

AVS-NC

Indoor Use Single Fans with No Control Installation Manual



1.0 SAFETY INFORMATION

- The provision of the electrical supply and the connection of the unit to the electrical supply must be carried out by a qualified electrician.
- Isolate from power supply before removing any covers. During installation / maintenance ensure all covers are fitted before switching on the mains supply.
- All-pole disconnection from the mains as shown in the wiring diagram must be incorporated within the fixed wiring and shall have a minimum contact separation of 3mm in accordance with latest edition of the wiring regulations.
- This unit must be earthed.
- Ducting must be securely fixed with screws to the spigot to prevent access to live parts. Duct runs terminating close to the fan must be adequately protected by suitable guards.
- This appliance should not be used by children or persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning the safe use of the appliance by a person responsible for their safety. Children shall not play with the appliance. Cleaning and user maintenance shall not be carried out by children.

1.1 Symbols



GENERAL WARNING

Signifies a general warning regarding hazard specified by supplementary information.



ELECTRIC SHOCK

This unit must be completely electrically isolated before any panels are removed. Check mains supply and control connections.



ROTATING PARTS

This unit contains fast moving rotational parts which may start automatically. It is the sole responsibility of the installer to adequately guard these components.



REFER TO INSTRUCTION MANUAL

Read and understand the installation and maintenance manual before installing, operating or maintaining this product.

1.2 Important Information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

While the product has been manufactured according to the accepted rules of current technology, there is still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**

1.3 Personal Protective Equipment

The following minimum Personal Protective Equipment (PPE) is recommended when interacting with Nuaire product:

- **Protective Steel Toed Shoes** - when handling heavy objects.
- **Full Finger Gloves (Marigold PU800 or equivalent)** - when handling sheet metal components.
- **Semi Fingerless Gloves (Marigold PU3000 3DO or equivalent)** - when conducting light work on the unit requiring tactile dexterity.
- **Safety Glasses** - when conducting any cleaning/cutting operation or exchanging filters.
- **Reusable Half Mask Respirators** - when replacing filters which have been in contact with normal room or environmental air.

Nuaire would always recommend a site specific risk assessment by a competent person to determine if any additional PPE is required.

2.0 INTRODUCTION

AVS units are rectangular in section and shall be double skinned with 35mm infill panels and shall be manufactured from heavy gauge, corrosion resistant Aluzinc steel, internally lined with acoustic material. Four matching mounting feet are supplied with the unit. Units have circular rigid spigots at each end. The spigot ends are fully detachable for relocation onto matching attenuators. The fan should be with an 'inline assembly', positioned in series for optimum performance.

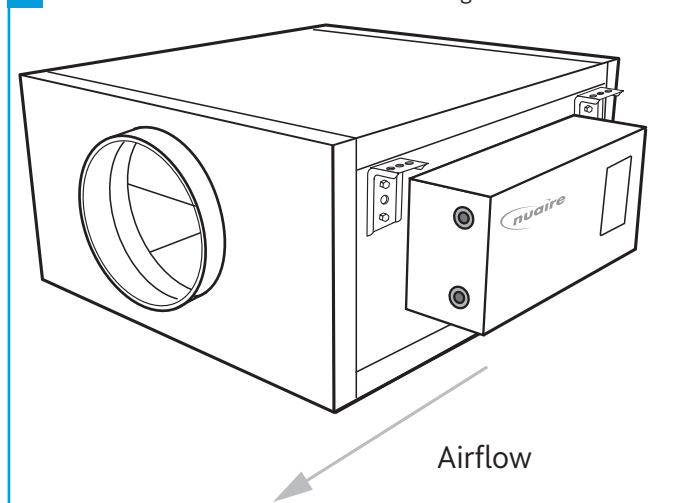
Units incorporate fully detachable top or bottom panels for maintenance and inspection purposes. **AVS 1 units have a loose control module for surface mounting up to 1 metre away from main unit.** AVS 8 and 9 units incorporate split access panels.

