REWATEC®
made by ROTA

Technical Documentation

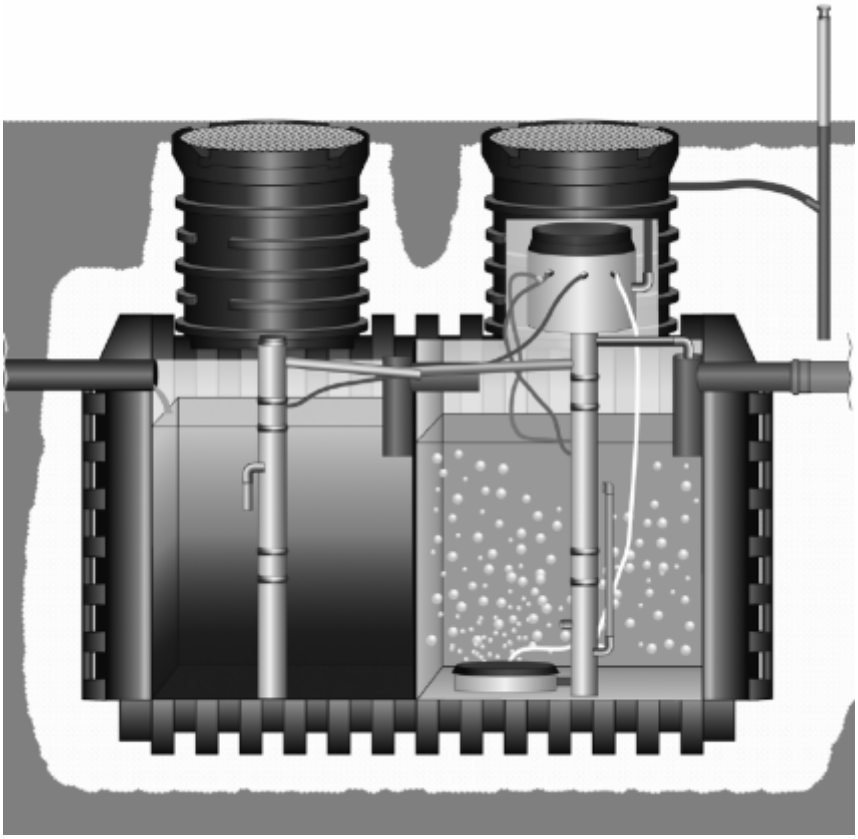
(Instruction Manual and Operations Logbook)

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:
+49 (0)180 500 60 37 (0.14 €/min. from within Germany)

Summary of Important Information

We are pleased that you have chosen a REWATEC small wastewater treatment plant. To ensure a long, reliable service life, it is important that you read and observe the information in this instruction manual.

The following warning and information symbols are used in this manual and are attached to the mains supply line:

Caution: Danger for persons and objects: electrical equipment installed, observe safety instructions

Note: Read technical documentation

Caution: Caution: Disconnect from the mains before carrying out repair work

Important safety instructions

- Connecting, start-up and opening electrical components should only be carried out by authorised personnel. The power cord must be protected with a 30 mA residual-current circuit breaker.
- The Solido technology capsule should **ONLY** be opened by a specialist company, and only when the **power is switched off**.
- The small wastewater treatment plant should be installed by qualified personnel only. Accessing the system after installation is only permitted if the power is switched off and if the applicable accident prevention regulations are observed (oxygen deficiency).

  Observe the safety instructions in the relevant chapters.

Important information for container installation

- **Pay attention to the on-site conditions:** The subsurface must be sufficiently stable and water permeable. Consider the groundwater, installation depths (recommendation: max. 1.2 m below ground), distances to buildings and property boundaries, as well as traffic loads.
- **Use suitable filling material:** The filling material around the PE container must be shear-resistant, easily compactible, permeable, frost-resistant and free of sharp objects. Gravel sand (round grain e.g. 0/32 or 2/16), for example, fulfils these requirements. Excavated soil or “filler sand” often do not meet these criteria.

Observe the following procedure:

1. Build a stable, level foundation (20 cm) from filling material.
2. Verify the integrity of the containers and their components.
3. Carefully place the containers into the pit without damaging them.
4. Half-fill the containers with water to stabilise them.
5. Add the filling material and compress in layers using a hand tamper.
6. Connect the inflow, outflow and connection pipe.
7. Adjust the height of the shaft extension if required (can be shortened by max. 10 cm).
8. Connect the air intake hose to the capsule and position air inlet supports at suitable points where they will have a steady intake of the cleanest possible air; if necessary, extend the hose (up to max. 10 m).
9. Fill the rest of the excavated pit with filling material, lay cable conduit (DN 70 – 100)
10. Check that the supply pipe and roof deaeration provide sufficient aeration and deaeration for the container (install a separate aeration pipe if necessary).

Important information for the installation of SOLIDO® wastewater treatment technology

Please observe the following safety instructions and installation steps:

1. **Choose the location of the control unit:** It should not be positioned in direct rain or sun, and should be located between 10 m and max. 25 m from the treatment tank (standard cable length: 15 m; on-site up to max. 30 m permitted).
2. **Lay the cable:** Pull the control cable through the cable conduit (DN 70-100), ensuring that the plug is protected from moisture whilst doing so (never remove). Install the sealing to the building in such a way that it is possible to change the cable at a later point.
3. **Connect the pre-installed hoses** and/or supply air hose to the connections on the SOLIDO capsule according to the colours.
4. Place the **SOLIDO capsule** onto the air lifter in the SBR chamber which is provided for this purpose**.**
5. **Fix the cable in place:** Place the main grey cable into the holder of the cable bundle.
6. **Check the complete installation** (pipeline gradient, aeration and deaeration, accessibility).
7. **Start up the system** (including system setting and test operation) and brief the operator (prepare protocol).

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.

Table of Contents

1. Introduction

1.1. Scope

This “Technical Documentation for the SBR Wastewater Treatment System SOLIDO” refers primarily to the representation of SOLIDO as a technical configuration of REWATEC’s small wastewater treatment plants (2-14 PT). For details about treatment tanks, complete systems (according to EN 12566-3) and special technical versions, also refer to the following documents on the different REWATEC products for the PE complete system **type SOLIDO® for 2 – 14 PT** (DIBt - approvals Z-55.3-299, -298, -168), see also:

- Technical documentation for the MONOLITH underground container (= treatment tank)
- Short description of the SOLIDO PE complete plant

1.2. Intended use

The SBR wastewater treatment system SOLIDO is used for the cleaning and purification of wastewater in domestic areas. This wastewater treatment system is not intended for any other use. Different, improper use may cause damage and unexpected risks. The manufacturer is not liable for any damages if this is the case. Observe the instructions for operating the plant (see chapter 2.5).

2. 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.

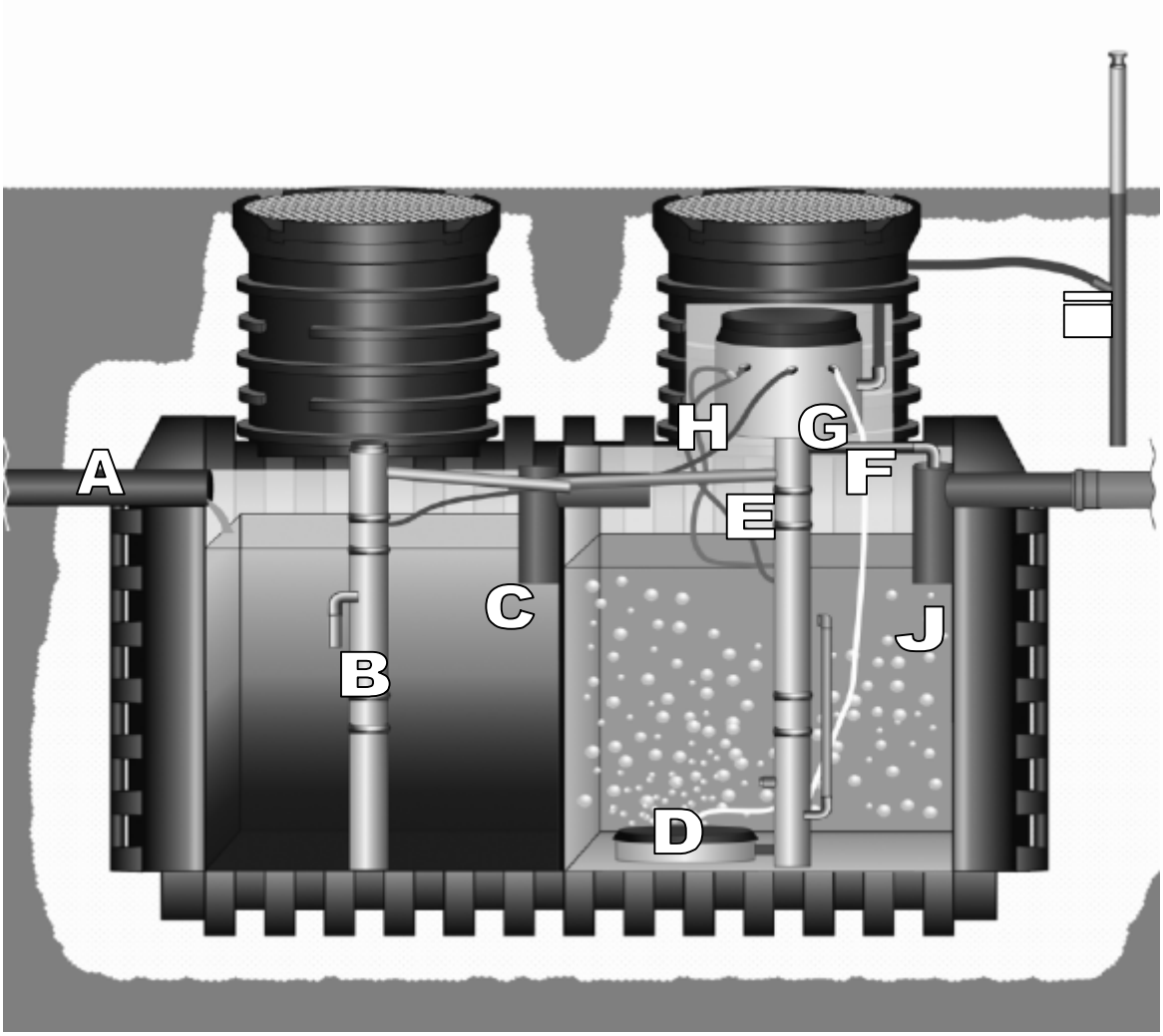
Sludge reservoir/buffer (primary treatment)

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.

Normal mode / economy mode / holiday mode

The two operational states, normal mode and economy mode, run according to the following preset, fixed time patterns:

	Mo	Tu	We	Th	Fr	Sa	Su
08:00	Normal	Normal	Normal	Normal	Normal	Normal	Normal
14:00	Economy	Economy	Economy	Economy	Economy	Normal	Normal
20:00	Normal	Normal	Normal	Normal	Normal	Normal	Normal
22:00	Economy	Economy	Economy	Economy	Economy	Economy	Economy

The reduced running times for the aerator and air lifters reflect the daily fluctuation of wastewater generation in private households. If operating conditions are not compatible with the preset running times, the individual running time blocks can be set to normal or economy mode. For longer periods where no wastewater is generated, e.g. holidays, you can select an economy mode for max. 30 days (holiday economy mode). After this period, the control unit automatically reverts back to the preset normal/economy mode time pattern (see “Control” chapter).

Sampling

In order to ensure that a representative sample is available at any time, a sampling container is integrated into the outflow immersion pipe, from which you can take a sample of the most recent clearwater that is being drained. We recommend that you use a sampling hand pump.

Plant control unit

The SOLIDO system is equipped with a PLC of type FS10 or FS20. The sequence program is designed in a way that guarantees that the required outflow values are maintained through the proper adjustment of the parameters. When you enter the number of inhabitants for the plant, the preset control parameters are automatically loaded.

If it appears that the plant is underloaded or overloaded, these parameters must be adjusted according to the actual conditions by a specialist company (upon consultation with the REWATEC Service Hotline if required). Refer to chapter 5 for a detailed description of the control unit functionality.

3. Operation and Maintenance Information

3.1 Inspection and maintenance requirements

Safety instructions for inspecting the system yourself, repair work and maintenance:

There may be a lack of oxygen in wastewater treatment plants.

If you have to enter the small wastewater treatment plant to carry out repairs or maintenance work, you should be extremely cautious. Observe the relevant accident prevention regulations.

All electrical plant components must be switched off before entering a wastewater treatment plant (disconnect the plug).

