MRXBOXAB-ECO3

SAP PCDB 2009 Test Results

Product Code	MRXBOXAB-ECO3		
SAP identifier	MRXBOXAB-ECO3		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.51	90%	Yes
Kitchen + 2 Wet Room	0.46	90%	Yes
Kitchen + 3 Wet Room	0.48	90%	Yes
Kitchen + 4 Wet Room	0.55	89%	Yes
Kitchen + 5 Wet Room	0.62	89%	Yes
Kitchen + 6 Wet Room	0.73	88%	Yes
Kitchen + 7 Wet Room	0.87	88%	Yes

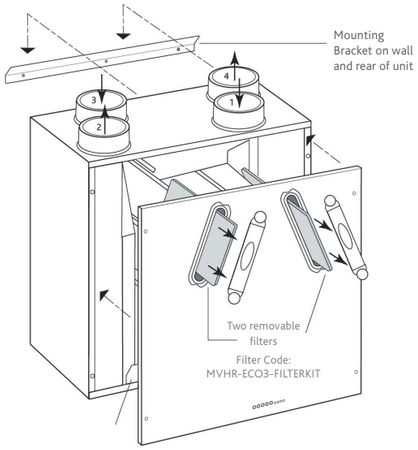
SAP PCDB 2012 Test Results

Product Code	MRXBOXAB-ECO3		
SAP identifier	MRXBOXAB-ECO3		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.50	90%	Yes
Kitchen + 2 Wet Room	0.53	90%	Yes
Kitchen + 3 Wet Room	0.60	89%	Yes
Kitchen + 4 Wet Room	0.75	88%	Yes
Kitchen + 5 Wet Room	0.92	88%	Yes
Kitchen + 6 Wet Room	1.10	87%	Yes
Kitchen + 7 Wet Room	1.36	87%	Yes

General Arrangement

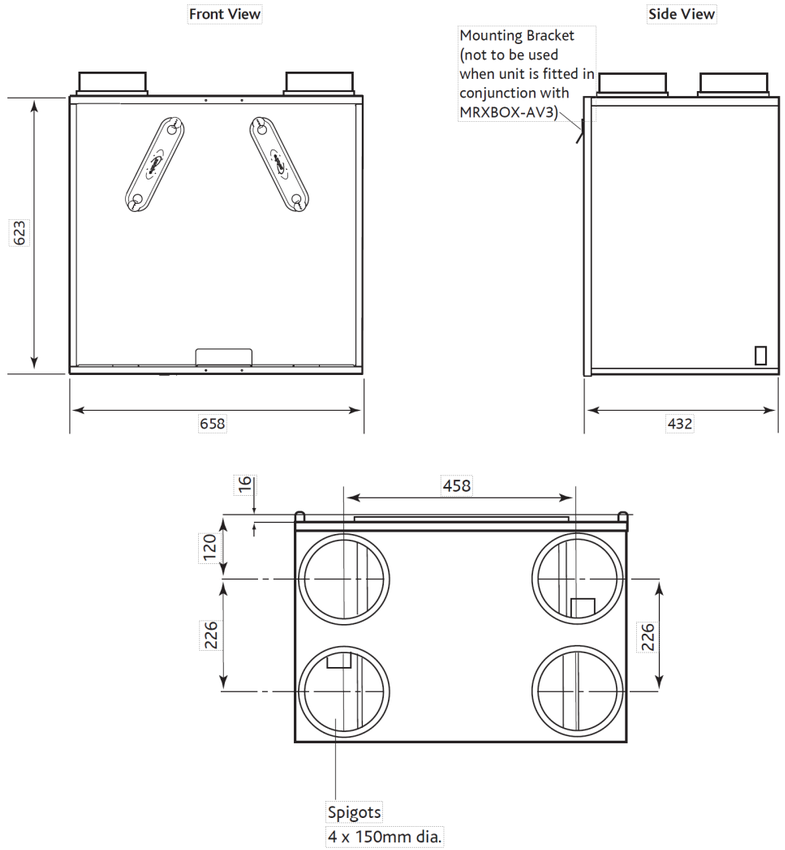
SPIGOT LOCATION &
DUCTING REFERENCES

Spigot 1. 150mm dia. = Extract air from dwelling.
Spigot 2. 150mm dia. = Extract air to outside.
Spigot 3. 150mm dia. = Intake air from outside.
Spigot 4. 150mm dia. = Supply air to property



Technical – MRBOXAB-ECO3

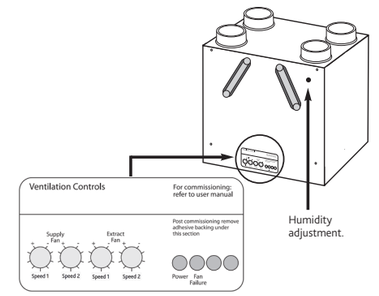
DIMENSIONS (mm)
Weight - 24kg



Electrical Details

Electrical Details: MRXBOXAB-ECO3	
Voltage:	230V 1ph 50Hz
Consumption:	1.2 Amp
Fuse rating:	3 Amp

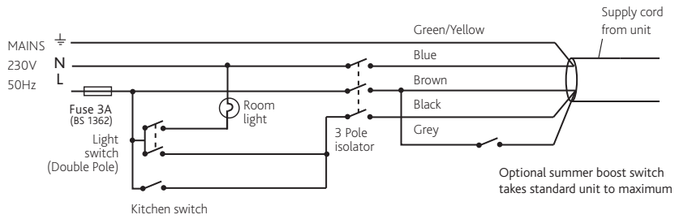
Detail of unit control on front panel.



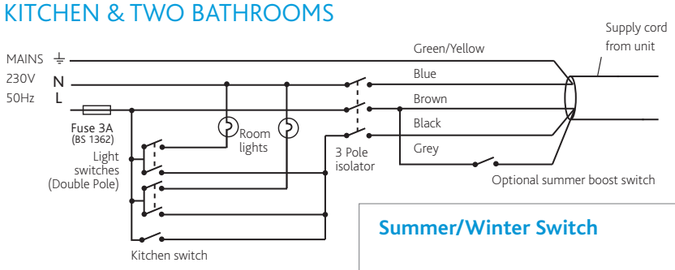
Tamper proof label following commissioning, includes system status indication.

MRXBOXAB-ECO3

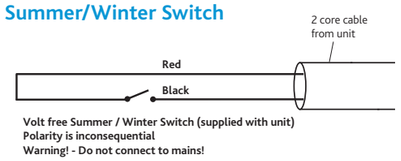
Wiring – MRXBOXAB-ECO3



UNIT SERVING KITCHEN & TWO BATHROOMS



Summer/Winter Switch



Volt free Summer / Winter Switch (supplied with unit)
Polarity is inconsequential
Warning! - Do not connect to mains!

Optional Sensors, Switches and Detectors

Customise MRXBOXAB-ECO3 for enhanced performance. All supplied with pre-plugged 10m data cable and incorporates status LED.

MRXBOX95-PIR (Passive Infrared)

A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM (Relative Humidity)

A low voltage sensor, activates the system when the RH level is above set point. Incorporates overrun timer and RH setpoint level adjustment.

MRXBOX95-RFI (Remote Fail Indicator)

If fan failure occurs, the audio visual indicator will flash a warning.

MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

MRXBOX-VSC
(LCD Touchscreen Controller)
Simple, intuitive and discreet, the LCD control puts you in total control of your MVHR system. With the wide range of functions and settings.

Consultants Specification

MRXBOXAB-ECO3

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multiplate, counter-flow, high-efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by ISO Coarse (G3 grade) filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high-efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable for an ambient temperature of 40°C. The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection. The unit shall be suitable for 150mm circular ducting. Note: The unit is also available in opposite handed format, refer to spigot configuration for set up.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule. Units shall be MRXBOXAB-ECO3 as manufactured by Nuaire and shall be listed on the SAP PCDB. MRXBOXAB-ECO3-OH are opposite handed assemblies compliant as per standard handed versions listed in SAP PCDB.

OPERATION

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

The combined supply and extract with heat recovery unit shall supply filtered fresh air to each of the habitable rooms and moisture-laden air shall be extracted from all wet areas, e.g. bathroom, en suite, w.c, kitchen, utility rooms etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light/remote switches.

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation) and boost speed via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC HX BYPASS WITH NO REDUCTION IN AIRFLOW

The bypass damper shall open automatically via a wax actuator, allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

The automatic bypass diverts 100% airflow around the heat exchanger with no reduction in airflow as independently tested by the BRE.

INTEGRAL HUMIDITY SENSOR

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

SUMMER/WINTER (SW) SWITCH

The unit shall feature volt-free connections for a two-position Summer/Winter switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles (Summer/Winter). Summer setting shall target under 20°C internal dwelling temperature. Winter setting shall ensure heat recovery at all times.

Temperature control logic shall be factory pre-set and require no on-site programming. The unit shall feature 3 commissionable speeds for both supply and extract. It shall be possible to enable the unit to its 3rd speed by means of a switch or a programmable thermostat with occupant override (IAQ-STAT).

