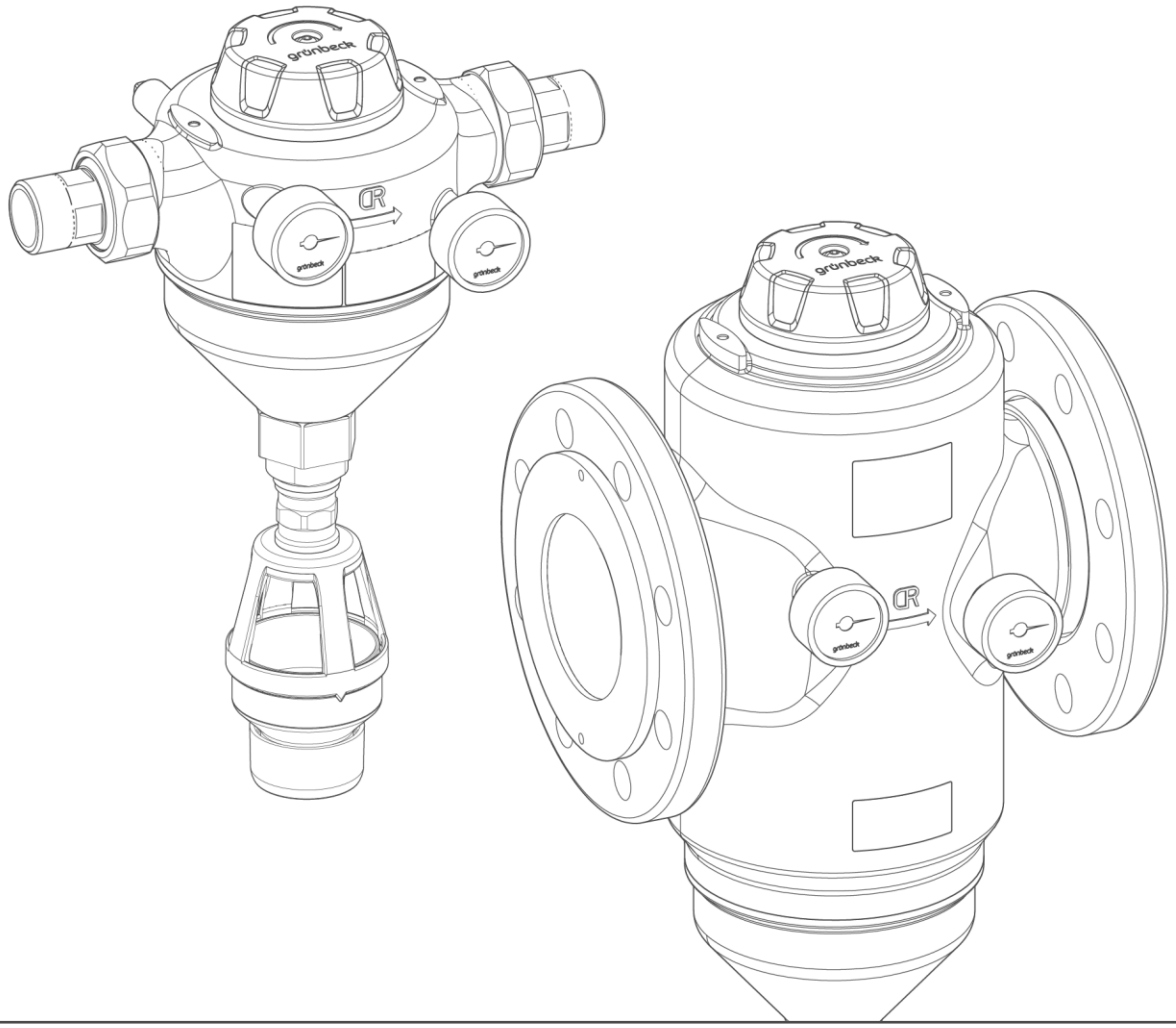
Your language

qr.gruenbeck.de/039

We understand water.



Backwash filter | MR25 – MR100

Operation manual

grünbeck

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Monday to Thursday
7:00 am - 6:00 pm

Friday
7:00 am – 4:00 pm

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Table of contents

1 Introduction

This manual is intended for owners/operating companies, users, as well as qualified specialists, and ensures the safe and efficient handling of the product. The manual is an integral part of the product.

- Carefully read this manual and the component instructions contained therein before you operate your product.
- Comply with all safety information and handling instructions.
- Keep this manual and all other applicable documents, so that they are available when needed.

Illustrations in this manual are for basic understanding and can differ from the actual design.

1.1 Validity of the manual

This manual applies to following products:

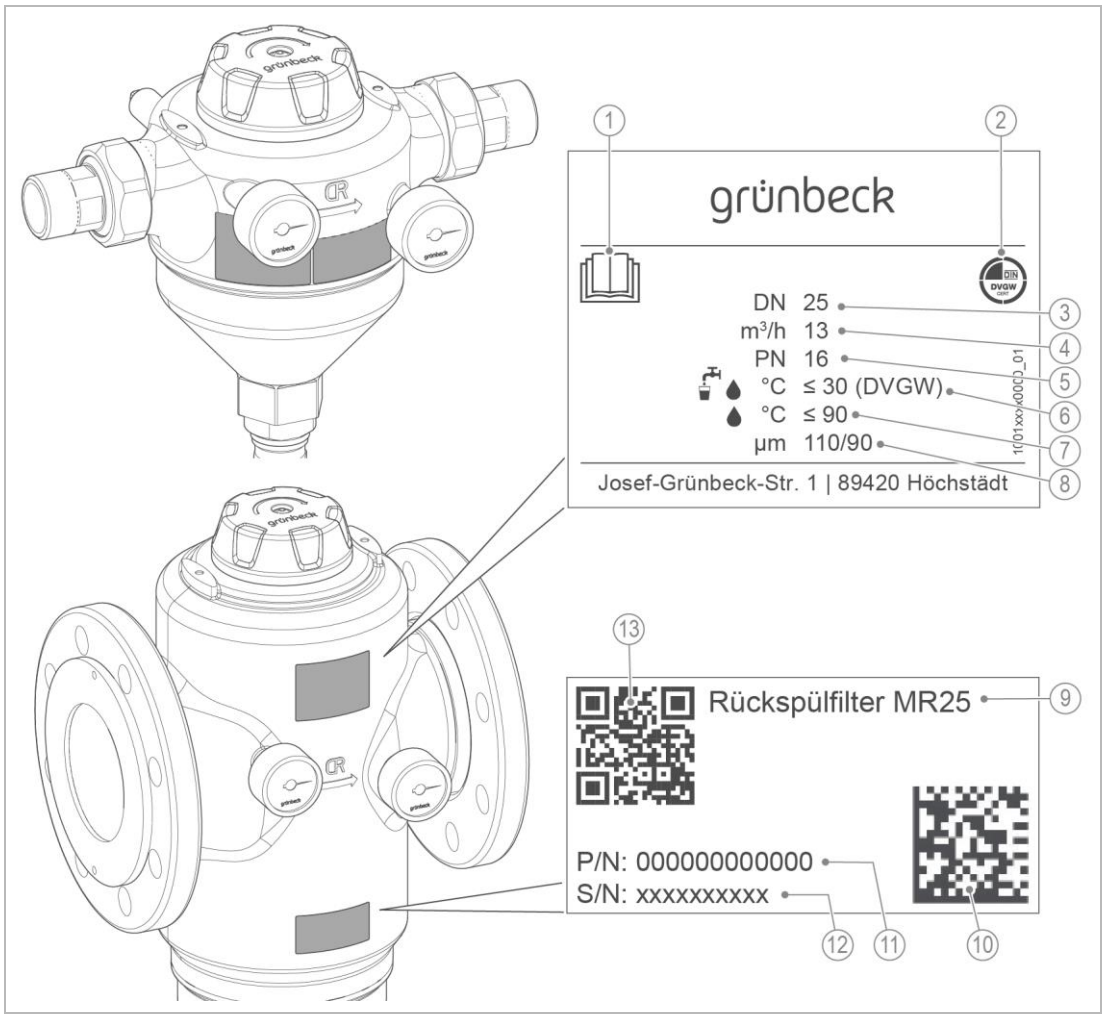
- Backwash filter MR25
- Backwash filter MR32
- Backwash filter MR40
- Backwash filter MR50
- Backwash filter MR65
- Backwash filter MR80
- Backwash filter MR100

1.2 Product identification

You can identify your product by means of the product designation and the order number on the type plate.

► Check whether the products indicated in chapter 1.1 correspond to your product.

The type plate is located on the front and the rear of the filter housing.



	Designation
1	Observe the Operation Manual
2	DVGW test mark
3	Nominal connection diameter
4	Nominal flow
5	Nominal pressure
6	Water temperature in the drinking water sector
7	Maximum water temperature

	Designation
8	Max./min. pore size
9	Product designation
10	Data matrix code
11	Order no.
12	Serial no.
13	QR code

1.3 Symbols used

Symbol	Meaning
	Danger and risk
	Important information or prerequisite
	Useful information or tip
	Written documentation required
	Reference to further documents
	Work that must be carried out by qualified specialists only
	Work that must be carried out by technical service personnel only

1.4 Depiction of warnings

This manual contains information with which you must comply for your own personal safety. The information and instructions are highlighted by a warning symbol and are structured as shown below:

SIGNAL WORD Type and source of the hazard

- Possible consequences

► Preventive measures

The following signal words are defined depending on the degree of danger and may be used in this document:

Warning symbol and signal word		Consequences if the information/instructions are ignored
 **DANGER**	Personal injury	Death or serious injuries
 **WARNING**		Possible death or serious injuries
 **CAUTION**		Possible moderate or minor injuries
NOTE	Damage to property	Possible damage to components, the product and/or its functions, or anything in its vicinity

1.5 Demands on personnel

During the individual life cycle phases of the product, different people carry out work on the product. The respective tasks require different skills.

1.5.1 Qualification of personnel

Personnel	Prerequisites
Operator/user	• No special expertise • Knowledge of the tasks assigned • Knowledge of possible dangers in case of inappropriate behaviour • Knowledge of necessary protective equipment and protective measures • Knowledge of residual risks
Owner/operating company	• Product-specific expertise • Knowledge of statutory regulations on work safety and accident prevention
Qualified specialist • Electrical engineering • Sanitary engineering (HVAC and plumbing) • Transport	• Professional training • Knowledge of relevant standards and regulations • Knowledge of detection and prevention of potential hazards • Knowledge of statutory regulations on accident prevention
Technical service (Grünbeck's technical service/authorised service company)	• Extended product-specific expertise • Trained by Grünbeck

1.5.2 Authorisations of personnel

The following table describes which activities are allowed to be performed by whom.

		Operator/ user	Owner/ operating company	Qualified specialist	Technical service
Transport and storage			X	X	X
Installation and mounting				X	X
Start-up				X	X
Operation and handling		X	X	X	X
Cleaning		X	X	X	X
Inspection		X	X	X	X
Maintenance	semi-annually	X	X	X	X
	Annually			X	X
Troubleshooting			X	X	X
Repair				X	X
Shutdown and restart				X	X
Dismantling and disposal				X	X

1.5.3 Personal protective equipment

► As an owner/operating company, ensure that the required personal protective equipment is available.

The following components fall under the heading of personal protective equipment (PPE):

Protective gloves

Protective footwear

2 Safety

2.1 Safety measures

- Only operate your product if all components are installed properly.
- Obey the local regulations on drinking water protection, accident prevention and occupational safety.
- Do not make any changes, alterations or extensions on your product. Only use genuine spare parts for maintenance or repair.
- Keep the premises locked to prevent unauthorised access and to protect endangered or untrained persons from residual risks.
- Comply with the maintenance intervals (refer to chapter 8.2). Failure to comply can result in the microbiological contamination of your drinking water system.
- Be aware of a possible risk of slipping due to leaking water on the floor.

