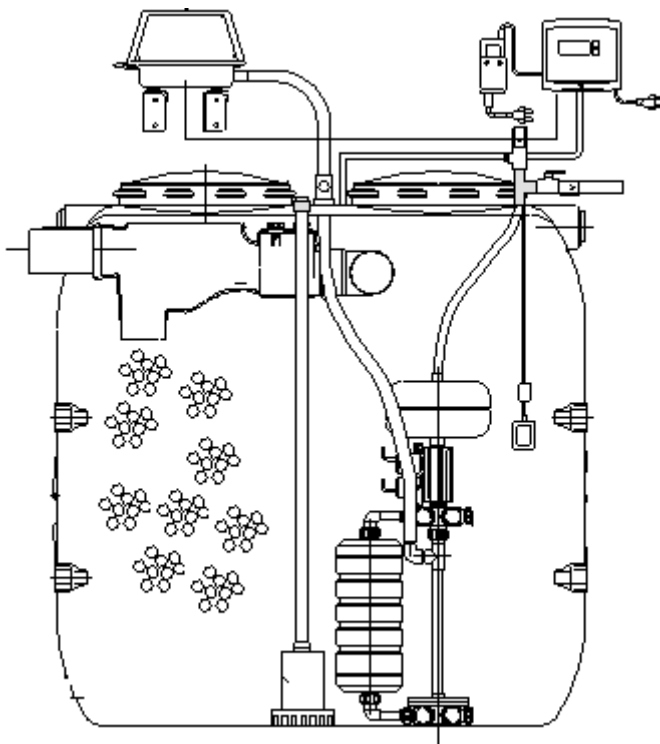


# INTEΨA



## AQUALOOP greywater recycling system

- AQUALOOP greywater recycling 300 L/day
- AQUALOOP greywater recycling 600 L/day
- AQUALOOP greywater recycling 900 L/day
- AQUALOOP greywater recycling 1200 L/day
- AQUALOOP greywater recycling 1500 L/day
- AQUALOOP greywater recycling 1800 L/day

## MAINTENANCE Manual

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## 1. Maintenance and replacement instructions

The following described maintenance schedule should be performed by authorized service personnel or in some cases, by the owner themselves.

The instructions mentioned must be followed strictly!



**Before working inside of the tank or on electrical equipment disconnect the power.**



**Avoid direct skin contact with the greywater when cleaning the pre-filter and the membrane(s). Please use rubber gloves!**

The following table represents an overview of regular maintenance and replacement intervals. Detailed descriptions are outlined in the corresponding chapters.

	<i>Maintenance and/or check interval</i>	<i>Replacement interval</i>
<b>Pre-filter</b>	Check and clean every 3 months	--
<b>Filtration / backwash pump</b>	Check every 6 months	Replace after 20,000 hrs. running time
<b>Floating switch</b>	Check every 6 months	--
<b>Pressure sensor</b>	Check every 6 months	--
<b>Blower</b>	Filter element: Check and clean every 6 months	Filter element: Replace after 4 years  Blower piston set assembly: Replace after 20,000 hrs. running time
<b>Membrane</b>	Flow test: every 3-6 months  Mechanical/chemical cleaning: Cleaning interval 6-12 months  < 0.22 L/min = (300 L/day/MEM)	Replace after 10 years
<b>Bioreactor</b>	Check by sight and by smell every 6 months Check for sludge present & remove via sludge or submersible pump If heavy build-up is noticed then an auto-activated sludge pump must be added to the system	---

## 1.1 Pre-filter

The pre-filter should be checked every 3 months and cleaned every 6 months if necessary. The cleaning interval can then be extended depending on the build-up of contaminants.

The integrated non-return valve must be checked twice a year and cleaned of any dirt or deposits.

Newer Aqualoop versions are being installed with solenoid activated auto-back-flush kits attached to the pre-filter. This means that maintenance is reduced but the pre-filter should still be checked regularly in case of blockage.

## 1.2 Suction and backwash pumpset

It is recommended that a function test of the pumps is carried out every six months. Each pump is started in the test menu 4.

In the case where one pump should fail, the complete double pump unit should be replaced.

It is suggested that the filtration and backwash pump set be replaced after 20,000 hrs running time.



***Please rerun the water-tightness test to ensure there are no air leaks in the pipework after the replacement of the double pump unit (s. section 9.1).***

## 1.3 Float switch

It is recommended that a function test of each float switch is carried out every six months. The float switch is tested by manually inverting it into the two switch positions (Empty=lower position /Full=upper position) while the display is checked.

