



VACUUM ATMOSPHERE FURNACE - TT-VAF-12- 1700

TT-VAF-12-1700 is a 1700°C vacuum atmosphere furnace designed to operate under both vacuum and controlled atmosphere conditions. It is commonly used for the heat treatment of hard alloys, ceramics, and powder metallurgy materials. Additional applications include vacuum quenching, annealing, processing of high-speed steel and alloy abrasives, brazing of soft magnetic materials, and other thermal treatment processes.

APPLICATIONS

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- **Hard Alloy Processing** – Provides precise sintering, annealing, and quenching of hard alloys at ultra-high temperatures. Ensures enhanced hardness, wear resistance, and structural durability for demanding industrial applications.
- **Ceramics & Advanced Materials** – Delivers controlled heat treatment of technical ceramics, composites, and specialty materials under vacuum or inert atmospheres. Ensures excellent thermal resistance, stability, and reproducibility.

- **Powder Metallurgy** – Supports high-temperature vacuum sintering of metal powders into dense, uniform components. Minimizes oxidation and contamination, delivering superior quality and consistency in metallurgical production.
- **High-Speed Steel & Abrasive Tools** – Facilitates heat treatment and annealing of high-speed steels and alloy abrasives. Improves machining performance, edge durability, and resistance to wear.
- **Magnetic Materials & Brazing** – Provides clean, oxidation-free brazing of soft magnetic materials. Maintains functional stability and material purity under protective atmosphere conditions.
- **Semiconductor & Electronics Research** – Enables precise thermal processing of semiconductor substrates, thin films, and electronic components. Supports diffusion, oxidation, and annealing required for microelectronics and optoelectronics.
- **Aerospace & Defense Applications** – Validates performance and thermal stability of advanced alloys, ceramics, and composites for aerospace and defense engineering. Ensures reliability under extreme operational conditions.
- **Energy & Battery Development** – Supports controlled-atmosphere treatment of cathode/anode materials, solid-state electrolytes, and advanced battery systems. Enhances performance stability, cycle life, and high-temperature reliability.
- **Universities & Research Institutes** – Designed for advanced academic studies in chemistry, physics, and materials science. Offers flexible programming, safety features, and vacuum operation for research environments.
- **Industrial Quality Control & Certification** – Provides traceable, audit-ready results for compliance verification and product validation. Meets ISO, CE, SGS, and TÜV certification standards for regulated industries.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel with an electrostatically resistant and corrosion-resistant finish.
- Durable metal tank structure designed to maintain a low exterior surface temperature.
- Features a flange-type sealing furnace door with manual screw compression and a side-opening design for easier operation.

Refractory Material

- Built with a multi-layer insulation system consisting of lightweight alumina ceramic fiber and premium-grade insulation boards. The design is asbestos-free, ensures minimal heat loss, and supports low energy consumption.

Heating System

- Equipped with high-quality MoSi_2 (molybdenum disilicide) rod heating elements, securely mounted on both sides of the chamber. These elements provide efficient, radiant heating with long operational life.
- Dual-side heating ensures excellent temperature uniformity throughout the furnace.

Temperature Control Panel

- Utilizes PID control with solid-state relay (SSR) for accurate temperature management.
- Includes an international standard B-type platinum-rhodium thermocouple with a temperature range of 50–1800°C for reliable long-term use.

Program Controller

- Advanced control system supports complex thermal processes.
- Easy-to-use interface with flexible programming capabilities.
- Supports up to 30 programmable segments.

- Features over-temperature and fault alarms with automatic safety protection.

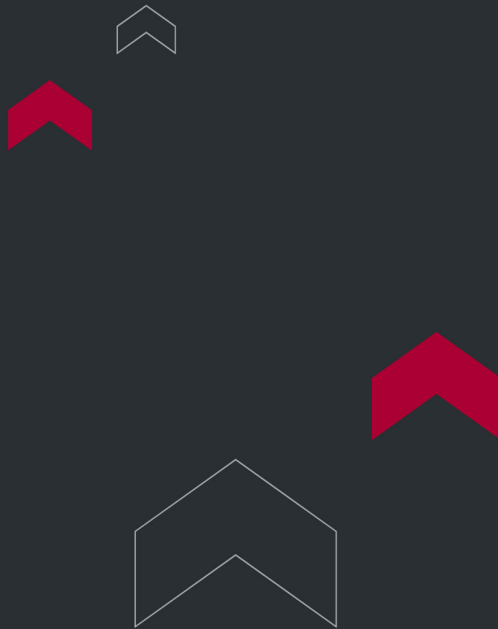
Vacuum Atmosphere Function

- The furnace tank includes adjustable air inlets and outlets for controlled introduction of protective gases.
- Compatible with various vacuum pumps to achieve vacuum levels ranging from 500 Pa to 0.06 Pa, with a digital vacuum gauge for real-time monitoring.
- Optional gas circuit control unit available, supporting 1 to 3 adjustable float flow meters.

TECHNICAL SPECIFICATIONS

Model	TT-VAF-1-1700	TT-VAF-3-1700	TT-VAF-8-1700	TT-VAF-12-1700	TT-VAF-20-1700	TT-VAF-36-1700	TT-VAF-45-1700
Chamber Size □ W xD xH□ mm	100 x120x100	150 x150x150	200x200x200	200x300x200	250 x320x250	300x400x300	300 x500x300
Rated Temperature	1700℃						
Work Temperature	1600℃						
Voltage	220V/2KW (110V is also available)	220V/4KW (110V is also available)	220V/5KW (110V is also available)	220V/6KW (110V is also available)	220V/7KW (110V is also available)	380V/13KW	380V/18KW
Heating Element	U Type Silicon molybdenum rod						
Chamber Materials	Polycrystalline inorganic alumina ceramic fiber material made by wet vacuum filtration methord						

Temp control Accuracy	±1℃
Thermocouple	B Type Platinum Rhodium Thermocouple
Temperature Controller	Intelligent microcomputer PID temperature control instrument, SCR/SSR control, PID parameter self-tuning function .Programmable 30 program segments for program heating, program heat preservation, program cooling
Heating Rate	1-10℃/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 ≤500pa□ 2.Optional digital vacuum gauge □ 1.0×10 ⁵ -1.0×10 ⁻¹ pa□ 3.Optional with gas float meter □ Float flow rage 1-10L/min□



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