

Innovations for clean water



AQUAMAX[®] PRO G

Installation Instructions

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Dear customer,

at this point we would like to thank you for the trust which you have shown in us by the purchase of this product.

On the following pages you will find everything necessary about the installation, operation and maintenance requirements of your AQUAMAX® small wastewater treatment plant.

Please note that the careful installation of the wastewater treatment plant and the later maintenance are very important for a good treatment performance.

Regular maintenance is laid down by the authorities. Through the conclusion of a maintenance contract the plant and its biological discharge values are monitored continuously.

General and safety information

With the AQUAMAX® one is concerned with a technical system which, together with a multi-chamber, can be employed as small wastewater treatment plant for the aerobic biological treatment of domestic and comparable wastewater of up to 8 m³/d from individual or several buildings, collected using a separate system. Dimensioning, configuration and operation are to take place in accordance with DIN EN 12566-3 and the approval of the German Institute for Structural engineering (DIBt)!

With employment according to regulations no hazards whatsoever emanate from the plant. If the AQUAMAX® is used for other employment purposes without the express approval of ATB WATER GmbH and/or if the following safety information is disregarded, this can lead to the hazarding or injury of persons and to malfunctions of or defects in the plant. In this case every liability is excluded. Modifications to the plant or unauthorised conversions are not permitted.

The AQUAMAX® and accessories are not intended to be used by persons (including children) with limited physical, sensory or mental capabilities or without experience and/or knowledge, unless they are supervised by a person responsible for their safety or receive from him/her instruction on how to use the AQUAMAX® and accessories. Children are to be supervised in order that they do not play with these.

Before use the AQUAMAX® is to be installed correctly and in agreement with the installation instruction. Installation instructions, operation and maintenance instructions are to be read carefully before assembly and commissioning and the instructions contained therein must be followed implicitly.

With assembly and installation, commissioning and operation as well as, if necessary, decommissioning, the customary national standard specifications and provisions are to be observed. All tasks may be carried out by trained and qualified specialists with an appropriate certificate of qualification only. The operator of the plant is to be instructed by the service technician.

With the connection of the control system the national applicable provisions as well as the details on the specification plate are to be observed (mains voltage, frequency etc.). The equipment is to be operated only on network configurations which include a protective earth (PE) conductor.

Attention is to be paid to correct phase connection (even with ready-to-plug configurations)! Connection to the mains must be by means of separate fusing and earth leakage circuit breaker (ELCB). Before commissioning the faultless function of the electrical safety measures must be checked! Installation tasks are to be carried out by electrically skilled persons only. With work on the equipment the mains plug must be disconnected. A separation or extension of the leads is not permitted. The electrical connection data is to be taken from the specification plate on the equipment.

Installation instructions AQUAMAX® PRO G

Do not operate any equipment which has a damaged connection/connecting lead or plug, which exhibits a malfunction, has been dropped or is damaged in any way.

With all maintenance and repair tasks the plant is to be disconnected from the mains. The AQUAMAX® can be removed easily from the pit. If the plant has to be entered then this (fundamentally) may take place only with the presence of a second person. Particular care is to be taken. The applicable accident prevention regulations and the rules of technology are to be observed.

The AQUAMAX® submersible aerator feeds the required air to the wastewater through a rapidly rotating propeller. Never operate in the vicinity of the aerator as long as the AQUAMAX® is connected to the mains supply. Danger of injury!

Only with the use of original spare parts or with spare parts authorised by ATB can correct function be assured. Before commissioning all points of the operating instructions are to be checked again. Keep these instructions available at all times!

Explanation of the warning notices used:



ATTENTION!



Hazard due to electrical voltage!



Rotating parts. Danger of crushing or ingestion in the area of the submersible aerator!

Scope of delivery



ATB goes to great lengths to ensure complete commissioning and product-matching packaging for all equipment and parts supplied. Nevertheless, please check the delivery for transport damage and completeness.



