



DEHOUST

ENERGY. HEAT. WATER.

Installation, Operation and Inspection Manual

DEHOUST GWtec® 140, 240, 340, 440, 540, 640
Greywater treatment plants for greywater reuse



Certified to
NSF/ANSI 350





INSTALLATION, OPERATION, INSPECTION
GWtec® 140, 240, 340, 440, 540, 640

DEHOUST

Project number:

.....

Name of delivered system:

DEHOUST GWtec®



Treatment capacity per day:

.....

Date of manufacture:

.....

Serial Number:

.....

Control cabinet serial number:

.....

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Contents

1. Safety instructions.....	6
1.1. General safety instructions.....	6
1.2. Cross-reference to other instructions	7
1.3. Symbols used in this manual.....	8
1.4. Safety regulations / Standards	9
1.5. Risks and hazards from non-compliance with the manual.....	9
1.6. Operator's duty of care	9
1.7. Safety instructions for maintenance, inspection and installation work	10
1.8. Duties of the operatives	10
2. General information.....	11
2.1. Warranty and liability	11
2.2. Statutory warranty obligation (extract).....	11
3. General description.....	12
3.1. Functional description.....	12
3.2. Basic Plant Layout.....	13
3.3. Plant components.....	14
3.4. Intended use.....	15
3.5. Preventing improper use	15
4. GWtec® Technical Data	16
4.1. Dimensions & weights.....	16
4.2. Technology	16
4.3. Connections according to DIN ISO 228-1	17
4.4. Electrical data	17
4.5. NSF/ANSI Standard 350 Classification	18
4.6. Service water quality for GWtec® model series.....	18
4.7. Operations	20
4.7.1. Explanation of the different processes:	21
5. Handling and storage / installation.....	22
5.1. Requirements for the place of installation	22
5.2. Installation of the tanks	23
5.2.1. Installation of GWtec® 140.....	24
5.2.2. Installation variants for GWtec® 240	25
5.2.3. Installation variants for GWtec® 340	26
5.2.4. Installation variants for GWtec® 440	27
5.2.5. Installation of GWtec® 540.....	29
5.2.6. Installation of GWtec® 640.....	30
6. Piping between plant components	31



7. Assembly.....	32
7.1. The GWtec® Greywater Treatment Plant	32
7.1.1. Installation of the GWtec® system, the membrane filter and the greywater filtration tank	32
7.1.2. Installation on filter rack	33
7.1.3. Installation of the suction line to the filtration pump	34
7.1.4. Backwash "IN" connection	35
7.1.5. Backwash "OUT" connection	36
7.1.6. Filtrate line connection	37
7.2. Smartfloc dosing station.....	38
7.3. Coarse filter connection.....	39
7.3.1. Connection to water pipes	39
7.3.2. Coarse filter connection	40
7.3.3. Connection to the backwash line	40
7.4. The storage tanks.....	41
7.4.1. Installation.....	41
7.4.2. Connection to sewer	42
7.4.3. Vent connection (optional)	43
7.5. The aeration unit.....	43
7.6. Greywater batch pump	44
7.7. Backwash pump	45
7.8. Drinking water make-up connection	45
7.8.1. Drinking water flow sensor.....	47
7.9. Emergency overflow of service water tank.....	48
7.10. Connection to the service water system	49
8. Cabling of modules	50
9. Electrical connection.....	53
10. DEHOUST Connect web interface.....	55
11. Control via touchscreen color display.....	56
11.1. SETTINGS.....	59
11.1.1. Tanks.....	59
11.1.2. Recycling.....	61
11.1.3. Network.....	62
11.1.4. Language settings	63
11.1.5. System	64
11.2. CONTROLLER	68
11.2.1. Modes	68
11.2.2. Water balance	70
11.3. MESSAGES	71
12. Important tests prior to commissioning.....	72
12.1. Testing of single components	73



13.	Commissioning.....	73
13.1.	Drinking Water mode – without greywater inflow	75
13.2.	Drinking Water mode – with greywater inflow	77
13.3.	Step 3: Automatic mode with greywater treatment	79
13.4.	Extended rest periods	80
13.5.	Building up biological cleaning	81
13.5.1.	Personal protective measures	81
13.5.2.	Preparing the bacteria culture	81
14.	Troubleshooting / alarms.....	82
14.1.	Controller alarms	82
14.2.	Pressure surges in drinking water line	86
14.3.	Presence of odors in the installation room	86
15.	Inspection.....	87
15.1.	Coarse filter DEHOUST MAX	87
15.2.	Drinking water make-up valve	87
15.3.	Hose and water connections.....	87
15.4.	Desludging the tanks.....	88
15.4.1.	Greywater collection tank(s)	88
15.4.2.	Greywater filtration tank(s).....	88
15.5.	Aeration unit	88
15.6.	Pressure booster system	88
15.7.	GWtec® station	89
16.	Optional accessories.....	90
16.1.	AutoDrain for service water tank.....	90
16.2.	Service water flow sensor (Article 815070)	92
16.3.	GWtec® rainwater feeder package with RFT rainwater filtration tank.....	93
17.	Customer services.....	97
17.1.	Digital access to technical documentations	97
17.2.	Service Representatives.....	97
17.3.	Initial and extended Service Policies	97
17.3.1.	Initial Service.....	97
17.3.2.	Extended service	97
17.4.	Notice for the residents of a building with a greywater reuse system (fill-in form)	98
18.	Declaration of Conformity.....	99
19.	Disposal considerations	100
20.	Appendix: List of abbreviations and technical terms.....	101



1. Safety instructions



Read the manual before installing and commissioning the *GWtec*® system and keep the manual within reach at the place of use.

This applies to the operative(s), technician(s), or operators.

1.1. General safety instructions

This manual provides basic guidance for transport, handling, installation, commissioning, operation, maintenance, storage and final disposal. When using *GWtec*® greywater treatment plants, observe the relevant data, limits and operating conditions specified in this manual and in the Technical Data Sheet as revised from time to time.

Also, this manual is valid only in connection with the operation manual as delivered with the equipment or as applicable on the date of a software update. The latest operation manual for your current software version will be given to you each time the controller software runs an update with changed menu navigation.

Important:

- ▶ 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
- ▶ Perform all installation and maintenance work always by duly authorized specialist personnel using appropriate tools.
- ▶ Have the operator check the technical condition of the *GWtec*® system at regular intervals.
- ▶ Observe the local safety and accident prevention regulations for the operation of the *GWtec*® system.
- ▶ Make sure the plant is installed and operated in accordance with the generally accepted rules of engineering.
- ▶ Do not make any modifications to the *GWtec*® plant, because you would lose all rights under the warranty.
- ▶ After a power outage or greywater supply interruption, ensure the process is restarted in a controlled and defined manner.
- ▶ The operator is responsible for meeting any additional applicable local regulations not mentioned in the manual.



1.2. Cross-reference to other instructions

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*®



1.3. Symbols used in this manual



Passages marked with this symbol indicate **danger**.

Death, serious injury, or significant property damage may result if the appropriate precautions are not observed.



Passages 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.



Passages marked with this symbol provide an **instruction**:

Wear personal protective equipment – in this case, protective gloves.



Passages marked with this symbol provide an **instruction**:

Wear personal protective equipment – in this case, a dust mask.



Passages marked with this symbol provide an **instruction**:

Wear personal protective equipment – in this case, safety goggles.



Passages marked with this symbol provide an **instruction**:

Protect yourself by washing your hands and using hand sanitizer.



Passages marked with this symbol provide a **warning**:

Do not connect certain devices, materials, or connections **to the drinking water supply!**



Passages marked with this symbol provide helpful **information**:

Observing and following this (technical) information and practical tips should help to prevent damage to the plant. This symbol does not indicate a safety instruction.



Passages marked with this symbol indicate a **time specification for maintenance intervals**:

Here: quarterly (every three months)



Passages marked with this symbol indicate a **time specification for maintenance intervals**:

Here: semiannual (every six months)



Passages marked with this symbol indicate a **time specification for maintenance intervals**:

Here: 2 years (every 24 months)



Passages marked with this symbol provide an **indication**:

Service or maintenance work shall be performed as required or in the event of wear.



1.4. Safety regulations / Standards

The following safety regulations and standards 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.

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

Failure to observe the instructions given in this manual will void any warranty and damage claims. Non-compliance with the manual may, for example, result in the following hazards:

- ▶ danger to persons due to electrical, thermal, mechanical and chemical effects
- ▶ loss of key functions of the product
- ▶ failure of prescribed servicing and maintenance methods
- ▶ environmental hazards due to leaking hazardous substances

1.6. Operator's duty of care

The *GWtec*® greywater treatment plant for greywater reuse was designed and built 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 plant for greywater reuse is used for the intended purpose only
- ▶ the *GWtec*® greywater treatment plant for greywater reuse is operated in perfect functional condition only
- ▶ a full version of the manual in a readable condition is constantly kept within reach at the place of use of the *GWtec*® system
- ▶ only sufficiently qualified and authorized personnel install, commission, maintain and service the *GWtec*® system
- ▶ such personnel are instructed at regular intervals in all relevant aspects of safety at work and environmental protection and have read and understood the manual and, more specifically, the safety instructions contained therein
- ▶ none of the safety and warning labels on the *GWtec*® greywater treatment plant for greywater reuse are removed and that they remain readable
- ▶ a risk assessment (in the spirit of Section §5 of the Safety at Work Act) is made to determine the additional risks and exposures resulting from the specific local working conditions at the place of use of the *GWtec*® system
- ▶ all additional safety and other instructions arising from the risk assessment are grouped together in an operating procedure (in the spirit of Section §6 of the Work Equipment Usage Ordinance)
- ▶ sewer discharge is sufficiently dimensioned



1.7. Safety instructions for maintenance, inspection and installation work

- ▶ Do not change or modify the system, unless with the prior consent of the manufacturer.
- ▶ Note that the system and installation must comply with applicable state and local regulations.
- ▶ Never use any parts other than original parts or spare parts authorized by the manufacturer. The use of non-compliant parts can void liability claims for defects arising therefrom.
- ▶ Switch off the system during all work on the equipment.
- ▶ Let the plant units (filter and pump) cool down to ambient temperature
- ▶ Always observe the inspection/maintenance procedure described in the manual.
- ▶ Reinstall or reactivate all safety guards and protective devices immediately after the work is done. Before restarting operation, follow the steps mentioned in the Commissioning section of the manual.
- ▶ Keep unauthorized persons (e.g. children) away from the system.

1.8. Duties of the operatives

The GWtec® greywater treatment plant for greywater reuse shall be installed, commissioned, repaired, maintained and decommissioned only by persons specifically trained, briefed and authorized for this purpose. The operator can request training sessions from the manufacturer/supplier as needed. Training sessions for the system must always be supervised by specialist personnel. The operator shall maintain an operating procedure containing clear assignment of authorities for every member. Moreover, particular qualifications are required for the following activities:

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

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



2. General information

The manual is an integral part of the GWtec greywater treatment system types when delivered. The manual describes the proper and safe use of the system in all operational phases. The data plate contains, among other things, the name and address of the manufacturer, the date of manufacture, the model number, the system classification, the daily capacities, other important operating data, and the serial number (also refer to chapter 17).

To maintain warranty claims in the event of damage, report damages immediately to the authorized dealer by indicating the installation site and the series number of the equipment.

2.1. Warranty and liability

The *Standard Terms and Conditions of Sale and Delivery* of DEHOUST GmbH apply. No warranty and liability claims can be accepted in case of personal injury or material damage attributable to any of the following causes:

- ▶ improper use of GWtec®
- ▶ improper installation, commissioning, operation and maintenance of GWtec®
- ▶ failure to follow the instructions in the manual in terms of transport, handling, storage, installation, commissioning, operation, servicing and maintenance of GWtec®
- ▶ arbitrary structural modifications to GWtec®
- ▶ improper repairs
- ▶ disaster events by impact of foreign bodies and force majeure

2.2. Statutory warranty obligation (extract)

The statutory warranty obligation according to Section § 437 of the German Civil Code (BGB) applies.

Within the statutory warranty period, DEHOUST will at no charge remedy functional defects arising from manufacturing or material defects.

This applies to any defects or malfunctions occurring despite correct installation, proper operation and full compliance with the operating and installation instructions.



3. General description

GWtec® greywater treatment plants for greywater reuse treat slightly contaminated domestic sewage (so-called “greywater”) from household sources such as bathtubs, showers and sinks to produce high-quality water for non-potable uses. The greywater undergoes mechanical and biological treatment using sophisticated filter technologies (hollow fiber membrane filters). The treated greywater such obtained 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.

3.1. Functional description

In a first step, the inflowing raw greywater 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 plant, 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 fiber 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, odor-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 plant processes. Malfunctions are indicated through visual and sound alarms. It is possible to connect a potential-free alarm contact to a standard port.



3.2. Basic Plant Layout



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



3.3. Plant components



The following list describes the complete components of an “all-inclusive and care-free” package from DEHOUST.

If you would like to use existing components of a greywater treatment system, these are marked with *) as potentially replaceable.

All other components cannot be replaced, as they represent the minimum scope of a DEHOUST GWtec® greywater treatment system.

The actual scope of delivery is always specified in the respective project order.

Pre-assembled *GWtec*® greywater treatment plant composed of:

- ▶ *GWtec*® control/pump unit with web interface
- ▶ One or more UF modules
(ultrafiltration module comprises the hollow fiber membrane filter with a PESM membrane surface)
- ▶ Greywater filtration tank including aeration unit
- ▶ Smartfloc dosing station with 30-Litre canister
- ▶ Coarse filter DEHOUST MAX I/MAX II*)
- ▶ Greywater collection tank(s) *)
- ▶ Aeration unit and aeration unit extension(s) *)
- ▶ Greywater batch pump DOC 3/7 *)
- ▶ Backwash pump
- ▶ Drinking water make-up of type AB (EN 1717) *)
- ▶ Drinking water flow sensor *)
- ▶ Bacteria (liquid and dry) for building up the biological cleaning cultures
- ▶ Service water storage tank
- ▶ Service water flow sensor *)
- ▶ Rainwater make-up *)
- ▶ AutoDrain *)
- ▶ Installation
- ▶ accessories for the above components
- ▶ Instructions
 - ▶ installation, operation, inspection manual
 - ▶ compressor operation manual
 - ▶ project-related wiring diagram of *GWtec*® greywater treatment plant



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



3.4. Intended use

The *GWtec*® greywater treatment plant shall be operated only in applications described in this manual. Any use of the *GWtec*® greywater treatment plant for purposes other than the intended use can cause harm to persons, neighboring plants and the environment.

Important:

- ▶ Operate the *GWtec*® greywater treatment plant in perfect technical condition only!
- ▶ Do not operate the *GWtec*® greywater treatment plant when assembled in part only!
- ▶ Only operate the *GWtec*® greywater treatment plant for the treatment of slightly contaminated domestic sewage from showers, bathtubs and sinks only.
- ▶ Operate the *GWtec*® greywater treatment plant at water temperatures up to a maximum of 40°C only.
- ▶ Always take care to avoid any overheating, mechanical seal damage, cavitation damage¹, bearing damage, etc. Observe the specified maximum flows and pressures (Chapter 4).
- ▶ Do not restrict the upstream drinking water make-up flow to the *GWtec*® greywater treatment plant (avoidance of cavitation damage, dry run of pressure booster system).
- ▶ Contact the manufacturer for any operating modes other than those mentioned in the documentation.

3.5. Preventing improper use

The *GWtec*® greywater treatment plant is not designed for outdoor use. The effects of temperature, light and humidity can cause malfunctions and damage to the equipment.

- ▶ Do not use the *GWtec*® greywater treatment plant outdoors.
- ▶ Only use the *GWtec*® greywater treatment plant as intended.
- ▶ Do not (!) use the *GWtec*® greywater treatment plant to treat
 - ▶ 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 fill any inflammable fluids into the fluid ports of the system
- ▶ 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 *GWtec*® greywater treatment plant more than is necessary for installation and maintenance.

¹ Cavitation is the spontaneous formation of voids in hydraulic fluids. Such voids occur in the form of bubbles. Since these bubbles have a vacuum inside, they collapse immediately. This might cause damage to the pump.



4. GWtec® Technical Data

4.1. Dimensions & weights

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
Treatment capacity GPD	792 – 1,321	2,642	3,962	5,283	6,604	7,925 – 9,246
Number of persons	100	200	300	400	500	600
Effective volume of service water tank (gal)	792	1,057	2 x 1,057	3 x 1,057	5 x 1,057	7 x 1,057
Effective volume of greywater tank (gal)	792	1,057	2 x 1,057	3 x 1,057	6 x 1,057	8 x 1,057
Dimensions (W/H/D)	15'11" / 6'4" / 8'11"	Variant A: 18'9" / 7'5" / 9'6" Variant B: 16'7" / 7'5" / 9'6"	Variant A: 29'6" / 7'5" / 9'6" Variant B: 26'11" / 7'5" / 9'6"	Variant A: 39'4" / 7'5" / 9'6" Variant B: 34'5" / 7'5" / 9'6"	Variant B: 58'2" / 7'5" / 9'6"	Variant B: 74'2" / 7'5" / 9'6"
Direct link to the system configurations on our website						
Required clearance above tank (in)	At least 28"					
Noise level (dB)	max. 48 dB(A)					
Total weight (lb)	2,085	2,837	4,533	6,440	10,421	13,792
Total weight when filled (lb)	18,620	24,883	45,318	68,171	120,646	163,706

4.2. Technology

Greywater Connect Type	DEHOUST GWtec®140	DEHOUST GWtec®240	DEHOUST GWtec®340	DEHOUST GWtec®440	DEHOUST GWtec®540	DEHOUST GWtec®640
Greywater tank prefilter (in)	MAX coarse filter 0.02					
Filter material	Hollow fiber 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					
Plant 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.



4.3. Connections according to DIN ISO 228-1

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
Connection cable	Fixed connection					
Rainwater make-up connection	1 ¼" IT					
Drinking water make-up connection	1" IT					
Inlet/overflow connections	4"					
Tank drain connection	1 ½" IT					
Coarse filter backwash connection	1" ET					
Backwash IN	1 ¼" IT					
Backwash OUT	1 ¼" IT					

4.4. Electrical data

Greywater Connect Type	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)	120/240 V / 60 Hz / 16 A					
Power input (W)	2310		2440			
Current input (A)	5.9		6.2			
Energy use/consumption (BTU/ft³)	48,28					
Floating output	yes					
Pressure booster	optional (DPA 14-40 Connect)					
Pressure booster power input (W)	2960					
Pressure booster voltage supply (fusing)	110 V / 60 Hz / 16 A					
Class of protection:	IP 56					
Insulation class	F					



- ▶ 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!



4.5. 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					

4.6. Service water quality for GWtec® model series

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
Color		MR ⁴	N/A
Odor		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



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

Parameters CFU/100 ml	Application by spraying Jetting, garden sprinkler, car wash	Application w/o spraying			Test method		System type
		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

Example values for general system check under EN 16941-2

Parameters ⁷	Application by spraying Jetting, garden sprinkler, car wash	Application w/o spraying			Test method	System type
		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

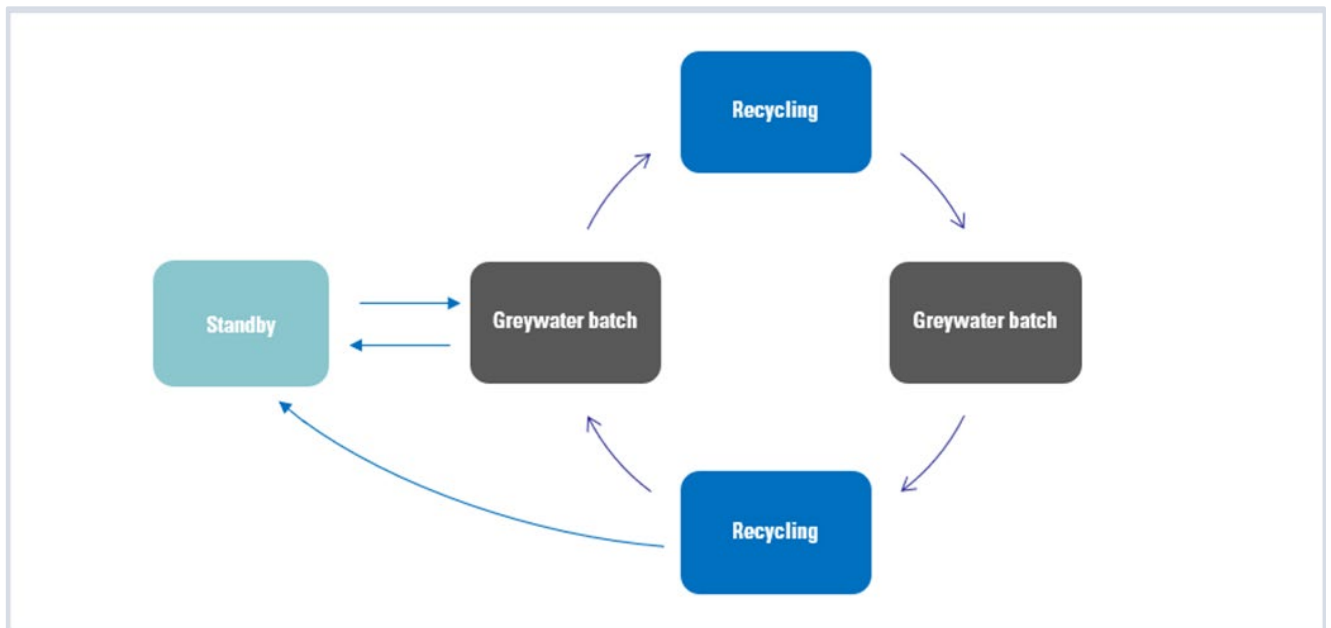
⁵ N/A = not applicable

⁶ „Total coliforms“ is an indicative parameter showing that the plant 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.

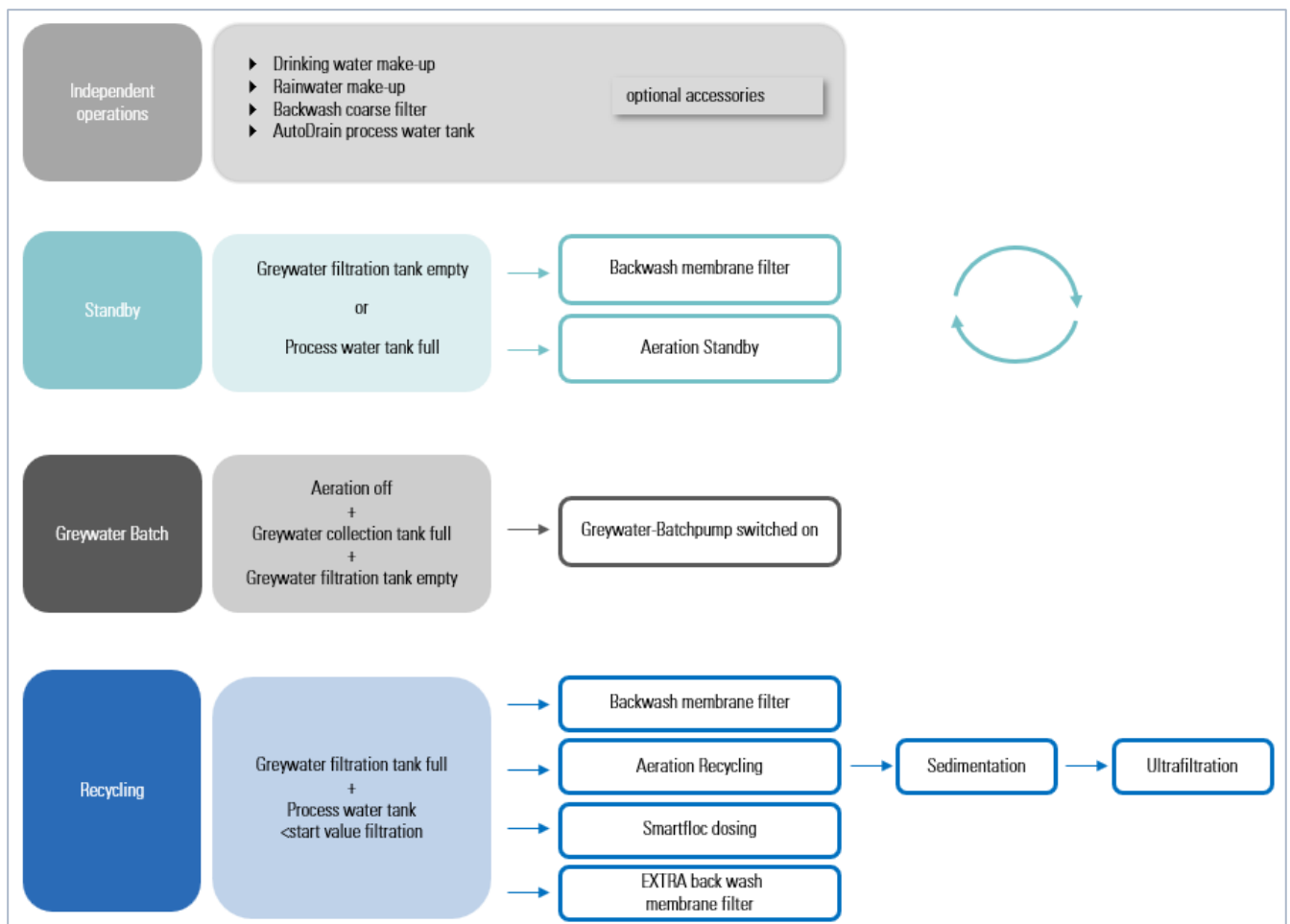
⁷ In addition to the above parameters, all systems should be checked for suspended solids and color. The treated greywater should be visually clear, free of floating residues and basically uncolored for all applications. Color is particularly relevant for reuse in washing machines.



