

# Muffle Furnace



## ▶▶ DESCRIPTION & SPECIFICATION

<b>Furnace type</b>	: CHAMBER TYPE FURNACE .
<b>Working chamber dimension.</b>	: 125mm W X125mm H X150mm D
<b>Insulation Type</b>	: High-quality fiber material for furnace Chamber, selected for the high working temperature. Fiber Boards of Various grades like 1600,1400,1200 of MMTCL
<b>Casing</b>	Non-rust Textured Stainless sheet steel casing. Double-walled casing for low external temperatures and high stability GLP & GMP compliant
<b>Type and number of Heating Elements</b>	: Number of Heating Element – 6nos MoSi <sub>2</sub> ,Dia: 4/9mm
<b>Maximum temperature</b>	: 1650deg C
<b>Continuous temperature</b>	: 1600deg C.
<b>Furnace KW rating</b>	: 3.5 KW(Approx)
<b>No. of control zone</b>	: One
<b>Number and location of the thermocouples</b>	: One number of “R” Type thermocouple will be provided in the furnace .
<b>Type of temperature control</b>	: PID based Microprocessor temperature controller with clear LCD display with datainput by numeric pad. will have facility for 9Programs with 40 Steps each; Temperature & time value entry insteps of 1°C &1 minute respectively; Status messages not as codes but as clear texts. With features start time configurable; Operating hour counter; auto tune function; Temperature variable as °C & °F; kWh meter; Real time clock; Skip-button for segment jump.

<b>Safety features</b>	<ul style="list-style-type: none"> <li>: - Excess temperature protection.</li> <li>: - Limit switch to cut off heaters while opening door.</li> <li>: - Earthing terminal to avoid electrical current leakage.</li> <li>: - Fuse Unit / Circuit breaker to cut off the supply in case of circuit faults.</li> </ul>
<b>Skin Temp.</b>	: - 30-40DegC
<b>Voltage</b>	:230 volts +/- 10%, 50 Hz, +/- 5%, 1-phase supply.

### ▶▶▶ 3.1 Furnace casing:-

The furnace casing will be fabricated from SS sheet of suitable thickness and will be polished for superior finish from outside. The furnace will have a suitable vent at the back / top for exhaust. Non-rust Textured Stainless sheet steel casing. Double-walled casing for low external temperatures and high stability GLP & GMP compliant

### ▶▶▶ 3.2 Insulation:-

The Hot Face insulation of the furnace has been done with the help of Fiber Boards of suitable grades viz. FB-1700,FB-1600, FB-1400, FB-1200 from MMTCL. These insulation will give the furnace good thermal efficiency.

### ▶▶▶ 3.3 Heating Element:-

The furnace will be provided with MoSi<sub>2</sub> 1700 -4/9 Heating Elements. These elements are dense cermet material consisting of Molybdenum Disilicide and a protective oxide outer component. Long life of these elements even in oxidizing atmosphere and the ease of replacement of failed elements contributes to high degree of utilization of High Temperature furnaces as well as low maintenance costs. Since there is no decay of used elements, new elements can be easily connected in series with old elements. Suitable transformer will be provided to feed proper voltage to the elements. We have proposed air cooled type transformer with class H insulation.

### ▶▶▶ 3.4 Temperature control system:-

Our furnace will be provided with single zone automatic Temperature control system consisting of following equipment.

- ▶ One Automatic Programmable PID type Temperature Indicating Controller Make:
- ▶ One Safety Controller.
- ▶ One 'R' type thermocouple.
- ▶ Thyristor for power control is provided.

### ▶▶▶ 3.5 Electricals:-

The furnace will be provided with one no. Instrument cum Control panel. The panel will house all the temperature control instruments as stated above as well as switch gear components for supply power to heating elements. There will be one step down transformer, thyristor, Temp. controller, and other reputed(Like L&T or Seimens) switch gear item.

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