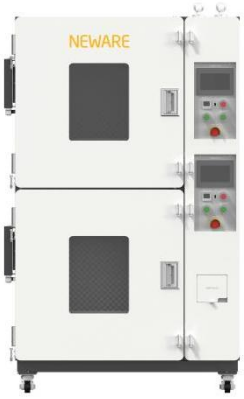
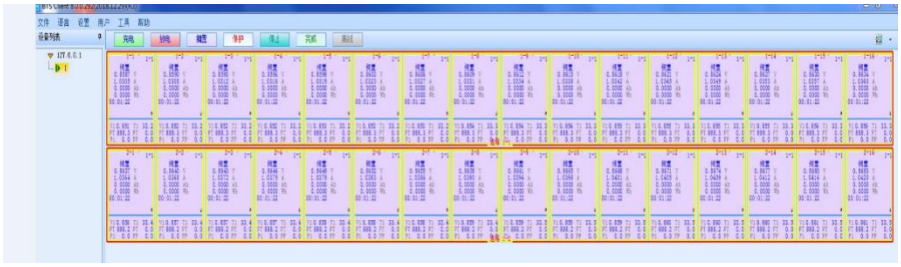
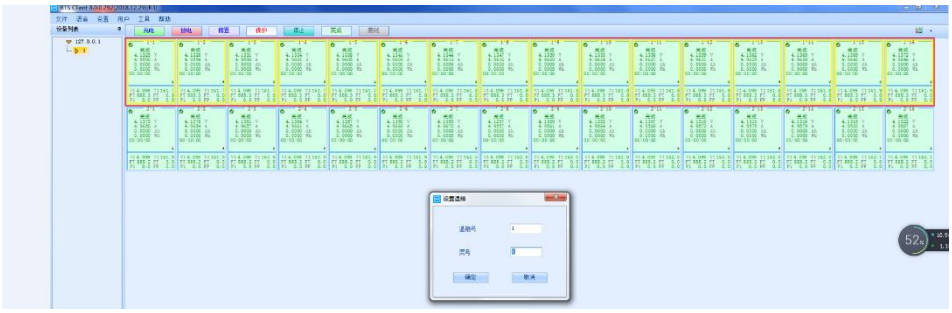
800L Water-Cooled Dual-Zone High-Low Temperature All-in-One Testing System

1. Product model	
1.1 Material code	WGDW-800L2-40C-380V-32U-W
1.2 Equipment appearance	 The picture is for reference only, subject to the actual product
2. Product application	
Application scenarios	It is suitable for the adaptability test of electrical, electronic and other products, parts and materials used in aviation, automobile, scientific research and other fields when stored, transported and used in high and low temperature environment. It is a reliable testing equipment for battery performance testing in new energy production enterprises and research institutes
3. Sample restrictions	
	This test equipment is prohibited: Test or storage of samples of inflammable, explosive and volatile substances Testing or storage of corrosive material samples Test or storage of samples from strong electromagnetic sources Testing and storage of radioactive material samples Testing and storage of samples of highly toxic substances Tests or storage of samples of the above substances or objects during testing or storage
4. Volume, size and weight	
4.1 Nominal volume	360L×2
4.2 Inner box size (single temperature zone)	W800 mm×D600 mm×H750 mm
4.3 External dimensions	W1600 mm×D2050 mm×H2050 mm (excluding protrusions)
4.4 Weight	About 1050 kg
5. Performance	
5.1 Test environment conditions	The ambient temperature is +25℃, the relative humidity is less than or equal to 85%, and there is no sample in the test chamber (no load)