4.7. Operations



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





4.7.1. 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 11.1.1).
Rainwater make-up	Automatic supply of make-up rainwater within the defined liquid level limits of the service water tank (refer to Chapter 11.1.1).
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 11.1.2)
AutoDrain service water tank	Automatic drainage of the service water tank after longer rest periods according to settings (refer to Chapter 11.1.1).
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 11.1.2.
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 11.1.2.
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 11.1.2).
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 11.1.2).).
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 11.1.2.
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 11.1.2



5. Handling and storage / installation

The product is delivered on several pallets. Please take care during 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.

5.1. Requirements for the place of installation

- ▶ The *GWtec*® greywater treatment plant 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 *GWtec*® system in a filled operational condition (cf. Chapter 4).
- ▶ The room needs sufficient doorway clearance.
- ▶ The room must have sufficient ceiling height (plant heights see Chapter 4.1/5.2)
- ▶ When calculating the size of the installation site, consider the tank widths:
Tanks up to 528 gal have a width of 2'4".
Tanks with 660 gal or more have a width of 3'3".
- ▶ 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 plant, membrane filter).



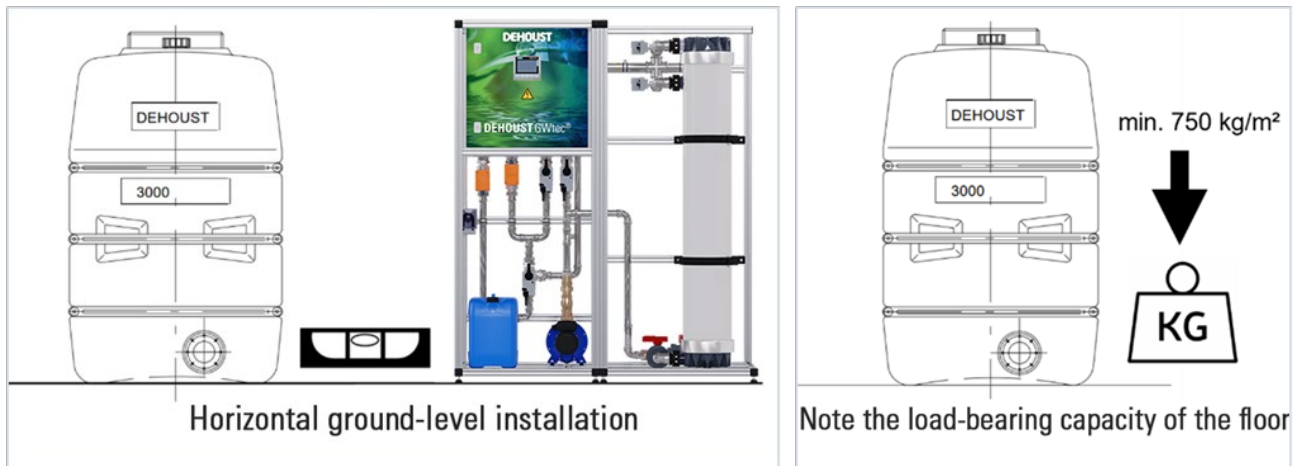
The room temperature must not exceed the maximum permissible temperature of +50 °F to +77 °F in order to minimize hygienic risks in the service water tank.



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



5.2. 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!



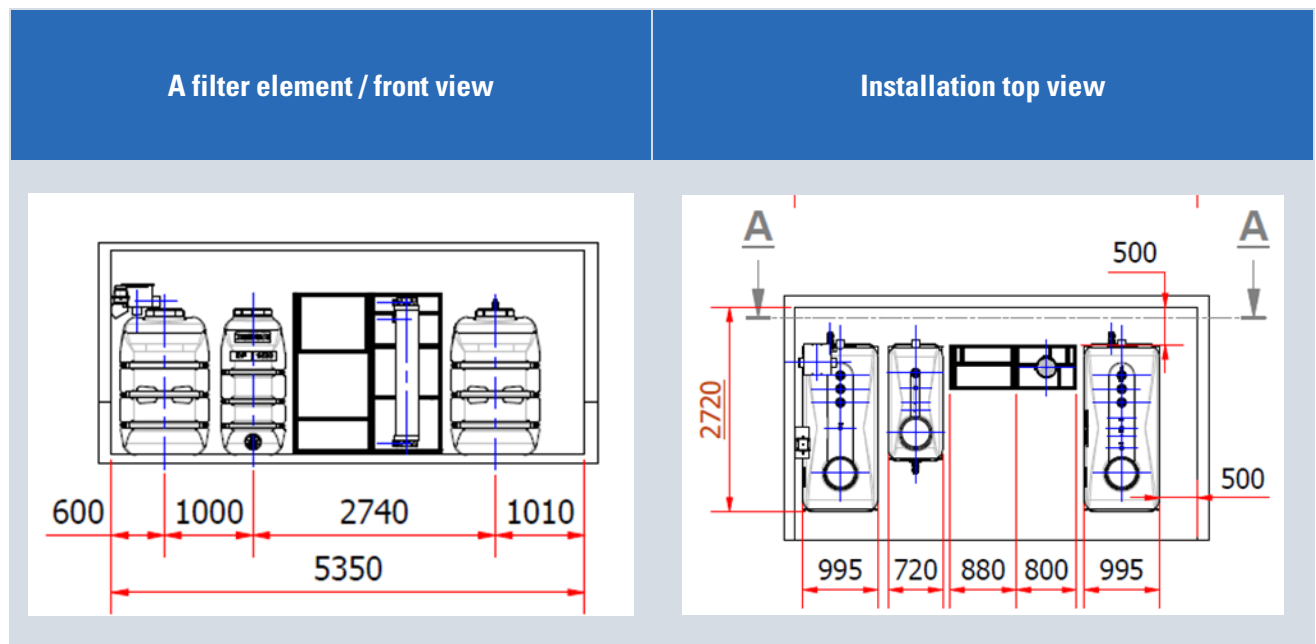
After installation in the predefined place, the system must be connected to the power grid for an initial period of no less than 72 hours before the commissioning work can begin.



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



5.2.1. Installation of GWtec® 140

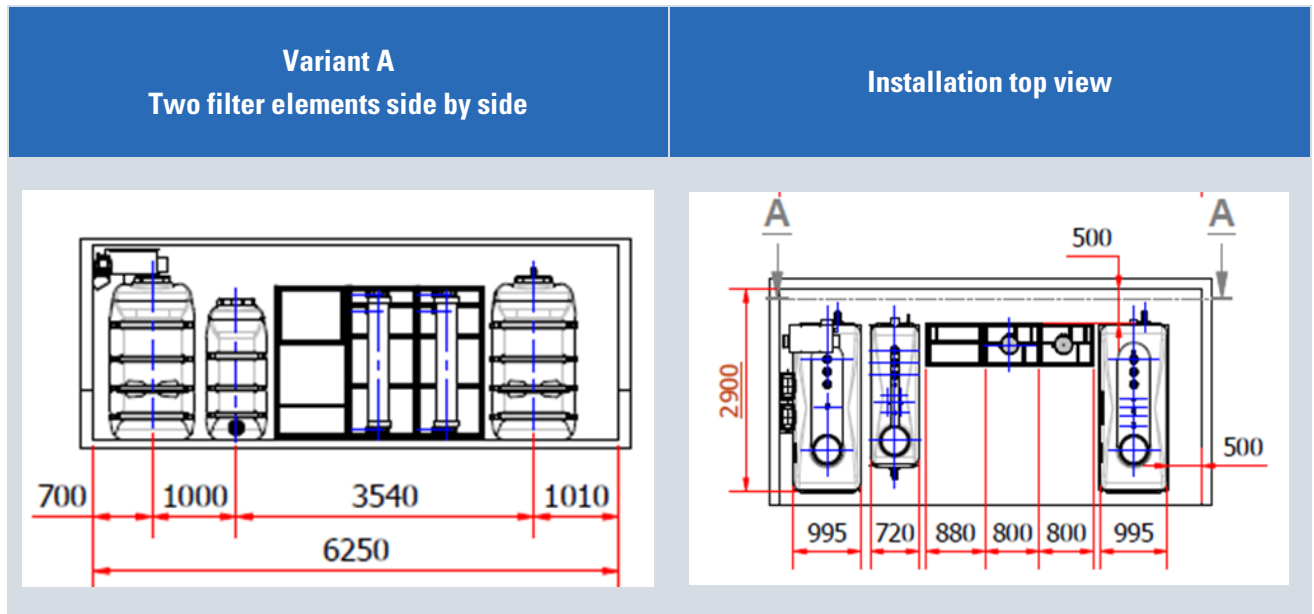


You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813371_GWtec140.pdf

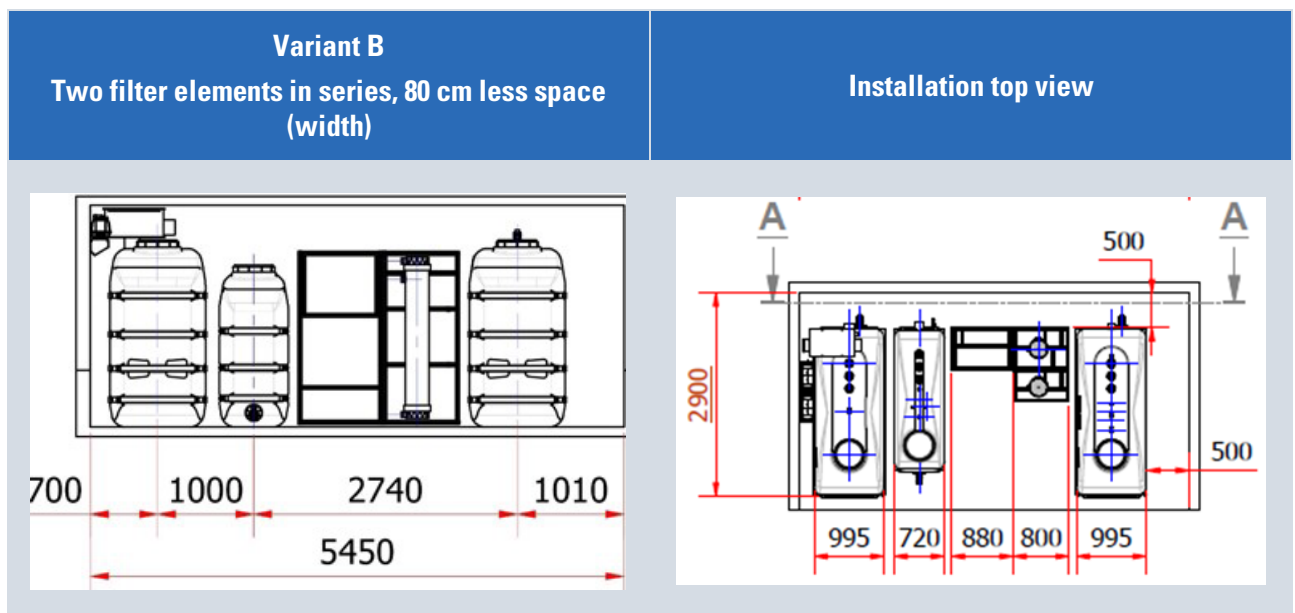
Space for personal notes:



5.2.2. Installation variants for GWtec® 240



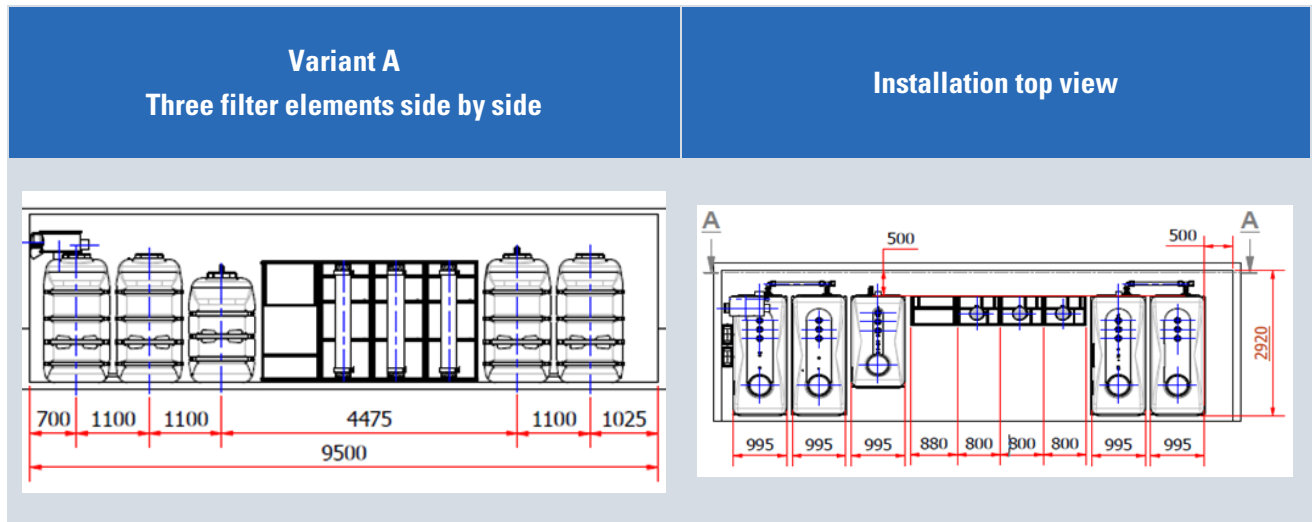
You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813372_GWtec240A.pdf



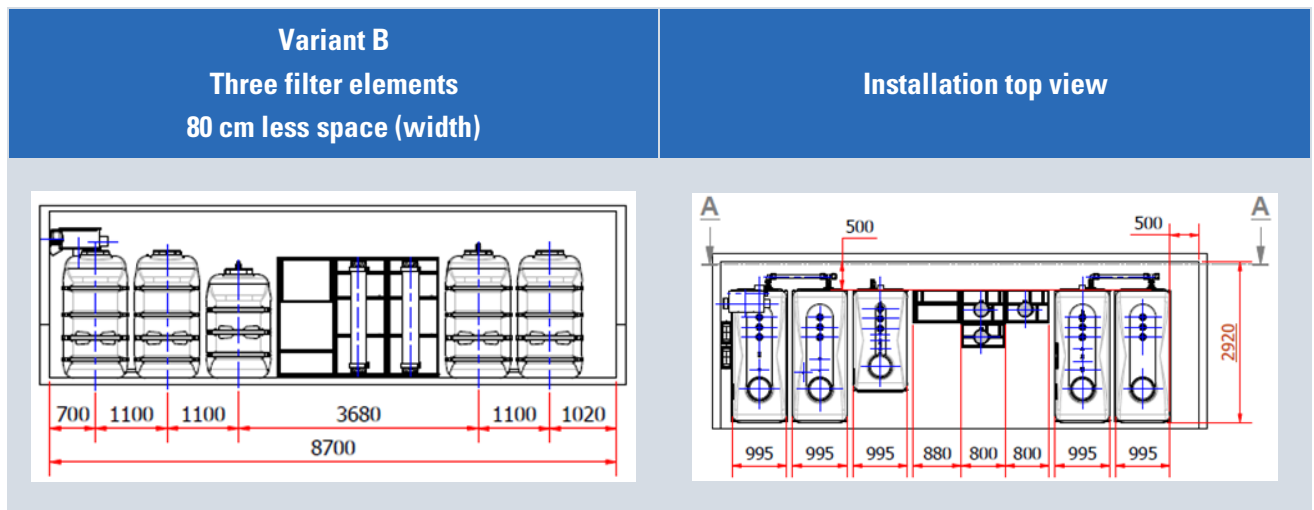
You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813372B_GWtec240B.pdf



5.2.3. Installation variants for GWtec® 340



You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813373_GWtec340A.pdf

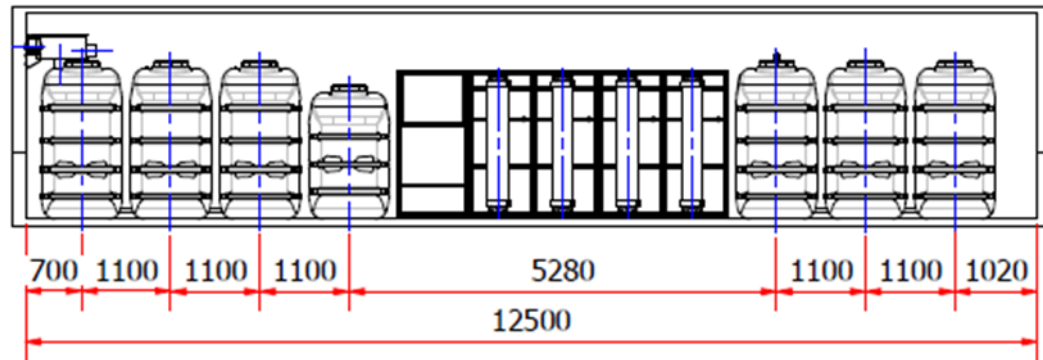


You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813373B_GWtec340B.pdf

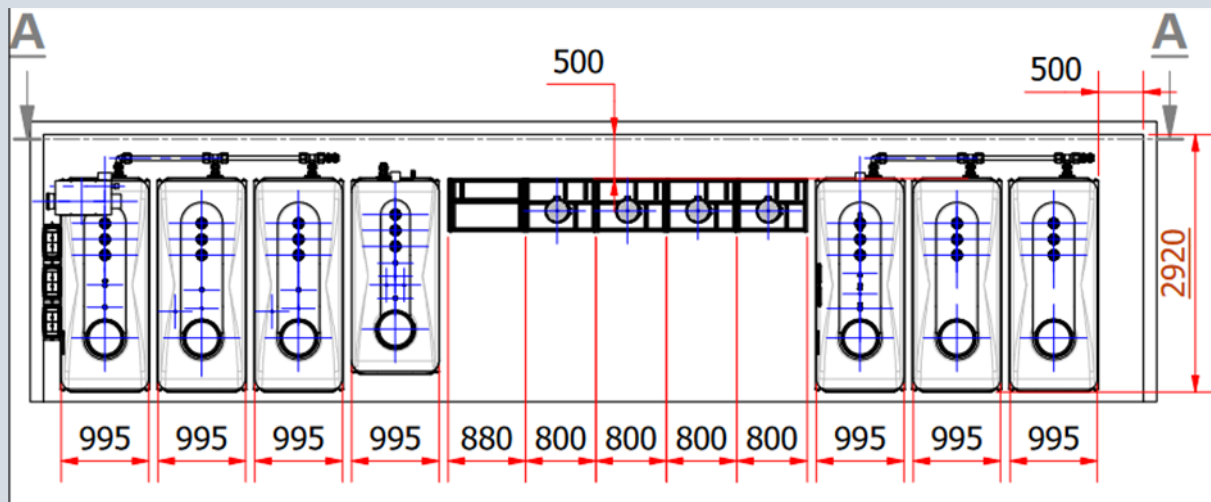


5.2.4. Installation variants for GWtec® 440

Variant A
Three filter elements side by side



Installation top view

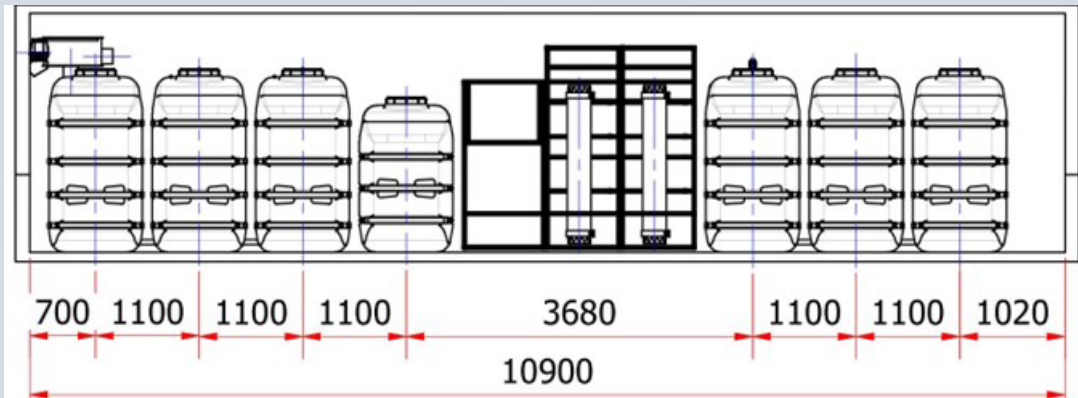


You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813374_GWtec440A.pdf

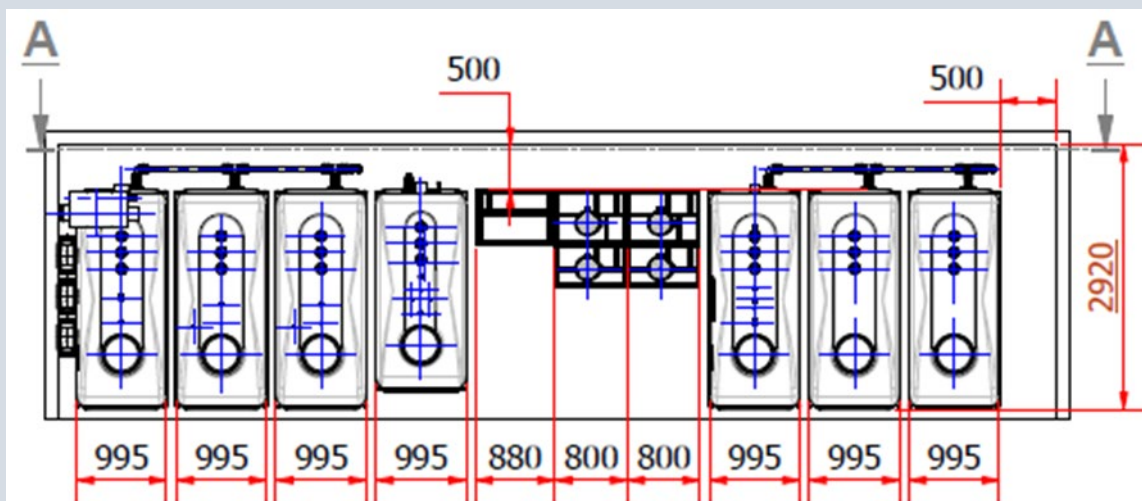


Variant B

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



Installation top view

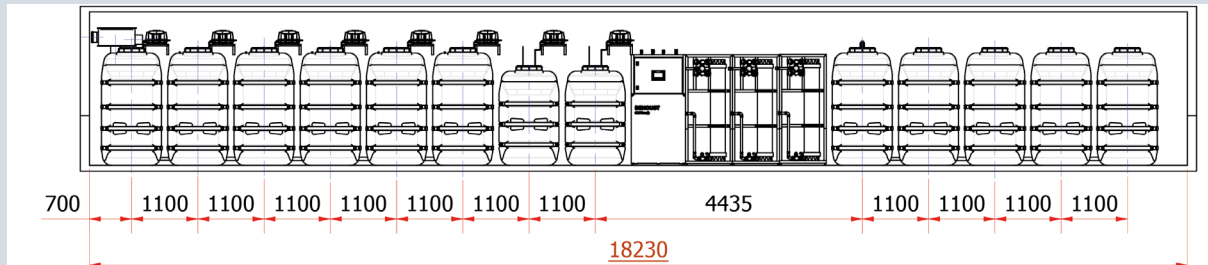


You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813374B_GWtec440B.pdf

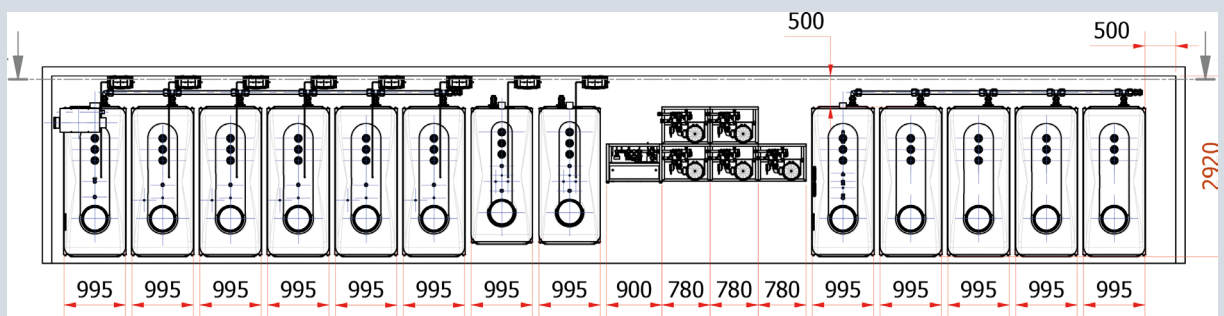


5.2.5. Installation of GWtec® 540

Variant B Four filter elements in a group



Installation top view

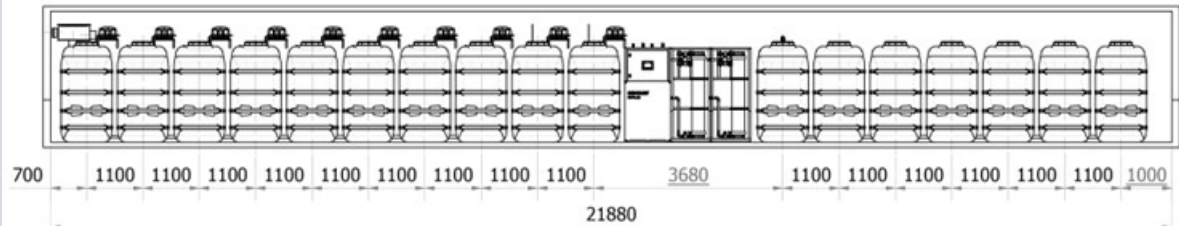


You will find detailed drawings and installation drawings at
https://www.dehoust.com/ProductFiles/Files/CAD/dh2d_813392_GWtec540.pdf

