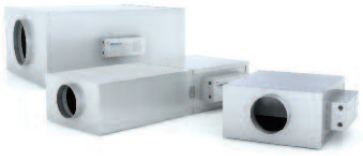
Patent applied for.

AIRE-VOLVE SINGLE FANS (AVS/AVSCP & AVS-A /AVS-ACP)

Single Fans for indoor use

Installation and Maintenance



The EMC Directive 2004/108/EC
The Low Voltage Directive 2006/95/EC

1.0 Introduction

AVS & AVS-A units are rectangular in section and have circular rigid spigots at each end.
Four matching mounting feet are supplied with the unit.

AVS units 1 - 9

Incorporate fully detachable top or bottom panels for maintenance and inspection purposes.
Note: Split access panel on AVS 8 and 9 units.

AVS-A units 1 - 6

Incorporate a full size access panel fitted to the bottom face which is fully detachable for inspection purposes. The underside access panel can be slid in either direction without removal, if required, see section 9.0.

AVS-A units 7 - 9

Incorporate a split access panel fitted to the bottom face which is fully detachable for inspection purposes. Each split access panel can be moved and opened individually and slid in either direction without removal, if required, see section 11.0.

AVS and AVS-A units shall be double skinned with 35mm infil panels and shall be manufactured from heavy gauge, corrosion resistant Aluzinc steel, internally lined with acoustic material. The units shall have fully detachable spigot ends for relocation onto matching attenuators.

The fan should be with an 'inline assembly', positioned in series for optimum performance.

The models are coded as follows:

Code descriptions

AVSCP 1-A
1 2 3 4 5

1. Aire-Volve range
2. Single fan
3. Constant Pressure option
4. Case sizes 1-9
5. Sliding access panel version

Fig. 1. General view of a standard AVS unit configuration.

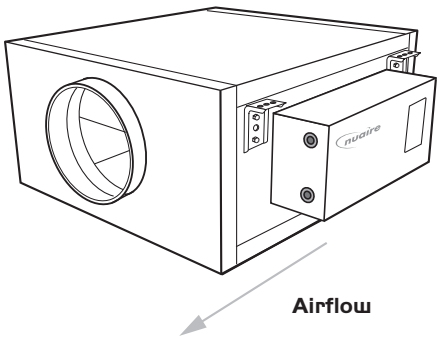


Fig. 2. Typical AVS unit (1 - 6) with silencer and four mounting feet employed for ceiling void installation.

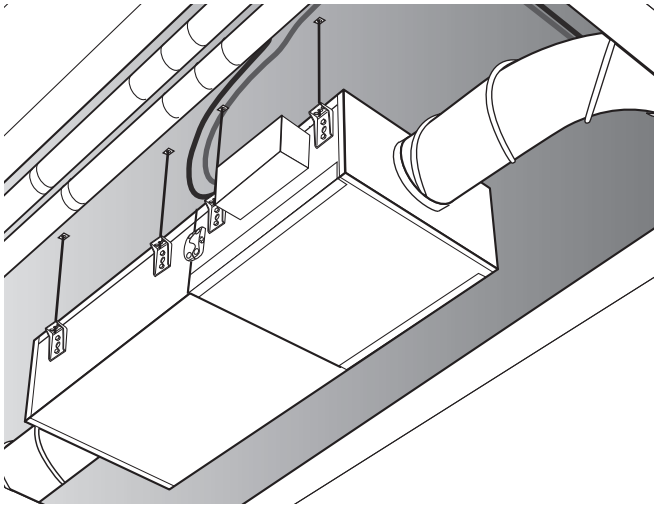
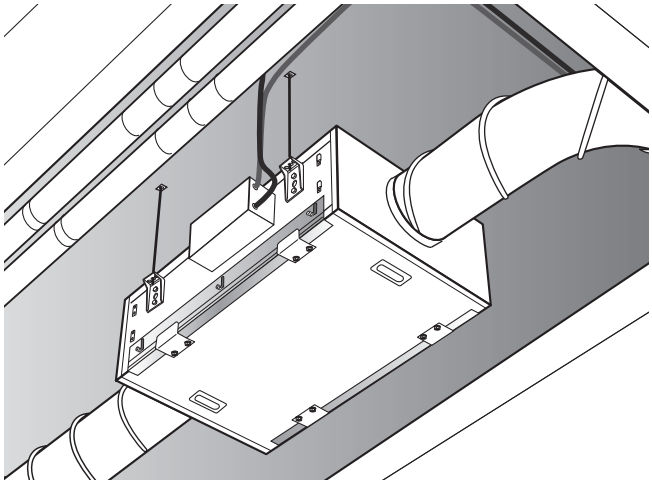


Fig. 3. Typical AVS-A unit (1 - 6) with four mounting feet employed for ceiling void installation.



2.0 Handling

Upon receipt of the equipment, an inspection should be made. Before commencement of lifting, ensure that normal equipment safety checks have been carried out.

The unit/sections should be removed from the vehicle using a fork lift or crane. Always handle with care to avoid damage and distortion, and where lifting slings are employed use spreaders to ensure slings do not come into contact with the unit case, or control pack. Correctly position slings to avoid twisting of the unit case and observe the centre of gravity before the final lift is made.

Note: the weight of the unit from the rating plate.
Dependent on model and size, units may be supplied in single or multi-modular sections. Handle each section individually do not stack for lifting or storage.

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3.0 Installation (AVS & AVS-A units)

The installation must be carried out by competent personnel in accordance with the appropriate authority and conforming to all statutory and governing regulations.

The units are supplied for installation into In-line ductwork (internal) applications only. The method of mounting used is the total responsibility of the installer.

Note: The units can be mounted in any attitude.

1. Surface mounting (AVS & AXS-A units)

Utilising four matching mounting feet. (see fig. 1).
Note: The mounting feet can be employed in surface or suspended applications.

2. Suspended with drop-rods (AVS & AXS-A units)

From the ceiling or in the ceiling void using four A.V. mounting feet supplied, with access panel positioned for underside access. (see fig. 2).

3. Vertical wall mounting (AVS-A units)

Utilising hanging wall brackets and hinges (see fig. 5a and 5b).
Vertical Mounting Kit Code: AVT-VK.

Units should always be positioned with sufficient space to allow the access panel to extend forward.

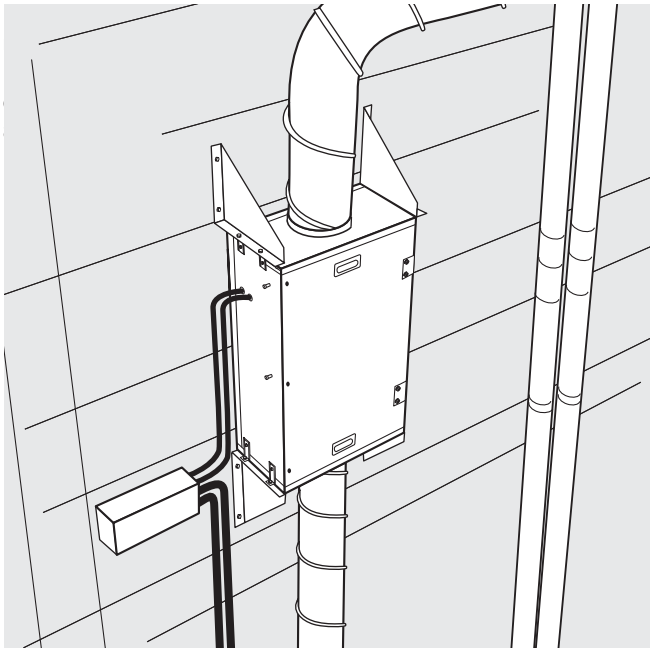
The unit has an external case side mounted control module/ terminal box and is supplied ready for connection into the electrical supply. The control is mounted on the side of the unit as standard but it's position can be changed to the other side of the unit if required, see page 15 (fixings by others).

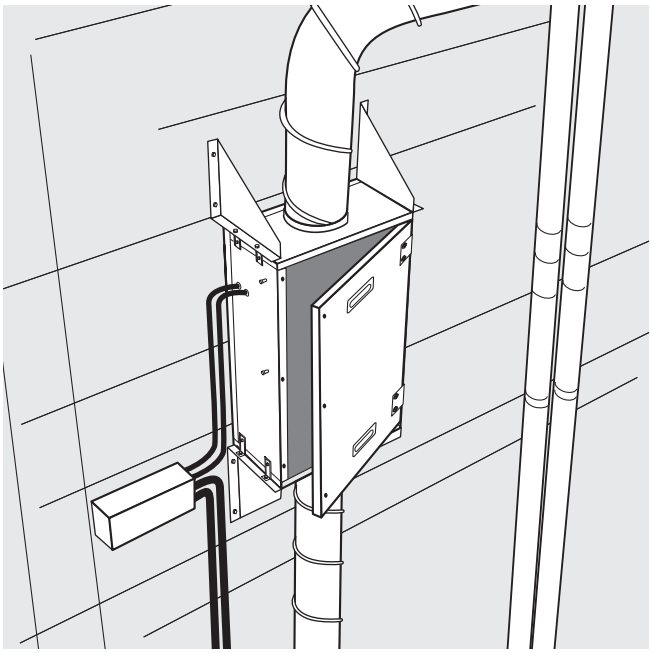
As an option, an umbilical cord can be purchased for remote mounting up to 1m away, as shown in fig. 5a.
Umbilical Cord Kit Codes:

Single Fan Units	Umbilical Cord Kit Ref:
AVS2, AVS3 & AVS4H	776902
AVS4, AVS5 & AVS6	775932
AVS7 & AVS8	7703976
AVS9	N/A

All ductwork connections must be airtight to prevent loss of performance.
The unit is supplied with a side mounted control as standard. The unit can be mounted in any orientation, enabling alternative control positions. Access to the blower for maintenance can still be achieved for annual maintenance once orientation is changed, although if the motor requires replacing the unit will have to be lowered to ground level if installed in non-standard configuration.

All ductwork connections must be airtight to prevent loss of performance.





3.1 Rigid mounting

Note, the unit case has captive M8 nuts which can be used after removing the M8 'plugging' screws.

ee page 3 for Anti-vibration / Resilient Mounting details).

IMPORTANT

AV mounts isolate the fan only. Silencers/ backdraught dampers and other "significant mass" accessories should form part of the fixed ductwork after the flexible connection.

3.2 Anti-Vibration / Resilient Mounts

Suspension rods / fixing screws are not supplied. Note that the large round washers included in the resilient mounting kits are for fitting above or below the resilient mounting as required to safeguard the installation against break-up of, or damage to, a mounting. In the event of a resilient mounting failure the washer will support the weight of the unit.

Anti-vibration mounting kits are available in both rubber and spring type, the correct selection and type employed will depend on the accurate calculation of the weight of the assembly to be supported.

