



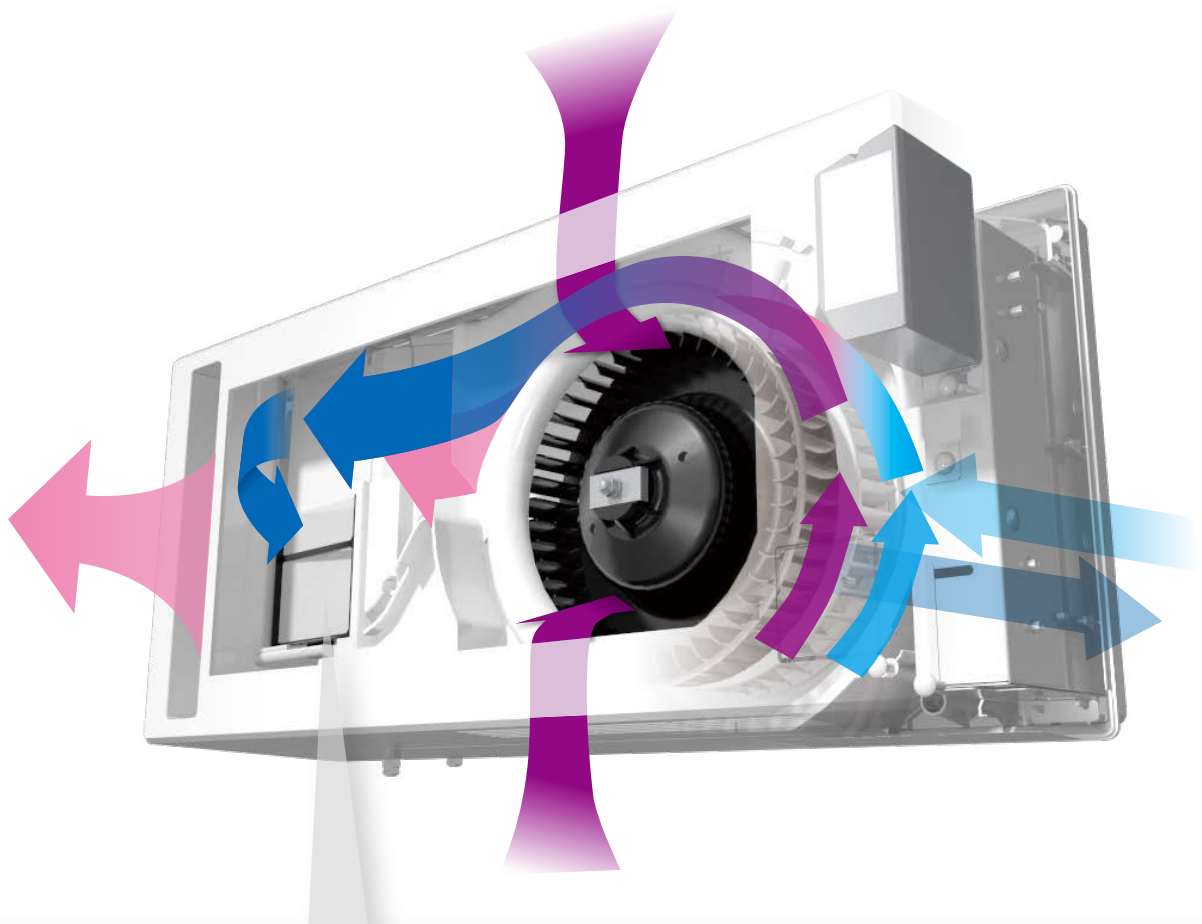
# Residential-Use Lossnay

## Heat Recovery Ventilators

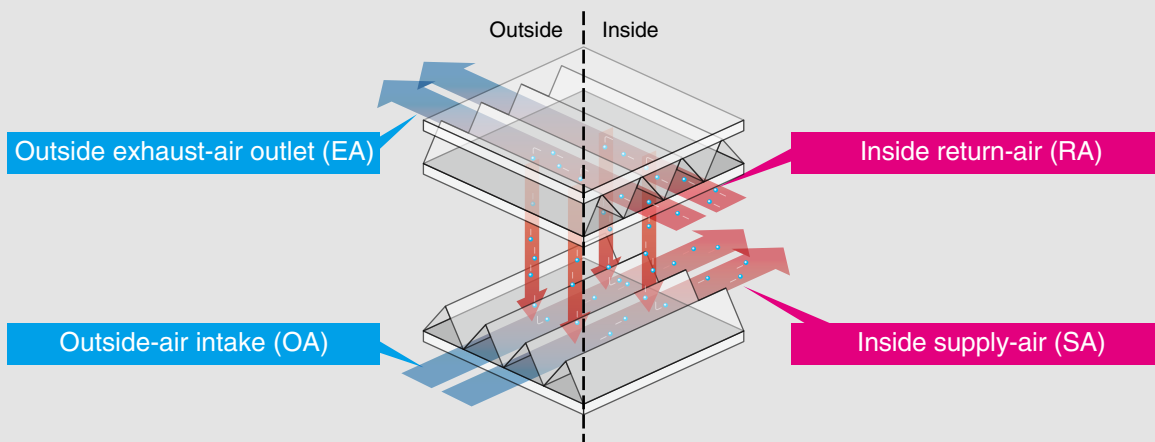
Decentralized/Centralized

# Lossnay optimizes residential indoor-air quality through

Lossnay is a total heat-exchange ventilation system that utilizes the characteristics of corrugated design for superior temperature (sensible heat) and humidity (latent heat) exchange.\*



## ■ Heat exchange concept applying the Lossnay core



After introduction of the first-generation Lossnay in 1970, Mitsubishi Electric ventilators have evolved by always being one-step ahead of the air-conditioning needs of the times, which continue to diversify even today.

This original technology is now used in a wide range of applications, and our ventilation systems can be found in residences, office buildings, hospitals, schools, etc.

