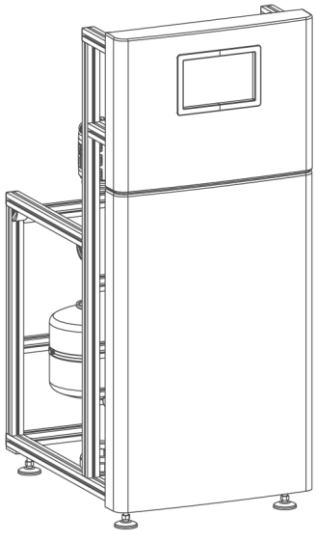
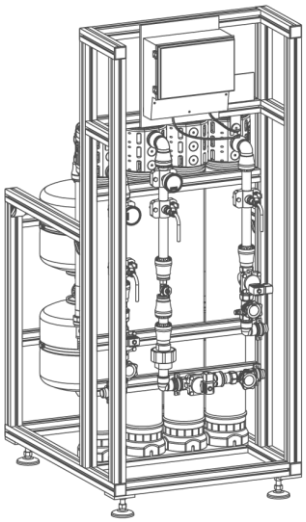




Ultrafiltration system ultraliQ:SB

Intended use

The ultrafiltration system ultraliQ:SB is designed for fully automatic reduction of solid particles, turbidities and micro-organisms in the raw water.

The ultrafiltration system ultraliQ:SB is suitable for use in private water supply systems.

If the ultraliQ:MA is used for drinking water treatment, the provisions of DIN 1988, DIN EN 1717 as well as EN 2001-1 must be met.

Application limits

Turbidity (on average)	NTU	< 15.0
Turbidity (short-term)	NTU	< 30.0
TOC	mg/l	< 5.0
Oils/greases/hydrocarbons		not detectable

For all other water constituents contained in the raw water, with the exception of the microbiological parameters, the limit values of the German Drinking Water Ordinance (TrinkwV 2001) do apply.

Any required preliminary treatment stages (such as the oxidation filter system fermaliQ:MA for the reduction of iron, manganese and ammonium) are available upon request.

Function

Filtration

Raw water is pressed through the pores of the semi-permeable membranes (cut-off 0.02 µm) of the ultrafiltration modules. Almost all undissolved substances contained in the water are thus retained on the membranes and a particle-reduced and germ-reduced filtrate is generated.

As the filtered particles are deposited on the membrane surface, the differential pressure (transmembrane pressure) between the raw water and the filtrate side increases.

Flushing the system

This surface layer grows as the filtration time progresses, and is automatically flushed from the membrane surface in 2 phases:

- Backwash with filtrate from one of the diaphragm expansion tanks installed in the ulltraliQ:SB: filtered particles and micro-organisms are removed from the membrane
- Forward flush with raw water: During the forward flush with raw water: removed particles and micro-organisms are flushed to the drain

During longer downtimes, additional forced flushing prevents the stagnation of raw water in the ultrafiltration module.

