DEHOUST
ENERGY. HEAT. WATER.

Installation, Operation and Inspection Manual

DEHOUST GWtec® 140, 240, 340, 440, 540, 640

Greywater treatment systems for greywater reuse

Version 4.0 (05/2026)

Translated from German Origin

www.dehoust.com

Project number:

……

Name of delivered system:

DEHOUST GWtec® …….

Certified to NSF/ANSI 350

Treatment capacity per day:

……

Date of manufacture:

……..

Serial Number:

……

Control cabinet serial number:

……..

Manufacturer / Service Representative:

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For your own safety and to ensure the fault-free operation of the **DEHOUST**GWtec® greywater treatment systems, it is essential to observe the permissible data, operating and usage conditions specified in this manual and in the current technical data sheet!

Therefore: Read these instructions before installation and commissioning and keep them available at the site where the greywater treatment system is installed. This applies to the operative(s) as well as to the responsible technical staff or the operator(s).

Note: For the sake of better readability, this guide avoids the simultaneous use of masculine, feminine and diverse (m/f/d) forms. All references to persons apply equally to all genders.

1. Important safety instructions at a glance

Location:
For indoor use only! The room must be frost-free, dry and well-ventilated all year round.

The installation room must have a suitable floor drain or sump to ensure that any overflowing water can be safely drained off via the free emergency overflow of the service water tank, in the event of backflow. → **Chapter 6.1**

Do not install, commission or maintain without reading these instructions

These instructions contain essential information regarding your safety and the safe operation of the system. These must be observed during transport, installation, commissioning, operation, maintenance, storage and disposal.

The instructions contained herein regarding assembly, installation, commissioning and maintenance are intended for fitters, technicians, administrators and operators of the system as well as for the operator or user. Technical information regarding more extensive maintenance work or repairs, insofar as it is not described here, is reserved exclusively for specially trained personnel and will be provided to them separately by the system manufacturer.

Fully automatic control

The **DEHOUST**GWtec® greywater treatment system for greywater reuse ensures maximum safety through largely fully automatic control of the operating processes. It notifies users in good time of upcoming maintenance or deviations from normal operating conditions. The factory-set, system-specific pre-programmed settings can be monitored, modified and adjusted via a web interface with real-time access or on-site via the touchscreen on the control unit. **Manual changes to the settings without training and expertise can cause significant damage to the system!**

Control software

These instructions are **only valid in conjunction with the operating instructions supplied on delivery or those valid at the time of the software update**. Our customers receive the user manual applicable to the current software version following a software update of the control unit with a modified menu structure.

1.1. Risks and hazards from non-compliance with the manual

These installation, operating and inspection instructions form an **integral part** of the series and models specified on delivery. The type plate contains details of the series and size, the most important operating data and the serial number.

The manual is a user guide and describes the correct and safe use of the system in all operating phases.

Failure to follow these instructions may result in the following hazards:

- Danger to persons from electrical, thermal, mechanical and chemical effects
- Loss of key product functions
- Failure of prescribed maintenance and servicing methods
- Environmental hazard due to leaking hazardous substances

Failure to follow these instructions will result in the loss of warranty and compensation claims →Chapter 3

1.2. Further instructions to be observed

For safe and smooth operation of the system, observe the additional instructions and manuals mentioned below, which are part of the delivery. These are:

- Compressor Operation Manual
- System-related Wiring Diagram **DEHOUST**GWtec®
- Optional booster pump (if delivered by DEHOUST)

1.3. Safety regulations & standards

The following safety regulations apply in addition to the safety instructions and intended use given in this manual:

- Accident prevention, safety and operating regulations
- Safety regulations for handling hazardous substances
- Applicable standards and laws including but not limited to the following technical standards: DIN EN 16941-2, DIN EN12056, DIN 1988, DIN 1986, DIN EN 1717, DIN EN 806, NSF / ANSI 350
- Specific national standards and laws must be observed and take precedence where applicable.

1.4. Symbols used in this manual

	Sections marked with this symbol indicate **danger**. Death, serious injury, or significant property damage may result if the appropriate precautions are not observed.
	Sections marked with this symbol indicate a **warning to act with caution**. Failure to observe the relevant precautions may result in minor injury or damage to property.
	Sections marked with this symbol provide an **instruction:** **Use hand protection!**
	Sections marked with this symbol provide an **instruction**: **Wear a dust mask!**
	Sections marked with this symbol provide an **instruction**: **Wear safety goggles!**
	Sections marked with this symbol provide an **instruction**: **Wash and disinfect your hands!**
	Sections marked with this symbol provide a **warning**: **Do not connect** certain devices, materials, or connections to the drinking water supply!
	Sections marked with this symbol provide technical **information and application tips** designed to prevent damage to the system. This symbol does not indicate a safety warning.
	Sections marked with this symbol indicate a **time frame for maintenance intervals**: Here: quarterly (every three months)
	Sections marked with this symbol indicate a **time frame for maintenance intervals**: Here: semi-annual (every six months)
	Sections marked with this symbol indicate a **time frame for maintenance intervals**: Here: 2 years (every 24 months)
	Sections marked with this symbol provide a **note**. **Maintenance intervals** depend on the degree of use or wear and tear – maintenance or repairs are carried out as required.

1.5. General safety instructions

- Never exceed the authorized operational thresholds for pressure, temperature, etc. specified in this documentation.
- Observe all safety and work instructions given in this manual.
- Respect all instruction labels or notices placed on the equipment and keep them in perfectly readable condition. This is especially true for:
  - safety instructions
  - identifiers of ports and connections
  - type label(s)
- Have the technical condition of the **DEHOUST**GWtec® checked by the operator at regular intervals!
- Carry out (or arrange to be carried out) installation and maintenance work only by authorised specialist personnel using suitable tools.
- Observe the local safety and accident prevention regulations applicable to the operation of the system!
- Follow generally accepted technical standards when installing and operating the device.
- Keep unauthorised persons (e.g. children) away from the system.

1.6. Safety instructions for maintenance, inspection and installation work

- Do not make any changes to the **DEHOUST**GWtec®. This may damage the system's functionality and compromise its safe operation. Failure of the system's built-in safety measures may result in damage to the building. Warranty claims against the manufacturer are completely void.
- Use only original parts or spare parts authorised by the manufacturer.
  The use of other parts may invalidate liability for any resulting consequences.
- Only carry out work on the system when it is switched off and de-energised.
  System units (filter and pump) must have reached ambient temperature.
- Follow the procedure described in the manual for inspections/maintenance of the system.
- Refit or reactivate safety and protective devices immediately after completion of the work. Before recommissioning, observe the points listed for commissioning.
- Following an interruption to the electrical power supply or greywater supply, ensure a controlled and defined restart of the process.

2. Operator's duty of care

The GWtec® greywater treatment system for greywater reuse has been designed and manufactured after appropriate risk assessment and careful selection of applicable harmonized standards and other technical specifications. The product complies with the generally accepted rules of engineering and guarantees maximum safety. In practical operation, this level of safety can only be achieved if all necessary measures are taken.

It is the operator's duty of care to plan these measures and supervise their implementation. In particular, the operator must ensure that

- the GWtec® greywater treatment system is only used for the intended purpose
- the GWtec® greywater treatment system is operated only in perfect functional condition.
- The sewer discharge is sufficiently dimensioned
- no safety and warning notices attached to the GWtec® greywater treatment system are removed and all remain legible.
- a full version of the installation, operating and inspection manual is constantly kept in a readable condition and within reach at the place of use of the GWtec® system.
- only suitably qualified and authorized personnel install, commission, maintain and service the GWtec® system
- such personnel are instructed at regular intervals in all relevant aspects of occupational safety at work and environmental protection, and have read and understood the manual and, in particular, the safety instructions contained therein
- a risk assessment (in the spirit of Section 5 of the Occupational Safety at Work Act) is made to identify the additional risks and exposures resulting from the specific local working conditions at the place of use of the GWtec® system
- all further instructions and safety instructions resulting from the risk assessment are summarised in an operating procedure (within the meaning of the Work Equipment (Use) Regulations, Section 6).

2.1. Labelling requirement

All pipes, taps and fittings in the service water system must be clearly marked, e.g. with a sticker bearing the symbol "Not drinking water".

It must be clearly evident that the water at the tap is not drinking water.

2.2. Requirements for operating personnel

The **DEHOUST**GWtec® greywater treatment system for greywater reuse may only be be installed, commissioned, repaired, maintained and decommissioned only by persons specifically trained, briefed and authorized for this purpose. If required, training may be provided at the operator's request by commissioning the manufacturer/supplier. Training on the system may only be carried out under the supervision of qualified technical personnel. The respective responsibilities of the personnel must be clearly defined by the operator in the form of operating instructions. In addition, special qualifications are required for the following activities:

- work on electrical equipment:
  may only be carried out by qualified electricians
- installation, commissioning, servicing, maintenance and repair work:
  may only be carried out by qualified specialist personnel

The fundamental regulations on safety at work, occupational health and accident prevention must be observed.

3. Warranty and liability

The **Standard Terms and Conditions of Sale and Delivery of DEHOUST GmbH** apply in all cases. In order to maintain warranty claims in the event of damage, the authorised dealer must be notified immediately, stating the installation location and the serial number of the device.

3.1. Statutory warranty obligations (excerpt)

The statutory warranty under Section 437 of the German Civil Code (BGB) applies.

Within the statutory warranty period, DEHOUST will rectify any malfunctions attributable to manufacturing or material defects free of charge.

This covers all faults that occur despite verifiable correct installation, proper operation and compliance with the operating and installation instructions.

3.2. Exclusion of warranty

The **Standard Terms and Conditions of Sale and Delivery of DEHOUST GmbH** apply in all cases. Warranty and liability claims for personal injury and property damage are excluded hereunder if they are attributable to one or more of the following causes:

- improper use of the **DEHOUST**GWtec®
- improper installation, commissioning, operation and maintenance of the **DEHOUST**GWtec®
- failure to follow the instructions in the manual in terms of transport, handling, storage, installation, commissioning, operation, servicing and maintenance of the **DEHOUST**GWtec®
- unauthorized structural modifications to GWtec®
- improperly carried out repairs
- catastrophic events caused by foreign objects and force majeure

4. General description

DEHOUSTGWtec® greywater treatment systems for greywater reuse treat lightly contaminated wastewater (so-called "greywater") from domestic sources, such as bathtubs, showers and sinks to produce high-quality water for non-potable uses.

In this process, the greywater undergoes mechanical and biological treatment using sophisticated filter technologies (hollow fiber membrane filters). The resulting service water then meets the hygienic/microbiological quality requirements of the European Standard EN 16941-2 (Systems for the use of treated greywater) and can be reused for non-potable applications in a manner that makes sense both ecologically and economically. It also meets the requirements in NSF/ANSI 350 corresponding to the designated classification C- Laundry & Bathing.

4.1. Functional description

In a first step, the inflowing raw greywater, which is collected separately, undergoes mechanical filtration in the coarse filter where all non-dissolved water contaminants like textile fluffing, or hair are removed. An automatic backwash unit cleans the filter plate in regular intervals to achieve high water yield.

In the next step, all organic, degradable water contaminants such as shower gel, shampoo, soap, etc. are decomposed with the assistance of specific microorganisms in the aerobic biological cleaning stage.

This is followed by a brief sedimentation phase, after which the core piece of the GWtec® greywater treatment system, i.e. the hollow fiber membrane filter with a PESM membrane surface, begins to filtrate the pre-treated greywater. With a physical pore size of just 20 nm (2,500 times finer than human hair), the filter safely retains any time all solid particles, germs and absorbed viruses within the system.

The filtration process is controlled by means of a specifically developed program (SmartFiltrationControl) for greywater filtration to achieve optimal filtration performance with maximum filter lifetime. After the filtration process, a defined amount of filtrated greywater is used for backwashing the hollow fibre membrane filter. Should the filtration pressure become excessively high, the filter will be given an additional backwash.

Thanks to the very high outflow quality – absolutely clear, odour-free and germ-free – the treated greywater (also known as service water) is suitable for hygienically safe long storage and a broad range of potential non-potable reuse applications.

Should no treated greywater be available, the system will automatically change over to drinking water to continue supplying water to all connected reuse points.

The centralized controller provides microelectronic monitoring and fully automatic control of all system processes. Malfunctions are indicated through visual and sound alarms. It is possible to connect a potential-free alarm contact to a standard port.

4.2. Basic System Layout

- The actual system may differ from the basic system layout. Observe the specific layout diagram!
- Examples of system configurations are available on our website www.dehoust.com

4.3. System components

The following list describes the scope of a complete DEHOUST GWtec® greywater treatment system.
Units marked with *) may be replaced by the customer's own components where appropriate.

Pre-assembled **DEHOUST**GWtec® greywater treatment system comprising the following components depending on the project:

- Modul 1
  Greywater collection tank inclusive bacteria
  Aeration unit and aeration unit extension(s) *)
  Greywater batch pump DOC 3/7 *)
  Coarse filter **DEHOUST**MAX I/MAX II*)
- Modul 2
  Greywater filtration tank including aeration unit
- Modul 3
  Rainwater filtration tank (optional)
  Rainwater make-up *)
- Modul 4
  GWtec® control/pump unit with web interface
  Smartfloc dosing station with 27-Litre canister
  Bacteria (liquid and dry) for building up the biological cleaning cultures
- Modul 5
  GWtec® membrane filter
  ultrafiltration module(s) comprising the hollow fibre membrane filter with a PESM membrane surface
- Modul 6
  Service water storage tank*
  Service water flow sensor *
  Backwash pump
  Drinking water make-up of type AB (EN 1717) *)
  Drinking water flow sensor *)
- Modul 7
  Pressure boosting system available on request or to be provided by the client
  AutoDrain
- Installation accessories for the above components
- Instructions
  - installation, operation, inspection manual
  - compressor operation manual
  - project-related wiring diagram of the **DEHOUST**GWtec® greywater treatment system

Different types of storage tanks are used depending on the type of system. Please refer to the packing list for the **DEHOUST**GWtec® grey water treatment system and the layout diagram for the entire system included in the scope of delivery.

4.4. Intended use

- Only operate the **DEHOUST**GWtec® when fully assembled and in perfect working order
- Use the **DEHOUST**GWtec® only for treating lightly contaminated domestic wastewater (greywater) from showers, baths and sinks
- Run the **DEHOUST**GWtec® only up to a maximum water temperature of 40°C
- Always avoid overheating
  (→ Possible consequences of non-compliance: Damage to mechanical seals, cavitation damage[1], bearing damage, etc.).
- Observe the specified maximum flows and pressures (Chapter 5).
- Do not restrict the upstream drinking water make-up flow to the greywater treatment system at the inlet (→ Possible consequences of non-compliance: cavitation damage, dry running of the pressure booster system).
- Consult the manufacturer regarding other operating modes not specified in the documentation.

Warning: The GWtec® greywater treatment system is not designed for outdoor use. Exposure to temperature, light and humidity can lead to malfunctions and damage to the equipment.

4.5. Avoiding improper use

- Use the **DEHOUST**GWtec® greywater treatment system only for its intended purpose and not outdoors.
- Never use for cleaning
  - industrial wastewater
  - highly contaminated sewage from kitchens
  - sewage containing faeces
  - sewage from dishwashers
  - sewage containing paints, dyes or colorants (e.g. residual paint, textile and hair dyes)
  - contaminated wastewater (e.g. concentrated lye and acids, medical mud baths, drugs/medications, highly foaming water additives, silicones, resins, solvents, colorants, flocculants)
- Do not pour any flammable media into the system's media connections
- Do not subject housings and tanks to mechanical loads (e.g. by placing objects on them or using them as a step)
- Do not make external modifications to the housings and tanks. Never paint or varnish housing parts and screws or bolts!
- Do not disassemble the **DEHOUST**GWtec greywater treatment system beyond the extent required for installation and maintenance.

Warning: The **DEHOUST**GWtec® greywater treatment system must only be operated in the areas of application described in this manual. Improper use or misuse of the greywater treatment system may pose a risk to people, surrounding equipment and the environment.

[1]Cavitation refers to the spontaneous formation of cavities in the hydraulic medium. These cavities appear in the form of bubbles. As these bubbles contain a vacuum inside them, they collapse immediately. This can lead to pump failure.

5. GWtec® Technical Data

5.1. Dimensions, weights and volumes

Type of GWtec®	DEHOUST GWtec®140	DEHOUST GWtec®240	DEHOUST GWtec®340	DEHOUST GWtec®440	DEHOUST GWtec®540	DEHOUST GWtec®640
Article No.	**813371**	**813372**	**813373**	**813374**	**813392**	**813393**
Treatment capacity Liter/day	3000 – 5000	10000	15000	20000	25000	30000-35000
Number of persons	100	200	300	400	500	600
Effective volume of service water tank (Liter)	3000	4000	2 x 4000	3 x 4000	5 x 4000	7 x 4000
Effective volume of greywater tank (Liter)	3000	4000	2 x 4000	3 x 4000	6 x 4000	8 x 4000
Dimensions (mm)	4850x1920x2720	Variant A: 5750x2250x2900 Variant B: 5050x2250x2900	Variant A: 9000x2250x2920 Variant B: 8200x2250x2920	Variant A: 12000x2250x2920 Variant B: 10500x2250x2920	Variant B: 17730x2250x2920	Variant B: 22600x2250x2920
Hyperlink to system configurations:						
Required clearance above tank (mm)	At least 700					
Noise level (dB)	max. 48 dB(A)					
Total weight (kg)	946	1287	2056	2921	4727	6256
Total weight when filled (kg)	8446	11287	20556	30922	54724	74256

5.2. Technology

Type of GWtec®	DEHOUST GWtec®140	DEHOUST GWtec®240	DEHOUST GWtec®340	DEHOUST GWtec®440	DEHOUST GWtec®540	DEHOUST GWtec®640
Greywater tank prefilter (mm)	MAX coarse filter 0.5					
Filter material	Hollow fibre membrane filter / PESM membrane surface					
Membrane filter pore size (nm)	20					
Filtration stage	Ultrafiltration					
Free outlet	Type AB					
Drinking water make-up	acc. to DIN EN 1717					
Drinking water make-up category	5					
Rainwater make-up	optional					
System controller	Fully automatic with real-time access					

*) The system meets the requirements of DIN EN 1717 by preventing backflow and protecting against cross-connections. This ensures that the public water supply is protected.

5.3. Electrical data

Type of GWtec®	DEHOUST GWtec®140	DEHOUST GWtec®240	DEHOUST GWtec®340	DEHOUST GWtec®440	DEHOUST GWtec®540	DEHOUST GWtec®640
Network connection	yes					
Condition for network connection	Stable connection without firewall					
Voltage supply (fusing)	400 V / 50 Hz / 16 A					
Power input (W)	2310		2440			
Current input (A)	5.9		6.2			
Energy use/consumption (kWh/m³)	0.5					
Floating output	yes					
Pressure booster	optional (DPA 14-40 Connect)					
Pressure booster power input (W)	2960					
Pressure booster voltage supply (fusing)	230 V / 50 Hz / 16 A					
Class of protection:	IP 54					
Insulation class	F					

5.4. Connections according to DIN ISO 228-1

Connection cable (m)	Fixed connection
Rainwater make-up connection	1 ¼“ IT
Drinking water make-up connection	1“ IT
Inlet/overflow connections	DN 100 (4”)
Tank drain connection	1½“ IT
Coarse filter backwash connection	1“ ET
Backwash IN	1 ¼“ IT
Backwash OUT	1 ¼“IT
AutoDrain	1“ IT

- All GWtec® units must be installed in a dry, frost-free and ventilated technical room.
- The maintenance requirements according to DIN EN 16941-2 and NSF/ANSI 350 must be observed.
- The Country-specific regulations, standards and laws must be observed as a matter of priority!

5.5. NSF/ANSI Standard 350 Classification

Greywater Connect Type	DEHOUST GWtec®140	DEHOUST GWtec®240	DEHOUST GWtec®340	DEHOUST GWtec®440	DEHOUST GWtec®540	DEHOUST GWtec®640
Article No.	813371	813372	813373	813374	813392	813393
Building types	Residential and commercial					
Types of wastewaters treated (influent)	Greywater, Laundry and bathing					
Uses of treated water (effluent)	Nonpotable applications, such as surface and subsurface irrigation, toilet and urinal flushing					
Ratings	Class C -multi-family and commercial / laundry and bathing					

5.6. Service water quality for GWtec® model series

5.6.1. Effluent criteria for Class C classification according to NSF/ANSI Standard 350

Measure		Class C	
		Test average	Single sample maximum
CBODs	mg/L	10	25
TSS	mg/L	10	30
Turbidity	NTU	2	5
Escherichia coli[2]	MPN/100 mL	2.2	200
pH	SU	6.0 to 9.0	N/A[3]
Storage vessel disinfection	mg/L	≥ 0.5 to ≥ 2.5	N/A
Colour		MR[4]	N/A
Odour		MR	N/A
Oily film and foam		Not detectable	Not detectable
Energy consumption		MR	N/A

[2] calculated as geometric mean
[3] N/A = not applicable
[4] MR = measured and reported only, there is no criteria requirement for these values

5.6.2. Examples of guideline values for bacteriological monitoring acc. to EN 16941-2

Parameters CFU/100 ml	Application by spraying	Application w/o spraying			Test method		System type
	Jetting, garden sprinkler, car wash	Toilet flush	Garden irrigation	Cleaning, i.e. washing machine	Application by spraying	Application w/o spraying	
Escherichia coli	Not detectable	250	250	Not detectable	EN ISO 9308-1	EN ISO 9308-3	Individual sites and residential communities
Intestinal enterococci	Not detectable	100	100	Not detectable	EN ISO 7899-2, or EN ISO 7899-1	EN ISO 7899-1	Individual sites and residential communities
Legionella pneumophila	10	N/A [5]	N/A	N/A	EN ISO 11731	N/A	If analysis required for risk assessment
Total coliforms[6]	10	1000	1000	10	EN ISO 9308-1	EN ISO 9308-3	Individual sites and residential communities

5.6.3. Example values for general system check under EN 16941-2

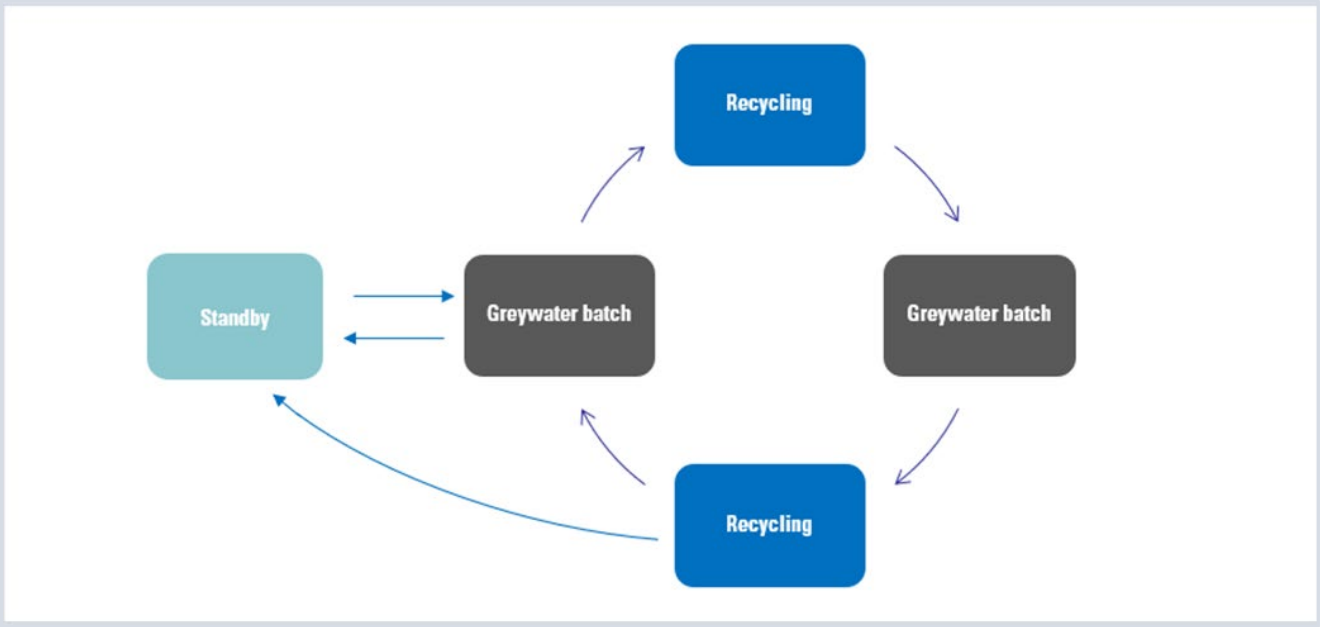
Parameters [7]	Application by spraying	Application w/o spraying			Test method	System type
	Jetting, garden sprinkler, car wash	Toilet flush	Garden irrigation	Cleaning, i.e. washing machine		
Turbidity (NTU)	< 10.0	< 10.0	N/A	< 10	EN ISO 7027-1	all systems
pH	5 to 9.5	5 to 9.5	5 to 9.5	5 to 9.5	EN ISO 10523	all systems
Residual Chlorine (mg/L)	< 2.0	< 2.0	< 5.0	< 2.0	EN ISO 7393-2	all systems if used
Residual Bromine (mg/L)	0.0	< 5.0	0.0	< 5.0	EN ISO 10304-1	all systems if used

[5] N/A = not applicable

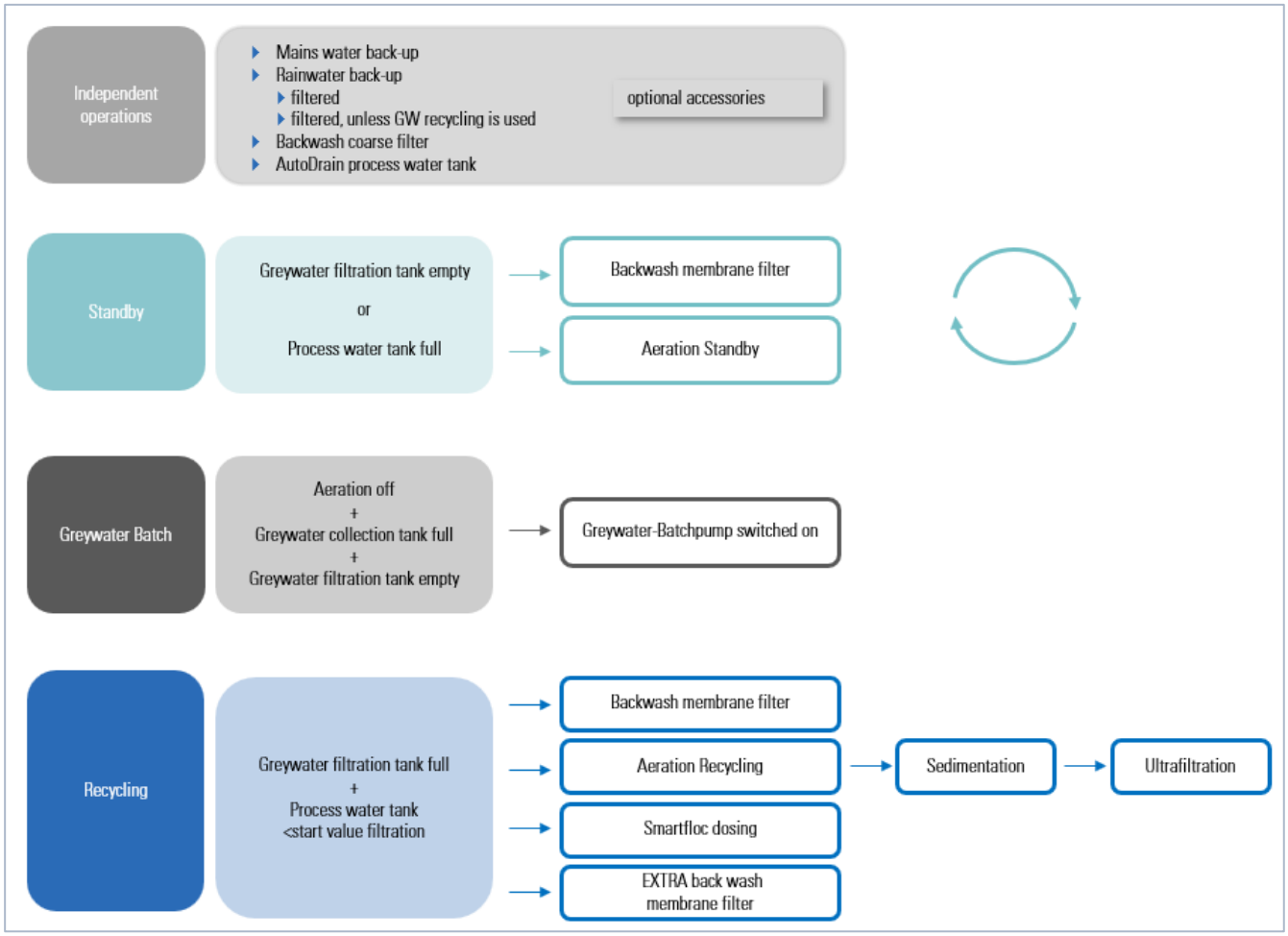
[6] „Total coliforms" is an indicative parameter showing that the system is ready for operation. The above bacteriological guideline values for the treated greywater indicate the need to test the treated water quality for supply and use.

[7] In addition to the above parameters, all systems should be checked for suspended solids and colour. The treated greywater should be visually clear, free of floating residues and basically uncoloured for all applications. Colour is particularly relevant for reuse in washing machines.

5.7. Schematic overview of operational procedures



The controller of the **DEHOUST**GWtec® greywater treatment system controls and monitors all processes and operations in a fully automatic manner. The key processes are now explained for better understanding.



