



सीएसआईआर-केंद्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान
CSIR- CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE
मैसूरु / MYSURU-570 020, भारत / INDIA
(Constituent Laboratory of CSIR, New Delhi (Ministry of Science & Technology)
An ISO 9001:2008, ISO 14001:2004 & ISO 17025:2005, NABL
Accredited Laboratory



सं. /No. CFTRI /74167/2018

दिनांक / Date: 11th June 2019

निविदा आमंत्रण सूचना
NOTICE INVITING TENDER

क्रम सं. Sl. No.	निविदा संदर्भ Tender Reference	विवरण / Description
1	A3/74167/2019	Walk-in Environmental Chamber Fully Automatic System for heating, cooling, humidification – 1 No.

1. Director, CSIR-CFTRI, Mysuru invites tenders for supply, installation and satisfactory commissioning of Walk-in Environmental Chamber Fully Automatic System for heating, cooling, humidification – 1 No.
2. Last date for submission of Tender is 2.00 P.M. (IST) on 01/July/2019 on line in etender.gov.in.
3. Bid Security(EMD) NIL
4. Technical Bid Opening on line in etender portal at 2.30P.M (IST) on 02/July/2019

हस्ता./Sd/-

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CRITICAL DATE SHEET

Sl. No	Stage	Date & Time
1.	Issue Date & Time	12/June/2019 @ 17.30PM
2.	Last Date & time for receipt of queries	19/June/2019 @17.30PM
3.	Bid Submission Start Date & time	20/June/2019 @10.00AM
4.	Bid Submission End Date & Time	01/July/2019 @ 14.00PM
5.	Bid Opening (Technical) Date & Time	02/July/2019 @ 14.30PM

Specification and Allied Technical details

A3/74167/2019-20

SPECIFICATIONS FOR Environmental chamber fully automatic system for heating, cooling, humidification.

Walk-in chamber type Fully automatic system with heating, cooling, Humidification and temperature sensor.

Inner chamber dimensions

10 ft (W) X 10 ft (D) X 10 ft (H). (Floor RCC or Epoxy)

Temperature range

Ambient to +100° C.

Temperature accuracy +/- 1.0° C.

Temperature Uniformity +/- 1.0° C.

Humidity range

70.0% RH to 90.0% RH.

Humidity accuracy +/- 3.0% RH. with 0.1 % display resolution.

Insulation

125 mm high density PUF insulation to avoid the atmospheric water vapor condensation on the exterior of the unit and non – hygroscopic nature.

Body temperature will be maintained in between 20.0° C to 35.0° C. in extreme low & high temperature conditions.

Chamber interior

304 grade stainless steel with completely joint proof finish. No joints and sharp edges inside workspace. The entire joint should be leak proof to prevent air & water leakage with extra reinforcement for the strength and stability.

Laminar airflow provided with suitable capacity of fan motor and impeller for uniform distribution of temperature and humidity to maintain within specified limits.

Body temperature should be maintained in between 20.0° C to 35.0° C. in extreme low & high temperature conditions.

Chamber interior

304 grade stainless steel with completely joint proof finish with No joints and sharp edges inside workspace. All the joint should be leak proof for prevent air & water leakage. Extra reinforcement for the strength and stability.

Laminar airflow should be provided with suitable capacity of fan motor and impeller for uniform distribution of temperature and humidity within specified limits.

Chamber exterior

GI sheet with electrostatic powder coating finish.

CNC based made outer body with fine finishing joints without any projection of fixtures.

All Hinges & door locks are stainless steel finish.

Airflow system

Laminar airflow should be provided with suitable capacity of fan motor and impeller for uniform distribution of temperature and humidity to maintain within specified limits.

Continuous duty fan motors should be used with a SS single shaft. The conditioning plenum should be covered with a removable ducting sheet providing easy access for

maintenance. The entire conditioned air should circulate into the workspace to maintain uniform distribution of temperature.

Cooling system (Refrigeration)

Air cooled condenser with single stage refrigeration system should be provided with ozone friendly non CFC free (R-404) refrigerant. Semi/Sealed compressor should be provided for low temperature. Compressor should be mounted with vibration free bushes. All the copper lines should be made with vibration free eliminators. The evaporator coil should be in grooved type, 4FPI and anti corrosive fins provided for using in high humidity conditions. The entire refrigeration system should be provided with adequate safety protection against excessive and high/ low pressure cut-off switch configured with compressor power supply to prevent the damages. Pressure gauges should be provided to read the standby & running pressure. The refrigeration system should be designed to operate in well balanced refrigerant and using of automatic solenoid valve to maintain the work space temperature as well as compressor suction return cooling to maintain suction head temperature.

Humidification system

The humidification system should be of steam humidifier with Low-pressure moisture generator in built with chamber construction. The steam generation should be very fine mist circulating throughout the work space and should be condensed free vaporization to achieve maximum RH limit. And should not decrease due to power fluctuation during the operation. The reservoir tank should be made of SS 304 with Automatic float valve to maintain the appropriate level of water for continuous water supply to the humidification tank. Water inlet should be provided to connect the water from available source. DM water is recommended to connect this system to avoid the scale formation on the heater in long operations. Externally mounted and easily removable provision should be made to remove & replace the wet without dismantling of moisture generator.

De-humidification system

De-Humidification system should be provided to avoid the condensation forming on test specimen as well as control the lower relative humidity. The desired level of lower humidity should be achieved by maintaining the precise dew point temperature. The output should be automatically activated based on the set point as well as in ramp up mode after a low temperature cycle.