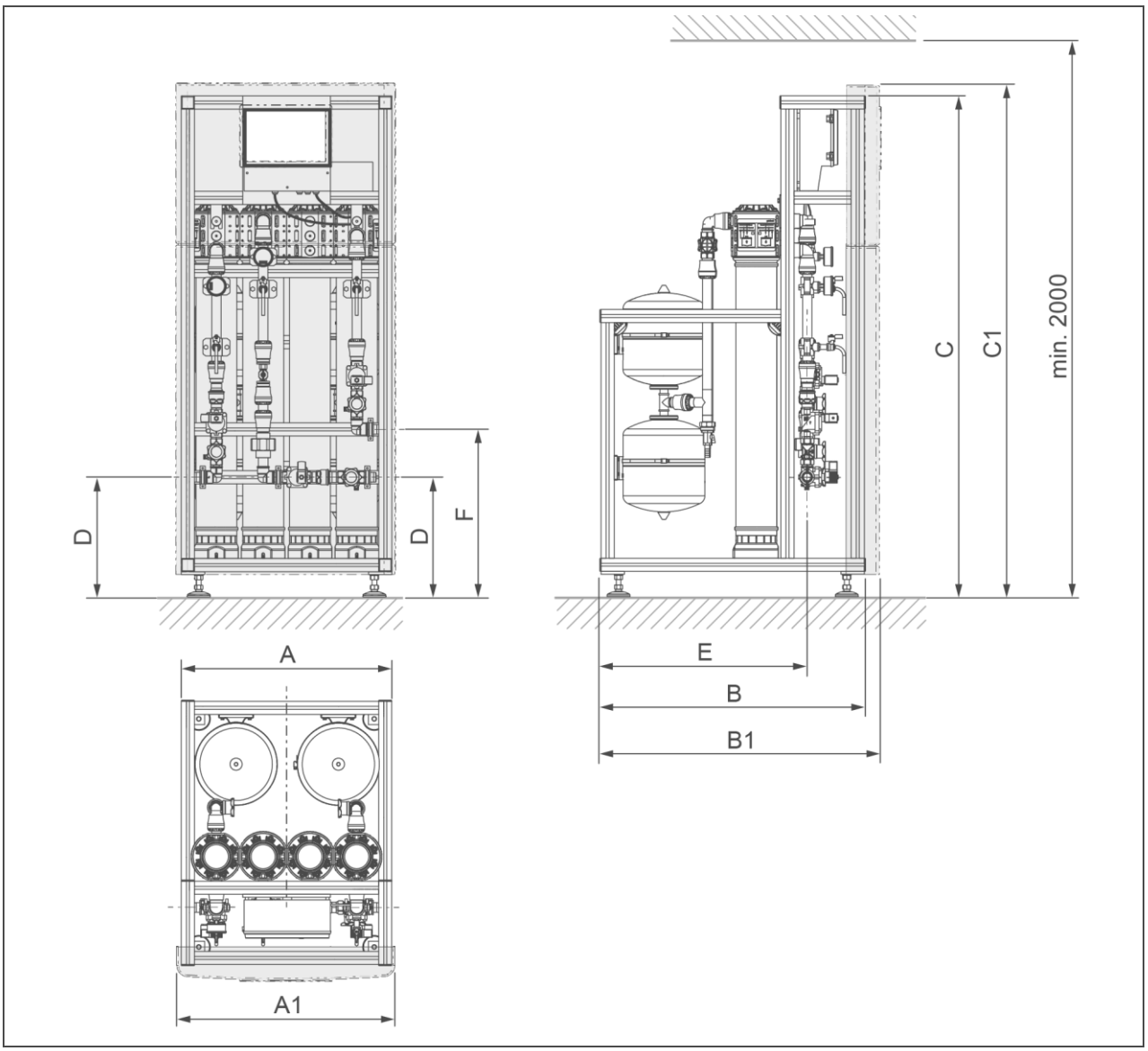
Design

- Ultrafiltration module(s)
- Anodised aluminium rack with adjustable feet
- Internal piping made of PE/PP (suitable for drinking water) including installed control fittings
- Solenoid valves to control the water flow
- Diaphragm expansion tank(s) for backwash processes with filtrate
- Flame-sterilisable sampling valves
- Pressure indicator for raw water inlet and filtrate outlet pressure (transmembrane pressure)
- Vortex flow sensor (wear-free) to show the actual flow and to archive the total flow
- Electric switch box with control electronics and display for fully automatic control of the ultraliQ:MA as well as indication of the operating state

Scope of supply

- Ultrafiltration system ultraliQ:SB – complete with internal piping, wiring and workshop testing
- Operation manual

Technical specifications I



Dimensions and weights			SB500	SB1000	SB1500	SB2000
A	System width	mm	720			
A1	System width including front cover	mm	750			
B	System depth	mm	900			
B1	System depth including front cover	mm	960			
C	System height	mm	1710			
C1	System height including front cover	mm	1750			
D	Connection height of raw water/filtrate outlet	mm	410			
E	Connection depth of raw water/filtrate outlet/back-wash water	mm	705			
F	Connection height Flushing water outlet	mm	572			
Operating weight, approx.		kg	105	155	205	255
Empty weight, approx.		kg	75	95	115	135

