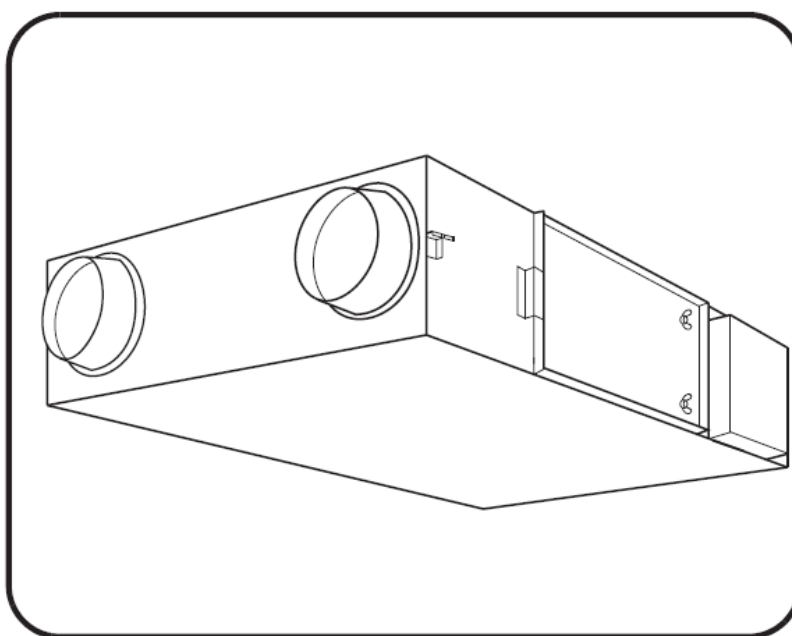


Service Manual

This Service Manual is written for the after sale service department, especially for the fix and maintenance workers.

Energy Recovery Ventilator (sold in Europe market)



Model No.

FY-250ZDY8

FY-650ZDY8

FY-350ZDY8

FY-800ZDY8

FY-500ZDY8

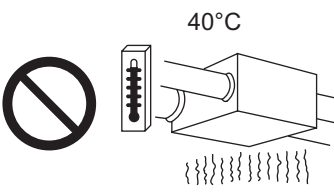
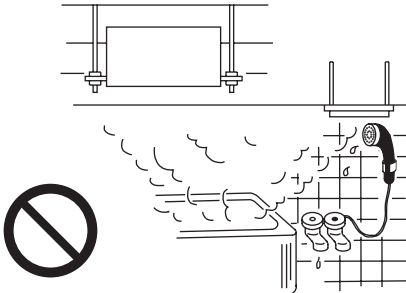
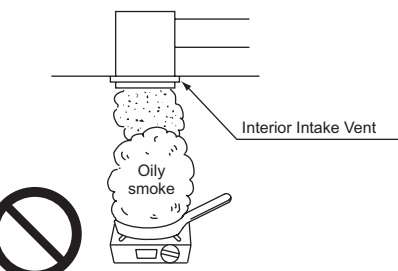
FY-01KZDY8A

Panasonic Ecology Systems Guangdong Co., Ltd.

Specific Caution Items

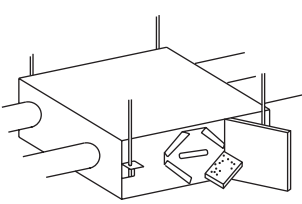
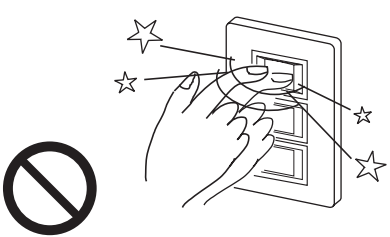
Checking Location of Installation

This Energy Recovery Ventilators have been designed especially for use in offices, conference rooms, etc. Please check to ensure that neither the main unit nor the inlet-outlet grill are installed in any of the following locations.

Locations exposed to high temperatures or direct flame. Avoid installing the Energy Recovery Ventilators or the inlet-outlet grill in locations which reach temperatures of 40°C or above. Usage under high temperature conditions may cause distortion of the filter or Heat Exchange Element or motor burn-out. 40°C 	Locations with high humidity. Do not install in high humidity locations such as bathrooms. Doing so may cause a breakdown of the unit or an electric shock. 	Locations with large amounts of oily smoke, such as food preparation areas. The unit will become inoperable if the filter or Heat Exchange Element become clogged with oil. 
Make sure that Inspection Opening is provided so that filter and Heat Exchange Element maintenance and periodic spot checks of the unit can be easily carried out. (Refer to the Model Installation for its space)	Do not install the unit in locations such as machinery or chemical plants where it will be exposed to noxious gases containing acids, alkali, organic solvents, paint fumes, etc., to gases containing corrosive ingredients, or where dust or oil mist will be produced.	

