

INSTALLATION AND OPERATING INSTRUCTIONS Water Pump

Model No. 10PHCNAL 10PHCNAH 15PHCNAL 15PHCNAH 20PHCNAL 20PHCNAH

READ AND SAVE THESE INSTRUCTIONS

Thank you very much for purchasing this KDK product.
Please read these instructions carefully before attempting to install, operate or service the KDK product. 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 the installation, and this booklet should be presented to users. Please retain this booklet for future reference.

Safety instructions

(Please observe strictly)

The following describes items to be observed without fail in order to prevent personal injury and property damage.

■ The degree of injuries and damage that may result from incorrect use are categorized for clarification.

■ The following pictorial symbols explains the content to be observed.
(Examples of pictorial symbols)

Warning	Indicates "Risk of death or serious injury."	Indicates "Prohibited."
Caution	Indicates "Risk of minor injury or property damage."	Indicates "Forced Execution."

Installation cautions

(For service man)

Warning

- Do not disassemble the unit for reconstruction.
 - If may cause fire or electric shock.
 - Repairing should be serviced by authorized service center.
- Do not install the product using any method which is not approved in the instruction.
 - May cause unpredictable accident.
- This water pump must be grounded.
 - Abnormality or current leakage, may cause electric shock.
- The water pump should be installed by a qualified person.
 - Incorrect installation may cause the product to fall and result in injuries.

Installation cautions

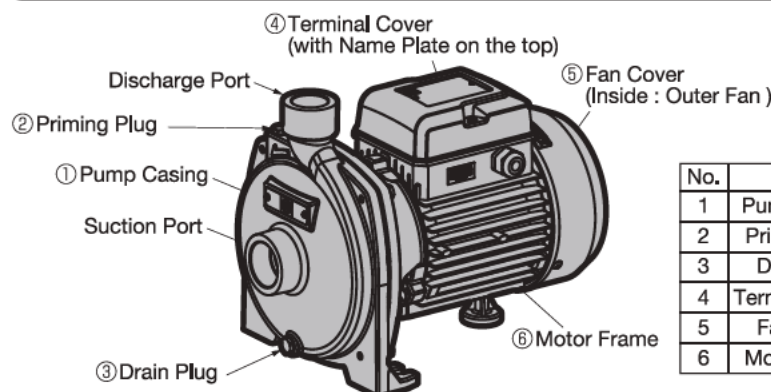
Follow the conditions given below when using the pump.

- The pump is suitable for pumping up clean water with a temperature between 0 to 90°C.
Clean water: The term "Clean water" refers to tap water, water for industrial-use, and well water free of foreign particles (solid matter).
- Use the pump at an ambient temperature between -10 to 50°C.
- The pump is not suitable for pumping oil, salt water, chemicals etc., and should not be operated at places with the risk of any kind of explosion.
- Use the pump at a rated voltage displayed on the name plate.
- When using the product to pump the water at a high temperature or low temperature, do not touch the product, because the product surface may be hot or cold depending on the temperature of water.

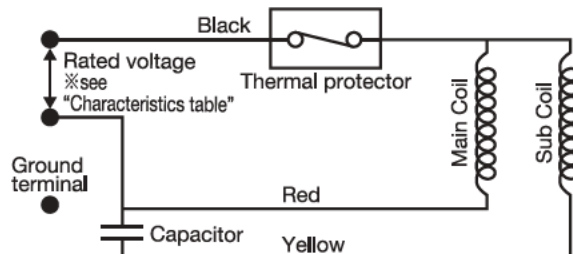
Safety compliance when using the pump

1. Compliance items related to pump-operations
 - △ Always mount the cover of the electrically charged part before turning ON the power supply. Use of cover can alleviate the risk of suffering an electric shock.
 - Do not pour water on the pump. Doing so may result in damage due to electric short-circuit and/or lowered insulation.
 - While the pump is in operating state, do not touch parts other than essential parts.
 - △ Refrain from touching the pump, because it may be hot.
 - Do not keep tools on an operating pump.
 - To avoid suffering an electric shock or injuries, do not use the pump if any of its parts are damaged or non-functioning.
 - To avoid suffering an electric shock or injuries, do not put a finger or an object in the open part of the pump.
 - Do not operate the pump without water, because it may cause noise or break down.
 - Do not put a finger or an object in the outer fan of the motor.
 - Use the pump at operating conditions displayed on the name plate, because it may cause noise or break down.
 - In case of the risk of freezing, empty the pump and prime again when used.
2. Compliance items for installation, maintenance and inspection
 - Always get the installation work done by an expert.
 - Be sure to put on safety gloves when handling the pump for installation, maintenance, and other purposes.
 - △ Because the pump is heavy, take enough care when handling it.
 - Installation, maintenance and inspection should always be done by a trained personnel.
Work related to electrical wiring should always be done by a qualified person such as an electric work specialist.
 - Before you start the work, stop the pump and disconnect the source power supply to the operating board.
Keeping the power supply ON while working may result in an electric shock. If the power supply is ON, the pump may go into action, causing injuries to workers.
Always install an earth leakage breaker into the power supply source.
 - If electric wires are damaged, request the manufacturer, agent, or a qualified person capable of avoiding danger to replace any damaged wires.
 - This equipment is not intended to be used by a person with lowered physical, sensory or intellectual ability or a person with inadequate experience or knowledge (including children) unless instructed by a person responsible for safety. Children should be securely instructed and managed so as not to play with the equipment.