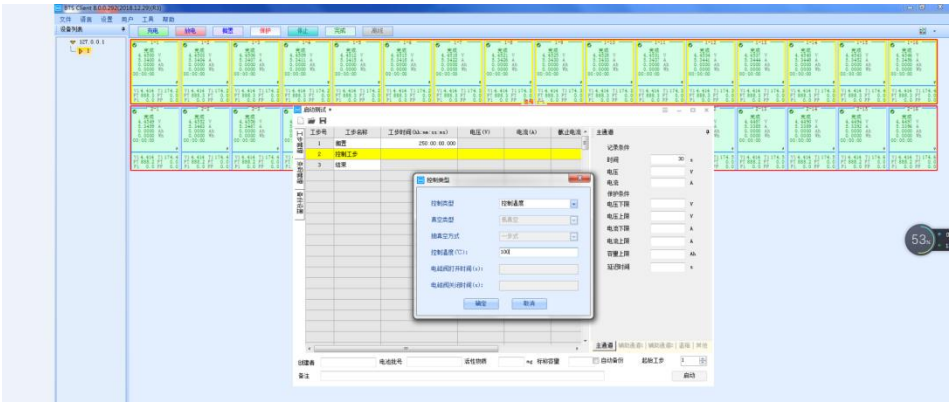
5.2 Test method	GB/T 5170.2-2017 Temperature test equipment
5.3 Temperature range	-40℃ ~ 150℃
5.4 Temperature fluctuation	≤±0.5℃ (no load, temperature stable)
5.5 Temperature deviation	±2.0℃ (no load, temperature stable)
5.6 Heating time	+20℃→+150℃ ≤60 min (no load, average nonlinearity)
5.7 Cooling time	+20℃→-40℃ ≤60 min (no load, average nonlinearity)
5.8 Meet the test method	GB/T 2423.1-2008 Low temperature test method Ab GB/T 2423.2-2008 High temperature test method Bb GJB 150.3A-2009 High temperature test GJB 150.4A-2009 Low temperature test GB/T 10592-2008, technical conditions for high and low temperature test chamber
6. Structural characteristics	
6.1 Insulation envelope structure	Exterior wall material: high quality cold rolled steel plate, surface spray treatment Inner wall material: stainless steel plate SUS304 Insulation material: hard polyurethane foam + aluminum silicate cotton (insulation thickness 100mm) Door insulation material: rigid polyurethane foam + aluminum silicate cotton
6.2 Air conditioning channel	**Centrifugal fan, heater, evaporator (dehumidifier), etc., left and right horizontal air intake and outlet mode**
6.3 Standard configuration of test chamber	Lead hole (single temperature zone): φ50mm/ 8 (Paired with soft rubber plug, located at the rear of the box) Wheels: 4 (with adjustable feet) Observation window (single temperature zone): multi-layer hollow electric heating film heating anti-fog observation window (located on the door) Visible range: approximately 330×450 mm (width×height), with heated glass for defogging, ensuring optimal visibility Lighting (single temperature zone): 1 battery tray (single temperature zone): high temperature resistant electric insulation battery tray 2 layers, load-bearing (evenly distributed): 10kg/layer (the total load of samples in the box does not exceed: 40kg)
6.4 Doors	Single hinge door (left hinge, right handle), with observation window, lighting lamp Window frame/door frame anti condensation electric heating device, double layer silicone rubber sealing strip

	Two safety protection chains are provided on both sides of the left and right side of the single door
6.5 Control panel	Controller display, over-temperature protection setter, etc
6.6 Refrigeration unit room	Refrigeration unit, water tray, drainage hole, condenser, etc
6.7 Distribution control cabinet	One total power leakage circuit breaker, distribution board, exhaust fan, Ethernet physical interface Temperature and humidity controller, AC contactor, circuit breaker, thermal relay Temperature limiting protector, solid state relay and transformer
6.8 Heater	Nichrome heating wire heater. Heater control mode: contactless periodic pulse width modulation, SSR (solid state relay)
6.9 Power cable hole and drainage hole	Located on the side or back of the box
6.10 Safety pressure relief port	Located on the left side of the box, it opens automatically when the test space pressure exceeds the set pressure
7. Refrigeration system	
7.1 Working mode	Mechanical compression cascade refrigeration
7.2 Refrigeration compressor	France imports "Taikang" fully enclosed compressor or Emerson gas turbine compressor
7.3 Main refrigeration components	Throttle valve, pressure controller, drying filter, Electromagnetic valve, reservoir, oil separator, etc
7.4 Evaporator	Finned tube heat exchanger (also used as dehumidifier)
7.5 Condenser	Water-cooled: shell and tube heat exchanger.
7.6 Throttle device	Throttle valve/ capillary tube
7.7 Refrigeration control mode	The control system automatically adjusts the operating condition of the refrigeration unit according to the test conditions Compressor return gas cooling circuit
7.8 Refrigerant	**R404A (ozone depletion index 0)/R23**
7.9 Welding process	Nitrogen protection welding
7.10 Cooling water	Industrial cooling water is required from the customer. The system has a cooling capacity of 10 kW, with an inlet water temperature of 25°C, an outlet temperature of 30°C, a flow rate of 2 m^3/hr, and inlet/outlet pipe connections of DN40.
8. **Control system**	

