

INSTITUTE FOR PLASMA RESEARCH
(An Aided Institute of Department of Atomic Energy, Government of India)
Near Indira Bridge; Bhat; Gandhinagar-382428; India

**Notice Inviting Tender
(NIT)**

निविदा सूचना TENDER NOTICE NO: IPR/TN/PUR/TPT/ET/21-22/014
दिनांकित DATED 01-09-2021

Head-Purchase and Stores Department, Institute for Plasma Research, for and on behalf of Director, Institute for Plasma Research (IPR) invites online tenders IN **TWO PART (INR quote only)** for execution of contract in accordance with the purchaser's tender specifications. The invitation to tender, tendering conditions, general conditions of contract, special conditions of contract and additional conditions of contract, if any, which will govern the contract pursuant to the tender are attached.

Bidders interested to submit bid are requested to go through the contents of the NIT and ensure that the bid is submitted online on or before the due date and time indicated in NIT and as per technical specifications and terms and conditions indicated herein and upload digitally signed or ink signed undertaking of Form No. **IPR-LP-ET-02.V5**.

Off line bids including hard copy in any form will not be accepted.

Head-Purchase Section
For and on behalf of Director, IPR
(The Purchaser)

Encl: as above.

निविदा सूचना TENDER NOTICE NO: IPR/TN/PUR/TPT/ET/21-22/014
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निम्नलिखित के लिए प्रतिष्ठित और योग्य पार्टियों से ई-निविदा विधि के माध्यम से दो भाग में ऑनलाइन निविदा आमंत्रित की जाती है।

Online tender is invited in **TWO PARTS** through e-tendering mode from reputed and eligible parties for the following.

Work/Item Description	Preparation of fabrication drawings, supply, installation and testing of Secondary chamber assembly at Facilitation Centre for Industrial Plasma Technologies (FCIPT), Gandhinagar as per the detailed specifications mentioned in the tender document.
Tender Fee	Not Applicable
Earnest Money Deposit (EMD)	Not Applicable. In place of EMD, vendor should upload sealed and signed "Bid Security Declaration" as per ANNEXURE-V
Publishing Date	01-09-2021 at 17:30 Hrs.
Document Download / Sale Start Date	01-09-2021 at 17:30 Hrs.
Seek Clarification Start Date	01-09-2021 at 17:30 Hrs.
Seek Clarification End Date	13-09-2021 by 17:00 Hrs.
Pre-bid Meeting Date	17-09-2021 at 10:30 Hrs
Response to Clarification by IPR	24-09-2021 by 17.00 Hrs
Bid Submission Start Date	25-09-2021 at 10.00 Hrs
Bid Submission Closing Date	12-10-2021 at 13.00 Hrs
भाग-I के ऑनलाइन खोलने का समय और तिथि (तकनीकी बोली) Time and Date of online Opening of PART-I (Technical Bid)	13-10-2021 at 14.00 Hrs
भाग-II के ऑनलाइन खोलने का समय और तिथि (मूल्य बोली) Time and Date of online Opening of PART-II (Price Bid)	Will be declared later on

Pre-bid meeting with the vendors will be held through **Video Conference** on **17/09/2021 10:30 Hrs onwards** after receipt of pre-bid queries. The interested vendors are required to register themselves for participation in the pre-bid meeting through the following link on or before: **13/09/2021**

<https://forms.gle/RjnkPKz3bbXo7rV6A>

The web link to join the scheduled pre-bid meeting through Video Conference along with password will be shared with the **registered (for pre-bid meeting participation) vendors only** by 16th Sept 2021. If any registered vendor had not received the link to join the video Conference they may contact the Tender Inviting officer @ nodalofficer.et@ipr.res.in

It may please be noted that any clarifications required in this tender either technical or otherwise shall be carried out before submission of bids.

Detailed tender notice along with Eligibility criteria and Tender Document is available on website <https://eprocure.gov.in/eprocure/app> for free view and downloading. For participating in the e-tendering process, it is mandatory to get registered on the above e-tender portal and required to have Digital Signature Certificate (Class -III). For new registration/ tendering, bidders may go through the “**Instructions for Online Bid Submission**” provided as under.

A copy of this NIT is also available on the Institute’s website www.ipr.res.in . For further information, please contact: 079 23962020/2021, Fax: 079 23962277.

Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: <https://eprocure.gov.in/eprocure/app>.

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link **“Online bidder Enrollment”** on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: *My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.*

SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

- 6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 7) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 8) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 9) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

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TWO-PART TENDER SECTION – A

Invitation to Tender and Tendering Conditions

1.0 INVITATION TO TENDER

1.1 Institute for Plasma Research (IPR) invites online tenders for supply of Plant, Machinery, Equipment/Components to the specifications detailed in Section "C" to this tender document. The conditions of contract/purchase order which will govern the contract pursuant to the tender are as contained in Section "B" of this tender document. If you are in a position to quote for supply in accordance with the technical specifications indicated in Section "C" to this tender document and as per the conditions stipulated in this Section and Section B, please upload your offer in a manner and method specified below.

2.0 MANNER AND METHOD FOR SUBMISSION OF TENDERS

2.1 All tenderers in response to this invitation shall be submitted through online mode only. Tender submitted by **fax/cable/telegram or any mode other than online will NOT be considered at all** and all such tenders will be rejected without any notice to the tenderer.

2.1.1 **Part-I (Techno-commercial):** This part of the tender shall include/contain documents related to eligibility criteria, all technical details, technical specifications, drawings and also the commercial terms and conditions of contract for the supplies to be made and the services to be rendered **EXCLUDING ANY PRICE DETAILS THEREOF.**

Proof for fulfillment of eligibility criteria mentioned in Annexure-A should be uploaded along with the tender. If the tender is submitted without valid documents, we shall not consider your offer. Tenders received without proof of eligibility criteria will be rejected. The offers which meets the eligibility criteria will only be considered for evaluation.

2.1.2 **Part-II (Price):** This part should contain only the prices of the stores offered for the services to be rendered. Part-II (Price) should be furnished in accordance with the format provided by the Purchaser at Section "D" of this tender document

2.1.3 If tenderer includes prices of any nature in Part-I (Techno-commercial) of the tender such offers are liable for rejection without any notice to the tenderers.

3.0 EARNEST MONEY DEPOSIT (EMD)

3.1 The Tenderer shall submit, as part of its bid, interest free Earnest Money Deposit (EMD) for an amount as specified in the Tender Notice. In the case of foreign bidders, the EMD shall be submitted either by the

principal or by the Indian agent and in the case of indigenous bidders; the EMD shall be submitted by the manufacturer or their specifically authorized dealer/bidder. EMD shall be submitted by way of Demand Draft from **SBI/nationalized banks or any one of the scheduled banks mentioned in the bracket (Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank)** issued in favour of "**Institute for Plasma Research**" and payable at **Ahmedabad**. **Tender received without EMD will be rejected at the discretion of IPR.**

(Copy of Demand Draft to be uploaded with the quotation, Original DD should be sent to IPR on or before the specified closing date and time)

- 3.2 The EMD of unsuccessful Tenderer will be discharged/returned after finalizing award of the Contract/placement of Purchase order.
- 3.3 The successful Tenderers EMD shall be discharged upon the Bidder submitting the Security Deposit as specified in the contract/purchase order, without any interest.
- 3.4 **Exemption from payment of EMD:** The firms registered with DGS&D, NSIC, DPS or Micro & Small Enterprises (MSEs) which are actual producers/manufacturers of tendered items are exempted from payment of EMD provided valid registration certificate is uploaded along with the offer. In the case of foreign bidders, payment of EMD is exempted if they submit their bid directly or through their Indian agent in **foreign currency** against the tender document bought by them, so that the order can be placed directly on their Principals.
- 3.5 **The EMD may be forfeited:**
 - 3.5.1 If a Tenderer withdraws or amends or modifies or impairs or derogates its bid during the period of bid validity specified by the Bidder on the Bid Form; or
 - 3.5.2 In case of a successful tenderer, if the tenderer fails to furnish order acceptance within 15 days of the order or fails to submit the Security Deposit within 21 days from the date of contract/order.

4.0 LATE/DELAYED TENDERS

- 4.1 Uploading of the offer document after the due date and time shall not be permitted. Time being displayed on e-Tendering portal shall be final and binding on the applicant.

5.0 OPENING OF TENDERS

- 5.1 Unless otherwise pre-opened or postponed with advance intimation to the tenderers, tender will be opened in two stages on the date and time indicated on e-Tendering portal.
- 5.2 Part-I (Techno-commercial) of the tender will be opened at the first stage on the due date and time indicated for opening on the e-Tendering portal while the Part-II (Price) will be opened at the second stage after completion of the evaluation of the Techno-Commercial Part (Part-I) of the tender.
- 5.3 While all the tenderers who uploaded tenders within the due date and time will be permitted to participate in the opening of Part-I (Techno-Commercial) of the tender on the due date and time indicated on e-Tendering portal, opening of the Part-II (Price) of the tender can be attended to only by such of those tenderers whose Part-I (Techno-Commercial) of the tenders are found to be technical suitable/

acceptable to the Purchaser and to whom intimation thereof is given by the Purchaser by Email/letter or through e-Tendering portal.

- 5.4 The tenderers whose Techno-commercial part (Part-I) are found suitable/acceptable to the Purchaser, will be given seven days advance intimation by the Purchaser to enable such tenderers to depute their representative to participate in the opening of the Part-II (Price) of the tender. The technically unqualified tenderers will neither be given any intimation about the date and time of opening of Part-II (Price) of the tender nor will they be permitted to participate in the opening of the same. **Part-II (Price) of the technically disqualified tenderers will not be opened.**

6.0 AUTHORITY LETTER

- 6.1 The tenderers who wish to participate in the opening of the tenders may depute their representatives to IPR on the respective due date and time as indicated in the tender notice with an authority letter addressed to the Purchase Officer which should be produced to the officers who are opening the tenders, on demand to prove the bonafides of the representative who participates in the opening of the tender. In case the representative of the tenderer fails to produce such an authority letter on behalf of the tenderer, he will be debarred from participating in the opening of the tenders.

- 6.2 The tenderers representative, who reaches the venue of the tender opening late, i.e. after the starting time specified for opening of the tenders, may not be allowed to take part in the tender opening. It should be noted that only one representative of each tenderer will be permitted to participate in the tender opening.

7.0 EVALUATION OF TENDER

- 7.1 Evaluation of tender shall be based on all inclusive landed cost.

8.0 PURCHASER'S RIGHTS TO REJECT QUOTATION

- 8.1 The Purchaser reserves the right to reject any quotation without assigning any reason thereof.

9.0 TECHNICAL CLARIFICATIONS

- 9.1 After opening of Part-I (Techno-commercial) of the tender, if it becomes necessary for IPR to seek clarifications from the tenderers, the same will be sought for from the tenderers.

10.0 DATE FOR OPENING OF PART-II (PRICE):

After completion of technical evaluation, Part-II (Price) of only technically qualified tenderers shall be opened. The date and time of opening of Part-II (Price) shall be intimated only to the technically qualified tenderers. Whose Part-I offers have been found suitable will only be permitted to participate in the opening of the Part-II (Price) of the tender.

11.0 HOLIDAYS

If the date (s) specified for receipt and opening of the tenders is/are declared as holidays abruptly by the competent authority due to any administrative reasons, then the date(s) for opening of tenders will get postponed automatically to the next working day. As for instance, if the due date for receipt of tender and its opening falls on 3rd of a particular month and if the 3rd day of the month is declared as a holiday, then the

opening date of tender will stand automatically postponed to 4th day of the month at the same time. However, due date for submission of tender online will remain same as mentioned in the tender notice.

12.0 VALIDITY OF OFFERS

Offers shall be kept valid for acceptance for a period of of 120 (One hundred twenty) days from the date of opening of the tender. Offers with shorter validity period will be liable for rejection.

13.0 CATALOGUES/TECHNICAL LITERATURE

Vendor shall upload all necessary catalogues/drawings technical literature data as are considered essential for full and correct evaluation of the offers shall invariably accompany the Part-I (Techno-Commercial) of the tender. The quotations are liable to be ignored if this condition is not complied with.

14.0 TERMS AND CONDITIONS OF THE CONTRACT

It must be clearly understood that any contract concluded pursuant to this invitation to tender shall be governed by the General Conditions of the Contract as contained in Section "B" of this tender document. Tenderers must therefore, take special care to go through these general conditions of contract and in exceptional cases if any deviations are proposed, these must be clearly indicated in the Part-I of the tender as a separate annexure instead of merely enclosing their printed conditions of Sale. Tenders made subject to counter conditions or far too many deviations from the general conditions of contract, i.e. Section "B" of this tender document are liable to be ignored. It should also be realised that failure to bring out deviations from the General Conditions of Contract contained in Section "B" of this tender document will imply that the tenderer is willing to execute the contract as per the Purchaser's terms and conditions of contract.

15.0 TENDERING CONDITIONS FOR BIDS

- 15.1 The prices quoted must be FIRM and preference will be given to such tenders. In exceptional cases (e.g. items involving substantial use of raw materials susceptible to sharp fluctuations in prices) if prices quoted subject to variation it shall be on the basis of a standard 'Price Variation Formula'. The basis for calculation shall be very clearly stated. The responsibility for furnishing the documentary evidence for price variation lies with the vendor. Here again preference will be given to the tenders with a specific ceiling on escalation.
- 15.2 Prices quoted by the tenderer should include all charges involved for direct and safe-delivery of the stores to the consignee/place of delivery indicated in the tender document. If a tenderer so desires, separate lump sum charges for safe-delivery of the stores to the consignee/purchaser's site, could be furnished. However, the purchaser reserves the right to call for break-up. The purchaser will neither undertake responsibility for transit insurance nor pay for it separately.
- 15.3 In respect of tenders on Ex-works basis, in case the tenderer has not mentioned in the offer packing, forwarding and transportation charges for safe delivery up to Purchaser's site, 2% of the price quoted towards packing (in respect of both local and outstation firms), 1% of the basic price quoted towards safe delivery charges in respect of local tenderer and 3% of the basic price quoted towards safe delivery charges in

respect of outstation firm will be added for comparison of offers on safe door delivery at Purchaser's site.

- 15.4 The stores shall neither be despatched under 'owner's risk' nor consigned to 'self', but only to the consignee's name and address indicated in the Purchase order. Non-adherence to this condition shall make the contractor liable to bear all consequential penalties/expenses such as demurrage, wharf age, etc. which the Purchaser may incur.
- 15.5 The consignee will, as soon as possible, but not later than 45 days from the date of arrival of stores at destination notify the contractor of any loss or damage to the stores that may have occurred during transit to enable the contractor to repair/rectify the defects/damages or replace the goods as is appropriate, free of all charges. In case it is desired by the contractor for returning of the material to them all expenses towards transportation etc. will be borne by the supplier and also will furnish bank guarantee towards the cost of material.
- 15.6 In case an Indian supplier/Agent furnishes an offer for supply of outrightly imported stores, the price of such stores shall be quoted in Indian Rupees for delivery to the consignee's premises exclusive of import duties and on firm price basis.
- 15.6 **Conditional Discount:** In case the tenderer offers any conditional discount with regard to acceptance of their offer within a specific payment terms, delivery, quantity etc. the purchaser will not take into consideration such conditional discount while evaluating their offer.

16.0 SPARES AND ACCESSORIES

- 16.1 Tenders for plant/machinery/equipment/component shall also indicate prices for essential accessories, optional accessories and spares necessary for satisfactory operation of the plant/machinery/equipment.
 - 16.1.1 for a period of two years and
 - 16.1.2 for a period of five years
- 16.2 Prices for accessories and spares shall be itemized. Tenders where only lumpsum prices are indicated are liable to be ignored. Particular care must be taken to list out each item of spare and quantity recommended and also the individual price for these items. These details should be included only in Part-II (Price) of the tender. However, a list of spares and accessories without Price should be included in Part-I (Techno-Commercial) of the tender.

17.0 QUANTITY

The purchaser reserves the right to accept tenders for any quantity of his choice and the tenderer shall be bound to accept a contract for any quantity. The Purchaser also reserves the right to accept or reject lowest or any tender in full or in part without assigning any reasons.

18.0 STATUTORY LEVIES SUCH AS CUSTOMS DUTY, GOODS AND SERVICE TAX

18.1 CUSTOMS DUTY

- 18.1.1 The Purchaser is entitled for assessment of customs duty at the concessional rate as per Customs Notification No. 51/96-Custom dated 23.7.1996 issued by the Department of Revenue, Ministry of Finance, as amended from time to time, in respect of purchases made for the Research Institutions under the Department of Atomic Energy and the Purchaser will obtain the requisite

- certificate from the appropriate authority.
- 18.1.2 In case an Indian vendor/agent submits an offer for supply of outrightly imported stores in Indian Rupees, they should quote price for free and safe delivery of stores at destination.
- 18.1.3 Wherever, against a requirement, both indigenous as well as imported offers are received, the offers for imported stores will be evaluated on the basis of the total landed cost after loading the custom duty and other levies as may be applicable from time to time for taking purchase decision.
- 18.1.4 High Seas sale will not be considered.
- 18.2 FLUCTUATION IN THE CUSTOMS DUTY**
- 18.2.1 Unless otherwise specifically agreed to in terms of the Contract, the purchaser shall not be liable for any claim on account of fresh imposition and /or increase in Customs Duty on raw materials and/or components used directly in the manufacture of the contracted stores, taking place during the pendency of the contract.
- 18.3 Offers from Indian Agents on behalf of foreign suppliers:** In case the tender is submitted by an Indian supplier/Indian agent on behalf of their foreign supplier/ principals, following documents should be submitted with the tender, failing which, their offer is liable to be ignored.
- 18.3.1 Photocopy of the Agency Agreement between the Principals and the Indian Agent showing the percentage or the quantum of agency commission payable and a Letter of Authority from the Principals authorizing the Indian Agents to submit the tender on their behalf.
- 18.3.2 The type and nature of after sales services to be rendered by the Indian Agent.
- 18.3.3 Both Indian Agent and Principal/OEM cannot bid simultaneously for the same item/product in the same tender.
- 18.3.4 The Indian Agents are allowed to quote on behalf of only one foreign Principal/ Supplier against this tender.
- 18.3.5 Copy of Registration Certificate with DGS&D or DPS.
- 18.4 GOODS AND SERVICE TAX**
- 18.4.1 GOODS AND SERVICE TAX where legally leviable as per relevant HSN code will be admitted and reimbursed at the rate applicable during original delivery date.
- 18.4.2 GOODS AND SERVICE TAX intended to be claimed should be distinctly shown separately along with the price quoted. Where this is not done, no claim for GOODS AND SERVICE TAX will be admitted at any later stage and on any ground whatsoever.
- 18.4.3 The Purchaser is entitled for assessment of GST at the Concessional rate as per Notifications issued by the Government, as amended from time to time, in respect of purchases made for the Research and Development applications under the Department of Atomic Energy and other R&D units.
- 18.4.4 **GST for R&D Unit:** Goods and Service Tax (GST) wherever applicable will be paid extra at actual during the delivery period stipulated in the Purchase order. In terms of notifications issued by the Central Government and State Governments, R&D units of Department of Atomic Energy are entitled for IGST @ 5% or CGST @ 2.5% and SGST @ 2.5% as applicable for stores covered under the Purchase Order.

- 18.4.5 **GST for Services:** As applicable. Specify the SAC codes wherever services are involved.
- 18.4.6 It would be the responsibility of the contractor to ensure that relevant certificate is obtained from the Purchaser before effecting the delivery of goods ordered failing which the excess tax paid by the contractor shall not be reimbursed by the Purchaser.
- 18.4.7 When GOODS AND SERVICE TAX is claimed as extra by the vendor in general and on packing charges in particular, the following certificates should be submitted by the vendor to the Paying Authority on the bills itself.
- 18.4.8 Certified that the goods and packing charges on which GOODS AND SERVICE TAX has been charged have not been exempted under the Central Sales Tax or the State Sales Tax Act or the rules made there-under and the amount charged on account of GST on these goods and packing charges are not more than what is payable under the provision of relevant Act or the rules there-under.
- 18.4.9 Certified further that we have actually paid GOODS AND SERVICE TAX and are being assessed to GST on packing charges and also that where there are statutory exemption under the Relevant Act/Law of the State Government concerned, we have availed ourselves of it and certified non-availability of such a provision for GST on packing charges wherever claimed.
- 18.4.10 Certified further in respect of amount claimed into the bill no claim is pending for refund/or admissible. Certified that in the event of our getting refund in whole or in part of the element of GOODS AND SERVICE TAX on packing charges claimed from Government, we shall pass on the benefit to the Purchaser by remitting to Government the amount equivalent to the amount of refund obtained by us.
- 18.4.11 Further certified that we abide by the all the provisions of Acts of Governemnt and rules made thereunder especially regarding anti-profiteering provisions.
- 18.4.12 Certified further that we (our Branch or agent) _____

 (address) are registered as dealers in the State of _____
 under Local Regn. No. _____ and in the State of _____
 under Central Regn. No. _____ for the
 purpose of State/Central Tax.
 (Stamp & Signature of the Vendor)
- 18.4.13 The vendor shall solely be responsible for declaration of Goods and Service Tax made in his invoice and shall indemnify the purchaser from any claim or its liability from concerned authorities at any stage.
- 18.4.14 Certificate with each bill to the effect that no refund has been obtained in respect of the reimbursement of GST made to vendor during three months immediately preceding the date of the claim covered by the relevant bill.
- 18.4.15 AN UNDERTAKING to the effect that in case any refund of GST is granted to the vendor by concerned authorities in respect of stores supplied under the contract, they shall pass on the credit to the purchaser immediately alongwith a certificate from their Director/Manager/Proprietor/ Accountant to the effect that the credit so passed on relates to the GST originally paid for the stores

supplied under the contract. In case of their failure to do so within 10 days of the issue of the refund orders to them by the Authorities, the purchaser would be empowered to deduct a sum equivalent to the amount refunded by the authorities without any further reference to the vendor, from any of their outstanding bills against this or any other pending Government Contracts and that no dispute on this account would be raised by the vendor.

18.4.16 Statutory Deductions, as applicable shall be made from the supplier's bill.

18.5 **DEDUCTION OF TAX AT SOURCE (TDS)**

As per Government of India rules, it is mandatory that income tax shall be deducted at source at applicable rates as per relevant act, rules and notifications issued by the government from time to time.

18.5.1 **In case of Indigenous Vendors** (Indian Suppliers who provide indigenous products and services, Indian subsidiaries with permanent establishment in India who supply imported goods and services and paid in Indian currency only): Tax deducted at source will be applicable under Section 194-C for carrying out any work (including supply of labour for carrying out any work) in pursuance of contract as per Income Tax Act 1961. In case of technical or professional services, TDS will be applicable as per under Section 194-J of Income Tax Act 1961.

18.5.2 **In case of Foreign Vendors** (Foreign Suppliers who provide goods from abroad paid in foreign currency and providing technical services by Indian subsidiary paid in Indian currency): The TDS is applicable where services are rendered in India directly or through their Indian counter part against foreign Purchase order / Contract as per the provision of under Section 195 of Income Tax act of India. Wherever DTAA (Double Taxation Avoidance Agreement) agreement exists between India and the supplier country the provisions of the agreement shall be applicable. For getting benefit of DTAA (Double Taxation Avoidance Agreement), the following documents must be submitted, otherwise full TDS will be deducted.

- a) No Permanent Establishment in India certificate
- b) Tax Residency Certificate (TRC) issued by Tax authorities of their country
- c) Form 10F if TRC does not contain required details
- d) PAN (Permanent Account Number) details issued by Indian Income Tax Authority

Important Note:

- a) Where bifurcation is inappropriate and unacceptable for supply of material and providing services the purchase order / contract will be treated as **Composite Contract** and TDS will be deducted on whole contract / purchase order value as per applicable rate.
- b) TDS or any other leviable taxes or duties, if applicable, shall be deducted recovered from the Supplier's bill and necessary certificate will be issued to the supplier.

- c) Details on relevant sections of Income Tax Act and DTAA treaties can be obtained from [https://www.incometaxindia.gov.in/ Pages/acts/income-tax-act.aspx](https://www.incometaxindia.gov.in/Pages/acts/income-tax-act.aspx).

19.0 FLUCTUATION IN STATUTORY LEVIES

Unless otherwise specifically agreed to in terms of the Contract, the purchaser shall not be liable for any claim on account of fresh imposition and/or increase in statutory levies on raw materials and/or components used directly in the manufacture of the contracted stores, taking place during the pendency of the contract. However, any reduction in statutory levies on these raw materials and/or components must be passed on to the Purchaser.

20.0 SAMPLES/PROTOTYPES

If any called for shall be submitted free of all charges by the Tenderer and the Purchaser shall not be responsible for any loss or damage thereof for any reason whatsoever. In the event of non-acceptance of the tender, the tenderer will have to make arrangements to remove/collect the sample/prototypes at his own expenses.

21.0 QUANTITIES

Quantities indicated are approximate only and one or more of the items of the stores tendered, or a portion of any one or more of the items of such stores may be accepted and the tenderer notwithstanding that his Tender has not been accepted in whole shall be bound to supply contracted quantity to the Purchaser.

22.0 SUBMISSION OF DRAWINGS

The tenderer shall furnish all drawings pertaining to the plant/machinery/ equipment/component to the Purchaser along with the tender for correct understanding and appreciation of the tender in quadruplicate. Besides, tenderers should also furnish general arrangement, schematic and such other drawings prescribed by the Purchaser within 4 weeks from the date of receipt of a Purchase Order for approval. Such drawings should be furnished along with Part-I (Techno-Commercial) of the tender. Tenderer's drawing will form part of the purchase order/contract only after these are approved by the Purchaser.

23.0 INSTALLATION AND COMMISSIONING

23.1 Wherever, the purchaser's invitation to tender calls for installation and commissioning or supervision of installation and commissioning of the instrument/equipment by the tenderer, the tenderer must clearly and separately quote the prices for the supply of the stores and the charges and the terms for installation and commissioning or supervision of installation and commissioning, as the case may be. The charges towards installation and commissioning should not be included in the price of the stores.

23.2 In respect of contracts involving installation and commissioning by vendors including overseas vendors where identifiable charges for the same has been quoted by the vendor, he shall bear the Income-tax liability as per the rates prevailing at the time of undertaking the job in accordance with the Income-tax Act in force in India.

23.3 Wherever, the scope of the contract includes installation and commissioning, it shall be the sole responsibility of the contractor to undertake the installation and commissioning as and when called for, by the Purchaser.

24.0 **INSPECTION**

24.1 The Contractor shall be responsible for and perform all inspection and testing required in accordance with the contract/purchase order and specifications included therewith.

24.2 The Purchaser may at his option depute his representative for inspection of the stores to be supplied under the contract or authorize and nominate a Quality Surveillance Agency of his choice for the purpose hereinafter called, in either case, the inspection.

24.3 The supplier shall give notice of readiness for inspection to the Purchaser so that the Inspector can be present at the requisite time. In such an event delivery shall not be effected until an authorization or shipping release is obtained from the Purchaser.

24.4 The contractor shall allow reasonable facility and free access to his work/factory and records to the inspector for the purpose of inspection or for ascertaining the progress of delivery under the contract.

25.0 **FACTORY REGISTRATION/SHOP & ESTABLISHMENT CERTIFICATE**

The tenderers shall upload the copy of the Factory Registration/License or Shop & Establishment Certificate as applicable, along with the tender, failing which the tenders are liable for rejection.

26.0 **PRODUCTS WITH ISI MARK**

26.1 Products with ISI mark will be preferred.

26.2 In respect of following categories of item, Purchaser will consider offers for products with ISI mark only:

- Fire Extinguisher
- Building Material
- PVC Pipes & fittings
- Agricultural Implements & sprayers
- Medical instruments such as syringes, needles, BP apparatus etc.

27.0 **SHOP/FACTORY EVALUATION, QUALITY SURVEILLANCE /INSPECTION AND SUBMISSION OF PROGRESS REPORTS**

27.1 The Purchaser or his technical authorities may at his option and prior to evaluation of the tender depute his Inspector or any quality surveillance Agency of his choice to the factory/workshop of the tenderer to assess and establish the manufacturing capability etc. of the tenderer. Similarly, the Purchaser may also depute his inspector/Quality Surveillance agency of his choice for inspection of the plant/machinery/equipment/component during the various stages of manufacture in such an event the tenderer/contractor shall:-

27.1.1 Allow reasonable facility and free access to his factory/work/ records to the Inspector for the purpose of inspection or for ascertaining the progress of manufacture and delivery.

27.1.2 Provide the drawings, toolings, gauges, instruments etc. required for carrying out the inspection work.

- 27.1.3 Produce an inspection plan to the Purchaser's satisfaction notifying him when check points on the plan are imminent.
- 27.1.4 Not supply or deliver the plant/machinery/equipment/ component unless and until a Shipping Release or an authorisation for despatch is obtained in a format provided by the Purchaser. Failure to comply with this instruction will not only result in withholding of the payment to the contractor/supplier, but also hold the tenderer/contractor liable for payment of compensation to the Purchaser due to delay in clearance of the Equipment/plant/machinery/ component from the carriers.

28.0 INSTRUCTION MANUAL

In respect of plant/ machinery/ equipment/ instrument/ apparatus, where instruction/ operation manual is normally necessary to enable the user to put the plant/machinery/equipment/instrument/ apparatus to proper use, the Contractor shall furnish such an instruction/operation manual specific to the stores being supplied along with the plant/machinery/equipment/instrument/apparatus. The Contractor shall clearly specify in the offer about his readiness to supply instruction/operation manual

29.0 PACKING

- 29.1 Tenderers shall note that packing for shipment shall be in accordance with the instructions outlined in this tender document, each package shall be limited to the size and weights that are permissible under the existing Air and Sea limitations. Even when no packing specification is included in the invitation to tender, it will be Supplier's responsibility to provide appropriate packing depending upon the nature of the supply and the transportation and handling hazards.
- 29.2 The equipment shall be so packed and protected as not to suffer deterioration, damage or breakage during shipment and storage in a tropical climate.
- 29.3 Each package shall be properly labeled to indicate the type and quantity of material it contains, the purchase order number, its dimensions and weight and any other necessary data to identify the equipment and relate it to contract.

30.0 DEVIATIONS TO PURCHASER'S SPECIFICATIONS AND CONDITIONS OF CONTRACT

- 30.1 If any deviation or substitution from the technical specifications contained in Section "C" to this tender document is involved, such details should be clearly indicated in Part-I (Techno-Commercial) and should be added as an annexure to Part-I (Techno-commercial) of the tender as otherwise it shall be an admission on the part of the tenderer that he will supply the equipment as specified by the Purchaser. Similarly, deviations to the Purchaser's General Conditions of Contract/Special Conditions of Contract contained in Section "B" of this tender document shall be indicated by the tenderer in another annexure to Part-I (Techno-commercial) of the tenderer.

30.2 Part-II (Price) should be furnished in accordance with the format provided by the Purchaser at Section “D” of this tender document.

31.0 DELIVERY

Tenderer should note that no tender will be considered by the Purchaser unless the Tenderer can meet the delivery schedule specified by the Purchaser. All equipments/machinery/plant/ component covered by this tender document should be supplied on or before _____ or _____ month from the date of approval of drawings or ____ month from the date of receipt of free issue materials. The prices quoted by the tenderer should include all charges involved for direct and safe delivery of the items by Road to the project site of the Purchaser. If a tenderer so desires/separate lumpsum charges for transportation and safe delivery to Purchaser’s site could be furnished. Purchaser will neither undertake responsibility for transit insurance nor pay for it separately. No other, delivery term will be accepted by the Purchaser.

32.0 ACCEPTANCE OF TENDERS

32.1 The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reasons whatsoever.

32.2 Acceptance of tenders by the Purchaser will be sent by fax, E-mail, letter etc. within the validity date of the tender and such a fax, letter etc. would then be followed by a formal purchase order/contract. The tenderer whose offer is accepted will proceed with the execution of the contract on the basis of such advance acceptance of tenders without waiting for a formal purchase order/contract, and will be responsible to seek and obtain whatever clarifications that are necessary from the Purchaser to proceed with the manufacture without waiting for a formal purchase order/contract and delivery period will be reckoned from the date of the Letter of Intent.

33.0 SETTLEMENT OF COMMERCIAL TERMS AND CONDITIONS OF CONTRACT

In case the commercial terms and conditions of sale/contract stipulated in Part-I (Techno-commercial) of the tender submitted by the tenderer are at variance with the Purchaser’s General Conditions of all Contracts/Special Conditions of Contract stipulated in Section “B” of this tender document, the Purchase Officer will settle the commercial terms and conditions of contract with the tenderers chosen for award of the contract by holding discussions with them OR by sending Fax/Letter/E-mail etc. In case the concerned tenderer to whom an intimation thereof is given does not respond/fail to respond to communication sent by the Purchaser within the date specified, his tender is liable for rejection at the discretion of Director, IPR and no complaints whatsoever will be entertained from the tenderer for rejection of this tender. The tenderers should not discuss with the technical authorities/user department any of the commercial terms and conditions of contract and any agreement/understanding reached between the tenderer and the technical authorities will not be valid and binding.

34.0 **COMPLIANCE WITH THE SECURITY REQUIREMENTS OF THE PURCHASER**

The Contractor shall strictly comply with the Security Rules and Regulations of the Purchaser in force and shall complete the required formalities including verification from Police and any other authority and obtain necessary prior permission for entry into the Purchasers premises, wherever authorized by the Purchaser.

35.0 **PAST PERFORMANCE**

In case the past performance of the tenderer is not found to be satisfactory with regard to quality, delivery, warranty obligation and non-fulfillment of terms and conditions of the contract, their offer is liable to be rejected by the purchaser.

36.0 **CAPACITY & FINANCIAL STANDING**

In case it is found that the tenderer does not possess the requisite infrastructure, capacity, capability and their financial standing is not satisfactory, such tender is liable to be rejected by the Purchaser.

37.0 **CONFIDENTIALITY**

Drawings, specifications, prototypes, samples or any other correspondence/details/information provided by the Purchaser relating to the tender or the contract shall be kept confidential by the contractor, and should not be disclosed or passed on to any other person/firm without the prior written consent of the purchaser. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by the Contractor.

38.0 **RESTRICTED INFORMATION CATEGORIES UNDER SECTION 18 OF THE ATOMIC ENERGY ACT, 1962 AND OFFICIAL SECRETS UNDER SECTION 5 OF THE OFFICIAL SECRETS ACT, 1923**

Any contravention of the above mentioned provisions by the contractor, sub-contractor, consultant, adviser or the employees of the contractor will invite penal consequences under the aforesaid legislation.

39.0 **PROHIBITION AGAINST USE OF THE NAME OF ANY INSTITUTION OF DEPARTMENT OF ATOMIC ENERGY WITHOUT PERMISSION FOR PUBLICITY PURPOSES**

The Contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use the name of any Institution of Department of Atomic Energy for any publicity purpose through any public media like Press, Radio, TV or Internet without the prior written approval of the Purchaser.

40.0 **FREE ISSUE MATERIAL** *(This clause shall apply only to contracts for supply of fabricated equipment with purchaser's Free Issue Materials (FIM)).*

40.1 Wherever contracts envisage supply of Free Issue Material (FIM) by the Purchaser to the contractor, such Free Issue Material shall be safeguarded by an insurance policy to be provided by the Contractor at his own cost for the full value of such materials and the insurance policy shall cover, the following risks specifically and shall be valid for six months beyond the contractual delivery date.

- **Risk to be covered:** Any loss or damage to the Purchaser's material due to fire, theft, riot, burglary, strike, civil commotion, terrorist act, natural calamities etc. and any loss or damage arising out of any other causes such as other materials falling on purchaser's materials.
- **Insured by:** (Name of the Contractor)
- **Beneficiary:** Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar-382428.
- **Amount for which insurance policy to be furnished:** The amount will be indicated in the respective contract.

Free Issue Material (FIM) will be issued to the Contractor only after receipt of the Insurance Policy from the Contractor. The contractor shall arrange collection of the FIM from the Purchaser's premises and safe transportation of the same to his premises at his risk and cost.

Notwithstanding the insurance cover taken out by the Contractor as above, the contractor shall indemnify the purchaser and keep the Purchaser indemnified to the extent of the value of free issue materials to be issued till such time the entire contract is executed and proper account for the FIM is rendered and the left over/surplus and scrap items are returned to the Purchaser. The contractor shall not utilize the Purchaser's free issue materials for any job other than the one contracted out in this case and also not indulge in any act, commission or negligence which will cause/result in any loss/damage to the Purchaser and in which case, the Contractor shall be liable to the Purchaser to pay compensation to the full extent of damage/loss. The Contractor shall be responsible for the safety of the free issue materials after these are received by them and all through the period during which the materials remain in their possession/control/ custody. The free issue materials on receipt at the Contractor's works shall be inspected by them for ensuring safe and correct receipt of the material. The Contractor shall report the discrepancies, if any, to the Purchaser within 5 days from the date of receipt of the material. The Contractor shall take all necessary precautions against any loss, deterioration, damage or destruction of the FIM from whatever cause arising whilst the said materials remain in their possession/custody or control. The FIM shall be inspected periodically at regular intervals by the Purchaser for ensuring safe preservation and storage. The contractor shall also not mix up the FIM with any other goods and shall render true and proper account of the materials actually used and return balance remaining unused material on hand and scrap along with final product and if it is not possible within a period of one month from the date of delivery of the final product covered by this purchase order. The Contractor shall also indemnify the Purchaser to compensate the difference in cost between the actual cost of the FIM lost/damaged and the claim settled to the Purchaser by the insurance company. The decision of the Director, Institute for Plasma Research, as to whether the Contractor has caused any loss, destruction, damage or deterioration of the FIM while in his possession, custody or control from

whatever cause arising and also on the quantum of damage suffered by the government, shall be final and binding upon the Contractor.

41.0 EXPORT LICENCE/EXPORT PERMISSION

41.1 It is entirely the responsibility of the vendors who are quoting for materials of foreign origin to ensure obtaining export permission/licence/authorisation as required from the respective Government before arranging shipment. This Department would not accept post supply inspection by any agency/authority of any foreign country. It is, therefore, necessary that the vendors offering materials from foreign countries shall have thorough knowledge of export contract regulations in vogue in those countries.

41.2 The vendors shall indemnify the purchaser against any consequences in respect of any end-use declaration they/their overseas Principals may furnish to the government/government agencies of the country of origin of the materials, while seeking export permission/licence. Post supply inspection, contrary to the terms and conditions of purchaser's contract shall be deemed to be null and void.

42.0 END USE CERTIFICATE

42.1 Whenever an End-use Certificate is desired by the vendor, the same shall be clearly mentioned in the quotation and the purchaser shall provide an Enduser Certificate as per the format given below. The Purchaser will not provide any other document/declaration in this regard.

END USER STATEMENT:

"We hereby certify that the item/s i.e. _____, being procured from M/s _____ against our Purchase Order No. _____ dated _____ will be used for _____. We also certify that the item/s will not be used in designing, developing, fabricating or testing of any chemical, biological, nuclear, or weapons of mass destruction or activities related to it. It is further certified that we will not re-export the Item/s prior to obtaining permission from the concerned authorities as may be required".

43.0 COUNTRY OF ORIGIN

43.1 Wherever the tenders are for imported stores, the Country of Origin of the stores must be clearly specified in the quotation.

44.0 LIABILITY

44.1 Vendors shall be liable for any damage to the purchaser or any third party out of any patent or latent defect in the goods supplied by him or sub-standard services rendered by him.

45.0 RIGHT TO REJECT QUOTATION

45.1 The Purchaser reserves the right to reject any quotation, which is not in conformity with the above instructions.

45.2 The Purchaser also reserve the right to reject any quotation without assigning any reason whatsoever.

46.0 **PRICE / PURCHASE PREFERENCE**

Purchase/Price preference to industries will be given as per the policy of the Government of India in force at the time of evaluation provided their offer is in compliance with the conditions of the policy.

47.0 **PERMANENT ACCOUNT NUMBER (PAN)**

47.1 Vendors are required to upload a true copy of the PAN Card/Letter issued by the Income-tax Department, failing which the tenders are liable to be rejected.

48.0 MSE bidders should declare their UAM (Udyog Aadhar Memorandum) number on CPPP portal to avail benefits as per Public Procurement Policy for MSE's order 2012.

49.0 The bidder shall not be under a declaration of ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government Agencies.

Any additional conditions attached to this Invitation to Tender shall also form part of the contract conditions.

SECTION 'B'

**GENERAL CONDITIONS OF
CONTRACT**

**INSTITUTE FOR PLASMA RESESARCH
PURCHASE SECTION**

**GENERAL CONDITIONS OF ALL
CONTRACT**

&

**SPECIAL CONDITIONS OF CONTRACT
GOVERNING SUPPLIES OF
PLANT AND MACNHINERY**

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

- 1.1 The term 'PURCHASER' means the Institute for Plasma Research or its successors or assigns.
- 1.2 The term 'PARTICULARS' means the following:
 - 1.2.1 Specification
 - 1.2.2 Drawing
 - 1.2.3 Sealed pattern denoting a pattern sealed and signed by the Inspector
 - 1.2.4 Proprietary make denoting the produce of an individual firm
 - 1.2.5 Any other details governing the construction manufacture and/or supply as existing for the contract.
- 1.3 The term 'CONTRACTOR' or 'SUPPLIER' means, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractors/Successors (approved by the Purchaser), representatives, heirs, executors and administrators unless excluded by the contract.
- 1.4 The term 'CONTRACT' or 'PURCHASE ORDER' means and comprises of a Letter or Email or ink signed or digitally signed document conveying acceptance of Contractor's offer and invitation to tender, tender containing offer, advance acceptance of offer, general and special conditions of contract specified in the acceptance of offer and any subsequent amendments/alterations thereto made on the basis of mutual agreement.
- 1.5 The term 'STORES' or 'MATERIAL' means, the goods specified in the contract/purchase order which the contractor has agreed to supply under the contract.
- 1.6 The term 'SUB-CONTRACTOR' or 'SUB-SUPPLIER' means any contractor or supplier engaged by the contractor or the supplier with the prior approval of the Purchaser in relation to the contract/purchase order.
- 1.7 The term 'INSPECTOR' or 'QUALITY SURVEYOR' means any person nominated and deputed by the purchaser or their appointed Consultants or Quality Surveillance Agency or any other person from time to time authorized by the Purchaser to act as his representative for the purpose of inspection of stores under the contract/purchase order.

2. AUTHORITY OF PERSON SIGNING THE CONTRACT ON BEHALF OF THE CONTRACTOR

The person signing the contract or the purchase order or any other document in respect of the contract or purchase order on behalf of the contractor shall be deemed to warrant that he has the authority to bind the contractor.