2.1.1 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- For all work on the product that cannot be carried out from the ground, use stable, safe and self-standing access aids (e.g. stepladders).
- Make sure that the product is properly secured, and that the stability of the product is always guaranteed.
- Potential risk of pinching and cuts on threaded connections. Use protective gloves when connecting the product and during maintenance work.

2.1.2 Pressure-related hazards

- Components can be under pressure. There is a risk of injuries and damage to property due to escaping water and unexpected movement of components. Check the pressure lines and the product for leaks at regular intervals.
- Before starting repair and maintenance work, make sure that all affected components are depressurised.

2.1.3 Group of persons requiring protection

- Children should be supervised to ensure that they do not play with the product.
- This product must not be used by persons (including children) with limited abilities, lack of experience or knowledge. Unless they are supervised, have been instructed on the safe use of the product and understand the resulting hazards.
- Cleaning and maintenance must not be carried out by children.

2.2 Product-specific safety instructions

WARNING Excessive contamination of the filter element

- Health risk due to contamination of the drinking water.

► Comply with the intervals and recommendations for inspection and maintenance of the filter.

When using the product in hot water filtration, e.g. for heating water:

WARNING Hot water and hot surfaces

- Burns due to hot surfaces of components at temperatures of more than 55 °C.
- Scalding due to escaping hot water, e.g. during backwash.

► For hot water filtration, install a fixed waste water pipe on the flushing water connection of the filter.

► Use suitable protective gloves when working on the product.

Labels on the product

	Hot surfaces/medium

In case of hot water filtration make sure that the product is labelled for risk of hot water.

The affixed information and pictograms must be clearly legible.
They must not be removed, soiled, or painted over.

► Comply with all warnings and safety instructions.

► Immediately replace illegible or damaged symbols and pictograms.

2.3 Conduct in emergencies

2.3.1 In case of water leaks

1. Close the shut-off valves for the water flow upstream and downstream from the product.
2. Locate the leak.
3. Eliminate the cause of the water leak.

3 Product description

3.1 Intended use

- The MR 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.
- 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).

3.1.1 Application limits

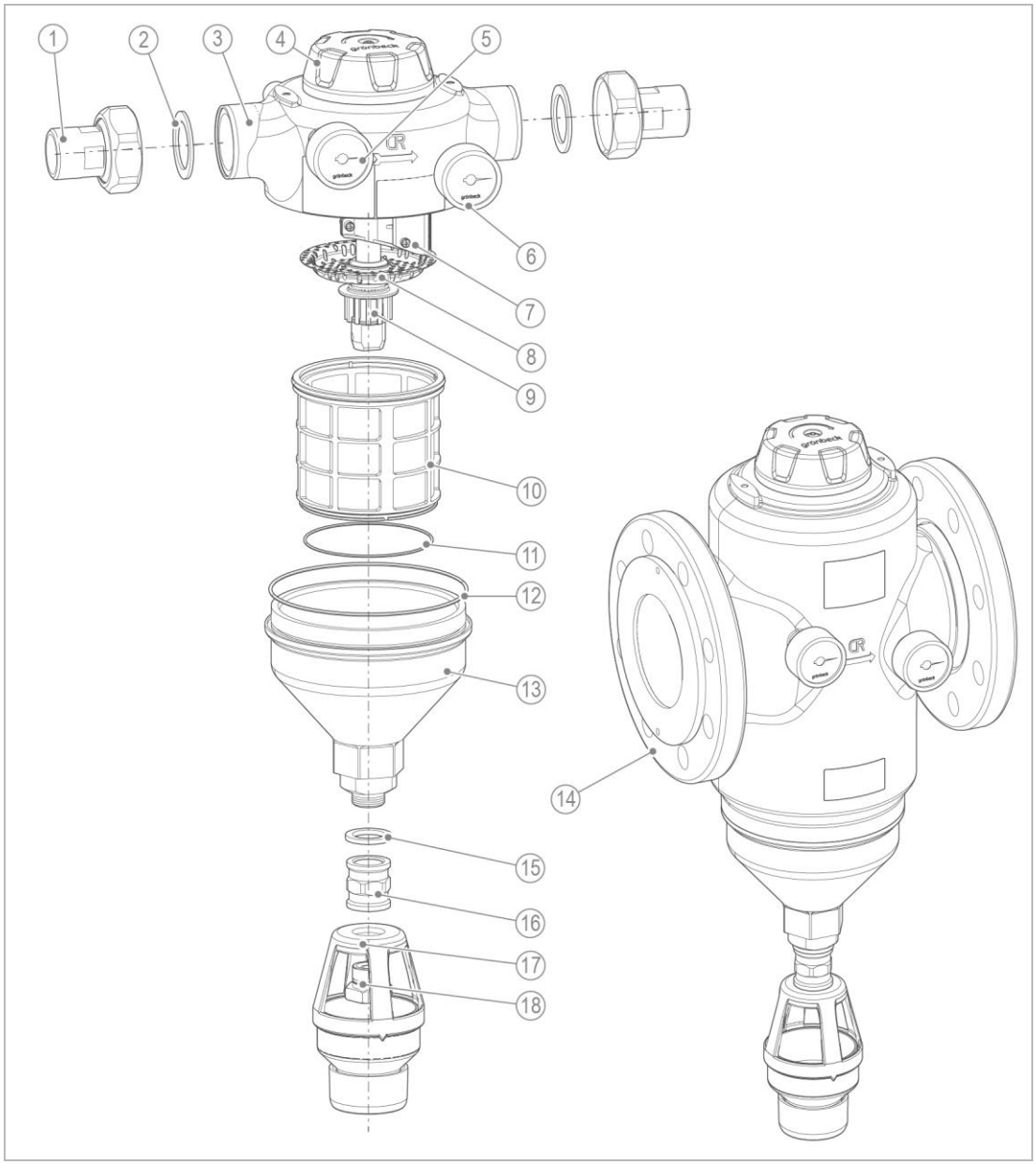
- Water temperature ≤ 90 °C
- Water temperature ≤ 30 °C when used in the drinking water sector (DVGW)
- Pressure range ≤ 16 bar
- Pressure range ≤ 10 bar in case of a media temperature of 90 °C

3.1.2 Foreseeable misuse

The filters must not be used in the areas below:

- in the negative pressure range
- for circulation water treated with chemicals
- for media such as oils, greases, solvents, soaps and other lubricating media, nor for the separation of water-soluble substances
- for installation into vertical water pipes

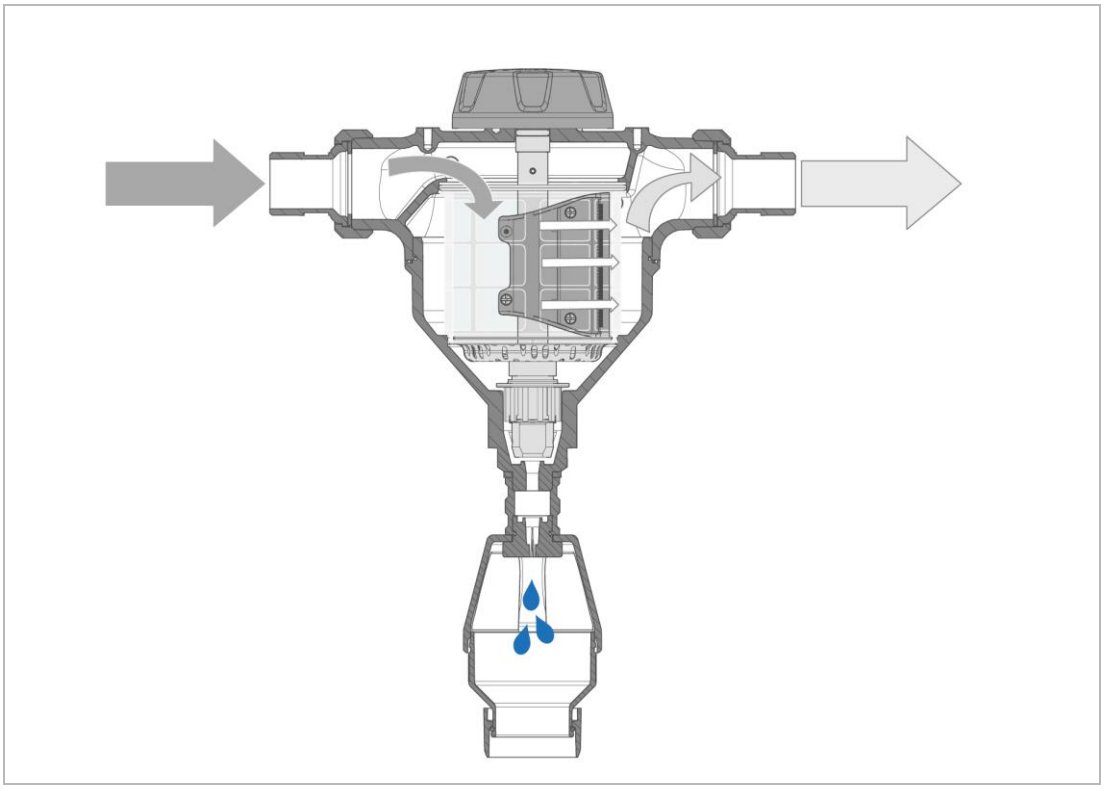
3.2 Product components



	Designation
1	Water meter screw connection
2	Seal
3	Filter housing
4	Backwash handwheel
5	Pressure gauge inlet pressure
6	Outlet pressure gauge
7	Brush
8	Sieve bottom
9	Suction nozzle

	Designation
10	Filter element
11	O-ring of filter element
12	O-ring of filter funnel
13	Filter funnel
14	Flange connection
15	Flat seal
16	Double socket
17	Flushing water connection with free outlet
18	Nozzle screw

3.3 Functional description



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 of > 100 µm 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 on the pressure gauges.

The drain is opened by turning the handwheel to the right as far as it will go, and a backwash is carried out. When the backwash handwheel is turned, the brush turns with the backwash handwheel 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.

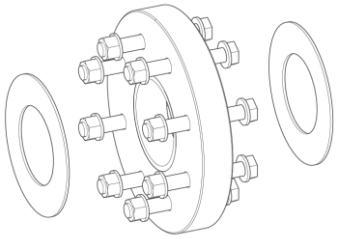
The drain outlet is closed by turning the backwash handwheel to the left as far as it will go, and the backwash process is terminated.

3.4 Accessories

Your product can be retrofitted with accessories. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechstaedt/Germany for details.

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 and might only be used after consultation with Grünbeck.

Designation	Order no.		
	1" / 1¼"	1½" / 2" / DN 65	DN 80 / DN 100
50 µm filter element	107 052	107 053	107 054
Filter element 200 µm	107 072	107 073	107 074
Filter element 500 µm	107 082	107 083	107 084

Illustration	Product	Order no.
	**Adapter kit** As spacer flange, to ensure the function of the butterfly valves directly mounted on the filter. Scope of supply: 2 flanges, 4 seals, 16 screws M16x120 mm with washers and nuts	
	For DN 80 with flange connection	**106 804e**
	for DN 100 with flange connection	**106 805e**

4 Transport and storage

4.1 Dispatch/delivery/packaging

The product is packed in a cardboard box at the factory and secured with a foam bag.

► Check immediately upon receipt for completeness and transport damage.

► In case of visible transport damage, proceed as follows:

- Do not accept the delivery or only accept it under reserve.
- Take note of the extent of damage on the transport documents or on the delivery note of the carrier.
- Initiate a complaint.

4.2 Transport to/at the installation site

► Transport the product in its original packaging only.

CAUTION Unhandy size of the product during transport

- Crushing due to the product falling down.

► Transport or lift the product with two people.

► Use personal protective equipment (refer to chapter 1.5.3).