AQUAMAX® PRO GZ 1-16
consisting of:

- 1 carrier frame made of PE/V2A for chain suspension
- 1 submersible aerator AQUA 5S
- 1 submersible pump ATB*lift* 2 as clarified water pump
- 1 submersible pump ATB*lift* 2 as excess sludge pump
- 1 float switch for $H_{W,min}$
- 15/25 m connection cable 7x1,5 mm² with special plug



AQUAMAX® PRO GZ 17-50
consisting of:

- 1 carrier frame made of V2A for chain suspension
- 2 submersible aerators AQUA 5S
- 1 submersible pump ATB*lift* 2 as clarified water pump
- 1 submersible pump ATB*lift* 2 as excess sludge pump
- 1 float switch for $H_{W,min}$
- 15/25 m connection cable 7x1,5 mm² with special plug



Accessories, loose:

- 1 control system pro*Control*® 2, 230 V, for internal installation
- 1 submersible pump ATB*lift* 2 as charging pump in a set with 2 separate float switches for dry-running and flood protection
- 1 float switch for $H_{W,max}$ in the SBR-chamber
- 1 sampling bottle (red) made of PE with bracket
- 3,5 m PVC-hose Ø 25 mm for discharge
- 15 m PVC-hose Ø 32 mm for charging and sludge return
- 1 set Mounting parts
- 1 information plate "Small wastewater treatment plant"

Zubehör, lose:

- 1 control system pro*Control*® 2, 230 V, for internal installation
- 1 submersible pump ATB*lift* 2 as charging pump in a set with 2 separate float switches for dry-running and flood protection
- 1 float switch for $H_{W,max}$ in the SBR-chamber
- 1 sampling bottle (blue) made of PE with bracket
- 5 m PVC-hose Ø 32 mm for discharge
- 20 m PVC-hose Ø 40 mm for charging and sludge return
- 1 set Mounting parts
- 1 information plate "Small wastewater treatment plant"

Technical data
(all units 230 V AC,
50 Hz):

Submersible aerator
AQUA 5S: 0,56 kW / 2,5 A

Pumps
ATB*lift* 2: 0,3 kW / 1,3 A

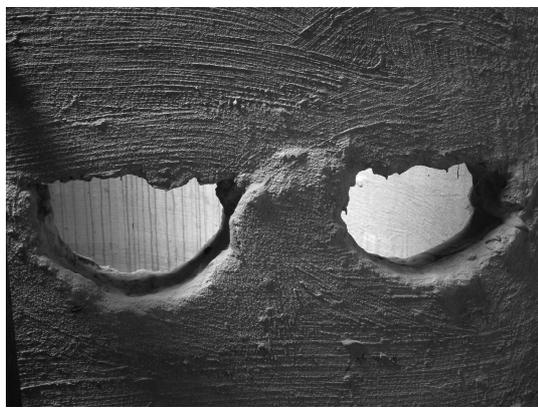
Services to be provided by the customer

- The tanks are offset at the appropriate height and watertight.
- A watertightness test has been carried out and concluded successfully. For this, the installation instructions of the tank manufacturer are to be observed.
- All chambers of the plant are accessible to persons (clear openings of at least 600 mm diameter).
- The cover of the tank with the aeration chamber must have ventilation openings. In addition a ventilation facility at the outlet pipe plant is strongly recommended. The correct ventilation via the roof is to be ensured. The correct operation is to be documented and verified.
- The outlet pipe is connected and reaches ca. 15 cm into the tank (do not cut off at the tankwall).
- Behind the wastewater treatment plant is located a further distributor, control or percolation shaft. If this is not the case, then a possibility for sampling is to be installed in the SBR tank.
- Should the buffer tank be divided into several chambers, then the partition wall must have openings at the bottom.
- A 230 V power line is laid to the location of the control unit and is fused separately as follows: B 16 A, and 25 A / 30 mA earth leakage circuit breaker (ELCB).
- Between the control unit and the wastewater treatment plant there are laid one (buffer and SBR in one tank) or two (buffer and SBR in separate tanks) cable conduits (\geq DN 100). There may be no bends laid with a greater curvature angle than 30°! The cable conduits are to be sealed odour-tight.
- A draw wire is planned in the empty pipe. The maximum distance between control system and AQUAMAX® or buffer is 35 m.
- The tank is free of wastewater and cleaned.
- The AQUAMAX® incl. accessories are on the construction site at the start of assembly.
- The inlet pipeline is connected to the primary settling stage. With retrofitting this, as a rule, has been laid (if necessary, please take note of the project sketch).
- If there are separate tanks, the connection pipe between pretreatment, buffer and SBR is to realise in DN 150. There may be no bend laid with a greater curvature angle than 45°.

