

# AIR *Line*

Low Profile  
Small Air Handlers  
and Extract  
Fan Units

Duties to 0.55m<sup>3</sup>/sec

Available with the  
**ELECTRO** *Line* fitted  
control system

*With*



*You Breathe Easy*

# AIRline

## DESIGN FEATURES Standard Units



*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.*



*Circular or rectangular duct connections available. All extract units are available with a filter to convert them to fan/filter input units.*



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

- All units tested in accordance with BS 848, designed and manufactured to ISO9001.
- Speed regulators and control panels available for all units.

- Fan, filter and heater all in one case - easy to install.
- Ceiling void friendly - unit heights from 190mm to 350mm.
- All units available on *FAST TRACK* - delivery within 48 hours direct to site throughout the UK Mainland.



*LPHW heating coil supplied fitted.*



*Wide range of electric heater outputs available.*



*Matching silencers fit directly onto inlet or outlet of unit.*

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

### ELECTRIC HEATING UNIT



Unit Size	Maximum size of EHB	Maximum No of steps
1	3.0 kW	2
2	6.0 kW	6
3	7.5 kW	6
4	12.0 kW	6
5	18.0 kW	6

### HOT WATER HEATING UNIT



Supplied complete with matching four port modulating valve.

Coil fitted with air vent at highest point.

A frost stat is supplied fitted.

### 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.

### ROOM CONTROLLER



#### Functions:

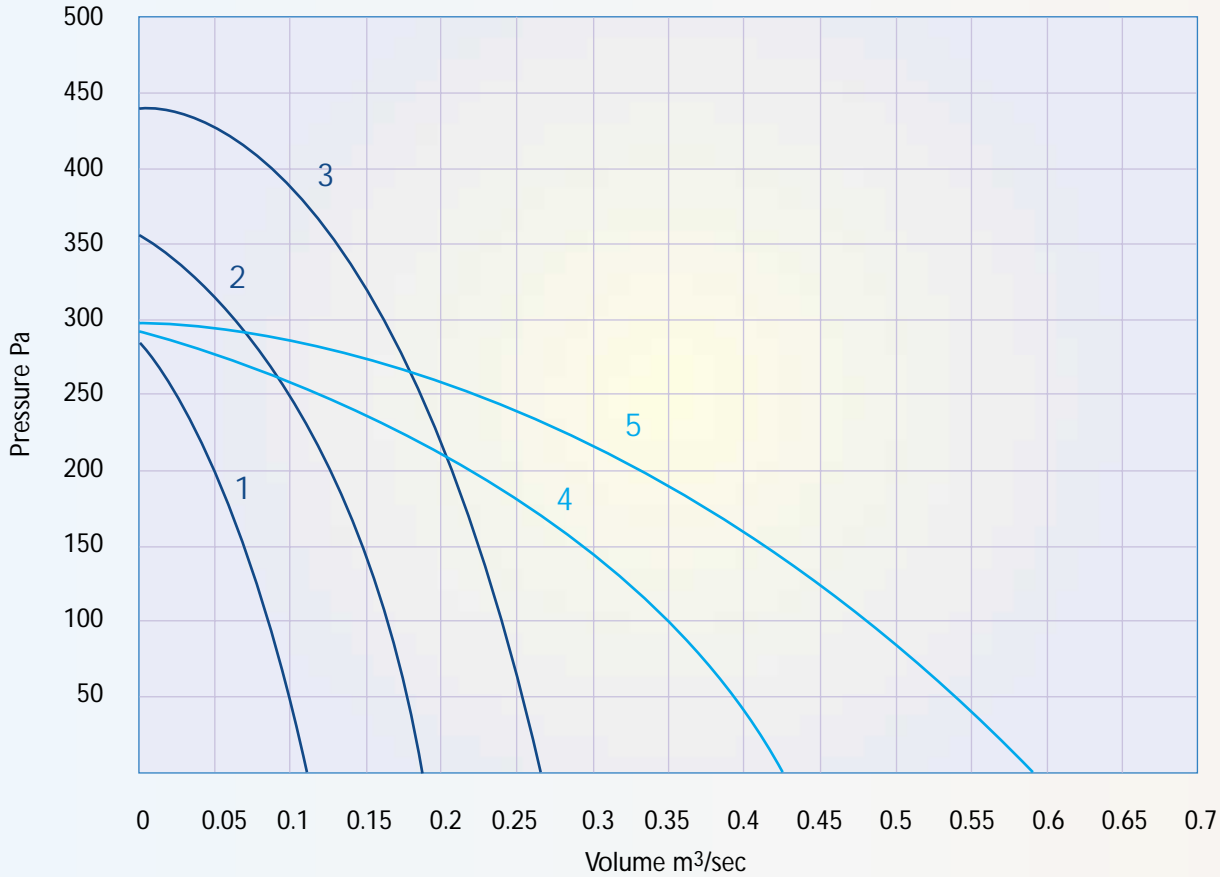
- Temperature control - manual adjustment
- 3 position switch - On/Off  
- Fan only  
- Fan & heating
- Digital room temperature display
- Low voltage wiring.
- Size 144mm wide, 105mm high, 30mm deep