The 3rd speed (overheating) shall be inhibited when outside air temperature exceeds inside temperature and bypass closes so that extracted air cools incoming fresh air.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components are pre-wired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral heat exchanger frost protection.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.
- Additional S/L terminal for 100% boost speed from remote switch, e.g. plate switch.
- Discreet daily run monitor.
- Remote fail indicator (part number MRXBOX95-RFI).
- Indication and controls – The unit shall have clear LED visual indication for maintenance, servicing and operation mode, i.e. HX bypass, frost protection.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOXAB-ECO2 heat recovery units and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.5˝LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current fan speed.
- Current indoor/outside temperature.
- Indicate when the Summer bypass is activated.
- Indicate when frost protection is activated.
- Indicate when the filters require cleaning/changing.

The unit shall come with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.

Acoustic Solutions

MRXBOXAB-ECO3

Nuaire's First Fix and Acoustic Solution is designed to not only reduce noise but to improve the installation when wall or cupboard mounting the MRXBOXAB-ECO3.

Offering the only complete MVHR acoustic and first fix solution to overcome both noise and ease the installation of heat recovery units. Nuaire's solution addresses both duct and breakout noise, provides an aesthetically pleasing cupboard installation for the home occupant and reduces installation errors and time.

These units are also available in Opposite Handed format.

Typical Installation

FIRST FIX SOLUTION MRXBOX-FF3

Nuaire's First Fix box is fixed to the underside of the floor slab at first fix stage of the build.

The box has four airflow chambers with optional positions for 204x60mm spigots. Ceilings can then be boarded within the cupboard space easily and quickly without the risk of the spigots not aligning to the fan unit.

SILENCER MRXBOX-SIL3

Nuaire has created a unique solution that is not only designed to reduce noise significantly, addressing duct and breakout noise, but is visibly appealing for the home occupant. It can be used with or without the First Fix Solution.

ANGLED MOUNTING BRACKETS
7713047

Acoustic data for MRXBOXAB-ECO3 with Silencer and/or First Fix

ECO3 with SIL Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-11	-10	-9	-14	-23	-26	-20	-15	
		Intake/Extract	-8	-10	-9	-10	-22	-24	-16	-13	
		Breakout	0	0	0	0	0	0	0	0	<16

ECO3 with FF Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-8	-5	-4	-7	-7	-7	-6	-6	
		Intake/Extract	-4	-7	-5	-6	-7	-7	-6	-4	
		Breakout	0	0	0	0	0	0	0	0	<16

ECO3 with FF & SIL Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-18	-18	-18	-25	-30	-35	-28	-26	
		Intake/Extract	-12	-20	-15	-16	-22	-24	-19	-16	
		Breakout	0	0	0	0	0	0	0	0	<16

The breakout case-radiated dBA values are given for Hemispherical free field radiation at 3m – to obtain the spherical radiated data, subtract 3dBA.

Silencer Corrections

SIL Corrections	Open inlet	-8	-10	-9	-10	-22	-24	-16	-13
	Open outlet	-11	-10	-9	-14	-23	-26	-20	-15
	Breakout	0	0	0	0	0	0	0	0

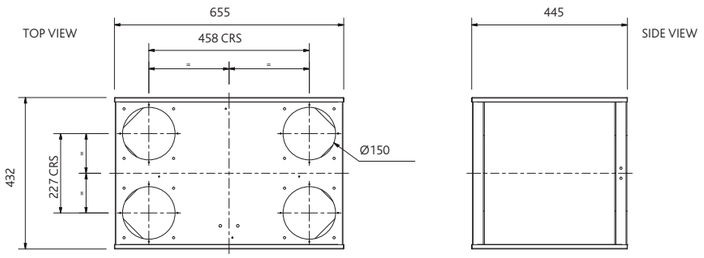
FF Corrections	Open inlet	-4	-7	-5	-6	-7	-7	-6	-4
	Open outlet	-8	-5	-4	-7	-7	-7	-6	-6
	Breakout	0	0	0	0	0	0	0	0

FF+SIL Corrections	Open inlet	-12	-20	-15	-16	-22	-24	-19	-16
	Open outlet	-18	-18	-18	-25	-30	-35	-28	-26
	Breakout	0	0	0	0	0	0	0	0

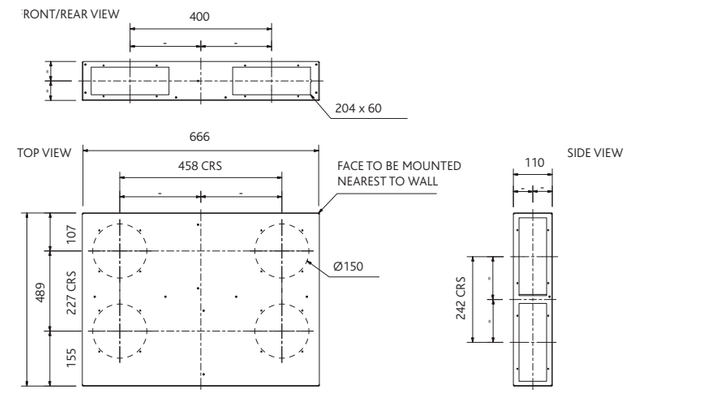
Technical – MRXBOXAB-ECO3

DIMENSIONS (mm)

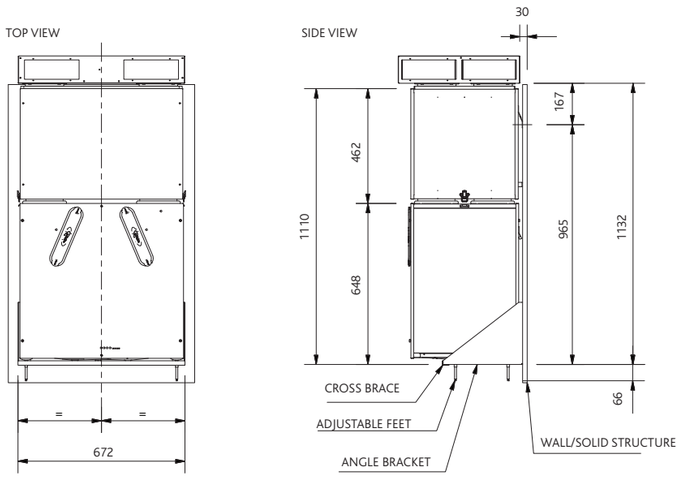
MRXBOX-SIL3
Weight - 12kg



MRXBOX-FF3
Weight - 7.5kg



COMPLETED SYSTEM



Consultants Specification

MRXBOX-SIL3

The unit offers the facility to be fitted directly to the MVHR unit and plenum chamber without the need for spigots reducing breakout noise. However, there is the capability to fit 150mm circular spigots as an alternative option.

The unit shall be fully lined with acoustic material offering excellent noise reduction.

Wall mounting brackets are to be supplied as part of the system to allow the MVHR unit to be raised after other system components are installed to form an airtight seal and enable the installation to be levelled.

The unit shall be clamped to the MRXBOXAB-ECO3 unit to provide an efficient seal and ensure correct alignment.

The unit shall be fixed in position during installation as a standalone section without relying on other system elements.

MRXBOX-FF3

The unit shall be supplied with 204mm x 60mm rectangular spigots to connect to the duct run, with the ability to be fitted in eight separate positions reducing the requirement for bends in the system.

The unit offers the facility to be fitted directly to the mating sections without the need for spigots reducing breakout noise, additional 150mm circular spigots to be supplied as an alternative option.

TECHNICAL DATA

Units shall be one of MRXBOXAB-ECO3 or MRXBOXAB-ECO3-OH as manufactured by Nuaire.

SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by ISO Coarse (G3 Grade) filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40°C.

The unit shall be supplied complete with a condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 150mm diameter circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. This unit is also available in Opposite Hand formatting.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from the switched live signal from light/ remote switches or any ancillary sensors. When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC HX BYPASS WITH NO REDUCTION IN AIRFLOW

The bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.Under normal operation, the automatic bypass diverts 100% airflow around the heat exchanger with no reduction in airflow, as independently tested by the BRE.

INTEGRAL AUTOMATIC SUMMER BYPASS

Including Automatic 100% Summer bypass where intake and re-turn air temperatures shall be measured so that supply air temper-atures can be maximised during winter months and minimised as external ambient temperature rises. The Summer bypass damper shall be opened by a wax actuator. Supply and Extract air shall be filtered irrespective of the bypass setting (open or closed).

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components prewired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates
- Independent control of boost speed supply and extract flow rates
- Integral fan failure indication
- Integral S/L terminal for boost from remote switch, e.g. light switch, kitchen boost switch
- Integral heat exchanger frost protection
- Discreet daily run monitor.
- Integral humidistat.

OPTIONAL CONTROLS

MRXBOX95-RFI (Remote Fail Indicator)

MRXBOX95-PIR (Passive Infrared)
A low voltage sensor which detects movement and activates system.

MRXBOX95-HUM (Relative Humidity)
A low voltage sensor which activates the system when the relative humidity level is above a set point.

MRXBOX-VSC LCD Touchscreen Controller
Controller for MVHR system with a 3.2" touch screen display.

The unit shall come with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.

Acoustic Enclosures

MRXBOXAB-ECO3-AE

The MRXBOXAB-ECO3-AE is designed to provide optimised balanced (supply and extract) mechanical ventilation heat recovery, all whilst being encased within our Acoustic Enclosure.

