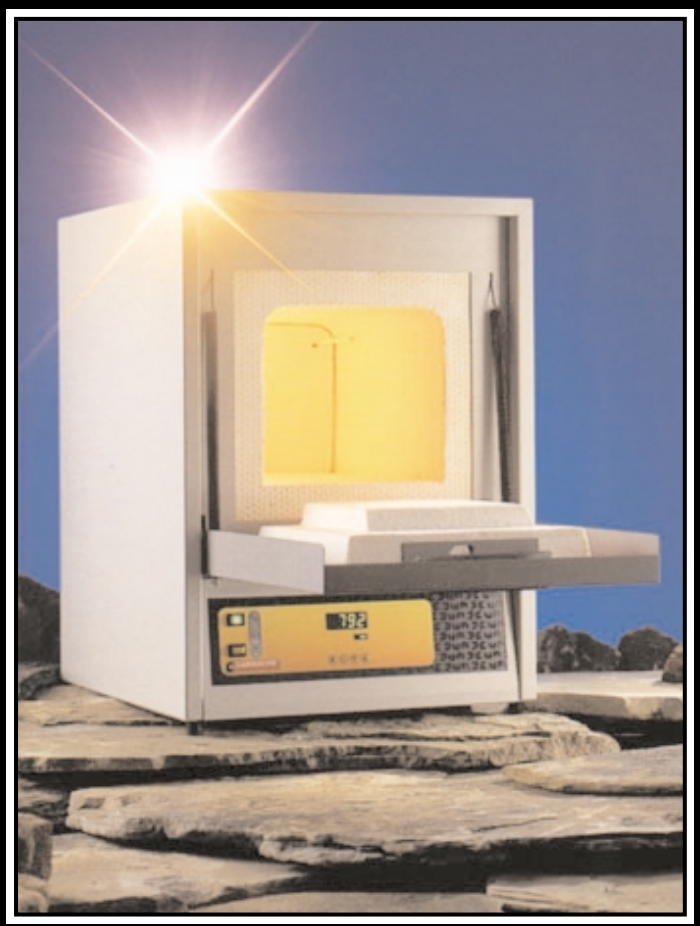
FB-20

ECONOMY LABORATORY *furnaces*



complete temperature CONTROL

- MAXIMUM TEMPERATURE OF 1100°C
- INTEGRAL DIGITAL CONTROLLER
- COMPACT DESIGN
- LOW OUTER CASE TEMPERATURE
- DOOR ISOLATION SWITCH
- FAST HEATING MODELS
- DROP DOWN DOOR PROVIDES SHELF FOR LOADING AND UNLOADING

CARBOLITE®

introduction

These furnaces - comprising the ELF, EML and EAF form our range of economy furnaces with a maximum operating temperature of 1100°C. Whilst the ELF and EAF are suitable for light duty general laboratory work, the EML is more robust. All models are offered with digital three term controllers.

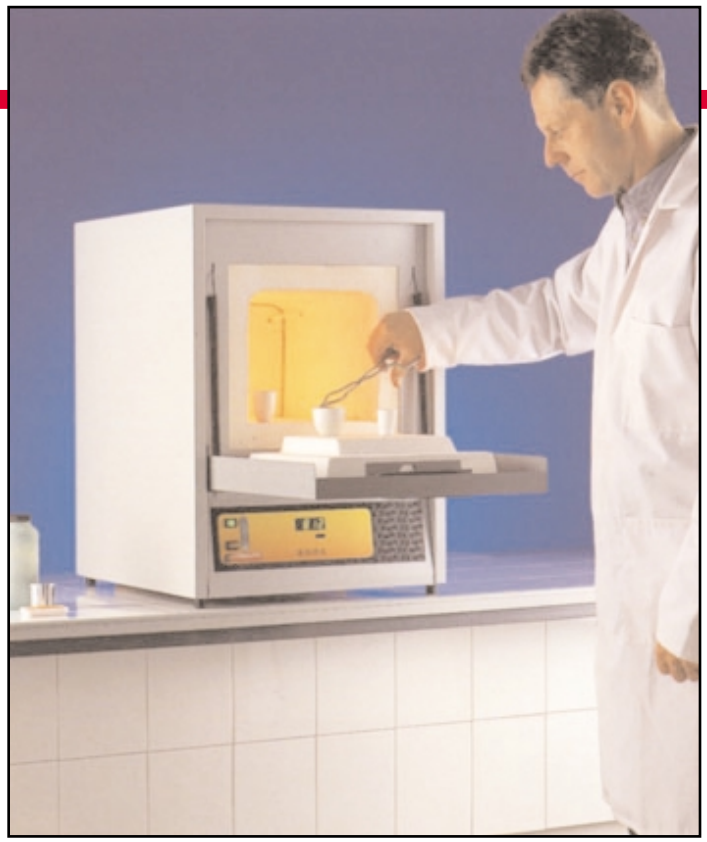
The drop down door can be used as a shelf when loading and unloading samples. The door plug also acts as a trap for radiated heat, thus improving the chamber uniformity, whilst the air gap behind the plug minimises the external door temperature.

