

Operation and Maintenance Manual Villagepump 500 Electrified

"Clean water for everyone, everywhere"



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1 Introduction

The *Villagepump 500 Electrified* yields up to 500 liter of fully purified drinking water an hour, meeting WHO standards regarding the removal of bacteria's, viruses and turbidity. The Villagepump 500E is suitable for **low till average** polluted surface water, rainwater, ponds, wells and streams.

This manual - version 1.0 April 2019 - is meant for *Villagepump 500 Electrified* with serial number **VP500E-01-XXXXXX-XXX** – series 1 or higher, manufactured at September 2018 or later.

The VP500E is available in the following versions:

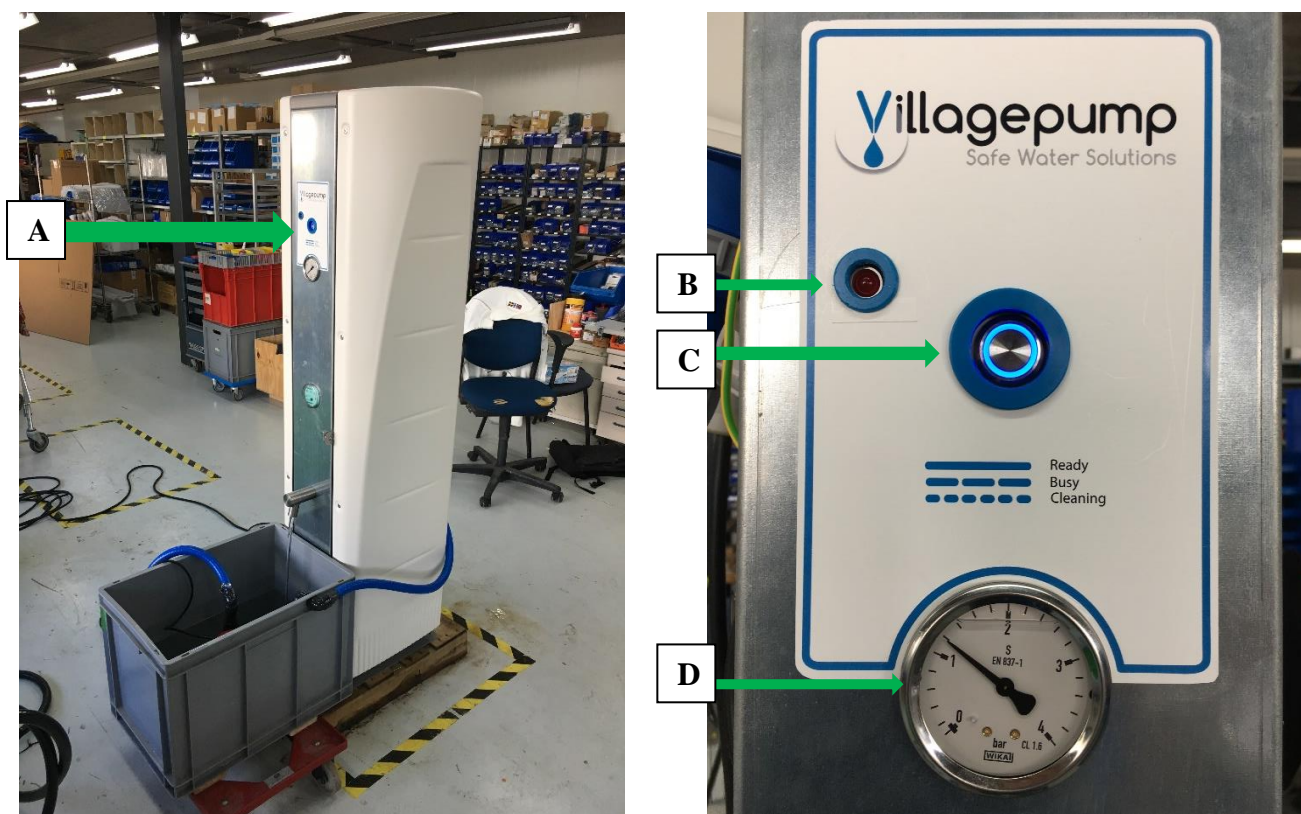
- Mains Current 230V/50HZ
- Mains Current 110V/60Hz
- Low voltage 24V, with or without solar panels

