KINTEK FURNACE

Vacuum Hot Press Furnace Catalog

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KINTEK FURNACE

COMPANY PROFILE

>>> About Us

Kintek Furnace is a technology-driven innovator specializing in precision high-temperature laboratory equipment, including muffle furnaces, tube furnaces, vacuum furnaces, atmosphere-controlled systems, and advanced CVD/PECVD solutions. Designed for materials science, chemical research, and thermal processing applications, our robust, energy-efficient systems prioritize precision, safety, and repeatability in extreme heat environments, empowering researchers and industrial labs to achieve groundbreaking results.

Vacuum Hot Press Furnace Machine Heated Vacuum Press

Item Number: KT-VHP

Introduction

KINTEK Vacuum Hot Pressing Furnace: Precision heating & pressing for superior material density. Customizable up to 2800°C, ideal for metals, ceramics, and composites. Explore advanced features now!

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Overall Specification	• The furnace utilizes a vertical furnace body for heating. Pressure capabilities range from 5 to 800T, with pressurization methods divided into one-way and two-way. Feeding and discharging configurations include top and side options. The system comprises the furnace body, hydraulic system, vacuum system, heating system, water cooling system, and an electronic control system.
Furnace Shell	• Constructed as a double-layer water-cooled structure. The inner layer is made of strictly polished stainless steel, while the outer layer features stainless steel sandblasting matte treatment or carbon steel with anti-rust coating. Cooling water circulates between these layers, ensuring the furnace shell surface temperature does not exceed 60°C. The furnace cover is lifted using a mechanical mechanism and can be manually rotated backward for opening (in one-way pressure models), incorporating a secure locking device.
Furnace Side Access & Monitoring	• The furnace side is equipped with an observation window, an automatic thermocouple entry and exit mechanism, an infrared thermometer, and water-cooled electrodes (for three-phase heating). The thermocouple's automatic entry and exit are electrically operated, with automatic switching for high and low temperatures. For enhanced safety against abnormal furnace temperatures, an over-temperature protection thermocouple is also installed.
Heating Element	• Fabricated from graphite tube (or molybdenum wire), designed for either single-phase or three-phase heating. The rational design of the heating element significantly improves the uniformity of temperature within the furnace.
Insulation Layer	• Made from materials like graphite (or graphite paper) and carbon felt, providing excellent insulation performance. A unique structural design helps to reduce vacuuming time. For molybdenum wire hot pressing furnaces, the insulation layer consists of a metal reflective screen.
Vacuum System	• Comprises a two-stage vacuum pump setup (typically an oil diffusion pump and a mechanical pump) to achieve both high and low vacuum levels. The system uses high-vacuum baffle valves, designed and produced by KINTEK, enabling automatic switching and control of high and low vacuum, integrated with a digital display vacuum gauge and PLC.
Electric Control System Main Circuit	• The main circuit operates on low-voltage, high-current input. The electric control cabinet is manufactured with reference to Rittal standard cabinets, emphasizing human-centered design. The control panel includes graphic simulation screens and buttons for intuitive operation. Temperature and pressure control are managed by imported brand program instruments. The cabinet is equipped with a PLC, allowing the sintering process to be automatically completed according to preset programs. The control system features comprehensive sound and light alarm functions for abnormal conditions such as water cut-off, over-temperature, over-current, and thermocouple automatic switching failure.

Working temperature	1500℃ / 2200℃ (Max, atmosphere dependent)
Heating element	Molybdenum/Graphite (Other options like Tungsten, Induction available)
Working pressure	10-400T (Customizable up to 800T)
Press distance	100-200mm (Customizable)
Vacuum pressure	Up to $6x10^{-3}$Pa (Higher vacuum options available)

Effective working area diameter range	90-600mm (Customizable)
Effective working area height range	120-600mm (Customizable)

Vacuum Hot Press Furnace Machine For Lamination And Heating

Item Number: KT-VLP

Introduction

KINTEK Vacuum Lamination Press: Precision bonding for wafer, thin-film & LCP applications. 500°C max temp, 20-ton pressure, CE certified. Custom solutions available.

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Dimensions	Over-all: 775mm(L) x 550mm(W) x 1325mm(H)
Structure	• Two 135 x 135 mm flat heating platens made of high temperature resistant Cr steel with max. working temperature of 500ºC • 1000W Heating element is inserted into the center of the heating plates for fast heating • Max. Load on 135x135mm Heated Platen: 10 Metric Tons at 500°C (55 kg/cm²); 20 Metric Tons at RT (110 kg/cm²) • Two precision temperature controllers which control two heating plates separately with 30 programmable segments • Water cooling jackets are built on both top & bottom of the heating plates for assisting cooling
Hydraulic Pump	• Modified electric hydraulic press is connected to vacuum chamber. • Movable distance between two heating plates: 15 mm. • Automatic max. pressure controlled via a digital pressure gauge. • Pressure accuracy: +/-0.01 Mpa (0.1 kg/cm²) • Two flat heating plates are installed with water cooling plates for Max. 500ºC working temperature. • Water cooling (>15L/min) is required to cool the heating plates when the operating temperature is over 200 ºC.
Temperature control and Pressure Display	• Two precision temperature controllers with 30 programmable segments control the heating plates separately with +/-1°C accuracy. • The temperature controllers have PID auto tune function, over-temperature protection and thermal couple broken protection. • Max. Temperature: 500°C with inert gas or vacuum with accuracy +/-1°C • Max. Heating rate: 2.5°C/min • Software and PC interface is built in the controller, which can be connected to a PC for computer controlling via a RS232 connector. • Digital pressure meter (controller) is built outside the vacuum chamber. • You can set pressure at the desired value which can stop the electric hydraulic press automatically.
Vacuum Chamber	• Electric hydraulic press and heating plates are placed inside the vacuum chamber. • Vacuum chamber is made of SS304 with the size: 525Lx480Wx450H (mm). • Vacuum chamber Capacity: about 75 Liters. • 300mm dia. vacuum sealed hinged type door with 150mm Dia. quartz glass window is installed for easy sample loading and observation. • Silicone O-ring can be used for all vacuum sealings. • One precision digital vacuum gauge (10E-4 torr) is installed on the vacuum chamber.

