



**Date: 13/08/2021**

**INVITATION OF BIDS FOR GLOVEBOX-COMPATIBLE TABLETOP RIE SYSTEM AND  
GLOVEBOX-COMPATIBLE ANNEALING SYSTEM**

**ENQUIRY NO: IITGOA/2021-22/026 DTD 13/08/2021**

1. Quotations are invited in two bid system for the procurement of Glovebox-compatible tabletop RIE System and Glovebox-compatible Annealing System in separate envelopes. Please mention the above-mentioned title, enquiry number and due date for submission of bids on the sealed cover to avoid the bid being declared invalid.

2. The address and contact numbers for sending bids or seeking clarifications regarding this RFP are given below –

**Assistant Registrar  
(Stores & Purchase)  
IIT GOA, At GEC Campus,  
Farmagudi, Ponda – Goa.  
403401  
[ar\\_sp@iitgoa.ac.in](mailto:ar_sp@iitgoa.ac.in)/ [purchase@iitgoa.ac.in](mailto:purchase@iitgoa.ac.in)**

3. This bid enquiry is divided into three parts as follows:
- Part I – Contains General Information such as the time, place of submission and opening of tenders, Validity period of tenders, etc.
  - Part II – Contains Instructions for the Bidders and essential details of the items/services required, such as the Schedule of Requirements (SOR), Technical Specifications, Delivery Period, Place of Delivery and Consignee details.
  - Part III – Contains Price Bid format, other details etc.
4. This bid enquiry is being issued with no financial commitment and the Institute reserves the right to change or vary any part thereof at any stage and to withdraw it at any stage.

भारतीय प्रौद्योगिकी संस्थान, गोवा

गोवा अभियांत्रिकी महाविद्यालय परिसर, फारमागुडी, फोण्डा - ४०३४०१, गोवा

Indian Institute of Technology Goa

Goa College of Engineering Campus, Farmagudi, Ponda - 403401, Goa



**Part I – General information**

Tender No.	IITGOA/2021-22/026		
Tender Date	13.08.2021		
Tender Category	Goods		
Tender Type	Open		
No. of Envelopes	2		
Covers Information / Submission of Bids			
Cover No.	Cover Type	Description	Document Type
1	Technical	Technical Specification, Tender Document, Schedule of Requirement and Compliance, Bidders Information/Indian Agent Information, PAC, Declaration of Local Content, Undertaking for Bid Security etc.	.pdf
2	Financial	Financial Bid	.pdf
<p>Two Bid System:</p> <p><input type="checkbox"/> The two-bid system will be followed for this tender. In this system bidder must submit their offer in separate sealed envelopes as – Technical Bid and Financial Bid.</p> <p><input type="checkbox"/> Separate technical bid and financial bid envelopes should be clearly marked as "Envelope No. 1 - Technical Bid" and "Envelope No. 2 - Financial Bid".</p> <p><input type="checkbox"/> Both these sealed covers are to be put in a bigger cover which should also be sealed and duly super scribed with our Tender No., Due Date and Name of the items quoted and to be submitted to the concern department/section mentioned in tender document.</p> <p><input type="checkbox"/> Bids should be forwarded by Bidders under their original memo / letter head inter alia furnishing details like GST number, Bank Details etc. and complete postal &amp; e-mail address of their office.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• The technical offer should not contain any price information. If the price quoted is submitted in technical bid the tender will be rejected at the sole discretion of IIT Goa.</li><li>• Initially Technical Bids will be opened and evaluated by the purchase committee. Financial Bid of only Technically qualified bidders will be opened later.</li><li>• Contract/ Purchase Order will be awarded to the lowest bidder(L1) of Financial Bid among them.</li></ul>			
Form of Contract	Supply		

