HCP MOTOR

PADDLE WHEEL

OWNER'S MANUAL

Professionalism • Innovation • Service • Commitment



Thanks for choosing HCP paddle wheel aerators.

►Please read following detail and have comprehensive understanding for all content in this instruction manual before your installation.

►Please keep this instruction manual in proper place and it can be accessed easily by operators, technicians, and inspectors.

►Please contact the local dealers or HCP directly, if any damage found before your installation.

►The gross weight excludes cables.

Note: In order to avoid people injury, the operation shall be applied in safe and correct way, and comply with the following warning and attention issues.

WARNING!!

People may get injured if ignoring the warning.

ATTENTION!!

People may get hurt or aerators may be damaged, if ignoring the note.

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I. SAFETY INSTRUCTIONS

WARNING!!

►It is suggested to assemble safe and qualified control panel with HCP paddle wheel aerators, and equip with leakage circuit breaker and connect with the ground wire (GREEN) properly. It will prevent from fire or people injury due to electric shock, when the motor malfunctions and it results in power leakage.

►The operators are prohibited to enter the pool, when the aerators are under operation. The power should be turn off before operators entering the pool to avoid power leakage.

►Please turn off the power immediately in case of any abnormality or malfunction occurs when power connecting.

►Please do not press, strain, or modify cables, and never use cables as ropes to pull the aerators. It may cause cables damage or short circuit, and even result in electric shock or fire disaster.

ATTENTION!!

►Only trained technicians and engineers are allowed to provide maintaining or repairing service.

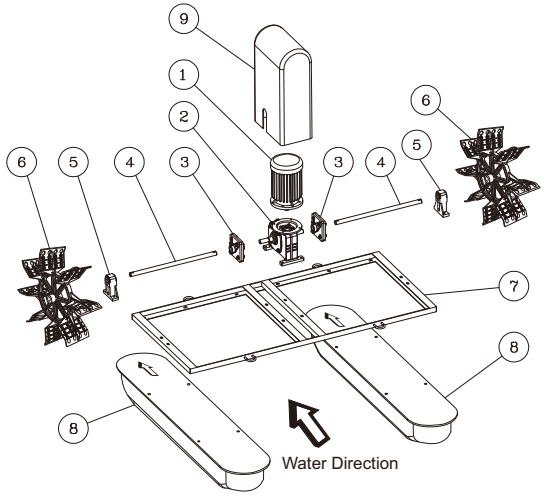
►Impellers will be damaged if operating the aerators on dry ground.

►Keep away from the rotating and heat parts when the aerators are under operation.

►Please do not stand on aerators due to the limited buoyancy of floats, otherwise it may cause people falling or aerators overturning.

Note: Though HCP always put quality and safety as first priority for our all products, and try to detail all safety instructions in this manual, it's still suggested that operators or repair technicians should well take care of themselves when operating the aerators.

II. ILLUSTRATION OF SPARE PARTS



Model: P-EP102			
Item	Part Name	Quantity	Specification
1	PW Motor	1	MP4.8 / 1HPx4Px3Ø
2	Gear Box	1	B16:1
3	Connect Set	2	CSF 25 / 25*125
4	Connect Pole	2	25*710mm / SUS304
5	Support Base	2	B-11 / Nylon Bearing
6	Plastic Paddle	2	PP-68*20 Plastic
7	Frame	1	FS-117*37 / SUS304
8	Poonton	2	PF-160 / HDPE
9	Cover	1	CP-1 / HDPE

