

भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE

क्रय यूनिट-III/PURCHASE UNIT-III

विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE

तिरुवनंतपुरम/THIRUVANANTHAPURAM - 695 022

विज्ञा. सं. वीएसएससी/एसपीआरई-क्रय/19-2दि. 20/08/2021

ADVT. NO. VSSC/SPRE-PUR/01DT. 20/08/2021

भारतकेराष्ट्रपतिकेलिएतथाउनकीओरसेवरिष्ठ प्रधान, क्रयएवंभंडार, विक्रमसाराभाईअंतरिक्षकेंद्र (वीएसएससी), तिरुवनंतपुरम, निम्नलिखितकेलिएई-प्रापणके माध्यम से (क्रम सं. 1के लिए) निविदाएंआमंत्रित करता है:-

For & on behalf of the President of India, the Sr. Head Purchase & Stores, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Tenders **through e-procurement (for Sl. No. 1)** for the following :-

क्रम सं. Sl. No	निविदा सं. Tender No.	वर्णन / Description	मात्रा Qty.	निविदा शुल्क Tender Fee
1	VSSC/PURCHASE UNIT III (SPRE)/VS2021003402 [लोक निविदा - दो भाग/PUBLIC TENDER-TWO PART]	"उच्च दाब एवं तापमान अभिक्रिया कक्ष के साथ विसरित परावर्तकता अवरक्त फूरिये रूपांतर स्पेक्ट्रोममापी (डीआरआइएफटीएस-एफटीआइआर) का प्रापण Diffused Reflectance Infrared Fourier Transform Spectrometer(DRIFTS_FTIR) with High Pressure & Temperature Reaction Chamber	1 सं./No.	लागू नहीं / NA

विशेष टिप्पणी/Special Note:-

विदेशी विक्रेताओं को निविदा प्रस्तुत करने की अनुमति नहीं है। मेक इन इंडिया नीति के अनुसार केवल श्रेणी-I और श्रेणी-II के स्थानीय आपूर्तिकार इस बोली में भाग लेने हेतु पात्र हैं। विदेशी ओईएम से सीधे प्राप्त उद्धरणों/या विदेशी ओईएमओं की ओर से उद्धरण प्रस्तुत कर रहे एजेंटों को इस निविदा में भाग लेने की अनुमति नहीं है।

Foreign vendors are not permitted to quote. Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid. Quotations directly from foreign OEM/ or from agents quoting on behalf of foreign OEMs are not allowed to participate in this tender.

क्रम सं. Sl. No.	बोली प्रस्तुत करने की समय-सीमा Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
1.	दिनांक 10.09.2021[14:00 बजे तक]	दिनांक10.09.2021 [14:01 बजे]

क्रम सं. 01के लिए, ब्योरे इसरो ई-प्रापण पोर्टल <https://eproc.vssc.gov.in> पर उपलब्ध हैं।

For Sl. No. 01., details are available on ISRO e-procurement portal <https://eproc.vssc.gov.in>.

शुद्धिपत्र, यदि कोई हो तो, हमारे वेबसाइट www.vssc.gov.in / www.isro.gov.in में मात्र प्रकाशित किया जाएगा।

Corrigendum, if any will be published in our websites : www.vssc.gov.in / www.isro.gov.in only.

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार /Sr. Head, Purchase & Stores

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure and temperature reaction chamber

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100340201 dated 13-08-2021

A. Tender Details

Tender No : VSSC/PURCHASE UNIT III (SPRE)/VS202100340201
Tender Date : 13-08-2021
Tender Classification: GOODS
Purchase Entity : PURCHASE UNIT III (SPRE)
Centre : VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure and temperature reaction chamber

Procurement of Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure and temperature reaction chamber.

A.1 Tender Schedule

Bid Submission Start Date : 13-08-2021 11:00
Bid Clarification Due Date : 07-09-2021 14:00
Bid Submission Due Date : 10-09-2021 14:00
Bid Opening Date : 10-09-2021 14:01
Price Bid Opening Date : 05-10-2021 14:01

B. Tender Attachments

Technical Write-up/Drawings

Document : specs for DRIFTD FTIR

Instructions To Vendors

2. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is Rs. 2.00 lakhs & above for indigenous stores items

1. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination/delivery at site.

2. REJECTED STORES:

Rejected stores will remain at destination at the Contractor's 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.

3. The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

4. SECURITY DEPOSIT: Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause regarding Delivery. (b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

5. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate quoted is inclusive of all taxes/duties.

