Donaldson
BOFA™

PrintPRO Oracle DS

Fume Extraction System

User Manual

Installation, Operation, and Service Information

This manual contains specific precautions related to worker safety. The hazard alert image denotes safety related instructions and warnings in this manual. DO NOT install, operate, or perform maintenance on this system until you have read and understood the instructions, precautions and warnings contained within this manual.

English
Original Insructions

UM-PRINTPRO ORACLE DS-BOFA-US
Revision 1.1

Donaldson BOFA Technical Service

If a problem arises with your system, please refer to the troubleshooting section of this manual. If the problem is still not resolved, please:

- Visit our website at donaldsonbofa.com for online help.
- Or contact the helpline:
    - ROW: +44 (0) 1202 699 444 (Mon-Fri 9am-5pm GMT)
    - US: +1 (618) 205 5007 (Mon-Fri 9am-5pm CST).
- Email:
    - ROW: bofatechnical@donaldson.com
    - US: bofatechnicalus@donaldson.com

Serial Number

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

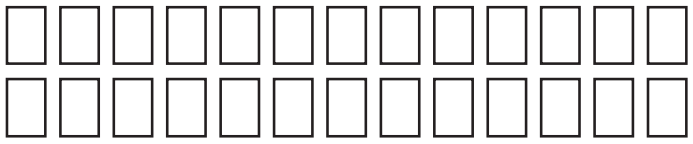
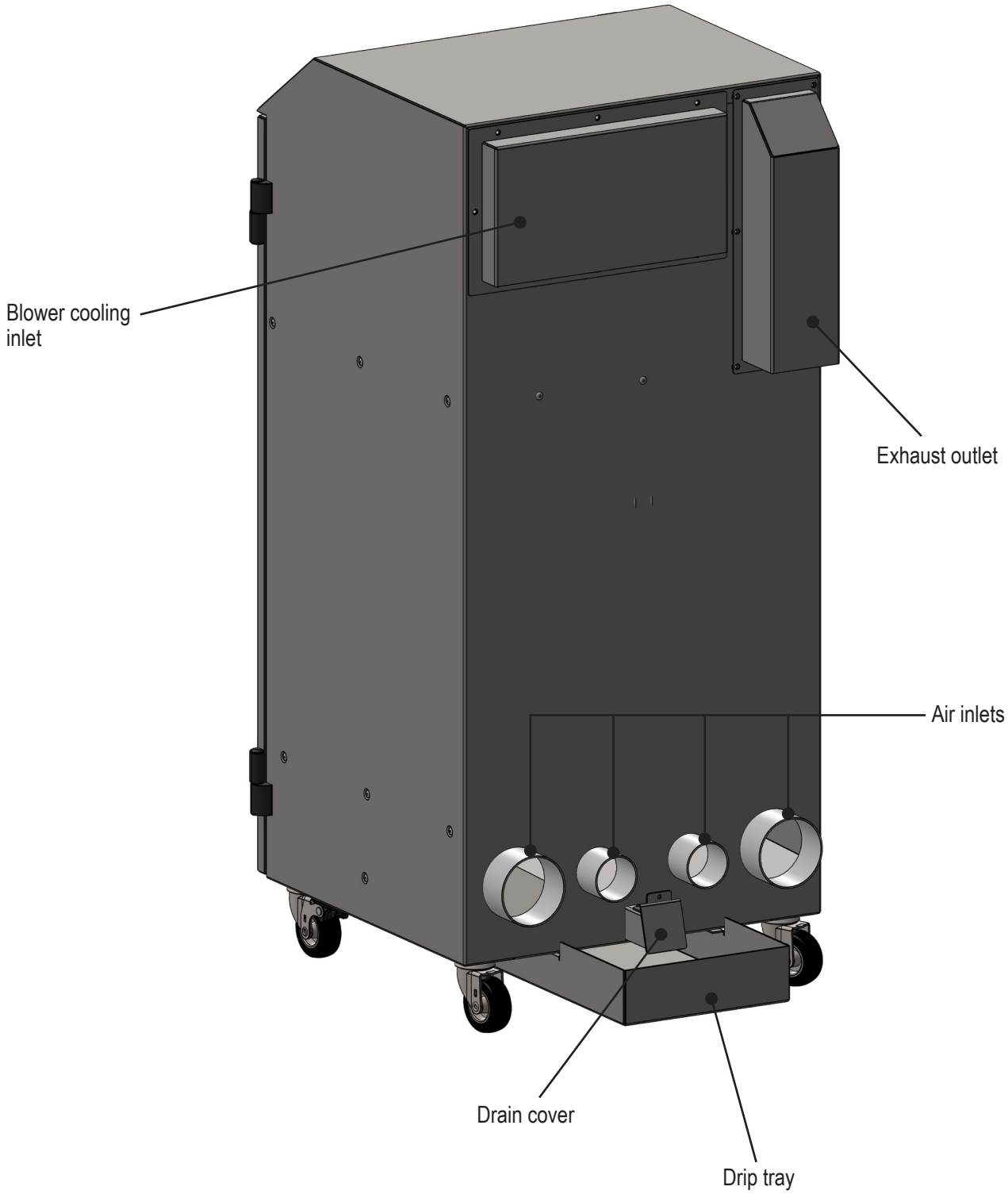


