / it shall return all the equipment and / or Technical Information as far as practicable in the same condition in which the same was made available to him / it by the Company together with any Improvement thereon and the documents connected with such Improvement, to the Company forthwith upon completion of the scope of work or contract for which such Technical Information was provided by the Company to it or as directed by the Company together with a confirmation by way of an affidavit or in such manner as directed by the Company that it has not retained any equipment and / or Technical Information / improvement thereof. In case any such equipment and / or Technical Information or thereof shall remain in his possession or is not capable of being returned, the retention and use of such Technical Information or improvement thereto shall continue to be governed by this Agreement.

e) The Supplier undertakes to indemnify the Company for all the direct, indirect and / or consequential losses, damages, expenses whatsoever including any consequential loss of business, profits suffered by the Company owing to breach by the Supplier of its obligations under this Agreement and / or the confidentiality requirements, if any, contained in the Contract and that the Supplier hereby agrees that the decision of the Company in all such or any such matter/s shall be final and binding on the Supplier. On mere written demand of the Company, the Supplier shall forthwith and without demur or delay pay to the Company any such sum as determined by the Company as the amount of loss or damage or expense which has been suffered by the Company. The Supplier agrees that the Company shall be entitled to withhold and appropriate any amount payable to the Supplier under any Contract then

existing between the Company and the Supplier, in case the Supplier fails to make payment, in terms of the written demand, within 7 days thereof. Without prejudice to the forgoing actions, in respect to any breach of this Agreement, the Company shall be entitled to take any other action against the Supplier as per applicable laws, the Contract, Company's applicable policies, guidelines rules, procedures, etc.

9. Without prejudice to any other mode of recovery as may be available to the Company for recovery of the amount determined as due as per Clause 9 (f) hereinabove, the Company shall have a right to withhold, recovery and appropriate the amount due towards such losses, damages, expenses, from any amount due to the Supplier in respect of any other Contract (s) placed on him / it by any department / office / unit/ division of the said Company.

10. <u>Arbitration & Conciliation:</u>

Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, penalty deduction, validity or execution of the Contract; time extension, or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration . Sole arbitrator to be appointed by Head of the Unit - BHEL, HPEP.

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause.

The seat of arbitration shall be Sangareddy / Hyderabad, Telangana. The language of arbitration shall be English and the documents shall be submitted in English.

The cost of arbitration shall initially be borne equally by the Parties subject to the final apportionment of the cost of the arbitration in the award of the Arbitrator.

Subject to the arbitration in terms of clause 46 of ITB (clause 27 of ATC GeM), the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract.

Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a

professional manner except where the Contract has been terminated by either Party in terms of this Contract.

ARBITRATION FOR CONTRACT WITH PUBLIC SECTOR ENTERPRISE (PSE) OR A GOVERNMENT DEPARTMENT

ln the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE 0M No 4(1)/2013DPE(GM/FTS 1835 dated 22-05-2018

CONCILIATION CLAUSE FOR CONDUCTING CONCILIATION PROCEEDINGS UNDER THE BHEL CONCILIATION SCHEME, 2018: The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract or the Memorandum of Understanding, penalty deduction, time extension), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure in http://www.bhel.com/index.php/story_details?story=2454 . The Procedure together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this ITB

11. Governing Law & Jurisdiction:

This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.

SIGNATURE WITNESSES

1

Name:

Address:

2

Name:

Address:

Annexure V

(On Company Letter Head)

FORM NO. 10F
[See sub-rule (1) of rule 21AB]
Information to be provided under sub-section (5) of section 90 or sub-section (5) of section 90A of the Income-tax Act, 1961

I……. son/daughter of Mr ……. in the capacity of……. (Designation) do provide the following information, relevant to the previous year **202122** in case of …….. for the purposes of sub-section (5) of section 90/section 90A:-

Sl.No.	Nature of information	Details
(i)	Status (individual; company, firm etc.) of the assesse	Company
(ii)	Permanent Account Number (PAN) of the assessee if allotted	
(iii)	Nationality (in the case of an individual) or Country or specified territory of incorporation or registration (in the case of others)	……

(iv)	Assessee's tax identification number in the country or specified territory of residence and if there is no such number, then, a unique number on the basis of which the person is identified by the Government of the country or the specified territory of which the assessee claims to be a resident	……
(v)	Period for which the residential status as mentioned in the certificate referred to in sub-section (4) of section 90 or sub-section (4) of section 90A is applicable	**2022-23**
(vi)	Address of the assessee in the country or territory outside India during the period for which the certificate, mentioned in (v) above, is applicable	…….. ……. ……

I have obtained a certificate to in sub-section (4) of section 90 of sub-section (4) of section 90A from the Government of……. (name of country or specified territory outside India)

Signature:…….
Name:…….
Address:…….
Email ID:……
Contact Number…….
Permanent Account Number:…….

Verification

I……. do hereby declare that to the best of my knowledge and belief what is stated above is correct complete and is truly stated. Verified today the……. day of……..…….

In case the M/s Bharat Heavy Electricals Limited, HPEP, Ramachandrapuram, Hyderabad is declared as an assessee in default due to any misstatement or incorrect declaration, we indemnify M/s Bharat Heavy Electricals Limited from any ensuing consequences thereunder.

Signature of the person providing the information

Place:…….