

Filter system GENO-mat F 500/600 AK, AC Eco

Intended use

The GENO-mat F filter system is designed for the filtration and heating up of pool water in private swimming pools, whirlpools or ornamental pools. Other applications (e. g. well or circulation filtration) are possible upon consultation with Grünbeck.

Function

The pool water to be filtered is drawn by a circulation pump and directed to the filter via the piping and an upper distribution system.

In the filter tank, the pool water flows through the filter layers from top to bottom. The upper and lower distribution systems ensure a uniform flow through the system.

As the water flows through the filter layers, finest dirt particles are filtered off. The filtered pool water flows back into the pool via the lower distribution system, the piping and the compact heat exchanger installed downstream. The lower distribution system is designed in a way that the filter material remains in the filter tank.

Thanks to the compact heat exchanger, the filtered pool water can be heated by an on-site heating provided by the client, if required.

The retention of the dirt particles increases the filter resistance and the pressure indicator (pressure gauge) of the filter rises.

If the pressure increases by 0.2 – 0.3 bar above the initial pressure, the filter must be backwashed. Irrespective of the increase in pressure, the filter should be backwashed on one or several days a week - depending on the load of impurities. For hygiene reasons, the filter must be backwashed at least once a week, however.

During the filter backwash, the multi-way valve deviates the backwash water in a way that it flows into the filter via the lower distribution system. That way, the various filter layers are lifted, flown through and the dirt particles are discharged to the drain via the upper distribution system.

Following the filter backwash, subsequent flushing, also called first filtrate, takes place. Here, the abraded filter material and dirt particles in the lower distribution system are discharged to the drain. The flow is directed through the filter from top to bottom.

The outflowing backwash water as well as the first filtrate can be monitored via a transparent pipe section on the multi-way valve.

At the speed-controllable circulation pump, 3 individual speeds (filtration, backwash, partial-load operation) can be set.

The filter system is controlled by means of the GENO-BW-tronic control unit.

Together with the optional module FU Eco-BW-tronic, it activates the speed-controllable circulation pump, the electrical actuator and the heating pump of the installed compact heat exchanger in automatic systems.

Subject to the operating state, one of the 3 speeds of the speed-controllable circulation pump is activated.

If the system is in the operating state "Filtration" (timer programming or continuous operation), the speed "Filtration" is activated. If the pool water is to be heated, this is communicated to the external heating and the heating pump switches on.

With an additional contact "Partial load operation", coming in from an optional measuring and control system for instance, the speed "Partial load operation" is activated during the operating time of the filter.

If the system is in the operating state "Filter backwash" (timer programming or manual release), the speed "Backwash" is activated.

• Product Data Sheet

Filter system GENO-mat F 500/600 AK, AC Eco

Application limits

Use of the filter system is restricted by the following limit conditions:

- Free chlorine: max. 1.4 mg/l (for a short time up to 10 mg/l)
- Chloride content: max. 500 mg/l
- Do not operate with salt water/ seawater or brine
- The filter system must not be used with salt water electrolysis processes
- The filter system must not be used with ozone disinfection

Design

- Filter tank made of glass fibre reinforced plastic (GRP)
 - Manufactured using a hand lamination process
 - Lower distribution system in the shape of a star, made of PP
 - Upper distribution system for optimum and steady water distribution during filtration and optimum discharge of the backwash water during filter backwash

