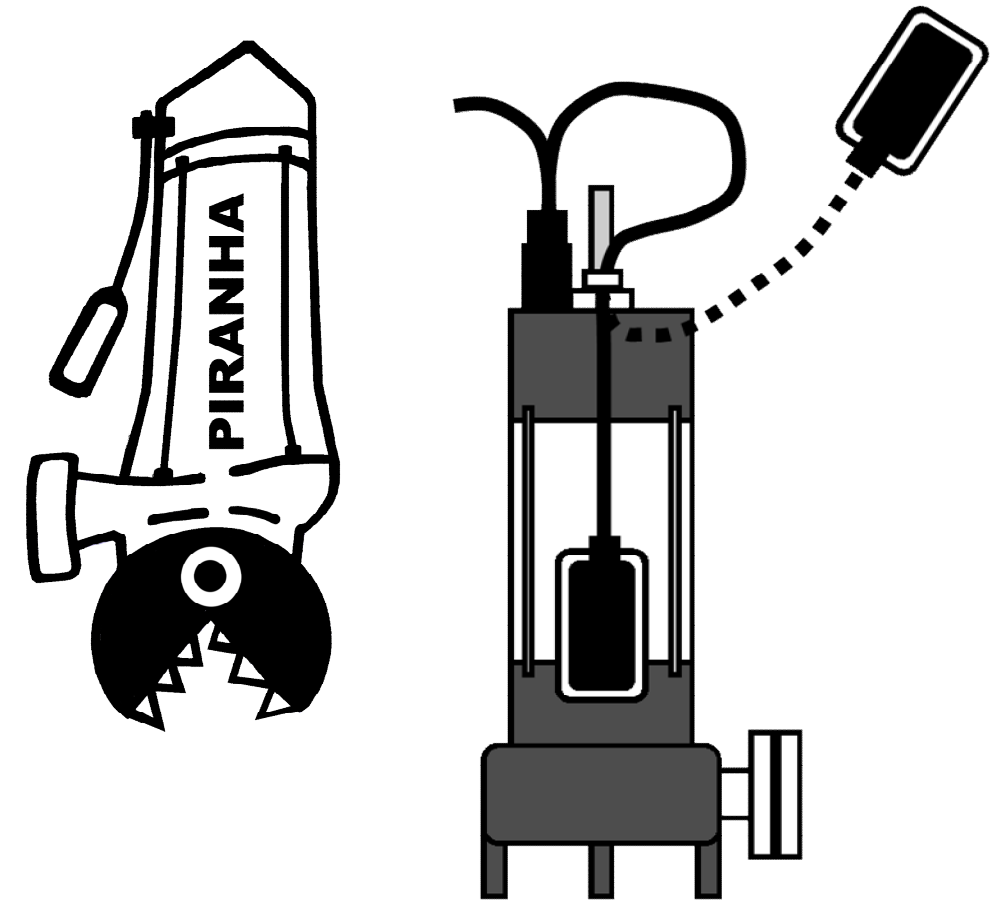


X-POWER



“PIRANHA”

**Submersible electric pump
with shredder system**

**Single-phase
automatic grinder pump
for sewage**

Instruction manual

Distributor - Elettromek Patti (ME)
tel.: +39 0941 3613 36 - Email: info@xpowerwaterpumps.com

www.xpowerwaterpumps.com

www.xpowerwaterpumps.com

Warranty regulated by
www.xpowerwaterpumps.com

For more information, please ask your dealer

or

Send an email to:
support@xpowerwaterpumps.com

IMPORTANT

Always keep the purchase receipt

Submersible sewage grinder pumps: PIRANHA

DECLARATION OF CONFORMITY

The company SC Pippohydro srl based in:
Sat. Opriseni, Tutora Judet Iasi - RO

As attestation of the producer,

DECLARES:

That the following models:

PIRANHA 1.0
PIRANHA 1.5
PIRANHA 2.0

They comply with the Standards:

EN ISO 12100:2010, EN 809:1998+A1:2009+AC:2010,
EN 60204-1:2006+A1:2009+AC:2010,
EN 60335-1:2012+AC:2014, EN 62233:2008+AC:2008,
EN 60335-2-41:2003+A1:2004+A2:2010,
EN 60034-1:2010+AC:2010,
EN 55014-1:2006+A1:2009+A2:2011,
EN 55014-2:1997+A1:2001+A2:2008,
EN 61000-3-2:2014, EN 61000-3-3:2013

Responding to the EC Directives:

2006/42/EC (Machinery)
2014/35/EU (Low Voltage)
2014/30/EU (Electromagnetic Compatibility)