Bid Validity (Days):	120 days
Period of Work/Delivery Period (Days):	120 days
Pre-Bid Meeting Date & Time:	Will be decided on request
Pre-Bid Meeting Place & Address:	N/A
Modification and Withdrawal of Bids:	A prospective bidder who requires clarification regarding the contents of the bidding documents shall notify to the Buyer in writing about the clarifications sought not later than 7 (Seven) days prior to the date of opening of the Bids. Copies of the query and clarification by the purchaser will be sent to all prospective bidders who have participated the bidding documents.
Clarification regarding contents of the tender document/RFP:	A bidder may modify or withdraw his bid after submission provided that the written notice of modification or withdrawal is received by the Buyer prior to deadline prescribed for submission of bids. A withdrawal notice may be sent by email but it should be followed by a signed confirmation copy to be sent by post and such signed confirmation should reach the purchaser not later than the deadline for submission of bids. No bid shall be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and expiration of the period of bid validity specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of bid security.
Rejection of bids:	Canvassing by the Bidder in any form, unsolicited letter and post-tender correction may invoke summary rejection with forfeiture of EMD. Conditional tenders will be rejected.
Unwillingness to quote:	Bidders unwilling to quote should ensure that intimation to this effect reaches before the due date and time of opening of the Bid, failing which the defaulting Bidder may be delisted for the given range of items as mentioned in this RFP.
Contract Type:	Tender
Delivery Location:	Indian Institute of Technology Goa Goa Engineering College Campus, Bhausahab Bhandodkar Technical Education Complex, Veling, Farmagudi, Ponda, Goa
Pin Code:	403401
Bid Submission End Date/Date & Time Submission:	03.09.2021 at 17:00hrs
Place of Submission of Bid:	Stores & Purchase Department, IIT Goa, Admin Block, At GEC Campus, Farmagudi, Ponda, Goa-403401
Bid Opening Date & Time:	06.09.2021 at 15:00 hrs
Bid Opening Place:	IIT Goa, Admin Block, At GEC Campus, Farmagudi, Ponda, Goa-403401

Other Terms & Conditions:	As mentioned in technical specification
Technical Clarification:	Name: Dr. Santosh Kumar School of Physical Sciences IIT Goa Email: <a href="mailto:skumar@iitgoa.ac.in">skumar@iitgoa.ac.in</a>
Tender Inviting Authority:	Name: Assistant Registrar (S&P) Address: Stores& Purchase Department, Email: ar_sp@iitgoa.ac.in IIT Goa, Admin Block, At GEC Campus, Farmagudi, Ponda, Goa - 403401
Signing Authority:	Assistant Registrar (S&P)



**Part II: Instructions to Bidders**

1. **Schedule of Requirements** – List of items are attached as **Annexure ‘A’**
2. **Technical Details:** Technical details are attached in **Annexure ‘B’**
3. **Two-Bid System:** In respect of Two-bid system, Bidders are required to furnish clause by clause compliance of specifications bringing out clearly the deviations from specification, if any.

**i) The Bidders are advised to submit the following documents along with Technical Bid–**

- a) Compliance certificate in the following format;

Para of tender enquiry specification item-wise (As per annexure B)	Specification of Item offered	Compliance – whether YES/NO	In case of non-compliance, deviation to be specified in unambiguous terms

The offers must strictly be as per the specifications given in Annexure-A. At the same time, it must be kept in mind that mere copying of our specifications in the quotation shall not make the technical bid eligible for consideration. **A bid has to be supported with original catalogue (not of photo copy) of the quoted model duly signed by the OEM and the same must be sent along with the technical bid.** The quoted model should not become obsolete for a minimum period of 5 years (This is for the availability of spares). Therefore, the model quoted should invariably be highlighted in the leaflet/literature enclosed with the quotation. Non-compliance with above shall be treated as incomplete/ambiguous and the bid may be ignored without giving an opportunity to the bidder for further clarification/negotiation etc.

**b) Bidders Information (Annexure C).**

- c) A copy of Indian Agent Agreement / Authorization letter from OEM / OEMs along with tender to be submitted by All Indian Agents, if the manufacturer/supplier is based in abroad.
- d) GST and PAN details
- e) The Bidder should provide a list of customers of previous supply of a similar/ same range of equipment to IIT's/ NIT's/Universities with contact details.
- f) Kindly specify the percentage of Local Content and Country of Origin of goods being offered in your bid.

**ii) The following documents should be submitted along with Financial Bid–**

**a) Price Bid. (Annexure D)**

**b) Previous order of supplies/Justification of quoted rates. (Annexure E)**

4. **Delivery Period** – supply to be made within **120 days** from the effective date of issuance of Purchase Order. Please note that P.O. can be cancelled unilaterally by the Institute in case items are not received within the delivery period. Extension of delivery period will be at the sole discretion of the Institute, with applicability of LD clause.

5. **Delivery and Transportation** - Place for supply / installation is **‘Indian Institute of Technology Goa, Ponda – Goa’**.

