# AirBench™ DB
# Operation and Maintenance

This Edition: 25th August 2020

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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.

Do not mix incompatible materials e.g. steel and aluminium.

It is the users' responsibility to comply with this legal requirement.

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 light sparks, ensure only mild steel dust is introduced. Do not work galvanised or zinc coated steel on this unit.

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# INTRODUCTION

## Overview

Thank you for choosing AirBench as your fume or dust 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 DB 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 down draught extraction bench which utilizes a fan and filter combination selected for your specific application, to extract and filter dust/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 DB 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 floor 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.

Please note installation may be required when using certain accessories, external fansets, or ducting (see below).

## 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.

## Assembly of Accessories

These items apply only when they have been ordered with the AirBench.

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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 shown below:

| | | |
|---|---|---|
| Fume: 50-75% | Light dusts, 50-100% | Heavy dusts, 75-100% |

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 bench. 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 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.**

If using a vacuum cleaner to empty filters, excessive cleaning will reduce filter life.

Remove excess dust only.

We do not recommend the use of an air line to clean filters.

### FILTER ACCESS

Filters can be accessed for cleaning by lifting the top surface (taking care as these surfaces may have sharp edges).

**Surfaces can be heavy and have sharp edges.**

**Wear appropriate hand protection.**

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## PLEATED PANEL FILTERS

Pleated panel filters have wide spaced fabric pleats (often around 50mm between pleats) in a metal case.

These filters can be removed and emptied regularly. They can also be emptied using a vacuum cleaner by lifting the surface of the AirBench, taking care not to damage the media. If removed, always replace the filter with the open face upwards.

**Replace the filter when it is stained on the clean (downwards) side, or damaged.**

## MINIPLEAT FILTERS

Mini pleat filters have fine paper pleats (often around 5mm between pleats) in a metal case.

This filter is not cleanable.

**Replace the filter when it is stained on the clean (downwards) side or damaged.**

## 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.**

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### LABYRINTH FILTERS

Labyrinth filters consist of a series of metal channels, in a metal frame.

These filters can be emptied regularly using a vacuum cleaner by lifting the surface of the AirBench. They can also be removed and emptied.

**In general labyrinth filters do not require replacement except when damaged.**

### DISPOSABLE MEDIA PADS

Media pads are green and white fibreglass pads, held in a metal frame.

These filters are not cleanable. When replacing, the frame and clip which hold the pad can be reused. Always replace with white side downwards.

**Replace on a monthly basis, or more regularly if required.**

**Do not clean filters using compressed air.**

**This will damage media and spread dust.**

## 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.

# 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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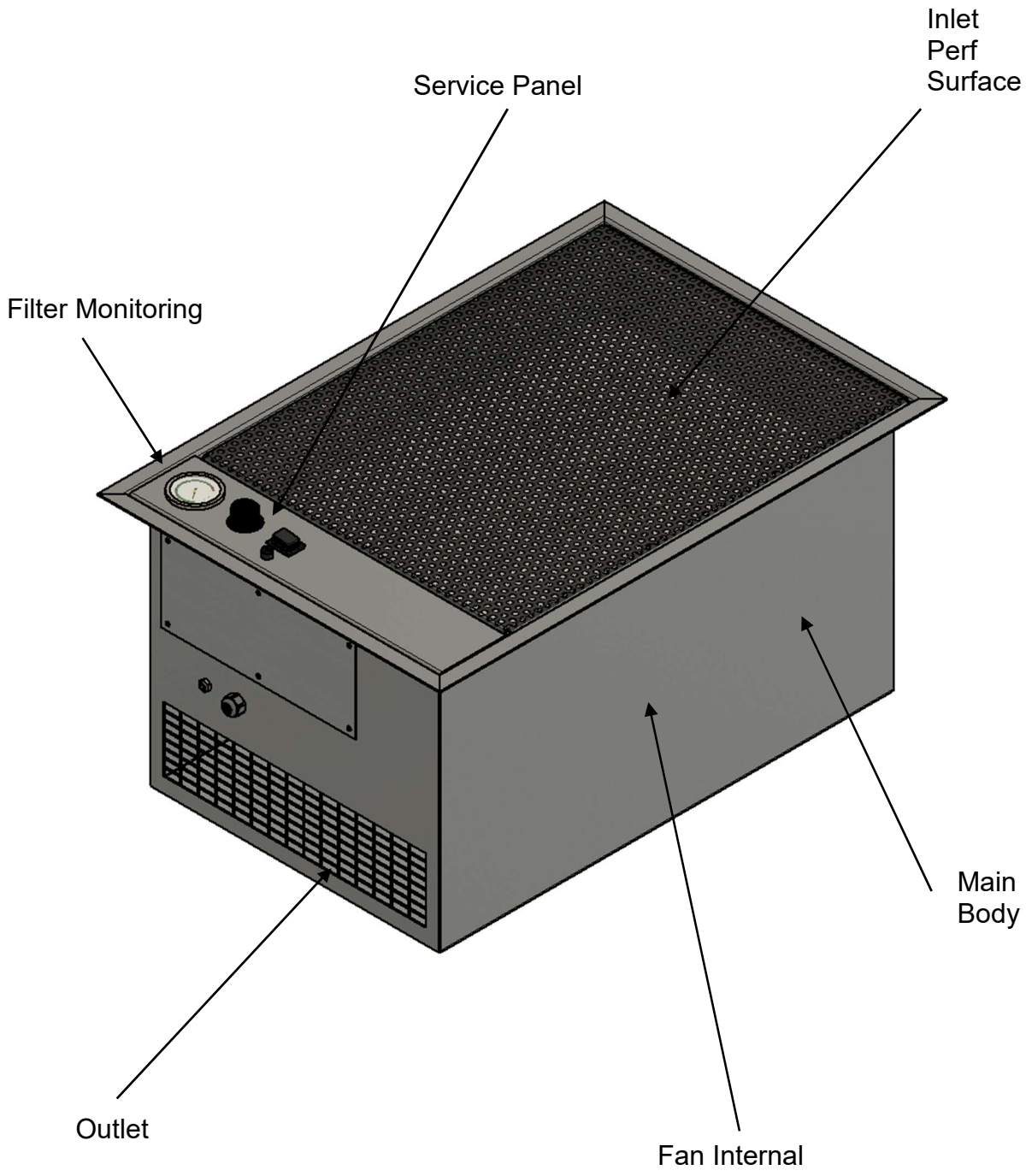
# TECHNICAL