SC Pippohydro srl
Iasi 03/01/2018



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Submersible sewage grinder pumps: PIRANHA

1. Details

1.1 Identification plate

The PRNH electric pump is equipped with the nameplate containing the main data (fig. 1). In the event of a warranty claim, it is important to inform the manufacturer of these data.

www.xpowerwaterpumps.com Mod.: PIRANHA 1.0 Grinder pump		CE	Distributor: www.xpowerwaterpumps.com Mod.: Submerged pump designation Type of product: PRNH grinder pump	
Electrical data: P2: 0.75 kW - 1.0 Hp - Max. current: 7.2 A Power supply: 1x230 single-phase Insulation class: B - - 50 Hz			Electrical data: P68 protection P2: Kw..... Hp..... Power supply: 1x230 single-phase Frequency: Hertz 50 (Hz) Maximum current draw (Ampere) Insulation class: B (ALL MODELS)	
Max flow: 300 l/min	Max height: 14 m	Hydraulic features: Flow rate (liters / minute) at the minimum permissible height		
Delivery : 2" F	MADE IN PRC - Italian import www.xpowerwaterpumps.com	Height H max (meters) at flow 0 (zero) Submersible pump delivery: 2 "F (ALL MODELS) Origin and importer		

2. Security

2.1 Symbology

Symbols used in this manual. Failure to observe precautions could result in injury to people or damage to property.



DANGER OF ELECTRIC SHOCK

Failure to comply with the instruction involves the risk of electric shock.



DANGER

Failure to comply with the instruction involves the risk of damage to persons and/or property.



TECHNICAL DANGER

Failure to comply with the instruction involves the risk of technical damages to the system.

2.2 Warnings

The operations described in this manual, with particular reference to:

- transport
- installation
- electrical and mechanical connections
- start-up and eventual maintenance,

Submersible sewage grinder pumps: PIRANHA

10. Operating faults

<u>Problems</u>	<u>Possible causes</u>	<u>Solutions</u>	
The electro-pump does not start	1. There is no current to the motor.	1. Check the power line, cables, connections and fuses.	
	2. Insufficient tension.	2. Check the value (see par.3.4)	
	3. Thermal protection intervened	3. a) wait for the expected cooling (see paragraph 5.3) b) reset the thermal relay and check the calibration	
	a) single-phase motor b) three-phase motor		
	4. Automatic float switch blocked or faulty.	4. Clean and check efficiency; if necessary, contact the assistance service.	
	5. Level probes do not give consent.	5. Wait for the level to be restored, check the probes efficiency and related equipment.	
	6. Single-phase motor. Defective condenser.	6. Check and replace the condenser if necessary.	
	7. Motor fault.	7. Contact the service department.	
	8. Interruption of a phase (three-phase motors).	8. Restore links.	
	9. Impeller blocked.	9. Remove obstruction, wash and clean; if necessary, contact the assistance service.	
The electro-pump starts but the thermal protection	10. Supply voltage different from rating plate.	10. Verify the value. If necessary, consult the electricity supply.	
	11. Three-phase motor. Phase break.	11. Restore the connections.	
	12. Three-phase motor. The relay is set to a value that is too low.	12. Adjust the calibration.	
	13. Short circuit; earth leakage in the power supply cable or in the motor winding.	13. Identify the interruption zone. Repair or contact the assistance service.	
	14. Temperature of the pumped liquid too high.	14. Electric pump not suitable for the service. Please replace.	
	15. Pumped liquid too thick.	15. Dilute the liquid. Replace the unsuitable electric pump.	
	16. Dry running of the electric pump.	16. Check the fluid level in the well and the level control instrumentation.	
	17. Faulty thermal relay.	17. Please replace.	
	Absorption above the plate values	18. Overload due to pump clogging.	18. Remove obstruction, contact the after-sales service if necessary.
		19. Pumped liquid too thick or viscous.	19. Dilute the liquid. Replace the electropump not suitable for the system.
20. Internal friction due to clogging by foreign bodies.		20. Remove and clean.	
21. Failed motor bearings.		21. Replace. Contact the service department.	
22. Wrong direction of rotation.		22. Reverse the direction of rotation (see paragraph 5.3.3).	
23. Prevalence required by insufficient plant.		23. Increase the outlet pressure; if necessary, replace the alattropump not suitable for the service.	
Insufficient performance	24. Intake obstructions, in the impeller, in the valves or in the delivery pipe.	24. Perform appropriate cleaning operations.	
	25. Used pump or impeller.	25. Replace or repair.	
	26. Liquid pumped with the presence of air or gas.	26. Increase collection chamber dimensions. Provide degassing devices.	