2.1 Code Description:

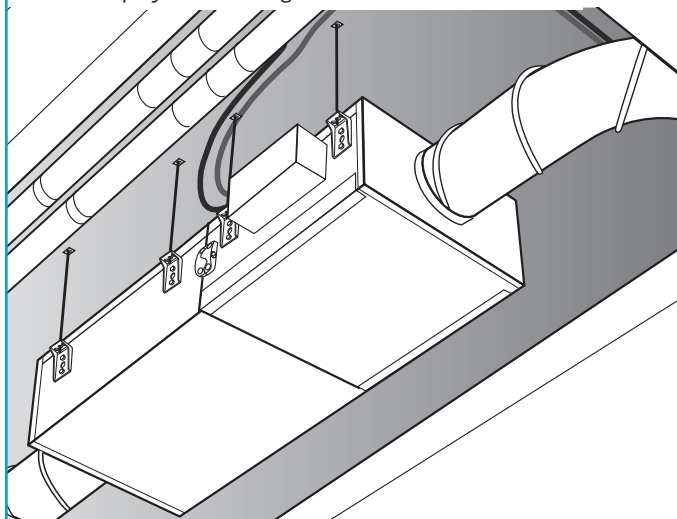
1	2	3	-	4
AV	S	1	-	NC

- 1. Range: **Aire-Volve**
- 2. Fan Type: **S = Single Fan**
- 3. Unit Size: **1, 2, 3, 4, 4L, 5, 6, 7, 8, 9**
- 4. Control Type: **NC = No Control**

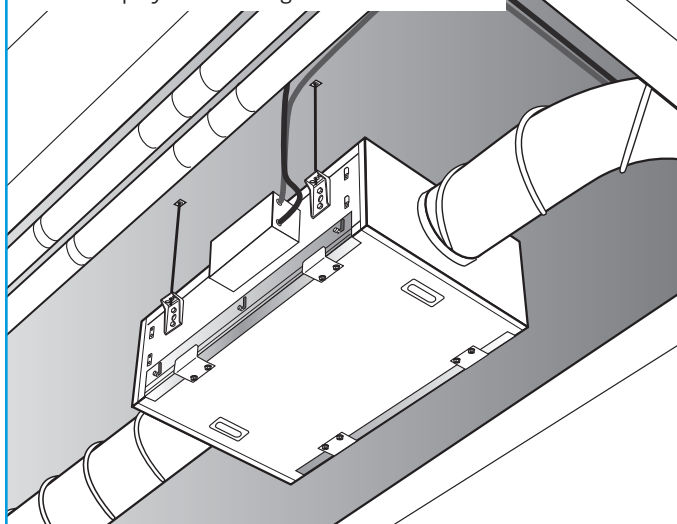
1 General View Of A Standard AVS Unit Configuration



2 Typical AVS Unit (2-6) With Silencer And Four Mounting Feet Employed For Ceiling Void Installation



3 Typical AVS-A Unit (2-6) With Four Mounting Feet Employed For Ceiling Void Installation



3.0 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.

A unit / module 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. **The weight of the unit is available on the unit 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.

4.0 MECHANICAL INSTALLATION

Installation must be completed by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, etc.

The units are supplied for installation into In-line ductwork (internal) applications only. All ductwork connections must be airtight to prevent loss of performance.

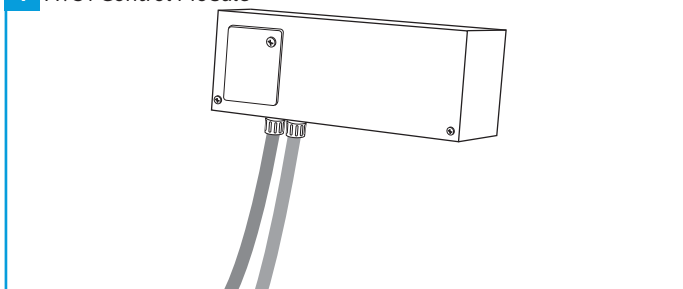
The unit has an external case side mounted control module / terminal box and is supplied ready for connection into the electrical supply. Typically the control is mounted on the side of the unit as standard (AVS2-9).

The method of mounting used is the responsibility of the installer. **The units can be mounted in any attitude** enabling alternative control positions. Access to the blower for maintenance can still be achieved for annual maintenance once orientation is changed, however if the motor requires replacing, the unit will have to be lowered to ground level if installed in non-standard configuration.

4.1 Surface Mounting Control Module (AVS1 Only)

The fan unit control module/terminal box is supplied loose for mounting up to 1 metre away from main unit (Figure 4). The unit must be mounted on a secure, vibration free vertical surface away from direct heat sources or water spray.

