

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	0170997002500	Y PIECE ACC DUCT	1	NO.	150

(Total qty in numbers= 1 nos. of 0170997002500 & Fab. Weight= 101598.2 kg. /pc)

TOTAL LOAD = 101598.2 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 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	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. 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	
15.	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 bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if: a) they have controlling partner (s) in common; or b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or c) they have the same legal representative/agent for purposes of this bid; or d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from. One bidding manufacturer in more than one bid; or f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a	

		particular tender enquiry. One manufacturer can also 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 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. "	
16.	EMD Applicability	EMD will be applicable as per GEM bid, however EMD is waived in following cases- 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. *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.	
17.	In course of evaluation, if more than one bidder happens to occupy L-1 status	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. 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."	

18.	GUARANTEE CERTIFICATE: -	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. 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)). During guarantee period, the vendor shall make good of items/replace the same free of cost. Alternatively, the rework/replacement charges may be recovered.	
19.	RECTIFICATION: -	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.	

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	

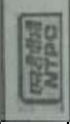
NOTE: PQR is not restrictive

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

20/06/2023
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Manager (WTN)]

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

complete name and address of manufacturing works of vendor

MANUFACTURING QUALITY PLAN										PROJECT: PATRATU 3 X 800MW PACKAGE: EPC(TG/ACC) CONTRACT No: 9585-001 CONTRACTOR : BHEL HARIDWAR				
ITEM: FABRICATION OF DUCTS AND MANIFOLDS			QP. No: PAT/ACC/DUCT U-2			Page No. 1 of 1								
SUB SYSTEM :- AS PER PO			REV 00,											
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	C	N	
1	2	3	4	5	6		7	8	9	D*	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	V	P	V	V	
		Mechanical Properties	Major	Lab. Test	1/Heat				TC	V	P	V	V	
		Internal Flaw	Major	UT Report	100%		ASTM A578 Level B-S2		UT Report	V	P	V	V	
B	INSPECTION - IN PROCESS	(UT on Plate > 40mm Thk)												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		
		Fit-up	Major	Visual	100%				IR		P	V		
B.2	Rolling & Fit-up	Dimensions	Major	Meas.	100%				IR		P	V		
		WPS, PQR, WPQ	Major	Review	100%		ASME Sec. IX		Record	V	P	V	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	V	P	V	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	V	P	W	V	
			Major	DPT	100%		ASME Sec VIII Div. 1 Appendix 8		PT Report	V	P	W	V	
		ii) Fillet Weld	Major	DPT	10%		ASME Sec VIII Div. 1 Appendix 8		PT Report	V	P	W	V	
		iii) Heat Treatment	If Applicable	HEAT Treatment chart	100%		ASME Sec VIII Div. 1 Appendix 8		SR Report	V	P	R	R	
		Completeness	Major	Visual	100%		Approved Drg. / Tech. Spec.		IR	V	P	W	V	
C	FINAL INSPECTION	Dimensions	Major	Meas.	Randomly from offered lot		Approved Drg. / Tech. Spec.		IR	V	P	W	W	
		Match Marking	Major	Visual			Approved Drg. / Tech. Spec.		IR	V	P	W	W	
		Identification	Major	Visual			Approved Drg. / Tech. Spec.		IR	V	P	W	V	
		Orientation	Major											
		Dimensions	Major											
D	TRIAL ASSEMBLY FOR LARGE SIZE DUCTS REDUCER, Y-PIECE, BRANCH, TRANSITION DUCTS	Match Marking	Major	Visual & Measurement	100%		Approved Drg. / Tech. Spec.		IR	V	P	W	W	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	Refer to Note 3
		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. : 						
MFD. SUB SUPPLIER	MAIN SUPPLIER													
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: 01709970025 CBOM Var: 00

Revno: 0

Rev Date: 16.06.2023

Description: Y PIECE ACC DUCT

Total weight: 101343.8

CBOM - 01709970025 00

	ENGG		WTX	
	Initial	Date	Initial	Date
Worked By	hxebds	20.05.2023	wtxman	15.06.2023
Checked By	hxebds	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00

Revno: 0

Rev Date: 16.06.2023

Description: Y PIECE ACC DUCT

Total weight: 101343.8

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	01709970025 00			101343.8						
1(1)	Y PIECE ACC DUCT			Y						
MF CD			Y	101598.2	SITE					
1	21709970208 00			961.5						
2(2)	Y PIECE PART-1			Y						
MF CD			N	966.4	0306-0314-000D					
1-1		AA1011819104	AA10119	845.8	1910.0X6573.0	1	2	1450.0	0.0	2900.0
1(2)	SHELL PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
1-2		AA1011052628	AA10152	14.7	1006.0	1	2	1.006	0.0	2.012
1(2)	TECHNOLOGICAL SUPPORT		1006	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
1-3		AA1011052628	AA10152	77.2	5421.0	1	2	5.421	0.0	10.842
1(2)	TECHNOLOGICAL SUPPORT		5421	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
1-4		AA1011819155	AA10119	5.9	250.0X186.0	1	4	9.6	0.0	38.4
2(4)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
1-5		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
1-6		AA1011819104	AA10119	4.8	350.0X125.0	1	4	5.0	0.0	20.0
2(4)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
2	21709970209 00			961.5						
2(2)	Y PIECE PART-2			Y						
MF CD			N	966.4	0306-0314-000D					
2-1		AA1011819104	AA10119	845.8	1910.0X6573.0	1	2	1450.0	0.0	2900.0
1(2)	SHELL PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

	Initial	Date	Initial	Date
Worked By	hxebds	20.05.2023	wtxman	15.06.2023
Checked By	hxebds	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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		
Type Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
2-2		AA1011052628	AA10152	14.7	1006.0	1	2	1.006	0.0	2.012
1(2)	TECHNOLOGICAL SUPPORT		1006	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
2-3		AA1011052628	AA10152	77.2	5421.0	1	2	5.421	0.0	10.842
1(2)	TECHNOLOGICAL SUPPORT		5421	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
2-4		AA1011819155	AA10119	5.9	250.0X186.0	1	4	9.6	0.0	38.4
2(4)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
2-5		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
2-6		AA1011819104	AA10119	4.8	350.0X125.0	1	4	5.0	0.0	20.0
2(4)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
3	21709970210 00			968.9						
1(1)	Y PIECE PART-3			Y						
MF CD			N	973.8	0306-0314-000D					
3-1		AA1011819090	AA10119	772.0	1684.0X8778.0	1	1	1463.43	0.0	1463.43
1(1)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
3-2		AA1011052628	AA10152	7.4	506.0	1	1	0.506	0.0	0.506
1(1)	TECHNOLOGICAL SUPPORT		506	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
3-3		AA1011052628	AA10152	46.7	3361.0	1	1	3.361	0.0	3.361
1(1)	TECHNOLOGICAL SUPPORT		3361	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
3-4		AA1011052628	AA10152	37.8	2588.0	1	1	2.588	0.0	2.588
1(1)	TECHNOLOGICAL SUPPORT		2588	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
3-5		AA1011052628	AA10152	81.2	5569.0	1	1	5.569	0.0	5.569
1(1)	TECHNOLOGICAL SUPPORT		5569	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
3-6		AA1011819155	AA10119	5.9	250.0X186.0	1	2	9.6	0.0	19.2
2(2)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
3-7		AA1011819104	AA10119	0.6	100.0X100.0	1	4	1.15	0.0	4.6
4(4)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
3-8		AA1011819104	AA10119	4.8	350.0X125.0	1	2	5.0	0.0	10.0
2(2)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
4	21709970211 00			968.9						
1(1)	Y PIECE PART-4			Y						
MF CD			N	973.8	0306-0314-000D					
4-1		AA1011819090	AA10119	772.0	1684.0X8778.0	1	1	1463.43	0.0	1463.43
1(1)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
4-2		AA1011052628	AA10152	7.4	506.0	1	1	0.506	0.0	0.506
1(1)	TECHNOLOGICAL SUPPORT		506	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
4-3		AA1011052628	AA10152	46.7	3361.0	1	1	3.361	0.0	3.361
1(1)	TECHNOLOGICAL SUPPORT		3361	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
4-4		AA1011052628	AA10152	37.8	2588.0	1	1	2.588	0.0	2.588
1(1)	TECHNOLOGICAL SUPPORT		2588	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
4-5		AA1011052628	AA10152	81.2	5569.0	1	1	5.69	0.0	5.69
1(1)	TECHNOLOGICAL SUPPORT		5569	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
4-6		AA1011819155	AA10119	5.9	250.0X186.0	1	2	9.6	0.0	19.2
2(2)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
4-7		AA1011819104	AA10119	0.6	100.0X100.0	1	4	1.15	0.0	4.6
4(4)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
4-8		AA1011819104	AA10119	4.8	350.0X125.0	1	2	5.0	0.0	10.0
2(2)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
5	21709970212 00			2202.5						
2(2)	Y PIECE PART-5			Y						
MF CD		N		2214.9	0306-0317-0314-000D					
5-1		AA1011819090	AA10119	1921.8	3746.0X5852.0	1	2	2170.24	0.0	4340.48
1(2)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
5-2		AA1011052628	AA10152	17.3	1188.0	1	4	1.188	0.0	4.752
2(4)	TECHNOLOGICAL SUPPORT		1188	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
5-3		AA1011052628	AA10152	66.6	4645.0	1	4	4.645	0.0	18.58
2(4)	TECHNOLOGICAL SUPPORT		4645	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
5-4		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
5-5		AA1011819074	AA10119	110.5	920.0X3170.0	1	2	240.6	0.0	481.2
1(2)	STIFFENER PLATE			Y	PL 10			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
6	21709970213 00			1166.0						
4(4)	Y PIECE PART-6			Y						
MF CD		N		1177.6	0306-0317-0314-000D					

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
6-1		AA1011819090	AA10119	895.8	2996.0X5852.0	1	4	1735.73	0.0	6942.92
1(4)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
6-2		AA1011052628	AA10152	17.3	1188.0	1	8	1.188	0.0	9.504
2(8)	TECHNOLOGICAL SUPPORT		1188	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
6-3		AA1011052628	AA10152	66.8	4625.0	1	8	4.625	0.0	37.0
2(8)	TECHNOLOGICAL SUPPORT		4645	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
6-4		AA1011819104	AA10119	0.6	100.0X100.0	1	16	1.15	0.0	18.4
4(16)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
6-5		AA1011819074	AA10119	100.0	835.0X2895.0	1	4	199.43	0.0	797.72
1(4)	STIFFENER PLATE			Y	PL 10			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
7	21709970214 00			1879.1						
2(2)	Y PIECE PART-7			Y						
MF CD			N	1891.5	0306-0317-0314-000D					
7-1		AA1011819090	AA10119	1598.4	3030.0X5852.0	1	2	1775.42	0.0	3550.84
1(2)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
7-2		AA1011052628	AA10152	17.3	1188.0	1	4	1.188	0.0	4.752
2(4)	TECHNOLOGICAL SUPPORT		1188	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
7-3		AA1011052628	AA10152	66.6	4645.0	1	4	4.645	0.0	18.58
2(4)	TECHNOLOGICAL SUPPORT		4645	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
7-4		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
7-5		AA1011819074	AA10119	110.5	920.0X3170.0	1	2	240.6	0.0	481.2
1(2)	STIFFENER PLATE			Y	PL 10			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
8	21709970215 00			1355.6						
2(2)	Y PIECE PART-8			Y						
MF CD			N	1363.8	0306-0317-0314-000D					
8-1		AA1011819090	AA10119	1085.4	2655.0X5852.0	1	2	1538.2	0.0	3076.4
1(2)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
8-2		AA1011052628	AA10152	17.3	1188.0	1	4	1.188	0.0	4.752
2(4)	TECHNOLOGICAL SUPPORT		1188	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
8-3		AA1011052628	AA10152	66.6	4645.0	1	4	4.645	0.0	18.58
2(4)	TECHNOLOGICAL SUPPORT		4645	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
8-4		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
8-5		AA1011819074	AA10119	100.0	835.0X2895.0	1	2	199.43	0.0	398.86
1(2)	STIFFENER PLATE			Y	PL 10			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
9	21709970216 00			1355.6						
2(2)	Y PIECE PART-9			Y						
MF CD			N	1363.8	0306-0317-0314-000D					
9-1		AA1011819090	AA10119	1085.4	2655.0X5852.0	1	2	1538.2	0.0	3076.4
1(2)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
9-2		AA1011052628	AA10152	17.3	1188.0	1	4	1.188	0.0	4.752
2(4)	TECHNOLOGICAL SUPPORT		1188	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR

ENGG

WTX

	Initial	Date	Initial	Date
Worked By	hxebsd	20.05.2023	wtxman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
9-3		AA1011052628	AA10152	66.6	4645.0	1	4	4.645	0.0	18.58
2(4)	TECHNOLOGICAL SUPPORT		4645	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
9-4		AA1011819104	AA10119	0.6	100.0X100.0	1	8	1.15	0.0	9.2
4(8)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0317-0306					KG
9-5		AA1011819074	AA10119	100.0	835.0X2895.0	1	2	199.43	0.0	398.86
1(2)	STIFFENER PLATE			Y	PL 10			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
10	21709970217 00			1630.4						
1(1)	Y PIECE PART-10			Y						
MF CD			N	1636.0	0306-0314-000D					
10-1		AA1011819090	AA10119	1433.5	2484.0X8778.0	1	1	2158.65	0.0	2158.65
1(1)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
10-2		AA1011052628	AA10152	7.4	506.0	1	1	0.506	0.0	0.506
1(1)	TECHNOLOGICAL SUPPORT		506	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
10-3		AA1011052628	AA10152	46.7	3361.0	1	1	3.361	0.0	3.361
1(1)	TECHNOLOGICAL SUPPORT		3361	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
10-4		AA1011052628	AA10152	37.8	2588.0	1	1	2.588	0.0	2.588
1(1)	TECHNOLOGICAL SUPPORT		2588	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
10-5		AA1011052628	AA10152	81.2	5569.0	1	1	5.569	0.0	5.569
1(1)	TECHNOLOGICAL SUPPORT		5569	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
10-6		AA1011819155	AA10119	5.9	250.0X186.0	1	2	9.6	0.0	19.2
2(2)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG

ENGG

WTX

	Initial	Date	Initial	Date
Worked By	hxebsd	20.05.2023	wtxman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
10-7		AA1011819104	AA10119	0.6	100.0X100.0	1	4	1.15	0.0	4.6
4(4)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
10-8		AA1011819104	AA10119	4.8	350.0X125.0	1	2	5.0	0.0	10.0
2(2)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
11	21709970218 00			1630.4						
1(1)	Y PIECE PART-11			Y						
MF CD		N		1636.0	0306-0314-000D					
11-1		AA1011819090	AA10119	1433.5	2484.0X8778.0	1	1	2158.65	0.0	2158.65
1(1)	SHELL PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306-0301-0306					KG
11-2		AA1011052628	AA10152	7.4	506.0	1	1	0.506	0.0	0.506
1(1)	TECHNOLOGICAL SUPPORT		506	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
11-3		AA1011052628	AA10152	46.7	3361.0	1	1	3.361	0.0	3.361
1(1)	TECHNOLOGICAL SUPPORT		3361	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
11-4		AA1011052628	AA10152	37.8	2588.0	1	1	2.588	0.0	2.588
1(1)	TECHNOLOGICAL SUPPORT		2588	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
11-5		AA1011052628	AA10152	81.2	5569.0	1	1	5.569	0.0	5.569
1(1)	TECHNOLOGICAL SUPPORT		5569	Y	PI 115.0X5.40					
MF DR	ST-ERW-TUBE				0072-0315-0306					MR
11-6		AA1011819155	AA10119	5.9	250.0X186.0	1	2	9.6	0.0	19.2
2(2)	LIFTING LUG PLATE		250X186	Y	PL 25					
MF DR	ST-FE410 WB-PLATE				0072-0301-0317-0306					KG
11-7		AA1011819104	AA10119	0.6	100.0X100.0	1	4	1.15	0.0	4.6
4(4)	PLATE		100X100	Y	PL 14			Dia 100/50		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
11-8		AA1011819104	AA10119	4.8	350.0X125.0	1	2	5.0	0.0	10.0
2(2)	PAD PLATE		350X125	Y	PL 14					
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
12		AA1010209361	AA10109	222.0	400.0	1	2	233.2	0.0	466.4
2(2)	ROUND BAR		L=400	Y	RND DIA 300 MM					
MF CD	HOT ROLLED CARBON STEEL BARS				0072-0315-0314-000D					KG
13	31709970059 00	AA1011819139	AA10119	192.7	795.0X2340.0	1	8	306.95	0.0	2455.6
8(8)	STIFFENER RING			Y	PL 20		Make in 2 parts			
MF CD					0072-0301-0306-0314-000D					KG
14	31709970061 00	AA1011819139	AA10119	552.0	1085.0X3290.0	1	4	589.0	0.0	2356.0
4(4)	STIFFENER RING			Y	PL 20		Make in 2 parts			
MF CD					0072-0301-0306-0314-000D					KG
15	31709970062 00	AA1011819139	AA10119	274.0	890.0X3260.0	1	4	478.73	0.0	1914.92
4(4)	STIFFENER RING			Y	PL 20		Make in 2 parts			
MF CD					0072-0301-0306-0314-000D					KG
16	31709970063 00	AA1011819074	AA10119	103.3	840.0X2360.0	1	8	163.5	0.0	1308.0
8(8)	STIFFENER RING			Y	PL 10		Make in 2 parts			
MF CD					0072-0301-0306-0314-000D					KG
17		HW1011819953	AA10119	332.1	300.0X4700.0	1	4	349.0	0.0	1396.0
4(4)	STIFFENER PLATE		300X4700	Y	PL 30					
MF CD	ST-FE410 WB-PLATE				0072-0301-0314-000D					KG
18		AA1010209361	AA10109	249.7	450.0	1	2	262.28	0.0	524.56
2(2)	ROUND BAR		L=450	Y	RND DIA 300 MM					
MF CD	HOT ROLLED CARBON STEEL BARS				0072-0315-0314-000D					KG
19	31709970064 00	HW1011819953	AA10119	638.0	1385.0X2720.0	1	2	932.4	0.0	1864.8
2(2)	STIFFENER PLATE			Y	PL 30		Make in 3 parts			
MF CD					0072-0301-0306-0314-000D					KG
20	31709970065 00	HW1011819953	AA10119	723.0	1445.0X3050.0	1	2	1090.8	0.0	2181.6
2(2)	STIFFENER RING			Y	PL 30		Make in 3 parts			
MF CD					0072-0301-0306-0314-000D					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
21		AA1041155727	AA10455	739.0	4930.0	1	1	4.93	0.0	4.93
1(1)	PIPE		L=4930	Y	PI 323.9X20					
MF CD	PIPE				0072-0315-0314-000D					MR
22		AA1041155727	AA10455	941.3	6280.0	1	2	6.28	0.0	12.56
2(2)	PIPE		L=6280	Y	PI 323.9X20					
MF CD	PIPE				0072-0315-0314-000D					MR
23		AA1041155727	AA10455	1098.7	7330.0	1	1	7.33	0.0	7.33
1(1)	PIPE		L=7330	Y	PI 323.9X20					
MF CD	PIPE				0072-0315-0314-000D					MR
24	41709970017 00	HW1011819953	AA10119	66.0	616.0X500.0	1	8	76.23	0.0	609.84
8(8)	SUPPORT PLATE			Y	PL 30					
MF CD					0072-0301-0306-0314-000D					KG
25	21709970222 00			4343.0						
1(1)	Y PIECE RIGHT CONE-1			Y						
MF CD			N	4354.0	0306-0314-000D					
25-1		AA1011819104	AA10119	3633.0	5070.0X12861.0	1	1	7531.2	0.0	7531.2
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
25-2		AA1011819104	AA10119	131.0	815.0X2345.0	1	1	220.74	0.0	220.74
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
25-3		AA1011819104	AA10119	137.0	790.0X2440.0	1	1	22.64	0.0	22.64
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
25-4		AA1011819104	AA10119	124.5	735.0X2230.0	1	1	205.78	0.0	205.78
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
25-5		AA1011819104	AA10119	93.8	645.0X1695.0	1	1	126.27	0.0	126.27
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
25-6		AA1011819104	AA10119	77.0	610.0X1395.0	1	1	98.28	0.0	98.28
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
25-7		AA1011819104	AA10119	64.0	590.0X1160.0	1	1	79.0	0.0	79.0
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
25-8		AA1011819104	AA10119	53.0	375.0X1917.0	1	1	83.0	0.0	83.0
1(1)	STIFFENER RING			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
25-9		AA1011819104	AA10119	30.0	297.0X1078.0	1	1	37.0	0.0	37.0
1(1)	STIFFENER RING			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26	21709970223 00			4271.5						
1(1)	Y PIECE RIGHT CONE-2			Y						
MF CD			N	4282.5	0306-0314-000D					
26-1		AA1011819104	AA10119	3633.0	5070.0X12861.0	1	1	7531.2	0.0	7531.2
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
26-2		AA1011819104	AA10119	131.0	815.0X2345.0	1	1	220.74	0.0	220.74
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-3		AA1011819104	AA10119	137.0	785.0X2440.0	1	1	221.23	0.0	221.23
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-4		AA1011819104	AA10119	111.8	700.0X2010.0	1	1	162.5	0.0	162.5
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-5		AA1011819104	AA10119	82.0	625.0X1490.0	1	1	107.56	0.0	107.56
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
26-6		AA1011819104	AA10119	64.8	590.0X1180.0	1	1	80.4	0.0	80.4
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-7		AA1011819104	AA10119	51.2	370.0X1840.0	1	1	96.88	0.0	96.88
1(1)	STIFFENER RING			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-8		AA1011819104	AA10119	41.9	330.0X1510.0	1	1	57.55	0.0	57.55
1(1)	STIFFENER RING			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
26-9		AA1011819104	AA10119	17.8	275.0X650.0	1	1	20.65	0.0	20.65
1(1)	STIFFENER RING			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27	21709970224 00			8112.0						
1(1)	Y PIECE RIGHT CONE-3			Y						
MF CD			N	8123.0	0306-0314-000D					
27-1		AA1011819104	AA10119	3633.0	6400.0X12834.0	1	1	9486.9	0.0	9486.9
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
27-2		AA1011819104	AA10119	131.0	775.0X2330.0	1	1	208.56	0.0	208.56
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-3		AA1011819104	AA10119	137.0	785.0X2440.0	1	1	221.23	0.0	221.23
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-4		AA1011819104	AA10119	143.8	800.0X2560.0	1	1	236.54	0.0	236.54
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-5		AA1011819104	AA10119	150.7	810.0X2685.0	1	1	251.2	0.0	251.2
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
27-6		AA1011819104	AA10119	157.6	823.0X2793.0	1	1	265.5	0.0	265.5
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-7		AA1011819104	AA10119	164.0	834.0X2910.0	1	1	280.3	0.0	280.3
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-8		AA1011819104	AA10119	171.5	845.0X3030.0	1	1	295.7	0.0	295.7
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
27-9		AA1011819104	AA10119	178.5	855.0X3145.0	1	1	310.57	0.0	310.57
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28	21709970225 00			8112.0						
1(1)	Y PIECE RIGHT CONE-4			Y						
MF CD			N	8123.0	0306-0314-000D					
28-1		AA1011819104	AA10119	3633.0	6400.0X12834.0	1	1	9486.9	0.0	9486.9
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
28-2		AA1011819104	AA10119	131.0	775.0X2330.0	1	1	208.56	0.0	208.56
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-3		AA1011819104	AA10119	137.0	785.0X2440.0	1	1	221.23	0.0	221.23
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-4		AA1011819104	AA10119	143.8	800.0X2560.0	1	1	236.54	0.0	236.54
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-5		AA1011819104	AA10119	150.7	810.0X2685.0	1	1	251.2	0.0	251.2
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
28-6		AA1011819104	AA10119	157.6	823.0X2793.0	1	1	265.5	0.0	265.5
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-7		AA1011819104	AA10119	164.0	834.0X2910.0	1	1	295.7	0.0	295.7
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-8		AA1011819104	AA10119	171.5	845.0X3030.0	1	1	295.7	0.0	295.7
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
28-9		AA1011819104	AA10119	178.5	855.0X3145.0	1	1	310.57	0.0	310.57
1(1)	STIFFENER RING			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
29	21709970207 00			2363.0						
1(1)	Y PIECE CENTRE -1			Y						
MF CD			N	2352.0	0306-0314-000D					
29-1		AA1011819104	AA10119	2185.5	3670.0X10640.0	1	1	4510.14	0.0	4510.14
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
29-2		AA1011819090	AA10119	36.8	480.0X1190.0	1	1	56.55	0.0	56.55
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
29-3		AA1011819090	AA10119	42.0	475.0X1515.0	1	1	71.24	0.0	71.24
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
29-4		AA1011819090	AA10119	30.0	385.0X1075.0	1	1	40.97	0.0	40.97
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
29-5		AA1011819090	AA10119	18.0	225.0X1300.0	1	1	29.0	0.0	29.0
1(1)	STIFFENER RING			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

ENGG

WTX

	Initial	Date	Initial	Date
Worked By	hxebds	20.05.2023	wtxman	15.06.2023
Checked By	hxebds	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
29-6		AA1011819090	AA10119	9.2	170.0X670.0	1	1	11.3	0.0	11.3
1(1)	STIFFENER RING			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
29-7		AA1011819090	AA10119	30.0	150.0X2152.0	1	1	32.0	0.0	32.0
1(1)	STIFFENER PLATE			Y	PL 12					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30	21709970219 00			2353.0						
1(1)	Y PIECE CENTRE CONE-2			Y						
MF CD		N		2343.0	0306-0314-000D					
30-1		AA1011819104	AA10119	2185.5	3670.0X10640.0	1	1	4510.14	0.0	4510.14
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
30-2		AA1011819090	AA10119	36.8	480.0X1190.0	1	1	56.55	0.0	56.55
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30-3		AA1011819090	AA10119	42.0	475.0X1515.0	1	1	71.24	0.0	71.24
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30-4		AA1011819090	AA10119	27.2	375.0X990.0	1	1	36.75	0.0	36.75
1(1)	STIFFENER RING			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30-5		AA1011819090	AA10119	16.0	210.0X1160.0	1	1	24.12	0.0	24.12
1(1)	STIFFENER RING			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30-6		AA1011819090	AA10119	7.6	165.0X560.0	1	1	9.2	0.0	9.2
1(1)	STIFFENER PLATE			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
30-7		AA1011819090	AA10119	30.0	150.0X2152.0	1	1	32.0	0.0	32.0
1(1)	STIFFENER PLATE			Y	PL 12					
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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		
Type Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
31	21709970220 00			1832.0						
1(1)	Y PIECE CENTRE CONE-3			Y						
MF CD		N		1822.0	0306-0314-000D					
31-1		AA1011819104	AA10119	1699.0	3670.0X9712.0	1	1	4116.77	0.0	4116.77
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
31-2		AA1011819090	AA10119	42.0	480.0X1190.0	1	1	56.55	0.0	56.55
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
31-3		AA1011819090	AA10119	32.7	475.0X1515.0	1	1	71.24	0.0	71.24
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
31-4		AA1011819090	AA10119	30.0	385.0X1075.0	1	1	40.97	0.0	40.97
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
31-5		AA1011819090	AA10119	18.0	225.0X1300.0	1	1	29.0	0.0	29.0
1(1)	STIFFENER PLATE			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
32	21709970221 00			1832.0						
1(1)	Y PIECE CENTRE CONE-4			Y						
MF CD		N		1822.0	0306-0314-000D					
32-1		AA1011819104	AA10119	1699.0	3670.0X9712.0	1	1	4116.77	0.0	4116.77
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
32-2		AA1011819090	AA10119	42.0	480.0X1190.0	1	1	56.55	0.0	56.55
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
32-3		AA1011819090	AA10119	32.7	475.0X1515.0	1	1	71.24	0.0	71.24
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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		
Type Cat Zone	Var/Matl. Description		ENGG SIZE/GRP	Fab Wt	Route				Spare Code	Unit
32-4		AA1011819090	AA10119	30.0	385.0X1075.0	1	1	40.97	0.0	40.97
1(1)	STIFFENER PLATE			Y	PL 12			Make in 2 parts		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
32-5		AA1011819090	AA10119	18.0	225.0X1300.0	1	1	29.0	0.0	29.0
1(1)	STIFFENER PLATE			Y	PL 12			Make in single part.		
MF DR	ST-FE410 WB-PLATE				0072-0301-0306					KG
33	11709970175 00			4841.0						
1(1)	Y-PIECE LEFT CONE-01			Y						
MF CD			N		0306-0314-000D					
33-1		AA1011819104	AA10119	4022.0	12870.0X5230.0	1	1	7774.3	0.0	7774.3
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
33-2		AA1011819104	AA10119	137.0	785.0X2440.0	1	1	221.22	0.0	221.22
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-3		AA1011819104	AA10119	144.0	795.0X2560.0	1	1	235.0	0.0	235.0
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-4		AA1011819104	AA10119	116.0	700.0X2080.0	1	1	168.2	0.0	168.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-5		AA1011819104	AA10119	92.0	635.0X1640.0	1	1	120.3	0.0	120.3
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-6		AA1011819104	AA10119	75.0	605.0X1360.0	1	1	95.0	0.0	95.0
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-7		AA1011819104	AA10119	60.0	580.0X1110.0	1	1	74.35	0.0	74.35
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	Initial	Date	Initial	Date
Checked By	hxebsd	20.05.2023	wtxman	15.06.2023
Approved By	hxebsd	15.06.2023	bk2rd	15.06.2023
	hxebsd	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
33-8		AA1011819104	AA10119	37.0	310.0X1290.0	1	1	46.2	0.0	46.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
33-9		AA1011819104	AA10119	142.0	820.0X2360.0	1	1	223.5	0.0	223.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34	11709970176 00			4781.0						
1(1)	Y-PIECE LEFT CONE-02			Y						
MF CD			N		0306-0314-000D					
34-1		AA1011819104	AA10119	4022.0	12870.0X5230.0	1	1	7774.3	0.0	7774.3
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
34-2		AA1011819104	AA10119	142.0	820.0X2360.0	1	1	223.5	0.0	223.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-3		AA1011819104	AA10119	137.0	790.0X2440.0	1	1	222.64	0.0	222.64
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-4		AA1011819104	AA10119	144.0	800.0X2560.0	1	1	236.54	0.0	236.54
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-5		AA1011819104	AA10119	104.0	670.0X1875.0	1	1	145.0	0.0	145.0
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-6		AA1011819104	AA10119	80.0	530.0X2850.0	1	1	174.46	0.0	174.46
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-7		AA1011819104	AA10119	63.0	420.0X2225.0	1	1	107.93	0.0	107.93
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
34-8		AA1011819104	AA10119	48.0	355.0X1720.0	1	1	70.52	0.0	70.52
1(1)	STIFFENER PLATE			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
34-9		AA1011819104	AA10119	25.0	285.0X895.0	1	1	29.5	0.0	29.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in single part.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35	11709970177 00			8168.0						
1(1)	Y-PIECE LEFT CONE-03			Y						
MF CD			N		0306-0314-000D					
35-1		AA1011819104	AA10119	6874.0	12380.0X6561.0	1	1	9381.5	0.0	9381.5
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
35-2		AA1011819104	AA10119	152.0	820.0X2360.0	1	1	223.5	0.0	223.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-3		AA1011819104	AA10119	137.0	790.0X2440.0	1	1	22.64	0.0	22.64
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-4		AA1011819104	AA10119	144.0	800.0X2560.0	1	1	236.54	0.0	236.54
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-5		AA1011819104	AA10119	151.0	810.0X2680.0	1	1	239.5	0.0	239.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-6		AA1011819104	AA10119	158.0	820.0X2800.0	1	1	265.2	0.0	265.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-7		AA1011819104	AA10119	165.0	835.0X2915.0	1	1	281.2	0.0	281.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00
Description: Y PIECE ACC DUCT

Revno: 0

Rev Date: 16.06.2023

Total weight: 101343.8

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
35-8		AA1011819104	AA10119	171.0	840.0X3035.0	1	1	294.5	0.0	294.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
35-9		AA1011819104	AA10119	178.0	855.0X3153.0	1	1	311.4	0.0	311.4
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36	11709970178 00			8168.0						
1(1)	Y-PIECE LEFT CONE-04			Y						
MF CD			N		0306-0314-000D					
36-1		AA1011819104	AA10119	6874.0	12380.0X6561.0	1	1	9381.5	0.0	9381.5
1(1)	DUCT PLATE			Y	PL 14			300mm. bend. allowance incl.		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306-0301-0306					KG
36-2		AA1011819104	AA10119	152.0	820.0X2360.0	1	1	223.5	0.0	223.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-3		AA1011819104	AA10119	137.0	790.0X2440.0	1	1	22.64	0.0	22.64
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-4		AA1011819104	AA10119	144.0	800.0X2560.0	1	1	236.54	0.0	236.54
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-5		AA1011819104	AA10119	151.0	810.0X2680.0	1	1	239.5	0.0	239.5
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-6		AA1011819104	AA10119	158.0	820.0X2800.0	1	1	265.2	0.0	265.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-7		AA1011819104	AA10119	165.0	835.0X2915.0	1	1	281.2	0.0	281.2
1(1)	STIFFENER PLATE			Y	PL 14			Make in 2 parts		
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

ENGG

WTX

Worked By	hxebsd	20.05.2023	wtzman	15.06.2023
Checked By	hxebsd	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023



COMBINED BILL OF MATERIAL

Printed On:13.07.2023

Printed By:

CBOM No: 01709970025 CBOM Var: 00

Revno: 0

Rev Date: 16.06.2023

Description: Y PIECE ACC DUCT

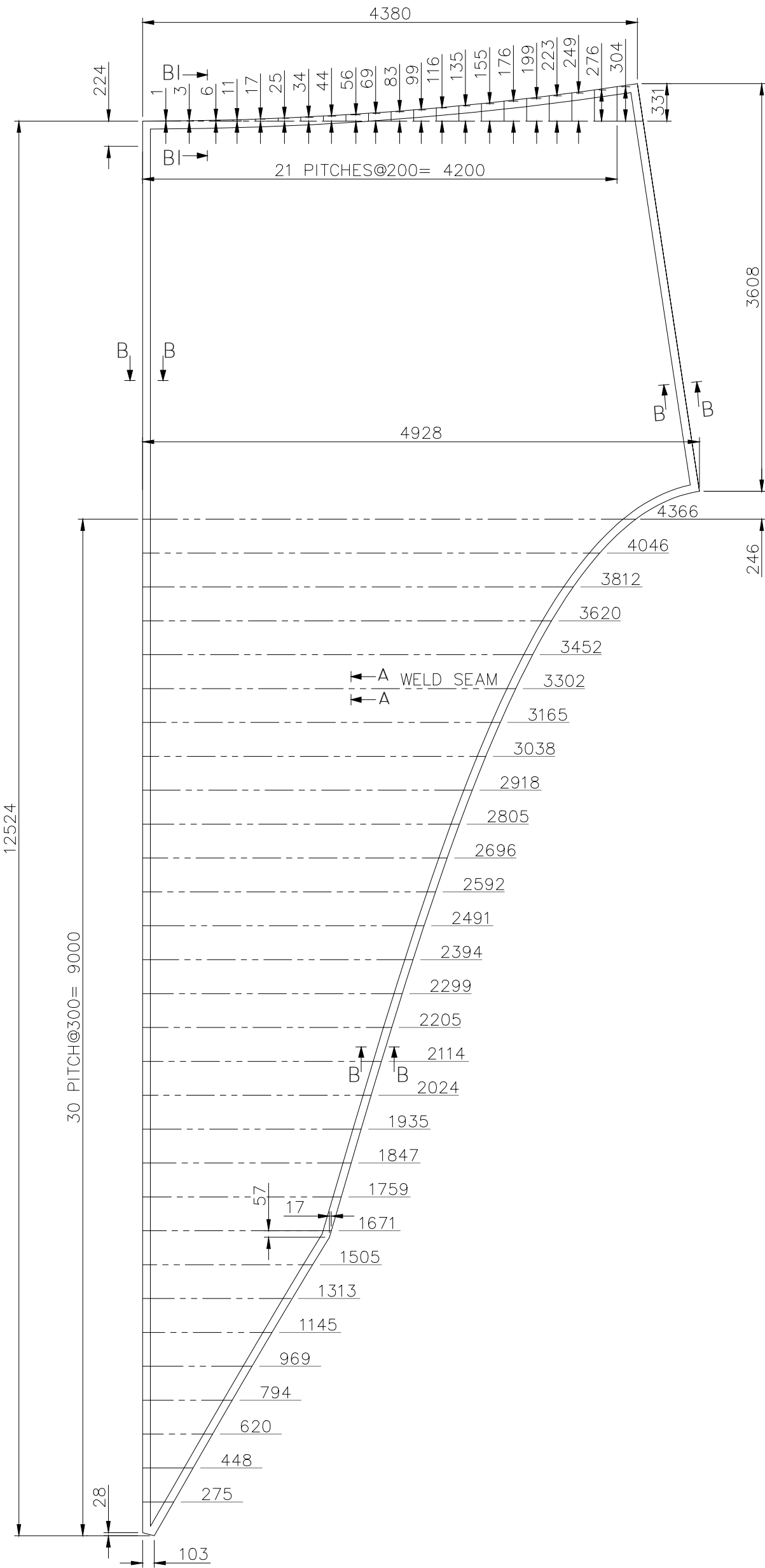
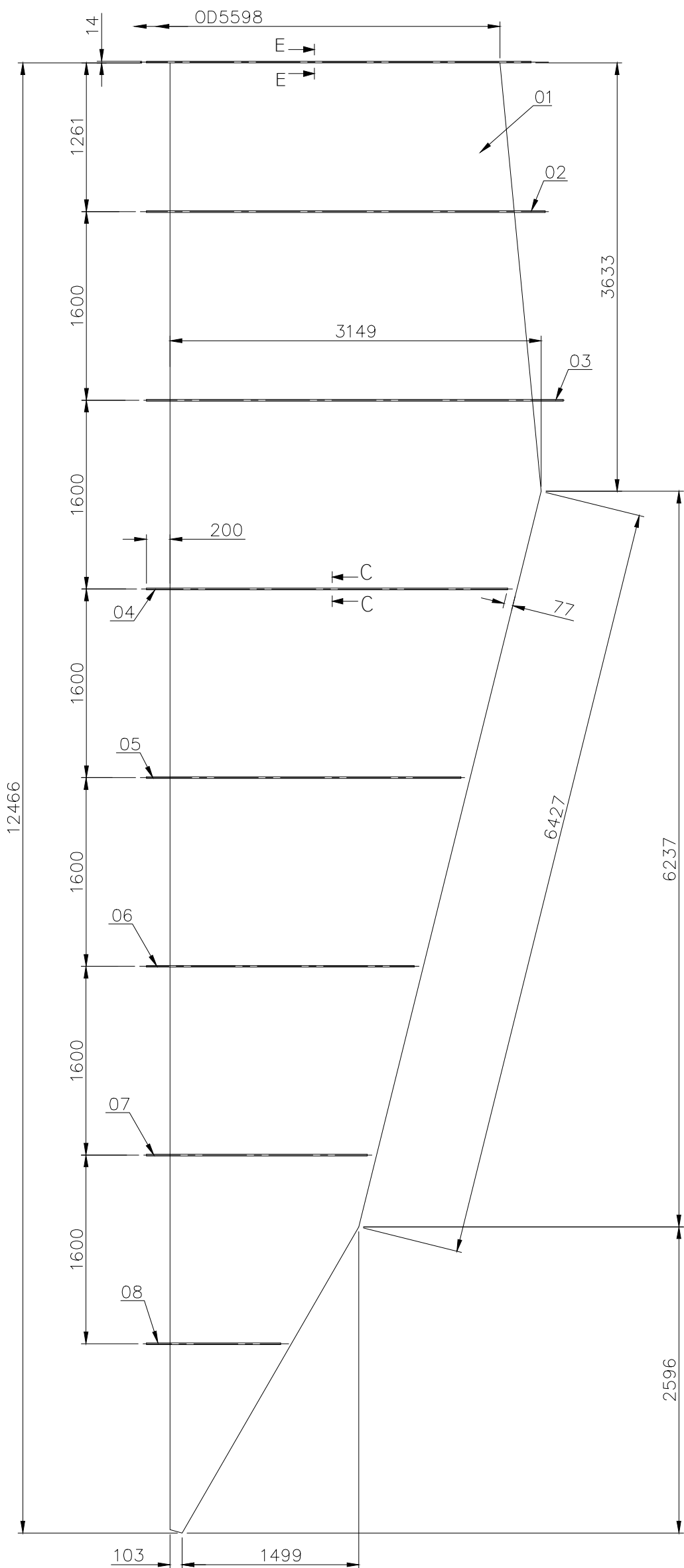
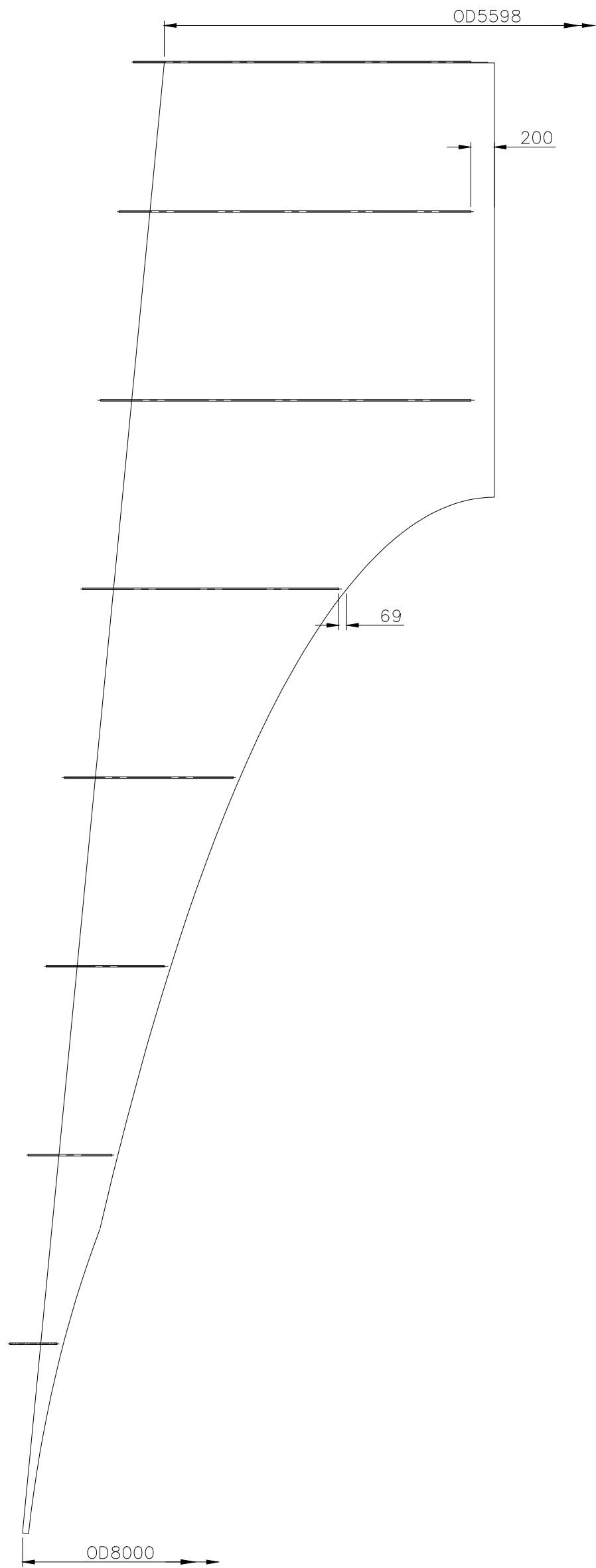
Total weight: 101343.8

