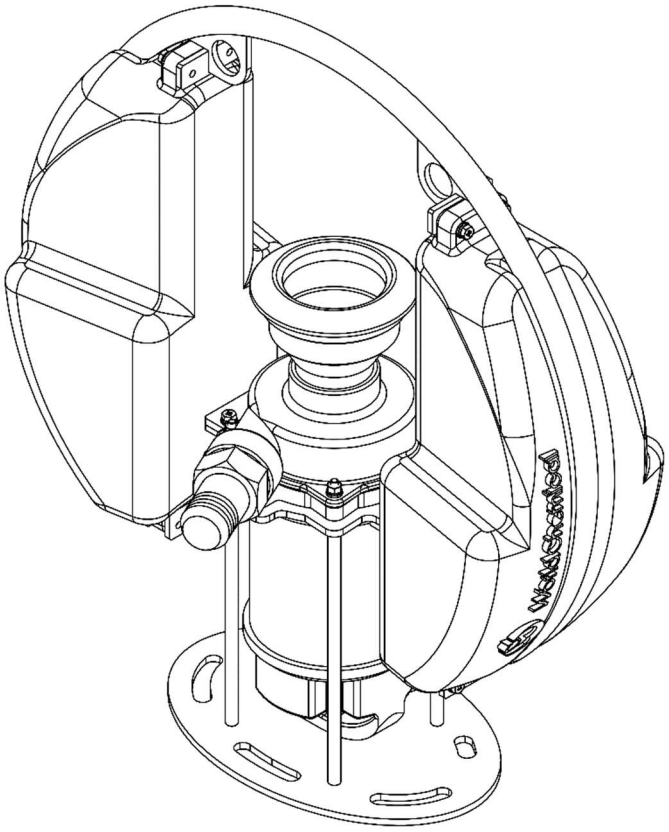
Ver.20250401

Swing Skimmer
Instruction manual

YD－600SWPN



World Chemical Co.,Ltd.

Preface

Thank you very much for purchasing our swing skimmer.
This skimmer is a device that efficiently collects oil and floating objects on the liquid surface. The features of each part and how to use it are explained in this manual, so understand them before using the product.

Table of contents

1. Be sure to follow these instructions for your safety.

Before using this product, carefully read these "Safety Precautions" and use the product correctly.
In this manual, safety precautions are classified into "Danger" and "Caution" and are defined as follows:

Improper handling may result in a dangerous situation, which may result in death or serious injury.

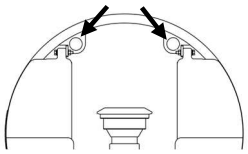
Improper handling may result in a dangerous situation, resulting in moderate or minor injury or property damage.

Anyway, even if it says 

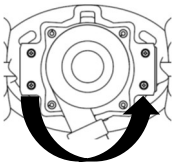
, these instructions may lead to serious consequences depending on the situation, so be sure to follow them as they contain important information.

Precautions for transportation and installation

	
When transporting this product, be sure to drain the liquid. After use, the product may become slippery due to solid floating particles and oil, so be careful not to tip or slip, and be sure to remove the power cable.	Do not bend the power cable excessively, apply excessive tension to it, or pinch it in a narrow gap, as this may damage the cord and result in a fire or electric shock.
Be sure to connect the earth wire to avoid electrical leakage, electric shock or motor failure.	
	
When opening the wooden box, be careful not to cut yourself on nails or pieces of wood.	The power connection should be made by a qualified person in accordance with the Electrical Equipment Technical Standards and Internal Wiring Regulations.

When transporting this product, lift it by using the pipe section of the upper frame as a handle. If the product is hold by any other part, the product may be damaged due to unexpected force being applied. 	When hoisting this product, use two hanging rings with a rope. Lifting only one side or using a cable may result in damage to the product. 

Precautions to take during preparation and operation

Danger	
Touching the pump suction inlet while it is operating may cause injury, so be sure to keep your hands and fingers away from it.	Do not use the product in areas where flammable gases may flow as this may cause a fire or explosion.
If the motor overheats, there is a risk of fire, so never place flammable materials near the motor.	
Caution	
The impeller rotates counterclockwise as viewed from above. If the rotation is in the opposite direction, be sure to turn off the switch and then reconnect any two of the three motor power cables. 	In the event of a power outage or when the motor protection device is activated, be sure to turn off the main power to prevent injury due to sudden restart.
	If the liquid level in the pit is low, the suction inlet may protrude above the liquid surface, causing the pump to run dry. If the level is below 450mm, stop operation until the level rises.
In the event of an emergency such as an earthquake or fire, stop operation of the equipment.	If any abnormality occurs, immediately stop operation and take appropriate measures.