### **Part III: Conditions of Contract**

#### **1. Award of Contract:**

- i. The bidders may quote for both or any one of the items mentioned in the tender enquiry. IIT Goa shall issue the item-wise purchase orders to the technically-qualified eligible bidders whose bid has been determined as the lowest evaluated financial bid".
- ii. If more than one BIDDER happens to quote the same lowest price, IIT Goa reserves the right to award the contract to more than one BIDDER or any BIDDER.

#### **2. Prices:**

##### **For Import Supplies:**

- i. It is mandatory to quote prices both in FOB basis and CIP Mumbai basis.
- ii. In case of multiple options of same product, bidders are requested to quote only one best option and not multiple options.

##### **For Indigenous Supplies:**

- i. It is mandatory to quote prices in INR- FOR, IIT Goa basis only.
- ii. In case of Multiple options of the same product, bidders are requested to quote only one best option and not multiple options.
- iii. The supplier shall pay and bear all other liabilities, taxes and duties not specifically agreed by the Purchaser in the contract.

#### **3. Pre-installation:**

- i. Please also mention the pre-installation requirements for the equipment like ambient temperature, humidity, civil work, weather specifications, power specifications, etc. When items are provided full performance satisfaction should be demonstrated.

#### **4. Installation:**

- i. Supplier shall be responsible for installation / demonstration wherever applicable and for after sales service during the warranty period and thereafter as mentioned in the contract.
- ii. Installation / demonstration to be arranged by the supplier free of cost and the same is to be done within 15 days of the arrival of the equipment at site.

#### **5. Training:**

- i. The supplier shall submit training proposal for the operation and maintenance to the personnel of IIT Goa on the offered equipment/machinery.
- ii. Wherever needed, our technical persons should be trained by the supplier at the project site free of cost. In case the person is to be trained at supplier's site abroad or in India it should be mentioned in the quotation clearly. The supplier should bear all the expenses for such training including 'to & fro' fares and lodging & boarding charges.

#### **6. Terms of Payment:**

- i. For foreign currency payments: 90% payment by letter of credit and balance 10% will be paid by wire transfer after satisfactory installation and commissioning.
- ii. For payments in INR: 100% within 30 days after the delivery and successful installation of the items at IIT Goa.

#### **7. Legal Matter:**

- i. All disputes are subject to Goa jurisdiction only.

#### **8. Rights to Accept, Reject, Amend, Modify:**

- i. The basic eligibility conditions and conditions of contract are broad guidelines for pre-qualification and the Director, IIT Goa hereby reserves the right to relax / alter / modify / add/delete any or all the conditions without notice.

#### **9. Rights to Accept, Reject Bids:**

- i. The Director, IIT Goa reserves the right to accept or reject any or all bids without assigning any reason in public interest.

10. Penalty/ Liquidated Damages:

- i. Timely delivery is essence of the contract and hence if any consignment be delayed, liquidated damages at the rate 0.5% of the price of the delayed consignment, for each week or part whereof shall be levied and recovered subject to maximum of 10% of total purchase order value.
- ii. IIT Goa reserves the right to cancel the order in case the delay is more than 6 weeks. Penalties if any will be recovered by forfeiting PBG at vendor's cost and risks.

11. Supervision of Erection and Commissioning:

- i. Successful BIDDER shall depute concerned specialist, for supervision of erection & commissioning of the machine to be carried out. The successful BIDDER shall make necessary arrangement at their own expenses for stay, transport and other expenses of their Specialist during their stay in Goa which also includes imparting free of cost training to IIT Goa personnel.