3. SUBLETTING OF CONTRACT OR BILLS OR ANY BENEFIT ACCRUING THEREFROM

- 3.1 The Contractor shall not sublet, transfer or assign the Contract or any part thereof or bills or any other benefits, accruing therefrom or under the contract without the prior written consent of the Purchaser (All Sub-contractors are required to be appraised and approved by the Purchaser before placement of orders by the Contractor/Supplier). However, such consent shall not be unreasonably withheld by the Purchaser, if such stores are not normally manufactured by the Contractor, such assignment or subletting shall not relieve the Contractor from any contractual obligation or responsibility under the Contract.
- 3.2 Any breach of this condition shall entitle the Purchaser to cancel the Contract or any part thereof and to purchase from other sources at the risk and cost of the Contractor and shall recover from the Contractor damages arising from such cancellations.
- 3.3 In case the Contractor sublets, transfers or assigns any part of the Contract with the prior written consent of the Purchaser, all payments to the Sub-Contractor shall be the responsibility of the Contractor and any requests from such sub-Contractor shall not be entertained by the Purchaser.

4. SECURITY DEPOSIT

- 4.1 On acceptance of tender, the Contractor shall at the option of the Purchaser and within the period specified by him, submit a Bank Guarantee from SBI or any one of the nationalized banks or reputed private banks, viz. AXIS Bank, ICICI Bank, IDBI Bank and HDFC Bank towards Security Deposit not exceeding 10% (ten percent) of the tendered value of the contract/purchase order valid till at least 2 months beyond the acceptance date of the material, as the Purchaser shall specify.
- 4.2 If the Contractor is called upon by the Purchaser to submit Security Deposit and the contractor fails to provide the same within the period specified such failure shall constitute a breach of the Contract and the Purchaser shall be entitled to make other arrangements for the repurchase of the stores contracted for at the risk and expenses of the Contractor in terms of clause 9.2.4 hereof and/or recover from the Contractor damages arising from such cancellation. No claim shall lie against the purchaser either in respect of interest if any due on Security Deposit or depreciation in value.
- 4.3 Offers wherein contractors declined to submit Security Deposit are liable to be rejected.

5. DRAWINGS & SPECIFICATIONS

- 5.1 The drawings and specifications are intended to be complementary and to provide for an comprise everything necessary for the completion of supply. Any material shown on the drawing even if not particularly described in specifications or vice versa is to be supplied by the Contractor as if it were both shown and specified.

- 5.2 Should any discrepancy be noted in the drawings and/or specifications and should any interpretation of the same be required, the matter shall be referred to the Purchaser for clarification which shall be binding upon the contractor. Otherwise, the contractor shall assume responsibility for the interpretation of the drawings and specifications including interpretation by his sub-contractors.
- 5.3 Should any difference or dispute arise with regard to the true intent and meaning of drawings or specification or should any portion of the same be obscure or capable of more than one interpretation, the same shall be decided by the Purchaser whose decision shall be final.
- 5.4 All lettering on the drawings is to be considered as part of the specification and contract. In all cases figured dimensions are to be followed rather than those indicated by scale. Large scale drawings will take precedence over small scale drawings.
- 5.5 The contractor's drawings shall, when approved by the Purchaser, be deemed to be included in the list of drawings which form part of the contract. The Contractor shall not proceed with fabrication until all drawings associated therewith have been duly approved by the Purchaser.
- 5.6 The Contractor shall be responsible for and shall pay for any alterations of the stores and shall indemnify the Purchaser for any consequential expenditure incurred by the Purchaser due to any discrepancies, errors, omissions in the drawings or other particulars supplied by him whether such drawings or specifications have been approved by the Purchaser or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or specifications furnished to the contractor on behalf of the Purchaser.
- 5.7 **General Warranty**
- 5.7.1 The stores supplied by the contractor under the contract shall be of best quality and workmanship. The contractor shall supply the stores in accordance with the contract specifications unless any deviation has been expressly specified in the contract and any amendments agreed thereto.
- 5.7.2 The contractor's offer to supply stores in accordance with the tender specifications shall be deemed to be in admission on his part that he has fully acquainted himself with the details thereof and no claim shall lie against the Purchaser on the ground that the contractor did not examine or acquaint himself fully with the tender specifications.
- 5.8 **Contractor's Liability for Defective Stores**
- 5.8.1 For a period of twelve months after the stores have been accepted by Purchaser the Contractor shall be responsible for any defects that may be discovered therein notwithstanding that such defects could have been discovered at the time of inspection or any defects therein are found to have developed under proper use, arising from faulty materials, design or workmanship and the Contractor shall remedy all such defects as aforesaid at his own cost provided he is called upon within a period of 14 months from the date of acceptance thereof to do

so, by the Purchaser who shall state in writing in what respect the goods are faulty and further if in the opinion of the Purchaser the defects are of such a nature that it is necessary to replace or renew any defective stores, such replacement or renewal shall be made by the Contractor without any extra costs to the Purchaser, provided notice informing the Contractor of the defect is given by the Purchaser within the said period of 14 months. The decision of the Purchaser notwithstanding any prior approval or acceptance of the Inspector as to whether or not the stores delivered are defective or any defect has developed within the said period of twelve months or as to whether the nature of defects renewal or replacement shall be final conclusive and binding on the Contractor.

6. ALTERATIONS

- 6.1 The Purchaser may, from time to time, make changes in the drawings specifications and issue additional instructions without altering the purchase order in any manner provided that no changes shall have been ordered which materially alter the character and scope of the supply under the contract.
- 6.2 It shall be lawful for the parties to the contract to alter by mutual consent at any time and from time to time the drawings and specifications and as from the dates specified by him stores to be supplied shall be in accordance with such altered drawings and specifications provided that if any such alterations involve increase or decrease in the cost of or in the period required for production, a revision of the contract price and/or the period prescribed for delivery shall be made by mutual agreement in respect of the stores to which the alteration applies. In all other respects, the contract shall remain unaltered.

7. SAMPLES

- 7.1 Samples submitted for any reason shall be supplied without charge and freight paid without any obligation of the Purchaser as regards safe custody or safe-return thereof. All samples submitted must be clearly labelled with the Contractor's name and address and tender number. If the Contractor submits the sample with his tender the same shall not govern the standard of supply except when it has been specifically stated in the Purchase Order that it is accepted instead of any sealed pattern. Should certified samples be lent to the Contractor by the Purchaser, the Contractor is responsible for the return in perfect order of all certified samples with the labels intact.

8. PACKING

- 8.1 The contractor shall be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air so as to ensure their being free from any loss or damages on arrival at their destination. The packing and marking of packages shall be done by and at the expenses of the Contractor. Each package shall contain a Packing

Note quoting Purchase Order number and date and showing its contents in detail.

- 8.2 Unless otherwise provided in the contract all containers (including packing cases, boxes, tins, drums and wrappings) in which the stores are supplied by the contractor shall be considered as property of the Purchaser and their cost as having been included in the contract price.

9. DELIVERY:

9.1 TIME FOR AND DATE OF DELIVERY, THE ESSENCE OF THE CONTRACT:

The time for and the date of delivery of the stores stipulated in the purchase order/contract shall be deemed to be of the essence of the contract and delivery must be completed not later than the date/dates stipulated.

9.2 EXTENSION OF DELIVERY SCHEDULE

- 9.2.1 If any delay in delivery shall have arisen from any cause such as strike, Lock-outs, fire, accidents, riot or the like which the purchaser may admit as reasonable ground for grant of extension of delivery schedule, the purchaser will allow such additional period for the purpose as he may consider necessary taking the circumstances into consideration.
- 9.2.2 If the contractor fails to deliver the stores or any instalment or part thereof within the period fixed for such delivery or such additional period allowed by the purchaser in accordance with foregoing paragraphs or any time before the expiry of such period repudiates the contract, the Purchaser may without prejudice to the rights of the purchaser.
- 9.2.3 Recover from the contractor as Liquidated Damages and not by way of penalty as detailed under clause No.222 given herein below for any stores which the contractor has failed to deliver within the period fixed for delivery in the contract or such additional period as mentioned in paragraph 9.2.1. during which the delivery of such stores, may be in arrears where delivery thereof is accepted after expiry of the aforesaid period. (For the purpose of computing the damages for delayed supplies under the clause, the cost of the entire plant/machinery/equipment/instrument will be taken into consideration if the plant/machinery/equipment/instrument cannot be put to the intended use for want of delayed portion of supply).
- 9.2.4 Purchase or authorise the purchase elsewhere without notice to the contractor, on account and at the risk of the contractor of the stores not so delivered or others of a similar description (where stores exactly complying with the contract specification are not in the opinion of the Purchaser, which opinion shall be final, readily procurable) without cancelling the contract in respect of the portion instrument not yet due of delivery, OR
- 9.2.5 Cancel the contract or portion thereof and if so desired purchase or authorise purchase of the stores not so delivered or others of a similar description (where stores exactly complying with the contract specification are not in the opinion of the Purchaser, which opinion shall be final, readily procurable) at the risk and cost of the contractor, if the contractor had defaulted in the performance of the original contract, the purchaser shall have the right to ignore his offer in response to risk purchase enquiry even though the lowest.

- 9.2.6 Where action is taken under sub-clause 9.2.4 or sub-clause 9.2.5 above the contractor shall be liable for any loss which the purchaser may sustain on that account provided that the repurchase, or if there is an agreement to repurchase then such agreement, is made within a reasonable period from the date of such failure, depending upon the nature / merit of the purchase and in case of repudiation of the contract before the expiry of the aforesaid period of delivery, shall not be entitled to any gain on such purchase and the manner and method of such purchase shall be in the entire discretion of the Purchaser. It shall not be necessary for the purchaser to serve a notice of such purchase on the contractor.

10. INSPECTION

- 10.1 The contractor shall be responsible for and perform all inspection and testing required in accordance with the contract/purchase order and specifications included herewith.
- 10.2 The Purchaser may at his option depute his representative for Inspection of the stores to be supplied under the contract or authorize and nominate a Quality Surveillance Agency of his choice for the purpose hereinafter called, in either case, the inspection.
- 10.3 The contractor shall give notice of readiness for inspection to the Inspector (deputed under clause 10.2 above) so that the Inspector can be present at the requisite time. In such an event delivery shall not be effected until an authorization or shipping release is obtained from the Purchaser's Inspector.
- 10.4 The contractor shall allow reasonable facility and free access to his work/factory and records to the inspector for the purpose of inspection or for ascertaining the progress of delivery under the contract.

11. RECTIFICATION AND REPLACEMENT OF DEFECTIVE STORES

- 11.1 If the inspector find that the contractor has executed any unsound or imperfect work, the inspector shall notify such defects to the contractor and the contractor on receiving the details of such defects or deficiency, shall at his own expenses, within seven days or otherwise within such time as may be mutually agreed upon as reasonably necessary, proceed to alter, reconstruct or remanufacture the stores to the requisite standard and specifications as called for by the tender specification.

12. INSPECTION AND REJECTION

- 12.1 **Inspection and Rejection:** The stores shall be tendered by the Contractor for inspection at such places as may be specified by the Inspector, at the Contractor's own risk, expenses and costs and shall lie at such places of inspection at the risk of the Contractor and the stores will be subject to inspection and test as may be considered necessary by the inspector and his decision as regards rejection of goods shall be final and binding on the Contractor. If any goods are rejected as aforesaid, then without prejudice to the foregoing provision, the Purchaser shall be at liberty to
- 12.1.1 Allow the Contractor to re submit without prejudice to the Purchaser's right to claim and recover Liquidated damages as provided in clause 9.2.3 hereof, stores in replacement of those rejected within a time specified by the Purchaser (which time shall be essence of the contract), the contractor bearing the

- cost of freight for such replacement without being entitled to any extra payment, or
- 12.1.2 Buy the quantity of stores rejected or others of a similar nature elsewhere at the risk and cost of the Contractor in accordance with the provisions contained in second paragraph of clause 9.2.4 thereof without effecting the Contractor's liability as regards the supply of any further consignments due under the Contract, or
- 12.1.3 Terminate the Contract and recover from the Contractor the loss Purchaser thereby incurred
- 12.2 **Removal of rejection:** Any stores submitted for inspection and rejected by the Inspector must be removed by the Contractor within fourteen days from the date of receipt of intimation of rejection, provided that in the case of dangerous infected or perishable stores, the Inspector (whose decision shall be final) shall notify the Contractor to remove such stores within 48 hours of receipt of intimation of rejection and it shall be the duty of the Contractor to remove them accordingly. Such rejected stores shall lie at the Contractor's risk from the time of such rejection and if not removed within the aforementioned time, the Purchaser shall have the right either to return the rejected stores to the Contractor at the Contractor's risk by such mode of transport as Purchaser may select or to dispose off or segregate such stores as he thinks fit at the Contractor's risk and on his accounts and to appropriate such portion of the proceeds as may be necessary to cover any loss or expenses incurred by the Purchaser in connection with the said sale. Freight to destination of stores rejected after examination at destination shall be recoverable from the Contractor at the Tariff Rate.
- 12.3 **Test Certificate and Guarantees:** Test Certificate Guarantees, if required by the Inspector shall be obtained and furnished by the Contractor free of costs.

13. RECOVERY OF SUMS DUE

- 13.1 Whenever any claim for payment of, whether liquidated or not, moneys arises out of or under this contract against the Contractor the Purchaser shall be entitled to recover sum by appropriating, in part or whole, by encashing the Bank Guarantee submitted towards Security deposit by the Contractor, if a Security Deposit is taken against the Contract. In the event of the security being insufficient or no Security Deposit has been taken from the Contractor then the balance or the total sum or which at any time hereafter may become due to the Contractor under this or any other contract with the Purchaser, should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Purchaser on demand the remaining balance due. Similarly, if the Purchaser has or makes any claim, 'whether liquidated or not against the Contractor under any other contract with the Purchaser the payment of all moneys payable under the contract to the contractor including the security deposit shall be withheld till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.
- 13.2 All demurrage, wharfage and allied expenses incurred by the Purchaser, if any, due to delayed clearance of Stores in view of non receipt, incomplete or delayed receipt of documents by the Purchaser, shall be recovered from the payment due to the Contractor.

14. BAR/PERT CHART

- 14.1 The contractor at the discretion of the Purchaser shall submit the BAR/PERT chart indicating various activities from the date of purchase order to handing over of the stores.

15. PERFORMANCE BANK GUARANTEE

- 15.1 In the event of acceptance of the offer in respect of plant, machinery, equipment, instrument, etc. the tenderer will be required to submit a performance bank guarantee for 10% of the total value of the stores inclusive of all statutory levies and other charges admitted in the contract, from SBI/any nationalized bank or private sector banks, namely, ICICI Bank, IDBI Bank, HDFC Bank and AXIS Bank, on a non-judicial stamp paper of appropriate value valid till 2 months beyond the expiry date of warranty period as per the Purchaser's format towards satisfactory performance of the plant, machinery, equipment, instrument, etc. during the warranty period. In case of bids in currency other than INR performance bank guarantee shall be furnished from any bank of international repute.
- 15.2 In case of non-submission of performance bank guarantee by the Contractor, an amount equivalent to 10% of the total value of the stores and other charges admitted in the contract will be retained by the purchaser till the expiry of the warranty period of the stores.
- 15.3 Offers of the tenders who are not agreeable to furnish performance bank guarantee or retaining of an equivalent amount by the purchaser as per clause No.15.1 and 15.2 above, are likely to be rejected.

16. PERMIT AND LICENCES

- 16.1 The contractor shall secure and pay all licenses and permit at his end which he may be required to comply with all laws ordinances and regulations of the public authorities in connection with the performance of his obligations under the contract. The contractor shall be responsible for all damages and shall indemnify and save the purchaser harmless from against all claims for damages and liability which may arise out of the failure of the contractors to secure and pay for any such licenses and permits or to comply fully which any and all applicable laws ordinances and regulations.

17. PATENTS & PATENT RIGHTS INDEMNIFICATION

- 17.1 The Contractor shall indemnify and keep indemnified the Purchaser from and against any and all claims, actions, costs, charges and expenses arising from or for infringement of patent rights, copy right or other protected rights, of any design plans, diagrams, drawings in respect of the stores supplied by the contractors or any of the manufacturing methods or process adopted by contractor for the stores supplied under the contract.
- 17.2 In the event of any claim being made or action being taken against the purchaser in respect of the matter referred to clause 17.1 above, the contractor shall promptly be notified thereof and he shall at his own expense, conduct all negotiations for the settlement of the same and any litigation that may arise therefrom.
- 17.3 In the event of any designs, drawing, plans or diagrams or any manufacturing methods or process furnished by the contractor constituting infringement of patent or any other protected rights and use thereof is restrained, the contractor shall procure for Purchaser, at

no cost to the latter, the rights to continue using the same or to the extend it is possible to replace the same so as to avoid such infringement and subject to approval by the Purchaser or modify them so that they become non-infringing, but such modifications shall otherwise be to the entire satisfaction of the Purchaser.

17.4 The provision of the clause remains effective and binding upon the Contractor even after the completion, expiration or termination of the contract.

18. LAW GOVERNING THE CONTRACT

18.1 This Contract shall be governed by the laws of India for the time being in force. The marking of all stores supplied must comply with the requirements of India Acts relating to Merchandise Marks and all the rules made under such Acts.

19. JURISDICTION

19.1 The Courts within the local limits (i.e. Gandhinagar) of whose jurisdiction the place from which the purchase order is issued is situation only shall, subject to Arbitration Clause, have jurisdiction to deal with and decide any matter out of this Purchase Order/Contract.

20. SETTLEMENT OF DISPUTES

20.1 The Purchaser and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

20.2 If the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

21. ARBITRATION

21.1.1 In the event of any dispute or difference arising out or of in connection with any of the terms and conditions of the Purchase Order/Contract, the matter shall be referred to the Director, IPR for settlement. In case the parties to the Purchase Order are not in a position to settle the dispute mutually, the matter shall be referred to a Sole Arbitrator to be appointed in accordance with the Arbitration & Reconciliation Act, 1996 & Arbitration and Conciliation (Amendment) Act, 2015 as amended time to time.

22. LIQUIDATED DAMAGES

22.1 As per Standard Terms & conditions, the Purchaser reserves the right to levy the Liquidated Damages, for delay in supply beyond the contractual delivery date at the rate of half percent (0.5 percent) of the total Contract price (Basic price) for each calendar week of delay. The total liquidated damages shall not exceed five percent (5%) of the contract price (Basic price). Stores/Goods will be deemed to have been delivered only when all its component parts are also delivered. If certain

components are not delivered in time, the Stores/Goods will be considered as delayed until such time as the missing parts are delivered.

- 22.2 Where the Contract entered into is a composite one with supply cum erection and installation/commissioning activities and the completion of erection and installation/commissioning is delayed irrespective of the fact that whether supply of material has been made within the original delivery period, the contract is to be considered as a whole and Liquidated Damages will be recovered on the total contract value.

23. EXERCISING THE RIGHTS AND POWERS OF THE PURCHASER

- 23.1 All the rights, discretions and powers of the Purchase under the contract shall be exercisable by and all notices on behalf of the Purchaser shall be given by the Purchase Officer and any reference to the opinion of the Purchaser in the terms and conditions contained in these General Conditions of all Contracts shall mean and be construed as reference to the opinion of any of the persons mentioned in this clause.

24. TRAINING

- 24.1 The successful tenderer shall, if required by the Purchaser, provide facilities for the practical training of Purchaser's engineering or technical personnel for their active association on the manufacturing process throughout the manufacturing period of the Contract/stores, number of such personnel to be mutually agreed upon. If demanded by the Purchaser, such training shall be conducted at Purchaser's site by the Contractor free of charge. The duration of training shall be mutually decided upon by the Purchaser and the Contractor.

25. RISK PURCHASE

- 25.1 In the event supplier fails to fulfill the contractual obligations as per the terms and conditions of the Contract, the Purchaser has an option of completing the Contract at the risk and expenses of the Contractor. While initiating risk purchase at the risk and expenses of the supplier, the Purchaser must satisfy himself that the supplier has failed to deliver and he has been given all the opportunities as per the Contract to execute the Contract and also adequate and proper notice. Wherever risk purchase is resorted to, the supplier is liable to pay the additional amount spent by the government, if any as compared to contracted amount. All the factors including the method of recovering such amount should also be considered while taking a decision to invoke the risk purchase.

26. LIEN IN RESPECT OF CLAIMS IN OTHER CONTRACTS

- 26.1 Any sum of money due and payable to the Contractor under any contract may be withheld or retained by way of lien by the purchaser or any other person or persons contracting through the Director, IPR against any claim of the Purchaser or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Purchaser or with other such person or persons.
- 26.2 It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Purchaser will be kept withheld or retained as such by purchaser till this claim arising out of in the same

contract or any other contract is either mutually settled or determined by the arbitrator, and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

SPECIAL CONDITIONS OF CONTRACT GOVERNING SUPPLIES OF PLANT AND MACHINERY

In addition to the General Conditions of Contract hereinbefore set out the following special conditions shall apply to contracts for the supply of Plant and Machinery and manufactured equipment. These Special Conditions where they differ from the General Conditions shall over-ride the later.

27. DEFINITION OF PLANT

27.1 The word "PLANT" wherever, appears in these "Special Conditions of Contract governing supplies of Plants and Machinery" shall mean all machinery, plants, equipment or parts thereof or what the Contractor agrees to supply under contract as specified in the Purchase Order.

28. MISTAKES IN DRAWING

28.1 The Contractor shall be responsible for and shall pay for an alterations of the works due to any discrepancies, errors or omissions in the drawings or other particulars supplied by him whether such drawings or particulars have been approved by the Purchaser or not.

29. RESPONSIBILITY FOR COMPLETENESS

29.1 All fittings or accessories which may not be specifically mentioned in the specification but for which are usual or necessary, are to be provided by the Contractor without extra charge and the plant must be complete in all respects.

30. REJECTION OF DEFECTIVE PLANT

30.1 If the completed plant or any portion thereof before it is finally accepted is found to be defective or fails to fulfill the requirements of the contract, the Purchaser shall give the Contractor notice setting forth with the details of such defects or failure and the contractor shall forthwith rectify the defective plant or alter the same to make comply with the requirement of the contract. Should the contractors fail to do so within a reasonable time the Purchaser may reject and replace at the cost of the Contractor, the whole or any portion of the Plant as the case may be, which is defective or fails to fulfill the requirement of the contract. Such replacement shall be carried out by the Purchaser within a reasonable time and at reasonable price and where reasonably possible to the same specifications and under competitive conditions. The Contractor shall be liable to pay to the Purchaser the extra cost, if any, of such replacement delivered and or erected as provided for in the contract such extra cost being the difference between the price paid by the Purchaser under the provisions above mentioned for such replacement and the contract price for them. Contractor shall refund to Purchaser any sum paid by the Purchaser to the Contractor in respect of such defective plant.

31. INSPECTION AND FINAL TESTS

31.1 All tests necessary to ensure that the plant complies with the particulars and guarantees shall be carried out at such place or places as may be determined by the inspector. Should, however, it be necessary for the final tests as to performance or guarantees to be held over until the Plant is erected at site they shall be carried out within

one month of completion of erection.

32. TRANSPORT AND RESPONSIBILITY FOR BREAKAGES EN-ROUTE

32.1 Unless otherwise specified the Purchaser will take delivery of the plant from the place named in the purchase order but the contractor will be responsible for any damage which may be caused to the Plant during transit to the site of erection thereof.

33. ERECTION AND COMMISSIONING

33.1 In all cases where contracts provide for supervision of erection and commissioning or for test at the Purchaser's premises the Purchaser except where otherwise specified, shall provide free of charge, such labour, materials, fuels, stores, apparatus and instruments as may be required from time to time and as may reasonably be demanded by the contractor to carryout efficiently such supervision of erection and commissioning and for the requisite test. In case of contracts requiring electricity for the completion of erection, commissioning and testing at site, such electricity shall be supplied free to the contractor.

33.2 Action by the Purchaser under the clause shall not relieve the contractor of his warranty obligations under the contract.

34. WARRANTY

34.1 The contractor warrants that stores to be supplied under the contract shall be free from all defects and faults in materials, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for stores of the types under the contract in full conformity with the specifications, drawings or samples, if any and shall if operable, operate properly. This warranty shall expire (except in respect of complaints notified to the contractor prior to such date) twelve months after the date of receipt of the last lot of stores under the contract at the ultimate destination stipulated in the contract.

34.2 For a period of twelve calendar months after the plant/machinery/equipment/instruments has been put into operation (or a suitable mutually agreed longer period to be reckoned from the date of last major shipment depending upon the nature of the plant/machinery/equipment/instrument) the Contractor shall be responsible for any defects that may develop under conditions provided for the contract and under proper use, arising from the faulty materials, design or workmanship in the plant or from faulty erection of the plant by the Contractor, but otherwise and shall rectify such defects at his own cost when called upon to do so by the Purchaser who shall state in writing such defects.

34.3 If it becomes necessary for the Contractor to replace or renew any defective portions of the plant for purpose of rectification under this clause, the provisions of this clause shall apply to the portions of the plant so replaced or renewed under the expiration of six months from the date of such replacement or renewal or until the end of the above mentioned period of twelve months whichever may be the later. If any defects not rectified within reasonable time, the purchaser may proceed to get the work done at contractor's risk and expenses but without prejudice to any other rights which the Purchaser may have against the Contractor in respect of such defects as provided in clause 9.2.4 or 9.2.5.

- 34.4 All inspections adjustments, replacements or renewals carried out Contractor during the warranty period shall be subject to the same conditions as in the contract.
- 34.5 Contractor shall, spare parts of equipment before going out of production, give adequate advance notice to the purchaser so that the latter may order requirement of spares in one lot if so desires.
- 34.6 The contractor shall further guarantee that if spare parts go out of production, will make available blue prints, drawings of spare parts and specifications of material at no cost to the Purchaser, if and when required in connection with the equipment to enable Purchaser to fabricate or procure spare parts from other sources.
- 34.7 The provision of this clause shall remain effective and binding upon the Contractor even after the completion or expiration of the contract and till the plant/machinery/equipment supplied under the contract is in use by the Purchaser.

35. MODE OF PAYMENT

- 35.1 Unless otherwise agreed to in writing between the Purchaser and the Contractor, payment for the delivery of the material will be made as follows.
- Within 30 days from the date of final acceptance and on receipt of Performance Bank guarantee for 10% of the contract value amount from SBI/nationalized banks or any one of the scheduled banks mentioned in the bracket (Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank) valid through out the guarantee period mentioned in the contract/purchase order.**
- 35.1.1 In case any of the vendors seek advance or progressive payment prior to delivery of the material, such requests can be considered only in exceptional cases of large value items, in which case the vendor will be required to furnish a bank guarantee for an equivalent amount of the advance/progressive payment sought for, valid till the execution of the contract. The bank guarantee shall be got executed as per the Purchaser's format from the State Bank of India (SBI)/nationalized banks or any one of the scheduled banks mentioned in the bracket (Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank).
- 35.1.2 Besides, the offers of the vendors seeking advance/progressive payment will be evaluated by loading 12% interest charges per annum on the amount of advance desired up to the delivery period quoted.
- 35.1.3 In case any of the vendors seek pro-rata payment for the stores to be supplied they should clearly mention in their offer the maximum number of installments of supply. However, such installment delivery and pro-rata payment will be considered only in respect of contract involving large value and sizeable quantity of the item and the maximum number of installments shall be normally restricted to four. Acceptance or otherwise of this condition is reserved by the purchaser.
- 35.1.4 **Bank Charges:** All bank charges to be borne by the Contractor/Supplier.
- 35.1.5 No correspondence will be entertained within 30 days from the date of receipt of material and bills, whichever is later.
- 35.1.6 **Interest for delay in supply beyond the contractual delivery date:** Wherever advance payments are sought for by the contractor and

admitted in the contract, against Bank Guarantee for equivalent amount, in the event of any delay in supply beyond the contractual delivery date for reasons attributable to the contractor, interest charges @ 12% shall be levied for the period beyond the contractual delivery date, on the amount of balance advance payment to be adjusted.

36. DELAY IN ERECTION

36.1 Wherever erection of a plant or machinery is the responsibility of the Contractor as a term of the contract and in case the Contractor fails to carry out the erection as and when called upon as to do within the period specified by the Purchaser, the Purchaser shall have right to get the erection done through any source of his choice. In such an event, the contractor shall be liable to bear any additional expenditure that the Purchaser may incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the Purchaser.

SECTION 'C'

**TECHNICAL SPECIFICATIONS
OF
STORES AND DRAWINGS**

Please refer tender document

SECTION 'D'

FORMAT FOR SUBMISSION OF PART-II (PRICE)

Please refer tender document

DEFERRED TERMS

TENDER FORM

प्लाज्मा अनुसंधान संस्थान

(भारत सरकार के परमाणु ऊर्जा विभाग का सहायता प्राप्त संस्थान)

इंदीरा ब्रिज के पास, भाट, गांधीनगर - 382428, भारत

दूरभाष: 079-23962020/23962021, फ़ैक्स: 079-23962277

Following terms are **replaced** in our Form for Tender No. **IPR/TN/PUR/TPT/ET/21-22/014** dated **01-09-2021**.

- 1) Sr.No.3 (Sub-clause No. 3.1) of Section-A under heading **“Earnest Money Deposit (EMD)”** of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Earnest Money Deposit (EMD) is not applicable as per Office Memorandum No. F.9/4/2020-PPD dated 12/11/2020 issued by Ministry of Finance, Department of Expenditure, Procurement Policy Division, Government of India. In place of submission of EMD, vendor may upload a signed **“Bid Security Declaration”** as per the attached **Annexure-V** accepting that if they withdraw or modify their bids during the period of validity etc., they will be suspended for future requirements of IPR.

- 2) Sr. No. 15.3 (Section-A) under heading **“TENDERING CONDITIONS FOR BIDS”** of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Quotation/ offer should be on FOR, IPR Gandhinagar basis only. Quotation/offer received in any other terms/ conditions shall not be considered.

- 3) Sr. No. 15.6 (Section-A) under heading **“TENDERING CONDITIONS FOR BIDS”** of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is deleted

- 4) Sr.No.18 (Section-A) under heading **“Statutory Levies such as Customs Duty, Goods and Service Tax”** of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Clause Nos.18.1, 18.2, 18.3, 18.5.2 and its sub-clauses deleted from Form No: IPR-LP-ET-02.V5.

- 5) Sr. No. 46 (Section-A) under heading **“Price/Purchase Preference”** of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Purchase/Price preference: Purchase/Price preference benefits under MSME/NSIC including benefits under PPP-Make India policy will be provided to the industries as per the policies of the Government of India in force at the time of evaluation of the offers provided their offer is in compliance with the terms and conditions of the tender.

DEFERRED TERMS

- 6) Sr. No. 4.1 (Section-B) under heading **“Security Deposit”** of “General Conditions of Contract of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

On acceptance of tender, the Contractor shall at the option of the Purchaser and within the period specified by him, submit a Bank Guarantee from State Bank of India or any Indian Nationalized/ Scheduled Banks as appearing in the second schedule of Reserve Bank of India (other than co-operative and Grameen Banks) on a non-judicial stamp paper of appropriate value towards Security Deposit not exceeding **3% (three percent)** of the tendered value of the contract/purchase order valid till at least 2 months beyond the acceptance date of the material, as the Purchaser shall specify. Bank Guarantees submitted other than from banks approved by IPR will not be accepted.

- 7) (a) Sr. No. 15.1 (Section-B) under heading **“Performance Bank Guarantee”** of “General Conditions of Contract of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

In the event of acceptance of the tender, the Contractor will be required to submit a performance bank guarantee for **3% of the total value of the stores inclusive of all statutory levies and other charges** admitted in the contract, from State Bank of India or any Indian Nationalized/ Scheduled Banks as appearing in the second schedule of Reserve Bank of India (other than co-operative and Grameen Banks), on a non-judicial stamp paper of appropriate value valid till 2 months beyond the expiry date of warranty period as per the Purchaser’s format towards satisfactory performance of the Stores during the warranty period. Bank Guarantees submitted other than from banks approved by IPR will not be accepted.

- 8) Sr. No. 22.1 (Section-B) under heading **Liquidated Damages** of “General Conditions of Contract” of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Liquidated Damages: As per Standard Terms & conditions, the Purchaser reserves the right to levy the Liquidated Damages, for delay in supply beyond the contractual delivery date at the rate of half percent (0.5 percent) of the total Contract price (Basic price) for each calendar week of delay. **GST @ 18% will be applicable on LD charges.** The total liquidated damages shall not exceed five percent (5%) of the contract price (Basic price). Stores/Goods will be deemed to have been delivered only when all its component parts are also delivered. If certain components are not delivered in time, the Stores/Goods will be considered as delayed until such time as the missing parts are delivered.

DEFERRED TERMS

- 9) Sr. No. 34.2 (Section-B) under heading “Warranty of “General Conditions of Contract” of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Warranty:

Two years for all the tendered products/items from the date of final acceptance against all sorts of manufacturing defects, faulty material and poor workmanship. During this period, if any fault occurs, vendor shall rectify at no extra cost.

- 10) Sr. No. 35 (Section-B) under heading Mode of Payment of “General Conditions of Contract” of Form No.IPR-LP-ET-02.V5 (Terms and Conditions) is replaced with the following:

Payment: Unless otherwise agreed to in writing between the Purchaser and the Contractor, payment for the delivery of the tendered items, will be made as follows.

- a) 80% of supply portion of Item No. 1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, & 3.7 + 100% of all other charges of Price Schedule will be paid after receipt of **all the material** at IPR site, its physical verification by IPR representative and on receipt of invoice in triplicate.
- b) Balance 20% of supply portion of Item No. 1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, & 3.7 and 100% of Sr. no 2 of Price-Schedule shall be paid within 30 days after final acceptance of the material and on receipt of Performance Bank Guarantee for 3% (three) of the order value (inclusive of all statutory levies and all other charges) from State Bank of India or any Indian Nationalized/ Scheduled Banks as appearing in the second schedule of Reserve Bank of India (other than co-operative and Grameen Banks) valid throughout the warranty period (plus additional two months grace period).

Following **ADDITIONAL CLAUSES** are **added to** our Form No. IPR-LP-ET 02.V5 for Tender No. **IPR/TN/PUR/TPT/ET/21-22/014** dated **01-09-2021**.

1. MAKE IN INDIA

- i. As defined under the Public Procurement (Preference to Make in India), order 2017, Revised order dated: 16/09/2020 or as being revised from time to time, in procurement of goods or services in respect of which the Nodal Ministry/Department has communicated, that there is sufficient local capacity and local competition, only “Class-I local supplier”, as defined under the said order, shall be eligible to bid irrespective of purchase value.

DEFERRED TERMS

- ii. Only “Class-I local supplier” and “Class-II local supplier”, as defined under the above said order, shall be eligible to bid in procurements under taken by this Institute, except where the mode of procurement is by issue of Global Tender Enquiry. The bidding supplier shall indicate the percentage of local content for the item being offered in their bid.
- iii. Where the procurement is by issue of Global Tender enquiry, Non local suppliers, shall also be eligible to bid along with “Class-I local suppliers and Class-II local suppliers”. Suppliers/bidders offering imported products will fall under the category of Non-local suppliers.
- iv. Subject to the provisions of the above said order, and to any specific instructions issued by the Nodal Ministry or in pursuance of the said order, purchase preference shall be given to “Class-I local Suppliers” in procurements under taken by this Institute, in the manner specified there in the order.
- v. The bidders along with their bid/tender shall be required to provide a self-declaration certificate of the local content (where the procurement value is Rs.10 Crore or less) for the item offered and their status as Class-I/Class-II/Non-Local supplier and their eligibility to participate in the tender. In cases of procurement for a value in excess of Rs.10 crores, the “Class-I local supplier”/’Class-II local supplier’ shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of Contractors other than companies) giving the percentage of local content.
- vi. Self-declaration certificate should quantify the percentage of local content of the offered product only. It should also indicate the location. However, claiming the services such as transportation, insurance, installation & commissioning, training and after sale service support like AMC/CMC etc., shall not be considered as local content as per OM N.P-45021/102/2019-BE-II-Part(1)(E- 50310) dated:4/03/2021 issued by Ministry of Commerce and Industry, DPIIT.
- vii. False declarations/violation of this order terms shall be deemed to be breach of code of integrity resulting in debarment of the firm for a period up to 2 years. Under such circumstances, the supplier shall not be considered for any preferences as proposed in the order.
- viii. Wherever the bids are received without accompanying the above said requisite certificate such offers shall be treated as incomplete and not considered.
- ix. Bidders/contractor are divided into three categories based on Local Content (The total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the

DEFERRED TERMS

total value, in percent):

1. Class-I local supplier is with local content equal to or more than as prescribed by the Nodal Ministry/ NIT, if prescribed, for the item being procured or 50% whichever is higher.
2. Class-II Local supplier is with local content equal to or more than as prescribed by the Nodal Ministry/NIT, if prescribed, for the item being procured or 20% whichever is higher, but less than that applicable for class-I local supplier.
3. Non-local supplier is with local content less than that applicable to class-II local supplier, as stated above.

Note: Where the estimated value of the procurement is less than Rs.5 Lakhs (or as being amended by the competent authority from time to time) is exempted from the provisions of the above Make in India policy as stated therein the order.

Self-certification under preference to “Make in India” order as per **Annexure-I** should be uploaded on e-tender portal along with other documents.

2. ELIGIBILITY OF BIDDERS FROM SPECIFIED COUNTRIES:

- i. Orders issued by the Government of India restricting procurement from bidders of certain countries which shares a land border with India shall apply to this procurement.
- ii. Any bidder from a country which shares a land border with India (<https://mea.gov.in/india-and-neighbours.htm>), excluding countries as listed in the website of Ministry of External Affairs (<https://meadashbaord.gov.in/indicators/92>), to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects – hereinafter called “Restricted countries”) shall be eligible to bid in this tender only if the bidder is registered (<https://dipp.gov.in/sites/default/files/Revised-Application-Format-for-Registration-of-Bidders-15Oct2020.pdf>) with the Registration committee constituted by the Department for promotion of Industry and Internal Trade(DPIIT) . The bidders shall enclose valid registration certificate along with their offer. Wherever the bids are received without accompanying the above said requisite certificate such offers shall be treated as incomplete and not considered.

Self-certification under **ELIGIBILITY DECLARATIONS FROM SPECIFIED COUNTRIES** order as per **Annexure-II** should be uploaded on e-tender portal along with other documents.

- 3. UNDERTAKING:** Acceptance of tender condition as per **Annexure-III** should be uploaded on e-tender portal along with other documents.

4. CODE OF INTEGRITY

No official of a procuring entity or bidder or contractor shall act in contravention of the codes which include

- (i) Prohibition of
 - (a) making offer, solicitation or acceptance of bribe, reward or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process.
 - (b) any omission, or misrepresentation that may mislead or attempt to mislead so that financial or other benefit may be obtained or an obligation avoided.
 - (c) any collusion, bid rigging or anticompetitive behavior that may impair the transparency, fairness and the progress of the procurement process.
 - (d) improper use of information provided by the procuring entity to the bidder with an intent to gain unfair advantage in the procurement process or for personal gain.
 - (e) any financial or business transactions between the bidder and any official of the procuring entity related to tender or execution process of contract; which can affect the decision of the procuring entity directly or indirectly any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process.
 - (f) obstruction of any investigation or auditing of a procurement process.
 - (g) making false declaration or providing false information for participation in a tender process or to secure a contract;
- (ii) Disclosure of conflict of interest.
- (iii) Disclosure by the bidder of any previous transgressions made in respect of the provisions of sub-clause (i) with any entity in any country during the last three years or of being debarred by any other procuring entity.
- (iv) Institute for Plasma Research, after giving a reasonable opportunity of being heard, comes to the conclusion that a bidder or prospective bidder, as the case may be, has contravened the code of integrity, may take appropriate

DEFERRED TERMS

measures as deemed fit, including rejecting his bid and forfeiting EMD and/or debarring him from participating in future bidding.

- 5. Commercial Bid (Unpriced)** : Vendor/ Bidder should upload the duly filled (signed and stamped) copy of commercial bid(unpriced) as per [Annexure-IV](#)
- 6. TDS as per CGST Act:** As per the provisions mentioned under Section No. 51 of the CGST Act 2017, TDS @ 2% (IGST 2% or CGST 1% and SGST 1%) will be deducted while making payment to the suppliers where total value of the purchase order/contracts/work orders exceeds Rs.2.5 Lakhs. Necessary TDS Certificate will be issued to the supplier after TDS deduction.

IMPORTANT NOTE:

[1] QUOTATIONS ARE INVITED IN INDIAN CURRENCY ONLY.

[2] QUOTATIONS RECEIVED OTHER THAN “INR” QUOTE SHALL SUMMARILY BE REJECTED.

(To be printed in letter head)

ANNEXURE-I

Self-Certification under preference to Make in India order Certificate

In line with Government Public Procurement Order No. P-45021/2/2017-PP (BE-II) dated 04.06.2020 and its amendments, we hereby certify that we M/s. _____ are local supplier meeting the requirement of minimum local content i.e., _____% excluding transportation, insurance, installation, commissioning, testing, training and after sales service support like AMC/CMC etc. as defined in above orders for the material against IPR Enquiry/Tender No **IPR/TN/PUR/TPT/ET/21-22/014** dated **01-09-2021**. Details of location at which local value addition will be made 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.

Thanking You,

Signature with date:

Name:

Designation:

Official Seal

ANNEXURE-II

Annexure to Bid Form: Eligibility Declaration

(To be submitted as part of tender/Technical Bid)
(On company letter head)
(Along with supporting documents, if any)

Tender No: **IPR/TN/PUR/TPT/ET/21-22/014** dated **01-09-2021**

Tender Title: **Design, fabrication, supply, installation and commissioning of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.**

Bidder's Name: _____

(Address and contact details)

Bidder's Offer No. _____

Date: _____

Restrictions on procurement from Bidders from a country or countries, or class of countries under Rule 144(xi) of the General Financial Rules 2017.

"We have read the clause regarding restrictions on procurement from Bidder of a country which shares a land border with India; and solemnly certify that we are not from such a country or, if from such country, we are registered with the Competent Authority (copy enclosed). We hereby certify that we fulfill all requirements in this regard and are eligible to be considered."

Penalties for false or misleading declarations:

We hereby confirm that the particulars given above are factually correct and nothing is concealed and also undertake to advise any further changes to the above details. We understood that any wrong or misleading self-declaration by us would be violation of Code of integrity and would attract penalties as mentioned in this tender document, including debarment.

