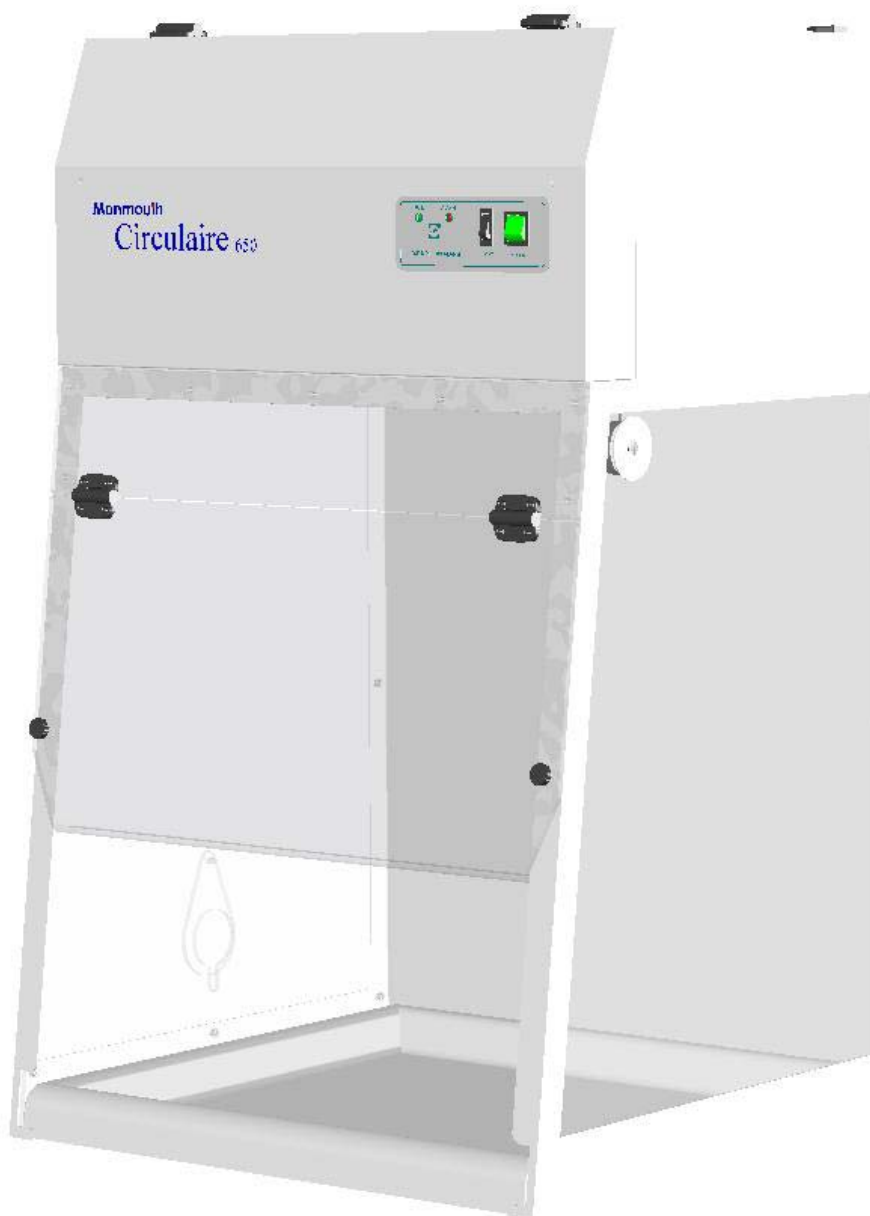


Monmouth

Circulaire

C650 FILTRATION FUME CABINET

OPERATING AND MAINTENANCE MANUAL



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Warning

This system 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 on:
+44 (0) 1278 458090

SECTION 1

DESCRIPTION OF THE CABINET

The Circulaire range of filtration fume cabinets are 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 contaminants before exhausting the air back to the laboratory.

When installed correctly the cabinet complies fully with international standards including BS7989:2001 for filtration fume cupboards.

	<i>Circulaire 650</i>
External Dimensions	650mm Wide 600mm Deep 1100mm High
Internal Dimensions	630mm Wide 550mm Deep 630mm High

The cabinet is bench mounted. An optional spillage tray can be supplied – (Part Number K-C650SPT).

The cabinet may be fitted with Activated Carbon filters suitable for use with a wide range of pollutants including hydrocarbons. Activated carbon can be impregnated with chemicals to neutralise other types of chemicals. See the section on Filter Selection for further information.

