

Description

Greywater treatment system Watermanager GWM for the treatment of low polluted wastewater (greywater) from showers, hand basins and bathtubs with BMT membrane technology to high-quality process water that meets the hygienic / microbiological quality requirements of the European standard EN 16941-2 (systems for the use of treated greywater).

- proven and environmentally friendly treatment process using BioMembrane technology
- energy-efficient recycling process
- all system components can be transported by hand and door-to-door
- reduction of total drinking water consumption in Residential and commercial buildings, public buildings, Hostels, hotels and sports facilities by up to 60%
- excellent process water quality (clear, odorless, germ-free) as a substitute for drinking water for flushing the toilet, green area irrigation, cleaning purposes, washing machines, cooling processes, ...
- environmentally friendly biomechanical treatment process without the use of chemicals integrated drinking water separate standard fully automatic GWM control unit for regulation and free alarm output for building management system compatible



Standard scope of supply

Robust full-automated internal greywater treatment system, equipped with coarse filter TridentMAX, huge greywater storage tank(s), BMT-unit(s) with submerged BMT-membrane filter, process water storage tank(s) incl. mains water back up system and full automated control unit.

Function

Based on the BioMembraneTechnology the Watermanager GWM treats greywater from the drains of showers, bath tubes and handwash basins and provides a high-quality process water for different reuse-applications.

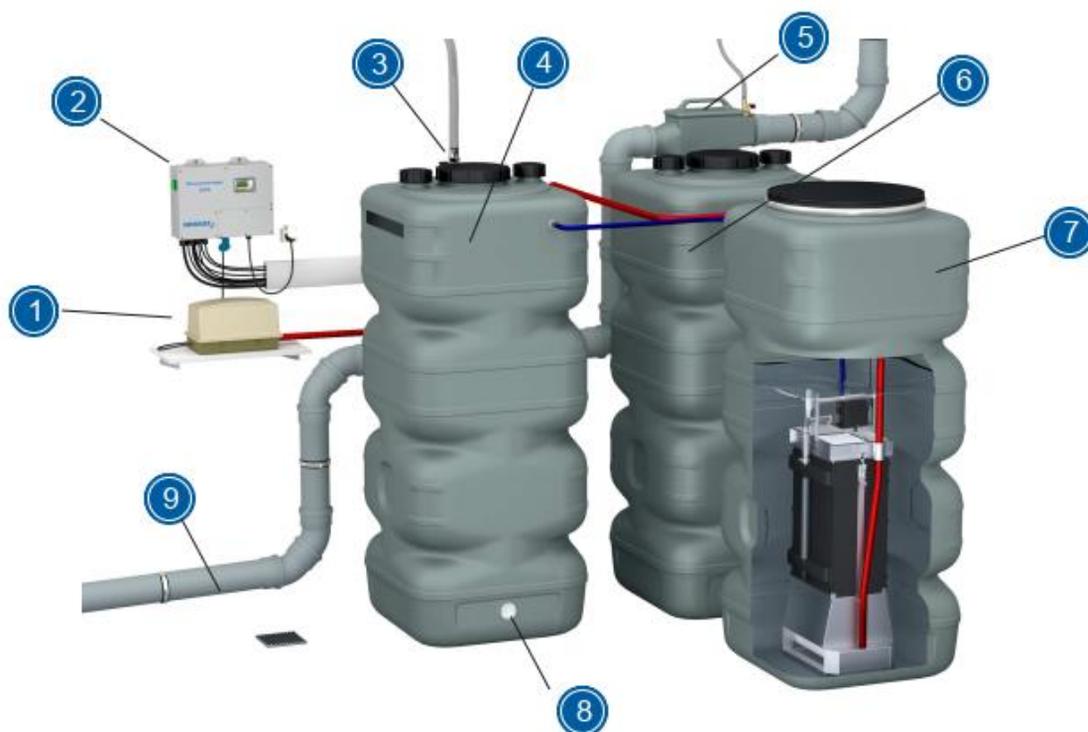
Initially the raw greywater is mechanically treated in the coarse filter TridentMAX to remove all undissolved water contents, such as textile fluff or hair. An automatic backwash unit keeps the filter plate clear and ready for a high filtration performance. In the next step the control unit takes care that specific purification bacteria decompose all the biodegradable ingredients in the greywater, such as soap or shampoo. After the biological cleaning the heart of the Watermanager GWM, the immersed BMT-membrane filter starts to filter out the pre-treated greywater. With a physically pore width of 38 nm (2.500 times finer than a human hair!) all solid particles, germs and individual absorbed viruses are safely retained in the system all the time. An optimised air flushing process with periodically increasing air bubbles ensures the filter plates are continually cleaned. This extremely efficient method of self-cleaning increases the life of the system considerably and reduces the maintenance cost to an absolute minimum. The result of the recycling process is a clear, odourless and germ-free process water!

