VertEx VA

Operation and Maintenance

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CAUTIONS

Use the VertEx 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 VertEx is located in an area rated suitable for the specification of the VertEx.

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INTRODUCTION

Overview

Thank you for choosing VertEx 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 VertEx. We recommend that the Responsible Person reads this manual fully prior to installation and operation of the VertEx.

This document refers to the VertEx range. 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 VertEx

VertEx is a self-contained cross draught extraction system which utilises 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 away and through the filters, allowing work or the process to proceed next to the face.

About this Document

This document provides general maintenance and operation instructions for the VertEx 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 VertEx 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.

These models are designed to be moved into place using a forklift or pallet truck, taking care not to damage fittings on the base of the unit.

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

Modular System

VertEx units are built as modular systems. For ease of shipping and installation, the top section may be shipped separately. The top section is fitted with forklift eyes to enable positioning; note that these eyes are not designed to lift the complete VertEx unit.

If using a forklift to position the top section on the base section, always ensure operators are fully trained and that other users are outside the working zone of the forklift. Once loosely positioned, ensure mounting holes are aligned and seal tape is not disturbed; then bolt top section into position.

Do not move the unit while the top section is not securely fastened.

If in doubt, contact us for advice.

Electrical

WIRING

VertEx 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.

VertEx can be supplied configured for multi-unit installations. In this instance a single electrical panel with plugged connections will be provided.

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EARTH BONDING

All electrical components are fully earthed to the units sheet metal body.

If in doubt consult a qualified electrician.

Some units may have high earth leakage current due to the presence of multiple EC fans.

This will be indicated with a warning sticker on the product.

In this case the minimum size of the protective earthing conductor shall comply with the local regulations for high protective earthing current equipment.

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.

Ducted Units

As standard, VertExes are configured to discharge upwards through the top of the unit, without ductwork. Ducting should not be retrofitted to the discharge from the unit without consultation with the manufacturer.

When configured for exhaust to atmosphere via ductwork a discharge spigot will be visible. These units are designed to connect to ductwork of the same size as the discharge spigot (generally 250 or 300 mm diameter).

Ducting should be installed by a professional and should not provide greater than 100 Pascals resistance. Flexible ducting should be avoided as it may cause excessive back-pressure on the fan, and lead to reduced airflow.

Any other configuration is non-standard and should be discussed with the manufacturer.

Assembly of Accessories

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

ENCLOSURE

Enclosures are supplied flat packed for assembly at point of use. Each enclosure is supplied with installation drawings and assembly should follow the process laid out in these drawings.

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COMMISSIONING

General

The initial commissioning and testing of your VertEx 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.

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OPERATION

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

Prior to use

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

General use

To use VertEx, 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.

Note that the fan will take some time to initialise and come to maximum power. Extraction is not fully effective until the fan has reached full power.

Check the filter pressure gauge on the front of the unit. If the needle on the gauge is showing in the upper red zone, check the filter condition – they may require cleaning or replacement. This can also be checked against the filter inspection pressure drop readings in the Commissioning Certificate.

Your VertEx has a zone in front of the surface in which capture is most effective, extending approximately 1m forwards in normal use when no enclosure is fitted. 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. If an enclosure is fitted, you should aim where possible to work within the enclosure.

Continue to work as normal, aiming to work within the extraction zone described above. On completion of work, switch the VertEx 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 50% of the face 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 VertEx. 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.

FILTER ACCESS

The filters are held into position by clamping bars mounted to the rear of each door.

To open the door, use a screwdriver to turn the quarter turn latches towards the centre of the unit. Do not release the final latch without supporting the door.

Lift the door upwards out of the locating pins, and place to one side.

Filters can then be removed in order. When replacing filters, they should be installed in the order in which they were fitted; which is detailed in the Commissioning Certificate.

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Doors can be heavy.

Wear appropriate hand and foot protection.

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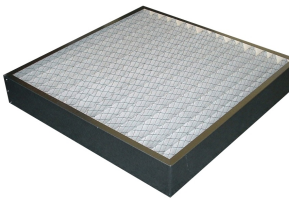
PLEATED PANEL FILTERS



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 removing the door of the VertEx, 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 removing the door of the VertEx. 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 to the rear - away from the operator.

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 behind 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.

VENTILATED DOOR

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 VertEx. 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 VertEx 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 VertEx continuously with more than 75% of the face blocked.

Hours Run Meter

The meter is not resettable and operates at all times when the speed control or switch is powered.

Wheels

Standard industrial rubber wheeled swivel castors are used. The two front wheels are lockable. Lock by pressing on the lever and trip by flicking (models and operation vary slightly). Do not attempt to move while brakes are on.

Compressed Air Interlink

This option ensures the safety of operators by preventing the use of air tools without extraction being operational; and reduces energy use by switching off the fan after 5 minutes of non-use.

4 off series 19 airline connectors are provided to the front or side of the unit and an internal timer fitted, pre-set to an agreed value – usually 5 minutes. The control panel is supplied with an additional Red / Green push-button.

System control will be as follows:

Switch main on/off switch to On – system is energized. Airline is switched to operational.

Press green button – fan starts and runs for 5 minutes.

Use airline or press green button again – timer is reset for a further 5 minutes.

Press red button – fan stops, airline stops.

The timer can be re-set to a different interval; contact the manufacturer for details.

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THOROUGH EXAMINATION AND TESTING

If VertEx 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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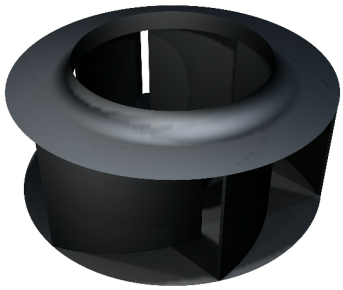
TECHNICAL

Arrangement

Filters

Body



Energy Efficient Fan

Filter monitoring

Controls

Ventilated Door

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Technical Data

Model	Width	Height	Depth	Nominal Vent Height	Weight	Fan Power	Max Current
	(mm)	(mm)	(mm)	(mm)	(kg)	(kw)	(a)
VA120618	1270	1800	700	600	175	0.48	2.4
VA121218	1270	1800	700	1200	270	0.74	3.9
VA180618	1870	1800	700	600	225	0.74	3.9
VA120624	1270	2400	700	600	190	0.48	2.4
VA121224	1270	2400	700	1200	285	0.74	3.9
VA180624	1870	2400	700	600	240	0.74	3.9
VA121824	1270	2400	700	1800	350	1.5	7.8

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

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DECLARATION OF CONFORMITY

Manufactured by:	AirBench Ltd. 6b Commerce Way, Colchester, Essex. CO2 8HR
Responsible Person:	Simon Cook
Description:	Cross Draught Unit known as “VertEx”

DECLARATION OF CONFORMITY

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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 “VertExes” 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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