6. TERMS & CONDITIONS OF TENDER

7. TEST CERTIFICATE: Wherever required, test certificates should be sent along with the despatch documents.
8. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.
9. The authority of the person signing the tender, if called for, should be produced.
10. 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 tenderers shall supply the same at the rates quoted.
11. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
- (b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

- (c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.
12. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
13. The term Contractor shall mean, the person, firm or company with whom or with which the order for the supply of Stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.
14. The term Purchaser shall mean the President of India or his successors or assigns.
15. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.

- (b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of

nonacceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.

(d) Specifications: Stores offered should strictly confirm to our specifications. Deviations, if any, should 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 quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.

16. 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. (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.

As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

18. DESPATCH: The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods despatched. The consignment should be despatched 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.

19. 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 any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in (a) to (e) above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser)

20. **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.

21. **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.

22. a) Your offer should be valid for 90 days from the date of opening of the tender.

b) 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 sets of units must be furnished.

23. d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

3. PPP Make in India(Divisible Items-All Classes of Suppliers)

1. 14. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.
2. 13. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.
3. 12. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.
4. 11. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.
5. 10. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.
6. 9. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.
7. 8. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per SI. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to

MLC(minimum Local Content) in technical bid zone.

8. 7. Purchase Preference Policy:- Goods/Works which are divisible in nature (required quantity is greater than 1 or not a package basis):

- i.If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder.
- ii.If L1 bid is not from a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).
- iii.In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder.
- iv.In case no offers are received from 'Class-I local supplier' or none of the 'Class-I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor.
- v.In case L1 bidder (not a 'Class-I local supplier') is not accepting splitting of order on 50:50 basis, in that case the order/contract shall be awarded to such 'Class-I local supplier' for full quantity subject to matching the L1 price.

vi.Regarding MSEs (Indian vendors):

- a) The following additional aspect as indicated below would be applicable for procurement which are falls under divisible category (i.e., not applicable for indivisible category), in case of participation of MSEs in the tendering who are also complying to the Minimum Local Content (MLC) stipulated in the tender.
- b) If any Indian vendor satisfies the requirement of MSEs stipulation and also falls within the purchase preference margin as called for in MSME policy (in case of matching L1 price) will be considered for ordering 25% of tendered quantity, the balance quantity / works will be considered for distribution amongst all bidders (including MSEs) as per the purchase preference policy.
- c) In case no MSEs qualifies for purchase preference or do not match with L1 price then the total tendered quantity will be distributed amongst all bidders as per the purchase preference policy.

9. 6. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

10. 5. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

11. 4. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

12. 3. The margin of Purchase Preference shall be up to 20%.

13. 2. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

14. 1. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

15. a) The subject item falls under divisible category. b) The offers are sought from all classes of suppliers.

16. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

4. INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER where the indent value is < `2.00 lakhs for imported stores items

1. I. INSTRUCTIONS TO TENDERERS

1.The Tenderers should submit quotations in duplicate in a sealed envelope, super scribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues.

2.A Proforma Invoice may also be given which should contain the following information:

a)The FOB/FCA value, the C & F value for import by Sea freight / Air freight up to and for air parcel post up to should be separately indicated.

b)Agency Commission: The amount of commission included in the price and payable to the Indian Agent of the Contractor shall be paid directly to the Indian Agent by the Purchaser in equivalent Indian Rupees on the basis of an Invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agent immediately after Customs clearance of the goods in India.

c)The Contractor shall invoice only for the net amount payable to him, after deducting the amount of Agency Commission included in the invoice which will be paid to the Indian Agent directly by the Purchaser. However, the Contractor's invoice should separately reflect the amount of commission payable to his Indian Agent.

d)The earliest delivery period and country of origin of the Stores.

- e) Banker's name, address, telephone/fax Nos. & e-Mail ID of the Contractor.

- f) The approximate net and gross weight and dimensions of packages /cases.

- g) Recommended spares for satisfactory operation for a minimum period of one year.

- h) Details of any technical service, if required for erection, assembly, commissioning and demonstration.

3. The FOB/FCA and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.

4. The offer should be valid for a minimum period of 120 days from the due date of opening of the tender.

5. Samples, if called for, should be sent free of all charges.

6. Late and delayed tenders will not be considered. Quotations by cable must be followed by detailed offers.

7. Offers made by Indian Agents on behalf of their Principals, should be supported by the proforma invoice of their Principals.

8. The details of Import Licence will be furnished in the Purchase Order.

9. The authority of person signing the tender, if called for, shall be produced.

10. Instructions / Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents / correspondence should be in English language only.