Thanks to the very low remaining nutrient value ($BOD_5 < 5 \text{ mg/L}$) and rest-biomass the purified water is suitable for a long storage (toilet flush box) and a variety of safe reuse applications.

In case of a lack of process water the automatic mains water back up system will be activated and ensures a safe water supply all the time.



Main plant components



- ① Air compressor
- ② GWM-control unit
- ③ Mains water back up system
- ④ Process water storage tank
- ⑤ Coarse filter *Trident*
- ⑥ Greywater storage tank
- ⑦ BMT-unit
- ⑧ connection booster pump
- ⑨ Overflow to sewer

Effluent qualities on treated greywater

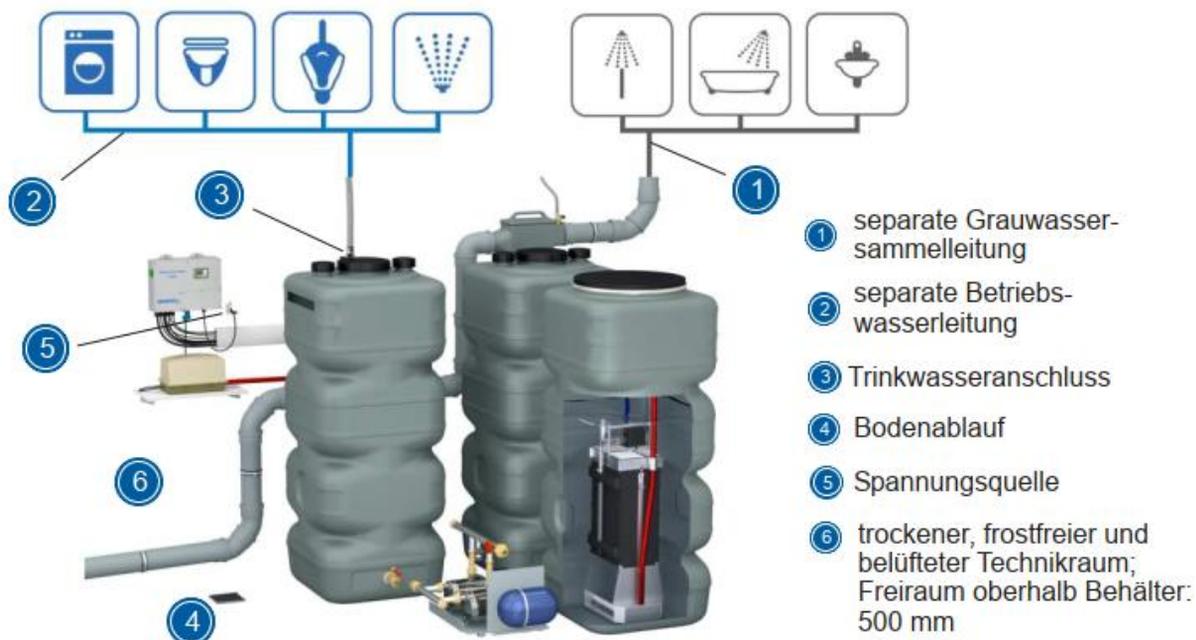
Parameter	Raw greywater	Treated greywater
COD [mg/ltr]	150 – 400	< 20
BOD ₅ [mg/ltr]	85 – 200	< 3
Suspended solids [mg/ltr]	30 – 70	0
pH	7,5 – 8,2	7 – 9
Total coliform bacteria [cfu/100 ml]	10 ³ – 10 ⁷	<100
Escherichia coli [cfu/100 ml]	10 ³ – 10 ⁷	<10



