



6 ZONE TUBE FURNACE 1200°C - TT-MZTF6Z- 275-1200

The 6-Zone Tube Furnace 1200°C - TT-MZTF6Z-275-1200 is engineered for continuous high-temperature operation, capable of reaching up to 1200°C. Designed for industrial-scale production, it supports both vacuum and controlled-atmosphere processes, making it suitable for a wide range of thermal treatments and material processing applications.

This model features a large $\Phi 275 \times 2300$ mm quartz tube with a 1500 mm heating zone, providing uniform temperature distribution across the chamber. The reactor tube is constructed from high-quality quartz, while heating is achieved using 1500-type polycrystalline alumina ceramic fiber elements for efficient thermal performance. Temperature is monitored with an N-type thermocouple, and the system operates on 380V/12 kW, delivering reliable and stable performance. Custom tube sizes and diameters are also available to meet specific production or research requirements.

APPLICATIONS

Energy & Materials Research – Provides high-temperature processing for advanced materials including graphene, lithium-ion battery electrodes, semiconductors, and other functional materials. Supports R&D in energy storage, electronic, and nanomaterials industries.

Chemical Vapor Deposition (CVD) & Thin-Film Processing – Enables precise thermal management under vacuum or controlled-atmosphere conditions. Ideal for multi-zone temperature control, gradient studies, and deposition of thin films with uniform thickness and composition.

Sintering & Heat Treatment – Supports uniform thermal treatment of powders, ceramics, and metal composites. The multi-zone heating system ensures consistent densification, microstructure control, and mechanical performance in high-volume production.

Industrial Scale Production – Designed for continuous operation with large-diameter quartz tubes and high power input. Suitable for high-throughput manufacturing and industrial-scale thermal processing under both vacuum and atmospheric conditions.

Semiconductor & Electronics Materials – Facilitates annealing, diffusion, and oxidation processes for semiconductor wafers and advanced electronic components. Ensures precise temperature uniformity essential for microelectronics fabrication.

Graduate & University Research Labs – Provides flexible programming with up to 30 segments for automated temperature profiles. Safe, reliable, and energy-efficient design supports experimental studies requiring precise thermal control.

Quality Control & Certification Testing – Enables reproducible thermal testing for materials validation, product certification, and compliance verification. Conforms with international standards for high-temperature industrial applications.

Customizable Thermal Processing – Supports variable tube sizes and diameters across the series ($\Phi 40$ – $\Phi 200$ mm), with independently controlled heating zones, allowing adaptation to specific research or production needs.

FEATURES

The multi-zone tube furnace includes a heating system, temperature control system, work tube, and sealing components. It supports both vacuum and atmospheric conditions to accommodate a range of CVD processes. The multiple heating zones allow for a uniform temperature field and are also suitable for gradient temperature studies. This furnace is commonly used for sintering and heat treatment of materials such as graphene, lithium battery electrodes, semiconductors, and other advanced materials in the energy and materials industries.

Furnace Shell

- Constructed from Q235 low-carbon steel with a corrosion-resistant, electrostatically coated surface
- Reinforced double-layer frame with built-in thermal insulation and fan structure to maintain a low external surface temperature
- Horizontal layout with a top-opening design for easy operation

Refractory Materials

- Multi-layer insulation combining lightweight alumina ceramic fiber and high-performance insulating boards
- Free of asbestos, designed for minimal heat loss and reduced energy usage

Heating System

- Durable metal-ceramic heating elements provide efficient radiant heating with extended service life
- Ring or dual-sided heating configuration ensures excellent temperature uniformity
- Three heating zones with independently controlled temperature settings enhance thermal precision

Temperature Control Panel

- PID controller with SSR/SCR operation for accurate temperature regulation
- Long-lasting, internationally rated thermocouple
- Includes heating status indicator and over-temperature alarm system

Program Controller

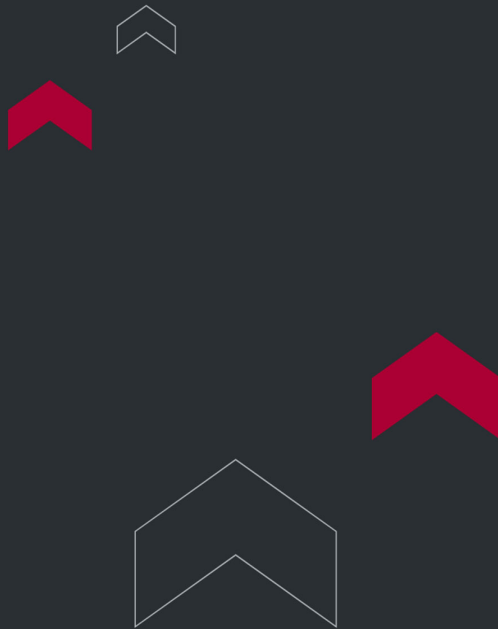
- Advanced control unit suitable for demanding thermal processing applications
- Intuitive interface with flexible programming
- Supports up to 30 programmable segments
- Built-in safety features with fault detection and over-temperature alerts

Vacuum and Atmosphere Capability

- Fitted with 304 stainless steel sealing flanges to enable vacuum or controlled atmosphere environments within the tube
- Compatible with quartz, metal, or alumina tubes, allowing for use under varied experimental conditions

TECHNICAL SPECIFICATIONS

Model	Heating zone	Tube size	Max temp	voltage	Power	Heating element	Temp accuracy
TT-MZTF6Z-40-1200	1200	Φ40×1800	1200℃	380V	10KW	HRE	±1℃
TT-MZTF6Z-60-1200	1200	Φ60×1800	1200℃	380V	15KW	HRE	±1℃
TT-MZTF6Z-80-1200	1200	Φ80×1800	1200℃	380V	16KW	HRE	±1℃
TT-MZTF6Z-100-1200	1200	Φ100×1800	1200℃	380V	18KW	HRE	±1℃
TT-MZTF6Z-120-1200	1200	Φ120×1800	1200℃	380V	22KW	HRE	±1℃
TT-MZTF6Z-150-1200	1200	Φ150×1800	1200℃	380V	25KW	HRE	±1℃
TT-MZTF6Z-200-1200	1200	Φ200×1800	1200℃	380V	30KW	HRE	±1℃



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