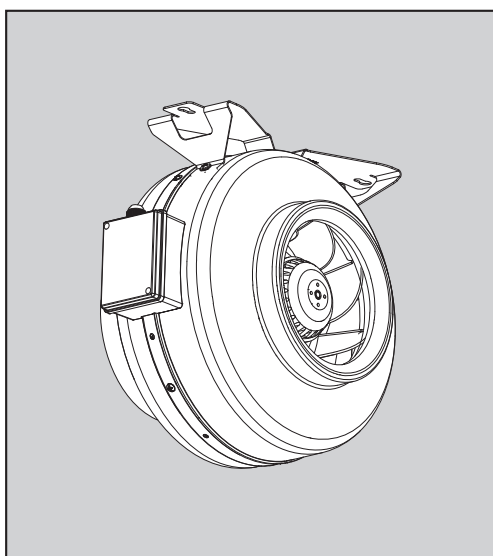


INSTALLATION AND OPERATING INSTRUCTIONS

In-line Centrifugal Fan

Model No. 10MMA 20MMA
12MMA 25MMA
15MMA 31MMA
16MMA



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Thank you for purchasing this **KDK** product.
Please read these instructions carefully before attempting to install, operate or service the **KDK** product. Please carefully read "INSTALLATION INSTRUCTIONS" (P.2~3) of this instructions before installation. Failure to comply with instructions could result in personal injury or property damage. Please explain to users how to operate and maintain the product after installation, and this booklet should be presented to users. Please carefully read "USE AND MAINTENANCE INSTRUCTIONS" (P.6) of this instructions before operation. Please retain this booklet for future reference.

SAFETY INSTRUCTIONS

Please observe strictly

- Disconnect power supply before maintenance.
- This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for the safety. Children should be supervised to ensure that they do not play with the product.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

The following instructions should be strictly observed in order to prevent injury to the users and other people, or damage to property.

- The degrees of injury or damage that can occur when the instructions are ignored and if the product is not used properly have been classified and described by the following indications.



WARNING

This indication means: Must be treated seriously that this may result in death or serious injury.



CAUTION

This indication means: Must be treated seriously that this may result in injury or physical damage.

- Types of instructions that should be observed have been classified and described by the following pictorial symbols.



This symbol indicates the item is "PROHIBITED" to do.



This symbol indicates the "COMPULSORY" item that must be followed without failure.



This symbol indicates the item is "CAUTION".

INSTALLATION INSTRUCTIONS



WARNING

- The product must be grounded.



Otherwise, it may cause electric shock when there is any trouble or electric leakage.

- If the product is hung from the ceiling, you should install and tighten the specified number of bolts with proper specification.



If the bolt specification is unqualified or any bolt is loose, the product may drop and cause injury.

- Do not reconstruct this product.

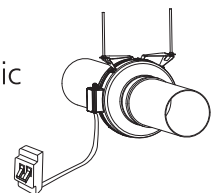


Otherwise, it may cause damage to the product or personal injury.

- Please install a suitable all-pole switch which the contact separation is more than 3 mm.



May cause electric shocks.



INSTALLATION INSTRUCTIONS



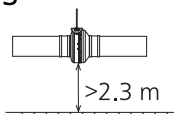
WARNING

- The building structure and suspender which are used to installed product must have sufficient installation strength and support more than 5 times weight of the product. They must be reinforced if their strength can not be sure.
 - ❗ Otherwise, it may fall off to cause personal injury.
- Do not install the product as the method which is not approved in the instruction.
 - ❗ Otherwise, unreliable installation may be caused and thus the product may fall off, resulting in injuries.
- The weight of the air duct cannot be supported by the product after installation.
 - ❗ May drop and cause injury due to carrying an extra load.
- Do not install the product or allow the indoor air inlet to be placed near areas of high moisture or where large amounts of steam are produced, such as a bathroom.
 - ⊘ Internal condensation of moisture may cause dew dropping or electrical accidents, such as a short circuit or electric shock.
- Do avoid the back-flow of gas into the room from the open flue of flammable gas or other open-fire appliances.
 - ❗ Otherwise, a fire may be caused.
- When lifting this product, please pay attention to the center balance.
 - ❗ Otherwise, it may fall off to cause personal injury.
- An overload protection device must be installed in the wiring when installing.
 - ⚠ May cause fire or electric shocks.
- The power cord recommend to use the 60227 IEC 53 (RVV 0.75mm²) according to IEC 60227-5.
 - ⚠ May cause fire or electric shocks.
- Do not use any other power supply other than the rated voltage.
 - ⊘ May cause fire or damage the unit.
- Do not install the product or allow the indoor air inlet installed in locations close to machinery plants, chemical factories and any other facilities where harmful gases and gases with corrosive components, such as acid, alkali, organic solvent, and coating, may be generated.
 - ⊘ May cause poisoning due to gas. Internal corrosion or deterioration may cause fire.
- The product must be installed by professionals or trained personnel with equivalent expertise and skills according to the national wiring rules.
 - ❗ Otherwise, electric leakage, electric shock or a fire may be caused due to wrong wiring, twisted wiring or wire clamping.
- Do not insert your fingers, sticks or others into the air inlet or outlet.
 - ⊘ May cause injury.



