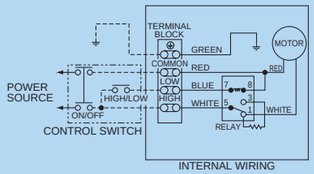
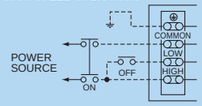
Wiring

Single-phase unit

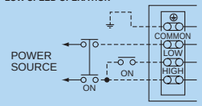
CONNECTION DIAGRAM
Model GK-2509YS1,2512AS1
GK-3009AS1,3012AS1
GK-3506CS,3509CS,3512DS



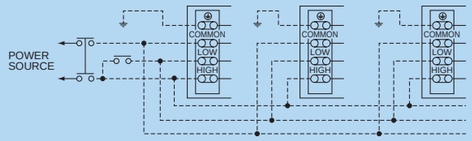
HIGH SPEED OPERATION



LOW SPEED OPERATION

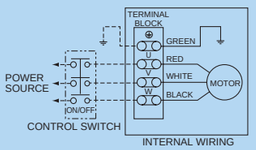


FOR CONTROLLING A MULTIPLE NUMBER OF UNITS

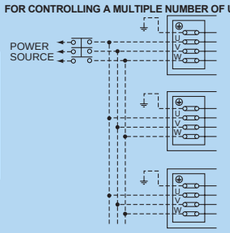


Three-phase unit

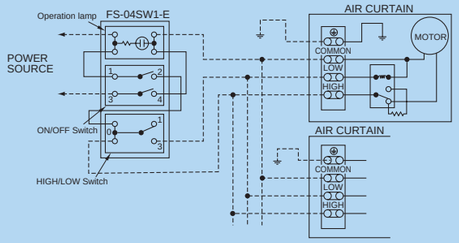
CONNECTION DIAGRAM
Model MK-5010T-E,5012T-E



FOR CONTROLLING A MULTIPLE NUMBER OF UNITS



Connecting the FS-04SW1-E (For single-phase unit)



The opening for connecting the control switch is designed to accommodate a cabie with a diameter of 1.6mm or 2.0mm only. (Therefore, a stranded cable cannot be connected.)

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE : TOKYO BLDG., 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
http://Global.MitsubishiElectric.com

Y05-005 Jul.2006(MEE)

MITSUBISHI ELECTRIC
AIR CURTAIN

Changes for the Better

Mitsubishi Electric Quality

MODEL

GK/MK SERIES

A Hidden Barrier
Giving Tangible Benefits

AIR CURTAIN

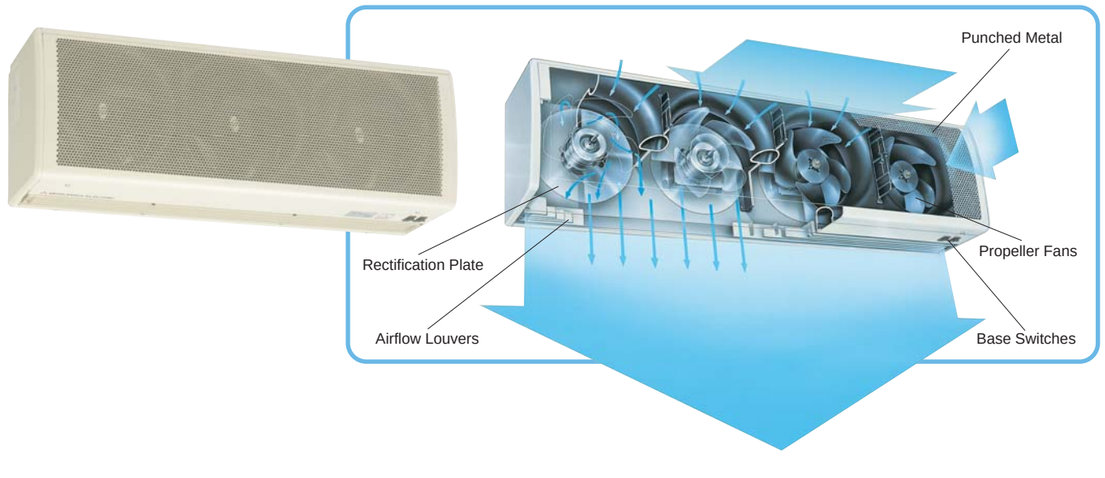
Mitsubishi Air Curtains are the Perfect Way to Provide Your Premises with a Comfortable, Clean and Hygienic Environment While Saving Energy with a Quiet, Efficient and Powerful Operation

Standard type

EXTRAFAN | TWIN NOZZLE | COMPACT DESIGN

High Power type

EXTRAFAN | RECTIFICATION PLATE



EXTRAFAN

Powerful airflow without the noise

New innovations in high-tech hydromechanics have made Mitsubishi Electric's ExtraFan run so quiet it may seem to lack the strength of conventional, noisier models. Not so.
The ExtraFan not only reduces noise it is also the secret behind the GK-35's powerful, high-volume airflow.

Even Lower Energy Consumption

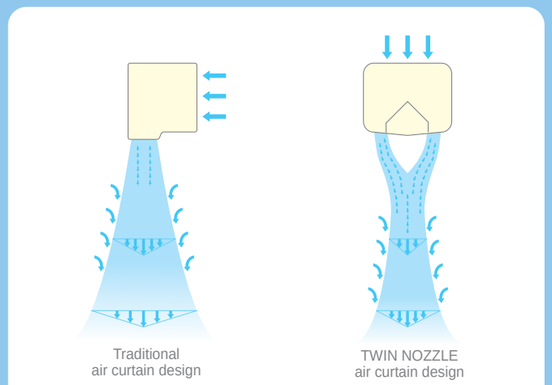
ExtraFan is a major improvement over the Line Flow Fan. The fan is driven by an energy efficient motor and costs even less to operate.

Easy Maintenance

The use of Axial Fan(ExtraFan)makes it easier to maintain the unit and keep the air curtain in top condition at all times. Moreover, the improvements that have resulted from the change to the Axial Flow Fan from the Line Flow Fan mean that fan life is now even longer.

TWIN NOZZLE

The twin nozzle design ensures that less extraneous air enters the air curtain, while the outflow is wider. Resistance to the influence of external airflow has been strengthened, greatly improving insulation against heat and cold.



Twin Nozzle air curtain takes in air from above.
(Please allow a minimum distance 100mm~150mm between the air curtain and the ceiling.)