There should always be two people present when a wastewater treatment plant is entered. Never enter behind a person who has fallen unconscious; call for help immediately.

The operator must check that the wastewater treatment plant is running fault-free **every day**. In case of a failure (e.g. error message issued by the control unit), inform the maintenance service immediately.

3.2 Inspection by the operator (according to German law)

General

The operator must have the inspection and maintenance work performed by a qualified expert[1] if he does not have the necessary expertise himself. In Germany, a certificate of qualification is offered by the German Association for Water, Wastewater and Waste (tel.: +49 2242 872222, www.dwa.de).

The following should be carried out by the operator or by a contracted company:

- ➔ Visual inspection of the outflow (also in the inspection chamber if necessary) to check for sludge output; sludge output may impair the operability of a downstream seepage system.
- ➔ Inspection of the inflow and discharge for blockages (visual inspection)
- ➔ Checking whether there is any floating sludge in the SBR and removing it (into the sludge reservoir)
- ➔ Recording the operating times of the aggregates in the operations logbook

An operations logbook should be kept for every small wastewater treatment plant.

A template for an operations logbook can be found on the last page of this document. Failures, maintenance work, sludge removal, maintenance reports and other incidents should be recorded in the operations logbook. The operations logbook is to be handed over to the responsible authorities upon request.

3.3 Maintenance (according to German law)

In accordance with the legal water usage permit, the plant operator must take out a maintenance contract with a specialist company (qualified expert) that covers a fixed scope of work. Maintenance is usually performed twice a year (at an interval of six months) and includes the following activities for the wastewater treatment plant component:

- Inspection of the operations logbook and determination of regular operation (target/actual comparison).
- Function check of the important plant components (mechanical, electrical-technical, other), checking in particular for the formation of bubbles and the pumping function of the air lifters
- Function check of the control unit and the alarm function
- Maintenance of the compressor

  (see attached document “Operating Manual for MEDO LA Air Blower”)
- Optimisation of the operating parameters on the basis of inspection results from the SBR and outflow, upon consultation with the REWATEC Service Hotline if necessary: +49 0180-5006037
- Checking of the sludge height in the sludge reservoir and the removal of the sludge by the operator. Sludge should be removed as necessary in order to ensure the proper operation of the small wastewater treatment plant. The sludge should be removed when

[1] A “qualifed expert” is someone sent by the operator or by a contracted third party, who has the training, knowledge and practical experience that qualifies them to carry out the inspection of small wastewater treatment plants.

the sludge in the sludge reservoir reaches the following level: plants with sludge reservoir (250 l/PT): 70% full

- General cleaning maintenance, e.g. removal of sediment deposits
  Inspection of the structural condition of the plant
- Checking that aeration and deaeration is sufficient
- Checking the concentration of oxygen and sludge volume in the SBR basin
- Any maintenance carried out is to be recorded in the operations logbook

Sampling

A sample of the outflow is to be taken during maintenance. The following values should be checked (the water usage permit is to be used as a guideline):

- Temperature
- pH value
- Solids that sediment
- Transparency
- Chemical oxygen demand (COD)
- NH_4-N (if required)
- N_{inorg} (if required)
- BOD_5 (if required)

Caution: In SBR plants, outflow samples can be taken at any time from the sampling container, which is installed in the discharge of the SBR chamber. Samples can otherwise only be taken when the clearwater is being drained, unless a separate sampling shaft is installed.

The abovementioned maintenance activities and inspection results are recorded in a maintenance report which is then given to the operator. The operator must append the maintenance report to the operations logbook and submit it to the responsible water authorities upon request.

3.4 Additional information

The following recommendations and information should be considered as supplementary to the maintenance stipulations given in the DIBt approval:

1. **Checking for the formation of bubbles and checking the pumping function of the air lifters** are important measures which should also be performed during the operator's own plant inspections. If a reduction in performance occurs due to reduced compressed air performance, contact your maintenance service.

2. The **compressor filter** must be inspected regularly during the maintenance, and promptly replaced if necessary. After the technology capsule has been opened **(by a specialist company only)**, ensure that the cover is properly shut again (the red markings are on top of each other). We recommend that it is then resealed again.

3. The full biological purification efficiency (= COD decomposition > 85%) takes several months to develop and is only achieved if:

- **there are no structural defects** (e.g. heavy underloading or overloading, extraneous water inflow, faulty aeration and deaeration, installation faults)
- it is certain that the domestic wastewater contains **no forbidden substances** (poisonous or damaging substances: see the next page) and that it is characteristic domestic wastewater (COD < 1000 mg/l; pH value = approx. 6.5 – 8.0)
- the **proper function of the aggregates** is assured through regular maintenance.

4. Washing and cleaning solutions should be added sparingly.

An increasing number of “strong cleaning agents” are available on the market, which contain substances that feed on the oxygen necessary for the decomposition process and compromise the decomposing bacteria. The use of washing and cleaning solutions should be kept to a basic minimum in order to achieve optimal decomposition (hint: reduce the amount of solution until you are no longer completely happy with the cleaning result, then gradually increase the amount you use).

5. The daily water consumption should not fall below 80 l/PT.

In households that use drinking water sparingly and heavily reduce their water consumption (to below 80 l/PT), the inflowing wastewater may enter the plant twice as concentrated as normal domestic wastewater. This poses the risk that, even if the plant is in perfect technical and biological working order, the outflow concentration is higher than the limit values stipulated by the water authorities (e.g. COD > 150 mg/l).

6. Supervision of the running-in phase by qualified personnel is advisable.

In the running-in phase, SBR plants should be supervised and, where possible, configured by a specialist company. Building a stable biological function is a prerequisite for ensuring fault-free plant functionality.

7. Help to avoid failures.

If you observe the operational guidelines listed here, you will save unnecessary costs whilst protecting the environment:

- ensure safe wastewater purification by not exceeding the limit values
- lower your costs (consumption quantities and energy consumption of the waste-water treatment plant) by avoiding unnecessary amounts of washing and cleaning agents
- prevent unnecessary start-up costs by avoiding damaging substances
- make sure the system settings are optimal (= less energy consumption) and ensure a long service life through professional maintenance
- longer permeability means a longer service life for the downstream seepage system

3.5 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

3.6 How to identify operational failures and their causes

In addition to the monitoring function by the control unit (see section 5.7 Alarm messages), the basic plant functions must be checked with visual inspections. It is important to be able to recognise unusual water levels:

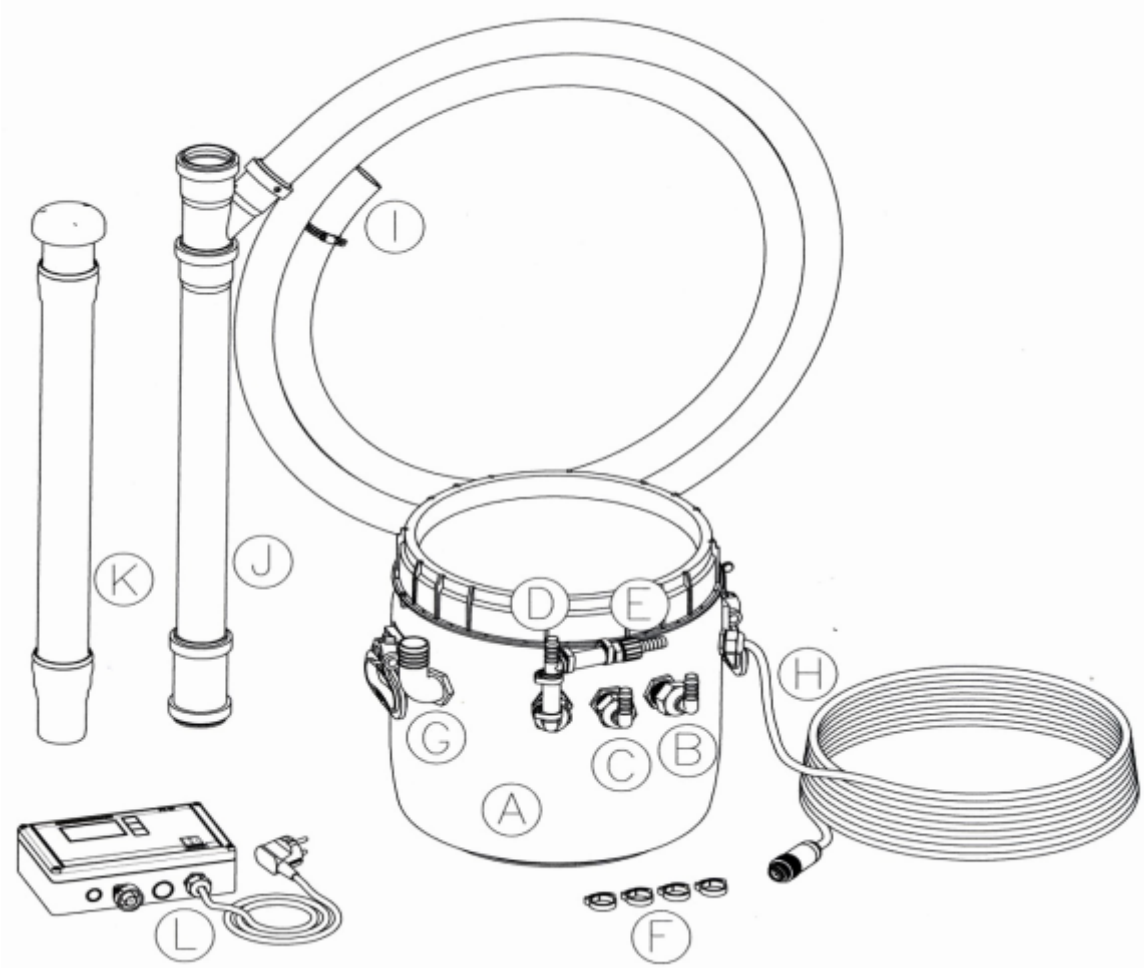
Plant fault	Probable cause	Repair
The plant is full everywhere; the water level in the primary treatment and SBR is so high that the wastewater is flowing out of the emergency over-flow.	The clearwater cannot be transported out of the plant because the receiving water or seepage system will not absorb it.	⇒ Switch on the clearwater lifter and observe whether the wastewater is carried away or whether it flows back into the plant
	The plant is hydraulically overloaded.	⇒ Ask the operator if an unusual amount of wastewater has entered the plant
	The clearwater drainage is not functioning, because	The function of the clearwater lifter can be checked by switching it on in manual mode
	a) the hose is connected incorrectly	⇒ Check that the blue hose is connected correctly
	b) the air lifter is blocked	⇒ Open the air lifter cap and check the air lifter pipe and outlet for damaging substances; if necessary, clean by flushing
	c) the air lifter is not receiving enough compressed air or any air at all	⇒ Check that the compressor is working with optimal performance during other functions, e.g. aeration (check the filter if necessary), and check that the blue hose is not damaged or bent

Plant fault	Probable causes	Repair
The primary treatment is permanently full; the water level is so high that the wastewater is flowing over the emergency overflow and into the SBR chamber The water in the SBR chamber is however at a normal, low level.	The feeding function is not working, because	The function of the feed lifter can be checked by switching it on in manual mode
	a) the hose is connected incorrectly	⇒ Check that the red hose is connected correctly
	b) the air lifter is blocked	⇒ Open the air lifter cap and check the air lifter pipe and outlet for damaging substances; if necessary, clean by flushing
	c) the air lifter is not receiving enough compressed air or any air at all	⇒ Check that the compressor is working with optimal performance during other functions, e.g. aeration (check the filter if necessary), and check that the red hose is not damaged or bent
When the aeration is switched on, **there is an irregular formation of bubbles on the surface of the SBR reactor.**	The aeration is not working, because	The function of the aerator can be checked by switching it on in manual mode
	a) the white hose is connected incorrectly	⇒ Check that the white hose is connected correctly
	b) the disc aerator is installed incorrectly	⇒ Check the position of the disc aerator (that it is the right way around, positioned horizontally and on the floor of the container?)
	c) the disc aerator is not receiving enough compressed air, or any at all	⇒ Check that the compressor is working with optimal performance during other functions e.g. feeding (check the filter if necessary), and check that the white hose is not damaged or bent

4. Installation Instructions

4.1 Checking the system components

Check that you have all system components and that they are in a flawless condition before beginning installation:



