



for fresher air

Air Handling Units



direct drive - belt drive - custom built

Air Handling Units

Introduction

Vectaire's comprehensive and extensive range of air handling units from "Compact" plant room models to custom built belt driven models able to deliver up to 20m³/sec ensures that any installation requirement can be met.

Design brief

To provide a comfortable, healthy environment, often without loss of heat and a multiplicity of parameters -

The occupants want a non-intrusive system.

The designers want to ensure that air exchange is optimised whilst bringing fresh air into the building.

The builders need a reliable product that can be easily installed and set up.

The answer lies in well thought out, efficient ventilation.

The correct ventilation method is an air handling system which encompasses all of the above.

What product to choose?

Stricter rules governing air tightness of buildings means more emphasis on controlled fresh air supply. Air handling units, which are easy to install and which have a wide variety of options, will effectively ventilate the required area providing a healthy atmosphere for people to work and play. Vectaire's range of units, together with comprehensive, computerised design facilities, gives the specifier the ability to choose a fan capacity which ensures a proper level of ventilation, together with **heating, heat recovery, sound attenuation and control options**.

Flexibility

Vectaire's air handling units are available in an extensive range with a variety of options which contribute to their versatility of use and ensure that exactly the correct unit can be specified. There are direct drive versions either electrically or hot water heated together with belt driven units for bigger airflow requirements. Combine this with the facility for custom built systems, and the flexibility of design and use is infinite.

Technical Support

With its firm commitment to quality and customer care, Vectaire's technical support staff can help with your requirements.

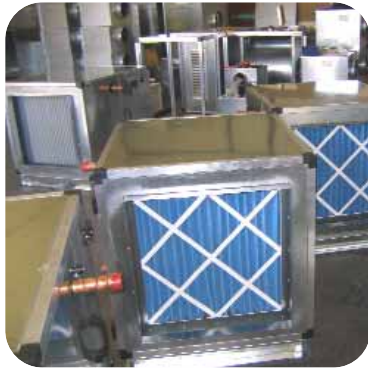
Installation

Vectaire can advise on installing and commissioning your air handling unit system and can give full technical back-up.



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Quality Control

Vectaire air handling units are manufactured to the highest quality and inspected at every stage of the manufacturing process. All products are built to BS EN ISO 9001. We operate a continuous evaluation of products and services to ensure customer requirements are met in full.

Materials

Vectaire air handling units are generally finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation and have a triple layer of steel at the corners with pre-drilled 8mm dia holes providing an ideal location for fixing points. All panel filters are manufactured from bonded and coated continuous spun glass fibre filaments with arrestance of 84% to G3 grade.



Heating Control Panels

Designed for quick and easy installation with external wiring kept to a minimum. A mains supply is taken to the panel door interlocked isolator and outputs then taken to the fan, heater and safety circuits. Sensors are supplied pre-wired to the panel. Switches on the front of the panel allow control of the fan and heater. All outputs to the fan are protected. All control panels are stand alone, but can be BMS compatible as an option.



