KINTEK FURNACE

Cvd & Pecvd 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.

Rf Pecvd System Radio Frequency Plasma Enhanced Chemical Vapor Deposition

Item Number: KT-RFPE

Introduction

KINTEK RF PECVD System: Precision thin-film deposition for semiconductors, optics & MEMS. Automated, low-temperature process with superior film quality. Custom solutions available.

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Equipment form	• Box type: the horizontal top cover opens the door, and the deposition chamber and the exhaust chamber are integrally welded; • The whole machine: the main engine and the electric control cabinet are integrated design (the vacuum chamber is on the left, and the electric control cabinet is on the right).
Vacuum chamber	• Dimensions: Φ420mm (diameter) × 400 mm (height); made of 0Cr18Ni9 high-quality SUS304 stainless steel, the inner surface is polished, fine workmanship is required without rough solder joints, and there are cooling water pipes on the chamber wall; • Air extraction port: Double-layer 304 stainless steel mesh with 20mm front and rear intervals, anti-fouling baffle on the high valve stem, and air equalization plate at the exhaust pipe mouth to prevent pollution; • Sealing and shielding method: the upper chamber door and the lower chamber are sealed by a sealing ring to seal the vacuum, and the stainless steel network tube is used outside to isolate the radio frequency source, shielding the harm caused by radio frequency signals to people; • Observation window: Two 120mm observation windows are installed on the front and side, and the anti-fouling glass is resistant to high temperature and radiation, which is convenient for observing the substrate; • Air flow mode: the left side of the chamber is pumped by the molecular pump, and the right side is the air inflated to form a convective working mode of charging and pumping to ensure that the gas flows evenly to the target surface and enters the plasma area to fully ionize and deposit the carbon film; • Chamber material: the vacuum chamber body and the exhaust port are made of 0Cr18Ni9 high-quality SUS304 stainless steel material, the top cover is made of high-purity aluminum to reduce the weight of the top.
Host skeleton	• Made of section steel (material: Q235-A) , the chamber body and the electric control cabinet are integrated design.
Water cooling system	• Pipeline: The main inlet and outlet water distribution pipes are made of stainless steel pipes; • Ball valve: All cooling components are supplied with water separately through 304 ball valves, and the water inlet and outlet pipes have color distinctions and corresponding signs, and the 304 ball valves for the water outlet pipes can be opened and closed separately; The target, RF power supply, chamber wall, etc. are equipped with water flow protection, and there is a water cut-off alarm to prevent the water pipe from being blocked. All water flow alarms are displayed on the industrial computer; • Water flow display: The lower target has water flow and temperature monitoring, and the temperature and water flow are displayed on the industrial computer ; • Cold and hot water temperature: when the film is deposited on the chamber wall, cold water is passed through 10-25 degrees to cool the water, and it is advanced when the chamber door is opened. Pass hot water 30-55 degrees warm water.
Control cabinet	• Structure: vertical cabinets are adopted, the instrument installation cabinet is a 19-inch international standard control cabinet, and the other electrical component installation cabinet is a large panel structure with a rear door; • Panel: The main electrical components in the control cabinet are all selected from manufacturers that have passed CE certification or ISO9001 certification. Install a set of power sockets on the panel; • Connection method: the control cabinet and the host are in a conjoined structure, the left side is the room body, the right side is the control cabinet, and the lower part is equipped with a dedicated wire slot, high and low voltage, and the RF signal is separated and routed to reduce interference; • Low-voltage electrical: French Schneider air switch and contactor to ensure reliable power supply of equipment; • Sockets: Spare sockets and instrumentation sockets are installed in the control cabinet.