11. The Purchaser reserves the right to accept or reject the lowest or any offer in whole or part without assigning any reason.

12. It is expressly agreed that the acceptance of the Stores Contracted for is subject to final approval in writing by the Purchaser.

13. a) Part shipment is not allowed unless specifically agreed to by us.

- b) As far as possible stores should be despatched by Indian Flag Vessels /Air India through any Agency nominated by us.

C. Bid Templates

C.1 Technical Bid - Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure and temperature reaction chamber

1. Fourier Transform Infrared Spectrometer (FTIR)-Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure(P=34 bar) and High temperature(T=900degC)

Item specifications for Fourier Transform Infrared Spectrometer (FTIR)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Installation, supply and commissioning of Insitu DRIFTS-FTIR with high Temperature and high pressure reaction chamber		-		
2	1. Technical Specifications of FTIR		-		
3	1.1. Range of working wave number	350-7800 cm-1 or better (Options for extending wavenumber range)	Yes / No / Explain		
4	1.2. Standard resolution	0.4 cm-1 or better	Yes / No / Explain		
5	1.3. Source of wavelength	User selectable Pre-aligned Mid-IR long life source	Yes / No / Explain		
6	1.4. DTGS Detector	Temperature-stabilized DTGS detector	Yes / No / Explain		
7	1.5. MCT Detector	Mercury cadmium telluride (MCT) detector and pre-amplifier module	Yes / No / Explain		
8	1.6. Beam splitter:Mid IR Range	Multi layer potassium bromide	Yes / No / Explain		
9	1.7. Wavelength Repeatability	0.02 cm-1 at 1,600 cm-1 or Better	Yes / No / Explain		
10	1.8. Wavelength accuracy	0.02cm-1 or Better	Yes / No / Explain		
11	1.9. Signal to Noise Ratio	49,000 : 1 , Peak-Peak, 1 minute or better	Yes / No / Explain		

12	1.10.Wavelength repeatability	± 0.02 cm ⁻¹ at 1,600 cm ⁻¹ or better	Yes / No / Explain		
13	1.11. Scan rate	100 scans /sec (@16 cm ⁻¹ /32 cm ⁻¹), Scanning speed : 40 scan/sec@4 cm ⁻¹	Yes / No / Explain		
14	1.12. Interferometer	Rotary interferometers shall have inherent immunity to mirror tilt and shear and must not require any scanning mirror dynamic alignment.	Yes / No / Explain		
15	1.13. Dewar flask	Dewar flask for storing LN2 for cooling of MCT detector	Yes / No / Explain		
16	2. Technical specification of Diffuse reflectance assembly (DRIFTS) and reaction chamber		-		
17	This subsystem will be used in conjunction with FTIR for capturing reaction intermediate spectrum via diffuse reflection analysis of gaseous species over powders and catalyst at high temperature and high pressure at predetermined scan rate		-		
18	Ø Make: HARRIK make PRAYING MANTIS : Diffuse reflectance assembly		-		
19	Ø Desired Features of the Diffuse reflection assembly		-		
20	ü The system must have highly efficient collection system		-		
21	ü Minimum detection of specular components shall be ensured		-		
22	ü The sample placement inside the chamber must be easy		-		

23	ü The DRA must be compatible with IR, UV and VIS		-		
24	Ø High temperature and high pressure Reaction chamber temperature controller		-		
25	ü Desired Reaction temperature: 900°C		-		
26	ü Desired Reaction Pressure: 34 bar		-		
27	ü Reaction chamber shall be compatible with the desired reaction temperature and pressure.		-		
28	ü Suitable windows for capturing UV-NIR-VIS (Zn-Se/ other suitable material)		-		
29	ü Connections to reaction chamber: Gas inlet, Gas outlet, Auxiliary port		-		
30	ü Windows: One observation window and two IR window suitable to the operation wave length range		-		
31	ü Thermocouple: K type to measure from RT-900°C		-		
32	ü Temperature controller: Accuracy : better than ±0.5°C		-		
33	ü Pressure measurement : Accuracy: better than ±0.14% of scale		-		
34	ü Reaction chamber must be compatible and easy to retrofit inside DRA		-		
35	Ø Other accessories		-		
36	ü Sample accessories, Alignment accessories, Necessary sampling cups with adjustable height		-		