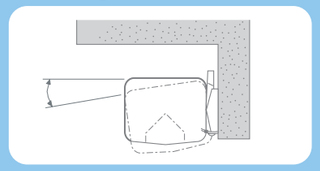
COMPACT DESIGN

Ultra-Compact Slim Design

Compact and stylish it blends in readily with your interior design.

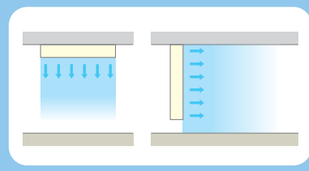
Adjustable Airflow Angle

By adjusting the installation angle of the main unit, the airflow angle can be altered both internally and externally.



Flexible Installation

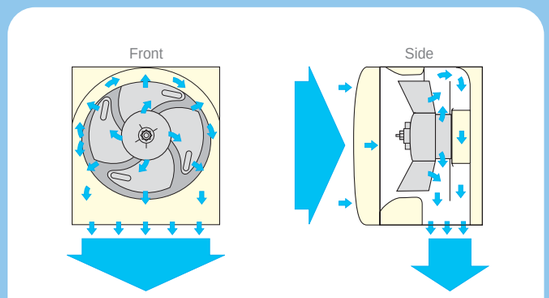
The machine can be installed vertically or horizontally according to the available space.

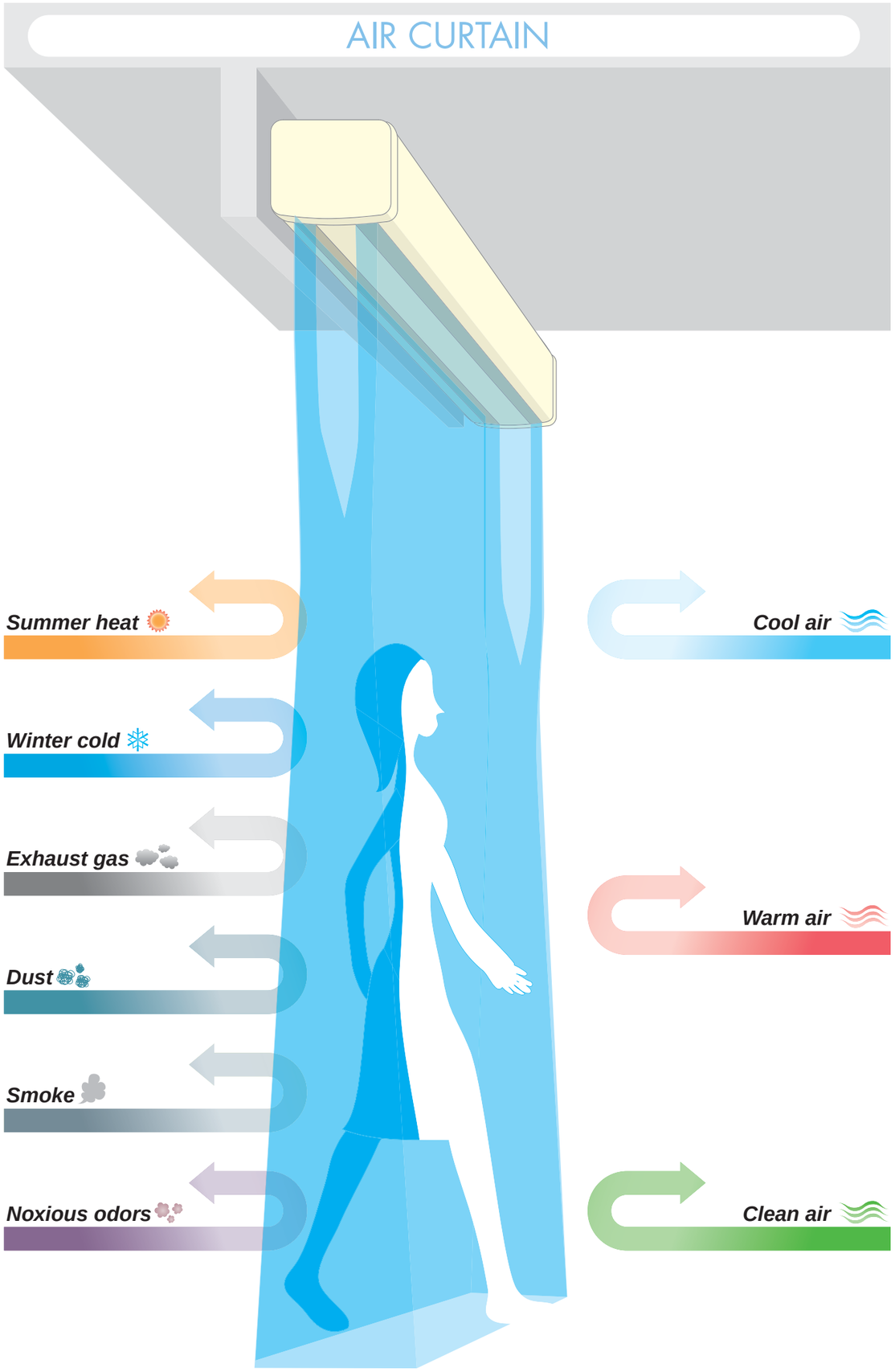


RECTIFICATION PLATE

Ups speed while controlling direction

The rectification plate creates a highly directed, disc-shaped flow by transferring airflow from the propeller fans without reduction to volume or velocity. The plate forms the air into a smooth hemispherical wall, producing a high-speed current in a single direction.





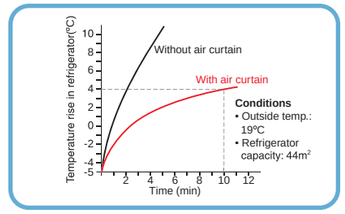
SHUT-OUT FUNCTIONS

Revising the Performance Records on Shut-Outs

Unwanted Air Shut-Out Rate •Smell Shut-Out Rate •Dust Shut-Out Rate	70~90%
Insect* Shut-Out Rate	70~80%

Air Curtains-Increased Cold Storage Efficiency and Shut-Out Effect

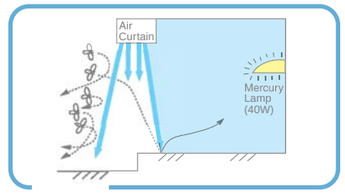
In a cold-storage facility without an air curtain, the inside temperature increases from -5 to +4ºC in as little as two minutes, but if an air curtain is used this time is extended to about 10 minutes, or approximately five times as long. If the door is left open for five minutes, the temperature goes up to 10ºC if no air curtain is used, as opposed to 2ºC when one is used. It was also discovered that when an air curtain was used, 50% less energy was required to reduce the inside temperature to -5ºC.



