

TENDER NOTICE No.IPR/TN/PUR/005/10-11 DATED 23-04-2010
(TWO PART)

**For Design, manufacturing, testing, supply, installation and
commissioning of Pump for Mercury – 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.
4. While requesting for Tender Documents, such request shall indicate **the “REQUEST FOR TENDER DOCUMENTS AGAINST TENDER NOTICE NO.IPR/TN/PUR/ 005/10-11 DATED 23-04-2010”**.
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. Tenders in a sealed envelope superscribing the envelope with the above tender no., date, due date and brief description of tendered item along with EMD for Rs.20,000/- by way of Demand Draft from a nationalized/scheduled bank drawn in favour of *Institute for Plasma Research* and payable at *Ahmedabad* should be submitted to the *Purchase Officer* at the above address by 1.00 p.m. on 15/06/2010. Tenders received upto 1.00 p.m. on 15/06/2010 will be opened on the same day at 3.30 p.m. in the presence of attending tenderers.
10. No request for the extension of due date will be considered.
11. Late/Delayed offers will not be accepted.
11. IPR will not be responsible for any delay/loss of documents in transit.
12. Tenders received without the details asked for including proof of eligibility for participating in the tender may not be considered.
13. Tenderers should furnish/enclose full technical details/literature, delivery period and confirm the terms and conditions attached with the tender.
14. **Those who do not meet with the eligibility criteria need not submit Tender.**
15. **Those who are quoting on behalf of their foreign Principals should submit a Proforma Invoice of Foreign Principals in foreign currency.**
16. The Director, IPR reserves the right to accept or reject any offer in full or part thereof without assigning any reason thereof.
17. **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.**
18. **Quotations received without EMD will not be considered.**

20. **ELIGIBILITY CRITERIA:**

- (i) The vendor should be a manufacture/ authorized dealer (in case of authorized dealer attach a valid dealer ship certificate).
- (ii) The vendor should submit a detailed statement of similar type of liquid metal pumps built by him during the last 5 years (Name and full address of customers with order No.. date, contact person, telephone number, fax number, email id etc. should be submitted along with the copy of purchase orders.)
- (iii) The pump for mercury will be tested at the premises of vendor hence the vendor should have the test facility or access to the test facility as well as instrumentation needed for the tests. The details of the testing facilities should be provided with the offer.

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.

Design, manufacturing, testing, supply and commissioning of pump for Mercury

Introduction

Indian TBM program in ITER is one of the major steps in its fusion reactor program towards DEMO and future Fusion Power Reactor (FPR) vision. Indian blanket concept is based on liquid breeder type known as Lead-Lithium cooled Ceramic Breeder (LLCB) TBM. Since the conducting liquid metal (Pb-Li) flowing in the TBM experiences a high magnetic field environment of the order of ~4 T the MHD effects are very large.

It is mandatory to study these effects experimentally and validate the codes before using them for TBM design. In view of similarity in the properties, mercury (Hg) loop is being set up to study these effects experimentally and to validate the CFD codes for MHD effects.

This experiment is being planned with ¼ size of the actual LLCB TBM and half the magnetic field intensity, called as Mercury-TBM preserving all the aspects of flow complexity as that in actual LLCB TBM with modifications to capture only the Thermo-fluid liquid metal MHD effects. The schematic of the Mercury loop is shown in attached sketch.

Description and functional requirement:

Pump for mercury with suitable VFD motor, power supply / control for VFD, and standard accessories.

The pump is required to circulate mercury in the loop. (The schematic is attached)

Properties of mercury are mention in the technical specification table.

Design:

Initial Design of Pump (pump body, and its parts like shaft, impeller, bearings etc.) to be done considering

- 1) Liquid to be handled and its properties (like density, viscosity etc) dynamic loading by the fluid and corrosion with parent material. Supplier may suggest most suitable construction material which may be approved by IPR
- 2) Leakage of mercury is not acceptable (as it is toxic). Type of coupling to be selected appropriately.
- 3) Variation in flow required (Pump capacity must be variable from 5kg/ s to 25 kg/s in steps of 5 kg/s,), hence motor must be VFD type. Motor type (explosion proof) and capacity should be appropriately selected.
- 4) Safety interlocks, instrumentation (like pressure transmitter, thermocouple etc.) and its integration with PLC to be considered in design.
- 5) Optimization of pump size and efficiency.
- 6) In no case shall the required horsepower at any point on the performance curve exceed the rated horsepower of the motor.

