TORONTECH

VERTICAL 2-ZONE TUBE FURNACE 1200°C – TT-VTF2Z-60-1200

Vertical 2-Zone Tube Furnace 1200°C – TT-VTF2Z-60-1200 designed for high-temperature heat treatment up to 1200°C. It is suitable for sintering and processing advanced materials such as metals, ceramics, nanomaterials, semiconductors, and powder metallurgy. Commonly used in universities, research institutions, manufacturing facilities, petrochemical operations, and the aerospace sector.

APPLICATIONS

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- **Advanced Ceramic Materials** – Enables high-temperature sintering and densification of ceramics, ensuring superior thermal resistance, mechanical strength, and structural integrity for both research and industrial applications.
- **Nanomaterials Research** – Provides precise dual-zone thermal processing for nanopowders, composites, and functional coatings. Supports innovation in energy storage, catalysis, and electronics.
- **Semiconductor Materials** – Facilitates diffusion, annealing, and oxidation of semiconductor substrates. Ensures uniform heating and reliable temperature control for microelectronics and optoelectronics development.

- **Powder Metallurgy** – Supports the sintering and densification of metal powders into complex, high-performance components. Widely used for advanced alloy development and prototyping.

- **Petrochemical & Chemical Research** – Suitable for catalyst activation, thermal decomposition, and controlled-atmosphere experiments. Delivers consistent, reproducible results for chemical engineering and R&D.

- **Aerospace Materials Engineering** – Enables high-precision processing of advanced alloys, ceramics, and composites. Ensures structural stability and performance validation under extreme conditions.

- **Energy & Battery Research** – Provides thermal treatment for cathode/anode materials, solid electrolytes, and next-generation energy systems. Ensures repeatable results for high-performance energy applications.

- **Universities & Research Institutes** – Ideal for advanced studies in chemistry, physics, materials science, and engineering. Offers dual-zone flexibility, reliable safety features, and programmable control.

- **Industrial Quality Control & Certification** – Delivers accurate high-temperature testing for product validation, compliance verification, and certification. Conforms with ISO, CE, SGS, and TÜV standards.

FEATURES

Furnace Shell

- The shell is constructed from Q235 low-carbon steel with a corrosion-resistant, electrostatically coated surface.

- A solid double-layer metal frame is integrated with a heat-insulating fan structure to maintain a low external surface temperature.
- Designed for vertical operation, it features a side-opening lid for easy access and usability.

Refractory Material

- The furnace features a multi-layer insulation system made from lightweight alumina ceramic fiber and premium insulation boards.
- It is asbestos-free, with low heat loss and reduced energy consumption.

Heating System

- Equipped with high-quality metal and ceramic heating elements, the furnace offers radiant heat distribution within the chamber, promoting energy efficiency and extended lifespan.
- The elements are arranged in a circular pattern or on both sides to ensure even heat distribution.
- Each zone is independently controlled, allowing for improved temperature uniformity.

Temperature Control Panel

- Utilizes PID control with SSR/SCR output for accurate temperature regulation.
- Includes an international-grade thermocouple for durability.
- Features a heating indicator light and an over-temperature alarm with buzzer notification.

Program Controller

- Designed for advanced process requirements, the controller supports straightforward operation and flexible programming.
- Capable of storing up to 30 programmable segments.
- Includes over-temperature and system fault alarms for automatic safety protection.

Vacuum Atmosphere Capability

- Fitted with a 304 stainless steel sealing flange for vacuum or controlled atmosphere operations.

- Compatible with alumina, metal, or quartz glass tubes to suit various processing needs.

TECHNICAL SPECIFICATIONS

Item No	Heating Zone（mm）	Tube Size (mm)	Max Temperature	Work Temperature	Voltage	Power	Heating Element	Temperature Accuracy
TT-VTF2Z-40-1200	300	Φ40×900	1200℃	1100℃	220V (110V is also available)	1.8KW	HRE	±1℃
TT-VTF2Z-60-1200	300	Φ60×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF2Z-80-1200	300	Φ80×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF2Z-100-1200	300	Φ100×900	1200℃	1100℃	220V (110V is also available)	2.6KW	HRE	±1℃
TT-VTF2Z-40-1400	300	Φ40×900	1400℃	1350℃	220V (110V is also available)	2KW	SIC	±1℃
TT-VTF2Z-60-1400	300	Φ60×900	1400℃	1350℃	220V (110V is also available)	3KW	SIC	±1℃
TT-VTF2Z-80-1400	300	Φ80×900	1400℃	1350℃	220V (110V is also available)	4KW	SIC	±1℃
TT-VTF2Z-100-1400	300	Φ100×900	1400℃	1350℃	220V (110V is also available)	5KW	SIC	±1℃
TT-VTF2Z-40-1700	300	Φ40×900	1700℃	1600℃	220V (110V is also available)	3KW	MoSi2	±1℃
TT-VTF2Z-60-1700	300	Φ60×900	1700℃	1600℃	220V (110V is also available)	4KW	MoSi2	±1℃

TT-VTF2Z-80-1700	300	Φ80×900	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃
TT-VTF2Z-100-1700	300	Φ100×900	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃

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