CPRI

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Section II -Technical Specification

Tender Enquery No : PUR/EVRC-02/15-16

Name of the Equipment: TEMPERATURE AND HUMIDITY CHAMBER (A)VOLUME - 250 LITERS (B) 800 LITRES

Note :The Offers should be submitted only in this format otherwise the offer will be liable for rejection

A detailed technical catalogue/literature/phamplet and any other technical details shall be sent in hard copy in a sealed cover superscribing enquiry number and due date so as to reach the following address with the due date and time. This is very much essential to evaluate your offer.

Name of the Vendor	
Offer Number and Date	

(A) SPECIFICATIONS FOR TEMPERATURE AND HUMIDITY CHAMBER (VOLUME - 250 LITERS)

Sl.No	Parameters	CPRI Specification/Requirements	Qnty	To be completed by the Bidder	
				Guaranteed Technical Particulars (GTP)	Deviation/Remarks Specify if any
1	General requirement	1. All calibrations and dial markings shall be in SI units.			
		2. Individual components shall be calibrated by manufacturer and system calibration shall be done in the presence of CPRI personnel. Calibration report should be sent along with the equipment.			
		3. Detailed calibration procedures shall be submitted furnishing the equipment required for subsequent calibrations at CPRI.			

		4. Reference / Calibration setup shall have calibration certificates traceable to National / International Standards Laboratory.			
		5. Uncertainty of measurement computed according to the guidelines provided by IEC shall be given.			
		6. Operating & Service manuals of all components (in English) shall be given.			
		7. Traceability / Performance certificates to be enclosed wherever applicable.			
2	Scope	Supply, Installation, Commissioning & Training			
		Place where equipment to be supplied - CPRI Bangalore			
3	Service conditions	The system shall be suitable for operation under the following service conditions:-			
		a. Altitude : 921 meters above MSL			
		b. Ambient Temperature : Minimum 0ºC			
		Maximum 45º C			
		Average 30º C			
		c. Atmospheric condition : Normal			
		d. Relative Humidity : Minimum 10 %			
		Maximum 95 %			
		e. Installation : Indoor			

4	Standards : Temperature and humidity chamber	The design, manufacture and supply of the temperature and humidity chamber, all components and sub-assemblies shall confirm to the relevant international standards / specifications in practice. Such standards / specifications shall mean the latest revisions with amendments / changes as adopted and published by the respective agencies.			
		The chamber shall confirm to following standards:			
		1. IEC 60068-3-5			
		2. IS 9000			
5	Standards : Specimen under test	The system shall be capable of performing the temperature and humidity tests as per the following standards:			
		1. IEC 60068 - 2 - 30, Ed.3, 2005, Environmental testing-Part 2-30:, Tests: Test Db: Damp heat, cyclic			
		2. IEC 60068 - 2 - 78, Ed.2, 2012, Environmental testing-Part 2-78:, Tests: Test Cab: Damp heat, steady state			
		3. IEC 60068 - 2 - 1, Ed.6, 2007, Environmental testing-Part 2-1:, Tests: Test A: Cold			
		4. IEC 60068 - 2 - 2, Ed.5, 2007, Environmental testing-Part 2-2:, Tests: Test B: Dry heat			
		5. IEC 60068 - 2 - 14, Ed.6, 2009, Environmental testing-Part 2-14:, Tests: Test N: Change of temperature			
		6. IS 9000 Part II Sec. 1 to 4, 1977, Basic environmental testing procedures for electronic & electrical items, Part 2:Cold test			

