OWNER'S MANUAL

(GB) Selfpriming multi-impeller pumps and Boosters

(F) Pompes auto-amorçantes multicellulaires et Suppresseurs

(I) Pompe autoadescanti multicellulari e Autoclavi

(D) Selbstansaugende Oberflächenpumpen und Autoklaven

(E) Bombas autoaspirantes multiturbinas y Depósitos de acumulación

(NL) Zelfaanzuigende oppervlaktepompen en Drukvaten

(SF) Itsesyöttävät monivaiheiset pumput ja Varustetut paineastiat

(P) Bombas autoferrantes de rotores múltiplos e Autoclaves

(S) Självfyllande ytpumpar och Hydroforer

(RUS) Поверхностные самозаливающиеся насосы с несколькими рабочими

(CZ) Povrchová samonasávací čerpadla s několika oběžnými kol a Agregáty

(SLO) Površinske avto-črpalne črpalke z več turbinami in Autoklavne

(SK) Povrchové samonasávacie čerpadlá a Agregáty

(HR) Površinske auto-usisavajuće pumpe i Autoklavne

(SCG) Površinske auto-usisavajuæe pumpe i Autoklavne

(MK) Површински авто - всмукувачки пумпи со повеќе ротативни тела.

(BG) Самозасмукващи ротационни повърхностни помпи. Бустери

(H) Önfelszívó, több járókerékkel ellátott szivattyúk és Nyomásfokozók

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1. SAFETY MEASURES

Before starting the pump, read this instruction booklet carefully and keep it in a safe place for future reference
For safety reasons, the pump must not be used by anyone who has not read these instructions. The pump must not be used by anyone under 16 years of age or by anyone who has not read and understood the present instruction booklet. Keep children well away from the pump when in operation.

The power cord must never be used to carry or move the pump. Always use the pump's handle.

When handling the pump, while it is connected to the electric power supply, you should avoid all contact with water.

Never remove the plug by pulling on the power cord.

Before taking any action on the pump, always remove the plug from the power socket.

There should be no individuals present in the liquid that is being pumped while the pump is in use.

If the power supply cord has been damaged, it must be replaced by the manufacturer or his authorized customer support service in order to avoid all risks.

Overload protection. The pump has a thermal overload safety device. In the event of any overheating of the motor, this device automatically switches off the pump. The cooling time is roughly 15 to 20 minutes, then the pump automatically comes on again. If the overload cut-out is tripped, it is essential to identify and deal with the cause of the overheating. See Troubleshooting.

2. USE OF THE VARIOUS TYPES OF PUMPS

2.1 Self priming multi-impeller surface pumps

Available with 1, 3, 4 or 5 impellers. The range of products includes pumps with stainless steel casings as well as plastic casings.

- suitable for domestic water supplies and for small and medium gardens.
- Ideal for emptying small tanks. The pumps are made of chlorine resistant materials (normal concentration).
- Suitable for irrigation, drawing from water collection tanks

2.2 Electronic boosters with external electronic devices to prevent the dry-running of the pump

- Ideal for domestic water supplies
- Equipped with an incorporated non-return valve
- Automatic stop and start when the tap is opened or closed
- Manual and automatic reset
- Characterised by constant pressure and flow-rate.

2.3 Boosters with integrated electronics

Characterised by their extremely silent running, and available with 3, 4 and 5 impellers.

- Including an electronic safety device to prevent the dry-running of the pump.
- Including a safety device for leaks on the delivery.
- Ideal for the irrigation of gardens and grounds, and domestic water supplies.
- Characterised by the constant pressure and flow-rate.

2.4 Boosters with tank for domestic water supplies;

- automatic stop and start when the tap is opened and closed
- tank (20, 24 and 50 l) with butyl or natural rubber membrane
- compact design with pressure switch, pressure-gauge and drainage cap on the tank's flange.

The temperature of the fluid being pumped must never exceed 35° C.

The pump must not be used to pump salt water, sewage, flammable, corrosive or explosive liquids (e.g. petroleum oil, petrol, and thinners), grease, oils or foodstuffs.

Comply with the rules and regulations of the local water authority when using the pump for the supply of domestic water.

3. STARTING THE PUMP

Given the different provisions applicable to the safety of electric systems in different countries, make sure that the pump system, as concerns its intended use, is in accordance with current legislation.