Options

A full range of accessories and controls are also available - these include

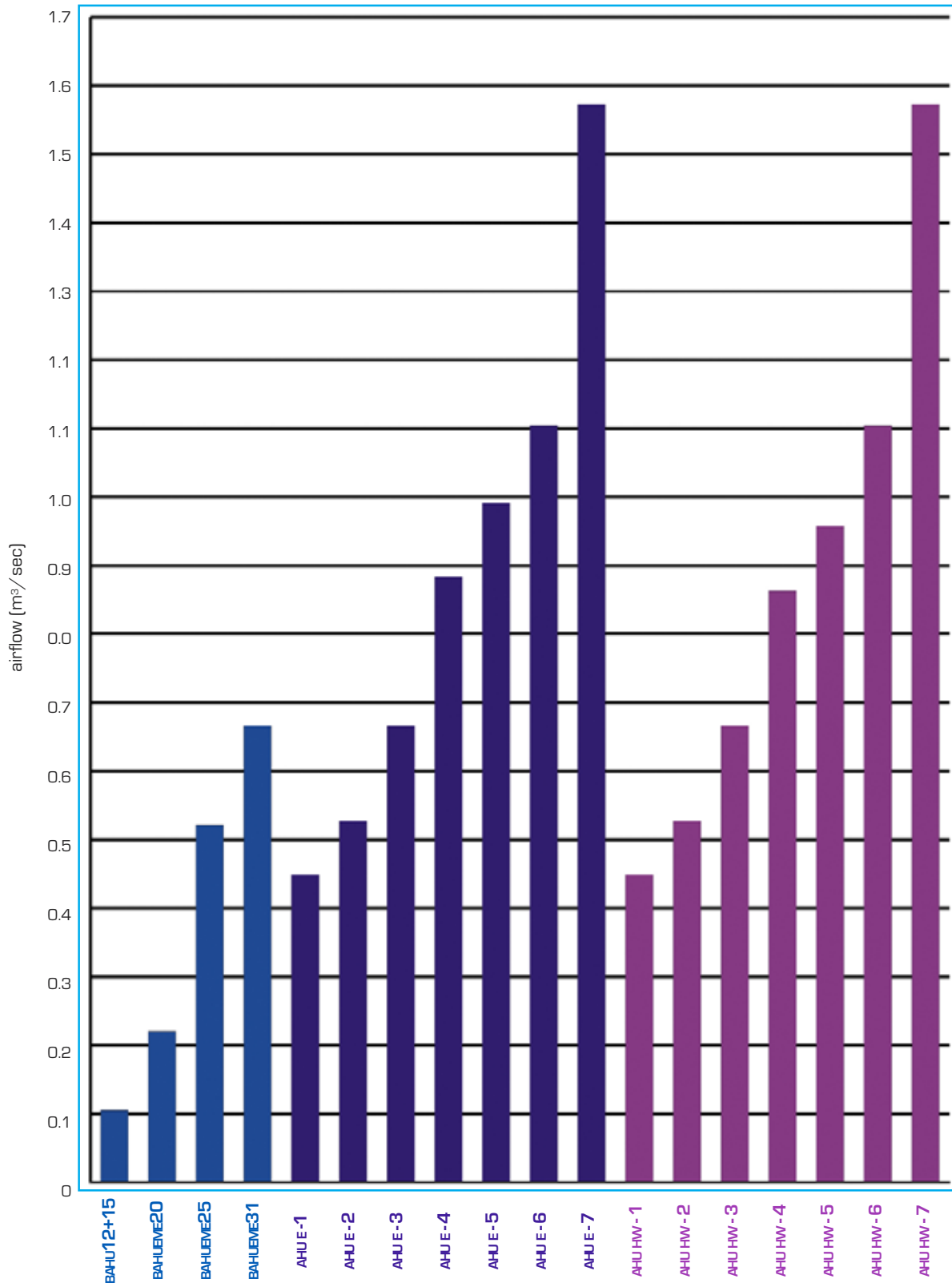
- intake damper/mixing box
- electric or hot water frost heaters
- bag filters
- cooling coils
- heat recovery systems
 - cross flow heat exchangers
 - thermal wheel
 - run around coils
- alternative heating source
 - gas fired
- casings
 - 50mm panels can be supplied with high density mineral wool and barrier matt
 - can be constructed in a vertical or horizontal layout
 - can be supplied as "flatpack" for on site assembly



Manufactured in UK to ISO 9001

Direct Drive - Air Handling Units

Selection Chart



See page 5 for BAHU details, page 9 for AHUE details, and page 15 for AHU-HW details



"AHU-E" - electric heater



Features - PLANT Models

- 14 models [7 sizes] for duct or roof installation
- airflow to 1.57 m³/sec
- pressure to 350 Pa
- speed controllable
- inlets and outlets fitted with "Mez" type duct connecting flanges
- rigid casing construction with triple layer of steel at corners - 8mm dia integral fixing point at each corner for either floor or ceiling mounting
- optional casing materials include stainless steel or aluminium - can be powder coated to any BS or RAL colour
- bag and panel filter fit into slide-in channels
- top access on duct mounted models (bottom access can be provided if required)

Additional Features - WEATHERPROOF Models

- top access on roof mounted models (via a single, removable weather lid)
- air inlets on external units protected by weatherproof cowl and bird guard
- roof mounted units constructed in galvanised steel, single skin with plastisol exterior in light grey to BS10A05

Specification

- internally mounted units are finished in galvanised, double skinned steel with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high degree of acoustic insulation) [50mm panels with

