

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Centre for Interdisciplinary Sciences

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Date: 26-12-2016

Notice Inviting Tender cum Tender Document (Two Part Public Tender) for the following items:

Supply, Installation and Commissioning of Cryogen-free Variable Temperature Insert (VTI) Cryostat System from 1.5k to room temperature with 9Tesla Magnet along option of Dilution fridge probe/insert with base temperature of 10-15mk.

As per our technical specifications: Qty. - 1 No.

Public Tender No.	TFR/PD/IC16-616/0031
Published on	28-12-2016
Tender Fees	For Indian Supplier - Rs. 700/-
	For Foreign Supplier - USD 100
EMD	For Indian Supplier - Rs. 5,90,000/-
	For Foreign Supplier - USD 8700
Estimated Cost	Rs. 295.00 Lakhs
Last Date for Submission of Bid	25-01-2017 upto 13.00 Hrs.
Date of Opening Bids (Part A)	25-01-2017 at 14.00 Hrs.

Both Technical Bid (Part A) and Financial Bid (Part B) to be submitted within the due date and time in separate envelopes and marked on top as Part A and Part B. These two sealed envelopes should be further put in one Master Envelope super scribed with the Tender No., Due Date in Bold Letters.

Please see attached sheet for conditions of tender.

**ADMINISTRATIVE OFFICER
(PURCHASE SECTION)
TIFR-TCIS, HYDERABAD**

SCOPE OF SUPPLY - Annexure - A

Technical specifications for Supply, Installation and Commissioning of Cryogen-free Variable Temperature Insert (VTI) Cryostat System from 1.5k to room temperature with 9Tesla Magnet along option of Dilution fridge probe/insert with base temperature of 10-15mk

This equipment is intended for the study of electrical transport properties of metals, oxides and superconductors according to the temperature and of the magnetic field. The range of temperature of study lies between 1.5K and 300K and those for magnetic fields varying between 0 and 9T. The system must be of type "cryogen free" i.e. not requiring the cryogenic handling of fluid such as helium or liquid nitrogen but only of gas.

The system must be an instrument flexible, convivial, adapted for many applications. In particular it must be flexible enough to allow the development of insert allowing different type of measurements such as measurements of electric, thermo-electric transport or of specific heat.

Technical specifications

1) Cryostat with helium in closed loop:

The cryostat should be built with non-magnetic materials. It must be isolated from outside by a vacuum of insulation and a super insulation. Moreover thermal radiation metal shields must be installed on the various stages of the cryostat. The cryostat must also house a 9T superconducting magnet. The whole of the system must be cooled by a cold head by a pulsated tube. Sample space must have a diameter equal to or higher than 70mm for inserting the probes and must be fully adaptable to have insert probes in the future that can allow reaching lower temperatures of 10 to 15 mK. Sufficient vibration isolation dampeners must be engaged to reduce vibrations on the sample due to the cold head/compressor. Sample space must be in high vacuum conditions and must be tested for leaks less than 1×10^{-9} mbar-l/sec.

2) Variable temperature insert: VTI

The insert should make it possible to cover a temperature going from 1.5K to 300K with stability of ± 0.1 K over a period of several hours. The variable temperature insert should operate in both continuous flow and single shot modes with static sample space with access for a ***top loading probe with a load lock***. The static sample space implies that the design should eliminate any direct contact between the flow of 4He used to regulate the temperature and the sample region. The insert should make it possible to accommodate a number of measurement in the above

temperature range. (Please see below for details) Typical cooling time from 300K to 1.5K should be attained in less than 1 hour 30 minutes. The probe of measurement will have to fit by the top of the insert. Along the probe, heat shields will be installed to limit radiations towards the areas of the low temperatures. The change of sample will have to be a simple and fast operation. The top of the probe must have **sufficient space/ports** for adding a 24 contact device probing coaxial lines, two optical fibers, four high current lines (upto 2A), 4 connections for thermocouple. Some of the above options may be added in the future by TCIS user.

The vendor must provide separate individual costs for the following optional requirements in the price bid. Only some of the following options will be included. The optional item consideration will be based on TIFR-TCIS requirements only.

Optional Items:

- a.) Twenty four flexible Stainless steel 304 coaxial lines with stranded conductor running from the top of the probe to the top of the sample loading head.
- b.) Two optical fiber lines for visible to IR range to the sample loading region.
- c.) 44 Leadless chip carrier (LCC) socket with around 20 miniature coax lines connected from the sample loading head (bottom of the probe) to the LCC socket mounting stage. The LCC mounting stage should be detachable from the probe for servicing. The LCC should be on a Polar Sample rotation (in-plane to out-of-plane rotation of the sample) stage with manual tilt, range of 180 degree and precision of 0.1 degree.
- d.) Suitable Temperature sensor in the 300K to 1.5K range on the LCC mounting stage.
- e.) Manual 360 degree Azimuthal sample rotation by having a rotating stage on the top flange of the insert i.e. where the probe is inserted.
- f) **Optional Items:** The optional items will not be considered for evaluation of lowest bidder. The Optional items may be procured based on requirement from the techno commercially qualified lowest bidder.