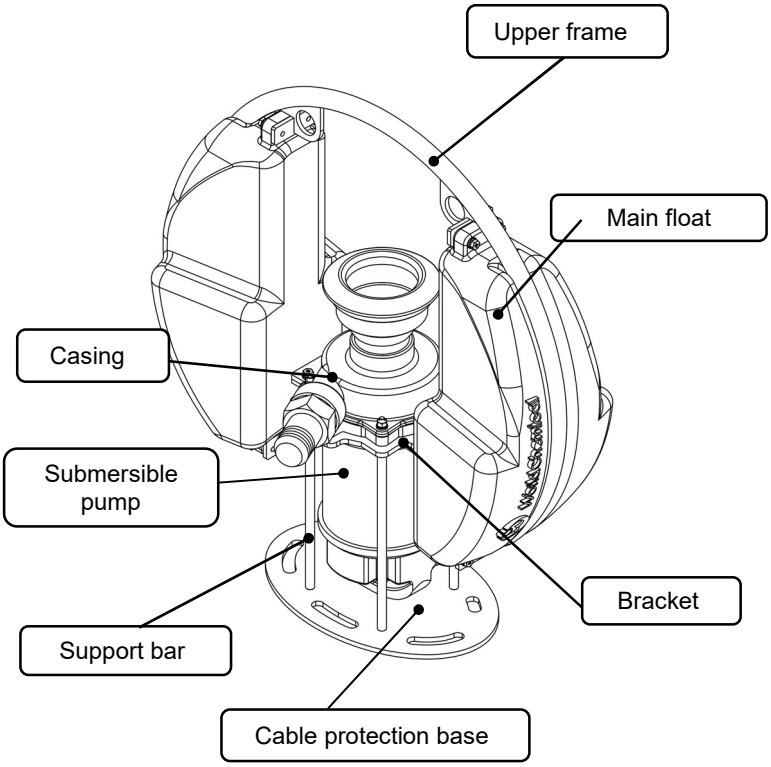
Precautions for maintenance and inspection

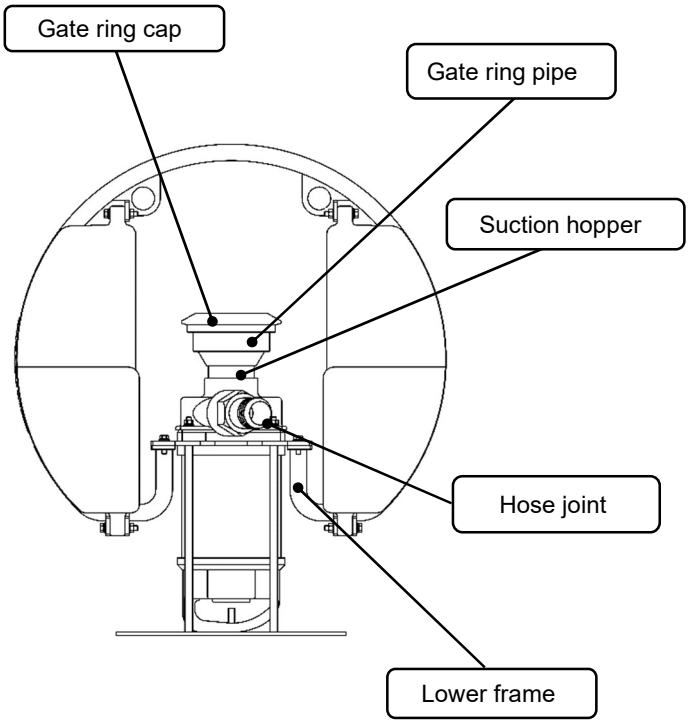
Danger	Before performing maintenance or inspection, be sure to turn off the main power. Performing the work with the power on may result in electric shock.
Caution	If repairing the product is needed, contact your local distributor or us. When sending it back, clean the product thoroughly and check that there is no liquid on it or that it is leaking, then pack and send it back.

Other precautions

Caution	
Do not use the product outside of its specified specifications. Using it outside of its specified specifications is not covered by warranty.	If substances other than oil, paint, or food solids are collected by this product, contact your local distributor or us. Note that the product cannot be used to collect organic acids, strong acids, or strong alkaline liquids. In addition, never use the product with flammable liquids.
When disposing of the product, remove any adhering oil or suspended objects and then dispose of it as industrial waste.	
Do not modify the product yourself as this is non-covered warranty.	

2. Part name





Function / Features

● Oil, floating objects and liquid in a tank are sucked in through the gate ring.

● They are discharged from the discharge port through the casing.

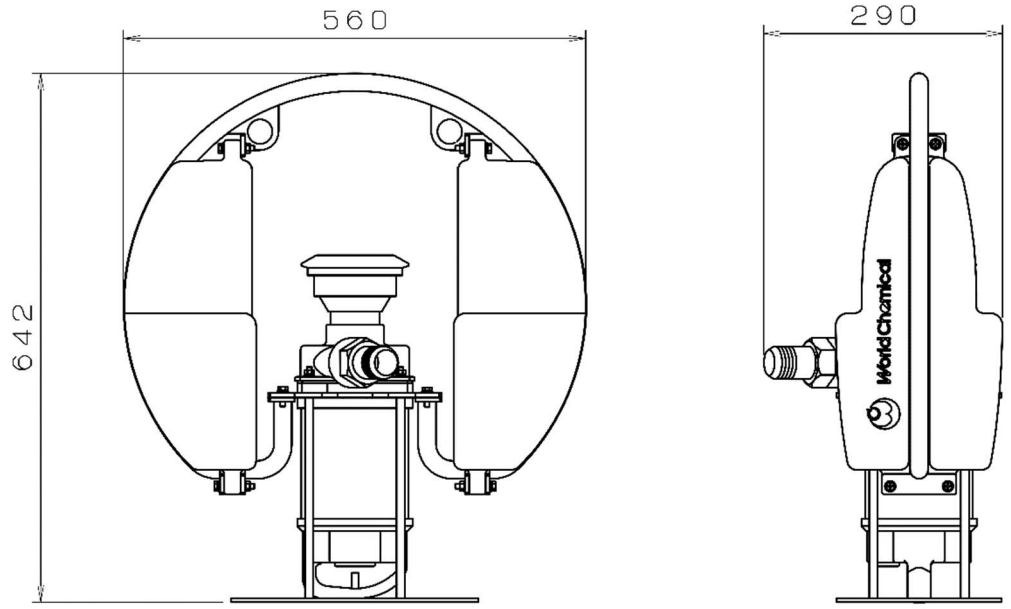
● The gate ring is independent of the main body and constantly swings or follows the liquid surface to support collecting floating objects.

