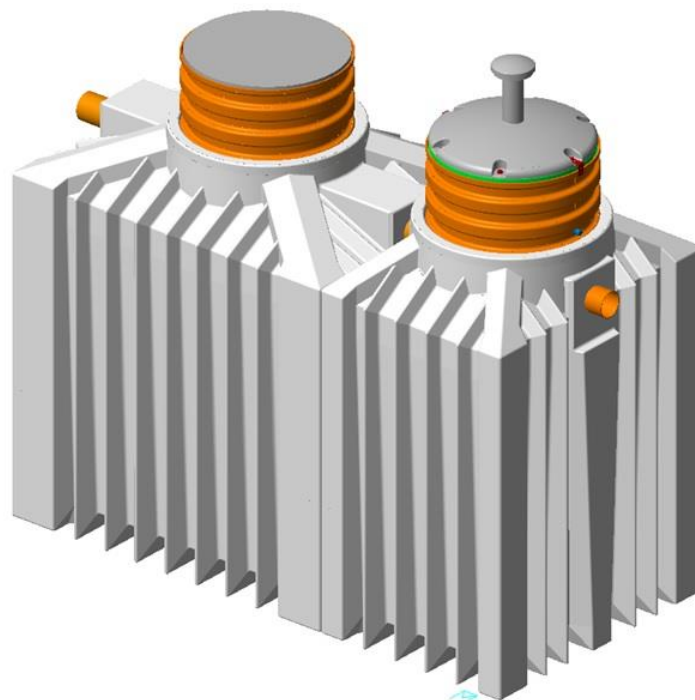


Owner's manual
ClearFox[®] – SBR
small sewage treatment plant
in plastic tanks 4 - 10 p.e.

EN 12566-3 Standard

DIBt–approval-nr. Z-55.31-419, class C
DIBt–approval-nr. Z-55.31-418, class D



Please read this manual before putting the sewage treatment plant into operation.
It contains information on servicing and operating the plant.


There is a separate detailed operating manual relating to the installation of the plastic tank.

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1.0 General

1.1 EC declaration of conformity

<p>We hereby declare that the following kit for fully biological small sewage treatment plants</p> <ul style="list-style-type: none"> - with separate dimensions in accordance with calculations for industrial wastewater <p>complies with the basic requirements of</p> <p>DIN EN 12566-3, Appendix B Small sewage treatment plants for up to 50 p.e.</p>		
<p>Lieferant (Inverkehrbringer): Strasse: Ort: Produkt:</p>	<p>PPU Umwelttechnik GmbH Bernecker Str. 73 D-95448 Bayreuth Kit for small sewage treatment plant up to 50 p.e.</p>	
<p>Datum: Verantwortlicher:</p>	<p>01.03.2013 Wolfgang Pöhl</p>	

1.2 Signs and symbols

<p>The following symbols are used in the manual:</p>	
 Caution !	<p>Caution ! Failure to observe this point could result in material damage.</p>
 Danger !	<p>Danger ! Failure to observe this point could result in personal injury.</p>
	<p>Cross-reference Refers to additional information in another chapter or manual</p>
	<p>Information Provides useful information</p>

1.3 Hazard warnings



Please read the warnings in the manual for the PE tank and the short installation instructions in the appendix.

1.4 Preface



Dear Customer,

Congratulations on your purchase of a high-quality, innovative product.

In order to prevent any damage we would ask you in particular to read through this manual completely before putting the plant into operation.



Caution !

We reserve the right to make changes to the technical specifications.

Please check the product on delivery for any signs of damage that may have occurred during transport. In this event, you must notify your dealer or PPU Umwelttechnik GmbH in writing immediately. A transport-damage can't be complained after the plant installation !

1.5 Warranty

We would refer you to the General Terms and Conditions of PPU Umwelttechnik GmbH (www.ppu-umwelttechnik.de), and to those of your dealer.

2.0 Product description

2.1 Use



Caution !

The small sewage treatment plant may only be used to treat household wastewater. 4/6/8/10 p.e. variants can be supplied. Larger plants can be set up with multiple process lines.

2.2 Scope of delivery



The parts listed below are included as standard.

For plants larger than 4 p.e. (more than 2 PE tanks) the connecting pipes between the pre-chambers or pre-chamber/buffer must be provided as part of the infrastructure (main sewer DN100). The same applies to the duct (drain pipe DN100) between the biological tank and the buffer / pre-chamber tank.

- PE tanks (number depends on plant version)	see description on following pages
- kit (technical equipment) for pre-chamber/buffer	preinstalled
- kit (technical equipment) for biological tank	preinstalled
- control module, integrated in the dome-shaft of the biology	preinstalled
- fixing material	including

2.3 Standard use



For standard use the kit (technical equipment) is delivered installed in the PE tanks ready for operation. Please observe the appropriate depths relating to frost protection.

Dome-shaft standard for inlet-depth 48 cm (for 8 p.e., 57 cm).

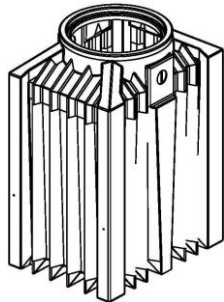
For other need of inlet-depth, please note that in order.

2.4 Tank versions

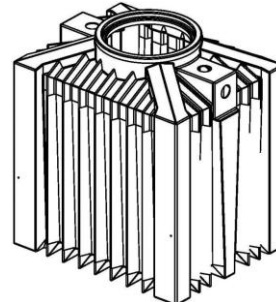


There are 2 easily transportable tank versions for the small sewage treatment plant - a large and a small tank. Depending on the plant version (size) these can be combined with each other in different ways.

Small tank (1250 l)



Large tank (2250 l)



2.5 Plant versions



All 4 plant versions are listed below. You can see which plant you have from the delivery documents.

Please make sure that the tanks are assigned correctly (small/large) and are in the correct order from inlet to outlet.

Incorrect assignment or order = **no function**

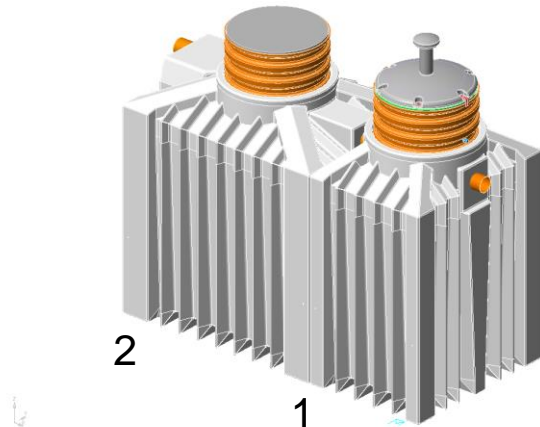


Caution !

