



# MECHANICAL VENTILATION WITH HEAT RECOVERY (MVHR)



**NEW  
ECO  
RANGE**



# Proud to Build British

► Nuair is a world leader in the design and manufacture of fans and ventilation systems. We put our energy into efficient ventilation so you don't waste yours.

Nuair is a British company that designs and manufactures innovative ventilation products for the residential and commercial sectors. We are proud to be recognised for our expertise, commitment to innovation and the outstanding quality of our products and customer service. Our people are at the heart of Nuair, we have more than 400 experienced staff based at our headquarters, with a further 65 technical sales engineers throughout the UK and Ireland.

## Getting it right from the start

Nuair's Technical Application team can offer expert advice and support on design.

Services include supporting 3D Revit designs which illustrate your choice of product, ducting and ancillaries.

This bespoke package enables correct selection and aids project management and site control.

As well as a simple, clean system layout in 3D showing ventilation, Nuair provides a complete parts list with installation visuals.




**Bespoke Design Services**  
Nuair are here for you every step of the way, providing a simple, quick selection or offering advice on compliance with the very latest building regulations and environmental issues.



**Technical Advice Compliance on SAP PCDB**  
Stay ahead of the latest building regulations and make the best product and fabric choices.



**The Full Service**  
Help with product selection, detailed parts lists and fast delivery ensure you meet your deadline and budget.



**Over 65 Sales Staff**  
A strong field based sales team to support projects throughout the country.



**Gold Star Aftercare**  
Our comprehensive product warranty and dedicated after sales support gives you peace of mind.



# MECHANICAL VENTILATION WITH HEAT RECOVERY (MVHR - System 4)

ACHIEVES **100%** DUTY IN BYPASS MODE

Mechanical Ventilation with Heat Recovery (MVHR) is fast becoming the most popular strategy for effective whole home ventilation for new build properties.

### Solutions for MVHR applications

Nuaire offer the widest range of solutions for MVHR applications, including wall and ceiling mounted heat recovery systems. With up to 95% heat efficiencies and 100% duty in Summer bypass, our MVHR range delivers the maximum energy savings.

### MVHR How does it work?



**NO NEED TO OPEN WINDOWS TO VENTILATE**  
Clean fresh air is continuously drawn into the property from outside through the intake air ducting.

**SAVE ENERGY BY RECOVERING 95% OF HEAT FROM EXTRACT AIR**  
The MVHR unit takes advantage of the heat in your home. Heat is recovered from the stale extract air, then used to warm the fresh air drawn in from outside. Up to 95% of the otherwise wasted heat is recovered, saving you energy.

**BOOST FACILITY**  
Both the supply and extract air can be boosted at any time by the home owner to increase the ventilation levels.  
Light switches, PIRs and Humidistats can be used.

**PREVENTS CONDENSATION BY KEEPING MOISTURE LEVELS LOW**  
Stale air is continuously extracted from the moisture producing areas, such as kitchens and bathrooms.  
Intake air is also filtered to remove dust and pollen particles, helping allergy-sufferers.

	MRXBOX-ECO2	MRXBOXAB-ECO2	MRXBOX-ECO3	MRXBOXAB-ECO3	MRXBOXAB-ECO4	MRXBOXAB-ECO-LP2
Page no.	6	6	12	12	18	24
Size (W x H x Dmm)	607x507x356	607x507x356	658x623x432	658x623x432	710x710x585	900x200x700
Weight	20kg	20kg	24kg	24kg	44kg	37kg
Filters	G3	G3	G3	G3	G3	G3
Summer bypass	No	Yes	No	Yes	Yes	Yes
Recognised & listed on PCDB 'Summer bypass'	n/a	Yes	n/a	Yes	Yes	Yes
Maximum floor area (m <sup>2</sup> )	150	150	185	185	250	150
Maximum no of wet rooms (SAP 2009)	Kitchen + 7	Kitchen + 7	Kitchen + 7	Kitchen + 7	Kitchen + 7	Kitchen + 6
Specific fan power (SAP 2009 down to)	0.45	0.49	0.44	0.46	0.56	0.54
Heat Recovery % (SAP 2009 up to)	90	90	91	90	94	79
Maximum no of wet rooms (SAP 2012)	Kitchen + 5	Kitchen + 5	Kitchen + 7	Kitchen + 7	Kitchen + 7	Kitchen + 5
Specific fan power (SAP 2012 down to)	0.47	0.52	0.47	0.50	0.62	0.59
Heat Recovery % (SAP 2012 up to)	89	90	91	90	94	79
3rd speed (enhanced airflow)	Yes	Yes	Yes	Yes	Yes	Yes
Spigot size	125mm dia	125mm dia	150mm dia	150mm dia	200mm dia	204mm x 60mm
Opposite handed unit code	MRXBOX-ECO2-OH	MRXBOXAB-ECO2-OH	MRXBOX-ECO3-OH	MRXBOXAB-ECO3-OH	MRXBOXAB-ECO4-OH	MRXBOXAB-ECO-LP2-OH

Ancillaries						
Optional Sensors available	Yes	Yes	Yes	Yes	Yes	Yes
Acoustic Solution - 4-way Silencer	MRXBOX-SIL2	MRXBOX-SIL2	MRXBOX-SIL3	MRXBOX-SIL3	MRXBOX-SIL4	n/a
Acoustic Solution - First Fix Box	MRXBOX-FF2	MRXBOX-FF2	MRXBOX-FF3	MRXBOX-FF3	MRXBOX-FF4	n/a
Acoustic Solution Silencer + First Fix Box	MRX-BOX-SIL2+FF2	MRXBOX-SIL2+FF2	MRX-BOX-SIL3+FF3	MRXBOX-SIL3+FF3	MRXBOX-SIL4+FF4	n/a
Visual System Controller Compatible	Yes	Yes	Yes	Yes	No	Yes

# MRXBOXAB-ECO2 MRXBOX-ECO2 and Opposite Handed versions

ACHIEVES  
**100%**  
DUTY IN BYPASS  
MODE

The MRXBOXAB-ECO2 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.**

Both the MRXBOXAB-ECO2 and the MRXBOX-ECO2 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery and both are listed on the PCDB.

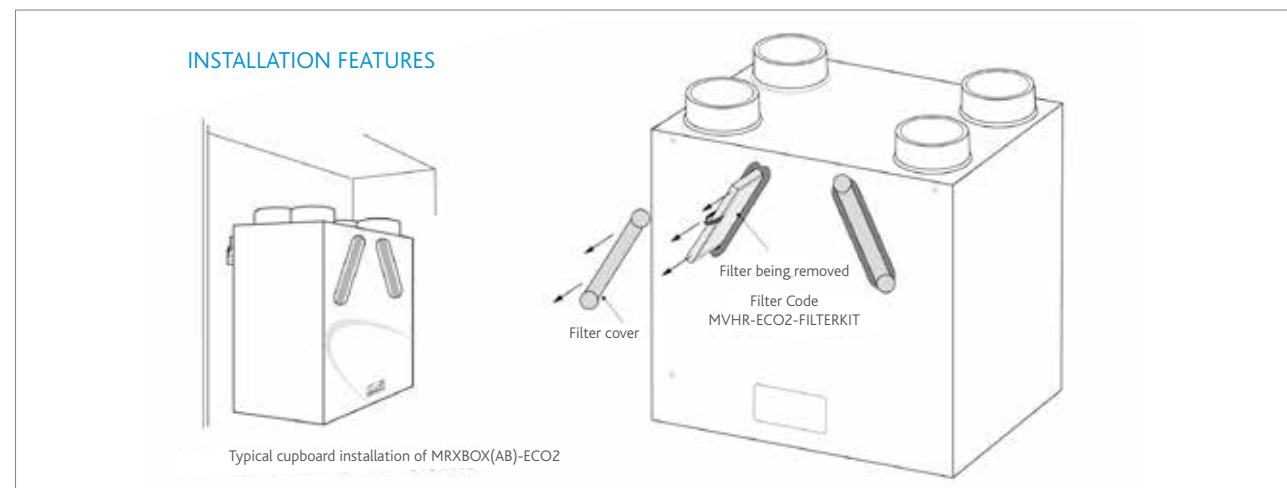
The units operate by continuously extracting moisture-laden air from 'wet' rooms within the property and at the same time drawing in fresh supply air from outside. The heat from the extracted stale air is recovered via a heat exchanger inside the heat recovery unit which becomes tempered then filtered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

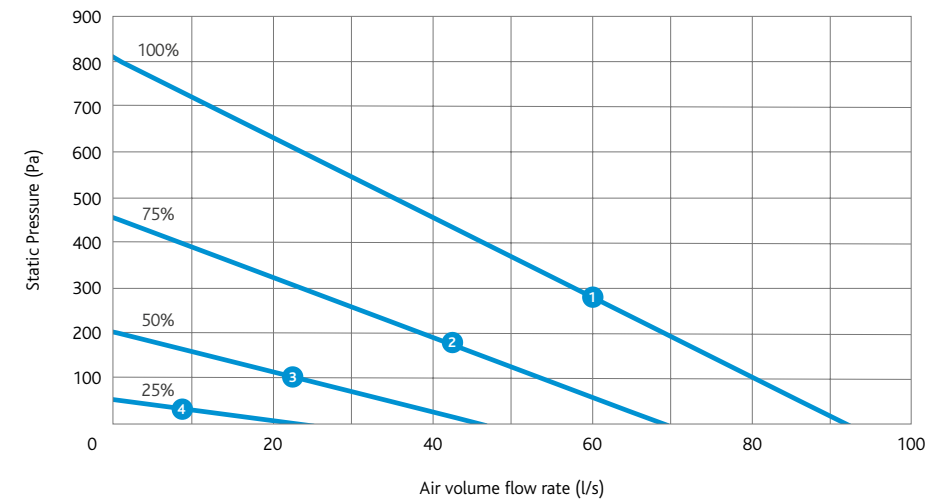
The MRXBOXAB-ECO2 has a summer bypass function. This feature activates automatically and attempts to maintain the home at a comfortable temperature. For example, if the outside temperature is warmer than the inside, the unit will continue to draw air through the heat exchanger. If the house is warmer than outside, the unit will bypass the heat exchanger and draw air in directly from outside.