(Signature with date)

(Name and designation)

Duly authorized to sign Bid for and on behalf of

(Name & address of the Bidder and Seal of Company)

(This need to be printed in Tenderer's letter head)

Annexure-III

Undertaking

To,

The Purchase Officer
Institute for Plasma Research
Near Indira Bridge
Bhat
Gandhinagar-382428 (INDIA),

Ref: Tender Notice No. IPR/TN/PUR/TPT/ET/21-22/014 dated 01-09-2021

Dear Sir,

I / We have gone through the tendering conditions pertaining to the Two Part Tender and General Conditions of Contracts and Special Conditions of Contracts contained in Section "B" of Form No: IPR-LP-ET-02.V5. I/We hereby agree to supply the stores conforming to the tender specifications and also agree to abide by your General Conditions of all Contracts and Special Conditions of Contract contained in Section "B" of the Tender document.

- You will be at liberty to accept any one or more of the items of stores offered by us and I/We shall be bound to supply you the stores as may be specified in the Purchase Order/Contract.
- I/We hereby agree to keep the price valid for your acceptance for a period of 120 days from the date of opening of the tender.
- Deviations to technical specifications of the tender documents are detailed in Annexure-A of the tender form while deviations proposed to the General/Special Conditions of Contract are detailed in Annexure "B" to this tender.
- Standard equipments / accessories included in the bids shall be procured from OEM or their authorised agents. Any of the offered standard bought out equipment is not refurbished.
- I/We have also uploaded all the leaflets / catalogue, etc. pertaining to the stores offered.

Yours faithfully

Stamp and Signature of the Tenderer

**Institute for Plasma Research
(An Aided Institute of Dept. of Atomic Energy)
Bhat, Gandhinagar**

Annexure - IV

IPR Enquiry NO & Date	IPR/TN/PUR/TPT/ET/21-22/014 dated 01-09-2021
COMMERCIAL TERMS & CONDITIONS	
ITEM DESCRIPTION	Design, fabrication, supply, installation and commissioning of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.

Sl. No.	PARTICULARS	REMARKS
I	Name of the Bidder	
II	Bidder Offer No & Date	
III	Postal address	
IV	Contact with STD code	
V	Fax with STD code	
VI	Name of Contact person	
VII	Mobile No.	
VIII	e-mail ID	
IX	Currency of offer/quotation	INR
Commercial Terms for Quoted items (Please Provide Commercial terms and conditions in the below form)		
1	Confirm the offered Price shall be firm and fixed through out the currency of contract, in the event of placement of purchase order.	
2	Price Term for Local Supplier	FOR IPR Gandhinagar
3	<p>Goods and Services Tax:</p> <p>Goods and Service Tax for Supply Items only: IPR is entitled to avail GST Concessional Rate as per Ministry of Finance Notification No. 47/2017 Integrated Tax (Rate) dated 14/11/17 (for IGST) and (CGST @ 2.5% and SGST @ 2.5%) as per Notification No. 45/2017-Central Tax (Rate) dated 14/11/17 and Notification No. 45/2017-State Tax (Rate) dated 15/11/17</p> <p>Confirm that in the event of issuance of GST Concessional Certificate you shall charge GST on Supply Portion @5% only</p> <p>Goods and Service Tax for Service items: As applicable</p>	
4	Delivery period: Refer tender terms	
5	Installation and commissioning charges : Have you offered Installation & Commissioning Charges? (if applicable)	

6	Liquidated Damages:- Please confirm that the Liquidated Damages as per Sr. No. 22 of Section B of Form No IPR-LP-ET-02.V5 (Terms and Conditions) attached with the tender/enquiry is acceptable to you	
7	Terms of Payment:- as per Sr. No. 35 of Section B of Form No. IPR-LP-ET-02.V5 (Terms and Conditions) attached with the tender/enquiry. (Also refer document named "Deferred_terms_IPR-LP-ET-02.V5" for amended payment terms)	
8	Guaranty / Warranty:-as per Sr. No. 34 of Section B of Form No. IPR-LP-ET-02.V5 (Terms and Conditions) attached with the tender/enquiry. (Also refer document named "Deferred_terms_IPR-LP-ET-02.V5" for amended payment terms)	
9	Validity of offer/quotation:- Refer tender terms	
	QUESTIONNAIRE TO BE FILLED BY BIDDER IN AND SENT ALONG WITH OFFER DULY SIGNED	
10	In the event of a purchase order/contract vendor has to provide Security Deposit in the form of Bank Guarantee for 3% of contract/ order value from State Bank of India or any Indian Nationalized/ Scheduled Banks as appearing in the second schedule of Reserve Bank of India (other than co-operative and Grameen Banks) on a non-judicial stamp paper of appropriate value valid till at least 2 months beyond the final acceptance of the supplied goods at IPR, wherever applicable shall be submitted .	
11	In the event of a purchase order/contract Performance Bank Guarantee for 3% of the contract/order value from State Bank of India or any Indian Nationalized/ Scheduled Banks as appearing in the second schedule of Reserve Bank of India (other than co-operative and Grameen Banks) on a non-judicial stamp paper of appropriate value till 2 months beyond the expiry date of warranty period , wherever applicable shall be submitted.	
12	I/We hereby offer to supply the stores detailed in the schedule hereto at the price given in the said schedule and agree to hold this offer open till expiry of quotation. I/We shall be bound to supply the stores hereby offered upon issue of purchase order communicating the acceptance thereof on or before the expiry of the last mentioned date. You will be at liberty to accept any one or more of the items of stores tendered for or portion of any or more of the items of such stores and I/We notwithstanding that the offer in the tender has not been accepted in whole shall be bound to supply to you- such item or items and such portion or portions of one or more of the items as may be specified in the said Purchase Order communicating the acceptance.	
13	Whether All Documents Related to tender Viewed?	
14	Vendor should upload the complete technical details (Technical specifications with product data sheet	
15	Free Issue Material: Successful tenderer will have to arrange insurance showing beneficiary as "Institute for Plasma Research" at their risk and cost towards adequate security for the materials/property provided/issued by the Purchaser as Free Issue Material for the due execution of the contract, wherever applicable.	

(To be printed in letter head)

ANNEXURE-V

BID SECURITY DECLARATION

IN LIEU OF SUBMISSION OF EARNEST MONEY DEPOSIT (EMD)

Ref: (1) Our Offer No.....dated.....
(2) Your Tender No. IPR/TN/PUR/TPT/ET/21-22/014 dated 01-09-2021

In the event of withdrawing or modifying our offer within the validity or extended validity period, we hereby accept the suspension of our company for a period of two years from the date publication of this tender for your future requirement.

Signature with date:

Name:

Designation:

Official Seal

SECTION 'C'
TECHNICAL SPECIFICATIONS
OF
STORES AND DRAWINGS

Institute for Plasma Research

(An Aided Institute of Dept. of Atomic Energy)

Bhat, Gandhinagar

Eligibility Criteria (Annexure-A)

ITEM DESCRIPTION	Preparation of fabrication drawings, supply, installation and testing of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.	
Sr. No.	Criteria	Documents required to submit / upload
1	Bidder must have fabricated, supplied, installed & commissioned metallic chamber either of a) Min. 1 meter x 1meter x 1meter or b) Min 1.0 m3 clear volume. In last five years from the date of tender.	Bidder should upload copy of the purchase order/ contract with technical details along with installation/acceptance reports.
2	The Bidder must have ISO-9001:2015 certification	Bidder should upload copy of the valid certificate.
3	Bidder must have or access facility for design, fabrication, inspection and testing of metallic chamber.	Bidder should submit the a) Self-certificate certifying the details of in house facilities: and /or b) Copy of PO or invoice or the agreement with the vendors/sub-vendors for out sourced items.
4	Bidder must have an experience of refractory and/or thermal insulation lining application (refractory / insulation brick lining/castable lining etc.)	Bidder should upload: a) The copy of the purchase order/ contract along with the acceptance completion certificate; and/or b) The copy of agreement with the vendors/sub-vendors who involved in refractory and/or insulation lining application (refractory/ insulation brick lining/castable lining etc.)
	Note:	
a	The response to tender without submission of proof of above points will summarily be rejected without further communication	
b	The bidder shall not be under a declaration of ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government agencies	
c	Original documents shall be produced for verifications, if required	

Tender document

**For preparation of fabrication drawings, supply, installation
and testing of Secondary Chamber assembly**

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1. Introduction

Pyrolysis system comprises of various subsystems such as feeder chamber, primary chamber, secondary chamber, gas cleaning system, induce draft fan, chimney, etc. There will be high temperature (1050 ± 50 °C) inside the secondary chamber. The schematic of pyrolysis system is shown in figure 1 below. The schematic of secondary chamber is shown in figure 2 below. The operation and functional details of secondary chamber is briefed in section 1.1

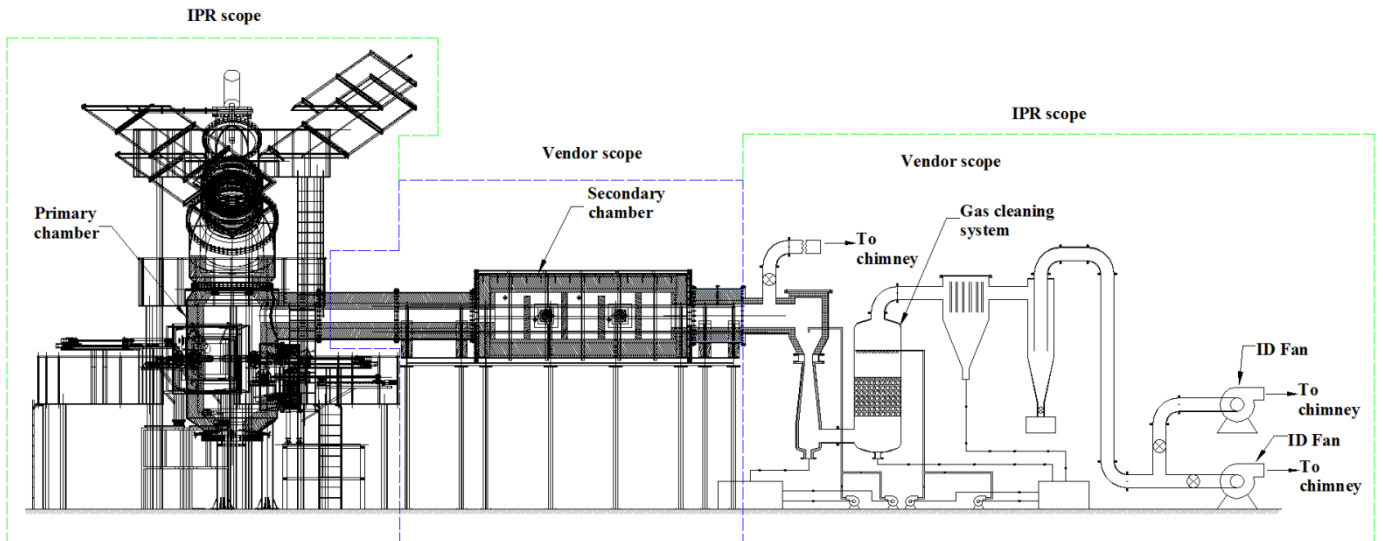


Figure 1: Schematic of 200 kg/hr plasma pyrolysis system

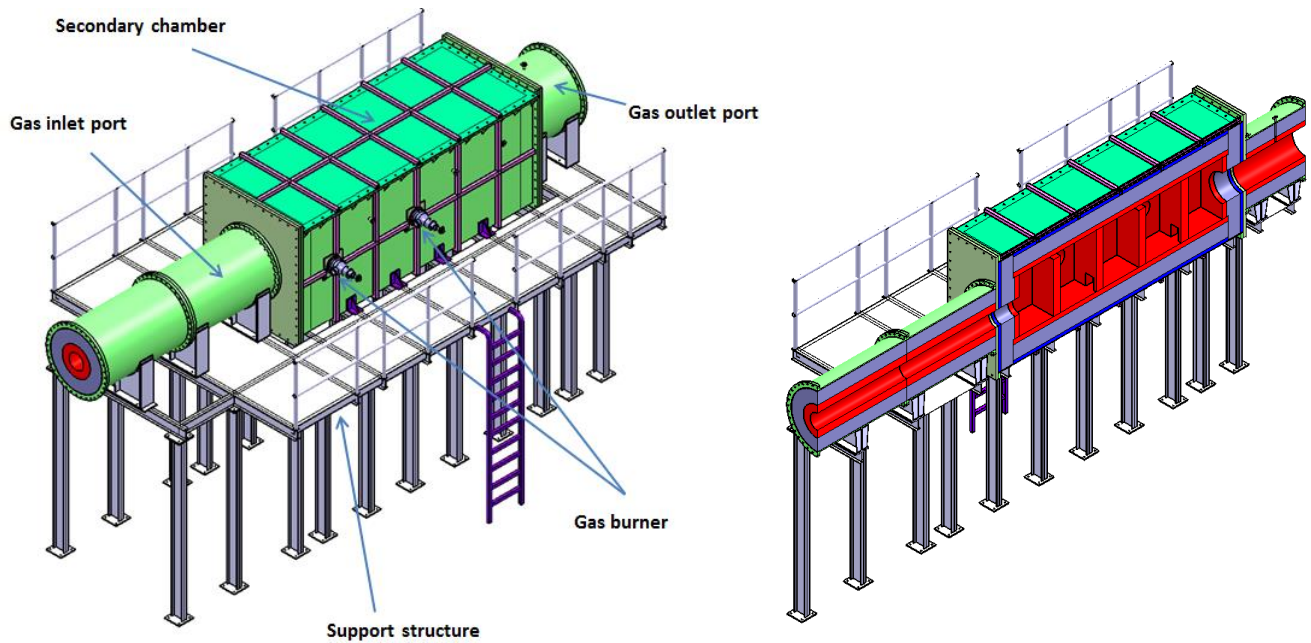


Figure 2: Secondary chamber assembly

1.1. Secondary chamber assembly

The product gas from the primary chamber will be piped to secondary chamber (combustion chamber) for combustion. In this chamber the product gas has to combustion and exhaust gas has to be sent to the gas cleaning system. Before waste will be charged into the plasma reactor, interlocks ensure that the bulk temperature of the secondary chamber will be at a temperature of 1050 ± 50 °C prior to feeding waste. The gases coming from the primary chamber will have to reside a minimum 2.0 seconds in secondary chamber. Before feeding the waste in the plasma reactor the secondary chamber has to be preheated at a temperature of 1050 ± 50 °C by using dual fuel (LPG/PNG) gas burner.

Secondary chamber assembly consists of gas inlet port connecting to primary chamber, main rectangular secondary chamber, gas outlet port to gas cleaning system, auxiliary air inlet port, dual fuel gas burner, R-type thermocouple, pressure gauge, service platform and support structure for secondary chamber assembly. The lining material is comprises of (a) refractory layer; (b) insulation layer (The details of all these insulation layer is given in sub-section 4.1) which is used to minimize the heat losses. The schematic of secondary chamber assembly is shown in figure 2 and figure 3. The material of construction (MOC) for secondary chamber is specified in the drawings under Appendix -I. The detailed specifications of secondary chamber assembly are given in sub-section 4.1.

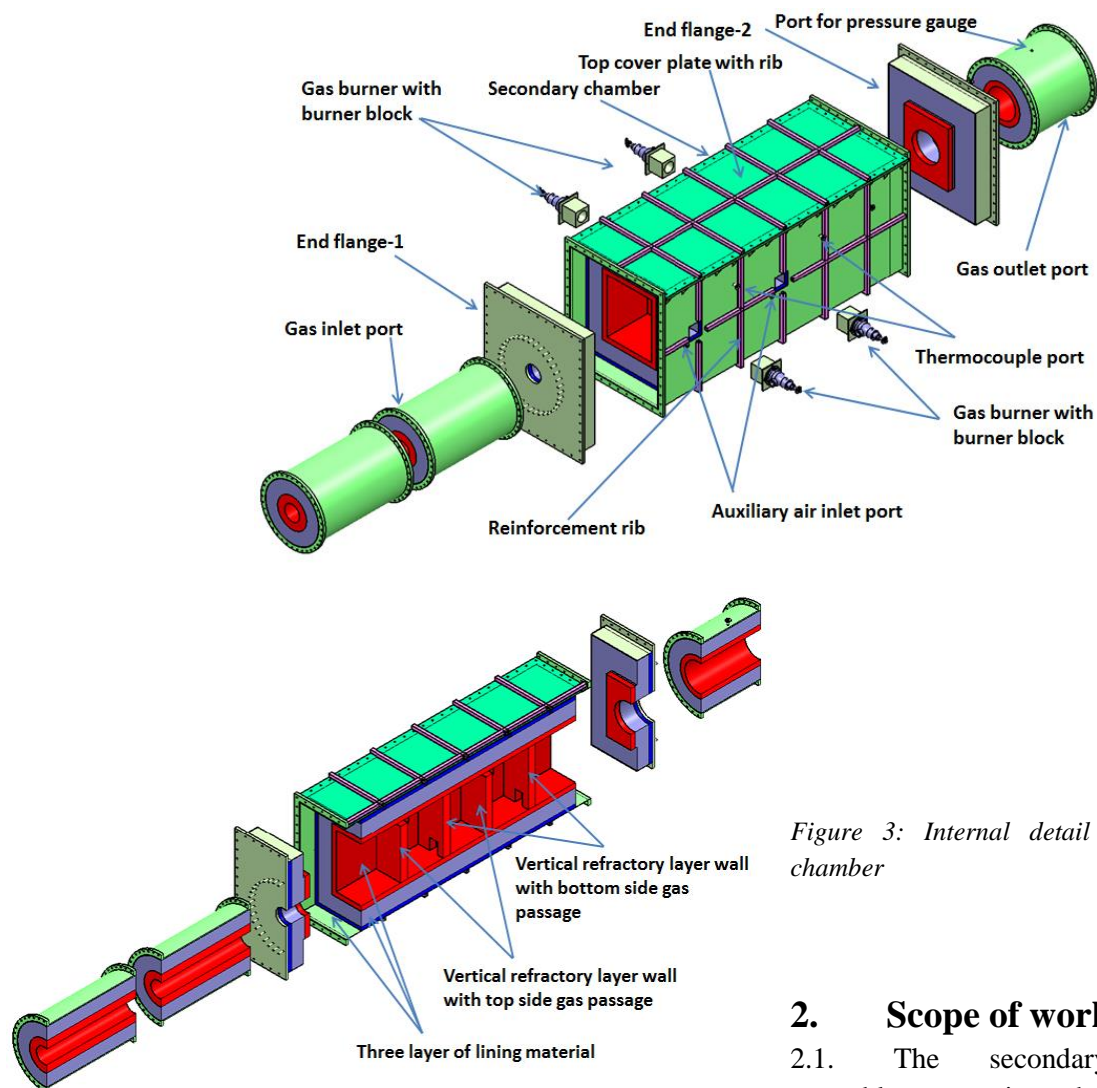


Figure 3: Internal detail of secondary chamber

2. Scope of work

2.1. The secondary chamber assembly comprise the followings

which technical specifications are mentioned in section 4.1

Sr. no.	Item description	Quantity	Remarks
1.	Secondary chamber	01 set.	
	➤ Gas inlet port	02 no.	
	➤ Left side end flange	01 nos.	
	➤ Main rectangular chamber with top cover	01 nos.	
	➤ Right side end flange	01 nos.	
	➤ Gas outlet port	01 nos.	
	➤ Duel fuel gas burner	04 nos.	
	➤ R-type thermocouple	05 nos.	
	➤ Pressure gauge	01 nos.	
2.	Support structure and service platform	01 nos.	

- 2.2. The job consist of two items (i) Secondary chamber and (ii) support structure and service platform for various component and sub assembly mentioned in the 2.7 below. The design and analysis of item (1) is perform by IPR and respective engineering drawings are attached in Appendix I. the vendor shall responsible for fabrication, inspection, installation and testing of component and sub assembly as per tender specification for item no (1) for item no (2) vendor shall responsible for design, analysis, fabrication, inspection, erection and testing as per tender specification.
- 2.3. Vendor shall be responsible for raw material procurement, precision fabrication, lining material installation, welding joints, assembly, inspection, supply, installation and testing of the secondary chamber assembly as per the IPR's tender specifications & engineering drawing attached in Appendix-1.
- 2.4. Vendor shall prepare 3D CAD model (preferably use CATIA / AutoCAD / Solid works software), detailed manufacturing/fabrication drawings of components and assemblies with tolerances from supplied IPR's engineering drawings and submit to IPR for approval.
- 2.5. The Vendor shall quantify structural materials, lining material, high temperature gasket, gas burner etc. for successful fabrication, inspection, assembly and testing of secondary chamber assembly. Detailed Bill of Material (BOM) to be submitted to IPR for review and approval before start of procurement.
- 2.6. Vendor shall also prepare a list of additional items such as anchor, stud, clamp, suitable binder, mortar, castable material, retaining plate/ring, oxidizing materials etc. which would be necessary for holding and installing lining material inside the secondary chamber assembly. Vendor shall also have to submit BOM of such items to IPR for review and approval before start of procurement.
- 2.7. Vendor should follow the below mentioned point during the support structure and service platform design;
- The support structure should be design by considering the load mentioned in the Appendix –V
 - The support structure has to be design by considering the 7 mm elongation of secondary chamber (due to the wall temperature of 80 °C) during heating from inside.
 - The center height of the secondary chamber is ~3.7 meter from ground.
 - The support structure has to be design in such a way so that the fuel line and air line for gas burner should be accommodated with appropriate support.
 - The service platform should be design by considering to access individual components during service, repair and maintenance.
 - The secondary chamber assembly including support structure and service platform are going to be installed and commissioned **Homi Bhaha Cancer Hospital (HBCH), Varanasi City site** after completion of successful erection and site acceptance test at FCIPT, Gandhinagar. The

performance of support structures and service platforms is responsibility of vendor. Thus, Vendor shall perform design and analysis of support structures, service platforms and foundation taking in to consideration relevant constrains and conditions at Varanasi City. The analysis shall be performed considering three different cases ie. (1) Normal thermal (80 °C) and gravity (2) Seismic load (3) Combination of thermal, gravity and seismic.

- g) The Gandhinagar city (Gujarat) and Varanasi city(Uttar Pradesh) fall under seismic zone III.
- h) Vendor should consider the seismic zone III data for seismic analysis.
- i) Vendor should follow IS 1893 (part 4): 2005 for seismic analysis.
- j) Vendor should submit the safe design and analysis report for support structure and service platform to IPR for approval.

2.8. Vendor shall also have to provide weight details of each component including lining materials installed in it for review by IPR.

2.9. Vendor also has to provide details of lifting lugs & hooks on various components and assemblies for safe handling, transportation and also for safe maintenance work performed using crane. The location of the Lugs & hooks should be ensured considering center of gravity of the components.

2.10. Vendor shall prepare the components surface as per recommendation from OEM paint supplier and components should be painted externally with heat resistance alumina paint (two coats) suitable to withstand temperature up to 250°C with proper surface preparation.

2.11. Support structure and service platform shall be painted using black color after applying two coats of suitable anti corrosive chemical.

2.12. The vendor must follow, supply and assemble the components as per the list of preferred make prepared by IPR enclosed under Appendix –II.

2.13. Vendor's scope of work also includes the following points:

- a) During the preparation of fabrication/manufacturing drawings, Vendor shall also study the fabrication feasibility and shall intimate to IPR for any modifications that may seem to be necessary for successful manufacturing/fabrication of components, sub-assemblies & assembly. After approval from IPR, vendor shall incorporate necessary modification.
- b) The manufacturing/fabrication drawing shall clearly indicate the welding process, weld serial no. and weld joint design considered for production of joints during assembly.
- c) Vendor must also submit the fabrication methodology plan along with schedule in respect of section 11(delivery schedule) of this technical specification to IPR for approval.
- d) Vendor should submit manufacturing and inspection Plan (MIP) to IPR for approval.
- e) Vendor must also make a periodical review plan (part of MIP document) to be conducted by IPR's engineers at vendor's site.
- f) Procurement of bought out items should be from original equipment manufacturer (OEM) or their authorized distributors/suppliers.
- g) Procurement of all necessary raw materials, items and equipment with test certificates, wherever applicable. The test certificates should be submitted to IPR for approval.
- h) Design, development and manufacturing of tools, jigs, fixtures and other accessories required for manufacturing of components & assemblies for secondary chamber assembly and lining materials installation.
- i) Fabrication of all components, sub-assemblies and assembly according to the approved fabrication drawings by IPR as per delivery schedule shown in section 11.
- j) Inspection & Testing of the materials, components & sub-assemblies at appropriate stages before the final assembly. Submission of appropriate test report to IPR before pre-dispatch inspection to be performed by IPR's engineers.
- k) Factory acceptance tests shall be carried out at vendor site in presence of IPR's engineers.

- l) Assembly of components and mechanical integrity shall be demonstrated by the vendor at factory site and IPR site.
- m) Packaging and delivery of components to IPR with appropriate unloading instructions at IPR site after the dispatch clearance by IPR.
- n) Vendor has to make arrangement for unloading, installation and testing of the secondary chamber assembly at IPR site.

2.14. Vendor should submit the assembly sequence for the secondary chamber assembly.

3. Code and Standard

- I. All aspects of manufacturing, welding, heat treatment, inspection, etc. shall be performed in accordance to ASME Boiler & Pressure Vessel Code and/or relevant ASTM standards.
- II. The material shall be procured in accordance with ASME section II of Boiler & Pressure Vessel Code for Materials and relevant ASTM standards.
- III. Welding qualification shall be performed in accordance with the guidance provided in ASME section IX of Boiler & Pressure Vessel Code.
- IV. Non-destructive examinations shall be performed in accordance with procedures mentioned in ASME section V of Boiler & Pressure Vessel Code.
- V. Vendor shall define/propose additional Codes and standards as per good engineering practice for smooth execution.

4. Technical specification

Note: All dimensional details are included in the drawings. All the other fabrication related details have to be worked out by vendor and approval should be taken from IPR before starting of fabrication.

4.1 Secondary chamber assembly

Description	Specifications
Gas inlet port	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : ± 1% or ± 1.0mm whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 115 mm (thick) (b) insulation layer type 1 = 200 mm (thick) (c) insulation layer type 3 = 5 mm (thick) ➤ Lining materials specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively.
Left side end flange	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Flange Type: Rectangular and integral type flange as per 2D drawings. ➤ Surface finish of gasket contact area of flange should be 3∇, other area shall have 2∇.
Main rectangular chamber with top cover	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : ± 1% or ± 1.0mm whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 75 mm (thick) (b) insulation layer type 1 = 230 mm (thick) (c) insulation layer type 2 = 50 mm (thick) ➤ Lining material specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively.

	Vendor shall make support structure for connecting gas burners, fuel line, Air Line and its accessories.
Right side end flange	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Flange Type: Rectangular and integral type flange as per 2D drawings. ➤ Surface finish of gasket contact area of flange should be 3∇, other area shall have 2∇.
Gas outlet port	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : $\pm 1\%$ or $\pm 1.0\text{mm}$ whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 75 mm (thick) (b) insulation layer type 1 = 200 mm (thick) (c) insulation layer type 3 = 5 mm (thick) ➤ Lining materials specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively.
Duel fuel gas burner	<ul style="list-style-type: none"> ➤ Gas burner with standard cast iron mounting: <ul style="list-style-type: none"> (a) Fuel used: LPG/PNG (b) Burner standard: ISO 13577-2:2014 (c) Mode of operation: Automatic <ul style="list-style-type: none"> i. Burner should be operated with temperature feedback control. ii. The air fuel ratio should be control automatic using PID controller. (d) Each burner capacity: 100000 Kcal/hr ($\pm 10\%$). (e) Operating temperature in the secondary chamber: 1050 $\pm 50^\circ\text{C}$ (f) Total no of Burner: 04 nos. (g) Each burner has separate control and maintains the temperature in each segment in the secondary chamber. (h) Each burner should be operated in the range of 40% to 100% of its capacity. (i) Assembled long last burner block with SS tile jacket for gas burner (j) All accessories for proper functioning of burner such <ul style="list-style-type: none"> (a) Air Line accessories (b) Combustion and atomizing blower (c) Auto ignition and flame failure safety device (Pilot burner) (d) Gas line accessories (e) Gas train (f) Gas flow meter <p>Note: All four nos. of burners and its accessories should be mounted on the secondary chamber assembly and its support structure.</p> <p>Acceptance criteria : according 10.1 and 10.2</p>
Support structure	<ul style="list-style-type: none"> ➤ MOC: Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR. ➤ The support structure should enough to take load as per Appendix-V
Service platform	<ul style="list-style-type: none"> ➤ MOC: Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR. ➤ To access individual components during service, repair and maintenance. ➤ The width for service platform shall have to accommodate minimum 3 persons during operation, repair and maintenance. ➤ The service platform should be sturdy enough to take load of minimum 3 persons and /or other structures connecting it. ➤ The design of service platform should be such that it can be dismantled

	and/or move away during repair/replacement of any components of secondary chamber assembly.
Thermocouple for gas burner feedback control	<ul style="list-style-type: none"> ➤ R-type , ceramic sheath covered ➤ Length of thermocouple: 500 to 550 mm long ➤ Diameter of ceramic sheath pipe: ~ 20mm ➤ Total number of thermocouple: 05 nos.
Pressure gauge	<ul style="list-style-type: none"> ➤ Compound type pressure gauge ➤ Pressure range: -ve 1 mbar to 2 bar (g) ➤ Total number of pressure gauge: 01 nos.
Sealing requirement	<ul style="list-style-type: none"> ➤ Ceramic fiber gasket or equivalent properties gasket of min. 5 mm thickness that can withstand temperature of 1000 °C. ➤ Fasteners MOC: SA-193 B7 heavy hexagonal type.

Note: All dimensional details are included in the drawings. All the other fabrication related details have to be worked out by vendor and approval should be taken from IPR before starting of fabrication.

5. Materials

- I. The secondary chamber, support structures and service platform and other components should be made up of the material as indicated under section 4 and Appendix-II respectively.
- II. The structural materials shall be tested by the vendor in procured condition for its chemical and mechanical properties as well as for any internal defect.
- III. The lining materials shall also be tested by the vendor for its thermo-physical properties mentioned under Appendix-III. The test certificate should clearly indicate the properties mentioned under Appendix-III for each lining material.
- IV. Vendor shall submit test certificates of structural materials and lining materials to IPR issued by **NABL accredited laboratory or else Government Organization laboratory** for acceptance of material properties by IPR before starting of the fabrication and lining work at factory site.
- V. Vendor shall supply test specimens of structural materials and lining materials as per relevant ASTM standards. IPR may get the materials tested from third parties and in case, if material is found non-complying with IPR specification then the material will be rejected.
- VI. Vendor shall have to submit technical data sheet of lining materials in respect of properties mentioned in under Appendix-III specifying particular brand/make for properties verification and technical qualification. Vendor shall also have to submit detail of recommended binders to be used for lining materials.
- VII. Vendor shall submit proof of materials procurement (i.e. invoice copy/challans/bills/purchase order along with delivery note from OEM/authorized distributer/dealers) in respect of Appendix-II.
- VIII. Vendor shall use fastener (bolts, studs, nut, etc.) confirming to ASME/ASTM standards unless otherwise specified in this document.

6. Instruction to vendor

- I. The Load bearing capacity of construction shed floor area is 3 tons/m²
- II. IPR reserves right to participate and review the progress of the work at any stage. The vendor shall agree to make appropriate arrangement for this at vendor's premises or at any other place where such activities may be carried out.

- III. IPR will have exclusive right on the activities related to work contract and the vendor shall not disclose any information to others at anytime, anywhere without prior written permission from IPR as it is highly confidential.
- IV. All documents related to fabrication submitted by vendor shall be the intellectual property of IPR.
- V. The vendor shall provide proper aesthetic to secondary chamber assembly along with support structures and service platform.
- VI. All scaffolding, hoisting arrangements, lifting devices, tools, ladders and equipment's etc. required for facilitating of frame structure erection at FCIPT shall be provided and removed on completion work by the vendor, at vendor's own expense. The scaffolding, hoisting arrangement, ladders etc. shall be strong enough to withstand all live, dead and impact loads expected to act. However, Vendor shall be solely responsible for the safety of the scaffolding, hoisting arrangement, ladders, work and workmen, personnel etc.
- VII. Supply and installation of Hardware needed for supporting like Clamps/Steel Chain for mounting, Bolts/Nuts, Anchor bolts and Screws for mounting on other Structure shall be borne by the vendor during the execution of the work.
- VIII. Erection in general, of the entire/part structure shall be carried out as per the requirement. Positioning and levelling of the structure, alignment and plumbing and fixing every member of the structure shall be in accordance with the relevant drawings and to the complete satisfaction of IPR.
- IX. Qualified welders, fitters, painters and other manpower required for workmanship (like steel works, cutting, welding, bolting, material handling, painting etc.) for assembly and erection of secondary chamber assembly.
- X. All standard safety measures have to be followed during execution of the work. The Vendor shall be responsible for comprehensive workmanship compensation insurance for any accidents/incidents of the personnel at IPR work site.
- XI. The rate includes cost of all material, labour, erection, hoisting, scaffolding, safety measures and sundry required for proper completion of the item of work, at all heights. This shall also include transportation and delivery, handling, loading, unloading and storing etc. required for completion the item described above including necessary wastage involved.
- XII. The area of construction shed where this assembly is to be installed and commissioned with other sub-systems is 30 meter (long) x 10 meter (width). The height from ground level to bottom of the hook of installed overhead crane is 12 meter. The EOT crane is of 10 Ton capacity.

7. Machining, Fabrication and cleaning

- I. The cutting of material from the supplied lot should ensure sufficient margin to avoid heat affected areas causing material degradation.
- II. During machining, the cutting fluids used shall be water soluble, non-halogenated and phosphorus and sulphur free.
- III. The components/assemblies shall be mechanically cleaned for removal of all weld tacks, sharp edges & projections, dust and particles generated during grinding. Remove gross contamination from all interior and exterior surfaces (including flange faces) by cleaning.
- IV. The interface surface of connecting components shall be grounded smooth to 2 ∇ surface finish unless otherwise specified under section 4.
- V. Machined parts and fabricated components shall be degreased using solvents or alkaline detergents, rinsed with demineralized water, and dried completely before starting welding job.
- VI. Vendor has to submit WPS, PQR, and WPQ and weld plan to IPR for approval before executing the work.
- VII. Vendor shall provide assembly marking on fabricated components for ease of assembly and disassembly of components of assemblies during repair and maintenance.

- VIII. The welding shall be carried out only by qualified welders. Qualification of welders shall be accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section IX.
- IX. Full penetration weld should be employed wherever it is possible. Trapped volume should be avoided during welding.
- X. Single pass weld up to a maximum extent is preferred. Interruption during welding should be reduced to a minimum possible extent.
- XI. If leak develops; weld metal shall be removed and joint shall be re-welded with appropriate weld repair procedure.
- XII. Filler material, if used, should be compatible with the parent material.
- XIII. All welds should be grounded smooth and flush with adjoining surfaces with convex curvature.
- XIV. Remove material markings etc. with acetone followed by cleaning with Phosphate free alkaline detergent and rinsing with DM water.
- XV. Drying will be accomplished by blowing clean dry air over the component. Inspect and cover the component as soon as after drying as possible and store in clean area. Avoid contamination from unfiltered shop air.
- XVI. Immediately after inspection, cover the components with double wrap of clean, oil-free polyethylene and seal them.
- XVII. Welder qualification will be witness by IPR engineers at factory site.

8. Lining materials installation

- I. Vendor shall start installation of lining materials at factory after getting acceptance form IPR on submitted test certificates of lining materials.
- II. Vendor shall carry out lining material installation as per approved fabrication drawings including lining work.
- III. IPR representative will witness lining materials installation work carried out by vendor at factory site.
- IV. Vendor shall deploy adequate number of skilled refractory masons and experienced supervisors along with un-skilled workers as per lining work job at factory site.
- V. Vendor may use high temperature castable instead of layers of brick lining where brick lining is not possible due to inadequate space, components shape/orientation, etc. In such case, vendor has to do the following:
 - 1. Vendor shall provide proper justification for such relaxation in the bid.
 - 2. Vendor shall demonstrate mechanical integrity and homogenous structure of castable material through prototype component trials before actual work. At those location all layers shall be of same castable materials.
 - 3. The properties of **castable material** should be in compliance with those mentioned under Appendix- III.
- VI. For acceptance of lining materials such as Refractory layer, Insulation layer type 1 and insulation layer type 2 respectively, the thermal conductivity measurement test to be carried out by vendor is permitted to perform at lower temperature but not less than 550 degree Celsius subject to condition that vendor has to prove the test result achieved is in compliance with the value shown in lining material data sheet at particular temperature of respective manufacture. The measurement value of other properties are identical as shown in respective table under Appendix-III

9. Inspection and Testing procedure

- I. All the fabrication drawings with dimensions and tolerances shall be checked and should be submitted to IPR for necessary approval.
- II. IPR representative shall have access to all manufacturing and fabrication facilities, inspection and testing facilities, tools, drawings etc. during all stages of manufacturing.
- III. Vendor has to submit final fabrication drawings and testing reports to IPR, based on which, IPR can decide to do or not to do the Pre-dispatch Inspection.
- IV. The components manufacturing, fabrication and assemblies should be done as per tolerances given in IS 2102-1 1993 tolerance class c respectively.
- V. All the components and/or sub-assemblies should be checked for surface finish and dimensional accuracy. Vendor has to submit the dimensional check and surface check report for components and assemblies.
- VI. Dye Penetrant (DP)/Liquid Penetrant Test (LPT) is mandatory for all weld joints.
- VII. 10% Radiography Test (RT) shall be carried out for all butt weld joints as per relevant ASME/ASTM standard. In case, RT is not feasible due to technical reason than Ultrasonic Examination in lieu of Radiography test to be carried out.
- VIII. All the components shall be delivered only after shipment clearance from IPR.
- IX. The vendor shall submit inspection and testing procedures to IPR for review and approval before starting the FAT
- X. The preferred inspection and/or testing methods and respective acceptance criteria are described below;

a) Visual inspection

- (i) Visual inspection shall be performed as per ASME Section V_Subseciton A - Article 9.
- (ii) Visual inspection of components for any defects, crack, flaws etc.
- (iii) A visual inspection shall be made of exterior and interior surfaces.
- (iv) Visible particulates or actual contamination shall be removed.

b) Liquid Penetrant Test (LPT)

- (i) All welded joints shall be tested by vendor with Liquid Penetrant Test as per guidance provided in ASME Section V_Subseciton A - Article 6.
- (ii) The Liquid Penetrant tested areas shall be cleaned by hot detergent wash. The water temperature shall be kept at 60°C and then these tested areas shall be dried completely. In ase, vendor finds unacceptable defect, the same shall be notified to IPR.
- (iii) The procedure for testing shall be submitted to IPR for review and approval.
- (iv) Acceptance criteria:
 - (1) Imperfections producing indications with major dimensions greater than 1/16 in. (1.5 mm) shall be considered relevant imperfections.
 - (2) Imperfections producing the following indications are also unacceptable:
 - Any cracks or linear indications with length three times greater than the width;
 - Rounded indications with dimensions greater than 3/16 in. (5 mm);
 - Four or more rounded indications in a line separated by 1/16 in. (1.5 mm) or less edge to edge;
 - Ten or more rounded indications in any 6 sq in. (4000 mm²) of surface with the major dimension of this area not to exceed 6 in. (150 mm) with the Area taken in the most unfavorable location relative to the indications being evaluated.

c) Dimensions check

- (i) The dimensions with specified tolerance shall be measured and verified for components, sub-assemblies and assembly with those mentioned in the approved fabrication drawings including lining material.
- (ii) If the components, sub-assemblies and assembly are not found as per approved fabrication drawings, then faulty components, sub-assemblies and assemblies shall be rejected by IPR.

