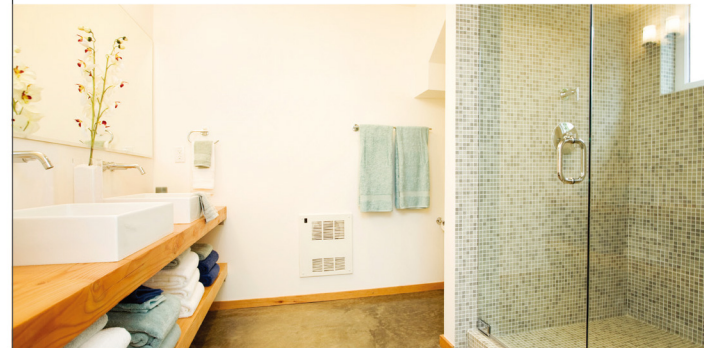


Panasonic®

Ventilating Series General Catalogue

- Ventilating Fans
- Air Moving Equipment
- Air Curtains



Panasonic®



Sole Agent :
Shun Hing Electric Works And Engineering Co., Ltd.
 9/F, Peninsula Centre, 67 Mody Road,
 Tsim Sha Tsui East, Kowloon, Hong Kong.
 Tel : (852) 2861 2767 Fax : (852) 2865 6706
 Website : www.shew.com.hk E-mail : shew@shunhinggroup.com

*Unit Conversion: 1 CMH = 0.2777 l/s
 *Specifications are subject to change without prior notice
 *Actual colors may slightly vary from those shown.
 *Please refer to the instruction manual during installation.

Maintenance and Repair Service :
Shun Hing Electric Service Centre Ltd.
 11/F, Shun Hing Centre, 2 Shing Yiu Street,
 Kwai Chung, N.T. H.K.
 Tel : (852) 2406 5666 Fax : (852) 2408 0316
 Website: www.shesc.com

CAT-PAM2110

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Why is Ventilation Necessary?

Homes designed and buildings in recent years are more airtight and energy efficient than in the past. To obtain this airtight design, house wraps, newly designed windows and doors, sealing caulks and other insulating materials are used to create a seal for optimum energy efficiency. But pollutants retained in airtight buildings can be hazardous to their occupants and jeopardize structural integrity. Proper mechanical ventilation design can address poor indoor air quality, while retaining energy efficiency.

Biological Pollutants

Biological pollutants, including mold, mildew, pollen, dust mites, pet dander, viruses and bacteria, are found in all homes commonly. Accumulation of these pollutants may cause hazardous effects to the



occupants and building structure. Most biological pollutants can flourish in a humid, moist environment. Moisture accumulates in the room leads the growth of mold and mildew. Proper ventilation is used to combat this accumulation.

Volatile Organic Compounds (VOC)

Volatile Organic Compounds are carbon-based compounds that easily evaporate. These types of gases are released from building materials, carpets, furniture and many other solid household items. They can ultimately sensitize certain people to react to them. Prolonged exposure to concentrated amounts of them may cause immune-system damage, headaches, dizziness, nausea and muscle spasms. Proper ventilation is necessary for maintaining a

pleasant environment.

Ways to Improve Indoor Air Quality

The first step to improve indoor air quality should reduce or remove the source of the pollutants. Unfortunately, indoor pollutants are virtually impossible to eliminate completely, creating the need for a second step – ventilation. Ventilation is divided into “Natural Ventilation” and “Mechanical Ventilation”.

Natural ventilation is neither consistent nor reliable since it relies heavily on wind and weather conditions. Mechanical ventilation removes stale, moist, polluted air and replaces it with fresh outside air by using a fan.

Recommended Application of Ceiling Mount Ventilating Fan & Low-noise Type Cabinet Fan (In-line Fan)

Residence



← Exhaust

→ Intake

Low Noise Type Cabinet Fan
(In-line Fan)

Ceiling Mount Ventilating Fan

Intake Grille

Exhaust Grille

Vent Cap / Pipe hood

Commercial Office



Intake Grille



Exhaust Grille



Low Noise Type Cabinet Fan
(In-line Fan)



Ceiling Mount Ventilating Fan

Ventilation Schedule

THE NUMBER OF VENTILATING FANS REQUIRED

(A) : Room size (M³) x (B) : Necessary frequency of Ventilation per Hour

(C) : Air Volume of Ventilating Fan (M³).

Note:

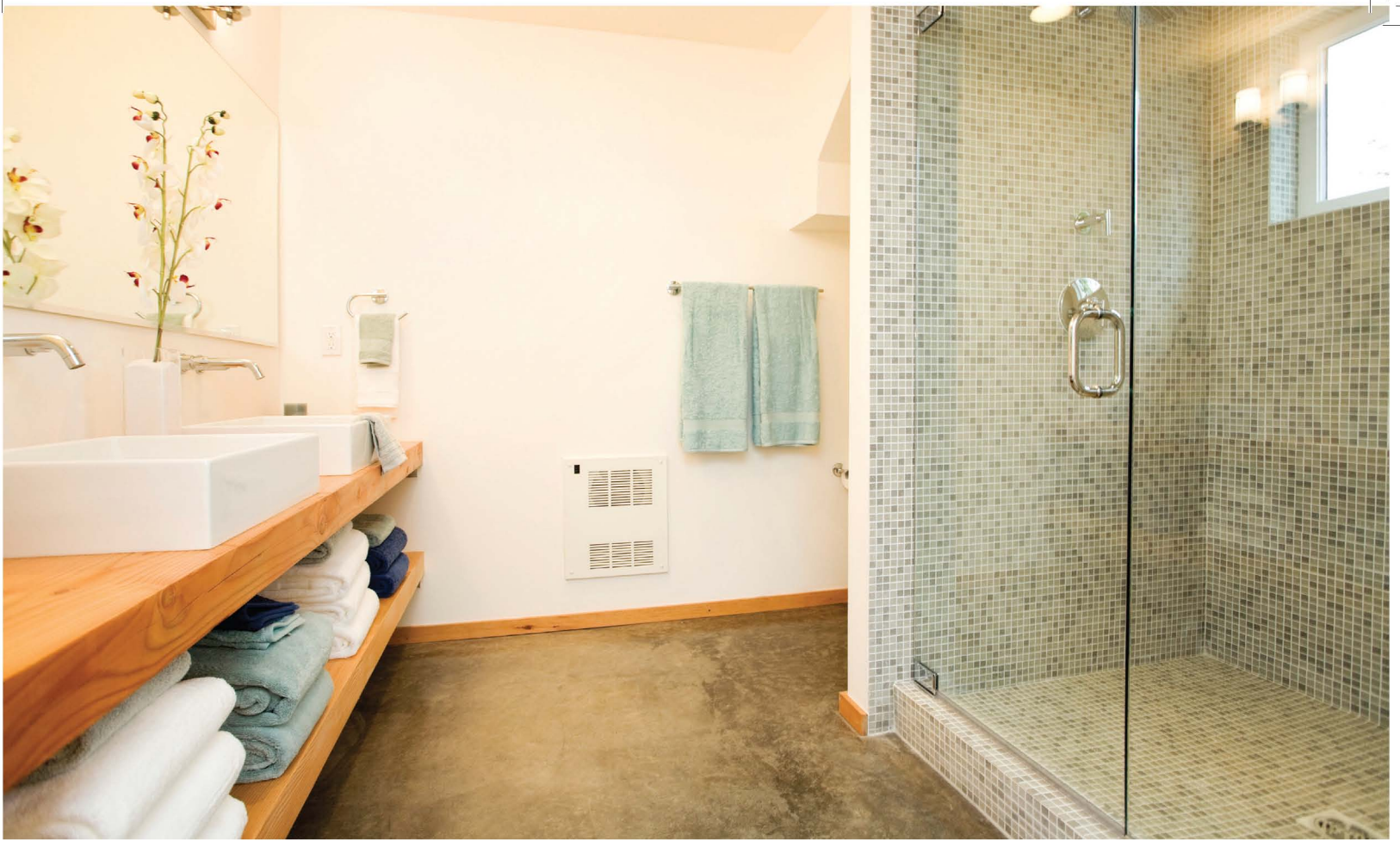
Room size (A) is calculated from the following equation:

(A) = Floor area (sq. m. or sq. ft.) x Room height (m or ft.)

If the room height exceeds 4 meters (13 feet), use 4 meters (13 feet) in the calculation regardless of the actual room height. Values for (B) in the above equation are given in the table on the below. These values were empirically found by the research scientists.

Value for (C) in the above equation are given in our catalogs.

	A	B		A	B
Hotel	Dance hall	8	Photo studio	Darkroom	10
	Dining hall	8			
	Kitchen	15	School	Laboratory	6
	Hallway	5		Cooking room	15
	Toilet	5		Auditorium	6
	Lavatory	10		Gymnasium	8
	Boiler room	20		Toilet	12
	Laundry	15		Library	6
Hospital Operating room				Classroom	6
	Waiting room	10	Theater	Auditorium	6
	Clinic	6		Hallway	6
	Ward	6		Smoking room	12
	Bathroom	5		Toilet	10
	Office	6		Projection booth	20
	Restaurant	8		Workroom	6
	Kitchen	15		Telephone switch board room	6
	Gallery	5	Factory	Painting room	20
	Toilet	10		Dynamo room and substation	20
	Boiler room	10		Condenser room	15
	Laundry	15		Office	6
	Operating room	15	Restaurant and snack bar	Restaurant	6
	Disinfecting room	12		Kitchen	20
	Room for the patients receiving medical treatment for the diseases of respiratory organs	10	Office building	Office	6
Public toilet		20		Waiting room	10
				Conference room	12
Vessel	Passenger room	6		Display room	10
				Toilet	10
Home	Kitchen	15	Others	Rooms where poisonous or inflammable gas is produced	more than 20
	Parlor	6			
	Living room	6			
Library	Reading room	6			
A : Type of room		B: Necessary frequency of ventilation per ho			



VENTILATING FAN



Ceiling Mount Type
09



Industrial Type
13

VENTILATING FAN

Ceiling Mount Type

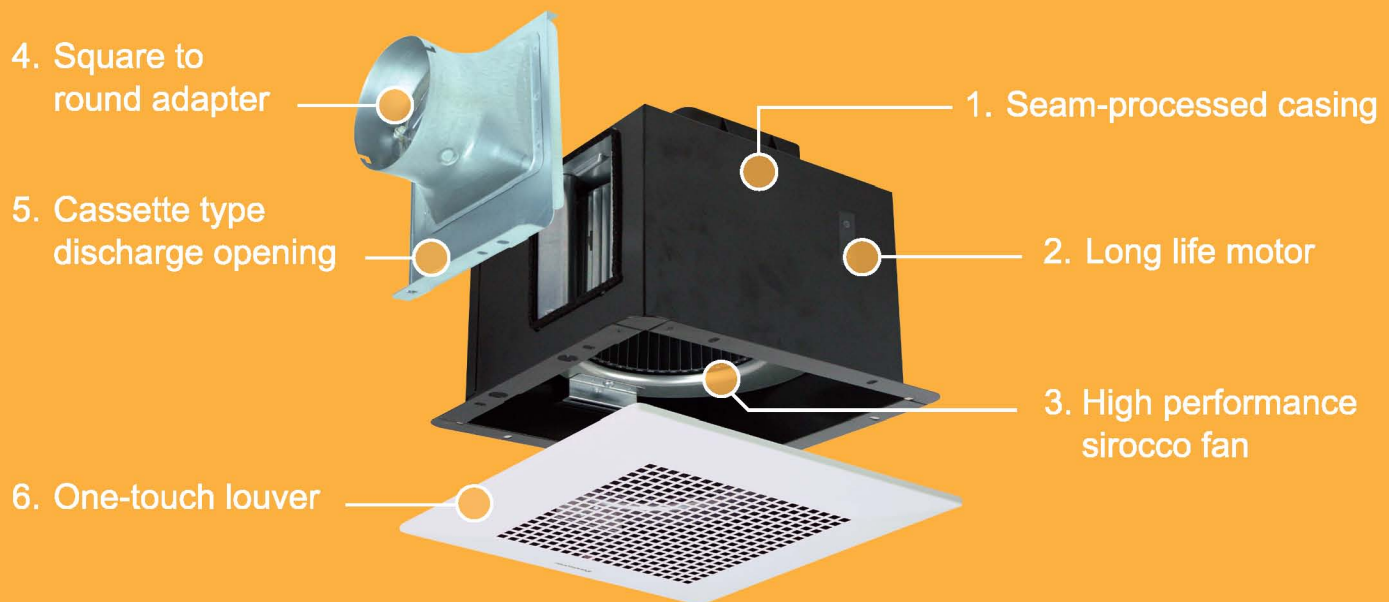


FV-24CMU1
FV-24CMD1
FV-24CMH1
FV-27CMD1
FV-27CMH1

These fans are installed in the ceiling connected with ductwork, by which indoor air is exhausted either through the roof or the exterior wall. Since they are mainly mounted inside the ceiling, the interior is not damaged.



DUCT-TYPE CEILING MOUNT VENTILATING FAN



- 1 Panasonic's unique seam-processed casing ensures strength and hermetic sealing.
- 2 The long life motor designed to withstand continuous operation is adopted in all models.
- 3 By adoption of high performance sirocco-fan reduces the noise level and sustains static pressure induced by long duct.
- 4 Adoption of detachable square to round adapter facilitating duct connection work.

- 5 Installation and removal of the main body can be performed easily even after completion of the duct work. Since the main body can easily be removed to the inside of the room, the access door is not required.
- 6 Installation and removal of the louver can be performed by finger touch, thereby permitting maintenance can be performed easily.

Specifications

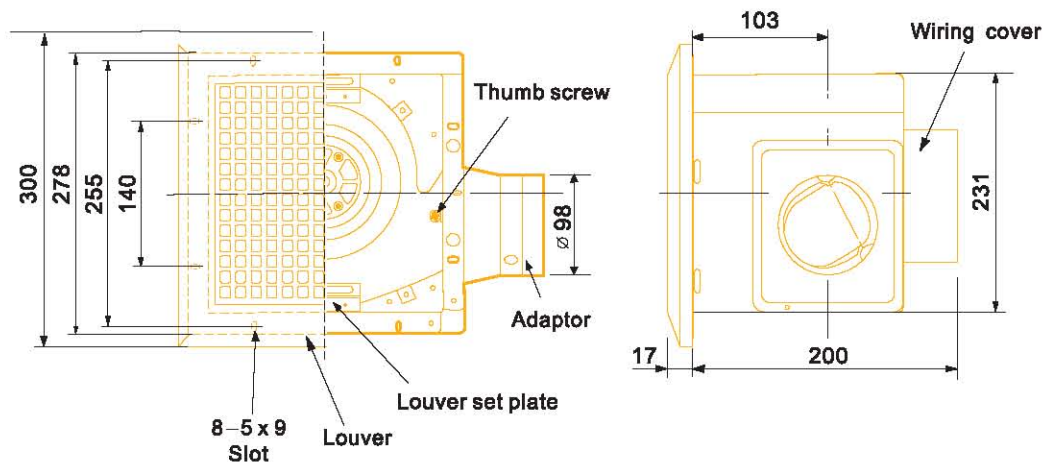
Main Components and Material

Components	Frame	Blade	Louver
Material	Steel	Steel	Steel

Model	Phase	Rating Voltage	Air Volume		Power Consumption [W]	Fan Speed [R.P.M]	Noise [dB(A)]	Weight [Kg]	Current [A]	Duct Diameter [mm]	Blade Diameter [mm]	Installation Size [mm]
			[CMH]	[l/s]								
FV-24CMU1	1	AC 220V/ 50Hz	100	28	11	495	26	3.8	0.06	100	158	240sq.
FV-24CMD1			165	46	18	670	33		0.09			
FV-24CMH1			210	58	25	800	38		0.11			
FV-27CMD1			300	83	26	520	32	5.6	0.12	150	182	270sq.
FV-27CMH1			400	111	43	620	38		0.21			

Dimensions

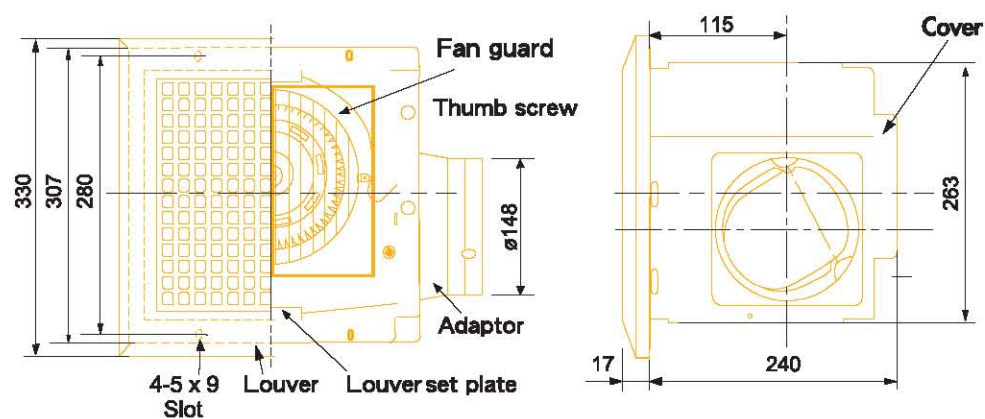
• FV-24CMU1 • FV-24CMD1 • FV-24CMH1



* Dimensions (mm)