4.3 Storage

► Protect the product from the effects of the following when storing it:

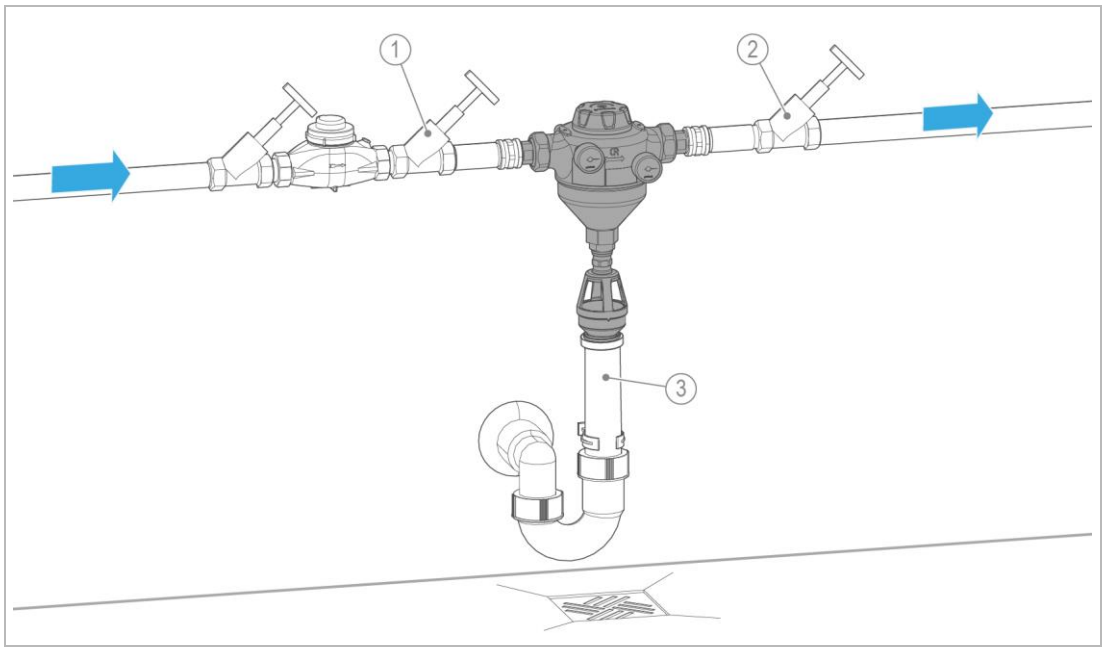
- Moisture, wetness
- Environmental impacts such as wind, rain, snow, etc.
- Frost, direct sunlight, severe heat exposure
- Chemicals, dyes, solvents and their vapours

5 Installation

The installation of the product represents a major intervention into the drinking water system and must be carried out by a qualified specialist only.

In accordance with DIN EN 806-2 and DIN EN 1717, the product is to be installed in the water pipe downstream of the water meter and upstream of distribution pipes and the appliances to be protected.

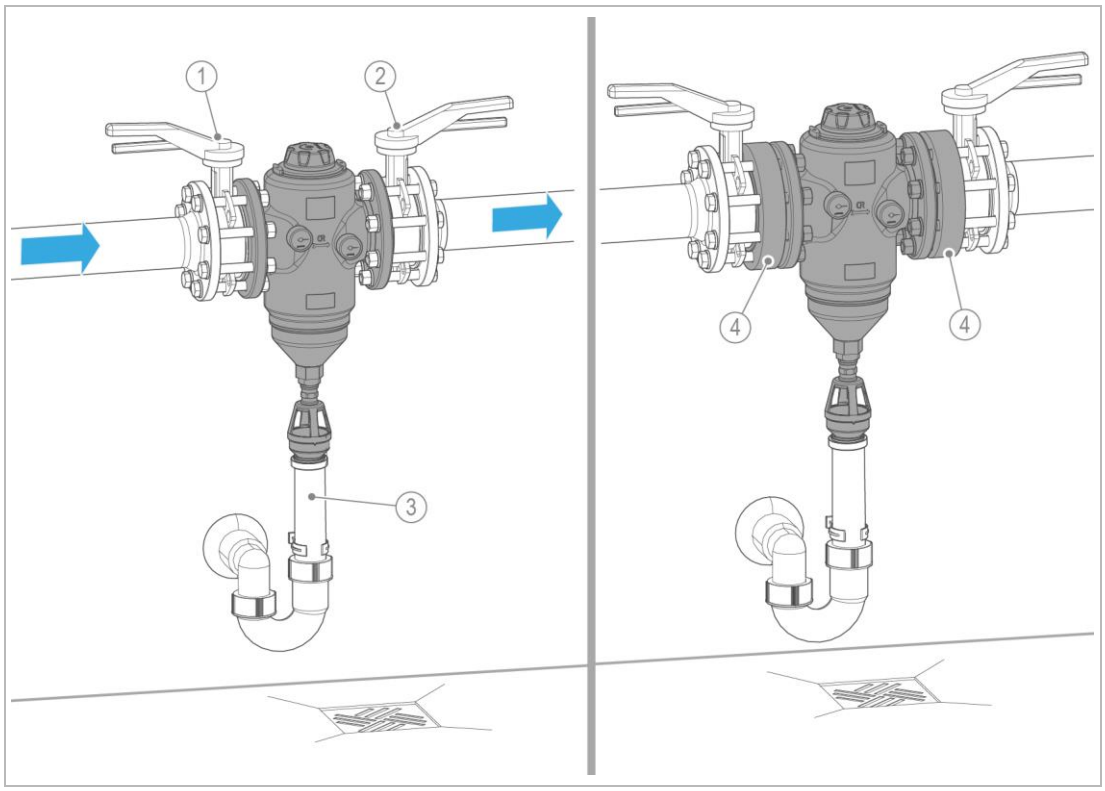
Installation example: Backwash filter with screw connections



	Designation
1	Inlet shut-off valve
2	Outlet shut-off valve

	Designation
3	Drain connection provided by the client on site

Installation example: Backwash filter with flange connections



	Designation		Designation
1	Inlet shut-off valve	3	Drain connection provided by the client on site
2	Outlet shut-off valve	4	Optional adapter kit

5.2 Requirements for the installation site

Obey the 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
  - ≤ 25 °C for applications in the drinking water sector
  - ≤ 40 °C for purely technical applications
- Protection from heat sources in the drinking water sector (e.g. heating systems, boilers and warm water pipes)
- Access for maintenance work (take required space into consideration)
- Sufficiently illuminated as well as aerated and ventilated

Required space

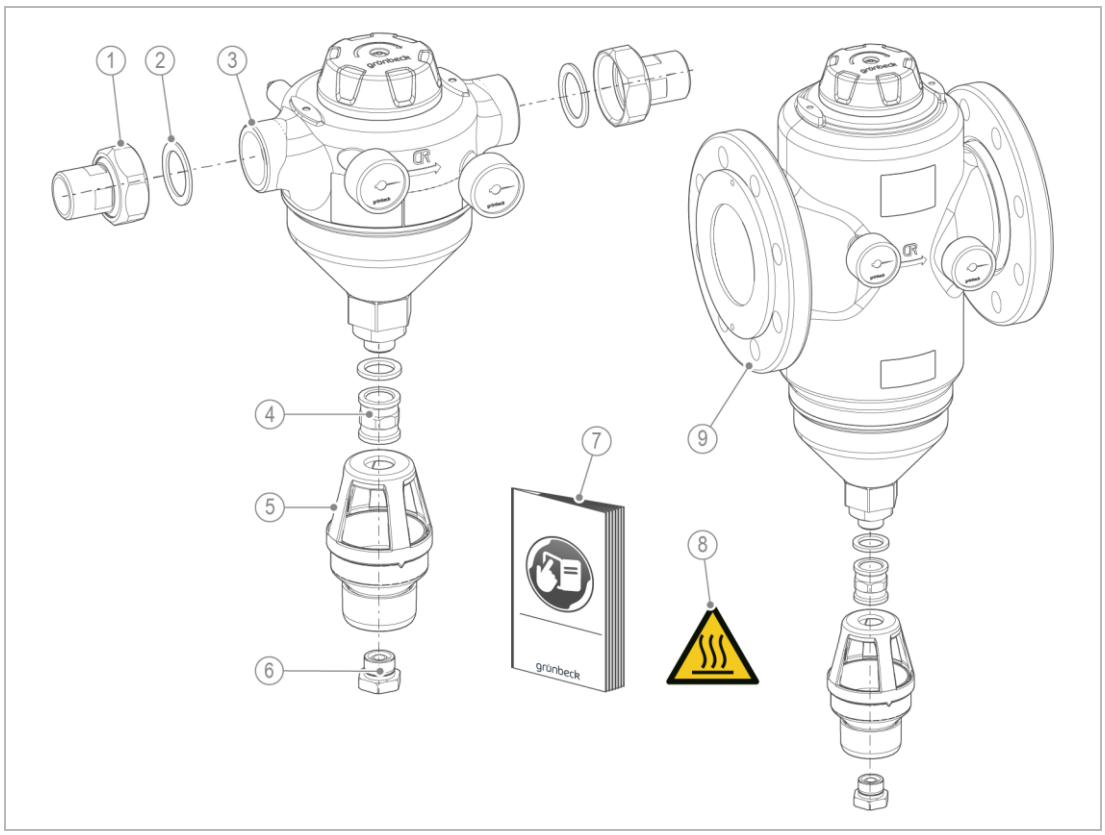
- Clearance above the filter head for operation ≥ 80 mm
- Clearance downwards for removal of the filter element (refer to chapter 12)
- Clearance at the front for operation ≥ 500 mm

Water installation

- Floor drain or corresponding safety device with water stop function
- Drain connection ≥ DN 50
- Shut-off valves upstream and downstream of the product

5.3 Checking the scope of supply

Filters with screw connections for sizes: 1" (DN 25), 1¼" (DN 32), 1½" (DN 40), 2" (DN 50)
Filters with flange connections for sizes: DN 65, DN 80, DN 100



	Designation
1	Water meter screw connections
2	Seals
3	Filters with screw connections
4	Double socket with seal
5	Flushing water connection

	Designation
6	Nozzle screw
7	Operation manual
8	Adhesive label “Hot surfaces” for hot water filtration
9	Filters with flange connections

► Check the scope of supply for completeness and damage.

5.4 Water installation

The filter must only be installed horizontally and free of mechanical stress.

- ► Use protective gloves and protective footwear during the installation.
- ► Install the filter with an auxiliary person.

In case of hot water filtration

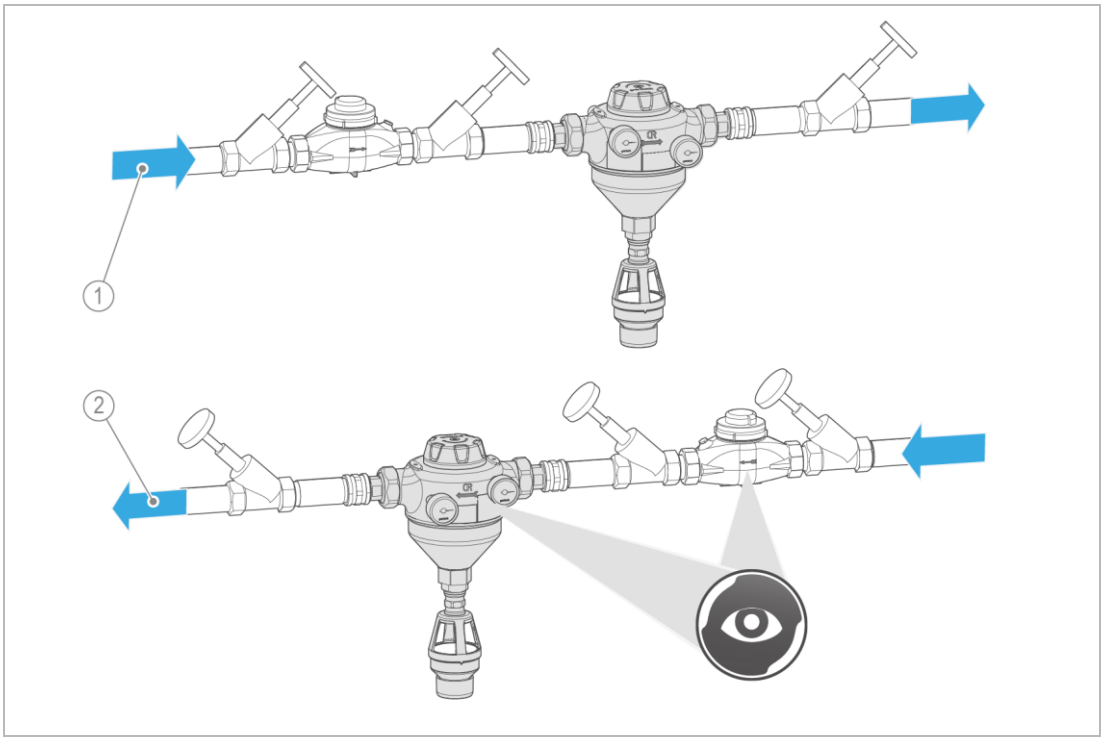
WARNING Hot water and hot surfaces

- Burns due to hot surfaces of components at temperatures of more than 55 °C.
- Scalding due to escaping hot water, e.g. during backwash.