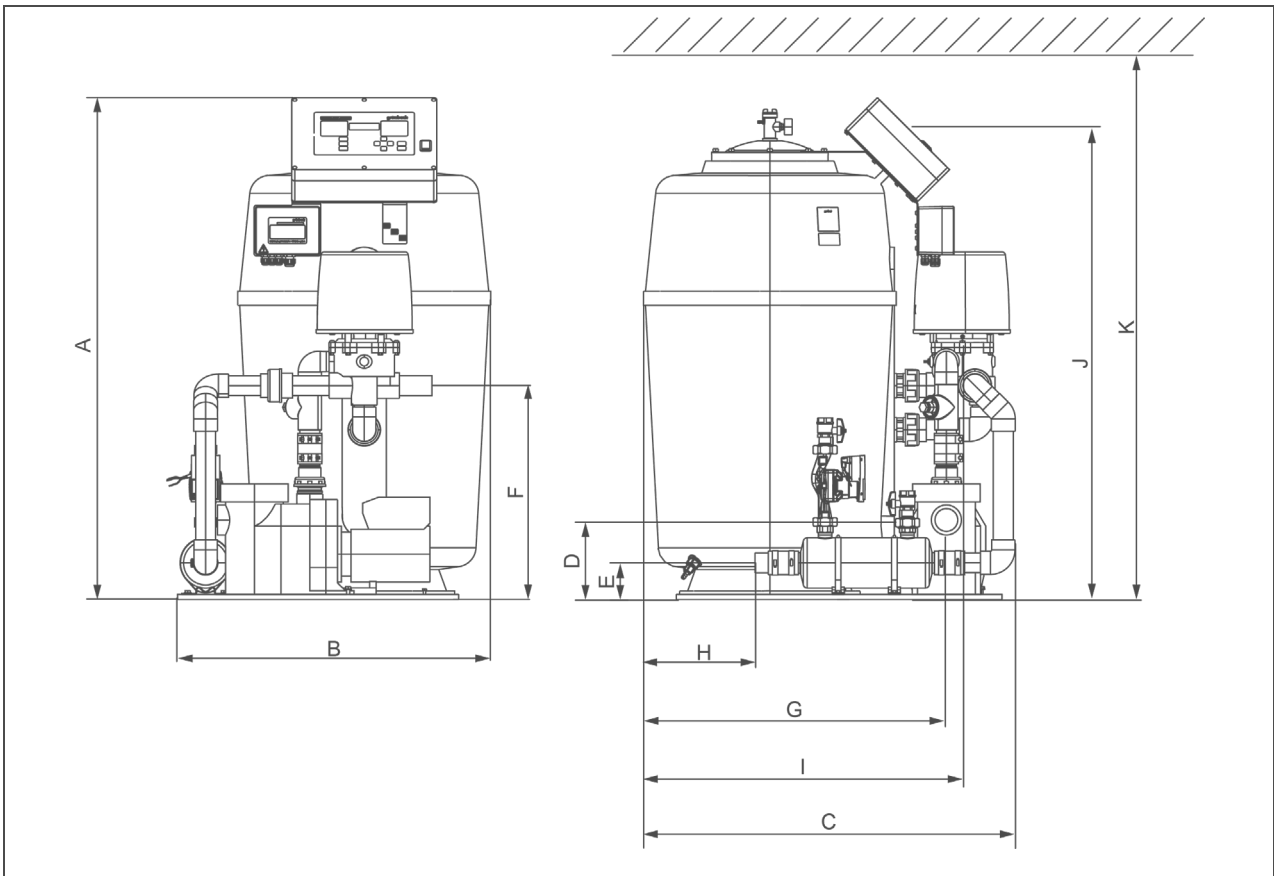
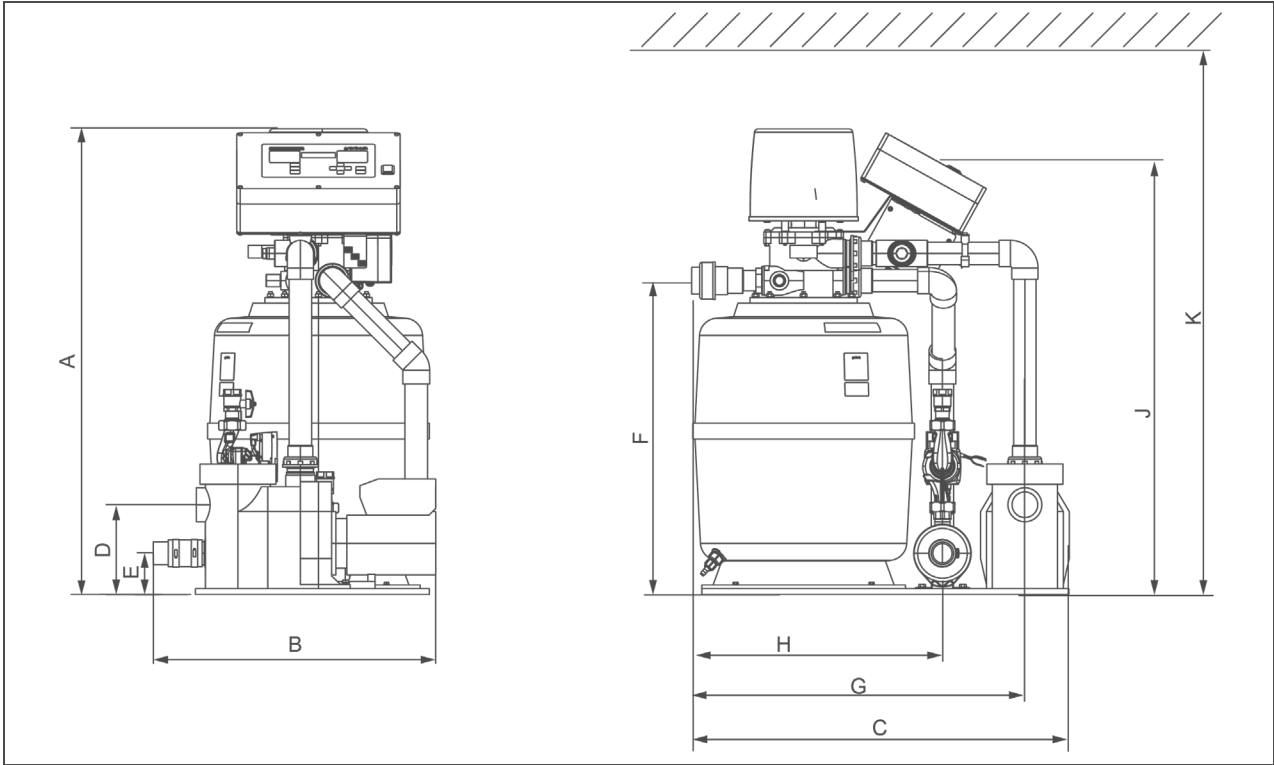
- Black tank lid and multi-layer valve with pressure gauge
- Manual aeration and ventilation
- Draining valve
- According to Pressure Equipment Directive 97/23 EC
- Speed-controllable, self-priming circulation pump made of plastic (low-noise version with integrated hair and fibre strainer)
- Piping made of PVC-U with a water withdrawal point for optional measuring and control system
- Automatic multi-way valve with electric actuator
- Compact heat exchanger made of stainless steel (V4A) including highly efficient heating pump and ball valves
- Control unit GENO-BW-tronic
 - For semi or fully automatic operation of the filter system via timer programming
 - With two-point temperature controller and temperature sensor

