

## CONSULTANTS SPECIFICATION

### XBOXER STACKED UNITS

#### OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger. The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

#### XBOXER STACKED - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infill panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infill panels, giving extremely low noise levels. It shall be come c/w a high efficiency heat exchanger matrix, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and fascia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. The Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a robust plastic/aluminium heat exchanger matrix with a thermal efficiency of up to 55 - 70% that shall be protected by G4\* grade pleated filters on supply and extract. It shall come complete with a condensate drip tray and 22mm drain connection. Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from the sides (access handing to be confirmed in product code and verified on site prior to order).

The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.

Units shall be as manufactured by Nuaira.

\* Other filter specifications including high capacity filters & grade F7 available as integrated options. (contact Nuaira).

### XBOXER STACKED - STANDARD CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control\*\*, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment\*\*
- Volt free frost alarm/heat demand interface\*\*
- Frost protection/hold off stat\*\*
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- LPHW pipework connections c/w diverting valve and actuator.\*\*

\*\* Versions incorporating heater sections.

### INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control and sizes 7, 8, 9 and 10 have integral frequency inverter/speed control.

### COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature between 15 - 30 degrees due to Ecosmart limitations. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

### LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

### ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times. The unit shall be the XBOXER and shall be manufactured by Nuaira.

## CONSULTANTS SPECIFICATION

### XBOXER HORIZONTAL UNITS

#### OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger. The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

#### XBOXER HORIZONTAL - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infil panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infil panels, giving extremely low noise levels. The unit shall have a high efficiency aluminium heat exchanger matrix, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and fascia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a heat exchanger block with a thermal efficiency of up to 70%, that shall be protected by G4\* grade pleated filters on supply and extract. Complete with condensate drip tray and 22mm drain connection (XB2-5 has a 15mm drain connection). Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from both sides (access handing to be confirmed in product code and verified on site prior to order).

The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.

Units shall be as manufactured by Nuair.

\*Other filter specifications including high capacity filters & grade F7 available as integrated options. (contact Nuair).

### XBOXER HORIZONTAL - ECOSMART CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control\*\*, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment\*\*
- Volt free frost alarm/heat demand interface\*\*
- Frost protection/hold off stat\*\*
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- LPHW pipework connections c/w diverting valve and actuator.\*\*

\*\* Versions incorporating heater sections.

#### INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control and sizes 7, 8, 9 and 10 have integral frequency inverter/speed control.

Unit provides side mounting of termination box to connect supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels. For this option, no sensors are fitted to the unit, but with plate heat exchanger units the bypass damper actuator is included.

#### COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4°C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

#### LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. Shall be controlled by a motorised control valve. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

#### ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times. The unit shall be the XBOXER and shall be manufactured by Nuair.

## CONSULTANTS SPECIFICATION

### XBOXER TWINFAN UNITS

#### OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger.

The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

#### XBOXER TWINFANS - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infill panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infill panels, giving extremely low noise levels. It shall be come c/w a high efficiency heat exchanger block, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and fascia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a robust plastic/aluminium heat exchanger matrix with a thermal efficiency of up to 55 - 70% that shall be protected by G4\* grade pleated filters on supply and extract. It shall come complete with a condensate drip tray and 22mm drain connection. Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from the side (access handing to be confirmed in product code and verified on site prior to order). The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.
- Units shall be the as manufactured by Nuair.
- 2 fans incorporate auto change over in the event of one fan failing.

\* Other filter specifications including high capacity filters & grade F7 available as integrated options.

### XBOXER TWINFANS - ECOSMART CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control\*\*, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment\*\*
- Multiple IDC sockets for interconnection of up to 6 Ecosmart sensors, controllers or fans using pre-plugged 4-core low voltage cable.
- Volt free frost alarm/heat demand interface\*\*
- Frost protection/hold off stat\*\*
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- 2 fans incorporate auto change over in the event of one fan failing.
- LPHW pipework connections c/w diverting valve and actuator.\*\*

\*\* Versions incorporating heater sections.

### INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control.

### NO CONTROL OPTION (SIZES 7-10 XBH + XBV)

Unit provides side mounting of termination box to connect supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels. For this option, no sensors are fitted to the unit, but with plate heat exchanger units the bypass damper actuator is included.

### COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

### LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

## CONSULTANTS SPECIFICATION

### XBOXER TWINFAN UNITS CONT.

#### ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times.  
The unit shall be the XBOXER and shall be manufactured by Nuair.