Figure Model: P-EP102

III. ASSEMBLY OF PADDLEWHEEL AERATORS

Reference model: P-EP102

1. **INSTALLATION OF STAINLESS STEEL FRAME AND FLOAT:** To use 8 pieces of 40mm screw, 8 pieces of nuts, and 16 pieces of flat washers to fix the stainless steel frame on the float. Please refer to figure 1.
2. **INSTALLATION OF GEAR BOX:** To mount the gear box on stainless steel frame, and use 4 pieces of 40mm screw, 4 pieces of nuts, and 8 pieces of flat washers to fix it on the central pole of stainless steel frame. Please refer to figure 2.
3. **INSTALLATION OF BEARING:** To use 4 pieces of 30mm screw, 4 pieces of nuts, and 4 pieces of flat washers to fix the bearing at left and right side of stainless steel frame. Please refer to figure 2.
4. **TO TEAR THE STICKERS:** To tear stickers which pasted on the cover of oil hole, which is on the top of gear box. Please refer to figure 3.
5. **INSTALLATION OF MOVABLE JOINT SETS:** To use 2 pieces of 20mm screw and 2 pieces of nuts to combine movable joints with the shafts at the right and left side of the gear box. Please refer to figure 4.
6. **INSTALLATION OF CONNECTING SHAFT:** To pass through the connecting shafts from the bearing and combine with movable joint sets. Then use 2 pieces of 20mm screw and 2 pieces of nuts to combine connecting shafts of right and left side of gear box with movable joint sets. Please refer to figure 4.
7. **INSTALLATION OF IMPELLERS:** To use 4 pieces of 20mm screw and 4 pieces of nuts to fix impellers on the connecting shafts of left and right side. Please note the mounting direction, and the angle of impellers should lean forward. Please refer to figure 4.
8. **INSTALLATION OF MOTOR:** To turn the motor shaft face down and precisely place it into the top gear hole of the gear box. Then to use 4 pieces of screw, 4 pieces of nuts, and 8 pieces of flat washers to fix the motor on the reducer. Please refer to figure 4.
9. **TO PUT THE COVER ON THE MOTOR:** To put the cover on the motor and the motor should be covered completely. Then the installation is finished. Please refer to figure 5.

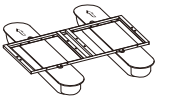


Figure 1

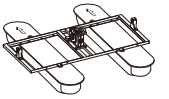


Figure 2

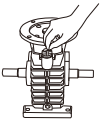


Figure 3

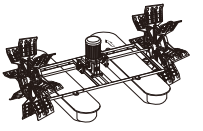


Figure 4

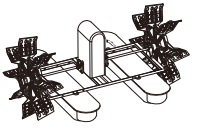
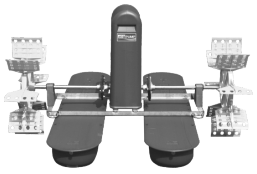
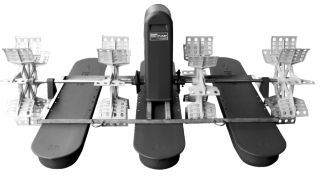


Figure 5



P-EP102



P-EP204



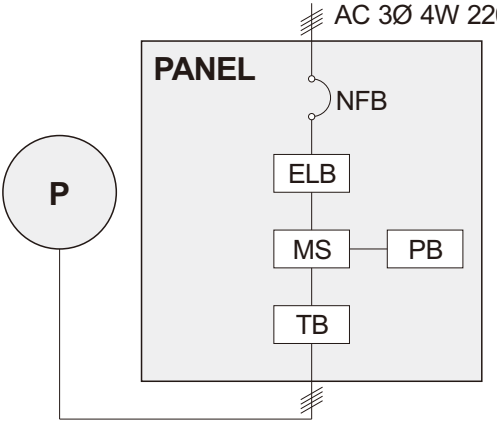
P-VS102

ATTENTION!!

- ►In order to avoid the risk of electric shock, please do not connect the power cable with motor before processing the installation of paddlewheel aerators.
- ►If any components shortage is found before processing the installation, please contact the local dealer or HCP immediately.
- ►Please examine if lubricants which store in the reducer are enough. You can open the oil-hole and visually inspect the height of lubricants in the reducer. The height should not be lower than the point of gear inside the reducer.
- ►Please must follow up the correct steps of installation. Any improper installation will result in aerators damage or poor efficiency.

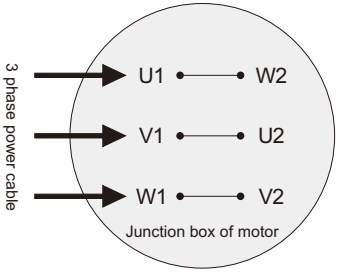
IV. ILLUSTRATION OF MOTOR WIRING

1. Circuit Wiring Diagram

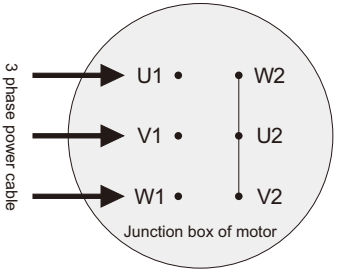


PANEL: Distributor
NFB: No-Fuse Breaker
ELB: Electricity Leakage Breaker
MS-O.L: Magnetic Switch & Over Load
PB: Push Button ON/OFF
TB: Terminal Block
P: Motor

1. Motor Wiring



∆ Low-voltage Wiring



Y High-voltage Wiring

ATTENTION!!