The water quality of the treated greywater corresponds to

- European standard EN 16941-2 (systems for the use of treated greywater),
- of usage class C2 from german DWA data sheet M277 (information on the design of systems for the treatment and use of gray water),
- the British Standard 8525-1
- and the European standard for bathing water 2006/7 / EG.

Installationsschema und -hinweise



Accessories

GWM-Rainwater feed package

GWM-Rainwater-feed package to feed automatic rainwater into a greywater system
volume rate: max. 13,5 m³ / h
delivery height: max. 10,4 m
power consumption 510 Watt
controlled by GWM-controller
Item 812966



Auto-drainage-system for process water storage tank

Automatic drainage of storage tank after defined downtime according to the requirements of European standard EN 16941-2 and British Standard 8525:1-2011.
controlled by GWM-controller
Item 813455



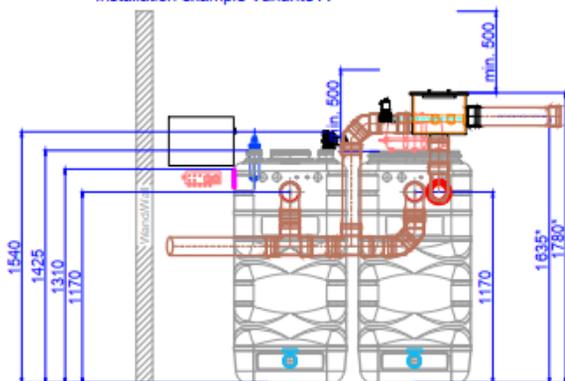
System models

Watermanager GWM 950 (item 813345)

Designed for:	ca. 20-25 inhabitants	Electrical load:	230 V / 16 A / 50 Hz
Treatment capacity:	max. 950 litres/day	Electrical power :	400 W
Energy consumption:	~ 1,5 kWh/m ³	Connection inflow/overflow:	DN 100
Coarse filter:	0,3 mm	Connection mains water back-up:	1" female thread
BMT-membrane filter:	38 nm	Connection backwash:	
Free space above tanks:	1.000 mm	Coarse filter:	½" female thread
Empty weight total plant:	125 kg	Dimension largest:	
Greywater storage volume:	500 litres	Component:	720 x 720 x 1.430 mm
Process water volume:	500 litres		