# SELECTION CURVES

## AIRLINE SUPPLY UNITS

## MODEL AIR-S



### SPECIFY THE COMPONENTS YOU REQUIRE:-

Supply Units - Model AIR - S

Add model size and specify heater type:

Electric - Add suffix E, and state heater rating and number of steps required (See Page 10)  
e.g. Model AIR 2 - S / E.  
6.0 kW in 2 x 1 phase steps

Hot Water - Add suffix W.  
e.g. Model AIR 2 - S / W.

Fitted Control Panel Required?  
Add 'C' to above code  
e.g. Model AIR 2 - S / E / C.

### SELECTION DETAILS:

Heaters - Page 10

Control Panels - Page 11

Speed Controllers - Page 11

Silencers - Page 12

Dimensions - Supply Units - Page 6 and 7

### MORE COMPONENTS:

Spigot plate ALSP - Page 9

Spigot plate with flexible connection ALSF - Page 9

Plenum with spigot ALPL - Page 9

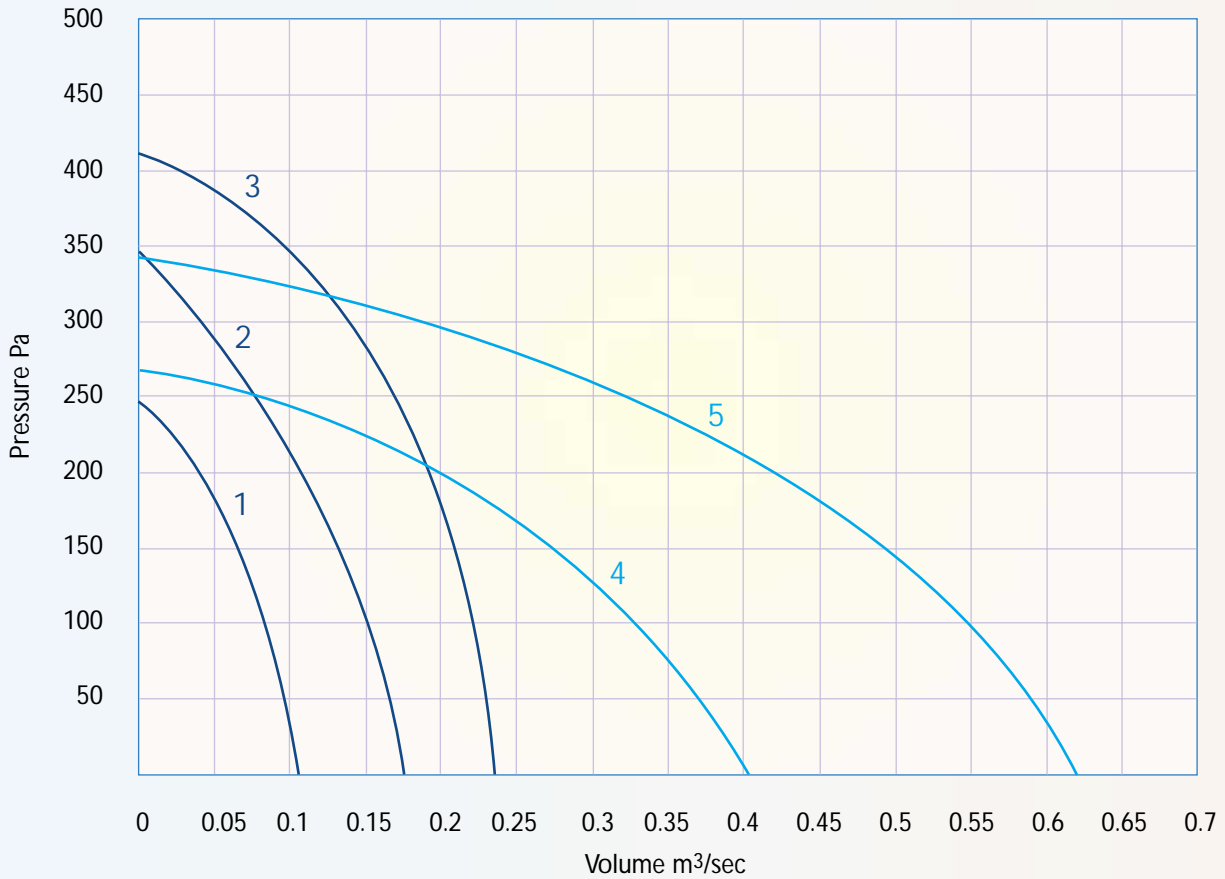
Plenum with spigot and flexible conn. ALPF - Page 9