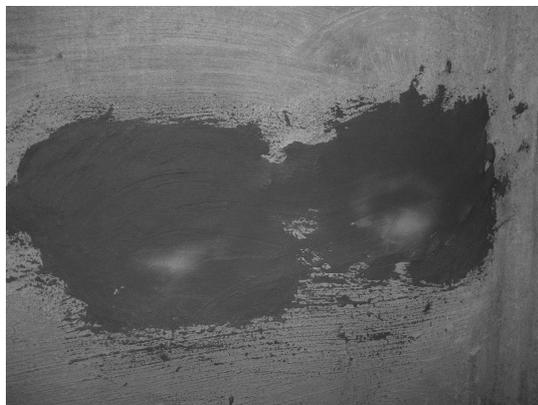
Tank preparation



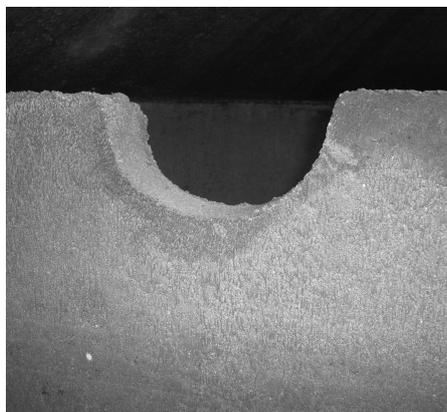
A watertightness test must be done!



The openings between the primary settling chambers must remain.



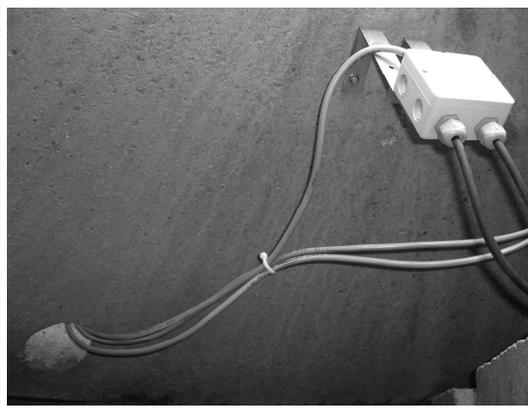
The openings and interstices between pretreatment and buffer or SBR and between buffer and SBR must be closed and sealed.



It must be ensured that there is an emergency overflow (> 40 cm²) between buffer tank and SBR tank!



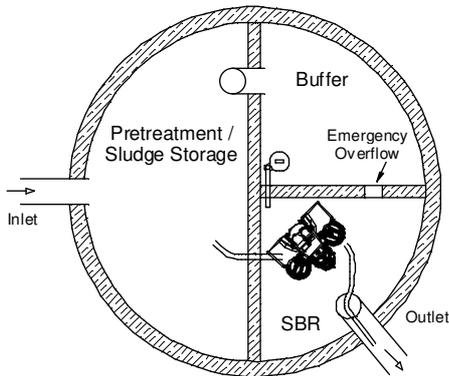
Install T-piece for the overflow between (last) pretreatment chamber and buffer tank as well as for the runout. The level should lie at one height.



For the cable inlet, plan one (buffer and SBR in one tank) or two (buffer and SBR in separate tanks) openings (≥ DN 100) per tank.

