

XBOXER XBC+
PACKAGED HEAT
RECOVERY UNITS



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PROUD TO BUILD BRITISH

We've been pioneers in new air technology since 1966. Our heritage is in the design and manufacture of fans and ventilation systems. *We put our energy into efficient ventilation so you don't waste yours.*



Pioneering

We lead the way in product innovation with a stream of ground-breaking products over decades.



Trusted

We have a reputation for our build quality. We establish long term relationships and are always transparent with our test data.



Agile

We're one of the UK's leading manufacturers, covering both residential and commercial air quality. We offer innovative advice and provide flexible solutions.



Expert

Our team is made up of over 600 people, 50 of which have over 25 years' experience. We have the skills and knowledge to help find the best solution for our customers.



Attentive

We're expert listeners, rising to any challenge and going the extra mile for our customers. We add value by solving problems. We sell solutions, not fans.



Personal

We work closely with our customers and can provide bespoke solutions to meet their specific project needs. Many of our product ranges were developed this way.

“Our expertise, experience and innovation is what makes us stand out from the rest of the market.”

Wayne Glover, Managing Director, Nuaire.



For help with selecting a unit, speak to us on **02920 858200** or email: enquiries@nuaire.co.uk

ABOUT PACKAGED HEAT RECOVERY UNITS

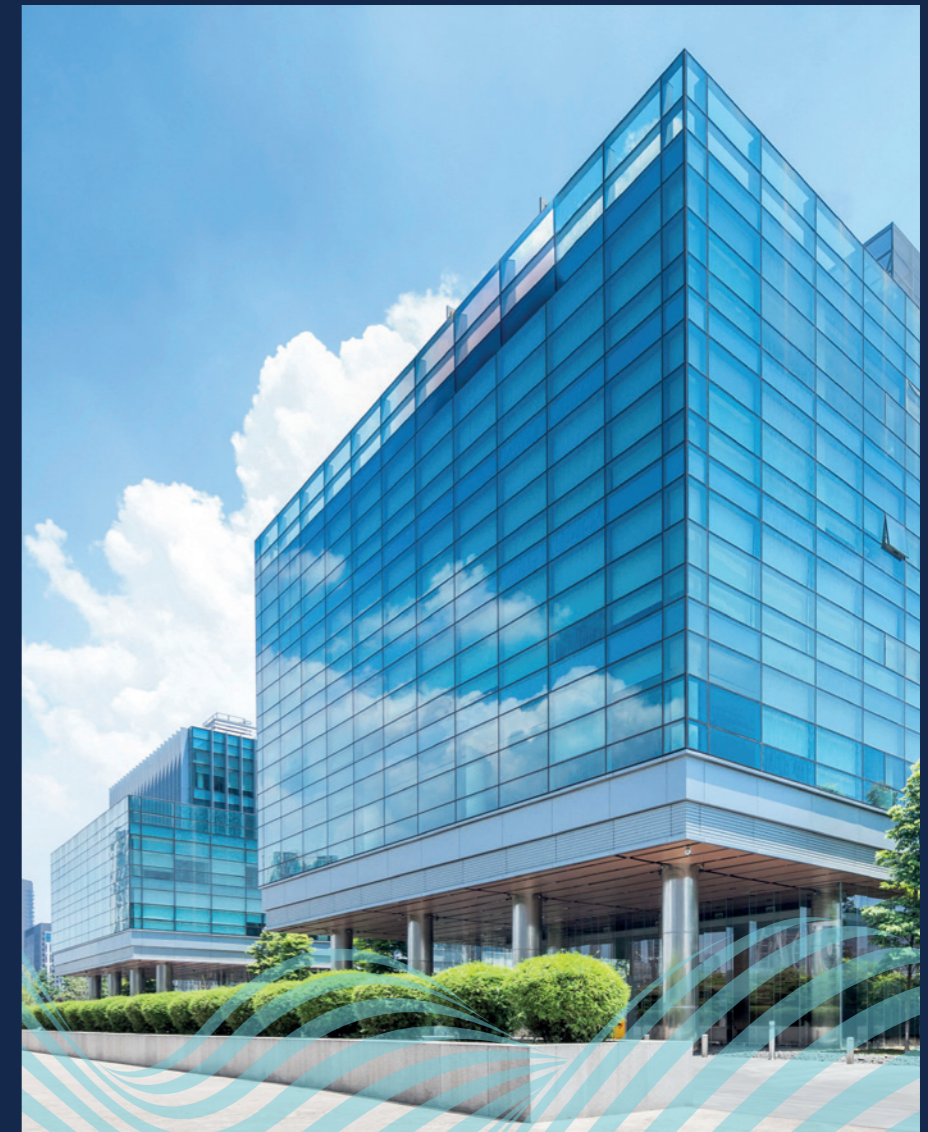
Heat recovery systems are the perfect solution for projects where airflow and occupant comfort needs to be guaranteed.

Heat recovery units are supply and extract systems designed to deliver fresh, filtered air into a building whilst also extracting stale air from the interior. Units contain a heat exchanger, which is capable of retaining heat that would otherwise be lost, and temper incoming air with this energy.

Our pedigree is in the design and manufacture of packaged heat recovery units that contain all the elements of a heat recovery system in a single system. We have been designing and perfecting packaged heat recovery technology for over 20 years - our track record means we can offer low-energy solutions for every commercial application, all manufactured in the UK to the highest standards.



XBOXER XBC+ 10-65



Nuaire XBC+ units are manufactured in a factory production controlled environment using a PAS99:2012 Integrated Management System covering ISO9001:2015 Quality Management, ISO 14001:2015 Environmental Management and ISO 45001:2018 Occupational Health and Safety Management. Our product controls are regularly audited (both internally and by 3rd parties) to ensure our products and services are delivered in a repeatable manner to the highest quality. XBC+ units are CE marked and will fulfil the requirements of the UKCA Mark from 1st Jan 2021.

ABOUT XBOXER XBC+

XBC is our market-leading range of packaged heat recovery units. Units are extremely low depth and are designed to save energy, improve indoor air quality and provide the lowest possible noise breakout.

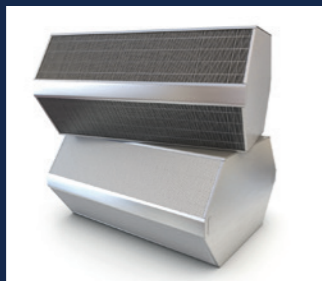
XBC+ is our newest innovation in packaged heat recovery. We've taken the award-winning XBC and enhanced the unit further, making it easier still to install, commission, control and maintain. It was these features that earned XBC its leading position in the market, and now the best is better.

The combination of innovative design and flexible control options provides our customers with the best possible heat recovery solution.



HIGHEST EFFICIENCY

Counterflow heat exchanger with efficiencies of up to 95%. Enthalpy heat exchanger option now available (sizes 25 and 45 only).



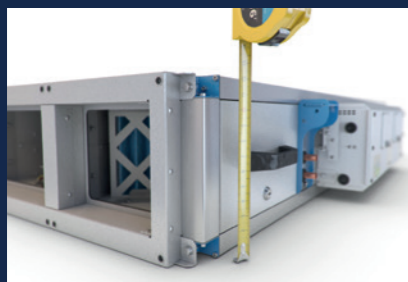
FLEXIBLE HEATER OPTIONS

Electric and LPHW heater options available with choice of low and high kW output for both.



SPACE SAVING SOLUTION

Lowest depth by duty on the market.



EASY MAINTENANCE

Options for either bottom or side filter access as standard.



FULL CONTROL

Integrated controls for quick and simple commissioning.



NEW CODING

The new XBC+ coding is longer than the classic XBC coding, giving you more options and choices. This ensures that each unit is selectable with key components unique to your specific project requirements. The new code is broken down into sections.

USE OUR NEW 3-STEP XBC+ CODE GENERATOR TO REDUCE TIME AND ERROR WHEN PLACING AN ORDER

CODING XBC45HA-LH2-EPLS1S

SECTION 1: UNIT AND CASE

The first section of the code dictates what unit is required, including sizing and heat-exchanger option. To denote the end of this section, we put a dash (-).

XBC 45 H A -
1 2 3 4 5

- XBOXER range
- C – Counterflow heat exchanger
E – Enthalpy block heat exchanger
- Unit size
- H – Horizontal layout
- Filter grade (A = G4)

SECTION 2: HEATING OPTIONS

Now you choose your heating options, including valve ports. Again, we denote the end of this section with another dash (-).

L H 4 -
6 7 8

- L – LPHW heater
E – Electric heater
N – No heater
- H – High duty heater
L – Low duty heater
N – No heater
- 4 – 4 port valve (in-built)
2 – 2 port valve (supplied loose)
N – No valve (bare coil)

SECTION 3: ANCILLARIES

Finally, choose what ancillaries are required, such as constant pressure or a weather roof.

E P L S 1 S
9 10 11 12 13 14

- E – Ecosmart Classic controls
C – Connect controls
T – Trend controls
S – Siemens controls
N – No control
- P – Constant pressure
- – No constant pressure
- L – Left controls handing
R – Right controls handing
- B – Bottom filter access
S – Side filter access
- 1 – Standard unit finish (Aluzinc)
4 – Coastal unit finish (C4)
- S – Internal unit
W – External unit with weather roof (factory fitted)

At this point you should have a completed code.

Codes will always be 18 characters long, including any and all dashes. If something is not required, that section of the code will always be replaced by something else e.g. Electric heater = E, no heater = N.

This means that if something is missing from the code, our estimating team will quickly be able to spot it and double check with you; rather than potentially missing something from the unit or supplying something that isn't needed.

THE HISTORY OF NUAIRE HEAT RECOVERY

Our track record in packaged heat recovery units means we can offer low-energy solutions for every commercial application. All manufactured in the UK to the Nuaire standard.

Our pedigree in commercial heat recovery spans decades - all the way back to 1998 with the launch of our Ecosmart Boxer range. Unlike many units at the time, Ecosmart Boxer combined all the features of a heat recovery system, including supply, extract and heat exchanger sections, into an easy to specify and install packaged solution, rather than supplying them separate to combine on site.

Since then, we've taken our design philosophy to lead the way in commercial heat recovery.



DID YOU KNOW?

WE CONTINUE TO DEVELOP OUR OFFERINGS TO MEET MARKET AND CUSTOMER DEMANDS, BUT EVEN OUR OLDER RANGES ARE STILL GOING STRONG.

DESPITE THE FACT IT WAS LAUNCHED OVER 20 YEARS AGO, THE ECOSMART BOXER RANGE IS STILL A HIGHLY SPECIFIED UNIT. NEWLY GRADUATED AND VETERAN CONSULTANTS ALIKE PRAISE ITS ENERGY-EFFICIENCY AND HIGH PERFORMANCE, ALL IN A SINGLE PACKAGE.

NUAIRE CASE STUDY EASTERN HIGH SCHOOL, CARDIFF

The new facility, which accommodates 1100 pupils and 100 staff members, consists of 59 classrooms, open teaching spaces, dining areas, a gym and an activity studio. Over £26 million has been invested into the project, which is designed to be a modernised and more stimulating space in which to teach and learn.



“THE SCHOOL UTILISES A ‘TRAFFIC LIGHT’ TYPE NATURAL VENTILATION SYSTEM WITH ENHANCED SINGLE SIDED VENTILATION IN CLASSROOMS. WHERE NATURAL VENTILATION COULD NOT BE PROVIDED, MECHANICAL VENTILATION WITH HEAT RECOVERY WAS SPECIFIED USING NUAIRE XBC UNITS.”

GRAHAM CARR OF MCCANN & PARTNERS

The challenge

A major objective throughout all stages of the project was ensuring a high level of energy efficiency; the school intends on having the lowest possible carbon footprint as possible.

Rhys Tatchell, Area Sales Manager for Nuaire worked closely with McCann & Partners on the project. He explained: “Eastern High School has been designed to create a high level of wellbeing and indoor air quality, which will improve the student’s ability to concentrate, as well as the standard at which teachers can perform. The XBC range of units has one of the best heat exchangers in the industry, with efficiencies of up to 96% - This will aid the school massively in minimizing its carbon footprint and achieving a committed standard of energy efficiency.”

To meet strict SFP energy requirements, a non-standard, larger sized XBC unit was specified for the project. McCann & Partners was able to make use of Nuaire’s BIM Level 2 library and collection of Revit families to accurately alter designs and devise a solution to the site’s space restrictions. From this, McCann & Partners

coordinated with other building services to ensure the heat recovery system would be the right size and layout for the space available on site.

The solution

Nuaire’s XBC systems, paired with the natural ventilation, have resulted in a demand ventilation system where with the highest levels of heat are recovered, saving as much energy as possible. The school has achieved an Energy Performance Certificate Grade ‘A’ and BREEAM 2014 rating of ‘Excellent’ for its ability to achieve an ambitious level of energy-efficiency. Tony Williamson has stated: “The air quality in the new campus is far superior to what they had in the old school.”

While at Eastern High School, Nuaire had the opportunity to use the fantastic facility as the location for our Health Check Video. The Nuaire Health Check service ensures your AHU or Packaged Heat Recovery Unit is set up to the Nuaire standard, prior to airflow commissioning. For more info, please visit: Health-Check



PRODUCT SELECTION

Nuaire's customers are involved in the development of every type of educational environment with varying complexity including the development of new build and refurbishment projects in live environments.



NUAIRE'S CUSTOMERS CREATE INSPIRATIONAL LEARNING ENVIRONMENTS AND HELP FACILITATE MAJOR CHANGES IN EDUCATIONAL SPACES.

Nuaire assists its customers to deliver their projects and to keep within their project programme, quality and cost. Over the years Nuaire's knowledge and understanding of current government education legislation has grown significantly.

The Priority School Building Programme (PSBP) Facilities Output Specification launched by the Education Funding Agency (EFA) has proposed some significant, positive and welcome changes to school ventilation specifications.

We understand the many challenges and regulations that modern building ventilation must meet... and our technical team are on hand to assist with product selections.

Building Information Modelling (BIM) is both a new technology and a new way of working. BIM is a term that has been around for a while in manufacturing and engineering industries, and is now beginning to make an impact in the construction sector.

Nuaire has a dedicated BIM Team offering libraries of Revit® compatible BIM models to meet customers' exact specification.

Nuaire's libraries offer collision detection through geometry, connection positions and weights. Project specific performance criteria and support for design, project management and building operations can be requested which will result in improved design efficiency.

To find out more visit: www.gov.uk/government/collections/priority-school-building-programme-psbp.

To download Nuaire's Revit® compatible BIM models simply scan the QR code or visit www.nuaire.co.uk/BIM and click on the library. Alternatively, simply email the team BIM@nuaire.co.uk with your request.



COMPLYING WITH BUILDING REGULATIONS



The following information is relevant to the selection of fans for Ventilation Systems, indicating the maximum specific fan powers allowed under Part L (Refer to the Non-domestic Building Services Compliance Guide: 2013 Edition for further details). The SFP for the entire system (including both supply & extract fans) shall be less than that allowed by these figures. The following tables are the maximum values allowed under Building Regulations when finally commissioned.



Section 6 (2015 Edition)
Permissible maximum specific fan power and pressure drop in air distribution systems. Maximum specific fan powers in air distribution systems new and existing buildings.

| Air distribution system | Specific fan power (W/(l/s)) | |
|---|------------------------------|--------------------|
| | New Buildings | Existing Buildings |
| Central balanced mechanical ventilation system with heating and cooling | 1.6 | 2.2 |
| Central balanced mechanical ventilation system with heating only | 1.5 | 1.8 |
| All other central balanced mechanical ventilation systems | 1.1 | 1.6 |
| Zonal supply system where the fan is remote from the zone, such as ceiling void or roof mounted units | 1.1 | 1.4 |
| Zonal extract system where fan is remote from zone | 0.5 | 0.5 |
| Zonal supply and extract ventilation system such as ceiling void or roof units serving a single room or zone with heating and heat recovery | 1.9 | 1.9 |
| Local balanced supply and extract ventilation system / such as wall roof units serving a single area with heating and heat recovery | 1.6 | 1.6 |
| Local supply or extract ventilation units such as window / wall / roof units serving a single area (eg. toilet extract) | 0.3 | 0.4 |
| Other local ventilation supply or extract units | 0.5 | 0.5 |
| Fan assisted terminal (VAV) unit | 1.1 | 1.1 |
| Fan coil units (rating weighted average*) | 0.5 | 0.5 |
| Kitchen extract, fan remote from zone with grease filter | 1.0 | 1.0 |

*Note: The weighted average is calculated by the following formula:

$$\frac{P_{mains,1} \cdot SFP_1 + P_{mains,2} \cdot SFP_2 + P_{mains,3} \cdot SFP_3 + \dots}{P_{mains,1} + P_{mains,2} + P_{mains,3} + \dots}$$
 where P_{mains} is useful power supplied from the mains in W

| Extending SFP for additional components in new and existing buildings | |
|---|-----------------|
| Component | (SFP (W/(l/s))) |
| Additional return filter for heat recovery | +0.1 |
| HEPA filter | +1.0 |
| Heat recovery - thermal wheel system | +0.3 |
| Heat recovery - other systems | +0.3 |
| Humidifier / dehumidifier (air conditioning system) | +0.1 |

Example: For a central mechanical ventilation system with heating and cooling, and heat recovery via a plate heat exchanger plus return filter:

$$SFP = 1.6 + 0.3 + 0.1 \text{ W/(l/s)} = 2.0 \text{ W/(l/s)}$$

| Recommended minimum dry heat recovery efficiency for heat exchangers in new and existing buildings | |
|--|------------------------------|
| Heat exchanger type | Dry Heat recovery efficiency |
| Plate heat exchanger | 50% |
| Heat pipes | 60% |
| Thermal wheel | 65% |
| Run around coil | 45% |

| System type | Specific fan power (W/(l/s)) | |
|---|------------------------------|--------------------|
| | New Buildings | Existing Buildings |
| Central balanced mechanical ventilation system with heating and cooling | 1.6 | 2.2 |
| Central balanced mechanical ventilation system with heating only | 1.5 | 1.8 |
| All other central balanced mechanical ventilation systems | 1.1 | 1.6 |
| Zonal supply system where the fan is remote from the zone, such as ceiling void or roof mounted units | 1.1 | 1.4 |
| Zonal extract system where fan is remote from zone | 0.5 | 0.5 |
| Zonal supply and extract ventilation units, such as ceiling void or roof units serving single room or zone with heating and heat recovery | 1.9 | 1.9 |
| Local balanced supply and extract ventilation system such as wall / roof units serving single area with heat recovery | 1.6 | 1.6 |
| Local supply or extract ventilation units such as window / wall / roof units serving a single area (eg. toilet extract) | 0.3 | 0.4 |
| Other local ventilation supply or extract units | 0.5 | 0.5 |
| Fan assisted terminal (VAV) unit | 1.1 | 1.1 |
| Fan coil units (rating weighted average*) | 0.5 | 0.5 |
| Kitchen extract, fan remote from zone with grease filter | 1.0 | 1.0 |

The weighted average is calculated by the following formula:

$$\frac{P_{mains,1} \cdot SFP_1 + P_{mains,2} \cdot SFP_2 + P_{mains,3} \cdot SFP_3 + \dots}{P_{mains,1} + P_{mains,2} + P_{mains,3} + \dots}$$
 where P_{mains} is useful power supplied from the mains in W

| Extending SFP for additional components in new and existing buildings | |
|---|-----------------|
| Component | (SFP (W/(l/s))) |
| Additional return filter for heat recovery | +0.1 |
| HEPA filter | +1.0 |
| Heat recovery - thermal wheel system | +0.3 |
| Heat recovery - other systems | +0.3 |
| Humidifier / dehumidifier (air conditioning system) | +0.1 |

Recommended minimum dry heat recovery efficiency for heat exchangers in new and existing buildings

| Heat exchanger type | Dry Heat recovery efficiency |
|----------------------|------------------------------|
| Plate heat exchanger | 50% |
| Heat pipes | 60% |
| Thermal wheel | 65% |
| Run around coil | 45% |

ECOSMART CONTROL PLATFORM

IT'S SO SMART IT'S SIMPLE

Nuaire and ventilation controls have history.

Back in the early 1970s it was standard practice to specify fans as close to the design duty as possible, but without any speed controllers. Understanding the inefficiency this can cause, Nuaire, headed by our then owner and CIBSE Chairman, Brian Moss, developed the first twin fan controller – a cost-effective way to save energy and reduce running costs. Since then, the Nuaire brand has become synonymous with energy-saving controls.



Demand Ventilation Solutions

Below is a conventional ventilation system compared to one using Ecosmart controls.

CONVENTIONAL

SUPPLY & EXTRACT VENTILATION SYSTEM

1. PVC ducting
2. Filter
3. Air pressure switch
4. Temperature switch
5. Control panel
6. User control
7. 230V Electricity supply
8. Electrical cabling 230V
9. Electrical heater
10. Time clock

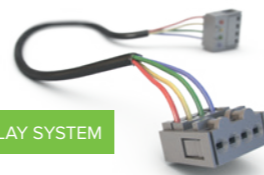
ECOSMART

SUPPLY & EXTRACT VENTILATION SYSTEM

1. Integrated control
2. Optional CO₂ sensor
3. User control
4. (SELV) 12V cable
5. Optional PIR sensor
6. 230V Electricity supply

An Ecosmart system combines systems into a simple package, saving space but also time spent installing and commissioning. Alternatively, we offer 'Basic Control' – a simple terminal box for supply and extract fan motor wiring for interfacing to custom-built control panels (by others).

