



Electronics Corporation of India Limited
 A Government of India Enterprise
CONTROL & AUTOMATION DIVISION-PURCHASE
 ECIL Post, Hyderabad - 500 062.

Ph:

e-mail:
 EXTRA COPY

ENQUIRY No. EC/PUR/CAD/	
DATE:	1907/120603 2015.09.15
DUE DATE:	2015.10.19

Contact: D.P. RAO, SM
 Dear Sir(s),

Kindly submit you quotation in a Sealed Envelope Superscribing Enquiry No. and Due Date for the supply of the Following items as per terms and conditions overleaf to PURCHASE MANAGER - CONTROL & AUTOMATION DIVISION ECIL, HYDERABAD-62. QUOTATIONS AGAINST EACH TENDER SHALL BE SENT IN SEPARATE ENVELOPE QUOTATIONS RECEIVED AFTER THE DUE DATE AND TENDERS SENT IN OPEN/UNSUPERSCRIBED ENVELOPE WILL BE REJECTED. PLEASE SEND REGRET LETTER, IF YOU ARE NOT ABLE TO QUOTE TO CONTINUE TO KEEP YOUR NAME IN OUR MAILING LIST.

IMPORTANT INSTRUCTIONS

Parties must give the following information otherwise offer may be rejected.

- | | |
|------------------------------------------|----------------------------------------------------------------|
| 1. Unit Rate and Terms of price | 6. Estimated Packing and Forwarding Charges |
| 2. Quantity discount if any | 7. Validity of quotation |
| 3. Rate of Excise Duty, Sales Tax if any | 8. Terms of Payment |
| 4. Firm Delivery schedule | 9. Sales Tax Registration Number/VAT and Service Tax Regn. No. |
| 5. Mode of despatch | 10. SSI/NSI Regn. No. |

Sl.No.	Material Description and Specification	Estimated Requirement	
		Unit Code	Quantity
1	SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF COMBINED ALTITUDE, TEMPERATURE AND HUMIDITY CHAMBER ALONG WITH CHILLER AS PER ANNEXURE ENCLOSED (8 PAGES). Special Notes, 1. Data sheet/Catalogues shall be enclosed to your offer. 2. A Certificate of Compliance shall be submitted along with the consignment. 3. If you are unable to quote, send regret letter positively by mail. Our Mail ID dprao@ecil.co.in enable us to keep you in mailing list. 4. High Altitude Chamber with CATH and Chiller as per Annexure Enclosed. 5. Terms and Conditions as per Annexure enclosed. (pages 7&8). 6. This is a TWO PART Bid Mechanism. a) Technical Bid and b) Price Bid.	MONTH	1.00

- NOTE:** 1. CERTIFICATE OF COMPLIANCE/BATCH CERTIFICATE/CCOE/CMRI/ATX/ WARRANTY TEST CERTIFICATE SHALL BE FURNISHED. PLEASE CONFIRM.
 2. DATA SHEETS (CATALOGUES) SHALL BE SUPPLIED WITH THE QUOTATION.
 3. IF THE MATERIAL IS COVERED UNDER DGS & D RATE CONTRACT. PLEASE QUOTE THE RATES ACCORDINGLY.
 4. IF THE MATERIAL IS COVERED UNDER EXCISE, FURNISH EXCISE TARIFF NUMBER AND CLASSIFICATION.

Yours faithfully,

For **Electronics Corporation of India Limited**

(Signature)
 B. S. JAI / D.P. RAO
 Purchase Manager
 Purchase, MMS, CAD
 ECIL, HYDERABAD-500 062

SCOPE OF WORK:

Supply, Installation, testing and commissioning of Combined Altitude, Temperature and Humidity Chamber along with Chiller as per the following specifications at ECIL, Hyderabad. The supplier must critically examine the detailed specification provided, comply with those and supply in accordance. The proposal shall be accompanied by a detailed compliance statement in the same order with substantial proof of evidence like product catalogues, technical drawing, references etc.,

SPECIFICATIONS / REQUIREMENTS:

