Atecpool Solar Pump

TABLE OF CONTENT (EN)

DETALLE COMPONENTES / COMPONENTS DETAIL

DOCUMENTACIÓN / DOCUMENTATION

1. PRESENTATION

solar pump designed for swimming pool water recirculation and filtration which has the next advantages:

- Energetic efficiency thanks to the use of a permanent magnet motor.
- Variable auto adjustable speed depending on solar radiation.
- Electronic control to optimize the working point.
- Energy savings due to the use of solar panels.
- Silent system.
- IP55 for using in humid and dusty environments.
- Electrical power supply connected to solar panels or to grid.
- Good integration between motor and drive.
- External signals for external control.
- Rapid and easy installation due to the integrated electronic on the motor and managed with a smartphone App.

When it is supplied with solar panels, an MPPT algorithm optimizes the energy, in every irradiation and temperature case, to obtain the maximum quantity of recirculated water.

Pump speed is automatically adjusted in relation to the solar radiation. When solar radiation increases, the pump works faster, increasing pumped water. When solar radiation decreases (clouds or solar time), the drive reduces its frequency giving lower water volume but still continues pumping until it reaches to the minimum solar radiation when under this level it stops.

electropump can be connected to solar panels or, if necessary, to electrical grid, but always separately.

Both supply options ensure that pump can work at any time. Also it is possible to satisfy the maximum consumption points using grid connection in order not to over dimension solar panels installation.

2. COMPULSORY CHECK

Compulsory check by starting up and functioning of the pump:

Prime the pump (if not risk of dry running).
GUARANTEE LOSS.

Regularly check the waterproofness. (A leak through a mechanical seal can cause important damages).

Do not use any reduction at suction and drive mouths.

Starting up only with open valves.

Pay attention on the cable position in order to prevent water seeping into the terminal box.
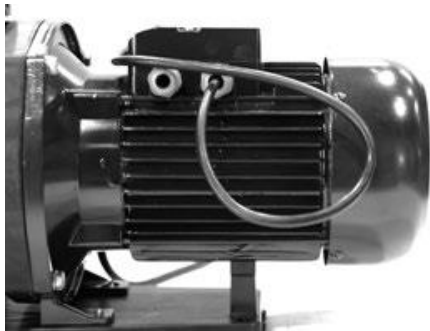
CORRECT. Prevent the entry of water through the electrical cable
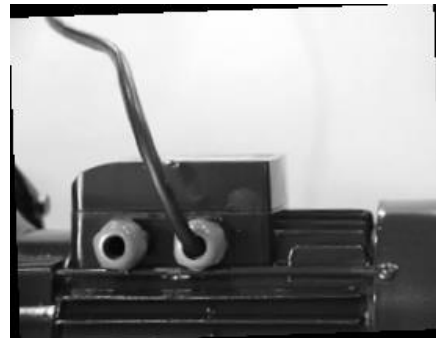
INCORRECT.

Daily cleaning of the prefilter basket.

In order to avoid mechanical seal blocking, turn the shaft trough the motor fan before starting up or after extended unuse.

**Install the pump in a well ventilated room or protected from weather impacts.
Do not substitute the instruction manual enclosed!
It is recommended to install the electro pump under water level.**

3. SAFETY ADVICES

The manufacturer strongly suggests carefully reading this operation manual before using and installing its products. Any operation (installation, maintenance and repair) must be carried out by trained, skilled, and qualified personnel. Failure to observe and follow the instructions in this manual may result in dangerous and potentially lethal results. Pay attention to all standard safety and accident prevention regulations.

*IMPORTANT: DO NOT ELECTRICALLY CONNECT THE ELECTROPUMP UNTIL THE HIDRAULIC PART HAS BEEN TOTALLY INSTALLED AND THE PUMP CORRECTLY PRIMED. THE DRIVE IS CONFIGURED TO WORK IN MODE AutoRUN: ON. SO IT WILL RUN AUTOMATICALLY WHEN THERE IS POWER SUPPLY.

⚠️ ⚡	The device must be connected to power supply via a switch to ensure the complete disconnection from the power supply before any operation on the device itself (including visual inspection).
	Disconnect the device from the power supply before commencing any work. Do not disassemble for any reason the device without having first disconnected the device from the power supply and having waited at least 5 minutes.
	The device and pumping system must be grounded properly before operation. For the entire period the device is powered, high voltage is present on the output terminals of the inverter part whether or not the pump is running.
	Tightening all the screws on the cover with washers is recommended before powering the device. Otherwise, there may be a failure to connect the cover to ground, creating the risk of electric shock or even death.
	When powering the device with both PV panels (DC) and grid or generator (AC) it is necessary to connect only one power source (AC or DC) at a time, to switch between AC and DC power supply through an AC / DC switch, to install protections on both the AC and DC side in accordance with local regulations.
	The pump must operate only if completely filled with water. Failure to do so may result in severe damage to the pump itself with consequent expiry of the warranty.
	The installation must be in a dry, well -ventilated place, protected from access by unauthorized persons (including children) and from direct exposure to the sun and atmospheric agents. The pump can contain traces of water used for the final tests of the product.
	Before putting into service, it is recommended to wash with fresh water. Do not use solvents or other chemicals for cleaning any part of the product. In the case of long periods of inactivity, it is recommended to completely empty the pump to avoid blocking and freezing of the hydraulic part.
	Inspect the pump and the suction filter periodically (at least once a year).
	During operation some parts of the pump can reach temperatures above 40 ° C (104 ° F). Avoid contact with flammable products and always ensure proper ventilation.
	The pump is designed to work only with fresh or salty water free of solid particles and fibers, with a maximum sand content of 50 g/m3.
	During operation the pump produces a strong suction that can trap people (especially children) causing severe physical damage or even death.
	To reduce these risks, it is recommended to install the pump and the system according to local regulations and check the correct functioning of the grilles that protect the suction points.
	Do not loosen, unscrew or open the filter cover for any reason while the pump is running. If the pump is installed below the water level, close the intake valve before opening the filter cover.
	Failure to comply with these recommendations can result in severe damages or even death.

Avoid any shock or significant impact during transport. Check the product immediately upon delivery and check for damage and/or missing parts. If either occurs, immediately notify the supplier. Damages due to transport, incorrect installation, or improper use of the device will null and void the warranty. Tampering or disassembly of any component will automatically void the warranty.
The manufacturer cannot be held responsible for any damages to people and/or property due to improper use of its products.

> Carefully read the instructions before starting the installation process, which should be in accordance with local standards.

4. DESCRIPTION

This pump has been designed for the recirculation of clean, slightly treated water in private and public pools.

4.1. Technical specifications

Motor - Drive:

- Supply Voltage: 90 - 400 VCC
  1x90-265 VCA
- Current: 6 A (230 VAC) 48-62 Hz P.F: 1
  10 A (140 VCC)
  max 11A
- Power P2:   max 1100W max 3600rpm
  V>140VCC, eta 85%
- Ambient Temperature: 4ºC- 50ºC (122ºF).
- Maximum altitude at maximum load: 1000m.
- Service: Continuous connected to grid, discontinuous connected to solar panels.
  Important: **Do not connect both supply systems at same time**.
- Protection: IP 55 (NEMA 4).
- Isolation Class: Class F.
- Connectivity: Communication Bluetooth SMART + serial port RS485 for communication MODBUS TRU.
- Protect the device from direct exposure to sunlight and atmospheric agents.

