

Data Sheet

SBRQ1+ Kit 4 – 50 PE

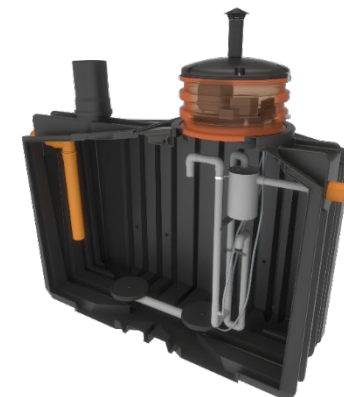


Sequencing Batch Reactor (SBR)

Description SBR Q1+ Kits

Clearfox SBR Q1+Kits operate according to the SBR-Process (Sequencing batch reactor) with integrated aerobic sludge stabilization. There are different stages of the treatment process (buffer, biological treatment, sludge treatment with storage) integrated within one tank.

The system operates regardless of the tank material or shape. That process flexibility means that any type of tank can be used for the SBR Q1+. A partial baffle would be advantageous to retain large inorganic particles in the first chamber. This baffle could be open at the bottom.



Certifications

- Certificate of accredited test field on the cleaning performance after a 52 weeks sludge test without intermediate desludging
- Certificate of accredited test field on the cleaning performance with 6 months holiday operation without waste water feed
- Evidence from an accredited test institute that the small sewage treatment plant was not deslugged during the 38 weeks test according to EN 12566 Part 3
- Small wastewater treatment plant expandable with module tested according to EN 12566 Part 7 for UV sterilization (at extra cost), proof of performed test required
- Small sewage treatment plant expandable with module for phosphate elimination tested according to EN 12566 part 7 (against surcharge), proof of performed test required

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➤ Small wastewater treatment plant expandable with module tested according to EN 12566 Part 7 for sterilization and elimination of trace-resistant trace substances (at an extra charge), proof of performed test required

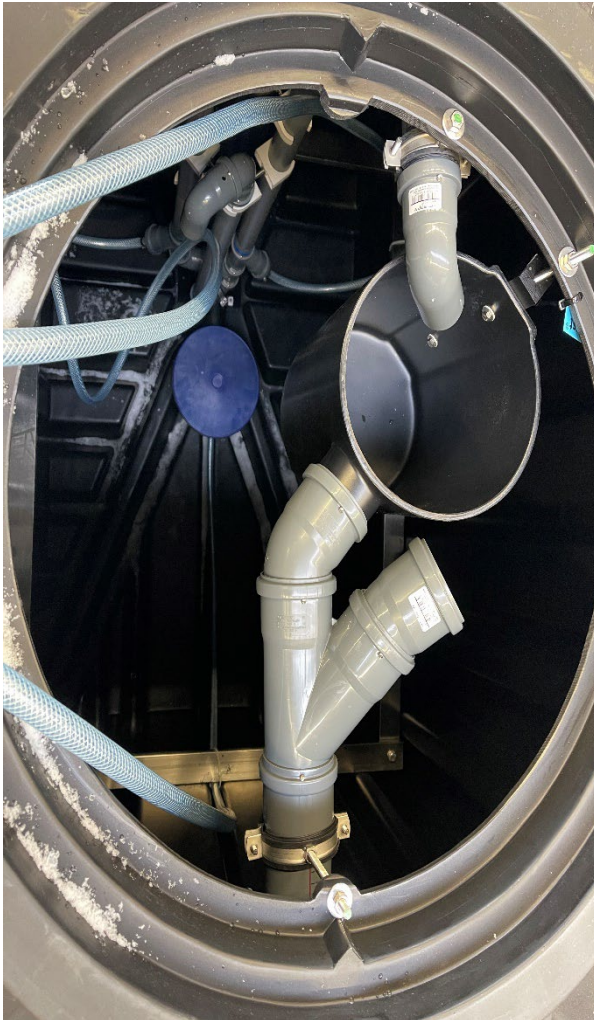
➤ Extra charge with C4C® module tested in accordance with EN 12566 part 7 for sterilization and elimination of trace-resistant trace substances (at an extra charge), proof of performed test required without building inspectorate approval, with certificate for the test carried out according to EN 12566 part 7.

