

A WORLD LEADER IN FUME EXTRACTION TECHNOLOGY



**USER MANUAL** 



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# Overview



Filter Door Panel **Control Panel** Combined Filter -LCD Display **Company Branding Door Latches** Pre Filter Hinged Perspex enclosure panel Air Inlet Filter Release Handle

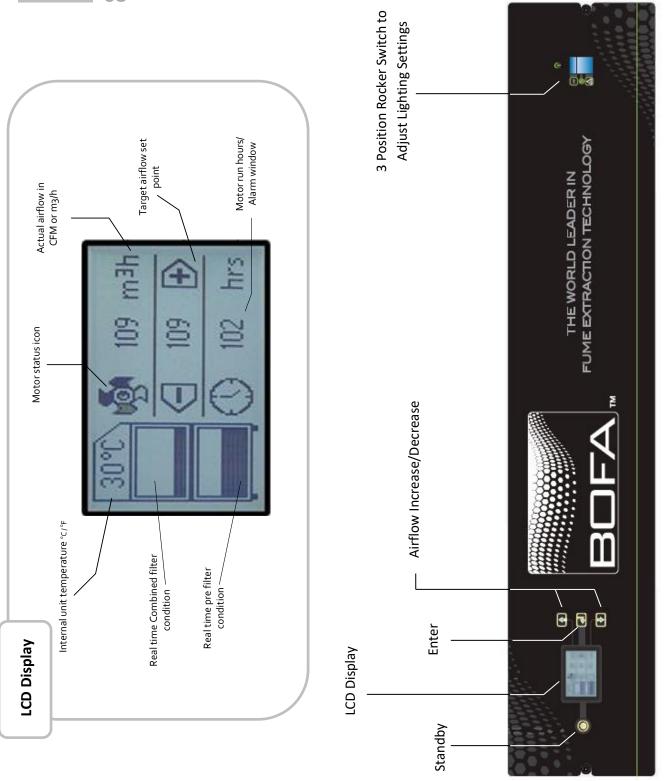
# Overview USB Port Mains Isolation Switch **Motor Cooling** Air outlet Mains Inlet

Inlet for \_\_\_\_\_
Tools/Equipment/Cables

# Overview

1 03





# **Safety Instructions**



## Important safety notes

Concerning symbols used on the extraction unit and referred to within this manual.



Danger

Refers to an immediately impending danger. If the danger is not avoided, it could result in death or severe (crippling) injury. Please consult the manual when this symbol is displayed.



Warning

Refers to a possibly dangerous situation. If not avoided it could result in death or severe injury. Please consult the manual when this symbol is displayed.



Caution

Refers to a possibly harmful situation. If not avoided, damage could be caused to the product or something in its environment.



Important (Refer to manual)

Refers to handling tip and other particularly useful information. This does not signify a dangerous or harmful situation. Refer to manual when this symbol is displayed.

## **Electrical Safety**

The FumeCab 1000 iQ system has been designed to meet the safety requirements of the Low Voltage Directive 2006/95/EC (previously numbered 73/23/EEC)

#### Warning

When working with the pump/motor housing open, Live 230/115 volt mains components are accessible. Ensure that the rules and regulations for work on live components are always observed.

#### Important

To reduce the risk of fire, electric shock or injury:

- Always isolate the system from the mains power supply before removing the pump/motor access panel.
- 2. Use only as described in this manual.
- 3. Connect the system to a properly grounded outlet.

#### Dangers to eyes, breathing and skin

Once used, the filters within the FumeCab 1000 IQ system may contain a mixture of particulates, some of which may be sub-micron size. When the used filters are moved it may agitate some of this particulate, which could get into the breathing zone and eyes of the operative. Additionally, depending on the materials being used, the particulate may be an irritant to the skin.

This unit should not be used on processes with sparks of flammable materials or with explosive dusts and gases, without implementation of additional precautions.

