Installation instructions

AquaCycle® 900

Version 4.1

PONTOS®

hansgrohe

Contents

As of: February 2006

Many thanks for demonstrating your confidence in us and our product. In order for you to receive long-term satisfaction from your system, we would ask you to take the time to read the following instructions carefully.
Your water recycling system (referred to in the following as “system”) is used to process shower and bath water to produce high-quality service water, which can be used preferably for operating the toilet flush, washing machine but also for watering the garden and cleaning purposes. When operated and maintained correctly, the system supplies constantly high water quality in accordance with the hygienic/microbiological requirements of the EU directive on the quality of bath water of 8 December 1975 and table 3 of the fbr information sheet H201 of January 2005. This information is based on samples taken over a period of more than 8 years and certified by tests of independent institutes. Your water processing system works according to the SmartClean® process. The manufacturer refers to the service water quality produced as clarified water.

Highly contaminated kitchen waste water, waste water from dishwashers, sewage water and water containing dyestuffs (paint residue, textile and hair dyes) are not suitable for operation.

Only non-aggressive sewage water without faecal matter (i.e. without concentrated acids and alkalis) is suitable.

The service water supply must be free of microleaks. Damage caused by microleaks is not covered by the warranty of the manufacturer.

Any use beyond this does not constitute designated use. The manufacturer and vendor are not liable for damage resulting from such use!

Please read the installation instructions, the operating instructions and in particular the safety instructions carefully before installation and initial operation of the water recycling system and keep these instructions in a safe place.

Brief water recycling lexicon:

Waste water:
Waste water refers to domestic, commercial, agricultural or other use of runoff water with altered properties, but also to rainwater collected and running off fixed surfaces.

Grey water:
Grey water is the part of domestic sewage water which is free of faecal matter and highly contaminated kitchen waste water. It is runoff water from bathtubs, shower tubs and hand wash basins. Statistically speaking, approximately 55 litres of grey water per person are produced in this area in a water-saving household. This amount may vary greatly in individual cases depending on personal habits. Compared to roof drainage water, grey water is produced in almost equal quantities every day irrespective of the weather.

Black water:
Black water refers to the part of the domestic sewage water which is heavily contaminated by faecal matter, food residue etc. from toilets and kitchen sinks.

Service water / Clarified water:
Service water refers to all grey water which can be reused after treatment. Clarified water is clear, hygienically harmless water produced with your water recycling system. It can be used in private households and commercially to operate water-consuming equipment which does not necessarily require drinking water quality water. Possible uses are: toilet flushing, washing machine, cleaning purposes and watering.

Drinking water:
According to DIN EN 1717, drinking water is water suitable for human consumption and purposes, the quality of which is defined in the drinking water ordinance. According to EU directive 98/83, drinking water is water for human use.

Safety instructions

Scope of validity:
Operators outside of the Federal Republic of Germany should regard the safety instructions given here as a practised basis, the implementation of which is based on the locally valid regulations and should make any adaptations which are necessary on site.

General:
This product was developed in accordance with the latest technical standards, produced with great care and subjected to continual quality control.
The operating/installation instructions contain important information for safe, correct and efficient operation of the system. They must be observed to ensure reliability of the system and to prevent dangers.
If additional information or instructions are required and in the event of damage, please contact your contractual partner/specialist dealer.

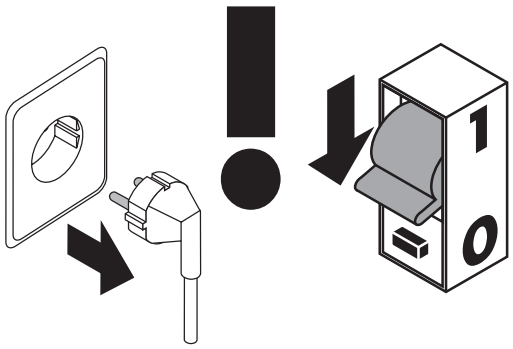
Safety:
These operating instructions contain basic information which is to be observed for operation and maintenance of the system (for installation see “Installation instructions”!). For this reason, the operating and installation instructions must be read by the operator before installation and commissioning. The operating instructions must always be available at the installation site of the system.
In addition to the general safety instructions given under the heading “Safety”, the special safety instructions listed under the other headings must also be observed.

Dangers due to non-observance:
Failure to observe the safety instructions may result in a danger to persons and to the environment and the equipment. Failure to observe the safety instructions renders all claims for compensation null and void.