Ultimate vacuum	• Atmosphere to 2×10-4 Pa≤24 hours, (at room temperature, and the vacuum chamber is clean).
Restore vacuum time	• Atmosphere to 3×10 -3 Pa≤15 min (at room temperature, and the vacuum chamber is clean, with baffles, umbrella stands, and no substrate).
Pressure rise rate	• ≤1.0×10 -1 Pa/h
Vacuum system configuration	• The composition of the pump set: backing pump BSV30 (Ningbo Boss) + Roots pump BSJ70 (Ningbo Boss) + molecular pump FF-160 (Beijing); • Pumping method: pumping with soft pumping device (to reduce the pollution to the substrate during pumping); • Pipe connection: the vacuum system pipe is made of 304 stainless steel, and the soft connection of the pipe is made of; • Metal bellows; each vacuum valve is a pneumatic valve; • Air suction port: In order to prevent the membrane material from polluting the molecular pump during the evaporation process and improve the pumping efficiency, a movable isolation plate that is easy to disassemble and clean is used between the air suction port of the chamber body and the working room.
Vacuum system measurement	• Vacuum display: three lows and one high (3 groups of ZJ52 regulation + 1 group of ZJ27 regulation); • High-vacuum gauge: ZJ27 ionization gauge is installed on the top of the pumping chamber of the vacuum box near the working chamber, and the measuring range is 1.0×10 -1 Pa to 5.0×10 -5 Pa; • Low-vacuum gauges: one set of ZJ52 gauges is installed on the top of the pumping chamber of the vacuum box, and the other set is installed on the rough pumping pipe. The measuring range is 1.0×10 +5 Pa to 5.0×10 -1 Pa; • Working regulation: CDG025D-1 capacitive film gauge is installed on the chamber body, and the measuring range is 1.33×10 -1 Pa to 1.33×10 +2 Pa, vacuum detection during deposition and coating, used in conjunction with constant vacuum butterfly valve use.
Vacuum system operation	There are two modes of vacuum manual and vacuum automatic selection; • Japan Omron PLC controls all the pumps, the action of the vacuum valve, and the interlocking relationship between the work of the inflation stop valve to ensure that the equipment can be automatically protected in case of misoperation; • High valve, low valve, pre-valve, high valve bypass valve, in-position signal is sent to PLC control signal to ensure more comprehensive interlock function; • The PLC program can carry out the alarm function of each fault point of the whole machine, such as air pressure, water flow, door signal, over-current protection signal, etc. and alarm, so that the problem can be found quickly and conveniently; • The 15-inch touch screen is the upper computer, and the PLC is the lower computer monitoring and control valve. Online monitoring of each component and various signals are sent back to the industrial control configuration software in time for analysis and judgment, and recorded ; • When the vacuum is abnormal or the power is cut off, the molecular pump of the vacuum valve should return to the closed state. The vacuum valve is equipped with an interlock protection function, and the air inlet of each cylinder is equipped with a cut-off valve adjustment device, and there is a position set the sensor to display the closed state of the cylinder;
Vacuum test	• According to the general technical conditions of GB11164 vacuum coating machine.

Split Chamber Cvd Tube Furnace With Vacuum Station Cvd Machine

Item Number: KT-CTF12

Introduction

Split Chamber CVD Tube Furnace with Vacuum Station - High precision 1200°C lab furnace for advanced materials research. Customizable solutions available.

Learn More

Furnace model	KT-CTF12-60
Max. temperature	1200℃
Constant work temperature	1100℃
Furnace tube material	High purity quartz
Furnace tube diameter	60mm
Heating zone length	1x450mm
Chamber material	Japan alumina fiber
Heating element	Cr2Al2Mo2 wire coil
Heating rate	0-20℃/min
Thermal couple	Build in K type
Temperature controller	Digital PID controller/Touch screen PID controller
Temperature control accuracy	±1℃
Sliding distance	600mm
Gas precise control unit	
Flow meter	MFC mass flow meter
Gas channels	4 channels
Flow rate	MFC1: 0-5SCCM O2 MFC2: 0-20SCMCH4 MFC3: 0- 100SCCM H2 MFC4: 0-500 SCCM N2
Linearity	±0.5% F.S.
Repeatability	±0.2% F.S.
Pipe line and valve	Stainless steel
Maximum Operating Pressure	0.45MPa
Flow meter controller	Digital Knob controller/Touch screen controller
Standard vacuum unit (Optional)	
Vacuum pump	Rotary vane vacuum pump

