

High-Low Temperature & Humidity Cabinet (Climate Chamber)

These new programmable cabinets with a precise system of temperature and humidity control, which provide various necessary environmental simulative conditions for industrial research and biotechnology tests. Widely applied in sterile tests and stability check-up of pharmaceuticals, textile and food processing as well as tests in material performance, packing and lifetime of industrial products.

Biuged launched the latest generation climate chambers which has the following updates compared to previous products or competitors products:

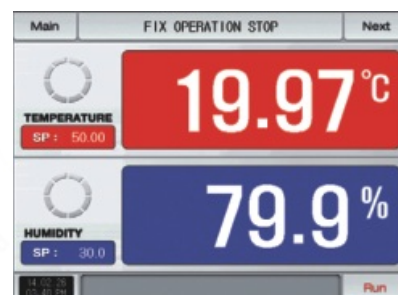
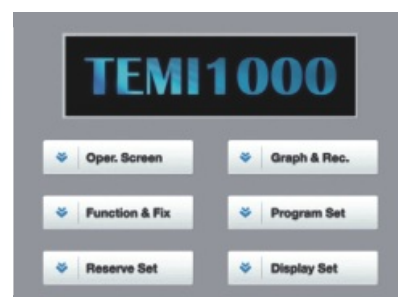
① Use electronic humidity sensors to control and display the relative humidity of the working room, more convenient, more accurate.

This new design avoids many inconveniences and issues come from the previous method of using PT 100 platinum resistance for wet and dry bulb

measurements. For example there is no need to regularly replace the wet bulb fabric, and some users may forget to replace it or hang it incorrectly, resulting in wrong humidity readings or the inability to control humidity during the test.

② The refrigeration control system adopts an electronic expansion valve to control the cold end balance, which, under the same test conditions, can save at least 40% power compared to products using thermal balance methods. It also reduces water consumption by more than 60%.

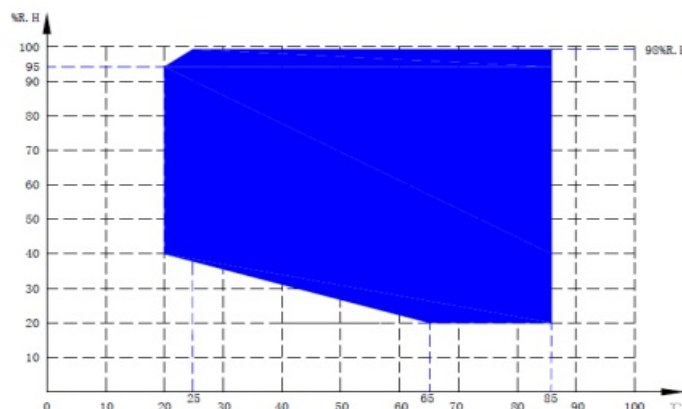
③ Using a scroll compressor results in a larger cooling capacity and lower noise.



Scan for video

Main Technical Parameters:

- ★ Temperature Uniformity: $\pm 2^{\circ}\text{C}$
- ★ Humidity Uniformity: $\pm 2\% \text{RH}$
- ★ Temperature Stability: $\pm 0.5^{\circ}\text{C}$
- ★ Humidity Stability: $\leq 2\% \sim 3\% \text{RH}$ ($\geq 75\% \text{RH}$)
or $\leq \pm 5\% \text{RH}$ ($\leq 75\% \text{RH}$)
- ★ Temperature Increasing Rate: $\geq 1^{\circ}\text{C} / \text{min}$
(no-load, average value during the whole test)
- ★ Temperature Decreasing Rate: $1^{\circ}\text{C} / \text{min}$
(no-load, average value during the whole test)
- ★ Power Supply: 220V/380V; 50Hz
- ★ Total Power: 5.5kW



1.0 Structure Feature

Chamber Structure	<p>Internal material: 304# stainless steel with thickness is 1.2mm</p> <p>External material: 1.2mm baking finish cold roll steel plate with advanced static electricity spray process.</p> <p>Heat preservation material: polyurethane foam rubber with 100 mm thick</p> <p>Others: install the positioning foot cup and movable trundles under the test chamber bottom; top of chamber equips automatic pressure relief hole, bottom of inner chamber equips drainage hole, can</p>
Air Adjustment Channel	Inside air space, recirculating wind channel and stainless steel cycle fan, through the top window and air diffuser, the wind will out uniformly from the top, let the reconciled temperature from the harmonic room diffuses to the test area, which could reach the purpose of control temperature uniformly.
Chamber Door	<ul style="list-style-type: none"> ◆ Single open door ◆ Anti-explosion ◆ Anti-condensation electric heating device ◆ Vacuum auto-defog transparent window ◆ Window floodlight
Cable Port	Install a $\Phi 50\text{mm}$ test hole on the left of the machine, and equip related seal device for connecting with power test
View Window	Designed in the door with $230 \times 270\text{mm}$ transparent electric radiant heating film with cavity toughened glass(equipped with anti-condensation function)
Control System	TEMI 1500 Touch Screen LCD, imported from Korea, floodlight switch, main power switch
Cooling System	Refrigeration system, heating device, fan, dewatering device, adjustable back window
Sample Shelf	Adopt 304# stainless bent into net sharp, easy for use, the distance between the material frame could be adjusted(the smallest distance is 50mm), standard equipped two pieces
Electrical Room	Main power breaker, controller, distribution plate, radiating fan, over temperature protector
Heating System	Adopt the scale heat rejection heating pipe P.I.D. control the heating so let the temperature gets the balance

