

INSTITUTE FOR PLASMA RESEARCH
NEAR INDIRA BRIDGE, BHAT, GANDHINAGAR 382 428
GUJARAT STATE

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TENDER NOTICE DATED 22-2-2010

Itemwise sealed tenders are invited from reputed and eligible parties for the following.

Sr. No	Tender Notice No.	Item	Qty.	Due Date & Time for		Tender Fee	EMD (Rs.)
				Submission of tender	Opening of tender		
1.	IPR/TN/PUR/039/09-10	Data Storage system of Usable 3TB (Online with FC Drives) + 6TB (Nearline with SATA-II/FATA) after RAID-5 in slab offer of – 1) 3TB Online + 3TB Nearline 2) 3TB Online + 6TB Nearline	1 No.	1-4-2010 by 1.00 p.m.	1-4-2010 2.30 p.m.	200.00	20000.00
2.	IPR/TN/PUR/040/09-10	Design, detail engineering, manufacturing, erection, testing and commissioning (with load) of 200V, 300A DC Power Supply	1 No.	8-4-2010 by 1.00 p.m.	8-4-2010 2.30 p.m.	200.00	10000.00
3.	IPR/TN/PUR/041/09-10 (TWO PART TENDER)	Design, fabrication, testing, supply and installation of a horizontal Vacuum Chamber	1 No.	12-4-2010 by 1.00 p.m.	12-4-2010 2.30 p.m.	200.00	20000.00

Tender documents are available on IPR Website : www.ipr.res.in/purchasetenders.html. Tenderers meeting the eligibility criteria mentioned in the tender documents may, at their option, download the tender documents from the website and submit their offer along with prescribed **Tender Fee (non refundable) and EMD** in the form of Demand Draft from any nationalized/scheduled bank drawn in favour of **Institute for Plasma Research** and payable at **Ahmedabad** as per the details given in the tender documents. In case party desires to collect the tender documents by post, they may contact the Purchase Officer along with prescribed tender fee. Tender documents will be issued upto **19-3-2010**. Representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to attend the tender opening.

TENDER NOTICE No.IPR/TN/PUR/041/09-10 DATED 22-02-2010
(TWO PART)

**For Design, fabrication, testing, supply and installation of
a horizontal Vacuum Chamber – 1 No.**

NOTE: THIS IS A TWO PART TENDER. KINDLY SUBMIT PART-A (TECHNICAL BID & COMMERCIAL TERMS AND CONDITIONS AND (PART-B) PRICE BID SEPARATELY IN TWO DIFFERENT ENVELOPES SUPERSCRIBING TECHNICAL BID AND PRICE BID IN ONE SINGLE ENVELOPE

NOTE:

1. Full details and specifications of the items and general instructions to be followed regarding submission of tenders are indicated in the tender documents.
2. **Proof for fulfillment of eligibility criteria mentioned hereunder should be submitted 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.**
3. Tender documents can also be obtained by submitting a written request to the Purchase Officer together with prescribed tender fee, provided that the eligibility criteria is fulfilled. Last date for issue of Tender documents is 19-3-2010.
4. While requesting for Tender Documents, such request shall indicate the **“REQUEST FOR TENDER DOCUMENTS AGAINST TENDER NOTICE NO.IPR/TN/PUR/041/09-10 DATED 22-02-2010”.**
5. The tender fee of Rs.200/- (non refundable) should be made in the form of **DEMAND DRAFT from any nationalized/scheduled bank drawn in favour of Institute for Plasma Research and payable at Ahmedabad.** Vendor's name and tender number shall be indicated on the reverse side of the Demand Draft.
6. **DD should not be prior dated to the date of advertisement. Separate request letter and separate Demand Draft shall be sent for each tender.**
7. Those who use the downloaded tender documents from IPR Website may submit the prescribed Tender Fee keeping in a separate envelope along with the tender.
8. **Tenders received without the prescribed tender fee will be rejected.**
9. No request for the extension of due date will be considered.
10. Late/Delayed offers will not be accepted.

11. **Tender in a sealed envelope (Technical Bid, Commercial terms and conditions and EMD [Part-A] in one envelope and Price Bid [Part-B] in another envelope) superscribing the envelope with the above tender no., date, due date and brief description of tendered item should be submitted to the *Purchase Officer* at the above address by 1.00 p.m. on 12th April, 2010. Part-A (Technical Bid along with Tender Fee of Rs.200/-, commercial terms and conditions and EMD for Rs.20,000/-) received upto 1.00 p.m. on 12-4-2010 will be opened on the same day at 2.30 p.m. in the presence of attending tenderers.**
12. In the event of any date indicated above is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.
13. IPR will not be responsible for any delay/loss of documents in transit.
14. Tenders received without the details asked for including proof of eligibility for participating in the tender may not be considered.
15. Tenderers should furnish/enclose full technical details/literature, delivery period and confirm the terms and conditions attached with the tender.
16. **Those who do not meet with the eligibility criteria need not submit Tender.**
17. **Those who are quoting on behalf of their foreign Principals should submit a Proforma Invoice of Foreign Principals in foreign currency.**
18. The Director, IPR reserves the right to accept or reject any offer in full or part thereof without assigning any reason thereof.
19. **Quotations received without EMD will not be considered.**
20. **The representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to participate in the tender opening.**

ELIGIBILITY CRITERIA:

- 1) Prior experience of similar nature of job covering in the scope of work, with a single purchase order of Rs.30 lacs and above executed in the last three years (attach copy of purchase order).
- 2) Understanding and knowledge of all the field /areas covered in the scope of work.
- 3) Facility/ arrangement (provide the details of agencies planned for outsourced / subcontract activities) for the fabrication of large size dish ends.
- 4) Rolling facility/ arrangement (provide the details of agencies planned for outsourced / subcontract activities) for large size chamber.
- 5) In house Welding facility of Tungsten-Arc Weld with qualified welder and radiography testing/ arrangement (provide the details of agencies planned for outsourced / subcontract activities) for testing.

- 6) In house facility for handling of large size vessels, dish ends & heavy components etc.
- 7) Experience /arrangement (provide the details of agencies planned for outsourced / subcontract activities) with high vacuum and helium leak detection.
- 8) Facility/ arrangement (provide the details of agencies planned for outsourced / subcontract activities) of helium leak detector, vacuum pump etc.

NOTE: Issue of tender documents does not mean that a vendor is qualified to submit tenders. IPR's decision to consider as to whether a vendor has met with the eligibility criteria is final.

**TENDER DOCUMENT FOR DESIGN, FABRICATION, TESTING,
SUPPLY AND INSTALLATION OF A HORIZONTAL VACUUM
CHAMBER**

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

Contents :

- 1.0 Introduction
- 2.0 Codes and Standards
- 3.0 List of the Drawings
- 4.0 Scope of Work and Technical specifications
- 5.0 General Terms and Conditions
- 6.0 Compliances requirement

1.0 INTRODUCTION:

This part of the document contains the Scope of Work and Technical Specifications for the design, along with guide lines for fabrication, inspection, testing, packaging, delivery & erection of a vacuum chamber as shown in supplied guide line drawings.

