

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO PROPULSION COMPLEX (IPRC)
MAHENDRAGIRI**

Tender for Supply of Bath Type Heat Exchanger for cooling Gaseous Helium

Bids to be submitted online

Tender No.: IPRC/PURGP1/IP202400079501 dated 22-07-2024

A. Tender Details

Tender No :	IPRC/PURGP1/IP202400079501
Tender Date :	22-07-2024
Tender Classification:	GOODS
Purchase Entity :	PURGP1
Centre :	ISRO PROPULSION COMPLEX (IPRC)

Supply of Bath Type Heat Exchanger for cooling Gaseous Helium

This is a two-part bid. Price details shall NOT be mentioned in technical Bid/attachments, failing which the offer will be considered as invalid.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno Commercial Bid while price shall be indicated only in the Price Bid.

1.Foreign vendors are not permitted to quote.

2.Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid.

a. The percentage of local content with documentary should be specifically mentioned in the offer. Format for Self Certification under Preference to "MAKE IN INDIA" Policy is attached, without which it will be summarily rejected.

b. Preference will be given to Class-I Local Supplier and in their absence, Class-II Local Supplier will be considered.

3.MSME Preference is applicable only against the claim of the manufacturer and production of documentary evidence by the manufacturers for the registration of particular item under MSME.

4.Item as per the tender is eligible for Concessional rate of GST@5% as per Notification No.07/2018-Integrated Tax (Rate) dated 25.01.2018 and Notification No.06/2018-Central Tax (Rate) dated 25.01.2018 along with Notification No. Ms No.18 dated 25.01.2018. Relevant Certificate shall be issued after placement of Purchase Order.

5.Last minute clarification on tenders will not be entertained.

6.This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

7.Acceptance of Guarantee / Warranty, PBG, SD & L.D are mandatory. Bank Guarantee towards Security Deposit (S.D) shall be submitted, if the Purchase Order value exceeds Rs.5 Lakhs

A.1 Tender Schedule

Bid Submission Start Date : **22-07-2024 17:00**

Bid Clarification Due Date : **29-07-2024 10:00**

Bid Submission Due Date : **22-08-2024 10:00**

Bid Opening Date : **22-08-2024 10:05**

Price Bid Opening Date : **26-08-2024 10:00**

B. Tender Attachments

Technical Write-up/Drawings

Document : Annexure-2

Document : Annexure-3

Document : Annexure-4

Document : Annexure-4

Document : Annexure-5

Instructions To Vendors

6. STANDARD TERMS AND CONDITIONS (DOS PM:19)

1. Arbitration in the event of any dispute or difference arising under these terms & conditions or any condition contained in the Purchase Order or in connection with this Contract. (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Head of the Purchase Office or of some other person appointed by him, and the dispute further processed in terms of the Arbitration & Conciliation Act, 1996. There will be no objection that the arbitrator is a Government Servant that he had to deal with matter which the Contract relates to or that in the course of his duties as Government Servant has expressed views on all or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this Contract.

2. Corrections, if any, in the quotation must be attested. All amounts shall be indicated both in words as well as in figures. When there is difference between the amount quoted in words and figures, the amount quoted in words shall prevail.

3. Guarantee: The stores offered should be guaranteed for a minimum period of twelve months against defective stores design, operation or manufacture. For defects noticed during the guarantee period, replacement/repair 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.

4. If the arbitrator is a person appointed by the Head of the Purchase Office, In the event of his denying or neglecting or refusing to act, or resigning or being unable to act, for any reason, shall be lawful for

the Head of the Purchase Office either to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator subject, as aforesaid, to the Arbitration and Conciliation Act, 1996, and the rules there under and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceeding under the clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as the Purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible, continue during Arbitration Proceedings.

5. If the arbitrator is the Head of the Purchase Office :

(i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor in office either to proceed with the reference himself for to appoint another person as arbitrator, or In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Purchase Office to appoint another person as arbitrator.

6. Late Tenders will not be considered.

7. Packing and Forwarding: The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense to the Contractor.

8. Payment terms are full payment within 30 days from the date of receipt and acceptance of material ordered. Our Bankers are State Bank of India, Mahendragiri.

9. Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two systems of unit must be furnished.

10. Quotation should be valid for at least 90 days from the date of opening of the tender.

11. Sales Tax and/or other duties/levies, where legally leviable and intended to be claimed, should be distinctly shown separately in the tender.

12. Specifications: Stores offered should strictly conform to Purchaser's specifications. Deviations, if any, shall be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotation. Test certificate, wherever necessary, should be forwarded along with supplies. Wherever options are called for in our specifications, the tenderer should address all such options, wherever specifically mentioned by us, and the tenderer could suggest changes to specifications with appropriate response for the same. Even in

such case, the tenderer should state why he cannot meet our specifications and why he is suggesting the change.

13. Successful tenderer will have to furnish in the form of a Bank Guarantee or in any other form as called for by the Purchaser towards adequate security for the materials/property provided by the purchaser for the due execution for the Contract.

14. TERMS AND CONDITIONS OF TENDER:

Price quoted should be on the basis of FOR IPRC, Mahendragiri or delivery at site
The Purchaser will not pay separately for transit insurance, and the risk and cost during transit shall be exclusively the responsibility of the Contractor and the purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

15. The Contractor shall at all times indemnify the Purchaser against all claims which may be in respect of the stores for infringement of any right protected by Patent, Registration or design or Trade Mark and shall take all risks of accidents or damage which may cause a failure of the supply from whatever causes arising and the entire responsibility for the sufficiency of all means used by him for the fulfillment of the Contract.

16. The Purchaser reserves the right to accept or reject any quotation fully or partly without assigning any reason thereof.

17. The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed not later than the date specified therein, and failure to do so, without adequate justification, may involve cancellation of the Contract at the discretion of the Purchaser.

18. Where counter terms and conditions/printed or cyclostyled conditions of sale have been offered by the tenders, the same shall not be deemed to have been accepted by the Purchaser unless the Purchaser's specific written acceptance thereof is obtained.

7. GENERAL TERMS AND CONDITIONS:

1. a) Facility of after sales service to be confirmed with details.
- b) Permanent Account Number (PAN) allotted by Income-Tax authorities shall be furnished with documentary proof. Otherwise, documentary proof for having applied for PAN should be provided. Also PAN should be in the name of Company/Firm, if quoted by the Company/Firm and in the name of Individual, if quoted by individual.
- c) GST No.
- d) Local office in Tirunelveli / Nagercoil is preferable.

Note: (b) to (d) are applicable for Indian Companies only.

2. 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.

3. GST where legally leviable and intended to be claimed should be distinctly shown separately in the tender.

4. Guarantee / Warranty period as applicable shall be indicated, along with the quote. Guarantee/Warranty shall commence from the date of installation and acceptance of the complete equipment supplied under the contract/purchase order.

5. If an Indian agent submits bid on behalf of the Principal/OEM, the same Indian agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product

6. In a tender, either the Indian Agent on behalf of the Principal/OEM or Principal/ OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.

7. In case of imported items (stores), Ex-Works/FOB/FCA prices should be indicated. In case of indigenous stores the quotation should be on FOR-Destination / Door delivery basis.

8. In case the vendor falls in the category of Small Scale Industries (SSIs), who are registered with NSIC, Public Sector Undertakings (PSUs) and Micro & Small Enterprises (MSMEs) the same shall be mentioned in their quote for evaluation.

9. Indian Agents while quoting on behalf of their principals shall attach necessary authorization letter from their Principals along with the bid.

10. IPRC reserves the right to accept or reject any quotation in full or part thereof by recording the reasons.

11. IPRC shall not be responsible for failure of vendors in submitting bids online caused due to technical reasons at vendor end such as network or power failures, computer failure, internet-browser, mistakes / errors in filling the bids on line by vendor etc.

12. ISRO PROPULSION COMPLEX (IPRC) is exempted from payment of Customs Duty under Notification No. 50/2017-Customs dated 30.06.2017 and as amended by Notification No.5/18 Customs dt:25/1/18. For imported items IPRC will provide Customs Duty Exemption Certificate for availing Concessional CD and IGST.

