AQUA PAK

ROBUSTA

SEWAGE PUMPS

HIGH WATER PUMPING HEAD

HIGH DURABILITY

RESISTANT CONSTRUCTION

INSTALLATION MANUAL

HEAVY DUTY

V1.0 06/03/2026

Summary

INSTALLATION MANUAL

Thank you for choosing our AQUA PAK ROBUSTA Series submersible sewage pumps.

With the help of this instruction manual, you will be able to correctly install and operate this product; therefore, we recommend following the instructions included here. Keep this manual in a safe place for future reference.

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1. SAFETY INSTRUCTIONS

The following instructions are based on international safety practices for submersible sewage pumps. Following them is essential to protect personnel, prevent equipment damage, and ensure reliable operation. Work on pumps must be performed only by trained personnel familiar with electrical, mechanical, and thermal hazards.

The pump must be installed, operated, and maintained in accordance with local codes and the manufacturer's recommendations.

1.1. Hazards that can cause death or serious injury immediately.

DANGER

- **Mandatory grounding:** The pump, motor, and controls must be connected to a grounding system before energizing the equipment.
- **Complete power disconnects:** Fully disconnect electrical power before any intervention. Lockout/tagout (LOTO) is recommended.
- **Handling energized cables:** Never handle electrical cables with wet hands or in damp conditions.
- **Contact with moving parts:** Do not place hands or objects into suction or discharge openings while the unit is energized.
- **Use in applications with human contact:** Do not use the pump in applications where there is direct human contact with the fluid.
- **Installation in hazardous locations:** Do not install or operate the unit in atmospheres classified as hazardous per the NEC.

1.2. Hazards that could cause serious injury.

WARNING

- **Code compliance:** Installation must comply with the NEC and local regulations.
- **Installation by qualified personnel:** Only qualified personnel should install and operate the equipment.
- **Equipment temperature:** Allow the pump to cool before handling it after operation.
- **Confined spaces:** Do not enter wet wells or pits without appropriate safety procedures.

1.3. Hazards that could cause minor or moderate injury.

CAUTION

- **PPE:** Wear eye protection and appropriate safety equipment.
- **Work clothing:** Avoid loose clothing near moving parts.
- **Safe work area:** Keep the area clean and free of obstacles to prevent falls.

1.4. Important information that prevents equipment failures or damage, without risk to the user's safety.

NOTICE

- **Proper use:** Operate the pump only in applications for which it was designed.
- **Electrical system check:** Periodically verify the condition of wiring and connections.

2. INTENDED USE AND PROHIBITIONS

This chapter defines the operating scope of the submersible sewage pump and the critical restrictions required to help ensure system safety and warranty validity.

2.1. Intended Uses

The ROBUSTA Series submersible sewage pump is specifically designed for the following applications:

- **Wastewater and sludge applications:** The pump is designed for pumping domestic and industrial wastewater, as well as effluent containing suspended solids. It is suitable for use in treatment plants, sewage lift stations, and septic systems.
- **Sludge and dense mixture handling:** Capable of pumping sludge with a high solids content, including mixtures with mud, sand, soil, and organic waste, within the equipment's design limits.
- **Septic tank and cesspit cleaning:** Allows removal of liquids and accumulated solids in septic tanks or cesspits without prefiltration, provided the materials are compatible with the pump's hydraulic capacity.
- **Construction and mining drainage:** Suitable for drainage in tunnels, deep excavations, and mining operations where water with abrasive particles and heavy sludge is handled.
- **Agricultural and livestock applications:** Can be used in farm waste management systems to evacuate liquid manure, slurry, and organic waste from pens or stables.
- **Industrial processes:** Suitable for processes that generate viscous effluent or effluent with suspended solids, provided operating parameters remain within the equipment's limits.
- **Continuous submersible duty:** Designed for continuous duty when fully submerged, which ensures proper cooling and performance.
- **Fluid conditions:** The equipment must operate within the following parameters:
  Maximum liquid temperature: 35°C
  pH range: 6.5 – 8.5
  Non-explosive, not highly corrosive liquids

2.2. Prohibitions

Use of the equipment under the following conditions is strictly prohibited due to the high risk of failure or accidents:

DANGER

- **Use with flammable or explosive fluids:** Do not use the pump to gasoline, solvents, hydrocarbons, or other flammable or explosive liquids. The equipment is not certified for hazardous (classified) locations (ATEX / NEC), which may result in fire, explosion, or death.
- **Use in explosive environments:** Do not install or operate in atmospheres classified as hazardous. These pumps are not designed as explosion-proof equipment.
- **Direct human contact with the fluid:** Do not use in pools, fountains, or applications where there is human contact with the pumped water.

