



高新技术企业/专精特新企业  
专业的高温加热制造工厂 (-60°C~2600°C)

中国热处理行业协会理事单位  
ISO45001:职业健康安全管理体系认证  
ISO14001:环境管理体系认证  
ISO9001:质量管理体系认证  
欧盟CE产品认证



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High vacuum tube

furnace model : GWDL-GA



#### Technical parameters

The GWDL-GA series 1200°C high-vacuum tube furnace, as shown in the figure, integrates the control system and furnace chamber. The furnace lining uses vacuum-formed high-purity alumina lightweight material.

Made from materials.

It uses high-temperature alloy resistance wire as the heating element; it is specially designed for laboratories in universities and research institutes, as well as industrial and mining enterprises, for heating ceramics, metallurgy, electronics, glass, chemicals, etc.

Specialized equipment developed for the sintering, melting, analysis, and production of mechanical, refractory, new material development, special materials, building materials, metals, non-metals, and other compound materials.

Prepare.

The control panel is equipped with an intelligent temperature regulator, a power switch, a main heating start/stop button, a voltmeter, an ammeter, and a computer interface, allowing for real-time monitoring of the system's operation.

In operation, this product employs reliable integrated circuitry, offering a superior working environment and strong anti-interference capabilities. The furnace shell temperature remains 945g at its highest setting, significantly improving the working environment. (Microcomputer program)

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It features sequential control, programmable curves, fully automatic heating/cooling, and the ability to modify temperature control parameters and programs during operation, making it flexible, convenient, and easy to operate.

Temperature control accuracy:  $\pm 1\%$  with no overshoot

Temperature control accuracy:  $\pm 1\%$ . Rapid heating rate, fastest heating rate  $\dot{\gamma}$

15 $\dot{\gamma}$ /min (non-linear).

The furnace lining is made entirely of high-purity alumina, which offers high operating temperatures, low heat storage, resistance to rapid heating and cooling, no cracking, no slag shedding, and excellent insulation performance (its energy-saving effect is superior to older models).

(More than 60% of electric furnaces). It has a reasonable structure, with inner and outer double-layer furnace jackets and air-cooled heat dissipation, which can greatly shorten the testing cycle.

Features: The furnace can be opened.

1. Control accuracy:  $\pm 1\%$

2. Easy to operate, programmable, PID self-tuning, automatic heating, automatic heat preservation, and automatic cooling; no operator intervention required; can be equipped with a computer communication system.

The electric furnace can be operated via computer (starting the furnace, stopping the furnace, pausing heating, setting the heating curve, storing the heating curve, historical curves, etc.). The software is free and detailed.

See: Computer Control System.

3. The furnace tube is made of high-purity quartz glass (SiO<sub>2</sub>99.9%).

4. Pure titanium metal flange seal (double rubber ring)

5. The furnace body temperature is close to room temperature.

6. Dual-circuit protection

7. Imported refractory materials, with good thermal insulation performance and high temperature resistance.

8. Maximum vacuum degree  $10^{-3}$  Pa

9. It can pass through various gases (oxygen, nitrogen, argon, hydrogen, etc.)

Parameter categories	1200 degrees
model	GWDL-GA
Heating chamber size	150mm diameter * 300mm effective heating zone * 950mm furnace tube length
Furnace tube material	High-purity quartz glass
Voltage	380V

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power	6 kW
Maximum operating temperature	1200 degrees
Long-term use temperature	1150 degrees
Spend	
The control range is	RT-1200 degrees
Temperature sensing element	Thermocouple type K, temperature measurement range 0-1320 degrees Celsius
Heating element installation	Furnace tube perimeter
Location	
Temperature control accuracy	±1 degree (integrated circuit control, no overshoot)
Furnace temperature uniformity	±5 degrees Celsius (depending on furnace size; large furnaces can use multi-point control). This control method aims to achieve better furnace temperature uniformity.
heating rate	Adjustable from 1°/h to 15°/min (non-linear)
Heating element	High-temperature alloy resistance wire is used as the heating element.
Can open atmosphere	It can pass through various gases (oxygen, nitrogen, argon, hydrogen, etc.)
Vacuum component section	
Vacuum pump	Mechanical pump + molecular pump unit
vacuum level	≤ 10 <sup>-3</sup> Pa
One pressure gauge with dual pointer indicators for positive and negative pressure detection (digital vacuum gauge or other options are optional).	
Imported stainless steel valves (ordinary, stainless steel, solenoid valves, etc. are available).	
Two 0-300 ml/min mass flow meters	
Gas pipelines are made of clean stainless steel.	
Pressure protection is specially designed to prevent danger caused by closed or blocked furnace tube exhaust ports or excessive furnace tube pressure.	
	The principle behind this system is as follows: a signal is obtained from an electrical contact pressure gauge or pressure sensor to drive and control the system. The module closes the electromagnetic air intake valve and activates the electromagnetic exhaust valve and alarm. This protects the electric furnace from damage.
	run
Furnace door opening method	upper and lower hinges open and close