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
36-8		AA1011819104	AA10119	171.0	840.0X3035.0	1	1	294.5	0.0	294.5
1(1)	STIFFENER PLATE			Y	PL 14		Make in 2 parts			
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG
36-9		AA1011819104	AA10119	178.0	855.0X3153.0	1	1	311.4	0.0	311.4
1(1)	STIFFENER PLATE			Y	PL 14		Make in 2 parts			
MF DR	STRUCTURAL STEEL WELDABLE				0072-0301-0306					KG

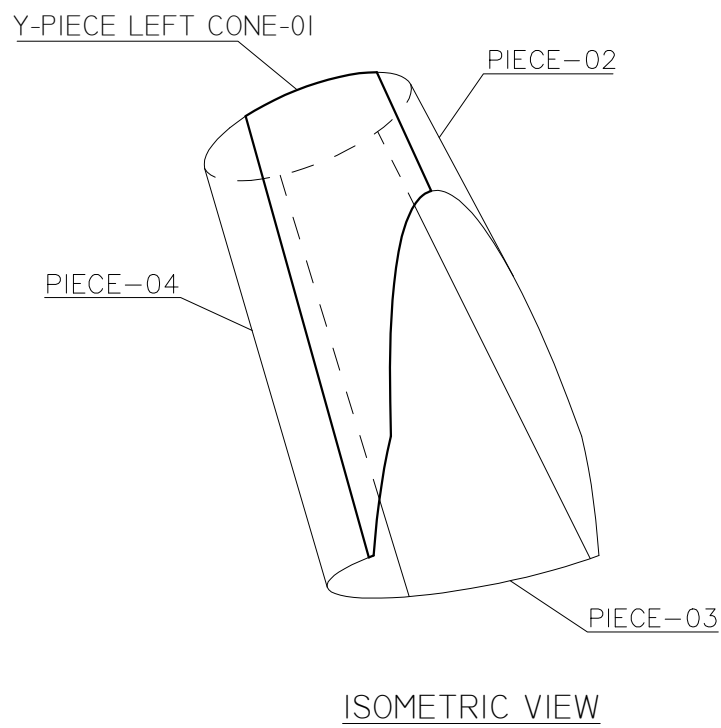
CBOM - 01709970025

	ENGG		WTX	
	Initial	Date	Initial	Date
Worked By	hxebds	20.05.2023	wtxman	15.06.2023
Checked By	hxebds	15.06.2023	bk2rd	15.06.2023
Approved By	hxenp	16.06.2023	wtxskg	16.06.2023

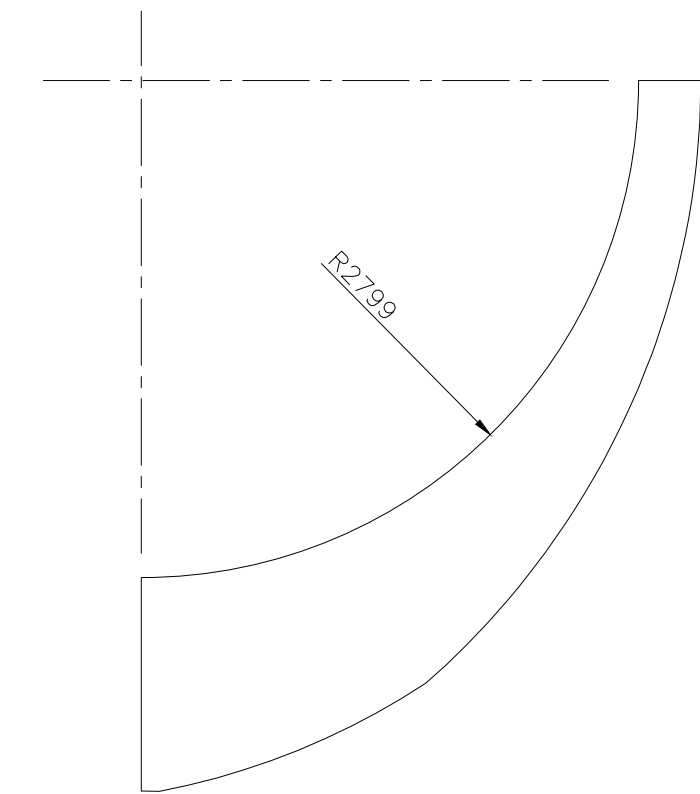
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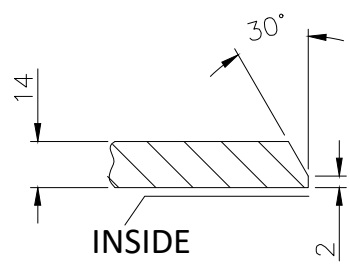
DEVEP. OF LEFT CONE PIECE
IT. No.-01



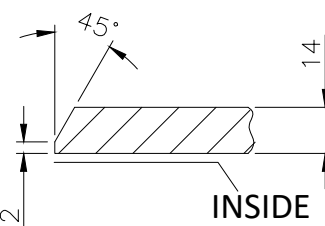
ISOMETRIC VIEW



FOR CLARITY STIFFENERS
NOT SHOWN IN THIS VIEW



SEC. B-B



SEC. BI-BI

10	6	12	10	SIZE & SYMBOL OF SEAM
4.3	4.3	6.0	23	WELD LENGTH (Mt.)
0.7	0.6	5.6	10	WT. OF WELD METAL-Kg.

E-7018

TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:-

M/CG- V/C/M/F - AA0230208

WELDING-A/B/C/D- AA621104

GAS CUTTING- 'T3'AA0621101

REV. DATE ALTERED

CHECKED

CBOM NO. 01709970025

STATUS OF DRG. U

AGREED DEPT. NAME SIGN DATE

REV. DATE ALTERED

CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 3x800 MW ACC (PATRATU)

NAME	SIGN	DATE	NO. OF VAR.
DRN AJAY KUMAR	Sd..	12.05.23	~
CHD AXAY KUMAR	Sd..	12.05.23	~
APD N.PRAKASH	Sd..	12.05.23	73, 74

DEPT.	HXE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
CODE	4222	1:40	4841	~	~	~

TITLE	DRAWING NO.	REV.
Y-PIECE LEFT CONE-01	11709970175	00

SHEET NO. 01 NO. OF SHEETS 01

SIZE A1

TECHNICAL REQUIREMENTS:-

- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - 1 COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - 1 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 ± 7mm

(b) ADMISSIBLE OVALITY; AT ENDS (Da max-Da min)=14mm

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

(c) ADMISSIBLE ORBLATNESS: q=6mm

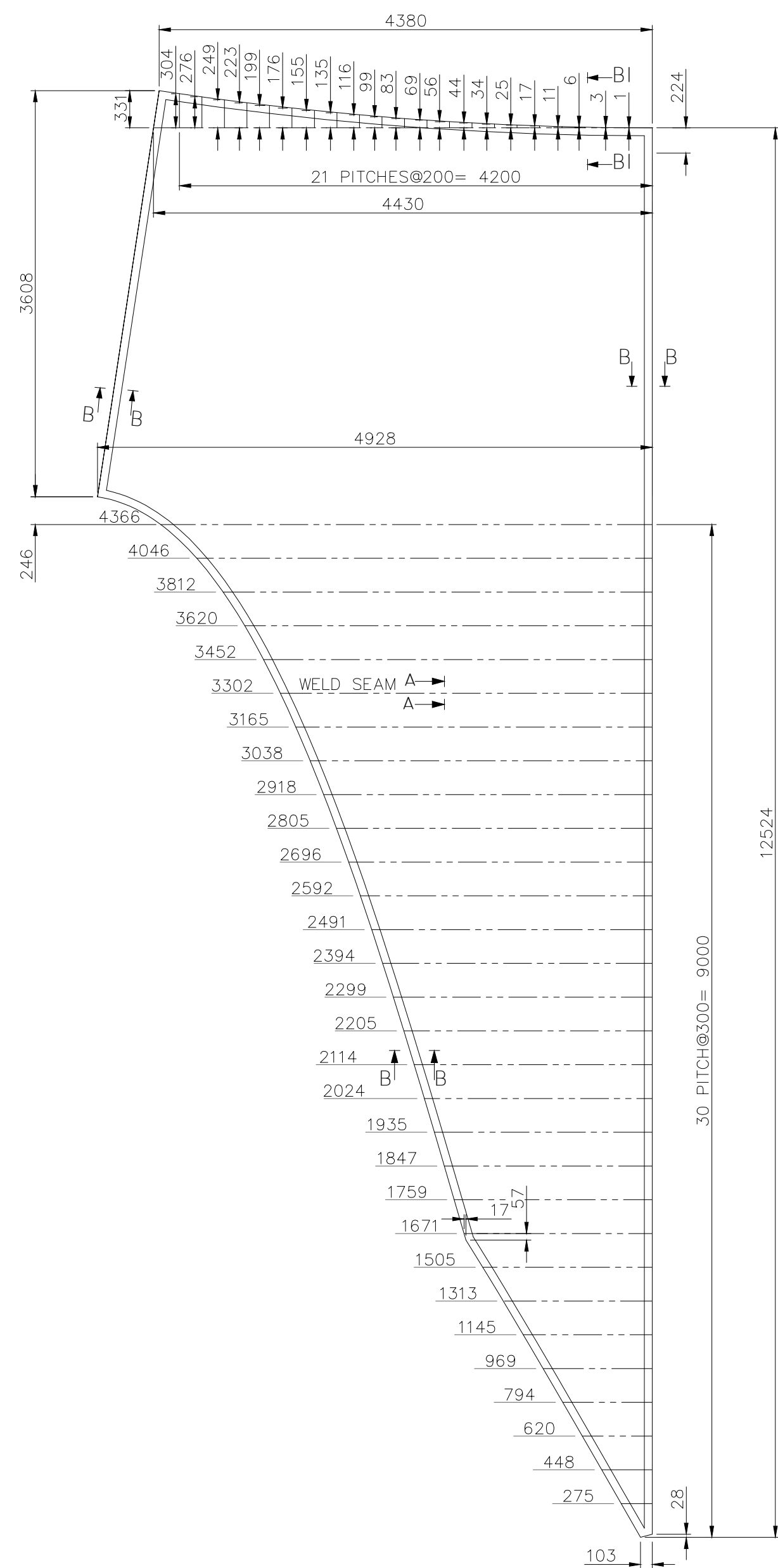
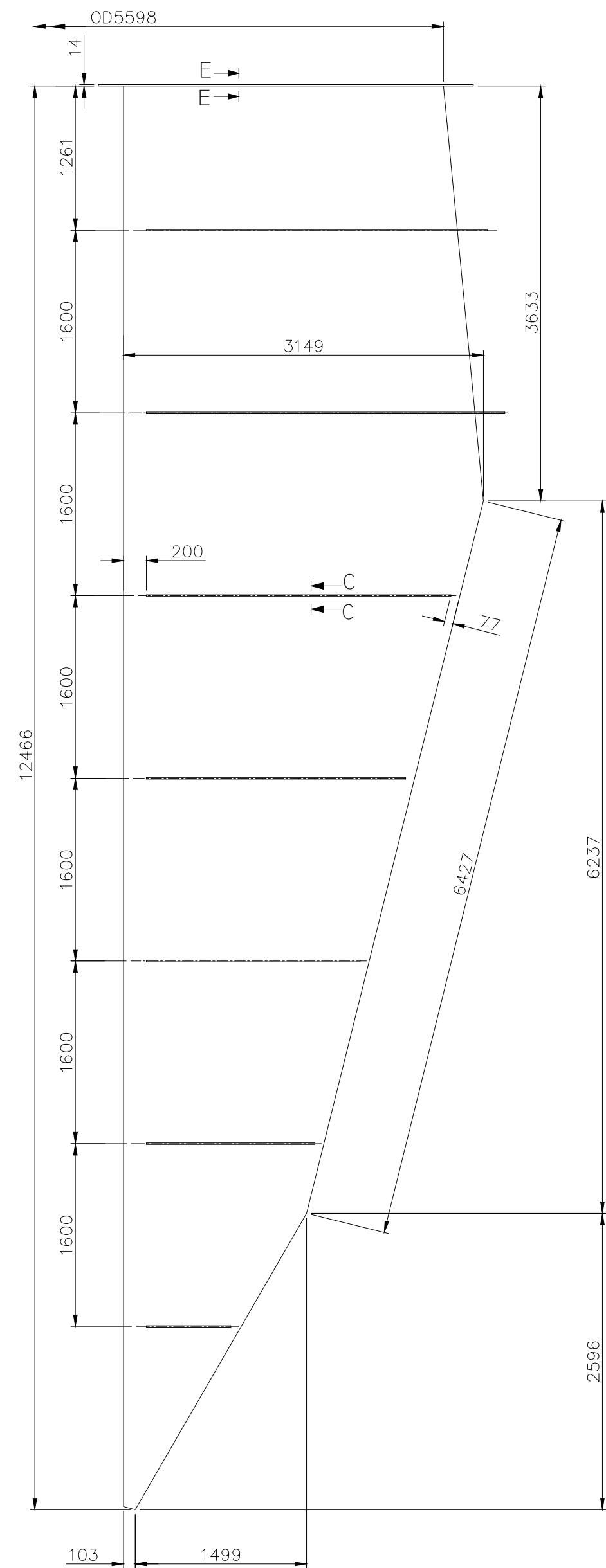
Da ≤ 9220 mm

q = 6 mm

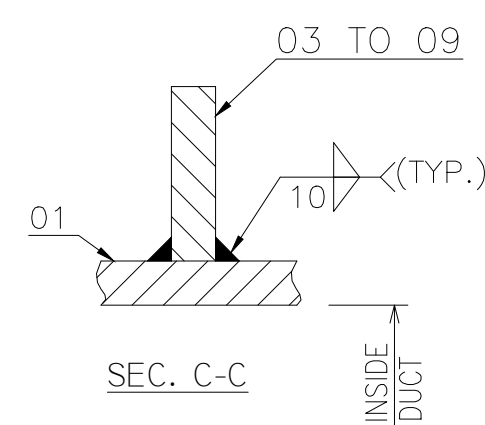
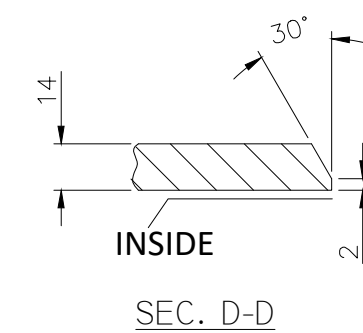
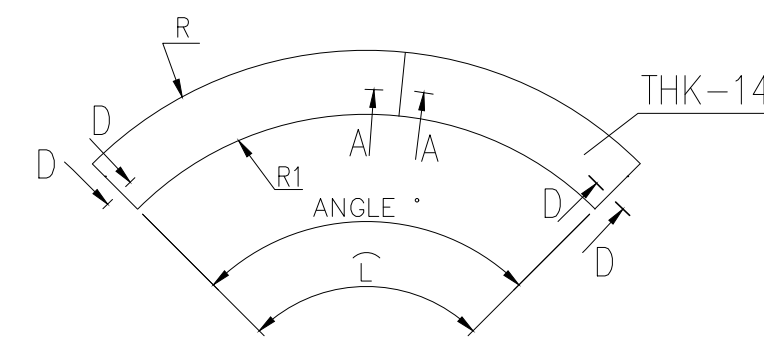
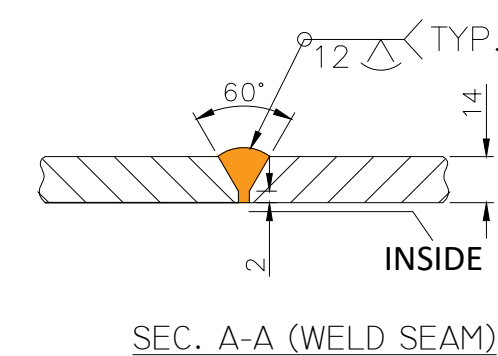
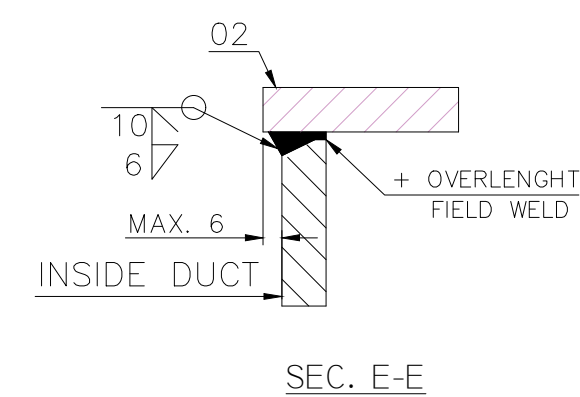
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. ADDITIONAL TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE MAY BE MADE IN MAX. 06 PARTS, WELDED AS PER SECTION A-A & STIFFENERS MAY BE MADE IN MAXIMUM 4 PARTS, WELDED AS PER SECTION A-A SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM 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.
- ANY DEVIATION FROM DIMENSION GIVEN IN THE DRAWING SHALL BE RECTIFIED AT SITE BY THE VENDOR.

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



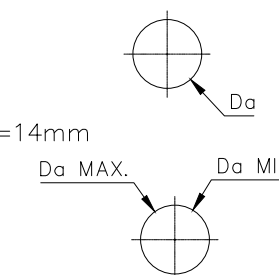
DEVEP. OF LEFT CONE PIECE
IT. No.-01



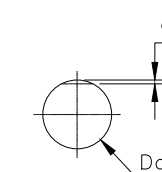
IT. NO.	R	R1	ANGLE*	ARC LENGHT (L)	WT.-Kg.
02	3073	2793	90°	QTR. CIRCLE	142
03	3180	2920	90°	QTR. CIRCLE	137
04	3335	3075	90°	QTR. CIRCLE	144
05	3489	3229	62°	3511	104
06	3643	3383	46°	2700	80
07	3797	3537	34°	2128	63
08	3952	3692	25°	1633	48
09	4106	3846	12°	835	25

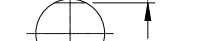
TECHNICAL REQUIREMENTS: –

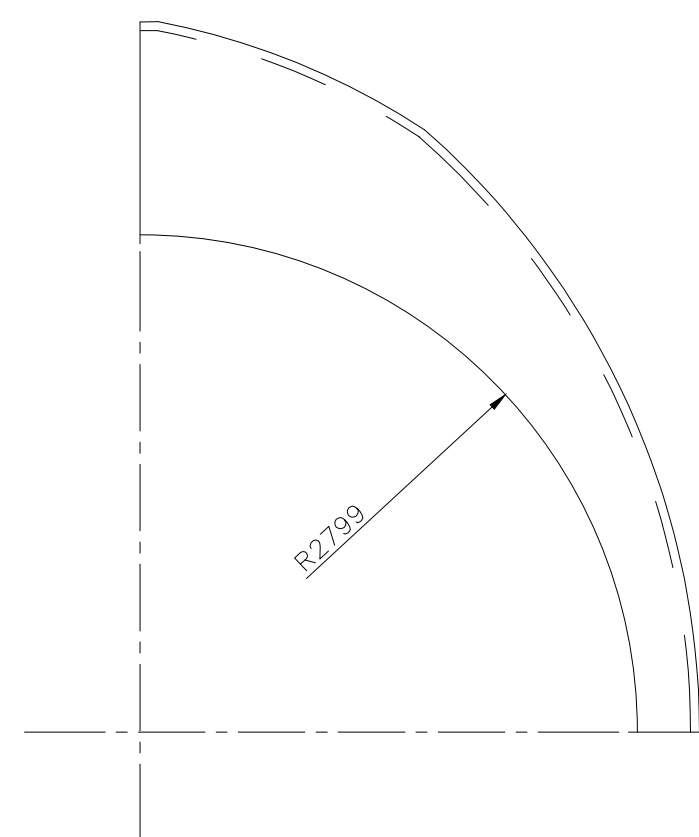
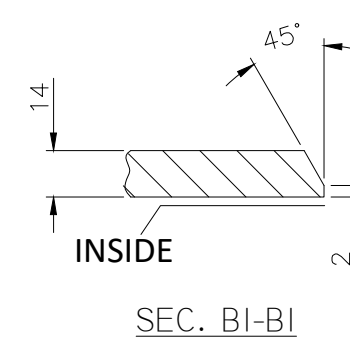
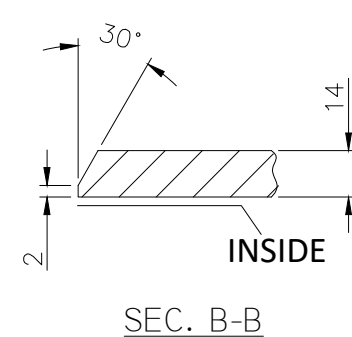
1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
 2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - 1 COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - 1 COAT - 50 MICRON.
 3. BUTT WELDS SHALL BE SUBJECTED TO 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.
- (a) DIAMETER TOLERANCES: AT ENDS $\pm 7mm$



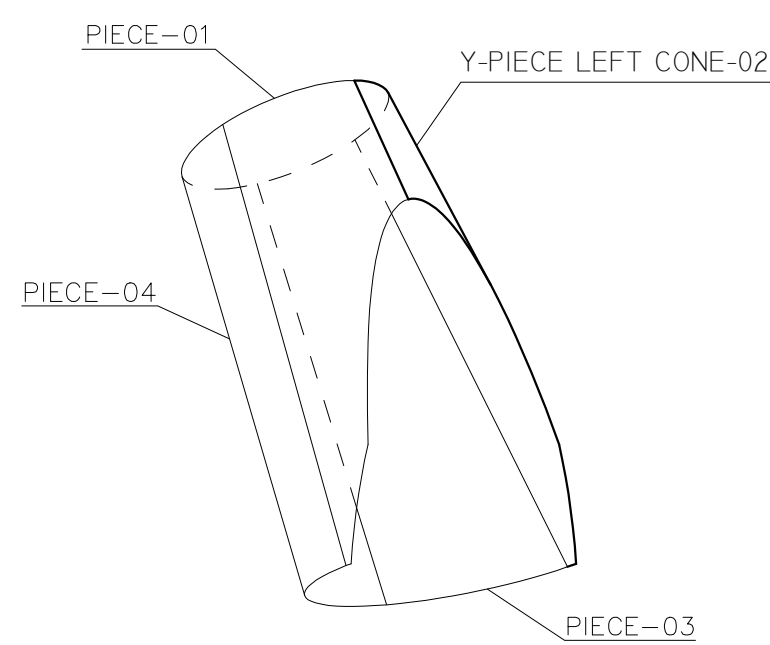
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80



- (c) **ADMISSIBLE OBLATENESS:** $q = 6\text{mm}$
- $Da \leq 9220\text{ mm}$ $q = 6\text{ mm}$
- 
6. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. ADDITIONAL TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
7. IF REQUIRED, PLATE MAY BE MADE IN MAX. 06 PARTS, WELDED AS PER SECTION A-A & STIFFENERS MAY BE MADE IN MAXIMUM 4 PARTS, WELDED AS PER SECTION A-A SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM AND SIZE (MIN. DIM) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCHEME AS PER T.R.1
8. 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.
9. ANY DEVIATION FROM DIMENSION GIVEN IN THE DRAWING SHALL BE RECTIFIED AT SITE BY THE VENDOR.



FOR CLARITY STIFFENERS
NOT SHOWN IN THIS VIEW

ISOMETRIC VIEW

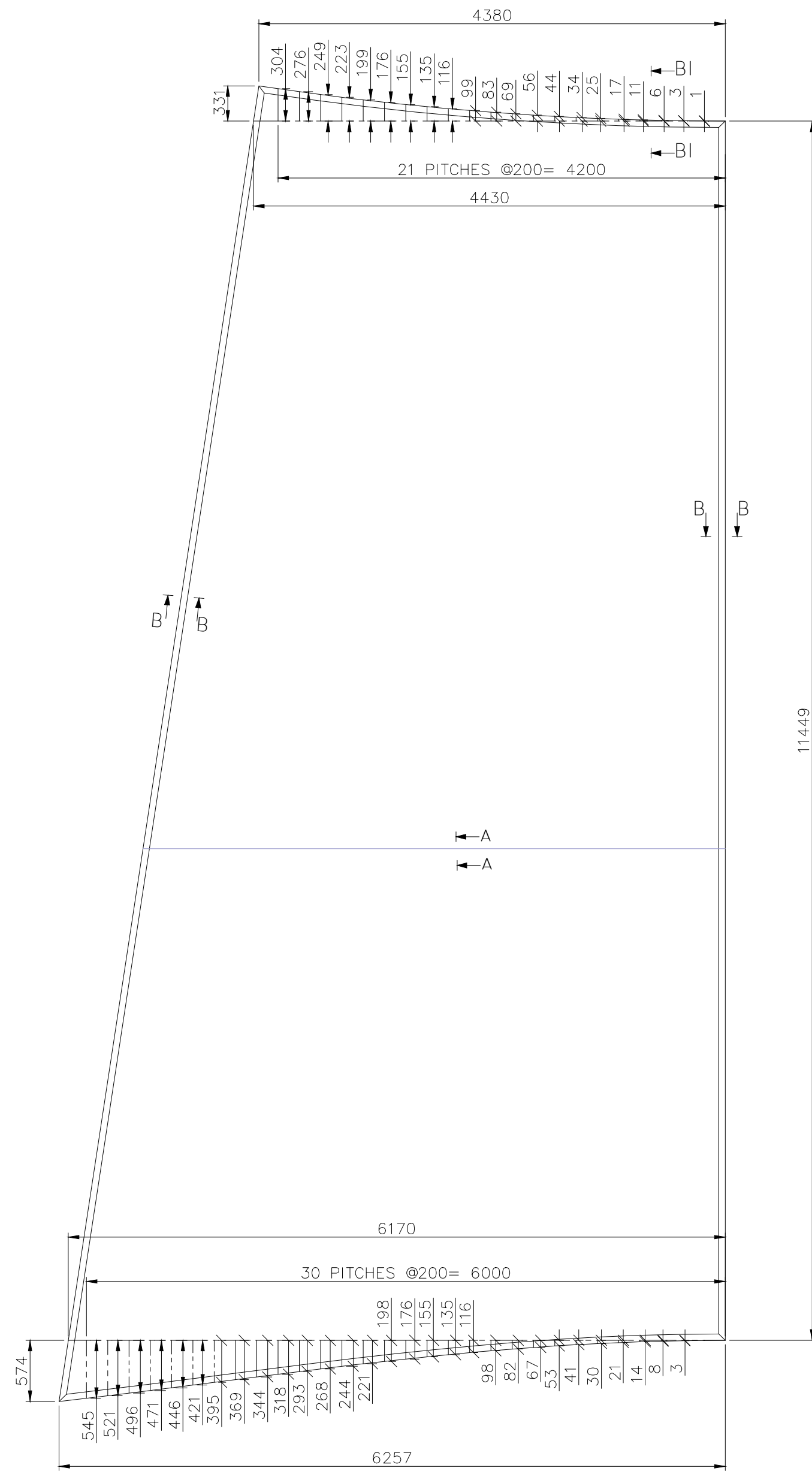
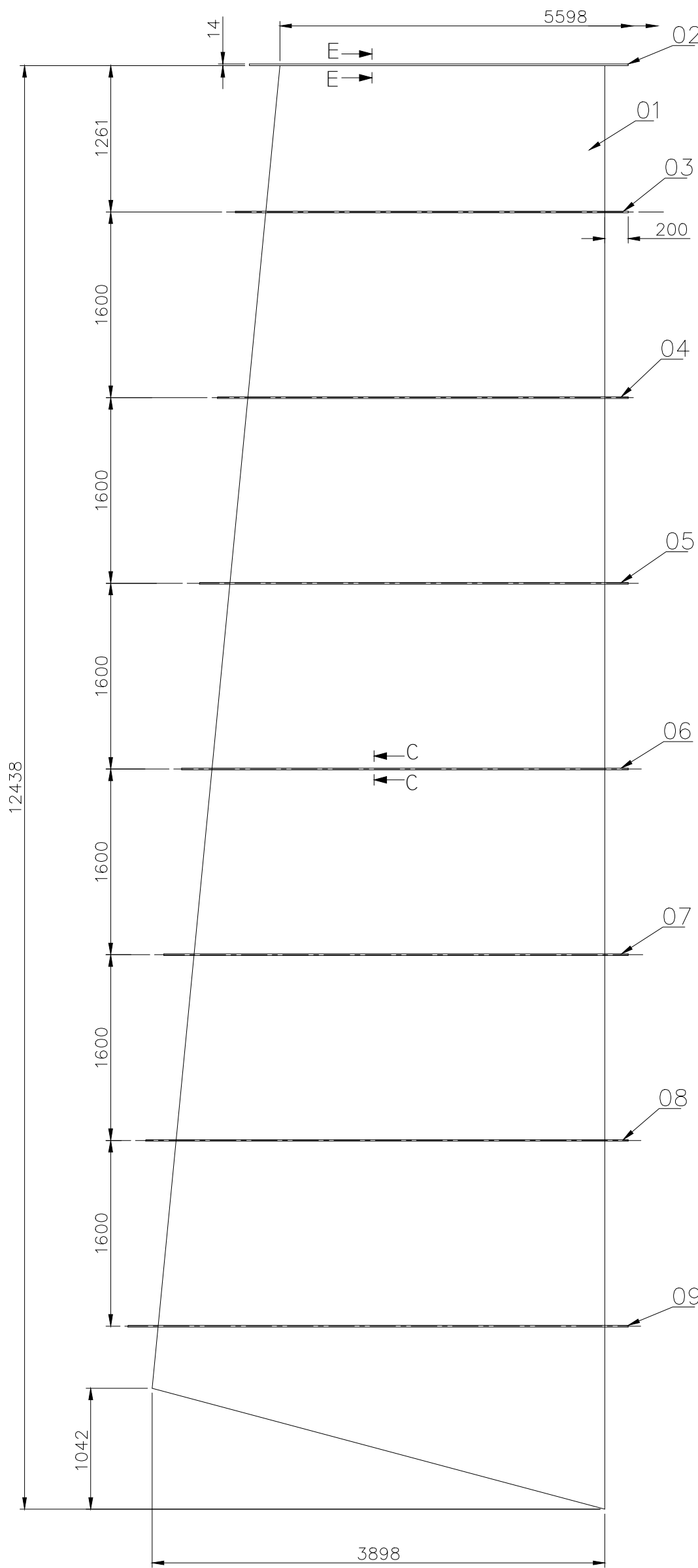
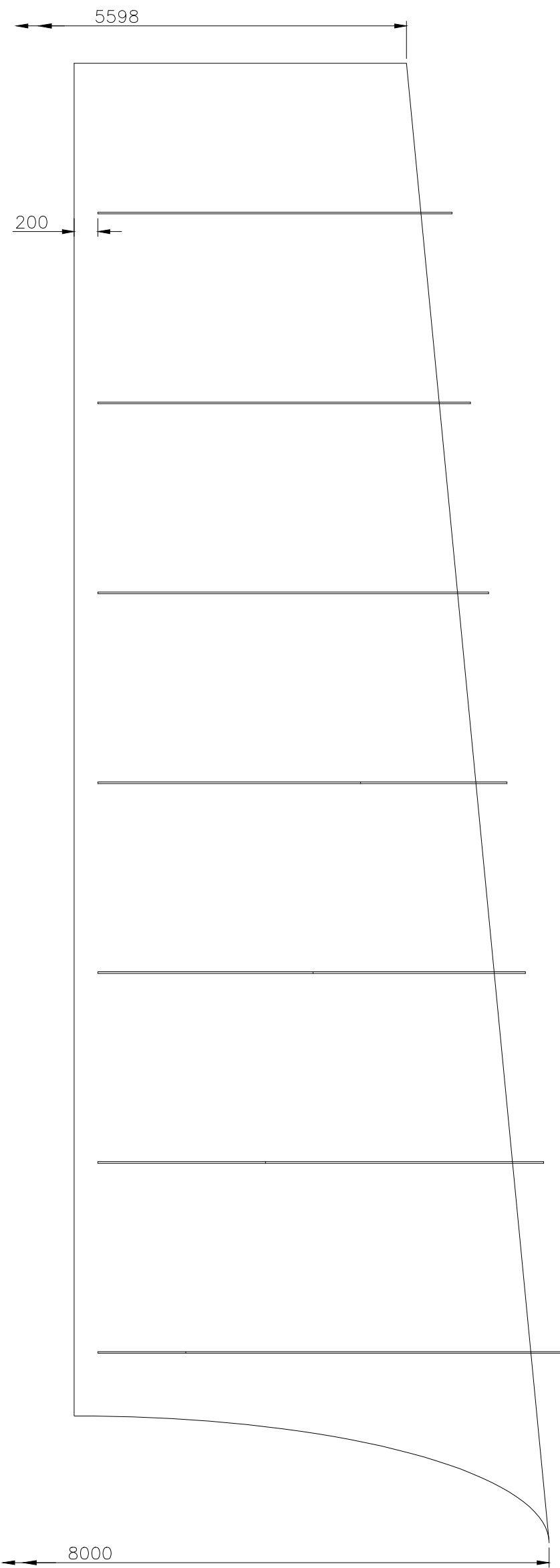
10D	6Z	12△	10▷	SIZE & SYMBOL OF SEAM
4.3	4.3	6.0	23	WELD LENGTH (Mt.)
0.7	0.6	5.6	10	WT. OF WELD METAL-Kg.
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:—	
M/CG— V/C/M/F — AA0230208	
WELDING—A/B/C/D— AA621104	
GAS CUTTING— 'T3'AA0621101	
REV.	DATE
	CHECKED

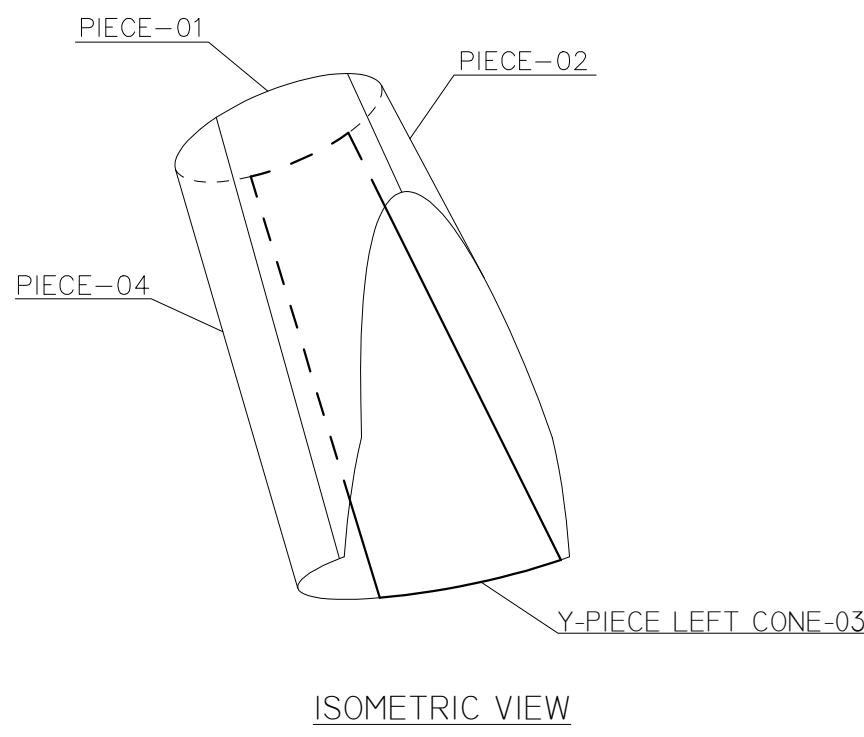
CBOM NO. 01709970--			STATUS OF DR U
ACREED DEPT.	NAME	SIGN	DATE
WTX.	S.K. GOND	Sd..	**
REV.	DATE	ALTERED CHECKED	

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				3X800 MW ACC (PATRATU)				
BHARAT HEAVY ELECTRICALS LTD. HARDWAR				DRN	NAME	SIGN	DATE	NO. OF
				CHD	AXAY KUMAR	Sd..	16.05.23	VAR.
				APD	N.PRAKASH	Sd..	16.05.23	NO.
								73.74
DEPT.	HXE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM	NO. OF
CODE	4222		1:40	4781	~~~		NO.	ITEMS
								75.77
TITLE Y-PIECE LEFT CONE-02				CARTOON CODE X	DRAWING NO.		REV.	
					11709970176		01	
				7	22		23.24	
				SHEET NO.		01	NO. OF SHEETS	01

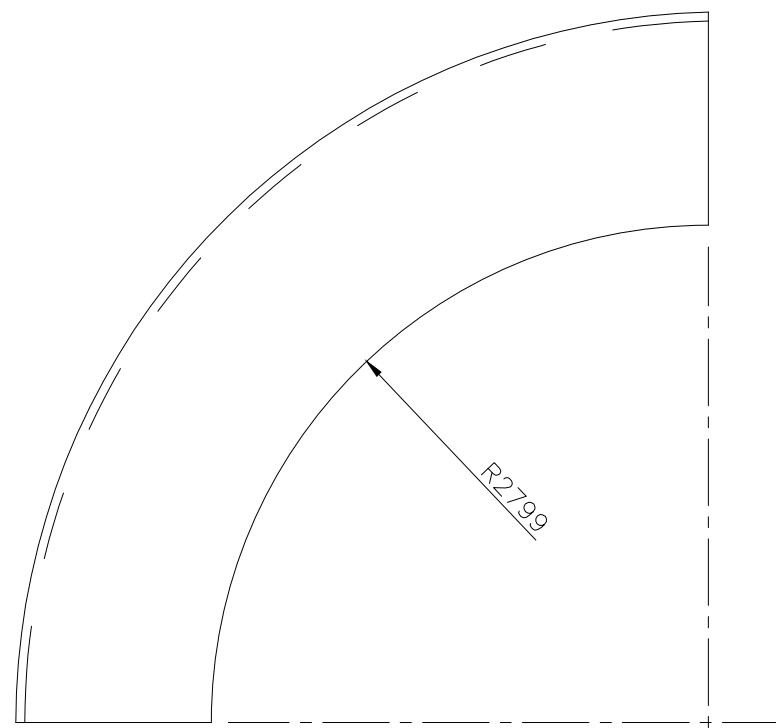
DRAWING NO. 11709970177



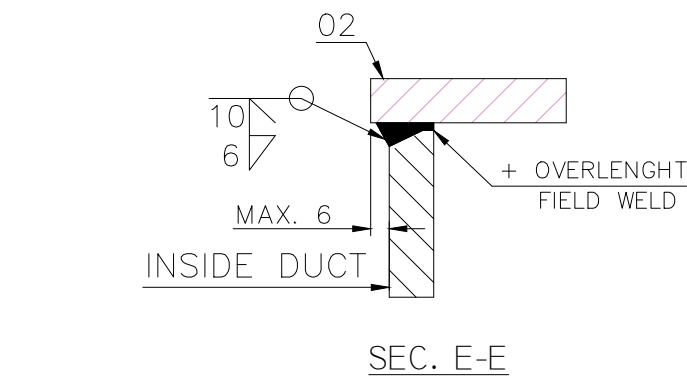
DEVEL. OF LEFT CONE PIECE
(IT. No.-01)



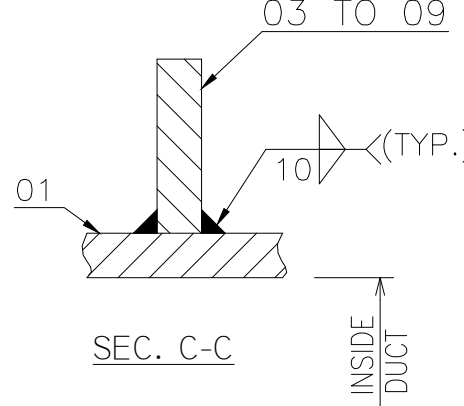
ISOMETRIC VIEW



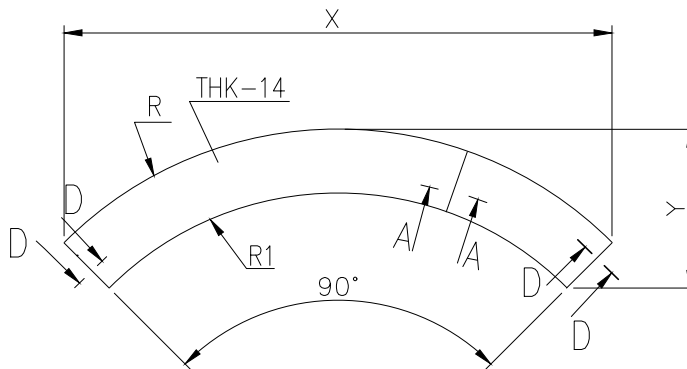
FOR CLARITY STIFFENERS
NOT SHOWN IN THIS VIEW



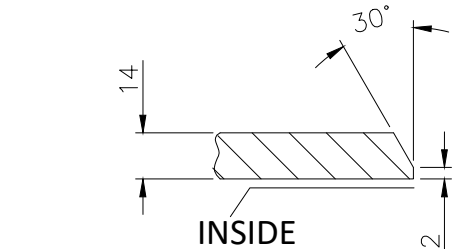
SEC. E-E



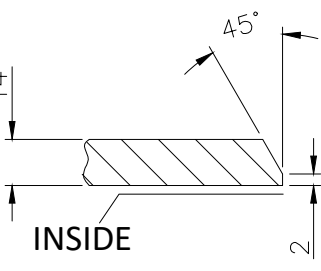
SEC. C-C



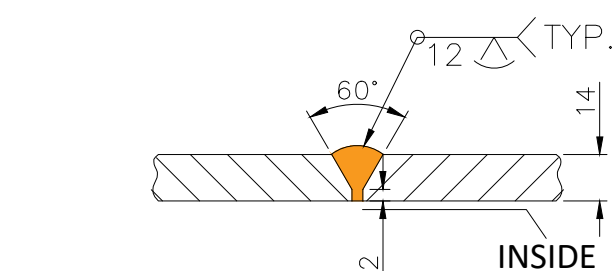
SEC. D-D



SEC. B-B



SEC. BI-BI



SEC. A-A (WELD SEAM)

IT. NO.	R	R1	X	Y	Wt.-Kg.
02	3073	2793	4346	1098	152
03	3180	2920	4497	1115	137
04	3335	3075	4716	1161	144
05	3489	3229	4934	1206	151
06	3643	3383	5152	1251	158
07	3797	3537	5370	1296	165
08	3952	3692	5589	1341	171
09	4106	3846	5807	1386	178

- TECHNICAL REQUIREMENTS:-
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
 - PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - 1 COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - 1 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 ± 7 mm

(b) ADMISSIBLE OVALITY:- AT ENDS (Da max-Da min)=14mm

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 : q=6mm

Da $\leq$ 9220 mm

q = 6 mm

- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. ADDITIONAL TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE MAY BE MADE IN MAX. 06 PARTS, WELDED AS PER SECTION A-A & STIFFENERS MAY BE MADE IN MAXIMUM 04 PARTS, WELDED AS PER SECTION A-A SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM 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.
- ANY DEVIATION FROM DIMENSION GIVEN IN THE DRAWING SHALL BE RECTIFIED AT SITE BY THE VENDOR.

