

Rainwater treatment plants

Instructions for the operation, internal inspection and maintenance



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Note!

Store the documents in a safe place and make them available to the persons responsible for maintenance.

Date: December 2022

Subject to technical modifications without notice.

We assume no liability for any misprints.

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1. General safety instructions

Safety instructions must be observed during installation, operation and maintenance. Read the safety instructions before installation and commissioning and make them available. Also observe the special notes in the instructions. No children or infirm persons in the danger zone.

Marking of notes in the operating instructions



General
danger notice



Danger:
Electric current



Danger:
Falling loads



Danger:
Pathogens



Substances
hazardous to health



Danger:
Automatic start-up



Hazardous to
waters



Danger of fire



Explosion hazard



Wear a hard hat



Use fall-protection
equipment



Wear safety shoes



Secure against
being switched on



Pull out the mains
plug



Danger of crushing



Danger of falling



Lift gently



Lift in pairs



Instructions
Note



Observe

CAUTION

CAUTION

Failing to observe notices with the "Caution" symbol can result in damage to the devices, structures, functions and equipment.

Qualifications and training of staff

Personnel deployed for operation, maintenance, inspection and assembly purposes must demonstrate possession of the relevant qualifications for this work. The operator is responsible for precisely regulating areas of responsibility, competences and the monitoring of staff. Only permit people to stay outside the danger zone (especially children and infirm persons).

Dangers in case of failure to observe these safety instructions

Failure to observe safety instructions can result in dangers both for persons, for the environment and for system equipment. Failure to observe safety instructions invalidates all claims for damages. In particular, failure to observe safety instructions may result in the following hazards, for example:

- Important plant functions may malfunction
- Failure to follow the prescribed methods for maintenance and servicing
- Danger to persons from electrical, mechanical and chemical effects
- Danger to the environment due to the release of hazardous substances
- Hazards may occur to the environment due to the release of substances hazardous to waterways



Working with safety awareness

The safety instructions described in these operating instructions, existing national and local laws on accident prevention and any internal health and safety or operating regulations in the workplace must be observed.

Safety instructions for maintenance, inspection and assembly work

The owner/operator must ensure that all maintenance, inspection and assembly work is performed by authorised and qualified technical specialists who have informed themselves through thorough examination of the operating instructions. Any work on the plant must only ever be performed while the system is at standstill. Procedures described in the operating instructions for shutting down the system must always be observed.

CAUTION

Upgrades on own initiative and manufacture of own spare parts

Any upgrades to the system are only permissible following prior consultation with the manufacturer. Genuine spare parts and accessories authorised by the manufacturer are always the safest. Use of any other parts may invalidate the manufacturer's liability for any consequential incidents.

CAUTION

Impermissible operating methods

Operational safety of the system that is supplied can only be guaranteed when it is used in accordance with its intended use and as per the operating instructions. Limit values specified in the data sheet must be observed at all times.

CAUTION

Hazards due to gases

Before entering underground structures, the atmosphere in the container must be checked with a multiple measuring device. Safe entry is only possible if the following values are complied with:

Measurements BEFORE entering!	
Measurement parameters	MAK value
Carbon monoxide (CO)	< 35.0 mg/m ³
Carbon dioxide (CO ₂)	< 9100.0 mg/m ³
Hydrogen sulphide (H ₂ S)	< 7.1 mg/m ³
Oxygen (O ₂)	> 17 % < 21 %



Location of system	
Operator	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Contact	
Local water authority	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Planner	
First name, last name	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Manufacturer	
First name, last name	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Installation company	
First name, last name	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Expert	
First name, last name	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	
Other	
First name, last name	
Street, no.	
Postcode, Town	
Tel./Fax	
Email	

1.1 Plant data

Plant no.

(unique designation, only when several plants are in operation)

Plant type

ViaCap	ViaSed	ViaTub	ViaKan	ViaPlus
Type	Type	Type	Type	Type

1.1.1 Separation structure (ViaCap, ViaKan ≥ 8)

T

Basin dimensions	mm	
Inner diameter	mm	

1.1.2 Sedimentation unit

S

Basin dimensions	mm	
Inner diameter	mm	
Length/width	mm	
Water depth	mm	
Basin volume	m ³	

1.1.3 Collecting tank (ViaCap)

FB

Basin dimensions	mm	Half basin <input type="checkbox"/>	Whole basin <input type="checkbox"/>
Inner diameter	mm		
Length/width	mm		
Water depth	mm		
Basin volume	m ³		

1.1.4 Filter basin

F

Basin dimensions	mm	Half basin <input type="checkbox"/>	Whole basin <input type="checkbox"/>
Inner diameter	mm		
Length/width	mm		
Water depth	mm		
Basin volume	m ³		

1.1.5 Load data

Connectable impermeable area	A _{U,max} [m ²]	
Maximum throughput	Q _{max} [l/s]	
Connected impermeable surface	A _U [m ²]	

2. Area of validity

These operating instructions are valid for the following stormwater treatment plants.

2.1 Mall ViaCap dirt trap

www.mall.info/produkte/regenwasserbewirtschaftung/regenwasserbehandlung/viacap-schmutzfangzelle

2.2 Mall ViaSed sedimentation plant

www.mall.info/produkte/regenwasserbewirtschaftung/regenwasserbehandlung/viased-sedimentationsanlage

2.3 Mall ViaTub lamella clarifier

www.mall.info/produkte/regenwasserbewirtschaftung/regenwasserbehandlung/viatub-lamellenklaerer

2.4 Mall ViaKan lamella clarifier without permanent retention

www.mall.info/produkte/regenwasserbewirtschaftung/regenwasserbehandlung/viakan-lamellenklaerer

2.5 Mall ViaPlus substrate filter

www.mall.info/produkte/regenwasserbewirtschaftung/regenwasserbehandlung/viplus-substratfilter

3. Requirements for stormwater treatment

The requirements for stormwater treatment are based on the land loads and discharge conditions to the receiving water body.

