

Cryogenic Engineering Centre IIT Kharagpur

No. IIT/KGP/Cryo/LHeP/2018

Date: 19.12.2018

Sub: Procurement/Installation of “Liquid Helium Plant” unit in the Cryogenic Engineering Centre- reg.

Indian Institute of Technology Kharagpur, an Institute of National Importance, invites sealed bids on turnkey project basis from principal manufacturers or their authorized distributors (foreign firms or their Indian representative companies), who have adequate credential for the **Installation of “Liquid Helium Plant” unit in the Cryogenic Engineering Centre, IIT Kharagpur.**

Interested parties may submit their sealed bids under Two-cover system as per the guidelines mention below. **Contact details, Phone number and email-ID of the bidders should be mention on all the envelopes for correspondence.**

Time schedule of various tender related events

Bid calling date	19.12.2018
Bid Submission fee (Non refundable)	Rs. 1,000/- (By way of DD from any Nationalized Bank /Commercial Bank and paid in favour of “Indian Institute of Technology Kharagpur”, payable at Kharagpur)
Pre-bid Meeting	03.01.2019 @03:00PM (in the meeting room of Cryogenic Engineering Centre, IIT Kharagpur)
Last date for submission of sealed tenders/quotations	28.01.2019 at 11:30 AM
Pre-qualification & Technical Bid opening date/time	28.01.2019 at 03:00 PM
Contact person	Prof. Abhay Singh Gour, Professor In-Charge, Liquid Helium Plant, Cryogenic Engineering Centre [Ph.: 03222-283586/9008200553(M), Fax: 03222-282258]
Reference No	IIT/KGP/Cryo/LHeP/2018 dated:19.12.2018
Tender submission address	Office of the Head, Cryogenic Engineering Centre, IIT Kharagpur, P.O. - Kharagpur Technology, Pin: 721 302, India.

Head, Cryogenic Engineering Centre
for Director, IIT Kharagpur

Copy to :

1. Institute website
2. CPPP
3. Notice Board
4. Jt. Registrar (S&P)

Cryogenic Engineering Centre IIT Kharagpur

Date: 19-12-2018

Sub: Summary of Liquid Helium Plant Tender documents

The liquid helium plant will be finalized as a **Turnkey Project** basis which involves supply, installation, commissioning and testing of the entire liquid helium plant system. The liquid Helium Plant tender documents consist of nine annexures. Following are the list of the attached annexure.

1. **Annexure-I:** Summarized Liquid Helium Plant Requirement.
2. **Annexure-II:** Specification for helium refrigerator/liquefier and associated sub-system.
3. **Annexure-III:** General terms and conditions.
4. **Annexure-IV:** Technical bid compliance sheet format
5. **Annexure-V :** Technical bid document
6. **Annexure-VI :** Declaration
7. **Annexure-VII :** Model bank guarantee format for furnishing EMD
8. **Annexure-VIII:** Financial bid.
9. **Annexure-IX:** Item wise price details of all components / instruments / equipments / devices etc.
10. **Annexure-X:** Accessories and its spare parts.

Interested parties may submit their sealed bids under Two-cover system. **Contact details , phone number and email-ID of the bidders should be mention on all the envelopes for correspondence.**

Summarized Liquid Helium Plant Requirement

S.No.	Description	Specifications																																																
1	<p>Supply, Installation, Testing and Commissioning of Reciprocating Expansion Engine based Helium Liquefier operating on modified claud cycle as per the block flow diagram and the detailed specifications given overleaf. The helium liquefier should be supplied along with its subs-system <i>(Remote delivery tube, Process compressors for the liquefier cold box, Main operator control console DAQ, Gas bag, Recovery Compressor, Gas Storage Tank, liquid helium Dewar, Helium Purifier He gas Grade 5 (99.999%), Cryogenic adsorber, Gas Regulator, Compressor Sound blanket, Cooling water circulation circuit (as per the block flow diagram), Online Helium Purity monitor, Helium leak detector, turbo-molecular pump, rotary pump, Vacuum gauges and controller, Multilayer insulation liquid Helium Dewar (120 lit and 60 Lit)).</i></p> <p>The details of above mention items are specified in Annexure II.</p> <table border="1"> <thead> <tr> <th colspan="3">Summarized list of important Components</th> </tr> <tr> <th>S.No.</th> <th>Item</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Cold Box</td> <td>1</td> </tr> <tr> <td>2.</td> <td>Helium Compressor</td> <td>2</td> </tr> <tr> <td>3.</td> <td>1000 Lits. LHe Dewar</td> <td>1</td> </tr> <tr> <td>4.</td> <td>Co-axial transfer line</td> <td>1</td> </tr> <tr> <td>5.</td> <td>Liquid Helium Flexible transfer line</td> <td>1</td> </tr> <tr> <td>6.</td> <td>Liquid Helium 120 lits & 60 lits dewars</td> <td>2 each</td> </tr> <tr> <td>7.</td> <td>Helium recovery system</td> <td>1</td> </tr> <tr> <td></td> <td>7.1)Helium recovery compressor</td> <td>1</td> </tr> <tr> <td></td> <td>7.2) Helium gas bag</td> <td>1</td> </tr> <tr> <td></td> <td>7.3)Helium gas storage tank</td> <td>1</td> </tr> <tr> <td>8.</td> <td>Helium purification system</td> <td>1</td> </tr> <tr> <td></td> <td>8.1)Helium purifier</td> <td>1</td> </tr> <tr> <td></td> <td>8.2)Cryogenic adsorber</td> <td>1</td> </tr> <tr> <td></td> <td>8.3)Multi-component online analyser</td> <td>1</td> </tr> </tbody> </table>	Summarized list of important Components			S.No.	Item	Quantity	1.	Cold Box	1	2.	Helium Compressor	2	3.	1000 Lits. LHe Dewar	1	4.	Co-axial transfer line	1	5.	Liquid Helium Flexible transfer line	1	6.	Liquid Helium 120 lits & 60 lits dewars	2 each	7.	Helium recovery system	1		7.1)Helium recovery compressor	1		7.2) Helium gas bag	1		7.3)Helium gas storage tank	1	8.	Helium purification system	1		8.1)Helium purifier	1		8.2)Cryogenic adsorber	1		8.3)Multi-component online analyser	1	15-20 ltrs /hr Without LN2 However, the liquefier should have provision for LN2 precooling.
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Specification for Helium Refrigerator / Liquefier and Associated Sub-systems

