



Laboratory Equipment Manufacturer
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Operation manual for

DFO – DFI

Series



Unpacking and Handling

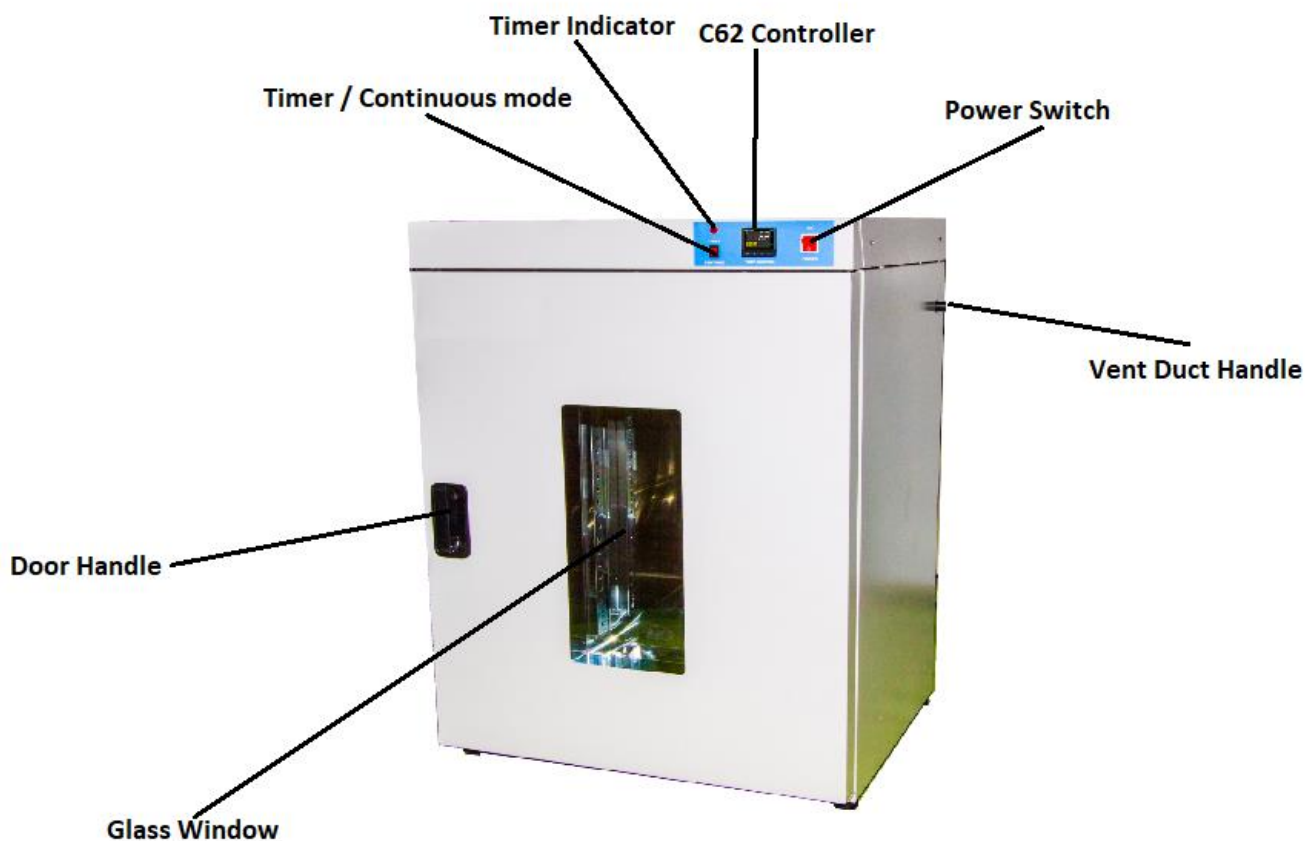
Remove the shelves and runners from the packaging before attempting to move the equipment
When unpacking and handling the product, always lift it by its base. Do not use the door or any other projecting cover or component to support the equipment when moving it. Use two or more people to carry the product where possible
Carefully remove any packing material from inside and around the product before use. Avoid damaging the surrounding insulation when removing packing materials
Locate the shelves and runners as required

Siting and Setting Up

Place the product on a level surface in a well ventilated area
Site away from other sources of heat and on a non-flammable surface that is resistant to accidental spillage or hot materials
The surface on which the equipment is mounted should be stable and not subject to movement or vibrations
The height of the mounting surface is important to avoid operator strain when loading and unloading samples
Unless otherwise stated elsewhere in this manual, ensure that there is at least 150 mm of free space around the back and sides of the product. Clear space is required above the product to dissipate heat

