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REWATEC®
made by ROTA

Fully Biological SBR Wastewater Treatment System SOLIDO®

for Small Wastewater Treatment Plants in PE Containers

- DIBt approval for filtration level C: Z-55.3-299
- DIBt approval for filtration level N: Z-55.3-298
- DIBt approval for filtration level D: Z-55.3-168



Qualified advice by telephone:
01844 238111

Important information for reliable operation

The purification efficiency of a small wastewater treatment plant is a living system that is based on microorganism activity. Therefore, observe the following:

- Do not feed in any **harmful or damaging substances** (sanitary products, chemical or oily wipes, food leftovers, chemical cleaner, hair).
- Ensure that your **water consumption is min. 80 – 100 l/PT per day**; lower quantities may diminish the outflow values.
- Arrange a **maintenance contract** with a six-month maintenance interval (or as specified in your legal water permit).
- Familiarise yourself with the **functional principle**.

Troubleshooting

If the control unit beeps and the **red LED** warning light flashes, write down the error text displayed and switch off the warning tone. *Call your maintenance service contact immediately.*

Important legal notice

You require a **water usage permit issued by the appropriate authority**.

The **acceptance/start-up** of a small wastewater treatment plant may only be carried out by a **certified company** and must be documented in a **start-up protocol**. Otherwise the manufacturer warranty period is reduced to the statutory time.

Important warranty notice

MONOLITH containers are subject to a warranty period of 25 years. The SOLIDO wastewater treatment system has a 3-year warranty. The warranty assurance is dependent on the proper handling and correct operation of the system (e.g. maintenance contract with an authorised company).

The 3-year warranty for the SOLIDO wastewater treatment system covers the durability of all electrical and mechanical components. Any unauthorised alterations to the small wastewater treatment plant (e.g. changing the air lifters, opening the junction box/connection plug, manipulation of the control unit by non-qualified personnel) and/or the improper use of the plant and/or deviations from the configuration specified by REWATEC (see the relevant section in the "Installation Instructions" chapter) are not permitted and void any warranty claims.

Please use the back page of the "Master Data Sheet" and retain all important documents if you wish to submit a warranty claim.

1. Description of the SOLIDO[®] SBR wastewater treatment system

General

The small wastewater treatment system SOLIDO works as a sequencing batch reactor and has two treatment stages: the primary treatment and the SBR phase. During primary treatment, floating inorganic pollutants and pollutants that sediment are separated and held back from entering the wastewater stream. Only the pollutants that have dissolved or float reach the SBR. The biological treatment of one cycle in the SBR lasts 6 hours and is a combination of 4.5 - 5 hours of aeration and 1 - 1.5 hours of sedimentation. The excess sludge that is left over from the biological treatment is pumped into the primary treatment and accumulated there.

The treatment cycle is controlled by a control unit. This means that you can adapt the system to the local conditions as well as optimising the operating values.