**12. Performance Guarantee (GFR 2017 Rule 171):**

- i. Performance Guarantee Bond is mandatory.
- ii. Successful tenderer/ bidder should submit performance guarantee as prescribed above to be sent to The Assistant Registrar, Stores & Purchase Department, IIT Goa on or before 15 days from the due date of issue of order acknowledgement. The PBG to be furnished in the form of bank guarantee as per proforma or annexure of the tender documents, for an amount covering 3 % of the purchase order value.
- iii. The Performance Guarantee should be established in favour of "The Registrar, IIT Goa".
- iv. PBG to be established through any of the National Banks (whether situated at Goa or outstation) with a clause to enforced the same on their local branch of Goa or any scheduled bank (other than national bank) situated at Goa. Bonds issued by co-operative banks will not be accepted.
- v. Performance Guarantee Bond shall be for the due and faithfully performance of the contract and shall remain binding, notwithstanding such variations, alterations for extensions of time as may be made, given, conceded or agreed to between the successful tenderer and the purchaser under the terms & conditions of acceptance to the tender.
- vi. The successful tenderer is entirely responsible for due performance of the contract in letter and spirit and all other documents referred to in the acceptance of tenders.
- vii. The PBG shall be kept valid during the period of contract and shall continue to be enforceable for a period of one year/two years (as mentioned in the tender document) or up to warranty period, plus 60 days whichever is later from the date of order acknowledge. In case PBG needs extensions up to warranty period then supplier shall initiate extensions to PBG one month prior to expiry of PBG.
- viii. For successful suppliers, if PBG is not submitted within 15 days from the date of Order Acknowledgement, then the Purchase Order will be cancelled with forfeiting of EMD.
- ix. **No interest shall be payable by the buyer to the Bidder on PBG.**

**List of items required**

<b>Sl. No.</b>	<b>Description of Items</b>	<b>Qty</b>
1	Glovebox-compatible tabletop RIE System	01
2	Glovebox-compatible Annealing System	01



## 1. Specifications of Glovebox-compatible tabletop RIE system

### 1. The RIE system at a glance:

- a. The system shall be a parallel-plate cathode-coupled Reactive-Ion-Etching (RIE) system, and its operation shall be at least semi-automatic.
- b. The etching chamber shall house an etching stage, which is capable of loading wafers/samples up to 4-inch sizes. A base plate, covering the complete area of the etching stage, shall be provided for working with irregular-shaped & small sizes samples.
- c. The RIE system be able to produce reactive ion plasma of CF<sub>4</sub> (Carbon tetrafluoride), SF<sub>6</sub>, Ar (Argon), and O<sub>2</sub> (Oxygen). Other gases compatibility must be provided.
- d. The etching chamber shall be connected with a minimum of TWO plasma producing GAS LINES and a THIRD line for purging (Nitrogen) purpose. In the event of only two gas lines, an argon line shall be used for choosing or combining the other processing gases.
- e. The system shall be capable of creating a plasma environment even at a lowest RF power of 10 W or less. A factory test certificate shall be provided for creating a plasma environment at the lowest achievable RF power. The maximum RF power shall be at least 150 W. The usable range of RF power (minimum, intermediate and maximum) shall be supported by a factory test certificate and upon installation.
- f. The step-size accuracy of the RF sources shall be 2 W or less in a low RF power range of 2 - 100 W. This accuracy in a high RF power range in any case shall not exceed 2%. Whether manual or semi-automatic or automatic, an appropriate impedance matching network shall be provided.
- g. In addition to the standard semiconductors and MEMS materials, the RIE system must have demonstrated a layer-by-layer etching of a few of 2D Materials like, graphene, hBN, WSe<sub>2</sub>, MoSe<sub>2</sub>, WS<sub>2</sub>, and MoS<sub>2</sub>.

### 2. Glovebox compatibility of the RIE system:

- a. The Reactive-Ion-Etching (RIE) system shall be a cleanroom-compatible **tabletop** system.
- b. The RIE system shall be compatible for an **on-site integration** into an inert-atmosphere glovebox.
- c. The RIE system shall not occupy a working area larger than 700 (D) × 1150 (L) sq. mm of a glovebox. The complete height of the tabletop system shall not be larger than 850 mm.
- d. The glovebox integration of the chamber shall be done in such a way that the etching chamber and all other control knobs/buttons are easily accessible for loading, unloading and processing the samples/devices. To ensure this the bidder of the RIE system has to work in close collaboration with the glovebox suppliers/bidders/OEMs.

### 3. The detailed specifications:

#### *Performance and functionality requirements:*

- a. Tabletop RIE system with at least semi-automation.
- b. RIE system for wafer cleaning, surface modification and etching (including 2D materials & polymers).
- c. Variable RF power up to 200 W or more. The system shall be able to produce the plasma even at a very low RF power of 10 W or less.
- d. Dry pump (500 liters/min or more) with appropriate vacuum gauge. The ultimate vacuum pressure of a dry pump shall be 1 Pa or less. The supplier/bidder must specify the achievable vacuum pressure of the process chamber.
- e. Parallel plate cathode coupling electrode.
- f. Substrates: Glass, SiO<sub>2</sub>, Si, SiC, Substrates of III-V Semiconductors, Sapphire, Polymers etc.

