Molybdenum Vacuum Heat Treat Furnace

Item Number: KT-VM

Introduction

Discover the benefits of a high-configuration molybdenum vacuum furnace with heat shield insulation. Ideal for high-purity, vacuum environments like sapphire crystal growth and heat treatment.

Learn More

Furnace model	KT-VM
Max. temperature	1400 ℃
Constant work temperature	1300 ℃
Chamber insulation material	molybdenum heat shied
Heating element	Molybdenum Strip
Heating rate	0-10℃/min
Temperature sensor	Build in S type thermal couple
Temperature controller	Touch screen PID controller with PLC
Temperature control accuracy	±1℃
Temperature uniformity	±5℃
Electric power supply	AC110-440V,50/60HZ

Standard Chamber Sizes Stocks

Chamber size (mm)	Effective volume (L)	Chamber size (mm)	Effective volume (L)
150x150x200	4.5	400x400x500	80
200x200x300	12	500x500x600	125
300x300x400	36	600x600x700	253
Customer design sizes and volume is accepted			

Furnace Chamber	• Regularly inspect the chamber’s interior surface for brightness. • Ensure dryness and cleanliness inside the chamber to prevent oxidation and product contamination. • Avoid rapid heating rates that may cause thermal expansion deformation of the insulation screen. • Verify the leak rate and ultimate vacuum before initiating heating. • Maintain a vacuum in the chamber when not in use, and perform chamber baking if volatiles are present. • Implement a slower heating rate during high-temperature stages.

Molybdenum Strips Heater	• Molybdenum Strips Heater • Take care not to drop objects onto the molybdenum strips when removing products, as it may cause breakage. • Prevent low-melting point iron-containing products from volatilizing onto the molybdenum strips, as it can lead to strip melting and breakage over time. • Securely hold the product with both hands or appropriate tools when taking it out. • Strictly control the impurity content in the product.
Pirani Gauge and Ionisation Gauge	• Adhere to safety regulations for electrical equipment when operating and maintaining pirani gauges. • Avoid forcibly disassembling the gauge tubes while the furnace is under vacuum. • Do not pressurize the gauge (above 0.05Pa); if necessary, turn off the gauge power. • Refrain from introducing corrosive gas atmospheres. • Calibrate the vacuum gauge with dry air or nitrogen, as other atmospheres may cause measurement deviations. • Avoid turning on the ionization gauge under atmospheric pressure, as it may result in damage. • Clean the seals and contact surfaces with acetone or alcohol when disassembling, and apply vacuum grease before reassembling. • Perform zero point and full-scale calibration for the first use or after a period of use to match the vacuum and pirani gauges.
Mechanical Pump	• Ensure the pump temperature does not exceed 45 degrees to prevent non-wear of the pump cavity and detrimental effects on the vacuum. • Monitor the oil color in the oil window regularly. • Check for oil splashing from the exhaust when starting the vacuum pump, and inspect the oil level. • Measure the pump temperature before and during operation, and monitor the cooling water temperature. • Change the oil every three months (model: HFV-100). • If the oil level is high, open the drain valve to lower it to the standard level.
Roots Pump	• Maintain cleanliness inside the pump cavity. • Monitor the quality of pump oil. • Ensure proper pump rotation. • Avoid placing products with high moisture or large particles in the furnace chamber. • Promptly replace the diffusion pump oil if it becomes discolored or emulsified. • Immediately contact the manufacturer if any abnormal conditions occur with the pump.
Diffusion Pump	• Check if the diffuser oil in the oil window requires replacement. • Monitor the pumping speed after starting. • Ensure adequate cooling water supply to the pump. • Replace the diffusion pump oil with the appropriate model (HFV-3). • Verify that the heater temperature, oil level, and pump core installation are normal. • Maintain the pump surface temperature between 10-35 degrees Celsius and humidity below 65%.
Water Cooler	• Thoroughly read the manual before operating the water cooler. • Pay attention to the rotation directions of the inlet and outlet water pumps. • Confirm that the furnace water inlet pressure is displayed correctly after starting. • Establish an effective heat dissipation system. • Regularly check the water quality inside the water tank. • Clean the heat dissipation system every 3-5 months. • Avoid overloading the set temperature; for example, if the set temperature is 20 degrees, it should not go below 21 degrees. Adjust the set point above 21 degrees. • Ensure proper ventilation for the cooler’s placement. • Occasionally open the side cover and clean the inside water tank with diluted hydrochloric acid.