

# Lab Companion

▶ **Temperature Cycle Test Chamber TC-10C-5**

**Custom Solution**

▶ **Brief Introduction**



The equipment is mainly for industrial products reliability test in high and low temperature condition. The adaptability test of electronic, electrical, automobile, aerospace, Marine weapons, scientific research units and other materials in the environment of high temperature and low temperature storage, transportation and use. The test equipment is mainly used for the product in accordance with the national standard requirements or user-defined requirements. Through testing to determine the performance of the product and whether it can still meet the predetermined requirements for product design, improvement, identification and factory inspection.

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## Particularities:

- \*The inner chamber body adopts 1.0mm SUS304 stainless steel plate, 1.0mm cold rolled steel plate is sprayed on the outside, and the insulation material adopts ultra-fine glass insulation cotton.
- \*Gate sealing adopts double-layer silicone rubber sealing material.
- \*The observation window is multi-layer conductive film tempered insulating glass, in order to prevent glass frost at low temperature, special safety voltage heating wire surround and tropical power supply voltage 36V, and equipped with lighting to provide lighting for observation.
- \*On the side of the chamber is equipped with  $\phi$  50mm test hole with plug, the plug is made of silicone rubber with low foam, which can withstand high and low temperature, and has thermal insulation efficiency.
- \*There is an air regulating cabinet at the back side of the chamber studio, during which the humidifier, evaporator, electric heater, fan, fan volute and other equipment are installed.

## Technical Features:

Dimensions (mm)	Width	Height	Depth
Useful	2500	2000	2000
Overall	2800	2546	4603

### **Temperature range**

from  $-60^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$

## Homogeneity and Regulation:

### **Temperature fluctuation:**

$\leq \pm 0.5^{\circ}\text{C}$

### **Temperature deviation:**

$\leq \pm 2.0^{\circ}\text{C}$

### **Temperature uniformity:**

$\leq 2^{\circ}\text{C}$

### **Temperature rise time:**

$\geq 10^{\circ}\text{C}/\text{min}$  ( $-25^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$  linear heating, load 1200KG aluminum ingot +10KW heat)

### **Temperature drop time:**

$\geq 5^{\circ}\text{C}/\text{min}$  ( $+60^{\circ}\text{C} \rightarrow -25^{\circ}\text{C}$  linear cooling, load 1200KG aluminum ingot +10KW heat)

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## Appearance Introduction and Description:

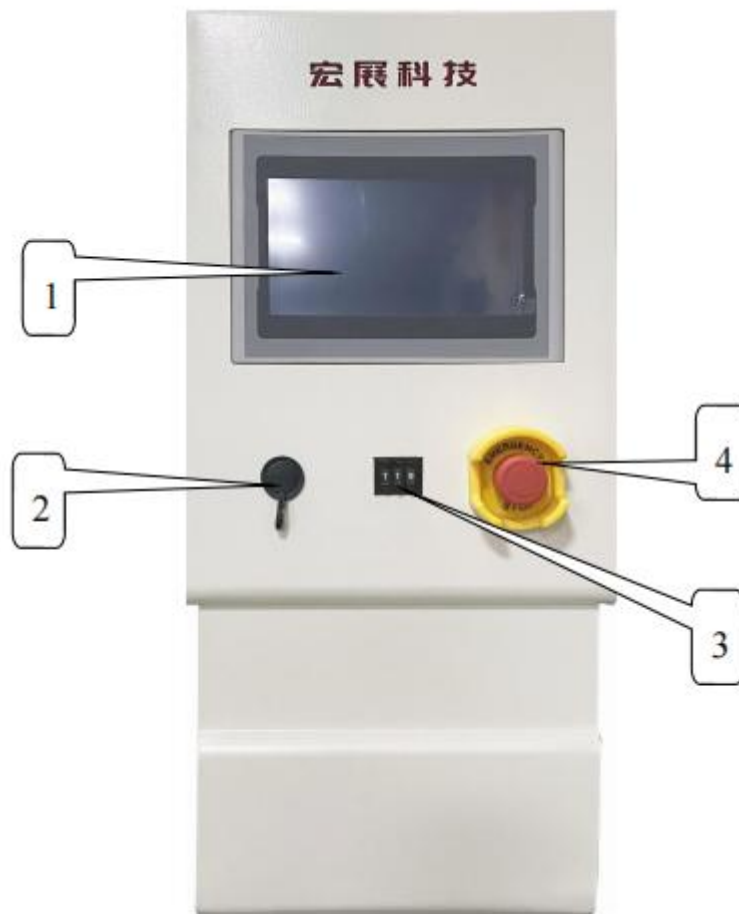
### 1. Front and side of the machine



Number	Name	Illustration
1	Three color lights	Green running, yellow standby, red fault
2	The test hole	An external power supply can be plugged in from the test hole for live product testing
3	The control panel	Operation panel for machine operation
4	The door lock	Pull the vertical door to open it
5	Glass window	To observe the inner workings of the laboratory