37	ü Reference calibration powder for calibration shall be provided		-		
38	1. General specifications		-		
39	ü Instrument should have the option to upgrade to FTIR Imaging Microscope & Far IR range (up to minimum 50 cm-1) in future		-		
40	ü 7-position automated optical filter wheel containing traceable validation materials to allow instrument performance verification.		-		
41	ü Instrument must offer an integrated methane gas cell to ensure high instrument-to-instrument stability and line-shape calibration technology. Automatic, real-time Atmospheric Vapor Compensation should be present.		-		
42	ü ATR Accessory with Diamond crystal should be quoted, and it should cover the spectral range up to 50 cm-1.		-		
43	2. Factory integrated PC with latest OS and printer (latest configuration shall be quoted)		-		
44	Ø PC with Intel Core- i7 or better preferably.		-		
45	Ø At least 8 GB RAM , 2 TB SATA HDD, DVD writer, Front and Back USB ports, with network interface		-		
46	Ø Latest windows		-		

47	Ø VGA graphics or better.		-		
48	Ø Wireless keyboard, wireless optical scroll mouse.		-		
49	Ø 24 inch flat wide LED monitor.		-		
50	Ø Dedicated PC interfaces for the complex process of controlling the testing system Latest licensed version of Microsoft office need to be provided		-		
51	Ø Printer : latest laser jet color printer		-		
52	3. Software		-		
53	ü Data acquisition must be high enough to capture all the reaction intermediates in time dependent continuous mode.		-		
54	ü Software shall have the option for control of temperature and specimen fixing		-		
55	ü Software must be preloaded with different methods for different test methods kind of species		-		
56	ü Software shall be preloaded with library of spectrum of different species. User shall be able to identify the spectrum based on the reference spectrum.		-		
57	ü Software must have the option to de-convolute the peaks if required		-		
58	ü Software shall have option for report generation		-		

59	ü Provision for test data (numerical data) saving and Generation of real time graphs and tables of processed test results		-		
60	ü Provision for extracting numerical data in .xls, .dat, .ASCII format.		-		
61	ü Display of real time spectrum		-		
62	ü Automatic option of background noise elimination		-		
63	ü Software must be flexible for upgrades to any other modes in future if required		-		
64	ü Functionality features:		-		
65	(1) Set-up and configuration of the display screen and control panel		-		
66	(2) Security with user passwords		-		
67	4. Warranty		-		
68	The suppliers shall confirm after sales warranty as follows:		-		
69	ü Supplier shall provide warranty for all the systems and sub systems at least 36 months from the date of commissioning and acceptance at VSSC.		-		
70	ü The first year service includes unlimited priority telephonic support free of cost		-		
71	5. Installation, Commissioning, Demonstration and testing at site		-		

72	System has to be commissioned, calibrated and demonstrated with all features at user's site.		-		
73	ü Party shall inform the necessary electrical connections before installation of the machine		-		
74	ü Party shall demonstrate the operation of the equipment by carrying out gas phase reaction over catalyst (Supplied by VSSC) at high temperature.		-		
75	ü Detailed operational and service manuals in English including essential circuit diagrams for all systems and subsystems have to be provided.		-		
76	ü Training for 2 persons on the operation & day-to-day maintenance of all the systems and features has to be provided at users site .		-		
77	1. AMC Support and spares and after sales service		-		
78	ü AMC & calibration for 5 years after the warranty period shall be quoted separately.		-		
79	ü Spares and guaranteed after-sales service support for 12 years from the date of installation at VSSC has to be ensured		-		
80	ü List of essential spares shall be included in the quote.		-		

81	Party should have a strong service back-up in India with technically competent service engineers trained and certified by the factory.		-		
82	Company	D & P Instruments Inc	Yes / No / Explain		
83	Weight	<7 Kg	Yes / No / Explain		
84	Spectral Range	2-16 Micrometers	Yes / No / Explain		
85	Spectral Resolution	4 wavenumbers	Yes / No / Explain		
86	Detector	Liquid Nitrogen (LN2) cooled dual InSB/MCT detector and Preamp (2-16 micrometers)	Yes / No / Explain		
87	Battery	12 Volt, 9A-hr battery pack (2 units)	Yes / No / Explain		
88	Standard Equipments	Optical/Electronic module, including interferrometer, drive and sampling electronics, embedded Windows computer, WinFT processing software, USB, Ethernet, VGA, parallel and serial connections, 4.8 degree field of view fore optics with through the lens viewing, Worldwide AC supply and dual battery charger	Yes / No / Explain		
89	Other Equipment	Two (1 inch, 2 inch diameter) Thermoelectrically stabilized blackbody; Two (1 inch, 2 inch) Telescopes; Diffuse Gold Plate for downwelling radiance measurements; Pouring Dewar (4 Litre); Tripod	Yes / No / Explain		
90	Operating Environment	Temp. -10 degree C to 50 degree C	Yes / No / Explain		