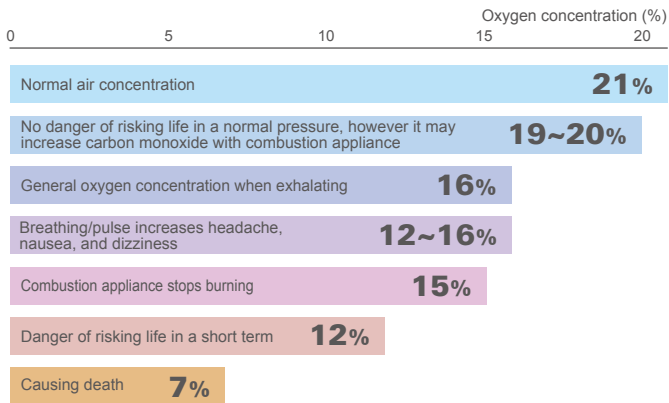
# temperature and humidity exchange

## The need for ventilation

### The need for fresh air

Poor air quality can be attributed to many problems arising in the workplace and in the home. It is believed to contribute to a significant loss in productivity, low morale and higher rates of sickness. Providing good ventilation in residential and commercial buildings is to provide conditions under which people can live and work comfortably and safely.

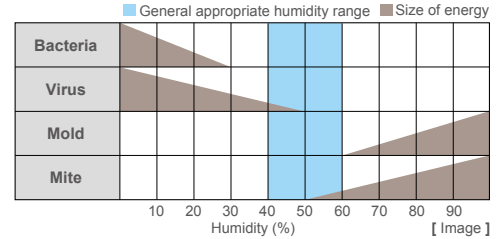
#### Effect occurs by oxygen concentration



### The need for appropriate humidity management

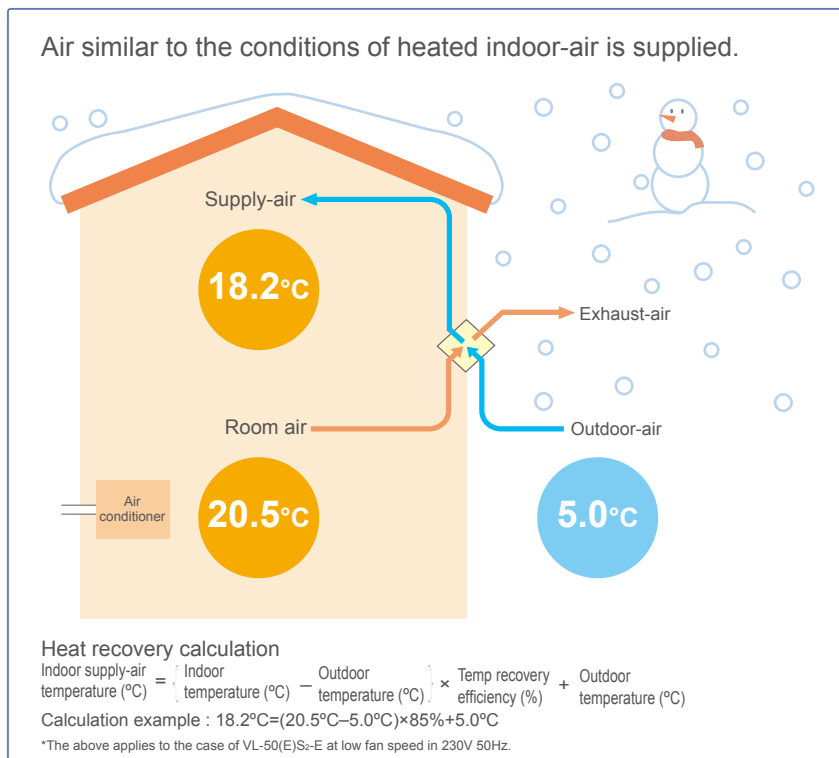
In general, viruses are found to be active and the survival rate high in low-humidity, dry environments. During the winter, keeping the appropriate humidity and heating temperature can help prevent viruses.

#### Activity range of microorganisms vs. humidity



## What can be improved by introducing Lossnay?

### Comfort air supply

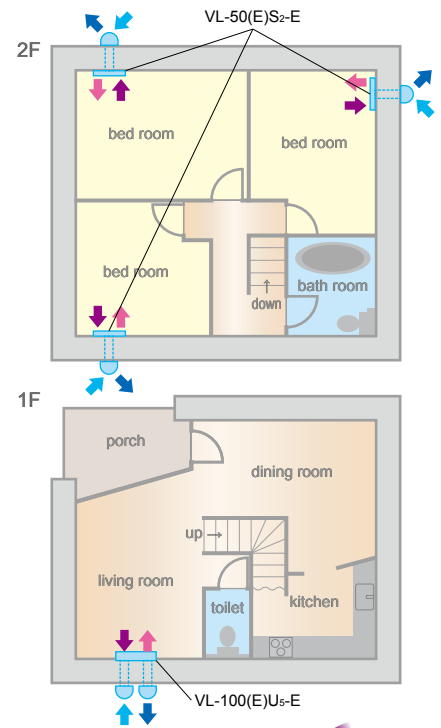
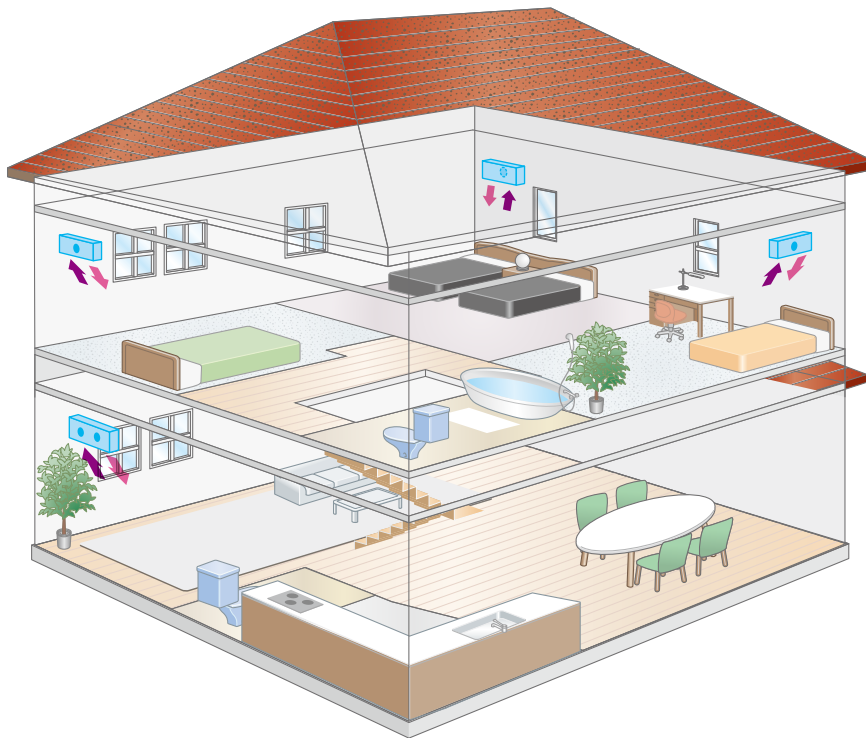