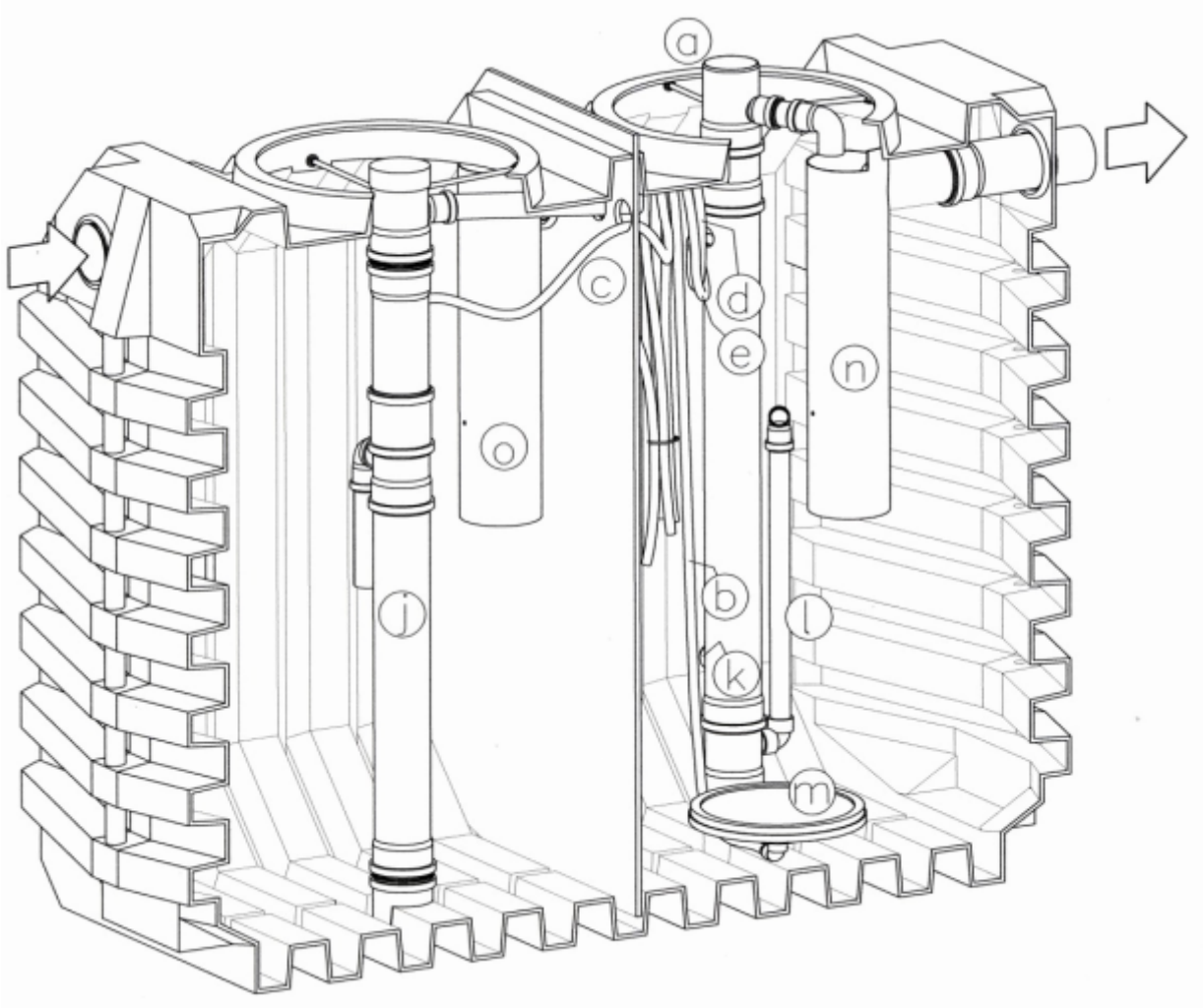
Item	Quantity	Description
A	1 pc	Technology capsule
B	1 pc	Compressed air outlet for aerator (BEL), white
C	1 pc	Compressed air outlet for feed lifter (BSH), red
D	1 pc	Compressed air outlet for clearwater lifter (KWH), blue
E	1 pc	Compressed air outlet for excess sludge lifter (ÜSH), green
F	1 pc	Hose clamp for B-E
G	1 pc	Hose nozzle for supply air hose
H	1 pc	Control cable, grey, with connection plug (15 m or 30 m)
I	1 pc	Supply air hose that can be laid in the ground (pre-installed onto J)
J	1 pc	Air inlet support, lower part (HT)
K	1 pc	Air inlet support, steel, upper part (type LORO)
L	1 pc	Control unit

NOTE: The diagram showing the scope of delivery and the following installation steps apply to the standard version single-container plant. For ***two-container plants*** or ***SOLIDO eco***, please also refer to ***sections 4.5 and 4.6***.

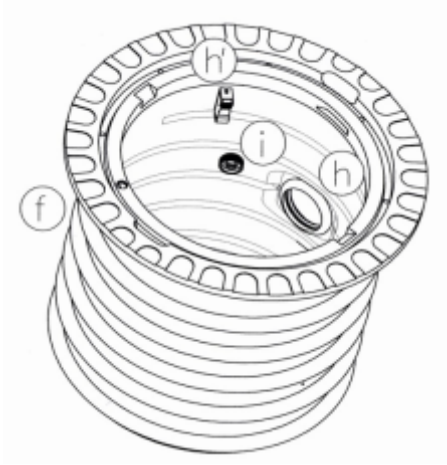
4.2 Checking the system components

With the REWATEC MONOLITH treatment tank, the basic components of the SOLIDO SBR wastewater treatment system are already pre-installed (see figures 3 and 4):

Item	Quantity	Description
a	1 pc	Technology capsule holder
b	1 pc	Compressed air hose for aerator, white
c	1 pc	Compressed air hose for feed lifter (BSH), red
d	1 pc	Compressed air hose for clearwater lifter (KWH), blue
e	1 pc	Compressed air hose for excess sludge lifter (ÜSH), green
j	1 pc	Feed lifter (BSH)
k	1 pc	Excess sludge lifter (ÜSH)
l	1 pc	Clearwater lifter (KWH)
m	1 pc	Disc aerator
n	1 pc	Outflow immersion pipe with sampling container
o	1 pc	Primary treatment immersion pipe



Note: The “Technical Documentation for Underground Container MONOLITH” (attached to the tank separately) is to be observed when installing the treatment tanks.



f	1 pc	VS 60 shaft with pre-assembly
h	1 pc	Connection sealing for cable conduit DN 100
h'	1 pc	Cable holder for control cable
i	1 pc	Connection sealing for supply air hose

IMPORTANT NOTE:

The VS 60 shaft on the SBR chamber can be shortened by max. 10 cm**,** as it needs to be high enough to hold the capsule.

If a shorter installation is absolutely necessary, you will have to select a different version with capsule shaft or an outer column instead of the capsule.

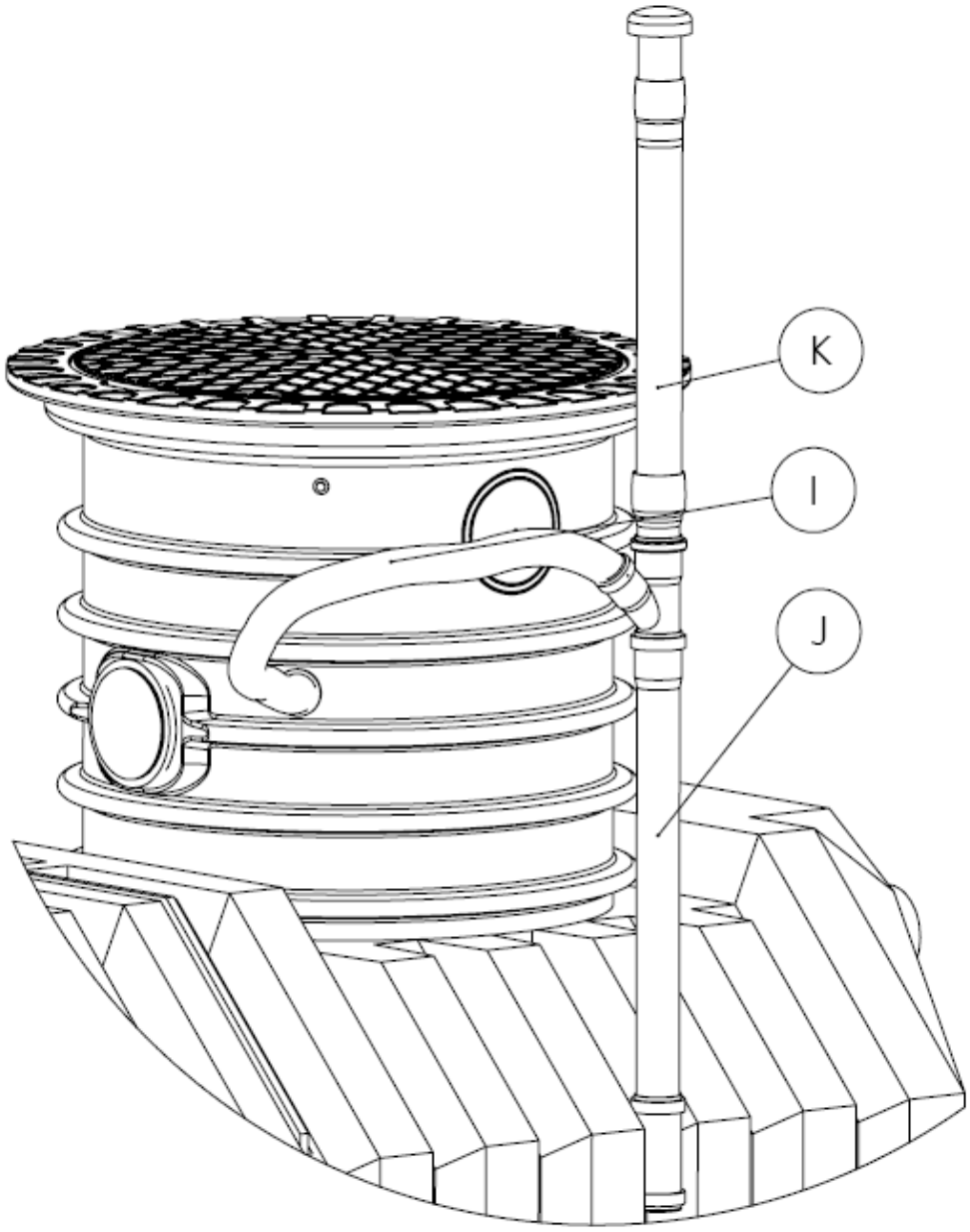
4.3 Checklist for installation preparation

		OK?
1.	Is the control unit located between 10 m and 25 m away from the treatment plant? Is the control unit protected from rain and sun? Is the SOLIDO cable long enough?	☐
2.	Is a 230 V power supply plug with a 30 mA residual-current circuit breaker available?	☐
3.	Is the treatment tank installed according to the installation instructions (inflow depth max. 120 cm below ground surface, the inflow and outflow correctly positioned)?	☐
4.	Is the VS 60 SBR fitted onto the MONOLITH container? If the shaft has been shortened, is this by no more than 10 cm?	☐
5.	Is the outlet pipe from the building connected to the inflow on the plant, and the outflow of the wastewater treatment system connected to the receiving water or seepage system?	☐
6.	Is there sufficient aeration and deaeration in the SBR chamber (roof deaeration or separate aeration and deaeration is available if required)?	☐
7.	Is a cable conduit (DN 70-100 with taut wire, on-site) installed for the SOLIDO cable between the treatment plant and the control unit location?	☐
8.	Are both chambers filled with water (primary treatment ¾ full, SBR ½ full)?	☐

4.4 Installation steps for SOLIDO® single-container plant

4.4.1 Connecting the air inlet supports

1. Push the air supply hose (I) through the seal on the shaft and place the lower part of the air inlet support (J) into position next to the treatment tank (the hose can be extended to a total length of 10 m if required). Make sure that enough hose is left in the shaft so that it can comfortably reach the ground surface.
2. Push the steel upper air inlet support (K) on top.



