

# XBC75-85 HEAT EXCHANGE UNITS

## CONSULTANTS SPECIFICATION

### OPERATION

The supply and extract ventilation unit shall be configured as indicated on the drawings. The heat recovery ventilation unit shall enable the room design conditions to be maintained by the effective and continuous control of ventilation rate, the integrated counterflow heat exchanger matrix and bypass, and LPHW heating facility.

The ventilation unit shall automatically vary the ventilation rate in the space dependent upon the signals received from the interconnected sensors and user interface (where provided). When signals are received, the unit shall vary its fan speeds proportionally until the desired set points are met.

The unit shall have the facility to commission the supply and extract fans individually via inbuilt maximum, minimum and offset speed adjustments. Each fan shall have stepless variable speed control (20 – 100% of maximum).

The unit shall be the XBC75-85\*\*\* as manufactured by Nuair.

### UNIT SPECIFICATION

The heat recovery ventilation unit shall have a maximum depth of 876mm (XBC75/85-H), 1416mm (XBC75-V) and 1676mm (XBC85-V) including base frame.

The one-piece ventilation unit shall be constructed with double skinned Aluzinc panels on an aluminium Pentapost frame with integral acoustic mineral fibre ensuring low breakout noise levels. The unit shall incorporate a high efficiency aluminium counterflow plate heat exchanger matrix with a thermal efficiency of up to 92%, fitted with a segmented 100% bypass facility and actuator (patent app.for) operating under automatic control. The automatic operation of the XBC bypass is determined by an algorithm that varies output based on temperatures, and whether the control system has been set to prioritise heating, ventilation or cooling.

The unit shall be protected from airborne contamination by high capacity pleated G4 panel filters (supply and extract).

The unit shall be fitted with ErP 2016 rated, low energy, high efficiency IP54 EC motorised fans providing low specific fan powers and stepless speed control, without tonal noise generation. Fan/motor assemblies have sealed for life bearings with an anticipated working life of 70,000 hours (L10) and shall be suitable for single phase supply.

Impellers shall be of high efficiency, performance and sound optimised backward curved design.

The unit shall be fitted with a LPHW heater battery (code example XBC75-V-LES), complete with factory fitted valve and actuator, terminating at the unit casing. Contact Nuair for Electric heater battery options.

The system shall have frost protection (Ecosmart models only) which shall, at temperatures below 4 degrees C, fully open the 2-port valve and only start the fan when the temperature within the chamber has risen above the designated set point.

The LPHW assembly shall be pressure tested at works to a minimum of 6 Bar. The control for the heaters shall be fully integrated and shall maintain a constant temperature\*\*\* to meet the system design requirements.

\*\*\*The heating output (LPHW or electric) is automatically regulated to control the Air - Off condition.

The unit is also available without a heater fitted (code example XBC75-V-NBC).

The unit shall be constructed with removable side panels allowing full maintenance access.

The removable panels shall provide access to the following:-

- Supply and extract fan.
- Supply and extract filter.
- Condensate tray.
- All control adjustments (where included). Vertical models only.

### UNIT CONFIGURATION

Standard Unit is supplied with internal control panel and connections on left side (refer to technical documentation). Horizontal units have externally mounted control panel. Opposite hand unit is available (example code XBC75-V-LES-R).

The ventilation unit shall comprise the following:-

Supply and extract fans, high efficiency counterflow plate heat exchanger matrix, supply and extract filters, full 100% automatic heat exchanger bypass, heating coil (as selected) & condensate drip tray, a condensate pump is installed in the unit and has an alarm function (connection by others). If the water level in the condensate tray exceeds a maximum level (for example, as a result of the discharge tube becoming blocked or frozen), the alarm contact will open. This contact is internally connected to the heat exchanger bypass actuator, and the unit will automatically be placed into bypass mode, preventing further condensate production. Unit operation will otherwise be unaffected.

Matching double skinned Pentapost construction attenuators can also be provided by Nuair.