4 p.e.

This small sewage treatment plant consists of 2 tanks.

- 1 large tank as pre-chamber and buffer (2) – inlet
- 1 small tank as biological reactor (1) – outlet



Caution !

Tanks (1) and (2) must be placed directly next to each other when installed in the ground since the interconnections for them are pre-assembled.

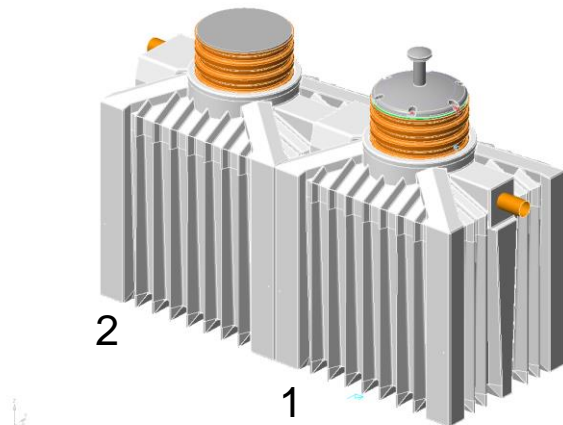
The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the biology tank) tank (1).

For the option with extern control module, the hose and cable connection ensued from the tank (2).

6 p.e.

This small sewage treatment plant consists of 2 tanks.

- 1 large tank as pre-chamber and buffer (2) - inlet
- 1 large tank as biological reactor (1) - outlet



Caution !

Tanks (1) and (2) must be placed directly next to each other when installed in the ground since the interconnections for them are pre-assembled.

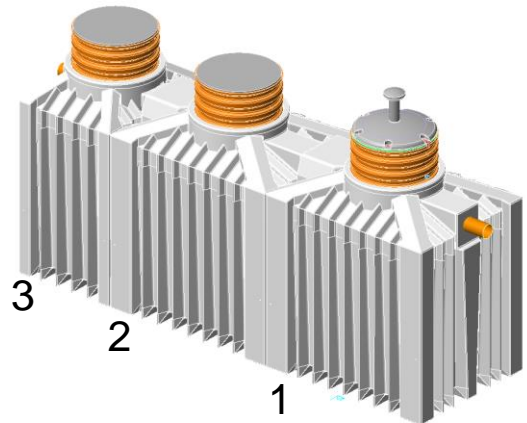
The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the biology tank) tank (1).

For the option with extern control module, the hose and cable connection ensued from the tank (2).

8 p.e.

This small sewage treatment plant consists of 3 tanks.

- 1 small tank as pre-chamber (3) - inlet
- 1 large tank as buffer (2)
- 1 large tank as biological reactor (1) - outlet



Caution !

Tanks (1),(2) and (3) must be placed directly next to each other when installed in the ground since the interconnections for them are pre-assembled.

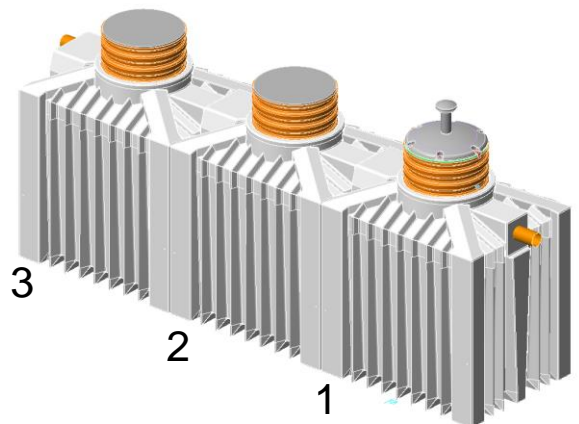
The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the biology tank) tank (1).

For the option with extern control module, the hose and cable connection ensued from the tank (2).

10 p.e.

This small sewage treatment plant consists of 3 tanks.

- 1 large tank as pre-chamber (3) - inlet
- 1 large tank as buffer (2)
- 1 large tank as biological reactor (1) - outlet



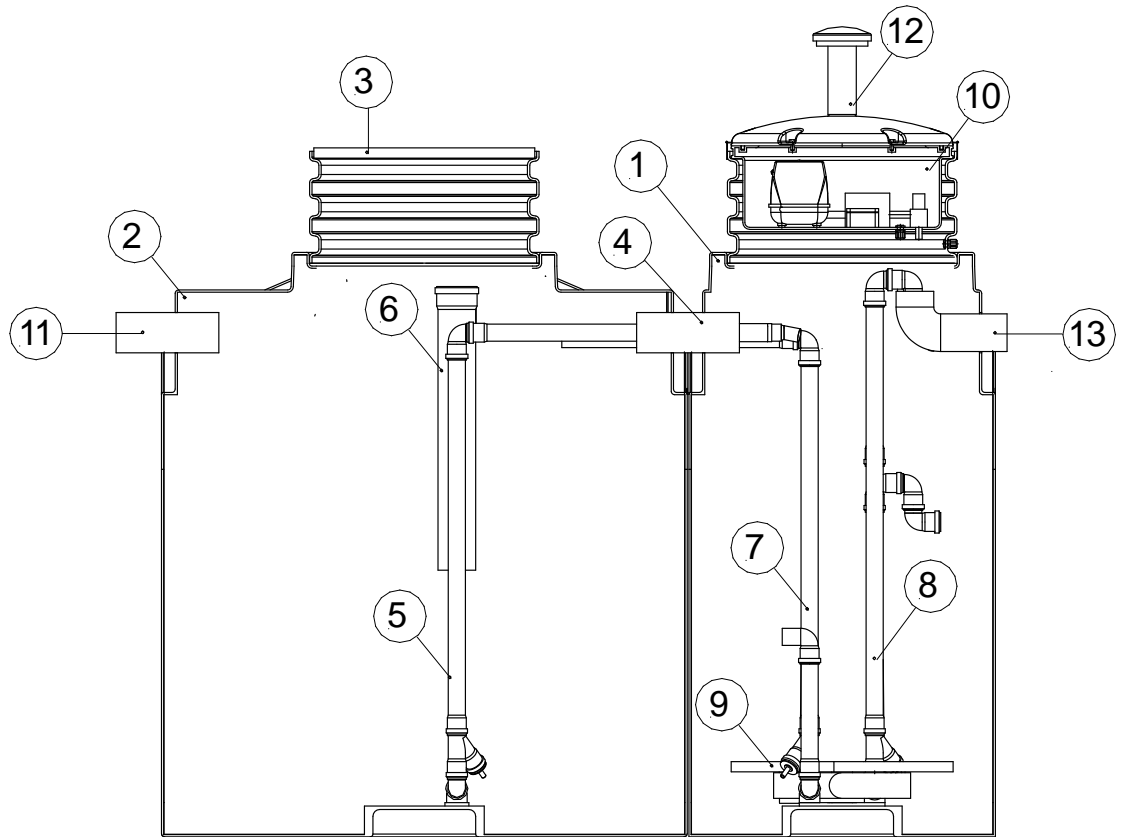
Caution !