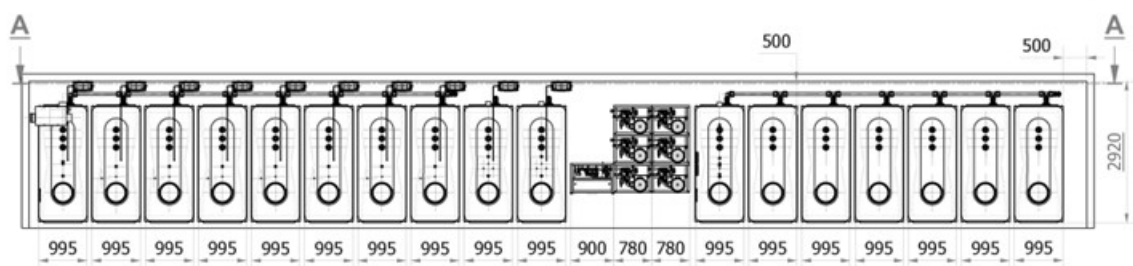


5.2.6. Installation of GWtec® 640

Variant B Six filter elements in a group



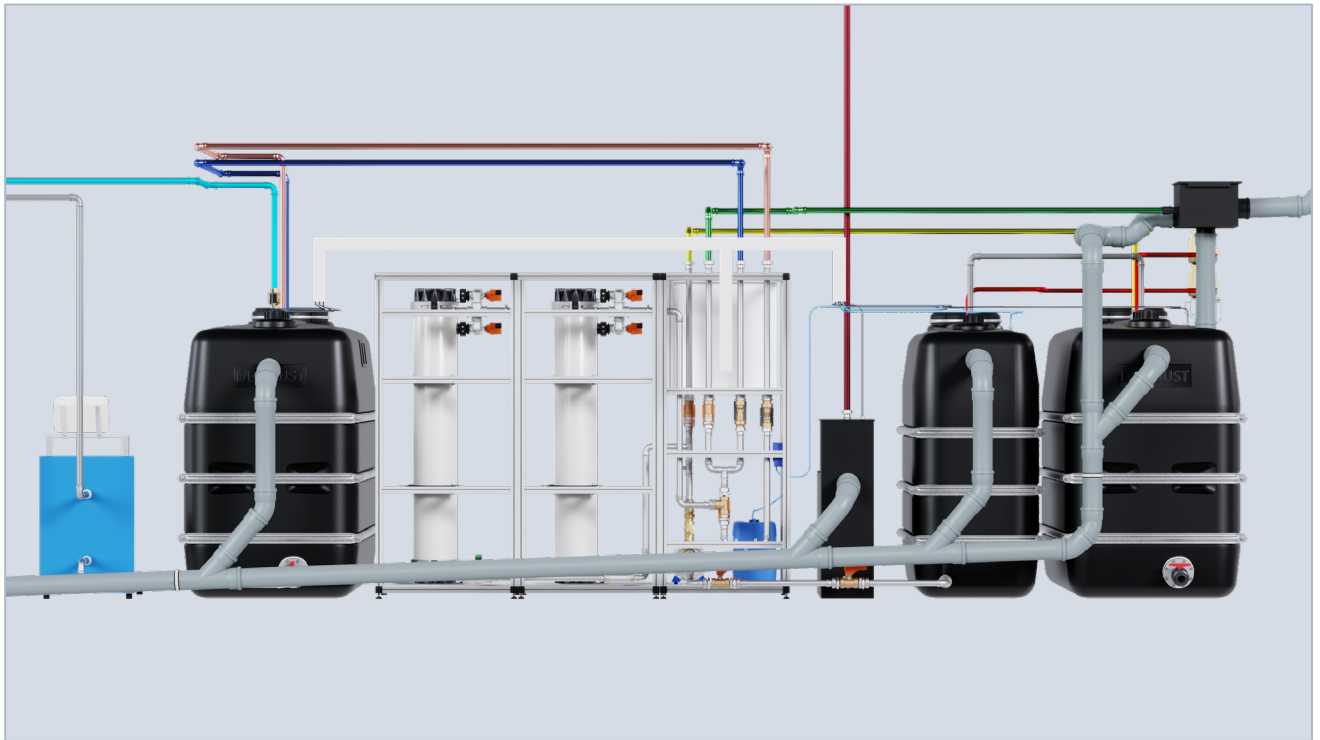
Installation top view



You will find detailed drawings and installation drawings at
www.dehoust.com/ProductFiles/Files/CAD/dh2d_813393_GWtec640B_2024-08-12.pdf



6. Piping between plant components



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

- ▶ Type Viega pipe Sanpress 2205, 28 x 1.5 mm, grade 1.4571 or equivalent
- ▶ Type Viega pipe Sanpress 2205, 35 x 1.5 mm, grade 1.4571 or equivalent.



7. Assembly

7.1. The GWtec® Greywater Treatment Plant

7.1.1. 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 plant and the membrane filter on the same level.



7.1.2. Installation on filter rack

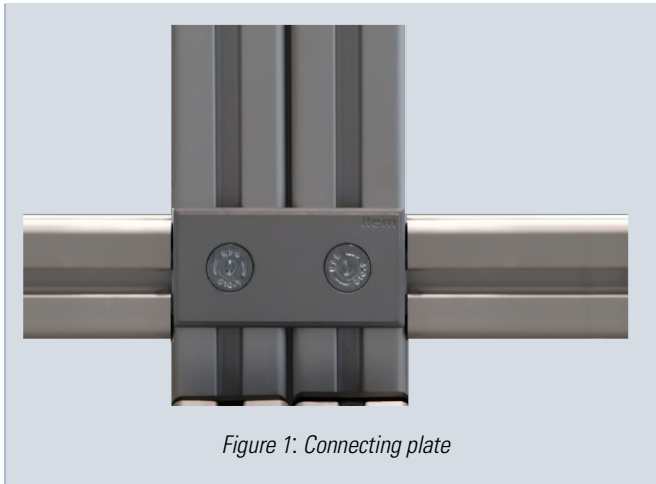


Figure 1: Connecting plate

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.

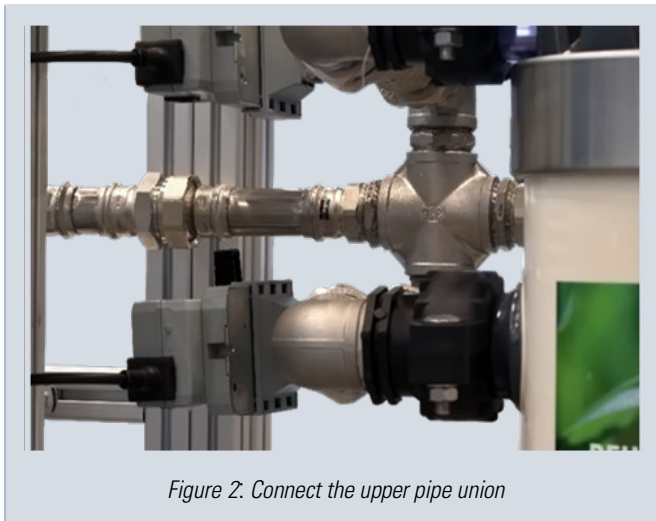


Figure 2: Connect the upper pipe union



Figure 3: Top filter connections

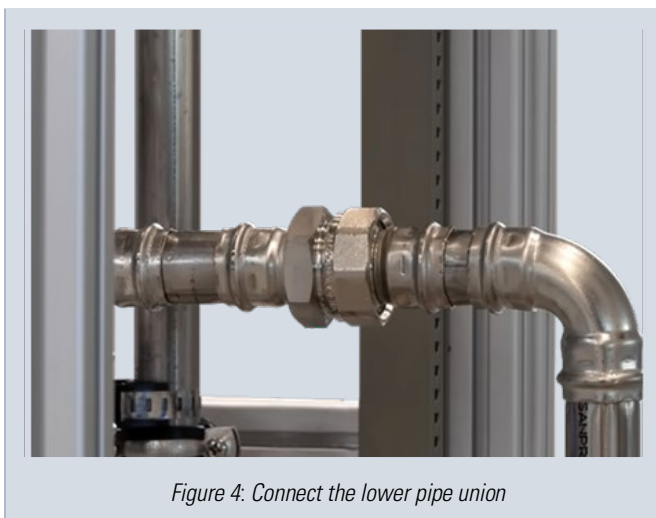


Figure 4: Connect the lower pipe union



Figure 5: Top front connections



Figure 6: Bottom connections shut-off 2

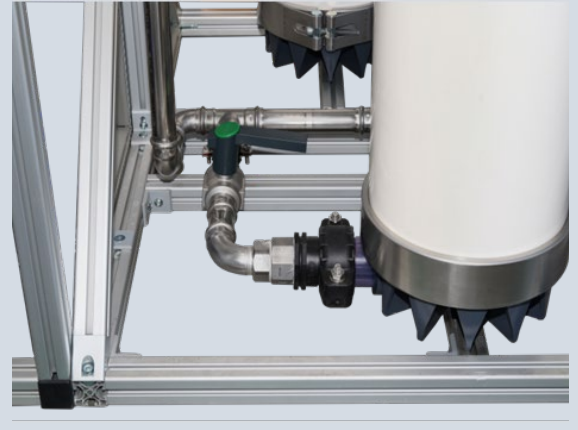


Figure 7: Bottom connections

7.1.3. Installation of the suction line to the filtration pump

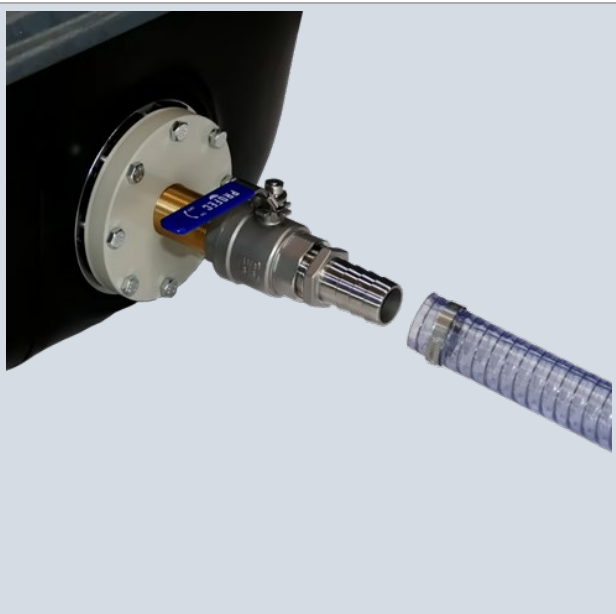


Figure 8: Attach the 1 1/4 inch (GWtec® 140/240) and 1 1/2 inch (GWtec® 340/440/540/640) PVC hose to the greywater filtration tank using a stainless-steel hose clamp.



Figure 9: Attach the 1 1/4 inch (GWtec® 140/240) and 1 1/2 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.

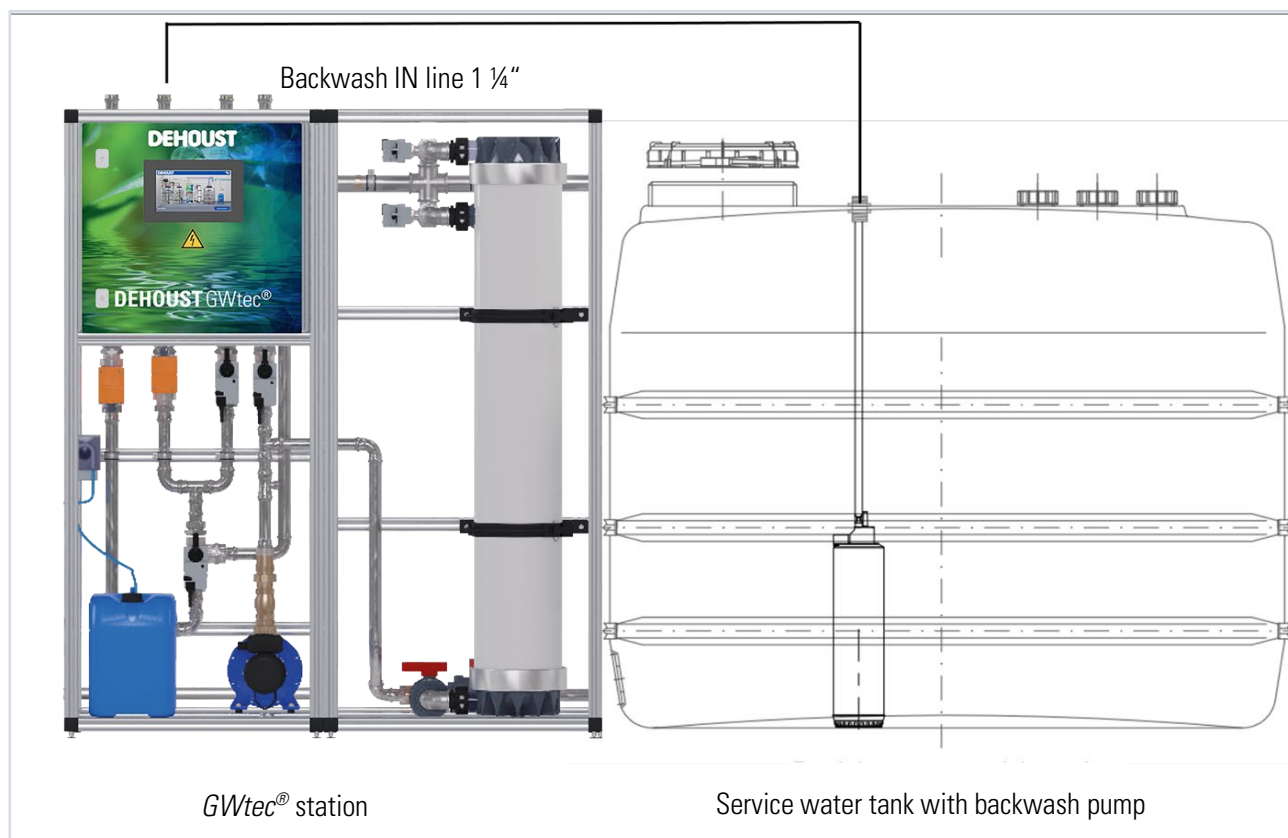


Please note the following to avoid malfunctions during operation:

- ▶ Maximum suction length: 10'
- ▶ 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 10)



7.1.4. Backwash "IN" connection



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 2205, 35 x 1.5 mm, grade 1.4571, or equivalent, for the backwash piping.



Do not connect it to the drinking water line.

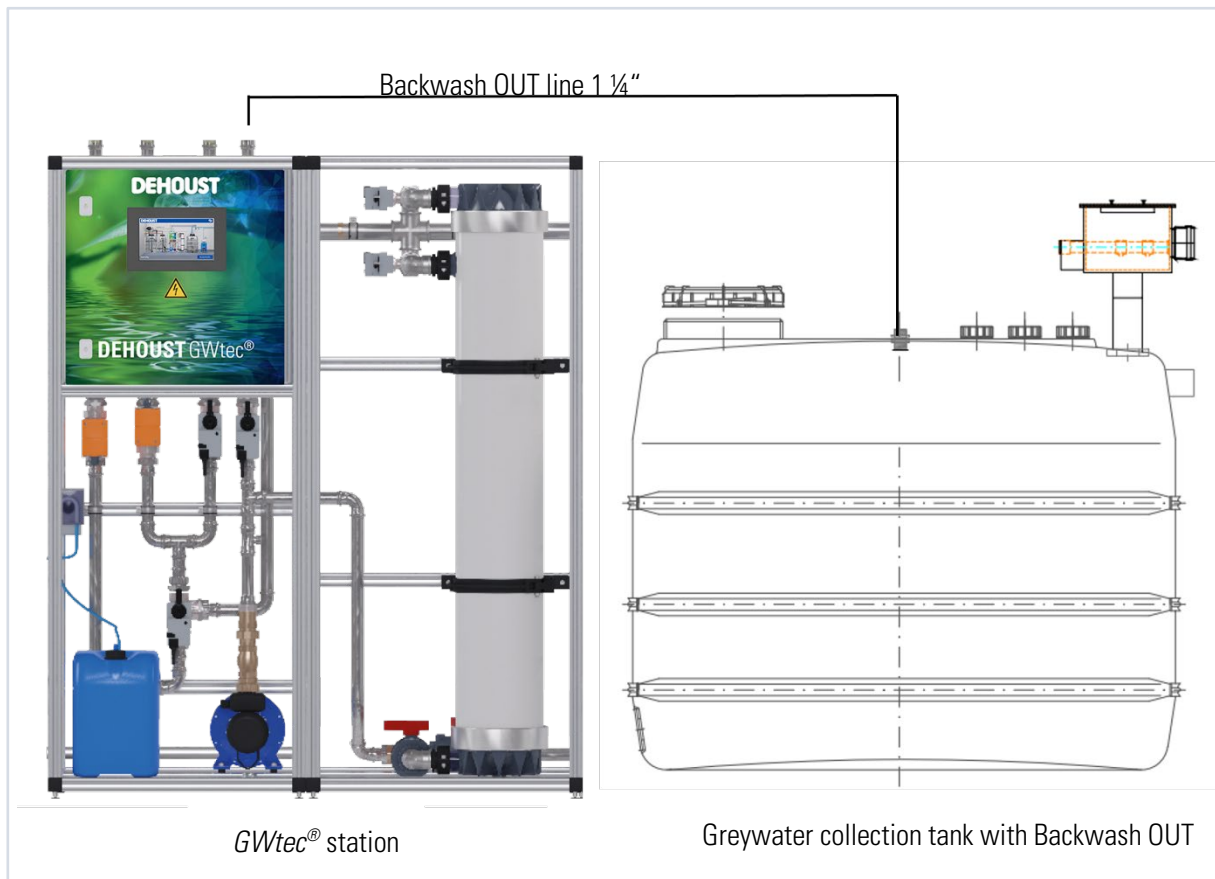


Prevent any corrosion/erosion products that may form in the pipelines or service water tank from entering the membrane filter. We recommend the installation of a drinking water filter with a mesh size of 125 micrometers to avoid the presence of abrasive or filter-blocking particles in the backwash water.

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 4.5)



7.1.5. 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 1/4") 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 2205, 35 x 1.5 mm, grade 1.4571, or equivalent, for the backwash piping.



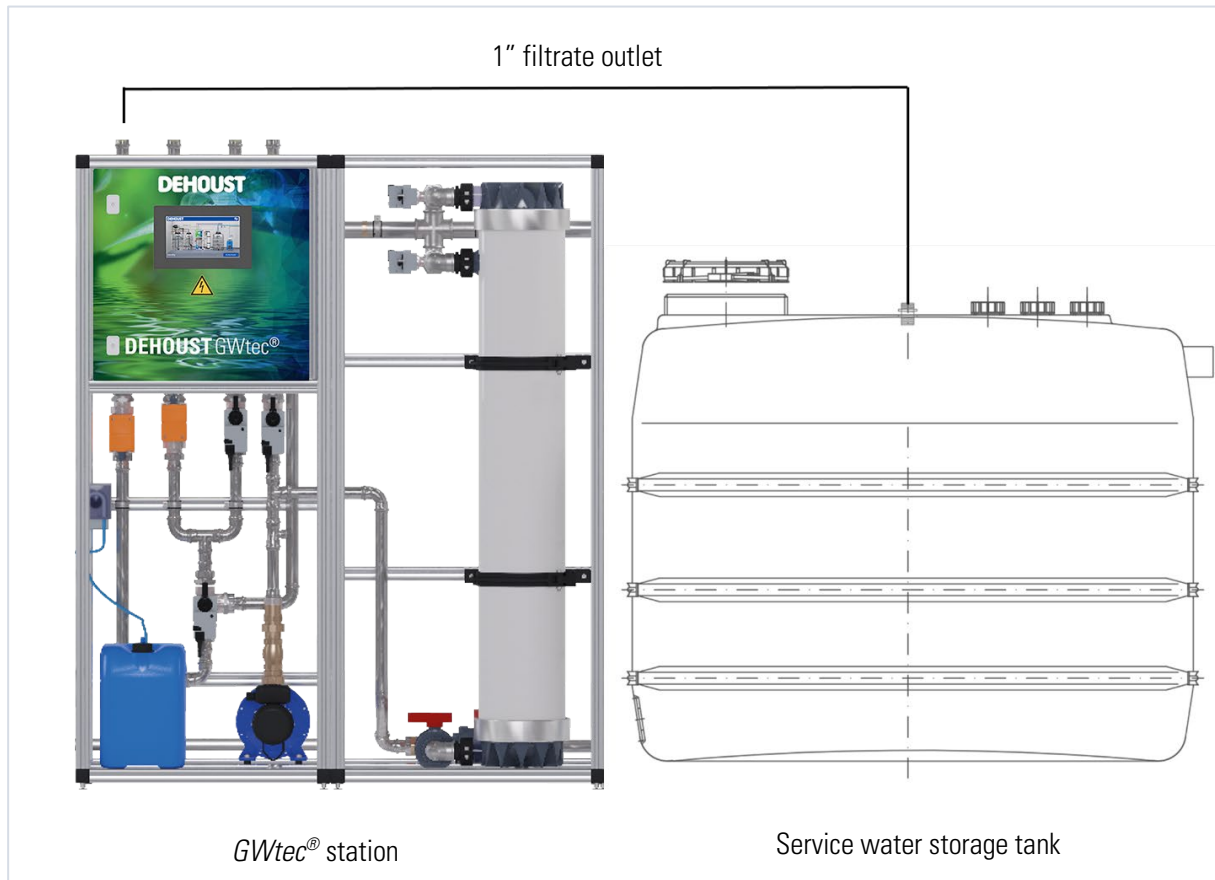
Do not connect it to the drinking water line.



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



7.1.6. 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.



7.2. Smartfloc dosing station

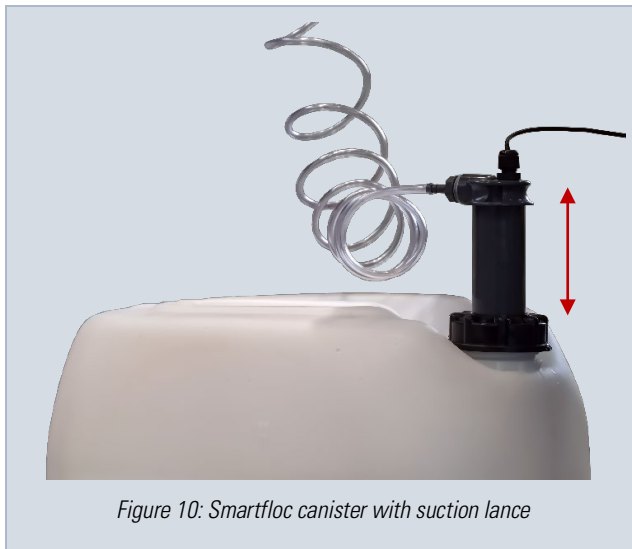


Figure 10: Smartfloc canister with suction lance

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.



