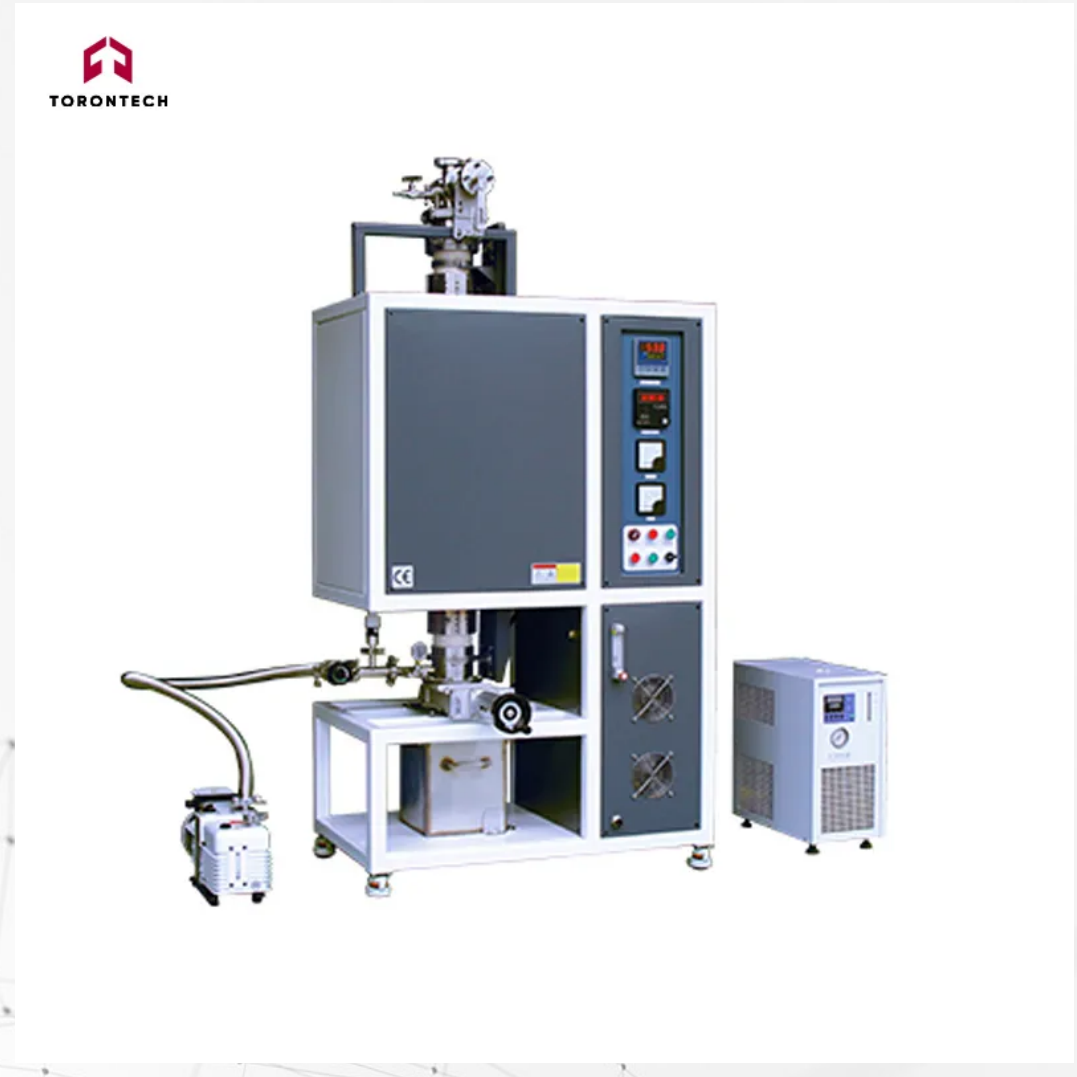
TORONTECH




# VERTICAL HIGH TEMPERATURE QUENCH TUBE FURNACE 1700°C – TT-VTF-40-1700

The Vertical High Temperature Quench Tube Furnace 1700°C – TT-VTF-40-1700 with fluid bed is engineered to deliver consistent, high-quality results for advanced material processing. Its compact, lightweight, and portable design makes it highly versatile for laboratory and industrial environments. The furnace features a split-chamber structure, allowing quick and convenient access to the tube, which enhances ease of use and operational efficiency. The standard package is equipped with stainless steel vacuum sealing flanges, valves, and a pressure gauge, enabling vacuum or controlled atmosphere operations.