WARNING

- **Dry running:** Do not operate the pump unless it is completely submerged. Dry operation causes overheating and severe damage to seals and motor.
- **Lack of electrical protection:** Do not energize the pump without appropriate protections, such as thermal protection, level control, and electrical protection devices.
- **Oversized solids:** Do not pump solids that exceed the maximum size allowed for the model. This can cause clogging or impeller damage.

CAUTION

- **Incompatible corrosive fluids:** Do not use the pump to acids, strong bases, or aggressive chemicals without verifying material compatibility.
- **Unsuitable solids:** Do not expose the pump to materials such as plastics, textiles, sanitary towels, diapers, abrasive objects (gravel, sand), or debris that may cause clogging or premature wear.

NOTICE

- **Potable water or sanitary applications:** Do not use the pump in potable water systems or food processes, as it is not designed with sanitary materials.
- **Operation outside specifications:** Do not operate the pump outside its design limits. This can reduce service life and affect performance.

3. HANDLING

This chapter provides the recommendations for the receipt, handling, transport and storage of the pump, in order to prevent damage to the equipment before installation.

Improper handling can cause premature failures, mechanical damage, or unsafe operating conditions.

3.1. Receiving Inspection

Upon receiving the equipment, perform a complete visual inspection before installation or storage:

- **Shipping damage inspection:** Check that the pump, power cable, and accessories have no dents, deformation, cracks, or visible damage.
- **Component check:** Ensure the equipment is complete, including all accessories supplied by the manufacturer.
- **Equipment data verification:** Confirm that the model, voltage, and specifications match what was ordered and the installation requirements.

CAUTION

- **Damaged or incomplete equipment:** Do not install or operate the pump if there are visible damage or missing components. Report any issues immediately to the supplier or authorized distributor.

3.2. Unpacking and Lifting

Correct handling of the equipment during uncrating and positioning is essential to prevent mechanical or electrical damage:

DANGER

- **Handling heavy loads:**
  These pumps can be heavy (industrial equipment).
  Never attempt to lift the equipment manually.
  Use a crane, hoist, or suitable lifting system.
  Make sure all lifting devices are rated for the weight of the equipment.
  Keep personnel away from the suspended load during lifting.

WARNING

Proper lifting method:
Lift the pump only from the designated lifting points (lifting rings, handles, or frame).
Keep the pump in a stable position during lifting to prevent swinging or impacts.
Do not allow impacts against the floor, walls, or structures during handling.

CAUTION

- **Component protection:**
  Do not use the power cable to lift or drag the pump.
  Avoid bending, pulling, or damaging the cable during uncrating and handling.
  Remove packaging carefully to avoid damage to coatings or external components.

3.3. Storage

WARNING

- **Storage conditions:**
  Store the pump in a dry, clean location protected from the weather. Avoid direct exposure to moisture, rain, or corrosive environments.
  Place the equipment on a firm, stable surface to prevent deformation or tipping.

CAUTION

- **Protection during long-term storage:**
  If the equipment will be stored for extended periods, protect the cable against physical damage and prevent accumulation of dust or dirt on connections and seals.
  Do not stack equipment unless stability and load capacity are ensured.

NOTICE

- **Pre-installation inspection:**
  If the pump has been stored for an extended period, it is recommended to inspect it before installation to ensure proper operating condition.

4. PUMP OVERVIEW

AQUA PAK ROBUSTA Series submersible sewage pumps are designed for handling effluent, wastewater, stormwater, and sludge in residential, commercial, and service facilities where reliable evacuation is required from pits, wet wells, or sump basins. Their design allows operation directly in the pumped liquid, provided installation follows the manufacturer's instructions and the applicable requirements of the installation site.