5.7.1. Explanation of the different processes:

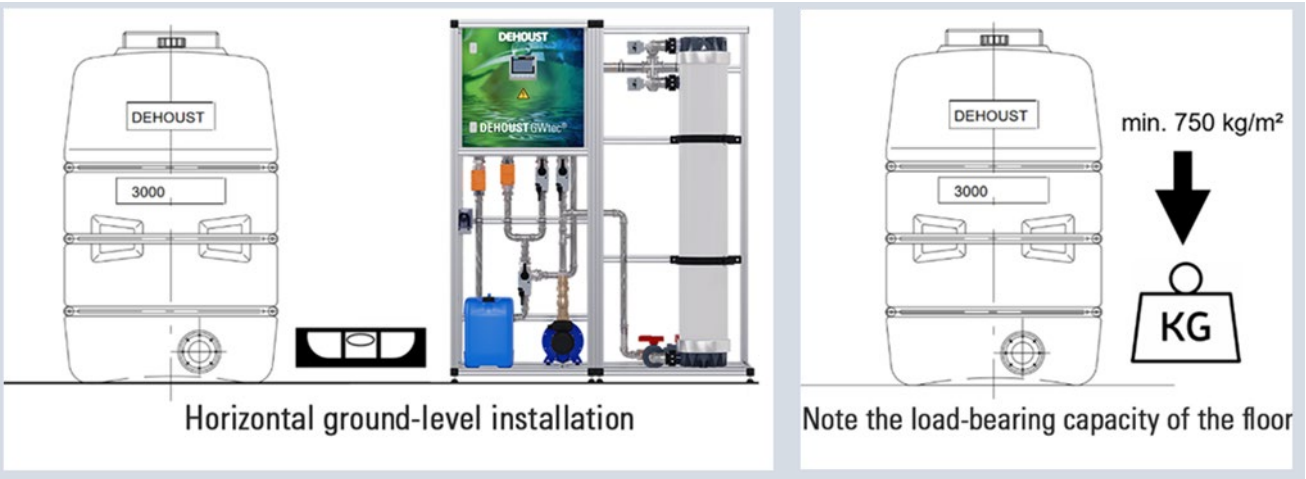
Drinking water make-up	Automatic supply of make-up drinking water within the defined liquid level limits of the service water tank (refer to Chapter 12.1.1).
Rainwater make-up	Automatic supply of make-up rainwater within the defined liquid level limits of the service water tank (refer to Chapter 12.1.1).
Filtered rainwater make-up	Automatic pump transfer of rainwater from the rainwater collection tank to the rainwater filtration tank. With the help of the rainwater feed pump, the rainwater is pumped through the filters and cleaned in the process.
Backwash coarse filter	Automatic backwash of the screen in the coarse filter according to settings (refer to Chapter 12.1.2)
AutoDrain service water tank	Automatic drainage of the service water tank after longer rest periods according to settings (refer to Chapter 12.1.1).
Backwash filter	Backwash of the membrane filter comprised of backwash (filtrate side to greywater side) and forward flush (greywater side top to bottom). The timing and quantity settings for the backwash are explained in Chapter 12.1.2.
Extended backwash	Extended backwash of the membrane filter comprised of extended backwash (filtrate side to greywater side) and extended forward flush (greywater side top to bottom). The time and quantity settings for the extended backwash are explained in Chapter 12.1.2.
Aeration standby	Aeration during standby of the greywater in the greywater collection tank and greywater filtration tank by means of the aeration unit according to time settings (refer to Chapter 12.1.2).
Greywater batch pump	Recirculation of the greywater from the greywater collection tank into the greywater filtration tank using the greywater batch pump
Aeration during recycling	Aeration during recycling of greywater in the greywater collection tank and greywater filtration tank using the aeration unit according to time settings (refer to Chapter 12.1.2).
Smartfloc dosing	A defined amount of Smartfloc flocculant is metered into the greywater filtration tank using the dosing pump in order to improve sedimentation. During recycling aeration, the flocculant is strongly mixed with the greywater to ensure a quicker reaction. The values are fixed values in the control program and cannot be changed.
Sedimentation	Rest-phase in the greywater collection tank and greywater filtration tank to allow for settling of the suspended solids and particles before filtration. The related time settings are explained in Chapter 12.1.2.
Ultrafiltration	During filtration, the flow rate at S4.3 and the pressure at S4.1 are continuously monitored. These values in combination provide information about the condition of the filter and the quality of the greywater. If the filtration pressure is too high, filter backwash will be adjusted accordingly. If the flow rate is too low, the coarse filter backwash and greywater retention time (including pre-treatment, sedimentation time etc.) will be adjusted accordingly. This filtration control was developed under the name of SmartFiltrationControl (SFC) exclusively for the filtration of slightly contaminated greywater. The filtration settings are explained in Chapter 12.1.2

6. Transport and storage / installation

The **DEHOUST**GWtec® is delivered on several pallets. Please take care during transport and handling to ensure the components are not bumped or knocked over. Keep all pallets or components in a dry and cool place that is protected from sun and frost.

Inspect every pack for damage upon delivery! Identify, record and report immediately any transport damage in detail in writing to the contract dealer or DEHOUST.

6.1. Requirements for the place of installation



- The **DEHOUST**GWtec® system requires a properly ventilated place, frost-free and dry on a level horizontal floor
- The load-carrying capacity of the floor must match the total weight of the **DEHOUST**GWtec® system in a filled operational condition (cf. Chapter 5).
- The room needs sufficient doorway clearance.
- The room must have sufficient ceiling height (system heights see Chapter 5.1/6.2)
- When calculating the size of the installation site, consider the tank widths:
  Tanks up to 2000 Liters have a width of 720 mm.
  Tanks with 2,500 Liters or more have a width of 995 mm.
- For maintenance and repair purposes, sufficient space of at least one meter must be provided in front of all components (coarse filter, storage tanks, GWtec® grey water treatment system, membrane filter).

The room temperature must not exceed the maximum permissible temperature of +10 °C to +25 °C in order to minimize hygienic risks in the service water tank.

The place of installation must have a suitable floor drain or pump sump to safely discharge overflowing water amounts in case of water backflow.

Do not operate the **DEHOUST**GWtec® system near living areas or bedrooms due to the noise from the air compressors, make-up water system and pumps.

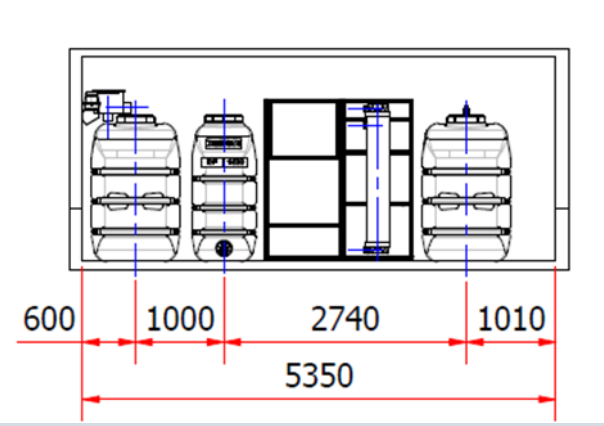
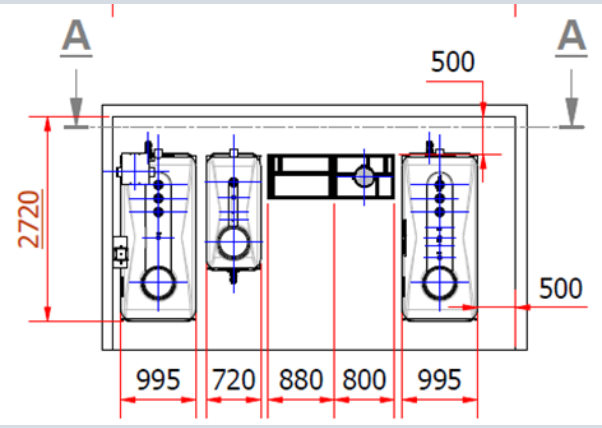
6.2. Installation of the tanks

- The installation of the tanks shall be in accordance with the separate installation drawing. Each individual tank is appropriately labelled and marked.
- Ensure that the surface is clean when setting up. Remove any dirt, debris, etc.!
- Do not move the containers on the floor to avoid damaging the surface!

After installation in the predefined place, the system must be connected to the power grid for an initial period of no less than 72 hours before the commissioning work can begin.

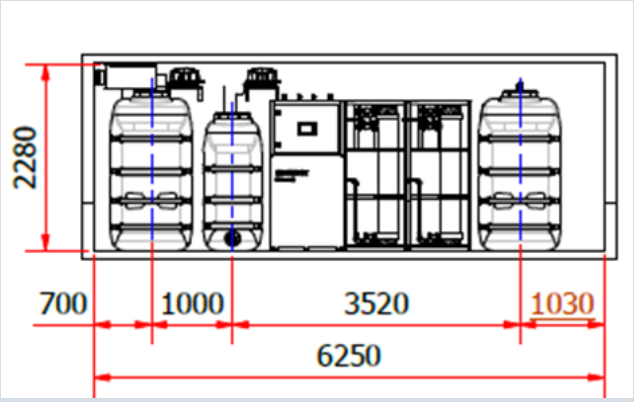
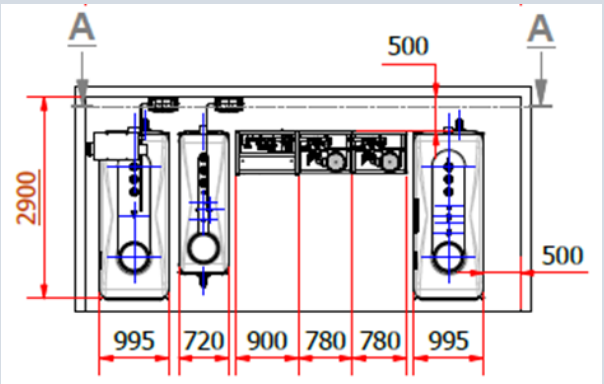
It is mandatory to install all tanks on the same level to avoid malfunctions in normal operation.

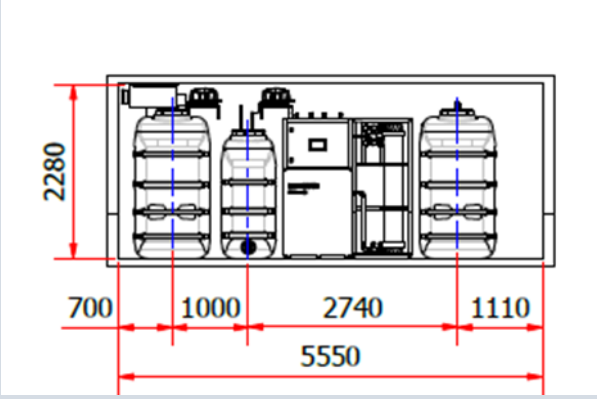
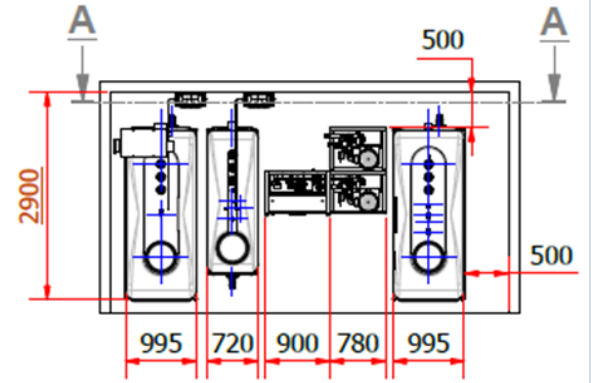
6.2.1. Installation of GWtec® 140

A filter element / front view	Installation top view
	

You will find detailed drawings and installation drawings here:

6.2.2. Installation variants for GWtec® 240

Variant A Two filter elements side by side	Installation top view
	

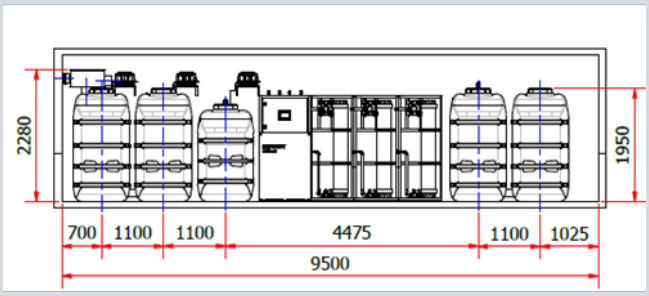
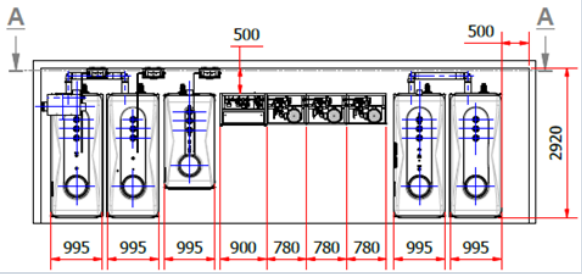
Variant B Two filter elements in series, 80 cm less space (width)	Installation top view
	

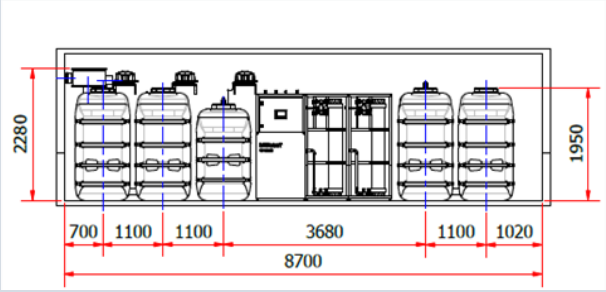
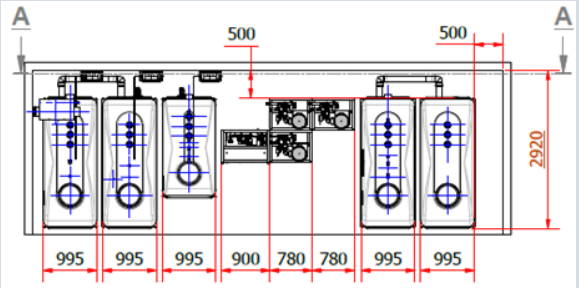
You will find detailed drawings and installation drawings here:

Variant A

Variant B

6.2.3. Installation variants for GWtec® 340

Variant A Three filter elements side by side	Installation top view
	

Variant B Three filter elements 80 cm less space (width)	Installation top view
	

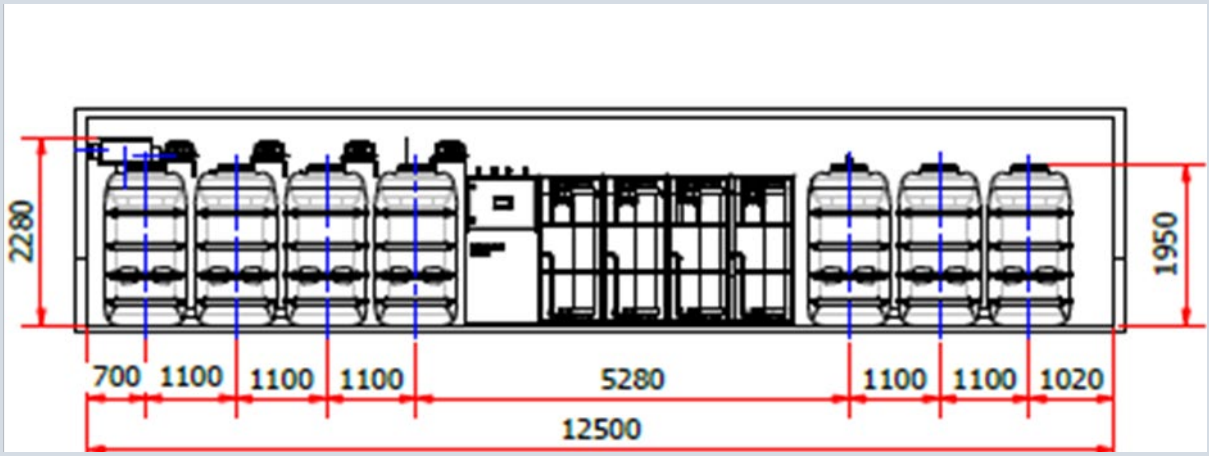
You will find detailed drawings and installation drawings here:

Variant A

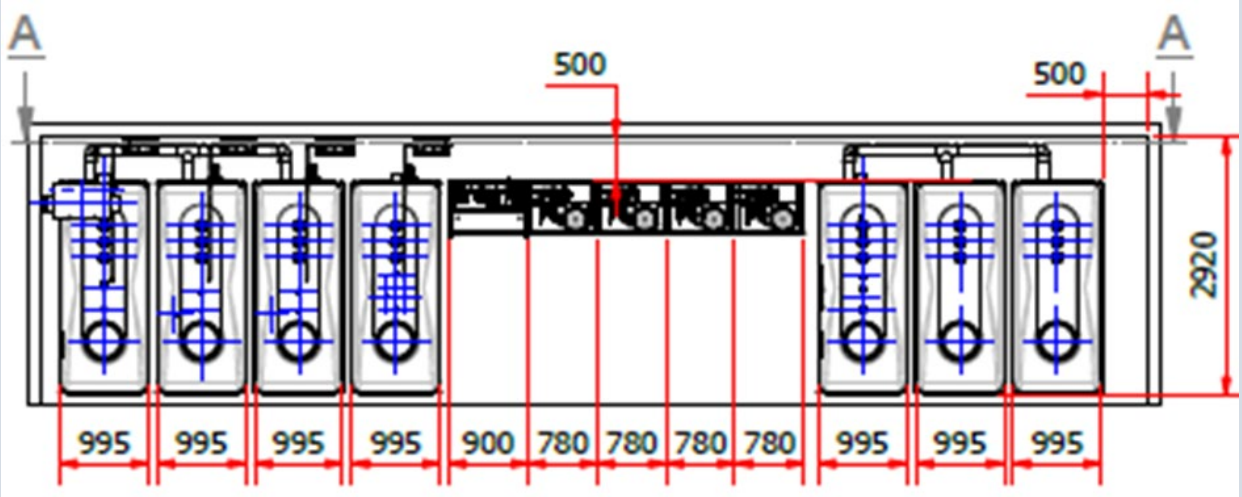
Variant B

6.2.4. Installation variants for GWtec® 440

Variant A
Three filter elements side by side



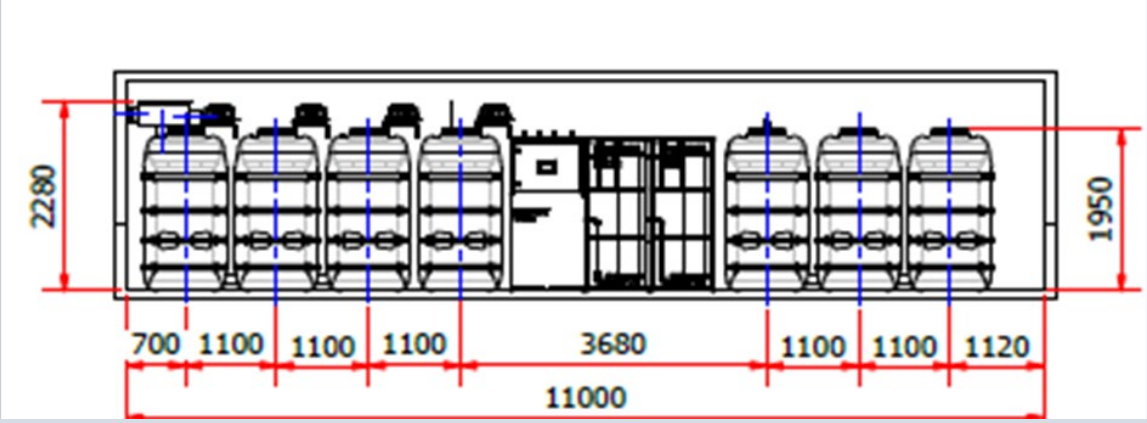
Installation top view



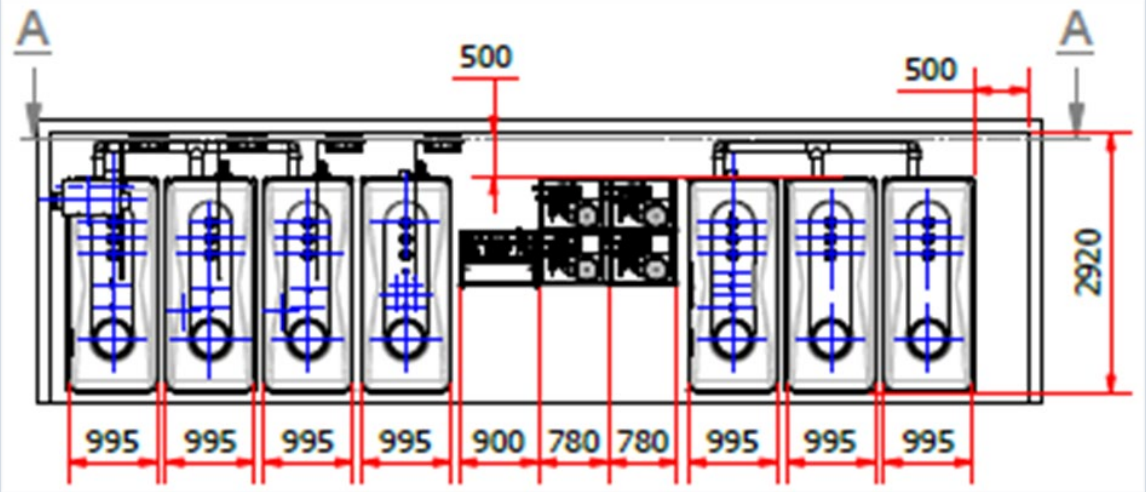
You will find detailed drawings and installation drawings here:

Variant B

Four filter elements in a group,
160 cm less space (width)



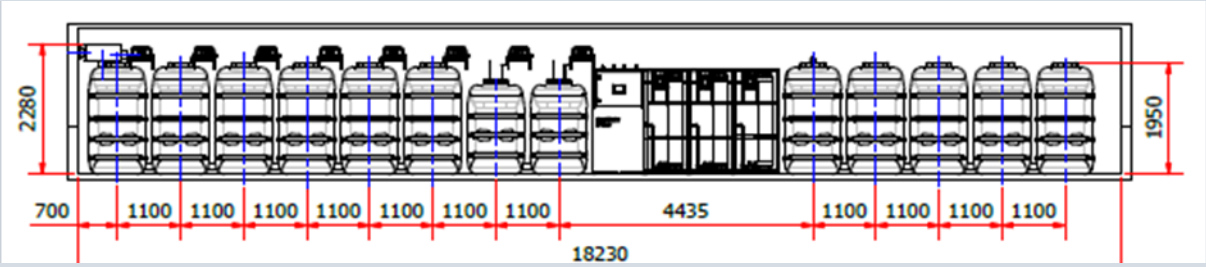
Installation top view



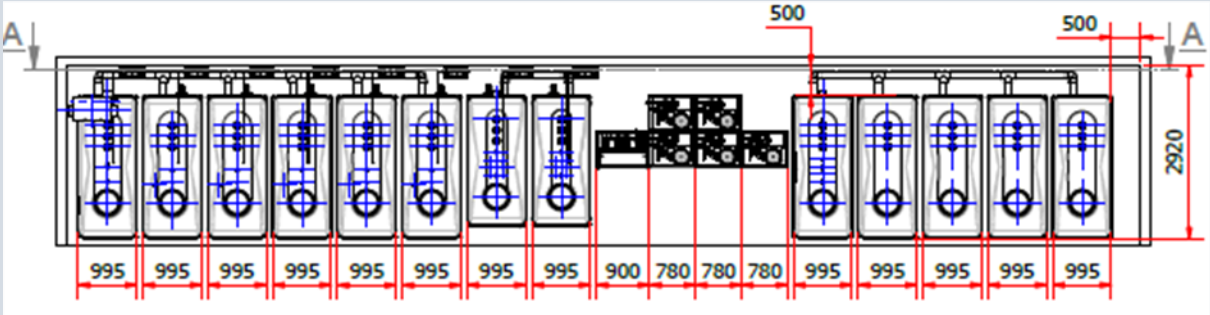
You will find detailed drawings and installation drawings here:

6.2.5. Installation of GWtec® 540

Variant B
Four filter elements in a group



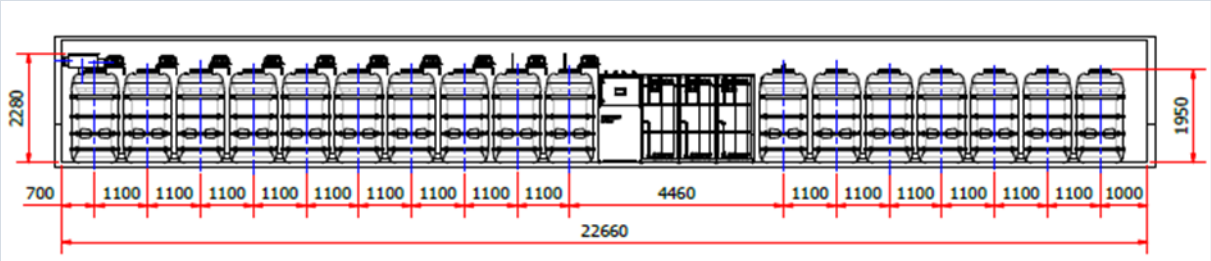
Installation top view



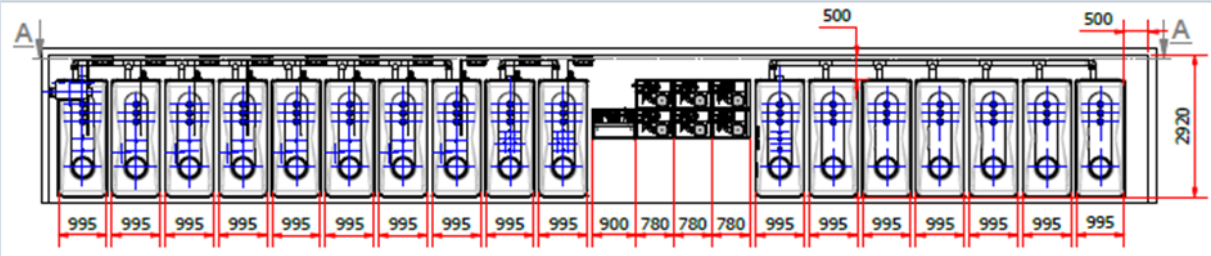
You will find detailed drawings and installation drawings here:

6.2.6. Installation of GWtec® 640

Variant B
Six filter elements in a group

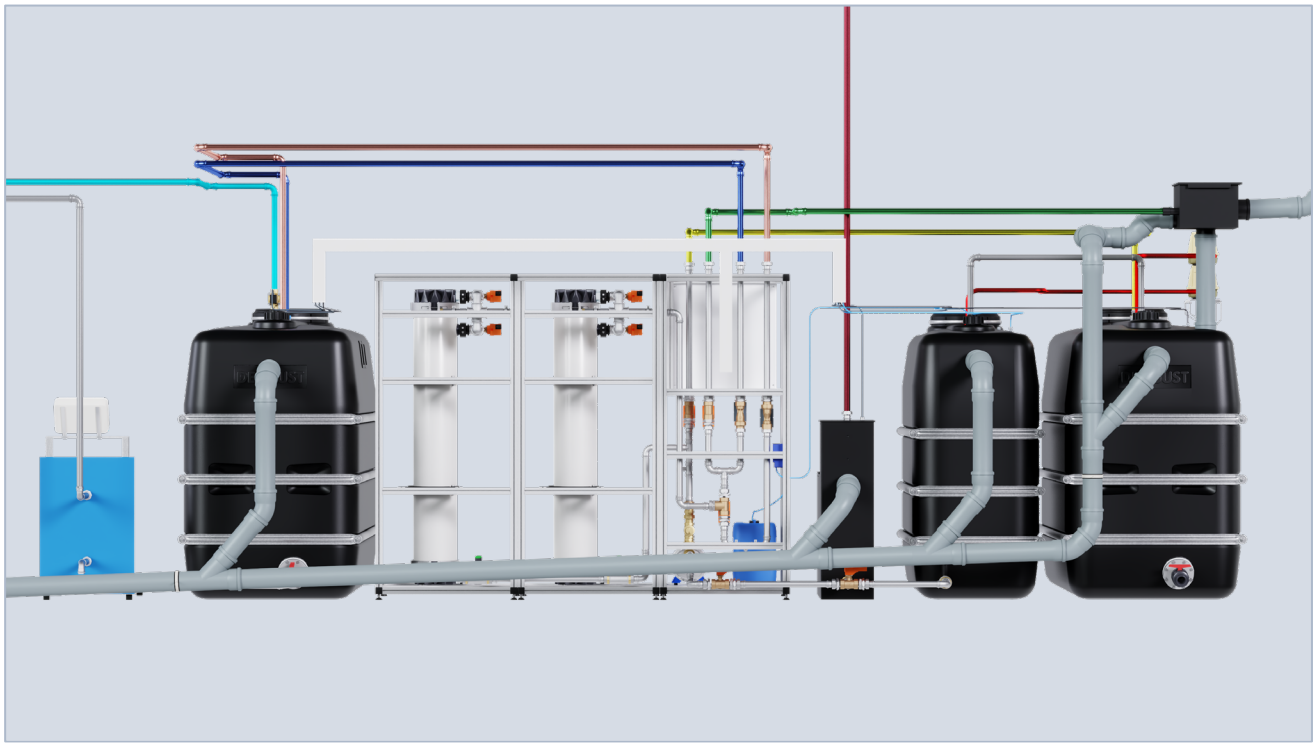


Installation top view



You will find detailed drawings and installation drawings here:

7. Piping between system components



For the interconnection of system components, we recommend the use of pipes from Viega corporation:

- Type Viega pipe Sanpress 2203, 28 x 1.5 mm, grade 1.4401 or equivalent
- Type Viega pipe Sanpress 2203, 35 x 1.5 mm, grade 1.4401 or equivalent.

8. Assembly

8.1. Installation of the GWtec® system, the membrane filter and the greywater filtration tank

For ensuring safe operation, it is important to place the greywater filtration tank directly next to the greywater treatment system and the membrane filter on the same level.

8.1.1. Installation on filter rack

Figure 1: Connecting plate

The GWtec® controller unit and the filter rack are rigidly fixed together using the connecting plate.

Place the two racks (GWtec® controller unit + filter rack) directly next to each other and secure them with the connecting plate.

Connect the lower and upper filtration pipes with the pipe unions to form secure, tight and stress-free threaded connections.

Figure 2: Connect the upper pipe union

Figure 3: Top filter connections

Figure 4: Connect the lower pipe union

Figure 5: Top front connections

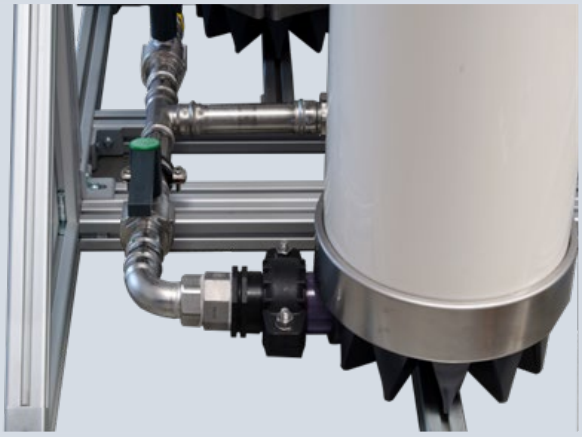


Figure 6: Bottom connections shut-off 2

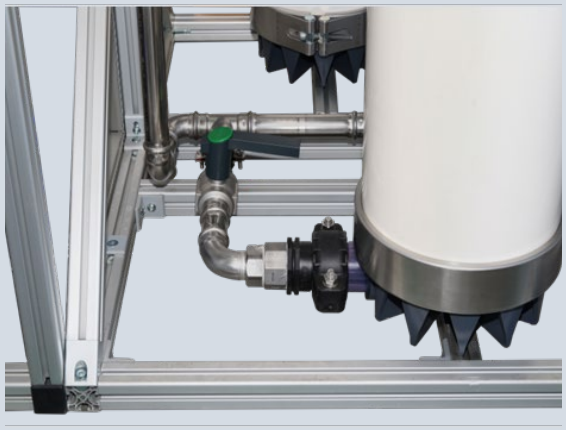


Figure 7: Bottom connections

8.1.2. Installation of the suction line to the filtration pump

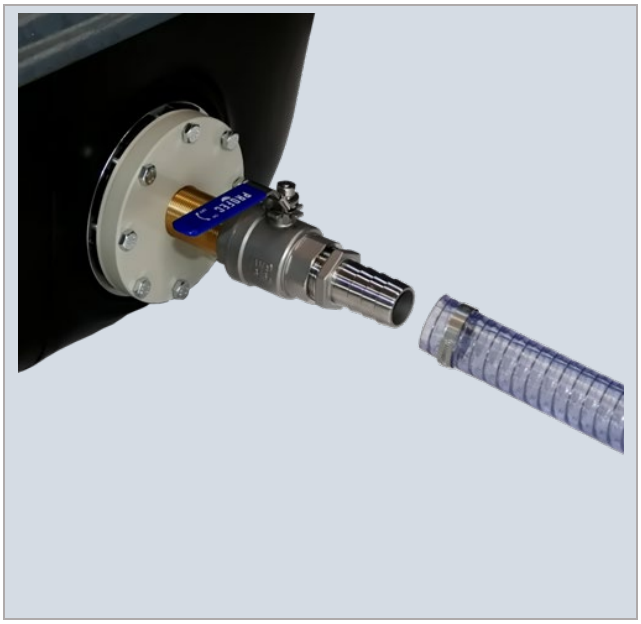


Figure 8: Attach the 1 ¼ inch (GWtec® 140/240) and 1 ½ inch (GWtec® 340/440/540/640) PVC hose to the greywater filtration tank using a stainless-steel hose clamp.