4 AVS1 Control Module



4.2 Surface Mounted Units

Utilising four matching anti-vibration (AV) mounting feet (Figure 1). **AV mounts isolate the fan only, silencers / back draught dampers and other "significant mass" accessories should form part of the fixed ductwork after the flexible connection.**

4.3 Units Suspended With Drop Rods

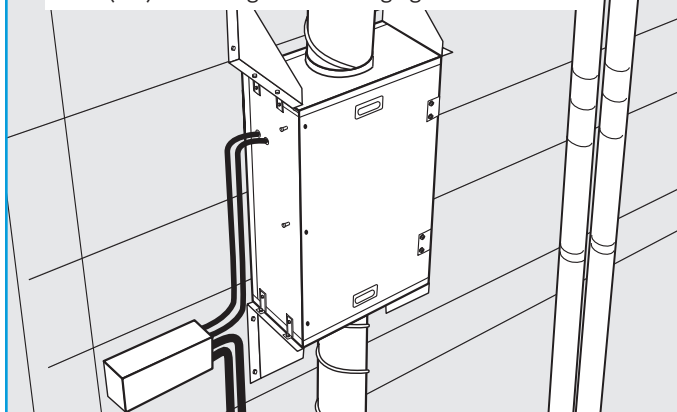
From the ceiling or in the ceiling void using four AV mounting feet supplied, with access panel positioned for underside access (Figure 2 & 3).

4.4 Vertically Wall Mounted (Rigid) Units

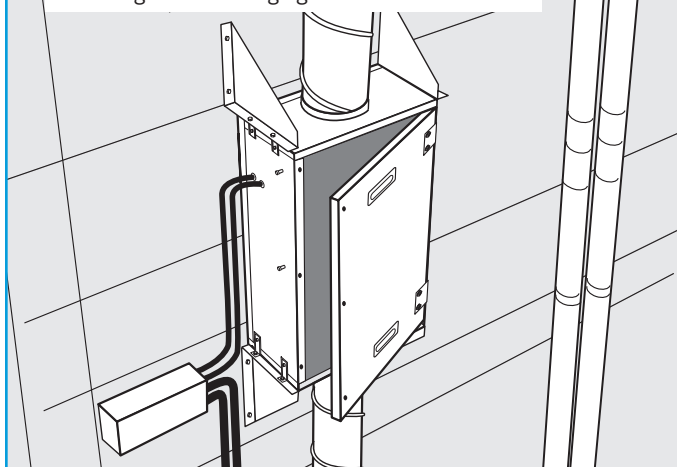
Utilising the Aire-Volve Vertical Hanging Bracket kit that includes wall hanging brackets and hinges (Figures 5 and 6). The unit case has captive M8 nuts which can be used after removing the M8 'plugging' screws. Units should always be positioned with sufficient space to allow the access panel to extend forward. **Only suitable for topside and underside detachable access panel units mounted indoors.**

Aire-Volve Unit Size	Aire-Volve Vertical Hanging Bracket Kit
1	AVT1-VK
2	AVT2-VK
3	AVT3-VK
4	AVT4-VK
4L	AVT4L-VK
5	AVT5-VK
6	AVT6-VK

5 Typical Installation Of Vertically Wall Mounted AVS-A(1-6) Unit Using Vertical Hanging Bracket Kit



6 Front Access Of Vertically Wall Mounted AVS-A(1-6) Unit Using Vertical Hanging Bracket kit



4.5 Anti-Vibration (AV) Mounts

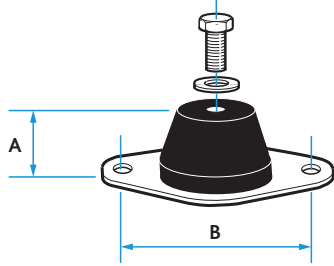
AV mounts should not be fitted to a fan/silencer assembly unless there are flexible connectors fitted between the assembly and associated duct work. AV mounts should be installed with the matched mounting feet and positioned such that they carry an equal proportion of the assembly weight. This is particularly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

Resilient rubber anti-vibration mounting kits (NAV) are available, the correct selection and type employed will depend on the accurate calculation of the weight of the assembly to be supported.

The large round washers included with the NAV(2-5) 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. Fans using size NAV 6 upwards require supporting steelwork to be designed (by others) for suspended applications.