Pump:

- Pump body material: polypropylene + 30% fiberglass.
- Turbine material: noryl + 30% fiberglass.
- Turbine type: closed
- Shaft: Inox AISI 316L
- Mechanical seal: carbon + resin-ceramic
- Liquid density: 1 kg/l.
- Liquid temperature: 4ºC/50ºC.
- Maximum working pressure: 2 bar.

Weight: 10 kg (motor-drive and pump).

4.2. Performance
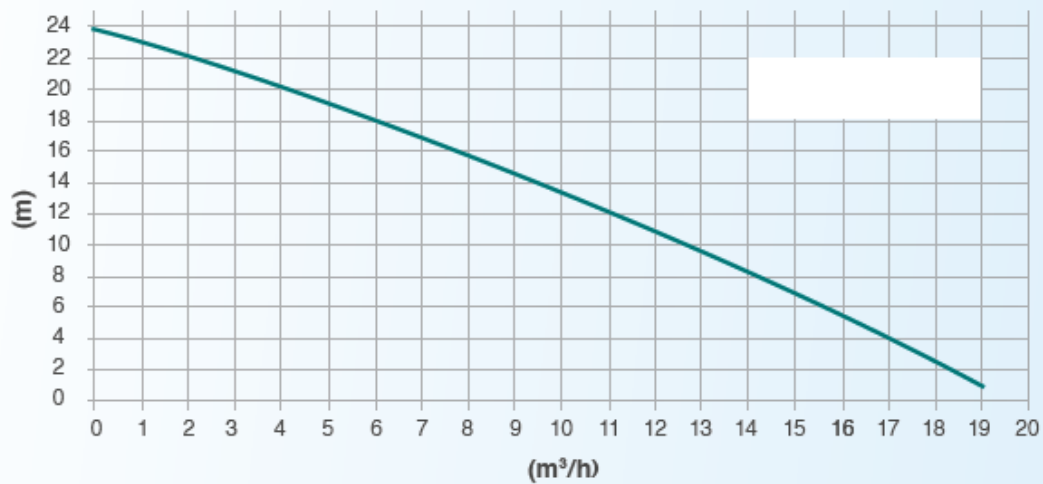
5. GENERAL INFORMATION
5.1.　　　Introduction

This manual contains the needed instructions to install, to use and to maintain the pump.

To obtain the characteristics indicated in the data sheets, it is necessary that all the recommendations given in this manual are accomplished and followed correctly. This will allow working with safe and durable equipment. The equipment supplier will provide the user with additional information, if it is required.

5.2.　　　Responsibility

All the equipment provided by ATECPOOL are duly protected to avoid possible accidents, but in any case all security instructions indicated in the equipment must be followed, documentation given and specially all local norms that are required.

It is exclusive responsibility of the installer to evaluate particular risks in each installation and of not allowing to connect and run the equipment without the adequate protections.

6. USER'S SAFETY GENERAL INSTRUCTIONS

Safety recommendations are based on our experience and on the normal use of the equipment. Only the security of the service can be guaranteed if it is used as indicated. It is mandatory to comply with the current Safety Regulations in each country.

Make sure that the devise has been properly selected for the application to which it is intended and that its status, installation, start-up and subsequent use are correct.

Before starting the pump, all its elements and especially those related to safety, must be correctly installed and fixed. Never start the pump with people around.

▲Installation operations repair and maintenance have always to be done with the device disconnected from grid or solar panels.

▲While the device is running, it must not been displaced, and not even corrected its position. This operation must be done with the equipment stopped.

▲Never use the supply cable or the impulsion tube such as a support element to raise or support the pump. Specific support elements must be used, such as cables, cords or chains, correctly dimensioned and fixed to the existing support elements prevue.

▲Installation must be checked periodically to maintain in good condition. If condition is not safe, the equipment should be stopped and repaired. The necessary spare parts will be the originals from the manufacturer or those recommended. The use of other spare parts of another origin, or of original spare parts rectified by third parties is not allowed and exempts the manufacturer or distributor from all their responsibilities.

7. TRANSPORT

The manufacturer supplies the equipment protected with the appropriate packaging, so that when transporting or storing it, it does not suffer damages that prevent its correct installation and / or operation.

The user, upon receipt of the equipment, will check the condition of outer packaging. If it shows signs of significant deterioration, it will formally state to who delivered it. It will also check the status of the content. It this one presents / displays defects that presumably prevented its correct operation it will also communicate formally to the supplier, in a maximum term of 8 days from the one of the reception.

In case of storage, humid environments should be avoided, where condensation can occur due to temperature changes. Likewise, in order to avoid imbalances due to dilation, exposure to the sun should be avoided.

8. INSTALATION
8.1.   Location

Access to the pump or facility must be sufficiently restricted so that no one can Access it inadvertently. There must be safe elements that prevent the access of children or other people that may cause risk. These should never remain near the pump while it is running.

The place of installation of the pump has to be dry. There must be a drainage of sufficient size in the lower part of the ground to protect against floods. If the pump is installed in a humid room, a ventilation system must be provided to prevent the formation of condensation water.

In the case of assemblies in very small spaces, the cooling of the air can become null and an aeration system (forced ventilation) is necessary in the order not to exceed the ambient temperature of 50ºC.

It will also be necessary to avoid obstacles that harm the correct ventilation of the engine and to foresee the possibility of inspection and maintenance of the equipment. It is important that the space reserved is sufficient to be able to disassemble the motor block horizontally and the pre-filter vertically.

Do not start the pump with the keys closed, this would increase the temperature of the liquid and form steam bubbles inside the pump.

8.2. Location and connection

The equipment will be installed as close as possible to the pool, at a distance not exceeding 5m from the surface intakes (skimmer / overflow). For longer distances, take into account the pressure drop of the pipes.

The pump must be mounted on a solid base with the shaft in horizontal position and with the top of the pre-filter on top. It should be possible to remove the lid and remove the basket to clean it easily.

In all the installations under load, a shut-off valve will be placed in suction and another in impulsion. If the suction valve is not a gate valve, it should be mounted horizontally with the steering shaft.

For connection of the suction mouth of the pump with the tube, if it is of top Ø, an eccentric fitting must be used.

When the geodesic level in impulsion is greater than 15 meters, it is necessary to insert a check valve between the pump and the closing valve in impulsion to protect the pump from the "water hammer".

Do not use the pump as a support for the tubes. The tubes have to be anchored on their own supports. You have to take into account the weight of the pipes filled with water.

The position of the connection ports of the tubes must coincide perfectly without deviations or effort with the suction and discharge ports of the pump. In this way it is avoided that the tensions of the pipes can cause alignment errors between the body of this and the motor shaft, reducing the life of the mechanical seal.

8.3.   Pipe connections

The connection of the pipe with the pump body will be carried out primarily in PVC pipe. The diameter of the pipes will depend on the flow. Provide for the Ø of the pipes so that the maximum water speed in the piping does not exceed 1 m/s in suction and 2.5 m/s in the drive. In any case, the ø of the suction pipe must not be less than the Ø of the discharge inlet.

The suction pipe should be perfectly watertight and must be installed with an upward slope depending on the direction of the water running (not less than 1/100), thus making the formation of air bags.

The suction pipe must have at least the same diameter as the suction inlet of the pump. If the suction pipe exceeds 10 meters, the pressure losses must be taken into consideration. Install the pipes in such a way as to avoid the formation of air bags inside, especially in the suction pipe. Fig. 1 shows a correct pipe.