If there are any problems concerning the location or installation of the unit, please consult either store from which it was purchased or the agent who installed it.

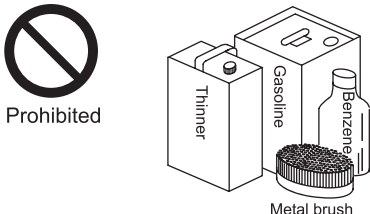
When Using

Always be sure to use a filter. Failure to do so may cause dust and dirt to build up on the heat exchange element, lowering its efficiency and rendering it inoperable. 	Operate the switch with certainty. In particular, suddenly turning the switch on and off will not only cause improper operation of the unit, but will also affect the relay inside the switch, and may damage it. 	Never operate the on "Normal ventilation" during the winter when the room is being heated, as this will cause condensation to form inside the unit and in the inlet-outlet vent. 
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Cautions on Safety

Cautions for Maintenance

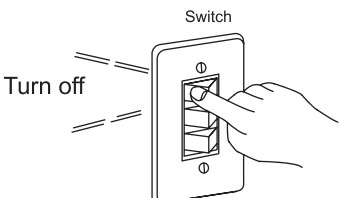
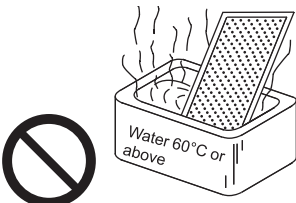
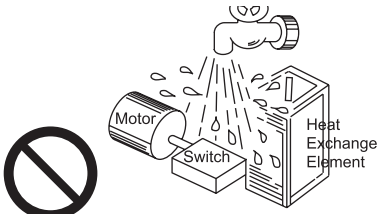
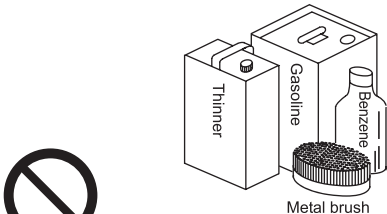
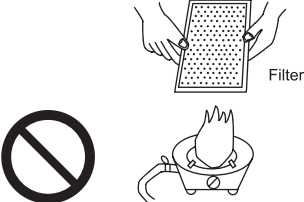
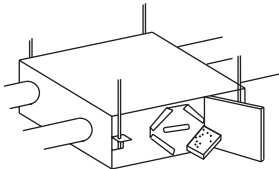
It must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

 WARNING	 CAUTION		
■ When the system is checked and the power cable undergoes maintenance, stop the operation, and switch the exclusive circuit breaker "OFF".  The internal fan is revolving at high speeds and can cause serious injury. And when using a stepladder, etc., make sure to fix it properly.	■ Don't use benzene or metal brush when cleaning the filter and heat exchange element.  Prohibited Otherwise, the unit will get unfit for use.	■ The filter should be cleaned regularly.  Dust or dirt building-up on it can lead to a lack of oxygen in the room.	■ Use gloves when cleaning the filter or heat exchange element.  Doing so will reduce any possibility of injury.

Model Installation

In order to prevent the reduced effectiveness of your Energy Recovery Ventilator, be sure to clean dirt and dust from the filter and Heat Exchange Element at regular intervals.

Caution

Be sure to turn the power off, and to switch the exclusive breaker off before carrying out maintenance activities. 	Do not immerse the filter or other resin components in water 60°C or above. 	Never use water on the motor, the switch, or the Heat Exchange Element. 
Do not use the following items for cleaning. 	Avoid using heat to dry the filter, as it may cause changes in shape or quality. 	Always be sure to use a filter. Failure to do so may cause dust and dirt to build up on the heat exchange element, lowering its efficiency and rendering it inoperable. 