Sl. No.	Description	Requirements
A	GENERAL	
1.	Internal Dimensions & Usable Space	1200 mm (W) x 1200 mm (D) x 1200 mm (H)
2.	External Dimensions	Height of the chamber shall not exceed 2800 mm. Compact chamber preferred.
3.	Construction	12 gauge or better stainless steel liner (SS 304 series) as per standard design with liners to withstand lower ambient pressures stated in the operating range. Exterior shall be a welded construction with anti-corrosive powder coated or spray painted.
4.	Maximum Load in Test Space	≥150 kg Aluminium Load
5.	Maximum Thermal Load in Test Space	1000 Watts Live Load
6.	Door	Full opening door on front side
7.	Viewing window	300 mm x 300 mm break free multi pane viewing window with lighting.
8.	Port Holes	Two Flange port holes each of 75 mm and 100 mm diameter (on same side) with proper sealing shall be provided.
9.	Condenser / Refrigeration System	Water Cooled
10.	Noise Level	Shall not exceed 80 dBA at a distance of 1 meter from chamber.
11.	Operating Voltage	415 VAC ± 10%, 3 Phase, 50 Hz
12.	Ambient Condition of Operation	Operating Temperature : 0°C to 55°C, Storage Temperature : -20°C to +70°C, Relative humidity : Up to 95% non-condensing at 23°C and 50% at 45°C
B	TEMPERATURE	
13.	Temperature Range	-70°C to +175°C or better
14.	Temperature Stability	± 1° C over the temperate range of -70°C to +175°C in the empty chamber
15.	Temperature Change Rate Cooling down and Heating up between +155°C to -45°C	5°C/minute with 150 kg Aluminum Load that dissipates 1000 Watts live load.
C	COMBINED TEMPERATURE & HUMIDITY	
16.	Relative Humidity	10% to 95% or better limited by 7°C to 85°C Dew Point and 7°C to 85°C Dry Bulb Temperature.
17.	Relative Humidity Stability	± 5% or better with empty chamber after stabilization.
18.	Dry Air Purge	Chamber shall be designed with dry air purging for removing moisture in the chamber.

Sl. No.	Description	Requirements
19.	Humidity Water Reservoir	Humidity Water Reservoir of capacity 50 Ltr or more shall be provided in chamber or externally.
20.	Combined Testing (Temperature + Humidity)	Chamber shall be capable to perform combined temperature and humidity test. 95% RH at 7°C, 95% RH at 40°C, 95% RH at 85°C, and 14% RH at 71°C.
D	COMBINED ALTITUDE & TEMPERATURE	
21.	Pressure Range	1013 mbar (Atmospheric Pressure) to 1 mbar.
22.	Pressure Stability	Altitude Pressure fluctuations shall be within $\pm 3\%$ of set point, at steady state condition after stabilization.
23.	Pressure Change Rate	10 minutes from site pressure to 116.50 mbar. 20 minutes from site pressure to 33.36 mbar. 30 minutes from site pressure to 3.15 mbar.
24.	Combined Testing (Temperature + Altitude)	Chamber shall be capable of performing combined temperature and altitude test up to 27.84 mbar between -55°C to 125°C. The chamber shall be able to maintain temperature using auxiliary cooling / heating systems.
E	COMBINED ALTITUDE, TEMPERATURE & HUMIDITY	
25.	Typical Combined Testing (Altitude + Temperature + Humidity)	Chamber shall also be capable of performing typical CATH profile stated below with 150 kg Aluminum load and a ramp rate (heating / cooling) of 2°C/minute or better. a) Ramp down from Ambient to -60°C and dwell for ½ hr. b) Ramp up to -40°C, achieve 300 mbar and dwell for ½ hr. c) Ramp up to +50°C, 75% RH and dwell for ½ hr. d) Ramp up to +60°C and dwell for ½ hr. e) Ramp down to +55°C, achieve 50 mbar and dwell for ½ hr. f) Ramp down to ambient temperature. Repeat multiple cycles of the above test.
F	CONTROLLER AND OTHER REQUIREMENTS	
26.	Controller	Chamber shall be provided with microprocessor / computer control and monitoring system with at least 32 Bit Controller or latest technology that is in-house designed and compatible to the chamber. 10" to 12" LCD Color Touch panel with menu driven operation. 1-4 independently programmable channels. Capable of creating unlimited number of programs with at least 60 loops per program and greater than 9000 loops that can be repeated. Multi-level, password based security protected sensitive data. Shall be capable of operating in Manual and Automatic modes. Continuous display of temperature actual and set values and data logging of all channels. Selectable Sampling Rate.