# Decentralized Ventilation Solution

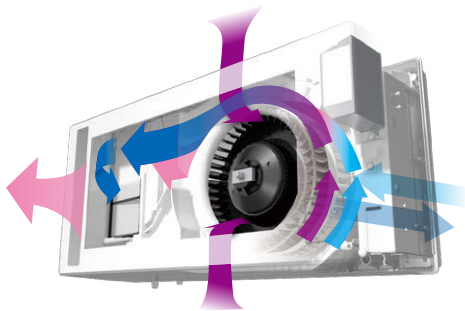
Install wall-mounted Lossnays in each room.

The heat recovery system provides fresh air at a comfortable air temperature.

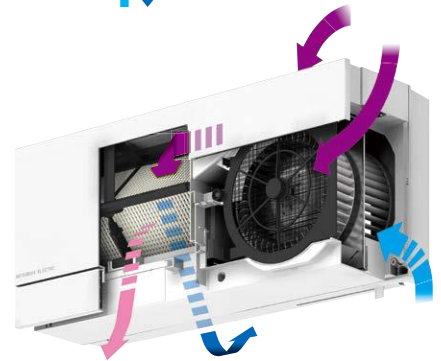
Total heat exchangers effectively reduce heat loss.



2F  
Model:  
VL-50(E)S2-E



1F  
Model:  
VL-100(E)U5-E



## Air Management

### CLEAN

Ventilation and clean, fresh air contribute to a heated living environment.

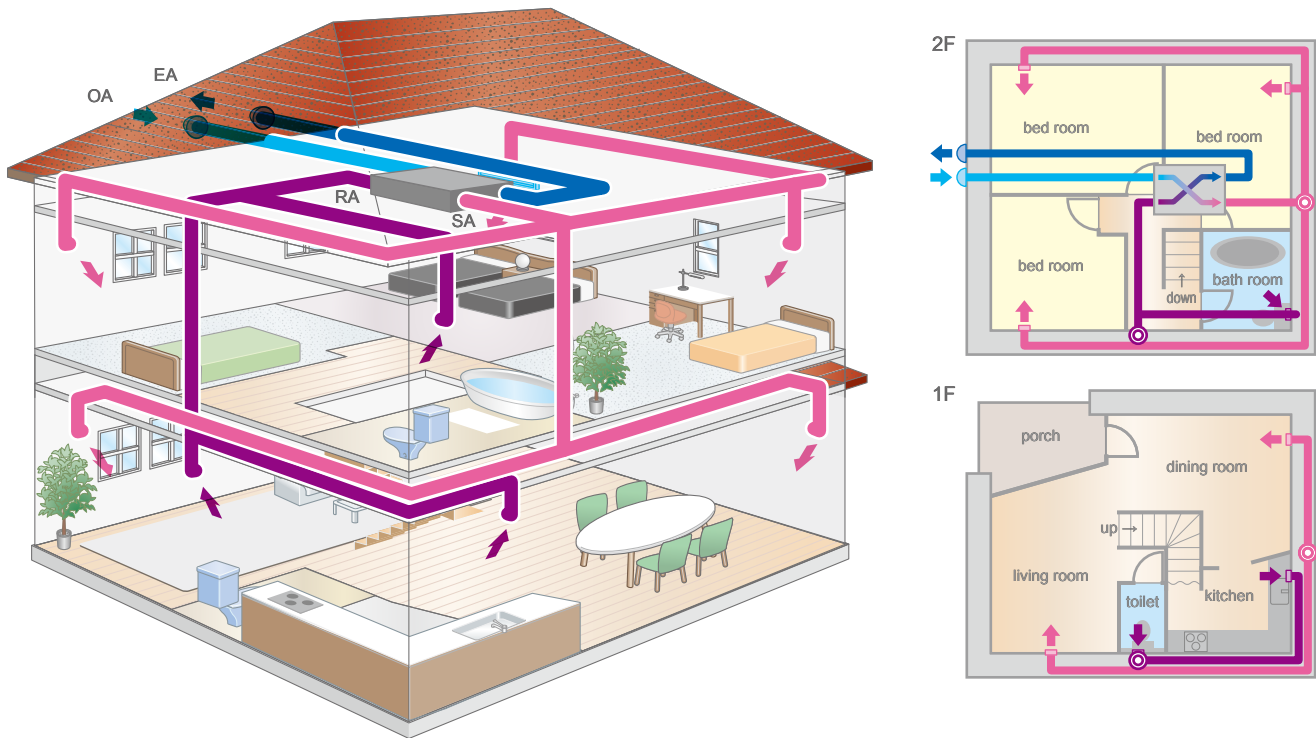
### COMFO

Heat recovery ventilation operation assure a comfor

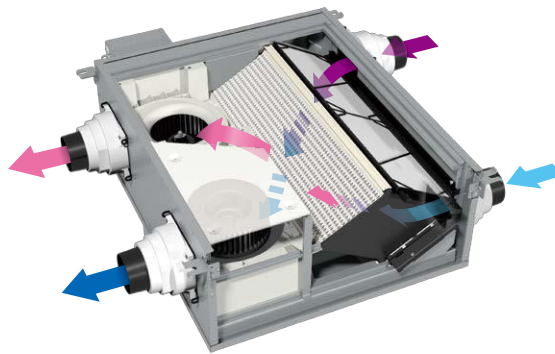


# Centralized Ventilation Solution

One Lossnay unit provides 24-hour ventilation for the entire house, from living room and bedrooms to the bathroom. The heat recovery system provides fresh air at a comfortable air temperature. Sensible heat exchangers effectively reduce excess humidity in the winter.