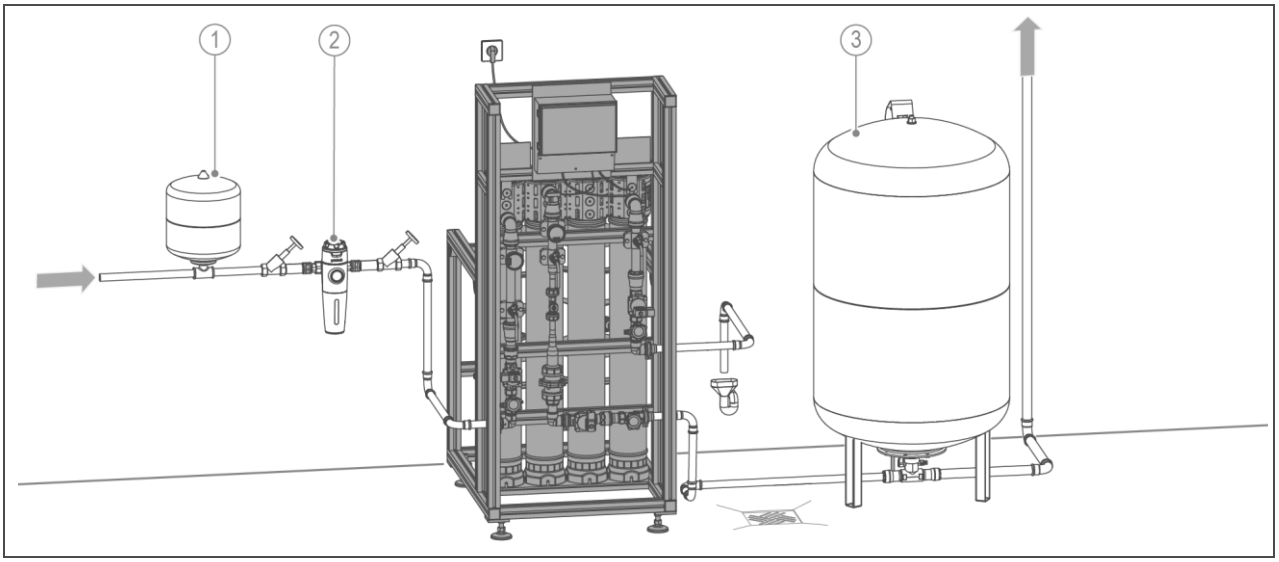
Technical specifications II

Connection data		**SB500**	**SB1000**	**SB1500**	**SB2000**
Nominal connection diameter of raw water inlet		DN 25 (1" m. thread)			
Nominal connection diameter of filtrate outlet		DN 25 (1" m. thread)			
Nominal connection diameter of backwash water (drain)		DN 25 (1" m. thread)			
Drain connection		DN 50	DN 80	DN 100	DN 125
Connected load, approx.	W	120			
Power supply	V/Hz	230/50			
Protection/protection class		IP54/⏚			

Performance data		**SB500**	**SB1000**	**SB1500**	**SB2000**
Nominal filtrate capacity	m³/h	0.5	1.0	1.5	2.0
Operating pressure					
For use with city water	bar	2.5 – 6.0			
For use with unpressurised tank installed downstream	bar	3.5 – 6.0			
For use with diaphragm expansion tank/pressurised water tank installed downstream	bar	4.5 – 6.0			
Number of ultrafiltration modules	Piece	1	2	3	4
Total of active membrane surface	m²	6.0	12.0	18.0	24.0
Nominal pore size of membrane (cut-off)	µm	0.02			
Recovery (standard setting), approx.	%	93			
Filtration interval (standard setting)	min	30			

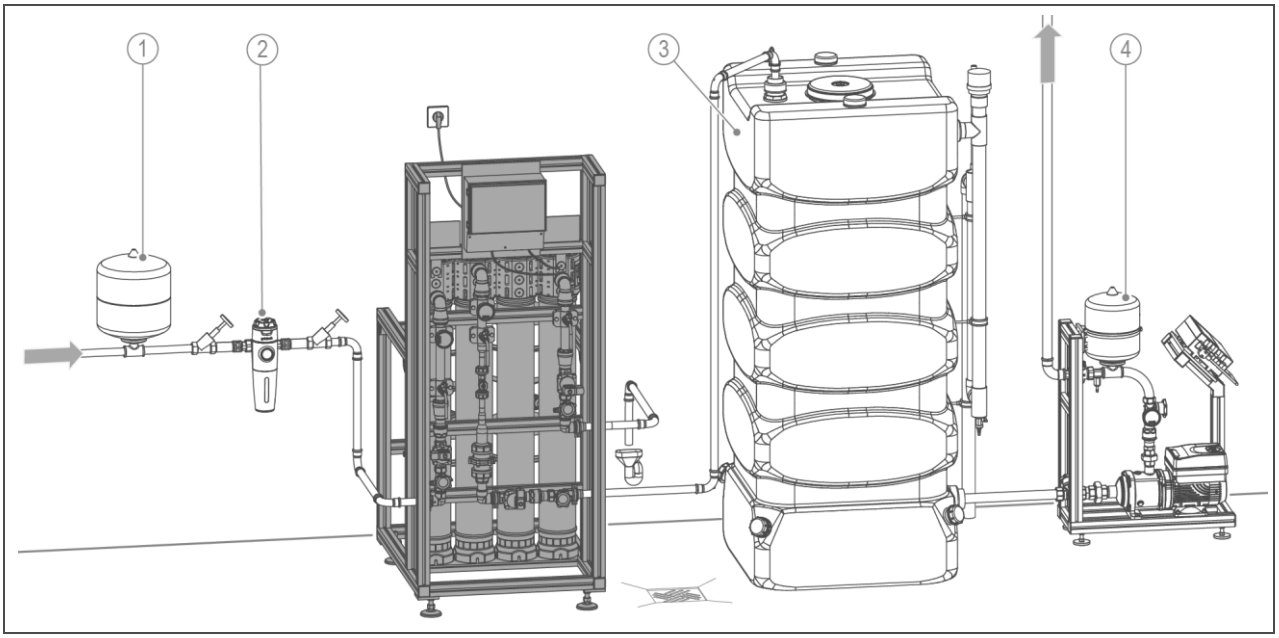
General data		**SB500**	**SB1000**	**SB1500**	**SB2000**
Water temperature (drinking water)	°C	5 – 20			
Ambient temperature (drinking water)	°C	5 – 25			
Water temperature (technical applications)	°C	5 – 35			
Ambient temperature (technical applications)	°C	5 – 35			
Air humidity (non-condensing)	%	≤ 70			
Order no.		**535 100**	**535 110**	**535 120**	**535 130**

