

Airline

LOW PROFILE SMALL AIR HANDLERS AND EXTRACT FAN UNITS

Duties to 0.55m³/sec

Available with the Electroline
fitted control panel

Ceiling void friendly - unit heights
from 190mm to 350mm



VES Airline

*part of a complete range of innovative,
flexible products from the HVAC experts*

 **VES**

Better air for the built environment

Why choose VES

VES has been supplying products for the HVAC industry for over 40 years, and have the in-depth knowledge and resources to provide solutions to all ventilation related requirements. We are a substantial British manufacturing company with over 200 employees, several factories plus a regional base in the north of England, and sales engineers located throughout the UK.

Complete range of products

The product range encompasses all types of ventilation products, including those required for commercial, industrial, public and domestic buildings. The emphasis is on low energy products and sophisticated controls to meet the requirements of the Building Regulations.

The range extends from a small bathroom extract fan up to a mighty central station air handling unit.

There are specialist heat recovery units, high temperature fans for kitchen hood extract; duct, wall, ceiling and roof units; low noise products and silencers; fitted controls.

High quality, flexible solutions

VES operate a quality assurance system to ISO 9001, monitored by the BSI. The air movement products are tested in-house to BS 848 Part 1, and submitted for external testing and approval when necessary.

VES specialise in bespoke designs for ventilation units, and whatever the issue, be it space, noise, temperature etc, can provide a design solution to meet the requirements of the project.

Superior customer service

From the moment we receive your enquiry to delivery and beyond, we have the people in place to give excellent customer service. The VES after sales service covers the whole of the UK and is among the best in the industry.

Experience and expertise

VES employ a range of experts in disciplines including air movement, noise control, air conditioning, controls, electrics and product refurbishment, and we have key staff who have worked at VES for many years.

Manufactured in the UK

VES has over 12000m² of manufacturing and stores space, and has state of the art sheet metalworking equipment, plus a large powder coating plant. VES also has a substantial controls department, and makes components such as dampers and electric heaters in-house. This not only provides employment for local people, but also many suppliers around the UK.

Introduction

The VES Airline range, with its fitted or remote controls and easy installation, is a versatile choice for many applications.

- ▶ Ideal for ceiling voids.
- ▶ Double inlet centrifugal fan.
- ▶ Acoustically lined case for low noise breakout.
- ▶ Top or bottom access.
- ▶ Fitted or remote controls available.
- ▶ All units speed controllable.
- ▶ Tested to BS 848 and manufactured to ISO 9001.
- ▶ Feet, A.V. mounts and round spigot connections supplied as standard.
- ▶ Airline Extract Fan Units can be mounted on a wall for horizontal or vertical airflow.
- ▶ Airline Extract Fan Unit case has channels for optional filter.





Airline Features and Benefits

Access

Access panels removed. Units suitable for top or bottom access or fitted to wall with side access. Feet and A.V. mounts supplied as standard all units.



Duct Connections

Circular or rectangular duct connections available.

All extract units are available with a filter to convert them to fan/filter input units.



Centrifugal Fans

All units contain double inlet centrifugal fans with high temperature cutout, and have flame retardant acoustic foam lining for low noise breakout from case.



LPHW

LPHW heating coil supplied fitted.



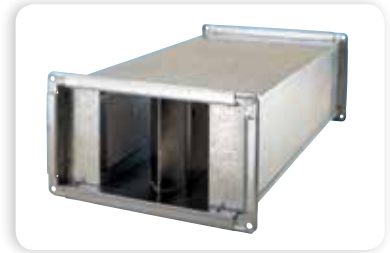
Electric Heater

Wide range of electric heater outputs available.



Silencers

Matching silencers fit directly onto inlet or outlet of unit.