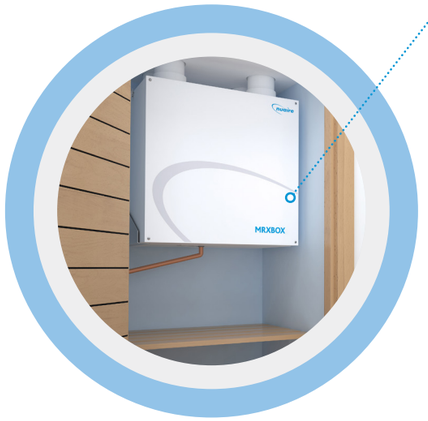
This unit incorporates an acoustic surrounding to your MVHR unit and flexible duct connectors within an enclosure and supporting the internals on anti-vibration mounts significantly decreasing noise and vibration output.

Tempered air is delivered into 'living areas' whilst extracting moisture laden air from 'wet' areas, creating comfortable and well ventilated homes.

The unit has the facility to commission the supply and extract fans independently on both minimum and maximum speeds, and the heat exchange block can recover up to 95% of the normally wasted heat that has been extracted from the 'wet rooms'.

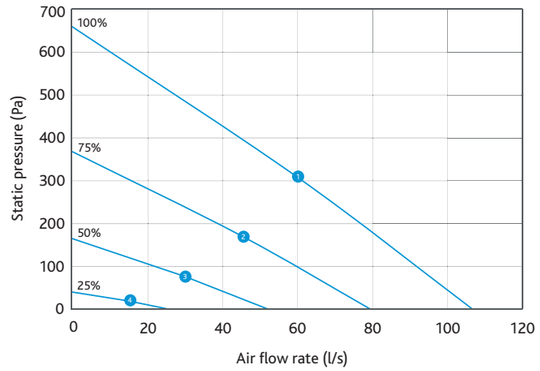
Please note both of these units are available in Opposite Handed format. Energy ratings A+ and A.

Typical Installation



- Limited ceiling voids in modern apartments and complex duct arrangements coupled with increased airflow demands placed on MVHR systems in an effort to reduce the risk of overheating lead to higher system resistances and running speeds.
- Restrictions on utility cupboard space, practical and financial limitations frequently prevent the construction of acoustic cupboards, whilst modern light-weight wall construction methods offer little mass to absorb unit noise and vibration. This can often result in the transfer of low frequency noise and vibration into adjacent living and sleeping areas.
- These factors leave designers at risk of exceeding the stringent noise requirements specified in Part F of the building regulations and further defined by CIBSE.
- By integrating the MVHR unit and flexible connections within an enclosure and supporting the internals on anti-vibration mounts, noise and vibration are isolated.

Performance – MRXBOXAB-ECO3-AE



MRXBOXAB-ECO3-AE (SW)

Wall mounted unit with 100% bypass and integral humidistat.

MRXBOXAB-ECO3-AE-OH (SW)

Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

Summer/Winter (SW) Switch

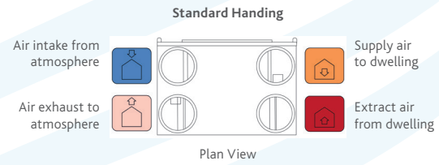
A two-position switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles.

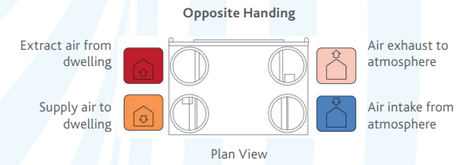
Electrical & Sound

ECO3-AE Sound Data											
	Maximum power consumption		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
Curve	(Watts)		63	125	250	500	1k	2k	4k	8k	
1	154	Open inlet	48	58	60	53	49	44	34	24	
		Open outlet	58	67	63	65	61	62	53	45	
		Breakout	60	57	50	43	27	18	<16	<16	28
2	66	Open inlet	43	52	56	48	46	41	30	19	
		Open outlet	54	62	60	62	58	58	49	40	
		Breakout	49	53	45	36	20	<16	<16	<16	23
3	20	Open inlet	39	44	47	39	36	29	16	<16	
		Open outlet	46	54	50	52	47	45	33	21	
		Breakout	43	45	36	27	<16	<16	<16	<16	<16
4	7	Open inlet	33	27	26	16	<16	<16	<16	<16	
		Open outlet	39	34	31	32	22	<16	<16	<16	
		Breakout	40	28	23	<16	<16	<16	<16	<16	<16

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Product Characteristics Database (PCDB) testing. The breakout case-radiated dBA values are given for Hemispherical free field radiation at 3m – to obtain the Spherical radiated data, subtract 3 dBA.

Please note: Sound data is provided at a particular duty point for 25%, 50%, 75% and 100%. For accurate sound data at a specific speed duty, please use Nuaire's fan selector or call the office on 029 2085 8500.





MRXBOX-ECO3-AE

SAP PCDB 2009 Test Results

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Kitchen + 2 Wet Room	0.46	90%	Yes
Kitchen + 3 Wet Room	0.48	90%	Yes
Kitchen + 4 Wet Room	0.55	89%	Yes
Kitchen + 5 Wet Room	0.62	89%	Yes
Kitchen + 6 Wet Room	0.73	88%	Yes
Kitchen + 7 Wet Room	0.87	88%	Yes

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Kitchen + 5 Wet Room	0.92	88%	Yes
Kitchen + 6 Wet Room	1.10	87%	Yes
Kitchen + 7 Wet Room	1.36	87%	Yes

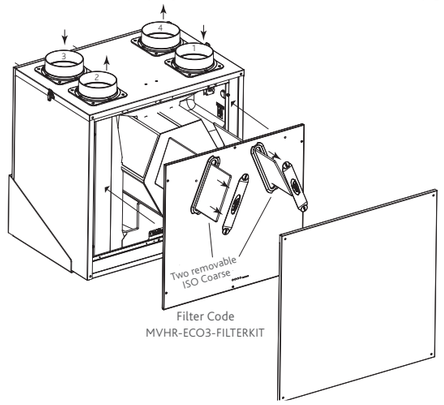
General Arrangement

STANDARD UNIT SPIGOT LOCATION & DUCTING REFERENCES

Spigot 1. 150mm dia. = Extract air from dwelling
Spigot 2. 150mm dia. = Exhaust air to outside
Spigot 3. 150mm dia. = Intake air from outside
Spigot 4. 150mm dia. = Supply air to property

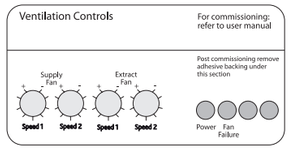
OPPOSITE HANDED UNIT SPIGOT LOCATION & DUCTING REFERENCES

Spigot 1. 150mm dia. = Intake air from outside
Spigot 2. 150mm dia. = Supply air to property
Spigot 3. 150mm dia. = Extract air from dwelling
Spigot 4. 150mm dia. = Exhaust air to outside



Filter Code
MVHR-ECO3-FILTERKIT

Detail of unit control on front panel.



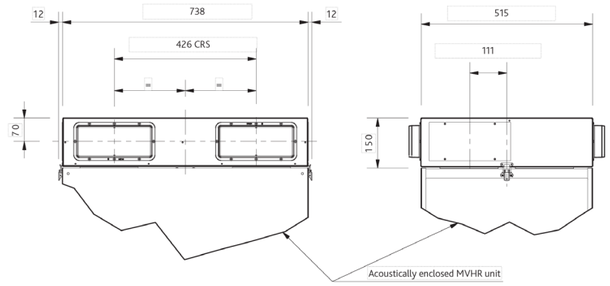
Tamper proof label following commissioning, includes system status indication.

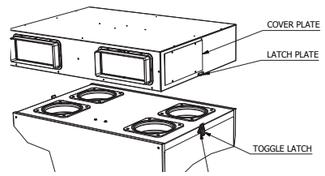
Ancillaries

Distribution Box

The MRXBOX-DB3 is fitted on top of the MRXBOXAB-ECO3-AE before installation and offers a neat arrangement by directly distributing the initial ducting. It further benefits this MVHR system by reducing any in-line noise breakout, therefore improving this acoustic solution.

