



# Operating Instructions (Included Installation Instruction)

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## Compact Axial Flow Fan

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K25DSF2NET	K28DSM2NET	K35DSM2NET	K40DSL2NET
K40DSH2NET	K45DST2NET	K40DTL2BET	K40DTH2BET
K45DTT2BET	K45DTH2BET		

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Thank you for purchasing the KDK Compact Axial Flow Fan.

- Please read these instructions carefully, before using this product, and retain this instruction for future use.
- Make sure to read "Safety Precautions" (on page 2-4) prior to use.




# Safety Precautions



To avoid any injury or damage, please follow the rules as mentioned below :



- Any damage would happen due to NOT following the rules or miss-use, the levels of damage are categorized and explained as indicated below :

	<b>DANGER</b>	Denotes a potential hazard that will result in serious injury or death.
	<b>WARNING</b>	Denotes a potential hazard that could result in serious injury or death.
	<b>CAUTION</b>	Denotes a hazard that could result in minor injury or damage to the unit or other equipment.

- The following symbols are used to classify and describe the of instructions to be observed.




	This symbol indicates an action that must NOT be performed.
	This symbol indicates an action that must be performed.
	This symbol indicates that caution is advised.

 <b>DANGER</b>	
	Do not use the product to ventilate gas or an open combustion appliance (heater). When you use a gas or an oil stove in your room, be sure to procure a separate ventilator.



 <b>WARNING</b>	
	Disconnect power supply completely before inspection or maintenance. May cause injury or electric shocks.
	Install to the strong foundation. Reinforce, when intensity is insufficient. When installation intensity is insufficient, it may cause an unexpected accident.
	Securely tighten the assembly and connection bolts. If they are not sufficiently tightened, the product may fall and cause injury.
	Securely mount all components and parts. If they fall, it may cause an injury.
	When combustible gas leakage occurs, open the windows to make air circulate. When you start the fan, a spark of the electrical contacts may cause an explosion or fire.
	This fan should be installed so that the metal parts of the product and mounting screw do not contact any metallic members in the wall, such as metal laths, wire laths and metal plate. It is possible to cause fire hazards in case of electric leak.
	After terminating the use of the product, remove the product without leaving it there. Product may drop and cause injury.
	A bird net or an equivalent guard is attached to out-air intake. If a foreign object such as a bird's nest is found, remove it. Such an object may hinder oxygen flow into the room.
	Out-air intake should be installed away from exhaust ports, such as combustion gas. It may hinder oxygen flow into the room.

# Safety Precautions

## WARNING




	<p>Unauthorized operator or inspector is not allowed to access. May cause unexpected accident.</p>
	<p>Do not insert fingers or sticks into the inlet or outlet openings. May cause injury by the fan rotating at high speed inside.</p>
	<p>Don't use the product without connecting the ducts on both inlet and or outlet. In that case, attach net protection. May cause injury by sucking the body during operation.</p>
	<p>Do not spill water or cleaner directly on the parts of the product. May cause short-circuits or electric shocks.</p>
	<p>When combustible gas leakage occurs, do not turn on or turn off. Turning on or off the product may cause explosion by its spark.</p>
	<p>Do not install the fan where explosive dusts or gas may be generated. May cause explosion or fire.</p>
	<p>Do not turn on or off the product with a wet hand. May cause electric shocks.</p>
	<p>When you carry the product, be sure to note its weight and center of gravity. If the product is not correctly lifted, held up, or held, it may fall and cause an injury.</p>

## CAUTION

	<p>This product must be properly and reliably grounded. If the product fails or if an electricity leakage occurs in it, it may cause an electric shock.</p>
	<p>Stop immediately the operation in case of any abnormality (noise, vibration, smell), and request for repair. May cause unexpected accidents.</p>
	<p>Wear protectors such as gloves and helmets during installation and maintenance. May cause injury or burn.</p>
	<p>Electrical wiring, ducting and installation should be done by specialist. Insufficient wiring or installation may cause unexpected accident.</p>
	<p>Electric wiring must be done in accordance with the local rule. Incorrect wiring may result in leakage of electricity or fire.</p>
	<p>Install the fan so that duct weight is not applied to the fan. Malfunction and object drop can cause injury.</p>
	<p>When hanging from the ceiling, use standard size and required quantity of hanging bolts. Inadequate installation can cause product drop and injury.</p>
	<p>Duct and or product should perform heat insulation for dew condensation prevention. If the heat insulation is not secure, water may enter the room and cause the household goods to become wet.</p>
	<p>Apply rated voltage to this product indicated on the name plate. It may cause fire or electric shock.</p>
	<p>Operate in rated range (temperature, frequency, air volume). Out of the rated range may cause the wheel breakage, motor burnout, or unexpected accident.</p>