Insect* Shut-Out Test

This night time test ascertained the effectiveness of Mitsubishi air curtains in shutting out insects. A 40W mercury lamp was placed inside an air curtain ejected from a 4cm-wide vent at a velocity of 8m/sec. The insect shut-out rate was 70-80%.

***Insects such as flies which have high flying power may ingress into the room from the vicinity of the floor face where wind velocity is comparatively low.**



ECONOMIC BENEFITS

Not only does the installation of an air curtain help to maintain a constant comfortable indoor temperature, it saves energy too. Install an automatic door to achieve even more economical operation and a more pleasant indoor environment.

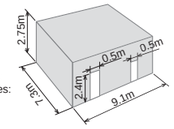
<Assumptions for economic benefits calculations>

1.Environmental factors

(1)Floor space 66.4m²

(2)Temperature and humidity

(Assumptions)
This shop is housed in a two-story building. It is surrounded by other buildings on three sides: the back, the left and the right hand sides.



		Heating mode	Cooling mode
Temperature	Indoor	18ºC	28ºC
	Outdoor	0ºC	32ºC
Humidity	Indoor	–	70%
	Outdoor	–	60%

2.Both the air conditioner and the air curtain have the specifications and characteristics of 50Hz.

COOLING MODE

Economic benefits of installing an air curtain. (Savings are calculated using an appropriate cooling load factor to keep room temperature constant at 28ºC in a room measuring 66.4m² in area.)

Cooling load factor and air curtain-shut-out effect (kW)		Cooling load factor
Open plan premises The doors are kept open and an air curtain is not used	Energy loss due to other causes 8.5 / Energy loss from the door area 20.5	29 kW
Premises with an air curtain installed Premises installed with either an air curtain or an automatic door	8.5 / 4.1 / Energy saved 16.4	12.6 kW
Premises installed with both an air curtain and an automatic door	8.5 / 1 / Energy saved 19.5	9.5 kW

HEATING MODE

Economic benefits of installing an air curtain. (Savings are calculated using an appropriate heating load factor required to keep room temperature constant at 28ºC for a room measuring 66.4m² in area.)

Heating load factor and air curtain shut-out effect (kW)		Heating load factor
Open plan premises The doors are kept open and an air curtain is not used	Energy loss due to other causes 8.7 / Energy loss from the door area 37.8	46.5 kW
Premises with an air curtain installed Premises installed with either an air curtain or an automatic door	8.7 / 11.3 / Energy saved 26.5	20 kW
Premises installed with both an air curtain and an automatic door	8.7 / 2.8 / Energy saved 35	11.5 kW

Key to Choosing an Optimum Model

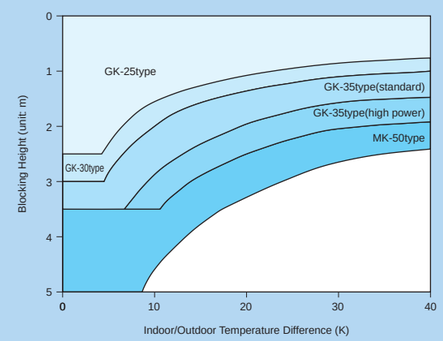
Please choose the model best suited to your applications primarily based on the factors as temperature difference between inside and outside the room, impact of is the key to effective use of an air curtain.

Taking into account the indoor/outdoor temperature difference (holding off heat requirement)

If air conditioning, etc., allows temperature inside the room and that outside the room to differ each other, the pressure (P) around the doorway is distributed in such a fashion as shown in the figure below. (The pressures are one and the same in the central region (H/2), however, further differ each other where the region is closer to either the upper or the floor level.)
The difference in the pressures causes the wind to occur thus allowing heat to enter into or escape from the room. The wind is stronger as the difference in the temperatures is significant; so is the quantity of heat entering into or escaping from the room. An air curtain spouts air flow to balance the pressures generated by the difference in temperatures, thus preventing either the ingressing or escaping of heat. Therefore, it is necessary to select the model that suits the difference of temperatures and the shut-out distance.

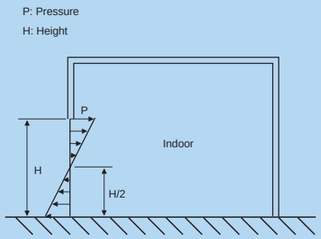
Note: When the air curtain is used for refrigerators or freezers, always install it outside of them.

<Choosing a model taking into account indoor/outdoor temperature difference>

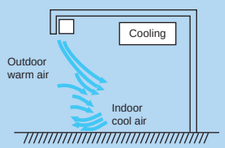
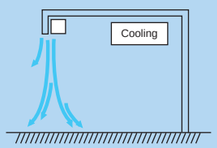
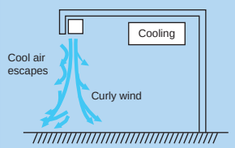


*The above figure is provided as a guide with the indoor temperature assumed as 20ºC

<Pressure distribution around the doorway during summer season>



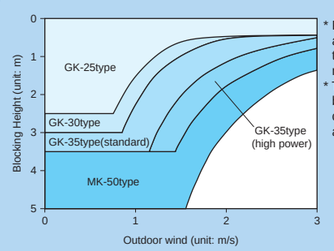
<Strength of air flow>

Too weak	Moderate	Too strong
		
The air flow can not hold off the air naturally convecting in the room thus allowing cool air to escape from it. Therefore, the resultant air entering from outside the room also allows any heat to enter into the room.	An optimum magnitude exists of air flow suitable to the effective blocking travel down to the floor level around the doorway.	The increased curly wind brings the cool air out from the room. The resultant increased air introduced from outside the room therefore allows the more heat to enter into the room. Also, more air flow may be generated on the floor.

Taking into account the strength of outdoor wind (holding off outdoor wind requirement)

The air flow coming out from the air curtain is curved and then broken by lateral pressure. In order for an air curtain to work more effectively, the generated air flow must reach directly below it. If outdoor wind curves the air flow, however, it is important to choose an air curtain of a model suitable to the strength of the outdoor wind, while taking into account the (1) angle, (2) width, and (3) air velocity.