## Typical Installation



## Performance - MRXBOX(AB)-ECO2



### CODE DESCRIPTION

**MRXBOXAB-ECO2**  
Wall mounted unit with 100% bypass and integral humidistat.

**MRXBOX-ECO2**  
Wall mounted unit.

**MRXBOXAB-ECO2-OH**  
Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

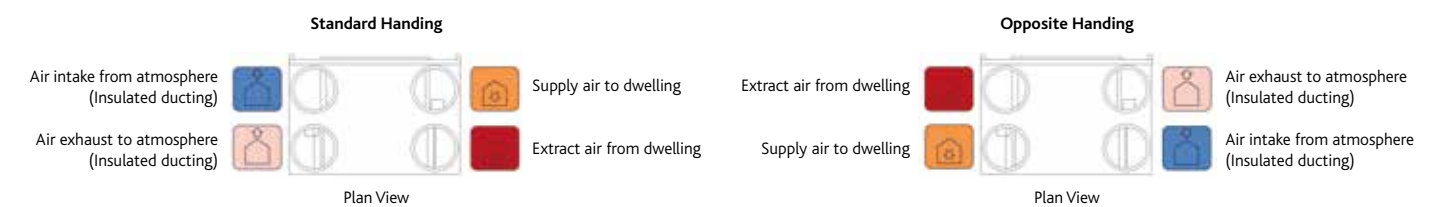
**MRXBOX-ECO2-OH**  
Opposite handed configuration wall mounted unit.

## Electrical & Sound

Curve	Maximum power consumption (Watts)		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
			63	125	250	500	1k	2k	4k	8k	
1	155	Open inlet	48	52	59	55	50	46	35	27	
		Open outlet	60	67	69	69	64	64	54	46	
		Breakout	59	60	58	59	49	46	35	27	40
2	69	Open inlet	44	47	57	50	45	41	30	21	
		Open outlet	55	63	63	65	60	59	49	40	
		Breakout	56	57	53	52	44	40	28	18	34
3	19	Open inlet	39	38	48	40	35	29	16	<16	
		Open outlet	48	54	53	55	49	47	35	24	
		Breakout	43	48	44	42	34	29	<16	<16	24
4	7	Open inlet	38	31	27	23	<16	<16	<16	<16	
		Open outlet	38	34	31	31	22	<16	<16	<16	
		Breakout	37	31	24	20	<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 Characteristic 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.



MRXBOXAB-ECO2  
& MRXBOX-ECO2

SAP 2009 Test Results ▼

Product Code	MRXBOXAB-ECO2			MRXBOX-ECO2		
	Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	0.49	90%	Yes	0.46	90%	Yes
Kitchen + 2 Wet Room	0.50	90%	Yes	0.45	89%	Yes
Kitchen + 3 Wet Room	0.58	89%	Yes	0.50	89%	Yes
Kitchen + 4 Wet Room	0.69	88%	Yes	0.60	88%	Yes
Kitchen + 5 Wet Room	0.81	87%	Yes	0.70	87%	Yes

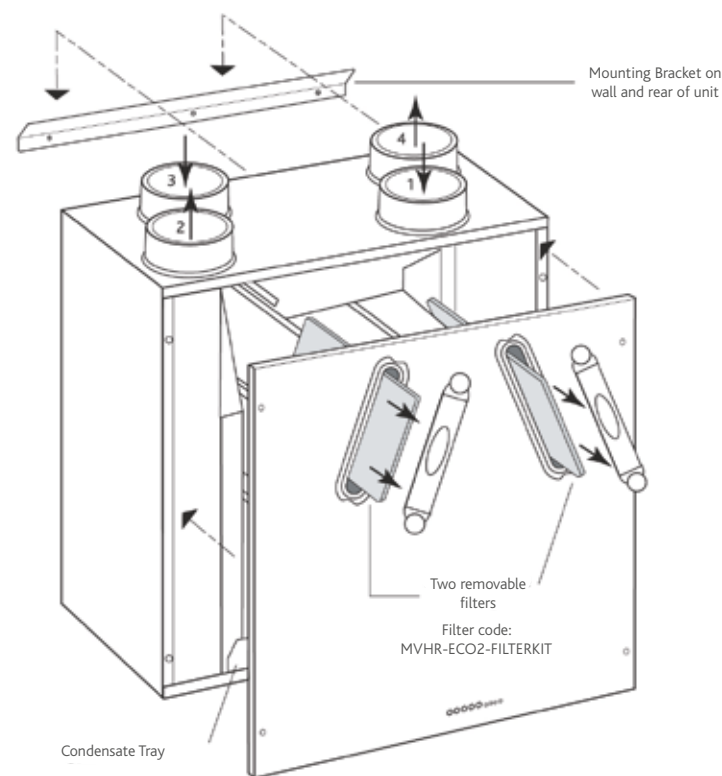
SAP 2012 Test Results ▼

Product Code	MRXBOXAB-ECO2			MRXBOX-ECO2		
	Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	0.52	90%	Yes	0.47	89%	Yes
Kitchen + 2 Wet Room	0.59	89%	Yes	0.54	88%	Yes
Kitchen + 3 Wet Room	0.77	87%	Yes	0.66	87%	Yes
Kitchen + 4 Wet Room	1.00	86%	Yes	0.85	87%	Yes
Kitchen + 5 Wet Room	1.23	86%	Yes	1.05	86%	Yes

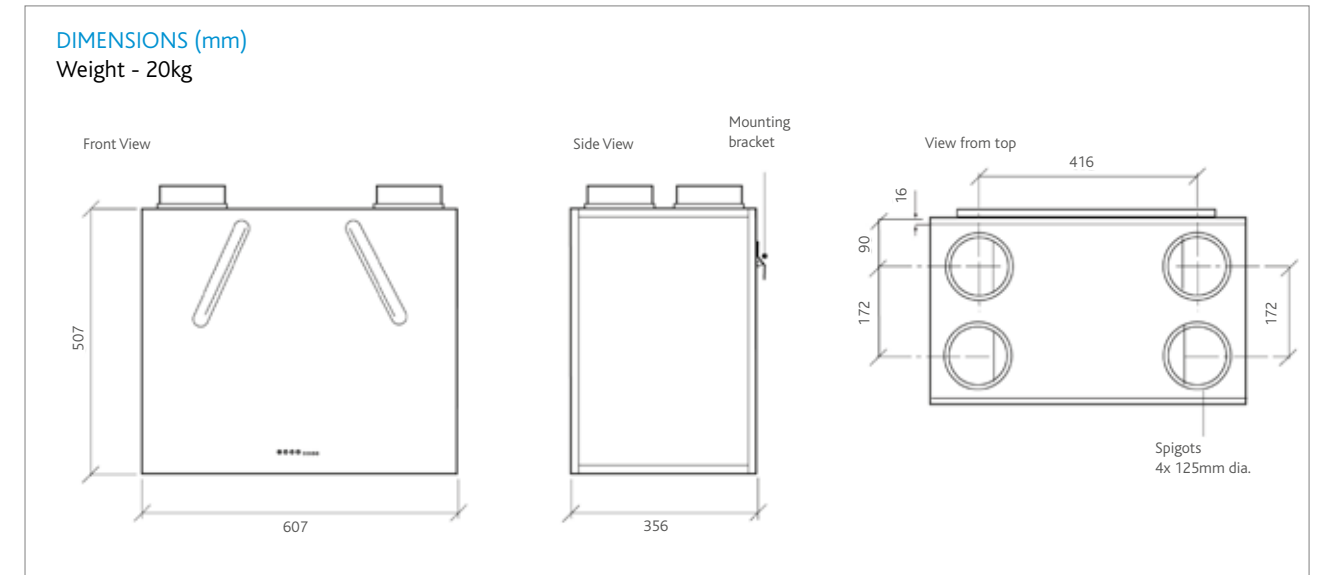
General Arrangement ▼

SPIGOT LOCATION & DUCTING REFERENCES

- Spigot 1. 125mm dia. = Extract air from dwelling.
- Spigot 2. 125mm dia. = Discharge air to outside.
- Spigot 3. 125mm dia. = Intake air from outside.
- Spigot 4. 125mm dia. = Supply air to property



Technical - MRXBOX(AB)-ECO2 ▼



Electrical Details ▼

Please note: The electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

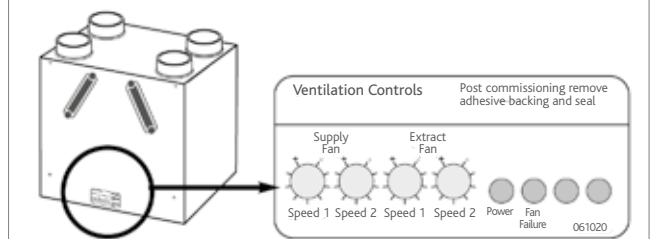
NOTE: This unit must be earthed.

The mains power supply cable should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

Electrical Details: MRXBOX(AB)-ECO2

Voltage:	230V 1ph 50Hz
Consumption:	1.2 Amp

Detail of unit control on front panel.