# Safety Precautions

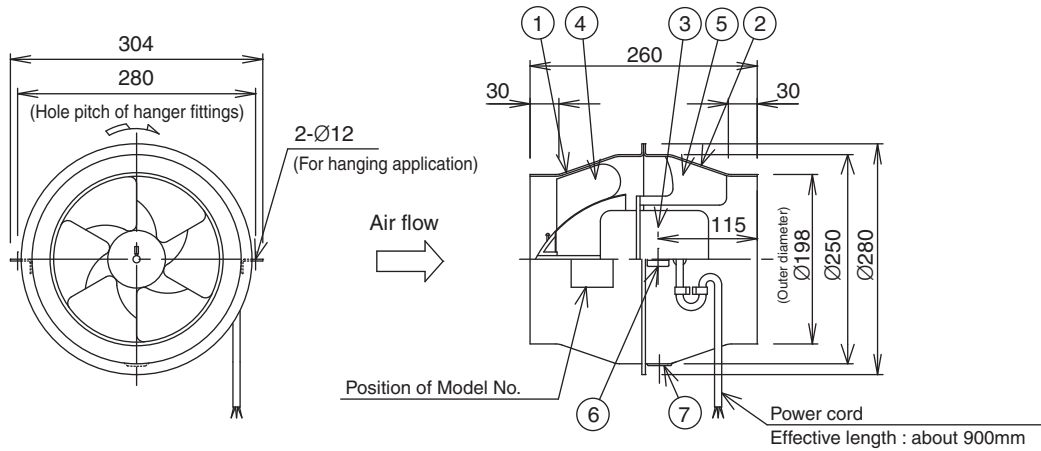
## CAUTION

	Do not use the product in conditions other than specified. (See page 8.) May cause unexpected accidents by impeller damage or motor burnout.
	Securely connect the cable of the power source. Poor cable connection may cause connectors to overheat and result in fire.
	Install and fix the cable of the power source certainly. If the cable coating is broken due to friction caused by shaking, it may cause an electric shock or fire.
	Follow the connecting diagram to connect power supply certainly. Motor burnout or other phenomena may cause unexpected accidents.
	Securely mount the product using the specified procedure. If the product falls, it may result in personal injuries.
	Eyes should not be faced to the outlet opening. (specially when the fan starts.) Any flying substance may get into the eyes.
	Any obstacles should not be placed near the inlet or outlet opening. May cause injury by blowing or sucking the obstacle.
	Do not install the main body and indoor air supply entrance at the place with harmful gas of Acid / Alkali / organic solvent / paint etc., gas including corrosive substance (chemical factory, facility for research, etc.) The poison, erosion on internal main body, quality drop from gas may occur and cause fire.
	Don't operate with the wheel to which much dust has been adhered. May cause wheel breakage or motor burnout.
	Do not install the fan vertical or to the up-and-down contrary. May cause damage to wheel or motor.
	Don't operate by Inverter control. May cause wheel breakage or motor burnout.
	Must not disassemble or reconstruct this product. It may cause fire, electric shock or injury.
	The fan may rotate because of the wind inside the duct, even after power supply is switched off. Make sure that the fan has stopped actually before inspection. May cause injury if being caught into the rotating section.
	Be careful not to drop the terminal cover or parts removed from the fan when inspection. May cause injury.
	Be careful of the dropping dusts and watch your steps during maintenance. May cause injury.

# Names and Dimensions of Component (Position of Model No.)

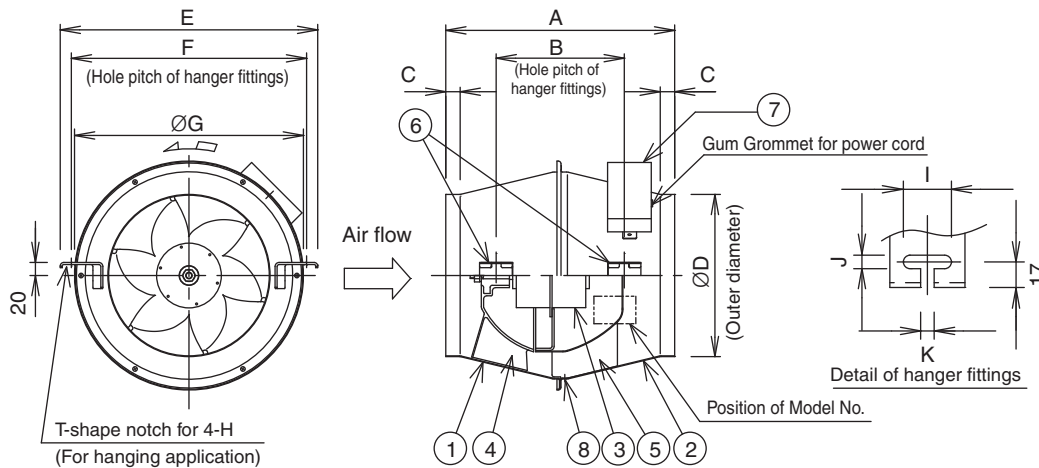
## ■ K25DSF2NET

unit : mm



No.	Parts name	Q'ty	Material
1	Casing A	1	Steel
2	Casing B	1	Steel
3	Motor	1	-
4	Wheel	1	Aluminum
5	Guide vanes	4	Steel
6	Hanger fittings	2	Steel
7	Drain gum	1	Gum