- With numerous inputs and outputs
- With serial interface RS 485
- Indication and operation via plastic foil keypad and LC display
- Menu in 6 languages
- Optional module FU Eco-BW-tronic

Scope of supply

- Filter system, completely pre-assembled and packed on a pallet
- Operation manual

Technical specifications I



• **Product Data Sheet**

Filter system GENO-mat F 500/600 AK, AC Eco

Dimensions and weights			
GENO-mat F			
Order no.		500 AK, AC Eco 240 495	600 AK, AC Eco 241 495
A	System height [mm]	1025	1250
B	System width [mm]	625	780
C	System depth [mm]	834	926
D	Height of raw water connection [mm]	198	198
G	Height of filtrate connection [mm]	91	91
H	Height of backwash water connection (drain) [mm]	692	523
G	Connection depth of raw water connection [mm]	735	755
H	Connection depth of filtrate [mm]	554	278
I	Connection depth of backwash water connection (drain) [mm]	-	755
J	Operating height [mm]	960	1160
K	Min. room height [mm]	1200	1600
Ø	Filter tank [mm]	510	630
	Empty weight, approx. [kg]	49	80
	Filter system incl. filter material, approx. [kg]	112	241

Technical specifications II

Connection data GENO-mat F Order no.		500 AK, AC Eco 240 495	600 AK, AC Eco 241 495
Nominal connection diameter of raw water		Rp 2"	
Nominal connection diameter of filtrate		DN 40	
Nominal connection diameter of backwash water (drain)		DN 40	
Nominal connection diameter on heating side Compact heat exchanger		1" (female thread)	
Withdrawal point for measuring water		3/8" (female thread)	
Drain connection/floor drain required		DN ≥ 100	
Power supply of filter controller	[V/Hz]	230/50	
Protection/protection class of filter controller		IP54/⊕	
Power input of filter controller ¹	[W]	8.4	
Fuse protection of filter controller by client	[A]	6	
Speed-controllable circulation pump		GENO-Prime-Eco-VS	
Power supply of circulation pump	[V/Hz]	230/50	
Protection/protection class of circulation pump		IP55/⊕	
Power input of circulation pump	[kW]	0.08 – 1.40	
Current consumption of circulation pump ²	[A]	0.65 – 6.10	
Fuse protection of circulation pump by client	[A]	16	

¹ Filter controller in standby without any other electrical consumers (e.g. heating circulation pump).

² According to the standard, the rated current for pumps can be up to 20 % higher than the manufacturer's specification (indication on type plate).

Performance data			
Nominal pressure		PN 2	
Max. operating pressure on heating side	[bar]	6	
Filter/backwash capacity ³	[m ³ /h]	6/8	12/15
Pump capacity (at 8 mWC)	[m ³ /h]	≤ 24	
Max. pool volume	[m ³]	35	70
Max. suction height	[m]	3	
Max. inlet height on suction side of pump	[m]	3	
Min. heating circulation	[m ³ /h]	2	
Heat output (supply 90°C, BW 20 °C)	[kW]	≤ 42	
Heat output (supply 60°C, BW 20 °C)	[kW]	≤ 24	

³ Provide for an additional 10 % if the backwash water is directed to a waste water lifting system.

General			
Water temperature	[°C]	5 – 40	
Ambient temperature	[°C]	5 – 35	
Max. humidity of air (non-condensing)	[%]	90	
Order no.		240 495	241 495

Installation requirements

Obey local installation directives, general guidelines and technical specifications.

The following requirements are placed on the installation site:

- Must be frost-proof and ensure the system's protection from chemicals, dyes, solvents and vapours.
- Must be sufficiently ventilated and must not be prone to flooding.
- Should be located below the water level (max. 3 m). In exceptional cases, the circulation pump may be installed max. 3 m above the water level.
- A foundation of sufficient size and adequate load-bearing capacity must be provided.
- The system must be easily accessible for maintenance and repair work.
- Take into consideration the minimum room height.
- Regarding the power supply to be provided by the client on site, a power outlet that has its own ground fault circuit interrupter (30 mA) is required.

- The electrical connection is made via a 230 V/50 Hz AC network.
- The GENO-BW-tronic controller and the speed-controllable circulation pump each feature a mains cable (3 m) including a mains plug.
- Two shock-proof sockets are required for electrical connection.
- The backwash water line must be directed to a drain pipe as a free outlet according to DIN EN 1717.
- To discharge the backwash water, a chemical-resistant drain connection is required in the floor.
- In case the backwash water is directed to a lifting system, make sure that said device is resistant to chemicals.
- A floor drain must be present. If no floor drain is available, an appropriate safety device must be installed. Floor drains that discharge to a lifting system do not work in case of a power failure.

Accessories

Touch panel 5.7"

Order no. 203 545

Remote control and remote display of all relevant components for interconnection of GENO-BW-tronic and measuring and control unit GENO-CPR-tronic 02.

Consumables

Quartz sand filter filling F 500

Order no. 200 840

AFM filter filling F 500

(glass granulate)

Order no. 240 180

Quartz sand filter filling F 600

Order no. 200 560

AFM filter filling F 600

(glass granulate)

Order no. 241 800

Hydro-anthrasite filter filling F 600

Order no. 200 565

Contact

Grünbeck Wasseraufbereitung GmbH
Josef-Grünbeck-Str. 1
89420 Hoehstaedt
GERMANY

☎ +49 9074 41-0

☎ +49 9074 41-100

✉ info@gruenbeck.com
www.gruenbeck.com

