



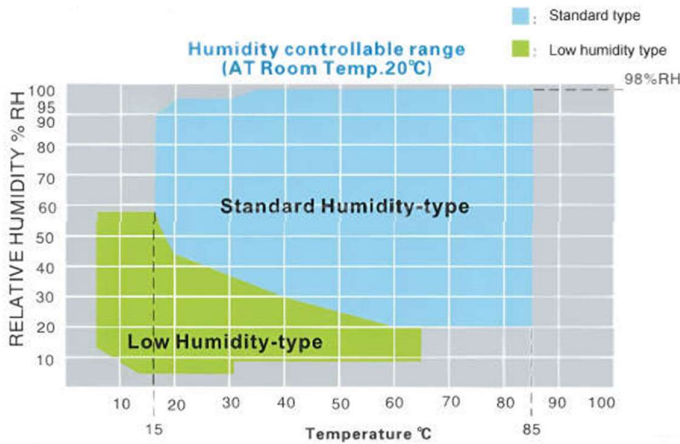
Climatic test chamber

1. Name	Climatic test chamber
2. Application scope	This product is according to user requirements, consult with GB2423 [1]. 02 high temperature test method, GB2423 [1]. 01 low temperature test method, GB2423 [1]. 03 constant humidity heat test method, GB2423 [1]. 04 alternating hot and humidity test method for the corresponding technical conditions for manufacturing. Mainly for the aerospace, aviation, petroleum, chemical, military, automobile(motorcycle), shipbuilding, electronics, communications and other scientific research and production units to provide temperature and humidity change environment, for users to do the temperature and humidity test of the machine (or parts), electric appliances, instruments, materials, in order to review the sample adaptability and evaluate the sample behavior.
3. Limit sample	Test equipment prohibit: Inflammable, explosive, easy to volatile substances sample Corrosive substance sample Biological sample Strong electromagnetic emission source sample Radioactive material sample Poisonous material sample In the process of test or store may produce flammable, explosive, volatile, poisonous, corrosive and radioactive material sample
4. Volume, size and weight	
4.1. Model	OLSC-116E-12
4.2. Volume	150L
4.3. Inner box size	W500×D500×H600 mm
4.4. Machine size	W780×D1510×H1600 mm (packingsize:W890×D1630×H1860 mm)
4.6. Weight	About 430KG (packing weight is about 480KG)
4.7. Sample shelves	2 pieces
5. Performance	
5.1. Test environment conditions	Environment temperature +25°C, relative humidity≤85%, under the condition of no sample in the chamber
5.2. Temperature range	-70 °C ~ +180 °C (adjustable)
5.3. Control precision	Temperature: ±0.2°C Humidity: ±2.5%R.H

DATA SHEET

CLIMATIC TEST CHAMBER



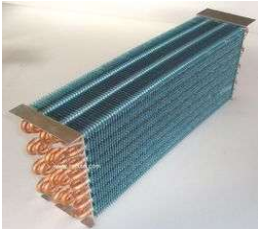
5.4. Temperature fluctuation	$\leq \pm 0.5^{\circ}\text{C}$
5.5. Temperature uniformity	$\leq \pm 2.0^{\circ}\text{C}$
5.6. Heating rate	$1 \sim 3^{\circ}\text{C}/\text{min}$ (nonlinear and no-load)
5.7. Cooling rate	$0.7 \sim 1^{\circ}\text{C}/\text{min}$ (nonlinear and no-load)
5.8. Humidity range	20% ~ 98%RH (adjustable) Optional
5.9. Humidity fluctuation	$\pm 2.0\%\text{R.H.}$
5.10. Humidity uniformity	$\pm 3.0\%\text{RH}$ (when humidity > 75%RH); $\pm 5.0\%\text{RH}$ (when humidity $\leq 75\%\text{RH}$)
5.11. The technical scheme is as follows :	 (prolonged humidity testing at temperatures between 20 and 40 °C will cause the evaporator to freeze! If the customer often makes low humidity temperature point, please explain in advance before ordering.)
5.12. Working noise	$\leq 70\text{dB}$ (In the environmental temperature 25 °C, the less echo inside the soundproof room; the average value of 8 points tested by A,; each test point away from the noise source 1 meter, height from the ground 1 meter) no vibration.
5.13. Meet the test method	GB/T2423.1-2008(IEC60068-2-1:2007) low temperature test method Ab GB/T2423.2-2008(IEC60068-2-2:2007) high temperature test method Bb GJB150.4-1986 low temperature test GJB150.3-1986 high temperature test GB/T2423.3-2006(IEC60068-2-78:2007) constant humidity hot test method Cab