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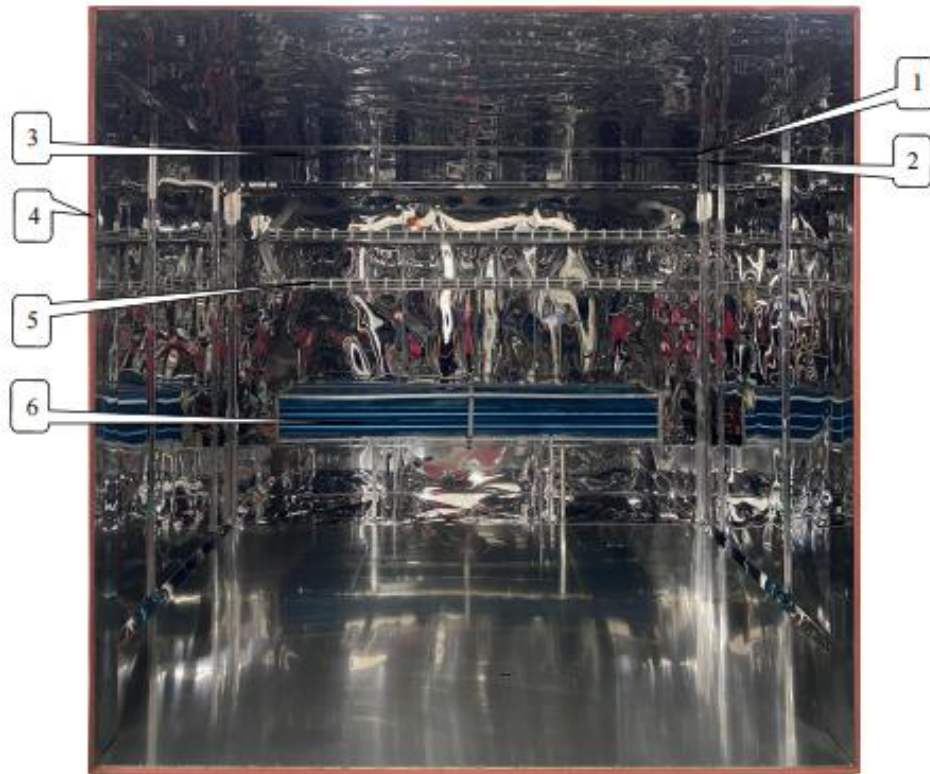
## 2. Control panel



Number	Name	Illustration
1	Controller	Touch screen programmable controller (Refer to controller manual)
2	USB interface	Used to copy curves or document-related data
3	Overtemperature Protection	Set the upper temperature limit in the test area
4	Scram switch	Used to connect the device and cut off the power supply

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## 3. Test area



Number	Name	Illustration
1	Thermal resistance sensor	Used for panel overtemperature sensing the temperature of the inner chamber
2	Thermal resistance sensor	Used for the controller to sense the temperature of the inner chamber
3	Air outlet	Test area circulates air outlet
4	sealant	Heat preservation and air leakage prevention
5	Heating rack	Provide heat required for equipment test
6	The evaporator	Used for cooling the testing equipment

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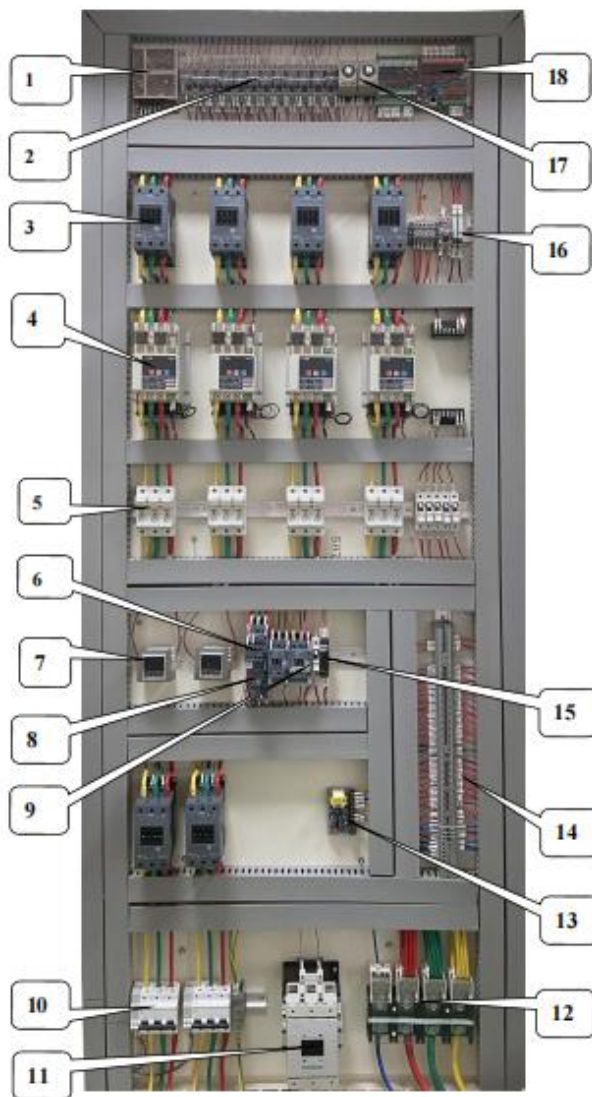
## 4. The cooling machine room



Number	Name	Illustration
1	Condenser	Cooling refrigerant
2	Pressure protection controller	When the pressure in the pipeline is too high or too low, the controller will alarm
3	Compressor	Compression refrigeration
4	Circulation water pipe	Through the circulation of water to absorb and take away the heat generated inside the equipment, play a cooling role
5	Dryer filter	Pass dry air into the equipment

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## 5. Power distribution room



Number	Name
1	DC power supply
2	Intermediate relay
3	AC contactor
4	Power regulator
5	Fuse
6	Auxiliary contacts
7	Temperature controller
8	Thermal overload relay
9	AC contactor
10	Circuit breaker
11	AC contactor
12	Four-bit wiring terminals
13	Overtemperature board
14	Connect cable terminals
15	Lack reverse phase protector
16	Cold and hot valve solid state relay
17	Time relay
18	Temperature Controller