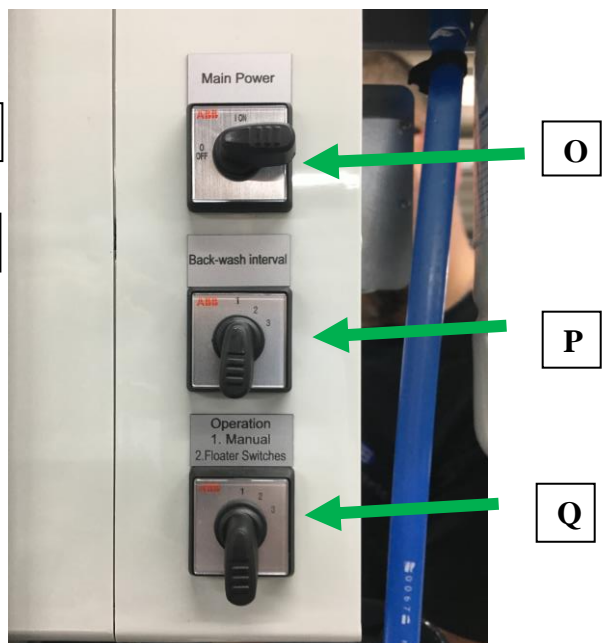
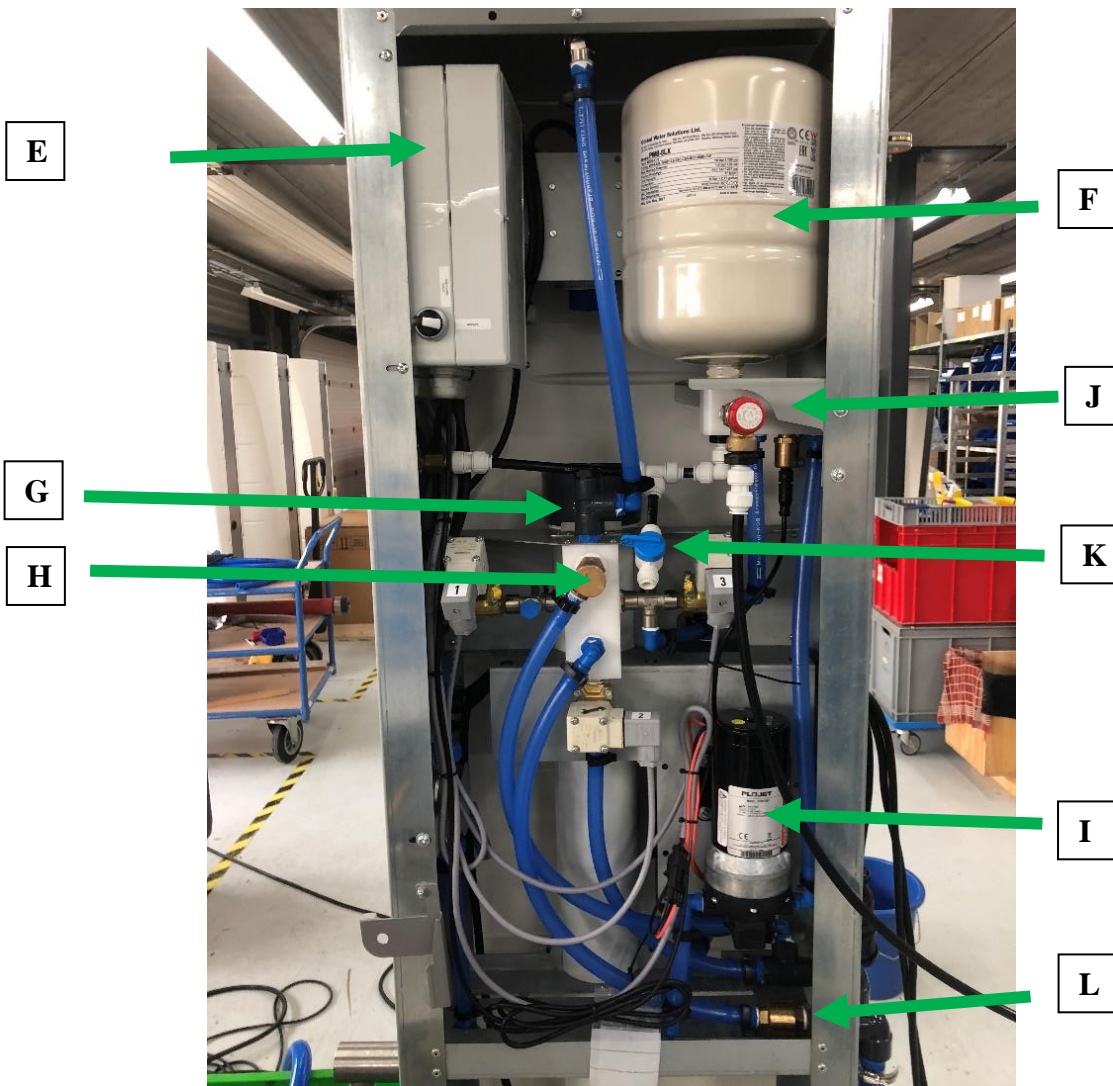
This version of the manual is only meant for the VP500E, Mains Current 230V/50Hz or 110V/60Hz. The choice for 230V or 110V cannot be changed in the field but has to be done in advance in the factory.

2 Overview main components

- A: Control panel
- B: Malfunction indication LED
- C: Main button
- D: Manometer indicating Back-Wash pressure
- E: Electra Box
- F: Back Wash Pressure Barrel
- G: Chlorine dispenser
- H: Adjustable Pressure Relief Valve
- I: Back-Wash Pump
- J: Pressure Relief Valve (Back-Wash pressure)
- K: Drain Valve Back-Wash Barrel
- L: One-way Valve
- M: Electrical Socket Mains Current
- N: Electrical Socket for Feed Pump
- O: Main ON/OFF Switch
- P: Back-wash Switch
- Q: Automatic / Manual Switch

See pictures below.





3 Unpacking and handling

The standard package includes the following components:

- Villagepump
- Foot Plate
- Drain Hose, length 1,5 meter
- Inlet Hose, length between 5 and 20 meter
- Padlock
- Chlorine Dioxide tablets (120 pcs of 1 gr)
- Hose Clamps (3x)
- Spacers length 3 cm
- Self-locking M8 nuts and rings (4x)
- Printed Manual
- Power Supply cable, length 5 meter
- Feed Pump (2 options)

For specific client related reasons this standard configuration might have been changed.

