

Technical Proposal for Programmable Temperature And Humidity Test Chamber



Model: KMH-64L

Manufacturer: KOMEG Technology Ind Co., Limited

I . Product Overview

Able to accurately simulate a wide range of complicated natural environments, and is suitable for reliability test in industrial products. Meet 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.

II . Application

Applicable to environmental adaptability and reliability test in such industrial units as electronics, electrical appliance, battery, plastics, food, paper product, vehicle, metal, chemistry, building material, research institution, inspection and quarantine bureau, university etc..

III. Features

- GB-2423. 1-89(IEC68-2-1)Test A: Low Temperature Test
- GB-2423. 2-89(IEC68-2-2)Test B: High Temperature Test
- GJB360. 8-87(MIL-STD. 202F) High Temperature Life Test
- GJB150. 3(MIL-STD-810D) High Temperature Test
- GJB150. 4(MIL-STD-810D) Low Temperature Test
- GB2423. 3-93(IEC68-2-3)Test Ca: Constant Heat Test
- GB2423. 4-93(IEC68-2—30)Test Db: Damp Heat Alternative Test
- GJB150. 9-93(MIL-STD-810D) Damp Heat Test

1. Energy conservation	Bypass mode to adjust cooling capacity to achieve a constant temperature and humidity effectively
2. Easy Operation	※Using company owned brand KOMEQ KM-5166 LCD touch screen controller with P.I.D. control parameters setting ※Flexible approach for data collection and recording
3. High reliability	※Key parts are imported, ensuring the service life and high reliability ※Efficient oil separator to ensure the service life of the compressor

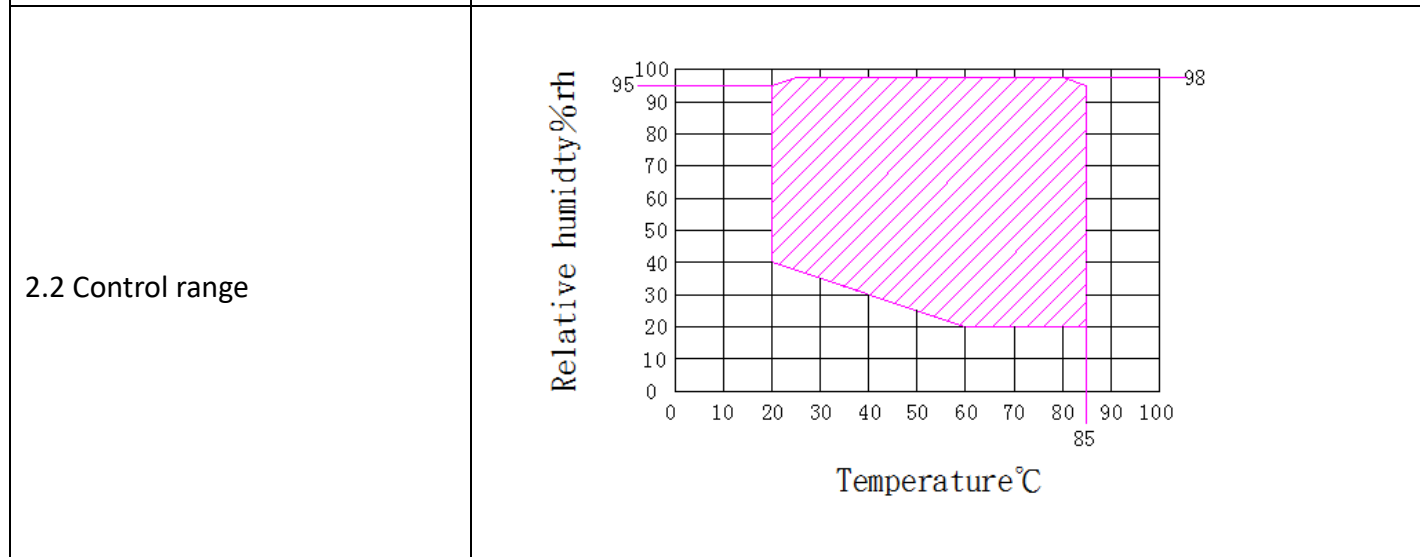
IV. Main Technical Parameters (performance: air-cooled, ambient temperature of +25°C)