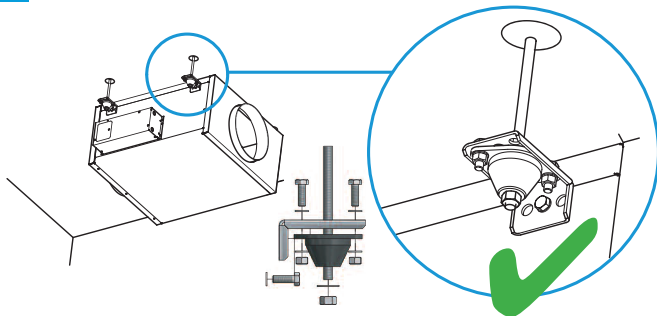
AV mounts must only be subjected to compressional forces and MUST NOT be used in a configuration that places these parts under tension or shear force.

7 NAV2-5 Dimensions

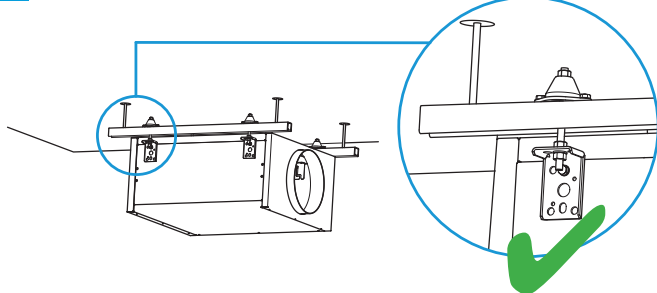


Anti-Vibration Mounting Kit	A (mm)	B (mm)	Max. Supporting Weight (kg)
NAV2	40	75	80
NAV3	40	75	180
NAV4	40	75	260
NAV5	40	75	130

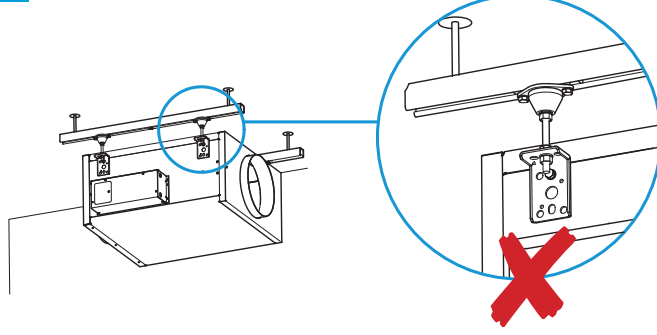
8 Correctly Installed NAV(2-5) - Suspended Application



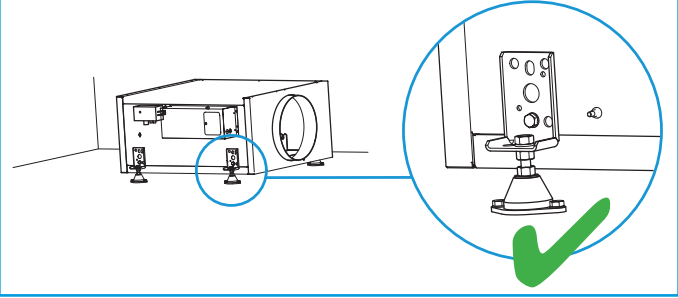
9 Correctly Installed NAV(2-5) - Suspended Application



10 Incorrectly Installed NAV(2-5) - Suspended Application



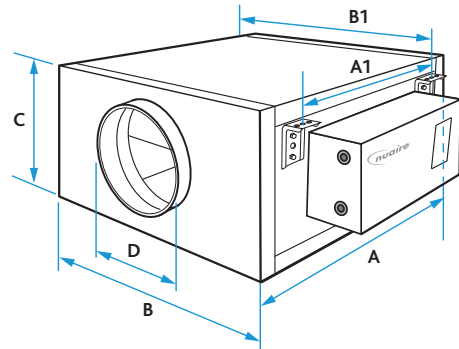
11 Correctly Installed NAV(2-5) - Floor Mounted Application



4.6 Dimensions (mm) & Weights (kg)

4.6.1 AVS Units

12 AVS Dimensions



Unit Code	A [†]	A1 (Bracket Centre Points)	B [‡]	B1 (Bracket Centre Points)	C	D	Weight (kg)
AVS1	580	344	535*	576	246	200	27
AVS2	615	380	535	646	281	200	24
AVS3	745	510	672	713	329	250	43
AVS4	788	553	672	713	373	315	47
AVS4L	914	678	818	860	391	315	67
AVS5	914	678	818	860	428	315	66
AVS6	1087	851	911	953	541	400	90
AVS7	1180	942	1008	1050	571	400	106
AVS8	1338	1101	1233	1275	611	500	157
AVS9	1338	1101	1233	1275	611	500	141