► Use suitable protective gloves when working on the product.

- ► Provide protection from hot surfaces in case of hot water filtration.
- ► Visibly attach the warning label “Hot surfaces” on the filter housing (refer to chapter 2.2).

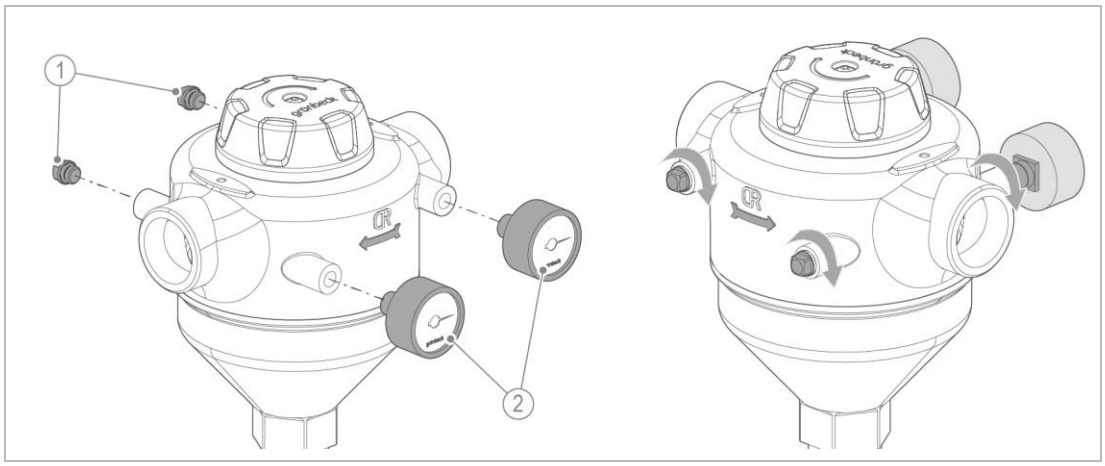
5.4.1 Changing the direction of flow



	Designation		Designation
1	Flow from left to right	2	Flow from right to left

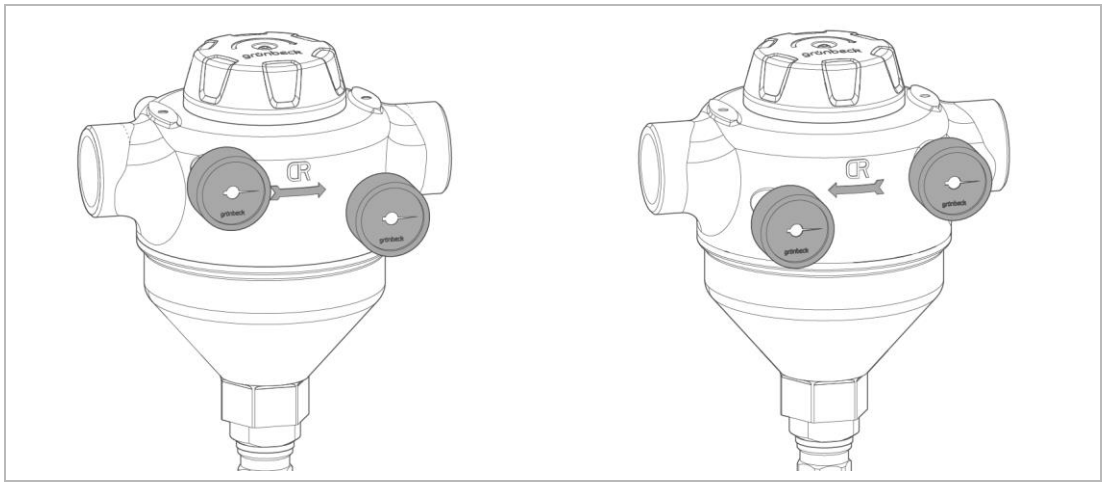
- ► Check the flow direction given on site.

► Refit the filter's pressure gauges, if necessary:



	Designation		Designation
1	Closing plug	2	Pressure gauges for inlet and outlet pressure

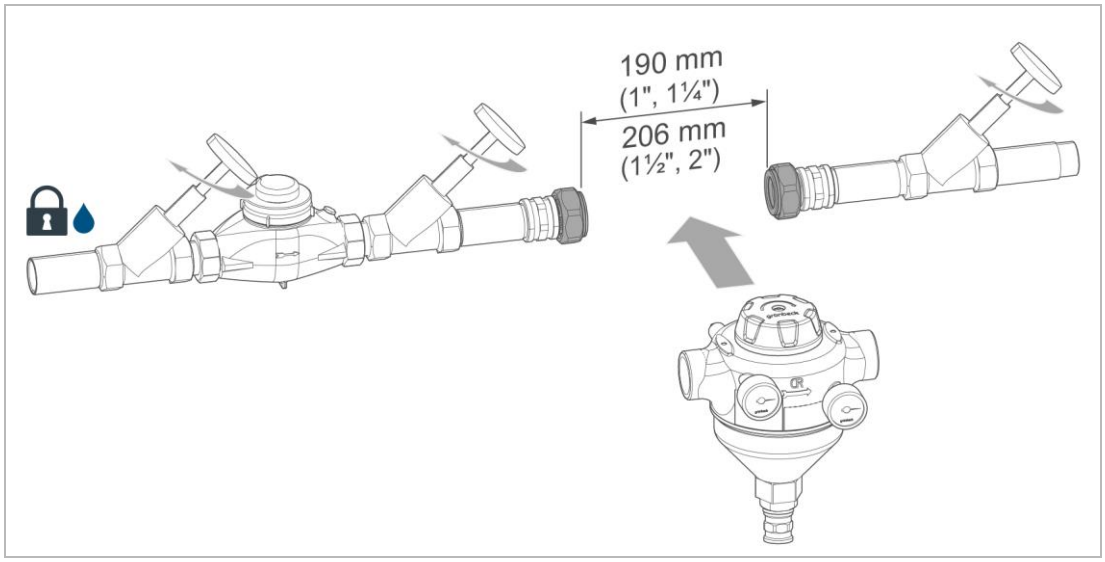
1. Unscrew the closing plugs with O-ring as well as the pressure gauges.
2. Rotate the filter 180°.
3. Fit the closing plugs with O-ring and the pressure gauges.



» The filter has been modified for flow direction from right to left.

» The pressure gauges face forward when the filter is installed.

5.4.2 Installing the backwash filter (MR 1" – 2") with screw connections



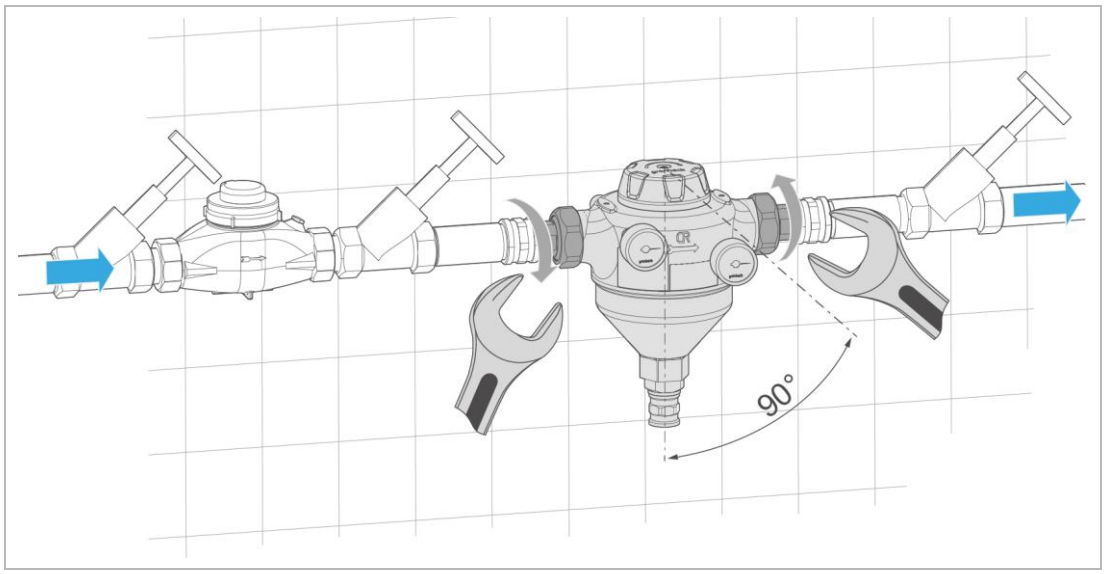
1. Install the water meter screw connection in the pipe.

» The distance between the two seals must have the dimensions below:

1"/ 1¼" = 190 mm and for 1½"/ 2" = 206 mm

2. Position the filter in the pipe.

   a Pay attention to the marking of the flow direction on the filter.

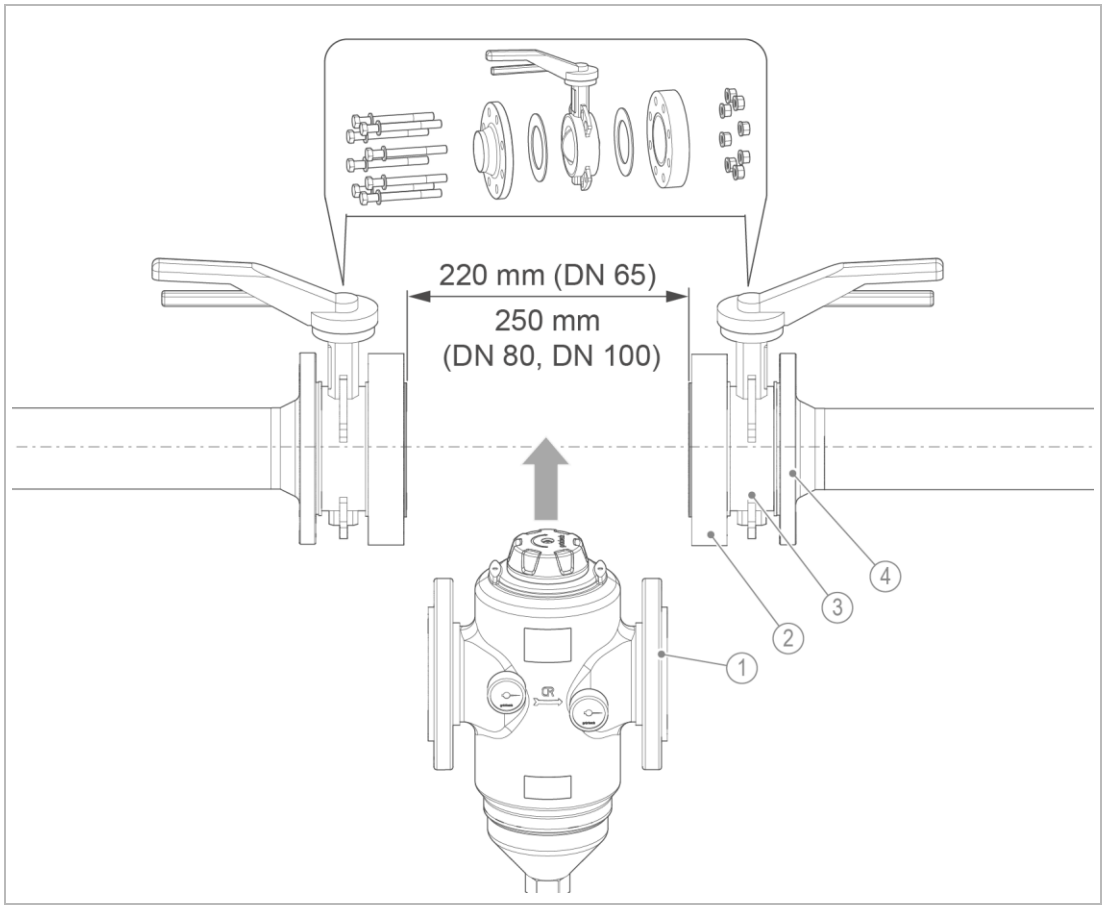


3. Install the filter without stress and tighten the union nuts.

5.4.3 Installing the backwash filter (MR DN 65 – DN 100) with flange connection

The backwash filters MR DN 65, DN 80 and DN 100 are designed with flange connection PN 16 according to DIN EN 1092-1.

