



Constant Temperature and Humidity Environmental Test Chamber Model: ADL-EHT225

Use

The constant temperature and humidity environmental test box to simulate all kinds of temperature and humidity environment, is suitable for the detection of electronic, electrical appliances, food, automobile, rubber, plastic, metal and other products, to meet the GB/T2423, reliability of performance parameters of GJB150A1/4 machine is stable under harsh environment, will give you the offer to predict and improve the quality and reliability of products on the basis of:

Performance parameters: programmable high and low temperature test chamber

Part 1: Systematic overview



The system consists of the following parts:

Test box is to provide high and low temperature constant, high and low temperature alternating test environment; Including refrigeration system, heating system, air duct system, control system, system safety protection device, etc.;

Part 2: The main technical indicators of the test box

1. Capacity : 225 litre
2. Temperature range : -40°C~150
3. Humidity range : 20%-98%
4. Temperature fluctuation : $\leq \pm 0.5^\circ\text{C}$
5. Temperature uniformity : $\leq 1^\circ\text{C}$
6. Temperature deviation : $\leq \pm 2^\circ\text{C}$
7. Temperature rise rate : 20~150°C, about 45min +20~-40°C, about 60min
8. wind speed : 1.7~2.5m/s

$\leq 25^\circ\text{C}$ 1/6 The above indexes in environmental temperature are less than 25, atmospheric pressure, load, no load conditions, away from the inner wall of the box body 1/6 space test measured

9. power : about 5.5Kw
10. Power Supply : 240V \pm 10%V 50Hz;
11. Studio size: : 600*500*750mm (Deep*width*height)
12. Outline dimension : 1100 \times 1350 \times 1620mm (Deep*width*height)

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Meet the relevant standards and test methods

GB/T2423.22-87Nb GJB1032-90 MIL-STD-2164/(E/C)

GB/T2423.4-93 GB/T2423.34-86 GJB150.9-86

Part 3: Explanation of industrial design and manufacturing plan

Test box body

- **Structural style:** The utility model relates to an integral structure, which is a test box body, a refrigeration system, an air conditioning system, an electric appliance control cabinet and a refrigerating unit. The refrigerating unit is positioned at the bottom of the box body.
- **Box:**
 - a) A heater, a refrigeration evaporator, a blower motor, a fan blade, etc. are arranged in the air duct interlayer at one end of the studio
 - b) 50mm The test box is arranged on the side face of the cable threading hole 1, the size of phi 50mm;
 - c) 1.2mm, SUS304, 1.2mm, The test chamber is made of 1.2mm thick SUS304 stainless steel plate and the shell is made of 1.2mm stainless steel
 - d) 100mm, Polyurethane foam insulation material, the thickness of 100mm, good insulation effect, the test box on the outside surface of frost, no gel
 - e) The studio is equipped with two adjustable stainless steel strip shelves
 - f) The box body is provided with a condensed water outlet
- **Gate:** Single door, the door seal is a double line silicone rubber sealing strip
- **Observation, lighting device:** The door is equipped with a multi-layer hollow glass observation window, the size is about: 300 x 275mm, and has a heating anti frost device. Test box door mounted a (AC12V) 20W halogen lamp

Test box refrigeration system

- **Refrigeration principle:** The refrigeration part is a major part of the cold source equipment, equipment for cooling, low temperature and constant temperature and cooling capacity to provide the required test equipment, according to the state, automatically open the refrigeration system, provide cooling capacity for the corresponding test process, so as to meet the performance of equipment. The purpose of refrigeration system design and application of energy regulation technology, an effective way which can guarantee the normal operation of the refrigeration unit in the case and the energy consumption and the cooling capacity of the refrigeration system can be adjusted to reduce the operating cost and the failure rate of the refrigeration system to a more economical state



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- **Refrigeration system components**
- **Compressor:** core refrigeration system is compressor, this scheme we use French Taikang full closed compressor, a refrigeration system, in order to ensure the cooling requirements of the refrigeration system. The studio consists of a high-pressure refrigeration cycle and a low-pressure refrigeration cycle, the connecting container for the evaporator, the evaporative condenser will function as low as circulation evaporator the use of high-pressure circulating condenser.
- **ALCO Oil separator:** compressor is freezing oil enough, will directly affect the life of oil if entering the system, especially the heat exchanger, will greatly reduce the performance, therefore, the system needs to set the oil separator, according to our previous imported oil separator with the situation and experience, we have equipment equipped with "Ai" ALCO oil separator
- The condensation evaporator heat exchanger is currently the world's advanced Swedish Alfa Laval ALfaLaval company or Sweden swep company, the heat exchanger is composed of a plurality of pressing adult shaped corrosion resistant stainless steel corrugated sheet composed of stainless steel sheet, a corrugated direction adjacent opposite corrugated back line intersect each other constitute large contact pads the cross channel network, contact the complex fluid on both sides to form turbulent flow, increases the heat transfer intensity, while the turbulent flow channel and the smooth stainless steel surface to the inner surface of the brazed plate heat exchange is not easy to scale, using this overcomes the domestic heat exchanger The high and low temperature test box has the disadvantages of large size, poor heat transfer, low efficiency and low resistance
- **Vibration:** the compressor two damping spring damper, the whole refrigeration system; refrigeration system using pipeline to increase R and avoid the deformation caused by bend vibration and temperature changes of copper, resulting in refrigeration system pipe rupture
- The evaporator is located in the air duct interlayer at one end of the test box, forced ventilation by the blower motor, fast heat transfer
- Refrigeration auxiliary parts: the test box in the refrigeration system of other accessories are imported components. Such as Italy "Castel" Castel two-way solenoid valve, hand valve, and "Ai" ALCO oil separator "Sporlan" SPORLAN expansion valve, a dry filter, the Danish "Danfoss" DANFOSS condensing pressure controller
- **Energy adjustment measures:** in the premise of the main technical indicators to ensure that the test box, according to the different range of temperature and cooling speed of system cooling capacity adjustment is indispensable, so we in addition to the aforementioned considering the addition of appropriate energy regulatory measures, such as evaporation temperature regulation, energy regulation, regulation of energy to ensure that the hot gas bypass the main technical indexes meet under the premise of reducing energy consumption of equipment