Anti-Vibration (AV's) / Resilient Mounts Installation

AV mounts should not be fitted to a fan/ silencer assembly unless there are flexible connectors fitted between the assembly and associated duct work. AV mounts should be installed with the matched mounting feet and positioned such that they carry an equal proportion of the assembly weight. This is particularly important where fans and silencers are installed on suspension rods.

Dimensions (mm) & Weights

Figure 6a. **NAV 1 to NAV 5 (Resilient Rubber)**

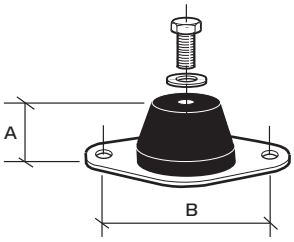
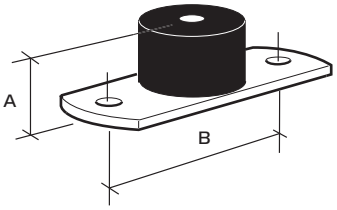


Figure 6b. **NAV 6 (Resilient Rubber)**



Rubber Type

Code	A	B	Max. supporting weight (Kg)
NAV1	30	50	20
NAV2	40	75	80
NAV3	40	75	180
NAV4	40	75	260
NAV5	40	75	130
NAV6	50	100	320

Note: Fans using size NAV 6 upwards require supporting steelwork to be designed (by others) for suspended applications.

IMPORTANT

WARNING: AV mounts must only be subjected to compressional forces and MUST NOT be used in a configuration that places these parts under tension or shear force.

Figure 6c. **NAV 1 to NAV 5 (Resilient Rubber) Correct suspended configuration.**

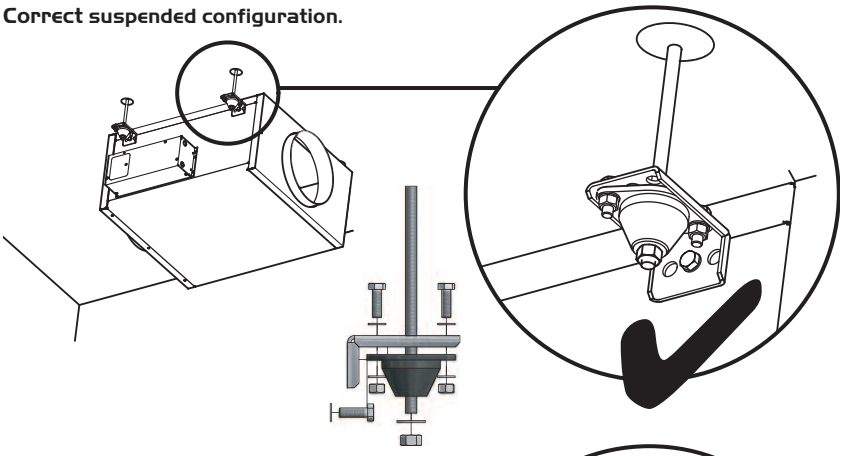


Figure 6d. **NAV 1 to NAV 5 (Resilient Rubber) Correct floor mounted configuration.**

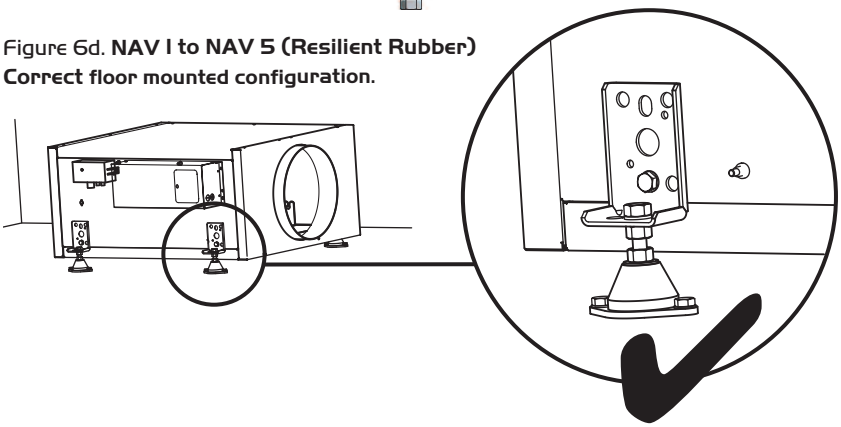


Figure 6e. **NAV 1 to NAV 5 (Resilient Rubber) Correct suspended configuration.**

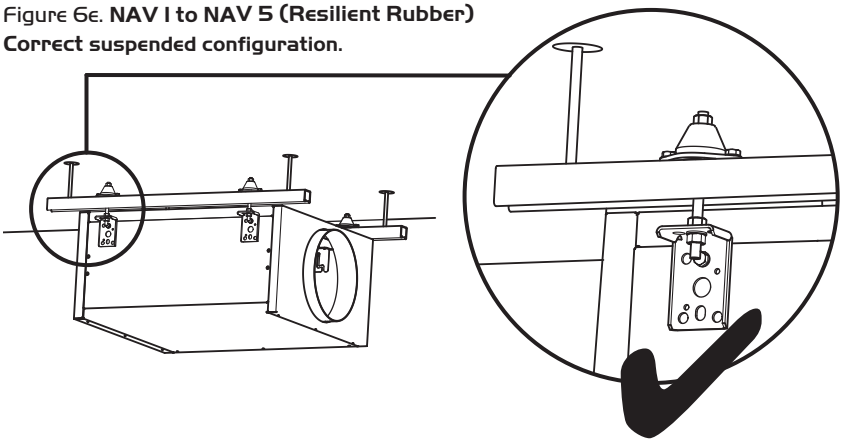
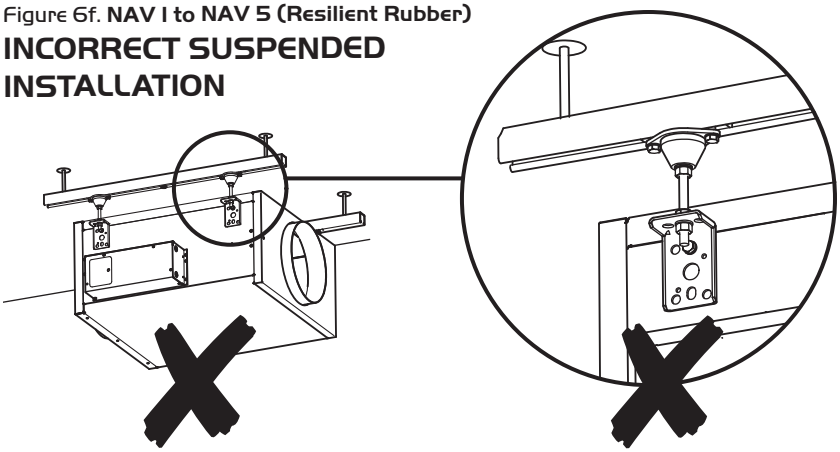


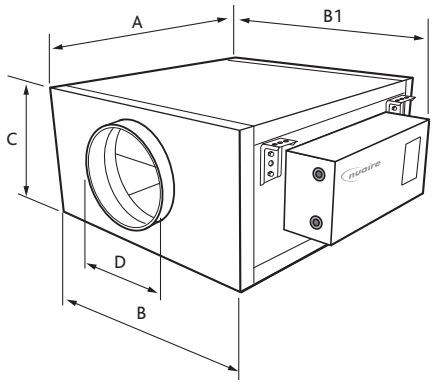
Figure 6f. **NAV 1 to NAV 5 (Resilient Rubber)**

INCORRECT SUSPENDED INSTALLATION



4.0 (AVS units 1 - 9) dimensions (mm) & weights

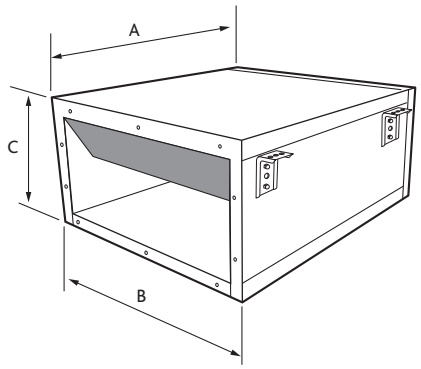
Fig. 7a.



Code	Dim A. inc. end panels (77mm)	Dim A. + spigot length (85mm)	B	Dim B + control (108mm)	C	D	Weight (Kg)
AVS1	580	665	535	NA	250	200	27
AVS2	615	700	535	643	285	200	24
AVS3	745	830	672	780	334	250	43
AVS4	788	873	672	780	376	315	47
AVS4L	914	999	822	930	395	315	67
AVS5	914	999	822	930	428	315	66
AVS6	1087	1172	915	1013	545	400	90
AVS7	1180	1265	1013	1121	575	400	106
AVS8	1338	1423	1237	1345	615	500	157
AVS9	1338	1423	1237	1345	615	500	141

4.1 (AVS units 1 - 9) Matched silencer dimensions (mm) & weights

Fig. 7b.



Fan Code	Size	Silencer Code	A	B	C	Weight (Kg)
AVS1	Short	AVS1-MSM	500	535	250	27
	Standard	AVS1-MSS	1000	535	250	32
	Long	AVS1-MSL	1500	535	250	45
AVS2	Short	AVS2-MSM	500	535	285	27
	Standard	AVS2-MSS	1000	535	285	32
	Long	AVS2-MSL	1500	535	285	45
AVS3	Short	AVS3-MSM	500	672	334	27
	Standard	AVS3-MSS	1000	672	334	39
	Long	AVS3-MSL	1500	672	334	56
AVS4	Short	AVS4-MSM	500	672	376	34
	Standard	AVS4-MSS	1000	672	376	39
	Long	AVS4-MSL	1500	672	376	56
AVS4L	Short	AVS4L-MSM	500	822	376	34
	Standard	AVS4L-MSS	1000	822	376	39
	Long	AVS4L-MSL	1500	822	376	56
AVS5	Short	AVS5-MSM	500	822	428	43
	Standard	AVS5-MSS	1000	822	545	64
	Long	AVS5-MSL	1500	822	545	89
AVS6	Short	AVS6-MSM	500	915	545	43
	Standard	AVS6-MSS	1000	915	545	64
	Long	AVS6-MSL	1500	915	545	89
AVS7	Short	AVS7-MSM	500	1013	575	43
	Standard	AVS7-MSS	1000	1013	575	41
	Long	AVS7-MSL	1500	1013	575	98
AVS8	Short	AVS8-MSM	500	1237	615	51
	Standard	AVS8-MSS	1000	1237	615	83
	Long	AVS8-MSL	1500	1237	615	14
AVS9	Short	AVS9-MSM	500	1237	615	51
	Standard	AVS9-MSS	1000	1237	615	92
	Long	AVS9-MSL	1500	1237	615	125

5.0 (AVS units 1 - 6) Moving, opening and closing the access panel

Fig. 8a. Typical underside view of fan unit showing end panel fixings and captive base panel fixings.
Unit can be installed inverted for ease of access to control (control opposite side).
Note: If inverted it will restrict access to blower.
Note: Split panels on units 8 and 9.