Hard foreign objects with a diameter of 15 mm or more causes the submersible pump impeller (made of resin) damage. Structurally, if string-like debris gets entangled in the impeller, it causes a breakdown.

3. Specification

Liquid handled	Quality/Temperature	Waste liquid, Liquid containing floating objects: 0～40℃
Submersible pump	Standard spec.	4m-100L/min
	Seal	Double mechanical seal, Equipped with Oil lifter
	Bearing	Sealed ball bearing
	Motor	Dry type submersible induction motor, 2 poles, 750W, Class E, with thermal protector
	Power	Three phase 200V 50/60Hz
	Cable	VCT / 2PNCT 1.25m ㎡×4 cores
Accessary	Attached hose	Standard: φ38
Weight	Approx. 16 kg	

4. Outline dimension



5. Model description

Ex.) YD – 600 SWPN – 01 V06 620 T
(1) (2) (3) (4) (5) (6)

(1) Outer diameter
600 : φ560

(2) Model
SWPN

(3) Submersible pump power
01 : 0.75kW 2P

(4) Submersible pump cable material / length
V : VCT, P : 2PNCT / 06 : 6m (The length is indicated “meter (m)”.)

(5) Submersible pump frequency / voltage
5 : 50Hz, 6 : 60Hz / 20 : 200V, 22 : 220V, 38 : 380V, 40 : 400V

※ The following is the description of the special type.

(6) Special condition
T : Special type

6. Before use

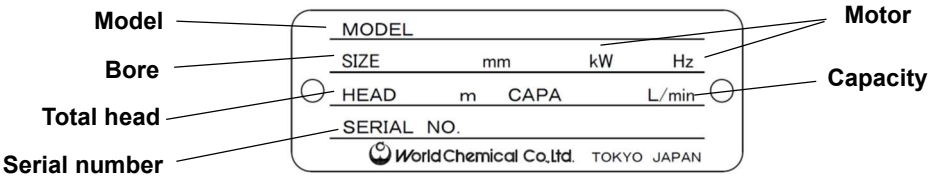
Unpack and check the following.

Product check

Check for any damaged parts or loose bolts, hexagon nuts, etc. during transportation of the product.

Specification check

Check the nameplate on the main unit to confirm that the product is as ordered and that the voltage and frequency values do not differ from the model designation shown in the upper row. The nameplate is attached to the upper frame.



Caution **Do not use the product in any other way than described in the product specifications. Failure to do so may result in malfunction, electrical leakage or electric shock.**

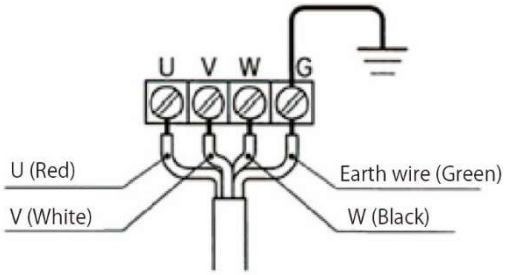
7. Installation

Click on this QR code to view the instructional video.

Electrical wiring

■ Submersible pump

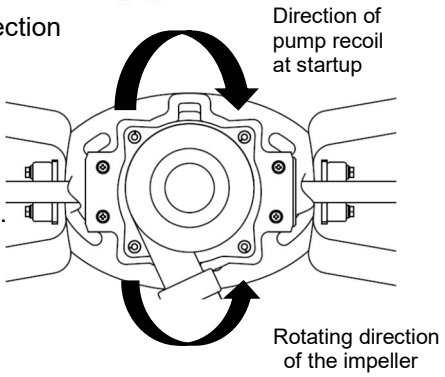
Tightly connect the end of the cabtyre cable to the terminal block of the control panel without any looseness.



Check the rotating direction of the pump by trial operation using the method ① as below. If it is difficult, check by the method ②.

① Run the pump briefly (1~2 seconds) in air and visually check the rotating direction of the impeller from the top of the gate section (see P.2).
Do not operate the pump for a long period of time, as it may cause the pump damaged. When operating the unit, secure it with a suspension to prevent it from falling down by swaying.

② Float the pump in the liquid and check the rotating direction when it starts up.
The impeller rotates counterclockwise as viewed from above.
When the product starts up, it momentarily swings in the opposite direction clockwise due to the reaction, so the rotating direction can be checked by checking the direction of this reaction.



Danger Do not start the product while it is suspended in the air. The reaction force of the rotation may cause serious accidents such as injuries.

Caution Do not insert your hands, any other body part or tools into the inside of the pump through the gate while the pump is running. The rotating impeller may cause serious accidents, such as injury. Running the pump in reverse for a long period of time may cause the pump to break down, leak electricity, or get an electric shock.

■ When the submersible pump rotates in the opposite direction

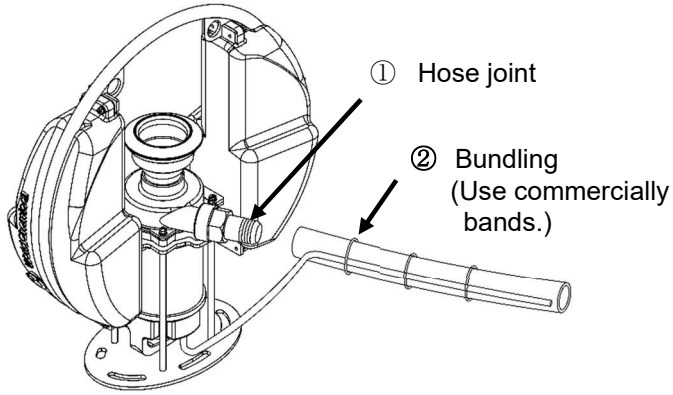
Switch any two wires of the U, V or W phase.