Model:  
VL-220CZGV-E



## Solutions

**COMFORTABLE**

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and low-noise  
table indoor environment.

**ENERGY-SAVING**

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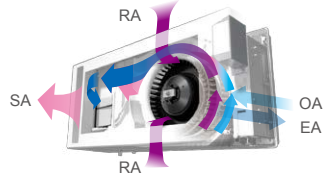
A highly efficient motor consumes less energy. Heat recovery ventilators also help to reduce the load on air-conditioning systems.

# Decentralized ventilation: VL-50(E)S<sub>2</sub>-E and VL-100(E)U<sub>5</sub>-E

## Product Merit

### Air supplied and Exhausted Simultaneously

Supply and exhaust air simultaneously while transferring the heat.



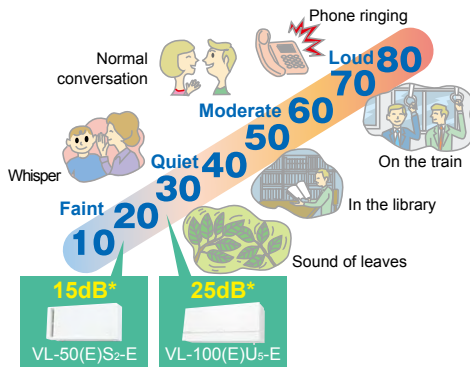
### Energy Efficient

- Total heat exchanger minimizes heat loss
- Achieve over 80%\* temperature efficiency

\*VL-100(E)U<sub>5</sub>-E at low fan speed in 230V 50Hz  
\*VL-50(E)S<sub>2</sub>-E at low fan speed in 230V 50Hz

### Low-Noise Operation

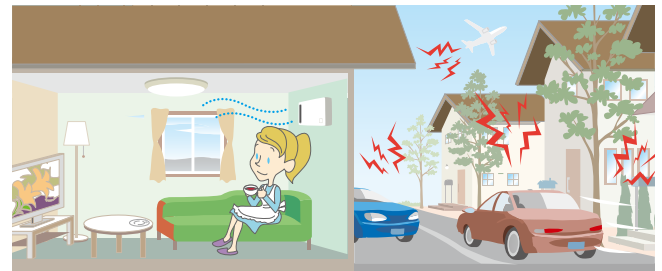
The low operating noise is good for bedrooms and children's rooms.



\*Condition: 50Hz, 230V, low fan speed

### Sound Insulation

A sound insulation effect reduces noise generated outside.



	Sound source Average sound pressure dB	Indoors Average sound pressure dB	Difference
<b>Sound insulation effect</b>	103.4	63.2	40.2

\*Tested based on VL-08S<sub>2</sub>-AE

\*Measured by average sound pressure level of more than 30dB in 500Hz according to JIS A 1416.

VL-08S<sub>2</sub>-AE is Japanese dedicated model with equivalent features of VL-50(E)S<sub>2</sub>-E.

## Product Features

### Stylish Design

Match any interior décor to create a comfortable room.



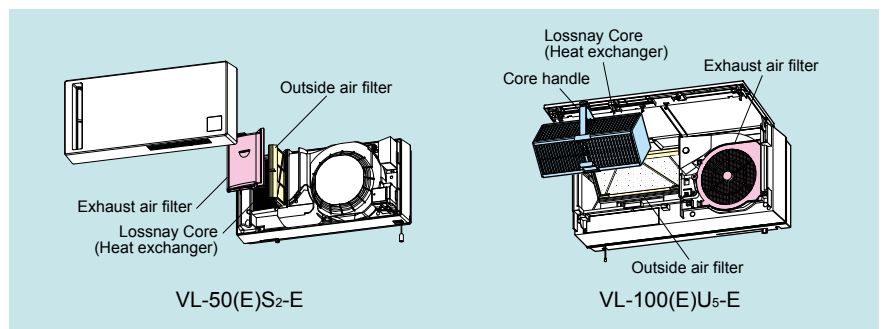
VL-50(E)S<sub>2</sub>-E



VL-100(E)U<sub>5</sub>-E

### Easy Maintenance

The only maintenance required is cleaning the outside-air filter and exhaust-air filter. Filters are easily accessible, making quick and thorough cleaning possible.



### Flexible Installation (only VL-50(E)S<sub>2</sub>-E)

Not only horizontal installation, but also vertical installation is possible, making it easy to adapt to most types of rooms.



# Centralized ventilation: VL-220CZGV-E

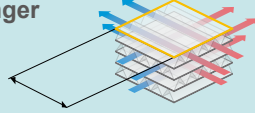
## Product Merit

### Newly Developed Heat Exchanger

- During ventilation, Lossnay recovers warmth in the winter and keeps air cool in the summer.
- Reduces heating and cooling loads with a maximum exchange efficiency of 86%\*.

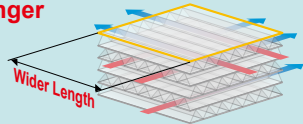
#### Normal Square Heat Exchanger

Simple structure contributes to minimize pressure loss and reduce power consumption.



#### New Diamond Heat Exchanger

Due to the diamond design, air passages are longer and help realize higher exchange efficiency.



### Energy Efficient

- The highest energy-saving performance in its class. (8.5W\* minimum input power)
- Saves heating and cooling costs by minimizing energy loss that occurs during ventilation.



