



A Donaldson Company

A WORLD LEADER IN FUME
EXTRACTION TECHNOLOGY

AD Base 2 Oracle

USER MANUAL



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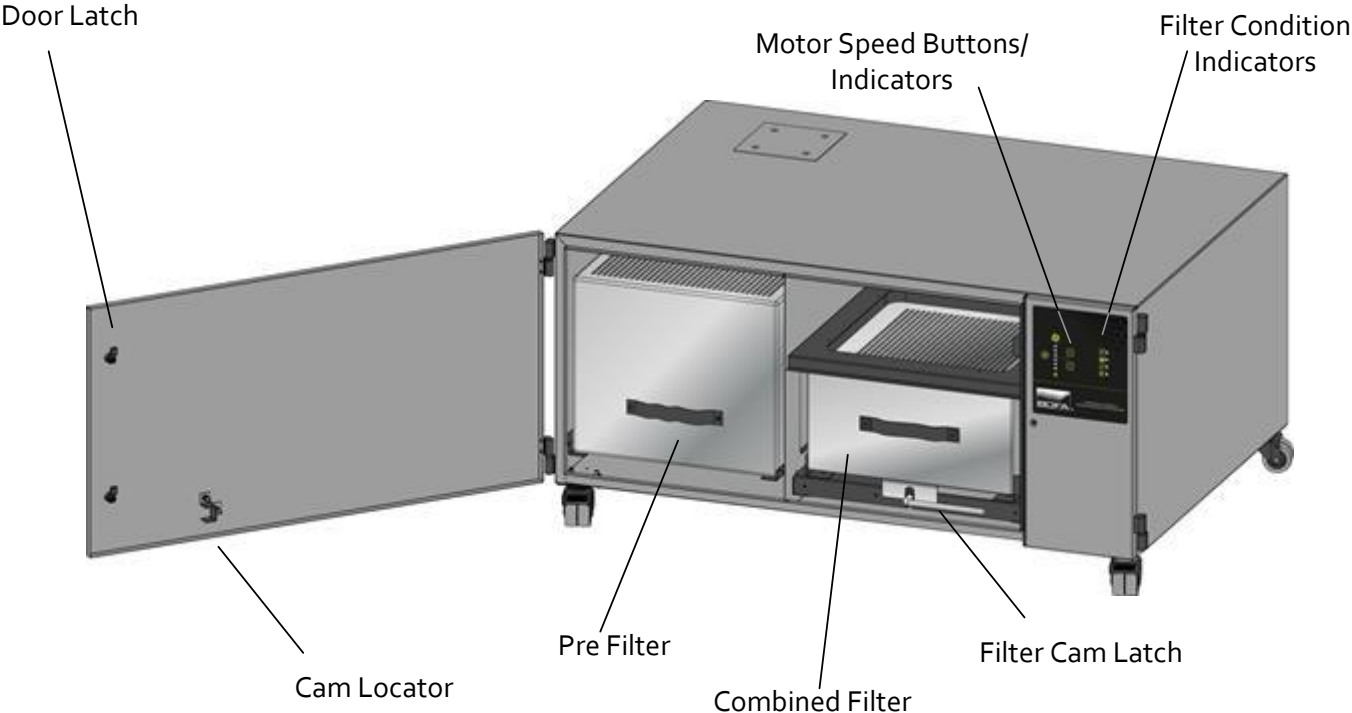
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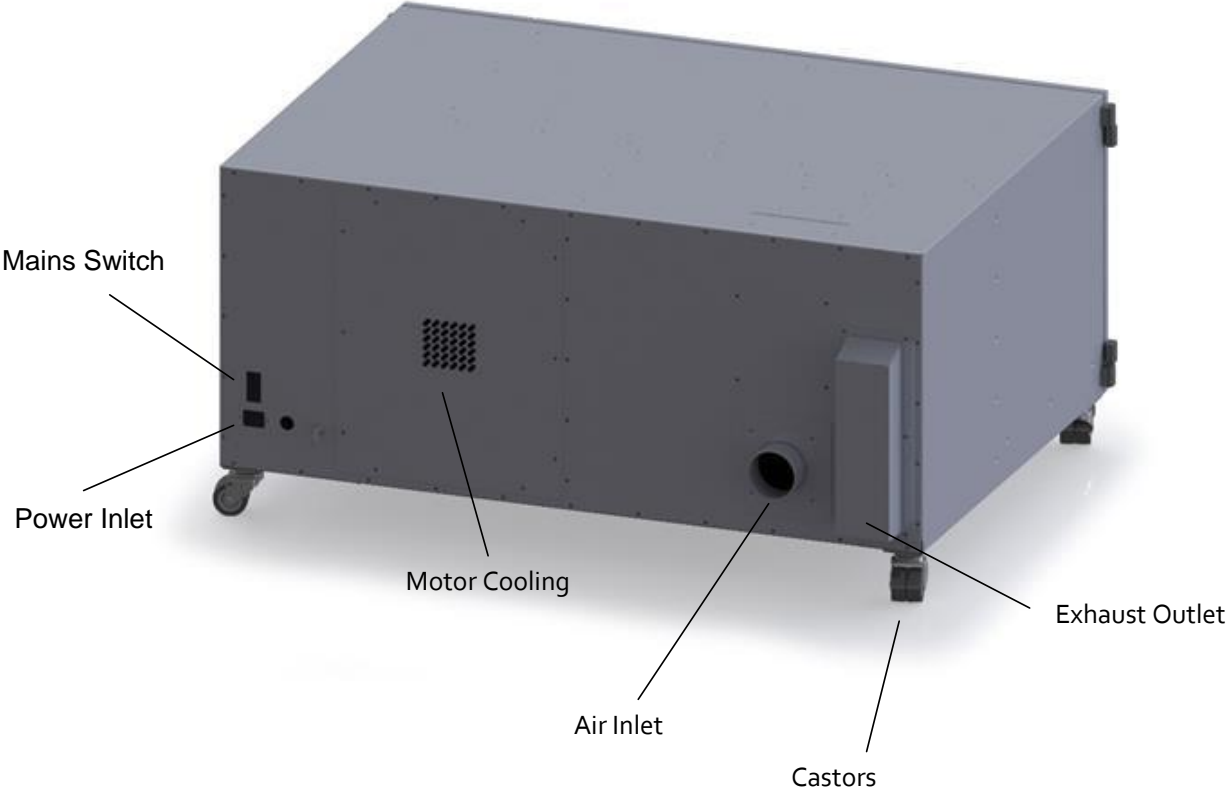
Overview

