CM FURNACES INC.

Made in America

All CM Furnaces are proudly manufactured in the USA

Tomorrow's High Temperature Laboratory Furnaces Are Here Today

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INTRODUCTION

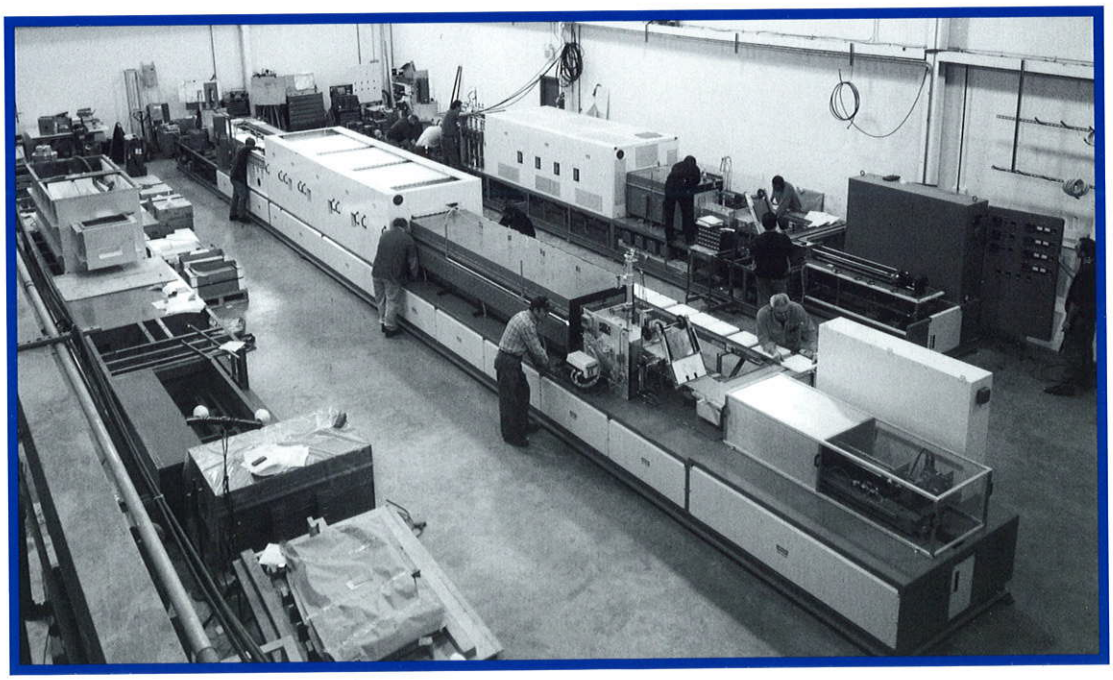
Since 1946, CM Furnaces has been known for state-of-the-art design and manufacture of all types of air, hydrogen and inert atmosphere electric furnaces. Though many of our furnaces are of standard design and construction, CM has the capabilities to develop special furnaces for any application – or to modify standard equipment for special needs. This brochure outlines our standard laboratory product line. You will find specification charts at the end of each section. In addition to our laboratory line of state-of-the-art furnaces, CM manufactures a complete line of highly sophisticated production furnaces. This includes both continuous and periodic furnaces ranging from 500°C to 2200°C in air, inert and hydrogen atmospheres. Applications include metallizing, sintering, annealing, co-firing, materials processing and general research.

All production furnaces are available with complete automation including belt drives, indexing pushers, crossfeeds and power lifts.

For further information on our line of production furnaces. Contact CM Furnaces for your local representative.

RAPID TEMP FURNACES

LAB FURNACES (OTHER)



1200 Series

RAPID TEMP LAB FURNACES TO 1200°C (2192°F)

GENERAL DESCRIPTION

The CM 1200 Series Rapid Temp line was developed to provide the research scientist with a high quality, versatile, precision, research tool up to 1200°C. This series utilizes high quality alumina silicate fiber insulation and replaceable ceramic plate heaters positioned on 4 surfaces. This ensures durability, reliability and uniformity, not available from other manufacturers.

CONSTRUCTION

The 1200 Series outer shell is fabricated from stainless steel incorporated double wall construction. A laboratory type horizontal swing-away door with positive latching is standard. The rigid construction provides the user the ability to modify the standard unit for a variety of applications. This system is engineered for ease of maintenance permitting on the spot repair by laboratory personnel.

INSULATION

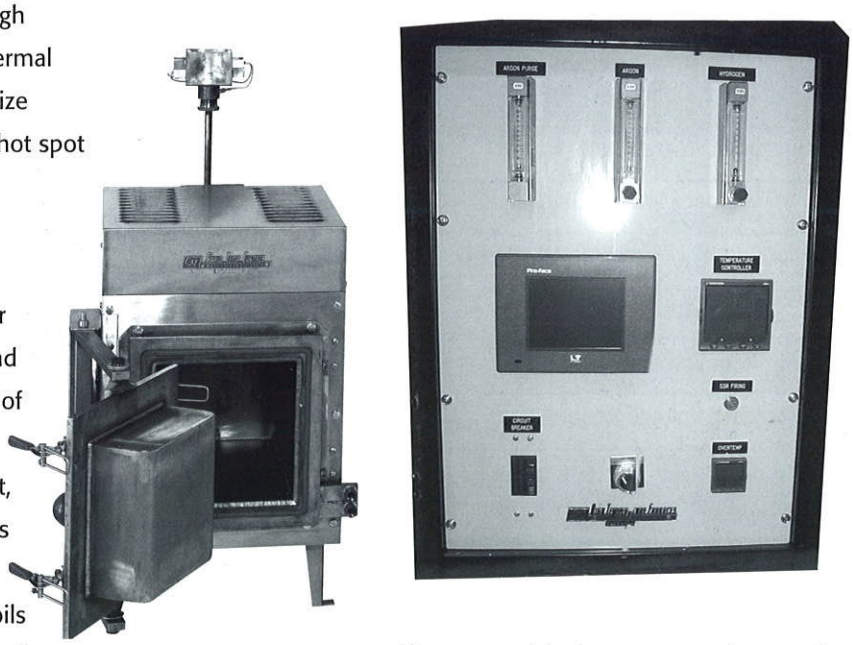
The 1200 Series Rapid Temp furnace incorporates a high purity insulating system. Because of extremely low thermal conductivity of these systems, a dramatic weight and size reduction is possible. In addition, the system will not hot spot at high temperature and is resistant to degradation.

ELEMENTS

The 1200 Series incorporates heating elements on four surfaces of the heated chamber in our front loading and bottom loading designs. The elements utilize an alloy of iron, chrome and aluminum to obtain a 1200°C operating temperature. When using a nickel alloy retort, the maximum use temperature is 1150°C. The sinuous wound alloy coil is embedded in a cement containing excellent thermal conductivity characteristics. These coils are embedded to prevent distortion when heated. The alloy utilized in this element is very durable at high temperatures due to the formation of a protective oxide layer formed by reaction with the oxygen in air.