Tanks (1),(2) and (3) must be placed directly next to each other when installed in the ground since the interconnections for them are pre-assembled.

The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the biology tank) tank (1).

For the option with extern control module, the hose and cable connection ensued from the tank (2).

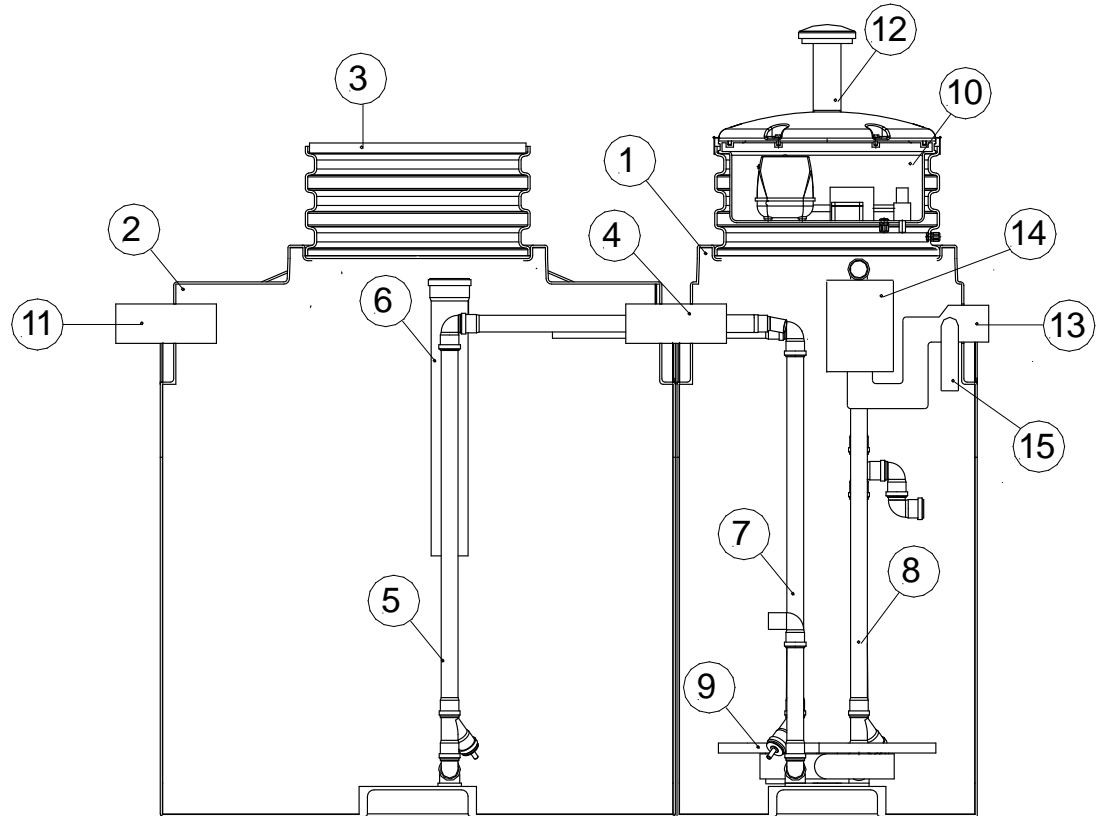
2.5.1 Function diagram (example 4 p.e.) standard



Legend:

1. Biological reactor tank
2. Pre-chamber tank
3. Manhole cover
4. Connecting pipe DN 100
5. Airlift pump for filling
6. Sludge protection pipe and location for optional float switch (energy-saving switch)
7. Airlift pump for secondary sludge
8. Airlift pump for Clearwater
9. Membrane aerator
10. Control module integrated
11. Inlet DN 100
12. Air scoop for blower (individual to extend, regarding to the snow height)
13. Outlet DN 100

2.5.2 Function diagram (example 4 p.e.) with integrated sampling shaft



Legend:

1. Biological reactor tank
2. Pre-chamber tank
3. Manhole cover
4. Connecting pipe DN 100
5. Airlift pump for filling
6. Sludge protection pipe and location for optional float switch (energy-saving switch)
7. Airlift pump for secondary sludge
8. Airlift pump for Clearwater
9. Membrane aerator
10. Control module integrated
11. Inlet DN 100
12. Air scoop for blower (individual to extend, regarding to the snow height)
13. Outlet DN 100
14. Integrated sampling shaft
15. Emergency overflow

3.0 Installation

3.1.1 Tank installation



Please refer to the manual for the PE tank and the short installation instructions in the appendix.

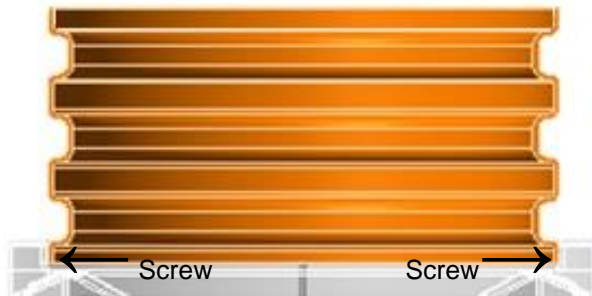
3.1.2 Installation dome-shaft-extension



Insert the dome-shaft-extensions inside the tank openings, and screw this together with minimal 3 of the delivered stainless steel screws (Size 4,0 x 40) in distance of around 120° at the lower end of the extension.



Caution !



3.2 Kit installation



Should be performed before the tank is filled.



Danger !

Installation / de-installation can be dangerous and should only be performed by a qualified person.