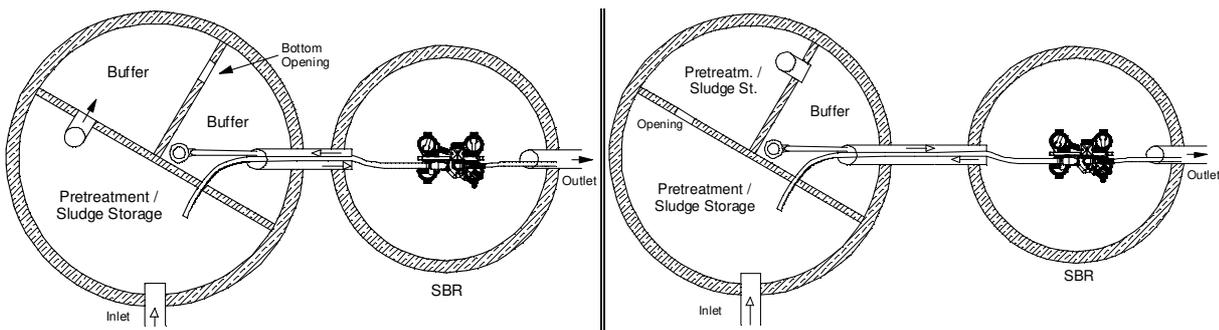
Tank Preparation

Tank preparation AQUAMAX® PRO G – single-tank plant



- Cover opening at least 60 cm diameter with ventilation openings or separate ventilation pipe.
- Emergency overflow, ca. 4 x 10 cm (H x W).
- The overflow between pretreatment and buffer must be realized with a baffle or a T-piece and an offset (approx. 10 cm).
If there is a risk of backflow into the inlet pipe and this is to be avoided, the lower edge of the emergency overflow must be provided below the lower edge of the inlet..
- Walls between the chambers must be tight, if necessary, reseal tank interstices.
- Introduce empty pipe > DN 100 for cable at any desired position.
- Inlet and outlet must extend ca. 15 cm into the plant.

Tank preparation AQUAMAX® PRO G - multi-tank plant



- Same as single tank system (cover with ventilation openings only for the SBR tank).
- If several chambers in a tank are used as pretreatment, existing openings can still be used.
- If several chambers in a tank are used as buffer, they must be connected to each other near the bottom (bottom opening).

Installing AQUAMAX®



Please note with all connection work, that cables and hoses are long enough so that the AQUAMAX® can be removed from the plant without problem. Furthermore, it is to be ensured that no cable is loaded under tension.

	<p>The stainless steel hooks provided are to be so fixed to the tank cover, that the AQUAMAX® is positioned as far as possible in the middle of the tank. See to it that the pipeline outlets for sludge and clarified water point approximately in the direction of the corresponding inlet and outlet pipelines (the outlets have limited capability for rotation).</p> <p>Now hang the AQUAMAX® to the chains provided so that the difference between the switch-OFF point of float switch SW1 and the tank sole must correspond at least with the value for $H_{W,min}$ from data sheet or technical clarification calculation.</p> <p>With this, the slope of the tensioned chain should not be more than 45°.</p>
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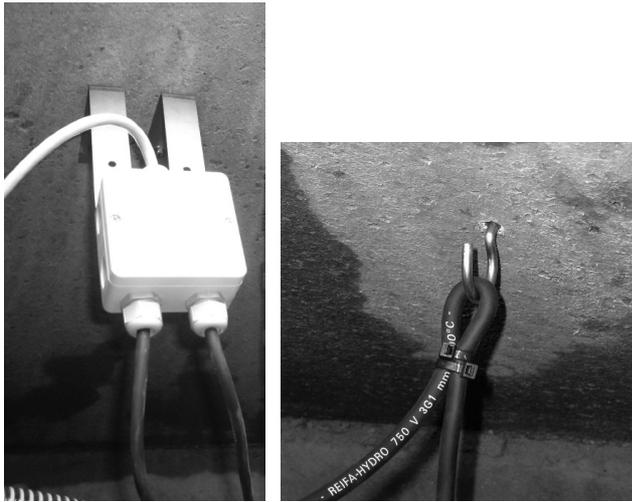
Switch-OFF point float switch SW1($H_{W,min}$)