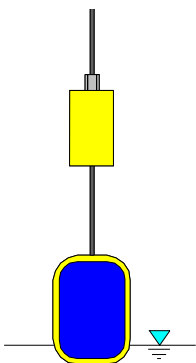


Fig.: lower position -> Display =  $Br_{min} -$

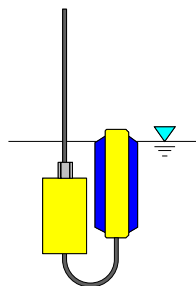
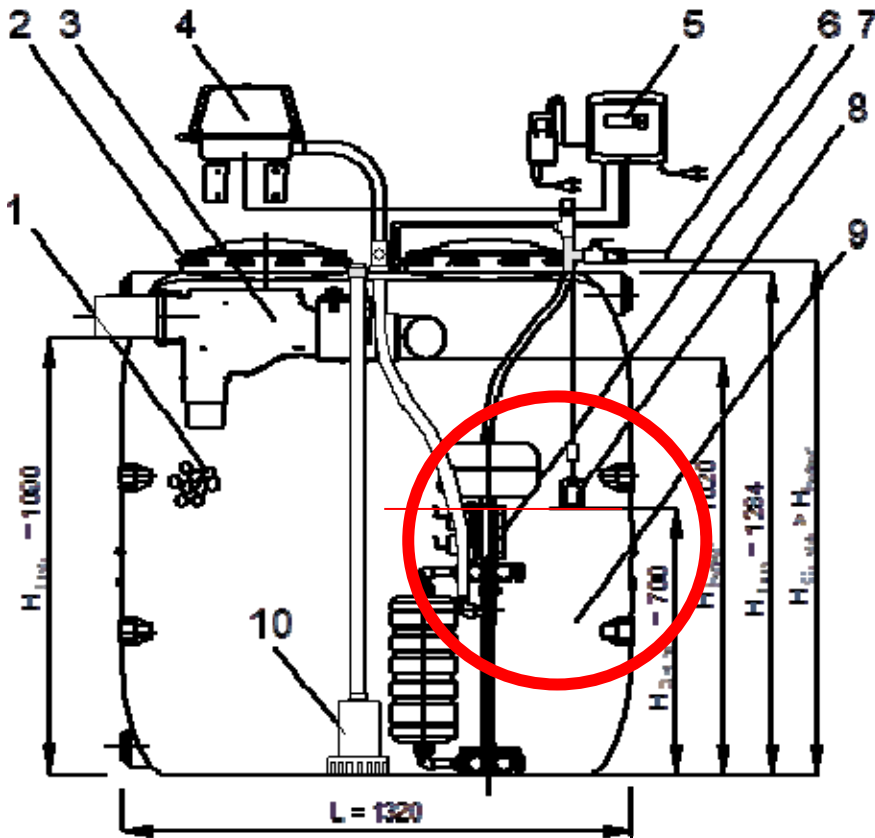


Fig.: upper position ->  $Br_{min} +$

It is vitally important that the  $Br_{min}$  float switch was set originally at the correct depth for full functioning operation. This should be checked during maintenance visits AND also ensure that the float switch cannot become tangled in other hoses within the bioreactor OR get caught up on the side of the bioreactor wall. This will cause the suction pump to malfunction and possibly burn out.

Below is a reminder of the correct setting level for the  $Br_{min}$  float switch.



#### 1.4 Pressure sensor

Pressure sensors (when fitted to larger systems) can be checked in the menu overview every 6 months (Menu 5, Status 2).

- Pressure sensor, pumps P(ADr):
- Pressure sensor, blower P(ADg):

When the pressure sensor is not connected the pressure displays -1.200 bar.

#### 1.5 Blower



*AQUALOOP* blowers are oil-less. Never lubricate them!  
All blowers have already been precisely adjusted. Never disassemble them!  
(Do not try to loosen the hex-bolts on the endcap)

### Replacing the filter element:

It is recommended that the filter element(s) is cleaned or replaced depending on running time and the surrounding air quality. The filter element(s) should be checked every 6 months and should be replaced every 4 years.

Detailed information can be found in the separate blower instruction manual (MEDO LA Blower) – available from your local Distributor.

### Replacing the piston set assembly:

It is suggested that the *Piston Set Assembly* is replaced every 24 months or after 20,000 h depending on the performance of the blower's pressure and airflow delivery.

There is a groove on each Teflon seal of the piston indicating the degree of wear. If one or both grooves are worn away, replacement of the Piston Set Assembly is recommended.

Detailed information can be found in the separate blower instruction manual which is included with the blowers.

## 1.6 Membrane

### 1.6.1 Mechanical cleaning of the membrane

It needs to be determined, based on the amount of sludge present in the bottom of the bioreactor, whether a full external spray-down of the membranes is necessary at maintenance time.

Check the sludge level, and if sludge can be easily seen, or measures 1cm or more on the bottom of the tank then the system should be shut down, the membrane station with membranes attached removed from the tank, and the membranes detached from the membrane station and cleaned as described in this chapter.

**CAUTION:** Take care not to lose any of the O rings or fibre Washers that are connected at each end of the membranes

Sludge that has accumulated on the outside of the fibres (inside the blue cartridge) can be mechanically washed with a jet of water.