1 01



Overview

1 02



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 Base Oracle 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:

1. 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 Base Oracle 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 lasered, 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 Base Oracle 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 Base Oracle system, 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 (0) 1202 699 444**, Mon-Fri, 9am-5pm.
Email: Technical@bofa.co.uk

Serial Number

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

Serial Number:

□□/□□-B A S E □ 2--□□□□

Safety Instructions



Warning and Information labels

The following listing details labels used on your Base Oracle 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 of unit above Motor cooling inlet.

Meaning: Do not cover any louvers or holes adjacent to the label.

Electrical Danger



Location: Rear upper access Panels and bottom corner of right hand door.

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

Warning Label



Location: Top left front door panel.

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

Serial Number Label



Location: Rear left side of unit.

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

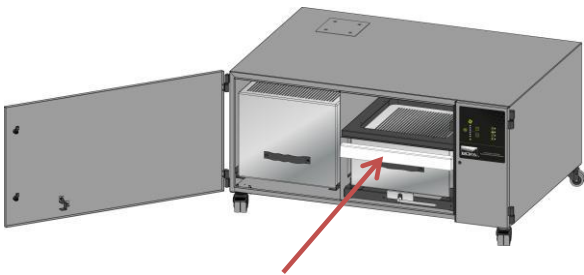
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Inner transit packaging removal & unit placement

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 and remove the transit foam from the centre of the unit.