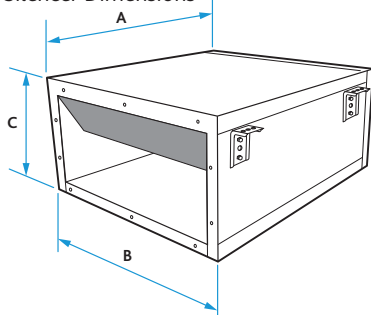
[†] Add 85mm for unit + spigot length.

[‡] Add 108mm for unit width.

* AVS1 control supplied loose from unit with umbilical cord.

4.6.2 Matched AVS Silencers

13 AVS Matched Silencer Dimensions



Unit Code	Silencer Code	Size	A	B	C	Weight (kg)
AVS1	AVS1-MSM	Mini	500	535	250	27
	AVS1-MSS	Standard	1000	535	250	32
	AVS1-MSL	Large	1500	535	250	45
AVS2	AVS2-MSM	Mini	500	535	285	27
	AVS2-MSS	Standard	1000	535	285	32
	AVS2-MSL	Large	1500	535	285	45
AVS3	AVS3-MSM	Mini	500	6672	334	27
	AVS3-MSS	Standard	1000	672	334	39
	AVS3-MSL	Large	1500	672	334	56
AVS4	AVS4-MSM	Mini	500	672	376	34
	AVS4-MSS	Standard	1000	672	376	39
	AVS4-MSL	Large	1500	672	376	56
AVS4L	AVS4L-MSM	Mini	500	822	376	34
	AVS4L-MSS	Standard	1000	822	376	39
	AVS4L-MSL	Large	1500	822	376	56
AVS5	AVS5-MSM	Mini	500	822	428	43
	AVS5-MSS	Standard	1000	822	428	64
	AVS5-MSL	Large	1500	822	428	89
AVS6	AVS6-MSM	Mini	500	915	545	43
	AVS6-MSS	Standard	1000	915	545	64
	AVS6-MSL	Large	1500	915	545	89
AVS7	AVS7-MSM	Mini	500	1013	575	43
	AVS7-MSS	Standard	1000	1013	575	41
	AVS7-MSL	Large	1500	1013	575	98
AVS8	AVS8-MSM	Mini	500	1237	615	51
	AVS8-MSS	Standard	1000	1237	615	83
	AVS8-MSL	Large	1500	1237	615	114
AVS9	AVS9-MSM	Mini	500	1237	615	51
	AVS9-MSS	Standard	1000	1237	615	92
	AVS9-MSL	Large	1500	1237	615	125

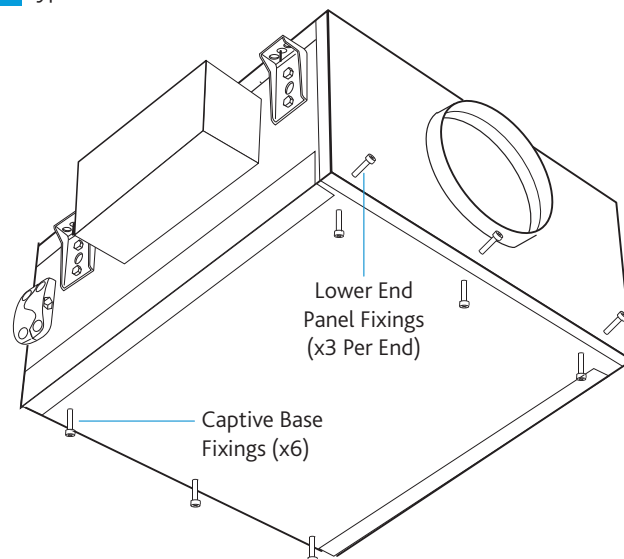
4.7 Unit Access

Unit can be installed inverted for ease of access to control (e.g. control opposite side). **If inverted it will restrict access to blower. Split panels on AVS 8 and 9.**

