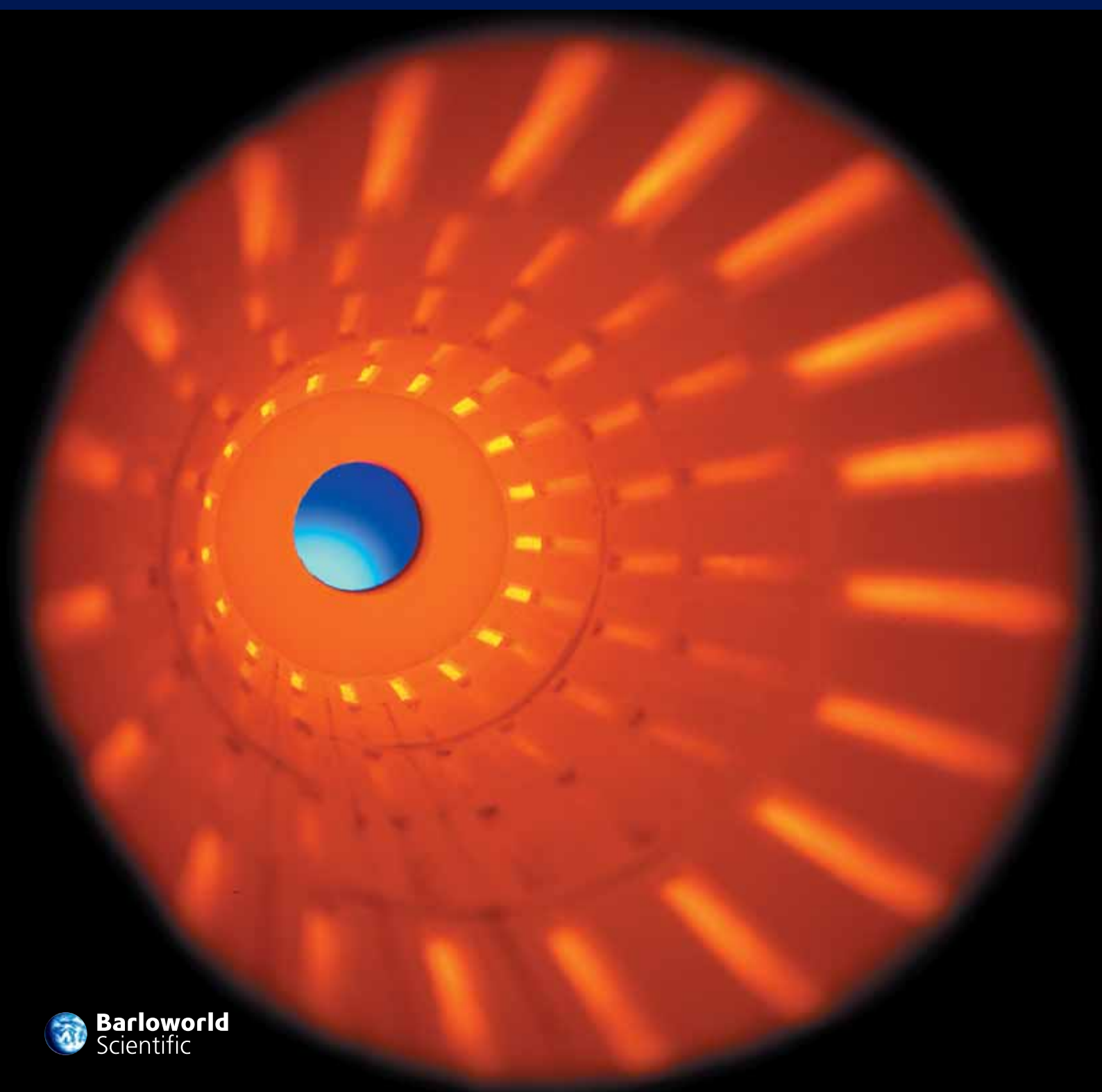


PRODUCT
UPDATE



Laboratory Chamber & Tube Furnaces





Chamber Furnaces



Product performance and quality

Temperature Uniformity

Carbolite tube and chamber furnaces combine uniquely designed heating elements with low thermal mass insulation materials to provide highly uniform temperatures throughout the working chamber zone. Insulating chamber vestibules and effective chamber size configurations also enhance temperature uniformity in both chamber and tube furnaces. Many 3-zone tube furnaces are offered when enhanced linear uniformity is required.