- ►In order to avoid the risk of electric shock, please turn off the power before connecting the cables.
- ►Please ensure the voltage and phase on nameplate which corresponds with your local regulation and process the wiring according to the indication on nameplate. The improper power and wiring will cause motor damage.
- ►It is suggested to equip with control panel when operating the aerators. Only qualified technicians can process the wiring and they should strictly follow up the related safety electrical regulation.
- ►Please ensure to supply stable and sufficient rated voltage, and only 10% will be allowed for voltage altering, but motors may burn otherwise.

V. THE INSTALLATION

1. **OPERATION TEST:** After completing the assembly and wiring, please process the operation test on the dry land, and the aerators should be kept away from the ground by 15cm. After assuring the aerators can operate properly(Please refer to figure 1 for the correct impeller rotating direction, and one minute will be enough for testing time.), please disconnect the power.

   Impeller Reversal: Please adjust the wiring(see figure 2), if impellers operated in reverse direction.

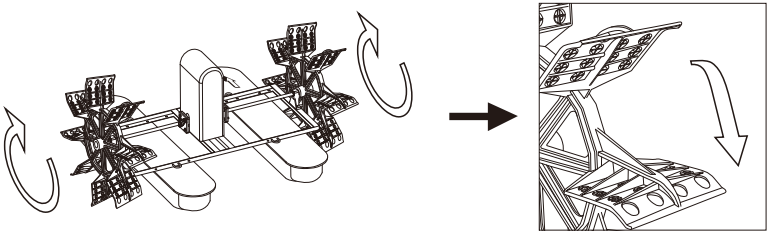


Figure 1: Correct running direction

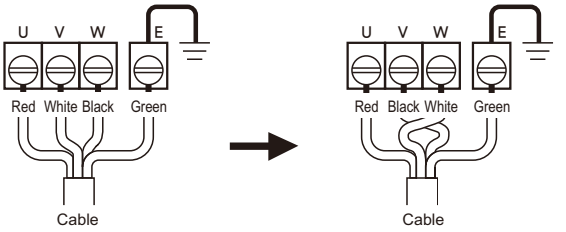
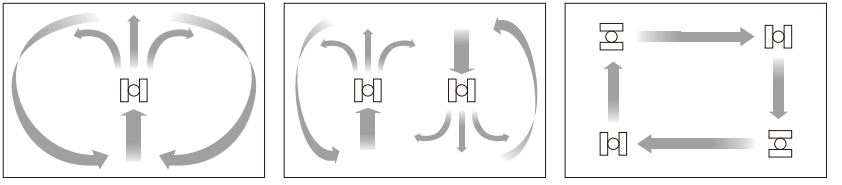


Figure 2: The impeller reversal adjustment

2. **INSPECTION OF SPARE PARTS:** After finishing the operation test, please re-arrange the inspection for all spare parts if any loose or abnormality.
3. **INSTALLATION OF AERATORS:** To place the aerator into the pool and fix it with nylon ropes or rods. If the aerator is never fix stably, it will cause equipment damage or poor efficiency for oxygen supply due to aerators drifting.
4. **CABLES FASTENED:** Cables must be fastened securely and prevented from affecting the impeller operation.
5. **LOCATION OF SET-UP:** The aerator should be placed 1 meter away from the shore at least and the impeller should sink in the water by the depth of 7-9cm. It is suggested to arrange aerators as following figures, so that the oxygen will flow and spread adequately.



6. **TO START THE OPERATION:** After assuring the aerator is installed appropriately, please turn on the power to start testing. If any abnormality is found during the test, please turn off the power immediately and pull aerators back to the shore for the further inspection. It is prohibited to stand in the water or on the floats to inspect the aerator when operation.

VI. REGULAR INSPECTION ITEMS

ATTENTION!!

If aerators will be stocked more than 6 months in warehouse, please note the following issues especially.

