



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/

1907/120604

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

Sl.No.	Material Description and Specification	Estimated Requirement	
		Unit Code	Quantity
1	SUPPLY INSTALLATION, TESTING AND COMMISSIONING OF HIGHLY ACCELERATED LIFE TEST (HALT) & HIGHLY ACCELERATED STRESS SCREENING (HASS) CHAMBER ALONG WITH LN2 STORAGE TANK AS PER ANNEXURE. (11 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. HALT & HASS Chamber along with LN2 Storage Tank are as per Annexure Enclosed. 5. Terms and Conditions as per Annexure enclosed. (pages 10&11). 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]
Purchase Manager
ECIL, Hyderabad-500 062

ANNEXURE TO HALT & HASS CHAMBER ALONG WITH LN2 STORAGE TANK INDENT No. 120604 dated 4th Aug, 2015.

SCOPE OF WORK:

Supply, Installation, testing and commissioning of Highly Accelerated Life Test (HALT) & Highly Accelerated Stress Screening (HASS) Chamber along with LN2 Storage Tank 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.,

TECHNICAL SPECIFICATIONS / REQUIREMENTS:

Sl. No.	Description	Requirements
1.0	CHAMBER DIMENSIONS AND OPERATING ENVIRONMENT	
1.1	Internal Dimensions	1300 mm (W) x 1300 mm (D) x 1300 mm (H) or better. Clear workspace from the top of the vibration table.
1.2	External Dimensions	Compact Chamber size desired. Height of the chamber shall not exceed 2750 mm.
1.3	Vibration Table	Approximately 1220 mm (W) x 1220 mm (D) square table with UNC-M10 stainless steel inserts in 100 mm x 100 mm hole matrix pattern.
1.4	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.
1.5	Operating Voltage	Chamber shall operate at 415 V AC \pm 10%, 50 Hz, 3 Phase
1.6	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.
2.0	CHAMBER CONSTRUCTION	
2.1	Interior	Shall be non-magnetic low nickel content SS 304 series stainless steel. Internal seams heliarc welded for hermetic sealing of the liner. Corners and seams designed to allow for expansion and contraction under the temperature extremes encountered.
2.2	Exterior	Die-formed treated sheet steel that is anti-corrosive and standard painting such as gray color.
2.3	Doors	System to have full-open type doors on either side (front & rear or on either sides) to allow easy loading / unloading of test specimens. Multipoint door latch shall be provided to minimize heat leak and moisture migration.
2.4	Viewing Windows	A multi pane heated viewing window of size approximately 300 mm x 300 mm on each door and one on the side wall of the chamber shall be provided for clear viewing of the specimen under test.
2.5	Chamber Interior Lighting	Suitable lighting system shall be provided. Two lamps preferred for better visibility.
2.6	Air Flow	Air distribution through adjustable ducts to enable focus on specimen.
2.7	Port Holes	Two port holes of 100 mm and 150 mm dia. with plugs (on same side) for proper sealing shall be provided.