- (iii) New components, sub-assemblies and assemblies need to be freshly fabricated by vendor if the vendor fails to prove the inspection.

d) Radiography Testing

- (i) Radiography testing for weld joints shall conform to guidance provided in ASME section V_ Subsection A - Article 2.
- (ii) Radiographic film interpretation shall be done by ASNT level II certified personnel.
- (iii) For all thickness X-rays shall be used as source of radiation. Gamma rays shall be employed only when X-rays is not feasible.
- (iv) Procedure for Radiography testing shall be submitted to IPR for review and approval.
- (v) Acceptance criteria:
 - (1) Cracks, Lack of Penetration (LOP), Lack of Fusion (LOF), Oxidation, Undercuts, Linear and angular defects of any type, surface defects in the region of weld and HAZ involving either stress raisers or loss of wall thickness, root concavities shall not be acceptable.
 - (2) Porosity and spherical inclusions in excess of limits stated below:
 - Plate thickness 3mm & less: Defect free weld is required.
 - Plate thickness > 3mm and ≤ 6mm: Isolated globular inclusions / porosity permitted provided they are not larger than 0.8 mm diameter in any portion of the weld and do not exceed 4 in number in any length of 300 mm and are separated from each other by at least 4 times their diameter.
 - Plate thickness >6mm and ≤ 16mm: Isolated globular inclusions / porosity permitted provided they are not larger than 1.5 mm diameter in any portion of the weld and do not exceed 4 in number in any length of 300 mm and are separated from each other by at least 4 times their diameter.
 - Plate thickness >16mm and < 50mm : Isolated globular inclusions / porosity permitted provided they are not larger than 4 mm diameter in any portion of the weld and do not exceed 4 in number in any length of 300 mm and are separated from each other by at least 4 times their diameter.
 - (3) Indications shown on the radiographs of welds and characterized as imperfections are unacceptable under the following conditions:
 - Any indication characterized as a crack or zone of incomplete fusion or penetration;
 - Any other elongated indication that has a length greater than
 - (i) 1/4 in. (6 mm) for t up to 3/4in. (19 mm), inclusive
 - (ii) 1/3t fort from 3/4in. to 2 &1/4 in. (19 mm to 57 mm), inclusive
 - (iii) 3/4 in. (19 mm) for t over 2 &1/4 in. (57 mm)

Where t is the thickness of the thinner portion of the weld

e) Ultrasonic Examination (In lieu of Radiography testing)

- (i) Ultrasonic examination shall be carried in accordance with ASME section V_Subseciton A – Article 4.
- (ii) The Ultrasonic Examination procedure shall be submitted to IPR for review and approval.
- (iii) Acceptance criteria:

Imperfections which produce a response greater than 20 % of the reference level shall be investigated to the extent that the operator can determine the shape, identity, and location of all such imperfection and evaluate them in terms of the acceptance standards given in (I) Below;

I. Imperfections are unacceptable if the indications exceed the reference level amplitude and lengths exceeding:

 - (i) 1/4 in. (6 mm) for t up to 3/4 in. (19 mm), inclusive
 - (ii) 1/3rdt for t from 3/4 in. (19 mm) to 2 1/4 in. (57 mm), inclusive
 - (iii) 3/4 in. (19 mm) for t over 2 1/4 in. (57 mm)

10. Acceptance test

10.1 Factory Acceptance Test (FAT)

- The vendor is responsible for necessary arrangement for inspection and testing during FAT as per approved Manufacturing and Inspection Plan (MIP).
- The inspection and testing shall be performed are mentioned in the table below;

Inspection and testing as per approved MIP	
01	<ul style="list-style-type: none"> ➤ All the test certificates, stages inspection reports, verified and check. ➤ Dimensions of components and/or sub-assemblies, support structure and overall assembly of secondary chamber assembly including tolerance shall be measured and verified. ➤ Weld joints inspection to be performed followed by IPR approved NDT methods. ➤ Assembly of the system will be checked. ➤ Visual inspection of lined materials for any damage, crack, etc. to be performed. ➤ Marking for assembly and disassembly of components, sub-assemblies and assembly will be checked. ➤ Integrity and interface requirement as per drawings.(DRG No: IPR/APD/CBWTF200/A3/SEC/01)
02	<p>Gas burner testing:</p> <p>Vendor has to demonstrate two number of testing cycle as followings;</p> <ul style="list-style-type: none"> ➤ Continuous operation of individual gas burner (including spare burner) without integration and with full capacity (100000 Kcal/hr \pm10%) for 6 hour in open atmosphere without interruption of the flame. ➤ Continuous operation of the all four gas burner (integrated with secondary chamber) in the secondary chamber for 6 hour without any interruption and system will be cooled down subsequently in normal atmosphere before start second testing cycle, during this operation the carbon monoxide and NOx in the exhaust gas shall be < 100 ppm and < 400 mg/Nm³ respectively. ➤ The vendor has to demonstrate the burner capacity (100000 Kcal/hr \pm10%) by gas consumption using gas flow meter. ➤ The burner should have proper control mechanism to control the capacity (100000 Kcal/hr \pm10%) in the range of 40% to 100% will be checked. ➤ The operation of gas burner at set value of the temperature (up to 1100°C) in the controller. ➤ All necessary arrangements including consumable like gas PNG/LPG, piping/couplings, shall be arranged by the vendor at the time, until the successful completion of FAT. Vendor shall ensure all the safety requirements during the testing

10.2 Site Acceptance Test (SAT)

- Vendor is responsible for necessary arrangement for inspection and testing during SAT as per approved Manufacturing and Inspection Plan (MIP) at IPR site.
- The inspection and testing are mentioned in below table;

Sr. no.	Inspection and testing
01	<ul style="list-style-type: none"> ➤ Visual inspection for any damage, cracks, etc. in structural components and installed lining materials to be checked. ➤ Assembly of the system will be checked. ➤ Installation of secondary chamber assembly along with gas burner assembly. The chamber assembly will be installed on the support structure at IPR site by the vendor. And assembly will be checked.
02	<p>Gas burner testing:</p> <p>Vendor has to demonstrate two number of testing cycle as followings;</p> <p>Vendor has to demonstrate two number of testing cycle as followings;</p> <ul style="list-style-type: none"> ➤ Continuous operation of individual gas burner (including spare burner) without integration and with full capacity (100000 Kcal/hr \pm10%) for 6 hour in open atmosphere without interruption of the flame. ➤ Continuous operation of the all four gas burner (integrated with secondary chamber) in the secondary chamber for 6 hour without any interruption and system will be cooled down subsequently in normal atmosphere before start second testing cycle, during this operation the carbon monoxide and NOx in the exhaust gas shall be < 100 ppm and < 400 mg/Nm³ respectively. ➤ The vendor has to demonstrate the burner capacity (100000 Kcal/hr \pm10%) by gas consumption using gas flow meter. ➤ The burner should have proper control mechanism to control the capacity (100000 Kcal/hr \pm10%) in the range of 40% to 100% will be checked. ➤ The operation of gas burner at set value of the temperature (up to 1100°C) in the controller. ➤ All necessary arrangements (excluding gas PNG/LPG) piping/couplings shall be arranged by the vendor at the time, until the successful completion of SAT. Vendor shall ensure all the safety requirements during the testing. ➤ IPR will arrange gas bank for testing at IPR site.

11. Delivery schedule

Phase	Deliverable	Time from acceptance of P.O (T0)
I	Submission of Quality plan, MIP including PERT chart and Support structures & service platforms design and analysis report to IPR	T0 + 04 weeks = T1
II	Review and approval by IPR of documents and/or reports	T1 + 04 weeks = T2

	submitted against point I above.	
III	Submission of Manufacturing/Fabrication drawing, engineering drawings including lining material installation, Lining material installation procedure and assembly & disassembly procedure to IPR	T2 + 04 weeks = T3
IV	Review and approval by IPR of documents and/or reports submitted against point III above.	T3 + 03 weeks = T4
V	Submission of Material Test Certificates, Material identification and marking Procedure, Welding Consumable Test Certificate, Welder qualification and test reports and WPS , PQR , WPQ and Weld Plan to IPR	T4 + 5 week = T5
VI	Review and approval by IPR of documents and/or reports submitted against point V above.	T5 + 02 week = T6
VII	Fabrication of components/sub-assemblies including lining material installation and completion of Factory Acceptance Test (FAT) as per PO.	T6 + 24 week = T7
VIII	Issuance of dispatch clearance by IPR after successful completion of FAT.	T7 + 01 weeks = T8
IX	Delivery and physical verification of items as per PO at FCIPT	T8 + 02 weeks = T9
X	Installation, erection and testing of assembly and successful completion of Site acceptance (SAT) test as per PO.	T9 + 03 weeks = T10

12. Document to be submitted

12.1 The following documents shall be submitted to IPR (Total 1 set of soft copy & 2 set of Hard copy) for approval.

1. Quality Plan
2. Manufacturing and Inspection plan
3. Support structures and service platforms design and analysis report
4. Manufacturing/Fabrication and engineering drawings file including lining material installation
5. Lining material installation procedure
6. Assembly and disassembly Procedure
7. Material Test Certificates
8. Material identification and marking Procedure
9. Welding Consumable Test Certificate
10. Welder qualification and test reports
11. WPS , PQR , WPQ and Weld Plan
12. Gas burner operation manual.

12.2 The following documents shall be submitted to IPR (Total 1 sets of soft copy & 2 set of hard copy) before Factory Acceptance Test (FAT)

1. As Built Drawings file
2. NDT report
3. Reports on weld repairs and other rectification if any

13. Insurance, packing, handling and Supply

- I. Vendor/Contractor shall pack all the components with the proper material to avoid damages during transportation.
- II. Vendor/Contractor shall inform IPR authority before supply of the material to IPR.

14. Warranty

Twenty four (24) months from date of final acceptance of the system at IPR site for poor workmanship, welding/fabrication/painting, lining work installation, faulty material, electronics items etc. During this period if any fault occurs/detected in contractor's services, contractor shall rectify the same at no extra cost at IPR site. In the event contractor fails to fulfil his obligations, IPR shall have the right to remedy or to have remedied the defect/fault, in both cases to contractor's account.

15. Post warranty support

The vendor shall confirm that they will provide the post-warranty support for additional three years after expiry of warranty period i.e. 1 year for any of the mechanical damages or lining material damages in the supplied assembly at **Homi Bhabha Cancer Hospital (HBCH), Varanasi City**. However, the cost for such post-warranty support is **"Not To Be Included"** in the quotation against the present tender.

Appendix – I

Please find attached separately engineering drawings of secondary chamber assembly (pdf version). The list of attached drawing are mentioned here below

Sr. no.	Drawing number
01	IPR/APD/CBWTF200/A3/SEC/01(Assembly)
02	IPR/APD/CBWTF200/A3/SEC/01-1
03	IPR/APD/CBWTF200/A3/SEC/01-2
04	IPR/APD/CBWTF200/A3/SEC/01-3
05	IPR/APD/CBWTF200/A3/SEC/01-4
06	IPR/APD/CBWTF200/A3/SEC/01-5
07	IPR/APD/CBWTF200/A3/SEC/01-6
08	IPR/APD/CBWTF200/A3/SEC/01-7
09	IPR/APD/CBWTF200/A3/SEC/01-8
10	IPR/APD/CBWTF200/A3/SEC/01-9
11	IPR/APD/CBWTF200/A3/SEC/01-10
12	IPR/APD/CBWTF200/A3/SEC/01-11
13	IPR/APD/CBWTF200/A3/SEC/01-12
14	IPR/APD/CBWTF200/A3/SEC/01-13
15	IPR/APD/CBWTF200/A3/SEC/01-14
16	IPR/APD/CBWTF200/A3/SEC/01-15
17	IPR/APD/CBWTF200/A3/SEC/01-16
18	IPR/APD/CBWTF200/A3/SEC/01-17
19	IPR/APD/CBWTF200/A3/SEC/01-18
20	IPR/APD/CBWTF200/A3/SEC/01-19
21	IPR/APD/CBWTF200/A3/SEC/01-20
22	IPR/APD/CBWTF200/A3/SEC/01-21
23	IPR/APD/CBWTF200/A3/SEC/01-22
24	IPR/APD/CBWTF200/A3/SEC/01-23

25	IPR/APD/CBWTF200/A3/SEC/01-24
26	IPR/APD/CBWTF200/A3/SEC/01-25

Appendix – II

LIST OF SUGESTED MAKE

Sr. No.	Item Description	Make/brand
1.	Plate, pipe, forged, rod, etc. of materials as specified in the engineering drawings under Appendix-I.	Tata, SAIL, RINL, Jindal, Fortran Steel Private Limited, Phenix creation simplified or equivalent make/brand.
2.	Structural Rolled Steel sections- beams, channels, tee, flats, angles, bars (round, square, hexagonal) of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, SAIL, RINL, Jindal, Fortran Steel Private Limited, Phenix creation simplified or equivalent make/brand.
3.	Structural Hollow steel sections (Square & Rectangular) and tubular sections of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, Asian, APL Apollo tubes Ltd., Phenix creation simplified, Fortran Steel Private Limited or equivalent make/brand.
4.	Structural tubular sections of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, Asian, APL Apollo tubes Ltd., Phenix creation simplified, Fortran Steel Private Limited or equivalent make/brand.
5.	Duel fuel Gas burner	Continental thermal engineers Pvt. Ltd. , Honeywell kromschroder, Encon thermal engineers, Bloom engineering, Hotwork combustion technology ltd. or equivalent make/brand.
6.	Refractory layer.	Brick of Calderys, Carborundum Universal Limited (CUMI), MG Materials India, Promat, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned under Appendix-III.
7.	Insulation layer type 1.	Brick of Calderys, Carborundum Universal Limited (CUMI), Promat, MG Materials India, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.
8.	Insulation layer type 2.	Ceramic fiber board of Mogan Advance materials, Unifrax, Ceramaterials, gtlproduct, Calderys, MG Materials India, Carborundum Universal Limited (CUMI) or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.
9.	Insulation layer type 3.	Ceramic fiber paper of Mogan Advance materials, Unifrax, Ceramaterials, Calderys, MG Materials India, Carborundum Universal Limited (CUMI) or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.
10	Castable material	Calderys, Carborundum Universal Limited (CUMI),

		Promat, MG Materials India, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.
10.	Welding rod.	Esab India (7018 or 7014) or equivalent
11.	Construction chemicals (if any).	M.C.Bauchemie, FosrocSika, Cico, Pidilite, Sika, Ashford, BAL, Krishnaconchem or equivalent.
12.	Joint Filler/silicon paint.	Wacker, Dowcorning, Sika, Chokshi or equivalent.
13.	Paint, primer, putty.	Asian, Berger, Nerolac, ICI, Birla (putty) Roofit(Putty) or equivalent.
14.	Polish.	MRF, Asian, ICI, Taralac or equivalent.
15.	Adhesives.	Fevicol, Kitcol, Araldite, BAL or equivalent.
16.	Anchor fastener/bolts.	Sundaram, Hilti.Fischer or equivalent.

Appendix – III

Technical specification for lining materials

I. Refractory layer (size: ~ 230 x 115 x 75 mm)

Parameters	Properties
Maximum service temperature, (°C)	1600°C - 1850°C
Bulk density, (kg/m ³)	1100 - 1300 kg/m ³
Cold Crushing strength (kg/cm ²)	≥ 30 kg/cm ²
Thermal conductivity, (W/m-K)	≤ 0.61 W/m-K @ temperature 800°C
Note: Side arc/End arc brick is recommended wherever applicable.	

II. Insulation layer type 1 (size: ~ 230 x 115 x 75 mm)

Parameters	Properties
Classification temperature, (°C)	1250°C - 1550°C
Bulk density, (kg/m ³)	700 - 950 kg/m ³
Cold Crushing strength (kg/cm ²)	≥ 20 kg/cm ²
Thermal conductivity (W/m-K)	≤ 0.41 W/m-K @ temperature 800°C
Note: Side arc/End arc brick is recommended wherever applicable.	

III. Insulation layer type 2 (Size: ~1000 x 500 x 50mm)

Parameters	Properties
Classification temperature, (°C)	1150°C – 1450 °C
Bulk density, (kg/m ³)	650 - 800 kg/m ³
compressive strength (kg/cm ²)	≥ 20 kg/cm ²
Thermal conductivity (W/m-K)	≤ 0.14 W/m-K @ temperature 550°C

IV. Insulation layer type 3 (Size: ~ 1220 x 12000 x 5 mm)

Parameters	Properties
Classification temperature, (°C)	1250°C - 1550°C
Bulk density, (kg/m ³)	150 - 250 kg/m ³

Tensile strength (kPa)	≥ 200 kPa
Thermal conductivity, (W/m-K)	≤ 0.10 W/m-K @ temperature 400°C

V. Castable material

Parameters	Properties
Classification temperature, (°C)	1200°C - 1700°C
Bulk density, (kg/m ³)	700 - 1300 kg/m ³
Cold Crushing strength, (kg/cm ²)	≥ 25 kg/cm ²
Thermal conductivity (W/m-K)	≤ 0.40 W/m-K @ temperature 600°C

Appendix – IV List of spare items

The vendor shall submit the quote for the following **spares mandatorily in price Bid**. Vendor should also specify the quantity offered.

Sr. no.	Descriptions	Qty
01	Refractory layer (size: ~ 230 x 115 x 75 mm)	85 nos.
02	Insulation layer type 1 (size: ~ 230 x 115 x 75 mm)	366 nos.
03	Insulation layer type 2 (Size: ~1000 x 500 x 50mm)	06 nos.
04	Insulation layer type 3 (Roll) (Size: ~ 1220 x 12000 x 5 mm)	01 nos.
05	Gas burner block (specification mentioned in 4.1)	02 nos.
06	Dual fuel burner (LPG/PNG) (specification mentioned in 4.1)	01 no.
07	R-type thermocouple (specification mentioned in 4.1)	02 nos.

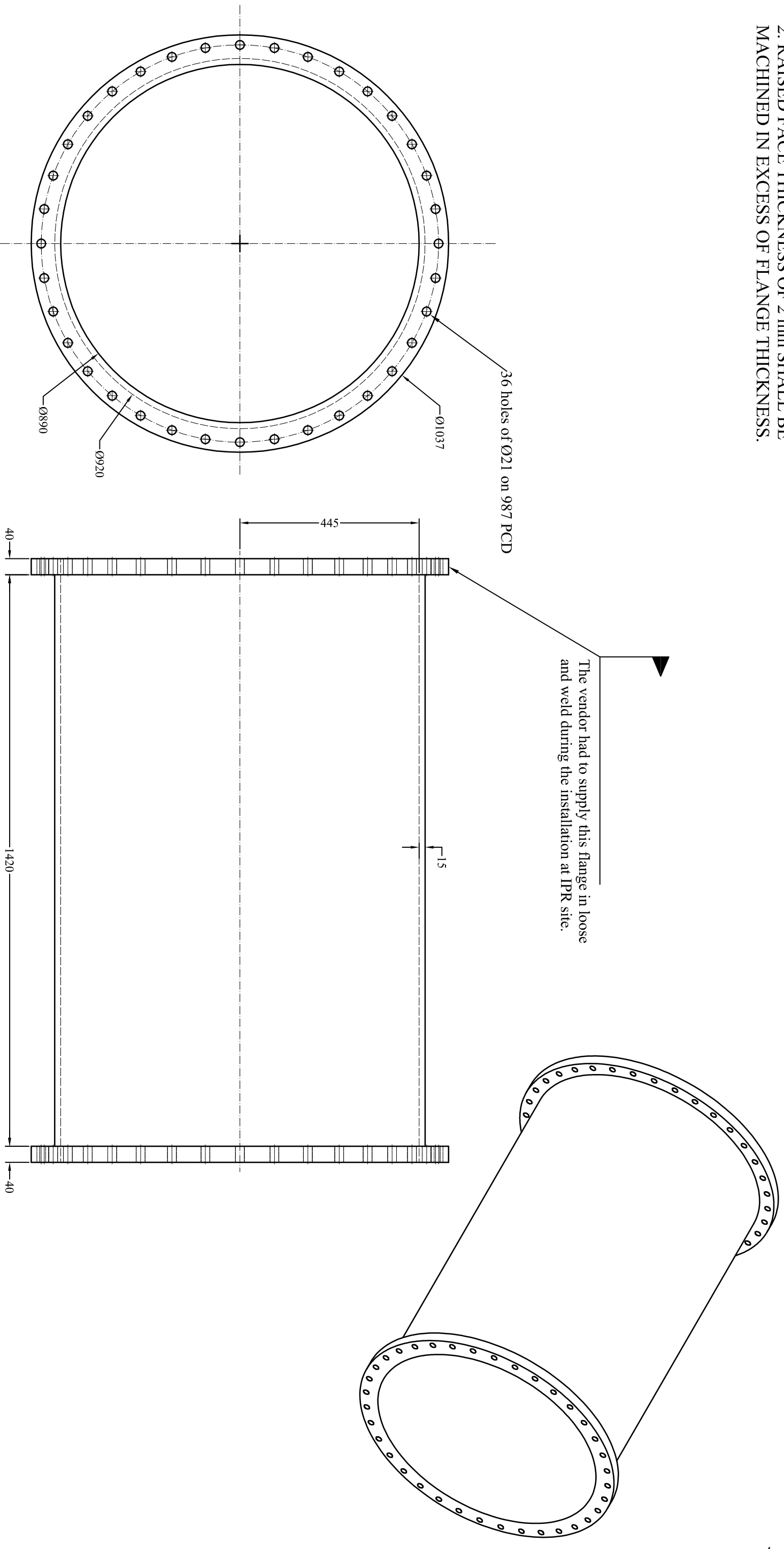
Appendix – V

The vendor has to consider to below mentioned load during support structure design.

Sr. no.	Descriptions	Load in kg
01	Load of gas inlet port	1550
02	Load of left side end flange	1700
03	Load of main rectangular chamber with thermal insulation lining	8750
04	Load of right side end flange	1700
05	Load of gas out let port	1200
06	Load of gas burner with burner block	
	Total load =	14900

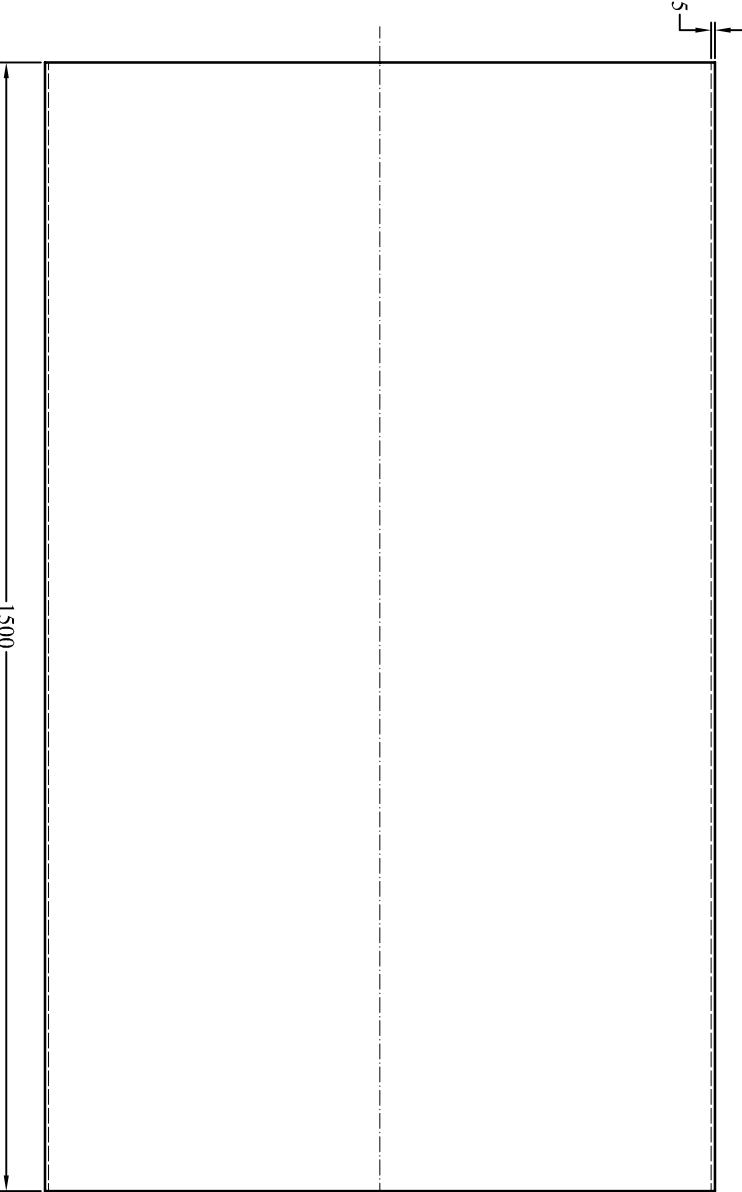
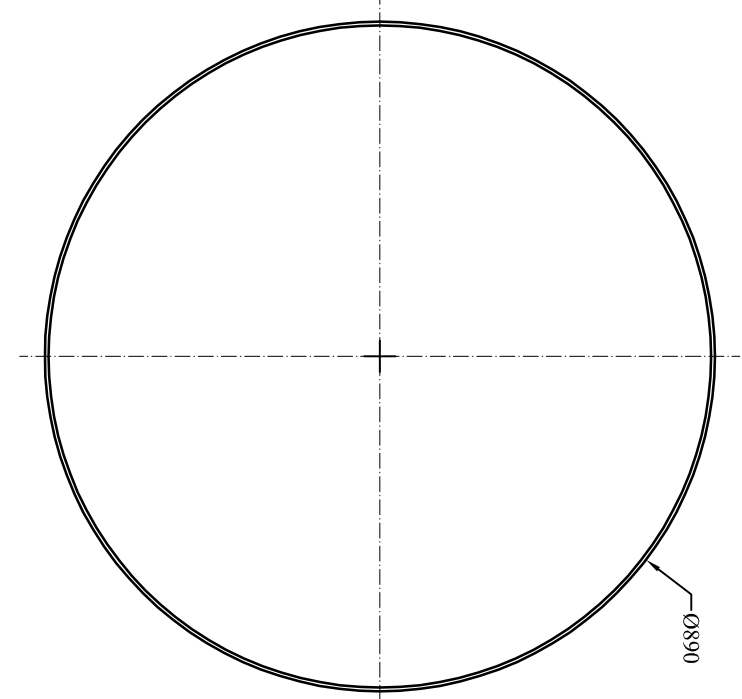
Description	Qty.	Material
Part-1	02no.	SA-516 GR -60, flange SA-105

- NOTES :-
1. INTIGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.



DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN				ASS'Y GROUP / DIVISION:	APD-IPR	SIZE	 INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	AG	
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS												
LENGTH IN mm OF SHORTER SIDE OF ANGLES												
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315				
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5				
REF DRG NO: IPR/APD/CBWT/TF200/A3/SEC/01 DRG. NO IPR/APD/CBWT/TF200/A3/SEC/01-1 TITLE SECONDARY CHAMBER-200 THIRD ANGLE PROJECTION SCALE NTS DATE DRAWN Adam 25.10.20 CHECKED Adam APPROVED Dr. M K Gupta REV 00 SHEET 1 OF 1												

Description	Qty.	Material
Part-2	02no.	Insulation layer type 3



Scale : 3:1

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 SECONDARY CHAMBER-200



ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED		
SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

REVISION COLUMN		
REV	ZONE	DESCRIPTION

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

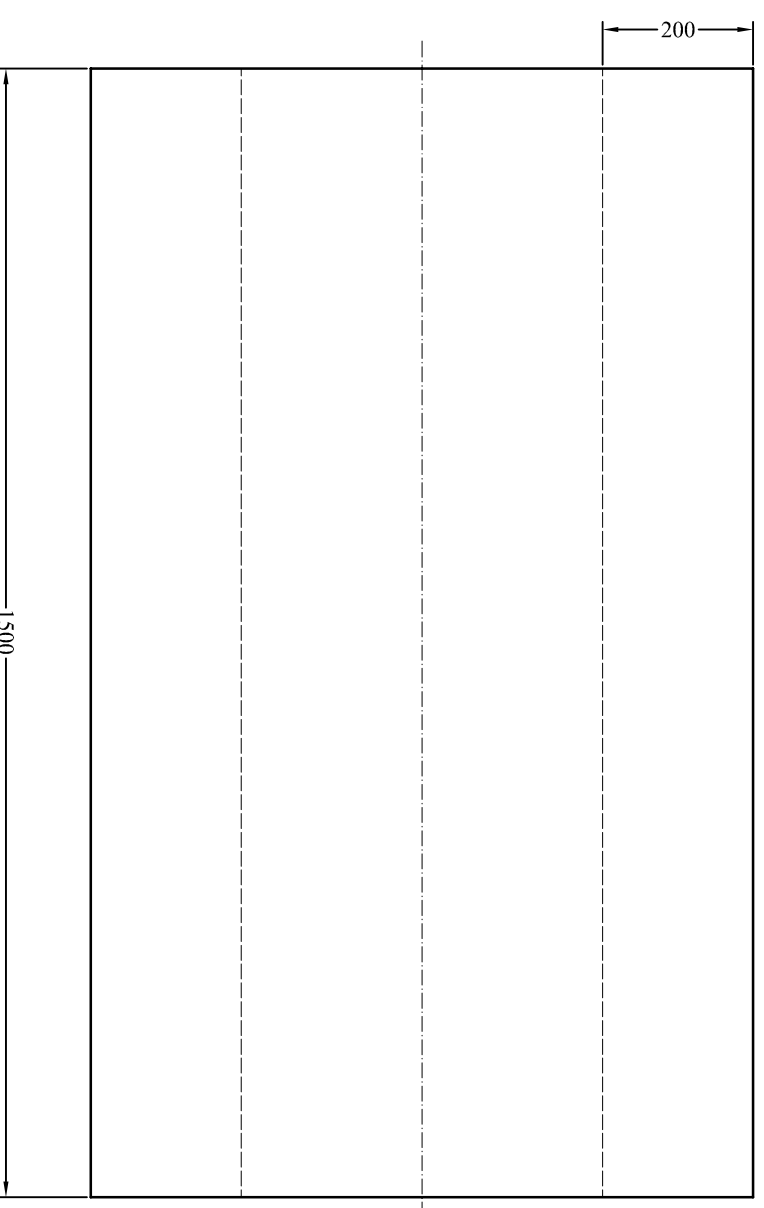
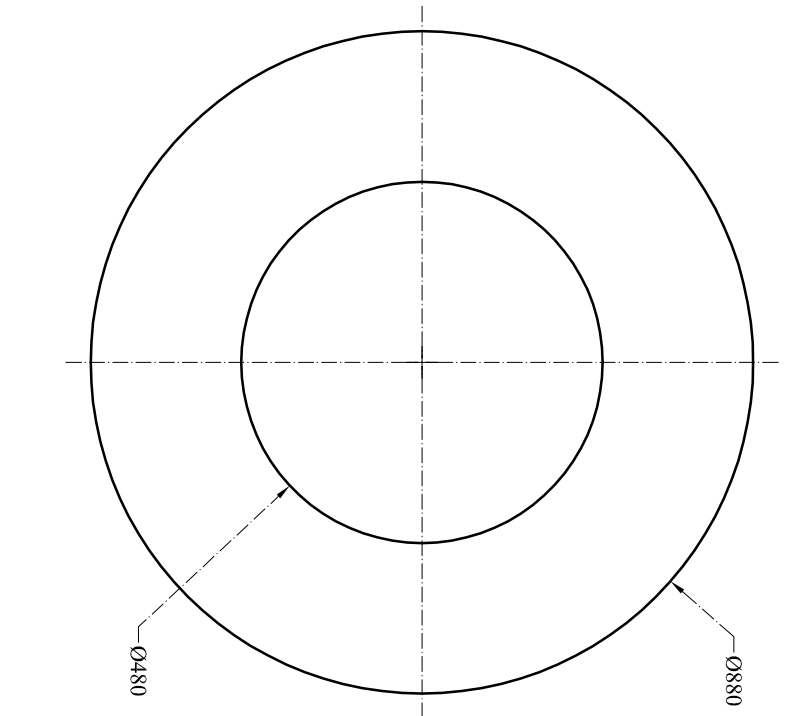
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS				
LENGTH IN mm OF SHORTER SIDE OF ANGLES				
UPTO	LENGTH	OR DIA	UPTO	UPTO
10	10-50	50-120	6-30	30-120
10	50-120	OVER 120-400	30-120	120-315
±1'	+0'-30'	+0'-20'	+0.1	+0.2
			+0.3	+0.5

H G L M D Q B A

1

1

Description	Qty.	Material
Part-3	02no.	Insulation layer type 1



Scale : 3:1

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH			
	UPTO 10	10-50	50-120	OVER 120-400
UP TO 6	±0.1	±0.2	±0.3	±0.5
OR DIA	±0.1	±0.2	±0.3	±0.5

REVISION COLUMN				
REV	ZONE	DESCRIPTION	DATE	REMARKS

ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED		
SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

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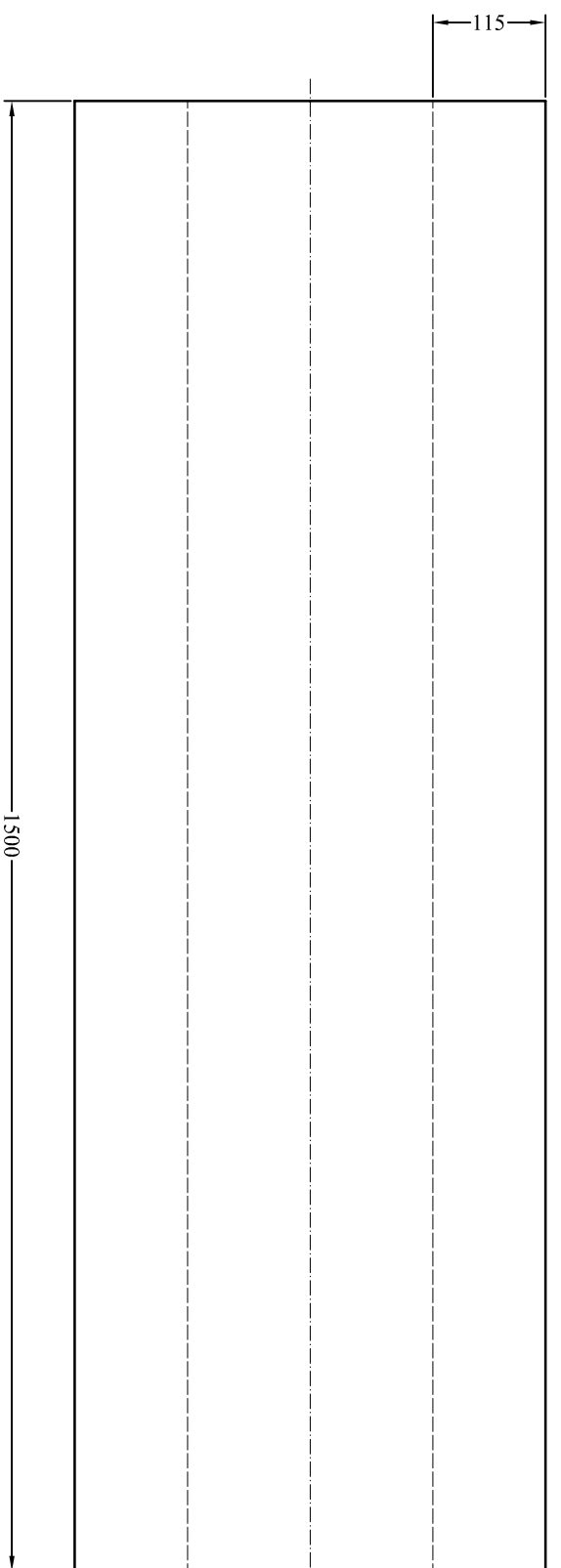
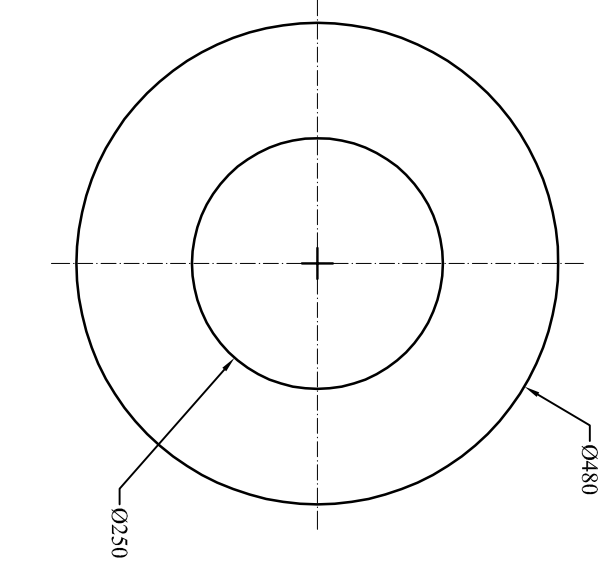
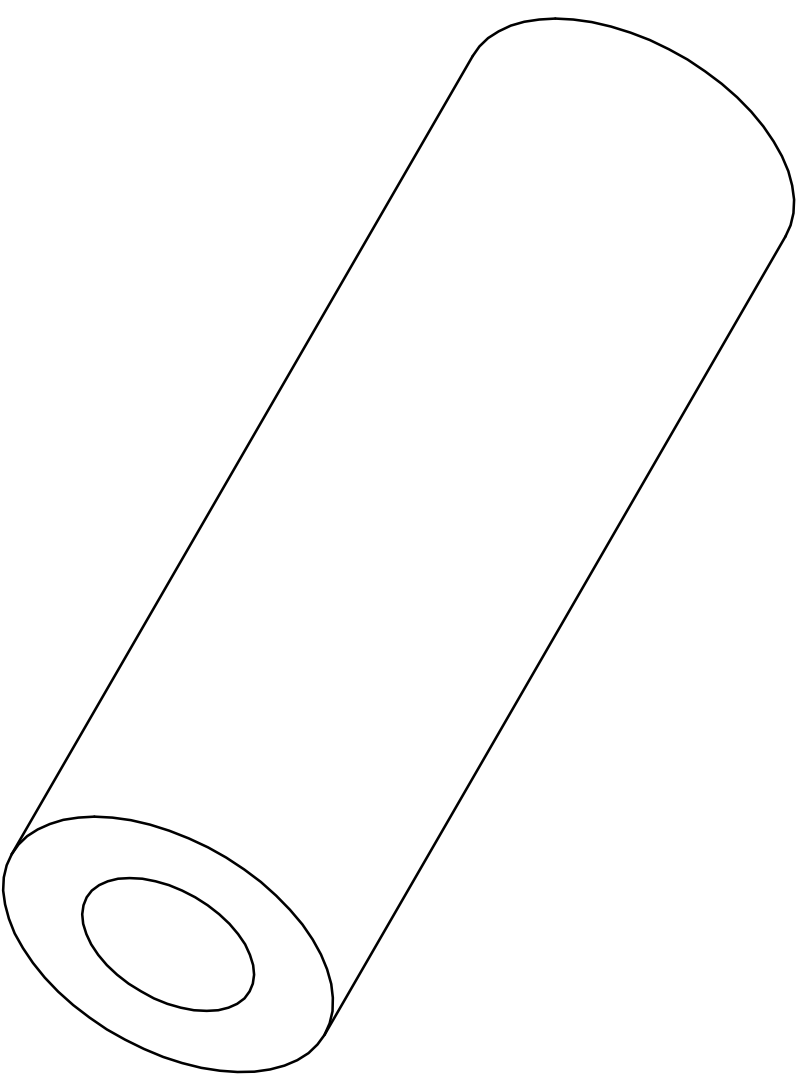
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TITLE
SECONDARY CHAMBER-200

REV 00
 SHEET 1 OF 1

H G L U D C B A

Description	Qty.	Material
Part-4	02no.	Refractory layer



Scale : 4:1

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SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

REVISION COLUMN		REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

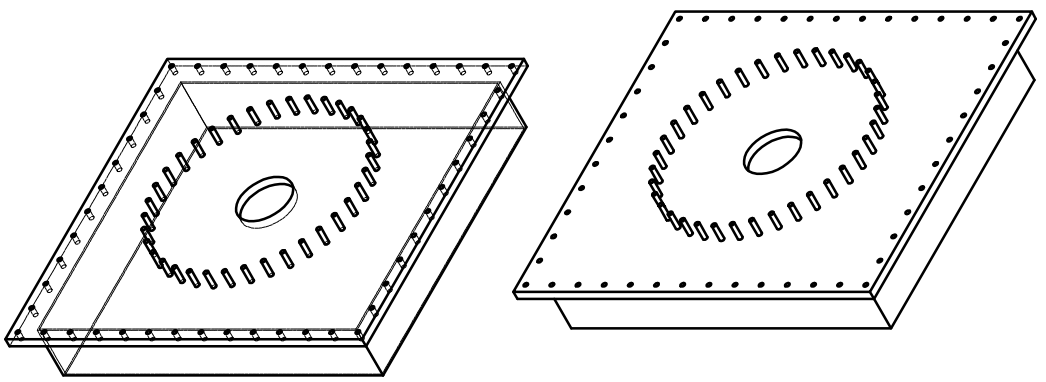
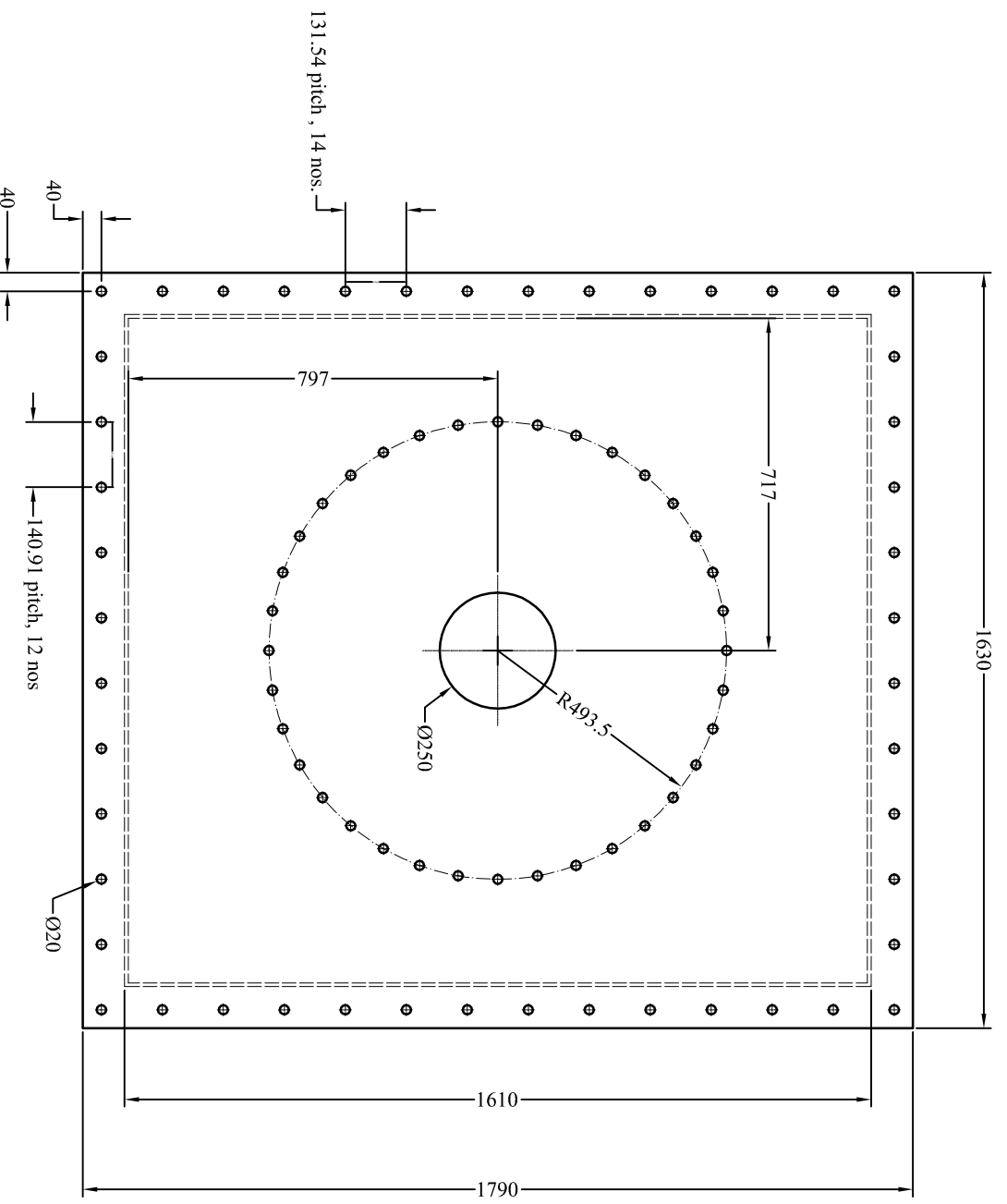
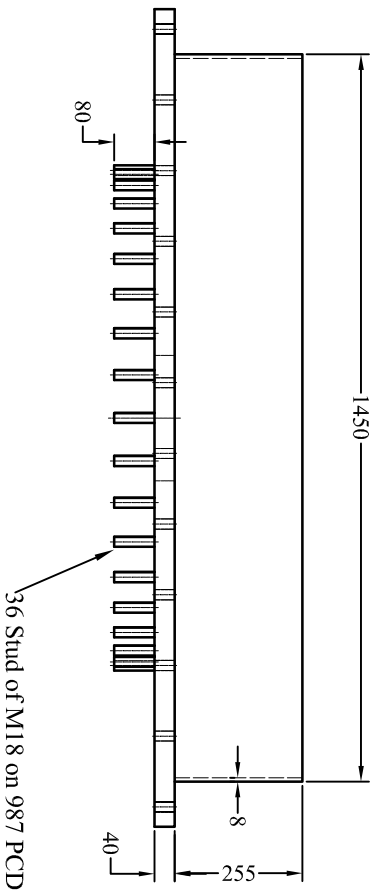
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CO-ORDINATED BY				

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS					
LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH		UP TO	30-120	120-315
	OR DIA	UP TO			
UP TO 10	10-50	50-120	OVER 120-400		
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2
				+0.3	+0.5

H G L M D C B A

Description	Qty.	Material
Part-5	01 no.	SA-516 GR -60, flange SA-105

- NOTES :-
1. INTIGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.