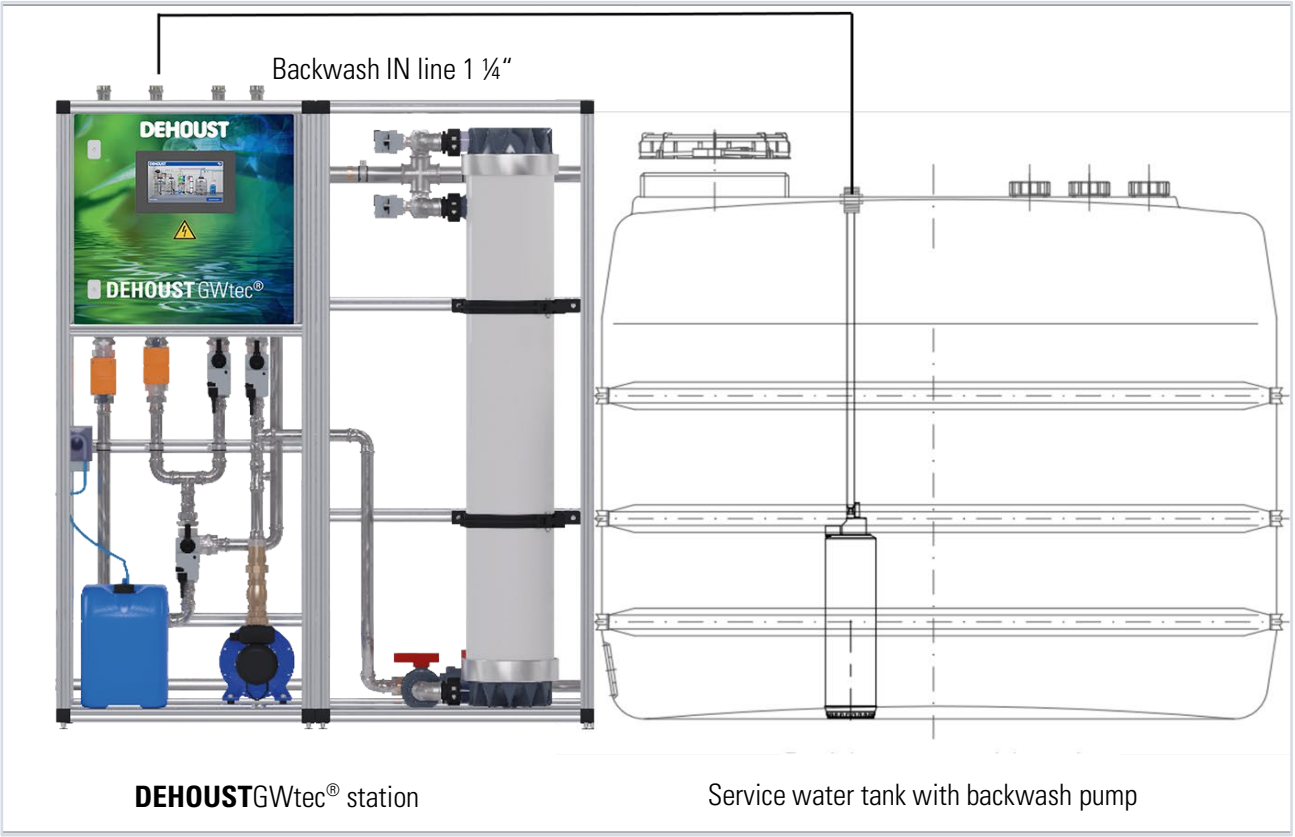
Figure 9: Attach the 1 ¼ inch (GWtec® 140/240) and 1 ½ inch (GWtec® 340/440/540/640) PVC hose to the filtrate pump using the (three-part) brass pipe union.

Connect the appropriately labelled tank fitting (filtrate pump) of the greywater filtration tank with the suction inlet of the filtrate pump using the transparent PVC hose included in the delivery, the pre-mounted brass pipe union and the hose clamps.

Please note the following to avoid malfunctions during operation:

- Maximum suction length: 3 metres
- Make sure the routing of the PVC hose to the filtrate pump is horizontal (no upward/downward slope)
- Make sure there is no constriction/kink in the PVC hose
- Before start-up, open the shut-off valve at the greywater filtration tank
- Vent the pump (refer to Chapter 13.1)

8.1.3. Backwash "IN" connection



DEHOUSTGWtec® station

Service water tank with backwash pump

Install the DN 32 (1 ¼") backwash piping from the backwash pump at the service water tank (no drinking water) to the respective backwash inlet of the GWtec® station to form a secure, tight and stress-free connection.

Use Viega pipe Sanpress 2203, 35 x 1.5 mm, grade 1.4401, or equivalent, for the backwash piping.

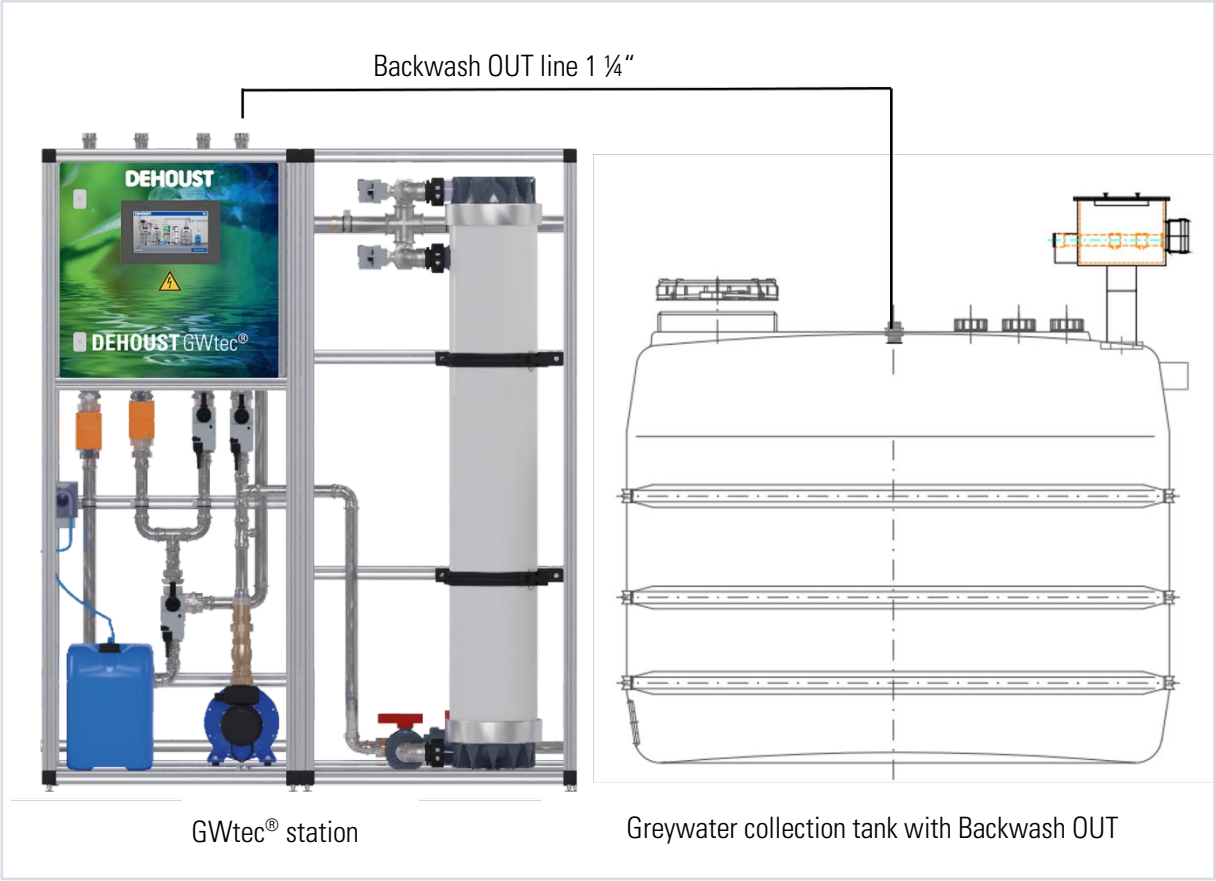
Do not connect it to the drinking water line.

Prevent any corrosion/erosion products that may form in the pipelines or service water tank from entering the membrane filter. We recommend the installation of a drinking water filter with a mesh size of 125 micrometres to avoid the presence of abrasive or filter-blocking particles in the backwash water.

The backwash water must be free of abrasive or membrane-blocking particles and have at least the ultrafiltration water quality produced by the membrane filter (refer to Chapter 5.6)

It is advisable to install a shut-off valve and a detachable connection in the backwash pipe.

8.1.4. Backwash "OUT" connection



Connect the appropriately labelled fitting at the GWtec® station (Backwash OUT) with the tank fitting at the greywater collection tank (Backwash OUT) using a DN 32 (1 ¼") backwash line.

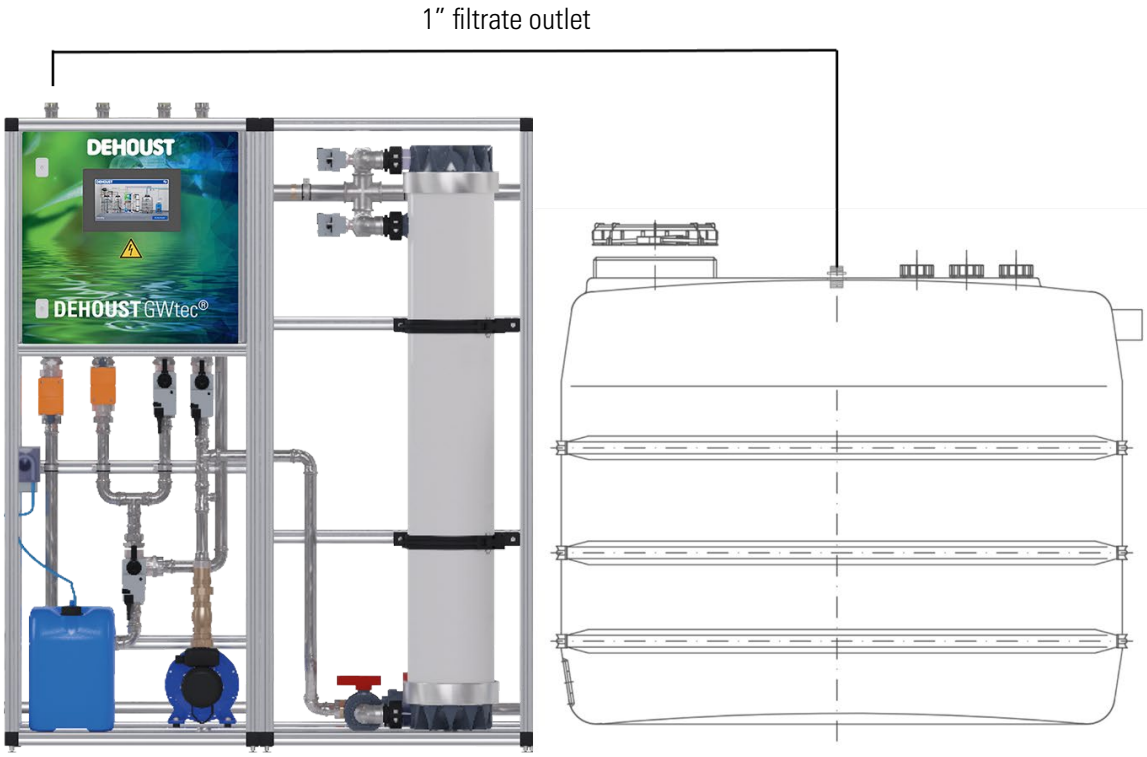
Alternatively, you can use the accordingly labelled fitting at the GWtec® station (Backwash OUT) to make the connection with the sewer to discharge the backwash flow to the sewage system.

Use Viega pipe Sanpress 2203, 35 x 1.5 mm, grade 1.4401, or equivalent, for the backwash piping.

Do not connect it to the drinking water line.

We recommend installing a shut-off valve and a releasable connection in the backwash line.

8.1.5. Filtrate line connection



Connect the appropriately labelled fitting at the GWtec® station (filtrate outlet) with the tank fitting (filtrate outlet) at the service water tank.

To do so, use the black PVC hose included in the delivery and the pre-mounted PP hose nozzles inclusive of flat gaskets.

When laying the PVC hose, take care to avoid constrictions/kinks that might restrict the free flow of the outgoing filtrate.

8.2. Smartfloc dosing station

Figure 10: Smartfloc canister with suction lance

Connect the soft, transparent PVC hose to the suction lance.

Do not insert the full length of the suction lance into the Smartfloc canister to have some spare length.

You can adjust and fix the height of the suction lance by turning the canister screw connection up or down.

After immersing the suction lance, it is advisable to keep it moist, as the flocculant crystallizes easily and may impair the float function.

Place the Smartfloc canister into the GWtec® station and connect the soft, transparent PVC hose to the inlet (left side) of the dosing pump.

Figure 11: Placement of Smartfloc canister in the GWtec® station

Figure 12: Dosing pump

Connect the white PVC hose to the outlet (right side) of the dosing pump and to the "dosing pump" fitting on the greywater filtration tank. Push it through the fitting on the tank top and place the end of the PVC hose at a depth of at least 50-80 cm in the greywater filtration tank to allow for optimal mixing of the flocculant. Keep the hose as short as possible!

8.3. Coarse filter connection

8.3.1. Connection to water pipes

Figure 13: Coarse filter inlet and outlets

Figure 14: Internal view of coarse filter

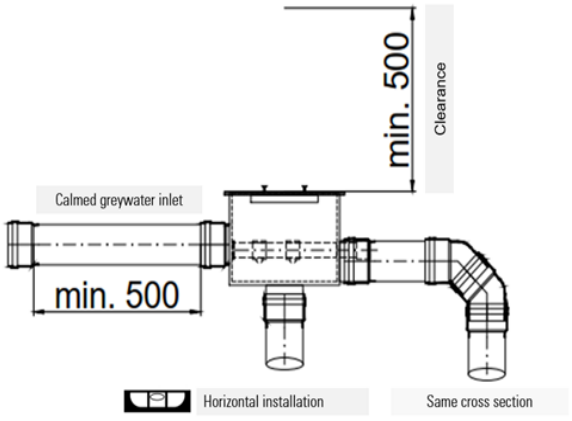


Figure 15: Coarse filter dimensions

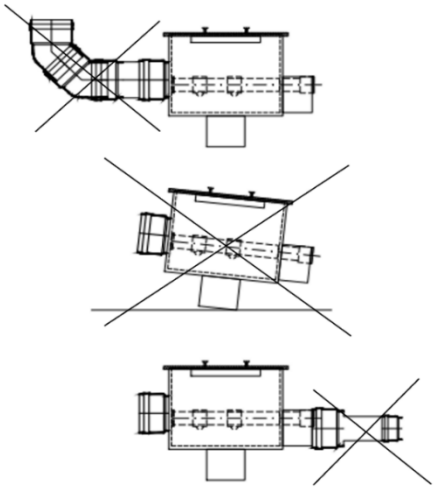


Figure 16: Mounting indications

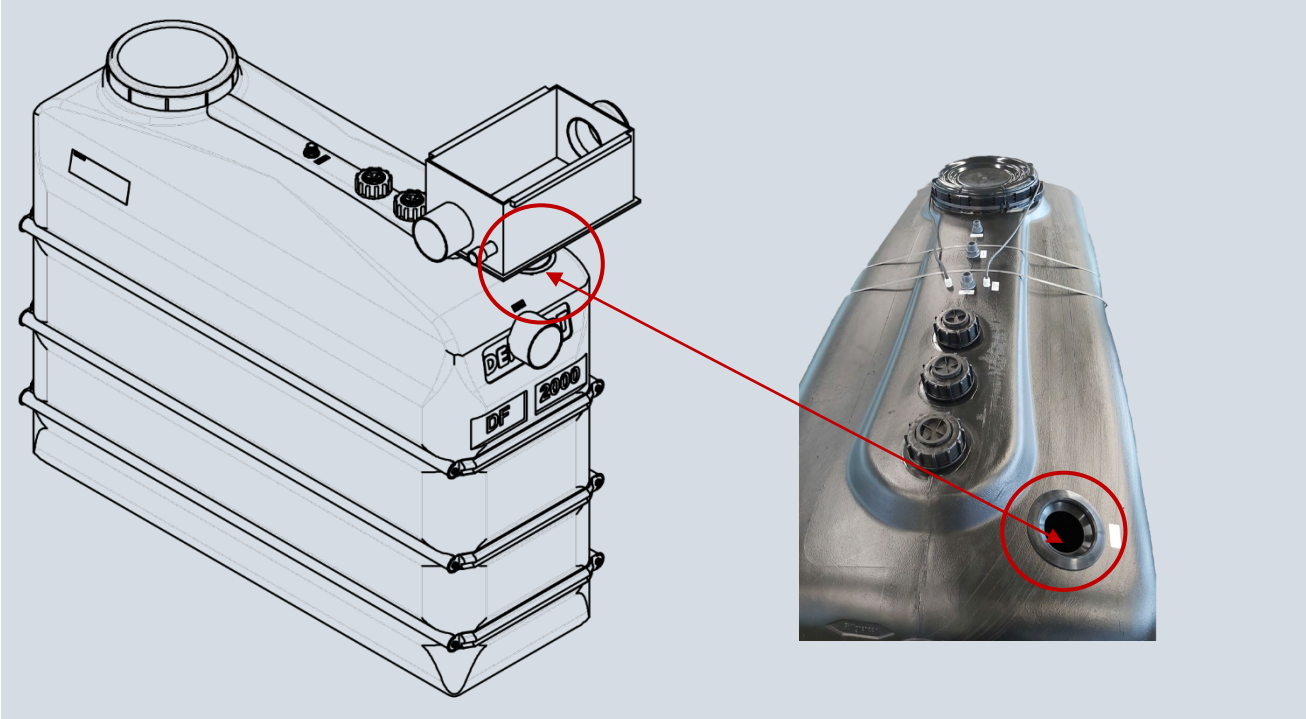
Connect the outlet for filtered greywater securely, tightly, and without tension to the inlet of the greywater collection tank (see also the next chapter).

Connect the overflow of the coarse filter with sufficient slope to the drain/sewer.

The greywater downpipe must not be connected to the coarse filter until all construction work inside the building has been completed.

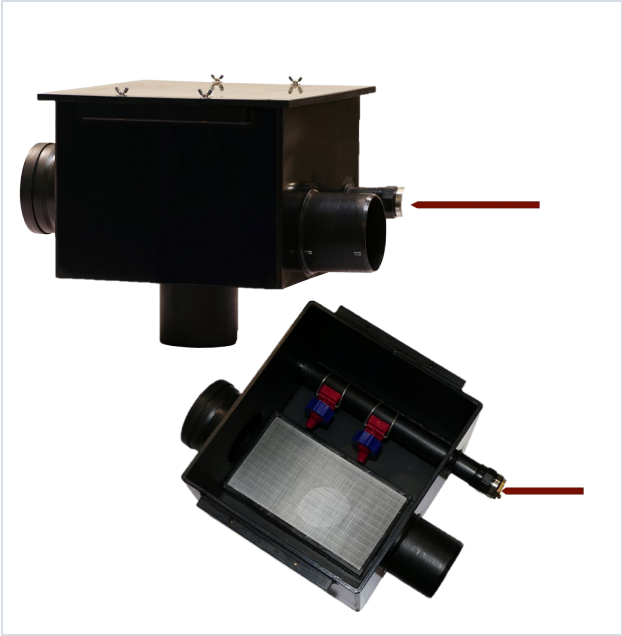
Do not connect it to the drinking water line.

8.3.2. Coarse filter connection



Connect the greywater from the coarse filter to the accordingly marked lip seal at the greywater collection tank (greywater inlet – see figure 13) in a secure, tight and stress-free manner. The tank has a lip seal marked accordingly.

8.3.3. Connection to the backwash line

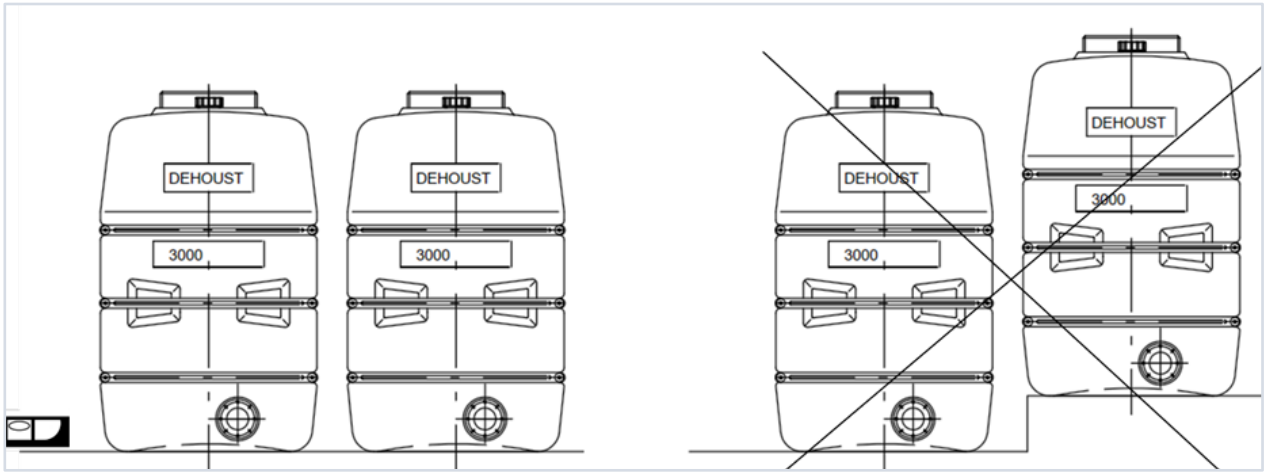


Connect the backwash fitting of the **DEHOUST**MAX coarse filter with the service water piping from the GWtec® station (coarse filter backwash) in a secure, tight and stress-free manner.

Use Viega pipe Sanpress 2203, 28 x 1.5 mm, grade 1.4401, or equivalent, for the backwash piping.

8.4. The storage tanks

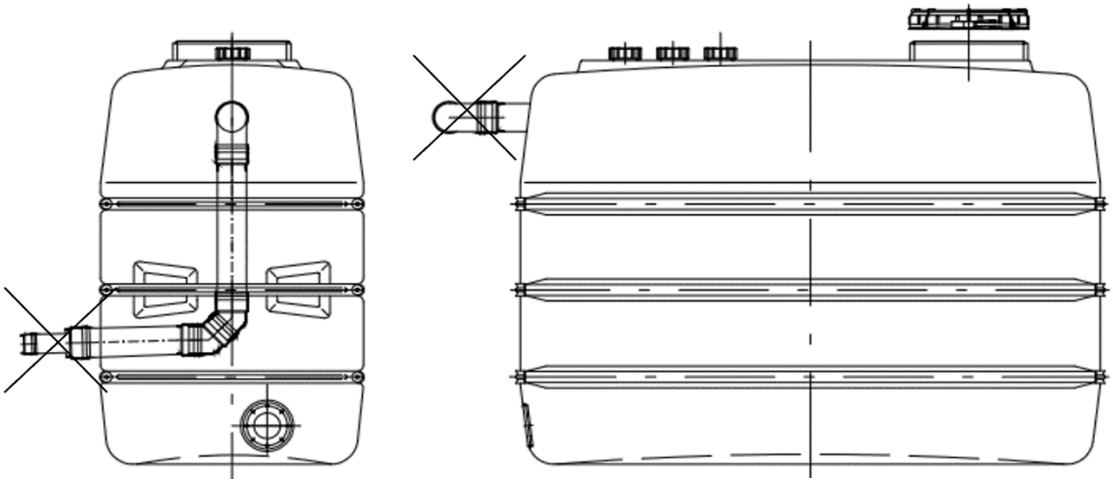
8.4.1. Installation



Make sure the tanks are all installed horizontally on the same level to avoid malfunctions during operation.

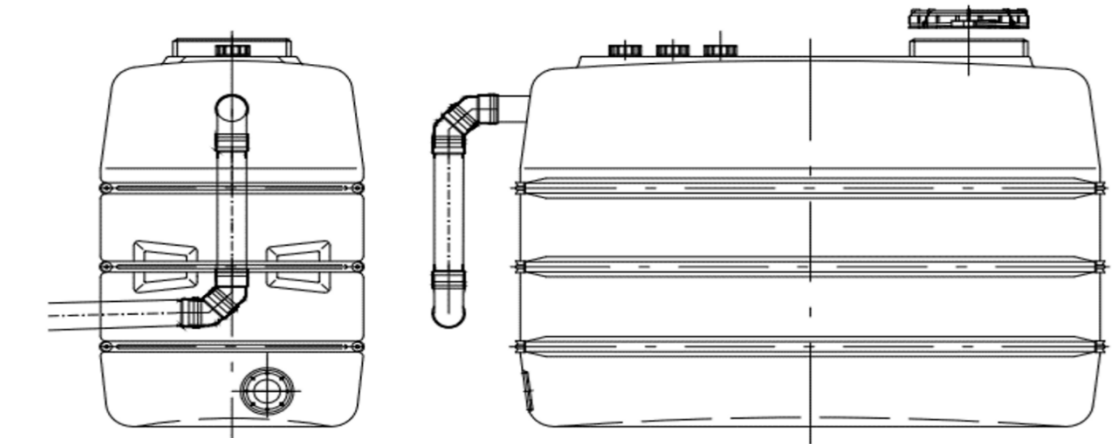
Space for personal nots:

8.4.2. Connection to sewer



No cross-section reduction

Prevent backflow in storage tank



Lay overflow pipe with gradient

Install overflow pipe downwards

The overflow connector of the storage tanks is a smooth pipe socket. Connect it with the sewer/drain.

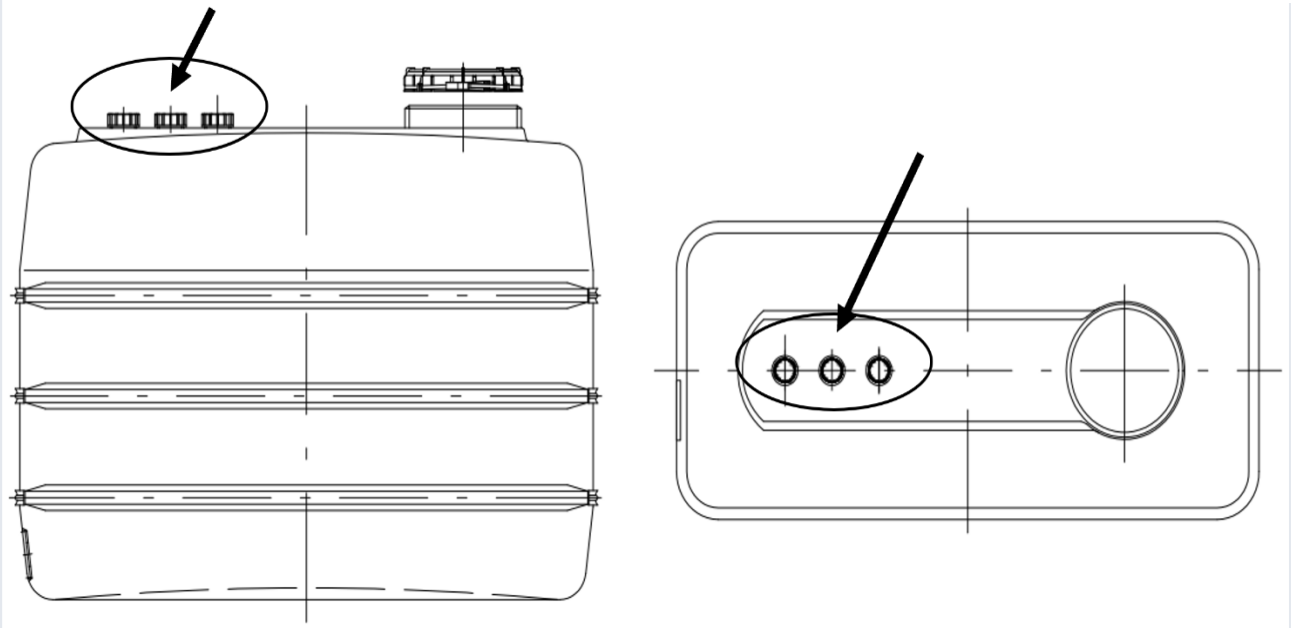
The installation room is exposed to a risk of flooding if the overflow fitting is not connected with the sewage system. Ensure that, when connecting the overflow pipes from the greywater and service water tanks to the sewer, no greywater can flow into the service water tank.

Since the storage tank undergoes lifting and settling movements, the connection must be flexible (for example, do not insert the pipe joint until stop into the tank fitting – leave about 1 cm of space).

Install a siphon in the overflow line to avoid unpleasant odours.

8.4.3. Vent connection (optional)

Vent line connection 2" female threads on the storage tank



We recommend the installation of a separate vent line (not included in the delivery) for the greywater collection tank and the greywater filtration tank. Either tank features a 2" tank connector with internal thread for this purpose.

8.4.4. Emergency overflow of service water tank

Service water storage tank

In case of backflow into the service water tank, e.g. from clogged sewers, malfunction of a sewage lifting station, or the like, the backflow water will be discharged into the installation room through the lateral emergency overflow slots in the tank. In Europe, this unrestricted overflow under the EN 1717 standard is mandatory for the protection of the drinking water line.

The installation room must be equipped with an appropriate floor drain / pump sump for the safe discharge of backflows through the emergency overflow slot of the service water tank in a backflow situation.