Model	Installation Hole Size	Duct Diameter
FV-24CUM1 / FV-24CMD1 / FV-24CMH1	□ 240mm / 9.5 inch	Ø 100mm / 4 inch

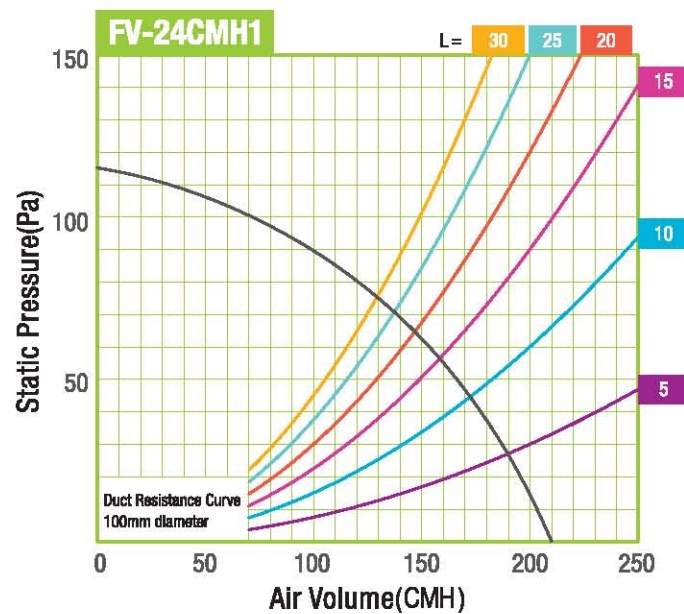
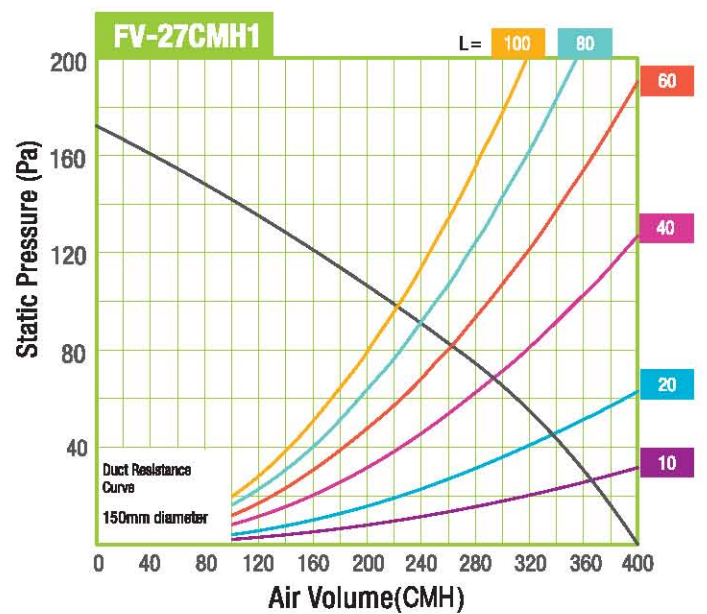
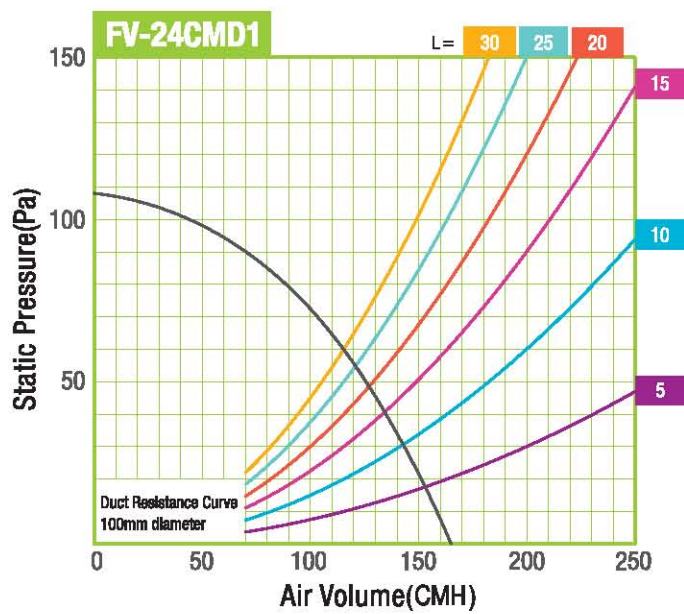
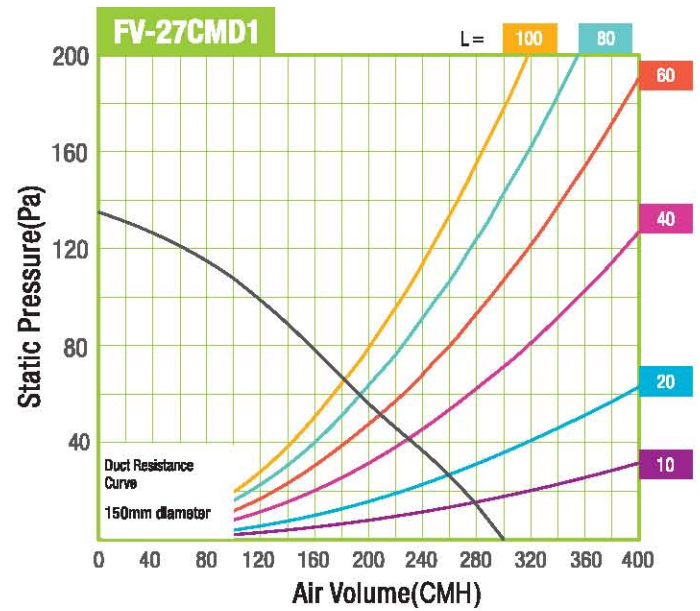
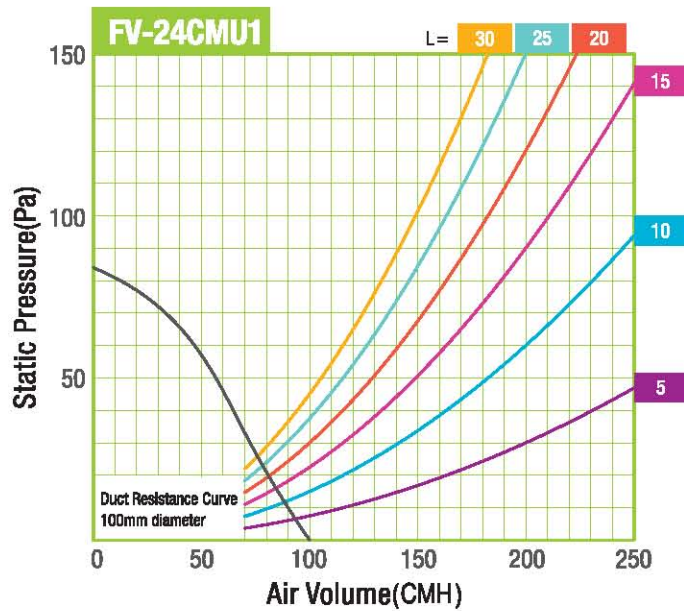
• FV-27CMD1 • FV-27CMH1



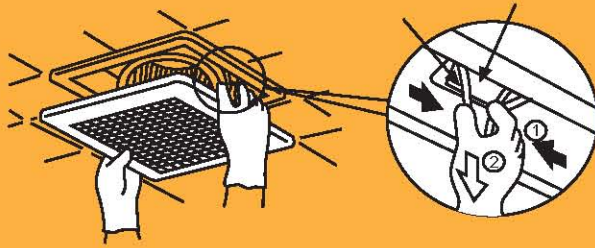
* Dimensions (mm)

Model	Installation Hole Size	Duct Diameter
FV-27CMD1 / FV-27CMH1	□ 270mm / 10.6 inch	Ø 150mm / 6 inch

Performance Data



Maintenance Method



1. Remove louver.



2. Wash and clean louver.



3. Remove dust and dirt on fan body by a cleaner.



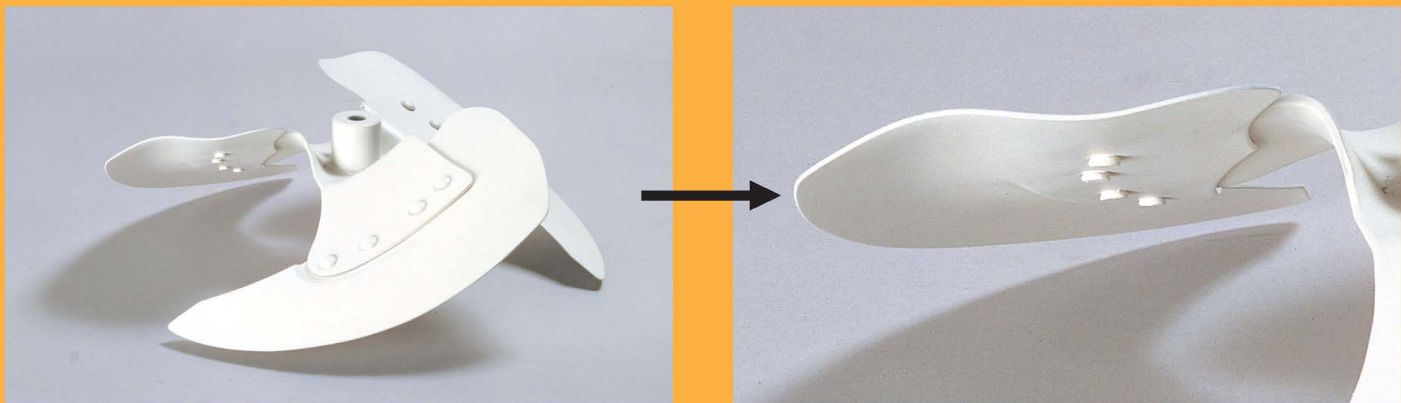
4. Using a cloth dampened with kitchen detergent, remove any dirt from fan body. Wipe dry with new cloth. Replace louver.

Industrial Type Ventilating Fan can be used in factories, warehouses, shops, commercial kitchens and other places where large air change is necessary. Particular models are applicable for the places being ventilated by duct pipe through which static pressure is relative high.

1 High Static Pressure, Low Power Consumption

The newly developed fan and original bellmouth construction enable operation with high static pressure and low power consumption.

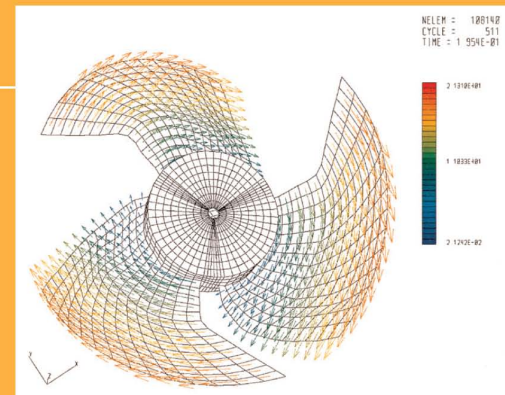
* Fan with 3-dimensional S-shaped cross-section blade



2 Low Noise Design

The fan blade's distinctive wave shape, developed using hydrodynamic analysis, delivers a smooth, turbulence-free airflow. The result is more air with less noise.

* Surface velocity vector diagram



3 High Durability

Pressure is distributed more uniformly over the surface of the new fan blade, making the blade more durable. A special polyester resin and powder coating give a beautiful color and a highly rust-resistant finish. These ventilating fans can be used in factories, warehouses, shops, commercial kitchens, and other places where a big air change is necessary, as well as in places ventilated by using ducts where the static pressure is relative high.



FV-25GS4
FV-30GS4
FV-35GS4



FV-40GS4
FV-45GS4
FV-50GS4
FV-60GS4
FV-45GT4
FV-50GT4
FV-60GT4

- Bell mouth construction with distinctive wave shape blade
- Durable powder coating
- Unique drain mechanism
- High performance totally enclosed motor with thermal cut-off
- Able to be used over an ambient temperature range of from -10°C to +50°C
- Possible to install horizontally or vertically

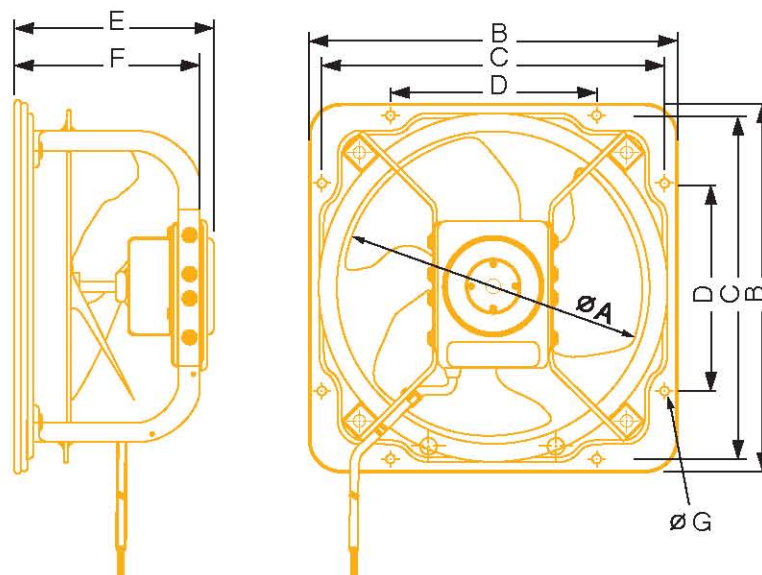
Single-phase, Reversible		Three-phase, Reversible	
FV-25GS4 (25cm/10")	FV-40GS4 (40cm/16")	FV-45GT4 (45cm/18")	
FV-30GS4 (30cm/12")	FV-45GS4 (45cm/18")	FV-50GT4 (50cm/20")	
FV-35GS4 (35cm/14")	FV-50GS4 (50cm/20")	FV-60GT4 (60cm/24")	
	FV-60GS4 (60cm/24")		

Specifications

Model	Phase	Rating Voltage	Air Volume		Power Consumption [W]	Fan Speed [R.P.M]	Noise [dB(A)]	Weight [Kg]
			[CMH]	[l/s]				
FV-25GS4	1	220~240V / 50Hz	1,150	319	39	1,360	34	4.4
FV-30GS4			1,820	505	59	1,360	38	6.1
FV-35GS4			2,560	711	88	1,420	44	10.5
FV-40GS4			3,610	1,002	161	1,450	47	19
FV-45GS4			5,200	1,444	227	1,410	51	19
FV-50GS4			6,130	1,702	249	960	47	22.5
FV-60GS4			8,040	2,233	245	970	50	34
FV-45GT4	3	380~440V / 50Hz	5,420	1,505	240	1,460	52	18.5
FV-50GT4			7,240	2,011	350	1,400	54	28.5
FV-60GT4			9,700	2,694	340	960	50	34

Dimensions

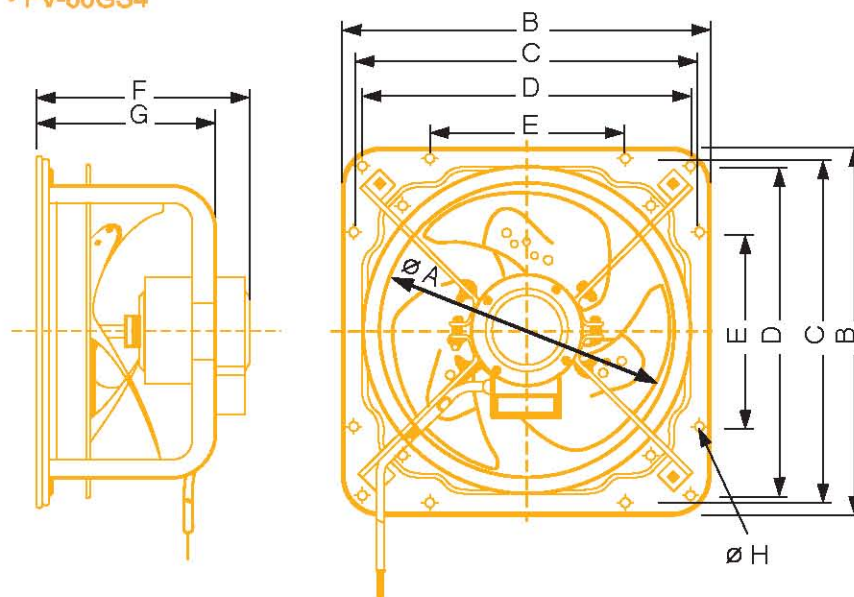
• FV-25GS4 • FV-30GS4 • FV-35GS4



unit : mm

Model	A	B	C	D	E	F	G
FV-25GS4	250	327	298	165	171	164	10
FV-30GS4	300	378	349	210	200	187	10
FV-35GS4	350	467	434	250	236	219	12

