

1600 SERIES

RAPID TEMP LAB FURNACES 1600°C (2900°F)

The most reliable and widely used lab furnaces available today, the CM 1600 Series Rapid Temp Lab Furnaces offer rapid heating and cooling rates, uniform temperature control, compactness, and sturdy construction for long term use. Configurations are available for virtually any requirement with four basic configurations including front and bottom loading box furnaces, horizontal and vertical tube furnaces. Gas sealed systems, thermal cycling systems, as well as custom designs and specialized control systems are offered.

The 1600 Series furnaces incorporate a graded insulation package using high purity alumina fiber. Due to the low thermal conductivity and light weight of this insulation extraordinary fast thermal cycling is possible. These furnaces will not hot spot at high temperatures and are resistant to degradation. The double wall shell construction allows the fan cooling feature to maintain reduced skin temperatures while keeping the element terminals cool, extending element life.

Kanthal Super 1700 molydisilicide heating elements are used, offering fast heat up rates and long life in

oxidizing atmospheres. These elements are not subject to normal watt loading limitations and are not affected by thermal shock, therefore heat-up rates are only limited by the capability of the power supply. The electrical resistivity of these elements remains constant over long periods without aging so that individual elements can be replaced without having to match resistance values.

The Rapid Temp Control and Power Supply console includes all components required for immediate installation and operation. Proper control of molydisilicide requires a phase angle-fire SCR, step-down transformer and independent overtemperature instrumentation. Standard control instrumentation includes a multiple segment programmable microprocessor such as Honeywell or Eurotherm used in conjunction with a Type "B" thermocouple.

In addition to offering standard atmosphere options with the tube furnaces, CM also offers a gas-sealed option on our box furnaces for inert atmosphere operation. (The use of inert gas with molydisilicide elements reduces the maximum operating temperature by 100°C. in box furnaces only)



Model 1610 Bottom Loader



Model 1612 Front Loader

USED FOR THESE AND OTHER APPLICATIONS:

- Ceramics
- Glass
- Powders
- Laboratory Research
- Materials Testing
- Thermal Cycling
- Sintering
- Annealing
- Firing
- Calcining

SPECIFICATIONS



Model 1616 FL Gas-Sealed



Model 1630-12 Horizontal Tube

FULL SYSTEM INCLUDES:

- Double Shell Construction
- High Purity Alumina Fiber Insulation
- Kanthal Super 1700 Molydisilicide Heating Elements
- Cubed Chamber for Best Uniformity
- Fan Cooling of Element Terminals
- Type "B" Thermocouples
- Independent Overtemperature Thermocouple and Instrument
- Programmable Ramp and Soak Control
- Phase Angle-Fire SCR Power Controller
- Step Down Transformer
- Ammeter and Voltmeter
- Separate Controls/Power Supply Console
- 10' Interconnecting Wire and T/C Extension Leads

CONFIGURATIONS:

- Front Loading Box Furnace (FL)
- Bottom Loading Box Furnace (BL)
- Gas-Sealed Box Furnace (FL)
- Thermal Cycling Box Furnace
- Horizontal Tube Furnace (HTF)
- Vertical Tube Furnace (VTF)
- Custom Materials Testing Configurations

1600 SERIES BOX FURNACES, STANDARD SIZES (ADDITIONAL SIZES AVAILABLE)

MODEL	1606 FL/BL	1608 FL/BL	1610 FL/BL	1612 FL/BL	1616 FL/BL
Chamber WxHxD IDxL	6 x 6 x 6 in 152 x 152 x 152 mm	8 x 8 x 8 in 203 x 203 x 203 mm	10 x 10 x 10 in 254 x 254 x 254 mm	13 x 11.5 x 12 in 330 x 292 x 305 mm	16 x 16 x 16 in 406 x 406 x 406 mm
Door Opening WxH (FL)	4.5 x 4.5 in 114 x 114 mm	5.5 x 6.5 in 140 x 165 mm	8 x 8.5 in 203 x 216 mm	10.5 x 10 in 267 x 254 mm	13 x 13 in 330 x 330 mm
Outside Dim. WxHxD (FL)	11 x 18.5 x 12.5 in 279 x 470 x 317 mm	13 x 20.5 x 14.5 in 330 x 520 x 368 mm	15 x 22.5 x 16.5 in 381 x 572 x 419 mm	18.5 x 25.5 x 19 in 470 x 648 x 483 mm	22.5 x 31 x 24.5 in 571 x 787 x 622 mm
Heatup Rate Minutes	25	25	25	50	90
Furnace Weight	50 lb / 23 kg	70 lb / 31 kg	90 lb / 41 kg	120 lb / 55 kg	260 lb / 118 kg
Number of Elements	6	8	10	6	8
Power Supply Dimensions WxHxD	22.5 x 29.5 x 18 in 572 x 749 x 457 mm	22.5 x 29.5 x 18 in 572 x 749 x 457 mm	22.5 x 29.5 x 18 in 572 x 749 x 457 mm	22.5 x 40 x 18 in 572 x 1016 x 457 mm	22.5 x 61 x 18 in 572 x 1549 x 457 mm
Power Supply Weight	148 lb / 68 kg	175 lb / 80 kg	175 lb / 80 kg	230 lb / 105 kg	275 lb / 125 kg
Power Requirement (Max) KVA	4.5	7.5	10	15	18
Power Requirement (Nominal) KVA	1.6	2.7	4.3	6.4	8.8
Standard Voltage Requirement	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 3-Phase
Service Entrance Current Requirement at 208 Volts	30	45	60	90	70

(View more models on next page)

1600 SERIES HORIZONTAL AND VERTICAL TUBE FURNACES, STANDARD SIZES (ADDITIONAL SIZES AVAILABLE)

MODEL	1630-12 HTF	1630-20 HTF	1630-10 VTF
Chamber WxHxD IDxL	3.125 x 12 in 79 x 305 mm	3.125 x 20 in 79 x 508 mm	3.125 x 10 in 79 x 254 mm
Process Tube Size	3.125 in ID 79 mm ID	3.125 in ID 79 mm ID	3.125 in ID 79 mm ID
Outside Dim. WxHxD (FL)	11 x 18.5 x 22 in 279 x 470 x 559 mm	11 x 18.5 x 29.5 in 279 x 470 x 749 mm	14 OD x 22 in 356 x 559 mm
Furnace Weight	50 lb / 23 kg	75 lb / 34 kg	55 lb / 25 kg
Number of Elements	8	16	8
Power Supply Dimensions WxHxD	22.5 x 29.5 x 18 in 572 x 749 x 457 mm	22.5 x 29.5 x 18 in 72 x 1549 x 457 mm	22.5 x 29.5 x 18 in 572 x 1549 x 457 mm
Power Supply Weight	148 lb / 67 kg	175 lb / 80 kg	175 lb / 80 kg
Power Requirement (Max) KVA	7.5	10	9
Power Requirement (Nominal) KVA	3	4.5	3.7
Standard Voltage Requirement	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase
Service Entrance Current Requirement at 208 Volts	45	60	60