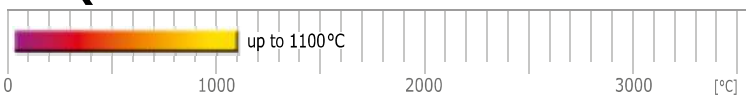


ELF – Economy Chamber Furnaces

The ELF laboratory furnaces comprise three bench mounted models designed for light duty and general use up to 1100 °C.

They have a simple drop down door and a top mounted ceramic chimney. The combination of low thermal mass insulation and free radiating wire elements embedded in the chamber sides provide efficient heating.

Standard features

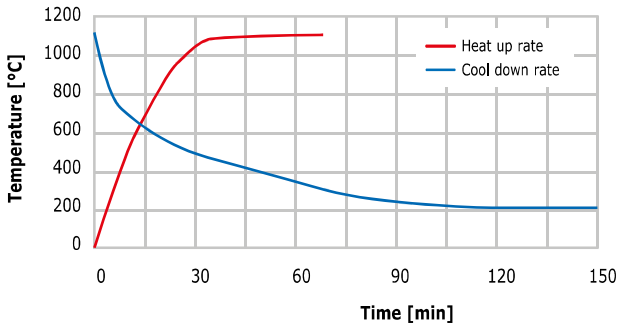
- 1100 °C maximum operating temperature
- Carbolite Gero 301 controller with single ramp to setpoint and process timer
- 6, 14 or 23 litre chamber volumes
- Drop down door with air gap to minimise external temperature
- Delayed start / process timer function as standard
- Vacuum formed, low thermal mass insulation
- Hard ceramic hearth fitted as standard
- Ventilated via top mounted ceramic chimney

ELF 11/6

Options (specify these at time of order)

- Over-temperature protection (recommended to protect valuable contents & for unattended operation)

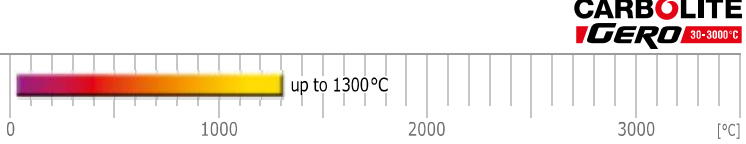
Heat-up and cool down rates for ELF 11/6



Technical data

CGH Model	Max. temp. [°C]	Heat-up time [mins]	Max. continuous operating temp. [°C]	Dimensions: Usable chamber H x W x D [mm]	Dimensions: External H x W x D [mm]	Temperature uniformity of ±5 °C within H x W x D [mm]	Volume [litres]	Max. power [W]	Holding power [W]	Thermocouple type	Weight [kg]
ELF 11/6	1100	28	1000	165 x 180 x 210	580 x 410 x 420	125 x 140 x 140	6	2000	900	K	24
ELF 11/14	1100	43	1000	210 x 220 x 310	630 x 450 x 520	170 x 180 x 205	14	2600	1300	K	31
ELF 11/23	1100	26	1000	235 x 255 x 400	715 x 505 x 690	195 x 215 x 305	23	5000	1550	K	52

Please note:
- Heat up time is measured to 100 °C below max, using an empty chamber
- Holding power is measured at continuous operating temperature
- External dimensions with door closed and including chimney
- The uniform volume is smaller than the total chamber volume



CWF, CWF-B and CWF-BAL Standard Chamber Furnaces

The CWF range of general purpose laboratory chamber furnaces is bench mounted. Models are available in five sizes with a maximum operating temperature up to 1300 °C.

The airflow in the CWF-B furnaces is enhanced by the addition of air inlet holes in the door and a tall chimney which rapidly removes the fumes from the furnace.