Danger

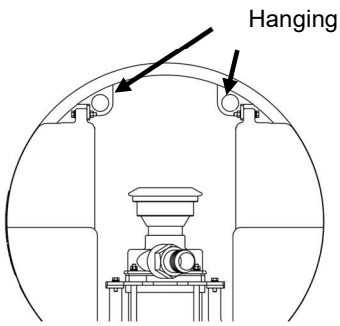
When changing connections for reverse rotation, make sure the power supply (earth leakage breaker) is completely turned off and check that the rotation completely stop before doing. Otherwise, there is a risk of electric shock or short circuit.

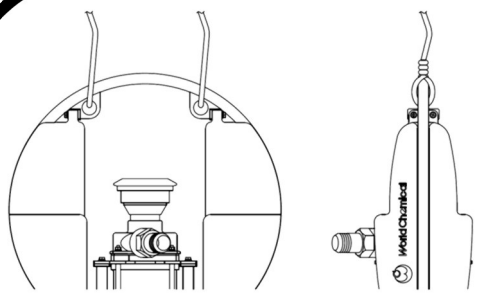
Connecting the hose and installing to a pit

1. (1) Connect the hose to the hose joint of the product so that no excess force is applied to the hose.
   (2) We recommend bundling the hose to prevent the submersible pump cable from breaking by being pulled or pinched between the product.

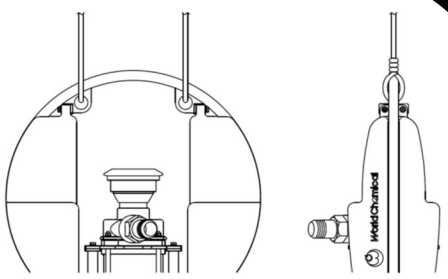


2. When hanging the product, use the hanging ring.
   Use both sides to lift the product, as hanging from only one side causes damage to the product.
   At this time, if the product is floated with the hanging rope taut, it may not reach the expected water level and the product may not work properly.
   The ropes and hanging fittings used should be as loose as possible and float the product.

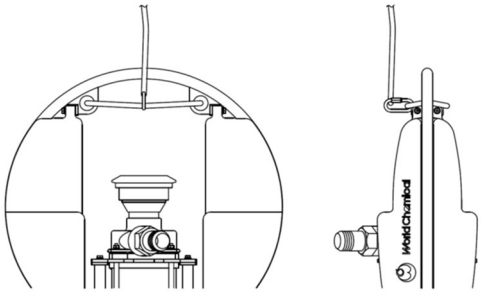




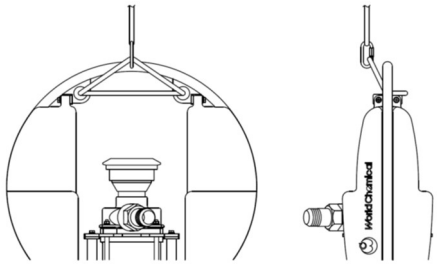
OK: Ex.1



NG: Ex. 1

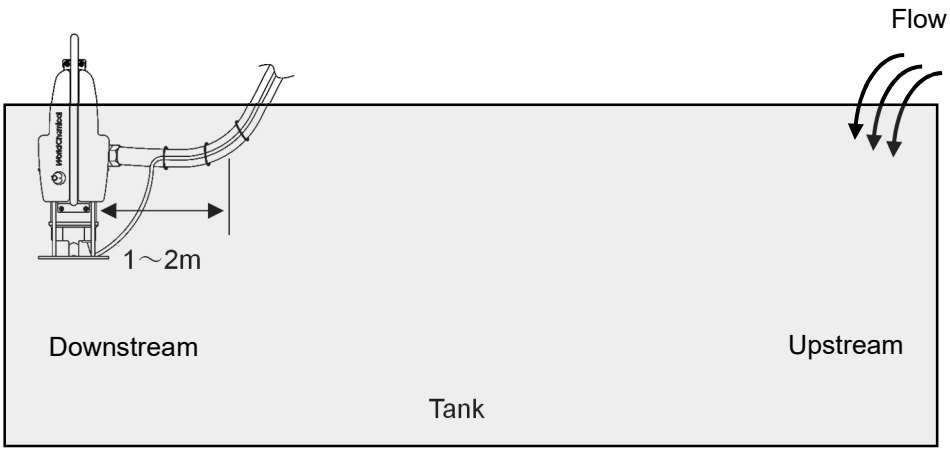


OK: Ex.2



NG: Ex.2

2. Float the product in a tank.
If there is a flow in the tank, floating the product downstream on the opposite side of the flow can suppress the effect of the product by the flow and efficiently collect oil and floating objects in the tank.
Also, adjust the hose so that the main unit is as level as possible.
Once the hose is level for 1-2 m, it is recommended that the product be positioned and secured in such a way that the hose is lifted. This helps prevent the product from tilting.



