Monmouth Scientific

Operating & Maintenance Manual

Circulaire®
Chemical Dispensing Station

FDS650

THE MARKET LEADER IN *CLEAN AIR SOLUTIONS*

www.monmouthscientific.co.uk

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Warning

This cabinet must be used in compliance with these instructions and any repairs or maintenance carried out by qualified personnel.

For parts or service information please contact Monmouth Scientific.

SECTION 1

DESCRIPTION OF THE CABINET

The Circulaire 650 Formalin dispensing cabinet is designed to provide operator and environmental protection. The cabinet provides an inflow of air >0.5m/sec through the working aperture to provide operator protection. The contaminated air is then passed through electrostatically charged pre-filters to remove particulate and then through Activated Carbon main filters to remove chemical contaminates before exhausting the air back to the laboratory.

S P E C I F I C A T I O N S	
Model	**C650FDS**
Dimensions	
External	650mm wide 600mm deep 2020mm high
Internal	630mm wide 550mm deep 740mm high
Aperture	525mm wide (mid) 300mm high
Weight	
Packed	107 kg
Airflow	
Aperture Face velocity (Nominal)	0.55m/sec
Air volume	318m³ / hr
Electrical	
Voltage Input	230V, 50-60 Hz
Power (Max)	250 Watt
Lighting	> 800 Lux (600mm LED X1)
Fan	Centrifugal digital
Controls	Power on/off / Alarm mute
Monitoring systems	
Airflow	Visual and audible low airflow alarm
Filter condition (option)	Visual and audible Filter condition alarm – (Suitable for Organic compounds)
Sound level (SPL)	
Front @ 1m	< 60 dB (A)
Filters **(See Section 3 for more details)**	
Pre-filter	Electrostatic - G4 grade
Main filter	14kg Carbon
Exhaust Filter (Optional)	5kg Carbon or HEPA (H13)
Construction	
Filtration Head	Epoxy painted Zinc coated steel
Enclosure	Clear acrylic Epoxy painted, Zinc coated steel frame
Spillage tray/Worksurface	Stainless Steel

The cabinet is mounted on its own purpose built stand with integral stainless steel spillage tray/worksurface and formalin dispensing system.

The cabinet is fitted with an Activated Carbon filter FORM grade for absorption of formalin fumes. Optional

SECTION 2

ASSEMBLY

The Cabinet may be delivered fully assembled or in sections. If assembly is required observe the following instructions:

- Lift the enclosure onto the lower cabinet and secure with the 4 screws provided
- Slide the stainless steel work-surface into the enclosure. – It may be necessary to remove the 3 lower side glazing securing screws on one side of the enclosure to aid assembly. The screws should be replaced when the work-surface is in position
- Connect the power inlet to the rear of the lower cabinet
- Fit the main carbon filter – see section 4
- The cabinet is ready for use

INSTALLATION

- The cabinet should be sited in a draught free position
- The cabinet is re-circulating and requires no connection to ductwork
- The cabinet is supplied with the main filter fitted.
- Check the pre-filter is in place loosening the black locking knobs and rotating the small catches located inside the fume enclosure, which will allow the pre-filter retaining grille to be lowered.
- Connect the cabinet to a 13A outlet socket.

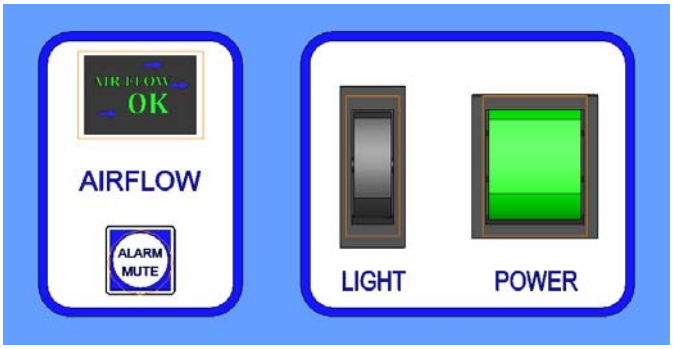
TESTING / COMMISSIONING

An airflow test certificate will be supplied for conformity to CE marking, and electrical test.

THE CABINET MUST BE TESTED EVERY 14 MONTHS TO COMPLY WITH C.O.S.H.H REGULATIONS.

OPERATION

The cabinet is started using the illuminated rocker switch on the control panel. The inflow air velocity at the working aperture is continuously monitored by an airflow monitoring system. If the airflow drops below a safe level, there will be an audible alarm and the LCD screen on the control panel will flash red.



CONTROL AND AIRFLOW MONITORING PANELS

FORMALIN DISPENSING

Prepare for use by placing your container of Formalin to be dispensed inside the lower cabinet and the pump inlet hose into the neck of the container.