The outer ring is rotated from the LOCK position to the OPEN position (counter clockwise) to open the cartridge. The grey underside of the membrane must be held secure.

The outer grey ring can be removed in the OPEN position. Then the blue external cover is free to be removed from the top.



Fig. : External ring with arrow marking on OPEN position



Fig. : Opened membrane



**Attention:**

a.) Do not loosen the large dark grey nuts located at the top to open the membrane. The reassembling of the cartridge is very difficult without specialised tools.

b.) After cleaning please check, that the external ring is locked in the LOCK position!

The hollow fibres are now exposed and can be carefully washed with a water jet.

**Note:**

Damaged or cracked fibers can simply be knotted by the Installer to seal them and the membrane will then pass the leakage test for quality assurance.

**1.6.2 Chemical cleaning**

Chemical cleaning dissolves biological build-up (fouling) and mineral deposits (calcium) accumulated on the hollow fibres.

Chemical cleaning is done only if the flow is severely reduced < **0.22 L/min** = (300 L/day/MEM).

Chemical cleaning of the membrane cartridge may be done in two ways:

- In-Situ, directly in the bioreactor (usual method)
- Intensive, in a separate cleaning container

The main differences between the two cleaning possibilities are:

	In-Situ cleaning	Intensive cleaning
Cleaning time	2 hrs	12 - 24 hrs.
Cleaning result (greywater application)	Depends on the initial state of the membrane up to 1.5 L/min	Independent of the initial state of the membrane up to 2.0 L/min
Required accessories	Filtration cleaning connection and chemical container	Separate cleaning container, container size depends on the number of membranes on the membrane station

**1.6.2.1 In-Situ cleaning in the bioreactor (usual method)**

**Description:**

The *AQUALOOP membrane station* remains in the bioreactor. For each membrane, 2 litres of cleaning solution are poured into the backwash tank. With a semi-automatic cleaning process controlled by the controller, the membranes are cleaned for one hour. After flushing with clear water, the cleaning process is finished (see process below).

**Note:**

Throughout the chemical cleaning cycle, the growth bodies can remain in the tank, the amount of chlorine used does not affect the bacteria on the growth media, as it removes only the biological build-up within the membrane. However, it is important that the amount of chlorine used should not be higher than directed (s. section 1.6.3).

Function of the cleaning connection AL-C-Kit for the In-Situ process:

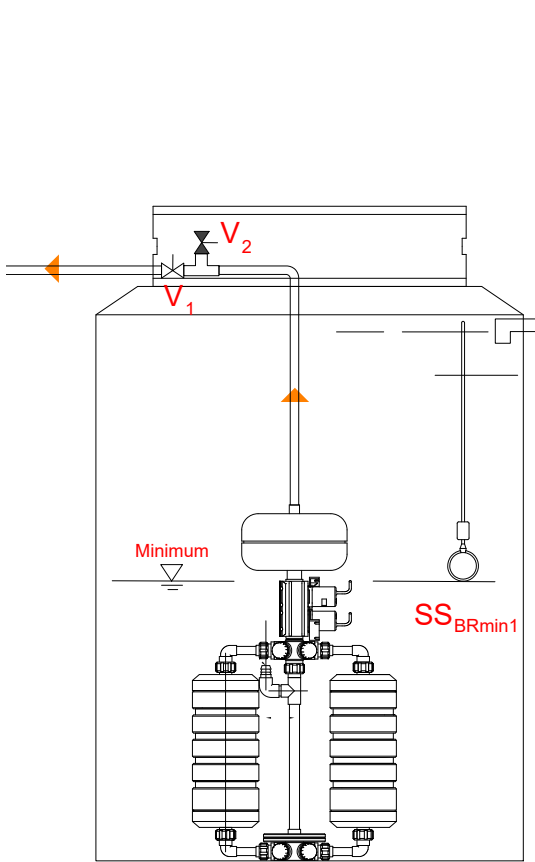


Fig.: Cleaning connection during normal operation  
 Shut-off valve, V<sub>1</sub> open  
 Shut-off valve, V<sub>2</sub> close