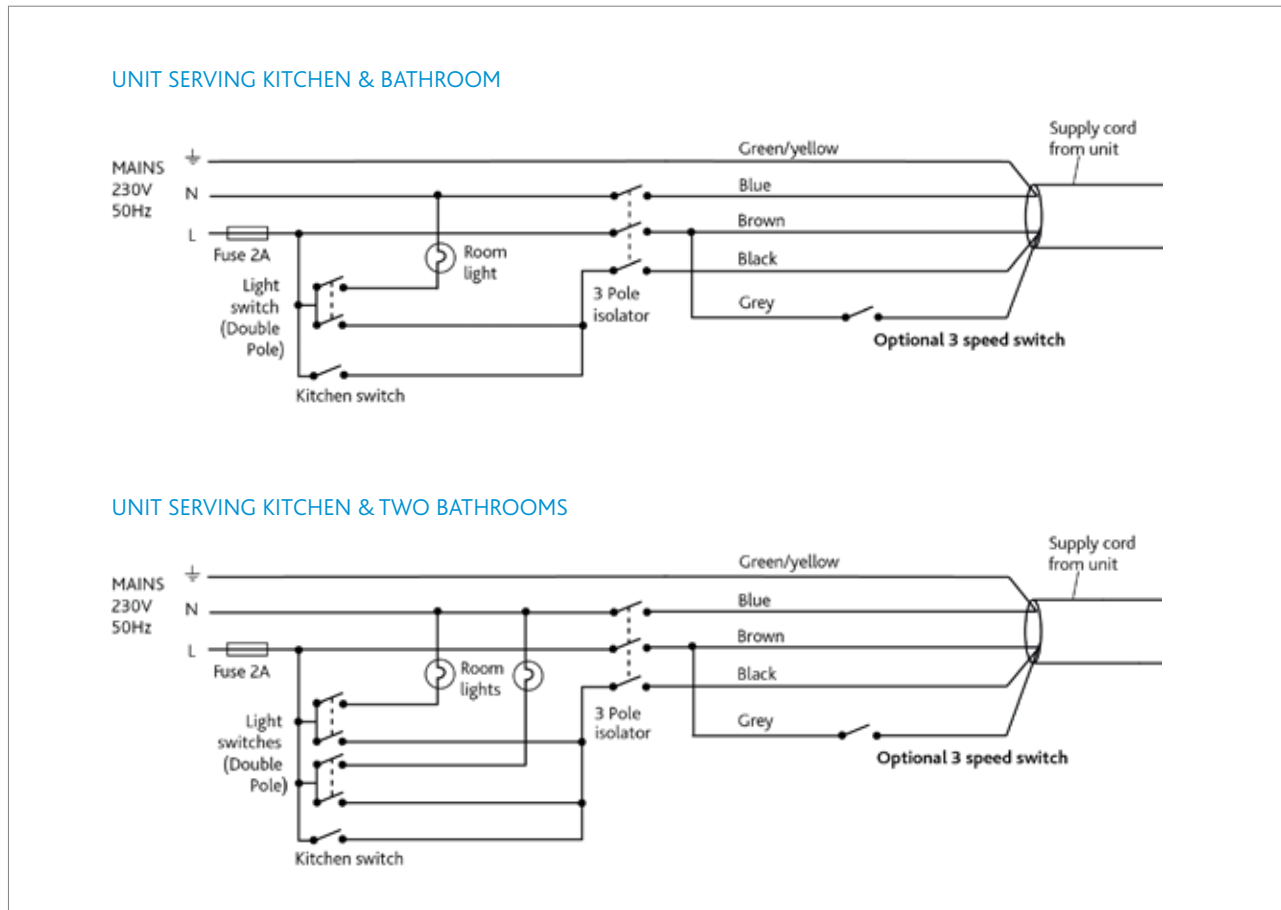


Tamper proof label following commissioning, includes system status indication.



MRXBOXAB-ECO2 & MRXBOX-ECO2

## Wiring - MRXBOX(AB)-ECO2 ▼



## Optional Sensors and Detectors ▼

Customise MRXBOX(AB)-ECO2 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

## Consultants Specification

### 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 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 125mm 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 MRXBOX-ECO2 or MRXBOXAB-ECO2 as manufactured by Nuair and shall be listed on the SAP PCDB.

MRXBOX-ECO2-OH and MRXBOXAB-ECO2-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 (MRXBOXAB-ECO2 & MRXBOXAB-ECO2-OH)

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 (MRXBOXAB-ECO2 & MRXBOXAB-ECO2-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.

### 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 Nuair 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.

# MRXBOXAB-ECO3 MRXBOX-ECO3 and Opposite Handed versions

ACHIEVES  
**100%**  
DUTY IN BYPASS  
MODE

The MRXBOXAB-ECO3 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.**

Both the MRXBOXAB-ECO3 and the MRXBOX-ECO3 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery and both listed on the PCDB.

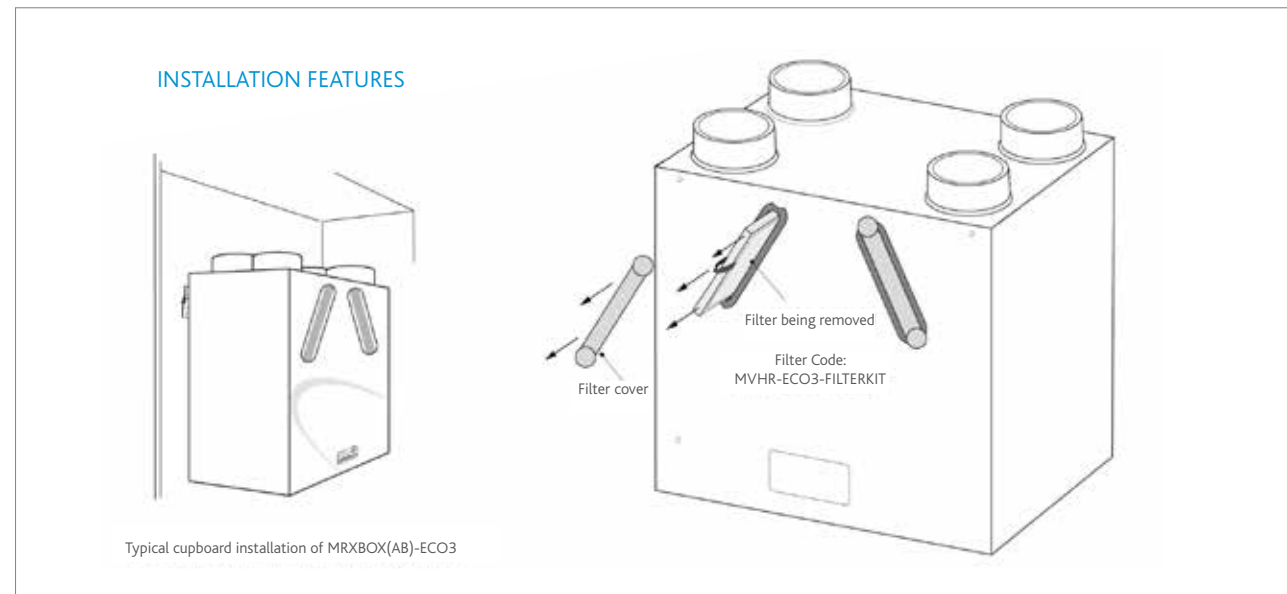
The units operate by continuously extracting moisture-laden air from 'wet' rooms within the property and at the same time drawing in fresh supply air from outside. The heat from the extracted stale air is recovered via a heat exchanger inside the heat recovery unit which becomes tempered then filtered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

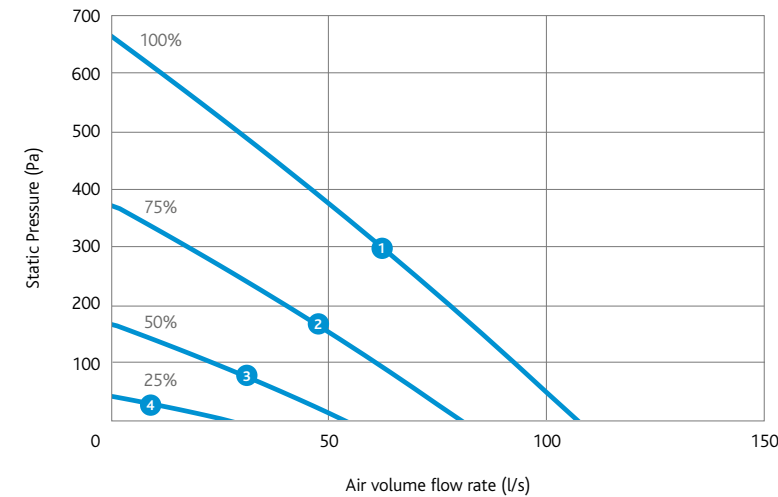
The MRXBOXAB-ECO3 has a summer bypass function. This feature activates automatically and attempts to maintain the home at a comfortable temperature. For example, if the outside temperature is warmer than the inside, the unit will continue to draw air through the heat exchanger. If the house is warmer than outside, the unit will bypass the heat exchanger and draw air in directly from outside.



## Typical Installation



## Performance - MRXBOX(AB)-ECO3



### CODE DESCRIPTION

**MRXBOXAB-ECO3**  
Wall mounted unit with 100% bypass and integral humidistat.

**MRXBOX-ECO3**  
Wall mounted unit.

**MRXBOXAB-ECO3-OH**  
Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

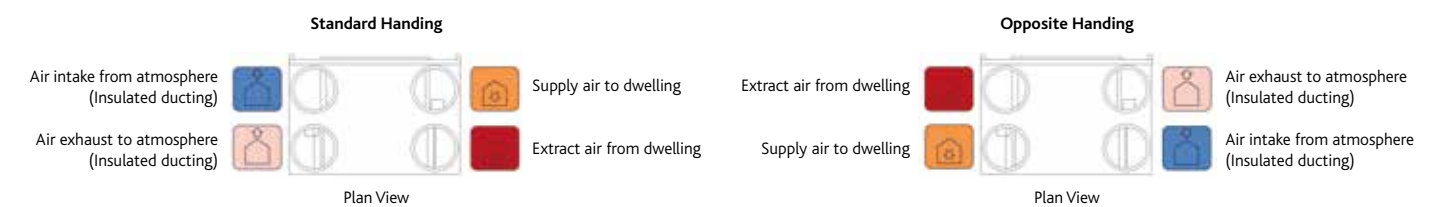
**MRXBOX-ECO3-OH**  
Opposite handed configuration wall mounted unit.

## Electrical & Sound

Curve	Maximum power consumption (Watts)		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
			63	125	250	500	1k	2k	4k	8k	
1	156	Open inlet	48	57	60	53	49	44	33	24	
		Open outlet	57	67	63	64	61	61	52	45	
		Breakout	65	59	58	57	50	46	36	26	40
2	67	Open inlet	43	52	56	48	46	40	30	18	
		Open outlet	54	62	59	62	58	58	48	40	
		Breakout	54	55	52	51	44	42	28	<16	34
3	20	Open inlet	38	44	47	39	36	29	16	<16	
		Open outlet	46	53	49	52	46	44	33	21	
		Breakout	47	46	44	42	34	29	16	<16	25
4	7	Open inlet	33	27	26	16	<16	<16	<16	<16	
		Open outlet	39	34	31	32	22	<16	<16	<16	
		Breakout	41	29	27	20	<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 Characteristic 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 Nuair's fan selector or call the office on 029 2085 8500.