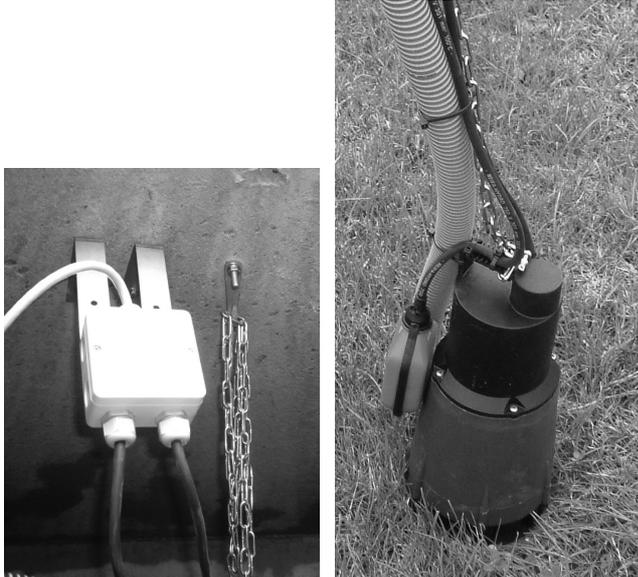
The switch-OFF point of the float switch (= SW1), with all types, is located at the height of the partition edge between upper and lower part of the aerator housing. The difference (= $H_{W,min}$) between this point and the tank sole may not be undercut.

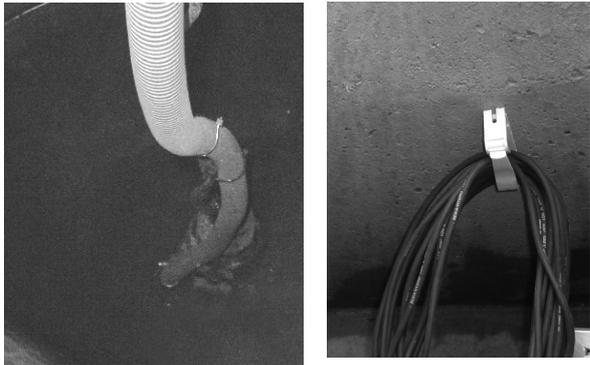
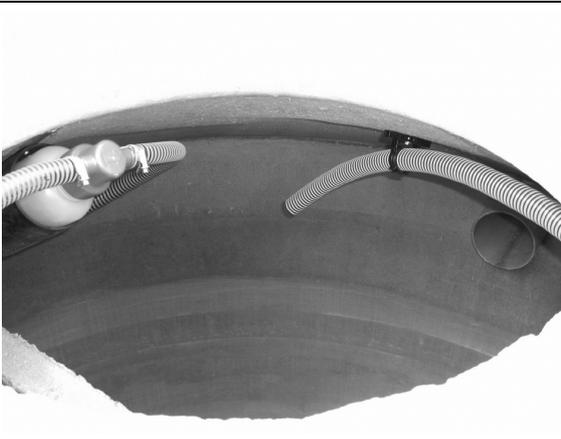
Please take the values for $H_{W,min}$ from data sheets or the technical clarification calculations.

