



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008 (ODISHA)**

An Institute of National Importance under Ministry of HRD, GOI

NOTICE INVITING TENDER

Tender Notification No: NITR/PW-SR/CR/2019/167

Dated: 19/11/2019

The National Institute of Technology, Rourkela invites bids from the eligible bidders for procurement of **glove box for Li-ion battery research**.

Last date of Submission of Bid : **17/12/2019 by 11:00 AM**

Date of opening of Techno-commercial Bid : **18/12/2019 at 11:00 AM**

For Details: http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx

Contact: Dr. Partha Saha , CR;
Ph: +91-661-2462211;
Email: sahap@nitrkl.ac.in

Bidding through: <https://eprocure.gov.in/eprocure/app>

Sd/-
REGISTRAR



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008, ODISHA**

(OPEN TENDER NOTICE NO.: NITR/PW-SR/CR/2019/167

dated: 19/11/2019)

(Procurement of glove box for Li-ion battery research)

Sl. No.	Description of Goods/Service	Quantity
01.	Glovebox (Detailed specification as per Annexure – I)	01 unit
Accessories		
02.	Analytical weighing balance (Detailed specification as per Annexure – I)	01 unit
03.	Ultra-high purity argon + 5% hydrogen gas mixture cylinder (Detailed specification as per Annexure – I)	01 unit
04.	Ultra-high purity argon gas cylinder (Detailed specification as per Annexure – I)	03 units
05.	Stainless steel regulator (Detailed specification as per Annexure – I)	01 unit
06.	Online UPS with isolation transformer (Detailed specification as per Annexure – I)	01 unit

1. Quantity required : **As mentioned above (All information regarding technical specification provided in the Annexure-I)**
2. Delivery : **Within 120 days** from the date of purchase order
3. **Last Date of submission of Tender : 17/12/2019 by 11.00 AM**
4. **Date of opening of techno-commercial bid : 18/12/2019 at 11.00 AM**
5. The firm should not have been black listed at any time.
6. The submission of following bids by the tenderer should be through <https://eprocure.gov.in/eprocure/app>. Please follow the guidelines as per the portal.

Procurement of glove box for Li-ion battery research

(Open Tender Notice No.: NITR/PW-SR/CR/2019/167 dated: 19/11/2019) Due on 17/12/2019 by 11:00 AM

7. **Liquidated damage clause** will be charged for any delay in supply of goods.
8. The validity of the tender shall be **90 days** from the date of opening of the bids.
9. Detailed advertisement including all tender documents is also available in our website at http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx .
10. NIT reserves the right to qualify or deny prequalification of any or all applicants without assigning any reasons.

(REGISTRAR)
NIT, Rourkela
Fax No- 0661-2462022
Ph. No -0661-2462021

Technical specifications for glovebox

Glove box should be only modular and expandable. The glove box should be controlled by Argon atmosphere and used for Lithium-ion battery research.	
Items	Specifications
Internal dimensions (mm)	900-950 mm × 1250-1300 mm × 775-800 mm (H × L × D)
Material	Stainless Steel. 304 Grade/3 mm minimum thickness
Environment	Argon atmosphere
Performance	< 1 ppm H ₂ O and O ₂ (at complete pressure range).
Glove box leak rate	Glove box leak rate should be less than 0.05Vol %/h
Automatic box operating pressure	-10 mbar to +10 mbar or better Should be able to work in negative AND/OR positive pressure range Should include oil free based pressure relief valve mechanism Positive pressure regulation without vacuum pump should be possible
Front view panel/window	Optically clear polycarbonate, additional coating for chemical and scratch resistance is required. Inside surface should be brushed finish
Shelves	3-height adjustable, stainless steel shelves to be included and upgrade capable of sliding shelves
Mini Antechamber	Material of construction: Corrosion/chemical resistant Stainless steel shape: cylindrical with hinged doors, Dimensions: min. 150 mm (diameter) × min. 400 mm (length), Should include stainless steel sliding tray Should be located on the right side. O-ring should be provided.
Large Antechamber	Material of construction: Corrosion/chemical resistant stainless steel. shape: cylindrical Internal dimensions: min. 390 mm (diameter) × min. 600 mm (length) Should include sliding tray stainless steel. Inside should be brushed finish, door lock easy to operate, spindle lock. Should be located on the right side. O-ring should be provided.
Glove ports and Gloves	Glove Ports should be polymer material. Two Polymer glove ports, minimum 220 mm diameter. Glove ports should be O ring sealed plus vacuum. Two pairs of butyl gloves to be included, 0.4 mm thickness. Two Internal port cover to be included.
Vacuum pump	Positive Pressure regulation without vacuum pump should be possible. Necessary moisture and vapor traps for vacuum pump must be provided. Rotary vane pump with oil mist filter, oil re-circulation, automatic gas ballast control, 17m ³ /h, dual stage. Automated Switch off of vacuum pump should be possible via the touch panel.