7.3. Coarse filter connection

7.3.1. Connection to water pipes

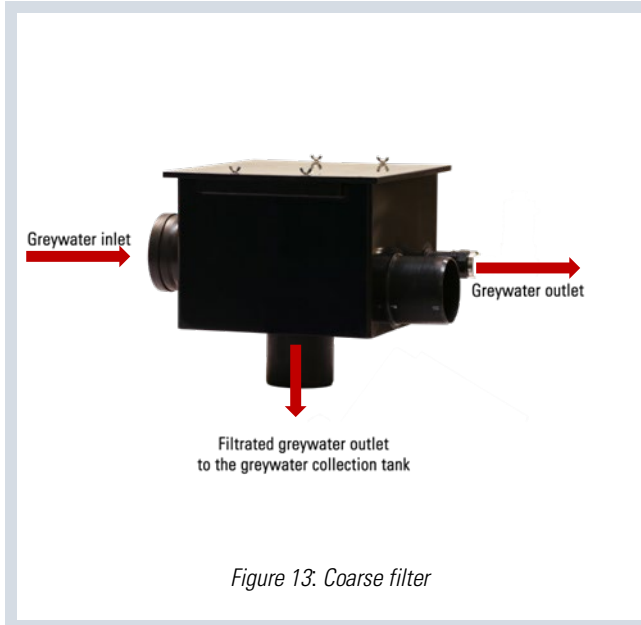


Figure 13: Coarse filter



Figure 14: Internal view of coarse filter

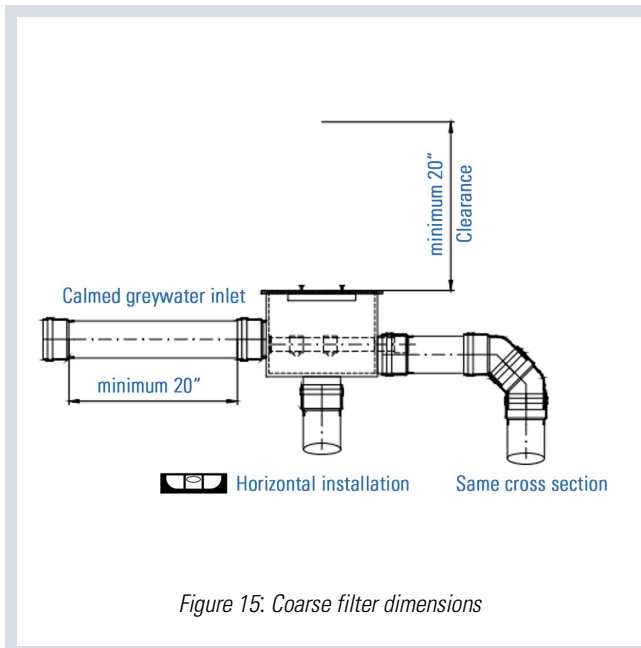


Figure 15: Coarse filter dimensions

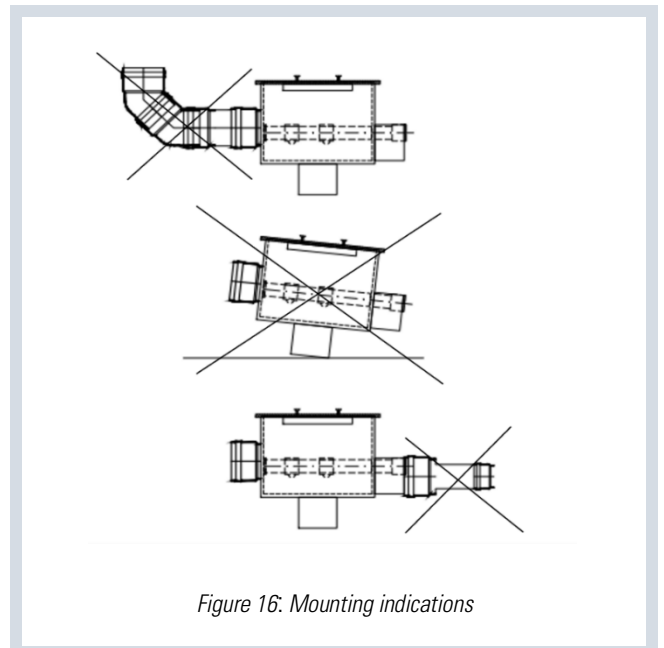


Figure 16: Mounting indications

The connection of the greywater downpipe to the coarse filter should be made only after the completion of all construction work inside the building.



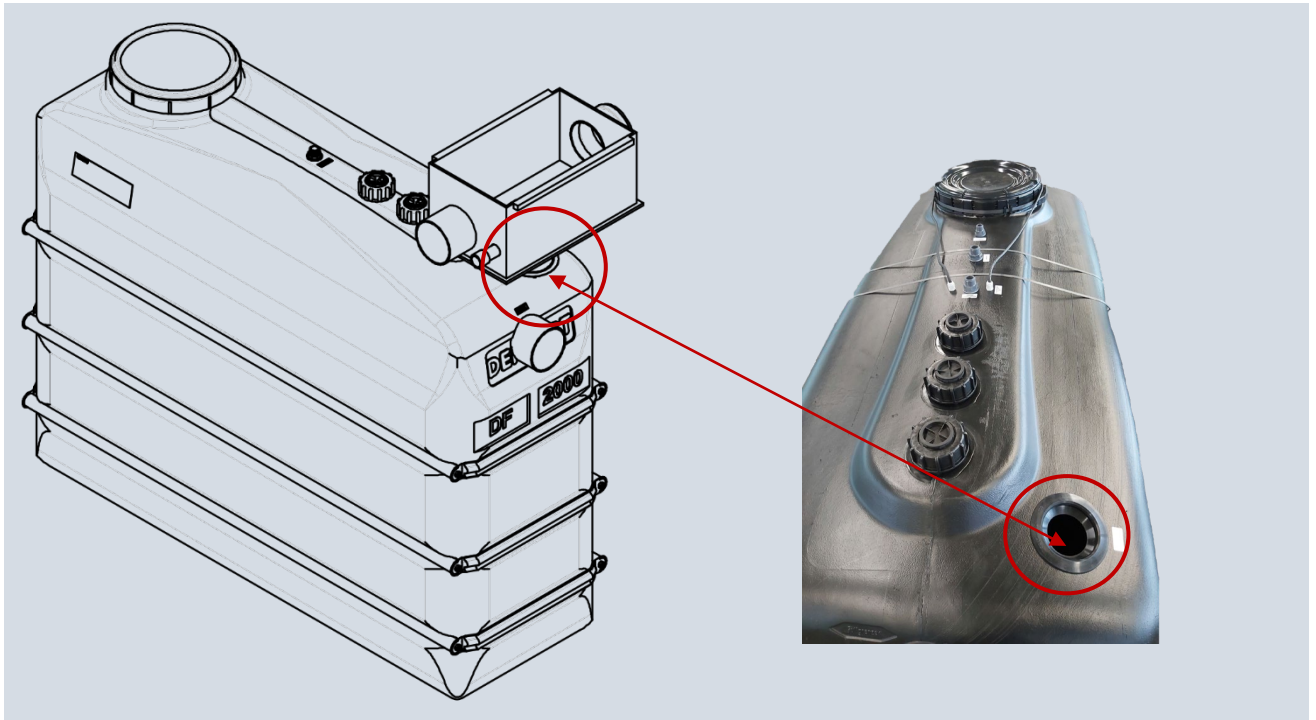
Connect the overflow of the coarse filter with sufficient slope to the drain/sewer.



Do not connect it to the drinking drinking water line.

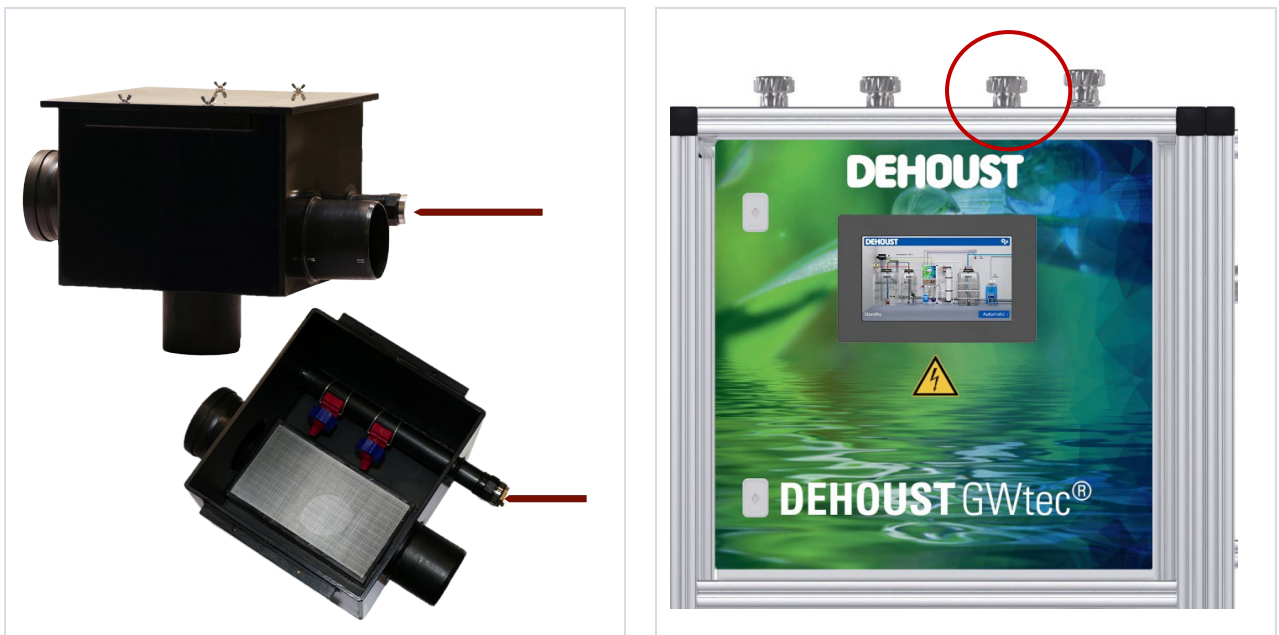


7.3.2. Coarse filter connection



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

7.3.3. Connection to the backwash line



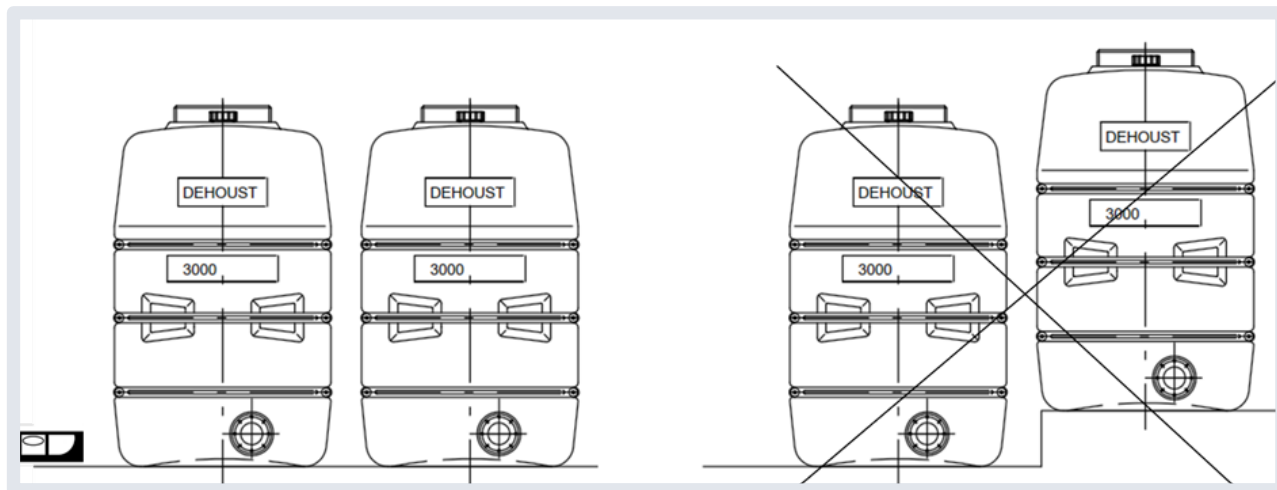
Connect the backwash fitting of the DEHOUST MAX coarse filter with the service water piping from the GWtec® station (coarse filter backwash) in a secure, tight and stress-free manner.

Use Viega pipe Sanpress 2205, 28 x 1.5 mm, grade 1.4571, or equivalent, for the backwash piping.



7.4. The storage tanks

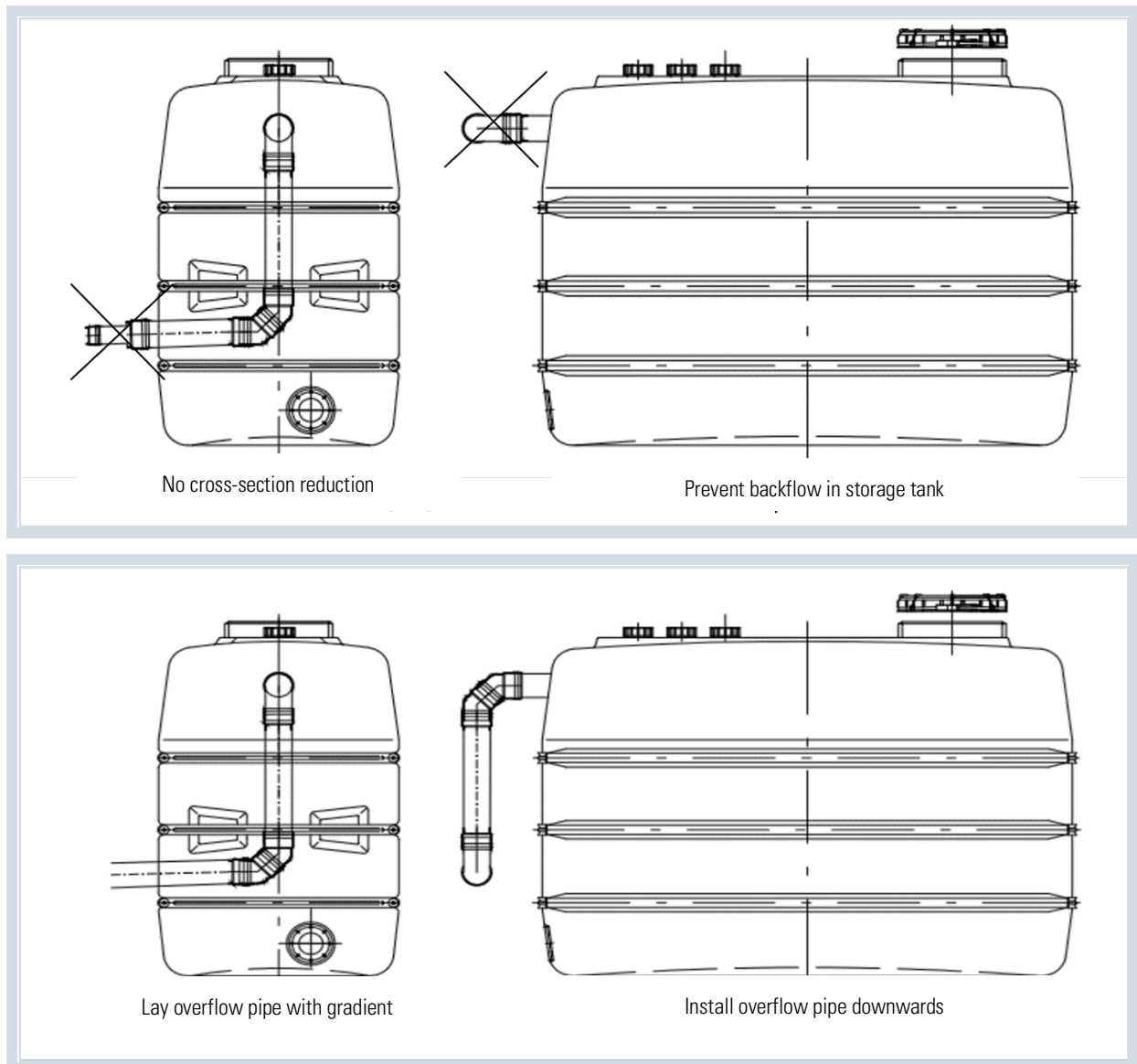
7.4.1. Installation



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



7.4.2. Connection to sewer



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.

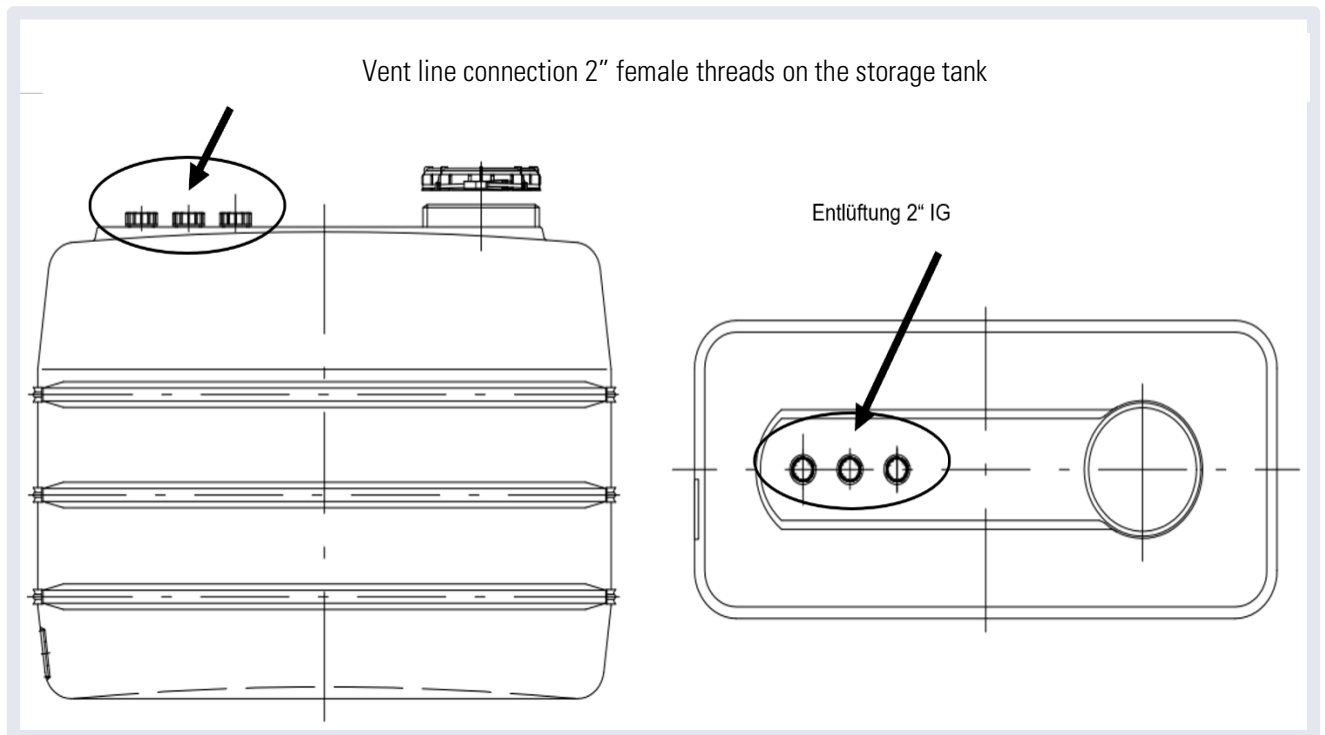
Since the storage tank undergoes lifting and settling movements, the connection must be flexible (for example, do not insert the pipe joint until stop into the tank fitting – leave about 1 cm of space).



You are recommended to install a siphon in the overflow line to avoid unpleasant odors.



7.4.3. Vent connection (optional)



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.

7.5. The aeration unit

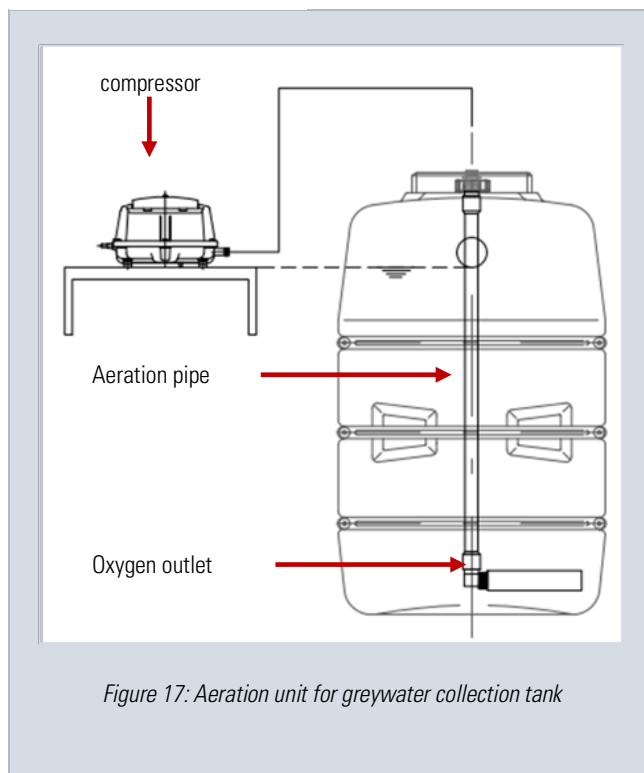
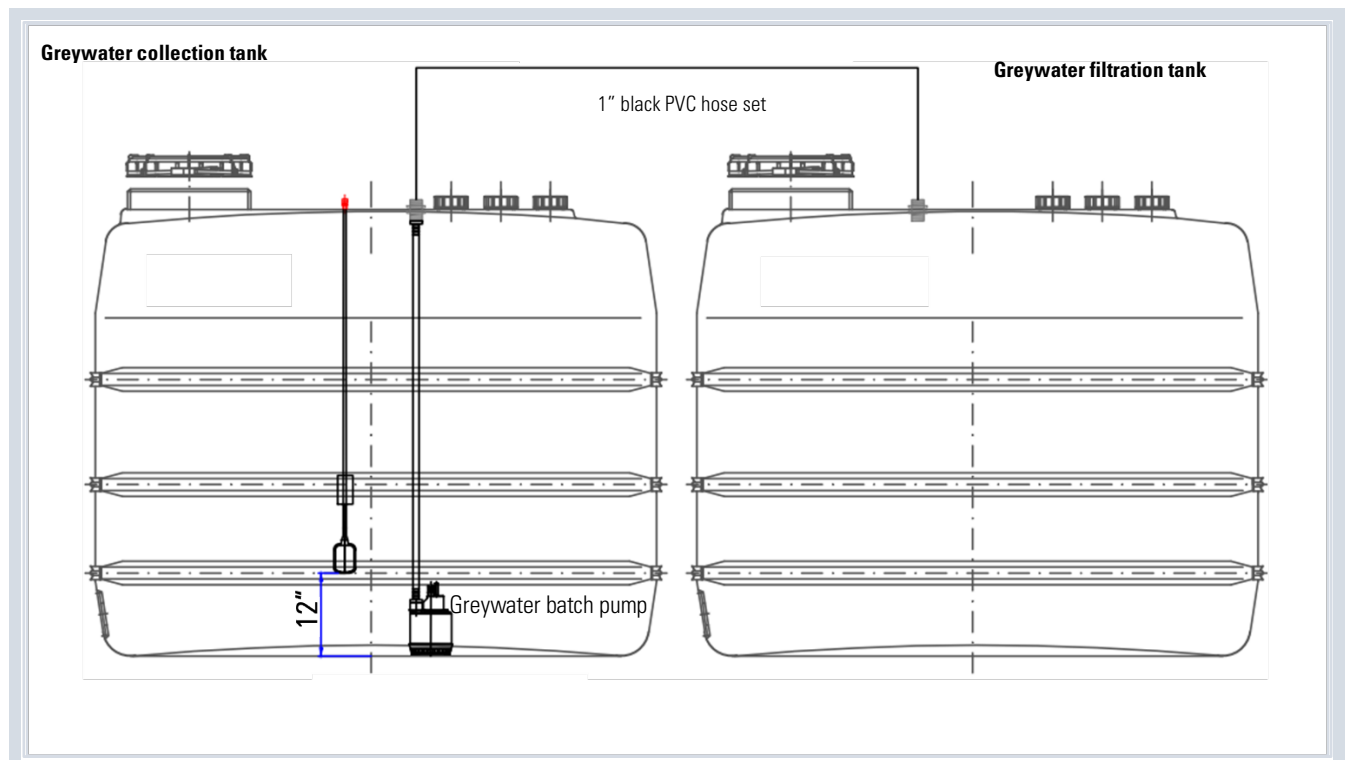


Figure 17: Aeration unit for greywater collection tank

- ▶ 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.



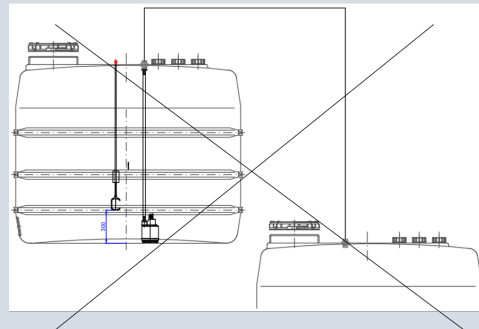
7.6. Greywater batch pump



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



Avoid siphon effect / self-draining!