Responsiveness

All furnaces are designed to provide the responsiveness demanded for many of today's critical process requirements. Necessary heat-up and uniformity are achieved through the total furnace and control system design.

A unique integral design of powerful heating elements and superior insulation materials make up a product that provides the heating performance you demand. Combine this with today's latest and most sophisticated temperature control technology and you understand why Carbolite laboratory furnaces are known for their responsiveness.

Precise Temperature Control

Sophisticated temperature controls are precisely tuned to the furnace temperature and operating characteristics. These PID instruments deliver the exact desired temperature and process repeatability you can count on, run after run.

Versatility

Each product is designed to provide the greatest efficiency and versatility to the end user.* Tube furnace tube adaptors facilitate quick and convenient switching to alternate diameter tubes. Specific tube furnace models are designed to be used in horizontal or vertical operation, with the use of specially designed stands. Multiple accessories and options allow convenient configuration of a furnace for the specific application.

*Not available for all models of tube furnace

Design/Construction

Carbolite laboratory furnaces are recognised for their superior aesthetic and mechanical designs. The quality components and workmanship that goes into every unit further enhances the long-life performance you can expect from a Carbolite furnace. Each furnace is combined with a sophisticated temperature control system, normally positioned in the lower front of the furnace, providing convenient observation and access to the temperature and power controls. The compact furnace designs have a small footprint which conserves valuable bench space.

Safety

Safety and performance are the highest priority in every Carbolite laboratory furnace design. Some chamber furnaces incorporate a vertical counterbalanced door mechanism that keeps the hot face insulation away from the operator when the door is opened. Every Carbolite chamber and hinged tube furnace incorporates a positive break safety switch that isolates power to the heating elements when the door or chamber is opened, eliminating the possibility of direct contact with electrically live elements. The double shell construction of Carbolite laboratory furnaces provides an air gap between the inner furnace assembly and outer case. This promotes convective air flow, providing a safe outer case temperature.

Heating Elements

Carbolite laboratory furnaces rated with maximum operating temperatures from 1000°C to 1300°C utilise long-life resistive metallic wire heating elements. Our 1400°C, 1500°C & 1600°C furnaces use silicon carbide heating elements. As SiC elements resistance slowly changes, Carbolite's unique control system allows easy voltage adjustment to the element circuit, assuring that the furnace heat-up and performance characteristics remain unchanged. Molybdenum disilicide heating elements, used in 1700°C & 1800°C furnaces, offer the advantages of excellent mechanical strength, long-life performance, installation with old elements in series connections, and operation continuously or intermittently.

Insulation

All laboratory furnaces are designed with today's latest and most efficient insulation materials. Low thermal mass ceramic fibre insulation is incorporated into every furnace insulation assembly. This advanced high performance insulation allows for faster heat-up and recovery rates, and energy savings. High temperature furnaces use graded insulation materials to provide enhanced thermal efficiencies. Many Carbolite chamber furnaces incorporate dense refractory materials around the chamber opening and in the floor to provide resistance to abrasive wear and spillage.





Introduction to Chamber Furnaces

The Carbolite range of laboratory chamber furnaces can be used for a wide variety of applications and in many different sectors of industry and research.

It is impossible to define all possible uses for the models highlighted in this catalogue, but typical applications include:

- Heat treating - hardening, tempering and annealing
- Thermal aging processes
- Ignition tests
- Firing of ceramic materials
- Enamelling, bonding, fusing and sintering
- Non ferrous melting
- Decomposition in chemical analysis
- Digestion of samples
- Gravimetric analysis
- High temperature curing and debonding

All furnaces are fitted with a chimney or exhaust vent. Furnaces may sometimes be damaged by chemical attack as a result of corrosive atmospheres generated by the process. Examples include low melting point metal oxides (eg lead, sodium and potassium) fluxes, hardening salts, sulphur compounds and halides.