Treatment requirements:

Sedimentation – Flotation	Substances that have a higher or lower density than water are retained.
Partial flow treatment	Only the polluted part of the water is treated, but more intensively. This prevents overloading of the plant and thus the discharge of substances that have already been separated.
Operation without permanent retention	The treatment basins are automatically emptied after a rain event.
Filtration	Substances that are too small for sedimentation or that have too low a density difference are retained in filters.
Adsorption	Dissolved substances are bound to adsorbers and retained.

The treatment requirements determine the plants needed for purification.

Treatment requirements	Sedimentation – Flotation	Partial flow treatment	Operation without permanent retention	Filtration	Adsorption	Initial and periodic inspections
Product designation						
ViaCap			●			
ViaSed	●					
ViaTub	●					
ViaKan	●	●	●			
ViaPlus	●			●	●	●

3.1 Operational tasks, depending on characteristics

The tasks to be performed during operation result from the treatment requirements.

Treatment requirements	Sedimentation – Flotation	Partial flow treatment	Operation without permanent retention	Filtration	Adsorption
Opening the shaft covers see 5.1	●	●	●	●	●
Visually checking installation components, deposits and cleanliness see 5.2	●	●	●	●	●
Measuring the light liquid layer thickness see 5.3	●				
Measuring the sludge layer thickness see 5.4	●				
Checking and removing heavy soiling see 5.5	●	●	●	●	●
Reading the operating hours meter and entering readings in the operational log book see 5.6			●		
Determining the amount of water discharged into the municipal wastewater treatment plant see 5.7			●		
Checking filters for permeability, replacing filters see 5.8				●	
Monitoring the duration of use of the filters, replacing filters see 5.9					●

4. ViaTool maintenance set for rainwater treatment plants

The ViaTool maintenance set contains all the tools and materials needed for the client's own checks.

Scope of delivery:

- 1 Plastic case
- 2 2 x shaft hole cover hooks / extraction keys
- 3 Operational log book
- 4 Telescopic rod
- 5 PE dip plate
- 6 Screw hooks
- 7 Light liquid layer thickness gauge
- 8 pH indicator paper
- 9 Folding ruler



5. Descriptions of the activities

These operating instructions are valid for the following stormwater treatment plants.



5.1 Opening the shaft covers

Required equipment:

2 x shaft hole cover hooks / extraction keys 2



- Lifting, carrying and setting down loads correctly saves strength and protects against overstraining as well as internal and external injuries.
- The human spine is adapted to an upright posture.
- To avoid injuring yourself, loads should be lifted or set down from a squatting position with your back as straight as possible and without jerking.
- In order to reduce strain, differences in height compared with the carrying height should be avoided when lifting and setting down loads, and the load should be held as close to your body as possible.
- When carrying loads, the load should be held as close to your body as possible and with the arms kept vertical.
- Avoid a hollow back posture and twisting your spine, and exert any stress on your body as evenly as possible.
- When several workers carry loads together, only one should issue commands and instructions.



5.2 Visually checking installation components, deposits and cleanliness

Required equipment:

Operating instructions, form for checks carried out by the client



- Deposits on the components installed in treatment plants can cause malfunctions and damage the installed components. The components should therefore be checked regularly to ensure that they are not soiled.
- Any soiling should be removed by suitable means. Attention must be paid in this regard to water protection.

5.3 Measuring the layer thickness of floating substances

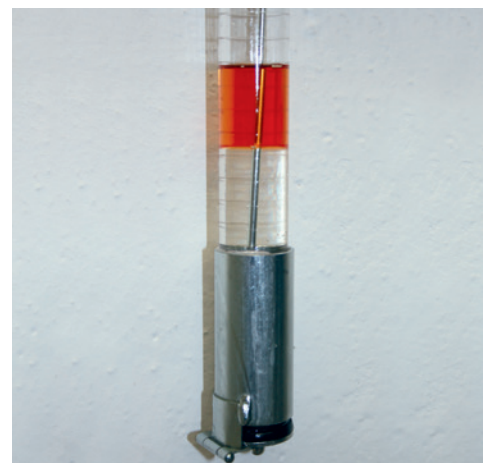
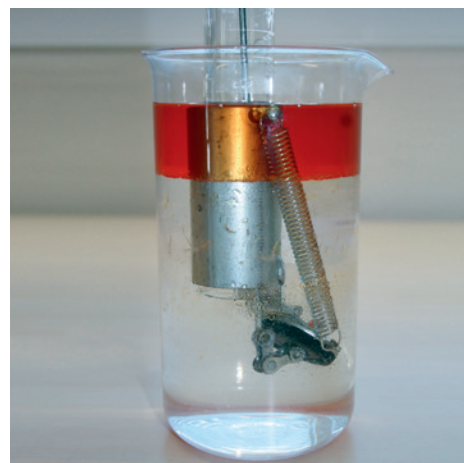
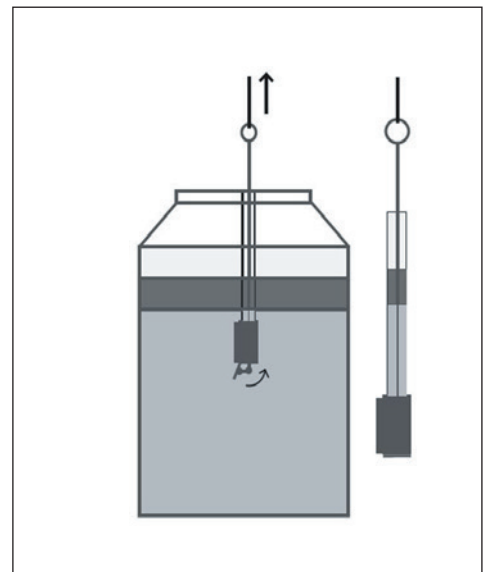
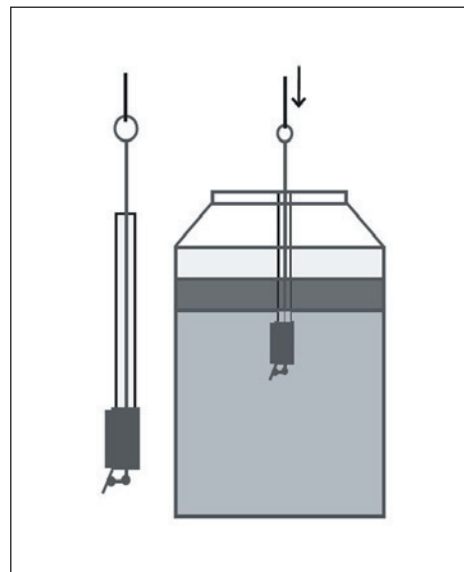
Required equipment:

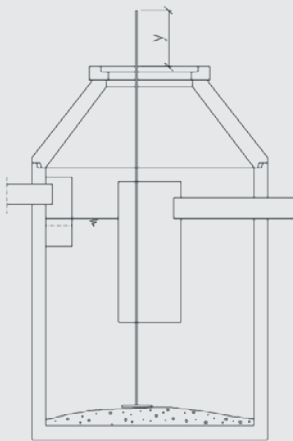
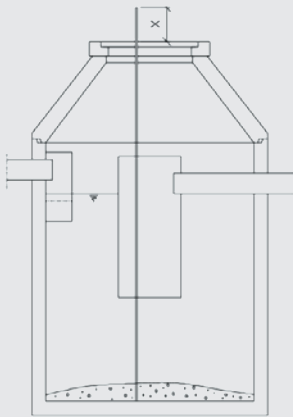
- Light liquid layer thickness gauge 7
- Operational log book with log form 3
- Folding rule 9



Immerse the light liquid layer thickness gauge with open flap on the cord into the liquid until the lower edge of the gauge is below the light liquid to water dividing line (see drawing on the left). Jerk the cord to close the flap. Pull out the measuring

device and read the thickness of the light liquid layer on the scale (see drawing on the right). The value read off should be documented in the operational log book.





5.4 Measuring the sludge layer thickness

Required equipment:

- Operational log book 3
- Telescopic rod 9
- PE dip plate 5
- Folding ruler 9



Measurements should be performed in dry weather and calm flow conditions.

Actions

- Immerse the telescopic rod all the way to the bottom of the tank.
- Measure the length (x) of the telescopic rod protruding out of the tank.
- Fit the dip plate onto the telescopic rod, immerse to the sludge layer.
- Measure the new, protruding length (y) of the telescopic rod.
- The difference between measurements 1 and 2 $(y) - (x)$ is equivalent to the sludge layer thickness.
- Record the sludge layer thickness in the report form.

5.5 Checking and removing heavy soiling

Required equipment:

Shovel, broom



Heavy soiling can impair the function and service life of the equipment.

Soiling must be removed according to the requirements.

5.6 Reading the operating hours meter and entering readings in the operational log book

Required equipment:

Operating log, "Record of operating hours" form



Operating hours

Continuous recording of the operating hours of the pump, slide valve and two float switches

Pump:	12345:78
Shutoff:	12345:78
Switch 1:	12345:78
Switch 2:	12345:78

The monthly record of operating hours provides details about the regular operation. You will find a form for the corresponding entries in the annex.

Please handle the float with care, as the flexible rod can break off, especially when it is cold and the rod is bent quickly (e.g. dropped).

5.7 Determining the amount of water discharged into the municipal wastewater treatment plant

Required equipment:

Operating log, "Record of operating hours" form



In the case of plants operating without permanent retention, it is often necessary to determine the amount of water that is discharged via the wastewater system.

For this purpose, the operating time of the pump accumulated between two fixed points in time (often

once a year) must be multiplied by the hydraulic capacity of the pump.

The pump running time can be found in column F of the "Record of operating hours" form. The pump capacity Q_p is displayed as in point 7.2.5.

$$\text{Dirty water volume } V_S = \text{pump capacity } Q_p \times \text{pump operating hours } B_p$$

$$V_S [m^3] = Q_p [m^3/h] \times B_p [h]$$

$$B_p = \text{Current reading} - \text{Previous reading}; Q_p \text{ see 7.2.5}$$

Plausibility: the basin is emptied 70 - 90 times a year.

$$V_S \approx 70 \times V_B - 90 \times V_B$$

$$V_B \text{ see 7.2.4}$$



5.8 Checking filters for permeability, replacing filters



In dry weather, the plant's fill level should be near the bottom of the outlet fitting. A permanently higher water level indicates colmation of the filter insert.

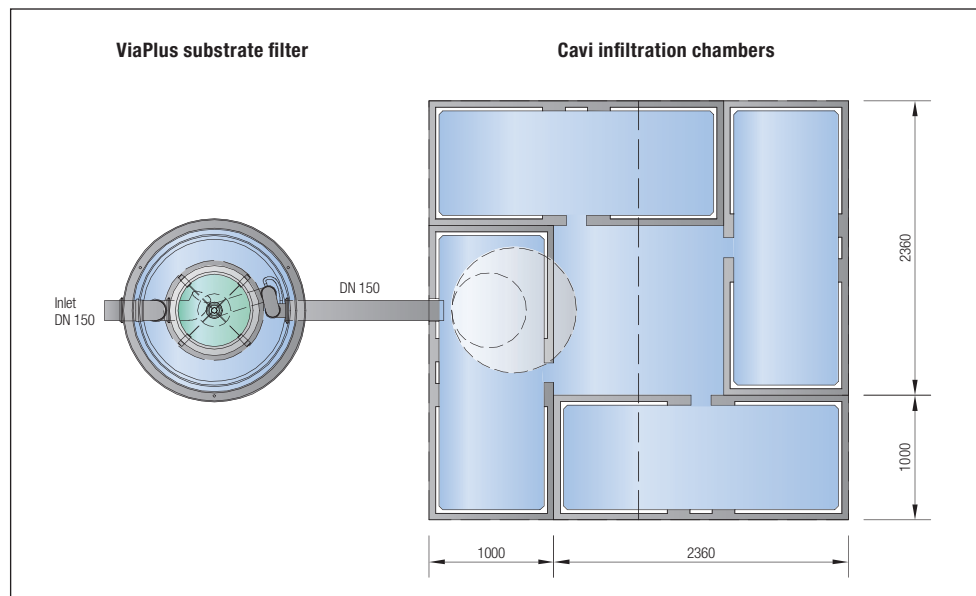
This must be remedied promptly by replacing the upper geotextile.