Caution: When changing used filters always wear a mask, safety shoes, goggles and gloves.

#### Carbon selection

Please note that the media within the gas filter fitted in the FumeCab 1000 iQ is capable of adsorbing a wide range of organic compounds. However, it is the responsibility of the user to ensure it is suitable for the particular application it is being used on.

#### **BOFA Technical Service**

If a problem arises with your FumeCab 1000 iQ system, or if it displays a fault code, please refer to the troubleshooting guide section 8 of this manual. If the problem is still not resolved, please:

- Visit our website at www.bofa.co.uk for on-line help.
- Or contact the helpline on +44 (o) 1202 699 444, Mon-Fri, 9am-5pm.

Email: Technical@bofa.co.uk

#### **Serial Number**

For future reference, fill in your iQ system details in the space provided. The serial number is on the rating label located on the side/rear of the unit.

#### Serial Number:



# **Safety Instructions**



02

#### Warning and Information labels

The following listing details labels used on your FumeCab 1000 iQ unit.

#### Goggles, Gloves & Mask Label









Location: Front face of both filters

Meaning: Goggles, Gloves and Masks should be worn while handling used filters.

#### Do Not Cover Label



Location: Rear motor cooling panels and left side of unit Meaning: Do not cover any louvers or holes adjacent to the label.

#### **Electrical Danger**



Location: Upper control panel.

Meaning: Removal of panels with this label attached will allow access to potentially live components.

#### Warning Label



Location: Door panel, Perspex door

Meaning: Power should be isolated before the panel with this label attached is opened/removed.

#### Serial Number Label



Location: Top left corner of back panel.

Meaning: This label contains a variety of information about the extraction unit, including.

- Company name, Address & Contact number
- Extractor model
- Unit serial number
- Operating voltage range
- Maximum current load
- Operating frequency
- Year of Manufacture
- Relevant approval markings/ logos

**PLEASE NOTE:** If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment maybe compromised.

## Fire Risk Warning

In the very rare event that a burning ember or spark is drawn into the fume extraction unit, it may be possible that the filters will ignite.

Whilst any resultant fire would typically be retained within the fume extraction unit, the damage to the extractor could be significant. It is therefore essential to minimise the possibility of this occurring by undertaking an appropriate Risk assessment to determine:-

- a). Whether additional fire protection equipment should be installed.
- b). Appropriate maintenance procedures to prevent the risk of build-up of debris which could potentially combust.

This unit should not be used on processes where sparks could occur, with explosive dusts and gases, or with particulates which can be pyrophoric (can spontaneously ignite), without implementation of additional precautions

It is essential that nozzles or other extraction/ fume capture devices and hoses/pipework are cleaned regularly to prevent the build-up of potentially ignitable debris

# Before installation



#### Packaging Removal & Unit Placement

Before installation, check the extraction unit for damage. All packaging must be removed before the unit is connected to the power supply.

Please read all instructions in this manual before using this extractor.

- 1. Move the unit to the location where it is going to be installed and remove the outer packaging. This unit should be installed in a well-ventilated area.
- 2. Open the front door.

Check the filters are located in their correct position before closing the door and securing the door latches.

Note: The door will not close fully if the Combined filter has not been secured in place using the internal lever.

(As detailed below)

Ensure that 500 mm space is available around any vented panels on the extractor to ensure adequate airflow.





Due to the weight of the extractor suitable lifting equipment should be used and with regard to appropriate safety precautions. (See Appendix for product weight details)

# Caution

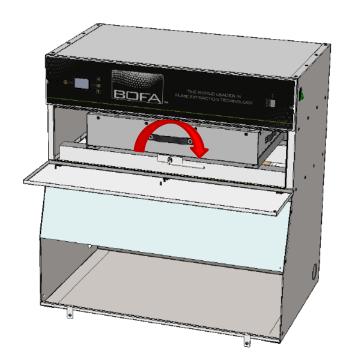


Under no circumstances should the exhaust outlet/s be covered as this will restrict the airflow and cause overheating.