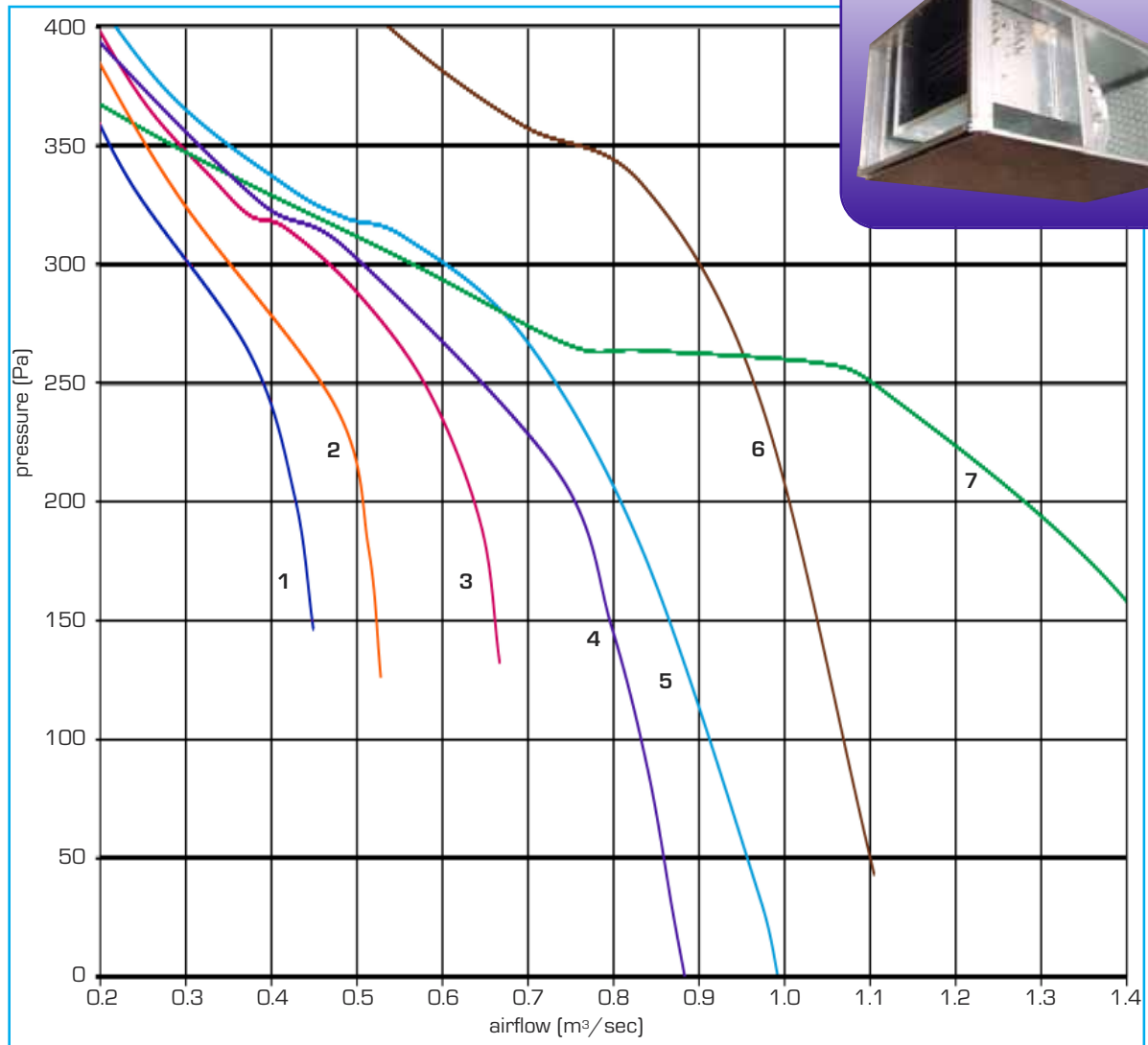
- high density mineral wool and barrier matt also available for reduced noise breakout]
- fans are direct drive double inlet, double width, forward curved centrifugal type
- motors - with thermal overload protection
- electric heater batteries for 1ph and 3ph operation are manufactured from sheathed rod elements with an integral, manual reset thermal cut-out for wiring into control unit
- maximum air temperature 40°C
- panel filters manufactured from bonded and coated spun glass fibre to G3 grade, fitted as standard in easily removable housings. Higher degree of filtration can be provided on request
- **manufactured in UK to ISO 9001**



HEATING COIL



Fan, Filter and Electric Heater Battery



Performance based on filters with a pressure drop 20% above clean

	Range	
	Plant	Roof
1	AHU-E-1-D	AHU-E-1-R
2	AHU-E-2-D	AHU-E-2-R
3	AHU-E-3-D	AHU-E-3-R
4	AHU-E-4-D	AHU-E-4-R
5	AHU-E-5-D	AHU-E-5-R
6	AHU-E-6-D	AHU-E-6-R
7	AHU-E-7-D	AHU-E-7-R