Pump flow rate	4L/S
Vacuum suction port	KF25
Vacuum gauge	Pirani/Resistance silicon vacuum gauge
Rated vacuum pressure	10Pa
High vacuum unit(Optional)	
Vacuum pump	Rotary vane pump+Molecular pump
Pump flow rate	4L/S+110L/S
Vacuum suction port	KF25
Vacuum gauge	Compound vacuum gauge
Rated vacuum pressure	6x10-5Pa
Above specifications and setups can be customized	

No.	Description	Quantity
1	Furnace	1
2	Quartz tube	1
3	Vacuum flange	2
4	Tube thermal block	2
5	Tube thermal block hook	1
6	Heat resistant glove	1
7	Precise gas control	1
8	Vacuum unit	1
9	Operation manual	1

Multi Heating Zones Cvd Tube Furnace Machine For Chemical Vapor Deposition Equipment

Item Number: KT-CTF14

Introduction

KINTEK's Multi-Zone CVD Tube Furnaces offer precision temperature control for advanced thin film deposition. Ideal for research and production, customizable for your lab needs.

Learn More

Furnace model	KT-CTF14-60
Max. temperature	1400℃
Constant work temperature	1300℃
Furnace tube material	High purity Al2O3 tube
Furnace tube diameter	60mm
Heating zone	2x450mm
Chamber material	Alumina polycrystalline fiber
Heating element	Silicon Carbide
Heating rate	0-10℃/min
Thermal couple	S type
Temperature controller	Digital PID controller/Touch screen PID controller
Temperature control accuracy	±1℃
Gas precise control unit	
Flow meter	MFC mass flow meter
Gas channels	4 channels
Flow rate	MFC1: 0-5SCCM O2 MFC2: 0-20SCMCH4 MFC3: 0- 100SCCM H2 MFC4: 0-500 SCCM N2
Linearity	±0.5% F.S.
Repeatability	±0.2% F.S.
Pipe line and valve	Stainless steel
Maximum Operating Pressure	0.45MPa
Flow meter controller	Digital Knob controller/Touch screen controller
Standard vacuum unit(Optional)	
Vacuum pump	Rotary vane vacuum pump
Pump flow rate	4L/S

Vacuum suction port	KF25
Vacuum gauge	Pirani/Resistance silicon vacuum gauge
Rated vacuum pressure	10Pa
High vacuum unit(Optional)	
Vacuum pump	Rotary vane pump+Molecular pump
Pump flow rate	4L/S+110L/S
Vacuum suction port	KF25
Vacuum gauge	Compound vacuum gauge
Rated vacuum pressure	6x10-5Pa

Above specifications and setups can be customized

No.	Description	Quantity
1	Furnace	1
2	Quartz tube (or other material as per order)	1
3	Vacuum flange set	2
4	Tube thermal block	2
5	Tube thermal block hook	1
6	Heat resistant glove	1
7	Precise gas control unit (if ordered)	1
8	Vacuum unit (if ordered)	1
9	Operation manual	1

Custom Made Versatile Cvd Tube Furnace Chemical Vapor Deposition Cvd Equipment Machine

Item Number: KT-CTF16

Introduction

KINTEK's CVD Tube Furnace offers precision temperature control up to 1600°C, ideal for thin film deposition. Customizable for research and industrial needs.

Learn More

Furnace model	KT-CTF16-60
Max. temperature	1600℃
Constant work temperature	1550℃
Furnace tube material	High purity Al2O3 tube
Furnace tube diameter	60mm
Heating zone	3x300mm
Chamber material	Alumina polycrystalline fiber
Heating element	Silicon Carbide
Heating rate	0-10℃/min
Thermal couple	S type
Temperature controller	Digital PID controller/Touch screen PID controller
Temperature control accuracy	±1℃
Gas precise control unit	
Flow meter	MFC mass flow meter
Gas channels	3 channels (customizable)
Flow rate (Example)	MFC1: 0-5SCCM O2 MFC2: 0-20SCM CH4 MFC3: 0- 100SCCM H2 MFC4: 0-500 SCCM N2 (customizable)
Linearity	±0.5% F.S.
Repeatability	±0.2% F.S.
Pipe line and valve	Stainless steel
Maximum Operating Pressure	0.45MPa
Flow meter controller	Digital Knob controller/Touch screen controller
Standard vacuum unit (Optional)	
Vacuum pump	Rotary vane vacuum pump
Pump flow rate	4L/S