Table of Contents

1 Overview

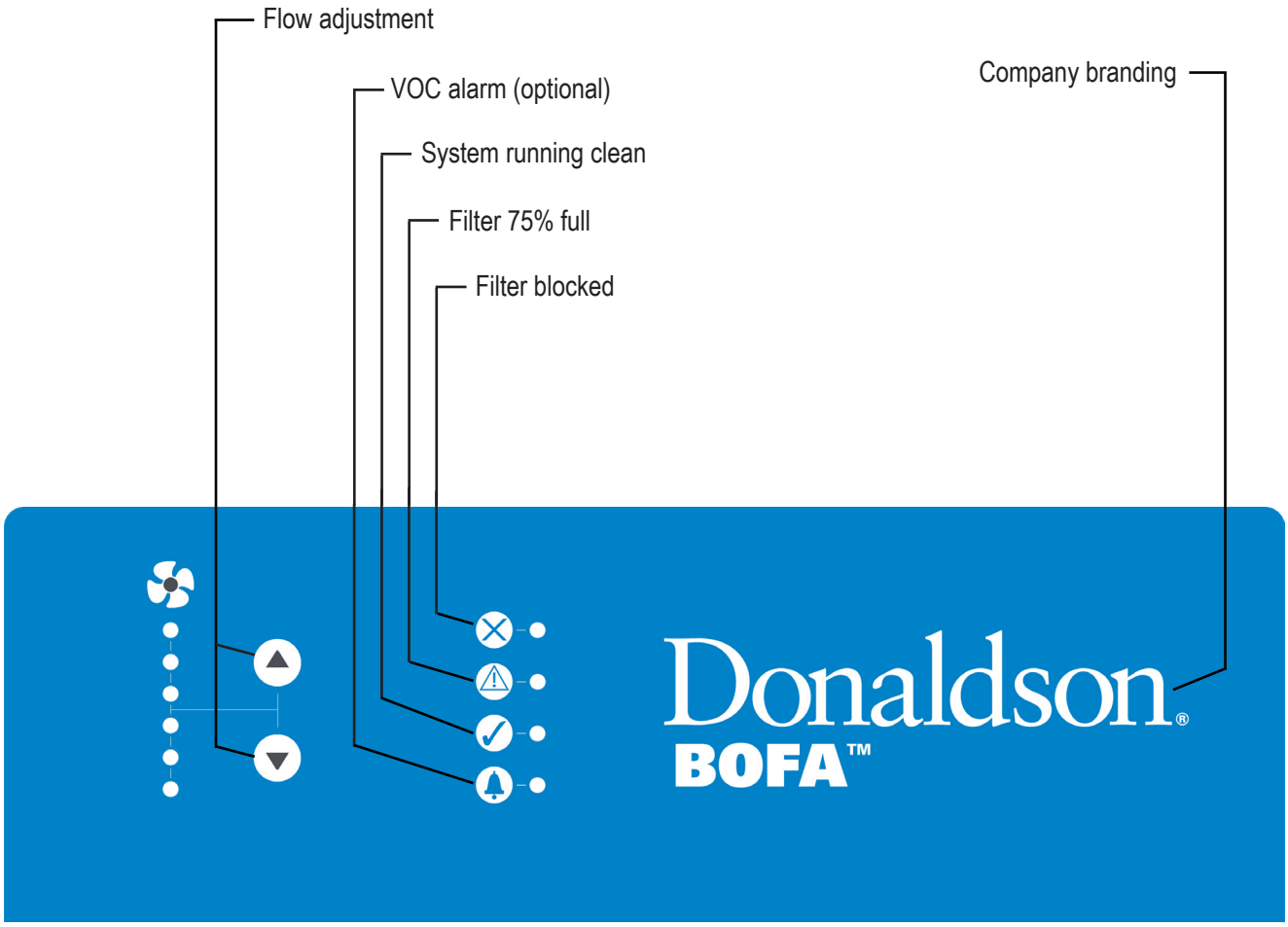
1.1. Front view of PrintPRO Oracle DS

1.2. Rear view of PrintPRO Oracle DS



1.3. Overview of control panel

The diagram below shows an overview of control panel features.



2 Safety information

2.1. Important safety notes

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

Symbol	Meaning	
	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.

EU Declaration

The system has been designed to meet the essential health and safety requirements of the Machinery Directive 2006/42/EC, Low Voltage Directive 2014/35/EC, and the EMC Directive 2014/30/EU. For the full DOC and further information please contact the technical team:

- US: bofatechnicalus@donaldson.com
- ROW: bofatechnical@donaldson.com

Electrical safety

The system has been designed to meet the essential health and safety requirements of the Low Voltage Directive 2014/35/EC. The requirements of the EMC Directive 2014/30/EU are also met.

Warning

When working with the blower 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 blower 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 extraction 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 processed, the particulate may be an irritant to the skin.

This system 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 extraction system 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.

Intended use

This equipment has been designed to extract and filter fume from a variety of applications. However, it is the user's responsibility to ensure the equipment is installed correctly and is suitable for the application. This extraction system must not be used on wet applications or acidic fumes.

2.2. Warning and information labels

The following listing details labels used on your system.

Symbol	Meaning	
	GOGGLES, GLOVES AND MASK	This appears on filters, indicating that goggles, gloves, and masks should be worn while handling used filters.
	DO NOT COVER	Do not cover any louvers or holes on panels adjacent to the label.
	ELECTRICAL DANGER	Removal of panels with this label attached will allow access to potentially live components.
	WARNING	Power should be isolated before the panel with this label attached is opened/removed.