5.9 Monitoring the duration of use of the filters, replacing filters



In dry weather, the plant's fill level should be near the bottom of the outlet fitting. A permanently higher water level indicates colmation of the filter insert.

This must be remedied promptly by replacing the upper geotextile.



Time interval for checks conducted by the client: 3 months

6. Maintenance

The tasks to be performed during maintenance result from the treatment requirements.

Treatment requirements	Sedimentation – Flotation	Partial flow treatment	Operation without permanent retention	Filtration	Adsorption
Inspecting the operating log / Checking the inspection intervals and entries	●	●	●	●	●
Visually checking installation components, deposits and cleanliness see 5.2	●	●	●	●	●
Measuring the light liquid layer thickness see 5.3	●				
Measuring the sludge layer thickness see 5.4	●				
Comparing the determined value with the limit value: If 50% of the limit value is exceeded, but after 2 years at the latest: Arrange for the sludge to be disposed of by the operator using a suction hose truck	●				
Checking and removing heavy soiling see 5.5	●	●	●	●	●
Reading the operating hours meter and entering readings in the operational log book see 5.6			●		
Determining the amount of water discharged into the municipal wastewater treatment plant see 5.7			●		
Checking filters for permeability, replacing filters see 5.8				●	
Suck out the water in the filter chamber using a suction pump. If necessary, pull the slip-on tube on the outlet fitting upwards				●	●
Monitoring the duration of use of the filters, replacing filters see 5.9				●	●
If necessary, replace the filter fleece by: Loosening the tension ring of the upper geotextile, removing the geotextile and disposing of it. Insert the new geotextile and tighten it with the tension ring.				●	●
Initial test before commissioning, Repeat inspection at 5-year intervals					●

Time interval for maintenance: 12 months

The intended operation of the wastewater treatment plant (throughput and material retention) can only be ensured in the long term if maintenance is carried out in accordance with the following provisions.

Operating plan																
Operating year	1				2				3				4			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Checks by the client ¹⁾	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Maintenance ²⁾	F				F				F				F			
Disposal, sediments	Or earlier if required								Or earlier if required							
Replacing filters ³⁾	Or earlier if required															

¹⁾ Execution by a qualified person on behalf of the operator

²⁾ Execution by a technical specialist

³⁾ Only for plants with filtration and adsorption (ViaPlus)

In addition, an initial test must be carried out before commissioning and a repeat test must be carried out by the technical specialist at 5-year intervals.



6.1 Replacing the substrate (ViaPlus substrate filter only)

The substrate must be replaced at least every four years. Only substrates marked with the mark of conformity according to section 2.3.2 of the general technical approval may be used for this purpose.

The substrate's replacement and other maintenance work should be documented in an operating log.

The following steps must be carried out:

- Dispose of the sludge from the settling chamber
- Suck out the water in the filter chamber using a suction pump. If necessary, pull the slip-on tube on the outlet fitting upwards.

For plants according to approval Z-84.2-25

- Climb in using a movable ladder – the upper geotextile can be walked on
- Remove and dispose of the filter fleece by loosening the tension ring for the upper geotextile
- Have the substrate completely removed and disposed of by a specialised company, or have it removed and transported away by a suction vehicle
- Refill with tested substrate (according to 2.3.2 of the general technical approval)

- Level material, check filling height (300 mm)
- Insert the new geotextile and tighten it with the tension ring

For plants according to approval Z-84.2-8

- Have the substrate completely removed and disposed of by a specialised company, or have it removed and transported away by a suction vehicle
- Check the proper seating of the suction candles (stainless steel slotted sieve tubes)
- Refill with tested substrate (according to 2.3.2 of the general technical approval)
- Level the material, filling height = upper edge of the porous concrete rings

For plants according to approval Z-84.2-12

- Remove the aerated concrete filter head with a suitable lifting device
- Insert a newly filled filter head.
- Have the old filter head disposed of by a specialist company

Time interval for replacing filters: 4 years or when premature colmation

7. Stormwater treatment without permanent retention (ViaCap, ViaKan)

7.1 Microprocessor controller

7.1.1 Preliminary remark

Only the aspects of the controller required for checks by the client and maintenance are described in the following section. The complete description with circuit diagrams, installation and programming can be found at www.mall.info/fileadmin/user_upload/produkte/regenwasserbewirtschaftung/einbau-und-wartung/bedienungsanleitung-mikroprozessor-steuerung-nwbod.pdf

The controller is used with the following products:

- Mall ViaCap dirt trap
- Mall ViaKan lamella clarifier

7.1.2 Pump in the basin

The pump in the basin empties the basin at set times. The KSB Ama-Porter 500 NE pump is used as standard. The hydraulic capacity of the pump is ap-

prox. 4 l/s in the standard installation situation with approx. 5 m hydraulic head.






Standard pump variant ViaKan KSB Ama-Porter 500 NE			
Rated current	5.0 A	Rated voltage	230 V 50 Hz
Rated power P2	0.55 kW	Max. passageway	45 mm
Switch-on type	direct	Price group	P16
Weight	22 kg	Nominal size	DN 50
Impeller shape	F	Protection class	IP 68, class F






7.2 Control panel






Switch housing dimensions	
Width W	160 mm
Height H	120 mm
Depth D	95 mm




7.2.1 Description of the displays and functions

The control panel is operated with three keys. The  and  keys scroll through the menu, the  key confirms the entry or selects a menu item.