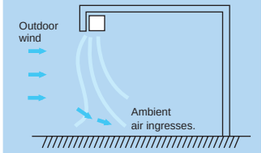
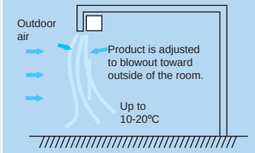
<Choosing a model taking into account The magnitude of outdoor wind>



* Performance to oppose the affect of outdoor wind, when the Product is installed at its maximum angle, is indicated.
* The above figure is posted based on the values calculated by applying the average blowout velocity.

shielding height (the height up to the Product installed), taking into account such outdoor wind, insects flying power, or ambient noises. Selecting the optimum model

Adjusting the angle of air outlet can optimize the angle of the air flow thus improving its performance to oppose the affect of outdoor wind. To widen the air flow or enhance its velocity, a model can be chosen which is ranked higher by one than that indicated in the figure to the right. A air flow can also be widen by installing a multiple of Products to improve the performance to oppose the affect of outdoor wind.

Too weak	Moderate
	
Jet flow is significantly bent allowing ambient air to ingress from around floor face.	The Product is adjusted to blowout toward outside of the room thus preventing ambient air from ingressing into the room.

Outdoor air may curve the air flow from the air curtain thus decline its performance. Such decline in performance can be improved by the following methods.

Method	Concrete Means	Advantage	Precautions
Adjust the air outlet direction	Adjust the angle of the Product when mounting thus bringing the blowout direction toward outside of the room.	Effective where outdoor wind breezes on a steady basis.	Direct the air outlet at right angle when no outdoor wind is breezing.
Speed up the air velocity.	Choose a model which is ranked higher by one in shut-out distance performance.	Effective where strong outdoor wind breezes.	Air flow on the floor and/or noises may result.

* "A model which is ranked higher by one" means, e.g., Model GK-30 where installation height of 2.5m is indicated; GK-35 where 3.0m is indicated.

Taking into account the flying power of insects

In order to prevent insects from breaking into the room, the air flow blown out from the air curtain must reach the attainment point at a velocity at least that indicated in the table below. Choose an optimum model by consulting the figure, posted on the page 11, denoting the average air velocity on the attainment point based on the air velocity distribution.

Note: Insects such as flies which have high flying power may ingress into the room from the vicinity of the floor face where wind velocity is comparatively low.

	Applicable Insects	Minimally required wind velocity (unit: m/s)
1	Winged ant, leaf beetles, mosquitoes, butterflies	more than 3-4
2	small moths, planthoppers, drosophilas	more than 4-5
3	dragonflies, houseflies	more than 5-6
4	large moths, large flies, large butterflies	more than 7-8

Precautions when installing

Assuredly install the Product. Otherwise, noises may resonate in harmony with surrounding walls thus augmenting to an abnormally high level.

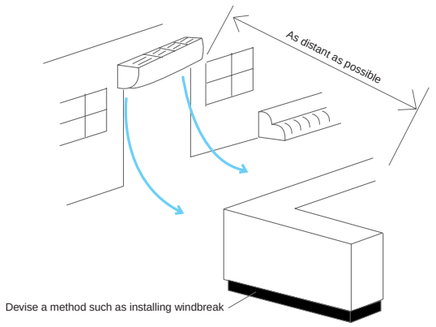
Note: It would be safe bet to choose, while sacrificing the blocking performance to some extent, a model whose capacity is slightly lower than that indicated where noises may come to an issue.

Key To Effective Use of An Air Curtain

The followings are generally accepted as the places where an air curtain is effective or the conditions under which it is effectively run:

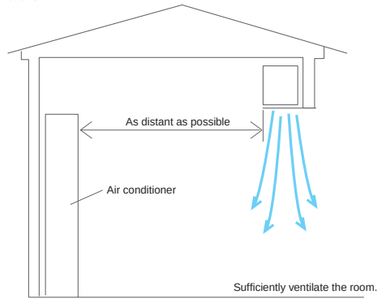
1 Places where outdoor (lateral) wind is insignificant.

2 Install the air curtain in places as distant as possible from adjacent people to avoid any curly wind from reaching them. Devise a method such as installing windbreak(s) in areas close to the person's feet thus breaking the curly wind.

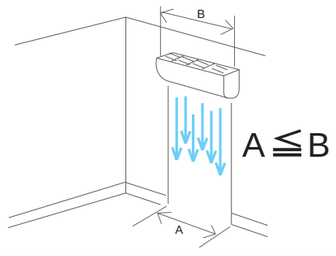


3 Install the air curtain sufficiently distant from the air-conditioner in areas inside the room where air-conditioning is sufficiently provided.

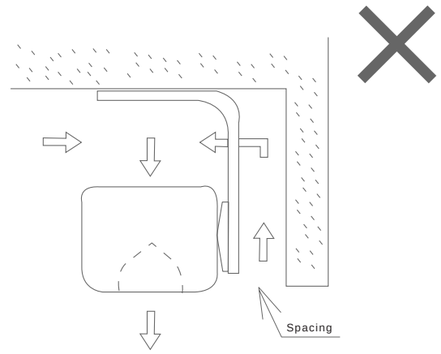
Preferable



4 Install the air curtain which is the same as or slightly wider than the width of the doorway.



5 Do not leave spacing between the air curtain and the possible (target) mounting surface.

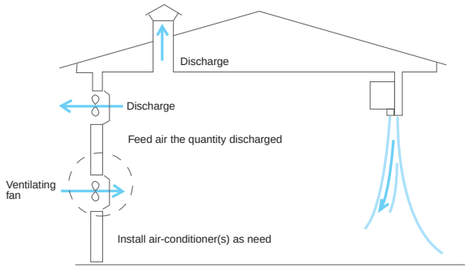


Install the air curtain leaving no spacing from the target surface.
Any gap should be boarded up with decorative sheets or boards.

6 Install air curtains to all doorways and/or openings.

7 To run effectively the air curtain concurrently with ventilating fan(s), provide ventilating (or air supply) opening(s) to avoid negative pressure to occur inside the room. Otherwise, run the ventilating fan of a type concurrent feeding and discharging.

Preferable

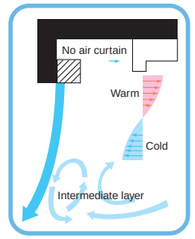


Air curtain can be effectively run by feeding air or conditioned air from places where coldness does not become an issue.