10	6	12	10	SIZE & SYMBOL OF SEAM
4.3	4.3	6.0	42	WELD LENGTH (Mt.)
0.7	0.6	5.6	32	WT. OF WELD METAL-Kg.

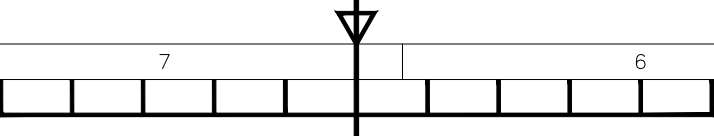
E-7018

TYPE OF ELECTRODE

GRADE OF UNTOL. DIM:-	M/CG- V/C/M/F - AA0230208
WELDING-A/B/C/D- AA621104	GAS CUTTING- 'T3'AA0621101
REV. DATE	ALTERED
	CHECKED

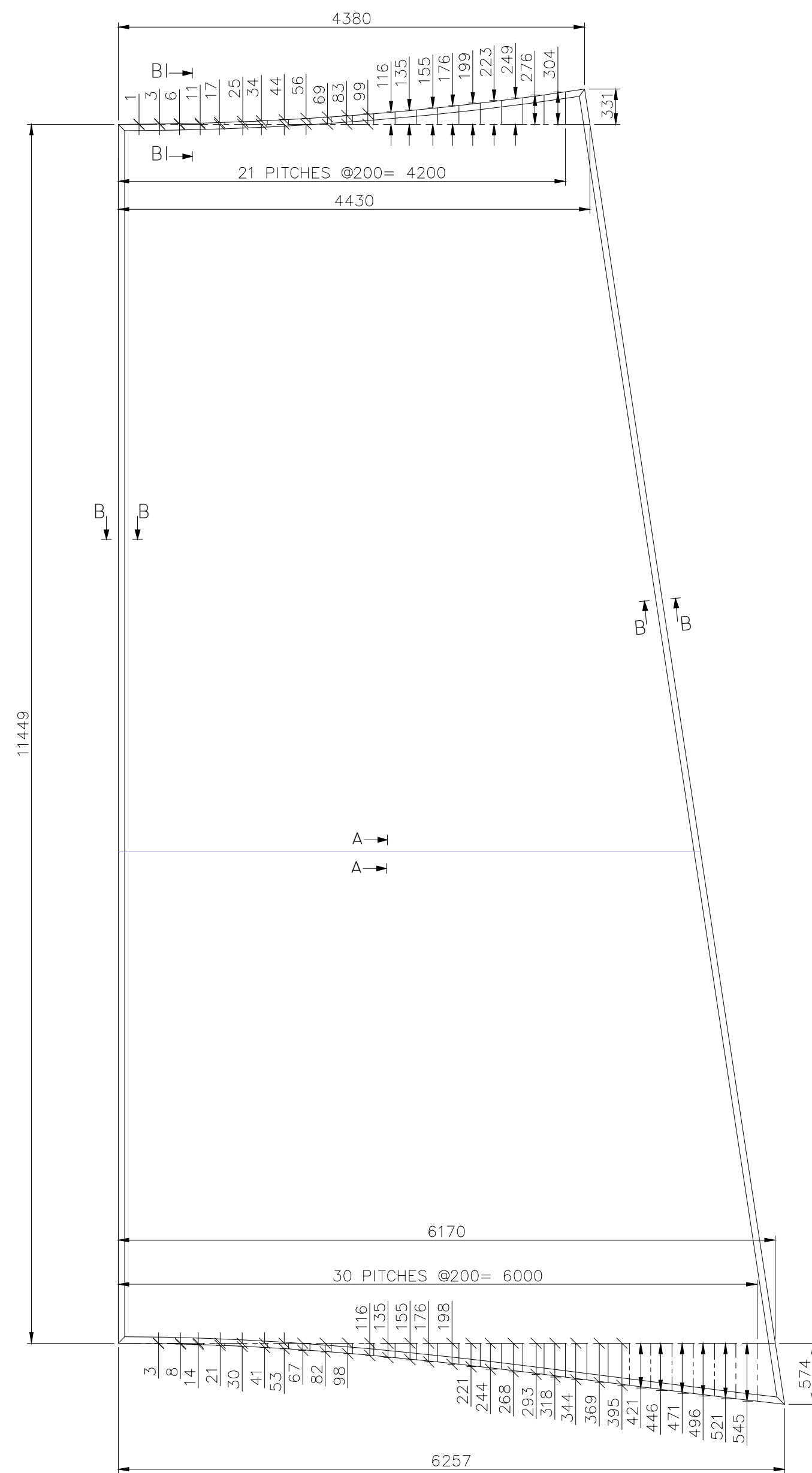
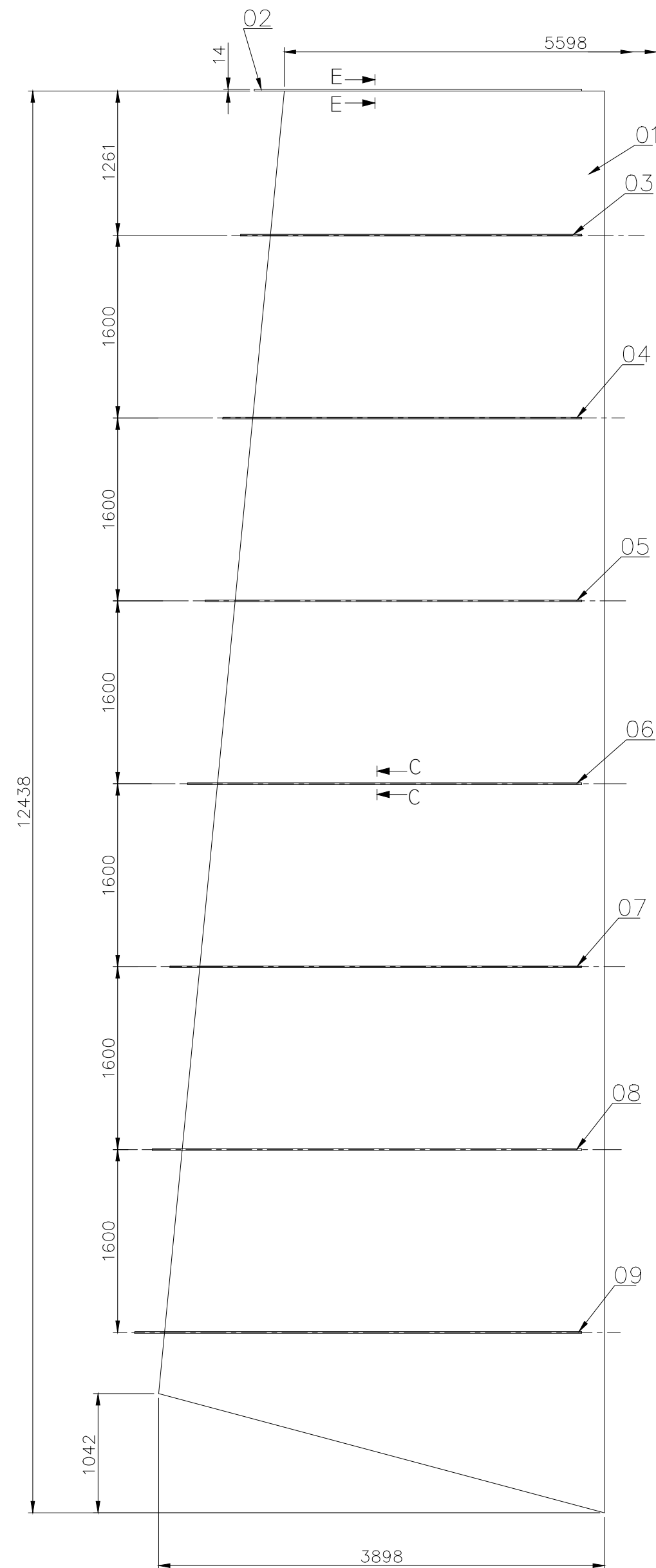
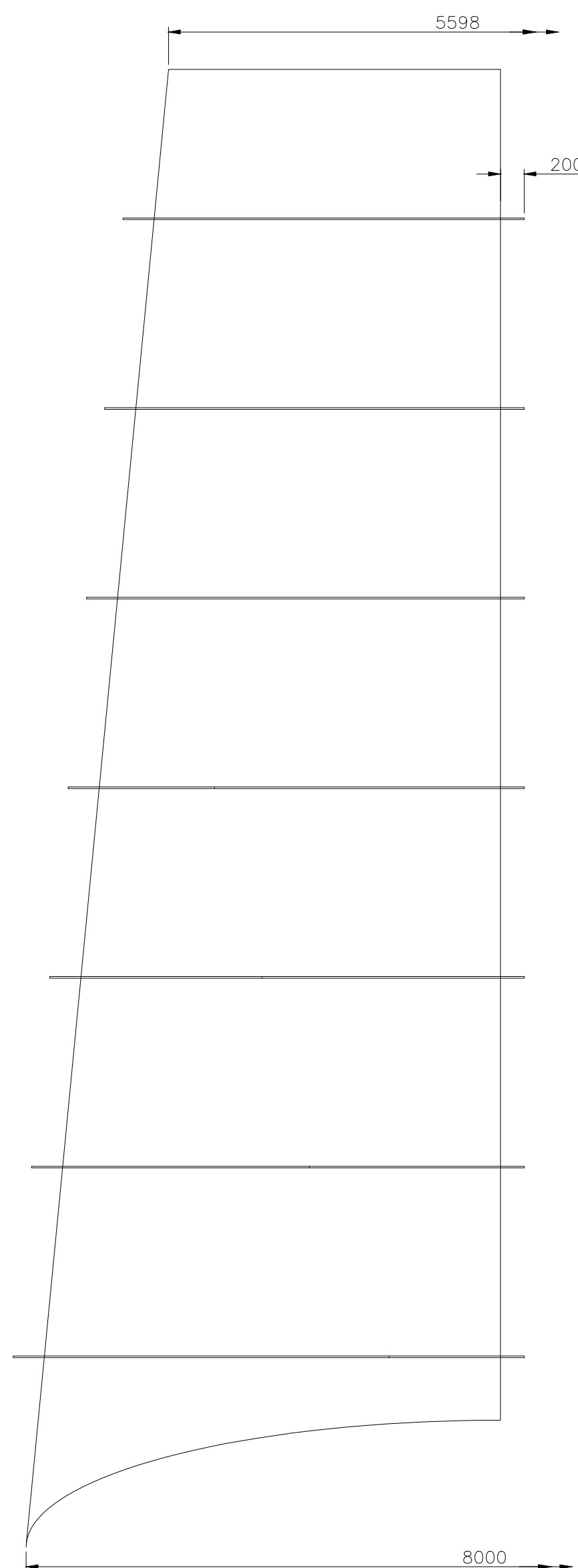
CBOM NO. 01709970025	STATUS OF DRG. U
AGREED DEPT. WTX.	NAME S.K. GOND
SIGN	DATE
REV. DATE	ALTERED
	CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT	3X800 MW ACC (PATRATU)
BHARAT HEAVY ELECTRICALS LTD. HARDWAR	DRN AJAY KUMAR
CHD AXAY KUMAR	Sd.. 18.05.23
APD N.PRAKASH	Sd.. 18.05.23
DEPT. HXE	SCALE 1:40
CODE 4222	WEIGHT(Kg.) 8168.0
TITLE Y-PIECE LEFT CONE-03	REF. TO ASSY. DRG.
DRAWING NO. 11709970177	ITEM NO. 00
SHEET NO. 01	NO.OF SHEETS 01

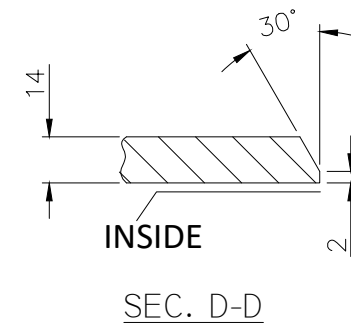
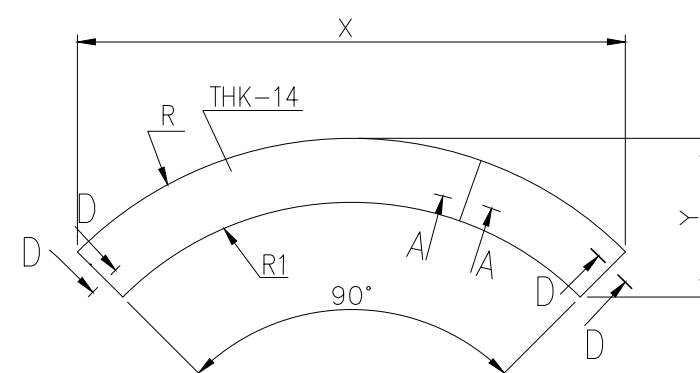
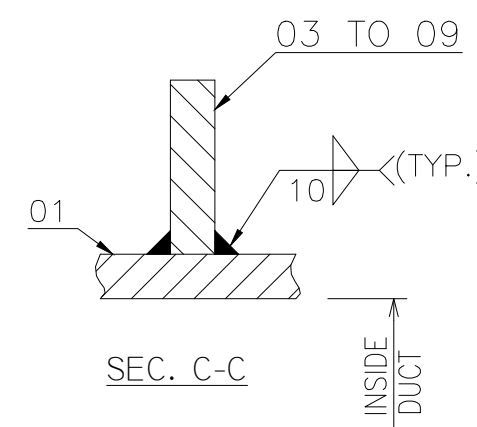
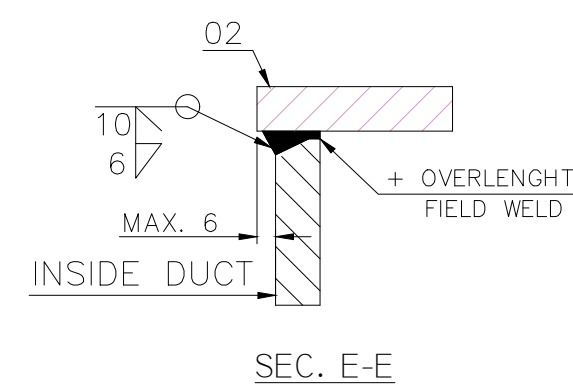


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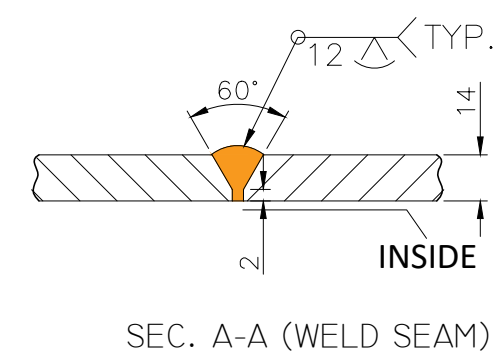
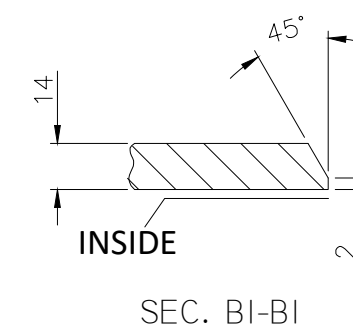
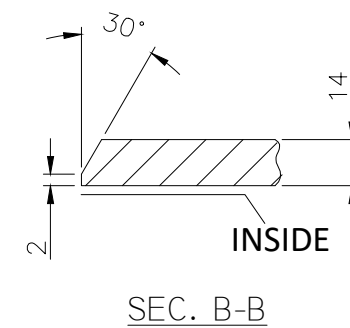
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.



DEVEP. OF LEFT CONE PIECE
IT. No.-01

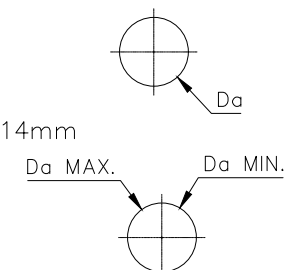


IT. NO.	R	R1	X	Y	Wt.-Kg.
02	3073	2793	4346	1098	152
03	3180	2920	4497	1115	137
04	3335	3075	4716	1161	144
05	3489	3229	4934	1206	151
06	3643	3383	5152	1251	158
07	3797	3537	5370	1296	165
08	3952	3692	5589	1341	171
09	4106	3846	5807	1386	178



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 - 1 COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - 1 COAT - 50 MICRON.
3. BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 10% UT/RT. FILL 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.
 - (a) DIAMETER TOLERANCES : AT ENDS $\pm 7mm$

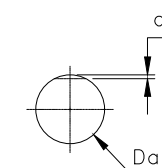


Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

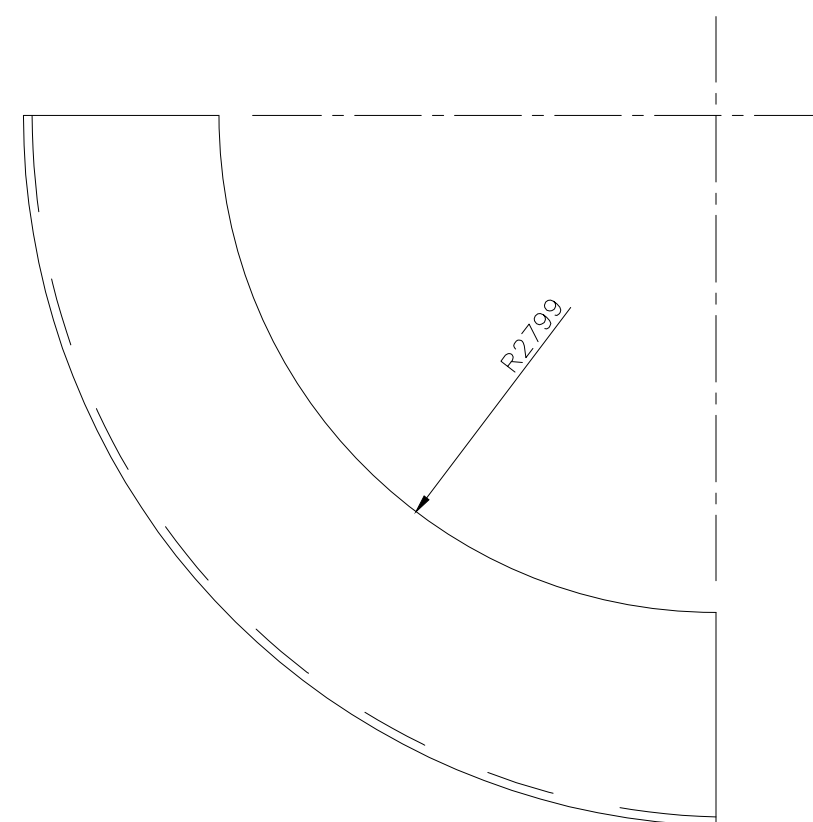
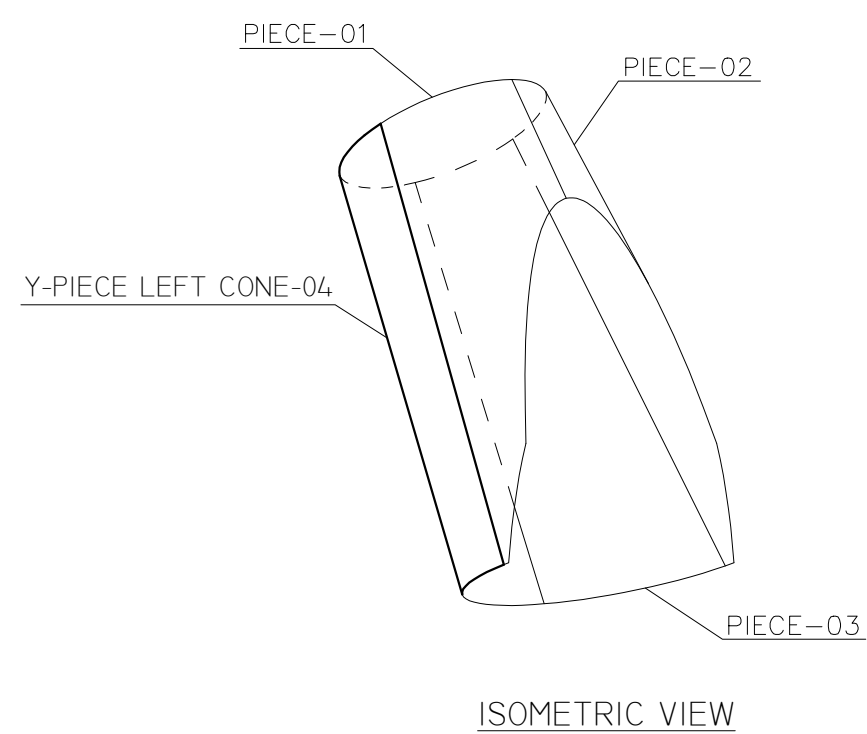
- (c) ADMISSIBLE OBLATENESS : $q=6\text{mm}$

$$D_a \leq 9220 \text{ mm}$$

$q = 6 \text{ mm}$



6. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. ADDITIONAL TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
7. IF REQUIRED, PLATE MAY BE MADE IN MAX. 06 PARTS, WELDED AS PER SECTION A-A & STIFFENERS MAY BE MADE IN MAXIMUM 04 PARTS, WELDED AS PER SECTION A-A SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM AND SIZE (MIN. DIM) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SPEC AS PER T.R.1
8. 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.
9. ANY DEVIATION FROM DIMENSION GIVEN IN THE DRAWING SHALL BE RECTIFIED AT SITE BY THE VENDOR.



FOR CLARITY STIFFENERS
NOT SHOWN IN THIS VIEW

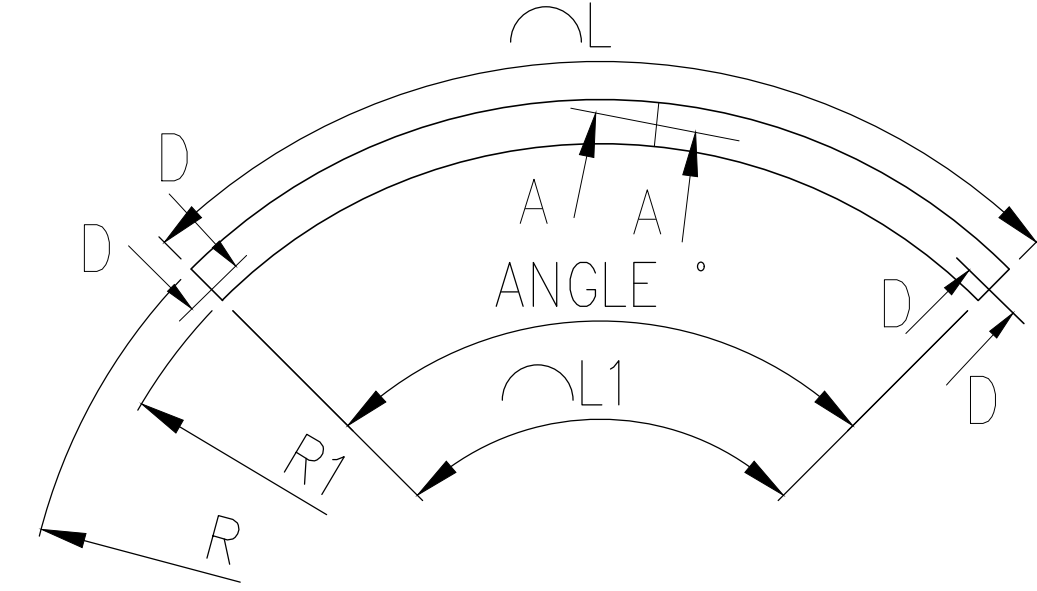
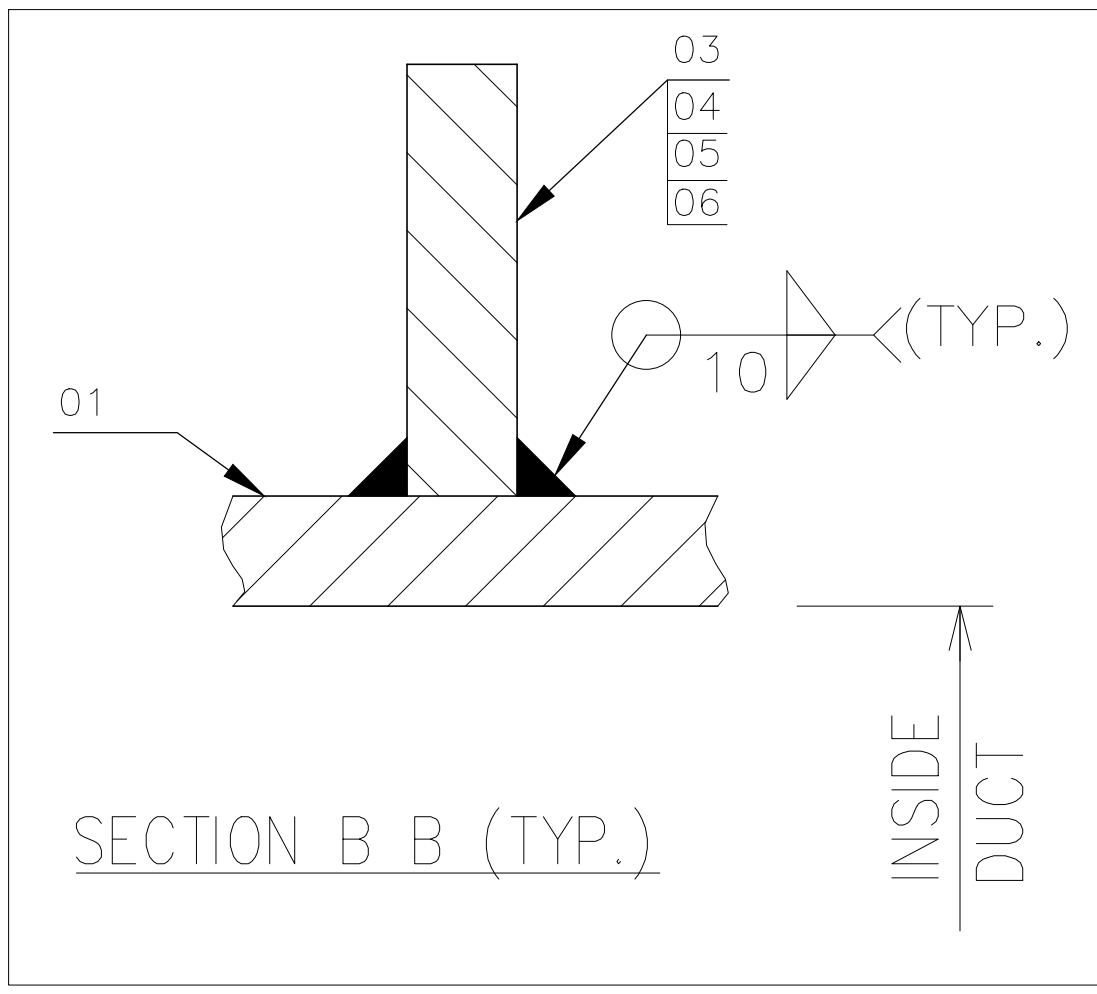
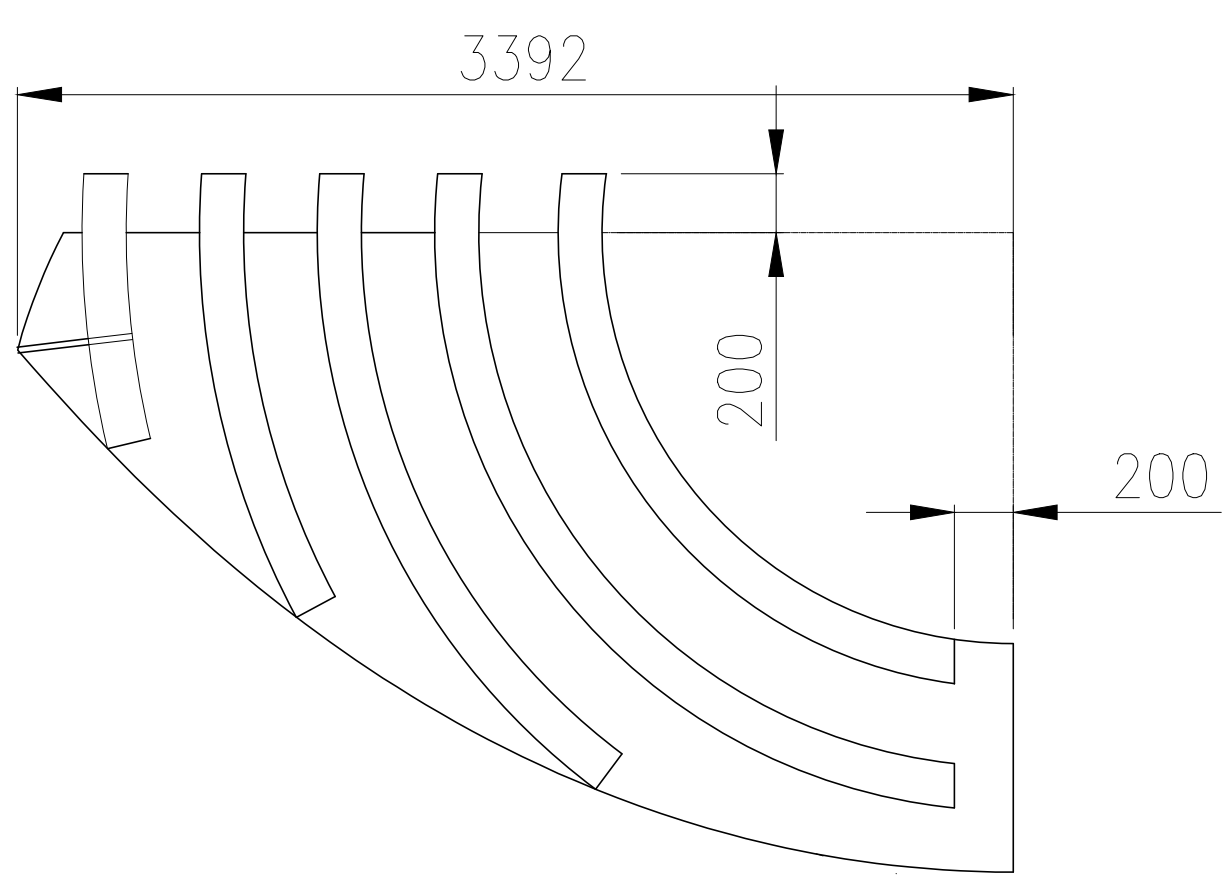
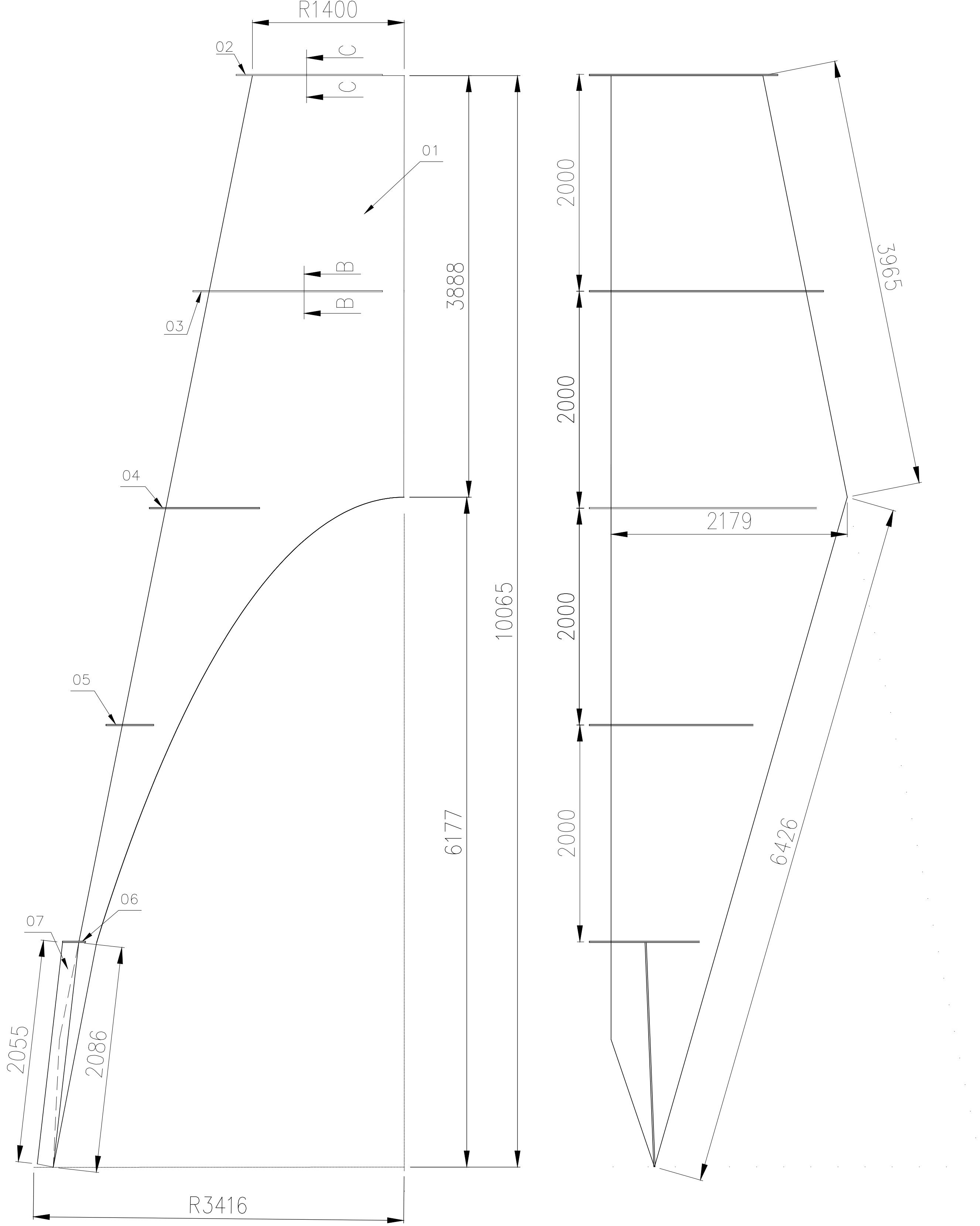
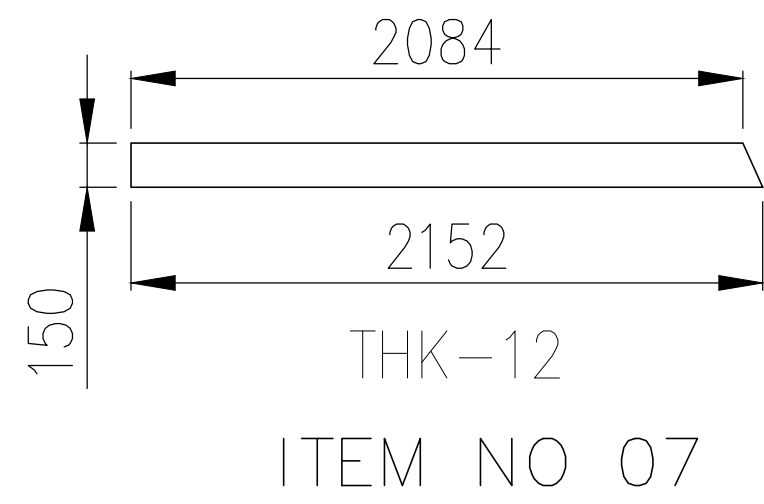
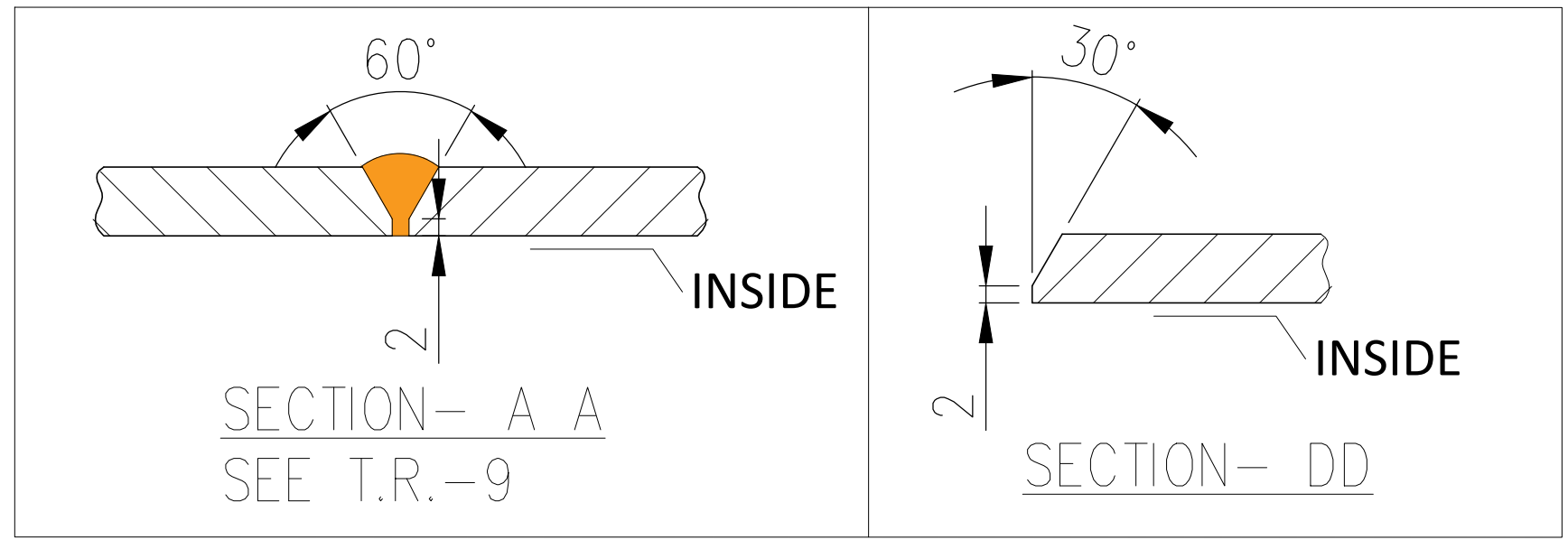
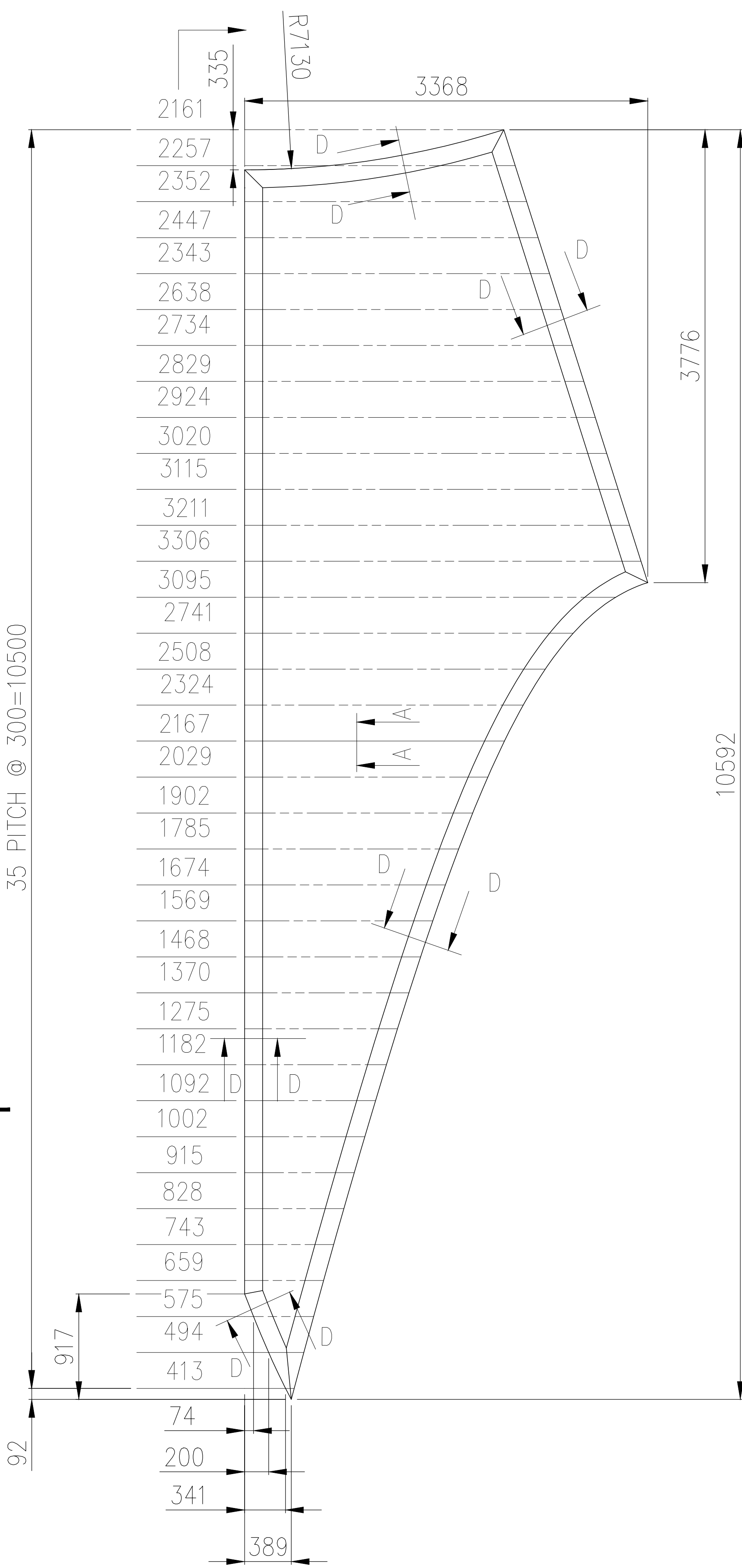
10D	6F	12△	10▷	SIZE & SYMBOL OF SEAM
4.3	4.3	6.0	42	WELD LENGTH (Mt.)
0.7	0.6	5.6	32	WT. OF WELD METAL—Kg.
E-7018				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:—		
M/CG— V/C/M/F — AA02		
WELDING—A/B/C/D— AA62		
GAS CUTTING— 'T3'AA0621		
REV.	DATE	ALTERED
		CHECKED