Submersible sewage grinder pumps: PIRANHA



Regular checks on the status of hydraulic and mechanical components is suggested. Always verify the quantity and quality of the oil contained in the mechanical seal chamber.

The frequency of checks strictly depends on the use that is made of the grinder pump. This frequency is set by a minimum of 4000 and a maximum of 8000 hours of operation pro year.

With test voltage of 500V in C.C. the insulation resistance of the electric pump must be less than 5MW in air and less than 2MW immersed in water.

7.2 Extraordinary maintenance

Extraordinary maintenance or repairs must be entrusted to authorized service centers. For repairs use only original spare parts.

Select the spare parts to be ordered by referring to the exploded drawings.

The manufacturer declines all responsibility for damage to people or animals due to maintenance work carried out by unauthorized personnel or with non-original materials.

With the request for spare parts, indicate:

1. electropump model.
2. serial number and year of manufacture.
3. reference number and name of the particular.
4. quantity of the required detail.

8. Guarantee

The product warranty is subject to the general conditions of sale.

The recognition of the guarantee is bound to the scrupulous and proven compliance with the methods of use contained in this manual, as well as the application of good mechanical, hydraulic and electrotechnical rules.

9. Disposal

For dismantling and scrapping, strictly comply with local pollution regulations.

It is however advisable to proceed with the differentiated disposal of the various materials. For this purpose, the different materials that make up the pumps in the standard versions are summarized:

- impellers: cast iron, chrome cast iron
- pump bodies - cover - motor cover: cast iron, aluminum
- stator - rotor - shaft: steel, stainless steel, ferromagnetic, copper
- electric cables - winding: copper, rubber coating
- liquid between mechanical seals: mineral oil



Do not dispose of this product as normal urban waste. Operate the separate collection as required by current laws.

Submersible sewage grinder pumps: PIRANHA

they must be entrusted to expert and qualified personnel, who are aware of the regulations concerning the safety of the working environment; they must be entrusted to experts that have carefully examined and verified the contents of this manual, and/or any other documentation attached to the product.

Furthermore, local regulations must be taken into account.

If the electric pump is used to convey dirty liquids or dangerous substances, you must use protective equipment (suitable clothing, gloves and protective mask, etc.) for the installation or maintenance operations.



- The device is not suitable for children or persons whose physical, sensory and mental abilities are limited.
- This product should not be used by people with lack of experience or lack of knowledge; unless they have been able (through the intermediary of a person responsible for their safety) to receive instructions regarding the use of the pump. Keep out of reach of children. (EN 60335-1: 02).

- All operations relating to the system and the electrical equipment must be carried out only after disconnecting the electrical network.

- The guards installed must never be removed or tampered with; in case of necessity request the intervention of qualified personnel.



- You always must operate under conditions of maximum safety, with adequate equipment and instruments (approved by current regulations and by any more restrictive local regulations).

3. Technical characteristics and use

3.1 Characteristics of the pumped liquid (waste water)

For the conveyance of liquids with solids and filaments, dissolved gases or fermenting substances, it is advisable to use electropumps equipped with grinders. To pump sewage liquids containing fibers, organic materials and sludge, there are suitable electric pumps with single-channel open impellers.

- **PH:** between 6 ÷ 11 (fig.2)

- **Speed:** not less than 1 m / s and viscosity equal to that of water (in case of higher values consult the Technical Office).



Submersible sewage grinder pumps: PIRANHA

- **Temperature:** max 40 °C (104 °F).
- **Max solid content:** max 30% (the suspended solids must not be excessively abrasive, nor show forms that tend to agglomerate).

3.1.1 Characteristics of the pumped liquid (drainage)

- **PH:** between 6 ÷ 9
- **Speed:** not less than 1 m/s and viscosity equal to that of water (with higher values consult the Technical Office)
- **Temperature:** max 35 °C (95 °F).

3.2 Limits of use

For all PRNH electric pumps respect the following limits:

- **Maximum immersion depth:** 20 m
- **Operating position:** vertical
- **Operating time with no flow** (closed delivery gate valve): 2 ÷ 3 minutes
- **Number of starts per hour**, equally divided over time: 30
- **Motor supply voltage:** approx. 10% of the 50Hz and 60Hz rating plate
- **Imbalance on amperometric absorption:** max 5%.

Keep the electric pump reach within the values shown in the operating diagram; With a low flow value, solids can sediment along the delivery pipe. Quite the opposite, too high flow can cause the overheating of the motor.

3.3 Safety precautions



Please pay attention to the following contraindications:



1) The use of the electric pump is forbidden with flammable or dangerous liquids (petrol, oil, kerosene, solvents, etc.) and/or in areas with risk of fire and explosion. Always comply with the regulations in force.