#### Caution

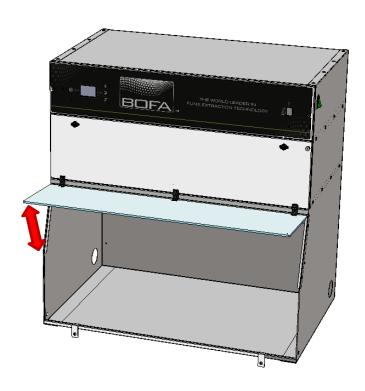


Do not block or cover the cooling vents on the unit, as this severely restricts airflow and may cause damage to the unit.



The FumeCab 1000 IQ features a hinged transparent Perspex panel on the front of the unit. This allows for more room to place larger work pieces inside the unit when working, while not restricting the user's vision.

The transparent panel can be secured in an open position by clipping it to the magnet located at the top right corner of the filter door panel.



# Installation



01

The FumeCab 1000 IQ has been designed to remove and filter fume containing potentially hazardous particulate and gases generated during manufacturing processes. Such hazardous substances are captured within a multistage filtration system after which the cleaned air is returned to the workplace.

The FumeCab 1000 IQ captures the fume acting as an enclosure or cabinet. The user is working on the work piece from inside the unit instead of externally through the use of ductwork.

#### Specification

Dimensions: Height 1028mm Depth 654mm Width 1000mm

Weight: 120Kg Voltage: 230V Frequency: 50/60Hz Full load current: 12.5A

Power: 1100w

Face Velocity: 0.4 M/Sec

#### **Connection to Power Supply**

Please follow the above specification when selecting the power supply outlet for the iQ system, ensure the power supply is suitable before connecting the iQ system.

Check the Integrity of the electrical power cable, if the supply cord is damaged the extraction unit should not be connected to the mains. The supply cord should only be replaced by a BOFA engineer as an electrical safety test may be required after replacement.



The iQ system **MUST** be connected to a properly earthed outlet.

Connect the power cable to an isolated electrical supply.

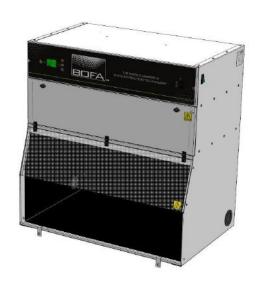
The mains socket should be installed near the extractor it should be easily accessible and able to be switched On/ Off. The cable run should be arranged so as not to create a trip hazard.

#### **Optional Stand**

A powder coated mild steel stand/trolley is available as an optional extra for the FumeCab 1000 IQ. The stand measures 1010 x 1090 x 740mm and allows easy transportation on four castors at an ideal working height.

#### FumeCAB 1000 iQ Conformal Coating

A conformal coating upgrade is available as an optional extra for the FumeCAB 1000 iQ unit. This involves the installation of dark coloured magnetic screens and a UV light inside the working area within the unit to make the conformal coating application process easier.



## ESD Compliant FumeCAB 700

An ESD compliant version of the FumeCAB 1000 iQ is also available. This unit features an internal anti-static mat with lead termination points. The unit is also painted in an ESD compliant paint finish.

# Operation



## Turning extraction unit On

There are 2 stages to powering up your iQ extraction unit. Firstly the main isolation switch must be switched to the "On" position, the top side of the switch should be depressed to power the unit.

This will place the extraction unit in Standby mode, indicated by the front panel power button glowing Red.



To start the extraction unit press the front panel power button (refer to section 1 for switch location) the button will change from Red to Green indicating the extraction unit is now fully On.

It is recommended that the rear isolation switch is left in the On position and the front standby switch is used to toggle the extractor On / Off.