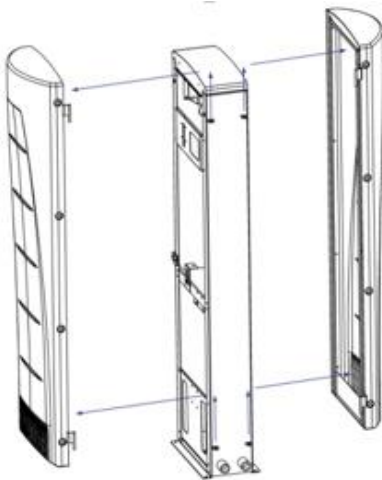


Standard packaging Villagepump 500 Electrified

- Open the box at the upper side and take out carefully any loose parts like Hoses, Foot Plate etc;
- Remove the packaging from the pallet and ensure environmentally friendly disposal;
- Untie the Villagepump from the pallet and put the Villagepump carefully upright on a stable, flat surface;
- Remove the tie-wrap that locks the Villagepump and remove the plastic bag.
- Unlock the right cover by pushing down the small handle; unpack the loose parts that are stored inside the Villagepump like the Feed Pump, Manual, Fasteners, Padlock, Chlorine tablets etc.
- Remove both white plastic covers ("doors"). Without these covers the Villagepump is easier to pick up and move. The covers can easily be lifted vertically from their hinges. The right cover is locked on the outside, the left cover is locked from the inside. First open the cover that is locked on the outside, enabling you to unlock the other cover.
- Move the Villagepump always with at least two people and use the centre console as target.



Internal lock of one cover; unlocking the covers by lifting the covers from the hinges;



To move the Villagepump, please use tap and centre console.

4 Installation and preparing for first use

4.1 Installation

Warning: always avoid water entering the Villagepump or water getting into contact with any internal electronic connection. This may cause short circuit and hazardous situations!

- Install the Villagepump on a flat, hard (concrete, metal, wood) smooth and level surface, with a minimum size of 60 by 120 cm.
- A Foot Plate is part of the standard delivery. This Foot Plate has four studs (M8) at the right position (distance 40 x 25 cm) that matches with the Villagepump. This Foot Plate should be mounted on a sturdy, flat floor or can be moulded in a cement or concrete base. You can even use the wooden shipment pallet as a base. If you mould the Foot Plate into concrete or cement, please take care that the bolts are at least 45 mm above the surface of the cement/concrete base.



Foot Plate with four M8 rods

- Apply the supplied spacers (length 3 cm) to the studs; position the Villagepump over the studs and secure it with four self-locking M8 nuts. The Villagepump is now firmly anchored to the floor.
- Connect the Inlet Hose to the Feed Pump with a hose clamp (see picture below)

NOTE The Villagepump 500E is delivered with 1 of 2 different types of Feed Pumps, with different capacity and different maximum static heads and installation restrictions. Please note that the Grundfos UNILIFT CC5 - M1 has not been provided with any mesh filter so the source water should be pre-filtered, preferable with minimal a 100 micron Mesh.



Connection Inlet Hose – Feed Pump (Grundfos Unilift C5-M1)

- Connect the other side of the Inlet Hose to the left hose nipple at the Villagepump at the back-side.
- Connect the Drain Hose with a hose clamp to the right hose nipple; the Drain Hose releases the water during the Back-wash.



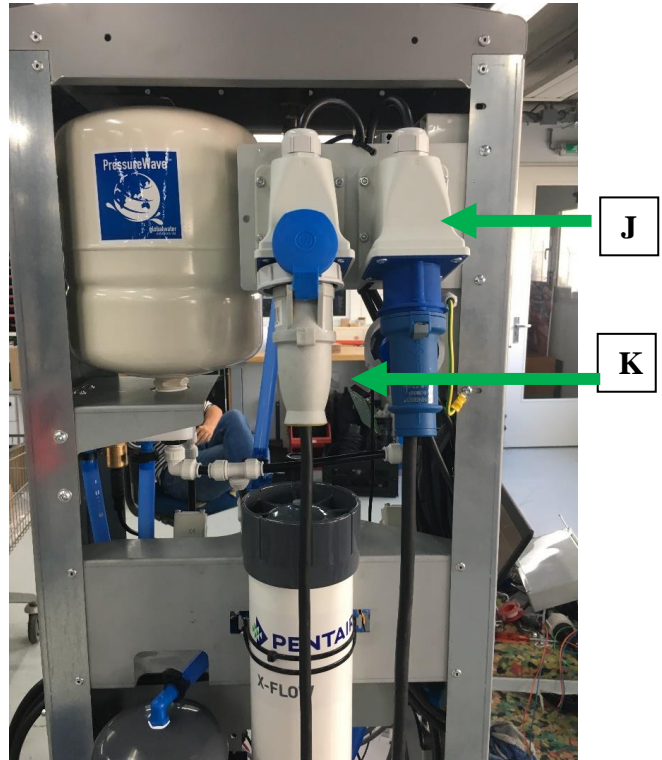
Connection Inlet Hose and Drain Hose to the Villagepump



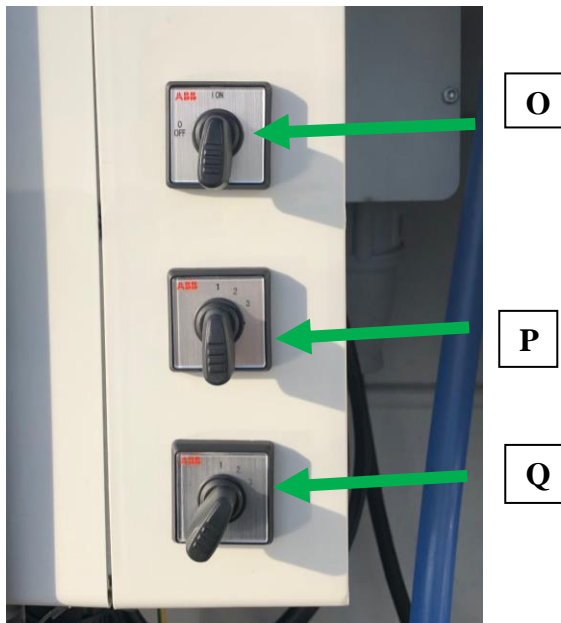
- Put the Feed Pump in the water source (tank, river, basin etc.). Please note the restrictions for maximum static head and the maximum turbidity / pollution at the data sheets delivered by Villagepump.

