



**GWDL® 洛阳炬星电窑炉**  
LUOYANG JUXING KILN CO., LTD

/

**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





电话/邮箱  
**13271526781**  
+86 379-69936789  
thermo@gwdl.com

L1600-γ Type Horizontal Hydrogen Furnace



Technical solution



洛阳炬星电窑炉

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24h

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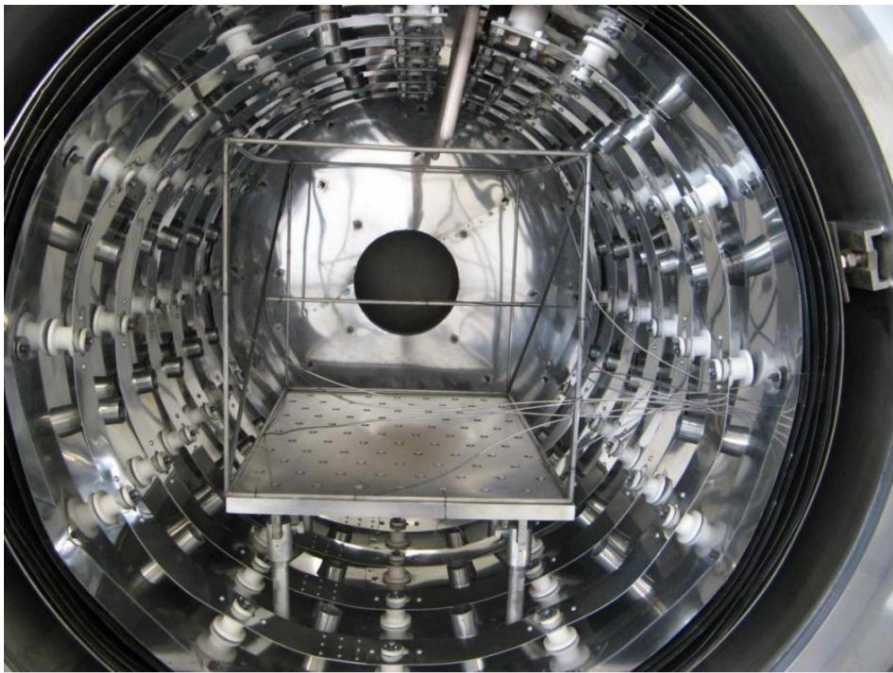
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Similar product images of the company



Structural diagram



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I. Main uses of the equipment:

Main uses:	This horizontal hydrogen furnace consists of a furnace body, a gas filling system, a wet hydrogen device, a water cooling system, and a vacuum system. It consists of, etc. Used for decarburization annealing, brazing, reduction sintering, etc. of Kovar metals.
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II. Main Technical Parameters:

Effective working (heating) area:	350mmx350mmx1000mm;
Furnace temperature:	Maximum temperature not lower than 1600℃; operating temperature not lower than 1550℃;
Temperature uniformity:	±5℃ (no load, 1000℃ for 30 minutes);
Temperature control stability:	± 1 ℃, with PID parameter self-tuning function;
Temperature control method:	The program runs automatically and can store at least 20 curves, with each curve having at least 20 settings. part;
Ultimate vacuum:	≤-0.09MPa (gauge pressure);
Safety facilities:	Alarms for insufficient water or gas pressure, abnormal heating, and hydrogen explosion-proof device.
Sintering atmosphere:	Nitrogen + hydrogen, with humidification function;
Humidification system:	Water temperature heating is controllable;
Thermocouple type:	Temperature control thermocouple: Tungsten-rhenium 526 type, measuring type K;
Vacuuming time:	≤min;
Leakage rate (sealing performance):	≤0.5Pa/h ;
Maximum heating rate:	≤20℃/min;
Hydrogen pressure:	0.02-0.4 MPa;
Nitrogen pressure:	0.02-0.05 MPa;
Power conditions:	3-phase 380V/220V 50Hz 100kW  Standard cooling water: Water temperature ≤15℃ (summer), water pressure 0.2-0.4MPa, inlet pipe.  1/1/2 inch in diameter.