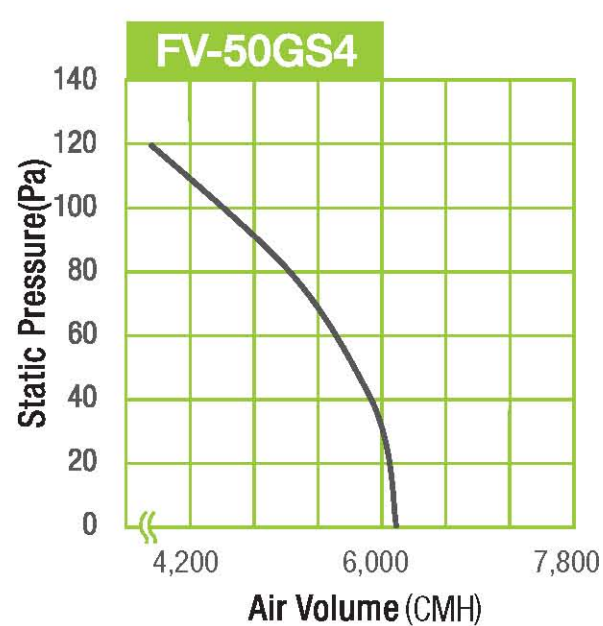
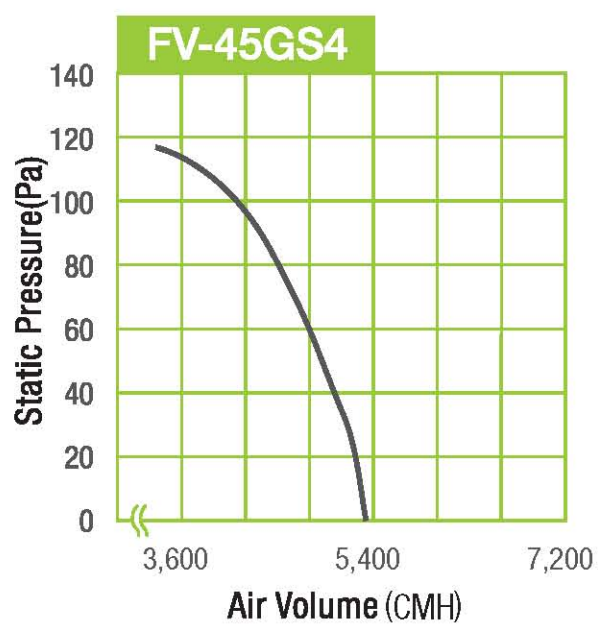
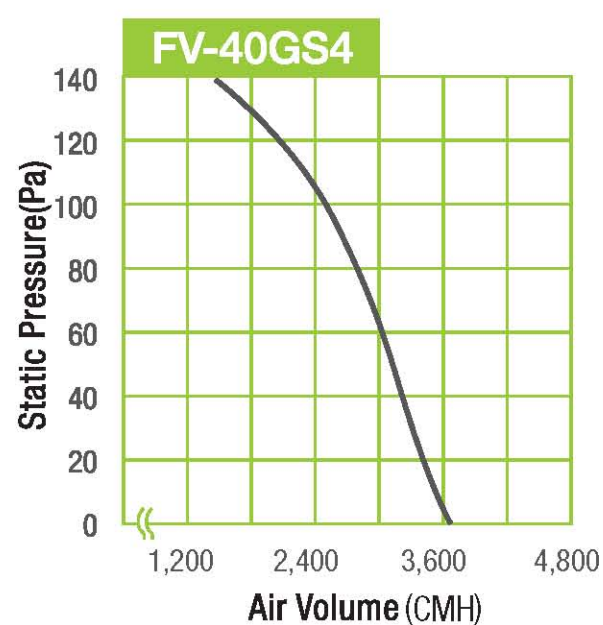
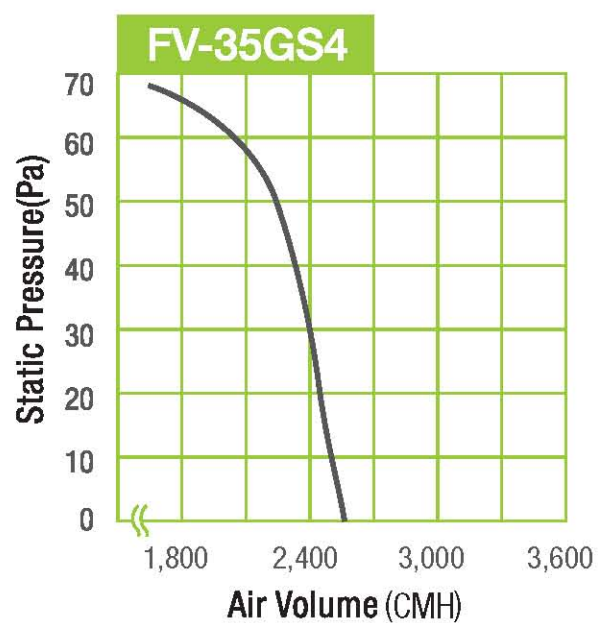
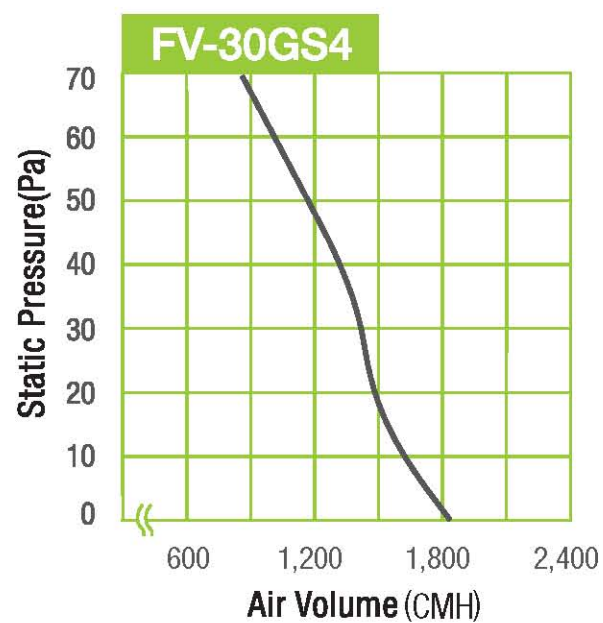
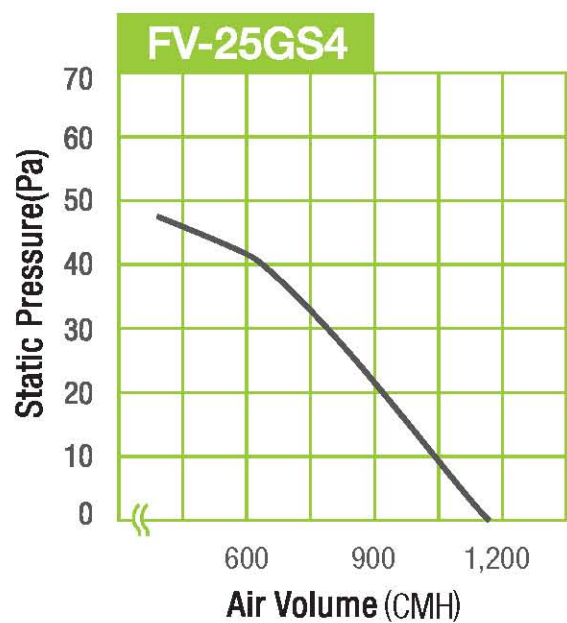
• FV-40GS4 • FV-45GS4 • FV-50GS4 • FV-60GS4
• FV-45GT4 • FV-50GT4 • FV-60GT4



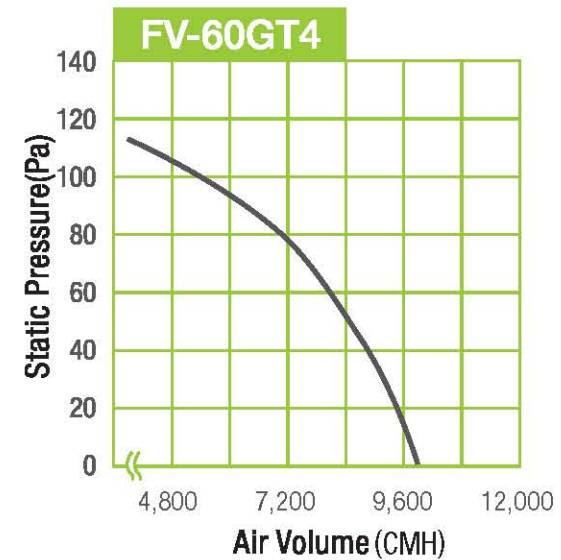
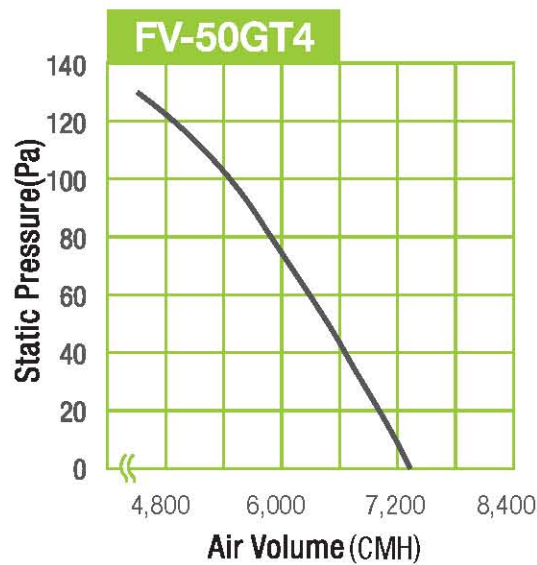
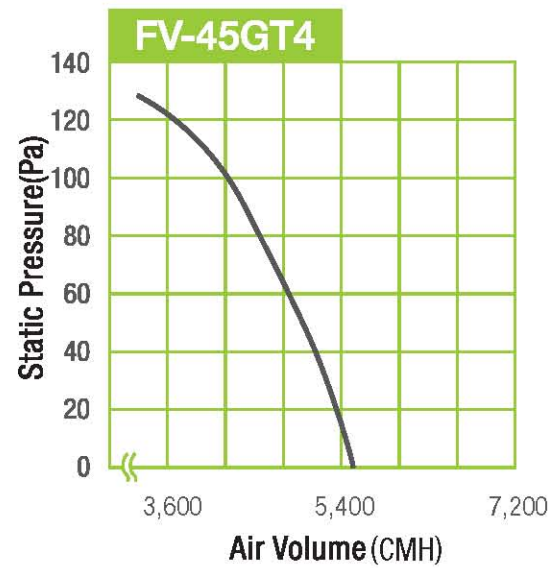
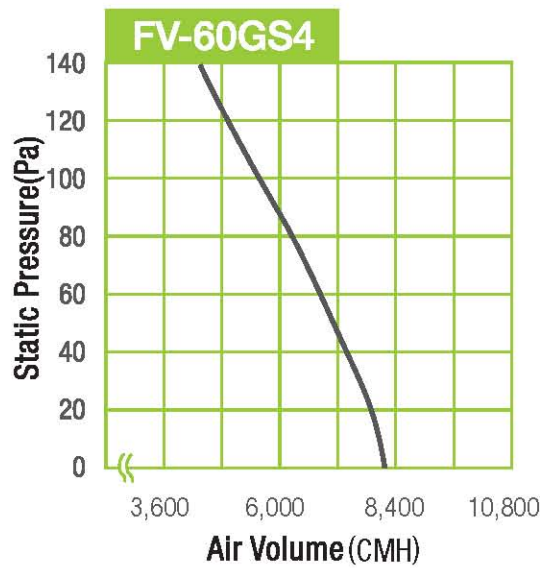
unit : mm

Model	A	B	C	D	E	F	G	H
FV-40GS4	400	518	485	460	280	274	225	12
FV-45GS4	450	570	540	-	320	297	248	12
FV-50GS4	500	659	620	560	355	315	266	15
FV-60GS4	600	760	720	650	400	320	262	15
FV-45GT4	450	570	540	-	320	297	248	12
FV-50GT4	500	659	620	560	355	304	246	15
FV-60GT4	620	760	720	650	400	320	262	15

Performance Data



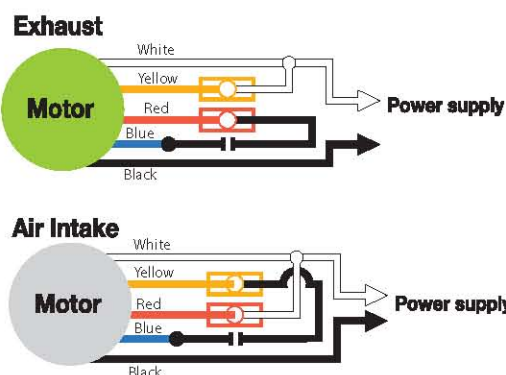
Performance Data



Wiring Diagram

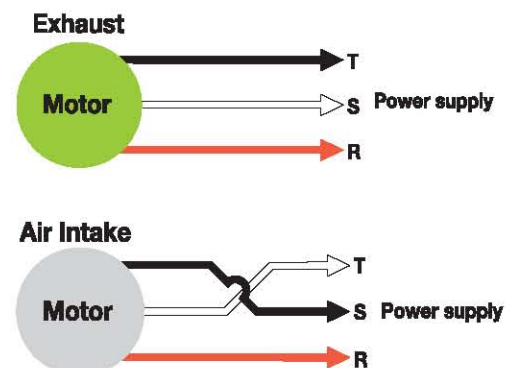
For single-phase models

- 1) Reverse the rotation in which the blade faces for reverse operation.
- 2) Please exchange the connections of the two terminals. (Red & Yellow)



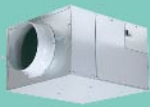
For three-phase models

- 1) Reverse the rotation in which the blade faces for reverse operation.
- 2) Please exchange the connections of any two wires.





AIR MOVING EQUIPMENT



Introduction

19

Low-noise Type Cabinet Fans (In-line Fans)

20



Plastic Type Cabinet Fans

24



Mini Sirocco Fans

26

Low Noise Type Cabinet Fans are ducted ventilating fans with both intake and outlet opening fixing at interior and exterior of the house respectively. They can be used as single port or multi port to exhaust air from several areas with one unit. Since only a small ventilation opening is required, the appearance of the interior is not spoiled.

All models are manufactured from galvanized steel enhancing high durability. The unique suction fan design and acoustic noise absorbing material realize low noise operation. The high performance induction motor offers low consumption, long life and high reliability.

The slim, compact and light-weight structure allows easy installation at narrow ceiling space. Those units can be installed upside down, that location of inspection opening can be selected to ensure easy access for maintenance. Particular U-grooved mounting brackets prevent loosen of mounting bolts that reinforce installation safety.

Two speed selection enhances the scope of application and increases the flexibility for planning of ventilation system (except FV-28NX3H). Moreover, single or three phase model are available for different requirement.

Remark: The ventilation fans are considered suitable for use in ventilation system. In case the fan is to be installed in a protected area, the designer shall ensure that the equipment is in compliance with the relevant requirements and safety standards stipulated in Section 5.2.3 Part XI of FSD Circular 4/96.