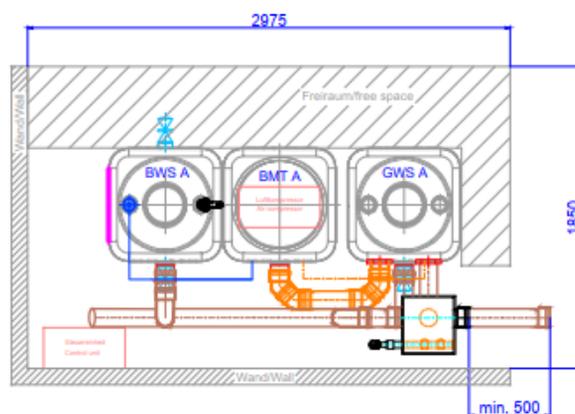
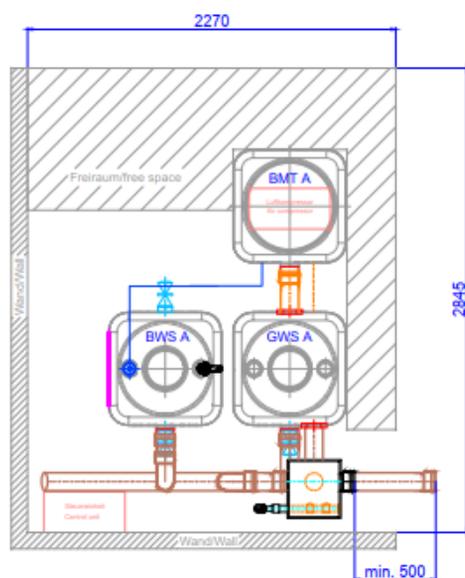
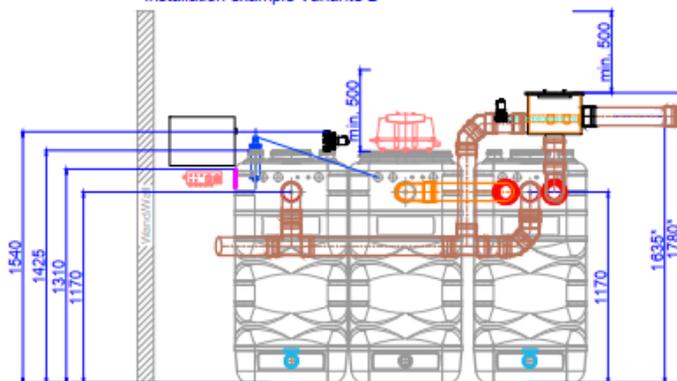
Installationsbeispiel Variante A

Installation example Variante A



Installationsbeispiel Variante B

