

BHARAT HEAVY ELECTRICALS LIMITED
HEEP HARIDWAR INDIA-PIN 249403
PHONE NO: 0091 1334 285120

Sub: Procurement of ACC STEAM DUCT
Projects: Patratu-2

A. SCOPE OF ENQUIRY:

The Heavy Electricals Equipment Plant (HEEP) located in Haridwar, India is one of the major manufacturing plants of Bharat Heavy Electricals Ltd. The core business of HEEP includes design and manufacture of large steam turbines, turbo generators and so on.

Bids are invited from Indian indigenous suppliers for following items through GeM Portal <https://gem.gov.in>

Scope of Work: - **PRE-FAB. M/C & FAB. ONLY** as per Drawing/Standard & QP requirements.

SLNO	MATERIAL CODE	DESCRIPTION	TOTAL QTY	UNIT	DELIVERY IN DAYS
1	0170997002200	ACC STEAM DUCT RISER UNIT-2	1	NO.	90

(Total qty in numbers= 1 nos. of 0170997002200 & Fab. Weight= 72981 kg. /pc)

TOTAL LOAD = 72981 KG. (TOLERANCE IN TOTAL LOAD MAY BE (+/-) 25%)

B. Buyers Specific Additional Terms & Conditions in addition to GTC:

Sl. No.	Terms	Description	Bidder's Confirmation
1.	Confirmation to compliance of General terms and conditions on GeM	In addition to the terms & conditions mentioned in below table, latest General terms and conditions on GeM or subsequent rules/policies issued by GeM shall be applicable against this enquiry. Kindly confirm same is acceptable to you.	
2.	Documents Checklist:	Kindly confirm that the following documents have been submitted along with your offer: 1. Requisite EMD 2. Pre-Qualification Requirements 3. Quality Requirements & Plan 4. Drawings & CBOM 5. make in india (Self-certification) 6. Integrity pact 7. Vendor credentials in NTPC formats (SUB-VENDOR QUESTIONNAIRE & MAIN CONTRACTOR attached) 8. Any other document as specified in "Buyers Specific Additional Terms & Conditions in addition to GTC"	

3.	Pre-Qualification Requirements	The Pre-Qualification Requirements are attached. All the bidders should ensure submission of duly-filled and signed with complete details and documents as called for in these requirements.	
4.	Special Instruction of Technical requirement	1. Items to be supplied directly to Patratu Site. DELIVERY TERM: F.O.R. PATRATU SITE Patratu site address: GENERAL MANAGER (PROJECTS) , PATRATU STPP (3X800 MW), PATRATU VIDYUT UTPADAN NIGAM LIMITED, PO – PTPS, DIST – RAMGARH, JHARKHAND – 829119. Please confirm.	
		4.All ACC STEAM DUCT are required as per NIT document and specification only. Please confirm.	
5.	Prices	Prices shall remain firm and fixed during entire tender process and execution of the contract. Kindly confirm that Quoted prices on GEM against the GEM bid for each schedule is F.O.R. Patratu site on firm basis & inclusive of all cost components (Packing & Forwarding, Freight, GST, Insurance etc.). Also inform the percentage of GST considered by you in your FOR prices.	
6.	MDCC clause	Material shall be dispatched only after issue of material dispatch clearance certificate (MDCC) by BHEL. All test certificates, applicable TPIA verified documents, Quality Plan and relevant documents are to be sent to BHEL before dispatch of material for issue of MDCC, which will be issued after review of test certificates, applicable TPIA verified documents, Quality Plan and all relevant documents. MDCC will be issued within 07 days of receipt of these documents once found complete in all respects. In case of any delay on account of BHEL in issuing MDCC, delivery shall be extended by no. of days in excess of 7 days taken by BHEL in issuing MDCC and delays shall be dealt on merit basis. This period of 7 days is included in the delivery period. Material is to be dispatched within 07 days of receipt of MDCC from BHEL without waiting for PO amendment.	
7.	Quality Requirements	Quality Requirements are attached with this tender document. All the bidders should ensure submission of duly filled and signed the attached QP with complete details and documents as called for in these requirements.	

8.	Delivery Period	Bidders are requested to quote their best possible delivery period in terms of days from date of PO.									
9.	Penalty / LD Clause :	LD/Penalty for delayed supplies shall be as per latest General terms and conditions on GeM.									
		The date of LR (Lorry receipt) would be treated as the date of delivery for penalty purposes.									
10.	Payment Terms	100% payment will be made after receipt and acceptance of material at site and after issue of consignee receipt-cum acceptance certificate (CRAC) as per the below details:									
		<table><tr><th>Type of Bidder</th><th>Payment Terms (Number of Days)</th></tr><tr><td>Micro & Small Enterprises (MSEs)</td><td>45 days</td></tr><tr><td>Medium Enterprises</td><td>60 days</td></tr><tr><td>Non MSME</td><td>90 days</td></tr></table>		Type of Bidder	Payment Terms (Number of Days)	Micro & Small Enterprises (MSEs)	45 days	Medium Enterprises	60 days	Non MSME	90 days
		Type of Bidder		Payment Terms (Number of Days)							
		Micro & Small Enterprises (MSEs)		45 days							
		Medium Enterprises		60 days							
Non MSME	90 days										
		Subject to submission of 8 sets of non-discrepant documents along with original MDCC & LR as per terms & conditions of GEM contract.									
11.	Quantity Variation	BHEL reserves the right to cancel tender or reject any or all the quotations without assigning any reasons thereof. BHEL also reserves the right to Increase or decrease the tendered quantities. Vendors should be prepared to accept order for reduced Quantity without any extra charges. Vendor should also be prepared for giving discount in case of Increase in Quantity. Vendor has to take dispatch clearance from BHEL before starting supplies of item. In case ordered quantity is reduced, then payment shall be made accordingly, as per decreased quantity. Kindly confirm.									
12.	Bid to RA	Opening of Price bid & RA shall be conducted for only those bidders who qualifies PQR, Quality requirements and whose techno-commercial bid is acceptable to BHEL & customer PVUNL.RA will be conducted as per GeM rules & guidelines.									
13.	Risk Purchase	In case of abnormal delays (beyond the maximum late delivery period as per LD clause) in supplies / defective supplies or non-fulfilment 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 / alternative source 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. In case for compelling reasons BHEL accepts the offer without acceptance of this clause by the bidder and in the eventuality of Risk Purchase, appropriate action will be taken as per BHEL									

		extant rules. This will be without prejudice to any other right of BHEL under the contract or under General Law. Kindly confirm.	
14.	Action against Bidders / vendor / supplier / contractor in case of default	<p>In order to protect the commercial interests of BHEL, BHEL shall take action against supplies / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc.</p> <p>Suspension of Business Dealings could be in the form of “Hold” or “Banning” a supplier/ contractor or a bidder and shall be as per “Guidelines for Suspension of Business Dealings with Suppliers/ Contractors” available at BHEL’s website https://www.bhel.com/guidelines/suspensionbusiness-dealings-supplierscontractors</p>	
15.	Conflict of Interest	<p>A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified.</p> <p>A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:</p> <ul style="list-style-type: none"> 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 	

		<p>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</p> <p>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</p> <p>h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business. "</p>	
16.	EMD Applicability	<p>EMD will be applicable as per GEM bid, however EMD is waived in following cases-</p> <ul style="list-style-type: none"> a. Central/ State – PSUs b. *MSE suppliers are exempted for submission of EMD (Valid Documentary proof against MSE must be submitted along with offer to avail the benefits). c. BHEL-HEEP registered vendors (if applicable) are exempted from submission of EMD. d. Other exemptions on EMD will be as per GeM Terms and conditions. <p>*Benefits of MSE (such as EMD Waiver, Tender fee exemption, Price preference, Payment preference etc.) will be given only to those MSE Vendors who are manufacturers of offered items against the NIT. No MSE benefits shall be provided to Agents / Stockiest / Dealers / Traders etc. for the items offered but not manufactured by themselves.</p>	
17.	In course of evaluation, if more than one bidder happens to occupy L-1 status	<p>In course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discount from respective L-1 bidders.</p> <p>In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/draw of lots, in the presence of respective L-1 bidders or their representatives."</p>	

18.	GUARANTEE CERTIFICATE: -	<p>The vendor shall warrant that the supplied fabricated assemblies comply fully with the drawings and other technical conditions. If the fabrications/items are found defective owing to faulty workmanship/incomplete work within a period of eighteen (18) months from Supply completion date.</p> <p>Supply completion date shall be reckoned from the actual date of last supply made by the vendor (date of LR) for the quantities awarded (in terms of number(s)).</p> <p>During guarantee period, the vendor shall make good of items/replace the same free of cost. Alternatively, the rework/replacement charges may be recovered.</p>	
19.	RECTIFICATION: -	<p>Any defect (noticed at SITE) arising out of the fabrication/machining done by the Sub-Contractor, will have to be rectified or items replaced by the sub-contractor within 10 days of intimation of same at their own cost. Otherwise BHEL will be free to take necessary action as deemed fit and consequence/cost of the same will be to subcontractors' account.</p>	

SPECIAL REMARKS FOR BIDDERS:

Following documents are an integral part of this tender enquiry and endorsed copies of these documents (duly signed and stamped on each page, as a token of acceptance) are to be uploaded along with offer on e-procurement portal.

1. Please submit signed & Stamped copy (each page) of duly filled of confirmation column of "Buyers Specific Terms & Conditions" and supporting documents where required.
2. Please submit signed & stamped copy (each page) of PQR documents with proper filled information and related supporting documents as mentioned in PQR.
3. Vendor scope includes complete manufacturing of item as per drawing including all NDT requirements, painting & preservation as per drg.
4. Vendor scope also includes any mock up of assemblies required in drg
5. Transportation of items as per shipping list/packing list provided by BHEL to Patratu site is also in the scope of vendor.
6. MDCC is required before dispatch of items & MDCC is required for all items.
7. Patratu site address is:
General Manager (projects), 3x800 mw Patratu stpp
Patratu vidyut utpadan nigam limited
po-ptps, Dist-Ramgarh, jharkhand-829119.
8. Tolerance in total load may be (+/-) 25%
9. Guarantee period will be 18 months from the date of last supply by the vendor.
10. Vendors to confirm, endorse and return back MQP no- PAT/ACC/DUCT U-2 rev00 (attached).
11. Inspection by NTPC / PVUNL and BHEL / BHEL nominated inspection agency as per finally NTPC / PVUNL approved QP.
12. Offers that are found suitable techno-commercially & approved by customer PVUNL will be considered for further process.
13. Notes available in drawing to be fulfilled by the vendor for manufacturing.
14. All items to be manufactured with party material only. No further subcontracting is permissible, without prior approval.
15. Supplier must furnish material test certificates for all the items.
16. Guarantee Certificate will be required.
17. Aesthetic appearance shall also be ensured and inspected before delivery to SITE.
18. Cleaning of parts, removal of mill scale from components prior to assembly will be in scope of vendor.
19. CHP Clearance may be obtained from NTPC/LLOYD/RITES/NPC at party's end.
20. Final Assembly shall undergo cleaning to ensure that all parts are free from dents, mills, spatters.
21. Customer's seal (if Any on supplied Material) to be transferred.
22. Copies of the relevant certificates to be supplied to the receiving shop.
23. All special tests viz., UT, RT, HYDRAULIC & KEROSENE etc. are to be performed as per drg. requirements.
24. Rest all terms and conditions shall be as per general terms and conditions of **GeM**.

Raw material

Raw material shall be procured from following PVUNL enlisted main steel producers only:

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SAIL, JSW Steel Limited, Jindal Steel & Power, Tata Steel Ltd (for reinforcement steel / TMT bars), RINL (for long products/ rolled sections and Reinforcement steel / TMT bars), Essar Steel India Ltd (for flat products/ Steel plates), Electrosteel Steel Ltd (for Reinforcement steel / TMT bars) and Monnet Ispat and Energy Ltd (for long products/ rolled sections and Reinforcement steel / TMT bars).

In addition to above, the approved sources of plates are:

“SAIL, JSW Steel Limited, Jindal Steel & Power, Tata Steel Ltd, RINL, Essar Steel India Ltd), and Monnet Ispat and Energy Ltd”

PQR

Item : ACC Duct Elbow TEE dia.8000, ACC Steam duct, Acc Steam duct Riser, D Liasioning 8000mm-2800mm, Y piece, Blank Plate for ground duct (Partatu: drg: 01709970009-01, 01709970017-01, 01709970022-00, 01709970023-00, 01709970025-00, 11709970121-00, 11709970172-00)

PRE-QUALIFICATION REQUIREMENT

01.00	TECHNICAL REQUIREMENT	Required	Vendor's Offer
01.01	Experience: Vendors should have experience of fabricating (cutting/bending/assembly/welding/pre-fabrication machining) and supplying of atleast 1 no. ACC Duct Elbow TEE dia.8000, ACC Steam duct, Acc Steam duct Riser, D Liasioning 8000mm-2800mm, Y piece, Blank Plate for ground duct or equivalent components in last 7 years from the date of enquiry as per following details: i) Dimensions of job: Diameter=4000 mm and Length= 3000 mm and above. (ii) Weight: 4 Tons and above	Vendor to Comply & submit suitable evidence including technical specifications, drawings etc.	
01.02	Facility: i) Lifting facility and capacity at vendor works should EOT crane 10 Tons and above. ii) Vendor must have levelled bed plate having size : Length/height= 4000mm, Dia./Breadth=8600mm and above to fabricate the job ((Either machined bed plate or bed plate constructed by steel plates is allowed but concrete floor not allowed). iii) Vendor must have rolling/bending facility to bend/roll cylinder of thickness 20mm or above with width 2500mm or above. (iv) Vendor must have suitable WPS/PQR and qualified welders for welding approved by third party and submit documentary evidence with offer. (v) Vendor must have cutting facility to cut plate of thickness 50mm and above.	Vendor to Comply & submit suitable evidence including technical specifications, technical brochure, photographs etc. of the facilities.	
01.03	Vendor to furnish certificate or documentary evidence against clause 01.01 from the customer / company or end user duly confirming that fabricated ACC Duct Elbow TEE dia.8000, ACC Steam duct, Acc Steam duct Riser, D Liasioning 8000mm-2800mm, Y piece, Blank Plate for ground duct or equivalent job was supplied and used for Hydro Pump or turbine/power plant/capital goods/infrastructure application OR Vendor to submit documentary evidence as per clause 1.04.	Vendor to Comply & submit suitable documents	
01.04	Vendor to furnish name of customer/company with complete contact details and month /year of previous supply along with copy of PO, type of manufacturing facility used for fabrication (assembly/welding/pre-fabrication machining), supply documents, Payment details(invoice copy) and inspection documents of supplied ACC Duct Elbow TEE dia.8000, ACC Steam duct, Acc Steam duct Riser, D Liasioning 8000mm-2800mm, Y piece, Blank Plate for ground duct or equivalent.	Vendor to Comply & submit suitable documents	
01.05	All PQR documents are to be stamped and signed in original by Vendor. In case documents and official stamp is in language other than English, documents and details of official stamp are to be translated in English and duly certified by Government agency/approved agency of Government/Embassy.	Vendor to Comply & submit suitable documents	
01.06	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, their offers shall be rejected.	Vendor to agree	


NOTE: PQR is not restrictive

20/06/2023
[Ravi Deshmukh
Manager (WT)]

20/06/2023
[Ravi Deshmukh
Manager (WT)]

20/06/2023
(As Am) AG-47

complete name and address of manufacturing works of vendor

PROJECT: PATRATU 3 X 800MW													
PACKAGE: EPC(TG/ACC)													
CONTRACT No: 9585-001													
CONTRACTOR : BHEL HARIDWAR													
MANUFACTURING QUALITY PLAN													
ITEM: FABRICATION OF DUCTS AND MANIFOLDS													
Q.P. No: PAT/ACC/DUCT U-2													
Page No. 1of1													
REV 00,													
SUB SYSTEM :- AS PER PO													
S. No.	COMPONENTS/OPERATION	CHARACTERISTICS/CHEK	CLASS	TYPE / METHOD OF CHEK	QUANTUM OF CHEK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY	REMARKS	
					M	C/N			9	D*			M
1	2	3	4	5	6	7	8				10	11	
A	RAW MATERIAL												
		Dimension	Major	Meas.	100%		Approved Drg./Tech. Spec.			IR	P	V	V
		Chemical Composition	Major	Lab. Test	1/Heat					TC	P	V	V
		Mechanical Properties	Major	Lab. Test	1/Heat					TC	P	V	V
		Internal Flaw	Major	UT Report	100%		ASTM A578 Level B-S2			UT Report	P	V	V
		(UT on Plate > 40mm Thk)											
B	INSPECTION - IN PROCESS											Co-related Milli TC to be submitted for review. Refer note 1 and 2.	
B.1	Marking, Cutting and Preparation	Completeness	Major	Visual & Measurement	100%					IR	P	V	Direct procurement from NTPC approved sources.
		Dimension	Major	Measurement	Random					IR	P	V	
		Rolling Process	Major	Visual & Dimensional	100%		Apporoved Drg. / Tech. Spec.			IR	P	V	
		Edge Preparation	Major	Visual	100%					IR	P	V	
B.2	Rolling & Fit-up	Fit-up	Major	Visual	100%					IR	P	V	
		Dimensions	Major	Meas.	100%					IR	P	V	
		WPS, PQR, WPQ	Major	Review	100%		ASME Sec. IX			Record	P	V	WPS shall be approved by BHEL & welders qualified by BHEL or BHEL appointed TPIA like BVQI, Lloyds, TUV shall be deployed for welding.
		Size	Major	Meas.	100%		Approved Drg. / Tech. Spec.			IR	P	V	If lifting lugs are to be welded to ducts and manifold for site erection, 100% DPT will be carried out for even fillet weld and witnessed by BHEL.
B.3	Welding	Weld Defects											
		i) Butt Weld	Major	RT/UT	10%		ASME Sec VIII Div. 1 Appendix 12			RT/UT Report	P	W	V
			Major	DPT	100%		ASME Sec VIII Div. 1 Appendix 8			PT Report	P	W	V
		ii) Fillet Weld	Major	DPT	10%		ASME Sec VIII Div. 1 Appendix 8			PT Report	P	W	V
		iii) Heat Treatment	If Applicable	HEAT Treatment chart	100%		ASME Sec VIII Div. 1 Appendix 8			SR Report	P	R	R
		Completeness	Major	Visual	100%		Approved Drg. / Tech. Spec.			IR	P	W	V
		Dimensions	Major	Meas.	Randomly from offered lot		Approved Drg. / Tech. Spec.			IR	P	W	W
		Match Marking	Major	Visual	100%		Approved Drg. / Tech. Spec.			IR	P	W	W
C	FINAL INSPECTION	Identification	Major	Visual			Approved Drg. / Tech. Spec.			IR	P	W	V
		Orientation	Major										
		Dimensions	Major										
		Match Marking	Major	Visual & Measurement	100%	10% from offered lot	Approved Drg. / Tech. Spec.			IR	P	W	W
D	TRIAL ASSEMBLY FOR LARGE SIZE DUCTS REDUCER, Y-PIECE, BRANCH, TRANSITION DUCTS											Large size ducts shall be sent to site in parts after rolling and fit-up shall be done at site. Weld edges for L & C seams shall be prepared at shop random 10% witness for trail assembly at shop accordingly. Guide vanes, if any, shall be dispatched to site in welded condition.	
E	SUEFACE PREP. & PAINTING	Visual & Measurement	Major	Random	100%		Approved Drg./ Tech. Spec.			IR & Paint Report	P	V	V
F	PACKING AND TRANSPORTATION	Visual & Measurement	Major	Random	100%		Approved Drg./ Tech. Spec.			Packing List	P	W	V
MFD. SUB SUPPLIER	MAIN SUPPLIER	LEGEND:- *RECORDS, IDENTIFICATION WITH "TICK"(V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. **M:- MANUFACTURER/SUB-SUPPLIER, C:- MAIN SUPPLIER, N:- NTPC, P: PERFORM, W:- WITNESS AND V:- VERIFICATION AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N" AS "W"							DOC. NO. :				
SIGNATURE		SIGNATURE		FOR NTPC USE		REVIEWED BY		APPROVED BY		APPROVAL SEAL			

Note-1 : Rolled sections shall be of grade designation E250 Quality A/BR semi killed / killed conforming to IS 2062. All steel plated shall be of grade designation E250, Quality BR (fully killed), conforming to IS 2062 and shall be tested for impact test value at room temperature. Plates beyond 12mm thickness and upto 40mm thickness shall be normalized rolled.

