



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
ISO9001:质量管理体系认证
欧盟CE产品认证



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Equipment Name: 1700°C Vacuum Atmosphere Box Furnace



Technical parameters:

The GWL-ZQLB series 1700°C vacuum atmosphere box furnace, as shown in the figure, integrates a temperature control system, vacuum furnace chamber, vacuum pump, gas path, pressure protection, gas flow control, positive and negative pressure display, and water circulation pump. The water circulation tank and furnace body are made of powder. The furnace lining is made of imported vacuum-formed high-purity alumina lightweight material. It uses imported 1800-type silicon

molybdenum rod heating elements; it is specifically designed for laboratories in universities and research institutes, as well as industrial and mining enterprises, for applications in ceramics, metallurgy, and other processes.

Specialized equipment developed for sintering, melting, analysis, and production of electronic, glass, chemical, mechanical, refractory, new material development, special material, building material, metal, non-metal and other chemical materials.

The control panel is equipped with an intelligent temperature regulator, power switch, main heating start/stop button, voltage and ammeters, computer interface, water pump switch, vacuum pump switch, gas flow meter, positive and negative pressure gauges, electrical contact pressure gauge, and valves, allowing for real-time monitoring of the system's operating status. This product utilizes reliable integrated circuitry, providing a superior working environment and strong anti-interference capabilities. The furnace shell temperature remains $\pm 40^{\circ}\text{C}$ at its highest, significantly improving the working environment. Microcomputer program control with programmable curves enables fully automatic heating/cooling. Temperature control parameters and programs can be modified during operation, offering flexibility, convenience, and simple operation. Temperature control

accuracy: $\pm 1^{\circ}\text{C}$ with no overshoot; constant temperature accuracy: $\pm 1^{\circ}\text{C}$. Rapid heating rate, with a maximum heating rate $\geq 45^{\circ}\text{C}/\text{min}$. The furnace lining is constructed

entirely of imported vacuum-formed high-purity alumina lightweight material, offering high operating temperatures, low heat storage, resistance to rapid heating and cooling, and resistance to cracking and slag shedding.

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It has excellent thermal insulation performance (energy saving effect is more than 60% of that of old-fashioned electric furnaces). Its reasonable structure, with inner and outer double-layer furnace jackets and air-cooled heat dissipation, can greatly shorten the testing cycle.

| category parameter | 1700 degrees |
|---|---|
| Model | GWL-1700ZQLB |
| power supply AC | 380V |
| maximum operating temperature, | 1750 degrees |
| long-term operating temperature | 1700 degrees |
| control range, temperature | 50 to 1700 degrees |
| sensing element, | Thermocouple type B, temperature range 0-1820 degrees Celsius |
| heating element mounting position, | Both sides (imported 1800 type silicon molybdenum rod heating elements) |
| temperature control accuracy. | ±1 degree (integrated circuit control, no overshoot) |
| Furnace temperature uniformity | ±1 degree (depending on the furnace size; larger furnaces can use multi-point control to achieve more precise control). Good furnace temperature uniformity) |
| heating rate | The heating rate is freely adjustable, with an adjustment range of up to 40 degrees Celsius per minute (40 degrees/min). The slowest heating rate is 1 degree per hour (1 degree/h). |
| Heating element | High-temperature imported 1800U type silicon molybdenum rod |
| heating element installation or replace | The sealed top cover of the vacuum atmosphere furnace is designed with a mechanical lifting mechanism, which allows for easy opening and closing of the sealed top cover. The top cover can be rotated after it is raised, saving a lot of manpower and time. |
| Furnace body | The furnace body is machined using CNC machine tools and undergoes polishing, grinding, pickling, phosphating, powder coating, and high-temperature treatment. Made through baking and other processes, featuring a two-tone color scheme, a novel and attractive appearance, and possessing antioxidant, acid and alkali resistant properties. Advantages include corrosion resistance, high temperature resistance, and easy cleaning. |
| The furnace body adopts an internationally advanced air-cooled double-layer structure, ensuring a good working environment. | |
| Furnace door opening method | The furnace door opens axially to the side at a distance of 180 degrees and can rotate 360 degrees, preventing high-temperature material handling. The inside of the oven door was so hot it burned my arm; |
| Circulating water radiator | The use of multi-channel pure aluminum water circulation heat sinks greatly reduces the risk of excessively high water temperature. |
| vacuum pump and vacuum valve, | A two-stage rotary vane vacuum pump is used. |
| pressure | Pointer pressure gauge -0.1 MPa. |
| resistance | The furnace lining steel plates are 6-20mm thick, double-sided welded, and can withstand a positive pressure of 0.1MPa. |
| gas circuit valve, | Stainless steel valves |
| pressure detection | One pressure gauge with both positive and negative pressure indicators (a digital vacuum gauge is optional). |
| gas flow meter | Two float flow meters (a digital mass flow meter is optional for customers requiring higher accuracy). |
| Pressure protection | To prevent dangers caused by closed or blocked furnace exhaust ports, or excessive furnace pressure, a special design was developed. 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 intake valve, activates the electromagnetic exhaust valve and alarm, releasing pressure from the exhaust port. An audible and visual alarm, triggered by a buzzer, is activated to protect the electric furnace and ensure its normal operation. |
| Gas leak alarms prevent leaks based on the atmosphere being vented; function: gas leak alarms detect (indoor) air leaks. | |