Please refer to Guide to Furnace Selection Information on page 14. If you are uncertain, please discuss your application with us.

Stylish and sturdy

Both the inner and outer case are constructed from zinc coated steel. The outer is finished in a hard wearing two tone, stoved epoxy/polyester coating.

Positive break safety switch

An added safety feature on all our chamber furnaces ensure that all power to the chamber is isolated whenever the the door is open. This ensures that there is no risk of electrocution to the operator, even if the elements are touched

Convection cooling

The double skinned construction promotes convected air flow for a cool outer case

Chamber exhaust vent

Promotes the extraction of fumes from the chamber generated by the process

Solid state control

Zero voltage switching and rapid cycle time for smooth and reliable control

Digital temperature control

The control module houses a range of digital instrumentation for precise temperature and process control

Door action

A vertical counterbalanced door mechanism allows full and easy access to the chamber and keeps the hot door insulation away from the operator when the door is opened. The VCF has a parallel door mechanism - easily operated with one hand - which also ensures the hot insulation radiates away from the operator, in this case downwards. The ELF has a drop down door, that has the added benefit of being used as a shelf when loading or unloading samples.

Options

- Gas safety systems
- Gas tight retorts
- Overtemperature protection
- Gas inlets
- Flowmeters
- Temperature indicators
- Viewing ports (glazed or unglazed)
- Spares kits
- Stands
- Chart recorders
- Load thermocouple access





ELF 11/6

ELF Chamber Furnaces

The ELF range is bench mounted with a maximum temperature of 1100°C and is available with chamber capacities of 6, 14 and 23 litres. These furnaces are suitable for light duty general laboratory work.

The heating chamber is insulated with vacuum-formed low thermal mass insulation, which offers exceptional performance in achieving maximum temperature quickly and efficiently. A temperature of 1000°C is achieved in as little as 35 minutes. Semi-embedded free radiating wire wound elements are located on the two side walls - elements are not positioned in the hearth. A hard ceramic hearth is fitted as standard, which offers additional protection from spillage.

The drop down door can be used as a shelf when loading and unloading samples. The door insulation also acts as a trap for radiated heat, thus improving the chamber uniformity, whilst the air gap behind the plug minimises the external door temperature.

A ceramic chimney is fitted for the ventilation of the chamber, but if toxic / corrosive fumes are generated then a model from our dedicated ashing range should be recommended.

The digital Carbolite 301 PID controller is fitted as standard and has an adjustable single ramp to set point, as well as an in-built timer which allows for a delayed start or a fixed process duration.

Model	ELF 11/6	ELF 11/14	ELF 11/23
Max. Temperature (°C)	1100	1100	1100
Continuous Temperature (°C)	1000	1000	1100
Chamber Dimensions:			
H (mm)	165	210	235
W (mm)	180	220	255
D mm	210	310	400
External Dimensions:			
H (mm)	580	630	715
W (mm)	410	450	505
D (mm)	420	520	660
Heat up time (mins)	35	40	29
Temperature uniformity @ 1000°C in a uniform envelope of:	±5°C	±5°C	±5°C
H (mm)	115	130	665
W (mm)	130	140	455
D (mm)	130	220	610
Max. (W)	2000	2600	5000
Holding Power (W)	900	1300	1500
Internal volume (l)	6	14	23
Thermocouple Type	K	K	K
Weight (kg)	24	31	-

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.



CWF Furnaces

These furnaces integrate the best of traditional and modern materials to produce an outstanding combination of performance and reliability.

The unique concept for this furnace is the heating module - with one situated on either side of the chamber. Each heating module consists of a high quality alumina based hard wearing element carrier, housing a free radiating coiled wire element. With the use of graded winding, the elements compensate for heat loss and optimise temperature uniformity within the chamber. The furnaces reach working temperature quickly and efficiently.

