AirBench™ DF
Operation and Maintenance

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CAUTIONS

Use the AirBench only for the designed duty – consult the manufacturer on any change of use.

Each unit is marked with its design application, which is also shown on the commissioning certificate.

The filters are not self-cleaning.

They must be maintained / cleaned / replaced as described within.

This unit is not ATEX rated.

It is your responsibility under ATEX regulations to ensure the AirBench is located in an area rated suitable for the specification of the AirBench.

If this unit is configured for fume extraction where limited space is available and fumes cannot be exhausted to atmosphere.

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INTRODUCTION

Overview

Thank you for choosing AirBench as your fume control system. Please read this document before installation and use.

This document details maintenance activities which are essential to the safe use of your AirBench. We recommend that the Responsible Person reads this manual fully prior to installation and operation of the AirBench.

This document refers to the AirBench DF type. Models of this type are available with a range of filter configurations. The filter configuration in use is detailed on the system Commissioning Certificate and is used within this document to provide filter-specific maintenance information.

About AirBench

AirBench is a self-contained downflow cabinet which utilizes a fan and filter combination selected for your specific application, to extract and filter fumes and return filtered air to the work place.

Some models vary in filtration and filtered air delivery point.

It is used by running the fan at either fixed speed or variable speed (if speed controller fitted) to draw the pollutant down and through the filters, allowing the process to proceed on the surface.

About this Document

This document provides general maintenance and operation instructions for the AirBench DF range. It should be read in conjunction with the Commissioning Certificate supplied with the unit. If you have any concerns or doubts about maintenance or operation of this unit, contact the manufacturer.

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INSTALLATION

General

Unpack the unit and check for damage, if not already completed.

The AirBench must be installed on a flat and level surface capable of carrying the weight of the unit. For nominal unit weights, see Specifications section at rear of manual. When determining an installation location, be aware that the air exhaust must discharge somewhere. Do not position the unit so all outlets are blocked.

Electrical

WIRING

AirBench is supplied as standard with an internal fan or fans. These are pre-wired to a switch or speed controller and fitted with a lead and plug for your convenience. Standard electrical supply is 240V/1Ph/50Hz. Certain models can be supplied with 110V/1Ph/50Hz internal fans if specified in advance; this is noted on the front left of each unit where applicable.

BS7671 requires that the lead is appropriate for the working environment and you must satisfy yourself that the pre fitted lead is satisfactory.

EARTH BONDING

A stud is provided for use where appropriate e.g. in cases where equipotential bonding is required or where an external fan is fitted.

If in doubt consult a qualified electrician.

FUSES

Switched units: A fuse is provided on the switch front plate.

Speed controlled units: An additional fuse is provided within the speed control panel. To check this fuse, remove the service panel; the speed control panel is mounted on the rear of the service panel.

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COMMISSIONING

General

The initial commissioning and testing of your AirBench has been performed prior to delivery. However, as part of in-house commissioning we recommend that you complete the following tasks and record the results as appropriate in the system logbook.

In House Commissioning

The following tasks should be completed by a responsible person; for example, the Health and Safety Officer, or Director, responsible for this process.

- Review the commissioning certificate for this unit, in particular any notes made by our engineer in relation to use.
- Ensure all operators are trained to use this machine and are aware of the effective capture zone in which they should aim to work.
- Ensure all operators are aware of the filter maintenance routine required for this machine.

Once complete, you should note this on the commissioning certificate and retain the certificate for future reference.

As operating conditions vary, each installation will vary in maintenance needs and this is best established by empirical means, regularly checking filter condition in the first weeks of operation to establish a procedure. Reduced airflow is a key indication of filter condition. If the filter pressure gauge on the front of the unit is showing in the red zone, this indicates low airflow and filters should be checked and cleaned or changed promptly, according to the instructions contained within this manual.

We recommend keeping the commissioning certificate, Quick Start guide, and logbook with the machine at all times for operator access.

If in doubt please contact the manufacturer quoting the machine serial number.

Fume Extraction Units

The effectiveness of carbon filtration improves as airspeed is lowered allowing fumes to spend longer passing through the filters. A speed controller is supplied with carbon filtered units to allow airflow to be adjusted to the optimum level.

We therefore recommend adjusting the speed controller provided to the lowest level at which extraction is still effective and marking this operation point on the speed controller. Ongoing adjustment may be required as filters become blocked with use.

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OPERATION

This page contains the same information as the Quick Start guide provided with your AirBench.

Prior to use

Check the system logbook to ensure no routine maintenance is required.

General use

To use AirBench, ensure it is plugged in to a mains socket and the socket is switched on. Turn on the switch on the front of the bench.

If a speed controller is fitted, turn it to full power before switching on, then adjust it to an appropriate level. Our recommended settings are typically 50-75% for fume extraction.

During commissioning, an optimum setting may have been determined and this should be noted in the system logbook.

Check the filter pressure gauge on the front of the unit. If the needle on the gauge is showing within the RED zone, check the filter condition – they may require cleaning or replacement.

Your AirBench has a zone above the surface in which capture is most effective, in a straight line upwards from the ventilated enclosed area. The extent of this zone is detailed in the commissioning certificate supplied with the unit. This zone forms a box in which you should aim to do the majority of your work. Working outside this zone may reduce the effectiveness of the extraction.

Work as normal, aiming to work within the extraction zone described above. On completion of work, switch the AirBench off using the switch on the front. Record any maintenance you have undertaken, or any that is required, in the logbook.