Step 1: Release 6 base fixings (note captive).

Step 2: Release 6 lower end panel fixings 3 each end of the unit.

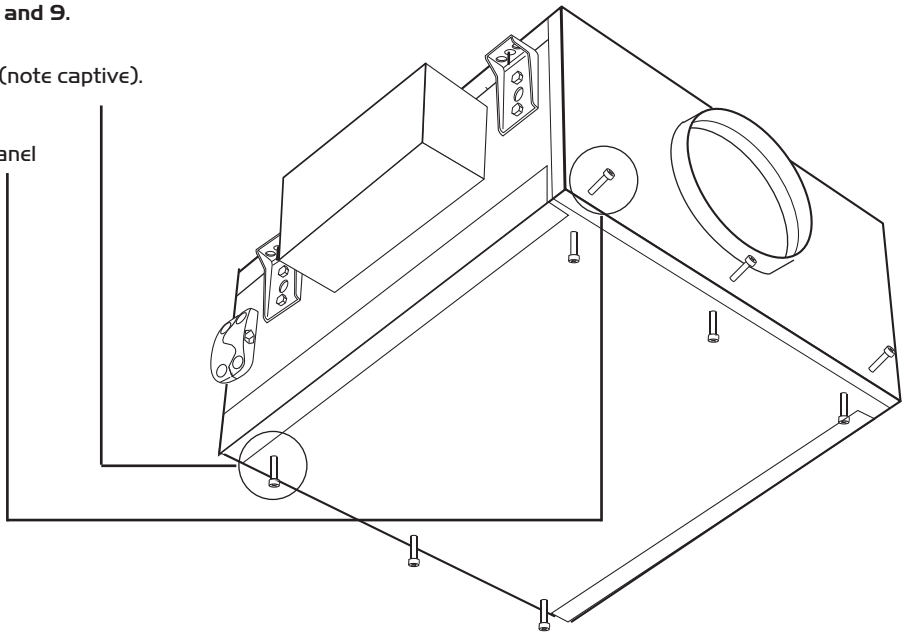


Fig. 8b.Typical side view of fan unit.
Step 3: lower panel, 4 internal brackets will prevent the panel from releasing.

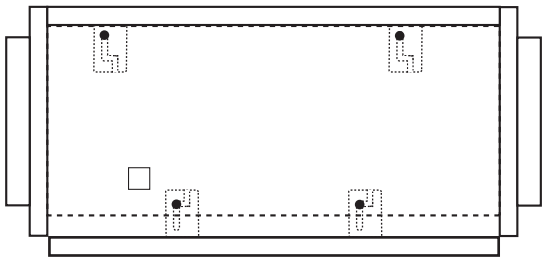


Fig. 8c. Step 4: Support the weight of the panel and slide access panel.

AVS Access panel weights

Unit code	kg	Unit code	kg
AVS1	6	AVS5	7
AVS2	6	AVS6	17
AVS3	9	AVS7	21
AVS4	10	AVS8	14 per panel
AVS4L	7	AVS9	14 per panel

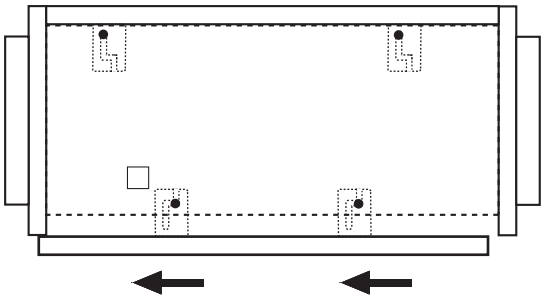
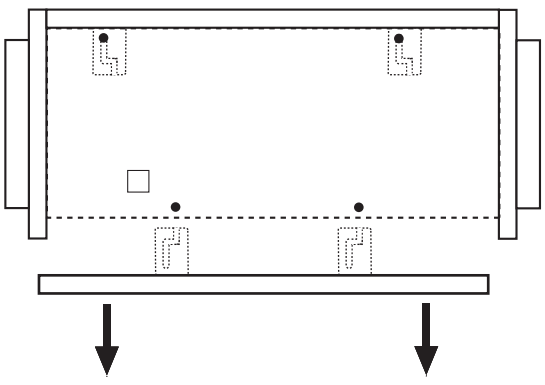


Fig. 8d. Step 4: Continuing to support the weight of the panel then lower the access panel to gain access to the unit interior.



IMPORTANT

Assistance will be required to support load of access panel.

6.0 (AVS units 1 - 9) Fitting matched silencers

To change orientation of attenuator pod just turn silencer over before fitting and use fixing brackets as shown in Figs 9a / 9b.

Fig. 9a. Ensure fixing brackets halves are correctly aligned and assemble using M8 Cap head bolt and nut supplied with bracket.

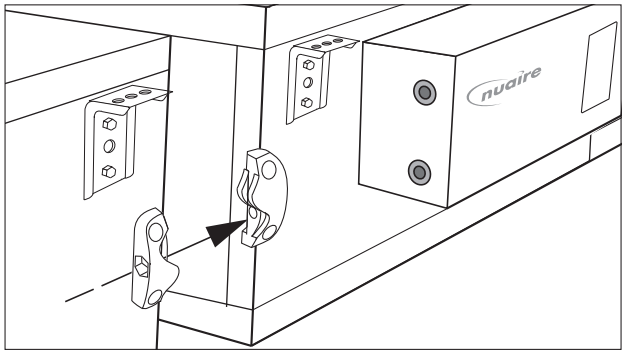


Fig. 9b. Once located, tighten bolts ensuring seal between silencer and seal is achieved.

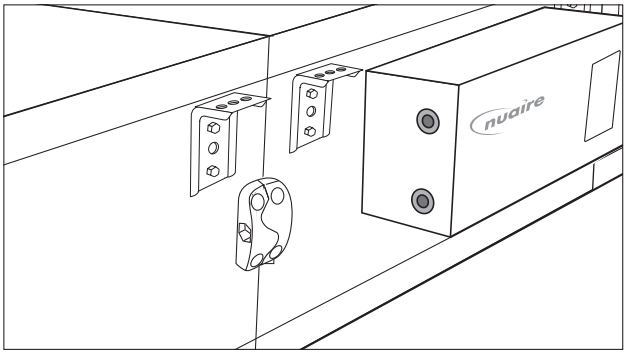
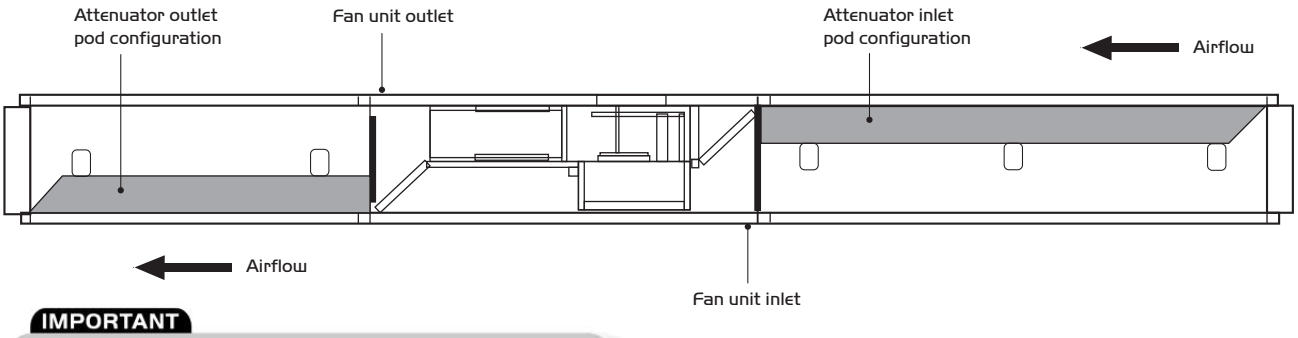


Fig. 10. Typical side section view of outlet silencer, Aire-Volve unit and inlet silencer.



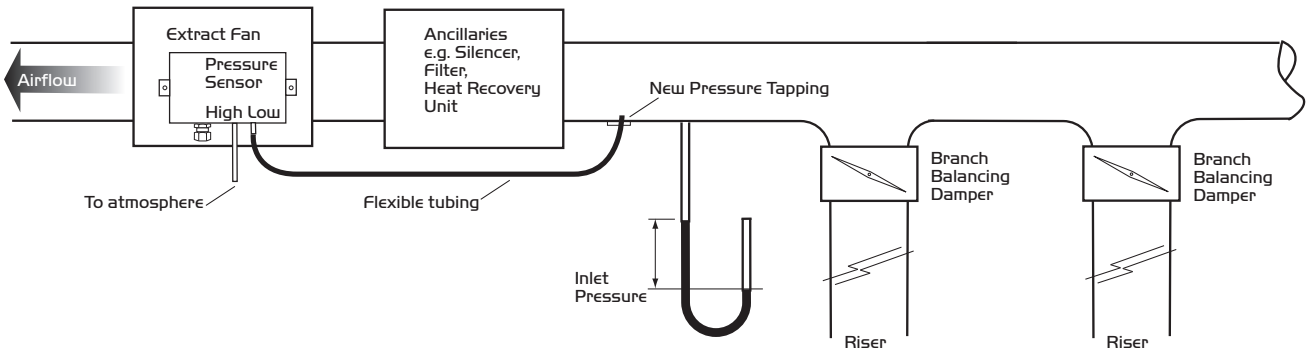
IMPORTANT

Ensure that the attenuator pods are in the correct orientation as shown in fig 9c.

7.0 AVSCP/AVS-ACP Constant pressure range - controlling static pressure at fan inlet

Ecosmart constant pressure extract fans are supplied to control the static pressure at the fan inlet.
This set up is suitable for the majority of applications. However, when ancillaries with high pressure losses are fitted to the fan's inlet side, the low pressure tapping needs to be moved from the fan chamber to a location upstream of the ancillaries as shown below in fig. 11.
Failure to do this will result in excessive pressure being applied to the dampers at the rooms when the system is running in trickle mode.

Fig. 11.



