

Backwash filters MRA25/MRA32

Intended use

The MRA backwash filters are designed for the filtration of drinking and industrial water.

The filters are suitable for the filtration of process, boiler feed, cooling and air conditioning water (only in partial flow).

The filters protect the water pipes and connected water-carrying system parts from malfunctions and corrosion damage due to undissolved impurities (particles) such as rust particles, sand, etc.

Application limits

- Water temperature $\leq 90^\circ\text{C}$
- Water temperature $\leq 30^\circ\text{C}$ when used in the drinking water sector (DVGW)
- Pressure range ≤ 16 bar
- Pressure range ≤ 10 bar in case of a media temperature of 90°C
- Not suitable for circulation water treated with chemicals
- Not suitable for media such as oils, greases, solvents, soaps and other lubricating media, nor for the separation of water-soluble substances
- Not suitable for installation in vertical water pipes

The filters are designed according to the stipulations of DIN EN 13443-1 as well as DIN 19628 and are intended for installation into drinking water system according to DIN EN 806-2 (installation immediately downstream of the water meter).

Mode of operation

The unfiltered raw water flows into the filter from the inlet side and from the inside out through the filter element and to the pure water outlet. Thus, foreign particles $> 100\ \mu\text{m}$ in size are retained.

Depending on their size and weight, foreign particles stick to the filter element or they fall straight down into the filter funnel.

Due to the growing contamination of the filter element, the differential pressure between the raw water inlet and the pure water outlet increases.

The differential pressure can be read at the pressure gauges, by way of the pressure sensors available as an option.

The backwash process is activated automatically by the integrated control unit and carried out by the drive unit on the filter head. The lower suction nozzle is lifted and the drain outlet is open.

During the turning motion, the brush turns as well and sweeps over the filter surface of the filter element. The filter element is cleaned.

The impurities are removed by the brush and the suction nozzle sucks them into the drain outlet.

A backwash can be triggered manually at any time via the control unit, which has the following connection options for signal forwarding and remote monitoring:

- Bus interface (Modbus RTU)
- Fault signal contact

- Programmable input

Options

When optional pressure sensors are used, the control unit can also start a backwash via an adjusted differential pressure.

An optional safety solenoid valve closes the drain outlet in the event of a power failure and prevents further water discharge.