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Dimensions and weight	<div>Dimensions: 3 meters long * 3 meters wide * 2.2 meters high</div> <div>Weight: 2200 kg</div>
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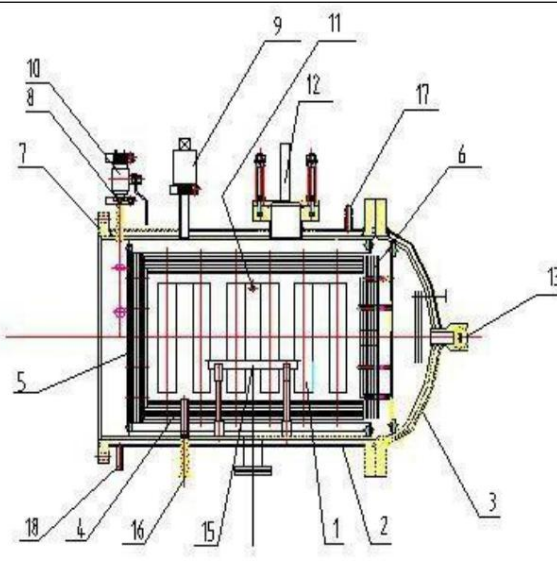


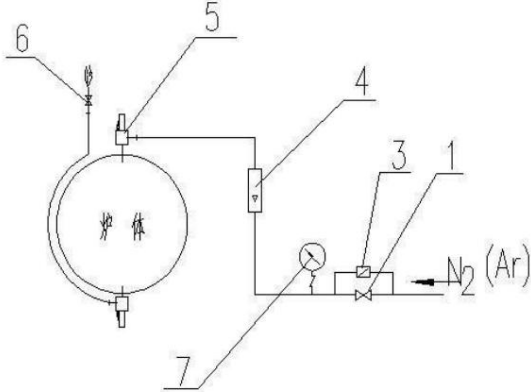
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III. Main Structural Description:

	Mechanical Part Introduction:
	<p>1. Furnace Door: The furnace door consists of a welded head assembly, observation window, and reflector screen. The welded head assembly comprises an inner head and an outer head.</p> <p>It consists of a head, flange, inspection port, etc. The flange has a cooling water tank, and a water-tight seal is welded between the inner and outer heads.</p> <p>The reflective screen has eight layers in total, four of which are molybdenum, and the other reflective layers are made of stainless steel.</p>
2. Furnace body	<div></div> <div><div>1.加热器</div><div>2.炉壳</div><div>2.炉门</div><div>4.反射屏</div></div> <div><div>5.反射屏</div><div>6.反射屏</div><div>7.真空系统连接法兰</div><div></div></div> <div><div>8.充气系统接头</div><div>9.压力传感器</div><div>10.真空气动球阀</div><div>11.热电偶接头</div></div> <div><div>12.防爆装置</div><div>13.观察窗</div><div>14.温度检测孔</div><div>15.料架</div></div> <div><div>16.排气口接头</div><div>17.进水接头</div><div>18.出水接头</div><div></div></div>