Supplier's scope for Helium refrigerator / liquefier: - Supply of helium liquefier / refrigerator and its associated sub-systems, testing and training at manufacturer 's work, transportation, installation, testing and commissioning at site.

1.0 ColdBox: Item in Block Flow Diagram: B Quantity: 1

1.1 Main System components: Reciprocating Expansion Engine based Helium Liquefier, JT valve, associated valves, control panel, pressure sensors, transmitters and gauges, Lakeshore's Cernox temperature sensor and cernox transmitters, moisture and online Helium purity monitor (multi component purity analyzer) etc.

Rotary vacuum pump and turbo molecular pump should be provided for cold box vacuum system with vacuum gauges, transmitters and controllers. A hand operated isolation gate valve should be provided in between the pumping system and cold box, for pumping system maintenance by the supplier. A hand held portable He leak detector for routine leak check should be provided by the supplier.

N.B.: All the equipment along with their accessories has to be supplied by the supplier. Interconnection and Isolation valves will be supplied by the supplier. The helium piping, instrumentation, mechanical and electrical fittings for each devices/ equipment/ component will also be done by the supplier.

1.2 Liquefier Capacity:

- a) Liquefaction capacity: 15-20 ltrs /hr without LN₂ pre-cooling; however, the liquefier should have provision for LN₂ precooling.
- b) Cold box with refrigeration outlet of 60 K with control valve.
- c) Cold box with refrigeration outlet of 20 K with control valve.

Capacities of cold box with LN₂ pre-cooling for all the three modes mentioned above are to be supplied by the supplier.

Supplier also has to provide the liquefaction versus refrigeration curve for with and without LN₂ mode of operation.

N.B.: Helium piping for cold box connection to high pressure, low pressure lines and recovery system will be done by the supplier. Liquid nitrogen pre-cooling piping will be done by the supplier.

2.0 Helium compressor: Item in Block Flow Diagram: A Quantity: 2

2.1 Suitable water cooled helium compressors for helium liquefier (specified in section 1.2) should be supplied along with the sound blanket which reduces the noise level of compressor below 85db. At a time only one helium compressor will be used for running helium plant while the other one will be used separately for research activity.

N.B.: Interconnection and Isolation valves will be supplied by the supplier. The helium piping, instrumentation, mechanical and electrical fittings for each compressor will also be done by the supplier.

3.0 1000 litres LHe Dewar: Item in Block Flow Diagram: C Quantity: 1

- 3.1 A 1000 litres capacity vacuum jacketed super insulated Dewar with required instrumentation for level, pressure, temperature measurement and appropriate safety devices should be supplied by supplier.
- 3.2 The Dewar should be integrated to the plant with provisions to transfer liquid to another Dewar by the supplier.
- 3.3 Provision for pressure temperature and liquid level data monitoring with suitable automation has to be provided by supplier.
- 3.4 Static boil off loss of Dewar should be below 0.5 % per day.
- 3.5 Dewar "Seal off Valve" should be provided along with the Dewar should be supplied by supplier.
- 3.6 Dewar pump port operator device should be supplied with Dewar by supplier.

N.B.: Dewar to gas recovery SS304L/316 piping and other fittings will be in the scope of supplier.

4.0 Co-axial transfer line: Item in Block Flow Diagram: B3 Quantity: 1

- 4.1 Suitable co-axial transfer line from Cold box JT output to Dewar and return gas should be provided maintaining at least 2m gap between the cold box and Dewar by supplier.
- 4.2 "Seal off Valve" for each co-axial transfer line should be provided by supplier.
- 4.3 Dewar vacuum pump port operator device should be supplied along with transfer line by supplier.

5.0 Liquid Helium flexible transfer line: Item in Block Flow Diagram: C1 Quantity: 1

- 5.1 Suitable vacuum insulated transfer line from 1000 Litres LHe Dewar to user Dewar with a flexible length of 3 m should be provided by supplier.
- 5.2 "Seal off Valve" for transfer line should be provided by supplier.
- 5.3 Dewar vacuum pump port operator device should be supplied with transfer line by supplier.

