

ESS High Speed Test Chamber Specifications



Item No. : ESS-225L-C5

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A Brief Introduction

This series of temperature and humidity test chamber fit for liability testings for industrial products with high accuracy and wide range of temperature and humidity control. Performance of this device is fit for requirement of GB5170.2.3.5.6-95, “standard requirements of environmental testing equipment and test methods for the basic parameters of electric and electronic products under the condition of humidity, low temperature, high temperature, and constant heat”

B Application

This device fits for high and low temperature reliability test for electrics, electronics, machinery and spare parts, materials, and so on.

C Characteristic

- GB-2423.1-2008(IEC68-2-1)Test A: Low Temperature Testing Method
- GB-2423.2-2008(IEC68-2-2)Test B: High Temperature Testing Method
- GJB360.8-2009(MIL-STD.202F) High Temperature Duration Test
- GJB150.3-2009(MIL-STD-810D)High Temperature Testing Method
- GJB150.4-2009(MIL-STD-810D)Low Temperature Testing Method
- GB2423.3-2008(IEC68-2-3)Test Ca: Constant damp heating test method
- GB2423.4-2008(IEC68-2-30)Test Db: Damp heat alteration test method
- GJB150.9-2009(MIL-STD-810D) Damp Heat Test Method

1. Energy Saving	Automatically adjust cooling rate to reach constant temperature
2. Easy Operation	※Komeg Programmable KM-5166 colorful PID touch panel controller; ※Testing Data Record, Flexible Operation
3. High Reliability	※Key Components are imported from world top suppliers, ensure the lifespan and reliability; ※High Performance oil extractor, ensure compressor long lifespan


D Main Technical Index (Water cooled, 25°C Ambient and empty load)

1、 Temperature	
1.1 Temperature Range	-40°C ~ +180°C
1.2 Temperature deviation	$\cong \pm 2.0^{\circ}\text{C}$
1.3 Temperature Fluctuation	$\pm 0.5^{\circ}\text{C}$
1.4 Temperature Uniformity	$\cong 2.0^{\circ}\text{C}$
1.5 Temperature Heating and Cooling Rate	Following data are measured at air outlet and the measurement method is according to IEC-60068-3-5 Heating Rate: 5°C/min from -40°C to +120°C Empty Load Cooling Rate: 5°C/min from +120°C to -40°C Empty Load
2、 Humidity	
2.1 Humidity Control Range	10%R. H~98%R. H
2.2 Temperature and Humidity Chart	
2.3 Humidity Deviation	$\pm 3.0\%RH$ ($>75\%RH$) $\pm 5.0\%RH$ ($\leq 75\%RH$)
2.4 Humidity Uniformity	$\pm 3.0\%RH$ (Empty Load)
2.5 Humidity Fluctuation	$\pm 2.0\%RH$

E Chamber Construction

The chamber is made of whole part construction, include heat isolation chamber, independent refrigerate system and control system

1. Chamber Dimension	Inner Chamber Dimension: W 700 × H 700 × D 480 mm Outer Chamber Dimension: W 900 × H 1735 × D 2030 mm
2. Heat Isolation Chamber	※ Housing Material: High quality carbon steel panel, colorful electrostatic plastic spray; ※ Inner Material: SUS304 fog stainless steel ※ Isolate Material: PUR with glass fiber
3. Door	Single side door, with heating wires around the frame to avoid condensation.
4. Observation Window	W380 × H500mm observation windows are installed on the door with multi-layers hollow glass, which is equipped with heating films to avoid condensation.
5. Illumination System	One 11W/AC220V tube light installed above the observation window.
6. Heater	High quality Nichrome heater, SSR control
7. Humidifier	Vapor humidification; Stainless Steel Covered Heater; Control Method: SSR control Water level control system, avoid dry heating
8. Condensation water outlet	Condensation water outlets for both Testing Room and refrigeration system
9. Testing Holes	One φ 50mm testing hole on each side
10. Testing Shelf	2 layers stainless steel testing shelf, layer distance adjustable with 30Kgs loading capacity
11. Moving Wheels	4 wheels with fixing cup
12. Control Cabinet	Power supply breaker, over temperature protector