Compact Size

- Slim and compact design allows easy installation at narrow ceiling space

High Air Volume Airflow

- Powerful airflow velocity creates a better performance

Twin Flow Fan

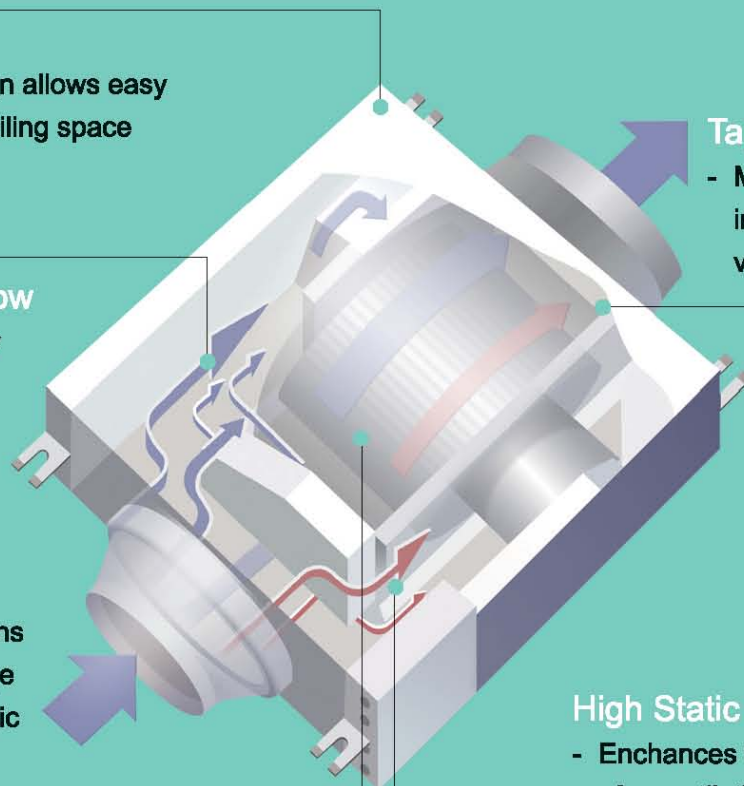
- It divides into two portions which can generate large air volume and high static pressure
- Achieves a better airflow inside the fan casing

Tapered Scroll

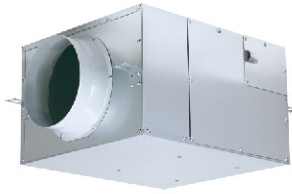
- Minimizes the turbulence induced by uneven wind velocity inside the casing

High Static Pressure Airflow

- Enhances the flexibility for planning of a ventilation system



Low-Noise Type Cabinet Fans



Single Phase



Three Phase

- Long life condenser motor with thermal cut-off
- Twin flow fan (sirocco fan)
- Fan casing with tapered scroll
- Embedded terminal box
- Noise absorption material
- Compact size

Single Phase			Three Phase
FV-12NS3H	FV-15NS3H	FV-18NS3H	FV-28NX3H
FV-18NF3H	FV-20NS3H	FV-23NL3H	
FV-25NS3H	FV-25NF3H		

Specifications

Model		RatingVoltage	Air Volume		Power Consumption [W]	Fan Speed [R.P.M]	Noise [dB(A)]	Weight [Kg]	Impeller Diameter [mm]	Number of Poles
			[CMH]	[l/s]						
FV-12NS3H	Hi	220V / 50Hz	180	50	18	1,265	21	5.5	128	4
	Lo		145	40	17	1,020	17			
FV-15NS3H	Hi		340	94	33	1,270	25	6.5	128	
	Lo		275	76	29.5	1,100	22			
FV-18NS3H	Hi		500	139	60	1,250	29	8.5	158	
	Lo		405	112	55	1,100	27			
FV-18NF3H	Hi		770	214	91	1,190	31	10	158	
	Lo		620	172	80	1,000	29			
FV-20NS3H	Hi		920	255	120	1,195	32	14	178	
	Lo		720	200	113	1,000	29			
FV-23NL3H	Hi		1,200	333	230	1,245	40	18	220	
	Lo		900	250	170	985	34			
FV-25NS3H	Hi		1,700	472	345	1,125	41	24	220	
	Lo		1,380	383	265	950	38			
FV-25NF3H	Hi		1,900	528	390	1,225	43	24	220	
	Lo		1,600	444	325	1,070	40			
FV-28NX3H		380V / 50Hz	2,600	722	600	1,295	44	28	280	-

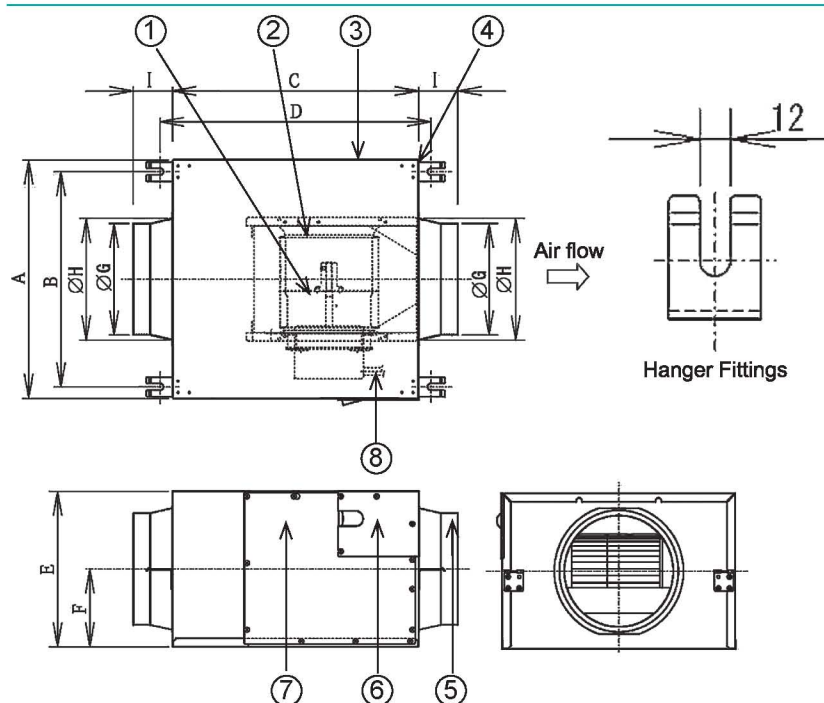
Notes :

1. The values of rated input, air volume and noise are specified at the static pressure of 0 Pa.
2. The values of noise level is A weighted average sound pressure level, the mean value are measured by our company, within +3 and -7 tolerance.
3. The values of noise level are measured at the 1.5m apart from the side of the fan body when ducts are connected on both inlet and outlet side. It is on the assumption that the noise of fan body propagates to room inside.
4. The values of air volume are the mid-points of results measured by our company, with ±10% tolerance.

Cautions :

- Don't use it for ventilation at a site generating heat, oily smoke, steam and/or moisture. (Environment condition: -10°C ~ +40°C, relative humidity below 85%)
- Install a door 600x600mm or more for maintenance purpose.
- Install a leak breaker or a motor breaker on the source site. A control panel such as a contact switch relay is required for three phase power source.
- In cold air supply to indoor during winter and at any other occasion susceptible to dew drop, heat insulation is required.
- It is recommended to use a commercially available filter at the suction side to avoid dust and/or oil waste attachment on a blade.
- Install it on a horizontal direction.
- Do not perform parallel operation of more than one unit on a switch, for it may result in motor failure.

Dimensions

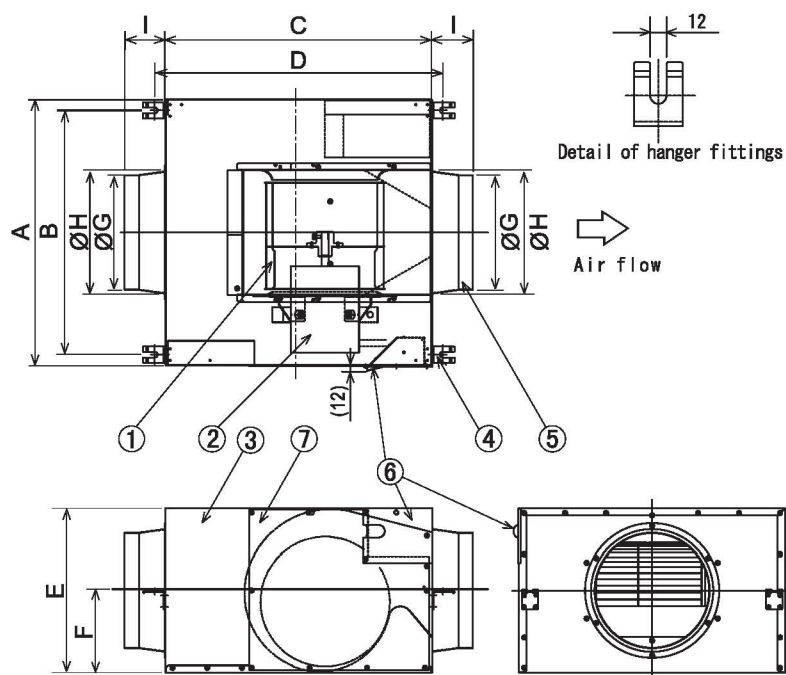


Parts List

No.	Part name	Qty	Material
1	Impeller	1	Metal
2	Motor	1	-
3	Fan casing	1	Metal
4	Hanger fitting	4	Metal
5	Adaptor	2	Metal
6	Terminal cover	1	Metal
7	Inspection panel	1	Metal
8	Metal conduit	1	Metal

unit : mm

Model	A	B	C	D	E	F	G	H	I	Duct size
FV-12NS3H	290	250	291	335	184	92	97	112	51	Ø100
FV-15NS3H	290	250	302	346	206	103	145	163	60	Ø150
FV-18NS3H	316	276	338	382	232	116	145	163	60	Ø150
FV-18NF3H	376	336	397	441	254	127	195	211	70	Ø200
FV-20NS3H	416	376	441	485	272	136	195	211	70	Ø200
FV-23NL3H	468	424	469	513	298	149	195	211	70	Ø200
FV-25NS3H	494	450	505	549	334	167	240	255	85	Ø250
FV-25NF3H	494	450	505	549	334	167	240	255	85	Ø250



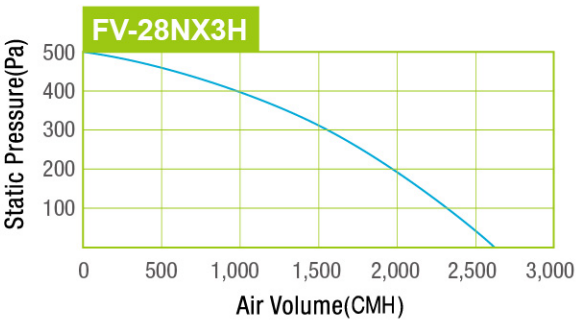
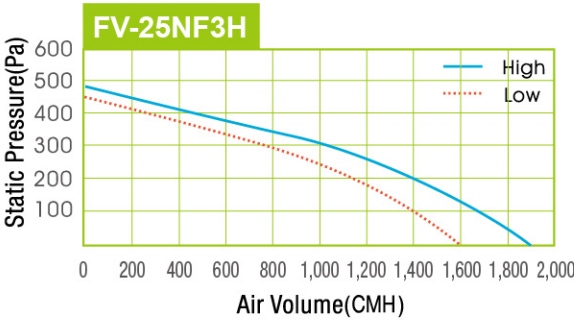
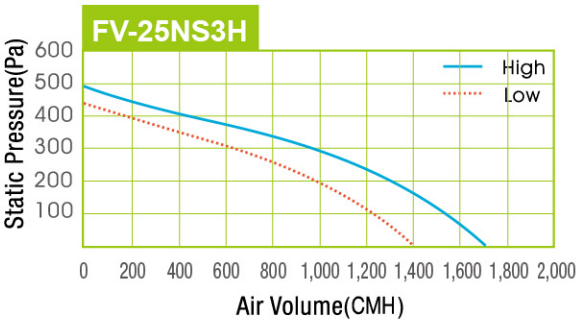
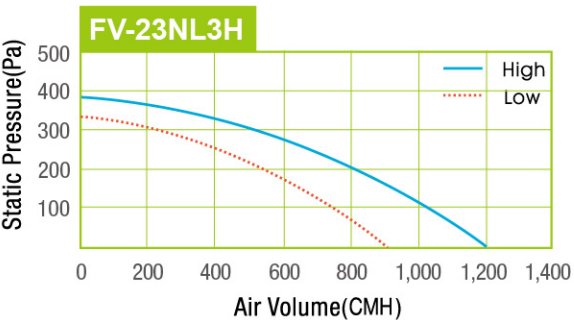
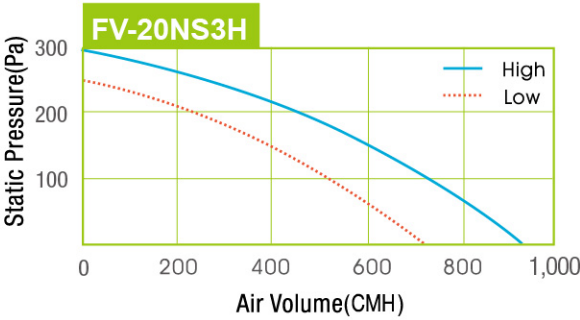
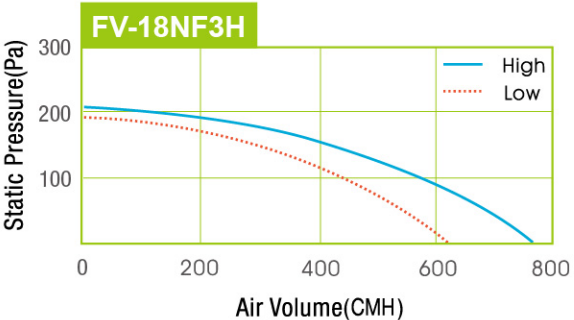
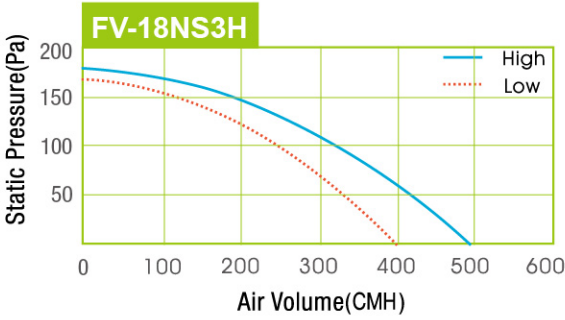
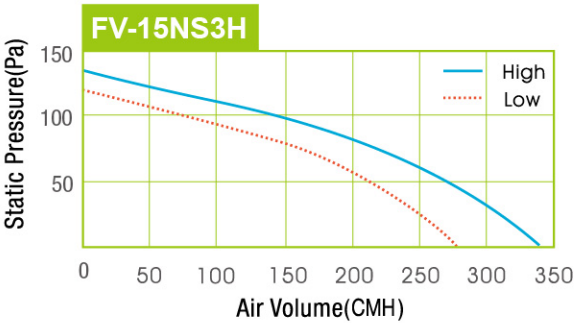
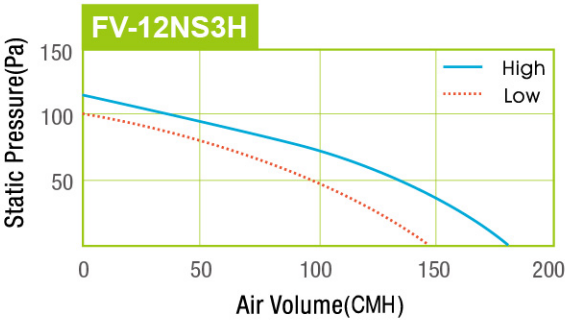
Parts List

No.	Part name	Qty	Material
1	Impeller	1	Metal
2	Motor	1	-
3	Frame	1	Metal
4	Adapter	2	Metal
5	Terminal cover	1	Metal
6	Inspecting panel	1	Metal
7	Metal conduit	1	Metal

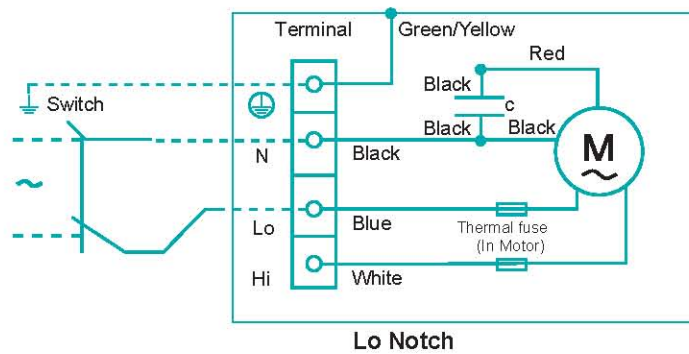
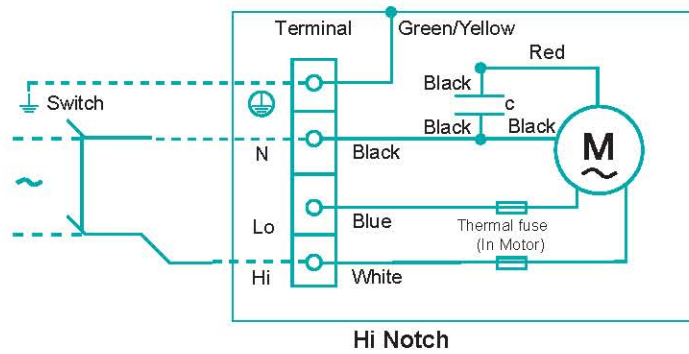
unit : mm

Model	A	B	C	D	E	F	G	H	I	Duct size
FV-28NX3H	554	510	557	601	342	171	240	255	85	Ø250

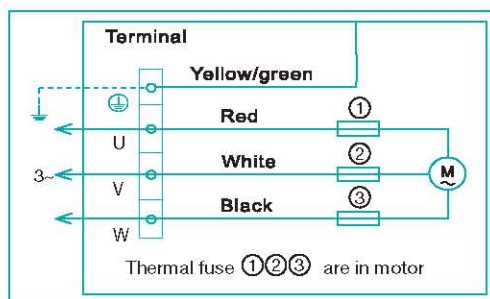
Performance Data



Wiring Diagram



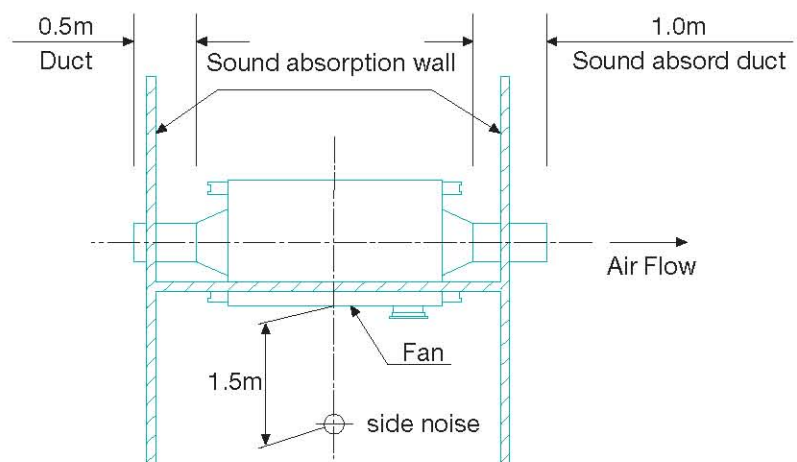
- FV-12NS3H
- FV-15NS3H
- FV-18NS3H
- FV-18NF3H
- FV-20NS3H
- FV-23NL3H
- FV-25NS3H
- FV-25NF3H



- FV-28NX3H

Test Standard

Noise characteristic is measured according to our internal standard as shown.