Inspection and installation work:
The operator must ensure that all inspection and installation work is carried out by authorised, qualified specialist personnel who have informed themselves by carefully studying the operating and installation instructions.
The installation work must be carried out in compliance with DIN 1988 T1 to T8 and DIN EN 1717.
For work involving contact with waste water, suitable protective gloves are to be worn.

All work on the system must only be carried out when the system is disconnected from the voltage supply. It must be ensured that the supply voltage cannot be switched on again inadvertently.

Before opening the service door, disconnect system from voltage – unplug mains plug of the system!



Electrical connection:
Your electrical equipment must comply with the general equipment regulations IEC 364/VDE0100, i.e. sockets with earthing terminals. The mains electrical supply (230V~/50HZ AC) to which the system is connected must have fault current protection (residual current circuit breaker) with 30 mA in accordance with DIN EN 60335-2-41 / VDE 0700. If necessary, please contact your specialist electrical company.

Unauthorised operation:
The system is to be installed and operated in accordance with the relevant technical standards. In particular, technical regulations such as DIN 1988 T1 to T8, DIN 1986, DIN EN 1717, DIN 2403 and TrinkwV 2001 are to be observed.
The tolerance values given in the technical specifications must never be exceeded.
The clarified water obtained from the system must not enter the drinking water mains system and must not be used as drinking water.
The system must not be operated with organically contaminated kitchen waste water, aggressive dirty water (concentrated acids/ alkalis), waste water containing faecal matter, medical mud baths and high-foaming water.

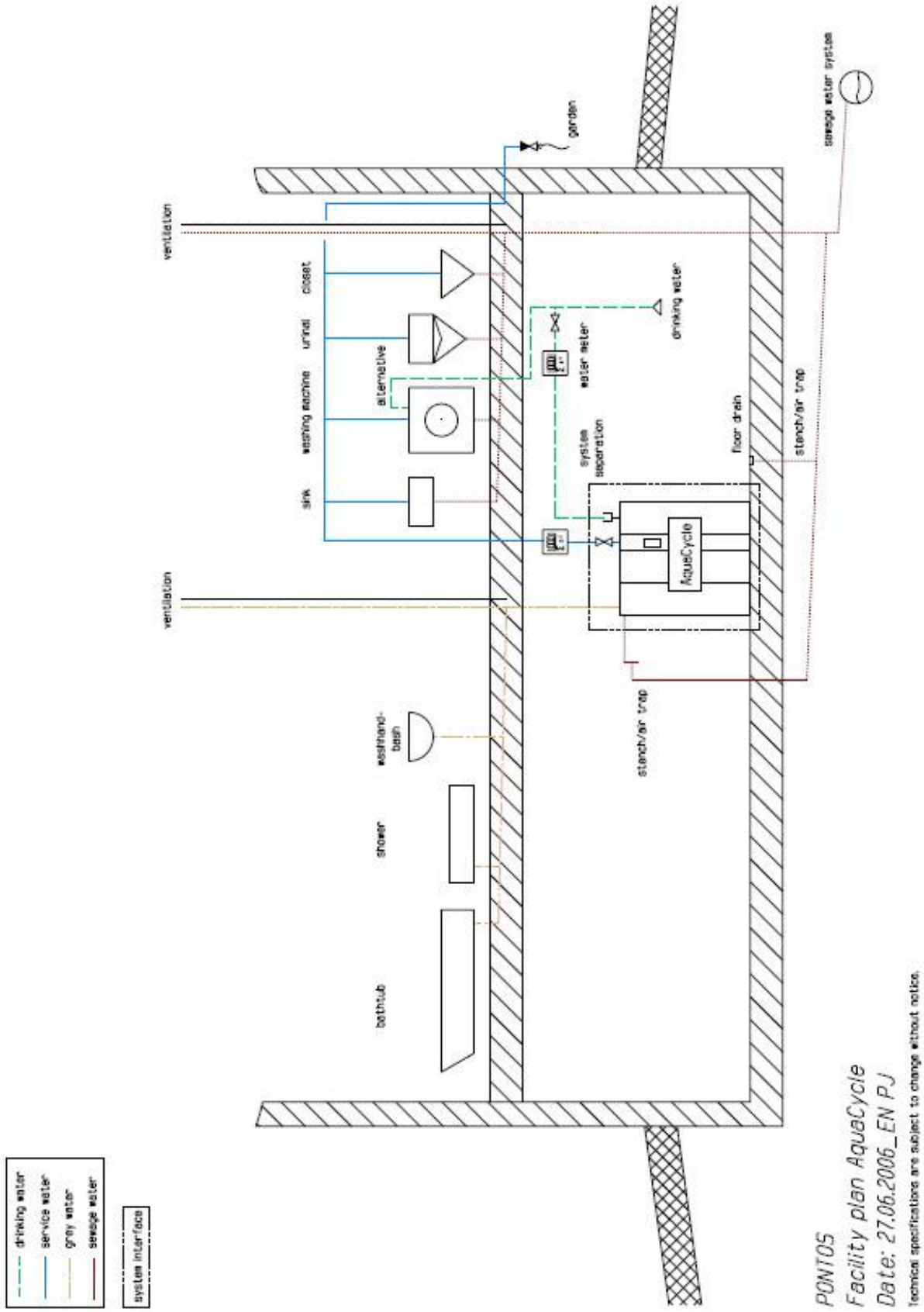
In the event of a power failure, the system is not operational and down-line applications cannot be supplied.