Technical Specifications for Pump for Mercury

TYPE: VARIABLE SPEED VERTICAL CANTILEVER IMMERSION		
PUMP SIZE: 8.0 m ³ /h	NO. REQ: 1	NO. STAGES: 1
OPERATING CONDITIONS		
CAPACITY:	MIN: 1.3 m ³ /h MAX: 8.0 m ³ /h RATED:1.33-6.7 m ³ /h	
SUCTION PRESSURE:	Variable; Min: 13kPa (Gauge) & MAX: 300 kPa (Gauge)	
DISCHARGE PRESSURE:	Max 700 kPa (Gauge)	
DIFFERENTIAL PRESSURE:	30 – 500 kPa	
DIFFERENTIAL HEAD:	0.23 m – 3.77 m	
PROCESS VARIATIONS:	Flow rate, Temperature, Suction, Discharge pressure	
STARTING CONDITIONS:	Pump will be filled with Mercury at 35 °C	
SERVICE:	Continuous Duty	
SITE AND UTILITY DATA		
LOCATION:	Indoor	
BAROMETER:	101.3 kPa (abs) (1 bar)	
RANGE OF AMBIENT TEMP. :	MIN/MAX 25/45 (°C)	
UNUSUAL CONDITIONS:	To be designed for seismic conditions	
UTILITY:	Pump tank will be provided with Nitrogen cover gas, hence port to be provided for cover gas injection and for release with relief valve, pressure transmitter with port to be provided for the same)	
LIQUID		
TYPE/NAME OF FLUID:	Mercury,	
PUMPING TEMPERATURE:	MAX: 70°C MIN: 25°C	
VAPOR PRESSURE:	~ 6.6 Pa (abs) @ 70 °C	
DENSITY:	13546 kg/m ³	
SPECIFIC HEAT (Cp):	0.139 (kJ/kg °C)	
VISCOSITY:	1.348mPaS @ 66.5°C	
MAX VISCOSITY:	1.475 mPaS @ 36.5°C	
	1.548 mPaS @ 20 °C	
CORROSIVE AGENT:	Mercury is a corrosive liquid metal.	
LIQUID:	HAZARDOUS: Yes	FLAMMABLE: No
MATERIAL OF CONSTRUCTION / OTHER SPECIFICATIONS		
Tank and Components material:	SS 316L / Corrosion resistant high chrome steel	
Tank Height:	500 mm (maximum) Vertical-cylindrical type	
Overall height including motor:	Preferably less than 1000 mm	
Inlet size & discharge pipe sizes:	2.5” Sch 40	
Motor:	Seimens/GE/ Crompton / ABB / Kirloskar (suitable to 415 V, 50Hz)	
CONTROL & INTERFACE:		
All the related circuit diagrams (electrical, electronics, controls etc. for speed variation & interface with loop) need to be provided. Changing the speed will be through PLC, hence compatible signal should be provided. Level indicator for mercury level is to be provided. Thermocouple is to be provided for mercury temperature measurement.		

Supplier may submit detailed Acceptance Test Plan (ATP) (indicating relevant applicable standards) for consideration.

Manufacturing:

Following activities to be carried out before actual manufacturing, considering points discussed at pre bidding meeting

- Final theoretical design
- Design validation (with FEA, if required) for Mechanical, Hydraulics analysis for cavitations (and erosion) free operation for long impeller life.

Design Document (containing detailed engineering drawing, with complete technical specifications including material specifications, seal design, motor type, speed etc.) is to be submitted before manufacturing.

Type of coupling (whether directly coupled with motor or magnetic coupling) must be clearly mentioned in the design document.

Requirement of port for cover gas, level indicator for mercury level and drain valve for draining mercury to tank etc. should be considered while manufacturing.

