



VACUUM ATMOSPHERE FURNACE - TT-VAF-20- 1700

TT-VAF-20-1700 is a 1700°C vacuum atmosphere furnace designed for operation under both vacuum and controlled atmosphere conditions. It is well-suited 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 Heat Treatment** – Provides precise, high-temperature sintering, quenching, and annealing of hard alloys. Ensures superior hardness, wear resistance, and structural integrity for industrial applications.
- **Ceramics & Advanced Materials** – Enables uniform high-temperature processing of technical ceramics, composites, and specialty materials under vacuum or protective gas conditions. Delivers excellent thermal resistance and mechanical stability.

- **Powder Metallurgy** – Supports vacuum sintering and densification of metal powders into strong, homogeneous components. Reduces oxidation and contamination, ensuring high-quality, reproducible metallurgical results.
- **High-Speed Steel & Abrasive Tools** – Facilitates annealing, quenching, and heat treatment of high-speed steels and alloy abrasives. Enhances cutting performance, durability, and precision in machining applications.
- **Magnetic Materials & Brazing** – Provides controlled brazing of soft magnetic materials under vacuum or inert gas. Maintains purity and functional stability by eliminating oxidation and unwanted reactions.
- **Semiconductors & Electronics** – Delivers precise thermal processing for semiconductor substrates, thin films, and electronic components. Supports oxidation, diffusion, and annealing critical to microelectronics and optoelectronics development.
- **Aerospace & Defense Engineering** – Ensures reliable high-temperature treatment of advanced alloys, ceramics, and composite structures. Validates strength, stability, and performance under extreme aerospace and defense conditions.
- **Energy & Battery Research** – Supports thermal processing of solid-state electrolytes, cathode/anode materials, and next-generation battery systems. Improves performance consistency, cycle life, and thermal stability.
- **Universities & Research Institutes** – Ideal for advanced academic research in physics, chemistry, and materials science. Provides flexible programming, vacuum compatibility, and robust safety features for laboratory studies.
- **Industrial Quality Control & Certification** – Offers traceable, audit-ready high-temperature processing for validation and compliance. Conforms with ISO, CE, SGS, and TÜV standards for regulated industries.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel with an anti-corrosive, electrostatically resistant surface.
- Durable tank-style metal shell designed to maintain a low external surface temperature.
- Side-opening door features a flange-type sealing structure with manual screw compression for easy and secure operation.

Refractory Material

- Features a multi-layer insulation system made of lightweight alumina ceramic fiber and other high-grade insulation boards. Free of asbestos, this design ensures minimal heat loss and reduced energy consumption.

Heating System

- Equipped with high-quality MoSi_2 rod heating elements installed securely on both sides of the chamber, providing efficient, free-radiation heating and extended service life.
- Dual-sided heating configuration ensures excellent temperature uniformity throughout the furnace.

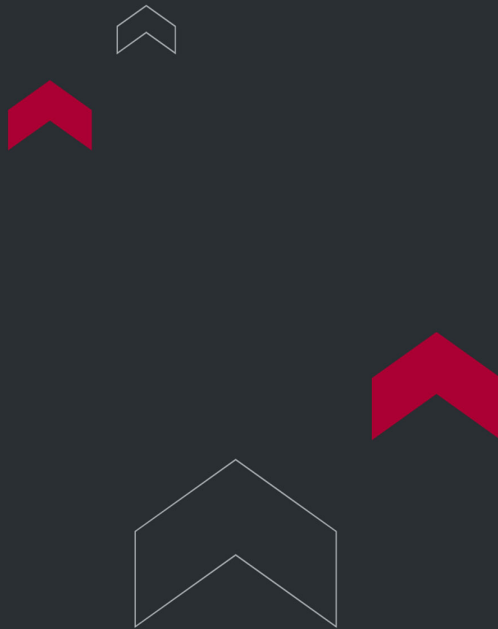
Temperature Control Panel

- Uses PID control with SSR (solid-state relay) for precise temperature regulation.
- Includes a B-type platinum-rhodium thermocouple compliant with international standards, offering a temperature range of 50–1800°C and long operational life.

Program Controller

- Advanced controller supports complex thermal processing requirements.
- User-friendly interface with flexible, straightforward programming.
- Supports up to 30 programmable segments.

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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