Before starting the pump, make sure that:

- **the voltage and frequency specified on the pump's nameplate coincide with those of the available power supply;**
- **there are no signs of damage to the pump or its power cord;**
- **the electric connection is made in a dry place, protected against any risk of flooding;**
- **the electric system is complete with a residual current circuit-breaker (I $\Delta n \leq 30$ mA) and an efficient earthing connection;**
- **Any extension cords must comply with the requirements for electric safety.**

Fill the pump casing and suction hose with clean water before starting the pump for the first time. If the pump is installed above the water level, filling must be performed slowly until the water overflows; wait a few seconds to make sure that all the air has escaped and top up until the level has stabilised.
If the pump is installed below the water level (below head), bleed the air from the pump casing by opening the filler cap. The pump will fill with water independently.
Plug the pump into the socket, start the pump and wait for the water to exit. If water has not exited within 2-3 minutes from when the pump was switched on, turn the pump off and repeat the filling operation again.

Attaching the suction hose

- Fit the suction hose from the water source to the pump making sure that the pump is above the water level. Do not position the suction hose above the level of the pump (to avoid air bubbles forming in the suction hose).
- The suction hose should be mounted in such a way that it does not create any mechanical stress on the pump.
- The foot valve should be placed at least 30 cm below the minimum water level.
- The pump will draw water only when the suction hose is completely filled with water.
- The suction hose and the pump's suction inlet should be of the same diameter.

Attaching the delivery hose

- To get the best performance from the pump, it is recommended that the diameter of the delivery hose is at least 1"
- During the self-priming phase, all taps, valves, etc. on the delivery hose must be fully open in order to allow the air inside the hose to escape.

Before plugging in and starting the pump for the first time, it is necessary that the suction hose and the pump are completely filled with water in order for suction to take place. For use in wells or when the water level is lower than the pump, a suction hose must be used that is equipped with the foot valve. This will allow the suction hose to remain filled with water after the first time that it is filled and will prevent the emptying of the hose when the pump shuts off automatically, avoiding any problems when restarting.

▶ **Boosters with external electronic safety device**

⚠ **The electronic device does not work if the highest point of use is over 15 meters;**

⚠ **The pump used in combination with the electronic device must not absorb more than 10 Amps (15 Amps for USA versions) and must have a maximum pressure between 3.5 bar (35 meters) and 8 bar (80 meters).**

The electronic device carries out two operations:

- **Permits the pump to operate in automatic:** starting when the tap is opened and stopping approximately 15 seconds after the tap is closed.
- **Protects the pump from dry-running**: the special safety device automatically deactivates the pump when there is no water being sucked

thereby preventing possible damage. The stop is signalled when the red LED on the display lights thereby allowing the lack of water to be noticed.

Installation

⚠ **The pump inlet pressure must not exceed 2 bar.**

⚠ **The pump will not operate if the tap is over 15 meters above the level of the pump.**

The electronic device is fitted on the delivery side of the pump by connecting the 1" male connector of the device's inlet to the threaded female of the pump's outlet. If the pump does not have a 1" female outlet a connector must be used. After the electronic device has been fitted, connect the connection cables to the pump.
A filter should be fitted to the suction inlet of the pump before connecting the suction hose to the pump. The filter is necessary to avoid damage to the electronic device and subsequent operating problems.

Activate the pump by connecting the plug on the connection cable into a power supply socket.

Led Display
The electronic device is equipped with a display having 3 LEDs that indicate the operating status of the pump:
GREEN LED: this lights as soon as the electronic safety device is connected to the mains power supply.
YELLOW LED: this lights when the pump is running and turns off when the pump stops.
RED LED: this lights when the running is prevented due to lack of suction water or if the pump malfunctions.
RESET button: this button is used to restart the pump after the flow of water has been restored. The electronic device is also equipped with an automatic reset that automatically attempts to restart the pump three times: after 1 hour, after 5 hours and after 20 hours. If the pump does not start, the electronic device will permanently block. If this occurs, disconnect the plug from the socket and reinsert it. The device can in any case be manually reset before the 3 attempts have elapsed.
N.B.: if the pump does not start, check that the suction hose and pump casing are full of water.

The pump will automatically stop if suction does not occur within 120 seconds and will make another two attempts for another 120 seconds. If at this point the pump does not start, the cause of malfunction must be detected.

Possible causes are: the suction hose is not in the water or is allowing air to be sucked in (it must be airtight), the priming connector is not closed properly (air enters), the suction height is excessive (this depends on the pump used but cannot be more than 8 meters deep), the air cannot escape because the delivery hose is blocked or it has a double bend (gooseneck), the suction hose does not have a foot valve or the pump casing and suction hose have not been completely filled with water prior to the initial use.
If the pump continuously turns on and off without the water being turned on, the delivery hose or the connection to the pump may not be sealed properly.
It may also be that there is a build-up of impurities inside the electronic device that must therefore be dismantled from the pump and rinsed by spraying water from the inlet.