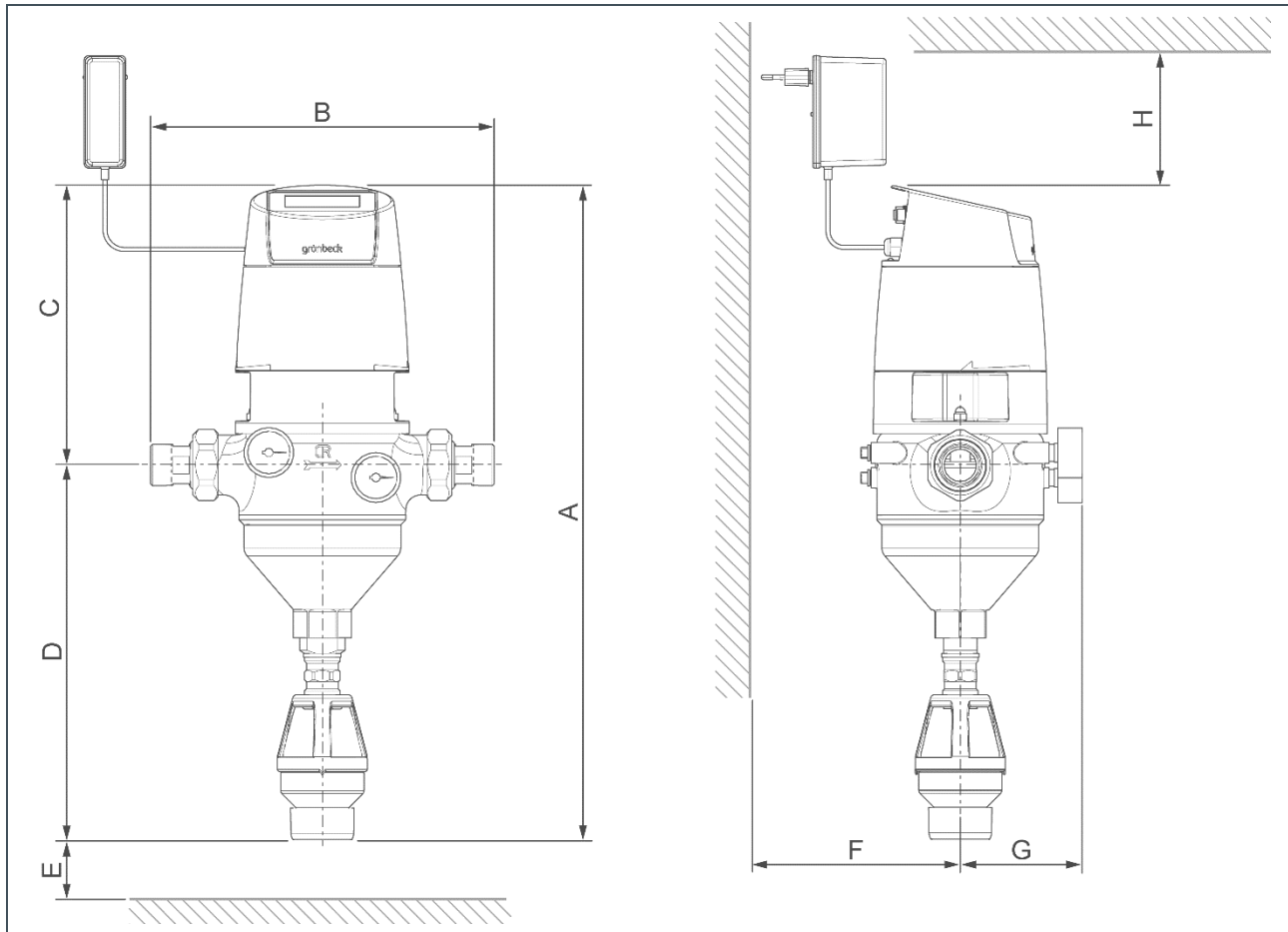
Structure

- Filter housing made of brass with a low level of dezincification
- Modular filter element made of high-grade, industrial plastic with filter mesh ($100\ \mu\text{m}$) made of stainless steel
- Flushing water connection with free outlet according to DIN EN 1717 for DN 50
- Pressure gauge for inlet and outlet pressure
- Control unit with display and power supply unit
- All water contacting parts comply with the German Drinking Water Ordinance

Scope of supply

- Backwash filter complete, including 2 pressure gauges 0 – 16 bar
- Water meter screw connection
- Flushing water connection
- Power supply unit with euro connector
- Operation manual

Technical specifications



Dimensions and weights				MRA25	MRA32
A	Total height		mm	526	526
B	Installation length	with screw connection	mm	276	281
		without screw connection	mm	190	190
C	Overall height above centre of connection		mm	225	225
D	Overall height up to centre of connection		mm	301	301
E	Clearance required for the replacement of the filter element		mm	≥ 215	≥ 215
F	Distance to wall		mm	≥ 90	
G	Overall depth up to centre of connection		mm	95	
H	Space above upper edge of filter		mm	≥ 80	
	Empty weight		kg	~ 5.6	~ 5.7