Hard wearing refractories around the chamber entrance and in the chamber base provide excellent resistance to everyday wear and tear, whilst secondary low thermal mass insulation ensures maximum thermal efficiency.

Service is aided by the removable instrument panel and easy access to the element modules and thermocouple through the rear of the case.

Chamber sizes are 5, 13 and 23 litres with maximum temperatures of 1100°C, 1200°C and 1300°C.



CWF 12/13/301

Model	CWF 5 litre	CWF 13 litre	CWF 23 litre
Max. Temperature (°C)	1100	1100	1100
	1200	1200	1200
	1300	1300	1300
Continuous Temperature (°C)	1000	1000	1000
	1100	1100	1100
	1200	1200	1200
Chamber Dimensions:			
H (mm)	135	200	235
W (mm)	140	200	245
D (mm)	250	325	400
External Dimensions:			
H (mm)	585	655	705
W (mm)	375	435	505
D (mm)	485	610	675
Max. Power (W)	2400	3100	7400
Holding Power (W)			
Model 1100 (°C)	790	1500	1900
Model 1200 (°C)	850	1550	2250
Model 1300 (°C)	1000	1800	2500
Heat Up Time (mins)			
Model 1100 (°C)	30	80	40
Model 1200 (°C)	35	65	45
Model 1300 (°C)	40	80	55
Internal Volume (l)	5	13	23
H x W x D (mm)			
Model 1100 (°C)	85 x 90 x 110	120 x 120 x 185	155 x 165 x 285
Model 1200 (°C)	85 x 90 x 125	120 x 120 x 200	155 x 165 x 325
Model 1300 (°C)	85 x 90 x 150	120 x 120 x 225	155 x 165 x 340
Thermocouple Type			
Model 1100 (°C)	K	K	K
Model 1200 (°C)	R	R	R
Model 1300 (°C)	R	R	R
Weight (kg)	30	47	68

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.

chamber furnaces



RWF 12/5/301

RWF Furnaces

These furnaces are designed for light to medium duty applications where rapid thermal response is a primary requirement.

Powerful, free radiating coiled wire elements are held firmly in the sides and roof of the chamber, which are constructed from rigidised low thermal mass insulation. A hard, dust-free, ceramic hearth provides a robust base for the furnace charge. This combination of high power and low thermal mass gives a heat up time from ambient to 1100°C in as little as 10 minutes, whilst rapid cooling can be induced by opening the furnace door during cool down. Other performance criteria are not compromised, with temperature uniformity, efficiency and control precision remaining excellent.

Chamber sizes are 5, 13 and 23 litres with maximum temperatures of 1100°C and 1200°C.

Model	RWF 11/5	RWF 11/13	RWF 11/23	RWF 12/5	RWF 12/13	RWF 12/23
Max. Temperature (°C)	1100	1100	1100	1200	1200	1200
Continuous Temperature (°C)	1000	1000	1000	1100	1100	1100
Chamber Dimensions:						
H (mm)	130	195	220	130	195	220
W (mm)	160	210	260	160	210	260
D (mm)	250	325	400	250	325	400
External Dimensions:						
H (mm)	585	655	705	585	655	705
W (mm)	375	435	505	375	435	505
D (mm)	485	610	675	485	610	675
Max. Power (W)	2750	5000	9100	2750	5000	9100
Holding Power (W)	680	1200	1800	820	1450	2100
Heat up times (mins)	10	11	13	12	13	15
Thermocouple type	K	K	K	R	R	R
Weight (kg)	28	45	65	28	45	65



GPC 12/36/3216P1

GPC Furnaces

These furnaces offer the large capacity and robust construction required for general workshop use, together with the performance capabilities and case style of our smaller laboratory models.

Traditional hard wearing refractory materials used for the chamber entrance and hearth plate provide good resistance to accidental damage and a solid support for heavier furnace loads.