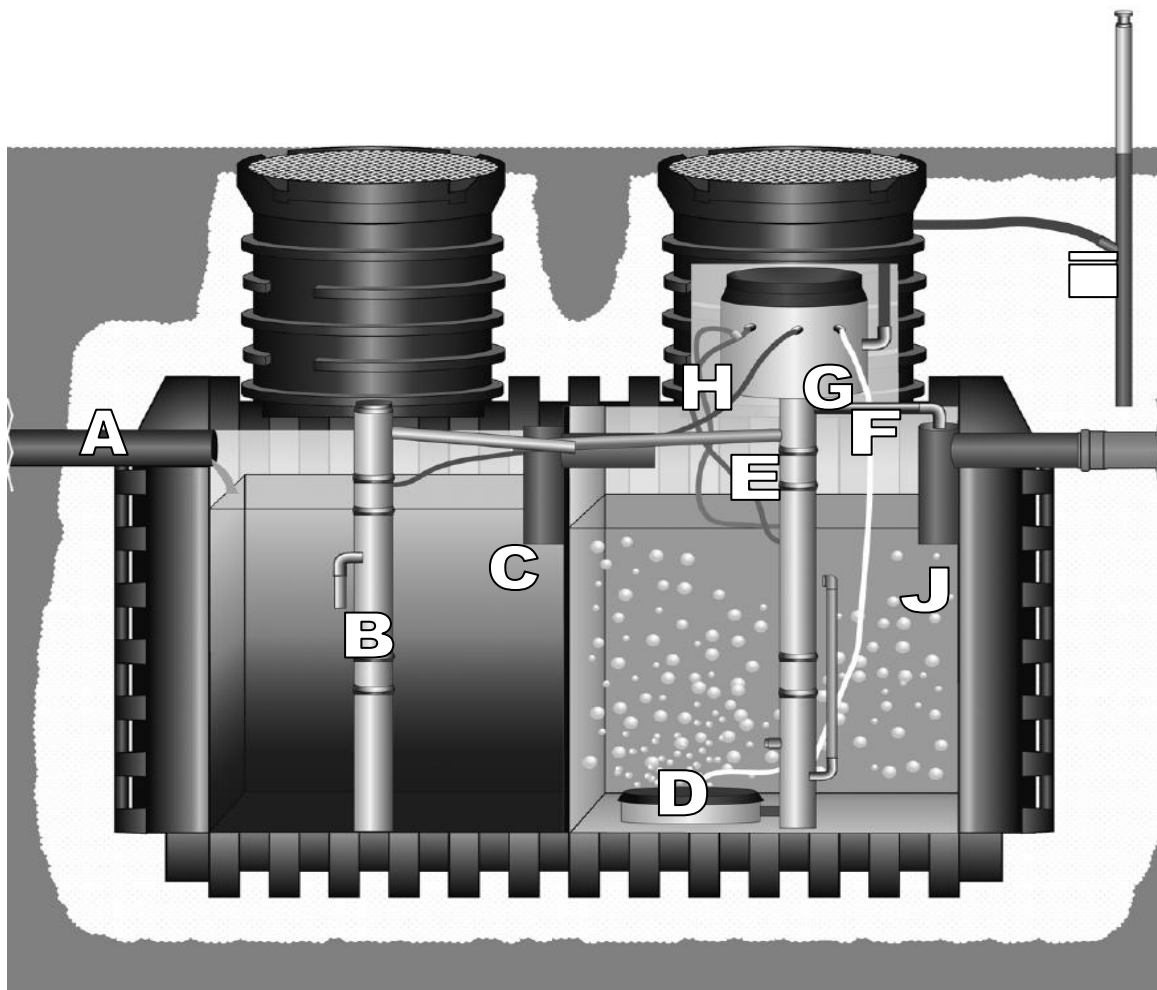
Sludge reservoir/buffer (primary treatment)

The domestic wastewater flows directly into this unit. It has three functions:

- Temporary storage of wastewater and provision of a buffer volume
- Mechanical pre-treatment of the wastewater through sedimentation processes and flotation (formation of "primary sludge")
- Storage of the sludge that has been generated during the biological treatment ("secondary sludge")

Sequencing batch reactor (SBR)

This is where the biological treatment of the wastewater takes place. The SOLIDO SBR wastewater treatment system comprises a technology capsule (G) a feed lifter (B), clear-water lifter (F) and excess sludge lifter (E). At the start of the treatment cycle, and after approx. 1.5 and 2.5 hours, the SBR section is fed wastewater from the buffer: the feed lifter (B) pumps wastewater out of the primary treatment and into the SBR reactor.



- A** Inflow DN 100
- B** Feed lifter (BSH)
- C** Immersion pipe for primary treatment DN 100
- D** Disc aerator (BEL)
- E** Excess sludge lifter (ÜSH)
- F** Clearwater lifter (KWH)
- G** Technology capsule with compressor and solenoid valves
- H** Compressed air hoses (white, red, blue, green)
- I** Supply air hose and supports
- J** Outflow immersion pipe with an integrated sampling container

In the following biological treatment, the characteristic ingredients of wastewater are decomposed into biomass by floating microorganisms (activated sludge). The mixing and oxygen air supply needed for this is provided by the disc aerator (D). The aerator is activated intermittently; this means that the aerator operates between two breaks. A specific aeration time is stored, which is determined by the number of inhabitants, compressor type and filtration level. An interval, comprising the aeration time and break time, is always 20 minutes, so that the breaks last for different amounts of time (e.g.: 5 min aeration, 15 min break; 12 min aeration, 8 min break).

After this aeration phase, which lasts around 5 hours, a 1 hour sedimentation phase begins. At the end, the clearwater lifter (F) pumps treated water into the outflow immersion pipe (J) until the lowest intake point on the clearwater lifter has been reached.

Excess sludge removal

Every time clearwater is drained at the end of a cycle, the excess sludge lifter is operated simultaneously. It feeds a mixture of activated sludge and water back into the primary treatment until the activated sludge level has reached the level of the intake opening on the air lifter.

This maintains a constant activated sludge volume and ensures that excess sludge is removed.