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- **Low temperature pipeline:** low temperature pipeline with high quality oxygen free copper tube, nitrogen filling welding and special pipe technology, high quality oxygen free copper nitrogen welding (the traditional way of using ordinary brass, direct welding, easy to produce the oxide copper tube, resulting in refrigeration system blockage, make the test box without cooling or cooling process to ensure, slow) the quality of welding
- **Cooling system:** air cooling. The cooling mode can be selected by the user according to the situation, and the requirement of the air cooling to the ambient temperature is high, the noise is too large, and the specific installation requirements can be seen in the sixth part of the scheme: the installation and the use conditions
- **Cryogen: R404a; Duct system:** To ensure a high uniformity index, test box is provided with internal circulation air duct system; one end of the studio in the interlayer distribution, heater, evaporator, fan fan device; the air circulation, when the fan rotates at a high speed, the studio in the air from the sucked air duct by heating. After cooling from the air duct above the blow out in the studio, and the sample after heat exchange of air to be inhaled repeatedly, the circulating air duct, so as to achieve the temperature setting.

Control system components

- Temperature measurement: Pt100 rtd
- Humidity measurement: Pt100 Platinum resistance
- control device: Japan imported RKC96*96 temperature controller, at the same time, it has the function of automatic test and PID parameter setting, and can realize the automatic operation of the refrigerator only by setting the temperature
- Screen display: Set temperature and humidity
- Setting accuracy: 2°C
- Operation mode: Constant operation
- The other main low-voltage electrical components are used by the famous brand products such as: Schneider AC contactor, thermal relay, OMRON mini relay, Delixi circuit breakers, where to Taiwan water level float switch etc.

**Technical Data Subject to change without notice.*

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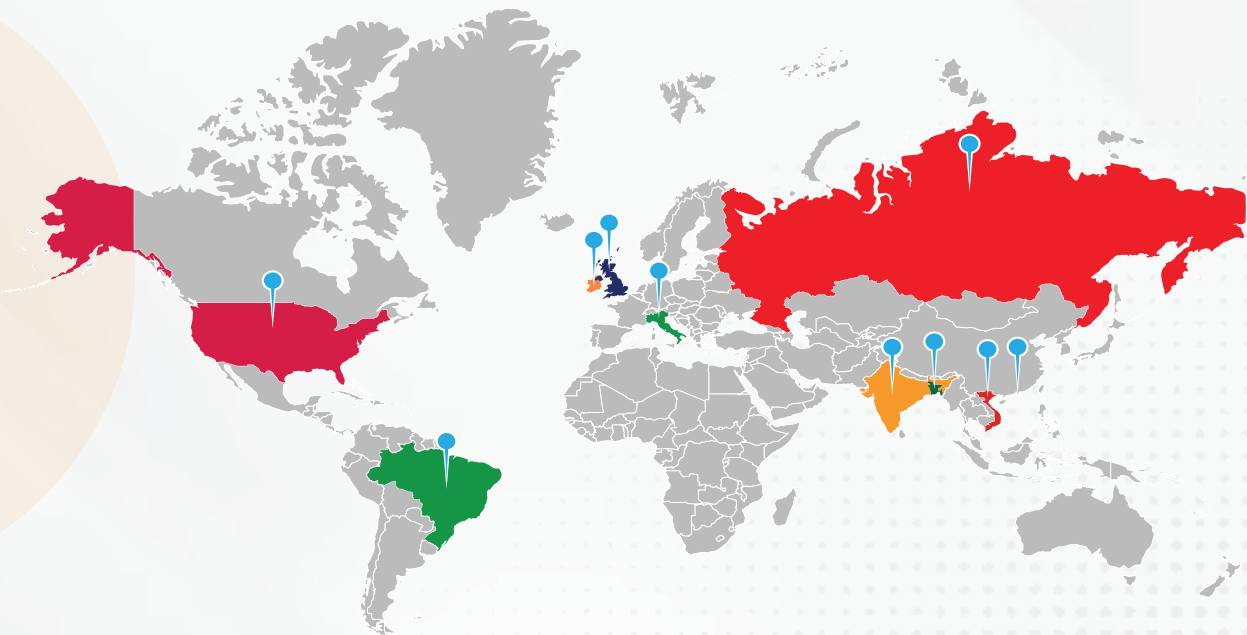
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