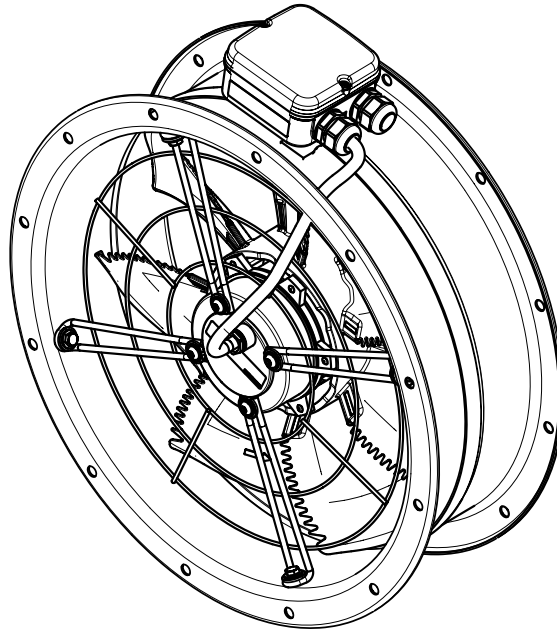


Short Case Axial Fans

Installation, Operation & Maintenance Manual





Important  This manual must be read in full before installation, operation and maintenance of the units.

Please ensure that this document is passed to the end user. This manual forms an integral part of the product and should be kept for the working life of the product. Additional copies of this and supporting documents are available by contacting VES Andover Ltd or by visiting www.ves.co.uk and following the 'Information centre O & M's' link.

The following symbols used within this document refer to potential dangers or advice for safe operation.

Warning  Indicates hazards associated with electric current and high voltages.

Caution  Indicates hazards that require safety advice for personnel and/or potential unit/property damage.

Important  Indicates important information.

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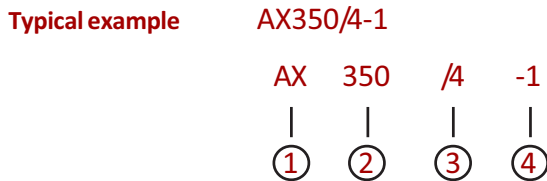
Short Case Axial Fans

Installation, Operation & Maintenance Manual

Introduction 1 The **VES Short Case Axial** range is a general purpose fan for moving relatively large quantities of air against a limited system resistance. They are suitable for a wide range of applications with an operating temperature of -30 to 50 °C. The fan motor is thermal class 'THCL155' with IP54 protection. The impellor is sickle-bladed and the fan housing is manufactured from aluminium with a fully weatherproof paint finish. All fans in the Short Case Axial range are speed controllable.

For further technical details regarding dimensions and weights, contact VES Andover Ltd on **08448 15 60 60**, quoting the sales order (SO) number and the unit type as found on the unit nameplate or visit www.ves.co.uk.

Unit Description Part Number Coding	Point Description	Point Variants	Details (as appropriate)
	1 Product	AX	Short Case Axial Fans
	2 Fan Size	315...630	Nominal Fan Blade Diameter (in mm)
	3 Motor Poles	4, 6	Number of motor poles
	4 Phase	-1	230V 50Hz Single Phase
		-3	400V 50Hz Three Phase



Receipt of Goods & Handling 3 Immediately upon receipt of goods, check for possible damage in transit. Also check to ensure that any ancillary items are included. These will normally be supplied fitted or taped to the unit (in the case of small items).

In the event of any damage having occurred or if any item found to be missing, it is essential to inform VES Andover Ltd. within **3 working days** of delivery quoting sales order (SO) number and the unit type as found on the unit nameplate. After this period we will be unable to accept any claim for damaged or missing goods.

Installation 4 The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed to compliance with the manufacturer's recommendations, with due regard to the current HEALTH AND SAFETY AT WORK ACT and conforms to all relevant statutory regulations.

Where a unit is installed so that failure of components could result in injury to personnel, precautions should be taken to prevent such an injury. It is the installer's responsibility to ensure that access panels are not obstructed in any way and safe working access for maintenance must be provided in accordance with the Health and Safety, and Building Regulations. For confirmation of required access please see the appropriate unit outline drawing.

Consideration must also be given by the installer for adequate illumination of the unit location in order for safe maintenance. Further consideration should be given to the unit's position and secured into place as appropriate. This is especially important with external mounting as the wind and elements may effect overall stability.

Short Case Axial Fans

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Installation 4 Continued



These products contain rotating parts and electrical connections, which can be a danger and could cause injury. The axial fans utilised in the Short Case Axial range also generate noise; it is advised that if activities have to be conducted in close proximity to the working units the noise level should be taken into account. Taking the previously mentioned points into consideration, it is advised that this unit should be installed out of normal reach of personnel.