3) Superconducting magnet (vertical):

The maximum magnetic field in the center of the magnet will be equal to or higher than 9T with homogeneity lower than 0.1% at a distance of 1cm. Time to reach the maximum magnetic field will have to be lower or equal to 60 min. The magnet will be equipped with a protection against the quench and a switch which will make it possible to put the superconducting magnet in persistent mode.

The magnet will be powered by a high current source supply delivering a current lower or equal to 120 amps. It will have to be flexible in its use. The change of polarity of the magnetic field will have to be made in an automatic way and the interface with the computer will have to be flexible and easy to use to be able to change all the parameters of controls of the magnetic field (speed of sweep, maximum field, etc.)

The magnet bore size will have to be wide enough to accommodate the sample space mentioned in point 1.

4) Temperature control: The control of the temperature of the sample space on the insert will be carried out by a resistance bridge setup, which will allow a 4 point resistance measurement of these thermometers.

5) Software.

a) Software must fully control the temperature and the magnetic field, making it user friendly, simple to use and may be guided during the starting of the software.

b) The updates of the software should be free for the lifespan of the equipment and can be easily migrated to new operating system platforms.

6) Accessories:

a) A dry pump to ensure the circulation of He gas in the insert variable temperature should be included.

b) A helium gas tank as all connected them necessary to the handling of He gas.

Other Optional items

Dilution fridge insert with minimum temperature of less than 15mK (continuous flow operation) with automatic gas handling system. The cold trap and complete circulation system should be provided. The system should be supplied with all the temperature sensors, heaters and wiring required for operation.

a) Sample Space ≥ 55 mm diameter.

b) Cooling power $> 75 \mu\text{W}$ at 100mK.

c) Insert cool-down time from room temperature to the minimum temperature should be less than 10 hours.

d) 44 Leadless chip carrier (LCC) socket with around 20 miniature coax lines. The LCC should be on a Polar Sample rotation (in-plane to out-of-plane rotation of the sample) stage with manual tilt, range of 180 degree and precision of 0.1 degree.

Additional clauses

Warranty:

The instrument should be provided with at least one year comprehensive warranty from the date of installation. The warranty should include regular maintenance, parts, labour and software updates.

The equipment should be warranted for trouble-free performance from the date of installation, successful commissioning, calibration and demonstration at the project site. The warranty certificate should be provided by the supplier.

Commencement of warranty period: The warranty period of an item shall commence from the date of satisfactory installation /commissioning of the equipment at the project site.

Relocation of the equipment: Dismantling of equipment, Shifting/transportation of material from TCIS transit campus to TCIS, FReTB new campus, Reinstallation, calibration of equipment and successful commissioning is supplier's scope if any. However a separate quote for this relocation may be provided along with the financial bid with the minimum validity period of one year extendable further if required from the date of installation of the instrument. This quote will not be considered for evaluation of lowest bidder.

**Supply Order Details of Cryogen-free Variable Temperature Insert (VTI)
Cryostat System from 1.5k to room temperature with 9Tesla Magnet along
option of Dilution fridge probe/insert with base temperature of 10-15mk to
Other Firms**

Annexure - B

S.No.	Name of the company with full address	Name of the Project	Purchase Order No. & Date	Brief Item Description with Model No.	Item Value in Currency
	Signature				
	Name				
	Designation				
	Name of the Company				
	Date				
	Seal of the Company				

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Centre for Interdisciplinary Sciences

21, Brundavan Colony, Gandipet Road, CBIT Post Office, Hyderabad - 500 075
(PURCHASE SECTION)

Terms and Conditions

1. **PART "A" (Technical Bid) consisting of Technical Bid with Commercial Terms and PART "B" (Financial Bid) consisting of only Price** shall be submitted in **separate** sealed envelopes duly superscribed with the tender enquiry number, and the due date in bold letters, addressed to the Purchase Officer, Tata Institute of Fundamental Research, 21, Brundavan Colony, Gandipet Road, CBIT Post Office, Hyderabad -500 075. The envelopes should be clearly marked on top as either PART "A" or PART "B".

The two sealed covers should be further put in a master cover superscribed with the Tender Enquiry No., Due Date in bold letters, addressed to the Purchase Officer, Tata Institute of Fundamental Research, 21, Brundavan Colony, Gandipet Road, CBIT Post Office, Hyderabad - 500 075. The sealed master envelop has to be delivered by hand/courier at the security Gate Office of TIFR-TCIS on or before 13.00 hrs. on the due date specified. The technical bid will be opened in the presence of attending tenderers at 14.00 hrs. on the due date at Purchase Section, TIFR-TCIS, Hyderabad. Tenders submitted after 13.00 hrs. on due date will not be considered.