	Pump should be from renowned company like Edwards RV-12 (minimum 10cfm). Must be supplied with all the required accessories like utragrade pump oil, inlet filter, O-ring, lubricants, etc.
Display	PLC Controlled with Color Touch panel for operation of all Glove box functions Including graphical tend of box pressure, oxygen and moisture levels
Moisture sensor	Inline Solid state or any other internationally accepted technology based Moisture sensor, 0-500 ppm ($\pm 10\%$), must be PLC controlled via touch panel. Upgradeable with solvent sensor 0-2000ppm in the circulation line, PLC controlled and operated by system touch screen.
Oxygen sensor	Inline solid state or any other internationally accepted technology based Oxygen sensor, 0-500 ppm ($\pm 10\%$), must be PLC controlled, operated via system touch panel Accuracy: ± 1 ppm
Gas purification	Single filter purifier and re-generable with an automatic/programmed control and should be fully integrated with a gas circulation blower. The details of the purification columns should be provided in the quotation. Purity should be less than 1ppm H ₂ O and O ₂ (at complete pressure range). Removable capacity, oxygen minimum 35 Liters or better and moisture minimum 1.3 Kg or better.
Purifier Materials	Copper Catalyst: minimum 5 Kg (BASF), Molecular Sieve: minimum 5.5 Kg (UOP)
Regeneration	Automatic PLC controlled regeneration. It should be possible to regenerate with Ar-H ₂ mixture (5-10% hydrogen). Regeneration interval should be mentioned in months.
Dust Filters	The glove box should have inlet/outlet 0.3 micron HEPA filters, class H13 or better, should be included.
Solvent absorbent unit	Solvent trap with charcoal loading. Minimum 5 Kg of absorber loading. External mounted in the gas circulation with bypass valves for easy Exchange of the charcoal. Operation modes: a) In line with the gas purification to clean the box atmosphere from solvent vapor. b) By pass, for exchange of the charcoal during the operation and gas circulation of the glove box.
Blower/Circulation speed	Minimum one Integrated Suitable Circulation Blower must be provided with minimum 85m ³ /hour speed. Minimum circulation time of 5 to 10min/hour is needed to maintain <1ppm. Automatic Blower speed reduction / increase based on O ₂ and H ₂ O level.
Heat Exchanger	Glove Box should be integrated with heat exchanger.

Software	The glove box should be controllable with independent and fully integrated programmatic logic control (PLC) with a touch panel interface. Graphical display of the box pressure, O ₂ and moisture levels should be available in color, in the touch panel interface. Remote monitoring of glove box parameters should be possible. The PLC should have the ability to send notifications and alerts regarding maintenance schedules, upcoming maintenance and box malfunctioning.
Power Supply	220-240V/ 50Hz × 4 receptacle × 15 Ampere
Feedthrough connectors (leak proof)	Glove box should have 4 leak proof DN 40 flanges; one should be with electrical feedthrough, one should be BNC and BANANA feedthrough four pin double sided. One feedthrough should also be fitted with BNC to dual alligator clips cable with minimum 2 meter length (must be supplied) to connect three-electrode cell, swagelok cells and 16 coin cells.
Flow Piping & Fittings	The flow piping and fittings should be made of stainless steel.
Valves	Main Purifier valve: Electro-pneumatic, KF-40 Control valves: Electromagnetic (solenoid) Antechamber valves: Manual KF-25 Valves Manual valves: Swagelok 3 way valve , Butterfly and Ball Valves
Others	Fluorescent/LED lamp should be front mounted. Fluorescent/LED lamp should have auto off facility. Automatic pressure regulation system without vacuum pump. Circulation speed should be linked to oxygen / moisture purity. Automatic activation of above features at user desired time. Should be able to set above functions at user set time to start and end. Should come with stand, height 1000 mm, with castors and machine feet. System should include additional water proof foot pedal. Glove boxes should have the pressure safety regulation function built-in. Automatic purge enabled by electropneumatic valves should be possible; max. purge rate 200 L/min
Warranty	The entire equipment should be covered under warranty, in terms of service and replacement, for a period of two years from the date of installation.
Accessories	1 no. Four decimal place analytical weighing balance (weighing capacity: minimum 220 g or above; readability 0.1 mg or better; pan size: minimum 91 mm) with automatic internal calibration and digital backlit display preferably from reputed company (Shimadzu or Mettler-Toledo). 1 no. UHP Ar (99/999% purity) + 5% H ₂ gas mixture cylinder with 47 Lt (W.C.)/7m ³ 3 no. UHP Ar (99.999% purity) gas cylinder with 47 Lt (W.C.)/7m ³ 1no. Stainless steel pressure regulator having SS-316 diaphragm, single stage, double gauge. Suitable Online UPS (10kVA) with isolation transformer is required