Sl. No.	Description	Requirements
3.0	CHAMBER THERMAL PERFORMANCE	
3.1	Operating Temperature Range	-100°C to 200°C or better
3.2	Temperature Change Rate	≥ 70°C/min (programmable) average measurable between -65°C and +85°C at 75 mm above the centre of vibration table.
3.3	Thermal Stability	± 2°C or better in Steady State.
3.4	Temperature Variance	± 3°C or better in space inside chamber volume.
3.5	Frost Formation	Chamber to eliminate / minimize the formation of frost on the test specimen by use of GN2 purging. System shall be equipped with GN2 based flushing/purging before commencement of tests and GN2 meter with adjustment shall be provided for this purpose. Bidder to specify GN2 Flow and Pressure requirement for the system offered.
3.6	LN2 (Liquid Nitrogen) feed control	Vacuum jacketed dual proportional valve assembly that prevents icing on the valve and results in maximum efficiency of LN2 delivery to the chamber.
4.0	CHAMBER VIBRATION PERFORMANCE	
4.1	Frequency Range	System shall be capable of performing 03 Hz to 5,000 Hz or better, in the following modes. Preferred up to 10,000 Hz Low frequency mode (5 Hz to ≤ 150 Hz) : 0.5 g rms to 40 g rms High frequency mode (150 Hz to ≤ 10,000 Hz) : 0.5 g rms to 75 g rms Sync Shock mode (Preferred) : Up to 1,500 g pk
4.2	Vibration Amplitude	5 g rms to 75 g rms (Bare Table). Supplier to provide the acceleration achievable with 100 kg, 200 kg and 250 kg specimens.
4.3	Vibration Stability	± 1 g rms
4.4	Adapter Plates	Adapter plates that can be used for mounting custom specimens shall be supplied. The dimensions and quantity are mentioned below. 150 mm x 150 mm - 2 Nos. 350 mm x 350 mm - 2 Nos. 450 mm x 450 mm - 2 Nos.
4.5	Fixture Kit	Fixture kit suitable for wide variety of PCBs and units of various sizes consisting of suitable aluminum extrusions and connectors, all – thread rods and quick – threading split nuts etc., shall be provided.
4.6	Direction and type of excitation	Six degree of freedom, random, Omni Axial broad band excitation.
4.7	Maximum Test Load	≥ 250 Kg.
4.8	Actuator Type	Pneumatic Hammer Type.
4.9	No. of Actuators	≥ 9 un-lubricated type actuators covering low, medium and high frequency testing range without any adjustment.
4.10	Multi-Zone Vibration Control	User shall be able to choose from one, two or four zones and test different-sized products at the same g rms level and stress same-sized products at different g rms levels. This feature is preferred.
4.11	Impactor Monitor System	System shall visually illustrate the impactor's status on the screen.

Sl. No.	Description	Requirements
5.0	CONTROLLER	
5.1	Controller Hardware	PLC or equivalent based controller with 17" - 19" TFT with suitable memory and hard disk capacity to datalog, control, monitor and store several years of test data is essential. OS, MS-Office and other relevant application software package shall be included.
5.2	Controller Software	Local controller software and PC based controller software shall be supplied with perpetual license to ECIL. Licensed copy shall be supplied on CD and free upgrades for a period of 5 years from the date of installation and commissioning. The PC based software shall be compatible with Windows 7 / 8.1.
5.3	Computer Processing System	It shall be possible to configure and operate the chamber either through local controller or remote PC as per user selectable mode. The PC for remote control operation (to be supplied along with chamber) shall be of HP make, 4 th Gen Intel Core i5 PC 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 23 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 host PC shall support USB 3.0 and HDMI ports.
5.4	Modes of Operation	Manual & Programming
5.5	Power Failure recovery	Power failure recovery times should be user defined. The controller should be able to start from the point at which stopped at the time of power failure when power resumes.
5.6	Number of Control Channels	Minimum 8 accelerometer Input channels and 8 thermocouple inputs.
5.7	Control Type	Maximum, minimum, mean, or median accelerometer readings.
5.8	Thermal and Vibration Monitoring	Controller Software shall display real time data of 16 channels in numerical format, graphical, shall also do: a) Able to plot both Temperature and Vibration data against time in single graph. b) Able to plot temperature and vibration data independently also. c) Able to plot g rms value against both Frequency and Time domain.
5.9	Accelerometer setup	Controller shall have capability for user defined accelerometers of different makes and types.
5.10	Control & Analysis Programming	Shall be capable of user defined values of PSD Lines, Maximum Frequency, g rms, and PSD averages, minimum and start throttle.
5.11	Product Vibration Control	Shall be capable of controlling product vibration of up to 8 locations feedback.
5.12	Transmissibility plot (Preferred)	Shall display ratio between control and product levels. The controller shall be able to display transmissibility between control and monitor channels.
5.13	Peak Probability Plot	Shall display magnitude of stresses. The controller shall display histogram of the probability distribution of the peaks and valleys of the input signal.