Plates beyond 40mm thickness shall be vacuum degassed furnace normalized and shall also be 100% ultrasonically tested as per ASTM-A578 level B-S2. (FOR MILD STEEL)

Note-2:- Rolled sections shall be of grade designation E350 or higher Quality BO (Fully Killed) conforming to IS 2062. Plates beyond 12mm thickness and upto 40mm thickness shall be normalized rolled.

Plates beyond 40mm thickness shall be vacuum degassed furnace normalized and shall also be ultrasonically tested as per ASTM-578 level B-S2. (FOR MEDIUM AND HIGH TENSILE STEEL)

Note-3:- Proper lockingof circular duct parts shall beensuredin such a way that site weld edgesand circularduct curvature is intact during transportation and handling at **site**

Note-4:- All material of construction shall be as per NTPC/PVUN approved drawing/ data sheet.

Self-certification

As per Government Public procurement order no. P-45021/2/2017-BE-II dt.15.06.2017 & P-45021/2/2017-PP(BE-II) dated 28.05.2018,29.5.2019 & 04.6.2020, it is hereby certifying that we

.....

(supplier name) are(Class-I/Class-II) local supplier and will meet the requirement of minimum local content of (50%/20%) as defined in public procurement order dated 04.6.2020 for material against Enquiry no.

.....

Details of location at which local value addition will be made is as follows: -

.....

.....

We also understand, false declarations will be in breach of the code of integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the general financial rules along with such other actions as may be permissible under law.

Seal & Signature of Supplier

	CORPORATE QUALITY ASSURANCE MAIN CONTRACTOR'S PROPOSAL CUM EVALUATION REPORT			


Ref No:				Date:			
i.	Main Contractor						
ii.	Project						
iii.	Package Name				Package No		
iv.	Proposed Item/Scope of Sub-contracting						
v.	Item covered under	Schedule-1			As per contract clause No-		
		Schedule-2					
vi.	If item is Schedule-1 and proposed sub-vendor is indigenous, Main Contractor to explain how the contractual provisions will be fulfilled						
vii.	Name and Address of the proposed Sub-vendor's works						
viii.	PO placement date/ Start of manufacturing (if self-manufactured) as per L2 network						
ix.	Item Description (Type/Size/Rating/Scope of Sub-Contracting)	Total quantity of proposed item envisaged in this package (Nos/ Running Meters/ Kgs/ Tons etc)	Quantity proposed to be procured from proposed sub-vendor (Nos/ Running Meters /Kgs /Tons etc)		Timeline for quantity requirements as per project schedule & whether the proposed Sub-vendor equipped with adequate capacity to supply proposed order quantity in time		
x.	Supply experience of the proposed sub-vendor (including supplies to Main Contractor, if any) for similar item/scope of sub-contracting, for last 3 years (Note:- Only relevant experience details w.r.t. proposed item/scope of subcontracting to be brought out here)						
	Project/Package	Customer Name	Supplied Item (Type/Rating/Model /Capacity/Size etc)	PO ref no/date	Supplied Quantity	Date of Supply	
We confirm that as per our assessment, the proposed sub-vendor has requisite capabilities & supply experience and is suitable for supplying the proposed item/scope of sub-contracting.							
Name:		Desig:		Sign:		Date:	

Company's Seal/Stamp:-

Format No. : QS-01-QAI-P-04/F1-R3

1/1

Engg. div./QA&I

	CORPORATE QUALITY ASSURANCE SUB-VENDOR QUESTIONNAIRE		

i.	Item/Scope of Sub-contracting			
ii.	Address of the registered office	Details of Contact Person (Name, Designation, Mobile, Email)		
iii.	Name and Address of the proposed Sub-vendor's works where item is being manufactured	Details of Contact Person: (Name, Designation, Mobile, Email)		
iv.	Annual Production Capacity for proposed item/scope of sub-contracting			
v.	Annual production for last 3 years for proposed item/scope of sub-contracting			
vi.	Details of proposed works			
1.	Year of establishment of present works			
2.	Year of commencement of manufacturing at above works			
3.	Details of change in Works address in past (if any)			
4.	Total Area			
	Covered Area			
5.	Factory Registration Certificate	Details attached at Annexure – F2.1		
6.	Design/ Research & development set-up (No. of manpower, their qualification, machines & tools employed etc.)	Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design Details attached at Annexure – F2.2 (if applicable)		
7.	Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)	Details attached at Annexure – F2.3		
8.	After sales service set up in India, in case of foreign sub-vendor (Location, Contact Person, Contact details etc.)	Applicable / Not applicable Details attached at Annexure – F2.4		
9.	Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any	Details attached at Annexure – F2.5		
10.	Sources of Raw Material/Major Bought Out Item	Details attached at Annexure – F2.6		

	CORPORATE QUALITY ASSURANCE SUB-VENDOR QUESTIONNAIRE					

11.	Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing			Details attached at Annexure – F2.7		
12.	Manufacturing facilities (List of machines, special process facilities, material handling etc.)			Details attached at Annexure – F2.8		
13.	Testing facilities (List of testing equipment)			Details attached at Annexure – F2.9		
14.	If manufacturing process involves fabrication then-			Applicable / Not applicable		
	List of qualified Welders			Details attached at Annexure – F2.10		
	List of qualified NDT personnel with area of specialization			(if applicable)		
15.	List of out-sourced manufacturing processes with Sub-Vendors' names & addresses			Applicable / Not applicable Details attached at Annexure. –F2.11 (if applicable)		
16.	Supply reference list including recent supplies			Details attached at Annexure – F2.12 (as per format given below)		
	Project/ package	Customer Name	Supplied Item (Type/Rating/Model /Capacity/Size etc)	PO ref no/date	Supplied Quantity	Date of Supply
17.	Product satisfactory performance feedback letter/certificates/End User Feedback			Attached at annexure - F2.13		
18.	Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating) Note:- Reports need not to be submitted			Applicable / Not applicable Details attached at Annexure – F2.14 (if applicable)		
19.	Statutory / mandatory certification for the proposed product			Applicable / Not applicable Details attached at Annexure – F2.15 (if applicable)		
20.	Copy of ISO 9001 certificate (if available)			Attached at Annexure – F2.16		
21.	Product technical catalogues for proposed item (if available)			Details attached at Annexure – F2.17		
Name:		Desig:		Sign:		Date:

Company's Seal/Stamp:-



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970022 CBOM Var: 00
Description: ACC STEAM DUCT RISER UNIT-2

Revno: 0

Rev Date: 04.04.2023

Total weight: 72981.0

CBOM - 01709970022 00

	ENGG		WTX	
	Initial	Date	Initial	Date
Worked By	hxeakj	25.03.2023	wtxman	29.03.2023
Checked By	hxeak	25.03.2023	bk2rd	29.03.2023
Approved By	hxeap	04.04.2023	wtxskg	04.04.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970022 CBOM Var: 00
Description: ACC STEAM DUCT RISER UNIT-2

Revno: 0

Rev Date: 04.04.2023

Total weight: 72981.0

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty(Total)	Description		Assy. Remarks	Inclusion?	Mat Shape			Remarks		
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
0	01709970022 00			72981.0						
1(1)	ACC STEAM DUCT RISER UNIT-2			Y						
MF CD			Y	72627.0	SITE					
1	21709970100 00			2542.0						
3(3)	VERTICAL RISER-1			Y						
MF CD			N		0306-0314-000D					
1-1		AA1011819104	AA10119	1783.0	8363.0X1940.0	1	3	1873.9	0.0	5621.7
1(3)	DUCT PLATE		8363X1940	Y	PL 14			May be made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
1-2		AA1011819104	AA10119	238.0	1130.0X4360.0	1	6	569.0	0.0	3414.0
2(6)	STIFFENER PLATE		4000X4250	Y	PL 14			Made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
1-3		HW1041055684	AA10455	108.9	6774.0	1	6	6.774	0.0	40.644
2(6)	TECH.SUPPORT		L=6774	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
1-4		HW1041055684	AA10455	29.3	1820.0	1	6	1.82	0.0	10.92
2(6)	TECH.SUPPORT		L=1820	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
2	21709970101 00			3560.0						
15(15)	VERTICAL RISER-2			Y						
MF CD			N		0306-0314-000D					
2-1		AA1011819104	AA10119	2941.09	8363.0X3200.0	1	15	3091.0	0.0	46365.0
1(15)	DUCT PLATE		8363X3200	Y	PL 14			May be made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
2-2		AA1011819104	AA10119	238.0	1130.0X4360.0	1	30	569.0	0.0	17070.0
2(30)	STIFFENER PLATE		4000X4250	Y	PL 14			Made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
2-3		HW1041055684	AA10455	108.9	6774.0	1	30	6.777	0.0	203.31
2(30)	TECH.SUPPORT		L=6774	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR

ENGG

WTX

	Initial	Date	Initial	Date
Worked By	hxnkj	25.03.2023	wtxman	29.03.2023
Checked By	hxeaxk	25.03.2023	bk2rd	29.03.2023
Approved By	hxnep	04.04.2023	wtxskg	04.04.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970022 CBOM Var: 00
 Description: ACC STEAM DUCT RISER UNIT-2

Revno: 0

Rev Date: 04.04.2023

Total weight: 72981.0

Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty(Total)	Description		Assy. Remarks	Inclusion?	Mat Shape			Remarks		
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
2-4		HW1041055684	AA10455	29.3	1820.0	1	30	1.82	0.0	54.6
2(30)	TECH.SUPPORT		L=1820	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
3	21709970102 00			863.2						
3(3)	VERTICAL RISER-3			Y						
MF CD			N		0306-0314-000D					
3-1		AA1011819104	AA10119	723.8	8363.0X788.0	1	3	761.15	0.0	2283.45
1(3)	DUCT PLATE		8363X787.5	Y	PL 14			May be made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
3-2		AA1011819104	AA10119	256.0	1140.0X4260.0	1	3	561.0	0.0	1683.0
1(3)	STIFFENER PLATE		4000X3980	Y	PL 14			Made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
3-3		HW1041055684	AA10455	108.9	6774.0	1	3	6.774	0.0	20.322
1(3)	TECH.SUPPORT		L=6774	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
3-4		HW1041055684	AA10455	29.3	1820.0	1	3	1.82	0.0	5.46
1(3)	TECH.SUPPORT		L=1820	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
4	21709970197 00			2954.0						
2(2)	VERTICAL RISER-4			Y						
MF CD			N		0306-0314-000D					
4-1		AA1011819104	AA10119	2057.0	8363.0X2238.0	1	4	2161.74	0.0	8646.96
2(4)	DUCT PLATE		8363X2238	Y	PL 14			May be made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0317-0306					KG
4-2		AA1011819104	AA10119	238.0	1130.0X4360.0	1	4	569.0	0.0	2276.0
2(4)	STIFFENER PLATE		4000X4250	Y	PL 14			Made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
4-3		HW1041055684	AA10455	108.9	6774.0	1	4	6.774	0.0	27.096
2(4)	TECH.SUPPORT		L=6774	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR

ENGG

WTX

Worked By	hxnkj	25.03.2023	wtzman	29.03.2023
Checked By	hxeaxk	25.03.2023	bk2rd	29.03.2023
Approved By	hxnep	04.04.2023	wtxskg	04.04.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970022 CBOM Var: 00
Description: ACC STEAM DUCT RISER UNIT-2

Revno: 0

Rev Date: 04.04.2023

Total weight: 72981.0

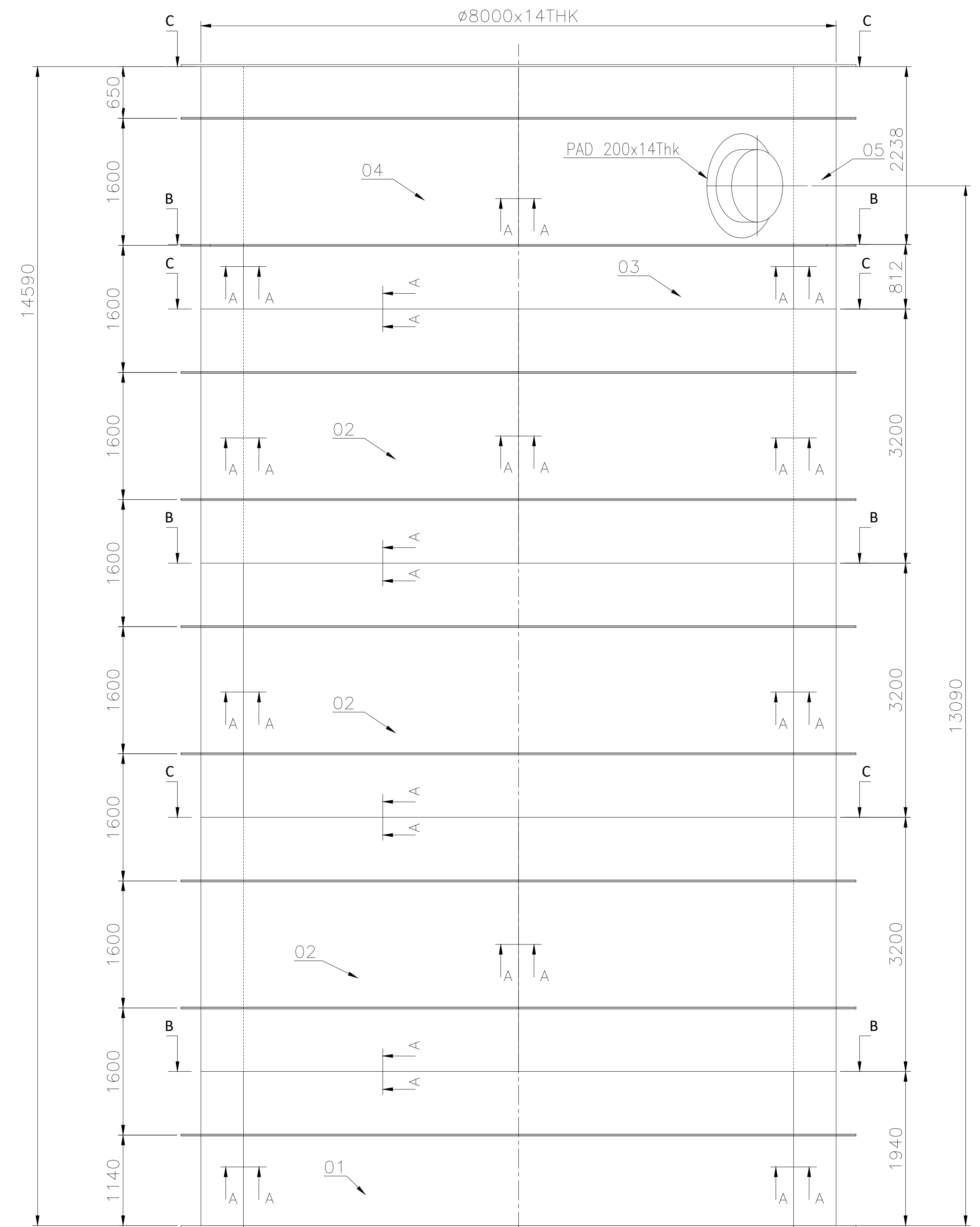
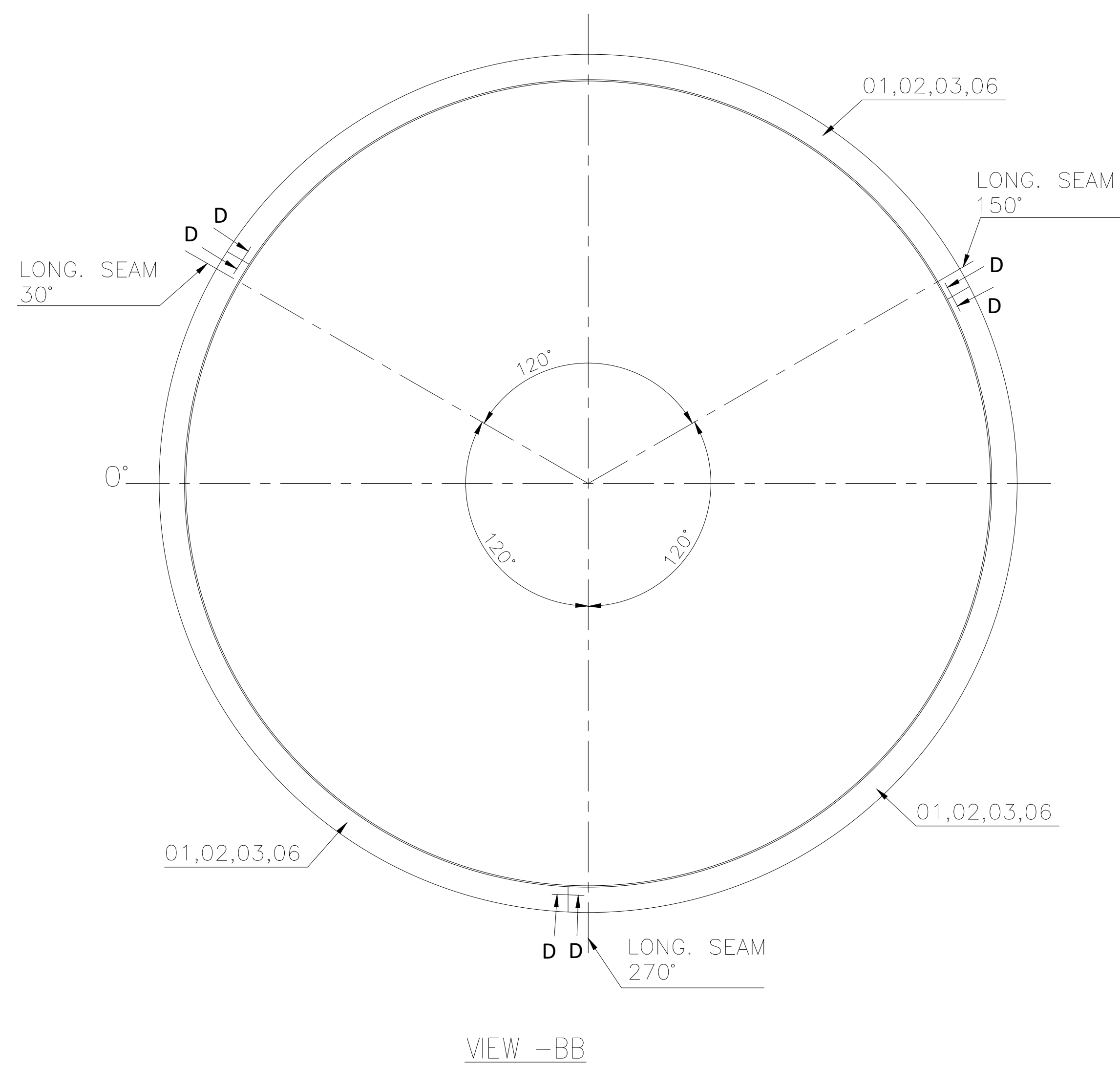
Item No	Drawingno Var Mvar	Mat Code	Mat Spec	Weight	Blank Sizes	Nos	Qty	Norm/pc	Extra Norm	Total Norm
Qty(Total)	Description		Assy. Remarks	Inclusion?	Mat Shape			Remarks		
Typ Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
4-4		HW1041055684	AA10455	29.3	1820.0	1	4	1.82	0.0	7.28
2(4)	TECH.SUPPORT		L=1820	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
5	21709970196 00			2966.0						
1(1)	VERTICAL RISER-5			Y						
MF CD			N		0306-0314-000D					
5-1		AA1011819104	AA10119	2057.0	8363.0X2238.0	1	1	2161.74	0.0	2161.74
1(1)	DUCT PLATE		8363X2238	Y	PL 14			May be made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0317-0306					KG
5-2		AA1011819104	AA10119	238.0	1130.0X4360.0	1	2	569.0	0.0	1138.0
2(2)	STIFFENER PLATE		4000X4250	Y	PL 14			Made in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
5-3		HW1041055684	AA10455	108.9	6774.0	1	2	6.774	0.0	13.548
2(2)	TECH.SUPPORT		L=6774	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
5-4		HW1041055684	AA10455	29.3	1820.0	1	2	1.82	0.0	3.64
2(2)	TECH.SUPPORT		L=1820	Y	PI 114.3X6.02					
MF DR	ST-B-HFS-PIPES				0072-0315-0306					MR
5-5		AA1011819104	AA10119	77.0	1314.0X1314.0	1	1	199.42	0.0	199.42
1(1)			1314X914	Y	PL 14			Dia 1314/914		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
5-6		AA1011819074	AA10119	72.5	2871.0X340.0	1	1	80.5	0.0	80.5
1(1)	PIPE			Y	PL 10					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxnkj	25.03.2023	wtzman	29.03.2023
Checked By	hxeaxk	25.03.2023	bk2rd	29.03.2023
Approved By	hxnep	04.04.2023	wtxskg	04.04.2023