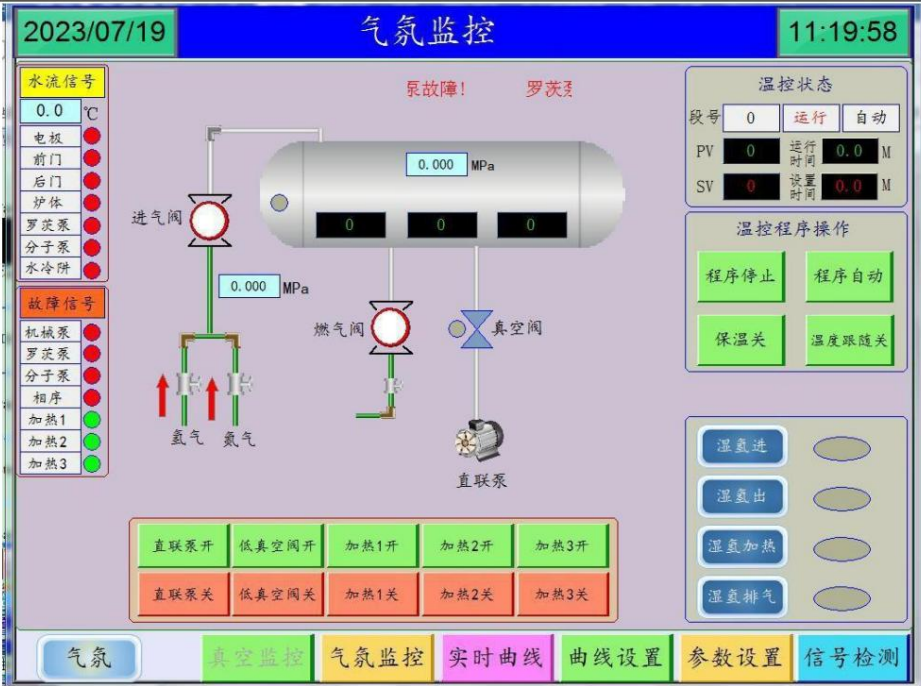
	<p>The furnace body consists of welded furnace body components, heater, cylindrical reflector, material support plate, electrodes, thermocouples, etc.</p> <p>It consists of components such as a rapid cooling gas inlet. Like the furnace door end cap assembly, the furnace body assembly is also a hollow structure.</p> <p>A water-resistant strip is welded between the inner and outer layers. Both the inner and outer furnace walls are made of 304 stainless steel.</p> <p>There are water-tight strips between the outer furnace walls. The heaters are ring-shaped, made of molybdenum strips, and consist of three sets of heaters.</p> <p>Each heater group consists of two rings connected in series. The cylindrical reflector has a total of 8 layers: four layers of molybdenum and the rest...</p> <p>The reflective layer is made of stainless steel. The furnace body is integrated with the furnace door via hinges.</p>
4. Inflation System	 <p>1.手动球阀 2.手动球阀 3.电磁阀 (常闭型) 4.流量计 5.真空气动挡板阀 6.手动球阀 7.电接点压力表</p>
	<p>It consists of 304 stainless steel pipes, valves, pressure sensors, etc.</p>
5. The hydrogen system consists of two stainless steel pipelines, valves, a float flow meter, a combustion valve, a backfire prevention device, and a safety valve.	<p>It consists of an automatic ignition device, etc.</p>

IV. Brief Introduction to the Composition and Principles of the Electrical Control Section:

	<p>The electrical control section consists of a control cabinet and external wiring.</p>
--	--



1. Control cabinet:



The human-machine interface and control cabinet are equipped with air switches of different specifications as the main power supply and for various components.

The power switch also serves to protect the circuit. The operation and function of the equipment are controlled by a programmable controller.

It is implemented by a PLC.

The cabinet door is equipped with instruments such as a thermostat to measure and display the heating process and output data according to the set values.

The control signal is sent to the PLC to achieve automatic control. A process flow diagram and a voltmeter are also installed on the cabinet door.

Ammeters and similar instruments are used to observe the working status and operation of equipment.

2023/07/19

参数设置

11 : 13

相或者相序错!

加热缺水关延时	40.0	S	罗茨泵缺水关延时	30.0	S
分子泵缺水关延时	30.0	S	炉膛压力高报警	0.090	MPa
超温报警温度	1250	℃	水温报警温度	50.0	℃
低阀延时开T1	15.0	S	分子泵延时开T2	30.0	S
预阀延时关T3	20	M			

PID限幅设置 (%)

限幅1	100.0	限幅2	100.0	限幅3	100.0	限幅4	100.0	限幅5	100.0
限幅6	100.0	限幅7	100.0	限幅8	100.0	限幅9	100.0	限幅10	100.0
限幅11	100.0	限幅12	100.0	限幅13	100.0	限幅14	100.0	限幅15	100.0
限幅16	100.0	限幅17	100.0	限幅18	100.0	限幅19	100.0	限幅20	100.0

用户名: 1 密码: \*\*\*\*\*

说明:修改参数前请输入密码登录, 该页参数必须由专业人员设置, 否则会引起系统工作不正常!

真空

真空监控

气氛监控

实时曲线

曲线设置

参数设置

信

Before setting parameters, you must log in with the password "123321" to change the parameters.

2023/07/19

信号检测

11:13:45

急停X0	消音X1	故障X2	真空气氛X2	分子泵	直联泵故障X3	罗茨泵故障X4
分子泵故障X5	相序X6	加热1故障X7	加热2故障X10	加热3故障X11		
电极水压X12	前门水压X13	后门水压X14	炉体水压X15	罗茨泵水压X16		
分子泵水压X17	水冷排水压X20	运行停止21	自动手动22	低阀关到位X23		
预阀关到位X24	高阀关到位X25	炉门关到位X26	真空一 X27	真空二 X30		
真空三 X31	真空四 X32	真空五 X33	真空六 X34			

