



Government of India  
Bhabha Atomic Research Centre  
Electromagnetic Applications and Instrumentation Division



Ref: BARC/EMA&ID/VT/2021/119715

Date: 14-Sep-2021

Sub: On-site assembly, Engineering support for high pressure Helium piping, and integration 210 mm warm bore diameter cryogen free cryostat and chiller as per Technical specification sheet - TSP/2021/105

Dear Sir/Madam,

1. Quotations are invited for the execution of subject work.
2. Taxes and Excise Duties shall be quoted separately. Form AF / H whichever is applicable shall be provided, if required.

The quotations must reach the under mentioned address on or before 24-Sep-2021 and must be sent in a sealed envelope super scribed with the reference number & the due date only through either registered post under India Post. Any other mode of transmission shall entitle the purchaser to reject the bids.

3. The address on the envelop should read:

The Head,  
Electromagnetic application and Instrumentation division  
RCnDBldg.,North Site  
BARC, Trombay, Mumbai - 400 085  
**(Kind Attn: VIKAS TIWARI)**

4. The bidder shall complete the job within **06 months** from the date of firm work order issued to the bidder.
5. Head, Electromagnetic application and instrumentation division reserves the rights to accept / reject any or all quotations without assigning any reason.
6. Quotation must also indicate the validity of offer. Quotation must also indicate the GST No and PAN number of the supplier.
7. The quotation has to be signed by authorized person with company seal.
8. Payment will be made by EFT only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. Income tax as applicable will be collected at the time of payment.
9. In case of any technical clarifications, the supplier may kindly contact us vide email ID: vikast@barc.gov.in, Tel No: 26899/21492

Encl.: Technical Specification Sheet no: TSP/VT/2021/105

(VIKAS TIWARI)  
TO/C , EmA&ID, B.A.R.C  
For and On behalf of the President of India  
(The Purchaser)

## Technical specification

Tender Enquiry No BARC/EMA&ID/VT/2021/119715 dated: 14-Sep-2021

Document no.	Revision no.	Date of Issue	No of pages
TSP/VT/2021/105	0	14-Sep-2021	0

### 1.0 Scope:

The tender is invited for the above work

### 2.0 Scope of work:

2.1) Supplier fabricate, test and qualify the below mentioned items for as per the technical specification mentioned in para 5.0

### 3.0 FREE ISSUE MATERIAL

No free issue material will be issued to the contractor.

### 4.0 DELIVERABLE

The deliverables included in this tender are as follows: -

For the FIM supplied by the purchaser, the items highlighted under table-1.0 are to be delivered:

Sr. no	Description	Quantity
1	On-site assembly, Engineering support for high pressure Helium piping, and integration 210 mm warm bore diameter cryogen free cryostat and chiller as per Technical specification sheet - TSP/2021/105  <u>NO SUPPLY is involved</u>	01 set

Table-1.0

### 5.0 Technical Specification

S No.	Parameters	Value
1	Multi-layer insulation blankets wrapping	40 Layers of MLI to be wrapped around the magnet with proper interleaving. Material: double-sided aluminized, perforated and interleaved with 10 layers of non-woven polyester spacer material.
2	Integration of Cryo-cooler Pulse tube type with the compressor, chiller, and the electrical connection	Supplier scope, required tooling also in the supplier's scope
3	Cryogenic grade Cold diode, single stack, bolted joints	I peak - 300A <sub>rms</sub> Peak reverse voltage - 300V Minimum operating temperature - 4.2K Maximum forward voltage: 15V@ 4.2K
4	Electrical resistor	0.5Ω, 200W with heat sink, Nichrome based
5	Bonding tapes for covering cold surfaces	Cryogenic aluminum tape
6	Electrical Soldering	Using low temperature solder - Indium 97%/Tin 3% solders only
7	Assembly with cryo-cooler	The cold head has to be integrated with the compressor and chiller as per manufacturer's guidelines

## Table-2.0

5.1) Supplier shall carry MLI wrapping with proper interleaving to prevent any interlayer thermal shorting