Features of the vacuum chamber are as follows:

- Configuration : Horizontal chamber with two dish ends and intermediates collars at one side. Other side dish end is welded with horizontal shell..
- Joint less VITON –O Ring seal between two collars.
- Ports : Appropriate ports of different sizes (ISO-K DN200 to ISO-F DN500 with blank, centre ring, O-ring and claw clamp as per German DIN 28403 or equivalent) for different interfaces as mentioned in guide line drawing.
- Ports and nozzles : Different sizes varies from 4” to 14 “ sizes with required collars, O-rings, blanks for different interfaces as mentioned in guide line drawing. One view port on removable dish end with vacuum compatible blank.
- Saddle supports / Support structures attached with chamber as mentioned in guide line drawing.
- Motorized mechanism with micro motion control for motion of dish end.
- Horizontal Liquid Nitrogen shield with demountable dish ends.
- Flexible Joints and cryo-seal for liquid nitrogen shield in between horizontal shield and dish ends.

- Operating conditions:

For Vacuum chamber.

Pressure: Min: 10^{-5} mbar (vacuum) Max.: Approx. 1.5 bar (g)

Temperature: Min : Approx. 0°C and Max : 30°C

For Liquid Nitrogen shield (Plate –Tube Pattern shield)

Pressure: Min: 10^{-5} mbar (vacuum) Max.: Approx. 2.5 bar (g)

Temperature: Min : Approx. -196°C and Max : 30°C

Normal operating Temperature: -196°C (77K) to -188°C (85K)

Nominal operating conditions: Supply Pressure 2.5 bar(g), Return Pressure ~0.2 bar(g) for liquid nitrogen.

2.0 CODES AND STANDARDS

In general ASME Section VIII-Division 1 shall be used for design, fabrication, inspection, testing and acceptance.

- For welding procedure qualification, welders' qualification and all other welding details ASME - Sec. - IX shall be followed.
- For testing methods ASME - Sec. - V shall be followed.
- Material shall be according to relevant ASTM/ASME standard.

3.0 LIST OF DRAWINGS

Following guide line drawing is supplied by IPR along with this document.

SR. No.	TITLE	SHEETS
1.	General Assembly : Current Leads Assembly Chamber	Page 14-17

4.0 SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

The total scope of work includes the below mentioned activities to be carried out by vendor. The vendor shall be responsible for design, material procurement, fabrication and testing at their site. Involvement, coordination and approval from third party inspection (TPI) agency, erection of the assembled system at IPR and final testing are also included in scope of work. **IPR reserve the right to define/ select Third Party Inspection (TPI) agency and after finalization of TPI agency all expenditure for TPI shall be born by vendor.**

4.01 SCOPE OF WORK AT VENDOR'S SITE

The scope of work at vendor's site includes,

a) Design, Analysis & Engineering / fabrication drawing:

Design

- 1 Design of a vacuum chamber and its components, accessories required for specific high vacuum (10^{-5} mbar) application.
 - Design of chamber as per ASME section VIII Div I/ Div II.
 - **Estimation of wall thickness**
 - **Estimation of Collar Thickness and width with joint less O-ring seal.**
 - **Estimation of numbers of Hydraulic clamp for clamping of de-mountable dish end with horizontal chamber.**
 - **Size estimation of O- ring for 1×10^{-5} mbar vacuum and 1×10^{-6} mbar l/s gross leak rate.**
 - Design of support structures/ saddle supports for complete assembly etc.
 - Design of micro motion control mechanism for to & fro motion. Vendor may decide a separate driving mechanism including electric motor, gear box, coupling, counter weight, trolley, wheels, rails, etc for ~1 meter stroke movement of dish end.
 - Design shall include the stability of removable dish end during to & fro motion (Dish end shall not topple or become unstable during to & fro motion).
 - Design of Liquid nitrogen (LN_2) shield for temperature profile range of 80K to 85K. It includes the sizing of tube for shield, pressure drop estimation, assumption/ estimation of shield plate thickness, estimation of pitch of tube. A complete thermo-hydraulic analysis along with structural analysis for Liquid Nitrogen (LN_2) shield at operational conditions as mentions in section 1.0 is under scope of work.
 - Design of internal support structure made of low thermal conductivity material (like G-10 / G-11 CR) for liquid nitrogen shield.

Analysis

- Complete steady state structural analysis of vacuum chamber (Shell & Dish ends along with collars) for operating conditions as mentioned in section 1.0 using standard software's ie PvElite or Compress or equivalent standard software.
- Complete steady state structural and thermal FE analysis of Liquid nitrogen shield (Plate and tube pattern) for operating conditions as mentioned in section 1.0 using standard software's ANSYS / NISA or equivalent standard software etc.
- Sizing of tube, tube-pitch estimation, and tube-plate brazing length (Stitch length), assumption / estimation for copper plate thickness and coupled thermo- hydraulic analysis for complete shield shall be with respect to operating conditions as mentioned in section 1.0.

Preparation and submission of a design and analysis documents verified by third party for approval to IPR. The document shall include models, analysis, results, load cases, material properties, assumptions and conclusion etc.

Engineering / fabrication drawing:

Vendor shall prepare engineering and fabrication drawings based on approved design report and from supplied general assembly drawings. Vendor shall get it approved from third party inspection agency and submit the same to IPR for final approval.

b) Selection & Procurement of material:

- In General all components of chamber i.e, dish ends, shell, large size ports, flanges and blanks shall be made of stainless steel ASTM A240 SS304L or ASME SA240/ 240M SS304L annealed.
- Annealed ETP Copper, with copper contents not less than 99 % or equivalent shall be used for liquid nitrogen shield and Soft Copper B-88, K-type or equivalent shall be used for its tubes.
- All port/ nozzles shall be made of seam less SS pipes as per SA312 TP 304L.
- Alloy steel and stainless steel bolting shall be as per ASTM A 193/A 193 M. Required size "HILTI "make anchor fasteners/ foundation bolts shall be used for the anchoring support structure.
- Mild steel ASTM A 36/ A709 Gr36 shall be used for support structure. However working platform can be made of Al/ MS chequered plates.
- High vacuum and low temperature compatible low thermal conductivity material shall be used for internal support for LN₂ shield.
- Hydraulic clamps and power pack unit including the interconnecting tubing network.
- Gear Motor Unit (Motorized mechanisms): Motors as per : IS : 235/1961 or equivalent, TEFC Squirrel cage induction type, 415 ± 10% Volts, 3 Phase, 50 ± 5% Hz, A.C. with Insulation Class 'F' and coupled gear box for to-fro motion of dish.
- Gear box with lubrication: Oil (SAE-90) filled up to the level indicator, ensures proper lubrication of the gears and bearings in the unit.
- Four numbers of calibrated Pt-100 sensors (4 wired cryogenic grade class-A with ± 0.3% accuracy over full range and maximum 0.2 K resolution) for mounting on LN₂ shield along with required feed through's.
- Two numbers of manually operated control valves and two safety valves (with respect to ASME B16.34 or equivalent) for LN₂ line. Vendor shall be responsible for generation of specification and selection of valves for the specified operating conditions.

c) Fabrication & assembly

Vendor shall discuss with IPR representative and finalize the fabrication methodology.