Automatic mode				
Display				Description of functions and setting options
Mall environmental systems	No function	No function	No function	Display when switching on the power
Plant type – 1 V. 1.03 S. 1223356	No function	No function	No function	Displays controller version
13.04.06; 13:55 Change settings	No function	No function	Change date and time	Can be changed via “CHANGE DATE AND TIME”.
Basin volume Change 5,000 l?	No function	No function	Change basin volume	The basin volume can be changed.
V = ____ l	Reduce basin volume	Increase basin volume	Confirm selected volume	Preset values from 1,000 – 100,000 litres are possible.
Q P = 16,000 l/h Change settings	Increase pump rate	Reduce pump rate	Confirm selected capacity	Pre-set values of 5,000 - 20,000 litres per hour are possible.
T = 12.34 h	No function	No function	No function	The theoretical running time for draining the basin is displayed. The display then changes to automatic mode.
S1 = ON S2 = OFF P = OFF C = 24:00	No function	No function	Menu item Operating hours	Display in automatic mode
Operating hours Pump: 123456:78 Shutoff: 123456:78 Switch 1: 123456:78 Switch 2: 123456:78	No function	No function	Menu item Settings	Enables client to directly display operating hours when making quick checks
Settings Count Down: 24 h Volume SB: 5000 l dT shut-off: 000h	No function	No function	To selection automatic / manual	The set parameters are displayed.
	Change to manual	Change to manual	Continued automatic mode	Choice between continuing automatic mode or activating input
	Change to automatic	Change to automatic	Change to manual	

7.2.2 Operator menu

The control panel is operated with three keys. The  and  keys scroll through the menu, the  key confirms the entry or selects a menu item.

Operator menu				
Display				Description of functions and setting options
1/6 Manual mode	Continue to Operating hours	To Auto / Manual	Select manual mode	In manual mode, the individual units can be switched on and off manually.
Manual mode Pump OFF	To Pump ON	To manual mode	Switch off pump	Switches the pump OFF.
Manual mode Pump ON _____ 29	To shut-off device ON	No function	Switch on pump	Switches the pump ON. The function is stopped after 30 minutes at the latest. The number indicates the remaining minutes.
Manual mode Shut-off device ON _____ 29	To shut-off device OFF	No function	Shut-off device ON	Switches the shut-off device ON. The function is stopped after 30 minutes at the latest. The number indicates the remaining minutes.
Manual mode Shut-off device OFF	To operating hours	No function	Shut-off device OFF	Switches the shut-off device OFF
Operating hours Pump: 123456:78 Shutoff: 123456:78 Switch 1: 123456:78 Switch 2: 123456:78	No function	No function	Displays operating hours	Enables client to display operating hours when making checks
Operational log book	To Reset	No function	Displays operational log book	The error messages and monthly operating hours are logged here. A maximum of 200 entries are saved, after which the oldest message is overwritten.
Operational log book [001/025] 11.07.2011 18:38 ERR07	To previous entry	To next entry	Back to operational log book	Entries from the operational log book can be read off. [seq. no. display / total number of messages] Date [DD.MM.YYYY] Time [HH:MM] Error code / operating message
Reset	To Date / Time	Continue to Date / Time	To reset function	On confirming the function, the current process is interrupted and a new process is started by querying the probes. The process starts with the current probe status.
Reset Restart process	Continue to Factory setting	No function	Reset	On confirming the function, the current process is interrupted and a new process is started by querying the probes. The process starts with the current probe status.
Reset factory setting	No function	Back to restart process	To initial factory setting	The settings are reset to the initial parameters set at the factory. All changes are lost.
Apply security query	Reject changes		Confirm changes	Security query to protect from accidental activation
Date / Time	No function	No function	To the settings	Date and time can be set and changed.
Date / Time_6 11.07.2011 15:25	Enlarged number becomes smaller	Enlarged number becomes larger	Enlarged number is used	The time and date can be set.
Info	No function	No function	Displays version number	The software version number is displayed.
V0/07				The parameters set at the factory or as part of the system setting are displayed.

7.2.3 Maintenance menu

The control panel is operated with three keys. The \downarrow and \uparrow keys scroll through the menu, the SET key confirms the entry or selects a menu item. The maintenance menu is protected by a PIN code. The activation is registered and saved. Improper operation can lead to malfunctions.

Maintenance menu				
Display	\downarrow	\uparrow	SET	Description of functions and setting options
Maintenance menu	To system setting	To operator menu	Maintenance menu is started	The settings in the maintenance menu should be made by trained expert personnel.
PIN 0000	Reduces the digit	Increases the digit	Confirms the digit next digit	PIN entry: The PIN is known to trained expert personnel. Unauthorised access is recorded and can lead to impairment of the warranty.
Current limits pump	No function	No function	Select current limits	The limit values for the pump's current consumption can be modified.
Current limits $I_{\min} = 1000 \text{ mA}$ $I_{\max} = 9000 \text{ mA}$	Reduces the digit	Increases the digit	Confirms the digit	The digit that appears enlarged can be modified with the arrow.

7.2.4 Setting values for the basin volume for standard cases

For standardised types, the following parameters can be assumed for the basin volume:

ViaKan lamella clarifier without permanent retention

ViaKan	Type	4	8	24	32	48	64	80	120	144
Set value	[l]	5600	9500	12600	17500	27300	28900	53000	55000	55000

ViaCap dirt trap: The basin volume corresponds to the type designation.

7.2.5 Setting the pump capacity

Estimation of H_{man}

$$H_{\text{man}} \approx H_{\text{geo}} + 0,25 \cdot l$$

Example: Basin depth $T = 2 \text{ m}$, pipe length $l = 10 \text{ m}$

$$H_{\text{man}} \approx 2 \text{ m} + 0,25 \cdot 10 = 4,5 \text{ m}$$

H_{man}		[m]	2	3	4	5	6	7	8	9	10
Q	KSB AmaPorter	[l/h]	20,000	18,000	16,000	14,000	12,000	10,000	8,000	4,000	0
	Homa TP 50 M 11/2 D Ex		36,000	30,000	22,000	15,000	12,000	8,000	5,000	5,000	0

8. Alarm functions

Briefly press the SET button to switch off the acoustic alarm. **To reset the alarm and return the LED back to a green state, press and hold the SET button for about 10 - 15 seconds, after which the display will switch off briefly, the LED will change back to green and the “Error acknowl-**

edged” display appears. If this does not occur then the fault is still present and must be found and corrected according to the possible causes listed below. After a fault has been acknowledged, the process is restarted.

Error code	Meaning	Possible causes
ERR01	Pump current < minimum	Electrical connection interrupted Incorrect setting Pump defective
ERR02	Pump current > maximum	Pump blocked Incorrect setting Pump defective
ERR05	S2 switched for longer than set duration (default setting 240 h)?	Float blocked Extraneous water ingress Exceptional rain incident
ERR06	S1 switched for longer than set duration (default setting 240 h)?	Probe blocked Extraneous water ingress Exceptional rain incident
ERR07	Wrong basin volume Change settings Volume SB 005000 l	The pumping process was interrupted for three consecutive cycles before the basin was empty. Specified basin volume too small.