ATMOSPHERE

All 1200 Series furnaces are available with a high quality nickel alloy retort for atmosphere requirements. The system includes gas inlet and outlet ports located through the rear wall of the furnace and a water cooled o-ring sealed front door assembly. This assembly incorporates a hinged door allowing easy and safe access to the retort. The furnace is available with two atmosphere systems: (a) An inert atmosphere package for non-combustible gases and, (b) A combustible atmosphere option with a standard hydrogen/nitrogen safety package incorporating a gas burnoff with a dual electric ignitor system, pressure sensors and automatic switching of atmospheres including both audible and visual alarms.

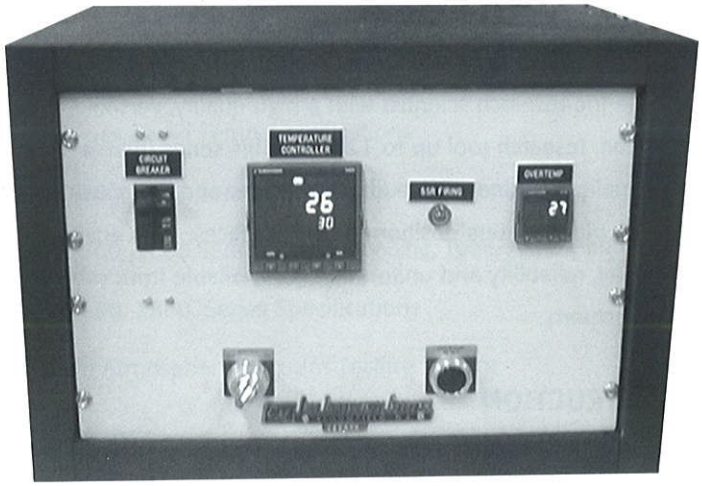


1200 with retort and hydrogen atmosphere option

1200 Series

GENERAL DESCRIPTION

The standard power and control package features a Eurotherm or Honeywell microprocessor based programable controller operating in conjuction with an all solid state SSR power controller. The system is calibrated from 0 to 1200°C utilizing a type N thermocouple. The unit is supplied completely wired in a rugged 19" rack mounted instrument cabinet. Other features include a circuit breaker, SSR firing indicating light and ten feet of calibrated thermocouple extension wire and power wire. The power supply is designed for 240 volts, 50 or 60hz., single phase service. Optional features include variable set point overtemperature instrumentation, platinum alloy thermocouples, and recording instrumentation.



Standard Power Supply

SPECIFICATIONS

MODEL	1208	1210	1212	1216	1218
Heated Cavity W x H x D	8 x 8 x 8	10 x 10 x 10	12 x 11 x 12	16 x 16 x 16	10 x 10 x 18
Door Opening W x H	5.5 x 6.5	8 x 8.5	10.5 x 10	13 x 13	8 x 8.5
Outside Dimensions W x H x D	13 x 20.5 x 14.5	15 x 22.5 x 16.5	18.5 x 25.2 x 19	22.25 x 31 x 24.25	15 x 22.5 x 24.5
Furnace Weight (lbs)	65	75	93	130	93
Power Supply Dimensions W x H x D	22.5 x 16 x 18	22.5 x 16 x 18	22.5 x 16 x 18	22.5 x 29.5 x 18	22.5 x 16 x 18
Power Supply Weight (lbs)	75	80	80	130	90
Power Requirements Maximum KVA	4.5	7	10	13.5	10
Standard Voltage Requirement	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase
Power Supply Circuit Breaker Size (AMPS)	30	50	60	90	60
Optional Retort Dimensions Inside W x H x D	6.6 x 6.6 x 6.75	8.6 x 8.3 x 8.5	10.6 x 9.5 x 10.75	14 x 14 x 14	8.6 x 8.3 x 16.5

ALL DIMENSIONS IN INCHES

1600, 1700, 1800 Series

RAPID TEMP LAB FURNACES TO 1800°C (3270°F)

GENERAL DESCRIPTION

Since 1971, CM Furnaces has been the leader in the development of high temperature fiber lined laboratory furnaces. The basic design concept utilizes the superior insulating qualities of fiber insulating materials coupled with extremely fast heating rates and higher temperature capabilities of Kanthal Super 1800 and 1900* heating elements. When compared to conventional furnace systems, Rapid Temp furnaces offer the user a higher operating temperature, rapid heating and cooling rates, responsive temperature control, compactness, lightweight and reduced power requirements. The Rapid Temp furnace line is now offered in four basic model configurations; front loading, bottom loading, box furnaces, horizontal and vertical tube furnaces. CM furnaces also offers various options for customer applications including gas sealed systems, materials testing applications and custom designed power and control systems.

CONSTRUCTION

The CM Rapid Temp Furnace outer case is fabricated from stainless steel. Forced fan cooling is standard allowing cooling air to freely circulate between the inner and outer wall of the furnace shell reducing outer skin temperatures and keeping the element terminals cool. Rapid Temp furnaces also feature a standard laboratory type horizontal swing away door with a positive locking feature. The hairpin type heating elements are inserted through the roof area of the furnace and are easily removed for maintenance by simply removing the top cover. The entire insulation system incorporates interlocking construction which permits easy removal and replacement, if necessary. All materials used in the furnace are the highest grade available. The entire unit has been engineered for ease of operation, maintenance and durability permitting any repairs by laboratory personnel.

*TM Kanthal Corporation

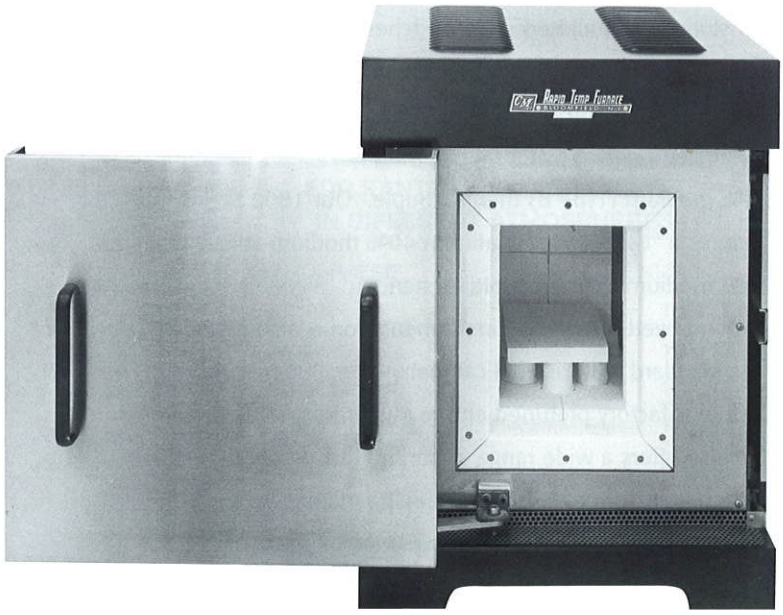
INSULATING SYSTEMS

1600 Series - alumina fiber, continuous operating temperature 1600°C (2912°F)

1700 Series - high density alumina fiber, continuous operating temperature 1700°C (3092°F)

1800 Series - reinforced high density alumina fiber, continuous operating temperature 1800°C (3272°F)

All CM Rapid Temp series furnaces incorporate graded insulation systems. Because of the extremely low thermal conductivity of these systems, dramatic weight reduction and extremely fast thermal cycling is possible. In addition to being lightweight, these systems will not hot spot at high temperatures and are resistant to degradation. Dense alumina floor plates are standard with all FL and BL models.