▶ **Booster with integrated electronics**

Installation

⚠ **The pump's inlet pressure should not exceed 2 Bars.**

⚠ **The maximum suction depth should be less than 8m.**

⚠ **The device will not pump liquid if the tap is more than 15m the level of the pump.**

⚠ **Due to the non-return valve in this model, the suction hose cannot be filled through the filler cap on the pump.**

Using of the pump

Plug the electric cable into the socket. The pump will automatically begin to run.

If the suction phase is not activated within 120 seconds, the pump will shut-off automatically. The pump will then try 2 more attempts to self prime for 120 seconds each.

The electric pump is equipped with an integrated electronic device that allows the unit to automatically intervene in the following ways:

- **Automatic operation of the pump**

The pump automatically starts when a tap is opened and shuts-off approximately 10 seconds after it is closed.

- **Protection against repeated starting due to leaks in the delivery section of the system**

If there are traces of leaks on the delivery of the system, the pump will continue to turn on and off even if it is not drawing water. Even a small leak (a few ml) could be enough to cause a drop in pressure which would start the pump. If in this case the leak is not found and fixed, the pump will turn off and remain shut-off after 40 consecutive start-up attempts.
This is signalled by the red "Alarm" LED: 2 successive flashes followed by a pause. After having resolved the leak, the RESET must be pressed to restart the pump.
The pump automatically resets after having remained for 12 hours in alarm. The alarm is activated once again after 40 ON-OFF-ON cycles if the same condition should persist.

- **Dry- Run Protection**

If the pump senses that it is not drawing any water, it will automatically switch-off after approx. 45 seconds. The red "Alarm" LED on the electronic display will begin to flash. After having restored the flow of water to the pump, press the RESET pad to restart the pump.
If the alarm persists, or rather the user does not re-establish the flow of water and reset the pump, the automatic reset will attempt to restart the pump after 1 hour, 5 hours and 20 hours, and then once every 24 hours. The electronic display continues to signal the lack of water from the first intervention of the dry run protection up until the pump starts to operate correctly: flashing red LED with one flash and one pause. After having re-established the flow of water, press the RESET button to restart the pump.

- **Electronic display signals**

Greed Led (Power) on.
The pump is connected to the main power and is ready to supply water (as soon as a tap is opened).
Yellow Led (Pump on) on.
The pump is supplying water.
Red Led (Alarm) with 1 flash cycles.
The pump is not functioning due to lack of water on the suction side: the dry running protection program is activated.
Red Led (Alarm) with 2 flash cycles.
The pump signals a leak in the system's delivery section.

4. RECOMMENDATIONS

To ensure the proper operation of the pump, it is important to comply with the following recommendations:


The pump should not operate with the delivery tap completely closed (except for electronically controlled pumps).


The pump must never be allowed to run dry.

- The diameter of the suction and delivery hoses must not be less than the relative inlet or outlet (25 mm) of the pump. A hose with a greater diameter should ideally be fitted to the suction inlet when the suction height exceeds 4 meters. Do not use metal connectors on the pump's threads.
- Connect the suction hose including a foot valve avoiding counterslopes, traps, goosenecks and kinks in the hose.
- Place the pump in a level, stable and dry place, and away from inflammable or explosive substances. Never expose the pump to the rain or direct jets of water.
- Make sure that the mains power connections are not subjectable to flooding, avoid that the pump is exposed to direct jets of water and do not immerse the pump in water.
- ***For boosters with tank***: make sure that the preloading pressure of the tank corresponds to the data indicated on the pump's rating plate. If necessary, fill the tank with air to the preloading pressure through the valve after having discharged the air from the delivery side (disconnect from the mains and open the tap closest to the pump until there is no longer a discharge of water).

MAINTENANCE AND CLEANING
It is absolutely essential to prevent any risk of the pump freezing. In the event of freezing temperatures, remove the pump from the liquid, empty it and keep it in a place where it cannot freeze.
The pump must be disconnected from the mains before performing any cleaning operation.
The pump is maintenance free.

5. TROUBLESHOOTING

Before taking any troubleshooting action, disconnect the pump from the power supply. If there is any damage to the power cord or pump, any necessary repairs or replacements must be handled by the manufacturer or his authorized customer support service, or by an equally-qualified party, in order to prevent all risks.