13. Last minute request for the extension of the due date w.r.t. any technical issue at Vendors/Suppliers side will not be considered. You may submit your quotation online well in advance instead of waiting till the last date to ensure that Internet problem and network condition does not cause problem.

14. LIQUIDATED DAMAGES: Delivery is the essence of the contract. Items shall be delivered within stipulated period. If delivery is delayed beyond the stipulated delivery period mentioned in the purchase order or any extension thereof, an amount equal to 0.5% per week shall be recovered, subject to a maximum of 10% of the order value shall be deducted from your bills due.

15. Offers sent through post, telegram, fax, e-mail, courier will not be considered. Partially completed / incomplete tenders shall not be considered.

16. Only authorized dealers/agents or their accredited representatives for original manufacturers have to submit the quotation with documentary evidence.

17. PAYMENT: 100% through RTGS within 30 days from the date of receipt and acceptance of items at our site is the normal payment for Indigenous supply. In the case of direct Import, normal terms of payment are by Sight Draft / Wire Transfer after receipt of items. However, other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.

18. PERFORMANCE BANK GUARANTEE :

The Supplier shall guarantee the successful and satisfactory performance/commissioning of equipment/machinery under the conditions specified in the Purchase Order. As a performance security, the SUPPLIER shall furnish a performance bank guarantee (in the prescribed format) from Nationalized Bank/Scheduled Bank for an amount equal to the sum of 3% of the order value ensuring the due performance of equipment/machinery in accordance with all the specifications and terms specified in the Purchase Order herein valid for the period of two months beyond warranty period. On due performance, the performance bank guarantee shall be automatically cancelled and returned to the Supplier within 30 days after expiry of the Warranty period.

19. SECURITY DEPOSIT : Security Deposit @ 3% of order value shall be submitted in the form of DD/FDR duly endorsed in favour of Accounts Officer, IPRC or by way of Bank Guarantee (in the prescribed format) within 30 days after receipt of order and valid up to the successful execution of the order.

20. The goods or material offered should be strictly as per our specifications. Change(s) in specifications, if any, should be clearly indicated by the supplier in his quotation. The supplier should also indicate make/type No. of the materials or equipment offered. Vague terms such as Best Indian, Best Indigenous and Imported make should not be used.

21. The offer should be valid for a minimum period of 120 days from the date of Technical bid opening & 90 days from the date of Price Bid opening (in case of two-part tender).

22. The purchaser 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 portions of the quantity offered and the tenderer shall supply the same at the rates quoted.

23. Wherever the tenderer is asked to submit sample for evaluation of tenders, the same shall be submitted along with your quote.

8. STANDARD TERMS AND CONDITIONS (DOS PM: 20)

1. ACCEPTANCE OF STORES:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.

(b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

(c) If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 1 (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

2. DELIVERY:

(a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.

(b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either.

- (i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week of the price of any stores which the Contractor has failed to deliver as aforesaid or during which the delivery of such store may be in arrears subject to a maximum of 10%, or
- (ii) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or
- (iii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 2 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to re-purchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

3. DISPATCH:

The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on "said to contain" basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract.

4. ERECTION OF PLANT & MACHINERY:

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon to do so within the period specified by the purchaser, the purchaser shall have the right to get the erection done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the purchaser.

5. EXTENSION OF TIME:

As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores in proper time shall have arisen from any cause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 2 thereof.

6. GUARANTEE & REPLACEMENT:

- (a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- (b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- (d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- (e) The decision of the purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (f) To fulfill guarantee conditions outlined in clause 6 (a) to (e) above, the Contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser) from a Bank approved by the purchaser for an amount equivalent to 3% of the value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- (g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of

arrival of the stores at purchaser site.

(h) Even while the 12 months guarantee applies to all stores, in case where a greater period is called for by our specifications then such a specification shall apply in such cases the period of 14 months referred to in para 6 (b) & (c) shall be the guarantee period plus two months.