Fig. 1
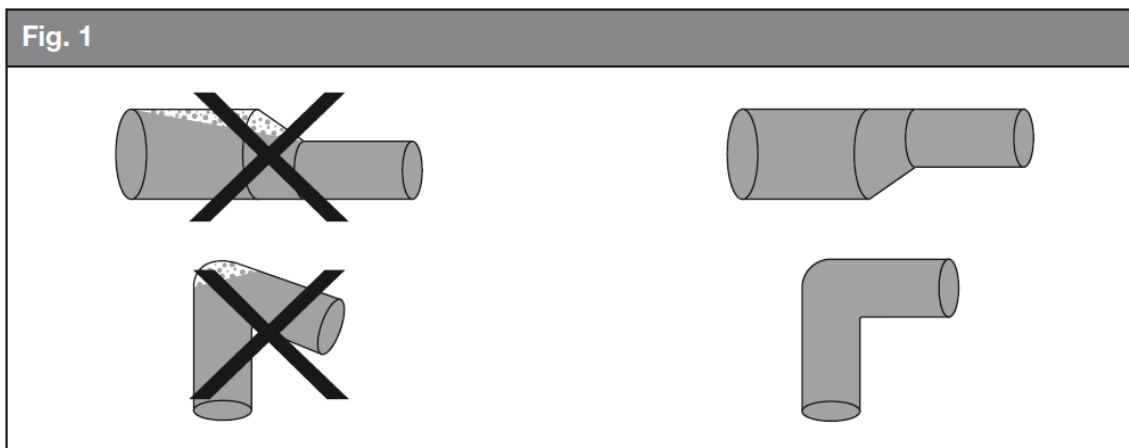
The piping must be mounted so that the tensions caused by variations in temperature do not affect the pump.

If the pump is installed with long pipes, these must have adequate support before and after the pump and it is advisable to place a check valve or an anti-water hammer on the drive.

▲Pipes and connections must be installed carefully.

If a vacuum hose is used, it must be of the non-compressible type (with spiral reinforcement). The suction pipe/hose must be as short as possible to ensure optimal working conditions.

It is recommended to install shut-off valves on both sides to insulate the pump.

▲ The pump does not allow to run against a shut-off valve, as this will cause an increase in temperature and vapor formation that can damage it.

If there is any danger that the pump will run against a shut-off valve, a minimum fluid flow must be secured through the pump by connecting a bypass/bleeder to the discharge pipe.

8.4. Electric connection

▲ Before removing the cover from the junction box and before moving or dismantling the pump, make sure that the power supply is disconnected.

As a general rule, the electrical installation shall be in accordance with the provisions of the regulations and additional technical requirements applicable. The electrical installation and connection of the pump must be verified by an authorized electrician.

The power supply network will have neutral and ground conductors. Grounding wires must be the first to be connected, and the last to be disconnected. The grounding conductor of the network will connect electrically to the non-voltage metal parts of the equipment.

The mains voltage must correspond to that indicated on the equipment nameplate. The pump motor supports maximum voltage variations ± 10%.

The section of the conductors to be used must be enough to endure the intensity absorbed by the equipment (see motor characteristics details.).

1. An omnipolar disconnection system (for all phases) with contact opening.
2. Protection devices against circuit breakers and overloads on Motors.
3. High-sensitivity differential switch.

The electrical characteristics of the protection devices and their regulation shall be in accordance with those of the motors to be protected and with the conditions of service envisaged for them, and the instructions given by the manufacturer which appear on the plate of Features in the engine.

8.4.1. IN Cables

Model	Cable gland M20	Cable Gland M12	EMC Clip
SOLAR PUMP	1	3	3

Use EMC clips to connect the sign cable protections to ground

8.4.2. Electrical connection
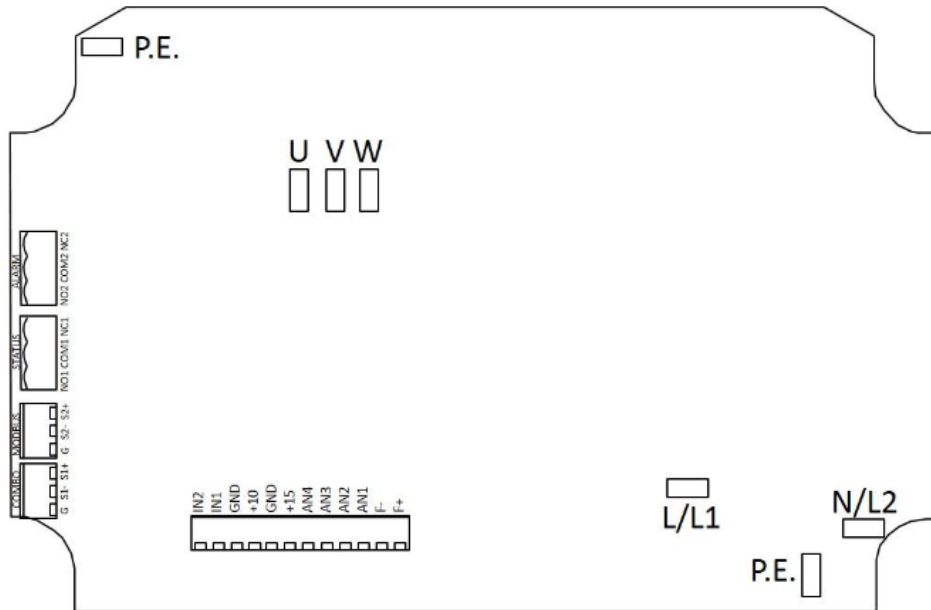
Alimentación:

- o   AC: L(L1), N(L2), P.E.
- o   CC: L(L1), N(L2), P.E.

⚠	In the case of DC power supply it is not necessary to respect the polarity. Connect only one power source (AC or DC) at a time.

It is recommended to use pre-insulated female faston terminals 6,3x0,8mm.

In order to respect limits of EN61800-3 Category C1 for irradiated disturbs, it is necessary to add a ferrite on input phases L and N. The ferrite and cabling instructions are available on request.

Recommended line cables stripping (without ferrite)
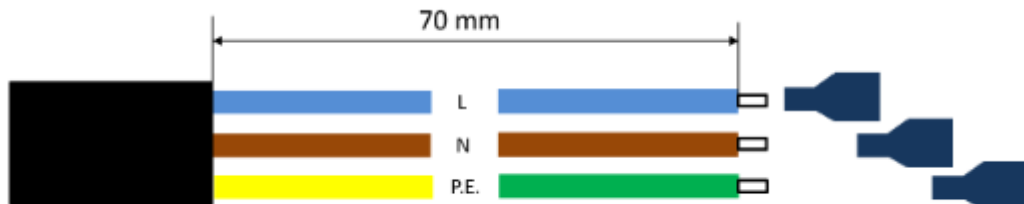
Motor output:

- U (red), V (black), W (blue), P.E.

⚠️	Respect the correspondence of colors and phases to ensure the correct rotation sense. Failure to comply with this recommendation will result in a drastic reduction in performance and possible damage to the pump itself.

Analogic inputs (sensors)

- AN1: 4-20 mA, sensor 1
- AN2: 4-20 mA, sensor 2
- AN3: 0-10 V, external set
- AN4: 0-10 V, trimmer for frequency regulation or external set 2
- +10
- +15

It is recommended to use pre-insulated ferrules.

