



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.

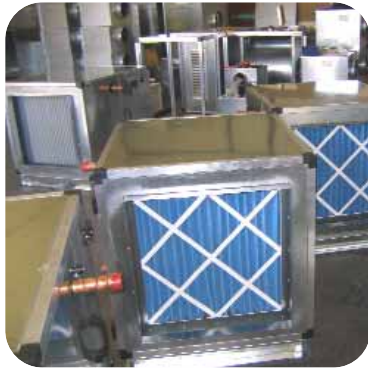
Installation

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



direct drive - belt drive - custom built

Air Handling Units



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

"AHU-BDP" - plant models



Features

- for internal use only
- can be fitted with electric or LPHW heater
- 8 models (4 sizes) for duct installation
- airflow to 2.0 m³/sec
- speed controllable via optional inverter
- inlets and outlets fitted with "Mez" type duct connecting flanges
- rigid casing construction
- mounted on 100mm high galvanised sheet steel channel base
- side access
- bag and panel filter fit into slide-in channels
- filter doors fitted with easy access fasteners
- quick and easy to install

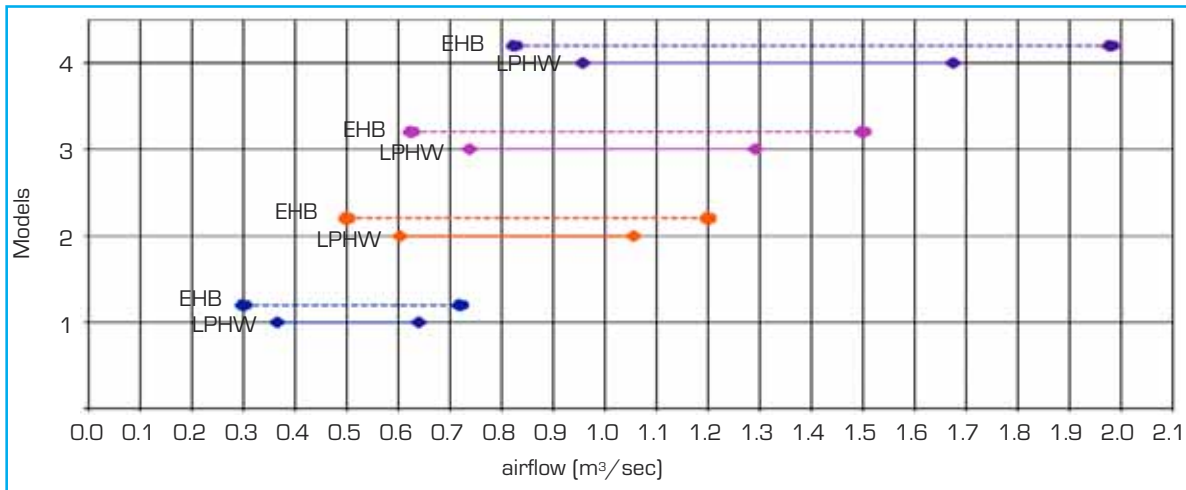
Specification

- units are manufactured from spangled galvanised sheet steel, double skinned with 25mm thick mineral wool slab insulation of 45 kg/m³ density (providing high degree of acoustic insulation)
- fans are belt drive, double inlet, double width, forward curved centrifugal type, mounted on integral anti-vibration mounts. Fan impellers are statically and dynamically balanced in accordance with VDI 2060 and ISO 1940/1. Supplied as standard with pre-greased sealed for life bearings having L10 life of 20,000 hours at peak performance