## ■ K28DSM2NET    K35DSM2NET    K40DSL2NET    K40DSH2NET    K40DTL2BET K40DTH2BET    K45DST2NET    K45DTT2BET    K45DTH2BET



unit : mm

Model number	A	B	C	D	E	F	G	H	I	J	K
K28DSM2NET	350	197	22	248	400	366	350	M8	32	9	9
K35DSM2NET	410	206	21.5	298	460	426	415	M8	32	9	9
K40DSL2NET    K40DSH2NET    K40DTL2BET    K40DTH2BET	480	206	26	347	525	491	480	M8	32	9	9
K45DST2NET    K45DTT2BET    K45DTH2BET	540	218	25.5	395	588	554	546	M10	34	11	11

No.	Parts name	Q'ty	Material
1	Casing A	1	Steel
2	Casing B	1	Steel
3	Motor	1	-
4	Wheel	1	PP or Steel
5	Guide vanes	7	Steel
6	Hanger fittings	4	Steel
7	Terminal cover	1	Steel
8	Drain gum	1	Gum

# Maintenance and Inspection

To use the product safely for a long time, please follow the instructions below.

1. For regular inspections, contact your vender or electrician.
2. The estimated life expectancy of the motor is about 20,000 hours, but it may vary depending on the use conditions.  
If you find any abnormal noise, please replace the motor.

Note:

Regular inspections will extend the product life as well as maintain the operation efficiency and prevent the excessive energy consumption. (When the product is used in severe conditions, the inspection cycle should be shorter than that in the below table.)

## ■ Daily check (for customer)

1. Check if the product generates any abnormal noise or vibration compared with the initial condition (by hearing and touching etc.)
2. Remove the drain gum, and check that no water remains inside the product. If any water remains, remove it completely and ask a professional cleaning service to clean inside the product. And, take measured to prevent water from entering the product. After checking is completed, be sure to mount the drain gum.

## ■ Regular inspection (for service company)

Inspect the product by following the table.

<p>Meaning of symbols:          ○ : needs regular inspection          ◆ : needs to replace regular replacement parts</p>
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Part name	Elapsed years															Inspection	Criteria (Indication)	Maintenance	Remarks	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
1 Entire fan	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	<ul style="list-style-type: none"> <li>• Check noise and vibration. (by hearing and touching)</li> <li>• Check attaching screws for looseness. (with tool)</li> </ul>	<ul style="list-style-type: none"> <li>• No abnormal noise or vibration.</li> <li>• No looseness.</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten foundation bolt and hanging bolt.</li> <li>• If difficult to repair, replace the product.</li> <li>• Tighten with tool.</li> </ul>		
2 Casing Guide vanes	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	<ul style="list-style-type: none"> <li>• Check the appearance. (visually)</li> <li>• Check noise and vibration. (by hearing and touching)</li> </ul>	<ul style="list-style-type: none"> <li>• No abnormal rust, corrosion, extraneous material, or deformation.</li> <li>• No abnormal noise or vibration.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and remove extraneous material.</li> <li>• If there is abnormal rust, corrosion, crack, or deformation, replace the part.</li> <li>• Tighten each attaching screw.</li> <li>• If there is damage by contact, replace the part.</li> </ul>		
3 Wheel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Update equipment	<ul style="list-style-type: none"> <li>• Check the appearance. (visually)</li> <li>• Check rotation. (visually, with manual rotation)</li> <li>• Check noise and vibration. (by hearing and touching)</li> </ul>	<ul style="list-style-type: none"> <li>• No abnormal rust, corrosion, extraneous material, or deformation.</li> <li>• No abnormal sound.</li> <li>• No contact with fan casing.</li> <li>• No looseness.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and remove extraneous material.</li> <li>• If there is abnormal rust, corrosion, crack, or deformation, replace the part.</li> <li>• If there is damage by contact, replace the part.</li> <li>• Tighten with tool.</li> </ul>	
4 Motor	○	○	○	○	○	◆	○	○	○	○	○	○	○	○	○	<ul style="list-style-type: none"> <li>• Check the appearance. (visually)</li> <li>• Check noise and vibration. (by hearing and touching)</li> </ul>	<ul style="list-style-type: none"> <li>• No abnormal rust, corrosion, extraneous material, or deformation.</li> <li>• No abnormal noise or vibration.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and remove extraneous material.</li> <li>• If there is abnormal rust, corrosion, crack, or deformation, replace the part.</li> <li>• If there is any problem, replace the part.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular replacement parts.</li> </ul>	
5 Terminal	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	<ul style="list-style-type: none"> <li>• Check terminal block and screws for looseness. (with tool)</li> </ul>	<ul style="list-style-type: none"> <li>• No looseness.</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten with tool.</li> </ul>	<ul style="list-style-type: none"> <li>(The terminal is not supplied with K25DSF2NET.)</li> </ul>	

Note:

The table above gives general indications, and the contents may vary depending on the use situation or installation condition. The typical sample operation time is 10 hours per day, 300 days per year, and 3000 hours as a standard use.