8.5. The aeration unit

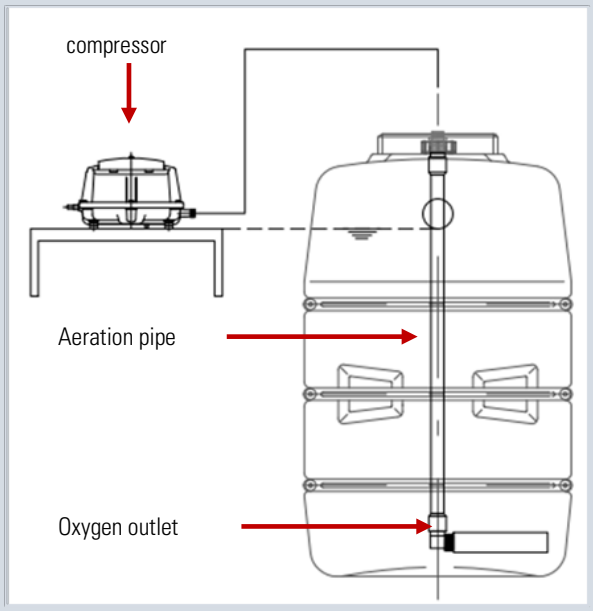
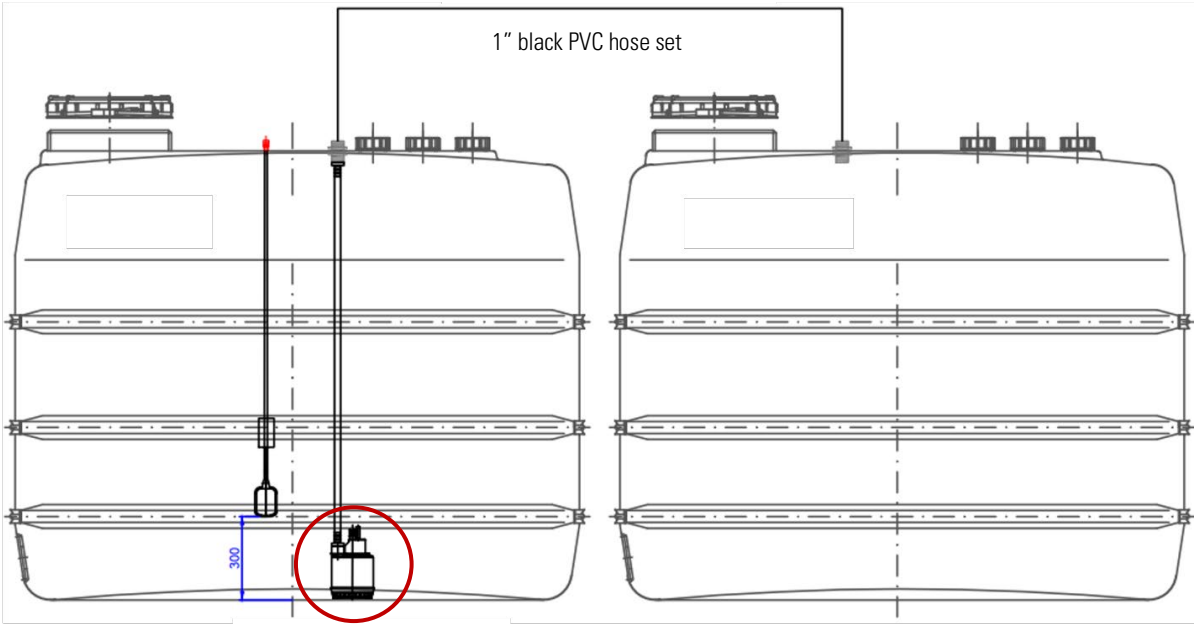


Figure 17: Aeration unit for greywater collection tank

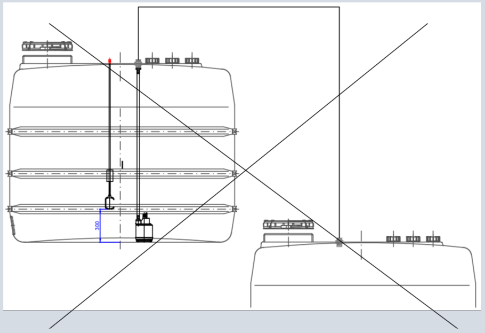
- Install the compressor in the immediate vicinity of the greywater collection tank / greywater filtration tank.
- Place the compressor above the water level.
- Mount the pump console to a load-bearing wall using the mounting accessories included in the delivery.
- Ensure that all four feet of the compressor are firmly supported on the pump console.
- Connect it to the accordingly labelled tank fittings (aeration unit) using the red PVC hose included in the delivery and the pre-mounted PP hose nozzles inclusive of the white flat gaskets to form a secure, tight and stress-free connection.
- When laying the PVC hose, take care to avoid constrictions/kinks that might restrict the free flow of air.

8.6. Greywater batch pump



Connect the accordingly labelled tank fittings (greywater batch pump) using the black PVC hose included in the delivery and the pre-mounted PP hose nozzles inclusive of the white flat gaskets to form a secure, tight and stress-free connection.

Avoid siphon effect / self-draining!



When laying the PVC hose, take care to avoid constrictions/kinks that might restrict the free flow of the greywater.

8.7. Backwash pump

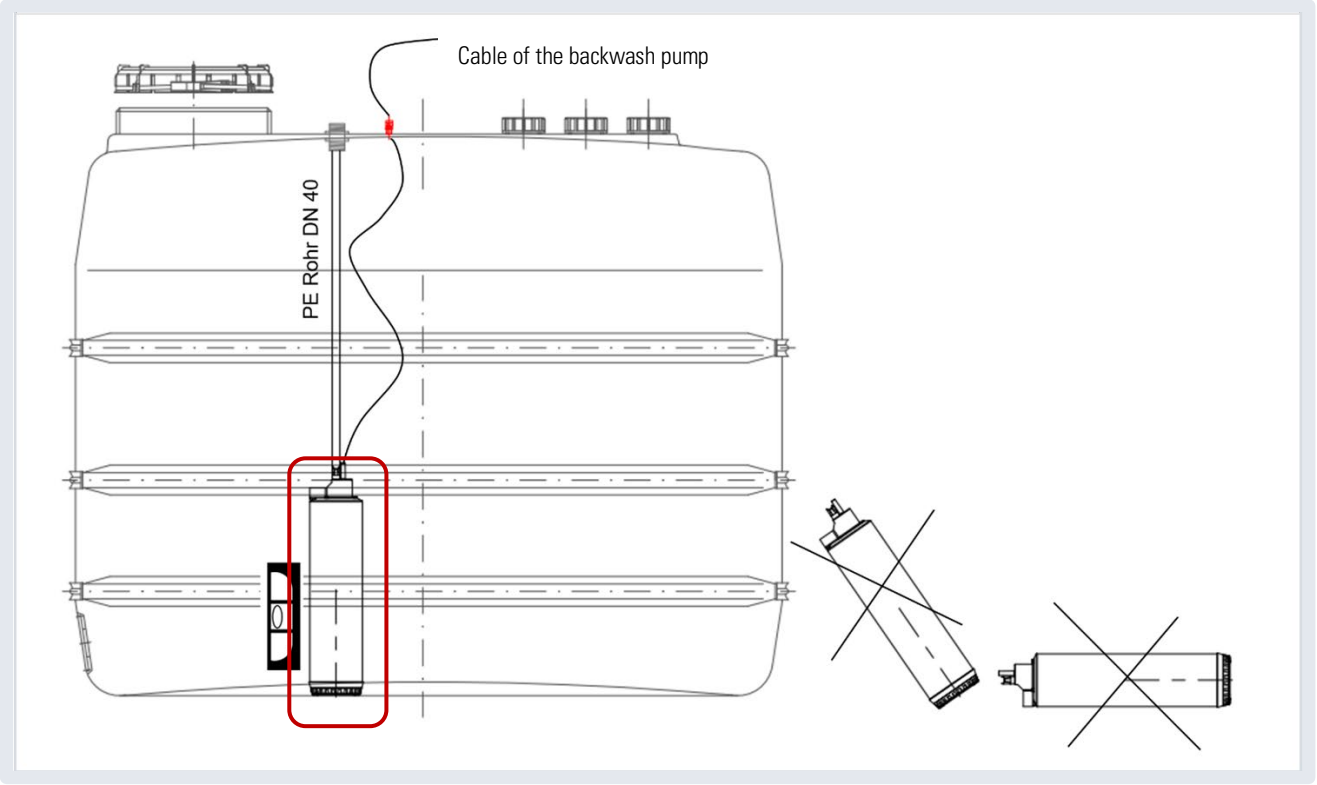


Figure 18: An upright position of the backwash pump within the tank is important

Connect the backwash pump in the service water tank using the PVC plug-in connector and the black HDPE pipe to form a secure, tight and stress-free connection. Pass the cable of the backwash pump from the inside through the screwed cable gland at the top of the tank (shown in red in the drawing) and tighten the cable gland to fix the cable.

Never pull the pump cable.

The pump cable in the tank should be at least 2–3 m long for maintenance purposes.

8.7.1. Connectors for cabling

60X3

Caution:

Only connect after commissioning and after the system has been started up
(see chapter 9 and instructions in Chapter 14.2).

Connect the cable to the control unit plug as follows	
1 = brown	4 = remains free
2 = black	3 = grey
centre = green/yellow (PE)	

8.8. Drinking water make-up connection

Connect the appropriately marked connection on the service water storage tank (drinking water make-up) to the drinking water mains securely, tightly and without tension. Use only certified materials for drinking water installations for this purpose. No forces must be applied to the connection nozzles or the system.

- Since the service storage tank undergoes lifting and settling movements, the connection must be flexible.
- The drinking water make-up amount must correspond to the maximum volumetric flow of the connected pressure booster system to guarantee for a permanent water supply to the pressure booster system.

- The building owner is recommended to install a shut-off valve, a releasable threaded connection and an external water fine filter (125 micrometres).
- We recommend the installation of a cold-water meter.

8.8.1. Drinking water flow sensor

Flow sensor (uncalibrated) for measuring the drinking water flow rate. Sensor with a flow rate of up to 12 m³/h

- Inlet: 1 1/2" IT
- Outlet: 1 1/2" IT
- Control: ModBus
- Electrical connection: 24 V / 50 Hz
- Wattage: 2.5 W

Make sure the flow sensor is installed and sealed in between the drinking water make-up valve at the tank and the water mains entry point of the building.

The electrical connection shall be in accordance with the circuit diagram **DEHOUST**GWtec® *Drinking water flow sensor*

8.9. Connection to the service water system

Service water storage tank

PVC shut-off valve for suction line towards the pressure booster

Connect the appropriately identified suction line fitting on the service water tank (see picture below) with the building's pressure booster system in a secure, tight and stress-free manner.

Since the service storage tank undergoes lifting and settling movements, the connection must be flexible.

- The building owner is recommended to install a shut-off valve and a releasable threaded connection.
- We recommend the installation of a cold-water meter.

9. Cabling of modules

Greywater Collection tank	Greywater filtration tank(s)	Rainwater filtration tank	GWtec® controller	Filter (depending on variants 1 to 6)	Service water storage tank	Booster pump

Connection boxes are installed for each module (numbered consecutively here), enabling connection between the modules and to the GWtec® control system. The corresponding mating connectors are located below the GWtec® control system (module 4 here, see figure below).

The connections for module boxes and system components located on the underside of the GWtec® controller are labelled.

Module	System component	Plug labelling for 230 V components	Plug labeling module boxes for sensors (green)
	Example of plug variant 230 V components (top view)		
1	Greywater collection tank(s)	 10X2 Aeration pump	11X3 Module box 1
		 10X4 Batch pump	
2	Greywater filtration tank(s)	 20X2 Aeration pump	21X3 Module box 2

Module	System component	Plug labelling for 230 V components	Plug labeling module boxes for sensors (green)
3*)	Rainwater filtration tank	 30X2 rainwater supply pump	31X3 Module box 3 – RFT-Sensor 32X4 Module box 3 - Modbus
4	GWtec® controller		
5	Filter (depending on variants 1 to 6)		51X4 Module box 5
6	Service water storage tank	 60X1 solenoid valve drinking water recharge unit  60X3 backwash pump	61X3 Module box 6 Service water 61X4 Module box 6 Drinking water
7*)	Booster pump	See separate instructions (Section 1.2)	

*) optional accessories

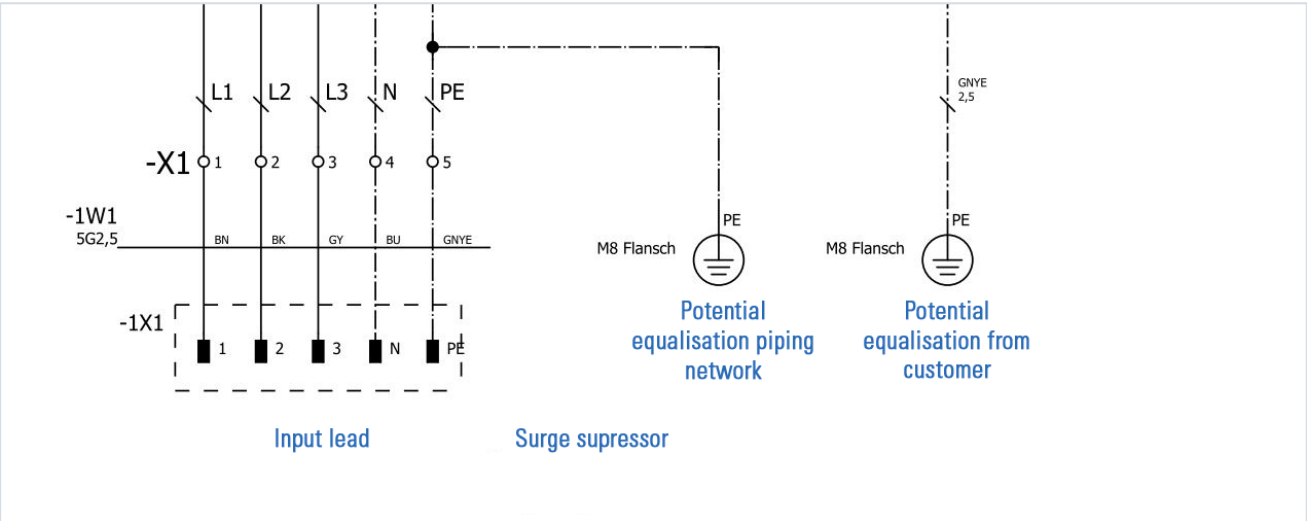
10. Electrical connection

The master switch is located on the right-hand side of the control cabinet of the GWtec® station.

Please observe the wiring diagram of the **DEHOUST**GWtec® greywater treatment system.

Check the voltage information given on the type-label meets the actual local supply voltage.

Then connect the main power cable to the controller as shown on the type-label. So, the system is securely connected with the electrical mains.



Provide fuse protection as indicated on the type-label.

Electrical work shall be performed by qualified electricians only.

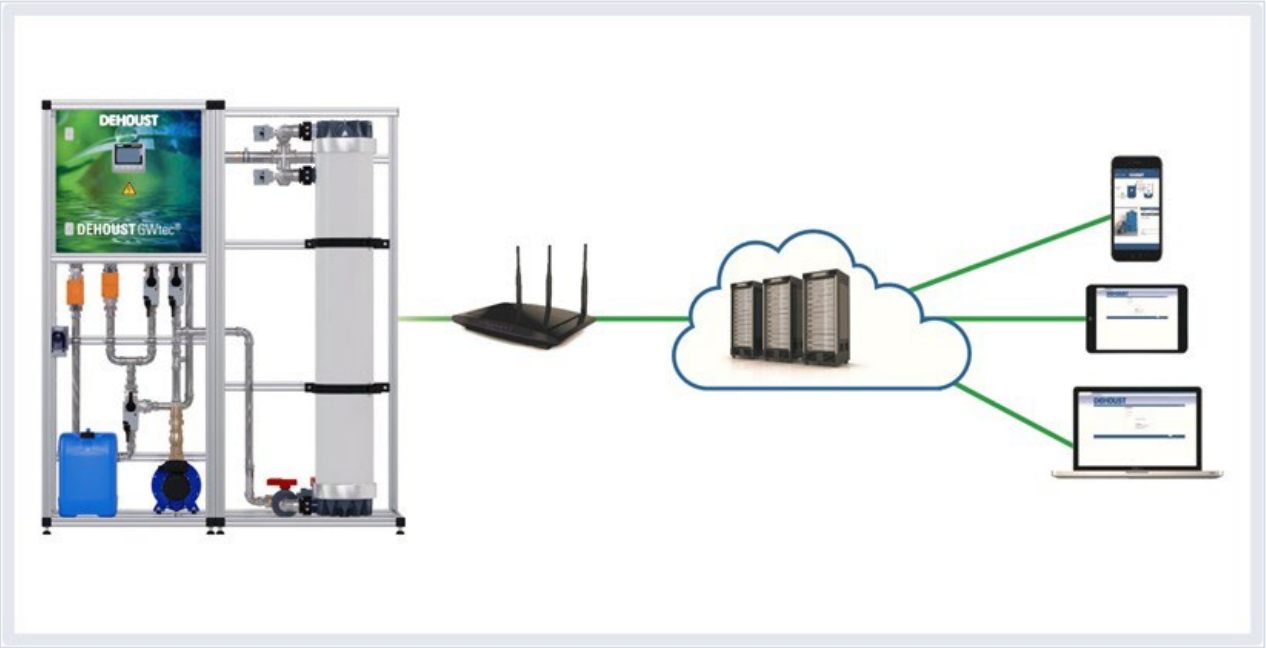
Check the phase sequence of the mains power for clockwise rotation.

Always connect external electrical loads (for example, a pressure booster system) to a separate power source.

Specific national standards and laws have priority.

Space for personal notes:

11. DEHOUST CONNECT

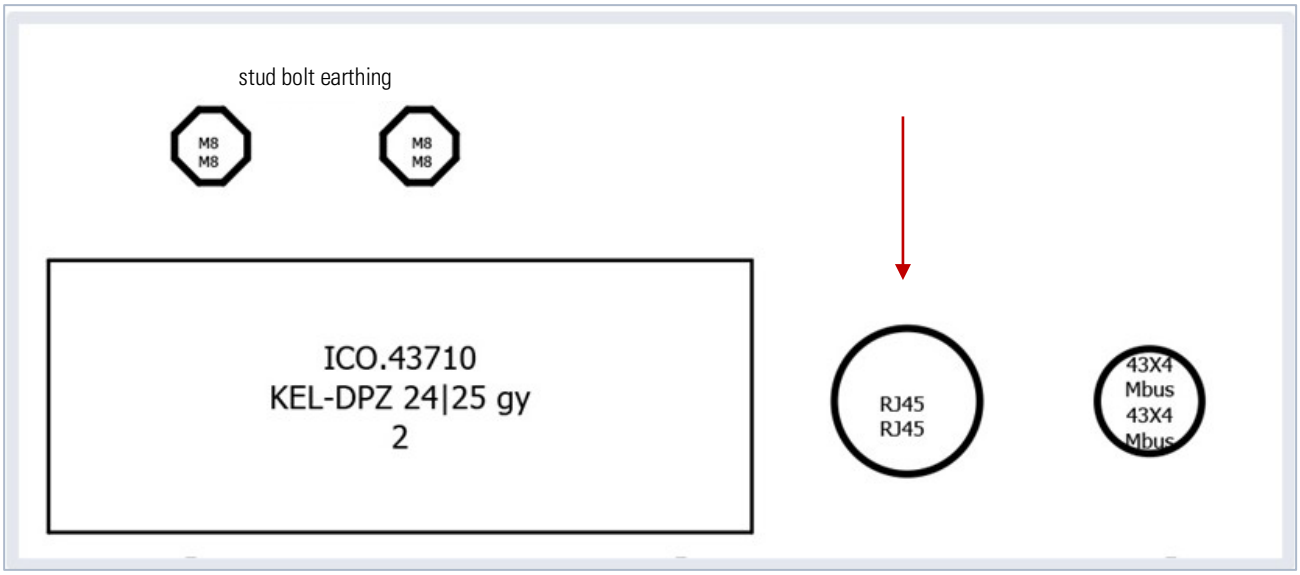


Connect the integrated web interface (RJ45 port at the bottom of the GWtec® controller – refer to the picture below) via a standard LAN cable to the operator's network/router.

The web interface establishes an outbound VPN connection to the *DEHOUST Connect* portal through one of the three TCP ports (80, 443, or 1194).

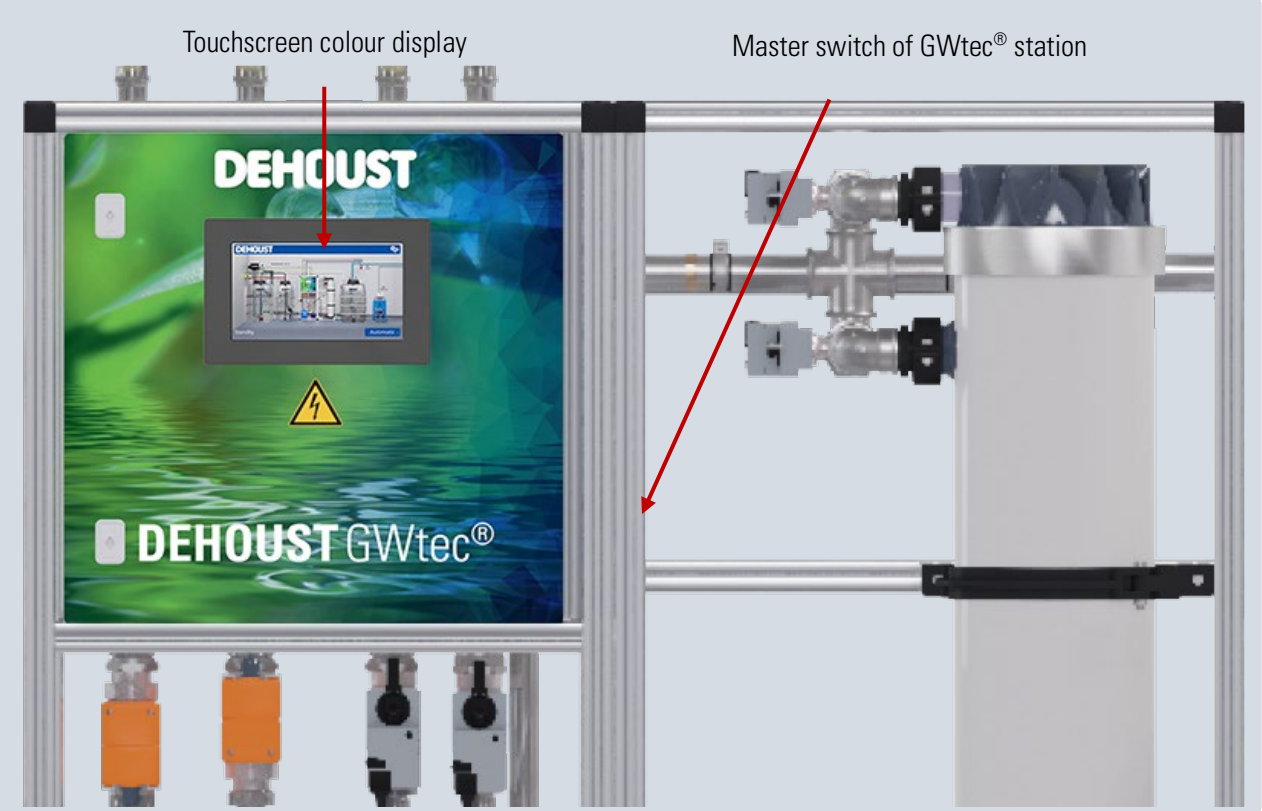
By default, the VPN connection is made through TCP port 1194. This port must be enabled for an outbound TCP connection in the operator's firewall.

The default port 587 must be enabled in the firewall to be able to send messages / alarms via e-mail.



12. Control via touchscreen colour display

A TFT touchscreen colour display is provided to allow control of the **DEHOUST**GWtec® greywater treatment system. The main switch of the controller is located on the side of the control cabinet.



Graphical representation of the flow charts

System variants (The system drawing can vary by the number of filters - ref. Chapter 6.2 ff)

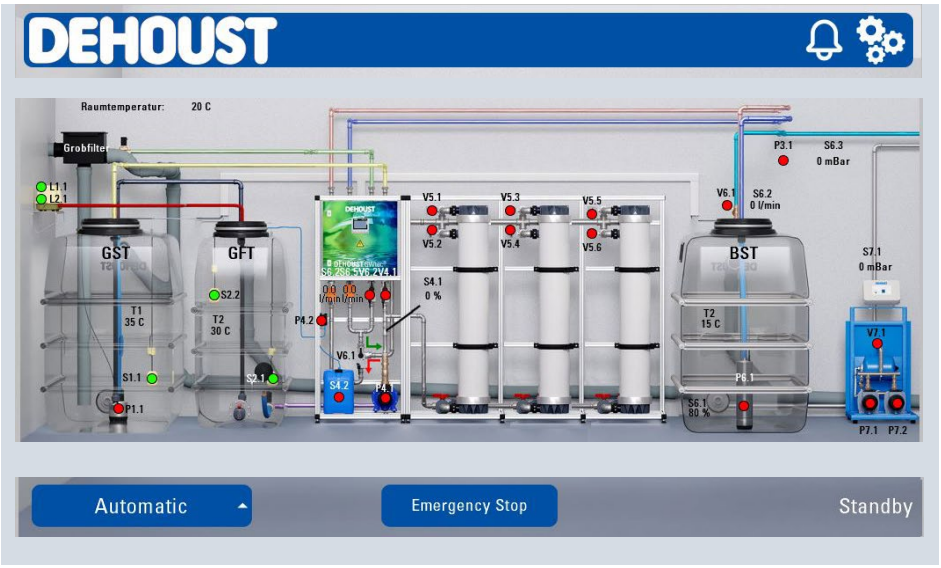
Example GWtec® 240 with rainwater filtration tank

Example GWtec® 440 without rainwater filtration tank

* The flow charts include optional accessories.

Different variants of the above components can be used according to the configuration of your specific **DEHOUST**GWtec® system.

Please check the packing slip of the **DEHOUST**GWtec® system and the project drawing of the total system.



----- Messages and alarms ------
----------Settings ----------

Graphic representation of the GWtec® system flow charts inclusive of system parameters*

Components shown in red ▸ currently inactive / empty.

Components shown in green ▸ currently active / filled.

Status display – Emergency Stop – Main mode

Inputs, changes and button operations are activated and performed by direct touch on the associated graphic symbols.

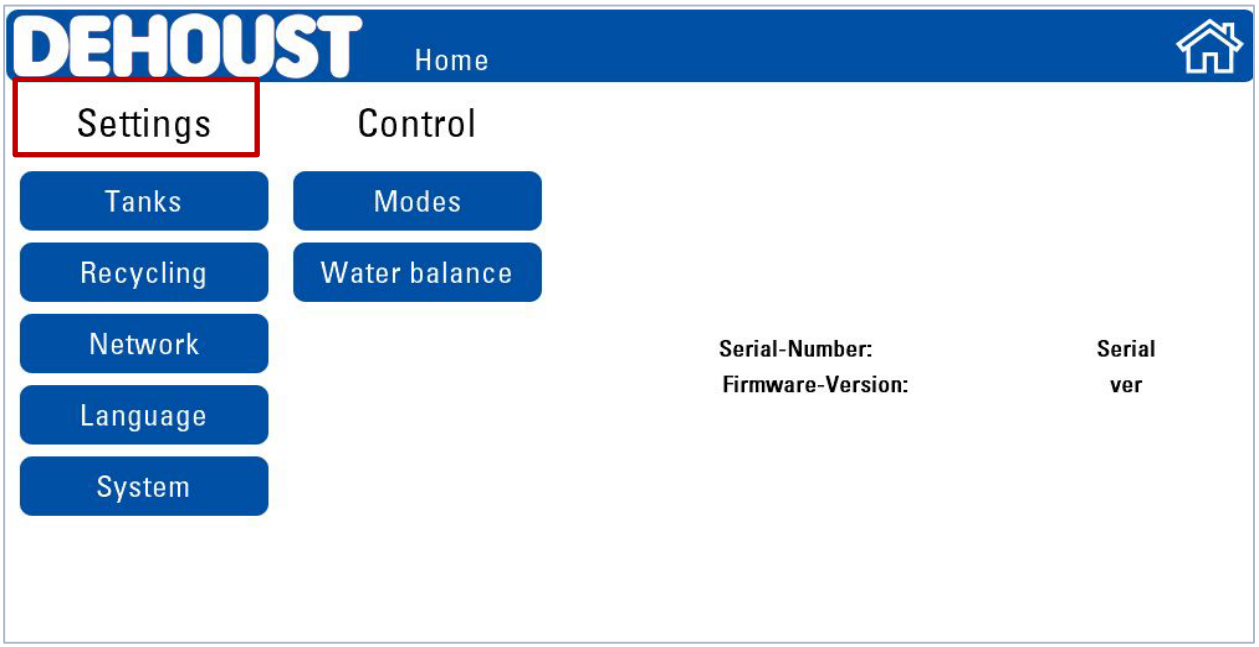
The top right segment of the touchscreen contains the Settings menu with messages and alarms, the middle segment indicates the current system status, and the bottom segment shows the current process (left), the main modes (right) and the EMERGENCY STOP button (central). The current process, in this case: "Standby", means that the system is waiting for the next step.