Sl. No.	Description	Requirements
		Product temperature control for controlling the temperature of the specimen to keep the specimen warmer than air to avoid condensation.
		User defined high & low temperature, humidity and pressure limit alarms.
		Real Time Trend Graphs with capability to zoom, plot several types of charts and capable of storing log history.
		Capable of printing, exporting in different formats like *.csv formats.
		Integrated service information / refrigeration schematics display for electronic monitoring and troubleshooting.
		Shall accept input from thermocouple (type "T", "K", "E" or "J") or RTD
27.	Other Controls	Internal real time clock shall provide time of day and delayed start capability.
		40 GB or higher solid state data storage
		Two USB ports
		Ethernet interface
		RS 232/485 interface
		Specimen Protection feature with a provision to define low and high temperature limits with audible alarm.
28.	Remote Operation	Through Ethernet / RS 485 interface from a remote PC.
29.	History and Data Back Up	Online Temperature, Humidity and Altitude data backup required at chamber and also at remote PC.
30.	Software	Suitable for remote operation and data backup with automatic profile operation, profile generation, password protection, operation/maintenance profiles diagnostics etc. It shall be a Windows 7 / 8.1 based software with perpetual license to ECIL. Licensed copy shall be supplied on CD and free upgrades for 5 years from the date of installation and commissioning.
31.	Safety Features of the Chamber	Main power electrical disconnect shall be provided on the chamber.
		Circuits shall be protected with heat limits and overload circuit breakers.
		Discharge / Suction pressure transducers for monitoring pressures. Controller shall be capable of displaying the parameters.
		Compressor Discharge / Suction temperature monitoring. Controller shall be capable of displaying the parameters.
		Relief Valves on Refrigeration System
		Inherent Overload Protection on Compressors
		High / Low Pressure Switch for compressors.
		Circulator-Interlock for Heaters and Refrigeration.
		Factory set high heat limit.
		Additional / Independent high / low protection device that can trip the machine in case of failure shall be provided with audible alarm.
		Heaters shall be made ON only when fans are ON.

Sl. No.	Description	Requirements
		Door interlock – It should switch off the air circulation in case of door opened inadvertently.
		Immersion heaters of vapor unit shall be ON only when water is available
		Moisture & Dust separator shall be provided in the line to eliminate moisture mixing with the vacuum pump oil.
32.	Other Features of the Chamber	Humidity Water Reservoir of capacity 50 Ltr or more shall be provided in the chamber or externally.
		The main cooling shall be of water cooled cascade refrigeration system.
		Refrigeration gauges are to be provided for monitoring the suction and discharge pressures of each compressor.
		When the compressors are tripped off due to high pressure or fluctuations in the electrical supply, they shall be switched on automatically or manually after restoration of pressure / power.
		Temperature sensors shall be of RTD / Thermo couple type.
		Humidity and Pressure sensors shall be maintenance free electronic sensor.
		Refrigeration gases shall be 'O' zone friendly.
		A 20 meter long flexible armored power cable to be provided for extending power from AC mains to chamber.
33.	Spares Parts Package of the Chamber	(02) Two Filter Driers (02) Two Filter oil with bypass Sporlan (02) Two Solenoid valves (02) Two Expansion valves (02) Two Solid State Relays (02) Two Compressor Contractors (02) Two Ball Valve for Vacuum Control
34.	Standards	Chamber shall fulfill the test requirements of the standards such as MIL STD 810 F, MIL STD 810 G, JSS 55555 Revision No. 3, IEC, IS and DEF.
35.	Computer Processing System & Accessories	PC with the following configuration, along with HP Color LaserJet Pro MFP M476dw (CF387A) Printer and 1 kVA UPS with 1 hr backup shall be provided. PC shall be of HP make, 4 th Gen Intel Core i5 OR higher processor based equipped with motherboard supporting RAID 1 (mirroring) facility (no hot swap) and two nos. of 1 Terabyte HDDs (to be configured in RAID 1 mode), 2 x 4 GB DDR3 1600 RAM, industrial grade SMPS, one no. of USB 3.0 interface portable USB Powered external HDD of 1 Terabyte capacity (Seagate or WD make) and one USB 2.0 based external DVD+/- RW drive shall also be supplied for taking backups. Monitor shall be of 21 inch Full HD LED IPS type with capacitive multi touch screen with greater than 160 deg Vertical and Horizontal viewing angles. The PC shall be based on Windows 7 Professional version or higher OS with license and also MS-Office latest professional version with license (standalone). The PC shall support USB 3.0 and HDMI ports. This shall be compatible with the front end controller and able to control and monitor the chamber.