Airline

Electric
Refer to
page 4



Airline

Hot Water
Refer to
page 5



Airline

Extract
Refer to
page 6



Airline with Electric Heater



Selection Chart

To specify the unit you require:

Model AIR 2 - E/CS

State heater rating and number of steps

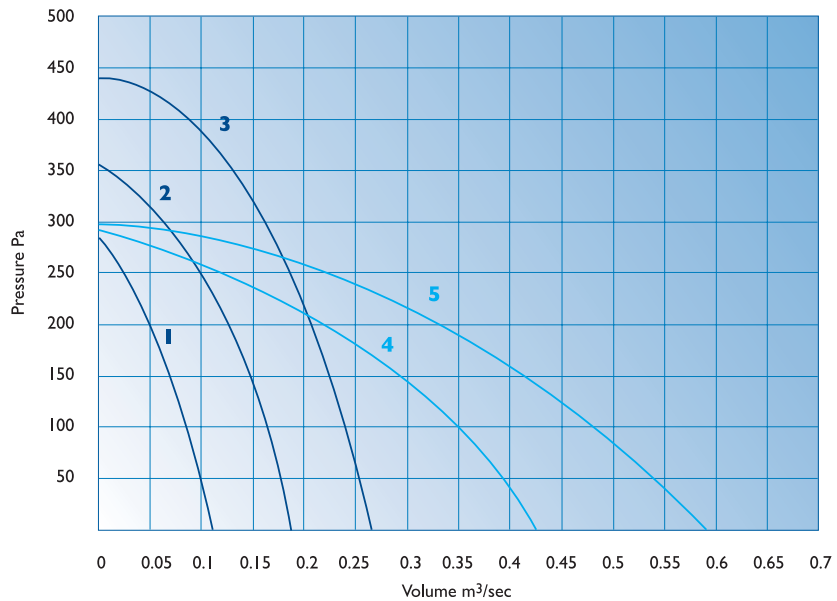
i.e. 6.0 kW in 6 x 1 phase steps

Fitted Control Panel Required -

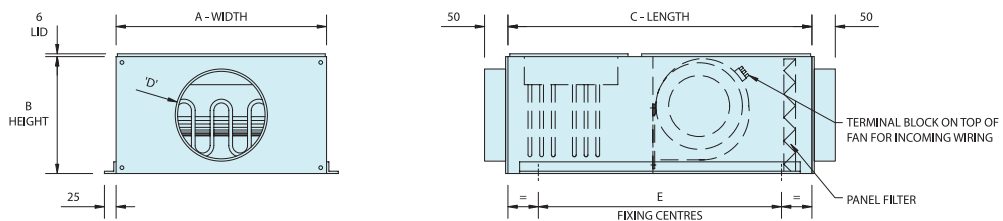
Add suffix 'C' to the above code

e.g. **Model AIR 2 - E/CS/C**

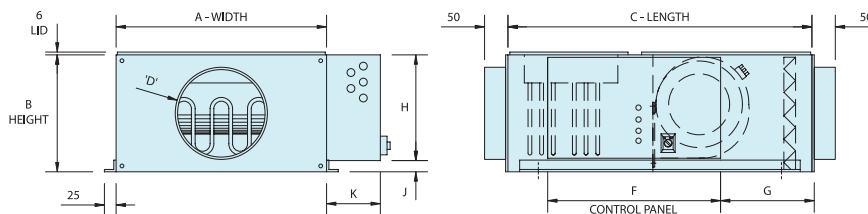
NB. These units are supplied with fitted circular spigots.



Dimensions



Standard Units



Unit with Electroline Control Panel fitted

Airline Model	A - Unit Width	B - Unit Height	C - Unit Length	D - Spigot Diameter	E - Fixing Centres	F - Control Panel	G - End To Control	H - Control Height	J - Base To Control	K - Control Depth	Weight Kg
1	350	190	625	147	520	355	190	163	27	115	10
2	420	240	650	197	520	480	75	226	14	115	12
3	450	250	675	197	520	480	95	226	24	115	14
4	525	350	900	247	820	480	320	226	124	115	25
5	525	350	1000	312	820	480	370	226	124	115	28

Note: It is essential that a fan run on timer is fitted into the control circuit in systems of more than 3.0kW heater rating to ensure that residual heat is removed from unit when shut down. Failure to incorporate this could result in damage to unit components.