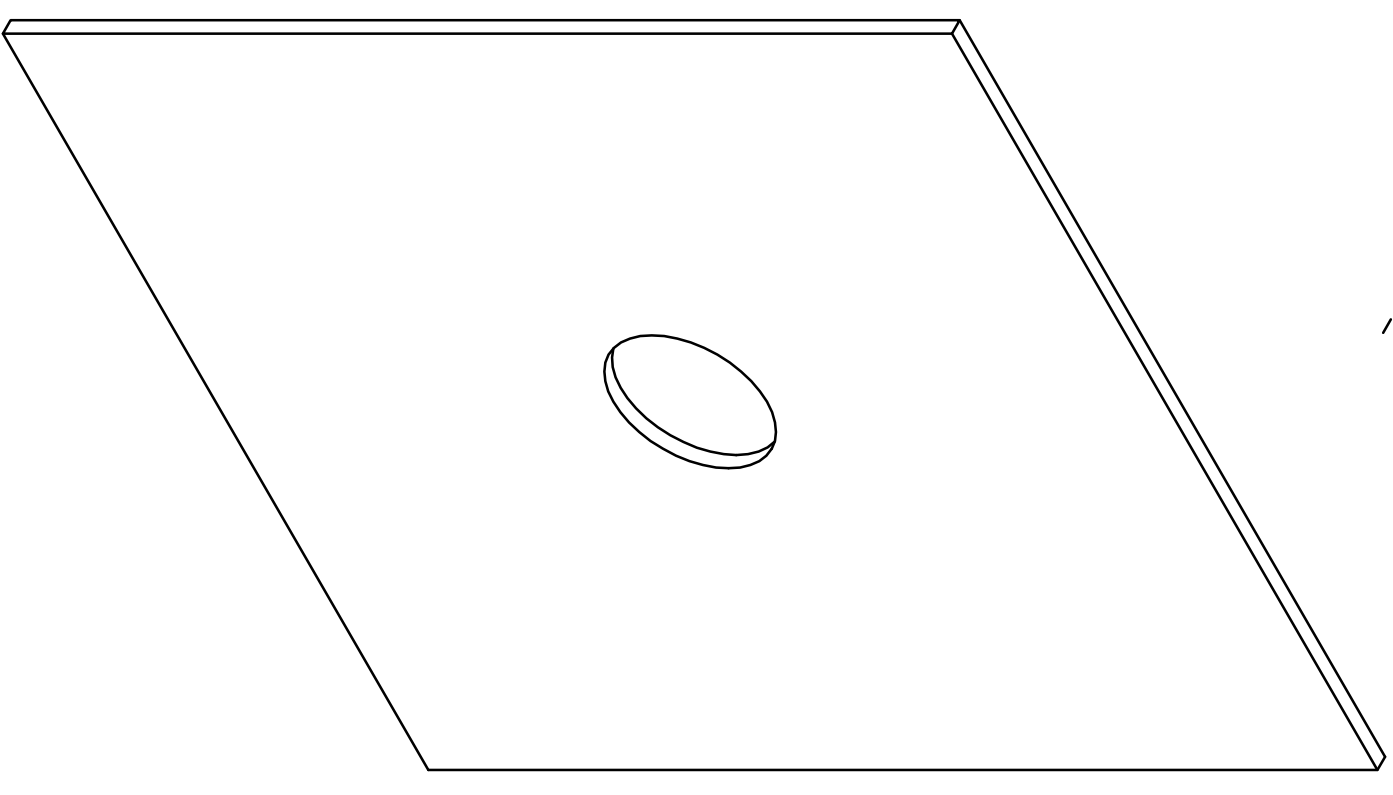
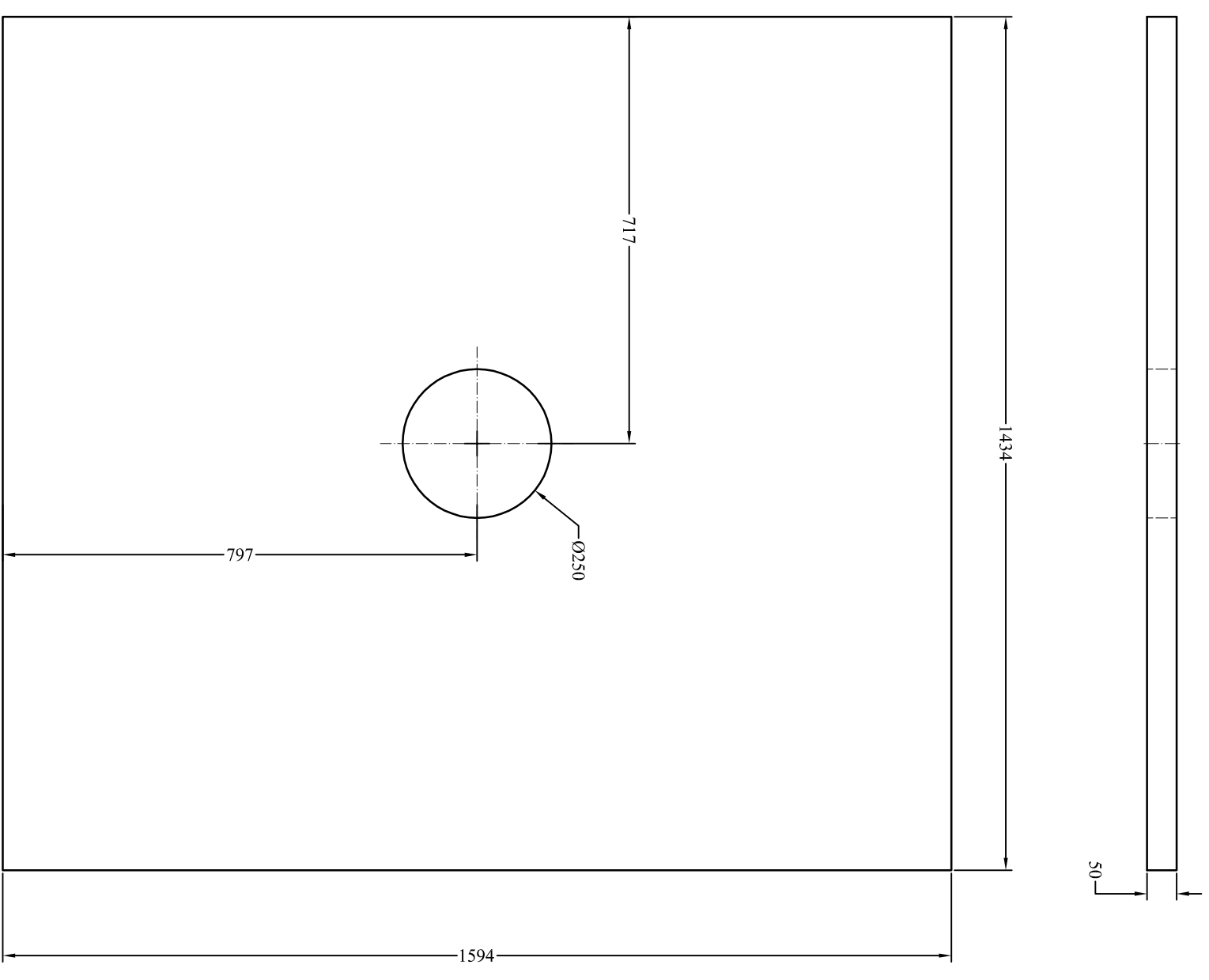


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MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS																														
LENGTH IN mm OF SHORTER SIDE OF ANGLES																														
UPTO 10	10-50	50-120	OVER 120-400																											
				LENGTH OR DIA	UPTO 6	6-30	30-120	120-315																						
±1'	+0'-30'	+0'-20'	+0'-10'		±0.1	±0.2	±0.3	±0.5																						

H G F E D C B A

Description	Qty.	Material
Part-6	01no.	Insulation layer type 2



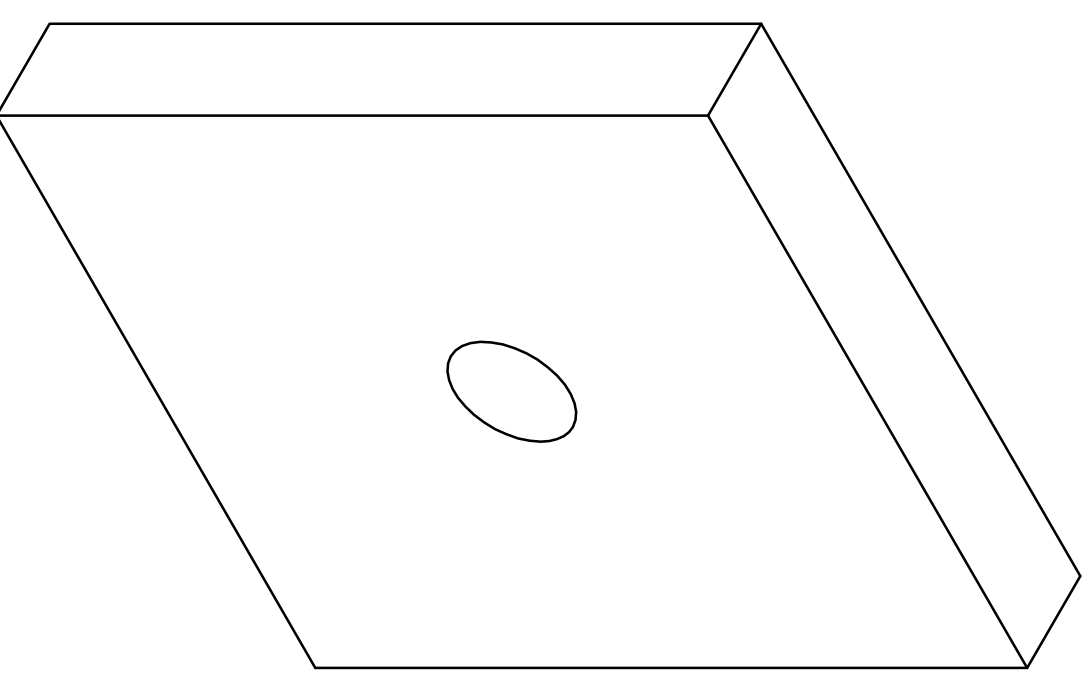
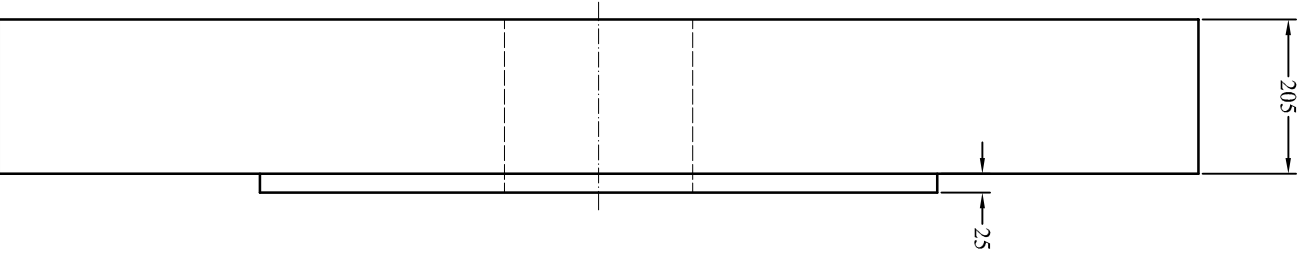
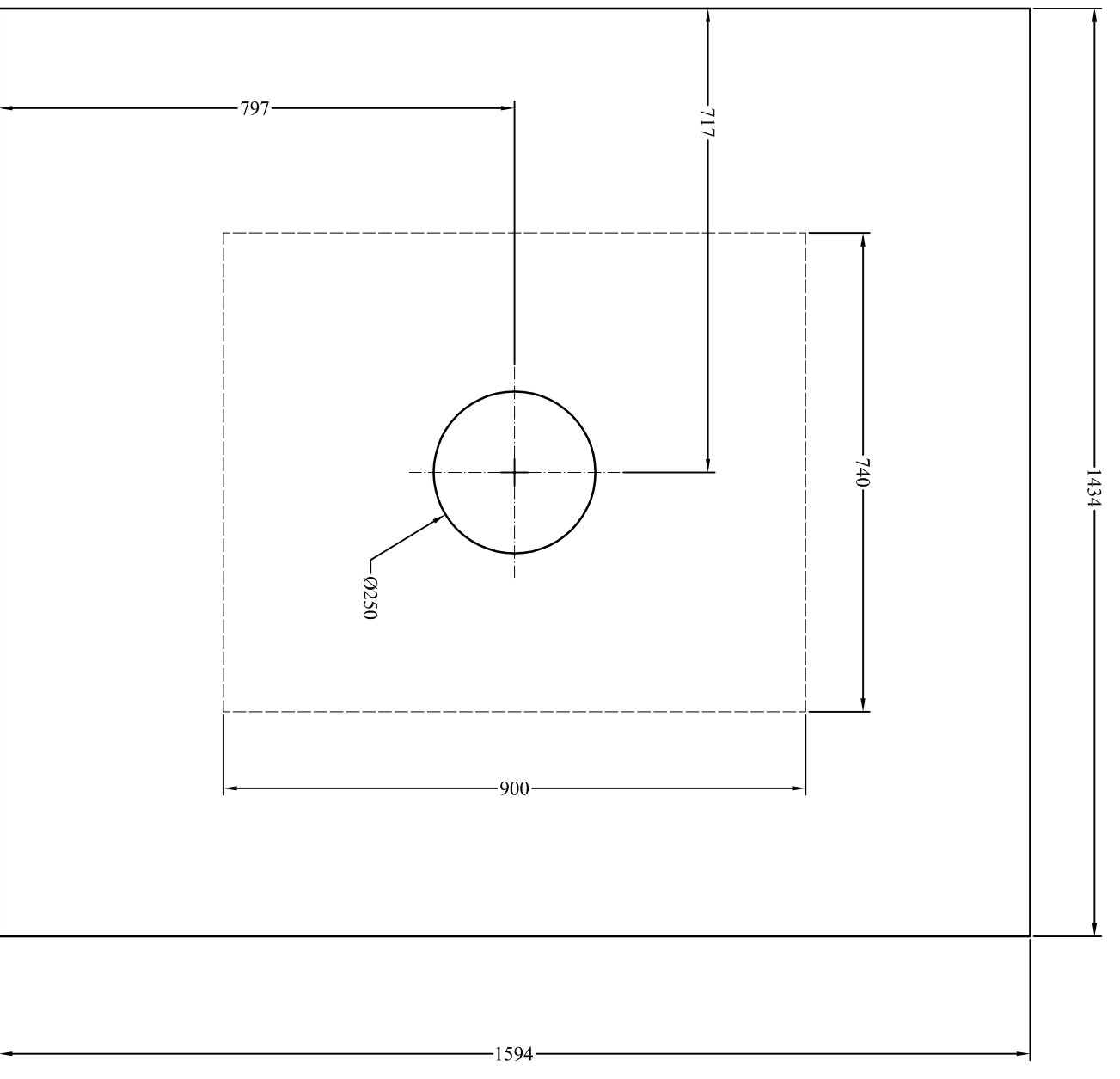
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CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	SCALE		NTS

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS																
LENGTH IN mm OF SHORTER SIDE OF ANGLES																
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315				DRAWN	Adam	25.10.20	REF DRG NO: IPR/APD/CBWT/200/A3/SEC/01	REV 00
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5				CHECKED	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	SHEET 1 OF 1

H	G	L	M	D	E	C	B	A
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Description	Qty.	Material
Part-7	01no.	Insulation layer type 1



Scale : 3:1

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TITLE
SECONDARY CHAMBER-200



THIRD ANGLE PROJECTION

ASS'Y GROUP / DIVISION:
 APD-IPR
 SIZE A3

ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED

SCALE
 NTS
 DATE

DRAWN
 Adam
 25.10.20

CHECKED
 Adam
 25.10.20

APPROVED
 Dr. M K Gupta

REF DRG NO: IPR/APD/CBWT/200/A3/SEC/01
 DRG.NO IPR/APD/CBWT/200/A3/SEC/01-7

REV 00
 SHEET 1 OF 1

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

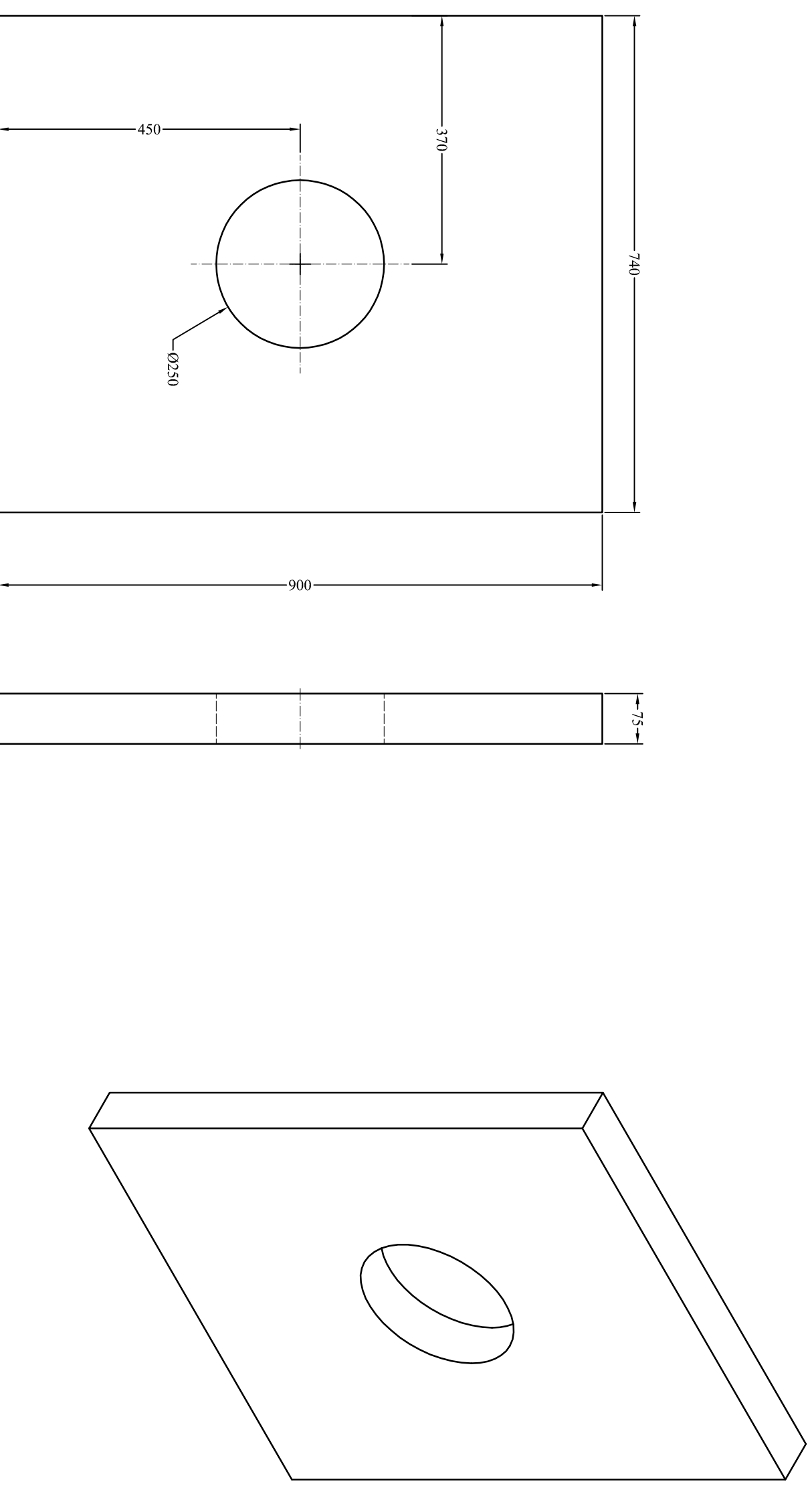
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CO-ORDINATED BY					

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN MM OF SHORTER SIDE OF ANGLES		LENGTH OR DIA	UPTO 6	6-30	30-120	120-315
UPTO 10	10-50	50-120	OVER 120-400			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3
-1'	-0'-30'	-0'-20'	-0'-10'	+0.1	+0.2	+0.3

H G F E D C B A

Description	Qty.	Material
Part-8	01no.	Refractory layer



Scale : 4:1

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TITLE
SECONDARY CHAMBER-200

ASS'Y GROUP / DIVISION:
 APD-JPR
 SIZE A3
 ALL DIMENSIONS ARE IN 'mm'
 UNLESS OTHERWISE STATED

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH				UP TO 6	6-30	30-120	120-315
	UP TO 10	10-50	50-120	OVER 120-400				
±1'	+0'-30'	+0'-20'	+0'-10'		±0.1	±0.2	±0.3	±0.5

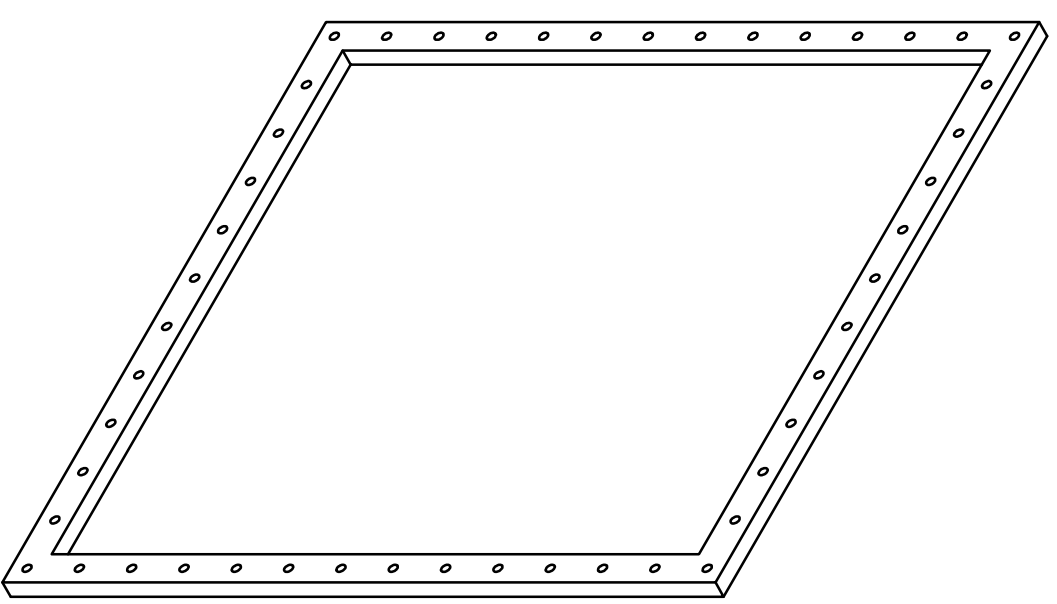
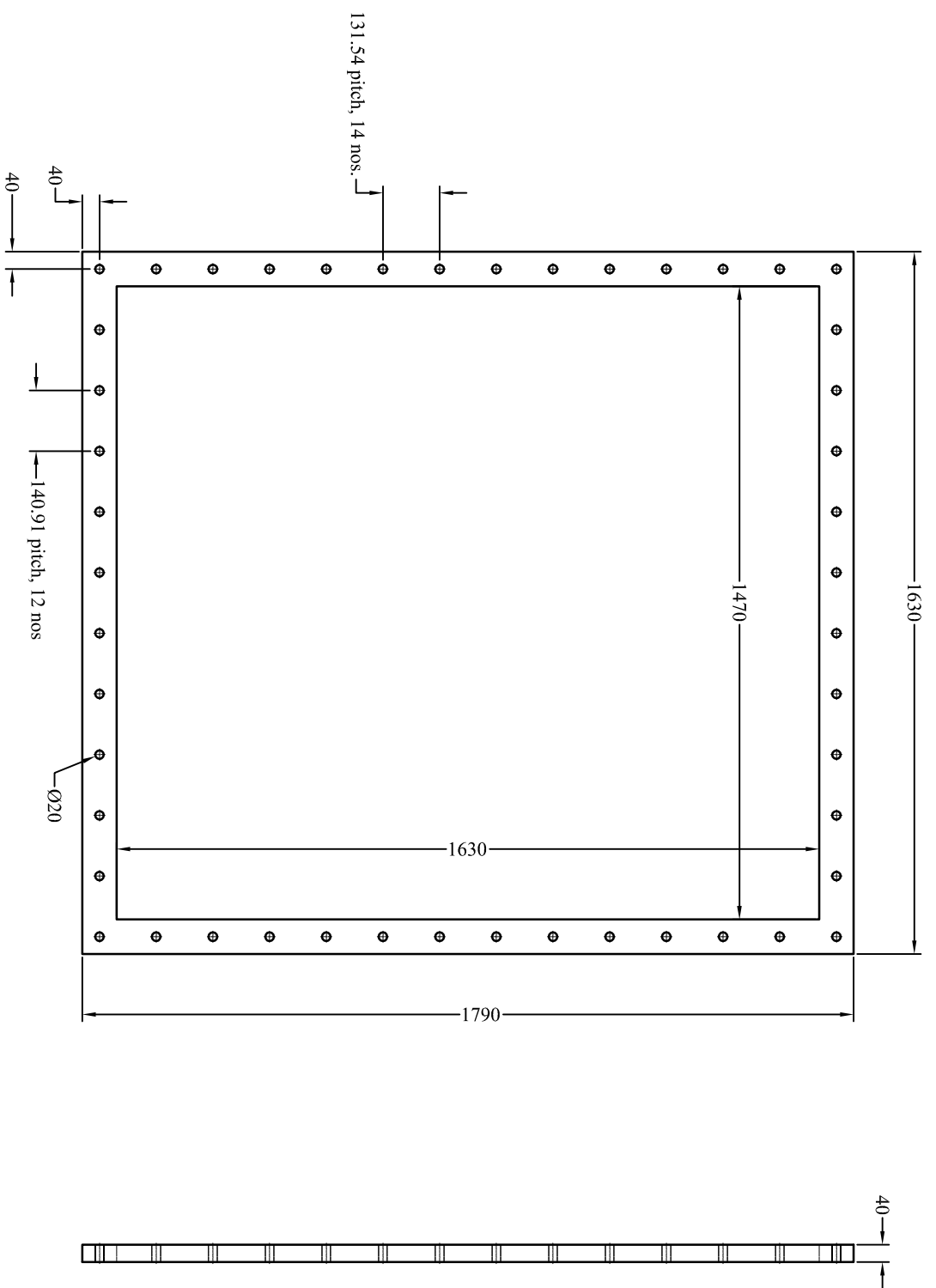
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SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

REF DRG NO:	IPR/APD/CBWT200/A3/SEC/01	REV	00
DRG.NO	IPR/APD/CBWT200/A3/SEC/01-8	SHEET	1 OF 1

H G L M D C B A

Description	Qty.	Material
Part-9	02no.	SA-105

- NOTES :-
1. INTIGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.

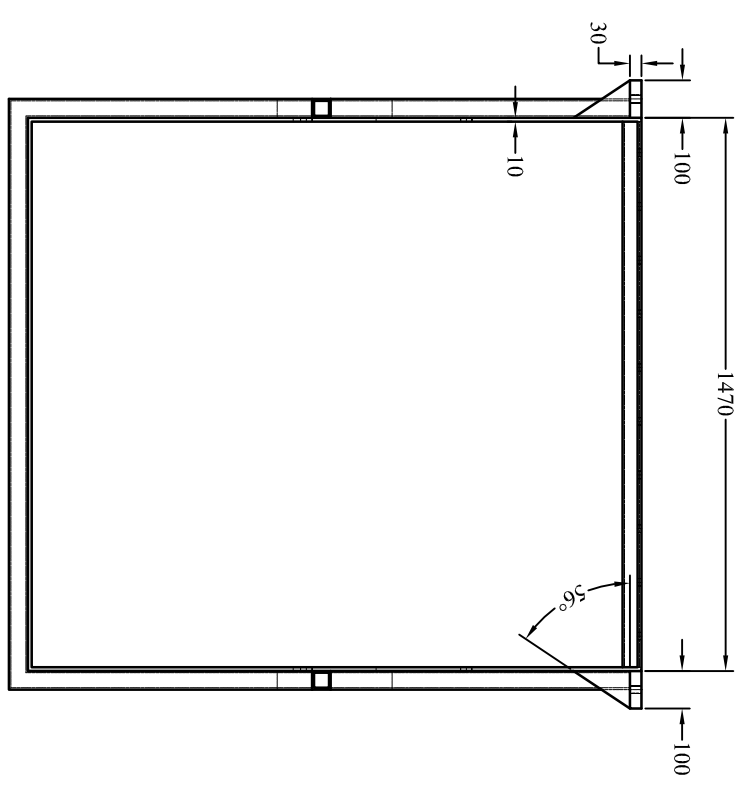
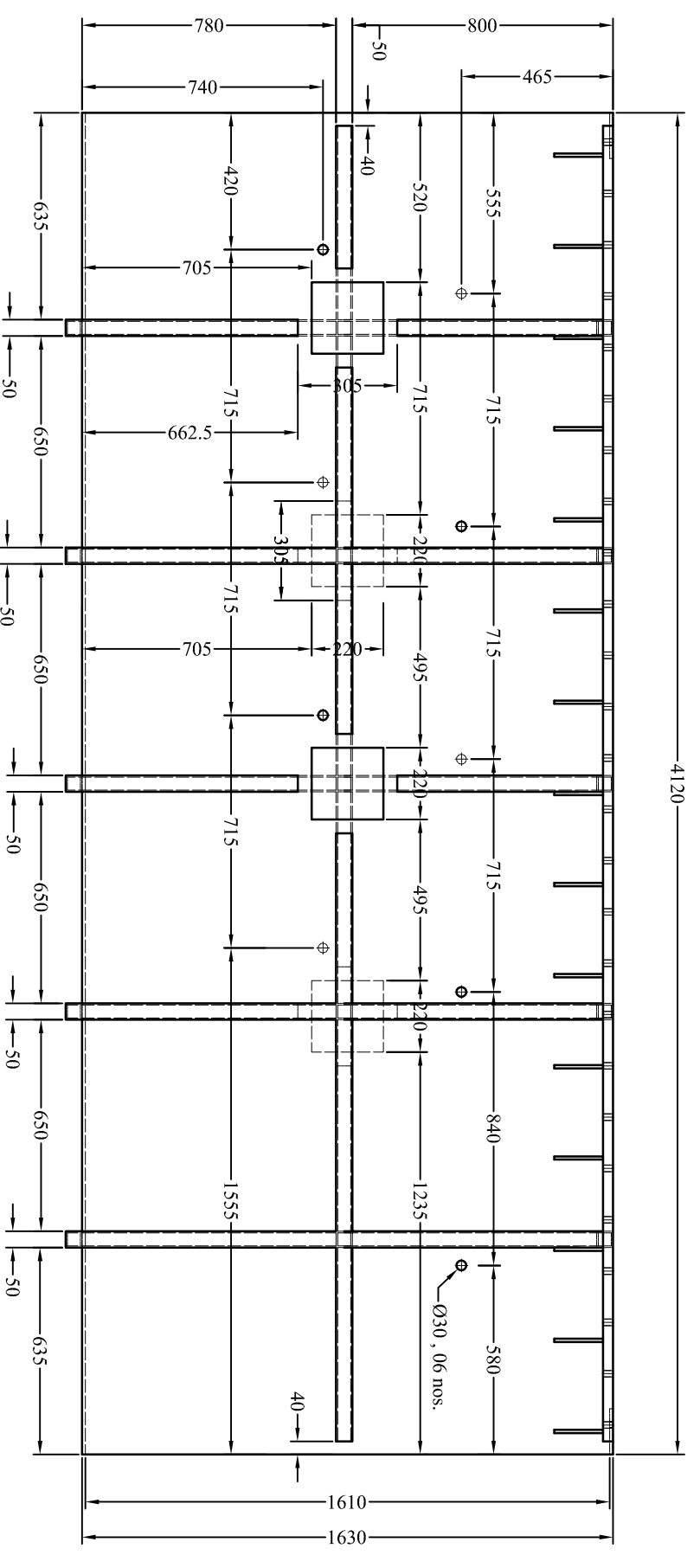
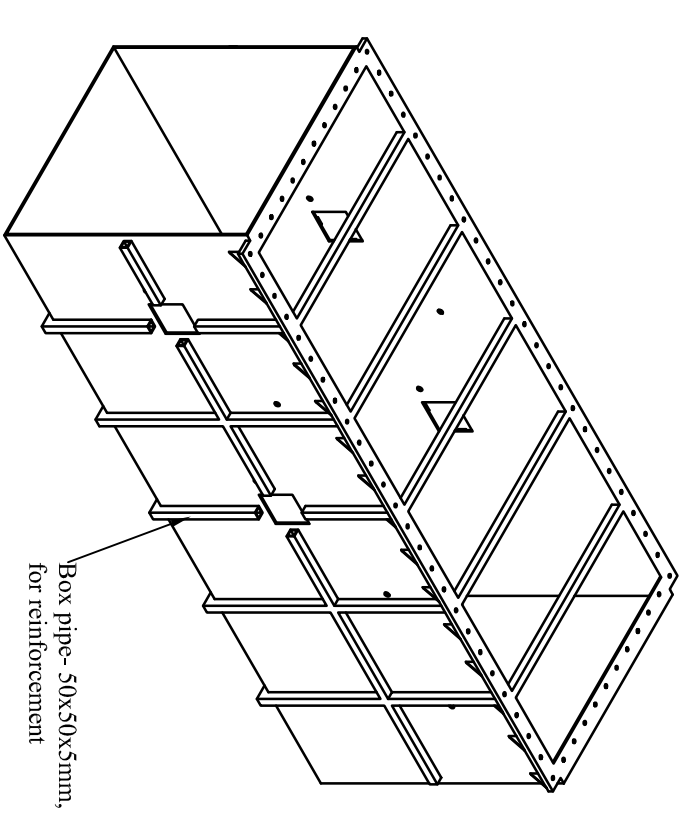
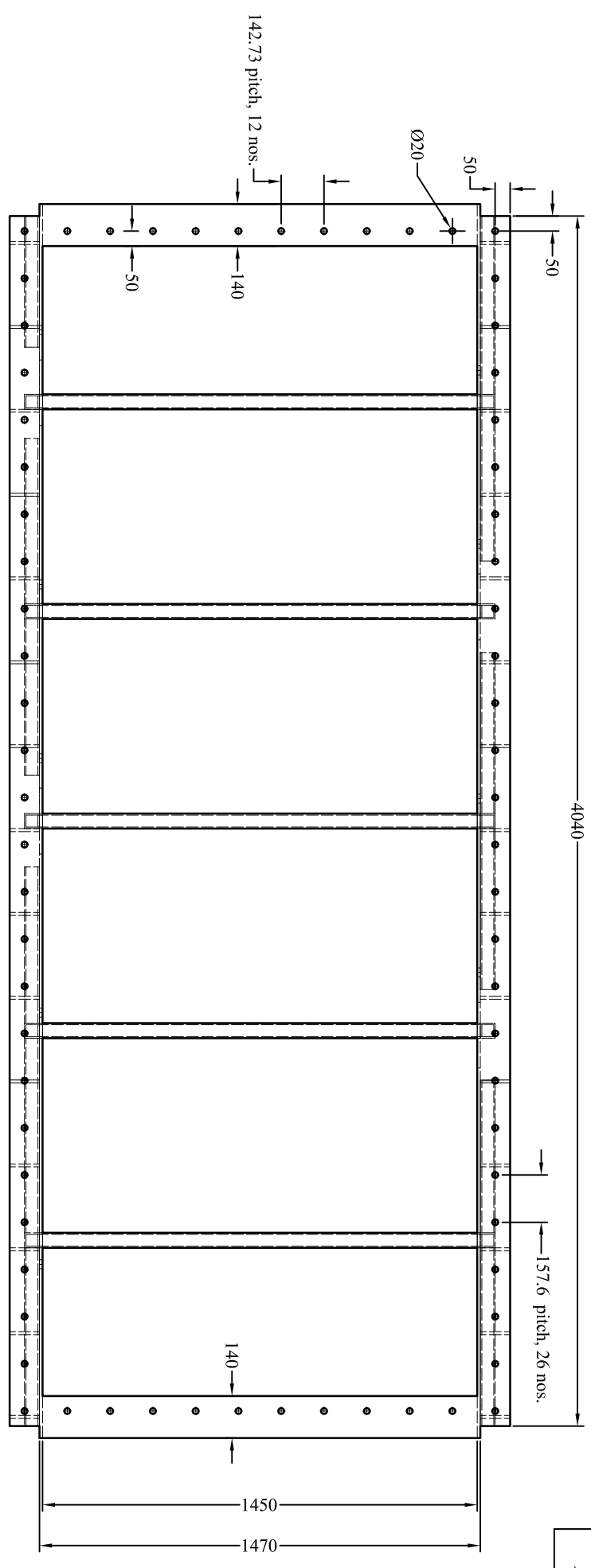


Scale : 2:1

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CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	TITLE
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS											SECONDARY CHAMBER-200
LENGTH IN mm OF SHORTER SIDE OF ANGLES											
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315			
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5			
							SCALE	NTS	DATE	REF DRG NO:	DRG. NO
							DRAWN	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	IPR/APD/CBWT/200/A3/SEC/01-9
							CHECKED	Adam			
							APPROVED	Dr. M K Gupta			
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H G F E D C B A

Description	Qty.	Material
Part-10	01no.	SA-516 GR -60, flange SA-105



Scale : 1.5:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN	REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY
CO-ORDINATED BY											

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS											
LENGTH IN MM OF SHORTER SIDE OF ANGLES											
UPTO 10	10-50	50-120	OVER 120-400	LENGTH	UPTO 6	6-30	30-120	120-315			
±1'	+0'-30'	+0'-20'	+0'-10'	OR DIA	±0.1	±0.2	±0.3	±0.5			

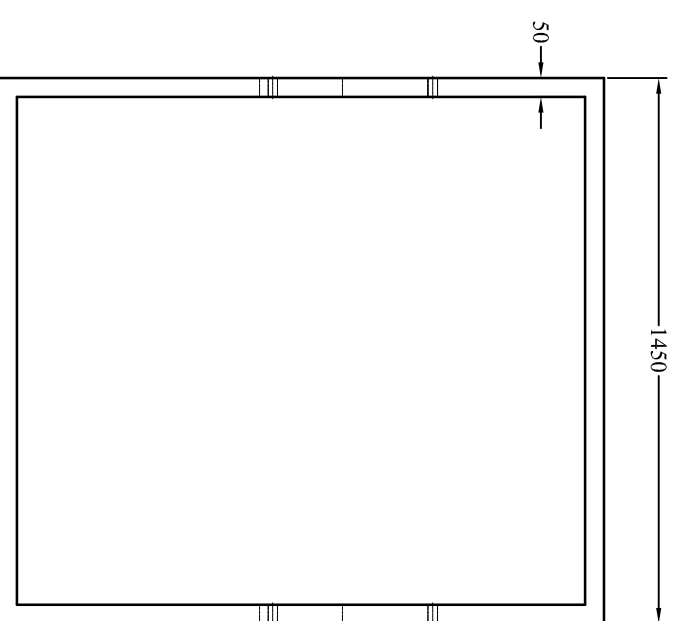
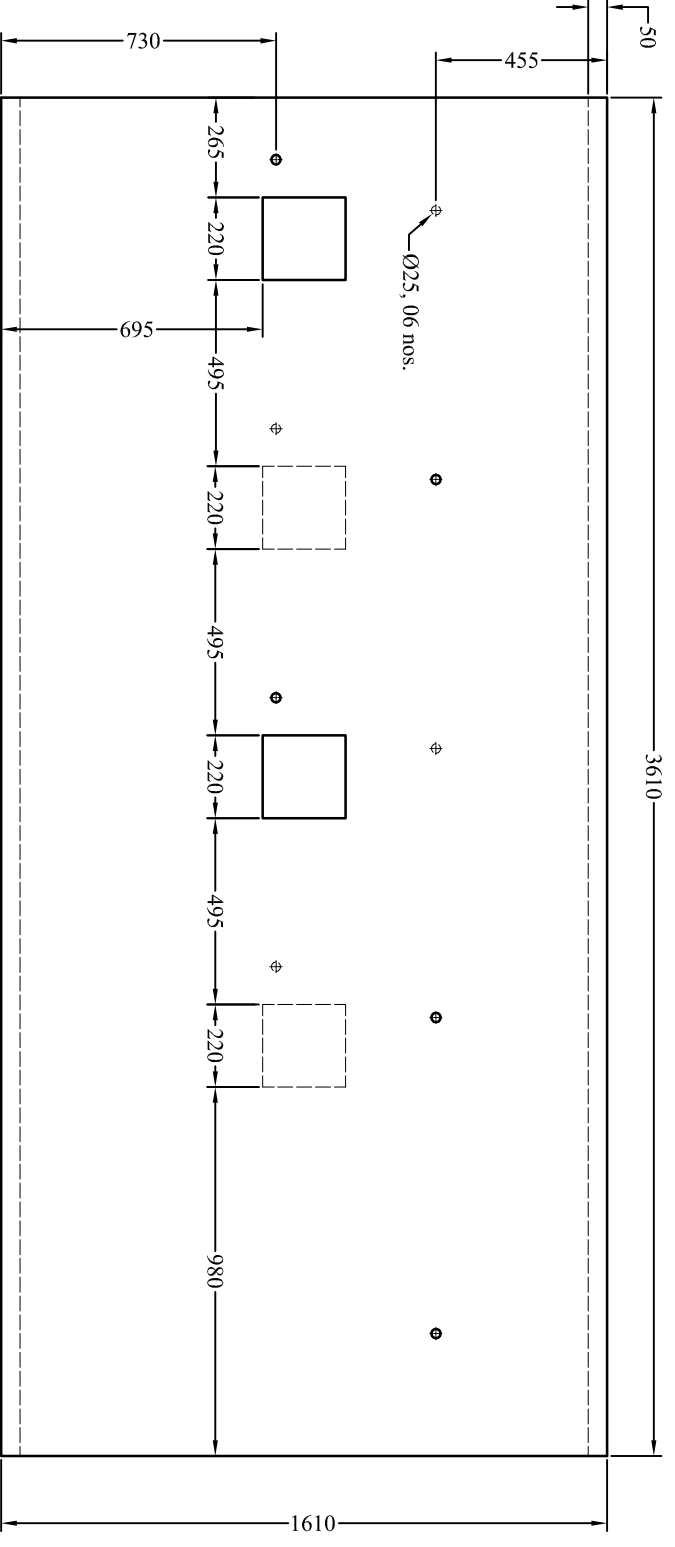
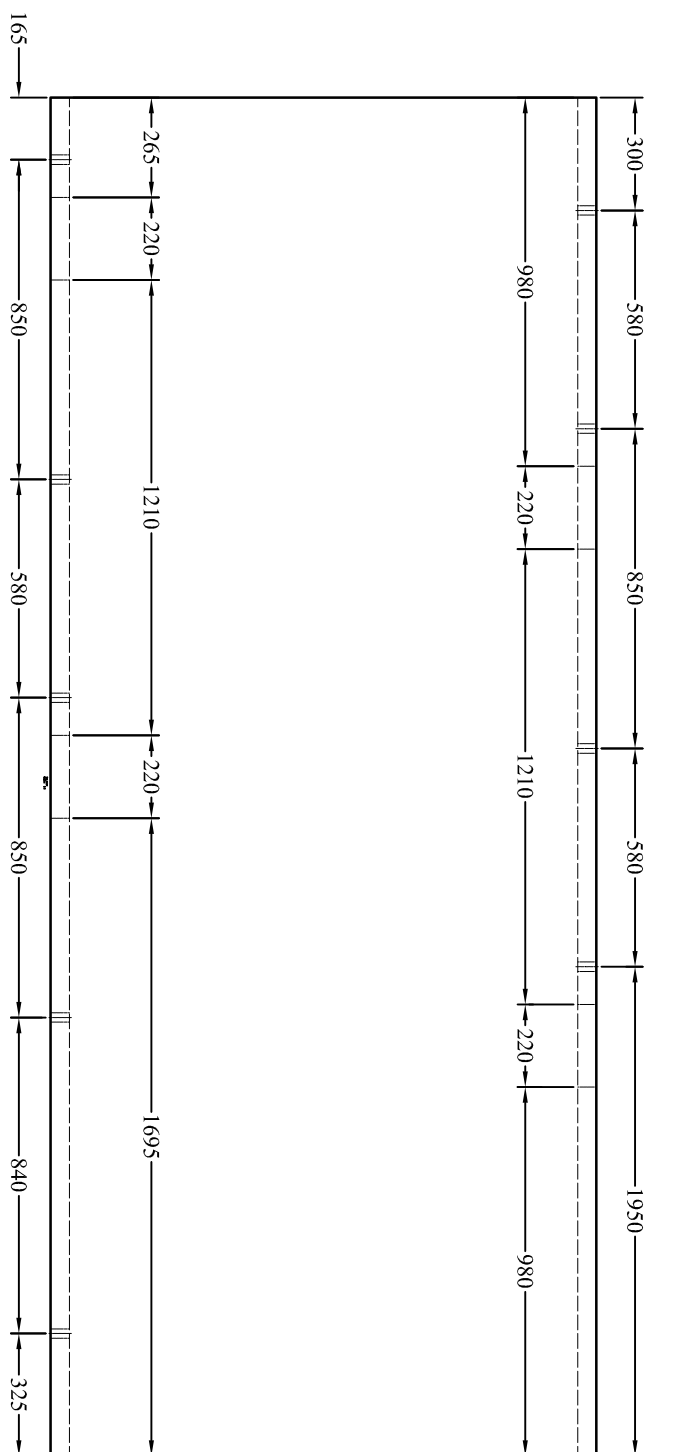
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ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED	NTS	DATE 25.10.20	DRG. NO IPR/APD/CBWT/200/A3/SEC/01-10	SHEET 1 OF 1
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CHECKED Adam	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	00
APPROVED Dr. M K Gupta	Dr. M K Gupta		IPR/APD/CBWT/200/A3/SEC/01-10	1