6.0 Liquid Helium Dewars: Item in Block Flow Diagram: D Quantity: 2 each =4

- 6.1 Multilayer insulated liquid helium transportation Dewar of **120 liters (Quantity: 2)** and **60 lits (Quantity: 2)** capacity should be provided by supplier.
- 6.2 Dewar should have universal teflon wheels with locking mechanisms.
- 6.3 Static boil off loss of Dewar should be below 0.5 % per day.

7.0 Helium recovery system: Quantity: 1

The helium recovery system consists of: Item in Block Flow Diagram: F, E, I, L

- 7.1 Helium recovery compressor (**Quantity: 1**) of suitable capacity should be provided by supplier.
- 7.2 Helium gas bag of 500 cubic feet (**Quantity: 1**) should be supplied by supplier.
- 7.3 Helium gas Storage tank of 1000 liters (**Quantity: 1**) should be supplied by supplier.
- 7.4 Interconnections of Helium cylinders with the plant is in the scope of supplier.
- 7.5 Helium gas regulators of suitable capacity for interconnection with the helium compressor (specified in section 2.1) has to be supplied and connected by the supplier.

N.B.: Interconnection and Isolation valves will be supplied by the supplier. The helium piping, instrumentation, mechanical and electrical fittings for all components has to be done by the supplier. Helium line fittings have to be done using Swagelok fitting /equivalent.

8.0 Helium purification system:**Quantity: 1****The helium purifier system consists of: Item in Block Flow Diagram: (G, H)**

- 8.1 Helium purifier (**Quantity: 1**) should be able to remove contamination to produce greater than Grade 5 (99.999% pure) helium gas with time between two regeneration greater than 5 hours has to be supplied by the supplier.
- 8.2 Cryogenic absorber (**Quantity: 1**) clean up of liquefier/ refrigeration system with suitable interconnecting piping and transfer lines for operation has to be supplied by the supplier.
- 8.3 Multi-component online analyzer (**Quantity: 1**) with its mounting rack, suitable piping, regulators, valves (manual and automatic) and instrumentation to connect it with liquefier input feed line and purifier output feed line as shown in block flow diagram. The vent of analyzer should be connected to the gas bag for recovery of sample gas. All the parameters of the analyzer should be monitored and log on to the system has by the supplier.

N.B.: Interconnection, piping, instrumentation, mechanical and electrical fittings for all components has to be done by the supplier. Helium line fittings have to be done using Swagelok fitting /equivalent.

9.0 Water chiller plant:**Item in Block Flow Diagram: J****Quantity: 1**

- 9.1 Water chiller plant of suitable capacity to drive 2 (two) helium compressors (section 2.1) has to be integrated along with the liquid helium plant by the supplier with the necessary accessories of commissioning, testing and maintenance will be in the scope of supplier.
- 9.2 Various process parameters and required control system has to be wired, with appropriate instrumentation for the integration and operation with the SCADA system of liquid helium plant has to be done by supplier.
- 9.3 Pumps and piping system and supply of P & ID diagram will be the scope of the supplier.
- 9.4 Details of water sump and other requirements have to be specified by the supplier in prior.

10.0 Electrical control cabinet, PLC and Supervisory software: Item in Block Flow Diagram: K

- 10.1 The electrical control cabinet should be provided with panel air conditioning unit should be provided by supplier.
- 10.2 The PLC should be provided by supplier.
- 10.3 An Ethernet Port with tools TCP-IP protocol to communicate plant parameters with other systems in our control LAN should also be provided along with the PLC by the supplier.
- 10.4 PLC with Supervisory Control and Data Acquisition (SCADA) Interface for the complete plant with backup and redundancy provision has to be provided by the supplier. All the parameters of the process should be monitored and logged on the system at the site by the supplier in accordance with IIT Kharagpur requirements.
- 10.5 Supervisory system should consist of runtime, historical, trending, alarms and other common features of the Supervisory Control and Data Acquisition (SCADA) with sufficient tag license.
- 10.6 All operation and maintenance related display should be there in the supervisory system.
- 10.7 Authorized license software and programs for PLC programming and supervisory software should be provided.
- 10.8 Supplier should provide information regarding electrical power quality requirement for the operation of the plant. All the equipments shall operate on 440V/230V, 50 Hz, 3 ϕ /1 ϕ power supply.

11.0 Inspection and Testing at works:

- 11.1 A detailed individual component testing report for cold box, helium compressor and reciprocating engine based helium liquefier and control panel before integration test should be supplied to IIT Kharagpur by the supplier which should consist of leak test, pressure test, vibration, noise, liquefaction rate, refrigeration power, mass flow rate, electrical consumption, control panel operation, actuation, instrumentation for various valves, components etc.
- 11.2 For outside inspection 3(three) persons from IIT Kharagpur will be visiting the manufacturer's work site for witnessing the integration of all components and the integration test to evaluate the performance and continuous operation of the complete plant. The list of tests which will be carried out at manufacturer's site should be informed three (03) months in advance to IIT Kharagpur for any amendments to be done in the test or procedure. The integration test should be done only after the final mutual agreement of test procedures.
- 11.3 Air tickets for the visit shall be borne by IIT Kharagpur. Local transports, lodging and fooding have to be arranged by the supplier.
- 11.4 Original test certificates of the individual components like heat exchangers, expanders, sensors, compressors, transmitters and analyzers etc. should be handed over to IIT Kharagpur after completion of the job.
- 11.5 Operation, installation and maintenance manuals are to be provided in English in the form of hard and soft copy at least 3 months prior to the training along with entire documentation.
- 11.6 During the process of installation, commissioning and trail run as well as after the completion of installation of the plant, the operator and technical in-charge of the plant should be trained for regular operation, inspection, keeping of the log book and minor maintenance.