Airline with Hot Water Heater



Selection Chart

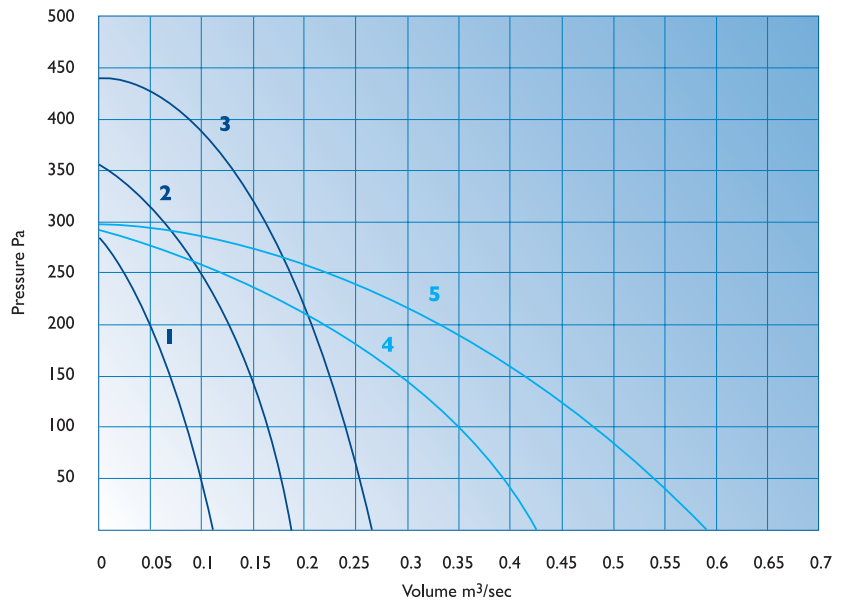
To specify the unit you require:

Model AIR 2 - W/CS

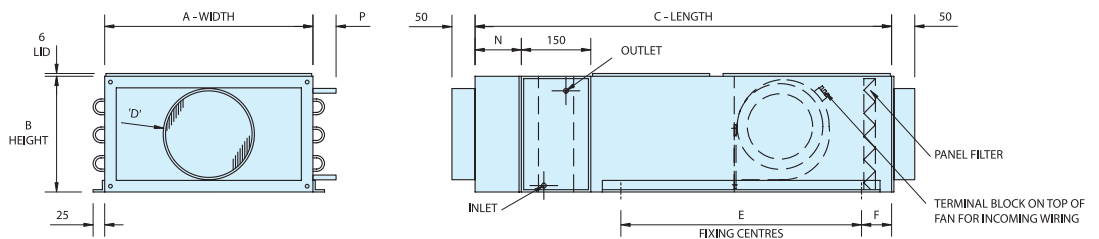
Fitted Control Panel Required -

Add suffix 'C' to the above code e.g. **Model AIR 2 - W/CS/C**

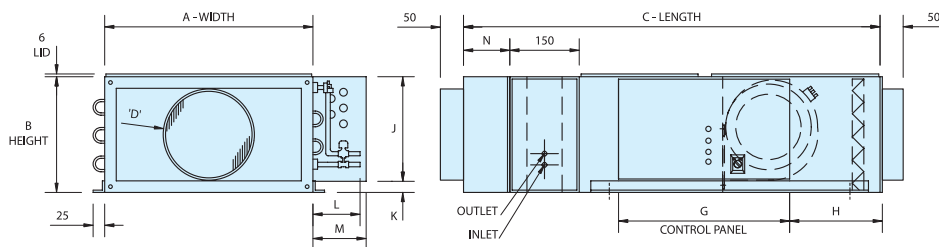
NB. These units are supplied with fitted circular spigots.



Dimensions



Standard Units



Unit with Electroline Control Panel fitted

Airline Model	A - Unit Width	B - Unit Height	C - Unit Length	D - Spigot Diameter	E - Fixing Centres	F - Side To Centres	G - Control Panel	H - End To Control	J - Control Height	K - Base To Control	L - Coil Conns.	M - Control Depth	N - Plenum Length	P - Coils Conns.	Weight Kg
1	350	190	875	147	520	52.5	355	190	163	27	160	115	100	75	13
2	420	240	925	197	520	65	480	75	226	14	180	115	125	75	15
3	450	250	975	197	520	77.5	480	95	226	24	180	115	150	75	18
4	525	350	1200	247	820	190	480	320	226	124	240	115	150	145	30
5	525	350	1300	312	820	240	480	370	226	124	240	115	150	145	33

Airline Extract Fan

- ▶ Airline Extract Fan Units can be mounted on a wall for horizontal or vertical airflow.
- ▶ Airline Extract Fan Unit case has channels for optional filter.