CBOM NO. 01709970025			STATUS OF DR U
AGREED DEPT.	NAME	SIGN	DATE
WTX.	S.K. GOND	Sd..	**
REV.	DATE	ALTERED CHECKED	

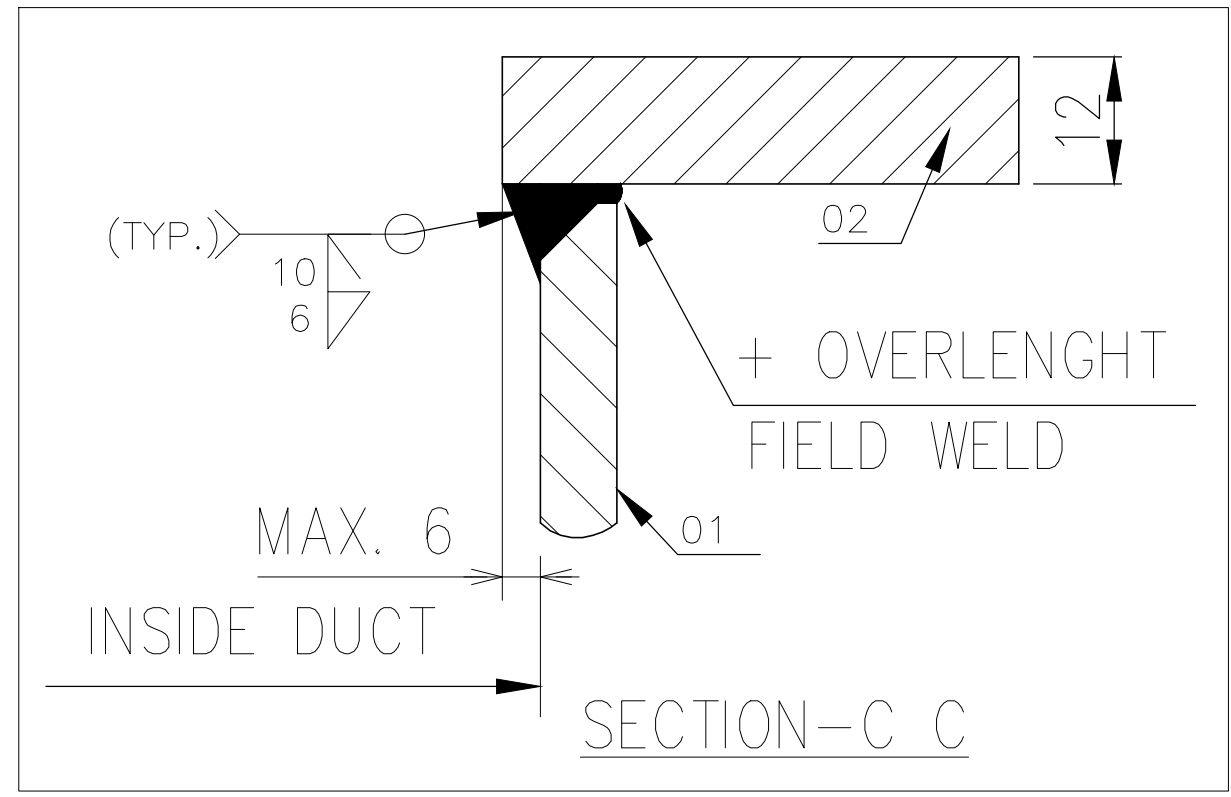
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT					3X800 MW ACC (PATRATU)					
BHARAT HEAVY ELECTRICALS LTD. HARDWAR					NAME		SIGN	DATE	NO. OF VAR.	
					DRN		AJAY KUMAR	Sd..	18.05.23	~
					CHD		AXAY KUMAR	Sd..	18.05.23	~
					APD		N.PRAKASH	Sd..	18.05.23	~
DEPT.	HXE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO. OF ITEMS		
CODE	4222		1:40	8168.0	~		~	~		
TITLE				CARD CODE	DRAWING NO.			REV.		
Y-PIECE LEFT CONE-04				X	11709970178			00		
					SHEET NO.			01 NO. OF SHEETS		

DRAWING NO. 21709970207



THK-12

IT NO	R	L	R1	L1	ANGLE °
02	1550	2436	1380	2169	90 °
03	1970	3096	1820	2860	90°
04	2370	2152	2220	2016	52°
05	2772	1307	2622	1236	27°
06	3172	665	3022	633	12°



TECHNICAL REQUIREMENTS:-

- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT – 1 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 QUALITY

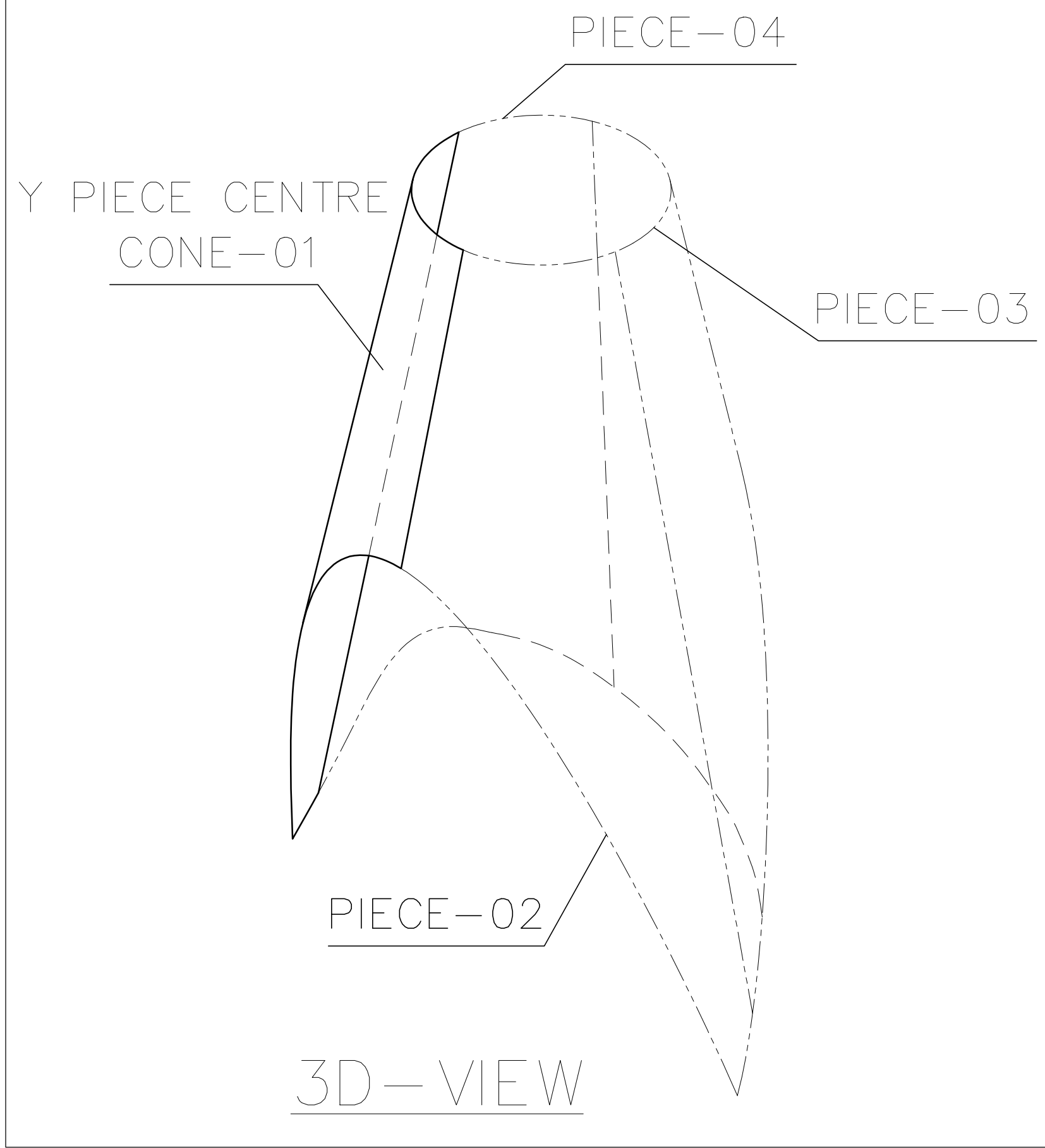
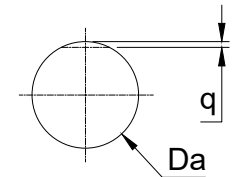
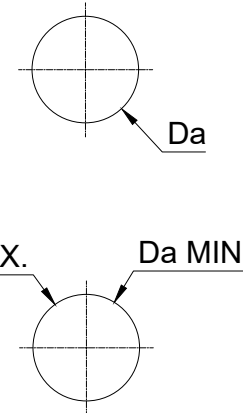
At ends: Da 2800 mm – 4900 mm x = 14 mm
Da 4900 mm – 6300 mm x = 16 mm
Da 6300 mm – 8100 mm x = 20 mm

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

- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS.
- 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 MAY BE MADE IN MAXIMUM 5 PARTS & STIFFENER MAY BE MADE IN MAXIMUM 4 PARTS WITH WELDED AS PER SECTION A-A 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.
- DEVELOPMENT PROVIDED IN THE DRG IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.

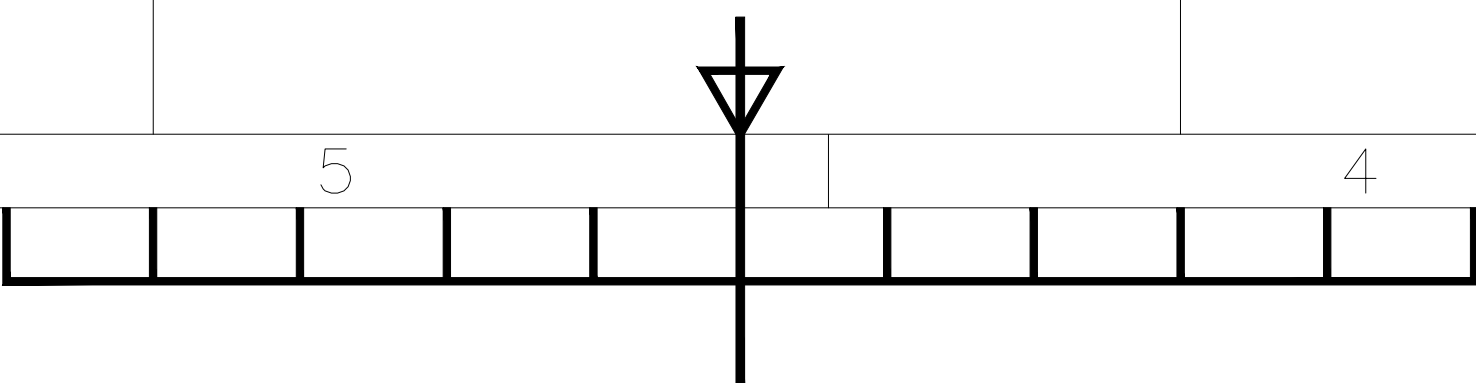


CBOM NO.			STATUS OF DRG.	
01709970025			U	
ACREED DEPT.	NAME	SIGN	DATE	

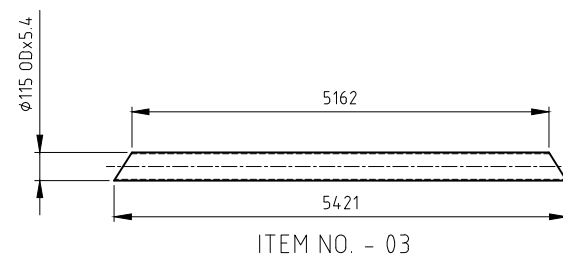
REV.	DATE	ALTERED	CHECKED

REV.	DATE	ALTERED	CHECKED

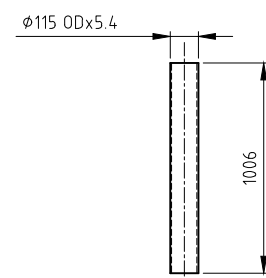
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X700 MW ACC PATRATU				
BHARAT HEAVY ELECTRICALS LTD. HARDWAR		DRN	NAME	SIGN	DATE	NO.OF VAR.
		CHD	N.K.JANGRA	--SD--	10/05/2023	
		APD	A.KUMAR	--SD--	10/05/2023	
			N.PRAKASH	--SD--	10/05/2023	
DEPT. HXE	SCALE 1:50	WEIGHT(Kg.) 2363	REF. TO ASSY. DRG. ----		ITEM NO. 01	NO.OF ITEMS 04
CODE 2224	TITLE Y PIECE CENTRE CONE –1		DRAWING NO. 21709970207		REV. 00	
SHEET NO. 01		NO.OF SHEETS 01		REV. 00		



सामग्री सूची संख्या/INVENTORY NO.	हस्ताक्षर और दिनांक/SIGN & DATE	संश्लेषण अभिलेख संख्या /REFERENCE DRG.NO.
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ITEM NO. - 03



ITEM NO. - 02

3. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.

2. PAINTING ON OUTSIDE SURFACES:

(i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.

(ii) INTERMEDIATE PAINT: EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT – 1 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

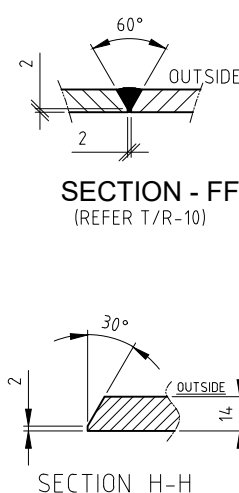
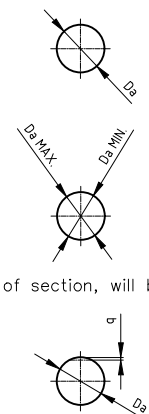
7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR LARGE ITEMS.

8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.

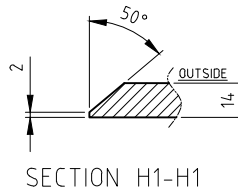
9. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.

10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F 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

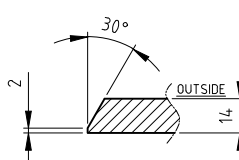
11. A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELD SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.



SECTION - FF
(REFER T/R-10)



SECTION H1-H1



SECTION H-H

	14	10	5	SIZE & SYMBOL OF SEAM
	1.7	5.4	0.72	WELD LENGTH (M)
	1.9	2.9	0.1	WT. OF WELD METAL
E-7018				TYPE OF ELECTRODE

संशोधन REV.	
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दिनांक
DATE

संशोधनकर्ता FILTERED BY जांचकर्ता CHD
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संशोधन REV.	

दिनांक DATE	AL
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PREPARED BY	
DATE	
HD	

संशोधन REV.	
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REVIEWED BY
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HD

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1709

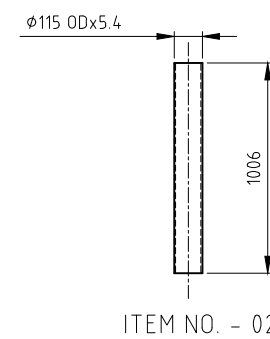
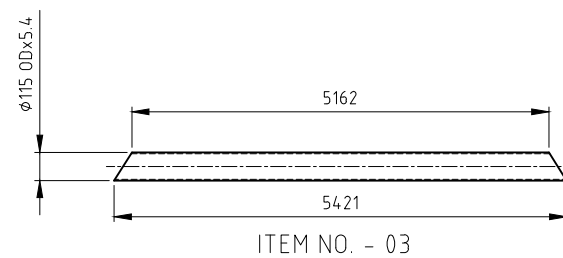
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सामग्री सूची संख्या/INVENTORY NO.	हस्ताक्षर और तिथि/SIGN & DATE	संदर्भित अभिलेख संख्या /REFERENCE DRG.NO.
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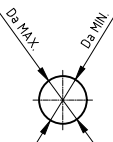
TECHNICAL REQUIREMENTS: –

3. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT – 1 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

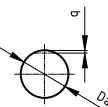

- (b) ADMISSIBLE OVALITY

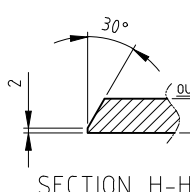
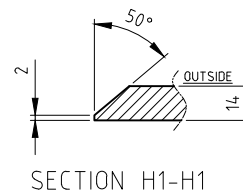
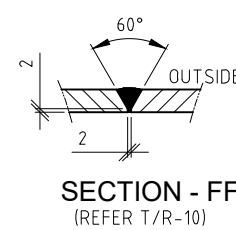
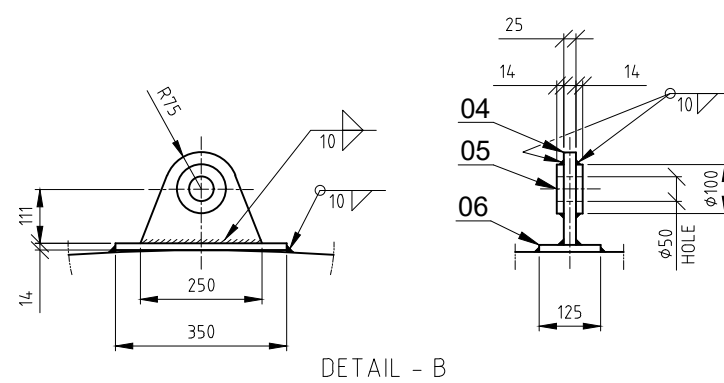
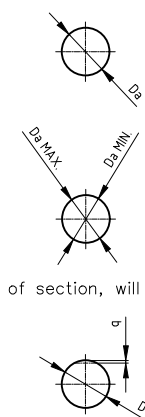
At ends: Da 2800 mm – 4900 mm x = 14 mm
 Da 4900 mm – 6300 mm x = 16 mm
 Da 6300 mm – 8100 mm x = 20 mm



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 LARGE ITEMS.
8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.
9. 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.
10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F 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
11. 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.



	14	10	5	SIZE & SYMBOL OF SEAM
	1.7	5.4	0.72	WELD LENGTH (M)
	1.9	2.9	0.1	WT. OF WELD METAL
E-7018				TYPE OF ELECTRODE

संशोधन REV.	

दिनांक
DATE

संशोधक
 ALTERED BY
 जयदेव
 CHD

असह्य विमाओं का वर्ग
GRADE OF UNTOLERANCED DIMENSION
मशीनिंग - एए0230208 एम
MACHINING - AA0230208 m
वेल्डिंग - एए0621104 की श्रेणी बी
WELDING-CLASS 'B' OF AA0621104
गैस कटिंग - एए0621101 की सारणी 3
GAS CUTTING-TABLE 3 OF AA0621101

मो.वी.ओ.एम./C.B.O.M.			S
01709970025/00			
आगत विभाग AGREED DEPT.	नाम/NAME	हस्ताक्षर/ SIGN.	दि
WTX	-	Sd/-	

उत्पाद का प्रकार STATUS OF DRG. U	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
नाम/DATE	



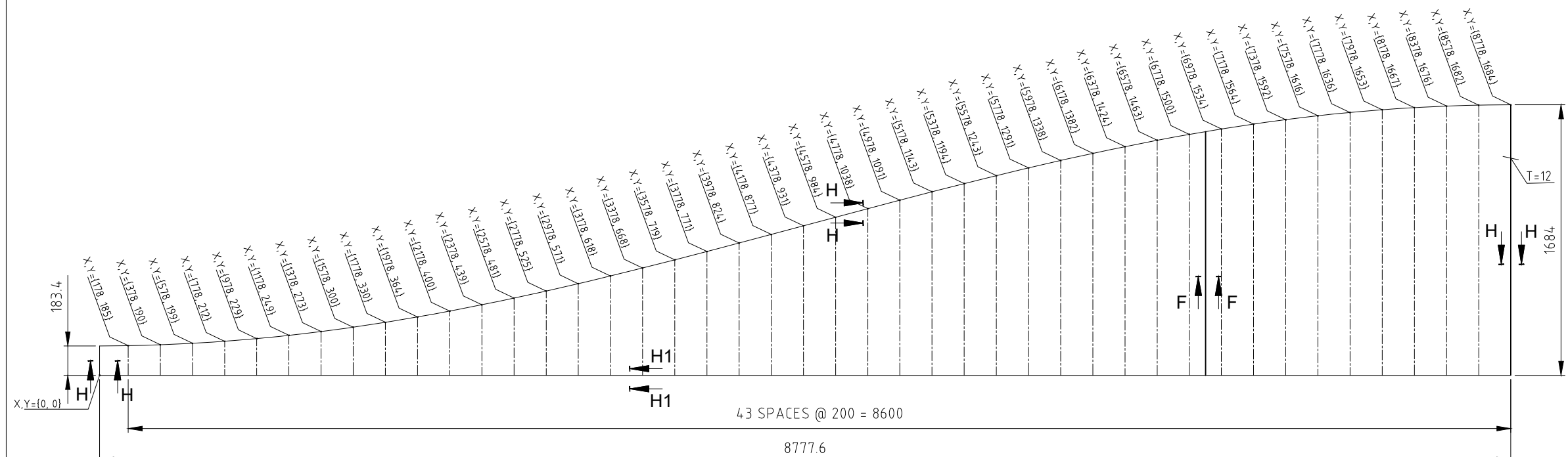
भारत हेवी इलेक्ट्रिकल्स लिमिटेड, रानीपुर, हरिद्वार
BHARAT HEAVY ELECTRICALS LIMITED
RANIPUR, HARDWAR

ACC, PATRATU

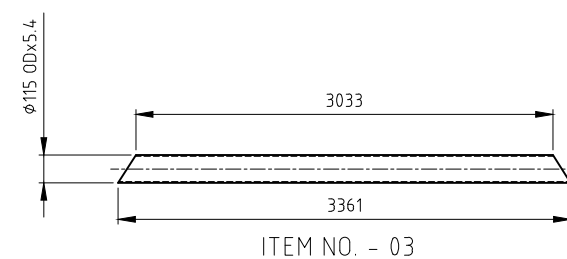
विभाग DEPT.	HXE		अनुपात/SCALE -
कोड/CODE 4222			
शीर्षक/TITLE <u>Y PIECE PART 2</u>			

नाम / NAME	हस्ताक्षर / SIGN	दिनांक / DATE	वेबसाइट / No. of W
DRN	BHASKAR	Sd\ - 02.05.2023	
अधिकांश	AXAY	Sd\ - 02.05.2023	-
CHD	N Prakash	Sd\ - 02.05.2023	

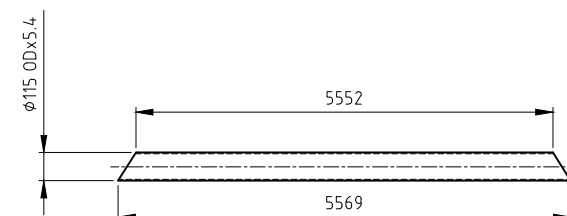
भार. कि.ग्रा. WEIGHT (KG) 966	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG. 01709970025	नग क्रमांक 02	मशीन क्र. सं. NO. OF ITEMS -
कार्ड का CARD CODE 7	अभिकल्प संख्या/DRAWING NO. 21709970209	22	REV. 00 23



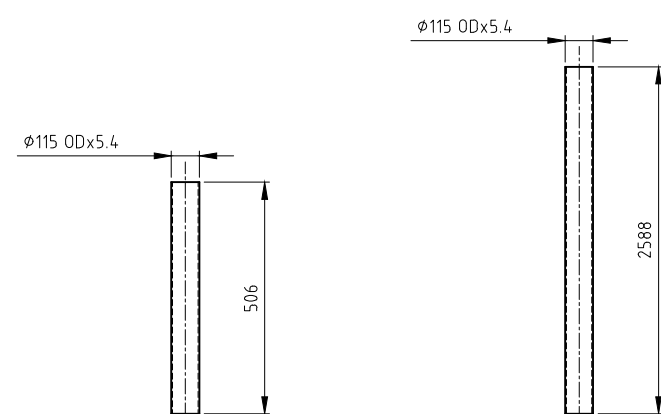
DEVELOPMENT ITEM NO. - 01



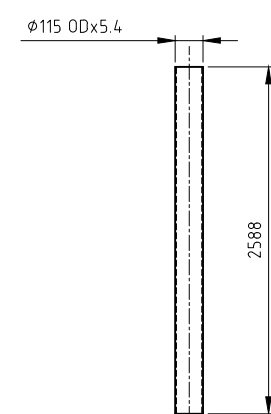
ITEM NO. - 03



ITEM NO. - 05



ITEM NO. - 02



ITEM NO. - 04

1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO2 PIGMENTED POLYAMIDE CURED PAINT – 1 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

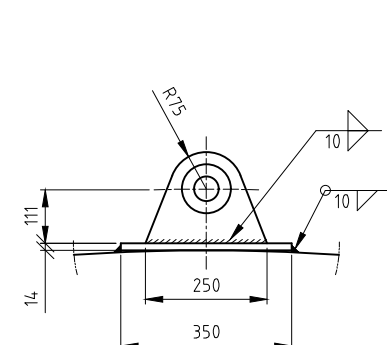
- (b) ADMISSIBLE OVALITY

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

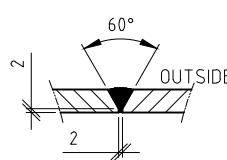
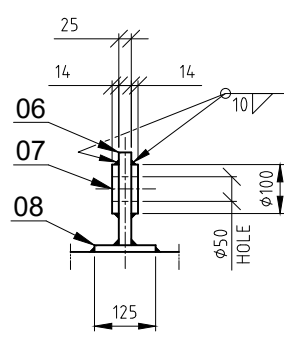
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80
- (c) ADMISSIBLE OBLATENESS

Da $\leq$ 9220 mm q = 6 mm

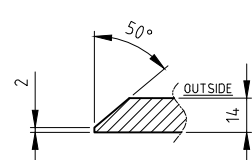
7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR LARGE ITEMS.
8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.
9. PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F–F 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
11. 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.



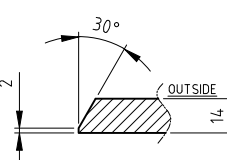
DETAIL - B



SECTION - FF
(REFER T/R-10)



SECTION H1-H1



SECTION H-H

	12▽	10▽	5▽	SIZE & SYMBOL OF SEAM
	1.6	5.4	1.45	WELD LENGTH (M)
	1.8	2.9	0.2	WT. OF WELD METAL
E-7018				TYPE OF ELECTRODE

संशोधन REV.	दिनांक DATE	संशोधक ALTERED BY जयवंशी CHD

असह्य विमाओं का वर्ग
GRADE OF INTOLERANCE DIMENSION
मशीनिंग - एए0230208 एम
MACHINING - AA0230208 m
वैल्डिंग - एए0621104 की श्रेणी बी
WELDING-CLASS 'B' OF AA0621104
गैस कटिंग - एए0621101 की श्रेणी 3
GAS CUTTING-TABLE 3 OF AA0621101

मो.बी.ओ.एम./C.B.O.M. 01709970025/00		
प्रत्यक्ष विभाग AGREED DEPT.	नाम/NAME	हस्ताक्षर/ SIGN.
WTX	-	Sd/-

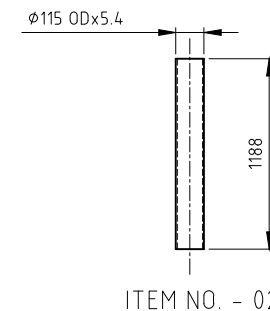
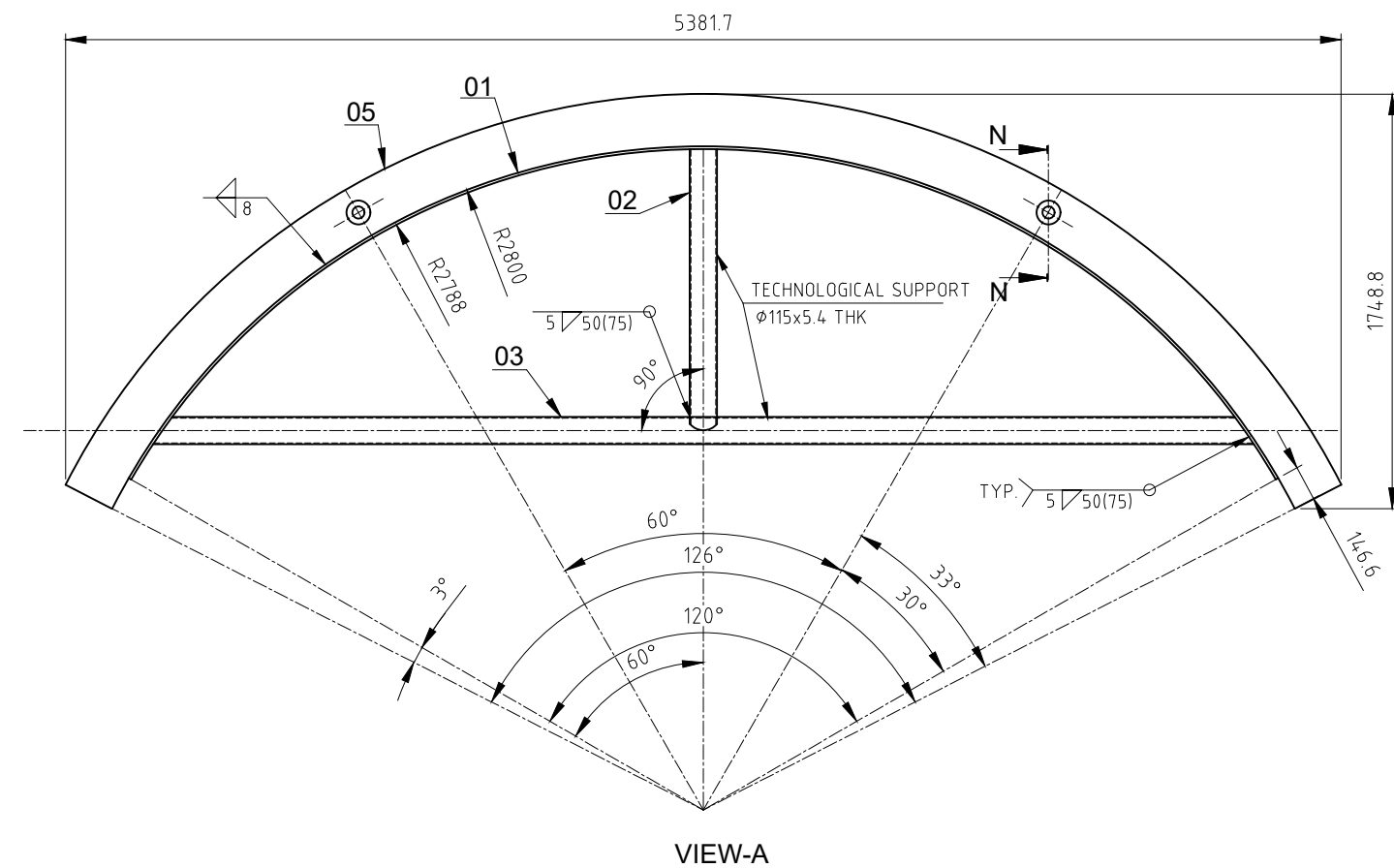
उत्पाद का प्रकार या ग्राहक/परियोजना का नाम STATUS OF DRG. U	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
नाम/DATE	

	भारत हेवी इलेक्ट्रिकल्स लिमिटेड BHARAT HEAVY ELECTR RANIPUR, HAR
---	--

ACC, PATRATU				संलग्न पत्र No. of Voucher
विवरण / DESCRIPTION	नाम /NAME	हस्ताक्षर /SIGN	दिनांक /DATE	
विवरण DESCRIPTION	BHASKAR	Sd\ -	02.05.2023	
विवरण DESCRIPTION	AXAY	Sd\ -	02.05.2023	-
विवरण DESCRIPTION	N.Prakash	Sd\ -	02.05.2023	

विभाग DEPTT.	HXE		अनुपात/S
कोड/CODE	4222		-
शीर्षक/TITLE		Y PIECE PART	

SCALE	भार कि.ग्रा. WEIGHT (KG) 973.8	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG. 01709970025	नाम क्रमांक 03	प्रागो की संख्या NO. OF ITEMS —
3	कार्ड कोड CARD CODE	अभिकल्प संख्या/DRAWING NO. 21709970210	22	REV. 00 23 24



3. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.

2. PAINTING ON OUTSIDE SURFACES:

(i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.

(ii) INTERMEDIATE PAINT: EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT – 1 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.

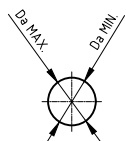
6. (a) DIAMETER TOLERANCES

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 LARGE ITEMS.

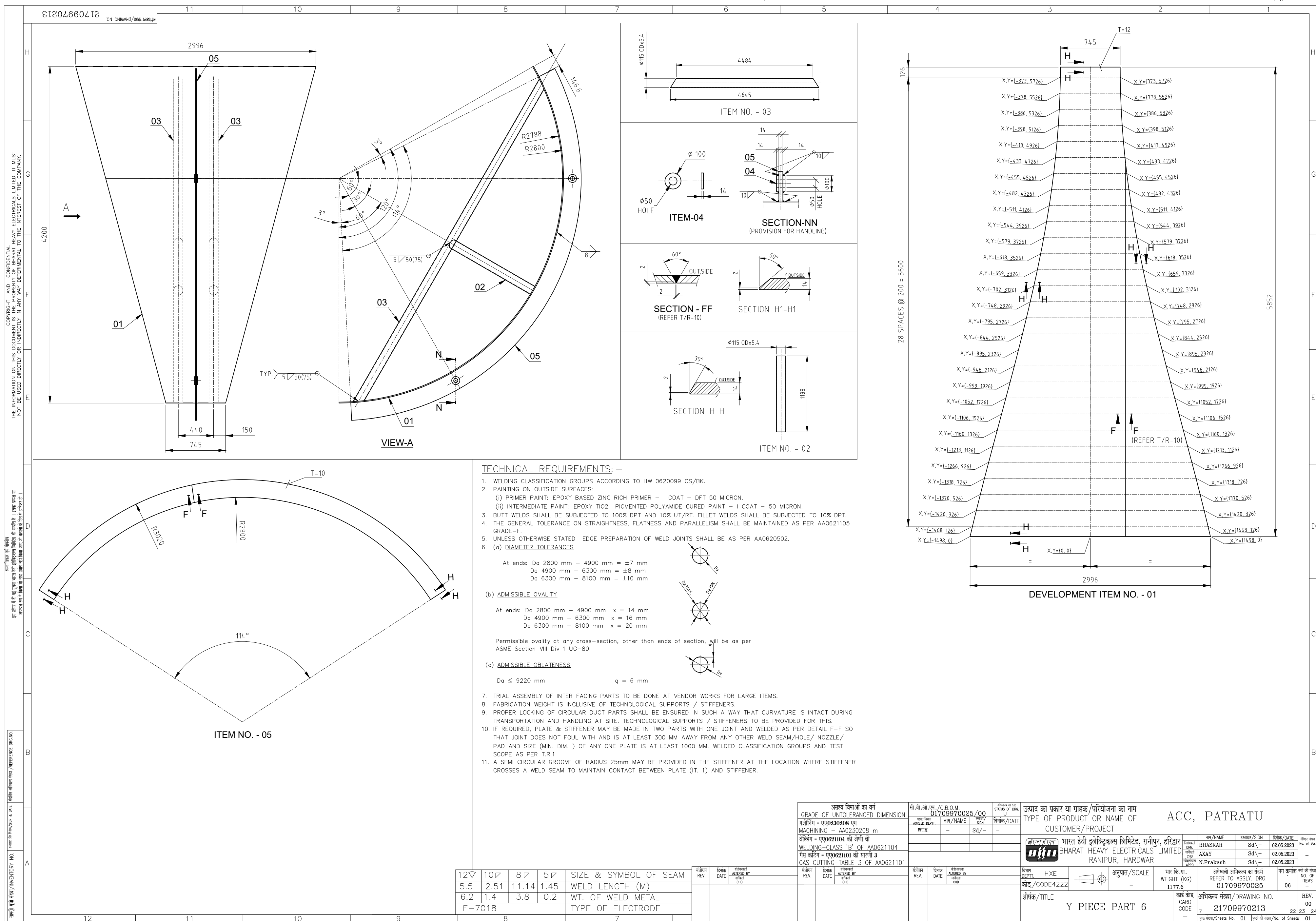
8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.

9. 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.