*The values of noise of noise level are measured at the 1.5m apart from the side of the fan body when ducts are connected on both inlet and outlet side. It is on the assumption that the noise of fan body propagates to room inside.

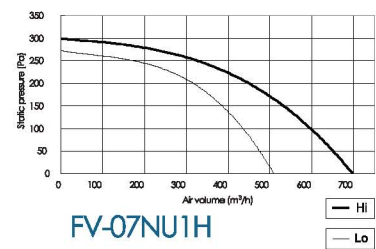
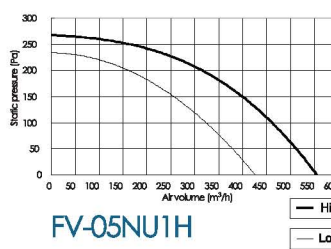
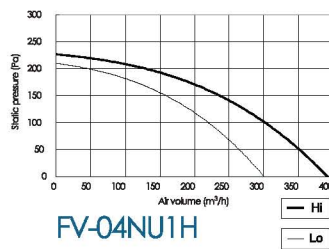
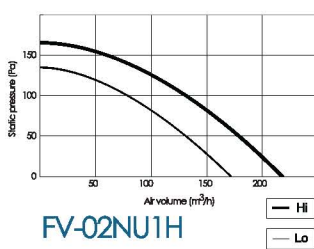


- Slim design
- Compact size, 33% less than steel type cabinet fan
- Long life motor with thermo cut-off
- Special design blade achieving high static pressure

Single Phase

FV-02NU1H	FV-05NU1H
FV-04NU1H	FV-07NU1H

Performance Data



Specifications

Model		Rating Voltage	Air Volume		Power Consumption [W]	Fan Speed [R.P.M]	Noise level [dB(A)]	Weight [Kg]	Impeller Diameter [mm]	No. of Poles
			[CMH]	[l/s]						
FV-02NU1H	Hi	220V / 50Hz	218	61	27	890	24	3.8	200	4
	Lo		170	47	24	710	21			
FV-04NU1H	Hi		392	109	62	1,065	31	4.4	200	
	Lo		300	83	48	850	25			
FV-05NU1H	Hi		554	154	83	980	34	6.4	230	
	Lo		425	118	70	760	28			
FV-07NU1H	Hi		694	193	118	1,240	37	8.3	230	
	Lo		510	142	108	900	31			

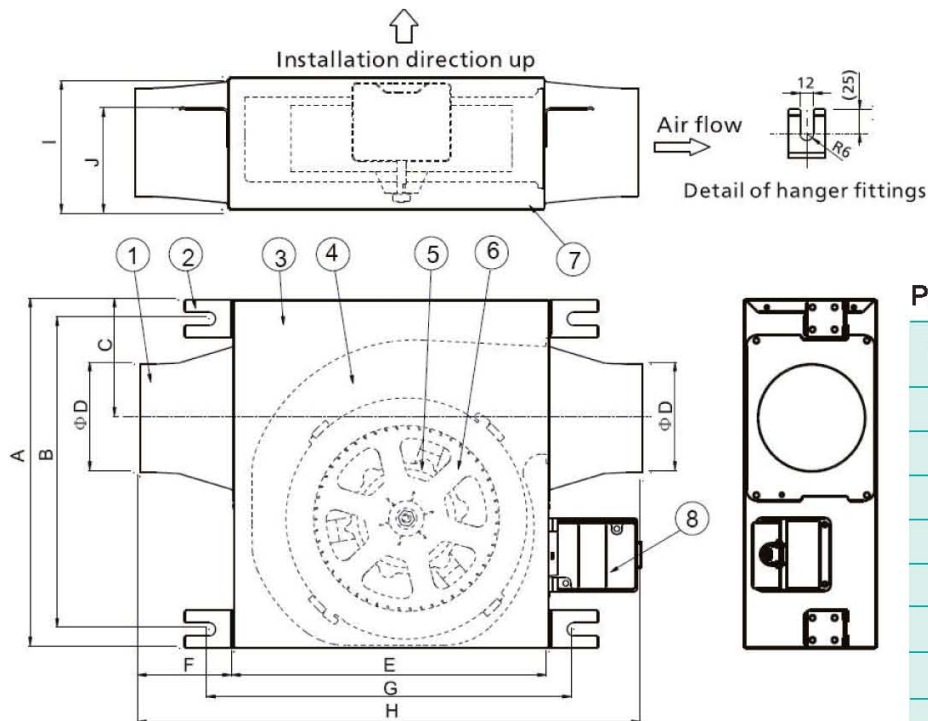
Notes :

- The values of rated input, air volume and noise are specified at the static pressure of 0 Pa.
- The values of noise level is A weighted average sound pressure level, the mean value are measured by our company, within +3 and -7 tolerance.
- The values of noise level are measured at the 1.5m apart from the inspection panel of the fan body when ducts are connected on both inlet and outlet side. It is on the assumption that the noise of fan body propagates to room inside.
- The values of air volume are the mid-points of results measured by our company, with $\pm 10\%$ tolerance.

Cautions :

- Don't use it for ventilation at a site generating heat, oily smoke, steam and/or moisture. (Environment condition: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$, relative humidity below 85%)
- Install a door 600x600mm or more for maintenance purpose.
- Install a leak breaker or a motor breaker on the source site.
- In cold air supply to indoor during winter and at any other occasion susceptible to dew drop, heat insulation is required.
- It is recommended to use a commercially available filter at the suction side to avoid dust and/or oil waste attachment on a blade.
- Install it on a horizontal direction.
- Do not perform parallel operation of more than one unit on a switch, for it may result in motor failure.

Dimensions



Parts List

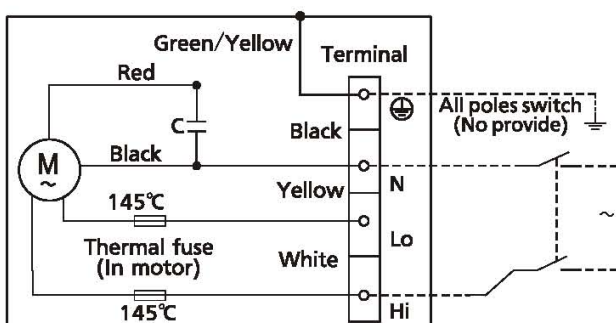
No.	Part name	Qty	Material
1	Adapter	2	Metal
2	Hanger fittings	4	Metal
3	Inspection panel	1	Metal
4	Casing assy.	1	Plastic
5	Motor	1	-
6	Blade	1	Plastic
7	Fan casing	1	Metal
8	Wiring box cover	1	Plastic

unit : mm

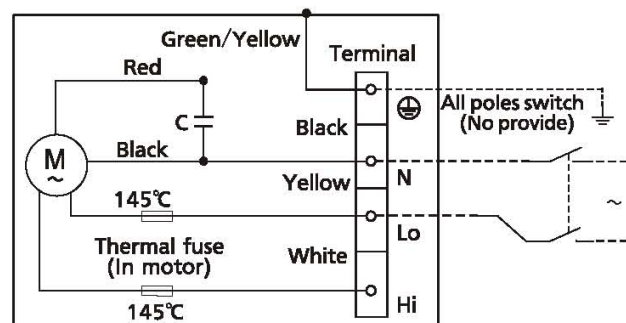
Model	A	B	C	D	E	F	G	H	I	J	Duct size
FV-02NU1H	315	281	107	98	285	85	330	455	120	92	Ø100
FV-04NU1H	315	281	118	148	285	100	330	485	170	107	Ø150
FV-05NU1H	362	327	119	148	338	100	383	538	170	107	Ø150
FV-07NU1H	362	327	119	148	338	100	383	538	170	107	Ø150

Wiring Diagram

High Notch



Low Notch





- Act as ventilation system
- Long Life induction motor with thermo cut-off
- Single Speed
- Outlet direction is adjustable to vertical or horizontal position
- Able to be used over an ambient temperature range from -10°C to +40°C

Single Phase

FV-10CG2H	FV-14CG2H
FV-16CG2H	FV-17CG2H
FV-19CG2H	FV-21CG2H

Specification Table

Model	Speed	Rating Voltage	Air Volume		Power Consumption	Fan Speed	Noise level	Weight	Impeller Diameter	No. of Poles
			[CMH]	[l/s]						
FV-10CG2H	Hi	220V / 50Hz	150	42	15	1,315	30	1.9	120	4
	Lo		110	31	12	1,070	26			
FV-14CG2H	Hi		330	92	33	1,190	36	2.9	120	
	Lo		235	65	28	900	28			
FV-16CG2H	Hi		500	139	47	1,060	39	5.7	150	
	Lo		390	108	41	900	34			
FV-17CG2H	Hi		770	214	85	770	39	10.3	180	
	Lo		620	172	72	635	35			
FV-19CG2H	Hi		950	264	120	935	42	10.4	180	
	Lo		830	230	105	850	39			
FV-21CG2H	Hi		1400	389	224	1,330	55	14.8	200	
	Lo		1100	305	185	1,130	50			

Notes :

1. The values of rated input, air volume and noise are specified at the static pressure of 0 Pa.
2. The values of noise level is A weighted average sound pressure level, the mean value are measured by our company, within +3 and -7 tolerance.
3. The values of noise level are measured at the 1.5m apart from the side of the fan body when ducts are connected on both inlet and outlet side. It is on the assumption that the noise of fan body propagates to room inside.
4. The values of air volume are the mid-points of results measured by our company, with±10% tolerance.

Cautions :

- Don't use it for ventilation at a site generating heat, oily smoke, steam and/or moisture. (Environment condition: -10°C ~ +40°C, relative humidity below 85%)
- Install a door 600x600mm or more for maintenance purpose.
- Install a leak breaker or a motor breaker on the source site.
- In cold air supply to indoor during winter and at any other occasion susceptible to dew drop, heat insulation is required.
- It is recommended to use a commercially available filter at the suction side to avoid dust and/or oil waste attachment on a blade.
- Install it on a horizontal direction.
- Do not perform parallel operation of more than one unit on a switch, for it may result in motor failure.

Dimensions

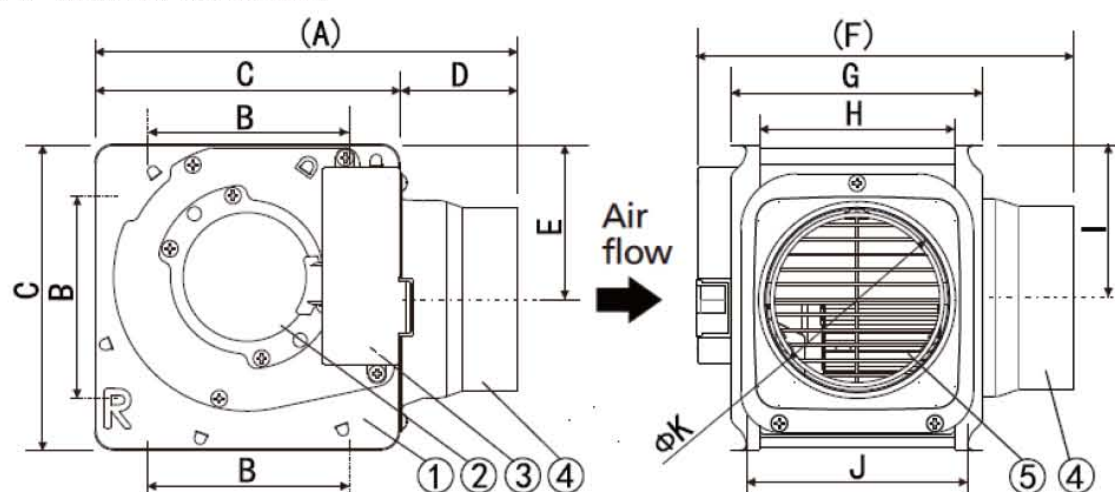
FV-10/12/14/16/17/19CG2H

No.	Part name	Q'ty	Material
1	Fan casing	1	Metal
2	Motor	1	—
3	Condenser box cover	1	Metal
4	Adapter	2	Metal
5	Blade	1	Metal

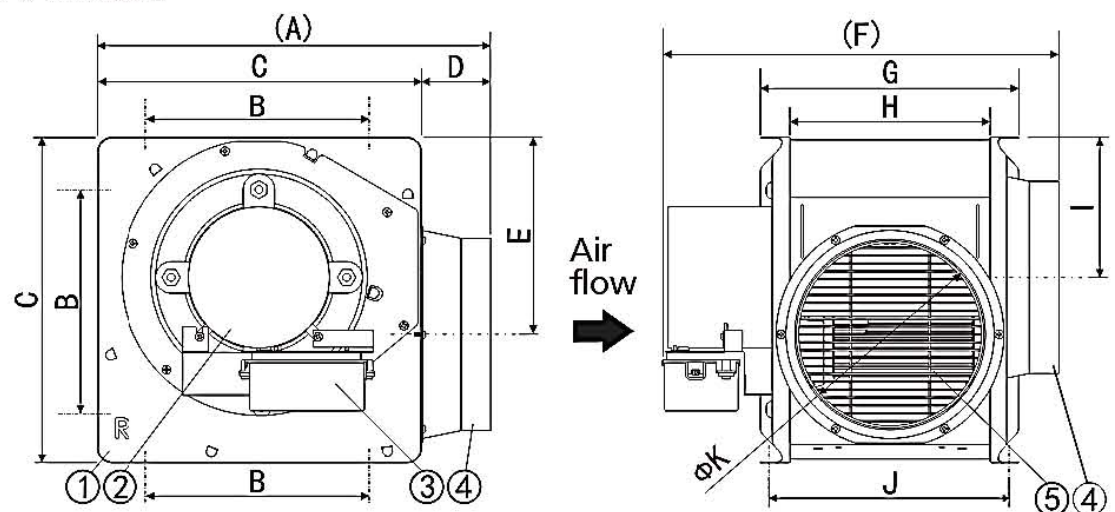
FV-21CG2H

No.	Part name	Q'ty	Material
1	Fan casing	1	Metal
2	Motor	1	—
3	Condenser box cover	1	Plastic
4	Adapter	2	Metal
5	Blade	1	Metal