直联泵Y0	罗茨泵Y1	分子泵Y2	加热一 Y3	加热二 Y4
加热三 Y5	低真空阀Y6	预真空阀Y7	高真空阀Y10	充气阀Y11
进气阀Y12	放气阀Y13	燃气阀Y14	运行停止Y15	自动手动Y16
湿氢加热Y17	消音Y20	报警Y21	平衡阀Y22	湿氢进Y23
湿氢出Y24				

直联泵关	罗茨泵关	分子泵关	加热1关	加热2关
加热3关	低真空阀关	预真空阀关	高真空阀关	充气阀关
进气阀关	放气阀关	燃气阀关	温控停止	温控自动
湿氢关	消音指示关	报警关	平衡阀关	湿氢进关
湿氢出关	测试模式			

真空

真空监控

气氛监控

实时曲线

曲线设置

参数设置

信号检测

The signal detection function mainly tests the various input and output points of the PLC. First, set the operating mode to...

测试模式

It can be used to jog and test the actions of each output point of the PLC.

2. The temperature control section uses a C36 temperature controller from Japan's Aztec Corporation as the main controller. Users can customize the temperature control according to their production process requirements.



Please input one or more temperature curves in advance. During operation, the temperature values detected by the thermocouples...

The value set according to the process curve is processed by a PID controller to output a 4–20mA current signal to the heating power supply.

Control section. The heating power supply consists of a silicon controlled rectifier (SCR) voltage regulator and a transformer for heating. The temperature controller outputs electricity...

The current control signal is converted into a corresponding DC voltage by a thyristor voltage regulator to control the transformer.

The voltage output by the device is used to control the furnace temperature. The heater power supply has voltage and current meter indicators.

The equipment will issue audible and visual alarms when hydrogen pressure or cooling water flow is insufficient, and will respond within a certain time.

Then disconnect the heater power supply.

For instructions on using the temperature controller and voltage regulator, please refer to the corresponding instruction manuals and the electrical components of the hydrogen furnace.

Schematic diagram.



2023/07/19

曲线设置

11:09:35

不足！

炉体水压

段号	01	02	03	04	05	06	07	08	09	10
温度(℃)	100	600	1200	1200	0	0	1200	980	600	600
时间(M)	5.0	25.0	30.0	40.0	3.0	6.5	5.0	4.0	5.0	2.5
段号	11	12	13	14	15	16	17	18	19	20
温度(℃)	0	0	0	0	0	0	0	0	0	0
时间(M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

曲线号 01

上一组

下一组

曲线调取

注释：使用某组曲线，按“上一组”和“下一组”，选择到适合曲线，按“曲线调取”，将曲线参数输入控制器中。

段号	01	02	03	04	05	06	07	08	09	10
温度(℃)	100	600	1200	1200	0	0	1200	980	600	600
时间(M)	5.0	25.0	30.0	40.0	3.0	6.5	5.0	4.0	5.0	2.5
段号	11	12	13	14	15	16	17	18	19	20
温度(℃)	0	0	0	0	0	0	0	0	0	0
时间(M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

真空

真空监控

气氛监控

实时曲线

曲线设置

参数设置

信号检测

Temperature control program operation

The operating status of the temperature control program can be changed via buttons on the touchscreen.

程序停止

程序运行

This indicates the current stopped state of the temperature control program, and the temperature control status is...

The box will also display the current status of the temperature control program.

程序自动

The thermostat operates automatically according to the set temperature curve.

程序手动

In manual mode, the setpoint (0-100%) can be manually entered on the temperature controller.

According to the given quantity

Heat it up.

温度跟随开

温度跟随关

保温关

保温开

程序停止

程序运行

To prevent accidental operation during program execution, and Confirmation is required before execution.

OK

The button needs to be pressed and held for 2 seconds to work.

Program parameter writing

Set the heating temperature control curve parameters according to the process requirements (temperature and time can be set for each parameter segment).