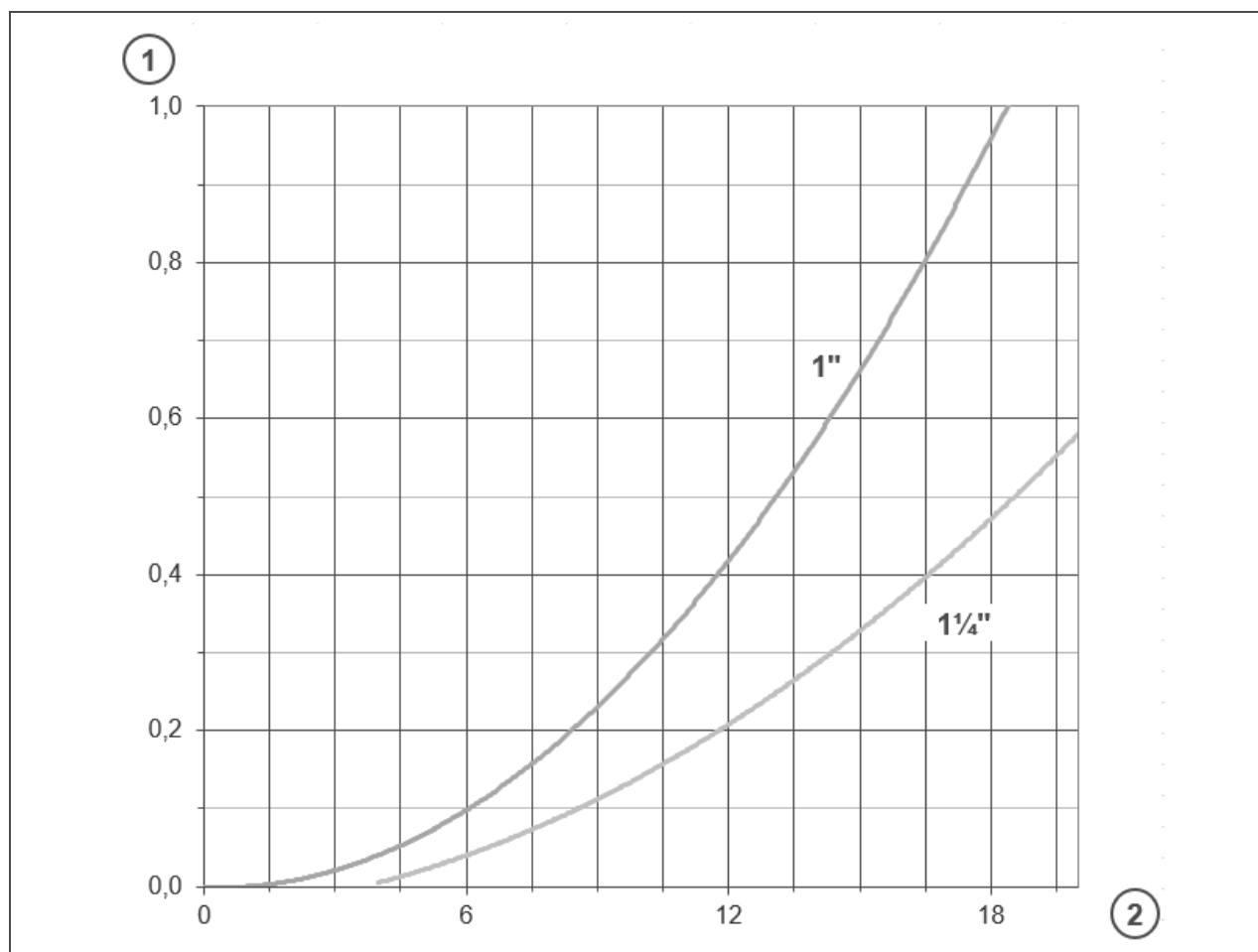
Connection data			MRA25	MRA32
Nominal connection diameter			DN 25	DN 32
Connection diameter			1"	1¼"
Drain connection			DN 50	
Mains connection				
Power supply unit	Rated voltage range	V~	100 – 240	
	Rated frequency	Hz	50/60	
Filter	Voltage	V=	24	
	Current input	A	≤ 2.5	
	Electrical power consumption	W	≤ 60.0	
Protection class			□	
Cable length		mm	~ 2000	
Adapter for power supply unit	Taiwan		A/B (110 V/60 Hz)	
	Uni Euro zone		C (230 V/50 Hz)	

Performance data			MRA25	MRA32
Nominal flow at Δp 0.2 (0.5) bar	m³/h		8.5 (13.0)	12 (18.5)
Kv value	m³/h		18	25
Pore size	µm		100	
Largest/smallest pore size	µm		110/90	
Operating pressure	bar		2 – 16	
Operating pressure at a water temperature of 90°C	bar		≤ 10	
Nominal pressure			PN 16	

Consumption data			MRA25	MRA32
Backwash water volume at a water pressure of 3 bar and a backwash time of 1.5 min	l		~ 40	
Backwash volume flow at 9 bar	m³/h		~ 4.0	
Differential pressure adjustable (factory setting 0.4 bar)	bar		0.2 – 1.0	