Specifications

Model No.	FY-250ZDY8					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	112-128	108-123	87-96	112-128	108-123	87-96
Air Volume (m³/h)	250	250	190	250	250	190
External Static Pressure (Pa)	105	95	45	105	95	45
Noise (dB)	30.0-31.5	29.5-30.5	23.5-26.5	30.0-31.5	29.5-30.5	23.5-26.5
Temperature Exchange Efficiency(%)	75	75	77	—	—	—
Dimensions(mm)	Width 882 ×Depth 599×Height 270					
Weight (kg)	29					

Model No.	FY-350ZDY8					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	182-190	178-185	175-168	182-190	178-185	175-168
Air Volume (m³/h)	350	350	240	350	350	240
External Static Pressure (Pa)	140	60	45	140	60	45
Noise (dB)	32.5-33.0	30.5-31.0	22.5-25.5	32.5-33.0	30.5-31.0	22.5-25.5
Temperature Exchange Efficiency(%)	75	75	78	—	—	—
Dimensions(mm)	Width 1050 ×Depth 804×Height 317					
Weight (kg)	49					

Model No.	FY-500ZDY8					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	263-289	204-225	165-185	263-289	204-225	165-185
Air Volume (m³/h)	500	500	440	500	500	440
External Static Pressure (Pa)	120	60	35	120	60	35
Noise (dB)	36.5-37.5	34.5-35.5	31.0-32.5	37.5-38.5	37.0-38.0	31.0-32.5
Temperature Exchange Efficiency(%)	75	75	76	—	—	—
Dimensions(mm)	Width 1090 ×Depth 904×Height 317					
Weight (kg)	57					

Specifications

Model No.	FY-650ZDY8					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	326-347	269-295	200-210	326-347	269-295	200-210
Air Volume (m³/h)	650	650	460	650	650	460
External Static Pressure (Pa)	65	40	40	65	40	40
Noise (dB)	36.5-37.5	34.5-35.5	30.0-32.0	36.5-37.5	35.0-35.5	30.0-32.0
Temperature Exchange Efficiency(%)	75	75	79	—	—	—
Dimensions(mm)	Width 1204 ×Depth 884×Height 388					
Weight (kg)	68					

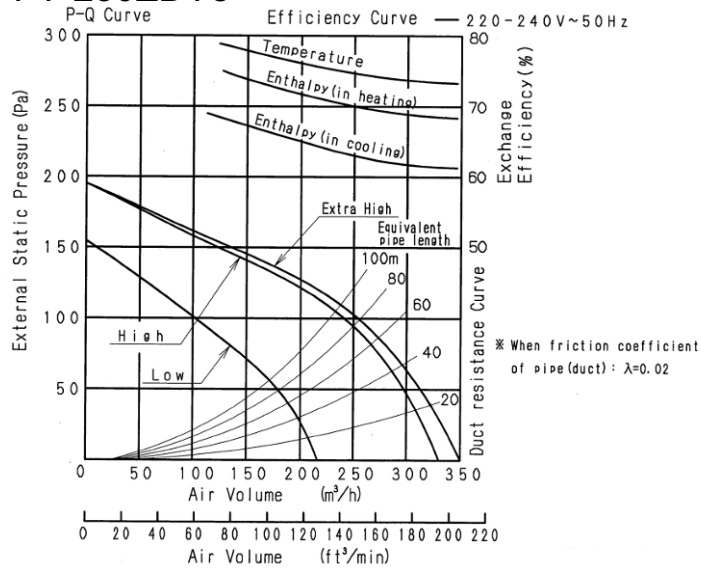
Model No.	FY-800ZDY8					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	387-418	360-378	293-295	387-418	360-378	293-295
Air Volume (m³/h)	800	800	630	800	800	630
External Static Pressure (Pa)	140	110	55	140	110	55
Noise (dB)	37.0-37.5	36.5-37.0	33.5-34.5	37.0-37.5	36.5-37.0	33.5-34.5
Temperature Exchange Efficiency(%)	75	75	76	—	—	—
Dimensions(mm)	Width 1322 ×Depth 884×Height 388					
Weight (kg)	71					

Model No.	FY-01KZDY8A					
Item						
Power Source	220-240V~ 50Hz					
Ventilation Mode	Heat Exchange Ventilation			Normal Ventilation		
Notch	(Extra high)	High	Low	(Extra high)	High	Low
Input (W)	437-464	416-432	301-311	437-464	416-432	301-311
Air Volume (m³/h)	1000	1000	700	1000	1000	700
External Static Pressure (Pa)	105	80	75	105	80	75
Noise (dB)	37.5-38.5	37.0-37.5	33.5-34.5	39.5-40.5	39.0-39.5	35.5-36.5
Temperature Exchange Efficiency(%)	75	75	79	—	—	—
Dimensions(mm)	Width 1322 ×Depth 1134×Height 388					
Weight (kg)	83					