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	<p>The furnace body is machined using CNC machine tools, and undergoes polishing, grinding, pickling, phosphating, powder coating, and high-temperature baking. It features a two-tone design, a novel and attractive appearance, and possesses advantages such as oxidation resistance, acid and alkali resistance, corrosion resistance, high-temperature resistance, and easy cleaning.</p>
	<p>The furnace body adopts a double-layer air-cooled structure. Effective air-cooling guide baffles ensure overall cold air circulation within the furnace shell, ultimately cooling the conductive plates of the heating elements before they are discharged from the furnace body, thus preventing high-temperature oxidation of the conductive plates and guaranteeing a good working environment.</p>
	<p>The refractory furnace lining is made of vacuum-formed high-purity alumina lightweight material. Lightweight hollow spherical alumina plates are used in areas prone to material handling (furnace opening and bottom). It has high operating temperature, low heat storage, resistance to rapid heating and cooling, no cracking, no slag shedding, and good heat preservation performance (energy saving effect is more than 80% of that of old-style electric furnaces).</p>



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The insulation material	uses three layers: aluminum silicate fiberboard, alumina fiberboard, and alumina (polycrystalline) fiberboard. The energy-saving effect is more than 80% of that of old-fashioned electric furnaces.
Furnace shell temperature	For long-term use without shutting down the furnace, the outer casing temperature should be less than 45 degrees Celsius.
The protection system	employs an integrated modular control unit, ensuring accurate control precision. It features dual-loop control and dual-loop protection, providing protection against overshoot, over-adjustment, under-adjustment, thermocouple breakage, phase loss, overvoltage, overcurrent, overtemperature, current feedback, and soft start.
The control system	employs closed-loop technology with thyristor module triggering, phase-shift triggering, or zero-crossing triggering. Output voltage, current, or power is continuously adjustable, exhibiting constant voltage, constant current, or constant power characteristics. The current loop is the inner loop, and the voltage loop is the outer loop. When a sudden load is applied or the load current exceeds the current limit, the output current of the voltage regulator is limited to the rated current range, ensuring normal operation of the output and the voltage regulator. Simultaneously, the voltage loop also participates in regulation, limiting the output current of the voltage regulator to the rated current range, maintaining constant output current and voltage with sufficient adjustment margin. This protects the heating elements from excessive current and voltage surges, achieving safe, reliable, and precise control. Display parameters include temperature, temperature
range number, time interval, remaining time, output power percentage, and power consumption.	The pressure and
current buttons are	imported and have a lifespan of over 100,000 cycles, and are equipped with LED indicator lights.
The temperature profile setting	utilizes an intelligent temperature controller, offering multiple adjustment modes including standard PID, AI-based APID, and MPT. It features self-tuning and self-learning capabilities, exhibiting excellent control characteristics with no overshoot or undershoot. It boasts 30-segment programmable control, enabling temperature rise and fall control with arbitrary slopes. Programmable/operable commands such as jump (loop), run, pause, and stop are available, and the program can be modified at any time during operation. Employing an AI-powered adjustment algorithm with curve fitting capabilities, it achieves smooth and even curve control. Available in three groups: 50 segments in group 1, 24 segments in group 2, and
Multiple curve inputs	16 segments in group 3.
Computer Interface	RS485 RS232 USB
Random accessories include two heating elements, two sets of rods, one instruction manual, one certificate of conformity, and a tubular electric...	The price includes one road-specific crucible, two heat insulation plugs, and two
sealing rings. It also includes a vacuum flange, water-cooled flange, vacuum pump, and a standard pressure gauge. Gas control is not included; gas control can be customized according to customer requirements.	