1807FL Rapid Temp

1600, 1700, 1800 Series

ELEMENTS

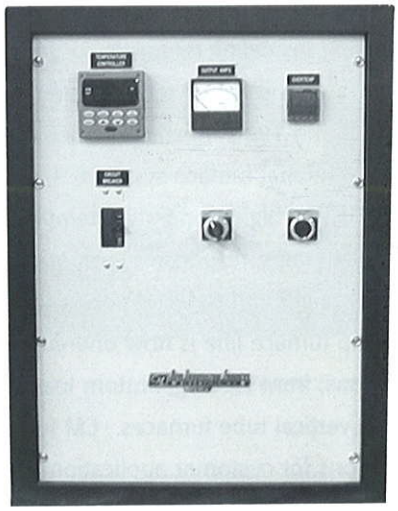
Kanthal Super 1800* (molybdenum disilicide) heating elements are used in the 1600 and 1700 Series. These elements offer extremely fast heat up and long life in oxidizing atmospheres. Kanthal Super 1800* elements are not subject to normal watt loading limitations and are not affected by thermal shock, thus the speed of the heat up depends only upon the capabilities of the power supply. The electrical resistivity remains constant over long periods without aging making replacement of individual elements possible without having to match resistance values. Kanthal Super 1900* elements offer greater temperature capabilities in the 1800 series furnace while still maintaining the operating characteristics of the Kanthal 1800* elements.

INSTRUMENTATION - STANDARD

A special "instrument/power supply console" has been designed for CM Rapid Temp furnaces. This incorporates a single phase, 50/60hz. phase angle fired SCR power controller, stepdown transformer and all necessary switches, lights, etc. for operation. Standard instrumentation consists of either a Honeywell or Eurotherm microprocessor based programmer operating in conjunction with a platinum 6% rhodium versus platinum 30% rhodium (Type B) thermocouple. Our 1800 Series furnace features a "Land-Jewel" platinum 40% rhodium versus platinum 20% rhodium thermocouple as standard. Variable independent setpoint overtemperature instrumentation is also provided as a standard feature. CM cabinetry offers full rear access. The system is factory pretuned and ready for immediate operation. CM also offers a wide range of control instrumentation and recording instruments from all leading manufacturers. The customer need only connect the power supply to standard single phase plant service and make the simple connection between the furnace and the power supply and the unit is ready for operation.

INSTRUMENTATION - OPTIONAL

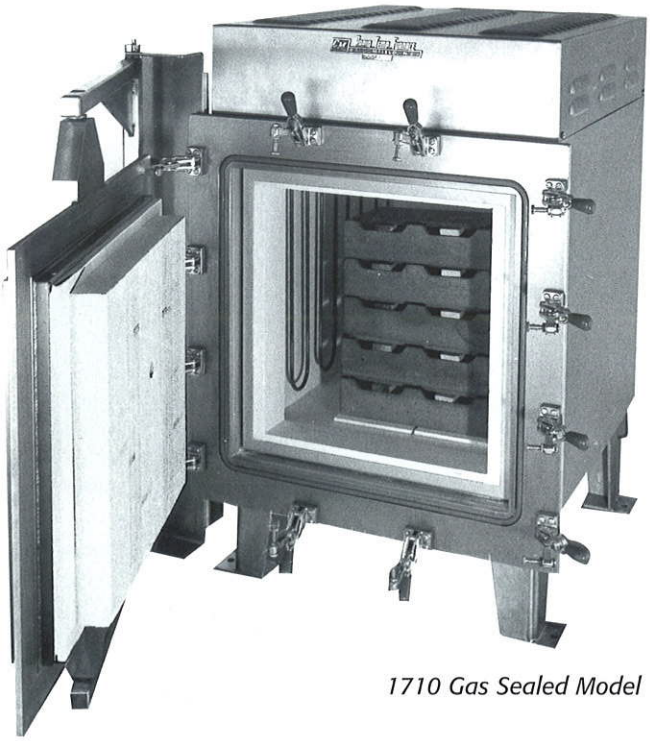
CM Furnaces offers a wide variety of optional power supply control systems. These systems include remote computer control operation, automatic continuous cycling circuitry, recording and data logging systems.



Standard Control Console

Custom Dual Sample Thermal Cycling Furnace

1600, 1700, 1800 Series



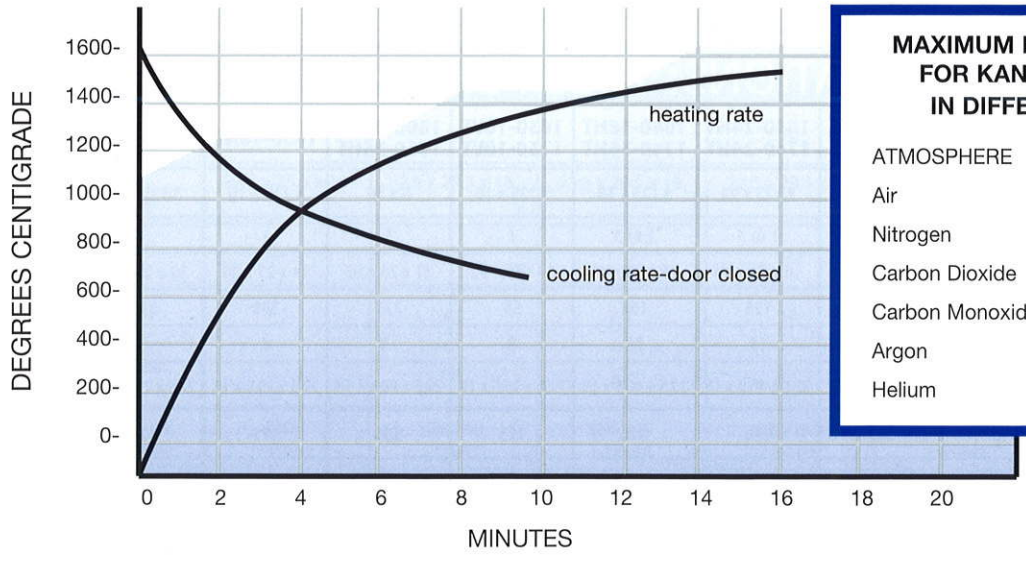
1710 Gas Sealed Model

ATMOSPHERE

All CM Rapid Temp furnaces are available with our inert atmosphere gas sealed option. Modifications include a sealed inner shell, water and gas cooled terminal connections and a water cooled o-ring sealed door. Various atmospheres will limit the maximum operating temperature of the furnace. The chart on the bottom of the page shows maximum use temperatures in various atmospheres. Bottom loading furnaces are available with a removable atmosphere dome. The dome consists of an inverted closed one end alumina tube, dense alumina floor plate and inlet and outlet gas ports. Although the dome limits actual usable space in the furnace, the elements are not exposed to the atmosphere thereby allowing operating temperatures to reach 1700°C. The dome atmosphere systems are designed for a highly enriching atmosphere. If absolute atmosphere control is required, we recommend the use of our horizontal or vertical tube furnace (HT or VT) with end seals.