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SECONDARY CHAMBER-200

THIRD ANGLE PROJECTION

Description	Qty.	Material
Part-11	01no.	Insulation layer type 2



Scale : 1.5:1

INSTITUTE FOR PLASMA RESEARCH
BHAT, GANDHINAGAR-382 428.
INDIA

TITLE
SECONDARY CHAMBER-200

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN

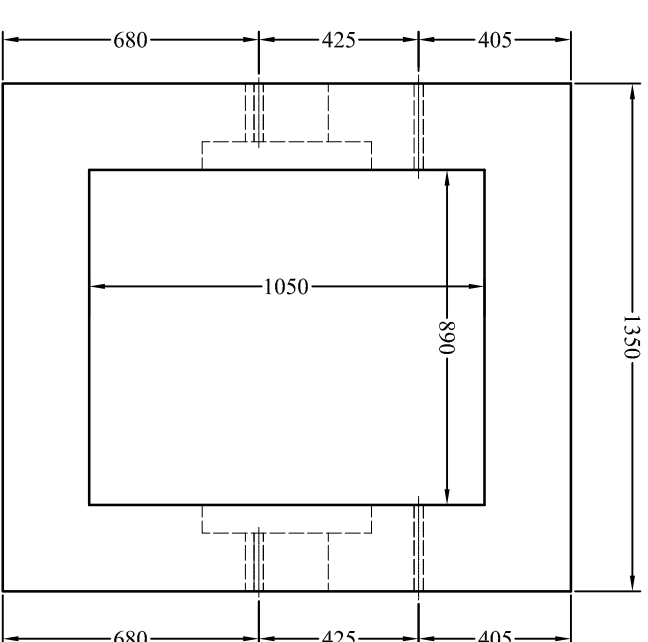
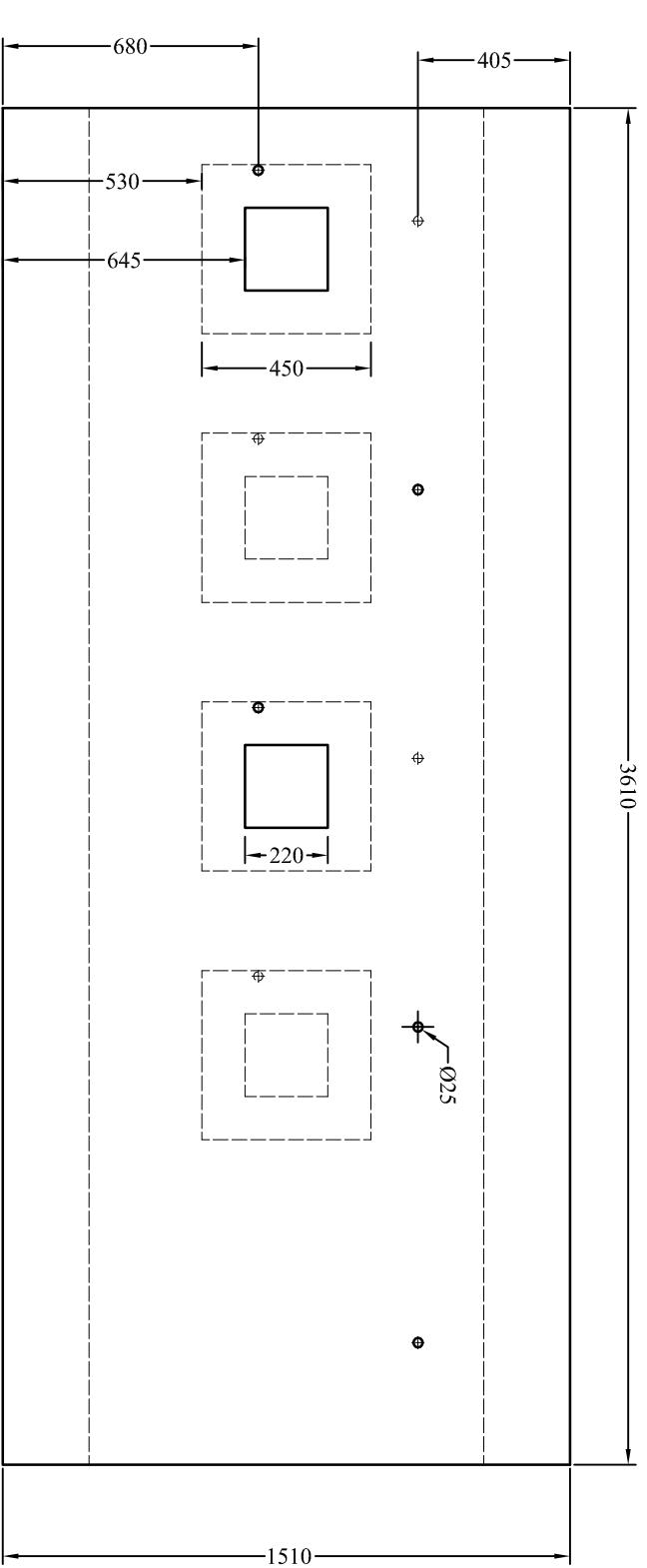
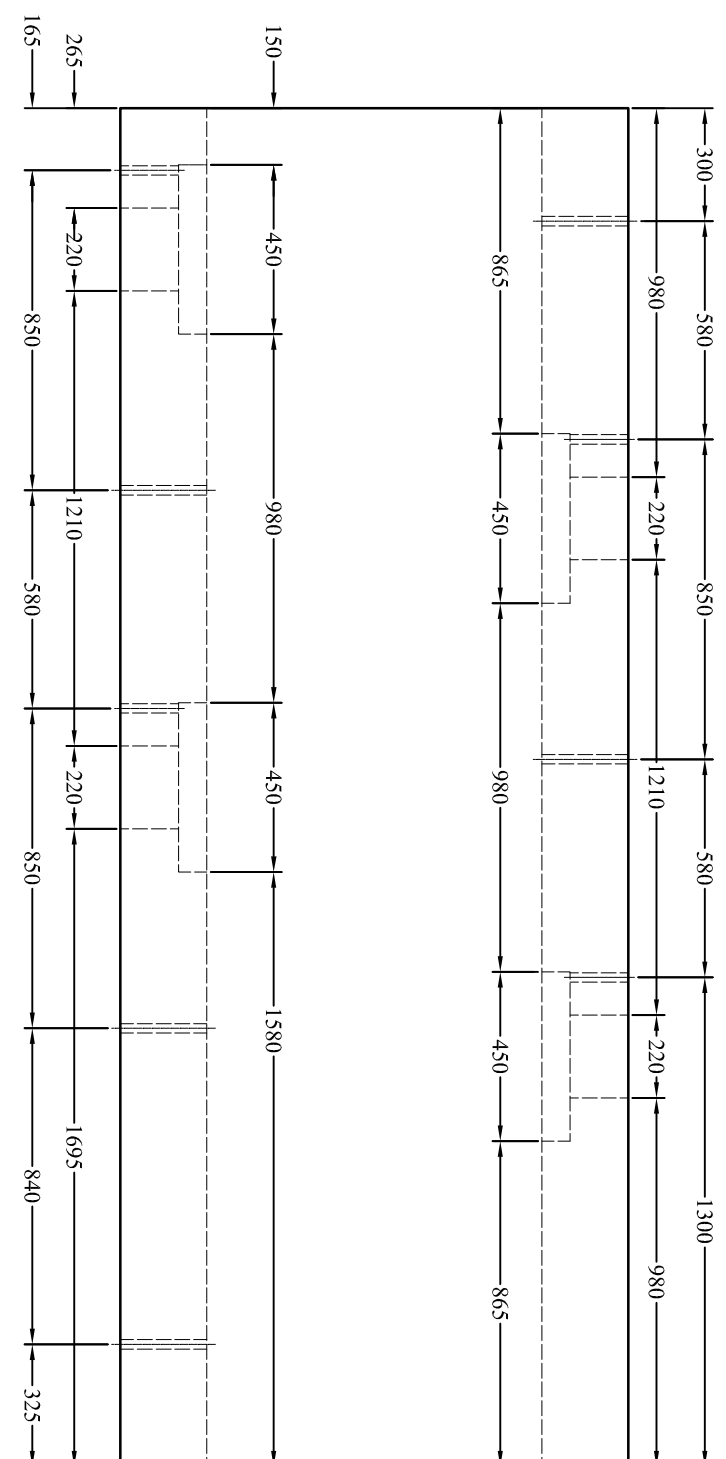
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN MM OF SHORTER SIDE OF ANGLES	LENGTH		UP TO 6	6-30	30-120	120-315
	OR DIA	UP TO 6				
UP TO 10	10-50	50-120	OR			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.2	+0.3	+0.5

ASS'Y GROUP / DIVISION:	APD-IPR	SIZE A3	SCALE	NTS	DATE	REF DRG NO:	DRG. NO	REV
						IPR/APD/CBWT/200/A3/SEC/01	IPR/APD/CBWT/200/A3/SEC/01-11	1 OF 1

H G L U D C B A

Description	Qty.	Material
Part-12	01no.	Insulation layer type 1



Scale : 1.5:1

INSTITUTE FOR PLASMA RESEARCH
BHAT, GANDHINAGAR-382 428.
INDIA

TITLE
SECONDARY CHAMBER-200

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

REVISION COLUMN

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES		LENGTH OR DIA	UPTO 6	6-30	30-120	120-315
UPTO 10	10-50	50-120	OVER 120-400			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3
-1'	-0'-30'	-0'-20'	-0'-10'	+0.1	+0.2	+0.5

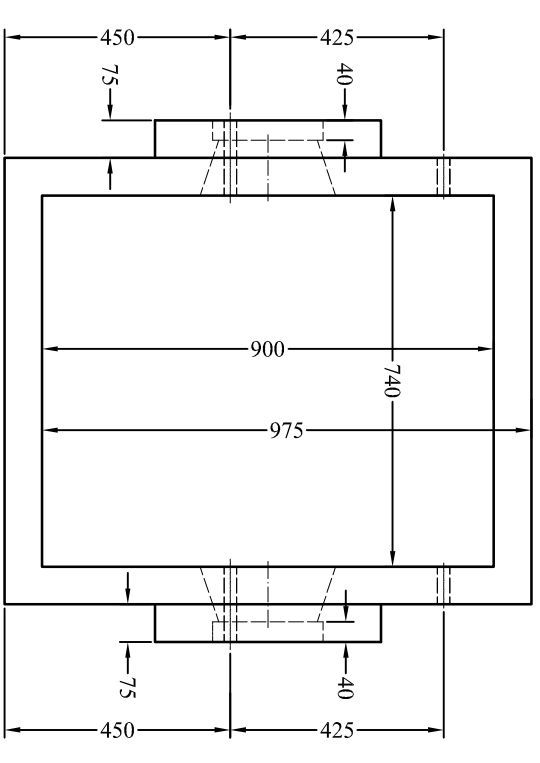
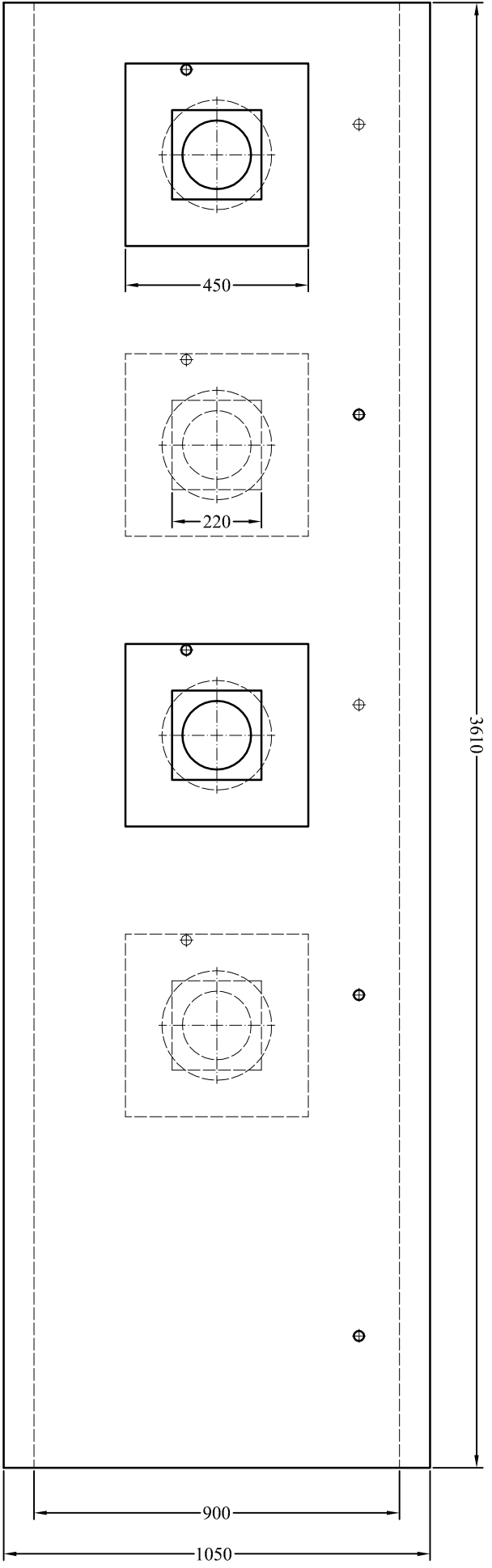
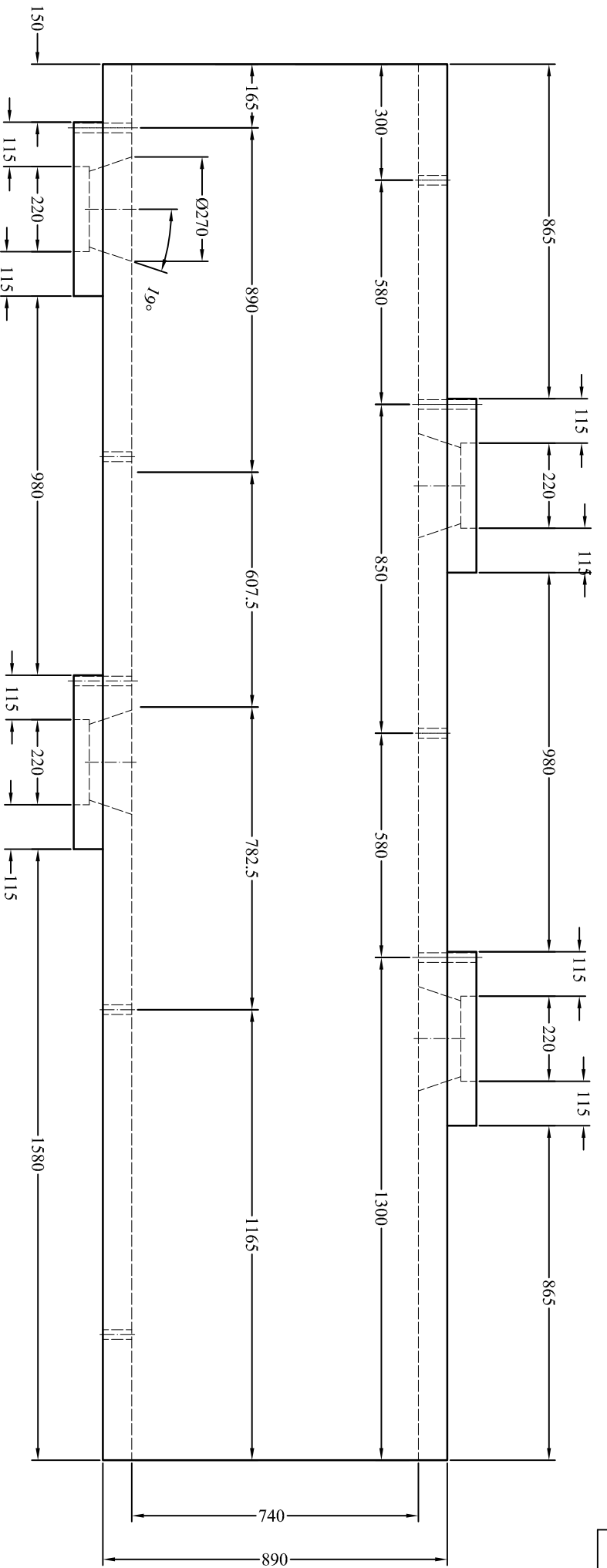
ASS'Y GROUP / DIVISION:	APD-IPR	SIZE A3
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED		
SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

REF DRG NO: IPR/APD/CBWTTF200/A3/SEC/01

DRG.NO	IPR/APD/CBWTTF200/A3/SEC/01-12	REV	00
SHEET	1	OF	1

H G L U D C B A

Description	Qty.	Material
Part-13	01no.	Refractory layer



Scale : 2:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN			
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

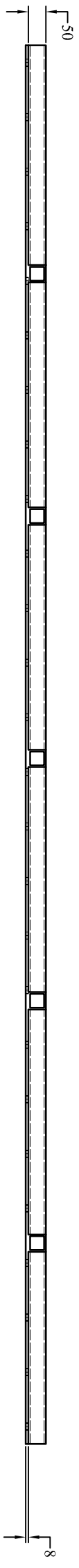
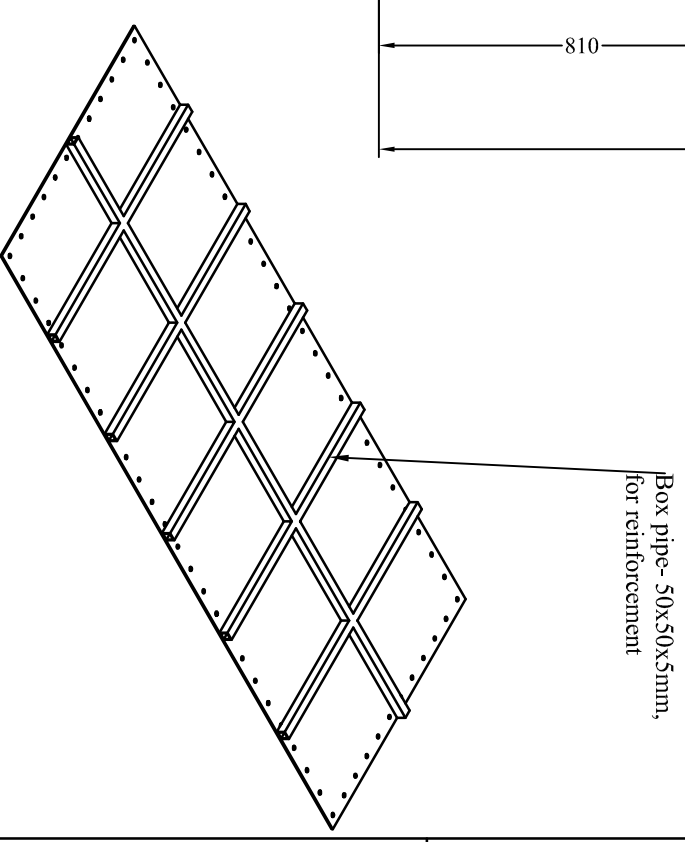
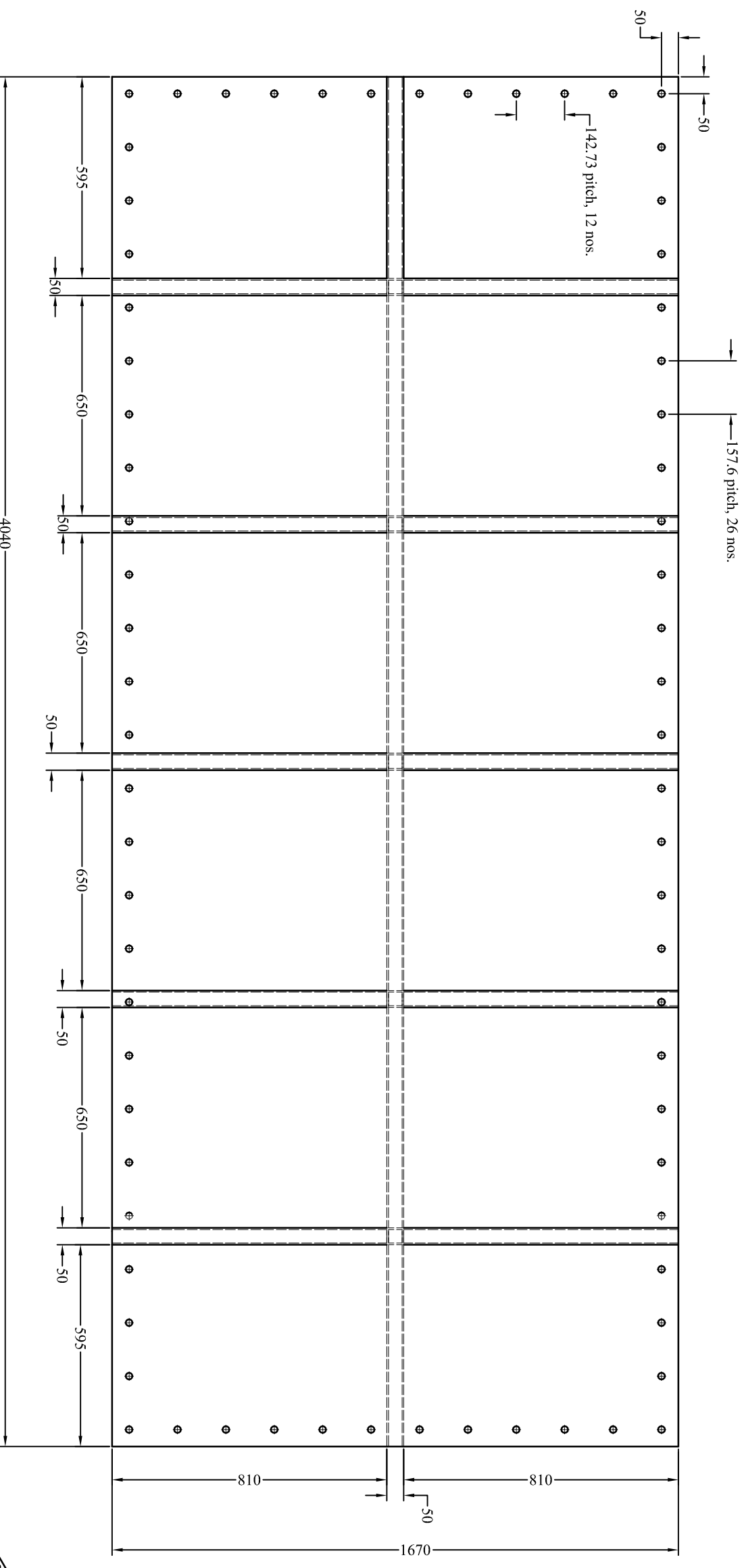
LENGTH IN MM OF SHORTER SIDE OF ANGLES		LENGTH OR DIA	UPTO 6	6-30	30-120	120-315
UPTO 10	10-50	50-120	OVER 120-400			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3
						+0.5

ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3	
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED			
SCALE	NTS	DATE	INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA
DRAWN	Adam	25.10.20	
CHECKED	Adam	25.10.20	SECONDARY CHAMBER-200
APPROVED	Dr. M K Gupta		

REF DRG NO:	IPR/APD/CBWT/200/A3/SEC/01	REV	00
DRG. NO	IPR/APD/CBWT/200/A3/SEC/01-13	SHEET	1 OF 1

H G F E D C B A

Description	Qty.	Material
Part-14	01no.	SA-516 GR -60



Scale : 2:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN					
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN MM OF SHORTER SIDE OF ANGLES				LENGTH OR DIA	UP TO 6	6-30	30-120	120-315
UP TO 10	10-50	50-120	OVER 120-400					
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5

DRG. NO	IPR/APD/CBWT/200/A3/SEC/01	REV	00
DRG. NO	IPR/APD/CBWT/200/A3/SEC/01-14	REV	1 OF 1

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA

TITLE
 SECONDARY CHAMBER-200



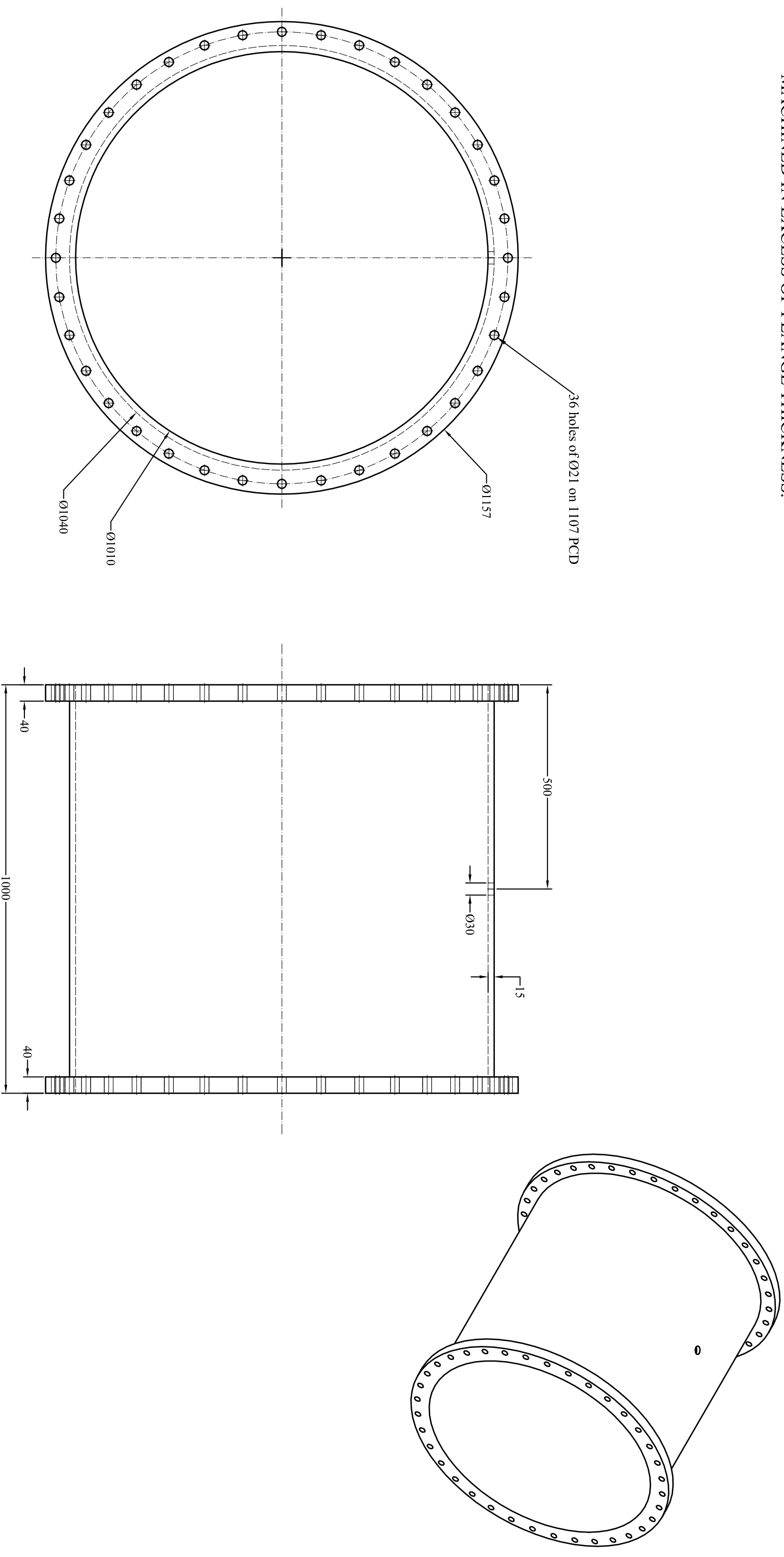
THIRD ANGLE
 PROJECTION

ASS'Y GROUP/ DIVISION:	APD-IPR	SIZE A3
SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

H G F E D C B A

Description	Qty.	Material
Part-15	01no.	SA-516 GR -60, flange SA-105

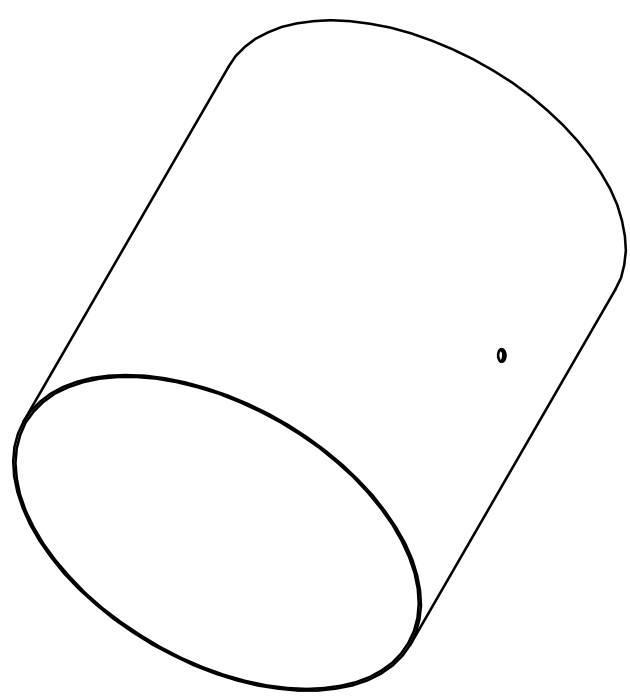
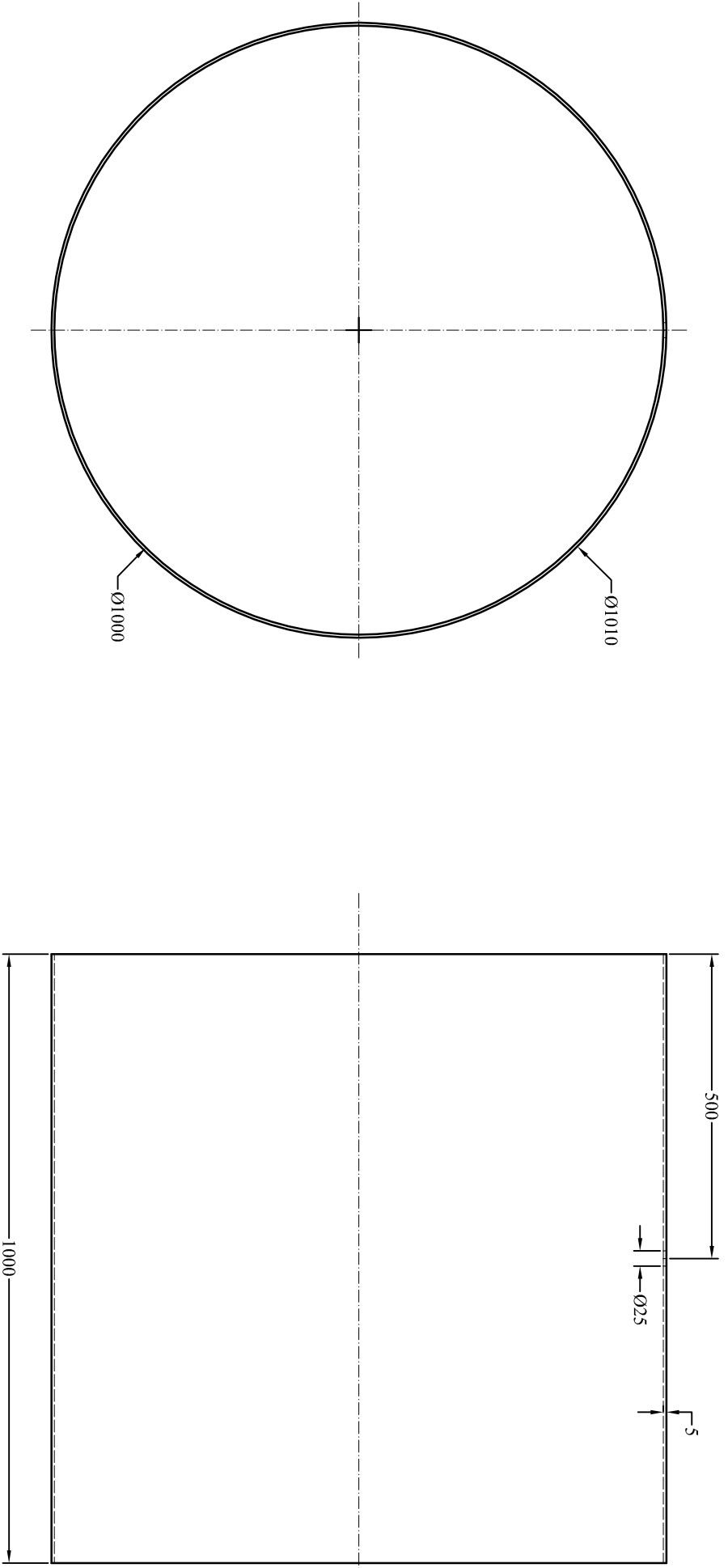
- NOTES :-
1. INTIGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.



