The Renewable Solutions Provider

Making a World of Difference

Lossnay RVX Series

Lossnay

MITSUBISHI ELECTRIC

Air Conditioning | Heating
Ventilation | Controls

Why do we need fresh air ventilation?

Poor indoor air quality can be attributed to many problems inside a building. Excess humidity causes dampness, rot and mould, whilst pollutants are known to be a major cause of damaging health issues such as asthma and eczema. Stale air is also believed to lead to a loss in productivity and low morale.

As the demand for improved energy efficiency results in increasingly airtight buildings, natural ventilation proves less effective and drives the need for mechanical ventilation. With increasing legislation, the challenge for designers, installers and occupiers of any building is to find ventilation that's both effective and energy efficient.

Mitsubishi Electric meets this need with a range of Lossnay Mechanical Ventilation Heat Recovery (MVHR) systems, designed to supply fresh air into any commercial building whilst simultaneously extracting stale air and, most importantly, recovering valuable heat energy for maximum efficiency.

The benefits of Lossnay include:

- Clean, fresh air
- Improved air quality and comfort
- Increased climate control
- Reduced energy bills
- Energy efficient heat recovery
- Significantly reduced power consumption and SFP's

Lossnay is a state-of-the-art heat exchange technology, that enables CO_2 reduction and energy saving

Legislation - driving the need for effective ventilation

ErP Directive

The Ecodesign Directive for Energy Related Products (ErP) is European legislation adopted in 2009 to improve the environmental performance of any products that use energy or that are related to energy consumption.

All fans, including those integrated into other products, with an electrical power input between 125W and 500kW are subject to this legislation which has been implemented over two stages. The implementation of the first stage took place on the 1st January 2013 and set out the first tier of minimum energy efficiency requirements.

The second stage has been effective since the 1st January 2015 and called for a higher level of minimum energy efficiency requirements for fans.

Part L

Part L of the Building Regulations calls for buildings to be more airtight and energy efficient.

As a result, maintaining good indoor air quality through effective ventilation is vital and MVHR systems are perfect to achieve this in an energy efficient manner. Part L covers the maximum amount of electricity a mechanical ventilation system should use and more specifically what the fan motors in a unit should use (Specific Fan Power (SFP)).

Furthermore, figures for minimum energy efficiency for heat exchangers in heat recovery systems are outlined for non-domestic buildings. Currently Part L calls for heat recovery systems with plate heat exchangers, installed in non-domestic buildings, to be at least 50% efficient.

Part F

Part F of the Building Regulations focuses on ventilation systems and indoor air quality in both domestic and commercial buildings.

It covers all aspects of specifying and designing a ventilation system and gives guidance on installation, commissioning, operation and maintenance. Minimum ventilation rates are also advised within the document, e.g. a minimum air supply rate of 10l/s/person (litres per second, per person) is advised in offices.

Mechanical ventilation with heat recovery can help reduce overheating in buildings and decrease both heating and cooling loads

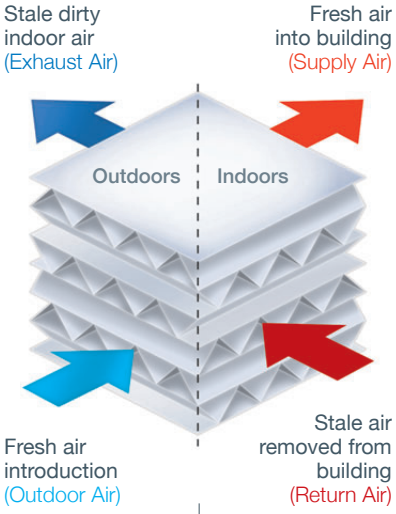
How Lossnay works

The technology behind the energy efficiency of Lossnay lies in the construction of the core which enables exchange of both latent heat (humidity/moisture) and sensible heat (temperature) to maintain a comfortable internal environment for minimal energy consumption.