### Quiet

- At an ultraquiet 14dB\*, it is the quietest product in its class.
- Blocks outside noise for a more comfortable indoor environment.



\* Fan speed 1

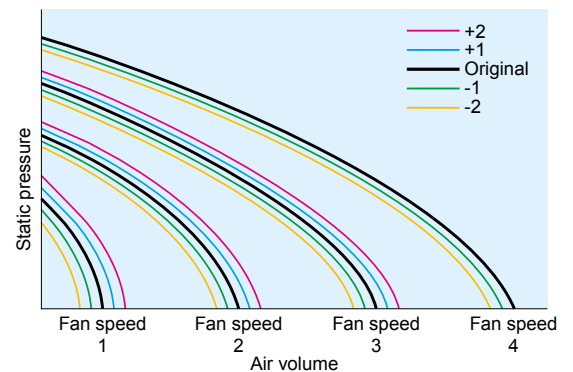
## Product Features

### Fan Speed Precise Adjustment Function

Each main fan speed value can be further adjusted slightly. Use the PZ-61DR-E remote controller to adjust the speed.

- 1) Considering the total hours of Lossnay operation (filter clogging), the fan power can be adjusted automatically after a given period of time.
- 2) After the unit is installed, when the air volume is slightly lower or higher than the desired airflow, it is possible to make a fine adjustment. (Fan speed 4 is available only 1 down and 2 down)

■ P-Q curve image



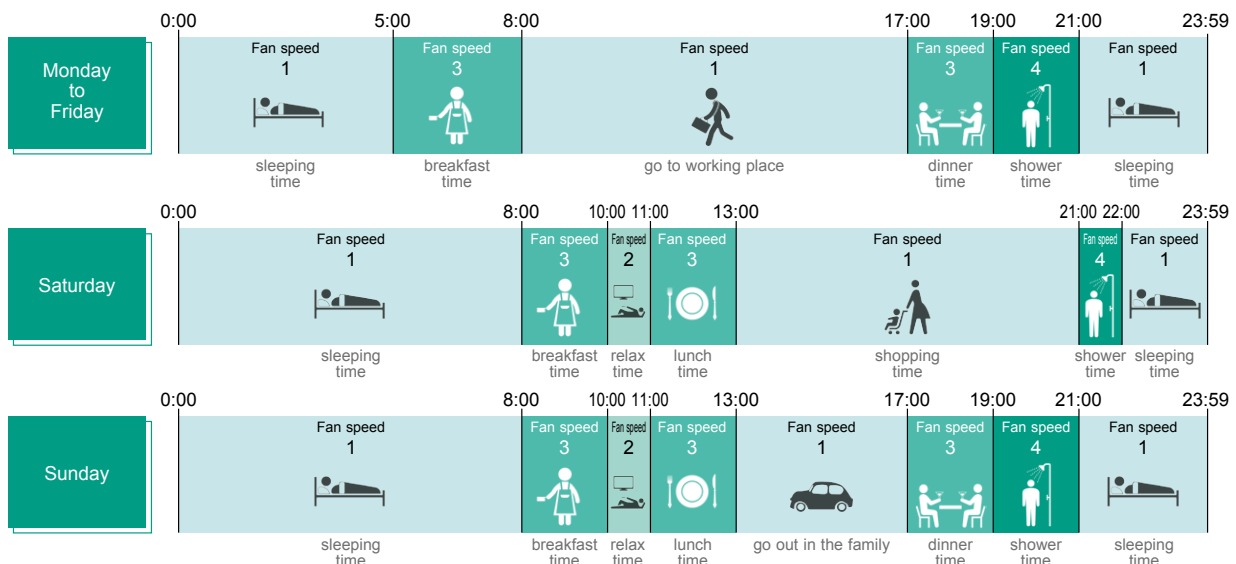
### Multi-ventilation(power supply and exhaust) Mode

This mode allows the air supply/exhaust balance to be varied dynamically. The supply/exhaust balance can be selected to suit the usage environment.

Normal Mode	Power Supply Mode		Power Exhaust Mode	
Relax time 	Adjust the indoor pressure balance if a separate exhaust is installed 	Increase indoor pressure to prevent unfiltered drafts from coming in 	Keep steam inside of the shower room 	Prevent odors from spreading 

### Weekly Timer

Operation patterns for each day of the week. ON/OFF and airflow can be set using the weekly timer function (up to eight zones per day). This function contributes to enhanced energy-saving operation.



\*Example for reference only.