12.0 Installation and material handling:

- 12.1 All the modules/equipments/devices has to be transported by the supplier.
- 12.2 Arrangement of local man power for unloading and local material handling/shifting had to be done by the supplier for the installation/ commissioning at the installation site free of charge.
- 12.2 All the modules received at IIT Kharagpur will be installed at final location, by a mutually agreed scheme.
- 12.3 All warm helium gas pipings will be done by the supplier using SS 304L/SS316 material.
- 12.4 All interconnecting wiring in between the modules will be done by the supplier.
- 12.5 All cold helium lines (cryo line), gas cradles, gas bags Dewar and recovery compressor are to be placed by the supplier during erection and commissioning works.
- 12.6 Helium / Nitrogen / Argon / Hydrogen / Oxygen / Acetylene etc. gas required for purging/welding/brazing along with the machines and electrodes will be in the scope of the supplier. Institute will only provide electricity and water for the site work.

13.0 Commissioning and final testing:

- 13.1 Supplier's personnel should bring all necessary tools and equipments required for the commissioning, testing and start up. In addition, necessary tool kit for the maintenance of plant should be supplied by the supplier.
- 13.2 The following operations are required be tested during the final testing at IIT Kharagpur.
 - a) Start up
 - b) Shut down
 - c) Purging
 - d) Air and Water Regeneration
 - e) Compressor operation
 - f) Vacuum operation
 - g) Full liquefaction capacity (with and without LN2 pre-cooling)
 - h) Full refrigeration capacity (with and without LN2 pre-cooling)

- i) Cool down of Dewar and production of minimum 15 l/hr of LHe should be demonstrated (without LN2 pre-cooling).
- j) He purity test after purification unit and before entering cold box has to be conducted.

13.3 **Helium Gas** for purging of **500 m³** should be supplied by the supplier.

14.0 Warranty:

14.1 Minimum 2 years of warranty is required on all the Main system (liquefier, purifier, compressor), parts (connecting lines, recovery line, gas bag, adsorber etc.) and components (such as, sensors transmitters, devices, data logging system etc.) which are installed or supplied by the supplier.

15.0 Evaluation of BID:

- (i) Evaluation of price bid will be determined on the basis of combined price 'X' (for the plant with two years comprehensive warranty) and 'Y' (cost of additional warranty for three years). However, initially, order will be placed with 2 years comprehensive warranty only. For another 3 years warranty, the order will be issued after completion of 2 years and the remaining payment of additional 3 years warranty will be made on yearly basis.
- (ii) In case of comparison between FOR IIT KGP (quoted in INR) and FOB/FCA price on source port basis (quoted in foreign currency, 20% will be added on FOB/FCA price after conversion to INR.
- (iii) AMC cost in percentage (%) of basic cost after warranty period (No need to quote absolute value). AMC cost will not be considered for price bid evaluation, however, it may be considered for future AMC if required.
- (iv) **Two years** onsite comprehensive OEM warranty (two years from the date of successful installation and commissioning) covering repair and replacement for all the hardware (other than the consumables), software and any software upgradation. All spares and accessories to be replaced under warranty must be imported (if required) by the vendor at their own cost (including every possible expense). IIT Kharagpur will not take responsibility for the import of any replacement under Warranty. The OEMs/Authorized Distributors and Dealers must attach certificate about their after sales and service facilities, escalation support for on-call service or station engineer etc.