Float switch set PRO G

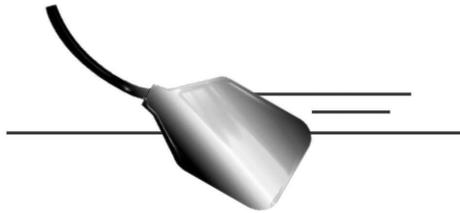
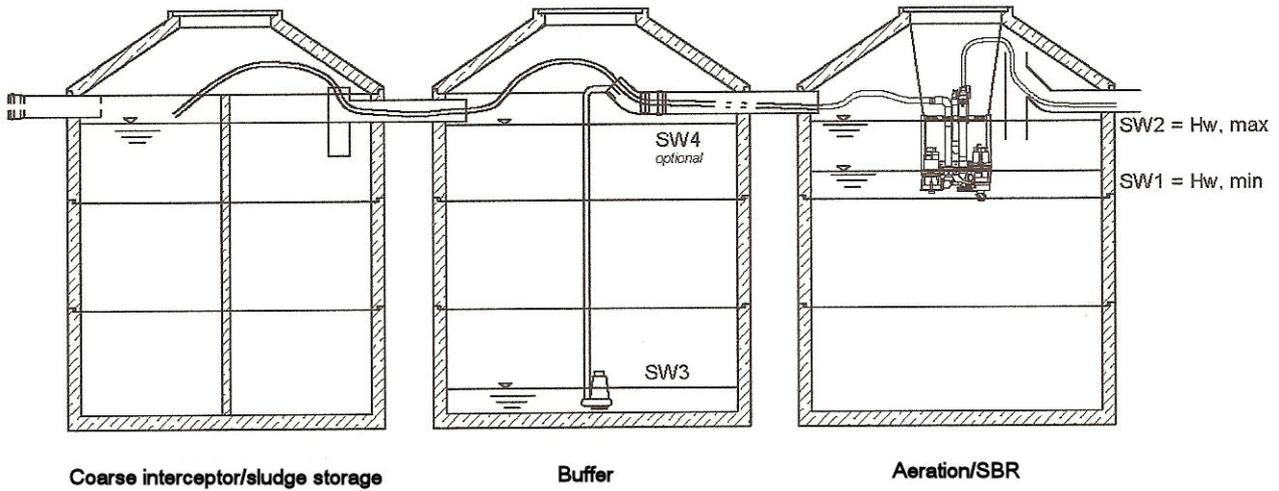
	<p>Fix the distribution box to the cone (SBR) using the connection cables.</p> <p>Mount a VA hook at the cone and fit the float switches. Please form a loop with the float switch cable and fix it with two cable ties.</p> <p>The (red) float switch is used to signal the maximum water level in the SBR (= SW2). Hang up this float switch in such a way that the switching point is according to $H_{W,max}$ (clarification calculation / data sheet). The difference to $H_{W,min}$ must at least correspond to the sewage treatment calculation.</p>
	<p>Roll up the freely suspended cable and hook it into the OBO Grip clamp.</p> <p>Please ensure that the float switch can move freely up and down and cannot get caught..</p> <p> The switch-on point of SW2 must always be below the outlet!</p>

Charging set PRO G

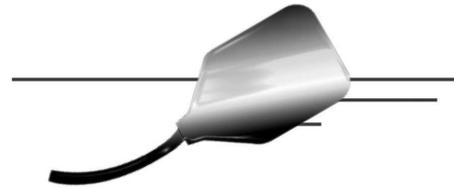
	<p>Attach the distribution box to the cone (buffer) using the connecting cables.</p> <p>Prepare the charging pump with PVC hose and chain. The chain is already mounted on the pump. For better handling, fix the hose, chain and cable with cable ties.</p> <p>Fit a VA hook to the cone and attach the chain to it..</p>
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	<p>Hang the pump just above the bottom in the buffer tank. Roll up the freely suspended cable and hook it into the OBO-Grip clamp.</p>
	<p>Mount two more VA hooks on the cone and fit the float switches. Please form a loop with the float switch cable and fix it with two cable ties.</p> <p>The black float switch (= SW3) is a dry-running protection for the charging pump. Hang up this float switch so that the switch-off point is approx. 5 cm above the suction basket of the pump.</p> <p>The red float switch (= SW4) is used to indicate the maximum water level in the buffer tank. Hang up this float switch so that the switching point is below the overflow from the buffer into the SBR tank!</p> <p>Please ensure that the float switches move freely up and down at the weights and cannot get caught.</p>
	<p>Pull the charging hose through the connecting pipe into the SBR chamber and attach the end to the cover with a plastic clip..</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  <p>Please make sure that the free end of the charging hose is not immersed or can be immersed in the water in the SBR chamber in order to avoid a siphon effect (communicating tube)!</p> </div>

Float switches



Open float switch
= 0 in the status display
(Float switch has dropped)



Closed float switch
= 1 in the status display
(Float switch has floated up)



ATTENTION! Switching action is noticeable through a distinct "clack". The switching situation changes relatively late (ca. +/- 50° related to the surface of the water), so that an apparently floated up float switch can still be open or an apparently dropped float switch can still be closed. Take note of status indicator!