# Standby



#### On



# Operation



## Setting the desired airflow

The iQ system features automatic flow control. This enables the user to set the required airflow rate, then over time as the filters begin to block the motor will automatically begin to increase in speed to compensate for any loss in performance caused by the added restriction of the partially blocked filters.



The extractor and all pipe work must be fully installed and connected before the airflow is set.

#### To set the airflow

The airflow can be set between 0.4 - 0.45 m/s (110v units) & 0.4 - 0.5 m/s (230v units).

- 1. Press and hold the "Enter" (middle) button (Refer to section 1 for button location) for 3 seconds, or until all 3 button lights flash green.
- 2. Release the Enter button, the iQ system is now in set mode. Press either the Up or Down button to adjust the airflow accordingly. Real time airflow is displayed on the LCD screen, Refer to section 1 for Display information)
- Once you have your desired airflow, leave the controls, after around 10seconds the flashing buttons will illuminate constantly to confirm the airflow is stored.

The set airflow will now be maintained throughout the life of the filters. When the extraction unit can no longer maintain the set airflow an alarm will be given, and the display will indicate which filter should be changed.







3)

# Operation

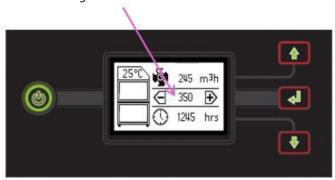


# Airflow Auto Adjust (first installation only)

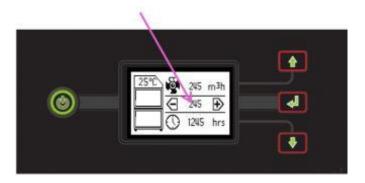
When first setting the airflow on your new extraction unit the iQ will detect if the desired airflow is achievable with the installation that has been connected to the extraction unit.

If the installation is causing too much restriction for the desired airflow to be reached, the Auto Adjust feature will be activated. The procedure events are listed below.

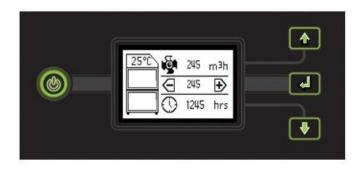
1) The 3 buttons will begin flashing Red along with the airflow setting on the LCD screen.



**2)** The airflow setting on the screen will drop to display the highest airflow that can be achieve.



3) The airflow will stabilise, and the buttons will turn green to show the airflow has set.



# Maintenance



#### Maintenance UK

It is a legal requirement, under regulation 9 of the COSHH regulations that all local exhaust ventilation systems are thoroughly examined and tested at least once every 14 months (typically carried out annually). The approved code of practice recommends that a visual check should be carried out at least once a week.

COSHH requires the annual inspection and testing to be carried out by a competent person and specifies that documentation results are recorded in a log.

Contact the seller for more information about inspection and certification.

#### Maintenance General

User maintenance is limited to cleaning the unit and filter replacement, only the manufacturers trained maintenance technicians are authorised to carry out component testing and replacement. Unauthorised work or the use of unauthorised replacement filters may result in a potentially dangerous situation and/or damage to the extractor unit and will invalidate the manufacturer's warranty.

#### Cleaning the unit

The powder coat finish units can be cleaned with a damp cloth and non-aggressive detergent, do not use an abrasive cleaning product as this will damage the finish.

The cooling inlets and outlets should be cleaned once a year to prevent build-up of dust and overheating of the unit.

## **Replacing Filters**

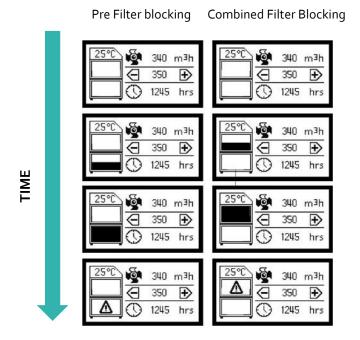
The iQ system constantly monitors the condition of the individual filters. As the filters block the LCD display will show the relevant filter symbol filling up. (see section 1 for LCD details) Each filter symbol fills up in 5% increments, when the filter icon is filled that particular filter will need replacing.