Vacuum suction port	KF25
Vacuum gauge	Pirani/Resistance silicon vacuum gauge
Rated vacuum pressure	10Pa
High vacuum unit (Optional)	
Vacuum pump	Rotary vane pump+Molecular pump
Pump flow rate	4L/S+110L/S
Vacuum suction port	KF25
Vacuum gauge	Compound vacuum gauge
Rated vacuum pressure	6x10-5Pa

Above specifications and setups can be customized

No.	Description	Quantity
1	Furnace Body with Temperature Control	1
2	High Purity Alumina or Quartz Tube (as per order)	1
3	Vacuum Sealing Flanges with Ports	2 sets
4	Tube Thermal Blocks/Plugs	2
5	Tube Thermal Block Hook	1
6	Heat Resistant Gloves	1 pair
7	Precise Gas Control Unit (MFCs as per order)	1 set
8	Vacuum Unit (Pump & Gauge as per order)	1 set
9	Operation Manual	1

Slide Pecvd Tube Furnace With Liquid Gasifier Pecvd Machine

Item Number: KT-PE12

Introduction

KINTEK Slide PECVD Tube Furnace: Precision thin film deposition with RF plasma, rapid thermal cycling, and customizable gas control. Ideal for semiconductors and solar cells.

Learn More

Furnace model	KT-PE12-60
Max. temperature	1200℃
Constant work temperature	1100℃
Furnace tube material	High purity quartz
Furnace tube diameter	60mm
Heating zone length	1x450mm
Chamber material	Japan alumina fiber
Heating element	Cr2Al2Mo2 wire coil
Heating rate	0-20℃/min
Thermal couple	Build in K type
Temperature controller	Digital PID controller/Touch screen PID controller
Temperature control accuracy	±1℃
Sliding distance	600mm
RF Plasma unit	
Output Power	5 -500W adjustable with ± 1% stability
RF frequency	13.56 MHz ±0.005% stability
Reflection Power	350W max.
Matching	Automatic
Noise	
Cooling	Air cooling.
Gas precise control unit	
Flow meter	MFC mass flow meter
Gas channels	4 channels
Flow rate	MFC1: 0-5SCCM O2 MFC2: 0-20SCMCH4 MFC3: 0- 100SCCM H2 MFC4: 0-500 SCCM N2
Linearity	±0.5% F.S.

Repeatability	±0.2% F.S.
Pipe line and valve	Stainless steel
Maximum Operating Pressure	0.45MPa
Flow meter controller	Digital Knob controller/Touch screen controller
Standard vacuum unit(Optional)	
Vacuum pump	Rotary vane vacuum pump
Pump flow rate	4L/S
Vacuum suction port	KF25
Vacuum gauge	Pirani/Resistance silicon vacuum gauge
Rated vacuum pressure	10Pa
High vacuum unit(Optional)	
Vacuum pump	Rotary vane pump+Molecular pump
Pump flow rate	4L/S+110L/S
Vacuum suction port	KF25
Vacuum gauge	Compound vacuum gauge
Rated vacuum pressure	6x10-4Pa

Above specifications and setups can be customized

No.	Description	Quantity
1	Furnace	1
2	Quartz tube	1
3	Vacuum flange	2
4	Tube thermal block	2
5	Tube thermal block hook	1
6	Heat resistant glove	1
7	RF plasma source	1
8	Precise gas control	1
9	Vacuum unit	1
10	Operation manual	1

Inclined Rotary Plasma Enhanced Chemical Deposition Pecvd Tube Furnace Machine

Item Number: KT-PE16

Introduction

Advanced PECVD Tube Furnace for precise thin film deposition. Uniform heating, RF plasma source, customizable gas control. Ideal for semiconductor research.