7.7. Backwash pump

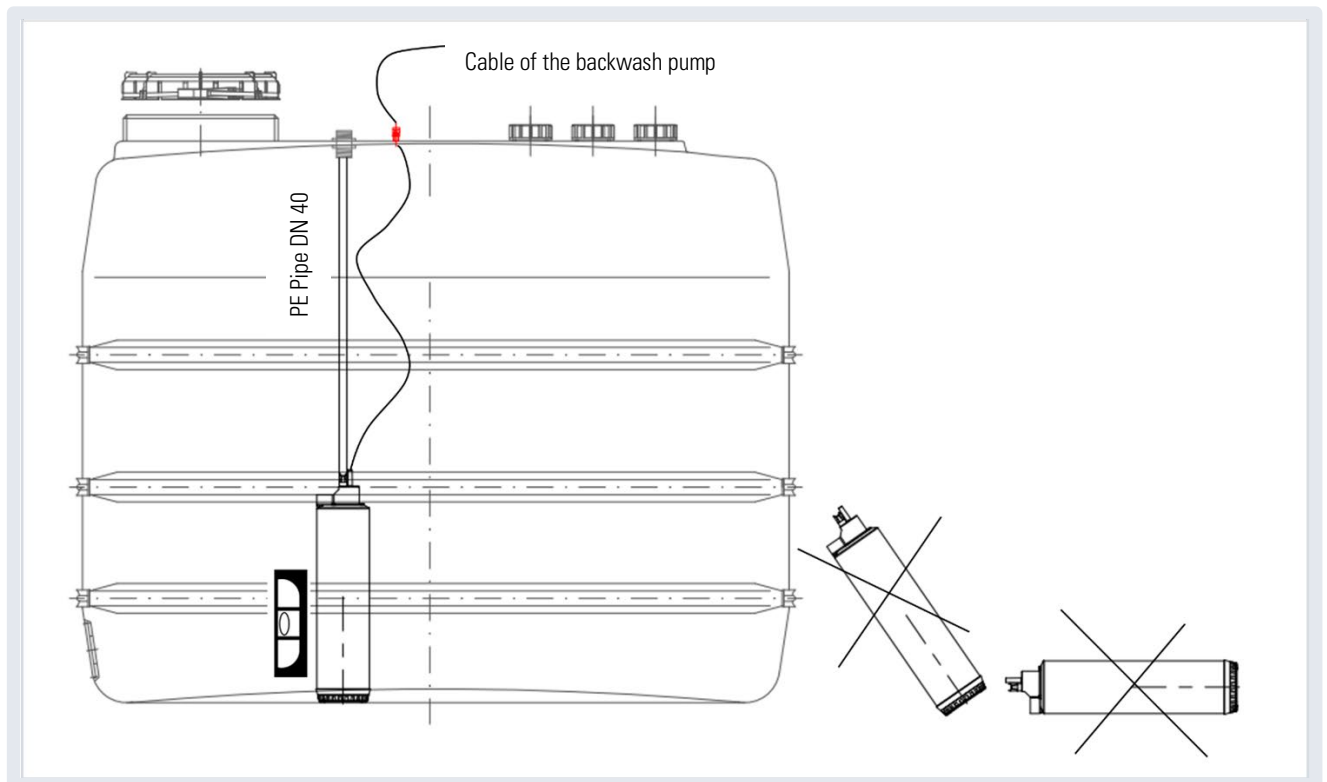


Figure 18: An upright position of the backwash pump within the tank is important

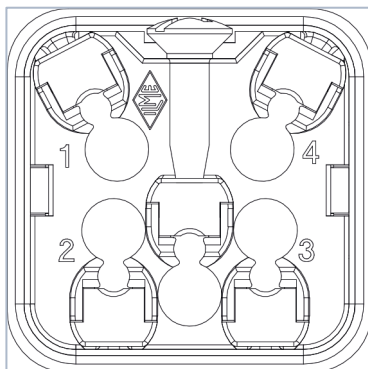
Connect the backwash pump in the service water tank using the PVC plug-in connector and the black HDPE pipe to form a secure, tight and stress-free connection. Pass the cable of the backwash pump from the inside through the screwed cable gland at the top of the tank (shown in red in the drawing) and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



Never pull the pump cable.



The pump cable in the tank should be at least 6' -10' long for maintenance purposes.



Caution:

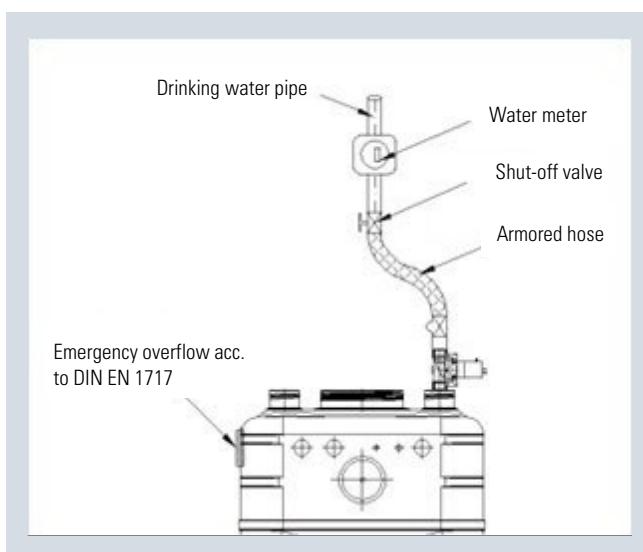
Only connect after commissioning **and after** the system has been started up (see instructions in Chapter 13.2, Step 2).

Connect the cable to the control unit plug as follows

1 = brown	4 = remains free
2 = black	3 = grey
center = green/yellow (PE)	



7.8. Drinking water make-up connection



- ▶ Connect the appropriately labelled fitting at the service water tank (drinking water make-up) in a secure, tight and stress-free manner to the drinking water system.
- ▶ For this purpose, do not use any materials other than those certified for drinking water installations. (Cf. Chapter 14.2 "Installation of drinking water flow sensor (Article 815070)").



- ▶ 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 micrometers).
- ▶ We recommend the installation of a cold-water meter.

7.8.1. 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

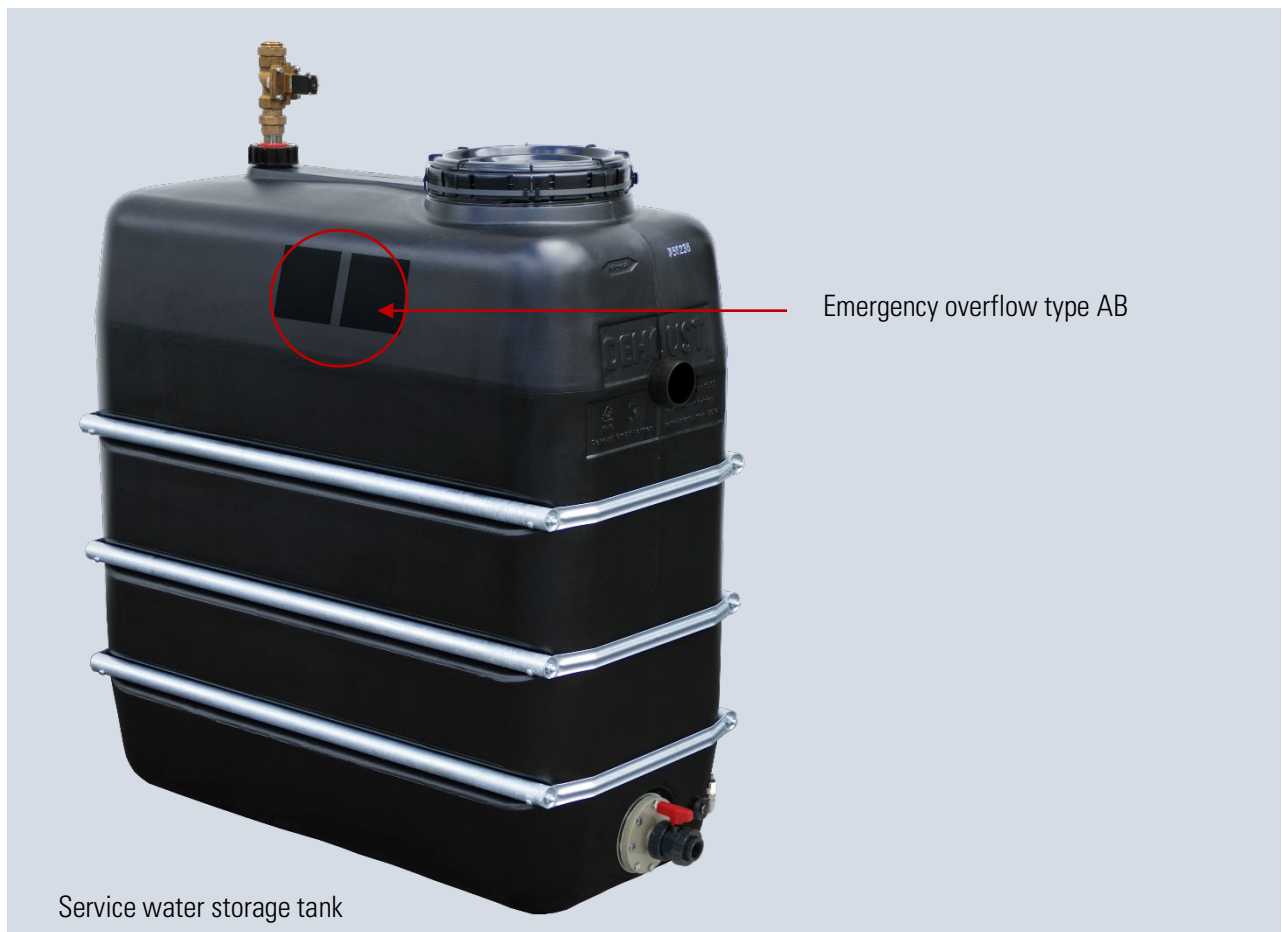
- ▶ Inlet: 1 1/2" IT
- ▶ Outlet: 1 1/2" IT
- ▶ Control: ModBus
- ▶ Electrical connection: 24 V DC
- ▶ Wattage: 2.5 W

Make sure the flow sensor is installed and sealed in between the drinking water make-up valve (solenoid 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**



7.9. Emergency overflow of service water 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.



7.10. Connection to the service water system



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.



8. 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 labeled.



Module	Plant component	Plug labeling for 120 V components	Plug labeling module boxes for sensors (green)
	Example of plug variant 120 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	Plant component	Plug labeling for 120 V components	Plug labeling module boxes for sensors (green)
3*)	Rainwater filtration tank	 30X2 rainwater supply pump	31X3 Module box 3
4	GWtec® controller	 32X4 Three-way valve for controlling the rainwater or grey water supply (upstream of the filter pump)	
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



9. Electrical connection



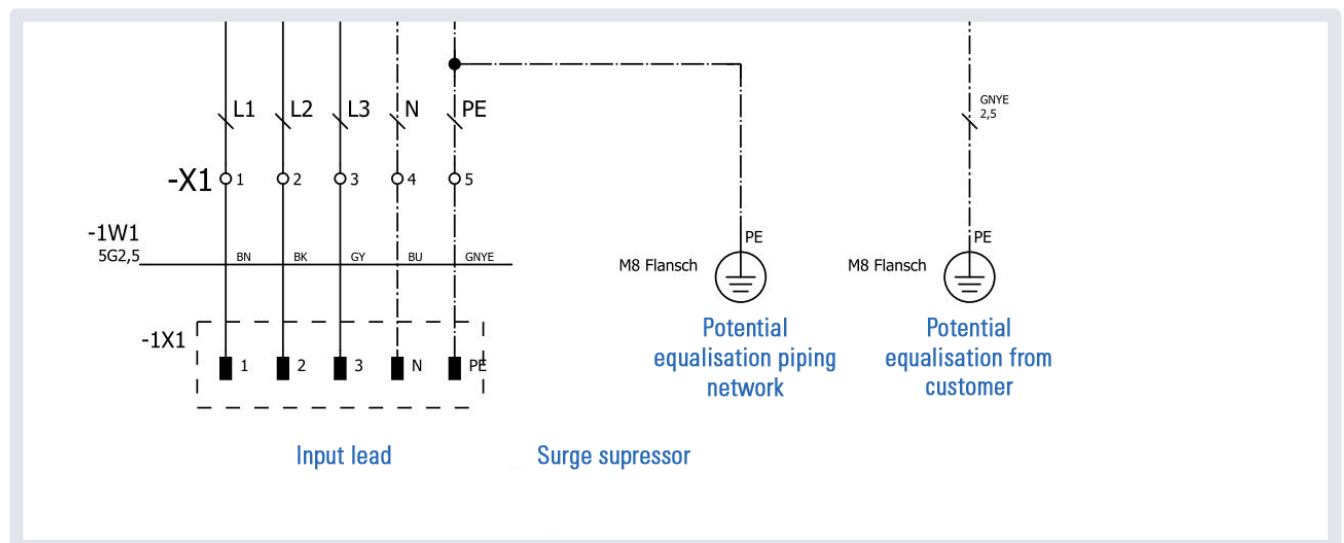
The master switch is located on the right-hand side of the control cabinet of the *GWtec*® station.



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

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 plant 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.

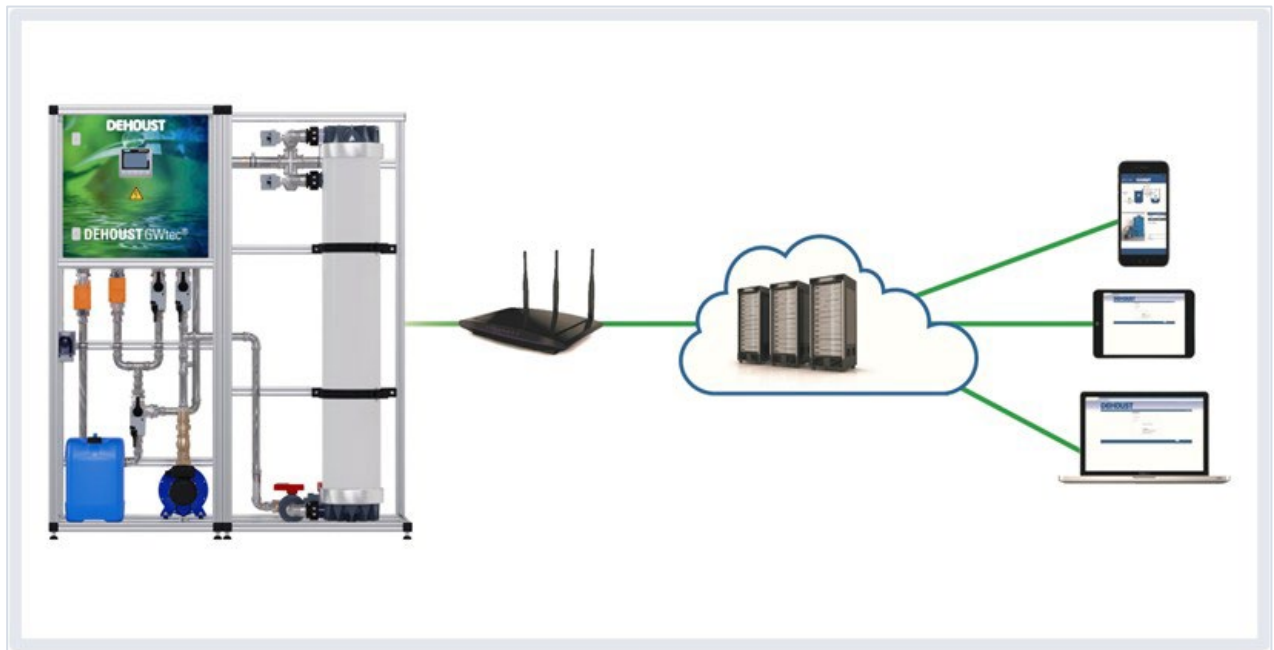


Specific national standards and laws have priority.

Space for personal notes:



10. DEHOUST Connect web interface

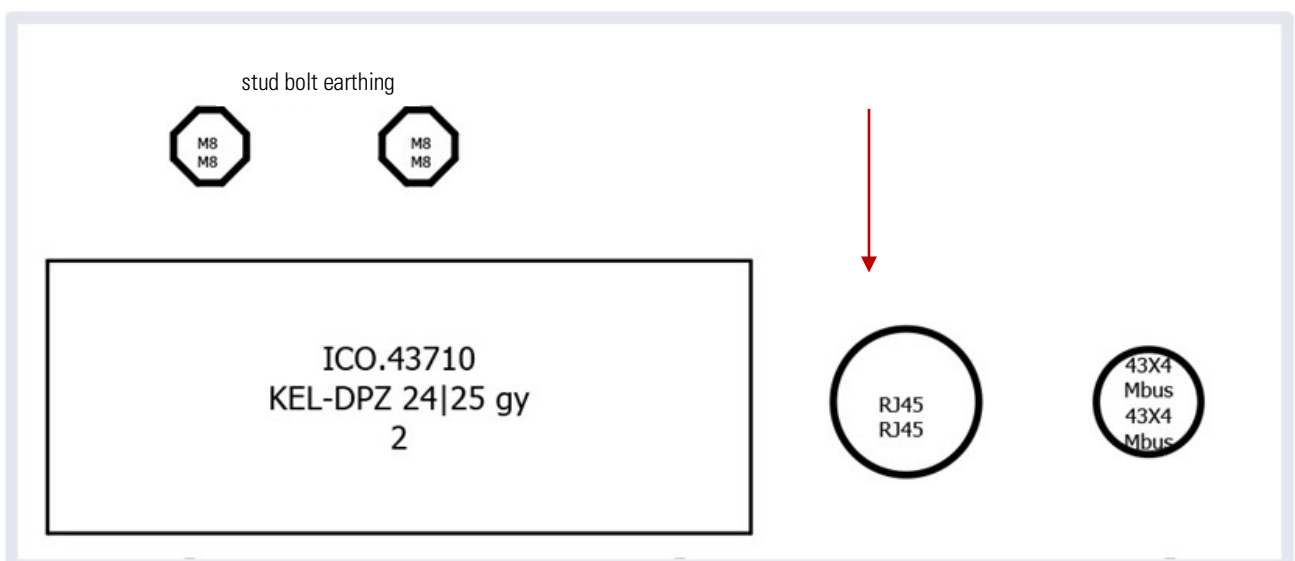


Connect the integrated web interface (RJ45 port at the bottom of the *GWtec*® controller – refer to the picture below) via a standard LAN cable to the operator's network/router.

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.

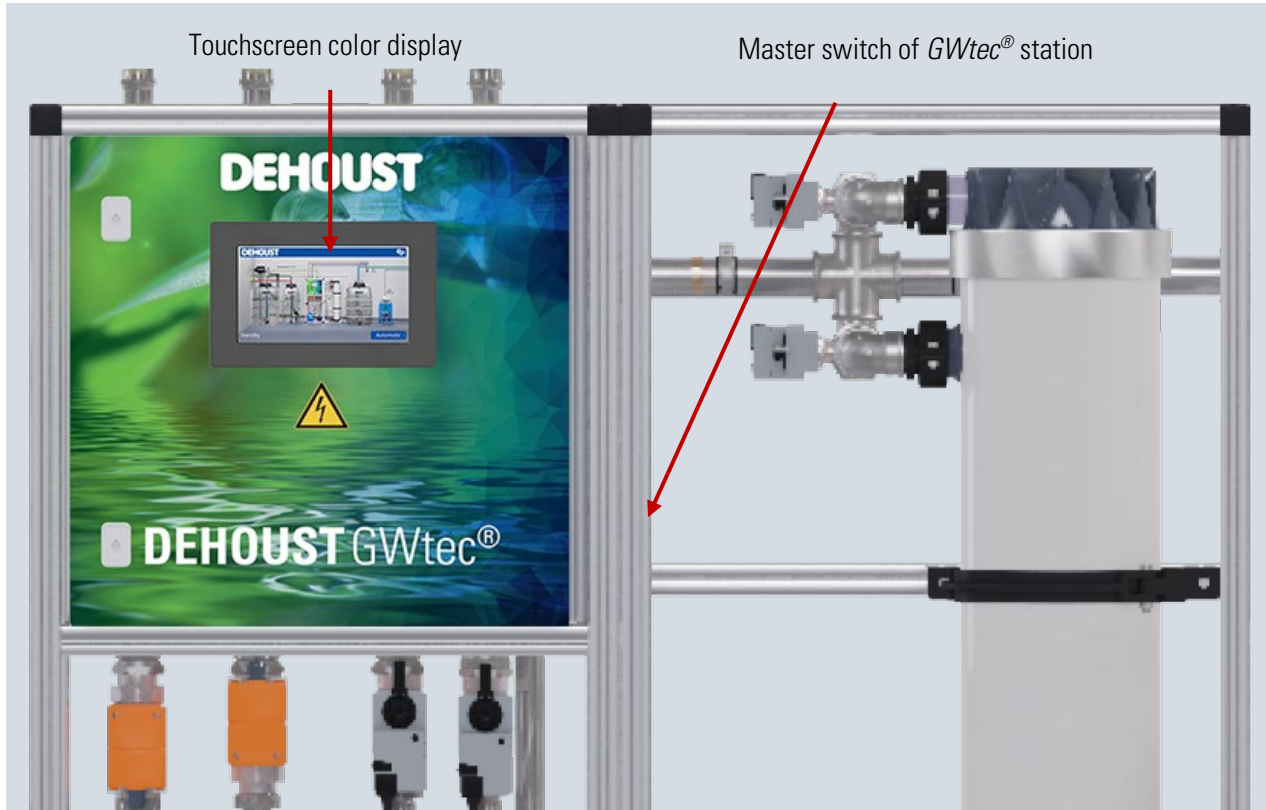
The default port 587 must be enabled in the firewall to be able to send messages / alarms via e-mail.





11. Control via touchscreen color display

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



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.



--- 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



Touching the “Settings” gear icon takes you to the system control overview (see chapter 11.1 SETTINGS and 11.2 CONTROLLER)



Touching the “Messages and faults” bell icon takes you to the system message overview (see chapter 11.3 MESSAGES)



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

Graphical representation of the flow charts

Plant variants (The system drawing can vary by the number of filters - ref. Chapter 5.2 ff)



Example GWtec® 240 with rainwater filtration tank



Example GWtec® 440 without rainwater filtration tank



* The flow charts include optional accessories.

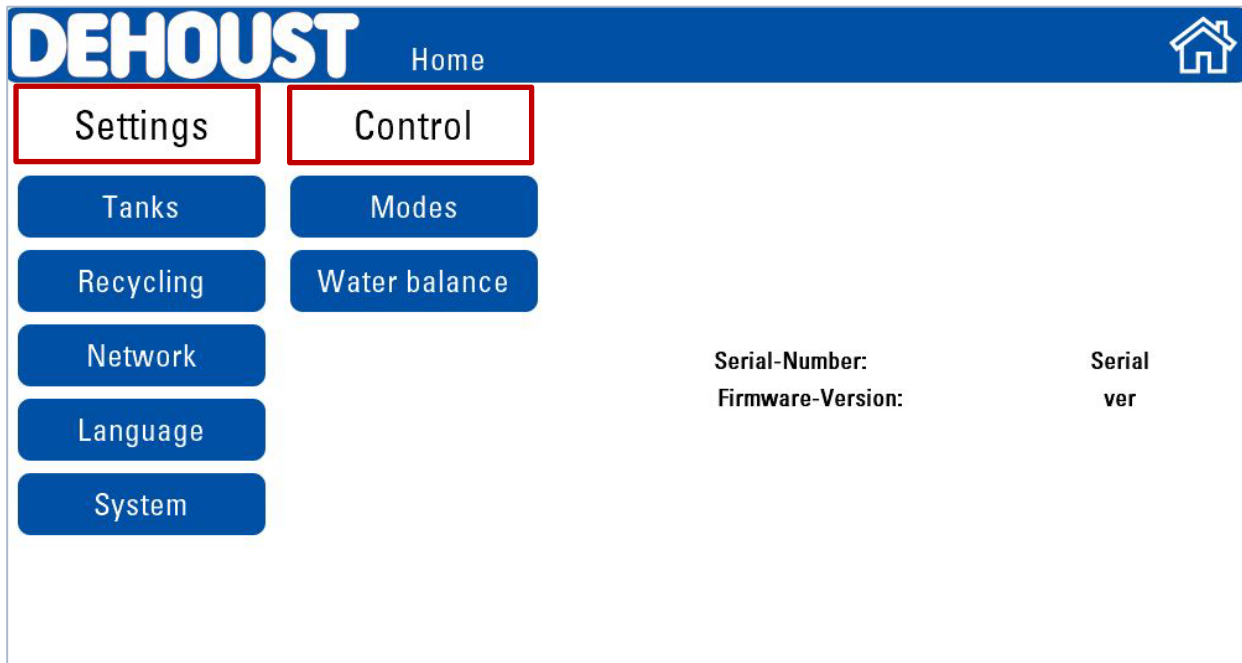
Different variants of the above components can be used according to the configuration of your specific DEHOUST GWtec® system.