► Comply with the Technical specifications for the flange connection (refer to chapter 12.5).

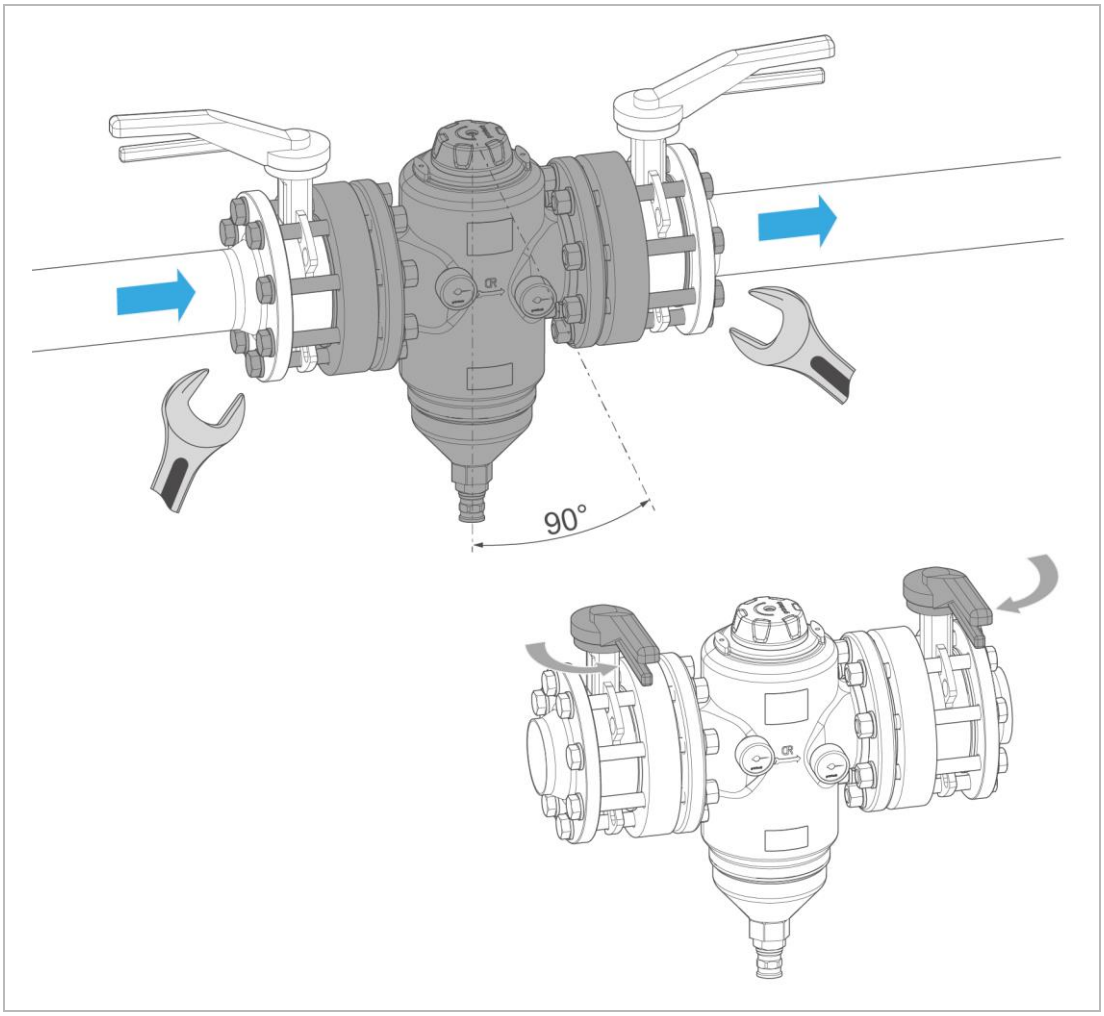


	Designation		Designation
1	Loose flange on the filter	3	Butterfly valve to be provided by client on site
2	Adapter kit (optional for DN 80 and DN 100 (refer to chapter Accessories 3.4)	4	Fixed flange to be provided by client on site

1. Prepare the pipe with flange connection according to DIN EN 1092-1.

» The distance between the two seals must have the dimensions below:

DN 65 = 220 mm and for DN 80/DN 100 = 250 mm



2. Position the filter in the pipe.
   a Pay attention to the marking of the flow direction on the filter.
3. Tighten the filter at the flange screw connections without applying tension.

The on-site butterfly valves must open and close completely.

a If necessary, install an (optional) adapter kit to ensure the function of the butterfly valves.

b Check the butterfly valves for function after installation.

5.4.4 Installing the connection for the backwash water

If it is not possible to install a waste water pipe, the backwash water can be collected in a bucket/container.

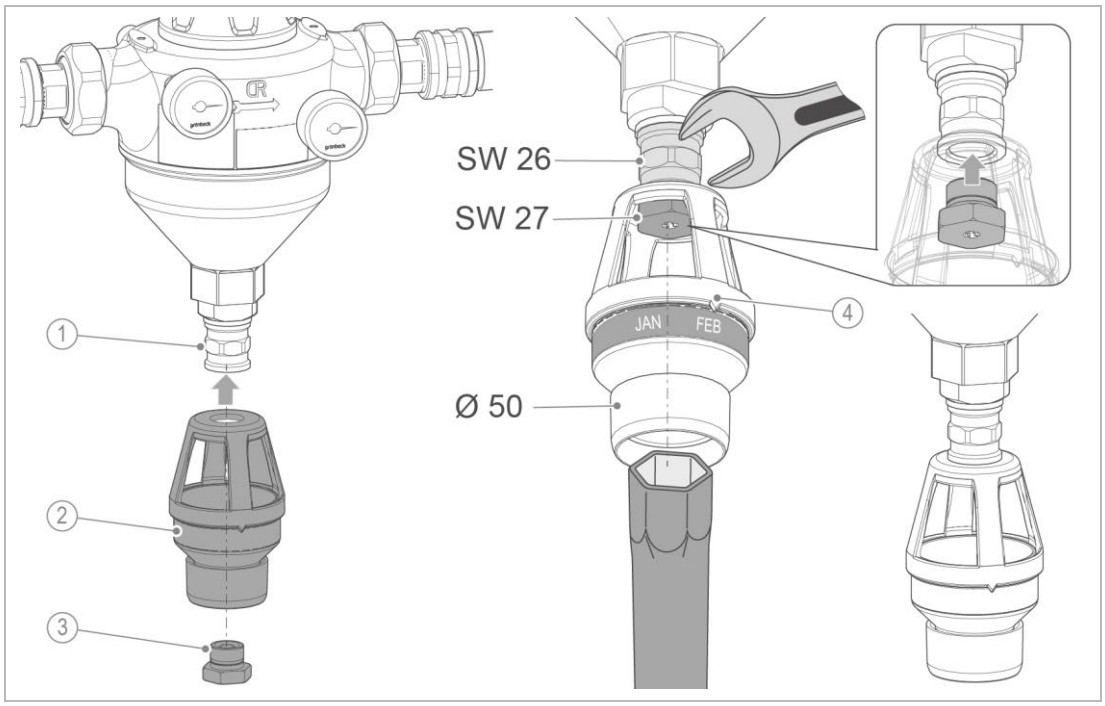
CAUTION Splashing hot water during backwash

- Scalding in case of hot water filtration without waste water pipe.

► For hot water filtration, install a fixed waste water pipe on the flushing water connection of the filter.

5.4.4.1 Installing the flushing water connection

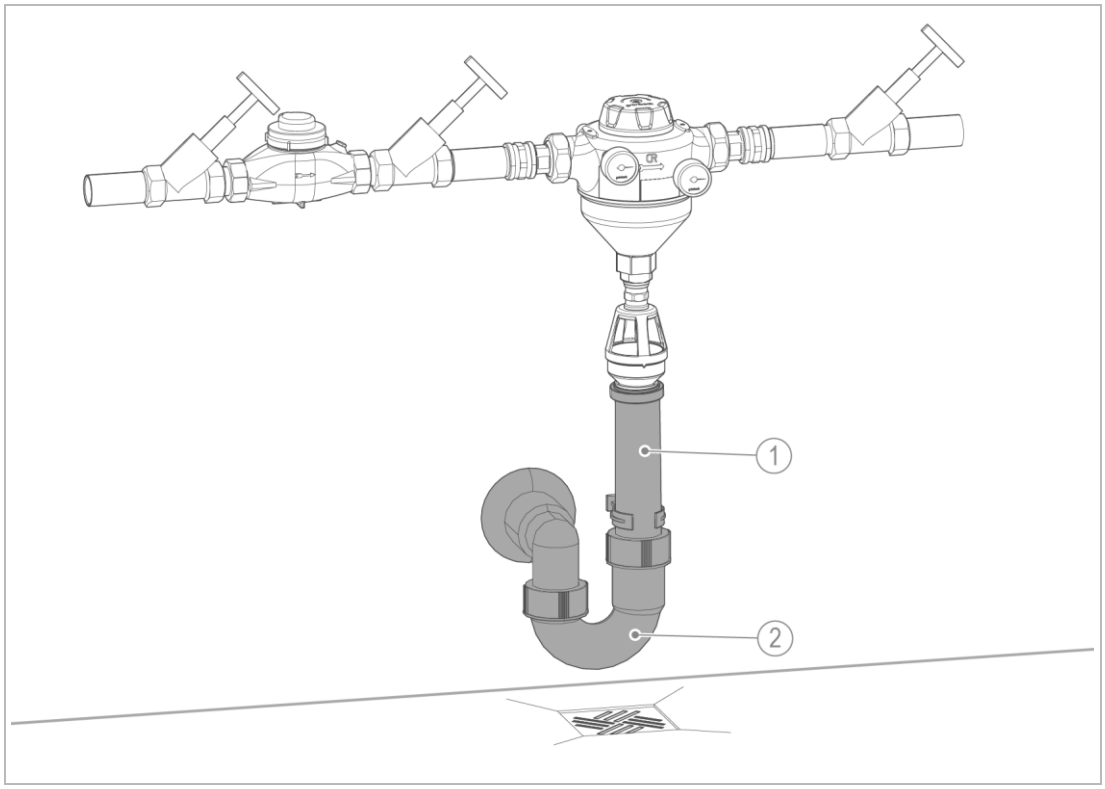
► Install the flushing water connection on the filter.



	Designation		Designation
1	Double socket	3	Nozzle screw
2	Flushing water connection	4	Marking of month indicator

1. Push the nozzle screw through the flushing water connection.
2. Screw the flushing water connection to the nozzle screw in the double socket.
   a Make sure that the marking of the month indicator is facing forward.

5.4.4.2 Installing the drain connection and the waste water pipe



	Designation		Designation
1	Waste water pipe to be provided by the client on site	2	Drain connection DN 50 on site

► Install a drain connection (not included in the scope of supply).