➤ Fabrication guide lines

All welding involved in the fabrication and assembly including all the components shall be carried out in accordance with applicable code or approved equivalent. Welding procedure and parameters shall be established on test samples, which shall be subjected to tests to demonstrate the conformity the above requirements.

The following practice shall be followed during entire welding/fabrication,

- Before welding all parts should be cleaned with detergent and finally cleaned with acetone or 1:1:1 trichloroethane.
- As specified in the drawings all welds to be done on Material SS304L / SS316L should be Tungsten argon arc welding (TIG) according to ASME - Sec. IX.
- Trapped volume should be avoided during welding. Full penetration weld should be employed wherever it is possible. When welding is to be done on both sides of the wall, continuous welding on inner side (high vacuum side) and tack welding outside is to be done.
- Single pass weld up to a maximum extent is preferred. Interruption during welding should be reduced to a minimum possible extent.
- If leak develops weld should be ground off with the base metal and re-welded. Grinding should be done using the wheel made of non-carbide material to avoid carbon deposition on the SS material surface.
- Filler material, if used, shall be compatible with the parent material and shall compliances to AWS ER 308L or ER 316L procured from original manufacturer (Like ADOR, MODI etc). Vendor shall submit the material test certificate of filler material. Vendor shall take approval from TPI and IPR, for the use of filler material needed.
- All welds should be ground smooth and flush with adjoining surfaces with convex curvature with adjoining walls everywhere prior to leak test.
- The welding shall be carried out only by qualified welders. A copy of certificate shall be submitted to IPR.
- All surfaces specifically the inner ones exposed to high vacuum shall have a mirror polished surface finish.
- Brazing if any involved shall be done with fluoride free flux. Silver brazing shall be carried out using cadmium free filler rods as per BAg-8. Deformations developed on plate due to brazing shall be rectified.
- Maximum two numbers of weld seams are acceptable on both the outer dish ends. Solution annealing of dish ends is envisaged and is in the scope of work.
- Only one circumferential seam and two numbers of longitudinal seams are acceptable on outer horizontal cylindrical chamber.
- Maximum two numbers of weld seams are acceptable on both the Copper dish ends shields.
- Maximum two circumferential seam and three numbers of longitudinal seams are acceptable on copper horizontal shield.
- Mounting of Pt-100 sensors on LN₂ shield. Teflon coated copper/ phosphor bronze wires shall be used up to required feed through. However IPR will provide guidelines to the vendor.
 - **Assembly**
 - Assembly of cylindrical LN₂ shield and one side LN₂ shield in side the outer vacuum chamber.

- Mounting of Pt-100 sensors on LN₂ shield along with Teflon coated copper wires and feedthroughs. However IPR will provide guidelines for mounting of sensors on the shield to vendor.
- Closing of other side LN₂ shield dish end with inter connecting LN₂ piping etc.
- Helium leak detection and pressure test of copper tube joints.
- Closing of outer dish end using motorized mechanism.
- Clamping of dish end.
- Mounting of vacuum pump on ISO-K 500 port.
- Blanking of all other remaining openings.
- Evacuation of assembled system.

d) Inspection & Testing at Vendor site

VENDOR shall carryout the following tests during the execution of the work.

- All the fabrication drawings complete with dimensions and tolerances shall be submitted to TPI and finally shall be submitted to IPR for approval. Only after approval of these drawings from IPR, the fabrication shall commence. Vendor shall specifically bring out any deviation from drawings separately in a covering sheet.
- All the raw materials (stainless steel) to be used for the fabrication shall be tested for their chemical composition (with spectroscopy & Wet test) , physical properties, mechanical properties and micro test (Inter granular corrosion test for all stainless steel following practice E as per A262-02 a. Chemical composition test is desired for copper tubes and copper plates. All the test certificates shall be approved by third party and shall be submitted to IPR. Only after approval of raw material by IPR, fabrication shall start. Proper co-relation shall be maintained with IPR and third party for any certification during all stages of manufacturing.
- Fabrication of all the components shall be as per fabrication drawings approved by IPR (Ref. Section 4.0) and procedure discussed in sections 5.0.3 and 5.0.4
- All components shall be checked for dimensions and surface finish. All the inside surfaces of top dished end, bottom-dished end, ports/ nozzle connections shall be mirror polished buffing.
- All the machined surfaces of collars/ port shall have the surface finish of 1.6 to 3 micron.
- During fabrication all the components shall be inspected for dimensional accuracy as per approved drawings and specifications.
- Non destructive tests such as ultrasonic testing for plates, radiography, dye penetration:
 100% Radiography Test (RT) shall be carried out on all the possible welds as per ASME - Sec. – V. and dye penetration test (DPT) shall be carried out on all weld joints.
Inspection reports verified by TPI shall be submitted to IPR.
- Pressure, Vacuum and helium leak testing of LN₂ shield: Brazed Copper tubes shall be tested against the pressure (as per Sec.VIII) before and after brazing. Helium leak detection of LN₂ Shield tubes (brazed on shield) under Pressure mode for an acceptable local leak rate $< 1 \times 10^{-6}$ mbar l/s shall be carried out (as per Sec V).
- Gross leak rate of complete assembled system (LN₂ shield + Outer vessel) shall be $< 1 \times 10^{-6}$ mbar l/s. Vendor shall make necessary arrangement for gross leak rate measurement. A procedure report shall be submitted before commence of helium leak test.

- All identical components shall be checked for interchange ability. Once all the individual components are accepted for their vacuum compatibility, it should be assembled to make a check for mechanical integrity, dimensional requirements etc.

e) Final Acceptance tests at vendor site

- All the components of chamber and shield components shall be scrupulously cleaned with detergent, water and 1, 1, 1 tri-choloro ethelene.
- After achieving satisfactory assembly of LN₂ shield and chamber etc, the whole assembly with the required fittings, blanking flanges shall be evacuated to 1×10^{-5} mbar vacuum in clean, cold and degreased condition. The complete assembly placed on the support structure shall be helium leaks tested with gross leak rate of 1×10^{-6} mbar-l/s (global leak rate) with out passing LN₂ in shield. After achieving satisfactory test LN₂ will be passed through shield and LN₂ shield will be tested for temperature profile maximum up to 85K. Vendor shall make necessary arrangement for current source and voltmeter etc. Further helium leak detection will be carried out for a gross leak rate of 1×10^{-6} mbar-l/s.
- The complete assembly placed on the support structure shall be checked for to & fro motion of dish ends along with micro motion mechanism.
- The completed units shall be tested for noise level, oil leakage from power pack unit.

Vendor shall make arrangement for the required pumping system, leak detector, liquid nitrogen, oil for power pack etc.

A complete inspection and test report witnessed and approved by TPI shall be submitted to IPR for issuing dispatch clearance.