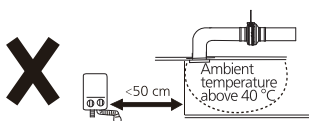
CAUTION

- The bottom surface of the product should keep a distance of over 2.3 m from the ground after installation.

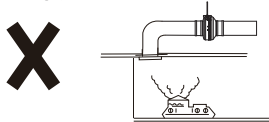


INSTALLATION REQUIREMENTS

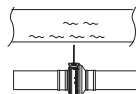
■ Do not install the product in places with high temperature.



■ Do not install the product where it is exposed to oil mist.



■ The product should not make contact with any other items, such as a wall.



■ Add netting or an equivalent deterrent on air outlet to keep off birds.

■ The product is exhaust but not for intake.

■ Do not install the product where the outdoor humidity is high (85% or higher) such as near a swimming pool or sauna.



■ Do not place any obstacles near air outlet and inlet.

■ Do not connect two or more products in the same power outlet.

■ Do not form the duct as shown below:



■ The applicable ambient temperature of this product is in the range of -10 °C~50 °C. (T:available for Tropical climates)

■ For an exhaust duct to outdoor, attach a pipe hood to the end and keep at least a 1/100 slant downward. To prevent rain or frozen water entering.

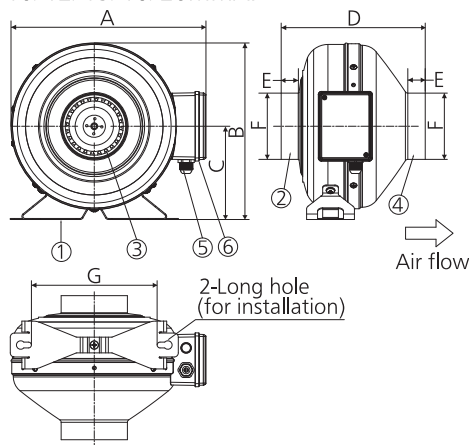
PARTS NAME AND DIMENSIONS

Model No.	A	B	C	D	E	ØF	G	Duct dimension
10MMA	285	258	137	213	26	97	196	Ø100
12MMA	285	258	137	203	26	123	196	Ø125
15MMA	375	348	181	266	25	147	267	Ø150
16MMA	375	348	181	260	25	157	267	Ø160
20MMA	375	348	181	245	25	197	267	Ø200
25MMA	375	348	181	219	25	247	267	Ø250
31MMA	445	416	215	255	26	313	327	Ø315

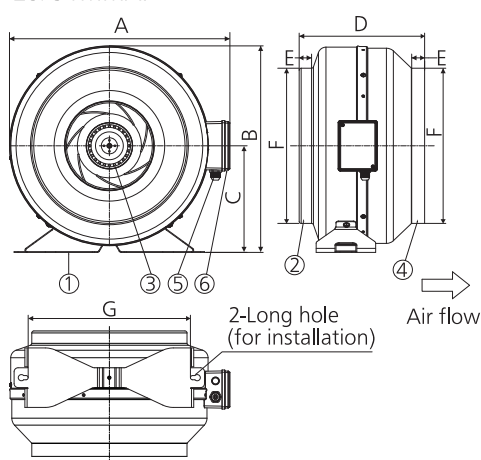
Unit: mm

Model No.	Detail drawing for long hole
10MMA 12MMA	
15MMA 16MMA 20MMA 25MMA	
31MMA	

10/12/15/16/20MMA:



25/31MMA:



No.	Part name	Q'ty
①	Mounting bracket	1
②	Air inlet	1
③	Motor	1
④	Air outlet	1
⑤	Waterproof joint	1
⑥	Condenser box	1