DRAWING NO.

[illegible]

(12) Δ	(24) Δ	SIZE & SYMBOL OF SEAM
247	10.9	WELD LENGTH INCH (MM)
325.2	28.7	WT. OF WELD METAL (Kg)
E-7018		TYPE OF ELECTRODE

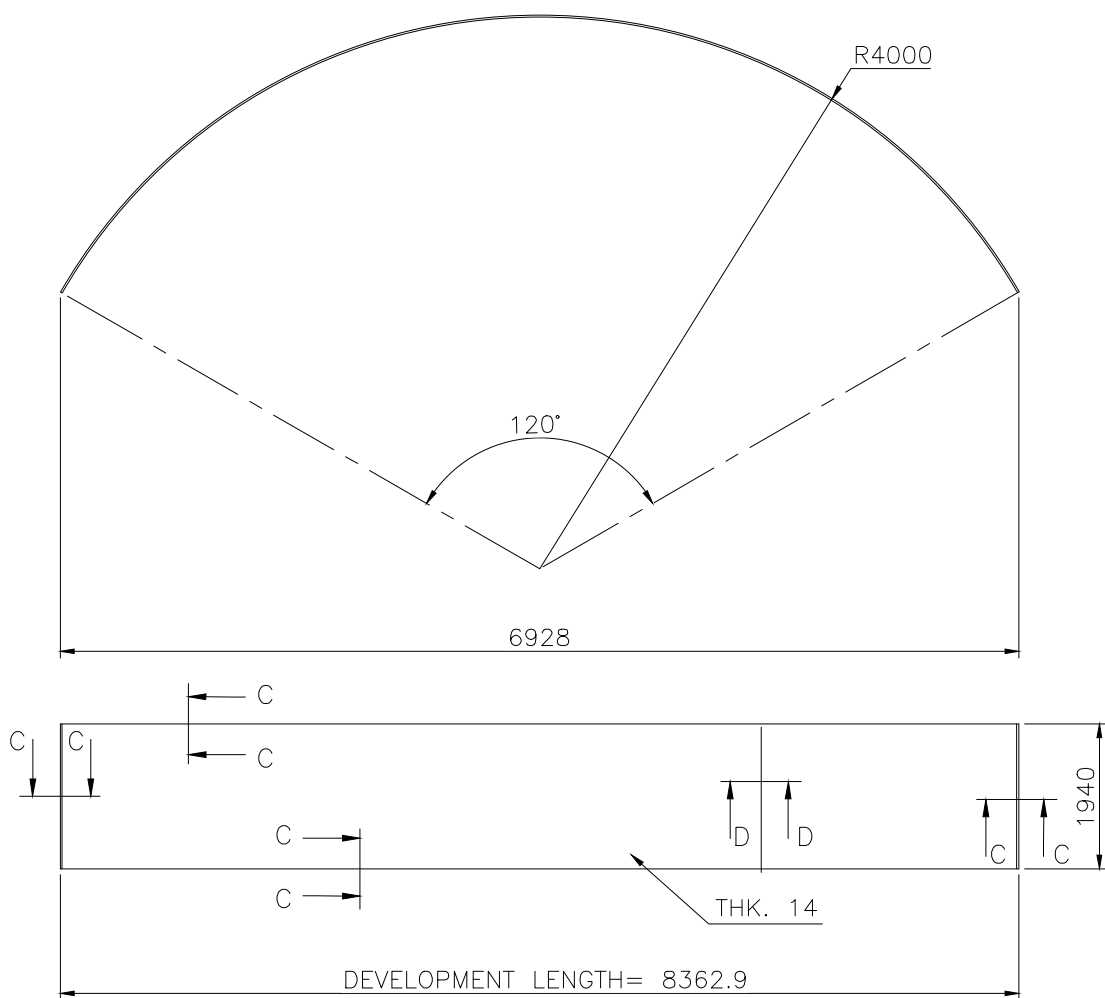
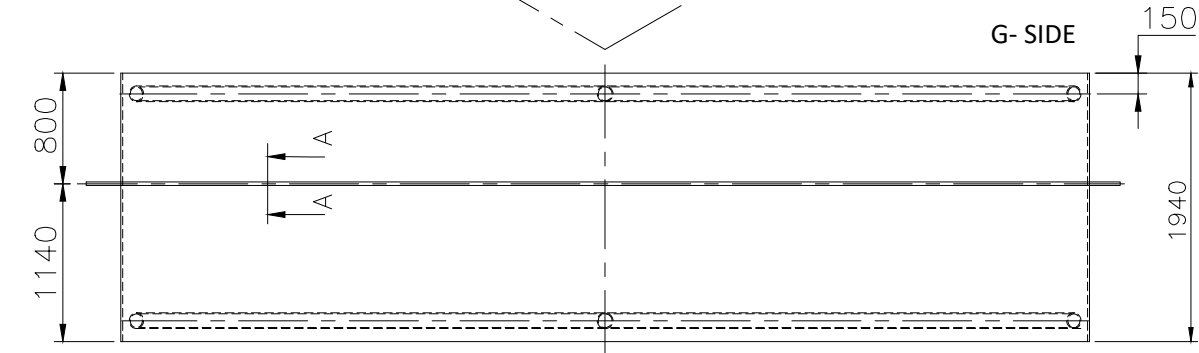
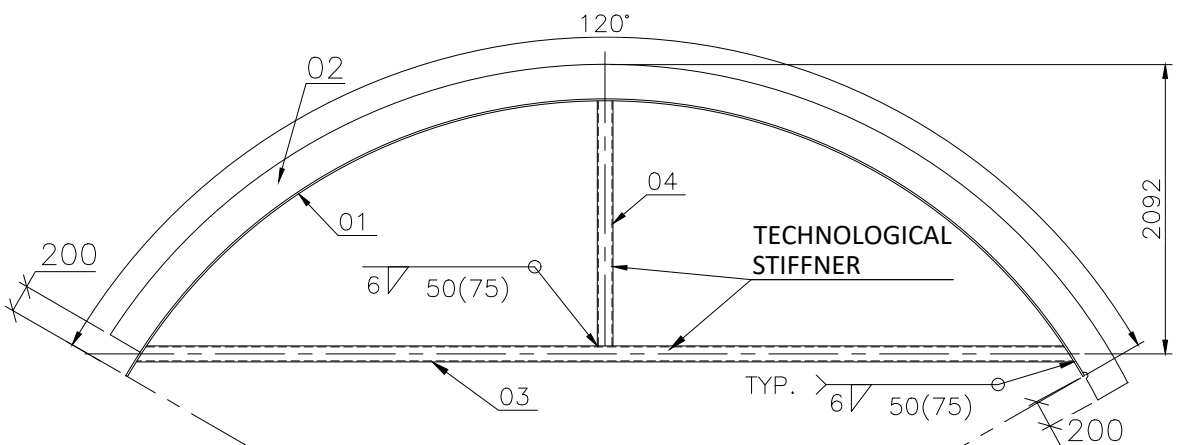
GRADE OF UNTOL. DIM.:—		
M/CG— V/C/M/F AA 023		
WELDING—A/B/C/D—AA62		
GAS CUTTING—'T3'AA06211		
REV.	DATE	ALTERED CHECKED

CBOM NO. 01709970022			STATUS OF DRG U
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-sd-	05.04.23

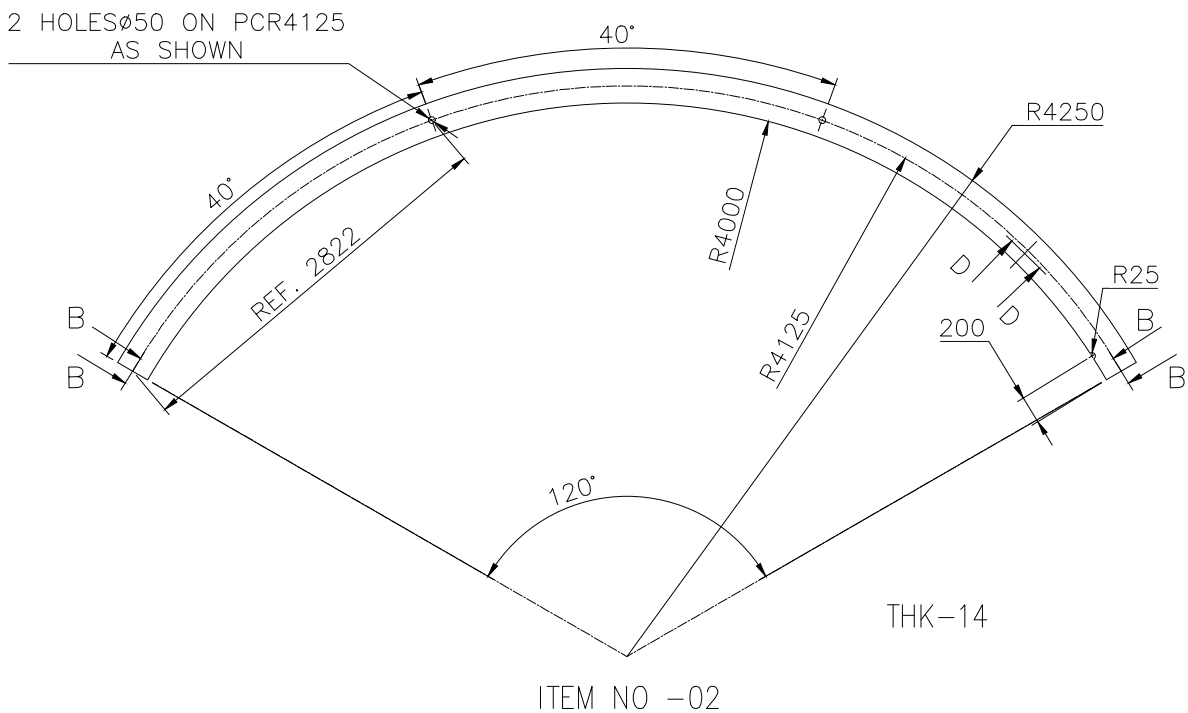
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X800 MW ACC (PATRATU)				
<div><div></div><div>BHARAT HEAVY ELECTRICALS LTD. HARDWAR</div></div>		DRN	NAME	SIGN	DATE	NO. OF VAR.
		CHD	NK JANGRA	-- SD --	20.10.2022	--
		APD	AXAY KUMAR	-- SD --	20.10.2022	--
			N PRAKASH	-- SD --	20.10.2022	73, 74
DEPT. HXE		SCALE	REF. TO ASSY. DRG.		ITEM NO.	NO. OF ITEMS
CODE 4222		1:25	---		00	-- 75, 77
TITLE		1 'CARD CODE X	DRAWING NO.		REV.	
ACC STEAM DUCT (RISER UNIT-2)			01709970022		00	
			SHEET NO. 01	NO. OF SHEETS		01

0010/660/12

DRAWING NO. 2170970100

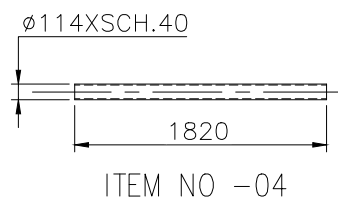


ITEM NO -01

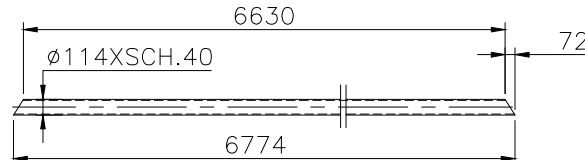


ITEM NO -02

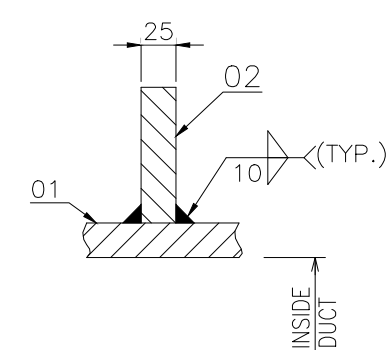
SECTION- BB



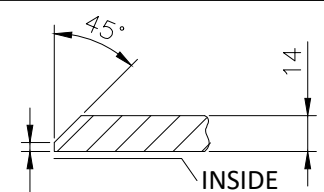
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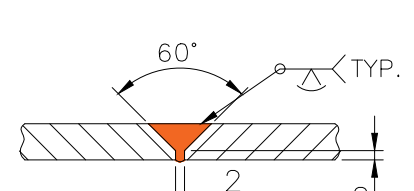
ITEM NO -03



SECTION- AA



SECTION- CC

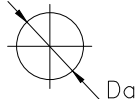


SECTION- DD

TECHNICAL REQUIREMENTS:-

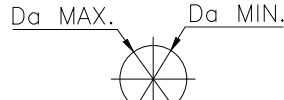
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
- THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
- UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
- (a) DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ± 7 mm
Da 4900 mm - 6300 mm = ± 8 mm
Da 6300 mm - 8100 mm = ± 10 mm



(b) ADMISSIBLE OVALITY

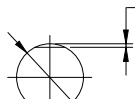
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

Da \leq 9220 mm q = 6 mm



- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
- A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	1.9	16.7	1.3	WELD LENGTH (M).
0.7	1.8	6.6	0.2	WT. OF WELD METAL (Kg).

E-7018	TYPE OF ELECTRODE
GRADE OF UNTOL. DIM.:-	
M/CG- V/C/M/F AA 0230208	
WELDING-A/B/C/D-AA621104	
GAS CUTTING-'T3'AA0621101	
REV.	DATE
ALTERED	CHECKED

CBOM NO.	STATUS OF DRG.
01709970017-02	U
AGREED DEPT.	NAME
WT	MANISH
SIGN	-SD-
DATE	21.12.22

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3X800 MW ACC (PATRATU)