Safety features on all models include a positive break safety switch which isolates both power lines to the heating elements when the door is opened. Low case temperatures are achieved by using double skin construction to promote natural air convection.

ELF models

The innovative design of the ELF range, with capacities of 6 and 14 litres, features a one piece moulded ceramic fibre chamber with integral heating elements. They offer exceptional performance with traditional quality and reliability. The heating elements are positioned in the sides and roof of the vacuum formed chamber - elements are not located in the hearth to prevent damage from accidental spillage. For additional protection, a hard ceramic hearth tile is available as an option.

These models offer fast heat up - 900°C is achieved in less than 15 minutes. Low thermal mass insulation materials ensure maximum thermal efficiency and allow rapid heating and cooling. Fumes are extracted from the chamber via a ceramic chimney.

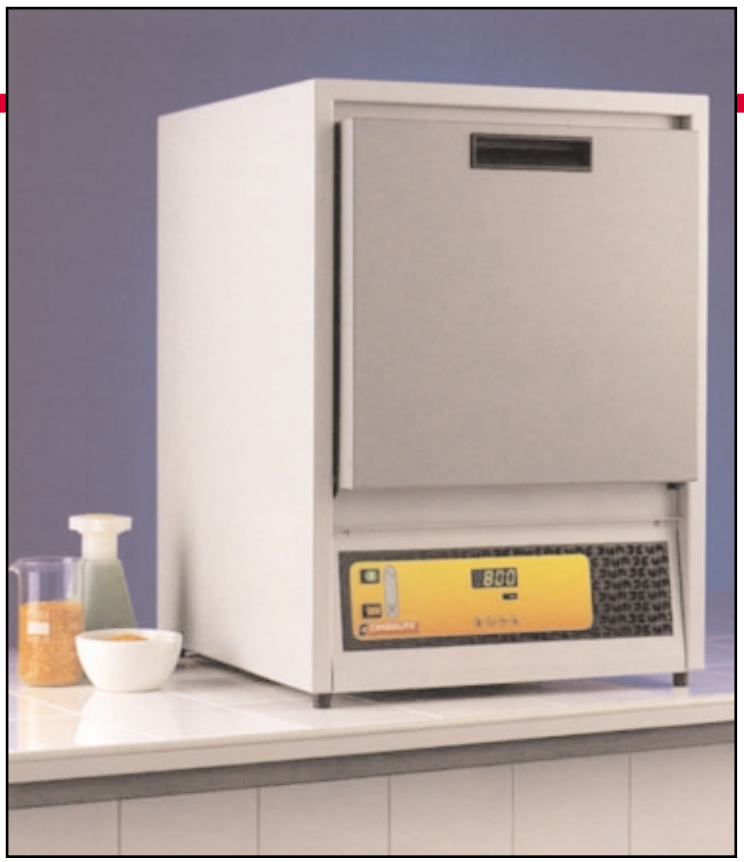


EAF models

The economy ashing furnace is of the same construction as the ELF and offers the same chamber dimensions and temperature range, with the addition of a tall chimney to improve the airflow through the chamber for faster burning or drying of samples. In conjunction with the tall chimney, additional ventilation is provided by air inlets located in the bottom of the door plug - air is drawn through the inlets and up through the chimney. The EAF is suitable for ashing only small samples and it is recommended that samples with no more than 50g of carbon content should be ashed. The addition of the chimney can extend the life of the heating elements by rapid removal of reactive products which could attack the heating element wire.