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

2.3. Fire risk warning

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

It is therefore essential to minimize 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 extraction system should not be used on processes where sparks could occur, with explosive dusts and gases, or with particulates that 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.

3 Before installation

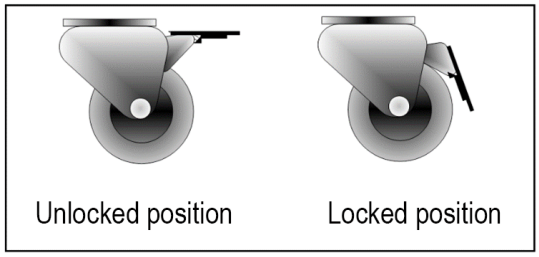
3.1. Packaging removal and system placement

Before installation, check the extraction system for damage.

All packaging must be removed before the system is connected to the power supply.

Please read all instructions in this manual before using this extraction system.

1. Move the system to the location where it is going to be installed and remove the outer packaging.
   This system should be installed in a well-ventilated area.
2. Ensure that 20” (500 mm) space is available around any vented panels on the system to ensure adequate airflow.
3. With the system in position, lock the two front castors.
4. Check the filters are located in their correct position before closing the door and securing the door latches.



	CAUTION	Due to the weight of the extraction system, suitable lifting equipment should be used and appropriate safety precautions taken (see system specification section for product weight detail).

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

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

4 Installation

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

4.1. Connection to extraction system

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

4.2. Connection to power supply

Please follow the specification at the rear of the manual when selecting the power supply outlet for the system. Ensure the power supply is suitable before connecting the system.

	ELECTRICAL DANGER	Check the integrity of the electrical power cable. If the supply cord is damaged, the extraction system should not be connected to the mains. The supply cord should only be replaced by a Donaldson BOFA engineer as an electrical safety test may be required after replacement.