TYPICAL CURVES FOR FRONT LOADING 6 X 6 RAPID TEMP FURNACE OPERATING ON 240 VOLT POWER SUPPLY

HEAT UP and COOL DOWN RATES



MAXIMUM ELEMENT TEMPERATURE FOR KANTHAL 1800* ELEMENTS IN DIFFERENT ATMOSPHERES

ATMOSPHERE	MAX. ELEMENT TEMP.
Air	1800°C
Nitrogen	1700°C
Carbon Dioxide	1700°C
Carbon Monoxide	1700°C
Argon	1700°C
Helium	1700°C

*TM Kanthal Corporation

1600,1700, 1800 Series

BOTTOM LOADING

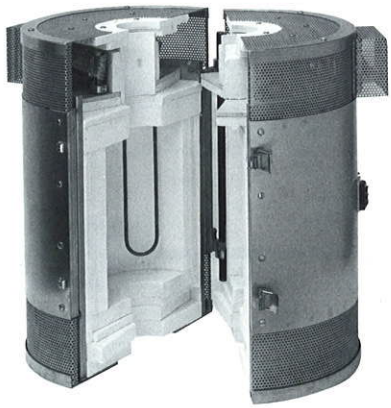
Our bottom loading option is available in all larger sizes. The lift is electrically operated incorporating a precision ball screw drive with dual guide posts, safety interlocks and stainless steel outer shell construction. Removable top pedestal plates are provided for ease of maintenance.

HORIZONTAL & VERTICAL TUBE

Our Rapid Temp horizontal and vertical tube furnaces incorporate a radically new concept in high temperature tube furnace design. The basic furnace uses molybdenum disilicide hairpin heating elements adjacent to a high purity alumina tube suspended through the heated cavity. The entire insulation system enclosing the high purity tube incorporates interlocking construction which permits easy removal and replacement of components if necessary. The furnace has been engineered for ease of operation, maintenance and durability permitting any necessary repairs by laboratory personnel.

The vertical tube furnace (VT) is available in either solid or split tube construction. Custom brackets and modifications are available for various materials testing and fiber optic applications. Optional water cooled stainless steel end seals are available for all size ceramic tubes for atmosphere containment.

Larger sizes and multi zone controls are available on all vertical and horizontal tube furnaces. Please consult the factory for your specific requirements.



SPECIFICATIONS: TUBE FURNACES

MODEL	1630-12HT 1730-12HT	1630-20HT 1730-20HT	1630-36HT 1730-36HT	1640-24HT 1740-24HT	1640-36HT 1740-36HT	1630-10VT 1730-10VT	1660-36HT 1760-36HT	1830-10HT	1830-10VT	1840-48HT
Chamber ID x Heated Length	3.125 x 12	3.125 x 20	3.125 x 36	4.125 x 24	4.125 x 36	3.125 x 10	6 x 36	3.125 X 10	3.125 X 10	4.125 X 48
Number of Zones	1	1	1 or 3	1 or 3	1 or 3	1	3	1	1	3
Outside Dim.WxHxD	11 x 18.5 x 22	11 x 18.5 x 29.5	14 x 21 x 45.5	16 x 23 x 34	16 x 23 x 46	14 OD x 22	21 x 25 x 52	24 x 27 x 24	22 x 26 x 22	26 x 28 x 66
Furnace Weight (lbs)	50	75	150	125	180	55	225	105	110	300
Number of Elements	8/10	16	24	18	24	8	18	6	6	24
Power Supply Dimensions WxHxD	22.5 x 29.5 x 18	22.5 x 29.5 x 18	22.5 x 40.5 x 18	22.5 x 40.5 x 18	22.5 x 40.5 x 18	22.5 x 29.5 x 18	22.5 x 40.5 x 18	22.5 x 29.5 x 18	22.5 x 29.5 x 18	22.5 x 40.5 x 18
Power Supply Weight (lbs)	148	175	300	230	300	175	300	175	175	300
Power Requirements (MAX) KVA	7.5	10	18	14	21	9	30	6.5	10	33
Power Requirements (Nominal) KVA	3	4.5	8	6	9	3.7	12	3.9	4.8	14
Standard Voltage Requirement	208/240 1-Phase	208/240 1-Phase	208/240 3-Phase	208/240 1-Phase	208/240 3-Phase	208/240 1-Phase	208/240 3-Phase	208/240 1-Phase	208/240 1-Phase	208/240 3-Phase
Power Supply Circuit Breaker Size (AMPS)	50	60	60	80	75	50	110	40	60	120

ALL DIMENSIONS IN INCHES *OTHER VOLTAGES ARE AVAILABLE

1600, 1700, 1800 Series

- Front Loading Box Furnaces
  - Access Ports
  - Mounting Brackets
  - Sight Ports
  - Gas Enrichment Ports
  - Inert Atmosphere
  - Stainless Bellows
  - Sapphire or Quartz Windows
  - X-Ray Ports
  - Extensometer Ports
  - Custom Specifications
- Slotted Furnaces
- Split Vertical Tube

- Low Profile Dual Zone Testing Furnaces
- Fiber Testing Furnaces
- Custom Material Test Furnaces adaptable to test frames from all leading manufacturers