2) Do not use the electric pump for liquids intended for human consumption.



3) The electric pumps in the standard version, must not be used in swimming pools, tanks, wells or systems, where people can accidentally come in contact with them.



4) Never active the electric pump out of the water; even if of short duration, dry running can cause the immediate destruction of the hydraulic components of the product.

5) Do not touch the electric pump when it is in operation.

Submersible sewage grinder pumps: PIRANHA

In the presence of a protection relay, perform the calibration based on the operating current value: the relay must be set to a value higher than 5% with respect to the nameplate.

If the electric pumps does not start up when the power is turned on, avoid repeated starting attempts.

The causes of the malfunction must be identified and resolved (see operating defects paragraph).

6.2 Operation

- Normal conditions of use and operation within the limits foreseen, assure a long life to the electric pump.
- During operation, it is advisable to perform periodic checks on the maintenance of operating data, especially when there are some solids in the pumped liquid.
- Make sure that the number of starts per hour does not exceed the limit set and that they are eventually distributed over time.
- Frequent near-term starts produce the heating of the electric winding and this can threaten its integrity.

Take advantage of periods of inactivity to check the insulation status of the motor and the efficiency of the electrical panel (if there is mounted).

If the electric pump is used with dirty liquids, or if it has a tendency to create deposits, it is recommended to clean the system.

Furthermore, the intake grille, the collection box and the float switch must be kept clean.

7. Maintenance

7.1 Ordinary Maintenance

Ordinary maintenance, checking, cleaning or replacement operations may only be performed by expert and qualified personnel, provided with adequate equipment.

Ordinary maintenance must be carried out by personnel who are aware of the regulations regarding the safety of the work environment, and that have carefully examined and verified the contents of this manual and of any high documentation attached to the product.

Before any intervention for inspection or maintenance it is essential:

- disconnect the power supply making sure that it can not inadvertently be reconnected.
- make sure of the efficiency of the means used for lifting and supporting the electric pump.
- operate in conditions of maximum safety if there is a danger deriving from the presence of toxic gases in the collection tank.
- Ventilate the area abundantly.
- Make sure that there is a second operator able to intervene promptly and safely if the need arises.

Submersible sewage grinder pumps: PIRANHA

5.3.5 Pump Safeguard

►► ON REQUEST ◀◀

Bimetallic thermal probes

The bimetallic probes are switches inserted in the motor winding. They open to interrupt the power supply circuit when a temperature considered dangerous for the correct operation of the motor is exceeded. Once the time necessary for cooling has elapsed, the bimetallic sheets will automatically re-establish the contact and restart the electric pump. Connection diagrams in fig. 13.

The bimetallic probes are an extra protection for the motor. Therefore they do not exempt the adoption in the control panel, of the differential thermal relay (against a prolonged overload or the lack of phase).

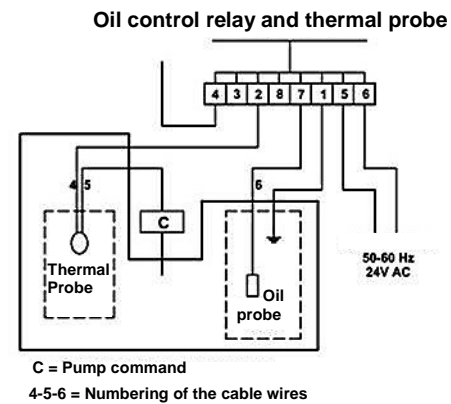


Fig. 13 Thermal probe connection

Sensor probes

The sensor probes inserted in the oil barrier chamber (between the pump and the motor) detect the presence of water in the oil, when the percentage of water exceeds the preset value.

In case of intervention, the instrumentation (usually placed in the control panel and connected to the probes) will provide an acoustic-luminous alarm signal or the pump stop. Connection diagrams in fig. 14.

If the signal is activated, stop the electric pump, disassemble and check the state of the oil, of the mechanical seals and look for the causes that produced the intervention.

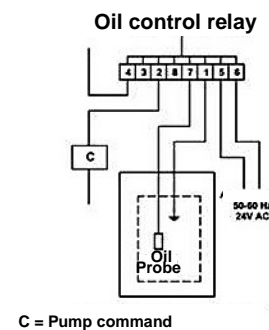


Fig. 14 Level probe connection

6. Starting and operation

6.1 Starting

Before starting the electric pump, carefully check the hydraulic and electrical connections and the relative settings of the equipment.

Activate the planned safety procedures and carefully check the efficiency of the protections.

Check that the electric pump is correctly immersed in the water and that its level is at the height expected for starting.

