

TECHNICAL NOTE 03			
Project:	JZ48 1 Station Road		
Title:	Ventilation Design / BS 8233 Compliance		
Date:	17 th June 2020		
Author:	DGM	Revision:	01

1.0 INTRODUCTION

- 1.1 The proposed design for 1 Station Road, Reading, includes an MVHR Ventilation System. This is as per Building Regulation's Approved Document Part F, System 4.

1.2 PLANNING REQUIREMENTS

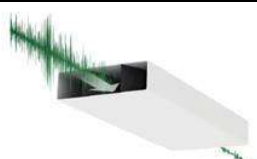
MVHR Design

- 1.3 The proposed unit for each dwelling is a Nuaire MRXBOX AB-ECO2. Data sheet attached at specified design duty (29L/s @ 130Pa).

Ventilation Acoustics

- 1.4 The BS 8233 document, "Guidance on sound insulation and noise reduction for buildings" describes the maximum allowable noise within dwellings.
- 1.5 The above standard is achieved at 1 Station through the use of a whole-dwelling ventilation system.
- 1.6 The use of the this MVHR system for both trickle and boost ventilation results in no need to open windows for normal ventilation of the dwelling. There is an exception for purge ventilation which would be achieved by opening the windows, this is to clear contaminants such as a chemical spill (spilling a bottle of bleach for example). This approach reduces the impact of noise from outside of the building.
- 1.7 The ambient noise in Living Rooms should be designed with the range of 35 – 40 dB. This translates to a maximum target noise rating (NR) of 34 NR.
- 1.8 The proposed unit would result in a NR level of 33 without attenuation, but due to additional sources of background noise, such as external traffic noise it is beneficial to reduce this further.
- 1.9 Using the Nuaire SIL-500 inline duct attenuator (500mm long linesize) the NR rating is reduced to 31 NR for background noise from the supply/extract grille and 27 NR from breakout from the MVHR unit. The attenuator details are provided below.
- 1.10 The proposed MVHR system allows for closed windows to reduce traffic noise and has been designed to minimise acoustic impact. The specified unit meets the BS 8233 requirements.

Attenuator Details

ATTENUATOR LENGTH	INTERNAL CROSS SECTION	IMAGE	INSERTION LOSS						
			125	250	500	1000	2000	4000	8000
500mm Nuaire SIL-500	204x60		0.2	4.2	7.4	19	19.3	21.6	22.2

MVHR Details

See next page.



SUMMARY FAN DATA SHEET

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

UK Commercial enquiries T:029 2085 8200 UK Residential enquiries T:029 2085 8500 International enquiries T:+44.29 2085 8497

Whilst the information given on this data sheet is fan specific, it is in summary and reference to the product selection catalogue and installation & maintenance documents is recommended.

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Project Details

Location: Boost Rate

Technical Data

MRXBOX-ECO - Wall Mounted Multi Room Xbox

Fan Code: **MRXBOXAB-ECO2**

Installation Manual Links: 671795

Required duty: 29 l/s at 130 Pa

Actual duty: 49.143 l/s at 371 Pa

Actual at required flow: 29 l/s at 554 Pa

When speed controlled to required duty (59.01%):

Motor Input Power: 0.032 kW

Specific Fan Power: 1.1 W/(l/s)

Velocity at required duty: 2.363 m/s

At full speed:

Motor Input Power: 0.154 kW

Specific Fan Power: 3.1 W/(l/s)

Maximum Fan Speed: 3,750 RPM

Electrical Supply: 230V 1 Phase 50 Hz

Motor current (flc): 1.2 A

Max. operating temp: 40°C

Weight: 20 kg

Starting currents are nominal.

Sound Data

Acoustic performance to ISO 13347 and AMCA 300.

