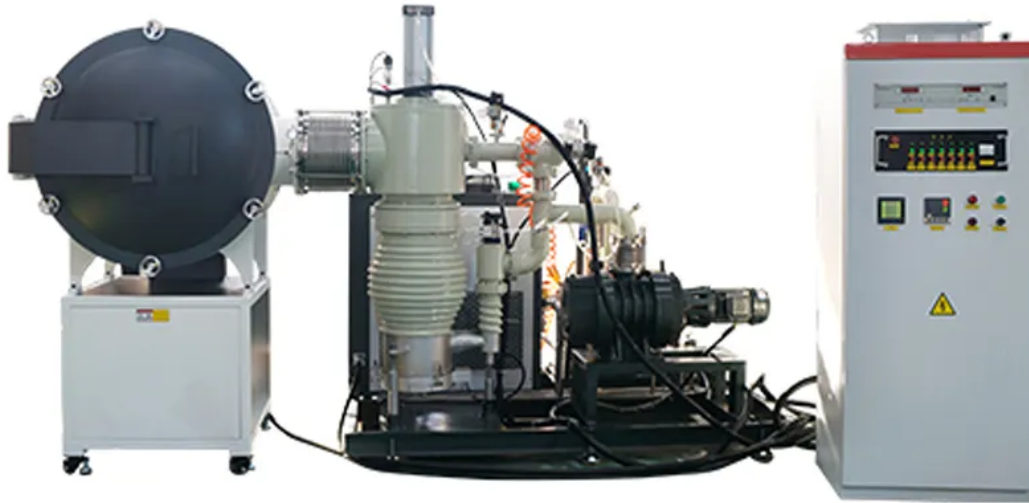




VACUUM ATMOSPHERE FURNACE - TT-VAF-30- 1200

TT-VAF-30-1200 is a 1200°C box-type resistance furnace designed to create a high-temperature heat treatment environment under vacuum or controlled atmosphere conditions. It is suitable for industrial laboratories at universities, research institutions, manufacturing facilities, and other organizations. This furnace supports advanced processing in areas such as metal materials, ceramics, nanomaterials, and semiconductor materials.

APPLICATIONS

Vacuum Atmosphere Furnace – TT-VAF-30-1200

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- **Advanced Ceramic Materials** – Enables high-temperature sintering, densification, and annealing of ceramics under vacuum or controlled atmospheres. Ensures excellent thermal resistance, structural integrity, and reproducibility for both industrial and research applications.
- **Nanomaterials Research** – Provides precise thermal processing for nanostructures and advanced composites. Supports R&D in functional nanomaterials, catalysts, coatings, and next-generation energy storage systems.

- **Semiconductor Materials** – Facilitates oxidation-free thermal treatment, annealing, and diffusion of semiconductor wafers. Offers controlled environmental conditions and precise temperature uniformity essential for electronics and optoelectronic applications.
- **Powder Metallurgy & Metal Processing** – Supports vacuum-assisted sintering and thermal processing of metal powders and alloys. Ensures uniform mechanical and thermal properties for high-performance components and additive manufacturing.
- **Aerospace & Defense Materials Engineering** – Provides high-temperature processing for high-performance alloys, ceramics, and composites used in aerospace and defense. Guarantees reproducible mechanical strength, thermal stability, and material validation under critical conditions.
- **Energy & Battery Research** – Ideal for heat treatment of solid-state electrolytes, battery electrodes, and advanced energy materials. Ensures vacuum or controlled atmosphere processing for contamination-free, stable, and reproducible results.
- **Chemical & Industrial Laboratories** – Suitable for catalyst activation, thermal decomposition, and reaction studies requiring controlled atmospheres. Delivers accurate, repeatable results for R&D, process development, and industrial applications.
- **Universities & Research Institutes** – A versatile tool for physics, chemistry, materials science, and engineering laboratories. Features programmable temperature control, vacuum capability, and robust safety protections for complex experimental workflows.
- **Industrial Quality Control & Certification** – Provides precise high-temperature vacuum or controlled-atmosphere testing for compliance verification, product validation, and third-party certification. Conforms to ISO9001, CE, SGS, and

TÜV standards for regulated industries.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel with an electrostatically applied, corrosion-resistant surface coating.
- Durable metal tank design ensures low external surface temperature.
- The furnace door features a flange-type sealing structure with manual screw compression and a side-opening design for easier operation.