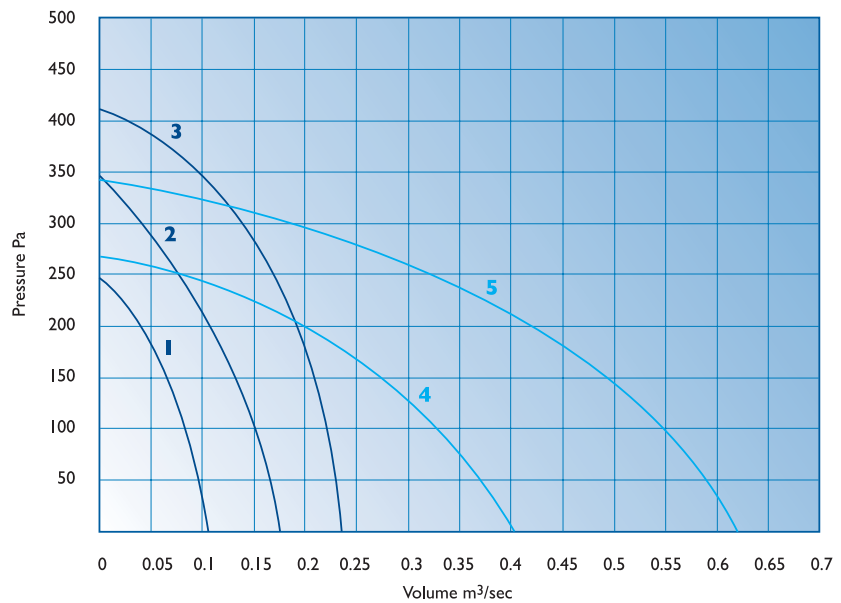


Selection Chart

To specify the unit you require:
AIR 2-X/CS

If filter is required, add suffix 'F'
to code
e.g. **AIR 3-X/CS/F**

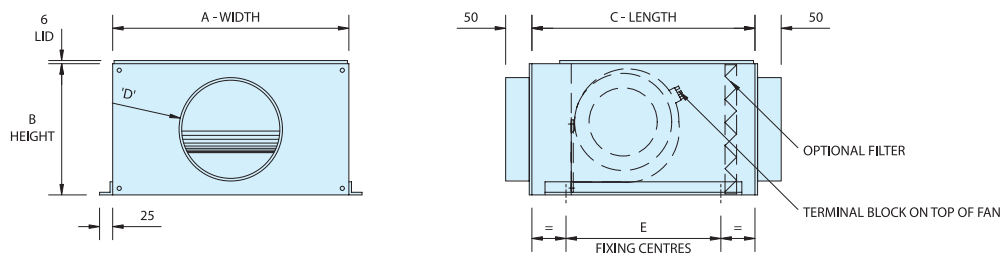
NB. These units are supplied with fitted circular spigots.



Airline Extract Fan



Dimensions



Top access shown, turn unit over for bottom access

Model	A - Unit Width	B - Unit Height	C - Unit Length	D - Spigot Diameter	E - Fixing Centres	Weight Kg
1	350	190	375	147	295	6
2	420	240	400	197	295	8.5
3	450	250	425	197	520	14
4	525	350	600	247	520	18
5	525	350	650	312	520	20

Airline Electrical Details and Fan Speed Controllers

Airline with Electric Heater

Airline Unit	Motor Output Watts	FLC Amps max.	Fan Speed RPM	EHB kW	EHB No. of 1 Ph Steps	Speed Controller	
						Transformer	Electronic
1	109	0.45	1510	3.0	2	T1-E	-
2	181	0.92	1885	6.0	6	T1-E	-
3	325	1.37	1800	7.5	6	T4-E	VS2-E
4	405	1.80	1280	12.0	6	T4-E	VS2-E
5	720	3.30	1380	18.0	6	T4-E	VS6-E

Airline with Hot Water Heater

Airline Unit	Motor Output Watts	FLC Amps max.	Fan Speed RPM	Speed Controller	
				Transformer	Electronic
1	109	0.45	1510	T1	-
2	181	0.92	1885	T1	-
3	325	1.37	1800	T4	VS2
4	405	1.80	1280	T4	VS2
5	720	3.30	1380	T4	VS6

Special panels built to order.