Standard features

- Carbolite Gero 301 controller for CWF & CWF-B with single ramp to setpoint and process timer
- Soft closing door on 5, 13, 21 & 23 litre models
- Vertical lift door keeps heated surface away from the user
- Delayed start / process timer function as standard
- Hard wearing alumina element carriers, furnace entrance & hearth
- Energy efficient low thermal mass insulation
- Free radiating wire wound elements for optimum uniformity
- Easy access to elements & controls simplifies maintenance & servicing

CWF:

- 1100 °C, 1200 °C or 1300 °C maximum operating temperature
- 5, 13, 23, 36 or 65 litre chamber volumes

CWF-B:

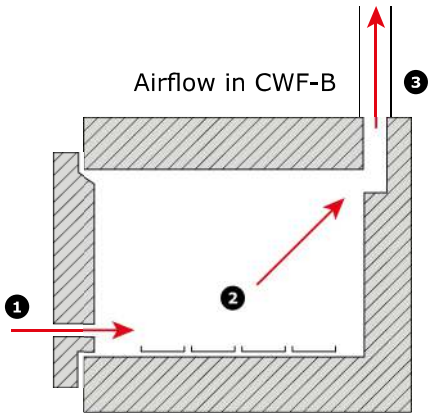
- Enhanced airflow from tall chimney & door vents for full combustion

CWF-BAL:

- 3216CC controller with single ramp to setpoint and process timer
- With integrated balance that runs independently of the furnace control system
- Software supplied with the balance may be used to monitor the balance reading via a computer
- Maximum capacity of balance is 3 kg with a resolution of 0.01 g (other capacities available)

CWF 11/13 with CC-T1 temperature programmer

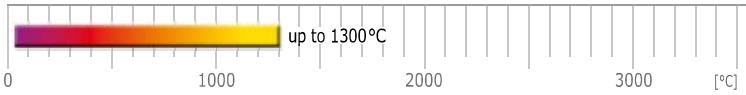
The CWF-BAL furnace with integral balance can be used for thermogravimetric analysis (TGA) and loss on ignition (LOI) applications, where weight change of the sample must be monitored during the heating process. This is required, for example, in the determination of inorganic matter content in materials such as cement, lime, calcinated bauxite and refractories. For applications involving organic matter content, please refer to page 55 for the AAF-BAL.



1) Air inlets through the door plug
2) Airflow through the chamber promotes burning of the samples
3) Chimney pulls air through the chamber

Options (specify these at time of order)

- A range of sophisticated digital controllers, multisegment programmers and data loggers with digital communication options is available (see page 100)
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- A range of Inconel retorts to work with modified atmospheres up to 1100 °C, please see page 32 for additional information
- AMS2750F Nadcap compatible models are available for aerospace applications
- CWF-BAL: 8 kg balance with a resolution of 0.1 g