Noise calculated speed controlled to required duty (59.01%)

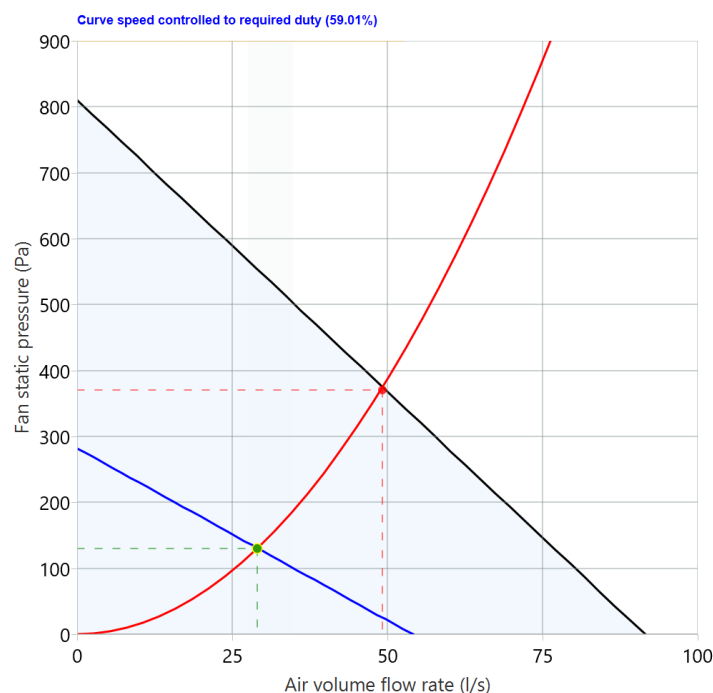
Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	47	53	48	47	39	35	22	<16	29
Open Inlet (Intake & Extract)	41	41	53	44	40	35	23	<16	
Open Outlet (Supply & Exhaust)	52	59	58	60	54	53	42	32	

dBA is hemi-spherical at 3 metres. For spherical deduct 3 dBA.

Please note that the noise data stated on this data sheet for the unit and/or silencer is tested in accordance with UK, European and International industry laboratory standards. However onsite conditions may vary and we would recommend that this information is verified by an acoustic specialist in order to ensure its suitability for the intended application.

Performance Chart



Additional Notes

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 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 21.5mm drain connection.

The unit shall be suitable for 125mm 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 unit shall be offered with a five year warranty. The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuaire International Sales office for further details.

Nuaire, Western Industrial Estate, Caerphilly, CF83 1NA, United Kingdom. email:info@nuaire.co.uk

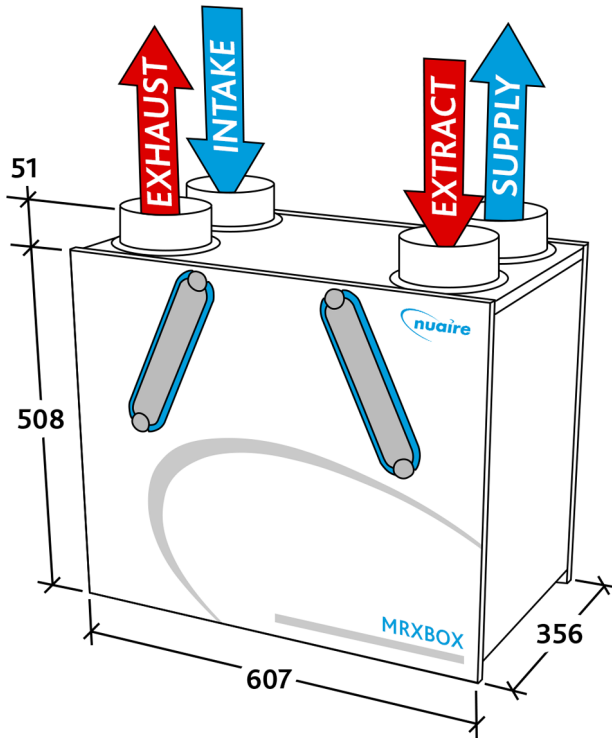
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Fan Dimensions

SPIGOT CONFIGURATION SHOWN IS VALID FOR THE STANDARD HANDED UNIT ONLY. OPPOSITE HANDED UNIT IS ALSO AVAILABLE UPON REQUEST.



Length: Width: Height:

356 607 507

Spigot size: 125

Duct size: 125

Drawing is for dimensional purposes only. Dimensions in mm.