SIMPLE PLUG-AND-PLAY SYSTEM



Designed to meet all project requirements, Ecosmart Adapt (with Trend) is the standard for control.

Trend IQ422/12/LAN/BAC/230 inside with full BMS integration via BACNET.

Ecosmart Adapt with Trend provides control of the ventilation including the heating, or cooling allowing unitary control and full BMS integration via BACnet IP. The Ecosmart Adapt with Trend control system includes an IQ422/12/LAN/BAC/230 controller which is pre-configured and the unit and control assembly is functionally tested at Nuaire before customer delivery.

"The management and control of modern buildings grow ever more sophisticated. A Building Energy Management system (BEMS) must be tailored to suit each customer's specific control requirements. It must provide efficient HVAC control, coupled with the flexibility to accommodate changes in occupancy status and staff relocation at short notice; whilst simultaneously delivering improved comfort conditions. A BEMS must also provide real time management information and control, enabling customers to achieve significant energy savings" (TREND).

Reduced installation and on-site commissioning time on new and retrofit projects.

Advanced tools within the control automate many tasks, simple to use displays minimise data input, whilst reducing commission time and potential human error.

- **Ease of use** - Using Ecosmart Adapt with Trend will deliver substantial savings on utility costs.
- **Peace of mind** - Ecosmart Adapt with Trend has a 5 year warranty.



Energy-efficient demand based control providing network connectivity and advanced functionality.

Ecosmart Connect provides control of the ventilation including the heating, or cooling allowing unitary control and full BMS integration via BACnet (MS/TP) (Upgrade to IP network available).

The Ecosmart Connect controller is pre-configured and the unit and control assembly is functionally tested at Nuaire before customer delivery.

Reduced installation and on-site commissioning time on new and retrofit projects.

Advanced tools within the control automate many tasks, simple to use displays minimise data input, whilst reducing commission time and potential human error.

Ease of use - Using Ecosmart Connect will deliver substantial savings on utility costs.

Peace of mind - Ecosmart Connect has a 5 year warranty.



The UK's leading energy-efficient plug-and-play solution. Demand ventilation at your fingertips.

Varying the ventilation rate in a building to suit changing occupant levels used to be an expensive option – Ecosmart brings this within everyone's pocket. Minimising energy losses through re-heating (or cooling) the air replaced through ventilation is at the top of the agenda; building regulations make this a necessity. Ecosmart not only saves energy and carbon emissions it prolongs the life of the heat recovery unit.

Choosing Ecosmart is your reliable option, used by design engineers for many years and is now an integral feature of most Nuaire fans.

• **Saves time on site** - Ecosmart controls are all pre-assembled, configured and installed directly into the heat recovery units, this includes valves and actuators, pipework etc. which helps significantly reduce the time spent on site.

• **Simpler system** - No need for VCD (directly on the fan) no wasted energy or noise generation because air volume can be precisely set via integrated speed control.

| | Ventilation mode | Cooling mode* | Heating mode* |
|---------------|------------------|---------------|---------------|
| Local control | 0.00 | - | - |
| OFF / trickle | 0.25 | - | - |
| Speed 1 | 0.50 | 0.75 | 1.00 |
| Speed 2 | 1.50 | 1.75 | 2.00 |
| Speed 3 | 2.50 | 2.75 | 3.00 |
| Speed 4 | 3.50 | 3.75 | 4.00 |
| Speed 5 | 4.50 | 4.75 | 5.00 |
| Speed 6 | 5.50 | 5.75 | 6.00 |
| Speed 7 | 6.50 | 6.75 | 7.00 |
| Speed 8 | 7.50 | 7.75 | 8.00 |
| Speed 9 | 8.50 | 8.75 | 9.00 |
| Speed 10 | 9.50 | 9.75 | 10.00 |

*Only available on relevant unit.

• **Simple & precise commissioning** - As recommended in Part L, Ecosmart enables the system to be accurately commissioned via integrated speed control. If the unit is controlled by 0-10V BMS the system's response to a 0-10V dc BMS signal is given in the table above.

Basic Control

Basic control is fan speed only and are suitable for 2-10V adjustment (by others). The heat recovery unit will have a side mounted terminal box for connection to the fans (230V, 50Hz LNE and 2-10V*) and bypass actuator (where applicable). Basic control is for BMS by others. Basic control has a 2 year warranty.










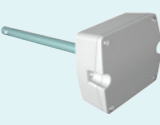
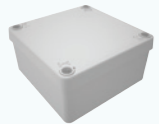

ECOSMART CONTROLS SELECTION GUIDE

| | BASIC CONTROL | ecosmart classic | ecosmart CONNECT | ecosmart adapt |
|--|---------------|----------------------|---------------------|--|
| | (BC) | (ES) | (CO) BACnet (MS/TP) | (AT) Based on TRENDS IQ422 BACnet (IP) |
| CONTROLLER SOFTWARE | | | | |
| Controller Software | | N/A | Advanced Software | Basic Software (can be re-written by others) |
| Heat Exchange Bypass Control Strategy | | Basic | Optimised | Basic |
| Supply Temperature Control Strategy | | Yes | Yes | Yes |
| Room Temperature Control Strategy | | No | Yes | No |
| Switched Live Enable Input | | Yes | Yes | Yes |
| Switched Live Fan Boost | | No | No | Yes |
| Switched Live Configurable Input (Heat or Fan Boost) | | No | Yes | No |
| Volt Free Enable Input | | No | Yes | Yes |
| Volt Free Fan Boost | | No | No | Yes |
| Volt Free Configurable Input (Heat or Fan Boost) | | No | Yes | No |
| Trickle Mode | | Yes | Yes | Yes |
| Fan Run-On | | Yes | Yes | Yes |
| Fan Run-On (Intelligent) | | No | Yes | No |
| Run/Fault/Heat/Cool Volt Free Outputs | | Yes | Yes | Yes |
| I/O Damper Control | | Yes | Yes (via run relay) | Yes (via run relay) |
| Heat Dissipation Run-on | | Yes | Yes | Yes |
| Frost Protection Routine | | Yes | Yes | Yes |
| Low Supply Temp Fan Cut-out | | No | Yes | Yes |
| Scheduling | | Yes (via ES-LCD) | Yes | Yes |
| CO ₂ Based Fan PID Loop | | ES CO ₂ | Yes | Yes |
| Humidity Based Fan PID Loop | | ES-HUM | Yes | No |
| Pressure Based Fan PID Loop | | CP version available | Yes | No |
| Night Cooling Mode | | No | Yes | Yes |
| Purge Mode | | No | Yes | Yes |
| Hibernate Mode (open all valves) | | No | Yes | No |
| Fan Speed Adjustment | | Yes | Yes | Yes |
| Fan Speed Control Only | Yes | No | No | No |
| 0 - 10V Fan Speed Input | | Yes | Yes | Yes |
| 0 - 10V Temperature Sensor Input | | No | Yes | No |
| 0 - 10V Humidity Sensor Input | | No | Yes | No |
| 0 - 10V Pressure Sensor Input | | No | Yes | No |
| 0 - 10V CO ₂ Sensor Input | | No | Yes | No |



| | BASIC CONTROL | ecosmart classic | ecosmart CONNECT | ecosmart adapt |
|---------------------------------|---------------|--------------------------------|---|--|
| | (BC) | (ES) | (CO) BACnet (MS/TP) | (AT) Based on TRENDS IQ422 BACnet (IP) |
| CONTROLLER HARDWARE | | | | |
| Fail Safe Thermal Trip | | Yes | Yes | Yes |
| Condensate Pump Monitoring | | Yes | Yes | Yes |
| Din Rail Mounted Control | | No | Yes | Yes |
| Quick Connect Terminals | | No | Yes | Yes |
| 24VAC Auxiliary | | No | Yes | Yes |
| HMI | | | | |
| Commissioning Display | | Yes only via commissioning PCB | Yes | By others |
| BACnet LCD Touch Screen Display | | No | Yes | By others |
| ROOM MODULES | | | | |
| Plug & Play Sensors | | Yes | Yes | No |
| Max Number of Sensors | | 31 devices on any system | 4 sensor modules* | By others |
| Quick Connect Plugs | | Yes | Yes | By others |
| Twisted Pair Cable Compatible | | No | Yes | By others |
| Commissioning Port | | No | Yes | By others |
| Temperature | | Yes | Yes | By others |
| CO ₂ | | Yes | Yes | By others |
| Humidity | | Yes | Yes | By others |
| 3-Speed Override | | No | Yes | By others |
| PIR | | Yes | Yes | By others |
| Setpoint Adjust | | Yes (on sensor) | Yes | By others |
| Multiple Setpoints Supported | | No | Yes | By others |
| Room Temperature Display | | No | Yes | By others |
| Room Humidity Display | | No | Yes | By others |
| Fan Speed Display | | No | Yes | By others |
| Occupancy Status Display | | No | Yes | By others |
| Network Error Display | | Yes | Yes | By others |
| NETWORKING | | | | |
| BEMS Compatible | | No | Yes | Yes |
| BMS Compatible | | 0-10V Input | BACnet via MS/TP (BACnet via IP optional) | (BACnet via IP) |
| MONITORING | | | | |
| Web Connectivity | | N/A | Yes | Yes |
| Energy Monitoring | | N/A | Yes | Participation via TRENDS network |
| Energy Metering | | N/A | Yes | Participation via TRENDS network |

*Each sensor module can have multiple sensors.(up to 3 per module). For further details of Ecosmart Controls Platform, refer to website: www.nuaire.co.uk

ecosmart classic **SENSORS & ENABLERS**
 All Ecosmart Classic Systems must include at least one enabler.
 (N.B. when used, BMS control and time clocks take over all other enablers).



| | |
|---|---|
|  <p>ES-PIR2 (Enabler) Detects movement and activates system. Incorporates a system status LED, overrun timer and timer adjustment.</p> |  <p>ES-TEMP2 TEMPERATURE (Sensor) Modulate fan speed based on room temperature. Incorporates two system status LEDs. (Green = OK, Red = Failure) and temperature set point level adjustment.</p> |
|  <p>ES-THERMOSTAT2 (Enabler) Activates the system when the temperature is above set point. Incorporates two system status LEDs. (Green = OK, Red = Failure) and temperature set point level adjustment.</p> |  <p>ES-RH2 RELATIVE HUMIDITY (Sensor) Modulate fan speed based on RH level. Incorporates two system status LEDs. (Green = OK, Red = Failure) and RH set point level adjustment.</p> |
|  <p>ES-AV12 (Enabler) When fan failure occurs the AVI will flash a warning. Supplied with pre-plugged 10m length of communication cable.</p> |  <p>ES-CI SEMI-AUTOMATIC USER CONTROL Fan, heating & cooling selected by external volt free switch, speed selected by 0-10V signal.</p> |
|  <p>ES-HUMIDISTAT2 (Enabler) Activates the system when the RH level is above set point. Incorporates two system status LEDs. (Green = OK, Red = Failure) and RH set point level adjustment.</p> |  <p>ES-JB JUNCTION BOX Designed to be compatible with Ecosmart System this unit is supplied with a pre-plugged 10 metre length of communications cable and has 8 further ports.</p> |
|  <p>ES-CO2RM (Sensor) Surface mounted room carbon dioxide (CO₂) sensors incorporate a temperature sensor. RM = SELV option, RMPP complete with SELV AC powers supply.</p> |  <p>ES-CO₂ (Sensor) Duct mounted sensor to modulate fan speed based on CO₂ levels. Connect to fan directly. Pre-wired with 2m cable (not adjustable).</p> |
|  <p>ES-HTCSIG (Enabler) Signal conditioning circuit for humidity, temperature and CO₂ sensors.</p> |  <p>SWITCHED LIVE (by others) Any mains voltage signal connected to the switched live terminal (S/L) in the unit. This affects the connected fan only.</p> |

TOUCH SCREENS & MANUAL USER CONTROLS

| | |
|--|---|
|  <p>ES-LCD (Enabler) Touch screen user control in white incorporating time clock facility. This can control the function of the fan by manual setting or using a set of timed programs.</p> |  <p>ES-UCF Manual 'on' and 'off' system user/speed control. Incorporates two system status LEDs (Green = OK, Red = Failure).</p> |
|--|---|

ecosmart CONNECT **ROOM MODULES**

| | |
|---|---|
|  <p>ESCO-TPL Ecosmart Connect Room Module - Temperature and PIR.</p> |  <p>ESCO-TDS Ecosmart Connect Room Module - Temperature and Display.</p> |
|  <p>ESCO-THS Ecosmart Connect Room Module - Temperature and Humidity.</p> |  <p>ESCO-TS Ecosmart Connect Room Module - Temperature.</p> |
|  <p>ESCO-TDPL Ecosmart Connect Room Module - Temperature, Display and PIR.</p> |  <p>ESCO-CL Ecosmart Connect Room Module - CO₂.</p> |
|  <p>ESCO-TDHL Ecosmart Connect Room Module - Temperature, Display and Humidity. (Displays either temperature or humidity).</p> |  <p>ESCO-TDFS Ecosmart Connect Room Module - Temperature, Display and Fan Speed Override.</p> |
|  <p>ESCO-TDHS Ecosmart Connect Room Module - Temperature, Display and Humidity. (Humidity is not displayed)</p> |  <p>ESCO-THPL Ecosmart Connect Room Module - Temperature, Humidity and PIR.</p> |




| | |
|---|--|
|  <p>ESCO-LCD Touch screen display. The ESC-LCD is a user friendly operator interface featuring BACnet® communication and a colourful, graphic display with touch screen interface. It is powered by 12-24VAC / VDC.</p> |  <p>ESCO-IPN The BACnet IP to MS/TP Router exchanges information between networks and allows the controller to communicate on an IP network. One router is required for each MS/TP network.</p> |
|---|--|




ASHRAE **BACnet** (MS/TP)

ecosmart adapt **SENSORS**



ASHRAE **BACnet** (IP)

| | |
|--|---|
|  <p>THERMISTOR TEMPERATURE SENSORS Low cost thermistor sensors comprising insertion, clamp-on, and outside air versions. The insertion sensor may be used for duct or immersion purposes. It has a 6 mm diameter brass probe which is suitable for retrofit immersion applications and will fit most existing pockets (universal fitting kit option).</p> <p>FEATURES</p> <ul style="list-style-type: none"> • Low cost • High quality thermistors • Brass probes • M20 conduit entry with M16 cable gland • IP67 housing • Quarter turn quick release lid • Easy to wire • Universal kit option for retrofit of immersion sensors • Adjustable insertion depth flange option for duct sensors <p>Code: TB/T1/S – For duct or immersion use. Short 150mm. TB/T1/L – For duct use only. Long 400mm.</p> |  <p>DUCT HUMIDITY & TEMPERATURE SENSORS Duct mounted relative humidity and temperature sensors for HVAC applications. The certified 2% high accuracy (±2%) and standard 3% versions offer excellent linearity and stability over a wide humidity range (10 to 90%RH).</p> <p>FEATURES</p> <ul style="list-style-type: none"> • Pre-calibrated for ease of commissioning • IP65 • Operates over 10 to 100%RH non-condensing • ± 3% accuracy versions • 2 part connectors for ease of installation • Humidity sensor element protected by replaceable filter • Capacitive humidity sensing element provides excellent long term stability • Adjustable depth duct mounting flange option <p>Code: HT/D – Duct and thermistor sensor (+/-3%).</p> |
|  <p>CO₂ SENSORS The CO₂ duct and space sensors monitor the carbon dioxide concentration and temperature of the air. The space sensors have additional options of humidity monitoring and a 4 digit display. The display will show the measured values in succession. The duct sensor has a quick-release lid to facilitate installation.</p> <p>FEATURES</p> <ul style="list-style-type: none"> • Low cost, high quality thermistor temperature sensor • Humidity monitoring option for space sensor • Optional digital display for space sensor • IP67 housing (duct sensor) • Quarter turn quick release lid (duct sensor) • Two part terminals to facilitate wiring • 24 Vac/dc supply • Adjustable depth duct mounting flange option <p>Code: CO2/T/D – Duct sensor. Code: CO2/T/S – Space carbon dioxide concentration and temperature sensor.</p> | |

| | | |
|---|---|--|
|  <p>IQVIEW4 Touch screen display. (6 x 4 inch). FPK/Plate – Mounting plate. IQVIEW4/SM BOX – Surface mount box for wall or panel. Transformer for IQVIEW4 included. ACC/24V - 230/24 VAC, 36 VA.</p> |  <p>IQVIEW8 Touch screen display. (10 x 6 inch). IQVIEW8/SM BOX – Surface mount box for flat surfaces. Transformer for IQVIEW8 included. ACC/24V - 230/24 VAC, 36 VA</p> |  <p>SDU Display. RD/SDU-IQ2COMMSCABLE/3m – RJ11 plug to RJ11 plug cable (3m) for SDU.</p> |
|---|---|--|

XBOXER XBC+ 10-65 COUNTERFLOW HORIZONTAL

XBC+ is the successor to the UK's number one energy-efficient range of packaged heat recovery unit.

Smaller, quieter and easier to install than the current market offering, our award-winning range has earned its leading position by saving energy and time on site. The combination of innovative design and state-of-the-art controls ensure the best possible indoor air quality, whilst helping them reduce energy and save money.



XBOXER XBC+ 10-65 COUNTERFLOW HORIZONTAL

| | | Page | Duty Range (Free Air) | Case Size (L x W x H mm) |
|---------|--|------|-----------------------|--------------------------|
| Size 10 | | 18 | Up to 100 l/s | 1600 x 1000 x 260 |
| Size 15 | | 22 | Up to 200 l/s | 1600 x 1000 x 260 |
| Size 25 | | 26 | Up to 400 l/s | 1713 x 1160 x 346 |
| Size 45 | | 30 | Up to 500 l/s | 1913 x 1262 x 405 |
| Size 55 | | 34 | Up to 600 l/s | 1900 x 1560 x 470 |
| Size 65 | | 38 | Up to 800 l/s | 1913 x 1570 x 624 |



HIGH EFFICIENCY

Counterflow heat exchanger efficiency of up to 95%.



ADJUSTABLE DUCT OPTIONS

Inlet positions can be changed at installation stage for complete install flexibility.



EASY MAINTENANCE

Choice of either bottom or side filter access as standard.

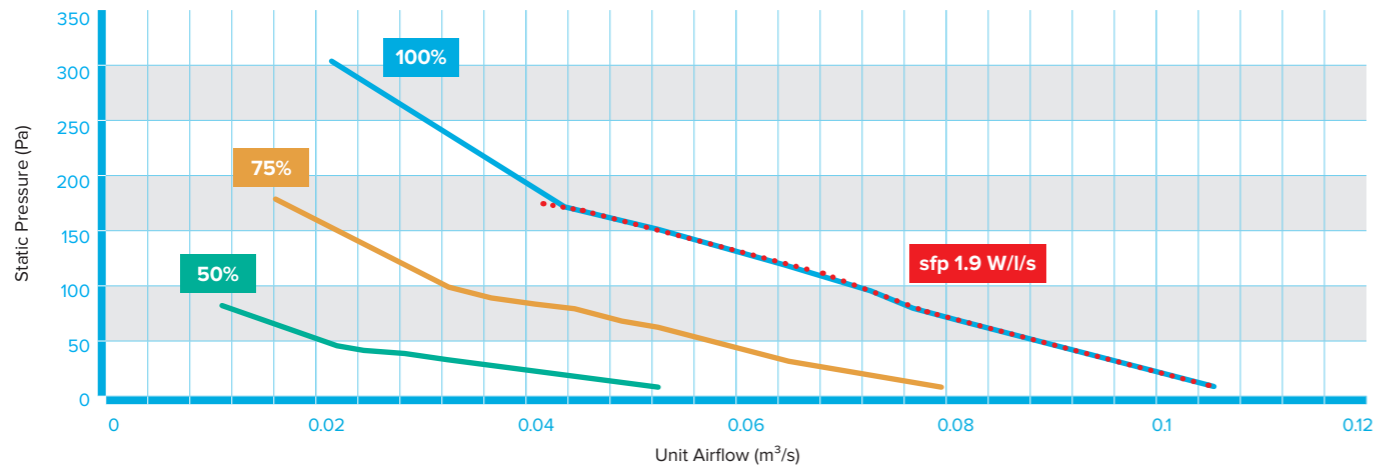


FULL CONTROL

Integrated controls for quick and easy commissioning.