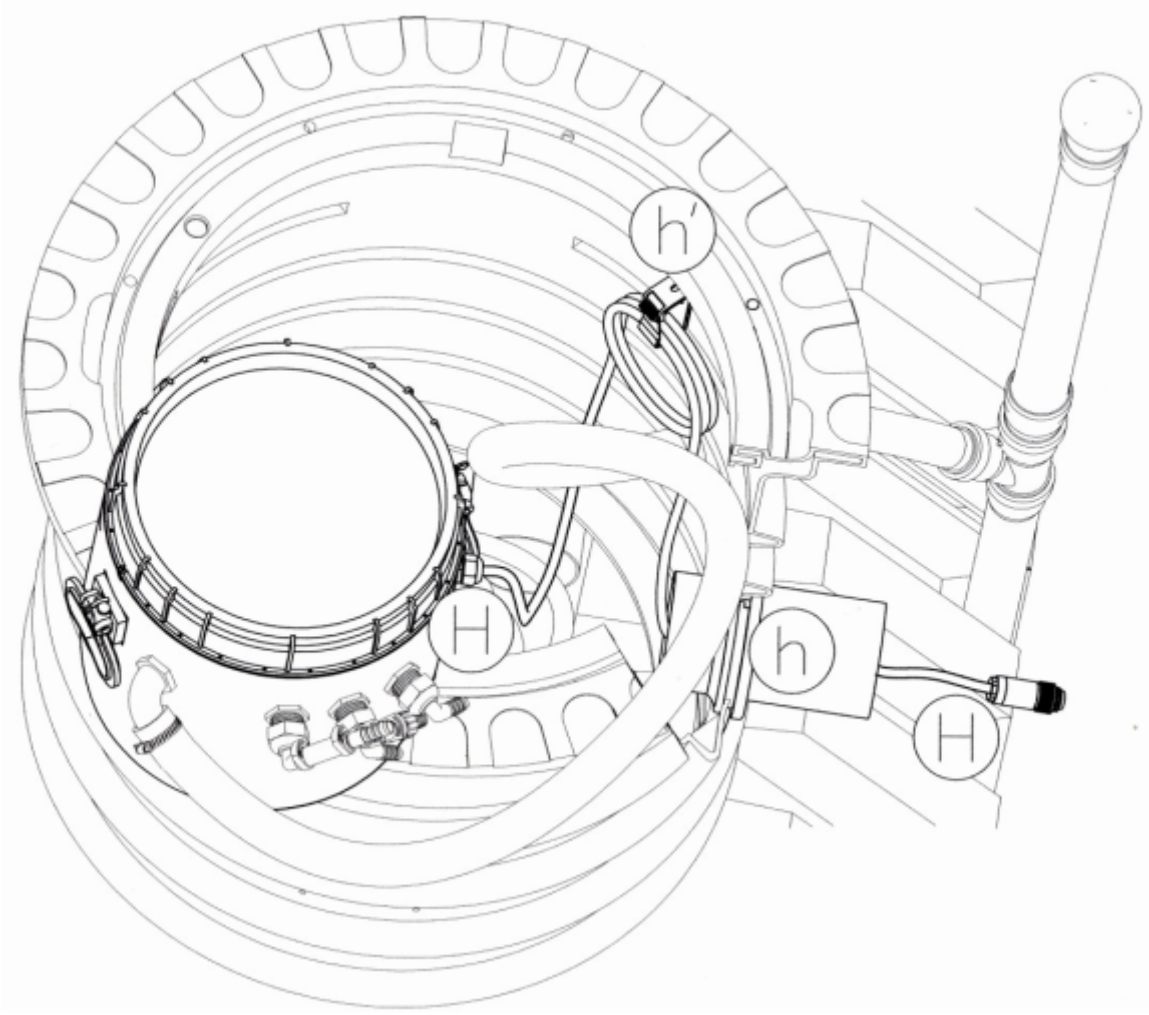
4.4.2 Laying the control cable

1. Place the technology capsule next to the ready and installed treatment tank with shaft, at the same level.

2. Pull the control cable (H) through the cable conduit that is connected to the seal (h) on-site, through to the installation location of the control unit. Whilst doing so, protect the plug from moist or dirt.

3. Hang any excess cable either next to the control unit or in the cable holder in the shaft (h'); note: removing the plug or shortening the cable voids your warranty claim.

4. Seal the conduit so that no unpleasant smells can escape.



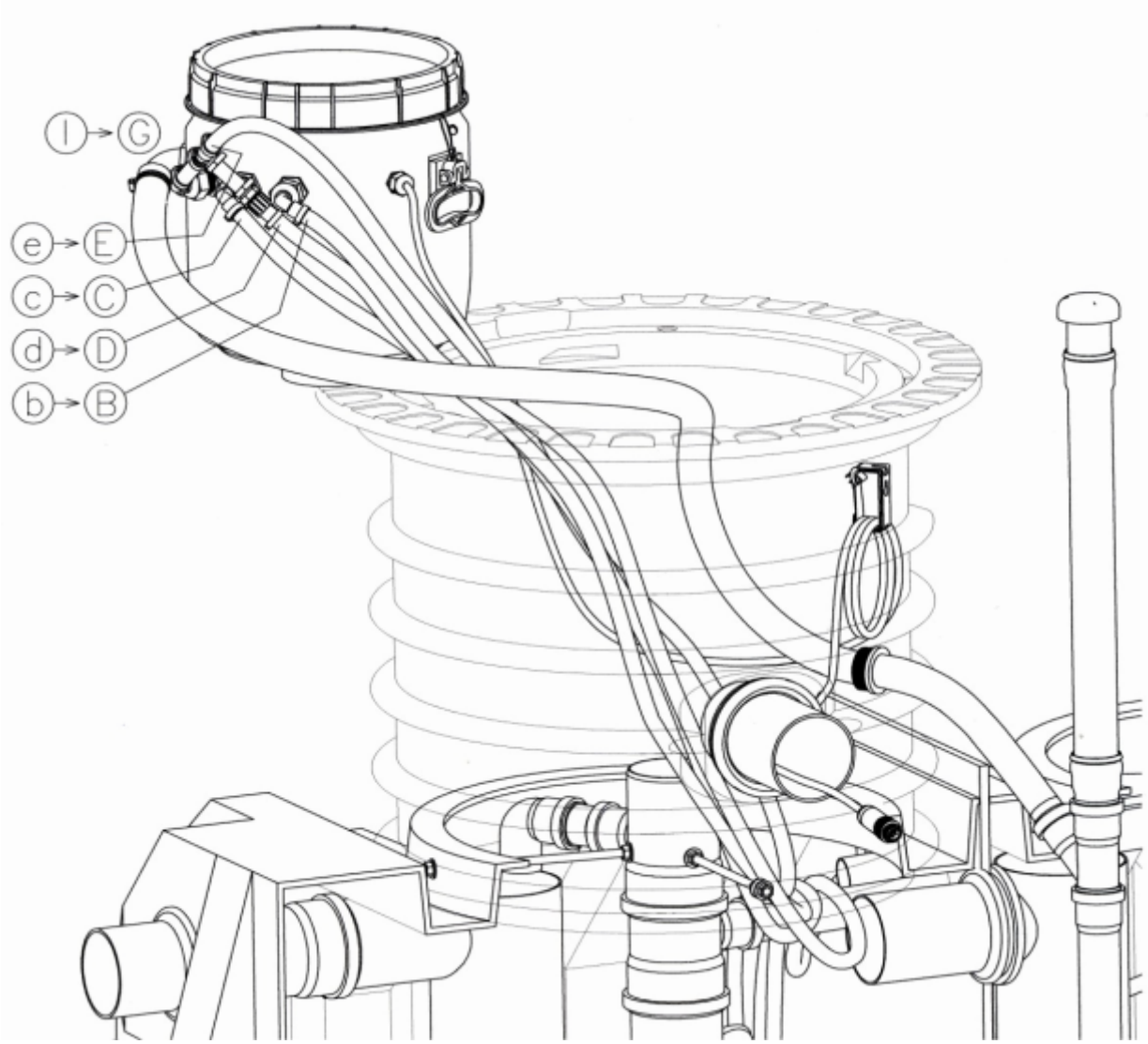
4.4.3 Connecting the technology capsule

1. Remove the supply air hose and the compressed air hoses that are pre-installed in the tank.

2. If necessary, shorten the compressed air hoses to the required lengths
   (note: the length of the hoses are sufficient for installation with 2 shaft extensions on top of one another; with the standard version, shortening the hoses by up to 60 cm is advisable).

3. Attach the hoses to the respective hose nozzles by matching the colours (white, red, blue, green), and you can turn the connections in the capsule in the desired direction whilst doing so.

4. Loosely bundle the hoses using a cable tie, and place them around the capsule.



4.4.4 Inserting the capsule

1. Slightly turn the capsule when lowering it onto the shaft, so that the hoses are placed around the capsule.

2. Carefully place the capsule with holder (A) onto the top end of the clearwater/excess sludge lifter (a) so that the capsule is positioned securely.

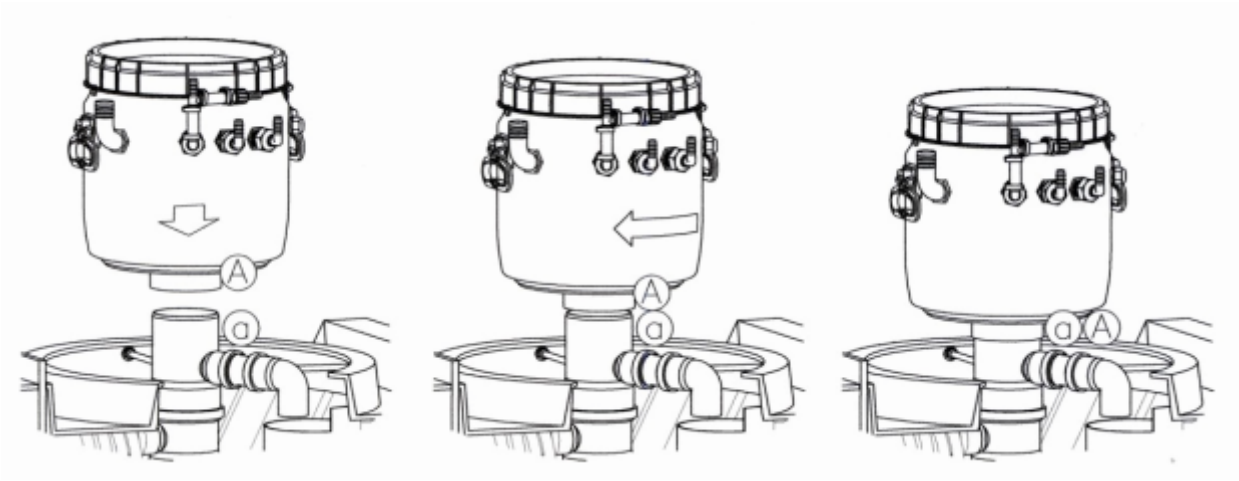


Fig.: Installing the capsule (shown here without dome shaft and hoses)

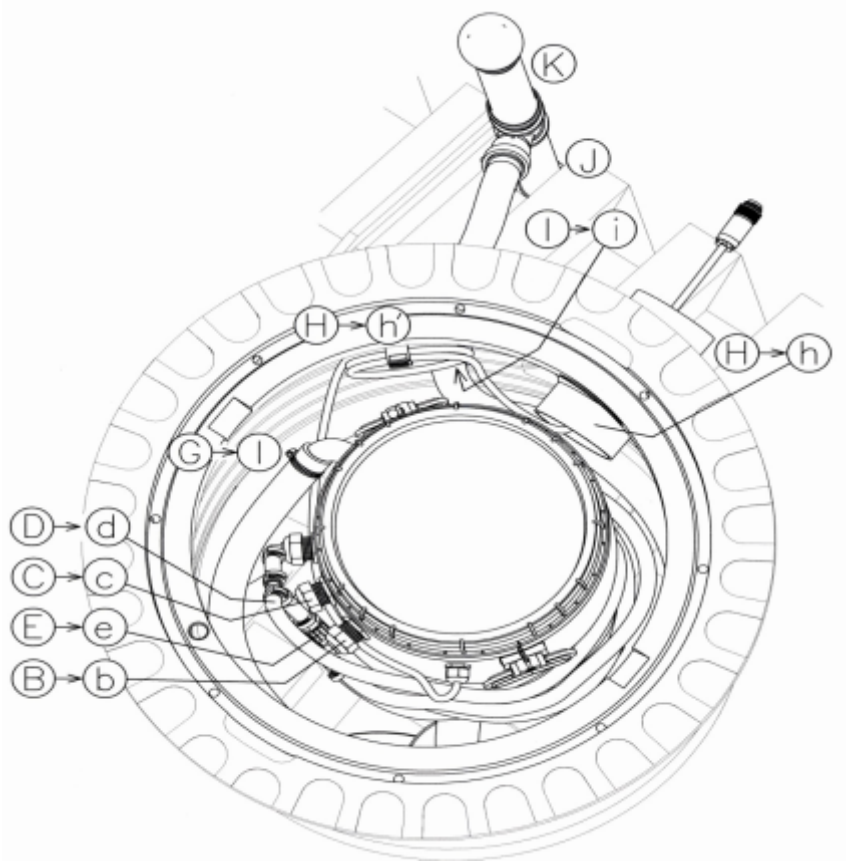


Fig.: Top view of completed installation

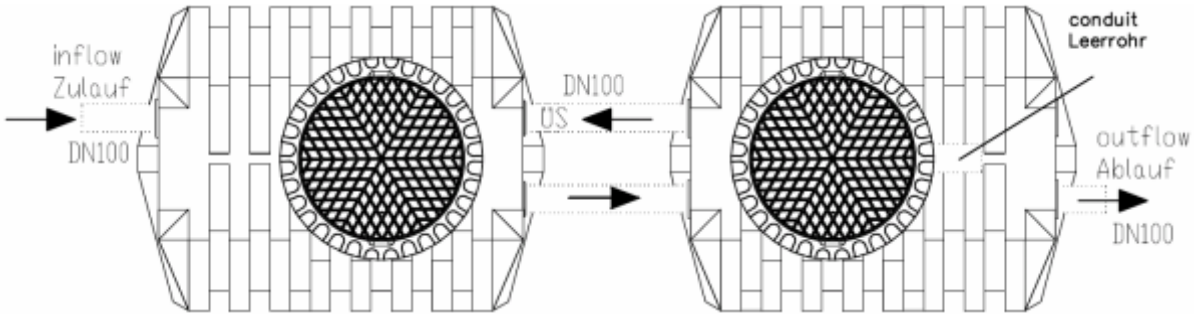
4.5 Additional installation steps for two-container plants