Free radiating coiled wire elements supported in open grooves, together with low thermal mass insulation, allowing these furnaces to reach working temperature in approximately 40 minutes, and provide efficient and reliable operation.

Removable instrument and back panels allow good service access to the case interior, whilst heating element coils are easily and quickly replaced through the door opening.

Model	GPC 12/36	GPC 12/65	GPC 12/131	GPC 12/200	GPC 13/36	GPC 13/65	GPC 13/131
Max. Temperature (°C)	1200	1200	1200	1200	1300	1300	1300
Continuous Temperature (°C)	1100	1100	1100	1100	1200	1200	1200
Chamber Dimensions:							
H (mm)	250	278	350	400	250	278	350
W (mm)	320	388	500	600	320	388	500
D (mm)	450	595	750	900	450	595	750
External Dimensions:							
H (mm)	810	885	1652	1702	810	885	1652
W (mm)	690	780	1110	1350	690	780	1110
D (mm)	780	945	1280	1350	780	945	1280
Internal Volume (l)	36	65	131	200	36	65	131
Thermocouples Type	All GPC'S use Type R thermocouples						
Max. Power (W)	9000	14000	18000	24000	9000	14000	18000
Weight (kg)	100	165	400	518	120	165	400

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.

Vertical Loading Chamber Furnaces

These furnaces are top loading and particularly suited for applications involving tall crucibles or heavy components.

The coiled resistance wire elements are embedded in robust panels of cast refractory and line the four sides of the chamber ensuring even heat transfer to the load. Elements are not placed in the bottom of the chamber where they may be damaged by spillage. The elements are easily replaced by removal from the top of the furnace.

The door contains a simple vent to help remove fumes from the chamber.

The temperature controller is recessed into the furnace housing - and is inclined upwards ensuring the display is clearly visible. Push button operation allows precise, repeatable setting and the digital display gives a clear indication of both actual furnace temperature and set-point.

The platinum/platinum 13% Rh Type R thermocouple gives a stable output over a long life and is located in a protective ceramic sheath in a corner of the chamber where it is unlikely to be accidentally damaged.

Chamber sizes are 5, 10, 23 and 100 litres, with a maximum temperature of 1200°C



VCF 12/5/3508P10

Model	VCF12/5	VCF12/10	VCF12/23	VCF12/100
Max. Temperature (°C)	1200	1200	1200	1200
Continuous Temperature (°C)	1100	1100	1100	1100
Chamber Dimensions:				
H (mm)	260	365	450	600
W (mm)	155	180	250	410
D (mm)	130	155	200	410
External Dimensions:				
H (mm)	660	765	850	1100
W (mm)	530	555	600	930
D (mm)	405	430	500	950
Max. Power (W)	2500	3000	6000	15000
Holding Power (W)	900	1200	2500	6000
Heat Up Time (mins)	102	138	125	150
Internal Volume (l)	5	10	23	100
Thermocouple Type	R	R	R	R
Weight (kg)	50	60	130	200

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber..



Air Recirculating Furnaces



HRF 7/22/301

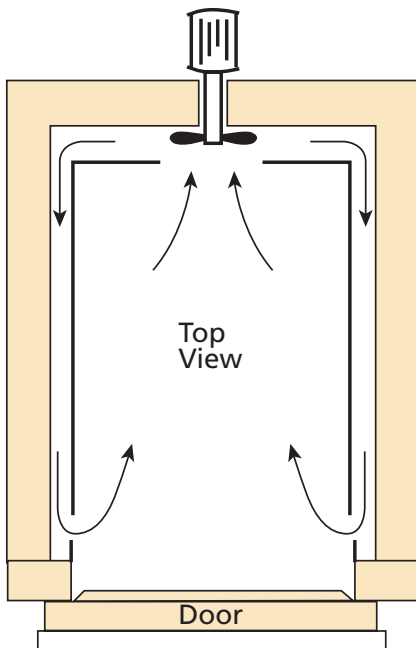
The HRF range of horizontal air recirculating chamber furnaces is available with a maximum operating temperature of 750°C and is particularly suitable for stress relieving, tempering, normalising, annealing and other low temperature heat treatment processes.