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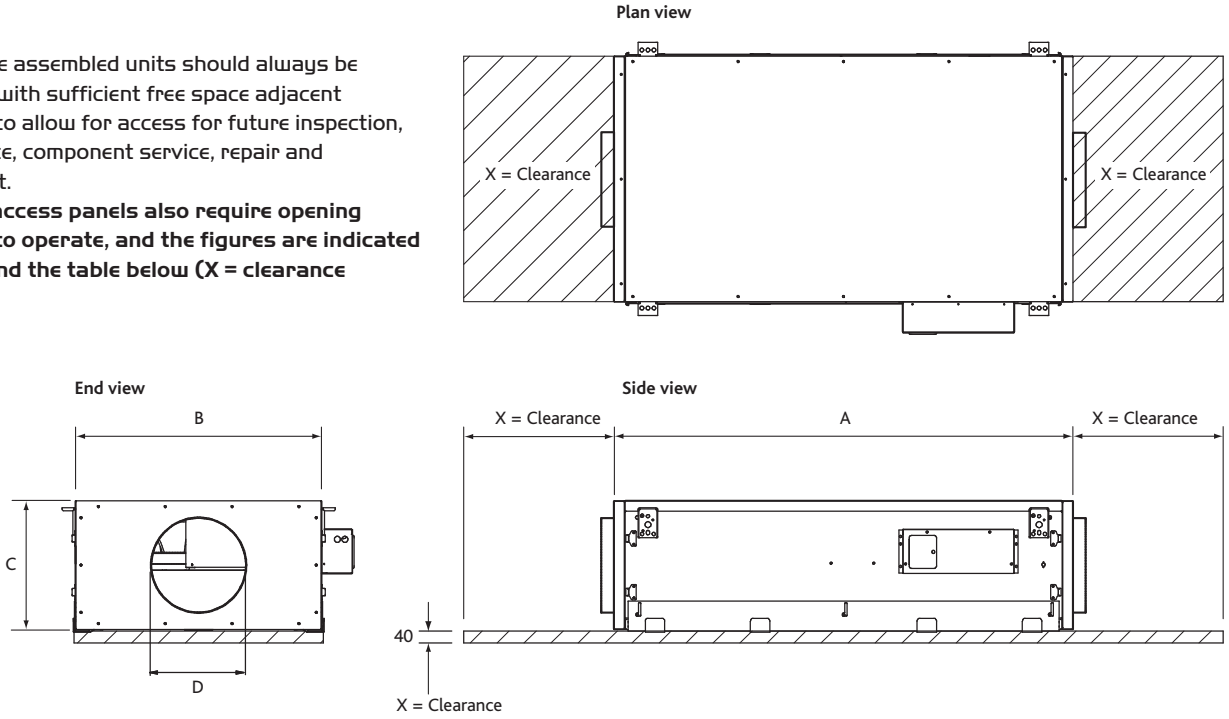
8.0 (AVS-A units 1 - 9) dimensions (mm) & weights

Fig. 12. Once assembled units should always be positioned with sufficient free space adjacent to the unit to allow for access for future inspection, maintenance, component service, repair and replacement.

Note: The access panels also require opening clearance to operate, and the figures are indicated in Fig 12. and the table below (X = clearance required).



Fan Code	A	Dim A + spigot length (100mm)	B	Dim B + control	C	Spigot D (dia)	Weight (kg)	X = Clearance required	FLC
AVS1-A	931	1031	544	648	250	200	40	430	0.75
AVS2-A	968	1068	543	647	285	200	42	430	1.4
AVS3-A	1186	1286	681	785	334	250	62	555	1.35
AVS4-A	1229	1329	681	785	376	315	60	655	3.1
AVS5-A	1531	1631	827	931	433	315	89	880	3.5
AVS6-A	1729	1829	921	1025	545	400	136	830	2.9
AVS7-A	1892	1992	1019	1123	575	400	159	655	3.5
AVS8-A	2238	2338	1244	1348	615	500	215	635	3.2
AVS9-A	2238	2338	1244	1348	615	500	235	635	1.85

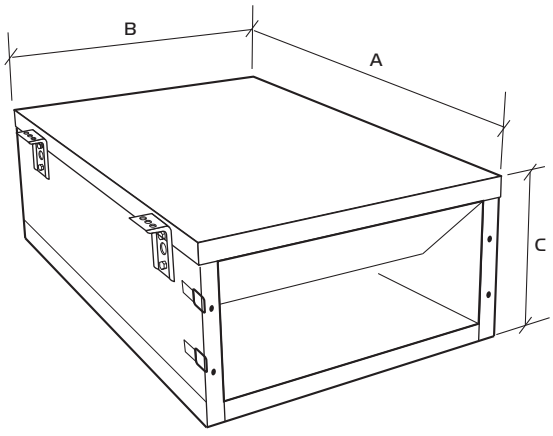
8.1 (AVS-A units 1 - 9) Matched silencer dimensions (mm) & weights

Matched silencers with double walled aluzinc construction and 35mm infill acoustic lining provides the best acoustic solution.

Easy fit matching silencers with simple integral brackets can be easily incorporated into existing drop rod systems helping to reduce install time on site.

Fig. 13. Dimensions (mm).

Fan Code	Size	Silencer Code	A	B	C	Weight (kg)
AVS1-A	Short	AVT1-MSS	1000	544	260	32
	Long	AVT1-MSL	1500	544	260	45
AVS2-A	Short	AVT2-MSS	1000	543	286	32
	Long	AVT2-MSL	1500	543	286	45
AVS3-A	Short	AVT3-MSS	1000	681	332	39
	Long	AVT3-MSL	1500	681	332	56
AVS4-A	Short	AVT4-MSS	1000	681	374	39
	Long	AVT4-MSL	1500	681	374	56
AVS5-A	Short	AVT5-MSS	1000	827	481	44
	Long	AVT5-MSL	1500	827	481	65
AVS6-A	Short	AVT6-MSS	1000	921	552	64
	Long	AVT6-MSL	1500	921	552	89
AVS7-A	Short	AVT7-MSS	1000	1019	653	41
	Long	AVT7-MSL	1500	1019	653	98
AVS8-A	Short	AVT8-MSS	1000	1244	753	83
	Long	AVT8-MSL	1500	1244	753	114
AVS9-A	Short	AVT9-MSS	1000	1244	774	92
	Long	AVT9-MSL	1500	1244	774	125



9.0 (AVS-A Units 1 - 6) Moving, opening and closing the access panel

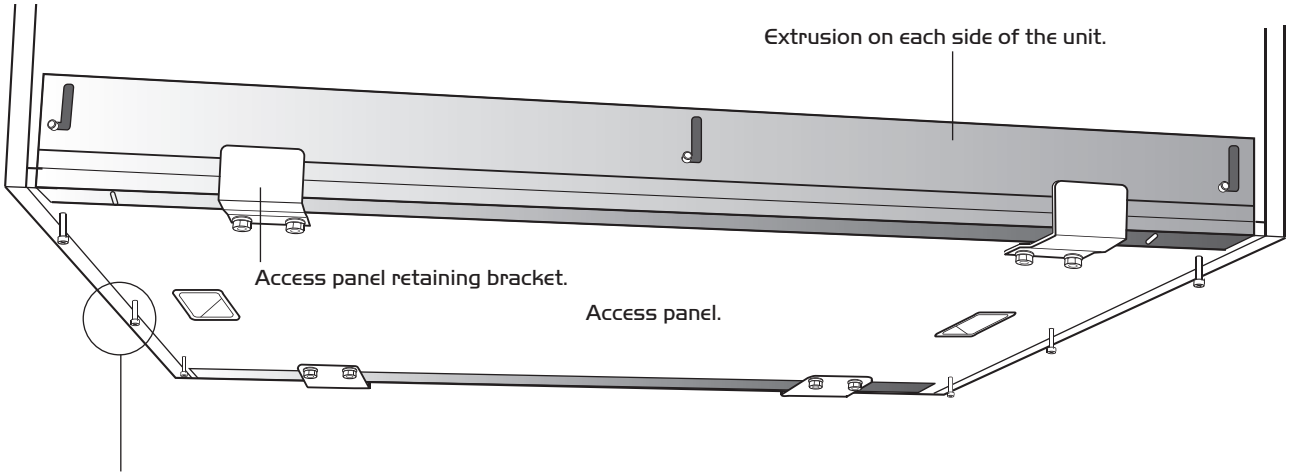


Fig 14a. Step 1: Release 6 base fixings, 3 each end of the access panel. (Note: captive fixings).

Fig 14b. Step 2: Release 6 lower end panel fixings, 3 each end of the unit.

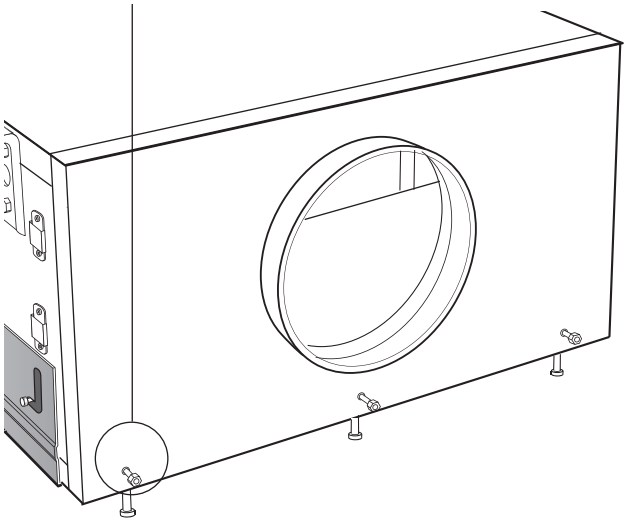


Fig 14c. Step 3: Lower the extrusion containing the access panel (on each side of the unit) so the 3 extrusion fixings move to the top of the 3 "L" cut-out shapes in the sides of the extrusions as shown in Fig 14d (B). When completed the extrusions/access panel will drop down by the depth of the "L" cut-out shapes enabling the access panel to be slid open, see Fig 15a.

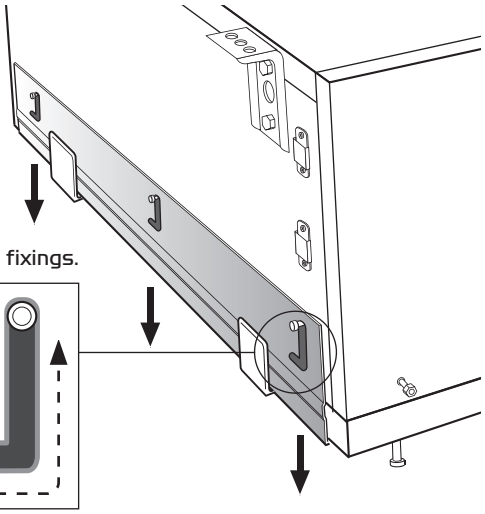


Fig 14d. Extrusion fixings.