- g. Etch materials: 2D Materials (graphene, hBN, WSe<sub>2</sub>, MoSe<sub>2</sub>, WS<sub>2</sub>, and MoS<sub>2</sub>, etc.), SiO<sub>2</sub>, TiO<sub>2</sub>, Si<sub>3</sub>N<sub>4</sub>, Si, Photoresist, E-beam resist etc.
- h. Gases: Oxygen, Argon, and CF<sub>4</sub>. The bidder/OEM shall certify that when an absolute need is arising then SF<sub>6</sub> can also be used occasionally. Gas cylinders, regulators & piping will be arranged by IIT Goa. The bidder may suggest the dimensions/volume of the gas cylinders.
- i. Shower head gas manifold.
- j. Provision for gas flow adjustment. The minimum flow and the adjustment step-size must be clearly mentioned and shall be supported by a test certificate.
- k. Substrate size: up to 4-inch wafer, and small & irregular shaped samples as well.
- l. View port to see the plasma discharge
- m. Appropriate etching-stage cooling mechanism. If a water-cooled stage, then provide the detailed specifications of a chiller requirement. The bidder may quote a suitable/tested chiller as an optional item.
- n. Cleanroom compatible dry pump for pumping the main chamber.
- o. Suitable standard gauge for measuring vacuum.
- p. SS and/or Teflon gas piping. The bidder must specify the type of piping and the corresponding processing.
- q. Specify the total power consumption. If the RIE system works on other than the single-phase 230V/50Hz power then the bidder must provide a suitable/tested step down/up transformer. The input connector of the transformer must match a power socket in India.

**4. Support and maintenance requirements:**

- a. Provide a list of installations in India with contact details.
- b. Attach the technical papers, if known, where users have used your RIE system
- c. Must provide a general package of common system spare parts.

**5. Other requirements:**

- a. Suitable size rack/cabinet shall be provided to place the control units of RIE system. The dimensions of this rack/cabinet shall be such that it would fit underneath the glovebox base.
- b. On-site installation & integration of the RIE System shall be performed in complete co-ordination and co-operation of the Glovebox and RIE System vendors and the customers.
- c. Etching tests of some of the standard materials (photoresist, ebeam resist, a few 2D materials, and some oxides) shall be done at IIT Goa.
- d. The supplier/bidder shall provide the standard test samples.
- e. It shall have an EMO protection and other safety interlocks such as vacuum, water, etc.
- f. EMO (Emergency OFF) switch shall be provided on front panel of the system.
- g. Detailed training of all functionalities shall be provided to the users.
- h. Detailed manuals for the instrument shall be provided.
- i. Detailed pre-installation requirement for the instrument and ancillary requirements like electrical/water etc. shall be provided.

**6. Power supply:**

Mains power supply as per Indian Socket requirement. Any modification/deviation from standard set up shall be strictly mentioned in the tender.

**7. Warranty:**

- 1. Comprehensive warranty for 1 year from the date of installation.
- 2. The cost of the warranty extensions shall be quoted in the optional items.

**8. Customer/service support:**

The bidder must provide the details of a local customer service centre. If a bidder/OEM participating from abroad then they must address the questions/concerns of the customer within 24 hrs on the working days of the week.

**9. Delivery and installation:**

The delivery and installation of the system at IIT Goa shall be completed within 120 days after issue of purchase order.

## 2. Technical Specifications of Glovebox-compatible Annealing System

### 1. The RTP system at a glance

- a. Rapid Thermal Processing (RTP) system fitted with quartz-tube process chamber with stainless steel flanges and tubular infrared halogen lamps. The long-life (>5000 hrs.) infrared lamp shall be provided.
- b. The quartz-tube process chamber shall be equipped with a quartz-tray for loading/unloading of a 3-inch wafer and for holding the various susceptors.
- c. Appropriate numbers of susceptors shall be provided to hold smaller sizes substrates (2-inch) and sample pieces (as small as 5 mm x 5 mm). The susceptors shall be made of appropriate light-absorbing materials for processing the substrates & small-samples with low infrared absorption. A suitable susceptor shall also be provided to work in oxygen and other reactive process-gases.
- d. The system shall be capable of running the following processes:
  - a. Rapid thermal annealing (RTA): both “soak” and “spike”
  - b. Rapid thermal oxidation (RTO)
  - c. Rapid thermal nitridation (RTN)
  - d. Selenization and/or sulfurization (SAS) of Transition Metals
  - e. Rapid thermal CVD for graphene and hexagonal boron nitride
- e. The process chamber shall be capable of running the various processes from atmospheric pressure to high-vacuum ( $10^{-6}$  mbar or better) pressure and in the temperature range of ambient temperature to 1250 °C.
- f. The various components and processes of the RTP system shall be controlled and monitored using a PLC-PC based interface.