Sampling bottle, clarified water and charging hoses



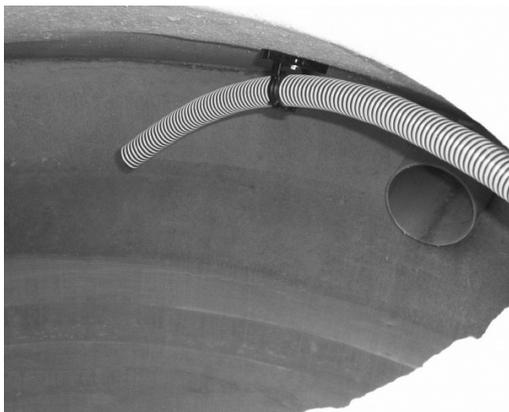
Up to 16 PT red, from 17 to 50 PT blue connection cover!

Mount the sampling bottle on the cone so that the sampling is easily achieved and the sample can be easily removed. Screw the hose nozzle on to the prepared clarified water hose to the threaded connection on the pressure pipe of the clarified water pump and cut it to length so that it can be pushed on to the hose nozzle of the sampling bottle. **With this take note of the direction of flow of the sampling bottle!**



Push the remaining hose far enough into the outlet so that the clarified water cannot flow back (if necessary provide an elbow on the outlet). Secure the hose against slipping out using a pipe clip. If there is a non-return valve installed in the clarified water hose or if the sampling bottle is significantly higher than the outlet, further measures can be necessary. In these cases please contact our service department. A sufficient freedom of movement for the removal of the bottle is to be taken into account.

The pressureless outflow of the clarified water must be guaranteed!



Screw the prepared hose for the excess sludge return feed to the pressure pipe of the excess sludge pump.

Pull the hose through the connecting pipe into the pretreatment and secure the end thereto the cover using a plastic clip.



Immersion in the wastewater pretreatment is to be avoided at all costs!

The control system proControl® 2



Yellow = buffer
Blue = AQUAMAX®
Black = float switch $H_{W,max}$ SBR

Assembly

Using the mounting material provided, secure the proControl® 2 to the cabinet brackets provided and at a suitable position, as far as possible not directly affected by weather conditions.

With temperatures below 0°C one has to reckon with a severely limited function of the LC display.

The proControl® 2 is delivered as ready-to-connect model. Installation wiring in situ is dispensed with!

All tasks, which require the opening of the control unit are to be carried out by a qualified electrician!



The pluggable relays may have loosened during transport. This must be checked before commissioning!



ATTENTION! Before opening the proControl® 2 and/or the connection box these MUST be disconnected from the mains supply. Work on open equipment may be carried out exclusively by qualified electricians! Pay attention to appropriate-phase connection (even with ready-to-connect models!



As one is concerned with an electrical plant with submersible motor pumps a separate 16 A fuse and a (separate) upstream 30 mA residual current (RCD) circuit breaker MUST be provided! Attention is to be paid to the correct laying of the protective ground wire up to the earthing of the building.

Cable connection and test run

Pull the cable from the AQUAMAX® through the empty pipe to the control unit (draw wire!). Cable lengths longer than 15 m must be ordered separately.

Insert the special plug Ø 30 mm of the AQUAMAX® into the corresponding sockets of the control unit and screw it hand-tight. Do not connect the control unit to the mains yet!



The system must now be filled with water at least up to the switch-on point of the lower float switch in the SBR-chamber.

After connecting the control unit to the mains, it is activated and in program mode. With the help of the test run, a function check of the equipment assembly must be carried out now. For more detailed information on this and on setting the control unit, please refer to the corresponding chapter in the operating instructions.

Only for British standard plug system with earthing contact!