Fan, Filter and Electric Heater Battery

Model	m ³ /sec at Pa								Max m ³ /hr	Fan				Speed Control- ler
	50	100	150	200	250	300	350	400		Supply	Power W	FLC A	SC A	
AHUE-1	-	-	0.448	0.428	0.390	0.303	0.211	0.149	1616	230v1ph	373	2.00	5.00	n/a
SFP	-	-	1.47	1.24	1.14	1.15	1.45	2.070						
AHUE-2	-	-	0.522	0.504	0.458	0.352	0.253	0.175	1897	230v1ph	373	2.85	7.13	n/a
SFP	-	-	1.40	1.27	1.09	1.04	1.27	1.780						
AHUE-3	-	-	0.661	0.637	0.579	0.467	0.293	0.196	2398	230v1ph	373	3.85	9.63	VC4M
SFP	-	-	1.23	1.25	1.28	1.47	2.13	-						
AHUE-4	0.859	0.832	0.795	0.752	0.646	0.506	0.32	0.183	3179	230v1ph	550	3.80	9.50	n/a
SFP	1.21	1.14	1.05	0.99	0.95	0.97	1.33	2.180						
AHUE-5	0.956	0.911	0.865	0.807	0.733	0.603	0.349	0.217	3568	230v1ph	550	4.80	12.00	VC7M
SFP	1.28	1.23	1.19	1.17	1.21	1.30	1.97	-						
AHUE-6	1.076	1.043	1.009	0.966	0.900	0.763	0.545	0.397	3974	230v1ph	550	6.80	17.00	VC7M
SFP	1.40	1.36	1.33	1.31	1.29	1.32	1.61	2.05						
AHUE-7	1.493	1.402	1.287	1.146	0.747	0.522	0.274	0.046	5663	230v1ph	736	7.40	18.50	VC8M
SFP	0.87	0.84	0.84	0.87	1.07	1.42	2.50	-						

Sizes 1, 2 and 4 are not speed controllable - select larger unit

Performance based on filters with a pressure drop 20% above clean

See page 14 for Heater Battery Details

A 3ph electricity supply is recommend for the heater battery if it is rated over 18kw (regardless of the fact that the fan is single-phase)

SFP = Specific Fan Power

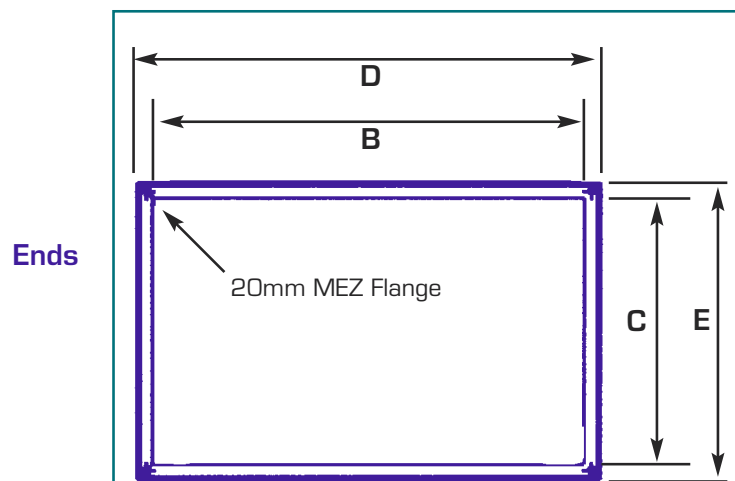
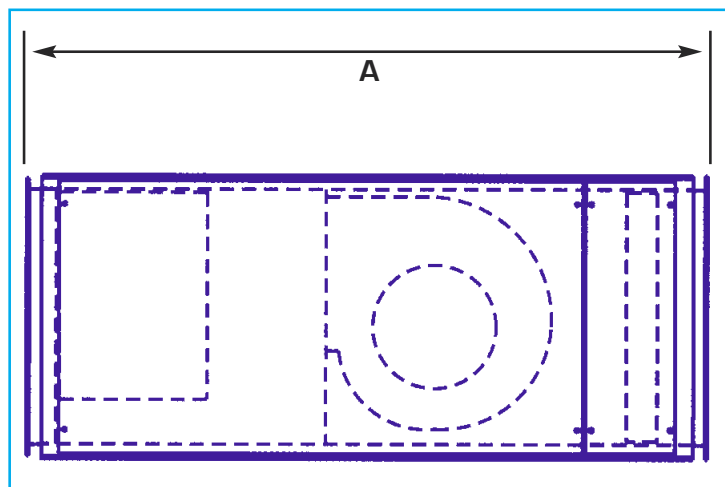
Fan Outlet Sound Levels