Use shielded signal cables by placing the screen at one end using the provided EMC clips. Follow the below figures for correct cable stripping and EMC clip assembling.
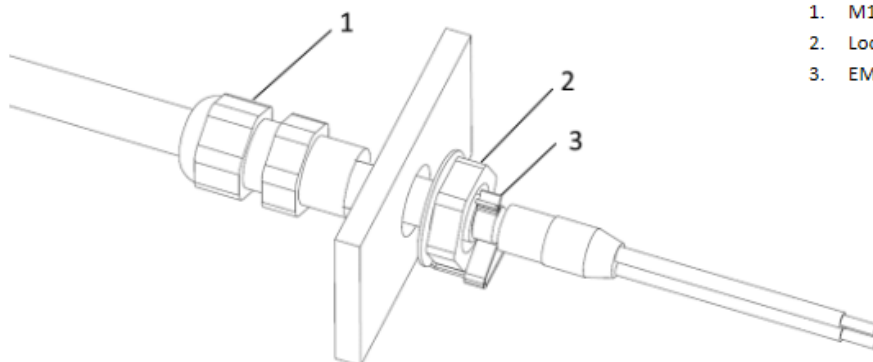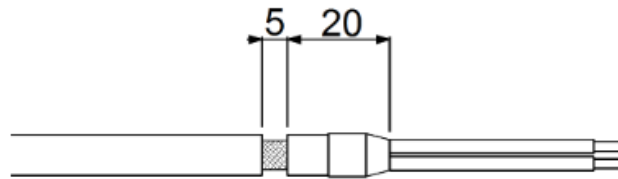
1. M12 cable gland
2. Locknut
3. EMC clip

Digital inputs:

- **IN1:** motor start / stop
- **IN2:** motor start / stop or set value 1 – 2 switching*

*only when "control mode: constant value 2 values" is selected

It is recommended to use only volt free contacts.

Digital inputs can be configured as Normally Open or Normally Closed by software. Read programming chapter.

It is recommended to use pre-insulated ferrules.

Use shielded signal cables by placing the screen at one end using the provided EMC clips.

Digital outputs

- NO1, COM1: motor status, closed contact with motor running.
- NC1, COM1: motor status, closed contact with motor stopped.
- NO2, COM2: alarm status, closed contact without alarm.
- NC2, COM2: alarm status, closed contact with alarm or no power supply.

Relays are volt freecontacts. Max. voltage to the contacts is 250 V with max current 5 A.

It is recommended to use pre-insulated ferrules.

Use shielded signal cables by placing the screen at one end using the provided EMC clips.

COMBO serial:

- **S1+, S1-, G**

It is recommended to respect the polarity.

It is recommended to use pre-insulated ferrules.

Use shielded signal cables by placing the screen at one end using the provided EMC clips

MODBUS RTU serial:

- **S2+, S2-, G**

It is recommended to respect the polarity.

It is recommended to use pre-insulated ferrules.

Use shielded signal cables by placing thescreen at one end using the provided EMC clips

8.4.3. Protections

To ensure electromagnetic compatibility (EMC) of the system, it is necessary to apply the following measures:

- Always connect the device to ground.
- Use shielded signal cables by placing the screen at one end using the EMC clips.
- Use motor cable as short as possible (<1 m / <3 ft). For longer lengths, it is recommended to use shielded cables connecting the screen at both ends.
- Separate signal, motor, and power supply cables.

In order to respect limits of EN61800-3 Category C1 for irradiated disturbs, it is necessary to add a ferrite on input phases L and N. The ferrite and cabling instructions are available on request.

9. USE AND PROGRAMMING

The pump can be operated in a basic way through the included keyboard.

	⏻ ○	Stand-by red led	Red led ON: unit is powered with correct input voltaje Blinking red led: under voltage
	▷ ○	Motor running Green led	Green led ON: motor is running Green led OFF: motor is stopped When the units is on "constant value" control mode, the green led blinks with higher frequency as much as the measured value is next to set value. If measured value is the same as set value, the green led is steady.
	🔔 ○	Alarm yellow led	Yellow led blinks with frequency which depends on alarm type. See "Alarms" chapter.
	▷/□	Motor start and stop buton	Motor start and stop. If the unit is in alarm status, it is possible to try resetting the alarm by pressing the button two times.
	SET ○	SET Green led	Green led is ON when it's possible to modify the set value (constant value mode) or the set frequency (fix frequency mode). Keep pressed the Up button or the Down button more than 5 seconds in order to enable the set adjusting. If the SET led is off, it is not possible to change the set value. When two or more units are inCOMBO mode, the SET led blinks only on master unit. In this way it is possible to understand which unitin the group is the master and thus act on it to start and stop the system. Green led blinks fast when theunit is connected to smartphone and remotely controlled by the App.

		Up button	Through the UP button is possible to increase the set value (constant value mode) or the set frequency (fix frequency mode). In order to allow set changing it is necessary to keep pressed the UP button or the DOWN button more than 5 seconds till the green SET led becomes ON.
		Dowm button	Through the DOWN button is possible to reduce the set value (constant value mode) or the set frequency (fix frequency mode). In order to allow set changing it is necessary to keep pressed the UP button or the DOWN button more than 5 seconds till the green SET led becomes ON.

10. MONITORING AND PROGRAMING

In order to access to parameters monitoring and programming it is necessary to use a smartphone or tablet with Bluetooth 4.0(BTLE) and Nastec NOW App installed. The App is available on Android or iOS and can be downloaded free of charge through the on-line stores.

It is possible to disable the BTLE connection by removing power supply, wait at least 30 seconds till the red STAND-BY led is OFF, keep pressed together START/STOP button and DOWN button and give power supply. Release the buttons after 5 seconds.

It is then possible to enable the BTLE connection by removing power supply, wait at least 30 seconds till the red STAND-BY led is OFF, keep pressed together START/STOP button and UP button and give power supply. Release the buttons after 5 seconds.

Through the App it is possible to:

- Monitor multiple operating parameters simultaneously.
- Get statistics of energy consumption and check alarms history.
- Perform reports with the possibility to insert notes, images and email them or keep them into the digital archive.
- Make programs, save them in the archive, copy them to other devices and share them among multiple users.
- Remotely control, via wi-fi or GSM, a device, using a smartphone nearby as a modem.
- Access to manuals and additional documentation.
- Have on-line help on parameters and alarms details.

10.1. Monitoring

Following parameters can be monitored through the App in "Monitor" selection.

Actual value [bar]	Actual value is the value read by the sensor.
Set value [bar]	Set value is the value which has to be kept constant.
Frequency [Hz]	Motor running frequency.
Voltage Bus DC [V]	DC voltaje on capacitor bus.
Motor current [A]	Phase current absorbed by the motor.
Motor power factor	Motor cosphi (P.F.).
Power [W]	Electrical power absorbed by the motor.
Module temperatura [ºC]	IGBT module temperatura.
PCB temperatura [ºC]	Printed circuit board temperatura.
Inverter hours [h]	Total inverter hours.
Motor hours [h]	Total motor running hours.
Address	Unit address when in COMBO mode.
ALARM HISTORY	Record of last 8 alarms.

10.2. Programming

Parameters are organized in four main menus: CONTROL, MOTOR, IN/OUT, CONNECT.