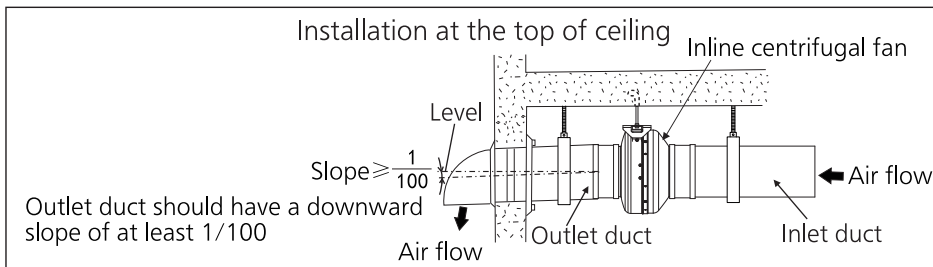
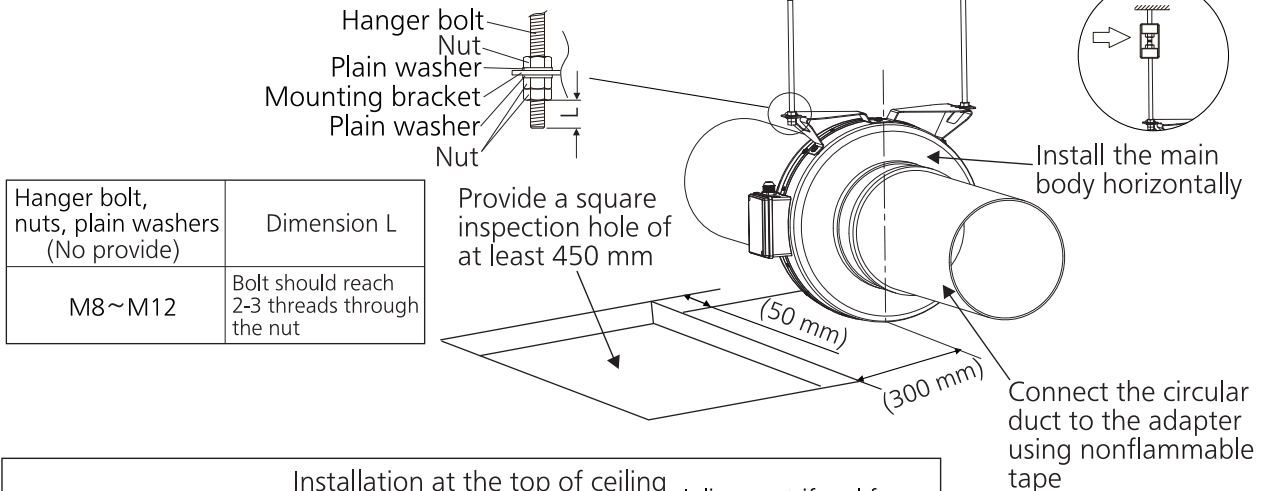
HOW TO INSTALL

1. Installation method

- Follow the illustration below to install. Do not install facing directions other than what is shown in the illustration.

To hang the fan, be sure to attach firmly with hanger bolts, plain washers and nuts. (Which should be M8~M12 and be supplied by the customer)

Vibration cushion rubber set (supplied by the customer) can be used if in special condition for vibration requirement and it must can support the weight of the product.

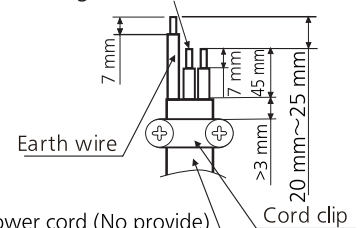


2. Wiring method

- Open the condenser box cover.

- Strip the wires according to the right illustration. The earth wire of the power cord must be 20~25 mm longer than other wire. Then bind the separated copper wires into a bundle and insert bundle into the terminal deeply. Make sure the screw column of terminal securely presses on the copper wire and that the copper wire near insulation layer is not exposed. (To avoid danger, it should be installed by professionals and be sure to connect the earth wire.)

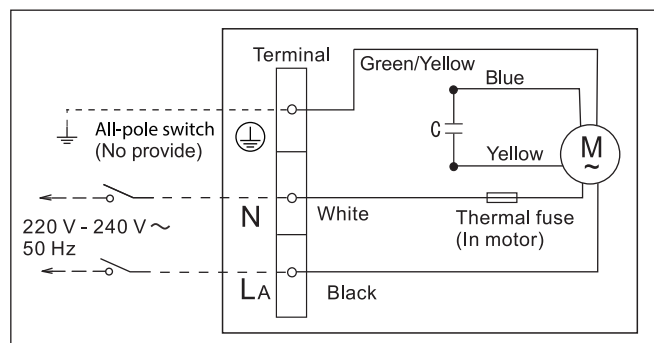
Wiring each wire to sheaves



60227 IEC 53 (RVV 0.75 mm²)

- Connect wires according to the following diagrams. Finally, mount the power cord with cord clip and install the condenser box cover.
- When two or more products are connected to one single switch in parallel, damage may occur to the motors. Therefore parallel connection are prohibited.

- Wiring diagram



USE AND MAINTENANCE INSTRUCTIONS



WARNING

■ Unqualified persons should not inspect and maintain the product.



May cause injury or electric shocks.

■ If you will not use this product any more, remove the product.



This product may cause injuries once it falls off.