# Periodic Check and Maintenance

## When requesting repair

If you find any troubles, use the following table to check your product. If you still have troubles, make sure to turn off the product and contact your dealer for repair service. Before you contact your dealer, check the following items.

1. Product name
2. Product No. and production SER. No. (on name plate)
3. Air volume and static pressure
4. Use conditions (installation condition, period of use, operation time per day, etc)
5. Abnormal conditions (from when, and how it occurs)
6. Handling air (for general ventilation or for clean air, and intended use)

Cause \ symptom	Insufficient air flow	Excessive noise	Excessive vibration	Overheated motor	Run abnormally	Action
Poor foundation	○	○	○			Reinforce foundation
Faulty installation	○	○	○			Re-adjust installation
Outside range of rated voltage	○	○	○	○	○	Check power source
Contact between rotary and stationary parts	○	○	○	○	○	Inspect and adjust
Sucked in objects/Adhered dust	○	○	○	○	○	Inspect and clean
Faulty ducting	○	○	○			Inspect and adjust
Incorrect wiring	○	○		○	○	Change power source wiring

# Specifications

## 1. Specification table

Model No.	Power supply	Rated voltage (V)	Number of poles	Output	Hi/Lo	Air volume (m <sup>3</sup> /h)		Current (A)		Max current (A)		Input (W)		Noise level (dB)						Weight (kg)
														Side of body		Inlet side		Outlet side		
						50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	
K25DSF2NET	Single-phase	220-240V	4	25	Hi	600	720	0.19	0.17	0.24	0.22	34	38	41.0	42.0	51.0	54.0	50.5	53.5	4.7
					Lo	550	650	0.14	0.12	0.17	0.18	27	29	39.5	41.5	49.0	52.0	48.5	51.5	
K28DSM2NET	Single-phase	220-240V	4	20	Hi	1194	1224	0.25	0.28	0.32	0.35	51	62	44.5	45.5	54.5	55.5	54.0	55.0	8.5
					Lo	1050	1062	0.24	0.26	0.30	0.32	55	61	42.0	43.0	52.0	53.0	51.5	52.5	
K35DSM2NET	Single-phase	220-240V	4	60	Hi	2016	2154	0.42	0.57	0.54	0.70	95	131	45.5	46.5	56.5	57.5	56.0	57.0	13.0
					Lo	1782	1830	0.38	0.50	0.46	0.57	87	113	43.0	44.0	54.0	55.0	53.5	54.5	
K40DSL2NET	Single-phase	220-240V	4	200	Hi	3228	3528	0.94	1.3	1.2	1.6	204	281	56.0	56.5	68.0	68.5	67.5	68.0	20.0
					Lo	3084	3186	0.86	1.1	1.1	1.3	194	245	54.0	54.5	66.0	66.5	65.5	66.0	
K40DSH2NET	Single-phase	220-240V	4	300	Hi	3504	4128	1.1	1.8	1.5	2.3	256	401	55.5	56.5	67.5	68.5	67.0	68.0	22.0
					Lo	3444	3822	1.0	1.6	1.4	2.1	233	348	53.5	54.5	65.5	66.5	65.0	66.0	
K45DST2NET	Single-phase	220-240V	4	550	Hi	4968	5940	1.9	2.8	2.4	3.8	428	643	59.5	61.0	69.5	71.0	69.5	71.0	37.0
					Lo	4206	5790	1.7	2.7	2.2	2.5	398	615	58.0	60.5	68.0	70.5	68.0	70.5	
K40DTL2BET	Three-phase	380V	4	200	Hi	3396	3840	0.48	0.65	0.63	0.88	241	381	56.0	56.0	68.0	68.0	67.5	67.5	18.0
					Lo	3330	3660	0.42	0.59	0.55	0.76	237	334	54.0	54.0	66.0	66.0	65.5	65.5	
K40DTH2BET	Three-phase	380V	4	300	Hi	3426	3912	0.57	0.66	0.68	0.87	250	372	56.0	57.0	68.0	69.0	67.5	68.5	19.0
					Lo	3264	3666	0.45	0.58	0.55	0.74	220	331	55.0	56.0	67.0	68.0	66.5	67.5	
K45DTT2BET	Three-phase	380V	4	550	Hi	5004	6000	1.1	1.2	1.3	1.6	421	638	61.0	63.0	71.0	73.0	71.0	73.0	36.0
					Lo	4860	5886	0.93	1.1	1.2	1.5	397	614	60.5	62.5	70.5	72.5	70.5	72.5	
K45DTH2BET	Three-phase	380V	4	700	Hi	5454	6522	1.2	1.4	1.5	1.9	511	758	59.0	65.0	68.5	72.5	68.5	72.5	37.0
					Lo	5250	5789	1.1	1.3	1.4	1.8	482	730	58.5	64.5	68.0	72.0	68.0	72.0	

Note: In above table, the values are tested 230V for Single-phase Models, and 380V for Three-phase Models.