	GB/T2423.4-2008(IEC60068-2-30:2005) alternating hot and humidity test method Db GJB150.9-1986 hot and humidity test (Per cubic meter the load is not more than 35 kg/m³ steel heat capacity, no humidity and hot load when hot and humidity test)
6. Structure characteristics	
6.1. Inner& Outer box structure	1.Outer material: high-quality cold-rolled steel plate with electrostatic plastic spraying 2. Interior Walls: <i>High-grade, high-gloss polished Stainless Steel V2A, Grade 1.4301 or equivalent with rounded edges and embossed shelf support.</i> 
6.2. Thermal insulation layer	100 mm thick rigid polyurethane foam (PUF), asbestos-free 
6.3. Test chamber standard configuration	1. Observation window: heat and sweat prevention 3-layer large vacuum glass observation window (on the door)  • Multi-pane anti-condensation glass viewing window (minimum 230 × 230 mm) integrated into the chamber door for clear observation of the test specimen without opening the chamber. • Hermetically sealed viewing window with anti-condensation protection to prevent moisture formation and ensure leak-free operation.

	2. Two Two Ø125 mm port holes on the left and right side walls with removable silicone plugs.  3. Explosion-proof energy-saving lamp: 1 set 4. Mobile casters: 4 5. Fixed foot cup: 4 (height adjustable) 6. Two height-adjustable, removable stainless steel shelves with embossed shelf supports for flexible and corrosion-resistant specimen placement. 7. Minimum load capacity of 20 kg per shelf, 30 kg on the chamber floor, and 100 kg total chamber loading capacity for reliable testing of heavy specimens 8. Test humidity cloth: 1 package
6.4. Door	Lockable, left-hinged front door with a single latch for easy one-hand operation.
6.5. Control panel	1. 7-inch or larger color multi-touch HMI controller with graphical display of set/actual temperature, digital temperature indication (°C), and automatic/manual operation. 2. Fully programmable microprocessor-based controller with storage for 99+ programs, temperature cycle programming, cycle start after achieving the set temperature, and automatic power-failure recovery. 3. Built-in Ethernet communication with internal memory, PC connectivity, optional USB/RS-232 interface, dedicated software support, real-time monitoring, graphical temperature-time recording, automatic data logging, graph storage, event/alarm history, and print facility. 4. Integrated fault diagnosis system with visual and audible alarms, adjustable high/low temperature safety cut-outs, independent software temperature limiter, and factory-set cabinet protection.

	5. Controller with networking capability and IoT-ready architecture for remote monitoring, centralized communication, and predictive maintenance support for compressors and heaters. 
6.6. Heater	1. 1.5 kW nickel-chromium alloy heating wire heater with non-contact Pulse Width Modulation (PWM) control using a Solid State Relay (SSR) for precise and reliable heating. 2. High-performance heating system capable of achieving a heating rate of $\geq 6^{\circ}\text{C}/\text{min}$, with heaters located behind/below the false sheet and outside the working chamber for uniform temperature distribution. 3. Integrated with adjustable high/low temperature safety cut-outs, independent software temperature limiter, and factory-set cabinet protection. 4. Protected by dedicated MCBs and overload protection, with automatic heater cut-off when the air circulation blower stops.
6.7. Humidifier (Optional) (Applicable only for Temperature & Humidity Chamber models).	1. Outer removable boiler humidifying method 2. Stainless steel humidifier 3. Humidifier control mode: non-contact cycle pulse width modulation, SSR (solid state relay) 4. Water level control device, humidifier prevent dry heating device, sediment collection device, liquid level observation window 5. Humidifier power : 2.5KW