8.1 Special notes on error messages during operation

The Error 05 and Error 06 error messages occur in the NWBoD controller if the float in the collection basin or separation structure is switched for longer than the set duration (240 h with standard setting).

This error is not directly due to defects in the plant. It could be due to water flowing into the

plant over a prolonged period (e.g. snow melt), but this situation is unusual, hence the indication.

This message must be “acknowledged” to ensure smooth operation afterwards.

8.2 Extraneous water

In case of extraneous water ingress (connected drainage systems, leaking pipes), water permanently flows into the plant. The basin fills up and a constant inflow of water is detected. The S1 float

can then never release the countdown.

In this case, the ERROR 05 and ERROR 06 error messages are displayed.

8.3 Incorrectly set basin volume

The volume of the collection basin is stored in the controller. The controller stops the pumping process when twice the stored volume has been pumped. Default setting: 5000 litres (be sure to check!)
 If the volume is too small, the basin will never be completely emptied because the pumping process is stopped when a maximum of twice the volume

has been pumped out. The value of the set pump capacity is important here (see below). The S2 float in the collection basin cannot switch off, this results in ERROR 05 repeating every 240 h (10 days) if acknowledged. ERROR 07 indicates this directly after three unsuccessful attempts to empty the basin completely.

8.4 Incorrectly set pump capacity

The pump capacity is set to 16,000 l/h according to the characteristic curve (see below, standard KSB type Ama-Porter 500 (SE, NE)). This setting is correct if the pressure head for the pump is max. $H_{\text{man}} = 4 \text{ m}$. This is correct if there is gravity drainage at a distance of approx. 2 m from the shaft and the

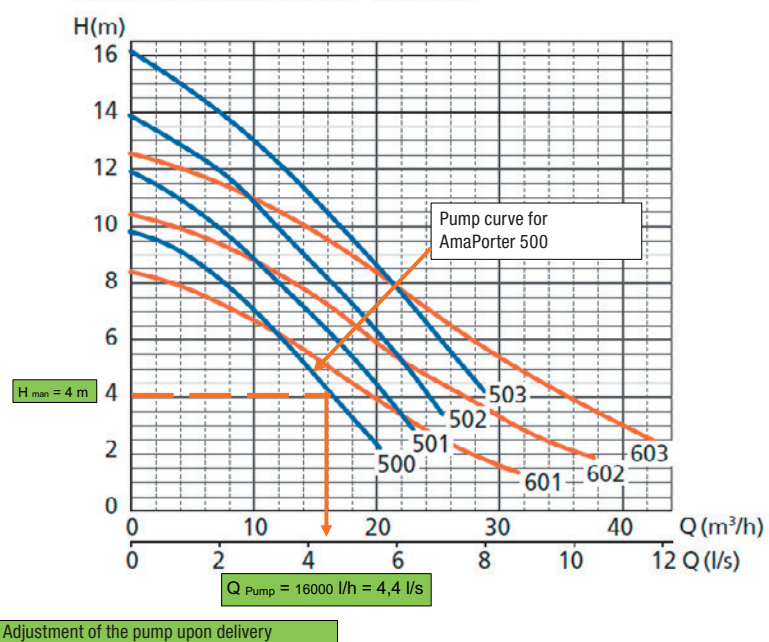
tank is not installed lower than standard. There are cases where the pressure line is continued until the municipal wastewater channel is reached. This can again lead to ERROR 05 being displayed. This can be remedied by reducing the pump capacity in the system settings.

8.4.1 Ama-Porter characteristic curve:

The characteristic curve for the standard Ama-Porter 500 NE pump (ViaKan, ViaCap, ViaFlow) is shown for information purposes. When using alternative

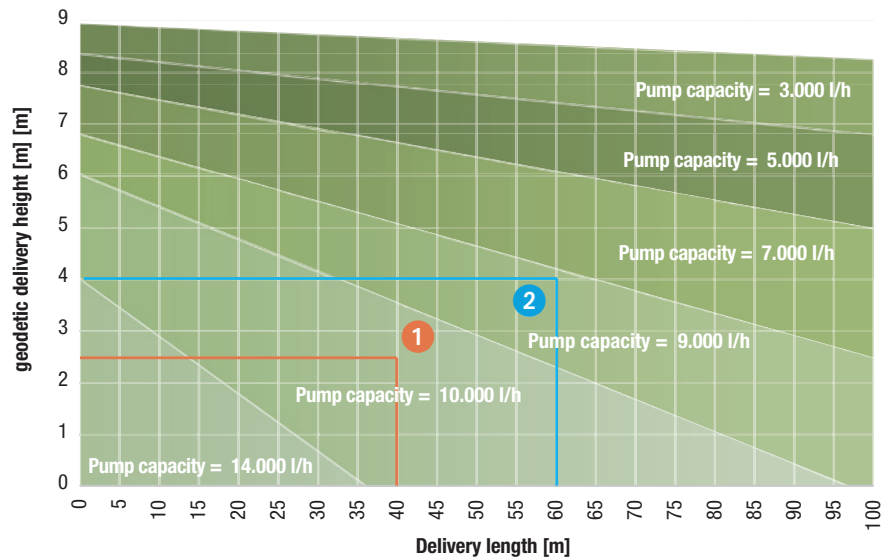
pumps, the manufacturer's characteristic curve must be used as a basis.

Ama-Porter 500 / 600 characteristic curves



8.4.2 Determining the pump rate for the Ama-Porter 500 NE

Determining the pump rate based on the delivery height and pipe length



- ① Delivery height 2.5 m, pipe length 40 m; pump capacity = 10,000 l/h
- ② Delivery height 4.0 m, pipe length 60 m; pump capacity = 9,000 l/h

9.1 Recording the operating hours (ViaCap, ViaKan)

The following table provides verification of proper operation vis-à-vis the water authorities.

Date	B1: Pump	B2: Absperrorgan	B3: Sensor S1	B4: Float switch S2	Running time pump F	Water quantity for sewerage
					B1 current - B1 before	F x pump capacity

Note: The table can be downloaded at www.mall.info.