■ Once flammable gas leaks, do not start any function of this product.



Doing this may generate spark and thus lead to explosion.

■ Do not disassemble this product for repair or reconstruction.



Doing this may lead to fire and electric shock.

■ Do not touch the fan and motor when the product is running.



May cause injury.

■ Disconnect power supply before maintenance.



May cause injury or electric shocks.

■ Do not pull the wires during cleaning.



May cause electric shocks.

■ Immediately stop the product in case of any abnormality (noise, vibration, smell).



May cause unexpected accident.



CAUTION

■ Be careful to not drop any part or tool during inspection.



May cause injury.

■ The product may keep running for a short period after power-off. Do not perform any inspection before product stops completely.



May cause injury if being caught into the rotating section.



May cause injury.

■ The protective tools, such as gloves, helmet should be worn while installation, maintenance, inspection or cleaning.

■ In order to ensure the normal use of product, do not use this product to discharge indoor decoration dust or use it in places where dust is serious.

■ For long-term and safe use of the fan, inspection and cleaning of the fan approximately once a year is required. Maintenance and inspection by a specialized subcontractor is required for prevention of accidents due to damaged parts deriving from aging and for normal performance.

TROUBLESHOOTING

Check according to the following table and correct the problem. If the fan still does not work, disconnect the power supply and contact the dealer.

Problem \ Cause	Insufficient air flow	Excessive noise	Excessive vibration	Overheated motor	Run abnormally	Action
Poor foundation		○	○			Reinforce foundation
Faulty installation		○	○			Re-adjust installation
Low voltage	○					Check power supply
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 wiring

SPECIFICATIONS

Model No.	Rated Voltage [V]	Rated Frequency [Hz]	Rated Power Consumption [W]	Air Volume [m³/h]	Noise [dB]	Net Weight [kg]
10MMA	220	50	51	249	44	3.1
	230	50	54	252		
	240	50	57	255		
12MMA	220	50	52	305	45	3.0
	230	50	55	310		
	240	50	58	315		
15MMA	220	50	88	630	46	4.4
	230	50	92	645		
	240	50	97	660		
16MMA	220	50	116	670	47	4.7
	230	50	122	700		
	240	50	128	730		
20MMA	220	50	160	882	54	5.2
	230	50	166	897		
	240	50	174	912		
25MMA	220	50	150	915	55	5.2
	230	50	157	925		
	240	50	165	935		
31MMA	220	50	215	1575	57	6.9
	230	50	226	1595		
	240	50	238	1615		

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.
3. The values of noise level are measured at the 1.5 m 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.
4. The values of air volume are the mid-points of results measured by our company.

※ Insulation class F (10/12/15/16/20/25MMA). Insulation class H (31MMA)

AMCA SPECIFICATIONS

240 V~ 50 Hz

Model No.	CFM/SONE AT STATIC Pressure (ps-inches of H ₂ O)													Rated Input [W] ※ ¹	Rated Input [W] ※ ²
	In.wg	0.000	0.121	0.201	0.402	0.603	0.804	1.005	1.206	1.507	1.808	2.009	2.411		
10MMA	CFM	161	152	146	125	108	87	66	-	-	-	-	-	63	57
	Sones	8.8	8.5	8.4	8.0	7.5	7.2	6.9	-	-	-	-	-		
12MMA	CFM	197	178	169	144	121	100	74	49	-	-	-	-	63	58
	Sones	9.9	9.5	9.3	8.8	8.4	8.0	7.6	7.1	-	-	-	-		
15MMA	CFM	413	390	375	332	288	246	203	163	106	-	-	-	104	97
	Sones	11.1	10.9	10.8	10.5	10.2	10.2	10.2	10.9	10.6	-	-	-		
16MMA	CFM	487	462	440	390	337	294	250	212	146	-	-	-	136	128
	Sones	10.6	10.3	10.3	10.1	10.2	10.3	11.1	10.5	9.1	-	-	-		
20MMA	CFM	553	523	506	460	421	379	332	284	229	163	121	-	181	174
	Sones	11.2	10.9	10.8	10.2	9.9	9.6	9.7	10.2	12.2	12.5	12.9	-		
25MMA	CFM	555	532	515	474	436	394	352	307	250	186	140	-	178	165
	Sones	11.7	11.2	11.1	10.5	10.1	9.7	9.3	9.1	10.0	12.3	13.3	-		
31MMA	CFM	953	908	883	805	709	601	504	438	366	307	263	159	246	238
	Sones	17.7	17.1	16.5	15.6	14.4	12.5	12.0	12.1	13.6	17.4	20.0	21.1		

Notes:

The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311.

※¹ The Watts rating is only for AMCA test method and it is at the static pressure of 0 inch of H₂O.

※² The Watts rating is only for IEC test method.