	
6. De-humidification	7. De-humidification while heating shall be provided through an inlet for compressed air connected to a compressed air dryer. 8. Dehumidifying coils shall be located behind the false sheet, outside the working space.
6.8. Waterway	1. Supply water tank 15L, with high and low water level indicator, removable and cleaning 2. Efficient electromagnetic squeeze water pump, can run 5000 H continuously 3. RO film+ activated carbon water filters removable and cleaning 4. High and low temperature double water level electronic liquid level switch, can prevent the disoperation 5. Lack water burn over temperature protection + low water level protection + water supply timeout, to ensure the safe operation of the equipment 6. Return water PP cotton filter, reduce water consumption, filter out return water impurities
7. Air supply temperature measuring system	
7.1. Air supply characteristics	High uniformity upper air outlet and lower air return
7.2. Circulation fan	• Low-noise forced air circulation system with an externally mounted motor ensures uniform temperature distribution throughout the chamber. • Suction-type airflow design minimizes direct air impingement on test specimens, providing accurate and stable testing conditions. • Integrated safety interlock automatically switches off the heaters if the air circulation blower stops.
7.3. Wind turbines	High and low temperature resistance aluminum alloy blade multi - blade centrifugal wind wheel 

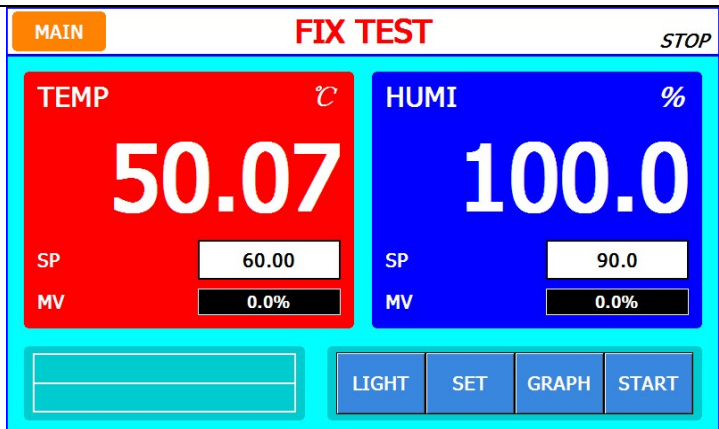
7.4. Temperature sensor	PT100 Platinum resistance temperature sensor 
8. Refrigeration system	
8.1. Cooling way	1. Cascade-type, air-cooled built-in refrigeration system with hermetically sealed refrigeration circuits using environment-friendly, ozone-friendly, and chloride-free refrigerants. 2. Cooling performance capable of achieving a cooling rate of $\geq 5^{\circ}\text{C}/\text{min}$ (as per IEC 60068-3-5) with a maximum heat compensation of 1600 W. 3. Cooling coils located behind/below the false sheet and outside the working chamber, ensuring indirect air circulation and uniform temperature distribution. 4. Air-cooled condenser with low-noise forced air circulation using externally mounted fan motors to maintain uniform temperature without direct airflow on the test specimen. 5. Protected by dedicated MCBs, overload protection, high/low pressure trips, compressor over-temperature protection, and predictive maintenance support (desirable).
8.2. Refrigeration compressor	Hitachi or Sanyo, Japan compressor 
8.3. Evaporator	Efficient multi-stage evaporator with hydrophilic membrane fins (fin thickening) 
8.4. Condenser	Air cooled high efficiency condenser

DATA SHEET

CLIMATIC TEST CHAMBER



	
8.5. Throttle device	Expansion valve + capillary 
8.6. Plate heat exchanger	Stainless steel brazed plate heat exchanger 
8.7. Refrigerant	R404A / R23(Dupont, American) 
9. Heating system	
9.1. Heating wire	Higher reliability, longer life