Welding rods/ filler wires of only reputed make like Advani Oerlekon/ Esab/ L& T should be used (with prior approval) wherever required.

Following standards are to be followed during manufacturing

ASME BOILER AND PRESSURE VESSEL CODES

Section II	Material Specification
Section V	Non-Destructive Examination
Section VIII	Pressure Vessel (Division I)
Section IX	Welding and Brazing Qualifications

Piping and pipe flanges, relevant ASME / ANSI code is applicable.

Scope of Supply

Scope of supply shall consist of following parts

- a) Complete pump
- b) VFD Electrical motor and power supply / control unit (compatible for PLC)
- c) Suitable coupling, pipe fittings/ reducers for connection (to connect with 2.5” Sch 40 pipe). Suitable flanged/ threaded connection fitting (with prior approval of IPR) is in supplier’s scope.
- d) Support plate, mounting nut and bolts (support structure requirement to be provided to IPR)
- e) Level indicator for mercury level, drain valve (and its fittings) for draining mercury to tank.

- f) Level switch (for minimum level of mercury) & its fittings.
- g) Pressure transmitter for cover gas pressure, thermocouple for mercury temperature measurement etc
- h) Special tools necessary for maintenance and repair of the pump.
- i) Two year running spares. List of spare parts with price to be furnished with price bid

Material of construction

- a) Pump body : SS316L
- b) Impeller :SS316L
- c) Bearing housing :SS316L
- d) Shaft and impeller nut : SS316L
- e) Valve, fittings, reducers : SS 316L
- f) Base Plate : SS 304L
- g) Mounting nuts & bolts : SS 304L
- h) Coupling Guard : SS 304L

The supplier will ensure the correct composition by getting the material composition tested from Govt. approved laboratory & submit the test reports for verification by IPR.

All materials furnished, as part of the pumping equipment shall be suitable for its intended use and service. Materials not specifically called for shall be high-grade, standard quality, free from all defects and imperfection that might affect the serviceability of the product for the purpose for which it is intended,

In case any alteration (in material, design, fabrication, testing) is required for better performance, supplier should obtain prior written approval of the IPR.

Acceptance Criteria for the PUMP at Supplier's site

The mercury pump would be tested at the premises of the manufacturer / supplier. IPR representatives and/or IPR authorized experts will witness the acceptance tests at supplier's site. All the test facilities and Instrumentation needed for the tests has to be arranged by the supplier at their site. As soon as creation of the equipment with auxiliary facilities is completed, the supplier should write to IPR Purchase section to carry out inspection

- a) **Standard Dimensional Checks:** The pump assembly will be subjected to standard dimensional and orientation CHECKS
- b) **Standard Hydrostatic Test:** The standard hydrostatic test will be performed as per relevant clauses of ASME BOILER & PRESSURE VESSEL CODE. The assembly will be held at the test pressure for minimum of 30 minutes. Inspection shall be made of all joints and connections at applied pressure not less than two thirds of the maximum test pressure, which is one and half times the design pressure. Standard procedures for flushing out air and mounting locations of the pressure gauges will be followed. Blanking flanges, gaskets necessary for these tests are in the scope of the supply.
- c) **Leak testing:** The pump assembly will be leak tested with mass spectrometer leak detector for an individual leak tightness of 1×10^{-8} standard cc/sec. Probing shall be done on all welded joints and gasket joints. Any leak above the mentioned rate shall call for repair and repeat leak testing. Blanking flanges and gaskets necessary for these tests are in scope of supply.

- d) **Pump Performance Testing:** The performance of the pump will be tested for required flow rate with a suitable surrogate fluid like water (the same will be discussed & mutually agreed upon at the time of pre bidding meeting, no. of hours for which pump has to be tested shall also be discussed and mutually agreed upon.), preferably at design temperature The pump should satisfy all the required performance in this loop.

If the pump is tested with water, the correlation to be developed for the mercury. Pump performance curve for mercury to be derived. (considering correction factor for density and viscosity)

The mechanical as well as the hydraulic performance including NPSHR for the complete range of operation of the model shall have been established in the shop test.

Integration / General Conditions

Integration with loop at IPR site is in supplier's scope.