Touching the "Settings" gear icon takes you to the system control overview → see chapter 12.1 [Settings] and 12.2 [Control]

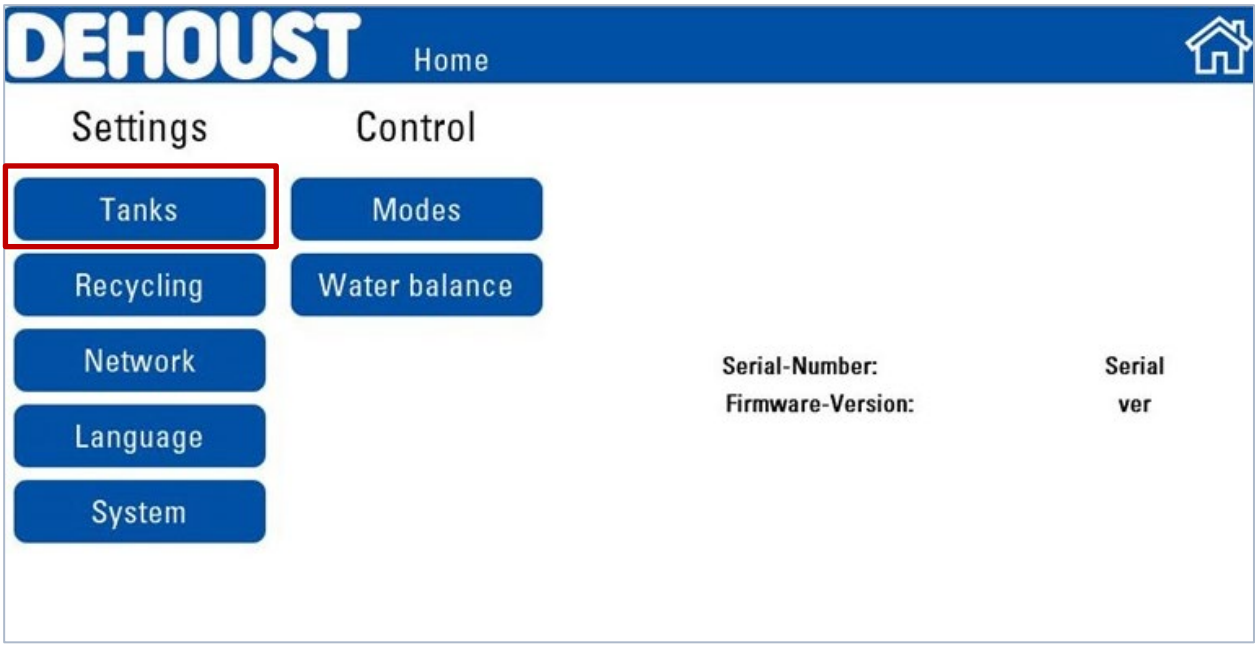
Touching the "Messages and faults" bell icon takes you to the system message overview -- see chapter 12.3 [Alarms/Messages]

Touching the "House" icon takes you back to the original menu of the touch screen (as shown above)

12.1. Settings

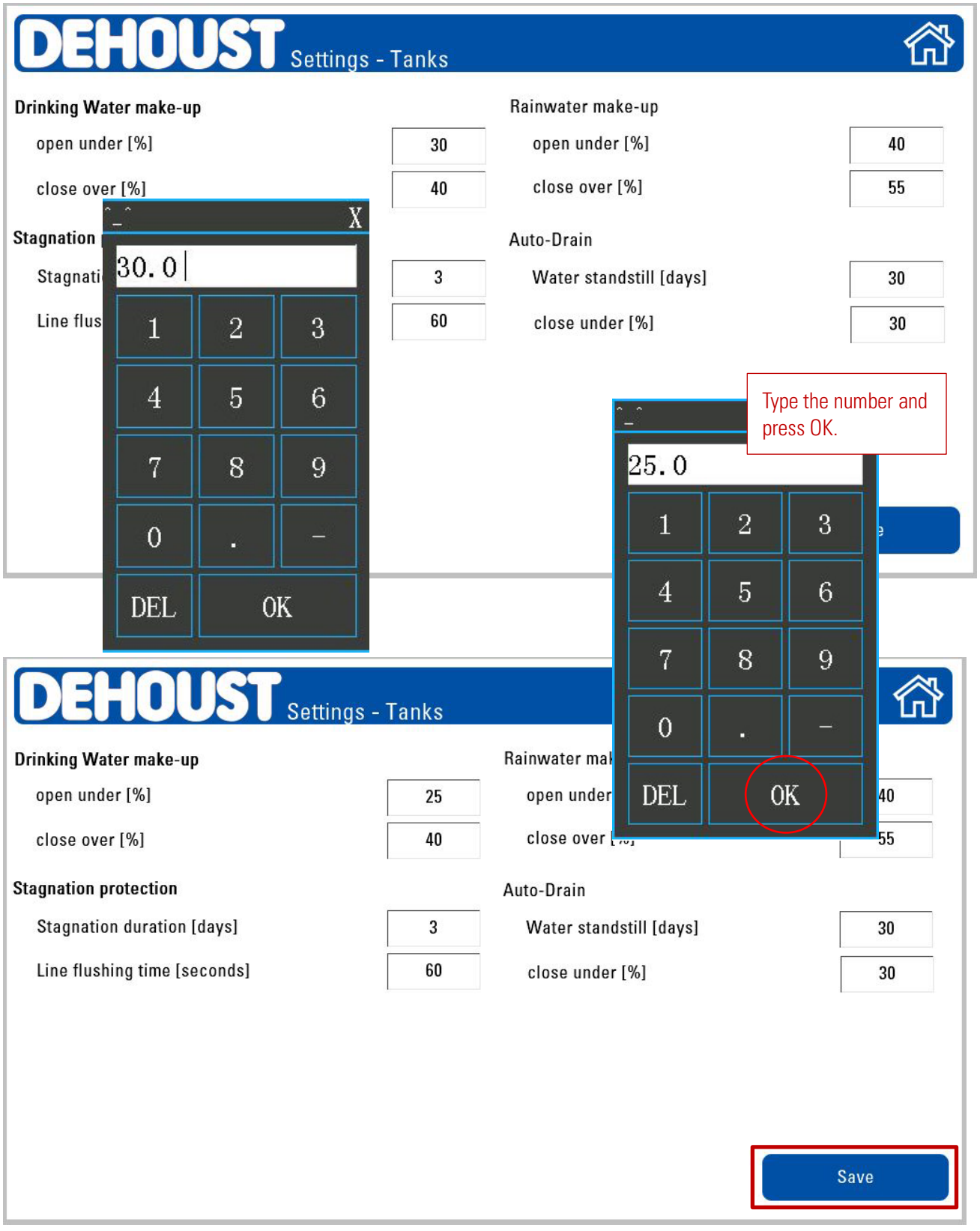


12.1.1. Tanks

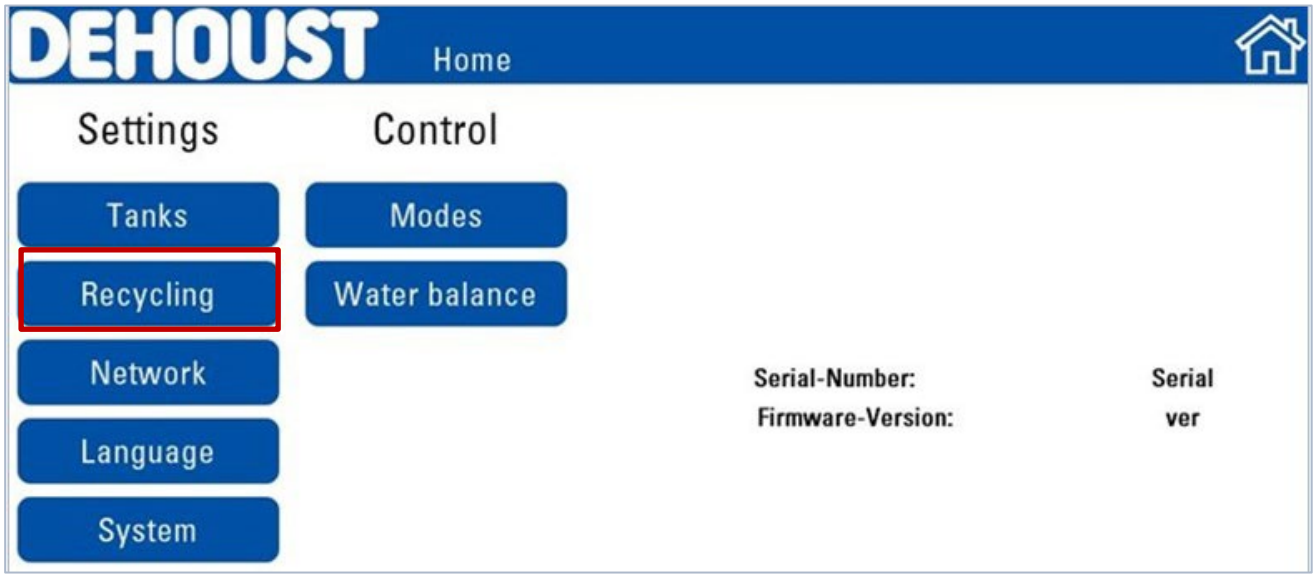


12.1.1.1. Changing parameters

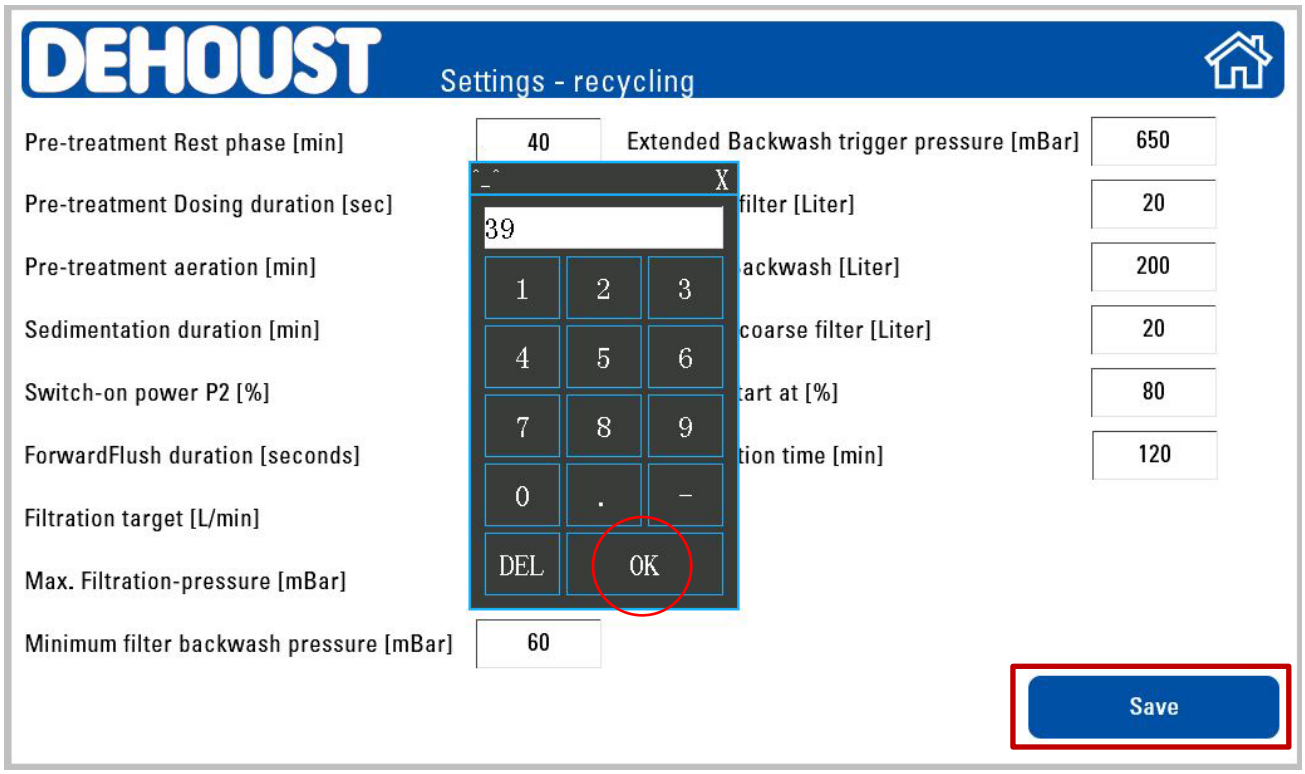
Touch the number pad on the display (for example, to reduce drinking water make-up from a value below 30% to a value below 25%). An input field opens in the form of a number pad where you can change the value by "typing". The new value is immediately accepted in the tank settings. Do not forget to [Save] to maintain the values.



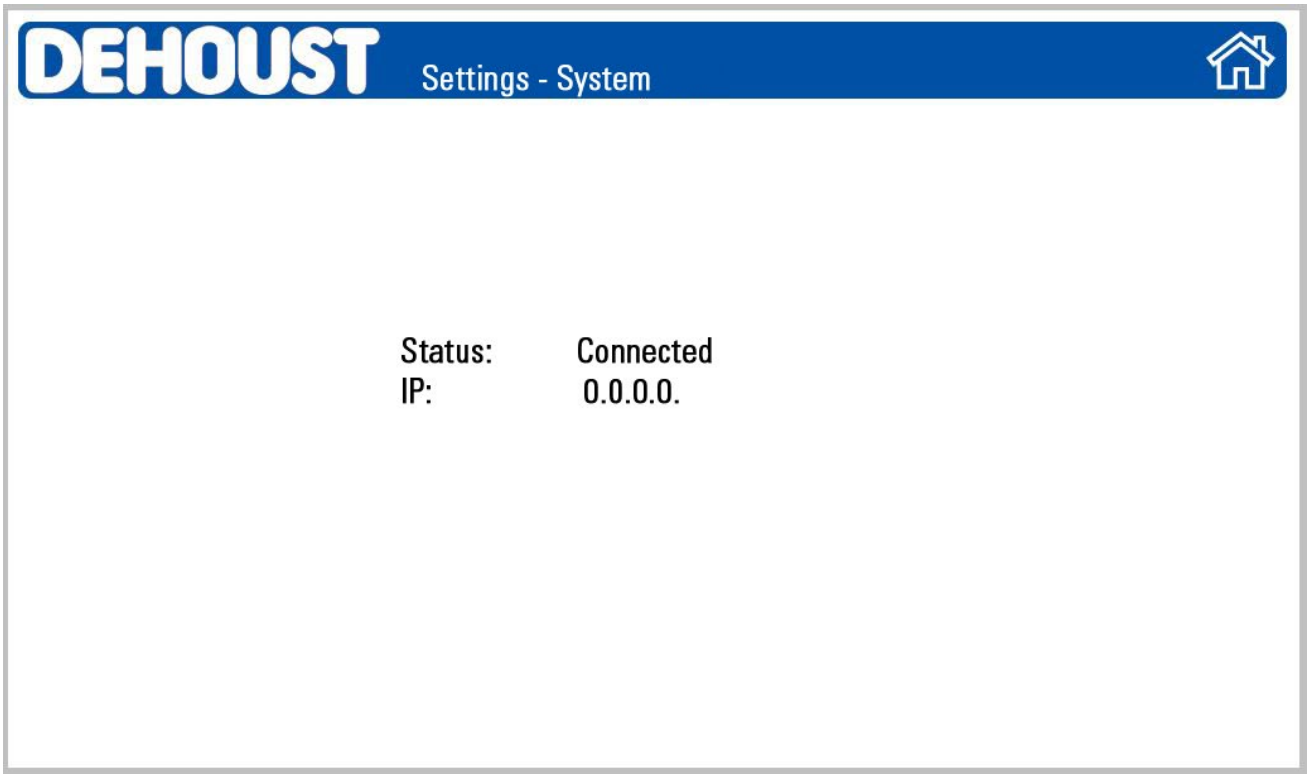
12.1.2. Recycling



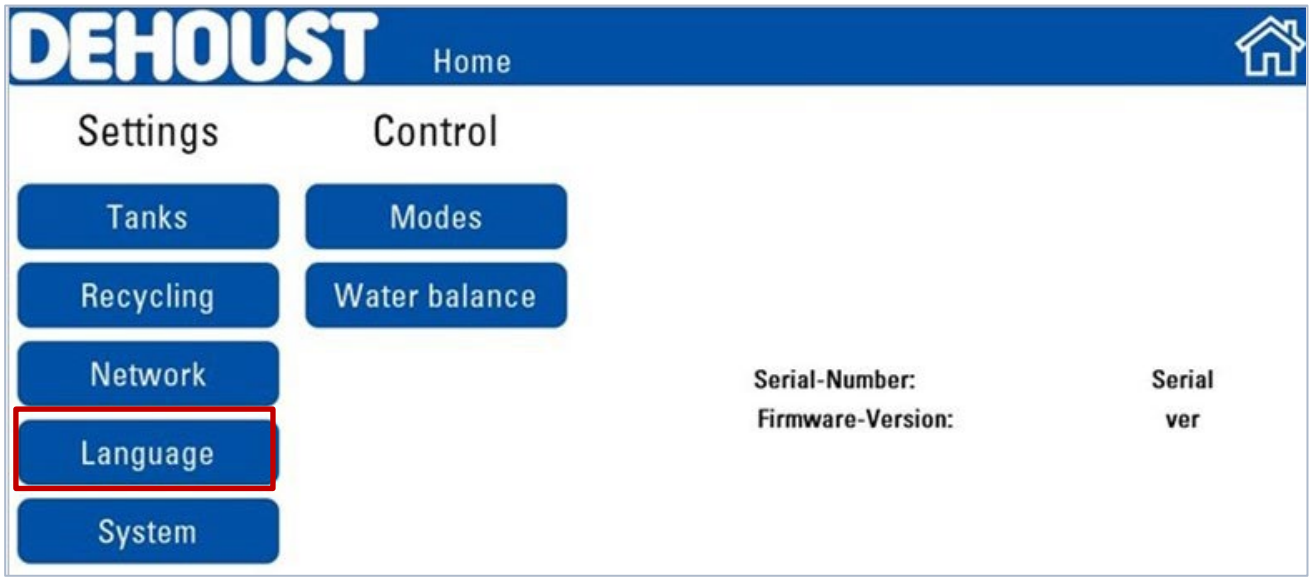
To change the parameters, touch the number pad on the display. An input field opens in the form of a number block where you can change the value by "typing". The new value is immediately accepted in the recycling settings. Do not forget to [Save] to maintain the values.

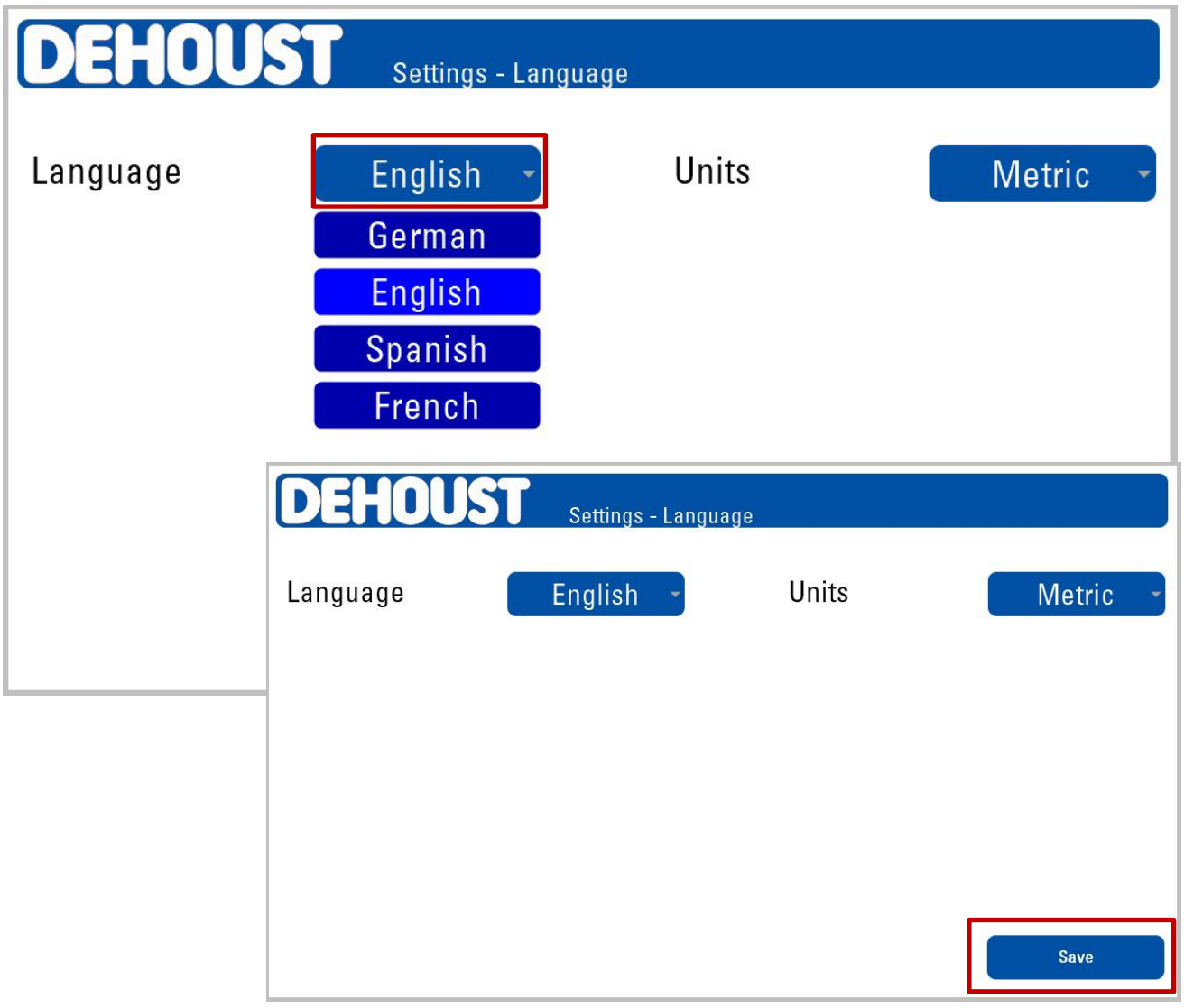


12.1.3. Network

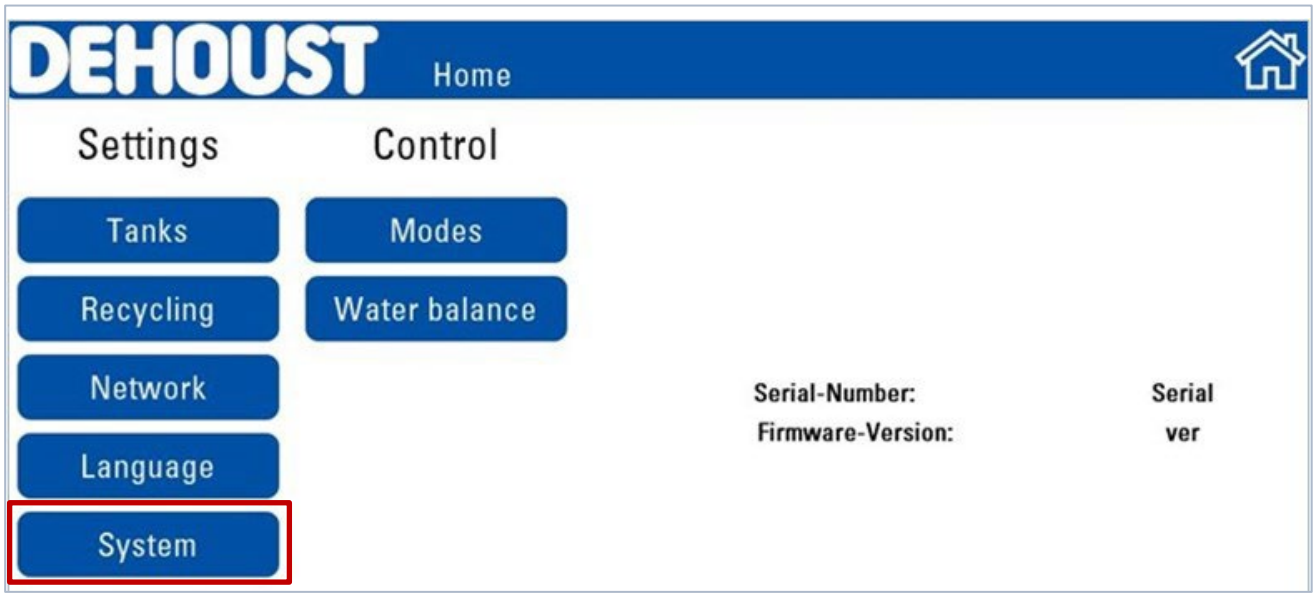


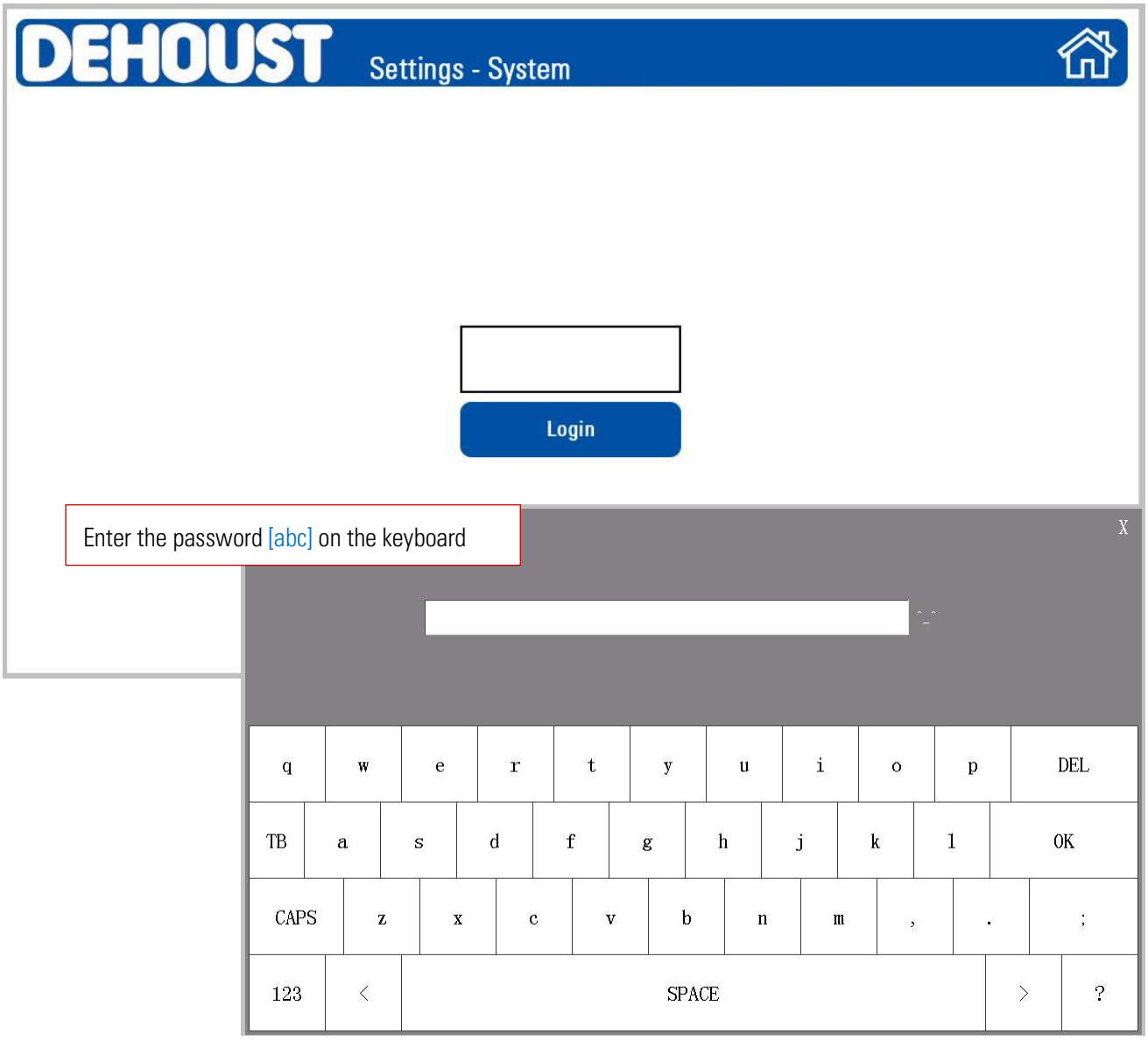
12.1.4. Language settings



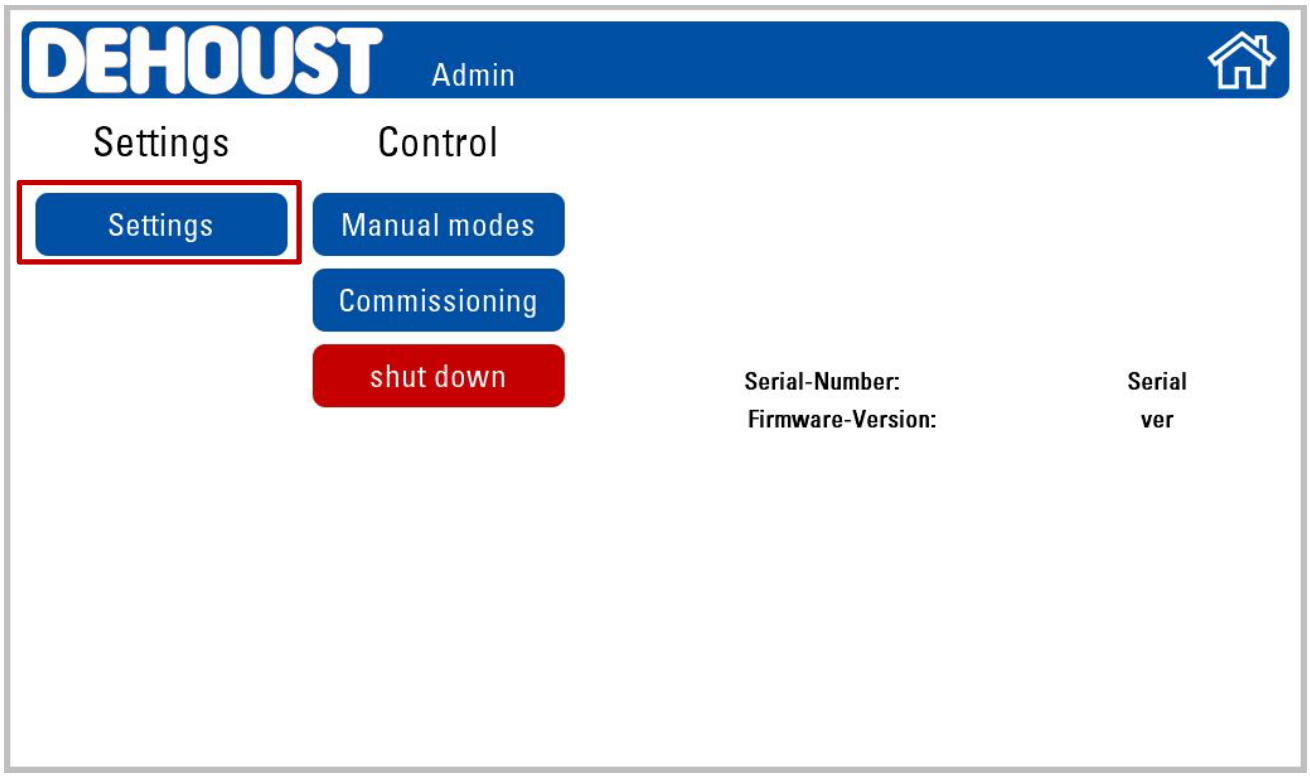


12.1.5. System

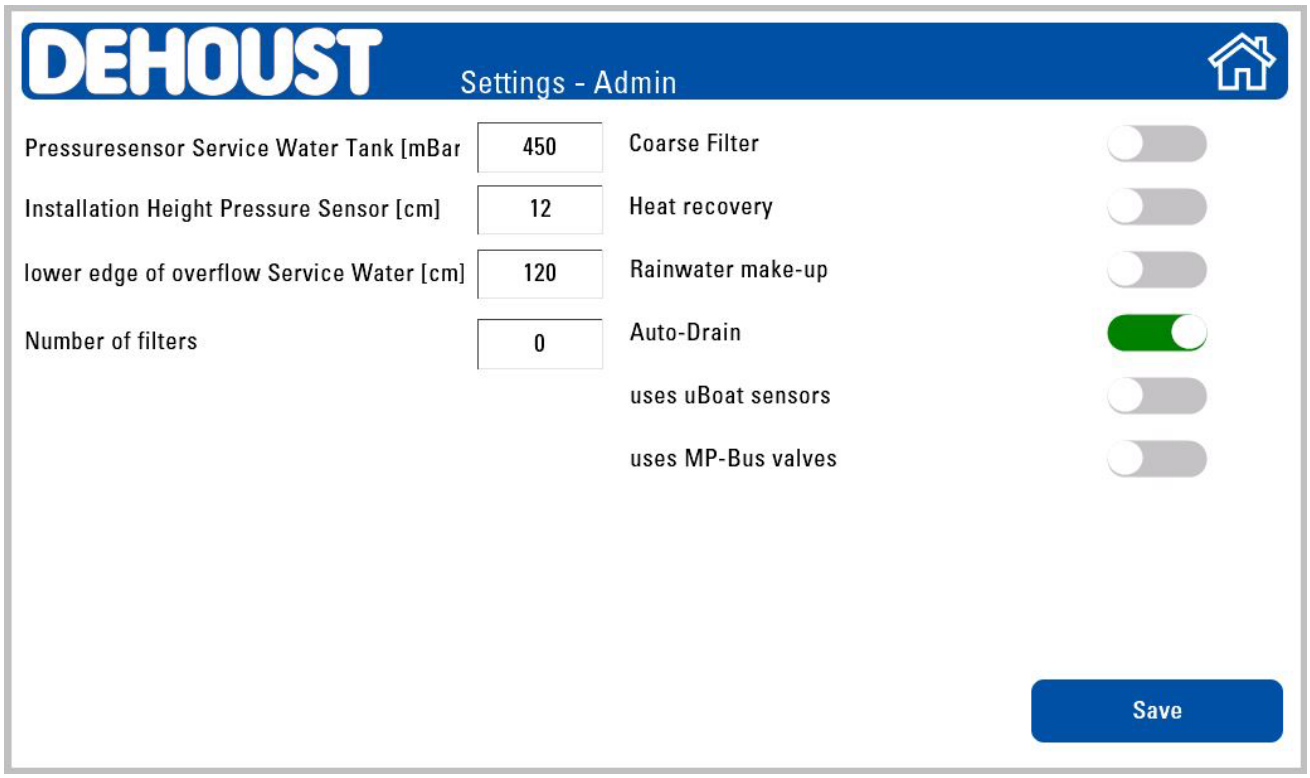

DEHOUST
Home
Settings
Control
Tanks
Modes
Recycling
Water balance
Network
Language
System
Serial-Number:
Serial
Firmware-Version:
ver


DEHOUST
Settings - System
Login
Enter the password [abc] on the keyboard
X
q w e r t y u i o p DEL
TB a s d f g h j k l OK
CAPS z x c v b n m , . ;
123 < SPACE > ?