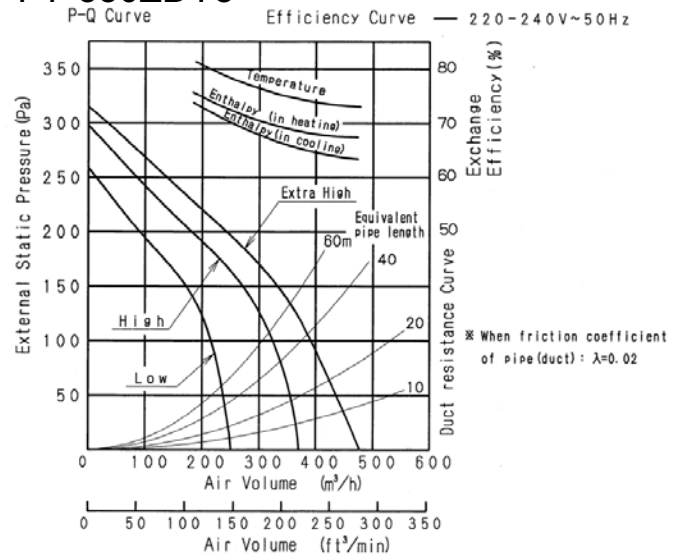
(Note) The ratings mentioned above shows the values under the external static pressure.
 (Only the noise level shows the value under the external static pressure: 0Pa)
 Noise Level shall be measured 1.5 m below the center of the unit. (It shall be measured at the acoustic room.)

Performance (P-Q curve)