Proof of the same or higher cleaning performance on an accredited test field with the following effluent values / efficiencies of the parameters shown below (total cleaning performance of the small sewage treatment plant in combination with the C4C® module) required:

Parameter	Efficiency	Concentration Effluent
COD	93,7 %	48 mg/l
BOD	98,1 %	6 mg/l
N _{TOT}	64,1 %	18 mg/l
NH ₄ -N	99,5 %	0,2 mg/l
SS	95,8 %	17 mg/l
P _{TOT}	66,3 %	0,5 mg/l
Enterococci	>99,9 %	13 / 100 ml
E.coli	>99,9 %	1 / 100 ml
Total coliforms	>99,9 %	3 / 100 ml
17-alpha-ethinyl estradiol	97,8%	
Diclofenac	94,6 %	
1H-Benzotriazol	94,5 %	

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Scope of delivery

Clearfox SBR Q1+Kits consist of an aeration system, airlift pumps, an air compressor, an air distribution manifold with electronic/magnetic valves and a control unit.

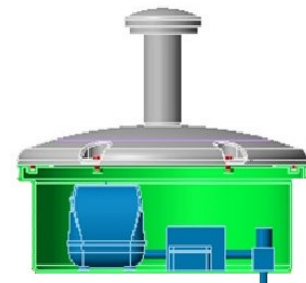
Maintenance free disc diffuser mounted on a PE manifold pipe; amount of diffusers and size of manifold according to plant design

EPDM Membrane; A = 0,55m²; d=275 mm; chemical resistance

Mounting material

- **Maintenance free airlift for clearwater**
 - Special pre-cleaning function for clearwater airlift to ensure that no solids get out of the system
 - PVC with plug connection
 - Free ball passage from 50 up to 150 mm

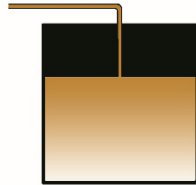
- **Standard cabinet for the top of the tank for systems up to 24 PE.**
 - Rotomoulded PE Cabinet with cover and ventilation



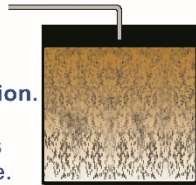
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SBR Process SBR-Prozess

1. Filling: Wastewater runs into the container
Abwasser läuft in den Behälter



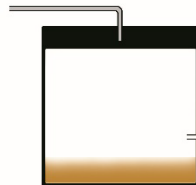
2. Aeration: Waste water is biologically cleaned by oxygen supply & circulation. Sludge degradation
Belüftung und Mischen des Wassers und der Biomasse. Schlamm Abbau



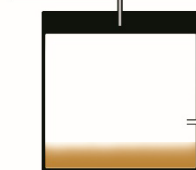
3. Settling: heavier bio mass sinks to the bottom & mud stabilization
Stabilisieren des Schlamms
Absetzen der Biomasse



4. Backwashing of piping
Abzugsrohr durchgespült



5. Clear water separation
Klarwasserabzug



- **Control unit installed**
 - Pressure sensor controlled microprocessor technology
 - Stepless automatic ventilation according to actual wastewater
 - display, illuminated, 2 lines
 - Electronic operating log, with 52 weeks storage
 - optional
 - Expandable for UV sterilization
 - Expandable for phosphate elimination
 - Expandable for elimination of trace-resistance trace substances



- **Solenoid valve manifold separate for system > 24 PE**

- 2/2 way, G1/2 – G 1
- EPDM Membrane -10 to + 140°C
- 230 VAC, 12 W, 100% ED

- **Standard cabinet for systems up to 50 PE.**

- Powder coated steel cabinet
600x600x300 mm
- Protection class IP 55
- Lockable, incl. key

- **Membrane airblower up to 36 PE**

- Compact design
- Low energy consumption
- High quality metal housing

- **Maintenance free two stage side channel blower up to 50 PE**

- Capacity according to dimensioning
- Associated silencer
- Corrosion protection