5. Alarm system:	<p>This equipment is designed to handle overheating, insufficient cooling water flow, mechanical pump overflow, and Roots pump overflow.</p> <p>The system will trigger audible and visual alarms for abnormal conditions such as molecular pump overflow, pressure regulator malfunction, and insufficient gas pressure, and will take appropriate action.</p> <p>Implement appropriate protective measures. However, for overheating and water shortage faults, do not immediately implement protective measures, but...</p> <p>A certain warning time is given; if the fault cannot be eliminated within the warning time, the equipment will execute protection measure.</p> <p>a. When the cooling water flow is insufficient or the SCR voltage regulator is malfunctioning, the SCR voltage regulator...</p> <p>Automatic soft shutdown; the heater stops heating.</p> <p>b. When the cooling water flow is insufficient, the diffusion pump will be automatically shut off, and then the high-pressure valve and heating will also be shut off.</p>
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V. List of Major Components

Serial Number	name	model	Quantity	Manufacturer	Remark
1	Furnace body		1 set of	Chengdu Xinnan Optoelectronics self-made	
2	Vacuum System			Chengdu Xinnanguang homemade	
3	direct-drive pump	BSV30	1 unit		Specially supplied
4	frame	non-standard	1	Taiwan Chengdu Xinnanguang self-made	
5	control cabinet	non-standard	1	Taiwan Chengdu Xinnanguang self-made	
6	transformer		3 units		Specially supplied
7	Temperature controller	C36	3 units	imported from Japan's Aztec factory	
8	Power Regulator		3 units		Specially supplied
9.	Pressure sensor		1 set of	well-known domestic brands	

VI. List of spare parts included with the equipment

Serial Number	name	model	Quantity	Manufacturer	Remark
1	thermocouple		6	Chongqing	
2	Seals		2 sets of	Chengdu Xinnan Optoelectronics	

3	Insulating porcelain		2 sets of well-known domestic brands	
4	tool		1 set of domestic well-known brands	
5	power cord		30-meter domestic well-known brand	
6	12 molybdenum heating elements		2 sets of Chengdu Xinnan Optoelectronics	
7	Product mounting plate (Molybdenum plate)		1 Chengdu Xinnanguang	

VII. Installation:

Equipment on-site arrangement  item	Unpack the equipment and remove the technical documents; check the equipment and spare parts against the packing list; and inspect for any items damaged during transport.  damage.
	Move all parts of the equipment to the foundation and wipe off the dust and rust-preventive oil.
	Install the equipment on a horizontal foundation.
	Reassemble the various system components that were removed during shipping and packing.
	Connect the vacuum, gas, and water lines and check for leaks.
	The control cabinet has been installed and the electrical wiring has been connected.
	Connect to the power supply and ground the casing.

VIII. Maintenance and Care:

Equipment maintenance and upkeep  Precautions	The equipment should be installed in a well-ventilated room, away from open flames, flammable materials, and explosives. If it is a sealed area...
	Air-conditioned rooms should be equipped with alarm devices to detect excessive hydrogen levels.
	Regularly inspect the water and gas systems to ensure they are unobstructed, leak-free, and that the instruments are undamaged.
	Regularly check the electrical control system for good contact, short circuits, open circuits, and the integrity of the instruments.  Okay, problems should be addressed immediately.
	When shutting down the furnace, a vacuum should be maintained inside to prevent certain parts from rusting.
	Mechanical pumps and diffusion pumps should be lubricated or replaced regularly.
	The oil-water separator needs to be drained frequently, and the oil mist lubricator needs to be periodically injected with diffusion pump oil.
	The purity of the protective gas used for filling should be greater than 99.99%.  To extend service life and ensure normal operation, please do not operate above the set temperature.

## IX. After-sales service and guarantee

Product after-sales service and guarantee	The equipment has a one-year warranty period, covering all parts and components.
	In the event of equipment failure within the warranty period, the supplier shall arrive at the user's site as soon as possible after receiving notification from the user.
	On-site, troubleshoot the problem as soon as possible;
	If a malfunction occurs while the equipment is being used correctly by the user, all costs will be borne by the supplier.
	For damage caused by user misconduct, the supplier will only charge the cost of repair, not labor costs;
	After the warranty period, the supplier will provide paid services to the buyer, and all fees will be charged at cost.
	During this period, the supplier will do its best to answer the technical questions raised by the customer and ensure that the user uses the equipment correctly.