FV-10/14/16/17/19CG2H



FV-21CG2H

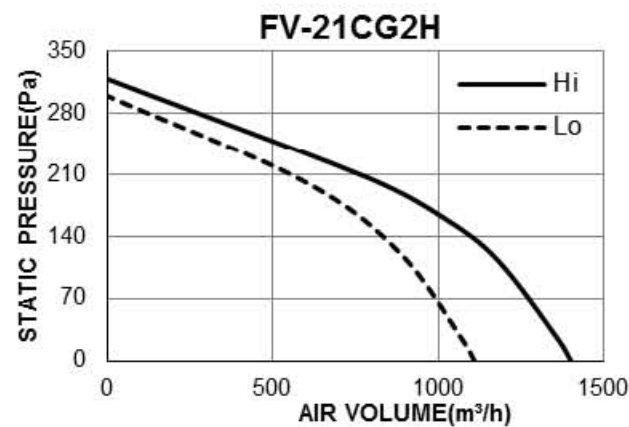
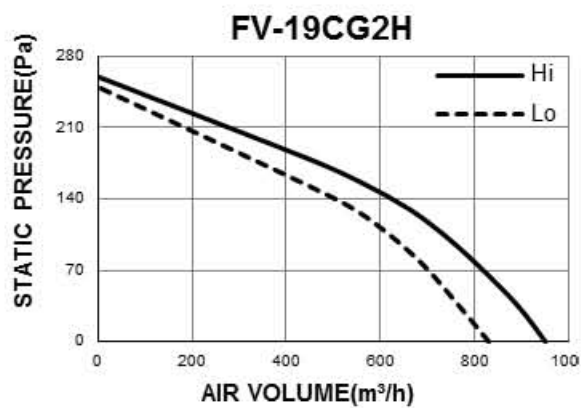
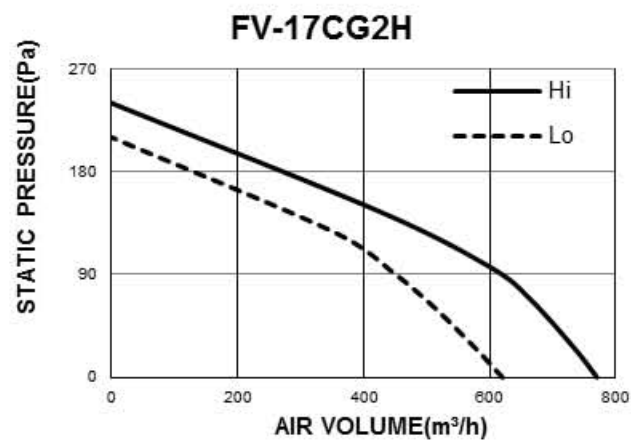
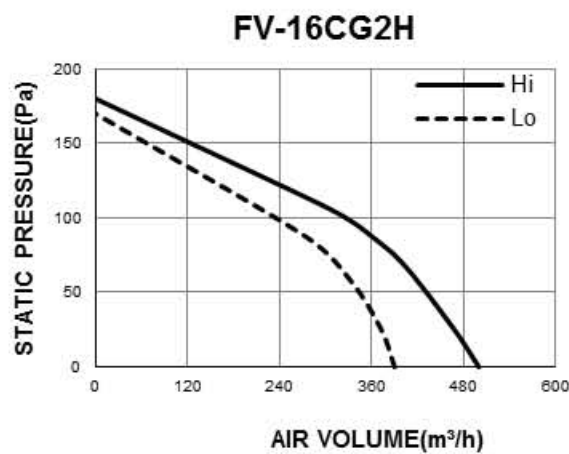
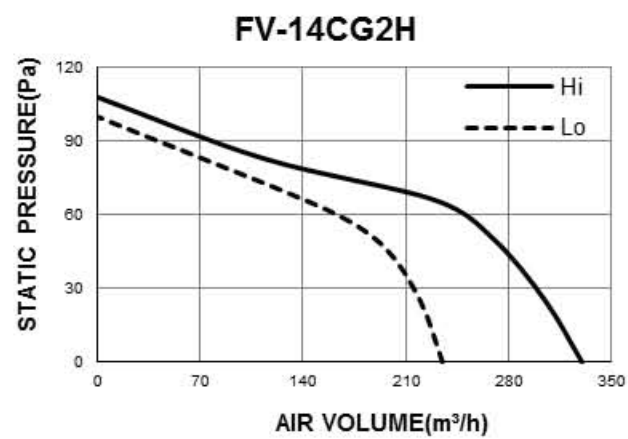
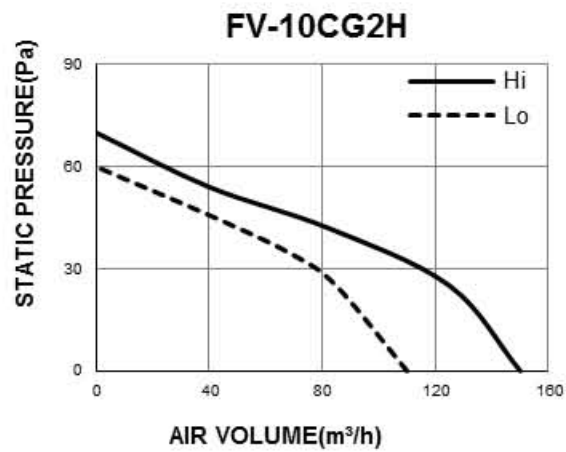


* Remark: All the view are 3rd angle.

unit : mm

Model	A	B	C	D	E	F	G	H	I	J	K	Duct dimension
FV-10CG2H	226	109	163	63	83	207	138	104	79	126	98	Ø100
FV-14CG2H	269	145	209	60	112	236	170	136	101	158	146	Ø150
FV-16CG2H	330	196	270	60	170	264	189	155	117	177	146	Ø150
FV-17CG2H	400	222	330	71	200	332	263	203	142	239	195	Ø200
FV-19CG2H	400	222	330	71	200	332	263	203	142	239	195	Ø200
FV-21CG2H	400	222	330	71	200	403	263	203	142	239	195	Ø200

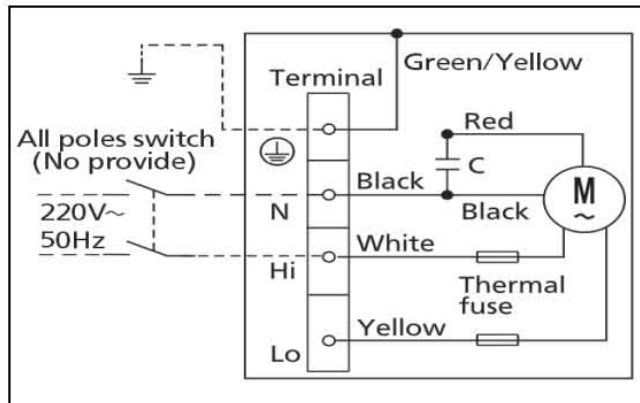
Performance Data



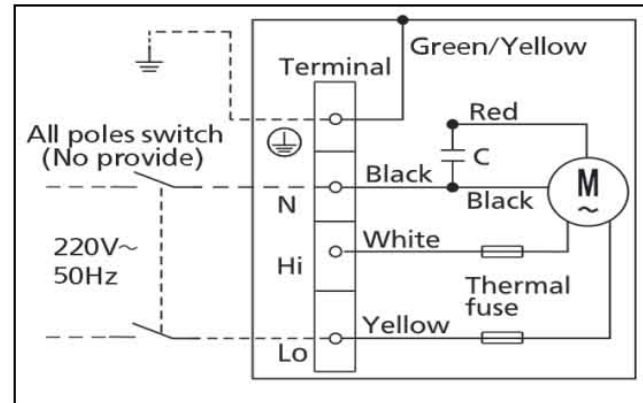
Wiring Diagram

FV-10/14/16/17/19CG2H

High Notch

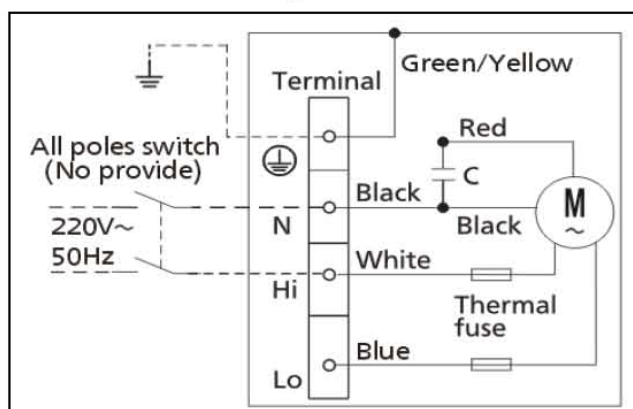


Low Notch

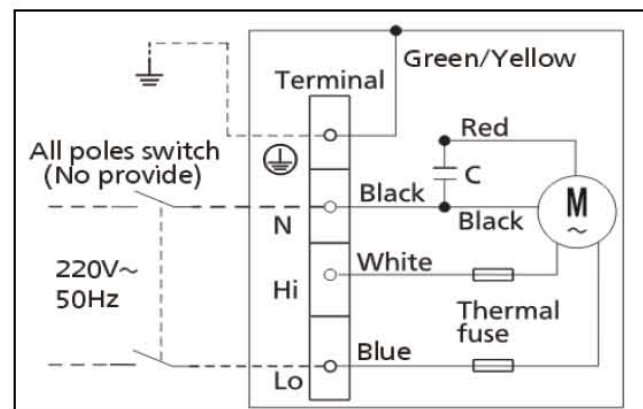


FV-21CG2H

High Notch

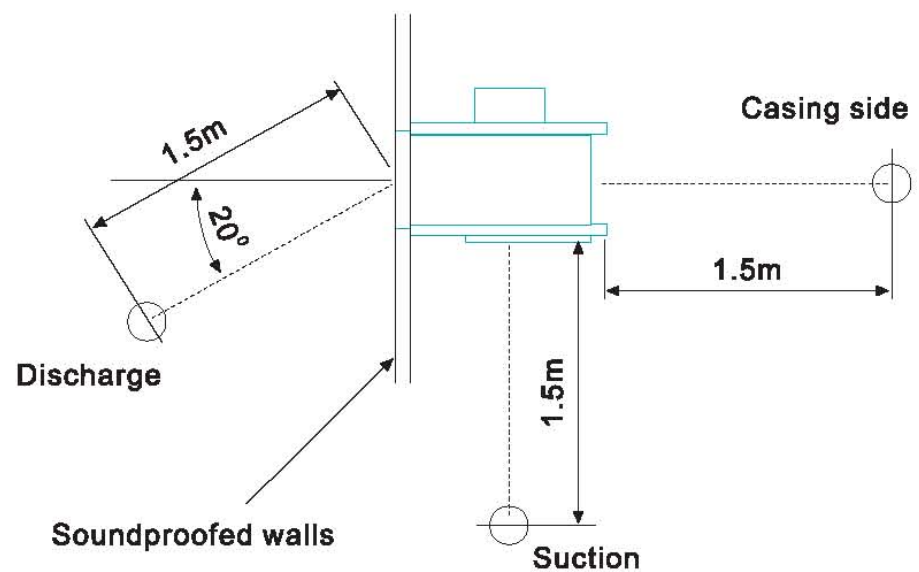


Low Notch



Test Standard

Noise characteristic is measured according to our internal standard as shown.





Air Curtains

Introduction

31

Air Curtains

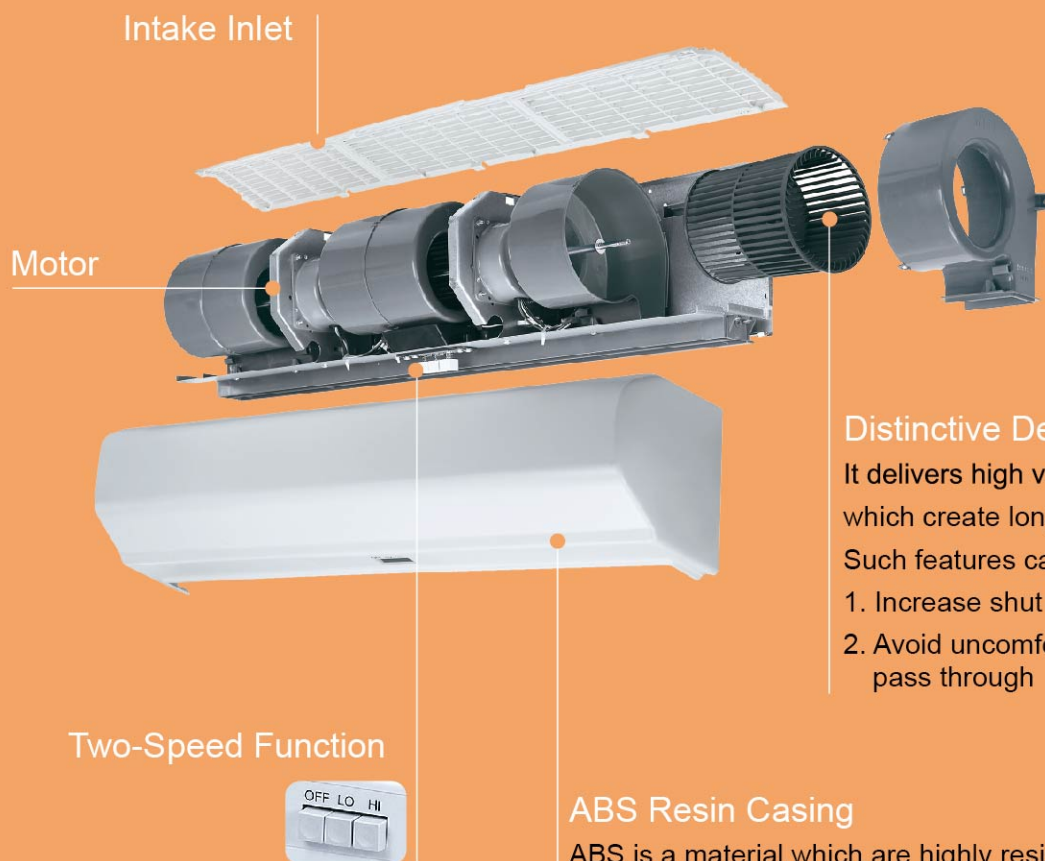
32





Doors of a shop need to be opened frequently to let people pass through. However, open door allows air leaks to outside that increases energy consumption of air conditioners. By using air curtain, an invisible air screen will build up to minimize air exchange between the air at outside and indoor.

Improved Functionality and Workability



Distinctive Design of Sirocco Fan

It delivers high velocity and thin air flow which create longer reach and narrow diffusion.

Such features can

1. Increase shut out ability and
2. Avoid uncomfortable feelings when you pass through

ABS Resin Casing

ABS is a material which are highly resistant to rust and with high bending flexibility which make the outlook more streamline. It provides a simple design that suits for all interiors.

Advantages of Panasonic Air Curtain

High Air Velocity

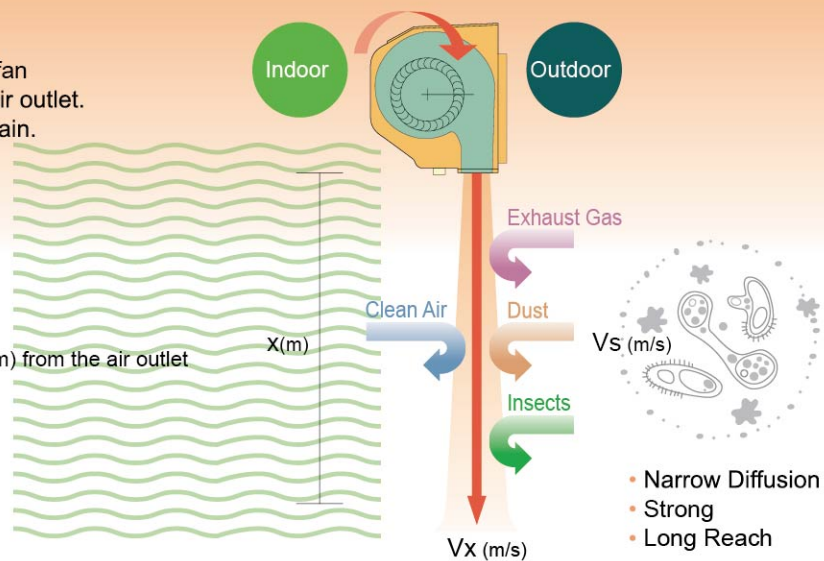
The high pressure produced by sirocco fan delivering a powerful jet of air from the air outlet. Thus maximizes the effect of the air curtain.

$$V_s = A \times V_x$$

V_s : Shut-out penetrating velocity (m/s)

V_x : Central air velocity (m/s) at distance X (m) from the air outlet

A: Constant



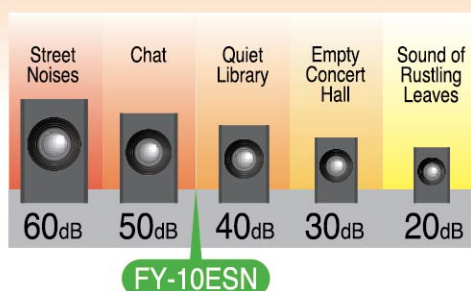
The above illustration shows an effect of air curtain as sensuous image.

Low Consumption

High efficient motors are adopted to ensure low power consumption by reducing up to 35%.
(Compared with previous 3 meter models)

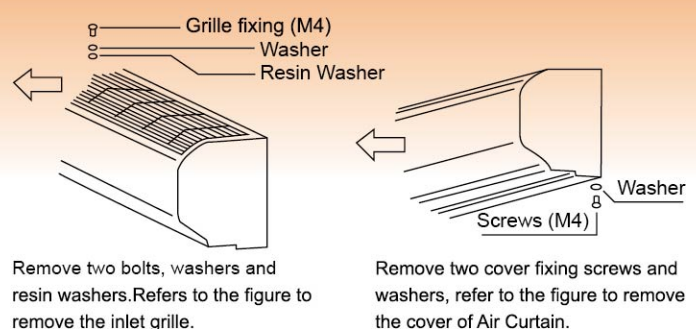
Low Noise

The quiet sirocco fan and ABS resin casing have reduced the noise level by an average of 10dB(A) compared with conventional models.



Easy Maintenance

The casing can be removed simply by unscrew 4 bolts. The whole set can be detached from wall to remove dust from sirocco fan for cleaning.



