



ANALYSIS INSTRUMENTS

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MUFFLE FURNACE (MAKE : ANALYSIS)

Product Description

A muffle furnace is a laboratory instrument used to heat materials to extremely high temperatures whilst isolating them from fuel and the byproducts of combustion from the heat source. Muffle furnaces allow for the isolation of a material to reduce the risks of cross-contamination and identify specific properties. This blog post will take a closer look at what a muffle furnace is and provide an overview of its applications and benefits.

Applications of a Muffle Furnace

Muffle furnaces are suitable for a wide variety of high-temperature applications and play a crucial role for scientists who need to determine how much non-combustible and non-volatile content is present in a sample. This equipment is also used to identify the chemical properties of a material at high temperatures, such as ceramics, enamel coatings, glass and others.

Some additional equipment applications include ash melting point analysis, brazing, drug inspections and pre-treatment of medical samples, materials research, nuclear fuel disposal, quality control, and water quality analysis. As shown, muffle furnaces are essential for many other applications and span several industries, from ceramics to textiles.

The industries that benefit from muffle furnaces include, but are not limited to, the following:

- Biomedical
- Ceramics
- Glass
- Pharmaceutical
- Plastic
- Textile

Benefits of a Muffle Furnace

As mentioned above, a muffle furnace is a crucial piece of equipment from which many applications and industries benefit. For example, they are ideal for ashing and heat treating samples. Further advantages of using a muffle furnace include the following:

- Cost-effective
- Energy efficient
- High heat-resistant material





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- High thermal conductivity
- Material production: copper, low-carbon steel and stainless steel
- Robust, with long service life
- Temperature uniformity
- Various temperature ranges (200 to 1200°C)

As muffle furnaces are available in different configurations, it is essential to consider what maximum temperature your application requires, chamber size, heating elements, and programming options. The benefits mentioned above ensure that the tested or used samples are kept in safe conditions and that the maximum temperature is not exceeded.

Detailed Description

Temperature range: In muffle furnace there is maximum temperature range and continuous working temperature range. Our standard models are made with maximum temperatures 1100°C and 1400°C with working temperatures 1000°C and 1300° respectively.

Heating Element: In muffle furnace 1100°C imported Kanthal A-1 resistive wire heating elements are used; while in 1400°C high temperature muffle furnaces, we use silicon carbide rods and MoSi₂ (Molybdenum Disilicide) for 1600°C, and 1800°C.

Heating Zone: The heating zone is the most crucial part of any muffle furnace. For 1100°C machine we make heating chamber of ceramic fibre board and for 1400°C Ceramic Zirconium board is used. High density Ceramic fibre blanket is used as insulation to keep the outer surface at minimum temperature.

Controller: As standard microprocessor based PID temperature controller is fitted in each muffle furnace. These controllers feature excellent accuracy during the entire cycle and also keep displaying set value (SV) and process value (PV).

Construction: These laboratory furnaces are built on a thick steel frame. Outer cabinet is usually made of powder coated cold roll sheet. We also make GMP muffle furnaces with all stainless steel 304 grade sheets.

Optional Accessories: We also equip your programmable muffle furnace with choice of accessories to meet specific requirement of our clients. These accessories are PLC based HMI controller with data logging and PID controller with RS232 computer interface. Steel tong and gloves are standard accessories and supplied with every muffle furnace.





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Features & Benefits

- Available in 1100°C, 1200°C, 1400°C, temperature
- Programmable (profile) temperature controller
- Excellent temperature accuracy & uniformity
- Imported heating elements
- Rugged construction for long run
- Fitted with safety devices
- Customization as per user requirement

TECHNICAL SPECIFICATIONS

Max. Temperature	1200°C	1400°C
Continuous operating temp.	1150°C	1300°C
Heating element	KANTHAL A1 wire	Silicon Carbide (SiC) rods
Thermocouple	K Type	R Type
Heating chamber MOC	Ceramic Muffle	Ceramic Fiber Board Zirconia Grade
Exterior MOC	Powder coated /Stainless Steel	
Door	Swing type insulated solid door	
Temperature controller	Programmable PID controller	
Power supply	220V/50Hz	
Optional Accessories	➤ High temperature safety gloves	





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Muffle Furnace Size

Model	Chamber Size (inch)	Chamber Size (mm)
AIMFMS944	4 x 4 x 9	100 x 100 x 225
AIMFMS1055	5 x 5 x 10	125 x 125 x 250
AIMFMS1255	5 x 5 x 12	125 x 125 x 300
AIMFMS1266	6 x 6 x 12	150 x 150 x 300



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