2. **In case the PART "A" and Part "B" bids are not sealed in separate envelopes the tender will be rejected.**
3. The technical bid should not contain any indication of the price. The bidder should take special care not to mention anything related to pricing and costing aspect of whatsoever nature. The technical bid should include/contain only technical specifications, technical literature, drawing, quantity, manufacturing and delivery schedule, mode and terms of payment, mode of dispatch, the quantum and percentage of statutory levies payable by the purchaser as extra and all related commercial terms and conditions for the supply and for the services like erection and commissioning to be rendered by the tenderer. The details of the validity of the tender should also be indicated along with the commercial details.
4. After scrutiny of Technical Bids, Financial bids of only those bidders who are shortlisted on technical basis will be opened at on later date. The opening date, time and venue will be intimated to the technically successful bidder.
5. **Tender Document Fee:**
 - a) **For Indian Supplier:** Tender fee for **Rs. 700/-** (Non-refundable) in the form of D.D. in favour of "TIFR Centre for Interdisciplinary Sciences", payable at Hyderabad to be enclosed with the Technical Bid (Part - A).
 - b) **For Foreign Supplier:** Tender fee of **USD 100** (Non-refundable) in the form of advance cheque in favour of "TIFR Centre for Interdisciplinary Sciences", payable at Hyderabad to be enclosed with the Technical Bid (Part A).

6. **Earnest Money Deposit (EMD):**

- a) **For Indian Supplier:** Earnest Money Deposit (EMD) for **Rs. 5,90,000/-** in the form of D.D. in favour of "TIFR Centre for Interdisciplinary Sciences", payable at Hyderabad to be enclosed along with the technical Bid (Part - A).
- b) **For Foreign Supplier:** Earnest Money (EMD) for **USD 8700** in the form of advance cheque in favour of "TIFR Centre for Interdisciplinary Sciences", payable at Hyderabad to be enclosed with the Technical Bid (Part - A).

EMD shall be interest free and it will be refunded to the unsuccessful bidder without any interest. EMD will be forfeited if the bidder withdraws or amend impairs or derogates from the tender in any respect.

7. **Bidders who have not accepted the job/order awarded to them or withdrawn from the tender process OR whose EMD/Security deposit has been forfeited in the past their bids will not be considered and treated as ineligible / disqualified.**

8. After downloading the documents please inform your company details such as name, address, telephone nos., contact person and email address etc. by email to us. (harid@tifrh.res.in, srinub@tifrh.res.in) to enable us to inform prospective bidder for any corrigendum/changes if any; in the Tender document before due date.

9. Quotations must be valid for a period of 180 days from the due date.

10. Tenders containing correction, overwriting will not be considered. Late or delayed/Unsolicited quotations/offers shall not be considered at all. These will be returned to the firms as it is. Post tender revisions/corrections shall also not be considered.

11. Tenderer should sign on all the pages of the technical bid and the price bid.

12. The price quoted for Import item must be on following basis:

- a) Ex-Work/factory duly packed airworthy/seaworthy and of international standard
- b) FOB/FCA
- c) CIF Hyderabad, Airport Port (all-inclusive i.e. Cost of Goods, Packing, Insurance, Inland transportation, freight etc.)

For local item /supply, offer should be on FOR basis (i.e. total landed cost for delivery at TIFR-TCIS, Hyderabad).

The dimension of the item (viz. H, W, L, weight etc.) shall be specifically stated and also mention whether the mode of shipping the item is Airworthiness / Seaworthiness or both. Accordingly the mode of shipment will be decided by TIFR-TCIS.

Price must be quoted in the Price Bid Format attached herewith as "Part -B" (Financial Bid).