9.2 Client checklists ViaCap

Opening the shaft covers <i>see 5.1</i>	
Visually checking installation components, deposits and cleanliness <i>see 5.2</i>	
Reading the operating hours meter <i>see 5.6</i>	
Determining the amount of water discharged into the municipal wastewater treatment plant <i>see 5.7</i>	
Checking and removing heavy soiling <i>see 5.5</i>	

9.3 Client checklists ViaSed

Opening the shaft covers <i>see 5.1</i>	
Visually checking installation components, deposits and cleanliness <i>see 5.2</i>	
Entering the measurement of the light liquid layer thickness <i>see 5.3</i> in the table	
Entering the measurement of the sludge layer thickness <i>see 5.4</i> in the table	
Checking and removing heavy soiling <i>see 5.5</i>	

9.4 Client checklists ViaTub

Opening the shaft covers <i>see 5.1</i>	
Visually checking installation components, deposits and cleanliness <i>see 5.2</i>	
Entering the measurement of the light liquid layer thickness <i>see 5.3</i> in the table	
Entering the measurement of the sludge layer thickness <i>see 5.4</i> in the table	
Checking and removing heavy soiling <i>see 5.5</i>	

9.5 Client checklists ViaKan

Opening the shaft covers <i>see 5.1</i>	
Visually checking installation components, deposits and cleanliness <i>see 5.2</i>	
Reading the operating hours meter and entering readings in the operational log book <i>see 5.6</i>	
Determining the amount of water discharged into the municipal wastewater treatment plant <i>see 5.7</i>	
Checking and removing heavy soiling <i>see 5.5</i>	

9.6 Client checklists ViaPlus

Opening the shaft covers <i>see 5.1</i>	
Visually checking installation components, deposits and cleanliness <i>see 5.2</i>	
Reading the operating hours meter and entering readings in the operational log book <i>see 5.6</i>	
Determining the amount of water discharged into the municipal wastewater treatment plant <i>see 5.7</i>	
Checking and removing heavy soiling <i>see 5.5</i>	
Checking filters for permeability, replacing filters <i>see 5.8</i>	
Monitoring the duration of use of the filters, replacing filters <i>see 5.9</i>	

9.7 Measuring report for the sludge layer height ViaSed, ViaTub, ViaPlus

Date	H _S	H _{LF}	Disposal (date)

Note: The table can be downloaded at www.mall.info.

9.8 Confirmation of instruction for submission to the competent authority

Operator		Company stamp
Instructed person(s)	Name (capitals)	Signature

The aforementioned person(s) has (have) been instructed by the expert named below in how to check the stormwater treatment plant in accordance with DWA-A 102, DWA-M 153 and DWA-A 138.

The instruction includes:

- Function of the treatment plant
- Handling the maintenance set (ViaTool, see 4.)
- Measuring the sludge layer thickness
- Measuring the light liquid layer
- Reading the operating hours meter (ViaKan)
- Determining the amount of dirty water (ViaKan)
- Checking the permeability of the filter (ViaPlus)
- Maintaining the operational logbook

The plant manufacturer's operating and maintenance instructions must be observed. Unless otherwise stipulated by drainage statutes and/or other requirements, this scope and the instruction shall be deemed confirmed and acknowledged by the undersigned.

Place, date	
Operator	
Expert	

9.9 Notice of completion

for submission to the competent authority

This is to inform you that the stormwater treatment plant mentioned below has been completed and properly commissioned in accordance with the approved or notified documents and in compliance with the conditions and their ancillary provisions.

Proper maintenance of the plant is guaranteed by:

- a maintenance contract (enclose copy)
- instructed operating personnel (enclose confirmation of instruction)

Operator	
Street, no.	
Postcode/Town	
Tel./Fax	
Email	

Plant type		
	Nominal capacity <input type="text"/> l/s	Connected impermeable area A_u <input type="text"/> m ²
	Nominal capacity <input type="text"/> l/s	Connected impermeable area A_u <input type="text"/> m ²

A ViaPart separation structure can be installed upstream to regulate the hydraulic conditions. Separate documents are available for this purpose.