XBOXER XBC+ 10 PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

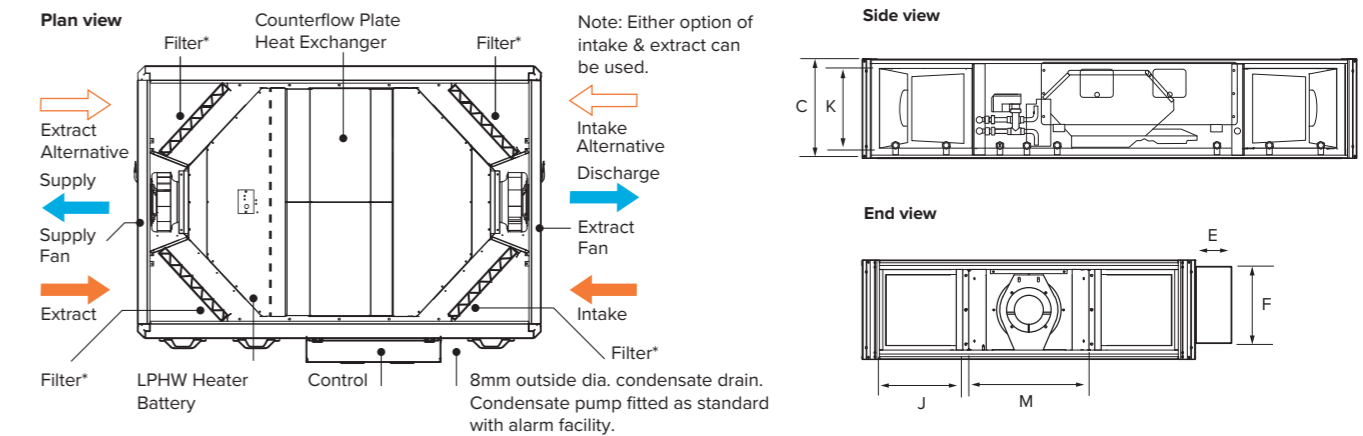
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 160 | 3200 | 1.5 | 1.5 | 40 | 147 |
| Electric* | 230 | 1 | 50 | 160 | 3200 | 9 | 9 | 40 | 155 |
| None | 230 | 1 | 50 | 160 | 3200 | 1.5 | 1.5 | 40 | 143 |

Relevant to BC, ES, CO or AT control types. *Includes 1.5kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|-----|-----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 68 | 57 | 50 | 51 | 57 | 50 | 42 | 38 | 24 |
| | Induct Supply | 73 | 69 | 60 | 61 | 63 | 59 | 54 | 52 | |
| | Induct Discharge | 73 | 70 | 60 | 62 | 63 | 60 | 55 | 53 | |
| | Induct Extract | 67 | 56 | 50 | 50 | 56 | 50 | 54 | 36 | |
| | Casing Radiated | 59 | 55 | 40 | 41 | 39 | 35 | 32 | 21 | |
| 75% | Induct Intake | 62 | 51 | 44 | 45 | 51 | 44 | 36 | 32 | 20 |
| | Induct Supply | 67 | 63 | 54 | 55 | 57 | 53 | 48 | 46 | |
| | Induct Discharge | 67 | 64 | 54 | 56 | 57 | 54 | 49 | 47 | |
| | Induct Extract | 61 | 50 | 44 | 44 | 50 | 44 | 34 | 30 | |
| | Casing Radiated | 53 | 49 | 34 | 35 | 33 | 29 | 26 | <20 | |
| 50% | Induct Intake | 53 | 42 | 35 | 36 | 42 | 35 | 27 | 23 | <20 |
| | Induct Supply | 58 | 54 | 45 | 46 | 48 | 44 | 39 | 37 | |
| | Induct Discharge | 58 | 55 | 45 | 47 | 48 | 45 | 40 | 38 | |
| | Induct Extract | 52 | 41 | 35 | 35 | 41 | 35 | 25 | 21 | |
| | Casing Radiated | 44 | 40 | 25 | 26 | 24 | 20 | <20 | <20 | |

FAN CONFIGURATION

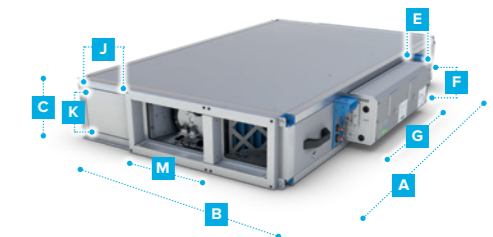


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

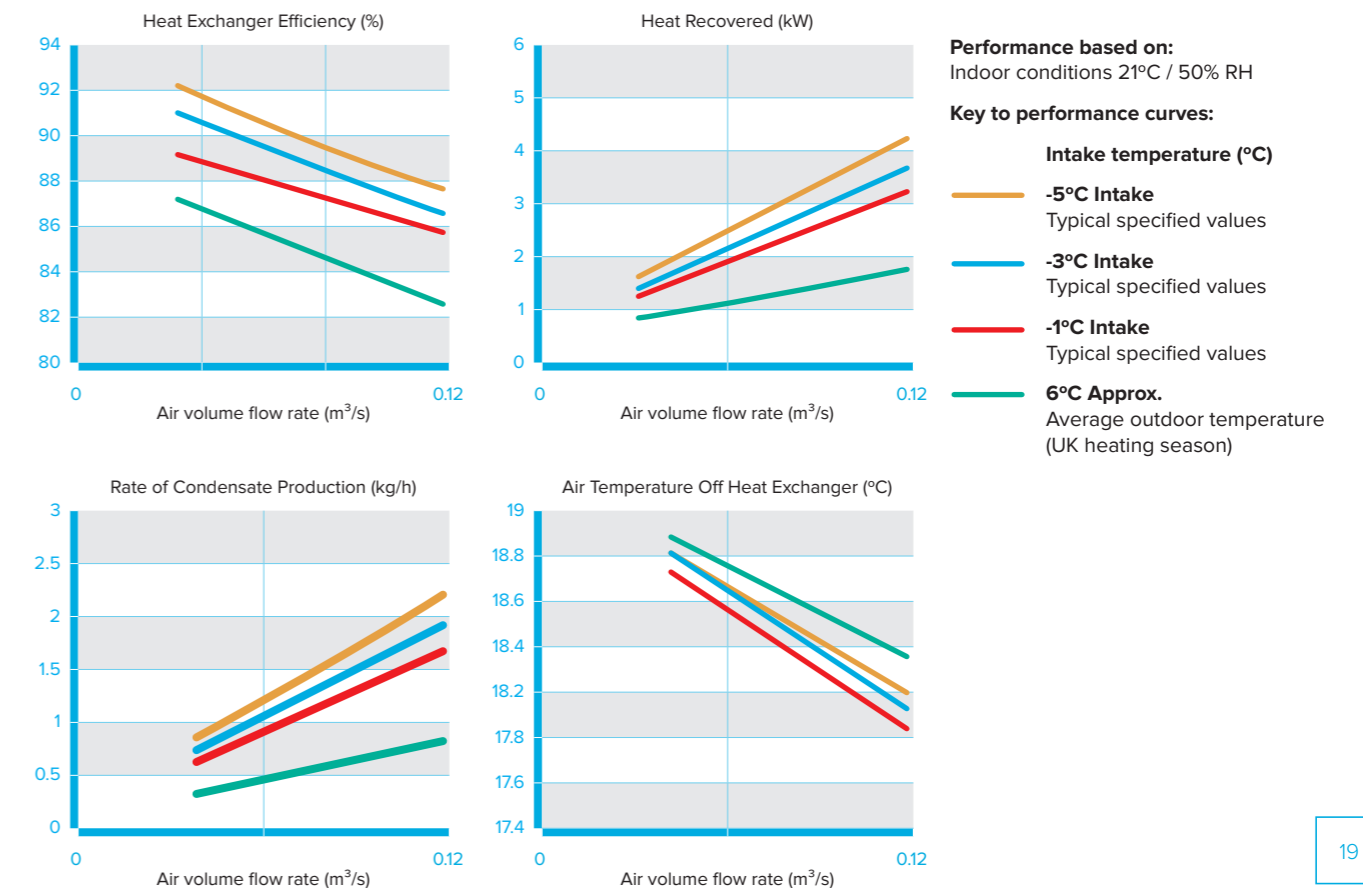
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1600 | 1000 | 260 | 140 | 210 | 640 | 238 | 220 | 347 | 260 | x | 1000 | x | 1600 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



XBOXER XBC+ 10

COIL TECHNICAL INFORMATION

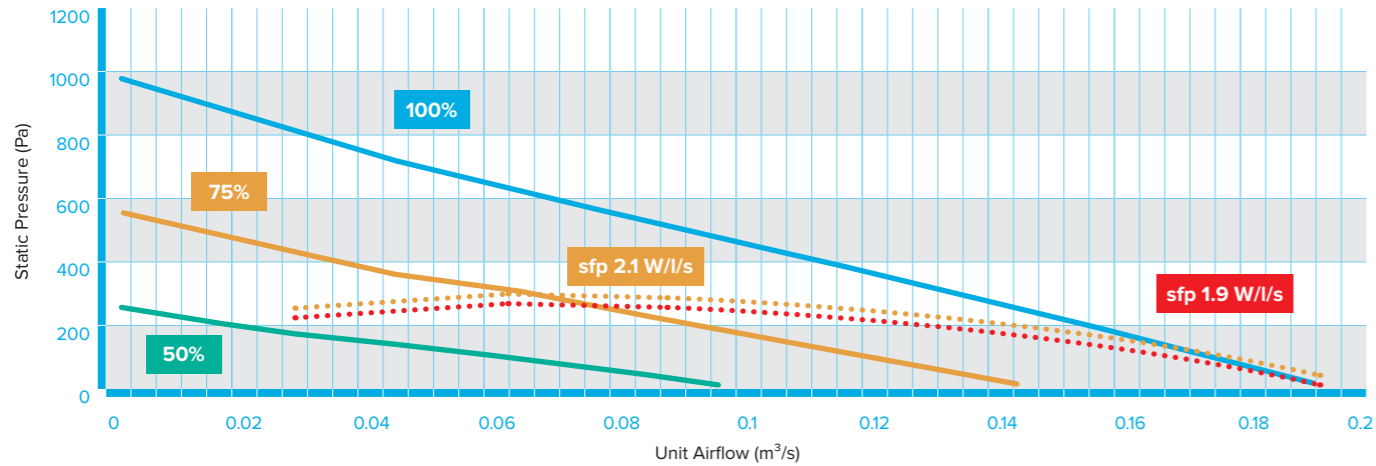
COIL DATA

| | COIL INFORMATION | AIR INFORMATION | | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | 38.0 | 3.0 | 0.07 | 2.4 | 32.0 | 2.3 | 0.03 | 0.7 | 22.0 | 1.3 | 0.02 | 0.6 | |
| | 15mm | 100% | 0.09 | 10.0 | | | | | | | | | | | | | |

XBOXER XBC+ 15

PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

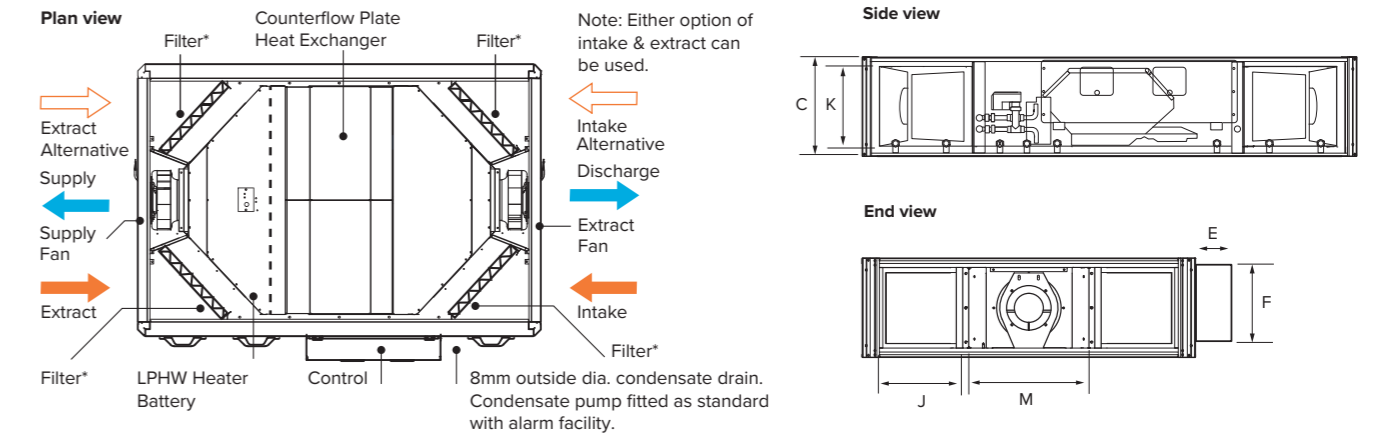
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 340 | 4000 | 2.8 | 2.8 | 40 | 187 |
| Electric* | 230 | 1 | 50 | 3340 | 4000 | 16 | 16 | 40 | 195 |
| None | 230 | 1 | 50 | 340 | 4000 | 2.8 | 2.8 | 40 | 183 |

Relevant to BC, ES, CO or AT control types. *Includes 3kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|------|-----|-----|-----|------|-----|-----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 70 | 60 | 55 | 56 | 62 | 55 | 47 | 43 | 26 |
| | Induct Supply | 75 | 72 | 65 | 66 | 668 | 64 | 59 | 57 | |
| | Induct Discharge | 75 | 73 | 65 | 67 | 68 | 65 | 60 | 58 | |
| | Induct Extract | 69 | 59 | 55 | 55 | 61 | 55 | 45 | 41 | |
| | Casing Radiated | 61 | 57 | 42 | 43 | 41 | 37 | 34 | 23 | |
| 75% | Induct Intake | 64 | 54 | 49 | 50 | 56 | 49 | 41 | 37 | 20 |
| | Induct Supply | 69 | 66 | 59 | 60 | 62 | 58 | 53 | 51 | |
| | Induct Discharge | 69 | 67 | 59 | 61 | 62 | 59 | 54 | 52 | |
| | Induct Extract | 63 | 53 | 49 | 49 | 55 | 49 | 39 | 35 | |
| | Casing Radiated | 555 | 5511 | 336 | 377 | 335 | 3311 | 28 | <20 | |
| 50% | Induct Intake | 55 | 45 | 40 | 41 | 447 | 40 | 32 | 28 | <20 |
| | Induct Supply | 60 | 57 | 50 | 51 | 53 | 49 | 44 | 42 | |
| | Induct Discharge | 60 | 58 | 50 | 52 | 53 | 50 | 45 | 43 | |
| | Induct Extract | 54 | 44 | 40 | 40 | 46 | 40 | 30 | 26 | |
| | Casing Radiated | 46 | 42 | 27 | 28 | 26 | 22 | <20 | <20 | |

FAN CONFIGURATION

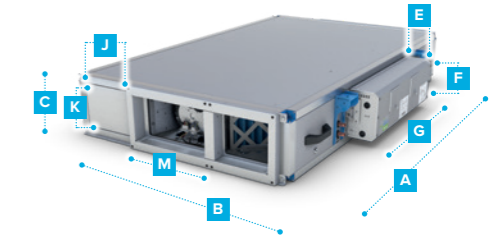


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

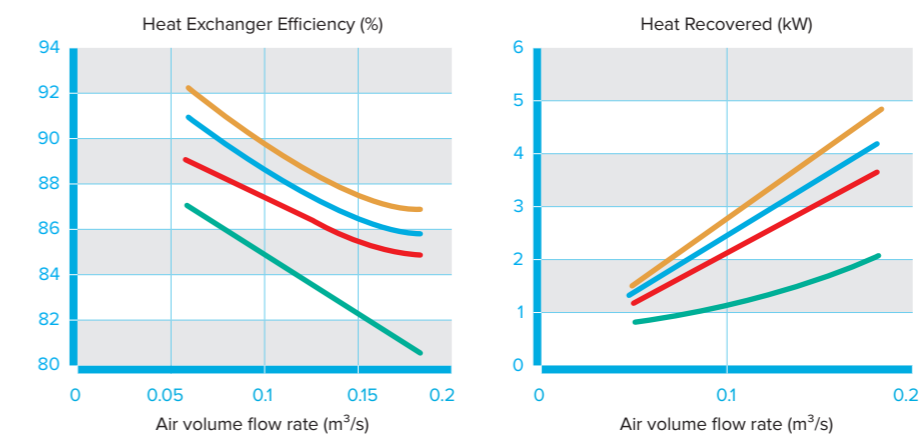
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1600 | 1000 | 260 | 140 | 210 | 640 | 238 | 220 | 347 | 260 | x | 1000 | x | 1600 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



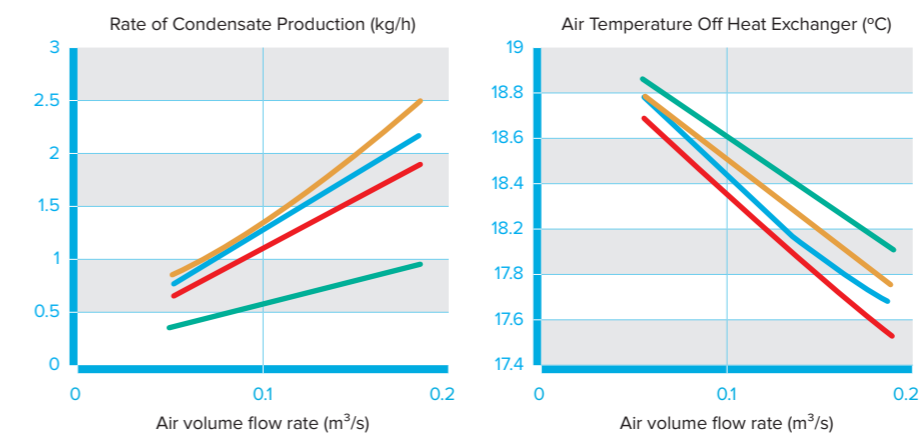
COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



Performance based on:
Indoor conditions 21°C / 50% RH

Key to performance curves:

- Intake temperature (°C)
- 5°C Intake Typical specified values
- 3°C Intake Typical specified values
- 1°C Intake Typical specified values
- 6°C Approx. Average outdoor temperature (UK heating season)



XBOXER XBC+ 15

COIL TECHNICAL INFORMATION

COIL DATA

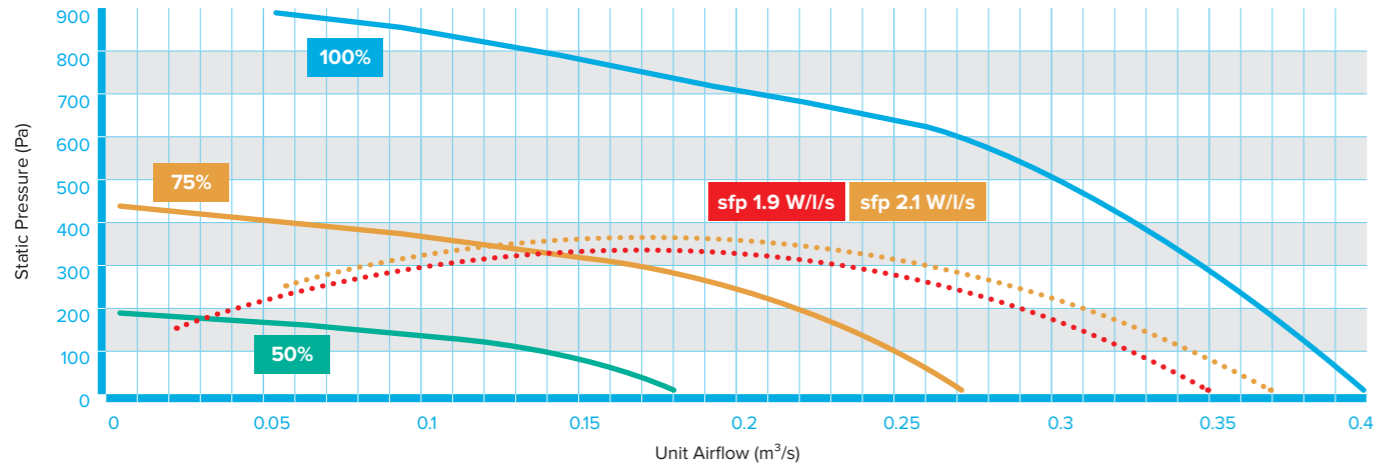
| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.17 | 10.0 | 30.0 | 4.1 | 0.09 | 4.3 | 26.0 | 3.3 | 0.04 | 1.4 | 19.0 | 1.9 | 0.02 | 1.10 |
| | | 75% | 0.13 | 10.0 | 35.0 | 3.9 | 0.08 | 3.8 | 29.0 | 3.0 | 0.04 | 1.2 | 21.0 | 1.7 | 0.02 | 0.90 |
| | | 50% | 0.09 | 10.0 | 38.0 | 3.0 | 0.07 | 2.4 | 32.0 | 2.3 | 0.03 | 0.7 | 22.0 | 1.3 | 0.02 | 0.60 |

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|---------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW Low Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.17 | 10.0 | 21.9 | 2.5 | 0.06 | 8.5 | 19.6 | 2.0 | 0.02 | 1.8 | 14.8 | 1.0 | 0.01 | 0.37 |
| | | 75% | 0.13 | 10.0 | 23.2 | 2.1 | 0.05 | 6.2 | 20.7 | 1.7 | 0.02 | 1.1 | 15.4 | 0.8 | 0.01 | 0.35 |
| | | 50% | 0.09 | 10.0 | 25.0 | 1.7 | 0.04 | 3.7 | 22.3 | 1.4 | 0.02 | 0.8 | 16.3 | 0.7 | 0.01 | 0.03 |

