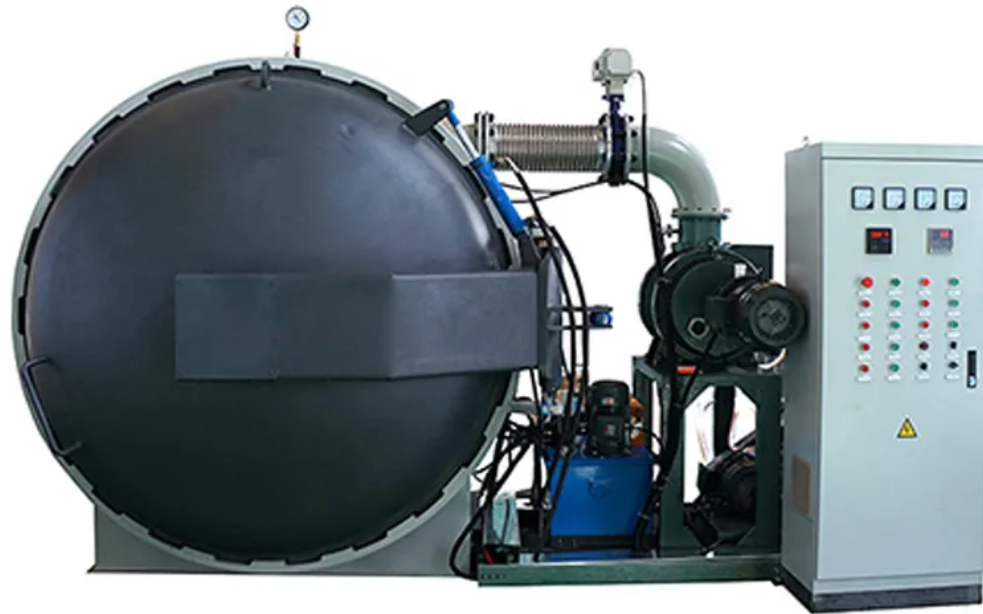




VACUUM ATMOSPHERE FURNACE - TT-VAF- 467-1200

The TT-VAF-467-1200 Vacuum Atmosphere Furnace is a box-type resistance furnace engineered to deliver precise high-temperature performance up to 1200°C, with a continuous working temperature of 1100°C. Designed for versatility, it serves the needs of industrial laboratories at universities, research institutions, manufacturing facilities, and private enterprises. This furnace is particularly well-suited for advanced material processing in fields such as metals, ceramics, nanomaterials, and semiconductor materials, where accuracy, consistency, and controlled environments are critical.

With an inner chamber size of 200 × 200 × 200 mm, the TT-VAF-467-1200 combines durability and efficiency through its HRE alloy resistance wire heating elements and N-type thermocouple for reliable thermal measurement. Its intelligent control system ensures temperature precision of $\pm 1^{\circ}\text{C}$, offering stable and uniform heating performance. Operating at 220V/2 kW (with an optional 110V version available), this furnace provides a compact yet powerful solution for laboratories requiring reproducible results in high-temperature heat-treatment applications.

APPLICATIONS

Vacuum Atmosphere Furnace – TT-VAF-467-1200

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- **Advanced Ceramic Materials** – Enables high-temperature sintering, annealing, and densification of ceramics under vacuum or controlled atmospheres. Ensures excellent thermal resistance, structural integrity, and reproducibility for

industrial and research applications.

- **Nanomaterials Research** – Provides uniform 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, diffusion, and annealing of semiconductor wafers in contamination-free environments. Delivers precise temperature control essential for microelectronics, photonics, and optoelectronics manufacturing.
- **Powder Metallurgy** – Supports vacuum-assisted sintering of metal powders into dense, homogenous components. Reduces oxidation risk while ensuring consistent mechanical and thermal properties for advanced alloys and additive manufacturing.
- **Aerospace & Defense Materials Engineering** – Provides controlled-atmosphere thermal treatment of high-performance alloys, ceramics, and composites. Ensures mechanical strength, thermal stability, and material validation under extreme operating conditions.
- **Energy & Battery Research** – Offers precise thermal processing of solid-state electrolytes, electrodes, and advanced energy materials under vacuum or protective gas. Ensures reproducibility, high-temperature stability, and contamination-free conditions.
- **Chemical & Petrochemical Laboratories** – Ideal for catalyst activation, thermal decomposition, and reaction studies requiring controlled atmospheres. Delivers accurate, repeatable results for chemical R&D and process optimization.
- **Universities & Research Institutes** – A versatile tool for physics, chemistry, materials science, and engineering laboratories. Features programmable control, vacuum functionality, and advanced safety protections to support

complex experimental workflows.

- **Industrial Quality Control & Certification** – Provides high-temperature testing under vacuum or controlled atmospheres for product validation, compliance verification, and third-party certification. Conforms with ISO9001, CE, SGS, and TÜV standards for regulated industries.

FEATURES

Furnace Shell

- Constructed with Q235 low-carbon steel, the shell features an electrostatically applied corrosion-resistant coating.
- Durable metal tank structure designed to maintain a low external surface temperature.
- Side-opening furnace door with flange-sealing and manual screw compression for ease of use and secure closure.

Refractory Material

- Multi-layer insulation design using lightweight alumina ceramic fiber and premium insulation boards. Free of asbestos, the structure minimizes heat loss and ensures energy efficiency.

Heating System

- High-quality HRE spiral resistance wire elements are securely embedded in the chamber walls, offering free-radiating heat for efficient operation and extended service life.
- Three-sided heating—left, right, and bottom—ensures excellent temperature uniformity.
- A silicon carbide base plate shields the bottom heating element, providing strong mechanical support, efficient thermal conductivity, and a flat, load-bearing surface.

Temperature Control Panel

- Features a PID controller with SSR/SCR control mode for accurate temperature management.
- Equipped with a high-precision N-type nickel-chromium-silicon thermocouple (range: 0-1300°C) for reliable, long-term use.

Program Controller

- Advanced controller suitable for complex process requirements.
- User-friendly interface with flexible programming options.
- Supports up to 30 segments per program for detailed temperature control curves.
- Includes over-temperature and fault alarms with automatic safety shutdown.

Vacuum Atmosphere Function

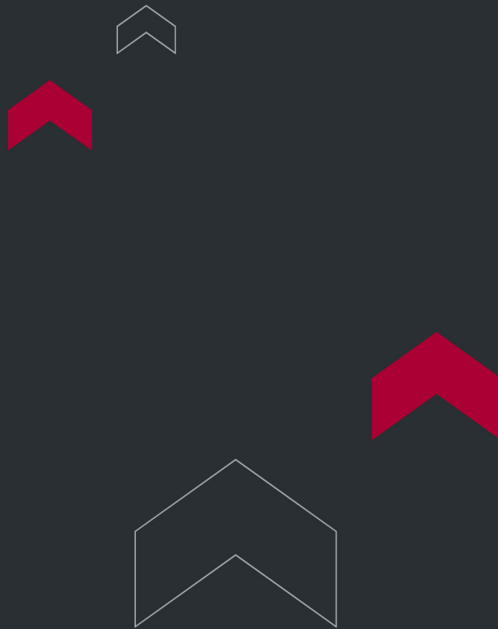
- Furnace chamber includes adjustable inlet and outlet ports for introducing protective gases.
- Compatible with various vacuum pumps to achieve vacuum levels from 500 Pa to 0.06 Pa; vacuum level displayed via digital gauge.
- Optional air circuit control system available, offering 1 to 3 adjustable float flow meters.

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					
Thermocouple	N Type thermocouple					
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□ Thermocouple : 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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