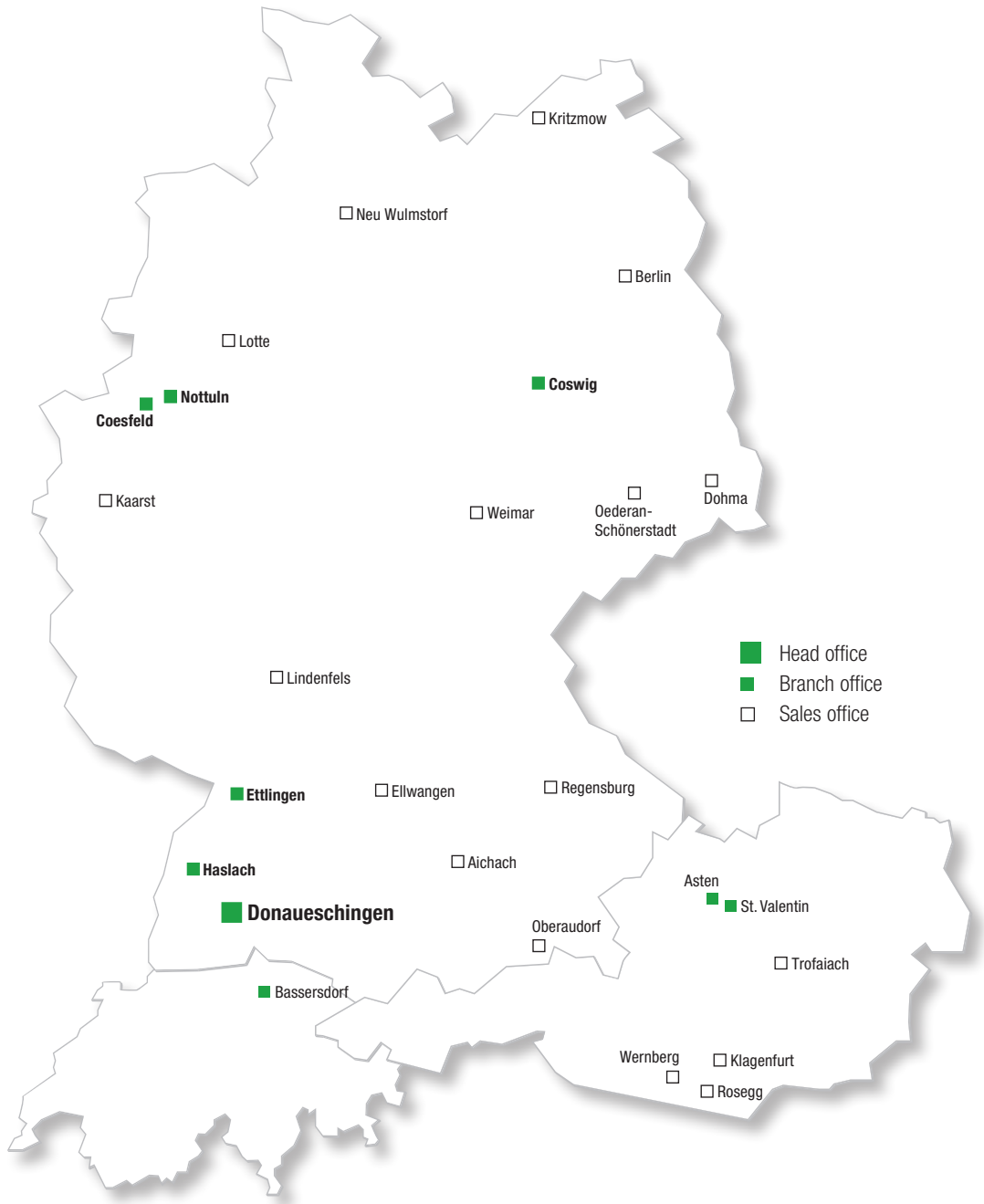
Place, date	
Operator	
Qualified person	

9.10 Limit values for sludge and light liquid layer thickness

The tables below contain specifications for the individual types according to the sludge chamber and light liquids, specifically the

- volumes V_S and V_{LF} ,
- resulting system heights H_S and H_{LF} ,
- height limits at which disposal must be performed.

Type	Sludge			Oil / light fluid operation		
	H_S	V_S	Height limit	H_{LF}	V_{LF}	Height limit
	[m]	[m ³]	[m]	[m]	[l]	[m]
ViaTub lamella separator						
ViaTub 18R 20	0.68	1.34	0.50	0.20	628	0.200
ViaTub 18R 38	0.68	1.75	0.50	0.20	982	0.200
ViaTub 18R 63	0.58	2.40	0.40	0.20	1414	0.200
ViaTub 18L 133	0.51	3.28	0.30	0.20	2050	0.200
ViaTub 18 OL 133	0.51	3.75	0.30	0.20	2292	0.200
ViaTub 18 OL 200	0.51	3.75	0.30	0.20	2292	0.200
ViaTub 18L 272	0.51	4.85	0.30	0.20	2500	0.200
ViaTub 18 OL 272	0.51	4.78	0.30	0.20	2740	0.200
ViaTub 18L 302	0.56	9.10	0.40	0.20	4088	0.200
ViaTub 18L 406	0.56	10.33	0.40	0.20	6280	0.200
ViaTub 18L 674	0.46	11.33	0.25	0.20	8282	0.200
ViaTub 18L 1363	0.46	18.90	0.25	0.20	11642	0.200
ViaSed sedimentation plant						
ViaSed 18R 4 N	0.80	0.63	0.50	0.20	164	0.150
ViaSed 18R 4 E	1.30	1.02	1.00	0.20	164	0.150
ViaSed 18R 6 N	0.80	0.90	0.50	0.20	219	0.150
ViaSed 18R 6 N	1.30	1.47	1.00	0.20	219	0.150
ViaSed 18R 9 N	0.75	1.30	0.50	0.38	589	0.300
ViaSed 18R 9 E	1.25	2.20	1.00	0.38	589	0.300
ViaSed 18R 15 N	0.75	2.30	0.50	0.38	1,034	0.300
ViaSed 18R 15 E	1.25	3.90	1.00	0.38	1,034	0.300
ViaSed 18R 24 N	0.75	3.60	0.50	0.38	1,652	0.300
ViaSed 18R 24 E	1.25	6.10	1.00	0.38	1,652	0.300
ViaSed 18R 35 N	0.75	5.30	0.50	0.38	2,356	0.300
ViaSed 18R 35 E	1.25	8.80	1.00	0.38	2,356	0.300
ViaSed 18R 63 N	1.00	12.56	0.75	0.50	5,513	0.400
ViaSed 18R 123 N	1.20	29.50	0.95	0.60	13,416	0.480
ViaSed 18 OL 60	0.37	4.20	0.25	0.25	1,718	0.125
ViaSed 18 OL 70	0.37	5.10	0.25	0.25	2,053	0.125
ViaSed 18 OL 80	0.38	6.00	0.25	0.25	2,389	0.125
ViaSed 18L 200	0.50	21.17	0.35	0.25	6,351	0.125
ViaSed 18L 250	0.50	26.62	0.35	0.25	7,987	0.125
ViaSed 18L 350	0.44	31.00	0.30	0.25	10,500	0.125
ViaSed 18L 425	0.45	38.00	0.30	0.25	12,750	0.125
ViaSed 18L 450	0.50	45.40	0.35	0.25	13,623	0.125
ViaSed 18L 540	0.50	53.80	0.35	0.25	16,141	0.125
ViaSed 18L 620	0.50	62.20	0.35	0.25	18,661	0.125
ViaPlus substrate filter						
ViaPlus 500	0.50	0.56	0.35	–	0.34	–
ViaPlus 800	0.50	0.90	0.35	0.25	250	0.150
ViaPlus 1250	0.50	1.20	0.35	0.25	800	0.150
ViaPlus 3000	0.50	3.50	0.35	–	2.20	–
ViaPlus 3800	0.50	3.50	0.35	0.25	1,160	0.150
ViaPlus 6600	0.50	6.24	0.35	0.25	2,500	0.150



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