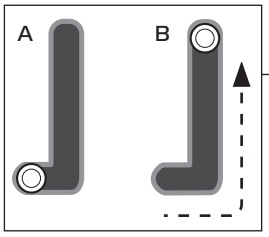
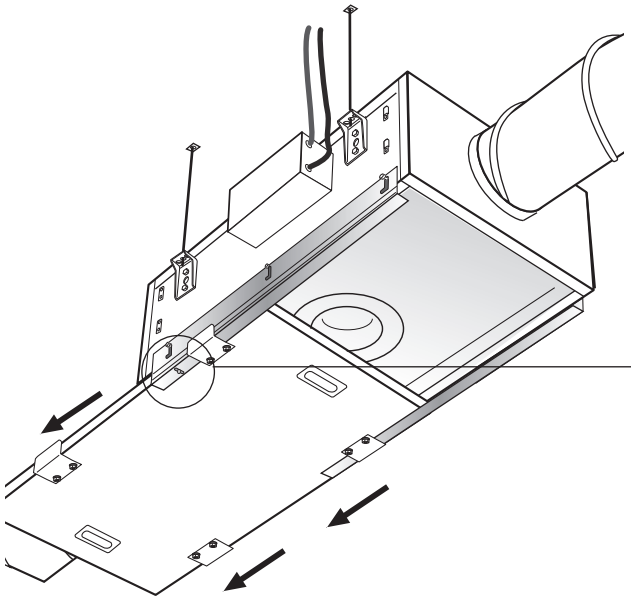
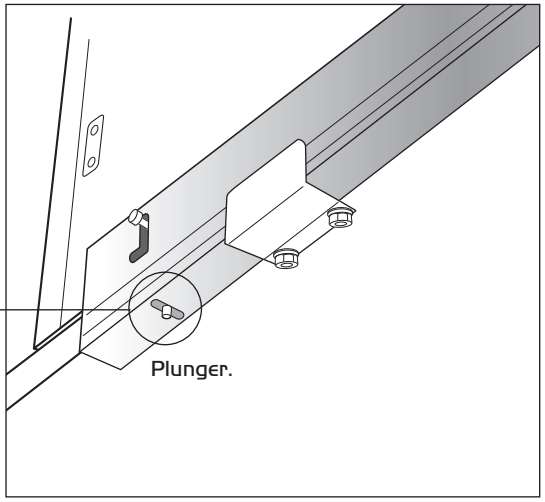


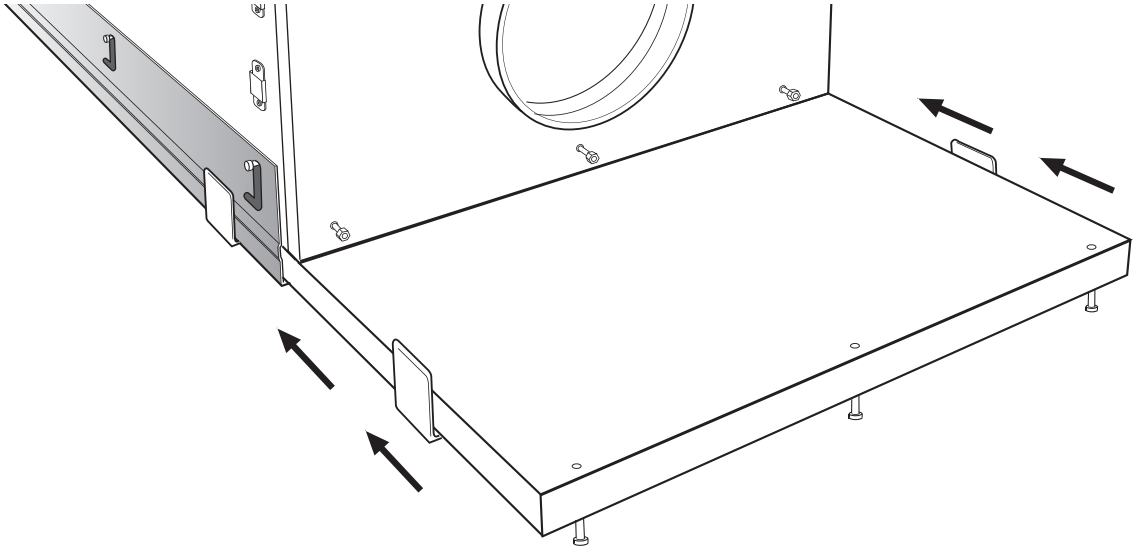
Fig 15a. Step 4: Slide access panel open along the inside of the extrusions until the plunger locks into the base of the extrusion to gain access to the blowers.





10.0 (AVS-A Units 1 - 6) Moving, opening and closing the access panel cont.

Fig 15B. Step 5: To close the access panel, ensure retaining brackets are aligned then push plungers back into the extrusion base to release access panel, before sliding back to its original aligned position.



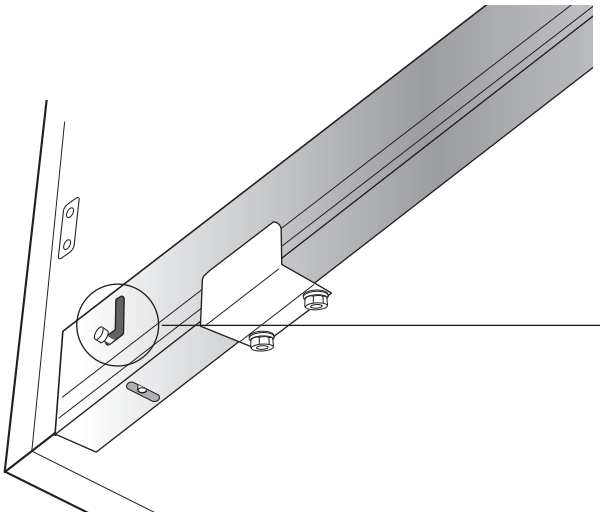


Fig 15c. Step 6: Lift the extrusion (on each side of the unit) containing the access panel to its original position so that the 3 extrusion fixings move back to the bottom of the "L" cut-out shapes as shown in (A) Fig 15d and lock.

Fig 15d. Extrusion fixings.

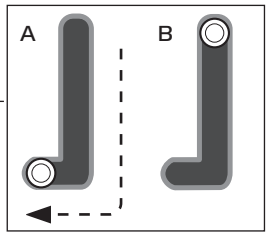
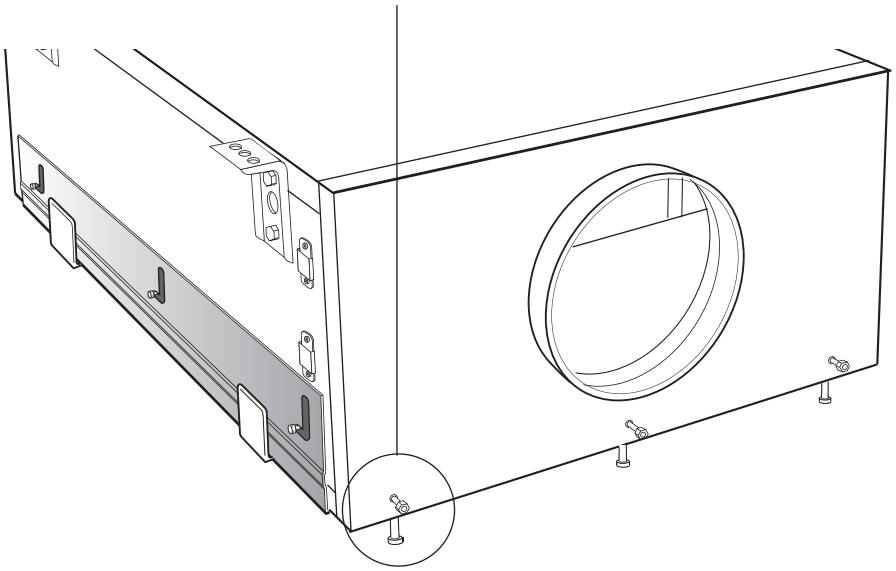


Fig 15e. Step 7: To complete closure of the access panel and make secure, retighten 6 lower end panel fixings, 3 each end of the unit and the 6 base fixings, 3 each end of the access panel.



11.0 (AVS-A Units 7 - 9) Moving, opening and closing the split access panels

Plungers/runner mechanism/access panel 1 in closed position.

Plungers in released position with runner mechanism/access panel 2 lowered for opening.

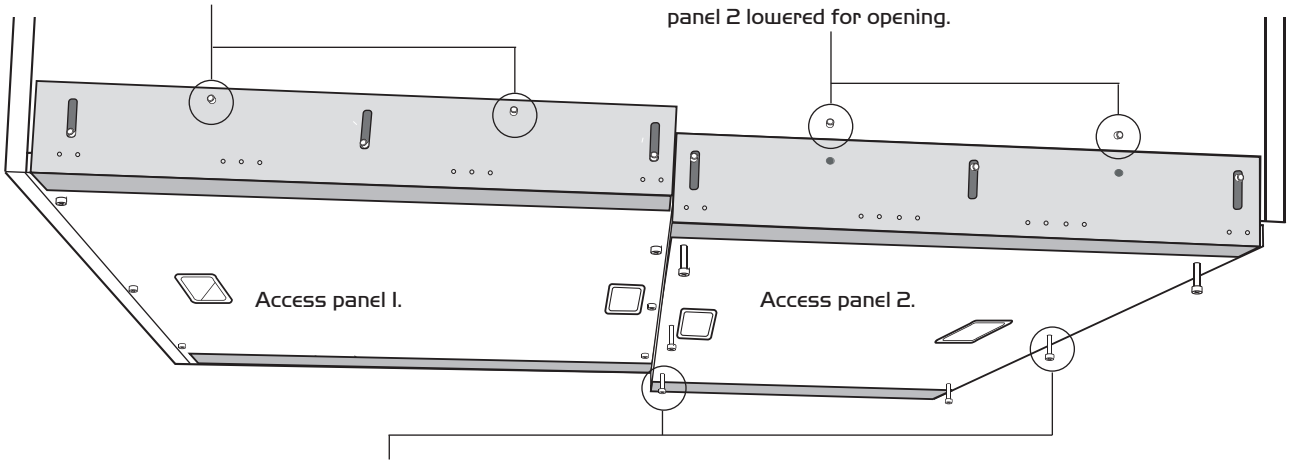
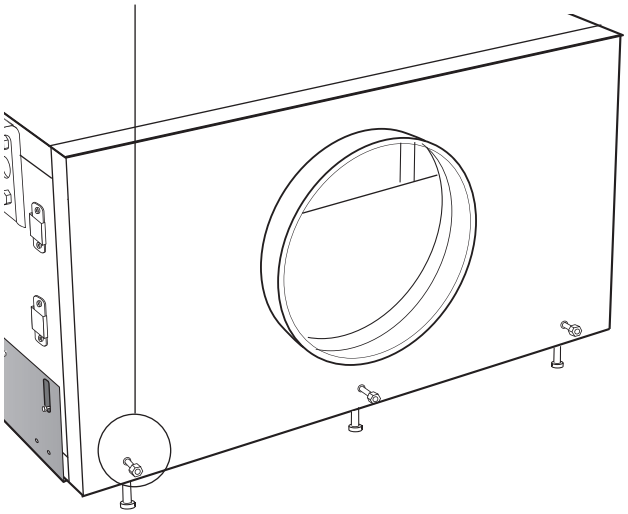


Fig 16a. Step 1: Release 6 base fixings, 3 each end of each access panel. (Note: captive fixings).