- standard motors of squirrel cage induction type, totally enclosed, fan cooled, suitable for 3ph, 50Hz electricity supply
- motors with IP55 protection and Class F rating
- fan and motor connected via vee belt drive, prealigned and tensioned
- fan and motor mounted on a common chassis frame isolated from casing via open coil spring anti-vibration mounts. Flexible connector fitted between fan discharge and casing. Transit bolt fitted to prevent damage in transit
- LPHW (low pressure hot water) coils constructed from copper tubes mechanically expanded into ribbed aluminium fin plates. Coils have galvanised sheet steel casing and mounted into slide-in channels for easy removal
- electric heater batteries manufactured using sheathed incolloy 8 elements.
The number and kW rating to be dictated by duty, number of stages required and electrical supply.
A manual reset thermal cut-out is an integral part of heater control circuits. It is recommended that the fan run-on timer be incorporated in the controls to prevent possible heat damage
- panel filters manufactured from bonded and coated spun glass fibre to G4 grade, fitted as standard in easily removable housings
- **manufactured in UK to ISO 9001**



Performance



| | Range | |
|---|-------------|--------------|
| 1 | AHU-BDP-E-1 | AHU-BDP-HW-1 |
| 2 | AHU-BDP-E-2 | AHU-BDP-HW-2 |
| 3 | AHU-BDP-E-3 | AHU-BDP-HW-3 |
| 4 | AHU-BDP-E-4 | AHU-BDP-HW-4 |

Fan Outlet - Sound Levels

| Model | Sound Pressure Level dBA at 3m | Sound Levels - in Outlet Duct dBW | | | | | | | |
|-----------|--------------------------------|-----------------------------------|-----|-----|-----|------|------|------|------|
| | | Centre Frequency Levels (Hz) | | | | | | | |
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| AHU-BDP-1 | 66 | 76 | 76 | 74 | 72 | 76 | 75 | 73 | 69 |
| AHU-BDP-2 | 67 | 78 | 77 | 76 | 73 | 78 | 75 | 74 | 70 |
| AHU-BDP-3 | 69 | 81 | 78 | 77 | 74 | 77 | 76 | 75 | 71 |
| AHU-BDP-4 | 71 | 87 | 79 | 77 | 80 | 75 | 72 | 71 | 63 |

Noise levels depend on both air volume and resistance. The above levels should be used as a guide. They have been based on unit maximum air volume and 250Pa external static pressure

Sound - Case Breakout

| | Centre Frequency Levels (Hz) | | | | | | | |
|-------------------|------------------------------|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| Insertion Loss dB | 9 | 11 | 13 | 28 | 34 | 35 | 35 | 36 |

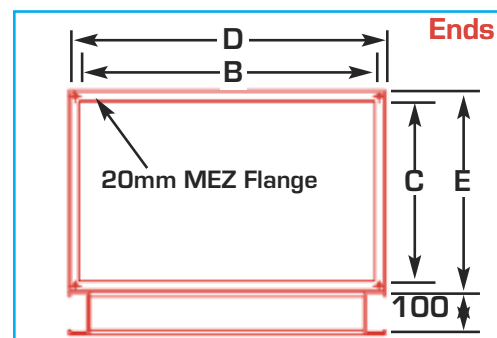
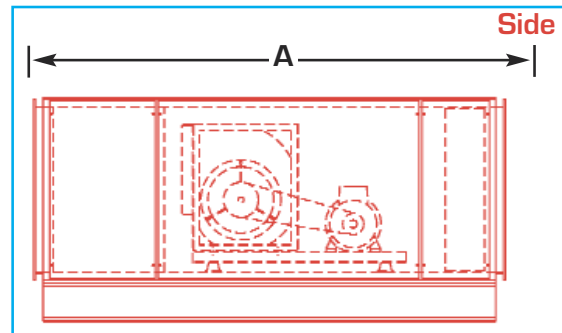
Belt Driven - Air Handling Units