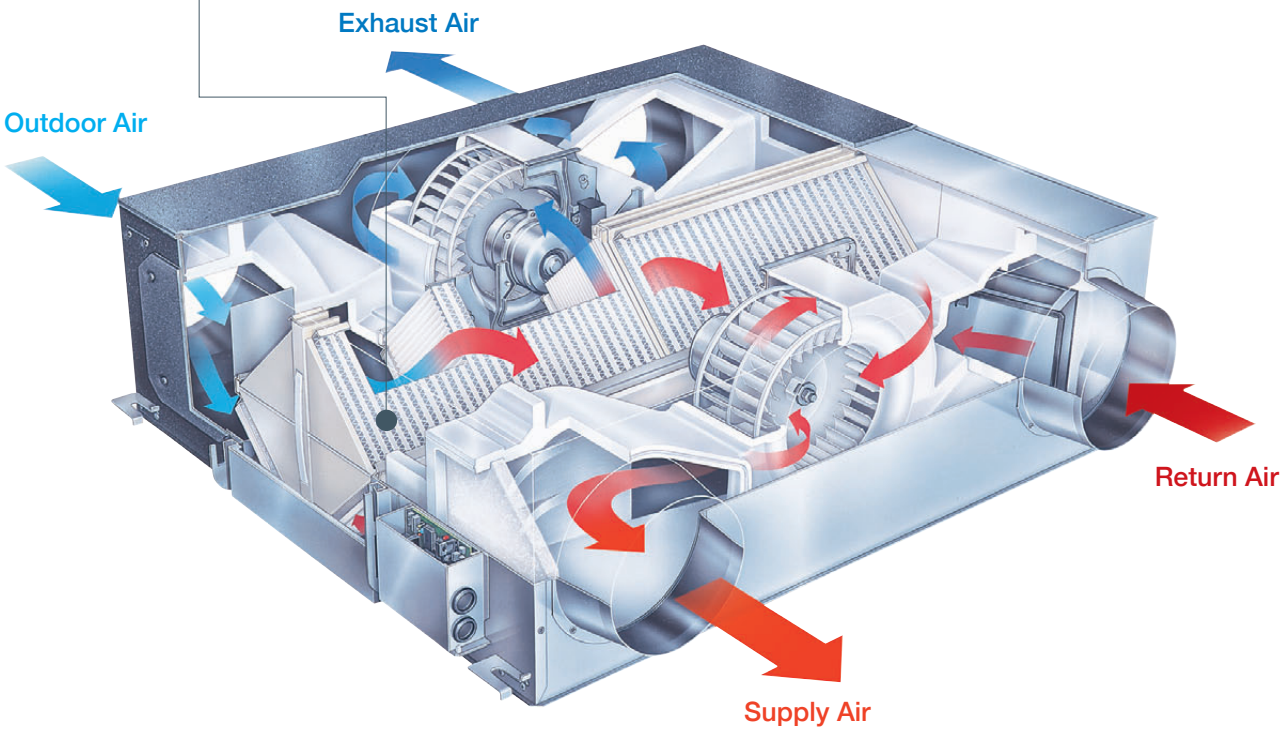
The core is made from ultra-thin paper and sits at the heart of the system. Constructed in a corrugated form and layered in alternate directions, the core allows a cross airflow to maximise heat recovery without the supply and exhaust air mixing, ensuring only fresh air is introduced into a building.

The use of ultra-thin paper enables the unit to achieve high enthalpy exchange efficiency and dramatically increases moisture permeability whilst acting as a barrier against air leakage.

Lossnay's Dynamic Paper Heat Exchanger Core



As Lossnay extracts stale air from a building, heat energy is recovered through the paper core and transferred into the fresh incoming air



New More Efficient DC Fan Motor

Benefits of this include:

1. **Reduced power consumption**
2. **Reduced SFP's**
3. **More energy saving**
4. **Wider range of air volume**

Low Power Consumption

The adoption of more efficient DC fan motors means that the new Lossnay RVX units are able to offer a significant reduction in power consumption.