Part names



Wiring Diagram

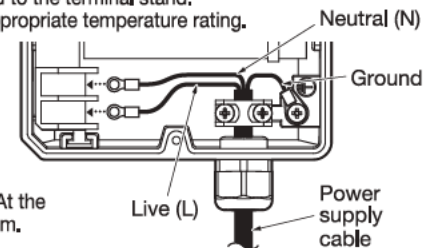


Installation of the pump

1. Installation of the pump
 - Install the pump on a flat surface and fix it horizontally. Place a base with a height of approximately 10 cm to prevent it from getting submerged in water.
 - Use a fastener such as a bolt to fix the pump to the base.
(Recommended bolt size: M8 or M10, recommended tightening torque: 12.5 N·m for M8, 24.5 N·m for M10)
 - The pump must be installed in such a way that air does not get trapped in the pump casing or inside the piping.
 - For outdoor installation, set up a roof for protecting the pump from direct sunlight and rain.
 - For underground installation, provide drainage grooves to avoid flooding around the pump.
 - When installing the pump, keep enough space around the pump for repairs and inspection.
2. Piping
 - Fix a gate valve on both sides of the pump, namely discharge side and suction side.
Attach a union joint between the pump and the gate valve (on both the suction and discharge sides).
 - When installing the pump above the water level, a check valve must be fixed in the suction pipe below the water surface.
 - Fix the pipes properly with a sealant to ensure no leakage.
 - When using the pump for transporting rain water or well water, fix a filter at the inlet of the suction port or pipe.
 - When choosing the pipe size, the inlet pressure of the pump must be taken into account.
 - The pipes should not have any protrusions which can trap the air in them.
 - Take care not to damage the pump when connecting the suction and discharge pipes.
 - To ensure optimum suction efficiency, install the pump close to a well or tank and keep the suction pipe as short as possible.
 - Use a sleeve to prevent the electric wires from coming in contact with the part that remains at a high temperature.

Electrical connection

- The electrical connections should comply with the standards followed in that particular country. Check that the power supply voltage and frequency match with the numerical value on the electrical machine nameplate.
- Always turn OFF the power supply before starting maintenance and repair work of the pump. Always confirm that the power supply is not switched ON unknowingly.
- The external power supply switches connected to the pump should have an insulation distance of over at least 3 mm in all electrodes.
- Use power supply cable of IEC60245-66 or higher grade one.
- Use IEC standard terminals at the tip of the cable that is connected to the terminal stand.
- Protect the power supply cable with an insulating sleeve having appropriate temperature rating.
- Do the electrical wiring according to the wiring diagram shown in the user's manual or on the inner side of the terminal box cover.
- The ground wires are the first to be connected when installing the pump and last to be removed when dismantling the pump. The wiring should be such that if the lead wire is pulled from outside, the L and N wires should be subjected to the tension before the ground wires.
- Do not forget to mount the terminal cover again after wiring work. At the time of mounting, keep the tightening torque of the screw at 1.2 N·m.
- Close the cord bushing tightly with hand.



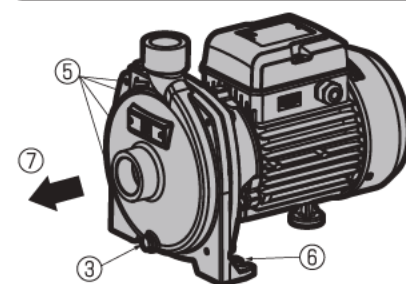
Starting the pump

- Do not start the pump till the pump is filled with clean water to its full capacity.
- △ The mechanical seal may get damaged if the pump is kept idling without water.
- △ Turn the cover of priming plug in left hand rotation (anticlockwise) to open it. Pour the priming water into the pump till the pump is full. Then close the cover of the priming water port.
- △ If water does not come out even if the pump is already working, stop the pump and check priming water.
If the water level has fallen, fill the pump till its full capacity and operate again.
- △ Check that there is no abnormal sound or water leakage from the operating pump.
- △ If the pump is making a cavitation sound, slowly tighten the gate valve of the discharge side till the cavitation sound disappears.