Multi-impeller self priming Surface pumps and Boosters with tank

Fault	Cause	Solution
The pump does not turn on	1) no power. 2) shaft blocked	1) check if power is supplied to the socket and that the plug is correctly inserted. 2) remove the plug from the power socket and insert a screwdriver into the notch on the shaft (from the cooling fan side) and unblock it by turning the screwdriver.
The pump turns but does not deliver water	1) the air inside the pump has not been completely bled. Pump casing without water. 2) entry of air from the suction pipe. 3) - the suction valve is not submerged in water - suction valve blocked - the maximum suction depth has been exceeded	1) stop the pump, unscrew the delivery pipe, shake the pump and suction hose to remove any air bubbles. Top up with water, connect the hose ensuring it is correctly sealed and start the pump again. 2) check that the joints of the suction hose have been performed correctly. Make sure there are no counterslopes, traps, goosenecks or constriction on the suction pipe and that the foot valve is not blocked. 3) - place the suction valve in water - clean the foot valve - clean the suction basket - check the suction depth.
The pump stops due to overheating caused by the opening of the overheating thermal protection	1) The power supply does not conform to that on the rating plate of the motor (voltage too high or too low). 2) A solid object has blocked the impeller. 3) The pump has been operating with water that is too hot. 4) The pump ran dry or ran with the delivery tap closed for more than 10 minutes.	1)-4) remove the plug, remove the cause of the overheating, wait for the motor to cool and start it again.
*The pump stops frequently.	1) Tank membrane perforated 2) Lack of air in the tank. 3) The foot valve is blocked and leaks.	1) Replace the membrane or tank. 2) Fill the tank with air through the valve to a max. pressure of 1.5 Atm. 3) Dismantle and clean the foot valve or if necessary replace it.
*The booster does not reach the required pressure.	1) The max. setting of the pressure switch is too low. 2) Impeller or hydraulic parts blocked. 3) Infiltration of air in the suction hose.	1) Adjust the pressure switch. 2) Disconnect the plug, dismantle the pump and clean it. 3) See "Solution" B).2)
*The pump does not stop.	1) The max. setting of the pressure switch is too high.	1) Adjust the pressure switch.

For boosters with tank only

Electronic boosters with electronic safety device

Fault	Cause	Solution
The red LED flashes.	Lack of water.	Re-establish the regular flow of water.
The red LED remains on.	Automatic reset attempts exceeded.	Disconnect and connect again the power supply plug.
The pump continuously stops and starts.	1) The system is not airtight. 2) Possible presence of foreign objects inside the device.	1) Check the system and the pump connection. 2) Disconnect the pump, dismantle the pumps electronic device and carefully rinse it by spraying water in the inlet – with a garden hose for example.
The pump does not work.	The pump is faulty. The electronic device may be blocked with limescale.	After having disconnected the electronic device from the pump, try running the pump on its own connecting it to the mains. If the pump runs correctly, check through the outlet that the impellers inside the electronic device are turning freely. If the impellers do not turn freely, clean the electronic device by filling it with vinegar or another descaler through the outlet. If the impeller is free, contact the service centre.

Booster with integrated electronics

Based on the combinations of LEDs, the cause of the pump malfunction can normally be identified.

Fault	LED	Cause	Solution
The pump does not work	Power is off Pump on is off Alarm is off	No power Faulty card	Check that the mains power supply is sufficient. Check the electrical line and the connections. Contact an authorised service centre.
	Power is on Pump on is off Alarm is off	The delivery hose is blocked Incorrect installation (+ 15 m)	Check the hydraulic system
	Power is on Pump on is on Alarm is on	Faulty card	Contact an authorised service centre
	Power is on Pump on is off Alarm is flashing	Lack of suction water no more than 26 hours ago	Check that the suction hose has been fitted correctly
		Impeller blocked (thermal cut-out tripped)	Clean/free the pump
	Power is on Pump on is off Alarm is on	Lack of water for more than 26 hours	Check that the suction hose has been fitted correctly.
		Impeller blocked (thermal cut-out tripped)	Clean the pump
Insufficient delivery		Excessive suction depth	Check the suction depth
		Foot valve blocked	Clean the foot valve
		Performance of the pump is reduced due to foreign objects	Clean the pump
The pump continuousl y stops and starts.		There are leaks in the system The pump has sucked in foreign materials The non-return valve is leaking	Check the system and the pump connections Clean the pump
		The water level drops rapidly below 8m	Position the foot valve deeper (not below 8 meters)