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



Touch the “Settings” gear icon to access the controller layout

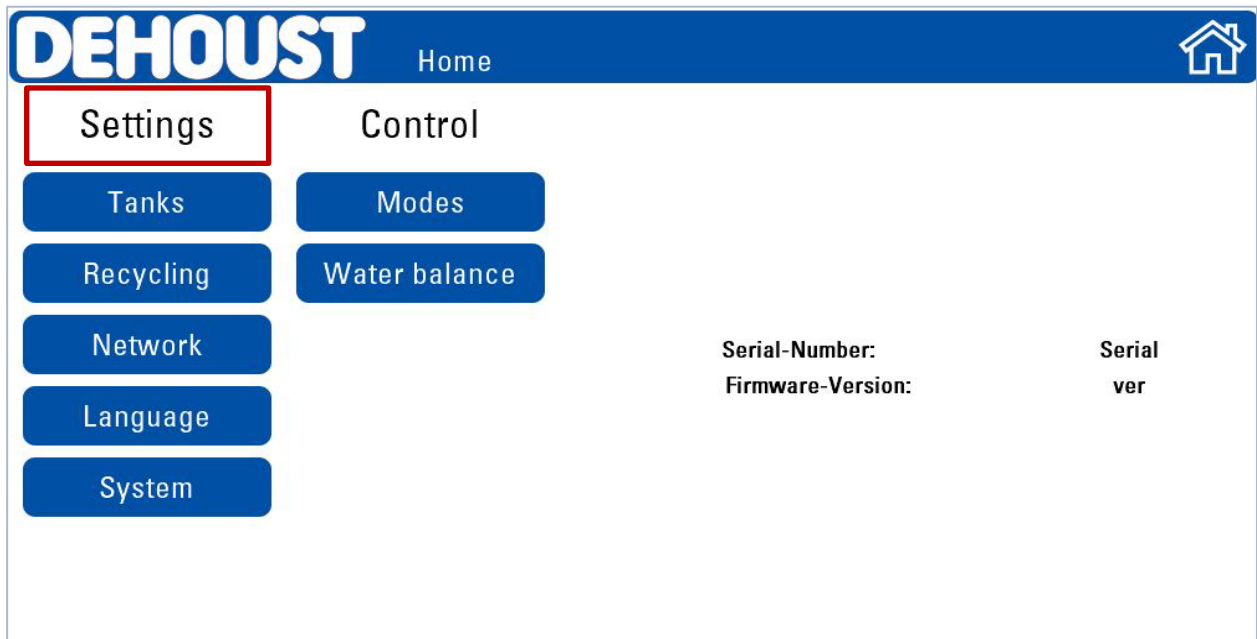
Chapter 9.1 covers the [\[Settings\]](#)
Chapter 9.2 covers the [\[Controller\]](#)



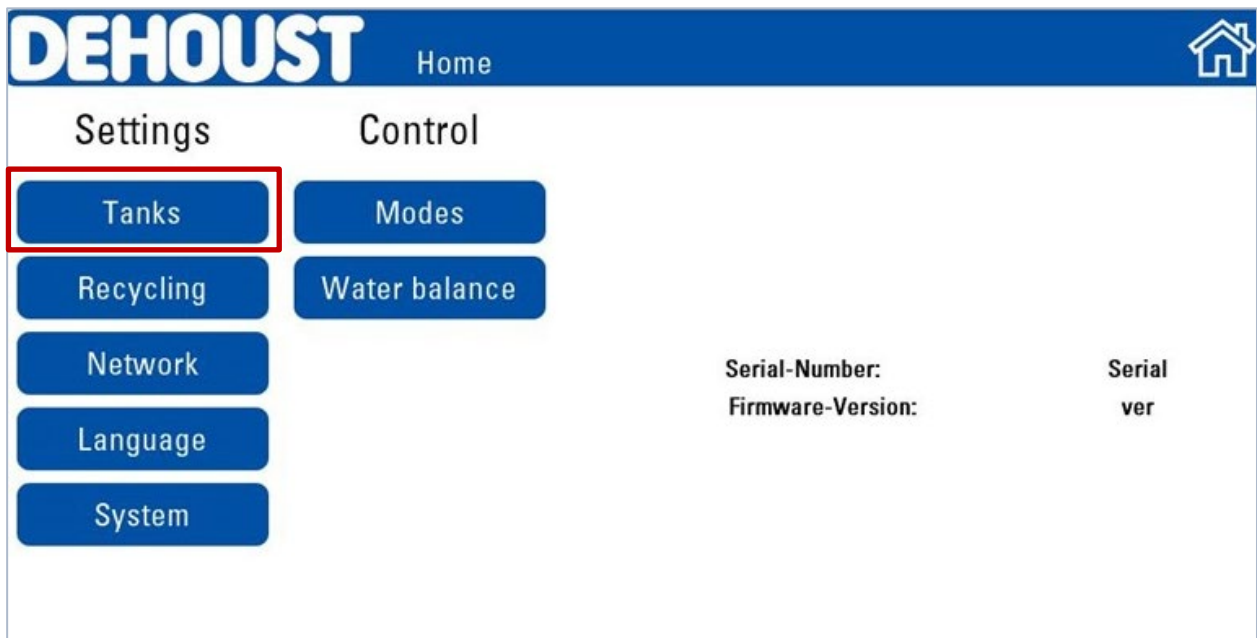
Touch the home (house) icon to return to the initial touchscreen menu.



11.1. SETTINGS



11.1.1. Tanks





11.1.1.1. 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.

The image shows two screenshots of the DEHOUST Settings - Tanks interface. The top screenshot shows the 'Drinking Water make-up' section with 'open under [%]' set to 30. A numeric keypad is overlaid on the screen, showing the value 30.0. The bottom screenshot shows the same section with 'open under [%]' set to 25. A numeric keypad is overlaid on the screen, showing the value 25.0. A red circle highlights the 'OK' button on the keypad. A red box with the text 'Type the number and press OK.' points to the keypad. A red box highlights the 'Save' button at the bottom right of the screen.

DEHOUST Settings - Tanks

Drinking Water make-up

open under [%]	30
close over [%]	40

Stagnation

Stagnation	30.0
Line flush	60

Rainwater make-up

open under [%]	40
close over [%]	55

Auto-Drain

Water standstill [days]	30
close under [%]	30

Drinking Water make-up

open under [%]	25
close over [%]	40

Stagnation protection

Stagnation duration [days]	3
Line flushing time [seconds]	60

Rainwater make-up

open under [%]	40
close over [%]	55

Auto-Drain

Water standstill [days]	30
close under [%]	30

Save



11.1.2. Recycling

The screenshot shows the DEHOUST Home interface. The 'Recycling' button in the 'Settings' column is highlighted with a red rectangle. Other buttons include Tanks, Modes, Network, Language, System, and Water balance. On the right, there are fields for Serial-Number, Firmware-Version, and Serial ver.

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.

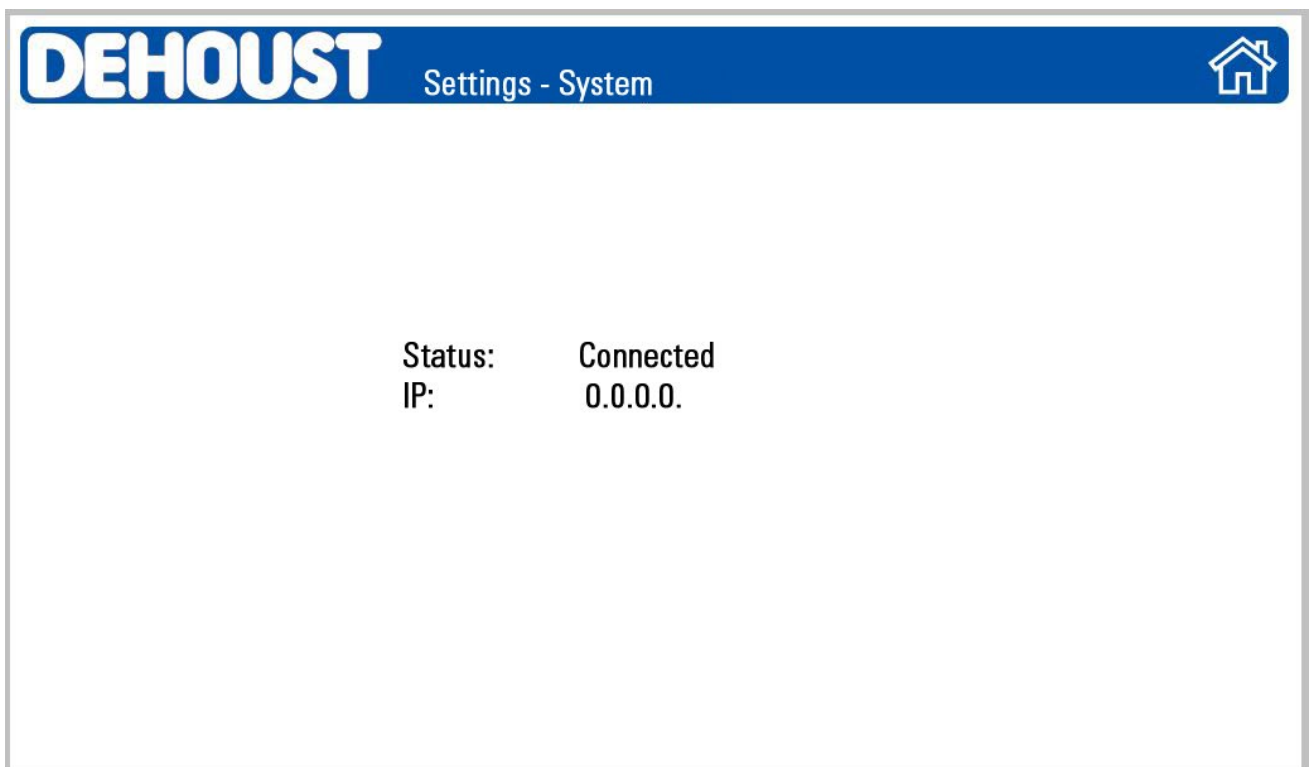
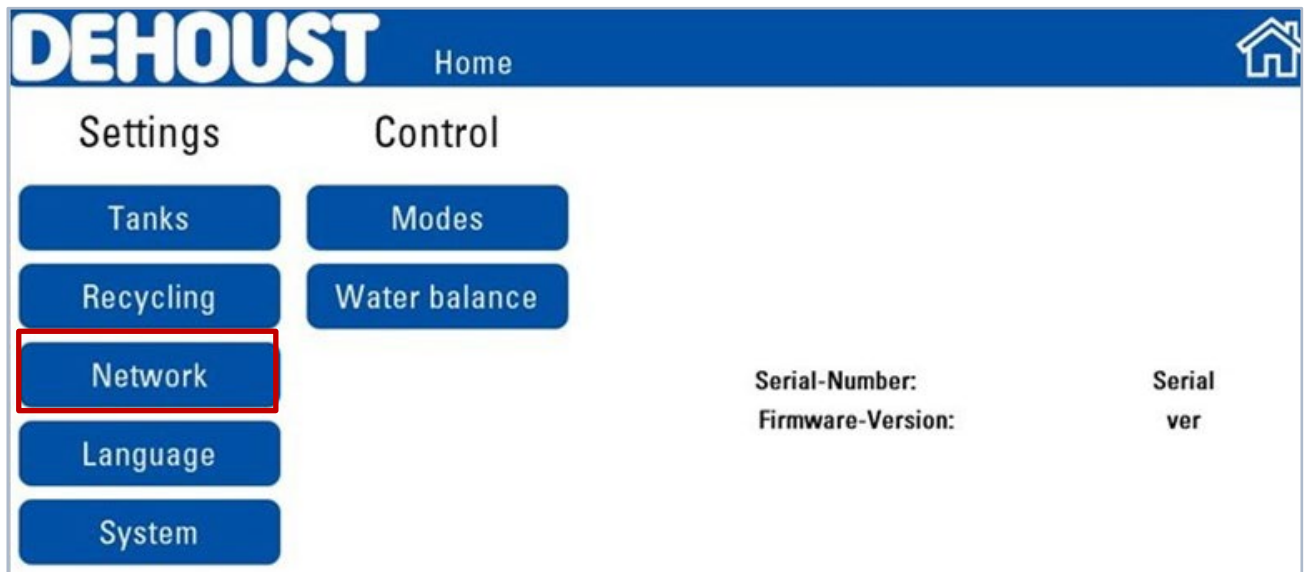
The screenshot shows the 'Settings - recycling' screen. A numeric keypad is overlaid on the screen, with the 'OK' button circled in red. The keypad displays the number '39'. The settings list includes:

Parameter	Value
Pre-treatment Rest phase [min]	40
Pre-treatment Dosing duration [sec]	39
Pre-treatment aeration [min]	
Sedimentation duration [min]	
Switch-on power P2 [%]	
ForwardFlush duration [seconds]	
Filtration target [L/min]	
Max. Filtration-pressure [mBar]	
Minimum filter backwash pressure [mBar]	60
Extended Backwash trigger pressure [mBar]	650
filter [Liter]	20
ackwash [Liter]	200
coarse filter [Liter]	20
art at [%]	80
tion time [min]	120

A red rectangle highlights the 'Save' button at the bottom right.



11.1.3. Network





11.1.4. Language settings

The screenshot shows the DEHOUST Home interface. The top bar contains the DEHOUST logo, the word "Home", and a home icon. Below the bar, there are two main sections: "Settings" and "Control". Under "Settings", there are buttons for "Tanks", "Recycling", "Network", "Language" (highlighted with a red box), and "System". Under "Control", there are buttons for "Modes" and "Water balance". To the right of these buttons, there are labels for "Serial-Number:", "Firmware-Version:", and "Serial ver".

The screenshot shows the DEHOUST Settings - Language screen. The top bar contains the DEHOUST logo and the text "Settings - Language". Below the bar, there are two main sections: "Language" and "Units". Under "Language", there is a dropdown menu with "English" selected and highlighted with a red box. Below the dropdown menu, there are buttons for "German", "English", "Spanish", and "French". Under "Units", there is a dropdown menu with "Metric" selected. At the bottom right of the screen, there is a "Save" button highlighted with a red box.



11.1.5. System

DEHOUST

Home

Settings

Control

Tanks

Modes

Recycling

Water balance

Network

Serial-Number:

Serial

Language

Firmware-Version:

ver

System

DEHOUST

Settings - System

Login

Enter the password [abc] on the keyboard

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						>	?	



11.1.5.1. Settings (system)

DEHOUST Admin

Settings

Control

Settings

Manual modes

Commissioning

shut down

Serial-Number:

Firmware-Version:

Serial

ver

Click on [\[Settings\]](#) to open the following display:

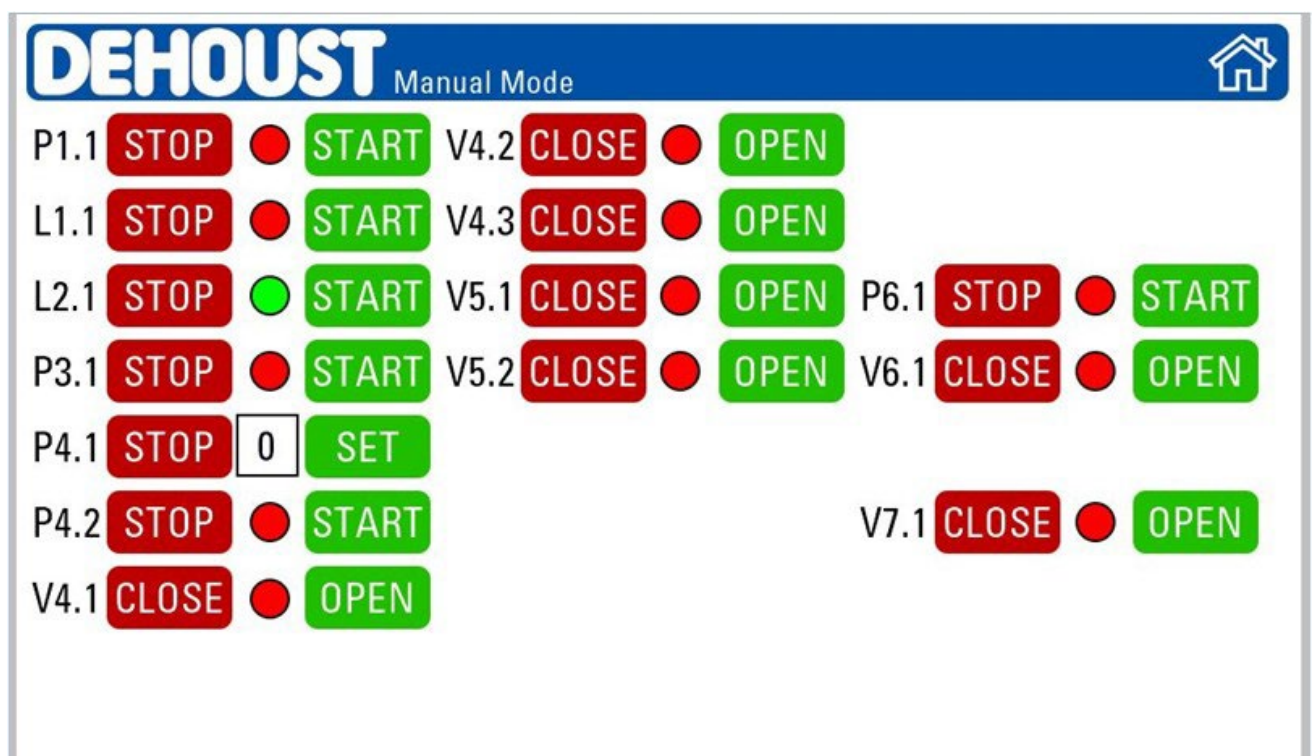
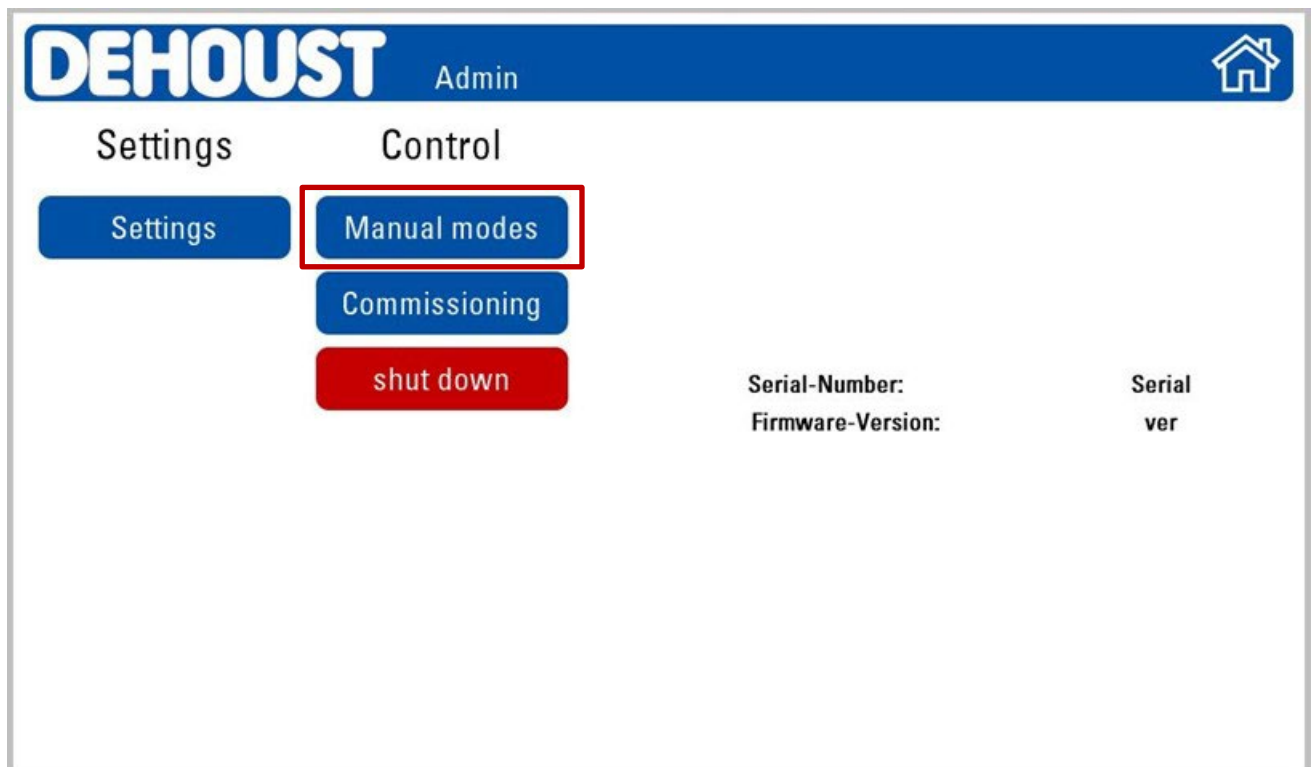
DEHOUST Settings - Admin

Pressuresensor Service Water Tank [mBar]	450	Coarse Filter	☐
Installation Height Pressure Sensor [cm]	12	Heat recovery	☐
lower edge of overflow Service Water [cm]	120	Rainwater make-up	☐
Number of filters	0	Auto-Drain	☒
		uses uBoat sensors	☐
		uses MP-Bus valves	☐

Save



11.1.5.2. Manual modes



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

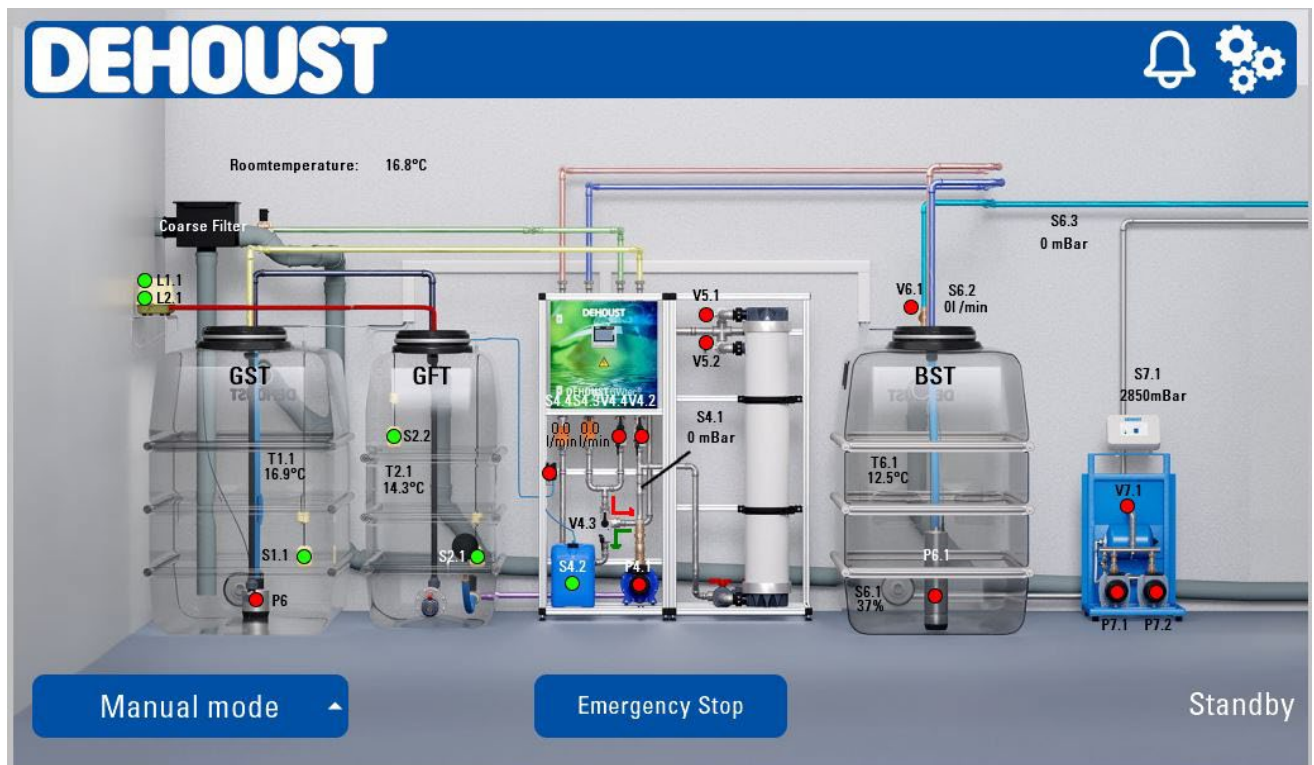
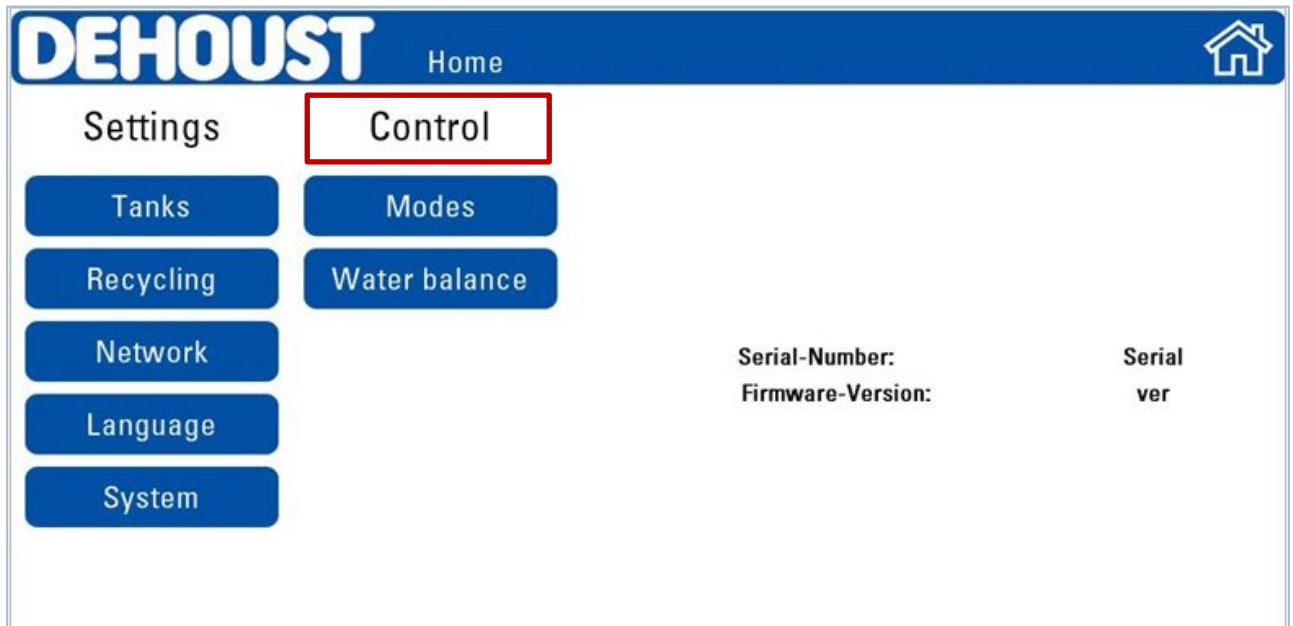