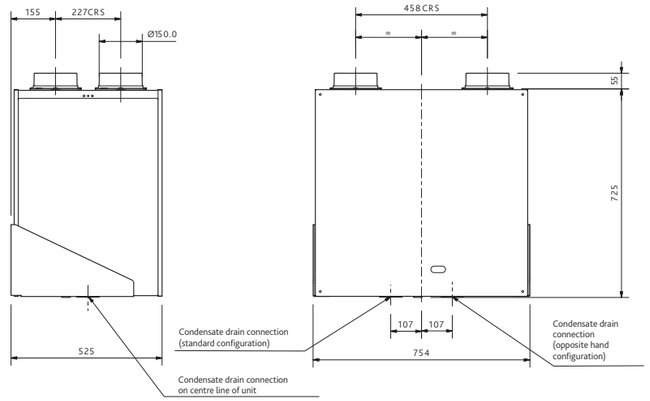
DIMENSIONS (mm)
Weight - 9kg





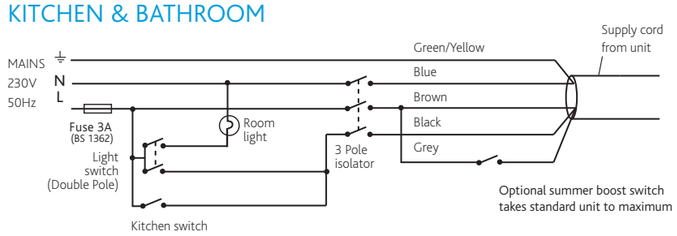
Technical – MRBOXAB-ECO3-AE

DIMENSIONS (mm)
Weight - 56kg

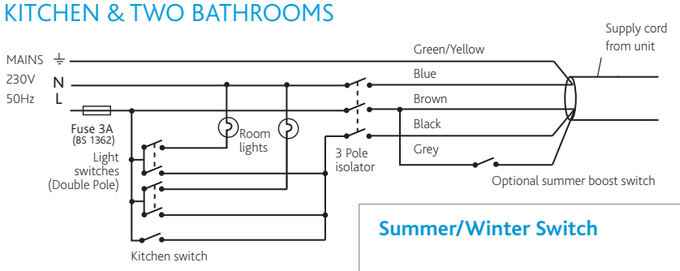


MRXBOXAB-ECO3-AE

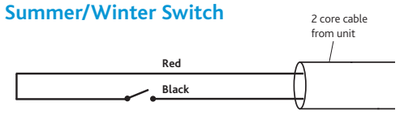
UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Summer/Winter Switch



Volt free Summer / Winter Switch (supplied with unit)
Polarity is inconsequential
Warning! - Do not connect to mains!

Electrical Details

ELECTRICAL DETAILS: MRXBOXAB-ECO3	
Voltage:	230V 1ph 50Hz
Consumption:	1.3 Amp
Fuse rating:	3 Amp

Optional Sensors, Switches and Detectors

Customise MRXBOXAB-ECO3-AE for enhanced performance. All supplied with pre-plugged 10m data cable and incorporates status LED.

MRXBOX95-PIR (Passive Infrared)

A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM (Relative Humidity)

A low voltage sensor, activates the system when the RH level is above set point. Incorporates overrun timer and RH setpoint level adjustment.

MRXBOX95-RFI (Remote Fail Indicator)

If fan failure occurs, the audio visual indicator will flash a warning.

MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

MRXBOX-VSC
(LCD Touchscreen Controller)
Simple, intuitive and discreet, the LCD control puts you in total control of your MVHR system. With the wide range of functions and settings.

Technical Data

Fan Codes: MRXBOXAB-ECO3-AE / MRXBOXAB-ECO3-AE-OH

Acoustically Enclosed Wall Mounted Multi-room Heat Recovery unit.

SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by ISO Coarse (G3 Grade) filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40°C.

The unit shall be supplied complete with a condensate drip tray and 21.5mm drain connection. The unit shall be suitable for 150mm diameter circular ducting. The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

Units shall be one of MRXBOXAB-ECO3-AE, MRXBOXAB-ECO3-AE-OH, as manufactured by Nuaire. The unit shall be provided within a white pre-painted or coated steel acoustic enclosure lined with a minimum of 20mm class '0' acoustic foam insulation to reduce breakout noise.

Flexible duct connections shall be within the enclosure, pre-fitted between the MVHR unit and the connection spigots on the top face of the enclosure. (Removing the need for flexible duct connectors outside of the unit which may cause breakout).

The MVHR unit shall be retained within the enclosure on a metal tray supported on turret type anti-vibration mounts of suitable deflection to ensure that vibration is not transmitted to the supporting structure.

All operational components of the MVHR unit shall be accessible via the front panel of the enclosure. The enclosure shall be supported on 3mm (minimum) prefabricated steel cantilever wall brackets or other suitable fabricated steel supporting frame.

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. This unit is also available in Opposite Hand formatting.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from the switched live signal from light/ remote switches or any ancillary sensors. When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC SUMMER BYPASS

Including Automatic 100% Summer Bypass where intake and return air temperatures shall be measured so that supply air temperatures can be maximised during winter months and minimised as external ambient temperature rises. The Summer Bypass damper shall be opened by a wax actuator. Supply and Extract air shall be filtered irrespective of the bypass setting (open or closed).

INTEGRAL HUMIDITY SENSOR

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

SUMMER/WINTER (SW) SWITCH

The unit shall feature volt-free connections for a two-position Summer/Winter switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles. (Summer/Winter)

Summer setting shall target under 20 degrees C internal dwelling temperature. Winter setting shall ensure heat recovery at all times. Temperature control logic shall be factory pre-set and require no on-site programming. The unit shall feature 3 commissionable speeds for both supply and extract.

It shall be possible to enable the unit to its 3rd speed by means of a switch or a programmable thermostat with occupant override (IAQ-STAT). The 3rd speed (overheating) shall be inhibited when outside air temperature exceeds inside temperature and bypass closes so that extracted air cools incoming fresh air.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components prewired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch, kitchen boost switch.
- Integral heat exchanger frost protection.
- Discreet daily run monitor.
- Integral humidistat.

OPTIONAL CONTROLS

MRXBOX95-RFI (Remote Fail Indicator)

MRXBOX95-PIR (Passive Infrared)
A low voltage sensor which detects movement and activates system.

MRXBOX95-HUM (Relative Humidity)
A low voltage sensor which activates the system when the relative humidity level is above a set point.

MRXBOX-VSC LCD Touchscreen Controller
Controller for MVHR system with a 3.2" touch screen display.\

The unit shall come with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.

All Round Acoustic Solutions

MRXBOXAB-ECO3-1Z

Achieves **100%** duty in bypass mode

The MRXBOXAB-ECO3-1Z is designed to provide optimised balanced (supply and extract) mechanical ventilation heat recovery, whilst offering the best all-in-one acoustic solution on the market.

The 1Z is the all-in-one acoustic enclosure, allowing in the MVHR unit and attenuator to be entirely cased in an aesthetically pleasing model which encloses the attenuators and flexible duct connections that would otherwise be visible, all whilst making significant reduction in cased-radiated noise.

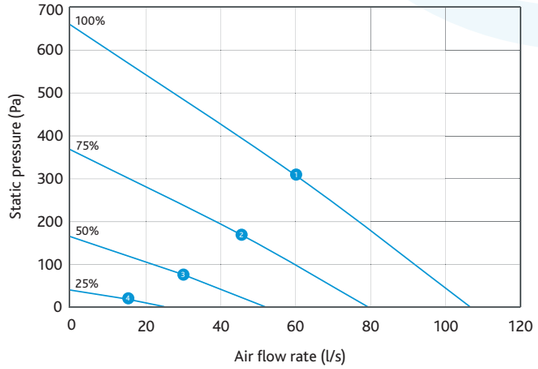
Tempered air is delivered into 'living areas' whilst extracting moisture laden air from 'wet areas', creating comfortable and well ventilated homes. The unit has the facility to commission the supply and extract fans independently on both minimum and maximum speeds, and the heat exchange block can recover up to 95% of normally wasted heat that has been extracted from 'wet rooms'.

Please note both of these units are available in Opposite Handed format. Energy rating A+.

Typical Installation

- Limited ceiling voids in modern apartments and complex duct arrangements coupled with increased airflow demands placed on MVHR systems in an effort to reduce the risk of overheating lead to higher system resistances and running speeds.
- Restrictions on utility cupboard space, practical and financial limitations frequently prevent the construction of acoustic cupboards, whilst modern light-weight wall construction methods offer little mass to absorb unit noise and vibration. This can often result in the transfer of low frequency noise and vibration into adjacent living and sleeping areas.
- These factors leave designers at risk of exceeding the stringent noise requirements specified in Part F of the building regulations and further defined by CIBSE.
- By integrating the MVHR unit and flexible connections within an enclosure and supporting the internals on anti-vibration mounts, noise and vibration are isolated.

Performance – MRXBOXAB-ECO3-1Z



MRXBOXAB-ECO3-1Z (SW)

Wall mounted unit with 100% bypass and integral humidistat.

MRXBOXAB-ECO3-1Z-OH (SW)

Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

Summer/Winter (SW) Switch

A two-position switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles.

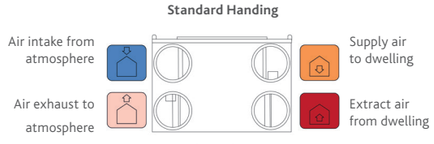
Electrical & Sound

ECO3 Sound Data											
	Maximum power		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
Curve	consumption (Watts)		63	125	250	500	1k	2k	4k	8k	
1	154	Open inlet	40	48	45	37	<16	20	17	<16	
		Open outlet	44	57	52	51	38	36	33	30	
		Breakout	60	57	50	43	27	18	<16	<16	28
2	66	Open inlet	35	42	41	32	17	17	<16	<16	
		Open outlet	40	52	49	48	35	32	29	25	
		Breakout	49	53	45	36	20	<16	<16	<16	23
3	20	Open inlet	31	34	32	23	<16	<16	<16	<16	
		Open outlet	32	44	39	38	24	19	<16	<16	
		Breakout	43	45	36	27	<16	<16	<16	<16	< 16
4	7	Open inlet	29	22	18	<16	<16	<16	<16	<16	
		Open outlet	32	29	25	25	<16	<16	<16	<16	
		Breakout	38	28	23	<16	<16	<16	<16	<16	<16

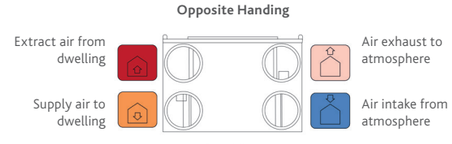
T The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Product Characteristics Database (PCDB) testing. The breakout case-radiated dBA values are given for Hemispherical free field radiation at 3m – to obtain the Spherical radiated data, subtract 3 dBA.