Sl. No.	Description	Requirements
5.14	Accumulated Fatigue Software	The controller shall be able to accumulate fatigue levels of the products based on user defined channel selection.
5.15	System Monitor Display	Shall be capable of monitoring the airflow to impactor.
5.16	Time domain data	Controller shall be capable of real time data of acceleration.
5.17	Accumulated fatigue	Controller shall be capable of displaying product fatigue levels.
5.18	Vibration Spectrum Analyzer	Controller shall have built in vibration spectrum analyzer, display table and product vibration response in PSD versus frequency.
5.19	PSD Abort Limits	User definable levels for stopping the shaker in the event a preset acceleration level is exceeded.
5.20	Vibration alarm and Abort Limits	Controller shall be capable of user defined alarm and abort limits. It shall stop the system in the event of vibration exceeds the set levels.
5.21	Safety Stop measure	User defined safety stop set point. The system shall be capable to stop the test if the actual exceeds the safety stop levels and also stop LN2 or hold the purge until the time, the actual value does not come into desired levels.
5.22	Alarm or Alerts	User defined alarm or alert levels shall be possible. The controller shall activate the alarm if the actual value deviates from the set values.
5.23	Service Message	User defined service message panel to create up to eight different messages that can be displayed when certain events such as regular maintenance schedule, system run times, digital input and digital output take place.
5.24	Computer Interface	Ethernet and RS 232
5.25	Data Storage	Shall be either by hard disk storage or flash disk of 40 GB methodology and capable of storing test programs and test data.
5.26	Data Logging	User definable intervals for capturing and storing system events, temperature, vibration and reports and export facility in XLS, CSV, Txt, etc.,
5.27	Data Backup	User defined backup and recovery tools of chamber settings and data files. The restore wizard shall enable the user restore the setting, test profiles, data in case of data corruption.
5.28	Self Calibration Feature	Controller shall have built in Input/output Verification and Calibration.
5.29	Over/Under Temperature Limit	Suitable Independent Device that prevents temperature from exceeding user-defined limits shall be provided.
5.30	Cabling	All Cabling between Controller and Chamber including Ethernet and Accelerometer/Temperature Sensor cabling if any are in the scope of the chamber supplier.
6.0	SAFETY FEATURES	
6.1	Safety Stop Mode / Automatic Purge and Reset	Chamber shall be designed with a provision to safely stop, automatically purge and reset, to safe guard the operators, product and equipment.
6.2	Oxygen Monitor and Alarm	Provision to connect oxygen monitor to LN2 system. It shall be capable of triggering audio and visual alarms when oxygen depletes below safety levels. Suitable Oxygen Monitor and Alarm system shall be provided.
6.3	Door Lock	Interlocking system shall be provided to prevent chamber operation when any door is open.
6.4	Pressure Regulators	Electronic (Digital) Pressure Regulators for compressed air control to be provided (Desirable).

Sl. No.	Description	Requirements
6.5	Thermal Over Run Protection	Digital Programmable Controller for Thermal Over Run Protection to be provided. Bidder shall submit documentary evidence to confirm compliance.
6.6	Safety Air Solenoid	To be provided to cut off compressed air supply to vibration table actuators in case of Vibration Over Run occurrence. Bidder shall submit documentary evidence to confirm compliance.
6.7	Air Purge Kit	To safeguard operators from invisible nitrogen by providing sufficient air purge and oxygen normalization before automatically triggering the system's pneumatic door interlocks to open the doors to be offered.
7.0	PERIPHERALS & UTILITY REQUIREMENTS FOR CHAMBER	
7.1	Printer	HP Color LaserJet Pro MFP M476dw (CF387A) Printer or superior model.
7.2	UPS	1 KVA APC UPS with 1 hour back including maintenance free batteries.
7.3	Ear Muffs	6 Nos. of noise isolating ear muffs, make 3M to be supplied.
7.4	Liquid Nitrogen (LN2) and (GN2) Requirements	Supplier shall quote LN2 systems as per specifications stated in this tender.
7.5	Liquid Nitrogen Consumption	Supplier shall specify typical LN2 consumption for 100 thermal cycles at the rate of 70°C/min for typical HALT Test (-70°C to +85°C with 15 minutes dwell each at both temperature extremes for a passive load of 125 Kg Aluminum).
7.6	Control Valves	Chamber shall have vacuum jacketed inlet control valve. The valve shall be failsafe (bringing the system to safe condition on power failure/emergency stop).
7.7	Gas Vent / Exhaust	Provision for automatic venting of gaseous nitrogen from the chamber. Supplier shall supply and install 10 meters of duct.
7.8	Compressor	Suitable air compressor with receiver tank, necessary piping, accessories and installation as stated below. Filter : Air Filter cum Moisture separator at compressor outlet. Safety Features: i) Single Phase Prevention for motor. ii) Pressure relief valve in case of excessive pressure in air receiver. iii) Over pressure cut-off for compressor for energy saving. Input Supply : 415 V AC \pm 10%, 3 Phase, 50 Hz Supplier to provide catalogue for the compressor system offered with technical details. Make : Atlas Copco or Ingersoll Rand