# Fire Risk Warning

In the very rare event that a burning ember or spark is drawn into the fume extraction unit, it may be possible that the filters will ignite. Whilst any resultant fire would typically be retained within the fume extraction unit, the damage to the

extractor would be significant. It is therefore essential to minimise this risk by undertaking an appropriate assessment to determine:-

- a). Whether additional fire protection equipment should be installed.
- b). Appropriate maintenance procedures to prevent the risk of build-up of debris which could potentially combust.



A log of the changes should be maintained by the user. The filters require attention when the display shows the filter blocked icon/ filter output signal (if fitted) or when the extractor no longer removes fume efficiently.

All filters are tested to BS3928. A certificate of conformity for each filter is available on request.

It is recommended that a spare set of filters are kept on site to avoid prolonged unit unavailability. Part numbers for replacement filters can be found on the filters fitted in your system.

To prevent overheating, units should not be run with a blocked filter condition, or with dust obstruction of Inlets / Outlets.

# 75% filter blocked indication

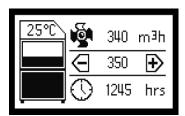
When the filters become 75% blocked the buttons on the front of the extraction unit will turn from Green to Amber and if fitted the iQ system will output a signal to indicate this. At this time it is recommended spare filters are available as a change may be needed shortly.

# Maintenance



#### Pre Filter Replacement

The Pre filter needs replacing when the display flashes between the 2 images shown below, at this point the buttons will glow Red and if fitted the filter blocked signal will be given.



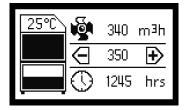


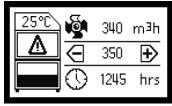
To remove and replace the Pre filter follow the procedure detailed below.

- 1. Isolate the electrical supply to the extractor
- 2. Lift the Perspex panel and clip it into place on the magnet located at the top right corner of the filter door panel. Unscrew the two knurled knobs inside the unit allowing the hinged pre filter to drop down. Remove the pre filter from the tray and replace it with a new, unused BOFA pre filter. Once removed it is recommended that the used filters are bagged and sealed.
- Lift the tray back into position and screw the two knurled knobs back in place. Close the Perspex panel

## **Combined Filter Replacement**

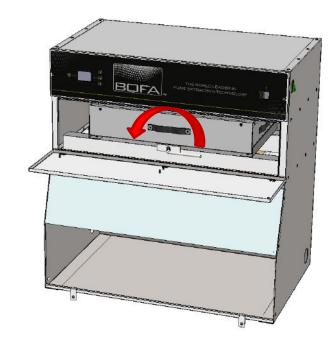
The Combined filter needs replacing when the display flashes between the 2 images shown below, at this point the buttons will glow Red and if fitted the filter blocked signal will be given.





To remove and replace the Combined filter follow the procedure detailed below.

- 1. Isolate the electrical supply to the extractor
- 2. Undo the catches on the front of the unit and open the filter door.
- The Combined filter is the higher of the 2 filters (refer to section 1 for filter location) rotate the lever below the filter through 180° to lower the combined filter.
- 4. Using the handle on the front of the filter, pull it out of the unit being careful to support it as it comes free as it is heavy.
- 5. Once removed it is recommend that the used filters are bagged and sealed.
- 6. Slide the new filter into position making sure it is pushed in all the way.
- 7. Rotate the lever back through 180° to raise the filter into position.
- 8. Close the door and fasten the 2 latches
- 9. Reconnect the power supply

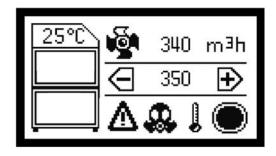


Both filters MUST be fitted when the extractor is in use, if the combined filter is not installed correctly the iQ system will not allow the motor to start.