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Annexure-I		-		
2	Specification for In-situ Diffused Reflectance Infrared Fourier Transform Infrared Spectrometer (DRIFTS-FTIR)		-		
3	In situ DRIFTS-FTIR facility in conjunction with high pressure (~ 34 bar) and high temperature (~900°C) reaction assembly for the detection of intermediate compounds formed during catalytic gas phase reactions over various catalysts.		-		
4	1. Technical Specifications of FTIR		-		
5	1.1. Range of working	350-7800 cm-1 or better	Yes / No / Explain		
6	1.2. Resolution	0.4 cm-1 or better	Yes / No / Explain		
7	1.3. Source	Pre-aligned (User selectable) Mid-IR long life source	Yes / No / Explain		
8	1.4. Detectors	(i) Temperature-stabilized DTGS /DLaTGS detector	Yes / No / Explain		
9	1.5. Beam splitter	Potassium bromide	Yes / No / Explain		
10	1.6. Wavelength Repeatability	0.02 cm-1 at 1,600 cm-1 or Better	Yes / No / Explain		

11	1.7. Wavelength accuracy	0.02cm-1 or Better	Yes / No / Explain		
12	1.8. Signal to Noise Ratio	49,000 : 1 or better	Yes / No / Explain		
13	1.9. Wavelength repeatability	±0.02 cm-1 at 1,600 cm-1 or better	Yes / No / Explain		
14	1.10. Scan rate	100 scans /sec @16 cm-1, 40 scan/s@4 cm-1 or better	Yes / No / Explain		
15	1.11. Interferometer	Michelson interferometer with option of dynamic alignment	Yes / No / Explain		
16	1.12. Dewar flask	Dewar flask for storing LN2 for cooling of MCT detector	Yes / No / Explain		
17	2. Technical specification of Diffuse Reflectance Assembly (DRIFTS) with High pressure and high temperature reaction Chamber		-		
18	This subsystem will be used in conjunction with FTIR for capturing reaction intermediate spectrum via diffuse reflection analysis of gaseous species over powders /catalyst at high temperature and high pressure at predetermined scan rate.		-		
19	Ø Diffuse reflectance assembly		-		

20	ü Must be equipped with two 6:1, 90° off-axis ellipsoids for negligible detection of specular components and high spectrum collection efficiency.		-		
21	ü The DRA must be compatible with IR, UV and VIS		-		
	Ø Temperature Controller for High Temperature and High Pressure Reaction Chamber		-		
23	ü Reaction temperature: 900°C		-		
24	ü Reaction Pressure: ~34 bar		-		
25	ü Reaction chamber shall be compatible with the desired reaction temperature and pressure.		-		
26	ü Suitable windows for capturing UV-NIR-VIS (Zn-Se/ other suitable material) at pressure up to 34 bar and temperature up to 900oC.		-		
27	ü Connections to reaction chamber: Gas inlet, Gas outlet, Auxiliary port		-		

28	ü Windows: One observation window and two IR window suitable to the operation wave length range		-		
29	ü Thermocouple: K type to measure from RT-900°C		-		
30	ü Temperature controller: Accuracy : better than or $\pm 1.0^{\circ}\text{C}$		-		
31	ü Pressure measurement : Range: 0-34 bar;		-		
32	ü Reaction chamber must be compatible and easy to retrofit inside DRA		-		
33	Ø Other accessories		-		
34	ü Sample accessories, Alignment accessories, Necessary sampling cups with adjustable height		-		
35	ü Reference calibration powder for calibration shall be provided		-		
36	ü Certificate for standard spectrum of calibration powder shall be provided.		-		
37	3. General specifications		-		

38	ü Traceable validation materials to allow instrument performance verification.		-		
39	ü Instrument must offer integrated line-shape calibration and automatic, real-time Atmospheric Vapor Compensation		-		
40	4. PC with latest OS and printer (latest configuration shall be quoted)		-		
41	Ø PC with Intel Core- i7 (10th Generation) or better		-		
42	Ø At least 8 GB RAM, 2 TB SATA HDD, DVD writer, Front and Back USB (3.0 & 2.0) ports, with network interface		-		
43	Ø Latest windows operating system		-		
44	Ø Wireless keyboard, wireless optical scroll mouse.		-		
45	Ø 24 inch flat wide LED monitor.		-		
46	Ø Dedicated PC interfaces for the complex process of controlling the testing system		-		