Scale : 3:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN				ASS'Y GROUP / DIVISION:	APD-IPR	SIZE	 INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED	
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS												
LENGTH IN mm OF SHORTER SIDE OF ANGLES												
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315				
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5				
REF DRG NO: IPR/APD/CBWT/TF200/A3/SEC/01 DRG. NO IPR/APD/CBWT/TF200/A3/SEC/01-15 TITLE SECONDARY CHAMBER-200 SCALE DRAWN Adam 25.10.20 CHECKED Adam 25.10.20 APPROVED Dr. M K Gupta REV 00 SHEET 1 OF 1												

Description	Qty.	Material
Part-16	01no.	Insulation layer type 3



Scale : 3:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN			ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3	 INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH			UP TO 6	6-30	30-120	120-315	REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	SCALE	NTS	DATE	REF DRG NO:	DRG. NO	REV	
	UP TO 10	10-50	50-120																	OR DIA
UP TO 10	10-50	50-120	OVER 120-400	UP TO 6	6-30	30-120	120-315							DRAWN	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	IPR/APD/CBWT/200/A3/SEC/01-16	00	
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3	+0.5							CHECKED	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	IPR/APD/CBWT/200/A3/SEC/01-16	00	
														APPROVED	Dr. M K Gupta					1

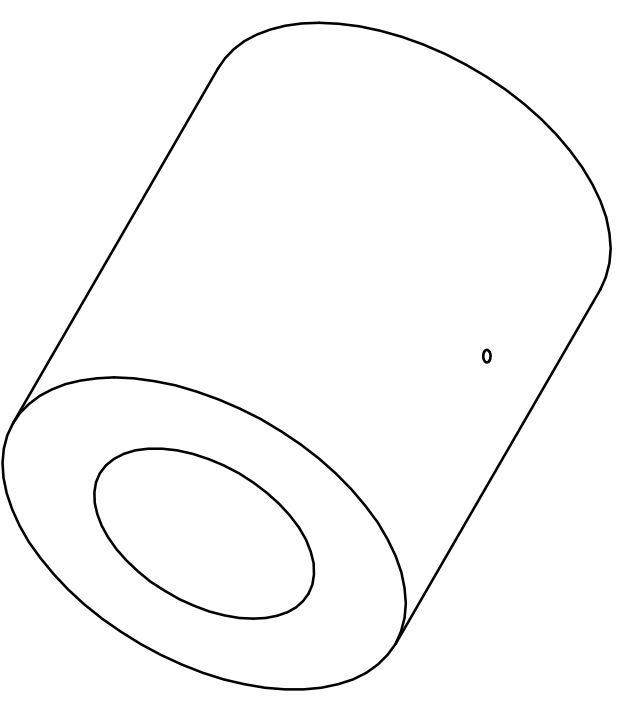
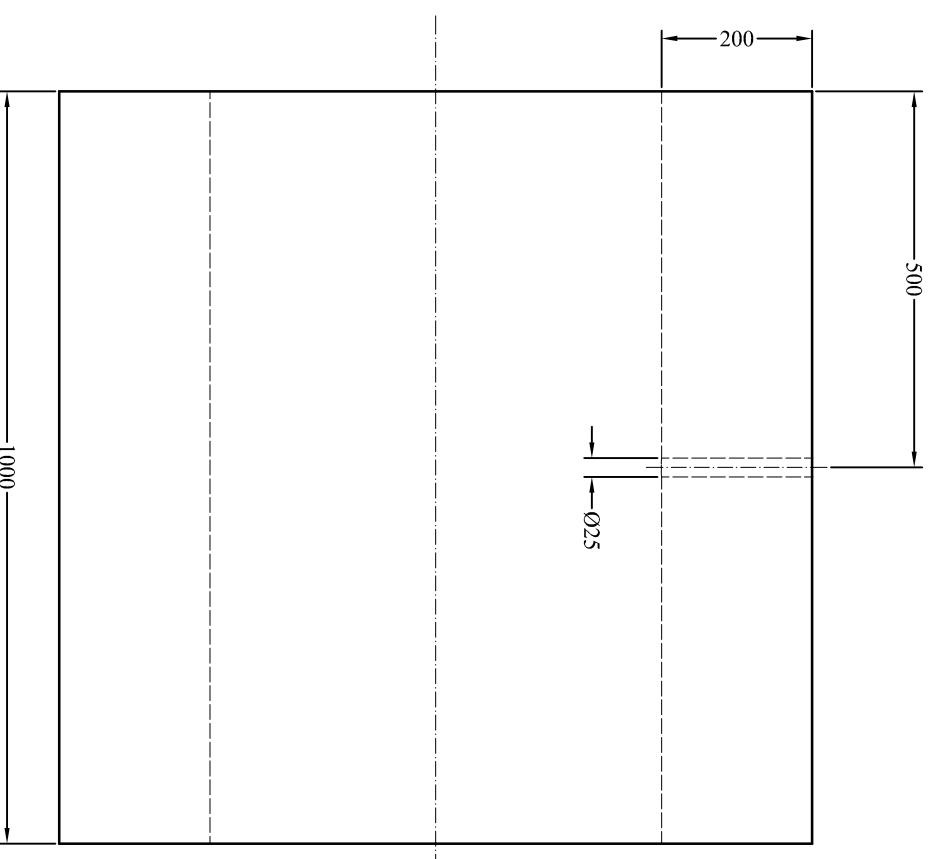
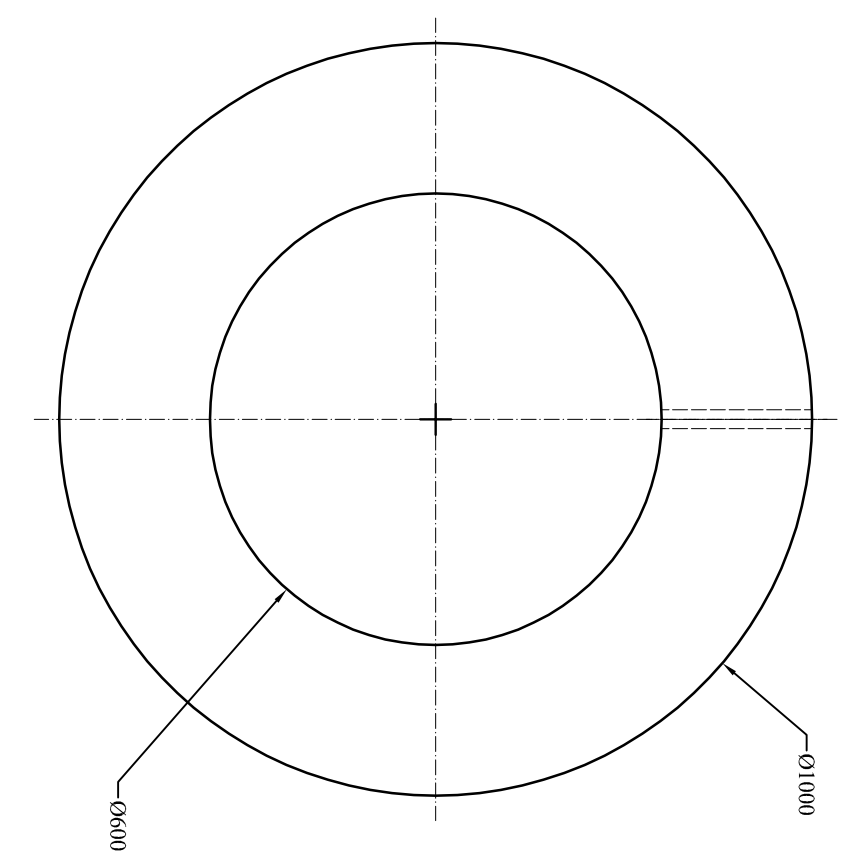


TITLE
SECONDARY CHAMBER-200

H G L M D C B A

1

Description	Qty.	Material
Part-17	01no.	Insulation layer type 1



Scale : 3:1

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA

TITLE
SECONDARY CHAMBER-200

ASS'Y GROUP / DIVISION:
 APD-IPR
 SIZE A3
 ALL DIMENSIONS ARE IN 'mm'
 UNLESS OTHERWISE STATED

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

REVISION COLUMN

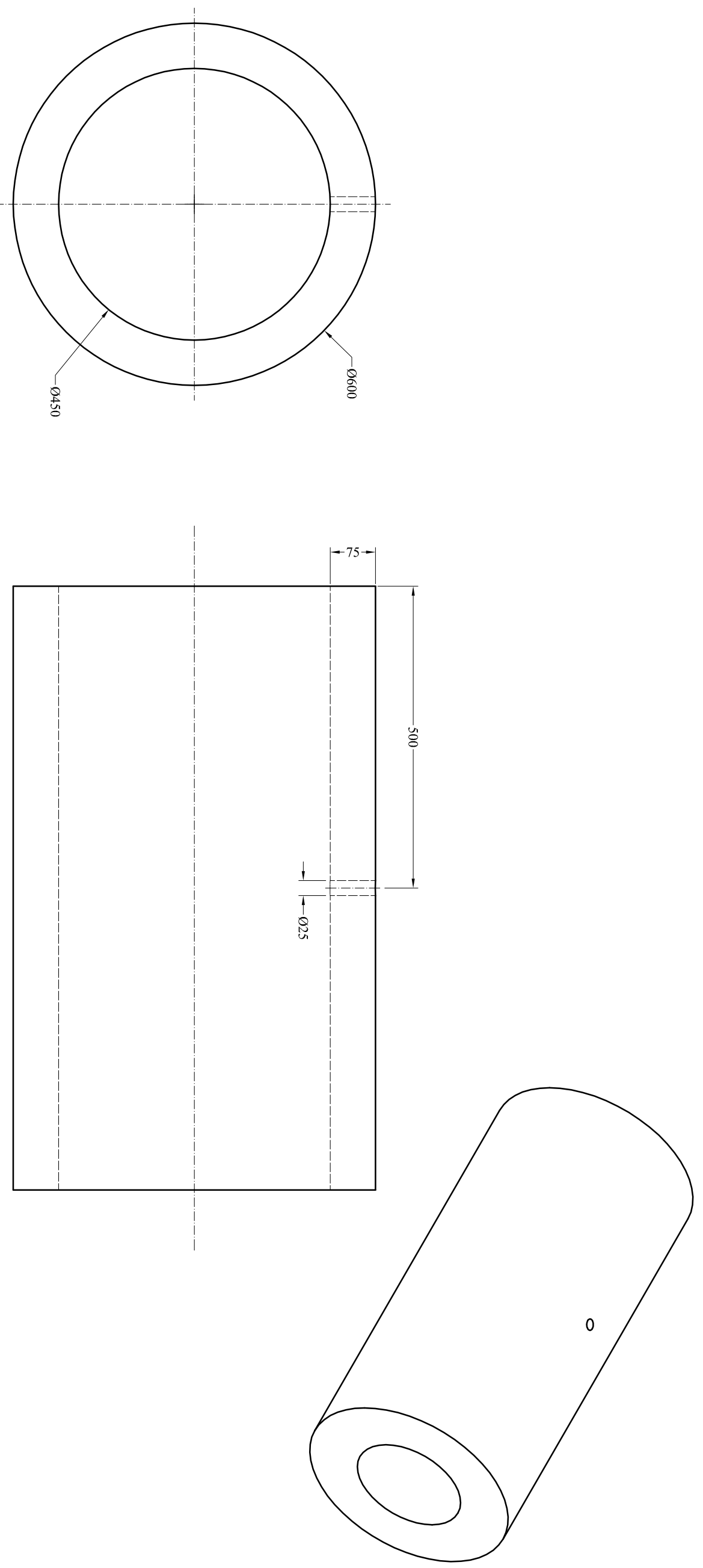
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA
±1'	+0'-30'	+0'-20'	+0'-10'	UP TO 6
				6-30
				30-120
				120-315
				UP TO 6
				6-30
				30-120
				120-315
				UP TO 6
				6-30
				30-120
				120-315

H G L M D C B A

1 2 3 4

Description	Qty.	Material
Part-18	01no.	Refractory layer



Scale : 4:1

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA

TITLE
SECONDARY CHAMBER-200

ASS'Y GROUP / DIVISION:
 APD-IPR
 SIZE A3
 ALL DIMENSIONS ARE IN 'mm'
 UNLESS OTHERWISE STATED

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
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CO-ORDINATED BY

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

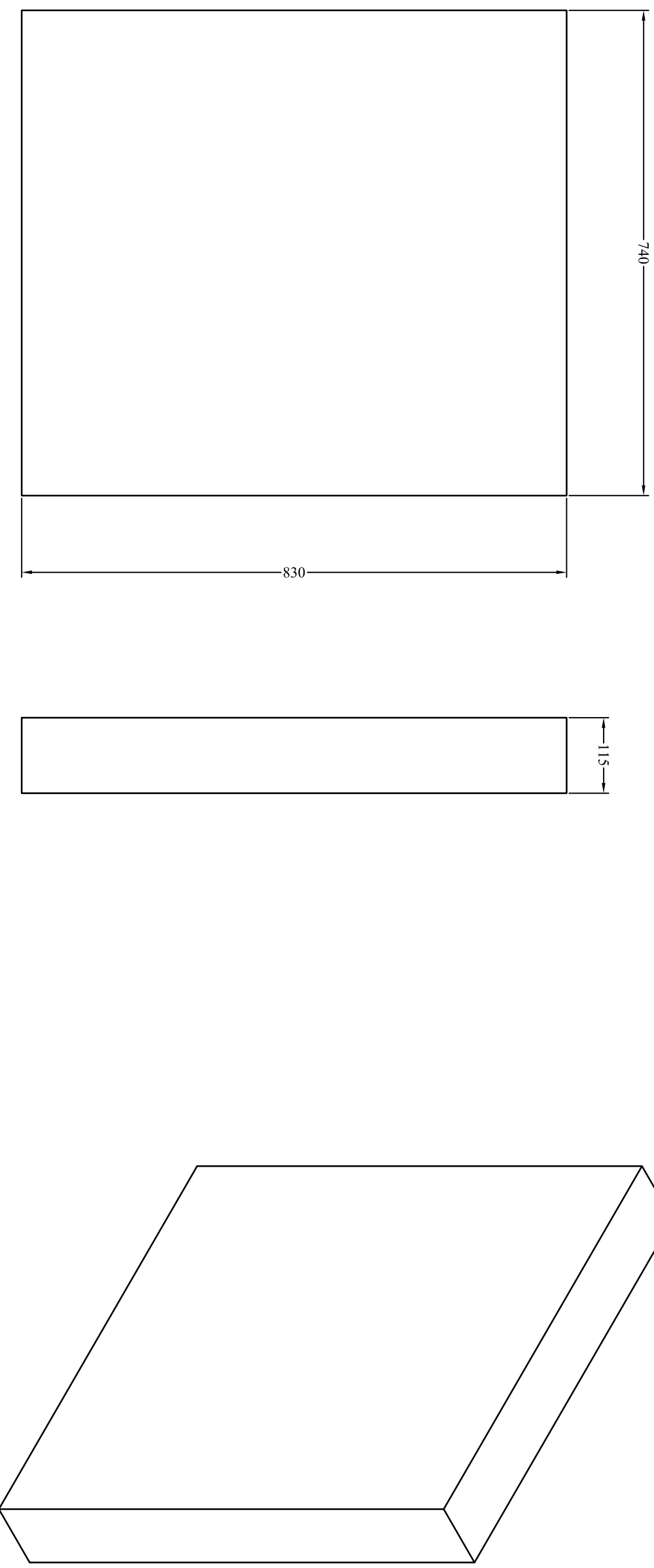
LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH		UP TO 6	6-30	30-120	120-315
	OR DIA	UP TO 6				
UPTO 10	10-50	50-120	OVER 120-400			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3
						+0.5

SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

REF DRG NO: IPR/APD/CBWT/200/A3/SEC/01
 DRG.NO IPR/APD/CBWT/200/A3/SEC/01-18
 REV 00
 SHEET 1 OF 1

H G L E D C B A

Description	Qty.	Material
Part-19	02no.	Refractory layer



Scale : 4:1

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA

TITLE
SECONDARY CHAMBER-200

ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3
SCALE	NTS	DATE
SCALE	NTS	DATE
DRAWN	Adam	25.10.20
CHECKED	Adam	25.10.20
APPROVED	Dr. M K Gupta	

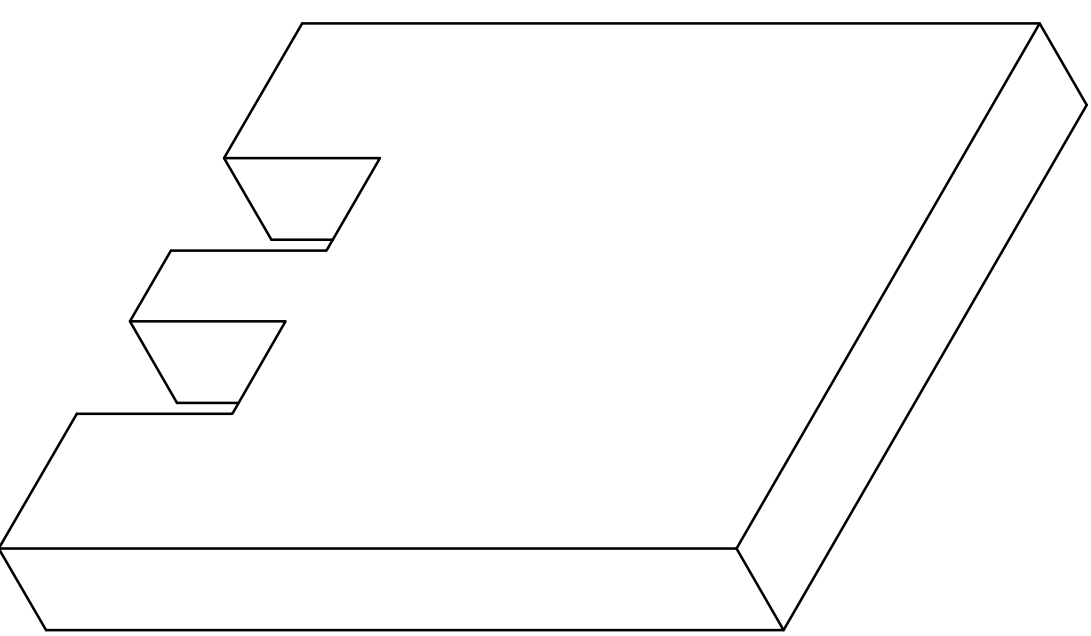
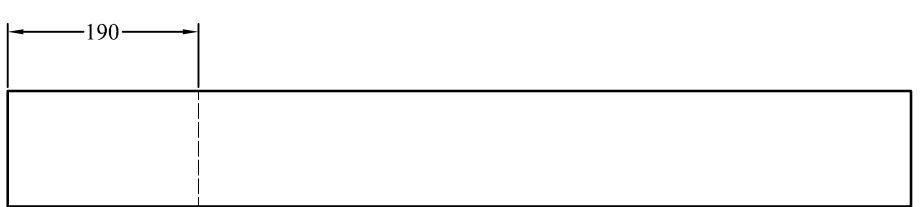
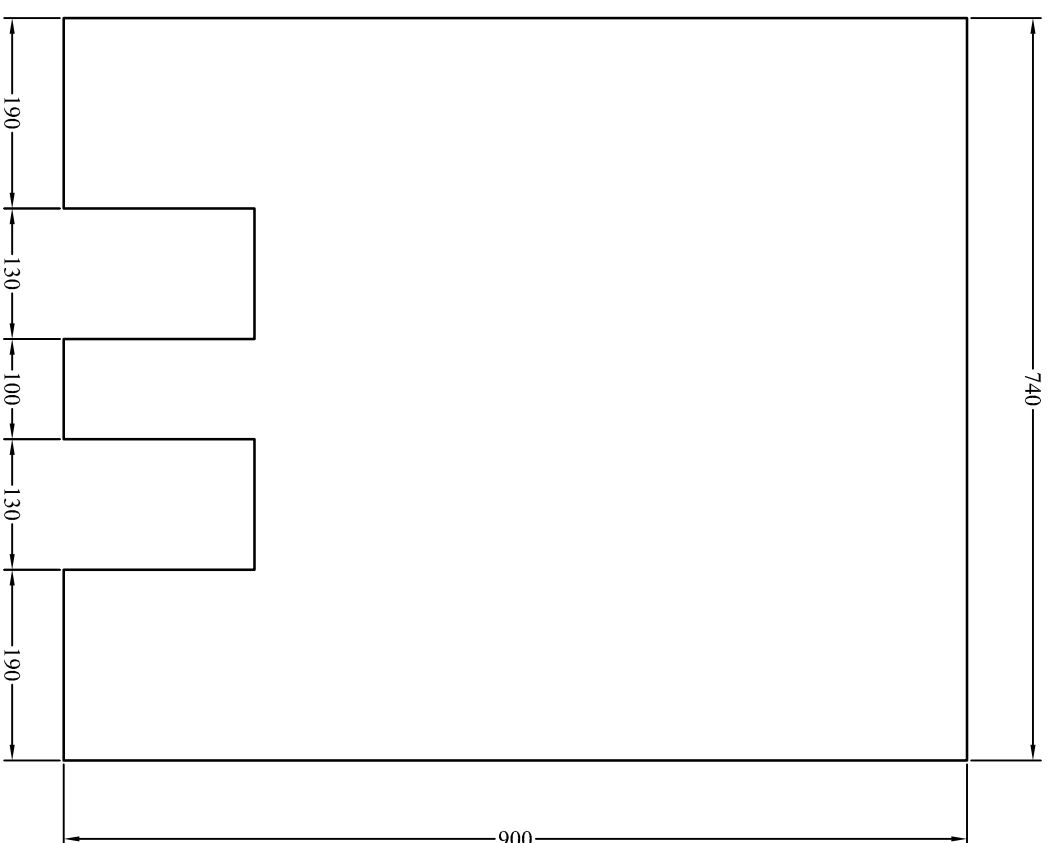
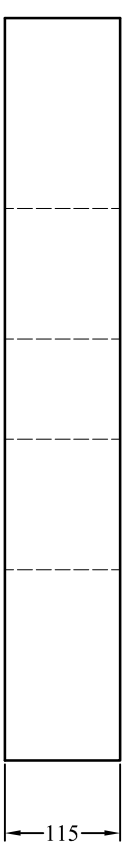
REVISION COLUMN		REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS					
LENGTH IN mm OF SHORTER SIDE OF ANGLES					
UPTO	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO
±1'	+0'-30'	+0'-20'	+0'-10'	±0.1	±0.2
					±0.3
					±0.5

H G L M D C B A

Description	Qty.	Material
Part-20	02no.	Refractory layer



Scale : 4:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN				ASS'Y GROUP / DIVISION:	APD-IPR	SIZE A3	 INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA	
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	SCALE		NTS

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH		UP TO	6-30	30-120	120-315
	OR DIA	UP TO				
UPTO 10	10-50	50-120	OVER 120-400			
+1'	+0'-30'	+0'-20'	+0'-10'	+0.1	+0.2	+0.3
						+0.5

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA



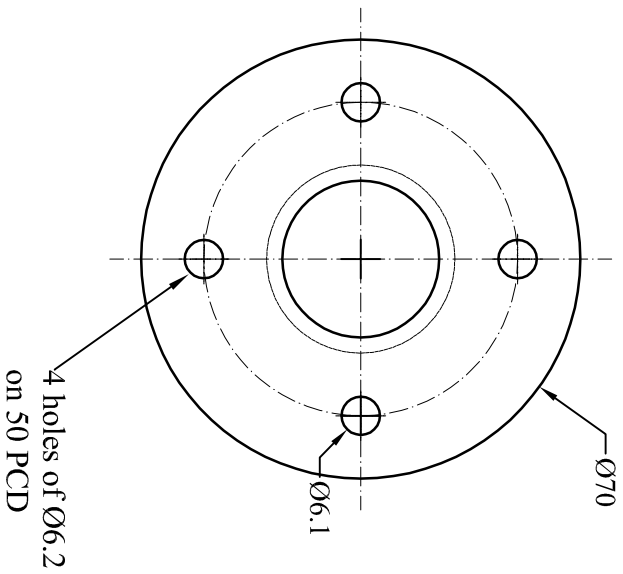
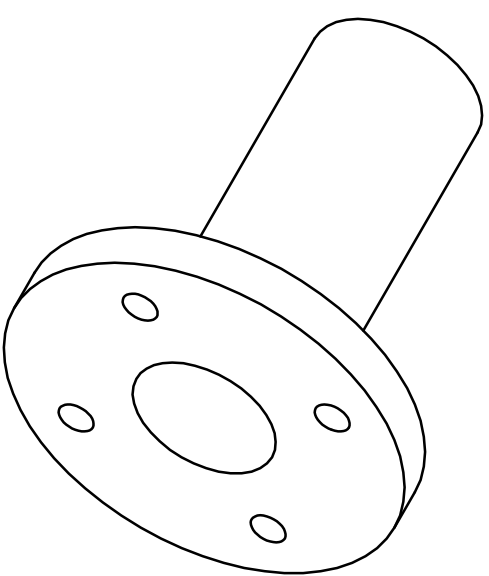
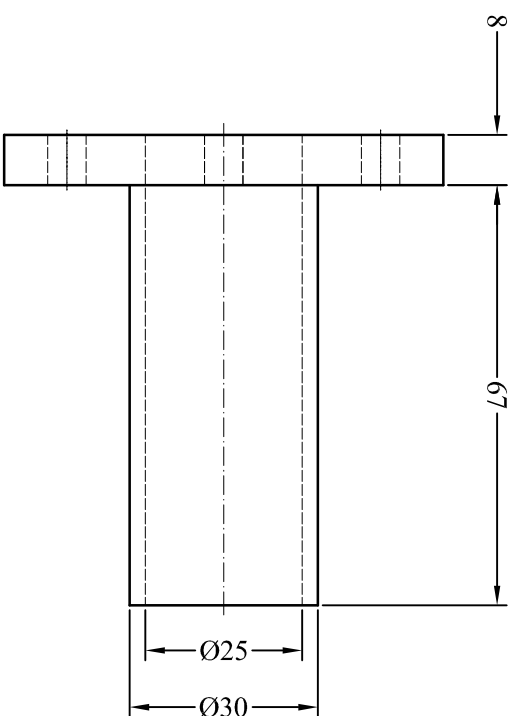
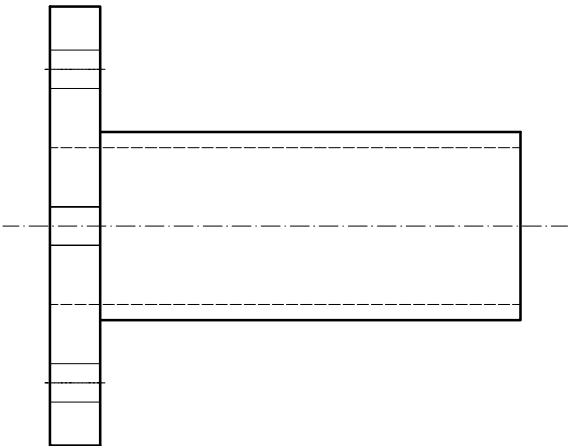
TITLE
 SECONDARY CHAMBER-200

REF DRG NO: IPR/APD/CBWT200/A3/SEC/01

DRG. NO IPR/APD/CBWT200/A3/SEC/01-20

REV 00
 SHEET 1 OF 1

Description	Qty.	Material
Part-21	09no.	SA-516 GR -60, flange SA-105



- NOTES :-
1. INTEGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.

Scale : 20:1

INSTITUTE FOR PLASMA RESEARCH
BHAT, GANDHINAGAR-382 428.
INDIA

TITLE
SECONDARY CHAMBER-200

DRG.NO ∇ 8-25 $\nabla\nabla$ 1.6-8 $\nabla\nabla\nabla$ 0.025-1.6 $\nabla\nabla\nabla\nabla$ < 0.025

CO-ORDINATED BY

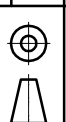
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH				OR DIA	TOLERANCE
	UPTO 10	10-50	50-120	OVER 120-400		
	UPTO 6	6-30	30-120	120-315		
$\pm 1'$	$+0'-30'$	$+0'-20'$	$+0'-10'$		± 0.1	± 0.2
					± 0.3	± 0.5

REVISION COLUMN

REV ZONE DESCRIPTION DATE REMARKS APPROVED BY

ASS'Y GROUP / DIVISION: APD-JPR SIZE A3
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED



THIRD ANGLE PROJECTION

REF DRG NO: IPR/APD/CBWT/200/A3/SEC/01

DRG.NO IPR/APD/CBWT/200/A3/SEC/01-21

H G F E D C B A

1

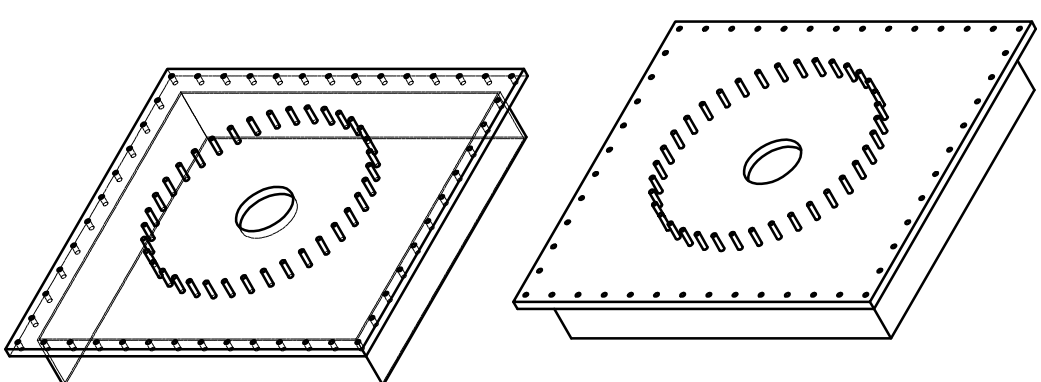
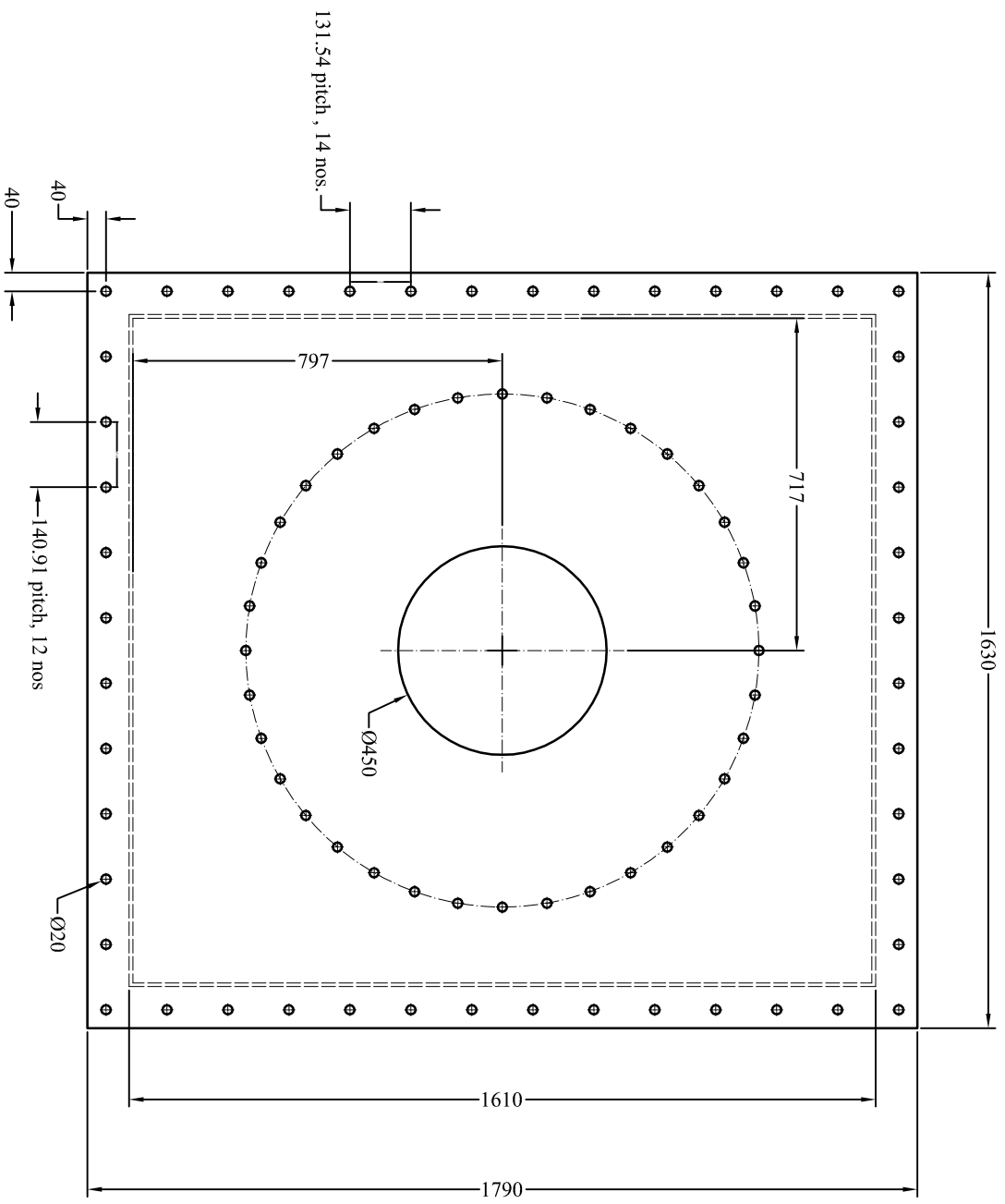
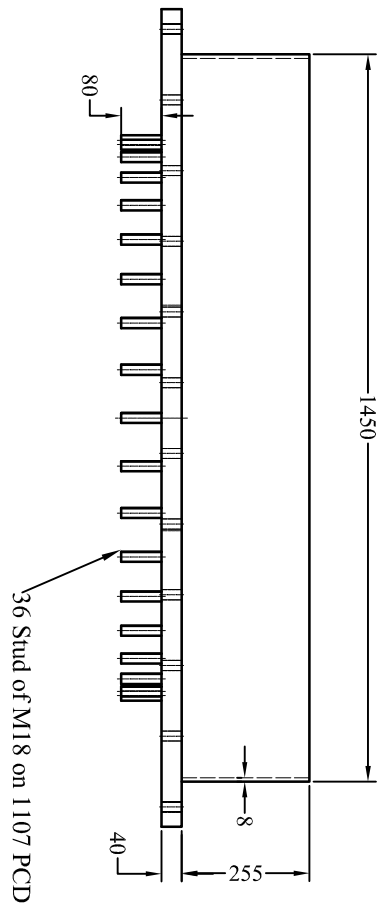
2

3

4

Description	Qty.	Material
Part-22	01no.	SA-516 GR -60, flange SA-105

NOTES :-
 1. INTIGRAL TYPE FLANGE SHOULD BE FABRICATED.
 2. RAISED FACE THICKNESS OF 2 mm SHALL BE MACHINED IN EXCESS OF FLANGE THICKNESS.



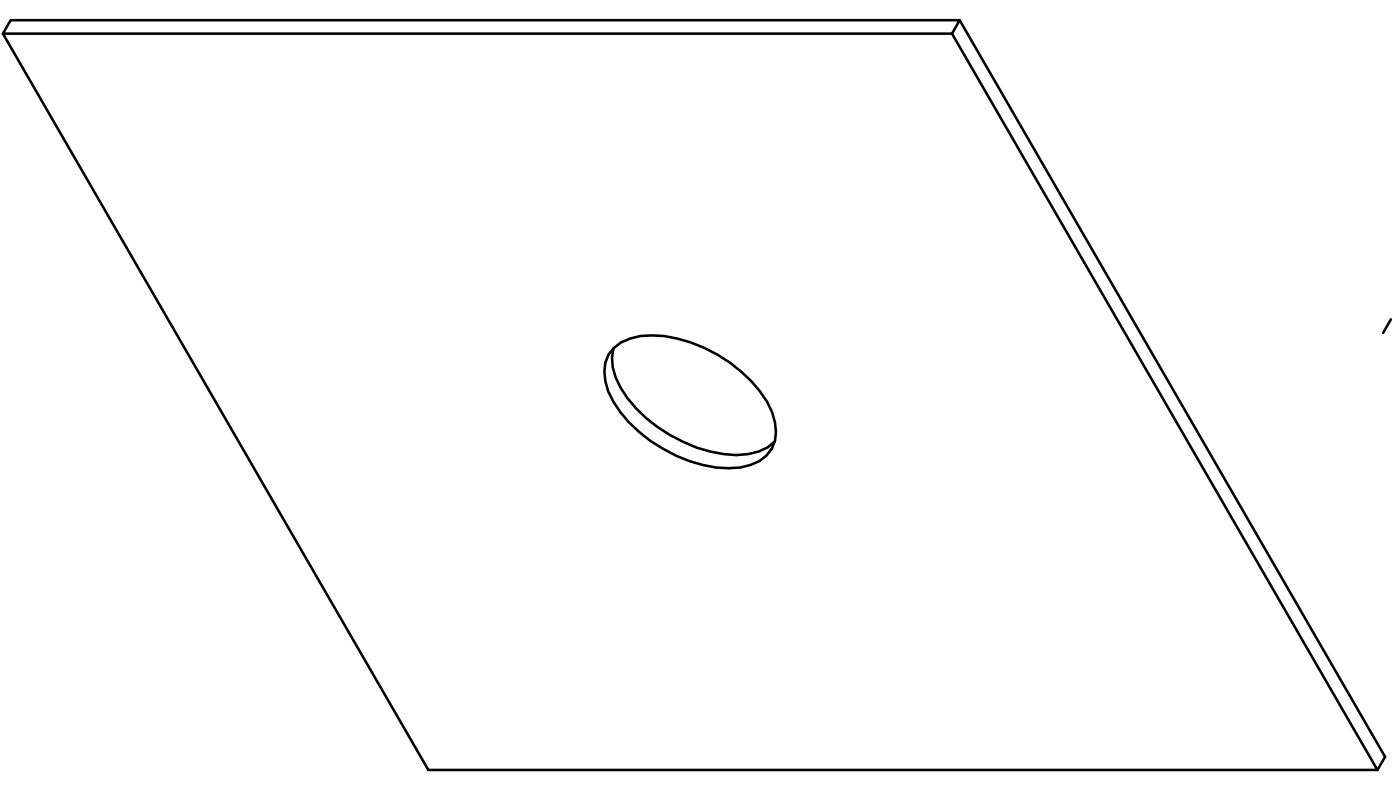
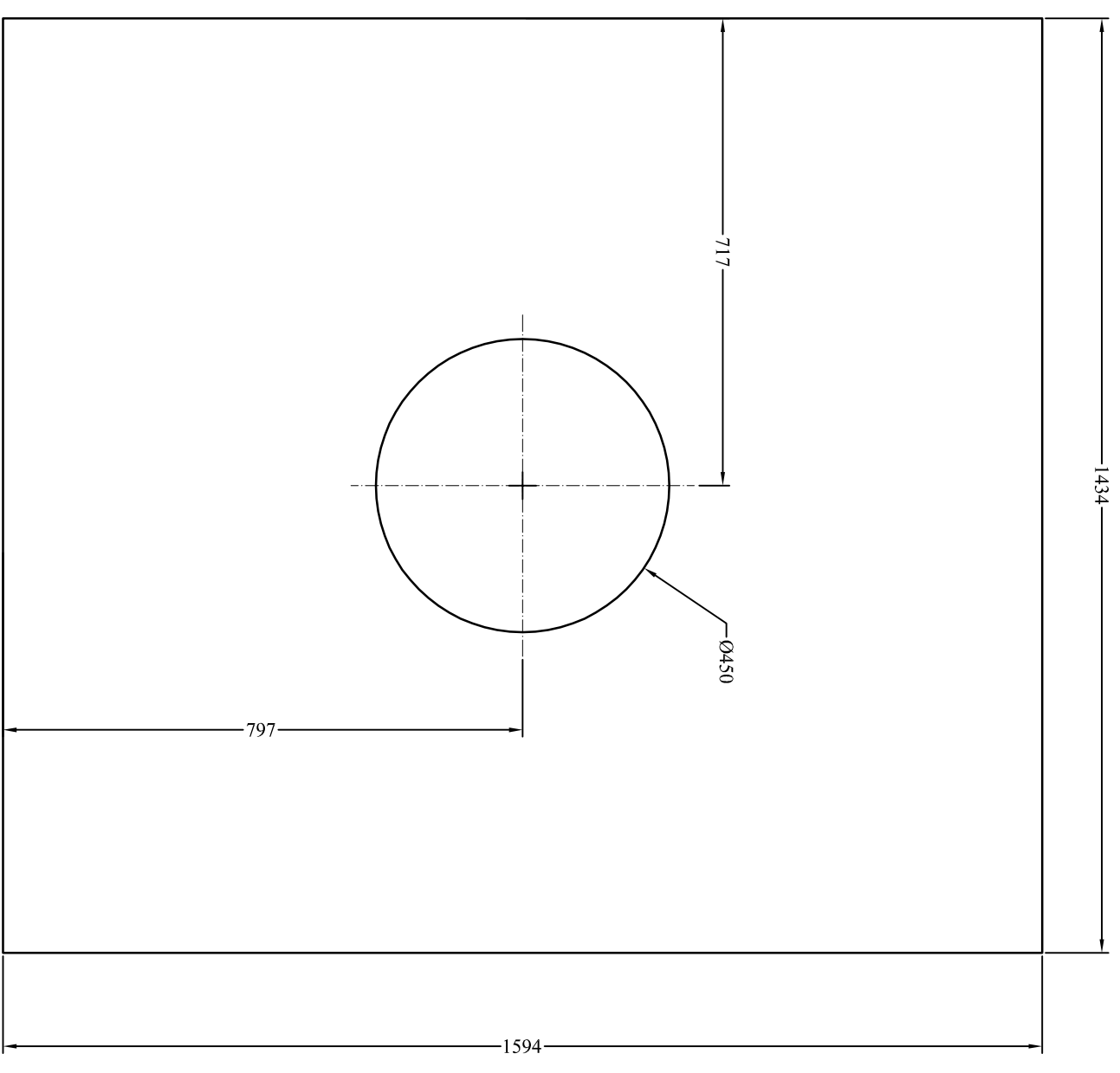
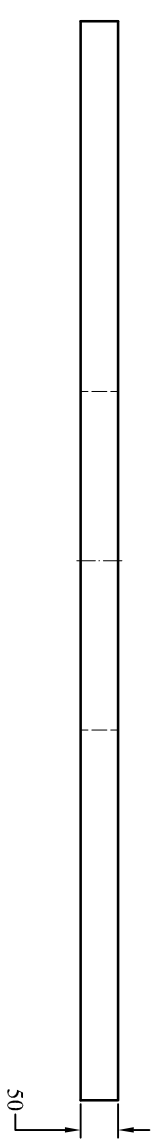
Scale : 2:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	ASS'Y GROUP / DIVISION:	APD-JPR	SIZE A3	INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA
CO-ORDINATED BY											ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED			
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS														
LENGTH IN mm OF SHORTER SIDE OF ANGLES														
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315			SCALE	NTS	DATE	TITLE
±1'	+0'-30'	+0'-20'	+0'-10'								DRAWN	Adam	25.10.20	SECONDARY CHAMBER-200
											CHECKED	Adam	25.10.20	
											APPROVED	Dr. M K Gupta		
											REF DRG NO:	IPR/APD/CBWT200/A3/SEC/01		REV 00
											DRG. NO	IPR/APD/CBWT200/A3/SEC/01-22		SHEET 1 OF 1

H G F E D C B A

1 2 3 4

Description	Qty.	Material
Part-23	01no.	Insulation layer type 2



Scale : 3:1

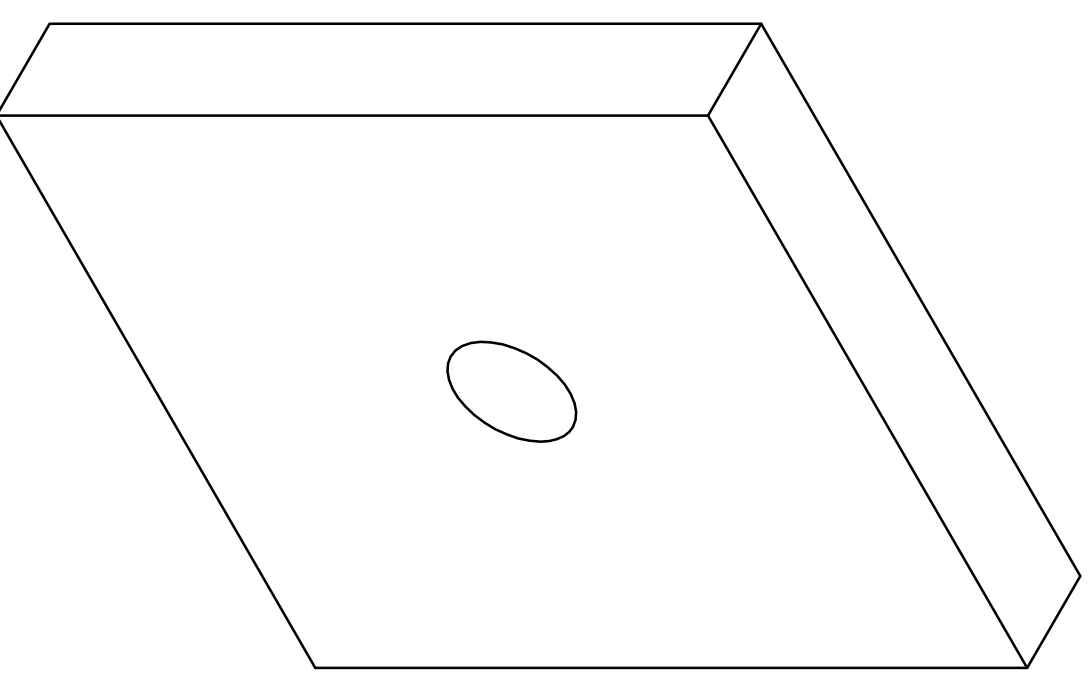
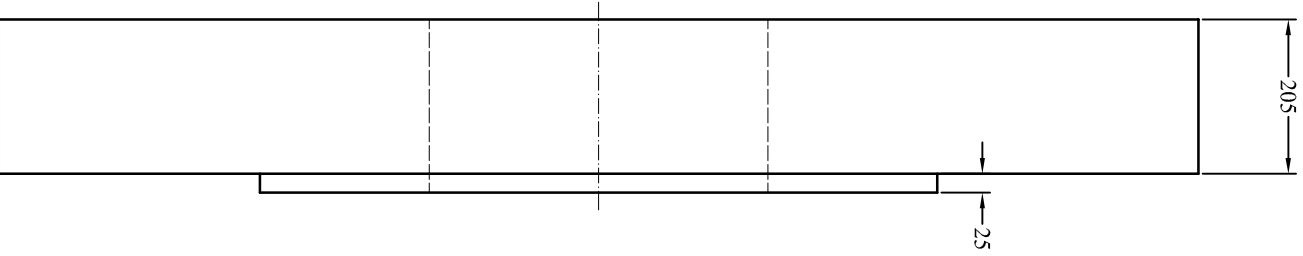
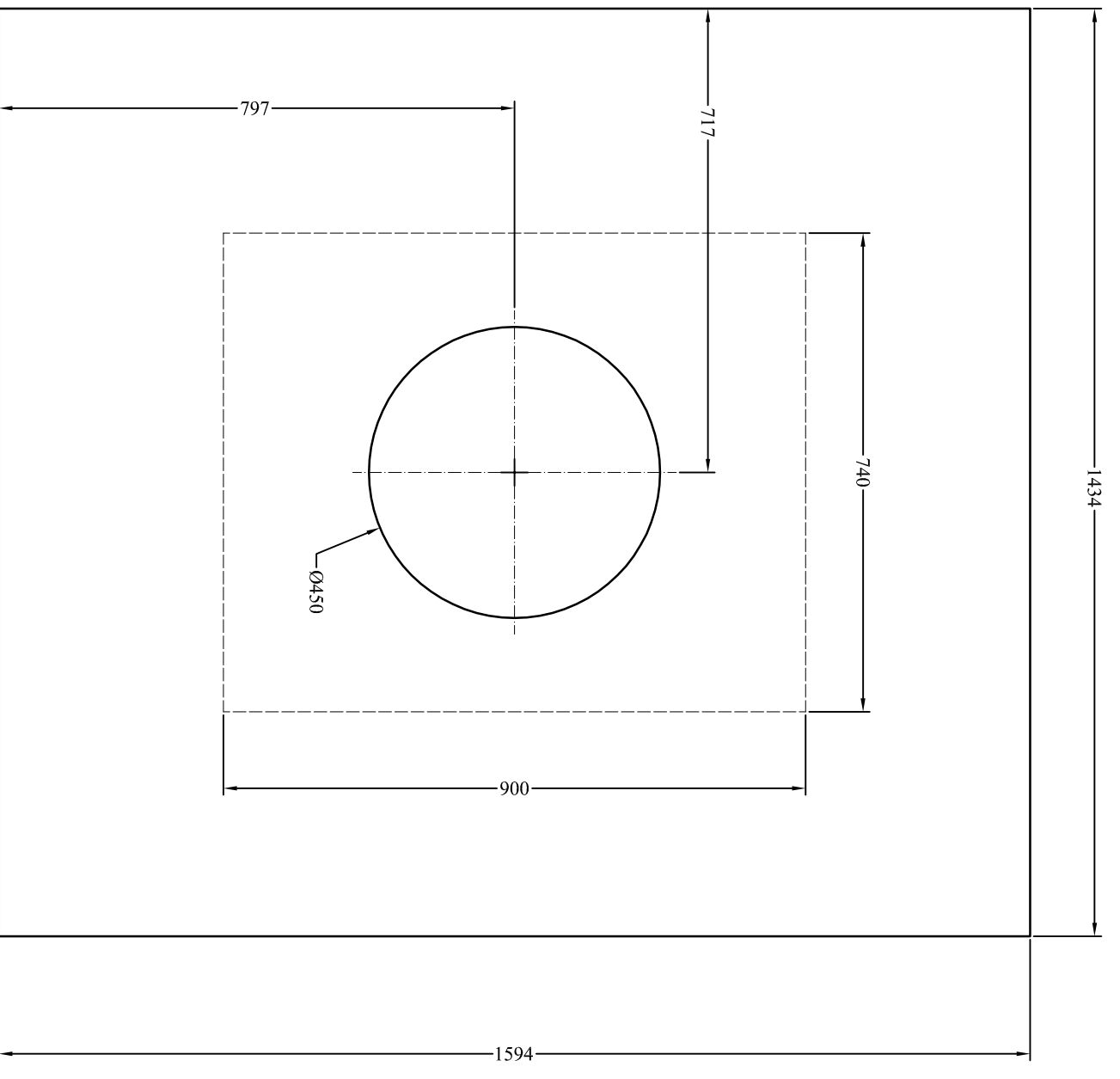
DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN				ASS'Y GROUP/ DIVISION:	APD-JPR	SIZE A3	 INSTITUTE FOR PLASMA RESEARCH BHAT, GANDHINAGAR-382 428. INDIA		
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY	SCALE		NTS	DATE