Model	Sound Pressure Level dBA at 3m	Sound Power Levels dB							
		Mid Octave Bands (Hz)							
		63	125	250	500	1000	2000	4000	8000
AHU-E-1	33	68	70	71	71	71	68	64	56
AHU-E-2	34	69	71	72	72	72	69	65	57
AHU-E-3	38	73	75	77	76	76	73	69	61
AHU-E-4	40	77	76	77	75	77	74	72	65
AHU-E-5	41	77	77	78	76	78	75	73	66
AHU-E-6	41	77	77	78	76	78	75	73	66
AHU-E-7	39	76	78	76	78	76	74	72	67



Fan, Filter and Electric Heater Battery - Plant Models

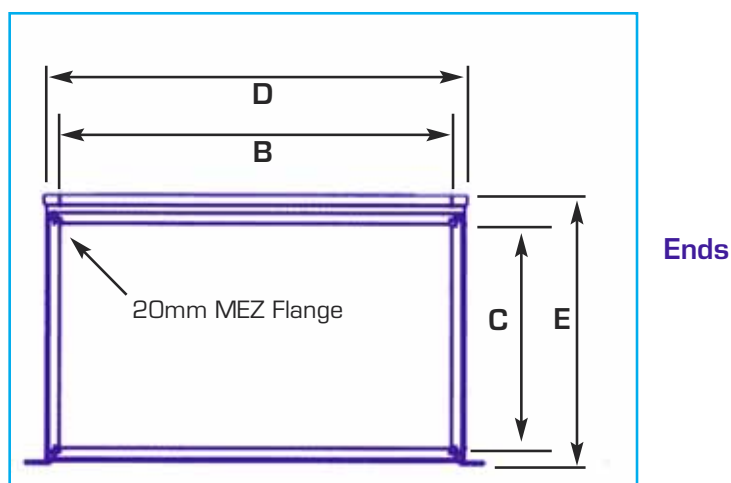
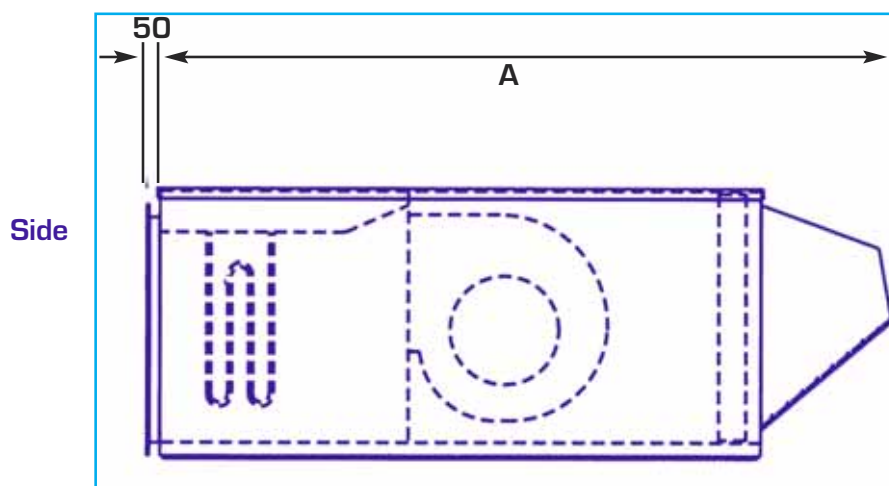
Model - Duct	A mm	B mm	C mm	D mm	E mm	kg
AHU-E-1-D	1150	600	450	650	500	65
AHU-E-2-D	1150	600	450	650	500	65
AHU-E-3-D	1150	600	450	650	500	65
AHU-E-4-D	1150	750	450	800	500	77
AHU-E-5-D	1150	750	450 <td 800	500	77	
AHU-E-6-D	1250	825	500	875	550	92
AHU-E-7-D	1350	900	600	950	650	117