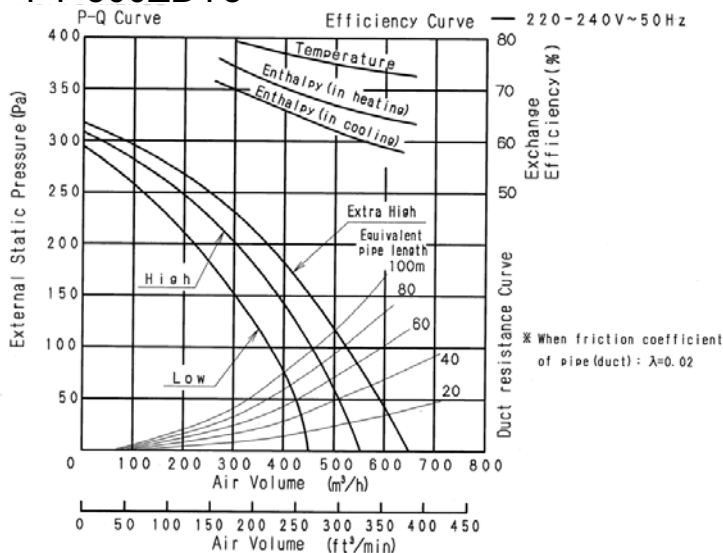
FY-250ZDY8



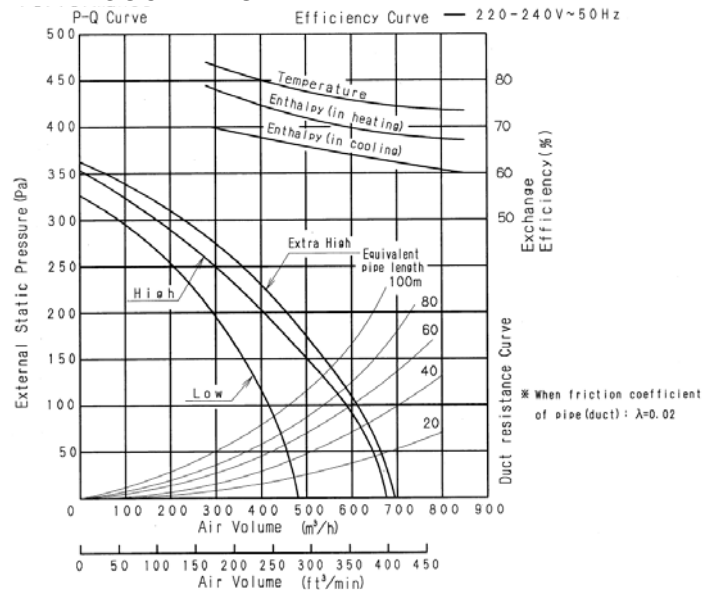
FY-350ZDY8



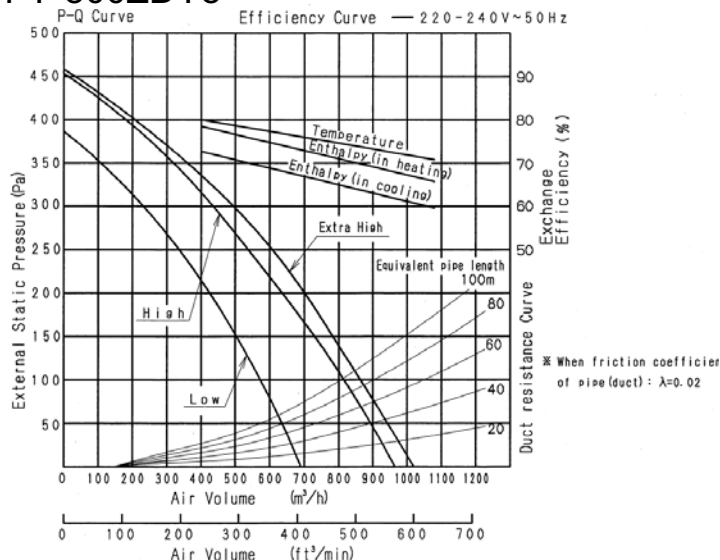
FY-500ZDY8



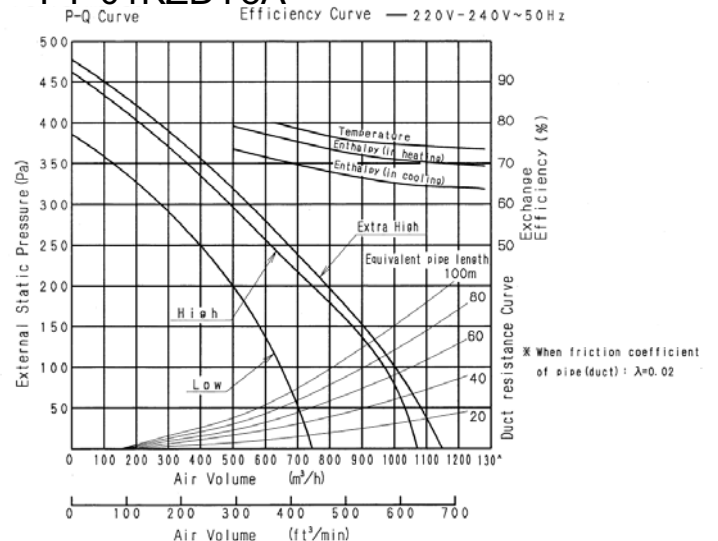
FY-650ZDY8



FY-800ZDY8



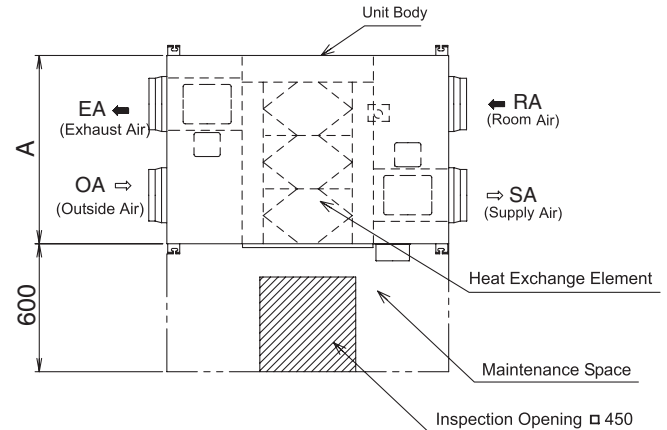
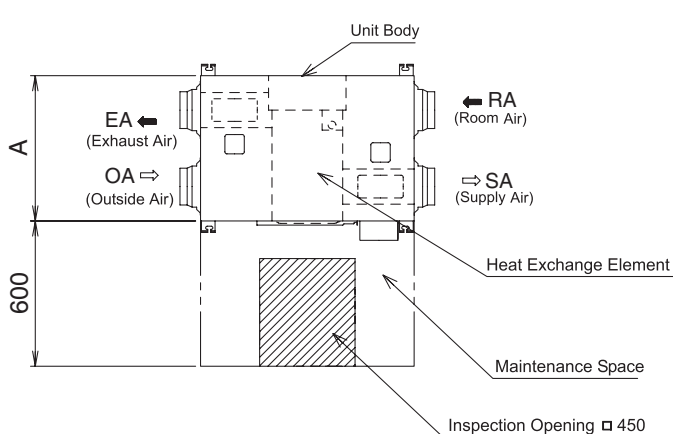
FY-01KZDY8A



Cautions for Operation

Never fail to make the inspection opening at the specific place on the ceiling so you can perform the constant cleaning or the equipment checking of filter and heat exchange element.