In the event that the fan is installed in such a way that moving parts could be accessed during normal operation i.e non-ducted, it is the installer's responsibility to ensure that guards and other relevant safety devices are used to ensure adequate protection for personnel and property in accordance with BS EN ISO 13857:2008 and EN 61140:2002.

Fans should be fitted to fixed circular duct flanges with M8 nuts and bolts with appropriate screw locking. We recommend using VES flexible connections with strangle bands for circular duct connections.

Fan mounting/hanging feet can be provided to secure short case axial fans in place.

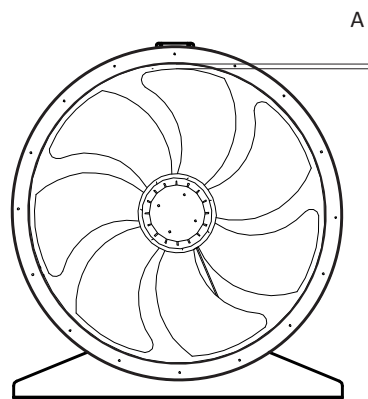
The following installation guidelines should be followed.

Do not install Short Case Axial fans without adequate support. Mounting surface must be even. Axial fans must be supported independently from ductwork.

Ensure that the clearance gap "A" (See Fig 2.) is constant between the fan impellor and fan casework. Distortion due to uneven mounting surfaces may lead to fan failure.

Impellor/Casework clearance gap

Fig. 2



Important 

The fans are only intended for the conveyance of air mixtures similar to air. Other uses which do not coincide with, or which exceed those specified will be deemed unauthorised unless contractually agreed. Damages resulting from such unauthorised uses will not be the liability of the manufacturer. The user will assume sole liability.

They must not be used in hazardous areas for the transfer of gas, mist vapours or mixtures. Nor must they be used for the transfer of solid components in the transfer medium.

The following are examples of improper use/reasonably foreseeable misuse. Note this list is not exhaustive

- Conveyance of aggressive and explosive gaseous media.
- Use in an explosive atmosphere.
- Operation with iced fan impellor.
- Conveyance of abrasive or adhesive media.
- Conveyance of liquid media.
- Use of the fan and add-on parts (e.g. safety grille) as a resting surface or climbing aid.
- Unauthorised constructional modifications to the fan.
- Operation of the fan as a safety component or for the performance of safety relevant functions in the sense of EN ISO 13849-1.
- Blocking or braking of the fan by inserting objects.
- Loosening of the impellor from the motor.