## Arrangement

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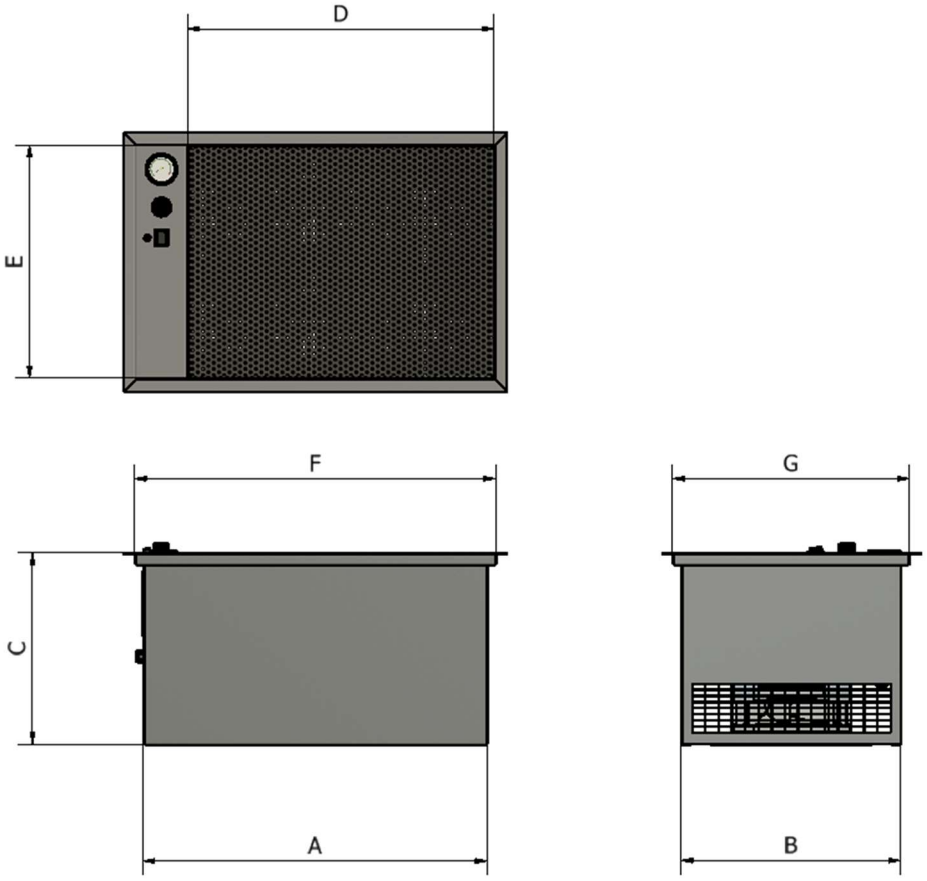
## Technical Data

| Model | Overall | | | Ventilated Area | | Worktop Aperture | | Power | Airflow |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | | |
| | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (kW) | ($m^3$/h) |
| **DB0645** | 728 | 465 | 405 | 647 | 492 | 768 | 505 | 0.17 | 1398 |
| **DB1245** | 1328 | 465 | 405 | 1274 | 492 | 1368 | 505 | 0.34 | 2686 |
| **DB1845** | 1928 | 465 | 405 | 1847 | 492 | 1968 | 505 | 0.51 | 3974 |
| **DB0660** | 728 | 615 | 405 | 647 | 642 | 768 | 655 | 0.34 | 1820 |
| **DB1260** | 1328 | 615 | 505 | 1247 | 642 | 1368 | 655 | 0.72 | 3497 |
| **DB1860** | 1928 | 615 | 505 | 1847 | 642 | 1968 | 655 | 1.08 | 5174 |

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# DECLARATION OF CONFORMITY

| | |
|---|---|
| Manufactured by: | AirBench Ltd.<br>6b Commerce Way<br>Colchester,<br>Essex.<br>CO2 8HR |
| Responsible Person: | Simon Cook |
| Description: | Ventilated work bench known as “AirBench” |

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 “AirBenches” 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 / 5th March 2021

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

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