- The inspection opening shown below is necessary to clean the heat exchange element and the filter as required. If not cleaned, they are likely to get clogged, resulting in degradation of performance.



Note) Model FY-350ZDY8 and FY-500ZDY8 have two Heat Exchange Element.

Unit: mm

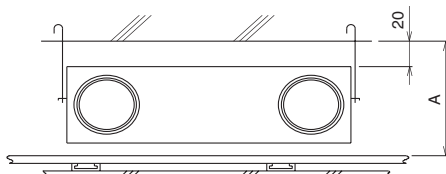
Model No.	A
FY-250ZDY8	599
FY-350ZDY8	804
FY-500ZDY8	904

Note) Model FY-01KZDY8A has four Heat Exchange Elements.

Unit: mm

Model No.	A
FY-650ZDY8	884
FY-800ZDY8	884
FY-01KZDY8A	1134

- This Energy Recovery Ventilators should be installed at the place where a larger space than the sizes shown below can be secured for the ceiling space.



Unit: mm

Model No.	Ceiling Space A	Model No.	Ceiling Space A
FY-250ZDY8	320	FY-650ZDY8	440
FY-350ZDY8	370	FY-800ZDY8	
FY-500ZDY8		FY-01KZDY8A	

- Don't install it near the water-heater.
- Refrain from the following duct installation works.

(1) Excessive bending



(2) Multi-times bending

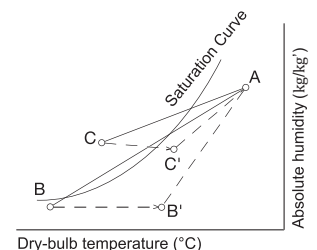


(3) Making the connecting duct smaller



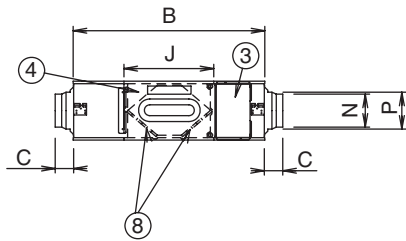
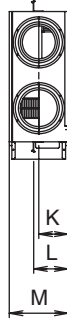
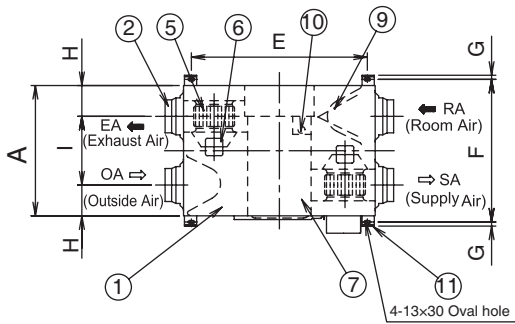
- Do not use in bathrooms or food preparation areas etc.
If you use the unit at the place of much soot and high humidity, the filter or the heat exchange element gets clogged and disables you to use it.
- Use the Energy Recovery Ventilators in the ambient temperature of 40°C or less.
Never install the unit at the place where the flame likely reaches directly the unit. If you use it at the atmosphere of more than 40°C for hours, it is likely to cause deterioration or deformation or damage of the resin part.
- Be careful of dewing and frosting.

As shown in the figure to the right, suppose a high temp absorbing air condition A and a low temp absorbing air condition B are plotted on the air line figure, then a high temp air A is heat-exchanged by the unit and goes out of the saturation curve as shown by Point C. In this case, the unit will be dewed or frosted. To avoid this, you are required to heat a low temp air B up to B' so as to get C' below the saturation curve, before using the unit.



Name and Dimension of Each Part

Model No. FY-250ZDY8
FY-350ZDY8
FY-500ZDY8



Applicable Duct

Model No.	Nominal Diameter
FY-250ZDY8	φ 150
FY-350ZDY8	φ 150
FY-500ZDY8	φ 200

Number	Name	Quantity	Note
1	Frame	1	
2	Adapter	4	
3	Terminal	1	
4	Inspection Cover	1	
5	Fan	2	
6	Motor	2	Note 2)
7	Heat Exchange element	1	Note 1)
8	Filter	2	
9	Damper	1	
10	Damper Motor	1	
11	Ceiling Suspension Fixture	4	
12	Electrical Equipment Box	1	