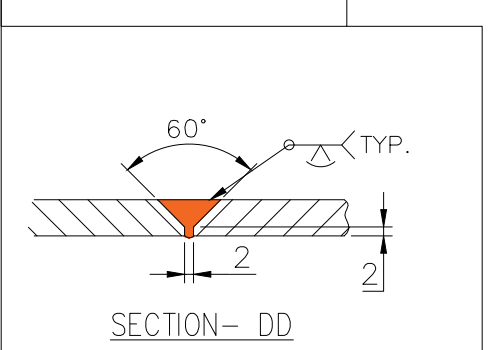
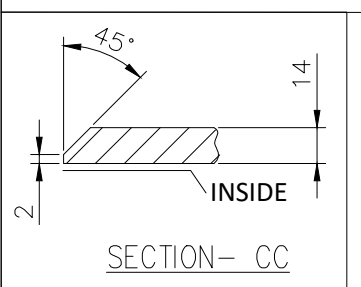
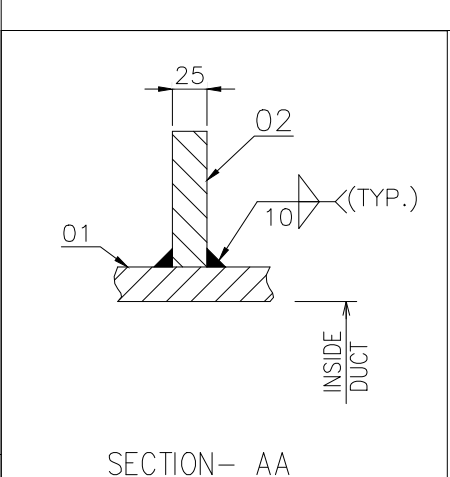
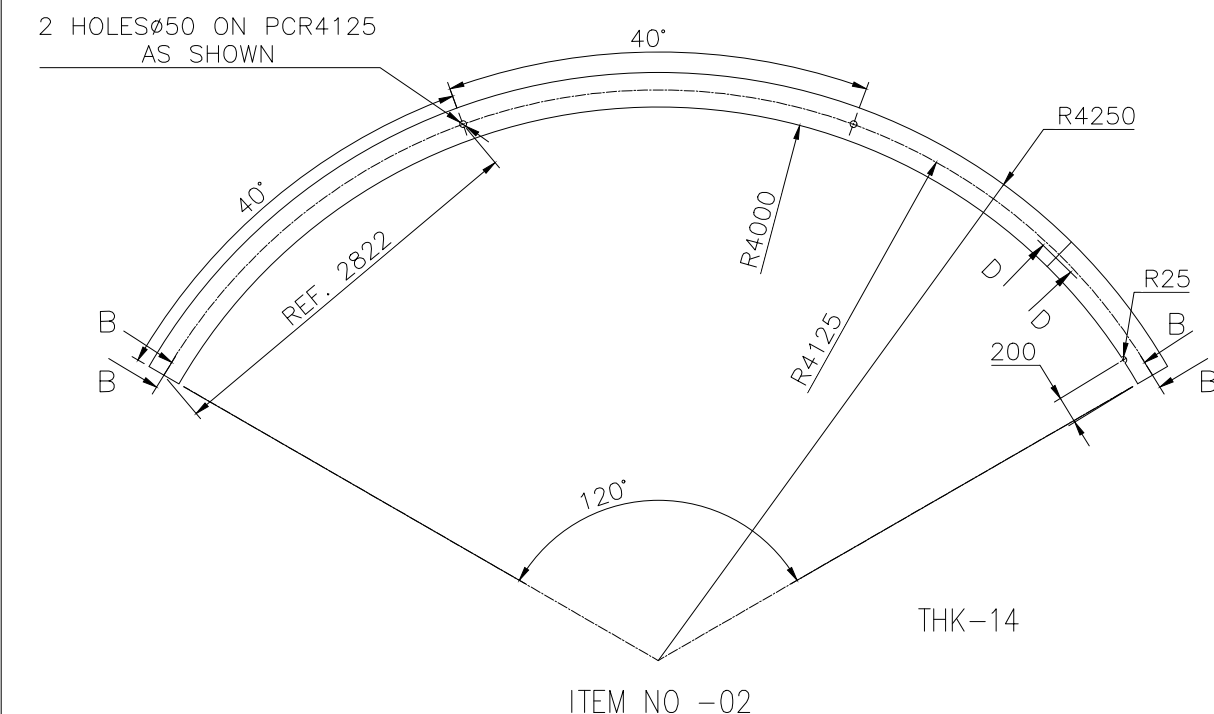
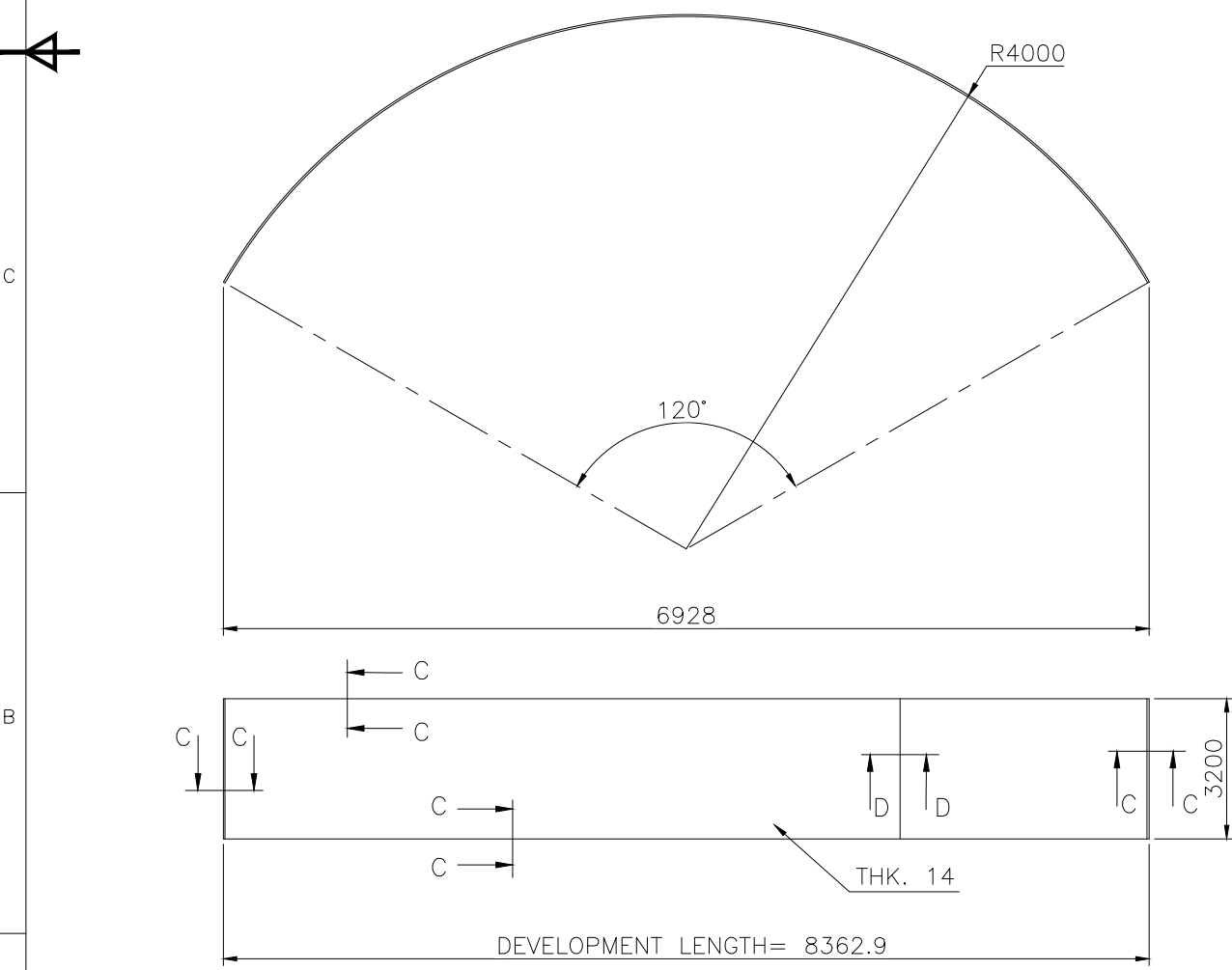
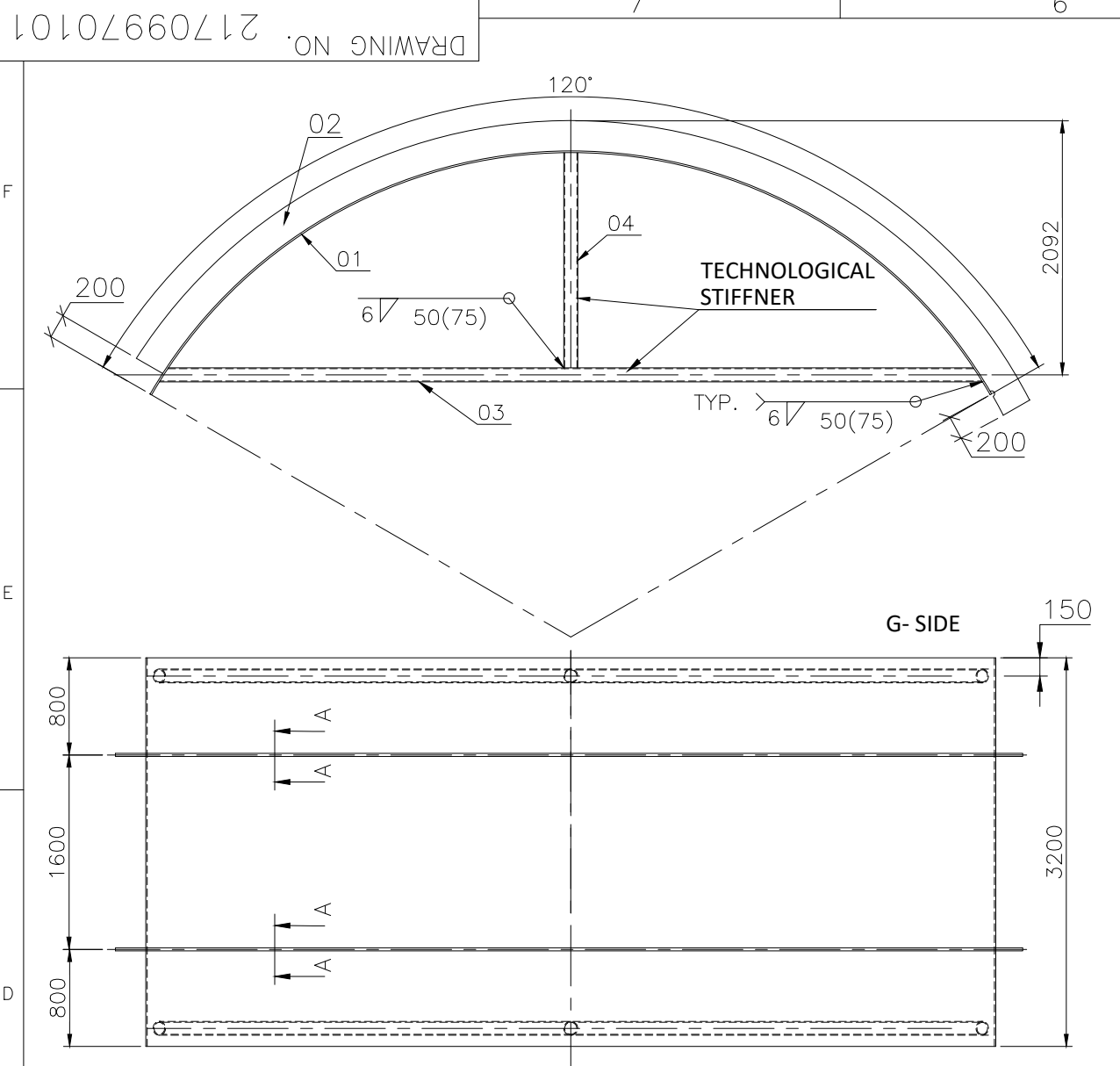
DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	NK JANGRA	-Sd-	13.09.2022	--
APD	AXAY KUMAR	-Sd-	13.09.2022	--
	N PRAKASH	-Sd-	13.09.2022	73, 74

DEPT. HXE	SCALE 1:40	WEIGHT(Kg.) 2542	REF. TO ASSY. DRG. 01709970017-02	ITEM NO. 01	NO.OF ITEMS 75, 77
CODE 2444					

TITLE VERTICAL RISER-1	CARD CODE X	DRAWING NO. 21709970100	REV. 00
		SHEET NO.	NO.OF SHEETS

SIZE A2

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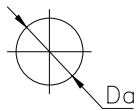
(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	3.2	16.7	1.3	WELD LENGTH (M).
0.7	3.2	6.6	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:-			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

TECHNICAL REQUIREMENTS:-

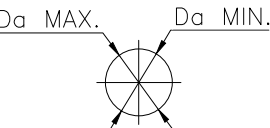
1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
3. BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
4. THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
5. UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
6. (a) DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ±7 mm
Da 4900 mm - 6300 mm = ±8 mm
Da 6300 mm - 8100 mm = ±10 mm



(b) ADMISSIBLE OVALITY

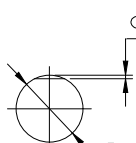
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

Da ≤ 9220 mm q = 6 mm



7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
8. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
9. IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
10. A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3X800 MW ACC (PATRATU)

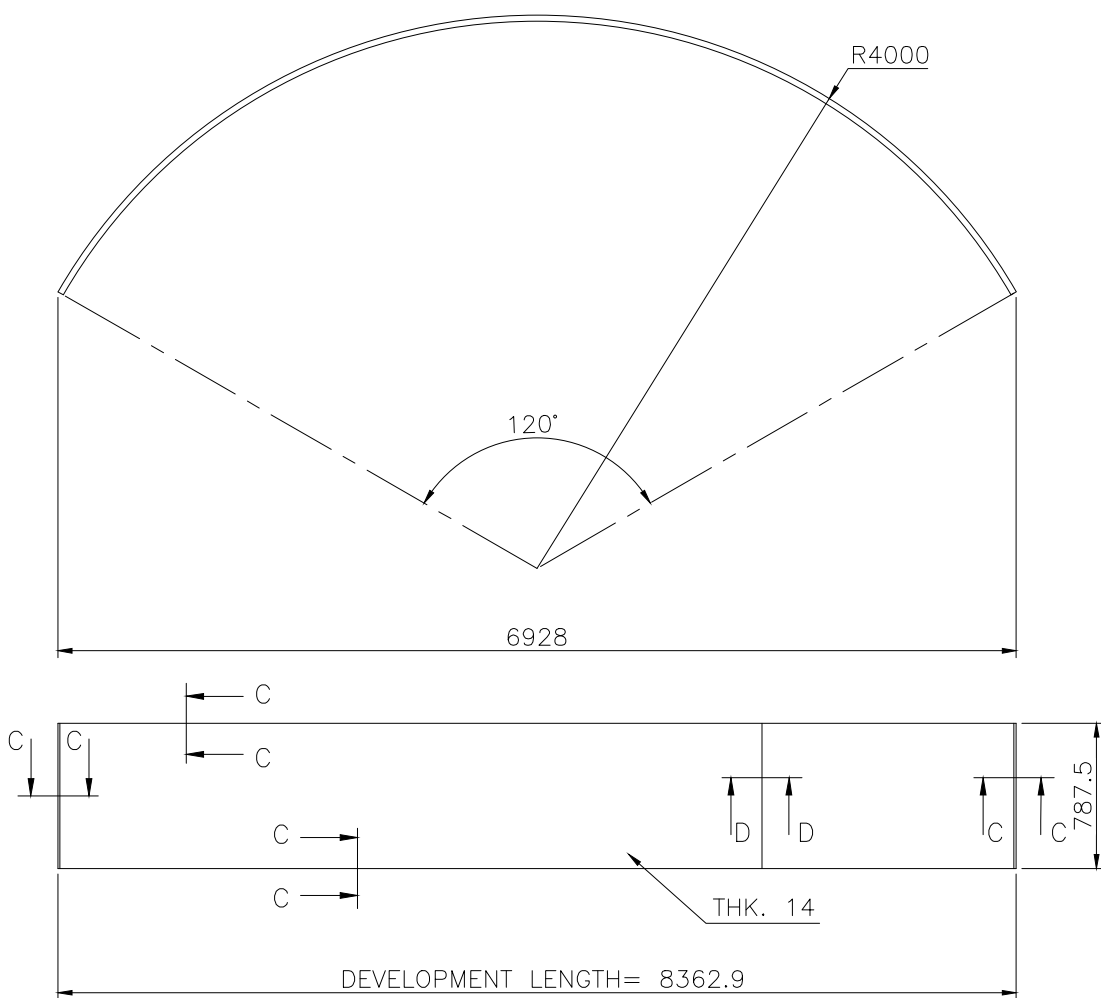
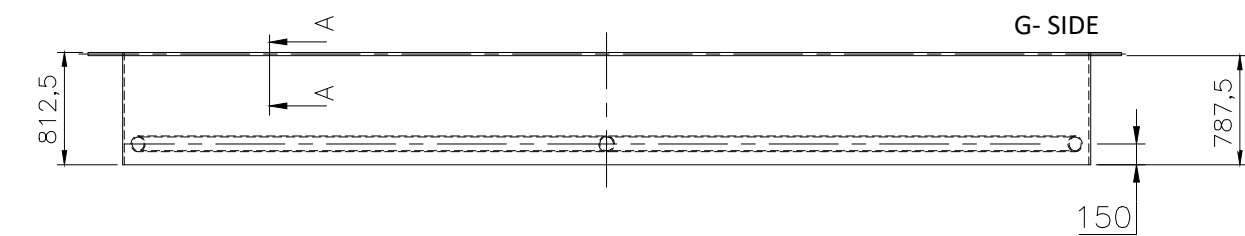
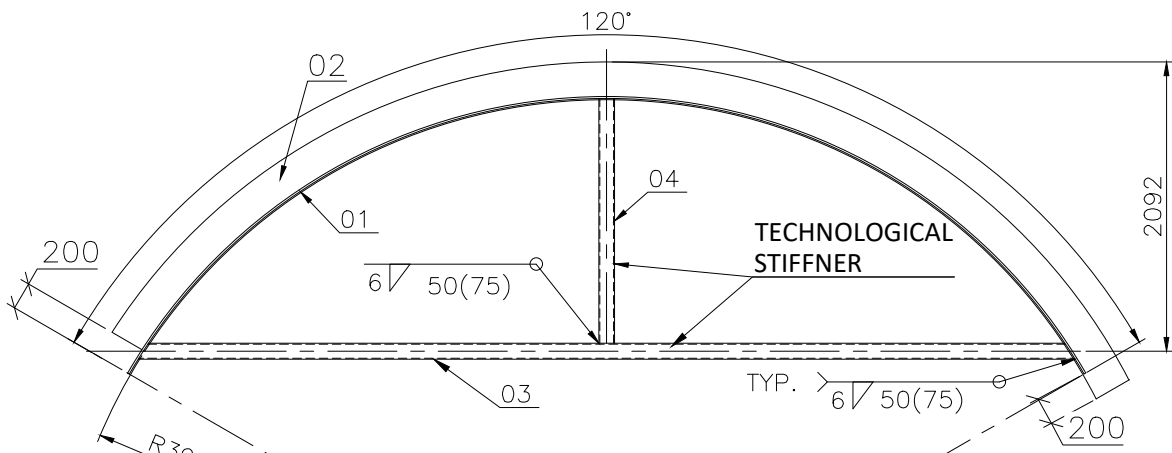
DRN	NK JANGRA	-Sd-	13.09.2022	NO.OF VAR.
CHD	AXAY KUMAR	-Sd-	13.09.2022	---
APD	N PRAKASH	-Sd-	13.09.2022	73, 74

DEPT.	HXE	SCALE	1:40	WEIGHT(Kg.)	3560	REF. TO ASSY. DRG.	01709970017-02	ITEM NO.	02	NO.OF ITEMS	73, 74
CODE	2444										75, 77

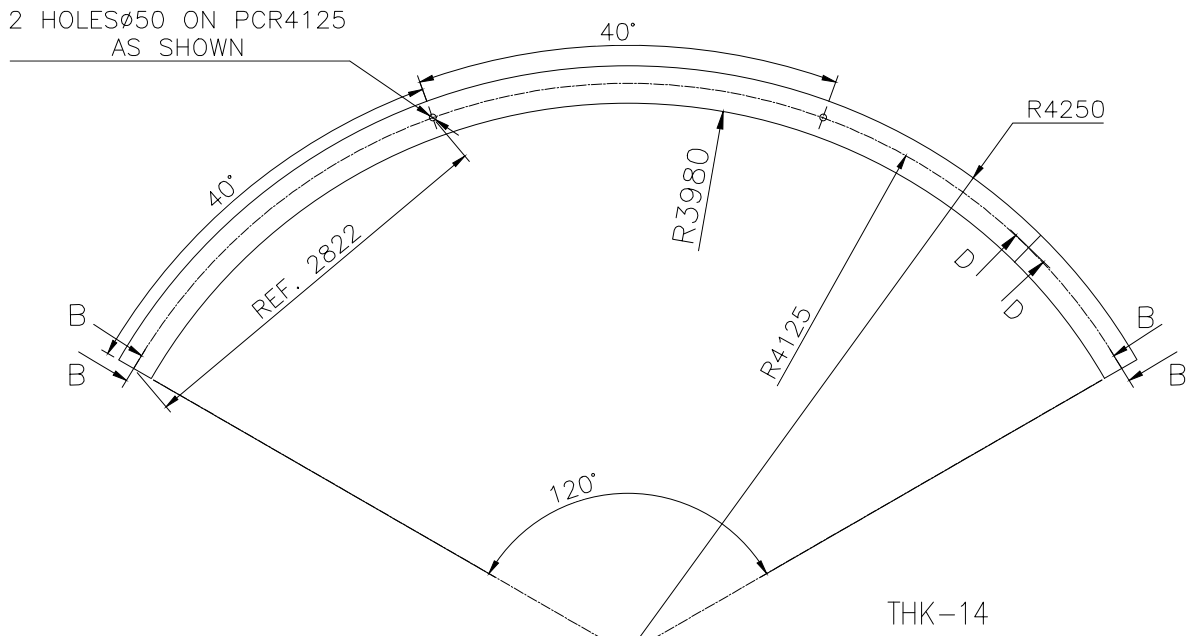
TITLE	VERTICAL RISER-2	CARD CODE	X	DRAWING NO.	21709970101	REV.	00
SHEET NO.		NO.OF SHEETS					