Start the electric pump.

Check that the current value does not exceed the nameplate data. Check that the supply voltage is within the foreseen limits.

Submersible sewage grinder pumps: PIRANHA



- 6) When the pump is running, the pumped liquid level must completely cover the electric pump.
- 7) Verify that the electric pump and the equipment comply with any restrictions deriving from local laws or regulations.

Differtent conditions than those listed or constructive changes made without written authorization relieve the manufacturer from any liability for damage caused to persons, property or animals.

4. Transportation and storage

4.1 Transport



- For lifting and handling operations, please use adequate means and equipment, approved by the safety regulations.

- Never lift the electric pump using the electric cable. For movements or manipulations use the appropriate handles with which the electric pump is equipped.

- To avoid damage to the electric cables, it is advisable to keep them rolled up (radius of curvature greater than 10 times the diameter of the cable).



- Make sure that the free ends of the cables are not inadvertently immersed in water or otherwise wet. During all handling operations, protect your hands with work gloves.

4.2 Storage

The premises used for the storage of the electric pumps and any instrumentation supplied, must be covered, dry, free from dust and well ventilated.

Keep the PRNH electric pumps in vertical position, always ensuring their stability.

Avoid that the sun's rays strike directly (or for a long time) the electric pump and the relative electric cables.

If the electric pump is stored after a previous period of operation, it is necessary to check the efficiency of the various components and ensure thorough general cleaning. For cleaning it is forbidden to use detergents containing solvents or other hydrocarbon derivatives.

Submersible sewage grinder pumps: PIRANHA

5. Installation

The tank/well construction and the position of the PRNA pumps in the sewage system are subject to laws and regulations that must be complied with.

5.1 Checks before installation



Before proceeding with the installation of the electric pump, it is advisable to carry out careful checks:

- Make sure that the equipment and tools used to handle, lift and lower the pump are suitably efficient for the weight to be lifted, and that they comply with applicable legislation.
- Make sure that the well (or the tank) is sufficiently large. Check that it is able to contain sufficient amount of water to ensure correct operation of the electric pump. Also, make sure that the tank (or the well) is free of debris or other foreign materials that could obstruct the pipe system; provide a grid in case of need.
- Check that the electric power available from the mains is greater than that absorbed by the electric pump.
- Check frequency, line voltage, length and cross-section of power supply cables; reminds that the value of the motor voltage must meet the limits set in paragraph 3.2.
- Check the efficiency status of the components of the electrical equipment (panel, level probes, etc.) related to the operation of the pump.
- Make sure that the electric pumps provided for the oil chamber between the seals are supplied already filled with oil in the prescribed quantity. If after transport, or after a prolonged period of inactivity or storage in very hot environments, check that the oil is in the correct quantity.

5.2 Pump positioning

The different types of installation:

- 1) **Mobile:** the electric pump rests on the bottom of the tank (fig 4) or suspended with a special rope (or chain), anchored to the handle or support hook.
- 2) **Fixed:** the electric pump is positioned with the support basis on the bottom of the tank (Fig. 6).

Make sure that the little well (or tank) is adequately large and that it can ensure sufficient liquid flow for the correct operation of the pump.

Furthermore, the construction of the collection little tank must include arrangements such as to prevent the fall of the liquid coming from the loading tube, that can involve malfunctions and/or formation of air bubbles in the pump suction.

Submersible sewage grinder pumps: PIRANHA

(When necessary) Starter equipment must be equipped with:



- General switch with fuses of adequate size on the three phases.
- Contactor with thermal relay or magnetothermic motor protection switch in proportion to the power of the motor.



- Prepare the pump for operation with float switch or probes against dry running, or other equipment designed to ensure minimum liquid level;



- Minimum voltage relay to protect in case of phase failure;
- Measuring instrument such as ammeter, voltmeter and frequency meter (optional).

5.3.3 Electrical cable

If you must extend the electric power cable, please check that it is of good quality and of an adequate section in relation to its length and to the power of the motor. The junction must be carried out in a workmanlike manner by competent personnel and with material that guarantees perfect insulation between conductors, tightness and impermeability over time.

If the electric cable must be replaced, the operation must be carried out by specialized personnel, using only H07RN-F type cable. The cable is prepared for the M type connection according to EN 60335-1 (CEI 61-50).

5.3.4 Rotation direction check

The single-phase PRNH electric pump always runs in the right direction. To check the correct direction of rotation of a three-phase electric pump, proceed as follows before installation:

- Tilt the electric pump on its side or keep it suspended in safety, with a suitable lifting device.
- Start the electric pump for a short time and observe the direction of the rebound at start-up.