Do not climb into an unventilated tank (chamber) = **Danger to life !**

Please observe the specialist provisions of the occupational safety organisation.



Caution !

When touching parts in the tank after operation has commenced please observe hygiene precautions (protective gloves, protective clothing, disinfectant, protective inoculation)
= **Danger of infection !**

Incorrect or faulty installation impairs the function

3.2.1 Pre-chamber kit installation (see function-scheme)



Caution !

- Connect the pre-chamber to the biological tank using the DN100 pipe supplied. (4)
- Connect the supplied DN50 pipe to the airlift pump (filling) (5) and slide it horizontally through the DN100 pipe into the biological reactor.
- Please make sure that the horizontal pipe is fully attached and screwing this together with the delivered stainless steel screws.

3.2.2 Biological reactor kit installation (see function-scheme)



Caution !

- Connect the supplied DN50 pipe to the airlift pump (secondary sludge) (7) and slide it horizontally through the DN100 pipe into the pre-chamber.
- Please make sure that the horizontal pipe is fully attached and screwing this together with the delivered stainless steel screws.

3.3 Electrical connection of the control module (see function-sketch)



Caution !

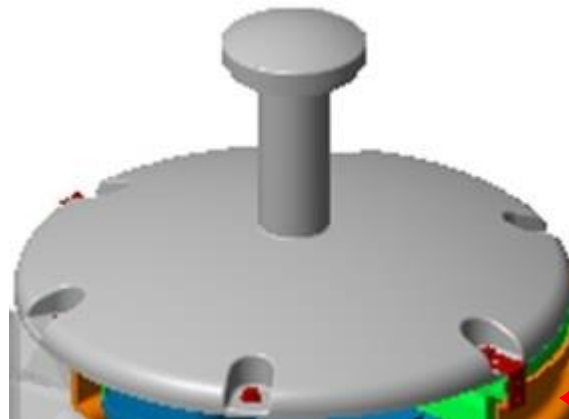
The control module is preinstalled inside the dome-shaft-extension of the biology tank (1) and must be removed for installing of the power connection.

First, unfix the screws of the lid (6 pieces), and the 2 fixing-angles.

Then, you can pull out the control module outside the shaft, to deposit it sideways on the overground.

Please make sure, that is no danger regarding of breaking and damaging of the air-hoses. Please follow right through this steps.

1. Unfix screws (6 pieces) and fixing-angles (2 pieces)

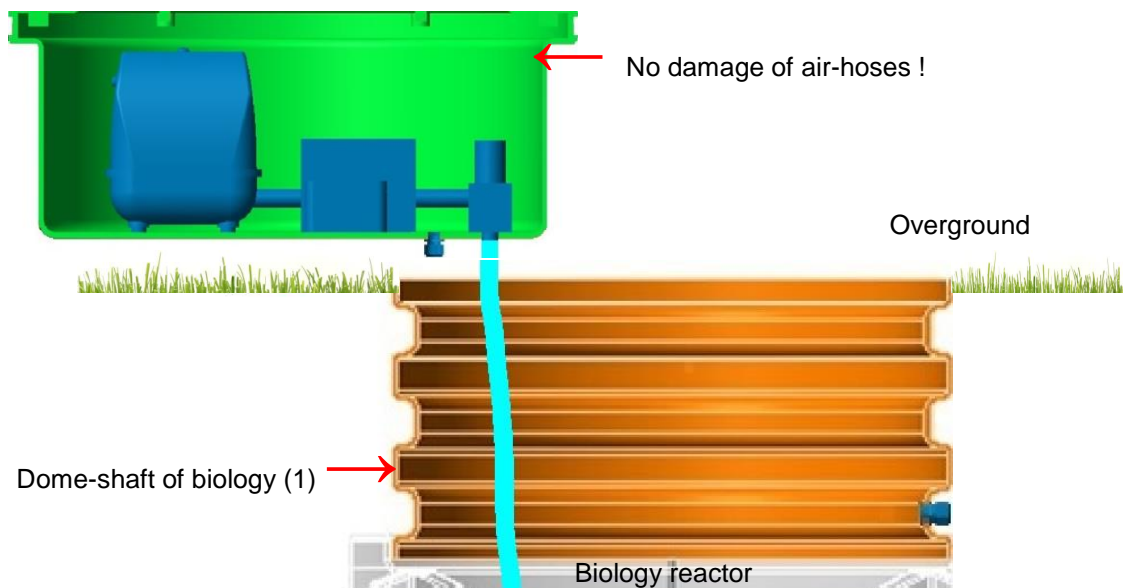


2. ↑ Remove the lid (cover)