21709970102

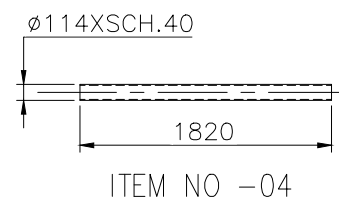
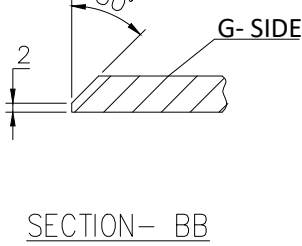
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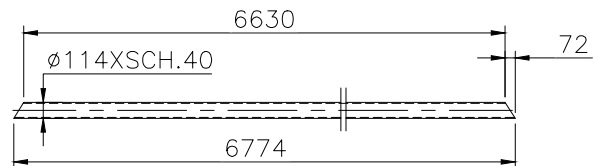
ITEM NO -01



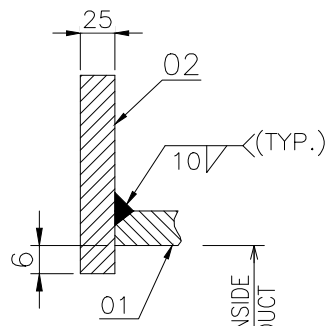
ITEM NO -02



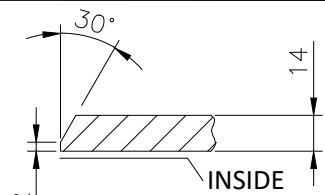
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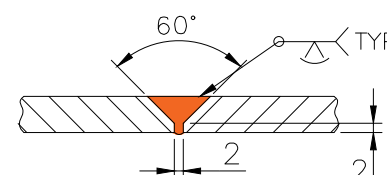
ITEM NO -03



SECTION- AA



SECTION- CC

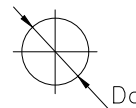


SECTION- DD

TECHNICAL REQUIREMENTS:-

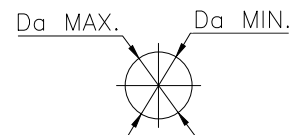
1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
3. BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
4. THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
5. UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
6. (a) DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ± 7 mm
Da 4900 mm - 6300 mm = ± 8 mm
Da 6300 mm - 8100 mm = ± 10 mm



(b) ADMISSIBLE OVALITY

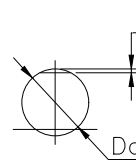
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

Da \leq 9220 mm q = 6 mm



7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
8. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
9. IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
10. A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	0.8	8.35	1.3	WELD LENGTH (M).
0.7	0.76	3.3	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.: -			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

CBOM NO.		STATUS OF DRG.	
01709970017-02		U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	21.12.22

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X800 MW ACC (PATRATU)			
DEPT. HXE		SCALE		WEIGHT(Kg.)	
CODE 2444		1:40		863.2	
TITLE		VERTICAL RISER-3		DRAWING NO. 21709970102	
CARD CODE X		REF. TO ASSY. DRG.		ITEM NO. 03	
SHEET NO.		NO.OF SHEETS		REV. 00	

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REF. DRG NO.

SIGN & DATE

INVENTORY NO.

21709970103

DRAWING NO.

7

6

5

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3

2

1

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F

F

D

C

B

A

F

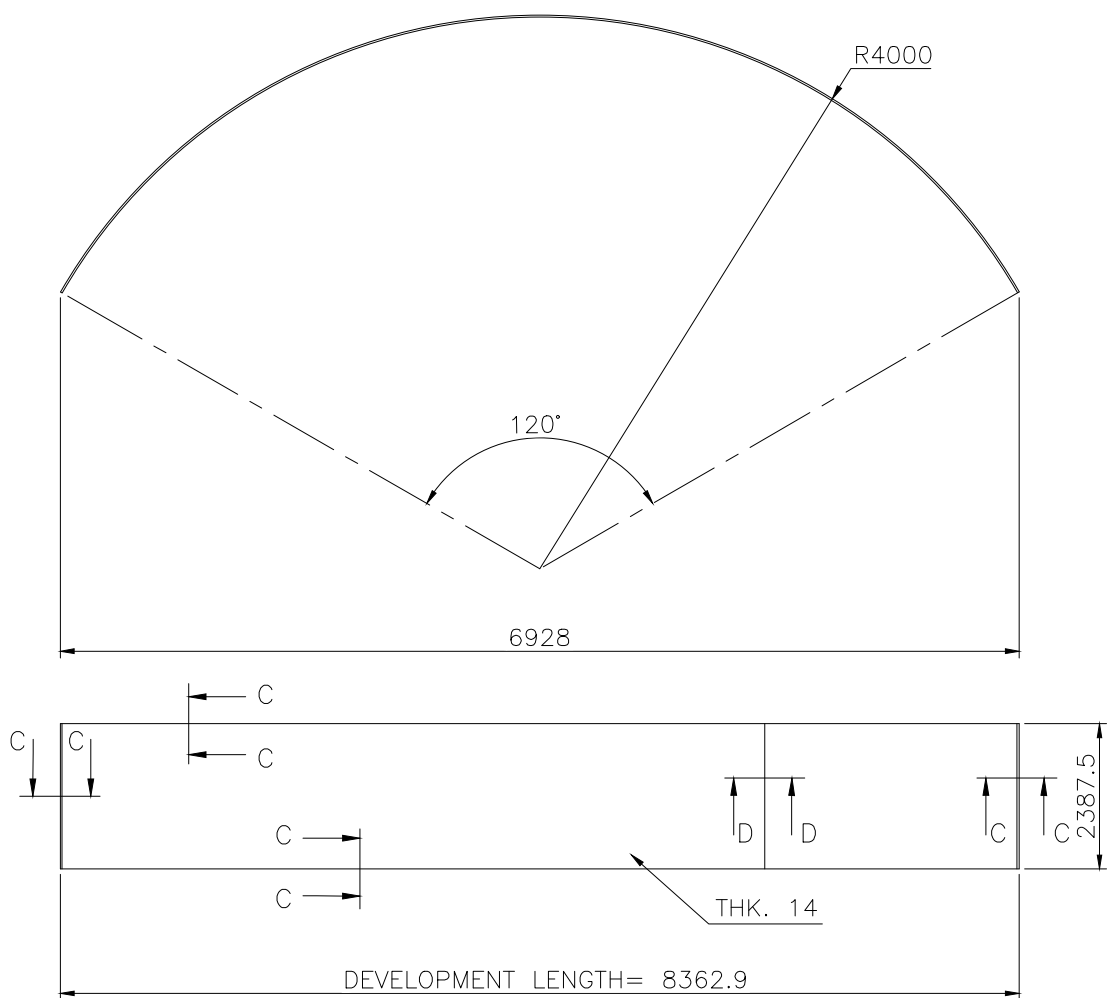
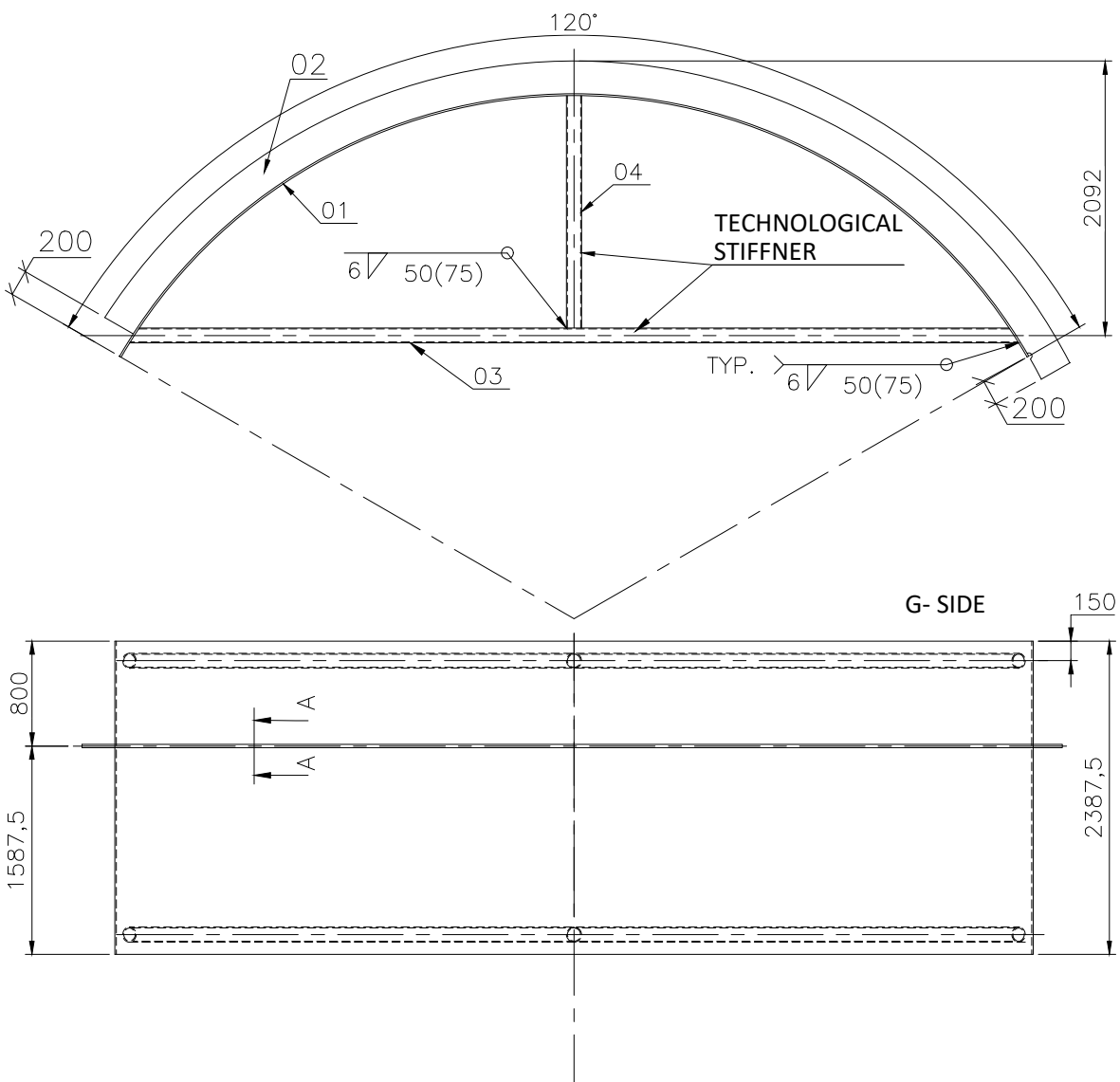
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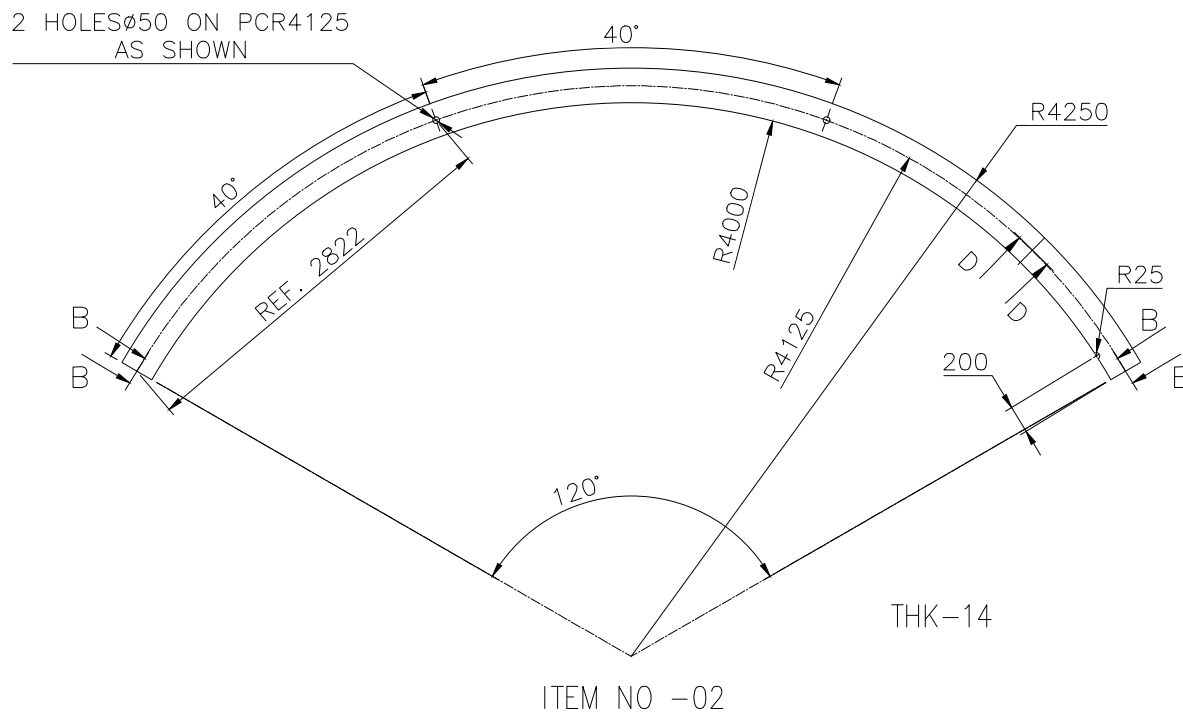
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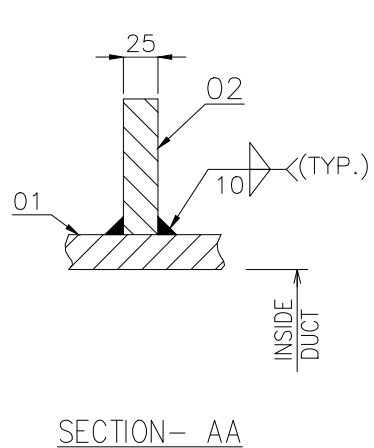
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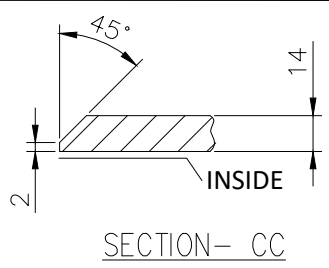
ITEM NO -01



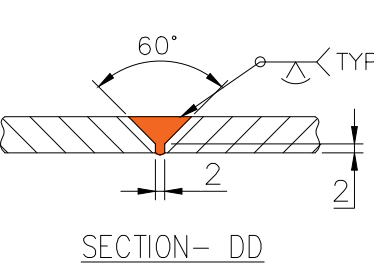
ITEM NO -02



SECTION- AA



SECTION- CC



SECTION- DD

(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	2.4	16.7	1.3	WELD LENGTH (M).
0.7	2.3	6.6	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

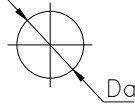
GRADE OF UNTOL. DIM.:-			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

CBOM NO.		STATUS OF DRG.	
01709970017-02		U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	21.12.22
REV.	DATE	ALTERED	CHECKED

TECHNICAL REQUIREMENTS:-

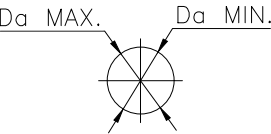
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
- THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
- UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
- (a) DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ± 7 mm
Da 4900 mm - 6300 mm = ± 8 mm
Da 6300 mm - 8100 mm = ± 10 mm



(b) ADMISSIBLE OVALITY

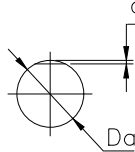
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

Da \leq 9220 mm q = 6 mm



- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
- A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3X800 MW ACC (PATRATU)

BHARAT HEAVY ELECTRICALS LTD. HARDWAR		NAME	SIGN	DATE	NO.OF VAR.
DRN	NK JANGRA	-Sd-		13.09.2022	--
CHD	AXAY KUMAR	-Sd-		13.09.2022	--
APD	N PRAKASH	-Sd-		13.09.2022	73, 74