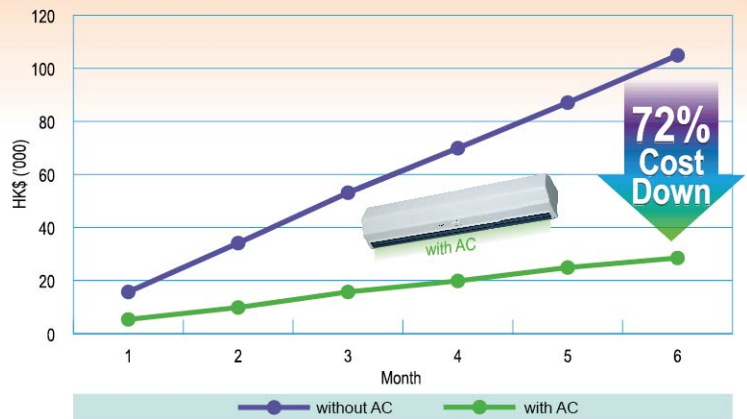
Air Curtains

Assumptions:

1. The Area of typical shop is 23.49 sq.m
2. 1 set of Panasonic large capacity air conditioner (model no. CS-D24DB4H5) is installed inside the shop
3. 2 sets of Panasonic Air Curtain (model no. FY-12ELN) are installed at the entrances

	Temperature (°C)	Humidity (%)
Indoor	23	55
Outdoor	35	95

5. Calculation is based on HK electricity charge : HK\$1/ kw
6. Operating hours of air conditioner and air curtain in the shop is 450 per month. (15 hours x 30 days)



Result

Using an air conditioner together with air curtains can save energy consumption up to 72%

Notes:

- 1) Energy lost of air curtain is not included
- 2) Calculated at 0 m/s outside wind
- 3) Values are for reference only. Results will vary subject to outside wind, pressure balance of indoor and outdoor, etc.

Model Selection

The air curtain comes in six models. Select your model according to the installation site, usage area and required capacity.

Length of unit	Air velocity chart (m/s) Maximum value at HI speed 50Hz
900mm (3 feet)	
FY-10ESN	
1,200mm (4 feet)	
FY-10ELN	

Length of unit	Air velocity chart (m/s) Maximum value at HI speed 50Hz
900mm (3 feet)	
FY-14ESN	
1,200mm (4 feet)	
FY-14ELN	

▼ Efficient distance

Length of unit	Air velocity chart (m/s) Maximum value at HI speed 50Hz
900mm (3 feet)	
FY-12ESN	
1,200mm (4 feet)	
FY-12ELN	

The velocity characteristics were measured in a testing room free from the influence of surrounding walls and outside wind. Outside wind, air flow from air conditioners, use of ventilating equipment, etc., significantly lower the shielding effectiveness. Take these factors into consideration, it is recommended to select the one rank bigger model for better function.

Shut-Out Ability

An air curtain's shut-out ability is determined by the air velocity at the center of its airflow. The powerful discharge of air curtains enables them to maintain a high level of air velocity for the curtain's efficient distance, resulting in superior shut-out ability.

Specifications

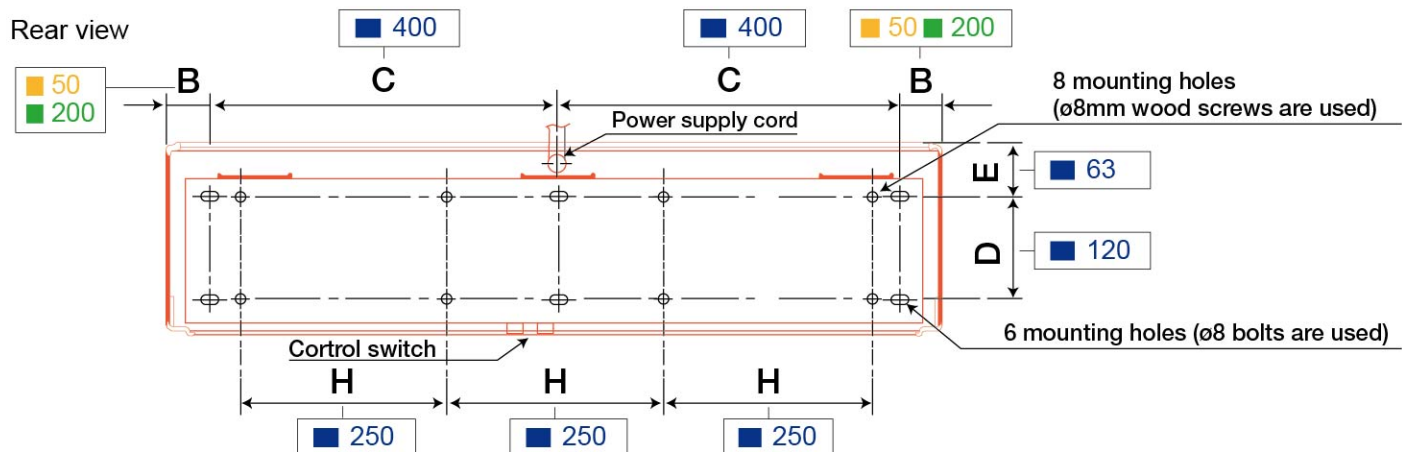
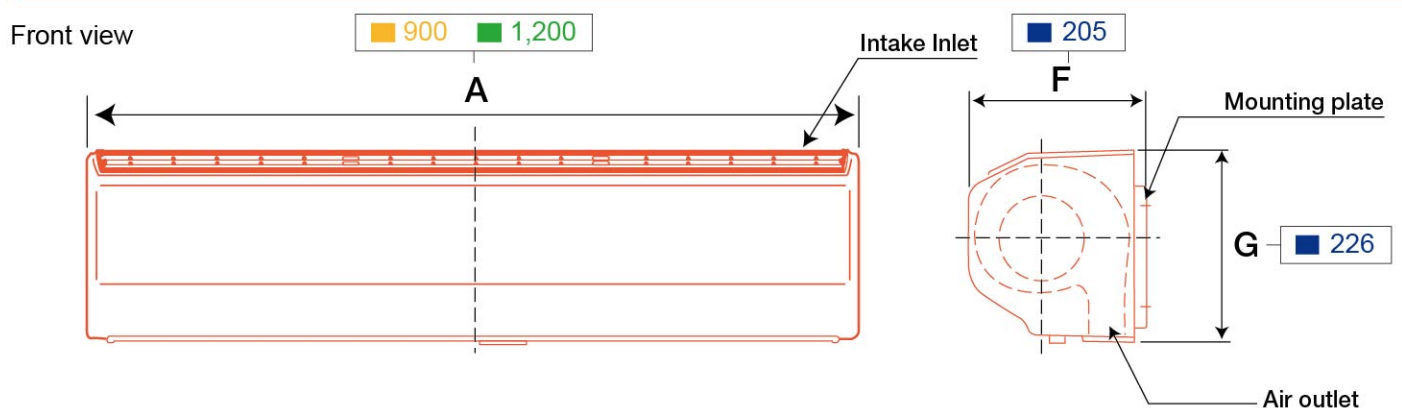
Model	Rating Voltage	Air Volume		Power Consumption [w]	Outlet Velocity [m/s]	Noise [dB(A)]	Current [A]	Weight [kg]	Length [mm]
		[CMH]	[l/s]						
FY-10ESN	Hi	750	208	72	13	46	0.40	12	900
	Lo	630	175	62	11.1	42	0.29		
FY-10ELN	Hi	1,000	278	96	13.1	46	0.54	14	1,200
	Lo	830	230	74	11	42	0.35		
FY-12ESN	Hi	1,050	292	176	16.9	55	0.82	13	900
	Lo	960	267	155	15.8	50	0.69		
FY-12ELN	Hi	1,420	394	224	17	56	1.04	15	1,200
	Lo	1,320	367	200	15.8	51	0.90		
FY-14ESN	Hi	1,340	372	257	21.9	62	1.14	13	900
	Lo	1,168	324	218	19.1	59	0.99		
FY-14ELN	Hi	1,867	518	333	22.5	63	1.52	15	1,200
	Lo	1,668	463	290	20.1	61	1.32		

Note : The values in specification tables are representative characteristic value at 220V 50Hz and the ambient temperature of 20°C.

The noise values were measured at an angle of 40° Below the air outlet, from a distance of 1.5 meters inside the room. The outlet velocity shows maximum value.

Dimensions

unit : mm

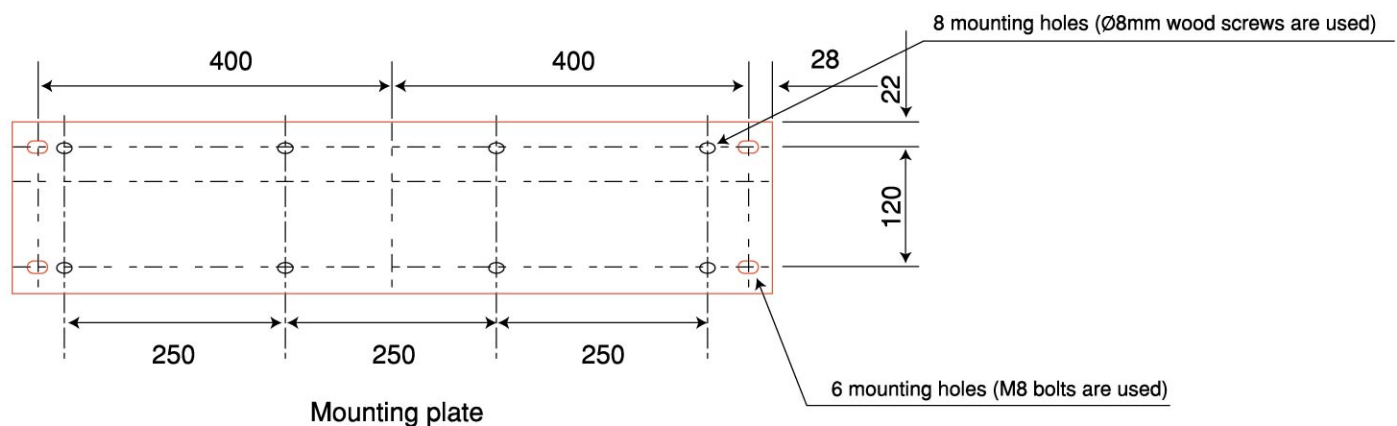


■ FY-10ESN FY-12ESN FY-14ESN

■ FY-10ELN FY-12ELN FY-14ELN

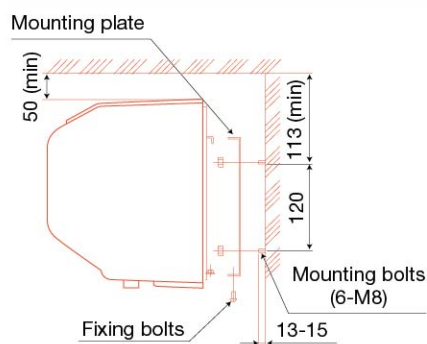
■ All models

Installation Method



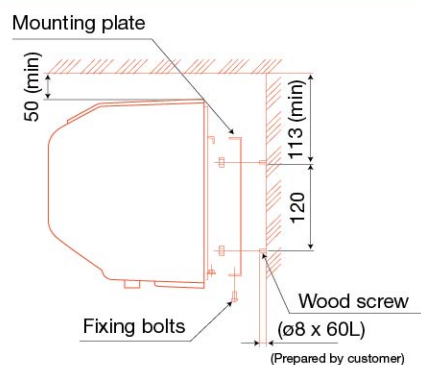
unit : mm

1 Mounting on Concrete



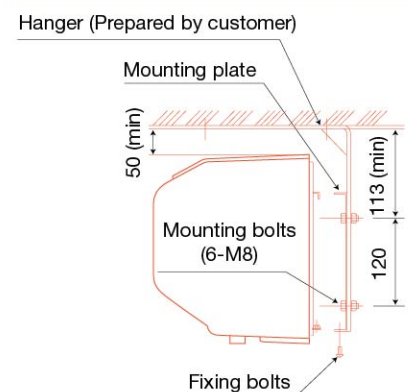
Fix the mounting plate tightly with washers, spring washers and nuts

2 Mounting on Wooden Frame



If mounting to a wooden frame, you may need to use a reinforcing material to ensure a secure installation

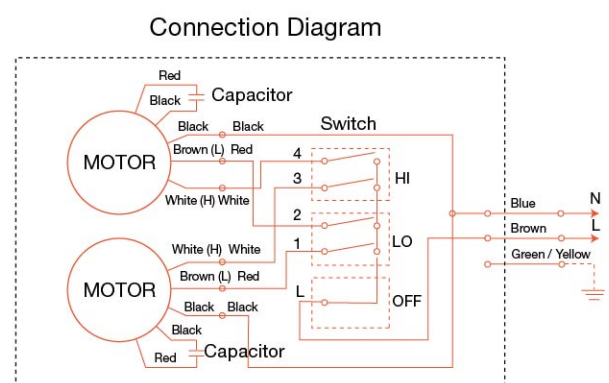
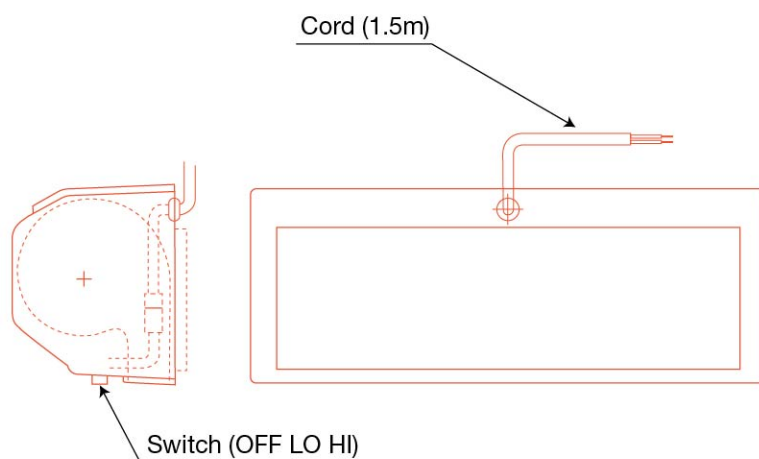
3 Mounting on Steel Hanger



If using customer-provided hangers, use six M8 bolts, washers, spring washers and nuts to fix the unit tightly

min = minimum

Electric Work



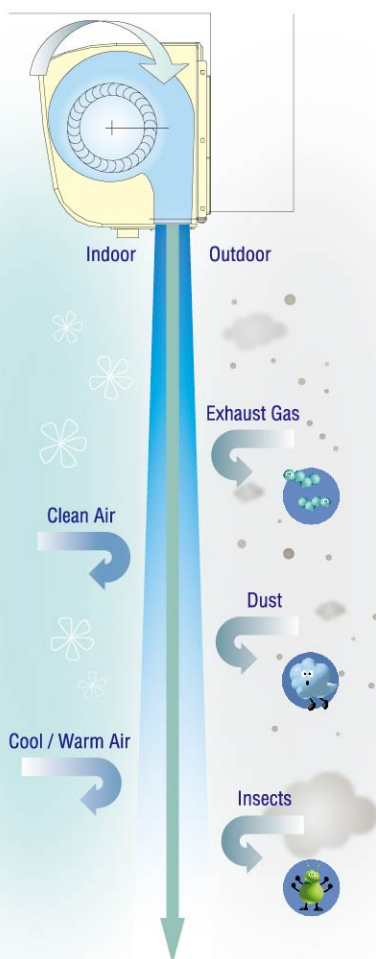
Product Lineup

Width	Efficient Distance		
	3m	3.5m	4m
900mm	FY-3009U1	FY-3509U1	FY-4009U1
1200mm	FY-3012U1	FY-3512U1	FY-4012U1
1500mm	FY-3015U1	FY-3515U1	FY-4015U1



Effects of Air Curtain

Doors of a shop need to be opened frequently to let people pass through. However, opening door allows air leaks to outside that increases energy consumption of air conditioning. By using Air Curtain, an invisible air screen will build up to minimize air exchange between the air outdoor and indoor.



Heating / Cooling Retention

Retains heated or cooled air within the space which entrance is frequently opened such as restaurants, shopping malls, etc. It allows minimum temperature fluctuation in the space area (*1)



Odor Shielding

Prevents odors from special function rooms, such as vegetable preparation rooms and chemical labs, etc., and also the automobile exhaust fumes from outside street (*1)



Insect-proof Effect

Checks out annoying, harmful and germ-laden insects to maintain the required health and sanitation standards in the space area (*2)



Dust-proof Effect

Screens out dirt and dust from outside street that maintains a clean environment for food or clothing stores (*1)

(*1) Outside wind, air flow from air conditioners, using ventilators, etc., may significantly lower the shielding effectiveness.

(*2) The effectiveness against insects depends largely on the kind of insect, surrounding environment, air velocity of the air curtain, etc. If more effective insect prevention is required, use the air curtain in combination with other methods.

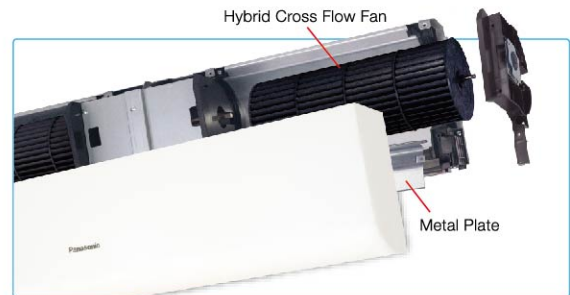
An air curtain's shut-out ability is determined by the air velocity at the center of its airflow. The powerful discharge of Panasonic Air Curtains enables them to maintain a high level of air velocity within the curtain's efficient distance, resulting in superior shut-out ability.