Fixing-angles

3. ↑ Pull out the control module

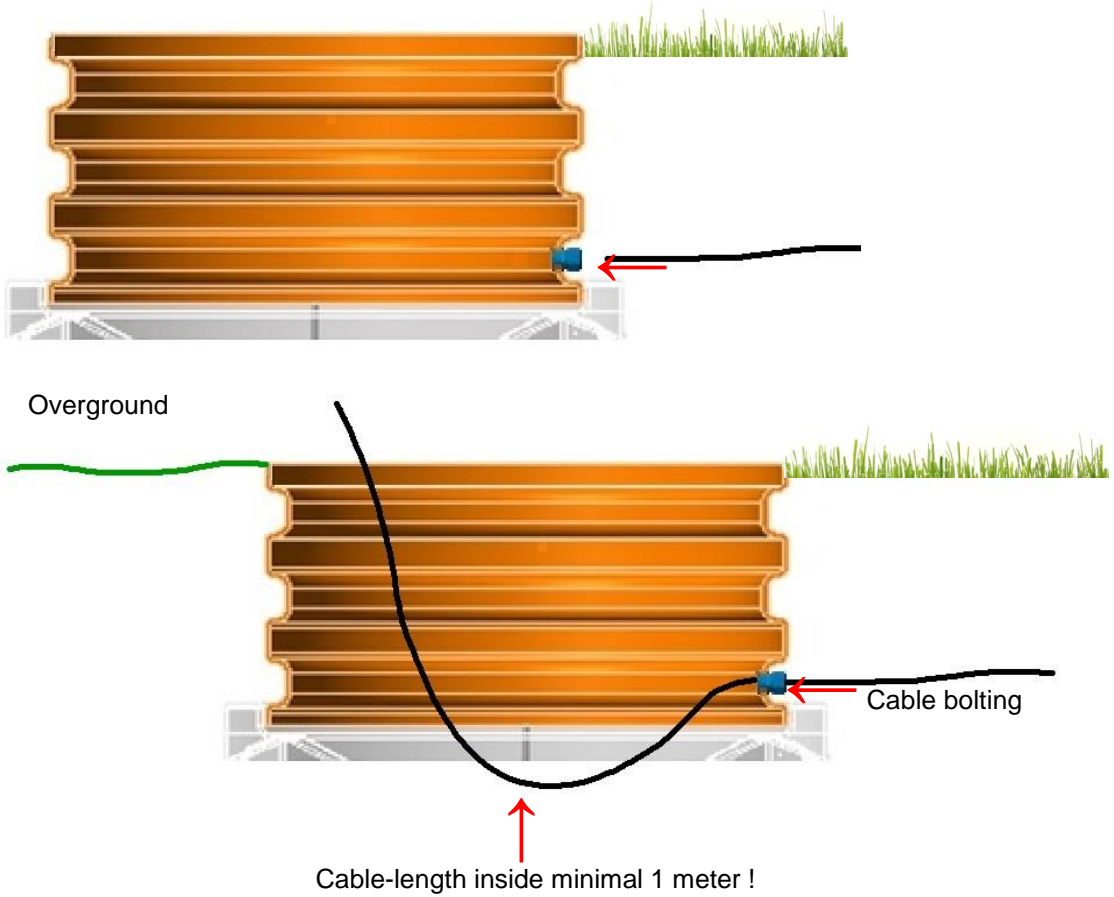
← Deposit sideways



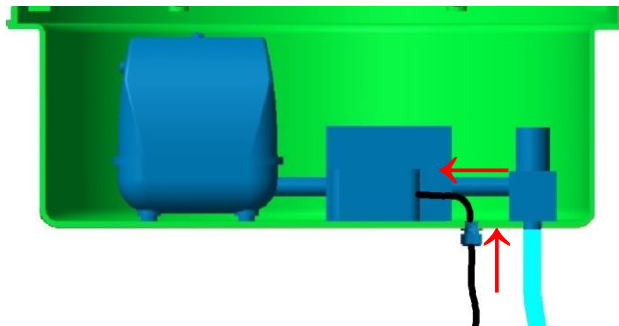


Caution !

4. Implementation of earth-cable through the cable-bolting



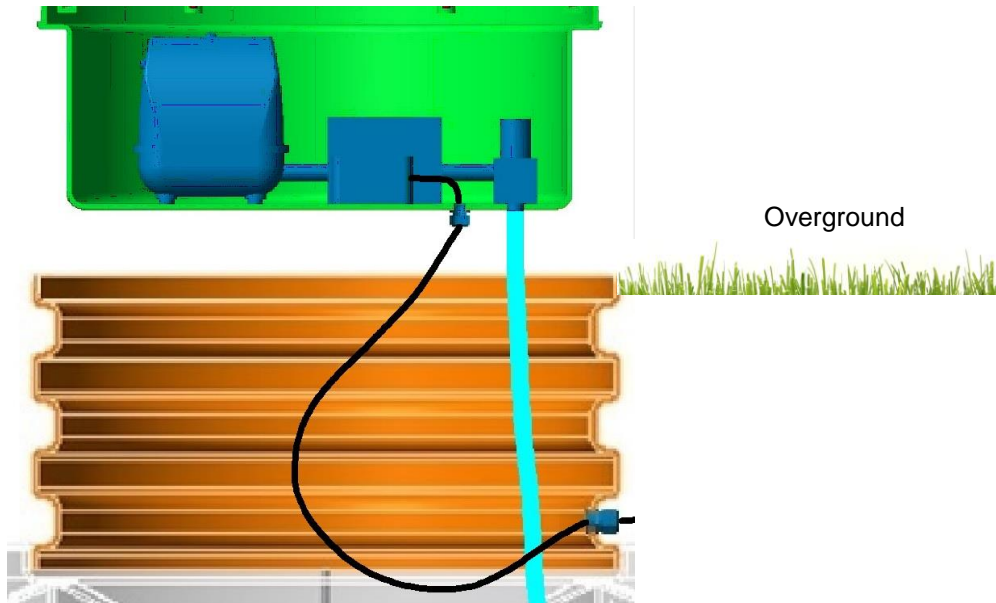
5. Implement the cable into the control module, and connect it with the power socket. At next, tie up the cable-bolting (see sketch overhead), for saving the control module against wetness.





Caution !

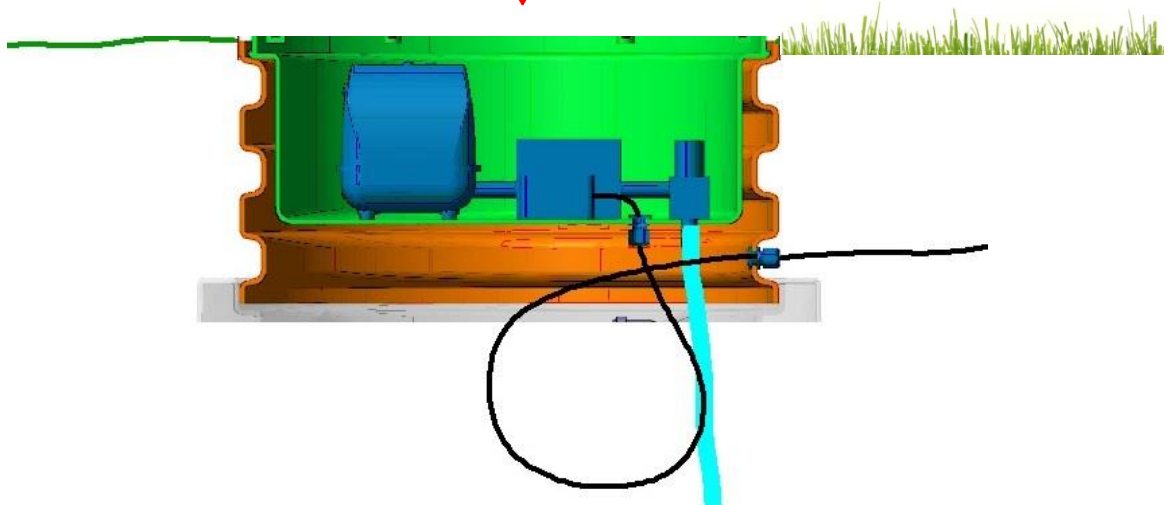
6. Insert the plugged control module into the dome-shaft of the biology.
Put the control unit in the control module into the electric socket.



