



TORONTECH



MUFFLE FURNACE TT- MF-3-1800

High-Temperature Box Muffle Furnace TT-MF-3-1800 is designed for high-temperature heat treatment processes such as sintering ceramic materials, nanomaterials, semiconductor materials, powder metallurgy, and other advanced materials. It is widely used in universities, research institutes, manufacturing facilities, as well as in the petrochemical and aerospace industries.

APPLICATIONS

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- **Advanced Materials Research & Development** – Provides high-temperature sintering, annealing, and heat treatment of ceramics, nanomaterials, semiconductors, and powder metallurgy samples. Compact design with dual-sided MoSi₂ heating ensures precise and uniform heating up to 1800°C, making it ideal for small-scale advanced R&D projects.
- **Electronics & Semiconductor Manufacturing** – Supports controlled processing of wafers, coatings, and semiconductor components in pilot-scale production and testing. Equipped with a B-type platinum-rhodium thermocouple and PID-SCR control, it delivers stable and repeatable temperature profiles essential for microelectronics

applications.

- **Chemical & Petrochemical Laboratories** – Facilitates thermal decomposition, catalyst activation, and calcination of specialty chemicals. Its 30-segment programmable controller allows custom heating profiles for research, quality control, and small-batch processing in chemical industries.
- **Academic & Institutional Research** – Widely adopted in universities and research centers for high-temperature experiments in inorganic chemistry, solid-state physics, and materials science. Offers precise temperature regulation and flexibility for training, coursework, and experimental studies.
- **Aerospace & Metallurgical Engineering** – Designed for high-accuracy heat treatment of small samples of alloys, composites, and ceramics. Delivers reliable high-temperature conditions for phase transformation studies, oxidation resistance testing, and aerospace material evaluations.
- **Pharmaceutical & Biotechnology Research** – Used for calcination, ashing, and thermal decomposition of pharmaceutical samples. Ensures accurate and reproducible results for research and laboratory-scale testing in compliance with global standards.
- **Environmental & Geological Testing Centers** – Ideal for small-sample mineral analysis, soil ashing, and rock testing. Provides reproducible thermal treatment for trace-level environmental and geoscience investigations.
- **Independent Certification & Testing Agencies** – Offers traceable and secure thermal processing with built-in over-temperature alarms, power cut-off safety switch, and internationally certified quality (ISO, CE, SGS, TUV). Ensures compliance and reliability for third-party certification and verification laboratories.

FEATURES

Furnace Shell

1. The shell is constructed from Q235 low-carbon steel with an electrostatically coated, corrosion-resistant surface.
2. Its durable double-layer metal frame minimizes external surface temperature.
3. The side-opening door, hinged on the right, ensures convenient access and operation.

Refractory Material

1. Features a multi-layer insulation system composed of lightweight alumina ceramic fiber and premium insulation boards.
2. It is asbestos-free, with low heat loss and reduced energy consumption.

Heating System

1. Equipped with high-quality MoSi_2 heating elements, securely mounted on both sides of the chamber.
2. These elements provide efficient, free-radiation heating, resulting in high energy efficiency and a long lifespan.
3. Bilateral heating (left and right) ensures excellent temperature uniformity within the chamber.
4. Customizable models available with maximum temperatures of 1750°C or 1800°C , suitable for ceramic sintering applications.

Temperature Control Panel

1. Utilizes PID and SCR control for precise temperature regulation.
2. Features an international standard B-type platinum-rhodium thermocouple with a range of $50\text{--}1800^{\circ}\text{C}$ and long operational life.
3. Includes a safety switch that automatically cuts power when the door is opened.

Program Controller

1. Advanced control unit suitable for complex thermal processes

Temperature controller	Intelligent microcomputer PID temperature control instrument, SCR/SSR control, PID parameter self-tuning function; programmable 32 time periods, program heating, program heat preservation, program cooling
Heating rate	1-15°C/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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