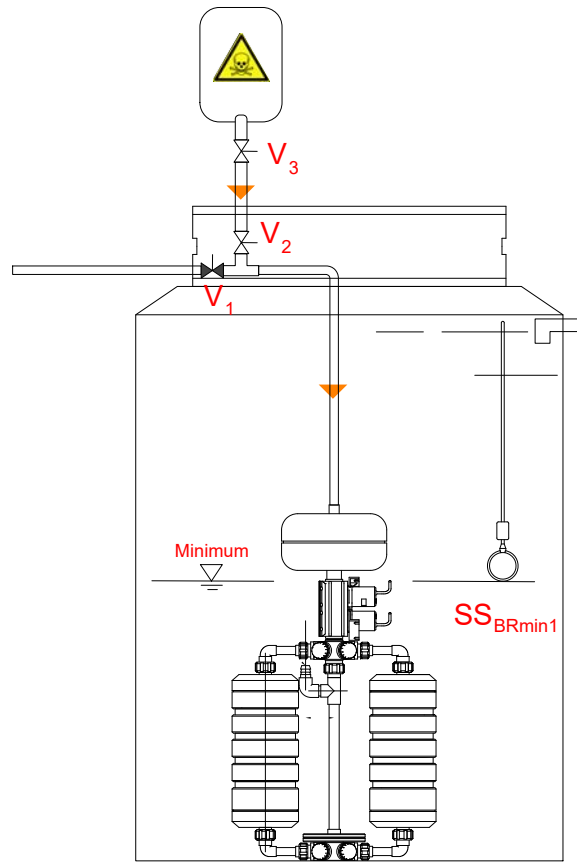


Fig.: Cleaning device with connected canister (chem. fluid)  
 Shut-off valve, V<sub>1</sub> close  
 Shut-off valve, V<sub>2</sub> open  
 Shut-off valve, V<sub>3</sub> open

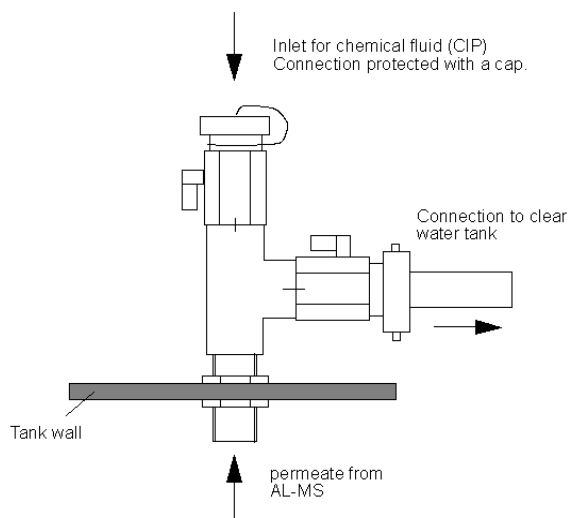
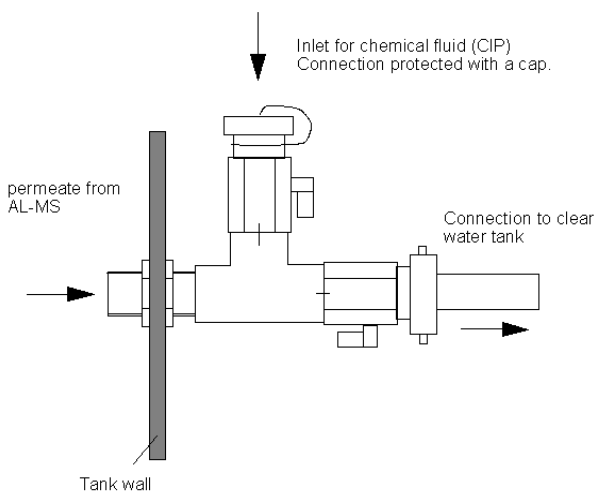


Fig.: Function of the connection device in either horizontal and vertical position



## Chemical cleaning routine for the *AQUALOOP* system:

A cleaning option is available on the control menu of the *AQUALOOP* controller. A semi-automatic cleaning of membrane cartridges can be performed without the need to dismount the membranes.

### Menu steps for cleaning routine:

Proceed to menu 11

- 1.) Confirmation for starting the cleaning routine

Menu11:  
Chemical cleaning  
Next: next menu  
ENTER: start **clean**

- 2.) Controller automatically starts the sludge pump until the minimum level of water is reached in the bioreactor (BRmin).

Menu11: Step 1  
Chem. cleaning start?  
NEXT: exit menu  
ENTER: confirm

**Note:** If no internal sludge pump is connected, then the bioreactor should be pumped out with an external (submersible) pump until "BRmin -" appears in the display (with a simultaneous sound of 5 beep tones)

**Attention:** The suction pump (lower pump) must not be allowed to run dry!

Also, lowering the water level below will mean that the system will not re-start until the bioreactor level fills up.

Menu11: Step 2  
Slugepump working  
Status: BRmin +  
ENTER: exit menu

- 3.) When the controller shows "BRmin -", then a backwash process is automatically performed to empty the backwash tank. This procedure ends automatically or can also be terminated manually.

Menu11: Step 3  
Status: BRmin -  
Backflush pump  
NEXT: abort backflush

- 4.) Now the cleaning solution (s. section 11.6.3) can be added through the cleaning connection. In small tank systems with good accessibility (e.g. AL-GW200) the cleaning solution can be filled directly into the backwash tank.