Control instrumentation

Single set point microprocessor PID controller with digital display for set & process value.

Temperature Sensor

The temperature reading accuracy will be +/- 1.0° C in range between ambient to +50.0° C. Relative humidity sensor should be provided to transmit the humidity for direct RH% reading on the screen or on the digital controller. The Humidity sensor reading accuracy should be +/- 3.0% RH in range between 70.0% RH to 90.0% RH.

Door & Silicon Gasket

Robust type chrome finished heavy duty hinges fitted on the right hand side of the chamber with full front opening single door. Specially designed silicon gasket on chamber and on the door to fit and joint properly interlock inner and outer chamber should be provided. To close the door suitable size of air tight locking arrangements should be provided. Both double lined gaskets provided without any corner joints should be provided. Door size will be specified.

Viewing window & Lamp

The multi pane (300mm x 300mm) window consisting toughened clear glasses sealed

with silicone and separated by spacers to form a completely vacuum windows for Both the doors. Defogger heaters should be provided with an control to activate in cold & humidity conditions. Suitable lighting should be provided inside the chamber.

Electrical control Panel

Suitable capacity of Mains power incoming MCB (Hager), Emergency STOP switch on main panel, 3 Phase power status indicators & Heating, Window heater & Lamp ON/OFF switches (L&T) Heating indicators for functioning status (Teknic). Single phase preventer, Over temperature fault status indicators. In addition to at rear side Secondary Safety digital temperature controller should be provided with High temperature Hooter.

Electrical Components

- a)** Single Phase Preventer (SPP) to prevent form single phasing, high and low voltage control, variable set for minimum and maximum output phase sequence to protect form reverse directions of fan motors.
- b)** MNX18 / 25/4 pole contactors with 240 V AC coil voltage (L&T). Contactors are used for fan motor, & heater main circuit.
- c)** MPCB (ABB or Siemens) 3 pole with NO/NC connectors (Fault/Trip). Used for over load protection and short circuit trip.
- d)** Solid-state Relays (ERI) for Dry heater.
- e)** Individual MCB's for main circuit.
- f)** SMPS & Isolation Transformer for DC supply & Controller supply.
- g)** 24V DC Mechanical relays for PID control outputs (Paramount)

Safety Features

- a. High temperature digital safety controller provided with audio Warning signal for the protection of the specimen.
- b. High / low voltage cutoff single phase preventer provided.
- c. Over load relay provided for chamber Motor (3phase protection)
- d. Miniature circuit breakers provided for Heating system.

Power supply 415 V AC, 50 Hz, 3 phase.

PANELS DESIGN:

01. Walk-in chamber should be constructed of prefabricated, modular panels. Designed for easy and accurate field assembly, future enlargement by addition of panels of quick dismantling and relocation to an alternate site if desired.

02. Walls/Corners constructed of 125 mm thick high density. The panel shall interlock together by cam locking along with joints with RTV silicon & cam lock covers.

03. Entrance door are constructed similar to the other panels and are usually Flush mount type Panel door with formed lock, emergency opening, reflects sticker & Cam lift hinges should be provided for easy opening of the door.

INSTRUCTIONS TO BIDDERS

1. The Instructions, Terms & Conditions, General Conditions of Contract (GCC), Special Conditions of Contract (SCC), Annexures and Formats hosted in our website www.cftri.com [Path: Home page → Tenders → Standard Tender Document (Scrolling Text)] constitutes integral part of this tender.
2. Bidders should submit their financial bid in the format provided (Bill of Quantity) and same has to be uploaded in the above etender.gov.in. It is mandatory for all the bidders to upload BOQ Format towards submission of their Financial Bid. No changes or modification to the given format is acceptable. Bidders are required to go through the instructions carefully before filling the BOQ.
3. Bid Security (EMD) is not applicable for this tender.
4. Performance Security is not applicable for this tender.
5. Integrity Pact is not applicable for this tender.
6. **Warranty:** One Year (One Year) from the date of Installation and Commissioning and acceptance.
7. **Delivery Period:** Delivery should be affected within 3-4 weeks from the date of issue of Purchase Order.
8. **Terms of Payment:** The method and conditions of payment to be made to the supplier under this Contract shall be as follows:

A. Payment for Goods supplied from Abroad:

Payment of foreign currency portion shall be made in () [currency of the Contract Price] in the following manner:

On Shipment: 100 % (Hundred Percent) of the Contract Price of the Goods shipped shall be paid through Cash Against Documents/Wire Transfer/Irrevocable letter of opened in favor of the Supplier upon submission of documents specified in the GCC/SCC.

The L/C will be confirmed at the suppliers cost, if requested specifically by the supplier. All bank charges abroad shall be to the account of the beneficiary i.e. supplier and all bank charges in India shall be to the account of the opener i.e. purchaser. If L/C is requested to be extended/reinstated for reasons not attributable to the purchaser, the charges thereof would be to the suppliers' account. Payment of local currency portion shall be made in Indian Rupees within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed. The LC for 100% value of the contract shall be established after deducting the agency commission payable if any, to the Indian agent from the FOB/FCA value.

B. Payment for Goods and Services supplied from India:

Payment for Goods and Services supplied from within India shall be made in Indian Rupees, [INR] as follows:

On Delivery, Installation, training and Acceptance: 100 % (Hundred Percent) of the Contract Price shall be paid on receipt of the Goods, upon submission of the documents specified in GCC/SCC and the acceptance certificate issued by the Purchaser.

