Owner's manual

ClearFox® – SBR QuickONE +
small sewage treatment plant
in plastic tanks 4 - 12 p.e.

EN 12566-3, Annex B

Please read this manual before installing and putting the sewage treatment plant into operation. It also contains information on servicing the plant.
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1.0 General Information

1.1 EC declaration of conformity

We hereby declare that the following kit for fully biological small sewage treatment plants
- with separate dimensions in accordance with calculations for industrial wastewater
complies with the basic requirements of
DIN EN 12566-3, Appendix B
Small sewage treatment plants for up to 50 p.e.

Manufacturer: PPU Umwelttechnik GmbH
Street: Bernecker Str. 73
City: D-95448 Bayreuth
Product: Kit for small sewage treatment plant up to 50 p.e.
Date: 15.09.2016
Responsibility: Wolfgang Pöhnl

1.2 Signs and symbols

The following symbols are used in the manual:

Caution !
Failure to observe this point could result in material damage.

Danger !
Failure to observe this point could result in personal injury.

Cross-reference
Refers to additional information in another chapter or manual

Information
Provides useful information
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

Caution!

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.

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 complained after the plant installation!

1.5 Warranty

We refer you to the General Terms and Conditions of PPU Umwelttechnik GmbH (www.clearfox.com), 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. 4/6/8/10/12 p.e. variants can be supplied.

Larger plants can be set up with multiple process lines. You will need an additional tank as distributor. This tank size is dependent to the plant size (e.g. 30p.e.)
2.2 Scope of delivery

The parts listed below are included as standard. For plants larger than 6p.e. (more than 1 PE tank) the connecting pipes between the chambers 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) number + size  
  see description on following pages
- Kit (technical equipment) for biological tank  
  preinstalled (one chamber)
- Control module, integrated in the dome-shaft of the biology  
  prepared for easy installation
- Fixing material (but no pipes!)  
  included

2.3 Standard use

For standard usage the technical equipment is delivered pre-installed in the PE tanks ready for operation. Please observe the appropriate depths relating to frost protection.

Dome-shaft standard in 30cm height
For other need of heights, please note that in order.
The adaption for dome-shaft and the control cabinet needs to be installed.

2.4 Tank versions

There are 3 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)
- Middle tank (2250 l)
- Large tank (3500 l)

2.5 Plant versions

All 5 standard plant versions are listed below. You can see which plant you have from the delivery documents and CE-plate.

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 = can lead to no function
4 p.e.

This small sewage treatment plant consists of 1 tank.
- 1 middle tank 2250L as pre-chamber/buffer and reactor

Caution!

The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the tank. For the option with extern control module, the hose and cable connection ensued from the tank.

6 p.e.

This small sewage treatment plant consists of 1 tank.
- 1 large tank 3500L as pre-chamber/buffer and reactor

Caution!

The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the tank. For the option with extern control module, the hose and cable connection ensued from the tank.

8 p.e.

This small sewage treatment plant consists of 2 tanks.
- 1 small tank 1250L +
- 1 large tank 3500L as pre-chamber/buffer and reactor

→ hydraulically connected!

Caution!

The 2 tanks must be hydraulically connected at specified positions!

Please follow instruction under point: 3.2 Tank connections

The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the tank. For the option with extern control module, the hose and cable connection ensued from the tank.
This small sewage treatment plant consists of 2 tanks. - 1 middle tank 2250L + - 1 large tank 3500L as pre-chamber-buffer and reactor

→ hydraulically connected!

Caution!
The 2 tanks must be hydraulically connected at specified positions!
Please follow instruction under point: 3.2 Tank connections
The hose and cable connection between the tanks ensued direct from the control module (integrated inside the dome-shaft-extension of the tank.
For the option with extern control module, the hose and cable connection ensued from the tank.
2.5.1 Function diagram (shown on standard version of 6 p.e.)

Legend:
1. Single chamber tank (example: 3500Liter tank for 6p.e.)
2. Inlet connection, seal for DN 100 inlet-pipe
3. Outlet connection, seal for DN 100 outlet-pipe
4. Control cabinet (integrated, with childproof lid)
5. Domeshift-extension, Wavin-pipe DN 600, standard height 300 mm)
6. PG gland (for input power supply cable)
7. Control unit
8. Blower (not included in standard delivery)
9. Aeration scoop DN 75 (not included in standard delivery)
10. Air supplier
11. Clearwater-feedpump (airlift, with backflush system)
12. Aeration system
13. Optional extension pipe DN 250 with lid (not included in standard delivery, not required for this system)
3.0 Installation

3.1 Tank installation

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

3.2 Tank connections (for plants bigger than 6p.e.)

1. Remove the orange sleeve plugs (red marked in the sketch) out of the sealings, to get 3 openings on this tank side.

2. Bring this openings of 2 tanks together and install as connection PE or KG DN100 pipes with min. length of 300mm through the sealings. Please control the sealings regarding position and on function.

