



*Model CF56622C Crucible Furnace.*

## Applications

- Melting
- Annealing
- Heat Treating

## 1200°C Crucible Furnace, Top Loading

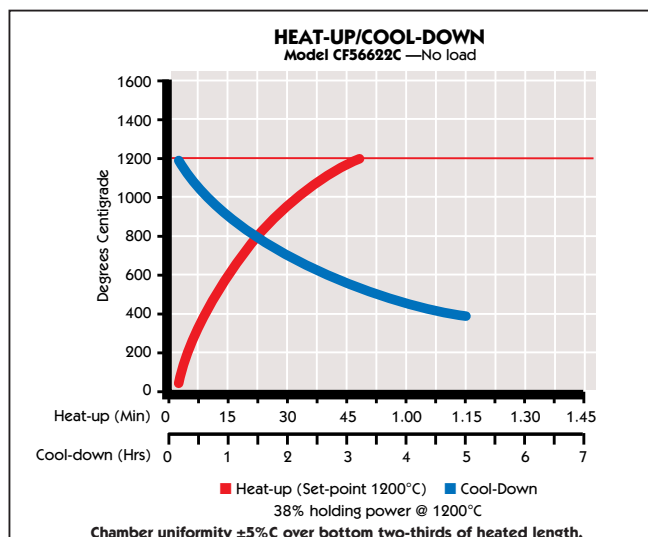
1200°C Crucible furnaces are ideal for use in ceramics, electronics, glass, metallurgy and superconductor materials research. These models require independent controllers (ordered separately).

### Features

- Requires independent controller (ordered separately, see chart)
- Unitized heating and insulation element with helical wire coil embedded in Moldatherm® insulation for maximum heat transfer to the work load
- Cover plug with Moldatherm insulation and handle for safe removal
- Moldatherm insulation protects vestibule, improves energy efficiency
- Platinel®II thermocouple with 10' compensated lead wire and polarized plug for long life and accurate temperature measurement
- Moldatherm ceramic fiber hearthplate supports load and protects furnace from spillage



*Model CC58114C Controller*



Model CF56622C, Heat-Up/Cool-Down, No Load

## Crucible Furnaces, 1200°C, Independent Control, Temperature Range 100°C to 1200°C

Furnace Model No.	Electrical Volts, Hz	Watts	Temp	Controller	Top Opening ID inches (mm)	Chamber Depth inches (mm)	Exterior Dimensions H x F-B x W in" (mm)	Ship Weight lbs (kg)
CF56622C	208/240V, 50/60 Hz	1700	1200°C	CC58114C	5" (127)	8" (203.2)	16" (406.4) x 15" (381) x 15" (381)	52 (24)
CF56822C	208/240V, 50/60 Hz	2600	1200°C	CC58114C	7.5" (190.5)	8" (203.2)	19" (482.6) x 20" (508) x 20" (508)	105(48)

**Crucibles:** These furnaces are designed for use with a variety of crucibles including alumina, mullite, quartz and metallic. For information on crucibles contact your crucible supplier or call your Lindberg/Blue M sales representative.

**Note:** Required power cord, hardwiring and interconnecting wiring are not included.

### 1200°C Digital, Single Setpoint Controller

Control console includes advanced microprocessor-based digital control, a solid-state power module, on/off circuit breaker and thermocouple input jack. Includes microprocessor-based PID control (proportional, integral, derivative), single segment, single setpoint, 1 ramp to setpoint. Built-in adjustable high limit overtemperature protection. Simultaneous LED display of actual temperature vs. setpoint. May be configured to display temperature in either °C or °F.

### 1200°C Digital Single Program, Multiple Segment Programmable Controller

Control console is fully wired and includes advanced microprocessor-based digital control,

a solid-state power module, on/off circuit breaker and thermocouple input jack. Includes microprocessor-based PID control (proportional, integral, derivative), single program with multiple segments for ramp (up and down) and dwell (timed hold) temperature control. See page 35 for more information. Built-in adjustable high limit overtemperature protection. Simultaneous LED display of actual temperature vs. setpoint. May be configured to display temperature in either °C or °F.

### Option B Overtemperature Control (OTC)

Adjustable digital overtemperature control, factory installed on selected control consoles with "B" suffix designation; see chart. Protects furnace and load in the event of primary control circuit failure. Overrides main

controller and shuts off power to furnace if high limit is reached. Manual re-set required for safety. Operates via magnetic contacts through signal from independent thermocouple.