- The values of air volume are measured at 0 static pressure (Pa) by the chamber method.
- The values of Current and Input are in the free load condition.
- The values of noise level are measured at 0 static pressure (Pa) and at the following positions.  
(When ducts are connected on both inlet and outlet side.)

Side of fan body : 1.5m apart from the fan body (excluding the noise of outlet side)

Inlet side : 1.5m apart from the inlet of the fan (excluding the noise of outlet side)

Outlet side : 1.5m angle 45° apart from outlet side (excluding the noise of inlet side)

Add 2dB to the values above for the noise levels apart from 1.0 m.

- Specifications above indicate the values under the condition of normal temperature (20 degrees Celsius).

## 2. Use condition

- Use in the following conditions  
Handling air and Ambient air : -10 to +40 deg C, relative humidity 85% or less
- Do not use the product in the places such as outdoor (where rain water splashes), where water splashes, steam is always generated, corrosive gas may be generated, or chemicals may be used.
- Do not use the product in the places such as pools or hot springs where the chemicals such as chlorine are used.  
It has high possibility to cause corrosion in a short term.



# Installation Instructions



## CAUTION

Wear protectors as gloves and helmets during installation and maintenance.  
May cause injury or burn.

## 1. Before installation

■ Check the following.

- Is there any breakage or deformation?
- Is there product as per your order?

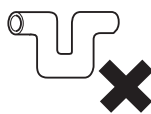
### Confirmations

- Start to perform attachment construction after checking the power supply of product.
- Use hanging bolts and foundation bolts that have sufficient intensity.
- Recommending installing a filter so that dust etc. may not be inhaled to a suction side.  
(Be careful of the air volume down by the filter pressure loss.)
- When the combustion appliance is being used in the room, please prepare a big suction mouth independently.
- When the duct is connected to the outdoors, a pipe hood should be installed at the outdoors end, and the duct should be installed 1/100 or more downward pitches.  
(Prevent rain water not to come to fan side.)
- When installing ducts, hang the ducts from ceiling so that the duct weight is not applied to fan.
- Please don't carry out the following ductworks.