Pump maintenance

- Always turn OFF the power supply before starting maintenance or repair work of the pump. Always confirm that power supply is not switched ON unknowingly.
- In winter, the pump is not in use for a long time, drain off the water in the pump to prevent damage caused due to freezing of water. Empty the pump completely, wash it with clean water, and store it in a dry place.
- If the pump-use is to be discontinued for a long period, wash it with clean water to remove precipitates to prevent corrosion of the pump.
- If the power supply unit is damaged, request the manufacturer, agent, or a qualified person capable of avoiding danger to replace it.
- Do not remodel the pump as it may lose its functionality.
- Regularly clean the dirt accumulated at the external fan suction port.
- If the coating on the pump gets peeled off, reapply the paint. The pump may rust if the paint is not reapplied.
- △ If the pump piping is removed with high temperature water present in it, the high temperature water may come in contact with the body and cause burns.
Hence, to avoid burns, wait till the water inside the pipes is cooled down sufficiently before you remove the pipes.
- △ To avoid suffering an injuries, empty the pump and check that component parts are not fallen due to corrosion when wasted.

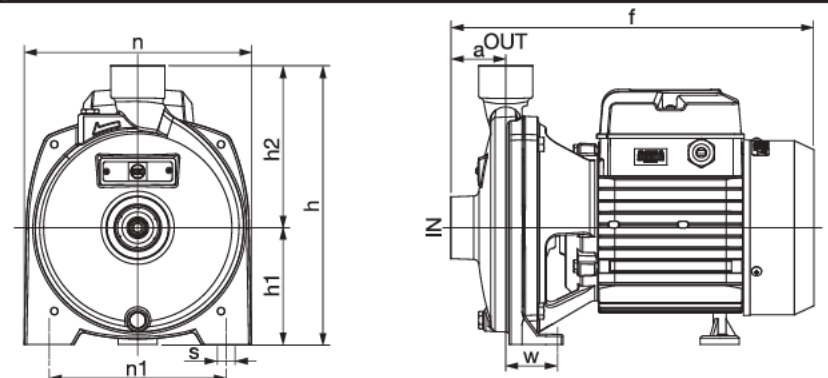
Maintenance method



<Procedure>

- ① Cut off the power supply.
 - ② Close the gate valves in the front and back of the pump.
 - ③ Remove the drain plug and remove water.
 - ④ Remove the union joints on the inlet and discharge sides.
 - ⑤ Remove the fixing screws.
 - ⑥ Make loosen or remove the anchor bolt.
 - ⑦ Remove the pump casing and clean the inside part.
 - ⑧ After cleaning, assemble the pump by reversing the steps ③ to ⑦.
- Fixing screws : 12.5 N·m · Drain plug : 11.7 N·m

Component dimensions



Model No.	IN [inch]	OUT [inch]	a [mm]	f [mm]	h [mm]	h1 [mm]	h2 [mm]	n [mm]	n1 [mm]	w [mm]	s [mm]	weight [kg]
10PHCNAL 10PHCNAH	1"	1"	42	299	246	98	148	196	160	43	10	15
15PHCNAL 15PHCNAH	1-1/4"	1"	51	336	258	108	150	210	165	40	11	20
20PHCNAL 20PHCNAH	1-1/4"	1"	48	363	290	115	175	242	206	36	11	25

Characteristics table

Model No.	10PHCNAL	10PHCNAH	15PHCNAL	15PHCNAH	20PHCNAL	20PHCNAH
Ambient temperature	-10°C ~ 50°C					
Rated voltage	220-230V~, 50Hz	240V~, 50Hz	220-230V~, 50Hz	240V~, 50Hz	220-230V~, 50Hz	240V~, 50Hz
Power consumption	1.16kW		1.66kW		2.22kW	
Max. total head	34m		38.7m		46.2m	
Min. total head	25m		22m		26m	
Max. flow	99L/min		145L/min		154L/min	

Insulation class: F; IP code: IP54

KDK Company, Division of PES

Head Office : 4017, Takaki-cho, Kasugai, Aichi, Japan