### 2. Glovebox-compatibility of the RTP system

- a. The system shall be compatible for onsite-integration into an inert atmosphere glovebox workstation. IIT Goa will procure a suitable glovebox-workstation through a separate tendering process.
- b. All the necessary design/technical requirements for this integration shall be provided in the technical bid.
- c. The system shall have an air-tight interface between the process chamber and the Glovebox workstation. A door rail shall be installed in front of the RTP system & inside the Glovebox for sliding in/out the door of the furnace for loading/unloading of the wafers/susceptor/samples that are kept inside the inert atmosphere of the glovebox.
- d. All the parts of the RTP system which would be inside the glovebox, shall be compatible with the inert-atmosphere (Nitrogen) of the glovebox.

### 3. Substrate & Samples -compatibility

- a. *Substrates:* Si, Ge, III-V Semiconductors, SiC, Glass, Sapphire, Polymers etc.
- b. *Thin-film materials:*

- Flakes of 2D Materials (graphene, hBN, WSe<sub>2</sub>, MoSe<sub>2</sub>, WS<sub>2</sub>, and MoS<sub>2</sub>, etc.),
- Thin-films of III-V semiconductors,
- Thin-films of Si, Si-Ge, Ge, SiC, oxides (SiO<sub>2</sub>, TiO<sub>2</sub>, etc.) and nitrides (Si<sub>3</sub>N<sub>4</sub>, GaN, etc.),
- Thin-films of polymers like photoresist, e-beam resist, etc.

#### **4. Temperature parameters, measurements and control**

- a. The system shall work from ambient temperature (22°C) of the glovebox to 1250°C.
- b. The maximum heating/ramp-up rate on a 2-inch Si-substrate, directly loaded on a quartz susceptor/tray, shall be 250°C/s and above.
- c. The details on heating/ramp-up rates achieved using the various susceptors shall be provided.
- d. The system shall have a programmable-control on the cooling rate. The data on fastest and slowest cooling rates shall be provided.
- e. The system shall have a thermocouple-based temperature-control mechanism which uses a fast digital PID temperature-controller. The measurement/set accuracy shall be 1°C or better. The system shall have provisions of upgrading it with additional of temperature measurement channels (either thermocouple/pyrometer).
- f. The temperature uniformity over the substrate in the complete temperature range shall be ±1% or less.
- g. The anneal hold time of at least 25 minutes or more at 1,000°C and 1 minute or more at 1250°C.

#### **5. Vacuum capability and control**

- a. The outer chamber material shall be made of anodized steel and it shall have a quartz-window viewport.
- b. The quartz-tube process chamber shall be connected with a Dry backing vacuum pump for pumping the chamber down to a pressure of 10<sup>-2</sup> mbar or better.
- c. The process chamber shall be compatible for an on-site integration with a turbomolecular vacuum pump for achieving a pressure of 10<sup>-6</sup> mbar or better. The pricing of this upgradation shall be provided in the optional items.
- d. The system shall have appropriate vacuum control and display units, and these units shall be operated using a PLC-PC based interface.

#### **6. Gas lines and flow/pressure control**

- a. The system shall have TWO (2) process-gas lines fitted with MFCs for handling Argon, Forming, and Oxygen gases; One dedicated line for Oxygen, whereas, another line shall be switchable from Argon to Forming gas using pneumatic valves. The control range of the MFC shall be in the 2 – 100% or wider range, and it shall be capable of providing a minimum flow rate of 5 sccm or lower.
- b. The system shall have a provision for on-site addition of minimum TWO (2) process-gas lines. The pricing of additional process-gas line shall be provided in the optional items.
- c. The system shall have a separate purging gas line fitted with a needle valve. This system shall allow us to perform RTP processes also using the gas that is flowing through the purge line.
- d. The pressure of the process-chamber shall be computer-controlled via adjusting the flow-rates of the MFCs. The system shall have a provision of adding a throttle valve for controlling the chamber pressure. The pricing of this upgrade shall be provided in the optional items.
- e. Gas manifold with VCR fittings for all gas lines shall be provided.