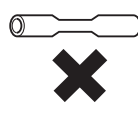
1 Bending extremely



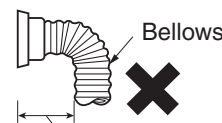
2 Bending repeatedly



3 Making duct diameter too small



4 Bending very near to the fan mouth

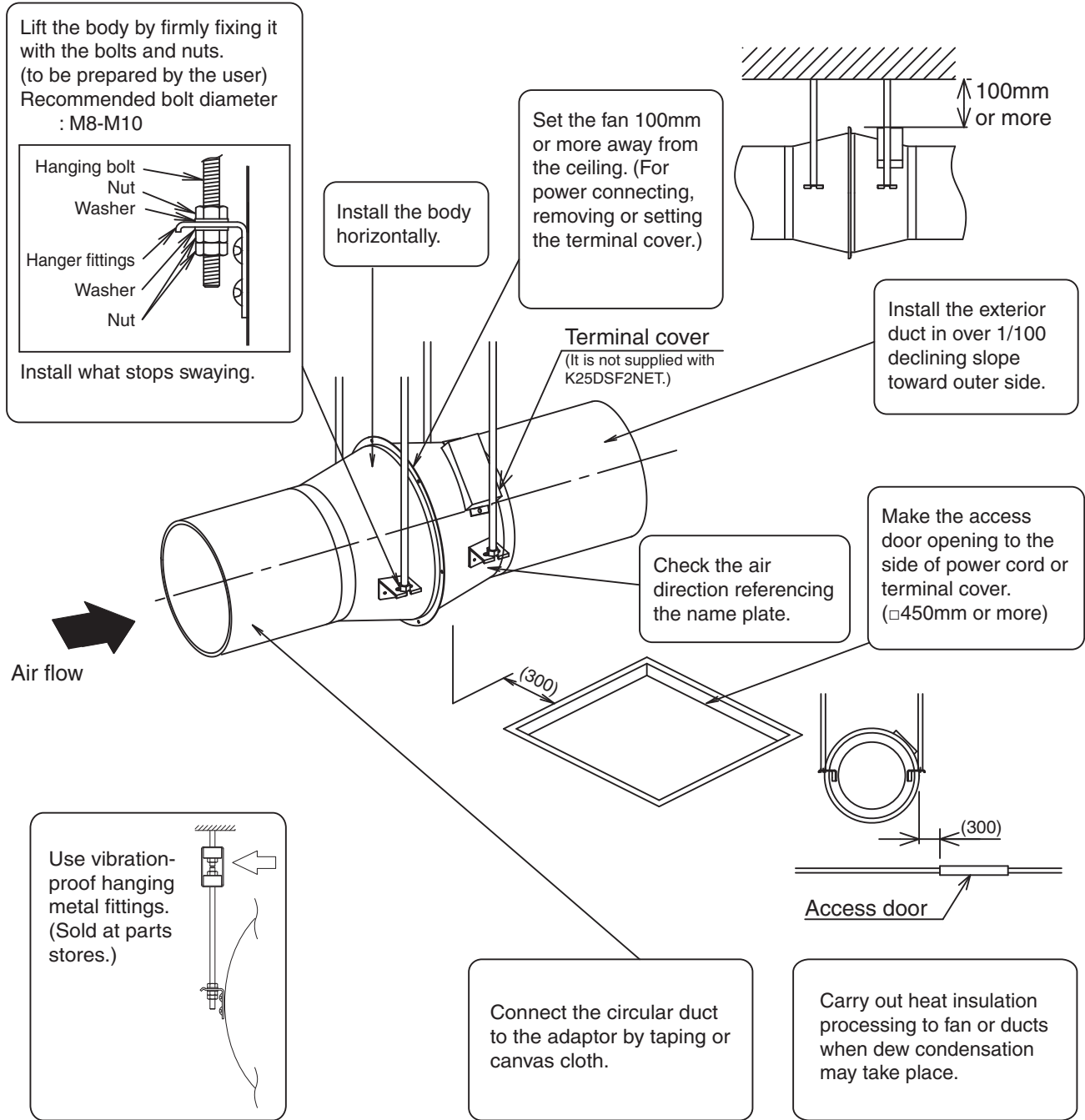


Separate 1m or more from the fan mouth.

- Roll an aluminium tape to connecting part not to carry out an air leak after installing and fixing fan and ducts.
- When fan operating is stopped, keep the duct inside wind flow down even if there are outside flowing pressure, so as to keep the wheel not to rotate. Please attach an electric damper, the backflow prevent damper, etc.
- Please do not use or set this fan at the place as follows, outdoor, the place which requires water, the place where steam generates, the place where corrosive gas may generate, and the place where chemicals are used.
- Don't make a hole to the fan casing. In the casing there are electric parts inside. If a hole is made to the fan casing it may be damaged.
- This fan is not used like the place as follows. The place where heat, oil mist, steam or humidity gas generate or exhaust gas from pool or spring ingredient.  
(Environmental conditions (ambient and air conditions): -10 to +40 deg C, relative humidity 85% or less)
- When you supply cold air into the room in the winter, if there is any possibility that condensation may form on the connection part of the duct or the surface of the product, be sure to always carry out thermal insulation treatment on them.
- Carefully install the air supply fan and exhaust fan to prevent short circuiting.
- Install the fans horizontally. You cannot install them upside down or in a vertical orientation.

# Installation Instructions

## 2. Installation



# Installation Instructions

## 3. Power cord connection



**CAUTION**

In order to avoid the danger, it must be connected by qualified technician.  
Incorrect wiring may result in current leakage or fire.

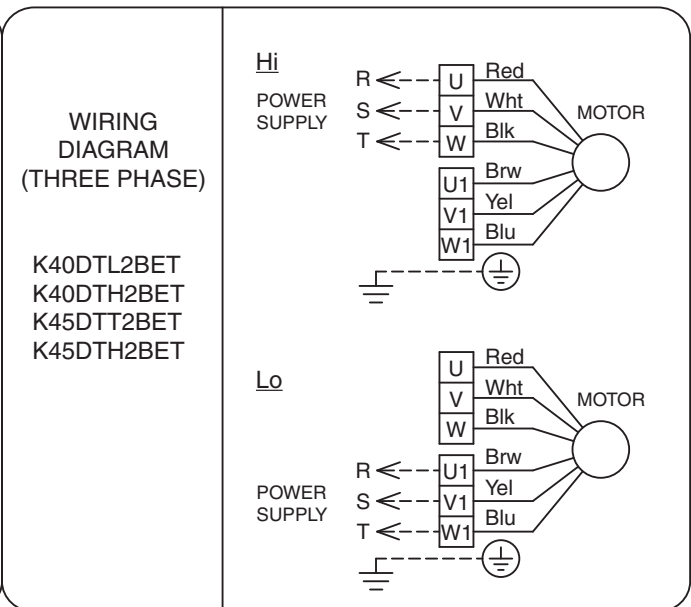
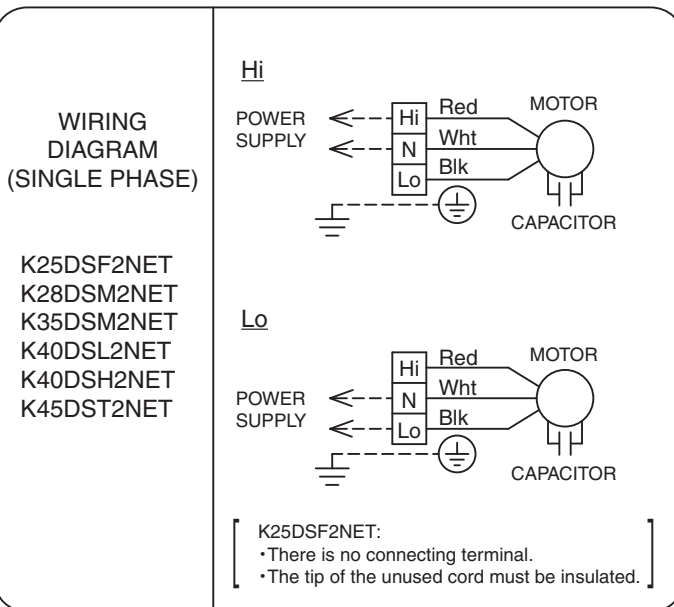
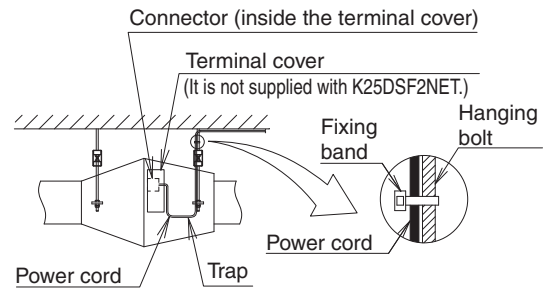