Sl. No.	Description	Requirements
36.	Chiller	<p>A suitable capacity of water chiller considering 20% buffer as per industry guidelines shall be provided.</p> <p>The chiller will be located outdoors where ambient temperature will be around 50 deg C during peak summer. A 15 m inlet pipe and 15 m outlet pipes will be exposed to the outdoor ambient conditions. The chiller shall be able to perform at these ambient conditions.</p> <p>The Chiller shall also have the below features.</p> <p>a) Shall be from a reputed local source and shall be sufficient to provide the required cooling rate.</p> <p>b) Shall be provided with heavy duty Caster wheels for easy movement.</p> <p>c) Suitable capacity inbuilt water tank with cooling water circulation pump.</p> <p>d) Controller shall display the control and actual temperatures. The equipment shall have a pressure and temperature gauge at the inlet to monitor input water supply.</p> <p>e) Shall be capable of maintaining the water temperature at 18°C or the specified inlet water temperature of the chamber supplier whichever is lower while running the chamber.</p> <p>Supplier is responsible for supply of armored power cable, electrical switch gear, piping, grouting, and installation of the chiller considering an approximate distance of 15 meters from the chamber. Successful supplier may inspect the site to get the exact distance.</p> <p>The Chiller detailed technical information specifying power requirements, voltage, capacity and safety features shall be provided along with quotation.</p>
37.	Camera for taking pictures of the specimen being tested	CANON Power shot SX 610HS with Samsung Pro 32GB Class 10, 90 MB/s rated Micro SDHC memory card and SD card adapter, external SD card reader, camera data cable, external battery charger and carry case.

GENERAL REQUIREMENTS:

1. Supplier shall supply, install, commission the Combined Altitude, Temperature and Humidity Chamber along with Chiller at ECIL, Hyderabad and shall conduct Acceptance Tests as per Factory Acceptance Test (FAT) document.
2. Supplier to provide Foundation / Installation details / Drawings two months in advance for site preparation.
3. Two sets of Hard Copies of Operation, Installation and Maintenance Manuals, Software Configuration, Circuit Diagrams, Wiring Diagrams & Troubleshooting in English and one soft copy also shall be provided.
4. Spare parts list with ordering information shall be provided.
5. Essential spare required for trouble-free operation of the chamber for three years shall be quoted optionally with item wise price breakup.

