RISE

Noise Impact Assessment

Date:
September 2022

Reference:
CSY-3-03-0003

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The air source heat pump proposed at 12 Cressy Rd, NW3 2LY is the Mitsubishi Ecodan Ultra Quiet 11.2kW Monobloc unit. This unit has been specifically designed to operate at low noise levels with nominal sound levels at 42dBA, which is similar to the sound of a kitchen fridge, light rain, computer hum or quiet office space.

We are including the following in this report:

- Calculation done by the Enviromental Especialist, from Next Step Heating that proves the compliance with permitted development standards (MCS020) showing that the heat pump will be adequate quiet.

- Product information sheet of the air shource heat pump.

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Air source heat pump acoustic sound pressure calculation as per MCS020 Planning Standards – 12 Cressy Rd, NW3 2LY

NEXT STEP HEATING

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Air source heat pump acoustic sound pressure calculation as per MCS020 Planning Standards, Version 1, Issued 27.09.2022

Calculation Procedure	Result
Description of assessment position tested (This must be detailed enough to allow for identification, including property address and exact location of window / door opening and floor level. It is recommended that a map, sketch, photo or other record be attached to these workings.)	The assessment position is the rear first floor bedroom window of no 14 Cressy Rd, and is 8m away from the proposed location of the Air Source Heat Pump
From manufacturer‟s data, obtain the A-weighted sound power level of the heat pump. See „Note 1: Sound power level‟. The highest sound power level specified should be used (the power in “low noise mode” should not be used).	60dB
Use „Note 2: Sound pressure level‟ and „Note 3: Determination of directivity‟ below to establish the directivity „Q‟ of the heat pump noise.	Q8 – “Three Reflective Surfaces”
Measure the distance from the heat pump to the assessment position in metres. (rounded down to nearest m)	8m
Use table in „Note 4: dB distance reduction‟ below to obtain a dB reduction.	-20 dB
Establish whether there is a solid barrier between the heat pump and the assessment position using „Note 5: Barriers between the heat pump and the assessment position„ and note any dB reduction.	There is a louvred enclosure around the heat pump. This completely partially obscures vision of the assessment position.
Calculate the sound pressure level (see „Note 2: Sound pressure level‟) from the heat pump at the assessment position using the following calculation: (STEP 1) + (STEP 4) + (STEP 5)	35 dB(A)
Background noise level. For the purposes of the MCS Planning Standard for air source heat pumps the background noise level is assumed to be 40 dB(A) Lp. For information see „Note 6: MCS Planning Standard for air source heat pumps background noise level‟.	40 dB(A)
Determine the difference between STEP 7 background noise level and the heat pump noise level using the following calculation: (STEP 7) – (STEP 6)	5dB(A)
Using the table in „Note 7: Decibel correction‟ obtain an adjustment figure and then add this to	41.2 dB(A)

whichever is the higher dB figure from STEP 6 and STEP 7. Round this number up to the nearest whole number.	
Final Result	42 dB(A)
Is the FINAL RESULT in STEP 9 lower than the permitted development noise limit of 42 dB(A)? If YES - the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of this standard). NOTE - Other assessment positions may also need to be tested. If NO – the air source heat pump will not be permitted development. This installation may still go ahead if planning permission is granted by the local planning authority	YES – The air source heat pump complies with the permitted development noise limit for this assessment position and may be permitted.

Calculation Summary as per MCS_Heat_Pump_Calculator_v1_8

ASHP - Sound Power Level

1. Sound power level (dB)	*60*
2. Sound pressure level (dB)	*Q8 - "Three Reflective Surfaces"*
3.Distance from heat pump to assessment position (meters)	*8*
4. dB Distance Reduction	*-20*
5. Barriers Between heat pump and assessment position	*Barrier (partial view)*
6.Sound pressure level @ assessment position	*35*
7. Background noise level (dB)	*40*
8. Differential between 6. & 7.	*5*
9. Decibel Correction (dB)	*41.2*
10. Final Result (dB)	**42.0**
	Pass

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Heating | Product Information

MITSUBISHI ELECTRIC

PUZ-WM112VAA(-BS)

Ecodan R32
Monobloc Air Source Heat Pump

R32

Key Features:

- A+++ high efficiency system
- Ultra quiet noise levels
- Maintains full heating capacity at low temperatures
- Zero carbon solution
- MELCloud enabled

Key Benefits:

- Ultra low running cost
- Flexible product placement
- Confident and quick product selection
- Help to tackle the climate crisis
- Remote control, monitoring, maintenance and technical support

