



TORONTECH

VERTICAL TUBE FURNACE 1700°C - TT- VTF-100-1700



Vertical Tube Furnace 1700°C – TT-VTF-100-1700 designed for high-temperature heat treatment up to 1700°C. It is ideal for sintering and processing advanced materials, including metals, ceramics, nanomaterials, semiconductors, and powdered alloys. Commonly used in universities, research labs, manufacturing facilities, petrochemical operations, and the aerospace sector.

APPLICATIONS

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- **Advanced Ceramic Materials** – Enables ultra-high temperature sintering and densification of ceramics, ensuring superior structural integrity, thermal resistance, and mechanical strength for advanced industrial and research applications.
- **Nanomaterials Research** – Provides highly precise, uniform thermal processing for nanostructures, thin films, and composites. Supports R&D in functional nanomaterials for electronics, catalysis, and high-performance energy storage systems.

- **Semiconductor Materials** – Facilitates critical processes such as annealing, oxidation, and diffusion in semiconductor substrates. Delivers precise thermal control required for next-generation microelectronics and optoelectronic device fabrication.
- **Powder Metallurgy** – Supports sintering of metallic powders into dense, uniform components. Ideal for producing complex shapes and high-performance alloys for aerospace, automotive, and industrial engineering.
- **Petrochemical & Chemical Research** – Suitable for catalyst activation, decomposition reactions, and controlled atmosphere experiments at ultra-high temperatures. Ensures reproducibility and accuracy for chemical process R&D.
- **Aerospace Materials Engineering** – Designed to process and validate advanced alloys, ceramics, and composite materials used in aerospace applications. Provides extreme thermal stability for performance evaluation under harsh conditions.
- **Energy & Battery Research** – Offers precise thermal treatment of solid-state electrolytes, cathode/anode materials, and advanced compounds for next-generation batteries and fuel cells. Ensures consistent high-temperature performance in energy materials development.
- **Universities & Research Institutes** – A versatile and reliable furnace for cutting-edge academic research in physics, chemistry, materials science, and nanotechnology. Features robust safety systems and flexible programming for educational laboratories.
- **Industrial Quality Control & Certification** – Provides precise high-temperature testing for product validation, compliance verification, and certification. Meets international standards such as ISO, CE, SGS, and TÜV for use in regulated industries.

FEATURES

Furnace Shell

- The shell is constructed from Q235 low-carbon steel with a corrosion-resistant, electrostatically treated surface.
- A sturdy double-layer metal frame is integrated with a heat-insulated fan structure, ensuring the exterior remains cool during operation.
- Designed for vertical use, the furnace features a side-opening lid for easy access and operation.

Refractory Material

- The furnace uses a multi-layer insulation system made of lightweight alumina ceramic fiber and a high-grade insulating board backing.
- It is free of asbestos, offering low heat loss and reduced energy consumption.

Heating System

- Equipped with premium metal-ceramic heating elements, the system provides efficient, radiant heating within the chamber.
- The elements are positioned in a ring or on both sides to deliver excellent temperature uniformity.
- The single-zone heating system allows independent control for precise performance.

Temperature Control Panel

- Utilizes PID control with SSR/SCR mode for accurate temperature regulation.
- Features an international-standard thermocouple with a long service lifespan.
- Includes a heating indicator and an over-temperature alarm buzzer for added safety.

Program Controller

- Built with an advanced controller to meet complex processing needs.

- User-friendly interface allows flexible programming.
- Supports up to 30 programmable segments.
- Integrated over-temperature and system fault alarms ensure automatic safety protection.

Vacuum and Atmosphere Capability

- Includes a 304 stainless steel sealing flange to enable vacuum or gas environment inside the tube.
- Compatible with high-quality alumina, metal, or quartz glass tubes to suit various operating conditions.

TECHNICAL SPECIFICATIONS

Item No	Heating Zone mm	Tube Size (mm)	Max Temperature	Work Temperature	Voltage	Power	Heating Element	Temperature Accuracy
TT-VTF-40-1200	300	Φ40×900	1200℃	1100℃	220V (110V is also available)	1.8KW	HRE	±1℃
TT-VTF-60-1200	300	Φ60×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF-80-1200	300	Φ80×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF-100-1200	300	Φ100×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF-40-1400	300	Φ40×900	1400℃	1350℃	220V (110V is also available)	2KW	SIC	±1℃
TT-VTF-60-1400	300	Φ60×900	1400℃	1350℃	220V (110V is also available)	3KW	SIC	±1℃
TT-VTF-80-1400	300	Φ80×900	1400℃	1350℃	220V (110V is also available)	4KW	SIC	±1℃

TT-VTF-100-1400	300	Φ100×900	1400℃	1350℃	220V (110V is also available)	5KW	SiC	±1℃
TT-VTF-40-1700	300	Φ40×900	1700℃	1600℃	220V (110V is also available)	3KW	MoSi2	±1℃
TT-VTF-60-1700	300	Φ60×900	1700℃	1600℃	220V (110V is also available)	4KW	MoSi2	±1℃
TT-VTF-80-1700	300	Φ80×900	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃
TT-VTF-100-1700	300	Φ100×900	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃



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