Menu11: Step 4  
Chem. liquid filled?  
NEXT: menu exit  
ENTER: Start cleaning

**Note:** The cleaning solution must be refilled during the cleaning process in the case more than three membranes are installed, as the backwash tank has only 6 L of capacity and each membrane requires 2 L of cleaning solution.

- 5.) When the cleaning solution is filled, then the cleaning cycle starts with ENTER. A pre-set cleaning routine now runs. The routine takes about one hour.

Menu11: Step 5  
Cleaning working  
Time: 60: 00min  
ENTER: exit cleaning

- 6.) After the completion of the cleaning routine a clear water flush must be started. At least two litres of clear water must be filled into the backwash tank for each membrane.

Menu11: Step 6  
Clearwater filled in?  
NEXT: exit flushing  
ENTER: start flushing

- 7.) Press ENTER to confirm the clear water flush. The routine takes max. 4 minutes. Water that comes out of the pipe must be disposed of.

22:08h / A= 4 / 9  
T1=05:00h/ T2=16:00h  
Air ON/OFF  
BRmin + / CLmax -

After completion of the clear water flushing, the operation mode appears in the display and the normal program continues to operate further, corresponding to the set parameters.

Menu11: Step 7  
Clearwater flushing  
Time: 04: 00min  
ENTER: exit flushing

In case a chlorine cleaning routine is required after the acid cleaning the cleaning menu routine must be started again.



**ATTENTION!**

If chlorine cleaning is performed after acid cleaning, then the pipes must be sufficiently rinsed (s. step 6 above)

### 1.6.2.2 Intensive cleaning in separate cleaning tank

**Description:**

The AQUALOOP membrane station is taken completely out of the bioreactor and put in a separate cleaning container. (If the membrane station is covered in sludge it must first be cleaned (s. section 11.6.1). The cleaning container is filled with the cleaning solution (40 L for AL-CTank60L and 160 L for AL-CTank350L) and water up to the top of the pump unit (700 mm). Please see the cleaning concentration described (s. section 11.6.3)!

The pump unit is connected with the control unit in the standard manner. The goal is to circulate the cleaning solution under normal pressure and flow rate for 24 hours.

Therefore, the start times T1 and T2 and filtration cycles have to be set as follows:

Start times: T1 / T2 = 16:00 / 04:00  
Suction cycles: A1 / A2 = 30 / 30

After the cleaning process the cleaning solution is disposed of and clear water is filled into the cleaning container to the top of the pump unit (700 mm). After flushing with clear water for one hour the used clear water is disposed of. A second cleaning with clear water is made in the same way, after which the cleaning process is finished.

The membrane station is then put back into the bioreactor and connected to the original control unit.

**Example: Cleaning AQUALOOP membrane station, single (one membrane):**

The cleaning tank is placed near the system to connect the pumps with the existing control unit. Be sure the room in which the cleaning takes place is well ventilated!

**Note:** The bottom aeration distributor should be swapped with the flat stand (part of the AL-CTank60L) to close the tank cover during cleaning. See figure below:

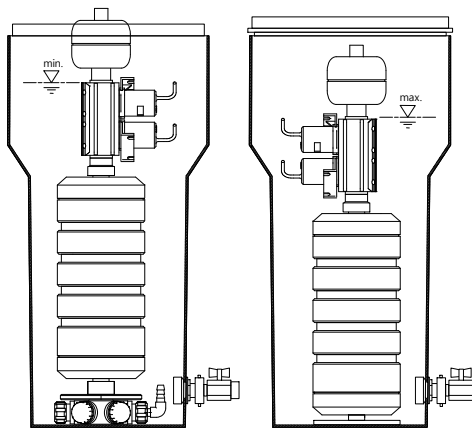


Fig.: Cleaning container AL-Tank 60L for single membrane station (right: without aeration distributor)

**Example: Cleaning AQUALOOP membrane station (2-6 membranes):**

Be sure the room in which the cleaning takes place is well ventilated! The pumps are connected to the integrated control unit as described in section 7.