4.02 DELIVERABLES

4.02.01 Documents required submitting at IPR

- a) Quality Assurance Plan
- b) Design and analysis report. Detailed design/ analysis report to be submitted for review in hard copy as well as soft copy (Word format) and required database files of software used in analysis.
- c) Detail engineering drawings including fabrication details, in hard copy as well as soft copy (AUTOCAD/ MDT/ Solid works etc)
- d) Test report of raw material including Chemical composition, physical properties and mechanical properties, original manufacturer /mill certificate etc.
- e) Reports including Non destructive tests such as radiography, dye penetration: 100% Radiography Test (RT) etc.
- f) Dimensions and surface finish report.
- g) Procedure and Test report for ultimate vacuum of 1×10^{-5} mbar of the assembled system and He leaks test report with Global gross leak rate of 1×10^{-6} mbar-l/s , LN₂ shield temperature profile measurement etc. at VENDOR site.

4.02.02.1 Supply of Packaged components

Vendor will pack all the components with the proper packing material to avoid damages during transportation. All components will be cleaned thoroughly with detergent and dried before packing. Packing procedure shall be submitted to IPR for approval. Vendor will obtain 'Release of Shipment' from IPR authority before supply of the material to IPR.

4.03 SCOPE OF WORK AT IPR SITE

The scope of work in this regard includes the followings

- Unloading of supplied components.
- Erection of a support structure. However no civil work is foreseen at IPR site.
- Installation of chamber on the support structure.
- Fabrication of necessary connections for supply and return of LN₂ lines with required vacuum barrier, supply and return manually operated valves and safety valves at IPR
- Installation of power pack unit along with required hydraulic network.
- Motion test of dish ends.
- Evacuation and performance tests (Similar test as mentioned above)
 - Vacuum Test** (testing of vacuum (10^{-5} mbar)
 - Gross helium leak rate** (1×10^{-6} mbar l/s)) test
 - LN₂ shield temperature profile** (maximum up to 85K) measurement of assembled system at IPR.

IPR will provide the required vacuum pump, leak detector, 240/ 440 V power, Already install LN₂ transfer lines at IPR, LN₂, 10 tonne capacity overhead crane etc at IPR premises.

4.04 QUALITY CONTROL AND ASSURANCE TESTS

Vendor shall submit an Quality Assurance plan (QAP) verified by TPI to IPR for the approval with detailed time schedule.

The quality assurance plan shall include all the stages starting from identification of raw material to final acceptance. Design & engineering, fabrication, testing, inspection, erection etc shall be covered in Quality Assurance plan (QAP) which shall be checked and verified by TPI and submitted to IPR for final approval.

4.05 GUARANTEE

Vendor shall give guarantee for the performance of the fabricated components for eighteen months (18 Months) from the date of final acceptance. During this period if any fault occur vendor shall rectify at no extra cost.

5.0 GENERAL TERMS AND CONDITIONS:

Any deviation / discrepancy / change from the drawings shall be brought out in separate sheet by the vendor.

Vendor shall submit to IPR a list of material, design, inspection plan, quality assurance plan, material procurement schedule, manufacturing schedule and release for fabrication approved by third party. A reputed Third Party Inspection agency shall be involved during the execution of corresponding work. Inclusion of the third party is responsibility of vendor. Procurement of all the tools, fixtures, jigs, equipment's, material, temporary blanks etc.; required for the fabrication, inspection and testing shall be in the scope of VENDOR. IPR authority / representative shall

have access to all manufacturing facilities, inspection and testing facilities, tools, drawings etc.; during all stages of manufacture. IPR / its authorized representative reserve the right to add any supplementary requirements like random sample testing of raw material.

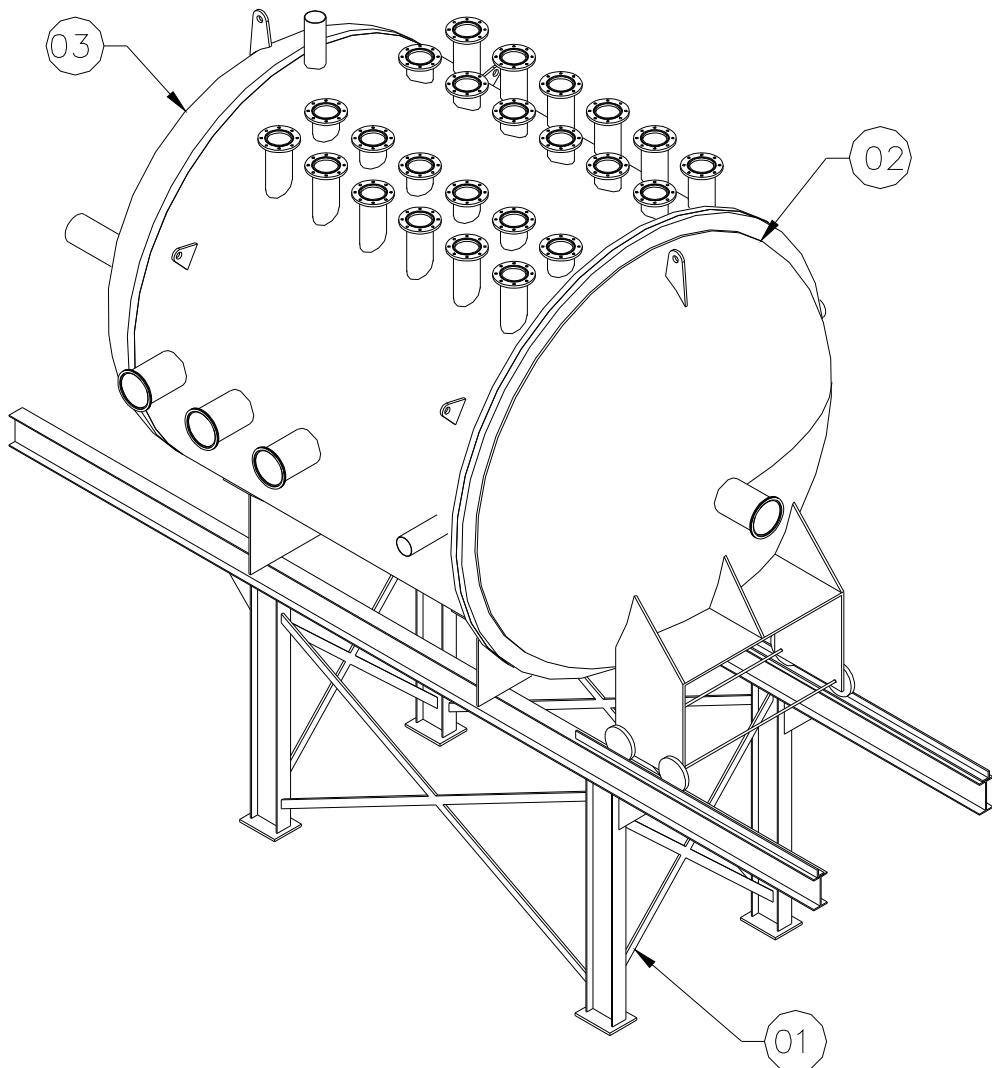
Safety issues: Vendor shall submit the details of Safety norms/precautions followed for site activities in routine work.