Please note: Sound data is provided at a particular duty point for 25%, 50%, 75% and 100%. For accurate sound data at a specific speed duty, please use Nuaire's fan selector or call the office on 029 2085 8500.

Standard Handing



Opposite Handing



MRXBOXAB-ECO3-1Z

SAP PCDB 2009 Test Results

Product Code	MRXBOXAB-ECO3-1Z		
SAP identifier	MRXBOXAB-ECO3		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.51	90%	Yes
Kitchen + 2 Wet Room	0.46	90%	Yes
Kitchen + 3 Wet Room	0.48	90%	Yes
Kitchen + 4 Wet Room	0.55	89%	Yes
Kitchen + 5 Wet Room	0.62	89%	Yes
Kitchen + 6 Wet Room	0.73	88%	Yes
Kitchen + 7 Wet Room	0.87	88%	Yes

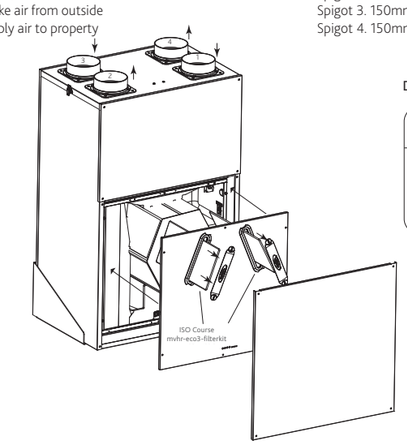
SAP PCDB 2012 Test Results

Product Code	MRXBOXAB-ECO3-1Z		
SAP identifier	MRXBOXAB-ECO3		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.50	90%	Yes
Kitchen + 2 Wet Room	0.53	90%	Yes
Kitchen + 3 Wet Room	0.60	89%	Yes
Kitchen + 4 Wet Room	0.75	88%	Yes
Kitchen + 5 Wet Room	0.92	88%	Yes
Kitchen + 6 Wet Room	1.10	87%	Yes
Kitchen + 7 Wet Room	1.36	87%	Yes

General Arrangement

STANDARD UNIT SPIGOT LOCATION & DUCTING REFERENCES

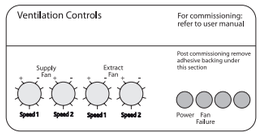
Spigot 1. 150mm dia. = Extract air from dwelling
Spigot 2. 150mm dia. = Exhaust air to outside
Spigot 3. 150mm dia. = Intake air from outside
Spigot 4. 150mm dia. = Supply air to property



OPPOSITE HANDED UNIT SPIGOT LOCATION & DUCTING REFERENCES

Spigot 1. 150mm dia. = Intake air from outside
Spigot 2. 150mm dia. = Supply air to property
Spigot 3. 150mm dia. = Extract air from dwelling
Spigot 4. 150mm dia. = Exhaust air to outside

Detail of unit control on front panel.



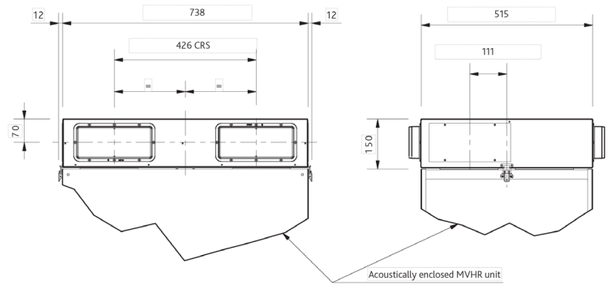
Tamper proof label following commissioning, includes system status indication.

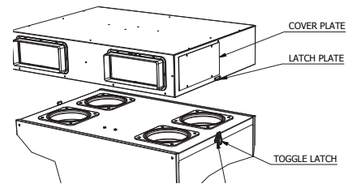
Ancillaries

Distribution Box

The MRXBOX-DB3 is fitted on top of the MRXBOXAB-ECO3-1Z before installation and offers a neat arrangement by directly distributing the initial ducting. It further benefits this MVHR system by reducing any in-line noise breakout, therefore improving this acoustic solution.

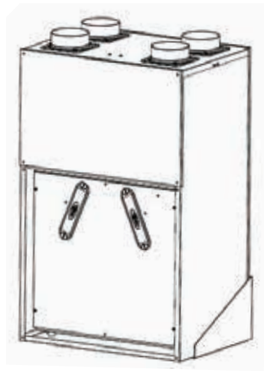
DIMENSIONS (mm)
Weight - 11kg

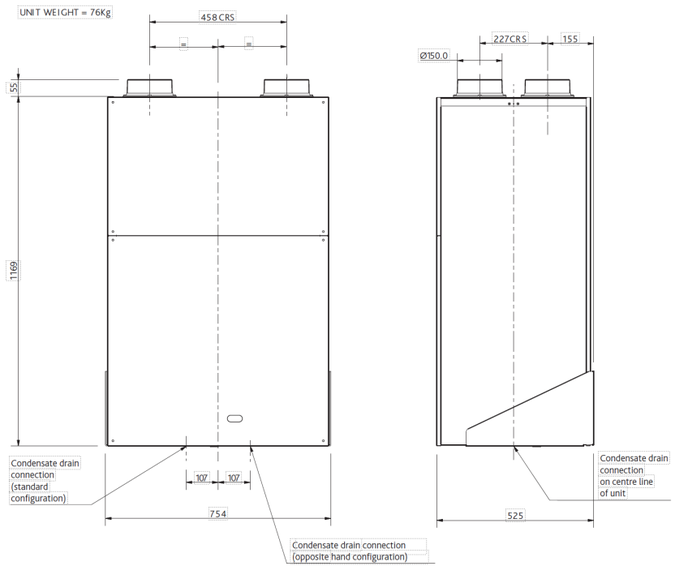




Technical – MRBOXAB-ECO3-1Z

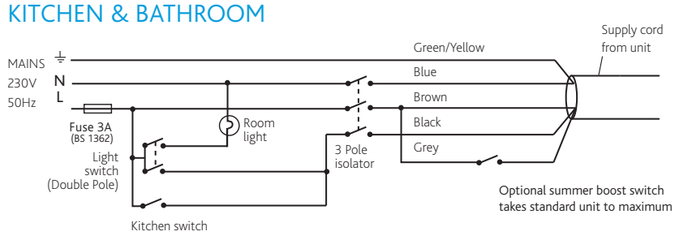
DIMENSIONS (mm)
Weight - 76kg



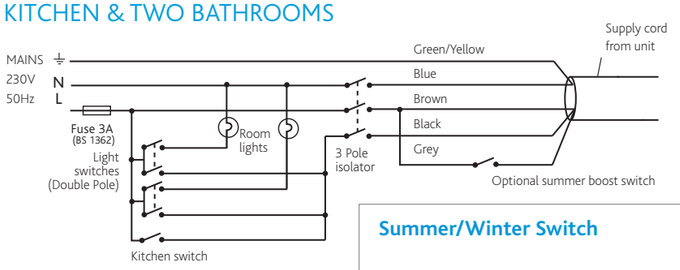


MRXBOXAB-ECO3-1Z

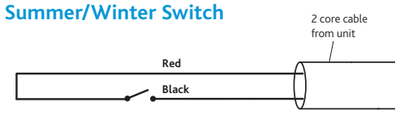
UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Summer/Winter Switch



Volt free Summer / Winter Switch (supplied with unit)
Polarity is inconsequential
Warning! - Do not connect to mains!

Electrical Details

ELECTRICAL DETAILS: MRXBOXAB-ECO3-1Z	
Voltage:	230V 1ph 50Hz
Consumption:	1.3 Amp
Fuse rating:	3 Amp

Optional Sensors, Switches and Detectors

MRXBOX95-PIR (Passive Infrared)

A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM (Relative Humidity)

A low voltage sensor, activates the system when the RH level is set above set point. Incorporates overrun timer and RH set point level adjustment

.MRXBOX95-RFI (Remote Fail Indicator)

If fan failure occurs, the audio visual indicator will flash a warning.

MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

MRXBOX-VSC
(LCD Touchscreen Controller)
Simple, intuitive and discreet, the LCD control puts you in total control of your MVHR system. With the wide range of functions and settings.

Technical Data

Fan Codes: MRXBOXAB-ECO3-1Z / MRXBOXAB-ECO3-1Z-OH
Acoustically Enclosed Wall Mounted Multi-room Heat Recovery unit.

SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%.

The heat exchanger shall be protected by ISO Coarse (G3 Grade) filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance. The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40°C. The unit shall be supplied complete with a condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 150mm diameter circular ducting. The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule. Units shall be one of MRXBOXAB-ECO3-1Z or MRXBOXAB-ECO3-1Z-OH as manufactured by Nuaire. The unit shall be provided within a white pre-painted or coated steel acoustic enclosure lined with a minimum of 20mm class '0' acoustic foam insulation to reduce breakout noise.