	<p>Take the adapter plug and the plug. Press the plug into the adapter plug The new plug is ready.</p> <hr/> <p> One-way assembly, to the unique and for fixed connection. Without destruction not solvable!</p>
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Closing operations

<p>Kleinkläranlage nach DIN EN 12566-3 ATB WATER GmbH • www.atbwater.com Südstraße 2 • D-32457 Porta Westfalica</p> <p>AQUAMAX® Neuanlage ☐ ☐ ☐ Nachrüstung (Anhang B) ☐ ☐</p> <p>Jahr der Fertigstellung: 2018 ● 2019 ● 2020 ●</p> <p>BASIC 1-16¹⁾ ● CLASSIC 1-16¹⁾ ● 17-50²⁾ ● CLASSIC ZB 1-16¹⁾ ● 17-32¹⁾ ● 33-50¹⁾ ● PRO GZ 1-16²⁾ ● 17-50²⁾ ● PRO GZB 1-16²⁾ ● 17-32²⁾ ● 33-50²⁾ ●</p> <p>Ablaufklasse C ● N ● D ● +H ● 230V AC/50Hz; max P1 ¹⁾560 W ²⁾1000 W ³⁾1120 W</p> <p>Volumen Vorklärung m³ Volumen Puffer m³ Volumen Belebung m³ Max EW</p> <p>BIOLOGIE! Diese Kammer nicht entsorgen Do not desludge this chamber</p>	<p>Please write all relevant data with a waterproof pen on the red information plate and fix it visibly in the tank with the SBR biology or with the tip towards the SBR chamber.</p> <p>Then instruct the operator to his duties and the operation and functioning of his sewage treatment plant and give over the operating instructions (further copies can be downloaded free of charge from www.atbwater.com)!</p>
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Before commissioning check:

- whether the communicating slits are present in the partition walls in the primary settling chamber
- whether the partition wall joints and the communicating slits to the aeration stage (SBR) and buffer are sealed
- whether there is an overflow (T-piece) from the pretreatment to the buffer and an emergency overflow from the buffer to the SBR tank
- whether the outlet openings of the charging hose and the hose for the excess sludge removal are above the maximum possible water levels
- whether the setting according to actual connected inhabitants has been carried out
- whether all units are connected correctly, the pump(s) transport(s) water and the aerator inserts air (to check, test run and/or activate manual operation)
- whether the switch-off point of the float switch SW1 lies at the height of the specified minimum water level $H_{W, \min}$ and ALL float switches are free movable
- whether the switch-on point of the float switch SW2 is at the level of the specified maximum water level $H_{W, \max}$ and below the outlet
- whether the difference between the float switches SW1 and SW2 corresponds at least to the difference between $H_{W, \min}$ and $H_{W, \max}$ from the sewage treatment calculation or data sheet
- whether the information plate, which contains the disposal information, is clearly visible and correctly mounted
- whether the outlet hose is correctly secured at the outlet elbow and the sampling bottle and that a backwater is not to be feared from the percolation, the receiving water or through counter-gradient in the outlet pipe
- whether the plant cover has ventilation openings and the through ventilation of the tank via the roof ventilation or in another manner is guaranteed
- whether the small wastewater treatment plant is fused via a separate residual current circuit breaker
- whether, in case of extension with a threaded connection, this has in any case been additionally protected against infiltrating water (shrink hose is also supplied by ATB for cable extension).
- Whether, in case of electrical power outage, the air intake hose can't be flood

ACCIDENT HAZARD



The AQUAMAX® may be first commissioned when the plant is installed and is filled with water. Persons may no longer be in the manhole.



**Moving parts – injury hazard!
Before working in the tank and before removing the AQUAMAX® the power supply is to be disconnected.**



Danger due to electrical voltage. With work on the AQUAMAX® the plant is, without fail, to be disconnected from the mains supply!



ATB WATER GmbH

Südstraße 2
32457 Porta Westfalica
Germany

Fon: +49 5731 30230-0
Fax: +49 5731 30230-30

E-Mail: info@atbwater.com
Website: www.atbwater.com