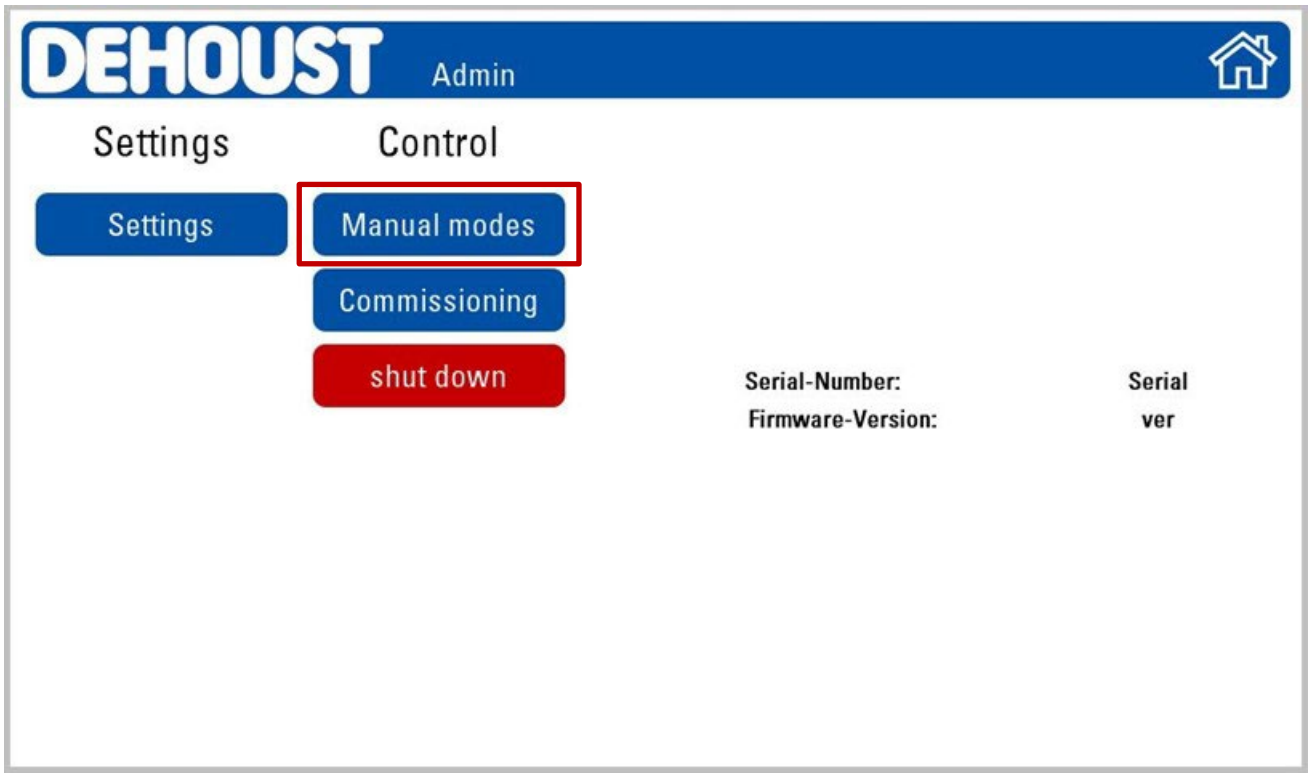
12.1.5.1. Settings (system)

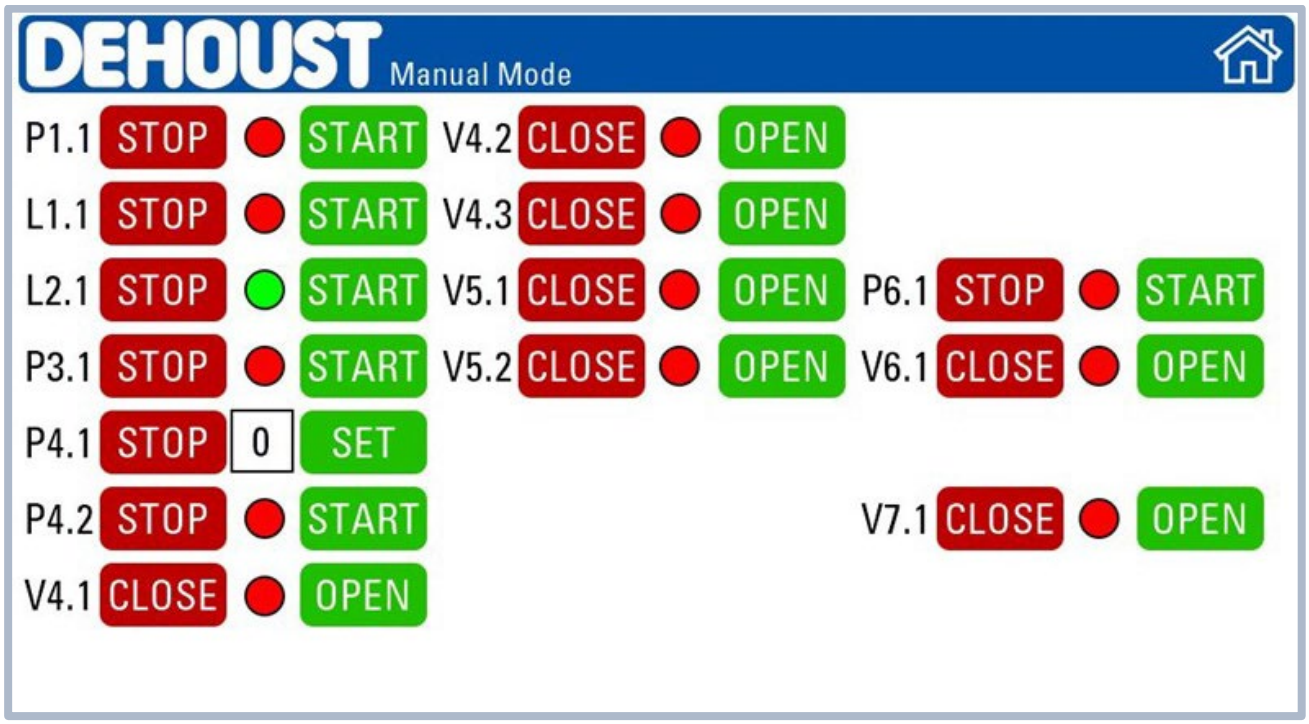


Click on [Settings] to open the following display:



12.1.5.2. Manual modes





Warning

Manual changes to the settings without training or technical knowledge may cause substantial damage to the equipment.

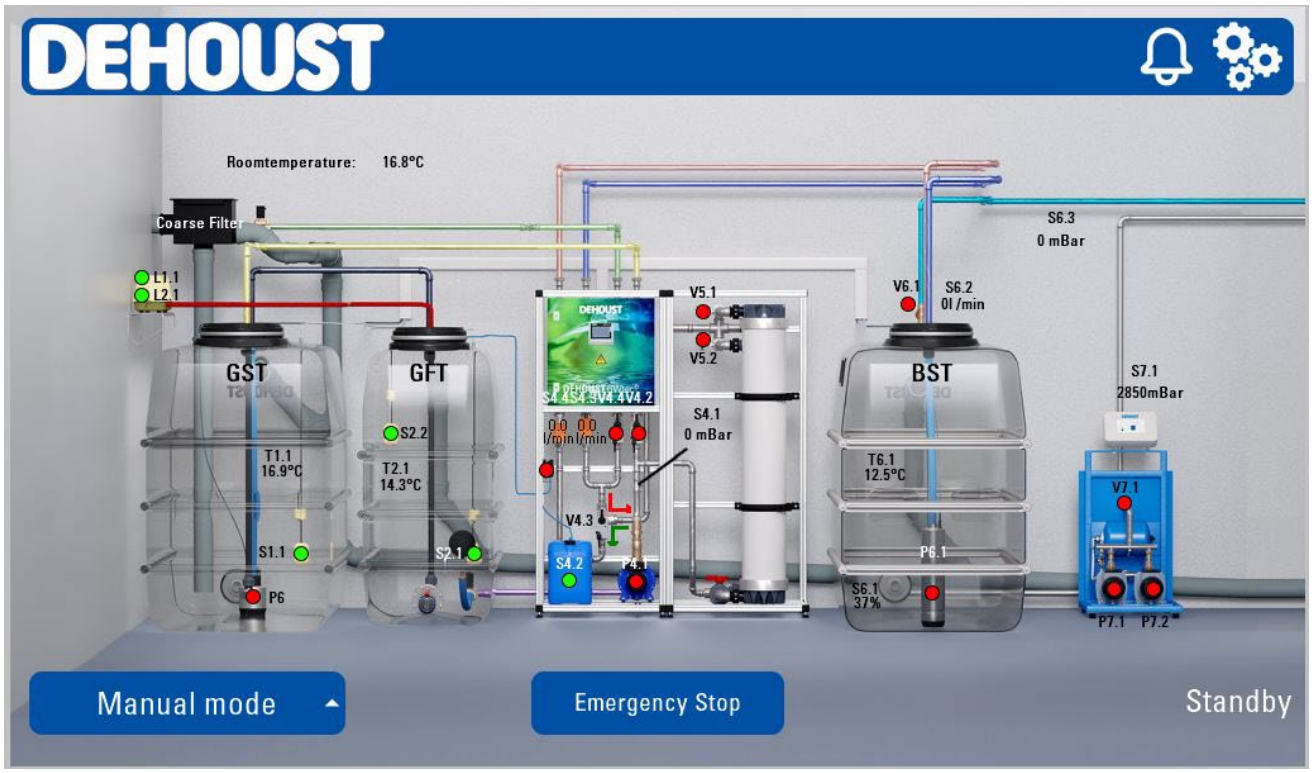
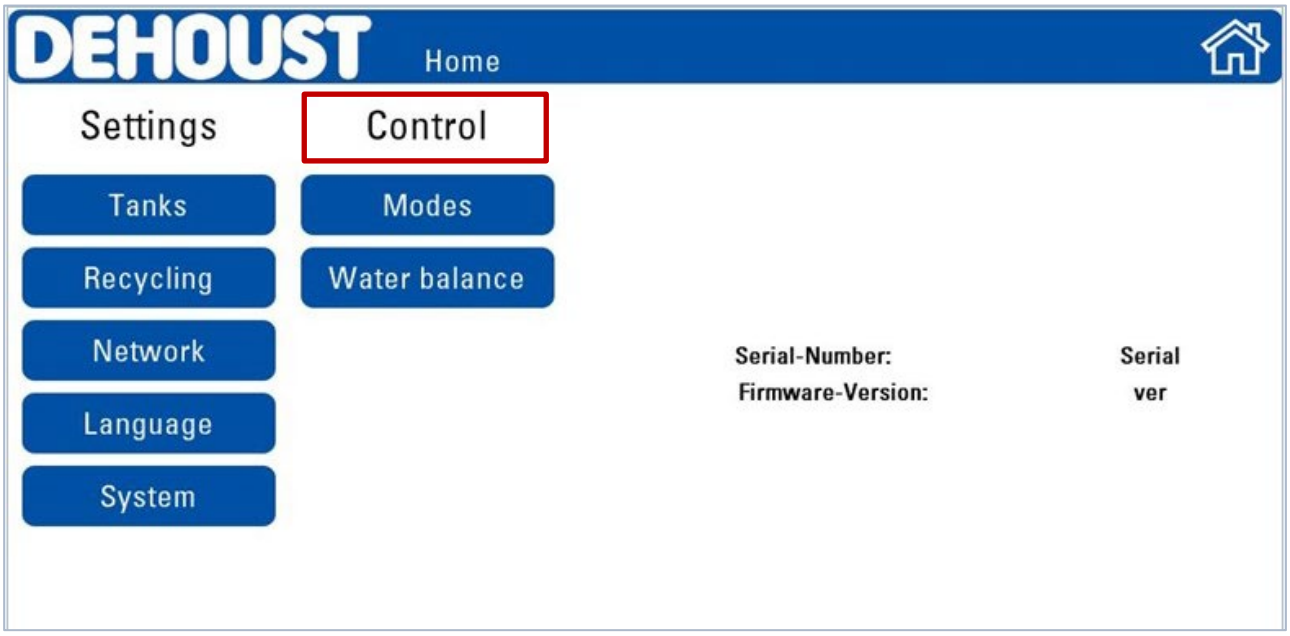
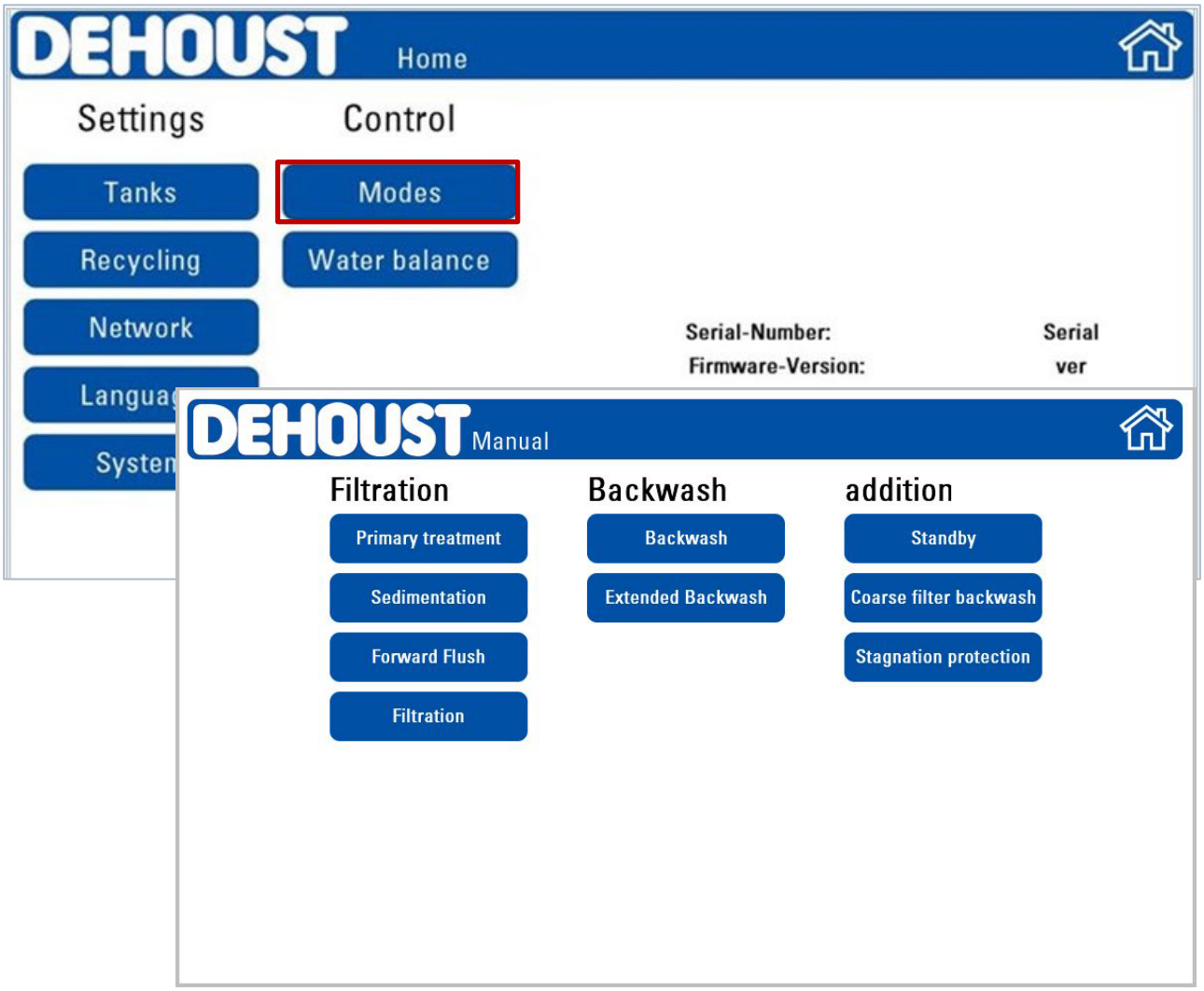


Figure 19: Overview of the controlling points

12.2. Control



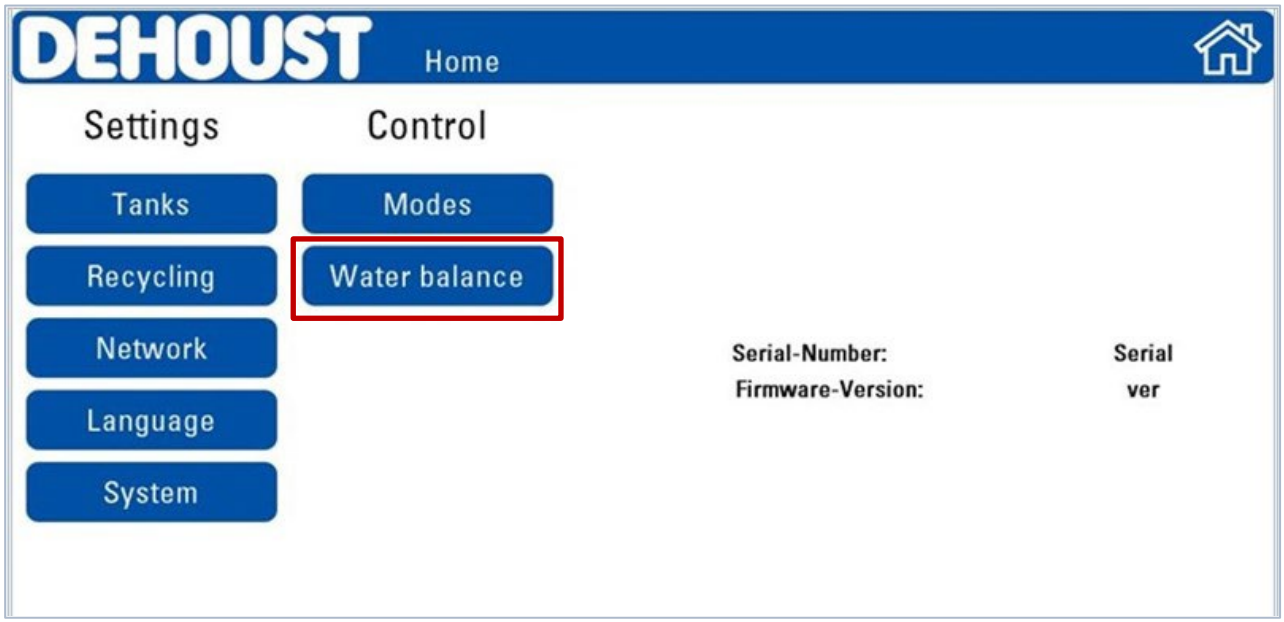
12.2.1. Modes

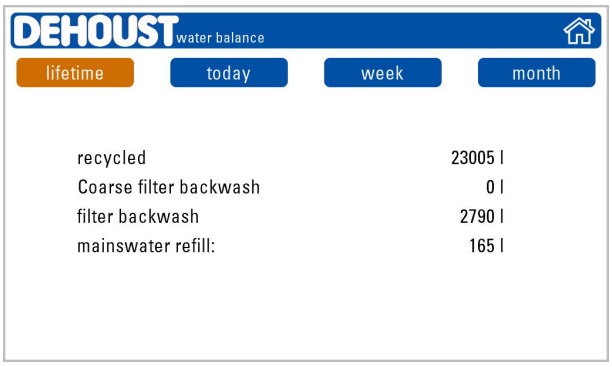


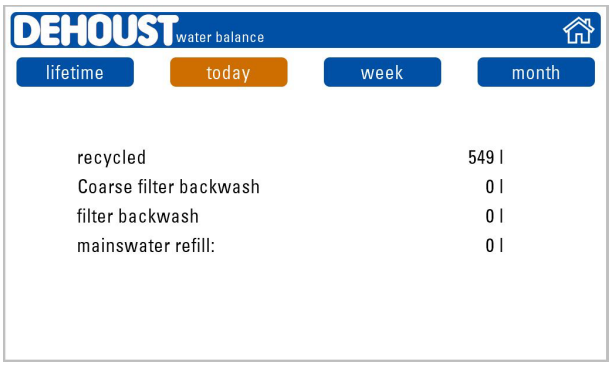
Modes	Function
Primary treatment	A defined amount of Smartfloc flocculant is metered into the greywater filtration tank using the dosing pump to improve sedimentation. During aeration in recycling, the flocculant is thoroughly mixed with the greywater to ensure a quicker reaction. The dosing pump is controlled to feed Smartfloc. The aeration is activated to run for a set duration.
Sedimentation	Rest phase in the greywater collection tank and greywater filtration tank to allow for settling of the suspended solids and particles before filtration. The dosing pump and aeration are switched off for a set duration.
Forward flush	The valve is opened, and the filtrate pump is started to evacuate any dirt or debris entrapped in the suction line between the filtration tank and the filtrate pump.
Filtration	Filtration is started according to settings.
Backwash	Backwash of the membrane filter according to settings.
Extended backwash	Extended backwash of the membrane filter according to settings.
Standby	Stop all current actions and put the system on standby.
Coarse filter backwash	Automatic backwash of the screen in the coarse filter according to settings.
Stagnation protection	Stagnation flushing of the drinking water line according to settings.

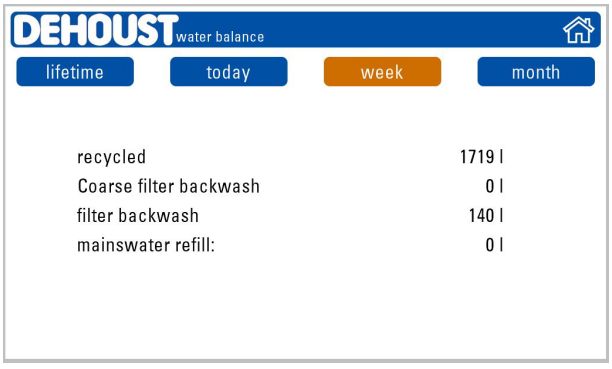
- The system returns to standby at the end of every mode.
- If no further mode is activated within 10 minutes, the system returns automatically to the last operating condition used (*Automatic/Drinking Water mode* etc.).

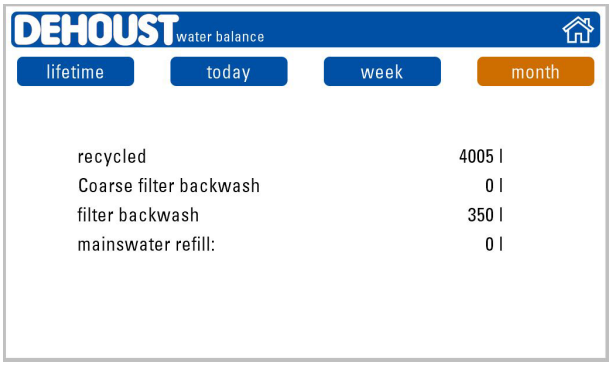
12.2.2. Water balance











12.3. Alarms / Messages

	Touch the “Messages and alarms” bell icon to open the overview display. Older messages are shown slightly greyed out. Click on [confirm] to acknowledge the alarm, and the system will attempt to continue operation in the previous mode.

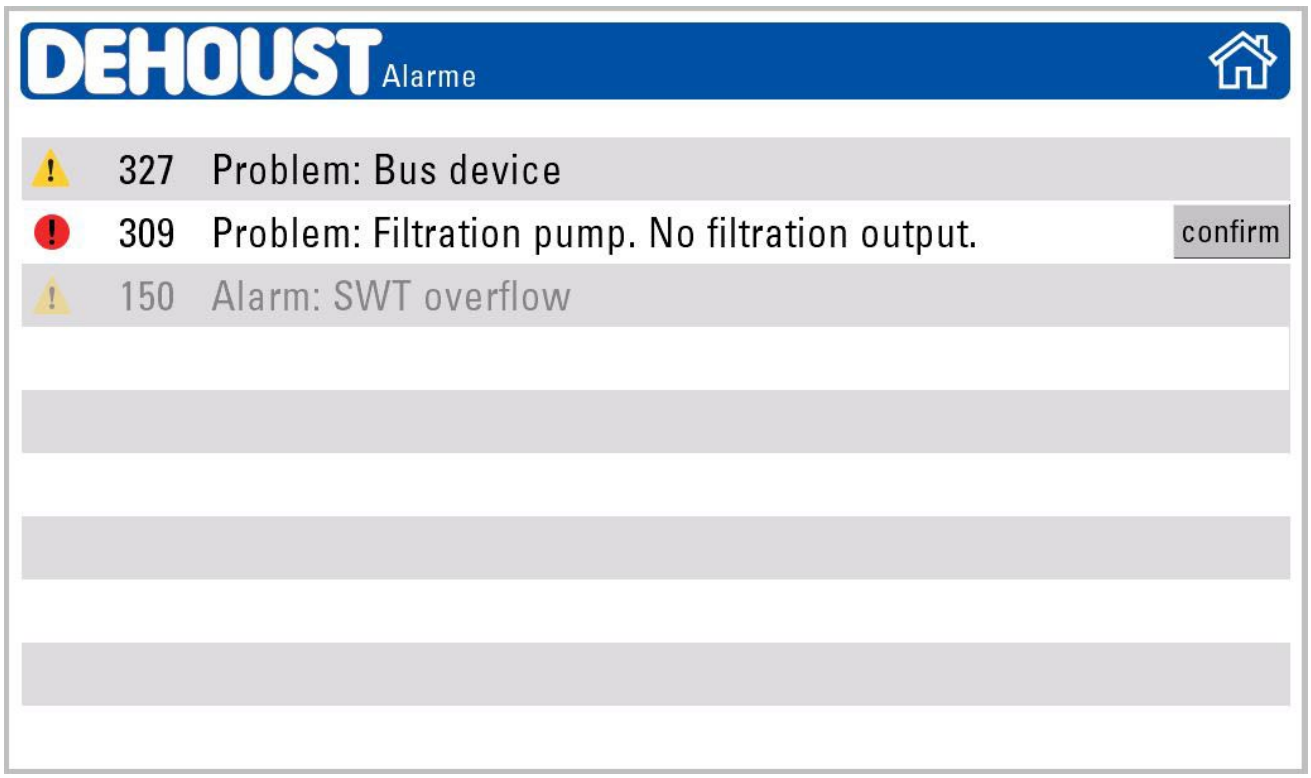


Figure 20: One example with two active alarms and a historic malfunction

13. Important tests prior to commissioning

Before starting the pressure and leakage testing and commissioning, the following work on the GWtec® greywater treatment system must have been completed.

Here is the checklist:

- ☐ The GWtec® greywater treatment system is hydraulically connected in compliance with the national rules and regulations.
- ☐ The GWtec® greywater treatment system is electrically connected to all safety devices in compliance with the national rules and regulations.
- ☐ The relevant country-specific regulations were observed and fulfilled.
- ☐ Electrical components are connected to the controller of the GWtec® greywater treatment system according to the electrical circuit diagram.
- ☐ The coarse filter and all tank overflows are connected to the sewer.
- ☐ The GWtec® station is connected to the membrane filter, the coarse filter backwash and the service water system.
- ☐ The coarse filter backwash fitting is connected to the GWtec® station.
- ☐ The drinking water make-up is connected to the drinking water supply system.
- ☐ The PVC hoses for the greywater batch pump, aeration unit, filtrate outlet and backwash are properly connected.
- ☐ All relevant shut-off valves are open.

13.1. Venting the filtrate pump

13.2. Testing of single components

For testing individual components of the system, select [MODES] in the control settings.

The MODES function is used to run pressure and leakage tests on all individual sections of the GWtec® station and displace air with water.

The drinking water make-up for the service water tank must have been connected, and the service water tank must have a liquid level of > 20% to allow for the activation of the backwash pump.

14. Commissioning

Take care to remove the three sealing caps of every membrane filter shortly before commissioning. The caps prevent drying out of the membrane filter and avoid irreversible damage.

Figure 21: Sealing caps

Caution: risk of breakage

Clamps are made of plastic. Tighten screws hand tight.

Commissioning the GWtec® **greywater treatment system in three steps:**

Step 1 **See Chapter 14.1 for details**	**Step 2** **See Chapter 14.2 for details**	**Step 3** **See Chapter 14.3 for details**
Commissioning in Drinking Water mode (controller screen) – without connection of the system to the greywater downpipe (bypass).	Set the controller to [Drinking Water mode] on the display of the system	Do not activate the Automatic mode until the number of persons in the building exceeds 25% of the building's capacity.
Avoid any release of problematic substances into the greywater collection tank.	After completion of all construction work inside the building, connect the greywater downpipe to the greywater system.	
Always keep the greywater collection tank(s) and greywater filtration clean.	Activate the microbiological system of the greywater collection tank using the dry bacteria included in the delivery.	
The automatic drinking water make-up on the service water tank and the pressure booster system ensure the supply of drinking water.	Wait 24 to 48 hours until the sewage bacteria culture is strong enough for successful biological cleaning of the greywater.	
Where possible, maintain this operating condition until the completion of all construction work inside the building.	Switch on the station and allow it to start up completely. Wait 5 minutes and only then (!) connect the backwash pump (see chapter 8.7). This is to prevent the coarse filter backwash from taking place when the valve is closed during initial installation. The **DEHOUST**GWtec® station runs regular backwashes to keep the membrane filter moist and clean (at intervals of 12/24/72 hours, depending on the settings). The greywater system aerates the greywater.	