**CAUTION**

This product must be properly and reliably grounded.  
There is a possibility of receiving an electric shock.

### ■ Electric wiring cautions

- Work in accordance with the electric local wiring rules and standards and the working standard specified by the power company.
- In order to avoid motor burn-out due to over current, be sure to mount an overload protection device (such as the motor breaker) that matches the ratings on each fan.  
(Select a motor breaker that supports the maximum current multiplied by 1.2 to 1.5 (described in the "Specifications" on page 8).)
- Always install the earth leakage breaker.
- Connect the power cord shown as dotted lines in the "Wiring Diagram".
- Open the terminal cover and pass power cord through the gum grommet.
- Connect the power cord according to the "Wiring Diagram", "Power cord treatment" (on rear cover page) and "Connecting wiring" (on rear cover page).  
When connecting the power cord, fix the power cord to the hanging bolt so that the power connector is not under tension.  
(The K25DSF2NET do not have terminal covers.)
- As water may enter the connector along the power cord, use a trap or other type of treatment for the power cord (see illustration at right).
- After the power cord has been connected, always mount the terminal cover.  
(Except K25DSF2NET.)
- A thermal fuse is mounted inside the motor of this product for protection. If the source voltage differs from ratings or if power cord is not correctly connected, the temperature of the motor windings may increase. In this case, the thermal fuse will blow and the motor will stop. Once the fuse blows, the motor cannot restart itself (that is, it cannot rotate).  
Locate and remove the cause of the error, and replace the motor.
- Note that an unstable (or temporarily installed) power supply may cause the thermal fuse to blow and the motor may stop during a trial run.
- After wiring, check the rotation direction in case of three phase motors.



**CAUTION**

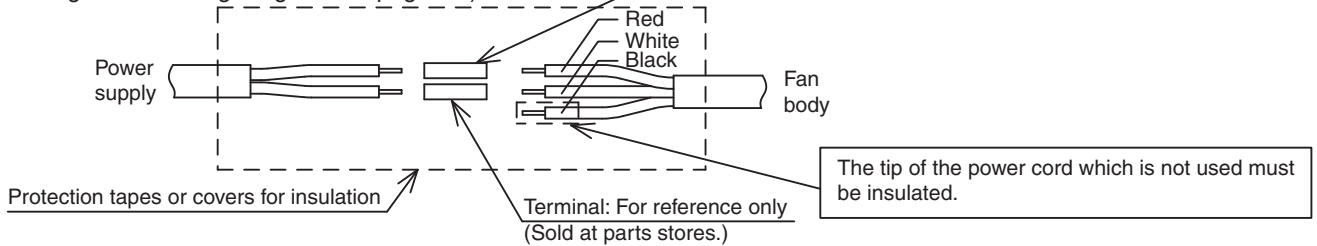
Exercise care when you connect cords.  
When operating the motor while using the different source voltage from ratings, if you arrange the cabling differently from that shown in the wiring diagram, or if you mistake single-phase for three-phase, the motor may burn out.

# Installation Instructions

## ■ Connecting wiring

### ● K25DSF2NET

(The illustration shows an example of connecting for high power operation. For low power operation, connect cords according to the "Wiring Diagram" on page 11.)