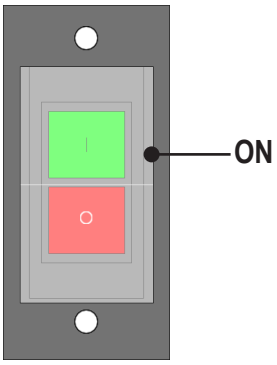
	CAUTION	The system **MUST** be connected to a properly earthed outlet.

Portable appliance testing guidance

This appliance is a Class I electrical product that requires earth protection. The appliance contains Type 3 SPDs (surge protection devices). During PAT Testing, test voltage L-E and N-E must be limited to 250 VDC to avoid engaging the surge protection.

5 Operation

The on/off switch must be switched to the “on” position (refer to section 1 for switch location) by depressing the (I) side of the switch.



Stainless steel

5.1. Setting the desired airflow

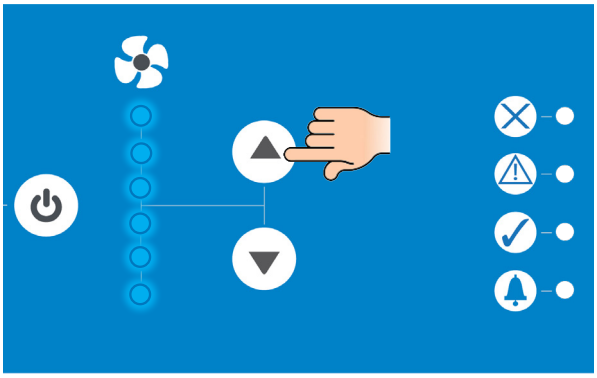
The system features autoflow controls. This enables the user to set the required airflow rate. Over time, as the filters begin to block, the system will increase the blower speed to ensure the correct flow is maintained to compensate for any loss in performance caused by the added restriction of the partially blocked filters.

	IMPORTANT (refer to manual)	The extraction system and all pipework must be fully installed and connected before the airflow is set.

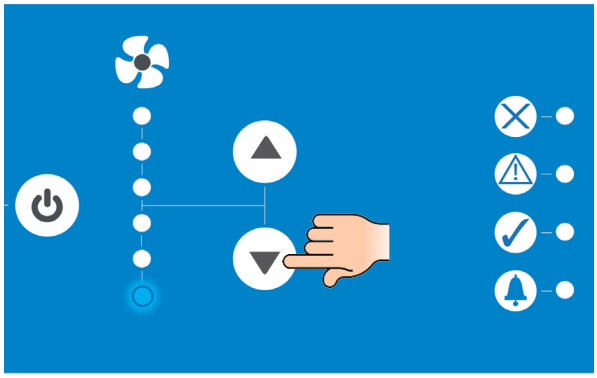
5.1.1. To set the airflow

Hold down the up and down arrows on the front panel for 5 seconds. The green LED will now start to flash, indicating that the system is now in set mode. You can now increase or decrease the flow by holding down either the up or down arrow. The flow is indicated by a row of six blue LEDs on the front panel, 6 being full speed and 1 being the lowest. Set the airflow on the lowest of the 6 LEDs but still ensure that all of the fume is being removed. This will vary from application to application. Once you have set your speed, leave the controls for 10-20 seconds and the system will return to operation mode. This setup procedure should be carried out with all the ductwork connected and (if fitted) the stop/start signal present.

Increase airflow



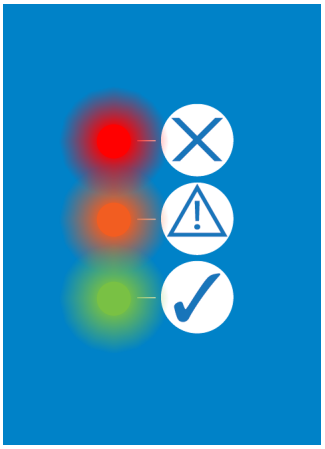
Decrease airflow



5.1.2. Flashing LEDs

Flashing LEDs indicate a loss of vacuum inside the extraction system.

Flashing LEDs will appear when no start voltage is applied to the red/black cores of the signal cable. If you have the correct voltage applied and the LEDs continue to flash, please contact your local representative or Donaldson BOFA. Contact details are found at the back of this manual. This may also occur as the system starts up.



6 Maintenance

6.1. 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.