Note: some Feed Pumps can be equipped with a floater that stops automatically the Feed Pump when the water level is very low.

Note: connect the electrical cable of the Feed Pump with tie wraps to the Inlet Hose to avoid damaging of the cable.



- unscrew and remove the cable cover at the back-side of the Villagepump; guide both power cables (Feed Pump and Mains Current) through the hole; reposition and screw the cable cover.
- Plug-in the power cable of the Feed Pump in the right electrical socket (K)
- Plug-in the power supply cable in the left electrical socket for (J) and connect the other side to the grid/mains current (230V)
- Put the main-settings buttons in the right position:



- | |
|---|
| <p>O:
ON= Main Power On
OFF= Main Power Off</p> <p>P:
1= Back-Wash interval 5 minutes
2= Back-Wash interval 15 minutes
3= Back-Wash interval 30 minutes</p> <p>Q:
1: Manual mode
2: Automatic mode: controlled by Level-Switches</p> |
|---|

4.2 Assembling Activated Carbon cartridge (optionally)

Note: Activated Carbon (AC) filter cartridge is usually not installed. If the cartridge is installed, remove AC filter cartridge before the first use. Every new UF Membrane is shipped filled with Glycol to protect it from freezing. Glycol is harmful for the AC filter cartridge. At least 1 backwash cycle is needed to be sure to dispense the UF Membrane of all Glycol.

Install the AC filter cartridge after you have let the Villagepump purify at least 40 liter and perform at least one back-wash.

- Unscrew the housing from the holder
- Put the 20" AC filter cartridge in the housing
- Re-install the housing, take care of a proper placement of the O-ring.



Installing AC filter cartridge: 2,5"x 20"

- Fit the covers to the Villagepump by inserting them into the hinges and close the padlock.

Note: be aware when the demo unit is not used for a longer time. An Activated Carbon cartridge, not used for several days or longer, could become a source for bacterial contamination because the water is standing still in the cartridge. Any bacteria entering the system (for example via the tap) could grow rapidly in this circumstances. The Activated Carbon cartridge performs well, when it is used on a daily base. So when you demonstrate with the AC filter installed, be aware of this, and in case of any doubt, please replace the AC cartridge with a new one, taking off the plastic wrapper immediately before installing and preferable not touching the filter components with bare hands.

5 First Use

5.1 Switching on

- After switching the Main Power "ON", the red LED will light-up for about 10 seconds. When the red light goes out, the Villagepump 500E is ready-for-use. The blue LED at the Main Button is continuously blue illuminated: this system is in Idle-state.
- Take care the Feed Pump is submersed in water.



At start-up (power on) the red LED will light-up for about 10 seconds



The pump is ready for use: idle-state.

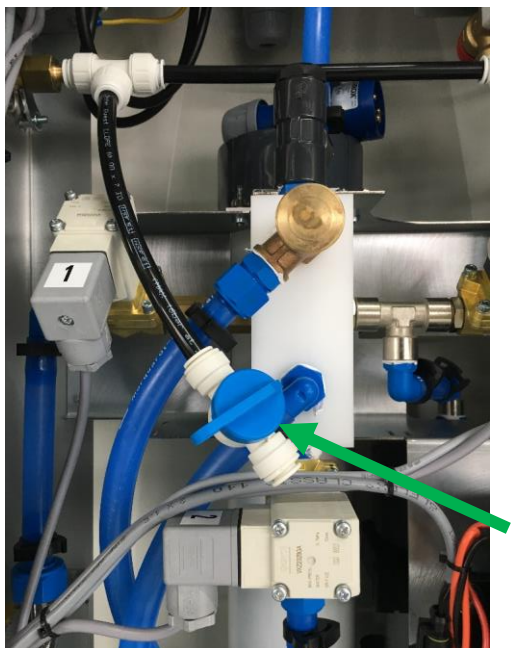
5.2 Manual mode

- Push Main Button in order to start the Feed Pump; the water will be pushed through the system, including the UF membrane and flows out of the tap. The blue LED at the Main Button starts pulsing slowly when operating. After max. 1 minute the first water will come out of the tap, because the Inlet Hose, UF membrane and internal piping has to be filled.
- Push button again: water will stop running and Villagepump goes back to idle-state

Warning: don't drink the first 40 liters of purified water. For storage reasons, the UF membrane has been filled with Glycol that has to be removed first out of the UF membrane.

Note: when the Feed Pump is running, but water is not coming out of the tap, and the manometer is not showing any pressure, most likely there is too much air in the system. Use the small upper blue tap to release some air (open and close) or open and close the Chlorine dispense unit (par 6.4)..

Warning: when opening the blue tap or opening the chlorine dispense unit takes care that water does not get into contact with any internal electronic connection. This may cause short circuit and hazardous situations!



Blue tap to release the internal pressure. When manometer shows a high pressure, water will get out with great force.

5.3 Back-Wash

- There are 3 types of Back-Wash:

A) Automatic periodical Back-Wash short term.

This Back-Wash cycle is set periodically. Adjustable with middle switch (P). Standard set to 5 15 or 30 minutes but can be adapted within the software.

B) Automatic periodical back-wash long term.

This is set once every 24 hours. This means the Villagepump will automatically have a Back-Wash cycle once every day regardless of the amount of operation that day. The system starts counting at the moment the Villagepump is connected to the power.

C) Back-wash on demand;

You can Back-Wash whenever you want and if needed, by pushing the Main Button 5 times quickly after each other.