They feature an easy clean, stainless steel inner chamber and a zinc coated outer case, finished with a hardwearing stoved epoxy polyester coating. The double skin construction ensures a cool, safe outer case temperature.

Heating is provided by resistance wire elements on both sides of the chamber. A powerful centrifugal fan and airguide system forces air over the elements and back through the work chamber, providing uniform temperature distribution and rapid heat transfer to the workpiece. (see the drawing labelled HRF Air Flow) A combination of insulation is used: low thermal mass ceramic fibre insulation, which ensures low energy losses and refractory board below the hearth provide load bearing capacity,

Model	HRF7/22	HRF 7/45	HRF7/112	HRF7/324
Max. Operating Temperature (°C)	750	750	750	750
Thermocouple Type	K	K	K	K
Internal Volume (l)	22	45	112	324
Chamber Dimensions:				
H (mm)	220	295	400	600
W (mm)	200	265	400	600
D (mm)	495	575	700	900
External Dimensions:				
H (mm)	590	755	1550	1800
W (mm)	450	605	1000	1200
D (mm)	870	1100	1600	2280
Max. Power (W)	3000	6000	18000	24000
Weight (kg)	61	110	480	1000

HRF Air Flow



- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.



Top Hat Furnace

This compact top hat furnace for laboratory applications allows for easy handling of samples, fast heating and cooling cycles and particularly uniform temperature profiles. It reaches 1000°C in under 20 minutes.

The use of double skin construction provides a cool and safe outer case temperature. The outer case is manufactured from zinc coated sheet steel and finished with an attractive stoved epoxy polyester finish.

The heated chamber, which accepts crucibles and work pieces up to 200mm (h) x 140mm (Ø), has an attractive stainless steel retractable element cover which provides total operator safety. The element chamber lifts away from the hearth and is electrically operated by a rocker switch located on the furnace base. When opened, a cool air flow provides rapid cooling and allows unrestricted access to the hearth, permitting easy handling of the furnace load. During loading/unloading, the elements are totally isolated from the working area as they are fully withdrawn into the case, keeping the hot face away from the operator at all times.

Powerful free radiating coiled wire elements are held firmly in the vacuum formed low thermal mass insulation, which forms a cylindrical chamber allowing maximum heat transfer and temperature uniformity. The use of low thermal mass ceramic fibre insulation material provides rapid heating and fast cooling.

A version with a refractory metal bell jar fitted within the furnace chamber is also available, allowing samples to be treated under special sealed atmospheres, using a sand seal.



LTH 12/3

Model	LTH 12/3
Max. Temperature (°C)	1200
Continuous Temperature (°C)	1100
Internal Volume (l)	3.5
Chamber Size (mm)	150 (Ø) x 200 (h)
External Dimensions:	
H (mm)	655
W (mm)	410
D (mm)	540
Max Power (W)	3000
Chamber Raising/Lowering Time	5 seconds
Thermocouple type	R
Weight (kg)	38

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.



chamber furnaces



1400°C, 1500°C and 1600°C

Silicon Carbide Heated Furnaces

This comprehensive range is available at 1400, 1500 and 1600°C with four popular capacities of 2.9, 7.8, 15 and 35 litres. Powerful silicon carbide heating elements provide fast heat up rates, typically 40 minutes to 1400°C depending on the model.

Silicon carbide heating elements are ideally suited to the rigorous firing cycles often required in laboratory furnaces. These elements withstand the stresses of intermittent operation and give long life at elevated temperatures. Furnaces using these elements are designed with excess power to ensure that ageing is easily corrected and heating performance is maintained. The average life of the elements may be several years, depending on operating temperatures and conditions.

Two types of insulation are used: Hard wearing refractory brick around the doorway and in the floor to give resistance to abrasion and spillage. Lightweight ceramic fibre is used in all other areas to ensure energy efficiency and fast heating/cooling.