CWF, CWF-B and CWF-BAL Standard Chamber Furnaces

CWF 12/36 with EPC3016P1 programmer option

CWF-BAL 11/21 with optional Nanodac data logger

Technical data

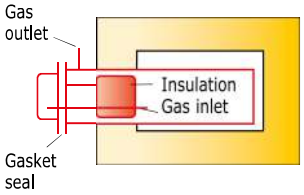
CGH Model	Max. temp. [°C]	Heat-up time [mins]	Max. continuous operating temperature [°C]	Dimensions: Usable chamber H x W x D [mm]	Dimensions: External H x W x D [mm]	Dimensions: External with door open H x W x D [mm]	Temperature uniformity of ±5°C within H x W x D [mm]	Volume [litres]	Max. power [W]	Weight [kg]
Standard Chamber Furnaces										
CWF 11/5	1100	47	1000	135 x 140 x 250	585 x 375 x 485	800 x 375 x 485	85 x 90 x 110	5	2400	30
CWF 11/13	1100	76	1000	200 x 200 x 325	655 x 435 x 610	905 x 435 x 610	120 x 120 x 185	13	3100	47
CWF 11/23	1100	36	1000	235 x 245 x 400	705 x 505 x 675	990 x 505 x 675	155 x 165 x 285	23	7000	68
CWF 12/5	1200	51	1100	135 x 140 x 250	585 x 375 x 485	800 x 375 x 485	85 x 90 x 125	5	2400	30
CWF 12/13	1200	88	1100	200 x 200 x 325	655 x 435 x 610	905 x 435 x 610	120 x 120 x 200	13	3100	47
CWF 12/23	1200	45	1100	235 x 245 x 400	705 x 505 x 675	990 x 505 x 675	155 x 165 x 325	23	7000	68
CWF 12/36	1200	37	1100	250 x 320 x 450	810 x 690 x 780	1105 x 690 x 780	170 x 240 x 357	36	9000	100
CWF 12/65	1200	40	1100	278 x 388 x 595	885 x 780 x 945	1245 x 780 x 945	178 x 288 x 455	65	14000	165
CWF 13/5	1300	75	1200	135 x 140 x 250	585 x 375 x 485	800 x 375 x 485	85 x 90 x 150	5	2400	30
CWF 13/13	1300	121	1200	200 x 200 x 325	655 x 435 x 610	905 x 435 x 610	120 x 120 x 225	13	3100	47
CWF 13/23	1300	55	1200	235 x 245 x 400	705 x 505 x 675	990 x 505 x 675	155 x 165 x 340	23	7000	68
CWF 13/36	1300	47	1200	250 x 320 x 450	810 x 690 x 780	1105 x 690 x 780	170 x 240 x 400	36	9000	100
CWF 13/65	1300	45	1200	278 x 388 x 595	885 x 780 x 945	1245 x 780 x 945	178 x 288 x 520	65	14000	165
Burn-off Chamber Furnaces										
CWF-B 11/13	1100	103	1000	200 x 200 x 325	655 x 435 x 610	905 x 435 x 610	n/a	13	3100	47
CWF-B 12/13	1200	130	1100	200 x 200 x 325	655 x 435 x 610	905 x 435 x 610	n/a	13	3100	47
Chamber Furnace with Integral Balance										
CWF-BAL 11/21	1100	60	1000	215 x 245 x 400	705 x 505 x 675 (400 x 170 x 500)*	990 X 505 X 675	n/a	21	7000	80

Please note:
- Heat up time is measured to 100°C below max, using an empty chamber
- Holding power is measured at continuous operating temperature
- Maximum power and heat up time based on a 240 V supply
- The uniform volume is smaller than the total chamber volume
* Dimensions of control box

Atmosphere Retorts for CWF Furnaces

A retort can be used for various heat treating processes requiring a controlled inert or reactive atmosphere, e.g. to prevent oxidisation or to enhance surface hardness. The A105 retort, which incorporates a silicone rubber seal, can achieve lower oxygen levels than the A107 retort which uses a sand seal. Manufactured in either NiCr alloy (Inconel) with a maximum operating temperature of 1100 °C or 314 grade stainless steel with a maximum operating temperature of 1050 °C.

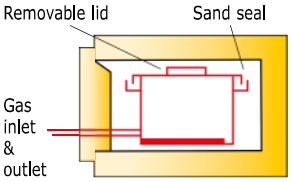
Type A105



The A105 NiCr alloy (Inconel) retort is sealed by a removable front opening insulated door fitted with a silicone rubber seal. Gas inlet and outlet connections are easily accessible at the front. Oxygen levels down to 30 ppm are achievable. A105 retorts for CWF furnaces are fitted with a 3 mm thermocouple gland through the centre of the door. The retort and furnace must be ordered together as the furnace is modified to allow it to be used with, and without, the retort.

The A105 retort can be used in combination with the laboratory gas safety system for safe use with hydrogen (see page 114)

Type A107



The A107 NiCr alloy (Inconel) retort with a shallow removable lid locates into a sand seal on top of a deep base. Can be used for annealing and pack carburising. Front mounted gas inlet/outlet connections extend through slots in the furnace door.

The retort and furnace must be ordered together as the furnace is modified to allow it to be used with, and without, the retort.

Technical data

A105 internal dimensions

CGH Model	Height h/H [mm]	Width W [mm]	Depth [mm]	Door type
CWF __/13	135/150	150	275	pull out
CWF __/23	170/185	195	350	pull out
CWF 12/36	180/200	270	400	pull out
CWF 12/65	200/225	335	540	pull out

A107 internal dimensions

CGH Model	Height h [mm]	Width W [mm]	Depth [mm]	Lid type
CWF __/13	130	140	255	lift off
CWF __/23	155	160	330	lift off
CWF 12/36	160	205	375	lift off
CWF 12/65	200	250	500	lift off