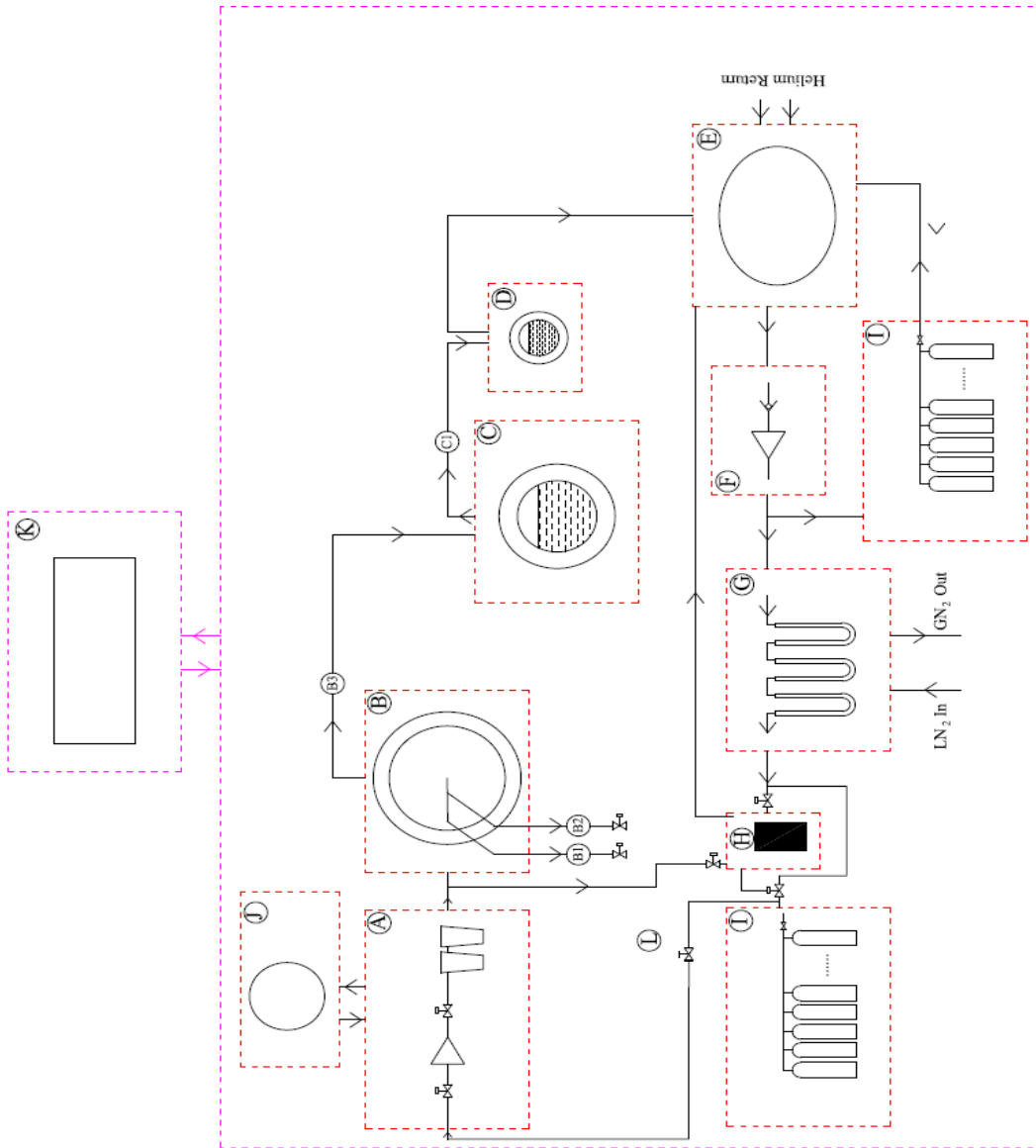
16.0 Documents to be included in technical offer:

- 16.1 Details of the technical points as per our specification.
- 16.2 All relevant drawings including P&ID and General Arrangement drawing.
- 16.3 Quality Assurance Plan.
- 16.4 Time schedule for inspection and testing at works transportation and delivery, installation and commissioning at IIT Kharagpur site etc.
- 16.5 Manuals of all the components/ devices/ equipment/ instruments should be provided by the supplier in English in the form of Hard and Soft copy.
- 16.6 Plan for conducting test at IIT Kharagpur should be documented and sent by supplier before installation.

17.0 Others:

- 17.1 The supplier should have its local service support in India within 200 km distance from IIT Kharagpur for which they should provide address proof during applying for tender.
- 17.2 Credentials of proposed plant installation (within 5 years) should be provided by the supplier.

Block Flow Diagram of LHe Plant at IIT Kharagpur



A:	Compressor with oil/moisture/ CO ₂ removal
B:	Cold box
B1:	Refrigeration outlet at 60K
B2:	Refrigeration outlet at 20K
B3:	Liquid transfer tube
C:	Liquid helium storage vessel
D:	User Dewar (~ 60) litre capacity)
E:	Gas bag
F:	Recovery compressor unit
G:	Purification unit
H:	Multi-component purity monitor
I:	Pure / Impure gas cylinder banks
J:	Water Chiller plant
K:	Complete plant Control and Instrumentation
L:	Helium gas regulator

GENERAL TERMS AND CONDITIONS

1. **Last Date of Submission of Sealed Bids: 28.01.2019 upto 11.30 AM.**
The Technical bids will be opened on 28.01.2019 at 03.00 PM in the Office of the Head, Cryogenic Engineering Centre, IIT Kharagpur.

2. **Payment Terms & Performance Guarantee:** 90% payment will be made on successful installation and commissioning duly certified by the concerned Head of the Department/Centre/School/Unit. A sum of 10% of the invoice value shall be retained as **Security Deposit** towards **Performance Guarantee**. The security deposit so retained may be refunded on submission of Bank Guarantee towards Performance Guarantee for the equivalent value of security Deposit valid **warranty period plus sixty days** drawn on any commercial bank.
 “The payment for the import consignment will be 90% through irrevocable confirmed Letter of Credit (LC) against dispatch/shipping documents on FOB/CIF order and rest 10% will be given through wire transfer after successful installation and submission of PBG.”
 No advance/mobilization support, is payable against supply of stores.