7. PACKING FORWARDING & INSURANCE:

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

8. PRICES:

Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

9. REJECTED STORES:

Rejected stores will remain at destination at the Contractor risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

10. SECURITY DEPOSIT(SD):

The Supplier shall provide Bank Guarantee for an amount equivalent to the 3% (Three PERCENT) of the total Order value towards Security Deposit for the due performance of the Purchase Order. The Security Deposit can be submitted in the form of Bank Guarantee (format enclosed) or Fixed Deposit receipt obtained from any Nationalized/ Scheduled Bank and it shall be kept valid for a period of sixty days beyond the date of completion of the Purchase Order. This Security Deposit will be returned to the Supplier only upon successful completion of all the contractual obligations or shall be adjusted/ forfeited against non-fulfilment of any of the contractual obligations. The Security Deposit shall be submitted within 30 days from the date of receipt of Purchase Order.

11. TEST CERTIFICATE:

Wherever required, test certificates should be sent along with the dispatch documents.

12. The Purchaser shall mean the President of India or his successors or assigns.

9. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA

1. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.

2. As per the Rule 144(xi) of General Financial Rule, 2017, any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the competent authority ie., Department for Promotion of Industry and Internal Trade (DPIIT).

3. Hence, Vendors or Agents of a Vendor (Indian or others) from a country sharing border with India shall submit copy of valid registration made with Department for Promotion of Industry and Internal Trade (DPIIT), Government of India along with the tender mandatorily, without which the offer will be treated as invalid.

4. Model Certificate for Tenders

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered

5. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.

10. Format for Self Certification under Preference to MAKE IN INDIA Policy CERTIFICATE

1. In line with Government Public Procurement Order No. P-45021/2/2017-BE-II dt. 15.06.2017, as amended from time to time and as applicable on the date of submission of tender, we hereby certify that we M/s. _____(supplier name) are local supplier meeting the requirement of minimum percentage of Local content _____ (class I/Class II) as defined in above orders for the materials against Tender No. _____

2. Details of locations at which local value addition will be made is as follows:

3. We also understand, false declarations will be in breach of the Code in Integrity under Rule 175(1) (i) (h) of the General Financial Rule for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

4. Seal and Signature of Authorized Signatory

C. Bid Templates

C.1 Technical Bid - Supply of Bath Type Heat Exchanger for cooling Gaseous Helium

1. Liquid Nitrogen Bath Heat Exchanger, including Design, Fabrication, Inspection, Testing, Transportation

Item specifications for Liquid Nitrogen Bath Heat Exchanger

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Configuration of Heat Exchanger	The heat exchanger shall preferably consist of multiple helical wound coils with specified pitch in transverse and longitudinal direction in which multiple concentric helical coils shall originate from the inlet bottom header and terminate at outlet top header, or any other similar arrangement meeting the specification of overall compactness and technical requirement.	Yes / No / Explain		
2	Orientation of Heat Exchanger	Vertical	Yes / No / Explain		
3	Operating fluid Medium for Coils	Gaseous Helium	Yes / No / Explain		
4	Operating Pressure of Coils	23 MPa	Yes / No / Explain		
5	Design Pressure of Coils	30 MPa	Yes / No / Explain		
6	Inlet Temperature for Coils	313 K	Yes / No / Explain		
7	Outlet Temperature of Coils	82 K	Yes / No / Explain		
8	Design Temperature of Coils	350 K	Yes / No / Explain		

9	Design Flow-rate through the coils	0.1 kg/sec	Yes / No / Explain		
10	Permissible Pressure Drop across coils	0.2 MPa (maximum)	Yes / No / Explain		
11	Size of tube/ pipe for coils (Diameter, thickness and length)	The tube of size 10 mm and 2 mm thickness shall be used preferably. However, the same be confirmed during Detailed Engineering Review for adequacy in terms of strength, pressure drop and heat transfer area.	Yes / No / Explain		
12	Material of coils	SS 304L / SS 316L or dual grade SS304/304L or SS 316/ 316L tubes	Yes / No / Explain		
13	Gross Volume of inner Vessel (Bath)/ Water Capacity	The minimum volume of inner vessel shall be 1.2 cubic metre. The same shall be discussed and finalized during Detailed Engineering Review.	Yes / No / Explain		
14	Fluid Medium inside Inner Vessel (Bath)	Liquid Nitrogen	Yes / No / Explain		
15	Operating Pressure of Inner Vessel	0.4 MPa(a)	Yes / No / Explain		
16	Design Pressure of Inner Vessel	0.5 MPa(a)	Yes / No / Explain		
17	Operating Temperature of Inner Vessel	70 - 350 K	Yes / No / Explain		
18	Design Temperature of Inner Vessel	350 K	Yes / No / Explain		
19	Outer Diameter of Outer Vessel	2 m	Yes / No / Explain		
20	Height of Heat Exchanger from Base (including Projections)	3.2 m	Yes / No / Explain		