Rectangular flex/flange ALFF - Page 9

Spare filters ALDF - Page 9

### AIRLINE EXTRACT UNITS

### MODEL AIR-X



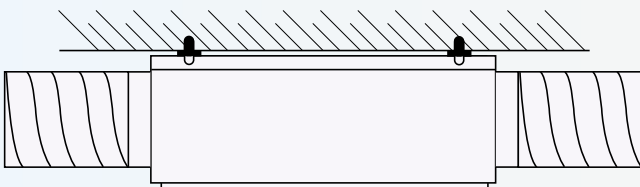
Add unit size to code  
e.g. Model AIR 2 - X

If filter is required, add suffix F to code  
e.g. Model AIR 2 - X / F

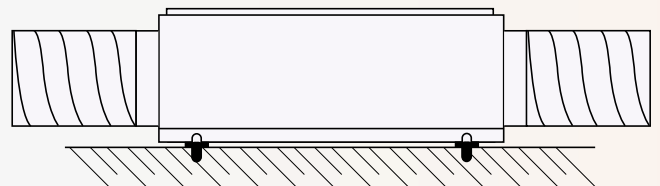
Dimensions - Page 8

## POSITIONING AIRLINE

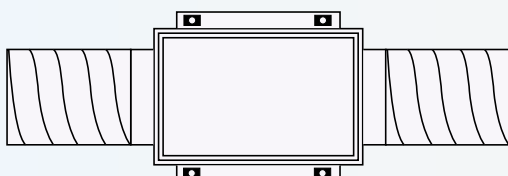
### BOTTOM ACCESS



### TOP ACCESS



### MOUNT ON WALL



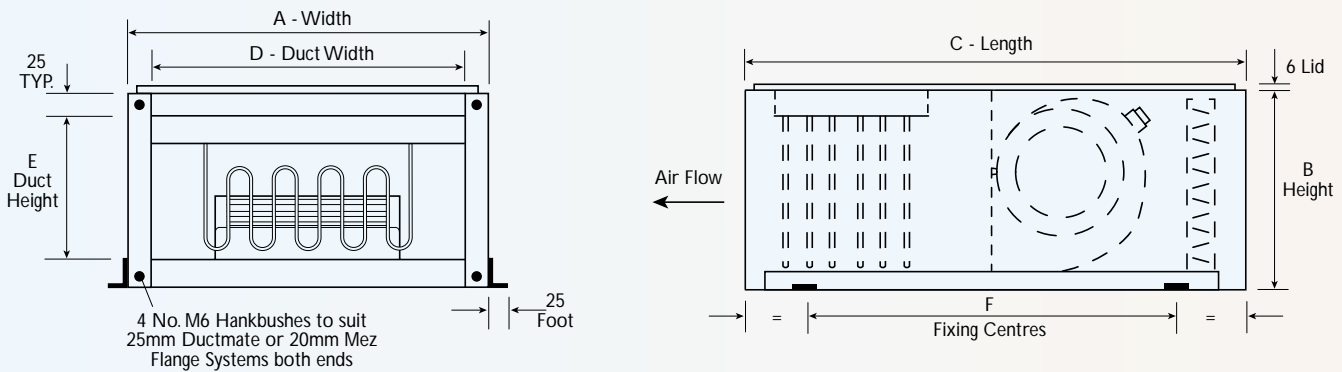
AIR - S / W units can be mounted on wall with **vertical** airflow, but not horizontal airflow as drawn due to venting and draining of coil.