#### iQ Display Features

The iQ display has the ability to display all the faults associated with your extraction unit. The image below shows an example of some of the fault icons that may appear in the alarm window of the LCD display.



#### Visual Alarms on the iQ system

The iQ system can visually display a wide range of alarms on its LCD panel. The visual displays, meanings and solutions are detailed below. All alarms will trigger the system alarm interface output signal and the inbuilt audible buzzer, if fitted/activated.

#### **Over Temperature Alarm**

If the iQ system detects an internal temperature greater than 60°C then it will automatically shut down the extractor to prevent damage to components within the extractor.



Once the internal temperature has dropped by 5°C the extraction unit will be able to restart.

To restart the extractor after an over temperature alarm the unit needs to be placed in Standby mode then powered on again.

#### Inlet Blocked Alarm

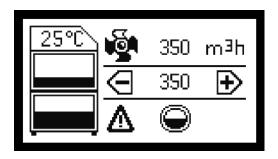
The iQ system features a 2 stage inlet blocked alarm.

- Partial inlet blockage
- Full inlet blockage

#### Partial hose blocked alarm

This alarm will become active when the iQ system detects a part blockage in the installation. The iQ system interprets a partial blockage as a vacuum spike within the inlet but is only a partial blockage as the extractor is still able to maintain its set airflow.

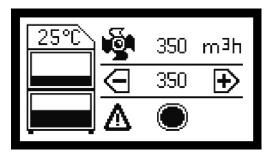
During this time it is normal to hear the motor increase in speed. The blockage will need to remain in the inlet for over 5 seconds before the alarm is given.



#### Full Inlet Blockage

This alarm will become active when the iQ system detects a full blockage in the installation. The iQ system interprets a full blockage as a vacuum spike within the inlet and is considered a full blocked as the extractor cannot maintain the set airflow with the blockage present.

During this time it is normal to hear the motor increase in speed. The blockage will need to remain in the inlet for over 5 seconds before the alarm is given.

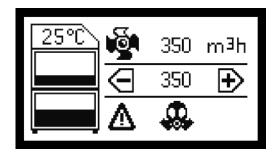


To remove the blockage, isolate the extraction unit from the mains, locate and remove the blockage then reconnect the mains supply.



# Gas Filter monitoring (VOC Sensing)

If the VOC (Volatile Organic Compound) sensing option has been fitted to your iQ system then this will be constantly monitoring the exhaust gas of the extraction unit. If the VOC level in the exhaust exceeds the PPM (Parts per million) level pre-set at BOFA then the Gas alarm will be triggered and display the Gas icon as shown below.



## Removing the Gas alarm warning

The VOC option is a perfect way to monitor how the carbon section of the combined filter is performing. Once the carbon within the filter is saturated the VOC sensor will alarm. At this point the extractor should be isolated from the mains and a new combined filter fitted. Once a new filter is installed the alarm will clear.

#### Run Safe Feature

To ensure personnel protection and avoid damage to the unit the iQ system will automatically shut down 5 seconds after no combined filter is detected. If no combined filter is fitted the motor will stop and the display will appear as below.



To resolve this, isolate the unit, fit the combined filter (see section 6.02) and turn the Fumecab 1000iQ on.



## **USB Connectivity**

The iQ system is equipped with a USB drive, that operates as a 2 way device, as detailed below.

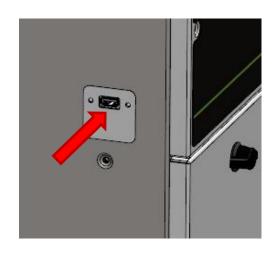
- Duplicating iQ settings
- Download iQ Data

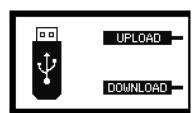
The USB port is located on the top left hand side of the unit.