The pump should suit to loop piping system. The supplier has to do modification work, which will include pipe fittings/ reducers for connection (to connect with 2.5" Sch 40 pipe), support plate, mounting nut bolts and motor.

This will also includes drain valve and its fittings, level switch, level indicator for mercury, pressure transmitter for cover gas pressure, thermocouple for mercury temperature measurement etc.

All Controls should be compatible to PLC (PAC T2550).

All the tools, like wire rope, clamps, spanner set etc required for assembling, dismantling of the pump should be brought by the supplier. Supplier shall also arrange consumables, welding machine, electrodes, ladders, scaffolding material and necessary workforce etc.

Supplier is required to provide utility requirements like civil, electrical, mechanical support structure etc. to be made available at IPR site

Acceptance Criteria for the PUMP at IPR site.

After successful integration with Mercury loop; the pump will be tested for:

- 1) Leak tightness of integration with rest of the loop. Leak tightness of 1×10^{-8} standard cc/sec
- 2) Performance of the pump as per specifications: At specified flow rates, capacity, efficiency, consumption of electricity etc.
- 3) Satisfactory working of all controls. After commissioning, the pump will be put on the trial of one week continuously for eight hours a day.
- 4) The pump may be tested within specified temperature range if decided by IPR
- 5) Tests shall be performed on the actual assembled unit from shut-off head condition to 125 percent of the required maximum design capacity. Prototype model tests will not be acceptable.
- 6) Start-up, check, and operate the equipment over the entire speed range. Any vibration shall be within the amplitude limits recommended in the Standards and it shall be

recorded at a minimum of 4 pumping conditions defined by the IPR Requirement for support structure should be provided to IPR well in advance

- 7) Pump performance shall be documented by obtaining concurrent readings, showing motor voltage, amperage, pump suction head, and pump discharge head, for at least 4 pumping conditions at each pump rpm.
- 8) Bearing temperatures shall be determined by a contact-type thermometer.
- 9) Electrical and instrumentation testing shall conform to applicable standards. The same will be specified in final tender document after discussion in pre bid meeting.
- 10) In the event of any of the pumping equipment fails to meet the above test requirements, it shall be modified and retested in accordance with the requirements of these Specifications.

The pump will be accepted only after satisfactory performance. All the test results shall confirm to the specification of final tender document.

Test Certificates:

Following test certificates are required for final acceptance

- 1) Performance test certificate duly signed by supplier and IPR representative (Pump to be tested as per specification in relevant Indian / American / ISO Standard)
- 2) Manufacturer's test certificate for material of construction for all vetted and vital parts of pump

As a minimum, the components of the pumps shall be subjected to the following tests and the test certificates shall be issued by an inspection authority independent of production in the manufacturing works:

- Shaft, Impeller: Chemical Analysis and Tensile Test
- Wearing rings, bushing and sleeve: Chemical Analysis and hardness

- 3) Test certificate for hydrostatic test of casing and dynamic balancing of Impeller.
- 4) Manufacturer's routine test certificate for electrical motor and drive
- 5) Performance characteristic curve for mercury (derived by testing with surrogate fluid/ actual fluid) mentioning flow rate, head, efficiency, NPSHR, power requirement etc. to be submitted. The curve should be for each speed corresponding to variation in flow rate required. The supplier shall indicate points on the H/Q curves, and the limits recommended for stable operation between which the pumps may be operated without surge, cavitations and vibration. The stable operating range shall be as wide as possible based on the pumps actual hydraulic and mechanical tests.
- 6) Certification that the pump hp demand will not exceed the rated motor hp

Compliance with this specification shall not relieve the supplier of the responsibility of furnishing equipment and auxiliaries of proper design, materials and workmanship to meet the specific operating conditions.

Guarantee/ Warranty

The supplier should give guarantee/warranty for the equipment for the period of 24 months from the date of acceptance of the equipment. Manufacturing or material defect pointed out by IPR should be made good by repair/replacement of the same free of cost by the supplier in reasonable time

Final Design Documents, Drawings & Manuals

Final design document indicating all deviations, alterations, revisions in the previous design document to be submitted to IPR.