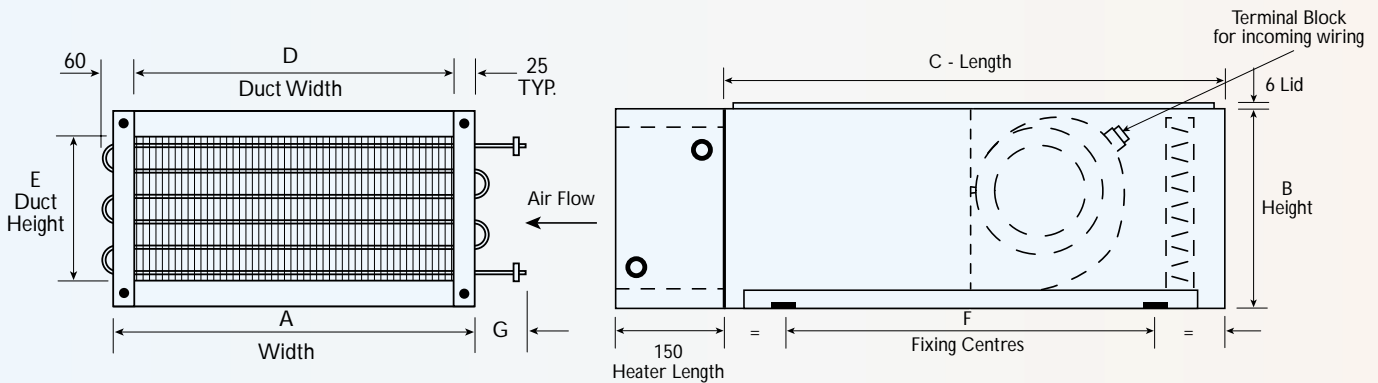
# DIMENSIONS

## STANDARD AIRLINE SUPPLY UNITS

### ELECTRIC HEATER - MODEL AIR-S/E



### HOT WATER HEATER - MODEL AIR-S/W



Coil tubes are sealed to case to prevent air leakage.

LPHW coil connections can be left or right hand side as required.

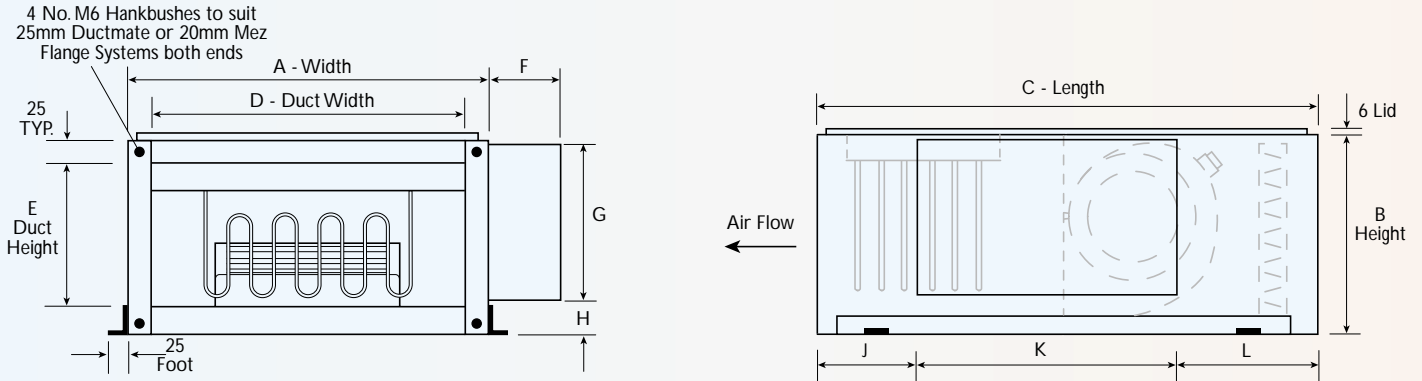
Model Size	Dimensions (mm)							Unit Weights (Kg)	
	A	B	C	D	E	F	G	EHB	LPHW
1	350	190	625	300	140	520	75	10	13
2	420	240	650	370	190	520	75	12	15
3	450	250	675	400	200	520	75	14	18
4	525	350	900	475	300	820	145	25	30
5	525	350	1000	475	300	820	145	28	33



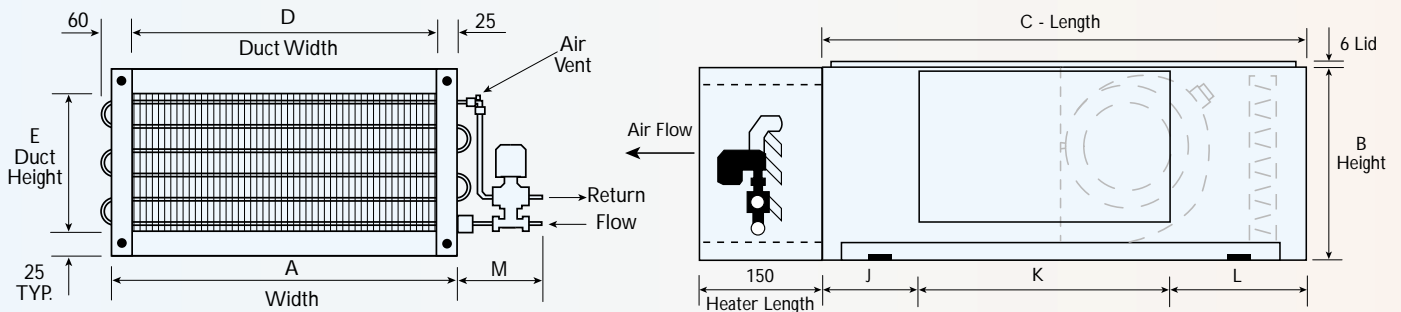
# DIMENSIONS

## AIRLINE SUPPLY UNITS WITH ELECTROLINE CONTROLS

### ELECTRIC HEATER - MODEL AIR-S/E/C



### HOT WATER HEATER - MODEL AIR-S/W/C



Coil tubes are sealed to case to prevent air leakage.