Learn More

Furnace model	PE-1600-60
Max. temperature	1600℃
Constant work temperature	1550℃
Furnace tube material	High purity Al2O3 tube
Furnace tube diameter	60mm
Heating zone length	2x300mm
Chamber material	Japan alumina fiber
Heating element	Molybdenum Disilicide
Heating rate	0-10℃/min
Thermal couple	B type
Temperature controller	Digital PID controller/Touch screen PID controller
Temperature control accuracy	±1℃
RF Plasma unit	
Output Power	5 -500W adjustable with ± 1% stability
RF frequency	13.56 MHz ±0.005% stability
Reflection Power	350W max.
Matching	Automatic
Noise	
Cooling	Air cooling.
Gas precise control unit	
Flow meter	MFC mass flow meter
Gas channels	4 channels
Flow rate	MFC1: 0-5SCCM O2 MFC2: 0-20SCMCH4 MFC3: 0- 100SCCM H2 MFC4: 0-500 SCCM N2
Linearity	±0.5% F.S.

Repeatability	±0.2% F.S.
Pipe line and valve	Stainless steel
Maximum Operating Pressure	0.45MPa
Flow meter controller	Digital Knob controller/Touch screen controller
Standard vacuum unit(Optional)	
Vacuum pump	Rotary vane vacuum pump
Pump flow rate	4L/S
Vacuum suction port	KF25
Vacuum gauge	Pirani/Resistance silicon vacuum gauge
Rated vacuum pressure	10Pa
High vacuum unit(Optional)	
Vacuum pump	Rotary vane pump+Molecular pump
Pump flow rate	4L/S+110L/S
Vacuum suction port	KF25
Vacuum gauge	Compound vacuum gauge
Rated vacuum pressure	6x10-5Pa
Above specifications and setups can be customized	

No.	Description	Quantity
1	Furnace	1
2	Quartz tube	1
3	Vacuum flange	2
4	Tube thermal block	2
5	Tube thermal block hook	1
6	Heat resistant glove	1
7	RF plasma source	1
8	Precise gas control	1
9	Vacuum unit	1
10	Operation manual	1

Inclined Rotary Plasma Enhanced Chemical Deposition Pecvd Tube Furnace Machine

Item Number: KT-PED

Introduction

KINTEK's PECVD coating machine delivers precision thin films at low temperatures for LEDs, solar cells & MEMS. Customizable, high-performance solutions.

Learn More

Sample holder	Size	1-6 inches
	Rotate speed	0-20rpm adjustable
	Heating temperature	≤800℃
	Control accuracy	±0.5℃ SHIMADEN PID Controller
Gas purge	Flow meter	MASS FLOWMETER CONTROLLER (MFC)
	Channels	4 channels
	Cooling method	Circulating water cooling
Vacuum chamber	Chamber size	Φ500mm X 550mm
	Observation port	Full view port with baffle
	Chamber material	316 Stainless steel
	Door type	Front open type door
	Cap material	304 Stainless steel
	Vacuum pump port	CF200 flange
	Gas inlet port	φ6 VCR connector
Plasma power	Source power	DC power or RF power
	Coupling mode	Inductively coupled or plate capacitive
	Output power	500W—1000W
	Bias power	500v
Vacuum pump	Pre- pump	15L/S Vane vacuum pump
	Turbo pump port	CF150/CF200 620L/S-1600L/S
	Relief port	KF25
	Pump speed	Vane pump:15L/s□Turbo pump:1200l/s□1600l/s
	Vacuum degree	≤5×10-5Pa
	Vacuum sensor	Ionization/resistance vacuum gauge/film gauge
System	Electric power supply	AC 220V /380 50Hz

Rated power	5kW
Dimensions	900mm X 820mm X870mm
Weight	200kg

Kintek Furnace

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