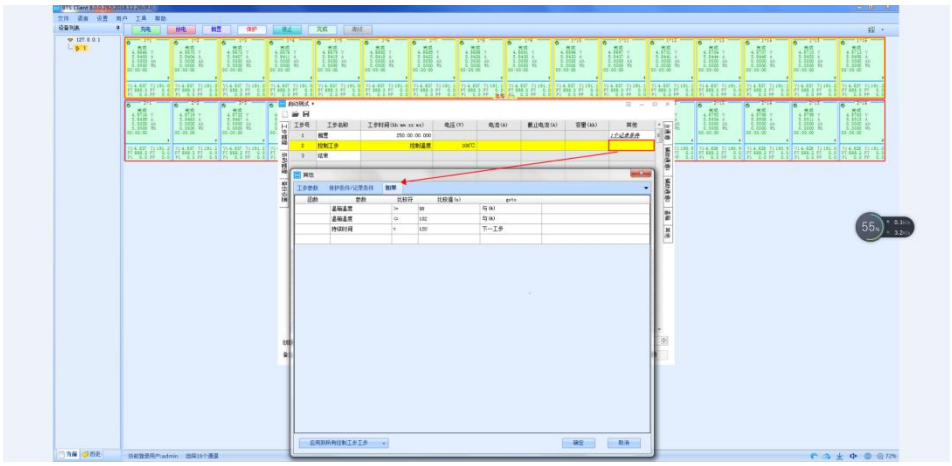
8.1 Controller model	Professional temperature controller
8.2 Display	High color LCD touch screen
8.3 Operation mode	Program mode, set value mode
8.4 Setting method	Color touch human-computer interaction, Chinese/English interface
8.5 Control mode	Anti-integral saturation PID BTC balance temperature control mode
8.6 Temperature measurement method	Grade A armored PT100 sensor
8.7 Display accuracy	Temperature: 0.01℃; Time: 1min
8.8 Over-temperature protection	Independent over-temperature protector, when the studio temperature exceeds the temperature set by this protection device, it will protect the shutdown and send an alarm signal
9. battery testing equipment and test interconnection	
9.1 Testing equipment	**5V600A4CH is located on the side of the housing**
9.2 Control unit	2
9.3 Network switch	1
9.4 Upper computer programming control interface (see the equipment random materials for details)	Step 1: Open the software interface  Step 2: Select the test chamber Step 3: Find the test chamber to be set up



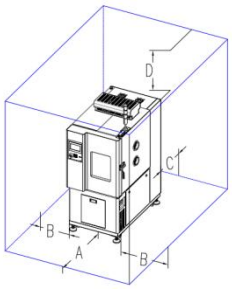
Step 4: Set the control temperature of the test chamber

