



TORONTECH

VERTICAL TUBE FURNACE 1200°C - TT- VTF-40-1200



Vertical Tube Furnace 1200°C – TT-VTF-40-1200 designed for high-temperature heat treatment, sintering, and material processing. It is suitable for working with metals, ceramics, nanomaterials, semiconductors, and powder metallurgy. Commonly used in universities, research labs, manufacturing facilities, petrochemical operations, and the aerospace sector, this furnace supports advanced material development across a range of industries.

APPLICATIONS

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- **Advanced Ceramic Materials** – Provides controlled high-temperature sintering and densification of ceramics. Ensures excellent mechanical strength, thermal stability, and microstructural consistency for both industrial and research applications.
- **Nanomaterials & Functional Composites** – Enables precise thermal processing of nanomaterials, catalysts, and advanced composites. Supports uniform heating under vacuum or atmosphere, ensuring reproducible particle size and enhanced material performance.

- **Semiconductor & Electronics Processing** – Facilitates annealing, diffusion, and oxidation of semiconductor substrates. Delivers accurate and contamination-free processing critical to microelectronics, optoelectronics, and functional ceramic materials.
- **Powder Metallurgy & Advanced Metals** – Supports sintering and reduction of metal powders into dense, high-performance components. Single-zone precision heating provides consistency for alloy development and prototype manufacturing.
- **Petrochemical & Catalyst Research** – Suitable for catalyst activation, calcination, and thermal decomposition experiments. Ensures reproducible results under controlled atmosphere conditions for chemical R&D and pilot testing.
- **Aerospace & Defense Materials** – Provides high-temperature treatment for superalloys, ceramics, and specialized composites. Validates thermal stability and structural integrity of aerospace-grade materials under demanding conditions.
- **Energy & Battery Materials** – Enables calcination and sintering of electrode powders, electrolytes, and energy storage materials. Ensures consistent high-temperature performance essential for lithium-ion and next-generation batteries.
- **Universities & Research Institutes** – Ideal for academic and industrial laboratories in chemistry, materials science, and engineering. Offers flexible programming, atmosphere adaptability, and reliable safety features for advanced studies.
- **Industrial Quality Control & Pilot Production** – Delivers high-precision thermal testing and small-scale production. Conforms with ISO, CE, SGS, and TÜV certifications, ensuring compliance and acceptance in regulated industries.

FEATURES

Furnace Shell

- Constructed from Q235 low-carbon steel, the shell features an electrostatic-resistant coating that helps protect against corrosion.
- The solid, double-layer metal frame is integrated with a heat-insulating fan structure, ensuring the outer surface remains cool.
- Designed for vertical use, it features a side-opening cover for ease of operation.

Refractory Material

- The furnace includes a multi-layer insulation system made of lightweight alumina ceramic fiber backed by a premium insulation board.
- It contains no asbestos, and its design minimizes heat loss and reduces energy consumption.

Heating System

- Equipped with high-performance metal and ceramic heating elements, the system provides efficient, radiant heating within the chamber.
- Ring or dual-side heating ensures uniform temperature distribution throughout the interior.
- The single-zone temperature control allows precise adjustments and maintains consistent thermal conditions.

Temperature Control Panel

- Uses PID control with SSR/SCR modules for accurate temperature regulation.
- Features a durable, internationally standardized thermocouple.
- Includes a heating indicator light and over-temperature alarm buzzer for safety.

Program Controller

- Supports complex thermal processes with an intuitive interface and flexible programming.
- Allows up to 30 programmable segments for automated operation.
- Built-in alarms for over-temperature and system faults provide added safety.

Vacuum Atmosphere Capability

- Fitted with a 304 stainless steel sealing flange to enable vacuum or controlled atmosphere environments within the tube.
- Compatible with high-grade alumina, metal, or quartz glass tubes to suit various process needs.

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°C	1100°C	220V (110V is also available)	1.8KW	HRE	±1°C
TT-VTF-60-1200	300	Φ60×900	1200°C	1100°C	220V (110V is also available)	2.6KW	HRE	±1°C
TT-VTF-80-1200	300	Φ80×900	1200°C	1100°C	220V (110V is also available)	2.6KW	HRE	±1°C
TT-VTF-100-1200	300	Φ100×900	1200°C	1100°C	220V (110V is also available)	2.6KW	HRE	±1°C
TT-VTF-40-1400	300	Φ40×900	1400°C	1350°C	220V (110V is also available)	2KW	SIC	±1°C
TT-VTF-60-1400	300	Φ60×900	1400°C	1350°C	220V (110V is also available)	3KW	SIC	±1°C

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℃



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