Supplier will submit catalogue, cross sectional drawing identifying parts and material of construction for pump, dimensional drawing and mounting details.

The supplier will submit 2 sets of manual (Operation, safety and maintenance manual) along with the equipment. All literature will be in English language. The manual must contain exploded view of pump with all parts clearly identified Operation, safety and maintenance manual should clearly specify mode of operation and safety requirements.

Detailed Drawings, Manuals, Performance characteristic curve etc. is to be submitted alongwith supply of pump.

QUOTATION FORMAT & PRICE SCHEDULE

The technical Bid shall contain

- 1) Documents mentioned in the eligibility criteria
- 2) Company profile,
- 3) Specific information regarding previous Design and Development, Fabrication, erection and commissioning work of similar nature and list of recent purchase orders of comparable cost,
- 4) Sub vendor if any, and components planned to be sub contracted or imported and names of the sub contractors or supplier with complete technical specifications
- 5) Design activities & design validation activities, and facilities available for the same.
- 6) Complete scope of work with work quantum break-up,
- 7) Overall assembly drawing of the system to be submitted with the technical bid.

The price bid shall contain

- 1) Total cost for the scope and quantum of work
- 2) Time schedule and stage wise important milestones,
- 3) Recommended list of spares and accessories.
List of parts (with price) along with material of construction, spares and type & make of trade items shall be furnished (with the price bid)

On the basis of actual requirement as may be decided by IPR, separate order for Spares and Accessories would be released after final acceptance of the Pump. The supplier shall also give guarantee for supply of spares throughout the operational life of the pump.

The supplier should give optional quote for charges for annual maintenance contract, which IPR may consider after warranty period of two years.

Technical Data sheet

(Bidders are requested to submit this with their technical bid)

TECHNICAL PARTICULARS FOR Variable Speed Motor

Sr. No.	Description	
1	Motor Type / Manufacturer	
2	Rating in kW	
3	Power supply	
4	Input Voltage / Phase / Frequency	
5	Type of Explosion protection and applicable Standards	
6	Enclosure type / cooling	
7	Insulation class	
8	Cable size/ Type	
9	Efficiency at 100 % load	
10	Full load current	
11	Weight of Motor	
12	Standards applicable for factory testing	

**TECHNICAL PARTICULARS FOR PUMP
(TO BE FILLED BY MANUFACTURER)**

Sr. No.	Description	
PERFORMANCE		
1	Proposal Curve No.	
2	Min Continuous Flow (m3/hr)	
3	NPSH Required	
4	Speed (r/min)	
5	Power Design / Max (kW)	
6	Efficiency (%)	
7	Max. Head,	
8	Suction Specific Speed	
CONSTRUCTION		
1	Suction and discharge Nozzles (Size, rating, facing, location)	
2	Impeller type / Impeller design	
3	Drain Vent	
4	Sealing (type, mfg, model) / Seal less	
TRANSMISSION		
1	Coupling type, size	
2	Manufacturer	
MATERIAL		
1	Casing	
2	Casing wear rings	
3	Shaft, shaft sleeve, Impeller nut, Impeller, Imp wear Rings, bearing housing	
4	Base Plate, Mounting nuts & bolts, coupling guard	
5	Internal Bearing	
6	Valves, fittings, reducers	
INSPECTION AND TEST		
1	NDT tests (Radiographic/ Ultrasonic)	
2	Material certificates	
3	Shop Inspection report (including dynamic balancing of rotor)	
4	Hydrostatic test pressure	
5	Performance test	
ANCILLARIES		
1	Thermocouple	
2	Pressure transmitter	
3	Level indicator	
4	Inline filter	

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, 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. **The due date for submission and opening of tender will be mentioned in the final tender document.**
 - 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.

Price Bid Format

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

Sr. no.	Description	Quantity	Unit Cost (Rs.)	Total Price (Rs.)
1	Design, Fabrication and factory testing and supply of pump for mercury along with all the items mentioned in the scope of supply			
2	Installation and commissioning charges (including loading, unloading, integration with loop and testing at IPR site)			
3	Other charges if any			

	<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:

Date:

Signature of Bidder with Seal