Parameters are password in 2 levels of access:

- Installer level (CONTROL, IN/OUT). Password: 001
- Advanced level (MOTOR, CONNECT). Password: 002

10.2.1. IN/OUT parameters

| Parameter	Default	Description
Unit XXXXX	Bar	Unit [bar,%,ft,in,cm,m,K,F,C,gpm,l/min,m3/h,atm,psi]
F.scale sensor XXX.X	16	Sensor full scale.
Min. Value sensor XXX.X	0	Sensor mínimum value.
Offset input 1 [%]	20%	Zero correction for analog input 1 (4-20mA) (20mA x 20% = 4mA).
Offset input 2 [%]	20%	Zero correction for analog input 2 (4-20mA) (20mA x 20% = 4mA).
Offset input 3 [%]	0%	Zero correction for analog input 3 (0-10V) (10V x 0% = 0V).
Offset input 4 [%]	0%	Zero correction for analog input 4 (0-10V) (10V x 0% = 0V).
AN1, AN2 function XXXXXXXX	Independient	Function logic for analog input AN1, AN2 (independent, lower value, higher value, difference 1-2).
Digital input.1 N.O. / N.C.	N.O.	By selecting N.O. (normally open) the inverter runs the motor if the digital input 1 is open; motor will be stopped if the digital input 1 is closed. By selecting N.C. (normally closed) the inverter runs the motor if the digital input 1 is closed; motor will be stopped if the digital input 1 is opened.
Digital input .2 N.A. / N.C.	N.O.	By selecting N.O. (normally open) the inverter runs the motor if the digital input 2 is open; motor will be stopped if the digital input 2 is closed. By selecting N.C. (normally closed) the inverter runs the motor if the digital input 2 is closed; motor will be stopped if the digital input 2 is opened.
Dig. input 1 manual reset Enable / Disable	Desactivado	Enabling or disabling digital input 1 manual reset.

Dig. Input 2 manual reset Enable / Disable	Disable	Enabling or disabling digital input 2 manual reset.
Dig.In.2 delay X[s]	3	Digital input IN2 delay. Digital input IN1 has 1 second fix delay.

10.2.2. Control parameters

Parameter	Default	Description	MPPT	Constant Value	Fix speed	Const.value 2 set	Fix speed 2 val.	External speed
Control mode - MPPT - Constant value - Fix speed - Const.value 2 set - Fix speed 2 val. - External speed	MPPT	Mode of control: - MPPT: pump speed is adjusted in order to obtain maximum power available from PV panels. - Constant value: the inverter changes the pump speed to keep the set value constant regardless water demand. - Fix speed: the inverter feeds the pump at set frequency, so the pump speed is kept constant. - Const. value 2 set: the two values are selected by opening or closing the digital input IN2. - Fix speed 2 val: the two values are selected by opening or closing the digital input IN2. - External speed: control motor frequency by using analogical input AN4						
Max. Alarm value XXX.X [bar]	10	Maximum value allowed in the system. If the readen value goes over this value, an alarm occurs and the pump is stopped. Pump is automatically restarted if the readen value goes below the maximum value for a period of at least 5 seconds.	✔	✔	✔	✔	✔	✔
Mín. alarm. value XX.X [bar]	0	Minimum value allowed in the system. If the readen value goes lower than this value, an alarm occurs and the pump is stopped. Pump is automatically restarted if the readen value goes higher than the minimum value for a period of at least 5 seconds.	✔	✔	✔	✔	✔	✔
Ext. set enabling ON/OFF	OFF	Enabling of set value changing by analog input AN3.		✔		✔		

Set value XXX.X [bar]	3	Set value to be kept constant.	✓	✓				
Compensation XXX.X [bar]	0	Value compensation at the máximum frequency for each pump. Acting on the Green button you can reverse the sign.		✓				
Set value 2 XXX.X [bar]	3	Set value to be kept constant				✓		
Compensation 2 XX.X [bar]	0	Value compensation at the máximum frequency for each pump. Acting on the Green button you can reverse the sign.				✓		
Set value update XX [s]	5	Time to update set value for compensation		✓		✓		

To ensure proper operation of pressure control is recommended to place the sensor near the pump. To compensate the pressure loss in the pipes (proportional to flow) it is possible to vary the pressure set in a linear relation with respect to frequency.
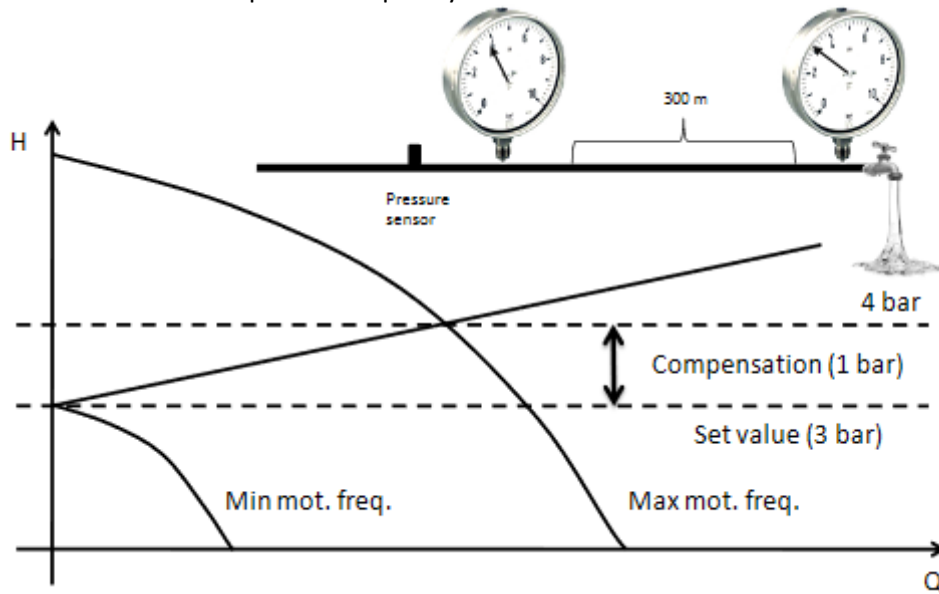
It can perform the following test to verify the correct value of compensation:
1. Install a pressure gauge away from the pressure sensor
2. Open completely the valve
3. Check the pressure gauge
→ Set the value of compensation. Equal to the difference of the values from the two gauges.
When using a group of pumps, the pressure compensation to be applied to each pump is equal to the total pressure compensation (when all the pumps are running at full speed) divided by the number of pumps in the group.

Operating freq. XXX [Hz]	50	Frequency value to feed the pump.			✓			

Operating freq.2 XXX [Hz]	50	Frequency value to feed the pump.					✔	
Freq. mín. control XXX [Hz]	50	Minimum frequency below which the pump tries to stop.		✔		✔		✔
Stop delay XX [s]	5	Delay for which the pump tries to stop below freq. min.control		✔		✔		✔
Control ramp XXX.X [s]	20	Ramp time from freq.min.control to min.motor freq. If, during this time the read value goes below the (set value – delta control), the inverter powers the motor againM otherwise, the inverter will stop the pump.		✔		✔		✔
Delta control XXX.X [bar]	0,1	Value drop below the set value required to restart the pump during control ramp.		✔		✔		
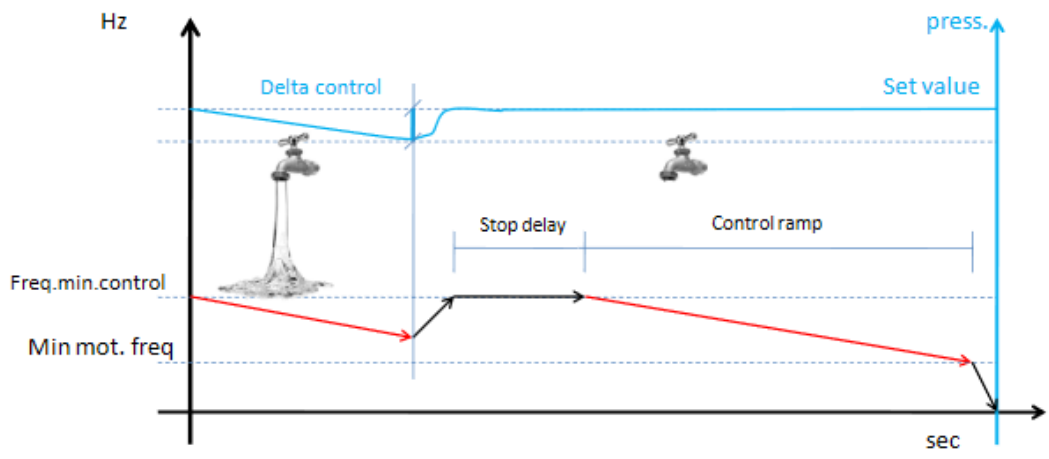
Delta start XXX.X [bar]	0,5	Value drop below the set value required to start the pump from stop condition.		✔		✔		
Delta stop XXX.X [bar]	0,5	Value increase respect to set value which must be passed so that there is a forced shutdown of the pump		✔		✔		
MPPT: volt.gap dV = XX.X [V]	XX	MPPT voltaje gap	✔					
MPPT: time.gap dt = XX.X [s]	XX	MPPT time gap	✔					
MPPT: freq. gap df = XX.X [Hz]	XX	MPPT frequency gap	✔					

