



TORONTECH



MUFFLE FURNACE TT- MF-18-1400

Chamber Muffle Furnace TT-MF-18-1400 is designed for high-temperature heat treatment processes such as sintering advanced materials, including metals, ceramics, nanomaterials, and semiconductors.

APPLICATIONS

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- **Advanced Materials Research & Development** – Provides precise high-temperature sintering and heat treatment of ceramics, metals, nanomaterials, and semiconductor samples. Dual-sided SiC heating elements and uniform chamber design ensure accurate, repeatable results for advanced R&D and pilot-scale production.
- **Electronics & Semiconductor Manufacturing** – Enables controlled thermal processing of wafers, films, and semiconductor components. Equipped with an S-type platinum-rhodium thermocouple and PID-SSR control system, it ensures reliable high-temperature profiles for fabrication and testing in the electronics industry.
- **Chemical & Petrochemical Laboratories** – Facilitates calcination, catalyst preparation, and thermal decomposition of polymers and specialty chemicals. The programmable 30-segment controller supports complex heating cycles,

making it ideal for industrial research, product development, and quality control labs.

- **Academic & Institutional Research** – Widely adopted in universities and research institutions for experiments in chemistry, physics, and materials science. Offers flexible programming, precise heating control, and reproducible results, supporting both teaching and advanced research.
- **Aerospace & Metallurgical Engineering** – Suitable for heat treatment of alloys, composites, and ceramics used in aerospace and defense applications. Provides consistent, uniform heating for oxidation resistance testing, phase transformation studies, and structural evaluations.
- **Pharmaceutical & Biotechnology Research** – Supports calcination, ashing, and thermal decomposition of pharmaceutical samples and intermediates. Ensures accuracy, reproducibility, and compliance with international laboratory standards.
- **Environmental & Geological Testing Centers** – Ideal for mineral analysis, soil ashing, and geological sample preparation. Delivers consistent high-temperature performance, ensuring data integrity for geoscience and environmental studies.
- **Independent Certification & Testing Agencies** – Provides audit-ready, secure, and traceable heat treatment processes with built-in safety interlocks, alarms, and internationally recognized certifications (ISO, CE, SGS, TUV). Ensures compliance and reliability for verification and third-party testing services.

FEATURES

Furnace Shell

1. The shell is constructed from Q235 low-carbon steel with an electrostatic coating that resists corrosion.
2. A robust double-layer metal frame helps maintain a low external surface temperature.
3. The side-opening furnace door swings to the right for easy operation.

Refractory Material

1. Features a multi-layer insulation system made of lightweight alumina ceramic fiber and a high-quality insulation board.
2. Free of asbestos, it ensures minimal heat loss and low energy consumption.

Heating System

1. High-performance silicon carbide (SiC) heating elements are securely mounted on both sides of the furnace chamber.
2. Heat is evenly distributed through free-radiation heating, enhancing energy efficiency and extending service life.
3. Dual-side heating (left and right) promotes excellent temperature uniformity.
4. A durable SiC bottom plate protects the lower heating elements, supports horizontal loads, and provides strong thermal conductivity.

Temperature Control Panel

1. Uses PID and SSR control for accurate temperature regulation.
2. Equipped with a platinum-rhodium S-type thermocouple (0–1600°C) for reliable temperature monitoring and extended lifespan.
3. Includes a safety switch that cuts power when the furnace door is opened.

Program Controller

1. Advanced control system suited for demanding thermal processes
2. User-friendly interface with flexible programming options
3. Supports up to 30 programmable segments in a single curve
4. Built-in over-temperature and system fault alarms with automatic safety shutdown

Model	TT-MF-1.7-1400	TT-MF-3-1400	TT-MF-8-1400	TT-MF-12-1400	TT-MF-18-1400	TT-MF-36-1400	TT-MF-45-1400
Chamber size □ W xD xH□ mm	120 x120x120	150 x150x150	200x200x200	200x300x200	250 x300x250	300x400x300	300 x500x300
Outer size□ W xD xH□ mm	460 x500x720	490x530x750	575x610x825	590 x680x835	610 x700x860	650x770x900	975 x930x1200
Max temperature	1400℃						
Working temperature	1350℃						
Voltage	220V/2.5KW (110V is also available)	220V/3KW (110V is also available)	220V/5KW (110V is also available)	220V/5KW (110V is also available)	220V/6KW (110V is also available)	380V/12KW	380V/14KW
Heating element	silicon carbide rod (SIC)						
Chamber material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration						
Temp.Precision	±1℃						
Termocouple	S Type termocouple						
Temperature controller	Intelligent microcomputer PID temperature control instrument, SSR control, PID parameter self-tuning function; programmable 30 program segments, program temperature rise, program heat preservation, program cooling						
Heating rate	1-30℃/min free adjustment						
Furnace structure	Furnace temperature control integrated structure						
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						

Quality certificate	ISO9001 CE SGS TUV
Optional	1. Optional exhaust chimney for evacuation of volatile substances 2. Optional corundum crucible, furnace floor, shed board and other kiln furniture 3. Optional material recorder for online recording of temperature curves



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