Airline Extract Fans

Airline Unit	Motor Output Watts	FLC Amps max.	Fan Speed RPM	Speed Controller	
				Transformer	Electronic
1	109	0.45	1510	T1	-
2	181	0.92	1885	T1	-
3	325	1.37	1800	T4	VS2
4	405	1.80	1280	T4	VS2
5	720	3.30	1380	T4	VS6

Fan Speed Controllers



Model	Width	Dimensions (mm)	
		Height	Depth
VS2	90	150	45
VS6	95	145	50
T1	120	190	65
T4	?	?	?

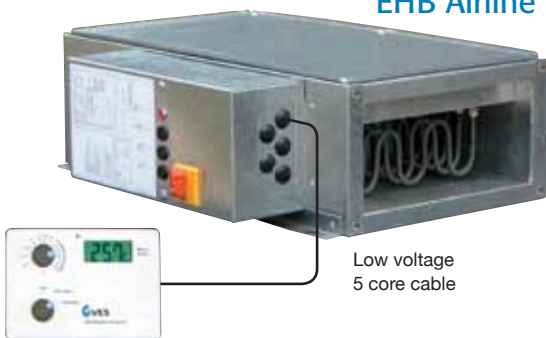
Airline with Electroline Fitted Controls

To make the job easier to install, set up and operate, these units can be supplied with a fitted control panel and a room controller.

Features

- ▶ The control panel fuses are accessible without the need to remove the cover.
- ▶ Panel has mains on light and door isolator.
- ▶ Fitted or remote fan speed controller available.
- ▶ Link fitted for external time clock.
- ▶ Duct or room sensor supplied with 10 metres of cable.
- ▶ Fitted controls available on top or bottom access Airline units, and the controls can be supplied fitted on left or right hand side of case as required.
- ▶ The controls are prewired to the fan and heater and tested before despatch.

EHB Airline Unit



LPHW Airline Unit



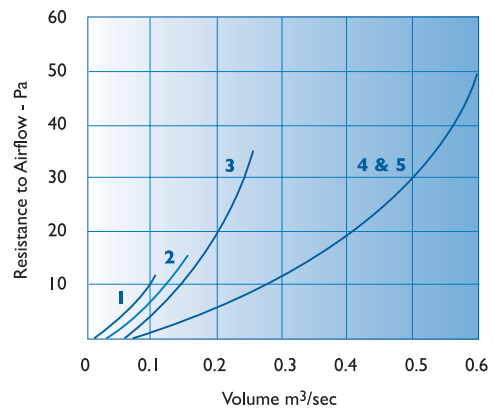
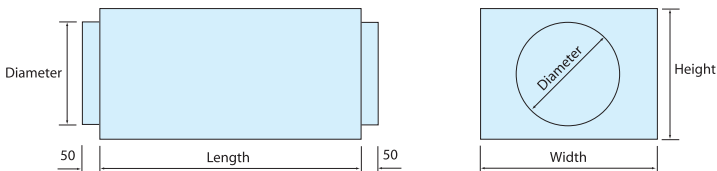
Room Controller



Features

- ▶ Temperature control - manual adjustment
- ▶ 3 position switch - On/Off - Fan only - Fan & heating
- ▶ Digital room temperature display
- ▶ Low voltage wiring.
- ▶ Size 144mm wide, 105mm high, 30mm deep

Airline Silencers



Attenuation - Insertion Loss, dB

Silencer Model	To fit Airline	Dimensions - mm				Weight Kg
		Height	Width	Length	Diameter	
ALS 1/CS	1	175	400	750	150	11
ALS 2/CS	2	220	400	750	200	12
ALS 3/CS	3	240	450	900	200	17
ALS 4/CS	4	300	550	900	250	23
ALS 5/CS	5	300	550	1200	315	30