1. Temperature

1.1 Temperature range	-40 °C ~ +150 °C
1.2 Temp Deviation	≅ ±2.0°C
1.3 Temp Constancy	±0.5°C
1.4 Temp Uniformity	±2.0°C
1.5 Heating and cooling rate	+20°C ↑ +150°C within 40 min (no-load; ambient temperature of +25°C) +20°C ↓ -40°C within 60 min (no-load; ambient temperature of +25°C)

2. Humidity

2.1 Humidity range	20%R.H.~ 98%R.H
--------------------	-----------------



2.3 Humidity deviation	± 3.0% RH (> 75% RH) ± 5.0% RH (≤ 75% RH)
------------------------	--

2.4 Humidity uniformity	± 3.0% RH (no-load))
-------------------------	----------------------

2.5 Humidity deviation	±2.0% RH
------------------------	----------

The above specifications is measured in the environment of + 25 °C, temperature and humidity performance measurement comply with related regulation of IEC60068-3-5 standard; Sensors placed in the air outlet.

V . Chamber Structure


Overall structure and chamber was composed of three parts as below.
Insulation box, separate refrigeration units, and electrical control cabinet.

1. Chamber size	Workspace volume :W400xH400xD400mm Exterior size : W 600 × H 1550 × D 1220 mm (Not including the protruding part)
-----------------	---

2. Insulation box	<ul style="list-style-type: none"> ※ wall material: high-quality carbon steel with static color spray ※ inner wall material: SUS304 # matte stainless steel plate ※ Insulation materials: rigid polyurethane foam insulation layer + glass fiber.
3. Door	The door is opened to the left; Heating wire was installed at the door frames to prevent condensation at low temperatures.
4. Observation window	With 1 set W 216 × H 230mm observation window, multi-hollow electric insulation coated glass prevent condensation effectively
5. Lighting device	11W/AC220V *1 located on observation window
6. Heating	Quality nickel-chromium alloy wire electric heaters, Non-contact control mode (SSR).
7. Humidifying	Steam heating and humidification method; Stainless steel sheathed heater; Heater control: contactless control (SSR); Water level control device, heater anti-dry device.
8. Water outlet hole	Available for drain the condensate water
9. Cable port	Φ 50mm*2 located on both sides (each*1) with rubber stopper and plastic cover
10. Sample holder	Two layers of stainless steel sample holder, weight bearing 30kg per layer
11. Mobile Casters	Mobile Casters *4 with foot cups
12. Electric control box	Total power circuit breaker, over-temperature protection.
13. Water supply system	Water pump automatic supply

VI. Refrigeration System

1.Working mode	Mechanical compression refrigeration
2.Refrigeration compressor	Hermetic compressor imported from Europe and the United States
3. Evaporator	Automatic load capacity adjustment of high performance of fin type, able to use in low temperature and high humidity in a long term and without frost.
4. Cooling	Sine wave pattern aluminum finned copper tube air heat exchanger (air-cooled)
5. Refrigerant	R404A Environmental friendly high temperature level of refrigerant
6.Other attachment	High-precision expansion valve, desiccant, and other components are imported internationally imported brands.

<p>7.Refrigerant flow control</p>	<p>Refrigeration system of energy consumption output control by automatic adjustment</p>
<p>8.Refrigeration Technology</p>	<p>※ Nitrogen welding, two-stage rotary vane vacuum pump, ensure that the internal cooling system clean and reliable. ※water tray located at the bottom of the compressor to ensure condensate water drain through pipe freely at the rear of the chamber.</p>
<p>VII. Control System</p>	
<p>1. Sensor</p>	<p>High precision DIN A class, dry ball ϕ4.8mm SUS # 304 PT 100Ω</p>
<p>2. Controller</p>	<p>KOMEGB brand KM-5166 LCD Touch screen controller with PID control parameters setting</p> 
<p>3. Display</p>	<p>Temperature and humidity settings (SV) Actual (PV) value can be displayed directly, Execution of the program can display numbers, Paragraphs, remaining time and cycles, running time display, Program editing and graphic curve display, Fixed or program operation status display, 7-inch TFT display screen. Resolution: 800*480</p>
<p>4. Resolution</p>	<p>Temperature: + 0.01 $^{\circ}$C; Humidity: + 0.1%; Time: 0.01min</p>
<p>5. Setting range</p>	<p>Temperature: - 100~200 $^{\circ}$C; Temperature can be adjusted based on the working temp of the equipment(the upper limit +5 $^{\circ}$C, the lower limit -5 $^{\circ}$C) Humidity: 0~100 %RH.</p>
<p>6. Running mode</p>	<p>programmable running ,constant running and booking boot</p>