2.0 Refrigerating System

Refrigeration Method	To keep the cooling rate and minimum temperature requirement, we use single stage refrigeration system
Refrigeration Compressor	Adopt low temperature compressor from European
Cooling System	Air-cooled scale condenser, circulating fan for heat dissipation
Evaporimeter	Finned tube heat exchanger
Throttling Device	Thermostatic expansion valve, capillary tube
Dry filter	Absorption for the residual water and acidic material from refrigerating fluid in refrigerating system, filtrate the solid impurity grain, copper cuttings of system, keep the normal working of expansion valve and capillary, in case of ice blockage and filth blockage
Refrigerating Fluid	Adopt environment protected refrigerating fluid R404A

3.0 Electrical Control System

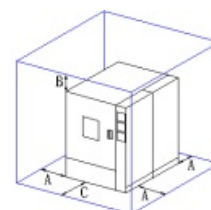
Controller	Korea SAMWON, LCD touch screen controller TEMI 1500
Display Interface	<ul style="list-style-type: none"> ◆ Display screen dimension: 5.7 inches colorful touch screen conversational mode ◆ Temperature set value (SV), current value (PV) displays directly ◆ Can display the temperature output value ◆ The execute program number, section, procedure time and time signal control condition can be displayed ◆ Can display auto-calculus picture and procedure standby light-flooding picture ◆ Can display record data and curve condition picture ◆ Can display current curve and edit procedure curve and history running curves ◆ Can display fault indicated and simple fault exhaust
Communication	RS-232 communicate interface, can used as monitoring and remote control system, record the test data
Running Method	Program mode / definite value mode
Set Method	English interface, touch screen input
Procedure Capacity And Control Function	<ul style="list-style-type: none"> ◆ Operational procedure capacity: max:120 groups;one procedure could consist of 1 to 99 sections. ◆ Operational memory capacity: 1200 sections, could repeat executive command: each command could repeat 999 times, the slope setting of the procedure could be set through the timer shaft, the jointing use could be set among the procedures, the procedure making can adopt dialogue type, easy to operate with edit, eliminate and insert function, 4 groups of time signal output control (can control the test sample ON/OFF option). ◆ 9 groups of PID parameter setting, the procedure will have the overleap section, keep functions; can show the curve and data collection; date and time adjustment function; button and picture lock(LOCK)
SD Storage Card	Used to store test date and test curve, standard storage capacity is 2G, storage time is about 2 years
Setting Range	Up/down limitation of maximum temperature range is 5°C
Display Resolution	Temperature: 0.01°C; time: 1min;
Memory Function when Power off	Can set recovery mode in case of power off : heating/ cold/ stop
Make an appointment function	Can set available machine time randomly, after turn on the power, the machine will run automatically
Input	PT100 type platinum resistor
Curve record function	Equip with battery protection RAM, can save the set value, sampling value and sampling time of the machine; Max record time is 60 days (when the sampling cycle is 1.5min)
Software use environment	IBM PC compatible machine, above PII CPU, more than 128M RAM, simplified Chinese Windows2000 or simplified Chinese WindowsXP operation system.
Circulating fan	Low noise with many wing centrifugal fan
Heater	Import nichrome electronic heater and heater control mode is contactless equal cycle recurrent pulse adjust wide, SSR (solid-state relay)
Control Mode	Anti-integral saturation PID, BTC balance adjust temperature control mode (temperature test equipment)

4.0 Humidify and Dehumidify System

Water Supply	Big water tank
Humidify And Dehumidify Method	Adopts outer humidify, compressor start to dehumidify, P.I.D controls the humidify volume to reach the need humidity
Water Quality Request	Resisitivity $\geq 500\Omega \cdot m$
Water Supplement Method	Chamber reserves the water supplement port and water level viewing window, please supply water when the water level is too low
Humidify Water Supply	Inner equipped with a micro water pump, and only needs to add water to the water tank. The water pump is automatically added to the humidifying boiler according to the water level in the humidifying boiler

5.0 Safety Protection Device

Refrigerating System	Compressor overheat/over current/ over pressure, condensation fan overheat
Test Chamber	Over temperature limitation, fan/motor over temperature relay
Power	Earth leakage protection, overload protection, short-circuit protection
Installation Site Requirement	<ul style="list-style-type: none"> ◆ the distance between the wall and left/right/back should be at least 600mm(A/B) ◆ the distance between the wall and the front side of the machine should be at least 1200mm(C) ◆ please make sure the gate, gallery and elevator could pass the machine in case of affect to your company normal working
Storage Environmental Requirement	Environmental temperature of the machine keep within 0°C ~ +40°C



Note: Temperture and relative humidity influence each other, for Biuged Climate chambers, controllable area is remarked by blue area as above picture



Biuged-Designed Control System



Controller TEMI 1500



Refrigeration compressor from Europe

Ordering Information	Temperature Range	Humidity Range	Total Power/ Max. Current	Working Room Size (W×H×D, mm)	Overall Size (W×H×D, mm)
BGD 897/100B	-20 ~ 150°C	20 ~ 98%	4.6KW/16A	400 × 500 × 500	900 × 1400 × 1150
BGD 897/100C	-40 ~ 150°C				
BGD 897/100D	-60 ~ 150°C				
BGD 897/225B	-20 ~ 150°C		5.5KW/22A	500 × 750 × 600	1000 × 1650 × 1250
BGD 897/225C	-40 ~ 150°C				
BGD 897/225D	-60 ~ 150°C				
BGD 897/608B	-20 ~ 150°C		11KW/12A (380V; 3 phase and 4 wires)	800 × 950 × 800	1300 × 1850 × 1400