Constant Climate Chamber

LAB1ST

CCC Series

Stable Testing Environment For Static Experiments

Labfirst Scientific Instruments (Shanghai) Co., Ltd.

Constant Climate Chamber
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The Constant Climate Chamber, alternatively referred to as a climate cabinet or environmental test chamber, serves as a critical tool for replicating specific environmental parameters, namely temperature and relative humidity. This sophisticated device is utilized to conduct environmental simulation tests, which are designed to predict the behavior of test samples under controlled climatic scenarios. By doing so, these tests play a pivotal role in validating product quality, ensuring stability, and providing insights into the longevity and endurance of the products.

Key Benefits

- **Available Capacities:** 50L, 100L, 150L, 250L, 500L, 800L and 1000L
- **Different temperature control range:** 0°C to 80°C / 0°C to 95°C / customizable
- **Wide humidity control ranges:** 30-95%RH / 20-95%RH / customizable
- **Rapid temperature cycling rate:** 0.5 °C/min for cooling, 1 °C/min for heating
- **Powerful customization capabilities:** various temp. and humidity range, chamber size, material and structure, etc.
- **Stable operation & quality assurance** based on smart PLC control system, ensures reliable and consistent performance.

| 50 L | 250 L | 1000 L |

Features

Fully Customizable Machines with 45-Day Rapid Delivery

LAB1ST chambers offer exceptional flexibility to meet your specific requirements, with guaranteed delivery within 45 days. Customization options include:

Structural Customization

- 316L stainless steel interior chamber
- 304 stainless steel full exterior casing
- Customizable interior dimensions or structural configurations
- Water-cooled compressor system
- Additional or enlarged test ports
- Secure door locking mechanism

Performance Enhancements

- Extended temperature and humidity ranges
- Accelerated temperature change rates
- Introduction and control of additional gases (CO_2/O_2)
- Integrated lighting systems
- Multiple voltage options available (North American or international standards).
- Extended operational lifetime (≥1 year)

When upgraded for extended runtime, this machine will feature a comprehensive 1+1 backup system. This ensures that all critical components, including the compressor, water pump, and humidity control unit, are backed up for uninterrupted operation.
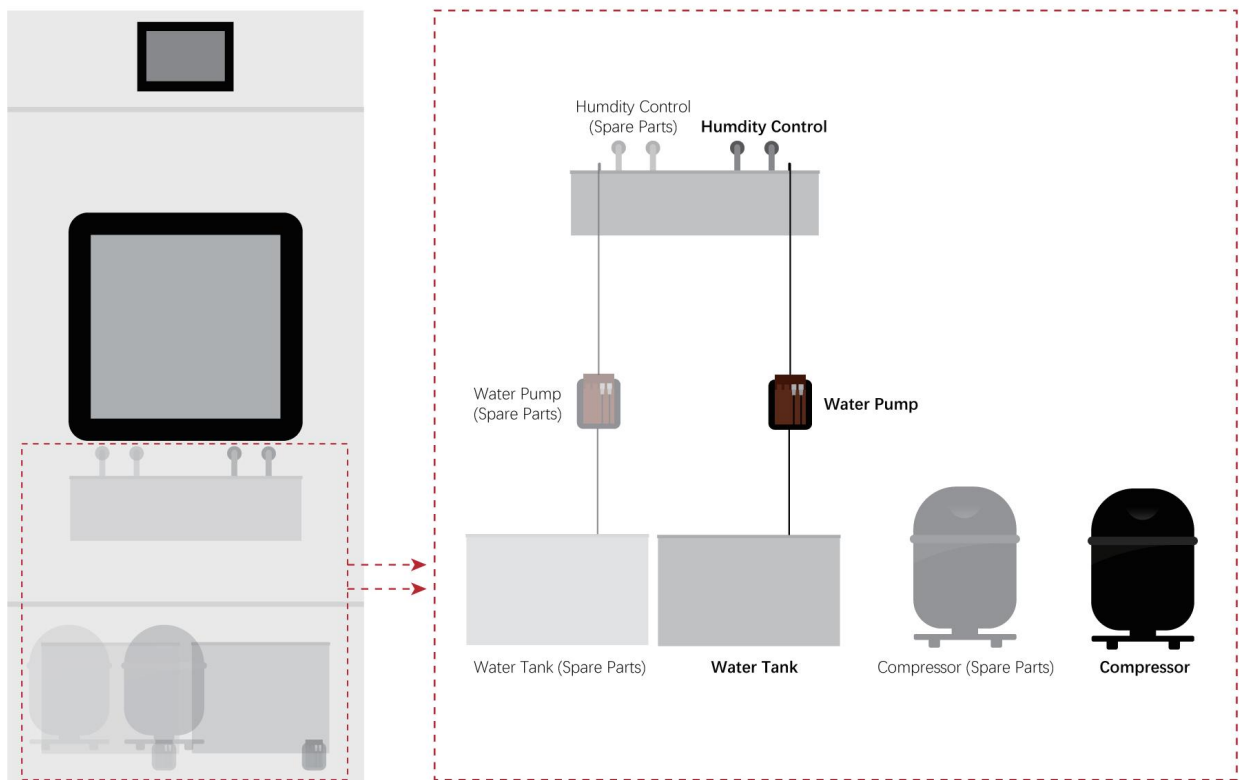
Smart IoT & User-Friendly Software