3. Push the tanks exactly together under consideration of optimal pipe connection. Each pipe should be equal in length inside of each tank. Control again the sealings of each connection, otherwise fix it new.

4. The hose of the additional PE-tank needs to be put into the main-chamber and must be connected to its aeration system. Please refer to detail instructions from point 3.3
### 3.3 Hose adjustment (for plants bigger than 6p.e.)

1. After putting the hose of the aeration system from the additional tank into the main tank, you need to adjust the hose connection in order for the aeration system of the additional tank to operate. The required material is pre-fixed on the hose. → Picture 1

2. Remove the three stainless steel hose clamps and the plastic distributor from the hose. → Picture 2

3. Cut off about 1 meter of the hose from the main tank. → Picture 3

4. Connect all three hoses to the plastic distributor and fix them with the stainless steel clamps. → Picture 4

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#### Caution!

**Important Note:**

To supply enough air for all aeration discs, the blower chosen for the treatment plant has to be suitable for the equivalent p.e. – size.
3.4 Electrical connection of the control module

Caution!
The dome-shaft-extension has to be mounted on top of the main tank (1) with drilling screws from the inside of the extension into the upper edge of the PE tank. The cable for power supply (recommended H07RNF-F3G1.5) has to be connected to the socket inside the control cabinet. Also, the blanking plug(s) has/have to be removed from the bottom and replaced with the stainless steel air fittings. The hoses then have to be connected according to their matching colours.

Make sure that there is no danger regarding of damaging and/or breaking of the air-hoses while the control cabinet is put aside on the ground.

Make sure that every opening on the bottom of control cabinet is sufficiently sealed!

Properly use the provided materials in the control cabinet. Otherwise all components on the inside will corrode and start to malfunction.

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

2. Remove the lid (cover)

3. Pull out the control module
   → Deposit sideways

No damage of air-hoses!
4. Implementation of earth-cable through the cable-bolting

Caution!

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

- Overground
- Cable bolting

Cable-length inside minimal 1 meter!

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.
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.

Caution !

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
**Note:**
The screws, pipes, bows and/or vent cover are not included in the standard delivery for the treatment system and have to be provided by the client.

→ **HT DN 75 pipe and bows/aeration scoop are required.**

1. For an optimal circulation of air for the blower inside the cabinet, we recommend mounting an extension pipe onto the lid for the round control unit. This prevents snow, grass, dirt or water (e.g. rain) from blocking or getting into the opening of the lid. → Picture 1

2. If acquired, then mount the vent cover on top of the extension pipe. → Picture 2

3. In the event of the surrounding area leading to problems (e.g. bushes, trees) or not having a vent cover, you can mount two bows on top of the extension pipe. The entrance of the pipe should face away of the problematic area. → Picture 3

4. We don’t recommend putting a vent cover at the end, if you already installed the version with the two bows. → Picture 4

**Important Note:**
The pipe (and vent cover) has to be checked for blockings from time to time. Otherwise it might get clocked and this will cause the blower inside the cabinet to malfunction.
3.5 Installing an external control unit

Optionally, the standard round control cabinet can be replaced with an external control cabinet.

If you have chosen this option, please refer to the separate installation guide.

The picture shows an example of an external control cabinet.

**Note:**
Don’t forget to also acquire a lid to replace the round control cabinet in order to close the opening of the tank.

3.6 Putting the control unit into operation

All tanks should be filled with water before the following activities are performed. The biology should be filled up minimally until the extraction point of the Clearwater-pump. Install the blower suitable for the plant size and insert the plugs into the according sockets – finished!

Power connection to the power socket with 230V earth-cable. The power supply should be installed with a separate ground fault circuit interrupter (30mA) and a fuse switch (max. 10A).

**All loads connected to the control units output-relays mustn’t get over 3,15 A together.**

When the control unit is connected to the socket, a small green light on the control unit will go on. The control unit automatically starts now the operation of the treatment system.

Never open the housing from the control module, if it’s connected with power = **Danger to life!**
4.0 Function description of QuickONE+

The ClearFox® QuickONE+ works fully automatically according preinstalled program.

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).

Clearwater pump cleaning – before the Clearwater extraction phase starts, the pump-tubes would be cleaned by a backflushed airlift-function, to remove settled particles out of the clearwaterpump.

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. 12 hours.

4.1 Program sequence

After connected to the power supply, the control unit will work according to the following steps:

0. Initialising CPU, then testing all channels (Aeration, Flushing and Clearwater)
   -> “Booting Phase” = Only once after power is turned on.