8. Operation procedure

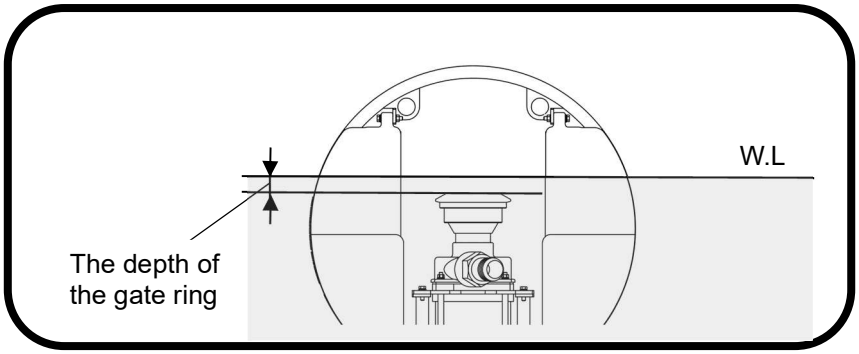
Connect the product's power cable to the control board and operate the product on and off.
Prepare a leakage breaker to protect the motor.

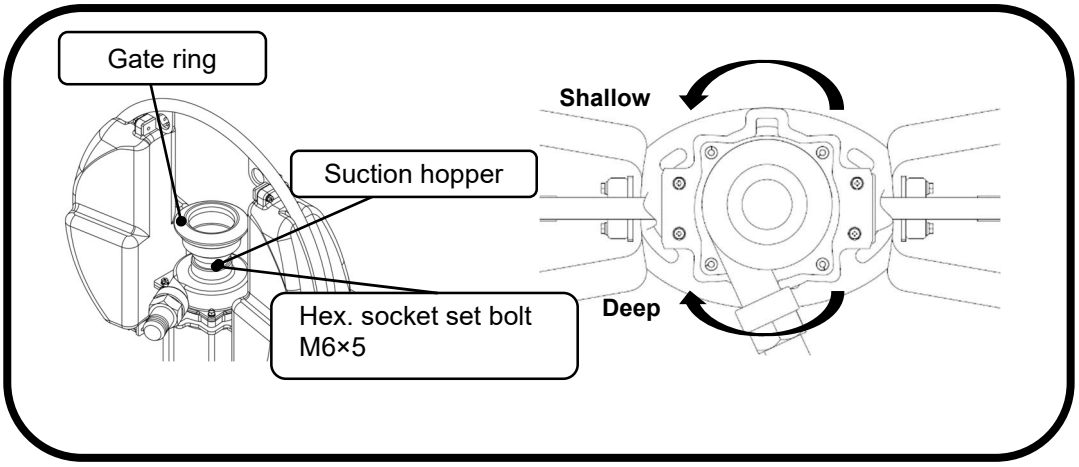
Danger

Prepare a leakage breaker and connect the earth terminal to prevent electrical leakage and fire and to protect the motor.
Do not wire with wet hands as there is a risk of electric shock.

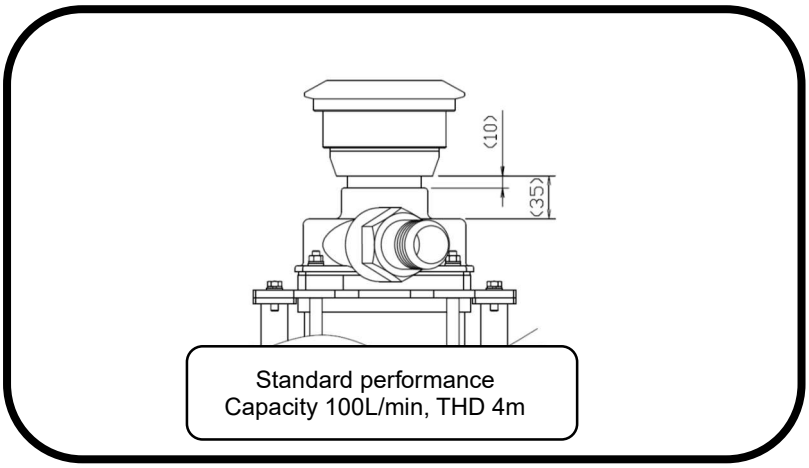
9. How to adjust the gate.

The suction hopper is threaded, so turning it clockwise from above deepens the depth of the gate ring and increases the flow rate. On the other hand, turning the gate ring anti-clockwise reduces the depth of the gate ring ad decreases the flow rate.
The suction hopper is fixed to the casing with M6 x 5 hexagon socket set bolt. When adjusting the suction hopper, loosen the bolts and adjust it.





The figure below is a reference dimension showing the position of the suction hopper at the time of shipment.



Note that lowering the suction hopper and gate ring increases the flow rate.
Be careful not to raise the suction hopper and gate ring too high as both parts may fall off.

10. Maintenance check

- Clean the product periodically. If not, dirt accumulates in various places, which may cause breakdowns or collecting failure.

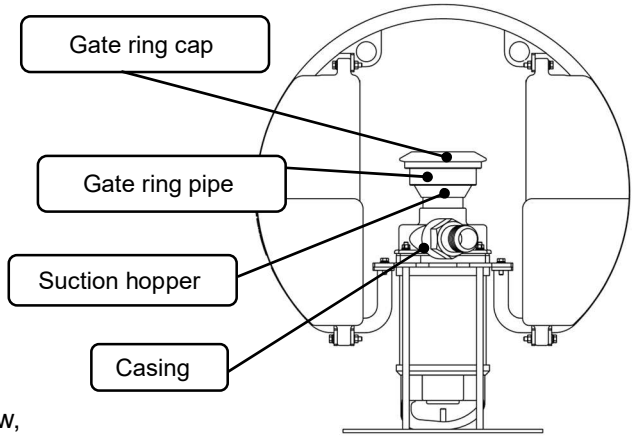
  ＜＜Cleaning Priorities＞＞

  ・Gate ring swing/floating part and suction hopper

  Refer to the disassembly procedure described below, disassemble the three parts, the gate ring cap, the gate ring pipe and the suction hopper. Clean any dirt or objects that may have accumulated in the gaps, if necessary.