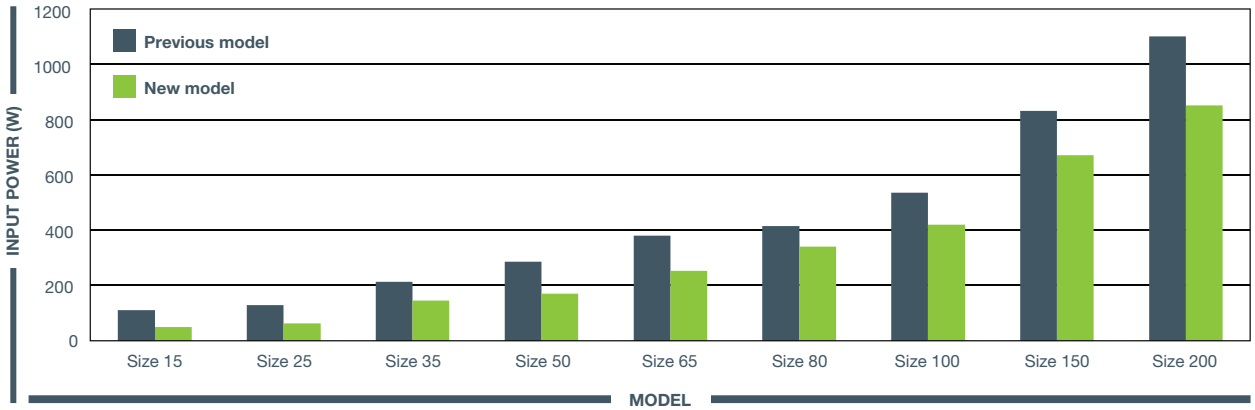
Low Specific Fan Powers (SFP's)

This reduction enables the Lossnay RVX units to benefit from significantly lower specific fan powers (SFP's). With SFP's ranging from as low as 0.30 W/(l/s) up to a maximum of 1.61 W/(l/s) across the entire range, the Lossnay RVX units more than comply with Building Regulations and legislation and allow for more energy saving and reduced carbon emissions.

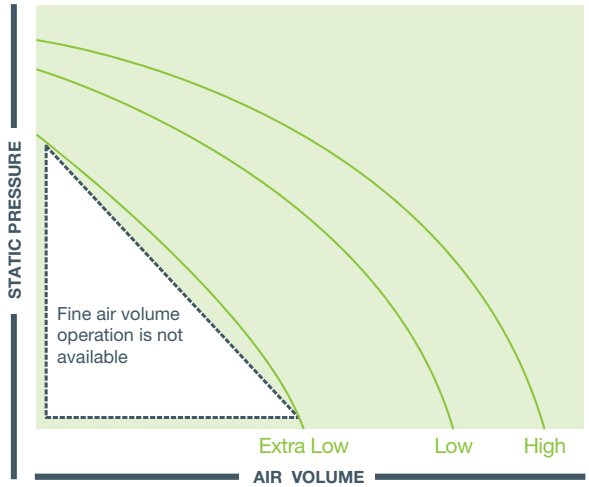
Improved Air Volume

The new units also benefit from a wider air volume range with four distinct and selectable fan speeds compared to the three fan speeds with the previous model. Each fan speed is 25%, 50%, 75% and 100% of the rated air volume of each unit allowing more precise air volume control.

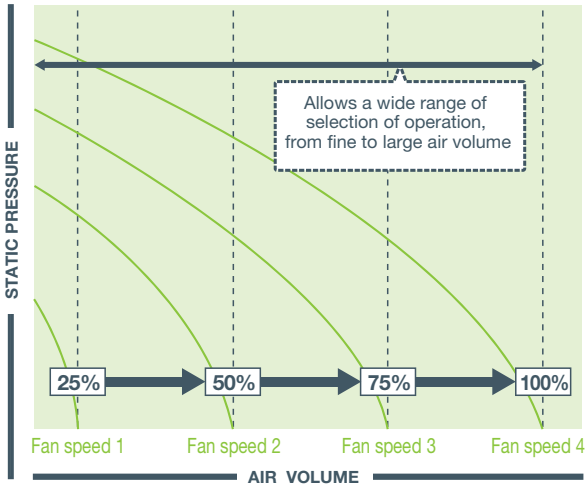
COMPARISON BETWEEN NEW AND PREVIOUS POWER CONSUMPTION (New Model: Fanspeed 4, Previous Model: Extra High)



PREVIOUS MODEL CHARACTERISTIC CURVES



NEW MODEL CHARACTERISTIC CURVES



PZ-61DR-E Controller

New Remote Controller

The design of the new PZ-61DR-E Lossnay controller has been unified with the PAR-31MAA air conditioning controller with a full-dot backlit LCD screen making it easy to see and use. Additionally the new controller has a vast range of added functionality allowing for flexibility on application and increased energy saving.