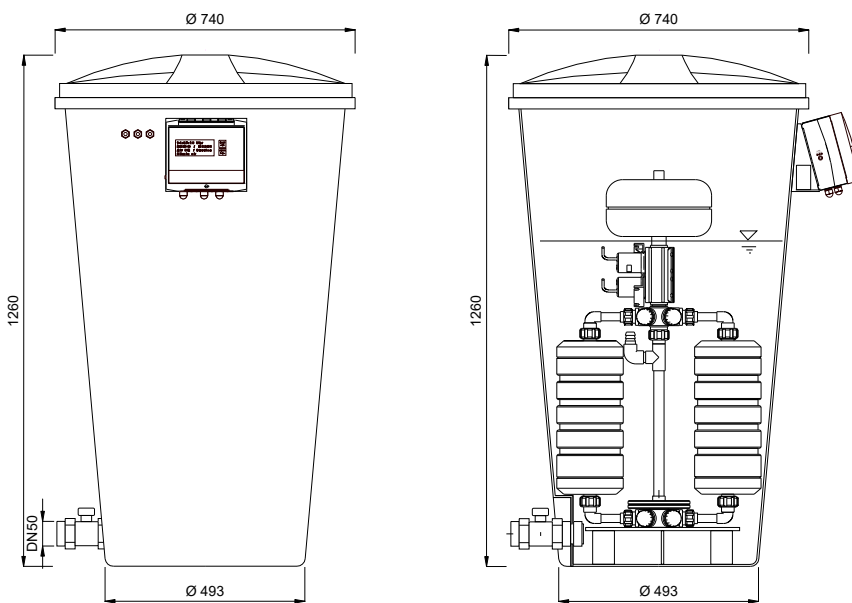


Fig.: Cleaning container AL-Tank 350L for 2-6 membranes station with integrated control unit

**1.6.2.3 Cleaning solution**

We recommend the cleaning solution to be made from regular domestic cleaning agents and should be mixed as following (example for In-Situ cleaning):

- 1) **Acid cleaning** against deposits such as calcium carbonate  
Citric acid (target cleaning solution 1% acid):
  - a.) Available in most stores as granulate packets  
Dissolve 20 g per AL membrane cartridge in 2 L warm, clear water (30°C).
  - b.) Available in most stores also as liquid concentrate (e.g. as 30% acid solution)  
Dilute 69 ml per AL membrane cartridge in 2 L warm, clear water (30°C) to achieve a cleaning fluid concentration about 1%!

2) Alkali cleaning against excessive biological build-up

Chlorine (target cleaning solution 0.25% chlorine):

a.) Available in most stores as domestic cleaner with chlorine base (e.g. bleach as 5% chlorine solution).

Dilute 105 ml per AL membrane cartridge in 2 L warm, clear water (30°C) to achieve a cleaning fluid concentration about 0.25%.

b.) Available in all stores which sell pool accessories concentrate (e.g. as 30% chlorine solution)

Dilute 17 ml per AL membrane cartridge in 2 L warm, clear water (30°C) to achieve a cleaning fluid concentration about 0.25%.

**ATTENTION!**



**Never mix acids and alkali!**



**All pipes and connections must be rinsed well with water after being cleaned with acid before cleaning with alkali and the other way around!**

**Follow the warning and safety instructions of the chemicals used!**

**Protective gloves and glasses are to be used during all cleaning operations!**

Initial concentration solution; citric acid or chlorine	Citric acid target concentration	Mixing ratio water / citric acid	Chlorine target concentration	Mixing ratio water / chlorine
5%			0.25%	2 L / 105 mL 40 L / 2.1 L 160 L / 8.4 L
10%			0.25%	2 L / 51 mL 40 L / 1.03 L 160 L / 4.1 L
15%			0.25%	2 L / 34 mL 40 L / 680 mL 160 L / 2.7 L
20%			0.25%	2 L / 25 mL 40 L / 500 mL 160 L / 2.0 L
25%			0.25%	2 L / 20 mL 40 L / 400 mL 160 L / 1.6 L
30%	1%	2 L / 69 mL 40 L / 1.38 L 160 L / 5.52 L	0.25%	2 L / 17 mL 40 L / 340 mL 160 L / 1.36 L
Granulate	1%	2 L / 20 g 40 L / 400 g 160 L / 1.6 kg		

*Tab.: Examples for different initial concentrations and mixing ratios*

## 1.7 Bioreactor

Periodic cleaning of the bioreactor itself containing the *AQUALOOP* is not required. The removal of the sludge is done by the sludge pump which is controlled by the *AQUALOOP* controller.

However, the bioreactor can be inspected by sight and smell.

*AQUALOOP* is an aerated moving bed treatment and filtration system. If a strong odour is noticed i.e. like sulphur (rotten eggs), the aeration process may not be operating correctly or the system may be overloaded and the biological treatment is not optimal. Check the aeration and perhaps increase the aeration setting (dissolved oxygen content should be  $> 4$  mg/L with a range up to 8 mg/L).

The *AQUALOOP* system treated outflow should be clear like tap water. If the effluent is not clear please check the tightness of all membrane station connections (s. section 9.1).

Should the bioreactor need cleaning the tank sludge should be discharged by a sludge pump – this process can be done manually in the test mode 4.

### 1.7.1 Collecting effluent samples

Effluent samples can be collected through the cleaning connection.

#### Steps:

- disconnect the hose to the clean water tank
- decontaminate the outlet in case you want to measure microbiological parameters (e.g. by disinfection fluid or by heat)
- Start filtration in the test menu "suction".