Units with fitted controls - Control box can be on either side, with top or bottom access as required.

LPHW valve can be left or right hand side as required, but please note: when hot water heater unit supplied with bottom access, coil must remain in upright position as shown.

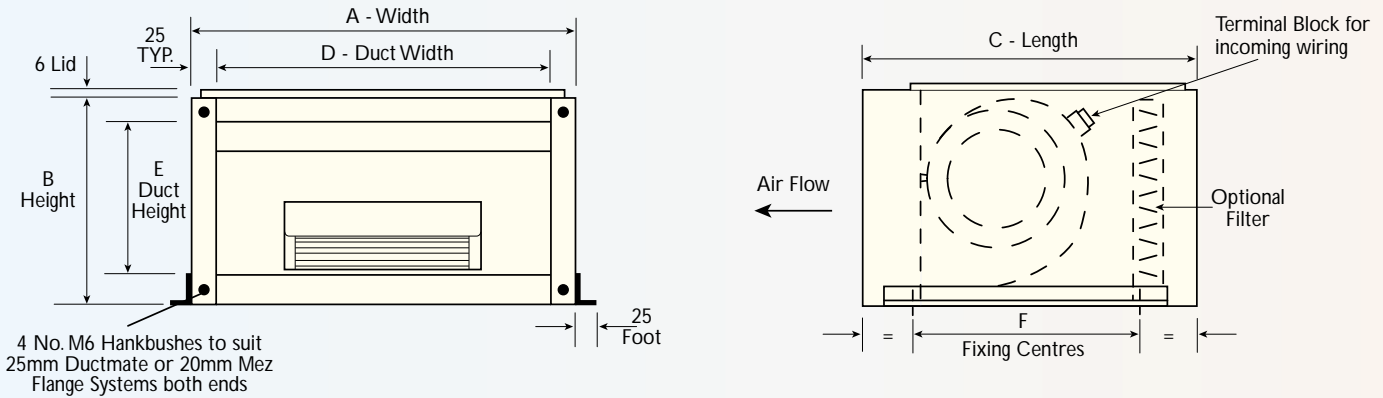
Model Size	Dimensions (mm)															Unit Weight kg		LPHW Valve Connection Size mm
	A	B	C	D	E	F	G	H	J LHS	J RHS	K	L LHS	L RHS	M	EHB	LPHW		
1	350	190	625	300	140	115	163	27	180	80	355	90	190	160	12	15	15	
2	420	240	650	370	190	115	226	14	85	95	480	85	75	180	14	17	22	
3	450	250	675	400	200	115	226	24	85	100	480	110	95	180	17	21	22	
4	525	350	900	475	300	115	226	124	250	100	480	170	320	240	28	33	22	
5	525	350	1000	475	300	115	226	124	250	150	480	270	370	240	31	36	22	



## DIMENSIONS

### AIR-X AIRLINE EXTRACT UNITS

Units can be mounted for top or bottom access, and on wall with horizontal or vertical airflow.



Model Size	Dimensions (mm)						Weights AIR-X kg
	A	B	C	D	E	F	
1	350	190	375	300	140	295	6.0
2	420	240	400	370	190	295	8.5
3	450	250	425	400	200	295	14.0
4	525	350	600	475	300	520	18.0
5	525	350	650	475	300	520	20.0

### INTERESTED IN SAVING ENERGY?



For big energy savings specify a VES Energy Saver Control unit with your Airline supply and extract unit.

Easy to install, low cost, and automatic in operation, the Energy Saver is ideal for rooms that are not constantly occupied i.e. toilets, print rooms, conference rooms, rest rooms, hotel rooms etc.