XBOXER XBC+ 25

PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

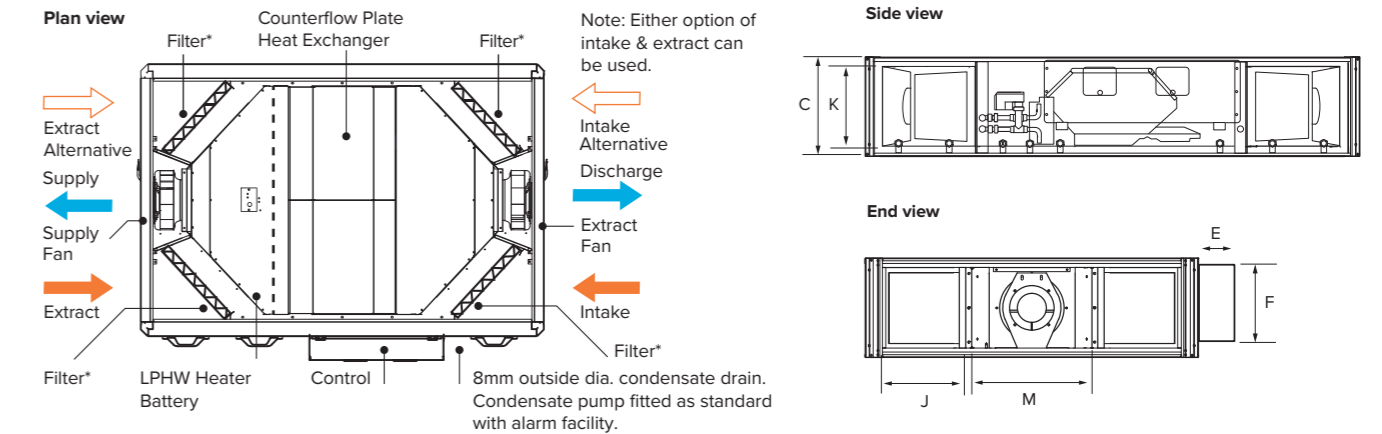
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 1000 | 4000 | 6.4 | 6.4 | 40 | 235 |
| Electric* | 230 | 1 | 50 | 5500 | 4000 | 19.4 | 19.4 | 40 | 242 |
| None | 230 | 1 | 50 | 1000 | 4000 | 6.4 | 6.4 | 40 | 231 |

Relevant to BC, ES, CO or AT control types. *Includes 4.5kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|----|----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 77 | 71 | 69 | 71 | 66 | 62 | 54 | 53 | 37 |
| | Induct Supply | 82 | 83 | 78 | 82 | 72 | 72 | 68 | 70 | |
| | Induct Discharge | 83 | 84 | 78 | 81 | 72 | 72 | 70 | 71 | |
| | Induct Extract | 76 | 70 | 68 | 71 | 65 | 62 | 54 | 54 | |
| | Casing Radiated | 69 | 68 | 55 | 58 | 45 | 44 | 44 | 36 | |
| 75% | Induct Intake | 71 | 65 | 68 | 65 | 60 | 56 | 48 | 47 | 31 |
| | Induct Supply | 76 | 77 | 72 | 76 | 66 | 66 | 62 | 64 | |
| | Induct Discharge | 77 | 78 | 72 | 75 | 66 | 66 | 64 | 65 | |
| | Induct Extract | 70 | 64 | 62 | 65 | 59 | 56 | 48 | 48 | |
| | Casing Radiated | 63 | 62 | 49 | 52 | 39 | 38 | 38 | 30 | |
| 50% | Induct Intake | 63 | 57 | 55 | 57 | 52 | 48 | 40 | 39 | 23 |
| | Induct Supply | 68 | 69 | 64 | 68 | 58 | 58 | 54 | 56 | |
| | Induct Discharge | 69 | 70 | 64 | 67 | 58 | 58 | 56 | 57 | |
| | Induct Extract | 62 | 56 | 54 | 57 | 51 | 48 | 40 | 40 | |
| | Casing Radiated | 55 | 54 | 41 | 44 | 31 | 30 | 30 | 22 | |

FAN CONFIGURATION

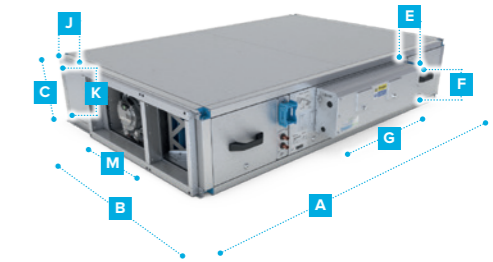


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

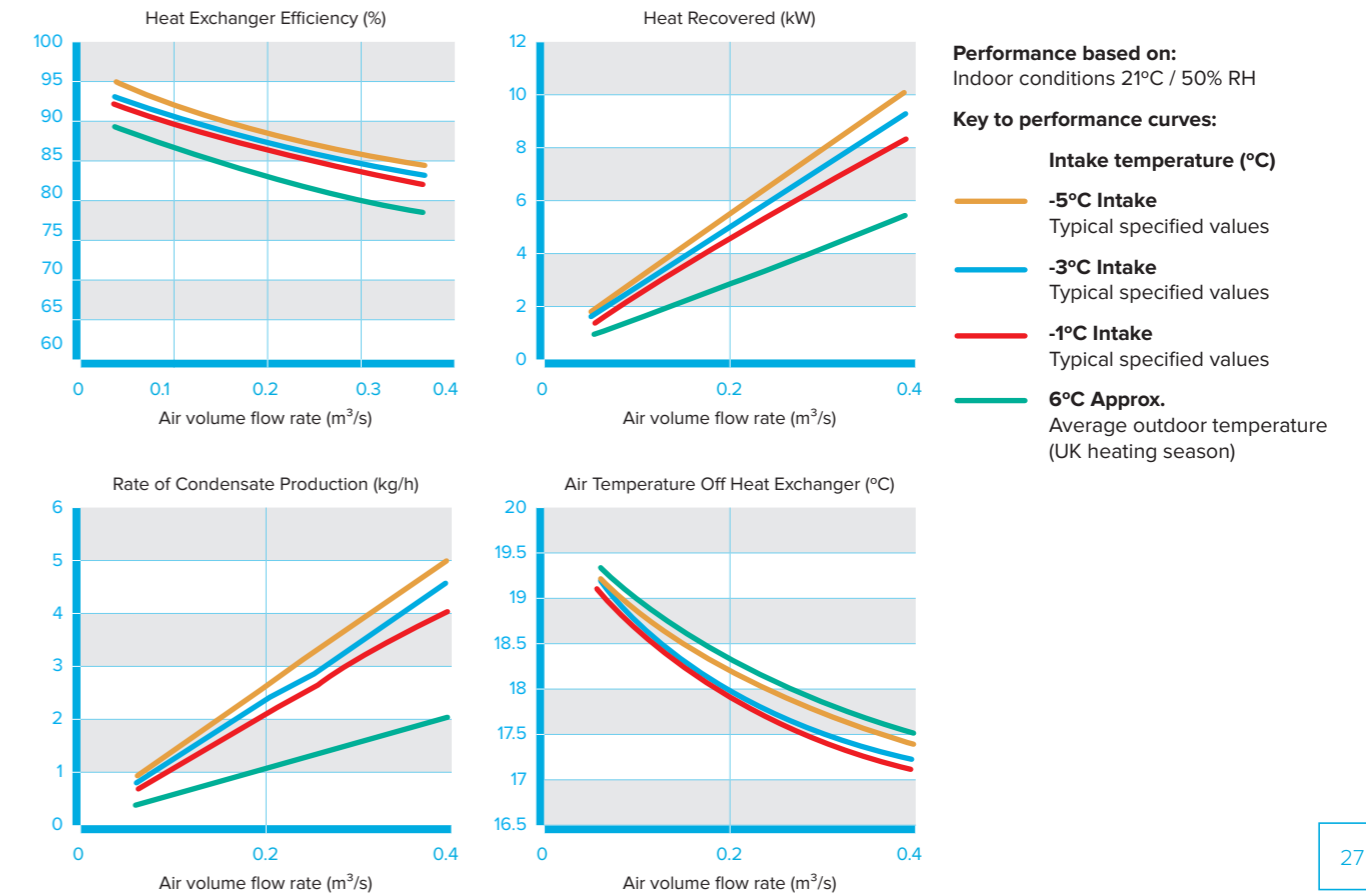
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1713 | 1160 | 346 | 140 | 210 | 640 | 252 | 302 | 471 | 346 | x | 1160 | x | 1713 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



XBOXER XBC+ 25

COIL TECHNICAL INFORMATION

COIL DATA

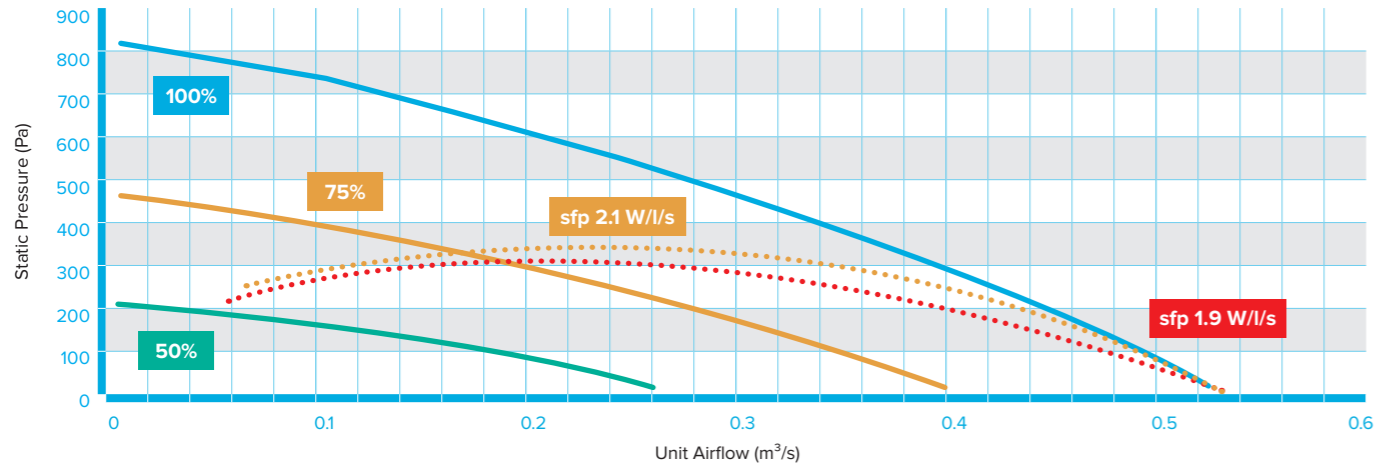
| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.25 | 10.0 | 30.0 | 6.0 | 0.01 | 16.3 | 40.0 | 4.8 | 0.06 | 3.4 | 19.0 | 2.8 | 0.03 | 1.50 |
| | | 75% | 0.19 | 10.0 | 35.0 | 5.6 | 0.13 | 14.5 | 26.0 | 4.3 | 0.05 | 3.1 | 21.0 | 2.6 | 0.03 | 1.20 |
| | | 50% | 0.13 | 10.0 | 40.0 | 4.4 | 0.10 | 8.9 | 29.0 | 3.4 | 0.04 | 1.9 | 23.0 | 2.0 | 0.02 | 0.80 |

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|---------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW Low Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.25 | 10.0 | 25.3 | 4.9 | 0.11 | 17.2 | 22.5 | 4.0 | 0.05 | 3.6 | 19.5 | 3.0 | 0.03 | 1.04 |
| | | 75% | 0.19 | 10.0 | 27.5 | 3.9 | 0.09 | 11.0 | 24.4 | 3.2 | 0.04 | 2.2 | 17.3 | 1.6 | 0.03 | 0.50 |
| | | 50% | 0.13 | 10.0 | 30.1 | 2.9 | 0.07 | 6.4 | 26.6 | 2.4 | 0.03 | 1.4 | 18.4 | 1.2 | 0.02 | 0.41 |

XBOXER XBC+ 45

PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

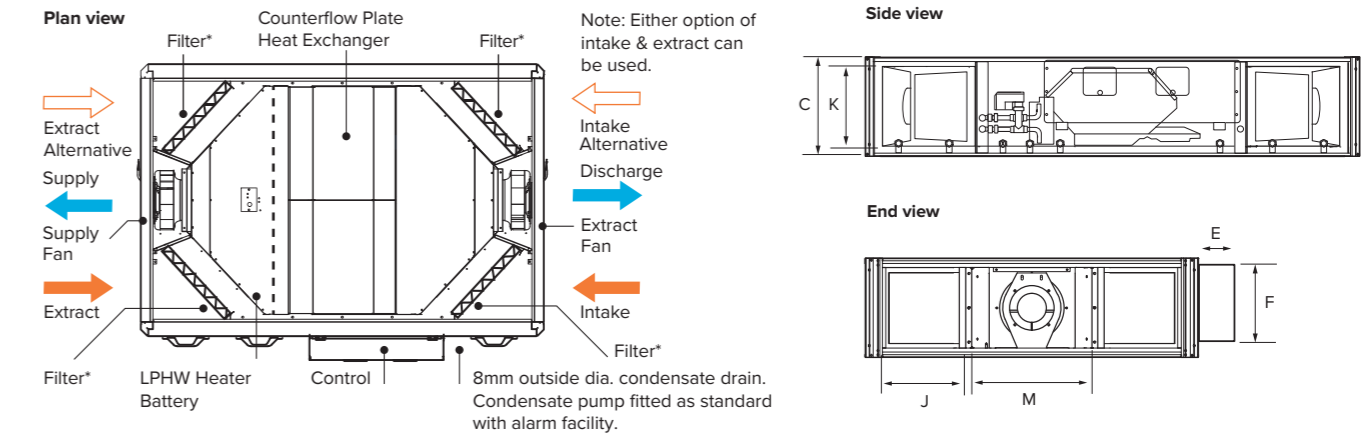
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 | 291 |
| Electric* | 230 | 1 | 50 | 5600 | 2400 | 27 | 27 | 40 | 298 |
| None | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 | 287 |

Relevant to BC, ES, CO or AT control types. *Includes 4.5kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|----|-----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 83 | 75 | 75 | 64 | 64 | 62 | 54 | 45 | 35 |
| | Induct Supply | 87 | 80 | 85 | 71 | 72 | 71 | 66 | 62 | |
| | Induct Discharge | 88 | 81 | 85 | 71 | 72 | 72 | 66 | 64 | |
| | Induct Extract | 84 | 75 | 76 | 63 | 64 | 63 | 53 | 44 | |
| | Casing Radiated | 74 | 65 | 62 | 47 | 45 | 44 | 40 | 29 | |
| 75% | Induct Intake | 77 | 69 | 69 | 58 | 58 | 56 | 48 | 39 | 29 |
| | Induct Supply | 81 | 74 | 79 | 65 | 66 | 65 | 60 | 56 | |
| | Induct Discharge | 82 | 75 | 79 | 65 | 66 | 66 | 60 | 58 | |
| | Induct Extract | 78 | 69 | 70 | 57 | 58 | 57 | 47 | 38 | |
| | Casing Radiated | 68 | 59 | 56 | 41 | 39 | 38 | 34 | 23 | |
| 50% | Induct Intake | 68 | 60 | 60 | 49 | 49 | 47 | 39 | 30 | 20 |
| | Induct Supply | 72 | 65 | 70 | 56 | 57 | 56 | 51 | 47 | |
| | Induct Discharge | 73 | 66 | 70 | 56 | 57 | 57 | 51 | 49 | |
| | Induct Extract | 69 | 60 | 61 | 48 | 49 | 48 | 38 | 29 | |
| | Casing Radiated | 59 | 50 | 47 | 32 | 30 | 29 | 25 | <20 | |

FAN CONFIGURATION

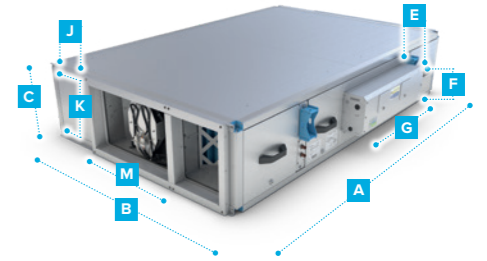


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

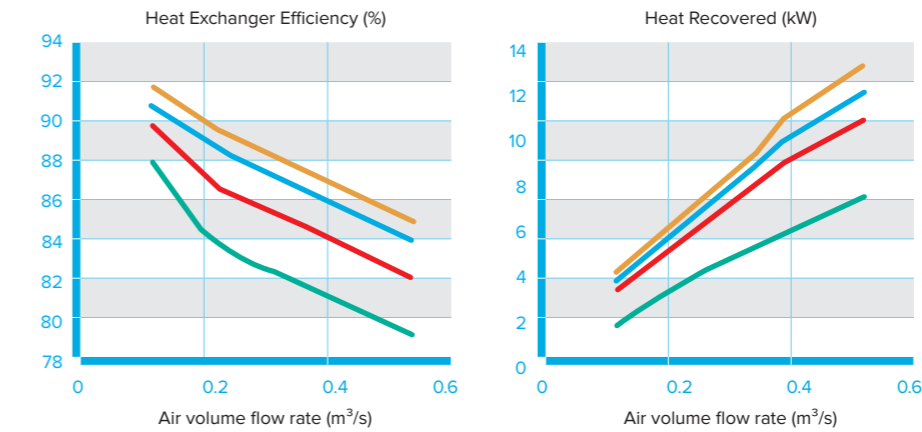
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1913 | 1262 | 405 | 140 | 210 | 640 | 270 | 360 | 531 | 405 | x | 1262 | x | 1913 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



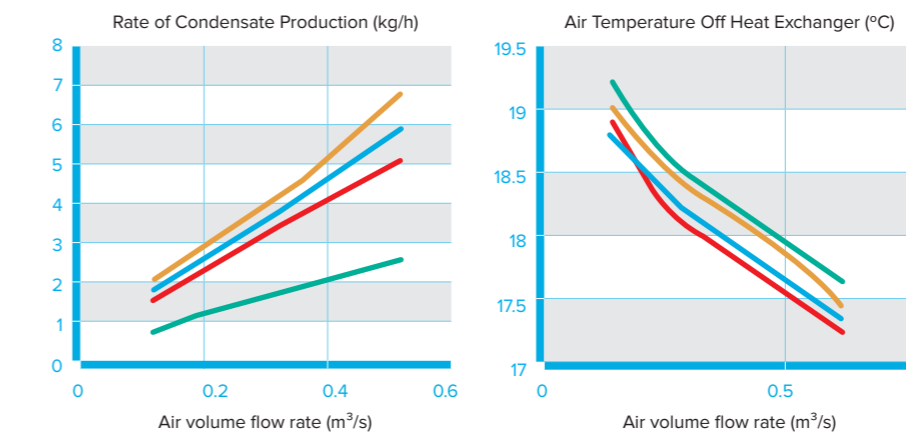
COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



Performance based on:
Indoor conditions 21°C / 50% RH

Key to performance curves:

- Intake temperature (°C)
- 5°C Intake
Typical specified values
- 3°C Intake
Typical specified values
- 1°C Intake
Typical specified values
- 6°C Approx.
Average outdoor temperature (UK heating season)



XBOXER XBC+ 45

COIL TECHNICAL INFORMATION

COIL DATA

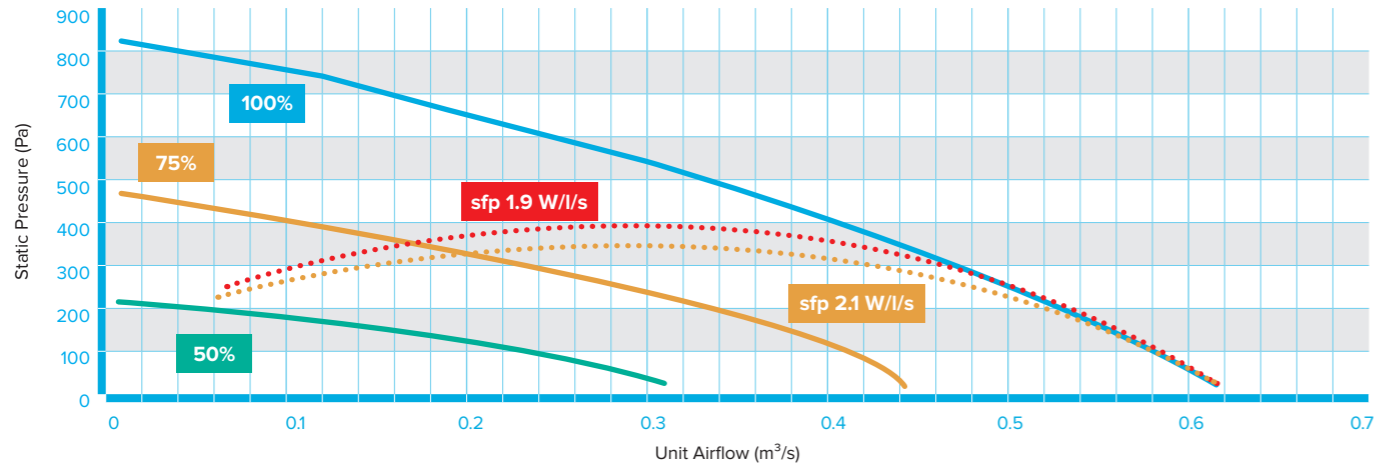
| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.37 | 10.0 | 30.0 | 8.9 | 0.20 | 32.0 | 26.0 | 7.2 | 0.09 | 6.2 | 19.0 | 4.2 | 0.05 | 2.00 |
| | | 75% | 0.28 | 10.0 | 35.0 | 8.4 | 0.19 | 28.2 | 29.0 | 6.5 | 0.08 | 5.5 | 22.0 | 3.9 | 0.05 | 1.60 |
| | | 50% | 0.19 | 10.0 | 40.0 | 6.6 | 0.15 | 17.6 | 33.0 | 5.1 | 0.06 | 3.4 | 23.0 | 3.0 | 0.04 | 1.00 |

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|---------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW Low Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.37 | 10.0 | 25.6 | 7.1 | 0.16 | 32.5 | 22.9 | 5.8 | 0.07 | 6.8 | 17.2 | 3.3 | 0.04 | 2.31 |
| | | 75% | 0.28 | 10.0 | 27.3 | 5.9 | 0.13 | 22.3 | 24.4 | 4.9 | 0.06 | 4.8 | 17.8 | 2.7 | 0.03 | 1.36 |
| | | 50% | 0.19 | 10.0 | 29.7 | 4.5 | 0.10 | 13.3 | 26.5 | 3.7 | 0.05 | 3.1 | 18.5 | 1.9 | 0.02 | 0.60 |