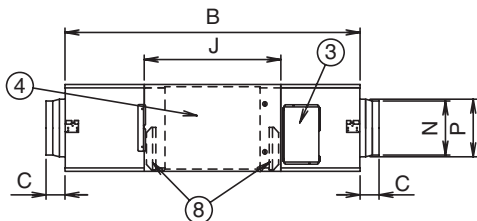
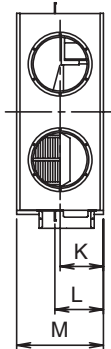
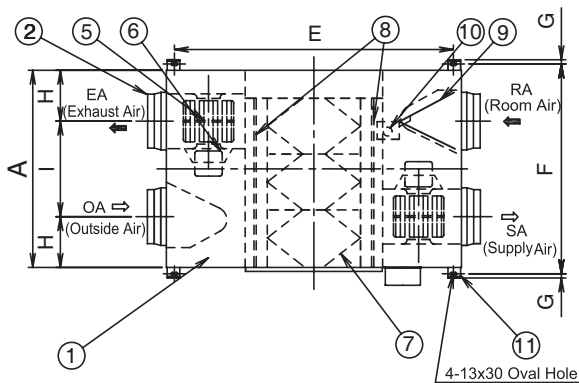
Note1) Model No.FY-350ZDY8 and FY-500ZDY8 have two Heat Exchange Element.

Note2) Model No.FY-350ZDY8 and FY-500ZDY8 have different fan and motor locations.

Unit: mm

Model No.	A	B	C	E	F	G	H	I	J	K	L	M	N	P
FY-250ZDY8	599	882	95	810	655	19	142	315	414	135	159	270	φ 144	φ 164
FY-350ZDY8	804	1050	70	978	860	19	112	580	470	159	182	317	φ 144	φ 164
FY-500ZDY8	904	1090	70	1018	960	19	132	640	470	159	182	317	φ 194	φ 210

Model No. FY-650ZDY8
FY-800ZDY8
FY-01KZDY8A



Applicable Duct

Model	Nominal Diameter
FY-650ZDY8	φ 200
FY-800ZDY8	φ 250
FY-01KZDY8A	φ 250

Number	Name	Quantity	Note
1	Frame	1	
2	Adapter	4	
3	Terminal	1	
4	Inspection Cover	1	
5	Fan	2	
6	Motor	2	Note 2)
7	Heat Exchange Element	3	Note 1)
8	Filter	2	
9	Damper	1	
10	Damper Motor	1	
11	Ceiling Suspension Fixture	4	
12	Electrical Equipment Box	1	

Note1) Model No.FY-01KZDY8A has four Heat Exchange Elements.

Note2) Model No.FY-650ZDY8 has different fan and motor locations.

Unit: mm

Model No.	A	B	C	E	F	G	H	I	J	K	L	M	N	P
FY-650ZDY8	884	1204	70	1132	940	19	132	620	560	194	218	388	φ 194	φ 210
FY-800ZDY8	884	1322	85	1250	940	19	228	428	612	194	218	388	φ 242	φ 258
FY-01KZDY8A	1134	1322	85	1250	1190	19	228	678	612	194	218	388	φ 242	φ 258

Installation Method

1. Model Installation

- You are required to prepare the ceiling suspension bolts, nuts and washers.
- Install the unit firmly and horizontally enough to support its weight. (Fig. 1)
- If you do not fit it firmly, it is not only dangerous but also easily vibrated. If it is not fitted horizontally, the damper unit becomes defective in operation.

Caution

- When you are required to be cautious on prevention of vibration, we recommend you to use the anti-vibration ceiling suspension fixtures.
- Never fail to make an inspection opening with $\square$ 450 mm or more at the place shown on the paragraph of "Cautions For Operation", so that you can inspect filters, Heat Exchange Elements, power source and motors.