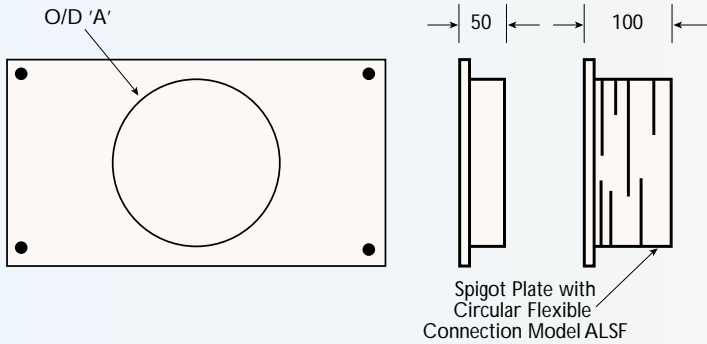
The fan is switched to low speed using a PIR (passive infra-red) detector and Energy Saver Control Unit.

Look up Leaflet No. 789-10/01 for full details.

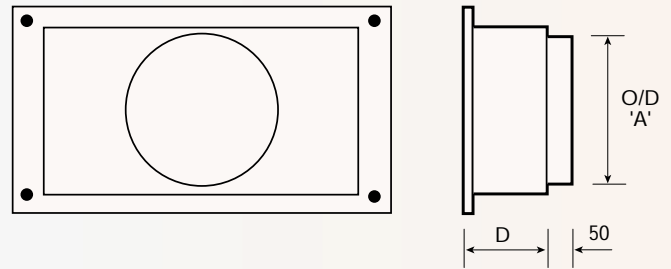


## OPTIONAL EXTRAS

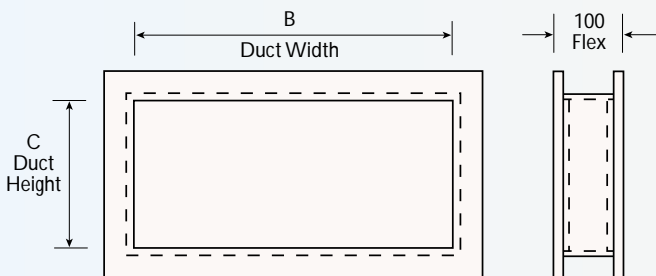
Circular Spigot  
Model ALSP  
Suitable for Inlet or Outlet



Plenum Box with Circular Spigot for round duct connection direct to LPHW coil, filtered inlet and silencer.  
Model ALPL  
(With flexible connection Model ALPF)



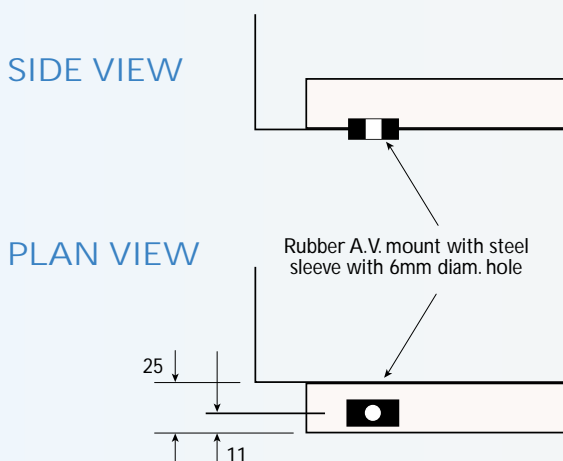
Rectangular Flexible Connection - Double Flanged  
Model ALFF.  
Suitable for Inlet or Outlet



## DIMENSIONS

Model	Dimensions (mm)			
	A	B	C	D
1	147	300	140	100
2	197	370	190	125
3	197	400	200	150
4	247	475	300	150
5	312	475	300	150

## MOUNTING FEET DETAIL



## REPLACEMENT FILTERS

Unit	Filter Size (mm)	VES Part No.	Grade
1	298 x 188 x 22	ALDF 1	EU3
2	368 x 238 x 22	ALDF 2	EU3
3	398 x 248 x 22	ALDF 3	EU3
4	473 x 348 x 48	ALDF 4	EU3
5	473 x 348 x 98	ALDF 5	EU4



## ELECTRIC HEATERS

The heater plate is manufactured to suit the size and number of elements listed below.

VES will link the elements to provide the number of steps you require.

Calculate the size of heater output required from the following formula:

$$\text{Air Volume (m}^3\text{/sec)} \times \text{Constant (1.21)} \times \text{Temp. Rise (T}^\circ\text{C)} = \text{Heat Output (kW)}$$

EXAMPLE: AIRLINE SIZE 2 Unit, air volume 0.12m<sup>3</sup>/sec, EAT -5°C, LAT 25°C = 4.36kW.

SPECIFY: 4.5kW in 3 x 1 phase steps, or 5.0kW in 2 x 1 phase steps.