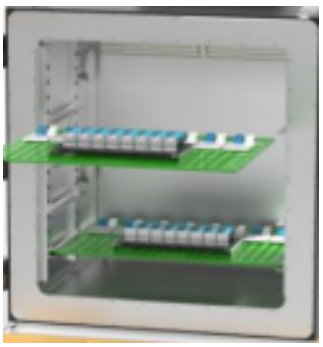
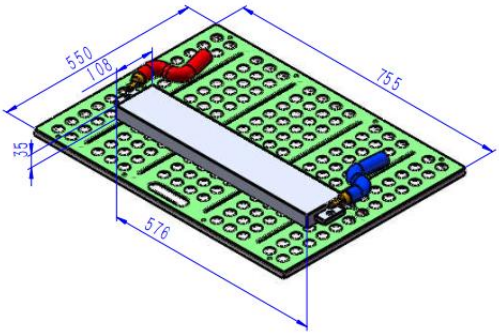
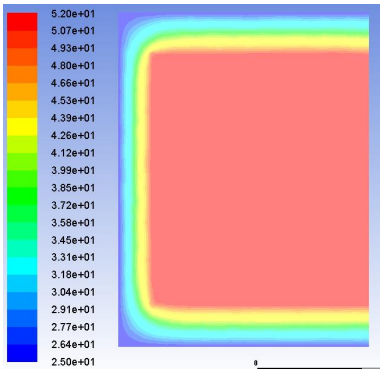


Step 5: Set the work step control conditions



10. Safety protection device	
10.1 Refrigeration system	Compressor overheating, compressor overload, compressor overpressure, cooling water shortage protection
10.2 Test chamber	Adjustable over-temperature protection, abnormal protection of in-box circulating fan
10.3 Other	Power supply phase sequence and phase loss protection, leakage protection, overload and short circuit protection, power failure recovery protection
11. Other configurations	
11.1 Power cable	**One five-core (three-phase four-wire + protective earth wire) cable (the specific specification is selected according to the contract requirements)**
11.2 Total power leakage circuit breaker	Three phase four wire + protective earth wire

12. Transportation (the test chamber is integral and transported as a whole)	
12.1 Size	Maximum transport size (excluding packaging): "see 4.3 Dimensions"
12.2 Weight	Maximum transport weight (excluding packaging): "see 4.4 Weight"
13. Conditions of use: The user shall guarantee the following conditions (the installation of power supply lines shall be the responsibility of the user)	
13.1 Installation site	The ground is flat and conforms to GB50209-2002 specification: flatness is less than 5mm/2m Good ventilation, no strong vibration around the equipment There is no strong electromagnetic field around the equipment There is no flammable, explosive, corrosive substances and dust around the equipment Appropriate space for use and maintenance is left around the equipment, as shown in the figure: A: no less than 80cm B: no less than 60cm C: not less than 70cm D: not less than 50cm 
13.2 Environmental conditions	Temperature: 5℃~35℃; Relative humidity: less than or equal to 85%; Air pressure: 86kPa~106kPa
13.3 Power supply conditions	AC (380±38) V (50±0.5) Hz three-phase five-wire system The grounding resistance of the protective earth wire is less than 4Ω Power supply: The user is required to configure the corresponding capacity of air or power switch for the equipment at the installation site, and the switch must be independently supplied for the equipment Power distribution: (9kW (temperature box body) +7.5kW (test equipment))×2 Maximum current: 33A×2
13.4 Others	Opening the door of the test chamber during the test will cause the temperature fluctuation in the chamber; if the door is opened repeatedly or kept open for a long time during the test, or the test sample emits moisture vapor, it may cause the heat exchanger of the refrigeration system to freeze and fail to work normally
14. Battery specifications and placement method	
14.1 Battery specifications	Blade cell 5V600A2CH (double temperature zones 4CH)
14.2 Battery placement method	Arranged in two layers per zone, with 1 CH per layer (four layers total for both zones).
14.3 Battery tray form and battery fixing method (battery tray can be customized according to needs) The battery pallet is made	Note: 1. The single temperature zone of the equipment is equipped with a two-layer battery tray (four layers for double temperature); 2. The battery fixture should be fixed on the battery pallet; 3. The channel line shall be made of woven soft wire; 4. The pictures are for reference only.

of imported high temperature resistant electric insulation material, and the height position can be adjusted appropriately **The high compatibility design of the battery pallet can meet the test use of different sizes and specifications of batterys**	 
15. Simulation diagram of stable operation of temperature in the test chamber (only schematic)	
No-load run