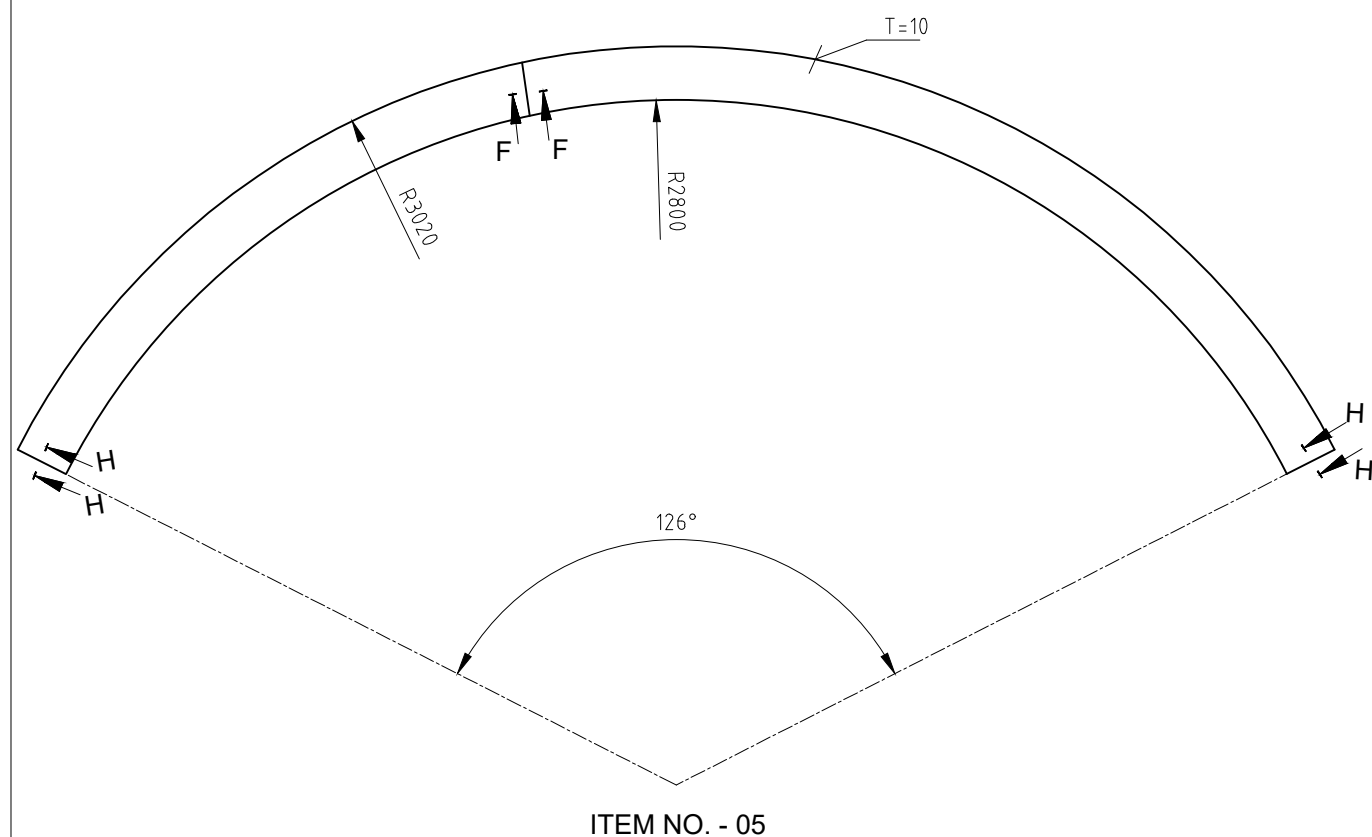
10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F SO THAT JOINT DOES NOT FOUL WITH AND IS AT LEAST 300 MM AWAY FROM ANY OTHER WELD SEAM/HOLE/ NOZZLE/ PAD AND SIZE (MIN. DIM.) OF ANY ONE PLATE IS AT LEAST 1000 MM. WELDED CLASSIFICATION GROUPS AND TEST SCOPE AS PER T.R.1

11. 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.

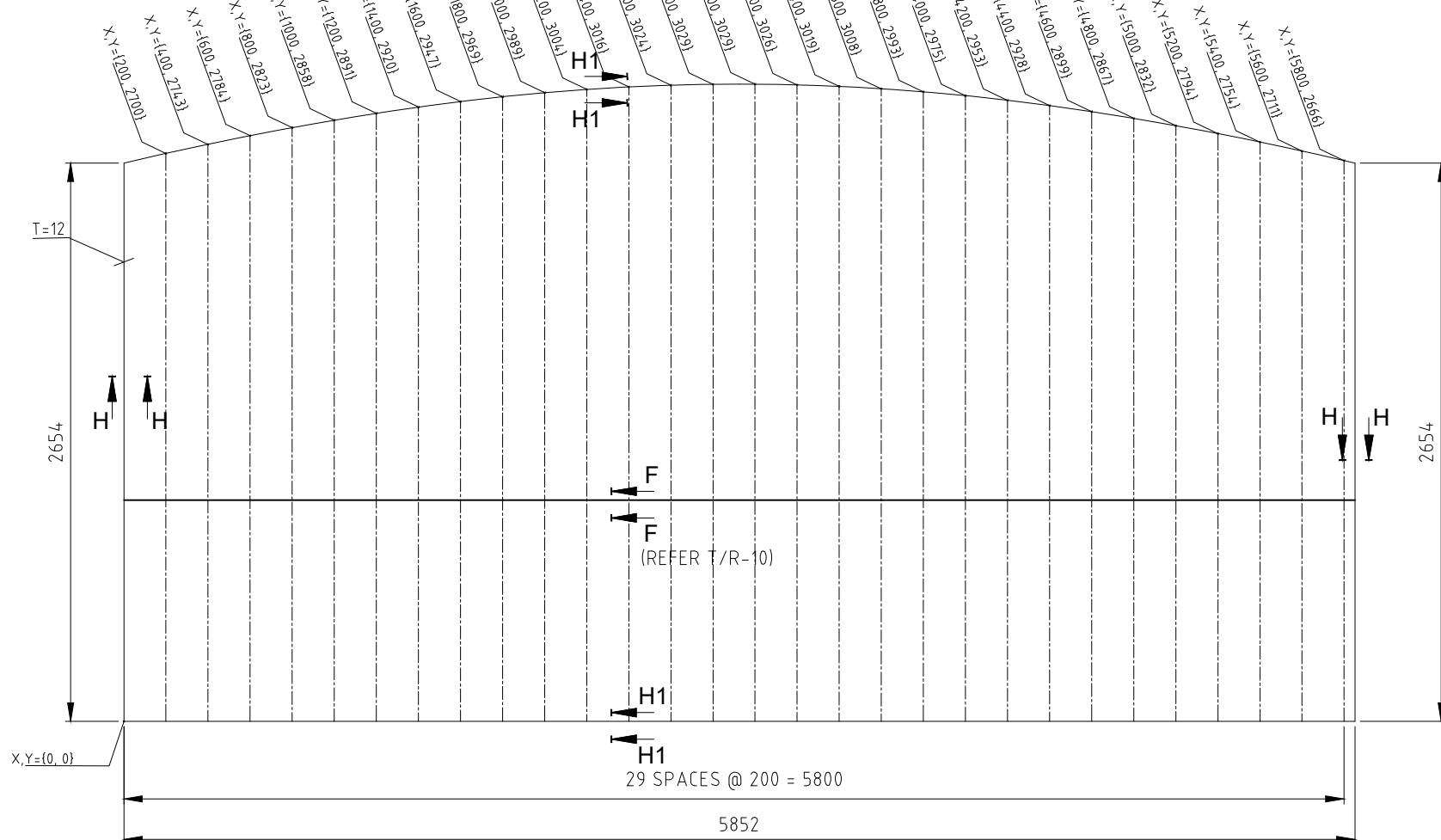
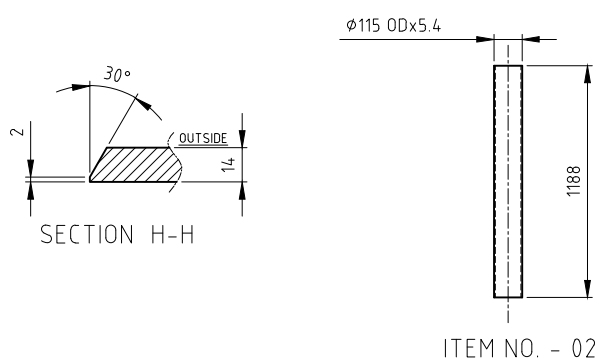
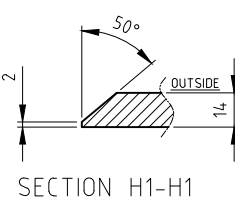
[illegible]



सामग्री सूची संख्या/INVENTORY NO.	हस्ताक्षर और दिनांक/SIGN & DATE	संश्लेषण अभिलेख संख्या /REFERENCE DRG.NO.
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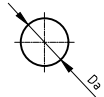
ITEM NO. - 05



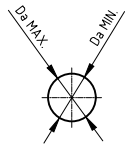
DEVELOPMENT ITEM NO. - 01

1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER – 1 COAT – DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT – 1 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

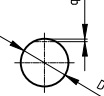

- (b) ADMISSIBLE OVALITY

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 ORBLATENESS

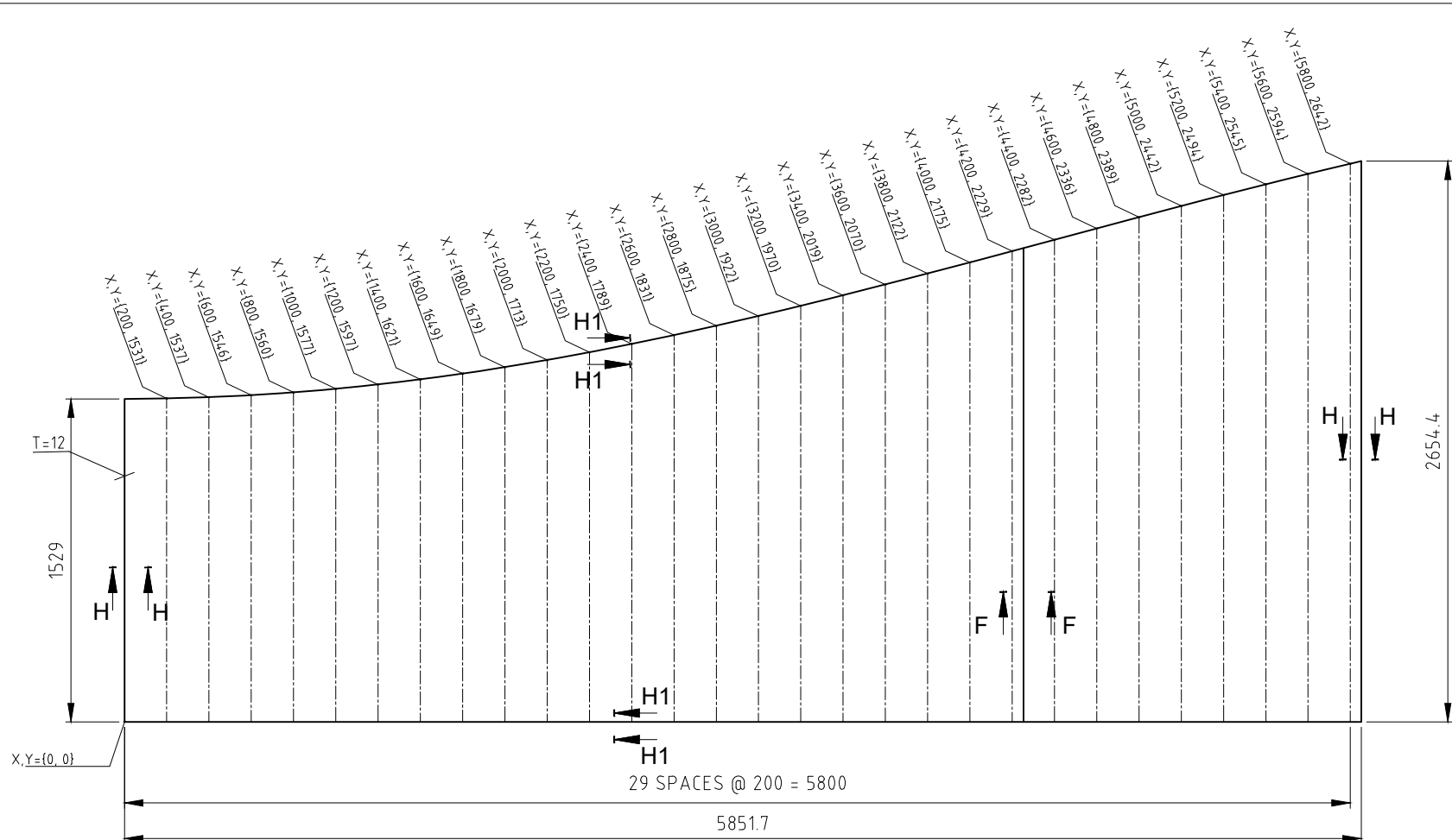
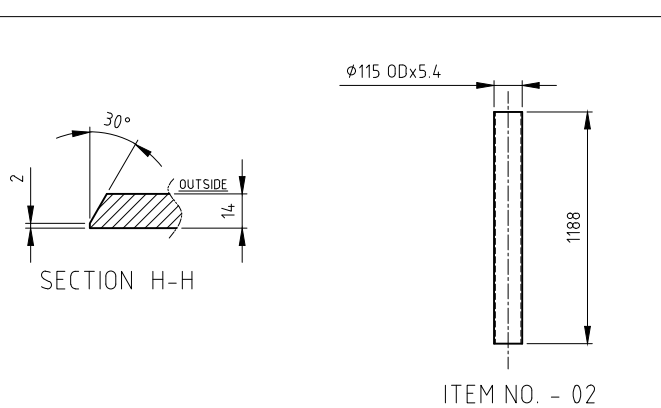
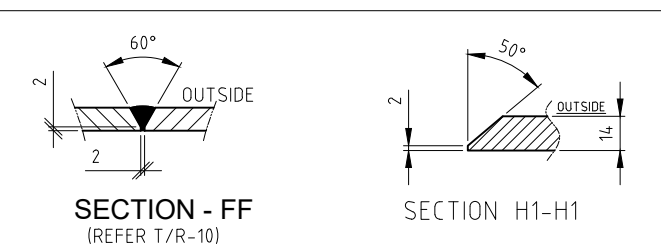
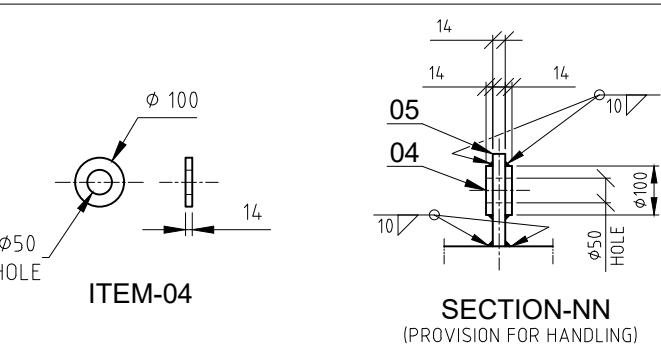
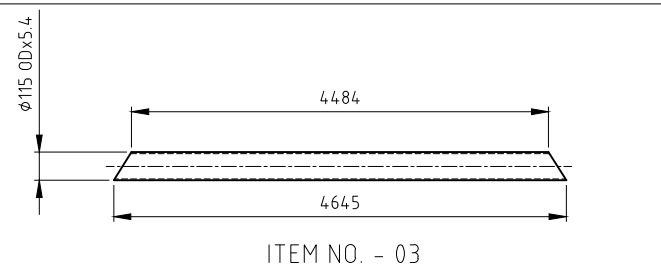
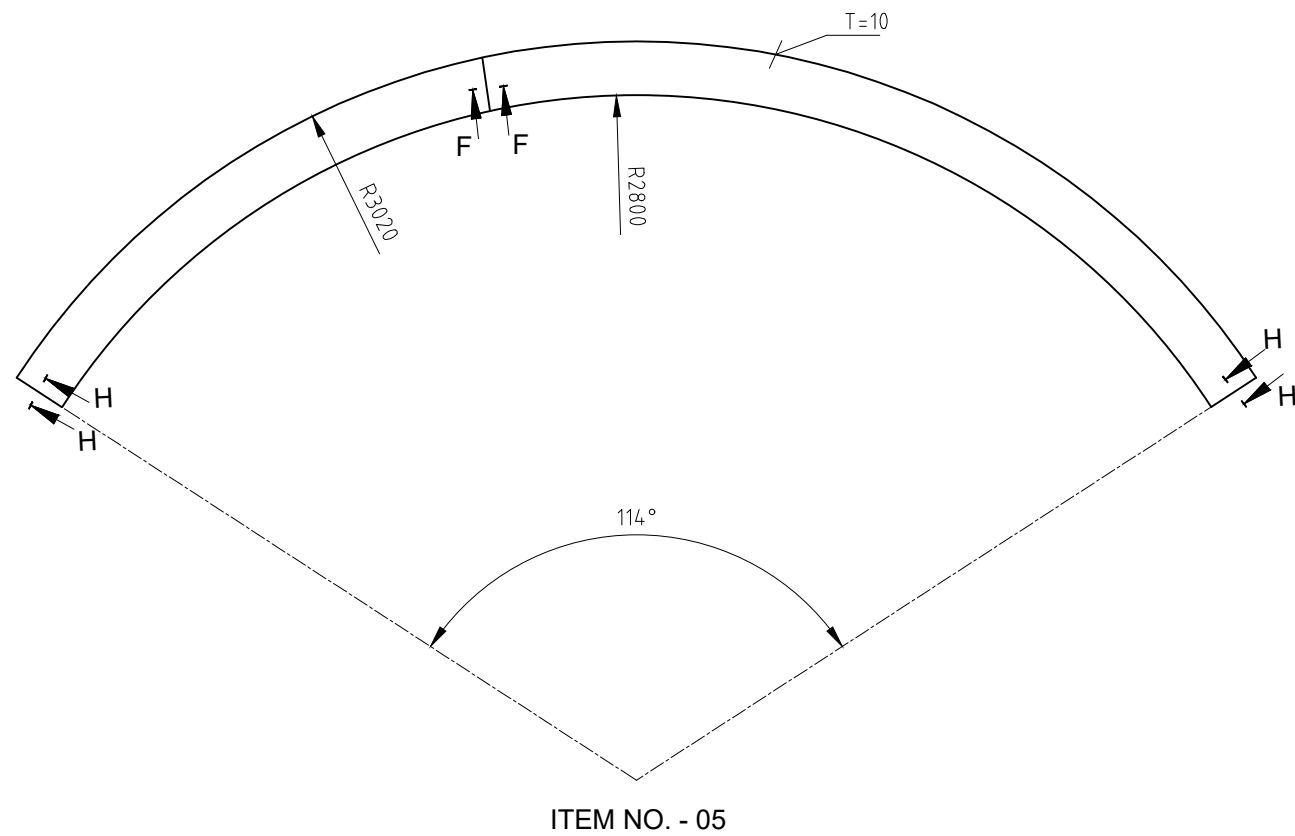
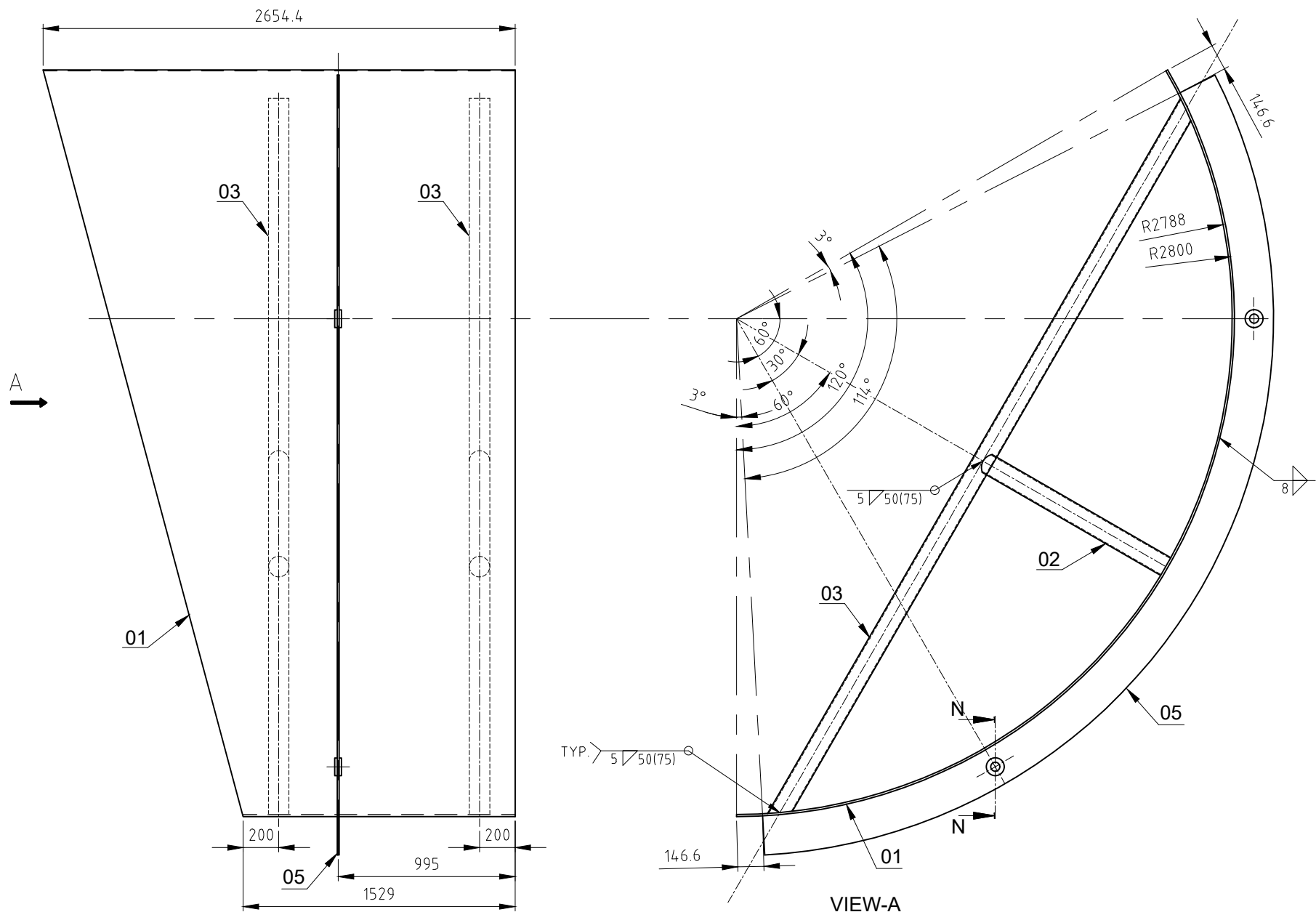
Da $\leq$ 9220 mm q = 6 mm


7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR LARGE ITEMS.
8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.
9. 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.
10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F 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
11. A SEMI CIRCULAR GROOVE OF RADIUS 25mm MAY BE PROVIDED IN THE STIFFENER AT THE LOCATION WHERE STIFFENER CROSSES A WELDED SEAM TO MAINTAIN CONTACT BETWEEN PLATE (IT. 1) AND STIFFENER.

मांक	सं
22	2

21709970215

DRG/DESIGNING NO.



DEVELOPMENT ITEM NO. - 01

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 TIO2 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 QUALITY
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
- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR LARGE ITEMS.
- FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.
- 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 MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F 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.

असह्य विमाओं का वर्ग
GRADE OF UNTOLERANCED DIMENSION
मशीनिंग - एप0230208 एप
MACHINING - AA0230208 m
वेल्डिंग - एप0621104 को श्रेणी बी
WELDING-CLASS 'B' OF AA0621104
गैस कटिंग - एप0621101 को साराणी 3
GAS CUTTING-TABLE 3 OF AA0621101

सी.बी.ओ.ए./C.B.O.M.
01709970025/00
आवृत्ति/REV.
नाम/NAME
WTX
-
साई/SCALE
Sd/-
-
दिनांक/DATE

उत्पाद का प्रकार या ग्राहक/परियोजना का नाम
TYPE OF PRODUCT OR NAME OF
CUSTOMER/PROJECT
ACC, PATRATU

भारत हेवी इलेक्ट्रिकल्स लिमिटेड, रानीपुर, हरिद्वार
BHARAT HEAVY ELECTRICALS LIMITED
RANIPUR, HARDWAR

नाम/NAME
BHASKAR
रजिस्टार/REG.
AXAY
प्रमाणित/PROV.
N.Prakash
दिनांक/DATE
02.05.2023
02.05.2023
02.05.2023

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

दिनांक
DATE

परिवर्तन
CHD

मंजूर
REV.

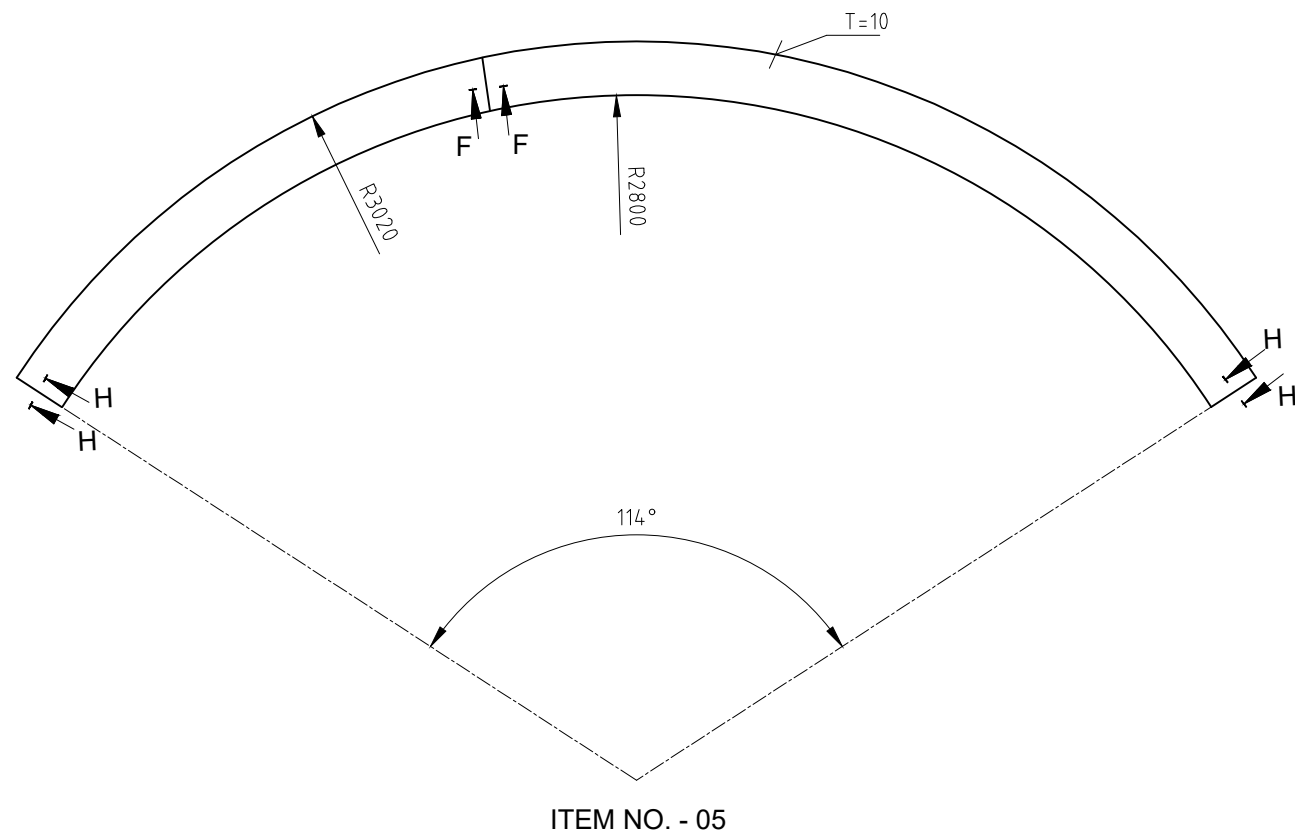
दिनांक
DATE

परिवर्तन
CHD

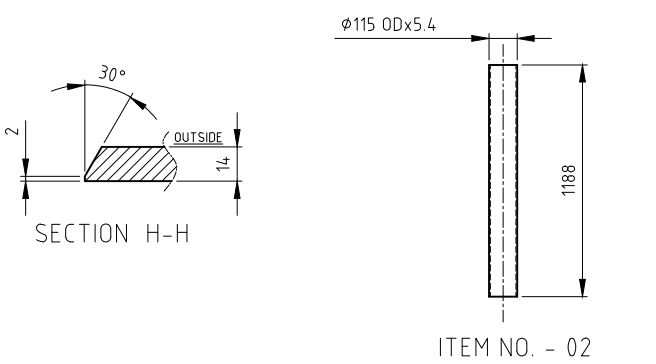
Y PIECE PART 8

अभिकल्प संख्या/DRAWING NO.
21709970215रिव.
00
23 24

A1 मादृज/A1 SIZE



ITEM NO. - 05



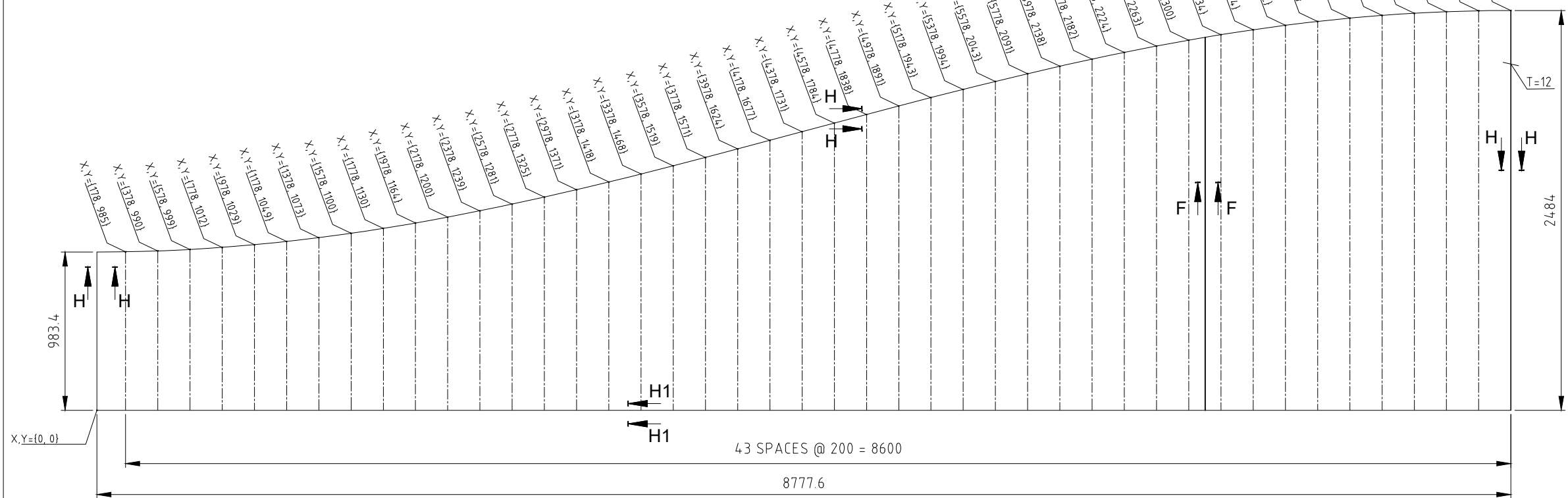
CERTIFIED
CHD

ACC, PATRATU

नाम / NAME	हस्ताक्षर / SIGN	दिनांक / DATE	वेबपृष्ठ संख्या No. of Ver
निर्वाचक DRN	BHASKAR	Sd\ - 02.05.2023	
अधीक्षक CHD	AXAY	Sd\ - 02.05.2023	-
अधीक्षक APD	N.Prakash	Sd\ - 02.05.2023	

भार कि.गा. WEIGHT (KG) 1363.8	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG. 01709970025	नग क्रमांक - 09	संगों की संख्या NO. OF ITEMS -
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A1 साइज़/A1 SIZE



TECHNICAL REQUIREMENTS: –

1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 062009 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - 1 COAT - 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TiO2 PIGMENTED POLYAMIDE CURED PAINT - 1 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

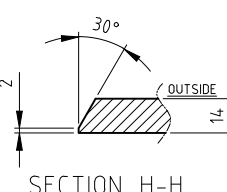
At ends: Da 2800 mm – 4900 mm x = 14 mm
Da 4900 mm – 6300 mm x = 16 mm
Da 6300 mm – 8100 mm x = 20 mm

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

$$D_a \leq 9220 \text{ mm} \quad q = 6 \text{ mm}$$

7. TUBULAR ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR LARGE ITEMS.
8. FABRICATION WEIGHT IS INCLUSIVE OF TECHNOLOGICAL SUPPORTS / STIFFENERS.
9. 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.
10. IF REQUIRED, PLATE & STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F 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 DUCT OR PLATE IS AT LEAST 100 MM. WELD CLASSIFICATION AND TEST SCOPE AS PER TR-1.
11. 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.



	12▽	10▽	5▽	SIZE & SYMBOL OF SEAM
	2.5	2.51	1.45	WELD LENGTH (M)
	2.8	1.4	0.2	WT. OF WELD METAL
E-7018				TYPE OF ELECTRODE

संशोधन REV.	
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दिनांक
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५. प्रमाणित CERTIFIED BY ५. प्रमाणित CHO

संशोधन REV.	

दिनांक DATE	पृष्ठ ALT उ
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REVIEWED BY	
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HD	

संशोधन REV.	

दिनांक DATE	२८ ८
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REVIEWED BY
DATE
HD

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DEPTT.
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शीर्षक/

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CODE

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संख्या/D/17099

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AWING
7021

NO.	नग
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क्रमांक - 1	मार्ग क्रमांक - NO. 17
22	23

61202660212

DRAWING NO.

7

6

5

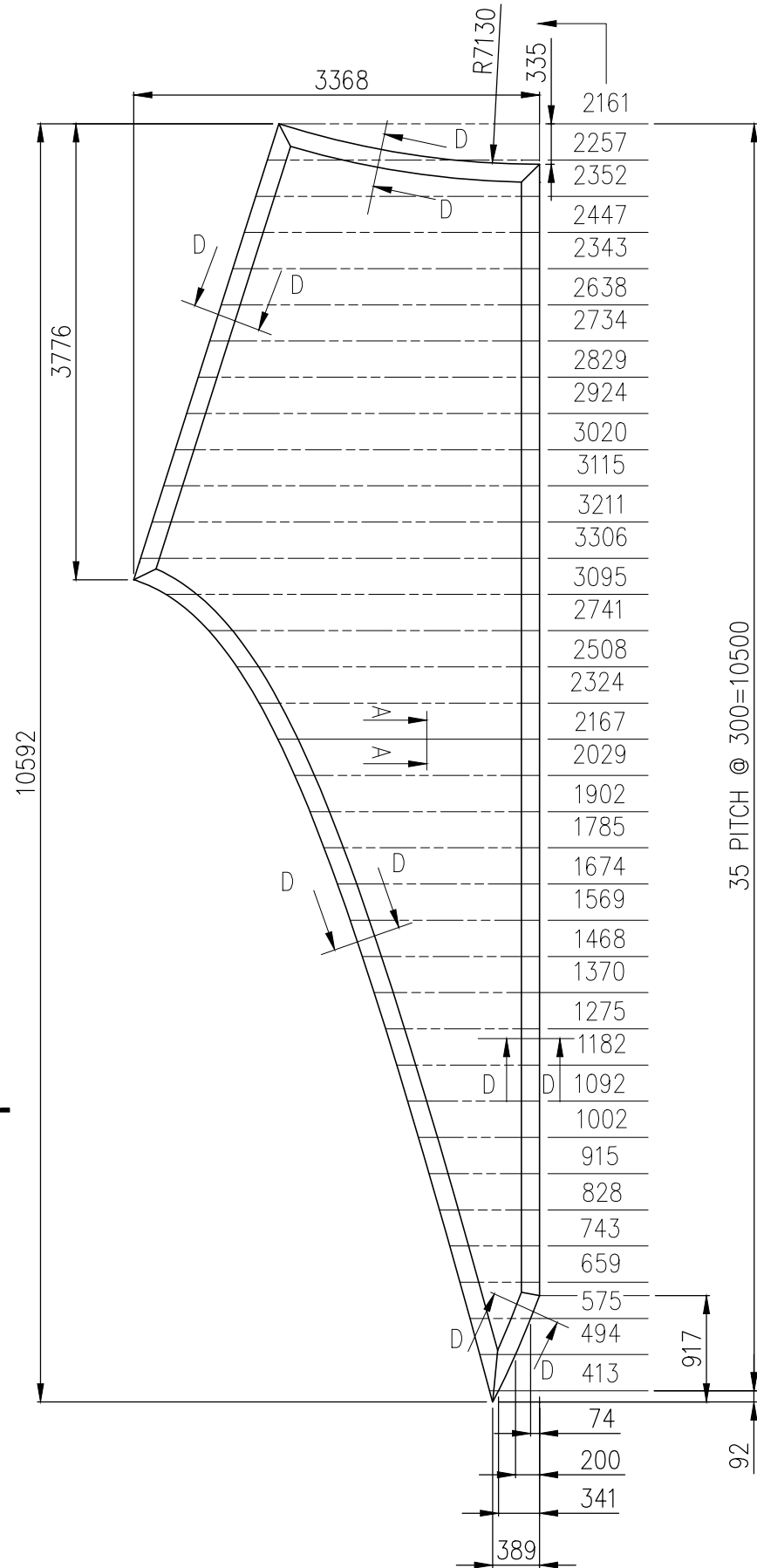
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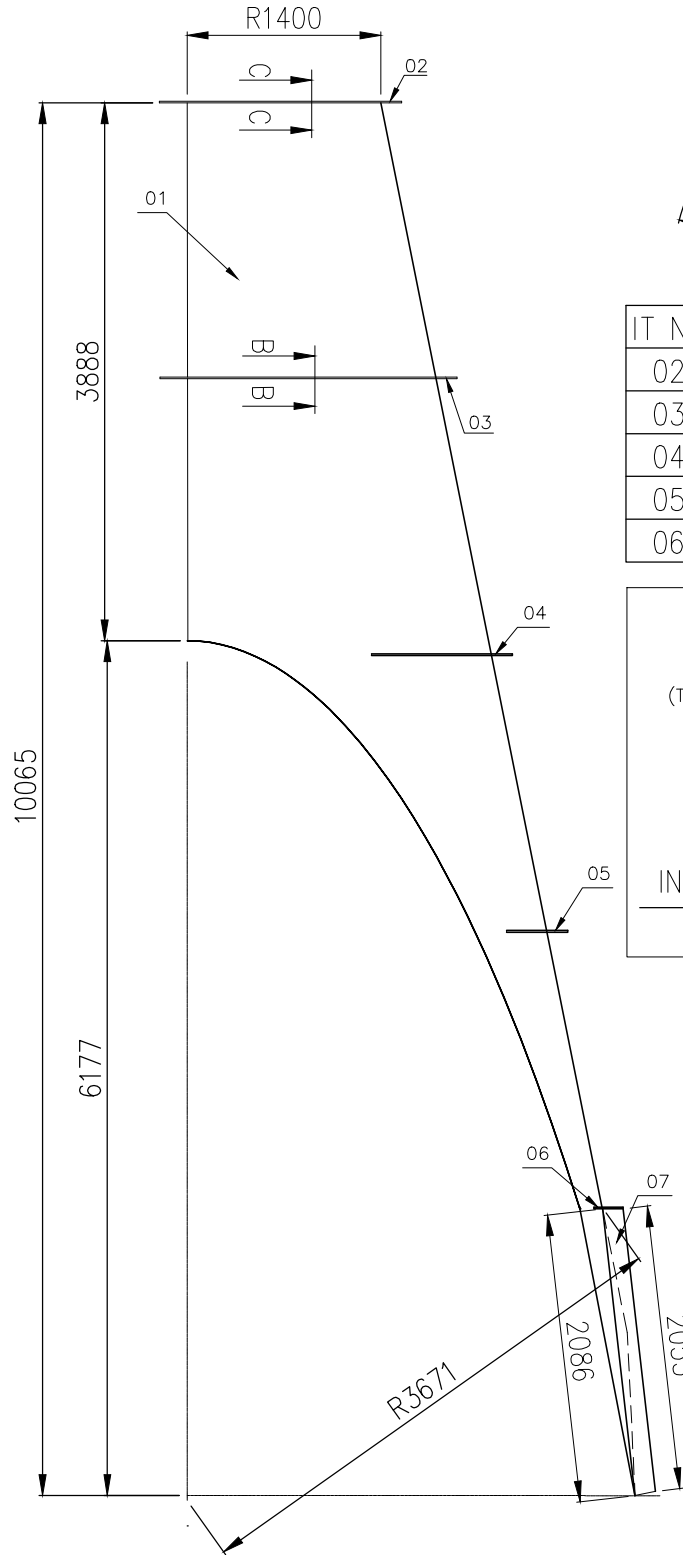
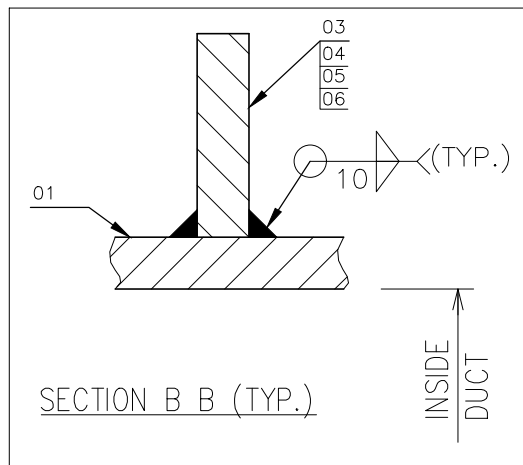
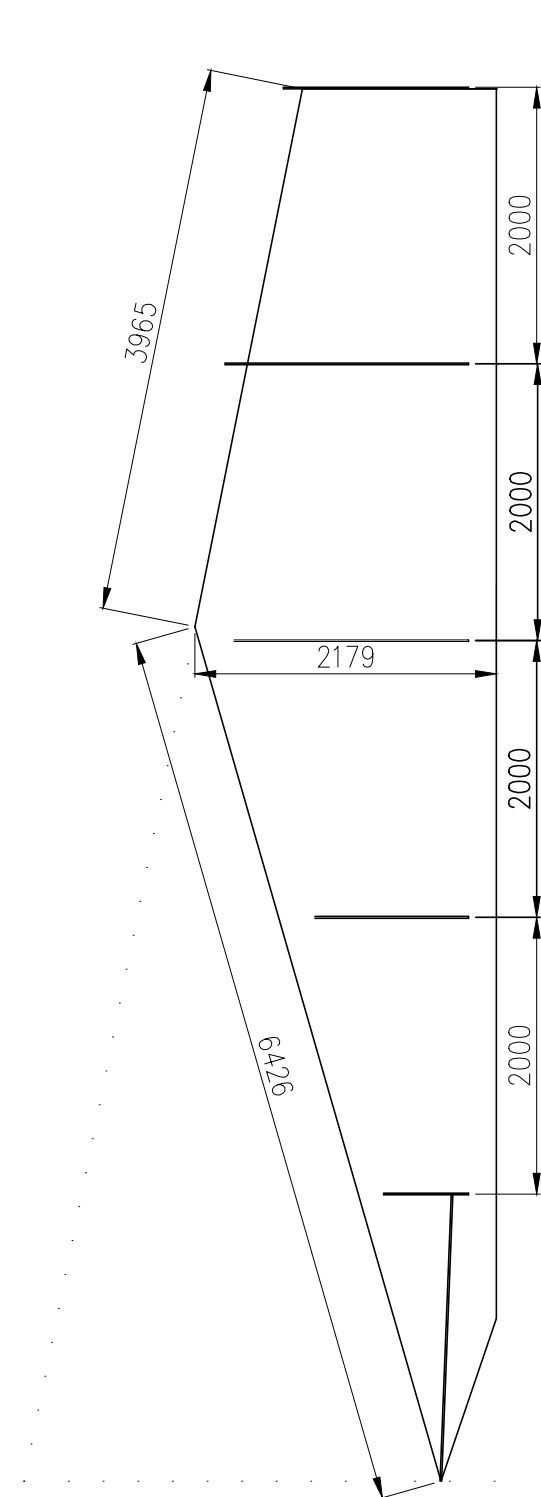
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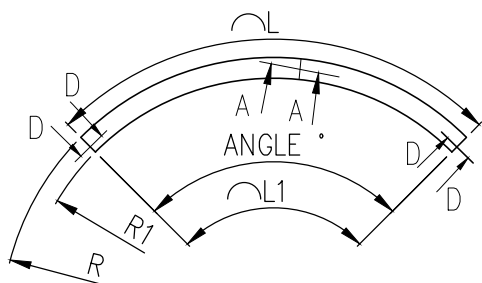
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35 PITCH @ 300=10500

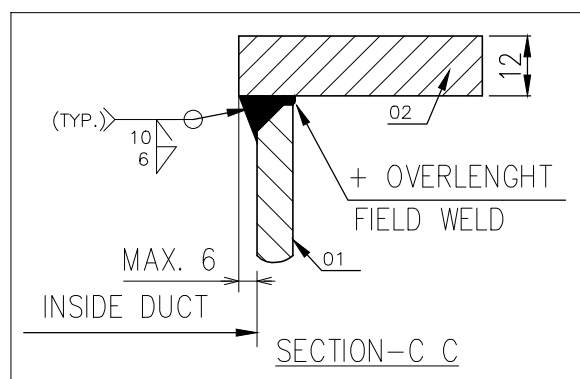


CENTRE CONE PIECE



THK-12

IT NO	R	L	R1	L1	ANGLE °
02	1550	2436	1380	2169	90°
03	1970	3096	1820	2860	90°
04	2370	2152	2220	2016	48°
05	2772	1307	2622	1236	24°
06	3172	665	3022	633	10°



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

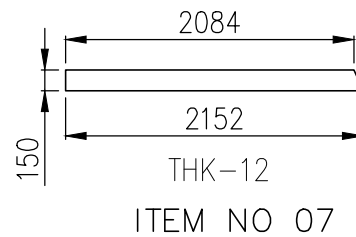
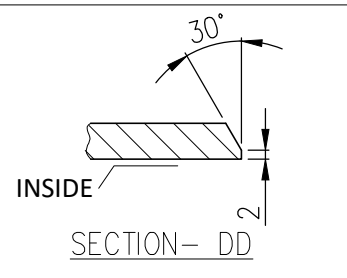
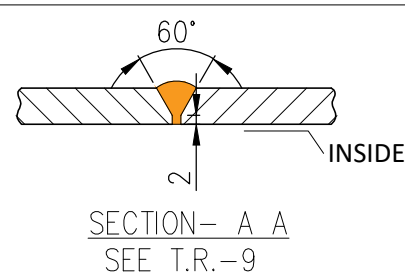
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm

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.
- 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 MAY BE MADE IN MAXIMUM 5 PARTS & STIFFENER MAY BE MADE IN MAXIMUM 4 PARTS WITH WELDED AS PER SECTION A-A 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.
- DEVELOPMENT PROVIDED IN THE DRG IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.