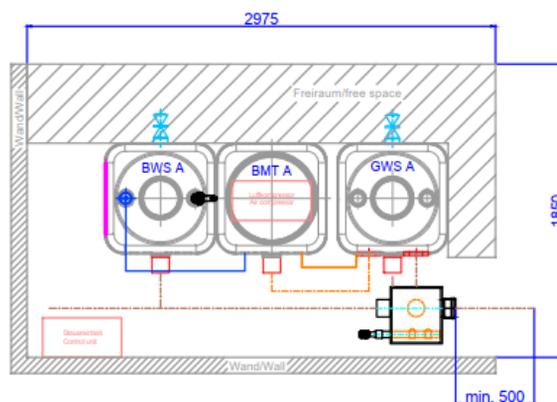
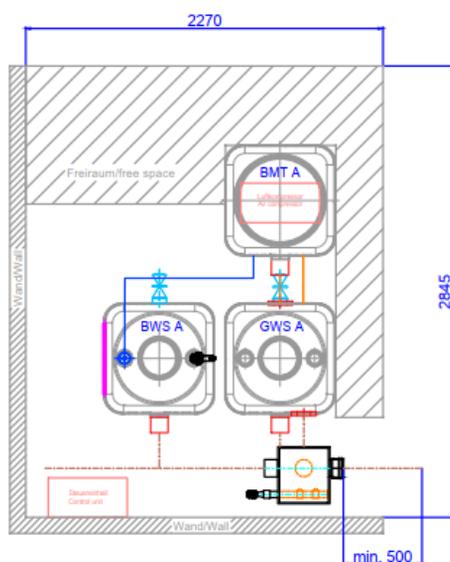
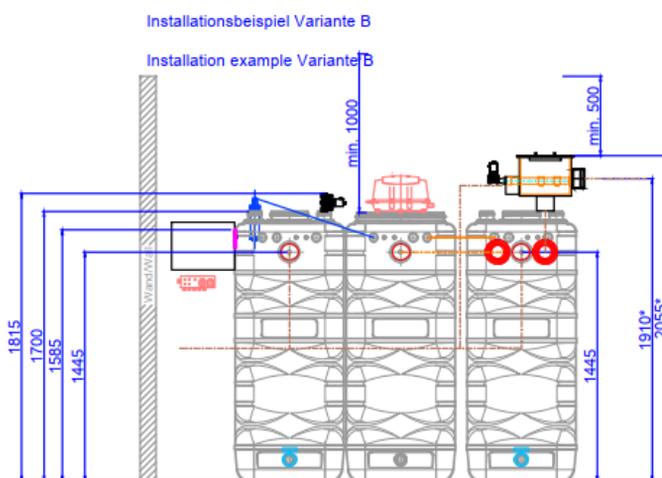
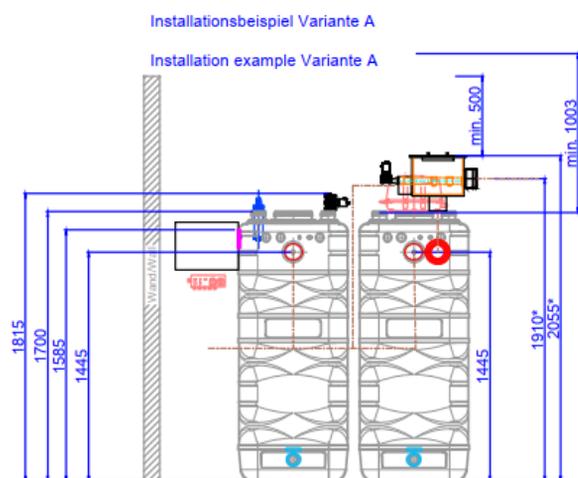
Installation example Variante B