1. Pumping Clearwater (blue hose) – 19 min.
2. Continuously aeration (yellow hose) – 1 hour
3. Sequenced aeration (15 min. on – 5 min. off) – 7 hours
4. Sequenced aeration (10 min. on – 10 min. off) – 2 hours, 40 min.
5. Settling (no aeration) – 1 hour
6. Flushing of Clearwater-pipe (green hose) – 1 min.

After the last step, the control unit will restart the program at step 1. In the event of losing the power supply, the control unit will restart with step 0 when gaining back power supply.

Important Note:
This program sequence only applies to the standard delivery of the QuickONE+. If you want to use an electrical Clearwater-pump, a different program needs to be transmitted into the control unit.

Please refer to the separate installation guide.
5.0 Maintenance and operation

5.1 Safety guidelines

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.

5.2 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:
- Check the reactor on any blockages caused by bigger solids or other materials.
- Check for floating sludge in the reactor, if present, remove it out of the system.
- Visual check for mechanical damage and fine bubbles in aeration process

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.

5.3 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. Function check for the mechanical, electrical and other plant equipment that is important for operations such as: blower, pump, control unit.

b. Maintenance of mechanical equipment

c. Adjustment of optimum operating values, e.g., oxygen supply (~ 2 mg/l), sludge volume (300–500 ml/l).

d. For sludge removal out of QuickONE+ system: required, when the sludge reaches half of the water level in the chamber (removal by sludge-truck with suction lance, etc.), according the following steps:
1. Put the control cabinet out of the dome shaft of the main tank opening.
2. Lead the sludge suction lance into the open hole of the main tank on tank ground under the consideration:
   - Be carefully with all installed equipment, especially with the aeration discs on the tank ground. It could be damaged through wrong handling of the suction lance!

   e. performance of general cleaning tasks, e.g.: removal of deposits and foreign bodies
   f. inspection of the structural condition of the plant, e.g.: corrosion, accessibility, ventilation, screw connections, hoses.
   g. The maintenance work performed must be recorded in the operations logbook.

The following tests must be performed in the course of maintenance

Caution!

Samples can only be taken from the outlet of an SBR treatment plant during the extraction pump process or from a separate sampling device.

h. Test of a random sample from the outlet for
   - temperature
   - pH-value
   - settleable substances
   - transparency
   - BODs (at least every 2nd maintenance date)

i. Tests in the activation tank:
   - oxygen concentration
   - proportion of sludge volume
   - sludge index
   - dry matter in the activated sludge

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.

→ Sludge removal has to be done in all tanks of the treatment plant.

Caution!

Be carefully with all installed equipment, especially with the aeration discs on the tank ground. It could be damaged through wrong handling of the suction lance!
6.0 What to do when disruptions occur

If 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 its function of wastewater purification.

Keep this operating manual and your sheet(s) of the monthly operation checks at hand to show them to the service company on demand.

7.0 Purification classification

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

**PERFORMANCE RESULTS**

**PPU Umwelttechnik GmbH**
Bernecker Str. 73, 95448 Bayreuth, Germany

**EN 12566-3, Annex B**
Small wastewater treatment systems for up to 50 PT

**Small wastewater treatment system ClearFox® quickONE+**
Completely aerated SBR treatment process in a one-chamber tank

Test report PIA2016-273811
This certificate is valid until 31 July 2017.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal organic daily load</td>
<td>0.23 kg BOD₅/d</td>
</tr>
<tr>
<td>Nominal hydraulic daily load</td>
<td>0.75 m³/d</td>
</tr>
<tr>
<td>Material</td>
<td>Polyethylene</td>
</tr>
<tr>
<td>Treatment efficiency (nominal sequences)</td>
<td>Efficiency</td>
</tr>
<tr>
<td>COD</td>
<td>93.7 %</td>
</tr>
<tr>
<td>BOD₅</td>
<td>98.1 %</td>
</tr>
<tr>
<td>NH₄-N*</td>
<td>99.4 %</td>
</tr>
<tr>
<td>SS</td>
<td>95.8 %</td>
</tr>
<tr>
<td>Electrical consumption</td>
<td>0.52 kWh/d</td>
</tr>
</tbody>
</table>

* determined for temperatures ≥ 12°C in the bioreactor

Performance tested by:

**PIA – Prüfinstitut für Abwassertechnik GmbH**
8.0 Appendices

8.1 What not to dispose in the sink or toilet

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Funktion check, visual check</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD:MM:YYYY</td>
<td>X for Ok</td>
<td>X for not ok</td>
</tr>
</tbody>
</table>

- DD:MM:YYYY
- X for Ok
- X for not ok
8.3 Installation and commissioning log for ClearFox® quickONE+

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.com, email: info@clearfox.com