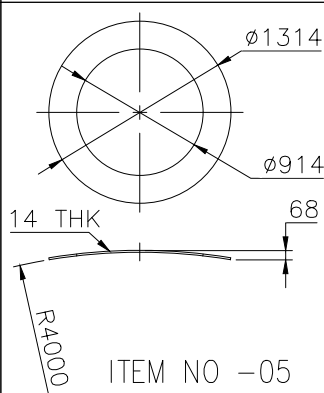
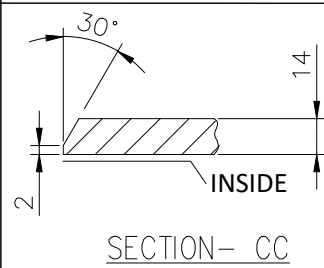
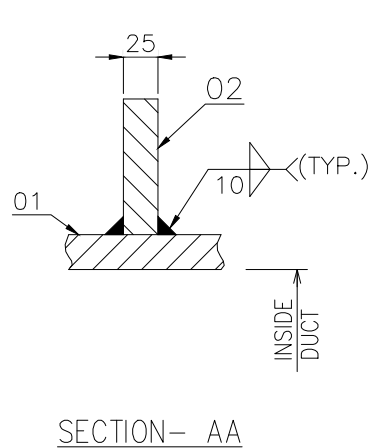
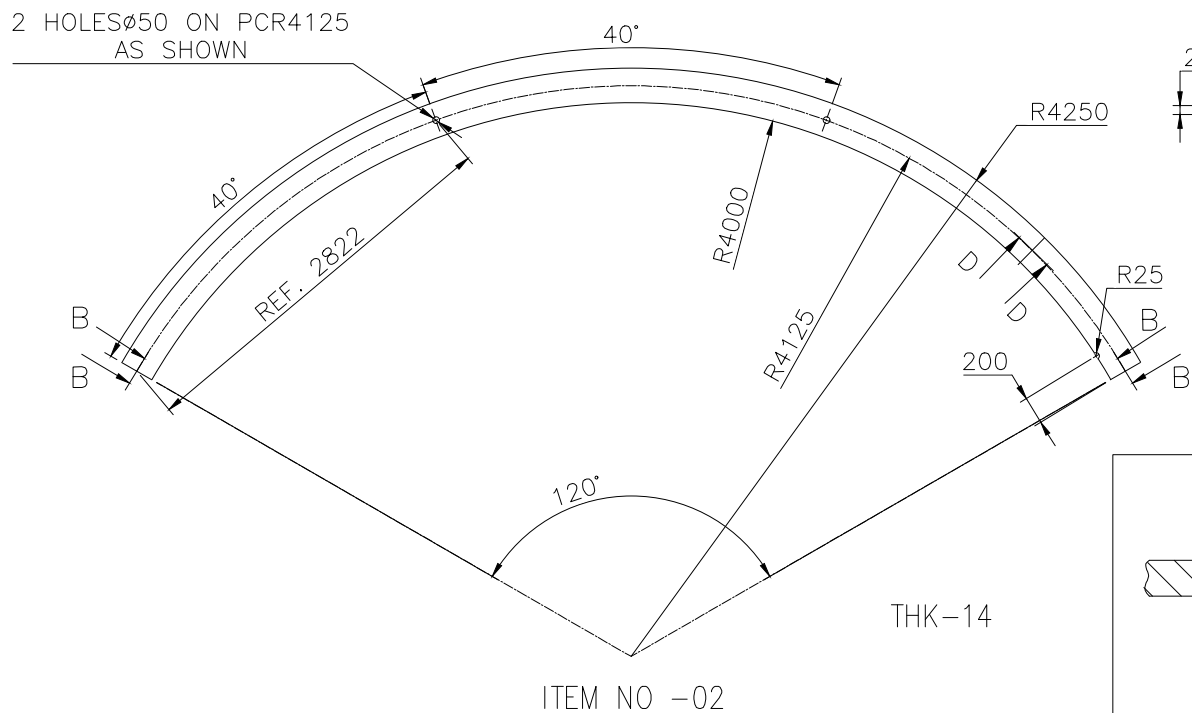
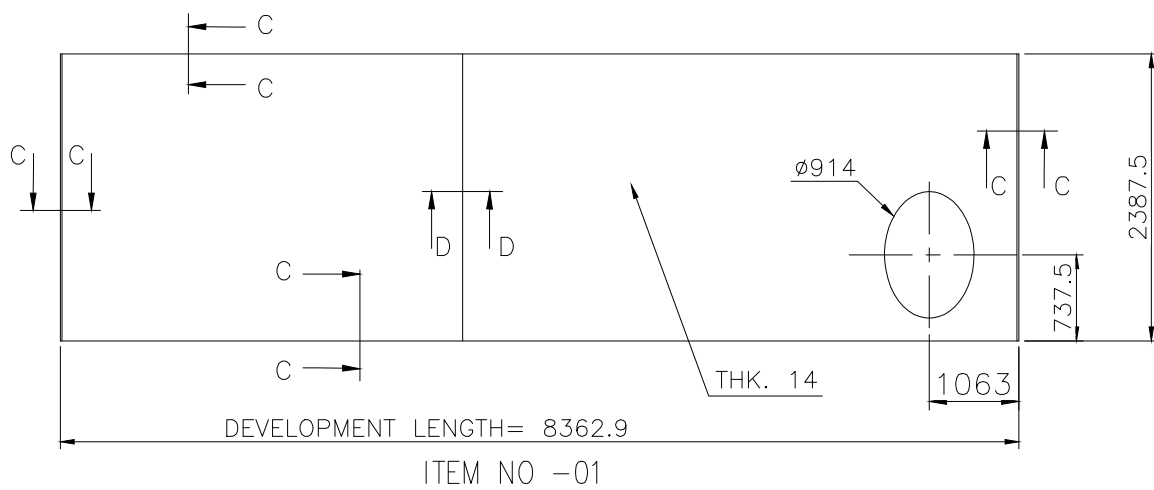
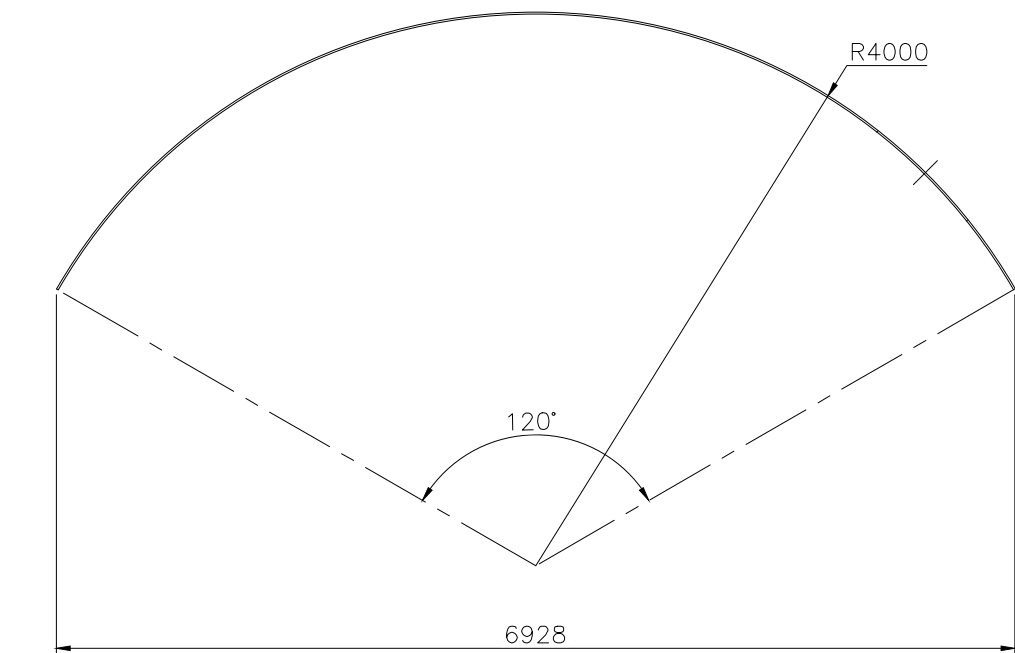
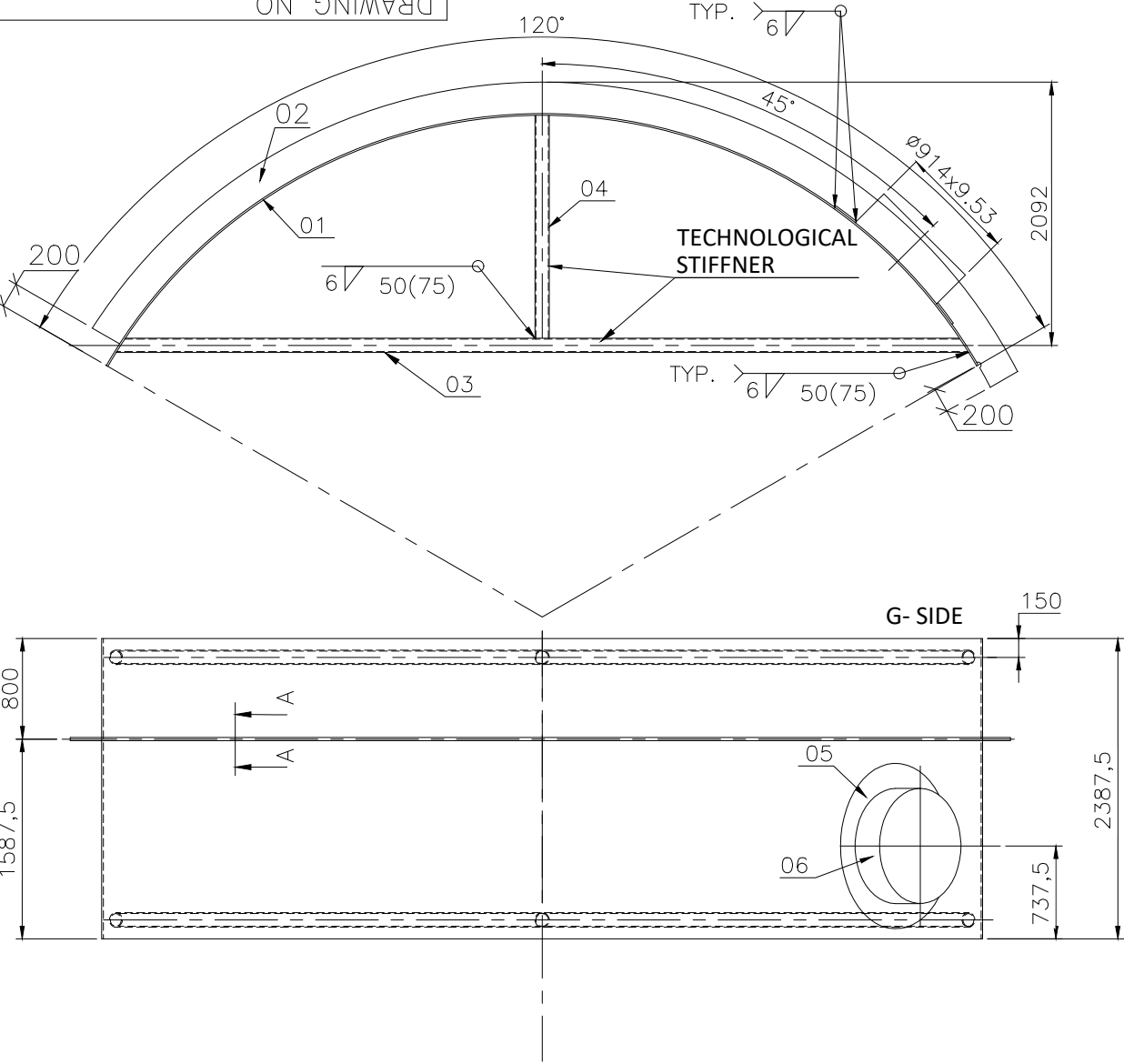
DEPT. HXE	SCALE 1:40	WEIGHT(Kg.) 2954	REF. TO ASSY. DRG. 01709970017-02	ITEM NO. 04	NO.OF ITEMS 75, 77
CODE 2444					

TITLE VERTICAL RISER-4	CARD CODE X	DRAWING NO. 21709970103	REV. 00
SHEET NO.	NO.OF SHEETS		

SIZE A2

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DRAWING NO. 21709970104



(24)Δ	(12)Δ	(10)▽	(6)▽	SIZE & SYMBOL OF SEAM
0.3	2.4	16.7	1.3	WELD LENGTH (M).
0.7	2.3	6.6	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM:-			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

CBOM NO.		STATUS OF DRG.	
01709970017-02		U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	21.12.22

REV.	DATE	ALTERED	CHECKED

TECHNICAL REQUIREMENTS:-

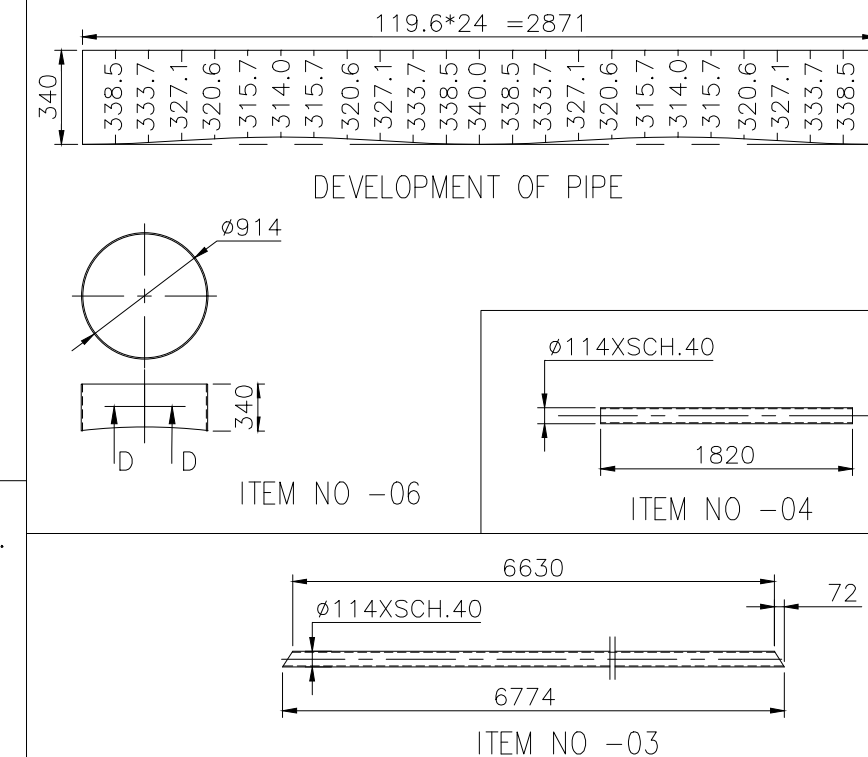
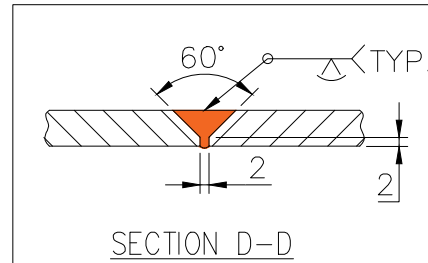
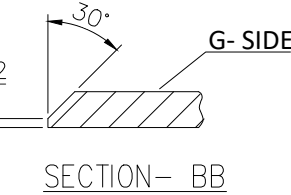
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
- THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
- UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
- DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ± 7 mm
Da 4900 mm - 6300 mm = ± 8 mm
Da 6300 mm - 8100 mm = ± 10 mm

(b) ADMISSIBLE OVALITY
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm

Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS
 $Da \leq 9220$ mm $q = 6$ mm
- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
- A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.



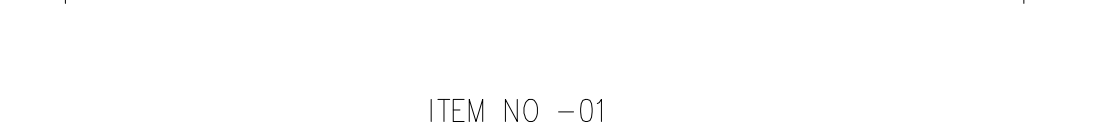
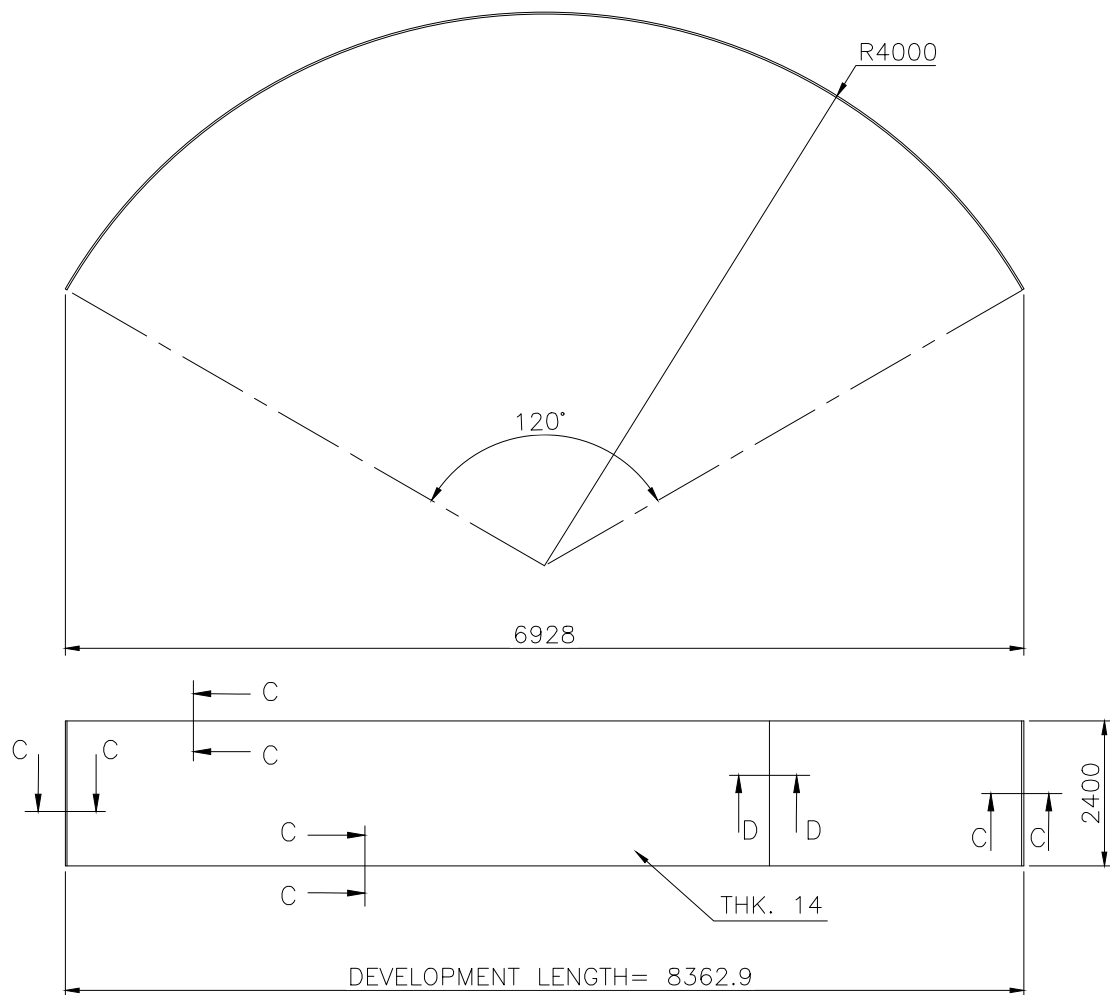
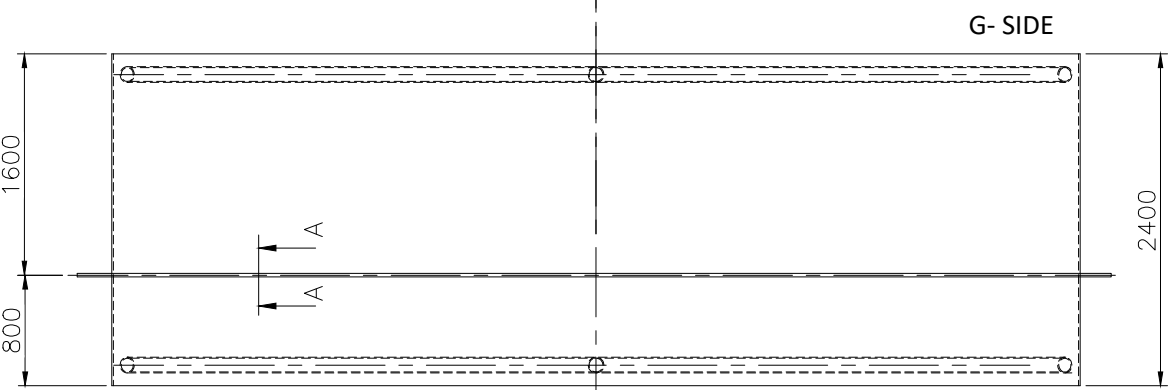
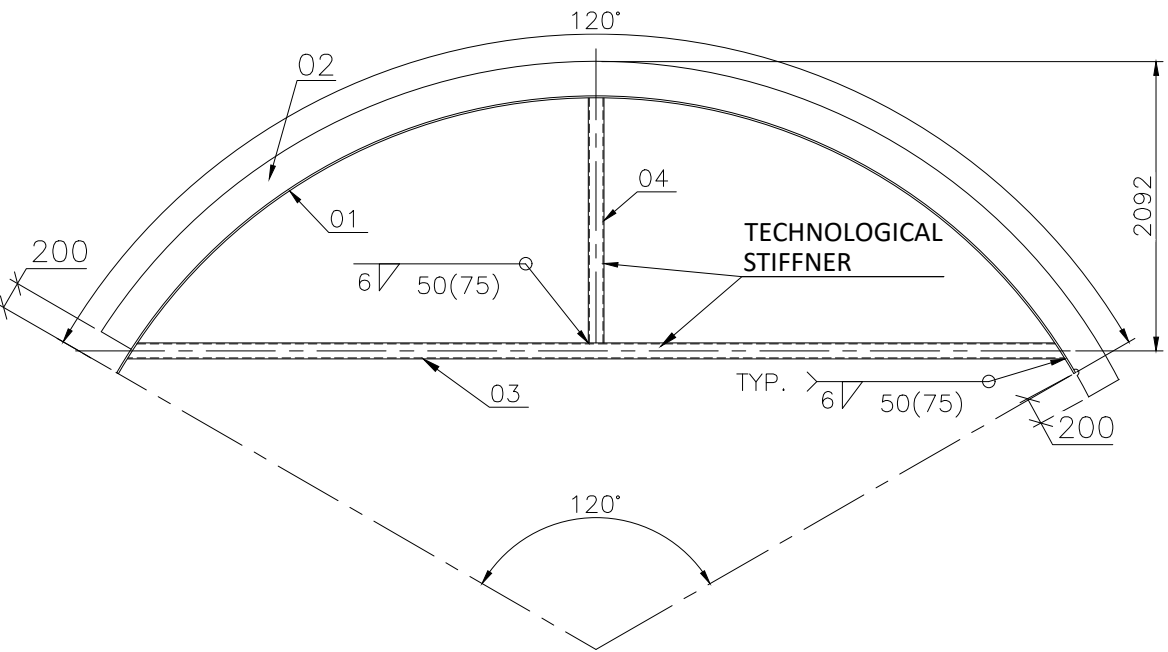
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3X800 MW ACC (PATRATU)