In-duct noise shall be attenuated on Intake/Exhaust/Supply/ Extract by means of a 4-way attenuator mounted within the enclosure and close coupled directly to the unit. Flexible duct connections shall be within the enclosure, pre-fitted between the attenuator section and the connection spigots on the top face of the enclosure. (Removing the need for flexible duct connectors outside of the unit which may cause breakout). The MVHR unit and attenuator assembly shall be retained within the enclosure on a metal tray supported on turret type anti-vibration mounts of suitable deflection to ensure that vibration is not transmitted to the supporting structure.

All operational components of the MVHR unit shall be accessible via the front panel of the enclosure. The enclosure shall be supported on 3mm (minimum) prefabricated steel cantilever wall brackets or other suitable fabricated steel supporting frame.

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. This unit is also available in Opposite Hand formatting.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from the switched live signal from light/ remote switches or any ancillary sensors. When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC SUMMER BYPASS
(MRXBOXAB-ECO3-1Z & MRXBOXAB-ECO3-1Z-OH)

Including Automatic SUMMER BYPASS where intake and return air temperatures shall be measured so that supply air temperatures can be maximised during winter months and minimised as external ambient temperature rises. The Summer Bypass damper shall be opened by a wax actuator. Supply and Extract air shall be filtered irrespective of the bypass setting (open or closed).

INTEGRAL HUMIDITY SENSOR
(MRXBOXAB-ECO3-1Z & MRXBOXAB-ECO3-1Z-OH)

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

SUMMER/WINTER (SW) SWITCH

The unit shall feature volt-free connections for a two-position Summer/Winter switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles. (Summer/Winter)

Summer setting shall target under 20 degrees C internal dwelling temperature. Winter setting shall ensure heat recovery at all times. Temperature control logic shall be factory pre-set and require no on-site programming. The unit shall feature 3 commissionable speeds for both supply and extract.

It shall be possible to enable the unit to its 3rd speed by means of a switch or a programmable thermostat with occupant override (IAQ-STAT). The 3rd speed (overheating) shall be inhibited when outside air temperature exceeds inside temperature and bypass closes so that extracted air cools incoming fresh air.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch, kitchen boost switch.
- Integral heat exchanger frost protection.
- Discreet daily run monitor.
- Integral humidistat.

OPTIONAL CONTROLS

MRXBOX95-RFI (Remote Fail Indicator)

MRXBOX95-PIR (Passive Infrared)
A low voltage sensor which detects movement and activates system.

MRXBOX95-HUM (Relative Humidity)
A low voltage sensor which activates the system when the relative humidity level is above a set point.

MRXBOX-VSC LCD Touchscreen Controller
Controller for MVHR system with a 3.2" touch screen display.

The unit shall come with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.

All Round MVHR Solutions

MRXBOXAB-ECO4

The MRXBOXAB-ECO4 has been designed with automatic 100% bypass as listed on the SAP Product Characteristics Database (PCDB).

Due to its intelligent and smart design, there will be no reduction in airflow when operating in bypass mode resulting in enhanced performance.

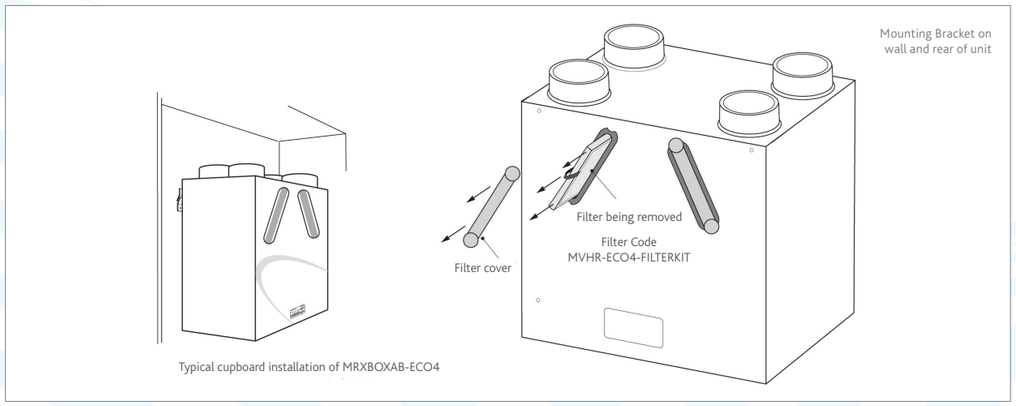
The MRXBOXAB-ECO4 is designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery and listed on the PCDB.

The units operate by continuously extracting moisture-laden air from 'wet' rooms within the property and at the same time drawing in fresh supply air from outside. The heat from the extracted stale air is recovered via a heat exchanger inside the heat recovery unit which becomes tempered then filtered before supplying into the habitable rooms creating comfortable and well ventilated homes.

The heat exchanger block within these units can recover up to 95% of the normally wasted heat. The two independent fans have full speed control for background and boost ventilation rates.

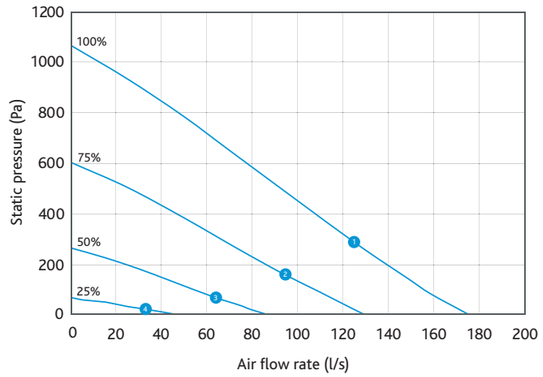
The MRXBOXAB-ECO4 has a Summer bypass function. In warmer months this function automatically activates to ensure the property is being well-ventilated and comfort levels are maintained in the home by continuously drawing in fresh filtered air into the habitable rooms.

Installation features



Typical cupboard installation of MRXBOXAB-ECO4

Performance – MRXBOXAB-ECO4



MRXBOXAB-ECO4 (SW)

Wall mounted unit with 100% bypass and integral humidistat.

MRXBOXAB-ECO4-OH (SW)

Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

Summer/Winter (SW) Switch

A two-position switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles.

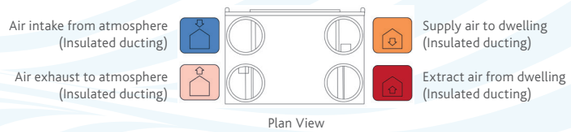
Electrical & Sound

ECO4 Sound Data											
	Maximum power consumption		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
Curve	(Watts)		63	125	250	500	1k	2k	4k	8k	
1	348	Open inlet	61	56	56	65	54	48	40	33	
		Open outlet	64	65	66	78	66	64	58	55	
		Breakout	66	63	61	64	50	42	35	27	44
2	148	Open inlet	51	54	55	56	48	43	33	25	
		Open outlet	59	64	64	70	60	58	52	47	
		Breakout	61	61	60	59	46	38	30	20	40
3	45	Open inlet	44	47	44	42	36	31	18	<16	
		Open outlet	51	58	56	54	48	46	35	28	
		Breakout	49	55	52	43	35	28	<16	<16	28
4	10	Open inlet	41	43	32	33	28	19	<16	<16	
		Open outlet	47	54	42	45	38	33	19	<16	
		Breakout	43	50	40	34	29	18	<16	<16	20

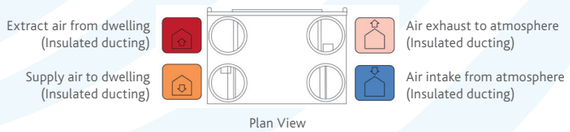
T The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Product Characteristics Database (PCDB) testing. The breakout case-radiated dBA values are given for Hemispherical free field radiation at 3m – to obtain the Spherical radiated data, subtract 3 dBA.

Please note: Sound data is provided at a particular duty point for 25%, 50%, 75% and 100%. For accurate sound data at a specific speed duty, please use Nuaire's fan selector or call the office on 029 2085 8500.