21	Ullage Volume	10% of gross volume of inner vessel. The Volume of Liquid Nitrogen above the coils shall be adequate during the steady state and transient state requirement and coils should always be immersed during steady state operation with reasonable margin.	Yes / No / Explain		
22	Vacuum Pressure in the Jacket	better than 1E-02 mbar	Yes / No / Explain		
23	Type of Thermal Insulation	Evacuated Multilayer Insulation (Super Insulation)	Yes / No / Explain		
24	Permissible Evaporation loss rate of Liquid Nitrogen inside the inner vessel	< 4 % per day	Yes / No / Explain		
25	Fatigue life considering thermal and pressure cycles of Heat Exchanger, including inner vessel and coils	8000 cycles	Yes / No / Explain		
26	Allowable internal over-pressure of outer vessel	0.15 MPa(a)	Yes / No / Explain		
27	Allowable external over-pressure of outer vessel	0.3 MPa(g) with specified vacuum in annular space	Yes / No / Explain		
28	Wind Loads	Wind Load shall be calculated as per Clause 8 of IS 875 PART 3, 2015, with basic wind speed of 200 km/hr.	Yes / No / Explain		
29	Seismic Zone	Zone 3 as per IS 1893.	Yes / No / Explain		
30	Permissible leakage rate with GHe a) Global leakage rate across coils, inner vessel and outer vessel b) Spot leakage rate across weld joints c) Flanged and threaded joints	a) less than or equal to 1E-07 Pa-m ³ /sec b) less than or equal to 1E-08 Pa-m ³ /sec c) less than or equal to 1E-06 Pa-m ³ /sec	Yes / No / Explain		

Document : Annexure-1

2. BOUGHT OUT ITEMS

Item specifications for BOUGHT OUT ITEMS

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Bought Out Items shall include:	Pressure Transmitters (2 number), Level Transmitter (2 number), Level Gauge (1 number), Pressure Gauge (1 number), 3-way Diverter Valve for mounting Safety Devices, Safety Relief Valve (2 Number), Burst Disc (2 number), Vacuum Pirani Gauge, Vacuum Isolation Valve, Provision for mounting Level Boom with a 4-inch closure flange with separate evacuation port, spares like O-rings/ gaskets/ spring energized seals and other necessary spares, etc.	Yes / No / Explain		

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Supply of Heat Exchanger	Includes Design, Detailed engineering, sourcing of raw material and bought out flow components & Instrument, Fabrication, Testing, Co-ordination with TPI agency, transportation of Tank to Mahendragiri followed by Supervision for Commissioning of Heat Exchanger at IPRC.	Yes / No / Explain		

2	Description of Item	Liquid Nitrogen Bath type Heat Exchanger for cooling Gaseous Helium at an operating pressure of 23 MPa, inlet temperature of 313 K and outlet temperature required being 82 K.	Yes / No / Explain		
3	Operating Flow-rate of Gaseous Helium	0.1 kg/sec	Yes / No / Explain		
4	Over-all Dimensions of Heat Exchanger (Envelope)	Outer Diameter: 2 m Height: 3.2 m from the base of Heat Exchanger including all projections	Yes / No / Explain		
5	Tests and Inspection	As per Clause 7 and 8 of Annexure-1. The performance test to evaluate NER shall be performed at the factory of the vendor. The in-process (stage) and pre-delivery inspection of the Heat Exchanger shall be carried out by Third Party Inspection (TPI) agencies.	Yes / No / Explain		