BHARAT HEAVY ELECTRICALS LTD. HARDWAR		NAME	SIGN	DATE	NO.OF VAR.
DRN	NK JANGRA	-Sd-	13.09.2022		
CHD	AXAY KUMAR	-Sd-	13.09.2022		
APD	N PRAKASH	-Sd-	13.09.2022		

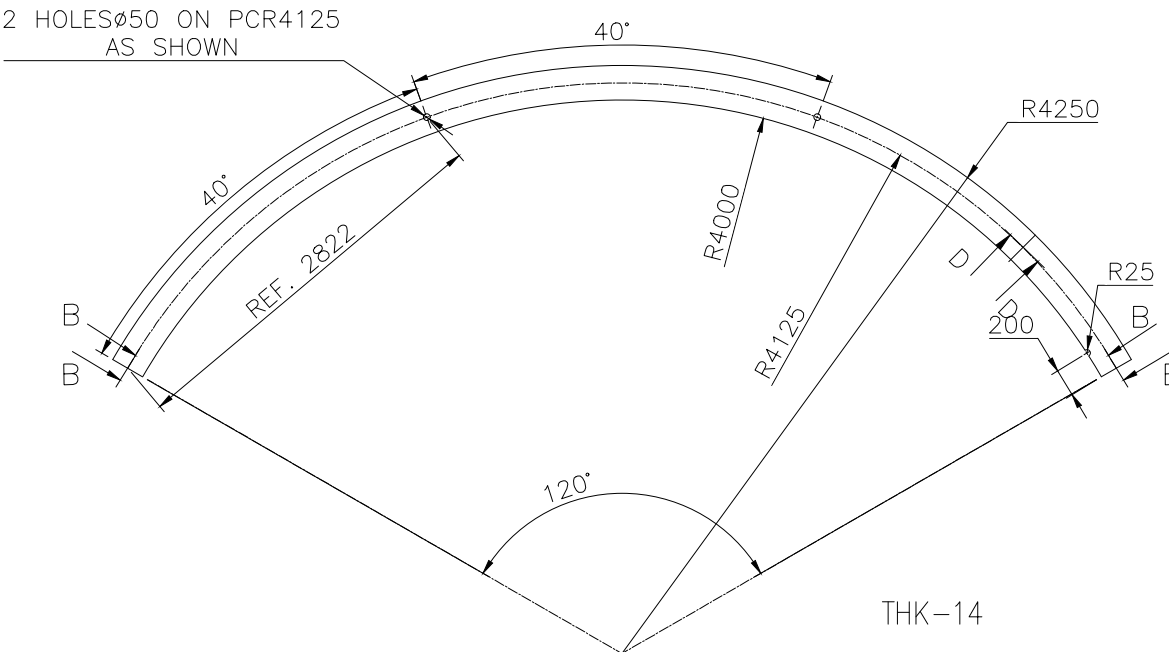
DEPT. HXE	SCALE 1:40	WEIGHT(Kg.) 3104	REF. TO ASSY. DRG. 01709970017-02	ITEM NO. 05	NO.OF ITEMS 73, 74
CODE 2444					

TITLE VERTICAL RISER-5	CARD CODE X	DRAWING NO. 21709970104	REV. 00
		SHEET NO.	NO.OF SHEETS

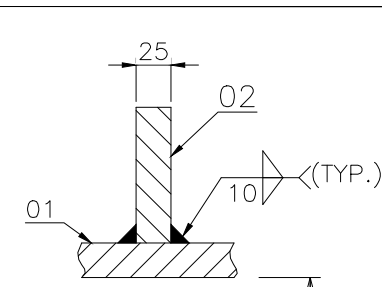
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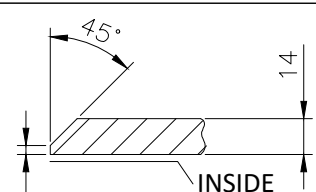
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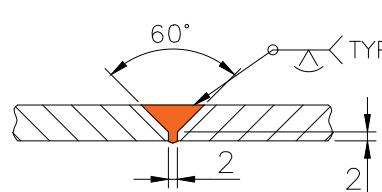
ITEM NO -02



SECTION- AA



SECTION- CC



SECTION- DD

(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	2.4	16.7	1.3	WELD LENGTH (M).
0.7	2.3	6.6	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:-			
M/CG- V/C/M/F AA 0230208			
WELDING-A/B/C/D-AA621104			
GAS CUTTING-'T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

CBOM NO.		STATUS OF DRG.	
01709970017-02		U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	21.12.22

REV.	DATE	ALTERED	CHECKED

TECHNICAL REQUIREMENTS:-

- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
- THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
- UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
- (a) DIAMETER TOLERANCES

At ends: Da 2800 mm - 4900 mm = ± 7 mm
Da 4900 mm - 6300 mm = ± 8 mm
Da 6300 mm - 8100 mm = ± 10 mm

(b) ADMISSIBLE OVALITY

At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm

Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

Da \leq 9220 mm q = 6 mm

- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE & STIFFENER (IT.1 & IT.2) MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL D-D SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1
- A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3X800 MW ACC (PATRATU)

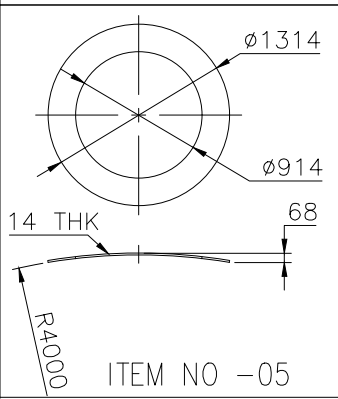
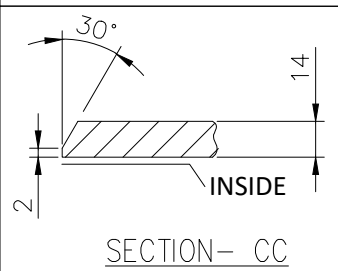
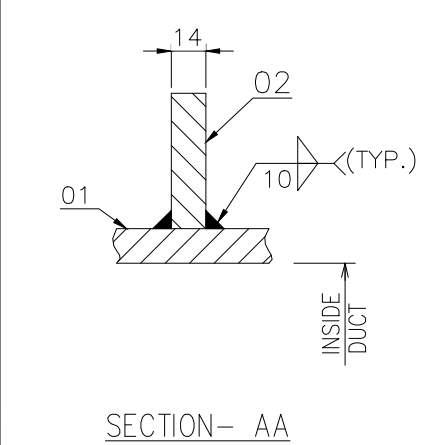
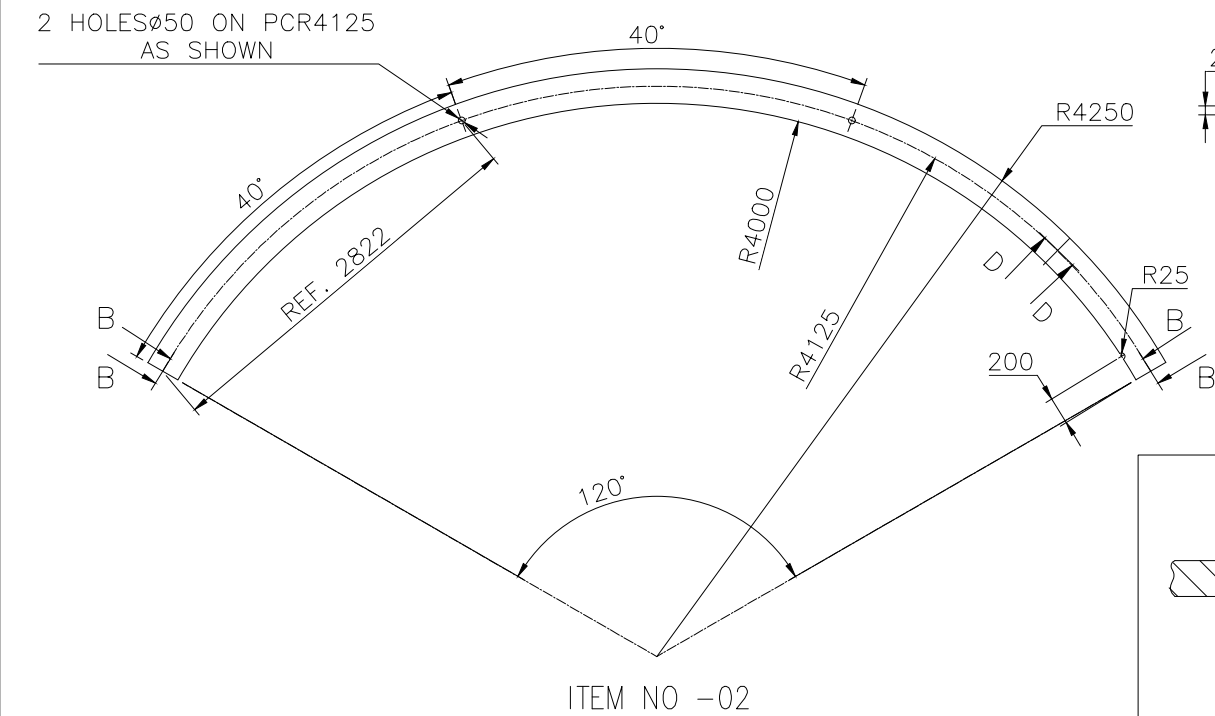
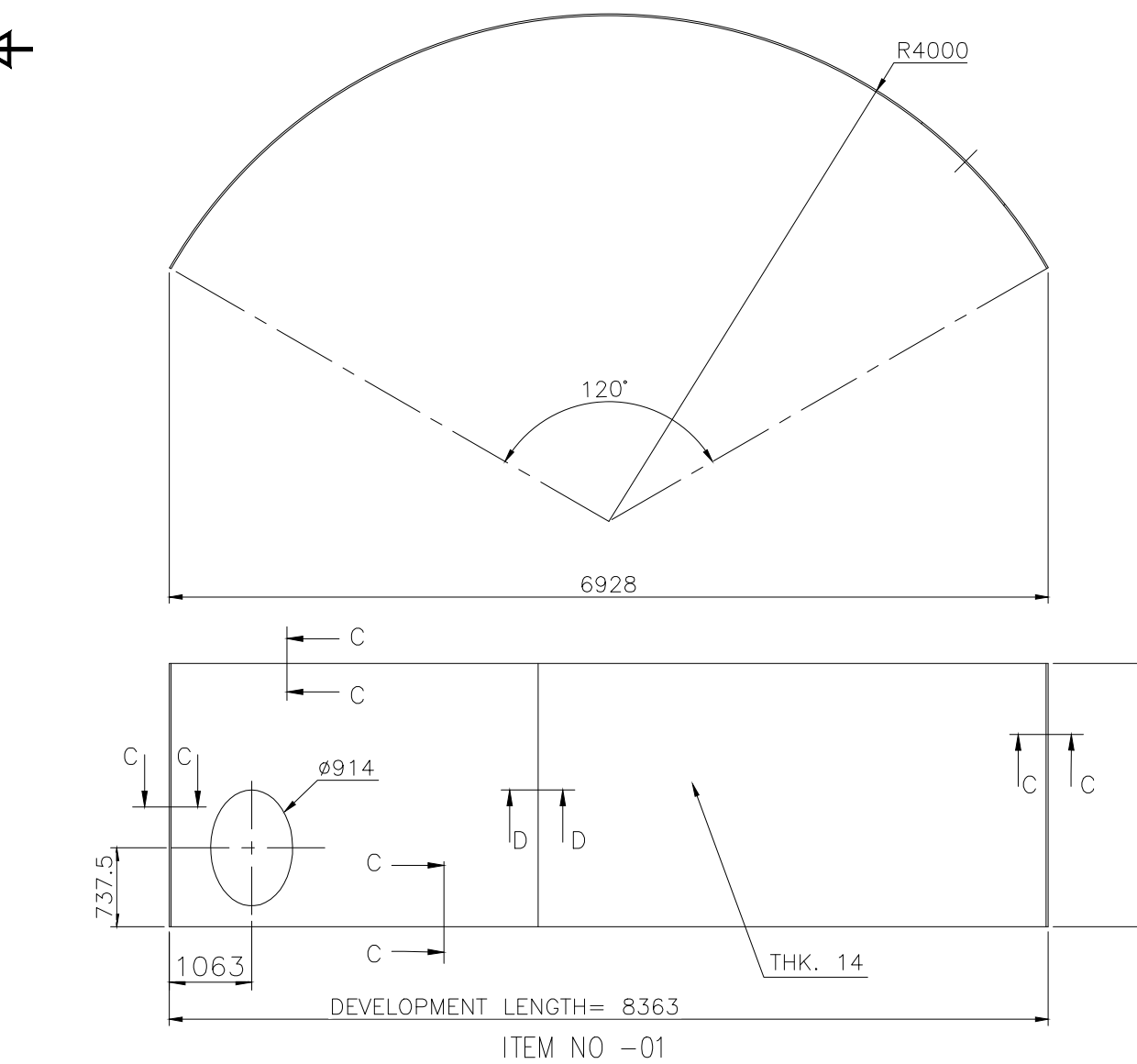
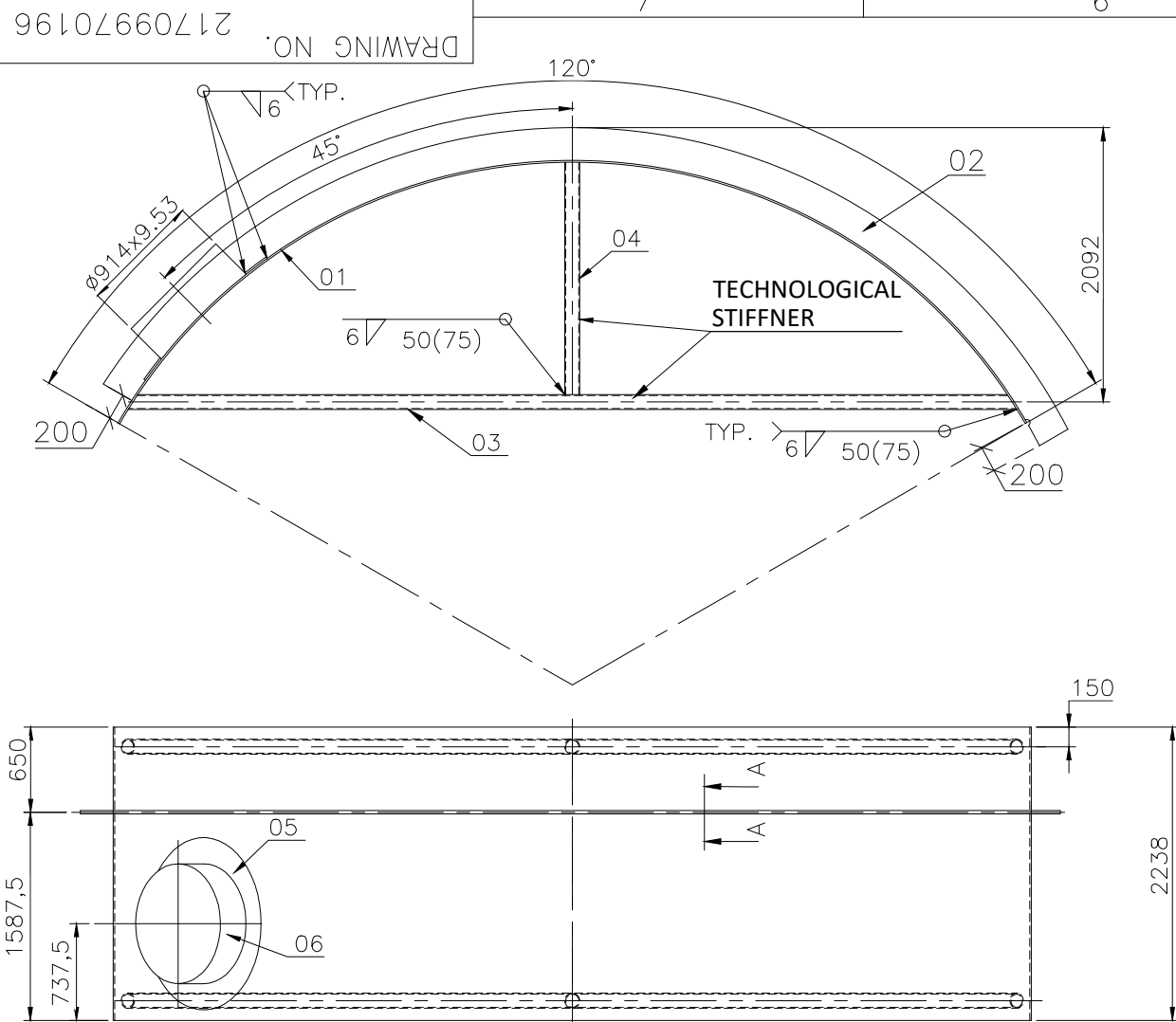
Bharat Heavy Electricals Ltd. Hardwar		NAME	SIGN	DATE	NO.OF VAR.
DRN	NK JANGRA	-Sd-		13.09.2022	—
CHD	AXAY KUMAR	-Sd-		13.09.2022	—
APD	N PRAKASH	-Sd-		13.09.2022	73, 74