Fig 16c. Step 3: Lower the 2 runner mechanisms containing each split access panel by releasing the plungers on each side of the unit so the runner fixings move to the top of the cut-out slots as shown in Fig 16d (B). When completed the runners/access panel(s) will drop down by the depth of the cut-out slots enabling the access panel(s) to be slid open.

Fig 16b. Step 2: Release 6 lower end panel fixings, 3 each end of the unit.



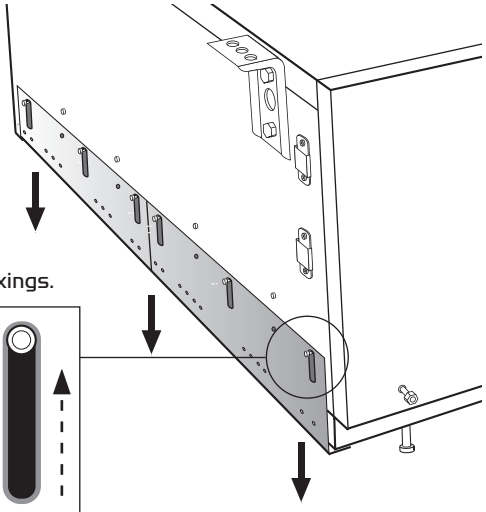


Fig 16d. Runner fixings.

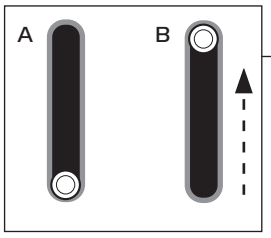
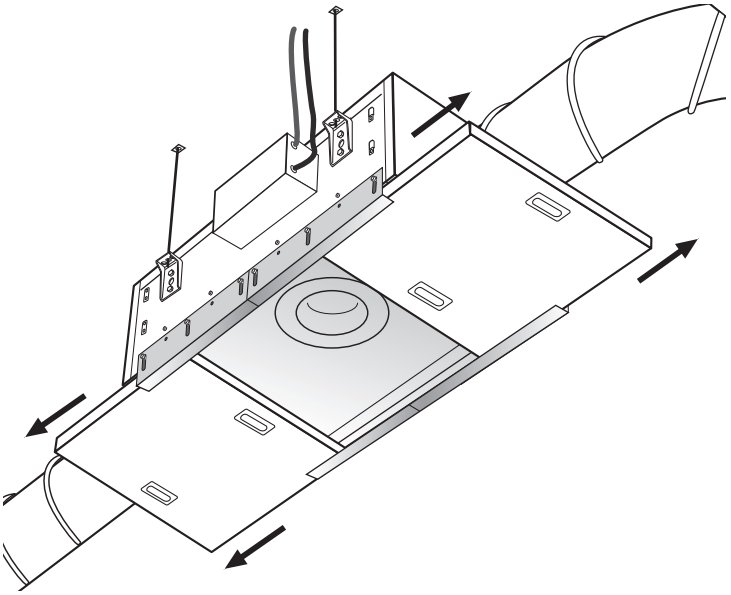
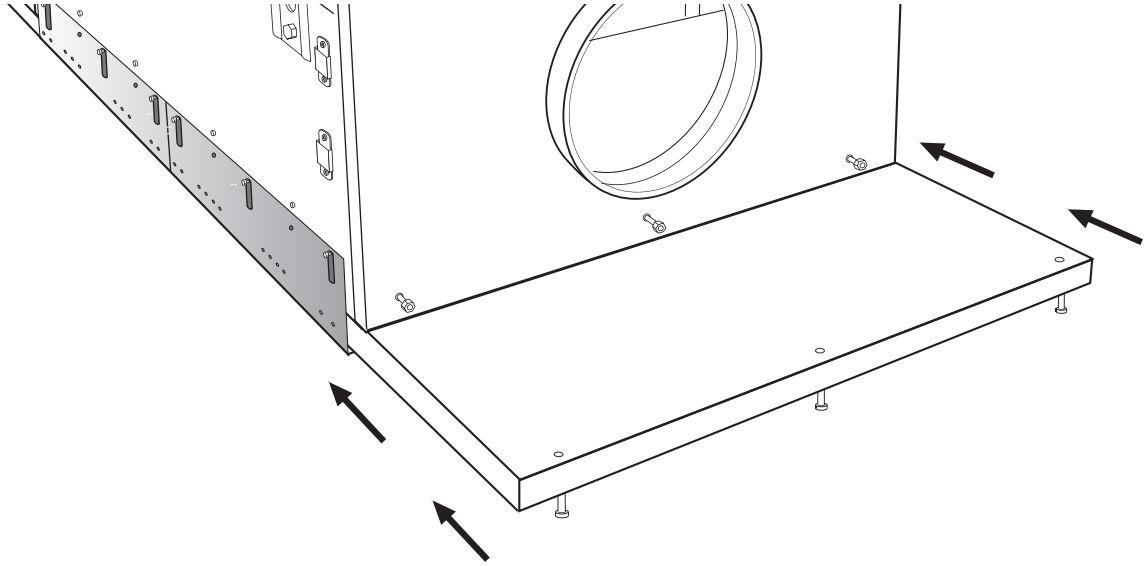


Fig 17a. Step 4: Slide access panel(s) open along the inside of the runner mechanism to gain access to the blowers.



II.I (AVS-A Units 7 - 9) Moving, opening and closing the split access panels cont.

Fig 17b. Step 5: To close the access panel(s) slide the access panel(s) back to the original aligned position.



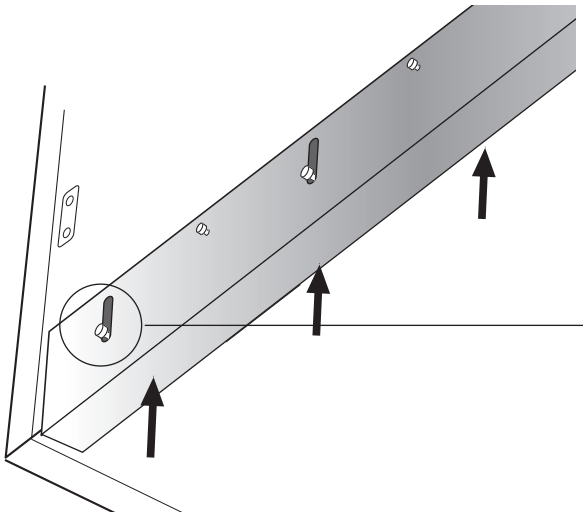


Fig 17c. Step 6: Lift the runner mechanism (on each side of the unit) containing the access panel(s) to the original positions so that the runner fixings move back to the bottom of the cut-out slots as shown in (A) Fig 17d and re-set the plungers in the closed position.

Fig 17d. Runner fixings.

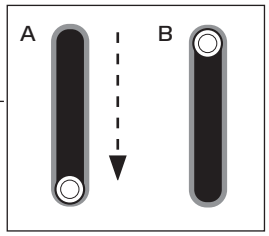
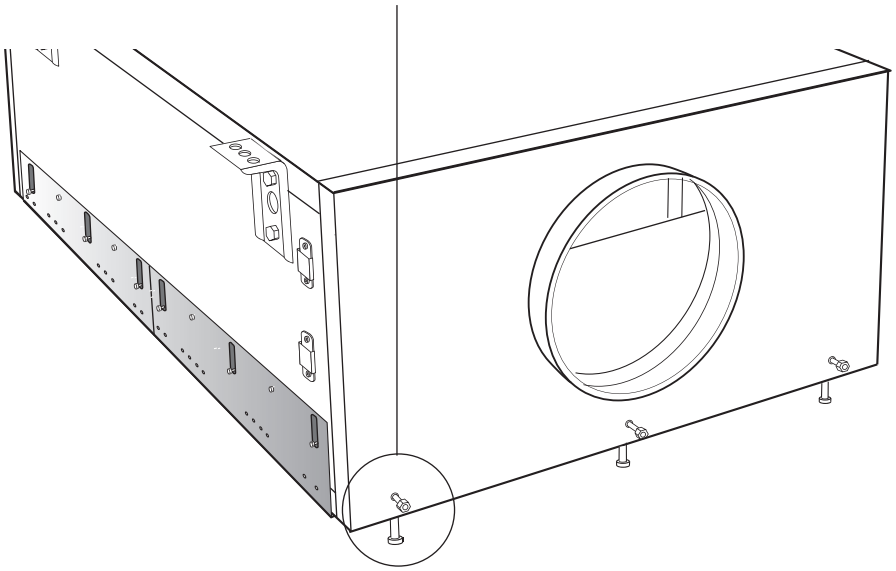


Fig 17e. Step 7: To complete closure of the access panel(s) and make secure, retighten 6 lower end panel fixings, 3 each end of the unit and then the 6 base fixings, 3 each end of each access panel.



12.0 (AVS-A units 1 - 9) Fitting matched silencers

Fig. 18a. Remove spigot panels from each end of the main unit and relocate them to the open silencer ends. The coupling system located on the sides of the silencers and Aire-Volve unit simply clips together with additional alignment bolts.
(Note: Ensure alignment bolts are correctly located).

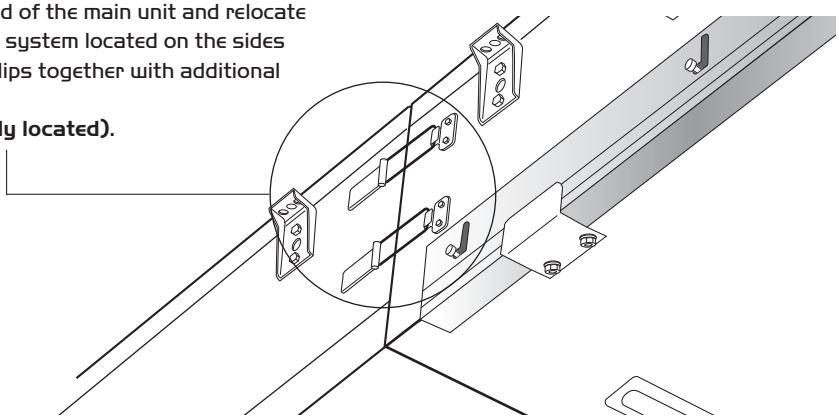
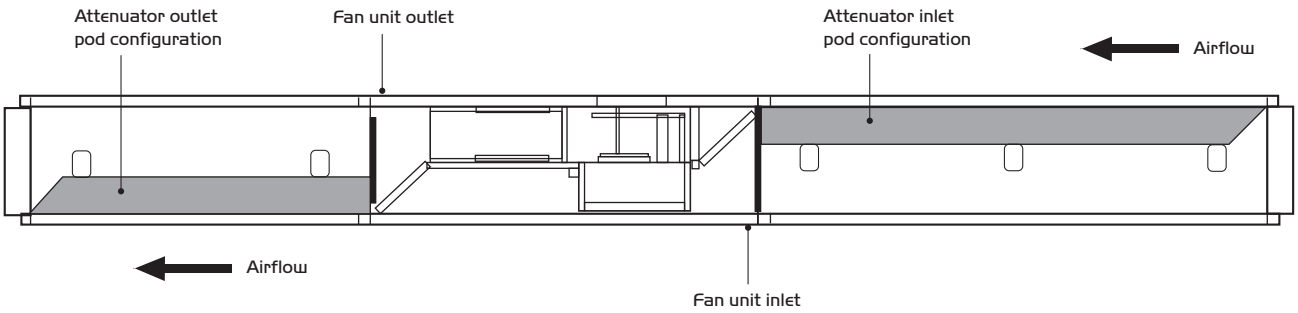


Fig. 18b. Typical side section view of outlet silencer, Aire-Volve unit and inlet silencer.



