

SINGLE ZONE TUBE FURNACE 1700°C - TT- TF1Z-60-1700



Single Zone Tube Furnace 1700°C - TT-TF1Z-60-1700 is designed for sintering and high-temperature heat treatment of metals, ceramics, nanomaterials, semiconductors, powder metallurgy, and other advanced materials. It is widely used in universities, research institutions, industrial facilities, as well as the petrochemical and aerospace sectors.

APPLICATIONS

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- **Advanced Ceramic Materials** – Provides ultra-high temperature sintering and densification of technical ceramics. Ensures excellent mechanical strength, thermal stability, and microstructural integrity for industrial and research applications.
- **Nanomaterials & Composite Research** – Delivers precise and uniform thermal processing for nanostructures, thin films, and advanced composites. Supports R&D in energy storage, catalysis, and next-generation electronic materials.
- **Semiconductor & Electronics Development** – Facilitates annealing, diffusion, and oxidation of semiconductor substrates at controlled high temperatures. Ensures stable and reproducible processes critical for microelectronics and

optoelectronics innovation.

- **Powder Metallurgy & Alloy Processing** – Supports sintering and consolidation of metal and alloy powders into dense, uniform components. Widely applied in the development of high-performance alloys, metallurgical studies, and advanced manufacturing.
- **Petrochemical & Chemical Laboratories** – Enables catalyst activation, thermal decomposition, and high-temperature reaction studies under vacuum or protective gas environments. Provides accurate and consistent results for chemical R&D.
- **Aerospace Materials Engineering** – Enables high-temperature processing and validation of advanced alloys, ceramics, and composites used in aerospace applications. Ensures material strength, oxidation resistance, and reliability under extreme service conditions.
- **Energy & Battery Research** – Provides controlled sintering and thermal treatment of cathodes, anodes, solid electrolytes, and fuel cell components. Enhances performance, safety, and stability in lithium-ion and solid-state battery research.
- **Universities & Research Institutes** – Ideal for advanced studies in materials science, chemistry, physics, and engineering. Combines programmable controls, flexible operation, and robust safety features for academic and institutional research.
- **Industrial Quality Control & Certification** – Delivers precise high-temperature processing for compliance testing, certification, and product validation. Meets ISO9001, CE, SGS, and TÜV standards for regulated industries.

FEATURES

Furnace Shell

- The shell is constructed from Q235 low-carbon steel with an electrostatically applied, corrosion-resistant finish.
- A robust double-layer metal frame is integrated with a heat-insulating fan structure, keeping the furnace surface temperature low.
- Designed for horizontal use, it offers user-friendly operation.

Refractory Material

- The furnace features a multi-layer insulation system made of lightweight alumina ceramic fiber and high-performance insulation board. It contains no asbestos, resulting in minimal heat loss and low energy consumption.

Heating System

- Premium MoSi₂ heating elements are securely mounted on both sides of the furnace chamber, delivering energy-efficient, radiant heat.
- Dual-sided heating (left and right) ensures excellent temperature uniformity.
- The system is designed for long-term reliability and high efficiency.

Temperature Control Panel

- Features PID and SSR control for precise temperature regulation.
- Equipped with a B-type Ni-Cr-Si thermocouple (international standard) with a temperature range of 0–1800°C and extended service life.
- Includes a heating indicator and an over-temperature alarm buzzer.

Program Controller

- Supports advanced process control with straightforward operation and flexible programming.

- Capable of handling up to 32 programmable segments.
- Includes safety features such as over-temperature protection and fault alarms.

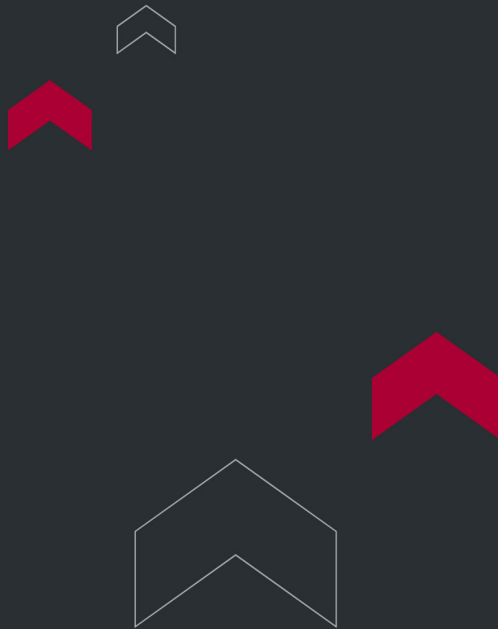
Vacuum/Atmosphere Function

- Includes a 304 stainless steel sealing flange to create a vacuum or controlled atmosphere inside the furnace tube.
- Comes with a high-quality quartz tube; metal or corundum tubes are also available to accommodate various operating conditions.

TECHNICAL SPECIFICATIONS

Model	TT-TF1Z-40-1700	TT-TF1Z-60-1700	TT-TF1Z-80-1700	TT-TF1Z-100-1700
Tube size	Φ40 x 900mm	Φ60 x 900mm	Φ80 x 900mm	Φ100 x 900mm
Max Temperature	1700°C			
Working temperature	1600°C			
Heating zone size	300mm			
Voltage	220V/3KW (110V is also available)	220V/4KW (110V is also available)	220V/5KW (110V is also available)	220V/5KW (110V is also available)
Heating element	MoSi2			
Furnace material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration			
Furnace tube material	High purity corundum tube			
Temperature control accuracy	±1°C			
Temperature measuring element	B-type national standard platinum rhodium thermocouple			

Temperature control instrument	Intelligent microcomputer PID temperature control instrument, SSR control, PID parameter self-tuning function; programmable 4 groups of 8 program segments, program temperature rise, program heat preservation, program cooling
Heating rate	1-15°C/min free adjustment
Furnace structure	Furnace temperature control integrated structure; double-layer shell, air circulation and heat insulation
Sealing performance	Both ends of the furnace tube are equipped with stainless steel metal flanges, matched with high-temperature PTFE gaskets, which can work under vacuum with a vacuum degree of $\leq 5\text{pa}$ (rotary vane vacuum pump)
atmosphere performance	There are air inlets and outlets at both ends of the flange. The pressure gauge is installed on the metal flange. The precision needle valve can adjust the air intake and output, and can be fed with protective gases such as nitrogen, argon, and hydrogen.
equipment protection	Modular control, sound and light alarm signal will be sent out for over temperature and broken coupler in the working process, and the protection action will be completed automatically
safety protection	The equipment is equipped with a circuit breaker, which will automatically pop open in case of short circuit leakage, which can protect the safety of equipment and operators
shell	High-quality cold-rolled steel plate CNC machine tool blanking processing, after welding, grinding, polishing, phosphating, pickling, surface electrostatic spraying plastic powder
Quality Certification	ISO9001 CE SGS TUV
The standard configuration	1. 1 furnace body 2. 1 temperature controller 3. Power cord 3 meters 4. 1 thermocouple 5. 1 manual 6. One furnace hook 7. One pair of high temperature gloves 8. Two pipe plugs 9. One set of sealing flange
Optional accessories	1. Optional rotary vane vacuum pump (vacuum degree $\leq 5\text{pa}$) 2. Optional digital vacuum gauge ($(1.0 \times 10^5 - 1.0 \times 10^{-1}\text{pa})$) 3. Optional float flowmeter (range 60-600ml/min) 4 , optional corundum boat



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

