

Rapid-Rate Temperature (& Humidity) Cycle Chamber

Suitable For The Reliability Test Of Semiconductor Electronic Components

In response to the testing and R&D needs of electronic components such as semiconductors and automotive electronics, ESPEC(Guangdong) has developed a smaller capacity -Rapid Temperature Change(humidity) Chamber -GFS/G-400-25 models, which is suitable for reliability testing of electronic components related to semiconductors and automotive parts, it can better focus on reliability testing of automotive components.

- ▶ Suitable for semiconductor electronic devices, solder joint life assessment, and reliability testing of semiconductor packaging.
- ▶ Suitable for reliability testing of automotive electronic components, automotive battery management systems (BMS), automotive electronic control systems, etc.
- ▶ Able to effectively meet the requirements and industry standards of high-end electronic, semiconductor, and automotive industry customers.

Features:

Strong Temperature performance

- ▶ Heat Up rate: 25°C/min.
- ▶ Pull Down rate: 25°C/min.
- ▶ (Temp range -45°C ~ +155°C)
- ▶ Temp range: -70°C ~ +180°C
- ▶ Hum range: 10%rh ~ 98%rh (GFS only)

Can meet the evaluation and testing requirements of JEDEC and IEC standards.

- ▶ JESD22-A104F (*Please consult the sales company first)
- ▶ IEC60749-25 (*Please consult the sales company first)
- ▶ IEC60068-2-14 Nb ((JIS C 60068-2-14 Nb))
- ▶ EIAJ ED-2531B Nb
- ▶ JESD22-A105C
- ▶ IPC-9701
- ▶ IPC-TM-650 2.6.6 B
- ▶ LV 124 L-03V
- ▶ SAE J1211

(Note: Load: 5kg epoxy plate, 4kg stainless steel, no heat)

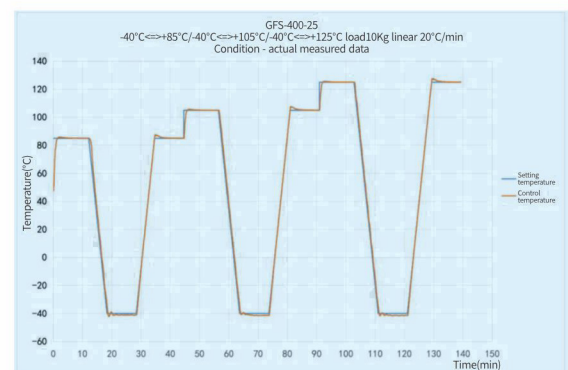
Can achieve high-precision temperature and humidity control

- ▶ Balanced Temperature (& Humidity) Control system (BTHC system) and PID control function.
- ▶ The controller can choose between continuous operation and program operation to adapt to different applications.

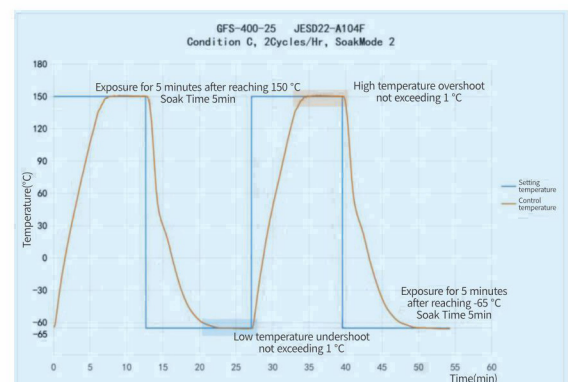
A wide range of options can be added to meet the diverse needs of customers.

- ▶ Additional safety options such as pressure relief valves, smoke sensors, emergency push stop button, alarm output terminals and three color status indicator warning Lights are available.

*More detail please see HP: <http://www.gd-espec.com/en/>



GFS-400-25 "-40°C ↔ +85°C / -40°C ↔ +105°C / -40°C ↔ +125°C load 10Kg linear 20°C/min" Condition - actual measured data



Actual measurement data of GFS-400-25 in accordance with JEDEC 114C requirements



Features:

Interface (option) for device communication can be selected between RS-485, GPIB, Web Lan and RS-232C.