When the system is Back-Washing, the following will happen:

- Blue LED ring pulses fast
- Valve of Tap closes
- High-pressure pump starts after a view seconds - you probably hear the high pressure pump working
- The pressure barrel is filled with clean water; pressure rises to approximately 3 Bar indicated at the manometer.
- High pressure pump stops
- Feed Pump stops
- Back-wash starts, UF membrane is being back-washed with water from the pressure barrel
- Water comes out of Drain Hose with great force

Pump will go back to Idle state and is ready for use again. This means that after every Back-Wash cycle operations stops automatically.

5.4 Automatic mode controlled by Level Switches

This option let the Villagepump operate automatically, for example with Level Switches. These Level Switches s can be connected to the Electra Box.

- Put the lower Switch to automatic mode (position 2).
- To test the operation of the Level Switches, carry out the following test.



Switch F1 is dirty water tank level switch

Switch F2 is clean water tank level switch

(F1 and F2 are written on the switches)

- Holding up F1 means you are simulating a full dirty water tank.
- Holding down F2 means you are simulating an empty clean water tank.

The Villagepump will run when F1 is in upright (there is enough dirty water) and F2 is in down position (clean water tank is not yet full).

In any other positions the Villagepump will not run (a short movie is available and can be sent on request)

The periodic Back-Washes (A) will override the status of normal operation.

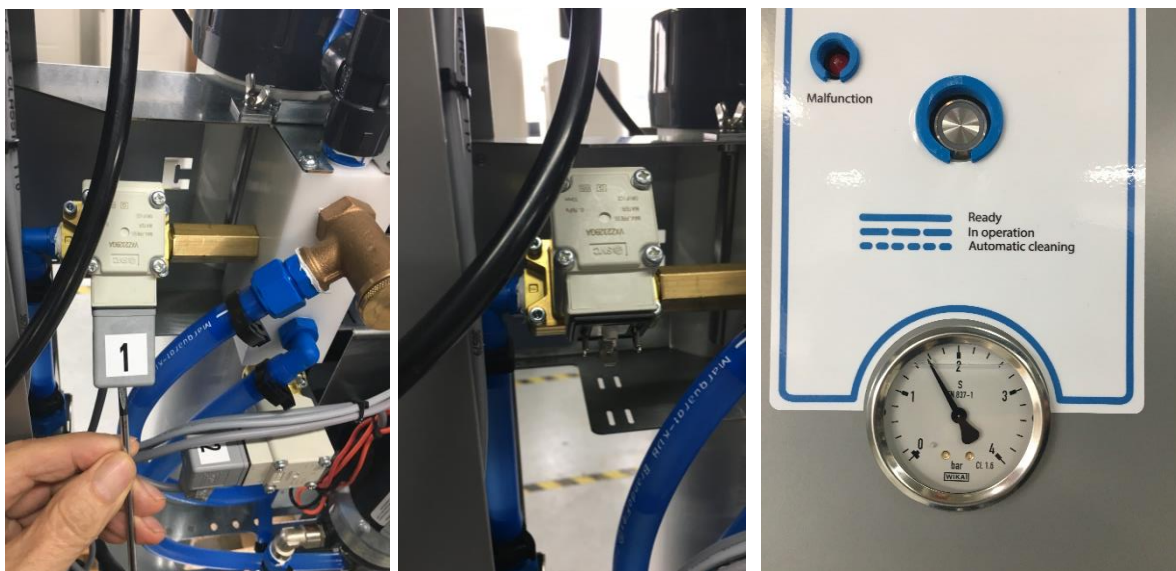
5.5 Adapting the water pressure

Due to the different types of Feed Pumps and the fact that these Feed Pumps are used at various heights in relation to the position of the Villagepump, the water pressure entering the Villagepump / UF Membrane differs. To avoid a too high pressure at the UF Membrane, there is a pressure relief valve installed. With this relief valve the pressure can be regulated. However decreasing the pressure by opening the relief valve also means less water yields. The preferred setting is:

- 1,5 bar with low polluted – low turbidity
- 2.0 bar with clear water like rain water or tap water
- 1 bar at average polluted- high turbidity

How to check the pressure?

- Open the doors of the Villagepump
- Release the connector from the electronic tap Valve: first release the screw.
- Start the Feed Pump by pushing the Main Button, the pressure increases.
- Stop the Feed Pump, when the pressure is not increasing anymore.
- Depending on the quality of the inlet water, the pressure should be between 1,0 and 2.0 Bar.



Disconnecting the electronic tap valve to measure the inlet pressure

How to adapt the pressure?

- the pressure can be adapted by adapting the relief valve
- open the brass cap of the relief valve
- use a screw driver to either lower the pressure (by turning clockwise) or higher the pressure (by turning counter clockwise). Please note, when lowering the pressure, more water will be by-passed via the Drain Hose, resulting in a lower yield.



Adapting the pressure relief valve

6 Maintenance Activities

6.1 Preventive Maintenance Scheme

Although maintenance has been limited to a minimum, some preventive maintenance activities have to be carried out, as described below, in order to guarantee warranty. Some activities has to be done daily, some activities are scheduled every 12 weeks, 6 months or when needed.

These intervals are based on average situations we have met in the field. Please note, due to specific local situations and due to specific user circumstances, these intervals may have to be adapted. In case of any question, please contact your local distributor or Villagepump at info@villagepump.org

Once every day

1. Cleaning Mesh Filter Feed Pump

Once every four weeks

1. Flushing UF Membrane
2. Chlorine disinfection

Once every 3 months

1. Replacing AC filter (optionally)
2. Cleaning Pressure Vessel
3. Cleaning Flow Gauze

Once every 6 months

1. Water analysis

When needed

1. Chemical cleaning of UF membrane

Once every day

6.2 Cleaning Mesh Filter Feed Pump

The Mesh Filter of the Feed Pump is the first filtering stage. A dirty Mesh Filter prevents the water to get into the system. The result will be less water output, higher power consumption and finally the system will go into error-state. (red LED lights up). So please make sure Mesh filter is checked and cleaned on a daily base, preferable with a soft brush. If the water is relatively clean, the interval can probably be extended.