The ROBUSTA Series integrates mechanical and electrical components intended for continuous, safe operation under proper submergence conditions. Its construction is designed to withstand wet and demanding environments, facilitating hydraulic connection, level control, and preventive maintenance tasks. Proper selection, installation, and operation of the pump are essential to ensure performance, extend service life, and avoid damage to the equipment or the installation.

5. INSTALLATION

WARNING

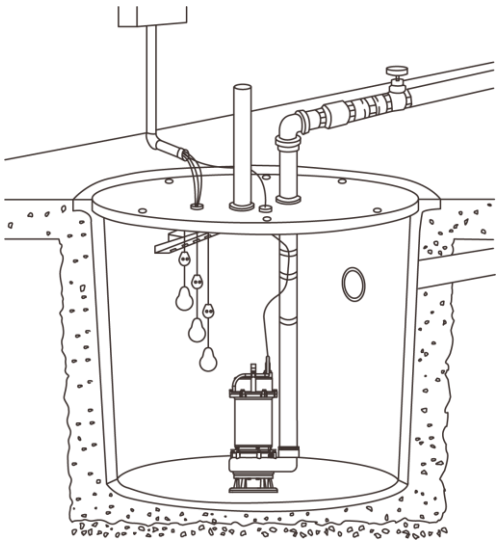
- Pump installation must be performed by qualified personnel.
- Installation must be carried out following current engineering standards to help maintain warranty coverage and meet local requirements.

5.1. Hydraulic Installation

Follow these steps to perform the hydraulic installation:

Connect the pump(s) to the guide rail adapters or the discharge piping. The guide rail bases must be anchored to the bottom of the pit. These pumps are typically installed in concrete or fiberglass basins.

The following figure shows a typical installation.



5.1.1. Discharge Piping

1. Install the discharge piping or connect the hose assembly to the pump.
2. The discharge piping must be as short as possible and not smaller than the pump discharge.

WARNING
- Do not reduce the discharge pipe size below the size provided on the pump.

3. A check valve and a shutoff valve are recommended for each pump.

NOTE
- The check valve is used to prevent backflow into the sump.
- The shutoff valve is used to manually stop system flow during pump maintenance. Make sure the discharge pipe has a 1/8" diameter hole approx. 5" from the volute and oriented toward the pump body.

5.2. Electrical Installation

Follow these steps to perform the hydraulic installation:

Temperature sensor (See models)

Each motor is equipped with a temperature sensor directly attached to the motor windings.

The temperature sensor opens if the motor coils reach excessive temperatures. This causes the control protections to open the contactor that energizes the motor in the control panel, interrupting the control circuit. The sensor closes again once the motor has cooled.

It is recommended that the thermal sensor be connected in series to an alarm device to indicate that an over-temperature condition has occurred (three-phase only).

Thermal protection is not used as a motor overload device. In case of excessive temperatures, determine the condition causing the abnormality and correct it immediately.

Motor sensor failure warning

On three-phase models, the seal chamber is filled with oil and equipped with moisture detection probes to detect water leaks through the lower shaft seal. The probes can also detect moisture present in the motor housing.

The moisture sensor (see models) can be connected to an external alarm (through the control panel) to turn on a warning light; this warning will NOT stop the motor. It indicates that a leak has occurred and the pump must be repaired. Typically, this indicates that the outer seal has been damaged.

WARNING

Allowing the pump to run too long after the warning could cause leakage past the upper seal along with motor failure.

The resistance across the moisture detection (seal failure) probes must be checked after a seal leak. This can be done by disconnecting the red and orange control wires from the control panel and measuring resistance with an ohmmeter between the wires.

The reading must be 100,000 ohms or higher. If the measured values are lower than indicated above, the pump may have a lower seal failure and requires service.

CAUTION

If proper over-temperature protections are not used in the control panel, all warranties will be void.