	
Illumination	Energy-efficient LED internal illumination with external ON/OFF control for enhanced visibility and low power consumption. PHILIPS, BHARAT BIJLI, SISKI, WIPRO, CROMPTON & OMEGA. 
10. Electrical control system	
10.1. System controller	 1) Display: 7-inch TFT true color touch thin screen, resolution 800×480 2) Two control modes: program/fixed value 3) Sensor type: two-channel PT100 input (optional electronic sensor input) 4) Output mode: four-channel PID output / 2-channel 4-20MA analog output / 16-channel relay output (passive) 5) Control signal: 8-channel IS control signal / 8-channel T control signal / 4-channel AL control signal 6) Alarm signal: 16 DI external obstacle alarm 7) Temperature measurement range: -90.00°C--200.00°C, (-90.00°C--300.00°C can be customized) error ±0.2°C; 8) Humidity measurement range: 1.0%--100%RH, error ±1%RH 9) Communication interface (RS232/USB, maximum communication distance 1.2km) 10) Interface language: English

	11) A variety of signal combination relay output, the signal can carry out logical operation (NOT,AND,OR,NOR,XOR), referred to as PLC programming ability 12) Diversified relay control modes: parameter -> relay mode, relay -> parameter mode, logic combination mode, composite signal mode. 13) Program editing: can edit 120 groups of programs, each group of programs can edit a maximum of 100 sections 15) With network function, IP address can be set; 16) Remote control instrument
10.2. System software functions	1) Temperature and humidity curve: paperless recording: built-in recording program, memory in the controller can be stored for 24H and run for 300 days. It is convenient to automatically generate temperature and humidity curve files and save them as XLS tables. 2) Perfect interface: external USB port: it can be directly connected to the printer to print local data by line, and the USB port can easily export historical curves and other data by USB disk. External LAN standard network interface: Connects to the local area network (LAN) of the company's PCS without special server configuration. A maximum of 16 devices can be connected and monitored. 3) Real-time monitoring can be done: monitoring the operating status of 1 to 16 controllers at the same time ---- such as monitoring controller real-time data, signal point status, actual output status, etc 4) Timing control: 2 groups of timing output control interfaces, with 10 kinds of time control modes, can provide switching signal output according to program setting requirements, note that only control signal, the test power supply in the box needs to be separately connected with a specially equipped power supply system. 5) Fault display: 16 groups of fault alarm output, Chinese and English humanized prompt fault cause and troubleshooting method. Booking start: All test conditions can be set to booking start operation function
11.Safety protection device	
System protection	1. Independent over-temperature protection for test specimens. 2. No-fuse circuit breaker (NFB) with Earth Leakage Circuit Breaker (ELCB/RCCB) for complete chamber protection. 3. Independent heater over-temperature protection. 4. Compressor overload and over-temperature protection. 5. Compressor high- and low-pressure protection.

DATA SHEET

CLIMATIC TEST CHAMBER



	6. System over-current protection with dedicated MCBs for compressors, heaters, and motors. 7. Self-diagnostic controller with fault detection, visual display, and audible alarm. 8. Independent high/low temperature limiters with adjustable software safety limits and factory-set over-temperature protection for maximum safety of the chamber, test specimens, and heating system.
12. Use condition Ensure the following conditions by the user	
12.1. Environmental condition	1. Temperature: 5°C~35°C 2. Relative humidity: ≤85% 3. Air pressure: 80kPa~106kPa 4. Around equipment without strong vibration
12.2. Power supply condition	• 3/N/PE AC 440 V ±10%, 50 Hz power supply with maximum power consumption of 7.0 kW, complete with power cord and plug. • Integrated electrical control panel with dedicated MCBs, overload and earth leakage protection, and independent safety devices for reliable and safe operation.
12.3. Other	1. Ambient air quality requirements: do not contain high concentration of dust and flammable, explosive gas or dust, and there is no strong electromagnetic radiation source nearby. 2. Articles containing inflammable, explosive or volatile, corrosive gases shall not be placed in the box for testing or storage 3. Sample placement requirements: A) the total mass of the sample shall not exceed 100KG per cubic meter of volume box B) the total volume of the test product shall not be greater than 1/5 of the volume of the box, and the horizontal area of each layer in the box shall not be greater than 2/5 of the sectional area. Otherwise, it may seriously affect the performance of the test chamber or fail to work properly.

For Ocean Life Science Corporation Pvt. Ltd.
[Signature]
Director