

RAPID TEMP LAB FURNACES 1700°C (3100°F)

The most reliable and widely used lab furnaces available today, the CM 1700 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 1700 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 1800 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 1712 Front Loader



Model 1710 Bottom Loader

USED FOR THESE AND OTHER APPLICATIONS:

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

SPECIFICATIONS



Model 1716 FL Gas-Sealed



Model 1730-12 Horizontal Tube

FULL SYSTEM INCLUDES:

- Double Shell Construction
- High Purity Alumina Fiber Insulation
- Kanthal Super 1800 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

1700 SERIES BOX FURNACES, STANDARD SIZES (ADDITIONAL SIZES AVAILABLE)

MODEL	1704 FL	1706 FL/BL	1708 FL/BL	1710 FL/BL	1712 FL/BL	1716 FL/BL
Chamber WxHxD IDxL	4 x 4 x 4 in 102 x 102 x 102 mm	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	16 x 16 x 16 in 406 x 406 x 406
Door Opening WxH (FL)	3 x 3.75 in 76 x 95 mm	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 280 x 470 x 318 mm	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 25.5 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	50	25	25	25	50	90
Furnace Weight	45 lb / 20 kg	50 lb / 23 kg	70 lb / 31 kg	90 lb / 41 kg	120 lb / 55 kg	260 lb / 118 kg
Number of Elements	4	6	8	10	6	8
Power Supply Dimensions WxHxD	22.5 x 16 x 18 in 571 x 406 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 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	75 lb / 34 kg	148 lb / 68 kg	175 lb / 80 kg	175 lb / 80 kg	230 lb / 105 kg	275 lb / 125 kg
Power Requirement (Max) KVA	2.0	4.5	7.5	10	15	18
Power Requirement (Nominal) KVA	1.4	1.6	2.7	4.3	6.4	8.8
Standard Voltage Requirement	110 1-Phase	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	20	30	45	60	90	70

(View additional sizes & tube furnaces on next page)

1700 SERIES HORIZONTAL AND VERTICAL TUBE FURNACES, STANDARD SIZES (ADDITIONAL SIZES AVAILABLE)

MODEL	1730-12 HTF	1730-20 HTF	1730-10 VTF
<i>Chamber WxHxD IDxL</i>	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
<i>Process Tube Size</i>	3.125 in ID 79 mm	3.125 in ID 79 mm	3.125 in ID 79 mm
<i>Outside Dim. WxHxD (FL)</i>	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
<i>Furnace Weight</i>	50 lb / 23 kg	75 lb / 34 kg	55 lb / 25 kg
<i>Number of Elements</i>	10	16	8
<i>Power Supply Dimensions WxHxD</i>	22.5 x 29.5 x 18 in 572 x 749 x 457 mm	22.5 x 29.5 x 18 in 572 x 1549 x 457 mm	22.5 x 29.5 x 18 in 572 x 1549 x 457 mm
<i>Power Supply Weight</i>	148 lb / 67 kg	175 lb / 80 kg	175 lb / 80 kg
<i>Power Requirement (Max) KVA</i>	7.5	10	9
<i>Power Requirement (Nominal) KVA</i>	3	4.5	3.7
<i>Standard Voltage Requirement</i>	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase
<i>Service Entrance Current Requirement at 208 Volts</i>	45	60	60