**7. Other requirements**

- a. The mains power and a list of on-site facility requirements shall be provided. The system shall be robust to minor fluctuations in the mains power line.
- b. The system shall be equipped with an Emergency-safe shutdown button.
- c. The system dimensions and weight shall be such that it can be placed on a tabletop, and can be mounted with glovebox for making a leak-free joint between the glovebox and the RTP system. The dimensions in any directions shall not exceed the values of 30-inch (width) x 30-inch (depth) x 30-inch (height).
- d. A comprehensive warranty for a period of 1 year from the date of installation at site shall be provided. The pricing details of both comprehensive and non-comprehensive warranties shall be provided.
- e. The delivery and installation of the system at IIT Goa shall be completed within 120 days of receiving the purchase order.

**8. User's list**

The bidder shall provide a list of users in universities and institutes in India where the similar systems have been installed and are currently fully-functional. The bidder shall also provide a list of users in universities and institutes in the world where glovebox integrated systems have been installed.

**9. Customer/service support**

The bidder must provide the details of a local customer service centre. If a bidder/OEM participating from abroad then they must address the questions/concerns of the customer within 24 hrs on the working days of the week.

**(To be printed on letterhead of the bidder)**

**Annexure - C**

**Bidders Information**

1.	Name of the Bidder	
2.	Address of the Bidder	
3.	PAN No.	
4.	GSTN No.	
5.	State of GST Registration	
6.	E-mail	
7.	Contact Person's Name & Designation	
8.	Mobile No.	

**Indian Agent's Information**

1.	Name of Indian Agent	
2.	Address of Indian Agent	
3.	Indian Agent PAN No.	
4.	Indian Agent GSTN No.	
5.	State of GST Registration	
6.	E-mail	
7.	Contact Person's Name & Designation	
8.	Mobile No.	

**(To be printed on letterhead of the bidder)**

**Annexure - D**

**PRICE BID FORMAT**

<b>S.No.</b>	<b>Item description &amp; short specification</b>	<b>HSN Code/SAC Code</b>	<b>Qty in Units</b>	<b>GST %</b>	<b>Price Basis</b>	<b>Total Bid Price</b>
1.	Glovebox-compatible tabletop RIE System					
2.	Glovebox-compatible Annealing System					
6.	<b>Installation and Commissioning Charges</b> (if any, quote in INR)					
7.	<b>Agency Commission</b> (if any, quote in %)					
8.	Other Charges (if any, please specify)					
Grand Total						

#HSN Code: "Harmonized System of Nomenclature Code No." and SAC Code: "Service Accounting Codes Code No."

1. Delivery Mode: Delivery at IIT Goa, at site only.

2. Validity of the bid: 120 days from the date of submission of quotation/tender.

Signature.....

Name .....

Place:

Company Name & Address: .....

Date:

Affix Rubber Stamp: .....

**Note: Price Bid should be submitted in given format only. For additional information/extra items above format may be typed and used.**

**Reasonability of Prices**

Please quote best minimum prices applicable for a premier Educational and Research Institution. The party must give details of at least two purchase orders identical or similar equipment, supplied to any IITS/Research Institutions/ other organisation as per below Format (to be enclosed in Financial Bid) along with the final price paid and details are mandatory.

**Previous Supply Orders**

**Name of the Firm** \_\_\_\_\_

S.No.	PO No. & Date	Description & Quantity of ordered equipment	Value of Order	Date of completion of delivery as per contract	Remarks indicating reasons for late delivery, if any and justification of price difference of their supply order & those quoted to us	Has the equipment being installed satisfactorily (attach a certificate from the Purchaser/ Consigner)	Contact Person along with Telephone no., Fax No. and e-mail address

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Signature and Seal of the Manufacturer / Bidder



## FORMAT FOR PERFORMANCE GUARANTEE BOND

(To be typed on **Non-judicial stamp paper** of the value of **Indian Rupees of One Hundred**) (TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT GOA OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT GOA OR ANY SCHEDULED BANK SITUATED AT GOA. BONDS ISSUED BY CO-OPERATIVE BANKS ARE NOT ACCEPTED.