An example of this is the weekly timer function (shown below) which now allows all four fan speeds to be selected enabling optimised ventilation not just at different times of the day but also for different days of the week.

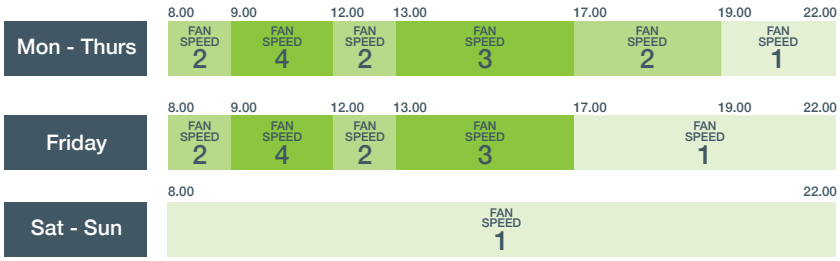
During summer nights the night purge function of the Lossnay units allows cooler fresh air to be brought into the building via the bypass damper, to reduce internal temperatures and cool the building fabric therefore reducing the load on the air conditioning system the next morning. This function on the new RVX units has been made more flexible whereby, it is now possible to select the operation start conditions, air volume and operation time to suit each application.

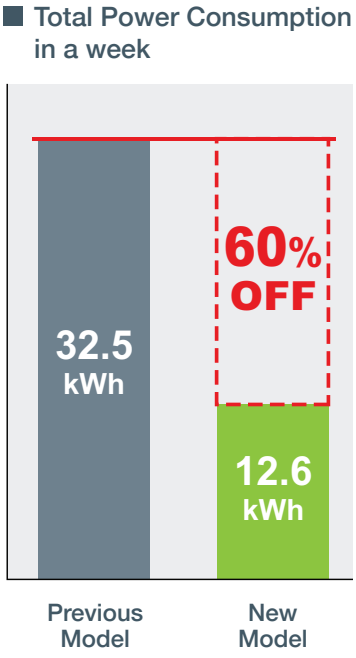
Auto ventilation mode, a function which automatically switches the Lossnay units between heat recovery mode and bypass mode dependent on indoor and outdoor conditions, has been made more flexible with the new RVX units. There are now two pre-defined factory settings that can be used for this function or a completely free setting allowing the conditions of bypass mode to be individually selected for each application.

Example:
Weekly Timer Function

Previous Model

New Model

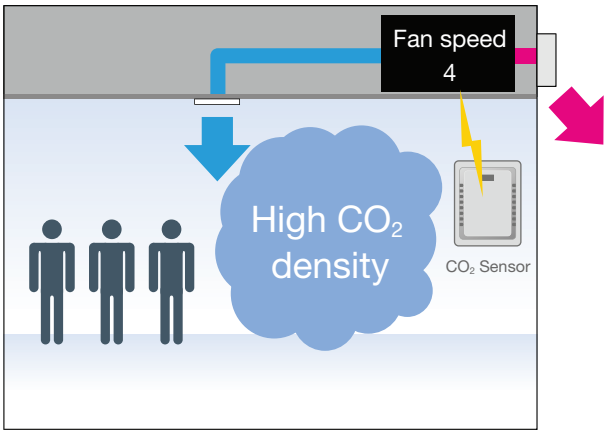




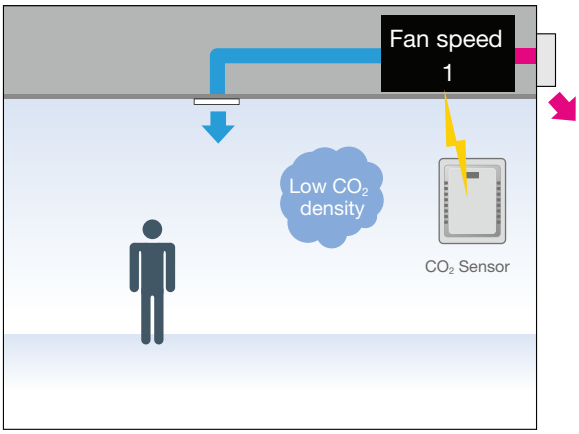
PCB Functionality

The PCB of the new Lossnay RVX units has some added functionality allowing for more flexible control options. The connection of a third party pre / post-heater with operation functionality is now available. Additionally external fan speed control using 0-10V DC signal is possible across all four fan speeds allowing fan speed control using a third party CO_2 sensor or a BEMS system.