5.2.1. Electrical Connections

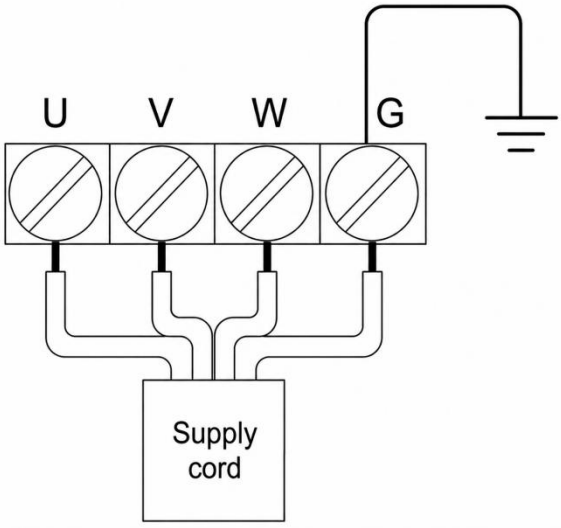
DANGER

- **Power disconnects and lockout:** Before making any electrical connection, make sure the switch is in the OFF position and power is completely disconnected. Apply lockout/tagout (LOTO) procedures to prevent accidental energization.

WARNING

- **Control panel required:** Three-phase pumps must be operated using a control panel that includes overload protection, short-circuit protection, and starting control.

Connection diagram for three-phase models (across the line start)



NOTICE

- Each grounding conductor must be connected properly in accordance with the National Electrical Code and local codes.
- Single-phase models do not require a control panel, but they do require level control. They can be controlled using a level switch (float). It is important to adjust it to ensure the liquid in the sump never drops below the level of the top of the motor housing.
  The level switch must have adequate travel to ensure the pump is fully submerged when the level control is in the "Off" position.

NOTE

- Rotation must be clockwise when viewed from the top of the pump. This can be verified by observing the direction of the pump torque on initial start. A pump with correct rotation will tighten counterclockwise (to the left) on start-up.

All cables must be tested with a megohmmeter (megger) after making connections to verify there are no ground leaks. This is important because a cable with a ground leak can cause pump failure, control panel failure, or personal injury.

5.3. Mechanical Installation

Follow these steps to perform the mechanical installation:

For mechanical installation, use only the lifting eye, handle, or designated lifting point provided to lift the pump. Do not lift, transport, drag, or suspend the pump by the power cable or by the float switch. During lowering into the wet well, keep the equipment stable and avoid impacts against walls, piping, rails, or internal accessories.

Place the pump on a firm, level, stable surface inside the wet well or sump pit. The base must allow the pump to remain vertical, without tilting, excessive vibration, or direct contact with accumulated sediment that could block suction.

These pumps are typically installed in concrete or fiberglass basins. The pump must be properly connected to the discharge piping while maintaining clearance at the suction for wastewater inflow.

6. PRE-START CHECKLIST

Before operating the pump, verify that the following conditions are met:

- **Supply voltage verification:** Confirm that the line voltage matches exactly the rated voltage specified on the starter nameplate.
- **Check direction of rotation:** Before placing the pump in service for the first time, motor rotation must be checked. Incorrect motor rotation can cause malfunction and may damage the motor and/or the pump.

- **Thermal protection setting (FLA):** Make sure the overload relay dial is set to the motor's actual Full-Load Amps (FLA).
- **Electrical connection inspection:** Verify that all connection terminals are tightened to the correct torque to prevent hot spots.
- **Grounding verification:** Confirm that the equipment grounding conductor is firmly connected to the cabinet ground terminal.
- **Electrical enclosure integrity:** Verify that the enclosure seal is watertight, that the cable glands (cord grips) are tightened, and that safety plugs are installed in unused openings to maintain the required protection rating (NEMA/IP).
- **Enclosure internal cleanliness:** Make sure the inside of the enclosure is free of tools, wire scraps, or dust that could cause a short circuit.
- **Mechanical mounting verification:** Confirm that the starter is securely mounted in a vertical position and that it does not exhibit unusual vibration.

NOTE

- The time required to empty the system, or the pump-down time along with the water volume, must be recorded.

7. START-UP

This chapter describes the initial start-up procedure for the pump, ensuring safe conditions and correct operation from start-up.