7. Screw down the inserted control module with the 6 screws, please make sure that is in the right position and also the fixing angles !





Put down and screw down







4.1 Connect the interconnections to an external control unit

(On request a separate description)

	<p>Example of a external control module.</p>	
-----------------------------------------------------------------------------------	----------------------------------------------	-------------------------------------------------------------------------------------

4.2 Putting the control unit into operation

	<p>All tanks should be filled with water before the following activities are performed. The biology till min. to withdrawal point of clearwater-pump. Insert power connection –finished!</p> <p>See separate instruction manual for control unit</p>	
	<p>Never open the housing from the control module, if it's connected with power = Danger to life !</p>	

5.0 Function description



The **ClearFox®** works as an activated sludge treatment plant with SBR.

The treatment plant has an upstream coarse separator that serves as storage for the primary and secondary sludge and to buffer the inlet water. Sludge filling and clearwater extraction are effected by means of airlift pumps. The plant's control system recognises four main states in the normal cycle.

Normal cycle:

Filling phase – the filling airlift pump conveys water from the pre-chamber to the reactor.

Purification phase – the wastewater is circulated in the SBR reactor using air fed in through the membrane plate(s) and the bacteria are supplied with oxygen. This occurs at intervals controlled by the computer.

Settling phase – the wastewater separates, with the sludge material sinking (sedimentation) and the cleaned water remaining at the top (a layer of clearwater forms).

Secondary sludge extraction – the secondary sludge (excess sludge) from the biological process is isolated and to a small degree pumped back into the pre-chamber.

Clearwater extraction – following the settling phase, the clearwater pump conveys the clearwater that remains above the "clearwater" discharge point to the plant outlet, lowering the water level in the reactor.

The main states listed above are together called the cycle. A complete purification cycle takes approx. 6-8 hours. (regarding to the variant)

Energy-saving cycle (optional – level switch required)

The purification programme continues running unabated, however with a shortened aeration phase, which reduces the amount of energy required. Depending on the inlet quantity to the pre-chamber, the programme then decides fully automatically whether the energy-saving cycle should continue or whether it should switch back to normal operating mode.

6.0 Maintenance and operation

6.1. Safety guidelines



Danger !

Flammable gases can develop in sewage treatment plants. In addition, oxygen levels can fall. For this reason, appropriate safety precautions must be taken when repair and maintenance work is being performed in the plant. A person may only climb into a sewage treatment plant if there is a second person present as a safeguard.

All live electrical components in the plant must be switched off before climbing into the sewage treatment plant.

6.2 Operator checks



The owner must operate the plant or must contract a third party to operate it (operator).

Daily check:

Perform function check. If there is any disruption in operation encountered, it must be resolved immediately by the operator or by a specially trained person instructed to do so by the operator.

Monthly check:

In accordance with the form for monthly operator check

- Note the number of hours of operation of the blower (indicated in the display alternating with the display of the relevant programme step)
- Check for sludge overflow in the outlet
- Check for floating sludge in the reactor (if present, scoop off and return to the pre-chamber)
- Visual check for mechanical damage and fine bubbles in aeration process
- Check to ensure that the float switch (if present) works, and clean if necessary.

An operations logbook must be kept for all sewage treatment plants. For this, please make a copy of the maintenance checklist (form for the monthly operator check) to be found at the back of this manual. Any disruptions must be recorded in the operations logbook. Maintenance work, sludge extraction, maintenance reports and any other special incidents must also be recorded in the operations logbook. This operations logbook must be presented to the relevant authorities upon request.

6.3 Maintenance



Maintenance is performed several times a year by a maintenance company.


The relevant responsible authority prescribes how often maintenance must be performed.

The operator is free to choose the maintenance company.

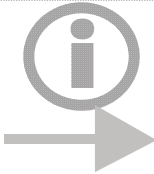

The following work must be performed at least twice per year at intervals of around 6 months:

- a. Inspection of the operations logbook and reading of the operating time meter with determination of regular operations (target/performance comparison).
- b. Function check for the mechanical, electrical and other plant equipment that is important for operations such as: blower, removal pump, if necessary excess sludge pump, control unit, float switch.
- c. Maintenance of mechanical equipment
- d. Adjustment of optimum operating values, e.g. oxygen supply (~ 2 mg/l), sludge volume (300–500 ml/l).
- e. Determination of the sludge level in the sludge storage tank and if necessary organisation of sludge removal when the sludge reaches half the water level in the sludge storage tank (pre-chamber). In this case **only the tanks upstream from the reactor** (SBR) should be emptied and then refilled with water.
- f. Performance of general cleaning tasks, e.g.: removal of deposits and foreign bodies
- g. inspection of the structural condition of the plant, e.g.: corrosion, accessibility, ventilation, screw connections, hoses.
- h. The maintenance work performed must be recorded in the operations logbook.

The following tests must be performed in the course of maintenance


	<p>Caution</p> <p>Samples can only be taken from the outlet of an SBR treatment plant during the extraction pump process or from a separate sampling device.</p> <p>i. Test of a random sample from the outlet for</p> <ul style="list-style-type: none"> - temperature - pH-value - settleable substances - transparency - BOD₅ (at least every 2nd maintenance date) <p>j. Tests in the activation tank:</p> <ul style="list-style-type: none"> - oxygen concentration - proportion of sludge volume - sludge index - dry matter in the activated sludge <p>The results and the work performed must be recorded in the maintenance report. The maintenance report must be submitted to the operator. The operator must include the maintenance report in the operations logbook. The maintenance report must be presented to the relevant authorities upon request.</p>
 Caution !	<p>Sludge removal may only take place in the pre-chamber.</p>

7.0 What to do when disruptions occur?

	<p>Disruptions such as power outage are indicated by a warning, and an acoustic signal is emitted. Please remain calm - a disruption is not a catastrophe.</p> <p>Should you find that you are unable to resolve the disruption on your own, please call your maintenance service company. You should do this immediately in order for the treatment plant to resume wastewater purification.</p> <p>Please refer to the "Control system operating manual" for more information on how to deal with warnings and other messages.</p>
	<p>The disruption warning requires a battery to be installed in the control unit.</p>

8.0 Purification classification

The following standard purification results can be achieved depending on the version:

	Classi- fication	Comment	Intended outlet concentration for 24-hour composite sample	
	Class C	A large degree of carbons reduction, minimum requirement for direct discharge into the groundwater or into an open stretch of water with low nutrient load	COD BOD5 AFS	≤ 100mg/l ≤ 25mg/l ≤ 75mg/l
	Class D	A large degree of carbons reduction, a large to complete degree nitrification, denitrification sensitive open water or underground discharge	COD BOD5 NH4-N Nges AFS	≤ 75mg/l ≤ 15mg/l ≤ 10mg/l ≤ 25mg/l ≤ 50mg/l

9.0 Appendices

9.1 The following materials should not be disposed of down the sink or in the toilet

Solid or liquid substances that do not belong down the sink or in the toilet:	What they cause:	Where they belong:
Ash	Does not decompose	Dustbin
Sanitary towels	Choke the sewage treatment plant	Dustbin
Chemicals	Poisons wastewater	Collection points
Disinfectants	Kills bacteria	Do not use
Paints	Poisons wastewater	Collection points
Photographic chemicals	Poisons wastewater	Collection points
Frying fat	Forms deposits in pipe and results in blockages	Dustbin
Sour milk, cream	Forms deposit in the tank and disrupts the biological process	Dustbin
Plasters	Blocks pipes	Dustbin
Cat litter	Blocks pipes	Dustbin
Cigarette ends	Settle in the treatment plant	Dustbin
Condoms	Choke the sewage treatment plant	Dustbin
Corks	Settle in the treatment plant	Dustbin / Collection points
Varnishes	Poisons wastewater	Collection points
Medicines	Poisons wastewater	Collection points, Pharmacies
Engine oil	Poisons wastewater	Collection points, filling stations
Oil-based waste	Poisons wastewater	Collection points
Cotton swabs	Choke the sewage treatment plant	Dustbin
Plant protection substances	Poisons wastewater	Collection points
Brush cleaning fluid	Poisons wastewater	Collection points
Cleaning agent residues	Poisons wastewater	Collection points
Razor blades	Choke the sewage treatment plant, VerletzungsDanger	Dustbin
Drain cleaner	Poisons wastewater	Do not use
Pesticides	Poisons wastewater	Collection points
Panty liners, tampons	Choke the sewage treatment plant	Dustbin
Edible oil	Choke the sewage treatment plant	Dustbin
Food leftovers	Choke the sewage treatment plant	Dustbin
Wallpaper paste	Choke the sewage treatment plant	Collection points
Textiles (e.g. nylon stockings, cleaning rags, handkerchiefs)	Choke the sewage treatment plant	Old clothes collection, dustbin
Thinners/solvents	Poisons wastewater	Collection points
Bird sand	Choke the sewage treatment plant	Dustbin
WC rimblocks	Poisons wastewater	Do not use
Nappies	Choke the sewage treatment plant	Dustbin

9.2 Pre-printed form for monthly operator check

Date	Operation time meter in hours						Sludge discharge (outlet)		Floating sludge in reactor		Visual check		Peculiarities
	Blower	Filling	Aeration	Sec. Sludge	Clear-water	Relay	yes	No	yes	No	ok	Not ok	

9.3 Installation and commissioning log for ClearFox® - compact module

Manufacturer : PPU Umwelttechnik GmbH, Bernecker Str. 73, D-95448 Bayreuth
Tel. +49 (0)921-150 63 990, Fax +49 (0)921-150 63 999
www.clearfox.de, email: info@ppu-umwelttechnik.de

Order-Nr.:		(see delivery note)
Serial-Nr.:		(see shield in the biology)

Installer/Supplier: (Stamp)	Customer name:	
	Street, Nr.:	
	Post code, town:	
	Tel.:	
	Day of instalation:	
Plant load rating (pe) :		
Number of tanks :		

Pos		Yes	No
1.	Tanks installed in accordance with the instruction manuals		
2.	Instruction manuals handed over to customer		
3.	Plant filled with water		
4.	Water leakage test		
5.	Test run performed (function hand-operating)		
6.	Plant put into operation		
7.	Instruction given to operator		
8.	Owner's manual handed over		

Commentary:

The operator undertakes to remedy any defects listed above at his/her own expense. The operator was informed of his/her obligation to exercise due care in order to ensure a perfect operating condition. The proper operation of a sewage treatment plant can only be ensured with a valid maintenance agreement.

Installer, date, signature

Customer/ operator, date, signature

9.4 Maintenance Report SBR Treatment Plant

Name of Operator:	Location of the Treatment Plant:
Manufacturer:	Size of Treatment Plant:
Number of Population Equivalents:	
Date of Maintenance:	Time:

Plant Section / Function	Checked		Lack		Remark
	yes	no	yes	no	
Primary Settling Tank					
Are the manhole covers in good shape?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are the influent and effluent pipes and the dived pipes clean to guarantee an unimpeded flow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does corrosion influences the function?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does floating sludge occur?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If there is a float switch: Does it work? Is it cleaned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If there is a pump: Does it work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If there is a fat separator: Does it work? Is it removed regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If there is a storage tank: Is the working time of the pump adjusted correct? Does the pump work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there additional lacks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SBR-Treatment Plant					
Influent to the reactor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the oxygen impact work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Volume of sewage sludge SV30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SV30 = ml/l
Surplus sludge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the clearwater outlet work? Visible depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Floating sludge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Calculator for the working hours of the compressor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Normative-actual comparison working hours compressor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Calculator working hours influent pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Normative-actual comparison working hours influent pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Calculator working hours clearwater pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Normative-actual comparison working hours clearwater pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Calculator secondary sludge removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Normative-actual comparison working hours secondary sludge removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there additional lacks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Treated wastewater Analysis (parameters due to the prescription given by the appropriate authority)

Date of Sampling		Date of Analysing	
Time of Sampling		Time of Analysing	
Wastewater Temperature	°C	Organic Nitrogen N _{org}	mg/l
Smell		Total Nitrogen N _{tot}	mg/l
Look		Ammonium – Nitrogen NH ₄ -N	mg/l
Colour		Nitrite – Nitrogen NO ₂ -N	mg/l
Settling Agents	ml/l	Nitrate – Nitrogen NO ₃ -N	mg/l
Chem. Oxygen Demand COD	mg/l	Total Phosphorous P _{tot}	mg/l
Biol. Oxygen Demand BOD	mg/l	pH-value	
Acid capacity	mmol/l	Conductivity	mS/cm
		Dissolved Oxygen	mg/l
Remarks:			

Date: _____

Signature: _____

9.5 Series data sheet

pre-chamber | biology

example: 4 p.e.

example: 6 p.e.

example: 8 p.e.

example: 10 p.e.