3. **Warranty/Guarantee & On-site skill support: Two years** onsite comprehensive OEM warranty (two years from the date of successful installation and commissioning) covering repair and replacement for all the hardware (other than the consumables), software and any software upgradation. All spares and accessories to be replaced under warranty must be imported (if required) by the vendor at their own cost (including every possible expense). IIT Kharagpur will not take responsibility for the import of any replacement under Warranty. The OEMs/Authorized Distributors and Dealers must attach certificate about their after sales and service facilities, escalation support for on- call service or station engineer etc.

4. **Delivery and installation of Stores:** 330 days from the issue of purchase order.
 In the event of failure to deliver and installation of the stores beyond the specified date, liquidated damages @ 1% per month or part thereof in respect of the value of stores will be deducted, subject to a maximum of 5%; alternately the order will be cancelled and the undelivered stores purchased from elsewhere at the risk and expense of the vendor.

5. **Tender Fee:** An amount of Rs. 1,000.00 (Rupees One Thousand Only) as tender fee (non refundable) is to be paid. The payment shall be made by Demand Draft from any Nationalized Bank /Commercial Bank and paid in favour of “Indian Institute of Technology Kharagpur”, payable at Kharagpur. **Bids without Tender Fee will not be accepted. This should be enclosed separately in an envelope and stapled with the Technical Bid document superscribing “Tender fee”.**

6. **Earnest Money Deposit (EMD):** An amount of **Rs.15,00,000.00** (Rupees Fifteen Lakhs only) in the form of Demand Draft drawn in favour of “**Indian Institute of Technology Kharagpur**”, payable at Kharagpur or Fixed Deposit Receipt or Banker’s Cheque or Bank Guarantee as per format at **Annexure VI**. **E.M.D. should be enclosed separately in an envelope and stapled with the Technical Bid document superscribing “EMD”.** The validity of the EMD should be 6 (six) months from the

date of issue. **Any bid without EMD will be summarily rejected. No interest is payable on EMD.** EMD will be refunded to the unsuccessful bidder after the finalization of the tender process. The EMD of vendor awarded with the contract to be treated as part of security deposit towards Performance Guarantee. No interest is payable on Security Deposit. Security Deposit shall be forfeited if the selected vendor after award of contract, fails to execute the same.

[Note: IIT Kharagpur will give exemption for submission of Tender Fee and EMD who are registered with MSME or Central Purchase Organization or Startups as recognized by DIPP as per revised rule 170 of GFR-2017 only. However, Proper and valid document in this regard must be submitted by the bidders in support of their claim.]

7. **Price:** Domestic tenders are to quote and accept their payment in Indian currency; Indian agents of foreign suppliers are to receive their agency commission in Indian currency; cost of imported goods, which are directly imported against the contract, may quote in foreign currency (currencies) and will be accordingly in that currency; and the portion of the allied work and services, which are to be undertaken in India (like installation & commissioning of equipment) are to be quoted and will be paid in Indian currency. The bidders must quote as per the prescribed format (Annexure VIII) only.

7.1 Indian Institute of Technology Kharagpur is a Public Funded Academic & Research Institute under the Ministry of Human Resource Development of India and is eligible for GST @5% vide Notification No: 47/017 dated 14/11/2017 by the Ministry of Finance, Department of Revenue.

7.2 IIT Kharagpur is exempted to pay full customs duty as per the Govt. of India Notification No. 51/96-Customs dated 23.07.1996.

8. **Bid:** Technical Bid and Price Bid should be submitted in two separate sealed envelopes quoting reference number on the top of the envelopes. Tender Fee and EMD should be enclosed with the Technical Bid documents, in separate sealed envelopes, stapled with the packet containing Technical Bid documents. The OEMs may either bid directly or authorize their Country / Regional / State Distributors / Dealers / Vendors, to quote with valid authorization certificate, capability to sale and service of the products.
9. **Acceptance of Tender:** The Authority of IIT Kharagpur does not bind itself to accept the lowest price bid and reserves the right to reject any or the entire tender bids received without assigning any reason thereof.
10. **Extra Features:** If the bidder provides any other extra features on the Hardware or Software which are not mentioned in the tender product specifications, then that shall be highlighted in clear terms, with documentary evidence/literature.
11. **Compliance List:** The proposal should be properly indexed and a compliance list against the technical specifications must be provided.
12. **Service:** Response to ensure quality of services, the deputed Engineer from the OEM/Vendor shall have a minimum of 3 years of experience in the relevant field and must be in the payroll of the OEM/Vendor.