DANGER

- **Safe energization:** Before energizing the pump, make sure no personnel are in contact with the equipment or inside the wet well. Do not energize under unsafe conditions.

WARNING

- **Controlled initial start:** Energize the pump from the control panel and observe equipment behavior during the first few seconds of operation.

Monitoring operating conditions:

During start-up, verify:

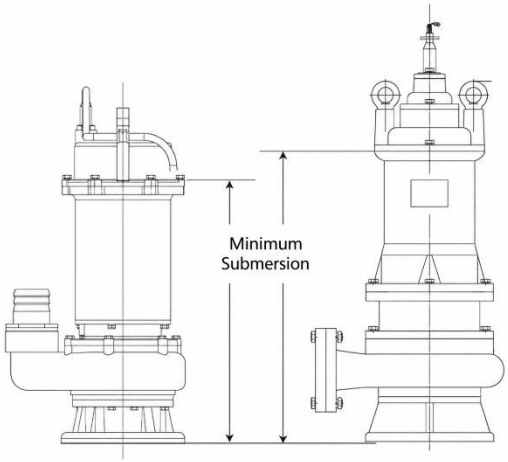
- Proper discharge flow
- No abnormal noise
- No excessive vibration

CAUTION

- **Start-up supervision:** Do not leave the equipment unattended during the initial start-up. Early detection of abnormalities helps prevent major damage.

The pump must operate fully submerged. The liquid level must remain above the volute at all times. Operation at a low level can cause:

- Motor overheating
- Seal damage
- Premature equipment Failure



8. MAINTENANCE

DANGER

- **Electrical shock hazard:** Before performing maintenance, disconnect power at the main switch and verify that the pump cannot start automatically. Do not handle cables, plugs, or electrical connections with wet hands or while standing in water.
- **Entry into wet wells or confined spaces:** Do not enter pits, wet wells, sumps, or confined spaces without training, authorization, ventilation, atmospheric monitoring, and appropriate protective equipment.

ROBUSTA Series submersible sewage pumps require minimal maintenance.

Perform the following inspection when the pump is removed for service or when pump performance deteriorates:

- Inspect the impeller and casing to prevent excessive buildup or clogging.
- Inspect the motor and bearings
- Inspect gaskets to check for leaks or wear

9. TROUBLESHOOTING

Problem	Possible causes and solutions
Pump fails to start and hums	• Circuit breaker is tripped, or the fuse is blown or loose.
	• Water level in the sump pit/basin has not reached the "start" level.
	• Pump power cord is not making proper contact in the outlet/receptacle.
	• Float switch is stuck or obstructed.
	• If all the above are correct, contact your distributor.
Pump runs but does not deliver water	• Check that the check valve is not installed backwards (the arrow must point in the direction of flow).
	• Discharge valve may be closed.
	• Pump impellers or discharge port may be clogged (remove the pump and clean it).
	• The pump is airlocked (start and stop the pump several times; check if the vent hole in the pump is clogged).
	• Pump intake ports may be obstructed (remove the pump and clean the openings).
	• Vertical lift (pumping distance) is too high. Reduce the lift distance.
Pump runs but does not stop	• Float switch is stuck in the "on" position. Ensure the float switch operates freely.
	• Defective float switch. Replace the float switch.
Pump starts but delivers only a small amount of water	• The pump is airlocked (start and stop the pump several times; check if the vent hole is clogged).
	• Vertical lift (pumping distance) is too high. Reduce the lift distance.
	• Pump impellers or discharge port may be partially clogged (remove the pump and clean it).
Fuse blows or circuit breaker trips when pump starts	• Pump impeller is partially clogged, causing the motor to run slowly and creating an overload. Remove the pump and clean it.
	• Motor stator may be defective.
	• Fuse or circuit breaker size may be too small (undersized).
	• Impeller or volute openings are partially or fully obstructed.
Motor runs for a short period and then stops	• Pump impeller is partially clogged, causing the motor to run slowly and creating an overload. Remove the pump and clean it.
	• Motor stator may be defective.
	• Impeller or volute openings are partially or fully obstructed.
	• Remove the pump and clean it. Also clean the strainer if one is installed.