Model	Centre frequency - Hz							
	63	125	250	500	1k	2k	4k	8k
ALS 1/CS	4	5	6	14	24	25	20	17
ALS 2/CS	4	5	6	14	24	27	21	18
ALS 3/CS	4	5	7	16	24	27	20	18
ALS 4/CS	4	5	8	15	24	26	19	17
ALS 5/CS	6	8	12	19	28	30	24	21

Airline Noise Levels

Airline with Electric Heater

Sound power level dB ref 10⁻¹²W PWL

Fan Size	SPL *dBA	Centre Frequency - Hz									Noise Breakout - SPL at 1 and 3 metres from case				Silencer Model
		63	125	250	500	1k	2k	4k	8k	dBA@1m	NR@1m	dBA@3m	NR@3m		
1	54	73	64	59	59	66	65	64	64	40	35	30	25	ALS 1/CS	
2	57	72	65	59	63	70	68	67	66	42	40	32	30	ALS 2/CS	
3	61	76	74	69	70	73	70	69	69	47	45	37	35	ALS 3/CS	
4	58	75	72	68	63	70	67	66	67	45	40	35	30	ALS 4/CS	
5	67	78	77	76	76	79	77	75	77	52	50	42	40	ALS 5/CS	

* At 3 metres from outlet, free field

Airline with Hot Water Heater

Sound power level dB ref 10⁻¹²W PWL

Fan Size	SPL *dBA	Centre Frequency - Hz									Noise Breakout - SPL at 1 and 3 metres from case				Silencer Model
		63	125	250	500	1k	2k	4k	8k	dBA@1m	NR@1m	dBA@3m	NR@3m		
1	54	73	64	59	59	66	65	64	64	40	35	30	25	ALS 1/CS	
2	57	72	65	59	63	70	68	67	66	42	40	32	30	ALS 2/CS	
3	61	76	74	69	70	73	70	69	69	47	45	37	35	ALS 3/CS	
4	58	75	72	68	63	70	67	66	67	45	40	35	30	ALS 4/CS	
5	67	78	77	76	76	79	77	75	77	52	50	42	40	ALS 5/CS	

* At 3 metres from outlet, free field

Airline Extract Fan

Sound power level dB ref 10⁻¹²W PWL

Fan Size	SPL *dBA	Centre Frequency - Hz									Noise Breakout - SPL at 1 and 3 metres from case			
		63	125	250	500	1k	2k	4k	8k	dBA@1m	NR@1m	dBA@3m	NR@3m	
1	54	73	64	59	59	66	65	64	64	40	35	30	25	
2	57	72	65	59	63	70	68	67	66	42	40	32	30	
3	61	76	74	69	70	73	70	69	69	47	45	37	35	
4	58	75	72	68	63	70	67	66	67	45	40	35	30	
5	67	78	77	76	76	79	77	75	77	52	50	42	40	