13. **Installation and Commissioning:** The OEM and authorized distributor must ensure timely installation of the complete Liquid Helium Plant with necessary support to the indenters.
14. **Validity of licenses:** Software's licensing price or policy (if any) shall be clearly mentioned.
 1. All licenses should be perpetual.
 2. All the accessories shall be from the same OEM.
15. **Relevant documents of the OEM and authorized distributor shall be enclosed, along with the Technical Bid. Any explanation on this account shall be supported with documentary evidence from the principals.**
16. **Conditional Offer** will not be accepted.
17. **Period of Validity:** Bids shall remain valid for acceptance for a period of 120 days from the date of opening of the price bid.
18. The benefit of any downward price revision (revision on account of budget/financial policy, tax revision, EPZ etc.) is to be given to IIT Kharagpur by the selected OEM/vendor.
19. **Past Performance of the Vendors will be judged at the time of Technical Evaluation.**
20. **The Institute does not bind** itself to offer any explanation to those bidders whose technical bids have not been found acceptable by the Technical Evaluation Committee of the Institute.
21. **Bidders should** enclose the following documents:
 1. Certificate of Registration / Trade License.
 2. Copy of PAN & GST registration certificate
 3. IT returns for the last three years.
 4. Authorized Distributors/Vendors must submit appropriate authorization certificate and letter from their OEMs, for participation in the said tender.
 5. Name and address of past satisfactory supplies or minimum three clients to whom such items/stores have been supplied should be mentioned in the technical bid.
 6. Copy of mandatory test reports, national testing/reliability and endurance test reports etc., certified or conducted at the manufacturing site, granted by the bureaus/quality control departments/national testing laboratories.
 7. Copy of product literature, for which the prices have been quoted.
 8. A write up on service and maintenance capability, mitigation of risks or breakdown and replacement capability, with the escalation support matrix suggested for the Institute. Vendors must indicate their sales and support service centre in India and their plan to address issues about services, maintaining minimum service inventory etc.
 9. Signed copy of the tender document, with company seal, agreeing to the terms &

conditions and declaration.

22. **All tenders are to** be submitted to **Office of the Head, Cryogenic Engineering Centre, IIT Kharagpur, P.O.- Kharagpur Technology, Pin: 721 302, India**. The bids (technical and price bids) once submitted shall be the property of the Institute and shall not be returned to the vendor in future.
23. **The person/officer signing** the tender/bid documents should be delegated with an appropriate Power of Attorney by the Chief Executive Office/Managing Director of the Company to sign such documents.
24. **Opening of Price Bids :** The Price Bid(s) of only those vendor(s) who are found technically qualified will be opened and the same will be opened before the technically qualified vendor(s). **The date for opening of price bids will be notified separately.**
25. Tenderer or his/her authorized representative (with proper authorization letter for attending opening of technical bids and also for opening of price bids) may choose to be present at the time of opening of Technical Bids/Price Bids.
26. Bidders are required to submit their **Details** in the format given at **Annexure IV** along with their technical bids **Annexure V**. They are also required to submit a signed **Declaration** in the format given at **Annexure VI**. A **Checklist** and **Compliance statement** against each item of Annexure I & III thereon 13separately & individually shall also be submitted.
27. **IMPORTANT**
 1. Director may accept or reject any or all the bids in part or in full without assigning any reason and does not bind himself to accept the lowest bid. The Institute at its discretion may change the quantity/upgrade the criteria/drop any item or part thereof at any time before placing the Purchase Order.
 2. A bid submitted with false information will not only be rejected but also the OEM/vendor will be debarred from participation in future tendering process.
 3. The OEMs/Vendors need to submit a certificate during opening of technical bids that they are not currently debarred or blacklisted in IIT Kharagpur for any supplies, products or services, or at present in any national organization or educational institute/university.
4. In case of any dispute, the decision of the Director of this Institute shall be final and binding on the bidders.
5. For any query pertaining to this bid document, correspondence should be addressed to :

ATTENTION: Dr. Abhay Singh Gour,
Professor In-Charge, Liquid Helium Plant,
Cryogenic Engineering Centre
IIT KHARAGPUR, INDIA – 721302

[Ph.: 03222-283586/90082005533(M), Fax: 03222-282258]

6. In case the due date for opening tender happens to be a holiday, the same will be opened on the next working day. The timings will however remain unchanged. Please Note that the Institute remains closed on Saturday & Sunday.
7. The Bidders are requested to submit the bids after issue of clarifications duly considering the changes made if any. Bidders are totally responsible for **incorporating/complying the changes/ amendments** issued if any in their bid.

TECHNICAL BID COMPLIANCE SHEET FORMAT

S.No.	Item	Specification
1	Helium Liquefier capacity without LN2 , it should have provision for LN2 Cooling	15-20 lts
2	Helium compressor of suitable capacity with a sound level less than 85 db	
3	Liquid Helium Dewar with boil of rate less than 0.5% per day	1000 lts
4	Suitable co-axial transfer line with a gap between cold box and Dewar	2m
5	Liquid Helium transfer line with a flexible length of	3m
6	2 Nos. of Multilayer insulated Liquid helium Dewar	60 lts
7	2 Nos. of Multilayer insulated Liquid helium Dewar	120 lts
8	Suitable Helium recovery compressor	
9	Helium gas bag	500 cu.ft.
10	Helium gas storage tank	1000 lts
11	Helium purifier should be able to purify He gas	> grade 5 (99.999%)
12	Multi component online gas analyzer	

TECHNICAL BID DOCUMENT

Format to be filled by the manufacturers / Indian agents (on behalf of their foreign principles) or their authorized country distributors/ representing dealers/ regional agencies, submitting tender for procurement of "**Liquid Helium Plant**" in Cryogenic Engineering Centre.