ClearFox SBR module, pre-installed with integrated control module in extension-shaft, plug and play version

example: 4 p.e.

powerable 230V/AC
3x1,5mm²

F integrated control module inside the extension-shaft

Basics:
 Sludge removal interval: ~12 month (depends on amount of solids)
 daily wastewater: until 170 ltr / d x p.e.
 max. organic load: 60 gr / d x p.e.

Clearwater requirements 20/30/20 (mg/l) (BOD5/SS/NH4N) regarding to DIN EN 12566-3

type (p.e.)	A [m]	B [m]	C [m]	D [m]	E [m]	F	G	air hose	power input - [kW]	wire cross section	voltage
4	1,50	2,43	1,22	1,71	~ 0,48	CF-cmi *	DN100	1/2"	0,05	3x1,5mm ²	230V
6	1,50	3,08	1,22	1,71	~ 0,48	CF-cmi *	DN100	1/2"	0,05	3x1,5mm ²	230V
8	1,41	3,98	1,22	1,71	~ 0,57	CF-cmi *	DN100	1/2"	0,08	3x1,5mm ²	230V
10	1,50	4,62	1,22	1,71	~ 0,48	CF-cmi *	DN100	1/2"	0,12	3x1,5mm ²	230V

CF-cmi * = ClearFox - control module integrated
 A = Height for In- and Outlet

Subject to technical changes

ClearFox-SBR module
4 - 10 p.e.

ClearFox®
[... be clever]

www.ppu-umwelttechnik.de

www.clearfox.de

Mt-50
gez.: mzd

DIN A4
Datum: 28.05.2014

9.6 Short installation guide plastic tanks

Short installation guide aquaplast® - plastic container

Caution! Read careful and completely before installation! Installation is only to be executed by specialized company!

Container size: 1.250 l and 2.250 l

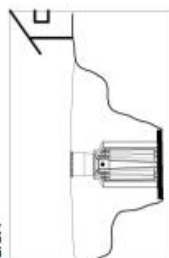
www.aquaplast.de



Position:
Location should be near to direct house connection

Measurements of dump has to be determined and construction side has to be protected against trespassing .

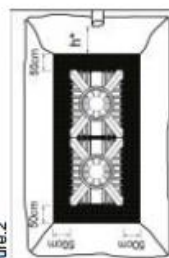
figure.1



When using dome enhancement and/or telescope excavation, depth of excavation has to be adapted accordingly.

h* (depth from supply bottom edge) = supply edge of container + bed

figure.2



With construction of excavation safety has to be considered (regional restrictions). Do not install excavation for plastic container in depression of the terrain. When installing container an area that is endangered by risk of floating or stagnant moisture or in areas with high ground water level or areas with cohesive or impermeable ground the risk of aquaplaning and deforming of the empty tank has to be determined. (see chapter 7, special installation conditions in owners manual). If necessary an adequate drainage line has to end to dimension in a vertical installed hopper to dewater. A submerged pump has to be in the hopper to pump down the surplus of water. Pump has to be checked regularly! Water can also be drained off to a deeper location to be drained away in gravity or to be diverted to a drainage.

When installing plastic container in terrain with hillside situation it is to be considered that edgewise pushing earth pressure with not naturally grown earth should be absorbed with a supporting wall. Surrounding of container should always be able to be percolated through. Excavation should be planned near to direct house connection with enough distance to the building (fig. 1). This, however, is due to the building class, depth of building and the depth of the angle of repose. Details are to be found in DIN 4123. Measurements of tank + 50 cm in each direction are the size of the excavation (fig.2) . Angle of repose has to be according to DIN 4124 (ca. 45°-60°).

When difficult ground conditions are encountered or expected :

For example the soil-material under or around the tank cannot be compressed or it is not stablefixed , or shrinking clay etc., when water can appear around the tank (groundwater, water in soil-layers, rainwater which cannot percolate etc....) there can come a big force on the tank walls. In this cases put concrete under and around the tank.!(Carefully place concrete around the tank in 150 mm thick layers, ensuring that there are no voids remaining around the tank, and the level of water inside is maintained at a level of approx. 450 mm higher than the level of concrete backfill)

Depth of excavation is calculated out of inflow level of container (142 cm) + 15 cm bed (same material as filling material mentioned later on), and compressed by hand (fig. 3). Plastic container is to be installed in excavation (fig.4) and has to be adjusted on bed with air level. After installing all connection lines please check back with air level (fig. 5). Tank has to be filled with water now till 30 cm water level in tank. Afterwards please fill excavation with back-filling material (app. 15 cm) (see chapter 4.2 in owners manual) and compress with hand (fig. 6). Repeat this action and fill in ca. 15 -20 cm of water and fill excavation up to water level with filling material. Repeat until tank is completely covered . Please pay attention on the right position of the stainless steel profiles (for reinforcement) in the tank. The tank should not be erratic deformed. Especially recommendable as backfilling material is gravel or gravel-sand beddings with a friction angle ~-- 32,5 – 37,5° in compressed state. In order to avoid pushing water or backwater, filling material right behind the back of the container has to be permeable to water, so surface and stratum water can trickle away. It has to be made sure that container is embedded equally from all sides. The rest of the excavation can now be filled. Soil, earlier removed from excavation can be used (no stones near to container wall). Compress only by hand ! Surface of excavation should be created so that no water can be gathered but be percolated through the earth. Outlets are ready for installation for KG-pipe DN 100. Container will be connected through pre-installed special sealings , and has to extend into the tank about at least 20 cm Please consider: accessibility for cars (see chapter 7, special installation conditions in owners manual). **When ignoring installation instructions all warranty claims will be ceased!**

When inspecting the tank a second person is needed for coverage! Cover has to be tightened bolt to childproof!

The short installation guide gives a brief overview and does not exclude reading the complete owners manual! When there are troubles don't hesitate to ask us ! The ownersmanual (see under www.aquaplast.de) should be read before using this tank

figure.3



figure.4

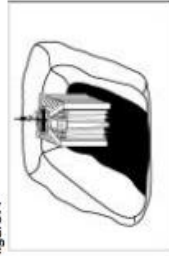


figure.5

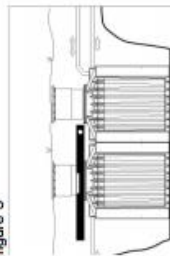


figure.6