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS														
LENGTH IN MM OF SHORTER SIDE OF ANGLES														
UPTO 10	10-50	50-120	OVER 120-400	LENGTH OR DIA	UPTO 6	6-30	30-120	120-315						
+1'	+0'-30'	+0'-20'	+0'-10'		+0.1	+0.2	+0.3	+0.5						

REF DRG NO:	IPR/APD/CBWT/200/A3/SEC/01	REV	00
DRG.NO	IPR/APD/CBWT/200/A3/SEC/01-23	SHEET	1 OF 1

DRG.NO	IPR/APD/CBWT/200/A3/SEC/01	REV	00
DRG.NO	IPR/APD/CBWT/200/A3/SEC/01-23	SHEET	1 OF 1

Description	Qty.	Material
Part-24	01no.	Insulation layer type 1



Scale : 3:1

DRG. NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN					
CO-ORDINATED BY					REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS														
LENGTH IN MM OF SHORTER SIDE OF ANGLES														
LENGTH			UP TO 6			6-30			30-120			120-315		
OR DIA			UP TO 6			6-30			30-120			120-315		
+1'			+0'-30'			+0'-20'			+0'-10'					

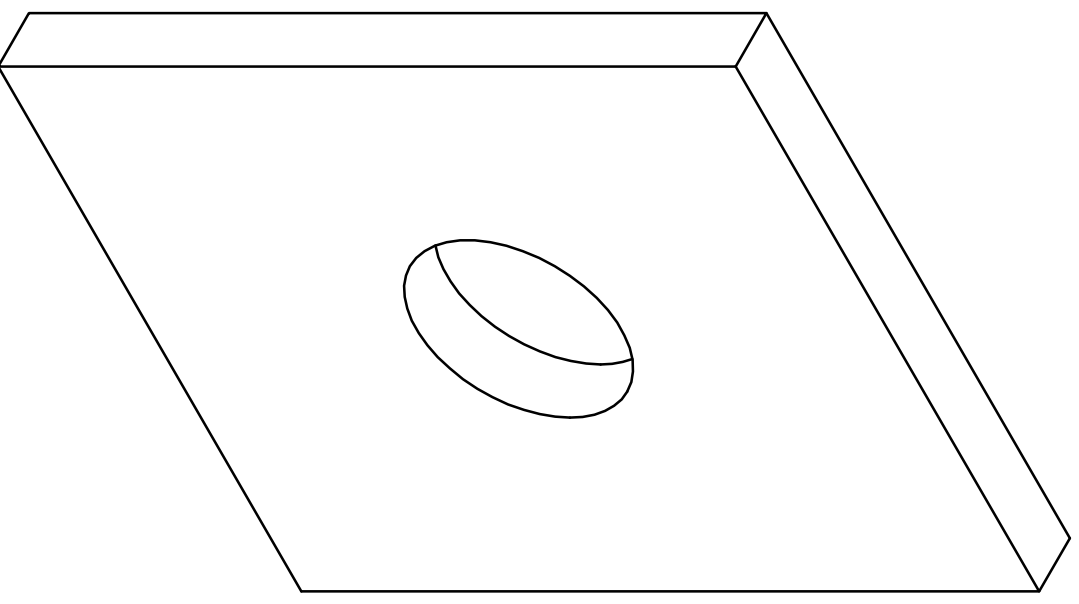
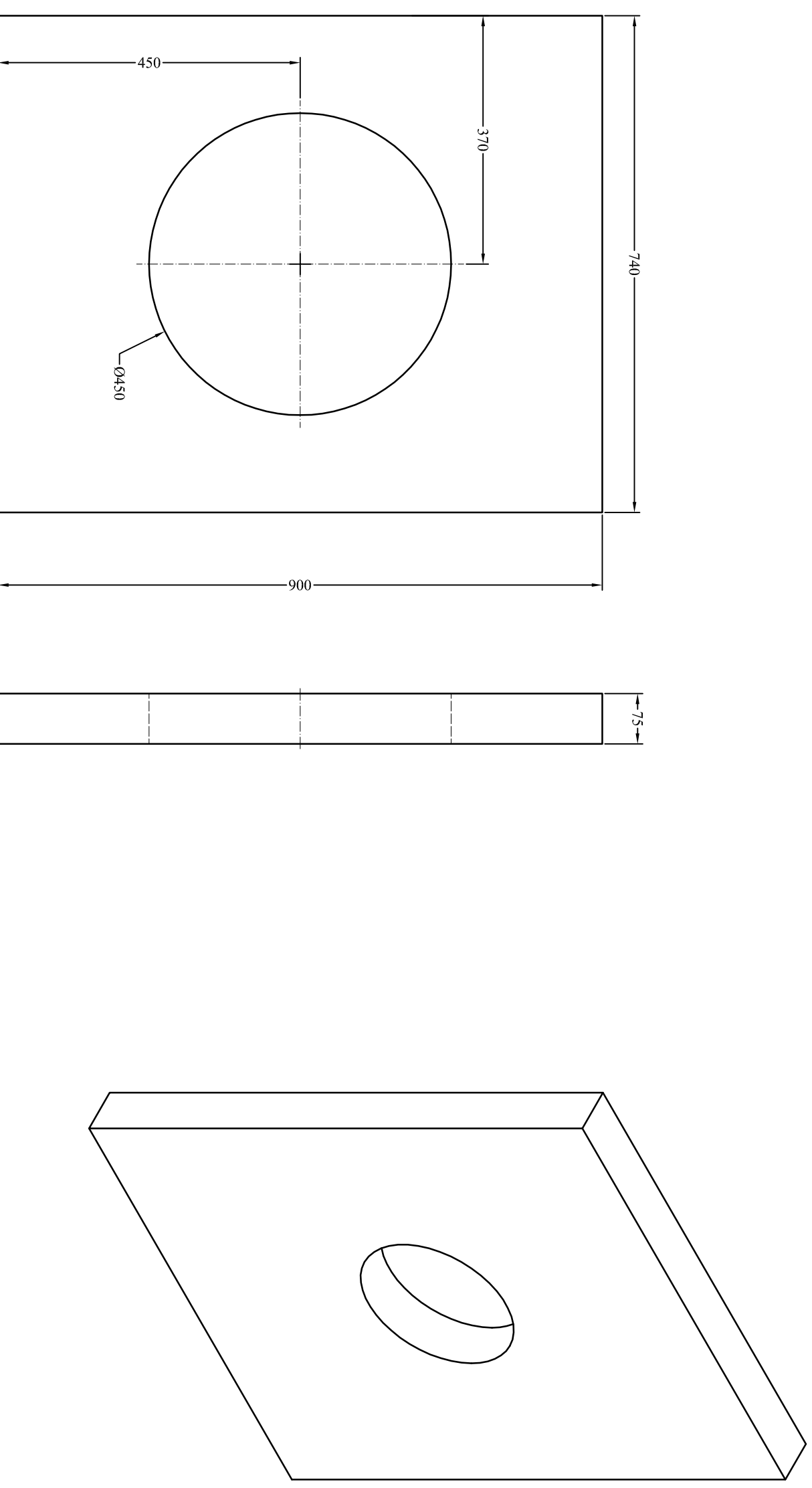
ASS'Y GROUP / DIVISION:	APD-IPR	SIZE A3	REF DRG NO:	IPR/APD/CBWT/200/A3/SEC/01	REV	00
ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED	SCALE	NTS	DATE	25.10.20	CHECKED	Adam
SCALE	NTS	DATE	25.10.20	DRAWN	Adam	25.10.20
APPROVED	Dr. M K Gupta	DRG. NO	IPR/APD/CBWT/200/A3/SEC/01-24	REV	00	SHEET 1 OF 1

INSTITUTE FOR PLASMA RESEARCH
BHAT, GANDHINAGAR-382 428.
INDIA

TITLE
SECONDARY CHAMBER-200

THIRD ANGLE PROJECTION

Description	Qty.	Material
Part-25	01no.	Refractory layer



Scale : 4:1

INSTITUTE FOR PLASMA RESEARCH
 BHAT, GANDHINAGAR-382 428.
 INDIA

TITLE
SECONDARY CHAMBER-200

ASS'Y GROUP / DIVISION:
 APD-JPR
 SIZE A3
 ALL DIMENSIONS ARE IN 'mm'
 UNLESS OTHERWISE STATED

REV	ZONE	DESCRIPTION	DATE	REMARKS	APPROVED BY

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025
CO-ORDINATED BY				

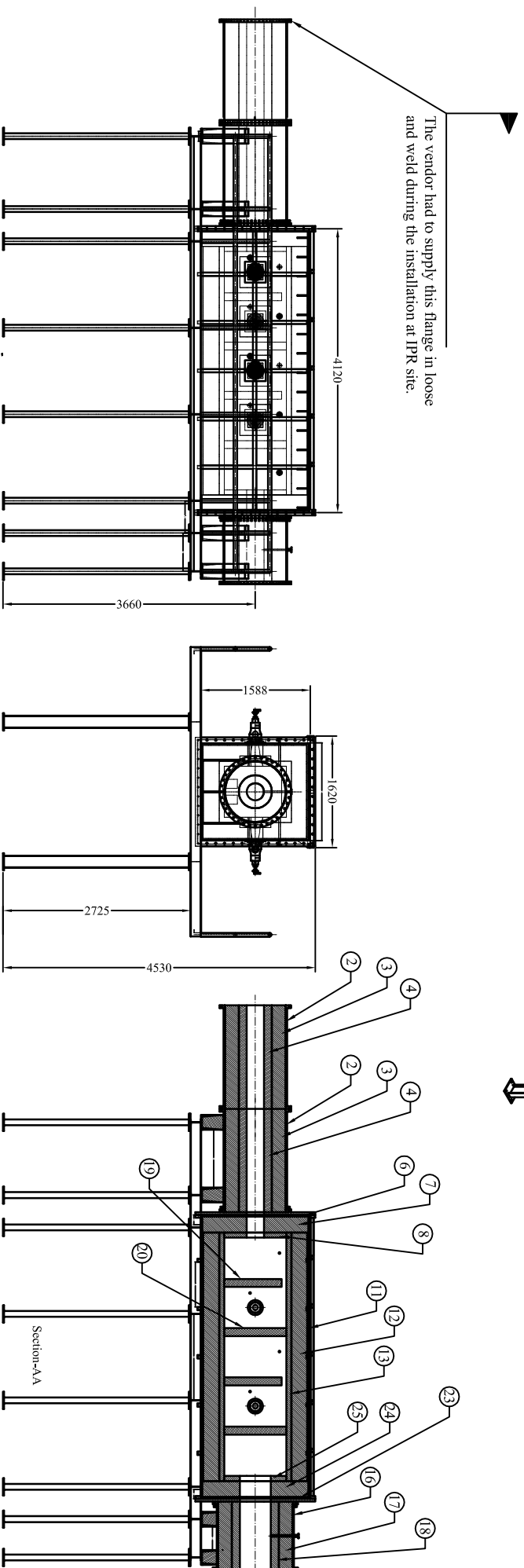
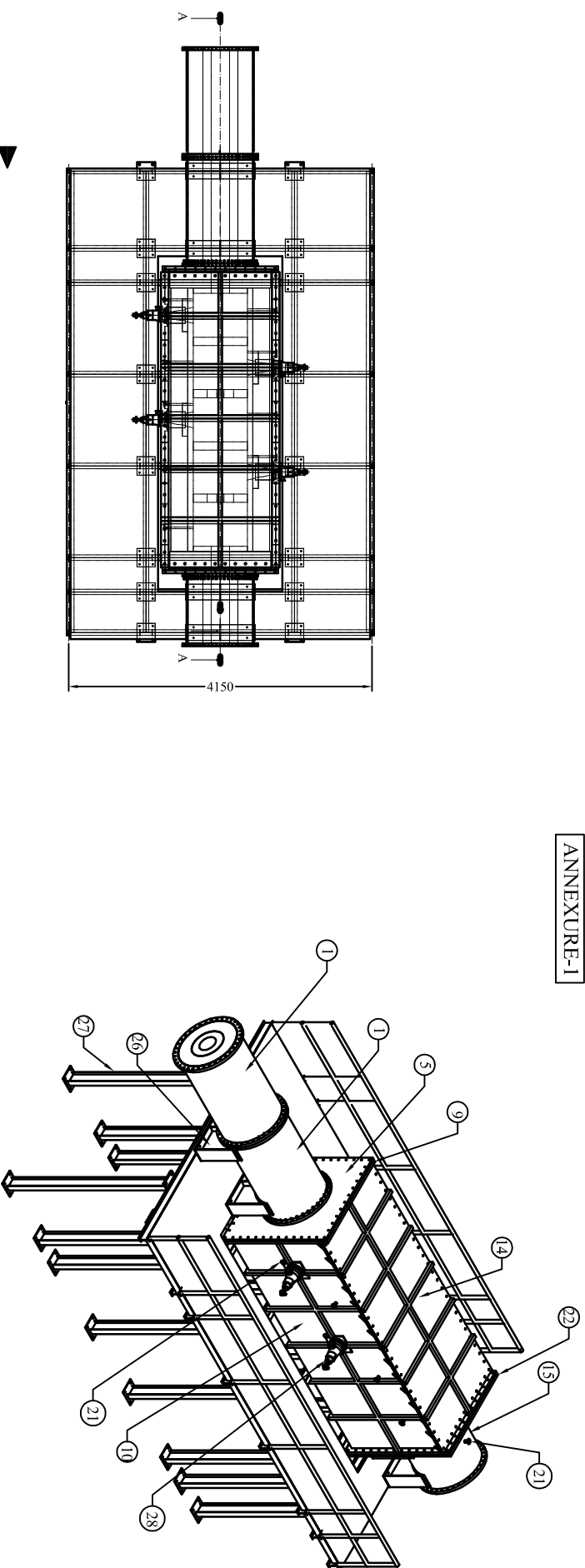
MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS

LENGTH IN mm OF SHORTER SIDE OF ANGLES	LENGTH				UP TO 6	6-30	30-120	120-315
	UP TO 10	10-50	50-120	OVER 120-400				
±1'	+0'-30'	+0'-20'	+0'-10'					

SCALE	NTS	DATE	DRG.NO	REV
DRAWN	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01	00
CHECKED	Adam	25.10.20	IPR/APD/CBWT/200/A3/SEC/01-25	1
APPROVED	Dr. M K Gupta			1

H G L M D C B A

ANNEXURE-1



The vendor had to supply this flange in loose and weld during the installation at IPR site.

Sr. No.	Description	Qty.	Ref. Drg. No.
01	PART-1	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-1
02	PART-2	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-2
03	PART-3	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-3
04	PART-4	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-4
05	PART-5	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-5
06	PART-6	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-6
07	PART-7	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-7
08	PART-8	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-8
09	PART-9	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-9
10	PART-10	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-10
11	PART-11	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-11
12	PART-12	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-12
13	PART-13	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-13
14	PART-14	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-14
15	PART-15	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-15
16	PART-16	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-16
17	PART-17	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-17
18	PART-18	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-18
19	PART-19	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-19
20	PART-20	02no.	IPR/APPD/CBWTTF200/A3/SEC/01-20
21	PART-21	09no.	IPR/APPD/CBWTTF200/A3/SEC/01-21
22	PART-22	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-22
23	PART-23	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-23
24	PART-24	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-24
25	PART-25	01no.	IPR/APPD/CBWTTF200/A3/SEC/01-25
26	PART-26	04no.	Support Bracket
27	PART-27	01no.	Support structure
28	PART-28 (Gas burner)	04no.	brought out item
29	PART-29 (R-type thermocouple)	05no.	Ceramic sheath, L-500mm
30	PART-30 (Pressure gauge)	01no.	-ve 1 bat to +ve 2 bar

- Note:
- Design for part no-26 and 27 are in scope of vendor as specified in tender document.
 - Specifications of part no-28,29 and 30 are in Tender document.
 - Part no-28, 29 and 30 are brought out item
 - Material: As Per Tender Document unless otherwise specified.
 - Raised face of 2mm to be machined in addition to be machined in addition to the flange thickness

Scale : 1:2

DRG.NO	▽ 8-25	▽▽ 1.6-8	▽▽▽ 0.025-1.6	▽▽▽▽ < 0.025	REVISION COLUMN	ASS'Y GROUP / DIVISION:	APD-IPR	SIZE
					REV	ALL DIMENSIONS ARE IN 'mm' UNLESS OTHERWISE STATED		
					ZONE	SCALE	NTS	DATE
					DESCRIPTION	DRAWN	Adam	25.10.20
						CHECKED	Adam	25.10.20
					APPROVED BY	APPROVED	Dr. M K Gupta	REF DRG NO:
								IPR/APPD/CBWTTF200/A3/SEC/01
								REV 00
								SHEET 1 OF 1

MACHINING DEVIATIONS FOR NON-TOLERANCED DIMENSIONS			
LENGTH IN mm OF SHORTER SIDE OF ANGLES			
UP TO 10	10-50	50-120	OVER 120-400
UP TO 6	6-30	30-120	120-315
LENGTH OR DIA	UP TO 6		
	±0.1	±0.2	±0.3
			±0.5
	±1'	±0'-30'	±0'-20'
			±0'-10'

INSTITUTE FOR PLASMA RESEARCH
BHAT, GANDHINAGAR-382 428,
INDIA

TITLE
SECONDARY CHAMBER-200

THIRD ANGLE PROJECTION

H G F E D C B A

Vendor compliant sheet

Reference: Tender document For preparation of fabrication drawings, supply, installation and testing of Secondary Chamber assembly

The vendor shall provide their acceptance/confirmation for each point.

➤ Please avoid to write Yes/Agree/Comply for numeric value/parameters in this compliance sheet.

Sr. no.	IPR technical specification	Vendor acceptance /remarks
1.	Introduction: Vendor shall confirm that they have read the introduction part carefully and has clear understanding of components application.	
2.	Scope of work:	
2.1	The secondary chamber assembly comprise the followings which technical specifications are mentioned in section 4.1	
	Item description	Quantity
	1. Secondary chamber	01 set.
	➤ Gas inlet port	02 no.
	➤ Left side end flange	01 nos.
	➤ Main rectangular chamber with top cover	01 nos.
	➤ Right side end flange	01 nos.
	➤ Gas outlet port	01 nos.
	➤ Duel fuel gas burner	04 nos.
	➤ R-type thermocouple	05 nos.
	➤ Pressure gauge	01 nos.
	2. Support structure and service platform	01 nos.
2.2	The job consist of two items (i) Secondary chamber and (ii) support structure and service platform for various component and sub assembly mentioned in the 2.7 below. The design and analysis of item (1) is perform by IPR and respective engineering drawings are attached in Appendix I. the vendor shall responsible for fabrication, inspection, installation and testing of component and sub assembly as per tender specification for item no (1) for item no (2) vendor shall responsible for design, analysis, fabrication, inspection, erection and testing as per tender specification.	
2.3	Vendor shall be responsible for raw material procurement, precision fabrication, lining material installation, welding joints, assembly, inspection, supply, installation and testing of the secondary chamber assembly as per the IPR's tender specifications & engineering drawing attached in Appendix-1.	
2.4	Vendor shall prepare 3D CAD model (preferably use CATIA / AutoCAD / Solid works software), detailed manufacturing/fabrication drawings of components and assemblies with tolerances from supplied IPR's engineering drawings and submit to IPR for approval.	
2.5	The Vendor shall quantify structural materials, lining material,	

	high temperature gasket, gas burner etc. for successful fabrication, inspection, assembly and testing of secondary chamber assembly. Detailed Bill of Material (BOM) to be submitted to IPR for review and approval before start of procurement.	
2.6	Vendor shall also prepare a list of additional items such as anchor, stud, clamp, suitable binder, mortar, castable material, retaining plate/ring, oxidizing materials etc. which would be necessary for holding and installing lining material inside the secondary chamber assembly. Vendor shall also have to submit BOM of such items to IPR for review and approval before start of procurement.	
2.7	<p>Vendor should follow the below mentioned point during the support structure and service platform design;</p> <ol style="list-style-type: none"> a) The support structure should be design by considering the load mentioned in the Appendix –V b) The support structure has to be design by considering the 7 mm elongation of secondary chamber (due to the wall temperature of 80 °C) during heating from inside. c) The center height of the secondary chamber is ~3.7 meter from ground. d) The support structure has to be design in such a way so that the fuel line and air line for gas burner should be accommodated with appropriate support. e) The service platform should be design by considering to access individual components during service, repair and maintenance. f) The secondary chamber assembly including support structure and service platform are going to be installed and commissioned Homi Bhaha Cancer Hospital (HBCH), Varanasi City site after completion of successful erection and site acceptance test at FCIPT, Gandhinagar. The performance of support structures and service platforms is responsibility of vendor. Thus, Vendor shall perform design and analysis of support structures, service platforms and foundation taking in to consideration relevant constrains and conditions at Varanasi City. The analysis shall be performed considering three different cases ie. (1) Normal thermal (80 degree) and gravity (2) Seismic load (3) Combination of thermal, gravity and seismic. g) The Gandhinagar city (Gujarat) and Varanasi city(Uttar Pradesh) fall under seismic zone III. h) Vendor should consider the seismic zone III data for seismic analysis. i) Vendor should follow IS 1893 (part 4): 2005 for seismic analysis. 	

	<p>j) Vendor should submit the safe design and analysis report for support structure and service platform to IPR for approval.</p>	
2.8	<p>Vendor shall also have to provide weight details of each component including lining materials installed in it for review by IPR.</p>	
2.9	<p>Vendor also has to provide details of lifting lugs & hooks on various components and assemblies for safe handling, transportation and also for safe maintenance work performed using crane. The location of the Lugs & hooks should be ensured considering center of gravity of the components.</p>	
2.10	<p>Vendor shall prepare the components surface as per recommendation from OEM paint supplier and components should be painted externally with heat resistance alumina paint (two coats) suitable to withstand temperature up to 250°C with proper surface preparation.</p>	
2.11	<p>Support structure and service platform shall be painted using black color after applying two coats of suitable anti corrosive chemical.</p>	
2.12	<p>The vendor must follow, supply and assemble the components as per the list of preferred make prepared by IPR enclosed under Appendix –II.</p>	
2.13	<p>Vendor's scope of work also includes the following points:</p> <ul style="list-style-type: none"> a) During the preparation of fabrication/manufacturing drawings, Vendor shall also study the fabrication feasibility and shall intimate to IPR for any modifications that may seem to be necessary for successful manufacturing/fabrication of components, sub-assemblies & assembly. After approval from IPR, vendor shall incorporate necessary modification. b) The manufacturing/fabrication drawing shall clearly indicate the welding process, weld serial no. and weld joint design considered for production of joints during assembly. c) Vendor must also submit the fabrication methodology plan along with schedule in respect of section 11(delivery schedule) of this technical specification to IPR for approval. d) Vendor should submit manufacturing and inspection Plan (MIP) to IPR for approval. e) Vendor must also make a periodical review plan (part of MIP document) to be conducted by IPR's engineers at vendor's site. f) Procurement of bought out items should be from original equipment manufacturer (OEM) or their 	

	<p>authorized distributors/suppliers.</p> <p>g) Procurement of all necessary raw materials, items and equipment with test certificates, wherever applicable. The test certificates should be submitted to IPR for approval.</p> <p>h) Design, development and manufacturing of tools, jigs, fixtures and other accessories required for manufacturing of components & assemblies for secondary chamber assembly and lining materials installation.</p> <p>i) Fabrication of all components, sub-assemblies and assembly according to the approved fabrication drawings by IPR as per delivery schedule shown in section 11.</p> <p>j) Inspection & Testing of the materials, components & sub-assemblies at appropriate stages before the final assembly. Submission of appropriate test report to IPR before pre-dispatch inspection to be performed by IPR's engineers.</p> <p>k) Factory acceptance tests shall be carried out at vendor site in presence of IPR's engineers.</p> <p>l) Assembly of components and mechanical integrity shall be demonstrated by the vendor at factory site and IPR site.</p> <p>m) Packaging and delivery of components to IPR with appropriate unloading instructions at IPR site after the dispatch clearance by IPR.</p> <p>n) Vendor has to make arrangement for unloading, installation and testing of the secondary chamber assembly at IPR site.</p>	
2.14	Vendor should submit the assembly sequence for the secondary chamber assembly.	
3.	Code and Standards: The vendor shall comply with code and standards mentioned.	
4.	Technical Specification:	
4.1	Secondary chamber assembly (The vendor shall provide acceptance/clarification in separate sheet attached).	
5.	Materials:	
II	The structural materials shall be tested by the vendor in procured condition for its chemical and mechanical properties as well as for any internal defect.	
III	The lining materials shall also be tested by the vendor for its thermo-physical properties mentioned under Appendix-III. The test certificate should clearly indicate the properties mentioned under Appendix-III for each lining material.	
IV	Vendor shall submit test certificates of structural materials and lining materials to IPR issued by NABL accredited laboratory or else Government Organization laboratory for	

	acceptance of material properties by IPR before starting of the fabrication and lining work at factory site.	
V	Vendor shall supply test specimens of structural materials and lining materials as per relevant ASTM standards. IPR may get the materials tested from third parties and in case, if material is found non-complying with IPR specification then the material will be rejected.	
VI	Vendor shall have to submit technical data sheet of lining materials in respect of properties mentioned in under Appendix-III specifying particular brand/make for properties verification and technical qualification. Vendor shall also have to submit detail of recommended binders to be used for lining materials.	
VII	Vendor shall submit proof of materials procurement (i.e. invoice copy/challans/bills/purchase order along with delivery note from OEM/authorized distributer/dealers) in respect of Appendix-II.	
VIII	Vendor shall use fastener (bolts, studs, nut, etc.) confirming to ASME/ASTM standards unless otherwise specified in this document.	
6.	Instruction to vendor: Vendor shall confirm that they have read each point of this section and has agreed with it.	
7.	Machining, Fabrication and cleaning:	
VI	Vendor has to submit WPS, PQR, and WPQ and weld plan to IPR for approval before executing the work.	
VII	Vendor shall provide assembly marking on fabricated components for ease of assembly and disassembly of components of assemblies during repair and maintenance.	
VIII	The welding shall be carried out only by qualified welders. Qualification of welders shall be accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section IX.	
X	Single pass weld up to a maximum extent is preferred. Interruption during welding should be reduced to a minimum possible extent.	
8.	Lining materials installation:	
I	Vendor shall start installation of lining materials at factory after getting acceptance form IPR on submitted test certificates of lining materials.	
II	Vendor shall carry out lining material installation as per approved fabrication drawings including lining work..	
III	IPR representative will witness lining materials installation work carried out by vendor at factory site.	
V	Kindly provide confirmation on point no. V under section 8.	
9	Inspection and testing procedure : The vendor shall read and accept all points mentioned in this section. For deviation in respective point, vendor should write clearly.	
10.	Acceptance test:	

10.1	Factory Acceptance Test (FAT) Vendor has to comply with acceptance test described under this section.	
10.2	Site Acceptance Test (SAT) Vendor has to comply with acceptance test described under this section.	
11.	Delivery schedule: Vendor shall follow the delivery schedule provided under this section. Any deviation should clearly indicate.	
12.	Document to be submitted: The vendor shall submit the document as listed under point 12.1 and 12.2 respectively.	
13.	Insurance, packing, handling and supply: Vendor shall agree with insurance, handling and supply terms?	
14.	Warranty: Twenty (24) months from date of final acceptance of the system at IPR site for poor workmanship, welding/fabrication/painting, lining work installation, faulty material, electronics items etc. During this period if any fault occurs/detected in contractor's services, contractor shall rectify the same at no extra cost at IPR site. In the event contractor fails to fulfil his guarantee obligations, IPR shall have the right to remedy or to have remedied the defect/fault, in both cases to contractor's account.	
15.	Post warranty support: The vendor shall confirm that they will provide the post-warranty support for additional three years after expiry of warranty period i.e. 1 year for any of the mechanical damages or lining material damages in the supplied assembly at Homi Bhaha Cancer Hospital (HBCH), Varanasi City . However, the cost for such post-warranty support is " Not To Be Included " in the quotation against the present tender.	

Appendix	Vendor Acceptance/ remarks
Appendix – I:	Vendor shall study each drawing of assembly, sub-assemblies, parts and BOM provided in respective drawing numbers. Kindly provide your acceptance.
Appendix – II	Provide your confirmation in separate sheet attached.
Appendix – III	Provide your confirmation in separate sheet attached.
Appendix – IV	Provide your confirmation in separate sheet attached.

4.1 Secondary chamber assembly

Description	Specifications	Vendor Acceptance/ remarks
Gas inlet port	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : $\pm 1\%$ or $\pm 1.0\text{mm}$ whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 115 mm (thick) (b) insulation layer type 1 = 200 mm (thick) (c) insulation layer type 3 = 5 mm (thick) ➤ Lining materials specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively. 	
Left side end flange	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Flange Type: Rectangular and integral type flange as per 2D drawings. ➤ Surface finish of gasket contact area of flange should be 3V, other area shall have 2V. 	
Main rectangular chamber with top cover	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : $\pm 1\%$ or $\pm 1.0\text{mm}$ whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 75 mm (thick) (b) insulation layer type 1 = 230 mm (thick) (c) insulation layer type 2 = 50 mm (thick) ➤ Lining material specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively. Vendor shall make support structure for connecting gas burners, fuel line, Air Line and its accessories. 	
Right side end flange	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Flange Type: Rectangular and integral type flange as per 2D drawings. ➤ Surface finish of gasket contact area of flange should be 3V, other area shall have 2V. 	
Gas outlet port	<ul style="list-style-type: none"> ➤ MOC: Specified in the engineering drawings under Appendix I. ➤ Lining materials thickness: (standard brick size: 230 x 115 x 75 mm, size tolerance : $\pm 1\%$ or $\pm 1.0\text{mm}$ whichever is greater) <ul style="list-style-type: none"> (a) refractory layer = 75 mm (thick) (b) insulation layer type 1 = 200 mm (thick) (c) insulation layer type 3 = 5 mm (thick) 	

	<ul style="list-style-type: none"> ➤ Lining materials specification: lining materials should be procured as per detail given under Appendix –II and Appendix-III respectively. 	
Duel fuel gas burner	<ul style="list-style-type: none"> ➤ Gas burner with standard cast iron mounting: <ul style="list-style-type: none"> (a) Fuel used: LPG/PNG (b) Burner standard: ISO 13577-2:2014 (c) Mode of operation: Automatic <ul style="list-style-type: none"> i. Burner should be operated with temperature feedback control. ii. The air fuel ratio should be control automatic using PID controller. (d) Each burner capacity: 100000 Kcal/hr (±10%). (e) Operating temperature in the secondary chamber: 1050 ±50°C (f) Total no of Burner: 04 nos. (g) Each burner has separate control and maintains the temperature in each segment in the secondary chamber. (h) Each burner should be operated in the range of 40% to 100% of its capacity. (i) Assembled long last burner block with SS tile jacket for gas burner (j) All accessories for proper functioning of burner such <ul style="list-style-type: none"> (a) Air Line accessories (b) Combustion and atomizing blower (c) Auto ignition and flame failure safety device (Pilot burner) (d) Gas line accessories (e) Gas train (f) Gas flow meter <p>Note: All four nos. of burners and its accessories should be mounted on the secondary chamber assembly and its support structure.</p> <p>Acceptance criteria : according 10.1 and 10.2</p>	
Support structure	<ul style="list-style-type: none"> ➤ MOC: Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR. ➤ The support structure should enough to take load as per Appendix-V 	
Service platform	<ul style="list-style-type: none"> ➤ MOC: Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR. ➤ To access individual components during service, repair and maintenance. ➤ The width for service platform shall have to accommodate minimum 3 persons during operation, repair and maintenance. ➤ The service platform should be sturdy enough to take 	

	<p>load of minimum 3 persons and /or other structures connecting it.</p> <ul style="list-style-type: none"> ➤ The design of service platform should be such that it can be dismantled and/or move away during repair/replacement of any components of secondary chamber assembly. 	
Thermocouple for gas burner feedback control	<ul style="list-style-type: none"> ➤ R-type , ceramic sheath covered ➤ Length of thermocouple: 500 to 550 mm long ➤ Diameter of ceramic sheath pipe: ~ 20mm ➤ Total number of thermocouple: 05 nos. 	
Pressure gauge	<ul style="list-style-type: none"> ➤ Compound type pressure gauge ➤ Pressure range: -ve 1 mbar to 2 bar (g) ➤ Total number of pressure gauge: 01 nos. 	
Sealing requirement	<ul style="list-style-type: none"> ➤ Ceramic fiber gasket or equivalent properties gasket of min. 5 mm thickness that can withstand temperature of 1000 °C. ➤ Fasteners MOC: SA-193 B7 heavy hexagonal type. 	
<p>Note: All dimensional details are included in the drawings. All the other fabrication related details have to be worked out by vendor and approval should be taken from IPR before starting of fabrication.</p>		

Appendix – II: LIST OF SUGESTED MAKE

Sr. No.	Item Description	Make/brand	Vendor Acceptance/ remarks
1.	Plate, pipe, forged, rod, etc. of materials as specified in the engineering drawings under Appendix-I.	Tata, SAIL, RINL, Jindal, Fortran Steel Private Limited, Phenix creation simplified or equivalent make/brand.	
2.	Structural Rolled Steel sections- beams, channels, tee, flats, angles, bars (round, square, hexagonal) of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, SAIL, RINL, Jindal, Fortran Steel Private Limited, Phenix creation simplified or equivalent make/brand.	
3.	Structural Hollow steel sections (Square & Rectangular) and tubular sections of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, Asian, APL Apollo tubes Ltd., Phenix creation simplified, Fortran Steel Private Limited or equivalent make/brand.	
4.	Structural tubular sections of Mild Steel (M.S.) IS 2062 GRADE E300/E350 Quality A or BR.	Tata, Asian, APL Apollo tubes Ltd., Phenix creation simplified, Fortran Steel Private Limited or equivalent make/brand.	
5.	Duel fuel Gas burner	Continental thermal engineers Pvt. Ltd. , Honeywell kromschroder, Encon thermal engineers, Bloom engineering, Hotwork combustion technology ltd. or equivalent make/brand.	
6.	Refractory layer.	Brick of Calderys, Carborundum Universal Limited (CUMI), MG Materials India, Promat, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned under Appendix-III.	
7.	Insulation layer type 1.	Brick of Calderys, Carborundum Universal Limited (CUMI), Promat, MG Materials India, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.	
8.	Insulation layer type 2.	Ceramic fiber board of Mogan Advance materials, Unifrax, Ceramaterials, gtlproduct, Calderys, MG Materials India, Carborundum Universal Limited (CUMI) or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.	
9.	Insulation layer type 3.	Ceramic fiber paper of Mogan Advance materials, Unifrax, Ceramaterials, Calderys, MG	

		Materials India, Carborundum Universal Limited (CUMI) or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.	
10	Castable material	Calderys, Carborundum Universal Limited (CUMI), Promat, MG Materials India, Mogan Advance materials or equivalent make/brand that conforms to technical specification mentioned in Appendix-III.	
10.	Welding rod.	Esab India (7018 or 7014) or equivalent	
11.	Construction chemicals (if any).	M.C.Bauchemie, FosrocSika, Cico, Pidilite, Sika, Ashford, BAL, Krishnaconchem or equivalent.	
12.	Joint Filler/silicon paint.	Wacker, Dowcorning, Sika, Chokshi or equivalent.	
13.	Paint, primer, putty.	Asian, Berger, Nerolac, ICI, Birla (putty) Roofit(Putty) or equivalent.	
14.	Polish.	MRF, Asian, ICI, Taralac or equivalent.	
15.	Adhesives.	Fevicol, Kitcol, Araldite, BAL or equivalent.	
16.	Anchor fastener/bolts.	Sundaram, Hilti.Fischer or equivalent.	

Appendix – III: Technical specification for lining materials

I. Refractory layer (size: ~ 230 x 115 x 75 mm)

Parameters	Properties	Vendor acceptance/remark
Maximum service temperature, (°C)	1600°C - 1850°C	
Bulk density, (kg/m ³)	1100 - 1300 kg/m ³	
Cold Crushing strength, (kg/cm ²)	≥ 30 kg/cm ²	
Thermal conductivity, (W/m-K)	≤ 0.61 W/m-K @ temperature 800°C	
Note: Side arc/End arc brick is recommended wherever applicable.		

II. Insulation layer type 1 (size: ~ 230 x 115 x 75 mm)

Parameters	Properties	Vendor acceptance/remark
Classification temperature, (°C)	1250°C - 1550°C	
Bulk density, (kg/m ³)	700 - 950 kg/m ³	
Cold Crushing strength, (kg/cm ²)	≥ 20 kg/cm ²	
Thermal conductivity (W/m-K)	≤ 0.41 W/m-K @ temperature 800°C	
Note: Side arc/End arc brick is recommended wherever applicable.		

III. Insulation layer type 2 (Size: ~1000 x 500 x 50mm)

Parameters	Properties	Vendor Acceptance/ remarks
Classification temperature, (°C)	1150°C – 1450 °C	
Bulk density, (kg/m ³)	650 - 800 kg/m ³	
compressive strength (kg/cm ²)	≥ 20 kg/cm ²	
Thermal conductivity (W/m-K)	≤ 0.14 W/m-K @ temperature 550°C	

IV. Insulation layer type 3 (Size: ~ 1220 x 12000 x 5 mm)

Parameters	Properties	Vendor acceptance/remark
Classification temperature, (°C)	1250°C - 1550°C	
Bulk density, (kg/m ³)	150 - 250 kg/m ³	
Tensile strength, (kPa)	≥ 200 kPa	
Thermal conductivity, (W/m-K)	≤ 0.10 W/m-K @ temperature 400°C	

V. Castable material

Parameters	Properties	Vendor acceptance/remark
Classification temperature, (°C)	1200°C - 1700°C	
Bulk density, (kg/m ³)	700 - 1300 kg/m ³	
Cold Crushing strength, (kg/cm ²)	≥ 25 kg/cm ²	
Thermal conductivity (W/m-K)	≤ 0.40 W/m-K @ temperature 600°C	

Appendix – IV

The vendor shall submit the quote for the following **spares mandatorily in price Bid**. Vendor should also specify the quantity offered.

Sr. no.	Descriptions	Qty
01	Refractory layer (size: ~ 230 x 115 x 75 mm)	85 nos.
02	Insulation layer type 1 (size: ~ 230 x 115 x 75 mm)	366 nos.
03	Insulation layer type 2 (Size: ~1000 x 500 x 50mm)	06 nos.
04	Insulation layer type 3 (Roll) (Size: ~ 1220 x 12000 x 5 mm)	01 nos.
05	Gas burner block (specification mentioned in 4.1)	02 nos.
06	Duel fuel burner (LPG/PNG) (specification mentioned in 4.1)	01 no.
07	R-type thermocouple (specification mentioned in 4.1)	02 nos.

SECTION 'D'
FORMAT FOR SUBMISSION
OF PART-II
(PRICE)

Validate

Print

Help

Item Rate BoQ

Tender Inviting Authority: Head - Purchase Section

Name of Work: Preparation of fabrication drawings, supply, installation and testing of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.

Tender No: IPR/TN/PUR/TPT/ET/21-22/014 dated 01-09-2021

Name of the Bidder/ Bidding Firm / Company :						
PRICE SCHEDULE						
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)						
NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	BASIC RATE In Figures To be entered by the Bidder in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT In Words
1	2	4	5	13	53	55
1	Preparation of fabrication drawings and supply of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.	1.000	Set		0.00	INR Zero Only
2	Installation and testing of Secondary chamber assembly at FCIPT, Gandhinagar as per the detailed specifications mentioned in the tender document.	1.000	Job		0.00	INR Zero Only
3	Mandatory Spares					
3.1	Refractory layer (size: ~ 230 x 115 x 75 mm)	85.000	No.		0.00	INR Zero Only
3.2	Insulation layer type 1 (size: ~ 230 x 115 x 75 mm)	366.000	No.		0.00	INR Zero Only
3.3	Insulation layer type 2 (Size: ~1000 x 500 x 50mm)	6.000	No.		0.00	INR Zero Only
3.4	Insulation layer type 3 (Roll) (Size: ~ 1220 x 12000 x 5 mm)	1.000	No.		0.00	INR Zero Only
3.5	Gas burner block (specification mentioned in 4.1)	2.000	No.		0.00	INR Zero Only
3.6	Duel fuel burner (LPG/PNG) (specification mentioned in 4.1)	1.000	No.		0.00	INR Zero Only
3.7	R-type thermocouple (specification mentioned in 4.1)	2.000	No.		0.00	INR Zero Only
Total in Figures					0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only				