Refractory Material

- Multi-layer insulation composed of lightweight alumina ceramic fiber and premium insulating boards. The design is asbestos-free, ensuring low heat loss and reduced energy consumption.

Heating System

- Equipped with high-quality HRE spiral resistance wire heating elements, securely embedded into the furnace walls to provide free-radiating heat throughout the chamber. This ensures high efficiency, energy savings, and extended service life.
- Heating elements are positioned on three sides (left, right, and bottom) for uniform temperature distribution.
- A silicon carbide base plate covers the bottom heating element, offering protection, excellent mechanical strength, and effective thermal conductivity, while allowing for horizontal load-bearing.

Temperature Control Panel

- PID controller using SSR/SCR control for accurate and stable temperature regulation.

- Equipped with an international-standard N-type nickel-chromium-silicon thermocouple, with a temperature range of 0–1300°C and long operational lifespan.

Program Controller

- Advanced controller suitable for complex process requirements.
- Intuitive interface with flexible programming options.
- Supports up to 30 programmable segments for a single temperature curve.
- Built-in over-temperature and fault alarms with automatic safety shutoff.

Vacuum Atmosphere Function

- The furnace chamber includes adjustable air inlets and outlets for introducing protective gases.
- Compatible with various vacuum pumps to achieve vacuum levels ranging from 500 Pa to 0.06 Pa. A digital vacuum gauge displays the current vacuum level.
- Optional air circuit control unit with 1 to 3 adjustable float meters available.

TECHNICAL SPECIFICATIONS

Model	TT-VAF-3-1200	TT-VAF-6-1200	TT-VAF-8-1200	TT-VAF-12-1200	TT-VAF-18-1200	TT-VAF-30-1200
Chamber Size □ W xD xH□ mm	150 x150x150	180x230x150	200x300x120	200 x300x200	250 x300x250	300 x500x200
Rated Temperature	1200°C					
Work Temperature	1100°C					

Voltage	220V/2.5KW (110V is also available)	220V/3KW (110V is also available)	220V/3KW (110V is also available)	220V/4KW (110V is also available)	220V/6KW (110V is also available)	220V/7.5KW (110V is also available)
Heating Element	HRE Alloy Resistance Wire					
Chamber Materials	Polycrystalline inorganic alumina ceramic fiber material made by wet vacuum filtration method					
Temp control Accuracy	±1°C					
Thermcouple	N Type thermcouple					
Temperature Controller	Intelligent microcomputer PID temperature control instrument, SCR/SSR control, PID parameter self-tuning function .Programmable 4 groups program curves with each program curve with 8 segments totally 32 segments for program heating, program heat preservation, program cooling					
Heating Rate	1-25°C/min can be adjustable					
Furnace Structure	Furnace temperature control integrated structure					
Equipment Protection	Modular control with sound and light alarm signal sending out for over temperature and thermocouple broken in the working process, and the protection action will be completed automatically					
Safety Protection	The equipment is equipped with a circuit breaker, which will automatically pop open in case of short circuit leakage, which can protect the safety of equipment and operators					
Furnace Shell	High-quality cold-rolled steel plate with CNC machine tool processing, then it will have the process of welding, grinding, polishing, phosphating, pickling, surface electrostatic spraying plastic powder					
Quality Certificate	ISO9001 CE SGS TUV					
Standard Device	1□ Furnace Main Body : 1 set 2□ Temperature Controller : 1 pc 3□ Power Line : 3 meters 4□ Thermcouple : 1 pc 5□ Operation manual □ 1 pc 6 Crucible Tong □ 1 pc 7□ High Temperature Gloves : 1 pair					

Optional Accessories	1□ Optional with Rotary Vacuum Pump □ Vacuum Degree Level $\leq 500\text{pa}$□ 2□ Optional digital vacuum gauge □ $1.0 \times 10^5 - 1.0 \times 10^{-1}\text{pa}$□ 3□ Optional with gas float meter □ Float flow rage 1-10L/min□
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