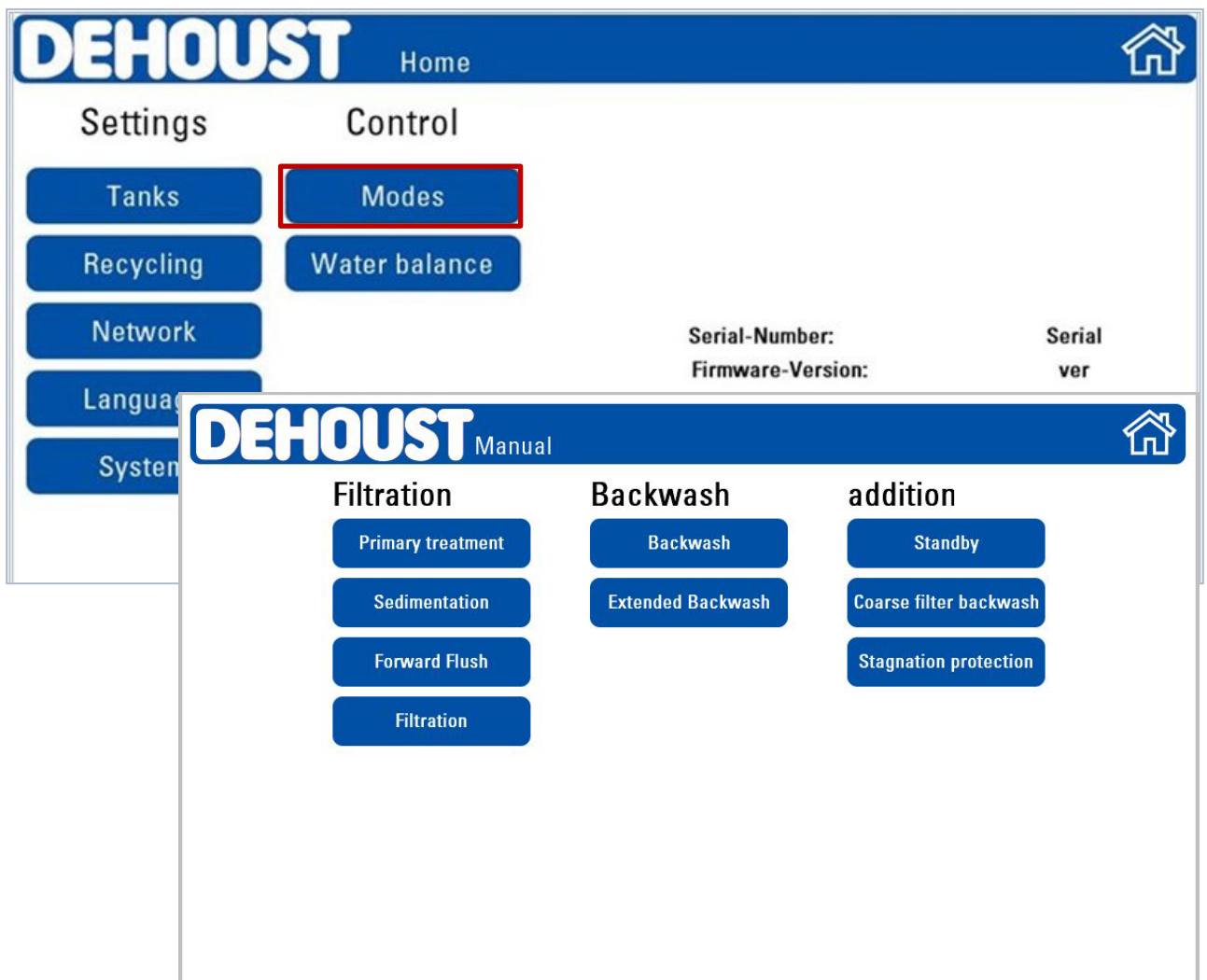
Figure 19: Overview of the controlling points



11.2. CONTROLLER



11.2.1. Modes





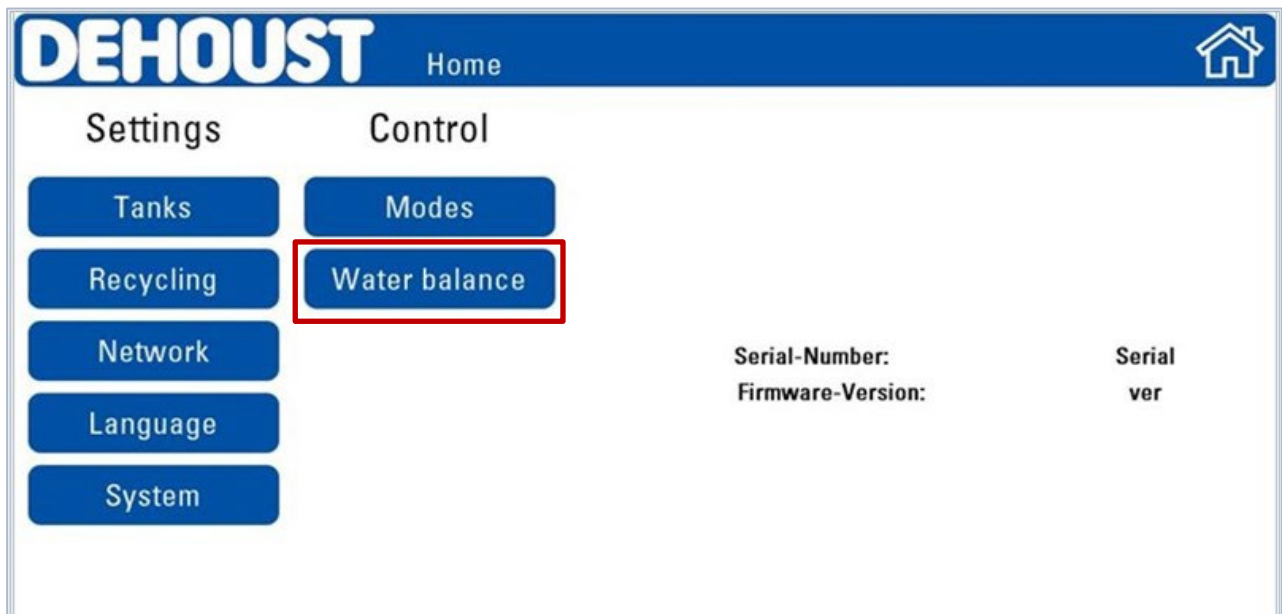
Modes	Function
Primary treatment	A defined amount of Smartfloc flocculant is metered into the greywater filtration tank using the dosing pump to improve sedimentation. During aeration in recycling, the flocculant is thoroughly mixed with the greywater to ensure a quicker reaction. The dosing pump is 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.).



11.2.2. Water balance



The screenshot shows the DEHOUST water balance screen with the 'lifetime' tab selected. The data is as follows:

recycled	23005 l
Coarse filter backwash	0 l
filter backwash	2790 l
mainswater refill:	165 l

The screenshot shows the DEHOUST water balance screen with the 'today' tab selected. The data is as follows:

recycled	549 l
Coarse filter backwash	0 l
filter backwash	0 l
mainswater refill:	0 l

The screenshot shows the DEHOUST water balance screen with the 'week' tab selected. The data is as follows:

recycled	1719 l
Coarse filter backwash	0 l
filter backwash	140 l
mainswater refill:	0 l

The screenshot shows the DEHOUST water balance screen with the 'month' tab selected. The data is as follows:

recycled	4005 l
Coarse filter backwash	0 l
filter backwash	350 l
mainswater refill:	0 l



11.3. 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.

DEHOUST Alarme 

 327 Problem: Bus device

 309 Problem: Filtration pump. No filtration output. confirm

 150 Alarm: SWT overflow

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



12. Important tests prior to commissioning

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

- ▶ The *GWtec*® greywater treatment plant is hydraulically connected in compliance with the national rules and regulations.
- ▶ The *GWtec*® greywater treatment plant 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 plant 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.

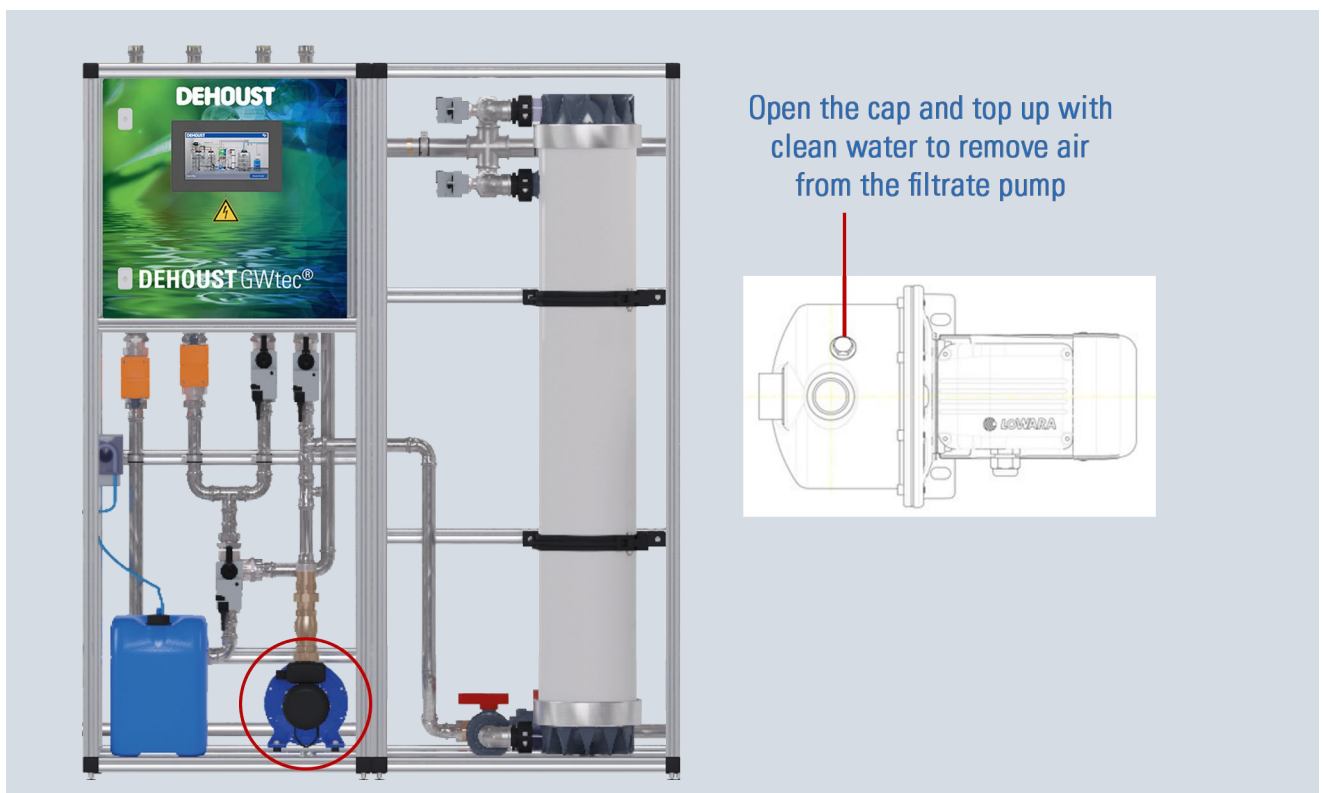


Figure 21: Venting the filtrate pump



12.1. Testing of single components

For testing individual components of the system, select the MODES function 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.

13. 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 22: Sealing caps



Caution: risk of breakage

Clamps are made of plastic. Tighten screws hand tight.



Commissioning the GWtec® greywater treatment plant in three steps:

Step 1 See Chapter 11.1 for details	Step 2 See Chapter 11.2 for details	Step 3 See Chapter 11.3 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 plant	Do not activate the <i>Automatic</i> 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 1-2 weeks 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 6.7). This is to prevent the coarse filter backwash from taking place when the valve is closed during initial installation. The 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 plant aerates the greywater.	



13.1. Drinking Water mode – without greywater inflow

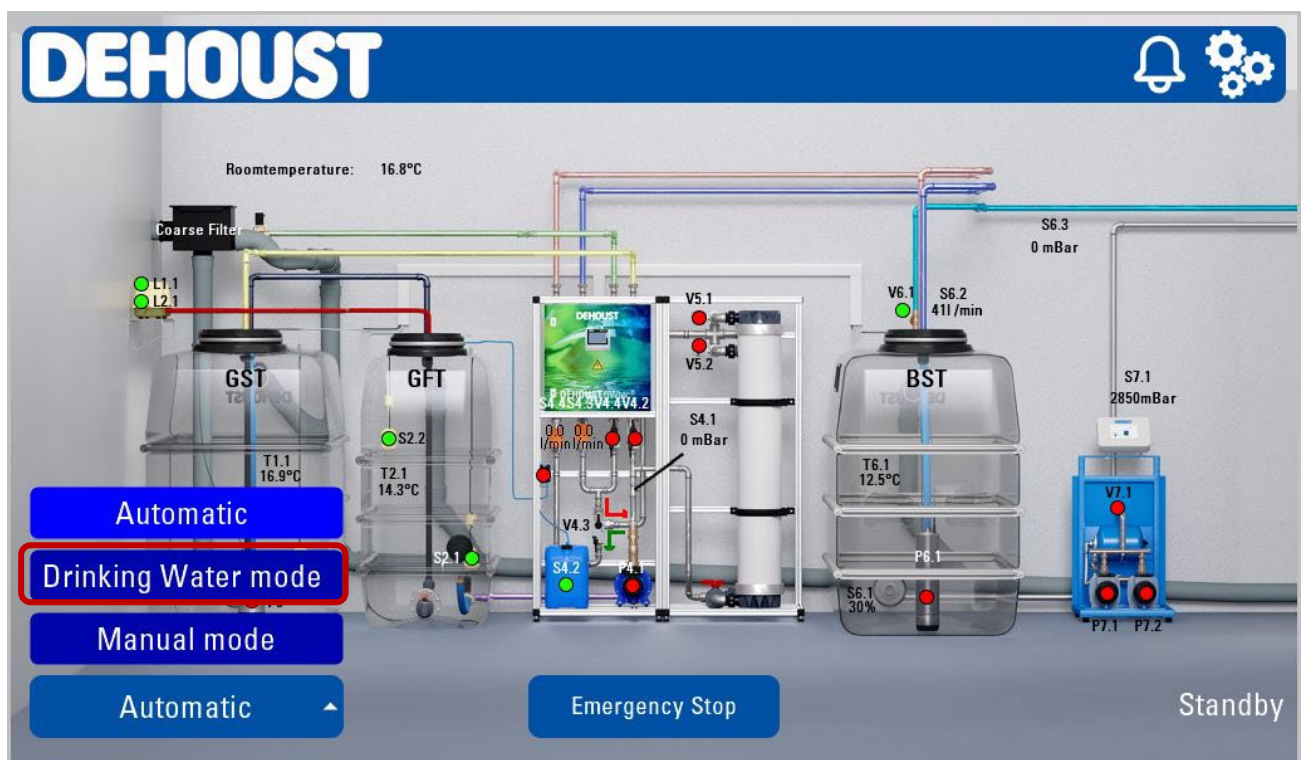
Maintain the GWtec® greywater treatment plant in this operating condition until completion of all construction works. Do not connect the greywater inlet of the treatment system as long as construction is still in progress in the building. Instead, lay a greywater bypass directly to the sewer during this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

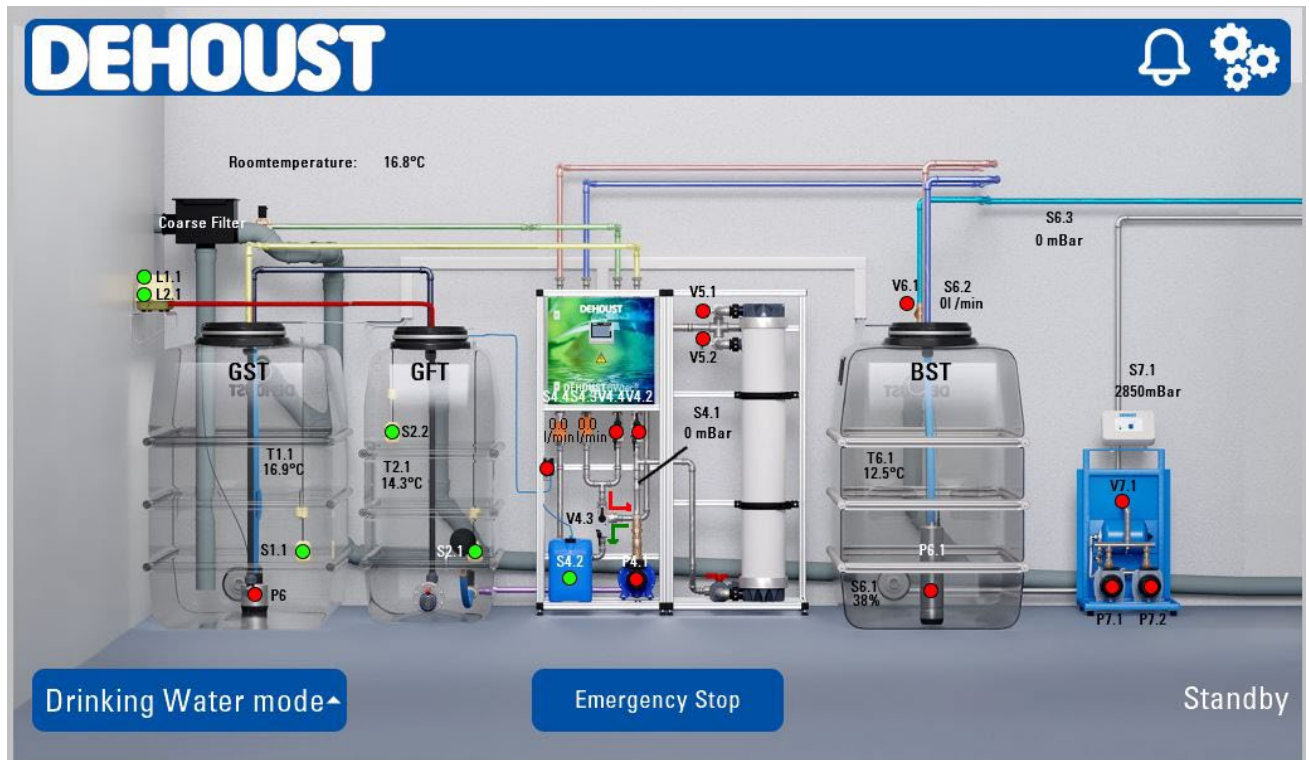
STEP 1:

- ▶ 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 9.1.5.1)
- ▶ 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.

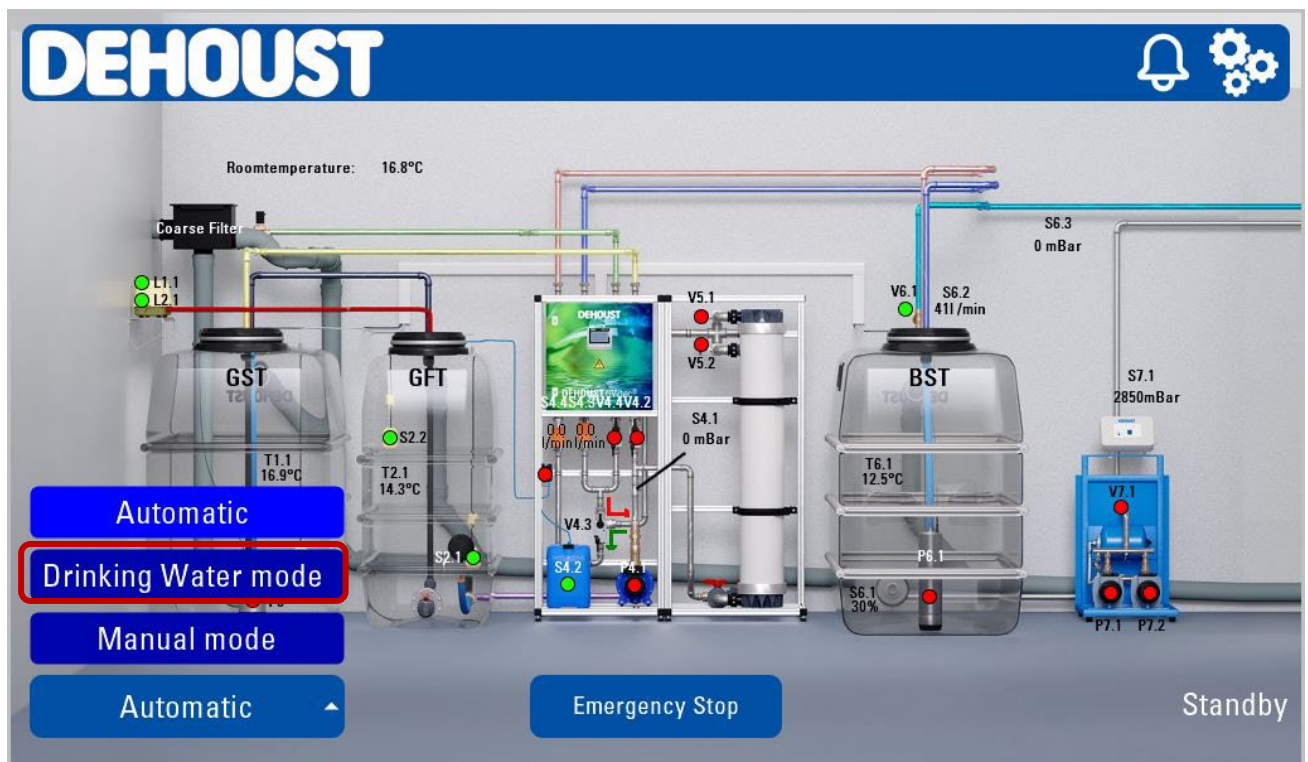


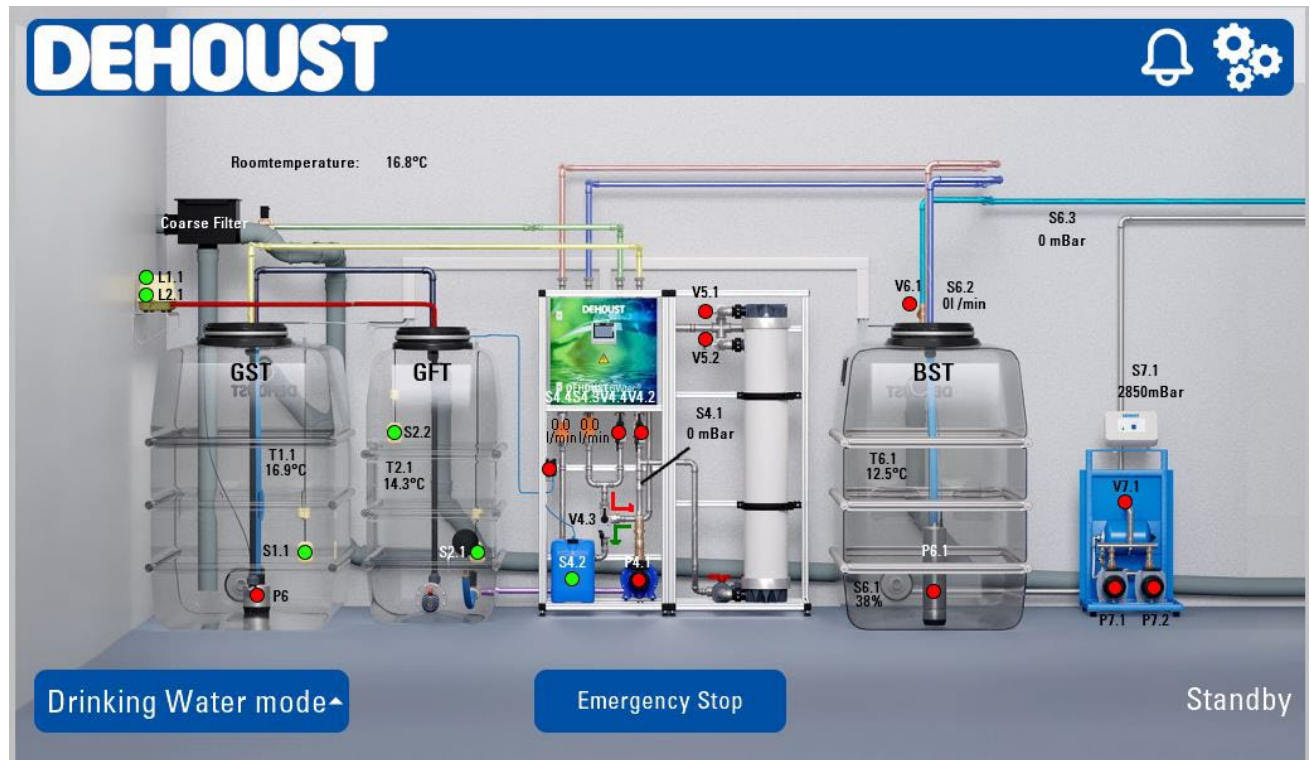
13.2. Drinking Water mode – with greywater inflow

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 11.5.2).
- ▶ Set the controller to [Drinking Water mode] on the display of the plant.
- ▶ The greywater treatment plant performs a backwash of the membrane filter in defined cycles – set up the correct backwash volume of the backwash pump (refer to Chapter 11.1.2)
- ▶ 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.