Press the red button on the fascia panel of the lower cabinet to dispense Formalin from the swan-neck outlet inside the enclosure.

Alternatively, if an optional foot-switch has been fitted, this may be used instead of the red push-switch

NOTE

A site safety officer should approve Operating procedures prior to starting work.

SECTION 3

FILTERS

Filters concentrate dust, pollutants etc
Care must be taken when changing filters.

IMPORTANT: Personal Protective Equipment must be worn when changing filters including gloves and particulate facemask.

PRE-FILTER – CHANGING

This may be carried out with the cabinet running to provide additional protection to the operator.

- Loosen the black locking knobs and rotate the catches inside the fume enclosure, which will allow the pre-filter retaining grille to be lowered giving access to the pre-filter.

MAIN CARBON FILTER – CHANGING

Check filters to be fitted are the correct grade for intended use.
Contact Monmouth Scientific for information if required.

- The cabinet should be turned off whilst changing the main carbon filter and the mains cable un-plugged.
- Remove the pre-filter (see pre-filter changing procedure above).
- On the back of the fume enclosure, rotate the airflow sensor housing anti-clockwise slightly to release it and remove it from the enclosure.
- From inside the fume enclosure, remove the four M5 nuts securing the fan / filter module.
- Lift the fan / filter module off the fume enclosure to expose the carbon filter.
- Remove the filter and seal in a marked bag for disposal.
- Fit the new filter checking the seals for integrity.
- Re-assemble the cabinet.

MAXIMISING FILTER LIFE

- Handle minimum volumes of chemicals
- Minimise surface area of exposed chemicals to reduce evaporation rates
- Cover containers as far as practical
- Do not boil off large volumes of chemicals
- Minimise use of heat
- Acids should be at room temperature and covered as far as practical

FILTER FOR C650 FORMALIN DISPENSING SYSTEM

A FORM grade filter must be fitted to this model for absorption of formalin fumes.

CARBON FILTER EFFICIENCIES

Typical filter efficiencies are >99% and this efficiency is maintained for most of the filter life.

Filters should be changed when efficiency has reduced to below 90%.

ABSORPTION CAPACITIES

Monmouth Circulaire cabinets are fitted with very large capacity filters, with a typical value of >30% for hydrocarbons.
The cabinet main filter has the following nominal absorption capacities:

Model	Carbon Weight	Hydrocarbon capacity at 30% absorption
Circulaire C650FDS	1 X 14Kg	4.2kg

Impregnated filters have different densities and filter capacities. Contact Monmouth Scientific for absorption capacities for different applications.

Contact Monmouth Scientific for absorption capacities for different applications.

SECTION 4

MAINTENANCE

The cabinet should be isolated from the electricity supply before carrying out any maintenance procedures.

FUSES

The two Type T main fuses are located in the mains inlet socket on the back of the cabinet. To access these, remove the mains lead and pull the tap using a small screwdriver.

Always replace fuses with the correct type and rating.

LIGHTING

The cabinet is fitted with long-life LED lighting tubes
If tubes need replacing, access is gained by removing the fan / filter module.
To remove module, follow instructions for main carbon filter replacement in Section 3.

CALIBRATION OF THE LOW AIRFLOW ALARM

This requires the use of a calibrated Ø100mm rotating vane anemometer and should be carried out by a trained service engineer.

1) Place the head of the anemometer in the centre of the aperture supported by a laboratory stand.
2) Remove the black plastic hole-plug located on top centre front of the fan / filter module to gain access to the speed controller. Reduce the fan speed to achieve a face velocity of 0.35m/sec by rotating the potentiometer.
3) Turn off the cabinet and restart whilst pressing the 

key.
4) Yellow colour “SET LOW AIR SPEED AND PRESS MUTE” message will display showing the alarm is in calibration mode. When the airflow has stabilised to around 0.35m/sec. Press the 

key to store the set point.
5) Reset the fan speed to achieve a face velocity of 0.55m/sec.

6) Check operation of the low airflow alarm by raising the lower glazing panel. The alarm should sound when the panel is raised and stop when the panel is lowered.

SECTION 5

SERVICING

An annual service is recommended and testing is mandatory under C.O.S.H.H regulations and will include the following points:

- Check / replace pre-filter
- Check and record face velocity readings
- Check airflow monitor and re-calibrate if necessary
- Check condition of glazing, hinges etc.
- Inspect electrical components, lighting, cables etc.
- Issue test report and airflow certificate.

For parts or service information please contact
Monmouth Scientific on +44 (0) 1278 458090

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5 year warranty* *Terms & Conditions Apply

British Design & Manufacture

nqa ISO 9001 QUALITY MANAGEMENT

UKAS MANAGEMENT SYSTEMS 015