

**Technical Specifications of Climatic Test chamber – 1 no.****Bidder Eligibility Condition:**

1. The bidder/OEM should have supplied at least 5 similar items within India (Government / Private organization) or abroad in the last 5 years, PO copies or installation certificates along with contact details of the end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation.
2. OEM should have authorized service center in India, functioning minimum of 10 years to provide repair, maintenance, calibration and upgradation facility (OEM should provide necessary service of operation certificate).
3. The Bidder's firm should be registered in India. (Necessary document proof should be submitted).

<b>S. no</b>	<b>System Parameters</b>	<b>Specification</b>	<b>Complied/ Not Complied</b>	<b>Reference Page no</b>
1	Test Space Volume	≥ 950 Liters to 1100 Liters		
	Test Space Dimension	Width: ≥ 1100 mm to 1200 mm		
		Depth: ≥ 950 mm to 1000 mm		
		Height: ≥ 900 mm to 1000 mm		
	Test Temperature range	-40 °C to +150 °C		
	Climatic Mode	+15 °C to +95 °C		
	Humidity range	15 % RH to 98% RH		
	Dew point temperature range	-3°C to +94°C		
	Temperature vs humidity graph also to of part of standard technical document			
The chamber should be movable in design and to be provided with Castor wheels along with fixed legs for firm positioning.				
2	Temperature Range	-40 °C to +150 °C		
	Temperature Deviation	±0.1 K to ±0.5 K (in time) (at center of usable space)		
		±0.5 K to ±2.0 K (in space)		
	Temperature Uniformity			
Heating Up Rate (Average Rate) as per IEC 60068-3-5	Minimum 4.0 K/minute			

	Cooling Down Rate (Average Rate) as per IEC 60068-3-5	Minimum 2.5 K/minute		
	Time taken to heat from - 40°C to +150°C.	< 90 min		
	Time taken to cool from +20°C to -40°C.	<90 min		
	Calibrated values	±2°C @ +25 °C to +80+25 °C		
	Heat compensation	>500W at -20°C >2500W at +20°C		
3	Humidity operating temperature range	+15 °C to +95 °C		
	Humidity range	15 % RH to 98% RH		
	Dew point temperature range	< -3 °C to >+90 °C		
	Temperature Deviation	±0.1°C to ±0.5°C (in time, steady state)		
	Temperature homogeneity	±0.5 °C to ±2.0 °C (in space)		
	Humidity Deviation	±1 % RH to ±3 % RH or better (in time) -3 % RH to +2 % RH or better (in Space)		
	Calibrated values	+23 °C 50 % RH +95 °C 50 % RH		
	Humidity water consumption	Less than 2liter /24 hours, stable at 40°C, 92%RH		
	Heat compensation (during climate test)	≥400 W		
4	Chamber Design			
	Chamber footprint	Width: < 1450 mm Depth: ≤ 2000 mm Height: ≤2200 mm		
	Test space loading	Minimum 50 kg (per shelf) Minimum 100 kg (total all shelves) Minimum 150 kg on chamber Minimum 250 kg (total)		
	Max. number of Shelves in test space	>5		
	Access ports	Minimum 2 ports ≥50 mm minimum diameter left-hand side ≥125 mm minimum diameter on right-hand side 1 silicone plug closed		

		1 slotted plug made of foamed silicone.		
	Observation window with internal heaters	≥310 mm (width), ≥420 mm (height), window shall be provided with heaters to avoid condensation formation on windows.		
		1 no, single-hand operation, lockable door,		
	Chamber Door (for test space)	Lock on right hand side of chamber mandatory to meet building installation requirement.		
5	Test Chamber Exterior Construction	Corrosion-resistant, Galvanized sheet-steel		
6	Control and Programming			
	Program memory programs	max. 100		
	PID controller	Program controllers start parameters for programs: immediately, delayed, real time, pause.		
	Segments	special control algorithms defined according to test tasks.		
	Loops	max. 100		
	Program cycles	250 (nested)		
	Password protection	Yes		
	Limit value monitoring system	max. 9999		
	Diagnostic system	two levels, to prevent accidental settings.		
	TCP/IP Ethernet interface connection to building control.	for temperature and humidity for information on operating times and possible operating failures for communication via software package		
7	Control System	*Digital 32 Bit measuring and control system		
		* 7" Colour Touch Panel		
		*The display should provide information on the set and actual values of temperature and relative humidity in graphical form and numerical form.		
		* Built-in Error diagnostic System to know about information on operating		

		times and possible operating failures		
		* USB and Ethernet Interface		
8	Protection System against Condensation	The protection system's operating range is -40 to +60 °C.		
9	Stainless steel Entry Ports	1 pc. Approx. 125 mmÆ, right side wall		
		1 pc. approx. 50 mm Æ, left side wall		
		each port incl.		
		1 silicone plugs closed		
		1 slotted plug made of foamed silicone		
10	Observation Window	Observation Window with Size: 320 mm (W) X 430 mm (H) should be provided with internal heaters to avoid condensation formation on the Window		
11	Interfaces	Minimum 1 no, Ethernet interface		
		Minimum 1 no. USB interface for direct documentation of measured data via USB stick		
12	Test Specimen protection	High and Low temperature limit controller which can be adjusted digitally (specimen protection with separate sensor) according to EN 60519-2 (1993)		
13	Refrigeration unit	Air-cooled refrigeration unit		
14	Power supply	3/N/PE AC 380/400V ± 10%, 50Hz		
15	Maximum heat dissipation to ambient (installation room)	< 9kW		
16	Average heat dissipation to ambient (installation room)	<5kW		
17	Maximum Power Consumption	Less than 10kW		
18	Sound-pressure level, measured in 1.6 m height under free field conditions at 1 m distance in front of the system	approx. 66 dB(A) or less		
19	Total weight	<900 kg (net)		

20	Calibration Certificate	Calibration Certificate should be provided for calibration values:		
		Temperature test: +23 °C and 80 °C		
		Humidity test: +23 °C / +50% Rh. and +95 °C / 50% Rh.		
21	Software (Optional)	Suitable Data Transfer and analysis software should be provided		
22	Operation Manual	Operation Manual should be provided		
23	Touch Panel	Color touch panel for operation		
24	Certification	Chambers should be certified and meet the relevant quality and safety standards.		
23	Sub-components	All the necessary sub-components / accessories including compressor, coolant storage etc should fit within Chamber footprint		
24	Warranty	3 years minimum		

**(Note: It is mandatory for the bidders to provide the compliance statement (comply/not comply) for the Above points with document proof as required).If the compliance statement (comply/Not comply) is not furnished for the evaluation. Bidders will be disqualified.**