AIRLINE Unit	kW Element Sizes Available	Max. Number of Elements	Max. kW Output	VES Remote Control Panel*
1	0.5	6	3.0	CPEH 1 CPEH 2
2	0.5, 1.0	6	6.0	CPEH 2 CPEH 6
3	0.5, 1.0, 1.25	6	7.5	CPEH 6
4	1.0, 1.25, 1.5, 2.0	6	12.0	CPEH 6
5	1.0, 1.25, 1.5, 2.0, 3.0	6	18.0	CPEH 6

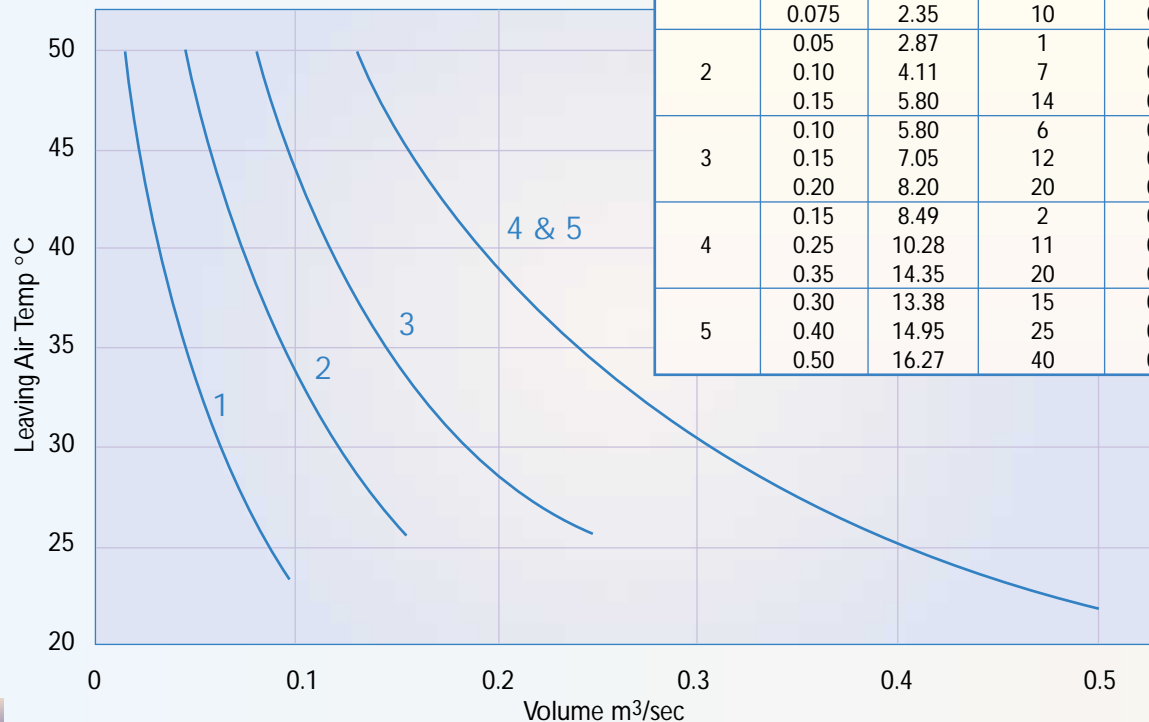
\* To match Airline Standard Units



## HOT WATER HEATERS

### LPHW HEATING COIL DUTIES

Low Pressure Hot Water 82/71°C  
Performance based on EAT -5°C



Airline Model	Air Volume m <sup>3</sup> /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



# REMOTE CONTROL PANELS FOR AIRLINE STANDARD UNITS

## HOT WATER HEATER UNITS

**Model CPW 1** Fully modulating hot water heating control, with 0-10 volt signal output, making the panel compatible with most 3 or 4 wire heating control valves.



CPW 1

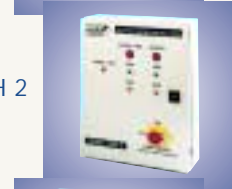
## ELECTRIC HEATER UNITS

**Model CPEH 1** Single step heating for up to 3.0kW.



CPEH 1

**Model CPEH 2/STD** Low cost control for up to 6.0kW in two 1 phase steps.



CPEH 2

**Model CPEH 4/STD** Up to 12.0kW of heater output in up to four steps.

**Model CPEH 6/STD** Up to 18.0kW of heater output in up to six steps.



CPEH 6

Seven day time clock and extract fan starter available for all panels.

All control panels include fan and heater switches, neon indicators, door isolator, temperature set point adjustment between 0-40°C, 10 metres of cable with a duct or room sensor. Electric heater panels include fan run-on timer and thermal cutout connection. Hot water panels include a frost stat. All that is required on site is to wire between panel and fan, heater and sensor.

Refer to Power Station leaflet for more details.