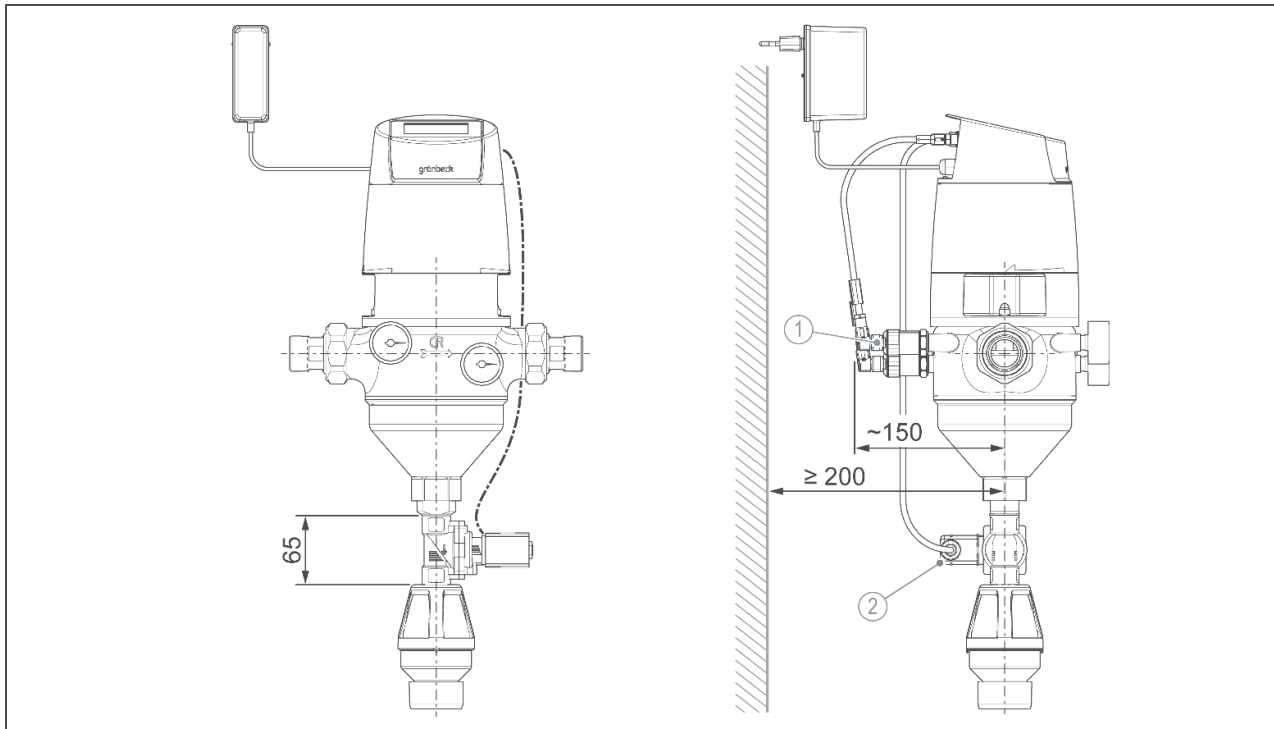
General data			MRA25	MRA32
Water temperature (drinking water applications)	°C		5 – 30	
Water temperature	°C		5 – 90	
Ambient temperature	°C		5 – 40	
DVGW registration number				NW-9301DO0260
ÜA registration number				R-15.2.3-21-17496
The Office of the Vienna Provincial Government – City of Vienna				R-15.2.1-22-17624
Order no.				107000080000
				107000090000

Pressure loss curves of MRA25 (1") and MRA32 (1¼")



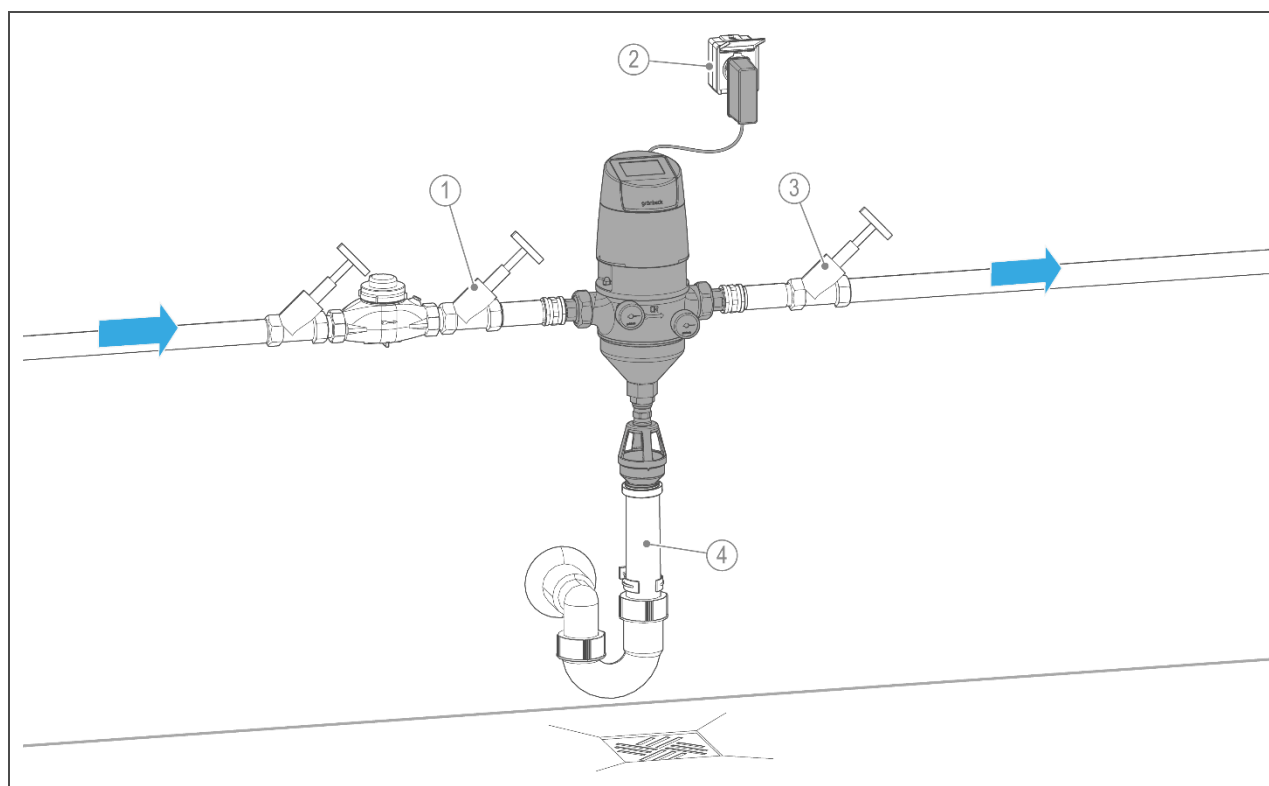
Item	Designation	Item	Designation
1	Pressure loss in bar	2	Flow rate in m³/h