6. Three years comprehensive (parts & service) onsite warranty shall be provided for all the items including chiller from the date of completion of installation and commissioning. None of the sub components of the equipment shall be excluded from warranty. If the warranty service entails taking the equipment to other place, the costs associated with such movements shall be borne by the supplier. The turnaround time for warranty service shall be less than two days for minor repairs & general service, less than ten days for major part replacements. Beyond permitted down time, warranty will be extended by twice the cumulative excess down time. Supplier shall replenish spares at the end of warranty period by repair or replacement.
7. Chiller, UPS, PC, Camera and Printer shall be supplied from a reputed Indian source and are to be quoted in Indian Rupees. The bid should have separate line entries for these Indian origin items. A separate purchase order will be placed for the items supplied from local sources.
8. The supplier shall provide assurance on product support for a minimum period of FIFTEEN years.
9. The successful bidder shall submit FAT document for ECIL's approval. The FAT document shall include all the tender requirements and demonstrate the capability of the altitude chamber for the complied specifications and safety interlocks.
10. The FAT invitation letter shall accompany test results and graphs for all tests carried out by OEM as per the approved FAT document.
11. The pre-dispatch inspection shall be conducted by ECIL Engineers at OEM premises before dispatch as per the FAT document. Clearance in FAT does not relieve supplier's responsibility to demonstrate proper operation at ECIL, Hyderabad.
12. The altitude chamber and the auxiliary systems shall be installed, commissioned and demonstrated at ECIL, Hyderabad by supplier.
13. Bidder shall have supplied at least one system with the same or better specifications during the past three years to Indian customers. Copies of the purchase orders with price information shall be enclosed.
14. The list of your customers in India using similar capacity systems and their addresses with telephone numbers, the contact persons and their e-mail details shall be provided.
15. Foreign Based OEM having well established and authorized sales and service centers in India only can bid. The local agency shall submit ink signed authorization letter issued by OEM.
16. Supplier shall provide one week Operation and Maintenance training for our Engineers, free of cost at ECIL, Hyderabad.
17. Calibration Certificate issued by NABL Accredited Laboratory or equivalent laboratory with detailed test results shall be provided along with delivery of the altitude chamber.
18. Preventive maintenance shall be carried out once in a month during warranty period. Failure to do so will result in extension of warranty period by twice the amount of delay in preventive maintenance.
19. Bidder shall specify the country of manufacture for each of the equipment/sub systems, as well as country of integration of the altitude chamber.
20. **Utility requirements:** Bidder(s) shall provide details of the utilities, like power requirements, place requirements etc required for the operation of the altitude chamber.
21. Technical catalogues giving detailed specifications, photographs, drawings, material's certificate shall be made available along with quotation for technical evaluation of the Bid. Deviations if any in the specifications shall be clearly mentioned and shall be supported along with technical literature.
22. **Technical evaluation:** Technical committee / evaluation based on documents provided in offer / presentation discussions with Bidder(s) / track record / optionally (as determined by TEC) shall be carried out. Arrange for physical inspection of installations in India of same make equipment with similar capacity may be taken up by TEC for evaluation.
23. The Bidder(s) shall quote for any other items including consumables, if any required for operation of the altitude chamber.

TERMS AND CONDITIONS:

1. The intending bidders shall submit their bids in two parts, namely part (A) Techno-Commercial Bid and part (B) Price Bid, as under;
 - A) Techno-Commercial Bid - shall contain
 - i) Technical details
 - ii) Un-priced Bid with complete Bill of Materials
 - iii) Compliance statement on the tender technical specifications/General Requirements/Terms and Conditions point wise
 - iv) Earnest Money Deposit either Demand Draft or Bank Guarantee
 - v) Details of similar orders executed in the last 3 years
 - vi) Profit & Loss account and balance sheet statements of the last 3 years.
 - B) Price Bid - shall contain price with complete Bill of Materials
2. The bidder(s) shall submit offer in one common sealed cover containing two parts in separate sealed covers. First cover shall contain Technical Bid and second cover shall contain Price Bid. Bids not received in sealed covers will be rejected.
3. Bids will not be considered, if received after due date and time. Bids shall reach on or before the due date and time specified. ECIL will not be responsible for late delivery for any reasons whatsoever and also due to wrong or improper address.
4. E-mail or Fax bids will be summarily rejected.
5. Request for extension of due date will generally not be considered. However, ECIL at its sole discretion, may extend due date, if required.
6. During technical evaluation, bidders shall visit ECIL, Hyderabad, if requested for techno-commercial discussions with a notice period of one week.
7. Bidders shall provide contact details and also name of the contact person with mobile/landline/Fax number and e-mail ID.
8. Clarifications on this tender, if any, sought well before the due date, if considered necessary and relevant will be provided as corrigendum to the tender through ECIL official website. Further, no individual clarifications will be provided to the bidder(s).
9. Bidder(s) shall provide ink signed, point by point Technical Compliance Matrix specifying compliance supported by Technical Literature. Bidder(s) to furnish these documents along with the technical bid, failing which the technical bid would be invalid.
10. **I&C Charges:** Charges for Installation and Commissioning shall be quoted separately.
11. **Duties, taxes & levies, freight and insurance** shall be specified separately. Freight should be either by air or sea and CIF Hyderabad basis.
12. The **offer shall be valid for a period of 120 days** from the date of tender opening.
13. The Bidder(s) shall submit quotation in a separate cover for three years Annual Maintenance Contract from the date of expiry of warranty period for all the items supplied, in Indian Rupees.
14. The original technical bid along with compliance statement supported by product data sheets and test reports of similar equipment executed, shall be submitted. The detailed point to point compliance statement to be enclosed along with the quote. Offer is liable to be rejected if compliance statement is vague (replies like "Yes", "Meets"), unsubstantiated or incomplete. The technical compliance statement and supporting documents shall match with each other. The technical bid / compliance statement shall be signed by Original Equipment Manufacturer.