10	10	10	6	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	2.2	WELD LENGTH (M)
3.6	1.0	5.3	0.3	WT. OF WELD METAL
				E-308L
				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. 01709970025			STATUS OF DRG U
AGREED DEPT.	NAME	SIGN	DATE

TYPE OF PRODUCT

OR

NAME OF CUSTOMER/ PROJECT

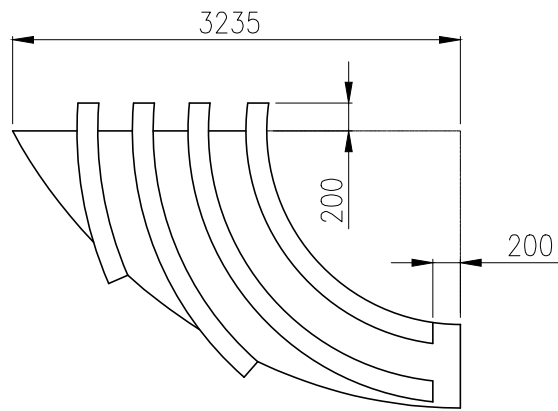
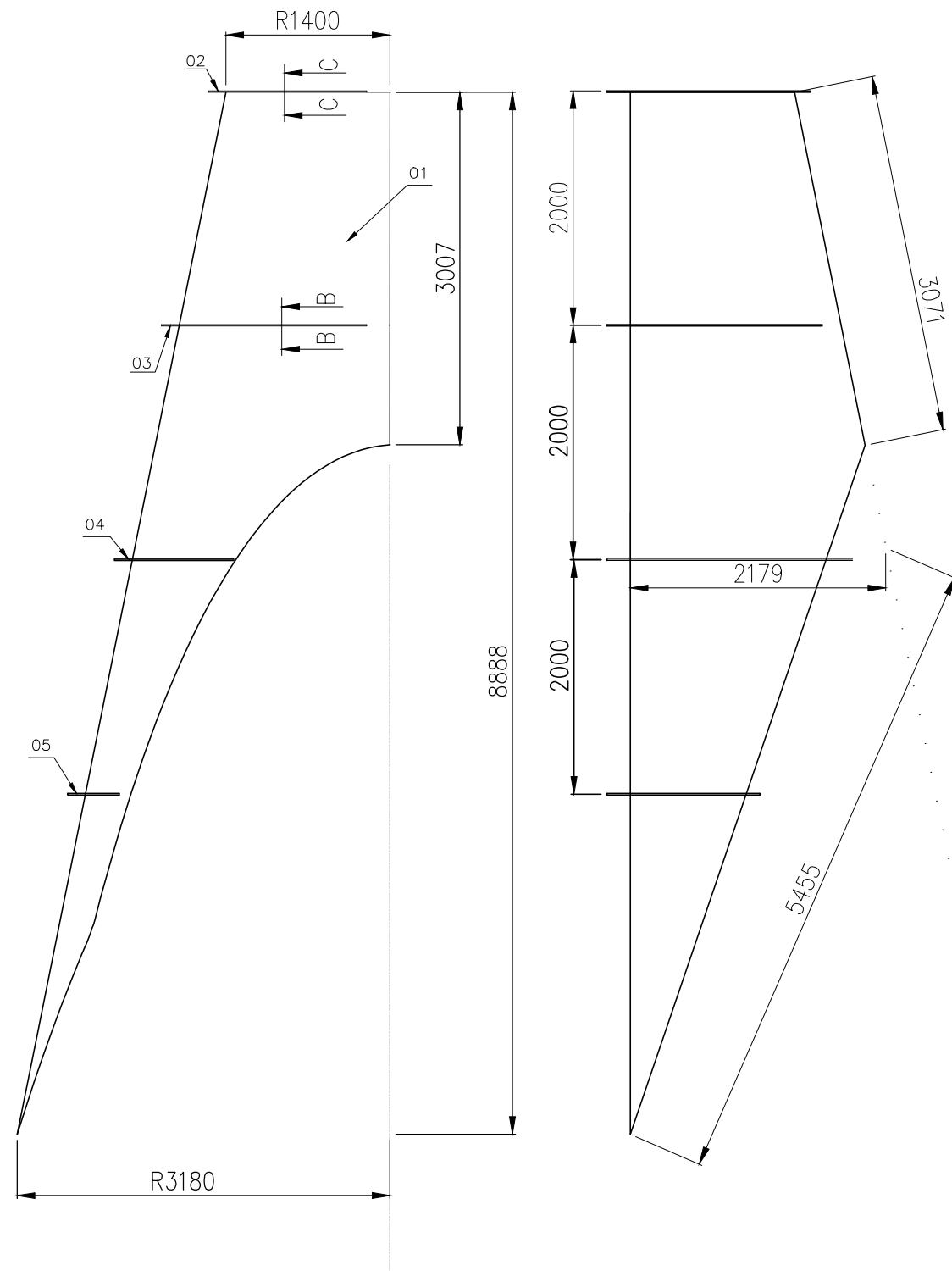
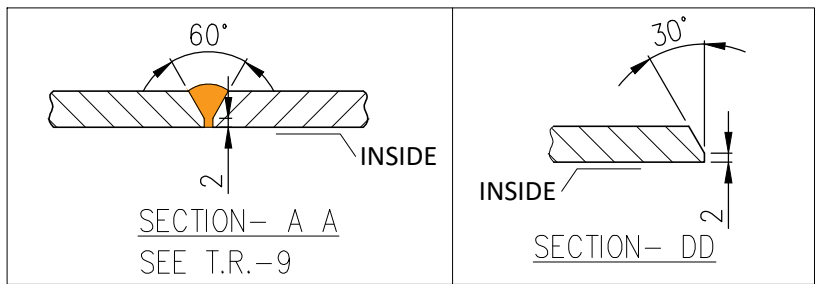
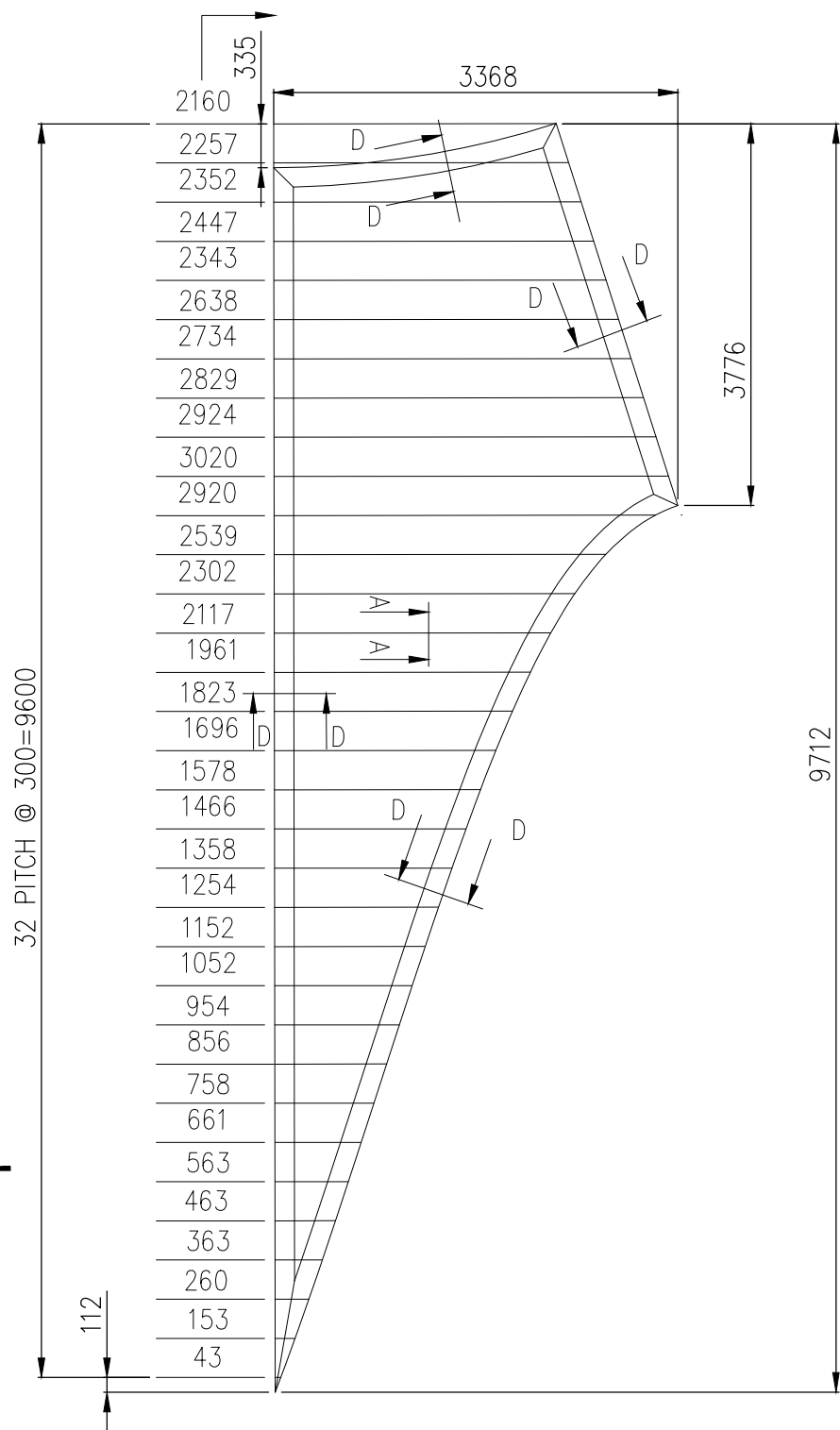
3X700 MW ACC PATRATU

DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	N.K.JANGRA	--SD--	13/05/23	
APD	A.KUMAR	--SD--	13/05/23	
	N.PRAKASH	--SD--	13/05/23	73, 74
DEPT.	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.
HXE	1:50	2353	----	02
CODE	TITLE	CARD CODE	DRAWING NO.	REV.
2224	Y PIECE CENTRE CONE -2	X	21709970219	00
			SHEET NO. 01	NO.OF SHEETS 01

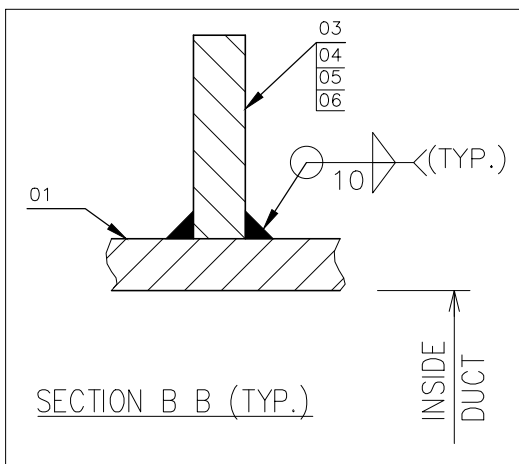
SIZE A2

DRAWING NO. 21709970220

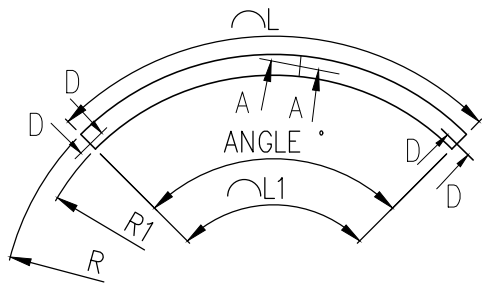
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CENTRE CONE PIECE

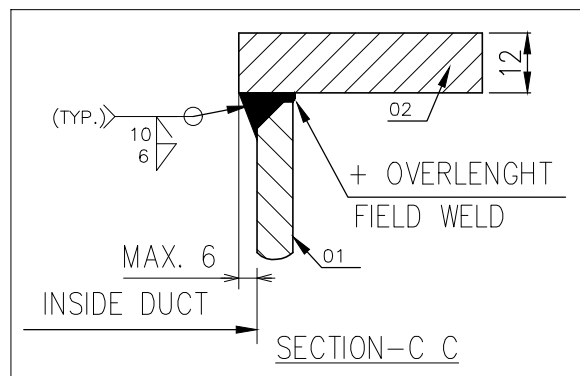


SECTION B B (TYP.)



THK-12

IT NO	R	L	R1	L1	ANGLE °
02	1550	2436	1380	2169	90°
03	1970	3096	1820	2860	90°
04	2370	2152	2220	2016	52°
05	2772	1307	2622	1236	27°
-	-	-	-	-	-



SECTION-C C

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

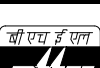
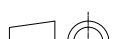
(c) ADMISSIBLE OBLATENESS

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.
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 MAY BE MADE IN MAXIMUM 4 PARTS & STIFFENER MAY BE MADE IN MAXIMUM 4 PARTS WITH WELDED AS PER SECTION A-A 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.
11. DEVELOPMENT PROVIDED IN THE DRG IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.

CBOM NO. 01709970025		STATUS OF DRG. U	
AGREED DEPT.	NAME	SIGN	DATE

TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT
3X700 MW ACC PATRATU

भारत ई वल  BHARAT HEAVY ELECTRICALS LTD. HARDWAR				NAME	SIGN	DATE	NO.OF VAR.
		DRN	N.K.JANGRA	--SD--		15/05/23	
		CHD	A.KUMAR	--SD--		15/05/23	
		APD	N.PRAKASH	--SD--		15/05/23	73 , 74
DEPT. HXE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
CODE 2224		1:50	1832	----		02	04 75 , 77
TITLE			1 CARD CODE X	DRAWING NO. 21709970220			REV. 00
Y PIECE CENTRE CONE -3				SHEET NO. 01 NO.OF SHEETS 01			22 23 , 24

10△	10△	10▽	6▽	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	2.2	WELD LENGTH (M)
3.6	1.0	5.3	0.3	WT. OF WELD METAL
E-308L				TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.:-

M/CG- V/C/M/F AA 0230208

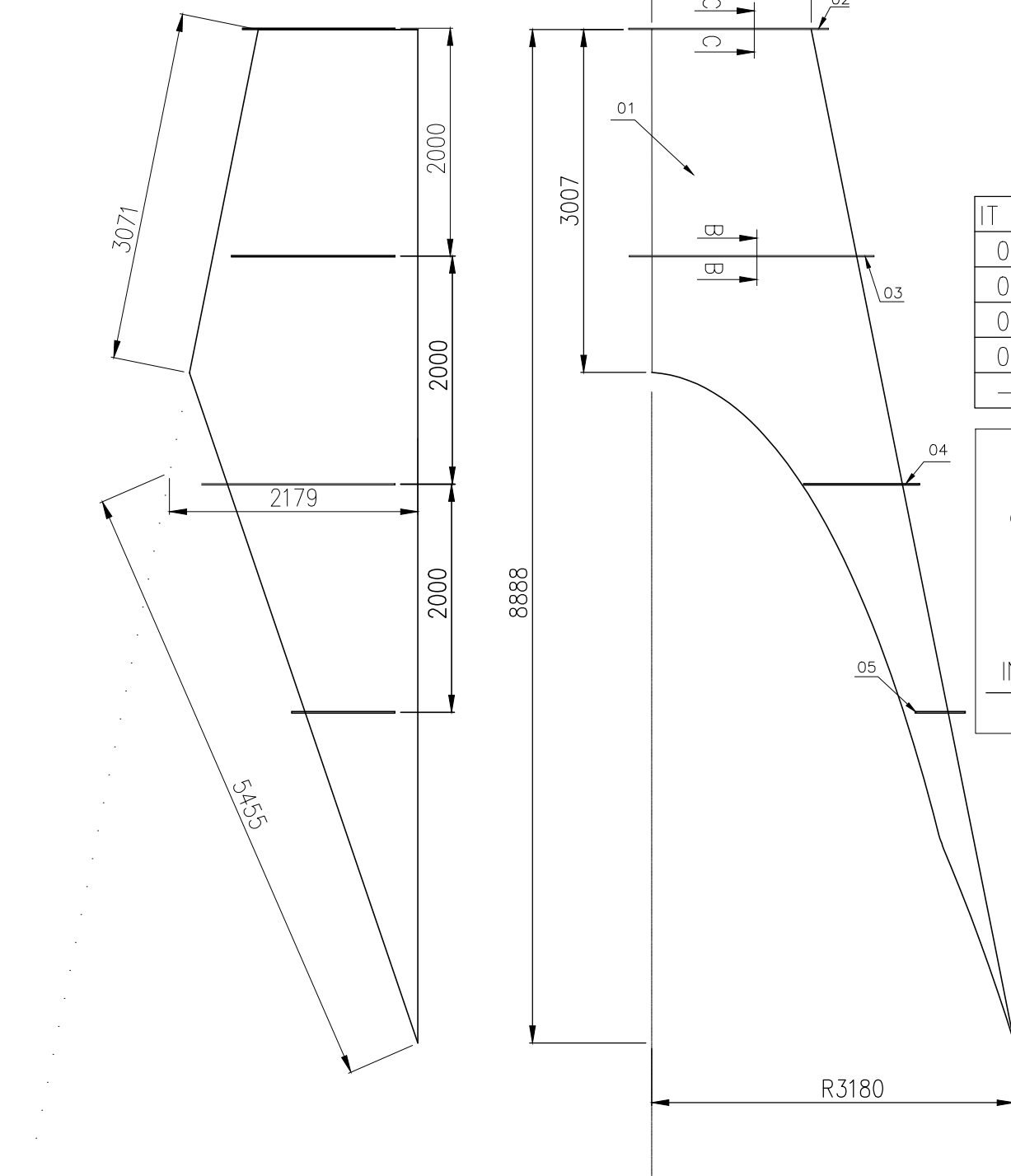
WELDING-A/B/C/D-AA621104

GAS CUTTING-'T3'AA0621101

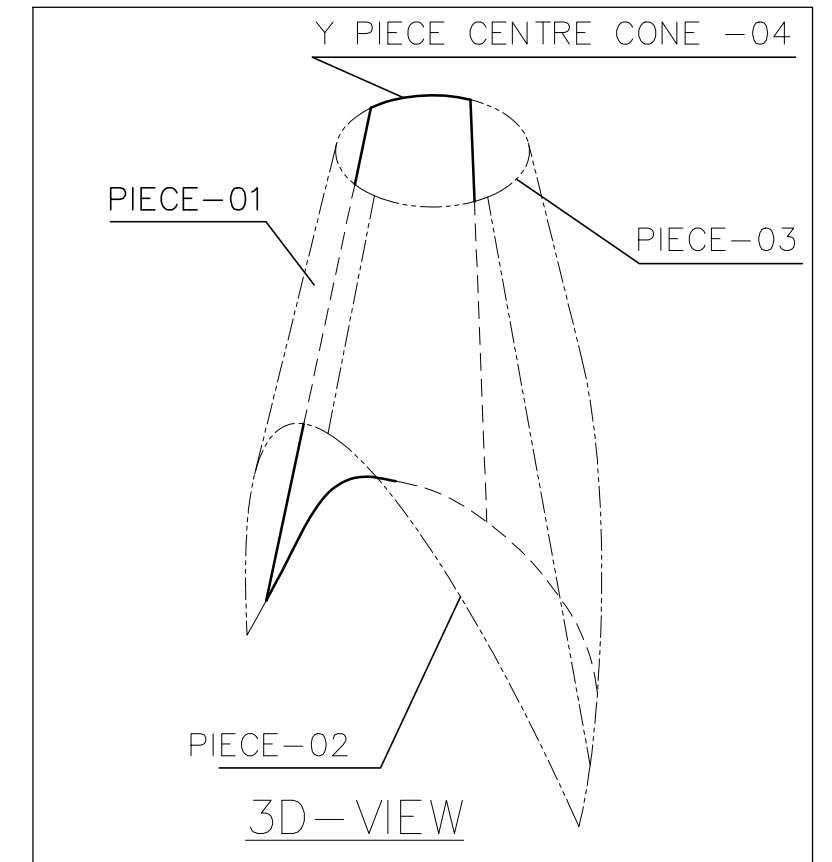
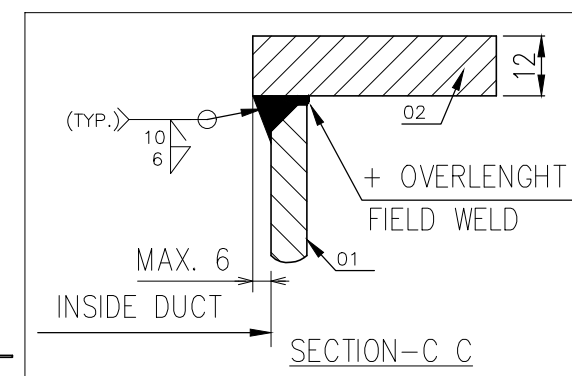
REV. DATE ALTERED
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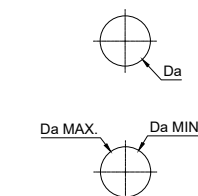
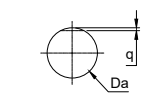
IT NO	R	L	R1	L1	ANGLE
02	1550	2436	1380	2169	90°
03	1970	3096	1820	2860	90°
04	2370	2152	2220	2016	52°
05	2772	1307	2622	1236	27°
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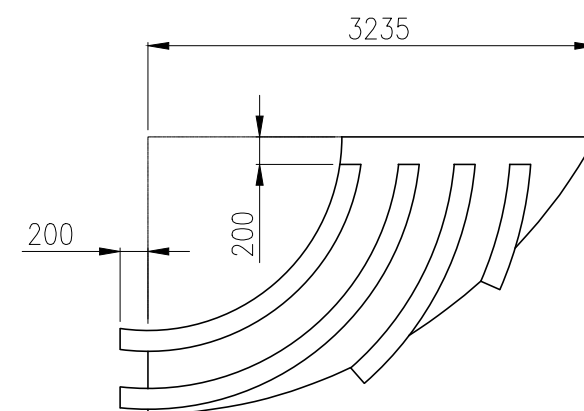
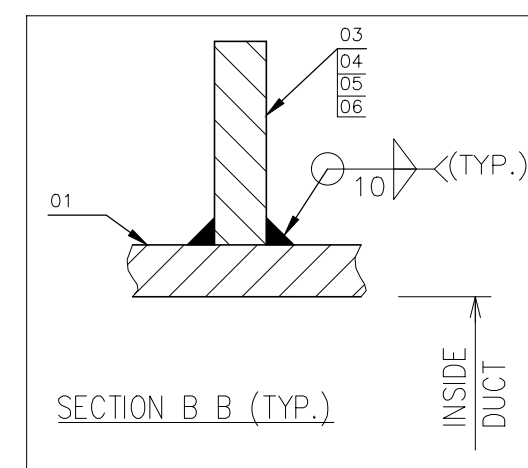
1. WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
2. PAINTING ON OUTSIDE SURFACES:
 - (i) PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - 1 COAT - DFT 50 MICRON.
 - (ii) INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - 1 COAT - 50 MICRON.
3. BUTT WELDS SHALL BE SUBJECTED TO 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

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


$$D_a \leq 9220 \text{ mm} \quad q = 6 \text{ mm}$$


7. TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS.
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 MAY BE MADE IN MAXIMUM 4 PARTS & STIFFENER MAY BE MADE IN MAXIMUM 4 PARTS WITH WELDED AS PER SECTION A-A 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.
11. DEVELOPMENT PROVIDED IN THE DRG IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.



CENTRE CONE PIECE

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

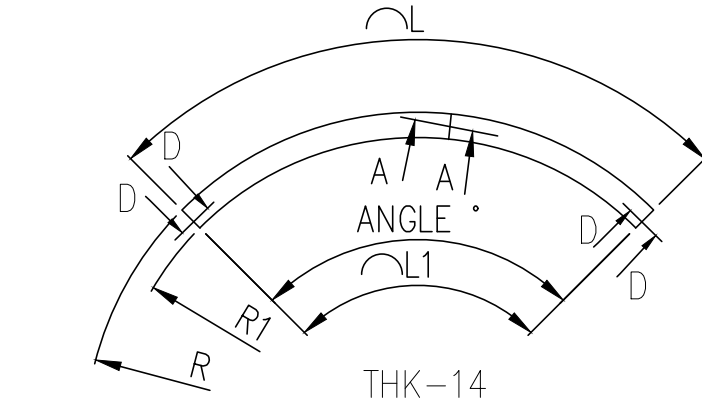
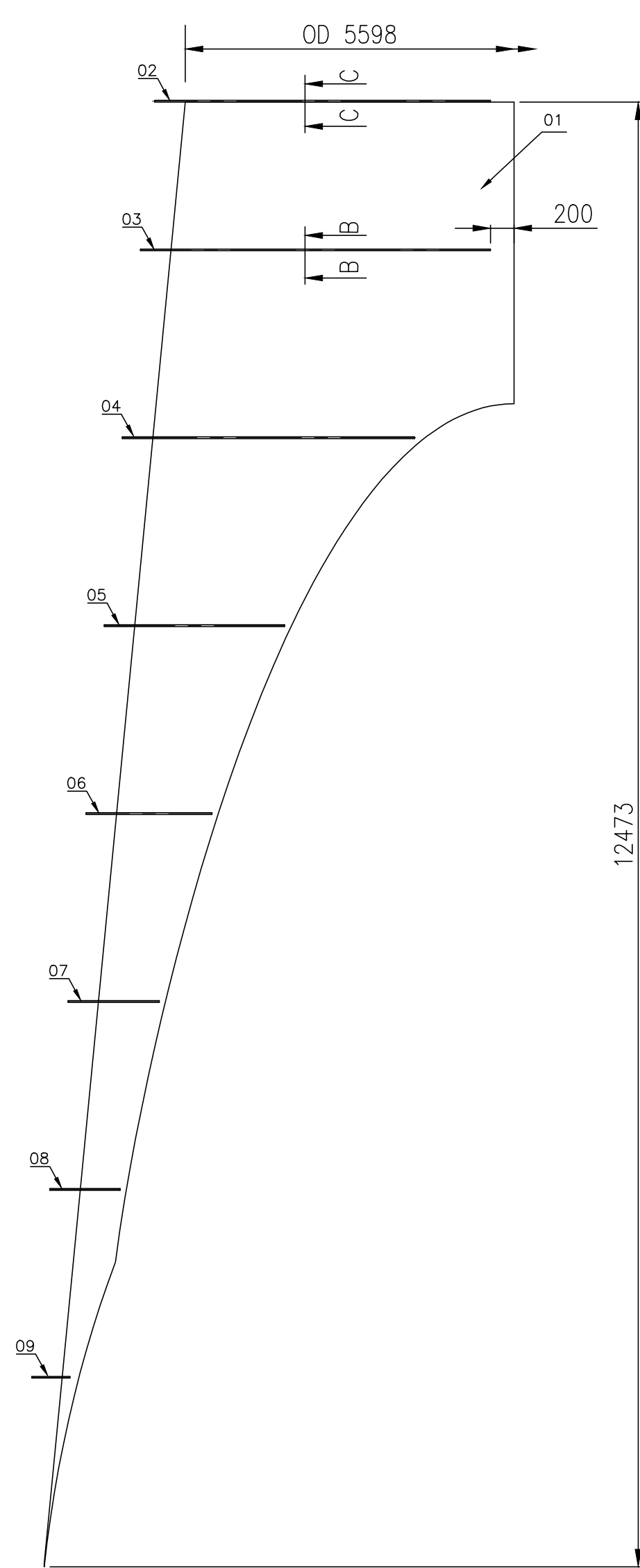
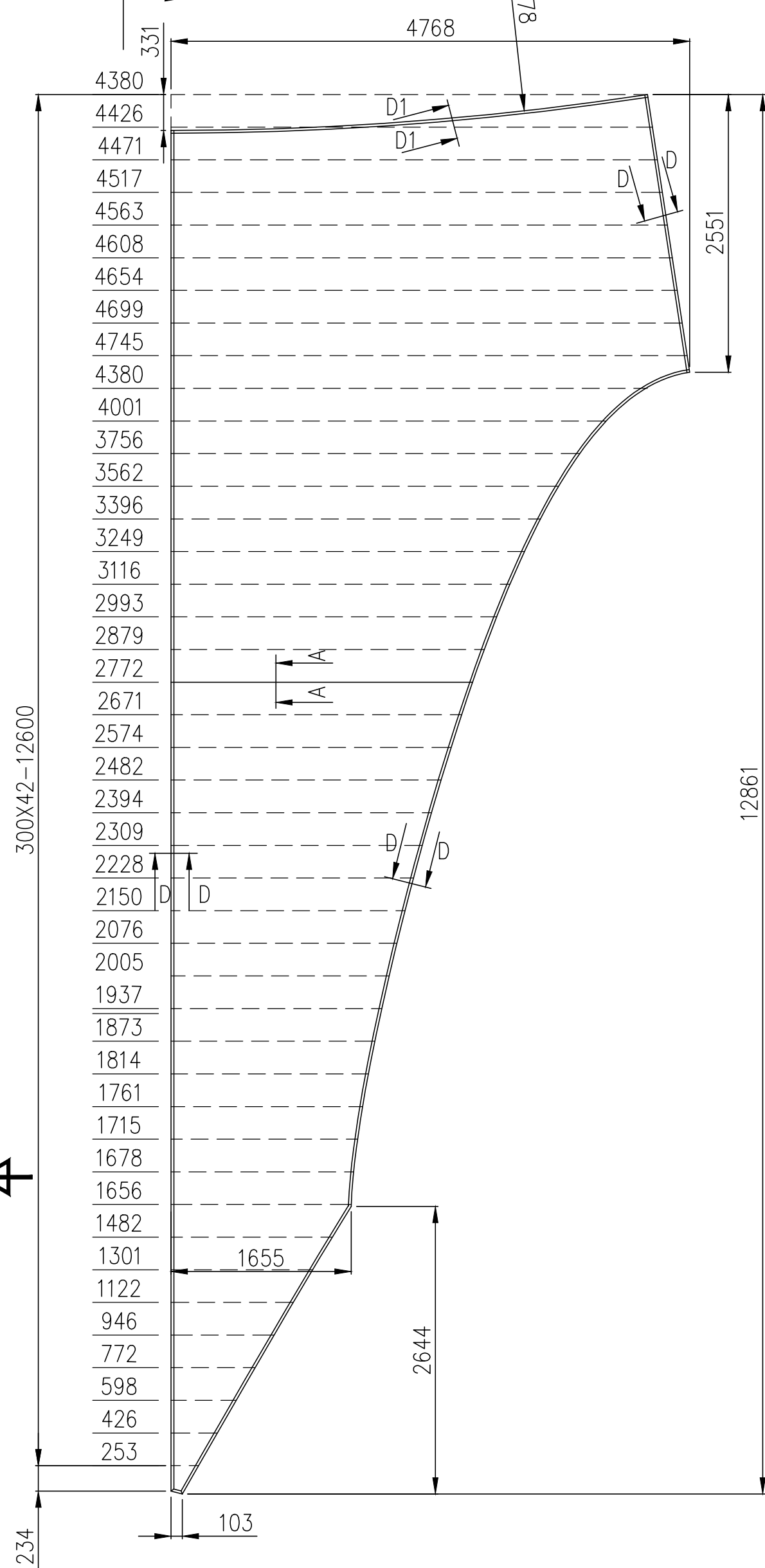
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT	3X700 MW ACC PATRATU
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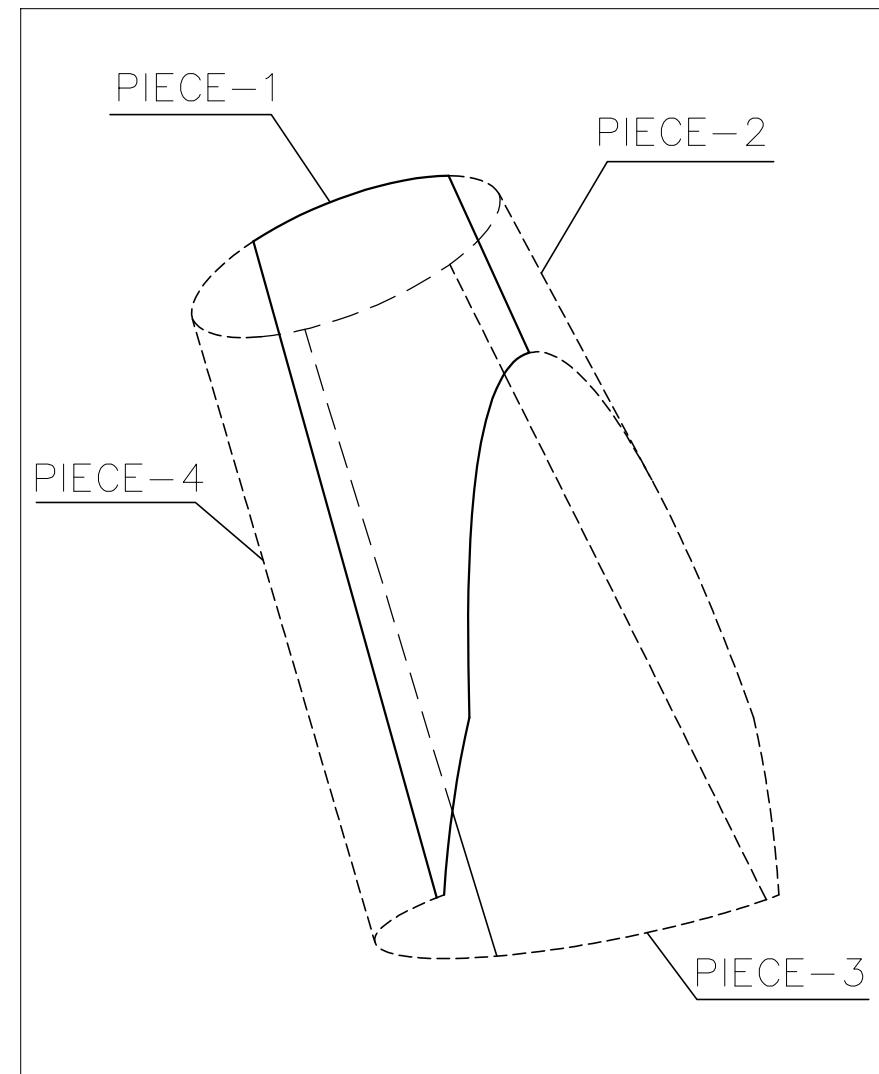
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Y PIECE CENTRE CONE -4			00
	X	7	22 23 24
		SHEET NO. 01	NO.OF SHEETS 01

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DRAWING NO. 21709970222



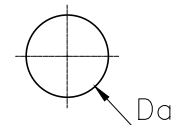
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04	3335	4526	3075	4172	78°
05	3489	3431	3229	3175	56°
06	3643	2791	3383	2591	44°
07	3797	2294	3537	2136	35°
08	3952	1923	3692	1796	28°
09	4106	1096	3846	1026	15°



TECHNICAL REQUIREMENTS:-

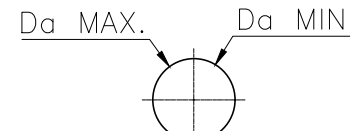
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
- BUTT WELDS SHALL BE SUBJECTED TO 100% DPT AND 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

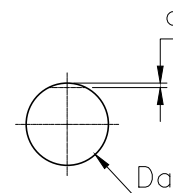
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



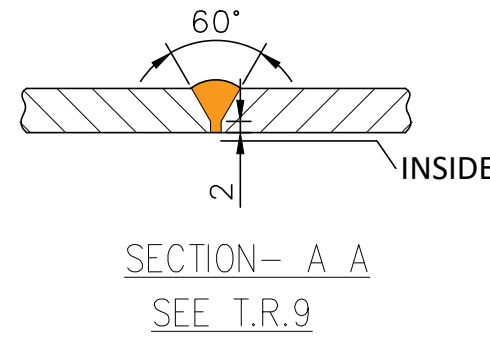
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

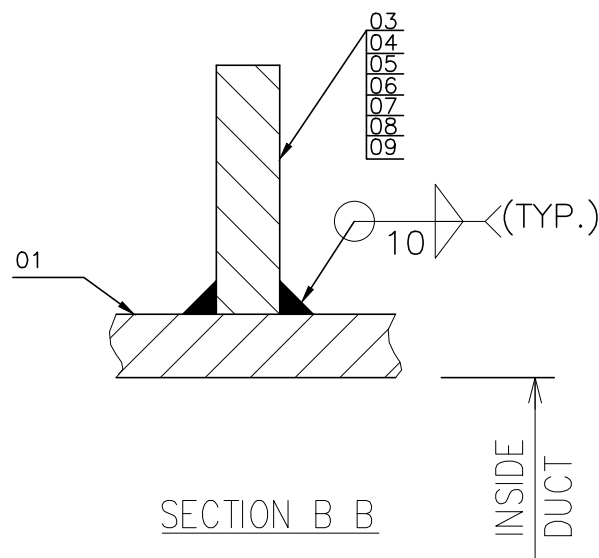
Da $\leq$ 9220 mm q = 6 mm



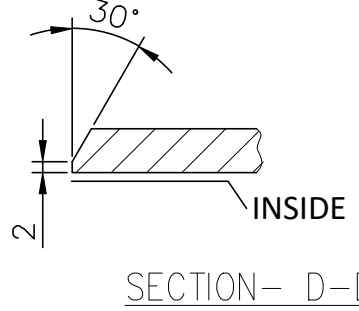
- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
- IF REQUIRED, PLATE (IT.1) MAY BE MADE IN MAX.6 PARTS, WELDED AS PER SECTION A-A AND STIFFENER MAY BE MADE IN MAX. 4 PARTS, WELDED AS PER SECTION A-A. 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.
- DEVELOPMENT PROVIDED IN THE DRG. IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.