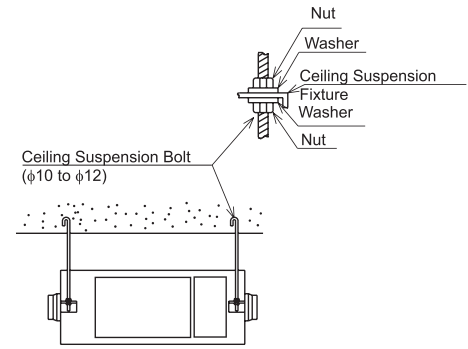


Fig. 1

2. Cautions on Installing The Unit Body Upside Down

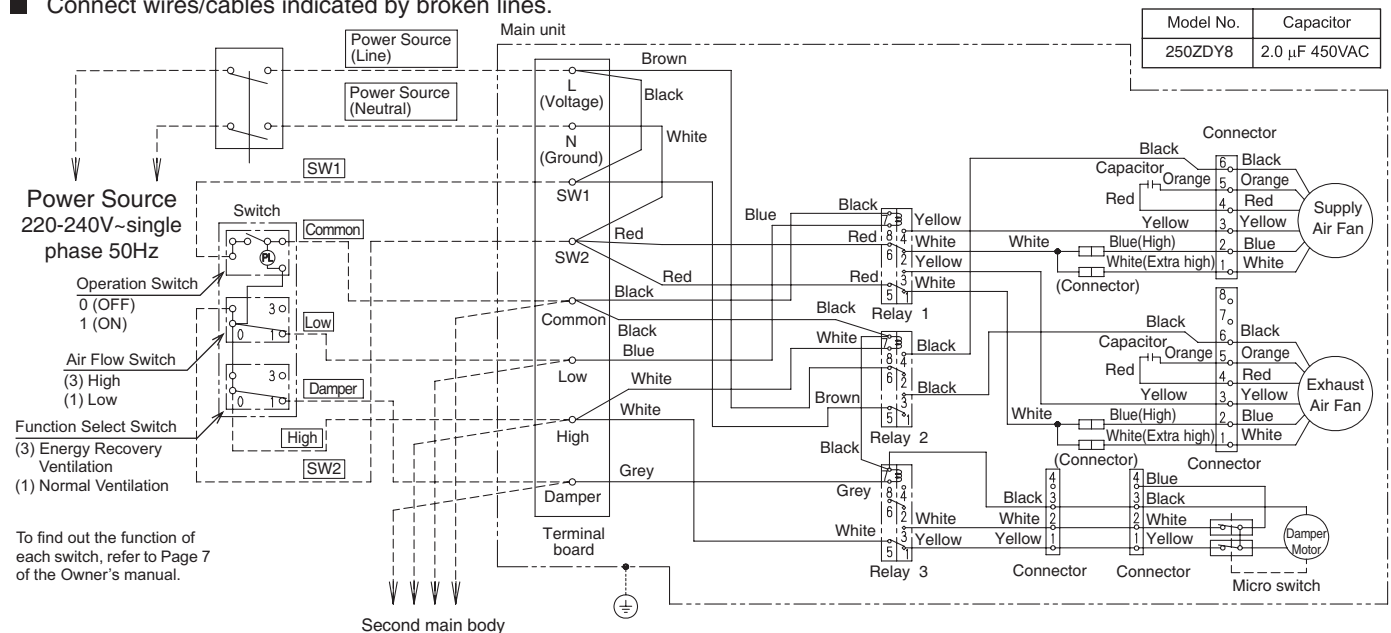
- Re-fit the ceiling suspension fixture in an opposite side. (If they are left as it is, the foolproof function of ceiling suspension bolts do not work and will cause the danger of dropping of the unit.)
- Printed indication is in a reversed position.

In particular, be careful of the arrow mark [$\uparrow$] showing the direction of inserting a Heat Exchange Element.

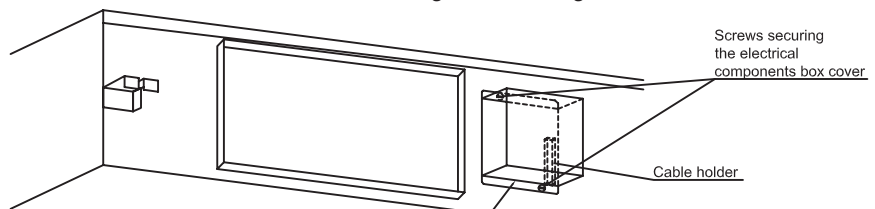
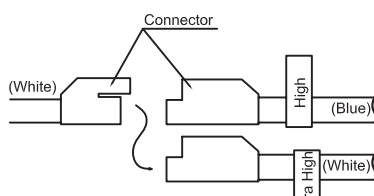
Electric Works

Ask a specialized electrical construction operator for advice regarding wiring in accordance with "Technical Standards for Electrical Equipment" and "Interior Wiring Regulation".

- Connect wires/cables indicated by broken lines.



- For power supply, use a VVF cable with ϕ 1.6 or ϕ 2.
- Take the following steps on connect wires/cables:
 - Remove two screws fixing the cover of the electrical components box, open the cover, and connect wires/cables correctly.
 - Secure the cable drawn from the terminal board firmly with the cable holder.
- If a large volume of air is required or a long duct is used, switch the wire connection from Low to Extra high according to the following steps:
 - Remove two screws securing the cover of the electrical components box, and open the cover.
 - In the electrical components box, change the connection of fan motor leads from High to Extra high.



Electric works