XBOXER XBC+ 55

PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

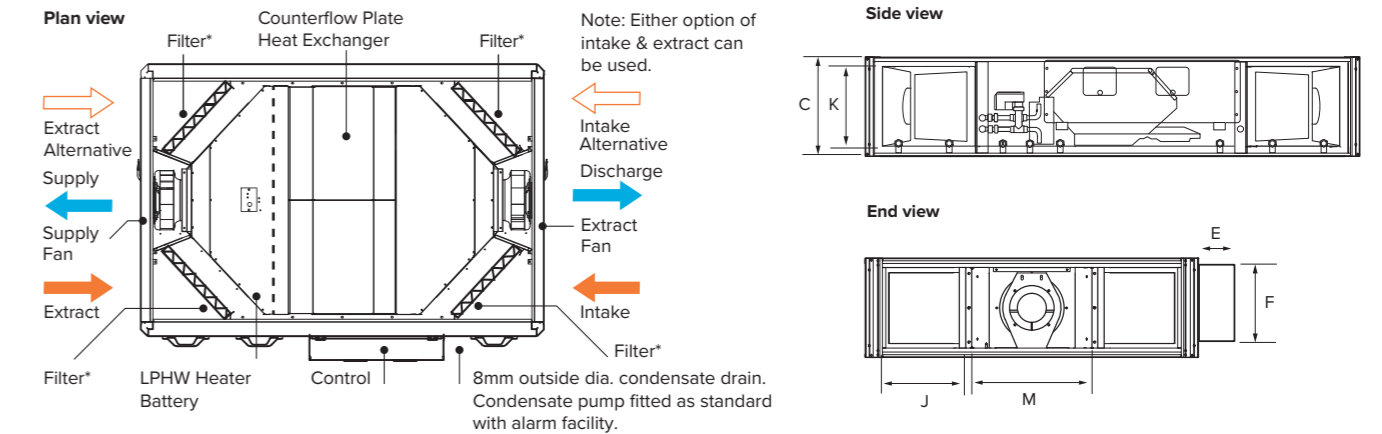
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 | 368 |
| Electric* | 230 | 1 | 50 | 10100 | 2400 | 46 | 46 | 40 | 375 |
| None | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 | 364 |

Relevant to BC, ES, CO or AT control types. *Includes 9kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|-----|----|----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 81 | 74 | 75 | 63 | 64 | 611 | 53 | 41 | 35 |
| | Induct Supply | 85 | 80 | 84 | 71 | 72 | 70 | 66 | 61 | |
| | Induct Discharge | 86 | 81 | 84 | 71 | 72 | 71 | 66 | 63 | |
| | Induct Extract | 82 | 75 | 75 | 63 | 64 | 62 | 53 | 43 | |
| | Casing Radiated | 72 | 65 | 61 | 47 | 45 | 43 | 40 | 28 | |
| 75% | Induct Intake | 75 | 68 | 69 | 57 | 58 | 55 | 47 | 35 | 28 |
| | Induct Supply | 79 | 74 | 78 | 65 | 66 | 64 | 60 | 55 | |
| | Induct Discharge | 80 | 75 | 78 | 65 | 66 | 65 | 60 | 57 | |
| | Induct Extract | 76 | 69 | 69 | 57 | 58 | 56 | 47 | 37 | |
| | Casing Radiated | 66 | 59 | 55 | 41 | 39 | 37 | 34 | 22 | |
| 50% | Induct Intake | 66 | 59 | 60 | 48 | 49 | 46 | 38 | 26 | 20 |
| | Induct Supply | 70 | 65 | 69 | 56 | 57 | 55 | 5 | 46 | |
| | Induct Discharge | 71 | 66 | 69 | 56 | 57 | 56 | 51 | 48 | |
| | Induct Extract | 67 | 60 | 60 | 48 | 49 | 47 | 38 | 28 | |
| | Casing Radiated | 57 | 50 | 46 | 32 | 30 | 28 | 25 | 13 | |

FAN CONFIGURATION

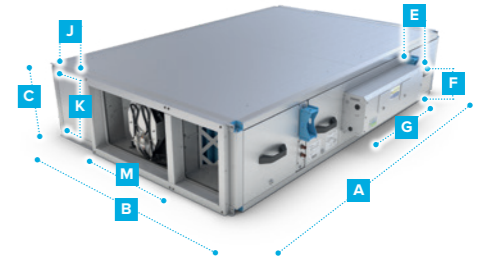


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

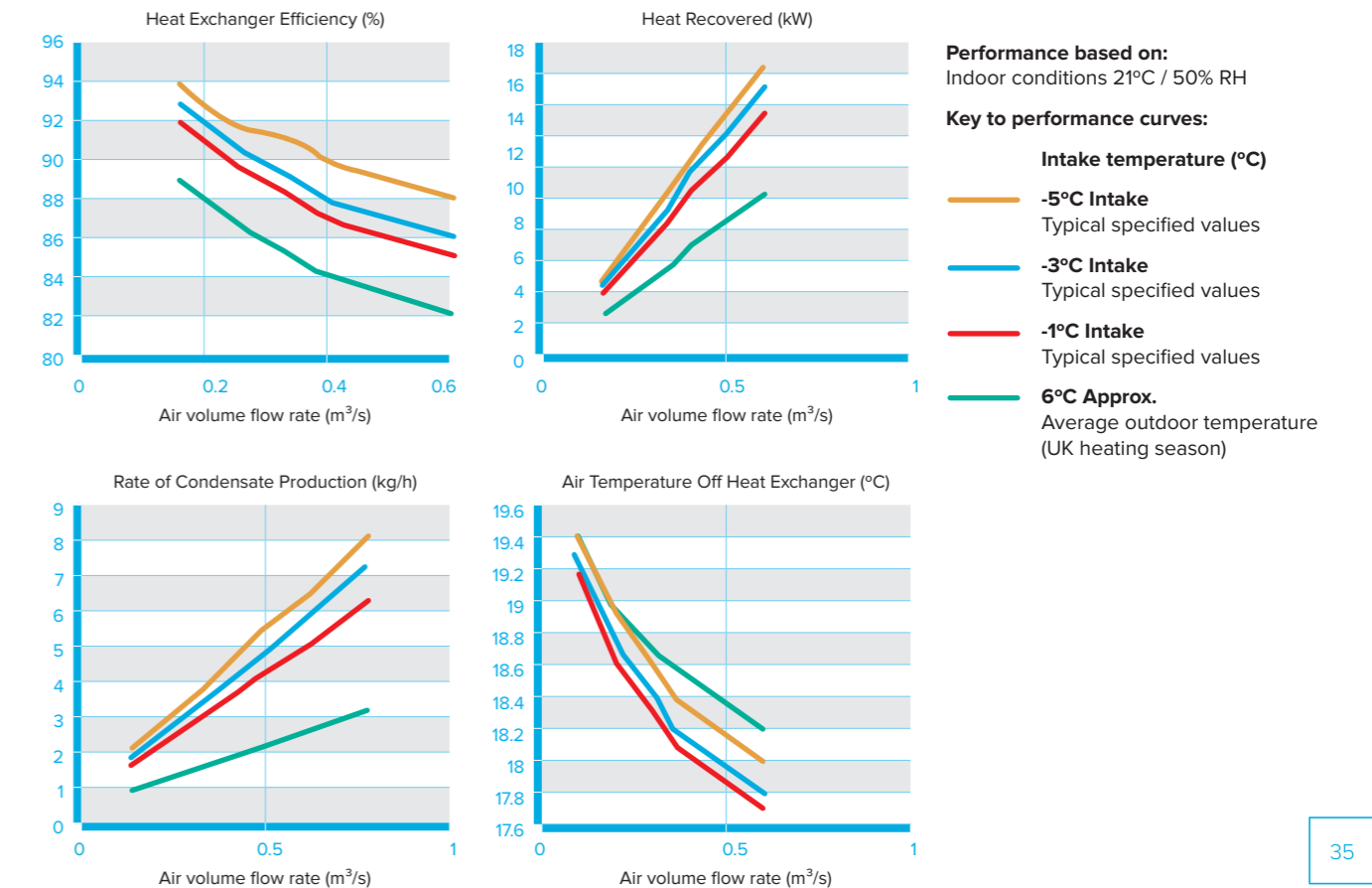
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1900 | 1560 | 470 | 160 | 210 | 640 | 397 | 430 | 587 | 470 | x | 1560 | x | 1900 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



XBOXER XBC+ 55

COIL TECHNICAL INFORMATION

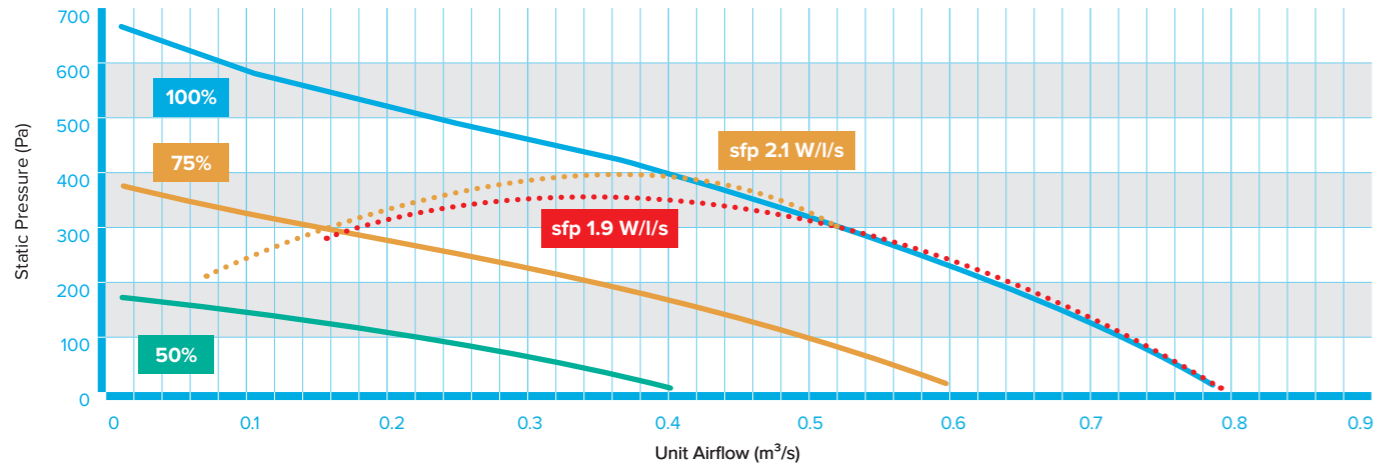
COIL DATA

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.55 | 10.0 | 30.0 | 12.0 | 0.27 | 17.6 | 26.0 | 9.7 | 0.12 | 3.4 | 19.0 | 5.6 | 0.07 | 1.20 |
| | | 75% | 0.41 | 10.0 | 35.0 | 11.3 | 0.25 | 15.6 | 29.0 | 8.7 | 0.11 | 3.0 | 21.0 | 5.2 | 0.06 | 1.00 |
| | | 50% | 0.28 | 10.0 | 40.0 | 8.9 | 0.20 | 9.6 | 33.0 | 6.9 | 0.09 | 1.8 | 23.0 | 4.0 | 0.05 | 0.60 |

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|---------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW Low Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.55 | 10.0 | 24.9 | 9.1 | 0.20 | 33.7 | 22.5 | 7.7 | 0.09 | 7.4 | 17.0 | 4.3 | 0.05 | 2.25 |
| | | 75% | 0.41 | 10.0 | 26.4 | 7.6 | 0.17 | 23.7 | 23.8 | 6.4 | 0.08 | 5.2 | 17.5 | 3.5 | 0.04 | 1.48 |
| | | 50% | 0.28 | 10.0 | 28.5 | 5.9 | 0.13 | 14.4 | 25.7 | 5.0 | 0.06 | 3.3 | 18.1 | 2.6 | 0.03 | 0.82 |

XBOXER XBC+ 65 PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

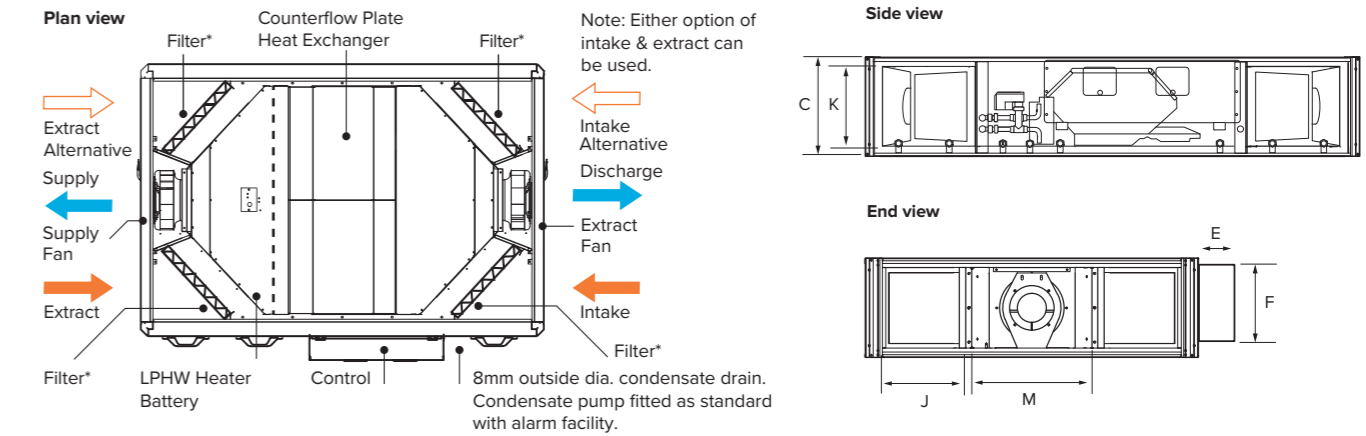
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) | UNIT WEIGHT (kg) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|------------------|
| LPHW | 230 | 1 | 50 | 1540 | 1700 | 8 | 8 | 40 | 469 |
| Electric* | 230 | 1 | 50 | 10540 | 1700 | 47 | 47 | 40 | 476 |
| None | 230 | 1 | 50 | 1540 | 1700 | 8 | 8 | 40 | 465 |

Relevant to BC, ES, CO or AT control types. *Includes 9kW electric heater.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|----|-----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 79 | 79 | 72 | 66 | 64 | 59 | 48 | 34 | 35 |
| | Induct Supply | 83 | 85 | 79 | 74 | 72 | 68 | 61 | 54 | |
| | Induct Discharge | 85 | 85 | 79 | 75 | 72 | 69 | 61 | 55 | |
| | Induct Extract | 81 | 79 | 70 | 67 | 64 | 60 | 48 | 35 | |
| | Casing Radiated | 71 | 69 | 56 | 51 | 45 | 41 | 35 | 20 | |
| 75% | Induct Intake | 73 | 73 | 66 | 60 | 58 | 53 | 42 | 28 | 29 |
| | Induct Supply | 77 | 79 | 73 | 68 | 66 | 62 | 55 | 48 | |
| | Induct Discharge | 79 | 79 | 73 | 69 | 66 | 63 | 55 | 49 | |
| | Induct Extract | 75 | 73 | 64 | 61 | 58 | 54 | 42 | 29 | |
| | Casing Radiated | 65 | 63 | 50 | 45 | 39 | 35 | 29 | <20 | |
| 50% | Induct Intake | 64 | 64 | 57 | 51 | 49 | 44 | 33 | <20 | 20 |
| | Induct Supply | 68 | 70 | 64 | 59 | 57 | 53 | 46 | 39 | |
| | Induct Discharge | 70 | 70 | 64 | 60 | 57 | 54 | 46 | 40 | |
| | Induct Extract | 66 | 64 | 55 | 52 | 49 | 45 | 33 | 20 | |
| | Casing Radiated | 56 | 54 | 41 | 36 | 30 | 26 | 20 | <20 | |

FAN CONFIGURATION

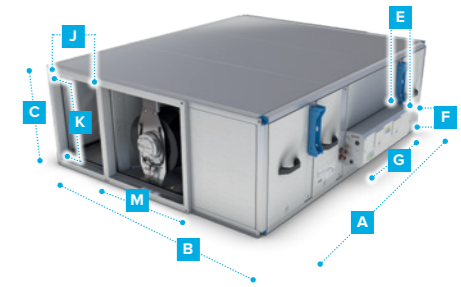


*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

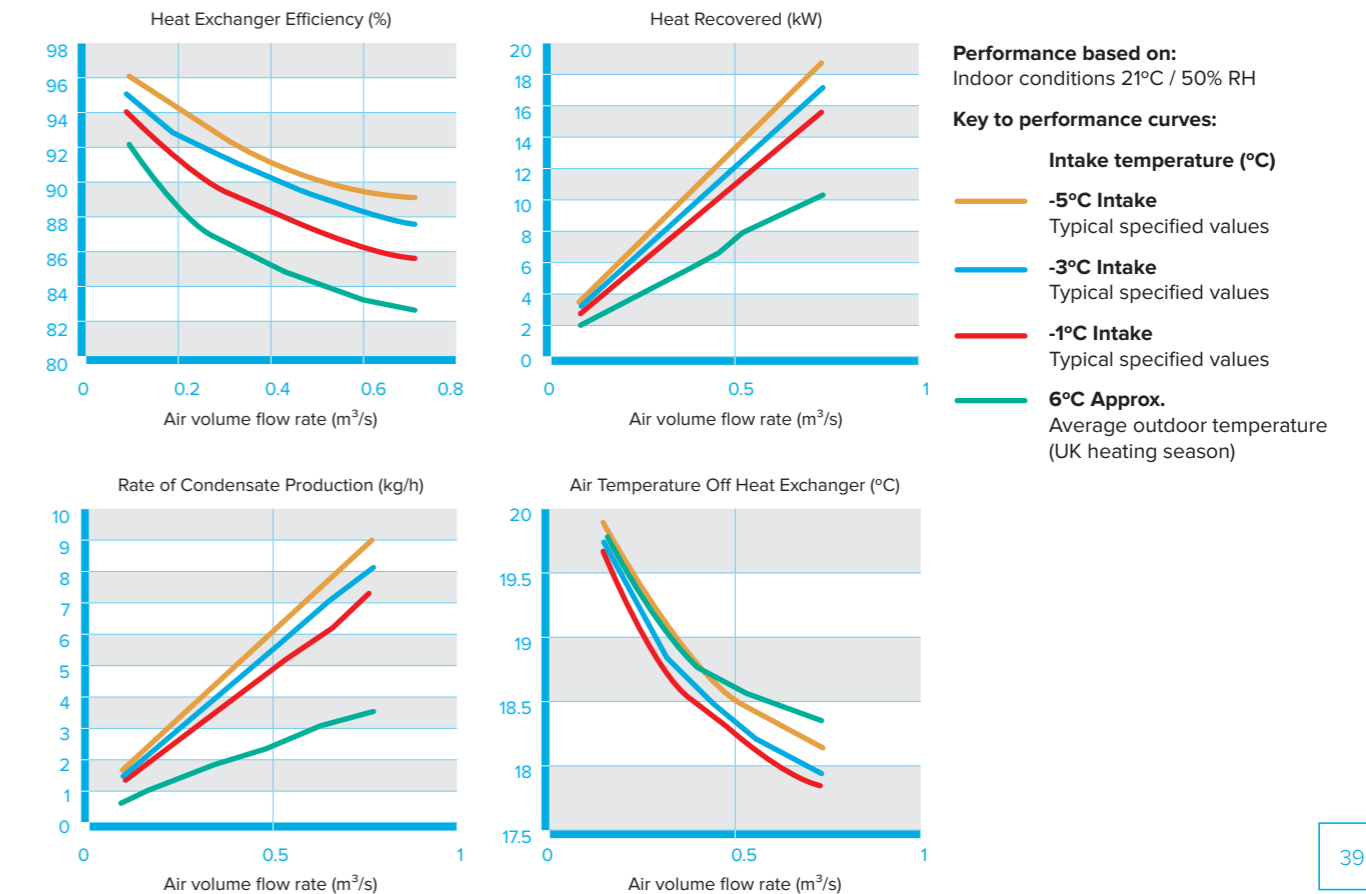
DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1913 | 1570 | 624 | 140 | 210 | 640 | 398 | 580 | 588 | 624 | x | 1570 | x | 1913 |

2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.



COUNTERFLOW HEAT EXCHANGER EFFICIENCY (%)



XBOXER XBC+ 65

COIL TECHNICAL INFORMATION

COIL DATA

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|----------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW High Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.60 | 10.0 | 30.0 | 14.4 | 0.32 | 30.0 | 26.0 | 11.6 | 0.15 | 6.0 | 19.0 | 6.7 | 0.08 | 2.00 |
| | | 75% | 0.45 | 10.0 | 35.0 | 13.5 | 0.30 | 26.6 | 29.0 | 10.4 | 0.13 | 5.4 | 21.0 | 6.2 | 0.07 | 1.60 |
| | | 50% | 0.30 | 10.0 | 40.0 | 10.7 | 0.24 | 16.4 | 33.0 | 8.2 | 0.10 | 3.2 | 23.0 | 4.8 | 0.06 | 1.00 |

| | COIL INFORMATION | AIR INFORMATION | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | |
|---------------|---------------------|------------------|--------------------|----------------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|---------------------------------|-------------------|----------------------|---------------------------|
| | | | | | 82 / 71 | | | | 80 / 60 | | | | 60 / 40 | | | |
| | | | | | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Air Temperature After Coil (°C) | Total Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) |
| LPHW Low Duty | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | | | | | | | | | | | | |
| | 15mm | 100% | 0.60 | 10.0 | 24.5 | 10.7 | 0.24 | 10.9 | 21.6 | 8.6 | 0.10 | 2.1 | 15.3 | 3.9 | 0.05 | 0.47 |
| | | 75% | 0.45 | 10.0 | 25.9 | 9.0 | 0.20 | 7.8 | 22.2 | 6.9 | 0.08 | 1.5 | 16.1 | 3.4 | 0.04 | 0.44 |
| | | 50% | 0.30 | 10.0 | 28.3 | 6.7 | 0.15 | 4.2 | 22.8 | 4.7 | 0.06 | 0.6 | 17.6 | 2.8 | 0.03 | 0.39 |

XBOXER XBC+ ENTHALPY

XBC+ enthalpy heat exchanger units are well suited in premises with low indoor humidity.* These units maintain a comfortable level of indoor air quality, especially supply air through a suitable increase in humidity.