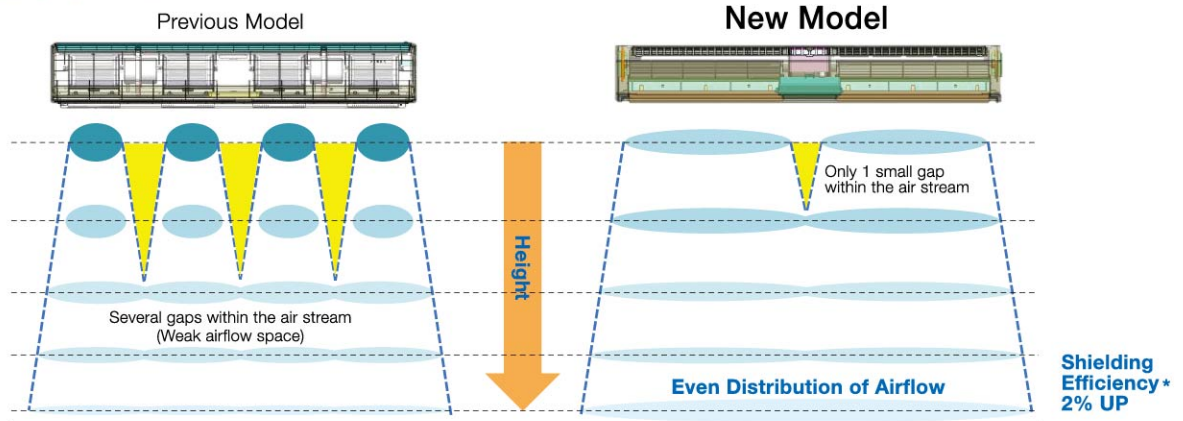
Feature Highlight

1. Efficient Barrier Effect

- Cross Flow Fan is adopted that airflow distribution is wide and uniform within the air stream while the air volume output can be maintained with low noise level.
- Unique Auxiliary Air Inlet allows more air intake at lower front that enhances airflow output.



■ Wide and Uniform Airflow



■ Thick Air Stream



2. Highly Durable

- Resin with glass fiber material is used in the Hybrid Cross Flow Fan. Incorporated with the metal bush, the durability is prolonged significantly.

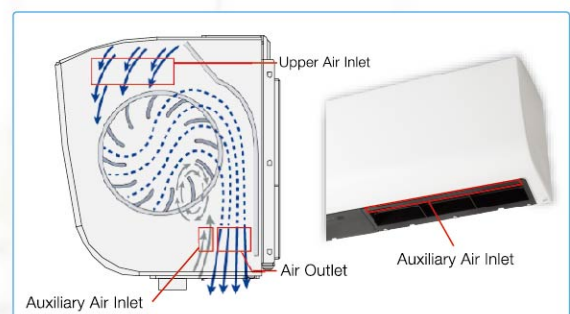
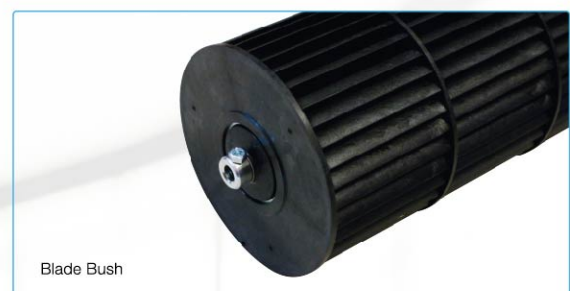
3. Easy Maintenance

- The Cross Flow Fan can generate air current between the fan and front cover forming movement of dust that reduces accumulation of dust on the fan blade.
- Simple structure allows convenient cleaning of the fan – just detach the front cover and metal plate to clean product interior.

4. Contemporary Design

- Modern and streamline outlook fits the décor of interior perfectly. Also, the main air inlet locates at top of the product allowing a neat and clean image.

*As compared with FY-2509U1 and FY-08ESN



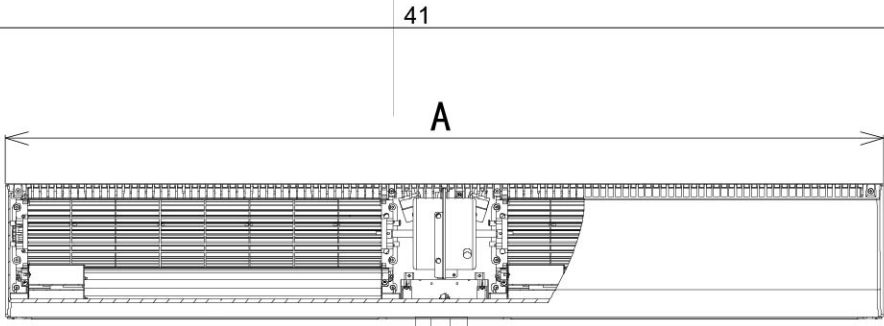
Specification

	Model No.	Voltage [V]	Hz	Air Volume				Consumption [W]		Current [A]		Outlet Velocity [m/s]		Noise [dB(A)]		Weight [kg]
				Hi		Lo		Hi	Lo	Hi	Lo	Hi	Lo			
				CMH	CFM	CMH	CFM									
900mm	FY-3009U1	220	50	1,100	647	920	541	76	70	0.35	0.32	10.5	8.5	48.5	45.0	12.0
	FY-3509U1	220	50	1,150	677	1,000	589	95	85	0.41	0.39	11.0	9.0	51.0	49.0	12.0
	FY-4009U1	220	50	1,340	789	1,190	700	110	94	0.50	0.43	12.0	10.0	54.5	51.0	12.5
1200mm	FY-3012U1	220	50	1,400	824	1,270	747	94	85	0.43	0.40	9.5	8.0	48.5	44.5	14.5
	FY-3512U1	220	50	1,550	912	1,300	765	114	100	0.49	0.46	10.5	8.5	49.0	46.0	14.5
	FY-4012U1	220	50	1,700	1,001	1,530	901	126	105	0.59	0.49	12.0	10.0	52.5	48.5	15.5
1500mm	FY-3015U1	220	50	2,000	1,177	1,800	1,059	131	110	0.59	0.50	10.5	9.5	51.5	48.0	18.0
	FY-3515U1	220	50	1,800	1,059	1,500	883	146	110	0.67	0.52	11.0	9.0	52.0	49.0	18.0
	FY-4015U1	220	50	2,450	1,442	2,080	1,224	177	147	0.81	0.68	13.0	10.0	56.0	52.0	18.0

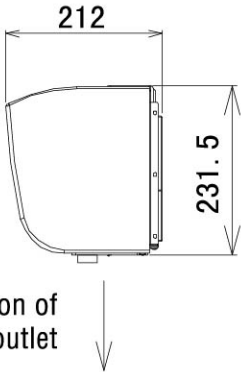
Note: 1. The parameters as shown in above table are measured at ambient temperature of 20°C
2. The noise value is measured 1.5m far from the product at angle of 45° below the air outlet. The air outlet is the maximum value.
3. Because the above-mentioned velocity is measured in test laboratory where it's empty, without air flow and obstacle, after actual installation the velocity may vary depends on different service environment

Dimensions

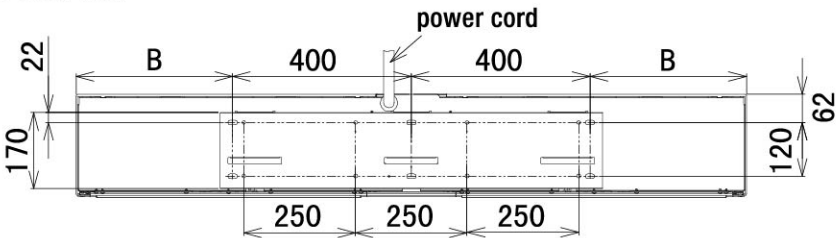
■ Front view



■ Right view



■ Back view



Unit: mm

Model	FY-3009U1	FY-3012U1	FY-3015U1
	FY-3509U1	FY-3512U1	FY-3515U1
	FY-4009U1	FY-4012U1	FY-4015U1
A	900	1200	1500
B	50	200	350



ACCESSORIES



Pipe Hood

40



Vent Cap

41

For Ceiling Mount Ventilating Fans & Air Moving Equipment



With Net

FV-MGX100P FV-MGX150P

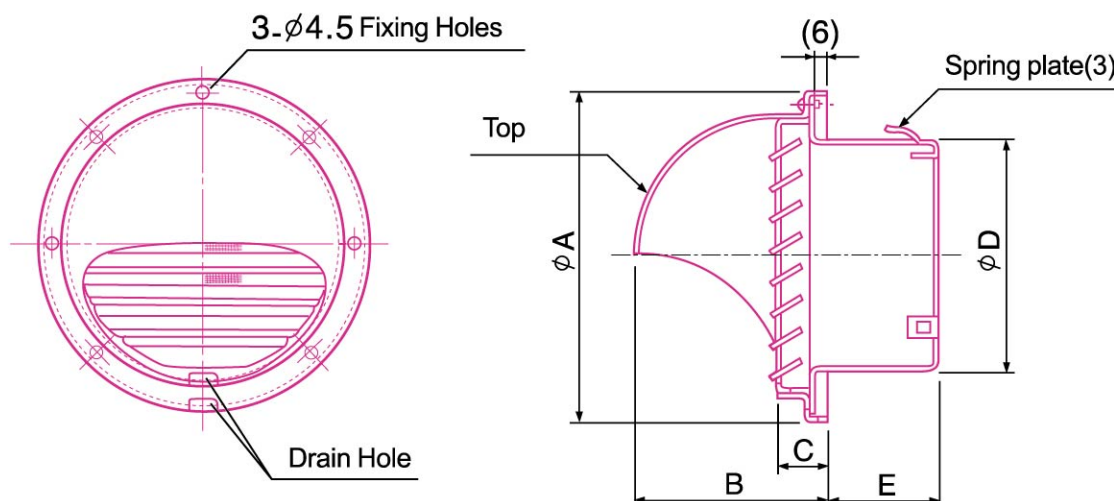


Without Net

FV-MCX100P FV-MCX150P

- Round type pipe hood
- 2.5x2.5mm net equipped to keep out ingress of small particles (FV-MGX100P, FV-MGX150P Only)
- High strength stainless steel adopted
- Coated with metallic silver paint prevent oxidation of material
- 3 pieces of spring clip allow easy connection of duct or pipe
- Applicable to diameter 100/150mm duct or pipe
- It is recommended to use with net type for intake purpose

Dimensions



Model	A	B	C	D	E	Diameter of Applicable Pipe [mm]	Net Hole [mm]
FV-MGX100P	141	79	20	97	48	100	2.5 x 2.5
FV-MGX150P	190	106	23	147	53	150	2.5 x 2.5
FV-MCX100P	141	79	20	97	48	100	-
FV-MCX150P	190	106	23	147	53	150	-

For Ceiling Mount Ventilating Fans & Air Moving Equipment



With Net

FV-VGX100P

FV-VGX150P



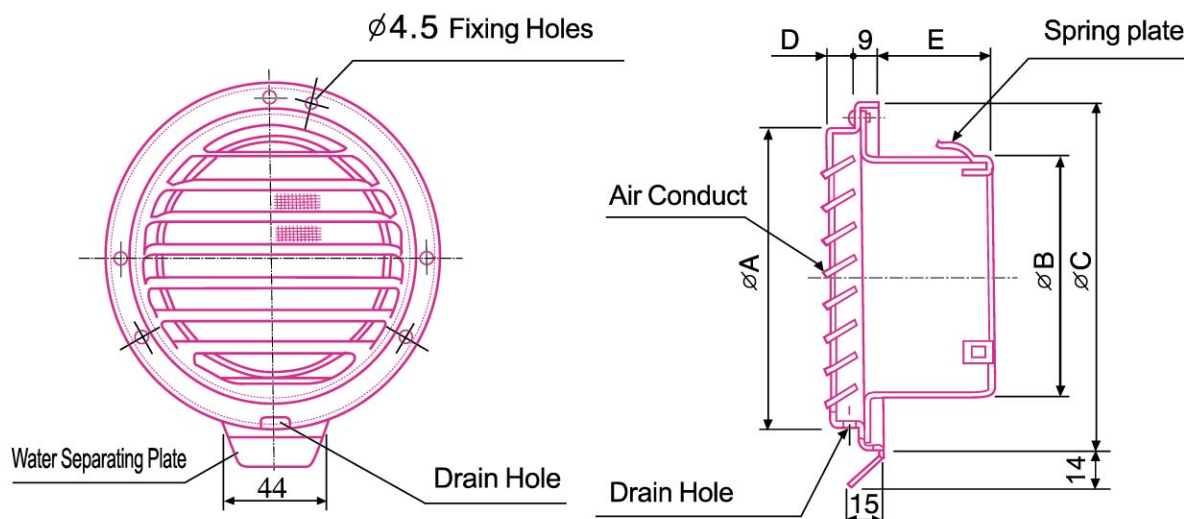
Without Net

FV-VCX100P

FV-VCX150P

- Round type vent cap
- 2.5x2.5mm net equipped to keep out ingress of small particles (FV-VGX100P, FV-VGX150P Only)
- High strength stainless steel adopted
- Coated with metallic silver paint prevent oxidation of material
- 3 pieces of spring clip allow easy connection of duct or pipe
- Applicable to diameter 100/150mm duct or pipe
- It is recommended to use with net type for intake purpose

Dimensions



Model	A	B	C	D	E	Diameter of Applicable Pipe [mm]	Net Hole [mm]
FV-VGX100P	120	97	145	13	47	100	2.5 x 2.5
FV-VGX150P	169	147	195	18	52	150	2.5 x 2.5
FV-VCX100P	120	97	145	13	47	100	-
FV-VCX150P	169	147	195	18	52	150	-

Ventilating Fan - Ceiling Mount Type

Park Hotel, Tsim Sha Tsui
 Royal View Hotel, Ting Kau
 Vision City, Tsuen Wan
 Rambler Oasis Hotel, Tsing Yi
 Metro Park Hotel, Kowloon
 Lake Silver, Wu Kai Sha
 Palazzo, Sha Tin
 The Dynasty, Tsuen Wan
 Festival City, Tai Wai

Pun Tak Building, Causeway Bay
 No.12 Broadwood Road
 Emerald Green, Yuen Long
 Star River, Macau
 Gold Coast Hotel, Tuen Mun
 VTC, Tuen Mun
 The Mediterranean, Sai Kung
 Panda Hotel, Tsuen Wan

Ventilating Fan - High Pressure Industrial Type

Stanley Ho Sports Centre, HKU
 OTIS
 Tunnel CLP Power Station, Tseung Kwan O
 The Great Hill, Sha Tin
 Lohas Park, Tseung Kwan O

International Christine School HK, Sha Tin
 Fujitec Lifts
 The Hermitage
 Panda Hotel, Tsuen Wan
 Shek Mun Estate Phase 2

Air Moving Equipment - Low-noice Type Cabinet Fan

Park Island, Ma Wan
 MGM Grand Hotel, Macau
 Peak One, Sha Tin
 The Vineyard, Yuen Long
 W-Hotel, Kowloon Station
 The Harbour View Place, Kowloon Station
 Le Point, Tin Keng Leng
 Coastal Skyline, Tung Chung
 One Central Macau Residences, Macau
 Langham Hotel, Tsim Sha Tsui
 Greenview Villa, Tsing Yi
 The Apex, Kwai Chung
 Yoho Town, Yuen Long

Florient Rise
 Valais
 No. 5-11, South Bay Road, Repulse Bay
 6 Shiu Fai Terrace
 Century Gateway, Tuen Mun
 Double Cove, Ma On Shan
 Billionnaire Avant, Kowloon City
 Riva, Yuen Long
 Nova City, Macau
 Savannah, Tseung Kwan O
 Monterey, Tseung Kwan O
 One Prestige, Tseung Kwan O
 Phase 16 Discovery Bay

Air Moving Equipment - Mini Sirocco Fans

Royal Park Hotel, Sha Tin
 Schindler Lifts
 Green Code, Fanling

PCCW Tower
 Royal Garden Hotel

Air Curtain

2008 Olympic Equestrian Venue, Sha Tin
 Margaret Hospital
 Asia Air Freight Terminal Expansion
 HAECO
 The Hong Kong Community College, Poly U
 Mong Kok East Station
 Link Management
 Mannings
 North District Government Offices
 Post Office, Wah Ming Estate, Fanling
 Buddhist Wong Wan Tin College, Shatin
 Palace Mall, Tsimshatsui
 Hyland Theatre, Tuen Mun

Ruttonjee Hospital
 Ambulatory Medical Service Block, Tung Wah
 Eastern Hospital
 The Hong Kong Polytechnic University
 Marco Polo Hong Kong Hotel
 Sha Tin Town Hall
 Miramar Shopping Centre, Tsimshatsui
 Regal Riverside Hotel
 St. Paul Hospital
 Courtyard by Marriott Hong Kong Sha Tin Hotel
 Grand Hyatt Hotel, Wai Chai
 The Chinese University of Hong Kong
 Popcorn, Tseung Kwan O