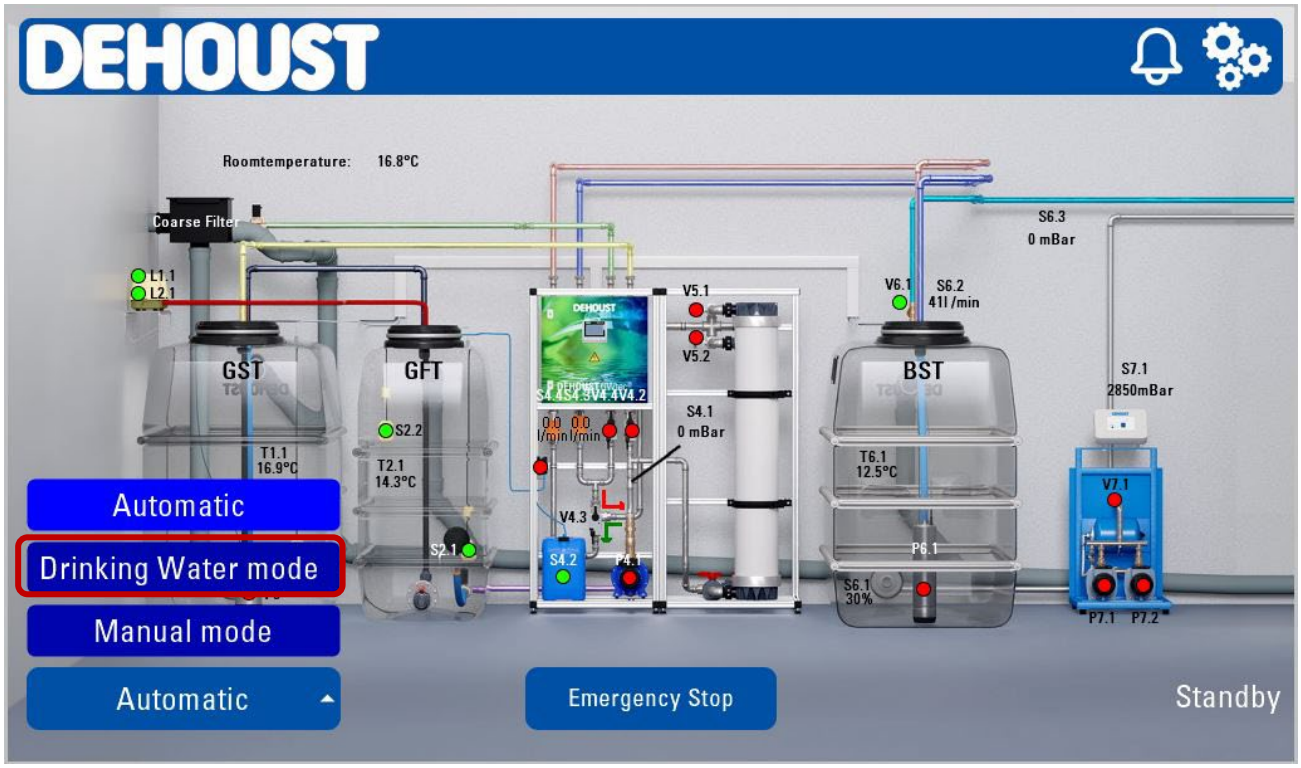
14.1. Drinking Water mode – without greywater inflow

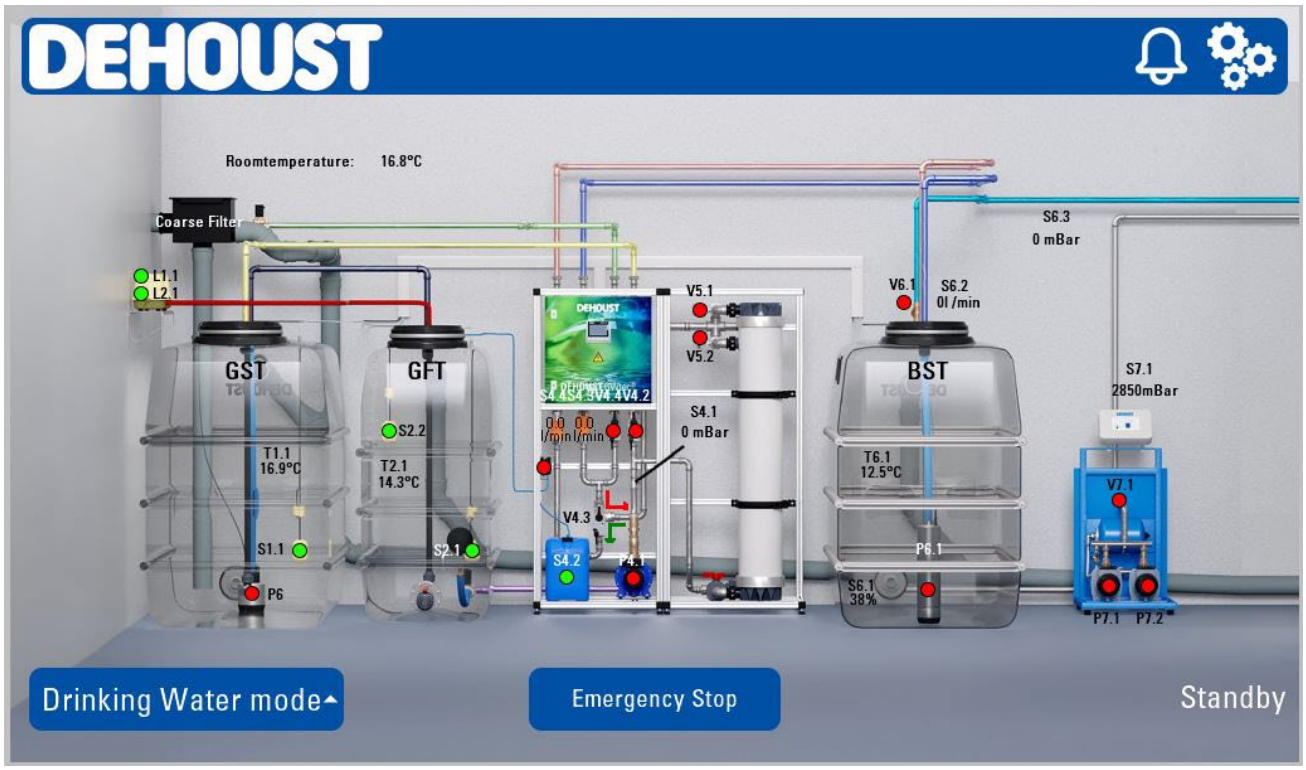
Maintain the **DEHOUST**GWtec® greywater treatment system in this operating condition until completion of all construction works. Do not connect the greywater inlet of the treatment system as long as construction is still in progress in the building. Instead, lay a greywater bypass directly to the sewer during this period.

STEP 1:

- Disconnect the greywater line from the **DEHOUST**MAX coarse filter to ensure no greywater can enter the greywater tank.
- Drain and clean the greywater collection tank(s) and greywater filtration tank completely.
  Pump out standing water, if any, from the greywater collection tank(s) to the sewer.
- Switch on the controller via the master switch.
- After booting, switch the controller to [Drinking Water mode].
- Check for correct settings of the SWT immersion pressure sensor and drinking water make-up (ref. chapter 12.1.5.1)
- After the drinking water make-up unit has automatically opened the solenoid valve and filled the service water tank up to the defined liquid level, open a domestic reuse point (for example, toilet flushing, water tap). Wait until water emerges with no entrapped air, then close the use point.

Take care to ensure that no greywater enters the coarse filter and the greywater collection tank in Step 1. This prevents detrimental substances from entering the greywater system during ongoing construction work.





The aeration unit is now active and will aerate the grey water tanks intermittently. As long as there is no greywater in the storage tanks, the aeration pumps in the control cabinet can be left electrically disconnected for the moment.

The system is now operative in [Drinking Water mode].

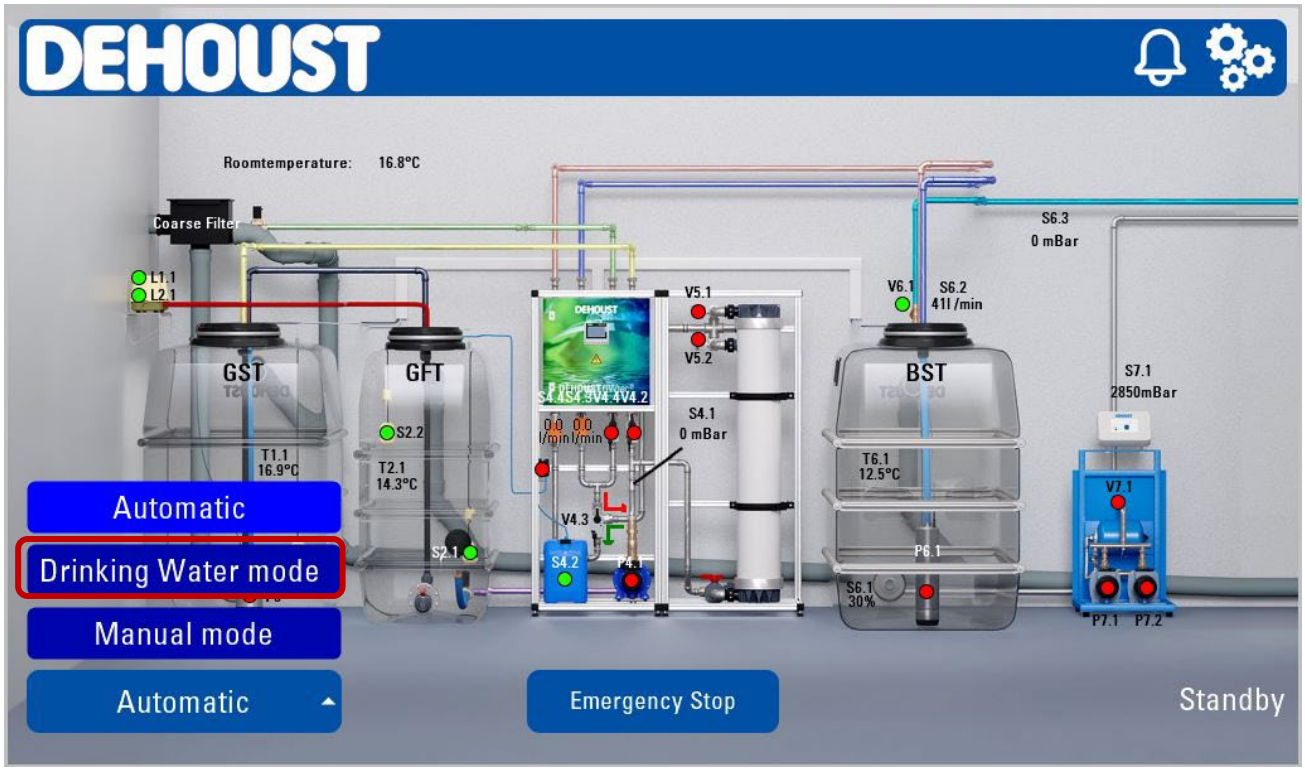
- In this step, the reuse points are supplied with drinking water only and not with treated greywater.
- Please refer to the manual of the pressure booster system.

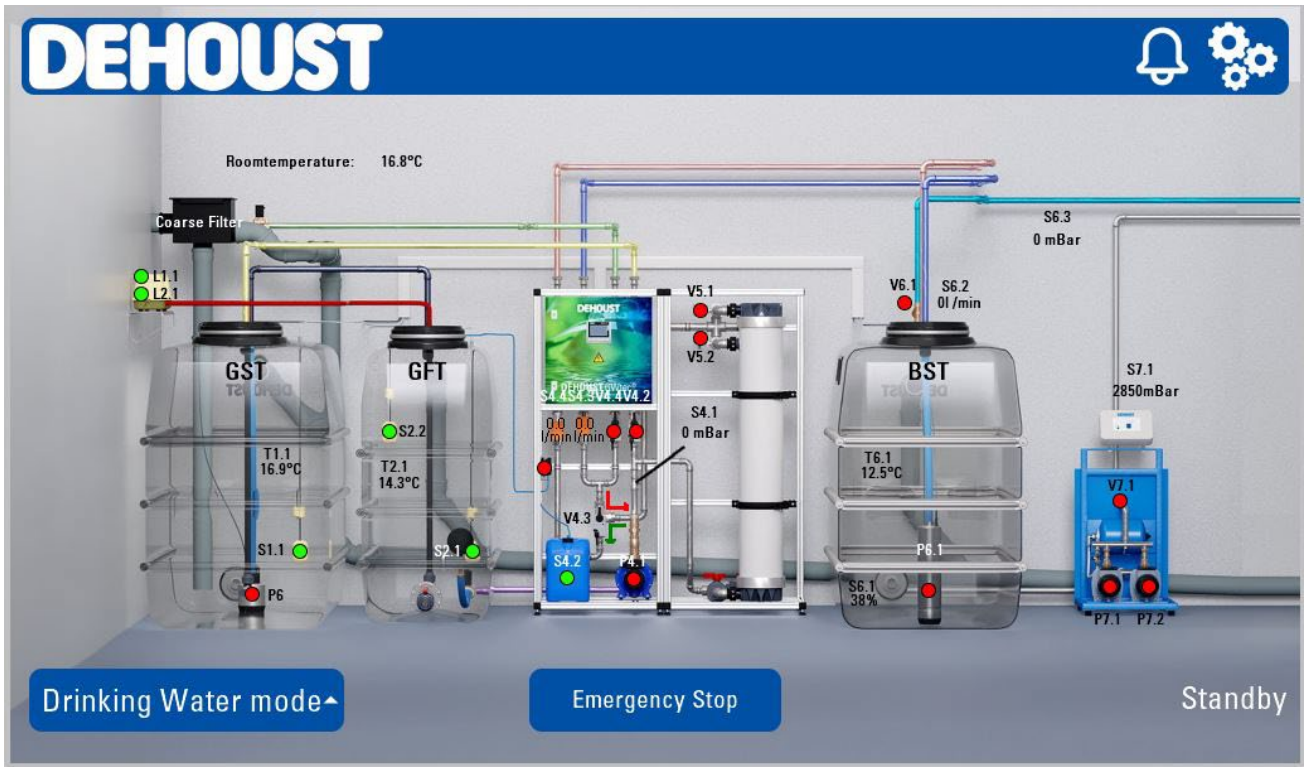
14.2. Drinking Water mode – with greywater inflow

STEP 2:

The operations mentioned in Step 1 must have been completed before!

- Check the screen of the coarse filter and remove all waste and residue.
- Make sure that the greywater collection tank and the greywater filtration tank are clean and empty.
- Then connect the greywater inlet with the coarse filter.
- Add the dry wastewater bacteria, which are included in the delivery, to the greywater collection and filtration tanks (cf. Chapter 14.5.2).
- Set the controller to [Drinking Water mode] on the display of the system.
- The greywater treatment system performs a backwash of the membrane filter in defined cycles – set up the correct backwash volume of the backwash pump (refer to Chapter 12.1.2)
- Connect the aeration pump electrically in the control cabinet. Aeration and regular inflow of fresh greywater will build up a powerful biology within shortest time.
- Allow the system to run in the Drinking Water mode for the next 24 to 48 hours to build up a powerful bacteria culture.





Warning

Modifications in the firmware can result in considerable changes in system processes. Therefore, do not make any changes unless in close coordination with your contract dealer or DEHOUST.

- A slight smell of greywater cannot always be fully avoided in the installation room or in the treated water. This is not considered an odour nuisance of the product.
- You are recommended to install a separate (rooftop) vent line for the greywater collection tank and the greywater filtration tank.

14.3. Automatic mode with greywater treatment

After completion of all construction work, the **DEHOUST**GWtec® greywater treatment system should be operated in the [Drinking Water mode] until the number of persons in the building reaches at least 25% of the building's capacity.

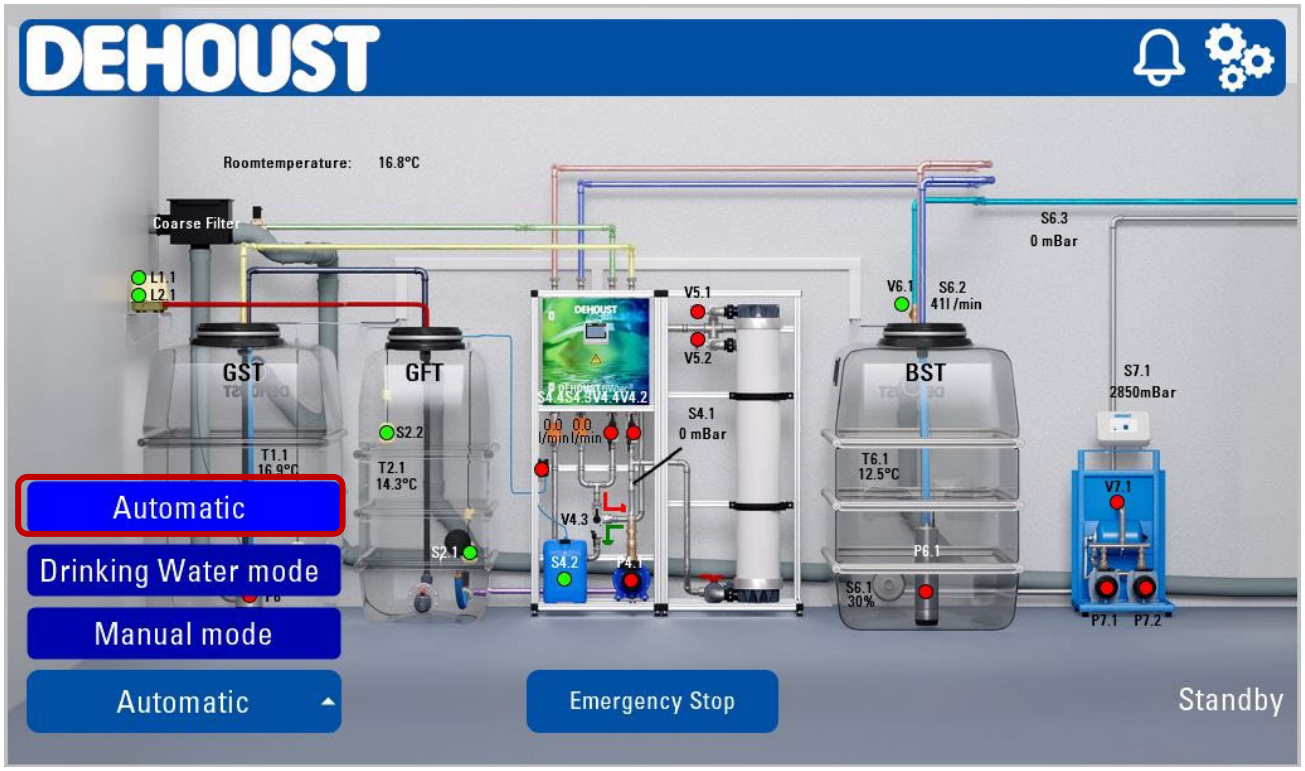
An efficient greywater bacteria culture in the GWtec® greywater treatment system will develop only if a sufficient amount of new greywater enters the greywater storage tanks every day.

Once the typical powerful greywater microbiology is established, the control can be switched over to [Automatic].

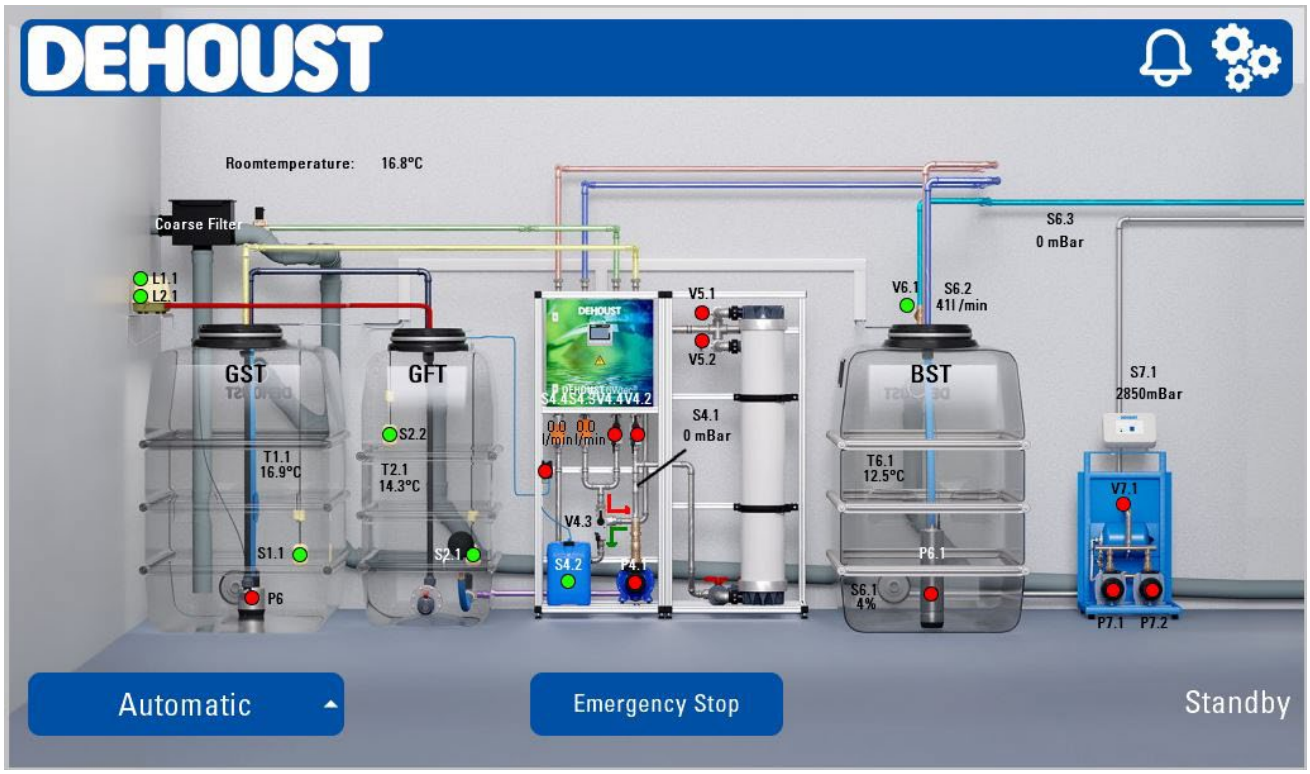
STEP 3

The operations explained in Steps 1 and 2 must have been completed before.

- Check all relevant settings for Automatic operation and adjust them to the current operation situation or individual needs.
- Switch the controller to [Automatic].
  Should the system be on-line, this can be done by remote access.



Bear in mind: the higher the setting for the filtration capacity, the higher the treatment capacity of the overall system, and the shorter the service time of the membrane filter.



The system is ready for greywater treatment with reuse

14.4. Extended rest periods

A regular inflow of fresh greywater keeps up the continuous biological greywater treatment by microorganisms that are typical for wastewater. Longer rest periods with no greywater input (such as vacation, seasonal operation) will cause a reduction in the number of microorganisms. After a new inflow of fresh greywater, the microorganisms will need some time to achieve again maximum biological performance. During this period, the biological cleaning effectiveness of the treatment process may be reduced. Slight residual smells of shampoo, soap, etc. may be subjectively noted in the treated greywater.

If the rest period of the system exceeds 4 weeks, repeat step 2 (Chapter 14.2).

Do not switch off the controller during a rest period in order to maintain the aeration function and regular backwashing of the membrane filter.

14.5. Building up biological cleaning

The required biological cleaning for greywater treatment is done by microorganisms designed to break down contaminants. The necessary individual components for the various tank sizes as well as a dosing schedule for your system will be obtained from DEHOUST. It is important to observe the correct dosage, mixture and temperature and to give the microorganisms enough time for development. At the same time, special care is required when handling living organisms.

The following passages provide you with guidance on how to properly handle these microorganisms, which are delivered in the form of dry bacteria, considering all relevant occupational health and safety precautions, and how to prepare them for subsequent filling in the greywater collection and filtration tanks.

14.5.1. Personal protective measures

Handling contaminant-adapted microorganisms requires personal protective equipment and afterwards appropriate disinfection with a commercially available skin-friendly disinfectant.

Take care to always wear a dust mask (P1), a pair of safety goggles, and disposable gloves when filling in the microorganism preparations (in their dry form, e.g. when mixing them into the buffer solution). These precautions serve to prevent the intake of bacterial dusts or microorganism aerosols in the upper airways, avoid skin contact and prevent the spreading of germs.

14.5.2. Preparing the bacteria culture

To activate the contaminant-adapted microorganisms, proceed as follows:

- Observe the dosing schedule closely.
- Place ready the required number of microorganisms / the mixing ratio with water is 1:10.
- Fill ten times more hand-warm water (max. 30° C) in a container of suitable size,
  e.g. 30 L of water for 3 kg of microorganisms
- Per Liter of water, add to the container and dissolve 2.8 g of the buffer salt included in the package,
  e.g. 30 L of water x 2.8 g of buffer salt = 84 g of buffer salt
- Stir in the appropriate calculated and prepared number of microorganisms.
- Allow the mixture to rest for about one hour up to a maximum of two hours while stirring occasionally.
- After said rest period, fill the then activated (rehydrated) microorganisms directly into the greywater tank and filtration tank according to the instructions.

Wear a P1 dust mask to prevent the intake of bacterial dust or microorganism aerosols in the upper airways during mixing.

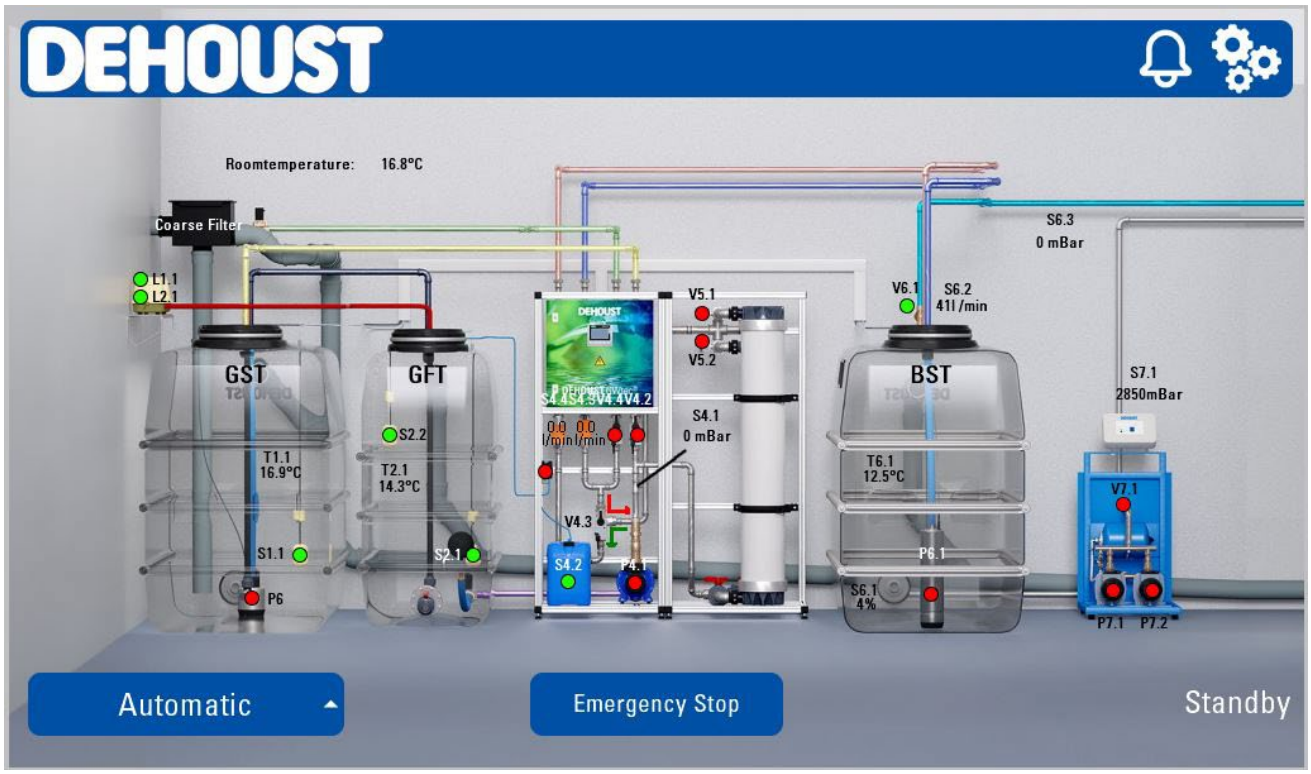
Wear safety goggles when filling in the dry material and when removing the bacteria suspension.

Wear disposable gloves to prevent spreading germs.

After handling microorganisms, wash and disinfect your hands, e.g. with a commercially available skin-friendly disinfectant.

15. Troubleshooting / alarms

15.1. Controller alarms



All fault/alarm messages are visually shown on the touchscreen display of the **DEHOUST**GWtec® station.

Touch the “Messages and alarms” bell icon to open the overview display. Older messages are shown slightly greyed out. Click on [confirm] to acknowledge the alarm.

In the event of a fault, the system automatically switches to "drinking water mode" and must be manually switched back to "automatic" once the fault has been acknowledged (see section 14.3).

Only trained personnel should check and rectify fault messages. Incorrect operation may cause significant damage to the system!

If the underlying fault has not been eliminated, the fault message either cannot be reset or appears soon again on the touchscreen display.

Error code	Error message	Possible causes	Remedy
E002	**Error: Backwash pump. Check.**	Alarm triggered by the motor circuit-breaker of backwash pump P6.1. → The floating alarm contact opens the output.	Check P6.1 Functional test using the "Coarse Filter Cleaning" mode → Section 12.2.1. Visually inspect the backwash pump for debris in the tank; check the electrical connection if necessary.
	ⓘ	The alarm will be reset automatically after elimination of the problem.	
E003	**Logic error in tank status**	The signals from the two float switches in the GFT are conflicting → The floating alarm contact opens the output. Batch, GFT aeration and filtration are disabled.	Visually check the water level on the GFT float switch; if necessary, test its electrical function with a multimeter
	ⓘ	The alarm will be reset automatically after elimination of the problem.	
E100	**SWT liquid level sensor error**	The sensor in the service water collection tank gives no signal. → The floating alarm contact opens the output. The system automatically changes over to [Drinking Water mode] and disables the valve	Check sensor S6.1; measure the signal electrically
	ⓘ	The alarm will be reset automatically as soon as the problem is eliminated or sensor S6.1 provides a signal again	
E101	**Tank drain. Check V7.1.**	AutoDrain fails to signal a changed valve position within the check time. → The floating alarm contact opens the output. Valve V7.1 is closed, Recycling and V6.1 are re-enabled.	Check V7.1. on the pressure booster system (Module 7): Visually inspect the water level and measure the operation of the electric actuator (see Section 12.1.5.2)
	ⓘ	The alarm must be reset by hand.	
E149	**Tank overflow error. Check the tanks!**	The water sensos for the overflow have triggered → The floating alarm contact opens the output.	Check the liquid levels in all tanks. Check all supply lines for leaks.
	ⓘ	The alarm must be reset by hand.	

Error code	Error message	Possible causes	Remedy
A150	**Service water tank overflow**	The service water tank exceeded its maximum liquid level. → The floating alarm contact opens the output.	Check liquid level in the service water tank and V7.1, S6.1.
		The alarm will be reset automatically as soon as the problem is eliminated or the liquid level at S6.1 is ≤ 100% again.	
A151	**Service water tank empty. Dry-run protection activated**	The service water storage tank has insufficient water for the backwash pump → The floating alarm contact opens the output. The system automatically changes over to [Drinking Water mode], V7.1 and P6.1 will be disabled	Check service water tank and piping for leakage. And V7.1
		The alarm will be reset automatically as soon as the problem is eliminated	
W300	**Perform the inspection soon!**	The total operating time of the filtrate pump is approaching the maintenance interval. → The floating alarm contact opens the output.	Carry out an inspection as soon as possible.
		The alarm must be reset by hand.	
E301	**Inspection required!**	The total operating time of the filtrate pump has exceeded the maintenance cycle → The floating alarm contact opens the output. The system automatically changes over to [Auto/Standby].	Carry out an inspection now
		The alarm must be reset by hand.	
E303	**Backwash safety device**	Motor protection for the backflush pump has triggered → The floating alarm contact opens the output.	Check backwash.
		The alarm will be reset automatically as soon as the problem is eliminated. To do this, the motor circuit breaker must be reset manually.	
E304	**Aerator not working**	Power consumption does not match the compressor activation → The floating alarm contact opens the output	Visually check the aeration pumps for an air supply in the tank; if necessary, check the electrical connection (compressor)
		The alarm must be reset by hand.	

Error code	Error message	Possible causes	Remedy
E305	**Backwash flow rate coarse filter**	Backwashing the coarse filter does not result in any flow → The floating alarm contact opens the output	Check backflushing; see Section 11.2.1 Modes, Manual,
		The alarm must be reset by hand.	
E306	**Backwash flow rate membrane filter**	Backwashing the membrane filter does not result in any flow → The floating alarm contact opens the output	Check backflushing
		The alarm must be reset by hand.	
E309	**Filtration pump. No pressure**	The filtrate pump runs at over 25% for more than 10 seconds and does not build up pressure → The floating alarm contact opens the output. The system automatically changes over to [Drinking water mode]	Check P4.1 and S4.1.
		The alarm must be reset by hand.	
E311	**Error in UV section**	The alarm contact on the UV power supply indicates an error → The floating alarm contact opens the output	Check the UV section
		The alarm must be reset by hand.	
E327	**Bus device / address**	One or more bus devices give no signal. → The floating alarm contact opens the output	Check bus devices (valves/flow sensors).
		The alarm will be reset automatically as soon as the problem is eliminated, or all Modbus devices give signals.	
E330	**Backwash pump. No pressure.**	Backwash is running, but pressure is not building up	Check the backwash line for leaks and blockages
		The alarm must be reset by hand.	