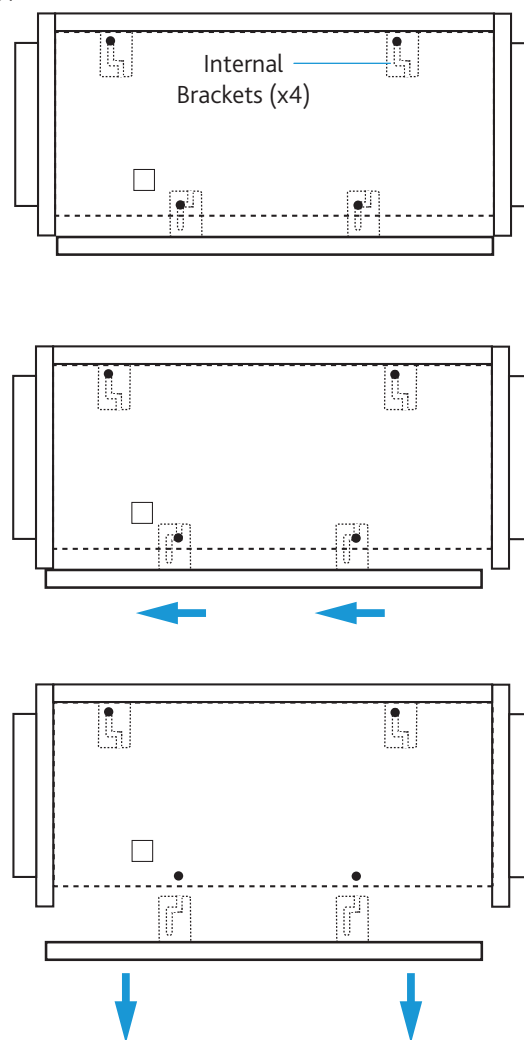
1. Release base fixings (captive).
2. Release lower end panel fixings (each end of the unit).
3. Lower panel, 4 internal brackets will prevent the panel from releasing.
4. Support the weight of the panel and slide access panel.

Continuing to support the weight of the panel then lower the access panel to gain access to the unit interior. Assistance will be required to support weight of access panel.

14 Typical Underside View Of AVS1-6 Unit Access



15 Typical Side View Of AVS1-6 Unit Access

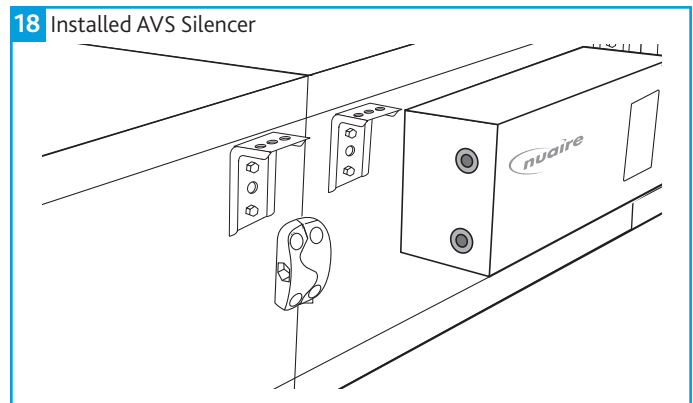
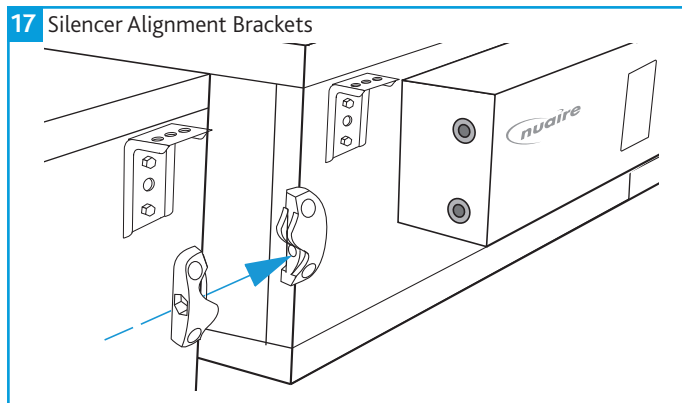
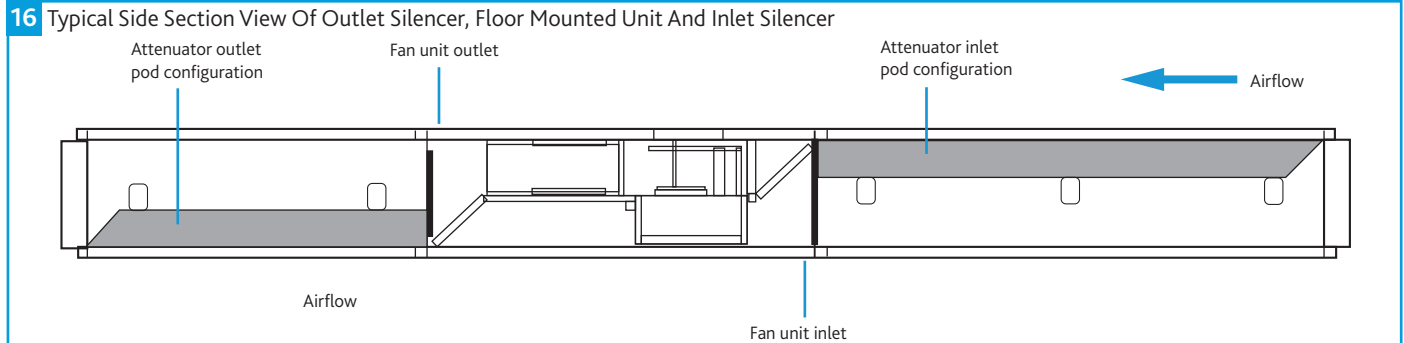