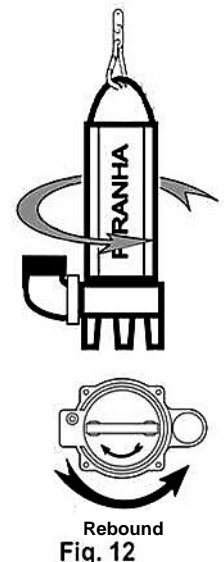
Perform the operation under secure conditions.

Make sure that the backlash can not generate danger.

The correct direction of rotation corresponds to an anticlockwise counter-clock by looking at it from above (fig. 12).

If the direction of rotation is not correct, remove the current and invert two of the three phase conductors with each other.

The direction of rotation must be checked every time the electric pump is electrically disconnected or it must intervene due to lack of phase.



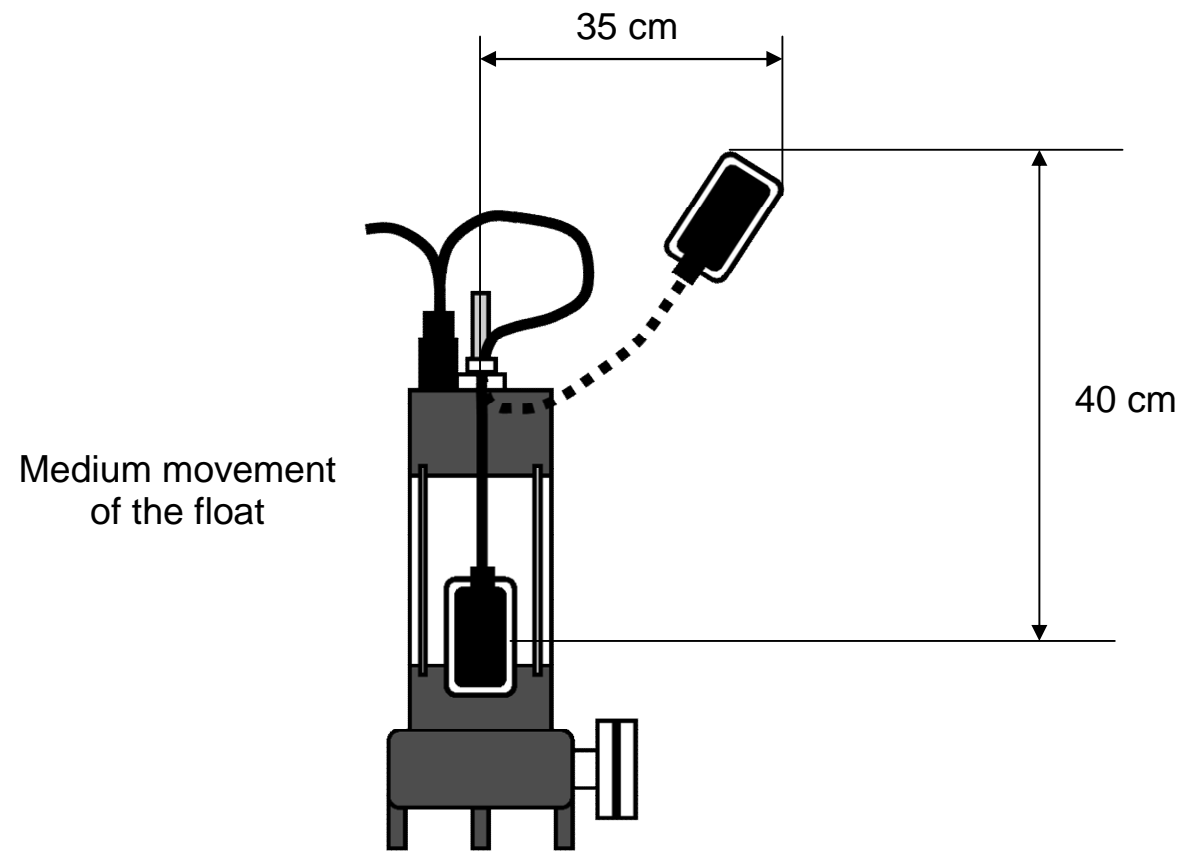
Warning! Operation with reverse operation causes an overload of the motor, which can lead to serious damage to the electric pump.

If the direction of rotation of a single-phase electric pump is wrong, it is necessary to interrupt its use and immediately inform the dealer or contact the technical offices.

Submersible sewage grinder pumps: PIRANHA

5.3.1 Single-phase electric pumps

Also available with automatic float switch. The condenser is built into the motor. The protection system is the responsibility of the user.