MRXBOXAB-ECO3 & MRXBOX-ECO3

SAP 2009 Test Results ▼

Product Code	MRXBOXAB-ECO3			MRXBOX-ECO3		
	Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	0.51	90%	Yes	0.50	91%	Yes
Kitchen + 2 Wet Room	0.46	90%	Yes	0.44	91%	Yes
Kitchen + 3 Wet Room	0.48	90%	Yes	0.46	91%	Yes
Kitchen + 4 Wet Room	0.55	89%	Yes	0.52	90%	Yes
Kitchen + 5 Wet Room	0.62	89%	Yes	0.60	90%	Yes
Kitchen + 6 Wet Room	0.73	88%	Yes	0.70	89%	Yes
Kitchen + 7 Wet Room	0.87	88%	Yes	0.82	89%	Yes

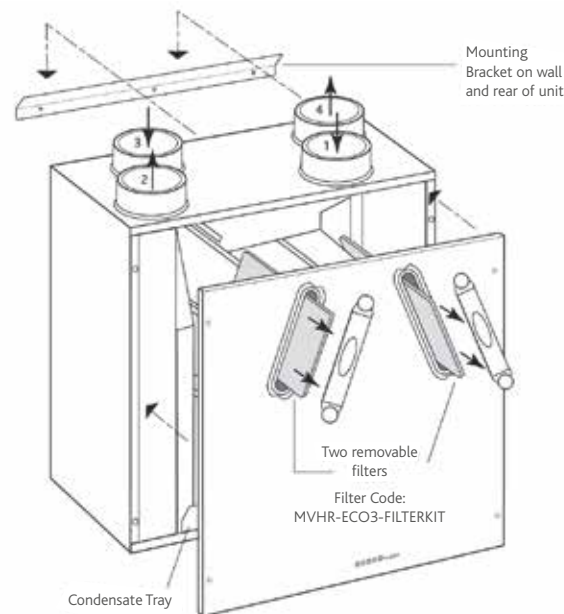
SAP 2012 Test Results ▼

Product Code	MRXBOXAB-ECO3			MRXBOX-ECO3		
	Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	0.50	90%	Yes	0.47	91%	Yes
Kitchen + 2 Wet Room	0.53	90%	Yes	0.50	91%	Yes
Kitchen + 3 Wet Room	0.60	89%	Yes	0.58	90%	Yes
Kitchen + 4 Wet Room	0.75	88%	Yes	0.71	89%	Yes
Kitchen + 5 Wet Room	0.92	88%	Yes	0.86	89%	Yes
Kitchen + 6 Wet Room	1.10	87%	Yes	1.08	88%	Yes
Kitchen + 7 Wet Room	1.36	87%	Yes	1.33	88%	Yes

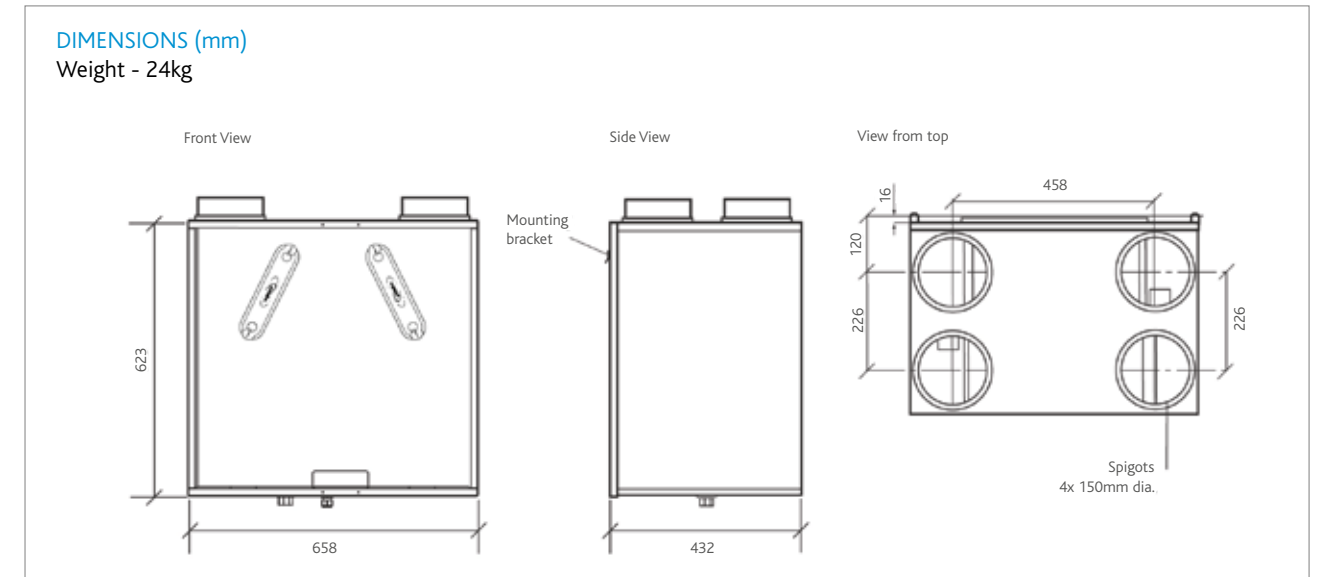
General Arrangement ▼

SPIGOT LOCATION & DUCTING REFERENCES

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



Technical - MRXBOX(AB)-ECO3 ▼



Electrical Details ▼

Please note: The electrical connection of the unit must be carried out by a qualified electrician.

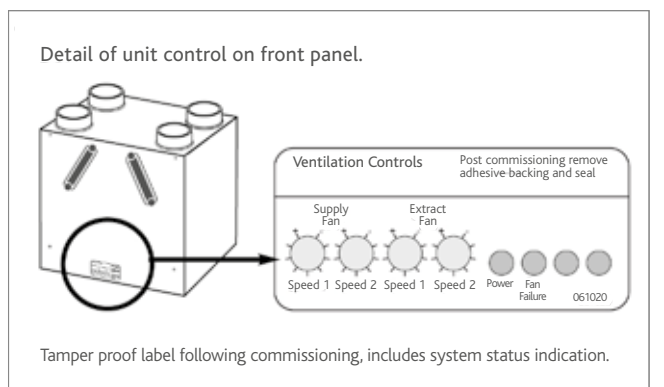
The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The mains power supply cable should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

Electrical Details: MRXBOX(AB)-ECO3

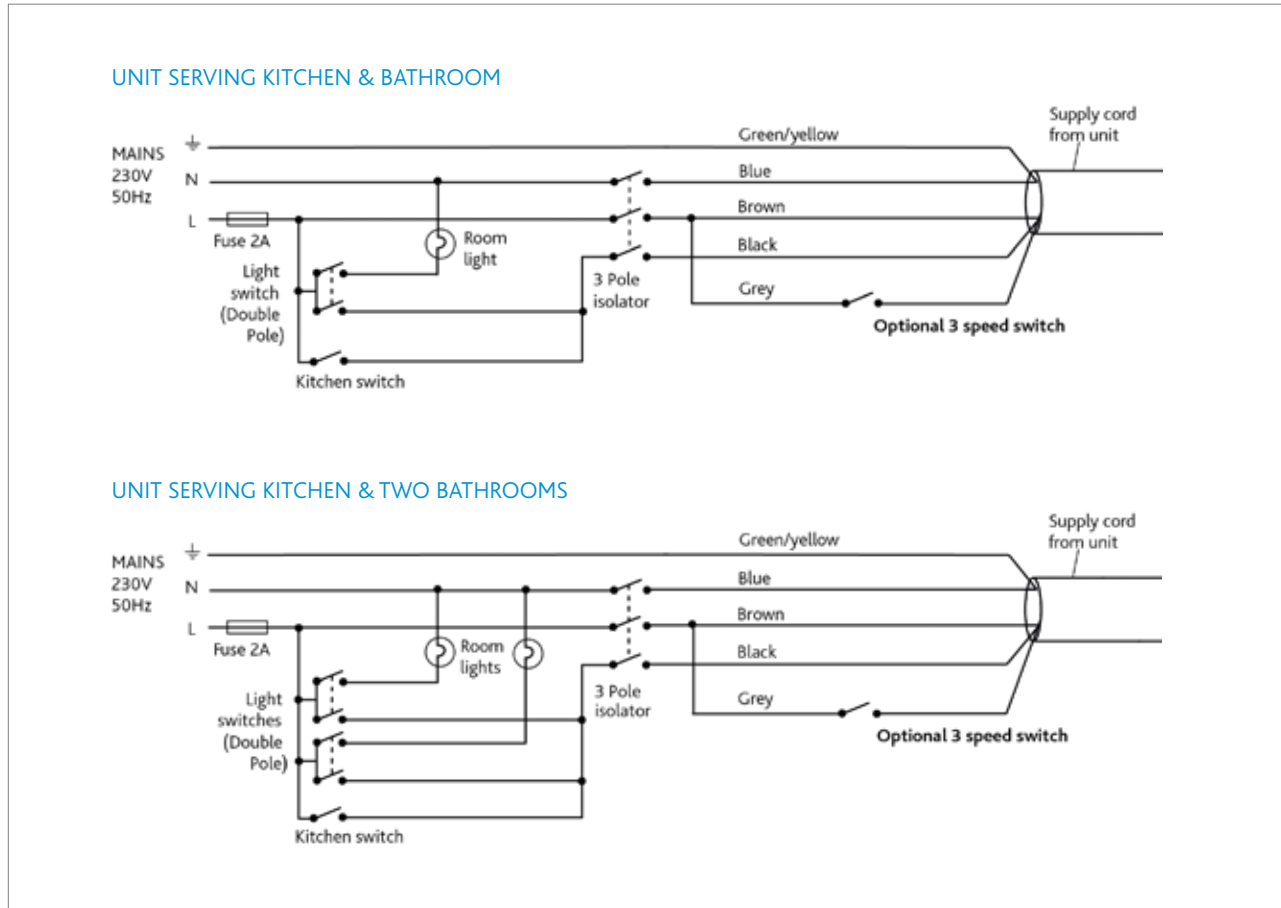
Voltage:	230V 1ph 50Hz
Consumption:	1.2 Amp





MRXBOXAB-ECO3 & MRXBOX-ECO3

Wiring - MRXBOX(AB)-ECO3 ▾



Optional Sensors and Detectors ▾

Customise MRXBOX(AB)-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

Consultants Specification

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 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 MRXBOX-ECO3 or MRXBOXAB-ECO3 as manufactured by Nuair and shall be listed on the SAP PCDB.