Model	KT-VLP100	KT-VLP300	KT-VLP400

Heating plate size	100x100mm	300x300mm	400x400mm
Plates travel distance	30mm	40mm	40mm
Working pressure	30T during heating/40T in the cold state		
Pressure gauge	Digital pressure gauge		
Heating temperature			
Temperature control	Touch screen with PID thermal controller		
Vacuum chamber	304 Stainless steel		
Vacuum pump	Rotary vane vacuum pump		
Vacuum pressure	-0.1Mpa		
Power supply	AC110-220V, 50/60HZ		

Vacuum Hot Press Furnace Machine Heated Vacuum Press Tube Furnace

Item Number: KT-VTP

Introduction

Discover KINTEK's advanced Vacuum Tube Hot Press Furnace for precise high-temperature sintering, hot pressing, and material bonding. Customizable solutions for labs.

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Hydraulic press	Working pressure: 0-30Mpa Travel distance: Pressure stability: ≤1MPa/10min Pressure meter: Digital pressure gauge Drive solution: Electric drive with standby manual drive
Vertical split furnace	Working temperature: ≤1150℃ Heating element:Ni-Cr-Al resistance wire with dipped Mo Heating speed: Hot zone length: 300mm Constant temperature zone: 100mm Controller: Touch screen with PID thermal controller Rated power: 2200W
Vacuum furnace tube	Tube material: Quartz tube(Optional Alumina/Nickel alloy) Tube diameter: 100mm(Optional 120/160mm) Vacuum sealing: SS flange with silicon O ring Flange cooling method: Inter layer water circulating cooling
Graphite pressing die	Die material: High purity graphite (Graphite must work under vacuum to prevent oxidation) Pressure rod diameter: 87mm Sleeve die size: 55mm OD/ 50mm Height Die inserts: OD22.8 x ID20.8 Pushing Rod: 12.7mmOD/40mm Height Other sizes die can be customer made
Vacuum pump setup	Rotary vane pump vacuum is up to 10-2 torr Turbo pump station vacuum is up to 10-4 torr
Electric power supply	AC110-220V, 50/60HZ

Spark Plasma Sintering Sps Furnace

Item Number: KTSP

Introduction

Discover KINTEK's advanced Spark Plasma Sintering (SPS) Furnace for rapid, precise material processing. Customizable solutions for research and production.

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Configuration	• Stainless Steel Chamber - Suitable for Controlled Inert Gas or Vacuum Condition • Sintering Press Unit • Sintering DC Pulse Generator • Vacuum Unit • Sintering Control Unit
Temperature controller	• Precision Eurotherm temperature controller built-in • Overshoot temperature is less than 5°C at the fastest heating rate • Temperature accuracy:
Hydraulic Press	• Manually operated hydraulic press to apply pressure (Automated options available). • Max pressure: Standard models up to 20 T (Customizable to higher pressures). • Digital Pressure gauge built-in with over-pressure alarm.
Vacuum Chamber	• Vertical vacuum Chamber design. • Inner Double Layers Stainless Steel Reflectors for thermal efficiency. • Rotary Pump included (options for higher vacuum levels available).
Dimension (Typical for a standard model)	• Power Supply: 760 L X 460 W X 1820 H, mm • Furnace: 970 L X 720 W X 1400 H, mm

Model	KTSP-10T-5	KTSP-20T-6	KTSP-20T-10	KTSP-50T-30
Rated power	50Kw	60Kw	100Kw	300Kw
Output current	0-5000A	0-6000A	0-10000A	0-30000A
Input voltage (Control Signal)	0-10V	0-10V	0-10V	0-10V
Rated temperature	Standard up to 1600°C (Customizable up to 2300°C or higher based on requirements)			
Rated pressure	100KN (10 Ton)	200KN (20 Ton)	200KN (20 Ton)	500KN (50 Ton)
Sample size (Max. Die Diameter)	Ø30mm	Ø50mm	Ø100mm	Ø200mm
Ram stroke	100mm	100mm	100mm	200mm
Ultimate vacuum	Standard 1Pa (Higher vacuum levels achievable with upgraded pump systems)			

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