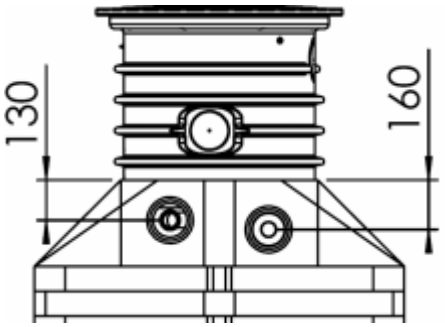
IMPORTANT NOTE:

When installing the two containers in two-container plants, it must be ensured that the containers are positioned at the same height.

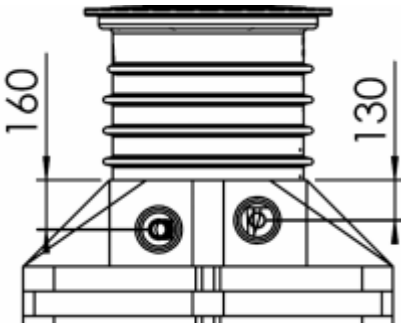
For two-container plants, the following steps must be taken in addition to those already listed above:

1. The primary treatment and SBR treatment tanks must be connected using two underground drainage pipes DN 100 (placed on-site).
2. The two air lifter outflow pipes DN 50 should be removed; these are attached to each of the air lifters in the tanks.
3. The two air lifter outflow pipes should be pushed through the connection pipes and onto the flange of the respective air lifter.
4. The height specifications on-site are such that the feed lifter should have a downward gradient to the SBR reactor, and the excess sludge lifter should have a downward gradient to the primary treatment tank. Check that this is the case.





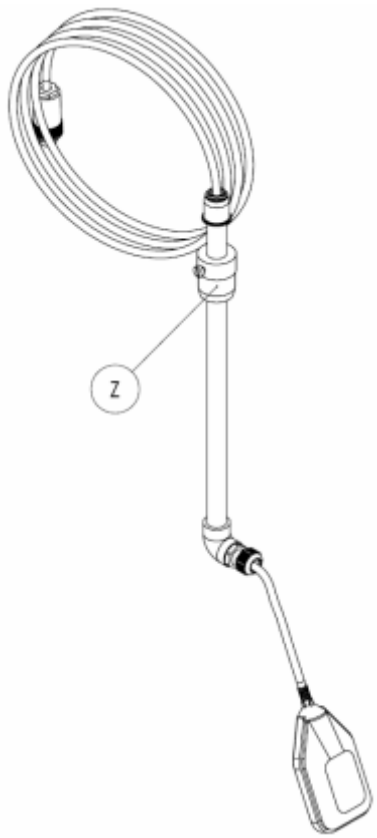
Primary treatment tank with outflow pipe from the feed lifter (BSH)

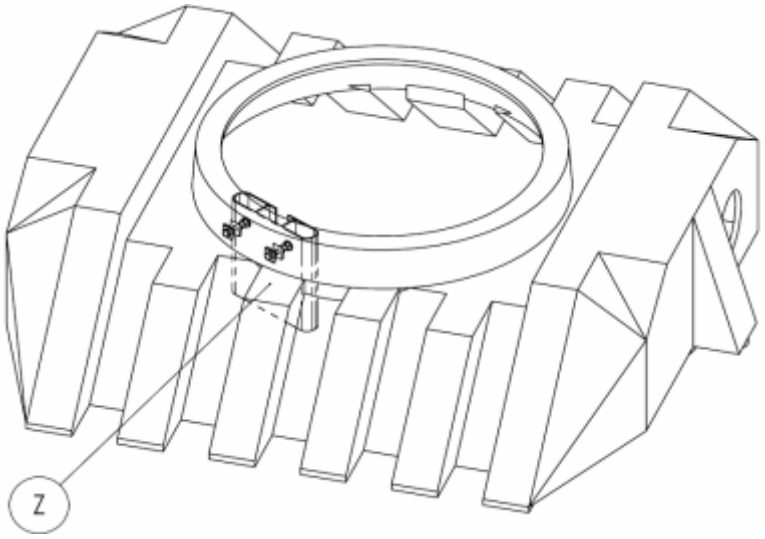


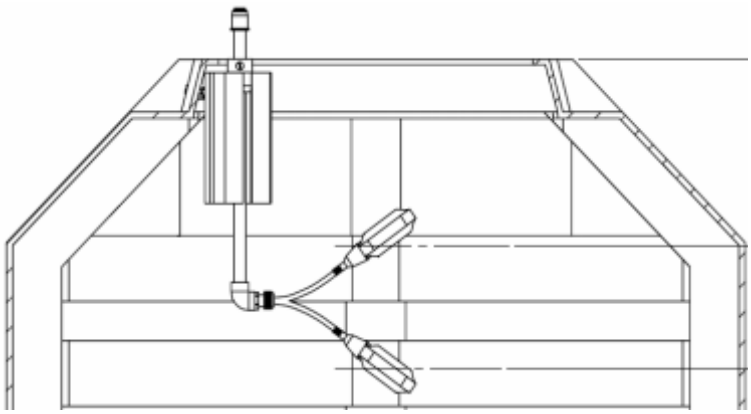
SBR tank with outflow pipe from the excess sludge lifter (ÜSH)

4.6 Additional installation steps for SOLIDO®-eco with float switch

In the SOLIDO-eco version, a float-switch with a guide pipe is attached to the capsule. Before inserting the capsule (see installation step 4.4.4), the switch must be passed through the guide slot (Z) until the aluminium holder (z) is secured at the top of the slot under tension.







NOTE:

With plants that are subject to severe hydraulic underloading (e.g. if a 8 PT plant is run with only 4 PT), the KWH_{normal} parameter should be increased by 50%.

4.7 Information on the type plate

The type plate with the year of manufacture is located on the cover of the SOLIDO capsule; the serial number is engraved on the bottom of the capsule. The following values are to be added by the installation company. Refer to the corresponding DIBt approval for the plant (included with every plant) for the values of the different volumes. Add the following information:

- Mark your plant type (information can be found in the delivery documentation)
- VS: volume of the sludge reservoir
- VP: volume of the buffer
- VR(SBR): volume of the SBR reactor

4.8 Start-up protocol

The operator must be informed of the operator's duties after start-up, and be made familiar with the operating guidelines in accordance with chapter 2. The operator should be given this instruction manual. The operator's signature is required as confirmation of receipt of this manual and the commissioning certificate. We recommend using the reverse side of the "Master Data Sheet" to write down any important information (serial number, delivery note number) for later use in warranty claims, for example.

4.9 REWATEC plant configuration and important original spare parts

The SOLIDO small wastewater treatment plant is delivered by REWATEC with the system components described above. The use and installation of the delivered system components are part of the plant configuration specified by REWATEC. Versions that deviate from this are not permitted (or without gaining authorisation from the REWATEC specialist service at +49 180 500 6037) and effectively void any warranty claims. To retain the right to claim warranty, only the following original spare parts may be used for repair work:

Item no.	Description
KSML3011-5011 / 0015-5000	MONOLITH treatment tank, prepared for SOLIDO
ROSO1045/ ROSO1046	SOLIDO technology capsule LA45-B with 15/. 30 m cable
ROSO1047/ ROSO1048	SOLIDO technology capsule LA45-B with 15/. 30 m cable with float switch
ROSO1080/ ROSO1081	SOLIDO capsule LA80-B with 15/. 30 m cable
ROSO1082/ ROSO1083	SOLIDO capsule LA80-B with 15/. 30 m cable with float switch
ROFE0015/ROFE0284	15/ 30 m Ölflex/helu control cable 7-wire, with plug (pre-installed)
ROFE0595	SOLIDO air inlet supports
ROEL0375 / 0377	Medo Nitto compressor LA-45B/ LA-80 B
ROEL0373	3/2 solenoid valves DN 13, 3/8 female thread, 26VA, IP54
ROSO2020 / (ROSO2010)	FS 20 control unit/(FS 10 control unit)

5. Operating Instructions for the FS20 Control Unit

SOLIDO is delivered with the FS20 control unit as standard; if you are using a different unit type (FS10), refer to the instructions included with its delivery.

Symbols on the control unit:

Caution: Electrical units are installed, follow safety instructions

Note: Read technical documentation

Caution: Dispose of at a suitable collection point, not with household waste

Caution: Disconnect from the mains before carrying out repair work

5.1 Important safety instructions

- **Never disconnect from the mains during normal operation.** The bacteria in the small wastewater treatment plant must have a regular supply of oxygen. For this reason, the power supply to the treatment plant should not be interrupted, even during longer periods of absence.
- **Before opening the control unit or carrying out repair work on the plant, it must be disconnected from the mains.**
- Connection of the small wastewater treatment plant to the mains should be carried out by a specialist electrical company only.
  --> Provide a 30 mA residual-current circuit breaker
  --> Check the correct operation of the mains connection **(protective earth conductor intact?)**
- **Installation and maintenance work should be carried out by a recognised specialist company only.** The proper operation of the small wastewater treatment plant must be checked regularly (twice a year, ideally) as part of a maintenance contract.
- A small wastewater treatment plant is a stationary electrical system. Like all electrical systems of this type, its safety should be tested every second year by an electrical technician according to VDE 0701-0702. Recommended checks are: the measurement of the insulating resistance, protective earth conductor resistance and the replacement leakage current.

5.2 General description

The FS20 was developed for implementation with SOLIDO® small wastewater treatment plants from REWATEC. It has a graphical display and three operating buttons. The unit can be used to control the following types of plant:

- SOLIDO plants (basic version)
- SOLIDO plants with float switch acting as a sensor for underload recognition according to requirement (eco version)
- FLUIDO (supported with software version 2.00 and above)

SOLIDO plants with the FS20 have constant 4 cycles per day with the exact starting points 02:00, 08:00, 14:00 and 20:00. The following terms and abbreviations are used:

Feeding:	Divided into 1st feeding, 2nd feeding, 3rd feeding
Pause:	Break between the intermittent aeration intervals
Aerator:	The aeration process that occurs during the cycle
Sedimentation phase:	Min. 60-minute sedimentation phase at the end of a cycle
Clearwater drainage:	Clearwater is drained
Compressor:	The compressor in the capsule as an aggregate
BEL:	(Disc) aerator
BSH:	Feed lifter
KWH:	Clearwater lifter (the excess sludge lifter runs parallel)
SWS:	Float switch (sensor for underload recognition, SOLIDO-eco)

5.3 Installation

The housing is mounted to the wall using two screws and the two fastening brackets included in the scope of delivery. The corresponding spacers can be glued to the rear side of the housing in the lower section.

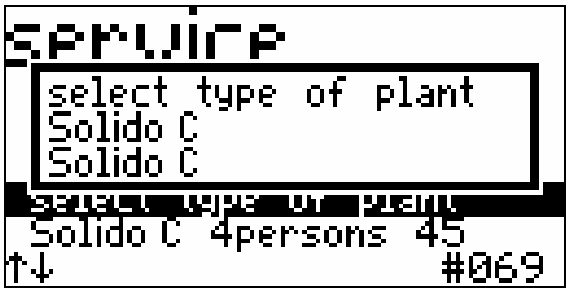
- When installed outdoors, the unit should not be positioned in direct sunlight or where it will receive direct rainfall. However, installation in a covered outdoor area (e.g. under a carport) is permitted.
- The unit can be operated in a temperature range of -10°C to +50°C.