### CODE DESCRIPTION

XBC75-V-LES-R-WP  
| | | | | | | |  
1 2 3 4 5 6 7 8

1. XBOXER
2. Counterflow heat exchanger
3. Unit size (75 & 85)
4. V = Vertical, H = Horizontal
5. Type of heater battery:  
L = LPHW, N = No heater  
E = Electric heater
6. Control type:  
AT = Ecosmart Adapt (Trend)  
CO = Ecosmart Connect  
ES = Ecosmart Classic  
BC = Basic control
7. R = Opposite configuration
8. WP = Weather roof factory fitted only.

For further details on the ErP directive please refer to [www.nuair.co.uk](http://www.nuair.co.uk)

## XBC75-85 CONTROL OPTIONS CONSULTANTS SPECIFICATION

### BASIC CONTROL OPTION

Unit is provided with side access to internal mounted basic control housing for direct supply and extract fan motor wiring and for interfacing to custom built control panels.

The basic control housing (terminal box) is provided for the connections to the fans (400V 3Ph 50Hz LNE and 2-10V), and Electric heater terminal and thermal protection (where specified).

For this option, no sensors are fitted to the unit, but note that the plate heat exchanger bypass damper actuator is included suitable for 400V standard.

Units fitted with Basic Control (code example XBC75-V-EBC) have a 2 year warranty.

### ECOSMART CLASSIC OPTION - DEMAND CONTROLLED VENTILATION

Provides the facility for energy saving via an intelligent stand-alone AHU function with local diagnostic status indication, or allows convenient integration with the client BMS with a minimal co-ordination requirement.

The factory fitted Ecosmart Classic control includes:- integral infinitely variable speed / duty control for the supply and extract fans, with independent minimum, maximum and offset adjustment for accurate commissioning.  
The control assembly is mounted internally.

The control features a run on timer and "background" ventilation function, and is provided with unit status indication, run and fail relays and interface connections for Ecosmart Classic sensors/enablers and system dampers.

The heat exchanger bypass is automatically operated according to temperature and a pre-defined strategy.

\*\*\*The heating output (LPHW or electric) is automatically regulated to control the Air - Off condition.

The Ecosmart control module can additionally be connected to provide the following integrated BMS interfaces.

- 0 - 10 volt inputs. This will enable the following functions:-  
Switch the unit ON/OFF. Variable speed / duty control, Switch from low speed to high speed, Enable heating/cooling.
- 2 No. Volt free contacts give fan run and failure unit status indication.

Units fitted with Ecosmart Classic control (code example XBC75-V-LES) have a 5 year warranty.

### ECOSMART CONNECT OPTION – ENHANCED DEMAND CONTROLLED VENTILATION

A comprehensive unit control specification - factory fitted and tested to provide guaranteed operation from a single supplier – one who will take responsibility.

The unit integrated Ecosmart Connect system provides the facility for operational efficiency and energy saving by allowing a comprehensive range of unitary control functions and / or full BMS integration (by others) via standard BACnet (MS/TP).

The system incorporates a web access enabled controller, and is augmented by application specific unit interface and diagnostic circuits.  
Controller software is optimised and pre-configured, and each unit / control assembly is fully functionally tested at works (Refer to technical documentation for full controller functional specification).

Units fitted with Ecosmart Connect control (code example XBC75-H-CO) have a 5 year warranty. (Refer to 'Description of control' for further details).

### ECOSMART ADAPT WITH TREND OPTION – ENHANCED DEMAND CONTROLLED VENTILATION

A comprehensive unit control specification - factory fitted and tested to provide guaranteed operation from a single supplier – one who will take responsibility.

The unit integrated Ecosmart Adapt system provides the facility for operational efficiency and energy saving by allowing a comprehensive range of unitary control functions and / or full BMS integration (by others) via standard BACnet IP configuration.

The system incorporates a web access enabled Trend IQ422/12/LAN/BAC/230 controller, and is augmented by application specific unit interface and diagnostic circuits. Controller software is optimised and pre-configured, and each unit / control assembly is fully functionally tested at works (Refer to technical documentation for full controller functional specification).

Units fitted with Ecosmart Adapt control (code example XBC75-V-LAT) have a 5 year warranty. (Refer to 'Description of control' for further details).

The unit shall be the XBC75-85 as manufactured by Nuair.