Standard Handing



Opposite Handing



MRXBOXAB-ECO4

SAP 2009 Test Results

Product Code	MRXBOXAB-ECO4		
SAP Identfier	MRXBOXAB-ECO4		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.62	94%	Yes
Kitchen + 2 Wet Room	0.56	94%	Yes
Kitchen + 3 Wet Room	0.56	93%	Yes
Kitchen + 4 Wet Room	0.61	93%	Yes
Kitchen + 5 Wet Room	0.67	93%	Yes
Kitchen + 6 Wet Room	0.75	92%	Yes
Kitchen + 7 Wet Room	0.90	91%	Yes

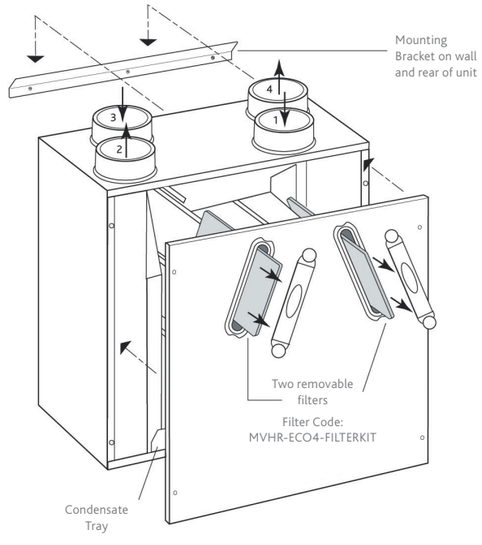
SAP 2012 Test Results

Product Code	MRXBOXAB-ECO4		
SAP Identfier	MRXBOXAB-ECO4		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.62	94%	Yes
Kitchen + 2 Wet Room	0.62	93%	Yes
Kitchen + 3 Wet Room	0.66	93%	Yes
Kitchen + 4 Wet Room	0.79	92%	Yes
Kitchen + 5 Wet Room	0.94	91%	Yes
Kitchen + 6 Wet Room	1.15	91%	Yes
Kitchen + 7 Wet Room	1.41	91%	Yes

General Arrangement

SPIGOT LOCATION &
DUCTING REFERENCES

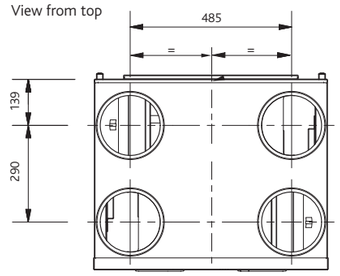
Spigot 1. **200mm** dia. = Extract air from dwelling.
Spigot 2. **200mm** dia. = Extract air to outside.
Spigot 3. **200mm** dia. = Intake air from outside.
Spigot 4. **200mm** dia. = Supply air to property



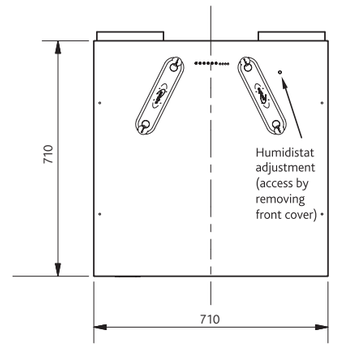
Technical – MRXBOXAB-ECO4

DIMENSIONS (mm)
Weight - 44kg

View from top



Front view



Side view

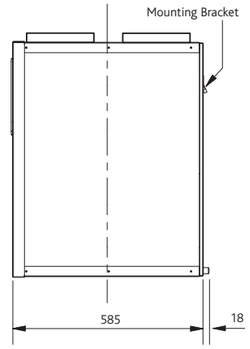
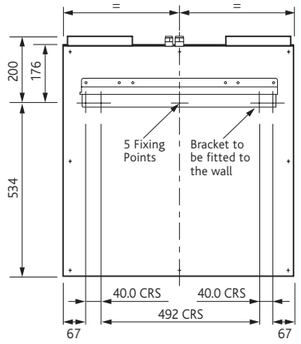


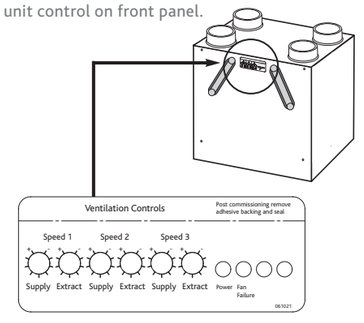
Figure 8b. Dimensions: Unit wall mounting bracket position (viewed from the back).



Electrical Details

Electrical Details: MRXBOXAB-ECO4	
Voltage:	230V 1ph 50Hz
Consumption:	2.4 Amp
Fuse rating:	5 Amp

Detail of unit control on front panel.

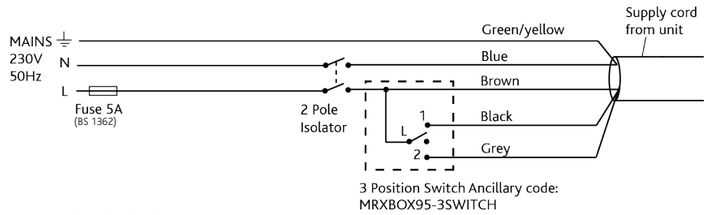


Tamper proof label following commissioning, includes system status indication.

MRXBOXAB-ECO4

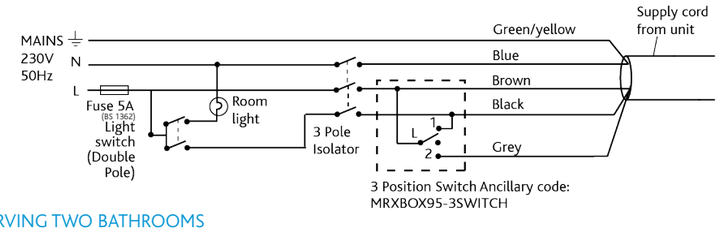
Wiring

UNIT SERVING KITCHEN & BATHROOM



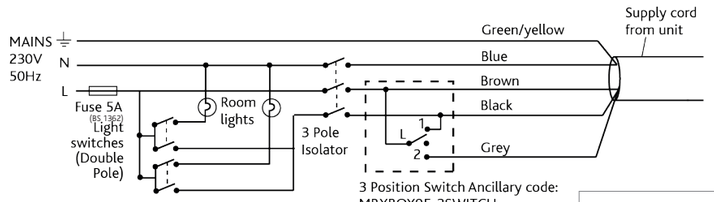
3 Position Switch Ancillary code:
MRXBOX95-3SWITCH

UNIT SERVING ONE BATHROOM



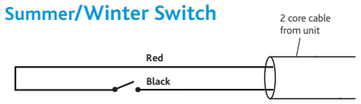
3 Position Switch Ancillary code:
MRXBOX95-3SWITCH

UNIT SERVING TWO BATHROOMS



3 Position Switch Ancillary code:
MRXBOX95-3SWITCH

Summer/Winter Switch



Volt free Summer / Winter Switch (supplied with unit)
Polarity is inconsequential
Warning! - Do not connect to mains!

Optional Sensors, Switches and Detectors

MRXBOX95-PIR (Passive Infrared)

A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM (Relative Humidity)

A low voltage sensor, activates the system when the RH level is above set point. Incorporates overrun timer and RH setpoint level adjustment.

MRXBOX95-RFI (Remote Fail Indicator)

If fan failure occurs, the audio visual indicator will flash a warning.

MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

MRXBOX-VSC
(LCD Touchscreen Controller)
Simple, intuitive and discreet, the LCD control puts you in total control of your MVHR system. With the wide range of functions and settings.

Consultants Specification

MRXBOXAB-ECO4

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multiplate, counter-flow, high-efficiency heat exchanger block with an efficiency of up to 95%. The heat exchanger shall be protected by ISO Coarse (G3 grade) filters on fresh air inlet and system extract.

The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance. The unit shall have low energy, high-efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable for an ambient temperature of 40°C. The unit shall be supplied complete with a condensate drip tray and 32mm drain connection.

The unit shall be suitable for 200mm diameter circular ducting. Note: The unit is also available in opposite handed format, refer to spigot configuration for set up. The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

The unit shall be MRXBOXAB-ECO4 as manufactured by Nuaire and shall be listed on the SAP PCDB. MRXBOXAB-ECO4-OH is an opposite handed assembly compliant as per standard handed versions listed in SAP PCDB.

OPERATION

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

The combined supply and extract with heat recovery unit shall supply filtered fresh air to each of the habitable rooms and moisture-laden air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The extracted air shall also be filtered before it reaches the heat exchanger block. The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light/remote switches.

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation) and boost speed via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC HX BYPASS WITH NO REDUCTION IN AIRFLOW

The bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months. Under normal operation, the automatic bypass diverts 100% airflow around the heat exchanger with no reduction in airflow, as independently tested by the BRE.

INTEGRAL HUMIDITY SENSOR

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

OPTIONAL REMOTE SWITCH (MRXBOX95-3SWITCH)

The unit shall have the facility to wire a three position remote switch to a suitable location within the property. The switch shall have 3 settings: trickle, boost and Summertime boost facility. The remote switch will act as the master switch and will override all other switches.

SUMMER/WINTER (SW) SWITCH

The unit shall feature volt-free connections for a two-position Summer/Winter switch allowing occupant to have direct control of heat exchanger bypass logic in providing 2 dwelling target temperature profiles. (Summer/Winter) Summer setting shall target under 20 degrees C internal dwelling temperature. Winter setting shall ensure heat recovery at all times. Temperature control logic shall be factory pre-set and require no on-site programming.

The unit shall feature 3 commissionable speeds for both supply and extract. It shall be possible to enable the unit to its 3rd speed by means of a switch or a programmable thermostat with occupant override (IAQ-STAT). The 3rd speed (overheating) shall be inhibited when outside air temperature exceeds inside temperature and bypass closes so that extracted air cools incoming fresh air.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components are pre-wired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral heat exchanger frost protection.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.
- Additional S/L terminal for 100% boost speed from remote switch, e.g. plate switch.
- Discreet daily run monitor.
- Remote fail indicator (part number MRXBOX95-RFI).
- Indication and controls – The unit shall have clear LED visual indication for maintenance, servicing and operation mode, i.e. HX bypass, frost protection.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOXAB-ECO2 heat recovery units and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.5˝LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current fan speed.
- Current indoor/outside temperature.
- Indicate when the Summer bypass is activated.
- Indicate when frost protection is activated.
- Indicate when the filters require cleaning/changing.