Short Case Axial Fans

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Installation 4 Continued

Caution

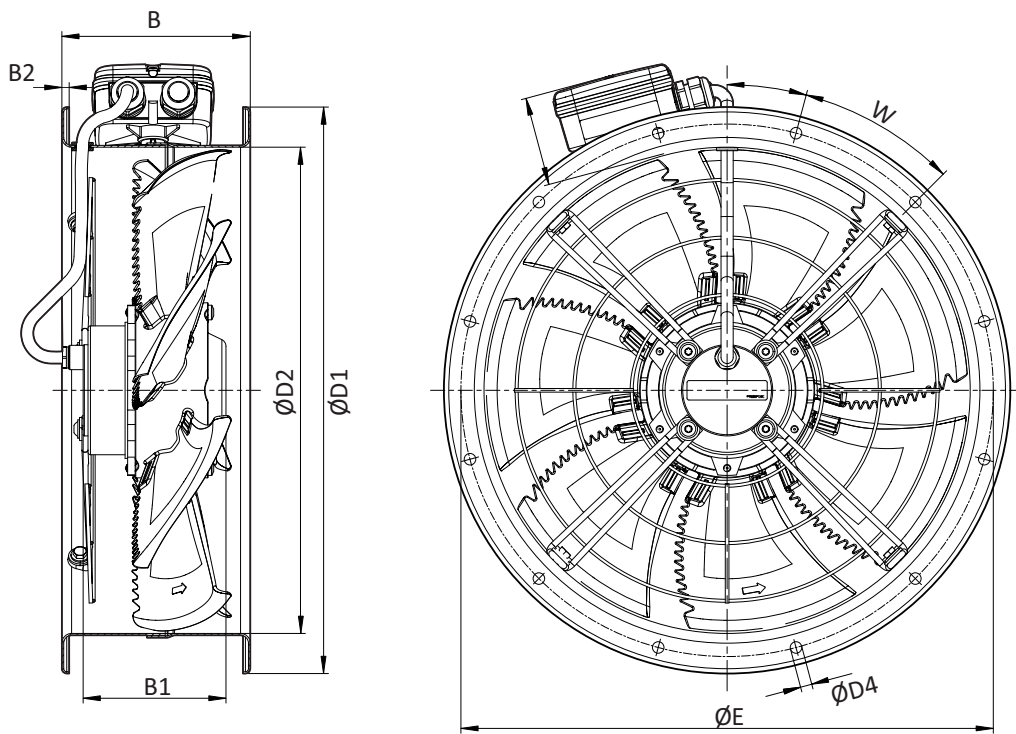


Where units have been supplied, without feet fitted, take all necessary measures & precautions to ensure the unit is fully supported and does not rely on adjoining ductwork for full weight bearing.

Only experienced fitters should undertake this work. Take necessary safety precautions when working in elevated positions.

Dimensions

Fig. 3



Dimension table
(in millimetres)

Fig. 4

Model	Dimension								Weight kg
	B	B1	B2	ØD1	ØD2	ØD4	ØE	W	
AX315/4-1	135	-	6	382	316.5	9.5	356	8 x 45°	6.1
AX350/4-1	135	137	6	421	356	9.5	395	8 x 45°	7.1
AX400/4-1	155	-	6	466	400	9.5	438	12 x 30°	9.8
AX450/4-1	160	175	6	515	451	9.5	487	12 x 30°	15.2
AX500/4-1	166	176	6	567	503	9.5	541	12 x 30°	15.7
AX560/4-3	210	228	7	635	539	11.5	605	16 x 22.5°	20.1
AX630/4-3	220	226	7	707	634	11.5	674	16 x 22.5°	44

Short Case Axial Fans

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Wiring 5

Warning



The electrical supply **must be fully isolated** before attempting to affect any work on this unit. All electrical connections to any unit must be carried out in accordance with the current edition of the I.E.E Regulations, only competent Electricians should be allowed to affect any electrical work to our units.

Important



It is the customer's responsibility to supply earth fault protection through the building installation device and a dedicated, isolated power supply with overload protection.

Warning



Do not connect any unit to an electrical supply voltage outside of the specification.

A local isolator must be fitted and mains cables should be suitably sized and terminated as shown on the underside of the fan terminal box lid, and in figures 6 and 7. Make the connection in the fan terminal box using the gland provided.

When used in conjunction with a speed controller make sure that the correct speed controller is used.

For details on connection of VES speed controllers to Short Case Axial Fans, please refer to:
ID179 - Single phase transformer speed controller.
ID835 - Three phase transformer speed controller.

Important



VES Short Case Axial Fans are suitable for operation with frequency inverters when the following points are observed:

- Between the inverter and the motor, sinusoidal filters should be incorporated which are effective for all phases (sinusoidal output voltage, phase against phase, phase against protective conductor) as offered by manufacturers.
- du/dt filters (also called motor or suppression filters) cannot be used in place of sinusoidal filters.
- When using sinusoidal filters, screened motor leads, metal terminal boxes and a second earth connection to the motor can, if necessary, be omitted. Checkback by the supplier of the sinusoidal filter.

If the operational leakage current exceeds 3.5 mA, earthing in compliance with EN 50 178, art. 5.2.11.1 must be provided.

Short Case Axial Fans

Installation, Operation & Maintenance Manual

Wiring 5 Continued

Standard Fan Details

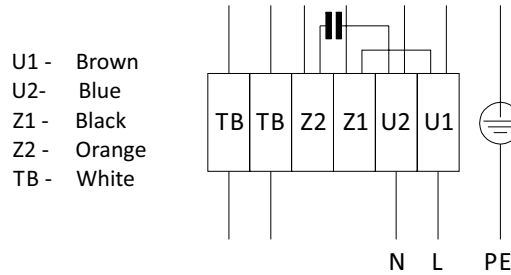
Fig. 5

Model	Fan Speed (rpm)	Motor Size (kW)	f.l.c	s.c	f.l.c	s.c	Speed Controller
			(A @ 230 V)		(A @ 400 V)		
AX315/4-1	1400	0.13	0.59	1.5			T1
AX350/4-1	1400	0.2	0.99	2.5			T1
AX400/4-1	1320	0.31	1.35	2.9			T4
AX450/4-1	1310	0.61	2.8	7			T4
AX500/4-1	1250	0.78	3.4	7.1			T4
AX560/4-3	1250/850	1.15/0.57			2.4/1.15	7.0/2.3	SC303
AX630/4-3	1310/1000	2.6/1.6			4.8/2.7	21/7.0	SC305

