Technical Specification of High and Low Temperature Altitude Test Chamber

Model: KU-504L

Manufacturer: KOMEG Technology Ind Co.,Ltd

Ⅰ. Control methods and characteristics

High precision microcomputer control temperature and humidity system, with PID control the refrigerant flow to make the system's heating and humidification reduction, to achieve low power consumption, energy saving, carbon reduction effect, cooling, heating, humidity control intelligent electronic control, long-term stable use.

Ⅱ. Performance

Water cooled, water temperature at 25℃, no load

2.1 Temperature range	-40℃～+150℃
2.2Temperature fluctuation	≤0.5℃ (normal pressure, without load)
2.3 Temperature deviation	≤±2.0℃ (normal pressure, without load)
2.5 Heating time	20℃→ +150℃， within 70 min (normal pressure, without load)
2.6 Cooling time	20℃→ -40℃， within 60 min (normal pressure, without load)
2.7 Pressure range	From normal to 1kPa
2.8 Pressure deviation	≤±2 kPa（≥40 kPa） ≤±5%（2～40 kPa） ≤±0.1 kPa（≤2 kPa）
2.9 Pressure changing rate	normal pressure to 1kPa,within 30min (no load, dry inside)
2.10 Meet the test standards	GB / T2423.1-2008 Low temperature test method Ab GB / T2423.2-2008 High temperature test method Bb GB / T2423.21-2008 Low pressure test method M GB / T2423.25-2008 Low temperature / low air pressure comprehensive test Z/AM GB / T2423.26-2008 High temperature / low pressure comprehensive test Z/BM

	GJB150.2A-2009 Low atmospheric pressure (height) test (Test procedure Ⅰ/Ⅱ) GJB150.3A-2009 High temperature test GJB150.4A-2009 Low temperature test GJB150.6A-2009 Temperature and altitude test
Ⅲ. Structure	
3.1 Test space dimension	W×H×D:800×900×700mm
3.2 External dimension	W×H×D: 1610×1990×2250 mm PS: not including external dimensions protruding part
3.3 External material	External material use high-quality carbon steel with static color spray
3.4 Internal material	Stainless steel plate (SUS # 304)
3.5 Insulation material	High-density rigid Polyurethane foam + glass wool, (high strength, non-flammable, no deformation)
3.8 Door	Single open door, Explosion - proof handle, observation window 210*270mm, with lighting lamp inside.
3.9 Cable port and binding post	One Φ100mm cable hole on the left; with glass sintered sealing binding post (24 core - 10A) flange
3.10 Manual charging valve	Manual inflation valve for manual pressure relief during power failure.
3.11 Shelf	Stainless steel shelf *2 layer, load-bearing 30 kg/ layer.
3.11 Air heater in the box	Fin type heat pipe stainless steel electric heater.
3.12 Heating control mode	SSR (solid state relay) non-contact pulse width modulation.
3.13 Vacuum pump	VD301 ULVAC vacuum pump

3.14 Vacuum sensor	Model: UNIK 5072 (USA GE) Measuring range: 0 ~ 200KPa Comprehensive accuracy: ± 0.2% FS. BSL Output: 4 ~ 20mA Pressure interface: G1 / 4 internal thread
Ⅳ. Refrigeration System	
4.1 Working Mode	Water - cooled mechanical compression cascade refrigeration
4.2Refrigeration compressor	Mechanical compression refrigeration
4.3 Evaporator	Finned copper coil heat exchanger
4.4 Condenser	Water-cooled, shell and tube type condenser
4.8 Refrigerant	R404a/R23 Non-fluorine environmentally friendly refrigerant
4.9 Other accessories	Desiccant, oil separator, refrigerant flow window, repair valve
Ⅴ. Control System	
6.1 Controller	7 - inch TFT Programmable LCD Touch Screen Controller
6.2 Operation mode	Program mode, constant value mode.
6.3 Operating language	Chinese and Russian optional, touchscreen input
6.4 Program Capacity	Maximum 20, maximum 1000 steps, maximum 20 cycles (the maximum number of steps per cycle 99).
6.5 Display Function	Temperature / humidity / presure settings (SV) Practical (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,
6.6 Display Resolution	Temperature: ± 0.01ºC; Humidity: ± 0.1%; time: 1min.
6.7 The upper and lower temperature protection	The lower limit alarm temperature can be set.