  ・Casing inside

  Refer to the disassembly procedure described below, remove the casing, and clean any dirt or objects that has accumulated inside the pump and in the gaps around the impeller, if necessary.



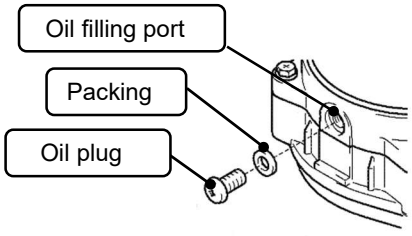
- If the floating objects cannot be collected or the amount of collected volume decreases even though the product is running, foreign objects may have become caught in the pump. In this case, disassemble the product and remove the foreign objects.
- If any bolts are loose, it may cause parts to fall off or damage to the equipment, so check them periodically.
- If there is a change in the liquid level in the pit, check the following points

  <Parts falling off>
  If any parts fall off, the depth of the gate opening may become shallower due to a change in the relationship between the weight of the product and its buoyancy, causing it to jump out above the liquid surface. Check if any parts are missing by comparing with the drawings and the overall view in this manual.

  < Liquid penetrates into the parts>
  If the product sinks more than usual, liquid may enter into the upper frame, lower frame or float. Check if there is any liquid in the hollow parts of each part and there are any damaged parts.

- Oil check and replace instruction

<Oil check>
Remove the oil plug with a Phillips head screwdriver and drain a small amount of oil. The oil can be easily drained by tilting the product so that the oil plug is on the bottom. If the oil which is drained is cloudy or contains water, this may be due to a malfunction of the shaft seal (mechanical seal, etc.), in which case it is necessary to disassemble and repair the pump.



<Oil replacement>
Remove the oil plug and drain the oil completely. Then pour the specified amount of oil into the oil filling port.

Specified oil: Turbine oil VG32 (additive-free)
Unit: 240ml

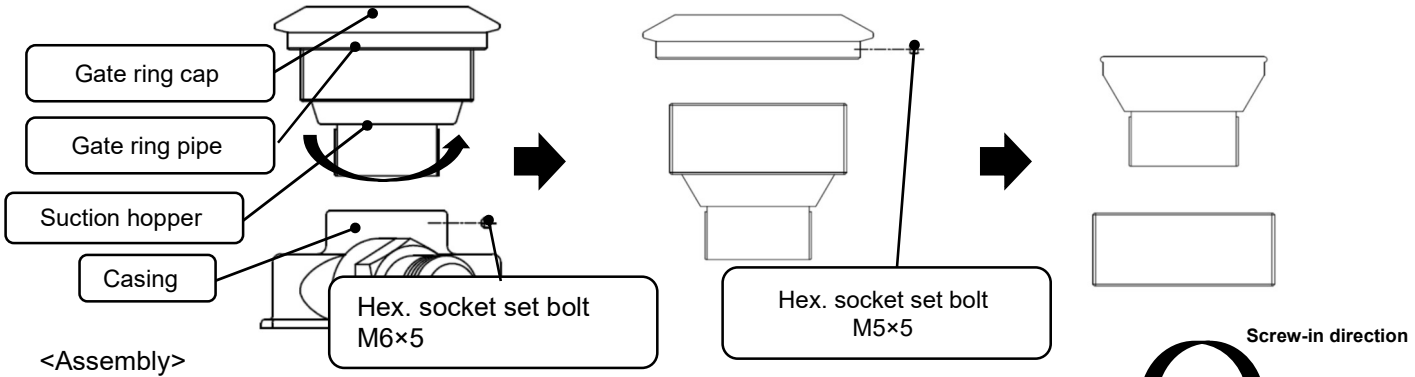
Caution Dispose of the drained oil properly without disposing of it in rivers or sewers. Replace the gasket and O-ring for the oil plug with new ones every time the oil is checked or changed.

Checking period: Every 3,000 hours or 12 months, whichever comes first.
Replacement period: Every 4,500 hours or 24 months, whichever comes first.

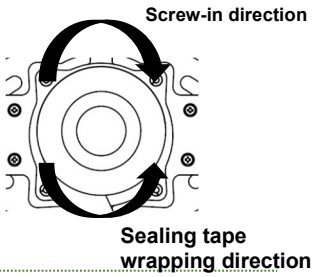
11. Assembly / Disassembly

Gate ring / Suction hopper

<Disassembly>
The gate ring/suction hopper and casing can be disassembled by counterclockwise turning the suction hopper which is screwed into the casing.
Next, disassemble the gate ring cap and gate ring pipe by using a hexagonal wrench to remove the hexagon socket head cap screws that fix the gate ring cap and gate ring pipe.
Finally, the gate ring pipe and suction hopper are fixed with a lock to prevent them from slipping out from the top, so remove the gate ring pipe from the bottom.