5.3.2 Three-phase electric pumps

For three-phase electric pumps, protection is the responsibility of the user, who must use a control panel with the characteristics indicated in par. 5.3, able to maintain reliable operation over time.

The pumps are equipped with microdisjunctors with relative automatic reset contactor, which protects the winding against sudden and temporary overheating.

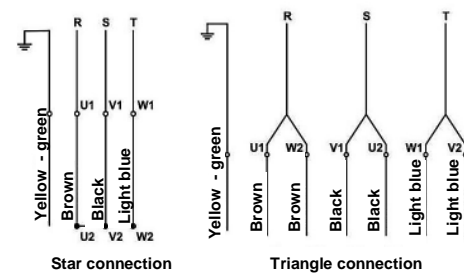


Fig. 10 Three-phase connections for direct start-up

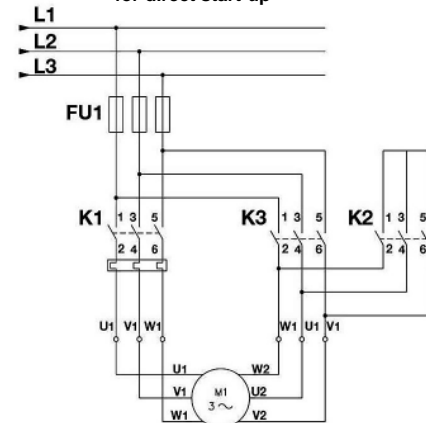


Fig. 11 Triangle - star connections

Submersible sewage grinder pumps: PIRANHA

The evaluation of the risk of lightning is issued to the installer.



If you use the electric pump equipped with the automatic float level switch, you have to check that the little well provides enough space for the float to function properly. Please, make sure the cables do not twist or get caught, thus compromising the functioning.

Minimum water level for continuous operation

Minimum water level for operation limited to 2-3 minutes

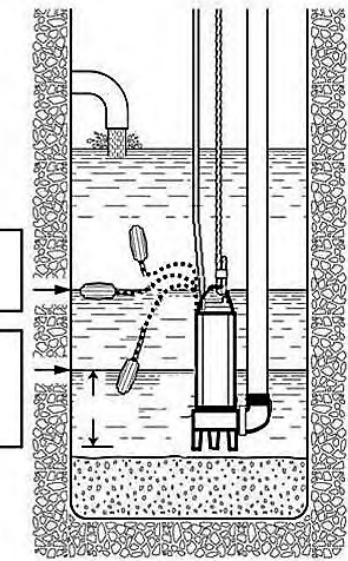


Fig. 4



Installation and maintenance works must be carried out with the electric pump disconnected from the power supply network.

5.2.1 Mobile Installation (fig. 5)

The use of a delivery pipe with a bigger diameter of the pump outlet is recommended. As flexible pipe, the type with metal spiral reinforcement is preferred, as it offers better performance in case of bends and changes of direction.

Eventually check valve or gate valve must be mounted at an approximate distance of 50-200 cm, in a section of metal pipe (rigid).

Special attention must be paid to the positioning of the power cables. They do not be bent, pressed, stressed by traction, or accidentally sucked by the pump.

For the electric pumps positioned at the bottom of the tank, the rope (or support chain) must be secured to the edge of the far end of the tank (little well). The suspended electric pumps must be anchored with a system that guarantees the full support of the pump; and that also takes into account the dynamic reactions due to starting and running of the pump.

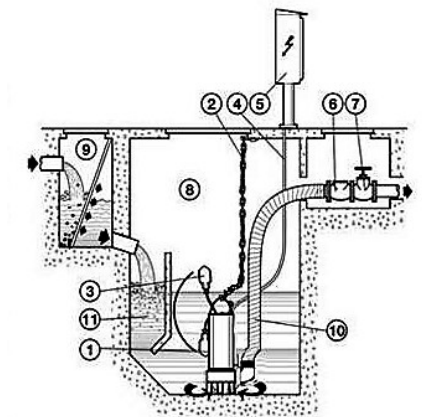


Fig. 5

Submersible sewage grinder pumps: PIRANHA

5.2.2 Fixed installation with automatic hooking on the support (fig. 6)

How to Install lifting and lowering device and electric pump in the tank:

- Fix the pipe anchoring bracket/basis (fig 7 - pos. A) to the edge of the tub.
 - Place the support basis for the automatic coupling on the bottom of the tub (Fig. 7 pos B). Check, by means of a plumb line, that the conical projections are perfectly perpendicular to the corresponding projections of the tub edge anchor bracket.
- Also check the flatness by means of a spirit level.