Sl. No.	Description	Requirements
8.0	ACCESSORIES	
8.1	Accelerometers	<p>(05) Five Number of suitable adhesive / stud mount accelerometers with 5 m cable.</p> <ul style="list-style-type: none"> • Sensitivity : 10 mV/g • Frequency Range : 5 to 10,000 Hz • Maximum Acceleration : ± 100 g pk • Operating Range : -100°C to 200°C • Resonant Frequency : ≥ 30 kHz • Shock pulse (1 ms) : ± 2000 Hz <p>(03) Three Numbers of suitable adhesive or stud mount Tri-axial accelerometers with 5 m cable.</p> <ul style="list-style-type: none"> • Sensitivity : 100 mV/g • Frequency Range : 5 to 10,000 Hz • Maximum Acceleration : ± 100 g pk • Operating Range : -54°C to 174°C • Resonant Frequency : ≥ 20 kHz • Shock pulse (1 ms) : ± 2000 Hz <p>Make : B&K / PCB / Kistler / Dytran</p>
8.2	Accelerometer cable spool, connectors and crimping tool	<p>100 m long accelerometer cable spool with suitable cable connectors</p> <p>100 numbers each for accelerometer end and controller end along with two numbers of crimping tools shall be supplied.</p>
8.3	Temperature Sensors	<p>(08) Eight numbers of suitable "T" type thermocouples with measurement Accuracy.</p> <ul style="list-style-type: none"> • $\pm 1.717^{\circ}\text{C}$ below 0°C, • $\pm 0.713^{\circ}\text{C}$ above 0°C.
8.4	Oxygen Sensor	<p>CE Certified Oxygen sensor with LCD display shall be provided. It shall be capable of accepting two independent oxygen sensors and selective alarms. It shall have both audio and visual alarms in case of oxygen level near the HALT/HASS Test system goes below required level.</p>
8.5	Additional Oxygen Sensor	<p>Additional oxygen sensor to be provided and shall act as a redundant and activate, once the primary sensor fails.</p>
8.6	Tool kit	<p>(1) One set of 3/8 -16 inch wrench or suitable size with 9 or 13 point socket.</p> <p>(1) One set of 3/8 -16 inch electric wrench or suitable size set with 9 or 13 point socket.</p> <ul style="list-style-type: none"> • Wireless, shall be battery operated with Ni-Cd or Lithium Ion • Minimum Torque capacity: 36 foot-pounds (49 Newton-meters) • Torque values: User defined with digital display <p>Preferred Make: Bosch</p>
8.7	Hardware Tools	<p>2 Nos. of suitable motorized torque wrench with adjustable head and settable torque suitable for the range of torque required for HALT/HASS Chamber operation.</p> <p>Make: Bosch</p> <p>2 Nos. of suitable non-motorised ratcheting torque wrench kits with adjustable head and head set.</p> <p>Make: Taparia</p>

Sl. No.	Description	Requirements
8.8	Alignment and maintenance tool kit	Tool kit comprising of necessary tools is to be supplied for alignment and maintenance of the HALT/HASS Chamber. Detailed list of tools of the tool kit shall be given.
8.9	Protective Sheet	Non metallic protective sheet shall be provided on the top of vibration table.
8.10	Accelerometers Calibration	Accelerometers shall be supplied along with Calibration Certificates issued by NABL Accreditation Lab or equivalent lab.
8.11	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.
9.0	LN2 STORAGE TANK AND PIPING	
9.1	LN2 tank	One number of approximately 4000 liters gross capacity.
9.2	LN2 tank Construction	Vacuum jacketed plus Perlite insulated SS vertical storage tank.
9.3	Control Valve	Vacuum jacketed, Fail Safe LN2 Control Valve for chamber cooling ducts.
9.4	Manifold	Vacuum jacketed (VJ) manifold at the system LN2 inlet.
9.5	Cryovent	System shall be capable of bypassing the gaseous LN2 so that pure liquid LN2 is fed to the chamber for proper cooling.
9.6	LN2 Supply Piping	SS Vacuum Jacketed flangeless piping of approximately 20 m long with necessary couplers and clamps shall be supplied.
9.7	LN2 leakage minimization/elimination	It shall be leak proof at the tank and piping level.
9.8	Removal of gas from the pipeline	Facility to remove gas if any from the pipeline and to ensure LN2 in liquid form is available to the system.
9.9	LN2 pressure	LN2 pressure to be maintained at 50 PSI in the LN2 tank and LN2 pipeline (Desirable).
9.10	System Exhaust	Exhaust Vent Hose with thermal insulation to prevent free moisture condensation of 15,000 mm length to be supplied.
9.11	GN2 Supply	LN2 storage system shall be designed with vaporizer to deliver GN2 with flow rate of 100 CFM at 80 PSI for drying the HALT/HASS chamber. The supplier shall provide detailed information of GN2 supply process, pipeline drawing drawn from the LN2 storage system.
9.12	Flow Meter	A GN2 Flow Meter with adjustment to be provided.
9.13	CCoE Certificate	Arrangement for CCoE Certificate for LN2 Storage and use of GN2.
9.14	PESO Approval	Supplier shall be responsible for obtaining PESO approval. ECIL will provide necessary documentation for approval process.