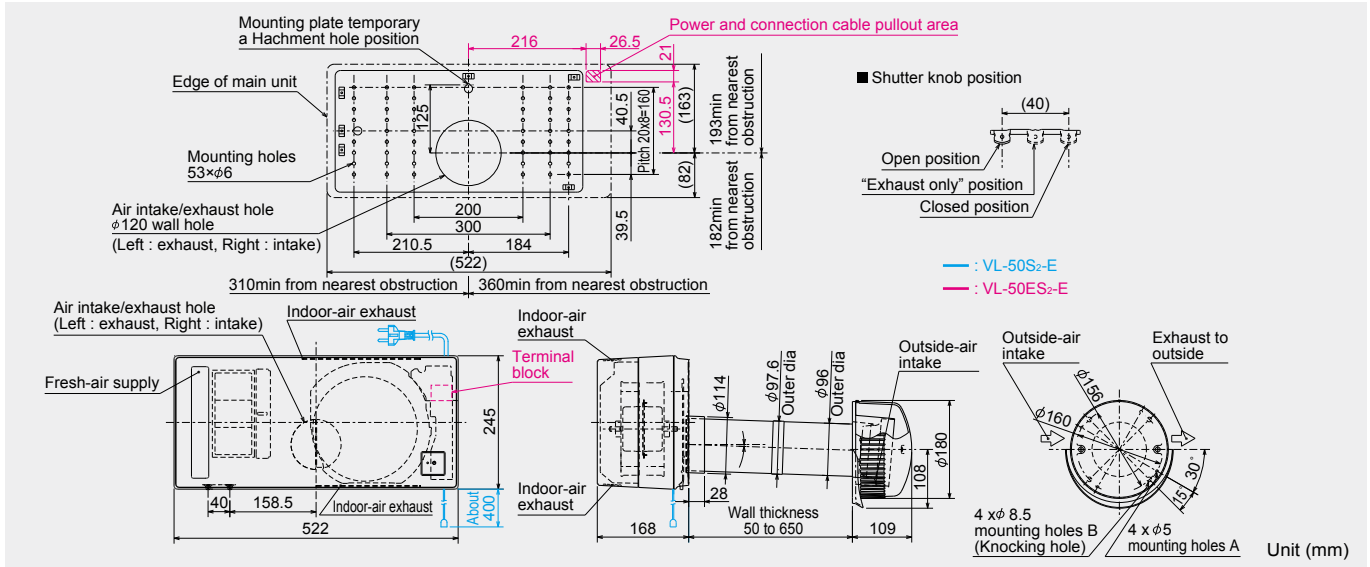
# Decentralized ventilation

## Model: VL-50S<sub>2</sub>-E(Pull-Switch Model), VL-50ES<sub>2</sub>-E(Wall-Switch Model)

Model	VL-50(E)S <sub>2</sub> -E							
	220V/50Hz		230V/50Hz		240V/50Hz		220V/60Hz	
Electrical power supply	220V/50Hz		230V/50Hz		240V/50Hz		220V/60Hz	
Fan speed	High	Low	High	Low	High	Low	High	Low
Air volume (m <sup>3</sup> /h)	51	15	52.5	16	54	17	54	17
Power consumption (W) <sub>19</sub>	19	4	20	4.5	21	5	21	5.5
Temperature exchange efficiency (%)	70	86	69	85	68	84	68	84
Noise (dB)	36.5	14	37	15	37.5	15.5	37.5	15.5
Weight (kg)	6.2							
Specific energy consumption class	C							

\*Figures in the chart is measured according to Japan Industrial Standard (JIS B 8628) on shutter knob open position.

### Dimensions

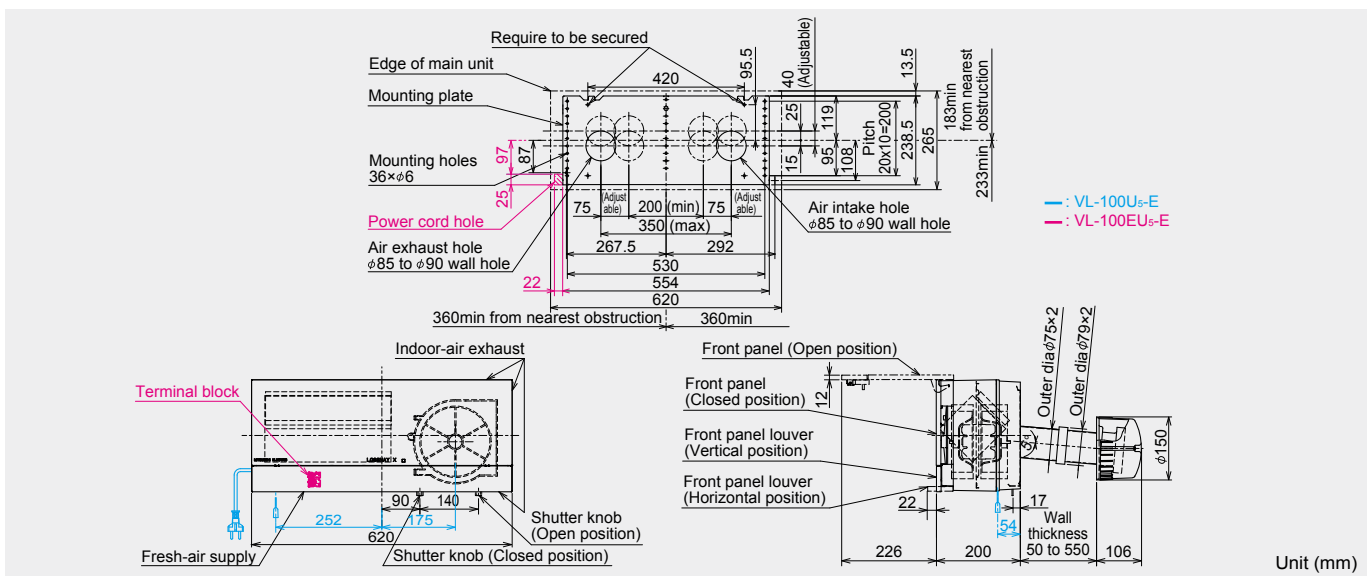


## Model: VL-100U<sub>5</sub>-E(Pull-Switch Model), VL-100EU<sub>5</sub>-E(Wall-Switch Model)

Model	VL-100(E)U <sub>5</sub> -E							
	220V/50Hz		230V/50Hz		240V/50Hz		220V/60Hz	
Electrical power supply	220V/50Hz		230V/50Hz		240V/50Hz		220V/60Hz	
Fan speed	High	Low	High	Low	High	Low	High	Low
Air volume (m <sup>3</sup> /h)	100	55	105	60	106	61	103	57
Power consumption (W)	30	13	31	15	34	17	34	17
Temperature exchange efficiency (%)	73	80	73	80	72	79	73	80
Noise (dB)	36.5	24	37	25	38	27	38	25
Weight (kg)	7.5							
Specific energy consumption class	B							

\*Figures in the chart is measured according to Japan Industrial Standard (JIS B 8628) on shutter knob open position.