Modifications in the firmware can result in considerable changes in plant 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 odor nuisance of the product.
- ▶ You are recommended to install a separate (rooftop) vent line for the greywater collection tank and the greywater filtration tank.



13.3. Step 3: Automatic mode with greywater treatment

After completion of all construction work, the *GWtec*® greywater treatment plant 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.

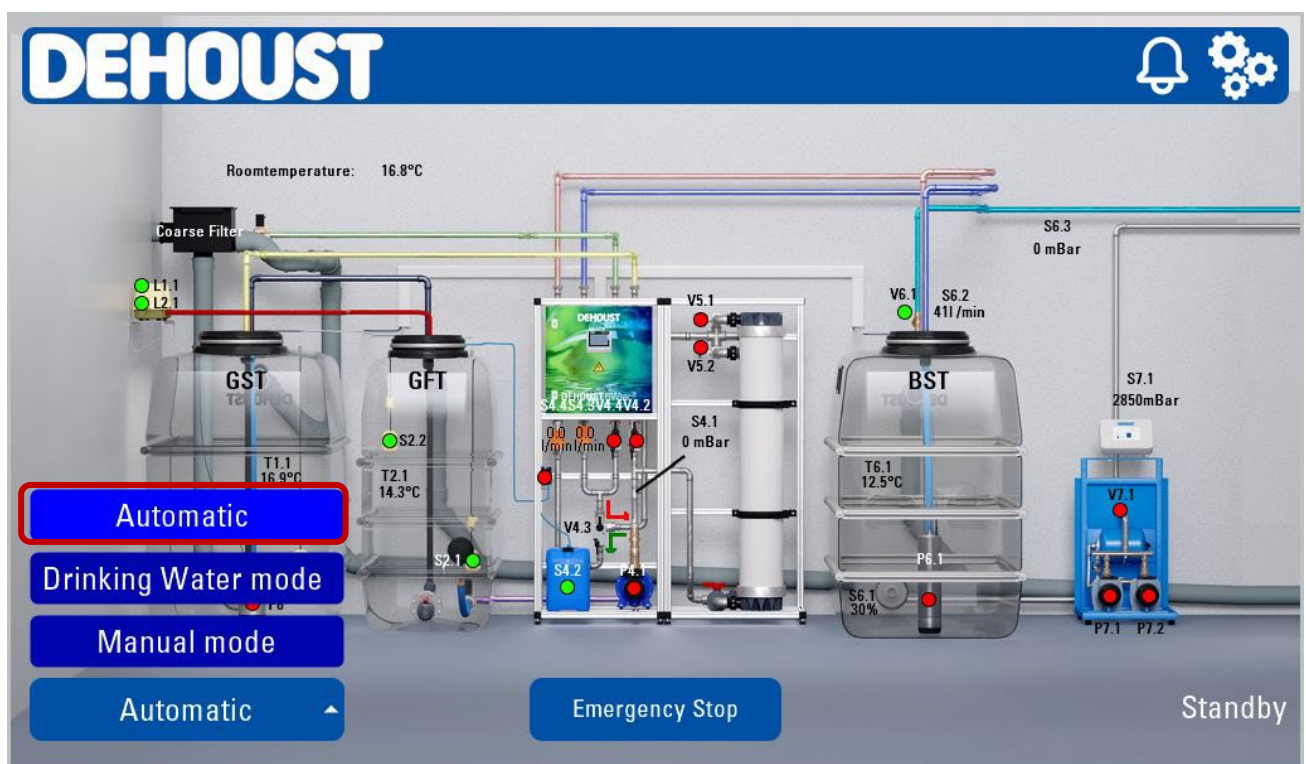
An efficient greywater bacteria culture in the *GWtec*® greywater treatment plant will develop only if a sufficient amount of new greywater enters the greywater storage tanks every day.

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

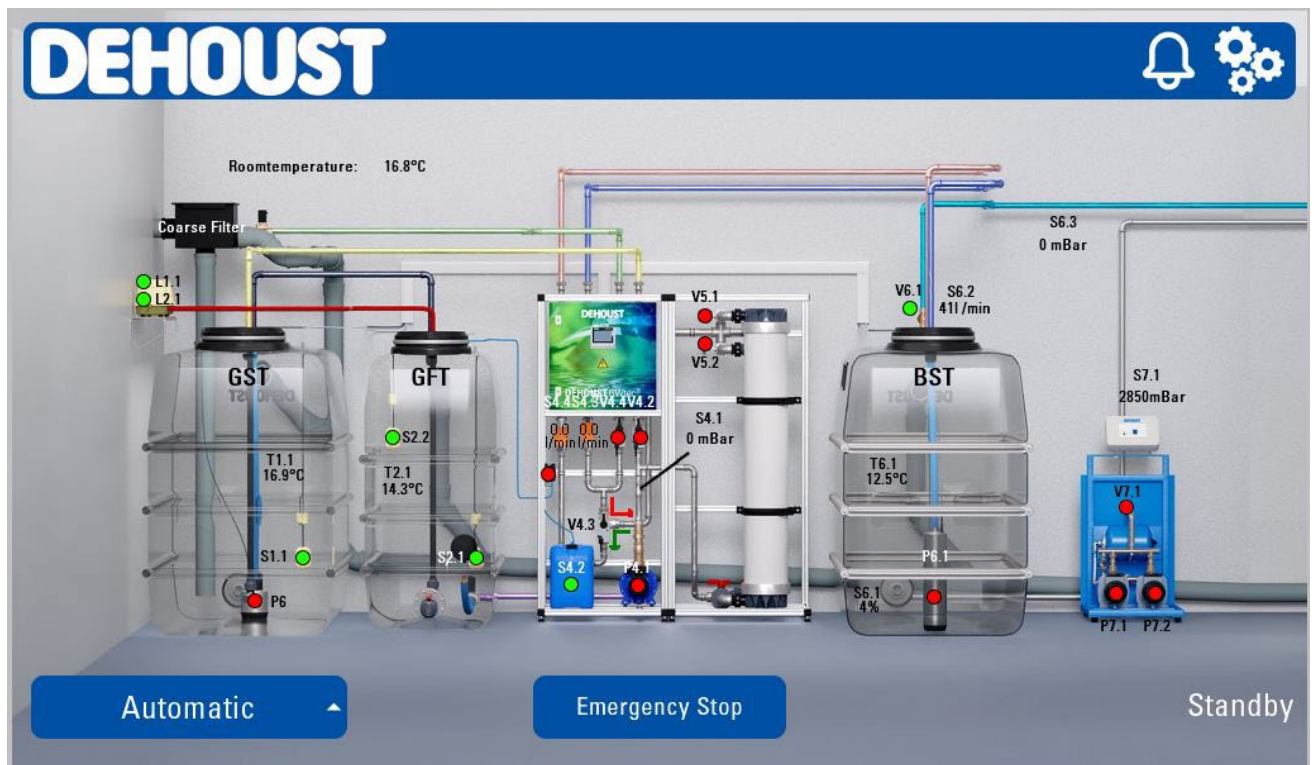
STEP 3

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 plant be on-line, this can be done by remote access.



Please 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

13.4. 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 plant exceeds 4 weeks, repeat step 2 (Chapter 13.2).



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



13.5. 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 plant 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.

13.5.1. 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.

13.5.2. Preparing the bacteria culture

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

- ▶ Observe the dosing schedule closely.
- ▶ Place ready the required amount of microorganisms / the mixing ratio with water is 1:10.
- ▶ Fill one and a half times more hand-warm water (max. 86 °F) in a container of suitable size, e.g. 9 gal of water for 6 lbs of microorganisms
- ▶ Per gallon of water, add to the container and dissolve 11 g of the buffer salt included in the package, e.g. 9 gallons of water x 11 g of buffer salt = 99 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 of the microorganism, wash and disinfect your hands, e.g. with a commercially available skin-friendly disinfectant.

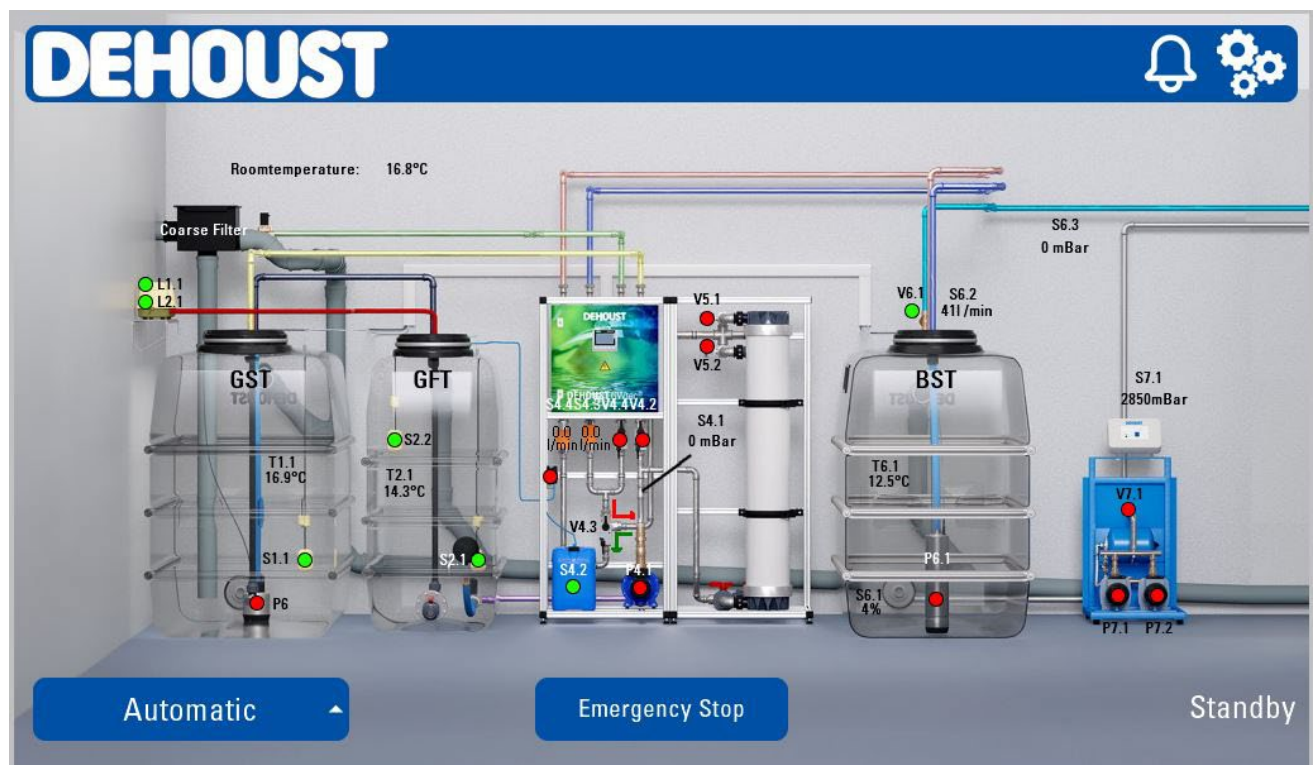


14. Troubleshooting / alarms

If you encounter technical problems that cannot be resolved using the error descriptions and solutions in chapter 14.1, or if you require service and/or a service representative to be contacted, you will find the most important data at a glance on the system's type plate (ref. Section 17.1 for detailed information).

CAUTION: IMPORTANT INFORMATION DO NOT REMOVE OR PAINT THIS LABEL		System: DEHOUST GWtec® X40	USA – UL979 / Canada – CSA C22.2 No. 68 UL-File number: E543761 UL product category: Water Softeners, Demineralizers and Water Treatment Units	
Manufacturer: Dehoust GmbH Gutenbergstraße No. 5-7 69181 Leimen, Germany	Daily capacity: X m³/day (XXXX gal/day)	System classification: Class C - multifamily / commercial	FCC Conformity: FCC Rules 47 CFR 15 Subpart B	
Date of manufacture: XX.XXXX	For Indoor Use Only	Voltage supply: 120/240V, 60Hz	NSF/ANSI350C -2023 Onsite Residential and Commercial Water Reuse Treatment Systems	
Service representative: Dehoust GmbH info@dehoust.de / +49 06224 97020	Current consumption: 16 A	Power consumption: 2,61 kW	EU declaration of conformity No. 2025-01	
System serial number: XXXXXXXX	Class of Protection: IP 54			
Control Cabinet serial number: XXXXXXXX				
Project number: XXXXX				

14.1. 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, and the system will attempt to continue operation in the previous mode (refer to Chapter 11.1.3).



Error code	Error message	Possible causes	Remedy
2	Problem: Backwash pump. Check.	Alarm triggered by the motor circuit-breaker of backwash pump P6.1 . → The floating alarm contact opens the output.	Check the backwash pump P6.1 .
		The alarm will be reset automatically after elimination of the problem. For this, the motor circuit-breaker must be <u>reset by hand</u> .	
3	Problem: Logic error in tank status	S2.2 is indicating water - S2.1 is not. → The floating alarm contact opens the output. Batch, GFT aeration and filtration are disabled.	Check GFT float switch
		The alarm must be reset by hand.	
100	Problem: SWT liquid level sensor error at S6.1	Sensor S6.1 gives no signal. → The floating alarm contact opens the output. The system automatically changes over to <i>Drinking Water mode</i> and disables the valve V6.1 .	Check sensor S6.1 .
		The alarm will be reset automatically as soon as the problem is eliminated or sensor S6.1 provides a signal again	
101	Problem: 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 .
		The alarm must be reset by hand.	
150	Alarm: SWT overflow	Liquid level measured at S6.1 is > 120%. → 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.	
151	Alarm: SWT empty. Dry-run protection activated	The liquid level measured at S6.1 in the service water tank is < 5% for more than 5 seconds. → The floating alarm contact opens the output. The system automatically changes over to <i>Drinking Water mode</i> , V7.1 and P6.1 will be disabled	Check service water tank and piping for leakage. And V7.1
		The alarm must be reset by hand.	



Error code	Error message	Possible causes	Remedy
152	Alarm: Drinking water make-up	If the make-up supply is active, the flow rate is below the lower limit (1.3 gal/min), or if the make-up supply is inactive, the flow rate exceeds the lower limit. → The floating alarm contact opens the output.	Check the make-up flow.
		The alarm must be reset by hand.	
300	Perform the inspection soon!	A number of minus 3,000 hrs has been reached for "Inspection after operating hours P4.1 ". → The floating alarm contact opens the output.	Carry out an inspection as soon as possible.
		The alarm must be reset by hand. Reset the P4.1 operating hours to be able to reset the alarm.	
301	Inspection required!	The alarm occurs when the number of P4.1 operating hours > "Inspection after operating hours P4.1". → The floating alarm contact opens the output. The system automatically changes over to <i>Auto/Standby</i> .	Carry out an inspection.
		The alarm must be reset by hand. Reset the P4.1 operating hours to be able to reset the alarm.	
302	Problem: Backwash	During backwash, the flow rate at the sensor S4.4 is < 1.3 gal/min. → The floating alarm contact opens the output. The system automatically changes over to <i>Mains/Water</i> .	Check backwash.
		The alarm must be reset by hand.	
309	Problem: Filtration pump. No filtration output.	During filtration, the filtration pressure measured at S4.1 is < 0.75 psi for more than 60 seconds. Change over to Standby interrupts the filtration process. → The floating alarm contact opens the output. The system automatically changes over to <i>Mains Water</i> .	Check P4.1 and S4.1 .
		The alarm must be reset by hand.	



Error code	Error message	Possible causes	Remedy
327	Problem: Bus device (*)	One or more bus devices give no signal.	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.	
330	Problem: Insufficient filtration	The flow rate during filtration dropped or fell below the filtration flow setting (gal/min) (refer to Chapter 9.3.3). → The floating alarm contact opens the output.	Check the operating mode. Check the membrane filter for clogging. If necessary, contact DEHOUST or the contract dealer for inspection.
		The alarm will be reset automatically as soon as the problem is eliminated, or the actual flow rate exceeds the minimum target flow rate.	
331	Alarm: Dosing canister empty	The float switch S4.2 of the dosing canister signals empty status. → The floating alarm contact opens the output. The dosing pump P4.2 is disabled.	Check the liquid level of the Smartfloc canister.
		The alarm will be reset automatically as soon as the problem is eliminated or the float switch S4.2 signals full status.	
340	Alarm: Filtration output	Alarm when the filtration flow falls below 0.5 gal per minute at 100% filtration pump capacity. → 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.	



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



14.2. 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 30 psi.

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.

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



15. Inspection

The DEHOUST GWtec® system includes components that require inspection and servicing.

- ▶ Inspections should be carried out by the operator of the plant.
- ▶ Servicing and repairs shall be performed by qualified personnel only.

If faults/defects are found during an inspection of the DEHOUST GWtec® plant, please contact your contract dealer or DEHOUST.



Always avoid direct skin and eye contact with greywater and residues (wear rubber gloves) during work.

15.1. Coarse filter DEHOUST MAX



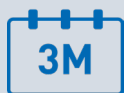
Open the lid of the housing (secured by hooks) of the coarse filter to inspect the screen. In case of persistent and coarse debris that could not be removed with nozzle water, clean the screen with a scrubbing brush. Discard the filter residues as residual waste.

15.2. Drinking water make-up valve



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.

15.3. Hose and water connections



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 reseat the connections.



For the sake of the operator, observe the specified inspection and servicing intervals and the described working steps.



15.4. Desludging the tanks

15.4.1. Greywater collection tank(s)



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.

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 7.5). Then close the discharge valve. Refill the tank.

If a noticeable odor develops within 48 hours, the process has weakened the bacterial culture. In this case, mix new microorganisms (see section 13.5) and add them.

15.4.2. Greywater filtration tank(s)



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.

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 7.5). Then close the discharge valve. Refill the tank.

If a noticeable odor develops within 48 hours, the process has weakened the bacterial culture. In this case, mix new microorganisms (see section 13.5) and add them.

15.5. Aeration unit



Interval: every 2nd year or after 20,000 operating hours



Follow the operation manual of the compressor with its detailed inspection recommendations.

15.6. Pressure booster system



Follow the detailed inspection recommendations in the operation manual of the pressure booster system.



15.7. 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.

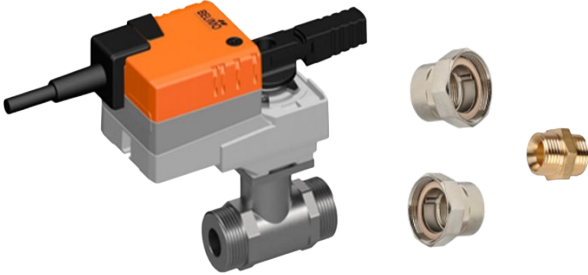


The inspection of the GWtec® station and the replacement of the membrane filter must be carried out by a contract dealer or by DEHOUST.



16. Optional accessories

16.1. 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 11.1.1) and must have been activated in the controller (refer to Chapter 11.1.5.1). 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 plant, 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 DC ▶ Wattage: 2.5 W ▶ Weight: 3 lbs ▶ Grey terminal box, L/W/H: 3.7"/3.7"/2.2" ▶ Data cable Y(ST)Y 2 x 2 x 0,6; 32ft



Artikel Nr. 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; see chapter 8



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 11.1.1 of the Tanks settings and chapter 11.1.5.1 System settings



16.2. Service water flow sensor (Article 815070)

Article No.	815075
	Additional flow sensor (uncalibrated) for measuring the service water flow rate. Sensor with a flow rate of up to 3,170 gal/h
Technische Daten	▶ Inlet: 1 1/2" IT ▶ Outlet: 1 1/2" IT ▶ Control: Modbus ▶ Electrical connection: 24 V DC ▶ 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 11.1.1 and 11.1.5.1.



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

Artikel Nr.	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 32 ft. ▶ in the environment of residential, office and commercial areas and small businesses
Technical Data	▶ Delivery rate, Q_{max}: 4,360 gal/h ▶ Delivery head: max. 44 ft ▶ Immersion depth: max. max 32 ft ▶ Supply voltage: 120 V / 60 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: 6.3" ▶ Weight: 24.3 lbs



Artikel Nr.	813457 / 962046
Hydraulic connection	Install the RFT rainwater tank in parallel to the greywater filtration tank and connect it with the <i>GWtec</i>® 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 <i>GWtec</i>®. 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 <i>GWtec</i>®.
	▶ To ensure fault-free operation of the <i>GWtec</i>® 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.



Artikel Nr. 813457 / 962046	
Electrical Connection	Lay the power supply cable of the rainwater feeder pump up to the <i>GWtec</i> ®, extend the cable, if necessary. Connect it to the <i>GWtec</i> ® control unit (refer to Chapter 8 "Cabling of modules").
	Caution: Only connect after starting up the system (see instructions in Chapter 11, Step 2).
	 Connect to the control unit using the 30X2 cabling plug.
	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 11.1.1 and 11.1.5.1.Tank



Artikel Nr. 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 3 to 20 ft and has a more than 80 ft 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 <i>GWtec®</i>.
	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 <i>GWtec®</i> 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 <i>GWtec®</i> (refer to Chapter 8 "Cabling of modules").
	The sensor is delivered with detailed instructions.



17. Customer services

17.1. 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.



17.2. Service Representatives

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69181 Leimen
Germany

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Fax: + 49 (0) 6224 9702-70
E-mail: info@dehoust.de
www.dehoust.com

17.3. Initial and extended Service Policies

17.3.1. Initial Service

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

17.3.2. 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.



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

 DEHOUST	 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.	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.
www.dehoust.com info@dehoust.de	www.dehoust.com info@dehoust.de



18. 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,	Dehoust GWtec® 140, 813371
Article Numbers	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**



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. Appendix: List of abbreviations and technical terms

Abbreviation	Meaning	Abbreviation	Meaning
<	Less than	L	Liter
>	Greater than	Min	Minute
®	Registered Trademark	mm	Millimeter
A	Ampere	N/A	not applicable
AG	External thread	nm	Nanometer (1 mm = 1.000.000 nm)
W x H x D	Width x height x depth	Nm	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	Centimeter	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
ET	External thread (male)	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.
Firewall	A firewall is a protective technology that separates network areas from each other		
GFT	Greywater filtration tank		
GST	Greywater collection tank	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.
GWtec®	name/type of grey water treatment system		
h	Hour	Touchscreen	Screen that is operated by touching the screen surface.
Hz	Hertz	UF	Ultrafiltration
IG	Internal thread (female)	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.

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The information in this publication is subject to change. We reserve the right to make technical changes without prior notice. Performance specifications are non-binding; a guaranteed feature cannot be derived from them. The terms and conditions agreed with our order confirmation shall apply exclusively.

The country-specific approvals and installation regulations must be complied with.



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