Mesh Filter of Feed Pump

Once every four weeks

6.3 Flushing UF Membrane straws I

To avoid clogging of the UF Membrane, flush the UF Membrane to remove dirt from the straws, as described below. A simple activity, with high effect! See also the instruction video at https://youtu.be/X_jjzD02p4s

- Open the Villagepump and turn off the grey cover at the top of the UF membrane. Please be aware of the position of the O-ring!
- Remove mud, dirt, sand etc. on the top of the straws.
- Block the hole in the top with your thumb push the Main Button.
- Water will be forced through the straws from bottom to top removing the dirt in the straws. Continue for 5 – 10 minutes till no dirt is coming out of straws anymore. Stop the water flow by pushing again the Main Button. See picture below.

6.4 Flushing UF Membrane straws II

This flushing of the straws is even stronger than the method 6.3 but doesn't clean the straws to the bottom of the filter, so you have to use both methods.

Another flushing method is to flush the filter at the same way as described above. But then while the system is back-washing using *back-wash on demand*(chapter 5.3 C).

- Push the button 5 times to get the back-wash on demand started.
- Block the hole in the top with your thumb and keep it there until the backwash is over.
- repeat this procedure 2-5 times until the dirt coming out the straws get less.

Warning: take care the water is not getting into contact with the electronics and electronic connections.

- Put the grey cap back, paying attention to the right position of the O-ring or when needed lubricate the O-ring with silicon compound.

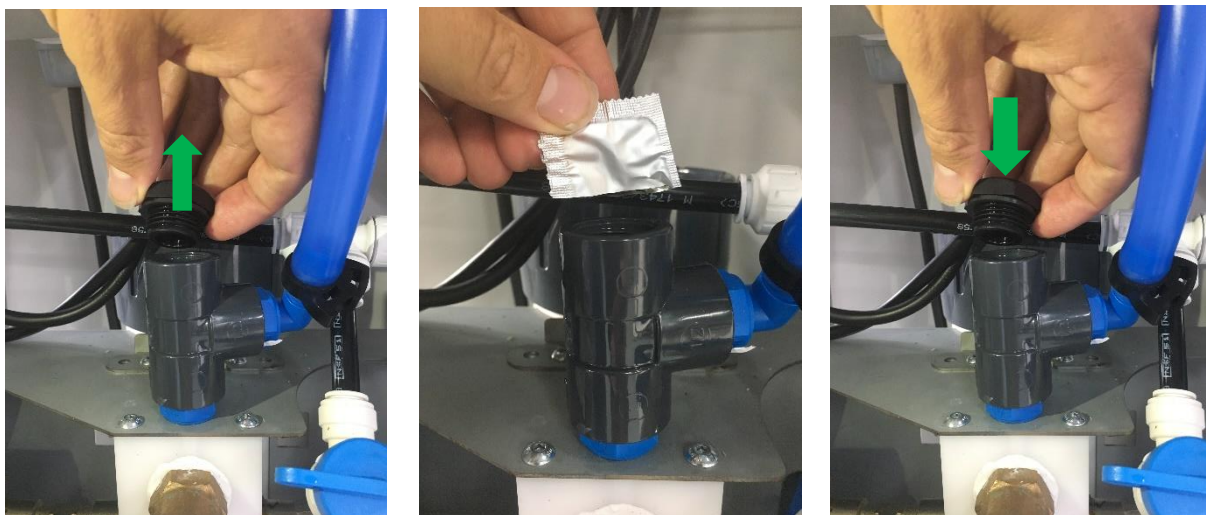


6.5 Chlorine disinfection

To avoid fowling of the clean water part of the Villagepump, clean the system at least every 4 weeks with 6 tablets of 1 g. ClO₂, preferable after having done the flushing of the UF membrane (see par 6.3) in advance. When the Villagepump has not been used for one week or more, it is also recommended to disinfect the Villagepump. 120 tablets of ClO₂ are part of the standard first delivery.

Warning: when the Villagepump is provided with an Activated Carbon cartridge, remove the Active Carbon cartridge when performing the chlorine disinfection. So the Activated Carbon cartridge will not be affected by the disinfectant.

- Remove the padlock, open the right cover; open internally the left cover to be able to reach the chlorine dispenser.
- Remove the AC cartridge and close the AC housing (optionally) – see par. 4.2
- Open the Chlorine dispenser by unscrewing the cap;
- Put 6 tablets of 1 g Chlorine Dioxide in the Chloride dispenser - you will need a sharp knife or pair of scissors to open the blister that holds the Chlorine Dioxide tablets
- Close the cap of the chlorine dispenser;



Remove AC filter and add Chlorine tablets in the dispenser

- Push Main Button and let the Villagepump run for 20 seconds.
- Push again Main Button to stop the Villagepump running
- Wait at least 30 minutes to let the detergent soak the UF membrane, internal piping and valves. If possible extend this period up till 12 hours / one overnight.
- Start a "Back-Wash on-demand" by pushing the Main Button five times quickly to remove the disinfect.
- Villagepump is ready for use.

Once every 3 months

6.6 Replacing Activated Carbon cartridge (optional, only when installed)

Warning: if you do not replace the AC filter cartridge every three months, there is a change of bacterial contamination;

Follow the instructions below (see also par. 4.2):

- Remove the lock and open the cover
- Unscrew the Activated Cartridge housing from the holder
- Replace the AC cartridge with a new AC cartridge with the following specifications: diameter 2,5"- length 20", minimal flow 450 L/h.
- Reinstall the housing on the cartridge holder
- Close and lock the cover

6.7 Cleaning Flow Gauze

The flow gauze can be unscrewed with the special tool that is part of the toolset. You can brush the flow gauze or soak it in a bath with detergent or 10- 15% acetic acid to dissolve grease or lime scale.