The direction of air can be adjusted with the Product according to your needs. The following should be taken into account when adjusting the direction of the generated wind.

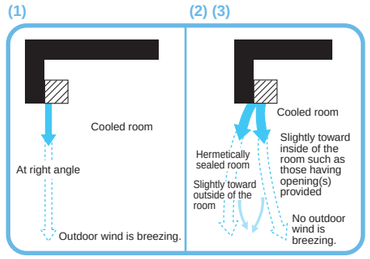
- Either the room is cooled or heated.
- Whether or not the indoor temperature is significantly different than that outdoor?
- Whether or not outdoor wind is strong?
- How sufficiently the room is hermetically sealed?

Principles



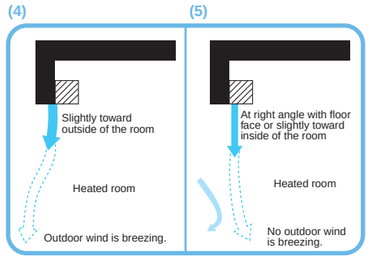
To block conditioned (cool) air from escaping from the room during summer season

(1)When outdoor wind is breezing→Direct the generated air at right angle with floor face.
(2)When no wind is breezing outside the room with opening(s) provided inside the room→Direct the blown-out air slightly toward inside of the room.
(3)When no wind is breezing outside the room hermetically sealed→Direct the generated air slightly against inside the room.



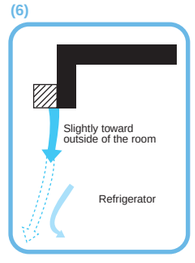
To block heated air from escaping from the room during winter season

(4)When outdoor wind is breezing→Direct the generated air slightly toward inside of the room .
(5)When no wind is breezing outside the room→Direct the generated air at right angle with floor face or slightly toward inside of the room.

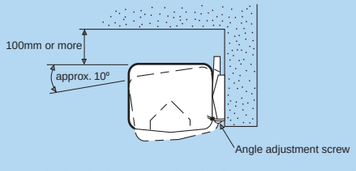
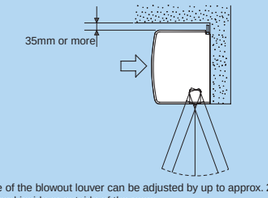
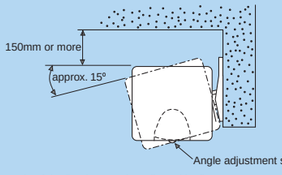


To block air at the doorway of refrigerators, etc., where the indoor temperature significantly differs than that outdoor

(6)Install the air curtain outside the room with generated air slightly directed toward outside of the room.
(Ensure that no obstacles are present in the direction of the generated wind.)



<Adjusting the direction of blown-out air>

GK-25/30 type	GK-3506SA,09SA,12SA	GK-3506CS,09CS,12DS
Adjust the angle of the Product by using angle adjustment screws.	Adjust the angle of blowout louver.	Adjust the angle of the Product by using angle adjustment screws.
		
The angle of the Product can be adjusted by five stages, up to approx. 10° either toward inside or outside of the room.	The angle of the blowout louver can be adjusted by up to approx. 20° either toward inside or outside of the room.	The angle of the Product can be adjusted by five stages, up to approx. 15° either toward inside or outside of the room.

Mitsubishi Air Curtains Perfectly Fits a Multiplicity of Environments

Not only are they ideal in conventional applications in offices and stores, but they are also highly effective in circulatory and zoning applications in a wide range of open spaces, such as gymnasiums, bowling alleys, halls and lobbies.

Shut-Out

Shops/Restaurants

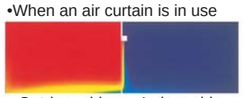
The air curtain not only insulates temperature effectively (i.e. preventing loss of cool air during cooling and heat loss during heating), it can protect your premises from unpleasant elements found in the external environment. An air Curtain is an unobtrusive yet effective means to block out dust, exhaust fumes, smoke, odors and insects (such as mosquitoes and potato bug). It gives you the protection you need and yet it offers your customers open and uninhibited access to your premises.

<Temperature Insulation Effectiveness>

Temperature insulation with and without the use of an air curtain during cooling mode—a simulation (comparison of temperature distribution)

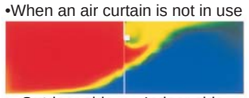
29ºC 35ºC

•When an air curtain is in use



Outdoor side Indoor side

•When an air curtain is not in use



Outdoor side Indoor side

Our experiments have proved that the air curtain effects to block 70-90% of outdoor heat or cold air with glass plates assumed to block 100% of it. (The effect may vary on the difference between indoor and outdoor temperatures, existence of outdoor wind, or expected blocking height.)

Shut-Out

Warehouses/Factories

The air curtain is instrumental in preventing heating and cooling losses during air conditioning, as well as effectively blocking out dust, insects and noxious odors. The air curtain is an invisible barrier, so access and movement of materials and goods is beautifully simple.
If used in a refrigerated warehouse, materials and goods can be moved in and out without any change in the warehouse temperature, and dust, insects etc. are effectively shut out. A clean warehouse environment is therefore preserved.

Zoning

Bowling Alleys/Lounges

The air curtain can invisibly shut out areas that do not require air conditioning. For example, there is no need to air condition the lane side of a bowling alley, so the air curtain acts as an air conditioning zoning device.
The elimination of unnecessary air conditioning cuts down on costs, without compromising on the provision of a comfortable environment.
The air curtain can also be used to separate smokers from non-smokers in rest areas or lobbies etc.

<Effectiveness of air conditioning zoning>

Temperature insulation effectiveness in a bowling alley—a simulation

25ºC 35ºC

•When an air curtain is in use

•When an air curtain is not in use

Normally, the whole area of the bowling alley is air-conditioned, even though some parts do not require air conditioning. Using the air curtain as a zoning device stops the cooled air from escaping to those areas that do not require air conditioning, such as the lane side where people do not enter.

Circulation

Halls/Lobbies

For spacious areas, the air curtain acts as a circulatory device to improve air circulation even in hard to reach corners, eliminating pockets with uneven temperature.
The overall improvement in air conditioning effectiveness results in a pleasant environment, and energy-efficient operation.