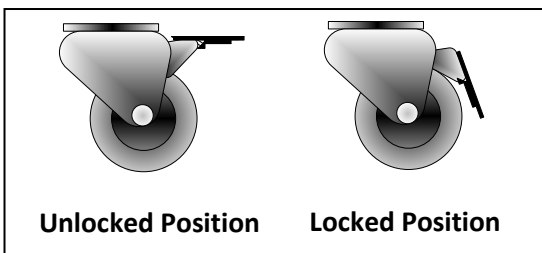


Caution

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)

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

3. With the unit in position lock the 2 front castors.



Caution

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

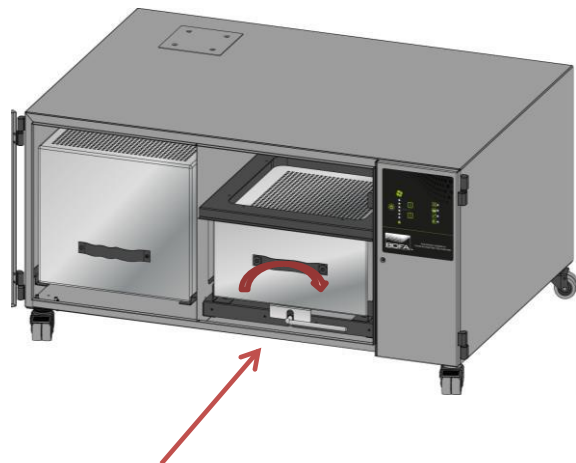
Caution

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

4. 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)



Installation

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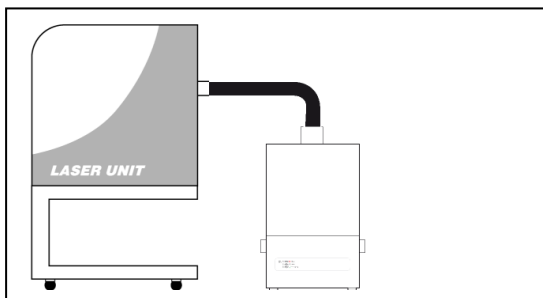
The Base Oracle has been designed to remove and filter fume containing potentially hazardous particulate and gases generated during manufacturing processes. Such hazardous substances are captured within a multistage filtration system after which the cleaned air is returned to the workplace.

General Guidelines for a successful installation

- Keep duct run length to a minimum
- Avoid sharp bends / turns in the ductwork
- Avoid multiple bends / turns in the ductwork
- Use a larger diameter duct where able

Cabinets

Cabinets normally have a 75mm or 100mm spigot for fume extraction. For best performance use the same diameter hose as the spigot and reduce at the extractor end if necessary. **Keep the hose run as short as possible.**



Connection to extraction unit

All ductwork should be installed and connected to the extraction unit before the Base system is turned on.

Exhausting filtered air outside

If requested your extraction unit will have been fitted with an exhaust outlet spigot. This provides a connection point for exhaust pipework to be fitted. It is important to keep any ducting to a minimum, in order to reduce back pressure within the system.

Installation

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Specification

Dimensions: Height 465mm Depth 810mm Width 1100mm

Weight: 97.6Kg

Voltage: 115-230V

Frequency: 50/60Hz

Full load current: 12.5A

Power: 1100w

Capacity: 380m³/h

Connection to Power Supply

Please follow the above specification when selecting the power supply outlet for the Base system, ensure the power supply is suitable before connecting the Base 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 Base system **MUST** be connected to a properly earthed outlet.



If your Base system was ordered with any optional extras please read section 4.03 before the power connection is made as additional connections may be required before power is connected to the extractor.

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.

Installation

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Optional added features

The Base Oracle can be configured to suit customer specification. These optional extras would be discussed, arranged and installed prior to delivery.

(If unsure what features your Base system is equipped with please contact the seller with the unit serial number, (Refer to section 2 for location) who will be able to advise what specification has been supplied.

Remote Stop/Start feature

Enables the extraction unit to be remotely turned On / Off via an external signal.

This feature can be configured in 3 ways

- DC Voltage input – Range 12-24VDC
- Volt free input – Open / Closed contacts
- Override – Stop / Start feature switched off

Note: Care must be taken to ensure that the system is correctly wired in order for the extraction unit to function correctly.

DC Voltage input

This configuration requires the Black & Red cores of the signal cable (Refer to section 1 for location) to be connected to a known and tested DC power supply, in order to start the extractor.