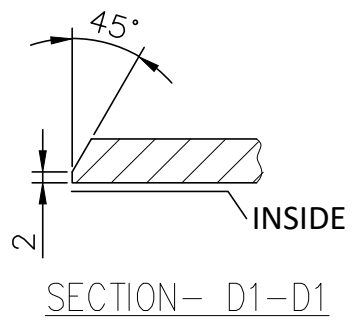
SECTION- A A
SEE T.R.9



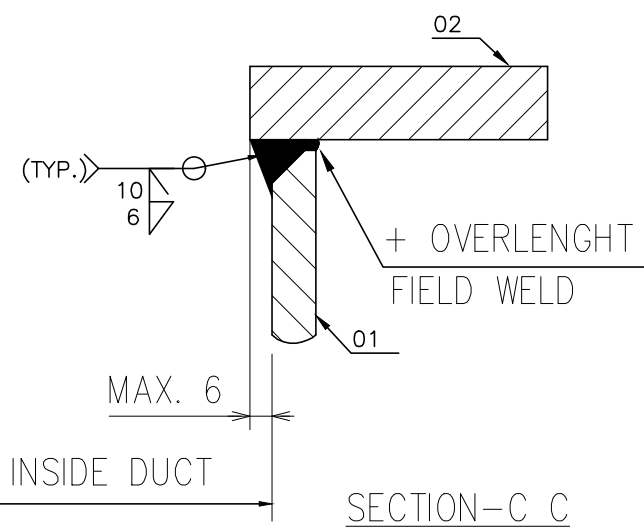
SECTION B B



SECTION- D-D



SECTION- D1-D1



SECTION-C C

FOR CLARITY, STIFFENERS
NOT SHOWN IN THIS VIEW

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

(10) Δ	(10) Δ	(10) Δ	(6) Δ	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	0.3	WELD LENGTH (M).
3.6	1.0	5.3	0.2	WT. OF WELD METAL (Kg).
E-308L				TYPE OF ELECTRODE

CBOM NO.
01709970025

STATUS OF DRG.
U

AGREED DEPT. NAME SIGN DATE
WT MANISH -SD- -

REV. DATE ALTERED
CHECKED

TYPE OF PRODUCT OR
NAME OF CUSTOMER/ PROJECT
3X700 MW ACC
(PATRATU)

DRN	NAME	SIGN	DATE	NO.OF VAR.
CHD	NK JANGRA	-Sd-	13.05.2023	-
APD	AXAY KUMAR	-Sd-	13.05.2023	-
	N PRAKASH	-Sd-	13.05.2023	73, 74

DEPT. HXE
CODE 2444
SCALE N.T.S.
WEIGHT(Kg.) 4343.0
REF. TO ASSY. DRG. - - - -
ITEM NO. 01
NO.OF ITEMS - -

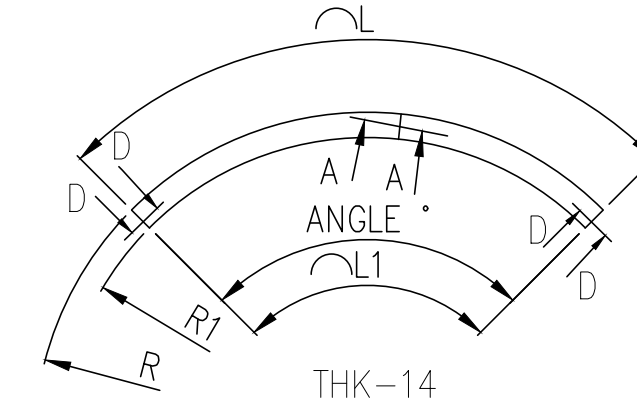
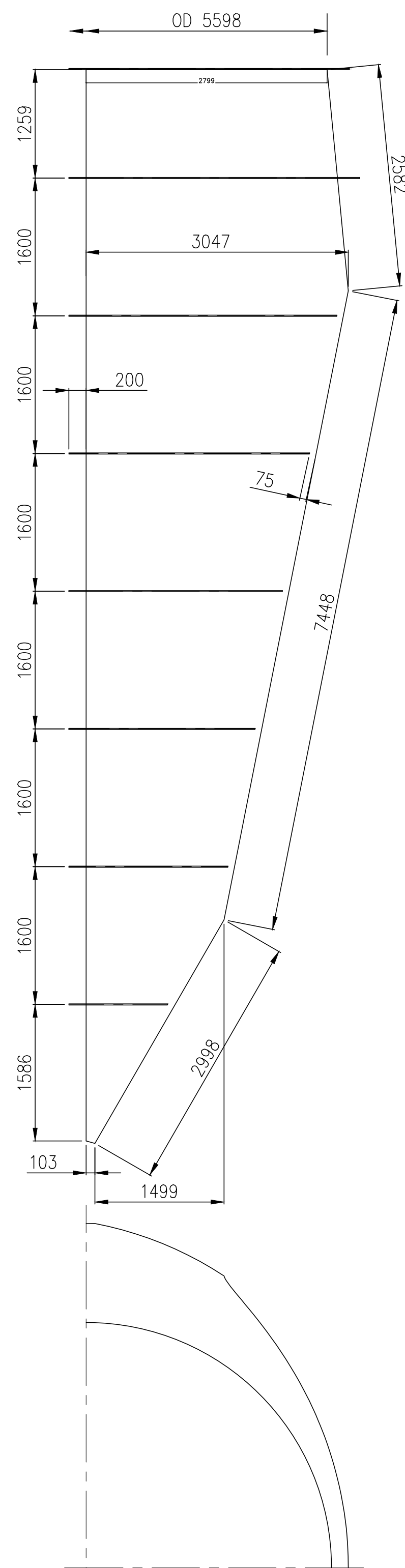
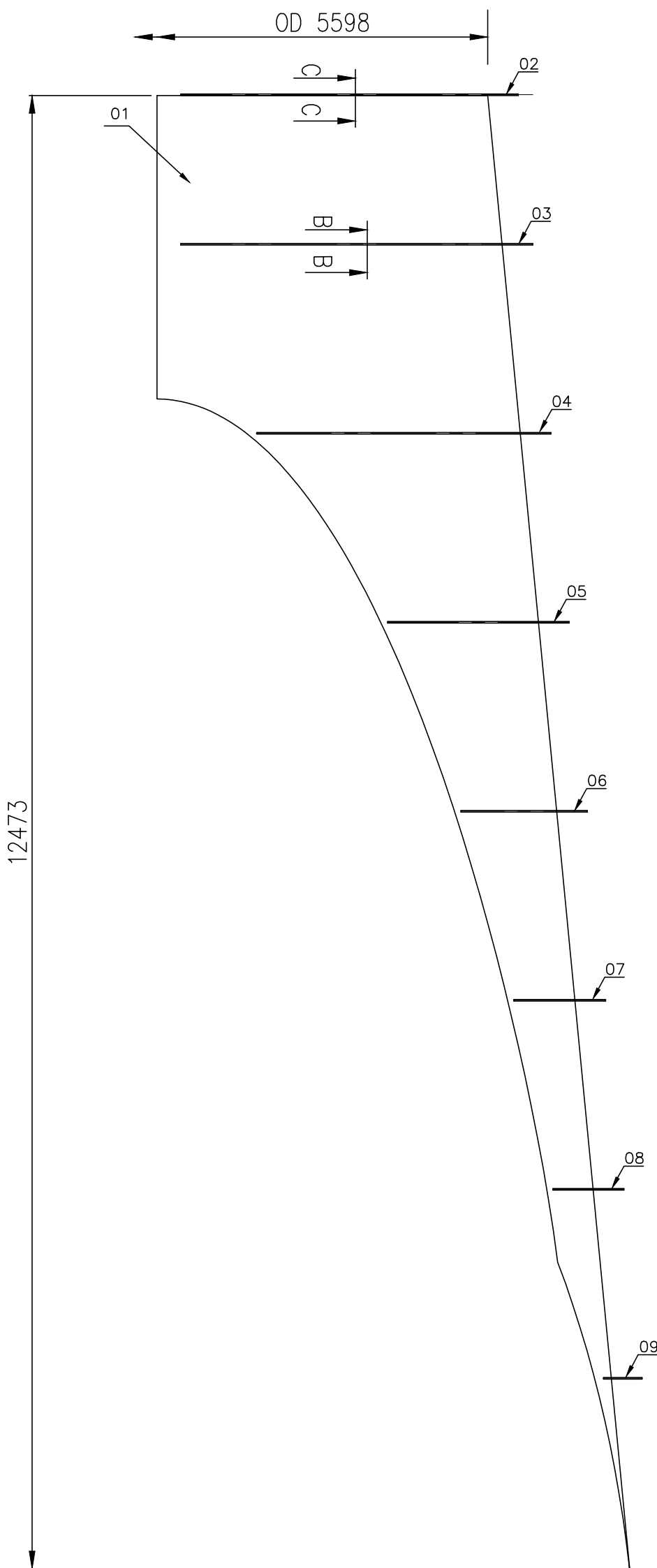
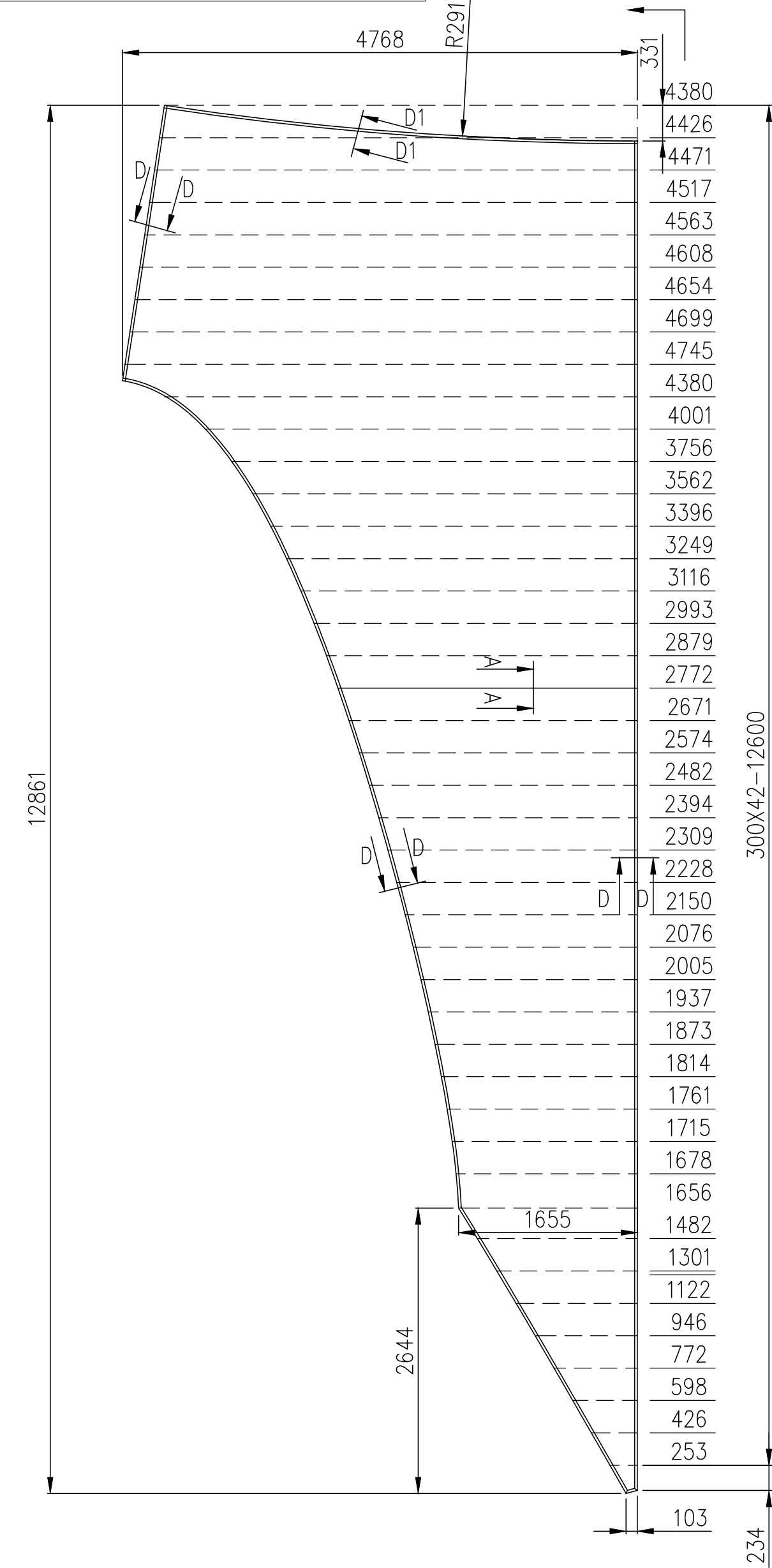
TITLE
Y PIECE RIGHT CONE-1
DRAWING NO.
21709970222
REV. 00

SHEET NO. 01 NO.OF SHEETS 01

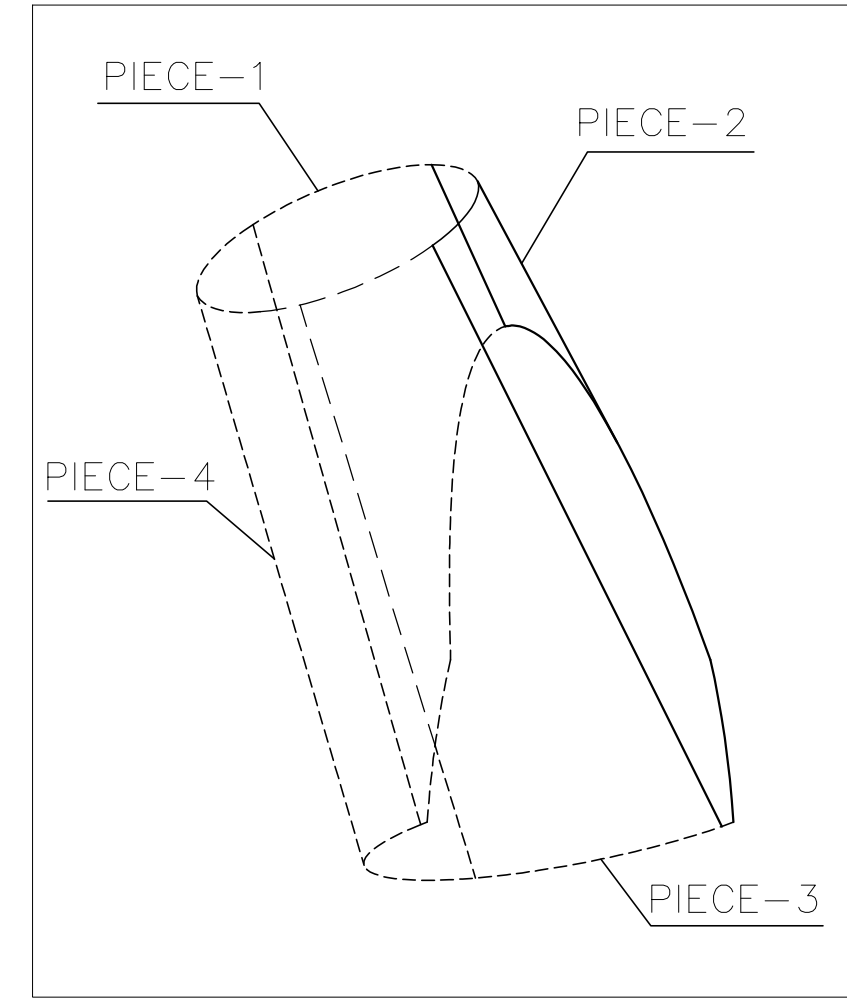
SIZE A2

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DEIRMENTAL TO THE INTEREST OF THE COMPANY.

DRAWING NO. 21709970223



IT NO	R	L	R1	L1	ANGLE °
02	3059	4805	2779	4365	90 °
03	3181	4996	2921	4588	90 °
04	3335	4091	3075	3772	70°
05	3489	2999	3229	2775	49°
06	3643	2360	3383	2191	37°
07	3797	1864	3537	1736	28°
08	3952	1494	3692	1396	22°
09	4106	626	3846	669	09°



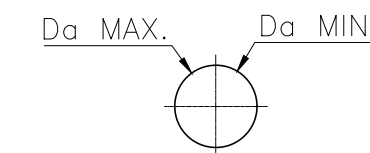
TECHNICAL REQUIREMENTS:-

- 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

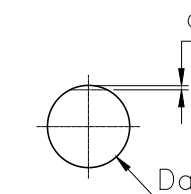
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



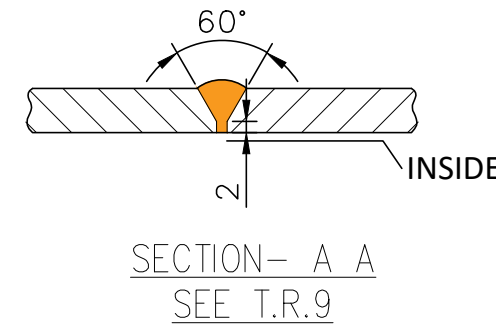
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(c) ADMISSIBLE OBLATENESS

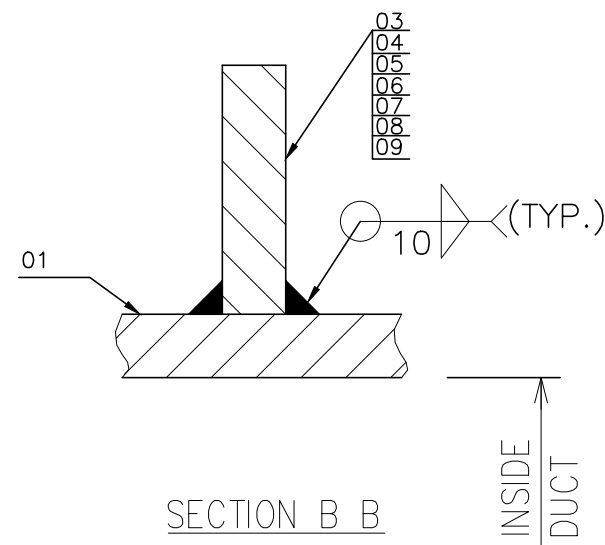
Da $\leq$ 9220 mm q = 6 mm



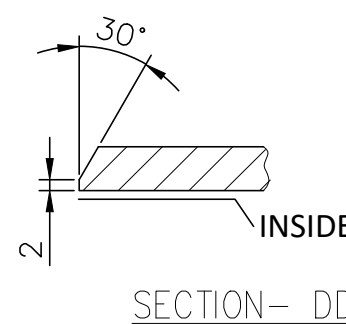
- TRIAL ASSEMBLY OF INTER FACING PARTS TO BE DONE AT VENDOR WORKS FOR 10% OF COMPONENTS FOR LARGE ITEMS (NO. 1,2,3)
- PROPER LOCKING OF CIRCULAR DUCT PARTS SHALL BE ENSURED IN SUCH A WAY THAT CURVATURE IS INTACT DURING TRANSPORTATION AND HANDLING AT SITE. TECHNOLOGICAL SUPPORTS / STIFFENERS TO BE PROVIDED FOR THIS.
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- 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.
- DEVELOPMENT PROVIDED IN THE DRG. IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.



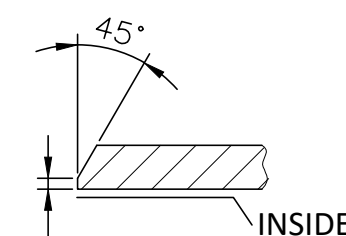
SECTION- A A
SEE T.R.9



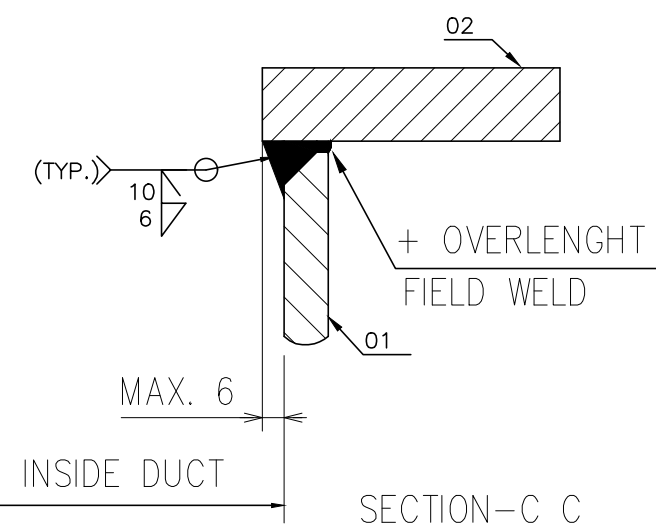
SECTION- B B



SECTION- DD



SECTION- D1-D1



SECTION- C C

FOR CLARITY, STIFFENERS
NOT SHOWN IN THIS VIEW

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

(10) Δ	(10) Δ	(10) Δ	(6) Δ	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	0.3	WELD LENGTH (M).
3.6	1.0	5.3	0.2	WT. OF WELD METAL (Kg).
E-308L				TYPE OF ELECTRODE

CBOM NO. 01709970223		STATUS OF DRG. U	
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	-----

REV.	DATE	ALTERED
		CHECKED

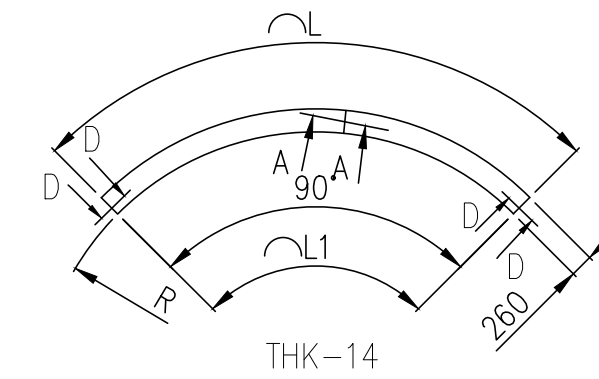
TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT		3X700 MW ACC (PATRATU)			
DEPT. HXE		SCALE N.T.S.		WEIGHT(Kg.) 4271.5	
CODE 2444		REF. TO ASSY. DRG. -----		ITEM NO. 01	
TITLE Y PIECE RIGHT CONE-2		DRAWING NO. 21709970223		REV. 00	
SHEET NO. 01		NO.OF SHEETS 01		SIZE A2	

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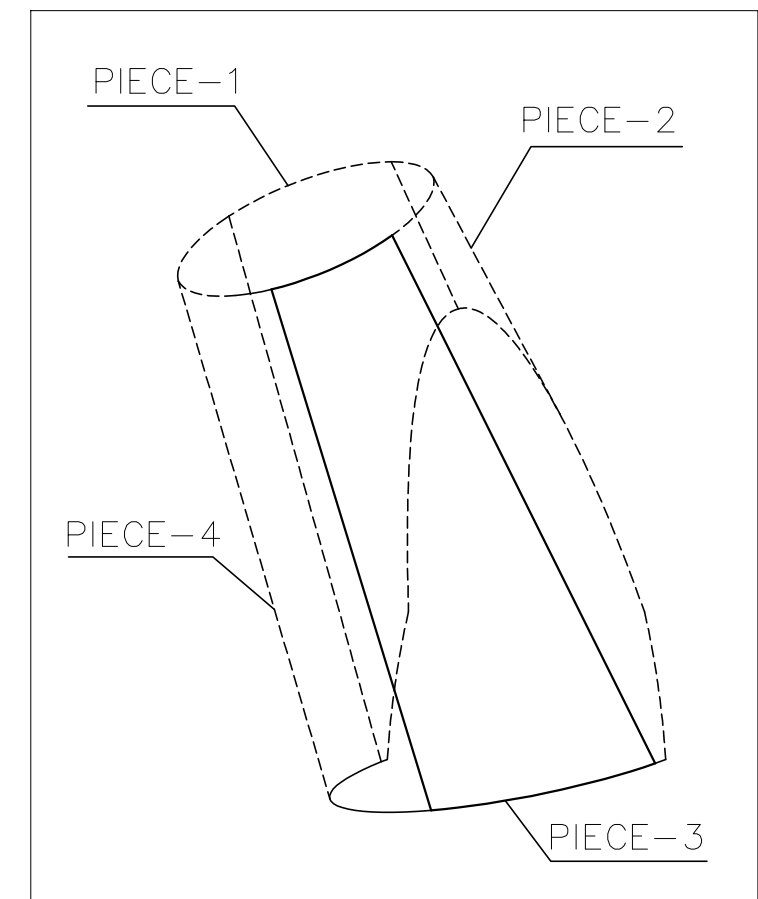
REF. DRG NO.

SIGN & DATE

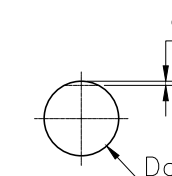
INVENTORY NO.



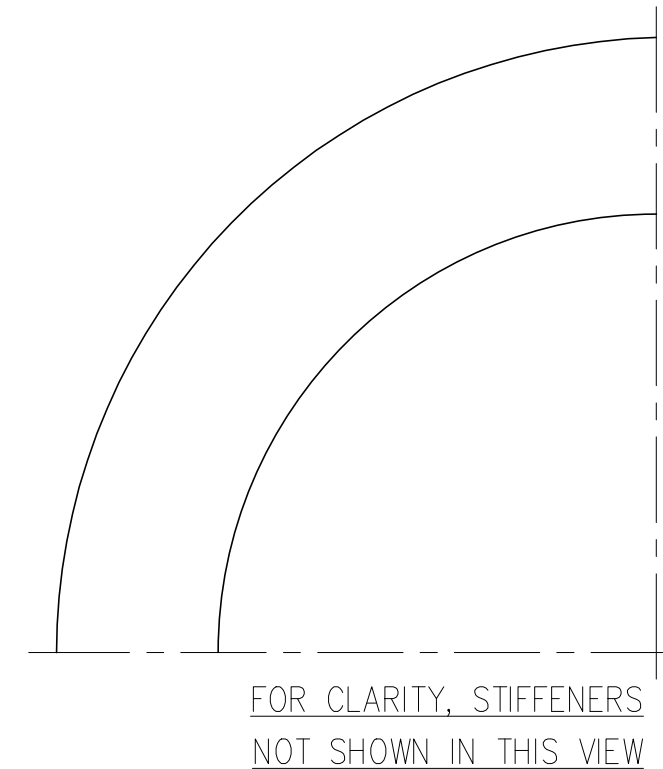
IT NO	L	R	L1
02	4805	2779	4365
03	4997	2921	4588
04	5239	3075	4830
05	5481	3229	5072
06	5272	3383	5314
07	5966	3538	5557
08	6208	3692	5799
09	6450	3846	6041

6. (a) DIAMETER TOLERANCES

Diameter

 $q = 6 \text{ mm}$ 

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 (IT.1) MAY BE MADE IN MAX.6 PARTS, WELDED AS PER SECTION A-A AND STIFFENER MAY BE MADE IN MAX. 4 PARTS, WELDED AS PER SECTION A-A. 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.
11. DEVELOPMENT PROVIDED IN THE DRG. IS FOR REFERENCE ONLY. FINAL DIMENSIONS OF THE ITEM SHOULD BE AS PER ASSEMBLY DRG.



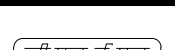
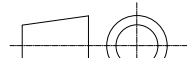
(10) Δ	(10) ∇	(10) ∇	(6) ∇	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	0.3	WELD LENGTH (M).
3.6	1.0	5.3	0.2	WT. OF WELD METAL (Kg)
E-308L				TYPE OF ELECTRODE

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 DRC
01709970224			U
AGREED DEPT.	NAME	SIGN	DATE
WT	MANISH	-SD-	-----
REV.	DATE	ALTERED	
		CHECKED	

6. TYPE OF PRODUCT
OR
NAME OF CUSTOMER/ PROJECT

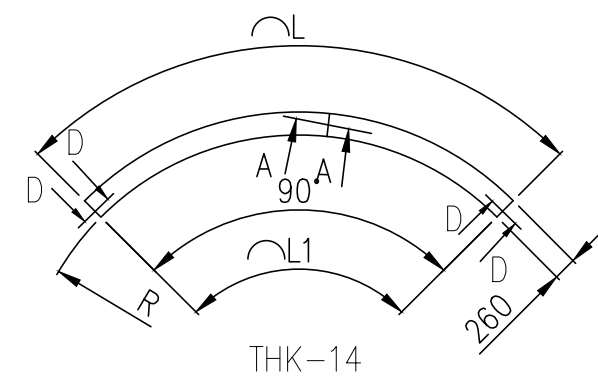
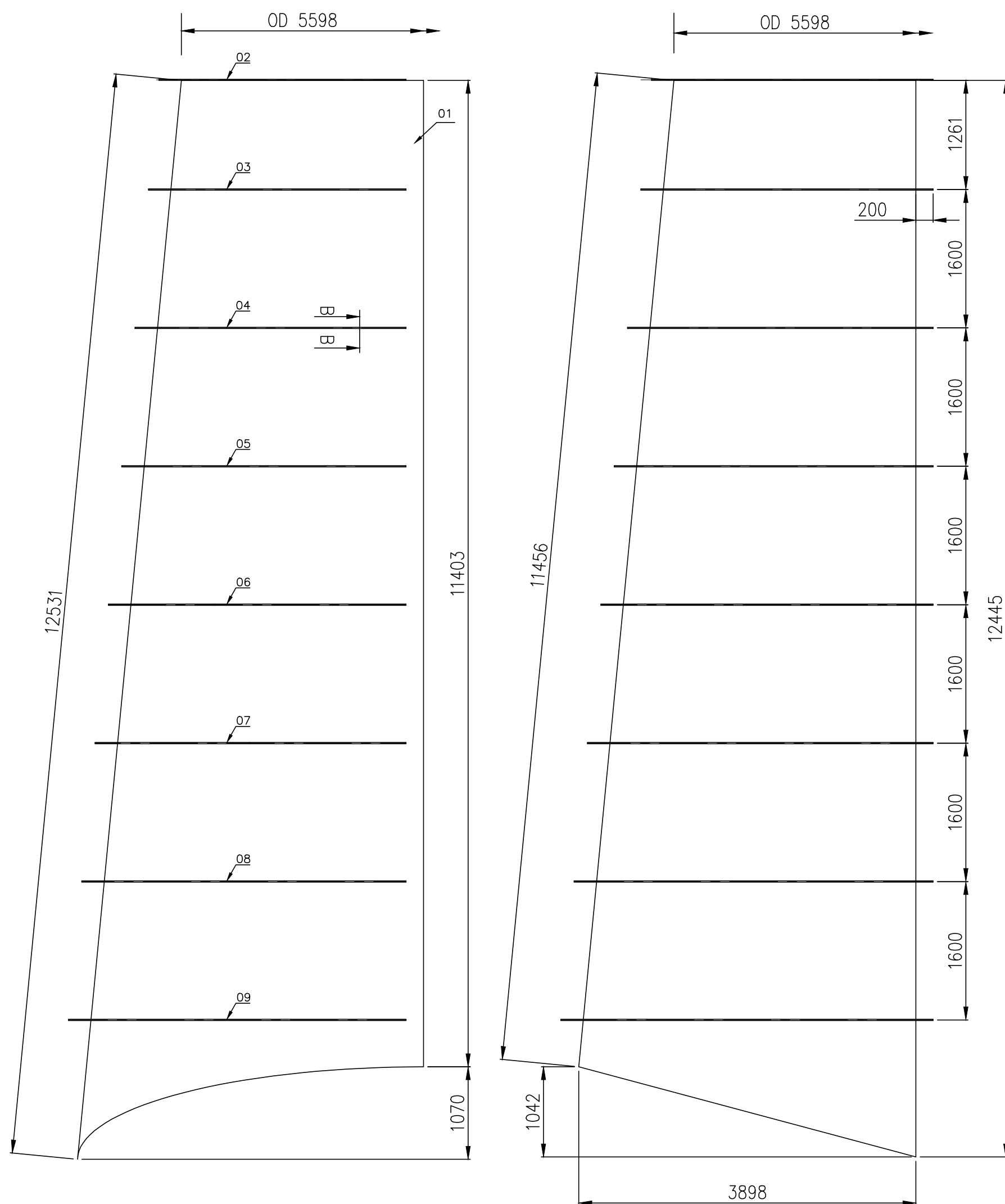
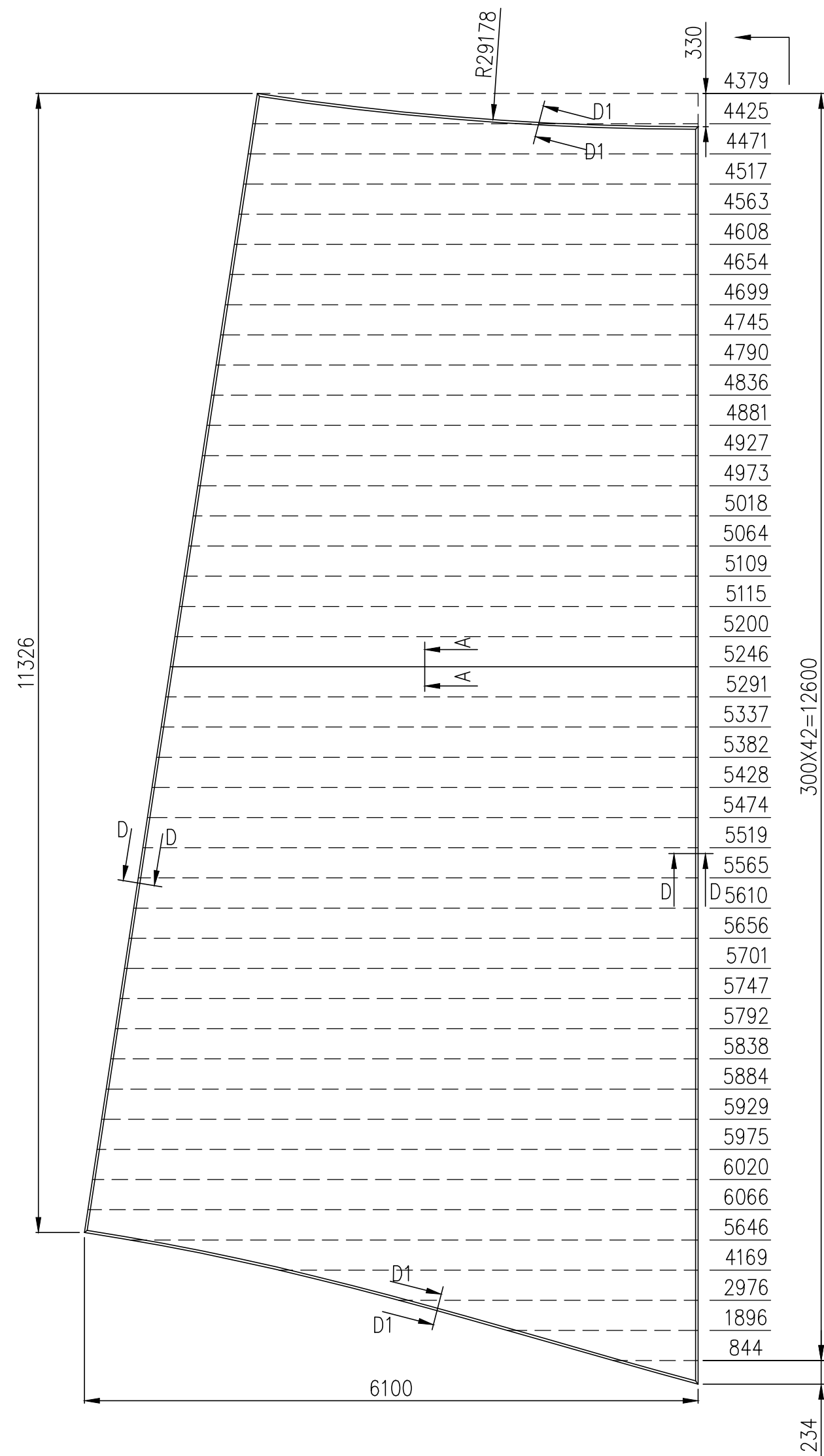
3X700 MW ACC
(PATRATU)

सौरभ इं. लॉ  BHARAT HEAVY ELECTRICALS LTD. HARDWAR		<table><tr><td></td><td>NAME</td><td>SIGN</td><td>DATE</td><td>NO. OF VAR.</td></tr><tr><td>DRN</td><td>NK JANGRA</td><td>-Sd-</td><td>13.05.2023</td><td rowspan="3">---</td></tr><tr><td>CHD</td><td>AXAY KUMAR</td><td>-Sd-</td><td>13.05.2023</td></tr><tr><td>APD</td><td>N PRAKASH</td><td>-Sd-</td><td>13.05.2023</td></tr></table>			NAME	SIGN	DATE	NO. OF VAR.	DRN	NK JANGRA	-Sd-	13.05.2023	---	CHD	AXAY KUMAR	-Sd-	13.05.2023	APD	N PRAKASH	-Sd-	13.05.2023
	NAME	SIGN	DATE	NO. OF VAR.																	
DRN	NK JANGRA	-Sd-	13.05.2023	---																	
CHD	AXAY KUMAR	-Sd-	13.05.2023																		
APD	N PRAKASH	-Sd-	13.05.2023																		
DEPT. HXE		SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS															
CODE 2444		N.T.S.	8112.0	----	01	---															
TITLE			1 CARD CODE X	DRAWING NO.		REV.															
Y PIECE RIGHT CONE-3				21709970224		00															
				SHEET NO. 01	NO. OF SHEETS	23 / 24															

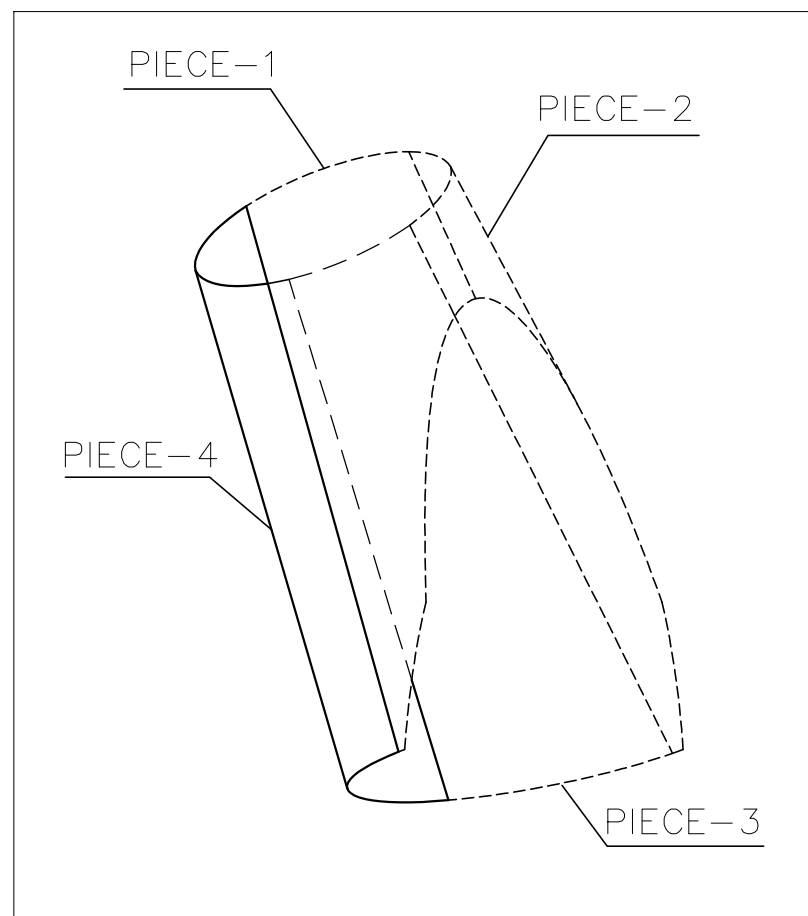
SIZE A2

DRAWING NO. 21709970225

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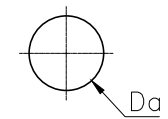
IT NO	L	R	L1
02	4805	2779	4365
03	4997	2921	4588
04	5239	3075	4830
05	5481	3229	5072
06	5272	3383	5314
07	5966	3538	5557
08	6208	3692	5799
09	6450	3846	6041