6.1.1. Maintenance general

User maintenance is limited to cleaning the system and filter replacement, only a suitably qualified or experienced personnel are authorized to carry out component testing and replacement. Unauthorized work or the use of unauthorized replacement filters may result in a potentially dangerous situation and/or damage to the extraction system and will invalidate the manufacturer's warranty.

6.1.2. Cleaning the extraction system

Personal protective equipment (PPE) should be worn in accordance with your local guidelines. When cleaning the product, appropriate cleaning chemicals should be used, taking into consideration what contaminants the system has been used to extract. If your system has a powder-coated finish, this may be affected by more aggressive detergents.

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

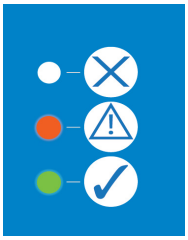
6.2. Replacing filters

It is recommended to replace filters every 12 months, unless the system prompts for more frequent changes. Users should maintain a record of these replacements.

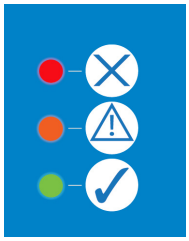
It is recommended that a spare set of filters are kept on-site to avoid prolonged extraction system unavailability. Part numbers for replacement filters can be found on the filters fitted in your system.

To prevent overheating, extraction systems should not be run with a blocked filter condition, or with dust obstruction of inlets/ outlets.

During use, the extraction system will alert the user when its filter needs replacing. When the filter is 75% full, both the green and amber LEDs will illuminate.



When the filter is full/blocked, the red LED on the control panel will illuminate. All three LEDs will be illuminating as shown below. A filter change is required at this stage.



Refer to section 2.2 for PPE requirements.

Note: The extraction system must not be run if any filter is missing.

6.2.1. Filter replacement

To replace the filter, follow the procedure detailed below:

1. Isolate the electrical supply to the extraction system.
2. Undo the latches on the front of the extraction system and open the door.
3. Rotate the lever below the filter through 180° to lower the filter camshelf.
4. Pull the filter out of the system being careful to support it as it comes free as it is heavy.
5. Once removed it is recommended that the filters are bagged and sealed.
6. Slide in the new filter, ensuring it is fully pushed in and positioned correctly.
7. Rotate the lever back through 180° to raise the filter into position.
8. Close the door and fasten the two latches.
9. Reconnect the power supply.

6.2.2. Replacing filter assembly (with carbon filter fitted)

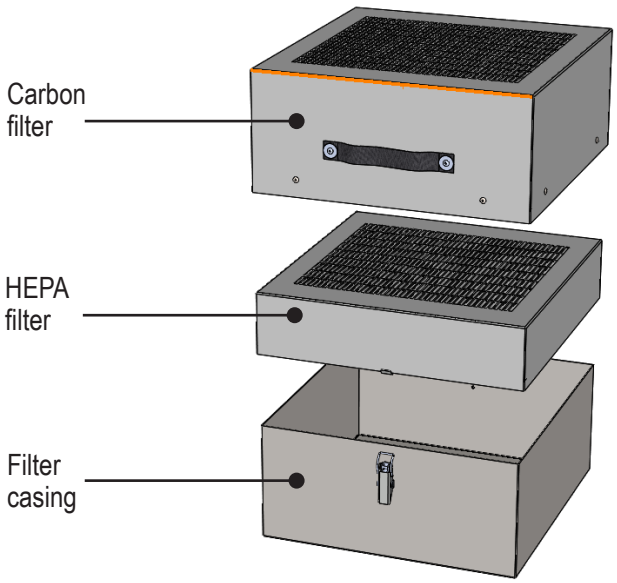
Replacing the carbon filter element

1. Where fitted, the carbon filter element is the uppermost section of the filter assembly.
2. The carbon filter element should be lifted from the assembly.

Replacing the hydrophobic HEPA filter element

To remove and replace the hydrophobic HEPA filter, follow the procedure detailed below:

1. The HEPA filter is located beneath the carbon filter.
2. To remove the HEPA, release the latches at the front and rear of the system. Separate the HEPA filter from the lower filter casing.