13. If equipment offered is to be imported, arrangements for import will be made by us.

14. Tenders who do not comply with any of the condition are liable to be rejected.
15. The Institute shall be under no obligation to accept the lowest or any other tender received in response to this tender notice and shall be entitled to reject any tender without assigning any reason whatsoever.
16. TIFR reserves the right to place the order for part/reduced quantity than what is specified in the tender.
17. **PAYMENT TERMS:** 80% payment shall be made through irrevocable L/C on presentation of complete and clear shipping documents and balance 20% of the amount shall be released after the receipt, installation, commissioning and acceptance of the equipment and on submission of "**Performance Bank Guarantee (PBG)**" or "**Standby Letter of Credit**" for an amount equivalent to 10% of the Purchase Order Value. The PBG or "Standby Letter of Credit" shall be valid for a period of **60 days** beyond the date of warranty period. The PBG should be from State Bank of India & Associates (or) any one of the Nationalized Banks.
18. For Import cases: **No Agency commission will be paid as per Govt. of India rules.**
19. TIFR is exempted from paying of Custom Duty under the notification No.51/96 dated 23.07.1996, Excise Duty under the notification No.10/97 dated 01.03.1997, for all procurements/supply meant exclusively for Educational, scientific and research purpose. Whenever the exemption certificate not honored by the authorities, the applicable duty will have to be paid. Hence Excise & Custom duties, if any, should be shown separately.
20. **SALES TAX:** TIFR does not have any exemption/concession on payment of Sales Tax/VAT and we are not authorized to issue any Sales Tax Form 'C' & 'D'
21. **The Supplier shall arrange to ship the ordered materials within the mutually agreed delivery period mentioned in the order unless extended with/without penalty.**
 - a) In case of delay in supply on part of the supplier, a penalty @0.5% per week of order value will be charged for delayed period subject to a maximum of 10% order value.
 - b) If the delay in the shipment of the ordered materials attributable to the supplier exceeds agreed time period from the date of original agreed upon date of shipment and extended with/without penalty, the TIFR-TCIS, Hyderabad shall have the right to cancel the contract / purchase order and recover the liquidated damages from other dues of the party or by legal means. It will also affect the other/future business dealings with such suppliers.
 - c) The same rate of penalty shall be applicable for late installation of the equipment/instrument also.

22. **COMMENCEMENT OF WARRANTY PERIOD:** The warranty period of an item shall commence from the date of receipt of the item in good working condition and satisfactory installation/commissioning/demonstration at the project site.
23. **ANNUAL MAINTENANCE CHARGES:** The bidder must mention in the quotation, the rate/amount of annual maintenance charges, if we opt for maintenance contract after expiry of the warranty period.
24. Specifications are basic essence of the product. It must be ensured that the offers must be strictly as per our specifications. At the same time it must be kept in mind that merely copying our specifications in the quotation shall not make the parties eligible for consideration of the quotation. A quotation has to be supported with the printed technical leaflet/literature of the quoted model of the item by the quoting party/manufacturer.
25. **OBSERVANCE OF LOCAL LAWS:** Wherever applicable (particularly for Local vendors), the vendor / contractor shall comply with all law, statutory rules & regulations etc. The vendor/ contractor shall obtain all necessary permits / approval from the local Governing Body, Police, and other concerned Authorities as may be required under law. The vendor /contractor shall pay all types of taxes, fees, license charges, deposits, duties, tolls, royalty or other charges that may be leviable account of any of the operations connected with the execution of this work/ contract.
26. In case of any interpretational issues arises in this tender, the interpretation/decision of TIFR TCIS shall be final and binding on the bidder.
27. It is the responsibility of the vendor to make sure that the system being proposed can be exported to India with TIFR TCIS as the end user. All clarificatory documentation must be submitted with the Bid.
28. TIFR TCIS reserves the right to ask for or to provide any clarification, changes after the release of this tender. Any changes or clarifications provided by TIFR-TCIS, Hyderabad may be checked at TIFR-TCIS website: <http://www.tifrh.res.in/index.php/commercial-tenders>

**ADMINISTRATIVE OFFICER
(PURCHASE SECTION)
TIFR-TCIS, HYDERABAD**

Financial Bid for Cryogen-free Variable Temperature Insert (VTI) Cryostat System from 1.5k to room temperature with 9Tesla Magnet along option of Dilution fridge probe/insert with base temperature of 10-15mk (Part - B)

Annexure - C

TIFR- TCIS Enquiry No & Date: _____

Due date: _____

Bidder's Quotation Ref No. & Date: _____

Financial Bid (Bidders must quote their rates using this Format)

S.No.	Item Description as per tender	Make/Brand/Type	Qty.	Rate per unit (Currency)	Basic Cost of main item (In Currency)
A.					
B.	Ex-Works cost (Duly packed Airworthy/Seaworthy of international standard)				
C.	FOB /FCA Cost (Name of Airport_____)				
D.	CIP/CIF Cost (Upto Hyderabad Airport)(all inclusive i.e. Cost of Goods, Packing, Insurance, Inland transportation, freight etc.)				

Note:

1. All the column should be appropriately filled and not left blank.
2. Do not include any other charges, taxes, duties etc. in the Basic Cost of the item.
3. Any accessories, optional items should be shown separately using above format.
4. Use separate sheet for detail description, specification of the item, but prices should be quoted in same format.
5. Prices quoted in Indian Currency should be on F.O.R. basis and mentioned separately using different table format showing all the applicable taxes/Duties like Excise, VAT, service Tax, Freight & Transportation charges and installation charges etc.
6. TIFR-TCIS being educational & research institute, discounted price shall be offered.

Signature of the Bidder

Name, Address contact no _____

& email id of the bidder/ _____

Company with company's Stamp or Seal _____

Date: _____

Place: _____