<Circulation effectiveness>

Simulation results of circulation effectiveness in heating mode (comparison of temperature distribution)

15ºC 25ºC

•Gym

When an air curtain is in use

When an air curtain is not in use

•Lobby

When an air curtain is in use

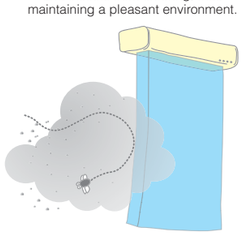
When an air curtain is not in use

When air conditioning big, open spaces such as those found in a gym, a lobby, a hall, or a factory, there are hard to reach pockets where temperature becomes uneven. The air curtain acts as a circulatory device and eliminates these pockets.

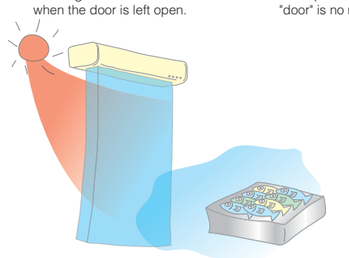
*Circulation effectiveness is enhanced by placing the air curtain directly in front of an air conditioner.

- Air conditioning costs are greatly decreased by the reduction of heat loss in winter and cool-air loss in summer.

- The air curtain acts as an invisible barrier to prevent gas, dust, smoke, noxious odors and insects from entering, thus maintaining a pleasant environment.

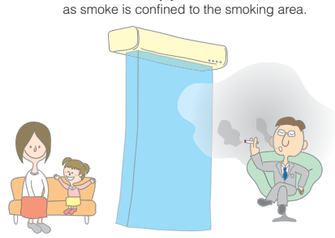


- Prevents cooled air from escaping from the refrigerated warehouse even when the door is left open.



- Access and movement of materials is also simple and trouble-free, because the "door" is no more than a curtain of air.

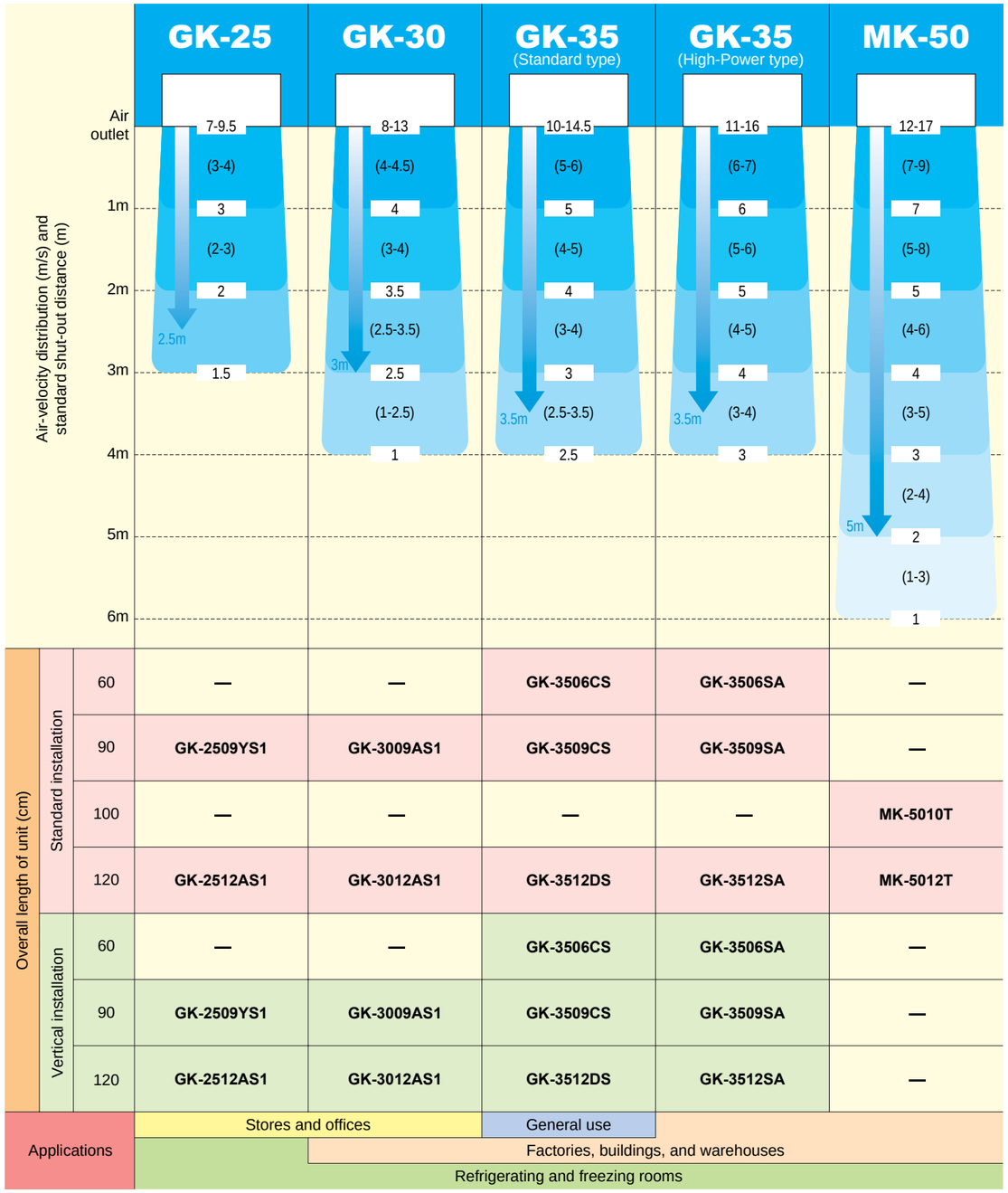
- An air curtain effectively separates the smokers from non-smokers in public areas (such as hotel lobbies). Non-smokers can enjoy a smoke-free environment as smoke is confined to the smoking area.



- Reduces thermal differences and maintains temperatures at balanced level.

Extensive Range-22 Types to Suit a Variety of Applications

Selection



Overall length of unit (cm)			GK-25	GK-30	GK-35 (Standard type)	GK-35 (High-Power type)	MK-50
Standard installation		60	—	—	GK-3506CS	GK-3506SA	—
		90	GK-2509YS1	GK-3009AS1	GK-3509CS	GK-3509SA	—
		100	—	—	—	—	MK-5010T
		120	GK-2512AS1	GK-3012AS1	GK-3512DS	GK-3512SA	MK-5012T
Vertical installation		60	—	—	GK-3506CS	GK-3506SA	—
		90	GK-2509YS1	GK-3009AS1	GK-3509CS	GK-3509SA	—
		120	GK-2512AS1	GK-3012AS1	GK-3512DS	GK-3512SA	—
Applications			Stores and offices		General use		
			Factories, buildings, and warehouses				
			Refrigerating and freezing rooms				

*The figure in □ indicates an average velocity (m/s) measured at the given distance.
*The figure in parentheses indicates the maximum velocity (m/s) measured in each area of one(1) meter.
*The velocities in a free space, free from an effect of differences between outdoors and indoors in pressure, temperature, or ambient wind, are measured and indicated. Therefore, the velocity in the vicinity of the floor may differ from those indicated in the figure.