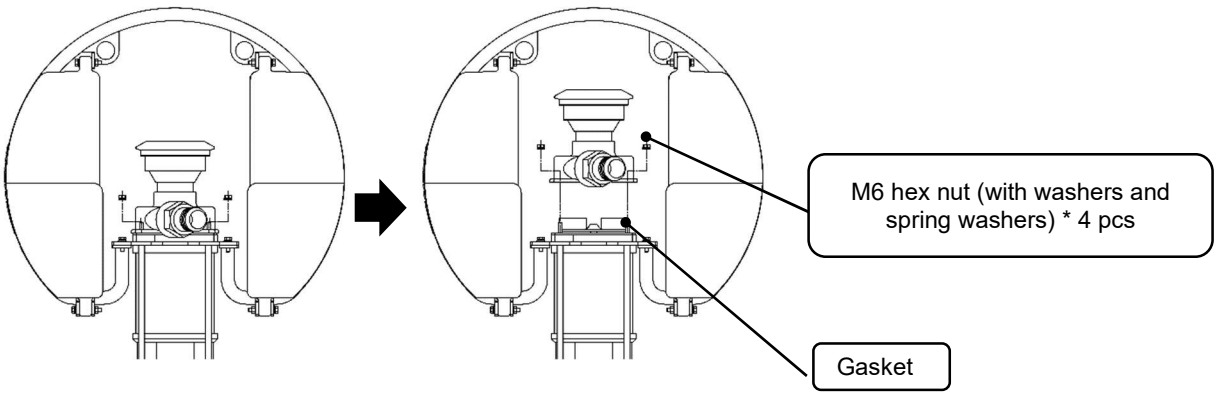


<Assembly>
Assemble in the reverse order of disassembly.
At this time, apply anti-loosening tape to the hex socket head cap screws before tightening them and re-wrap the sealing tape around the suction hopper.
Wrap the sealing tape in the opposite direction to the screwing direction of the bolts.



Casing

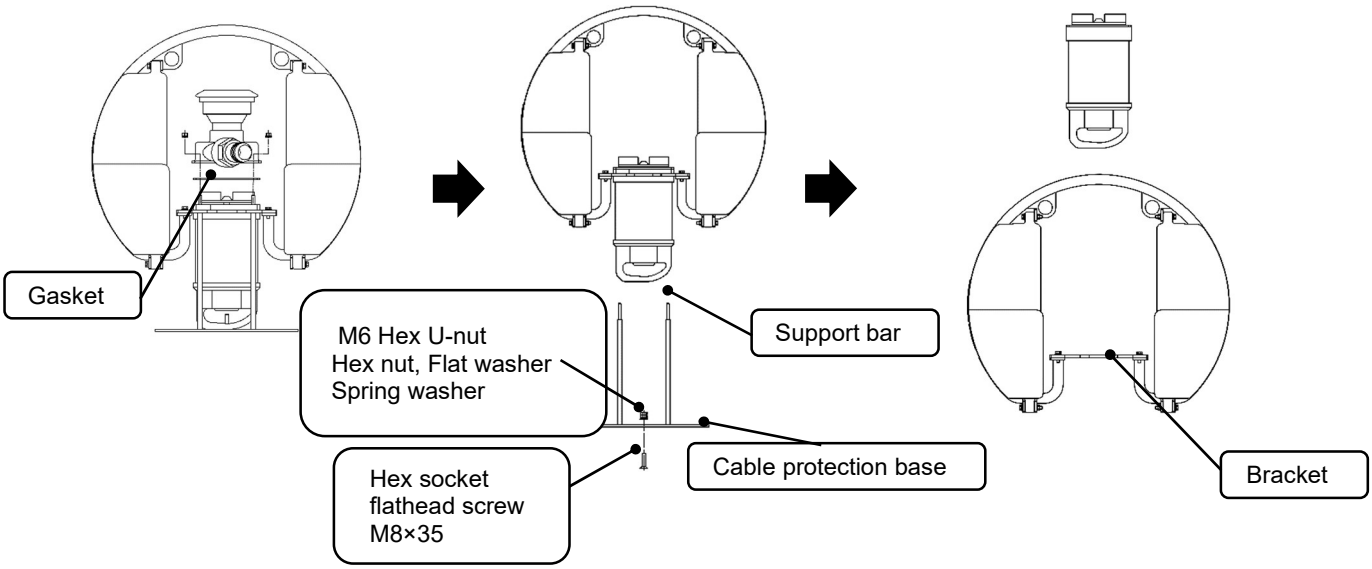
<Disassembly>
It is possible to remove any obstructions inside the casing and clean it by removing the four M6 hex nuts (with washers and spring washers) which attach the submersible pump and casing with a spanner or wrench.
At this time, be careful not to lose the gasket on the pump.



<Assembly>
Assemble in the reverse order of disassembly.
At this time, tighten the four M6 hex nuts evenly in a diagonal with a torque of 2.0 Nm.
Also, be sure to start tightening with the gasket firmly in place.
Assemble the casing so that the hose joint and the cable of the submersible pump are in the same direction.

Submersible pump

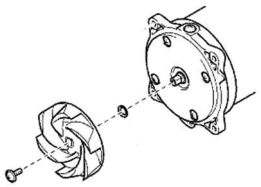
<Disassembly>
After disassembling the casing as above procedure, remove the gasket.
Then, loosen in order the hex U-nuts and hex nuts and remove hex socket flat head screws M8 x 35 that secure the cable protection base and the submersible pump by the hex wrench and spanner, and separate the cable protection base (with support bar).