AHU-BDP - *Dimensions*

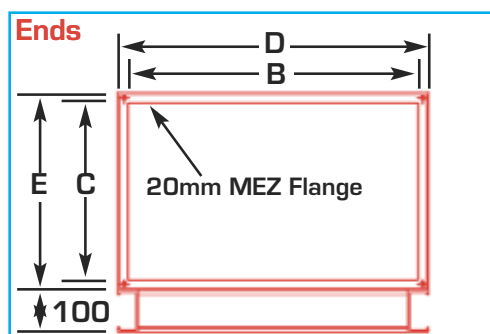
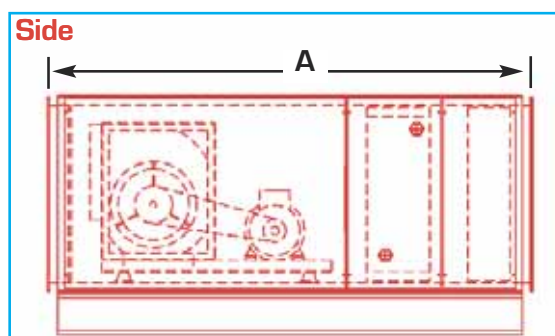


Fan, Filter and Electric Heater Battery - Plant Models

| Model | A mm | B mm | C mm | D mm | E mm | kg |
|------------|------|------|------|------|------|-----|
| AHU-BDPE-1 | 1400 | 600 | 450 | 650 | 500 | 130 |
| AHU-BDPE-2 | 1500 | 825 | 500 | 875 | 550 | 165 |
| AHU-BDPE-3 | 1600 | 825 | 650 | 875 | 700 | 225 |
| AHU-BDPE-4 | 1650 | 900 | 750 | 950 | 800 | 280 |



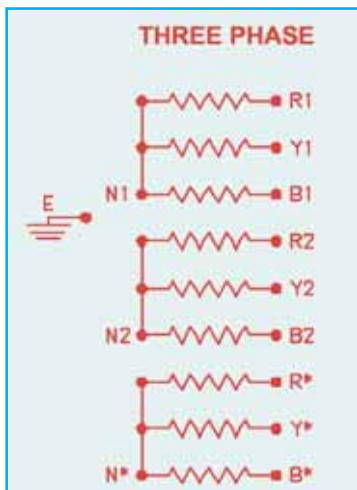
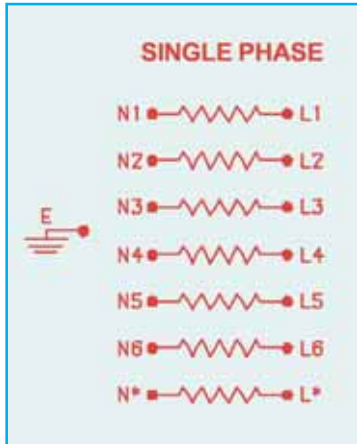
Fan, Filter and LPHW Heater Battery - Plant Models



| Model | A mm | B mm | C mm | D mm | E mm | kg |
|-------------|------|------|------|------|------|-----|
| AHU-BDPHW-1 | 1300 | 600 | 450 | 650 | 500 | 130 |
| AHU-BDPHW-2 | 1400 | 825 | 500 | 875 | 550 | 165 |
| AHU-BDPHW-3 | 1500 | 825 | 650 | 875 | 700 | 225 |
| AHU-BDPHW-4 | 1550 | 900 | 750 | 950 | 800 | 280 |