Due to how they recover heat, enthalpy units do not require a condensate drain as they do not produce condensation like a standard heat recovery block. Because of this, units can be installed at any orientation.



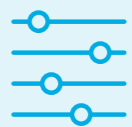
XBOXER XBC+ ENTHALPY

| | | Page | Duty Range (Free Air) | Case Size (L x W x H mm) |
|---------|--|------|-----------------------|--------------------------|
| Size 25 | | 44 | Up to 150 l/s | 1713 x 1160 x 346 |
| Size 45 | | 46 | Up to 250 l/s | 1913 x 1262 x 405 |



FLEXIBLE INSTALLATION

Enthalpy Units can be mounted horizontally or vertically.



ADJUSTABLE DUCT OPTIONS

Inlet positions can be changed at installation stage for complete install flexibility.



NO CONDENSATE DRAIN

Enthalpy units do not require a condensate drain unlike a standard heat recovery block.



FULL CONTROL

Integrated controls for quick and easy commissioning.

AIR POLLUTANTS

WATER VAPOUR

ENTHALPY MEMBRANE

How does an Enthalpy Heat Exchanger work?

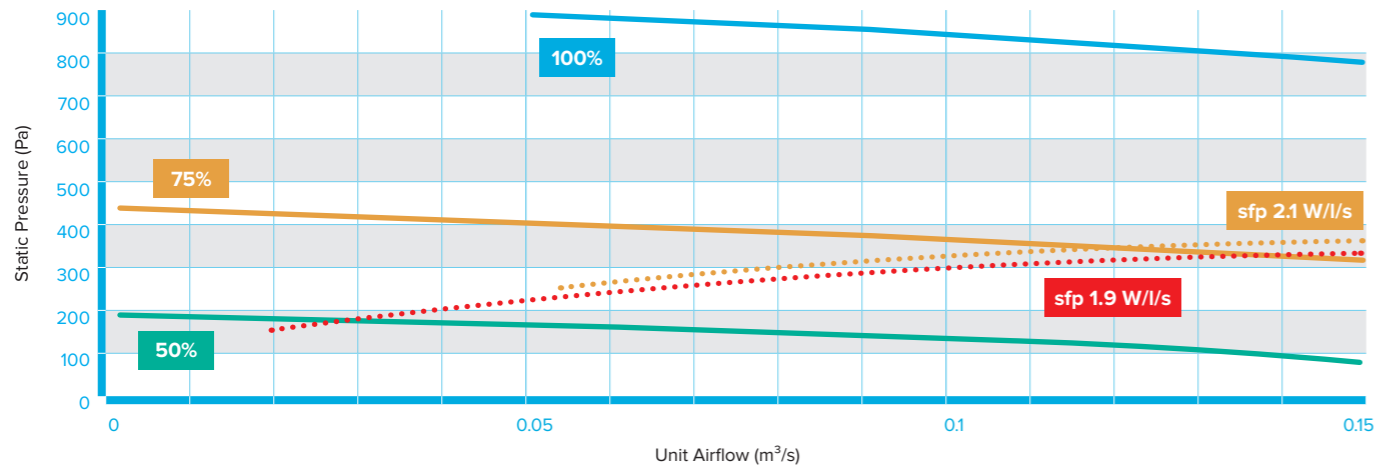
Enthalpy heat exchangers recover heat through humidity from extract air.

This process is possible due to a unique polymer membrane with a microporous structure that enables transition of water vapour molecules, but blocks transition of air pollutants, such as bacteria, germs, mould, gases and smells.

This enables you to keep high hygienic standards, with no transition of smells and toxins – only heat and water vapours and transferred.

XBOXER XBC+ 25 ENTHALPY PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

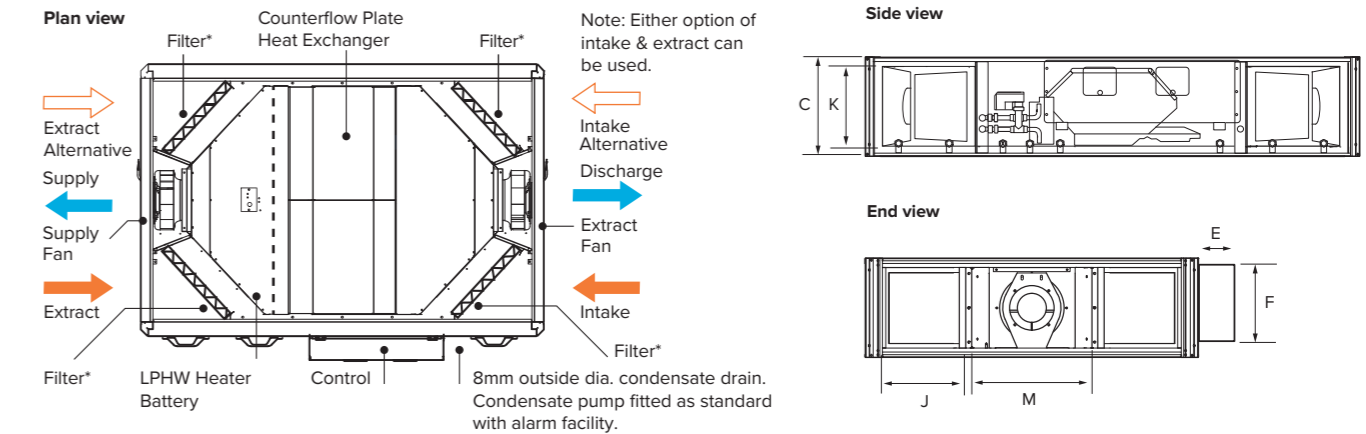
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|
| LPHW | 230 | 1 | 50 | 1000 | 4000 | 6.4 | 6.4 | 40 |
| None | 230 | 1 | 50 | 1000 | 4000 | 6.4 | 6.4 | 40 |

Relevant to BC, ES, CO or AT control types.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|----|----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 77 | 71 | 69 | 71 | 66 | 62 | 54 | 53 | 37 |
| | Induct Supply | 82 | 83 | 78 | 82 | 72 | 72 | 68 | 70 | |
| | Induct Discharge | 83 | 84 | 78 | 81 | 72 | 72 | 70 | 71 | |
| | Induct Extract | 76 | 70 | 68 | 71 | 65 | 62 | 54 | 54 | |
| | Casing Radiated | 69 | 68 | 55 | 58 | 45 | 44 | 44 | 36 | |
| 75% | Induct Intake | 71 | 65 | 68 | 65 | 60 | 56 | 48 | 47 | 31 |
| | Induct Supply | 76 | 77 | 72 | 76 | 66 | 66 | 62 | 64 | |
| | Induct Discharge | 77 | 78 | 72 | 75 | 66 | 66 | 64 | 65 | |
| | Induct Extract | 70 | 64 | 62 | 65 | 59 | 56 | 48 | 48 | |
| | Casing Radiated | 63 | 62 | 49 | 52 | 39 | 38 | 38 | 30 | |
| 50% | Induct Intake | 63 | 57 | 55 | 57 | 52 | 48 | 40 | 39 | 23 |
| | Induct Supply | 68 | 69 | 64 | 68 | 58 | 58 | 54 | 56 | |
| | Induct Discharge | 69 | 70 | 64 | 67 | 58 | 58 | 56 | 57 | |
| | Induct Extract | 62 | 56 | 54 | 57 | 51 | 48 | 40 | 40 | |
| | Casing Radiated | 55 | 54 | 41 | 44 | 31 | 30 | 30 | 22 | |

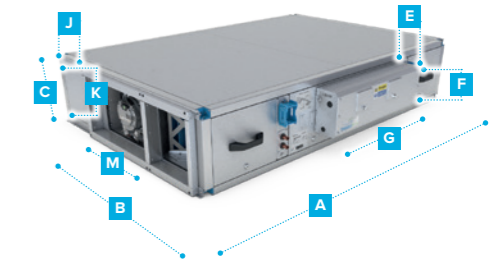
FAN CONFIGURATION



*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1713 | 1160 | 346 | 140 | 210 | 640 | 252 | 302 | 471 | 346 | x | 1160 | x | 1713 |



2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.

SILENCER DATA

| CODE | DIMENSIONS (mm) | | | AIR PATH | DYNAMIC INSERTION LOSS (dB) | | | | | | | | WEIGHT (kg) | PACKAGED WEIGHT (kg) |
|---------------|-----------------|-------|--------|----------|-----------------------------|-----|-----|-----|----|-----|----|----|-------------|----------------------|
| | LENGTH | WIDTH | HEIGHT | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | | |
| XBC25-HS-MS10 | 1050 | 481 | 298 | S / D | 5 | 8 | 15 | 30 | 41 | 31 | 21 | 16 | 42 | 47 |
| XBC25-HE-MS10 | 1050 | 262 | 298 | I / E | 4 | 4 | 10 | 22 | 26 | 115 | 10 | 8 | 33 | 36 |
| XBC25-HS-MS12 | 1250 | 481 | 298 | S / D | 7 | 10 | 18 | 36 | 51 | 39 | 26 | 20 | 51 | 56 |
| XBC25-HE-MS12 | 1250 | 262 | 298 | I / E | 5 | 6 | 12 | 27 | 34 | 20 | 13 | 9 | 40 | 43 |
| XBC25-HS-MS16 | 1600 | 481 | 298 | S / D | 9 | 13 | 23 | 42 | 55 | 49 | 32 | 25 | 64 | 69 |
| XBC25-HE-MS16 | 1600 | 262 | 298 | I / E | 6 | 8 | 15 | 33 | 43 | 25 | 15 | 11 | 50 | 53 |

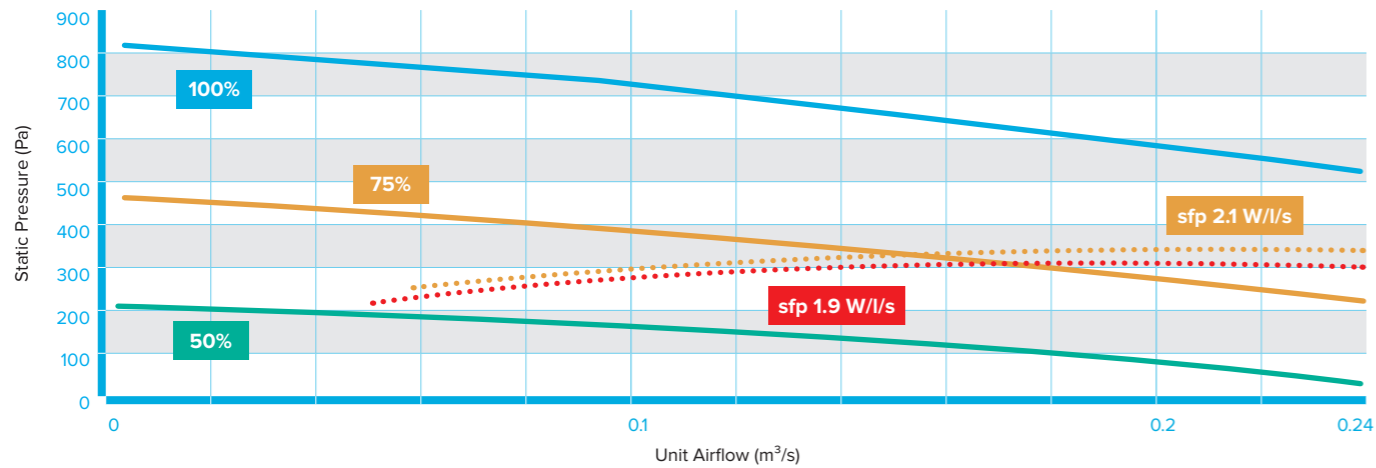
S / D = Supply / Discharge, I / E = Intake / Extract. Coding: The S / D denotes the type of silencer required for the supply or discharge. The I / E denotes the type of silencer required for the extract or fresh air intake on the unit. All XBC matched silencers are double-skinned.

LPHW HEATING COIL DATA

| WATER TEMP (°C) | AIRFLOW (m³/s) | OUTPUT (kW) | AIR OFF TEMP (°C) | WATER FLOW (l/s) | COIL ΔP (kPa) | VALVE ΔP (kPa) | TOTAL WATER ΔP (kPa) |
|-----------------|----------------|-------------|-------------------|------------------|---------------|----------------|----------------------|
| 82/71 | 0.25 | 6 | 30 | 0.134 | 7.3 | 9 | 16.3 |
| | 0.1875 | 5.6 | 35 | 0.13 | 6.5 | 8 | 14.5 |
| | 0.125 | 4.4 | 40 | 0.1 | 4 | 4.9 | 8.9 |
| 80/60 | 0.25 | 4.8 | 26 | 0.06 | 1.4 | 2 | 3.4 |
| | 0.1875 | 4.3 | 29 | 0.05 | 1.3 | 1.8 | 3.1 |
| | 0.125 | 3.4 | 33 | 0.04 | 0.8 | 1.1 | 1.9 |
| 60/40 | 0.25 | 2.8 | 19 | 0.03 | 0.5 | 1 | 1.5 |
| | 0.1875 | 2.6 | 21 | 0.03 | 0.4 | 0.8 | 1.2 |
| | 0.125 | 2 | 23 | 0.02 | 0.3 | 0.5 | 0.8 |

XBOXER XBC+ 45 ENTHALPY PERFORMANCE & TECHNICAL INFORMATION

PERFORMANCE CHART



TECHNICAL INFORMATION

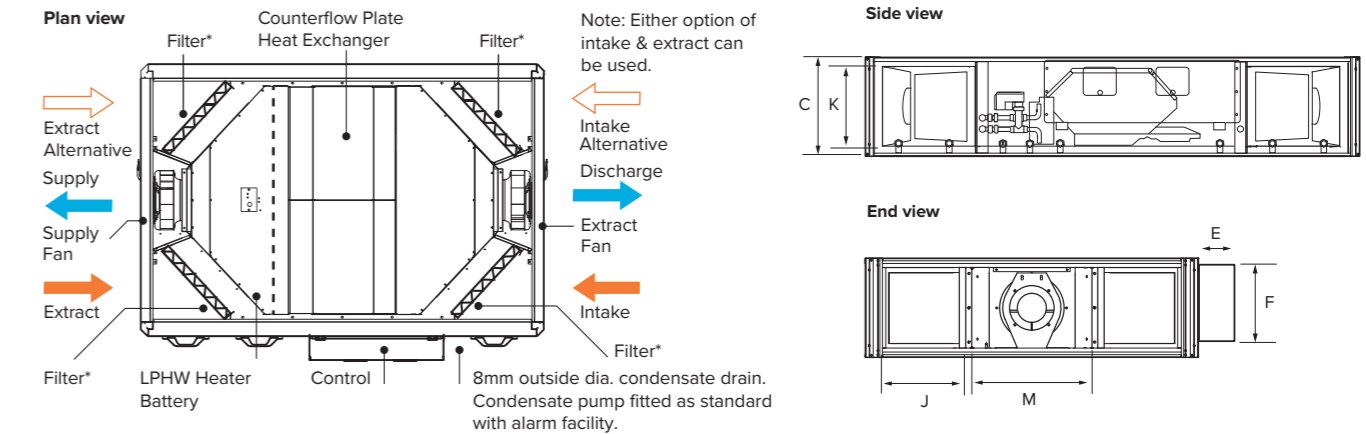
| HEATER TYPE | VOLTAGE | PHASE | FREQUENCY | INPUT POWER (W) | FAN SPEED (rpm) | FLC (A) | SC (A) | MAX OPERATING TEMPERATURE (°C) |
|-------------|---------|-------|-----------|-----------------|-----------------|---------|--------|--------------------------------|
| LPHW | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 |
| None | 230 | 1 | 50 | 1100 | 2400 | 6.9 | 6.9 | 40 |

Relevant to BC, ES, CO or AT control types.

SOUND DATA

| FAN SPEED | SOUND POWER LEVELS (db re 1 pW) | FREQUENCY (Hz) | | | | | | | | SPHERICAL dBA@3m |
|-----------|---------------------------------|----------------|-----|-----|-----|----|----|----|-----|------------------|
| | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | |
| 100% | Induct Intake | 83 | 75 | 75 | 64 | 64 | 62 | 54 | 45 | 35 |
| | Induct Supply | 87 | 80 | 85 | 71 | 72 | 71 | 66 | 62 | |
| | Induct Discharge | 88 | 81 | 85 | 71 | 72 | 72 | 66 | 64 | |
| | Induct Extract | 84 | 75 | 76 | 63 | 64 | 63 | 53 | 44 | |
| | Casing Radiated | 74 | 65 | 62 | 47 | 45 | 44 | 40 | 29 | |
| 75% | Induct Intake | 77 | 69 | 69 | 58 | 58 | 56 | 48 | 39 | 29 |
| | Induct Supply | 81 | 74 | 79 | 65 | 66 | 65 | 60 | 56 | |
| | Induct Discharge | 82 | 75 | 79 | 65 | 66 | 66 | 60 | 58 | |
| | Induct Extract | 78 | 69 | 70 | 57 | 58 | 57 | 47 | 38 | |
| | Casing Radiated | 68 | 59 | 56 | 41 | 39 | 38 | 34 | 23 | |
| 50% | Induct Intake | 68 | 60 | 60 | 49 | 49 | 47 | 39 | 30 | 20 |
| | Induct Supply | 72 | 65 | 70 | 56 | 57 | 56 | 51 | 47 | |
| | Induct Discharge | 73 | 66 | 70 | 56 | 57 | 57 | 51 | 49 | |
| | Induct Extract | 69 | 60 | 61 | 48 | 49 | 48 | 38 | 29 | |
| | Casing Radiated | 59 | 50 | 47 | 32 | 30 | 29 | 25 | <20 | |

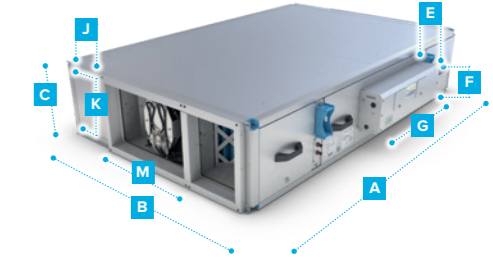
FAN CONFIGURATION



*G4 (EN779:2012) / ISO Coarse 75% (ISO 16890).

DIMENSIONS (mm)

| FAN UNIT | | | CONTROLS BOX | | | RECTANGULAR APERTURE | | | WEATHER ROOF | | | | |
|----------|------|-----|--------------|-----|-----|----------------------|-----|-----|--------------|---|------|---|------|
| A | B | C | E | F | G | J | K | M | H | x | W | x | L |
| 1913 | 1262 | 405 | 140 | 210 | 640 | 270 | 360 | 531 | 405 | x | 1262 | x | 1913 |



2 attenuator flanges are attached to every unit. Add 50mm to length dimension to include both flanges. Weather roof is separate code and can be retro fitted on site. Units must be installed with a minimum clearance of 260mm from a wall or barrier. This will provide access to filters, coil, fan, heat exchanger, condensate tray and pump.