IMPORTANT

Ensure that the attenuator pods are in the correct orientation as shown in fig 9c.

13.0 Electrical detail

Because the run and start currents depend upon the duty and associated ductwork of an individual unit, run currents will be exceeded if the unit is operated with its cover removed. It is therefore recommended that the unit is not run for prolonged periods in this condition.

13.1 Testing after installation

Ensure that the fan unit and any specified controls are fitted securely according to the instructions.

Switch on the mains supply. push the test button to run each fan and check that they run satisfactorily.

If a switched live signal is used, activate this signal and check that the fan runs. De-activate the switched live signal and check the run-on-time; adjust if necessary.

Adjust the set point of any sensors and PIR; check that they function correctly. Adjust the maximum and minimum airflow (if required) by following the commissioning procedures.

IMPORTANT

Isolation - Before commencing work make sure that the unit, switched live and Nuaire control are electrically isolated from the mains supply.

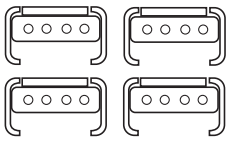
14.0 Wiring Connections

a) Mains connections

Mains cables should be suitably sized and terminated at terminals shown on the appropriate diagram.

b) Control Connections

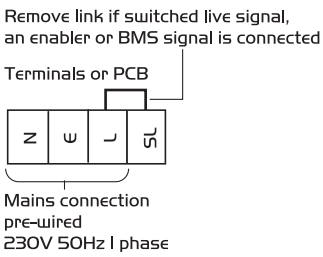
Figure 19. 'Net' connection for Ecosmart devices.



Net - the 4 IDC plug-in connectors are provided for the connection of compatible sensors, manual controls and for linking the fans together under a common control. If more than 4 connections are required, the junction box (product code ES-JB) should be used (see data cable installation).

c) Switched Live (SL) terminal

Figure 20.

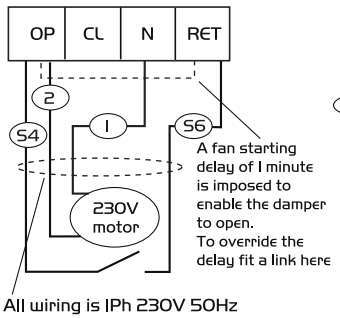


A signal of 100-230V a.c. will activate the fan from either its off state or trickle state (see setting to work-trickle switch). When the SL is disconnected the fan will over-run (see setting to work-timer adjustment).

Do not take this signal from an isolating transformer.

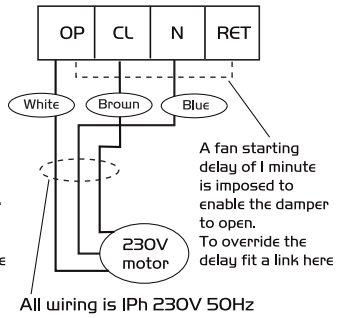
d) Damper connections

Figure 21a. Drive open/Spring close.



All wiring is 1Ph 230V 50Hz

Figure 21b. Drive open/ Drive close.



All wiring is 1Ph 230V 50Hz

OP - 230V 50Hz 1A max supply to open the damper

CL - 230V 50Hz 1A max supply to close the damper

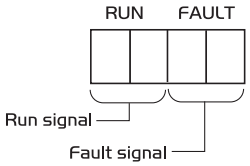
N - Neutral supply to damper

RET - 230V ac return signal from the damper limit switch indicates the damper has reached its operating position. If the return signal is not present, the fan will wait for 1 minute before starting.

Note: If a damper is not fitted, connect a link wire from OP to RET. This will cancel the delay.

e) Volt Free Relay Contacts

Figure 22.



f) Data cable installation

A 4-core SELV data cable is used to connect devices such as sensors to the fan and for interconnecting multiple fan units.

Do not run data cable in the same conduit as the mains cables and ensure there is a 50mm separation between the data cable and other cables.

The maximum cable run between any two devices is 300m when it is installed in accordance with the instructions. Please note that the total data cable length used in any system must be less than 1000m. Keep the number of cable joints to a minimum to ensure the best data transmission efficiency between devices + 50m or less for ES-LCD.

g) Maximum number of devices

The maximum number of devices (including fans) that can be connected together via the data cable is 32, irrespective of their functions.

15.0 Wiring Connections cont.

Fig. 23a Wiring for single phase units AVS/AVS-A 1 to 8.

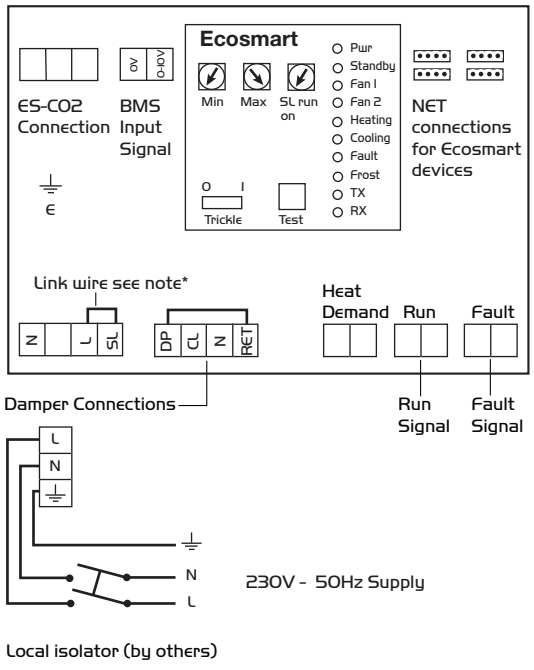
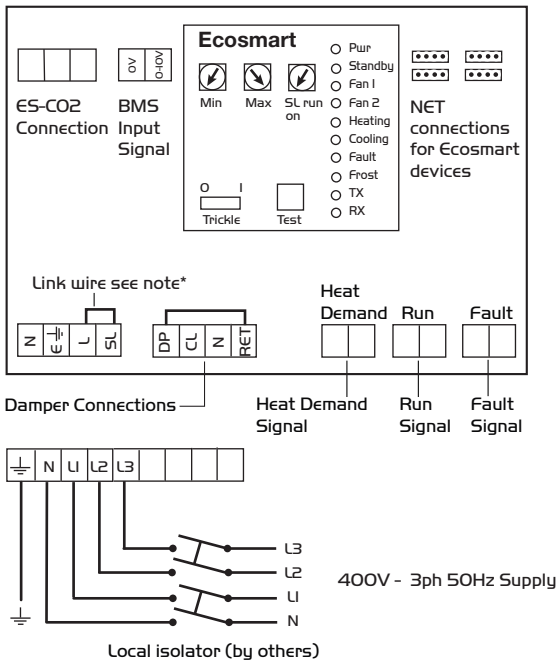
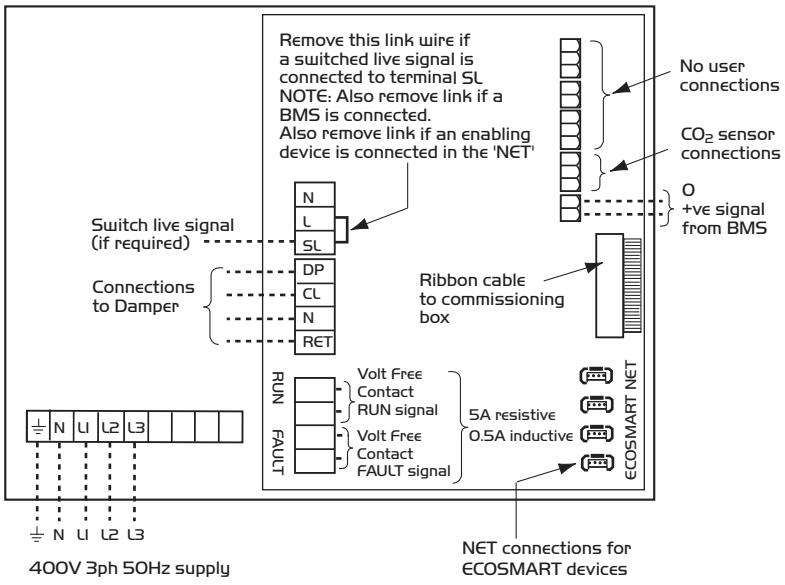


Fig. 23b Wiring for three phase unit AVS/AVS-A 9.



Note: All inter-connections between circuit boards, blowers and sensors are made at the factory.
These diagrams only show the essential field wiring points for clarity.
*Remove link wire if switched live signal, an enabler or BMS signal is connected.

Figure 24. The Control Module



16.0 Using the test button (see fig. 25).

The test button allows the individual blowers within the unit to be checked for its operation. If the fan is running already, press the button once to stop the fan, press again to switch on the standby fan, press again to stop and so on.

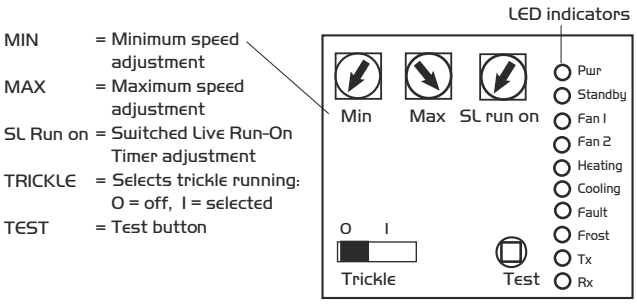
Note that the fan will return to normal operation after 30 seconds.