Electric Heater Battery

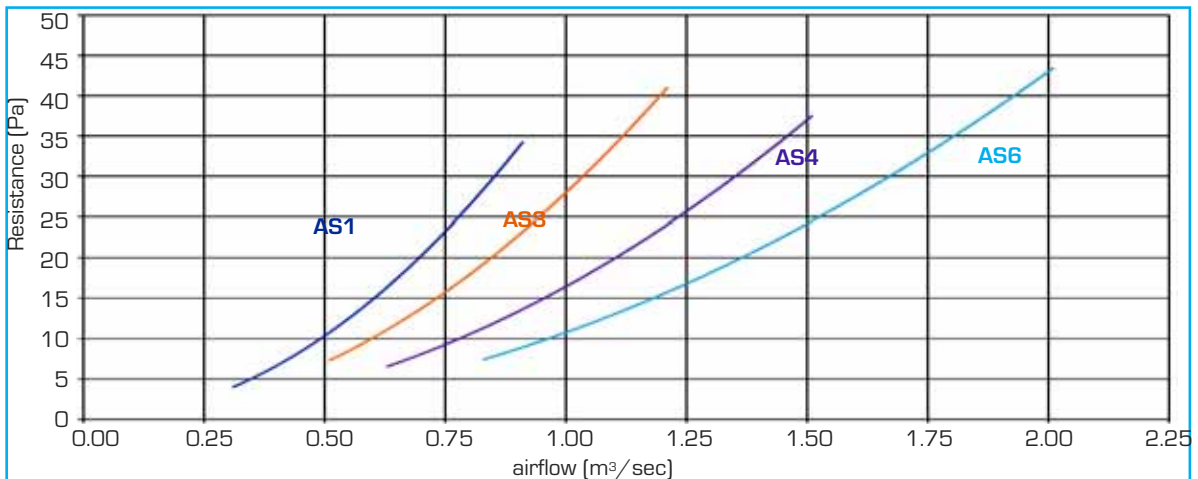


| Model | kW Rating | Single Phase Steps | | | | | 3 Phase Steps | | | |
|------------|-----------|--------------------|---|---|---|---|---------------|---|---|---|
| | | 1 | 2 | 3 | 4 | 6 | 1 | 2 | 3 | 4 |
| AHU-BDPE-1 | 6.0 | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| | 9.0 | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| | 12.0 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | 15.0 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| | 18.0 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| | 24.0 | | | | | | ✓ | ✓ | | ✓ |
| | 27.0 | | | | | | | ✓ | ✓ | |
| AHU-BDPE-2 | 9.0 | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| | 12.0 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | 15.0 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| | 18.0 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| | 24.0 | | | | | | ✓ | ✓ | | ✓ |
| | 27.0 | | | | | | | ✓ | ✓ | |
| | 36.0 | | | | | | | ✓ | ✓ | ✓ |
| 45.0 | | | | | | | ✓ | ✓ | | |
| AHU-BDPE-3 | 18.0 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| | 24.0 | | | | | | ✓ | ✓ | | ✓ |
| | 27.0 | | | | | | | ✓ | ✓ | |
| | 36.0 | | | | | | | ✓ | ✓ | ✓ |
| | 45.0 | | | | | | | ✓ | ✓ | |
| | 54.0 | | | | | | | ✓ | ✓ | ✓ |
| | 63.0 | | | | | | | ✓ | ✓ | |
| AHU-BDPE-4 | 27.0 | | | | | | ✓ | ✓ | ✓ | |
| | 36.0 | | | | | | | ✓ | ✓ | ✓ |
| | 45.0 | | | | | | | ✓ | ✓ | |
| | 54.0 | | | | | | | ✓ | ✓ | ✓ |
| | 63.0 | | | | | | | ✓ | ✓ | |
| | 72.0 | | | | | | | | ✓ | ✓ |
| | 81.0 | | | | | | | ✓ | ✓ | |

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



Pressure Drop

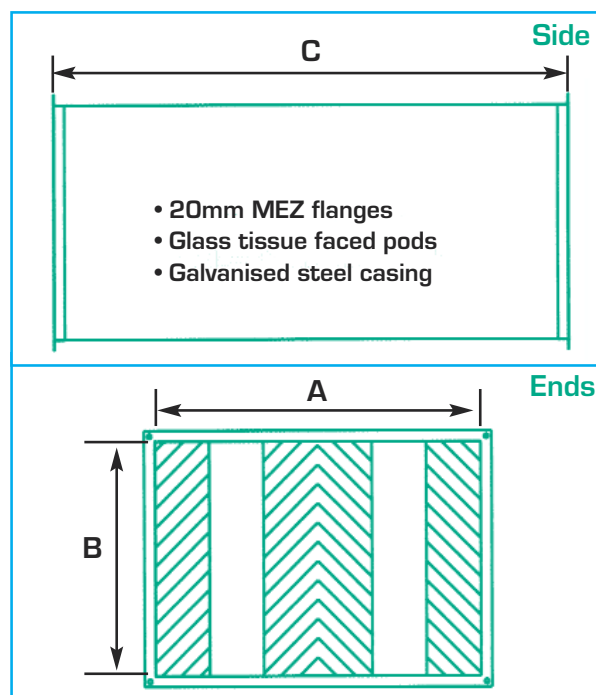


Insertion Loss

| 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 |
| AS3 | 5 | 9 | 16 | 30 | 39 | 39 | 31 | 26 |
| AS4 | 5 | 9 | 16 | 30 | 39 | 39 | 31 | 26 |
| AS6 | 5 | 9 | 16 | 30 | 39 | 39 | 31 | 26 |