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洛阳炬星电窑炉
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| | When the concentration of toxic or hazardous gases exceeds a certain level, the drive module shuts off the electric furnace and the gas supply, while opening the exhaust port and ventilation to achieve a safer working environment. (Optional) |
| Can open atmosphere | The furnace lining for hydrogen, nitrogen, argon, carbon monoxide, |
| Refractory materials | oxygen, etc. , uses imported German MESCHUPP vacuum-formed high-purity alumina fiber lightweight board material. The high-purity lightweight hollow spherical alumina plate is used in the easily bumped areas (furnace bottom) for material handling. 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 electric furnaces). |
| thermal insulation materials | It adopts four layers of insulation: alumina fiber cotton, alumina fiber board, and alumina polycrystalline fiber board. It uses imported materials and its energy-saving effect is more than 80% of that of old-fashioned electric furnaces. |
| Furnace shell temperature | For long-term uninterrupted operation, with a shell temperature below 45 degrees |
| Protect | Celsius, an integrated modular control unit is employed, ensuring accurate control. It features dual-loop control and dual-loop protection, including protection against overshoot, over-adjustment, under-adjustment, phase loss, overvoltage, overcurrent, overtemperature, current feedback, and soft start. Closed-loop technology with thyristor module triggering control, |
| control | phase-shift triggering, or zero-crossing triggering allows for continuous adjustment of output voltage, current, or power, 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 voltage regulator's output current is limited to the rated current range, ensuring normal operation of the output and the regulator. Simultaneously, the voltage loop also participates in regulation, limiting the regulator's output current 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 . See the electric furnace video for details. |
| The display parameters include temperature, temperature range number, time period, remaining time, output power percentage, voltage, and current. It uses imported buttons with a lifespan of | |
| Button | over 100,000 cycles and is equipped with LED indicator lights. |
| Temperature profile setting | It adopts an intelligent temperature controller, equipped with standard PID, artificial intelligence adjustment APID or MPT and other adjustment modes. It has self-tuning and self-learning functions, excellent control characteristics with no overshoot and no undershoot, and has 30-segment program control function. It can realize the temperature rise and fall control of any slope. It has programmable/operable commands such as jump (loop), run, pause and stop, and allows modification of the program at any time during the control operation. It adopts an artificial intelligence adjustment algorithm with curve fitting function, which can obtain a smooth curve control effect. See the electric furnace video for details. The 30-segment (50-segment customizable) program control function can be set by inputting settings: 30 (50) segments for one curve, 14 (28) segments for |
| Multiple curve inputs | two curves, 9 (15) segments for three curves, and 5 (9) segments for five curves. Multiple curves can be input at the same time and can be called at will when in use. The electric furnace is equipped with an RS485 communication interface, with a communication distance of up to 1700 meters. It can be controlled via computer to start, pause, stop, set and read temperature curves, and configure parameters. It is highly reliable |
| Communication interface | and easy to operate. The computer screen displays a wealth of information, including measured values, setpoints, output values, time intervals, interval numbers, temperature curves, and power percentage curves. |