- Mark the position of the slots on the support basis, then measure the exact length of the guide tubes (Fig. 7 - item C).
- Fasten the anchor basis firmly to the bottom of the tub using strong anchoring clamps, or with metal expansion plugs.
- Connect the delivery pipe to the anchor basis.
- Remove the anchoring bracket from the tank edge. Insert the guide tubes already reduced to the previously measured length into the conical protrusions of the support basis. Fix the pipes by reassembling the bracket on the edge of the tub.
- Fit the special flange (Fig. 7 pos D) on the delivery side of the pump. Hook the rope (or chain) to the handle or slot on the top of the pump.

- Lift the electric pump up over the well, then lower it slowly, guiding the slide flange on the guide tubes.

- Once arrived at the bottom, the electric pump will automatically connect to the base.

- The hook of the lifting rope (or chain) must be aligned with the center of gravity of the pump.
- Hook the end of the rope or chain firmly to the bracket on the edge of the shaft.
- Lay the electric cables in place, avoiding creases, crushing and making sure that the terminals do not come into contact with water.

NB. It is necessary to provide a device for interrupting and disconnecting the power supply.

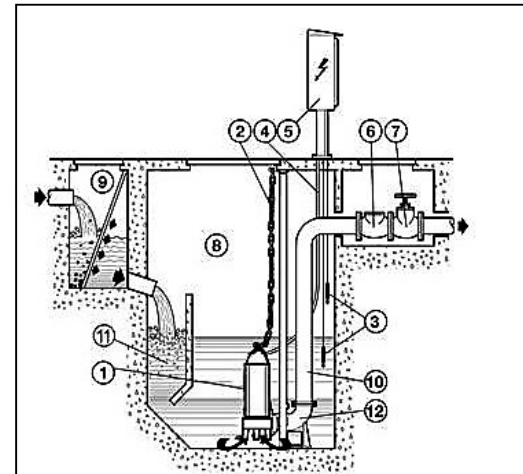


Fig. 6

- 1 - Submersible electric pump
- 2 - Lifting chain
- 3 - Float / probes
- 4 - Electric cable
- 5 - Electric control panel
- 6 - Check valve
- 7 - Gate valve
- 8 - Tub (little well - tank)
- 9 - Additional tub (optional) with grill
- 10 - Delivery pipe
- 11 - Decanting area
- 12 - Support basis (anchor basis)

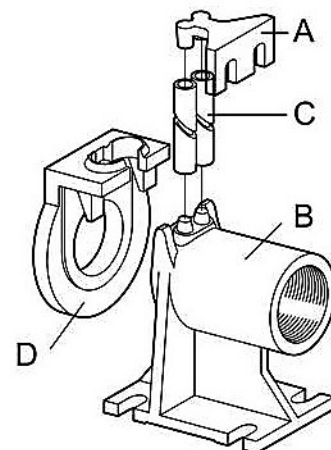


Fig. 7 | Anchor basis

Submersible sewage grinder pumps: PIRANHA

5.3 Electrical connection

The electrical connections for the PRNH electric pumps must be performed by expert and qualified personnel, who operate in compliance with the regulations in force. The electric control panel (when provided) and related electrical equipment must be of the type approved by the current safety regulations.

Tools and components of the control panel must be of adequate capacity and quality to maintain reliable operation over time.

The use of dubious or undersized instrumentation can cause serious damage to the electric pump and/or to the system.

Start-up equipment, where necessary, must be equipped with a frame provided by the regulations in force.

The control panel must have a degree of protection appropriate to the place of installation. It must be protected from the sun's rays, in a well-ventilated area, with conditions, in terms of humidity and ambient temperature, adequate to the indications of the manufacturer of the panel.



If the installation of the electric pump is foreseen in environments where people are present, a residual current circuit breaker (IDN) = 30 mA must be installed in the power supply circuit.

Before proceeding with the electrical connection, disconnect the power supply. Make sure that the power can not inadvertently be reconnected.

Proceed with the connection of the ground conductor before connecting the line conductors; in case of removal of the electric pump, the ground cable must be removed last.

It is the responsibility of the installer to make sure that the earth leakage system is efficient and built in compliance with current regulations.

Important: never lift the electric pump using the electric cable!

During the operation the electric pump must be completely immersed in the pumped liquid.

For the electric pumps without built-in float switch, it is necessary to install a control system with probes (fig.6) or float; or other equipment that ensures the minimum level of liquid and protects the electric pump against dry running.

With the electric pumps equipped with an automatic float switch, it must be checked that the well provides enough space for the pump to function properly. Check that the cables do not twist or become entangled inside the shaft, compromising the operation of the pump.

For the electric pumps equipped with an automatic float switch it is possible to vary the intervention time by increasing or decreasing the length of the free section of the float cable.