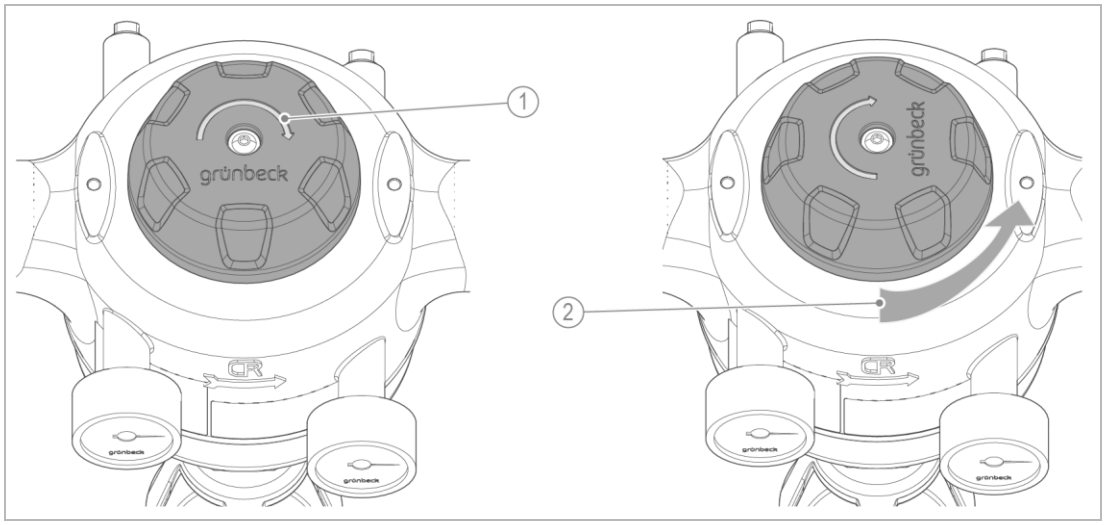
► Install a waste water pipe as HT piping to the drain connection.

6 Start-up

The initial start-up of the product must be carried out by a qualified specialist only.

6.1 Closing the drain outlet

Upon delivery, the drain outlet of the backwash filters is open.

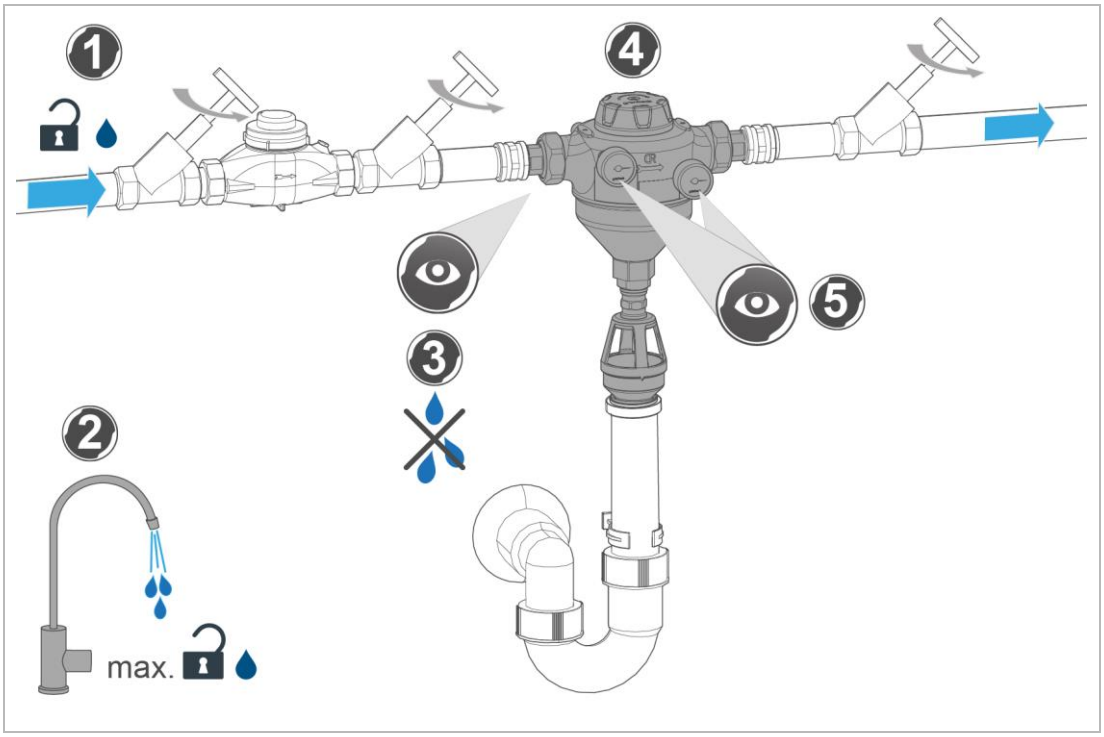


	Designation		Designation
1	Backwash handwheel: Direction of rotation for opening the drain outlet	2	Backwash handwheel: Direction of rotation for closing the drain outlet

► Close the drain outlet by turning the backwash handwheel to left as far as it will go (~ 7 complete turns).

6.2 Checking the product

► Carry out the steps below after installation and after each maintenance:



1. Open the shut-off valves.
2. Open the nearest water withdrawal point after the filter as far as it will go.
   a Apply the maximum operating pressure.

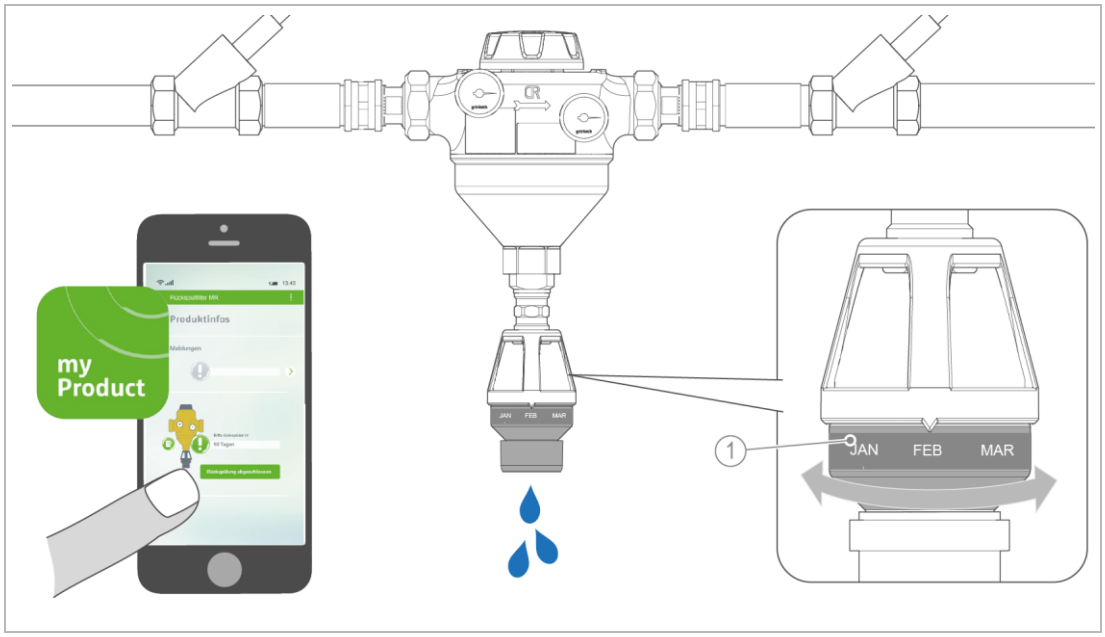
» The filter is vented.

3. Check the filter for leaks.
4. Carry out a backwash.
5. Read the inlet and outlet pressure at the pressure gauges while the water is flowing.
6. Record the initial start-up in the operation log (refer to chapter 13).

» The filter is in operation.

6.3 Setting the month indicator

Via Grünbeck's myProduct app, you will receive a message about the timely backwash of the filter (refer to chapter 7.3).



	Designation
1	Maintenance ring

► Set the maintenance ring to the month of the next maintenance (alternatively, to the month of the next backwash – every six months at the latest).

6.4 Handing over the product to the owner/operating company

► Explain to the owner/operating company how the product works.

► Use the manual to brief the owner/operating company and answer any questions.

► Inform the owner/operating company about the need for inspections and maintenance.

► Hand over all documents to the owner/operating company for keeping.

6.4.1 Disposal of packaging

► Dispose of the packaging as soon as it is no longer needed (refer to chapter 11.2).

7 Operation/handling

The filter is operated automatically and does not require any manual operation.

- ► Carry out a backwash at regular intervals (refer to chapter 7.3)
- ► Inspect the filter at regular intervals (refer to chapter 8.3).
- ► Flush the filter after a temporary standstill (refer to chapter 10.1).

7.1 Installing Grünbeck’s myProduct app

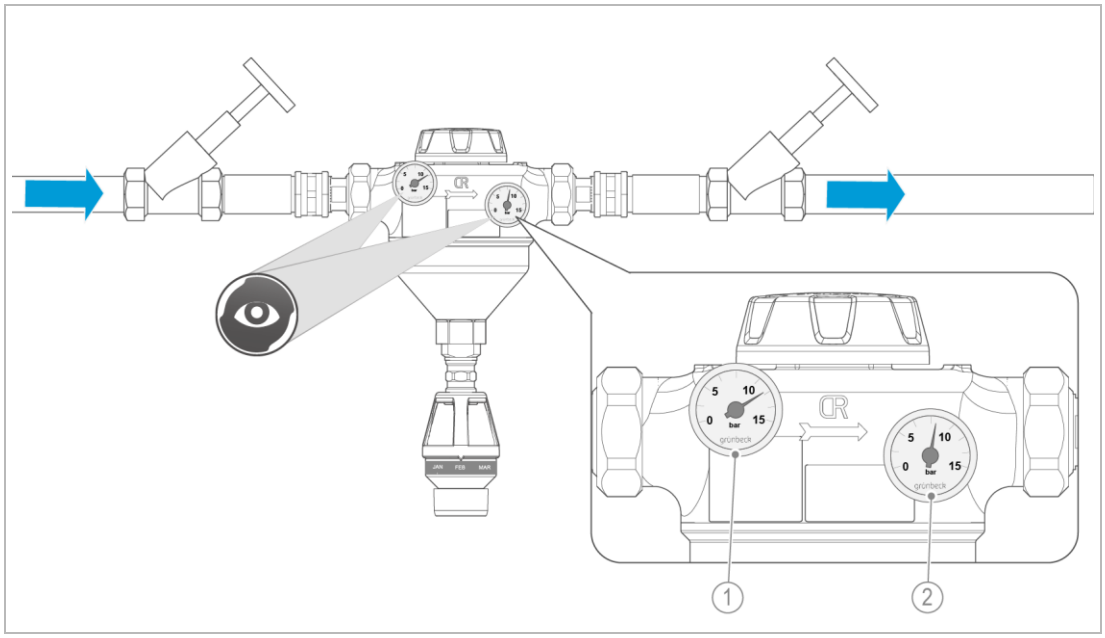
You can register your product using Grünbeck’s myProduct app.

That way, you will receive a reminder to backwash the filter as well as additional information on your product.

- ► Download Grünbeck’s myProduct app and install it on your mobile device.

7.2 Reading the water pressure

You can see on the pressure gauges whether the filter element is dirty.



	Designation		Designation
1	Inlet pressure	2	Outlet pressure

1. Open several water withdrawal points (generate max. flow rate).
2. Read the inlet and outlet pressure on the pressure gauges.
3. Proceed as follows to calculate the differential pressure:
   Inlet pressure (raw water pressure gauge) – Outlet pressure (pure water pressure gauge) = Differential pressure.
4. Perform a backwash if the differential pressure is > 0.4 bar.

If the product's differential pressure cannot be relieved by means of one or several backwash processes, a malfunction has occurred (refer to chapter 9).