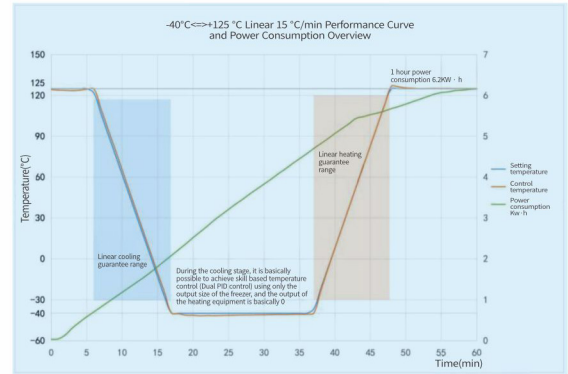
Cable ports on both sides (Ø50mm) as standard to allow easy wiring access.

Color LCD touch screen controller, easy to operate

- ▶ Programmed operation allows storing 40 program operation patterns, each up to 99 steps, temperature ramp settings and a maximum of 999 repeat cycles.
- ▶ Multilingual display: Can change the display language at any time from the language icon.
- ▶ USB output of trend graph data.

Energy efficiency and Environmental

- ▶ When operating below 0°C, it is basically possible to operate temperature control (PID control) with the refrigerator only, when the heater output is OFF.



Note: GFS-400-25-40°C ↔ +125 °C Linear 15 °C/min Performance Curve and Power Consumption Overview

Model		GFG-400-25	GFS-400-25
System		Balanced Temperature Control (BTC) System	Balanced Temperature Humidity Control (BTHC) System
Power Supply & Max.Load Current(A)		AC380V 3φ 4W 50Hz (80A)	AC380V 3φ 4W 50Hz (80A)
Allowable ambient conditions		Ambient Temperature: 0~+40°C; Relative Humidity: Up to 75%rh; Cooling water temperature: +5~+32°C	
Performance	Temp Range※1	-70~+180°C	-70~+180°C/10%RH ~98%RH
	Temp.fluctuation※1	±0.5°C	
	Temp.variation※1	±2°C	
	Humid.fluctuation※1	—	
	Temp.rate of Change (IEC60068-3-5) (Temp range-45°C ↔ +155°C)	Heat Up: 30°C/min Pull Down: 26°C/min	Heat Up: 25°C/min Pull Down: 25°C/min
	Temperature Extremes Achievement Time (IEC60068-3-5)	Heat Up: +20°C to +180°C < 6 min Pull Down: +20°C to -70°C < 8 min	Heat Up: +20°C to +180°C < 8 min Pull Down: +20°C to -70°C < 8 min
	Allowable Heat Load (Temp inside chamber: +20°C.)	16000W	16000W
	Noise Level (JIS-Z-8731:1999 A)	Less than 65dB.	
Construction	Exterior	Galvanized cold-rolled steel sheet, hot-rolled steel sheet	
	Test Area	Stainless steel plate: 18—8 Cr—Ni stainless steel plate, 2B polish	
	Heater	Nichrome strip wire heater	
	Humidifier	—	
	Cooler	Plate-fin cooler	
	Air Circulator	Propeller fan	
	Water supply	—	
	Water Tank	—	
	System	Mechanical double-stage refrigeration system	Mechanical double-stage refrigeration system
	Refrigerator	Scroll Compressor	
Utilities	Capacity (kW)	11.19kW(15HP) 2sets	
	Expansion System	Electronic expansion valve	
	Refrigerant	R404A/R508B	
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Cooling water	Water supply (L/h) (Reference temperature 23°C)	7260	7260
	Water supply pressure (MPa)	0.2~0.5	0.2~0.5
	Connection piping diameter	32 2 1/4 inch(NPT)	32 2 1/4 inch(NPT)
Standard Accessories		Shelve 1pcs; Racks 2pcs; Cable Port Plug Ø50mm 2pcs; Breaker Handle Stopper 1pcs; Door Keys 2pcs; Wet-bulb wick 1box (24PCS-only for GFS); Cartridge Fuse 4pcs; Operation manual 1set (without Power cable).	
Inside Dimensions (W×H×Dmm)		600×1050×650	600×1050×650
Outside Dimensions (W×H×Dmm)		1035×1960×2785	1035×1960×2785
Volume (L)		410	410
Weight (Kg)		1060	1110

※1 The temperature chamber's performance values are based on GB/T5170.2, and IEC60068-3-5. And humidity chamber's performance values are based on GB/T5170.5 and IEC60068-3-6. Performance figures are given for a +23°C ambient temperature, relative humidity 65±20% RH, rated voltage, with no specimens inside the test area.



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