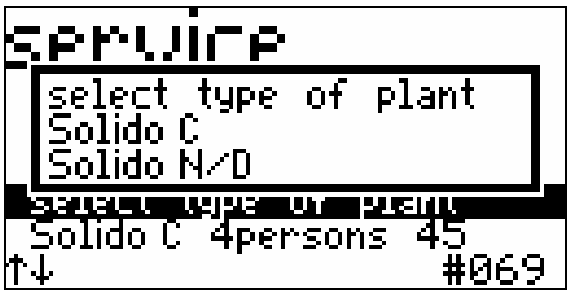
5.4 Start-up

Important plant parameters are set during start-up. All of the three-line pop-up menus have the same structure:

First line: Title (which parameter is being set?)
Second line: Current setting
Third line: New setting if required (select using arrow buttons)

Example:

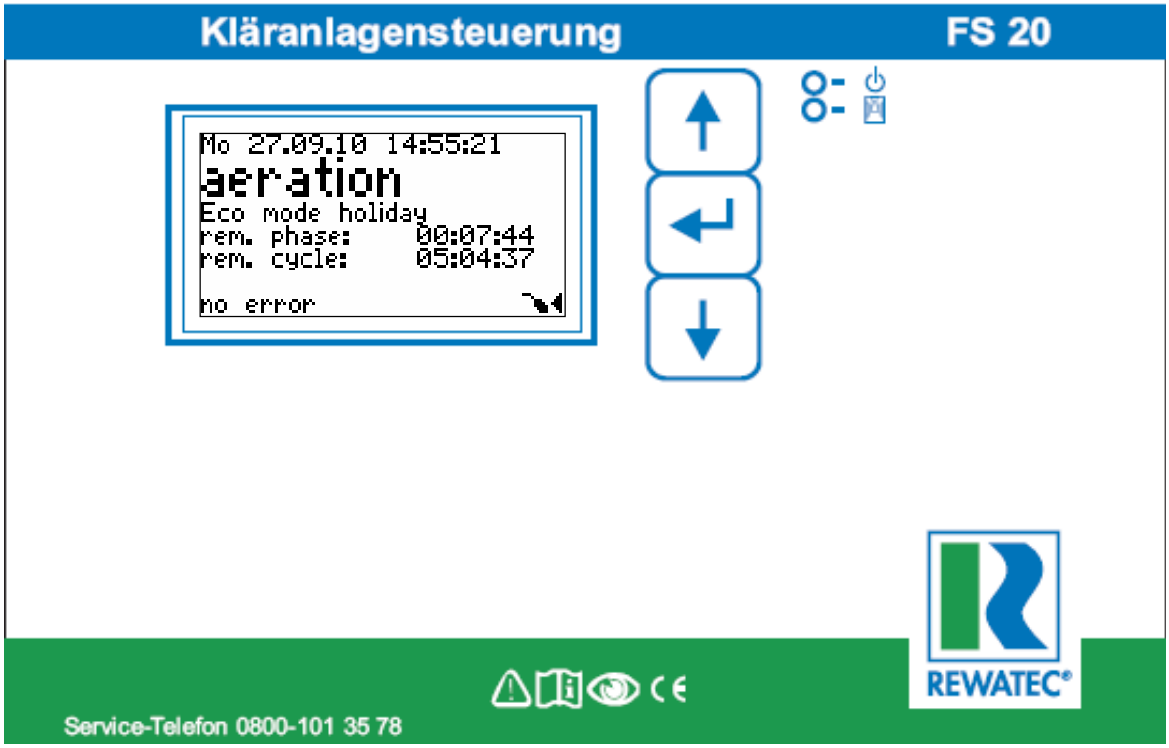




The following parameters are requested in the following order, using the same logic:

- **Language**
- **Set time**
- **Password**: 7682 fix (valid for start-up only)
  Alternative: REWATEC service password according to the "standard" formula
- **Type of plant (filtration level)**:
  SOLIDO® C vs. SOLIDO N/D (or FLUIDO® C vs. FLUIDO® N/D with version 2.00 and above)
- **Number of persons**: select a number between 2 and 14 PT (8 PT and above only in increments of 2)
- **Compressor**: 45, 80 or 120 l/min?
- **SWS (float switch)**: Yes/no?
- **Test mode**: The control unit switches on each of the appliances in turn; press a button to end the test run
- **Settings ok**: Yes/no?

The basic screen then appears and the control unit starts the first cycle:



Green LED, top: indicates operational readiness (connected to the mains)
Red LED, bottom: flashes to indicate an alarm message

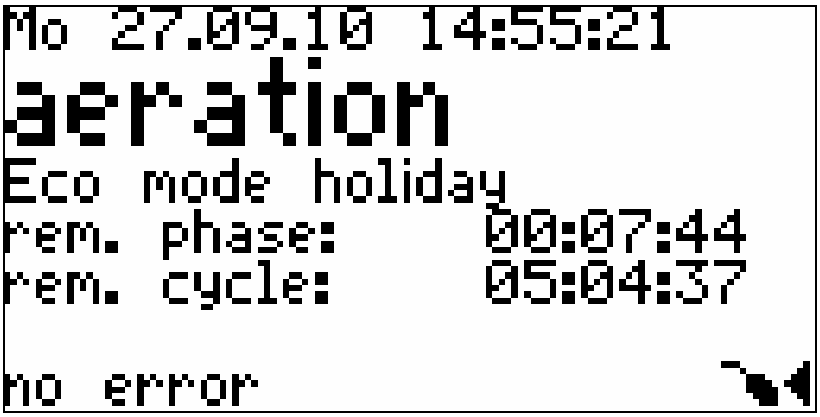
5.5 Power failure recognition

The control unit has a power failure recognition function. If the power supply in the incoming power connection is interrupted, the red LED flashes and an audible alarm sounds intermittently. Switch off the alarm and the LED completely by pressing and holding the middle button for longer than six seconds.

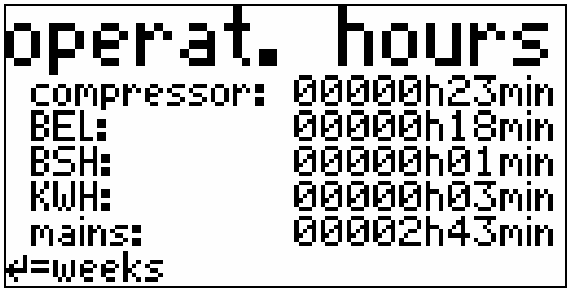
5.6 Operation/menu structure

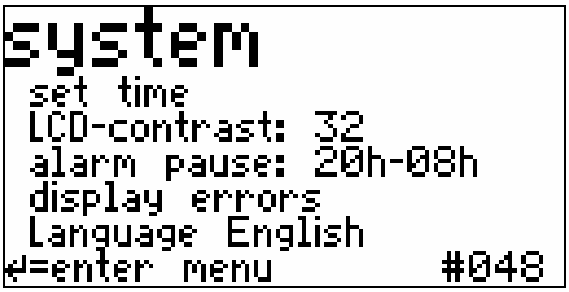
5.6.1 Basic screen display

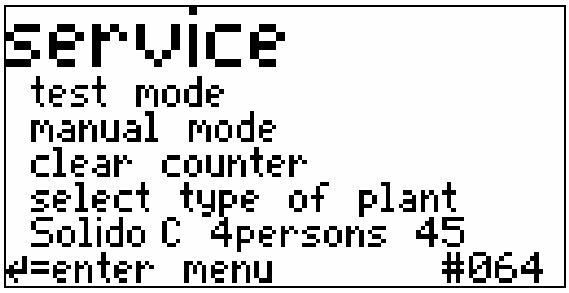
Basic screen display: date, current cycle activity, cycle type, remaining time, errors

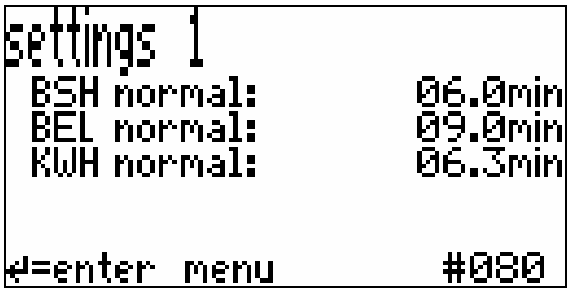


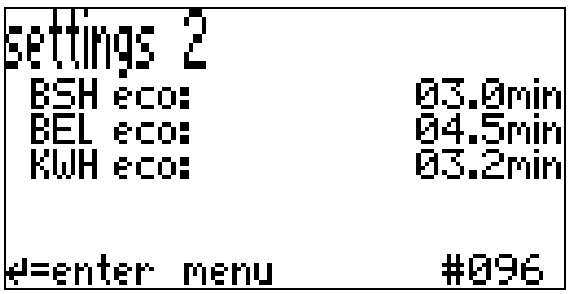
The basic screen is one of a number of layers of the same level which form the menu; you can navigate between the layers using the arrow buttons.

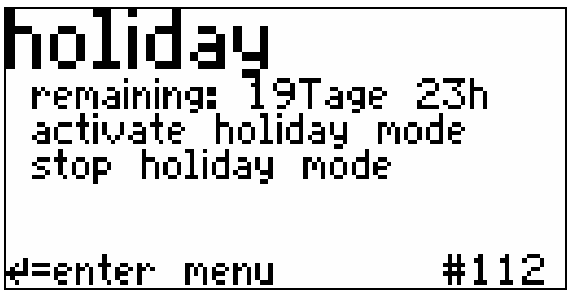




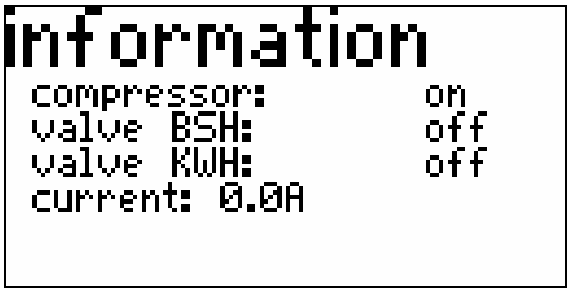








(Max. 30 days can be set)



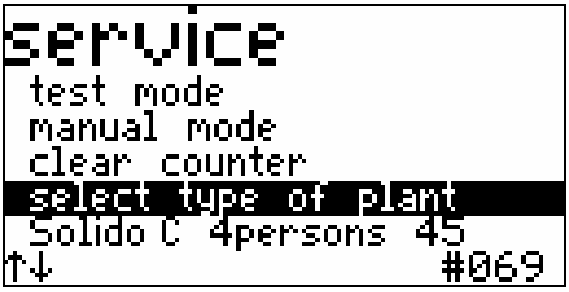
Press the middle button to move down a level to the subitems in a menu. You can read the status on the subitems which are highlighted in black. The arrow buttons now allow you to select the subitems of a menu. If none of the subitems are highlighted in black, you have returned to the level above; here, the arrow buttons allow you to navigate between the main menu items. The numbers at the bottom right (# 144) indicate the menu field (for internal use).