SAP Appendix Q Test Results

Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency %
Kitchen + 1 wet room	0.52	90%
Kitchen + 2 wet rooms	0.59	89%
Kitchen + 3 wet rooms	0.77	87%
Kitchen + 4 wet rooms	1.0	86%
Kitchen + 5 wet rooms	1.23	86%



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Project Details

Location: Trickle Rate

Technical Data

MRXBOX-ECO - Wall Mounted Multi Room Xbox

Fan Code: **MRXBOXAB-ECO2**

Installation Manual Links: 671795

Required duty: 21 l/s at 70 Pa

Actual duty: 48.786 l/s at 381 Pa

Actual at required flow: 21 l/s at 625 Pa

When speed controlled to required duty (43.05%):

Motor Input Power: 0.012 kW

Specific Fan Power: 0.6 W/(l/s)

Velocity at required duty: 1.711 m/s

At full speed:

Motor Input Power: 0.154 kW

Specific Fan Power: 3.2 W/(l/s)

Maximum Fan Speed: 3,750 RPM

Electrical Supply: 230V 1 Phase 50 Hz

Motor current (flc): 1.2 A

Max. operating temp: 40°C

Weight: 20 kg

Starting currents are nominal.

Sound Data

Acoustic performance to ISO 13347 and AMCA 300.

Noise calculated speed controlled to required duty (43.05%)

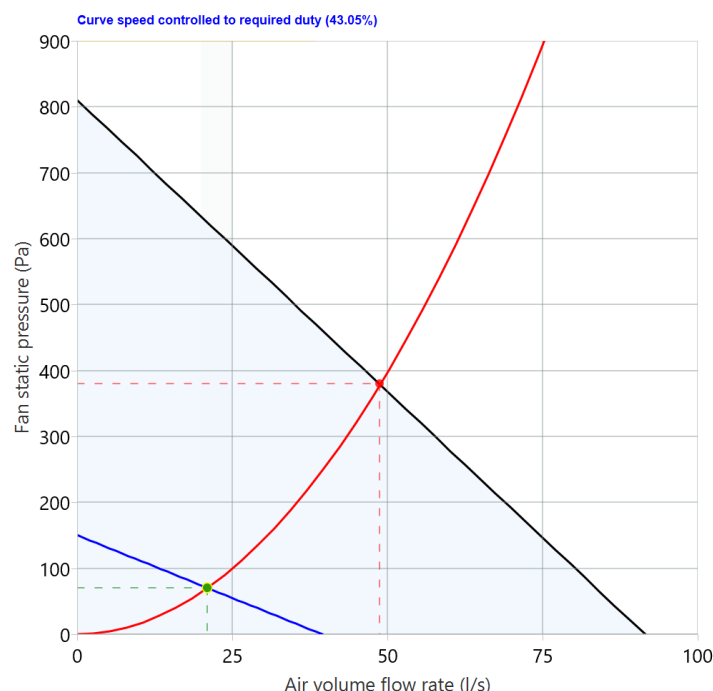
Sound Power Levels re 1 pWatts (Hz):

Hz	63	125	250	500	1k	2k	4k	8k	dBA
Breakout	41	45	42	39	31	25	<16	<16	21
Open Inlet (Intake & Extract)	39	37	45	38	32	26	<16	<16	
Open Outlet (Supply & Exhaust)	45	51	51	52	47	44	31	20	

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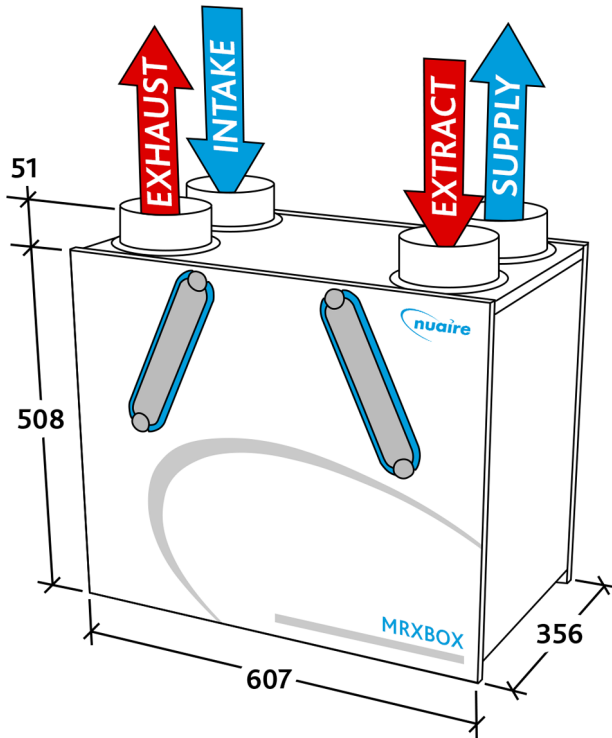
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