Fan Speed 4

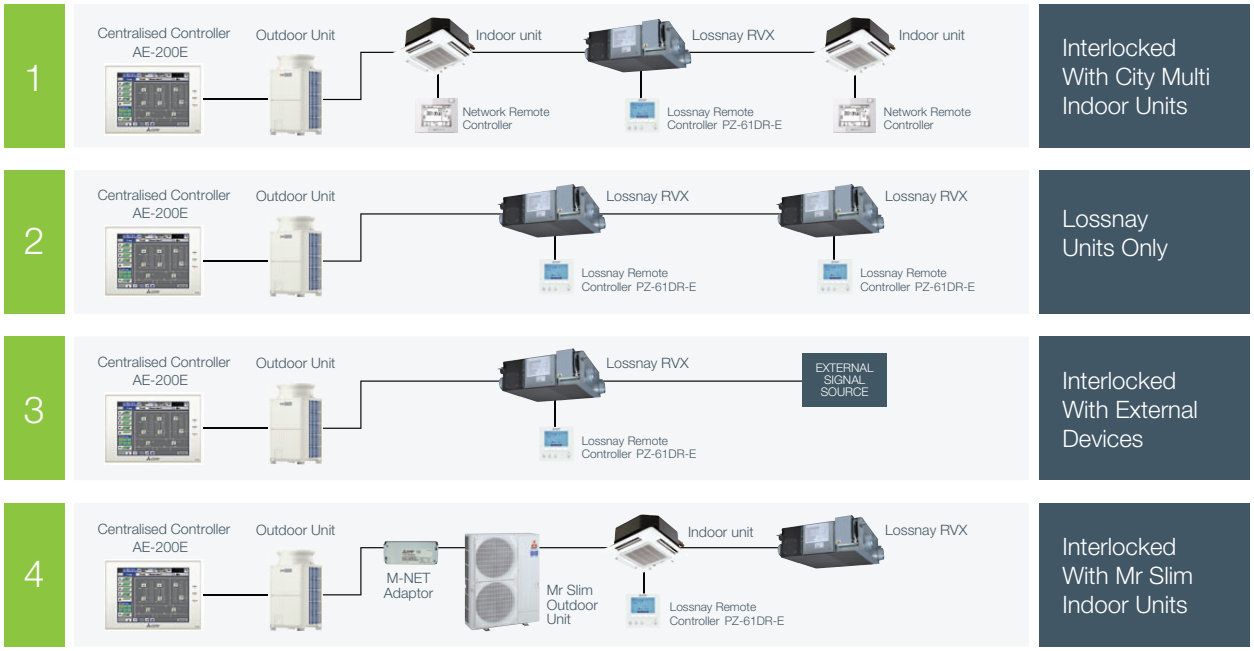


Fan Speed 1

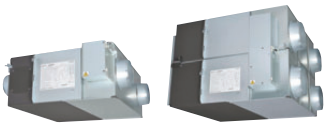


Centralised Control

As well as being able to interlock with Mitsubishi Electric Mr Slim and City Multi air conditioning systems, the new Lossnay RVX units can be centrally controlled using an AE-200E centralised controller with optional energy monitoring functionality.