Unit Code	Access Panel Weight (kg)	Unit Code	Access Panel Weight (kg)
AVS1	6	AVS5	7
AVS2	6	AVS6	17
AVS3	9	AVS7	21
AVS4	10	AVS8	14 (per panel)
AVS4L	7	AVS9	14 (per panel)

4.8 Fitting Matched Silencers

Ensure that the attenuator pods are in the correct orientation (Figure 16). To change orientation of attenuator pod just roll silencer over 180° before fitting and use fixing brackets.

Correctly align fixing brackets halves (Figure 17) and assemble using M8 cap head bolt and nut supplied with bracket. Tighten bolts to ensure a full seal between silencer and unit is achieved (Figure 18).



5.0 ELECTRICAL INSTALLATION

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

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.

5.1 Unit Details

Unit details including Full Load Current, Voltage, fan speed etc. can be found on the unit label.

5.2 Wiring Diagrams

The wiring illustrations below are for units without control. All wiring is terminated in junction boxes fitted to the side of the unit. **Local isolator (by others)**

Do not wire the power supply to motor via the motor alarm relay as terminals are only closed after the motor is energized.

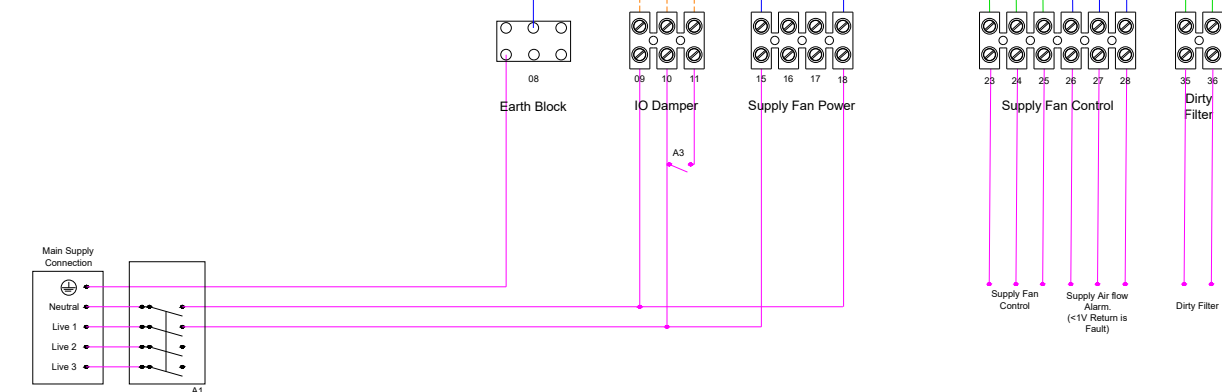
The alarm relay on condensate may require the use of a contactor if the host equipment supply is switched.