Other qualification criteria

- 5 numbers scanned copy of PO (not older than 3 years) of glovebox of similar or higher specification supplied within India (at least 1 from premier government institution like Iisc, IITs, NITs, IISERs, NISERs) must be provided.
- Detailed user list (at least 5) with the concerned person's valid contact details, in India where instrument is still in operational condition must be provided.
- List of minimum of 5 references using the glovebox for lithium-ion batteries is required.
- The ordered goods are required to be installed within 30 days of receipt of goods at this Institute. Installation should be carried out only by expert engineers of supplier/manufacturer. During the course of installation, necessary hands-on training on operation and maintenance of the glovebox and its auxiliary unit shall be imparted to Institute's Faculties/Engineers/Technicians. Installation and training must be free of cost.
- Prior installation conditions / site preparation / electrical connection required must be clearly mentioned in the quotation along with technical bidding documents.
- All parts like glove box, purifier, regeneration unit, sensors, blower, should be single manufacturer or if any of these is given by the 3rd party then warranty should be given by the manufacturer.
- Make and model number of each parts should be mentioned in the technical bid.
- Please quote with completer description of standard and required upgrades.
- ISO certificates for manufacturing of glove box and purifier should be attached.
- The supplier should have certified engineers/technicians available locally in Odisha/Kolkata/Ranchi or any nearby cities for providing immediate after sales service, support and maintenance.
- The satisfactory performance letter from end users' needs to be submitted.
- Just mentioning complied/meeting specifications or copy paste of technical qualification will not qualify the technical bid.
- All parts of the glovebox should be covered with minimum two years warranty from the date of installation.
- Technical documents/brochure and proof of the specifications supplied should be attached.
- Hard copies of all the operational manuals related to the glovebox must be provided while supplying the system.

For goods manufactured in abroad

1. If the instrument is of foreign origin (i.e. manufactured in foreign country) then price must be quoted in foreign currency.
2. The price must be mentioned with clear demarcation at every stage such as instrument price, discount, packing and forwarding, transport, insurance whichever is applicable.
3. Bidder should mention the country of origin and the country from which goods will be finally shipped.
4. In case, an Indian agent is directly submitting a bid on behalf of its Principals, a copy of the Authorization Certificate issued by the Principals in favor of the Indian agent should be furnished along with a certified copy of the Agency Agreement between the foreign Principal and Indian agent. Both these certificates must be up-to-date.
5. A letter in the official letter head of the principal declaring the Indian agent as their authorized agency to bid must contain the official tender enquiry number as depicted in CPP portal must be included with the technical bid. (This must not be clubbed with Authorization Certificate).

6. The delivery up to NIT Rourkela is solely bidder's responsibility. The price must be quoted in foreign currency up to CIP Kolkata basis. NIT Rourkela will provide the custom duty concessional certificate for the clearance.

For goods manufactured in India

1. The price must be mentioned with clear demarcation at every stage such as instrument price, discount, GST calculated, packing and forwarding, transport, insurance whichever is applicable.
2. GST at applicable rates, which will be payable on the goods if the contract is awarded.
3. Bidders are requested to calculate GST @5% (in this regard necessary documents will be provided to the awardee bidder at the appropriate stage).
4. The delivery up to NIT Rourkela is solely bidder's responsibility. Therefore, charges for inland transportation, insurance and other local services required for delivering the goods at NIT Rourkela must be mentioned in the financial bid.

Earnest Money deposit/Bid Security (EMD/BS)

The Bidder must furnish, as part of its bid, a Bid Security (BS) for an amount as specified in the Invitation for e-procurement. In the case of foreign bidders, the BS shall be submitted either by the Principal or by the Indian agent and in the case of indigenous bidders; the BS shall be submitted by the manufacturer or their specifically authorized dealer/bidder.

The bid security may be forfeited:

1. If a Bidder withdraws or amends or impairs or derogates its bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. In case of a successful Bidder, if the Bidder fails to furnish order acceptance within 21 days of the order or fails to sign the contract and/or fails to furnish Performance Security within 21 days from the date of Purchase order. or
3. In case selected L1 bidder (after qualifying the technical bidding) fails to comply or try to change the specification of the instrument after Purchase Order has been issued; or
4. In case selected L1 bidder (after qualifying the technical bidding) claims the inability to supply the instrument within quoted price. or
5. In case selected L1 bidder (after qualifying the technical bidding) declares their inability to supply the instrument. or
6. In case selected L1 bidder (after qualifying the technical bidding) impose any extra condition/cost which was not mentioned in their quotation with respect to technical specification and commercial terms and conditions. or
7. In case bidder impose any prior installation condition/ requirement of consumables during installation at NIT, involving extra cost at purchaser's side which is not mentioned in the quotation. or
8. In case of any violation of GFR17.

Delivery

Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by NIT Rourkela in the Purchase Order.

Performance Security (PS)

Within 21 days of receipt of the notification of award/PO, the Supplier shall furnish performance security in the amount specified in tender document, valid till 60 days after the standard warranty period.