6	Fatigue Analysis and Finite Element Analysis	<p>The detailed FEA of the inner and outer vessel of Heat Exchanger along with nozzles, coils and leg support for the structural and thermal loads with ANSYS Workbench and Fatigue Analysis shall be provided. In addition to this, the supplier shall furnish the design calculations of coil length. Flexibility analysis of the piping and coils shall be carried out. The detailed analysis/ calculations to predict fatigue life (8000 cycles) of the heat exchanger including coils considering temperature and pressure cycling during chill down, filling and expulsion shall be provided. The analysis shall be as done as per compliance with ASME section VIII Division 2 or by analysis.</p>	Yes / No / Explain		
7	Delivery Period	Within 10 months from the date of release of Purchase Order.	Yes / No / Explain		
8	Provision of Boom	<p>The party shall provide a provision for inserting a vertical boom inside a nozzle of size DN100 with a closure flange and mounting flange with separate evacuation port, independent of shell vacuum. Fabrication of boom and mounting of temperature and level sensors shall be in the scope of work of IPRC.</p>	Yes / No / Explain		

9	Supply of Spares	The party shall supply spares like O-rings, gaskets, spring-energised gaskets, etc. as applicable, which are used during the fabrication at no additional cost.	Yes / No / Explain		
10	Name Plate and Level Chart	The Heat Exchanger shall be provided with a name plate and level chart made of Stainless steel mounted on it. The name plate shall be etched with data such as MAWP, fluid medium, U-stamping, date of testing, weight, etc.	Yes / No / Explain		

Supporting Documents required from Vendor

1. Documents to support Pre-Qualification Criteria.

2. List of deviations if any, from Technical Specification, as given in Annexure-1

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Delivery Period: Within 10 months from the date of placement of order.	Yes / No / Explain	
2	Adequate care shall be taken during transportation of Heat Exchanger.	Yes / No / Explain	
3	Deviations, if any, shall be explicitly brought out by the bidder. Otherwise, it shall be considered as complied by the bidder.	Yes / No / Explain	
4	The test and inspection certificates shall be supplied before delivery of the items to IPRC, Mahendragiri.	Yes / No / Explain	
5	Taxes and other costs (Specify)	Yes / No / Explain	
6	Validity of Offer (specify)	Yes / No / Explain	
7	Delivery Period (specify)	Yes / No / Explain	
8	Delivery Terms: Normal delivery terms - FOR Destination (i.e., IPRC, Mahendragiri)	Yes / No / Explain	
9	PAYMENT TERMS - Our normal payment terms is 100% within 30 days of receipt and acceptance of the items (No advance payment allowed). Specify your payment terms.	Yes / No / Explain	
10	Security Deposit: Supplier shall submit an interest free Security Deposit for an amount equivalent to 3% of the order value, obtained through Bank Guarantee or fixed deposit receipt from any of the Nationalized/Scheduled Banks executed on non-judicial stamp paper of Rs.200/- value, and shall be kept valid for a period of sixty days beyond the date for completion of the Purchase Order. [Format enclosed]. The Security Deposit can be submitted within 15 days from date of PO.	Yes / No / Explain	
11	Confirm: Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA	Yes / No / Explain	
12	Name of PRINCIPAL, Address, Contact No, E-mail Id etc. (specify):	Yes / No / Explain	

13	Name of INDIAN AGENT, Address, Contact No, E-mail Id etc. (specify):	Yes / No / Explain	
14	Currency quoted (specify)	Yes / No / Explain	
15	Warranty / Guarantee Period: (specify)	Yes / No / Explain	
16	Liquidated Damages - Delivery is the essence of the order. If delivery is delayed beyond the stipulated delivery period, LD at 0.5% per week shall be recovered subject to a maximum of 10% of order value of undelivered items	Yes / No / Explain	
17	Taxes and other costs, if any: (specify).	Yes / No / Explain	
18	Percentage of Local Content with documentary proof: (specify)	Yes / No / Explain	
19	Percentage of Local Content with documentary proof: (specify)	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Liquid Nitrogen Bath Heat Exchanger, including Design, Fabrication, Inspection, Testing, Transportation	1.00 Unit		-		
2	BOUGHT OUT ITEMS	1.00 Lot		-		

Common charges (Applicable for all items)

P & F	
Freight	
TPI charges (%)	
Testing charges (%)	

Other charges if any (%)	
3. Other Charges in Price (If any)	
1. Other Charges in Price (If any)	