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PE	hydraulic Loading	organic Loading	tankvolume m ³	max. water depth m	Compressor size KW	dimension airliftpumps Mm	power consumption KWh/day	Calculated Sludgeproduction		Cleaningcycles		diameter connecting tube mm	kits per pallet no.
	m ³ /day	KG BOD/day						Kg/month	l/day	No./day	max.m ³ /cycle		
4	0,6	0,24	2,4	1,5	0,04	50	0,48	6,70	22	2	0,6	13	3
6	0,9	0,36	3,6	1,5	0,05	50	0,6	10,10	32	2	0,9	13	3
8	1,2	0,48	4,8	1,5	0,075	50	0,9	13,40	43	2	1,2	13	3
10	1,5	0,6	6	2	0,095	50	1,14	16,80	54	2	1,5	13	3
12	1,8	0,72	7,2	2	0,095	50	1,14	20,20	65	2	1,8	13	3
14	2,1	0,84	8,4	2	0,115	50	1,38	23,50	76	2	2,1	13	3
16	2,4	0,96	9,6	2	0,115	50	1,38	26,90	86	2	2,4	19	2
18	2,7	1,08	10,8	2	0,18	50	2,16	30,20	97	2	2,7	19	2
20	3	1,2	12	2	0,225	50	2,7	33,60	108	2	3	19	2
22	3,3	1,32	13,2	2	0,225	50	2,7	37,00	119	2	3,3	19	2
24	3,6	1,44	14,4	2	0,225	50	2,7	40,30	130	2	3,6	19	2
26	3,9	1,56	15,6	2	0,23	50	2,76	43,70	140	2	3,9	19	1
28	4,2	1,68	16,8	2	0,23	50	2,76	47,00	151	2	4,2	19	1
30	4,5	1,8	18	2	0,36	50	4,32	50,40	162	2	4,5	19	1

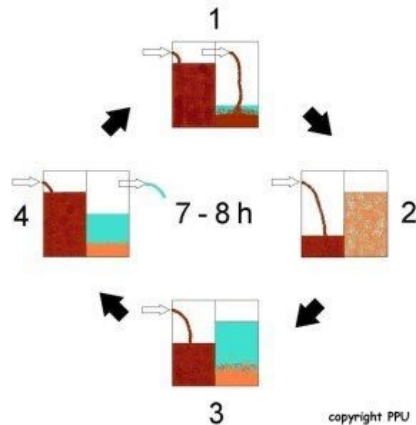
Geschäftsführer:
Dipl.Ing.(FH) Wolfgang U. Pöhnl
Registergericht Bayreuth HRB 4726
USt.-IdNr.: DE259224458

PPU Umwelttechnik GmbH
Carl-Kolb-Str. 6,
95448 Bayreuth,
Germany
Tel. 0921 / 150 63 990,
Fax 0921 / 150 63 999,
E-Mail: info@clearfox.com
www.clearfox.com

Bankverbindung:
HypoVereinsbank Bayreuth
IBAN DE 8877 3200 7200 2542 4794
BIC: HYVEDEMM412

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32	4,8	1,92	19,2	2	0,36	50	4,32	53,80	173	2	4,8	19	1
34	5,1	2,04	20,4	2	0,36	50	4,32	57,10	184	2	5,1	19	1
36	5,4	2,16	21,6	2	0,45	50	5,4	60,50	194	2	5,4	19	0,5
38	5,7	2,28	22,8	2	0,45	50	5,4	63,80	205	2	5,7	19	0,5
40	6	2,4	24	2	0,45	50	5,4	67,20	216	2	6	19	0,5
42	6,3	2,52	25,2	2	0,45	75	5,4	70,60	227	2	6,3	25	0,5
44	6,6	2,64	26,4	2	0,45	75	5,4	73,90	238	2	6,6	25	0,5
46	6,9	2,76	27,6	2,5	0,75	75	9	77,30	248	2	6,9	25	0,5
48	7,2	2,88	28,8	2,5	0,75	75	9	80,60	259	2	7,2	25	0,5
50	7,5	3	30	2,5	0,75	75	9	84,00	270	2	7,5	25	0,5



Benefits for Clearfox SBR Q1+ Kits

- No odor
- Low running costs
- High performance with high quality, Made in Germany
- Easy installation and handling
- Sludge stabilization/sludge treatment
- Stable and very robust process technology

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Additional equipment

The **Clearfox SBR Q1+** system can be upgraded to any required effluent standard. No matter if it is a phosphorous elimination, disinfection or even trace-resistance substances must be eliminated.