RHF 16/3/3508P1

Model	RHF 14/3	RHF 14/8	RHF 14/15	RHF 14/35	RHF 15/3	RHF 15/8	RHF 15/15	RHF 15/35	RHF 16/3	RHF 16/8	RHF 16/35	RHF 16/35
Max. Temperature (°C)	1400	1400	1400	1400	1500	1500	1500	1500	1600	1600	1600	1600
Temperature (°C)	1300	1300	1300	1300	1400	1400	1400	1400	1500	1500	1500	1500
Internal Volume (l)	2.9	7.8	15	35	2.9	7.8	15	35	2.9	7.8	15	35
Chamber Dimensions:												
H (mm)	120	170	220	250	120	170	220	250	120	170	220	250
W (mm)	120	170	220	300	120	170	220	300	120	170	220	300
D (mm)	205	270	310	465	205	270	310	465	205	270	310	465
External Dimensions:												
H (mm)	655	705	810	885	655	705	810	885	655	705	810	855
W (mm)	435	505	690	780	435	505	690	780	435	505	690	780
D (mm)	610	675	780	945	610	675	780	945	610	675	780	945
Heat up time (min)	33	22	35	38	45	40	45	46	42	35	58	56
Max. Power (W)	4500	8000	10000	16000	4500	8000	10000	16000	4500	8000	10000	16000
Holding Power (W)	1900	3200	2900	6000	2000	3500	3000	6200	2300	4000	3500	1100
Weight (kg)	42	64	125	179	46	61	125	178	42	61	140	179

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.



High Temperature Chamber Furnaces

The 1700°C models are available in three chamber sizes and the 1800°C models in four chamber sizes.

These furnaces are heated by molybdenum disilicide elements – the elements are either on the sides, or sides and rear of the chamber, depending on the model. The elements provide improved performance and temperature uniformity within the chamber and are suitable for intermittent or continuous operation.

Advanced high temperature hot face insulation is combined with graded low thermal mass insulation to improve energy efficiency and heat up rates; the 1700°C 10 litre model reaches 1600°C in only 44 minutes, whilst the 1800°C 8 litre model reaches 1700°C in only 56 minutes.

A low outer case temperature is achieved through fan cooling.

Fitted with 3216P1 programmer and overtemperature protection as standard.

RS 232 digital communication is provided as standard on models HTF 17/5, HTF 17/10, HTF 18/4 and HTF 18/8.



HTF 17/10/3216P1

Model	HTF 17/5	HTF 17/10	RHF 17/25
Max. Temperature (°C)	1700	1700	1700
Continuous Temperature (°C)	1600	1600	1600
Chamber Dimensions:			
H (mm)	158	232	300
W (mm)	150	200	300
D (mm)	225	225	300
External Dimensions:			
H (mm)	565	565	1800
W (mm)	830	830	1100
D (mm)	650	650	680
Internal Volume (l)	5.3	10.4	25
Heat up Time to (mins)	50	44	45
Max. Power (W)	4190	5920	9600
Thermocouple Type	B	B	B

Model	HTF 18/4	HTF 18/8	HTF 18/15	HTF 18/27
Max. Temperature (°C)	1800	1800	11800	1800
Continuous Temperature (°C)	1700	1700	1700	1700
Chamber Dimensions:				
H (mm)	140	210	220	300
W (mm)	140	190	220	300
D (mm)	190	190	300	300
External Dimensions:				
H (mm)	565	565	1580	1610
W (mm)	830	830	690	780
D (mm)	650	650	800	945
Internal Volume (l)	3.7	7.6	15	27
Heat up Time (mins)	65	56	70	55
Max. Power (W)	4650	6200	9000	18000
Thermocouple type	20/40	20/40	20/40	20/40



HTF 18/27/3216P1

- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.



chamber furnaces

Bottom loading furnaces



BLF 17/3/3508P1



BLF 17/8/3508P1

Included in Carbolite's innovative designs are the six models which comprise the range of high temperature bottom loading furnaces.