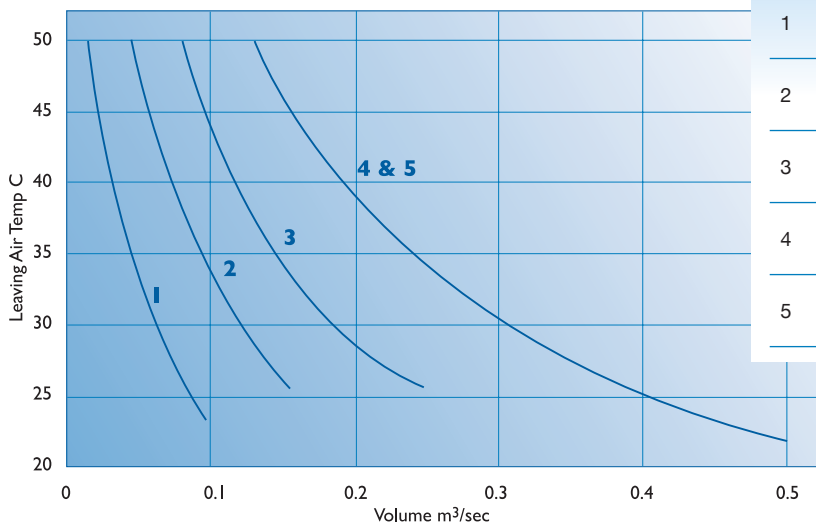
* At 3 metres from outlet, free field

Airline LPHW Heating Coil Duties

Airline with Hot Water Heater

Low Pressure Hot Water 82/71°C

Performance based on EAT -5°C



Airline Model	Air Volume m³/sec	Max. Kw Output	Coil Air Pressure Drop Pa.	Water Flow Rate L/sec	Water Pressure Drop kPa.
1	0.025	1.43	1	0.032	2.0
	0.05	2.05	4	0.045	2.0
	0.075	2.35	10	0.052	2.0
2	0.05	2.87	1	0.064	2.0
	0.10	4.11	7	0.091	2.0
	0.15	5.80	14	0.128	2.0
3	0.10	5.80	6	0.128	5.0
	0.15	7.05	12	0.156	6.0
	0.20	8.20	20	0.182	8.0
4	0.15	8.49	2	0.188	3.0
	0.25	10.28	11	0.228	4.5
	0.35	14.35	20	0.319	5.5
5	0.30	13.38	15	0.297	5.0
	0.40	14.95	25	0.332	6.0
	0.50	16.27	40	0.362	7.0

Airline Standard Units:

All Coils have 3/4" BSP Connections

Product Specification

Airline Air Handling Units

1.1 General

- A. Provide a low profile Air Handling Unit to meet the performance and configuration as indicated in the schedule and detail drawings. The Air Handling Unit shall be tested to BS848 and shall be of the Airline type as manufactured by VES Andover Ltd a company accredited with BS EN ISO 9001:2008.

1.2 Unit Construction

- A. The unit shall be provided pre-assembled comprising of a rigidly constructed single skinned galvanised sheet steel case, centrifugal scroll fan with direct drive motor.
- B. The unit shall be available with optional pleated panel filter
- C. The unit shall be available with optional electric or hot water heater battery as indicated in the schedule and detail drawings.
- D. The unit shall have rectangular or circular duct spigots as indicated in the schedule and detail drawings.
- E. The unit casework shall incorporate high quality leak resistant gaskets on service doors and panels.
- F. The unit shall be fitted with flame retardant acoustic lining as standard to ensure maximum thermal insulation and reduced noise transmission.
- G. Access for maintenance shall be via a removable service panel, allowing access for the cleaning or removal of internal components where permitted by unit construction and indicated in the schedule and detail drawings.
- H. The unit shall be supplied as standard with feet & anti-vibration mounts
- I. The Unit casework & spigots shall be provided naturally finished in high quality galvanised steel.
- J. The unit shall be designed to be secured to a suitable base, wall or ceiling, ensuring the use of correct fixings for the application and taking into account individual unit weight as indicated in the schedule and detail drawings.

1.3. Fans

- A. The fan impellor shall be of galvanised steel forward curved blade construction for rigidity and long life. The impellor shall be statically and dynamically balanced to VDE2060 G2.5 for smooth running & extended life.
- B. The fan impellor shall be mated with an aerodynamic fan scroll for high efficiency and low noise generation.
- C. The fan impellor is supplied as standard in natural galvanised finish. The fan scrolls shall be supplied epoxy painted black to RAL9005.

1.4. Motors

- A. The fan shall incorporate an external rotor motor to insulation class F, IP44 environmental protection rating & shall be supplied with thermal protection cutout as standard.
- B. The motor & attached fan impellor shall be fully AV isolated from the fan scroll, ensuring optimal mechanical isolation & maximum possible noise reduction.

1.5. Filtration

- A. The filter shall be a pleated filter as standard, with rigid wax treated cardboard moisture resistant frame.
- B. Filters shall be BS EN 779 Classification Grade as indicated in the schedule and detail drawings.