Replacing the coalescing foam element

1. The coalescing foam filter elements can be lifted from the housing.

Refitting the carbon/HEPA filter assembly

1. Replace the filter elements as required, ensuring that the HEPA filter catches are correctly located.
2. Rotate the camshelf lever back through 180 degrees to raise the filter assembly into position.
3. Close the door and fasten the 2 latches.

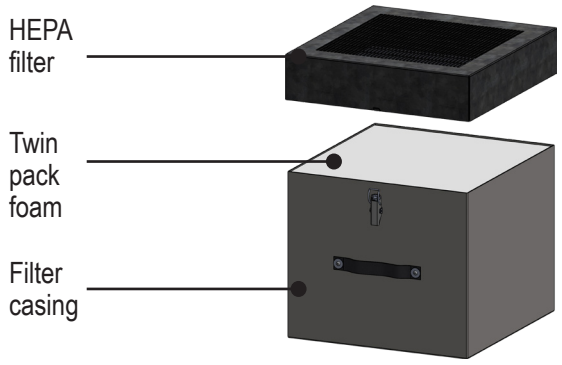
Note: A complete filter assembly MUST be fitted when the system is in use.

6.2.3. Replacing filter assembly (without carbon filter fitted)

Replacing the hydrophobic HEPA filter element (no carbon filter fitted)

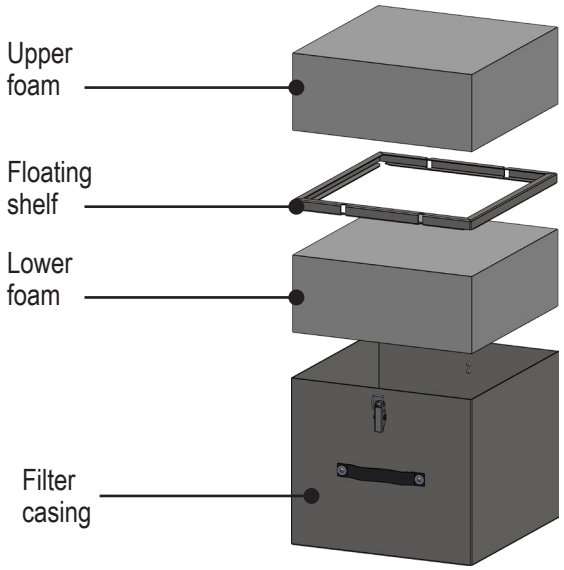
To remove and replace the hydrophobic HEPA filter, follow the procedure detailed below:

1. The HEPA filter is located at the top of the filter assembly.
2. To remove the HEPA, release the latches at the front and rear of the system. Separate the HEPA filter from the lower filter casing.



Replacing the coalescing foam element (no carbon filter fitted)

1. Remove the HEPA filter as described above.
2. Lift the upper foam, floating shelf, and lower foam from the casing.
3. Once removed, it is recommended that the used foam is bagged and sealed.



Note: A complete filter assembly MUST be fitted when the system is in use.

7 Troubleshooting

7.1. Fault indication

In the unlikely event of any other issues with the extraction system, please contact your local representative.

8 Replacement parts

8.1. Consumable spares

The extraction system contains a foam filter, HEPA filter and activated carbon filter. These should be replaced when instructed to do so by the system (see maintenance section for replacing filters), when the extraction system is not performing efficiently, or at least once every 12 months.

To maintain performance, it is important that the filters are replaced with identical Donaldson BOFA filters. To reorder, please refer to the filter number printed on the filter installed in your extraction system. See part numbers below:

1. **1UA1030387 (coalescing foam filter)**
2. **1UA1030219 (twin pack coalescing foam filter)**
3. **1UA1030220 (HEPA filter)**
4. **1UA1030247 (activated carbon filter)**

8.2. Maintenance protocol

Users may also wish to record changes in the table below.