➤ **Sheet steel control cabinet**

- 600x400x250
- Protection class IP 55
- Lockable, incl. key
- Material Sheet steel, powder-coated

➤ **Sheet steel control cabinet**

- 750x540x300
- Protection class IP 55
- Lockable, incl. key
- Material Sheet steel, powder-coated

➤ **GRP outdoor column for up to 24 PE**

- 1750x530x270
- GRP with integrated base for installation

➤ **QuickONE+ 3M**

Control for small sewage treatment plants with SBR switching logic

- 4 x relays 230VAC, switching capacity max. approx. 250W for loads such as diaphragm compressor, submersible pump or solenoid valve, implemented via terminals



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- Relay 1 is connected via a Schuko (CEE 7/4) socket to a cable (approx. 0.3m, connected via terminals).
- Relay 2,3,4 via GDM connectors on cable (approx. 0.3m, connected via terminals)
-
- 230V mains supply via mains cable with CEE 7/7 plug (approx. 1m cable, connected via terminals)

➤ CF Automation

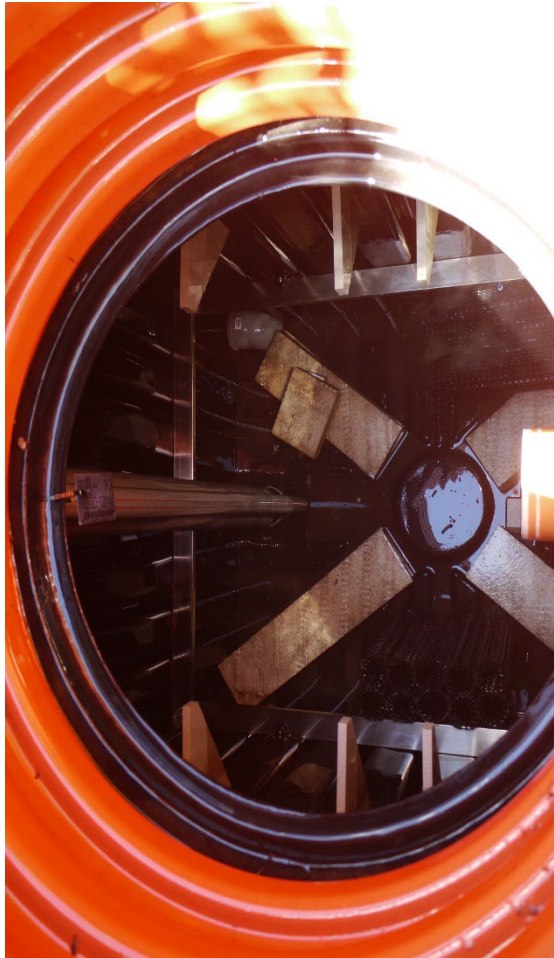
- Integrated air distributor (up to 4 stepper motors) for operation with diaphragm compressors
- Pressure sensor controlled microprocessor technology
- 5 x 230V outputs, individually fused via microfuses
- Convenient 6-key operation
- USB connection with auto-report function (electronic operation diary and faults) and plug-and-play software updates
- WLAN interface for readout via smartphone
- Console for indoor and outdoor installation IP 44, compressor socket on top of the housing
- Dimensions: 320 x 250 x 130 mm (l, w, h); 3 kg
- Can be retrofitted for remote maintenance with modem

➤ Modem for CF Automation

- Remote maintenance and remote management possible for customer, maintenance company and manufacturer
- Integrated modem for network connection
- Automatic forwarding of faults by e-mail
- Web portal for access to the control system (display and download of fault messages and operating hours, change of control system parameters depending on authorization, different access levels, system updates)

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➤ **Red Warning Light**

- Complete set with red lamp housing 230 V

➤ **Connection tube 1/2"**

- 50 m roll
- Pressure hose
- Size 1/2" (13mm)
13,2x3,2mm
- Stainless steel
hoseclamps