When needed

6.8 Chemical cleaning UF Membrane

When the capacity of the Villagepump has decreased substantially, and the water flow has become low, this could be caused by a clogged UF Membrane. Despite the regular automatic back-wash, the monthly flushing and Chlorine disinfection, this may occur especially when the raw water is highly polluted with biological dissolved material. The interval has to be decided based on the occurring situation, often every 3- 9 months, but for example in case of rainwater it is probably never needed.



Example of dirty UF membranes that need chemical cleaning

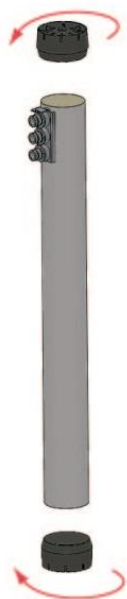
The UF filter is resistant to aggressive detergents and can be chemically cleaned and re-used again, following the instructions below.

- Open the Villagepump and dismantle the UF Membrane (see par. 7.3)

- Turn off the gray covers at top and bottom of the UF membrane; be aware of the position of the O-rings in the caps.
- Remove the mud, dirt, sand etc. on the top and bottom of the straws.
- Put the UF Membrane (horizontally) in a bin/container with water with dissolved chemicals like Chloride Dioxide, Sodium Hypochlorite, Sodium Hydroxide or Citric Acid. The choice for the chemical is depending on the fouling (see scheme below). However Sodium Hydroxide and/or Citric Acid are often well available and will do the job in most cases. If one solution does not yield enough result, try using a different chemical solution in succession.

Type of fouling	Chemical solution	Concentration
Biological fouling	Sodium Hypochlorite (NaOCL) Peroxide (H2O2)	500 ppm free chlorine 200 ppm
Biological fouling / Silica scaling	Sodium Hydroxide (NaOH)	max pH 12
Inorganic Salts	Citric Acid Edetic Acid (EDTA)	2 wt%
Polymers (especially HNO3)	Nitric Acid (HNO3)	till pH 2
Ferric / Manganese	Citric Acid Ascorbi Acid	1 wt% 1 wt%

- Leave the UF membrane for 12 hours in the bath to soak the material that is clogging the UF Membrane.





How to clean the membrane in the field? for example making a bath with chemical solution, by digging a hole in sand and cover this with a waterproof blanket.

Now the dirt has to be removed out of the straw by flushing the UF membrane as follows.

- Remove the chemical solution as much as possible from the UF membrane to avoid being affected by the chemicals.
- Put back the grey cap at the bottom of the UF Membrane and be aware of the right position of the O-ring; when needed lubricate the O-ring with silicon compound.
- Re-install the UF Membrane in the Villagepump. Be sure the the UF Membrane is fully connected to the assemble block. When available tighten the UF Membrane with some tie wraps.
- Flush the membrane (see par. 6.3) Block the hole in the top with your thumb using a glove (or any other material) and start pumping by pushing the Main Button.

Warning: take care the water is not getting into contact with the electronics and electronic connections.

- The water will be pushed through the straws from bottom to top and removing all the dirt. See picture. Stop the water flow by pushing again the Main Button
- When needed repeat this procedure.

Once every 6 months

6.9 Water Analysis

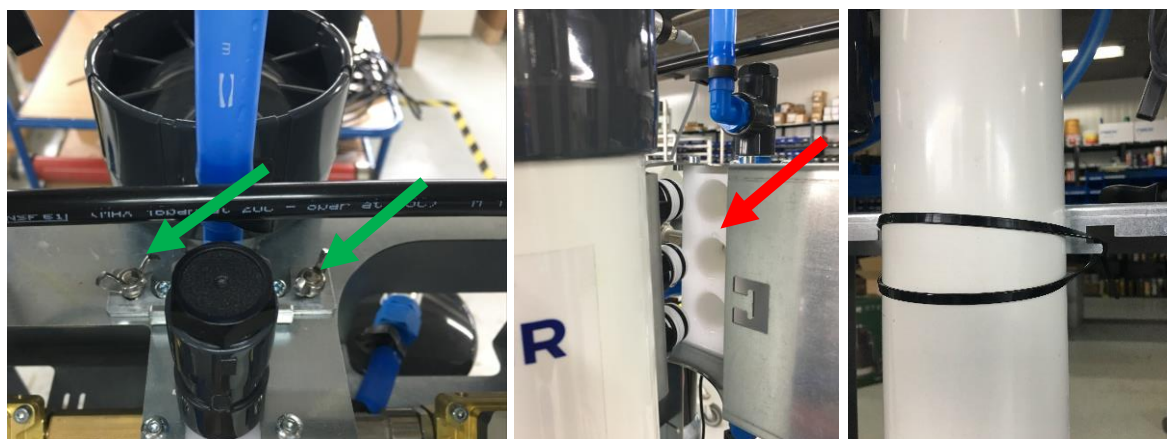
Check every 6 months the quality of the purified water with a certified water test for the presence of Total Coliform and E.coli (or F-coli) as described in chapter 9. If the limits are above WHO, stop using the Villagepump and contact your local distributor or Villagepump.

7 Exchanging Parts

7.1 Replacing UF Membrane

Replace the UF Membrane every 2 – 5 years, depending on the quality of the inlet water according instructions below.