Sl. No.	Description	Requirements
10.0	INSTALLATION / COMMISSIONING / FOUNDATION	
10.1	Installation and Commissioning	<p>Complete Installation and Commissioning of HALT & HASS Chamber with all the accessories and integration of the chamber with following subsystems:</p> <p>a) Liquid Nitrogen Tank and Piping.</p> <p>b) Air Compressor</p> <p>c) Oxygen Monitoring System interlock with LN2 inlet valve for shutting down in case of emergency, and any other relevant interlock with all necessary piping</p> <p>d) Power cabling.</p>
10.2	Test Run	<p>Chamber performance with extreme operating conditions and various sequences to be proved after installation and commissioning of chamber and other accessories including Liquid Nitrogen Storage and Piping, Compressed Air Supply system and all safety system at site.</p> <p>All the factory acceptance tests shall be run and proved at ECIL site.</p>
10.3	Liquid Nitrogen for Test Run	Supplier shall provide 3,000 liters of Liquid Nitrogen gas to perform test run during installation and commissioning.

GENERAL REQUIREMENTS:

- Supplier shall supply, install, commission the HALT & HASS Chamber with all the accessories. The Chamber shall be integrated with Liquid Nitrogen Tank, necessary Piping, Compressed Air, Oxygen Monitoring System interlock with LN2 inlet valve for shutting down in case of emergency, and any other relevant interlocks with all necessary piping and cabling at ECIL, Hyderabad and shall conduct Acceptance Tests as per Factory Acceptance Test (FAT) document.
- Supplier to provide Foundation / Installation details / Drawings two months in advance for site preparation.
- 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 to be provided.
- Spare Parts List with ordering information shall be provided.
- Essential spare required for trouble-free operation of the chamber for three years shall be quoted optionally with item wise price breakup.
- Three years comprehensive (parts & service) onsite warranty shall be provided for all the items 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.
- The LN2 Plant, Air Compressor, Chiller, UPS, PC, Camera and Printer shall be supplied from a reputed Indian source and are to be quoted in Indian Rupees. A separate purchase order will be placed for the items supplied from local sources.
- 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 HALT & HASS 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 HALT & HASS Chamber and the auxiliary systems shall be installed, commissioned and demonstrated at ECIL, Hyderabad by supplier.
13. Bidder shall have successfully supplied, installed & commissioned at least one HALT & HASS Chamber with the same or better specifications during the past three years to Indian customers and shall furnish satisfactory commissioning certificates, performance letters, purchase order copies, certificates from the customers who are using those systems. Supplier to furnish these documents along with the technical bid, failing which the technical bid would be invalid.
14. List of your customers in India or abroad using similar or higher capacity systems (with detailed specifications) and their addresses with telephone numbers, 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 training for a week to our Engineers, free of cost on HALT & HASS Chamber Operation, Maintenance, Calibration, HALT profile generation, HALT profile selection and testing 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 HALT & HASS 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 HALT & HASS Chamber.
20. **Utility requirements:** Bidder(s) shall provide details of the utilities, like power requirements, place requirements etc required for the operation of the HALT & HASS 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 supplier shall quote for any other items including consumables, if any required for operation of the HALT & HASS 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 Material
 - 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 Material
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 10,00,000/- (Rupees Ten 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 six 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.