## Duplicating iQ settings (USB Upload)

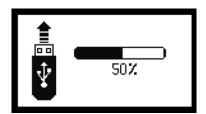
This USB upload feature has been designed for customers that have multiple extractors and specific set of parameters that they wish to duplicate across their iQ extraction units. The Procedure for duplicating extractor settings is detailed below.

- Obtain the memory stick file from the seller (if specification has been pre-arranged with the seller)
   Or download original settings from your master iQ unit) (Max capacity USB Stick 4GB)
- 2. Download this file to a blank memory stick
- Place the iQ system in standby mode (Front power button glowing Red)
- 4. Insert the memory stick into the USB slot
- 5. The LCD display will show "upload" press the button corresponding to this
- **6.** The display will show a progress complete bar and when finished a completion "Tick"
- 7. The USB stick can now be removed from the unit, the door closed and the extractor turned back On











If the USB upload procedure fails, the screen will display the symbol shown below.





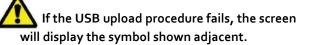
#### Download iQ Data (USB Download)

With this feature the customer is able to download all stored data within the iQ system, this information can then be used to keep records of how your iQ system is performing, this is also very beneficial for the technical team when diagnosing issues with the extraction system. The following list shows the information available within the event log.

## Downloading iQ Data

To download the information from the iQ system please follow the procedure below.

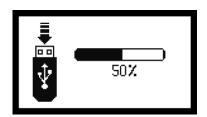
- Obtain a memory stick (Max capacity USB Stick 4GB)
- 2. Place the iQ system in standby mode (Front power button glowing Red)
- 3. Insert the memory stick into the USB slot
- 4. The LCD display will show "download" press the button corresponding to this
- The display will show a progress complete bar and when finished a completion "Tick"
- 6. The USB stick can now be removed from the unit, the door closed and the extractor turned back On

















The iQ system will take a snapshot of the system performance every 45minutes or if a system adjustment is made or an alarm is triggered.

Some of the information captured is listed below..

- Date
- Time
- Airflow
- Airflow Set point
- Pre filter % blocked
- Combined filter % blocked
- Inlet % (installation restriction)
- Motor output
- Internal Temperature
- Hours run
- Alarms
- Faults

#### Date & Time

The date and time will be set as part of the testing stage with the manufacturer and set to GMT.

#### Airflow

This column shows the real time airflow through the extractor.

# Airflow set point

Shows the target airflow that has been set by the user, this will record every time an adjustment is made.

#### Pre filter % blocked

The display on the extractor will show the pre filter blocking in 5% increments, but with this downloadable file the pre filter blockage is shown as an exact percentage of its full capacity.

## Combined filter % blockage

The display on the extractor will show the combined filter blocking in 5% increments, but with this downloadable file the combined filter blockage is shown as an exact percentage of its full capacity.

#### Inlet % (installation restriction)

Shows the percentage of the iQ system capacity that is taken up by the installation (pipe work) this value would also rise if the inlet or pipe work becomes blocked.

#### Motor output

Shows the percentage the motor is being run at to achieve the airflow set by the user. This value will increase as the filters begin to block.

#### Internal temperature

Shows the internal temperature of the extraction unit, the sensor is mounted to the main PCB when this sensor reaches 60°C it will shut down the extractor and a log will be recorded.

#### **Hours Run**

This is a simple hours run counter that will begin from the first time the extraction is switched on by the user. The hours run counter will only be activated when the motor is running.

#### **Alarms**

When the iQ system has an issue that requires the user to act upon this is classed as an alarm, when this occurs a code will appear in this column, the main alarm codes are listed below.

Code	Meaning
1	Door Open
4	VOC alarm
16	Over temperature
32	Inlet partially blocked
64	Inlet fully blocked
128	No combined filter fitted
512	Motor failure
2048	System 100% blocked
4096	Combined filter blocked
8192	Pre filter blocked
524288	System 75% blocked

#### **Faults**

This column will display a code if a fault with the iQ system is detected, for analysis of any faults in this column please contact the BOFA helpline.