Technical specifications with optional accessories



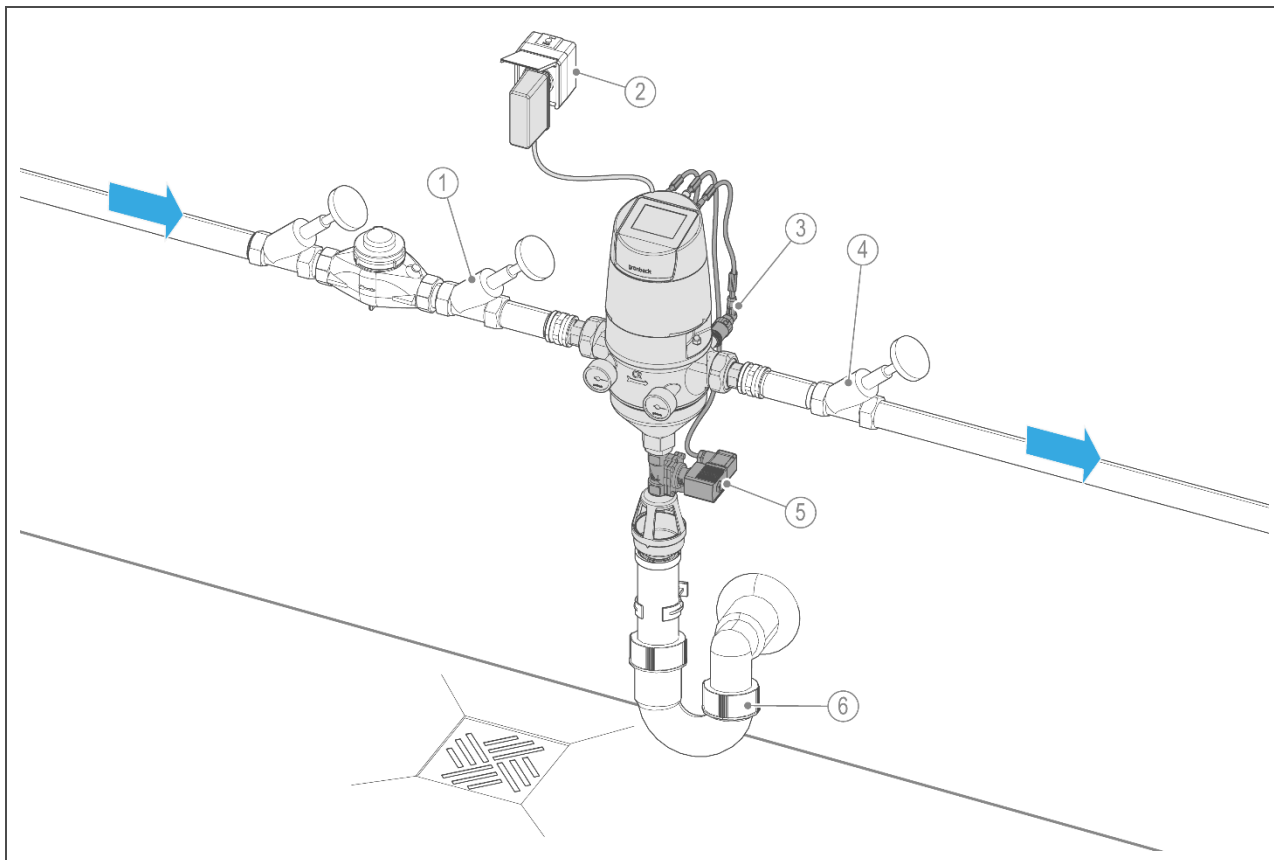
Item	Designation	Item	Designation
1	Pressure sensors	2	Safety solenoid valve
Technical specifications		Pressure sensors	
Threaded connection		G1/8	
Pressure range	bar	0 – 16	
Electrical connection		Circular connector M12 (female connector, A coding)	
Output signal	mA	4 – 20	
Precision		+/- 0.5 % MSP	
Protection		IP67	
Connecting line		M12, 3-pin (female connector, A coding) for M8 (plug, A coding)	
Order no.		107000160000	
Technical specifications		Safety solenoid valve	
Threaded connection		G1/2	
Nominal diameter		DN 13	
Pressure range	bar	0.2 – 16	
K _V value	m ³ /h	3.8	
Electrical connection		Connector socket type A	
Voltage supply	V=	24	
Wattage	W	8.0	
Protection		IP65	
Connecting line		2-pin connector socket (plug, type A) for M12, 4-pin (plug, A coding)	
Order no.		107000150000	