LGH-RVX-E Commercial Series



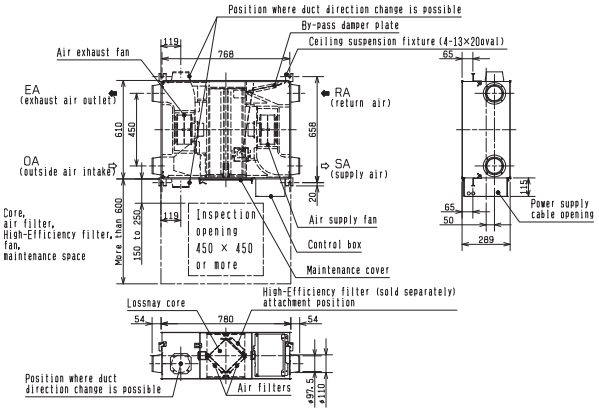
COMMERCIAL MODELS			LGH15RVX-E	LGH25RVX-E	LGH35RVX-E	LGH50RVX-E	LGH65RVX-E	LGH80RVX-E	LGH100RVX-E	LGH150RVX-E	LGH200RVX-E
ELECTRICAL POWER SUPPLY			220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz	220-240V, 50Hz
RUNNING CURRENT (A)		SP1	0.10	0.10	0.12	0.13	0.15	0.15	0.17	0.29	0.33
		SP2	0.15	0.16	0.26	0.26	0.39	0.36	0.50	0.70	0.88
		SP3	0.24	0.28	0.54	0.59	0.90	0.83	1.20	1.75	2.20
		SP4	0.40	0.48	0.98	1.15	1.65	1.82	2.50	3.71	4.88
INPUT POWER (W)		SP1	7	8	11	12	15	18	21	38	42
		SP2	14	16	31	32	49	60	75	123	153
		SP3	28	33	70	78	131	151	200	311	400
		SP4	49	62	140	165	252	335	420	670	850
AIRFLOW (m^3/h)*2		SP1	38	63	88	125	163	200	250	375	500
		SP2	75	125	175	250	325	400	500	750	1000
		SP3	113	188	263	375	488	600	750	1125	1500
		SP4	150	250	350	500	650	800	1000	1500	2000
AIRFLOW (l/s)*2		SP1	10	17	24	35	45	56	69	104	139
		SP2	21	35	49	69	90	111	139	208	278
		SP3	31	52	73	104	135	167	208	313	417
		SP4	42	69	97	139	181	222	278	417	556
SPECIFIC FAN POWER (W/(l/s))		SP1	0.70	0.47	0.46	0.34	0.33	0.32	0.30	0.37	0.30
		SP2	0.67	0.46	0.63	0.46	0.54	0.54	0.54	0.59	0.55
		SP3	0.90	0.63	0.96	0.75	0.97	0.90	0.96	0.99	0.96
		SP4	1.17	0.90	1.44	1.19	1.39	1.51	1.51	1.61	1.53
EXTERNAL STATIC PRESSURE (Pa)		SP1	6	5	10	8	8	10	11	11	10
		SP2	24	21	40	30	30	38	43	44	38
		SP3	54	48	90	68	68	85	96	98	84
		SP4	95	85	160	120	120	150	170	175	150
SOUND PRESSURE LEVEL (dBA)		SP1	17	17	17	18	18	18	18	18	18
		SP2	19	20	20	19	22	23	23	24	28
		SP3	24	22	28	28	29	30	31	32	36
		SP4	28	27	32	34	34.5	34.5	37	39	40
TEMPERATURE EXCHANGE EFFICIENCY (%)		SP1	84	86	88.5	87	86	85	89.5	85	89.5
		SP2	83	82	86	83.5	84	84	86.5	84	86.5
		SP3	81	80	82.5	81	81	82.5	83	82.5	83
		SP4	80	79	80	78	77	79	80	80	80
ENTHALPY EXCHANGE EFFICIENCY (%)	Heating	SP1	79	83	83.5	82.5	82	81	87	81	87
		SP2	78	76	78.5	75	76	78	78	78	78
		SP3	75.5	72	74	71	71	73.5	74	73.5	74
		SP4	73	69.5	71.5	69	68.5	71	72.5	72	72.5
	Cooling	SP1	79	83	82	82	81	81	85.5	81	85.5
		SP2	78	74.5	78	72.5	74	78	77	78	77
		SP3	74.5	70	73	68	69.5	72.5	73	72.5	73
		SP4	71	68	71	66.5	66	70	71	70.5	71
WEIGHT (kg)			20	23	30	33	38	48	54	98	110
DIMENSIONS (mm) Width x Depth x Height			780 x 610 x 289	780 x 735 x 289	888 x 874 x 331	888 x 1016 x 331	908 x 954 x 404	1144 x 1004 x 404	1144 x 1231 x 404	1144 x 1004 x 808	1144 x 1231 x 808
DUCT SIZE (mm)			100	150	150	200	200	250	250	(SA,RA) 250 (OA,EA) 270 x 700	(SA,RA) 250 (OA,EA) 270 x 700
STANDARD FILTER*1			EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3	EU-G3
FUSE RATING (BS88) – HRC (A)			6	6	6	6	6	6	6	10	10