Stable IoT Performance with Global Remote Control via Mobile App or Computer

- Global Server Coverage: Servers located across continents ensure fast speeds and low latency
- Feature-Rich Mobile App: Enables seamless team collaboration and device management
- Quick Setup: IoT deployment and connection completed in just 10 minutes
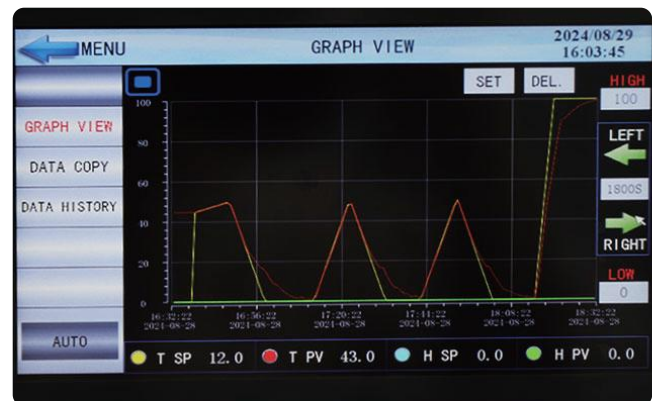
Full-Featured Temperature & Humidity Controller
(Linear temperature control, recipes, real-time / program modes, etc.)

- 7-inch touchscreen, operable even with gloves
- USB port (standard) for easy data export and analysis
- Programmable control (standard)
- Upgraded algorithms delivers precise temperature and humidity regulation
- Industrial-grade electrical panel: Safe, stable, and maintenance-friendly

Dual Communication for Flexible Integration: RS485 + Ethernet

- In addition to IoT connectivity, the standard RS485 communication interface enables flexible programming and control for customers.

Professional-Grade Stability & Smart Convenience

Premium Construction for Enhanced Usability

- Stainless steel 304 interior with precisely welded corners for easy-to-clean and simplifying maintenance
- Fully adjustable SUS304 shelf with heavy-duty support rails can accommodate test samples of varying sizes and shapes
- Standard 2-inch cable port enables live power testing and camera/monitor installation
- Maintenance-free high-precision humidity sensor
- Built-in refrigeration pressure gauge for real-time system monitoring
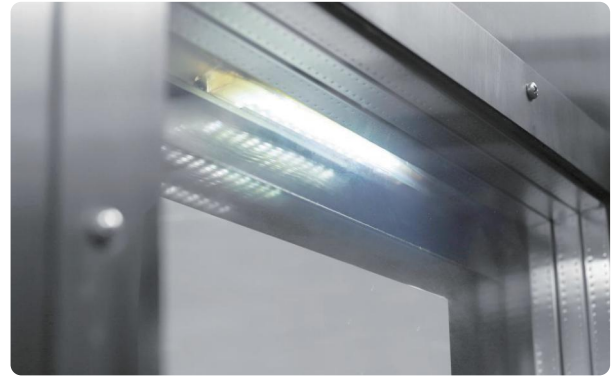

Viewing window with a standard lighting

Smart Illumination, Anti-Fog Design & Enhanced Mobility

- Backed by decades of innovation, our chambers deliver exceptional user experience
- Built-in illuminaton with remote control for easy visual monitoring of test samples
- Anti-fog door system featuring heated multi-layer tempered glass to prevent condensation/frost in all conditions
- Heavy-duty adjustable casters enable easy mobility and stability on uneven floors

Advanced Compressor Cooling System with Global Brand Components

- Superior to thermoelectric cooling: Offers unmatched reliability and powerful performance (Cooling rate: 0.5°C/min)
- Industry-leading compressors: Equipped with SECOP, Tecumseh, and Bitzer compressors for guaranteed quality
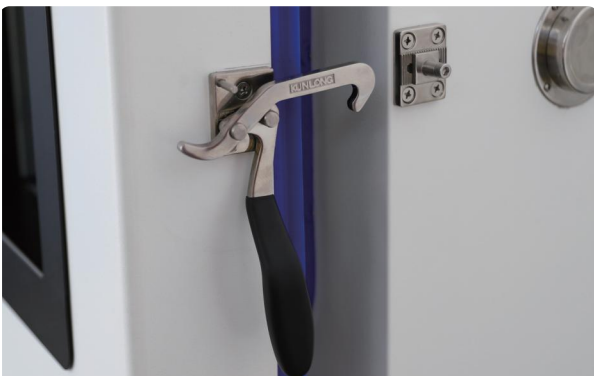
Stainless Steel Pressure-Tight Side Door Sealing Handle

2-inch cable port

Standard Humidity Control with Dual Modes for Versatile Applications

- Water Tank Mode: Ideal for low water consumption tests, requiring only periodic refilling.