Installation example: ultraliQ:SB2000 with diaphragm expansion tank/pressurised water tank



Item	Designation	Item	Designation
1	Diaphragm expansion tank	2	Fine filter with pressure reducer
3	Diaphragm expansion tank/pressurised water tank (buffer tank)		

Installation example: ultraliQ:SB2000 with unpressurised tank and pressure booster system



Item	Designation	Item	Designation
1	Diaphragm expansion tank	2	Fine filter with pressure reducer
3	Unpressurised tank	4	Pressure booster system

Installation requirements

The components below must be installed upstream and downstream of the system:

In case of private water supply:

- Upstream of the ultrafiltration system (on raw water side)
  - Well water pump[1] with pressure switch control by client on site
  - Diaphragm expansion tank to prevent water hammer (refer to accessories) by client on site
  - Fine filter (pore size ≤ 200 µm) with pressure reducer by client on site
- Downstream of the ultrafiltration system (on filtrate side)
  - Diaphragm expansion tank by client on site
  - or pressurised water tank by client on site
  - or pure water tank with pressure booster system by client on site to keep up the water supply during the flushing process (refer to accessories)

The installation site must provide protection from the impacts below:

- Moisture, wetness
- Environmental impacts such as wind, rain, snow, etc.
- Frost, direct sunlight, severe heat exposure
- Chemicals, dyes, solvents and their vapours

For electrical connection, a Schuko socket is required within a distance of approx. 1.2 m. The socket outlet requires permanent power supply and must not be coupled with light switches, emergency heating switches or the like.

The system must be accessible for maintenance and repair work. All necessary operating aisles and heights have to be kept free in addition to the depth/width/height of the system

- Front: 800 mm
- Left: 500 mm
- Right: 500 mm
- Height: 200 mm

An adequately dimensioned floor drain must be present. If no floor drain is available, the client must install a flushing water tank including waste water lifting system on site.

Lifting systems must be secured against power failure.

1) If the well pump is a centrifugal pump, it can be integrated via an enable signal of the ultraliQ control. By providing an on-site diaphragm expansion tank, the client must make sure that the switching cycles of the centrifugal pump can be maintained in a technically correct manner.

Accessories

Diaphragm expansion tank
DD 33, G ¾
Order no. 890 60 304
To prevent water hammer in the inlet of the ultrafiltration system if a pressurised water tank by client on site is used to store the filtrate

Diaphragm expansion tank
In addition to an existing diaphragm expansion tank or for new installations as water supply during the flushing process of the ultrafiltration system

DD 25, G ¾
Order no. 535 105

DT5 60, Rp 1¼
Order no. 535 115

DT5 80, Rp 1¼
Order no. 535 125

DT5 100, Rp 1¼
Order no. 535 135

DT5 300, Rp 1¼
Order no. 535 155

DT5 500, Rp 1¼
Order no. 535 165

Pressurised water tank
In addition to an existing pressurised water tank or for new installations as water supply during the flushing process of the ultrafiltration system

150 l, 6 bar
Order no. 530 505

300 l, 6 bar
Order no. 530 515

500 l, 6 bar
Order no. 530 525

750 l, 6 bar
Order no. 530 535

1000 l, 6 bar
Order no. 530 545

Basic pure water tank
GT 1000 (standard)
Order no. 712000010000
With GENO-Multi Niveau, with overflow, without sterile air filter

Basic pure water tank
GT 1000 (aerated with sterile air)
Order no. 712000020000
With GENO-Multi Niveau, with overflow and siphon, with sterile air filter

Tanks for drinking water applications:
– Available upon request –

Pressure booster system

GENO-HR-X 2/40-1 N
Order no. 730 460
Automatically controlled via pressure and flow controller
from 1.0 m³/h at 54.0 mWC up to 4.2 m³/h at 24.0 mWC

GENO-FU-X 2/40-1 N
Order no. 730 640
Automatically controlled via pressure and frequency converter
from 1.0 m³/h at 56.0 mWC up to 4.4 m³/h at 25.0 mWC

Optional accessories

Front cover for ultraliQ:SB,
Order no. 535 138

Controller S7-1200 for ultraliQ
Order no. 535 060

Mobile cleaning system CIP:UF60
Order no. 778 100
for chemical cleaning of ultrafiltration systems

Contact

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