### Dimensions





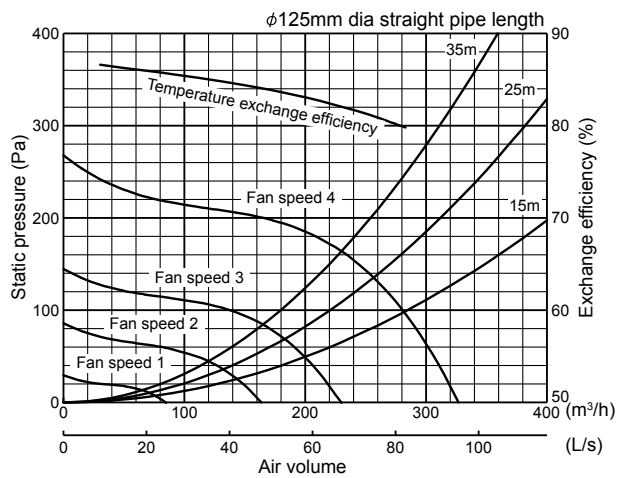
# Centralized ventilation

## Model: VL-220CZGV-E

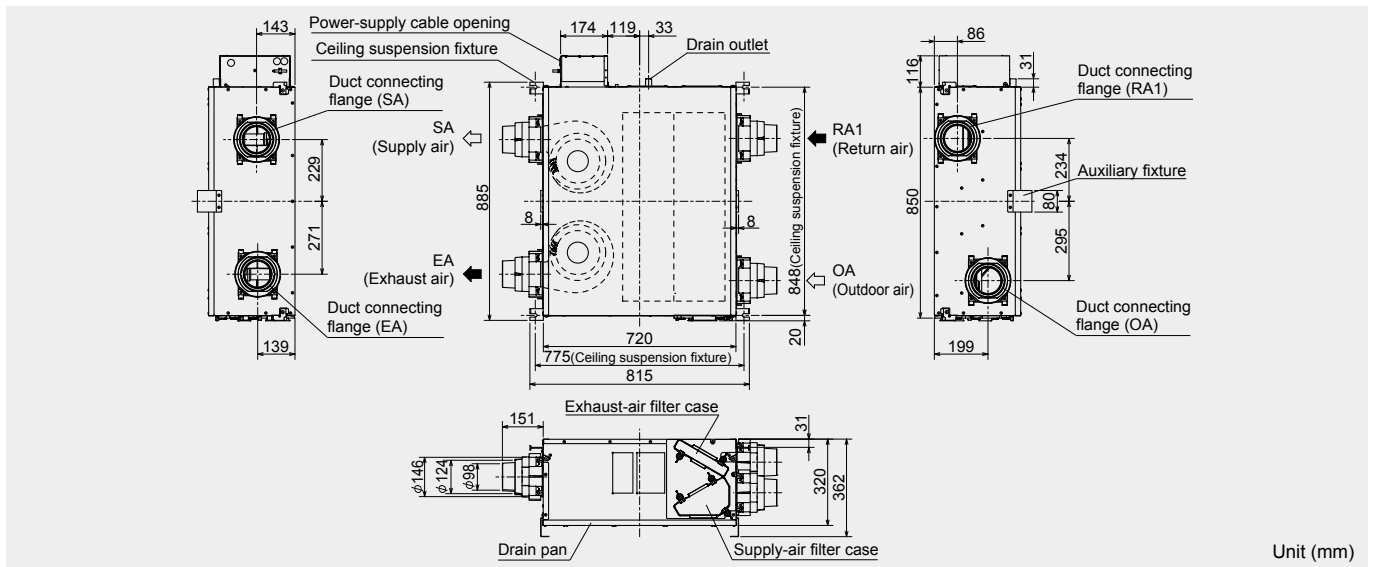
Model		VL-220CZGV-E			
Electrical power supply		220-240V/50Hz 220V/60Hz			
Ventilation mode		Heat recovery mode			
Fan speed		Fan speed 4	Fan speed 3	Fan speed 2	Fan speed 1
Running current		0.60	0.29	0.18	0.11
Input power (W)		80	35	18.5	8.5
Air volume	(m <sup>3</sup> /h)	230	165	120	65
	(L/s)	64	46	33	18
External static pressure (Pa)		164	84	44	13
Temperature exchange efficiency (%)		82.0	84.0	85.0	86.0
Noise (dB)		31.0	25.0	19.0	14.0
Weight (kg)		31			
Specific energy consumption class		A			

\*Figures in the chart is measured according to Japan Industrial Standard (JIS B 8628). Characteristic Curves are measured by chamber method.

### Characteristic Curve



### Dimensions



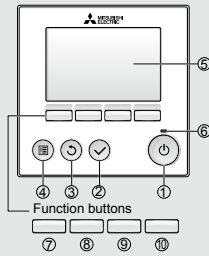
Unit (mm)

# Remote controller for VL-220CZGV-E

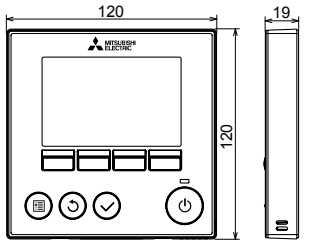
## Model: PZ-61DR-E



### Operation panel

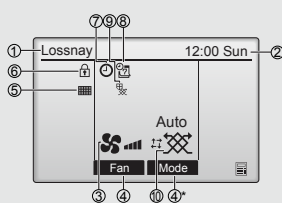


- ① Press to turn ON/OFF the Lossnay ventilator.
- ② Press to save the setting.
- ③ Press to return to the previous screen.
- ④ Press to bring up the Main menu.
- ⑤ Operation settings will appear.  
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.
- ⑥ This lamp lights up in green while the ventilator is in operation. It blinks while the remote controller is starting up or when there is an error.
- ⑦ Main menu : Press to move the cursor down.
- ⑧ Main display : Press to change the fan speed. Main menu : Press to move the cursor up.
- ⑨ Main display : Press to change the ventilation mode. Main menu : Press to go to the previous screen.
- ⑩ Main menu : Press to go to the next screen.