This model is built for high-performance applications requiring extreme thermal stability and precision. It is fitted with a Φ40×1000 mm alumina tube and a 440 mm heating zone, powered by a durable $MoSi_2$ heating element. The system supports continuous operation at 1300°C, with a maximum achievable temperature of 1400°C. Designed for flexibility, it operates on 220V/5 kW (110V is also available) and uses a high-accuracy S-type thermocouple for reliable temperature measurement and control.

## APPLICATIONS

Vertical High Temperature Quench Tube Furnace 1700°C – TT-VTF-40-1700

Vertical High Temperature Quench Tube Furnace 1700°C – TT-VTF-40-1700

Vertical High Temperature Quench Tube Furnace 1700°C – TT-VTF-40-1700

- **Advanced Ceramic Materials** – Enables sintering, densification, and rapid quenching of ceramics at ultra-high temperatures. Delivers outstanding thermal resistance, structural stability, and mechanical strength for industrial and research applications.

- **Nanomaterials Research** – Provides precise and uniform heating for nanopowders, composites, and thin films. Supports advanced R&D in functional nanomaterials used in catalysis, electronics, and energy storage.

- **Semiconductor Materials** – Facilitates high-precision annealing, diffusion, oxidation, and rapid thermal quenching of semiconductor substrates. Ensures controlled thermal processing essential for microelectronics and optoelectronic device development.

- **Powder Metallurgy** – Supports high-temperature sintering and quenching of metallic powders into dense and uniform components. Widely applied in prototype development, alloy research, and advanced metallurgical manufacturing.

- **Petrochemical & Chemical Laboratories** – Suitable for catalyst activation, reaction mechanism studies, thermal decomposition, and high-temperature quenching under vacuum or controlled atmospheres. Ensures reliable and reproducible experimental outcomes.

- **Aerospace Materials Engineering** – Enables processing and rapid cooling of high-performance alloys, ceramics, and composites used in aerospace applications. Validates thermal stability, structural strength, and performance under extreme environments.

- **Energy & Battery Research** – Provides controlled heating and quenching for solid-state electrolytes, lithium-ion battery components, and next-generation energy storage materials. Ensures consistency and stability in high-temperature battery R&D.

- **Universities & Research Institutes** – Ideal for advanced teaching and research programs in materials science, chemistry, and engineering. Compact and versatile design supports experimental flexibility and laboratory training.

- **Industrial Quality Control & Certification** – Delivers ultra-high temperature testing and quenching capabilities for product validation, compliance verification, and certification. Meets ISO, CE, SGS, and TÜV industry standards.

## FEATURES

### Furnace Shell

- The shell is constructed from Q235 low-carbon steel and features an electrostatic coating for corrosion resistance. A durable double-layer metal frame is integrated with a heat-insulated fan structure, keeping the exterior surface temperature low. Designed for vertical use, the side-opening lid ensures ease of operation.

### Refractory Material

- The furnace includes a multi-layer insulation system made from lightweight alumina ceramic fiber and premium-grade insulation boards. It contains no asbestos, ensuring low heat loss and reduced energy consumption.

### Heating System

- High-performance heating elements provide free radiant heat within the furnace chamber, offering energy efficiency and extended service life.
- The elements are evenly distributed around the chamber to ensure excellent temperature uniformity.

### Temperature Control Panel

- Equipped with advanced controllers capable of managing complex processes.

- Features 30 programmable segments for precise, automated temperature curve control.
- Includes over-temperature protection and fault alarms for enhanced operational safety.

**Electromagnetic Hanging Sample System**

- A hook on the upper sealing flange connects to an electromagnet, which is operated via a relay for controlled sample handling.
- The lower sealing flange integrates with a high-vacuum baffle valve and connects to a water or oil tank, enabling high-temperature quenching processes.
- Made from 304 stainless steel, the sealing flanges help maintain a vacuum or controlled atmosphere within the tube.
- Supplied with high-quality quartz tubes; metal or alumina ceramic tubes are also available to suit various applications.

## TECHNICAL SPECIFICATIONS

| 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℃ |

TORONTECH.com

TORONTECH


**Torontech Inc.**
251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

**Torontech, LLC**
601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

**Torontech ME FZE**
Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE

Phone: +971 488 19252
Email: me@torontech.com


USA | Canada | EU | UAE | GCC | KSA | India | Africa | Latin America | Asia