The operating voltage for this signal is between 12 & 24VDC. Only voltages within this range should be connected. Voltages connected outside of this range may cause irreversible damage to the internal control PCB.

Red cable = V+

Black cable = V-

When the extractor is provided with the correct DC voltage the motor will start and maintain the set flow rate (Refer to section 5 for how to set the flow) when the DC voltage is removed the motor will slow down and come to a stop.

The extractor will need to be turned on and be out of standby mode (See section 5 for turning the extractor on) in order for this feature to operate.

Volt free input

This configuration requires the Black & Red cores of the signal cable (see section 1 for location) to be connected together, in order to start the extractor.

When the 2 cables are connected together the motor will start and maintain the set flow rate (see section 5 for how to set the flow)

when the 2 cables are disconnected the motor will slow down and come to a stop.

The extractor will need to be turned on and be out of standby mode (See section 5 for turning the extractor on) in order for this feature to operate.

Override

Enables the extractor to operate fully with or without either DC voltage input or the Volt free input.

The override feature can be toggled On / Off by a switch mounted on the internal motor access panel (see below for switch location)

Switch in "On" position

In this position the extractor will require a start signal (either Voltage input or Volt free, depending on the requested specification) to enable the motor within the extraction unit.

Switch in "Off" position

In this position the extractor motor will run without the requirement for an external start signal. This feature is useful for engineers carrying out works/ tests on the extractor without the need for the laser / auxiliary signal being present.

Installation

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Filter Blocked / System Fail Signal

With this option the Base system will output a signal to alert the user when the extractor has failed or when the filters are blocked.

This feature will not directly stop the extractor from running correctly, but if fitted this feature should be terminated correctly before power is applied to the Base system.

Connection specification

This signal is available via the Green and White cores of the signal cable. The Base system will provide a volt free Open / Closed signal that can be connected to an external interface, beacon or warning device following the specification below.

- **Maximum input voltage: 24V AC**
- **Maximum current load: 3A @ AC**
OR
- **Maximum input voltage: 24V DC**
- **Maximum input load: 3A @ DC**

Filter Signal Configurations

There are 3 ways this signal can be configured, as detailed below.

- **Combined signal (standard specification)**
- **Separated signal**
- **Reversed separated signal**

Combined signal

With this configuration the Filter blocked & System fail signals will be linked together to give a combined single output.

When the filters become blocked or the Base system develops a fault (Refer to section 8 for Troubleshooting) the connection between the Green & White cables will become "Open"

When the extraction system is running normally the connection between the Green & White cables will become "Closed"

Separated Signal

With this configuration the Filter blocked & System fail signals will be separated to give 2 individual signals.

When the filters become blocked the connection between the Green & White cables will become "Open"

If the Base system develops a fault (Refer to section 8 for Troubleshooting & Error codes) the connection between the Blue & Yellow cables will become "Open"

When the extraction system is running normally the connection between the (Green / White) & (Blue / Yellow) cables will become "Closed"

Reversed Separated Signal

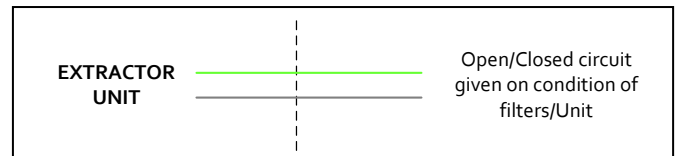
With this configuration the cable function will remain the same as the **Separated signal** option, but the signal given will be reversed.

For blocked filters the connection between the cable cores will be "Closed"

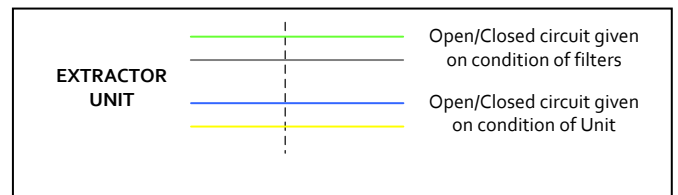
For Base system faults the connection between the cable cores will be "Closed"

For system OK the connection between the cable cores will be "Open"

Combined Signal



Separated Signal



Compressor option

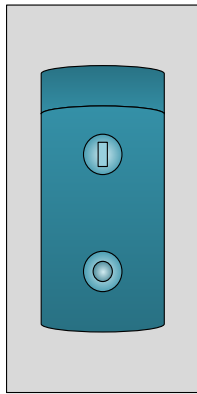
If a compressor has been fitted to the extraction unit, connect the compressor hose, to the extractor compressor outlet (Refer to section 1 for location) and connect the opposite end to the laser. Refer to laser installation instructions. A water trap should be fitted to the Laser end of the pipework.