### Optional RS485 Digital Communications Port

RS485 Digital communications port available as an option. Allows controller to be connected to a PC for remote monitoring and control of the furnace. Up to 30 units can be connected to one PC. Please see page 35 for ordering information and additional options.

Controller Model No.	Digital	With Programmer	With Overtemp Control	Electrical Volts, Hz	Maximum Amps	Exterior Dimensions H x F-B x W in" (mm)	Ship Weight lbs (kg)
CC58114C	■			208/240V, 50/60Hz	30	10" (254) x 19" (482.6) x 14" (355.6)	35 (16)
<b>With Programmer</b>							
CC58114PC	■	■		208/240V, 50/60Hz	30	10" (254) x 19" (482.6) x 14" (355.6)	35 (16)
<b>With Overtemp Control</b>							
CC58114BC	■		■	208/240V, 50/60Hz	30	10" (254) x 19" (482.6) x 14" (355.6)	35 (16)
CC58114PBC	■	■	■	208/240V, 50/60Hz	30	10" (254) x 19" (482.6) x 14" (355.6)	40 (19)

Actual performance may vary depending on load, chamber size, sample placement, ambient temperature and environmental conditions.

Programmable  
Controller;  
1700°C Model  
CC59256PCOMC.

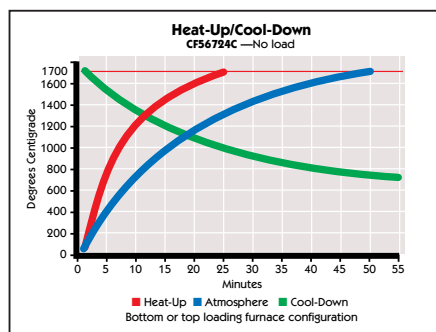


Model CF56724C 1700°C Crucible Furnace is used with Controller Model CC59256PCOMC (left), ordered separately.

## Applications

- Sintering
- Melting
- Annealing
- Atmosphere Processing

## 1700°C Crucible Furnace, Top or Bottom Loading

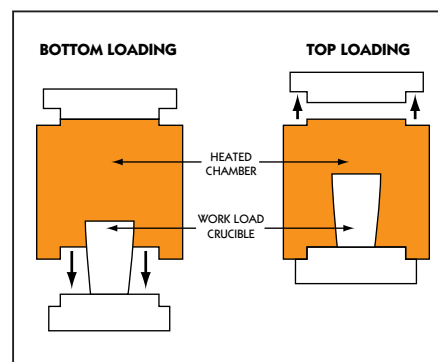


Heat-Up/Cool-Down, Model CF56724C

The Model CF56724C Crucible Furnace is used for high temperature research under three methods of processing: air, controlled atmosphere, or vertical tube orientation using an interchangeable vestibule as an insulating sleeve (which requires a vertical tube adaptation kit). Graduated density Moldatherm® insulation combined with a unique right-angle bend heating element, sidewall mounted, delivers excellent chamber uniformity, fast heat-up and recovery, and energy conserving performance.

### 1700°C Features

- Requires independent controller (ordered separately, see chart)
- Chamber is accessed by top or bottom with manually operated lifting mechanism; work load may be raised and lowered with convenience and safety
- Long-life molybdenum disilicide heating elements resist thermal shock, withstand rapid cycling over extended periods
- Individual elements easily replaceable without matching resistance values
- Elements mounted on four sides of chamber for fast response and recovery
- Forced-air blowers circulate ambient air throughout the double-wall crucible cabinet to minimize exterior surface temperature
- Long-life Type "B" thermocouple for accurate high temperature measurement. Includes 10' compensated lead wire with polarized plug



Dual access chamber permits top or bottom loading. Processing can be done in air or in a protective inert atmosphere when bottom loaded.

**Note:** This crucible furnace chamber is not atmosphere tight.

Actual performance may vary depending on load, chamber size, sample placement, ambient temperature and environmental conditions.

## Crucible Furnaces, 1700°C, Independent Control, Temperature Range 500°C to 1700°C, 5,000 Watts

Model No.	Voltage, Hz	Controller	Vestibule Top Opening ID in" (mm)	Vestibule Bottom Opening ID in" (mm)	Working Depth ID in" (mm)	Exterior Dimensions H x F-B x W in" (mm)	Ship Weight lbs (kg)
CF56724C	208/240V, 50/60 Hz	CC59256PCOMC	6.5" (165.1 mm) <sup>2</sup>	5" (127 mm)	6.5" (165.1 mm)	35.5" (901.7) x 20" (508) x 19.5" (495.3)	250 (114)

**Note:** Required power cord, hardwiring and interconnecting wiring are not included.

### 1700°C Controller, Programmable, With Communications

Lindberg/Blue M 1700°C Programmable Controllers provide multiple programs and multiple segments for ramp (up and down) and dwell (timed hold) temperature control. The controller visually displays ramp rate, dwell time, program segment and percent power output. A holdback feature allows the operator to set a "process vs setpoint" temperature value which, when exceeded, holds the program to allow the process to catch up. Please see page 35 for additional information.