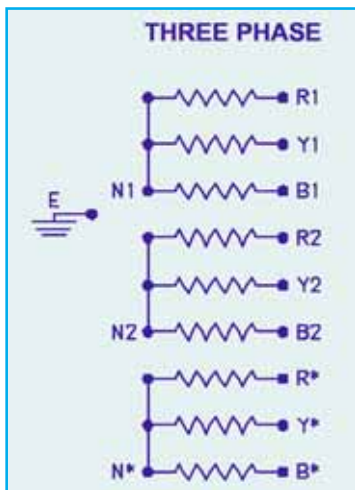
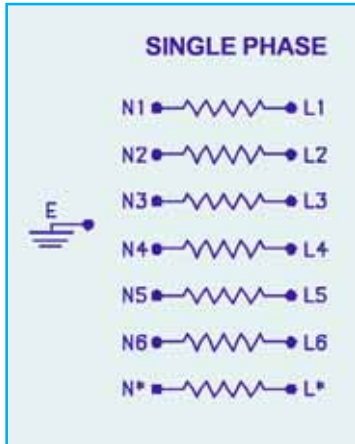
Fan, Filter and Electric Heater Battery - Weatherproof Models

Model - Roof	A mm	B mm	C mm	D mm	E mm	kg
AHU-E-1-R	1350	600	450	650	580	57
AHU-E-2-R	1350	600	450	650	580	57
AHU-E-3-R	1350	600	450	650	580	57
AHU-E-4-R	1350	750	450	800	580	66
AHU-E-5-R	1350	750	450	800	580	66
AHU-E-6-R	1600	825	500	875	580	78
AHU-E-7-R	1650	900	600	950	680	97





Electric Heater Battery



Model	kW Rating	Single Phase Steps					3 Phase Steps				
		1	2	3	4	6	1	2	3	4	
AHU-E-1	3.0	✓	✓								
	4.5	✓		✓							
	6.0	✓	✓	✓			✓				
	7.5	✓		✓			✓				
	9.0	✓	✓	✓			✓	✓			
	12.0		✓	✓	✓	✓	✓	✓			
AHU-E-2	4.5	✓		✓							
	6.0	✓	✓	✓			✓				
	7.5	✓		✓			✓				
	9.0	✓	✓	✓			✓	✓			
	12.0		✓	✓	✓	✓	✓	✓			
	15.0		✓	✓		✓	✓	✓			
AHU-E-3	6.0	✓	✓	✓			✓				
	7.5	✓		✓			✓				
	9.0	✓	✓	✓			✓	✓			
	12.0		✓	✓	✓	✓	✓	✓			
	15.0		✓	✓		✓	✓	✓			
	18.0		✓	✓		✓	✓	✓			
AHU-E-4	9.0	✓	✓	✓			✓	✓			
	12.0		✓	✓	✓	✓	✓	✓			
	15.0		✓	✓		✓	✓	✓			
	18.0		✓	✓		✓	✓	✓			
	21.0							✓			
	24.0							✓			✓
AHU-E-5	15.0		✓	✓		✓	✓	✓			
	18.0		✓	✓		✓	✓	✓			
	21.0							✓			
	24.0							✓			✓
	27.0							✓	✓		
	30.0							✓	✓		✓
AHU-E-6	18.0		✓	✓		✓	✓	✓			
	21.0							✓			
	24.0							✓	✓		
	27.0							✓	✓		
	30.0							✓	✓		✓
	36.0							✓	✓		✓
AHU-E-7	21.0							✓			
	24.0							✓			✓
	27.0							✓	✓		
	30.0							✓	✓		✓
	36.0							✓	✓		✓
	45.0							✓	✓		

Heater ratings can be calculated using the following formula: $kW = m^3/sec \times 1.21 \times \text{Temp rise } ^\circ C$

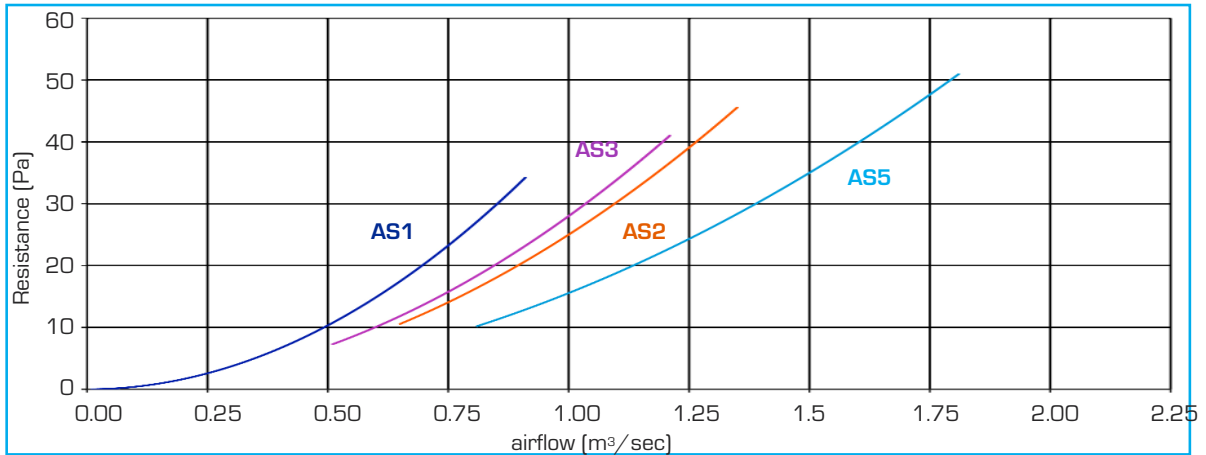
Dependent on external system resistance and airflow achieved, the temperature rise should not exceed 35°C