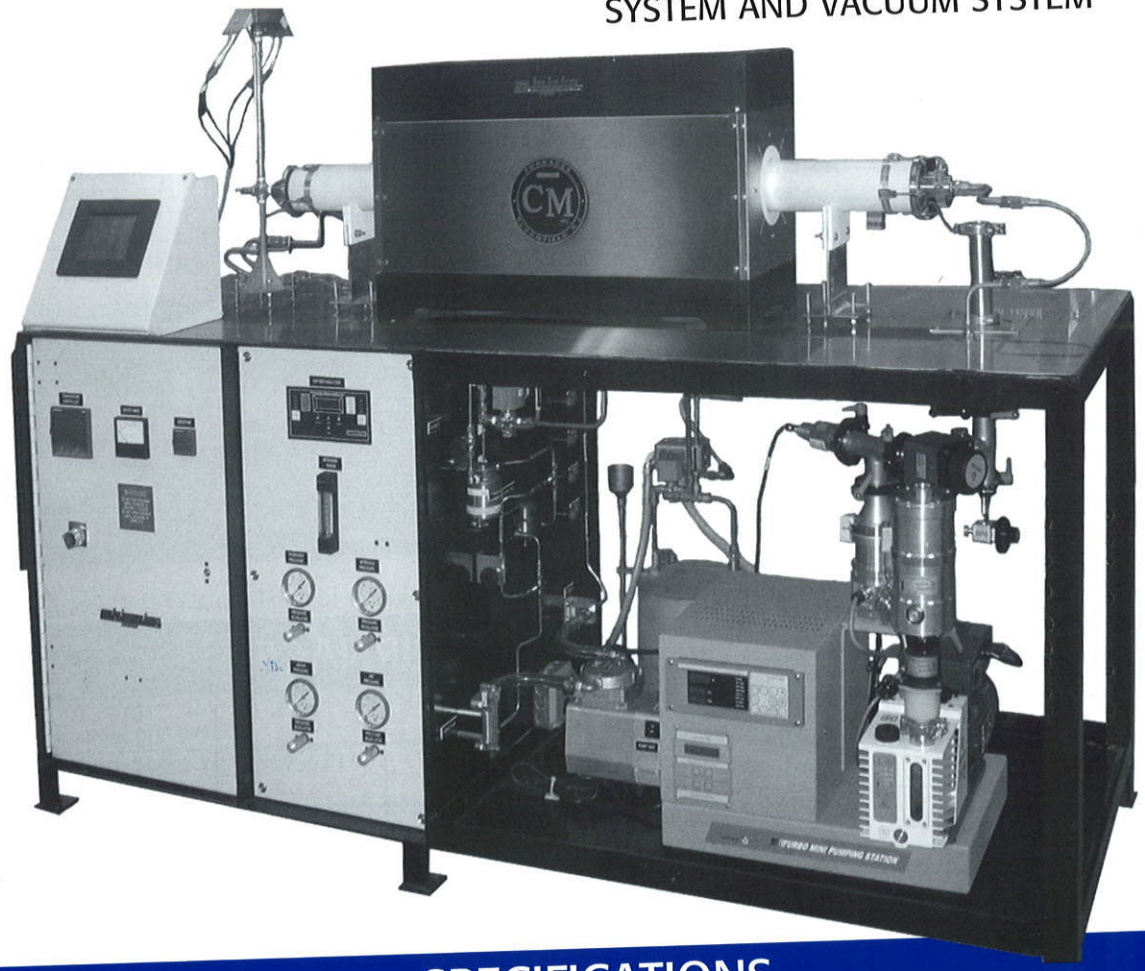
SPECIFICATIONS: BOX FURNACES

MODEL	1704 1804	1606 1706	1608 1708	1610 1710	1612 1712	1616 1716	1807 1812
Chamber WxHxD (IDXL)	4.25 x 4 x 4	6 x 6 x 6	8 x 8 x 8	10 x 10 x 10	13 x 11.5 x 12	16 x 16 x 16	9 x 8.5 x 12 13 x 11 x 12
Door Opening WxH	3 x 3.75	4.5 x 4.5	5.5 x 6.5	8 x 8.5	10.5 x 10	13 x 13	6.25 x 8.5 10 x 9.75
Outside Dim. WxHxD	11 x 18.5 x 12.65	11 x 18.5 x 12.5	13 x 20.5 x 14.5	15 x 22.5 x 16.5	18.5 x 25.5 x 19	22.5 x 31 x 24.5	18.5 x 26 x 24 22.5 x 29 x 24
Heat up Rate Minutes	60	25	25	25	50	90	180
Furnace Weight (lbs)	50	50	70	90	120	260	110/130
Number of Elements	4	6	8	10	6	8	6/6
Power Supply Dimensions WxHxD	22.5 x 29.5 x 18	22.5 x 29.5 x 18	22.5 x 29.5 x 18	22.5 x 29.5 x 18	22.5 x 40 x 18	22.5 x 61 x 18	22.5 x 29.5 x 18 22.5 x 40 x 18
Power Supply Weight (lbs)	148	148	175	175	230	230	175/230
Power Requirements (MAX) KVA	2	4.5	7.5	10	15	18	9/11
Power Requirements (Nominal) KVA	1	1.6	2.7	4.3	6.4	8.8	3.5/4.3
Standard Voltage Requirement	110V 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 1-Phase	208/240 3-Phase	208/240 1-Phase
Power Supply Circuit Breaker Size (AMPS)	N/A	30	45	60	90	70	60/70

ALL DIMENSIONS IN INCHES *OTHER VOLTAGES ARE AVAILABLE

Model 1730 HT

WITH POWER SUPPLY SYSTEM, OPTIONAL TABLE STAND, HYDROGEN ATMOSPHERE SAFETY SYSTEM AND VACUUM SYSTEM



SPECIFICATIONS

MODEL	1730-12	1730-20	1730-24-3Z	1730-36-3Z
Chamber ID x Heated Length	3.125" x 12" • 79mm x 305mm	3.125" x 20" • 79mm x 508mm	3.125" x 24" • 79mm x 609mm	3.125" x 36" • 79mm x 914mm
Number of Zones	1	1	3	3
Temperature Controller	Multiple • Program • Controller			
Independent Overtemperature Controller	Standard			
Atmospheres Available	Air • Hydrogen • Nitrogen • Argon • Helium • Other			
Vacuum Levels	10^{-3} Torr Mechanical Pump • 10^{-4} Torr Turbo Pump			
Voltage	208/240 1 Phase	208/240 1 Phase	208/240 3 Phase	208/240 3 Phase
KW	7.5	10	15	15
System Foot Print *May Vary	30" W x 60" H x 72" L • 76 cm W x 152 cm H x 182 cm L			
Typical Size	30" W x 55" H x 72" D • 762 mm W x 1397 mm H x 1828.8 mm D			
Available Instrumentation	Dew Point Monitor • Oxygen Analyzer • Data Logger			
Process Gas Control	Standard: Flow Meters • Optional: Mass Flow Controllers			
Computer Communication	RS - 232 / RS - 485 Protocols			
Low Water Flow Consumption	< 5 gph / < .08 gpm			

*NOTE: ADDITIONAL SIZES AVAILABLE. ADDITIONAL VOLTAGES AVAILABLE.

Tomorrow's High Temperature Laboratory Furnaces Are Here Today...

1000 Series

COMBUSTION TUBE FURNACES
1200°C (2192°F) AND 1550°C (2822°F)

GENERAL DESCRIPTION

All CM Type K (1200°C/2192°F) Combustion Tube Furnaces feature lightweight cast fiber insulating systems, easy replaceable half round heaters and a rugged hinged steel shell. Our standard construction includes unheated vestibules, single or multi-zone configurations and mounting brackets for vertical or horizontal applications. Two thermocouple holes are provided in the center of each zone with additional locations available upon request. Tube collars are provided for various tube diameters.

Our Type SC (1550°C/2822°F) Combustion Tube Furnace is available in a hinged or solid design. The furnace utilizes silicon carbide heating elements easily replaceable through the side of the furnace. The furnace has a maximum continuous operating temperature of 1550°C and is designed for both horizontal and vertical applications.