Notes: Running Current, Input Power and Recovery Efficiency are based on the above airflow rate, power supply 240v, 50Hz. Sound Pressure Level measured at 1.5m under the centre of panel.
*1: EU-F7 filter available as optional parts. *2: Airflow tested to Japan industrial standard JIS B 8628. SP1, SP2, SP3 & SP4 relate to the fan speeds of the Lossnay RVX units i.e. fanspeed 1, 2, 3 & 4.

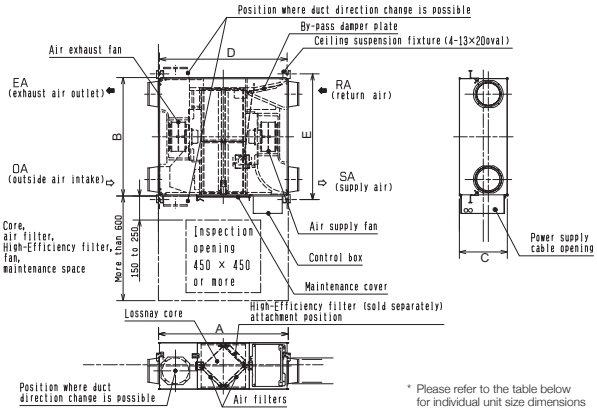
Lossnay Housings are also available, please contact Mitsubishi Electric for further information.

Product Information

DIMENSIONS LGH-15RVX-E



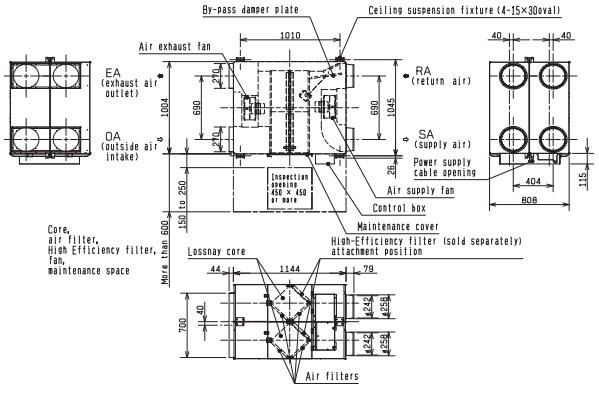
DIMENSIONS LGH-25-100RVX-E*



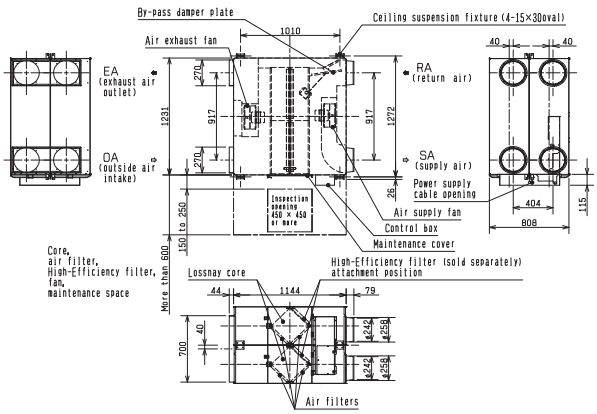
* Please refer to the table below for individual unit size dimensions

MODEL REFERENCE	DIMENSIONS			CEILING SUSPENSION FIXTURE PITCH		NOMINAL DUCT DIAMETER
	A	B	C	D	E	
LGH-25RVX-E	780	735	289	768	782	150
LGH-35RVX-E	888	874	331	875	921	150
LGH-50RVX-E	888	1016	331	875	1063	200
LGH-65RVX-E	908	954	404	895	1001	200
LGH-80RVX-E	1144	1004	404	1131	1051	250
LGH-100RVX-E	1144	1231	404	1131	1278	250

DIMENSIONS LGH-150RVX-E



DIMENSIONS LGH-200RVX-E



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