MRXBOX-ECO3-OH and 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 (MRXBOXAB-ECO3 & MRXBOXAB-ECO3-OH)

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 (MRXBOXAB-ECO3 & MRXBOXAB-ECO3-OH only)

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.

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.
- 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 Nuair MRXBOX(AB)-ECO3 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.

# MRXBOXAB-ECO4

## and Opposite Handed version

ACHIEVES  
**100%**  
DUTY IN BYPASS  
MODE

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.

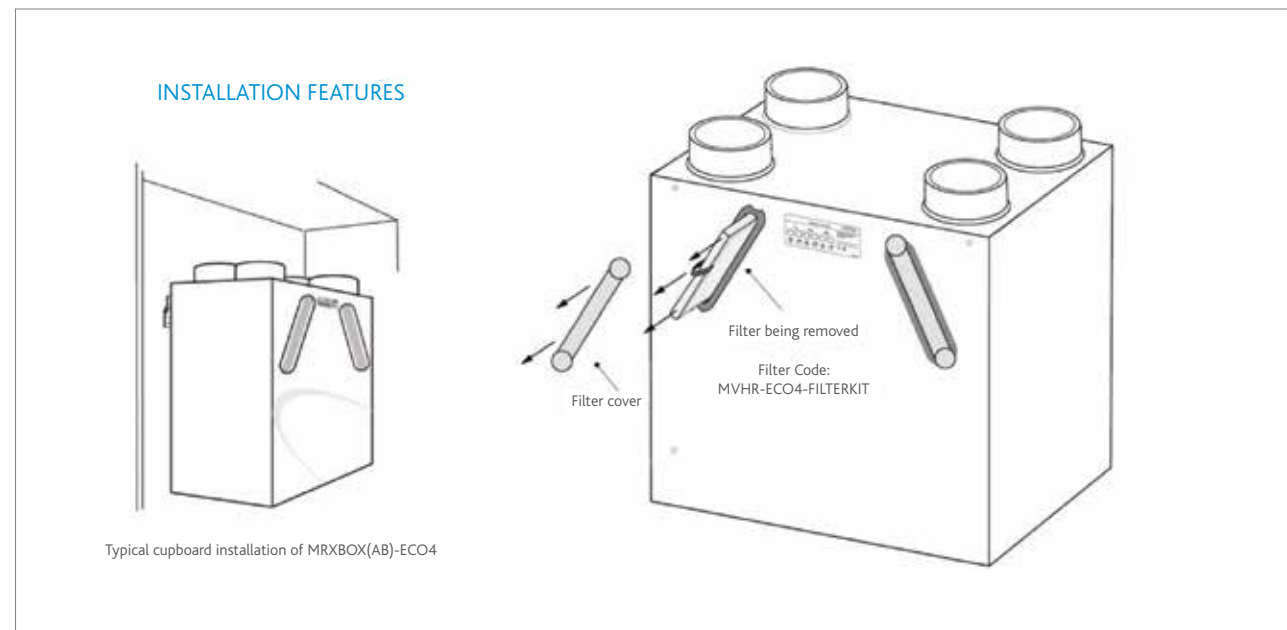
The unit operates by continuously extracting moisture-laden air from 'wet' rooms within the property and at the same time drawing in fresh supply air from outside. The heat from the extracted stale air is recovered via a heat exchanger inside the heat recovery unit which becomes tempered then filtered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

The heat exchanger block within the 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.

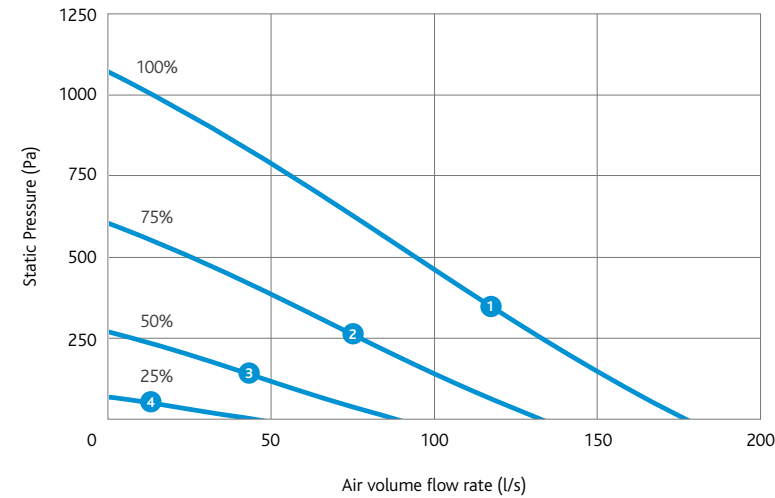
The MRXBOXAB-ECO4 has a summer bypass function. This feature activates automatically and attempts to maintain the home at a comfortable temperature. For example, if the outside temperature is warmer than the inside, the unit will continue to draw air through the heat exchanger. If the house is warmer than outside, the unit will bypass the heat exchanger and draw air in directly from outside.



### Typical Installation



### Performance - MRXBOXAB-ECO4



#### CODE DESCRIPTION

**MRXBOXAB-ECO4**  
Wall mounted unit with 100% bypass and integral humidistat.

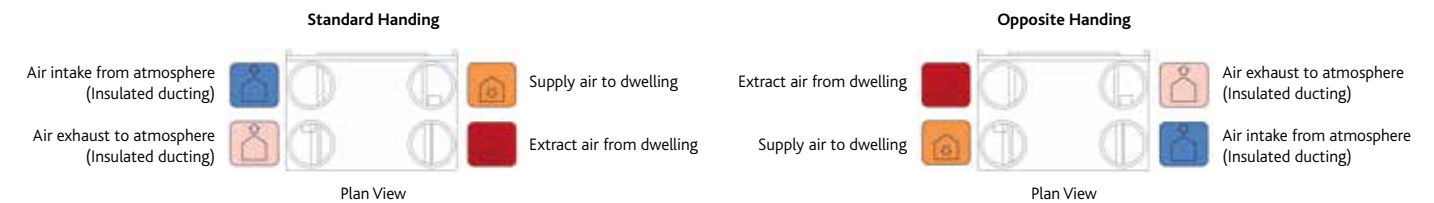
**MRXBOXAB-ECO4-OH**  
Opposite handed configuration wall mounted unit with 100% bypass and integral humidistat.

### Electrical & Sound

Curve	Maximum power consumption (Watts)		Sound Power Levels dB re 1pW (Frequency Hz)								dBa @3m
			63	125	250	500	1k	2k	4k	8k	
1	350	Open inlet	61	56	56	63	53	48	40	33	
		Open outlet	64	65	66	77	66	64	58	55	
		Breakout	66	63	61	62	49	41	34	26	43
2	152	Open inlet	53	54	54	59	49	43	34	27	
		Open outlet	60	64	62	73	61	58	52	48	
		Breakout	63	61	58	62	47	38	32	22	42
3	41	Open inlet	44	48	45	43	37	33	19	<16	
		Open outlet	51	58	58	55	49	47	38	31	
		Breakout	50	55	54	44	36	29	17	<16	30
4	10	Open inlet	38	34	28	22	18	<16	<16	<16	
		Open outlet	44	42	34	32	25	<16	<16	<16	
		Breakout	39	40	34	22	19	<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 Characteristic 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 Nuair's fan selector or call the office on 029 2085 8500.