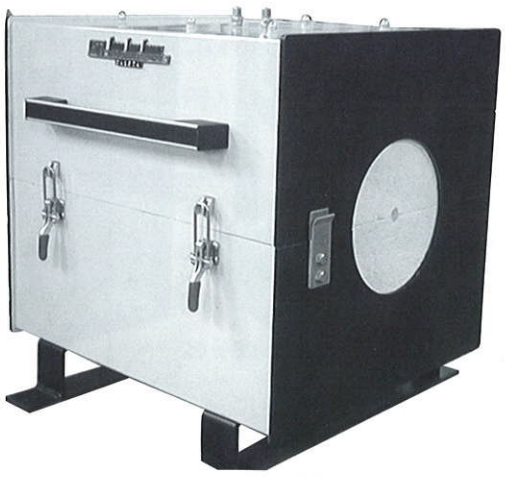
INSTRUMENTATION

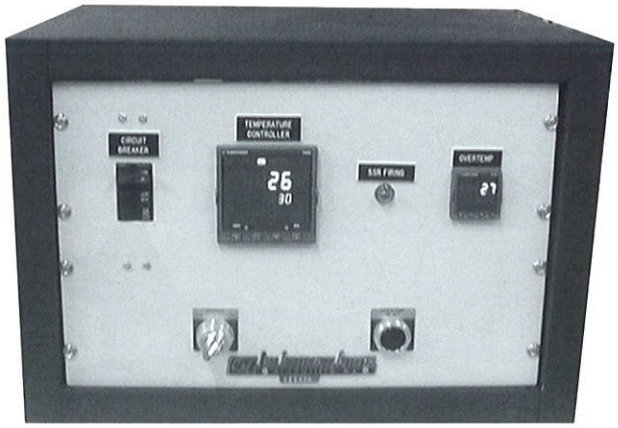
Type K power and control packages feature a microprocessor based set point controller operating in conjunction with a solid state SSR power controller. The system is calibrated for 0 to 1200°C utilizing a quick disconnect Type N thermocouple. The unit is supplied completely wired in a rugged 19" rack mounted instrument cabinet. Other features include a circuit breaker, SSR firing light and 10' of calibrated thermocouple extension wire and power wire. Available in 120 or 240 volt, 50 or 60 hz., single or three phase AC depending on size.

The Type SC system includes as standard, variable set point overtemperature instrumentation and platinum Type R thermocouples.

OPTIONS

- Sight ports
- Slots
- Custom mounting brackets
- Hydraulic opening mechanisms
- Universal support stands
- Multi-zone
- Closed one end construction
- Tilting mechanisms
- Retort for atmosphere systems
- Solid tube design
- Custom resistance windings
- Square & rectangular configurations