7. Program capacity	<p>The operating time can be set up to 999999 h 59 m (Set 0 to constant operation without time limit)</p> <p>Available program capacity: max 269 groups ,13450steps</p> <p>Available memory capacity: 50step/group</p> <p>Repeatable command: Each command can be cycles to 32000.</p>
8. Setting mode	<p>Man-machine dialogue mode, Touch mode input and control.</p>
9. Communication interface	<p>Data collection when connected to a computer</p> <p>Can be used as monitoring and remote control system,</p> <p>Multiple machines synchronization control available.</p> <p>RS-232、RS-485 and Ethernet.</p>
10. U disk Memory card	<p>1G-8G disk is available with history curve, historical data download hot-swappable function</p>
11. Data collection	<p>RAM with battery protection settings, data can be saved, curve recording period can be set 30 ~ 300 sec, maximum historical data memory storage is 90 days (when the sampling time is 1min) 10 years of data are not used continuously</p>
12. Power off memory	<p>Power recovery mode can be set as hot start, cold start and stop.</p>
13. Pre-set function	<p>boot time can be set freely and machine runs automatically when turning on power</p>
14. Software environment	<p>Windows 7/WIN8 or Windows XP</p>
15. Network Connection	<p>Can be connected to Ethernet, remote control function, data collection, can simultaneously control multiple machines.</p>
VIII. Control system	
1. Control panel	<ol style="list-style-type: none"> a. Emergency stop switch b. Power switch c. Over temperature protector d. RS-485 interface

<p>2. Protection System</p>	<ul style="list-style-type: none"> a. Heater burning protection switch b. Humidifier burning protection switch c. Heater over current circuit breaker d. Humidifier over current circuit breaker e. Circulating fan over current and overload protection f. Compressor high voltage protection switch g. Compressor over temperature protection switch h. Compressor over current protection switch i. Overvoltage protection switch j. Circuit breaker k. Leakage switch l. Low water level of humidifier protection m. Alarm when water tank in low water level. n. Zero - crossing gate fluid power controller
<p>3. Alarm</p>	<p>Equipment stops running and sends audible alarm when the above protection appears, meanwhile, fault, causes and solutions will be displayed on the screen.</p>


IX. Installation

<p>1. Surrounding environment</p>	<p>Operation temperature range: 5~35℃</p>
<p>2. Power</p>	<p>AC 3ϕ 4W 380V 50Hz(R, S, T, N phase +ground wire)(Voltage fluctuation ≅ ±10%)</p>
<p>3. Ground protection</p>	<p>Grounding resistance ≅ 4Ω</p>

P.S.

1. Please equip the above power demanded to the terminal box of the machine control; user must prepare an exclusively no-fuse switch for the machine.
2. Please confirm whether it can enter the door or access elevators.

Main Material List

	Name	Brand	Remarks
1	Compressor	French Tecumseh	Hermetic compressor 

2	Oil separator	American Emerson	
3	Pressure Switch	Denmark DANFOSS	
4	Condenser	Guangzhou Yongqiang	
5	Evaporator	Yongqiang	
6	Dry filter	Denmark DANFOSS	
7	Capillary tube	KOMEQ	
8	Expansion valve	Denmark DANFOSS	
9	Magnetic valve	Denmark DANFOS	
10	Controller	KOMEQ	
11	Circuit breaker	Schneider	
12	AC contactor	Schneider	
13	Thermal relay	Schneider	
14	Phase sequence relay	Carlo Gavazzi	
15	Time relay	Autonics	
16	AC relay	Omron	
17	Solid-state relay	Carlo Gavazzi	

Price and Delivery	
Price	Total ex work price: 7620USD/SET (standard chamber).
Delivery	30 working days upon receipt of the deposit;
Payment Terms	50% T/T IN ADVANCE, BALANCE BEFORE SHIPMENT.
Bank Details:	
BANK NAME:	THE HONGKONG AND SHANGHAI BANKING COOPERATION LIMITED
ACCOUNT NO:	641-011879-838
Beneficiary Name:	KOMEG Technology Ind Co., Ltd
BANK ADDRESS:	1 QUEEN'S ROAD CENTRAL, HK
SWIFT CODE:	HSBCHKHHHKH