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

Installer/Supplier:  

| Customer name: |
| Street, Nr.: |
| Post code, town: |
| Tel.: |

(Stamp)

Day of installation:  
Plant load rating (pe):  
Number of tanks:

<table>
<thead>
<tr>
<th>Pos</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tanks installed in accordance with the instruction manuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Instruction manuals handed over to customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Plant filled with water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Water leakage test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Test run performed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Plant put into operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Instruction given to operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Owner’s manual handed over</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
8.4 Maintenance Report - ClearFox® quickONE +

<table>
<thead>
<tr>
<th>Name of Operator:</th>
<th>Location of the Treatment Plant:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer:</td>
<td>Size of Treatment Plant:</td>
</tr>
<tr>
<td>Number of Population Equivalents:</td>
<td></td>
</tr>
<tr>
<td>Date of Maintenance:</td>
<td>Time:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plant Section / Function</th>
<th>Checked</th>
<th>Lack</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tank</th>
<th>Are the manhole covers in good shape?</th>
<th>□</th>
<th>□</th>
<th>□</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Are the influent and effluent pipes and the dived pipes clean to guarantee an unimpeded flow?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Does corrosion influences the function?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Does floating sludge occur?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>If there is a pump: Does it work?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Are there additional lacks?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SBR Treatment Plant</th>
<th>Influent to the reactor</th>
<th>□</th>
<th>□</th>
<th>□</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Does the oxygen impact work?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Volume of sewage sludge SV30</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>SV30 = ml/l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surplus sludge</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Does the clearwater outlet work? Visible depth</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Floating sludge</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Are there additional lacks?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Date of Sampling</th>
<th>Date of Analysing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of Sampling</td>
<td>Time of Analysing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wastewater Temperature</th>
<th>Organic Nitrogen $N_{org}$</th>
<th>mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>Total Nitrogen $N_{tot}$</td>
<td>mg/l</td>
</tr>
<tr>
<td>Smell</td>
<td>Ammonium – Nitrogen $NH_4-N$</td>
<td>mg/l</td>
</tr>
<tr>
<td>Look</td>
<td>Nitrite – Nitrogen $NO_2-N$</td>
<td>mg/l</td>
</tr>
<tr>
<td>Colour</td>
<td>Nitrate – Nitrogen $NO_3-N$</td>
<td>mg/l</td>
</tr>
<tr>
<td>Settling Agents</td>
<td>Chem. Oxygen Demand COD</td>
<td>mg/l</td>
</tr>
<tr>
<td></td>
<td>Biol. Oxygen Demand BOD</td>
<td>mg/l</td>
</tr>
<tr>
<td></td>
<td>Acid capacity</td>
<td>mmol/l</td>
</tr>
<tr>
<td></td>
<td>Conductivity</td>
<td>mS/cm</td>
</tr>
<tr>
<td></td>
<td>Dissolved Oxygen</td>
<td>mg/l</td>
</tr>
</tbody>
</table>

Remarks:

Date: ___________________________ Signature: ___________________________
8.5 QuickONE+ series data sheet

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

Example 6 p.e.
Example 8 p.e.
Example 10 p.e.
Example 12 p.e.

Subject to technical changes.

Sludge removal interval: ~12 month (depends on amount of solids)

Basic information:
- Daily wastewater: up to 150 l/d x p.e.
- Max. organic load: 80 g/d x p.e.
- COD of 1 m³ = ClearFox control module integrated

<table>
<thead>
<tr>
<th>Type</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1.50</td>
<td>1.22</td>
<td>3.12</td>
<td>0.55</td>
<td>1.00</td>
<td>0.50</td>
<td>0.08</td>
</tr>
<tr>
<td>8</td>
<td>2.50</td>
<td>1.22</td>
<td>3.12</td>
<td>0.55</td>
<td>1.00</td>
<td>0.50</td>
<td>0.08</td>
</tr>
<tr>
<td>10</td>
<td>3.50</td>
<td>1.22</td>
<td>3.12</td>
<td>0.55</td>
<td>1.00</td>
<td>0.50</td>
<td>0.08</td>
</tr>
<tr>
<td>12</td>
<td>4.50</td>
<td>1.22</td>
<td>3.12</td>
<td>0.55</td>
<td>1.00</td>
<td>0.50</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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PPU Umwelttechnik GmbH, Bermecker Str. 73, 95448 Bayreuth, Tel. 0921 / 150 63 990, Fax 0921 / 150 63 999, email: info@ppu-umwelttechnik.de

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8.6 Short installation guide plastic tanks (important to read before installation)
Caution!

Please make sure, that the reinforcement frame is in proper position between the two fixing dots!

During installation avoid a warpage which makes the frame unfastened.