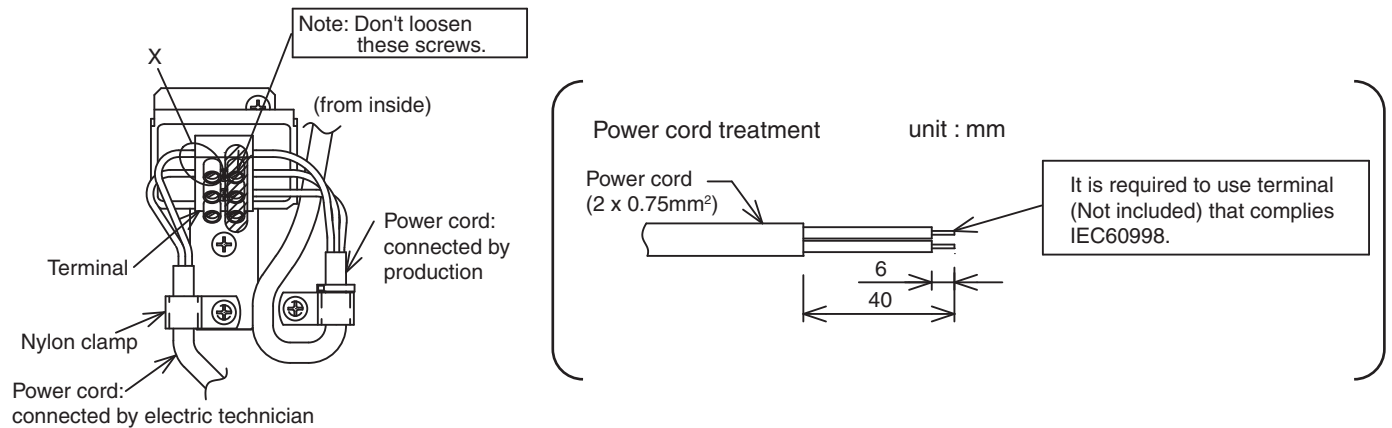


## ■ Connecting wiring

1. Insert power cords into the terminal left-side holes as shown below figures.
2. Fasten each screws firmly, and check to pull softly and not to be pulled off or moved.
3. After that, secure power cord with the nylon clamp and its screw so that all cords are not some tension pulled and pulled off.

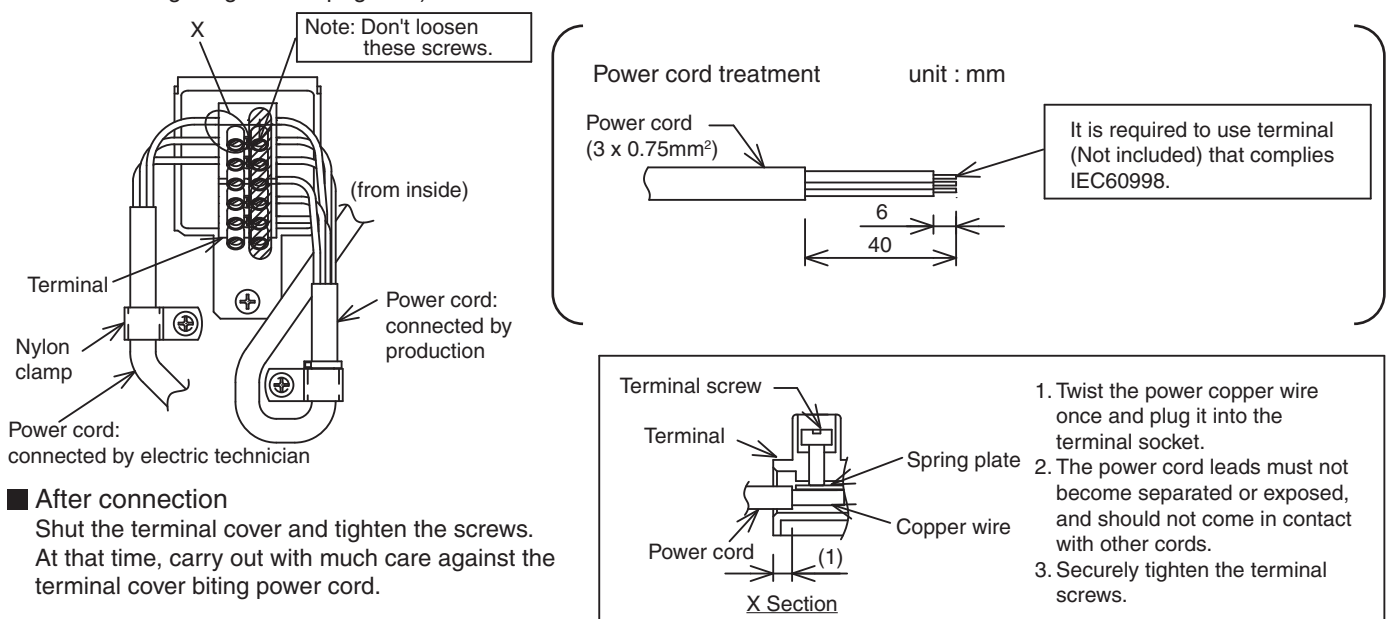
### ● K28DSM2NET K35DSM2NET K40DSL2NET K40DSH2NET K45DST2NET

(The illustration shows an example of connecting for high power operation. For low power operation, connect cords according to the "Wiring Diagram" on page 11.)



### ● K40DTL2BET K40DTH2BET K45DTH2BET K45DTH2BET

(The illustration shows an example of connecting for high power operation. For low power operation, connect cords according to the "Wiring Diagram" on page 11.)



## ■ After connection

Shut the terminal cover and tighten the screws. At that time, carry out with much care against the terminal cover biting power cord.