Dimensions

| Model | A | B | C | kg |
|-------|-----|-----|------|-----|
| AS1 | 600 | 450 | 1000 | 48 |
| AS3 | 825 | 500 | 1000 | 51 |
| AS4 | 825 | 650 | 1000 | 80 |
| AS6 | 900 | 750 | 1000 | 105 |



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

Air Handling Units

Custom Built



direct drive - belt drive - custom built

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

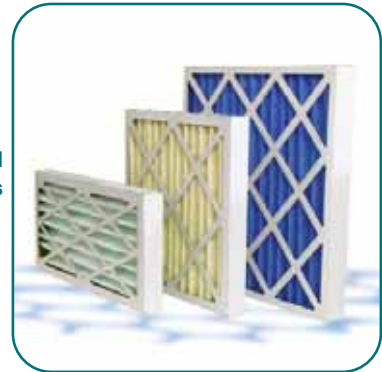
Kentucky Fried Chicken

Featherstone Technical College





Bag Filters



Panel Filters



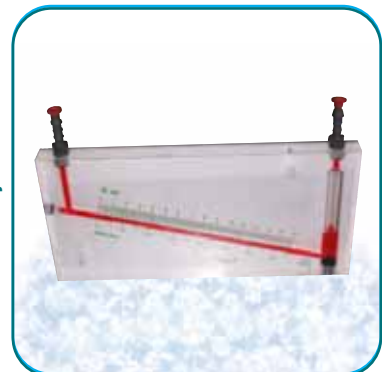
Pressure Switch



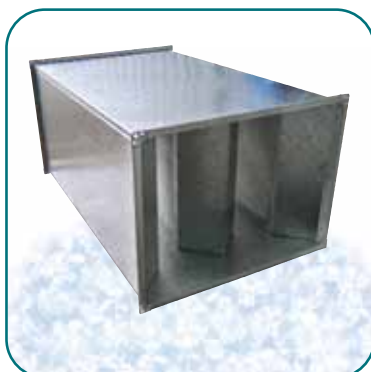
Port Holes



Speed Controller



Manometer



Silencer



Anti Vibration Mounts

Other Vectaire Ventilation Units



"PA"
Plate Mounted Axial Fan



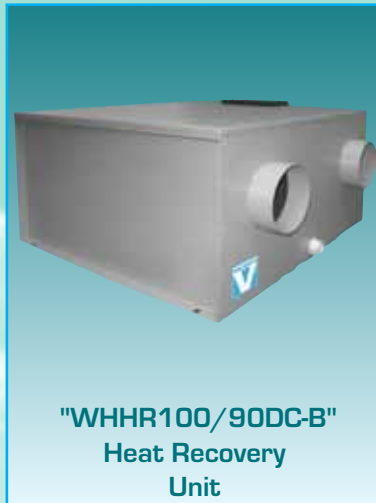
"LCA"
Long Cased Axial Fan



"ACFS"
SUPER SILENT
Acoustic Cabinet Fans



Heat Recovery Units



"WHHR100/90DC-B"
Heat Recovery
Unit



"WHHR125DC-Aera"
Heat Recovery
Unit



Vectaire Ltd
Lincoln Road
Cressex Business Park
High Wycombe
Buckinghamshire, HP12 3RH
Tel: +44(0)1494 522333
Fax: +44(0)1494 522337
Email: sales@vectaire.co.uk
Web: www.vectaire.co.uk