Ensure that the product is placed in such a way that it can be quickly switched off or disconnected from the . electrical supply
.Some models have protruding fan motor housings: these housings must be in an area of good ventilation

General Overview



Under no circumstances should any objects be placed on top of the product. Always ensure that any vents on the top of the product are clear of any obstruction. Always ensure all cooling vents and cooling fans (if fitted) are clear of any obstruction

Main Temperature Controller



Number	Key	Description / Function
③		For setting and calling up parameters.
④		To increase the value of digits.
⑤		To decrease the value of digits.
⑥	R	Revert /STOP/Restart Timer (For machine with timer use only)
⑦	PV	To display process value, menu symbol and error code.
⑧	SV	To display set point value, parameter value or control output value.
⑨	C	Process Unit Indicator- Celsius
⑩	ALM 123 Indicator	Over-Heat Temperature. Lights on when actual temperature over the set temperature 5°C, and turns off the heater.
⑪	OUT 1 2	Control output lamp 1. Light on when heater is activated
⑫	MANU	Lamp flashes during Manual Mode operates
⑬	COMM	Communication indicator
⑭	TUNE	Lamp flashes during auto-tuning operates
⑮		Lock indicator


Setting parameter


The PV display indicates the parameter symbol, and the SV display indicates the selected value of the selected parameter.

Setting the Temperature (Continuous mode)

Put the front switch on CONTINUES

Turn on the temperature controller/power switch. The temperature displays light up and after a few seconds, the upper display shows the present value (PV) temperature. The lower display shows the set value (SV) or set temperature.


Press  to increase temperature gradually.


Press  to decrease temperature gradually.


Setting the Temperature (timer mode)



Put the front switch on TIMER

Turn on the temperature controller/power switch. The temperature displays light up and after a few seconds, the upper display shows the present value (PV) temperature. The lower display shows the set value (SV) or set temperature.

Press  to increase temperature gradually.

Press  to decrease temperature gradually.


Press number ③ twice. PV display , SV display 1.0

Press   to increase or decrease time gradually. Setting time upon what you need.

The timer will start from the temperature reach setting.

For example:

1.5 = 90 seconds (1.5 minutes), 1.0 = 60 seconds (1.0 minutes) 0.5 = 30 seconds.

Press number ③ once. PV display , and SV display 1.0 → It mean the time will counting down 1 min after temperature reach to the setpoint.

Electrical Connections

Connection by a qualified electrician is recommended

All models covered by this manual may be ordered for single phase A.C. supply, which may be Live to Neutral non-reversible, Live to Neutral reversible or Live to Live

Check the product rating label before connection. The supply voltage should agree with the voltage on the label and the supply capacity should be sufficient for the current on the label

The supply should be fused at the next size equal to, or higher than the current on the label. This manual contains a table of the most common fuse ratings

When the mains cable is factory fitted, internal fuses are also fitted. It is essential that the operator ensures that the product is correctly fused

Products with a factory fitted supply cable are designed to be wired directly to an isolator or fitted with a line plug

Products without a factory fitted supply cable require a permanent connection to a fused and isolated supply. The product's electrical access panel should be temporarily removed, and connections made to the internal terminals

When connecting the product to the power supply, the plug or isolating switch should be accessible, easy to remove, and within reach of the operator

(The supply MUST incorporate an earth (ground

Electrical Connection Details

Supply	Terminal Label	Cable Colour	Supply Types	
			Live - Neutral	Reversible or Live-Live
1-phase	L1	Brown	to live	to either power conductor (For USA 200-240V, connect L1)
	N / L2	Blue	to neutral	to the other power conductor (For USA 200-240V, connect L2)
	PE	Green/ Yellow	to earth (ground)	to earth (ground)

It is highly recommended that any time working with the oven use high temp. gloves

Explosive Vapours

Unless your product includes the stoving and curing option, this model is not suitable for drying or heat treatment applications where vapours are released that are combustible or which can form explosive mixtures with air. Carbolite Gero manufactures other products suitable for these applications

Atmospheres

When an optional gas inlet is fitted, there is a label near the inlet saying "INERT GAS ONLY". In practice, inert or oxidising gases may be used, but not combustible or toxic gases

Door Switch (if fitted)

If ordered, the door switch will isolate the heating elements and circulation fan. The door switch is operated when the door is opened causing the heating elements and air circulation fan to be switched off

Maintenance

QUALIFIED PERSONNEL

DANGER! ELECTRIC SHOCK. Risk of fatal injury. Only electrically qualified personnel should attempt these maintenance procedures