Direct Drive - Air Handling Units

Silencers



Pressure Drop

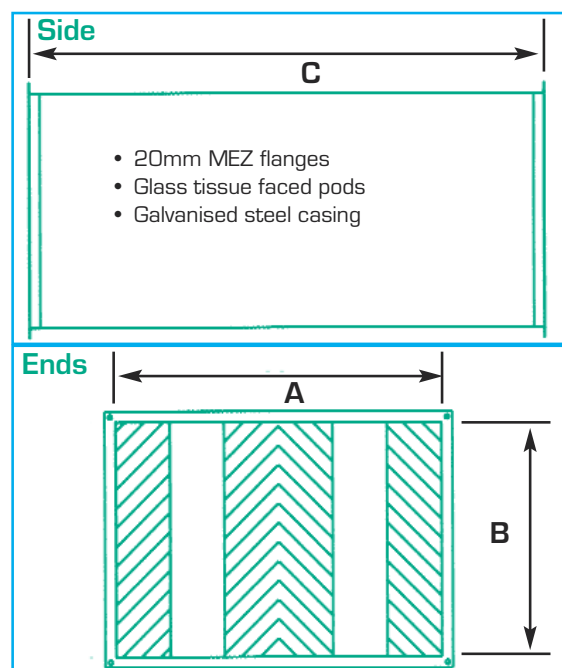


Insertion Loss

Model	Attenuation: Insertion loss - dB - mid frequency Hz							
	63	125	250	500	1000	2000	4000	8000
AS1	5	9	16	30	39	39	31	26
AS2	3	6	11	20	25	25	15	8
AS3	5	9	16	30	39	39	31	26
AS5	5	9	16	30	39	39	31	26

Dimensions

Model	A	B	C	kg
AS1	600	450	1000	48
AS2	750	450	1000	51
AS3	825	500	1000	80
AS5	900	600	1000	105



Air Handling Units

Control Panels



Electric Heating

Single Stage Electric Heating Control Panel - ECP1

Epoxy painted steel enclosure, 160 x 250 x 125mm
Individual switches and indicators for fan and heater
Individual MCB for fan and heater element
Mains input: 230v, 50Hz, 1ph
Maximum output: Heater 1 x 3kw 1ph elements
Fan 1 x 1ph
2A MCB fitted as standard
Number of steps of heater control: 1



3 Step Electric Heating Control Panel - ECP3

Epoxy painted steel enclosure, 400 x 500 x 150mm
Door interlocked isolator
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Individual fuses for fan and heater element
Mains input: 400v, 50Hz, 3ph and neutral; or 230v 50Hz 1ph
Maximum output: Heater 3 x 3kw 1ph elements
Fan 1 x 1ph 6.3A max full load current
2A fuse fitted as standard
Number of steps of heater control: 3
Fan run-on timer: approximately 2 minutes



6 Step Electric Heating Control Panel - ECP6

Epoxy painted steel enclosure, 400 x 500 x 150mm
Door interlocked isolator
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Individual fuses for fan and heater element
Mains input: 400v, 50Hz, 3ph and neutral; or 230v 50Hz 1ph
Maximum output: Heater 6 x 3kw 1ph elements
Fan 1 x 1ph 6.3A max full load current
6A MCB fitted as standard
Number of steps of heater control: 6
Fan run-on timer: approximately 2 minutes



Hot Water Heating

Hot Water Heating Control Panel - HWCP

Epoxy painted steel enclosure
Individual switches, and run and trip indicators for fan and heater
Panel live indicator
Heater on indicator
Mains input: 230v, 50Hz, 1ph
Maximum output: Fan 1 x 1ph 10A max full load current



Air Handling Units

Custom Built



General

VECTAIRE offers an extensive range of supply/extract units and associated ancillary equipment. Fans are available which cater for air volumes up to 20 m³/sec, for both internal and external applications. Most design parameters can be accommodated, and among the many variants we are able to provide are the following.