Extraction System Serial Number:					
Coalescing foam filter (1UA1030387/1UA1030219)		**HEPA filter** (1UA1030220)		**Activated carbon filter** (1UA1030247)	
Date	Engineer	Date	Engineer	Date	Engineer

8.3. Filter disposal

The pre-filter and combined filter are manufactured from non-toxic materials. Filters are not reusable, 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

9 System specification

Extraction system: **PrintPRO Oracle DS**

Airflow: 223 cfm (380 m^3/h)

Weight: 143 lbs (65 kg)

Suction pressure: 96 mBar

Blower: Centrifugal fan

Output: 1.1 kW

Noise level: Below 60 dB(A) (at typical operating speed)

Maximum altitude: 2000 m

Electrical supply: 115-230 V

Hertz: 50/60 Hz

Full load current: 12.5 A

No. of phases: 1

Indoor use only

Overvoltage category II

Pollution degree 2

Not for use in wet applications

Environmental operating range:

Temperature: +41 °F (5°C) to + 104 °F (40°C)

Humidity: Max 80% RH up to 87.8 °F (31°C)

Max 50% RH at 104 °F (40°C)

Size:

	Imperial (inches)	Metric (mm)
Height	37.6	955
Width	17.0	430
Depth	18.7	475

Filters:

Filter type	Surface area	Efficiency
Hydrophobic HEPA filter	80.7 sq ft (7.5 m^2)	99.995% @ 0.3 microns

Filter type	Foam media
Coalescing foam filter	58 grade open cell foam

Combined filter (gas section):

Filter type	Carbon type	Volume
Activated carbon (gas)	Activated carbon	22.0 ltr

Process fume/gas entering this system should be within the above temperature range.

Wiring schematic and spare parts list available upon request.

10 Contact information

Donaldson BOFA head office – UK & ROW:

19-20 Balena Close
Creekmoor Industrial Estate
Poole
Dorset
BH17 7DU
United Kingdom

Tel. +44 (0) 1202 699 444
Email: bofasales@donaldson.com

Donaldson BOFA German office:

Email: bofavertrieb@donaldson.com

Donaldson BOFA US office:

303 S Madison Street
Staunton, Illinois
62088 USA

Tel. +1 (618) 205 5007
Email: bofasalesus@donaldson.com

11 Inspection record

Donaldson BOFA™

Inspection Record

Local Exhaust Ventilation System

Health & Safety at Work Act 1974 - Control of Substances Hazardous to Health - Regulation 9 (2002) Thorough Examination and Testing of Local Exhaust Ventilation Systems

Company:	System Designation:	System Installation Date:
Designated Person:		

Inspection and Maintenance Schedules

1. Daily checks.
2. Weekly inspection of process enclosure, extract offtake, hose/ducting, and system.
3. Monthly inspection of process enclosure, extract offtake, hose/ducting, and system.
4. Yearly inspection/testing.

Process enclosure, extract offtake(s), hose/ducting, and system.

Inspection and Maintenance Record

1. **Daily inspection**
   Inspection of the process to ensure extract devices/nozzles/enclosures/hoses are in place and correctly positioned. Examination of the system to ensure it is running. This to be carried out by the operator. Daily inspection not recorded.

2. **Weekly inspection**

Weekly inspection by supervisor of physical condition of extract devices/nozzles/enclosures/hoses and system for damage, change (parts added or removed) and correct operation, etc. Check also that daily inspections have been completed. Tick boxes to confirm system ok/change. Add details of any changes.

Report changes to Engineering Manager. Record any remedial actions taken.

Week number	Date	System ok	System change	Details of change/repairs, etc.	Initial
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Weekly inspection by supervisor of physical condition of extract devices/nozzles/enclosures/hoses and system for damage, change (parts added or removed) and correct operation, etc. Check also that daily inspections have been completed. Tick boxes to confirm system ok/change. Add details of any changes.

Report changes to Engineering Manager. Record any remedial actions taken.

Week number	Date	System ok	System change	Details of change/repairs, etc.	Initial
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					

Process enclosure, extract offtake(s), hose/ducting, and system.

Inspection and Maintenance Record

3. **Monthly inspection**

In addition to weekly checks, disconnect hoses and check for blockage and smooth operation of fan, signs of dust or vapor/gas/odor carry over. Tick boxes to confirm system ok/change. Add details of any changes. Report changes to Engineering Manager. Record any remedial actions taken.

Week number	Date	System ok	System change	Details of change/repairs, etc.	Initial
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

4. **Yearly inspection**

	Comments	Supervisor signature:	Date:
Annual service to include all regular checks, inspection of filter condition, blower, and electrical system, and a filter replacement (if not changed within the previous 12 months).			
Annual thorough inspection and testing of LEV system in accordance with C.O.S.H.H. regulation 9 (max interval 14 months) including reporting.			