The controller includes a selectable self-tuning feature which sets the best PID settings for the thermal process. Two digital displays simultaneously indicate actual temperature and setpoint

temperature. High limit overtemperature protection is standard. The control console includes a circuit breaker, power module, transformer and cooling fans.

Controllers include RS485 data port (communications card and port) for connection to remote computer, allowing modification, interrogation and data transfer of all instrument control and configuration parameter. Up to 30 units can be connected to one PC. Software is not included, but is available as an option. Please see page 35 for additional options and information.

### Option B Overtemperature Control (OTC)

Adjustable digital overtemperature control, factory installed on selected control consoles with "B" suffix designation; see chart. Protects furnace and load in the event of primary control circuit failure. Overrides main controller, and shuts off power to furnace if high limit is reached. Manual re-set required for safety. Operates via signal from independent thermocouple.

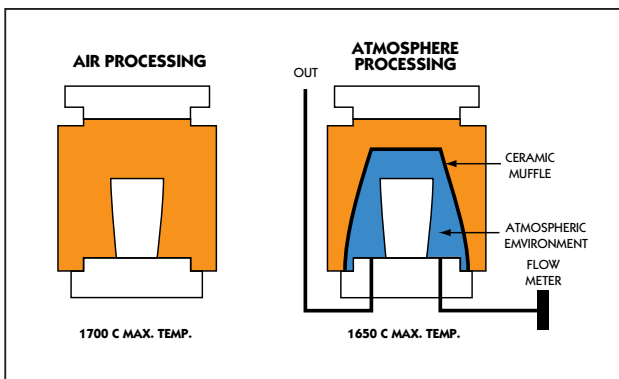
Controller Model No.	Digital	With Programmer	With Overtemp Controller	Electrical Volts, Hz	Exterior Dimensions H x F-B x W in" (mm)	Ship Weight lbs (kg)
CC59256PCOMC	■	■		208/240V, 50/60Hz	10" (254) x 15" (381) x 21" (533.4)	130 (59)
CC59256PBCOMC	■	■	■	208/240V, 50/60Hz	10" (254) x 15" (381) x 21" (533.4)	130 (59)

Chamber uniformity over center 5.5" heated chamber length is  $\pm 1^\circ\text{C}$  at 1700°C (no atmosphere).

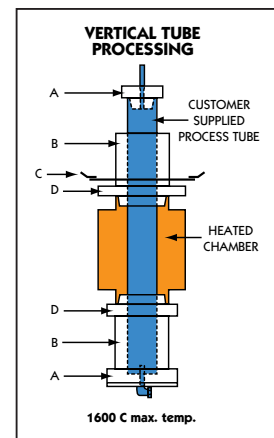
### Processing Options

In addition to air processing, the 1700°C crucible furnace can be used for atmosphere processing using an inverted ceramic crucible (included) over the load forming a muffle. Inert gas is supplied through inlet and outlet tubes (customer supplied). Gas flow is controlled via an adjustable  $\text{N}_2$  flowmeter, included.

For use in a vertical tube configuration, either air or controlled atmosphere processing, the furnace requires an optional Adaptation Kit (see chart) ordered to match the size of the desired process tube (customer supplied).



*May be configured for air or atmosphere processing, vertical tube/atmosphere processing.*



Adaption Kit Model No.	Diameter inches (mm)
VTINS156724	1" (25.4)
VTINS256724	2" (50.8)
VTINS356724	3" (76.2)

### Vertical Tube Adaption Kit

The Vertical Tube Adaption Kit creates a 1700°C tube furnace with air or inert atmosphere control using the Model CF56724C crucible furnace as the heating source. Each field installed kit (see ordering chart) is selected based on intended process tube size, and includes two tube

vestibules (D), two tube insulating sleeves (B) with cover plate (C) and outlet plugs (A). Process tube and atmosphere piping are not included. Contact your Lindberg/Blue M sales representative for more information.