7.3 Backwashing the filter

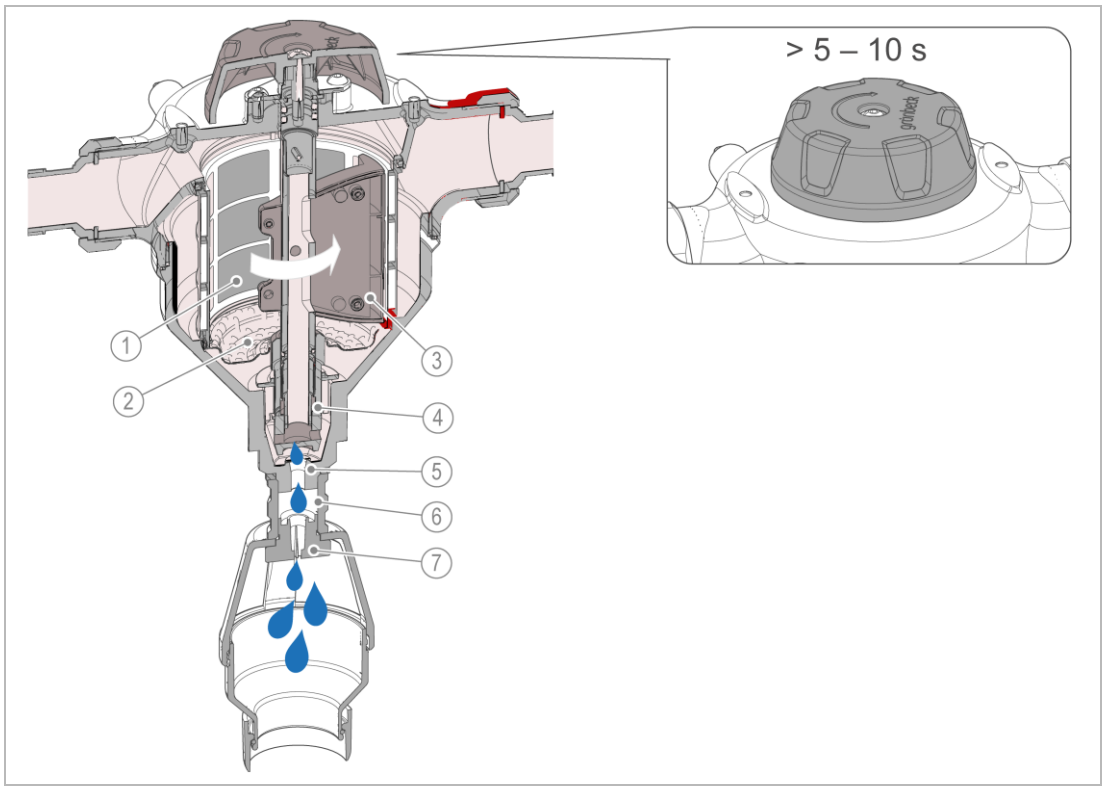
WARNING Irregular backwash of the filter

- Health risk due to contamination of the drinking water.
- ► Comply with the intervals for inspection and backwash of the filter.

During the backwash process, filtered pure water is still available.

We recommend repeating the backwash process 3 times.

► Place a 10-l bucket under the filter (only if the filter is installed without a drain connection).



	Designation		Designation
1	Filter element	5	Backwash water outlet
2	Sieve bottom	6	Double socket
3	Brush	7	Nozzle screw
4	Suction nozzle		

1. Slowly turn the backwash handwheel to the right as far as it will go.

» The backwash process is activated.

2. Keep the backwash handwheel in this position for 5 – 10 seconds.
3. Slowly turn the backwash handwheel to the left as far as it will go.

» The backwash process is terminated.

8 Maintenance and repair

Maintenance and repair includes the cleaning, inspection and servicing of the product.

The responsibility for inspection and maintenance is subject to local and national requirements. The owner/operating company is responsible for compliance with the prescribed maintenance and repair work.

A maintenance contract ensures that all the required maintenance work will be performed in due time.

► Only use genuine spare and wearing parts from Grünbeck.

8.1 Cleaning

Only have the cleaning work carried out by persons who have been instructed in the risks and dangers that can arise from the product.

NOTE Do not clean the product with cleaning agents containing alcohol/solvents.

- Plastic components are damaged
- Varnished surfaces are affected

► Use a mild/pH-neutral soap solution.

► Only clean the outside of the product.

► Do not use any strong or abrasive cleaning agents.

► Wipe the surfaces with a damp cloth.

8.2 Intervals

By way of regular inspections and maintenance, malfunctions can be detected in time and product failures might be prevented.

► As the owner/operating company, determine which components have to be inspected and maintained at which intervals (load-dependent). These intervals are subject to the actual conditions, e.g.: Water condition, degree of impurities, environmental influences, consumption, etc.

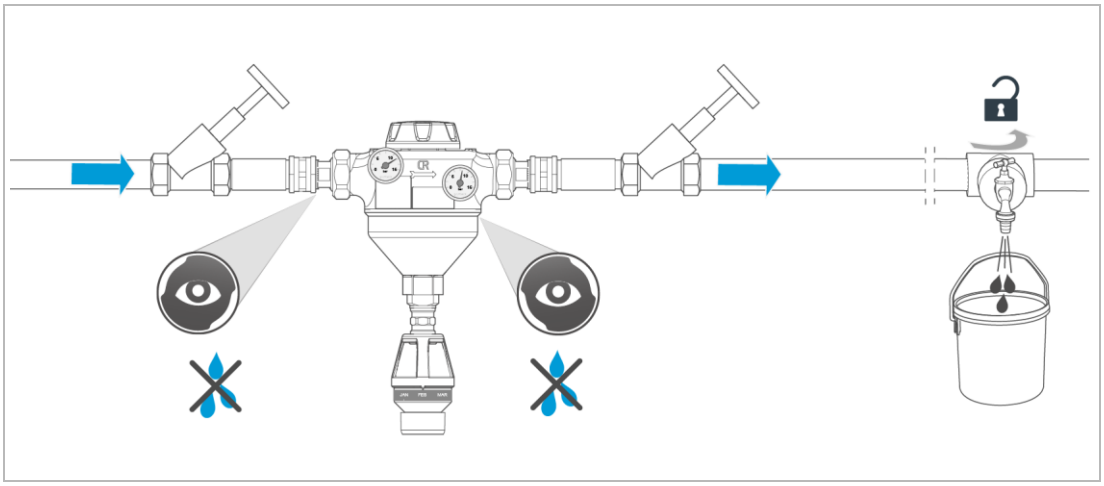
The interval table below shows the minimum intervals for the activities to be carried out.

Activity	Interval	Tasks
Inspection	2 months	• Visual/functional check • Reading the water pressure
Maintenance	6 months	• Carry out backwash • Condition and leak test • Set the maintenance ring
	annually	• Carry out backwash • Check O-rings/flat gaskets for wear and tear • Check the filter element and the brush for wear and tear • Check the flushing water connection and the drain connection for a tight fit • Check the filter for a tight fit and for leaks
Repair	5 years	• Recommendation: Replace the filter element, seals and suction nozzle unit

8.3 Inspection

You, as owner/operating company, can carry out the regular inspections yourself.

► Conduct an inspection at least every 2 months.



1. Open several water withdrawal points (generate max. flow rate).
2. Check the installation for leaks and function.
   a Pay attention to leaks and puddles on the floor.
3. Read the water pressure at the pressure gauges (refer to chapter 7.2).

► Carry out a backwash in case of increasing contamination of the filter element and/or decreasing water pressure in the pipe network (refer to chapter 7.3).

8.4 Maintenance

Some regular work is necessary to ensure the proper functioning of the product in the long term. DIN EN 806-5 recommends regular maintenance to ensure trouble-free and hygienic operation of the product.

WARNING Contaminated drinking water due to contamination during maintenance and repair work

- Risk of hygienic contamination
- Infectious diseases

► Use hygienic gloves during maintenance and repair work.

► Do not touch the interior components (filter element, brush) with your bare hands.

WARNING Hot water and hot surfaces in case of hot water filtration

- Burns due to hot surfaces of components at temperatures of more than 55 °C.
- Scalding due to escaping hot water, e.g. during backwash.

► Use suitable protective gloves when working on the product.

► Let the filter cool down prior to opening the funnel.

8.4.1 Semi-annual maintenance

In order to carry out the semi-annual maintenance, proceed as follows:

1. Carry out a backwash (refer to chapter 7.3).
2. Check the installation for leaks and possible damage.
3. Set the maintenance ring to the month of the next maintenance (refer to chapter 6.3).

8.4.2 Annual maintenance

The work below must be carried out by a qualified specialist only.

► Carry out the work below in addition to the semi-annual maintenance:

- Check the O-rings for wear and tear (refer to chapter 8.4.2.2)
- Check the brush/es for wear and tear (refer to chapter 8.4.2.2)
- Check the filter for leaks (refer to chapter 8.4.2.3)
- Check the filter for a tight fit (refer to chapter 8.4.2.4)

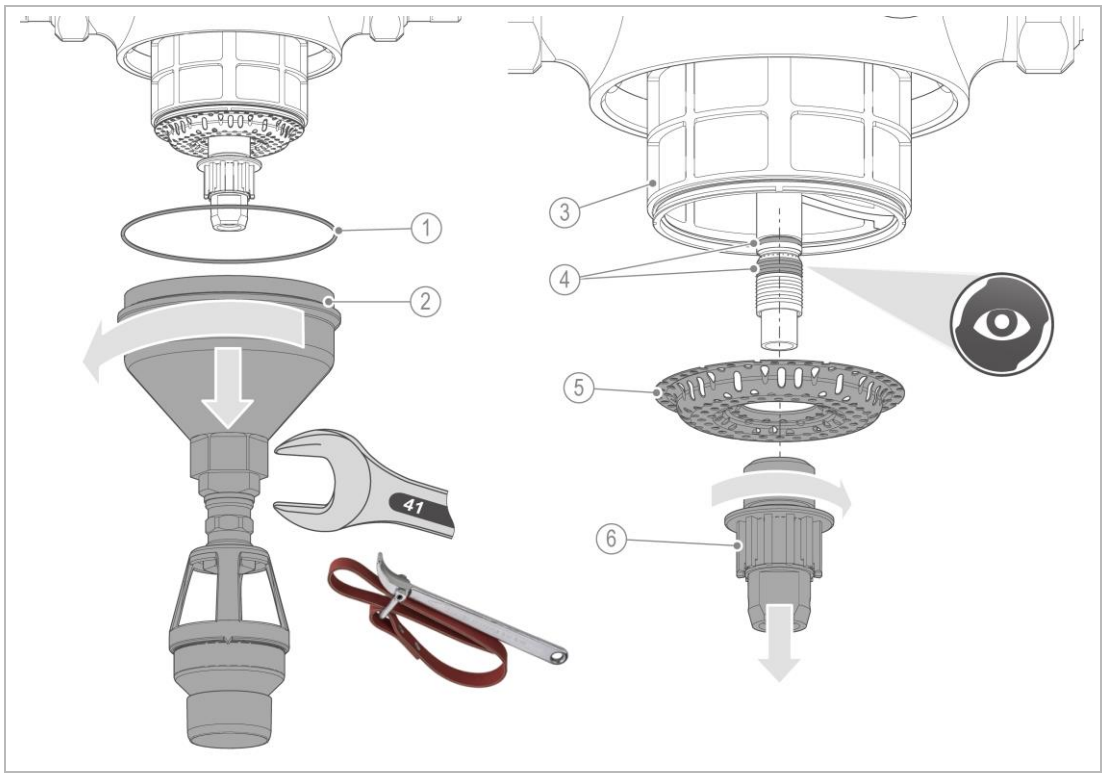
8.4.2.1 Preparations

1. Close the shut-off valves at the inlet and outlet.
2. Carry out a backwash to relieve the water pressure in the filter and in the water pipe.

» The filter is drained.