47	Ø Latest licensed version of Microsoft office		-		
48	5. Software		-		
49	ü Data acquisition must be high enough and commensurate with the maximum scan rate of the FTIR to ensure that all the reaction intermediates formed in a chemical reaction under study are detected/captured in time dependent continuous mode.		-		
50	ü Software shall have the option for control of temperature and specimen fixing		-		
51	ü Software must be preloaded with different methods for different test methods kind of species detections		-		
52	ü Software shall be preloaded with library of spectrum of different species. User shall be able to identify the spectrum based on the reference spectrum.		-		

53	ü Software must have the option to de-convolute the peaks if required		-		
54	ü Software shall have option for report generation		-		
55	ü Provision for test data (numerical data) saving and Generation of real time graphs and tables of processed test results		-		
56	ü Provision for extracting numerical data in .xls, .dat, .ASCII format.		-		
57	ü Display of real time spectrum		-		
58	ü Automatic/manual option of background noise elimination		-		
59	ü Software must be flexible for upgrades to any other modes(high range /low range of wave number) in future if required		-		
60	ü Option for chemo metric analysis must be provided		-		
61	ü Functionality features:		-		
62	(1) Security with user passwords		-		

63	6. Warranty		-		
64	The suppliers shall confirm after sales warranty as follows:		-		
65	ü Supplier shall provide warranty for the complete system for the period of minimum 36 months from the date of commissioning and acceptance at VSSC.		-		
66	7. Installation, Commissioning, Demonstration and testing at site		-		
67	System has to be installed, commissioned and, demonstrated with all features at user's site.		-		
68	ü Party shall inform the pre-installation requirements in advance		-		
69	ü Party shall demonstrate the operation of the equipment by carrying out gas phase reaction over catalyst (Supplied by VSSC) at the maximum rated temperature and pressure.		-		

70	ü Detailed operational and service manuals in English including essential circuit diagrams for all systems and subsystems have to be provided.		-		
71	ü Training for 2 persons on the operation & day-to-day maintenance of all the systems has to be provided at users site.		-		
72	ü Calibration certificates for standard, spectrum of calibration powder, temperature sensor and pressure sensor for DRA must be provided.		-		
73	8. AMC Support and spares and after sales service		-		
74	ü AMC for 5 years after the completion of warranty period shall be quoted separately.		-		
75	ü Spares and guaranteed after-sales service support for 12 years from the date of installation at VSSC has to be ensured.		-		

76	ü Price List of essential spares shall be included in the quote.		-		
77	ü Party should have a strong service back-up in India with technically competent service engineers trained and certified by the factory.		-		

Supporting Documents required from Vendor

1. commercial conditions

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Installation and comissioning shall be done at our site	Yes / No / Explain	
2	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
3	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indenity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
4	Delivery Terms.	Yes / No / Explain	
5	Delivery Period	Yes / No / Explain	
6	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
7	Warranty	Yes / No / Explain	

8	<p>Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).</p>	Yes / No / Explain	
9	<p>Payment Term: (Our Defalut payment term: For indigenous orders: 100% within 30 days after receipt and acceptance of item at our site. For import cases: 100% by Sight Draft with Bank Charges to respective accounts. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).</p>	Yes / No / Explain	
10	<p>Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a)Equal to or more than 50% : Class-I local supplier. b)More than 20% but less than 50% : Class-II local supplier. c)Less than or equal to 20% : Non-local supplier. Mention your category.</p>	Yes / No / Explain	
11	<p>Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.</p>	Yes / No / Explain	

12	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
13	PO Placement Address (with Name and Contact Details of sales person concerned).	-	
14	Foreign vendors are not permitted to quote.	-	
15	Only Class-I and Class-II Local suppliers as per Make in India Policy are eligible to participate in the bid	-	
16	a. The percentage of local content should be specifically mentioned in the offer, 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.	-	
17	Last minute clarification on tenders will not be entertained.	-	
18	This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.	-	
19	Any other terms	-	
20	This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.	-	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Packing & Forwarding	Taxes & duties	Remark
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1	Fourier Transform Infrared Spectrometer (FTIR)-Diffused Reflectance Infrared Fourier Transform Spectrometer (DRIFTS-FTIR) with high pressure(P=34 bar) and High temperature(T=900degC)	1.00 Nos.						
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Common charges (Applicable for all items)

Freight charge	
Installation Charges	