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| | <p>The computer stores heating curves, which can be accessed and modified with setpoints and commonly used parameters.</p> <p>Historical curves and reports can be filtered by time interval (1 second to 1 hour) and can be stored long-term. See the computer control software for details: two</p> |
| Random accessories | <p>heating elements, two sets of rods, one furnace door heat insulation plug (for electric furnaces above 1700 degrees Celsius), one crucible tong, and one pair of high-temperature gloves.</p> |
| Warranty Scope and Period: The electric furnace is covered by a one-year free warranty, but the heating element is not covered by the warranty (it will be replaced free of charge if it fails naturally within three months). | |
| Customer optional configuration | <p>1. Crucibles, saggars, corundum furnace pads/silicon carbide pads : See electric furnace accessories for details. 2. Computer control software and hardware : Click to view. 3. Touchscreen temperature controller: Click to view. 4.</p> <p>Consumables: Heating elements.</p> |
| Precautions | <p>1. To ensure the lifespan of the electric furnace is not affected, we recommend the following maximum heating and cooling rates: 10-20y/min (Rapid heating will shorten the lifespan of the heating element).</p> <p>2. After a period of use, minor cracks may appear in the furnace chamber of this electric furnace. This is normal and will not affect its use. It can be repaired with an alumina coating.</p> <p>3. High-temperature solution must not leak onto the furnace bottom. To prevent this, a pad or alumina powder can be used for isolation. 4. The instrument should be placed in a well-ventilated, dry place.</p> |
| Packing list | <p>One electric furnace, two heating elements, two sets of rods, one furnace door heat insulation plug (for furnaces above 1700 degrees Celsius), one crucible tong, one pair of high-temperature gloves, one instruction manual, one certificate of conformity, one acceptance report (factory inspection report), and one sales delivery note. 1. The</p> |
| Shipping Information | <p>electric furnace is packaged in three layers: wrapped in foam paper, then wrapped in plastic film, and finally placed in a wooden crate.</p> <p>Package</p> <p>2. Free domestic door-to-door delivery (free delivery within city limits). 3.</p> <p>We will bear all responsibility for any damage that occurs during the transportation of the</p> <p>electric furnace. 4. Logistics methods: truck, rail, ship (for export), air freight (for export). For nearby locations, our company will arrange dedicated transportation (packaging is wooden pallets and cardboard boxes). For example: If you</p> |
| Selection Guide | <p>need a 1700°C vacuum atmosphere box-type electric furnace, the furnace chamber dimensions (depth-width-height) in mm are: 300x200x200.</p> <p>Specifications: GWL-1700ZQLB/300/200/200.</p> |
| | 5. |
| | |

| name | Specifications and Models | Furnace dimensions (length, width, height) in mm | External dimensions (mm) | Voltage ACV | power kW |
|------------|---|--|--------------------------|-------------|----------|
| vacuum | GWL-1700ZQLB/800/500/500 800x500x500 1700x1700x1900 380 | | | | 35 |
| atmosphere | Trace oxygen analyzer | PPM | 0-500PPM | | |

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| | | | | | |
|----------------|--|------------------------|-----------|--|--|
| Box furnace | silicon molybdenum rod | Additional preparation | 60 pieces | | |
| Note: | 1. Furnace dimensions for special models can be customized according to customer requirements (delivery time 17-30 days)! 2. Dimensions are in millimeters (mm). The dimensions listed are for reference only; the actual dimensions shipped will prevail. | | | | |

Thank you for contacting us!

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