Vendor is advised to make a visit at IPR site to understand the IPR site constraint before quoting.

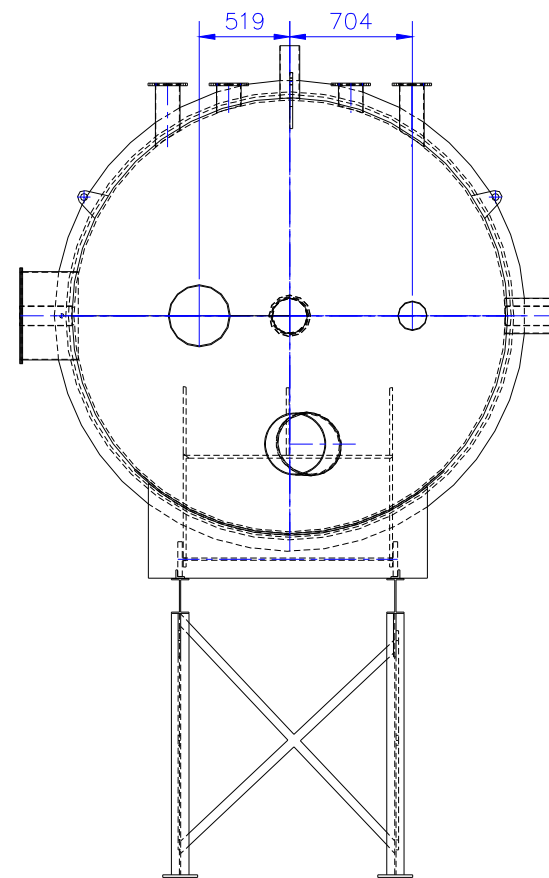
6. Compliances Requirement

Following details shall be provided by vendor along with the quotations.

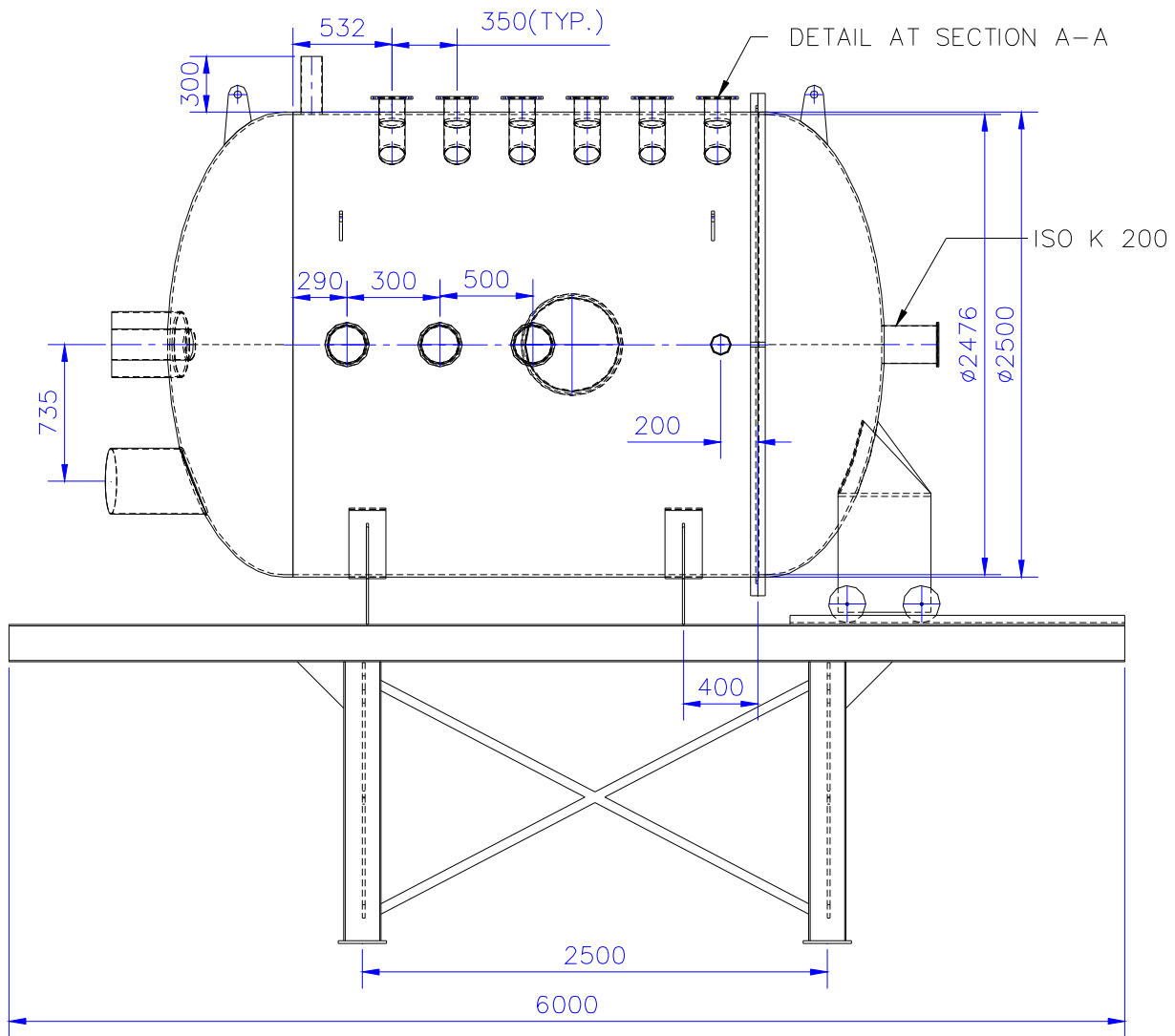
Sr. No.	Area	Point	Compliance Yes /No
1	Organisational structure & profile	-	
2	Manpower division wise	-	
3	Design and Analysis	- Standards / codes which are followed / used - Software to be used to carry out the analysis (Software reliability to be Assured by VENDOR)	
		- in house/ outsource facility (Hardware with configuration, details of licensed software, its version, manpower available etc.) Software reliability assurance from VENDOR	
		- If Analysis is outsourced then the name of the contractor and details of their facility - Vendor shall provide the access to IPR engineers to analyze the modeling, analysis details at their facility.	
4	Report Format	Details of design/ analysis report to be submitted for review in hard copy as well as soft copy (Word) and required database file.	
5	Material Testing	Inspection / testing Agency (Govt approved lab/ Original manufacturer certificate)	
6	QAP	Quality Assurance followed - Internal QAP followed - description - QAP followed for out sourced activities	
		- In-house QC /QA facility - Facilities that are outsourced - Details of third party Inspection employed in previously during the execution of similar kind of work orders in past.	
7	Manufacturing	- List of activities/processes planned to be done with in-house facilities - List of activities planned to be outsourced. Details of agencies planned for outsourced activities	
8	Third Party Involvement	Involvement and approval from third party at each stage start from design to final acceptance.	
9	Safety	- Details of Safety norms followed for in-house activities in routine work Details of Safety norms/precautions followed for site activities in routine work	