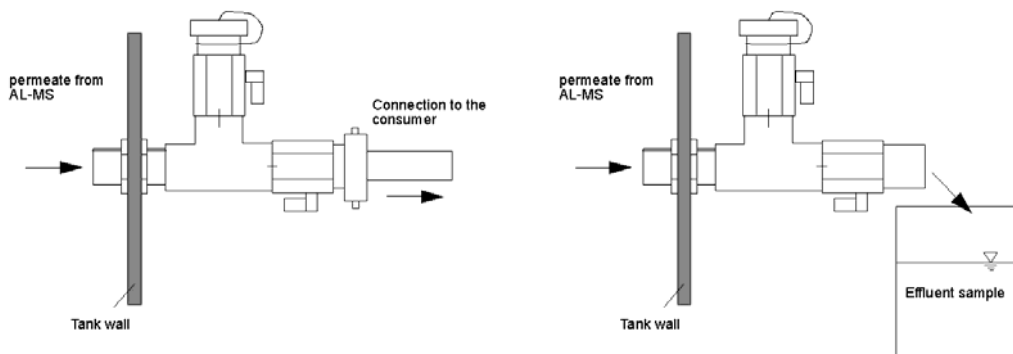


Fig.: Collection of an effluent sample through the filtration cleaning connection.

## 2. Spare parts

Article description	Article	Art. No.
AQUALOOP controller	ALMS-CU	600700
AQUALOOP AC switching power supply 24 V DC, 4A	ALMS-N-4A EU	600701
AQUALOOP floating switch, 3 m	ALMS-SCHW3m	600702
AQUALOOP pump module for membrane station	ALMS-PVers.o.1	600703
AQUALOOP membrane incl. PVC connection elbows	AL-MEM	230010
AQUALOOP membrane seal set	ALMEM-SEAL	600715
AQUALOOP growth bodies 30 L	AL-FK30	230025
AQUALOOP citric acid concentrate 70 mL	AL-Acid70	230040
AQUALOOP citric acid concentrate 420 mL	AL-Acid420	230045
AQUALOOP chlorine concentrate 110 mL	AL-Chlor110	230050
AQUALOOP chlorine concentrate 660 mL	AL-Chlor660	230055
AQUALOOP blower filter element for 30, 100, 120 Note: 100 and 120 needs two elements	ALBL-FILTER-A	600716
AQUALOOP blower filter element for 60, 200 Note: 200 needs two elements	ALBL-FILTER-B	600717
AQUALOOP blower repair kit for 30	ALBL-KIT030	600718
AQUALOOP blower repair kit for 60	ALBL-KIT060	600719
AQUALOOP blower repair kit for 100 and 120	ALBL-KIT100/120	600720
AQUALOOP blower repair kit for 200	ALBL-KIT200	600721

Spare parts can be ordered directly from INTEWA GmbH or please ask your local dealer.

## 3. Optional accessories

### Article: AL-PCS

#### AQUALOOP Pressure sensor for monitoring pump performance

Measuring range: -0.8 to +0.8 bar,

Connection: 4-20 mA, ventilated 3 line terminals

Cable: Ø6mm, 3 m length



### Article: AL-TANK 6oL

#### AQUALOOP tank 6o Litres

Suitable for external cleaning of one single membrane station

Tank volume: 6o Litres

Dimensions: Ø 164 x 486 mm



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**Article: AL-TANK 350L  
AQUALOOP tank 350 Litres**

Suitable for external cleaning of one membrane station equipped with 1 - 6 membranes. Includes integrated controller.

Tank volume: 350 Litres

Dimensions: Ø740 mm x 1250 mm



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**Article: PR-RSDS/150-200  
PURAIN backflush nozzle for PR100/150-M**

The backflush nozzle is installed in the PURAIN rainwater filter behind the sieve.

Max. flow: 7.5 L/min (PR100-M) 15 L/min (PR150-M)

Connection: ½" OD (PR100-M) ¾" OD (PR150-M)



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**Article: AL-MV1/2-24  
AQUALOOP solenoid valve ½", 24 V DC for backflush nozzles**

Connection to the AQUALOOP controller where the backflush interval and duration can be adjusted.

Voltage: 24 V DC

Power: 12 W



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## 4. Warranty / Contact

The warranty terms are included in our sales conditions, and can be viewed at:

<http://www.intewa.de/en/customer-menu/contact/legal-conditions/>

For any queries, orders for spare parts or service requests, please get in touch with your local dealer or visit the service domain on the INTEWA website according to your country. Always keep your purchase invoice handy.

[www.intewa.com](http://www.intewa.com)

### **Limited Warranty**

INTEWA GmbH (hereinafter identified as manufacturer) warrants each *AQUALOOP* part to be free from defects in workmanship and materials for a period of two years from the date of purchase. Some countries/states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. Sole obligation under this warranty is as follows:

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The manufacturer shall fulfil this warranty by repairing or exchanging any component part, F.O.B. factory, which in manufacturer's judgment shows evidence of defects, provided said component part has been paid for and is returned through an authorized dealer, transportation prepaid. The warranty must also specify the nature of the defect to the manufacturer.