SILENCER DATA

| CODE | DIMENSIONS (mm) | | | AIR PATH | DYNAMIC INSERTION LOSS (dB) | | | | | | | | WEIGHT (kg) | PACKAGED WEIGHT (kg) |
|---------------|-----------------|-------|--------|----------|-----------------------------|-----|-----|-----|----|----|----|----|-------------|----------------------|
| | LENGTH | WIDTH | HEIGHT | | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | | |
| XBC45-HS-MS10 | 1050 | 536 | 358 | S / D | 5 | 9 | 16 | 13 | 11 | 8 | 7 | 6 | 48 | 53 |
| XBC45-HE-MS10 | 1050 | 275 | 358 | I / E | 3 | 5 | 11 | 13 | 15 | 11 | 6 | 4 | 37 | 40 |
| XBC45-HS-MS12 | 1250 | 536 | 358 | S / D | 7 | 11 | 20 | 20 | 19 | 14 | 10 | 8 | 59 | 64 |
| XBC45-HE-MS12 | 1250 | 275 | 358 | I / E | 5 | 7 | 15 | 20 | 23 | 17 | 9 | 6 | 45 | 48 |
| XBC45-HS-MS16 | 1600 | 536 | 358 | S / D | 9 | 13 | 24 | 27 | 25 | 20 | 13 | 10 | 73 | 78 |
| XBC45-HE-MS16 | 1600 | 275 | 358 | I / E | 7 | 9 | 21 | 27 | 29 | 23 | 12 | 8 | 56 | 59 |

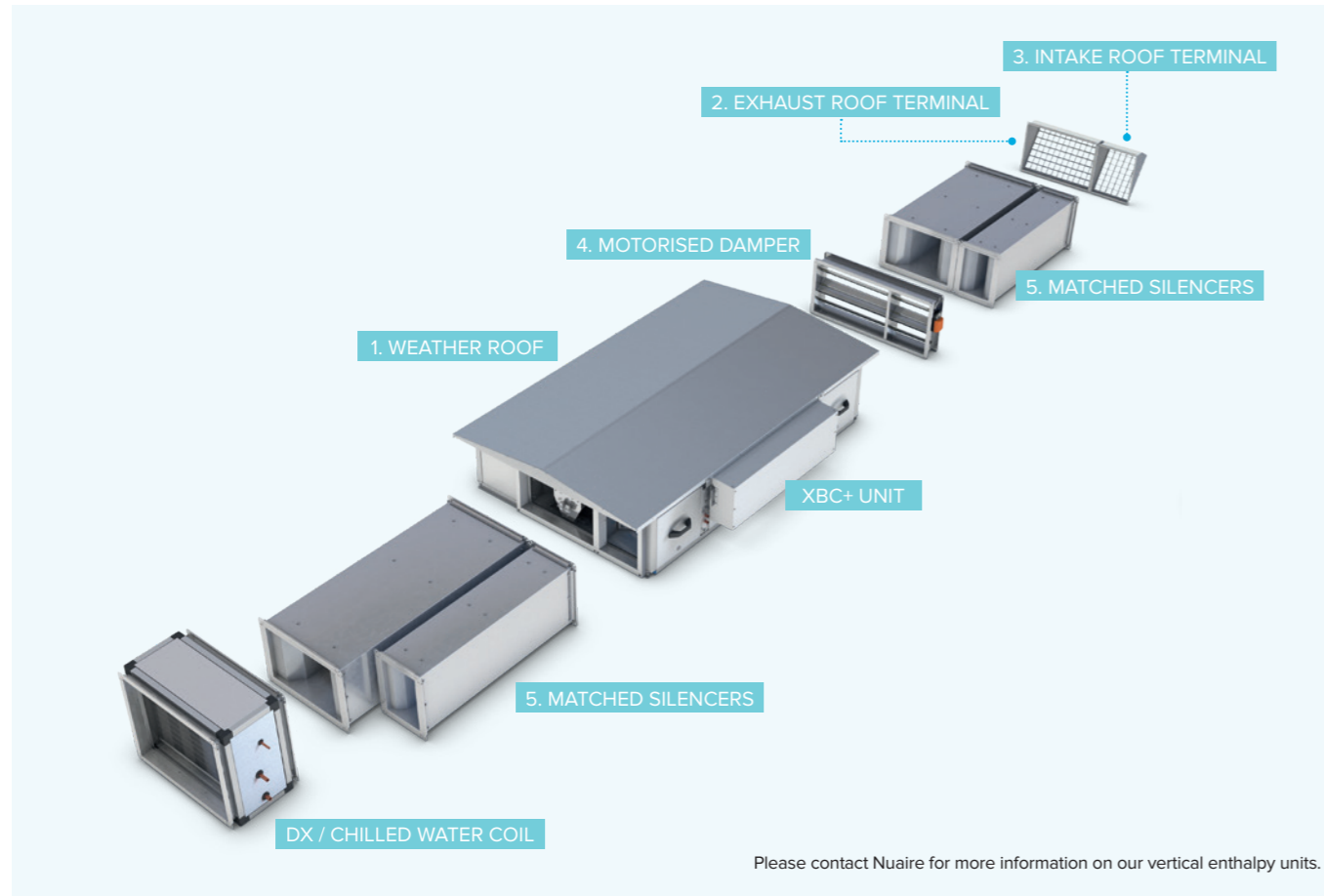
S / D = Supply / Discharge, I / E = Intake / Extract. Coding: The S / D denotes the type of silencer required for the supply or discharge. The I / E denotes the type of silencer required for the extract or fresh air intake on the unit. All XBC matched silencers are double-skinned.

LPHW HEATING COIL DATA

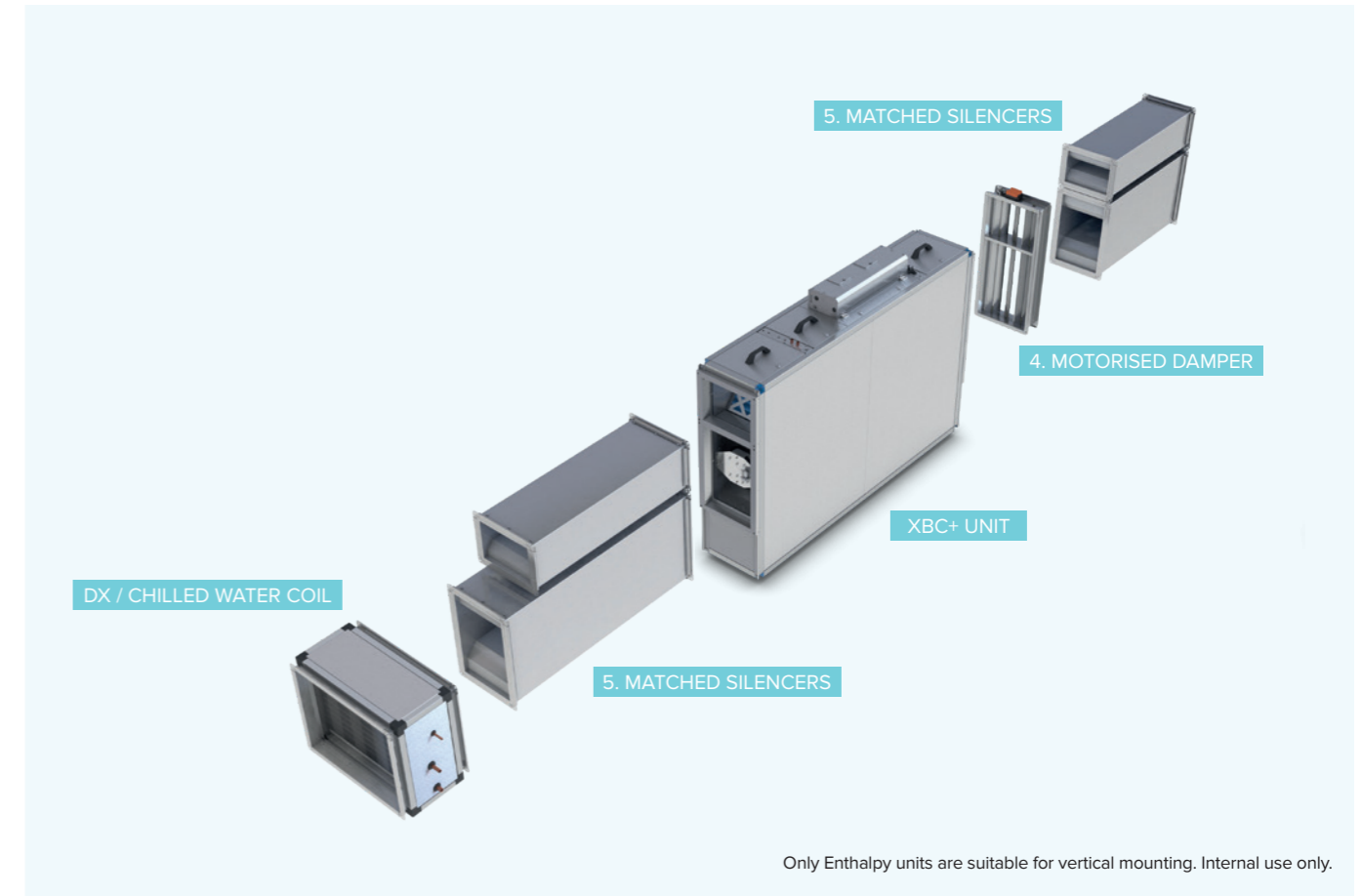
| WATER TEMP (°C) | AIRFLOW (m³/s) | OUTPUT (kW) | AIR OFF TEMP (°C) | WATER FLOW (l/s) | COIL ΔP (kPa) | VALVE ΔP (kPa) | TOTAL WATER ΔP (kPa) |
|-----------------|----------------|-------------|-------------------|------------------|---------------|----------------|----------------------|
| 82/71 | 0.37 | 8.9 | 30 | 0.2 | 16 | 16 | 32 |
| | 0.2775 | 8.4 | 35 | 0.19 | 14.1 | 14.1 | 28.2 |
| | 0.185 | 6.6 | 40 | 0.15 | 8.8 | 8.8 | 17.6 |
| 80/60 | 0.37 | 7.2 | 26 | 0.09 | 3.2 | 3 | 6.2 |
| | 0.2775 | 6.5 | 29 | 0.08 | 2.8 | 2.7 | 5.5 |
| | 0.185 | 5.1 | 33 | 0.06 | 1.8 | 1.6 | 3.4 |
| 60/40 | 0.37 | 4.2 | 19 | 0.05 | 1 | 1 | 2 |
| | 0.2775 | 3.9 | 22 | 0.05 | 0.8 | 0.8 | 1.6 |
| | 0.185 | 3 | 23 | 0.04 | 0.5 | 0.5 | 1 |

XBOXER XBC+ 10-65 ANCILLARIES

XBC+ HORIZONTAL INSTALLATION



XBC+ VERTICAL INSTALLATION



QUICK SELECTION GUIDE

| UNIT SIZE | 1 WEATHER ROOF | 2 EXHAUST ROOF TERMINAL | 3 INTAKE ROOF TERMINAL | 4 | | | |
|-----------|-------------------|----------------------------|---------------------------|-------------------------------------|----------------|-------------------------------------|----------------|
| | | | | MOTORISED DAMPER (INTERNAL) | | MOTORISED DAMPER (EXTERNAL) | |
| | | | | ECOSMART CLASSIC AND BASIC CONTROLS | OTHER CONTROLS | ECOSMART CLASSIC AND BASIC CONTROLS | OTHER CONTROLS |
| Size 10 | XBC10H-WP | XBC10-EXHAUST-RT | XBC10-INTAKE-RT | XBC10-MD | XBC10-MD-** | XBC10-MD-WP | XBC10-MD-**-WP |
| Size 15 | XBC15H-WP | XBC15-EXHAUST-RT | XBC15-INTAKE-RT | XBC15-MD | XBC15-MD-** | XBC15-MD-WP | XBC15-MD-**-WP |
| Size 25 | XBC25H-WP | XBC25-EXHAUST-RT | XBC25-INTAKE-RT | XBC25-MD | XBC25-MD-** | XBC25-MD-WP | XBC25-MD-**-WP |
| Size 45 | XBC45H-WP | XBC45-EXHAUST-RT | XBC45-INTAKE-RT | XBC45-MD | XBC45-MD-** | XBC45-MD-WP | XBC45-MD-**-WP |
| Size 55 | XBC55H-WP | XBC55-EXHAUST-RT | XBC55-INTAKE-RT | XBC55-MD | XBC55-MD-** | XBC55-MD-WP | XBC55-MD-**-WP |
| Size 65 | XBC65H-WP | XBC65-EXHAUST-RT | XBC65-INTAKE-RT | XBC65-MD | XBC65-MD-** | XBC65-MD-WP | XBC65-MD-**-WP |

Replace ** with required control option: CO - Connect Control, AT - Adapt with Trend Control. Add "4" to the end of the code for coastal protection coating.

QUICK SELECTION GUIDE (CONT.)

| UNIT SIZE | 5 | | | | | |
|-----------|---------------------------------|---------------|---------------|----------------------------------|---------------|---------------|
| | MATCHING SILENCERS S/D (SUPPLY) | | | MATCHING SILENCERS I/E (EXTRACT) | | |
| | 1050MM LONG | 1250MM LONG | 1600MM LONG | 1050MM LONG | 1250MM LONG | 1600MM LONG |
| Size 10 | XBC15-HS-MS10 | XBC15-HS-MS12 | XBC15-HS-MS16 | XBC15-HE-MS10 | XBC15-HE-MS12 | XBC15-HE-MS16 |
| Size 15 | XBC15-HS-MS10 | XBC15-HS-MS12 | XBC15-HS-MS16 | XBC15-HE-MS10 | XBC15-HE-MS12 | XBC15-HE-MS16 |
| Size 25 | XBC25-HS-MS10 | XBC25-HS-MS12 | XBC25-HS-MS16 | XBC25-HE-MS10 | XBC25-HE-MS12 | XBC25-HE-MS16 |
| Size 45 | XBC45-HS-MS10 | XBC45-HS-MS12 | XBC45-HS-MS16 | XBC45-HE-MS10 | XBC45-HE-MS12 | XBC45-HE-MS16 |
| Size 55 | XBC55-HS-MS10 | XBC55-HS-MS12 | XBC55-HS-MS16 | XBC55-HE-MS10 | XBC55-HE-MS12 | XBC55-HE-MS16 |
| Size 65 | XBC65-HS-MS10 | XBC65-HS-MS12 | XBC65-HS-MS16 | XBC65-HE-MS10 | XBC65-HE-MS12 | XBC65-HE-MS16 |

Matched attenuators can be flipped to suit left/right side (1050/1250/1600mm lengths). *Contact Nuair for details of these variants.

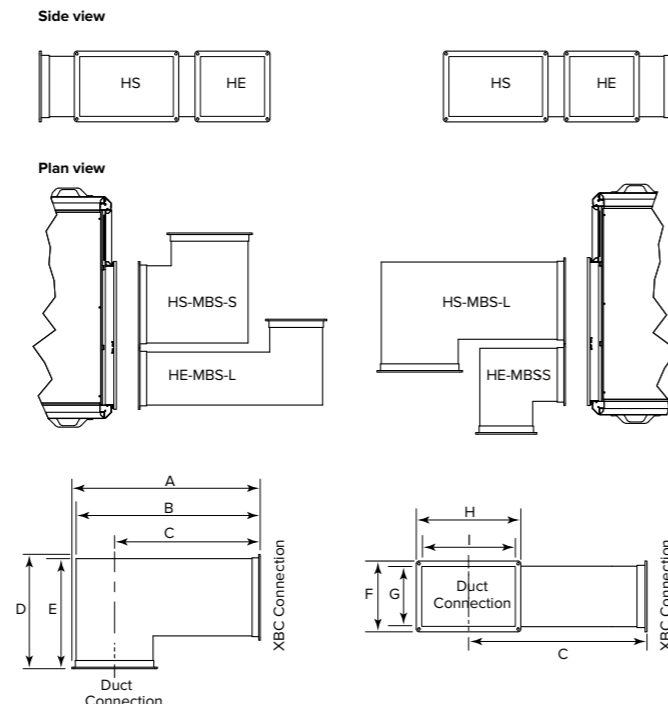
Please note, base frames are not included with ancillaries. All ancillaries will need to be supported by others.

XBOXER XBC+ 10-65 ANCILLARIES - NEW BEND SILENCERS

Where to use bend attenuators.

Bend matched silencers are ideal for projects where space is limited and the straight matched silencers cannot be fitted. The bend silencers are fitted with the matching flange at either end allow for additional straight silencers to also be added if required.

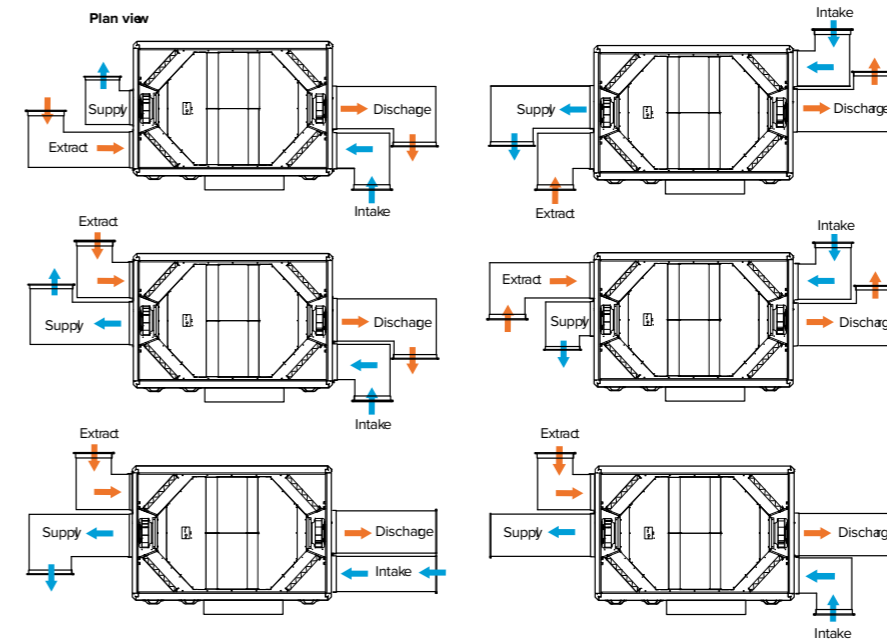
XBC10 - 65 HORIZONTAL UNITS BEND ATTENUATOR DIMENSIONS



XBC+ 10-65 BEND SILENCER - DIMENSIONS (mm)

| XBC+ UNIT SIZE | ATTENUATOR CODE | ATTENUATOR DIMENSIONS | | | | | | | | |
|----------------|-----------------|-----------------------|------|------|-----|-----|-----|-----|-----|-----|
| | | A | B | C | D | E | F | G | H | I |
| XBC+ 10 | XBC15-HS-MBS-S | 515 | 496 | 322 | 515 | 496 | 260 | 220 | 386 | 346 |
| | XBC15-HS-MBS-L | 852 | 833 | 659 | 515 | 496 | 260 | 220 | 386 | 346 |
| | XBC15-HE-MBS-S | 406 | 387 | 268 | 406 | 387 | 260 | 220 | 277 | 237 |
| | XBC15-HE-MBS-L | 852 | 833 | 714 | 406 | 387 | 260 | 220 | 277 | 237 |
| XBC+ 15 | XBC15-HS-MBS-S | 515 | 496 | 322 | 515 | 496 | 260 | 220 | 386 | 346 |
| | XBC15-HS-MBS-L | 852 | 833 | 659 | 515 | 496 | 260 | 220 | 386 | 346 |
| | XBC15-HE-MBS-S | 406 | 387 | 268 | 406 | 387 | 260 | 220 | 277 | 237 |
| | XBC15-HE-MBS-L | 852 | 833 | 714 | 406 | 387 | 260 | 220 | 277 | 237 |
| XBC+ 25 | XBC25-HS-MBS-S | 640 | 621 | 385 | 640 | 621 | 342 | 302 | 511 | 471 |
| | XBC25-HS-MBS-L | 992 | 973 | 737 | 640 | 621 | 342 | 302 | 511 | 471 |
| | XBC25-HE-MBS-S | 421 | 402 | 275 | 421 | 402 | 342 | 302 | 292 | 252 |
| | XBC25-HE-MBS-L | 992 | 973 | 846 | 421 | 402 | 342 | 302 | 292 | 252 |
| XBC+ 45 | XBC45-HS-MBS-S | 700 | 681 | 415 | 700 | 681 | 400 | 360 | 571 | 531 |
| | XBC45-HS-MBS-L | 1070 | 1051 | 785 | 700 | 681 | 400 | 360 | 571 | 531 |
| | XBC45-HE-MBS-S | 439 | 420 | 284 | 439 | 420 | 400 | 360 | 310 | 270 |
| | XBC45-HE-MBS-L | 1070 | 1051 | 915 | 439 | 420 | 400 | 360 | 310 | 270 |
| XBC+ 55 | XBC55-HS-MBS-S | 756 | 737 | 443 | 756 | 737 | 470 | 430 | 627 | 587 |
| | XBC55-HS-MBS-L | 1253 | 1234 | 940 | 756 | 737 | 470 | 430 | 627 | 587 |
| | XBC55-HE-MBS-S | 566 | 547 | 348 | 566 | 547 | 470 | 430 | 437 | 397 |
| | XBC55-HE-MBS-L | 1253 | 1234 | 1035 | 566 | 547 | 470 | 430 | 437 | 397 |
| XBC+ 65 | XBC65-HS-MBS-S | 756 | 737 | 443 | 756 | 737 | 620 | 580 | 627 | 587 |
| | XBC65-HS-MBS-L | 1253 | 1234 | 940 | 756 | 737 | 620 | 580 | 627 | 587 |
| | XBC65-HE-MBS-S | 566 | 547 | 348 | 566 | 547 | 620 | 580 | 437 | 397 |
| | XBC65-HE-MBS-L | 1253 | 1234 | 1035 | 566 | 547 | 620 | 580 | 437 | 397 |

ACOUSTIC BEND ATTENUATOR COMBINATION EXAMPLES



BEND SILENCER CODING

XBC+ 15 - HE - MBS - S
 1 2 3 4 5

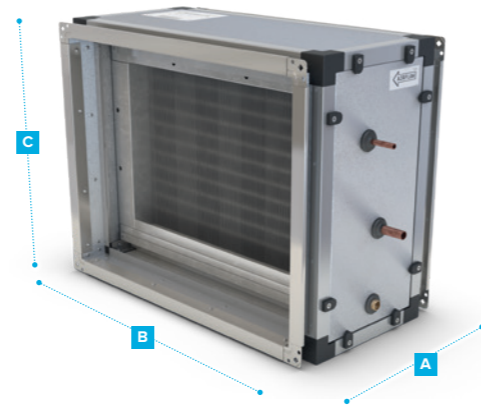
- XBOXER XBC Range
- Unit size: 15, 25, 45, 55 or 65
- HE = Extract/Intake
HS = Supply/Discharge
- Matched Bend Silencer
- S = Short (refer to dimensions)
L = Long (refer to dimensions)

XBC+ 10-65 BEND SILENCER - SOUND DATA

| | DYNAMIC INSERTION LOSS (dB) | | | | | | | | ATTENUATOR WEIGHT (kg) | 'Z' FACTOR |
|----|-----------------------------|-----|-----|-----|------|------|------|------|------------------------|------------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | |
| 2 | 4 | 9 | 17 | 30 | 33 | 25 | 19 | 36 | 900.0 | |
| 2 | 5 | 12 | 22 | 38 | 39 | 28 | 22 | 46 | 1100.0 | |
| 2 | 4 | 10 | 18 | 32 | 35 | 25 | 20 | 36 | 2000.0 | |
| 3 | 5 | 13 | 24 | 42 | 41 | 29 | 23 | 44 | 2300.0 | |
| 2 | 4 | 9 | 17 | 30 | 33 | 25 | 19 | 36 | 2300.0 | |
| 2 | 5 | 12 | 22 | 38 | 39 | 28 | 22 | 46 | 2300.0 | |
| 2 | 4 | 10 | 18 | 32 | 35 | 25 | 20 | 36 | 2300.0 | |
| 3 | 5 | 13 | 24 | 42 | 41 | 29 | 23 | 44 | 2300.0 | |
| 2 | 4 | 8 | 16 | 29 | 22 | 14 | 10 | 50 | 156.3 | |
| 2 | 5 | 10 | 21 | 38 | 25 | 17 | 13 | 64 | 173.6 | |
| 2 | 4 | 8 | 16 | 29 | 22 | 14 | 10 | 40 | 208.3 | |
| 2 | 5 | 10 | 38 | 25 | 17 | 13 | 50 | 54 | 225.7 | |
| 3 | 6 | 9 | 17 | 29 | 21 | 13 | 7 | 60 | 116.9 | |
| 4 | 7 | 10 | 21 | 37 | 26 | 15 | 8 | 76 | 116.9 | |
| 3 | 6 | 9 | 17 | 29 | 21 | 13 | 7 | 42 | 146.1 | |
| 4 | 7 | 10 | 21 | 37 | 26 | 15 | 8 | 58 | 160.7 | |
| 3 | 7 | 10 | 21 | 37 | 26 | 15 | 8 | 68 | 80.0 | |
| 4 | 10 | 18 | 31 | 39 | 24 | 12 | 7 | 96 | 92.0 | |
| 3 | 6 | 10 | 18 | 24 | 16 | 9 | 6 | 48 | 80.0 | |
| 4 | 10 | 18 | 31 | 39 | 24 | 12 | 7 | 72 | 100.0 | |
| 3 | 8 | 14 | 23 | 22 | 14 | 7 | 4 | 76 | 44.4 | |
| 14 | 10 | 19 | 31 | 30 | 18 | 9 | 5 | 106 | 50.0 | |
| 3 | 8 | 14 | 23 | 22 | 14 | 7 | 4 | 54 | 55.6 | |
| 4 | 10 | 19 | 31 | 30 | 18 | 9 | 5 | 86 | 63.9 | |

XBOXER XBC+ 10-65 ANCILLARIES – COOLING COIL MODULES

XBC+ units are available with bolt-on cooling modules as a matched ancillary. Cooling coil modules are available in both DX and chilled water cooling options.