For larger volume ashing requirements, please ask for information on our range of dedicated ashing and burn off furnaces.

EML model



This model is housed in the same outer case style as the ELF and is available with a capacity of 2.5 litres and a maximum temperature of 1100°C. The robust muffle is formed from high thermal mass refractory and is wound with resistance wire which heats the chamber from four sides.

The traditional muffle element design combines good temperature uniformity with durability and offers greater protection to the heating elements.

Model	ELF 11/6	ELF 11/14	EML 11/2	EAF 11/6	EAF 11/14
Maximum Temperature °C	1100	1100	1100	1100	1100
Chamber dimensions (mm) (H) (W) (D)	165 180 200	210 220 300	90 150 185	165 180 200	210 220 300
External dimensions (mm) excluding chimney (H) (W) (D)	580 410 410	630 450 520	580 410 410	580 410 410	630 450 520
Heat up time (minutes) to 100°C below max	12	13	65	14	16
Maximum power (W)	2000	3000	1750	2000	3000
Holding power (W)	800	1300	600	1100	1700
Air changes per minute	N/A	N/A	N/A	4	2
Temperature sensor	Type K Thermocouple				
Weight (kg)	18	26	20	18	26

complete
temperature
CONTROL

temperature control systems

Most Carbolite products have a choice of controllers and programmers to meet a variety of applications. Whilst computer communications, chart recorders and other sophisticated options are offered on higher temperature products, we have selected the Carbolite 201 PID controller as the control system most suitable for the economy range of furnaces.

The 201 is a three term PID microprocessor controller with the facility of an adjustable single ramp rate to set point, either up or down. It is a high precision instrument exclusive to Carbolite and is jointly designed by Eurotherm and ourselves. This partnership allows us to offer a high performance controller with minimal overshoot at an economical cost.

A bright, clear display of the measured temperature is provided by large LED's which are located behind a wipe clean membrane panel. The setpoint is displayed and adjusted by pressing either the raise or lower button. Tactile buttons ensure positive operation. Access to other parameters is simple and easy to understand and is customised to present only those parameters which need to be viewed or adjusted.

Overtemperature Protection

An independent overtemperature protection system may be justifiable to protect heating elements or valuable contents. The Economy range of Chamber Furnaces incorporates the Carbolite 201 Controller and where overtemperature protection is required this is integrated into the display panel. It has an independent power supply and control circuit.

CE

CARBOLITE®

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Standard Electrical Supply

When ordering, always quote the model, controller and the preferred type of electrical supply from the list below. Please indicate the frequency (50 or 60 hertz) and number of phases. For 3-phase supplies, please state whether a neutral is available (if so please quote both the phase-to-phase and the phase-to-neutral voltages, eg 380/220V). Typical single phase voltages are 100, 110, 200, 208, 220, 240 and 254V. 3-phase voltages **without** neutral are typically 220, 380, 415 and 440V. 3-phase voltages **with** neutral are typically 220/127, 380/220, 415/240, and 440/254.

Note

As a result of continuous product development, we reserve the right to change specifications and illustrations.
In the unlikely event of one of our standard models not meeting your requirements, we have the capability to design and manufacture a unit specifically tailored to meet your needs.
Carbolite manufactures in compliance with the relevant safety standards to BS EN 61010-1: 1993 & 61010-2-010: 1995. All products carry the CE mark which indicates compliance with all relevant European safety directives; ie Low Voltage Directive and ElectroMagnetic Compatibility directive.

Other products within the Carbolite range include:

- Ashing & Burn-Off Furnaces.
- Wire heated chamber furnaces to 1300˚C including rapid heating versions to 1200˚C.
- High temperature chamber furnaces, including elevator versions, to 1800˚C.
- Horizontal and vertical tube furnaces to 1800˚C.
- Furnaces for precious metals evaluation.
- Specialist range of coal and coke test equipment for laboratory and pilot plant scale.
- Range of ovens to 300˚C and incubators to 80˚C.
- High temperature ovens to 600˚C.
- Clean room ovens and sterilisers.
- Custom built industrial furnaces and ovens.

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