		7. IS 9000 Part III Sec. 1 to 5, 1977, Basic environmental testing procedures for electronic & electrical items, Part 3: Dry heat test			
		8. IS 9000 Part IV, 2008, Basic environmental testing procedures for electronic & electrical items, Part 4: Damp heat, steady state			
		9. IS 9000 Part V Sec. 1 & 2, 1981, Basic environmental testing procedures for electronic & electrical items, Part 5: Damp heat, cyclic test			
		10. IS 9000 Part VI, 1978, Basic environmental testing procedures for electronic & electrical items, Part 6: Composite temperature/humidity cyclic test			
6	Test chamber volume	250 Liters (minimum)			
7	Specimen	50 kg (steel or aluminium) minimum			
8	Temperature test (without humidity)				
	a. Temperature range	-70 ^{o}C to +180 ^{o}C or better			
	b. Temperature constancy	better than ±0.5 ^{o}C			
	c. Rate of change of temperature without specimen in chamber	25 ^{o}C /min (average) from -70 ^{o}C to +180 ^{o}C (adjustable from 0 ^{o}C to 20 ^{0}C) or higher			
		25 ^{o}C /min (average) from +180 ^{o}C to -70 ^{o}C (adjustable from 0 ^{o}C to 20 ^{0}C) or higher			
9	Temperature and humidity test				

	a. Temperature range	+10 ^{o}C to +95 ^{o}C or better			
	b. Temperature constancy	better than ±0.5 ^{o}C			
	c. Relative humidity range	10% to 98% RH			
	d. Dew point temperature	0 ^{o}C to + 94 ^{o}C or better			
	e. Humidity accuracy	± 3% RH or better			
10	Test Chamber	The test chamber shall be of corrosion resistant stainless steel with arrangement to accommodate shelves with a distance of 60mm.			
		Suitable lamps shall be provided in the test chamber			
11	Test chamber door	The test chamber shall be completely sealed by a door (the adjustable door locking mechanism) that is hinged on the left and opens fully for easy access. It shall be made of corrosion resistant stainless steel plate and equipped with high quality insulation.			
		Door shall have view window approx. 400 x 600 mm with window heater or wiper.			
12	Port holes	Port holes shall be provided on both side of chamber. The cabinet shall have two access ports of low thermal conductivity material. If not required, these ports shall be closed internally and externally with rubber plugs supplied as standard.			
13	Exterior Housing	Zinc plated sheet metal with resistant powder coating			

14	Temperature Conditioning	Cooling shall be achieved by means of a heat exchanger installed in the recirculated air duct of the test chamber. Heating shall be achieved by electric heaters. The fan shall ensure continuous intensive air circulation as well as uniform air distribution and temperature conditioning. The heat exchanger shall operate with refrigerant during direct operations. During climate operations the temperature difference in the heat exchanger shall be maintained at a minimum by a special temperature conditioning system and shall prevent condensation from forming. Refrigerents shall be environmental friendly (R404 A and R23)			
15	Climatisation	The humidity in the test chamber shall be adjusted by a temperature conditioned water bath in the recirculating air duct through which the recirculated air is passed. According to demand the recirculated air shall be either humidified or dehumidified by the water bath. Heating and cooling of the water bath shall be achieved by a heating or cooling element. There shall not be any sweating on the chamber wall when chamber is operated.			
16	Humidification water	Fully demineralized water with resistivity not less than 500 ohm-m			
		Chamber shall have demineraliser capable of suppling fully demineralized water with resistivity not less than 500 ohm-m and integrated demineralized water supply tank of suitable capacity with automatic water replenishment with an alarm at water shortage for low water level indication			

17	Protection System against Condensation	The protection system shall have a dehumidifying evaporator which prevents condensation forming on the specimens as they heat-up after tests at low temperatures.			
		Condensed water shall be continuously drained from the chamber and shall not be used			
18	Condenser cooling	Water cooled			
		Necessary cooling water plant with adequate capacity with connections shall be supplied along with the chamber			
19	Control and monitoring sy	Microprocessor based temperature and humidity control and monitoring system shall be provided and shall have the following special features.			
		i. Provision for interface with computer			
		ii. Password protection shall be provided in the control system			
		iii. Graphical representation of set point and actual values			
		iv. Digital display of set point and actual values of temperature and humidity			
		v. Digital input of temperature and humidity in manual and automatic operation			
		vi. Program editor for creation of set point programs for temperature and relative humidity and control of the digital switch channels.			
		vii. Fault and diagonostic system			
20	Control system interface	Four digital outputs for switching of equipments via potential free contacts			