The unit shall come with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.

Acoustic Solutions

MRXBOXAB-ECO4

Nuaire's First Fix and Acoustic Solution is designed to not only reduce noise but to improve the installation when wall or cupboard mounting the MRXBOXAB-ECO4.

Offering the only complete MVHR acoustic and first fix solution to overcome both noise and ease the installation of heat recovery units. Nuaire's solution addresses both duct and breakout noise, provides an aesthetically pleasing cupboard installation for the home occupant and reduces installation errors and time.

These units are also available in Opposite Handed format.

Typical Installation

FIRST FIX SOLUTION MRXBOX-FF4

Nuaire's First Fix box is fixed to the underside of the floor slab at first fix stage of the build.

The box has four airflow chambers with optional positions for 204x60mm spigots. Ceilings can then be boarded within the cupboard space easily and quickly without the risk of the spigots not aligning to the fan unit.

SILENCER MRXBOX-SIL4

Nuaire has created a unique solution that is not only designed to reduce noise significantly, addressing duct and breakout noise, but is visibly appealing for the home occupant. It can be used with or without the First Fix Solution.

ANGLED MOUNTING BRACKETS
7713048

Acoustic data for MRXBOXAB-ECO4 with Silencer and/or First Fix

ECO4 with SIL Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-11	-10	-13	-16	-22	-33	-35	-29	
		Intake/Extract	-3	-5	-9	-14	-16	-16	-10	-8	
		Breakout	0	0	0	0	0	0	0	0	<16

ECO4 with FF Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-2	-9	-9	-13	-3	0	0	0	
		Intake/Extract	-3	-8	-8	-11	-3	0	0	0	
		Breakout	0	0	0	0	0	0	0	0	<16

ECO4 with FF & SIL Sound Data		Frequency/Hz	Sound Power Levels dB re 1pW								dBA @3m
Curve	Max. Power/W		63	125	250	500	1k	2k	4k	8k	
1	150	Supply/Discharge	-13	-18	-22	-28	-26	-33	-34	-36	
		Intake/Extract	-5	-10	-15	-23	-21	-21	-17	-16	
		Breakout	0	0	0	0	0	0	0	0	<16

The breakout case-radiated dBA values are given for Hemispherical free field radiation at 3m – to obtain the spherical radiated data, subtract 3dBA.

Silencer Corrections

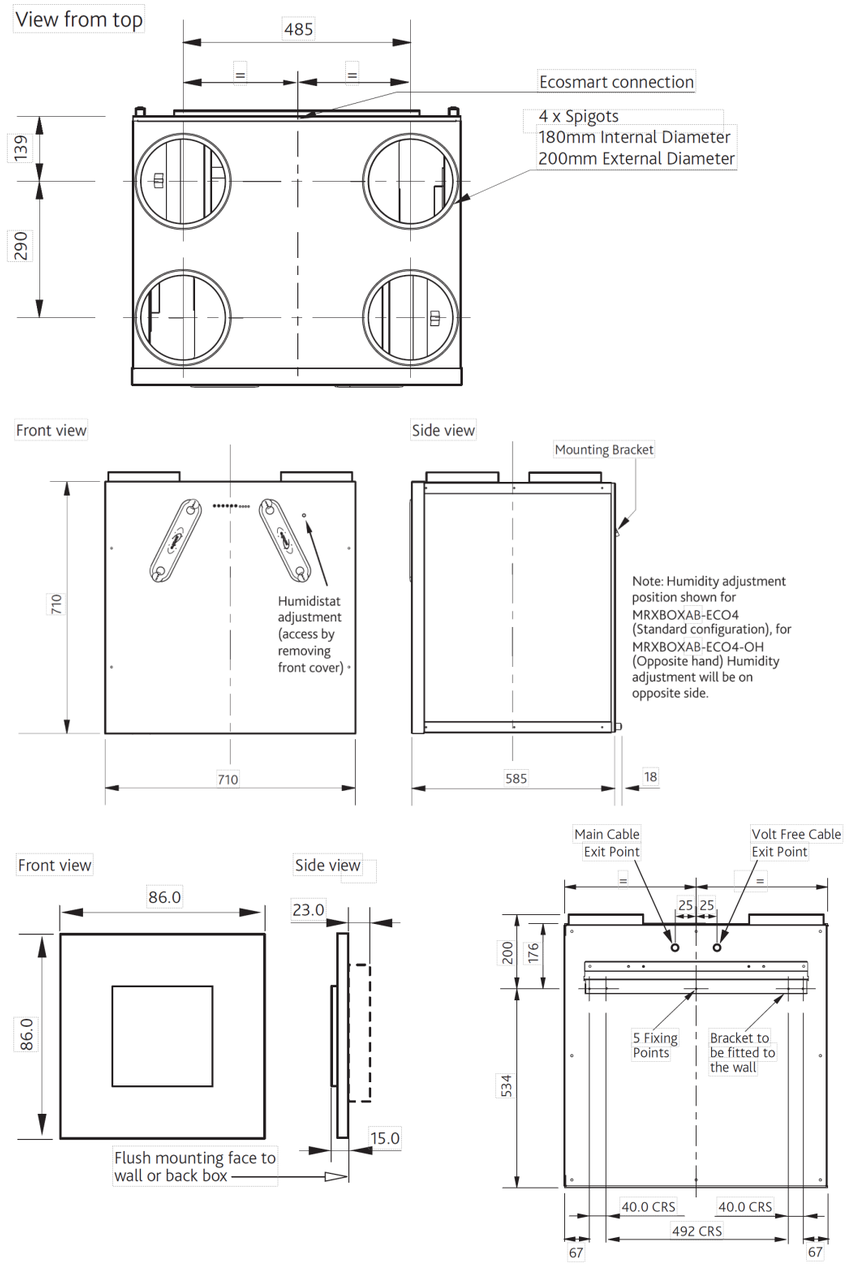
SIL Corrections	Open inlet	-3	-5	-9	-14	-16	-16	-10	-8
	Open outlet	-11	-10	-13	-16	-22	-33	-35	-29
	Breakout	0	0	0	0	0	0	0	0

FF Corrections	Open inlet	-3	-8	-8	-11	-3	0	0	0
	Open outlet	-2	-9	-9	-13	-3	0	0	0
	Breakout	0	0	0	0	0	0	0	0

FF+SIL Corrections	Open inlet	-5	-10	-15	-23	-21	-21	-17	-16
	Open outlet	-13	-18	-22	-28	-26	-33	-34	-36
	Breakout	0	0	0	0	0	0	0	0

Technical

DIMENSIONS (mm) for ECO4 unit
Weight - 44kg



Consultants Specification

MRXBOX-SIL4

The unit offers the facility to be fitted directly to the MVHR unit and plenum chamber without the need for spigots reducing breakout noise. However, there is the capability to fit 200mm circular spigots as an alternative option.

The unit shall be fully lined with acoustic material offering excellent noise reduction.

The unit shall be clamped to the MRXBOXAB-ECO4 unit to provide an efficient seal and ensure correct alignment.

The unit shall be fixed in position during installation as a standalone section without relying on other system elements.

MRXBOX-FF4

The unit shall be supplied with 204mm x 60mm rectangular spigots to connect to the duct run, with the ability to be fitted in eight separate positions reducing the requirement for bends in the system.

TECHNICAL DATA

Units shall be one of MRXBOXAB-ECO4, MRXBOXAB-ECO4-OH as manufactured by Nuaire.

SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by ISO Coarse (G3 grade) filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40°C.

The unit shall be supplied complete with a condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 200mm diameter circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. This unit is also available in Opposite Hand formatting.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from the switched live signal from light/ remote switches or any ancillary sensors. When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

INTEGRAL AUTOMATIC HX BYPASS WITH NO REDUCTION IN AIRFLOW

The bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

Under normal operation, the automatic bypass diverts 100% airflow around the heat exchanger with no reduction in airflow, as independently tested by the BRE.

INTEGRAL AUTOMATIC SUMMER BYPASS

Including Automatic Summer bypass where intake and return air temperatures shall be measured so that supply air temperatures can be maximised during winter months and minimised as external ambient temperature rises. The Summer Bypass damper shall be opened by a wax actuator. Supply and Extract air shall be filtered irrespective of the bypass setting (open or closed).

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components prewired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates
- Independent control of boost speed supply and extract flow rates
- Integral fan failure indication
- Integral S/L terminal for boost from remote switch, e.g. light switch, kitchen boost switch
- Integral heat exchanger frost protection
- Discreet daily run monitor.
- Integral humidistat.

OPTIONAL CONTROLS

MRXBOX95-RFI (Remote Fail Indicator)

MRXBOX95-PIR (Passive Infrared)
A low voltage sensor which detects movement and activates system.

MRXBOX95-HUM (Relative Humidity)
A low voltage sensor which activates the system when the relative humidity level is above a set point.

MRXBOX-VSC LCD Touchscreen Controller
Controller for MVHR system with a 3.2" touch screen display.

The unit shall be offered with a 5 year warranty which starts from the day of delivery, and includes parts and labour for the first year and parts only for the remaining 4 years.