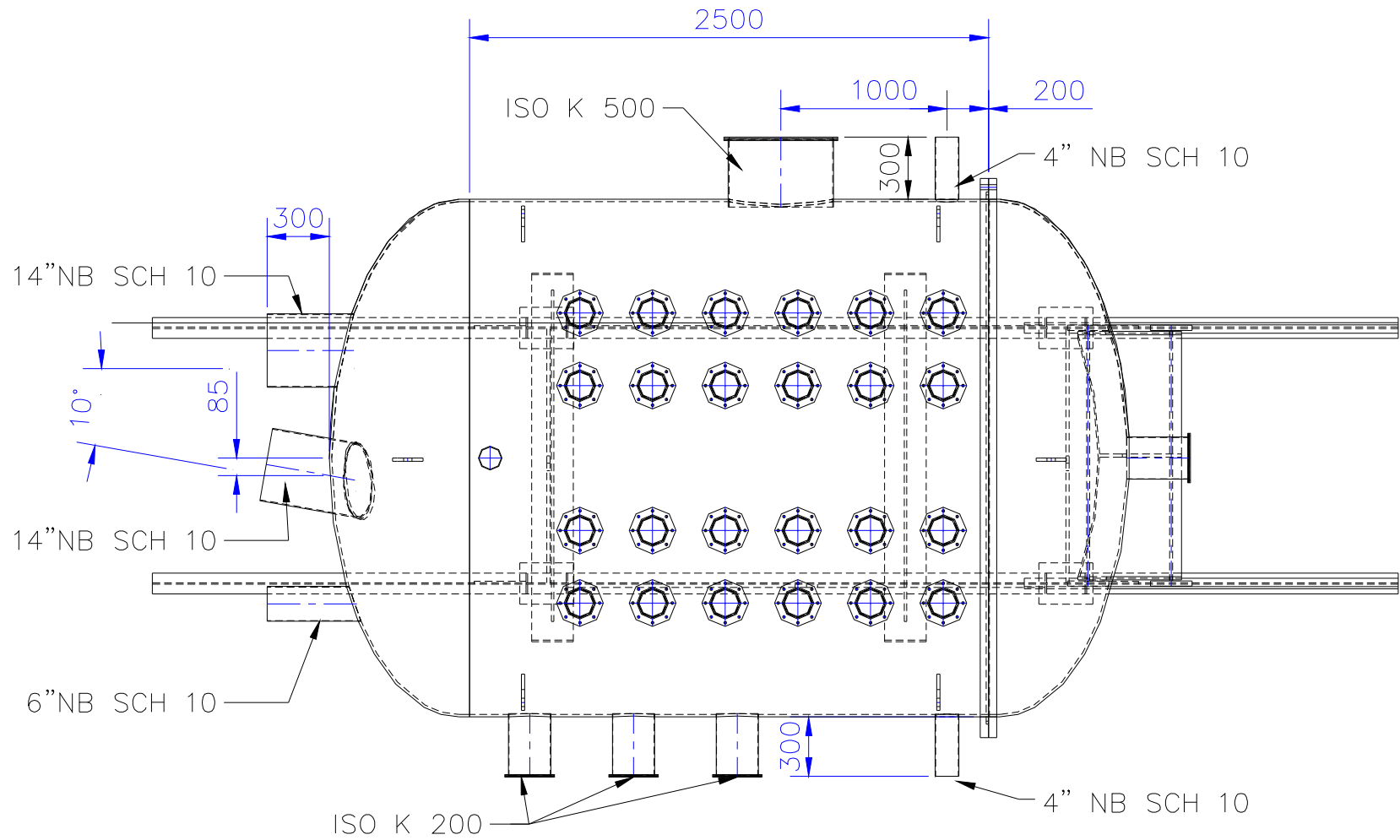
General Assembly: Horizontal Vacuum Chamber (Current Leads Assembly Chamber shown without LN2 shield)



