



TORONTECH



MUFFLE FURNACE TT- MF-3-1700

Muffle Furnace TT-MF-3-1700 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, petrochemical operations, and the aerospace sector.

APPLICATIONS

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- **Advanced Ceramic Materials** - Enables high-temperature sintering and densification of ceramics, ensuring excellent structural integrity, thermal resistance, and mechanical strength for industrial and research applications.
- **Nanomaterials Research** - Provides precise, uniform thermal processing for nanostructures and advanced composites. Supports R&D in functional nanomaterials used in electronics, catalysis, and energy storage.
- **Semiconductor Materials** - Facilitates annealing, diffusion, and oxidation of semiconductor substrates at ultra-high temperatures. Ensures precise temperature control critical for microelectronics and optoelectronics development.

- **Powder Metallurgy** - Supports high-temperature sintering of metal powders into dense, uniform components. Widely used for manufacturing complex shapes and advanced alloys in research and production environments.
- **Petrochemical & Chemical Laboratories** - Suitable for catalyst activation, thermal decomposition, and reaction mechanism studies requiring temperatures up to 1700°C. Delivers accurate, reproducible results for chemical R&D.
- **Aerospace Materials Engineering** - Enables testing and processing of high-performance alloys, ceramics, and composites used in aerospace applications. Ensures thermal stability and strength validation under extreme conditions.
- **Energy & Battery Research** - Provides thermal treatment for solid-state electrolytes, lithium-ion battery materials, and next-generation energy storage systems. Ensures high-temperature stability and consistency in energy materials research.
- **Universities & Research Institutes** - Ideal for advanced studies in physics, chemistry, materials science, and engineering. Offers versatile programming, reliable performance, and robust safety for academic laboratories.
- **Industrial Quality Control & Certification** - Delivers ultra-high temperature testing for product validation, compliance verification, and certification. Conforms with ISO, CE, SGS, and TÜV standards for regulated industries.

FEATURES

Furnace Shell

1. Constructed from Q235 low-carbon steel with a corrosion-resistant, electrostatically coated surface.

2. The durable double-layer metal frame helps minimize the external surface temperature.
3. Features a side-opening door that opens to the right for convenient operation.

Refractory Material

Designed with multi-layer insulation, including lightweight alumina ceramic fiber and premium insulation board backing. Asbestos-free, with low heat loss and reduced energy consumption.

Heating System

1. Equipped with high-quality MoSi₂ heating elements, securely installed on both sides of the chamber for efficient and consistent heat distribution.
2. Dual-side heating ensures excellent temperature uniformity.
3. Custom high-temperature models available, with maximum temperatures of 1750°C or 1800°C—ideal for ceramic material sintering.
4. Energy-efficient design with long service life.

Temperature Control Panel

1. Features PID and SCR control for precise temperature regulation.
2. Uses a high-grade B-type platinum-rhodium thermocouple (temperature range: 50–1800°C) for accuracy and durability.
3. Built-in safety switch cuts power when the furnace door is opened.

Program Controller

1. Advanced controller supports complex thermal processing.
2. Intuitive interface with flexible programming options.
3. Supports up to 32 programmable segments.
4. Includes over-temperature and fault alarms for automatic safety protection.

TECHNICAL SPECIFICATIONS

Model	TT-MF-1-1700	TT-MF-3-1700	TT-MF-8-1700	TT-MF-12-1700	TT-MF-20-1700	TT-MF-36-1700	TT-MF-45-1700
Chamber size □ W xD xH□ mm	100 x120x100	150 x150x150	200x200x200	200x300x200	250 x320x250	300x400x300	300 x500x300
Outer size □ W xD xH□ mm	383 x432x660	510x560x870	600x620x920	600x693x920	610 x730x970	700x840x1500	700x940x1500
Max temperature	1700℃						
Working temperature	1600℃						
Voltage	220V/2KW (110V is also available)	220V/4KW (110V is also available)	220V/5KW (110V is also available)	220V/6KW (110V is also available)	220V/7KW (110V is also available)	380V/15KW	380V/18KW
Heating element	MoSi2 rod						
Chamber material	Polycrystalline inorganic alumina ceramic fiber material prepared by wet vacuum filtration						
Temp.Precision	±1℃						
Termocouple	B Type termocouple						
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℃/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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