Operation

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Turning extraction unit On

To power your Base extraction unit. Firstly the main isolation switch must be switched to the "On" position (Refer to section 1 for switch location) by depressing the (I) side of the switch.



Powder Coated Units

This should illuminate the Red front panel standby button. Once the standby button is pressed the button will turn Green and the extraction unit will start.

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.

Setting the desired airflow

The Base 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

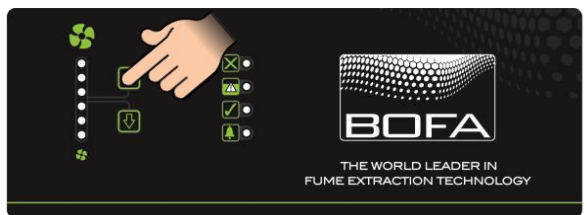
1. Press and hold the "Up & Down" buttons (Refer to section 1 for button location) for 3 seconds, or until the Green LED flashes on its own.
2. Release the buttons, the Base system is now in set mode. Press either the Up or Down button to adjust the airflow accordingly. The motor speed will be displayed via the 6 Blue LED's to the left of the panel.
3. Once you have your desired airflow, leave the controls, after around 10seconds the flashing LED 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 that the filters should be changed.

1)



2)



3)



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 finished 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 Base system will alert the operator when a filter change is needed by the LED's on the front panel of the extractor, when the Green, Amber and Red LED's are continuously illuminated or (if fitted) when the output signal is given the filters should be changed.

A log of the changes should be maintained by the user.

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. Alternatively, refer to the spare parts table in this manual.

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 Amber Led will illuminate and if fitted the Base 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

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Pre Filter Replacement

The Pre filter needs replacing when the Green, Amber and Red LED's are constantly illuminated or (if fitted) when the Base Oracle gives the filter blocked signal.

To remove and replace the Pre 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 door.
3. The Pre filter is on the left hand side (refer to section 1 for filter location) using the handle on the front of the filter, pull it out of the unit.
4. Once removed it is recommend that the used filters are bagged and sealed.
5. Slide the new filter into position making sure it is pushed all the way in and is located correctly on the spigot in the back of the unit.
6. Close the door and fasten the 2 latches.

Combined Filter Replacement

The Combined filter needs replacing when the Amber & Red LED's do not disappear after changing the pre filter.

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 door.
3. The Combined filter is on the right hand side 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.

Troubleshooting



Fault Indication

In the unlikely event of a problem with the extraction unit please contact your local representative.

Replacement Parts



Consumable Spares

The Base extraction system contains a pre filter and a combined filter. These should be replaced when instructed to do so by the extraction 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

Users may 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 non-toxic 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.

*European Waste Catalogue

System Specifications



Unit: Base 2 Oracle

Capacity: 380m³/h (224cfm)

Weight: 97.6Kg (215lbs)

Motor: Centrifugal Fan

Output: 1100w

Electrical supply: 115-230V

Hertz: 50/60Hz

Full Load Current: 12.5A

Noise Level: Below 60dB (A)

(at typical operating speed)

Size:

	Metric (mm)	Imperial (inches)
Height	465	18.3
Depth	810	31.9
Width	1100	43.3

Filters:

Filter Type	Surface area	Efficiency
Pre filter	12.0m ²	95% @ 0.9micron
Combined filter	3.0m ²	99.997% @ 0.3micron

Combined Filter (Gas section)

Filter Type	Carbon type	Amount
Combined filter (Gas)	Activated carbon	15kgs

Environmental operating range:

Temperature: +5°C to + 40°C

Humidity: Max 80% RH up to 31°C

Max 50% RH at 40°C

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