*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.*

## ELECTRICAL DETAILS & FAN SPEED CONTROLLERS

Airline Unit	Motor Output Watts	FLC Amps max.	Fan Speed RPM	VES Fan Ref	Speed Controller	
					Transformer	Electronic
1	109	0.45	1510	AL 121	T1	-
2	181	0.92	1885	AL 221	T1	-
3	325	1.37	1800	AL 321	T4	V2
4	405	1.80	1280	AL 441	T4	V2
5	720	3.30	1380	AL 541	T4	V63



T1

T4

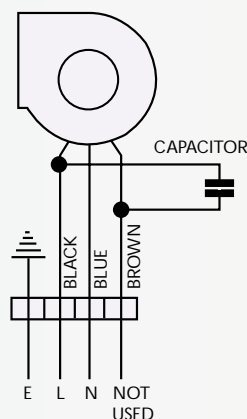
V2

V63

Speed Controller Model	Dimensions (mm)		
	Width	Height	Depth
T1	120	190	65
T4	120	200	100
V2	90	150	45
V63	95	145	50

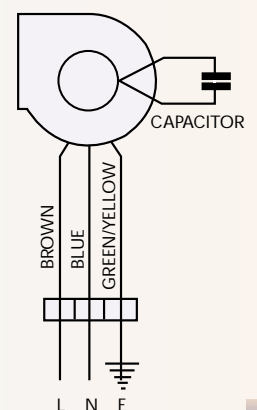
## FAN WIRING DIAGRAMS

Model 1, 2, 3



Electrical Supply:  
240V 1 Ph 50Hz  
All ele

Model 4 & 5





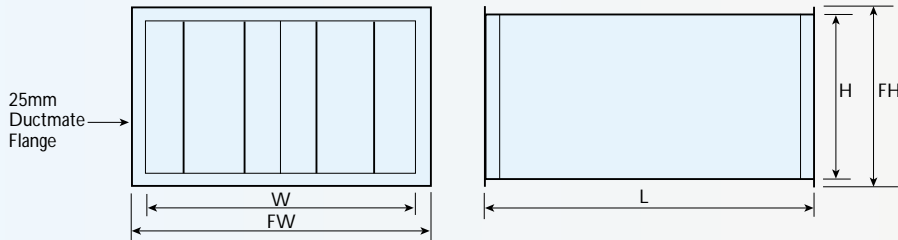
# NOISE LEVELS

Sound Power Level dB ref 10<sup>-12</sup> W PWL

Unit Size	SPL dBA*	Centre Frequency - Hz								Noise Breakout - SPL at 1 & 3m from case			
		63	125	250	500	1000	2000	4000	8000	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

## SILENCERS MODEL ALS



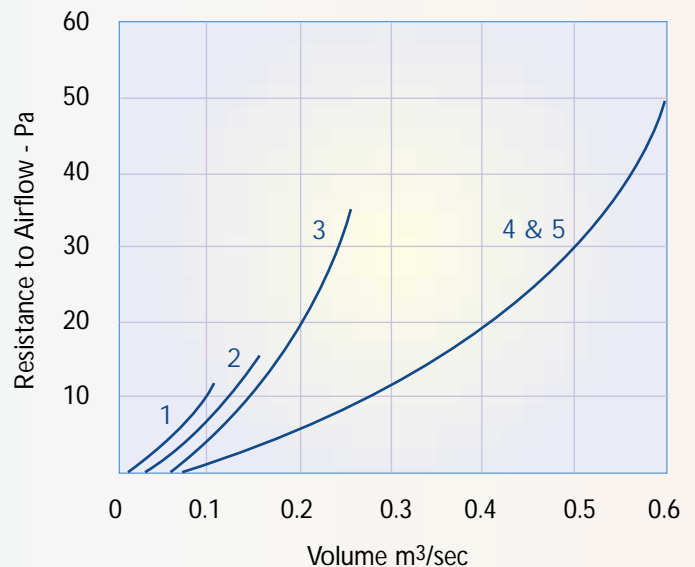
*Designed to fit directly onto AIRLINE Units on both inlet and outlet.*

Silencer Model	To Fit AIRLINE	Dimensions (mm)					Weight Kg
		W	H	L	FW	FH	
ALS 1	1	300	140	750	350	190	9
ALS 2	2	370	190	750	420	240	12
ALS 3	3	400	200	750	450	250	15
ALS 4	4	475	300	750	525	350	18
ALS 5	5	475	300	1200	525	350	29

## ATTENUATION INSERTION LOSS, dB

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

## SILENCER AIR PRESSURE LOSS



*We care about air*

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



ISO 9001-2000  
Cert. No. Q5375

Leaflet No. 781-9/01