5.6.2 Application example in the password-protected area

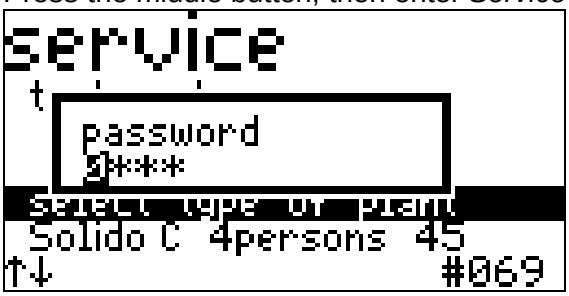
To change the plant type:

A SOLIDO plant of filtration level C with 4 PT and a 45 l/min compressor is to be changed to filtration level N/D with 7 PT, an 80 l/min compressor and an additional float switch:

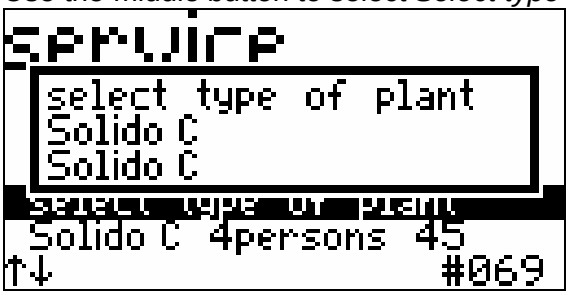
- Select *Service* in the main menu
- Press the middle button and then use the arrow buttons to navigate to *Select type of plant*



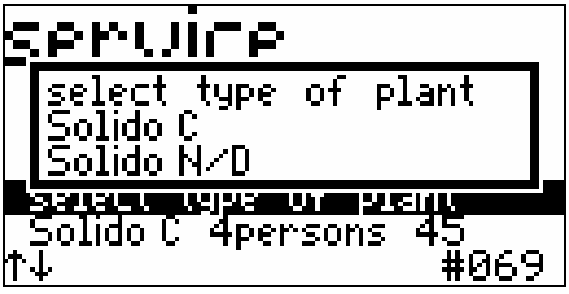
- Press the middle button, then enter *Service password*



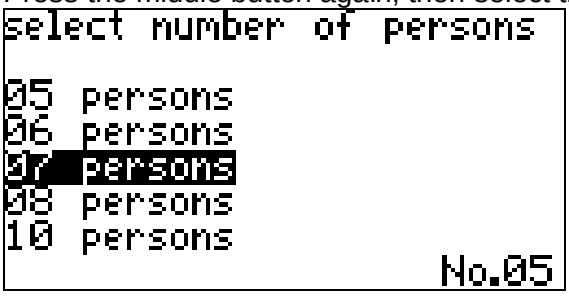
- Use the middle button to select *Select type of plant* again



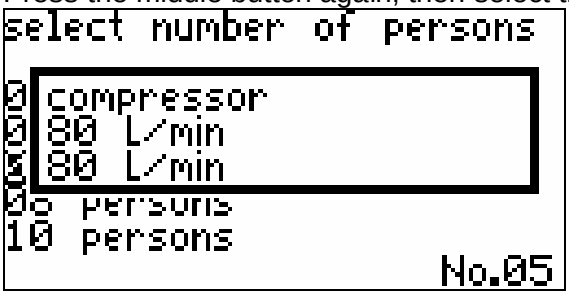
- Use the arrow button to switch from Solido C to Solido N/D



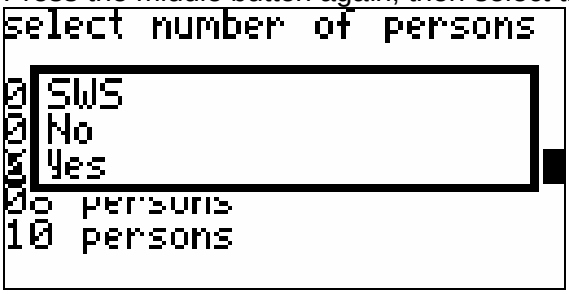
- Press the middle button again, then select the PT number (number of persons).



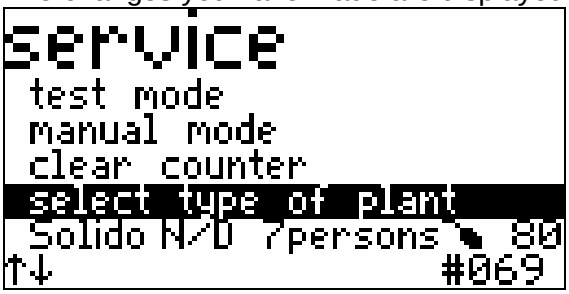
- Press the middle button again, then select the compressor



- Press the middle button again, then select the float switch

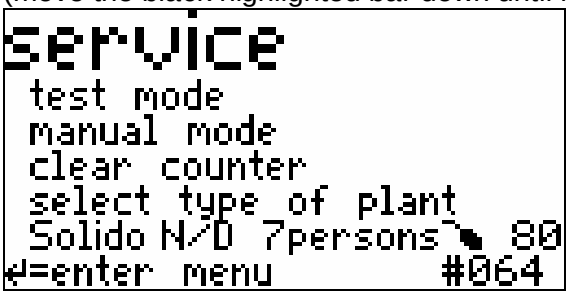


- Press the middle button again to select the final menu item, “Select type of plant”.
  The changes you have made are displayed in the last line.



  The plant type that is now selected is a Solido N/D 7 PT with float switch and an 80 l/min compressor.

- Press the downward arrow button twice to return to the top menu level
  (move the black highlighted bar down until it is no longer visible).



5.7 Alarm messages

In the event of an alarm, **an acoustic signal sounds and the red LED** starts to flash. SOLIDO plants have **two different alarm messages**, each of which is shown in the bottom line of the basic screen:

- **Compressor failure** (the minimum power requirement for the compressor has not been met: power consumption target values for LA-45B: 0.4 A; LA-80B: 0.7 A, LA-120B: 1.0 A; +/- 0.1 A)
- **High water** (only occurs in the "eco" version, when the lower switch point of the float switch has not been reached twice)

Measures to be taken when an alarm occurs:

- Middle button is pressed once (performed by the operator)
  → Warning signal is stopped permanently
  → Red LED continues to flash
  → Error message remains in the bottom line of the basic screen
  → Alarm is not issued again

- Middle button is pressed again (to be performed by a specialist company only)
  → Alarm is deactivated (until it is entered into the fault memory)
  → Red LED stops flashing
  → Error message at the bottom of the basic screen disappears
  → The plant is now "re-armed". An alarm is issued again at the next available opportunity if the cause of the error has not been eliminated

An interruption in the power supply will also deactivate the alarm. The FS20 control unit with software version 1.01 has a ring memory for 40 error and event messages (e.g. also NETWORK ON/OFF).

Alarm relay (for an external signaller)

The control unit has an alarm relay, whereby contacts 11 and 12 of the relay can be connected to an external signalling device (e.g. warning light). Ensure that the external device has a separate power supply so that a power failure in the control unit can also be signalled. When an alarm sounds or there is a power failure, contacts 11 and 12 are connected to one another. Finally (to be performed by a qualified electrician only), the pre-punched opening on the housing is opened and the cable is expertly led through with a PG gland.

5.8 Service and maintenance (specialist companies only)

Replacing the fuse:

If the **control fuse is released**, it should only be replaced by **a microfuse of the following type**: **T3.15 AH 250 V** (time-delay glass tube microfuse 3.15 A; 5 x 20 mm with a high breaking capacity (opaque) according to EN 60127-2/III.

Changing the battery

No maintenance of the batteries is required; however, if the alarm duration begins to decrease, we recommend replacing the accumulators with new ones (Ni-MH size AA, capacity 1800 mAh) **Only rechargeable accumulators are permitted; no normal batteries should be used.**

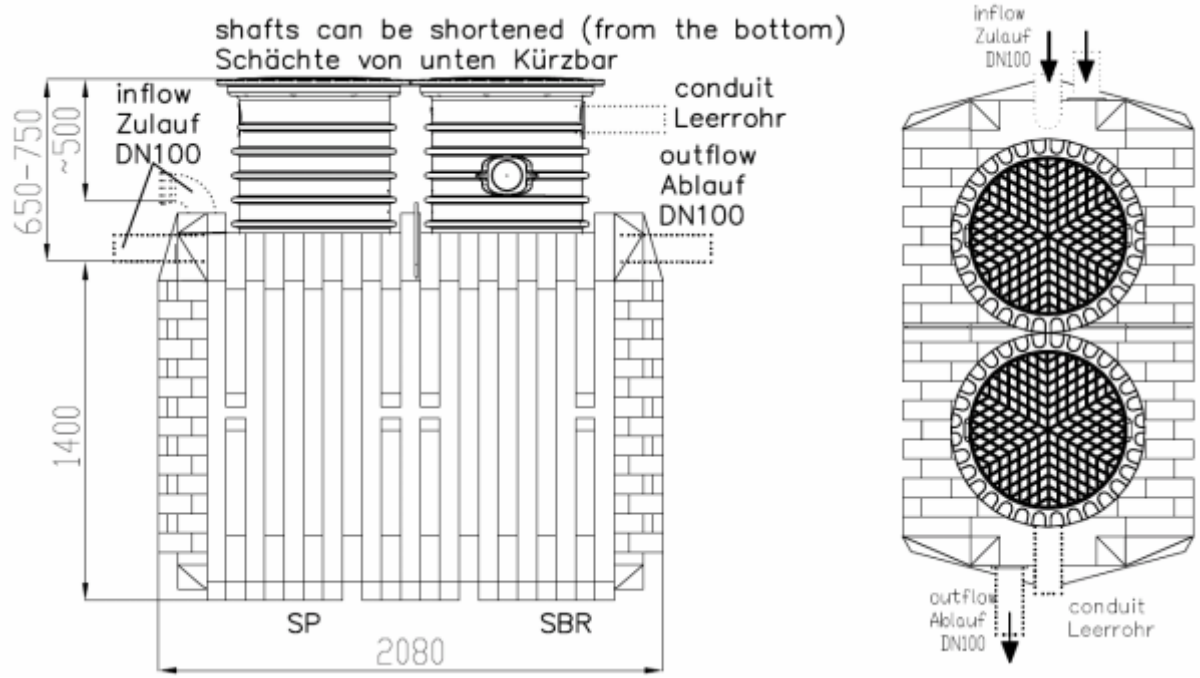
6 Appendix

6.1 Technical data for the MONOLITH treatment tank

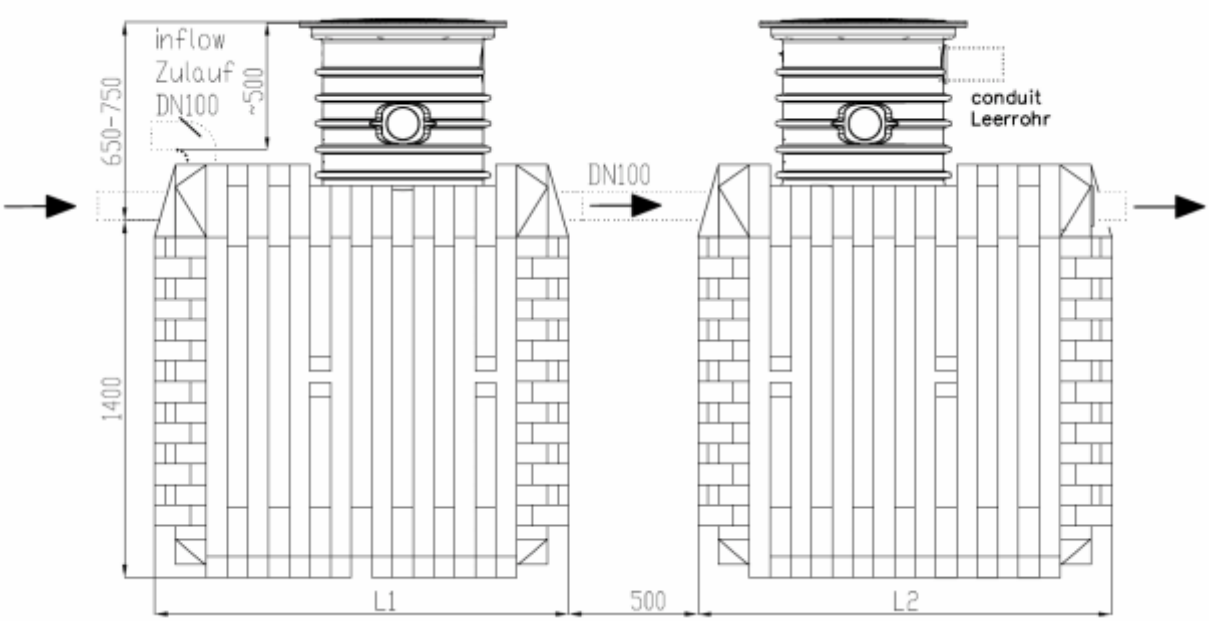
The technical data for all tank combinations are given below.

The diagram also includes the inflow measurements to give you the option of blocking the factory-installed side inflow and instead installing an inflow with a 90° bend (DN 100) and a special seal from above.

NOTE: The SBR shaft can be shortened by max. 10 cm.