Cases

- single or double skinned with 25mm or 50mm thick panels.
- different panel infill, including a combination of high-density mineral wool and barrier matt to give high noise reduction.
- differing panel skin materials including stainless steel, aluminium and plastic coated sheet steel.
- powder coat paint finish to any BS or RAL number to either internal, external or both surfaces.
- casings supplied in "flat pack" form to facilitate site assembly.

Components

- The following components can be readily catered for:
 - **filters**
 - CARBON
 - HEPA
 - GREASE
 - WASHABLE
 - run-a-round coil systems
 - thermal wheels
 - gas fired heaters - indirect and direct
 - **fans**
 - SISW
 - DUPLEX (FOR LOW PROFILE)
 - TWIN MOTORS
 - SINGLE PHASE
 - 2 SPEED
 - MOUNTED OUT OF AIR STREAM
 - FITTED WITH STANDBY

Specifications

- units can be designed to meet the requirements of the following:
 - HTM03/01
 - CO4

Controls

- any variation of control package can be supplied:
 - simple pre-wiring of motor to an external isolator
 - an in-built control panel pre-wired to motors, damper motors, sensors etc

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Air Handling Units



Contracts Completed

Luton Hoo Hotel

Aston Martin

Burger King

Neville Hall Hospital

RAF Odiham

RAF Benson

RNAS Clyde

Lyreco

HP Foods

Calypso Soft Drinks

Disney Stores

Princess of Wales Hospital

Royal Yacht Britannia

BUPA Hospital, Leicester

Warner Holiday Camp

Bass Inns

Livingstone FC

Hambden Park

Blackburn Rovers FC

Waitrose

Sandwell Hospital

Domino Pizza

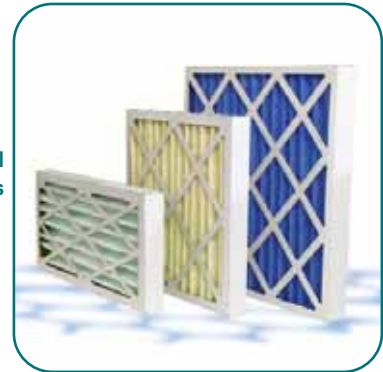
Kentucky Fried Chicken

Featherstone Technical College





Bag Filters



Panel Filters



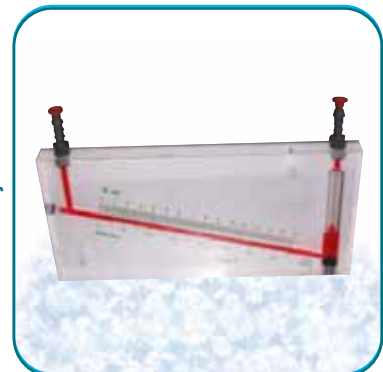
Pressure Switch



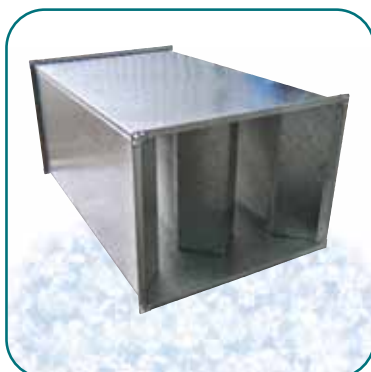
Port Holes



Speed Controller



Manometer



Silencer



Anti Vibration Mounts

Other Vectaire Ventilation Units



"PA"
Plate Mounted Axial Fan



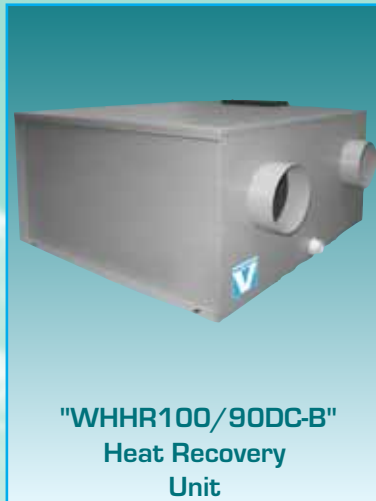
"LCA"
Long Cased Axial Fan



"ACFS"
SUPER SILENT
Acoustic Cabinet Fans



Heat Recovery Units



"WHHR100/90DC-B"
Heat Recovery
Unit



"WHHR125DC-Aera"
Heat Recovery
Unit



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