There are three models at 1700°C with capacities of 3.4, 7.9, and 21 litres. Capacities of 3.4 and 7.9 litres are available at 1800°C.

This range of furnaces offers several advantages and is suitable for firing and sintering of advanced ceramics and high temperature glass melting. Excellent temperature uniformity is obtained by the inclusion of molybdenum disilicide heating elements which are positioned around the walls of the chamber ensuring uniform heating of the sample.

The electrically operated elevator hearth ensures operator safety and prevents direct radiation of heat from the chamber walls. It also ensures smooth loading and unloading of the workpiece/crucible and allows both heavy and delicate loads to be handled easily. The loading platform has a full travel which allows the complete chamber height to be used.

Fast heating and cooling of the sample is obtained by having the ability to move the sample in and out of the furnace when hot or cold.

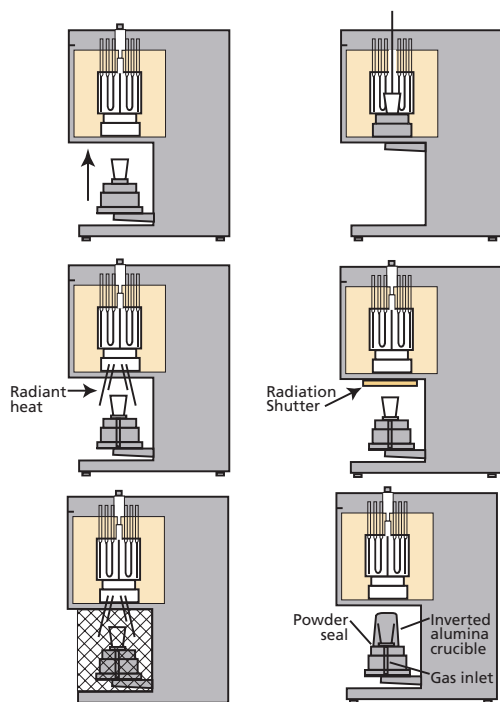
The furnace can be adapted to accommodate an atmosphere other than air. This is possible by placing a large inverted alumina crucible in a groove in the hearth. It is possible to partly fill this groove with alumina (Al₂O₃) or Zirconia (ZrO₂) powder to improve the sealing. Gas inlet and outlet connections allow atmospheres to be introduced from below the hearth and spread by radial channels cut into the surface of the hearth so that the inlet cannot be blocked by the sample positioned on the hearth. The top of the furnace can be adapted to include the facility to insert a probe thermocouple or provide access for a stirrer.

Versions with rotating hearths are also available, please ask for details.

A choice of programmable controllers is available together with other advanced temperature control options, including computer communications. An independent overtemperature control is fitted as standard and can either be set to protect the furnace or adjusted to a lower temperature to protect a valuable load.

Options include flowmeters, radiation shutters, crucibles and hearth cages.

Model	BLF 17/3	BLF 17/8	BLF 17/21	BLF 18/3	BLF 18/8
Max. Temperature (°C)	1700	1700	1700	1800	1800
Continuous Temperature (°C)	1600	1600	1600	1700	1700
Internal Volume (l)	3.4	7.9	21	3.4	7.9
Internal Dimensions:					
H (mm)	190	250	300	190	250
(Ø)	150	200	300	150	200
External Dimensions:					
H (mm)	975	1950	1850	975	1950
W (mm)	750	1360	1250	750	1360
D (mm)	530	800	850	530	800
Heat up Time (mins)	80	80	180	110	110
Max. Power (W)	5000	9000	12000	6000	10000
Weight (kg)	155	424		155	424



- 1) Holding power is measured at 100°C below max. temperature, based on 240V supply, with an empty chamber.
- 2) Uniformity graphs are available on request, for most models.
- 3) All external dimensions are taken with the door closed and include a chimney.
- 4) Heat up time is measured at 100°C below max. temperature with an empty chamber.