13. Water supplement system	Water pump auto water supplement
F Refrigeration System	
1. Compressor	Bock Semi Hermetic Compressor
2. Refrigerant	R404A R23 Non Fluorine Environmental Protection refrigerant
3. Condenser	Water Cooled Shell tube condenser
4. Evaporator	High performance fin type evaporator, auto loading adjustable, no frosting for long time operation.
5. Other accessories	High accuracy expansion valve, oil extractor, desiccant, etc are all famous brands from top suppliers of the world.
6. Refrigerant flow auto control	Refrigeration system with auto energy output adjusting
7. Refrigeration Technology	※ Nitrogen protection welding, dual grade vacuum pump to ensure tube inside clean and reliable. ※ Water Collector plate on bottom of the compressor, condensing water drained out from the water outlet.
G Control System	
1. Sensor	High accuracy DIN A class, dry ball ϕ 4.8mm SUS #304 PT 100 Ω .
2. Controller	Komeg Programmable KM-5166 color LCD touch screen PID controller 

<p>3. Display function</p>	<p>Temperature and humidity set (SV) and actual value (PV) display; Running program code, series number, remaining time, cycles, running time displayable; Programmable and chart displayable; Certain Point or program status display; Resolution: 800*480, 7" color display</p>
<p>4. Control Resolution</p>	<p>Temperature: $\pm 0.01^{\circ}\text{C}$; Humidity: $\pm 0.1\%$; Time: 1min .</p>
<p>5. Setting Range</p>	<p>Temperature: - 100~200 $^{\circ}\text{C}$; Humidity: 0~100 %RH.</p>
<p>6. Operation Method</p>	<p>Program Operation, Set-Value Operation</p>
<p>7. Program Capacity</p>	<p>Set-Value operation time set can be 9999 h 59 m (0 means no time limitation of running); Program capacity: Max. 1000 groups; Memory Capacity: 1000 steps per group; Rapid Command: 999 times of cycle for each command</p>
<p>8. Setting Method</p>	<p>Human-Computer Interface setting. Touch screen input and control</p>
<p>9. Communication Port</p>	<p>Can be connected to the computer and download data; Can be monitored or remote controlled; Multi chambers can be Synchrocontrol; RS-232, RS-485 and Ethernet ports</p>
<p>10. USB Disk</p>	<p>1G to 8G USB disk, can download the testing data.</p>
<p>11. Information Record Method</p>	<p>RAM with battery protection, can save setting value, sampling value, sampling time, etc. The chart recording time period can be set from 10 to 60 sec. Max store 90 days testing chart.</p>
<p>12. Power down memory function</p>	<p>Power down recovery mode can be set to be: warm start/cold start/stop</p>

13. Preset Auto-start function	Auto-start can be preset. So long as power is on, the machine will automatically start when preset time arrives.
14. Software Running System	Windows2000 or Windows XP
15. Net connection	Can be connected to Ethernet via specific software, and can be remote controlled or remote aided through Ethernet. Ethernet can also collect testing data and control multi machines.

H Control System

1. Control Panel	<ul style="list-style-type: none"> A. Emergency Stop Button B. Power Switch C. Over Heat Protector D. RS-485 Port
2. Security Device	<ul style="list-style-type: none"> A. Empty Heating protector for heater B. Empty Heating protector for humidifier C. Over Current Breaker for heater D. Over Current Breaker for humidifier E. Over Current Protector for circulating fans F. High Pressure Protector for Compressor G. Over Heat Protector for Compressor H. Over Current Protector for Compressor I. Anti and Lack Phase Protector Compressor J. Wire Breaker K. Non-fuse Breaker L. Low water protector for humidifier M. Tank Low Water Alarm N. Controller Noise Isolation Protector O. Fluid Power Controller
3. Alarm and Indicator	When above protecting appears, device will stop operation and start sound and light alarm. Defect reason and solution will also be appeared





in the controller

I Ambient Condition

1. Ambient Condition	Ambient Temperature: 5~35°C
2. Power Supply	AC 3ψ 4W 380V 50Hz (Voltage fluctuation ≅ ±10%)
3. Grounding Protect	Grounding Resistance ≅ 4Ω

Main Components List

Item	Brand	Remarks
Compressor	Bock Semi Hermetic Compressor	
Oil Extractor	Emerson	
Panel Heat Exchange	GEA	
Pressure Relay	DANFOSS	
Condenser	YQ	
Evaporator	YQ	
Dry Filter	DANFOSS	
Capillary tube	KOMEGB	
Expansion Valve	DANFOSS	
Electric Magnetic valve	Nickideu, DANFOSS	
Controller	Komeg	
Breaker	Schneider	

AC Connector	Schneider	
Heat Relay	Schneider	
phase sequence relay	Carlo Gavazzi	
Time Relay	Autonics	
AC Relay	Schneider	
Solid Relay	Carlo Gavazzi	