For use with particulates, a 99.997% eff. @0.3 micron HEPA filter should be fitted.

SECTION 2

INSTALLATION

- The cabinet should be sited in a draught free position
- The cabinet is recirculating and requires no connection to ductwork
- The cabinet is supplied with the main filter fitted.
- Check the pre-filter is in place by rotating the small plastic catch located inside the enclosure, which will allow the pre-filter retaining frame to be lowered.
- Connect the cabinet to a 13A outlet socket.

TESTING / COMMISSIONING

A 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.

This testing can be provided by Monmouth Scientific. Please call our service team on 01278 458090.

OPERATION

The cabinet is started by the illuminated rocker switch on the control panel.

SECTION 3

FILTERS

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

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

PRE-FILTER - CHANGING

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

- Rotate the small plastic catch inside the enclosure which will allow the pre-filter retaining frame to be lowered and the filter replaced.

MAIN CARBON FILTERS - 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 Filters and the mains cable un-plugged.
- Open the front control panel by removing the two securing screws and disconnect the airflow sensor.
- Close and secure the front cover.
- Remove the pre-filter (See Pre- Filter changing procedure above)
- From inside the lower enclosure remove the four screws securing the fan module.
- Lift the fan module off the lower enclosure to expose the carbon / HEPA filter.
- Remove the filter and seal in a marked bag for disposal.
- Fit the new filter checking the seals for integrity and re-assemble the cabinet.

MAIN HEPA FILTERS - CHANGING

- Carry out safety hazard assessment for safe changing
- Follow the procedure for changing Carbon Filters taking extra care with operator protection. (a dropped filter can release particulate).
- Dispose of filter as hazardous waste.

FILTER SELECTION

It is most important that filters fitted are correct for the particular application. A guide to filter selection is as follows:

Gaseous fumes – Activated Carbon filters. Different grades are available to improve efficiency and extend filter life.

Particulates – HEPA filters. Circulaire HEPA filters are 99.997% efficient for particulates greater than 0.3 microns.

Activated Carbon Filters

Standard activated carbon is suitable for a wide range of pollutants including hydrocarbons. Activated carbon can be impregnated with chemicals to neutralise other types of chemicals and there is a list on the following page to indicate the types available.

The given weight is approximate to standard activated carbon. Impregnated carbons have higher densities and will increase filter weight.

Filter Type	Application	Typical Chemicals
HEPA	Particulates	Asbestos / powders
ACTIVATED CARBON – A/C	Hydrocarbons	Alcohols, Hydrocarbons, General use
ACID	Acid gasses	SO ₂ , HCL, H ₂ SO ₄
FORM	Aldehydes	Formalin Glutaraldehyde
SUL	Sulphur compounds	H ₂ S, mercaptans
AMM	Ammonia	NH ₃ , NH ₄
ETHER	Ethers	
SCHOOLS	Educational, Animal odours	SO ₂ , H ₂ SO ₄ , BR ₂ , H ₂ S, NH ₃ , CCL ₄ , hydrocarbons

- All grades of activated carbon have general use capability for hydrocarbons.
- Other grades are available for applications not listed above.
- Filters can be manufactured in layers suitable for more than one application.

To determine correct filter type please contact Monmouth Scientific with details of application, volumes, concentrations, temperatures etc.

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

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

Circulaire cabinets have very large filter capacities, with a typical value of >30% for hydrocarbons. The cabinet has the following nominal absorption capacities:

Model	Carbon Weight	Hydrocarbon capacity at 30% absorption
Circulaire C650	1 X 14Kg	4.2Kg

Impregnated filters have different densities and filter capacities. 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 main fuses are located in the mains inlet socket on the top of the cabinet. Remove the mains lead and withdraw the fuses using a small screwdriver. Fuses for the fan and light are located on the power supply PCB inside the electrical enclosure on the inside of the front cover. Remove the cover screws to access the fuse holders. **Always replace fuses with the correct type and rating.**

LIGHTING

Remove the securing screws and open the front panel to gain access to the fluorescent tube. The starter is located inside the fitting.

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) Open the front cover and reduce the fan speed to achieve a face velocity of 0.35m/s by rotating the potentiometer on the speed control PCB.
- 3) Turn off the cabinet and restart whilst pressing the  key.
- 4) The alarm warning lights will flash alternately while 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 0.55m/s.
- 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**

Monmouth Scientific

Unit D4, Bath Bridge Business Park, Bath Road,
Bridgwater, Somerset TA6 4SZ
Telephone: 01278 458090 Fax No. 01278 458091
Email: info@monmouthscientific.co.uk
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