Dimensions of SOLIDO single-container plants (standard version)					
Description	**Order no.**	**Length***	**Width**	**Height (incl. VS60 shaft)**	**Weight**
SOLIDO 4 E-30, 3,000 l (separating wall)	KBMS3011	208 cm	120 cm	215 cm	200 kg
SOLIDO 5 E-35, 1 x 3,500 l (separating wall)	KBMS3511	240 cm	120 cm	215 cm	220 kg
SOLIDO 6 E-50, 1 x 5,000 l (separating wall)	KBMS5011	320 cm	120 cm	215 cm	280 kg



Dimensions of SOLIDO two-container plants (standard version)					
Description	**Order no.**	**Length***	**Width**	**Height (incl. VS60 shaft)**	**Weight**
SOLIDO 9 E-30/30, 2 x 3,000 l	KBMS3030	2 x 208 cm	120 cm	215 cm	2 x 180 kg
SOLIDO 11 E-35/35, 2 x 3,500 l	KBMS3535	2 x 240 cm	120 cm	215 cm	2 x 220 kg
SOLIDO 14 E-50/50, 2 x 5,000 l	KBMS5050	2 x 320 cm	120 cm	215 cm	2 x 280 kg

Dimensions for SOLIDO plus two-container plants with a large sludge reservoir					
SOLIDOPlus 5 E-30/15, 1x 3,000 l, 1x 1,500 l	KBMS3015	208 cm + 128 cm	120 cm	215 cm	200 kg + 140 kg
SOLIDOPlus 7 E-35/20, 1x 3,500 l, 1x 2,000 l	KBMS3520	240 cm + 160 cm	120 cm	215 cm	220 kg + 160 kg
SOLIDOPlus 8 E-50/30, 1x 5,000 l, 1x 3,000 l	KBMS5030	320 cm + 208 cm	120 cm	215 cm	280 kg + 200 kg

6.2 Technical data for control unit

Housing material:	Polycarbonate for wall mounting
Dimensions:	200 x 120 x 60 mm
Type of protection:	IP54
Supply voltage:	230 V AC, 50 Hz
Power consumption:	Max. 250 VA (operation with ROSO1080-1083 technology capsule)
Control:	Time-controlled with real time clock (with automatic daylight saving time adjustment)
Inputs:	1 float switch input 230 V AC
Outputs:	3 relay outputs 6 A
Alarm output:	1 alarm relay (pre-stamped in housing)
Interface:	Internal RS232 interface
Current measurement:	Provided
Power failure monitoring:	Provided
Connection technology:	1 x 7-pin flange socket (binder)
Mains voltage via shock-proof plug:	3 x 1.0 mm², 1.5 m long
Microfuses:	2x **T3.15 AH 250 V** (time-delay glass tube microfuse 3.15 A; 5 x 20 mm with a high breaking capacity (opaque) as a joint fuse for all outputs (L/N)
Sound level:	Max. 57 dB(A) when the acoustic alarm is sounding at a distance of 1 m

Ambient conditions/other:

Permitted ambient temperatures:

Operating temperature:	Unit function: −20°C...+50°C, display: 0°C...+40°C
Storage temperature:	−25°C...+60°C
Air pressure:	During operation and during storage 80 kPa to 106 kPa
Relative humidity:	max. 75% rH (non-condensing) permitted
Ice formation:	Not permitted
Air and creepage distances:	According to DIN EN 61010 for the following categories: Rated voltage: 230 V, material group: 3a

6.3 Technical data and structure of the SOLIDO capsule

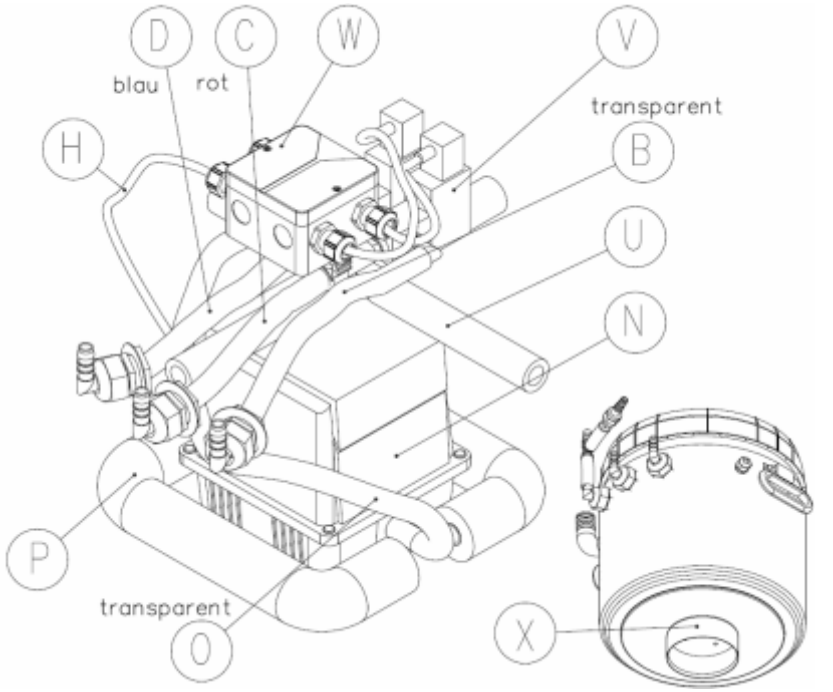
External dimensions of technology capsule: 340 x 340 x 358 mm (L x W x H)

Material:	HDPE
Approval:	UN / 1H2 / X 38 / S
Protection class:	IP54
Relative humidity:	Max. 95% rH (condensing) permitted
Sound level:	Max. 35 dB(A) at a height of 1.50m directly above the cover of a small wastewater treatment plant installed in the ground
Solenoid valves:	2x 3/2-way solenoid valves, DN 13, 3/8“ female thread, IP54

Installed compressor:

Model	**LA-45B**	**LA-80B**	**LA-120B** *(not in capsule)*
Operating pressure	110 mbar	150 mbar	180 mbar
Applicable pressure range	50-180 mbar	100-200 mbar	100-250 mbar
Air feed rate at operating pressure	45 l/min.	80 l/min.	120 l/min.
Energy consumption	47 W	86 W	130 W
Weight	3.0 kg	5.3 kg	9.4 kg
Dimensions	207x182x205 mm	305x214x188 mm	408x210x232 mm
Protection class	IP55	IP55	IP55

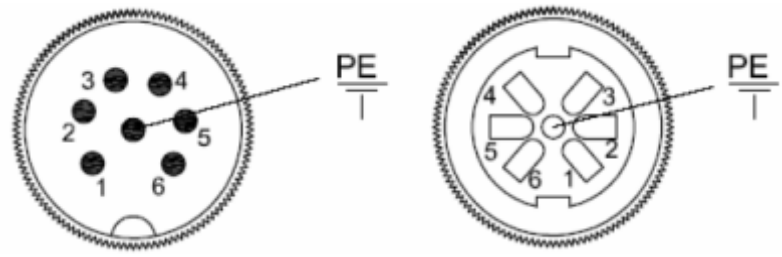
For additional information, refer to the attached document “Operating Manual for MEDO LA- Air Blower” (DOKK5106 190510 TD Nitto Compressor Series A).



B	Pressure hose BEL (transparent)
C	Pressure hose BSH (red)
D	Pressure hose (blue)
	KWH / ÜSH
H	Control cable
N	Compressor
O	Pressure hose output (transparent)
	Compressor
P	Compressor protection
U	Supporting crossbar for valve block
V	Solenoid valves
W	Junction box
X	Capsule holder

Following repair and maintenance work, make sure that the inner structure of the capsule is restored to its original state according to the diagram above.

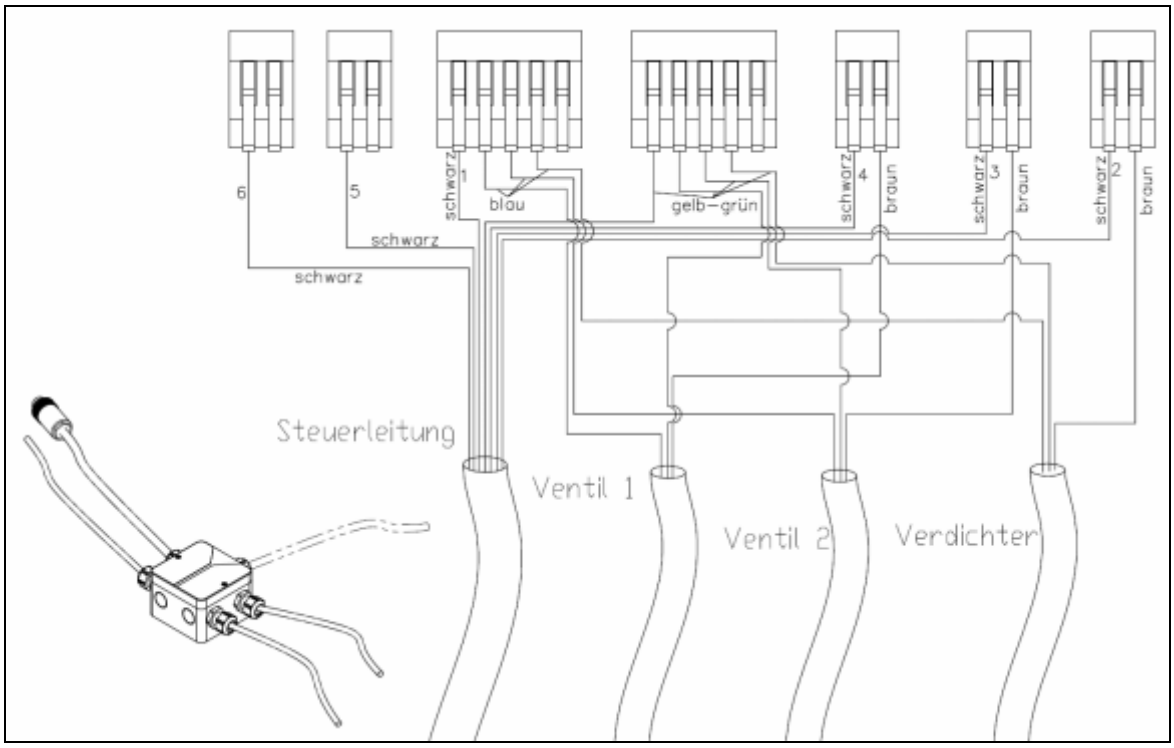
Wire configuration/terminal scheme for SOLIDO



Plug pins Screw connection on plug

Aggregate	Function	Plug pin no.
Compressor, valve 1, valve 2, float switch	PE	PE
Compressor, valve 1, valve 2	N	1
Compressor	L	2
Valve 2 (BSH)	L	3
Valve 1 (KWH)	L	4
Float switch	COM	5
Float switch	NO	6

Terminal scheme for junction box:



CE EC declaration of conformity

REWATEC®

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

Dokument: 800 1776 060910

CE

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:

……

(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°C)

Treatment capacity:

……

- 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 m³/d to 2.1 m³/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

7. Operations Logbook for SOLIDO®

Service company:

	Operating hours (monthly check)				Comments/ specific incidents
Date	**Total running time compressor [h:min]**	**Aerator BEL [h:min]**	**Feed lifter BSH [h:min]**	**Clearwater lifter KWH [h:min]**	**In/outlets ok? Sludge removal? Maintenance, power failure, errors, sludge removal etc.**

	Operating hours (monthly check)				Comments/ specific incidents
Date	**Total running time compressor [h:min]**	**Aerator BEL [h:min]**	**Feed lifter BSH [h:min]**	**Clearwater lifter KWH [h:min]**	**In/outlets ok? Sludge removal? Maintenance, power failure, errors, sludge removal etc.**

	Operating hours (monthly check)				Comments/ specific incidents
Date	**Total running time compressor [h:min]**	**Aerator BEL [h:min]**	**Feed lifter BSH [h:min]**	**Clearwater lifter KWH [h:min]**	**In/outlets ok? Sludge removal? Maintenance, power failure, errors, sludge removal etc.**

Master Data Sheet for your REWATEC Small Wastewater Treatment Plant

You can use this sheet to keep a record of important technical details about your small wastewater treatment plant. With these details, your maintenance service company or your REWATEC service can provide quick assistance at any time.

Basic details:

Plant type: _____

_____

REWATEC order or delivery note number: _____

Or: Delivery date and dealer: _____

SOLIDO series no. (see bottom of capsule): _____

Control unit series no.: _____

Software version of control unit: _____

Date of start-up: _____

Maintenance carried out by: _____

Maintenance frequency: O 2 x per year

The team at your side

Innovation and cutting-edge technology form the foundations of our success. In addition to the high quality of our products, we stand out for our reliability and outstanding service.
For what are technical products without the people that make them? Our highly competent and committed employees are dedicated to providing you with the best advice when it comes to rainwater and wastewater technology so that you are completely satisfied with our service.

We are aware of our responsibility towards society and the environment and act accordingly.
We are therefore particularly proud of our awards for

TOP Employer and as a

Leader in Business Ethics.

We are happy to help – feel free to contact us!

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