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Warranty coverage and period	The electric furnace comes with a one-year free warranty (excluding heating elements and furnace tubes); the temperature controller, thermocouples, regulators, transformers, and voltage regulators come with a two-year free warranty; and the heating element will be replaced free of charge if it fails naturally within three months.
Shipping Information	
1. The electric furnace is packaged in three layers: first wrapped in foam paper, then wrapped in plastic film, and finally packed in a wooden crate. 2. Free delivery within China (free delivery within city limits). 3. We will	
be responsible for any damage that occurs during the transportation of the electric furnace.	
4. Logistics methods: transportation by road, rail, ship (for foreign trade export), and air (for foreign trade export). For nearby locations, our company will arrange dedicated vehicles for transportation (packaging is wooden pallets and cardboard boxes).	



## Chiller configuration and parameters

## 冷水机配置及技术参数

设备 图片				
	名称	产地	备注	
基本 配置	压缩机	松下/三菱		
	风机	杭州 顿力		
	蒸发器	瑞速 不锈钢		
	水泵	台州 利欧		
	冷凝器	温州 瑞速		
	干燥过滤器	丹佛斯		
	节流	瑞速 节流阀		
技术 参数	型号	RSA-Z1 (风冷) 单相 220V 50HZ		
	制冷量	2.94KW/H		
		2528kcal/h		
	压缩机	0.89KW/1.2HP		
	蒸发器	不锈钢盘管式蒸发器		
	冷凝器	铜管套铝翅片		
	水箱容量	15L		
	水泵	功率	0.37KW	
		流量	500L	
		压力	2.5KG	
冷水出口/进口管径	DN15			
外型尺寸	570*460*825			
性能 特点	压缩机过热保护、防冻保护			

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Random accessories

坩埚钳



高温手套



List of main components of Juxing kiln								
Serial Number	Item Name	Classification					factory	Remark
		1200	1400	1600	1700	1800		
		Spend	Spend	Spend	Spend	Spend		
1.	Double-layer outer shell • High-temperature		•	•	•	•	Juxing Kiln	
2	Electric heater	bonding Gold resistor Silk	Silicon carbide rods and silicon molybdenum rods		1800 Type 1 silicon molybdenum Great	1850 Type 1 silicon molybdenum Great	Juxing Kiln	
3	Electrical control Control part	Temperature controller	858P	858P	858P	858P	Xiamen Yudian	
4		858P,	S	B	B	B	Taisho/Bright	
5		thermocouple		•	•	•	• Chint	
6		K, voltmeter, ammeter		•	•	•	• Chint	
7		SCR adjustment	•	•	•	•	• Juxing Kiln	
8		Contactor	•	•	•	•	• Chint/Deli West	
9		Air circuit breaker	•	•	•	•	• Chint/Deli West	
10		Button	•	•	•	•	• Chint/Deli West	
11		Buzzer	•	•	•	•	• Chint/Deli West	
12		Fast-melting	•	•	•	•	• Mingrong	
13	Transformer	•	•	•	•	• Juxing Kiln		
14	Ceramic fiber Board/Module	1260	1500	1700	1800	1850	Juxing Kiln	
15	Refractory Bar Hot furnace	Insulating plug bricks (Inner door)	•	•	•	•	• Juxing Kiln	
16	Furnace tube material:	metal/non-metal Metal	Corundum	Corundum	Corundum	Corundum	Torch Star Furnace	

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## IV. List of Consumable Parts

Serial Number	name	model	Quantity	unit price,	remarks
1	Furnace tube	Quartz glass	1	4500	Service life 2-3 years
2.	Thermocouple	K type	1	300	Service life 2-3 years
3.	Mingrong Insurance	GWDL	1	120 lifespan	2-3 years Year
4.	Thyristor	GWDL	1	300 service	life 2-3 years
5	SCR	GWDL	1	750 service	life 2-3 years
...					

Note: This list is not a breakdown of prices for consumable parts, but is only for the purpose of facilitating the procurement of consumable parts after the equipment is put into use.

Thank you for contacting us!

Thank you to get in touch with us!

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