- ►Please do not store aerators outdoors, and the warehouse should be kept dry and dust-free, avoiding direct sunlight.
- ►The proper temperature should be maintained at 5°C~ 40°C
- ►If aerators will be stocked more than 2 years, the detailed inspection must be processed first, like bearings, seals, and lubricants. If any damage or rust on spare parts is found, it should be replaced before installation.

1. INSPECTION AND MAINTENANCE

Before aerators are dispatched from our factory, the lubricants are filled in the gear box already. After 250 hours operation, it is suggested to replace and refill sufficient lubricants, and afterward, lubricants also should be refilled yearly. Besides, please process the regular inspection and maintenance based on the below items for longer operation life.

Daily	1. To inspect the amperage if it fits the rated range. 2. To inspect the voltage under operation if it's within the safe range.(+-10% of rated voltage) 3. If any abnormal sound appears during the operation, please disconnect the power immediately. 4. If discovering any adherent substance on impellers, please remove it by proper way. If any impellers deformation found, please replace it immediately. 5. If floats are degrading, cracked or damaged, please replace them immediately.
Monthly	1. To inspect if oil seal gets degrading or cracked. The ventilation hole should be kept unobstructed. 2. To inspect if bolts for all parts get loose. 3. If cables are damaged, please replace them immediately. 4. Please smear anti-rust oil on movable joint sets and shafts.
Yearly	1. To replace lubricants: after 4500 hours operation or 12 months(To depend on which comes first) 2. To replace oil seal: The specialized knowledge and tools are necessary when replacing oil seal. Please contact our local dealer or HCP directly. 3. If any damage found on bearings and shafts, please replace them immediately. 4. If aerators are always under continuous operation, it is suggested to invite professional technicians to process the inspection and maintenance.

2. LUBRICANTS

Before refilling new lubricants, please empty and clean old lubricants when replacing lubricants. If any overheating(over 80°C) due to malfunction or other mechanical problems is discovered, please turn off the power immediately and lubricants replacement only can be processed after troubleshooting. When processing the regular lubricants replacement, it is suggested to reach the height of gear inside the reducer. (Bevel gear box with 1600cc, turbo gearbox with 2000cc). Excessive or less amount will affect the efficiency of reducer. Please be advised to use same grade lubricants when processing maintenance, and it will affect the operation life and efficiency if mixing different grades of lubricants. Recommended type of lubricants is ISO VG 320 or other same grade lubricants.

VII. MALFUNCTION REPAIRING

OPERATING STATUS	POSSIBLE CAUSE	SOLUTION
Failure to operate	Foreign material stick to the impeller or Connect Pole	Remove foreign material
	Power Problem	Check the voltage and use correct voltage
	Cable damage / Poor Connection	Replace the cable
	Control Panel Breakdown	Repair or Replacement
	Gearbox Damage	Repair
	Motor Damage	Repair
Idle Running for Motor	Screw fall off of Connect Pole	Tightening the Screws
	Input / Output Shaft worn of Gearbox	Replacement
	Button of Output Shaft damage of Gearbox	Replacement
	Gear Worn of Gearbox	Repair
	Motor Axis Broken	Repair
Vibrating Run	Incorrect Assemble	Assemble per Instruction manual
	Foreign material stick to the impeller or Connect Pole	Remove foreign material
	Support Base Damage	Replacement
	Gearbox Damage	Repair
	Motor Damage	Repair
Over high current	Abnormal Voltage	Check voltage and use correct one.
	Foreign material stick to the impeller or Connect Pole	Remove foreign material
	Over sinking of impeller	Adjust the sinking depth of impeller
	Impeller Deformation	Impeller Replacement or Calibration
	Excess or insufficient lubricant of Gearbox	Adjust the lubricant volume or repair
	Gear Worn of Gearbox	Repair
	Bearing Worn of Motor	Repair
Oil Leakage of Reducer	Oil disposal hydrant didn't screw tight	Screw tight the Hydrant.
	Flange Screw didn't screw tight	Tighten the screw
	Excess lubricant	Adjust the lubricant volume
	Oil Seal Damage	Replacement

►Do not attempt to repair, alter or disassemble the product unless by a qualified technician.

We reserve the right to alter specifications of product at any time without giving prior notice.

AGENT :