function	
6.8 Input	Thermocouple / Platinum Resistance / Voltage / Current.
6.9 Control mode	Anti-integral saturation PID, BTHC (temperature and humidity test equipment), BTPC (temperature and pressure equipment).
6.10 Curve recording function	With battery protection of the RAM, you can save the device settings value, time of sampling value and sampling time; Maximum recording time of 60 days (when the sampling period is 1.5min).
6.11 USB function	With a USB (capacity of not less than 1G, no warranty) one, PC-specific software CD-ROM. Through the PC software for the preparation of test procedures and save to USB, and then transferred from the USB test program and stored in the controller; can also be transferred to the controller program to USB, and then stored in the PC for analysis and management. Can be stored in the controller records the test curve data dump to the USB. Display and print the test data / curve directly with PC-specific software (the data can not be modified); or convert the recorded data to an Access data file that can be read by Microsoft Office
6.12 Communication interface	Data collection and curve display when connected to a computer Can be used as monitoring and remote control system Multiple machines synchronization control available R232, RS485,and Ethernet
6.13 Power Off Memory Function	Power recovery mode can be set as hot start, cold start and stop
6.14 Calendar timer function	Automatic start and automatically stop running.
6.15 Accessory (Standard configuration)	Fault alarm code prompt function, power protection, self-diagnostic function.
6.16 Network Connection	Can be connected to Ethernet via professional software, remote control & assistance function and data collection can be achieved through network, multiple machine can be controlled simultaneously

6.17 Control Panel	1. Emergency stop switch 2. Power switch 3. Over-temperature protection *1 4. RS-485 interface *1 5. USB interface

Ⅵ. Safety protection device

7.1 Refrigerating system	a. Compressor overheat protection switch b. Compressor over-current protection switch c. Compressor high voltage protection switch
7.2 Test chamber	a. Adjustable over-temperature protection b. Test space temperature fuse c. Air conditioning channel limit over-temperature protection d. Fan motor overheating protection e. Heater over-current quick break tester
7.3 Other security protection	a. Total power phase sequence and phase failure protection b. Leakage protection, overload and short circuit protection c. Vacuum pump motor over-current, overload protection

Ⅶ. Installation Environment

8.1 Power Supply	AC 3ψ4W 380V 50HZ(R.S.T.N + ground wire) (voltage fluctuation ± 10%)
8.2 Use compressed air source	Please provide 4 ~ 7kg / cm^2 compressed air source
8.3 Operating temperature range	Ensure operating environmental temperature : 5∽35℃

Ⅷ. Warranty

one year (Excluding natural disasters, power anomalies, human mal-operation, damage caused by improper maintenance, etc.) the Company completely free maintenance

Main Material List

SN	Name	Brand	Remarks
1	Compressor	BOCK Semi-hermetic compressor	

2	Oil separator	American Emerson, ALCO, Temprite	EMERSON
3	Plate heat exchanger	GEA	GEA
4	press switch	Denmark DANFOSS	Danfoss
5	Condenser	Kuenling	
6	Evaporator	Yongqiang	
7	Dry filter	Denmark DANFOS	Danfoss
8	Expansion valve	Denmark DANFOS	Danfoss
9	Expansion valve	American HONEYWELL	Honeywell
10	Magnetic valve	Japan Nickideu	
11	Magnetic valve	Denmark DANFOS	Danfoss
12	Controller	KOMEG	KOMEG
13	Residual current circuit breaker	Taiwan SHIHLIN	
14	No-fuse switch	French Schneider	Schneider Electric
15	AC contactor	Japan French Schneider	Schneider Electric
16	Thermorelay	French Schneider	Schneider Electric
17	Phase sequence relay	Carlo Gavazzi	CARLO GAVAZZI

18	Solid-state relay	Carlo Gavazzi	
19	Intermediate Relay	Omron	
20	Cycle motor	Taiwan Teco	
21	Vacuum pump	VD301 ULVAC	
22	Vacuum valve	Highlight AVB-KF-40-P	
23	Vacuum sensor	GE UNIK 5072	