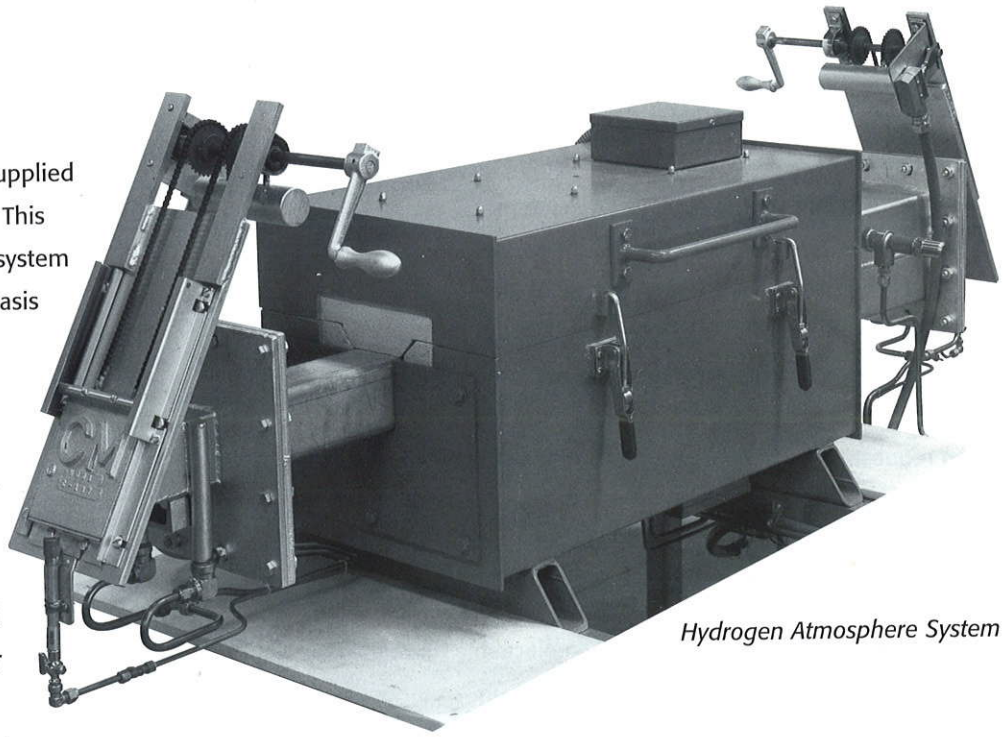
1200°C Furnace with custom power supply

1000 Series

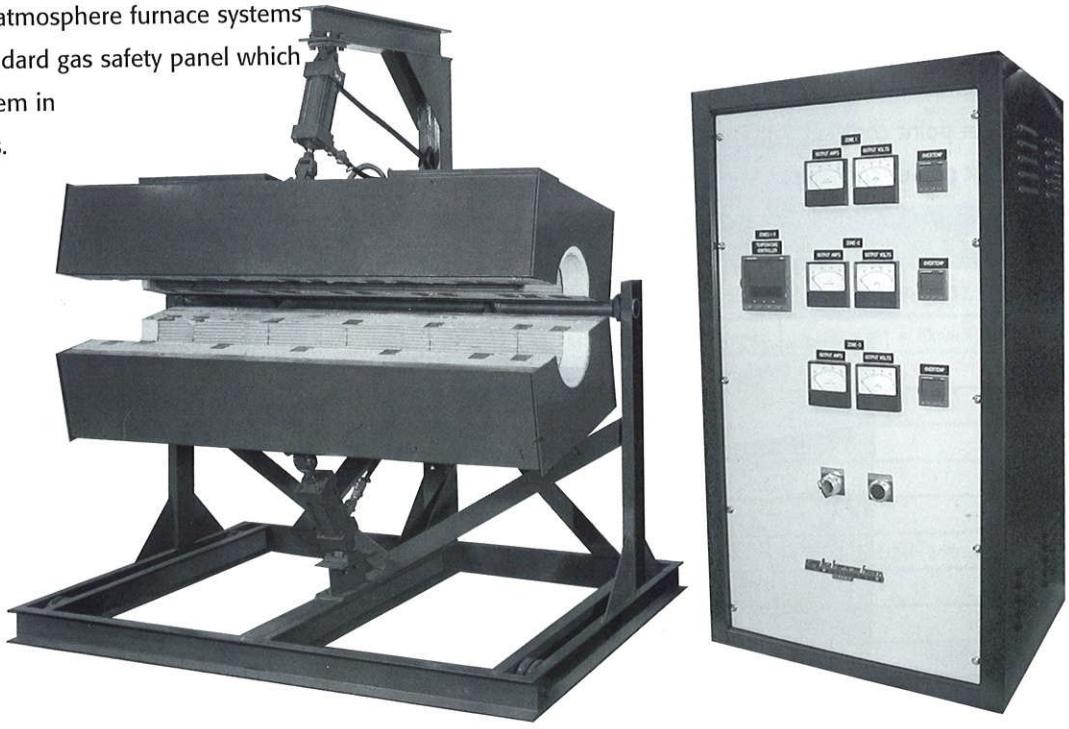
ATMOSPHERE

Most combustion tube furnaces can be supplied with a CM controlled atmosphere retort. This feature permits operation of the furnace system either on a continuous pusher or batch basis using inert or combustible atmospheres.

The retorts or muffles are constructed using high temperature nickel alloy and are available in round or rectangular configurations. The entrance section is constructed using steel. A rear water jacketed cooling section can be provided with indicating thermocouples and water temperature control. These systems incorporate our standard CM safety doors designed to provide safe operation in various processing atmospheres. All CM combustion tube atmosphere furnace systems must be operated utilizing our standard gas safety panel which provides safe operation of the system in combustible reducing atmospheres.



Hydrogen Atmosphere System



6"ID Tilting Furnace

1000 Series

TYPE K (1200°C/2192°F)

SPECIFICATIONS

PROCESS TUBE OD	MODEL NUMBER	HEATED LENGTH	OUTSIDE DIMENSIONS W x H x L	WATTS
1/2"	238-6	6"	10-1/2 x 14 x 13	1140
	238-12	12"	10-1/2 x 14 x 19	1900
to	238-18	18"	10-1/2 x 14 x 25	2690
	238-24	24"	10-1/2 x 14 x 31	2920
2"	238-30	30"	10-1/2 x 14 x 36	3870
2-1/4"	5-12	12"	13-1/2 x 17 x 19	4000
	5-18	18"	13-1/2 x 17 x 25	5020
to	5-24	24"	13-1/2 x 17 x 31	7540
	5-30	30"	16-1/2 x 19 x 36	8540
4-1/2"	5-36	36"	16-1/2 x 19 x 42	10800
5"	7-18	18"	22 x 25 x 24	7400
	7-24	24"	22 x 25 x 30	10000
to	7-30	30"	22 x 25 x 36	12100
	7-36	36"	22 x 25 x 42	14200
6-1/2"	7-48	48"	22 x 25 x 54	18900
7"	8-18	18"	29 x 32 x 24	9080
	8-24	24"	29 x 32 x 30	13000
to	8-30	30"	29 x 32 x 36	17640
	8-36	36"	29 x 32 x 42	21920
7-3/4"	8-48	48"	29 x 32 x 54	30480
8"	12-24	24"	29 x 32 x 30	16500
	12-30	30"	29 x 32 x 36	22000
to	12-36	36"	29 x 32 x 42	26000
	12-48	48"	29 x 32 x 54	34000
11-1/2"	–	–	–	–

ALL DIMENSIONS IN INCHES

TYPE SC (1550°C/2822°F)

SPECIFICATIONS

PROCESS TUBE OD	MODEL NUMBER	HEATED LENGTH	OUTSIDE DIMENSIONS W x H x L	WATTS
1"	4-18	18"	28 x 20 x 31	8500
to	4-24	24"	28 x 20 x 37	11000
4"	4-36	36"	28 x 20 x 49	13000
4-1/2"	6-18	18"	32 x 24 x 31	12000
	6-24	24"	32 x 24 x 37	16500
to	6-36	48"	32 x 24 x 43	25000
6"	6-48	48"	32 x 24 x 61	3400
6-1/4"	8-24	24"	38 x 28 x 37	21000
	8-36	36"	38 x 28 x 49	31500
to	8-48	48"	38 x 28 x 61	38100
8"	8-60	60"	38 x 28 x 73	42000
8-1/4"	12-24	24"	42 x 32 x 37	28000
	12-36	36"	42 x 32 x 49	42000
to	12-48	48"	42 x 32 x 61	56000
12"	–	–	–	–

K 238-18 Horizontal Split

1300 Series

DIFFUSION TUBE FURNACES TO 1300°C (2372°F)

GENERAL DESCRIPTION

Diffusion tube furnaces employ an internal winding consisting of heavy gauge iron chrome aluminum alloy wire wound around the circumference of the inner furnace cavity and offset from the work tube by an array of ceramic spacers. Standard furnace construction features a stainless steel outer shell and end caps. Universal mounting pads are provided for vertical operation. CM employs a graded fiber insulation package to minimize outer skin temperatures and reduce power consumption. All CM furnaces utilize the finest grade materials available, are factory pretested and ready for immediate installation.

UNIFORMITY

Uniformity will depend upon the number of zones and the ratio of the tube diameter to the heated length. Uniform flat zones of ± 1°C are readily obtainable.

INSTRUMENTATION

Our standard control console features a Eurotherm or Honeywell microprocessor based temperature controller operating in conjunction with a SCR power controller and platinum Type S thermocouple. All necessary transformers and circuit breakers are supplied as a complete package ready for immediate installation.

Optional control features include multi-zone temperature control, shunt tapping and over-temperature instrumentation. Optional instrumentation is available from all leading manufacturers.

SPECIFICATIONS

MODEL NUMBER	USABLE DIAMETER	HEATED LENGTH	OUTSIDE DIAMETER	OVERALL LENGTH	NUMBER OF ZONES	APPROX. WATTAGE
1320-24	2″	24″	10″	30″	1-3	4,070
1330-36	3″	36″	12″	42″	1-3	8,140
1340-36	4″	36″	14″	42″	1-3	10,180
1340-48	4″	48″	14″	54″	1-3	13,570
1350-36	5″	36″	14″	42″	1-3	12,215
1350-48	5″	48″	14″	54″	1-3	16,285
1360-48	6″	48″	14″	56″	1-3	19,000
1370-60	7″	60″	16″	68″	1-3	27,140

1400 Series

PLATINUM ALLOY TUBE FURNACES 1425°C (2597°F), 1540°C (2804°F) AND 1700°C (3092°F)

GENERAL DESCRIPTION

The CM high temperature series of platinum tube furnaces are designed to provide the user with maximum versatility and long service life. All tubular furnaces employ polished stainless steel shells and end caps, as well as high purity recrystallized alumina tubes. All 1400 series furnaces are available with optional selective shunting. A number of taps are brought out from the winding of the element and by varying the resistance of the shunt wire between these taps, the operator can modify the temperature profile of the furnace to suit a particular process.