3.1 Items that do NOT belong in small wastewater treatment plants

Common solids and liquids that do NOT belong in the toilet or drain (!! but unfortunately are commonly found there):	Effect:	Proper disposal
Ash	Does not decompose	Dustbin
Adhesive plasters	Block the pipes	Dustbin
Bird sand	Blocks the plant	Dustbin
Cat litter	Blocks the pipes	Dustbin
Chemicals	Contaminate wastewater	Collecting point
Cigarettes	Block the plant	Dustbin
Cleaning agent	Contaminate wastewater	Collecting point
Condoms	Block the plant	Dustbin
Cooking oil	Overloads the plant	Dustbin
Corks	Block the plant	Dustbin or collection point
Cotton swabs	Block the plant	Dustbin
Disinfectants	Kill bacteria	Do not use
Engine oil	Contaminates wastewater	Collection point or petrol station
Food leftovers (solid and liquid, e.g. out-of-date milk)	Overload the plant	Dustbin
Frying oil/fat	Block the plant	Dustbin
Hair (insofar as could be avoided)!!	Block the plant	Dustbin
Insecticide	Contaminate wastewater	Collecting point
Medication	Contaminate wastewater	Collection point or pharmacy
Nappy wipes, oily cloths	Block the air lifters	Dustbin
Oily waste	Contaminate wastewater	Collecting point
Paint	Contaminate wastewater	Collecting point
Paint thinner	Contaminates wastewater	Collecting point
Paintbrush cleaner	Contaminate wastewater	Collecting point
Pesticide	Contaminate wastewater	Collecting point
Pipe cleaner	Contaminates wastewater	Do not use
Razor blades	Block the plant	Dustbin
Sanitary towels	Block the plant	Dustbin
Sanitary towels, tampons	Block the plant	Dustbin
Textiles (cleaning cloths etc.)	Block the plant	Dustbin
Varnish	Contaminate wastewater	Collecting point
Wallpaper adhesive	Blocks the plant	Collecting point
WC rim blocks	Contaminate wastewater	Do not use
Wet wipes	Block the plant	Dustbin



EC declaration of conformity



REWATEC GmbH

authorised distributor

Bei der Neuen Münze 11

D-22145 Hamburg

Germany

confirm hereby that these small wastewater treatment plants in PE-tanks

type SOLIDO / MONOsolido

comply with these EC-directives:

2006/42/EC	Machinery Directive*
2004/108/EC	Electromagnetic compatability
2006/95/EC	Low voltage equipment
89/106/EEC	Construction products

* In the context of an evaluation process it was proved that all relevant aspects regarding safety and health of Appendix I, Machinery Directive are met.

It was proved that the following harmonised European standards are met:

EN ISO 12100-1/-2:2003 (EN 292-1/-2:1991)	Safety of machinery: Basic concepts, technical principles
EN ISO 13849-1/-2:2008	Safety of machinery: Safety-related parts of control systems
EN ISO 14121-1:2007-12	Safety of machinery: Principles for risk assessment
EN 60204-1:2006	Safety of machinery: General requirements for electrical equipment of machines
IEC 61010-1:2009	Safety requirements for electrical equipment for control systems
EN 61000-6-3	Electromagnetic compatibility
EN 61000-6-1	Electromagnetic compatibility
IEC 61000-3-2	Electromagnetic compatibility
EN 12566-3:2005 + A1:2009	Small wastewater treatment systems for up to 50 PT

This declaration confirms compliance with the named directives and standards.

It does not guarantee for any properties of the product. All provided safety advices, technical documentation and guides for mounting, installation, commissioning, operation and maintenance must be regarded.

Hamburg, September 06, 2010

Marco Rumberg, CEO REWATEC GmbH



REWATEC GmbH, Bei der Neuen Münze 11, 22145 Hamburg, Germany

10

EN 12566-3

Packaged domestic wastewater treatment plant

- Reference number of product: "SOLIDO 30 – SOLIDO 50/50"
- Material: Polyethylene (LLD-PE)

Treatment efficiency:

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(at an applied daily organic load of $BOD_5 = 0.13$ kg/d)

COD:	90.1%
BOD_5 :	96.1%
SS:	91.8%
NH_4-N^* :	88.5%
(*for $T > 12^\circ C$)	

Treatment capacity:

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- nominal organic load per day (BOD_5):	0.24 kg/d to 0.84 kg/d
- nominal hydraulic load per day (Q_N):	0.30 m ³ /d to 2.1 m ³ /d

Watertightness (tested with water): pass

Stability (test of breaking load): pass (up to 1.95 m below ground)

Durability: according to EN 12566-3, section 6.5.5.1