Standard wiring arrangement

1 Φ 230 VAC 50 Hz

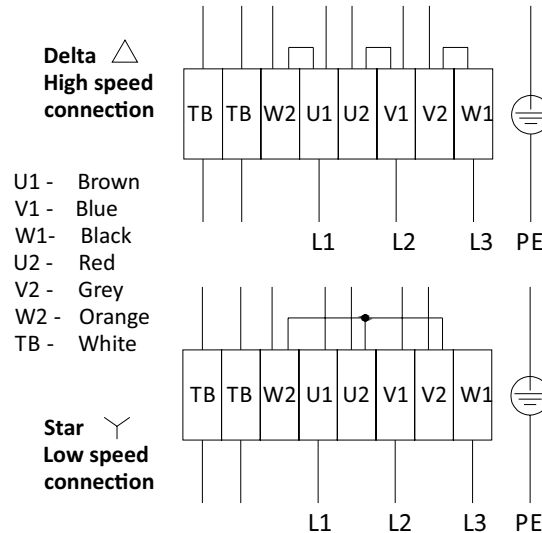
Fig. 6



Standard wiring arrangement

3 Φ 400 VAC 50 Hz
(Delta & Star config.)

Fig. 7



Important



A trial connection of the three phase (3Ph) supply should be made to check that the fan rotates in the correct direction as indicated on the fan. If the rotation is incorrect, interchange any two phases of the incoming supply at the terminal block.

Short Case Axial Fans Installation, Operation & Maintenance Manual

- Commissioning 6** Before operation, the following checks should be carried out:
- Installation and electrical connection have been carried out as per the instructions in this document and associated documents.
 - Safety equipment is in place, (terminal box cover overload protection, Isolators installed)
 - All leftover materials and other foreign materials have been removed from the fan cavity before start up.
 - Earth has been connected
 - Temperature monitor/motor protection has been connected if required.
 - Cable gland is properly sealed.
 - Check for correct fan rotation direction of three phase fans as stated on the fan blade. If the rotation is incorrect, interchange any two phases of the incoming supply at the terminal block.

If these checks are carried out, and risk is assessed as being low, the unit can be switched on.

- Maintenance 7** In general, this series of units require little maintenance. In the unlikely event of component failure, spares are available from stock at VES Andover Ltd.

Important



Before attempting to carry out any work on our units, all accompanying documentation including warning labels on the unit must be referenced. Should it be necessary to remove any component ensure that these are secured into position once reinstalled. It is critical that after any maintenance work has been conducted that all components removed/replaced be refitted correctly by a competent engineer.

Warning



Before attempting to carry out any maintenance work, investigative or repair work on our units, the unit **MUST BE COMPLETELY ISOLATED** from its electrical supply. Ensure a minimum of two minutes after electrical disconnection before removing access panels.

Caution



Care should be taken whilst cleaning the unit in the event that air movement should cause the fan to freewheel.

Annual Checks

Check inside the unit for an accumulation of dust, grease etc. If the fan impellor is heavily soiled, clean out carefully, ensuring the unit is properly isolated. Failure to do this periodically could lead to a loss of performance or the fan to become out of balance, leading to bearing/fan failure.

Spares & repairs

When enquiring about or ordering spares contact VES Spares Department, quoting the sales order (SO) number and unit type found on the unit nameplate.

Tel: 08448 15 60 60 - Fax: 02380 26 12 04

WEEE Directive



At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre. Do not dispose of with normal household waste. Do not burn.

PLEASE ENSURE THIS DOCUMENT IS PASSED ON TO THE END USER

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CE Declaration of Conformity

Date: 20th. May 2015
Product: Short Case Axial Fans
Type: AX
Manufacturer: VES Andover Limited

The product above is produced in accordance with EC Council Directives:

2004/108/EC (Electromagnetic Compatibility Directive)

2006/42/EC (Machinery Directive)

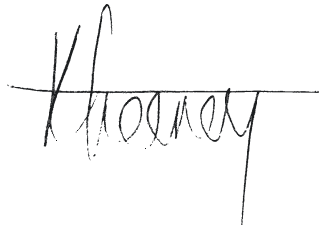
The European Harmonised Standards applied are:

BS EN ISO 12100:2010, BS EN ISO 13857:2008, EN61000, EN 60204-1, BS EN 60950-1:2006

Basis of Self attestation:

Quality Assurance to ISO 9001-2008, BSI Reg. Firm Cert. No. Q05375

Signature of Manufacturer:

Name:	Signature	Position of Signatory:
R. Peters		Deputy Managing Director
K. Feeney		Engineering Associate Director