To,  
The Registrar,  
Indian Institute of Technology, Goa  
Farmagudi, Ponda,  
Goa – 403401

### **LETTER OF GUARANTEE**

WHEREAS Indian Institute of Technology, Goa (Buyer) have invited Tenders vide Tender No..... Dt. .... for purchase of .....

AND

WHEREAS the said tender document requires that any eligible successful tenderer (seller) wishing to supply the equipment / machinery, etc. in response thereto shall establish an irrevocable Performance Guarantee Bond in favour of “**Registrar, Indian Institute of Technology, Goa**” in the form of Bank Guarantee for Rs ..... (**3% (three percent) of the purchase value**) and valid till **one year or up to warranty period plus sixty days whichever is later** from the date of issue of Performance Guarantee Bond may be submitted within 15 (Fifteen) days from the date of Order Acknowledgment as a successful bidder.

NOW THIS BANK HEREBY GUARANTEES that in the event of the said tenderer (seller) failing to abide by any of the conditions referred in tender document / purchase order / performance of the equipment / machinery, etc. this Bank shall pay to Indian Institute of Technology, Goa on demand and without protest or demur Rs..... (Rupees .....).

This Bank further agrees that the decision of Indian Institute of Technology, Goa (Buyer) as to whether the said Tenderer (Seller) has committed a breach of any of the conditions referred in tender document / purchase order shall be final and binding.

We, ..... (name of the Bank & branch) hereby further agree that the Guarantee herein contained shall not be affected by any change in the constitution of the Tenderer (Seller) and/ or Indian Institute of Technology, Goa (Buyer).

#### **Notwithstanding anything contained herein:**

1. Our liability under this Bank Guarantee shall not exceed Rs. .... (Indian Rupees..... only).
2. This Bank Guarantee shall be valid up to ..... (date) and
3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if IIT Goa serve upon us a written claim or demand on or before .....(date).
4. This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at ..... situated at ..... (Address of local branch).

Date:

Yours truly,  
Signature and seal of the Guarantor:  
Name of Bank:

**Instruction to Bank:** Bank should note that on expiry of Bond Period, the Original Bond will not be returned to the Bank. Bank is requested to take appropriate necessary action on or after expiry of bond period.

**UNDERTAKING FOR BID SECURITY**  
(To be issued by the bidder on company's letterhead  
in lieu of EMD)

To,  
The Registrar,  
Indian Institute of Technology Goa,  
At GEC Campus, Farmagudi, Ponda – Goa

We, M/s ..... (name of the firm), with ref. to  
enquiry no. .... dtd ..... hereby undertake that:

- 1) We accept all the terms and conditions of the tender document.
- 2) We accept that, we will not modify our bid during the bid validity period, submit performance guarantee within the stipulated period and honor the contract after award of contract.
- 3) In the event of any modification to our bid by us or failure on our part to honor the contract after final award or failure to submit performance guarantee, our firm may be debarred from participation in any tender/contract notified by Indian Institute of Technology, Goa for a period of one year.

Yours faithfully,  
(Signature of the bidder with date and seal)

**DECLARATION OF LOCAL CONTENT**

(To be given on company letter head - For tender value below Rs.10 crores)  
(To be given by Statutory Auditor/Cost Auditor/Cost Accountant/CA for tender value above Rs.10 crores)

Date:

To,  
The Registrar,  
Indian Institute of Technology Goa,  
At GEC Campus, Farmagudi, Ponda - Goa

Sub: Declaration of Local content

Tender Reference No: \_\_\_\_\_

Name of Tender: - \_\_\_\_\_

Country of Origin of Goods being offered:

We hereby declare that an item offered has % local content. \_\_\_\_\_

“Local Content” means the amount of value added in India which shall, be the total value of the item being offered minus the value of the imported content in the item (including all customs duties) as a proportion of the total value, in percent.

We understand that, as per Office Memorandum dated 04/03/2021 issued by Ministry of Commerce and Industry, services such as transportation, insurance, installation, commissioning, training and after sales support like AMC/CMC etc. are not considered as local value addition.

“\*False declaration will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules 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.”

Yours faithfully,  
(Signature of the Bidder, with Official Seal)