TECHNICAL REQUIREMENTS:-

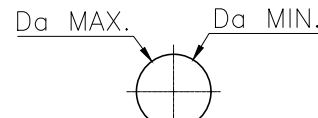
- WELDING CLASSIFICATION GROUPS ACCORDING TO HW 0620099 CS/BK.
- PAINTING ON OUTSIDE SURFACES:
 - PRIMER PAINT: EPOXY BASED ZINC RICH PRIMER - I COAT - DFT 50 MICRON.
 - INTERMEDIATE PAINT: EPOXY TIO PIGMENTED POLYAMIDE CURED PAINT - I COAT - 50 MICRON.
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- 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

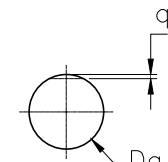
At ends: Da 2800 mm - 4900 mm x = 14 mm
Da 4900 mm - 6300 mm x = 16 mm
Da 6300 mm - 8100 mm x = 20 mm



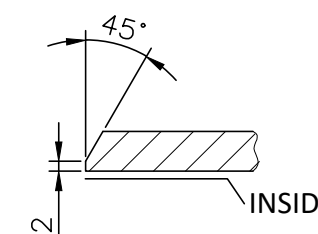
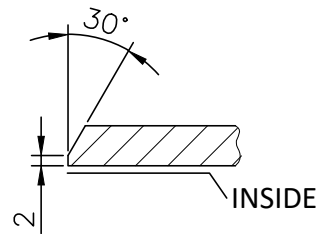
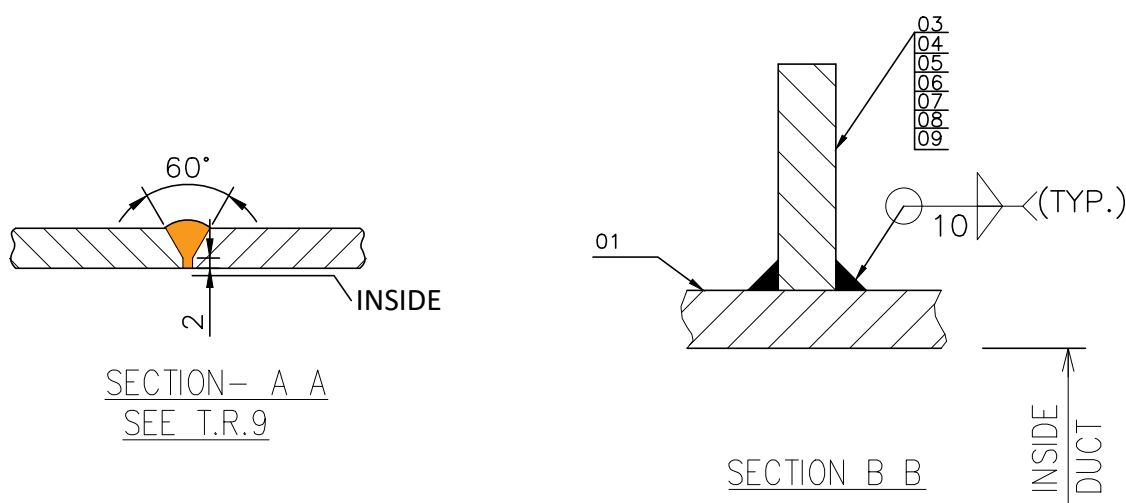
Permissible ovality at any cross-section, other than ends of section, will be as per ASME Section VIII Div 1 UG-80

(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.
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FOR CLARITY, STIFFENERS
NOT SHOWN IN THIS VIEW

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

(10) Δ	(10) ▽	(10) ▽	(6) ▽	SIZE & SYMBOL OF SEAM
5.5	2.2	13.5	0.3	WELD LENGTH (M).
3.6	1.0	5.3	0.2	WT. OF WELD METAL (Kg).
E-308L				TYPE OF ELECTRODE

CBOM NO.				STATUS OF DRG.	
01709970225				U	
AGREED DEPT.	NAME	SIGN	DATE		
WT	MANISH	-SD-	-----		

REV.	DATE	ALTERED	CHECKED

TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT				3X700 MW ACC (PATRATU)			
				NAME	SIGN	DATE	NO.OF VAR.
				DRN	NK JANGRA	-Sd-	13.05.2023
				CHD	AXAY KUMAR	-Sd-	13.05.2023
				APD	N PRAKASH	-Sd-	13.05.2023
				73	74		
DEPT.	HXE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
CODE	2444	N.T.S.	8112.0	----		01	75, 77
TITLE				DRAWING NO.		REV.	
Y PIECE RIGHT CONE-4				21709970225		00	
				SHEET NO. 01		NO.OF SHEETS	01
						22	23, 24
						SIZE A2	

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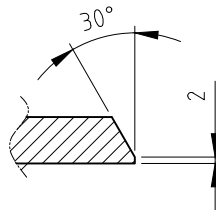
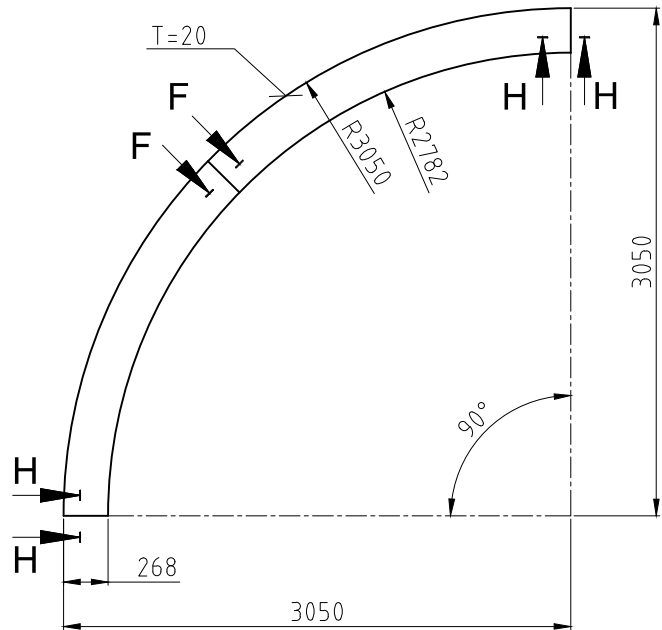
यह प्रलेखन में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की
संपत्ति है। इसका प्रत्यक्ष या अप्रत्यक्ष रूप में किसी भी तरह
प्रयोग नहीं किया जाए जो कंपनी के हित में हानिकारक हो।

संदर्भित अभिकल्प संख्या
REFERENCE DRG. NO.

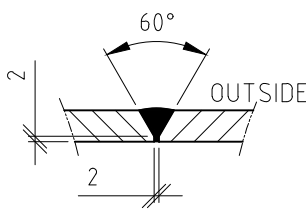
हस्ताक्षर और दिनांक/SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.

अभिकल्प संख्या/DRAWING NO.
31709970059



SECTION H-H

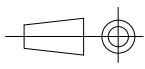


SECTION - FF

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 TIO₂ 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.
- IF REQUIRED, STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F

	20 ∇	SIZE & SYMBOL OF SEAM
	0.27	WELD LENGTH (M)
	0.59	WT. OF WELD METAL
E-7018		TYPE OF ELECTRODE

असह्य विमाओं का वर्ग GRADE OF UNTOLERANCED DIMENSION			सी.बी.ओ.एम./C.B.O.M. 01709970025/00		अभिकल्प का स्तर STATUS OF DRG.	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
मशीनिंग - एए0230208 एम MACHINING – AA0230208 m			सहमत विभाग AGREED DEPTT.	नाम/NAME	हस्ताक्षर/ SIGN.	दिनांक/DATE	ACC, PATRATU								
वैल्डिंग - एए0621104 की श्रेणी बी WELDING–CLASS 'B' OF AA0621104			WT.	—	Sd.	—									
गैस कटिंग - एए0621101 की श्रेणी 3 GAS CUTTING–TABLE 3 OF AA0621101															
संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY जांचकर्ता CHD	संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY जांचकर्ता CHD	—	विभाग DEPTT.	HXE	अनुपात/SCALE	भार.कि.ग्रा. WEIGHT (KG)	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG.	नग क्रमांक —	नगों की संख्या NO. OF ITEMS		
			—	—	CHD	—	कोड/	CODE 4222		N.T.S	192.7	01709970025/00	13	—	
							शीर्षक/TITLE					अभिकल्प संख्या/DRAWING NO.			
							STIFFENER RING					31709970059			
							पृष्ठ संख्या/Sheets No.					01	पृष्ठों की संख्या/No. of Sheets		
												01			

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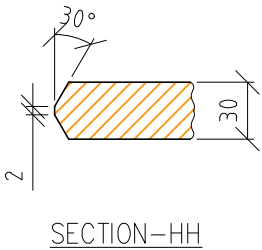
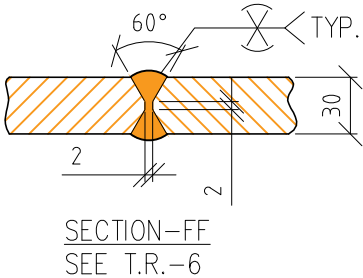
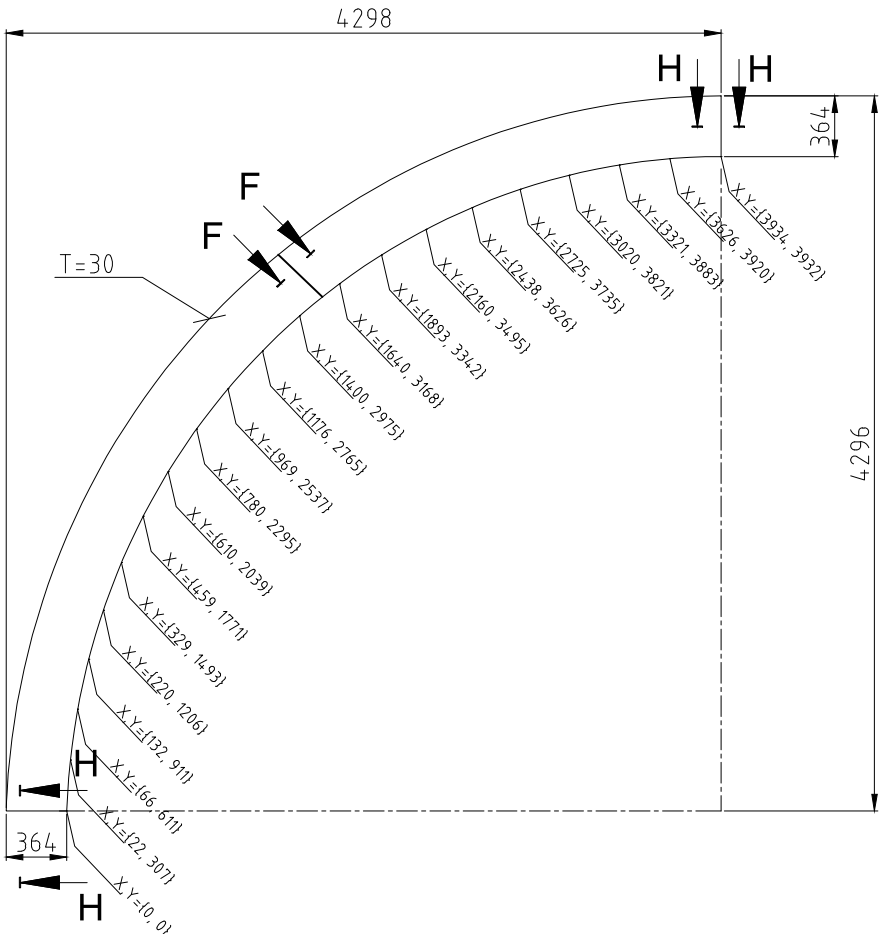
समस्त अधिकार एवं गोपनीय
इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की
सम्पत्ति है। इसका प्रत्यक्ष या अप्रत्यक्ष रूप में किसी भी तरह
प्रयोग नहीं किया जाए जो कंपनी के हित में हानिकारक हो।

संदर्भित अभिकल्प संख्या
REFERENCE DRG. NO.

हस्ताक्षर और दिनांक/SIGN & DATE

सामग्री सूची संख्या
INVENTORY NO.

अभिकल्प संख्या/DRAWING NO.
31709970061



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 TIO₂ 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.
- IF REQUIRED, STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F

	30	SIZE & SYMBOL OF SEAM
	0.32	WELD LENGTH (M)
	1.25	WT. OF WELD METAL
E-7018		TYPE OF ELECTRODE

असह्य विमाओं का वर्ग GRADE OF UNTOLERANCED DIMENSION			सी.बी.ओ.एम./C.B.O.M. 01709970025/00			अभिकल्प का स्तर STATUS OF DRG.	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT							
मशीनिंग - एए0230208 एम MACHINING – AA0230208 m वैल्डिंग - एए0621104 की श्रेणी बी WELDING–CLASS 'B' OF AA0621104 गैस काटिंग - एए0621101 की सारणी 3 GAS CUTTING–TABLE 3 OF AA0621101			सहमत विभाग AGREED DEPTT.	नाम/NAME	हस्ताक्षर/ SIGN.	दिनांक/DATE		भारत हेवी इलेक्ट्रिकल्स लिमिटेड, रानीपुर, हरिद्वार BHARAT HEAVY ELECTRICALS LIMITED RANIPUR, HARDWAR	निर्माणकर्ता DRN.	नाम/NAME	हस्ताक्षर/SIGN	दिनांक/DATE	वेरिएण्ट संख्या No. of Var.	
			WT.	—	Sd.	—				BHASKAR	Sd.	06/05/2023		
										AXAY	Sd.	06/05/2023		
									स्वीकृत/दस्ता APPD	N.PRAKASH	Sd.	06/05/2023		
संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	विभाग DEPTT.	HXE		अनुपात/SCALE	भार.कि.ग्रा. WEIGHT (KG)	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG.		नग क्रमांक	नगों की संख्या NO. OF ITEMS
		जोड़कर्ता CHD	—	—	—	कोड/CODE 4222	N.T.S		552	01709970025/00		14	—	
			—						शीर्षक/TITLE			अभिकल्प संख्या/DRAWING NO.		00
									STIFFENER RING			31709970061		
									पृष्ठ संख्या/Sheets No.		01	पृष्ठों की संख्या/No. of Sheets		01

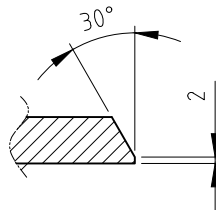
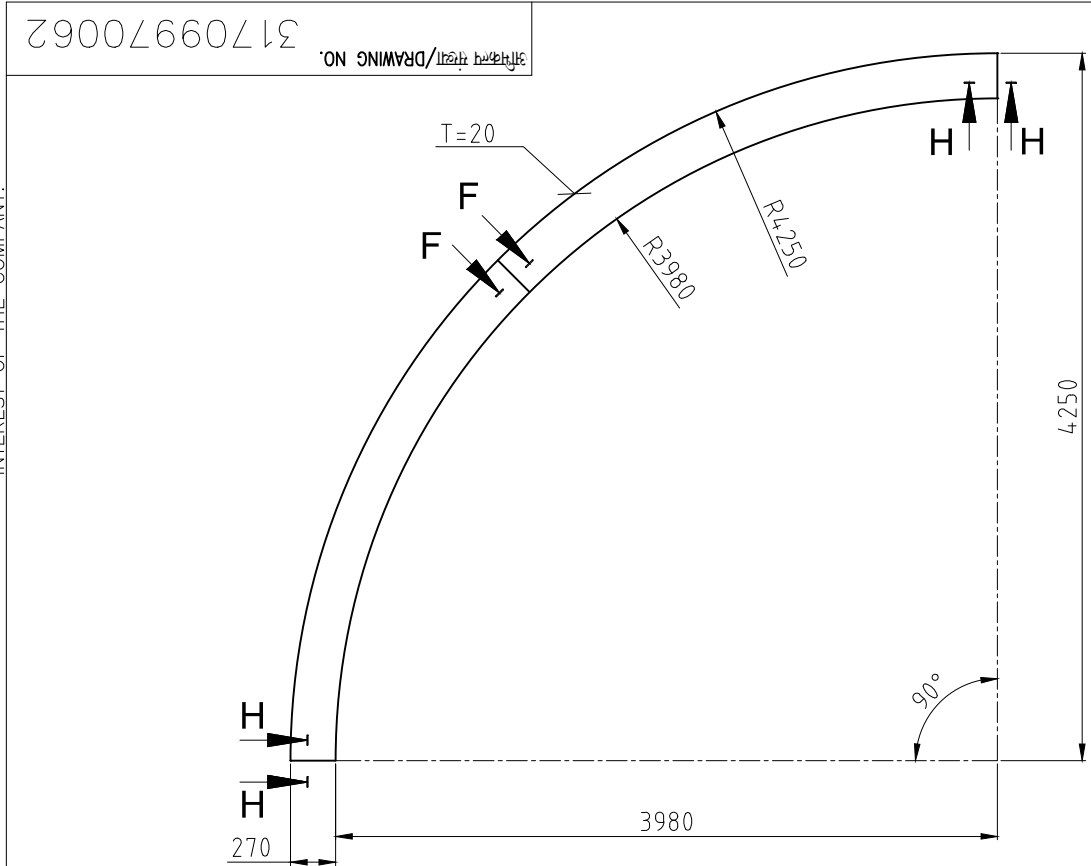
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संपत्ति है। इसका प्रत्यक्ष या अप्रत्यक्ष रूप में किसी भी तरह
प्रयोग नहीं किया जाए जो कंपनी के हित में हानिकार हो।

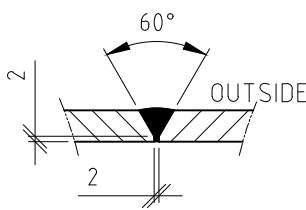
समर्पण संख्या
INVENTORY NO.

हस्ताक्षर और दिनांक/SIGN & DATE

संदर्भित अभिकल्प संख्या
REFERENCE DRG. NO.



SECTION H-H



SECTION - FF

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 TIO₂ 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.
- IF REQUIRED, STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F

	20 ∇	SIZE & SYMBOL OF SEAM
	0.27	WELD LENGTH (M)
	0.59	WT. OF WELD METAL
E-7018		TYPE OF ELECTRODE

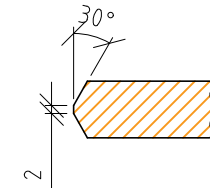
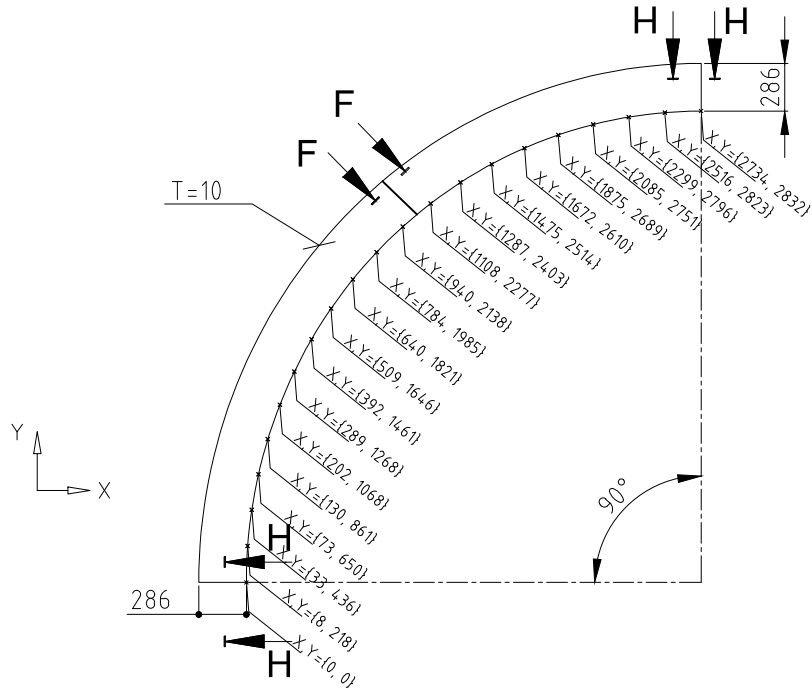
असह्य विमाओं का वर्ग GRADE OF UNTOLERANCED DIMENSION			सी.वी.ओ.एम./C.B.O.M. 01709970025/00		अभिकल्प का स्तर STATUS OF DRG.	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT					
मशीनिंग - एए0230208 एम MACHINING – AA0230208 m			सहमत विभाग AGREED DEPTT.	नाम/NAME	हस्ताक्षर/ SIGN.	दिनांक/DATE	ACC, PATRATU				
वैल्डिंग - एए0621104 की श्रेणी बी WELDING –CLASS 'B' OF AA0621104			WT.	—	Sd.	—	भारत हेवी इलेक्ट्रिकल्स लिमिटेड, रानीपुर, हरिद्वार BHARAT HEAVY ELECTRICALS LIMITED, RANIPUR, HARDWAR				
गैस कटिंग - एए0621101 की श्रेणी 3 GAS CUTTING—TABLE 3 OF AA0621101						निर्माणकर्ता DRN.					
						अभिकल्प संख्या No. of Var.					
						—					
संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	विभाग DEPTT.	अनुपात/SCALE	भार.कि.ग्रा. WEIGHT (KG)	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG.	नग क्रमांक —	नगों की संख्या NO. OF ITEMS
—	—	—	—	—	—	कोड/4222	N.T.S	274	01709970025/00	15	—
						शीर्षक/TITLE			अभिकल्प संख्या/DRAWING NO.		
						STIFFENER RING			31709970062		
									पृष्ठ संख्या/Sheets No. 01		
									पृष्ठों की संख्या/No. of Sheets 01		

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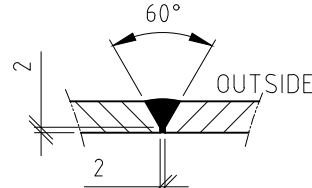
इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की
संपत्ति है। इसका प्रत्यक्ष या अप्रत्यक्ष रूप में किसी भी तरह
प्रयोग नहीं किया जाए जो कंपनी के हित में हानिकार हो।

स्वातंत्र्य एवं गोपनीय

31709970063
अभिकल्प संख्या/DRAWING NO.



SECTION H-H



SECTION - FF

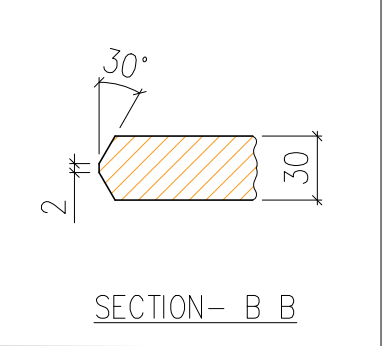
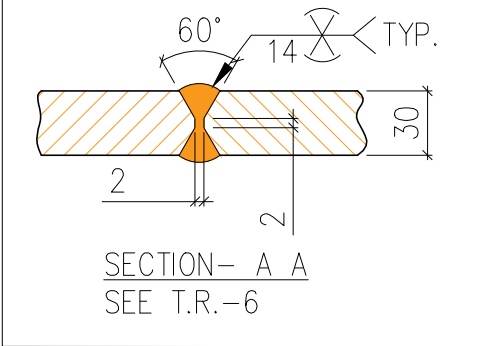
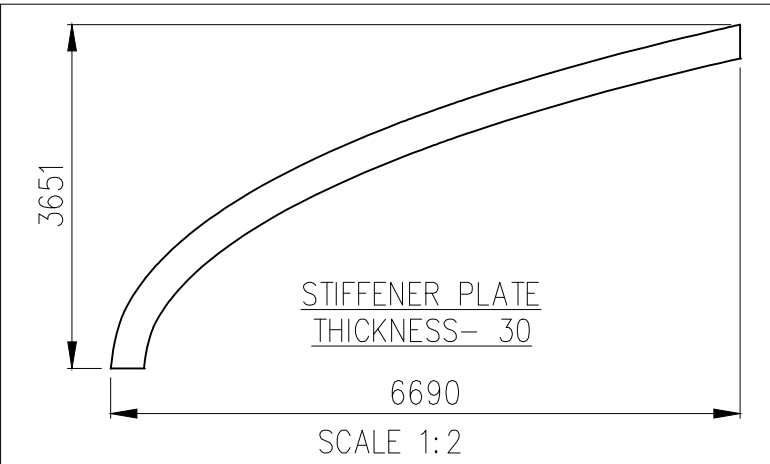
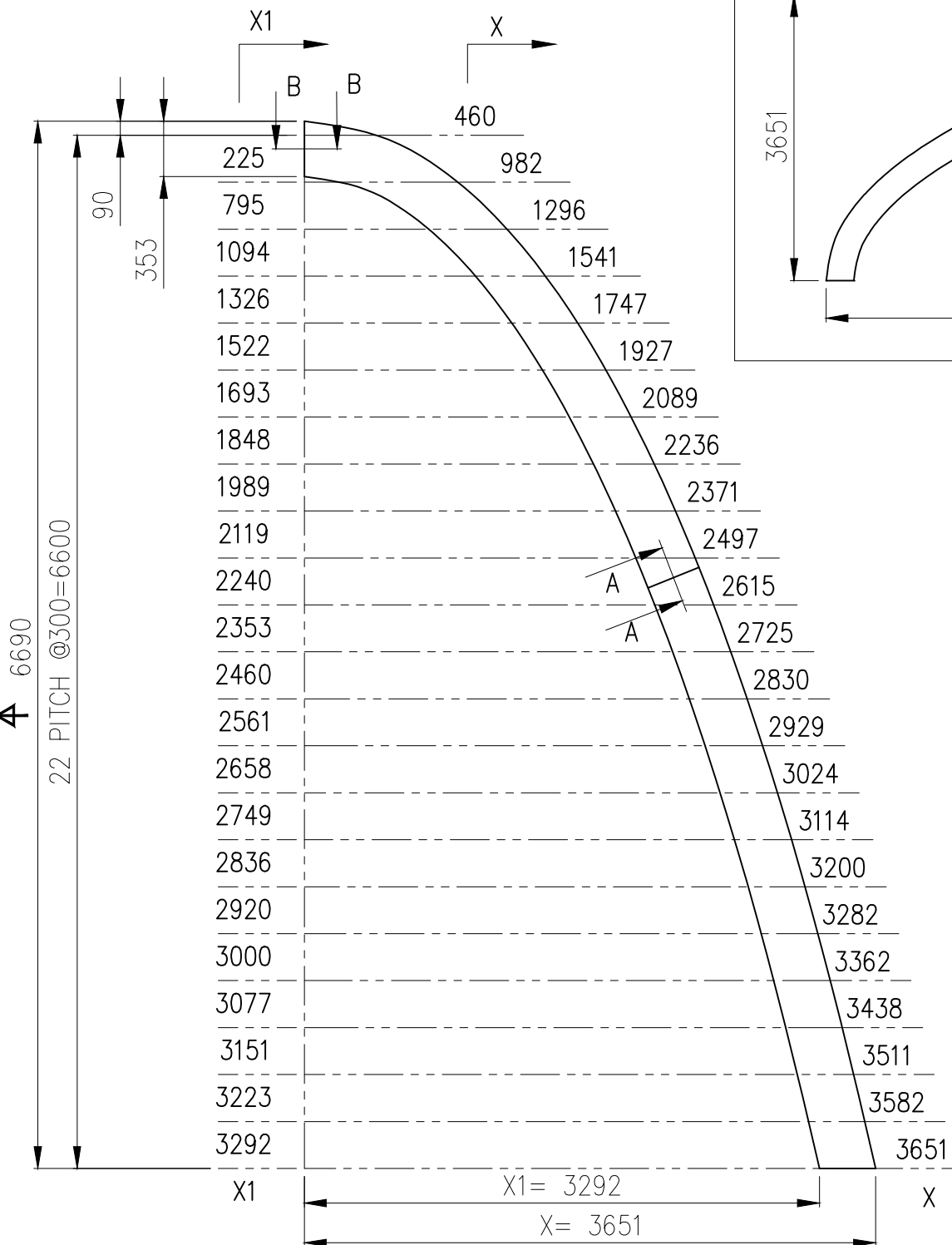
TECHNICAL REQUIREMENTS:-

- 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 TIQ 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.
- IF REQUIRED, STIFFENER MAY BE MADE IN TWO PARTS WITH ONE JOINT AND WELDED AS PER DETAIL F-F

	10 ∇	SIZE & SYMBOL OF SEAM
	0.24	WELD LENGTH (M)
	0.15	WT. OF WELD METAL
E-7018		TYPE OF ELECTRODE

असह्य विमाओं का वर्ग GRADE OF UNTOLERANCED DIMENSION			सी.बी.ओ./C.B.O.M. 01709970025/00		अभिकल्प का स्तर STATUS OF DRG.	उत्पाद का प्रकार या ग्राहक/परियोजना का नाम TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT					
मशीनिंग - एए0230208 एम MACHINING - AA0230208 m			सहमत विभाग AGREED DEPTT.	नाम/NAME	हस्ताक्षर/ SIGN.	दिनांक/DATE	ACC, PATRATU				
वैल्डिंग - एए0621104 की श्रेणी बी WELDING-CLASS 'B' OF AA0621104			WT.	-	Sd.	-					
गैस कटिंग - एए0621101 की श्रेणी 3 GAS CUTTING-TABLE 3 OF AA0621101											
संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	संशोधन REV.	दिनांक DATE	संशोधनकर्ता ALTERED BY	विभाग DEPTT.	अनुपात/SCALE	भार कि.ग्रा. WEIGHT (KG)	असेम्बली अभिकल्प का संदर्भ REFER TO ASSLY. DRG.	नग क्रमांक -	नगों की संख्या NO. OF ITEMS
-	-	CHD	-	-	CHD	HXE	N.T.S	103.3	01709970025/00	16	-
शीर्षक/TITLE							अभिकल्प संख्या/DRAWING NO.				
STIFFENER RING							31709970063				
पृष्ठ संख्या/Sheets No.							पृष्ठों की संख्या/No. of Sheets				
01							01				

DRAWING NO. 31709970064



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. IF REQUIRED, STIFFENER MAY BE MADE IN MAXIMUM 3 PARTS WITH WELDED AS PER SECTION A-A 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

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REF. DRG NO.

SIGN & DATE

INVENTORY NO.

14 X	SIZE & SYMBOL OF SEAM
1.0	WELD LENGTH (M)
1.5	WT. OF WELD METAL
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.	
01709970025	
AGREED DEPT.	NAME

STATUS OF DRG.	
U	
DATE	

TYPE OF PRODUCT OR
NAME OF CUSTOMER/ PROJECT
3X700 MW ACC PATRATU

NAME	SIGN	DATE	NO.OF VAR.
DRN N.K.JANGRA	--SD--	19/05/23	
CHD A.KUMAR	--SD--	19/05/23	
APD N.PRAKASH	--SD--	19/05/23	73, 74

DEPT.	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
HXE	1:50	638	----	--	--
CODE 2224					75, 77

TITLE	DRAWING NO.	REV.
ST. LEFT CENTRE CONE	31709970064	00

SHEET NO. 01 NO.OF SHEETS 01

SIZE A3

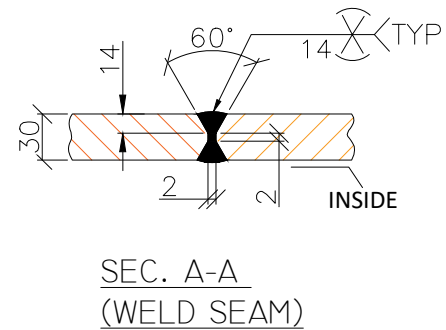
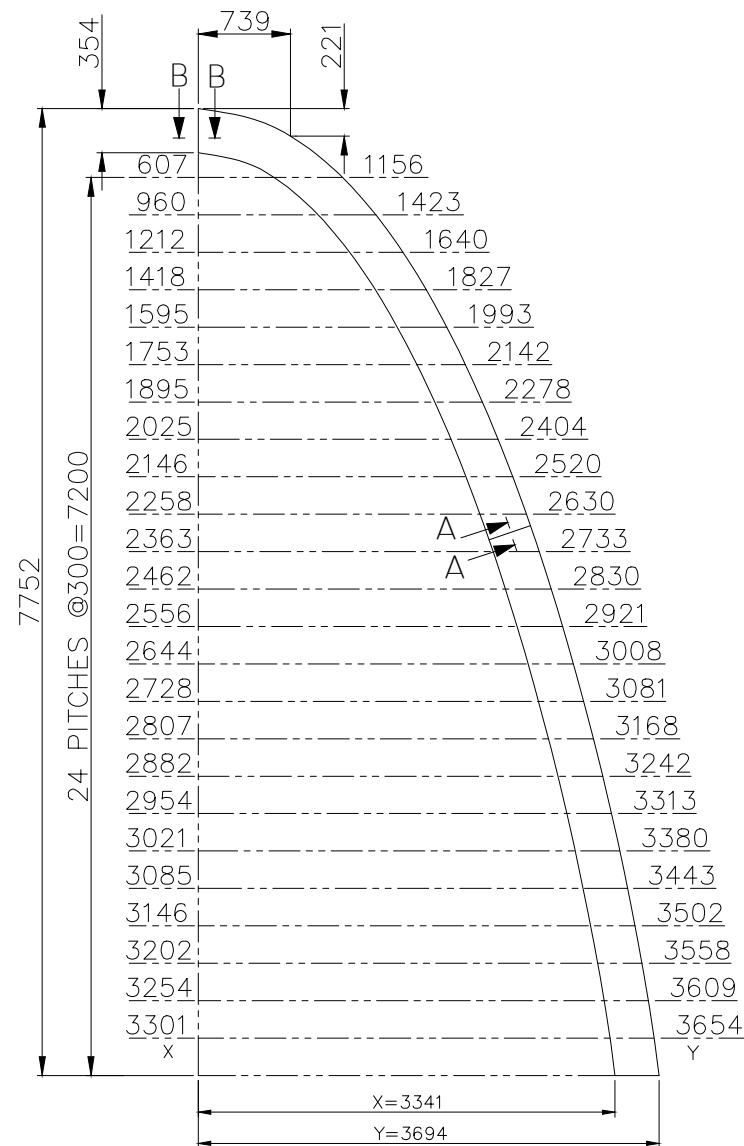
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FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

FORM: DG-38(B)

DRAWING NO. 31709970065



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.
- IF REQUIRED, STIFFENER MAY BE MADE IN MAXIMUM 3 PARTS WITH WELDED AS PER SECTION A-A 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

14X	SIZE & SYMBOL OF SEAM
1.0	WELD LENGTH (M)
1.5	WT. OF WELD METAL (kg.)
E7018	TYPE OF ELECTRODE

GRADE OF UNTOL. DIM.: -		
M/CG- V/C/M/F - AA0230208		
WELDING- A/B/C/D - AA621104		
GAS CUTTING- T3'AA0621101		
REV.	DATE	ALTERED CHECKED

CBOM NO.		STATUS OF DRG.	
01709970025		U	
AGREED DEPT.	NAME	SIGN	DATE
WTX.	S.K. GOND	Sd..	--

TYPE OF PRODUCT OR		3X700 MW ACC - PATRATU	
NAME OF CUSTOMER/ PROJECT			

DRN	NAME	SIGN	DATE	NO.OF VAR.
	ARUN KUMAR	Sd-.	19.05.23	
	N.PRAKASH	Sd-.	19.05.23	

DEPT.	HXE	SCALE	WEIGHT(Kg.)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
CODE	4222	1:53	723	----	--	--

TITLE		1 CARD CODE X	DRAWING NO.		REV.
ST. RIGHT CENTRE CONE			31709970065		00
			SHEET NO. 01		NO. OF SHEETS 01

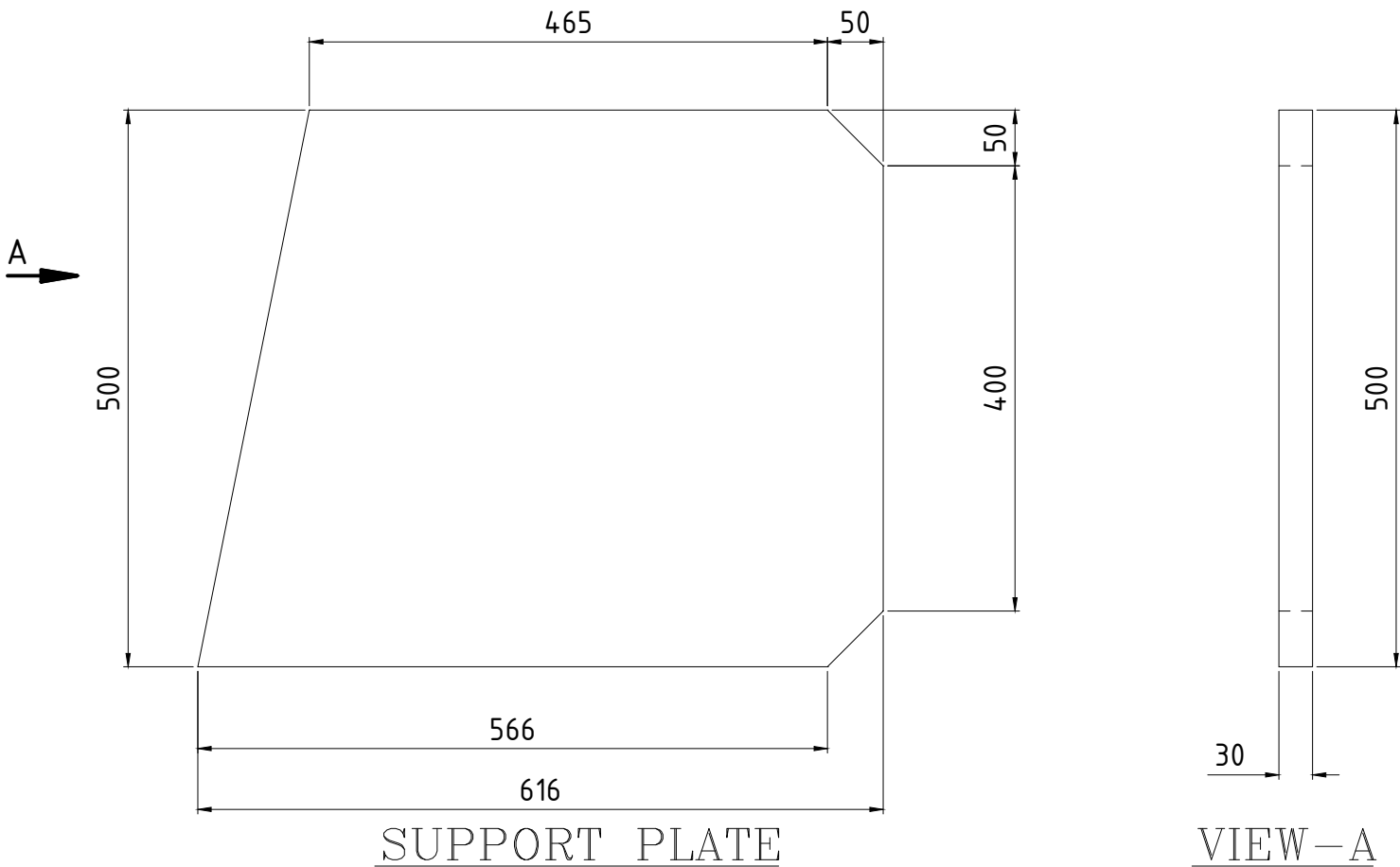
SHEET NO. 01 NO.OF SHEETS 01

SIZE A3

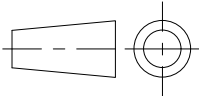
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FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm) FORM DG 39(B)

REV	DATE	ALTERED	REV	DATE	ALTERED	CBOM No.			STATUS OF DRG
		CHECKED			CHECKED	01709970025/00			
						AGREED DEPT.	NAME	SIGN	DATE
						WTX	Sd\-		-----
GRADE OF UNTOL.DIM.M/CG-V/C/M/F.AA0230208				WELDING-A/B/C/D-AA0621104		GAS CUTTING-'T3' AA0621101			



- TECHNICAL REQUIREMENTS: -
- PAINTING:
 - (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.
 - THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE-F.

REF.DRG.No.	<u>TECHNICAL REQUIREMENTS:-</u> 1. PAINTING: (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. 2. THE GENERAL TOLERANCE ON STRAIGHTNESS, FLATNESS AND PARALLELISM SHALL BE MAINTAINED AS PER AA0621105 GRADE–F.											
	SIGN & DATE	 BHARAT HEAVY ELECTRICALS LTD HARDWAR						NAME	SIGN	DATE	NO. OF VAR	
DRN							BHASKAR	Sd\–	19.05.2023			
CHD							AXAY	Sd\–	19.05.2023			
APD							N.Prakash	Sd\–	19.05.2023			
INVENTORY No.	DEPT. HXE		SCALE	WEIGHT(Kg)	REF.TO ASSY.DRG.			ITEM	No OF ITEMS			
	CODE 4222		1:8	66	01709970025			No. 24				
	TITLE				CARD CODE X	DRAWING No.			REV.			
	SUPPORT PLATE					41709970017						
					SHEET No. 01		No.OF SHEETS 01			SIZE A4		