TORONTECH

VERTICAL SPLIT QUENCH TUBE FURNACE 1200°C – TT-VTF-60-1200

Vertical Split Quench Tube Furnace 1200°C – TT-VTF-60-1200 with fluid bed delivers consistent high-quality results. Designed to be compact, portable, and lightweight, it features a split chamber for quick and convenient access to the tube. The standard package includes a set of stainless steel vacuum sealing flanges with valves and a pressure gauge

APPLICATIONS

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- **Advanced Ceramic Materials** – Enables high-temperature sintering, quenching, and densification of ceramics. Ensures structural integrity, thermal resistance, and durability for both research and industrial applications.
- **Nanomaterials Research** – Provides precise and uniform heat treatment of nanopowders, composites, and coatings. Supports functional nanomaterial development for catalysis, electronics, and energy storage.
- **Semiconductor Materials** – Facilitates diffusion, annealing, and oxidation of semiconductor substrates. Split-tube design allows rapid access for quenching and precise temperature control critical for microelectronics.

- **Powder Metallurgy** – Supports high-temperature sintering and quenching of metal powders into dense, uniform components. Widely applied in the production of advanced alloys and prototype parts.
- **Petrochemical & Chemical Laboratories** – Suitable for catalyst activation, quenching reactions, and thermal decomposition under vacuum or controlled atmosphere. Ensures reproducible results for chemical R&D.
- **Aerospace Materials Engineering** – Enables high-performance alloy and ceramic processing with rapid quench capability. Ensures thermal stability validation for aerospace components under extreme conditions.
- **Energy & Battery Research** – Provides controlled atmosphere heating and quenching for electrode materials, solid electrolytes, and next-generation battery systems. Ensures reliability in high-temperature material testing.
- **Universities & Research Institutes** – Ideal for advanced academic studies in materials science, chemistry, and engineering. Compact, portable design supports versatile experiments and laboratory teaching.
- **Industrial Quality Control & Certification** – Delivers repeatable high-temperature quenching and testing for validation, compliance verification, and certification. Meets ISO, CE, SGS, and TÜV requirements.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel with an electrostatic-resistant, corrosion-resistant surface finish.

- Built with a durable double-layer metal frame and thermal insulation fan structure to maintain a low external surface temperature.
- Vertical operation design — samples are suspended from the upper sealing flange for straightforward handling.

Refractory Material

- Multi-layer insulation made of lightweight alumina ceramic fiber and premium-grade insulation board. Free of asbestos, the design minimizes heat loss and keeps energy usage low.

Heating System

- Features high-performance heating elements with radiant heat distribution inside the furnace chamber, ensuring energy efficiency and a long service life.
- Heating elements are evenly distributed around the chamber to support uniform temperature control.

Electromagnetic Sample Suspension System

- An upper sealing flange includes a hook connected to an electromagnet, which is operated through a relay system.
- A sealing flange at the base of the furnace connects to a high-vacuum baffle valve, which can be linked to a water or oil tank for high-temperature quenching.
- Made with 304 stainless steel, the sealing flanges support vacuum or controlled atmosphere environments within the furnace tube.
- Supplied with high-quality quartz tubes, with options for metal or alumina ceramic tubes depending on application needs.

Temperature Control Panel

- Equipped with advanced controllers capable of handling complex thermal processes.
- Supports up to 30 programmable segments for automated temperature profiling.
- Includes over-temperature protection and fault detection for enhanced safety.

Product Model	Heating zone （mm）	Furnace Tube Size (mm)	Maximum Temperature	Working Temperature	Voltage	Power	Heating element	Temperature Control Accuracy
TT-VTF-60-1200	440	Φ60×1000	1200℃	1100℃	220V (110V is also available)	3KW	HRE	±1℃
TT-VTF-80-1200	440	Φ80×1000	1200℃	1100℃	220V (110V is also available)	4KW	HRE	±1℃
TT-VTF-100-1200	440	Φ100×1000	1200℃	1100℃	220V (110V is also available)	4KW	HRE	±1℃
TT-VTF-150-1200	500	Φ150×1200	1200℃	1100℃	380V	8KW	HRE	±1℃
TT-VTF-60-1400	300	Φ60×1000	1400℃	1350℃	220V (110V is also available)	3KW	SIC	±1℃
TT-VTF-80-1400	300	Φ80×1000	1400℃	1350℃	220V (110V is also available)	4KW	SIC	±1℃
TT-VTF-100-1400	300	Φ100×1000	1400℃	1350℃	220V (110V is also available)	5KW	SIC	±1℃
TT-VTF-60-1700	300	Φ60×1000	1700℃	1600℃	220V (110V is also available)	4KW	MoSi2	±1℃
TT-VTF-80-1700	300	Φ80×1000	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃
TT-VTF-100-1700	300	Φ100×1000	1700℃	1600℃	220V (110V is also available)	5KW	MoSi2	±1℃

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