CODING XBC25H-DX-DUCTM-LWP

XB C 25 H – DX – DUCT M – L WP
1 2 3 4 5 6 7 8 9

SAMPLE CODING

1. XBOXER range
2. C – Counter flow heat exchanger
3. Unit size
4. H – Horizontal layout
5. DX – Direct expansion cooling
6. DUCT – Duct-mounted module
7. M – For use with Mitsubishi condenser*
O – For use with other manufacturer condenser
8. L – Left controls handing
R – Right controls handing
9. WP – Weather roof (optional)

* Controls, sensors, piping and gas by others.

CODING XBC25H-CW-DUCTM-LWP

XB C 25 H – CW – DUCT L – WP
1 2 3 4 5 6 7 8

SAMPLE CODING

1. XBOXER range
2. C – Counter flow heat exchanger
3. Unit size
4. H – Horizontal layout
5. CW – Chilled water cooling
6. DUCT – Duct-mounted module
7. L – Left controls handing
R – Right controls handing
8. WP – Weather roof (optional)

CHILLED WATER COOLING COILS

Chilled water coil shall be manufactured from copper tubing with high efficiency aluminium fins contained within a galvanised steel frame. Coil supplied complete with an insulated condensate tray and moisture eliminator. All components pre-piped, assembled and tested by the manufacturer.

DX (DIRECT EXPANSION) COOLING COILS

DX coil shall be manufactured from copper tubing with high efficiency aluminium fins and droplet eliminator contained within a galvanised steel frame where applicable. The coil shall be filled with dry nitrogen with the pipe connections capped. It shall be factory fitted and tested by Nuair.

DX COOLING MODULE DIMENSIONS (mm) AND WEIGHT (kg)

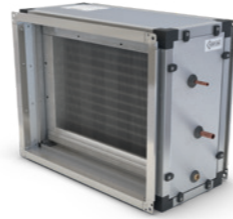
| CODE | A | B | C | WEIGHT |
|---------------------|-----|-----|-----|--------|
| XBC10H-DX-DUCTM-* | 325 | 390 | 365 | 12 |
| XBC10H-DX-DUCTO-* | 425 | 460 | 370 | 16 |
| XBC10H-DX-DUCTM-*WP | 325 | 390 | 390 | 13 |
| XBC10H-DX-DUCTO-*WP | 425 | 460 | 400 | 18 |
| XBC15H-DX-DUCTM-* | 325 | 440 | 415 | 14 |
| XBC15H-DX-DUCTO-* | 670 | 460 | 370 | 23 |
| XBC15H-DX-DUCTM-*WP | 325 | 440 | 443 | 15 |
| XBC15H-DX-DUCTO-*WP | 670 | 460 | 400 | 26 |
| XBC25H-DX-DUCTM-* | 375 | 650 | 465 | 20 |
| XBC25H-DX-DUCTO-* | 670 | 580 | 450 | 28 |
| XBC25H-DX-DUCTM-*WP | 375 | 650 | 506 | 22 |
| XBC25H-DX-DUCTO-*WP | 670 | 580 | 487 | 32 |
| XBC45H-DX-DUCTM-* | 375 | 690 | 545 | 23 |
| XBC45H-DX-DUCTO-* | 643 | 640 | 500 | 30 |
| XBC45H-DX-DUCTM-*WP | 375 | 690 | 590 | 25 |
| XBC45H-DX-DUCTO-*WP | 643 | 640 | 542 | 34 |
| XBC55H-DX-DUCTM-* | 375 | 665 | 620 | 23 |
| XBC55H-DX-DUCTO-* | 643 | 690 | 580 | 34 |
| XBC55H-DX-DUCTM-*WP | 375 | 665 | 663 | 25 |
| XBC55H-DX-DUCTO-*WP | 643 | 690 | 624 | 38 |
| XBC65H-DX-DUCTM-* | 375 | 765 | 670 | 26 |
| XBC65H-DX-DUCTO-* | 643 | 690 | 730 | 38 |
| XBC65H-DX-DUCTM-*WP | 375 | 765 | 719 | 28 |
| XBC65H-DX-DUCTO-*WP | 643 | 690 | 774 | 41 |

Replace * with L for left controls handing units and R for right controls handing units.

CHILLED WATER COOLING MODULE DIMENSIONS (mm) AND WEIGHT (kg)

| CODE | A | B | C | WEIGHT |
|--------------------|-----|-----|-----|--------|
| XBC10H-CW-DUCT-* | 425 | 460 | 370 | 16 |
| XBC10H-CW-DUCT-*WP | 425 | 460 | 400 | 18 |
| XBC15H-CW-DUCT-* | 670 | 460 | 370 | 23 |
| XBC15H-CW-DUCT-*WP | 670 | 460 | 400 | 26 |
| XBC25H-CW-DUCT-* | 670 | 580 | 450 | 28 |
| XBC25H-CW-DUCT-*WP | 670 | 580 | 487 | 32 |
| XBC45H-CW-DUCT-* | 643 | 640 | 500 | 30 |
| XBC45H-CW-DUCT-*WP | 643 | 640 | 542 | 34 |
| XBC55H-CW-DUCT-* | 643 | 690 | 580 | 34 |
| XBC55H-CW-DUCT-*WP | 643 | 690 | 624 | 38 |
| XBC65H-CW-DUCT-* | 643 | 690 | 730 | 38 |
| XBC65H-CW-DUCT-*WP | 643 | 690 | 774 | 41 |

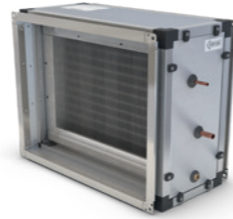
Replace * with L for left controls handing units and R for right controls handing units.



DX COIL DATA

TECHNICAL INFORMATION

| SIZE | COIL INFORMATION | | | AIR INFORMATION | | | | REFRIGERANT R410A | | | | |
|----------------------------------|--------------------------|------------------------------|-----------------------------|------------------|--------------------|----------------------------------|--------------------------------|---------------------------------|-------------------------------|---------------------------|------------------------------|----------------------------------|
| SIZE 15 Reverse Cycle DX Coil | Internal Coil Volume (l) | Evaporating Temperature (°C) | Condensing Temperature (°C) | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Moisture Extraction Rate (kg/hr) |
| | | | | 100% | 0.17 | 28.0 | 50.0 | 16.90 | 93.0 | 2.7 | 2.3 | 0.5 |
| | | | | 75% | 0.13 | 28.0 | 50.0 | 16.00 | 95.0 | 2.3 | 1.9 | 0.6 |
| | | | | 50% | 0.09 | 28.0 | 50.0 | 15.00 | 97.0 | 1.8 | 1.4 | 0.6 |
| SIZE 25 Reverse Cycle DX Coil | Internal Coil Volume (l) | Evaporating Temperature (°C) | Condensing Temperature (°C) | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Moisture Extraction Rate (kg/hr) |
| | | | | 100% | 0.25 | 28.0 | 50.0 | 15.20 | 95.0 | 5.2 | 3.9 | 1.7 |
| | | | | 75% | 0.19 | 28.0 | 50.0 | 14.60 | 96.0 | 4.2 | 3.1 | 1.5 |
| | | | | 50% | 0.13 | 28.0 | 50.0 | 14.20 | 97.0 | 3.0 | 2.2 | 1.1 |
| SIZE 45 Reverse Cycle DX Coil | Internal Coil Volume (l) | Evaporating Temperature (°C) | Condensing Temperature (°C) | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Moisture Extraction Rate (kg/hr) |
| | | | | 100% | 0.37 | 28.0 | 50.0 | 16.20 | 93.0 | 6.6 | 5.3 | 1.8 |
| | | | | 75% | 0.28 | 28.0 | 50.0 | 15.40 | 94.0 | 5.6 | 4.3 | 1.8 |
| | | | | 50% | 0.19 | 28.0 | 50.0 | 14.80 | 95.0 | 4.2 | 3.0 | 1.5 |
| SIZE 55 Reverse Cycle DX Coil | Internal Coil Volume (l) | Evaporating Temperature (°C) | Condensing Temperature (°C) | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Moisture Extraction Rate (kg/hr) |
| | | | | 100% | 0.55 | 28.0 | 50.0 | 16.20 | 93.0 | 9.7 | 7.8 | 2.5 |
| | | | | 75% | 0.41 | 28.0 | 50.0 | 15.80 | 95.0 | 7.7 | 6.1 | 2.4 |
| | | | | 50% | 0.28 | 28.0 | 50.0 | 15.10 | 96.0 | 5.8 | 4.4 | 1.8 |
| SIZE 65 Reverse Cycle DX Coil | Internal Coil Volume (l) | Evaporating Temperature (°C) | Condensing Temperature (°C) | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Moisture Extraction Rate (kg/hr) |
| | | | | 100% | 0.60 | 28.0 | 50.0 | 15.70 | 94.0 | 11.4 | 8.7 | 3.6 |
| | | | | 75% | 0.45 | 28.0 | 50.0 | 15.10 | 95.0 | 9.2 | 6.9 | 3.2 |
| | | | | 50% | 0.30 | 28.0 | 50.0 | 14.70 | 96.0 | 6.5 | 4.7 | 2.4 |



XBC+ CHILLED WATER COIL DATA

TECHNICAL INFORMATION

| SIZE | COIL INFORMATION | AIR INFORMATION | | | | FLOW / RETURN TEMPERATURES (°C) | | | | | | | | | | | | | | | | | |
|------|---------------------|------------------|--------------------|----------------------------------|--------------------------------|---------------------------------|-------------------------------|---------------------------|------------------------------|----------------------|---------------------------|----------------------------------|---------------------------------|-------------------------------|---------------------------|------------------------------|----------------------|---------------------------|----------------------------------|-----|------|------|-----|
| | | | | | | 6 / 12 | | | | | | | 7 / 14 | | | | | | | | | | |
| | | | | | | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| 15 | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| | | | | | | 100% | 0.17 | 28.0 | 50.0 | 17.4 | 85.1 | 2.80 | 2.2 | 0.10 | 17.4 | 1.0 | 18.5 | 84.7 | 2.30 | 2.0 | 0.10 | 8.5 | 0.5 |
| | | | | | | 75% | 0.13 | 28.0 | 50.0 | 16.4 | 88.0 | 2.50 | 1.8 | 0.10 | 13.6 | 1.0 | 17.6 | 87.5 | 2.00 | 1.6 | 0.10 | 6.7 | 0.5 |
| | | | | | | 50% | 0.09 | 28.0 | 50.0 | 15.4 | 90.6 | 1.90 | 1.4 | 0.10 | 8.4 | 0.8 | 16.8 | 90.0 | 1.50 | 1.2 | 0.10 | 4.1 | 0.5 |
| 25 | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| | | | | | | 100% | 0.25 | 28.0 | 50.0 | 15.4 | 89.6 | 5.40 | 3.8 | 0.20 | 15.9 | 2.3 | 16.6 | 89.0 | 4.50 | 3.4 | 0.20 | 8.5 | 1.5 |
| | | | | | | 75% | 0.19 | 28.0 | 50.0 | 14.8 | 91.2 | 4.40 | 3.0 | 0.20 | 10.8 | 2.1 | 16.1 | 90.5 | 3.70 | 2.7 | 0.10 | 5.8 | 1.3 |
| | | | | | | 50% | 0.13 | 28.0 | 50.0 | 14.2 | 82.7 | 3.20 | 2.2 | 0.10 | 6.1 | 1.4 | 15.6 | 92.1 | 2.60 | 1.9 | 0.10 | 3.2 | 0.9 |
| 45 | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| | | | | | | 100% | 0.37 | 28.0 | 50.0 | 16.6 | 86.8 | 7.00 | 5.1 | 0.30 | 21.2 | 2.7 | 17.7 | 86.3 | 5.70 | 4.6 | 0.20 | 11.4 | 1.6 |
| | | | | | | 75% | 0.28 | 28.0 | 50.0 | 15.9 | 88.7 | 5.80 | 4.1 | 0.20 | 15.5 | 2.4 | 17.1 | 88.1 | 4.70 | 3.7 | 0.20 | 8.1 | 1.5 |
| | | | | | | 50% | 0.19 | 28.0 | 50.0 | 12.1 | 90.6 | 4.20 | 3.0 | 0.20 | 8.8 | 1.8 | 16.4 | 89.9 | 3.50 | 2.7 | 0.10 | 4.7 | 1.2 |
| 55 | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| | | | | | | 100% | 0.55 | 28.0 | 50.0 | 16.4 | 87.5 | 9.60 | 7.0 | 0.40 | 18.2 | 3.9 | 17.6 | 86.9 | 7.80 | 6.3 | 0.30 | 10.4 | 2.2 |
| | | | | | | 75% | 0.41 | 28.0 | 50.0 | 15.8 | 89.1 | 7.90 | 5.6 | 0.30 | 12.7 | 3.4 | 17.0 | 88.6 | 6.50 | 5.1 | 0.20 | 7.4 | 2.1 |
| | | | | | | 50% | 0.28 | 28.0 | 50.0 | 15.0 | 91.0 | 5.60 | 3.9 | 0.20 | 7.6 | 2.7 | 16.4 | 90.4 | 4.60 | 3.5 | 0.10 | 4.0 | 1.7 |
| 65 | Connection Size (") | Airflow Rate (%) | Airflow Rate (l/s) | Air Temperature Before Coil (°C) | Air Humidity Before Coil (%RH) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | Air Temperature After Coil (°C) | Air Humidity After Coil (%RH) | Total Cooling Output (kW) | Sensible Cooling Output (kW) | Water Flowrate (l/s) | Water Pressure Drop (kPa) | Moisture Extraction Rate (kg/hr) | | | | |
| | | | | | | 100% | 0.60 | 28.0 | 50.0 | 16.1 | 88.2 | 11.90 | 8.6 | 0.50 | 17.0 | 4.8 | 17.3 | 87.6 | 9.70 | 7.8 | 0.30 | 9.0 | 2.9 |
| | | | | | | 75% | 0.45 | 28.0 | 50.0 | 15.5 | 89.7 | 9.60 | 9.6 | 0.40 | 11.6 | 4.0 | 16.8 | 89.1 | 7.80 | 6.1 | 0.30 | 7.3 | 2.5 |
| | | | | | | 50% | 0.30 | 28.0 | 50.0 | 14.9 | 91.4 | 6.80 | 6.8 | 0.30 | 7.5 | 3.0 | 16.3 | 90.7 | 5.50 | 4.2 | 0.20 | 4.1 | 1.9 |

XBOXER XBC+ 10-65

CONSULTANT 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 with bypass feature, and 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 XBC+ 10-65 as manufactured by Nuair.

UNIT SPECIFICATION

The heat recovery ventilation unit will be selected from the 'XBOXER XBC+ packaged heat recovery range' as manufactured by Nuair in one of the available sizes from XBC10-65.

The unit will be unit constructed from corrosion resistant aluzinc supported by a bespoke anodised aluminium extrusion system. The standard panel execution will be in a 'natural' aluzinc finish or as a painted panel option to a specified RAL colour. On request, the XBC+ will also have the option of additional corrosion protection to withstand an External C4 Atmospheric Corrosivity Category Environment as per BS EN ISO 12944-2:2017 when installed as per the manufacturers recommendations. The Atmospheric Corrosivity Environment should be determined using BS EN ISO 9223:2012 and BS EN ISO 14713-1:2009. The heat recovery ventilation unit together with matching silencers shall have a maximum depth of 260 / 346 / 405 / 470 / 624 mm (Models XBC+ 10-65). The ventilation unit and attenuators shall have an asymmetric, high mass double skinned wall construction (patent applied for) with integral acoustic barrier mat* ensuring low breakout noise levels. The unit and attenuators shall be supplied complete with suspension brackets for inclusion into a drop rod mounting system. The unit shall incorporate a high efficiency aluminium counterflow plate heat exchanger matrix with a thermal efficiency of up to 96%, fitted with a segmented 100% bypass facility and patented actuator 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. All elements of the unit shall be protected from airborne contamination by high capacity pleated G4 (EN779:2012) / ISO Coarse 75% (ISO 16890) panel filters (supply and extract). Two spare filters are provided within the unit for post-construction phase fitting. The unit shall be fitted with ErP 2018 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 either an electric heater battery with burst fired temperature controller; or a LPHW heater battery complete with factory fitted valve and actuator, terminating at the unit casing. Both LPHW and Electric heater variants will be available in 'high' and 'low' duty heater options allowing the unit to be better matched to the specified heating load. The system shall have frost protection (Ecosmart models only) which shall, at temperatures below 4 degrees C, fully open the 4-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 unit is also available without a heater fitted. The unit shall be constructed with removable side panels allowing maintenance access with minimal service space clearance required. The unit shall also be available in a bottom access variant providing access for routine filter maintenance.

The removable panels shall provide access to the following:-

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

Bottom access variants are available (for filter access only).

UNIT CONFIGURATION

Supply/discharge airflow connections are on the unit centreline; Intake/Extract connections are configurable on site to either side of the unit. Unit is supplied as configuration A as standard (refer to technical documentation). The ventilation unit shall comprise the following:- Supply and extract fans; high efficiency counterflow plate heat exchanger matrix also available as an Enthalpy variant; 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 high mass double skinned wall construction attenuators can also be provided by Nuair. For further details on the ErP directive please refer to www.nuair.co.uk

NO CONTROL OPTION

Unit is provided with side access terminal boxes for direct supply and extract fan motor wiring and for interfacing to custom built control panels. The control assembly is side mounted with a 90° rotation facility for wiring and commissioning adjustments in restricted access conditions. (260mm access allowance is required). A side mounted terminal box is provided for the connections to the fans (230V 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 230V standard (24V available).

Units fitted with 'No Control' option have a 2 year warranty: first year parts & labour and then the remaining year parts only.

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 (up to 40%) for accurate commissioning. The control assembly is side mounted with a 90° rotation facility for wiring and commissioning adjustments in restricted access conditions. (260mm access allowance is required). 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 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 have a 5 year warranty: first year parts & labour and then the remaining four years parts only.

ECOSMART CONNECT OPTION - ENHANCED DEMAND CONTROLLED VENTILATION

A comprehensive unit control specification - factory fitted and tested to provide guaranteed operation from a single supplier. 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 have a 5 year warranty: first year parts & labour and then the remaining four years parts only.

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. 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 have a 5 year warranty: first year parts & labour and then the remaining four years parts only.

*Note: XBC+10 contains specialist acoustic treatment.

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

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