Installation requirements

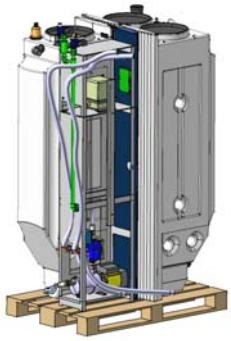
Before you install and connect your system, the following requirements must be met:

- The building must be equipped with two waste pipes – a collecting waste pipe must be ventilated separately from the black water line, which supplies the system with the shower and bath water produced and a clarified and service water supply separated from the drinking water supply, which connects the AquaCycle® to the draw-off points (toilets, washing machine, outside tap etc.).
- There must **NOT BE** a cross connection between the drinking water and the service water.
- The AquaCycle® is to be ventilated separately. This is generally achieved with a shower waste water supply pipe via the roof. This must not be connected to the black water ventilation (sewer gases).
- The system overflow is to be fitted with a stench/air trap/siphon.
- The backlog level of the sewage water system is to be taken into consideration. Depending on the place of installation of the system, it must be ensured that in the event of a backlog no waste water from the municipal sewage system can enter the AquaCycle® system.
- If grey water cannot be supplied to the system by gravity, a lifting unit must be installed. As an alternative to the lifting unit, only the bathroom of the upper floor can be connected (it must be checked whether it is absolutely necessary to connect a guest bathroom on the same floor as the system).
- If rainwater is to be processed in the AquaCycle®, it is to be supplied via the AquaCycle® cistern adapter (accessory). Direct inlet via the supply line does not constitute designated use.
- The waste pipes should be flushed before commissioning to prevent rubble etc. from entering. For this reason, completion of the building immediately before occupation is recommended as the commissioning date.
- For drainage, we recommend conventional tube systems and for the clarified water supply conventional plastic pipes.
- The service water supply lines are to be permanently marked in colour over the whole distance.
- Cold water supply lines (drinking water backfeed) are to be with heat insulation. Heat insulation of the lines carrying (hot) clarified water is generally not necessary.
- The necessary room height must be at least 215 cm.
- The place of installation must be frost-proof, dry, protected from the weather and well ventilated.
- The system must be placed on an even surface. If necessary, the system is to be aligned with lining.
- The load-bearing capacity of the substructure of the installation surface must be at least 1250 kg/m².
- There must be a floor drain in the installation room. DIN 1986 for drainage works is to be observed.
- The use of a water meter is not obligatory but we recommend installing a water meter both in the clarified water line and in the drinking water backfeed line. The saving can thus be calculated from the difference.
- Draw-off points must be designed in accordance with drinking water ordinance 2001 §17 para. 2 clause 3.
- The draw-off points are to be marked “Not drinking water”.
- The drinking water backfeed must be made in accordance with DIN/EN 1717 – this is the case with AquaCycle®.
- In an individual household, the user may choose to wash clothes with service water. In a rented house, service water can be offered for washing clothes if the tenant a washing machine is available to the tenant as an alternative.
- Systems which use service water are to be registered with the responsible health office, generally by the operator, by completing a form. In addition to a commissioning report and an inspection plan, this form is part of the operating instructions (scope of supply).

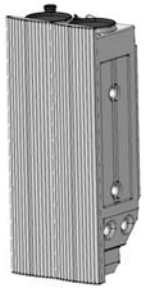
Installation diagram



Delivery:
The system is delivered on a Euro pallet and is divided into 2 assemblies. The first assembly comprises tanks 1+2, the second unit consists of tank 3 with fully assembled equipment shelf. The assemblies are arranged on the pallet in such a way that their front sides face each other. The transport unit includes the side reinforcement profiles and the associated threaded rods. We recommend wearing suitable **protective gloves** when assembling the unit.