Error code	Error message	Possible causes	Remedy
A331	**Dosing canister empty. Replace!**	The flocculant container is empty → The floating alarm contact opens the output. The dosing pump P4.2 is disabled.	Check the liquid level of the Smartfloc canister. Refill or replace as needed.
	ⓘ	The alarm will be reset automatically as soon as the problem is eliminated or the float switch S4.2 signals full status.	
A340	**Filtration pump. No filtration output.**	The filtrate pump runs at over 25% for more than 10 seconds without producing any flow → The floating alarm contact opens the output.	The capacity of the membrane filter is exhausted. The filter must be flushed or replaced.
	ⓘ	The alarm must be reset by hand.	
E342	**Check membrane integrity!**	The pressure readings upstream and downstream of the membrane are out of proportion; the membrane may be damaged.	Check the service water tank for water quality. If the water appears unusually cloudy, has an unpleasant odor, or shows signs that untreated water may have entered the service water tank, replace the membrane.
	ⓘ	The alarm must be reset by hand.	
E355	**Check the batch pump**	Multiple batches (i.e., pumping from the greywater tank to the filtration tank) do not affect the fill level of the greywater filtration tank	Batchpumpe P6 im Grauwasser-Sammeltank auf Funktion überprüfen.
	ⓘ	The alarm must be reset by hand.	
E356	**Valve position error [BusAddress]**	At least one valve is not reaching its target position	Check valve operation to ensure it moves freely; to do so, manually engage the actuator lever.
	ⓘ	The alarm must be reset by hand.	

15.2. Pressure surges in drinking water line

The solenoid valve of the drinking water make-up opens gently through a servo-controlled membrane, which normally prevents pressure surges in the drinking water line. Pressure surges (water hammer) occur when the difference between resting pressure and flow pressure is higher than 2 bar.

If the building owner installs a shut-off valve in the drinking water line upstream of the drinking water make-up connection, the flow can be restricted so far as to ensure that there is no pressure surge when the solenoid valve opens. The disadvantage of this method is a reduced make-up flow.

Check whether the flow rate of the pressure booster system is sufficient for normal service water consumption. The liquid level in the service water storage tank should not be allowed to fall below a level triggering the dry-run protection mode of the pressure booster system. If the pressure booster system changes over to the dry-run protection mode, it is necessary to restrict the flow rate also at the discharge end.

15.3. Presence of odours in the installation room

The regular oxygen inflow from the aeration unit for the biological cleaning stage is too low or might even be interrupted. Please check hose connections and operating parameters of the aeration unit and adjust/increase the flow rate where necessary.

A strong odour indicates a disruption or interruption in the biological process. It is necessary to check whether contaminants have entered the system. If necessary, the tank must be cleaned and the bacterial cultures restarted (→Chapter 14.5).

- A slight smell of greywater cannot always be fully avoided in the installation room or in the treated water. This is not considered an odour nuisance of the product.
- We recommend installing a separate (rooftop) vent line for the greywater collection tank and the greywater filtration tank.

16. Inspections / Maintenance

The **DEHOUST**GWtec® system contains components that require inspection and maintenance. The main difference is that **inspection** determines the current condition (diagnosis), whilst **maintenance** takes preventive measures to maintain (care) or improve (optimisation) this condition.

Inspection is a comprehensive checklist-based examination that identifies defects, whilst maintenance involves rectifying these defects, topping up fluids, lubricating and replacing wear parts.

- **Inspections should be carried out by the system operator.**
- **Maintenance and repairs must only be carried out by qualified personnel (trained personnel).**

If faults or damage to the **DEHOUST**GWtec® are discovered during an inspection, please contact the contractual partner or DEHOUST.

Always disconnect the **DEHOUST**GWtec® system from the mains during maintenance and repair work!

During all inspection or maintenance work, avoid direct skin and eye contact with the greywater and residues.

Wear appropriate personal protective equipment!

The specified intervals for inspection and maintenance measures and the described work steps must be observed in the interests of the operator/user in order to prevent damage to the system.

16.1. Installation room

Interval	Measure	Responsible
1M	**Inspection:** Checking that conditions in the installation room are correct (→Chapter 6.1)	Operator / User

16.2. Hose and water connections

Intervall	Measure	Responsible
3M	**Inspection:** Check all hose connections (greywater batch pump, aeration unit, filtrate outlet, backwash line), drinking water and service water connections for damage, leaks and porous or worn sections. Replace hoses/pipes as required and reseal the connections.	Operator / User
	Maintenance Replace defective hoses/pipes and reseal them.	Trained person

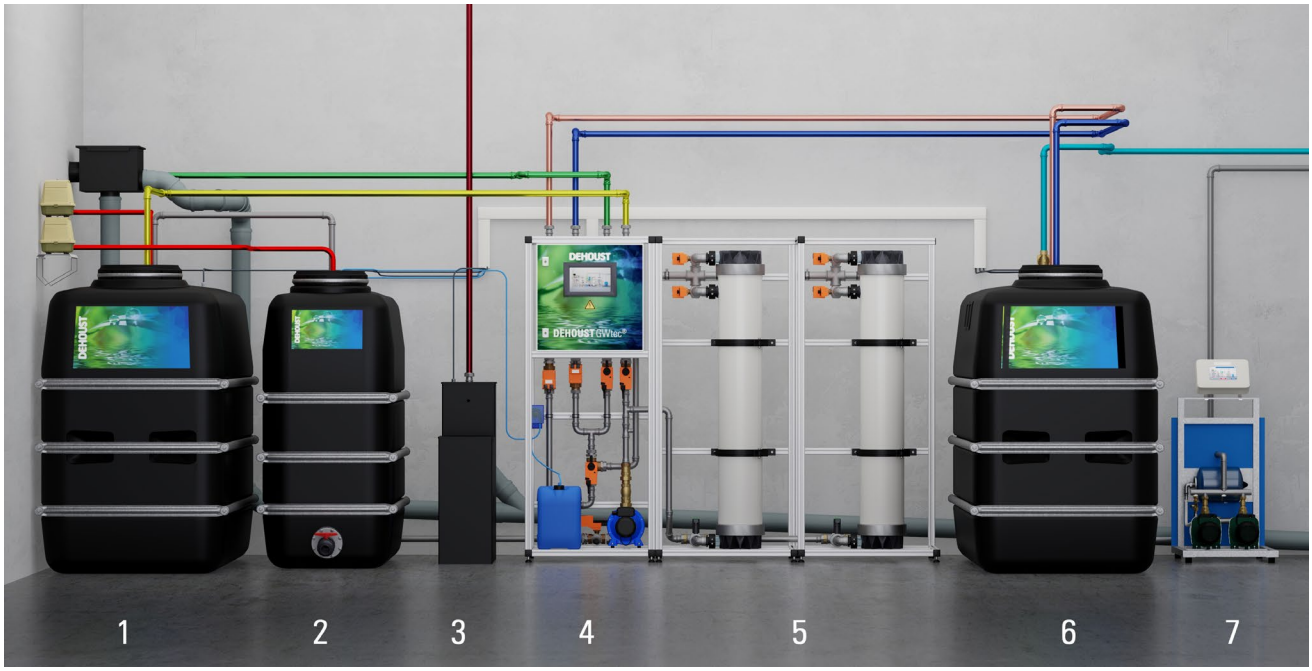


Figure 19: Modules 1 – 7

16.3. Module 1 - Greywater collection tank(s)

Interval	Measure	Responsible
3M	**Inspection / Functional checks** Check the greywater collection tank for leaks, cleanliness and damage. Remove external dirt using a damp cloth and standard washing-up liquid. Open the grey water collection tank for visual inspection. If coarse contamination is on the floor near the discharge valve, open it briefly and observe whether it drains away. If so, close the discharge valve.	Operator / User
	Maintenance: If there is no drainage, carefully remove the contamination from the discharge valve with a brush and rinse with water until it passes through the valve. Also, brush and rinse the oxygen outlet on the aerator pipe (see section 8.5). Then close the discharge valve. Refill the tank. If a noticeable odour develops within 48 hours, the process has weakened the bacterial culture. In this case, mix new microorganisms (see section 14.5) and add them.	Trained person

16.3.1. Aeration unit(s)

Intervall	Measure	Responsible
24M or after 20.000 Operating hours	**Inspection / Functional checks** Check the aerator pipe(s) for even bubble formation Compressor operating instructions with detailed inspection recommendations must be observed!	Operator / User
	Maintenance: Aerator pump(s) L1.1: Replacement of piston / air filter Complete replacement of aerator pump(s) if needed	Trained person

16.3.2. Float Switch S 1.1

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Check the cable for external damage and ensure it is working properly. Replace the float switch if necessary.	Trained person

16.3.3. Batch pump P1.1

Intervall	Measure	Responsible
3M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Visually check for dirt or blockages. Check that the electrical system is working properly. Clean if necessary or replace if damaged.	Trained person

16.3.4. Coarse filter DEHOUST MAX

Intervall	Measure	Responsible
1M	**Inspektion Siebplatte:** Actually, this is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Open the lid of the coarse filter housing (secured by hooks) and check its condition. Remove any stubborn, coarse debris that could not be removed by the spray nozzles from the filter plate using a cleaning brush. If necessary, remove the filter plate to do this. When reinserting it, ensure that the flow direction is correct. Dispose of any filter residue in the general waste. If cleaning is not sufficient to ensure full functionality, replace the filter plate To test backflushing: see Section 12.2.1 System control—Settings—Modes—Manual—Additional—Coarse filter cleaning. The pump should start.	Trained person

16.4. Module 2 - Greywater filtration tank(s)

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** Check the greywater filtration tank for leaks, cleanliness and damage. Remove any external dirt using a damp cloth and standard washing-up liquid. Open the grey water filtration tank for visual inspection. If coarse contamination is on the floor near the discharge valve, open it briefly and observe whether it drains away. If so, close the discharge valve quickly to prevent too much beneficial sludge containing bacterial cultures from being drained off.	
	Maintenance: If there is no drainage, carefully remove the contamination from the discharge valve with a brush and rinse with water until it passes through the valve. Also, brush and rinse the oxygen outlet on the aerator pipe (see section 8.5). Then close the discharge valve. Refill the tank. If a noticeable odour develops within 48 hours, the process has weakened the bacterial culture. In this case, mix new microorganisms (see section 14.5) and add them.	

16.4.1. Aeration unit(s)

Intervall	Measure	Responsible
24M or after 20.000 Operating hours	**Inspection / Functional checks** Check the aerator pipe(s) for even bubble formation Compressor operating instructions with detailed inspection recommendations must be observed!	Operator / User
	Maintenance: Aerator pump(s) L1.1: Replacement of piston / air filter Complete replacement of aerator pump(s) if needed	Trained person

16.4.2. Float Switch S 2.1

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Check the cable for external damage and ensure it is working properly. Replace the float switch if necessary.	Trained person

16.5. Module 3 – Rainwater filtration tank

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** Check the rainwater filtration tank for leaks, cleanliness and damage. Remove any external dirt using a damp cloth and standard washing-up liquid.	
	Maintenance: If there is no drainage, carefully remove the contamination from the discharge valve with a brush and rinse with water until it passes through the valve.	

16.5.1. Float Switch S3.1

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Check the cable for external damage and ensure it is working properly. Replace the float switch if necessary.	Trained person

16.5.2. Feeder pump P3.1

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Visually check the feed pump for the water level; if necessary, test the electrical function with a multimeter	Trained person

16.6. Module 4 - GWtec® station

The inspection interval of the GWtec® station is governed by the number of operating hours of the filtrate pump. After a running time of 12,000 operating hours (approx. 20 months of operation) the controller display will show an Inspection message. Please contact a contract dealer or DEHOUST for the inspection.

The filtration output of the membrane filter depends on the composition of the greywater, the timing settings for aeration, sedimentation and filtration, the daily amount of greywater, and the consumption of service water. For said reasons, it may occasionally be necessary to replace the membrane filter before the end of the regular interval.

The inspection of the GWtec® station and the replacement of the membrane filter must be carried out by a contract dealer or by DEHOUST.

16.6.1. SmartFloc Dosing station

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Replacement of peristaltic tube	Trained person

16.7. Module 5 - GWtec® membrane filter

Intervall	Measure	Responsible
6M	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Replacement of filter if needed	Trained person

16.8. Module 6 – Service water tanks

Interval	Measure	Responsible
	**Inspection / Functional checks** Check the service water tank for leaks, cleanliness and damage. Remove external dirt using a damp cloth and standard washing-up liquid. Check the water quality for odour and/or turbidity. No further inspection work is required, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	Maintenance: Check the quality of the process water by smell. If you suspect any abnormalities, e.g. due to an unpleasant odour, take a sample and have it tested in a laboratory.	Trained person

16.8.1. Drinking water make-up valve

Interval	Measure	Responsible
	**Inspection / Functional checks** Check the DW make-up solenoid valve for leakage and functionality. To do so, open/close the solenoid valve manually via the [Manual Mode] of the controller.	Operator / User
	Maintenance: Replace the drinking water make-up valve if necessary.	Trained person

16.9. Module 7 - Pressure booster system

Interval	Measure	Responsible
	Follow the detailed inspection recommendations in the operation manual of the pressure booster system.	Trained person

16.9.1. Rainwater feeder (optional)

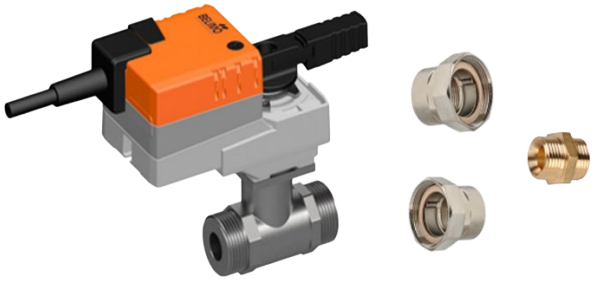
Intervall	Measure	Responsible
	**Inspection / Functional checks** This is not necessary, as the system is monitored automatically and any malfunctions are reported. If malfunctions occur, see Chapter 15	Operator / User
	**Maintenance:** Visually check for dirt or blockages. Clean if necessary. Check that the electrical system is working properly. Replace if damaged.	Trained person

16.9.2. Diaphragm pressure vessel

	Please follow the manufacturer's operating instructions for the diaphragm pressure vessel!

17. Optional accessories

17.1. AutoDrain for service water tank

Article No.	813456
	The AutoDrain function ensures constant water exchange in the service water tank to minimize stagnation and contamination risks in the system even for extended rest periods. The AutoDrain function is operated at stored settings (refer to Chapter 12.1.1) and must have been activated in the controller (refer to Chapter 12.1.5.1). The ball valve is opened automatically for discharge to the sewer until a defined liquid level is reached in the tank. Then the ball valve is closed, and the service water tank refilled with make-up drinking water up to a defined level.
	When directly ordered with the system, the AutoDrain ball valve is delivered pre-mounted to the service water tank.
Technical Data	▸ Open-close motorized ball valve – Inlet: 1" OT ▸ Open-close motorized ball valve – Outlet: 1" IT ▸ Control: ModBus ▸ Motor torque: 5 N·m ▸ Motor runtime: 90 sec ▸ Electrical connection: 24 V / 50 Hz ▸ Wattage: 2.5 W ▸ Weight: 1,37 kg ▸ Grey terminal box, LWH: 94 x 94 x 57 mm ▸ Data cable Y(ST)Y 2 x 2 x 0,6; 10 m

Article No.	813456
	Installation Connect the AutoDrain to the connection cable of the Modbus Box of the service water tank (module 06); a screw connection is provided for this purpose; refer to chapter 9
	Failure to connect the AutoDrain to the sewer results in a risk of flooding for the installation room. The sewer drain or sewage lifting station must be capable of discharging the maximum amount of service water from the pressure booster system. Connect the drain line so that it is not under tension. No force must be applied to the discharge valve/pipe socket connection of the service water tank.
	The building owner is recommended to install a shut-off valve and a releasable threaded connection. To activate and parameterize the AutoDrain, please refer to chapter 12.1.1 of the Tanks settings and chapter 12.1.5.1 System settings

17.2. Service water flow sensor

Article No.	815075
	Additional flow sensor (uncalibrated) for measuring the service water flow rate. Sensor with a flow rate of up to 12 m³/h
Technical Data	▸ Inlet: 1 1/2" IT ▸ Outlet: 1 1/2" IT ▸ Control: Modbus ▸ Electrical connection: 24 V / 50 Hz ▸ Wattage: 2.5 W
Installation	Connect the flow sensor to the service water piping and seal it. The electrical connection shall be in accordance with the circuit diagram DEHOUST *GWtec®* ▸ *Service water flow sensor*
	For activating the service water flow sensor, please refer to chapters 12.1.1 and 12.1.5.1.

17.3. GWtec® rainwater feeder package with RFT rainwater filtration tank

Article No.	813457 / 962046
	GWtec® rainwater feeder package for automatic rainwater make-up through the RFT rainwater filtration tank in a DEHOUST GWtec®-type greywater treatment and reuse system. The rainwater feeder pump and tank level monitoring are controlled via the GWtec® greywater treatment station.
General information	The rainwater feeder pump has approval for operation ▸ for pumping service water (rainwater, well water) ▸ for installation in an existing rainwater storage space (e.g. cistern, buried tank) ▸ up to a maximum immersion depth of 10 meters ▸ in the environment of residential, office and commercial areas and small businesses
Technical Data	▸ Delivery rate, Qmax: 16,5 m³/h ▸ Delivery head: max. 13,5 m ▸ Immersion depth: max. 10 m ▸ Supply voltage: 230 V / 50 Hz ▸ Nominal power: 1,100 W ▸ Class of protection: IP 68 ▸ Connection at discharge side: 1 ¼" IT ▸ Connection at suction side: 1 ¼" IT ▸ Stainless steel baseplate: 160 mm ▸ Weight: 11 kg

Article No.	**813457 / 962046**
Hydraulic connection	Install the RFT rainwater tank in parallel to the greywater filtration tank and connect it with the GWtec® station. Screw the 1 ¼“external thread of the supplied floating intake line into the suction inlet of the feeder pump. Place the feeder pump in a stable position onto the bottom of the external rainwater cistern. Connect the discharge outlet of the feeder pump in a tight, fixed and stress-free manner to the building’s feeder piping, which is installed on the GWtec®. Connect the building’s booster piping in a tight, fixed and stress-free manner to the appropriately labelled fitting on the service water storage tank of the GWtec®.
	▸ To ensure fault-free operation of the GWtec® system, you should only use the original service water feeder pump included in the delivery. ▸ Never allow the feeder pump to hang from the feeder pipe by its dead weight. ▸ The float switch of the feeder pump must be freely movable.
	▸ The floating intake line must be freely movable in the external rainwater cistern without hitting any obstacles. ▸ When dimensioning the feeder piping, select a cross-section size meeting the technical specifications. ▸ Dirt can get into the feeder piping during laying of the pipe. Therefore, we recommend flushing the booster delivery line before connecting it to the service water storage tank.

Article No.	**813457 / 962046**
Electrical Connection	Lay the power supply cable of the rainwater feeder pump up to the GWtec®, extend the cable, if necessary.
	 Connect to the control unit using the 30X2 cabling plug. Please also refer to chapter 9 “Cabling of modules”
	Never allow the feeder pump to hang from the feeder cable by its dead weight.
	For activating the rainwater make-up function, refer to the Chapters 12.1.1 and 12.1.5.1.Tank

Article No.	**813457 / 962046**
Tank level monitoring	An immersion pressure sensor is installed to monitor and visualize an external rainwater cistern.
	The immersion pressure sensor is suitable for water depths from 1 to 6 meters and has a more than 25-metre-long connecting cable. The connecting cable must not be buried in the ground without protection. For buried installation, it is advisable to use a suitable DN 100 underground pipe and lay the connecting cable inside the pipe between the external rainwater cistern and the GWtec®.
	Never allow any water to penetrate the protective tubing of the connecting cable. This may cause irreparable damage to the stainless-steel sensor.
	For protection during installation, it is advisable to seal the open end of the connecting cable with an adhesive tape.
Sensor Installation	Place the stainless-steel sensor head in a horizontal position on the bottom of the external rainwater cistern. Pull the entire connecting cable with protective tubing through the conduit up to the GWtec® Station in a way to ensure that the taut connecting cable with protective tubing can reach down to the bottom of the external rainwater cistern. Connect it to the GWtec® (refer to Chapter 9 "Cabling of modules").
	The sensor is delivered with detailed instructions.

18. Customer services

18.1. Digital access to technical documentations

You will find a QR code on the inner surface of the door of the GWtec® controller. Please scan this code. You will then have direct access to our DEHOUST Cloud, and all our technical documents stored there for your specific equipment.

18.2. Initial and extended Service Policies

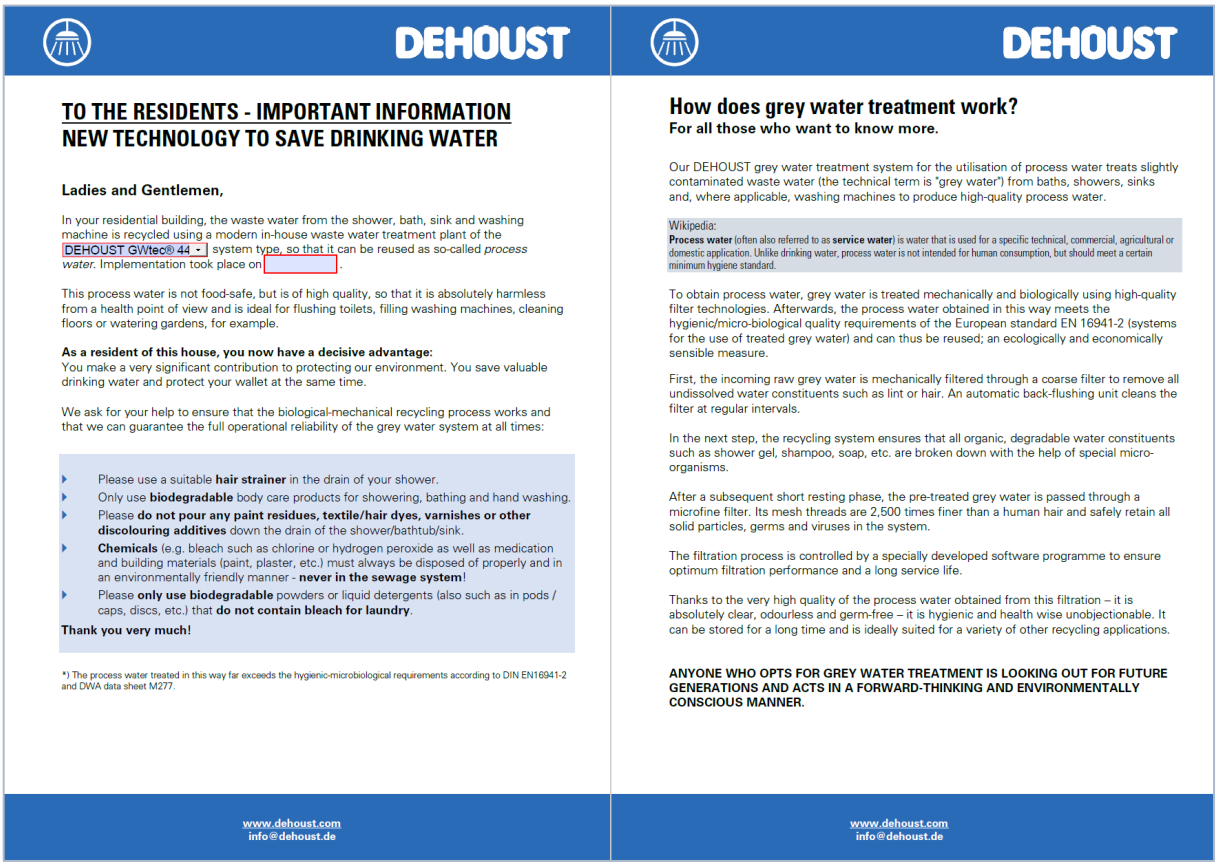
18.2.1. Initial Service

The initial service includes delivery and installation of the system at the operating site, as well as handover “ready for operation.”

18.2.2. Extended service

The extended service includes a repair-, inspection-, and maintenance contract that can be concluded by the customer with DEHOUST. This contract runs for one year and is automatically renewed unless terminated by the system operator eight weeks before expiry. The full text of the contract and the conditions is available as a template on request.

18.3. Notice for the residents of a building with a greywater reuse system (fill-in form)



DEHOUST

TO THE RESIDENTS - IMPORTANT INFORMATION
NEW TECHNOLOGY TO SAVE DRINKING WATER

Ladies and Gentlemen,

In your residential building, the waste water from the shower, bath, sink and washing machine is recycled using a modern in-house waste water treatment plant of the DEHOUST GWtec® 44 system type, so that it can be reused as so-called *process water*. Implementation took place on .

This process water is not food-safe, but is of high quality, so that it is absolutely harmless from a health point of view and is ideal for flushing toilets, filling washing machines, cleaning floors or watering gardens, for example.

As a resident of this house, you now have a decisive advantage:
You make a very significant contribution to protecting our environment. You save valuable drinking water and protect your wallet at the same time.

We ask for your help to ensure that the biological-mechanical recycling process works and that we can guarantee the full operational reliability of the grey water system at all times:

- Please use a suitable **hair strainer** in the drain of your shower.
- Only use **biodegradable** body care products for showering, bathing and hand washing.
- Please **do not pour any paint residues, textile/hair dyes, varnishes or other discolouring additives** down the drain of the shower/bathtub/sink.
- **Chemicals** (e.g. bleach such as chlorine or hydrogen peroxide as well as medication and building materials (paint, plaster, etc.) must always be disposed of properly and in an environmentally friendly manner - **never in the sewage system**!
- Please **only use biodegradable** powders or liquid detergents (also such as in pods / caps, discs, etc.) that **do not contain bleach for laundry**.

Thank you very much!

*) The process water treated in this way far exceeds the hygienic-microbiological requirements according to DIN EN16941-2 and DWA data sheet M277.

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DEHOUST

How does grey water treatment work?
For all those who want to know more.

Our DEHOUST grey water treatment system for the utilisation of process water treats slightly contaminated waste water (the technical term is "grey water") from baths, showers, sinks and, where applicable, washing machines to produce high-quality process water.

Wikipedia:
Process water (often also referred to as **service water**) is water that is used for a specific technical, commercial, agricultural or domestic application. Unlike drinking water, process water is not intended for human consumption, but should meet a certain minimum hygiene standard.

To obtain process water, grey water is treated mechanically and biologically using high-quality filter technologies. Afterwards, the process water obtained in this way meets the hygienic/micro-biological quality requirements of the European standard EN 16941-2 (systems for the use of treated grey water) and can thus be reused; an ecologically and economically sensible measure.

First, the incoming raw grey water is mechanically filtered through a coarse filter to remove all undissolved water constituents such as lint or hair. An automatic back-flushing unit cleans the filter at regular intervals.

In the next step, the recycling system ensures that all organic, degradable water constituents such as shower gel, shampoo, soap, etc. are broken down with the help of special micro-organisms.

After a subsequent short resting phase, the pre-treated grey water is passed through a microfine filter. Its mesh threads are 2,500 times finer than a human hair and safely retain all solid particles, germs and viruses in the system.

The filtration process is controlled by a specially developed software programme to ensure optimum filtration performance and a long service life.

Thanks to the very high quality of the process water obtained from this filtration – it is absolutely clear, odourless and germ-free – it is hygienic and health wise unobjectionable. It can be stored for a long time and is ideally suited for a variety of other recycling applications.

ANYONE WHO OPTS FOR GREY WATER TREATMENT IS LOOKING OUT FOR FUTURE GENERATIONS AND ACTS IN A FORWARD-THINKING AND ENVIRONMENTALLY CONSCIOUS MANNER.

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19. Disposal considerations

The operator of the system must recycle the packaging material in accordance with the local waste management regulations.

At the end-of-life cycle, the equipment shall be shipped, free of freight charge for the manufacturer, to DEHOUST GmbH for disposal. All further dismantling/recycling action will be taken by the manufacturer.

20. Declaration of Conformity

DEHOUST CE

EU declaration of conformity
No. 2025-01

We confirm the conformity to the essential requirements of the European directive(s):

- 2006/42/EG Machine Directive
- 2011/65/EU RoHS Directive
- 2014/30/EU Directive Electromagnetic Compatibility

The EU declaration of conformity applies to the following units and product designation:

Product group	Greywater recycling system Dehoust GWtec®
Model Numbers, Article Numbers	Dehoust GWtec® 140, 813371 Dehoust GWtec® 240, 813372 Dehoust GWtec® 340, 813373 Dehoust GWtec® 440, 813374 Dehoust GWtec® 540, 813392 Dehoust GWtec® 640, 813393
Manufacturer	Dehoust GmbH Gutenbergstr. 5-7 69181 Leimen, Germany

The following standard(s) was (were) mainly applied:

- EN ISO 12100:2010 Safety of machinery – General principles for design – Risk assessment and risk reduction
- EN 60204-1:2018, ISO IEC 60204-1:2016 Safety of machinery – Electrical equipment of machines – Part 1: General requirements
- DIN EN 1717:2023 Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow
- DIN EN 16941-1:2022 Rainwater harvesting systems for non-potable uses – Part 1: Design, performance and testing

Created by Jürgen Kolb, CE Officer

Leimen, 17th of March 2025

Place and date of issue

Andreas Bichler
CEO

Signed on behalf of: **DEHOUST GmbH**

21. Appendix: List of abbreviations and technical terms

Abbreviation	Meaning	Abbreviation	Meaning
<	Less than	L	Liter
>	Greater than	Min	Minute
®	Registered Trademark	mm	Millimetre
A	Ampere	N/A	not applicable
AG	External thread	nm	Nanometre (1 mm = 1.000.000 nm)
W x H x D	Width x height x depth	N·m	Newton meter
BGB	Bürgerliches Gesetzbuch (German civil code)	PE-HD	The improved high-density polyethylene (PE-HD) materials used in today's pipe production are characterized by their high flexibility, durability, and a long service life
cm	Centimetre	PESM	Polyether sulfone – also known as PESU – is a plastic that can withstand high temperatures over long periods of time.
dB	Decibel	PP	Polypropylene, a type of plastic
DN	Nominal width (diameter)	PVC	Polyvinyl chloride, a type of plastic
Firewall	A firewall is a protective technology that separates network areas from each other	TCP-Port	TCP/IP is a data transfer protocol used on the Internet to enable computers and other devices to send and receive data. TCP/IP stands for Transmission Control Protocol/Internet Protocol and enables devices connected to the Internet to communicate with each other via networks.
g	Gram		
GFT	Greywater filtration tank		
GST	Greywater collection tank		
GWtec®	name/type of grey water treatment system	TFT	TFT stands for Thin Film Transistor. TFT is not just a display technology, but a very special type of transistor for improving image quality. It is most used in conjunction with LCD displays.
h	Hour	Touchscreen	Screen that is operated by touching the screen surface.
Hz	Hertz	UF	Ultrafiltration
IG	Internal thread	V	Volt
kg	Kilogram (1000 Grams)	VPN	A Virtual Private Network, or VPN for short, is a virtual, non-public network. “Virtual” means that the various end devices in this network – unlike in your home network, for example – are not directly physically connected to each other or to a central router. A VPN connection is used to establish a secure (encrypted) connection between two endpoints via the unprotected Internet.

DEHOUST

ENERGY. HEAT. WATER.

DEHOUST GmbH

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