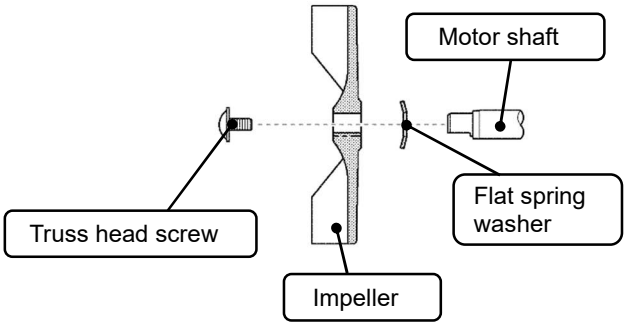
<Assembly>
Assemble in the reverse order of disassembly.
At this time, tighten the four M6 hex nuts evenly in a diagonal with a torque of 2.0 Nm. Also, be sure to start tightening with the gasket firmly in place.
Assemble the casing so that the hose joint and the cable of the submersible pump are in the same direction.

Impeller

<Disassembly>
By using a Phillips screwdriver, remove the truss head screw which fixes the impeller.



<Assembly>
Assemble in the reverse order of disassembly.
At this time, make sure that the flat spring washer is oriented as shown in the diagram on the right.



12. Troubleshooting

Condition	Cause	Measures
Does not start or stops immediately.	1. No power is supplied (power outage, etc.) 2. Automatic control unit (control panel) abnormality 3. The protective device (protector) is activated due to a foreign object is caught. 4. Motor burnout 5. Cable break or connection failure 6. Voltage drops due to cable extension	1. Contact the power company or electrical contractor. 2. Check the cause and carry out professional repairs. 3. Check the product and remove any foreign objects. 4. Repair or replace. 5. Replace the cable or connect it correctly. 6. Shorten the extension cable or replace it with a thicker one.
The protective device is activated.	1. Motor abnormality (burnout or submerged, etc.) 2. A 50 Hz pump is operated at 60 Hz. 3. Liquid temperature is high. 4. Long drive in the air.	1. Repair or replace. 2. Check the nameplate and replace the pump or impeller. 3. Lower the liquid temperature. 4. Lower the liquid level after stopping.
It is operating but does not pump water.	1. Air lock 2. The pump or piping is clogged. 3. Piping is partially clogged or valves do not work properly. 4. The motor is rotating in reverse.	1. Stop and restart or clean the air valve. 2. Remove the obstruction. 3. Remove obstruction, repair or replace valve. 4. Change the power connection.
The amount of water pumped is small.	1. The impeller or pump casing is severely worn. 2. Piping loss is large. 3. The operating liquid level is low and air is drawn in. 4. A 60Hz pump is being used at 50Hz. 5. Leaking from the piping. 6. Missing phase. 7. The motor is rotating in reverse. 8. There are foreign objects inside the pump.	1. Repair or replace each part. 2. Reconsider the plan. 3. Lower the liquid level. 4. Check the nameplate and replace the pump or impeller. 5. Check and repair. 6. Check the magnet switch at the connecting point. 7. Reconnect the power wiring. 8. Remove the obstruction.
The gate ring is not moving properly or is sunk.	1. Dirt or foreign objects are stuck between parts. 2. There is obstruction in the pump or piping. 3. Pipes are partially clogged or valves do not work properly. 4. The motor is rotating in reverse.	1. Disassemble and clean each part. 2. Remove the obstruction. 3. Remove obstruction, repair or replace valve. 4. Change the power connection.

13. Warranty / Repair

1. Warranty period and range
   (1) The warranty period is 12 months from the date of shipment from the factory.
   The warranty period for submersible pump is within 3,000 hours of pump operation.
   (2) During the warranty period, when pumps break down caused by our manufacturing defects even if they are used under the condition instructed in this manual, the failed parts are repaired free of charge.
   (3) Basically, even if failure is within the warranty period, the following cases are charged.
   - Failure or damage caused by use or storage that is not in accordance with the instructions in this instruction manual.
   - Failure or damage caused by improper use, repair or modification.
   - Failure or damage caused by force majeure such as fire, earthquake, flood, lightning strike, other natural disasters or geological changes, as well as pollution, salt damage, gas damage, abnormal voltage or unspecified power sources (voltage, frequency).
   - Wear and deterioration of consumable parts such as gaskets and O-rings.
   - Failure or damage caused by transportation after purchase, relocation of the installation location, dropping.

   (4) If a product manufactured to the specifications or materials specified by the customer breaks down or is damaged, there is no guarantee.
   (5) The warranty does not cover chemical or fluid corrosion of the handled liquid, or wear, abnormality, or failure due to the liquid quality or slurry. The materials selected by our company at the time of contracting the contract are recommended materials, and do not guarantee corrosion resistance against the liquid used.
   (6) If any doubt arises when determining the cause of the malfunction or damage, it shall be decided through consultation between the customer and our company.
   (7) Any expenses or other damages arising from failure or damage of the pump caused by using the pump in a manner not consistent with this instruction manual are not covered.

2. Repair

(Notice)
For repairs, contact your distributor. When returning the product, thoroughly clean the wet parts kit before packaging.

If any abnormality occurs during use, immediately stop operation and check whether it is a malfunction. Refer to the section "Troubleshooting".
(1) For repair requests, contact your distributor where purchased the product or us.
(2) Before requesting repairs, please read this instruction manual again carefully and perform a recheck.
(3) If on-site services to remote locations is provided, travel expenses are charged.
(4) When requesting repairs, let us know the following information:
- Model name and serial number
- Duration and condition of use
- Failure part and its condition
- Liquid used (liquid name, density, temperature, presence or absence of slurry)

If the product is returned, be sure to thoroughly clean the inside of the product before returning it, as it would be extremely dangerous if the handling liquid were to leak out during transportation.

Model name	
Purchase date:	Serial number:
Start date of use:	Distributor:

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