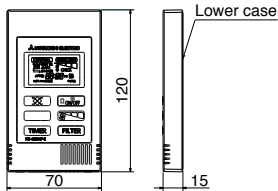
Unit:mm

### Display section

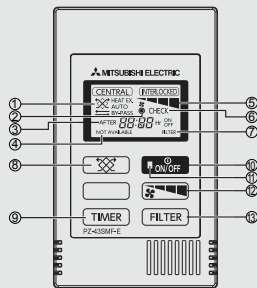


- ① Lossnay is always displayed.
- ② Current time appears here.
- ③ Fan speed setting appears here.
- ④ Functions of the corresponding buttons appear here.  
\* The mode appears only when the optional motorized damper (P-133DUE-E) is used.
- ⑤ Indicates when filter needs maintenance.
- ⑥ Appears when the buttons are locked and/or a fan speed is skipped.
- ⑦ Appears when the On/Off timer, or Auto-off timer function is enabled.
- ⑧ Appears when the Weekly timer is enabled.
- ⑨ Appears when performing operation to protect the equipment.
- ⑩ Indicates the ventilation mode setting.  
\* The mode appears only when the optional motorized damper (P-133DUE-E) is used.

## Model: PZ-43SMF-E



Unit:mm



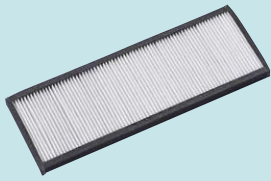



- ① Displayed the ventilation mode status.  
Heat exchange HEAT EX.  
By-pass BY-PASS  
Automatic (HEAT EX./BY-PASS) HEAT EX. AUTO or BY-PASS  
\* The mode appears only when the optional motorized damper (P-133DUE-E) is used.
  - ② Displayed while the Lossnay remote controller is on.
  - ③ Displayed on-timer or off-timer duration.
  - ④ When a button is pressed for a function which the Lossnay unit cannot perform, this display flashes concurrently while displaying the function.
  - ⑤ Displayed the selected fan speed.
  - ⑥ Displayed together with the malfunctioning unit (3 digits) and an error code (4 digits).
  - ⑦ Displayed when the accumulated operating time reaches at the time set for filter maintenance.
  - ⑧ Used to select the ventilation mode among heat exchange, by-pass or automatic.  
\* The mode can be switched only when the optional motorized damper (P-133DUE-E) is used.
  - ⑨ Increases 0:30 when pressed once. Keep pressing the button for fast-forwarding.
  - ⑩ Switch for start and stop.
  - ⑪ On during operation. Flashes when a malfunction occurs.
  - ⑫ Used to select the fan speed either "Low" or "High".
- Note: if this button is pressed when trying to switch the fan speed of a Lossnay unit which is not equipped with the fan speed adjustment, the fan speed display and NOT AVAILABLE display flash and the unit's fan speed does not change.
- ⑬ Press twice to reset the filter sign display.

Function (Communicating Mode)	PZ-61DR-E	PZ-43SMF-E
	VL-220CZGV-E	VL-220CZGV-E
Fan speed selection	4 fan speeds	2 of 4 fan speeds
Ventilation mode selection	Heat recovery / Bypass / Auto (available with optional parts P-133DUE-E)	Heat recovery / Bypass / Auto (available with optional parts P-133DUE-E)
Night-purge (time)	No	No
Night-purge (fan speed)	No	No
Function setting from RC	Yes	No
Bypass temp. free setting	Yes (available with optional parts P-133DUE-E)	No
Heater-On temp. free setting	No	No
Fan power change after installation	Yes	No
On/Off timer	Yes	Yes
Auto-Off timer	Yes	No
Weekly timer	Yes	No
Operation restrictions (On/Off, ventilation mode, fan speed)	Yes (ventilation mode is available with optional parts P-133DUE-E)	No
Operation restrictions (fan speed skip setting)	Yes	No
Screen contrast adjustment	Yes	No
Language selection	Yes (8 languages)	No (English Only)
Initializing remote controller	Yes	No
Filter cleaning sign	Yes	Yes
Lossnay core cleaning sign	No	No
Error indication	Yes	Yes
Error history	Yes	No

# Optional Parts

## Optional Parts for VL-100(E)U<sub>5</sub>-E

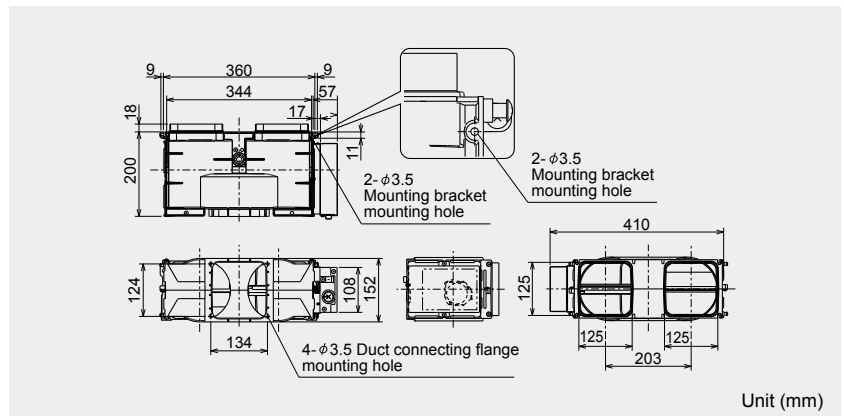
### Filter and Extension Pipe

Type	High Efficiency filter	Replacement filter	Extension pipe	Extension pipe coupling
Design				
Model	P-100HF <sub>5</sub> -E	P-100F <sub>5</sub> -E	P-100P-E	P-100PJ-E
Feature	Upgraded high-performance filter.	Standard grade replacement filter.	Total length when connected to the pipe extension coupling is 300mm.	Screw-in method

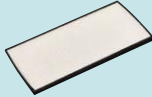


## Optional Parts for VL-220CZGV-E

### Bypass damper

Model: P-133DUE-E



### Filter

Type	High Efficiency Supply Air filter	Medium Efficiency Exhaust Air Filter	Standard Replacement Filter
Design			
Model	P-220SHF-E	P-220EMF-E	P-220F-E
Classification (EN779:2012)	M6	G4	G3



**for a greener tomorrow**

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



## **mitsubishi electric corporation**

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