# **Troubleshooting**



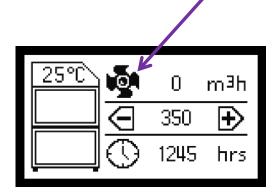
#### **Fault Indication**

The iQ system intelligently monitors the whole extraction unit. In the unlikely event of a problem with the extraction unit please read this section of the manual before contacting the helpline.

This section contains details on all faults the iQ system is able to display, these faults are detailed below.

#### **Motor Failure**

If the extraction unit develops a fault relating to the motor then the motor icon on the display will stop rotating and flash the airflow will read O m<sup>3</sup>/h.



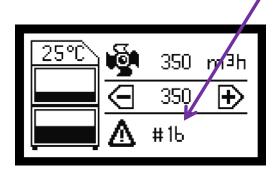
If the above symbol is displayed power should be isolated from the extractor and arrangements should be made to replace the motor.

## **Internal Power Supply**

The extractor is fitted with an internal transformer that outputs 12V DC providing the iQ system with power. If the buttons on the front panel are not illuminated or operational this would indicate a problem with the internal power supply (provided the main isolation switch is in the ON position and voltage is proven at this point)

#### Error Codes on the iQ display

The iQ system is able to self-diagnose problems relating directly to the monitoring system. Faults are displayed as a number in the error window within the display.



In the event of an error code being displayed please contact your local representative or BOFA who will be able to diagnose the fault and advise on the most efficient solution.

## **USB** diagnosis

For a "Real time" event log of any faults with your iQ system please see section 7.03 & 7.04 to download a full analysis of the extraction system.

# **Replacement Parts**



## **Consumable Spares**

The iQ extraction system contains a pre filter and a combined filter. These should be replaced when instructed to do so by the iQ system (see section 6 for replacing the filters)

To maintain performance it is important that the filters are replaced with identical BOFA filters. To re-order please refer to the Filter number printed on the filter installed in your extraction unit.

#### **Maintenance Protocol**

The iQ data logging function enables the retrieval of filter change intervals. Users may also wish to record changes on the table below.

Unit Serial Number:			
Pre filter		Combined filter	
Date	Engineer	Date	Engineer

#### Filter disposal

The Pre and Combined filters are manufactured from nontoxic materials. Filters are not re-usable, cleaning used filters is not recommended. The method of disposal of the used filters depends on the material deposited on them.

For your guidance

Deposit	EWC Listing*	Comment
Non Hazardous	15 02 03	Can be disposed of as non- hazardous waste.
Hazardous	15 02 02M	The type of hazard needs to be identified and the associated risks defined. The thresholds for these risks can then be compared with the amount of material in the filters to see if they fall into the hazardous category, if so, the filters will need to be disposed of in line with the local/national regulations.

<sup>\*</sup>European Waste Catalogue

# **System Specifications**

10 01

Unit: FumeCab 1000 iQ

Face Velocity: 0.4m/s Weight: 120Kg (264lbs) Motor: Centrifugal Fan

Output: 1100w

Electrical supply: 230V

Hertz: 50/60Hz

Full Load Current: 12.5A Noise Level: Below 6odB (A) (at typical operating speed)

## Size:

	Metric (mm)	Imperial (inches)
Height	1028	40.4
Depth	654	25.7
Width	1000	39.3

#### Filters:

Filter	Surface area	Efficiency
Type		
Pre filter	12.0M <sup>2</sup>	99% @
		o.3micron
Combined	3.om²	99.997%@
filter		o.3micron

# Combined Filter (Gas section)

Filter	Carbon type	Amount
Type		
Combined	Activated	17kgs
filter	carbon	
(Gas)		

Environmental operating range:

Temperature:  $+5^{\circ}$ C to  $+40^{\circ}$ C Humidity: Max 80% RH up to  $31^{\circ}$ C Max 50% RH at  $40^{\circ}$ C

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