Product Specification

Airline Air Handling Units

1.6 Heater Battery

- A. The unit shall be available with hot water or electric element heating as indicated in the schedule and detail drawings.
- B. The hot water heater battery shall be of copper tube, aluminium fin block construction, with galvanised sheet steel casework. The flow & return pipe connections shall be handed as indicated in the schedule and detail drawings.
- C. The hot water heater battery shall be available with alternative fin coatings by special order, as indicated in the schedule.
- D. The electric heater battery shall be suitable for single or three phase supply with thyristor or stepped control as indicated in the schedule and detail drawings.
- E. The electric heater battery shall consist of an element array sized to suit the steps and phases as indicated in the schedule and detail drawings. The elements shall consist of a tubular incolloy shroud containing compressed magnesium oxide powder packed around a Nickel Chromium resistance wire. The element array shall be evenly spread across the open area of the duct.
- F. Where multiple elements are required to achieve the steps and phases as indicated in the schedule, elements shall be linked by copper busbar or terminated with electrical connectors.
- G. The electric heater battery shall be fitted as standard with a 130°C non-adjustable thermal safety cutout, with manual reset.
- H. All electric heaters shall be 1500V flash tested, and resistance tested for correct component assembly. Test certificates shall be available on request.

1.7. Operation Environment

- A. The unit shall be designed to operate in ambient temperatures from -20°C up to 50°C, and can run continuously at up to 80% humidity level.

1.8. Controls

- A. The unit shall be available with optional fitted Electroline control panel as manufactured by VES to suit electric or hot water heating.
- B. Electroline fitted controls shall be fitted on LHS or RHS of unit as indicated in the schedule & detail drawings.
- C. Electroline fitted controls shall be supplied with externally accessible control panel fuses, panel live indication, lockable door isolation switch, and external time clock link.
- D. Electroline fitted controls shall be supplied with a duct/room sensor & 10m of cable, to be fitted on-site by others as indicated in the schedule.
- E. Electroline fitted controls shall be supplied with a room controller, for mounting by others.
- F. The room controller shall allow full manual temperature control, 3 position running selector (Off, Fan Only, Fan & Heating) & digital room temperature display.
- G. Electroline fitted controls shall be fully pre-wired to fan & heater battery. Hot water units shall be provided with a four port modulating valve & fitted frost stat as standard.

1.9. Silencers

- A. The unit shall be fully compatible with a standard range of spigot mounted silencers. The silencers shall be suitable for direct mounting to the unit.
- B. The silencer shall be a rigidly constructed single skinned galvanised sheet steel case lining incorporating internal splitting vanes lined with resin bonded mineral wool.
- C. The silencer casework shall be provided naturally finished in high quality galvanised steel as standard. Internal & External powder coat available as indicated in the schedule. Colour to be in accordance with schedule.

Download specification from www.ves.co.uk/information-centre



Other products and services from the complete range of VES HVAC solutions:

Air Handling Units:

- Supply and extract, combined or separate.
- Heat recovery including crossflow plate heat exchangers, thermal wheel, run-around coils.
- Plantroom or weatherproof, flat or stacked.
- Fitted silencers, fitted inverters and controls.
- Matching DX condensing units.
- Various case constructions including EN 1886 certified units.

Duct Fans:

- In-line centrifugal, with forward or backward curved impellers.
- Round fans, axial and mixed flow fans.
- Fitted silencers available all units.
- Manual and automatic speed controllers available.

Twin Fans:

- For ceiling void, plantroom, and weatherproof.
- Many models and configurations.
- Fitted auto-changeover system.

Roof Extract Units:

- Three ranges for volume and pressure.
- Curb and soaker sheet bases.

Wall and Ceiling Fans:

- All types for commercial, industrial and domestic premises.

Kitchen Hood Extract Fans:

- Heavy duty high temperature fans for hot greasy air.
- Motors out of airstream.
- Single inlet fans, in-line and vertical jet roof units.

Control Panels:

- Off the shelf and built to order panels.
- Air quality sensors and energy savers.
- Intelligent control software.
- A range of remotes including touch screen.

Noise Control:

- Matching silencers available for all ventilation products.
- Silencers designed to meet noise criteria.
- Cleanable silencers.
- Weatherproof silencers.

Specialist Site Services:

- Plant refurbishment.
- Energy saving upgrades.
- Noise reduction.
- Site surveys.
- Kitchen ventilation.
- AHU flat pack installation.
- Maintenance.
- Spares.



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Issue AL02 - 08/2011



ISO 9001:2008
Cert. No. Q05375



VES reserve the right to amend product specifications and details without notice.