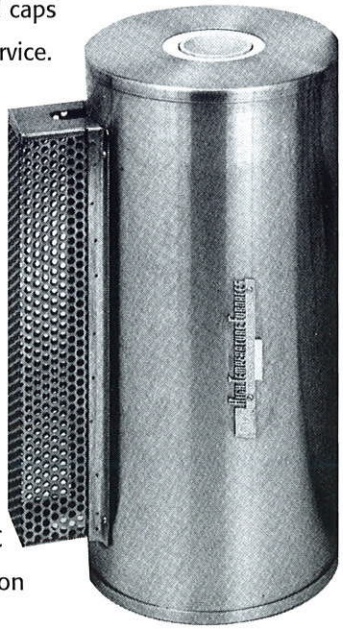
INSTRUMENTATION

The power and control package features a Eurotherm or Honeywell microprocessor based programable controller operating in conjunction with a SCR power controller and platinum alloy thermocouples. Variable set point overtemperature instrumentation is standard. The unit is supplied completely wired in a rugged 19" rack mounted instrument cabinet. Other features include a circuit breaker, step-down transformer, ammeter and 10' of calibrated thermocouple extension wire and power wire. The power supply is designed for 120 or 240 volt, 50 or 60 hz., single phase service.

DESIGN

All CM furnaces employ stainless steel shells, end caps and quick release shunt tap panels for ease of service. Functional steel mounting brackets are provided for vertical and horizontal mounting.

CM fiber insulated furnaces have a particular advantage at maximum use temperatures. By increasing the efficiency of the insulation system, the possibility of over-driving the heating element is greatly reduced, thereby extending the overall service life of the furnace system.



SERIES

Type L - Recommended for use of up to 1425°C (2600°F). Horizontal or vertical operation utilizing platinum 20% rhodium wire.

Type M - Recommended for continuous use of 1540°C (2800°F). Horizontal or vertical operation utilizing stranded platinum 40% rhodium wire.

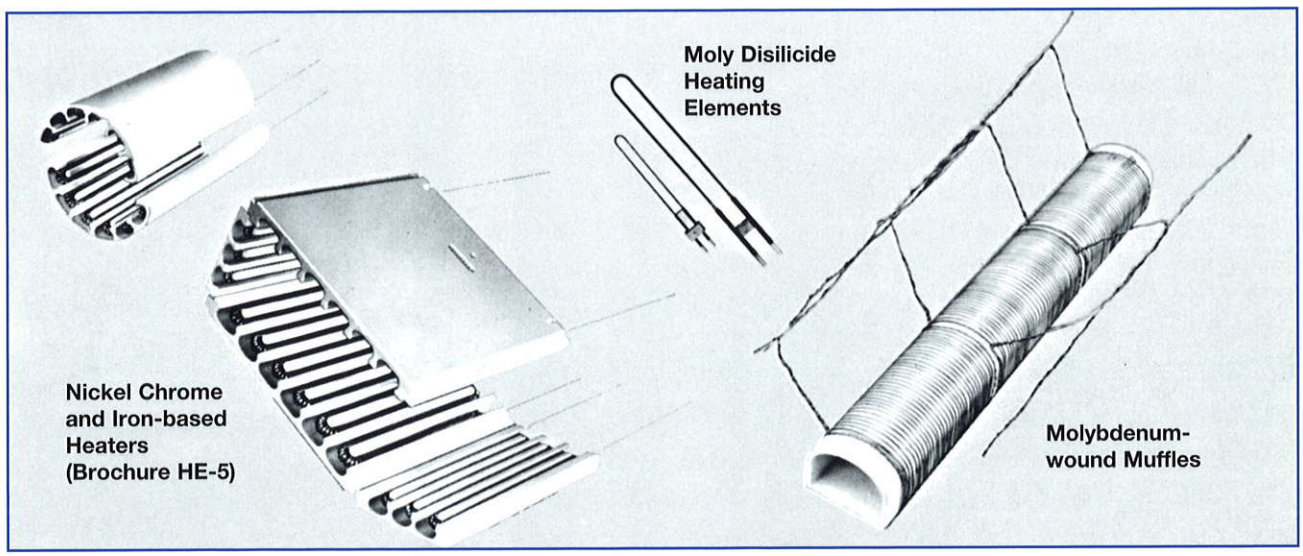
Type H - Recommended for operation up to 1700°C (3100°F). Horizontal or vertical operation utilizing stranded platinum 40% rhodium wire.

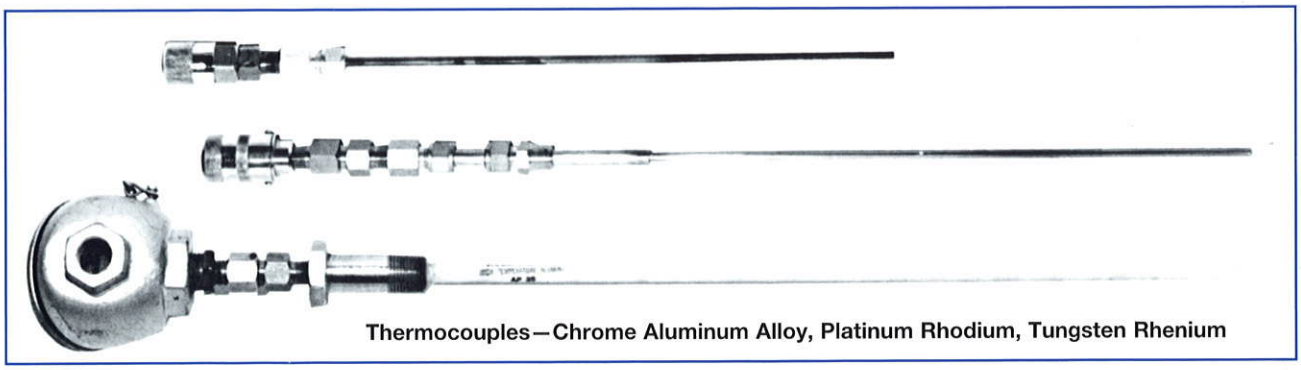
All furnaces are available in diameters ranging from 1/2" to 5" and lengths to 24". For pricing information please contact CM Furnaces or your local representative.

SPARE PARTS AND SERVICE

CM stocks large quantities of molydisilicide heating elements, silicon carbide elements, fibrous alumina insulation, and high purity alumina brick. We also manufacture Type B, C, R, S and Land Jewell thermocouples. CM service department is available for repairs, training, and service worldwide. Please contact www.info@cmfurnaces.com or (973) 338-6500 for additional information.

Silicon Carbide Heating Elements, Straps, Clamps, and Accessories





Thermocouples—Chrome Aluminum Alloy, Platinum Rhodium, Tungsten Rhenium

1.0M RO Rev. 1/14

Phone: 973-338-6500 • Fax: 973-338-1625
E-mail : info@cmfurnaces.com • Website: http://www.cmfurnaces.com