Ki Kp		Kp and Ki parameters allow the dynamic control of system; set values are usually enough to get a valid dynamic control.	✓	✓		✓		
Combo ON/OFF	OFF	Enabling or disabling COMBO operation as described in COMBO chapter.		✓		✓		
Address XX	00	Inverter address: - 00: Master - De 01 a 07: slave		✓		✓		
Alternance On / OFF	OFF	Function to allow alternating between the inverters connected in COMBO in order to allow equal use of each pump in the group; master will reorganize the starting priority of the pumps by checking the life of each them.		✓		✓		
Alternance period XX [h]	0	Maximum difference in terms of hours between the pumps in the group. 0 stays for 5 minutes.		✓		✓		
COMBO synchrony ON/OFF	OFF	With this parameter it is possible to activate the synchronous operation (same speed) of the pumps in COMBO. It is however necessary to appropriately lower the parameter "f.min.control".		✓		✓		
Start delay AUX t = XX [s]	00	Delay time with which the slaves start after the variable speed pump has reached the máximum frequency and the pressure value has fallen below set value – delta control.		✓		✓		
PI Control Direct / Reverse	Direct	Direct: increasing motor speed also misured value increases. Reverse: increasing motor speed, misured value decreases.		✓		✓		
Periodic autorun t = XX [h]	00	Pump periodic autorun after XX hours of inactivity. Value 0 makes function disabled. Warning, review the advice chapter 1.		✓	✓	✓	✓	✓
Dry run cosphi X.XX	0,65	Cosphi value below which the unit stops the motor and give "no water" alarm.	✓	✓	✓	✓	✓	✓

Restarts delay XX [min]	10	Restart delay after a dry running alarm. At each tentative (max 5) restart delay will be doubled.	✓	✓	✓	✓	✓	✓
Change PASSWORD 1		Pressing ENT it is possible to modify the password for installers, (level 1) (default password: 001)	✓	✓	✓	✓	✓	✓
Change PASSWORD 2		Pressing ENT it is possible to modify the password for installers, (level 1) (default password: 002)	✓	✓	✓	✓	✓	✓

10.2.3. Motor parameters

| Parameters	Default	Description
Max motor freq. XXX [Hz]	50	Maximum motor frequency. Note: by reducing the maximum motor frequency, maximum current will be reduced as well.
Ramp up time XXX.X [sec]	4	Ramp-up time to reach the speed required to achieve the set pressure (or frequency value). Longer times delay the system reaching the preset value but better protect system components.
Ramp down time XXX.X [sec]	4	Ramp-down time to reach zero speed. Longer times keep the system pressurized, while protecting the system components.
Autorestart ON/OFF	OFF	If ON is selected, after a lack of voltaje, the pump returns to its normal status; if the inverter was powering the pump before the voltaje drop, it resumes powering the pump automatically. Warning, review the advice in chapter 1.

10.2.4. Connectivity parameters

Parámetro	Predeterminado	Descripción
MODBUS address XXX	1	MODBUS address from 1 to 247
MODBUS baudrate XXXXX [bps]	9600	MODBUS baudrate from 1200 bps a 57600 bps
MODBUS data format XXXX	RTU N81	MODBUS data format: RTU N81, RTU N82, RTU E81, ETU 081

10.2.5.   Protections and alarms

ALARM MESSAGE	LED NOTIFICATION	ALARM DESCRIPTION	POSSIBLE SOLUTIONS
UNDER VOLTAGE	Red STAND-BY led blinking	Supply voltaje too low	Check possible causes of undervoltage.
OVER VOLTAGE	Red STAND-BY led and yellow ALARM led blinking	Supply voltaje too high	Check possible causes of overvoltage.
DRY RUN COSPHI	Yellow ALARM led 1 blink	Motor cosphi is lower than the set dry running cosphi.	Check if the pum pis primed. Check the set dry running cosphi. Dry running cosphi is approximately 60% if the rated cosphi (at rated frequency) listed on the motor plate. If pump's cosphi is lower than the set dry-running cosphi for at least 2 seconds, the inverter stops the pump. The inverter tries to run the pump every 10, 20, 40, 80, 160 minutes and then the pump is stopped. WARNING: if dry running protection occurs, the inverter will try to start the pump automatically. Be sure to cut power supply before performing any maintenance.
OVERCURRENT MOT.	Yellow ALARM led 2 blinks	Motor overload: motor current is higher than the rated motor current setting parameter	Make sure that the motor current setting parameter is at least 5% higher than rated. Check other possible causes of over current.
SENSOR FAULT	Yellow ALARM led 3 blinks	Sensor error	Check the transducer Check the wiring of transducer
OVER TEMP. INV.	Yellow ALARM led 4 blinks	Inverter over temperatura	Make sure that ambient temperatura is less tan 40ºC (104ºF) Check if cooling fan is working properly and if mounting space is adequate for proper cooling.
IGBT TRIP ALARM	Yellow ALARM led 5 blinks	Communication between master and slave(s) has been interrupted.	Check the wiring connections
NO COMMUNICATION	Yellow ALARM led 6 blinks	Communication between master and slave(s) has been interrupted.	Check the wiring connections
MAX. VALUE ALARM	Yellow ALARM led 7 blinks	Measured value has reached the máximum value accepted by the system.	Check possible causes of reaching max value Check the max alarm value setting
ADDRESS ERROR	Yellow ALARM led 9 blinks	Two units with master address in the group	Check units address
ALARM CPU	Yellow ALARM led 10 blinks	Error on CPU	Contact technical service
ACTIVE DIGITAL INPUT	Yellow ALARM led fast blinking	Digital input activated	Check digital input connections

11. START UP
11.1. Priming and purging of the pump
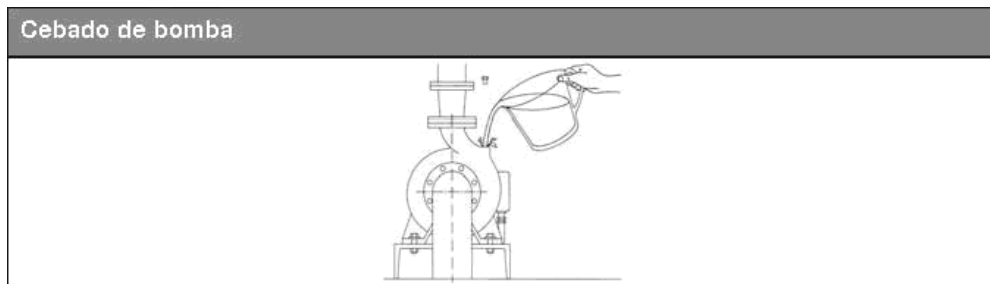
Before starting up, the pump must be primed with water. The water refrigerates and lubricates the mechanical seal. The arrows on the pump body point to the correct direction of rotation.