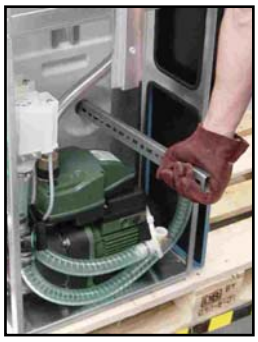
Delivery



Assembly 1

Assembly 2

Installation of the unit:
To transport the unit to the intended installation site, remove packaging and fastening material. The reinforcement profile supplied is used as a carrying aid for further transport. The reinforcement profile provided is used as a carrying aid for further transport. By pushing the reinforcement profile through a hole in assembly 1, it can be used as a carrying rod (see picture). Assembly 2, consisting of tank 3 and the equipment shelf, can be held by pushing the reinforcement profile into one of the lower holes. In restricted spaces it is recommended to remove the service door for transport.

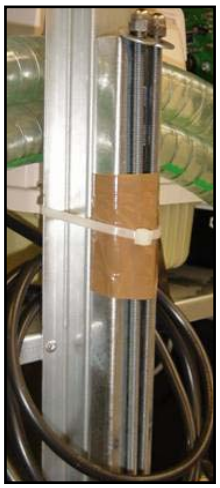


Note: The service door on assembly 2 must never be placed under load during transport! To prevent damage to the UV lamp, there must be no mechanical load! Do not use tubing as carrying handles!

Note: The system must be placed on an even surface. If necessary, the system is to be aligned with lining. The load-bearing capacity of the substructure of the installation surface must be at least 1250 kg/m².

Before installing the system, all connection tubes are to be prepared. A working space of at least 30 cm is to be provided to the left and right of the system. To prevent structure-borne noise being transmitted, the system is to be installed in such a way that it does not have direct contact with adjacent walls. It is recommended to observe a distance of 20–30 cm at the rear of the system.

Installation:
The following parts are contained in the accessory bag:
- 3 rubber seals for elbow connections
- 1 key for the service door
- 7 Obo terminal strip covers
- 2 O-clamps 18.0
- 1 O-clamp 22.6



Thread on equipment shelf

Before beginning with installation, the C-profile attached to assembly 2 must be removed. Then insert the reinforcement profile in the recess intended for this purpose on the left-hand side (viewed from the front) of assembly 1. Connect the profile to the equipment shelf of assembly 2 via the holes with the threaded rods provided.

Note: Only slightly tighten the threaded rods so that no deformation occurs on the tanks of assembly 1!

Installation

After mechanically connecting the system, the following connections must be made for water and electricity:

1. Connect the water supply line of the submersible pump connection of tank 2 to the supply line of the UV lamp and secure with the hose clip.

1.

2. Connect the air tube from the air pump (blue marking) via the Y-pieces with the air tubes (blue marking) of tanks 1 and 2 and tighten the hose clamp.

2.

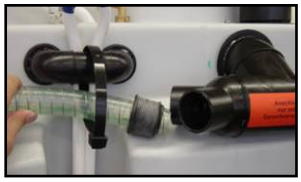
3. Fix the white tube of the filter backwash to the solenoid valve. For this, screw the brass bush onto the solenoid valve.

3.

4. a) Remove the rubber seals from the T-joint, grease and push over the ends of the sediment extraction tubes.

4.

b) Feed the sediment extraction tubes of tanks 1 and 2 through the cable tie (pre-fitted next to the T-joint) and connect to the T-joint of the overflow.



c) Connect the sediment extraction tubes to the tanks 1 and 2 and tighten hand-tight. (The seals are contained in the accessory bag.)

5. Connect the tube from tank 3 to the pressure pump. (The seal is contained in the accessory bag.)

5.

6. Partially fill the tanks with water and check the connections for leaks.

7. Tanks 1 and 2 contain packed carrier material. Cut open the film in the tank and empty the carrier material into the relevant tank.

7.

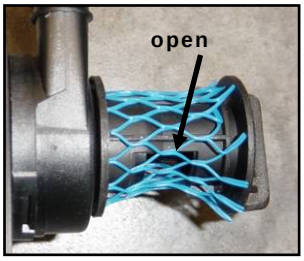
8. Grease the end of the overflow pipe (DN 40) and connect to tank 3.

8.

9. a) Remove the securing device of the submersible pump (cable tie on the tubes) in tanks 1 and 2 and suspend the pumps in the relevant tanks.

9.

b) Check whether the submersible pump is open so that the water can flow through. The blue mains tube must never be removed.

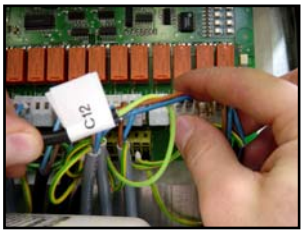


10. Remove the securing devices (cable ties) on the air pump and pressure pump.

10.