		Four digital inputs for feedback from equipments			
		USB for external saving of data			
		Ethernet 100/100 megabit for integration into network			
21	Input Power Supply	415 V AC ± 15% ; 3 PH ; 50 Hz ±3% as per Indian standards			
22	Noise	less than 76 dB(A) at 1 m distance approximatly in non reverberating ambient			
23	Ingress protection	IP 32 for the switch cabinet			

24	Additional Safety Devices	Specimen Protection : The climate test cabinet shall be equipped with a high and low temperature limit controller which can be adjusted digitally. Specimen protection shall be with separate sensor. The signal shall be indicated visually and acoustically. A potential free contact to give an external alarm and to switch off power supplies available to the customer.			
		A steady state overheating safety thermostat shall be installed that automatically switches off the heater if the test chamber's maximum temperature range is exceeded.			
		The water bath of the Climate test cabinet shall be protected against overheating			
25	Power Supply	Each functional circuit is required with its own safety device which in the event of trouble turns off the affected circuit or the entire cabinet. The nature of the trouble is visually displayed.			
		Wiring and electrics are governed by the latest technology and strictly confirm to safety regulations for electrical installations and materials.			
26	Vendor's Responsibility	The Vendor shall be responsible for the following items:			
		Design, manufacture, supply, installation, commissioning and imparting training on operation and maintenance			

		Vendor shall arrange for presentation of the system offered for CPRI and demonstration of similar system anywhere in India, at the time of evaluation.			
27	Vendor Experience	Bidder should be in this line for a minimum period of 5 years. Bidder should have supplied at least 5 similar systems or systems with higher configuration			
		Name, Address, Telephone number, Fax number, Contact person/s of the Organization where a similar system supplied, shall be indicated			

		Bidder may provide details of sales done in the past 3 years with customer data, P.O.Nos & Date			
28	Warranty	One year from the date of satisfactory commissioning			
29	Power consumption	Power consumption in kW shall be indicated			
(B) SPECIFICATIONS FOR TEMPERATURE AND HUMIDITY CHAMBER (VOLUME - 800 LITERS)					
1	General requirement	1. All calibrations and dial markings shall be in SI units.			
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		10. IS 9000 Part VI, 1978, Basic environmental testing procedures for electronic & electrical items, Part 6: Composite temperature/humidity cyclic test			
6	Test chamber volume	800 Liters (minimum)			
7	Specimen	100 kg (steel or aluminium) minimum			
8	Temperature test (without humidity)				
	a. Temperature range	-75 ^{o}C to +180 ^{o}C or better			
	b. Temperature constancy	better than ±0.5 ^{o}C			
	c. Rate of change of temperature without specimen in chamber	20 ^{o}C /min (average) from -75 ^{o}C to +180 ^{o}C (adjustable from 0 ^{o}C to 20 ^{0}C) or higher			
		20 ^{o}C /min (average) from +180 ^{o}C to -75 ^{o}C (adjustable from 0 ^{o}C to 20 ^{0}C) or higher			
9	Temperature and humidity test				
	a. Temperature range	+10 ^{o}C to +95 ^{o}C			
	b. Temperature constancy	better than ±0.5 ^{o}C			
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	d. Dew point temperature	0 ^{o}C to +94 ^{o}C			
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28	Warranty	One year from the date of satisfactory commissioning			
29	Power consumption	Power consumption in kW shall be indicated			

Note : Compliance to meeting all of the above technical specification requirement should be furnished in detail against each serial number in GTP column
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enquiry number and due date so as to reach the following address within the due date and time. This is very much essential to evaluate your offer.
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The Joint Director (Purchase)
Central Power Research Institute,
Post Box No.8066
Prof.Sir C.V.Raman Road, Sadashivanagar Post Office,
BANGALORE-560 080. INDIA
Ph. No.080-23602919 / 23602829
Fax : 080-23604446