- Remove the lock and open the cover
- Unscrew the two winged nuts (green arrows in picture below); remove the metal hook; remove the tie-wraps that tighten the UF Membrane for shipment reasons; the lower tie-wrap can be shift off the hooks and re-used again.
- Pull the UF Membrane carefully out of the assemble block (red arrow)



- Unpack the new UF Membrane carefully
- Remove the external and small internal caps from the connectors of the new UF membrane
- Lubricate the 0-rings of the connectors with Silicon Compound that is included in first delivery of the Villagepump
- Press the UF Membrane carefully in the assemble block so that the three connectors are completely in the assemble block. The bottom side of the membrane rests on the lower console.
- Lock the membrane with hook and tighten the two winged nut
- Carry out two back-wash cycles to remove the Glycol that is used for conservation of the UF membrane.
- Re-install the tie-wrap on the hooks

Note that the AC Cartridge is removed during the first 40 liter water production and the first back-wash cycle

7.2 Storage of Villagepump and/or UF membrane for a longer term

When you want to put the Villagepump in storage or do not want to use it for a longer time, please note the following:

Note: the UF membrane needs to be stored wet at all times.

Note: to avoid biological growth during shutdowns or storage, wet membranes could be treated with a compatible biocide. The UF membrane is compatible with many common disinfecting agents or biocidal preservatives.

8 Trouble shooting



1. Red LED lights up

When the system is not working (well) the red LED light turns on. This malfunction indication shows up after a Back-Wash failure.

You may find the following problems:

1. No water is coming out of the tap

Step 1: The blue LED ring around the button does not light-up. There is not electric power. Be sure that the Villagepump is connected to Mains Current and that the Main Power switch (3rd switch on Electra Box) is turned on.

Step 2: Check water supply. Be sure that the Feed Pump is submersed in water and that the Mesh Filter is clean. Otherwise clean Mesh Filter (see par. 6.2).

Step 3: The Feed Pump is not working (does not make noise): plug the power cable in the left socket (see par. 4.1)

Step 4: The vertical distance between Feed Pump and Villagepump (Static Head) is beyond the capacity of the Feed Pump; check the data sheet and adapt when needed the distance.

Step 5: Check the hoses and connections on leakages. Check user manual on the right connection of the hoses.

Problem not solved?

Step 6: There could be air in the system blocking water to pass through. Release air by opening and closing the cap of the chlorine dispense unit and the lower blue tap.

2. There is too little water coming out of the tap.

Step 1: Check if the UF Membrane filter is clogged. An indication that the UF Membrane is clogged is when too little water is coming out of the tap but the pressure on the manometer will be high (1,5 Bar). You can also check the UF Membrane visually by unscrewing the top grey cap.

There are the several ways to clean the UF Membrane:

1. Back-Wash on demand (Par. 5.2 C Back-wash on demand)
2. Flushing UF membrane filter (Par. 6.1)
3. Chlorine disinfection (Par. 6.2)
4. Chemical cleaning (Par. 6.9)

Other issues:

1. The water does not smell fresh / bacterial pollution of the water

Step 1: Replace AC filter cartridge, clean tap and flow gauze and disinfect the system with ClO₂;

Step 2: Clean or replace UF Membrane;

9 Protocol water analysis

For the analysis of the water quality, please follow the protocol below.

The protocol covers two cases:

1. Preliminary analysis before deploying the Villagepump in order to establish a suitable water source;
2. Regular analysis of the RAW and TREATED water after deployment.

In all circumstances use sterile sample bottles, preferably supplied by the laboratory conducting the tests.

9.1 Preliminary analysis

Test the raw water for:

1. Toxic substances like Arsenic (As), Mercury (Hg) and Fluoride (F)
2. Pesticides, like Organophosphates, Carbonates and Organochlorides.
3. Non-oxidized (heavy) metals like: Cadmium (Cd), Calcium (Ca), Chromium (Cr), Copper (Cu), Iron (Fe), Lead (Pb), Magnesium (Mg), Nickel (Ni) Sodium (Na) and Zinc (Zn).
4. Nitrates (NO₂, NO₃)

The resulting levels should be compared to WHO standards. If the levels measured are above WHO (or national) standards, please contact Villagepump BV. Possibly we can advise you on acceptable solutions available.

9.2 Regular Analysis

Given a positive preliminary analysis, the focus in this case will be on bacteriologic fouling (Total Coliform and E.coli or F. coli). Total Coliform is a group of bacteria present all around us, most of which are not dangerous to human health. However, these bacteria are not naturally present in groundwater and are an indication that more harmful organisms might be present (E.coli and F.coli). The latter two forms of bacteria pose an immediate risk to human health.

In order to be able to perform a consistent test, the following procedure should be followed.

1. Disinfect the system by following the procedure described at par. 7.2.
2. Pump at least two backwash cycles are completed.
3. Remove the flow gauze from the tap and sterilise the tap (flaming).

Procedure: remove the plastic flow gauze with the special flow gauze key, part of the tool set. Heat the stainless steel tap with a butane or propane burner until it is hot. If you stroke the pump handle a little bit of steam should be visible.



Removing flow gauze, disinfect tap and flaming the tap

4. Take a sample IMMEDIATELY after flaming the tap, using the sterile sample bottle provided by the laboratory and close the bottle.
5. Take a sample from the RAW water (directly from the water source).

Note: If required test the possible fouling of the AC cartridge by taking water samples with or without the AC cartridge mounted

6. Mark the sample bottle from the water source with 'RAW-Water' and the clean sample with 'TAP-water' (TAP + AC if the AC cartridge is to be tested). Make a note of the date, time and place of the samples.
7. Transport the samples in a cooled environment (e.g. cool box filled with ice). The samples should have a temperature of 5° C (+/- 3°).
8. Have the samples analysed within 24 hours by an accredited laboratory.

10 Contact / helpdesk / spare parts

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For your local distributor, please visit our website www.villagepump.org