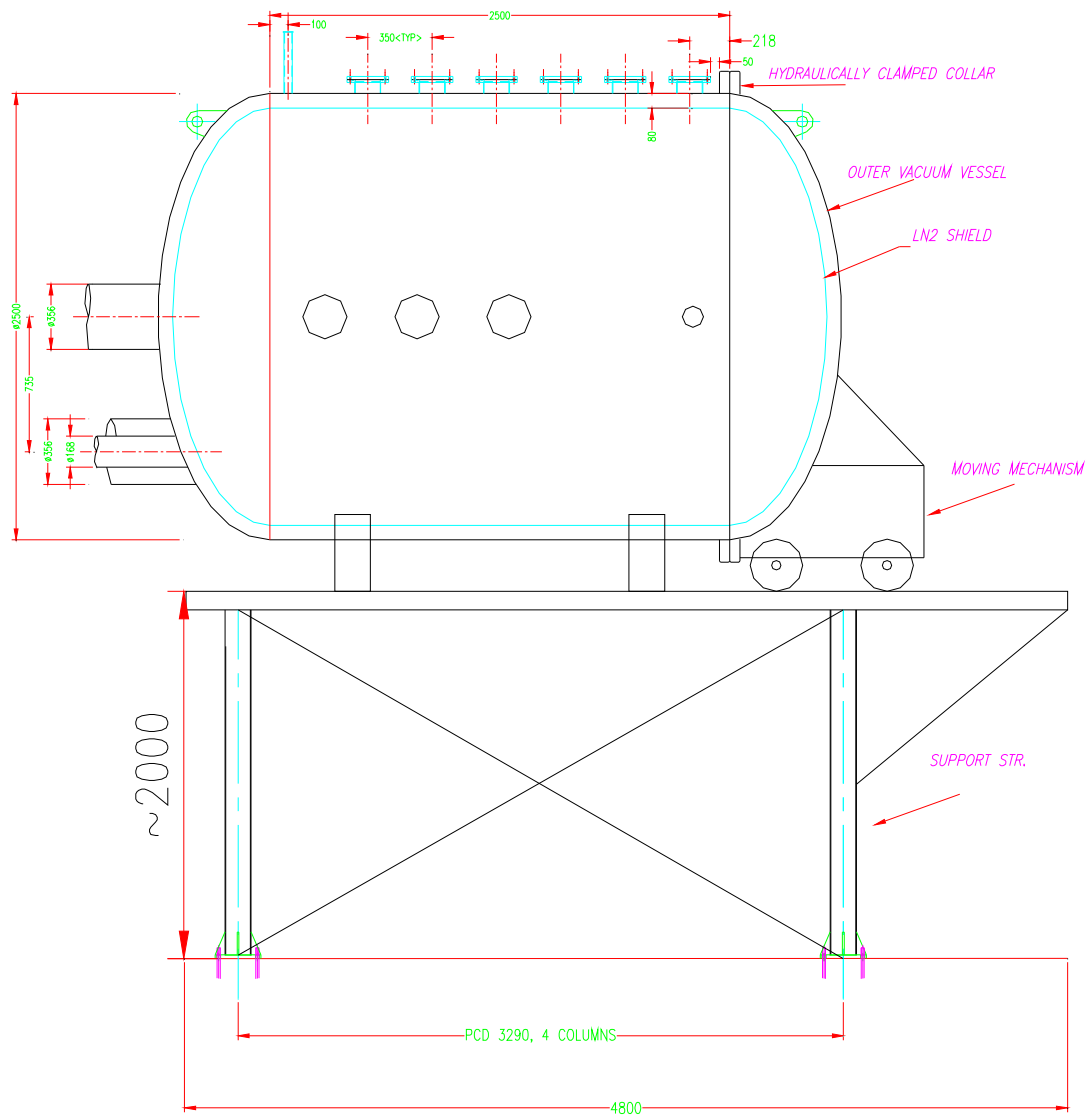
LHS VIEW



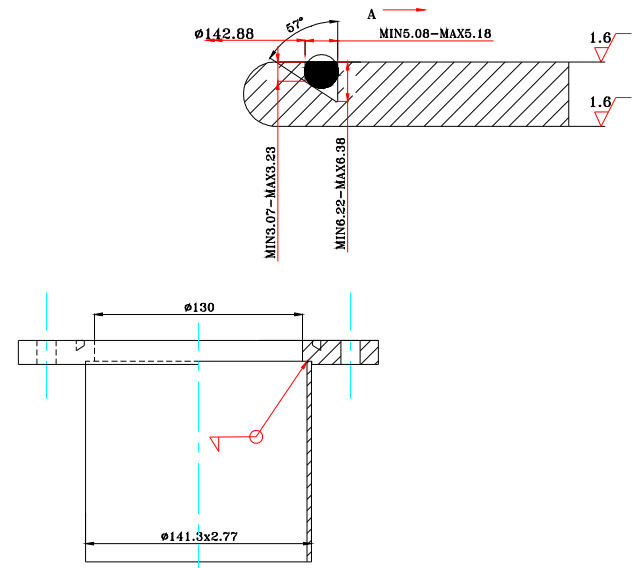
ELEVATION



PLAN



ELEVATION (SCHEMATIC- With LN2 Shield)



Sketch of a 24 Nos PORTS

INSTRUCTIONS TO BIDDERS AND TERMS AND CONDITIONS

1. The quotation and any order resulting from this tender/enquiry shall be governed by our Conditions of contract and supplier quoting this enquiry shall be deemed to have read and understood the same in toto.
2. Where counter terms and conditions have been offered by the supplier, the same shall not be deemed to have been accepted by us, unless our specific written acceptance thereof is obtained.
3. **Tender Fee: Tenders received without the prescribed Tender Fee will be rejected.**
4. **Clarifications:**
Any technical and commercial questions, information, clarifications, etc. that may be required pertaining to this Tender/enquiry may be obtained from the Purchaser before submitting the tender.
- 4.1 Bids shall be complete in all respects and shall include properly filled in prices, other specifications, schedules, relevant drawings and catalogues as necessary alongwith the bid covering letter, all in duplicate.
5. **QUOTATION:**
Quotation should be submitted **in two parts, i.e. Tender Fee, EMD, Technical Bid & Terms and conditions (Part-A) and Price Bid (Part-B).** Tender should be submitted in two separate sealed envelopes (in duplicate) superscribing the above tender no., date, due date and brief description of tendered item along with Earnest Money Deposit (EMD) for Rs.20,000/- by way of Demand Draft from a nationalized/scheduled drawn in favour of ***Institute for Plasma Research*** and payable at Ahmedabad should be submitted to the Purchase Officer at the above address latest by 1.00 p.m. on **12-4-2010.** **Part-A (Technical Bid along with Tender Fee of Rs.200/-, commercial terms and conditions and EMD for Rs.20,000/-)** will be opened on the same day at 2.30 p.m. in the presence of attending tenderers.
- 5.1 Late and delayed quotations will not be considered. IPR will not be responsible for postal delays or any other delays in receipt of quotation. Envelopes received without Tender number, date, due date and short description of item may be rejected. The quoted prices should be firm for a period of 120 days from due date for placing order. IPR is not bound to accept lowest rate/s. IPR reserves the right to place order on one or more parties irrespective of whether he is lowest or not. The scope of supply includes insurance by the Contractor/Supplier.
6. **Specifications:** Material should be offered strictly conforming to our specifications/drawings. Deviation, if any, should be clearly indicated by the supplier in their quotation. The supplier should also indicate the Make/Type number of the materials offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation.
7. **Terms of prices:** Quotation should be submitted on door delivery basis without extra charge wherever possible. For quotations on Ex-Works, Ex-godown basis the approximate packing and forwarding charges should be indicated by the supplier. In the case of local suppliers, the material is to be delivered at our stores free of charge. Unit rate/s should be valid throughout the validity of purchase order/contract period for

addition/deletion purposes. Break-up of price should be furnished. The quoted price should not be subject to price escalation for whatsoever reasons. The quoted price shall be firm, fixed and non-revisable during the validity/extended validity of purchase order/contract.

- 7.1 Prices are required to be quoted according to the units indicated in the tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
- 7.2 Wherever options are specified in the tender documents, IPR reserves the right to accept any option/s irrespective of whether all the vendors have quoted for all the options or not. The decision of IPR in this regard will be final.
8. Tender should be free from Correction and Erasures. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
9. IPR shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
10. **Sales Tax etc.:** We have no "C" or "D" form. The percentage of Sales Tax/VAT, surcharge, if applicable, and other levies legally leviable and intended to be claimed should be clearly indicated in the tender. Where this is not done, no claim on these accounts would be admissible later.
- 10.1 **VAT Registration:** You may submit a copy of VAT Registration certificate along with your quotation (if applicable).
- 10.2. **Service Tax:** Wherever Service tax is applicable, it should be mentioned clearly. You may indicate percentage of Service Tax in your quotation.
- 10.3 **Excise Duty:** As per Notification No.10/97-CE (Central Excise) dated 1-3-1997, the Purchaser is entitled for availing Excise Duty exemption at present. Excise Duty Exemption Certificate, wherever applicable, and as per rules will be issued at the appropriate time. Hence Excise Duty should not be included in the BID. However, prevailing percentage of Excise Duty may be indicated.
- 10.4 **Octroi:** Octroi is not applicable in our case.
11. **Delivery Date:** The supplier must indicate the firm delivery date by which the materials will be despatched/delivered by them from the date of our order.
12. **Inspection:** Materials on its arrival at IPR will be inspected by Stores In-charge, and his decision in the matter will be final.
13. **EARNEST MONEY DEPOSIT (EMD):**
The Bidder shall submit interest free Earnest Money Deposit (EMD) for Rs.20,000/- (Rupees Twenty thousand only) by way of Demand Draft from a nationalized/scheduled 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.**

- 14.1 **EMD of unsuccessful Bidder will be returned after finalizing the Contract/placing Purchase order.**
- 14.2 **The EMD shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.**
15. **Payment:**
- 15.1 10% advance against submission of Bank Guarantee for an equivalent amount from a nationalized/scheduled commercial Bank. This payment will be made only after signing the contract/Purchase order and submission of Security Deposit.
- 15.2 10% after approval of major drawings by IPR and on receipt of Bank Guarantee for an equivalent amount from a nationalized/scheduled commercial bank.
- 15.3 60% against delivery of material at IPR site, its verification by IPR representative and on receipt of Proforma Invoice in triplicate.
- 15.4. 20% within 30 days from the date of final acceptance and on receipt of Performance Bank guarantee for 10% of the contract value from a nationalized/scheduled commercial bank.