MODEL **GK** Standard type

Note
Use conditions: The temperature should be between -10 and +45¡C. The RH should be less than 90% at room temperature. Any condition outside of this range could result in burnout, deformed, malrotating or damaged parts.

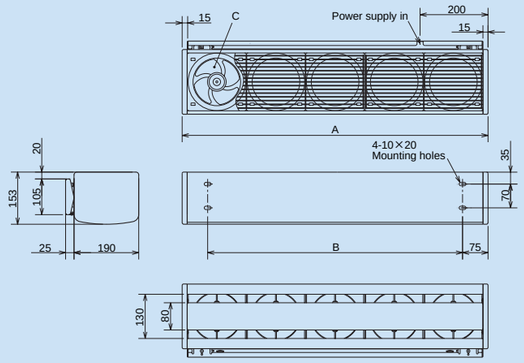
Specifications

Model	Width of unit (cm)	Power	Fan speed	Air volume (m^3/h) (50/60Hz)	Current (A) (50/60Hz)	Input (W) (50/60Hz)	Air velocity Max. (m/sec) (50/60Hz)	Noise (dB) (50/60Hz)	Starting Current (A)	Weight (kg)
GK-2509YS1	90	Single-phase, 50/60Hz 220-240/220V	High	1,210-1,230/1,170	0.25-0.26/0.29	54-61/63	9.5/9.5	43-44.5/43	0.43	10.5
			Low	980-1,000/930	0.24-0.25/0.25	52-59/54	7/7	38-41/35		
GK-2512AS1	119.4		High	1,420-1,440/1,410	0.35-0.37/0.39	76-83/84	9.5/9.5	46-47/46.5	0.62	13.3
			Low	1,150-1,170/1,090	0.31-0.33/0.33	67-78/71	7/7	40.5-44/38		
GK-3009AS1	90		High	1,450-1,470/1,640	0.43-0.46/0.47	90-105/102	12/12	46-47/49.5	0.86	11.0
			Low	1,100-1,200/1,150	0.35-0.37/0.39	76-87/84	8/8	43-45.5/42.5		
GK-3012AS1	119.4		High	1,740-1,760/1,950	0.52-0.56/0.58	107-125/125	12/12	49-50/52	1.05	14.0
			Low	1,350-1,400/1,330	0.44-0.46/0.48	95-109/104	8/8	46-47/45		
GK-3506CS	60.8	Single-phase, 50Hz 220-240V	High	1,320/—	0.53-0.57/—	116-135/—	13.5/—	55-56/—	1.53	15.5
			Low	1,150/—	0.44-0.45/—	93-102/—	11/—	53-54/—	0.93	
GK-3509CS	91		High	2,100/—	0.87-0.94/—	191-223/—	13.5/—	58-58/—	2.53	22.0
			Low	1,860/—	0.74-0.75/—	155-170/—	11/—	55.5-56/—	1.55	
GK-3512DS	118.7		High	2,640/—	1.05-1.13/—	227-267/—	13.5/—	58-58.5/—	3.02	28.5
			Low	2,310/—	0.89-0.9/—	187-206/—	11/—	55.5-56.5/—	1.84	

*Specifications may be subject to change without notice.
*The GK-35 type might not be sold by the region. Please acknowledge it.

Dimensions

GK-25,GK-30 type

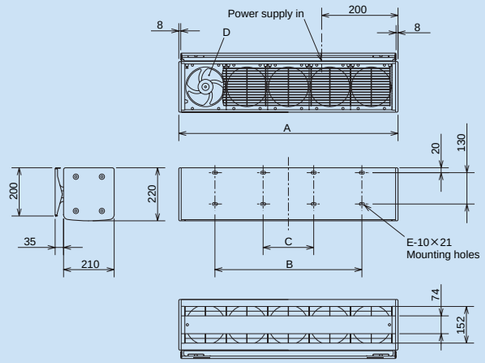


(unit: mm)

Dimensions (unit: mm)

Model	A	B	C
GK-2509YS1	900	750	5
GK-2512AS1	1,194	1,044	6
GK-3009AS1	900	750	5
GK-3012AS1	1,194	1,044	6

GK-35 type

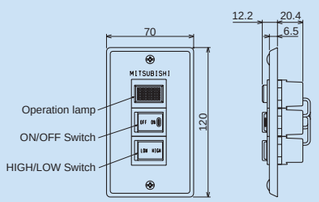


(unit: mm)

Dimensions (unit: mm)

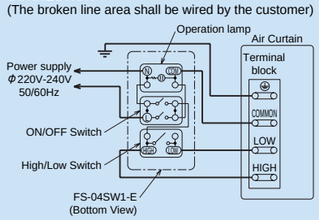
Model	A	B	C	D	E
GK-3506CS	608	308	—	3	4
GK-3509CS	910	610	210	5	8
GK-3512DS	1,187	887	487	6	8

Remote-Control Switch
Model FS-04SW1-E
Single-phase, exposed type(240VAC, 10A), High/Low switching



(unit: mm)

CONNECTION
(The broken line area shall be wired by the customer)



MODEL

GK/MK High-Power type

GK-35 type

MK-50 type

Specifications (GK type)

Note
Service conditions: The temperature should be between -10 and +45¡C, both ambient and delivered. The RH should be less than 90% at room temperature. Any condition outside of this range could result in burnout, deformed, malrotating or damaged parts.