5.2.1 AVS1-8

19 Wiring - AVS1-8

Key:

- Pre-Wired Connection
 - Factory Connection
 - Optional External Connection
 - Mandatory External Connection
- A1 : Rotary Isolating Switch (Supplied by Customer.)
 A3 : Close to Open IO Damper (Supplied by Customer.)
 W2 : Dirty Filter Alarm (Open = Alarm)

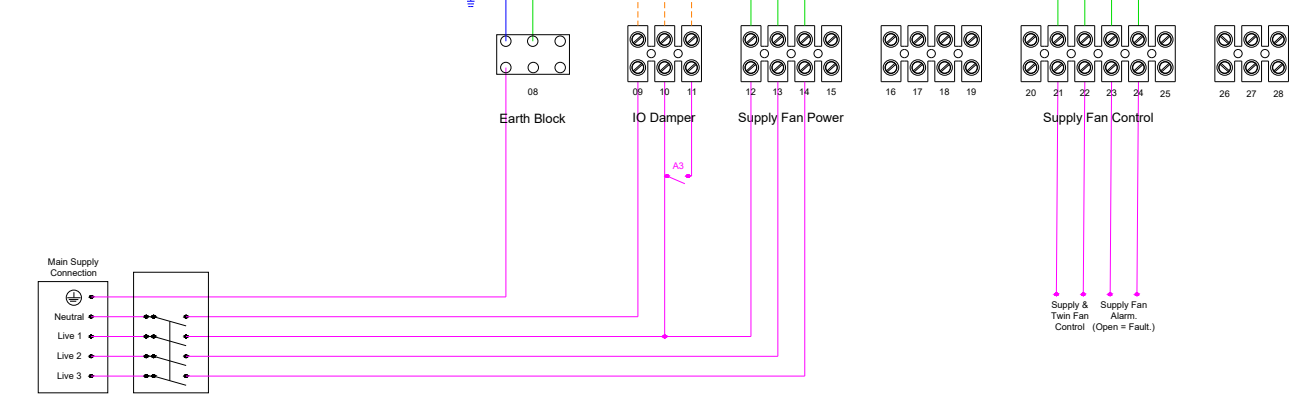


5.2.2 AVS9

20 Wiring - AVS9

Key:

- Pre-Wired Connection
 - Factory Connection
 - Optional External Connection
 - Mandatory External Connection
- A1 : Rotary Isolating Switch (Supplied by Customer.)
 A3 : Close to Open IO Damper (Supplied by Customer.)
 W1 : Supply Fan Alarm (Open = Alarm)
 W2 : Twin Fan Alarm (Open = Alarm)



6.0 CONTROLS

The No Control (NC) units described in this manual are supplied without any controls. It is the installer's responsibility to select and install suitable controller(s) and circuit(s) to produce the desired output from the units while remaining within the units safe performance envelope.

7.0 MAINTENANCE

It is important that maintenance checks are recorded and that the schedule is always adhered to, in all cases, the previous report should be referred to.

7.1 Routine Maintenance

- Clean all areas of unit and treat any areas of corrosion.
- Check all access doors for leakage and if necessary locks should be adjusted and any replacement gasket materials should be replaced as required.

7.2 Annually

- Thoroughly inspect the unit and its components for corrosion, acting immediately to treat/restore any damaged areas.
- All electrical terminals within the unit should be tightened.
- Check all earth connections.
- Check control dampers blades.
- Check operation of damper actuators and linkages and adjust as necessary.

8.0 WARRANTY

The 2 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 void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuair International Sales office for further details.

Failure to maintain the unit as recommended will invalidate the warranty.

9.0 END-OF-LIFE AND RECYCLING

Where possible Nuair use components which can be largely recycled when the product reaches its end-of-life:

- Fans, motors, controls, actuators, cabling and other electrical components can be segregated into WEEE recycling streams.
- Sheet metal parts, aluminium extrusion, heating/cooling coils and other metallic items can be segregated and fully recycled.
- EPP, plastic ducting, nylon corner pieces, plastic heat exchangers, packaging material and other plastic components can be segregated into mixed plastic and widely recycled.
- Cardboard packaging, wood, used filters and other paper components can be largely recycled or fully processed in energy from waste centres.
- Remaining Items can be further segregated and processed in accordance with the zero waste hierarchy. Please call After Sales Support for further information on items not listed above.

Ensure that Nuair product is made safe from any electrical / water / refrigerant supplies before dismantling commences. This work should only be undertaken by a qualified person in accordance with local authority regulations and guidelines, taking into account all site based risks.

10.0 AFTER SALES AND REPLACEMENT PARTS

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales Department.

If 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.

10.1 Replacing Fan / Motor

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.

Telephone 02920 858 400
aftersales@nuair.co.uk

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.