## 10. Advantages and features of our company's design and manufacture of horizontal vacuum atmosphere dual-purpose furnaces:

1. Equipment design,  Long manufacturing time, products  Multiple specifications	<p>Our company has been designing, manufacturing, and selling vacuum furnaces, hydrogen furnaces, and dual-purpose vacuum atmosphere furnaces for a long time.</p> <p>It has been 20 years since then (prior to which the company's main personnel engaged in the design and manufacture of this type of equipment were originally from the military).</p> <p>The state-owned Nanguang Machinery Factory has been a professional manufacturer for over 20 years.</p> <p>Pass</p> <p>Based on feedback from customers during long-term use, we continuously improve, innovate, and upgrade the equipment.</p>
	This upgrade continuously improves the technical performance of the equipment, thereby better meeting the diverse needs of customers.
2. The equipment has a simple structure.  Simple to operate  Under the premise of stable operation and no decrease in technical indicators during later maintenance, we should try to optimize some structures and components of the equipment to reduce the impact of slow operation.  Easy to protect and maintain	<p>We have specifically designed and manufactured equipment suitable for the usage characteristics of colleges, universities, and research institutions.</p> <p>They used dual-purpose vacuum atmosphere furnaces, which have the advantage of maintaining the original main structure of the equipment.</p> <p>Under the premise of stable operation and no decrease in technical indicators during later maintenance, we should try to optimize some structures and components of the equipment to reduce the impact of slow operation.</p> <p>The size of the furnace reduces some unnecessary operating steps in the equipment (this is mainly different from ours).</p> <p>Selling similar equipment to businesses (because businesses prioritize equipment production efficiency) allows for...</p> <p>To ensure that the number of potential equipment failure points is minimized, and that the equipment operates stably and reliably. Meanwhile,</p> <p>It also benefits customers in the later maintenance and upkeep of the equipment (currently, large numbers of people in China are using this type of equipment).</p> <p>The main academic and research institutions include: the School of Materials Science and Engineering of Sichuan University, Henan University of Technology, and China Nuclear Power Equipment.</p> <p>Institute of Computing Technology, 40th Research Institute of China Electronics Technology Group Corporation, China Academy of Engineering Physics</p> <p>The Fifth Research Institute of the Chinese Academy of Sciences, the Second Research Institute of the China Academy of Engineering Physics, etc.</p>





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<p>3. Equipment safety</p> <p>High sex</p>	<p>Through nearly 20 years of continuous improvement, we have perfected the equipment technology and made its structure more integrated.</p> <p>The system is designed for more stable and reliable operation, and many core components are imported, such as:</p> <p>The equipment uses a temperature controller and a programmable logic controller (PLC) imported from Japan. These are the main electrical components of the equipment.</p> <p>The control components are also products from high-quality domestic and international brands, including the inner and outer layers of the furnace body and the vacuum connection pipes.</p> <p>The entire machine is made of high-quality stainless steel (304) and meticulously processed to ensure the long-term performance of the equipment.</p> <p>In the atmosphere furnace section of this equipment, which is frequently used, our company has designed and manufactured its own hydrogen system.</p> <p>The company's unique backfire prevention device, safety control valve, and explosion-proof device play a very important role.</p> <p>Its safety features for operators have enabled our company to produce hydrogen furnaces for decades.</p> <p>There has never been a single safety incident during the use of the equipment.</p>
<p>4. Possesses complete</p> <p>After-sales service system</p>	<p>The company has a dedicated after-sales service department (6 people in total), whose members are all professionals in vacuum furnaces.</p> <p>Senior engineers and senior technicians with over 20 years of experience in manufacturing hydrogen furnaces and vacuum atmosphere dual-purpose furnaces.</p> <p>The technicians have extensive experience in after-sales service for equipment. If you encounter any problems during the use of your purchased equipment, they will be able to assist you.</p> <p>If you have any questions that require our assistance, our after-sales service department will respond within 4 hours of receiving your formal notification.</p> <p>Remote processing can be conducted via phone, WeChat, and video. If necessary, it can be completed within 24 hours (domestic areas only).</p> <p>(6) Our professionals will arrive at your equipment site for service. Additionally, our professionals will...</p> <p>Based on years of experience in lithography machine debugging and after-sales service, we can also provide you with optical...</p> <p>Technical consultation and services related to engraving processes; after-sales service department also provides...</p> <p>Responsible for selling easily damaged spare parts for lithography machines.</p>



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Thank you for contacting us!

Thank you for contacting us! Company

Name: Luoyang Ju Xing Kiln Co.,

Ltd. Company Address: Advanced Manufacturing

Cluster Area, Jianxi District, Luoyang City

Company Address: Jianxi District, Luoyang advanced manufacturing enclave

Contact information: 13271526781, 0379-69936789

Website addresses: [www.gwdl.com](http://www.gwdl.com), [www.gwdlcom.cn](http://www.gwdlcom.cn), [www.gwdl.org](http://www.gwdl.org), [www.gwdl.cn](http://www.gwdl.cn)

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