MRXBOXAB-ECO4

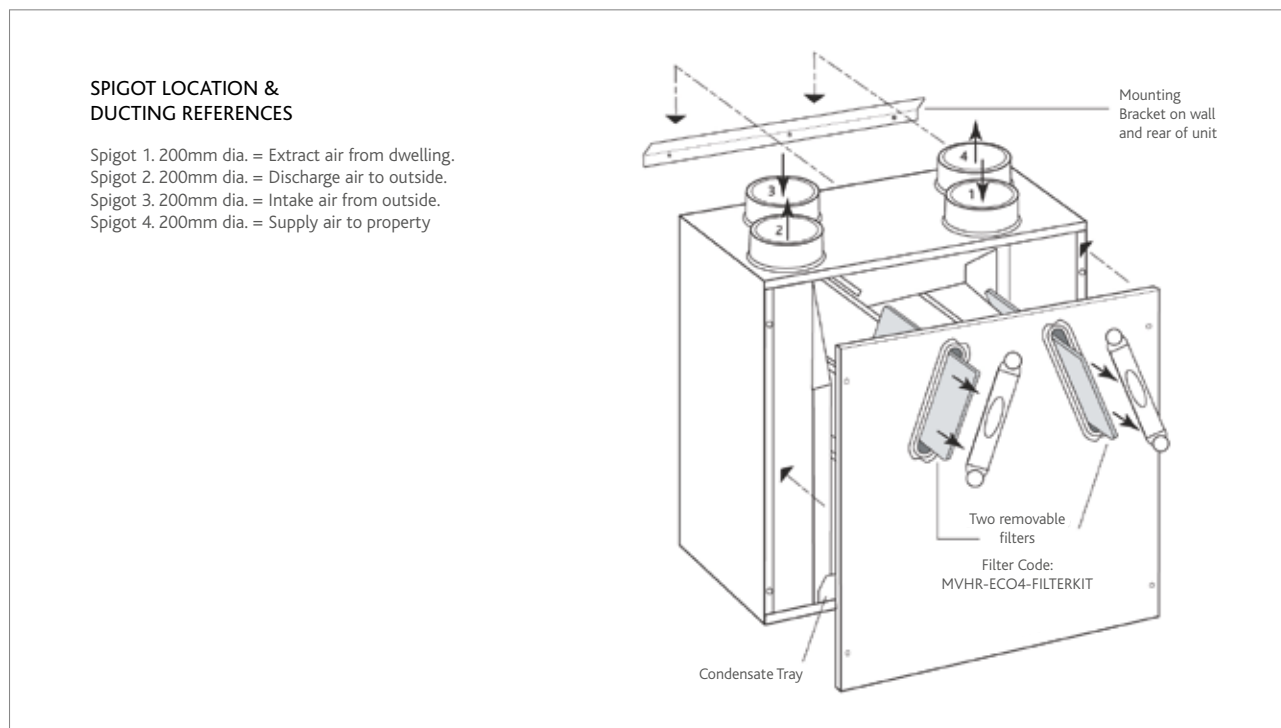
SAP 2009 Test Results ▼

Product Code	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

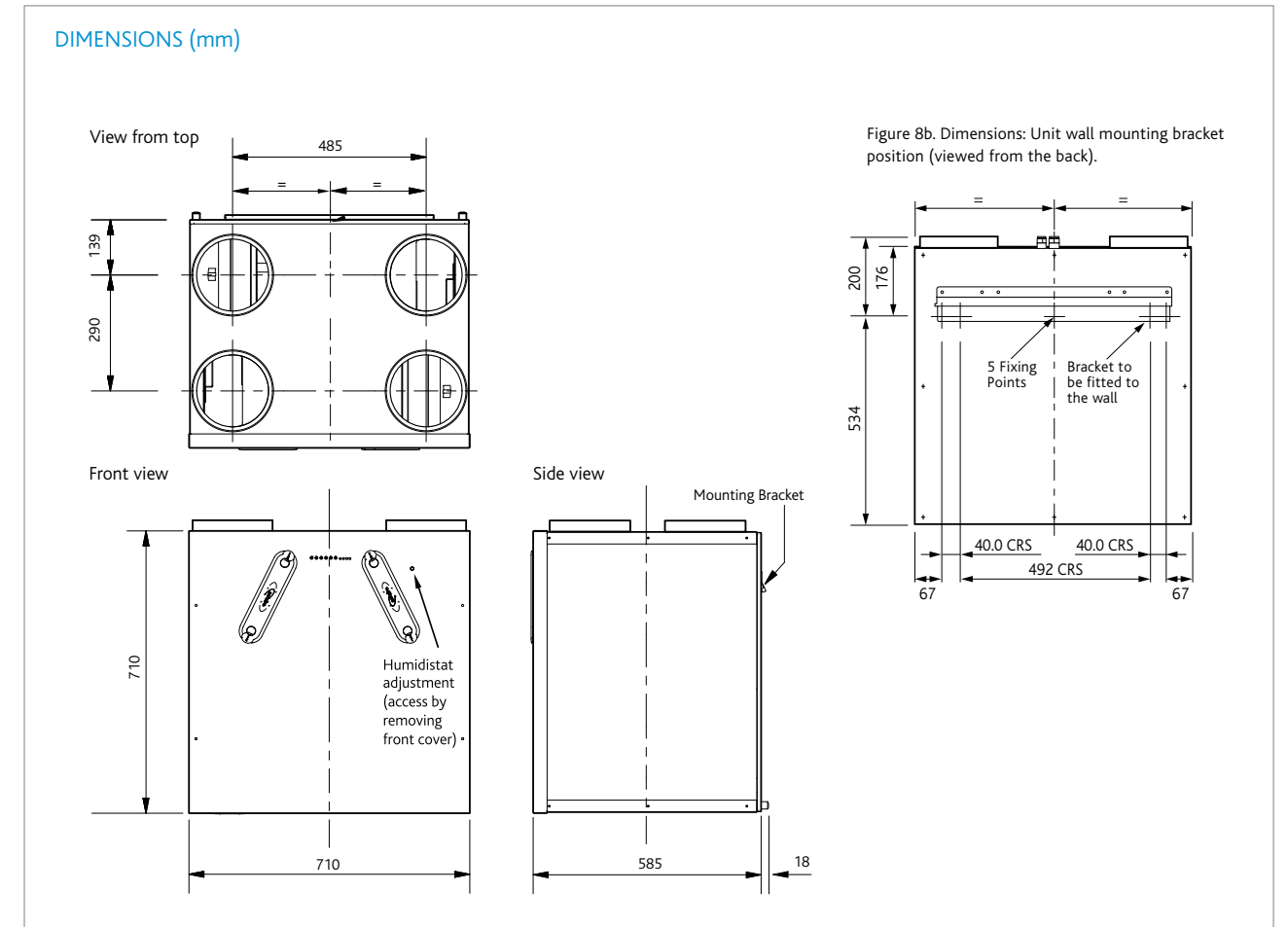
SAP 2012 Test Results ▼

Product Code	MRXBOXAB-ECO4		
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 ▼



Technical - MRXBOXAB-ECO4 ▼



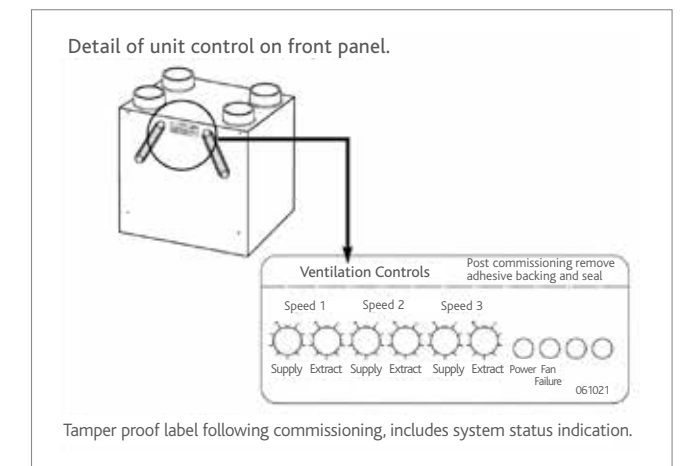
Electrical Details ▼

Please note: The electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

The mains power supply cable should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

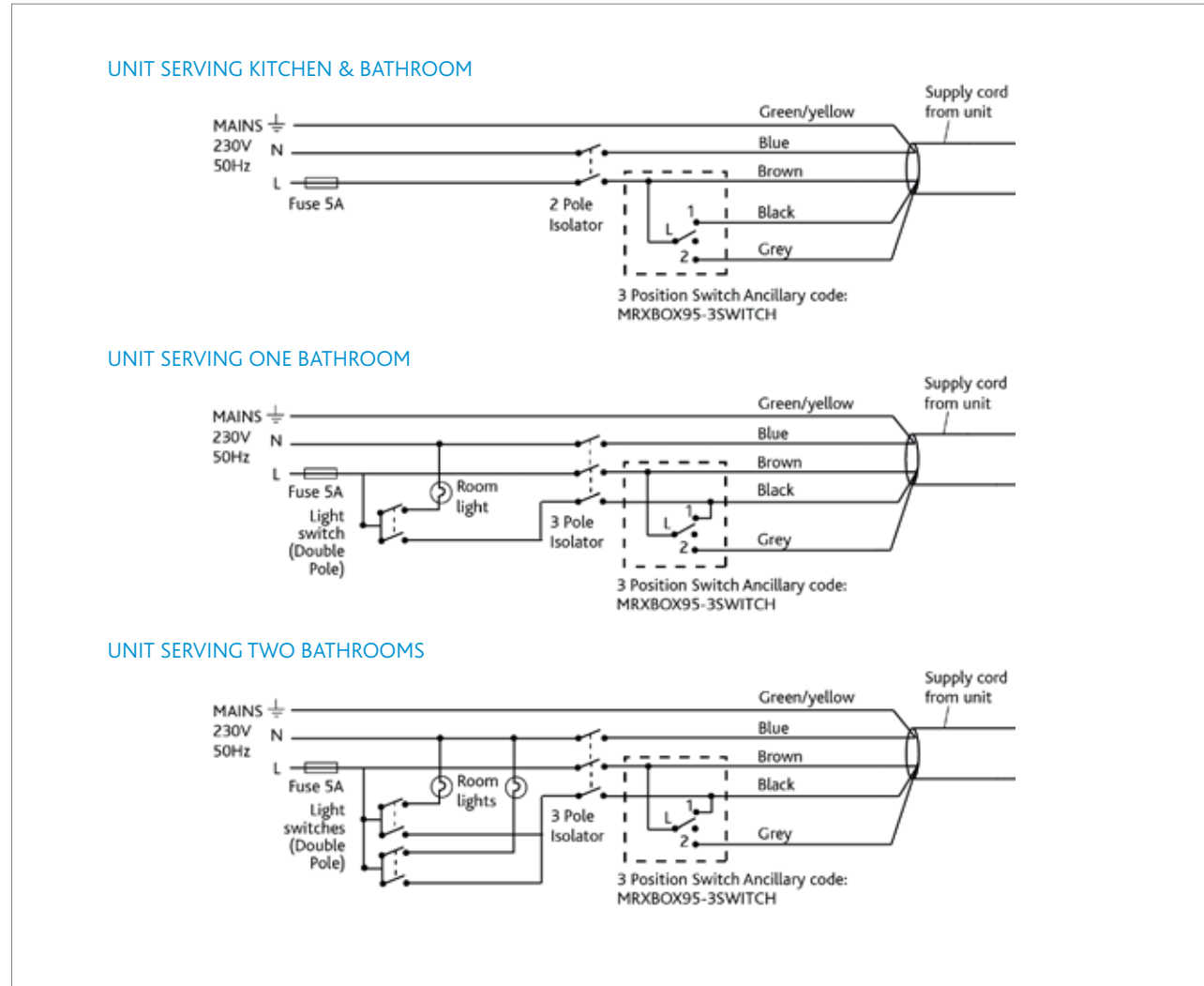
Electrical Details: MRXBOXAB-ECO4	
Voltage:	230V 1ph 50Hz
Consumption:	2.4 Amp





MRXBOXAB-ECO4

Wiring



Optional Sensors and Detectors

Customise MRXBOXAB-ECO4 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.



Consultants Specification

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 an efficiency of up to 95%. The heat exchanger shall be protected by 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 Nuair 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.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components are 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 to commissioned level, from remote switch, e.g. light switch.
- Integral S/L terminal for third speed (purge), boost speed, from remote switch e.g. plate switch.
- Integral heat exchanger frost protection.
- Discreet daily run monitor.
- Indication and controls - The unit shall have clear LED visual indication for maintenance, servicing and operation mode i.e. HX bypass, frost protection.

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.

# MRXBOXAB-ECO-LP2

and Opposite Handed version

100%  
BYPASS

MRXBOXAB-ECO-LP2 and MRXBOXAB-ECO-LP2-OH are specially designed for apartment applications where space is at a premium.



The new MRXBOXAB-ECO-LP2 offers the lowest specific fan power of any low-profile, void-mounted MVHR system and is specifically designed to fit easily into apartments with ceiling void restrictions where space is at a premium.

The MRXBOXAB-ECO-LP2 has been designed with automatic 100% bypass as listed on the SAP Product Characteristics Database (PCDB).