With the pump in charge, it is not necessary to prime it, the pump works in charge if the water level of the pool above the pump shaft, although due to losses of load and valves of passage, it is advisable that at least there is a height available of 1.5 m from the axis h Till the water level of the pool.

With the pump in suction, remove the side bleed plug from the pump and fill it until it is fully filled with water as shown in the drawing. Alternatively, the pump can be primed through the pre-filter if the installation has this element.

If pump does not operate properly after 5 minutes, stop pump and check water level in suction pipe and pump.

11.2. Rotation direction

In the first connection, the motor's direction of rotation must be specially monitored. Continuous reverse rotation may damage the mechanical seal. For the correct connection, start the motor for a few seconds and check that the direction of rotation is indicated on the arrow on the fan cover.
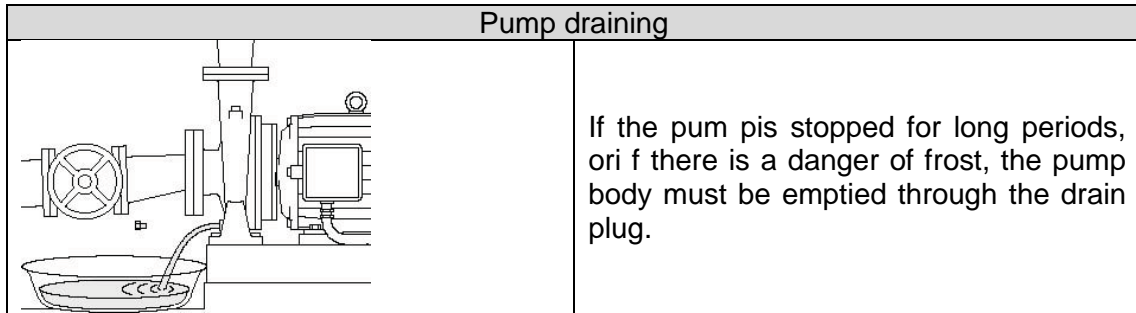
11.3. Motor blockage

If the pump has been stopped for a long period of time, the motor may be slightly stiff. Make sure that the motor shaft rotates freely, if the motor is stiff, try to release it by exerting reasonable force through the fan. Do not start if it is locked.

12.   MAINTENANCE/ CONSERVATION

Disconnect the power supply before handling. With the engine stopped, periodically check and clean the pre-filter basket. To remove the basket, place the suction and discharge valves in the "closed" position. Release the pre-filter cover, remove the basket and clean it under tap water. High pressure cleaning is not allowed. Do not insert chemical products into the basket.

In order to avoid its deterioration, do not hit. To relocate the basket, insert it gently until it is in its initial position. Place the lid gasket and grease it with Vaseline. Do not forget that the valve position changes are always carried out with the motor stopped.

Pump draining
If the pum pis stopped for long periods, ori f there is a danger of frost, the pump body must be emptied through the drain plug.

Before starting the pump again, place the plug with its gasket. Fill the pre-filter with water and check with a screwdriver that the motor is not blocked. Do not start if it is locked. If the motor is stiff, try to release it by exerting reasonable force through the fan.

13.   DISMANTLING

1. Before any operation, all valves must be closed.
2. Disconnect the electrical mains switch and the differential switch.
3. Release and remove the power cords from the terminal box.
4. Empty the pump. Use the bleed plug.
5. Release the suction and discharge sleeves.

13.1.   Pump and turbine dismantling

- Proceed to dismantle the pump body. To do this, unscrew the 8 screws on the back of the pump body with the pump support.
- We extract the motor-axis-turbine assembly status by removing backwards.
- Then we will block the motor shaft by helping with a vise, while turning the turbine to the left (counter-clockwise), with a wrench.

14. MOUNTING

All mounting parts must be clean and in perfect working condition.

To assemble the pump:

1. Lubricate the gasket of the mechanical seal with Vaseline, never with oil or grease, as this may eventually dry the gasket.
2. Assemble the mechanical seal. Press it until it fits into its housing.
3. Place the Cotter pin in its shaft housing. Assemble the turbine on the shaft, place the washer and tighten the nut.
4. Proceed to reposition the pump body and tighten the screws.

For the application of any spare part, specify the designation, the number of position in the cutting plane and the data of the nameplates located on the engine.

The technical data expressed in this manual are indicative. Our pumps and equipment are subjected to a continuous improvement process and the data are updated permanently on our website.

WARNINGS:

-All repairs carried out on the equipment must be made by the official or authorized service technician; otherwise, you will lose all warranty and liability.

-If the user uses the equipment in a manner not specified by the manufacturer, the protection of the equipment may be compromised, thereby losing the warranty.

15. RECYCLING
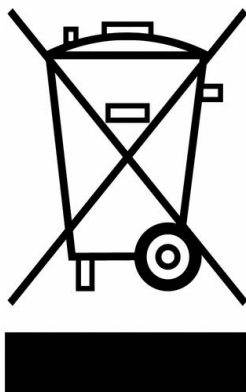
In compliance with the Directive 2012/19/EU for waste electrical and electronic equipment (WEEE), the products marked with this symbol must be deposited at the local recycling center in each region for their selective collection, optimize the recycling of the components and materials and, reduce the impact on human health and the environment.
The consumer should contact the local authority or the seller to inquire about the proper disposal of their appliance.

16.   WARRANTY

Atecpool will replace or repair free of charge in any of its technical services, for a period of 24 months from the date of departure of the product from our warehouses, any product that may show manufacturing defects. This warranty is reduced to 12 months for continuous or permanent service pumps.

In accordance with current legislation, Atecpool is not responsible for damage caused to our equipment due to improper repair or for parts that have been replaced by parts or parts not original or not approved by the manufacturer. Atecpool is not responsible if repairs were not carried out by our technical services.

Atecpool is exempt from any liability for any direct or indirect damage to the equipment due to defective installation or lack of maintenance, negligent handling, tampering by unauthorized personnel or electrical overload.