15. **Earnest Money Deposit:** EMD for an amount of Rs 6,00,000/- (Rupees Six Lakhs only) in the form of **crossed Demand Draft or Bank Guarantee drawn on any Scheduled Bank in India** in favour of 'Electronics Corporation of India Limited, Hyderabad' payable at Hyderabad shall be submitted along with the technical bid. The tenders not accompanied by EMD will be summarily rejected. The EMD amount will be returned to the unsuccessful bidders after completion of selection process.
16. **Security Deposit:** Security Deposit shall be submitted in the form of bank guarantee for 10% of the purchase order value within one week from the date of receipt of purchase order for the agreed delivery period plus 3 months. This is an essential condition and exemption will not be given. Security Deposit shall be forfeited in case of non-compliance to purchase order terms and conditions.
17. **Delivery Schedule:** Material is to be supplied within five months from the date of release of purchase order.
18. **Payment Terms:** 80% payment within 90 days from the date of shipment against submission of invoice along with related documents and Bank Guarantee for an equal amount valid for a period of 3 months or till the equipment is commissioned and satisfactory performance is demonstrated. Balance 20% within 60 days against PBG for 10% of the Order value, on successful completion of Installation & Commissioning and training along with I&C Charges.
19. **PBG for 10%** of order value shall be submitted from any Bank, Branch of Indian Origin only, covering the warranty period of 36 months with a grace period of six months from the date of completion of I&C.
20. **Warranty:** On-Site comprehensive warranty shall be provided for a period of 36 months from the date of acceptance at ECIL, Hyderabad.
21. **Confidentiality and Non-Disclosure Agreement** shall be provided on Rs.100/- Non-Judicial Stamp Paper as per the format provided by ECIL and signed by successful bidder.
22. **Liquidated Damages / Penalty Clause:** In the event of any delay in supply beyond the stipulated delivery schedule, ECIL, at their option, LD will be recovered @ ½% per week on the value of undelivered goods, subject to a maximum of 10% of the total order value. Inspection offer / call letter will be treated as the basis for imposition of LD. Any delay in deputing our engineer for FAT will be to ECIL account. LD will be levied from the date of non conformity of requirements observed, if any, during FAT.
23. **Risk Purchase Clause:** In the event of any failure of the Supplier to comply with the purchase order terms, ECIL has right to cancel the order and proceed with an alternate source. In the event of proceeding with such an alternate source, the default Supplier shall be liable to bear the extra cost which may have incurred by ECIL.
24. **Order Cancellation Clause:** Purchase Order is liable to be cancelled if there is any non-compliance, false statements, dissatisfactory progress and quality related issues with respect to technical specifications and other requirements as called for in tender enquiry / purchase order.
25. Bidders should provide details of litigations if any with Govt. Organisations and Public Sector Undertakings during the past eight years.
26. **Arbitration Clause:** All disputes or differences whatsoever arising between two parties out of relating to the construction meaning and operation of effect of this contract or the breach of them shall be settled by arbitration in accordance with the rules of arbitration of the Indian Arbitration and Conciliation Act, 1996 through Indian Council of Alternate Dispute Resolution (ICADR) at Hyderabad.