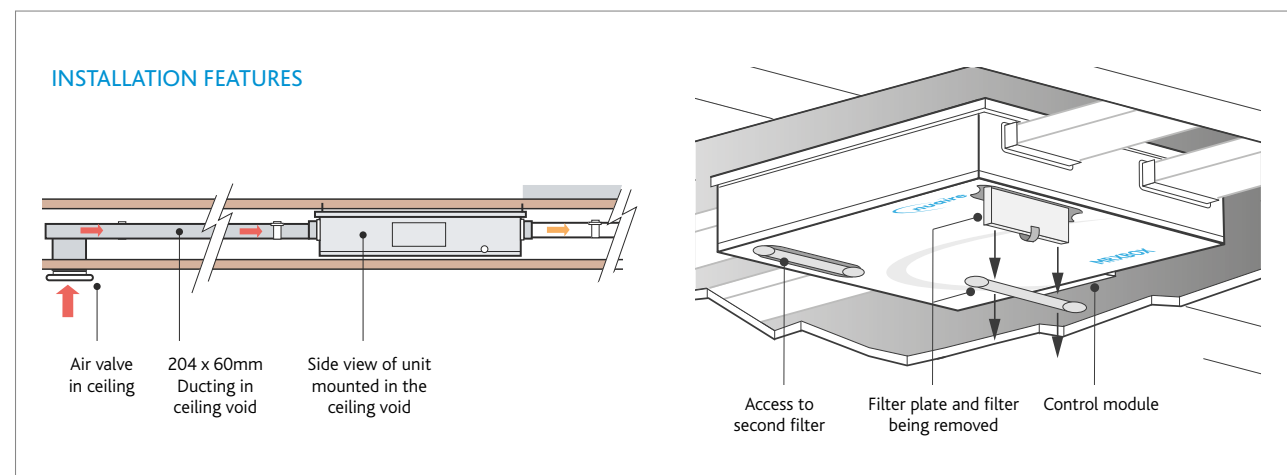
The MRXBOXAB-ECO-LP2 is designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery and listed on the PCDB.

The unit operates 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.

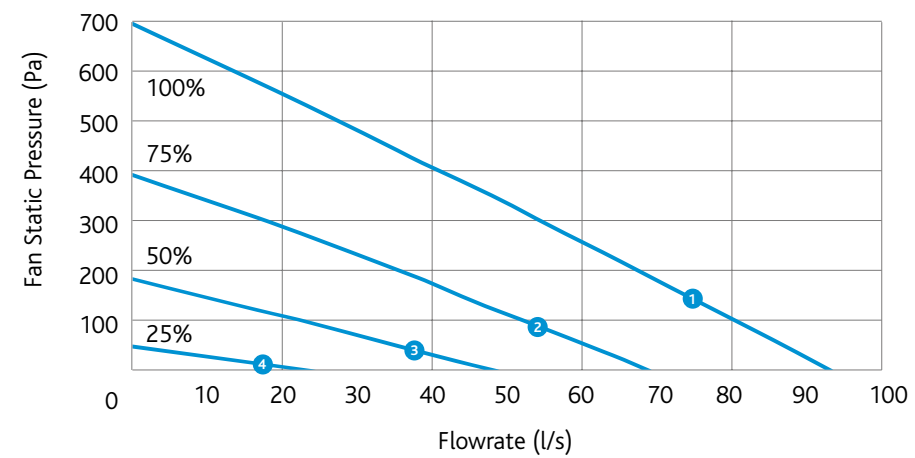
The two independent fans have full speed control for background and boost ventilation rates.

The MRXBOXAB-ECO-LP2 has a summer bypass function. This feature activates automatically and attempts to maintain the home at a comfortable temperature. For example, if the outside temperature is warmer than the inside, the unit will continue to draw air through the heat exchanger. If the house is warmer than outside, the unit will bypass the heat exchanger and draw air in directly from outside.

## Typical Installation



## Performance - MRXBOXAB-ECO-LP2



### CODE DESCRIPTION

#### MRXBOXAB-ECO-LP2

Low profile multi-room supply and extract heat recovery with automatic Summer bypass.

#### MRXBOXAB-ECO-LP2-OH

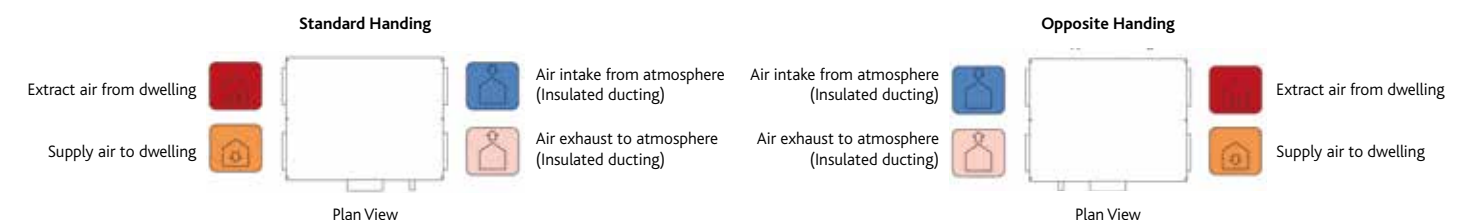
Low profile multi-room supply and extract heat recovery with automatic Summer bypass with reverse handing.

## Electrical & Sound

Curve	Maximum power consumption (Watts)		Sound Power Levels dB re 1pW (Frequency Hz)								dBA @3m
			63	125	250	500	1k	2k	4k	8k	
1	163	Open inlet	51	45	50	48	40	42	29	19	
		Open outlet	54	49	59	64	61	60	51	43	
		Breakout	58	60	61	58	48	41	33	25	40
2	69	Open inlet	51	43	46	44	36	36	22	<16	
		Open outlet	51	45	54	59	55	54	44	34	
		Breakout	54	57	56	52	41	34	25	18	34
3	22	Open inlet	45	37	34	32	24	23	<16	<16	
		Open outlet	44	37	43	46	43	41	29	19	
		Breakout	47	50	44	40	30	22	<16	<16	23
4	7	Open inlet	38	31	24	22	<16	<16	<16	<16	
		Open outlet	37	30	33	36	33	31	19	<16	
		Breakout	40	43	34	30	20	<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 based on SAP Product Characteristic 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 Nuair's fan selector or call the office on 029 2085 8500.