Model	Width of unit (cm)	Power	Fan speed	Air volume (m^3/h)	Current (A)	Input (W)	Air velocity Max. (m/sec)	Noise (dB)	Starting Current (A)	Weight (kg)
GK-3506SA	60	Single-phase, 50Hz 220-240V	High	1,440-1,560	0.75-0.75	165-175	16.0-17.5	64.5-66.5	1.4	15.5
			Low	1,190-1,350	0.75-0.75	165-180	12.0-14.0	61.0-64.0	1.3	
GK-3509SA	90		High	2,160-2,340	1.1-1.1	250-265	16.0-17.5	66.0-68.5	2.1	20
			Low	1,790-2,030	1.1-1.1	250-270	12.0-14.0	63.0-66.0	1.9	
GK-3512SA	120		High	2,880-3,120	1.5-1.5	335-355	16.0-17.5	67.5-70.0	2.8	25
			Low	2,380-2,700	1.5-1.5	335-360	12.0-14.0	64.5-67.5	2.6	

*Specifications may be subject to change without notice.

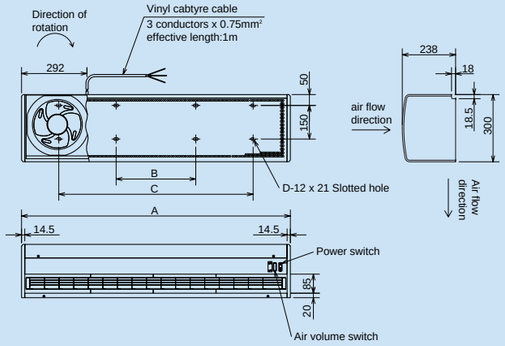
Specifications (MK type)

Model	Width of unit (cm)	Power	Frequency (Hz)	Air volume (m^3/h)	Current (A)	Input (W)	Air velocity Max. (m/sec)	Noise (dB)	Starting Current (A)	Weight (kg)
MK-5010T-E	101.8	Three-phase, 50/60Hz 380-440/380V	50	3,950	0.64-0.67	336-368	16	62	2.3	25.5
			60	4,250	0.74	432	17	64	2.0	
MK-5012T-E	126		50	5,000	0.80-0.84	420-460	16	63.5	2.9	32
			60	5,400	0.93	540	17	63.5	2.5	

*Specifications may be subject to change without notice.

Dimensions

GK-35 type

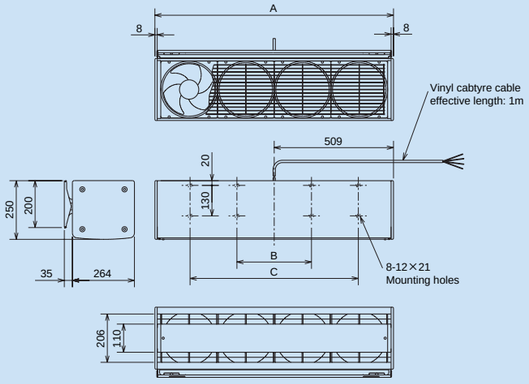


(unit: mm)

Dimensions (unit: mm)

Model	A	B	C	D
GK-3506SA	600	—	287.5	4
GK-3509SA	900	76	588	8
GK-3512SA	1,200	355.5	867.5	8

MK-50 type



(unit: mm)

Dimensions (unit: mm)

Model	A	B	C
MK-5010T-E	1,018	318	718
MK-5012T-E	1,260	560	960

Precautions

1.Operating ambient temperature and humidity must be kept. If the Product is run outside the ranges indicated in the guide book, burnout, distortion, poor motor rotation, and/or damages of the Product may result.
2.When the air curtain is run, the target room must be ventilated since its doorway(s) is blocked.
3.If the air curtain is installed at the place where the building may leak, such building should be made waterproof.
4.The Product must be assuredly installed in a strong and resilient area.
5.Do not block off the intake and supply openings. Otherwise, excessively heated motor may cause fire.
6.Always install the air curtain in indoor.
7.Earth Leakage Circuit Breaker should be provided for the system.
8.Add protective appliances such as motor breaker to the wiring system to prevent motor and its circuit(s) from burning. As a guide, choose motor breakers activating at a current 1.2 to 1.5 times the included value to prevent malfunctions from occurring.

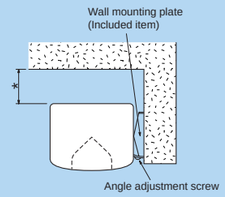
Installation Method

Before beginning installation:

*Installation method differs with mounting location and surface, therefore, for each case make sure the correct installation method is utilized.
*For vertical installation, install unit in an upright position, following the wall mounting steps detailed below.
*When metal hangers are used, utilize the decorative panel to prevent insulation degradation and to stop outside dust and rain from entering (does not apply to recessed mounting).

GK/MK type

Example of wall mounting



For mounting on concrete or steel frame or column
- Secure mounting bolts so that they protrude approximately 15mm from the mounting surface.
- Make certain to secure the wall mounting plate with the washers, spring washers and nuts provided.

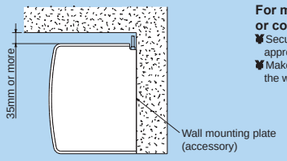
*GK-25,30 type = 100mm minimum
GK-35 type, MK-50 type = 150mm minimum

Example of ceiling mounting

- Secure the decorative panel to the back of the metal hanger.
- Secure the metal hanger using the mounting method which corresponds to the composition of the mounting surface material.
- Secure the metal hanger mounting bolts with the washers, spring washers and nuts provided with the wall mounting plate.

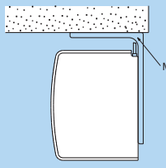
GK High Power type

Example of wall mounting



For mounting on concrete or steel frame or column
- Secure mounting bolts so that they protrude approximately 15mm from the mounting surface.
- Make certain to secure the wall mounting plate with the washers, spring washers and nuts provided.

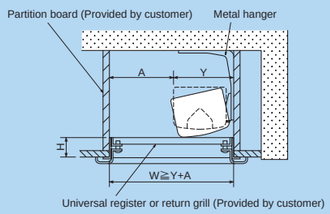
Example of ceiling mounting



- Secure the metal hanger using the mounting method which corresponds to the composition of the mounting surface material.
- Secure the metal hanger mounting bolts with the washers, spring washers and nuts provided with the wall mounting plate.

Common

Example of ceiling recessed mounting



- Incline the unit towards the wall.
- Arrange the air curtain so that it fits inside the grill.
- Use a universal register and return grill with a louver installed toward the shorter dimensions.
- For Y dimensions, please see the unit's outer diagram. For W and H dimensions please contact the grill manufacture.
- Bring the grill and unit into close proximity.
- Make sure to install the partition boards.

*GK-25,30 type A = 150mm minimum
GK-35 type A = 200mm minimum
MK-50 type A = 250mm minimum