1. Name of the Tenderer :
2. Status of the Tenderer :
(attach documents, if registered company/partnership/proprietyship)
3. Whether OEM/representing foreign principle :
(attach copy of certificate/authorization)
4. Details of key top official/authorized official (attach details):
5. Details of tie-ups for supply/services, if any :
(attach details, agreements, escalation matrix)
6. Income Tax returns of previous three assessment year (copy) :
7. Current list/address of clients where similar material has been supplied in last five years and successfully working :
8. Name, address and contact details of the vendor's three largest clients, to whom similar products and services were extended . :
9. Tender Fee details:
10. Income Tax Permanent A/c No. (attach copy) :
11. **GST Registration No:**
12. Details of EMD/Bank Draft No Issuing Branch and date :

Certified that all above information are correct to the best of my/our information, knowledge and belief.

Date:

Signature & seal of the
Authorized person of OEM/Vendor

NOTE: This is to be submitted in a separate sealed envelope super scribing "TECHNICAL BID", Notice inviting **Tender No.IIT/KGP/Cryo/LHeP/2018 DATED : 19.12.2018** and name of the bidder. All technical documents like literature, catalogues etc., are to be put in the same envelope. Price bid of that company/firm only will be opened which do technically qualify, for further consideration. **Attach all relevant documents in the same serial order as above, properly indexed, duly signed and sealed.**

DECLARATION

1. I, ----- Son /Daughter of Shri -----
----- Proprietor/Partner/CEO/MD/Director/
Authorized Signatory of M/s. ----- am
competent to sign this declaration and execute this tender document.
2. I have carefully read and understood all the terms and conditions of the tender and
hereby convey my acceptance of the same.
3. The information/ documents furnished along with the above application are true and
authentic to the best of my knowledge and belief.
4. I/ we/ am are well aware of the fact that furnishing of any false information/
fabricated document would lead to rejection of my tender at any stage besides liabilities
towards prosecution under appropriate law.
5. Each page of the tender document and papers submitted by my Company is
authenticated, sealed and signed, and I take full responsibility for the entire documents
submitted.

Signature of the Authorized Person

Date : -----
Place : -----

Full Name : -----
Company Seal : -----

**MODEL BANK GUARANTEE FORMAT FOR FURNISHING
EMD**

Whereas(thereinafter called the
“tenderer”) has submitted their offer dated
..... for the supply of
..... (hereinafter called the “tender”)
against the purchaser’s tender Notice No.
.....
KNOW ALL MEN by these presents that WE
..... of
..... having our
registered office at
..... are bound unto
.....(hereinafter called the “Purchaser”) in
the sum of
..... for which
payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors
and assigns by these presents. Sealed with the Common Seal of the said Bank this
.....Day of
..... 20
.....

**THE CONDITIONS OF THIS OBLIGATION
ARE**

- (1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:
 - (a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.
 - (b) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 45 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of
the Bank)

Name and designation of the officer
Seal, name & address of the Bank
and address of the Branch

FINANCIAL BID

Supply and Installation, Testing and Commissioning of Liquid Helium Plant with 2 Years of comprehensive warranty.

The Bidder shall fill all the required columns of Financial Bid. The Bidder should also provide itemize price details in Annexure VIII :

A : Quotation with INR;

S.No.	Description	Price of whole setup without taxes (in Rs.)	Taxes	Total Amount (in Rs.)
		A	B	C=A+B
1	Supply , Installation, testing, and commissioning of Liquid Helium Plant with Comprehensive Warranty of 2 Years			
Total Cost of the Project			X1	
Cost of additional 3 years warranty*			Y1	
Z1= X1+Y1				

B. Quotation with foreign currency;

S.No.	Description	Price of whole set up (FOB/FCA (Source port) basis)	Total Amount (in Rs.)
		A	C=A
1	Supply , Installation, testing, and commissioning of Liquid Helium Plant with Comprehensive Warranty of 2 Years		
Total Cost of the Project			X2
Cost of additional 3 years warranty*			Y2
Z2= X2+Y2			

Note:-

1. In case of discrepancies between words and figures, the bid which is least of the two versions will be confirmed.
- 2*. Should provide the cost of additional 3 years warranty. Additional warranty price paid only after the completion of 2 years comprehensive warranty for the particular year if required.
3. Indian Institute of Technology Kharagpur is a Public Funded Academic & Research Institute under the Ministry of Human Resource Development and is eligible for GST @5% vide Notification No: 47/017 dated 14/11/2018 by the Ministry of Finance, Department of Revenue.
4. Comparison of price bid will be made according to the price of Z1 inclusion of 3 years warranty.

Signature of the bidder along with seal

(on the official Letterhead of the firm)

Annexure – IX

Itemized Price details of all Components/Instruments/ Equipments/ Devices etc.

(To be filled by the bidder as stated in Annexure VIII)

Accessories and spare parts

The vendor should provide all spare parts of the liquefier which have history of failure within first 5 years of operation anywhere in India and regular consumables/spares should be listed and quoted separately. However, the price of the spares will not be considered in price comparison.

S. No	Description/Name of the Spare Part	Qty	Unit Price Rs)	Taxes @ GST%	Unit price including GST (in	Total Amoun (in Rs.)
		A	B	C	D=(B+C)	E=(A*D)

Note:

- 1. **Should provide price of all the spare parts and regular consumables.**
- 2. Indian Institute of Technology Kharagpur is a Public Funded Academic & Research Institute under the Ministry of Human Resource Development and is eligible for GST @5% vide Notification No: 47/017 dated 14/11/2017 by the Ministry of Finance, Department of Revenue.

Signature of the bidder along with seal