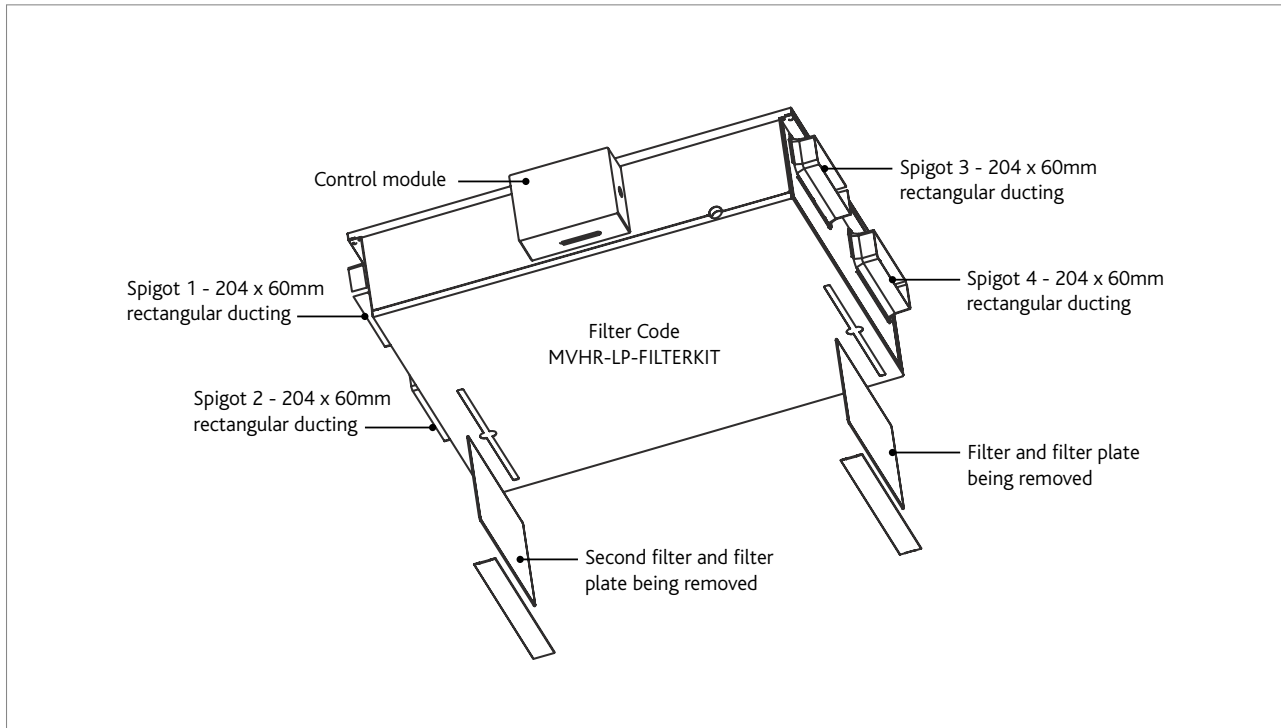


MRXBOXAB-ECO-LP2

SAP 2012 Test Results ▼

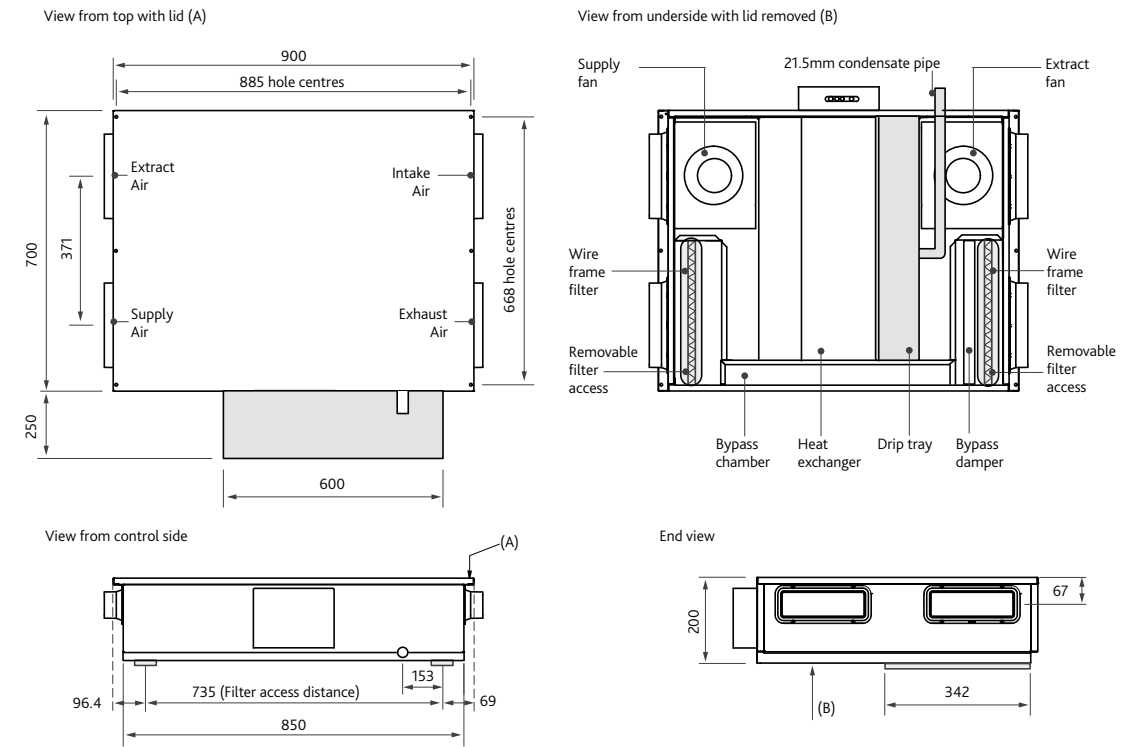
Product Code	MRXBOXAB-ECO-LP2		
Exhaust Terminal Configuration	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.48	78%	Yes
Kitchen + 2 Wet Room	0.61	79%	Yes
Kitchen + 3 Wet Room	0.77	79%	Yes
Kitchen + 4 Wet Room	1.01	79%	Yes
Kitchen + 5 Wet Room	1.26	79%	Yes

General Arrangement ▼



Technical - MRXBOXAB-ECO-LP2 ▼

DIMENSIONS (mm)  
Weight - 37kg



Electrical Details ▼

Please note: The electrical connection of the unit must be carried out by a qualified electrician.

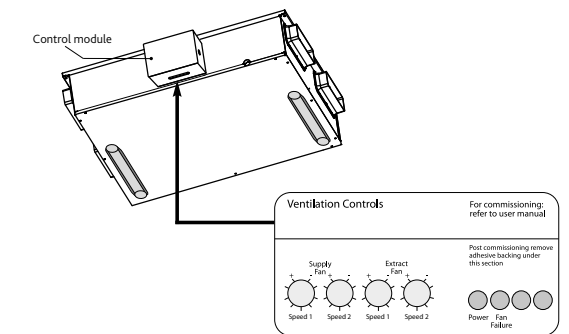
The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The three core cable from the mains power supply should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

Electrical Details: MRXBOXAB-ECO-LP2	
Voltage:	230V 1ph 50Hz
Consumption:	1.2 Amp

Detail of unit control on control panel.

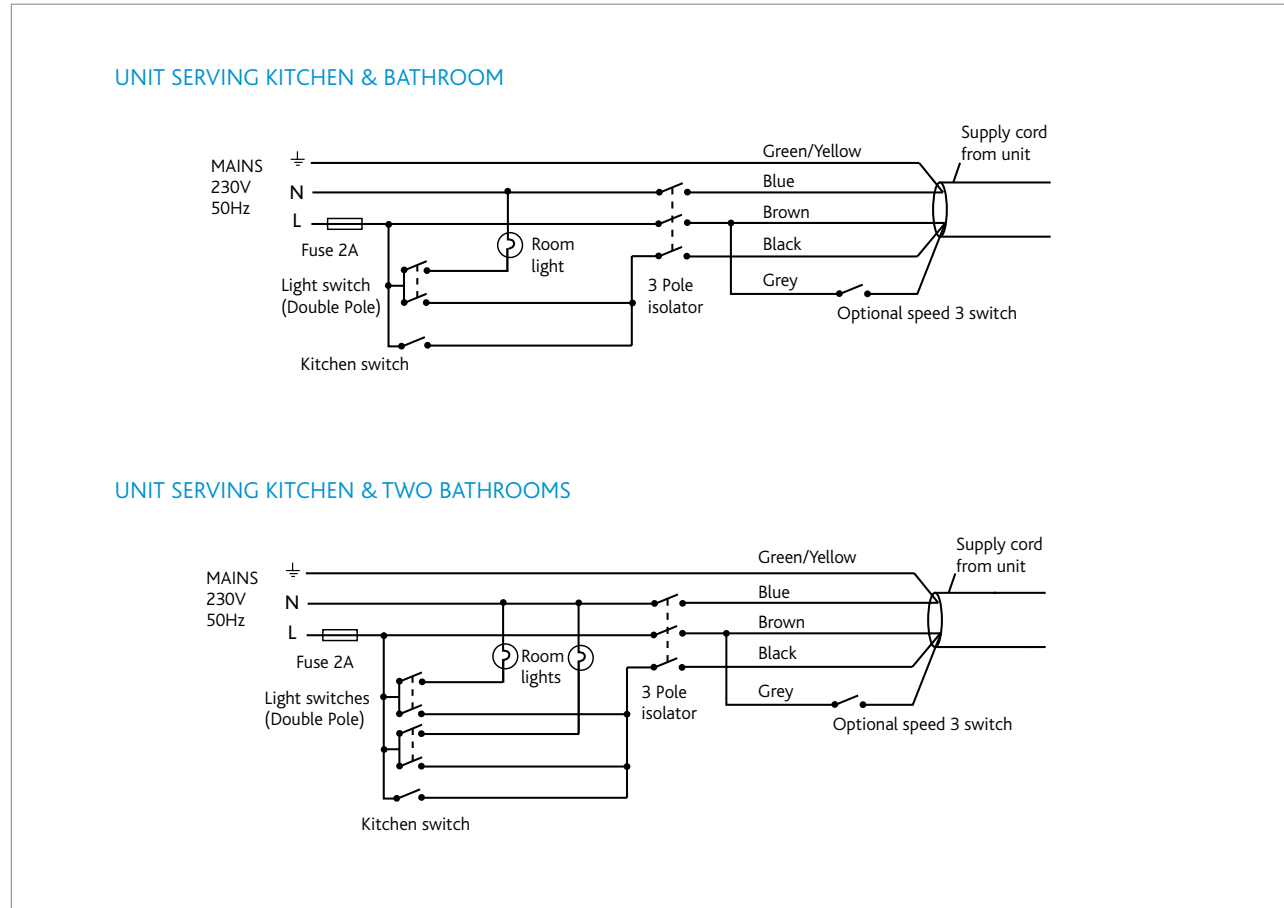


Tamper proof label following commissioning, includes system status indication.



MRXBOXAB-ECO-LP2

Wiring - MRXBOXAB-ECO-LP2



Optional Sensors and Detectors

Customise MRXBOXAB-ECO-LP2 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

Consultants Specification

SPECIFICATION

The unit shall be manufactured from galvanised sheet steel with a white, pre-painted removable access panel. The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi-plate, aluminium, counter-flow, high-efficiency heat exchanger block, with a thermal efficiency of up to 80%. The heat exchanger shall be protected by G3 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the underside access panels, enabling quick and easy maintenance.

The unit shall have a maximum depth of 200mm to fit within ceiling void restrictions. 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.

Motor assemblies shall be removable from the underside of the unit and will not require the unit to be removed from situ.

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

The unit shall be suitable for 204x60mm rectangular 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-ECO-LP2 and MRXBOXAB-ECO-LP2-OH as manufactured by Nuaire and shall be listed on the PCDB database.

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 SUMMER BYPASS

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.

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. summer bypass, frost protection.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOXAB-ECO-LP2 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 as 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.

REMOTE COMMISSIONING

(MRXBOXAB-ECO-LP2-C & MRXBOXAB-ECO-LP2OH-C units only)

These units shall have a remote control PCB fitted with a 1m flexible conduit providing improved access for commissioning.

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.

# Q-Aire

## Quick Quiet Quality

As Mechanical Ventilation Heat Recovery fast becomes the most popular form of ventilation, Nuaire continue to lead the way in innovation and market leadership.

The introduction of the Q-Aire range means Nuaire can offer an entire MVHR solution for new build properties, with every aspect of the system taken care of. We recognise that customers need products quickly, systems that work quietly and confidence in their high quality – something which comes as standard at Nuaire.

The Q-Aire range includes unique acoustic solutions to meet in room noise levels of NR25 with projects demanding high air volumes. This includes an acoustic enclosure for an MVHR unit only and a unique all-in-one acoustic enclosure surround which also incorporates a built-in silencer.

To compliment these units, choose from the only supply valve on the market which offers both a built in humidistat, G2 filter and is lockable to meet the NHBC guidelines. These create great benefits for everyone involved in a new build project: Quiet solutions for the consultants, Quick delivery, installation and commissioning for the contractors providing Quality products for the end client.



Removes up to  
**99.5%**  
of Nitrogen  
Dioxide NO<sub>2</sub>

The Q-Aire range also includes the IAQ range, representing the latest technology in carbon filtration to tackle rising air pollution.

With the increasing focus on Indoor Air Quality, particularly in urban areas where high levels of NO<sub>2</sub> are being measured, higher levels of filtration are required to meet the World Health Organisation (WHO) guidelines.

Nuaire's IAQBOX range incorporates a NO<sub>2</sub> filter cartridge up to 99.5% efficient and offers optional PM2.5 & PM10 filters. The range consists of two sizes to allow large volumes of air to pass through without causing a rise in pressure on the MVHR system.

Our very latest innovation is a unique NO<sub>2</sub> cartridge that sits within our newly designed supply air valve, capable of supplying and filtering airflow into the property.

Independently tested at BRE, the activated carbon cartridge is over 90% efficient in the removal of Nitrogen Oxides/Dioxide ensuring excellent indoor air quality for the occupant.





**For more information**

Residential product orders or enquiries:  
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Fax: +44 (0)29 2085 8555  
residential.enquiries@nuaire.co.uk  
www.nuaire.co.uk