17.0 LED indication (see fig. 25).

PWR	GREEN: Power on & OK. RED: To much power is taken by peripherals or there is a short circuit in the net cable. Check the cable and use a junction box (ES-JB) to connect some of the peripherals.
Standby	LED on when fan is not running.
Fan 1	GREEN: Fan 1 is running, RED: Fan 1 faulty.
Fan 2	GREEN: Fan 2 is running, RED: Fan 2 faulty.
Heating*	Not applicable. See note.
Cooling*	Not applicable. See note.
Fault	LED on when a fault is present on unit.
Frost*	Not applicable. See note.
Tx	LED on when the controller is transmitting data.
Rx	LED on when the controller is receiving data.

*** Note that the control panel is common to all the Ecosmart products and will have indicators for functions that are not available in this particular fan. However these indicators will not be illuminated.**

Fig. 25. Commissioning panel details.
Note: A Commissioning Procedure document (leaflet No. 671153) is available on request from the Nuaire Technical Library Tel: 02920 885911.



IMPORTANT

For good EMC engineering practice, any sensor or low voltage data cables should not be placed within 50mm of mains cables or placed on the same cable tray or conduit as mains cables.

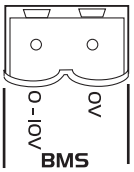
18.0 BMS input signals

Other low voltage cables e.g. BMS signal

Follow the basic principle (see 'f' page 15). Keep the cable run as short as possible, less than 50 metres.

BMS input signals

Figure 26.



The BMS connection is made with a plug-in connector via the socket (See figure 26).
To ensure the connection is made only by suitably qualified and authorised personnel the plug is not supplied.
It is available from R S Components, Part No. 403-875 or Farnell, Part No. 963-021.

IMPORTANT

Reversal of the BMS connection will damage the control.

The system's response to a 0-10V dc BMS signal is given in the table below.

Note the BMS signal will override any sensors and user control connected in the system. The voltage tolerance is +/_ 125mV and is measured at the fans terminal.

	Ventilation mode	Cooling mode*	Heating mode*
Local control	0.00	-	-
OFF / trickle	0.25	-	-
Speed 1	0.50	0.75	1.00
Speed 2	1.50	1.75	2.00
Speed 3	2.50	2.75	3.00
Speed 4	3.50	3.75	4.00
Speed 5	4.50	4.75	5.00
Speed 6	5.50	5.75	6.00
Speed 7	6.50	6.75	7.00
Speed 8	7.50	7.75	8.00
Speed 9	8.50	8.75	9.00
Speed 10	9.50	9.75	10.00

*** Only available on relevant unit.**

19.0 Setting the airflow

Setting the maximum air flow

i) Ensure the power supply is switched off and that a link wire is connected from the supply L to the SL terminal. Unplug all items connected to the 'Net' connectors.

ii) Switch on the power supply.
Note: Ensure unit cover is securely attached.

iii) Wait for the fan to complete its self-test operation.

iv) Remove the cover of the units external commissioning box. Measure the airflow using standard commissioning instruments at a suitable point in the ductwork. If adjustment is required, rotate the pot marked 'MAX' to obtain the desired airflow.

Setting the minimum trickle airflow (nominally 40%)

i) Repeat the same procedure as for maximum airflow above but without the link wire between supply L and SL terminal. Ensure the trickle switch is in the 'ON' position.
The adjustment must be made on the pot marked 'Min'.

ii) Note that the minimum setting (nominally 40%) must be below the maximum setting, otherwise minimum setting will be automatically set to be the same as the maximum.
After setting the airflows, re-connect all the items disconnected previously. Ensure that the cover over the mains terminals is replaced and that the cover of the controls enclosure is securely fastened.

20.0 Relocating control to opposite side of unit (AVS-A units only)

IMPORTANT

Select control handing before installing.

Fig 27a. Plan view. Step 1: Remove access cover **(Note: Units 1 - 4 remove lid).**

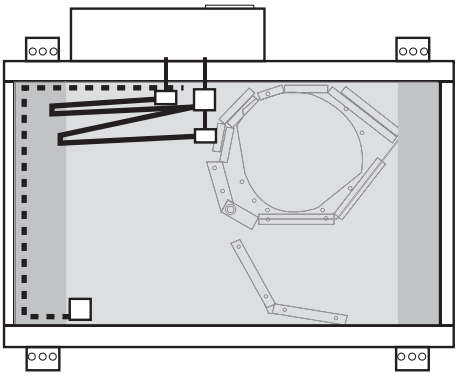


Fig 27b. Plan view. Step 2: De-couple control harness from main harness and remove control from unit complete with cable seal.

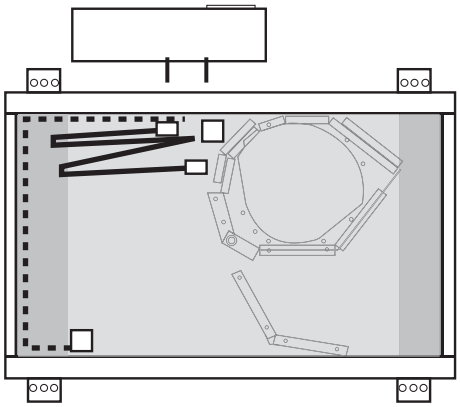
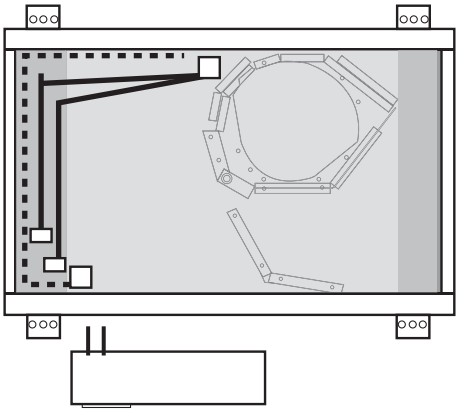


Fig 27c. Plan view. Re-route cable to opposite side of unit (Note: Units 5-7 have internal handing harness) and remove blanking plate and cut insulation to allow control harness to be feed through side panel. Refit control and cable seal and feed control harness and connect to internal harness or handing loom.



Note: when re-fitting lid (units 1 - 4) ensure lid is in the correct configuration.

21.0 Maintenance

IMPORTANT

Isolation - Before commencing work make sure that the unit, switched live and Nuaire control are electrically isolated from the mains supply.

The first maintenance should be carried out three months after commissioning and thereafter at twelve monthly intervals. These intervals may need to be shortened if the unit is operating in adverse environmental conditions, or in heavily polluted air. **Note: failure to maintain the unit as recommended will invalidate the warranty.**

Lubrication

Motors are fitted with sealed for life bearings and do not require any lubrication.

General cleaning and inspection

Clean and inspect the exterior of the fan unit and associated controls etc. Remove the access panel from the fan unit. Inspect and, if necessary, clean the fan and motor assemblies and the interior of the case. If the unit is heavily soiled it may be more convenient to remove the fan/motor assemblies.

Check that the shutters are free to move smoothly and that they seal the appropriate fan outlet effectively.

Clean and inspect each fan and motor assembly as follows; taking care not to damage, distort or disturb the balance of the impeller.

a) Lightly brush away dirt and dust, paying particular attention to any build up at the motor ventilating slots. If necessary, carefully remove with a blade or scraper.

b) Stubborn dirt at the impeller may be carefully removed with a stiff nylon brush.

c) Check all parts for security and general condition. Check that the impeller rotates freely.

Refit the assemblies to the unit (see Replacement of Parts) then replace the access covers.
If Nuaire controls and or remote indicators are fitted, remove the covers and carefully clean out the interiors as necessary.
Check for damage.
Check security of components.
Refit the access covers.

22.0 Replacement of parts

The only items of the fan units unit likely to require replacement are the fan/motor assemblies due to a failed motor or damaged impeller or damper actuator.

Remove the access cover. Disconnect the incoming wiring from the connection box (located on the fan scroll) on the particular fan/motor assembly to be removed.

Remove the fan/motor fixings completely, other than the two slotted hole fixings. Support the fan/motor assembly and loosen the slotted hole fixings. The fan/motor assembly can now be turned and withdrawn from the unit.

After replacing the faulty item, refit the fan motor/assembly using the slotted hole fixings to assist in supporting the assembly. Re-connect the wiring. Replace the access cover.

23.0 Spare parts

When ordering spares please quote the serial number of the unit together with the part number. If the part number is not known please give a full description of the part required.
The serial number will be found on the identification plate attached to the unit casing.

24.0 Warranty

The 5 year warranty starts from the day of delivery and includes parts and labour for the first year.
The remaining period covers replacement parts only.
This warranty is conditional on planned maintenance being undertaken.

25.0 Service enquiries

Nuaire can assist you in all aspects of service. Our technical support department will be happy to provide any assistance required, initially by telephone and If necessary arrange for an engineer to call.

Technical Support
on 029 2085 8400

DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

Designation of machinery:	AIRE-VOLVE (AVS/AVSCP) AIRE-VOLVE (AVS-A/AVS-ACP)
Machinery Types:	Direct Drive Internal Single Fans
Relevant EC Council Directives:	2006/42/EC (Machinery Directive)
Applied Harmonised Standards:	BS EN ISO 12100-1, BS EN ISO 12100-2, EN60204-1, BS EN ISO 9001, BS EN ISO 13857
Applied National Standards:	BS848 Parts 1, 2.2 and 5

Note: All standards used were current and valid at the date of signature.

Signature of manufacture representatives:

Name:		Position:	Date:
1) C. Biggs		Technical Director	25. 06. 12
2) A. Jones		Manufacturing Director	25. 06. 12

INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 2006/42/EC Machinery Directive and 2004/108/EC (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

1.0 GENERAL

1.1 The equipment referred to in this **Declaration of Incorporation** is supplied by Nuaire to be assembled into a ventilation system which may or may not include additional components.

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 in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.

2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuaire.

2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

3.0 TRANSPORTATION, HANDLING AND STORAGE

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.

3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.

3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

4.0 OPERATIONAL LIMITS

4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.

4.2 Where installation accessories are supplied with the specified equipment eg. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.

4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.

5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

5.1 Where access to any part of equipment which **moves**, or can become **electrically live** are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.

5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.

5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

6.0 COMMISSIONING REQUIREMENTS

6.1 General pre-commissioning checks relevant to safe operation consist of the following:

Ensure that no foreign bodies are present within the fan or casing.

Check electrical safety. e.g. Insulation and earthing.

Check guarding of system.

Check operation of Isolators/Controls.

Check fastenings for security.

6.2 Other commissioning requirements are given in the relevant product documentation.

7.0 OPERATIONAL REQUIREMENTS

7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.

7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

8.0 MAINTENANCE REQUIREMENTS

8.1 Specific maintenance requirements are given in the relevant product documentation.

8.2 It is important that the correct tools are used for the various tasks required.

8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.

8.4 A minium period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.

NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.

8.5 Care should be taken when removing and storing access panels in windy conditions.

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

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