Wherever, advance payment is involved, it will be paid only against submission of Bank Guarantee from a Nationalised Bank. Bank Guarantees should be furnished as per IPR format.

16. No correspondence will be entertained within 30 days from the date of receipt of material and bills, whichever is later.
17. Quotation should be valid at least for 120 days from the date of opening of the tender.
18. **Guarantee:** The Stores/material/goods/equipment offered by the bidder should be guaranteed for a minimum period of twelve months, against defective materials, design, workmanship, operation or manufacture. For defects noticed during the Guarantee period, replacement/ rectification should be arranged free of cost within a reasonable period of such notification. In cases where our specifications call for a guarantee period more than 12 months specifically, then such a period shall apply.
19. **Security Deposit:** The successful Bidder will have to furnish to the Purchaser an interest free security deposit for 10% (Ten percent) of the order value in the form of Bank Guarantee of an equivalent amount from a nationalised/scheduled commercial Bank within 15 days from the date of LOI/Purchase order and the said Guarantee should be valid till the goods are accepted by IPR. The Security deposit shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.
20. **Liquidated Damages:** In addition to forfeiting Security Deposit, Liquidated Damages for the delay shall be 1/2% (half percent) of the total order value for the delay of each week in the scheduled time of supply or the scheduled date of final completion for the work as the case may be, subject to a maximum of 5% (five percent) of total order value. Liquidated Damages will be recovered from the payment due to the supplier.

21. **Performance Bank Guarantee:** The Contractor/Supplier will have to furnish to the Purchaser (IPR) an interest free performance bank guarantee for 10% (Ten percent) of the order value/ contract value by Demand Draft or by way of providing a Bank Guarantee from a Nationalised/Scheduled commercial Bank valid for a period of 12 months/guarantee period mentioned in the order from the date of installation/acceptance for satisfactory performance of the work carried out by the Contractor.
22. The Contractor/Supplier shall at all times indemnify the purchaser against all claims which may be made in respect of the stores/material/goods/equipment for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage, which may cause failure of supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfillment of the contract.
23. **BAR/PERT Charts:**
To be provided as per the requirement of Purchaser.
24. **Sub-Contract:** All sub-contractors are required to be appraised and approved by the Purchaser before placement of orders by the Vendor.
25. **Jurisdiction:** The contract/Purchase order shall be governed by the Laws of India for the time being in force. The Courts of Ahmedabad only shall have jurisdiction to deal with and decide any legal or dispute arising out of this contract.
26. **Settlement of disputes:** Any disputes or difference arising out of or in connection with the Contract/Purchase order shall be to the extent possible settled amicably between the parties.

If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration.
27. **Arbitration:** In the event of any dispute or difference arising under this Contract, the matter shall be referred to the Arbitrators one each nominated by the Purchaser and Contractor from their respective organisations. In case the said Arbitrators are not able to settle the dispute by themselves, the matter shall be referred to the Arbitrator mutually nominated by the Purchaser and the Contractor and whose decision will be final and binding on both the parties. The venue of arbitration will be IPR. Subject to as aforesaid the Arbitration Act, 1940 and the rules thereunder and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this Contract.
28. **Permits and Licences:** The Contractor shall secure and pay for all permits and licence which he may require to comply with in respect of all laws, ordinances and regulations of the Government or Public Authorities in connection with the performance of his obligations under the Contract. The successful contractor shall be responsible for all damages and shall indemnify and save the Purchaser harmless from and against all claims for damages and liability which may arise due to his failure to comply with what is stated above.
29. **Training:** 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.

30. **Operation/Instruction Manual:** Where operation/instruction manual is essential to enable the Purchaser to put the stores to proper use, the successful tenderer shall furnish such operation/instruction manual along with the stores.
31. **Test Certificate:** Wherever required, test certificates should be sent along with the despatch documents.
32. **Secrecy:**
 - 32.1 All information, drawings, designs and specifications imparted to the bidder/successful contractor shall, at all times, remain the absolute property of the Purchaser, the bidder/successful contractor shall not use them for purposes other than for which they are provided for and shall treat all these documents as confidential. These shall not be reproduced in whole or in part for any other purpose.
 - 32.2 The contractor shall use his best endeavours to ensure that such information are not divulged to third parties except where needed for the performance of the contract by the successful bidder with the prior consent of the Purchaser. In such cases, the successful contractor shall ensure and obtain similar obligation of confidence, from third parties in question.
33. **Indemnity:** The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by patent. Registration of design or Trade Mark and shall all risk of accidents of damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment of the contract.
34. **Counter terms and conditions of Suppliers:** Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser unless specific written acceptance thereof is obtained.
35. **Installation/commissioning/site works:** Wherever these activities are part of scope of work/specifications, Vendor should carryout out the same without any extra cost to IPR.
36. **Free Issue Material (FIM) (If specified in the tender documents):** Successful tenderer will have to furnish in the form a Bank Guarantee or in any other form as called for by the Purchaser towards adequate security for the materials/property provided/issued by the Purchaser as Free Issue Material (FIM) for the due execution of the contract. Successful bidder shall submit Bank Guarantee from a nationalized bank and arrange insurance for the cost of FIM at his expenses.
37. Late/delayed tenders will not be accepted. Incomplete tenders may be rejected at the discretion of IPR.
38. **IPR is not bound to accept the lowest tender. IPR reserves the right to select any vendor at its sole discretion.**

39. **Result of the tenders:** Unsuccessful tenderers will not be informed of the result of their tenders.
40. The Director, IPR reserves the right to accept or reject any quotation/tenders fully or partly without assigning any reason.
41. IPR reserves the right to place order on a single party or to split the order at its sole discretion.

We agree to the above terms and conditions.

Place:

Signature of Bidder with seal

Date:

Note: A copy of our terms and conditions duly signed should accompany your quotation.

PART-B

PRICE BID FORMAT

(Bidders are requested to offer their price bid in the following format)

S.No	Description	Quantity	Unit cost (Rs.)	Total price (Rs.)
1	Design, fabrication, testing and supply of a horizontal Vacuum Chamber	1 No.		
2.	Installation and commissioning charges (including unloading, shifting, handling with accessories) (Quote Lumpsum charge)	Lumpsum		
3.	Other charges, if any.			
Total Rs.				

	<u>Indicate percentage except Freight</u>		
	Percentage	Included	Excluded
Packing and forwarding			
Excise Duty			
Sales Tax/VAT			
Insurance			
Service Tax on Sr.No.2 above			
Freight	Rs.		

Place:

Signature of Bidder with seal

Date :