MELCloud

Manufactured in the UK

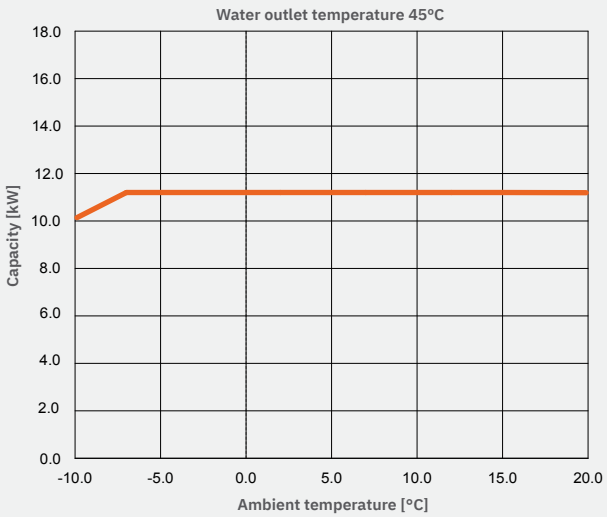
037-0034-20-01

Heating | **Product Information**

PUZ-WM112VAA(-BS)
Ecodan R32
Monobloc Air Source Heat Pump

OUTDOOR UNIT		PUZ-WM112VAA(-BS)
HEAT PUMP SPACE HEATER - 55˚C	ErP Rating	A++
	η_s	134%
	SCOP (MCS)	3.34
HEAT PUMP SPACE HEATER - 35˚C	ErP Rating	A+++
	η_s	191%
	SCOP (MCS)	4.74
HEAT PUMP COMBINATION HEATER - Large Profile*1	ErP Rating	A+
	η_{wh}	148%
HEATING*2 (A-7/W35)	Capacity (kW)	11.2
	Power Input (kW)	3.73
	COP	3.00
OPERATING AMBIENT TEMPERATURE (°C DB)		-25 ~ +35
SOUND DATA*3	Pressure Level at 1m (dBA)	45
	Power Level (dBA)*4	60
WATER DATA	Pipework Size (mm)	28
	Flow Rate (l/min)	32
	Water Pressure Drop (kPa)	24.0
DIMENSIONS (mm)	Width	1050
	Depth	480
	Height	1020
WEIGHT (kg)		119
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz
	Phase	Single
	Nominal Running Current [MAX] (A)*5	10.9 [28]
	Fuse Rating - MCB Sizes (A)*6	32
REFRIGERANT CHARGE (kg) / CO_2 EQUIVALENT (t)	R32 (GWP 675)	3.0 / 2.03

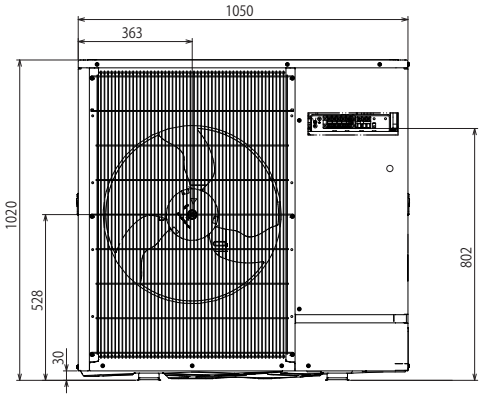
NOMINAL HEATING CAPACITY



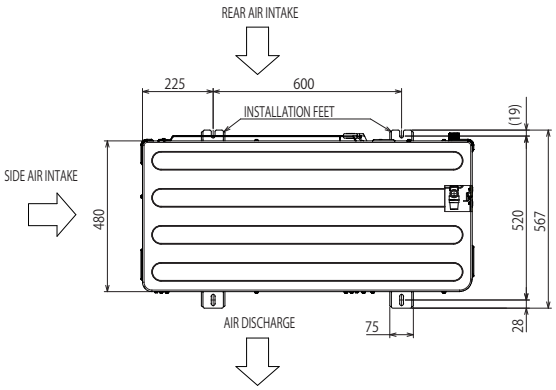
Notes:
*1 Combination with E*PT20X Cylinder
*2 Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.
*3 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.
*4 Sound power level tested to BS EN12102.
*5 Under nominal heating conditions at outdoor temp: 7ºC, outlet water temp: 35ºC.
*6 MCB Sizes BS EN60898-2 & BS EN60947-2.
η_s is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

PUZ-WM112VAA(-BS) DIMENSIONS

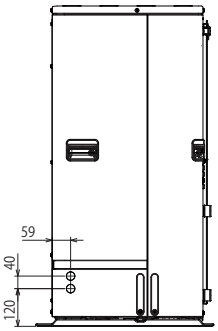
FRONT VIEW



UPPER VIEW



SIDE VIEW



All dimensions (mm)

MITSUBISHI ELECTRIC
Changes for the Better

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Note: Refer to 'Installation Manual' and 'Instruction Book' for further 'Technical Information'. The fuse rating is for guidance only and please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/ electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of August 2020

Green Gateway greengateway.mitsubishielectric.co.uk