To avoid fan overload, do not block more than 95% of the work surface or the air outlet.

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MAINTENANCE

Filter care

The filters are not self-cleaning and must be maintained / cleaned / replaced as described below. Proper filter care is essential for the effective operation of your AirBench. If in doubt, contact the manufacturer for advice.

When changing filters, the seals on which the filters sit should be checked for damage and replaced if necessary.

All filters should be regularly checked for wear, damage, or by-passing.

When completing filter maintenance activities these should be recorded in the accompanying log sheet.

Take precautions and wear appropriate PPE when handing filters.

They may contain hazardous dusts.

FILTER ACCESS

Filters are accessed by turning the quarter turn latches on the front cover to loosen and opening the panel. The filters should then be lifted slightly to break adhesion to the filter seals, and can now be slid forward to remove.

DISPOSABLE CARBON FILTERS

Disposable carbon filters have solid black activated carbon filter media in a metal case; arranged as either a flat panel, or a 'V' section.

Carbon filters are not cleanable. They will become less effective over time and we recommend changing to a fixed schedule (for example, annually) in low use applications.

Replace the filter when increased odour is noticed in the exhaust from the unit; or to a fixed schedule.

Spares

See the specific list for your machine shown on the commissioning certificate.

When ordering, please contact the manufacturer quoting the serial number of this machine

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Other routine maintenance

We recommend the following tasks be performed on a regular basis. Suggested intervals are shown and these should be reviewed dependent on level of use. Actual completion of these operations and any variation to these recommended maintenance intervals should be recorded in the system logbook.

If completion of routine maintenance tasks suggests additional issues, contact the manufacturer for advice.

FILTER SEALS

These sit beneath the filters and prevent dust passing into the body of the bench and the exhaust airstream. It is important the seals are in good order. Check the condition of the filter seals every time filters are changed or removed.

SURFACE

At least monthly, or as routine, check the surface condition. Clear any blocked holes.

FAN CHAMBER

At least every 6 months, check the fan chamber. Remove any debris and clean.

FAN

At least annually, check and tighten fan fixings, impeller fixings, and electrical connections.

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ACCESSORIES

Some accessories are only supplied if specified with purchase.

Filter Pressure Gauges

A filter pressure gauge is fitted as standard to the front of each AirBench. This indicates performance of the unit as a whole and filter condition. Certain models show a red zone on the filter gauge; when the gauge indicates within this zone, filters may be blocked or require cleaning. Turn the AirBench off and inspect the filters.

Where no red zone is shown, a filter inspection pressure drop will be recorded on the Commissioning Certificate. When pressure loss is greater than that shown on the Commissioning Certificate, follow the above procedure.

A high pressure reading may also indicate a blocked surface. Inspect the surface for blockages and clean if required. Do not operate AirBench continuously with more than 75% of the surface blocked.

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THOROUGH EXAMINATION AND TESTING

If AirBench is used as an LEV system it must be tested at regular intervals, as specified below, and certificated under the COSHH regulations. This service is available from us, or our approved testers.

Thorough examination and test should include:

- Ensuring the prescribed maintenance routines are being completed and recorded within the system logbook.
- Condition check of fan, filters, electrics.
- Performance testing according to recommended face velocities.
- Visual check that operators are working within effective area.
- Visual check of effectiveness using, for example, smoke tubes.

Statutory test intervals are:

Process	**Minimum Frequency**
Jute cloth manufacture	1 Month
Processes in which blasting is carried out in or incidental to the cleaning of metal castings, in connection with their manufacture	1 Month
Processes, other than wet processes, in which metal articles (other than of gold, platinum or iridium) are ground, abraded or polished using mechanical power, in any room for more than 12 hours in any week	6 Months
Processes giving off dust or fume in which nonferrous metal castings are produced	6 Months
All other processes	14 Months

Recommended face velocities are as follows:

Fume control: Minimum 0.5m/s

Light dust control: Minimum 1.0 m/s

Heavy dust control: 1.2 – 1.5m/s

Completion of Thorough Examination and Testing should be recorded within the system logbook.

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TECHNICAL

Technical Data

Model	Width	Depth	Height	Weight	Fan Power	Max Current
	(mm)	(mm)	(mm)	(kg)	(kw)	(a)
DF07	700	600	917	TBC	0.25	2.2
DF13	1300	600	917	TBC	0.50	4.4
DF19	1900	600	917	TBC	0.75	6.6

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DECLARATION OF CONFORMITY

Manufactured by:	AirBench Ltd. 6b Commerce Way Colchester, Essex. CO2 8HR
Responsible Person:	Simon Cook
Description:	Ventilated downflow cabinet known as “AirBench DF”

DECLARATION OF CONFORMITY

BY AIRBENCH LIMITED

RELEVANT DIRECTIVES

EMC Directive 2014/30/EU (when connected to standard mains sinusoidal supply).

Machinery Directive 2006/42/EC

Low voltage Directive 2014/35/EU

- EN-60204–1:2018 (Safety of machinery, electrical equipment of machines, general requirements).

- EN-60335-2-80 (Safety requirements for electric fans and regulators).

We; AIRBENCH Limited, declare that “AirBench DFs” when supplied as self contained equipment comply with the directives detailed above and therefore comply with requirements of the Low Voltage Directive.

Simon Cook / Managing Director / 14th December 2022

Data shown is for standard models. Check the Commissioning Certificate for details specific to your unit.

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