The warranty does not cover treatment processes/systems that have been flooded, by external means, or that have been disassembled by unauthorized persons, improperly installed, subjected to external damage, or damage due to altered or improper wiring or failed overload protection.

This warranty applies only to the INTEWA *AQUALOOP* components and does not include any of the locally installed wiring, plumbing, drainage, or disposal system. The manufacturer is not responsible for any delay or damages caused by defective components or materials, for loss incurred because of interruption of service, or for any other special or consequential damages or incidental expenses arising from the manufacture, sale, or use of this process/system.

The manufacturer reserves the right to revise, change, or modify the construction and design of the treatment process for greywater or any component part or parts thereof without incurring any obligation to make such changes for modifications in previously sold equipment. The manufacturer also reserves the right, in making replacements of component parts under this warranty, to furnish a component part which, in its judgment, is equivalent to the company part replaced.

Under no circumstances will the manufacturer be responsible to the warranty for any other direct or consequential damages, including but not limited to lost profits, lost income, labour charges, delays in production, and/or idle production, which result from defects in material and/or workmanship of the system. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty is expressly in lieu of any other expressed or implied warranty, excluding any warranty of merchantability or fitness, and of any other obligation on the part of the manufacturer.

### **Service policy**

#### **INTEWA Requirements:**

1. INTEWA has developed a general installation and operating manual for the *AQUALOOP System GW* series. Please refer to this manual for all questions regarding safe and reliable installation as well as troubleshooting.
2. INTEWA requires that local service providers are trained by INTEWA or by the local country distributors. The training covers the following aspects:
  - a. Local installation instructions with a hands-on assembly requirement for certification.
  - b. A training which covers all aspects of installation and services.
  - c. INTEWA reviews and approves each training and certification plan from local distributors on an annual basis.
3. INTEWA requires that a spare parts inventory level appropriate to sales and installed base be kept locally in each service area. The spare parts are listed in section 2.

#### **Service Provider Requirements and Qualifications – The service provider is typically a local dealer or distributor who buys equipment from the distributor for the purpose of local resale and installation:**

1. The service provider will only allow factory certified and trained installation and service technicians to work on *AQUALOOP* equipment. The training must include demonstrated capability to perform minor repairs and conduct water quality testing.



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- 
2. The service provider should assure their technicians are properly vetted to local standards and perform a background check.
  3. In providing a service contract to owners, that contract should include:
    - a. A fixed and stated fee for parts, labor, and materials required for ongoing operation except for consumable chemicals and electrical power
    - b. Service frequency should be on a quarterly basis with a planned CIP (Clean-in-place) scheduled annually or at some other pre-determined frequency or performance trigger (e.g. flow <0.3 Lpm / membrane cartridge). Quarterly/bi annual maintenance must include all recommended checks including bioreactor discharge to sewer, transfer pump flow, setting, and water quality. The checks must also adhere to any state and local regulations that apply.
    - c. Service response by service provider should be less than 24 hours from notification.

Owner Requirements:

1. *AQUALOOP* system owners must sign a service contract with a local dealer to conduct periodic checks and maintenance and comply with all requirements outlines in INTEWA's and the distributor's written materials for installation and service.
1. Owners should only purchase *AQUALOOP* systems from certified and trained service providers.
2. Owners should contact the local Distributor or dealer with questions specific to their system.

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## Contact

### For customers in Germany:

For any queries, ordering of spare parts as well as service requests, kindly contact INTEWA GmbH directly, quoting the model type, the serial number and the purchase invoice details.

INTEWA GmbH  
Jülicher Straße 336  
52070 Aachen, Germany

Tel.: 0049-241-96605-0  
Fax: 0049-241-96605-10  
Email: [info@intewa.de](mailto:info@intewa.de)  
Internet: [www.intewa.de](http://www.intewa.de)

In the event service is required we will offer the estimated service costs in advance.

The warranty terms are included in our sales conditions and can be viewed at:

<http://www.intewa.de/en/customer-menu/contact/legal-conditions/>

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**For customers in other countries:**

For any queries, orders for spare parts or service requests please get in touch with your local dealer or visit the service domain on the INTEWA website according to your country.

<http://www.intewa.de/en/company/partners/international-distributors/>

**Distribution in South Africa is handled by:**

Pure Rain Technologies Pty Ltd  
Cirtech House Westlake Business Park  
Cape Town

Tel: 086 111 4307

Email: [purerrain@iafrica.com](mailto:purerain@iafrica.com)

Email: [intewasa@mweb.co.za](mailto:intewasa@mweb.co.za)

Web: <https://www.purerain.co.za/>

Web: <https://za.intewa.net/en/>

**Always keep your purchase invoice, the model type and the serial number of the control unit handy.**