In any case, the responsibility of Atecpool International Espana   is limited to the replacement in the shortest possible time of the defective part without being required by any other liability or indemnifications.
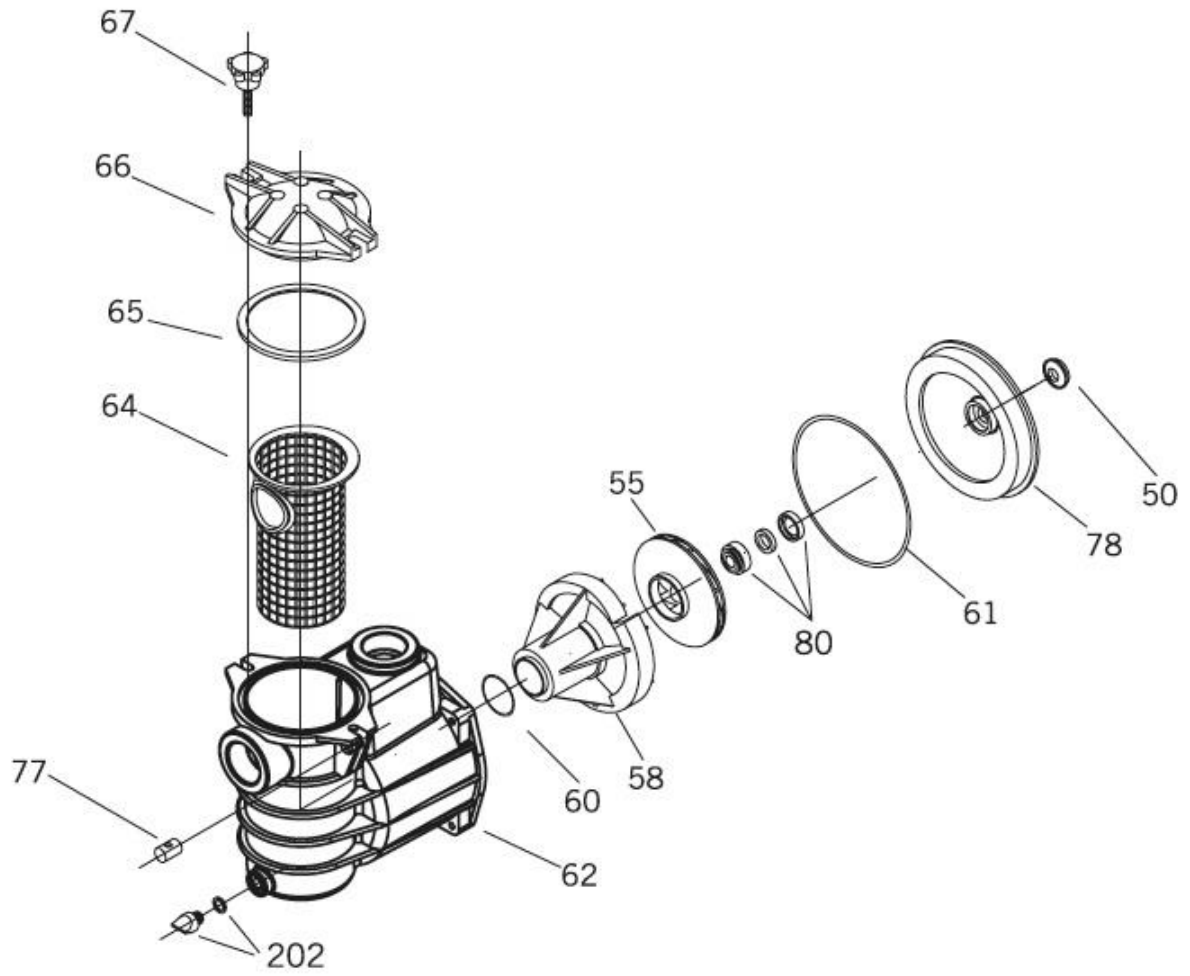
17.   TROUBLE SHOOTING TABLE

If the engine is flooded, do not attempt to start it, contact with a Atecpool technician.

| Fault	Possible causes

The pump works but no water is coming out	1) The pump has not been primed and/or purged.
	2) There is some pore in the suction pipe so the pump sucks air instead of water.
	3) The pre-filter cover has not been properly closed:
	  - Check the pre-filter basket.
	  - Tighten the lid nuts equally.
	4) Suction height is too large.
	  - The maximum suction height is 6m.
	5) The total load loss of the system exceeds the pump's capacity.
	6) Stoppage for dry working.

Pump not working satisfactorily	1) Revise APP's error list.
	2) The direction of rotation is incorrect (for three-phase pumps only):
	  - Reconnect. Reverse the direction of rotation.
	3) The pre-filter basket of the pump or skimmer is dirty or clogged.
	  - Clean the pre-filter basket.
	4) The pool water level is too low:
	  - Increase the pool water level.
	5) The pipe or foot valve of the suction pipe are dirty, partially or completely blocked
	  - Clean.

The pump is flooded	In case of accidental flooding, do not attempt to start the engine. Notify an authorized technician, and they motor will dismantle the engine for drying.

18. COMPONENTES / COMPONENTS

COMPONENTES	SPARE PARTS
50 Paragoteo	50 Drip washer
55 Turbina	55 Impeller
58 Difusor	58 Diffuser
60 Junta difusor	60 Diffuser gasket
61 Junta cuerpo bomba	61 Pump housing gasket
62 Cuerpo bomba	62 Pump housing
64 Cesta filtro	64 Prefilter basket
65 Junta tapa filtro	65 Prefilter cover gasket
66 Tapa filtro	66 Prefilter cover
67 Palomilla	67 Knob
77 Tuerca sujeción palomilla	77 Fixing thumb nut
78 Cuerpo intermedio	78 Intermediate housing
80 Sello mecánico	80 Mechanical seal
202 Tapón y junta desagüe	202 Drain plug and drain plug gasket

19. DIMENSIONES / DIMENSIONS

Dimensiones/Dimensions
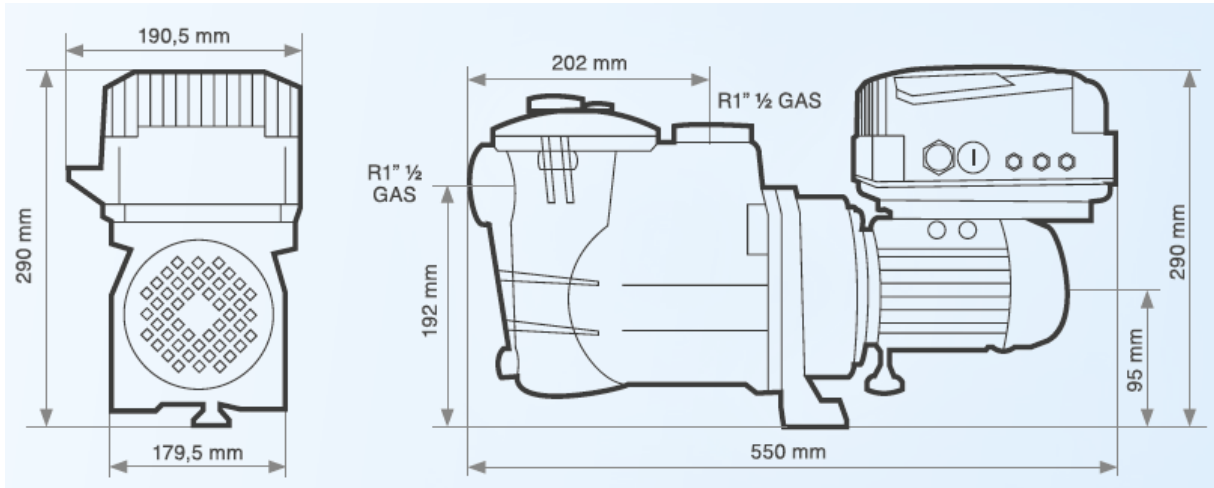
20. DECLARACION CE / EC CONFORMITY DECLARATION

EN

According to enclosed documentation, Atecpool Internatioanl Espana . declares that is compliant with:
Machinery Directive **2006/42/EC**, Low Voltage Directive **2014/35/EU**, Electromagnetic Compatibility Directive **2014/30/EU**, Restriction of Hazardous substances (RoHS) **2011/65/UE** and WEEE Directive **2012/19/EU**.

And conforms the following regulations:

EN 61000-6-3:2007 + A1:2011, EN 62233:2008, EN 61000-6-1:2007,
EN 62311:2008, EN 61800-3:2004 + A1:2012
EN 60529:1991 + A1:2000 + A2:2013
ETSI EN 301 489-17 V3.1.1:2017
EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017
ETSI EN 301 489-1 V2.1.1:2017
EN 50581:2012, ETSI EN 300 328 V2.1.1:2016-11
EN 809:2009, EN 60335-2-41:2012