System models

Watermanager GWM 1.150 (item 813355)

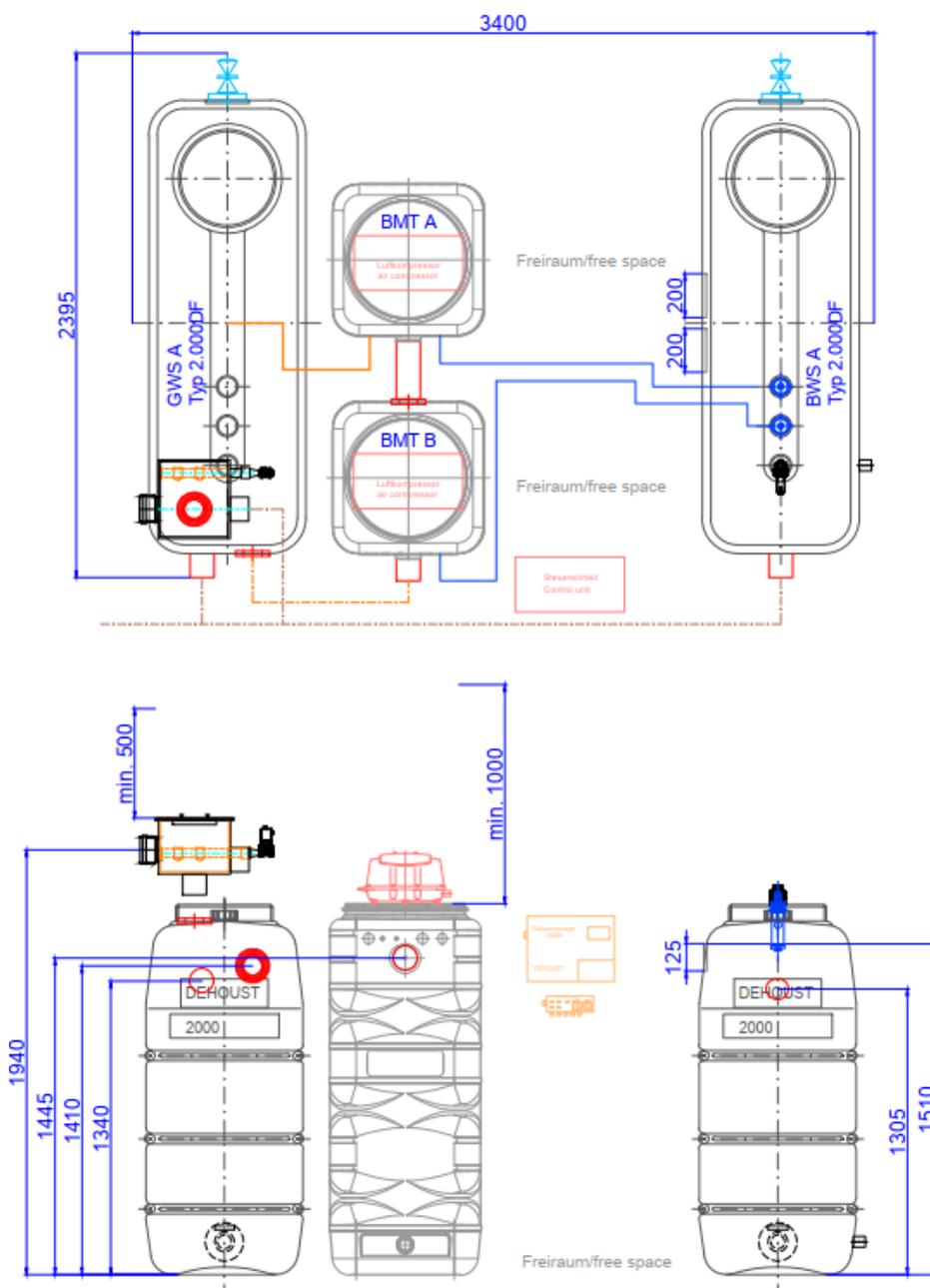
Designed for:	ca. 25-30 inhabitants	Electrical load:	230 V / 16 A / 50 Hz
Treatment capacity:	max. 1.150 litres/day	Electrical power :	400 W
Energy consumption:	~ 1,5 kWh/m ³	Connection inflow/overflow:	DN 100
Coarse filter:	0,3 mm	Connection mains water	
BMT-membrane filter:	38 nm	back-up:	1" female thread
Free space above tanks:	1.000 mm	Connection backwash	
Empty weight total plant:	150 kg	Coarse filter:	½" female thread
Greywater storage volume:	600 litres	Dimension largest	
Process water volume:	600 litres	Component:	720 x 720 x 1.700 mm



System models

Watermanager Type 2 (item 813388)

Designed for:	ca. 40-50 inhabitants	Electrical load:	230 V / 16 A / 50 Hz
Treatment capacity:	max. 2.000 litres/day	Electrical power:	400 W
Energy consumption:	~ 1,5 kWh/m ³	Connection inflow/overflow:	DN 100
Coarse filter:	0,3 mm	Connection mains water back-up:	1" female thread
BMT-membrane filter:	38 nm	Connection backwash:	1" female thread
Free space above tanks:	1.000 mm	Coarse filter:	½" female thread
Empty weight total plant:	400 kg	Dimension largest component:	2.070 x 720 x 1.690 mm
Greywater storage volume:	1.800 litres		
Process water volume:	1.700 litres		



System models

Watermanager Type 3 (item 813398)

Designed for:	ca. 60-75 inhabitants	Electrical load:	230 V / 16 A / 50 Hz
Treatment capacity:	max. 3.000 litres/day	Electrical power:	400 W
Energy consumption:	~ 1,5 kWh/m ³	Connection inflow/overflow:	DN 100
Coarse filter:	0,3 mm	Connection mains water	
BMT-membrane filter:	38 nm	back-up:	1" female thread
Free space above tanks:	1.000 mm	Connection backwash	
Empty weight total plant:	590 kg	Coarse filter:	½" female thread
Greywater storage volume:	2.500 litres	Dimension largest	
Process water volume:	2.700 litres	Component:	2.230 x 995 x 1.650 m