Installation example



Item	Designation	Item	Designation
1	Inlet shut-off valve	2	Socket
3	Outlet shut-off valve	4	Drain connection provided by the client on site

Installation example with optional accessories



Item	Designation	Item	Designation
1	Inlet shut-off valve	2	Socket
3	Inlet and outlet pressure sensors (optional)	4	Outlet shut-off valve
5	Safety solenoid valve (optional)	6	Drain connection provided by the client on site

Requirements for the installation site

Please observe local installation directives, general guidelines and technical specifications.

- Protection from frost, severe heat exposure and direct sunlight
- Protection from chemicals, dyes, solvents and their vapours
- Ambient temperature and radiation temperature in the immediate vicinity
 - $\leq 25\text{ °C}$ for applications in the drinking water sector
 - $\leq 40\text{ °C}$ for purely technical applications
- Protection from heat sources in the drinking water sector (e.g.

heating systems, boiler and warm water pipes)

- Access for maintenance work (take required space into consideration)
- Sufficiently illuminated as well as aerated and ventilated

Water installation

- Floor drain or corresponding safety device with water stop function
- Drain connection $\geq \text{DN } 50$
- Shut-off valves upstream and downstream of the product

Electrical installation

- Socket with continuous power supply (approx. 1.2 m max. from the control unit)
 - The socket must not be coupled with light switches, emergency heating switches or the like.
 - The socket must not be located below the filter and the water pipe.
- The filters are exclusively designed for operation and use with safety extra low voltage.

Accessories

Filer elements DN 25 (1"), DN 32 (1¼")

As per DIN EN 13433-1, filter elements with pore sizes of 50 µm, 200 µm and 500 µm are not permitted for drinking water systems.

Order no.:

107 052 Filter element	50 µm
107 061 Filter element	100 µm
107 072 Filter element	200 µm
107 082 Filter element	500 µm

Safety solenoid valve Order no. 107000150000

Normally closed safety solenoid valve as an additional safety device.

- Prevents inadmissible water discharge during a backwash, e.g. in the event of a power failure or a defect on the filter (e.g. larger dirt particles block a complete closing of the drain valve)

Pressure sensors Order no. 107000160000

To measure the water pressure at the inlet and the outlet of the filter

- A backwash is released via a limit value for the differential pressure programmed in the control unit.

Interchangeable adapter Taiwan (10 pieces)

Order no. 100212510001

For plug-in power supply unit 24 VDC/60 W, optional for use in Taiwan

- 110 V/60 Hz, type A/B

Cable screw connection set Order no. 100221330001

For the installation of the external signal lines on the control head

- Cable gland M12 with sealing insert for 1 or 2 cables
- Cable gland M20 with sealing insert for 3 or 4 cables

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