- Continuous Water Supply Mode: Perfect for high water consumption scenarios, featuring automatic level-maintaining water replenishment.

- Electrically heated humidifier ensures precise humidity control without electromagnetic interference

- Easy maintenance - routine cleaning can be completed in just 15 minutes

Safety & Certifications

- Multiple Electrical and Refrigeration System Protections.

- Independent temperature limit switch (cuts off circuit during control failure) with audible and visual alarms to ensure safe operation without accidents.

- Compressor overheat, overcurrent, and overload protection; fan overheat protection; water shortage protection.

- Standard independent digital overtemperature protector provides additional safety protection.

- CE certified, other international certification opational

Specification

Model	CCC-50A CCC-50B	CCC-100A CCC-100B	CCC-150A CCC-150B	CCC-250A CCC-250B	CCC-500A CCC-500B	CCC-800A CCC-800B	CCC-1000A CCC-1000B
Performance							
Temperature Range	A: 0 ~ 80 ℃ | B: 0 ~ 95 ℃						
Humidity Range	A: 30 ~ 95% RH | B: 20 ~ 95% RH						
Temperature Resolution	0.1 ℃						
Temperature Fluctuation	± 0.5 ~1.0 ℃						
Temperature Uniformity	± 2 ℃						
Average Heating Rate	Approx. 1 ℃/min						
Average Cooling Rate	Approx. 0.5 ℃/min						
Humidity Fluctuation	± 3% RH						
General Information							
Temperature Sensor	PT100						
Humidity Detector	Capacitive,digital						
Working Ambient Temp.	RT + 5 ~-35 ℃						
Chamber Material	SUS304						
Chamber Volume	50L	100L	150L	250L	500L	800L	1000L
Shelf	2 pcs	2 pcs	2 pcs	3 pcs	3 pcs	3 pcs	3 pcs
Max. Shelf Load	5 kg [11 lbs]						
Max. Chamber Load	50 kg						
Min. Shelf Spacing	70 mm						
Cable Port	50 mm [2 inch]						
Control Panel	Industrial color touch screen, temperature and humidity program controller						
Comminication	USB, RS485 and Ethernet						
Compressor Brand	Germany Secop, French Tecumseh, Germany Blitzer, etc						
Power	1300 W	1500 W	1600 W	2000 W	3500 W	5500 W	7500 W
Electrical Supply	North America: 208~240V, 1P, 60Hz					460~480V, 3P, 60Hz	
	International: 220~240V, 1P, 50Hz					380~400V, 3P, 50Hz	
Dimension | Weight							
Workspace Dimension, mm [WxDxH], in	360*350*400 14.2x13.8x15.7	450*400*600 17.7x15.7x23.6	480*400*780 18.9x15.7x30.7	580*500*900 22.8x19.7x35.4	800*700*900 31.5x27.6x35.4	1000*800*1000 39.4x31.5x39.4	1000*1000*1000 39.4x39.4x39.4
Exterior Dimension, mm [WxDxH], in	610*770*1290 24.0×30.3×50.8	640*740*1450 25.2×29.1×57.1	600*680*1520 23.6*26.8*59.8	740*810*1790 29.1*31.9*70.5	960*1060*1830 37.8*41.7*72.0	1160*1160*2000 45.7*45.7*78.7	1160*1500*2000 45.7*59.0*78.7
Approx. Weight [kg | lbs]	180 kg | 397 lbs	200 kg | 441 lbs	220 kg | 485 lbs	260 kg | 573 lbs	380 kg | 837 lbs	450 kg | 993 lbs	460 kg | 1014 lbs

Custom Cases

Customized 1000L Constant Climate Chamber

1500L Constant Climate Chamber

Constant Climate Chamber with Double Window Door

Constant Climate Chamber with Double Window Door

2 sets 40LConstant Climate Chamber, with integrated configuration

100L Constant Climate Chamber

Labfirst Scientific Instruments (Shanghai) Co., Ltd.

+86-13524020331 (China)
+1-844-452-2178 (USA)
sales@lab1st.com

www.lab1st.com
@lab1st
lab1st_scientific_