5.3) Supplier shall provide adequate accessories such as polyimide tape of high quality

### 6.0 PERFORMANCE OF THE CONTRACT

#### 1.0 GENERAL REQUIREMENTS

- 1.1 The supplier shall submit detail design report and its troubleshooting, working manual.
- 1.2 The part number and the source of all the hardware's shall be cleared mentioned before purchase of the same from the market. They shall be purchased and installed only after prior approval from BARC. Any component of inferior quantity purchased without prior approval will be rejected strictly.
- 1.3 The Supplier shall indicate in detail the standards adopted for the materials and processes and the quality control procedures followed by them.
- 1.4 Supplier can suggest the color, aesthetics, and other details as suitable. Supplier must offer best quality/IS certified material only.
- 1.5 Supplier should have similar work experience and along with the offer, shall submit the details of past experience with documentary proof.
- 1.6 Materials, tools, manpower etc required for the above work will not be supplied by the user. Supplier has to arrange the above on his own (No free issue material).
- 1.7 The supplier shall incorporate minor changes in the design as required at the time of execution of work at no extra cost.
- 1.8 The above job shall be done strictly under the supervision of our engineers in test facility at BARC premises.
- 1.9 Working personnel shall observe all the safety precaution during working.
- 1.10 The working personnel shall behave well with other officers and workers inside BARC campus.
- 1.11 The contractor shall be solely responsible, in case of any casualty involving working personnel. However, first aid will be provided by BARC.
- 1.12 General BARC security rules shall apply to all the working personnel.
- 1.13 Entry permit will be issued on weekly basis and contractor shall have valid photo pass with valid Police Verification certificate (PVC) as per the norms of BARC security.
- 1.14 Prior permission will be taken from security if the persons are required to do the job on Saturday, Sunday, Holidays and beyond normal working hours (08:00 to 18:00 hrs).

#### 2.0 RAW MATERIAL PROCUREMENT

- 2.1 The raw material, electrical components used by supplier for the manufacturing of these components shall be of brand new and shall not be used previously.
- 2.2 All the material shall strictly confirm to their corresponding IS standards and shall be purchased only after prior approval from the purchaser.

#### 3.0 REQUIREMENTS OF SUPPLIER QUALIFICATIONS

- 3.1 The supplier shall be evaluated on the basis of the following criteria
- 3.2 The supplier shall have previous experience in carrying out similar such jobs inside BARC and copy /proof of the same shall be attached.

- 3.3 The supplier shall submit the details of the welder, fitter and other man power, facility available with the supplier to carry out the job successfully.
- 3.4 The supplier shall provide the list of their employees along with their valid PVC certificate, who are intended to work in this job.
- 3.5 The supplier shall have minimum experience of 5 years in the development of chiller and proof of document of the same shall be provided.

#### 4.0 REQUIREMENTS OF PRICE AND DELIVERY SCHEDULE

- 4.1 The supplier shall give lump sum price for the raw materials and man power to complete this job.
- 4.2 The complete job is expected to be completed in a duration of 06 months.

#### 5.0 CONFIDENTIALITY CLAUSE

- 5.1 No party shall disclose any information to any third party concerning the matters under this Contract generally. In particular, any information identified as "Proprietary" in nature by disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to sub-contractors, consultants, advisors or the employees engaged by a party with equal force.
- 5.2 "Restricted information" categories under section 18 of the Atomic Energy Act, 1962 and "Official secrets" under section 5 of the Official Secrets Act, 1923: Any contravention of the above-mentioned provisions by any contractor / sub-contractor, consultant, advisor or the employees of the contractor will invite penal consequences under the aforesaid legislation.
- 5.3 Prohibition against the use of BARC's name without permission for publicity purpose. The contractor or sub-contractors, consultants, advisors or the employees engaged by a party shall not use BARC's name for publicity purpose through any public media like: press, radio, TV or Internet without any prior approval of BARC (wide circular ref.: 2/Misc-9/Lg1/2001/92 date 30/04/2001).

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(VIKAS TIWARI)  
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