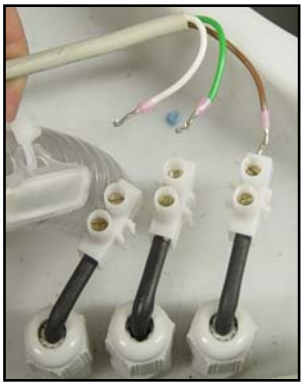
11. Feed the cables of the submersible pumps from tanks 1 and 2 from behind into the shelf and connect directly via the connectors on the PCB (socket C12 or C13; the connectors are marked with appropriate flags).
When connecting to the protective conductor, first the clamping fixtures must be opened with a small screwdriver or similar. The pin assignment is arbitrary here.

11.



12. Connect the sensor cables of tanks 1 and 2 to the filling level electrodes (luster terminals) (view from front):
brown = right
green = middle
white = left
(see green writing on cable).

12.



13. Before putting the plant into operation, ensure that the ball valves of the sediment extraction tubes are in “open” position.

13.

Installation

Connection:
The waste water pipe is connected to the service water connection DN 20 via an internal thread. The valve for the refilling is connected directly to the refilling line (e.g. drinking or service water) with an external thread (provide screw connection).
The system is connected to the waste water line of the shower/bathtub and hand washbasin via the grey water inlet sleeve DN 70. Connection to the sewage water system is made via the waste water drainage and overflow nozzle DN 70.

Leak test:
Finally, the connections made during installation must be checked for leaks. Fill the tanks at least three quarters full for this.

Note: To prevent sewage gases entering, the connection to the sewage water system must be equipped with a stench trap! The system inlet is to be ventilated directly – independently of the sewage ventilation.

Before you can put your system into operation, please ensure that the following requirements are fulfilled:

- The system must be aligned horizontally and vertically. Later alignment is no longer possible when the system is filled.
- The system must be connected to the prepared installations.
- The securing devices (cable ties) must be removed from the submersible pumps and air pumps.

Now the actual commissioning can begin:

1. Insert the power connection cable.
2. Tank 3 is automatically filled after approx. 10 seconds via the free outlet of the refilling system. In addition, tanks 1 and 2 should be at least half filled with water.
3. It is important that all connections are then checked for leaks.
4. Now the booster pump must be vented via the service water line. To this end, unscrew the cover cap on the top (rear left) with a screwdriver. It is not necessary to remove the cap completely. Wait until the pump is vented. This is the case as soon as water comes out. Then tighten the cap again. (It must always be ensured that tank 3 is filled with water up to the minimum level!)

5. Now the running-in phase can be activated via the display of the control.
6. Select the *Auto* menu by confirming with OK. Confirm with OK again to open the menu *Automaticp.*. By pressing the ▼ key three times, you access the point *Running-in phase*. By acknowledging with the OK key, the running-in phase is started (*Running-in phase on* appears in the display). By pressing the ▲ several times you can exit the menu. The message *SmartClean* now appears on the display. The green LED flashes. More detailed operation on operation of the control is given in the *Control* section on page **Fehler! Textmarke nicht definiert.** onwards.

The code of your control is:

1 2 3 4

7. Finally, all functions of the system must be checked with the service door closed. This is done via the menu *Manual → Manual mode*.
   In the *Manual mode* **menu, all connected consumers** can be directly checked for operability. Activate the consumer to be checked with the ▼ or ▲ key and activate with OK. Press OK **again** to deactivate the selected consumer. All devices in the system can thus be quickly checked for operability. For more information on this, please refer to the operating instructions (section *Control* from page 9 onwards). Exit the menu by pressing the ▲ key several times.
8. If faults occur during commissioning, the *Faults/remedy* section on page **Fehler! Textmarke nicht definiert.** provides information on troubleshooting.

Note:
Until sufficient grey water has collected to keep the system in a stable operating condition, refilling is activated several times.

In the initial phase (first 2 weeks) the system works in its running-in phase. During this time the system is supplied with water via the refilling system. At the end of the running-in phase, the system automatically switches to automatic mode!

Please ensure that the biological cleaning is not unnecessarily impaired by the use of aggressive bath cleaning agents or organic waste water.

Pontos GmbH · Auestr. 5-9 · D-77761 Schiltach · Tel. +49 (0) 78 36 / 51 19 20 · Fax +49 (0) 78 36 / 51 19 36
eMail: info@pontos-aquacycle.de · www.pontos-aquacycle.de