DEPT. HXE	SCALE 1:40	WEIGHT(Kg.) 2965	REF. TO ASSY. DRG. 01709970017-02	ITEM NO. 06	NO.OF ITEMS 75, 77
CODE 2444					

TITLE VERTICAL RISER-6	CARD CODE X	DRAWING NO. 21709970105	REV. 00
		SHEET NO.	NO.OF SHEETS

SIZE A2

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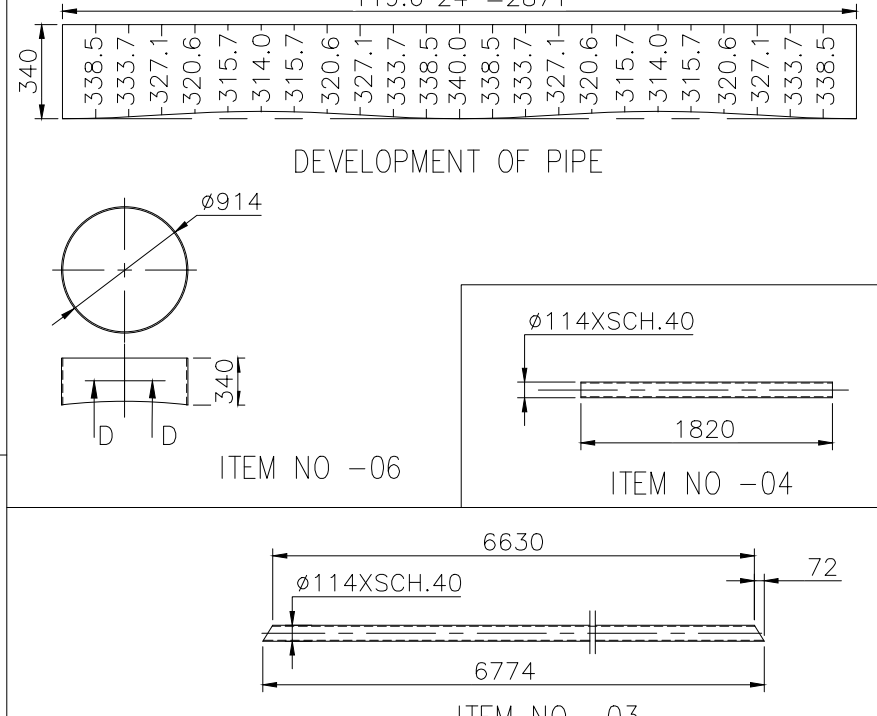
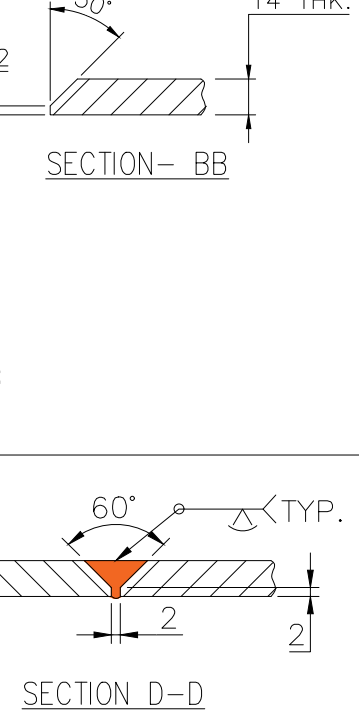


(24) Δ	(12) Δ	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
0.3	2.4	16.7	1.3	WELD LENGTH (M).
0.7	2.3	6.6	0.2	WT. OF WELD METAL (Kg).
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:—			
M/CG— V/C/M/F AA 0230208			
WELDING—A/B/C/D—AA621104			
GAS CUTTING—T3'AA0621101			
REV.	DATE	ALTERED	CHECKED

CBOM NO. 01709970022		STATUS OF DRG. U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	—SD—	—03.23

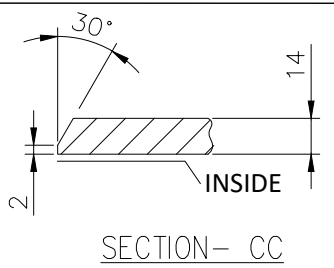
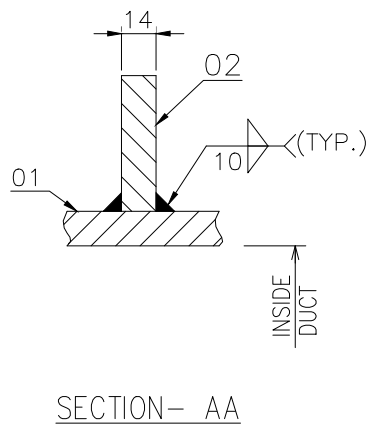
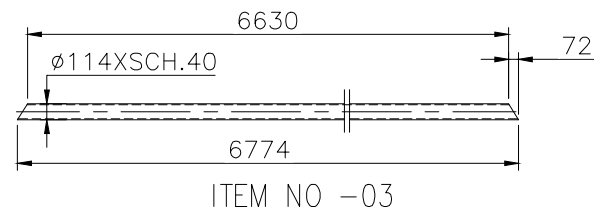
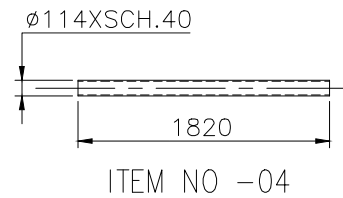
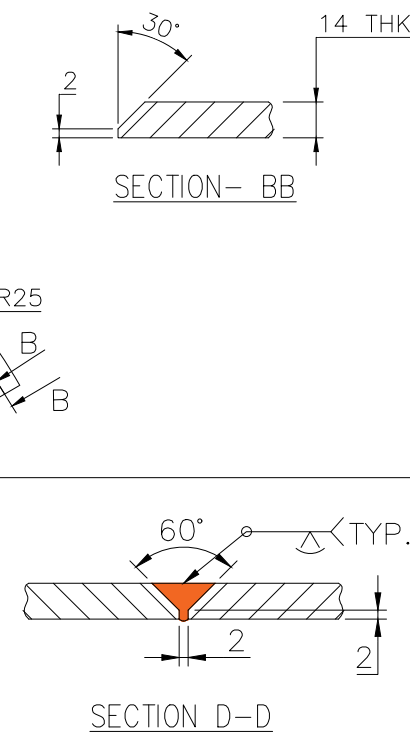
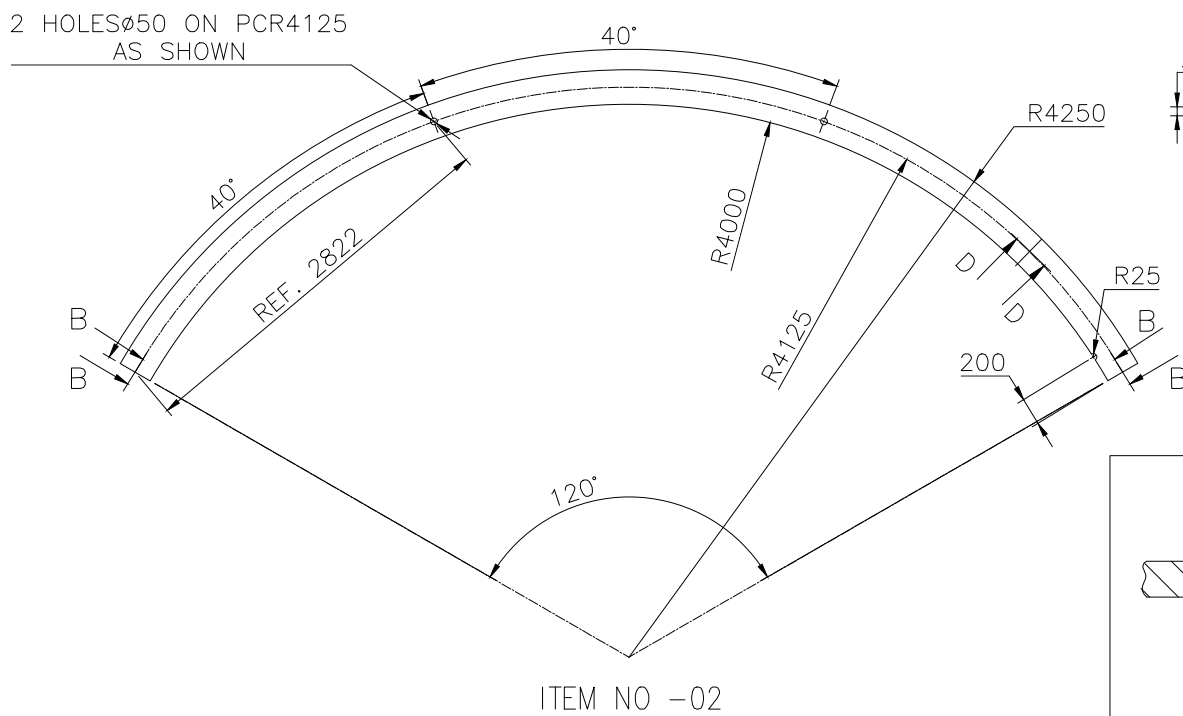
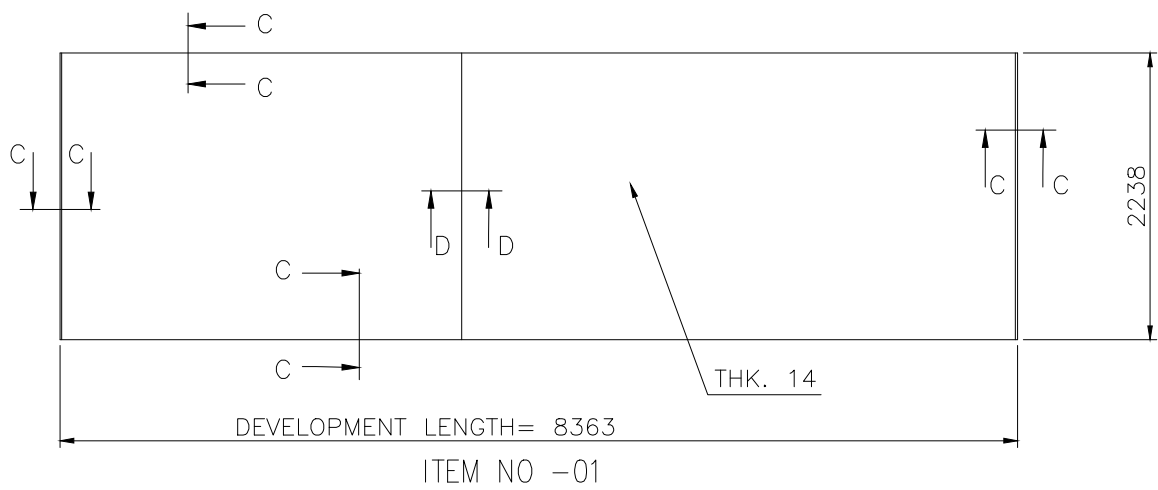
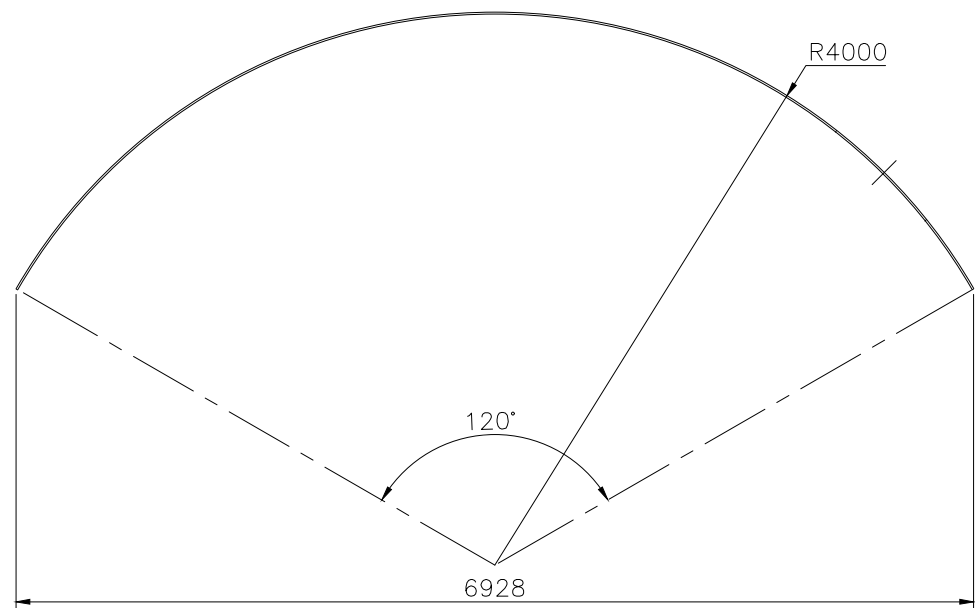
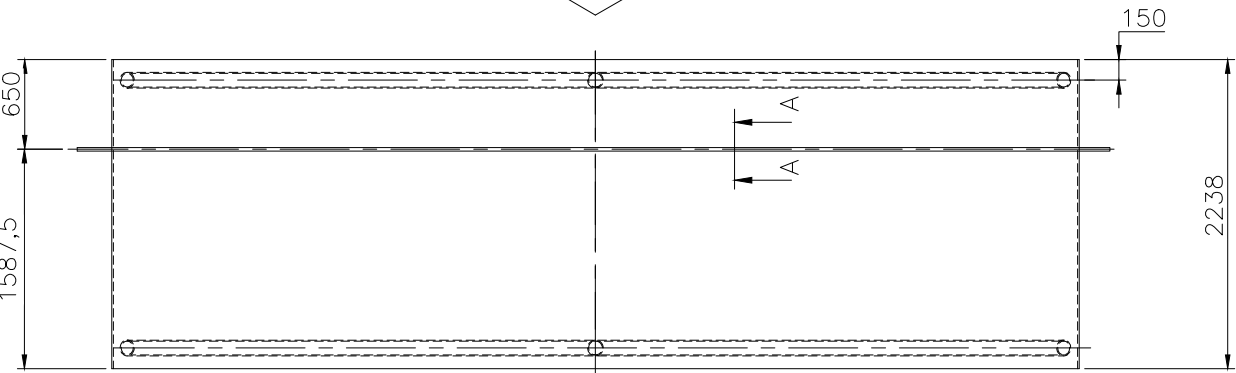
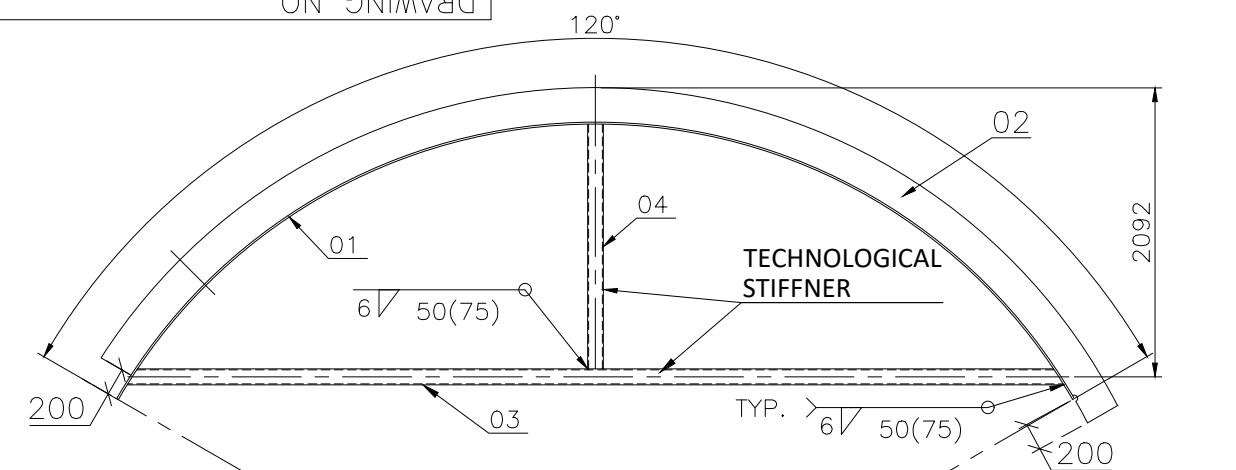
REV.	DATE	ALTERED	CHECKED
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- TECHNICAL REQUIREMENTS: —
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
 - PAINTING ON OUTSIDE SURFACES:
(i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER — I COAT — DFT 50 MICRON.
(ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT — I COAT — 50 MICRON.
 - BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
 - THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.
 - UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
 - (a) DIAMETER TOLERANCES
At ends: Da 2800 mm — 4900 mm = ±7 mm
Da 4900 mm — 6300 mm = ±8 mm
Da 6300 mm — 8100 mm = ±10 mm
(b) ADMISSIBLE OVALITY
At ends: Da 2800 mm — 4900 mm x = 14 mm
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Da 6300 mm — 8100 mm x = 20 mm
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80
(c) ADMISSIBLE OBLATENESS
Da ≤ 9220 mm q = 6 mm
 - TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
 - PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
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TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X800 MW ACC (PATRATU)			
DEPT. HXE		SCALE 1:40		WEIGHT(Kg.) 3475.5	
CODE 2444		REF. TO ASSY. DRG. 01709970022		ITEM NO. 05	
TITLE VERTICAL RISER-5		DRAWING NO. 21709970196		REV. 00	
SHEET NO. 01		NO.OF SHEETS 01		SIZE A2	

DRAWING NO. 21709970197



TECHNICAL REQUIREMENTS:-

- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILLET WELDS SHALL BE SUBJECTED TO 10% DPT.
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- UNLESS OTHERWISE STATED EDGE PREPARATION OF WELD JOINTS SHALL BE AS PER AA0620502.
- (a) DIAMETER TOLERANCES

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(24)Δ	(12)Δ	(10)▽	(6)▽	SIZE & SYMBOL OF SEAM
0.3	2.4	16.7	1.3	WELD LENGTH (M).
0.7	2.3	6.6	0.2	WT. OF WELD METAL (Kg).

E-7018		TYPE OF ELECTRODE	
GRADE OF UNTOL. DIM.:-		REV. DATE ALTERED CHECKED	
M/CG- V/C/M/F AA 0230208		REV. DATE ALTERED CHECKED	
WELDING-A/B/C/D-AA621104		REV. DATE ALTERED CHECKED	
GAS CUTTING-T3'AA0621101		REV. DATE ALTERED CHECKED	

CBOM NO. 01709970022		STATUS OF DRG. U	
AGREED DEPT. WT	NAME MANISH	SIGN -SD-	DATE 05.03.23

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X800 MW ACC (PATRATU)	
DEPT. HXE		SCALE 1:40	
CODE 2444		WEIGHT(Kg.) 3475.5	
TITLE VERTICAL RISER-4		REF. TO ASSY. DRG. 01709970022	
CARD CODE X		DRAWING NO. 21709970197	
SHEET NO. 01		NO.OF SHEETS 01	

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REF. DRG NO.

SIGN & DATE

INVENTORY NO.