➤ **Connection tube 3/4"**

- 50 m roll
- Pressure hose
- Size 3/4" (19mm)
19x3,2mm
- Stainless steel
hoseclamps

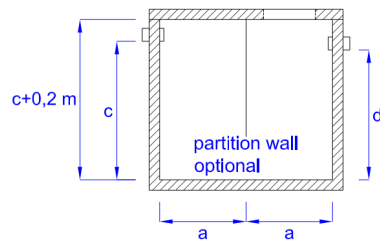
➤ **Connection tube 1"**

- 50 m roll
- Pressure hose
- Size 1" (25mm)
25x4,3mm
- Stainless steel
hoseclamps

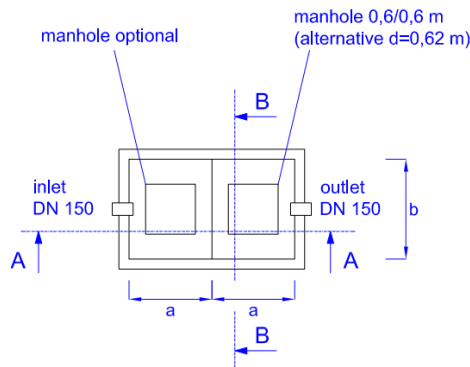


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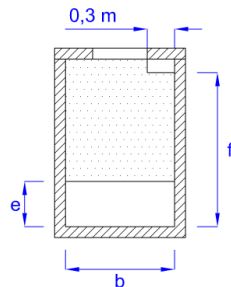
cut drawing A - A



ground view



cut drawing B - B



➤ Phosphorous elimination

At the end of the cleaning process a precipitant is added to the reactor.

This takes the phosphate out and store it in the activated sludge.

- Peristaltic dosing pump 0,2 – 4,5 l/h
- 230 V +/- 10%, 50/60 Hz; 5 VA
- IP65
- Capacity adjustable via potentiometer
- Suction lance with level control

➤ Chlorine disinfection

The chlorine disinfection also will be handled with a dosingpump.

The cleaned water will be pumped by the airliftsystem to a retention tank. During the filling is also the dosing of the chlorine to this tank.

- Peristaltic dosing pump 0,2 – 4,5 l/h
- 230 V +/- 10%, 50/60 Hz; 5 VA
- IP65
- Capacity adjustable via potentiometer
- Suction lance with level control
- Size of the retention tank (customer side)
50% of the daily amount of wastewater

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PE	a m	b m	c m	d m	e m	f m
4	0,80	1,00	1,60	1,50	0,75	1,70
6	1,20	1,00	1,60	1,50	0,75	1,70
8	1,30	1,25	1,60	1,50	0,75	1,70
10	1,20	1,25	2,10	2,00	1,00	2,20
12	1,40	1,25	2,10	2,00	1,00	2,20
14	1,40	1,50	2,10	2,00	1,00	2,20
16	1,60	1,50	2,10	2,00	1,00	2,20
18	1,80	1,50	2,10	2,00	1,00	2,20
20	1,50	2,00	2,10	2,00	1,00	2,20
22	1,70	2,00	2,10	2,00	1,00	2,20
24	1,80	2,00	2,10	2,00	1,00	2,20
26	2,00	2,00	2,10	2,00	1,00	2,20
28	2,10	2,00	2,10	2,00	1,00	2,20
30	1,80	2,50	2,10	2,00	1,00	2,20
32	1,90	2,50	2,10	2,00	1,00	2,20
34	2,00	2,50	2,10	2,00	1,00	2,20
36	2,20	2,50	2,10	2,00	1,00	2,20
38	2,30	2,50	2,10	2,00	1,00	2,20
40	2,40	2,50	2,10	2,00	1,00	2,20
42	2,50	2,50	2,10	2,00	1,00	2,20
44	2,60	2,50	2,10	2,00	1,00	2,20
46	2,00	2,75	2,60	2,50	1,25	2,70
48	2,10	2,75	2,60	2,50	1,25	2,70
50	2,20	2,75	2,60	2,50	1,25	2,70

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