3. Remove the drain connection (if present).

8.4.2.2 Opening and checking the filter



	Designation
1	O-ring
2	Filter funnel
3	Filter element

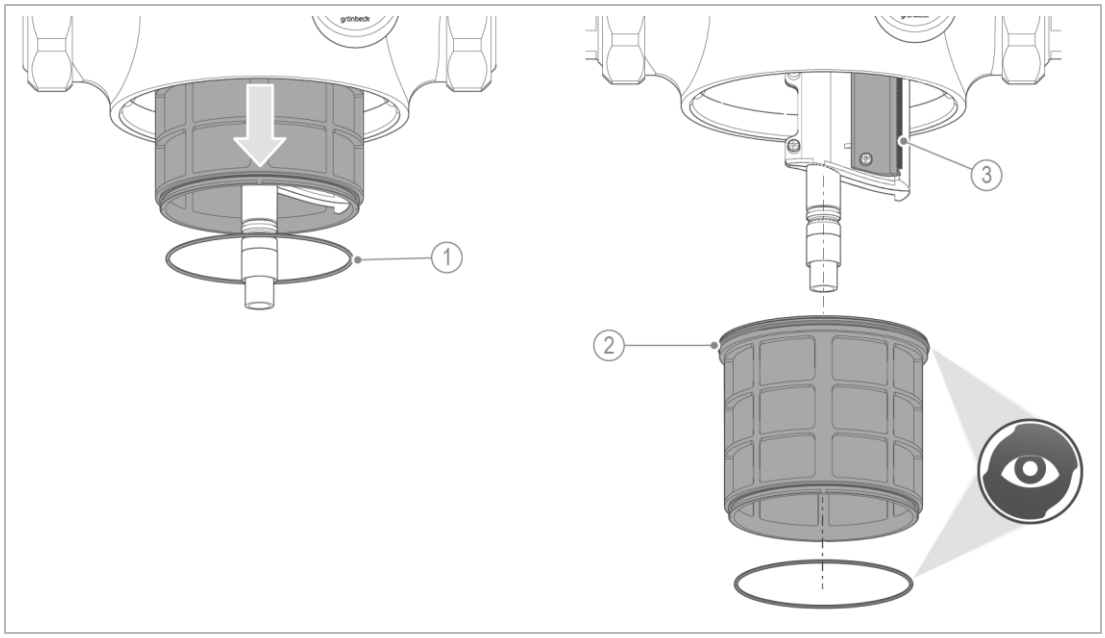
	Designation
4	Thread and O-ring of the pipe nozzle
5	Sieve bottom
6	Suction nozzle bottom

1. Unscrew the filter funnel.
2. Unscrew the lower suction nozzle from the pipe nozzle.
3. Remove the sieve bottom.
4. Check the thread and the O-ring for wear and tear.

If the thread is worn, the complete suction nozzle unit must be replaced.

5. If the thread and the O-ring are not worn:

a Clean the thread and the O-ring and apply food-safe grease, e.g. UNI-Silicon L641 (order no. 128 619).

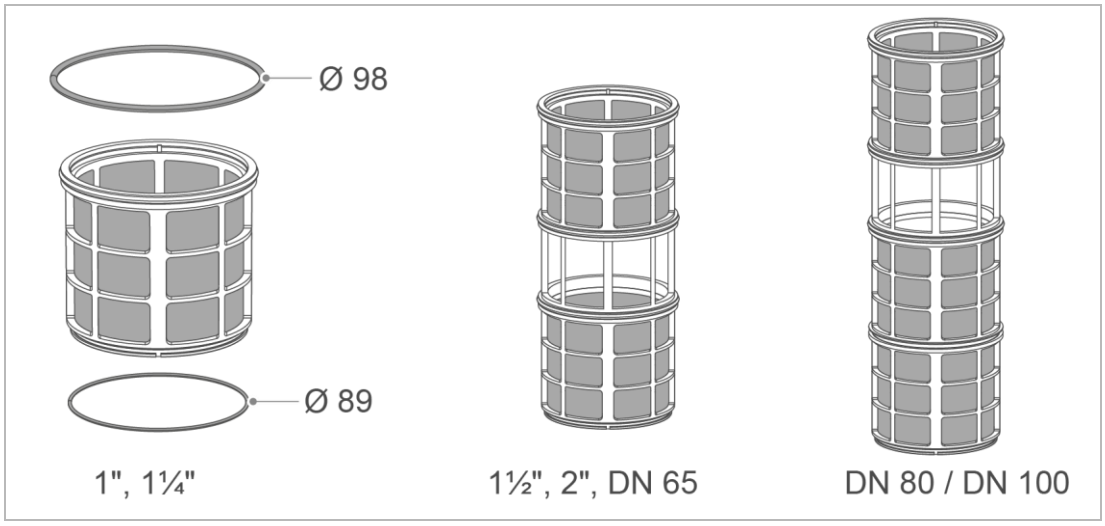


	Designation
1	O-ring inside (Ø 89 mm)
2	O-ring outside (Ø 98 mm)

	Designation
3	Brushes

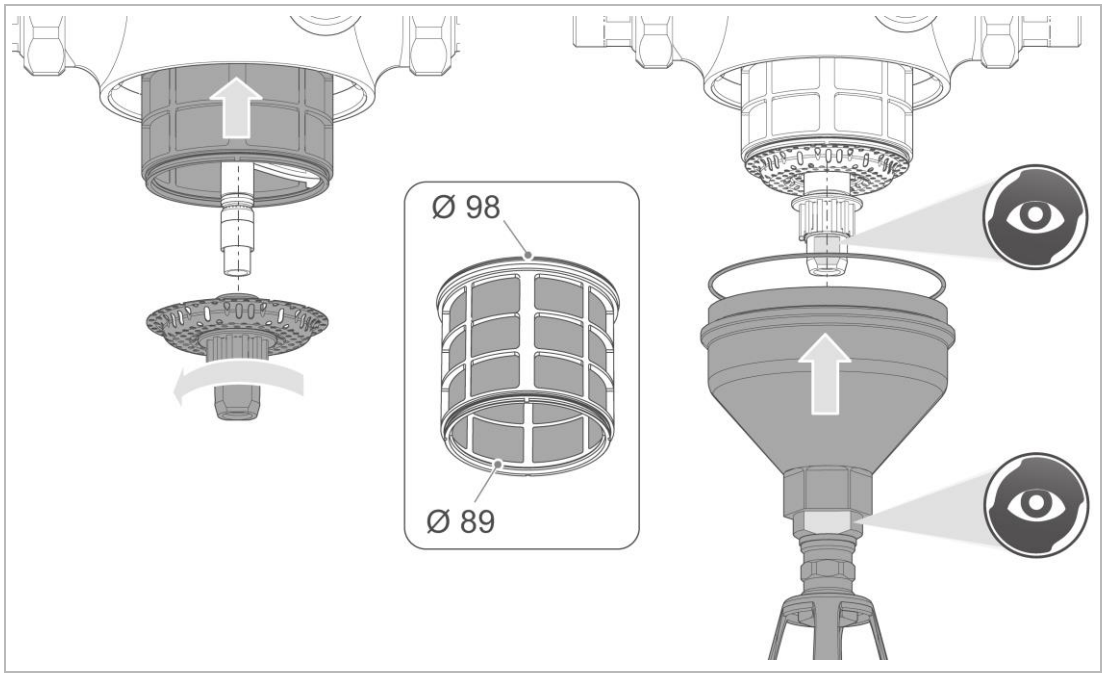
6. Remove the filter element.
7. Check the brush/es for wear and tear.
8. Check the filter element for damage and dirt deposits.
9. Check the O-rings of the filter element (outside and inside) for wear and tear.

Depending on the filter size, different filter elements are combined. If one filter element is damaged, you can either replace one filter element or a complete set of filter elements. The individual filter elements are connected by means of a detachable snap connection.

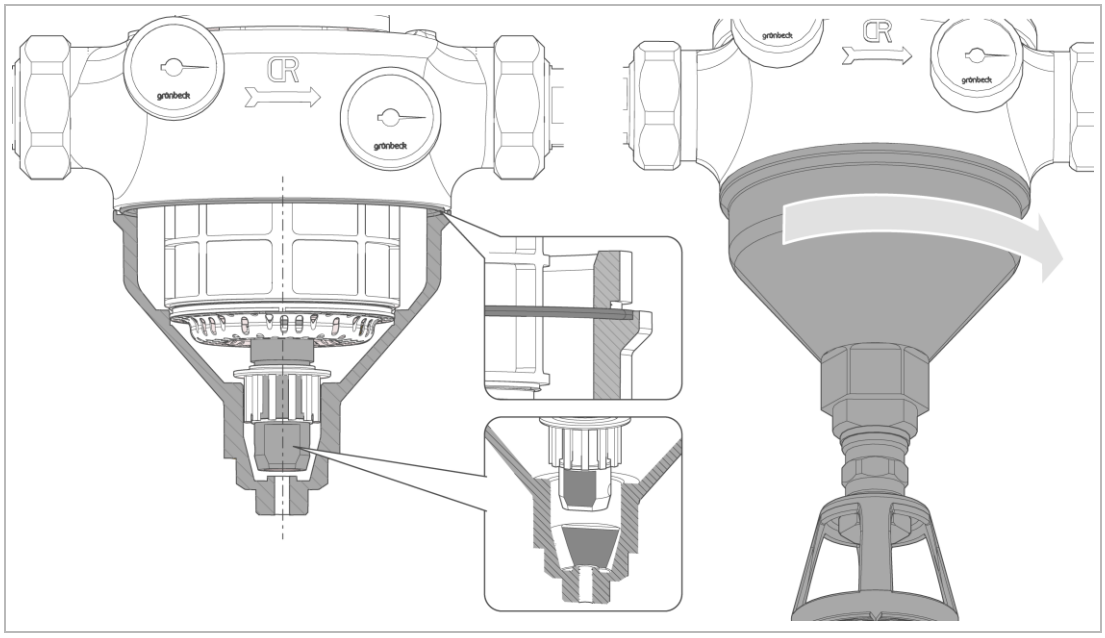


► Replace worn components.

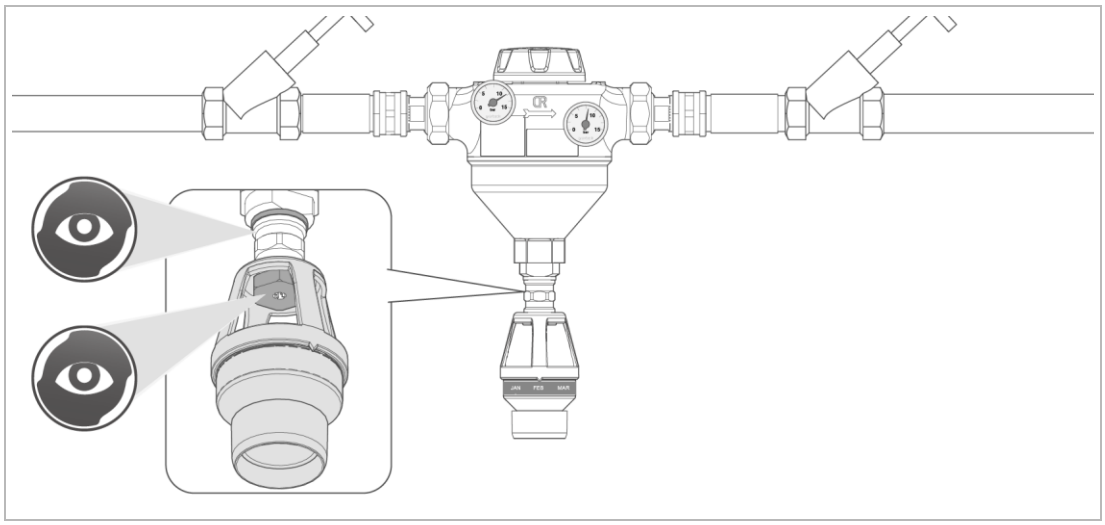
8.4.2.3 Closing the filter



1. Fit the O-rings to the filter elements. Slide the filter elements with the larger Ø pointing forward over the suction nozzle into the filter housing.
2. Position the sieve bottom between the pipe nozzle and the lower suction nozzle.
3. Screw the lower suction nozzle onto the pipe nozzle until the O-ring is just not visible any longer.
4. Slide the filter funnel onto the suction nozzle.
   a. Make sure that the two flat faces of the filter funnel are parallel to the wrench flat on the suction nozzle.

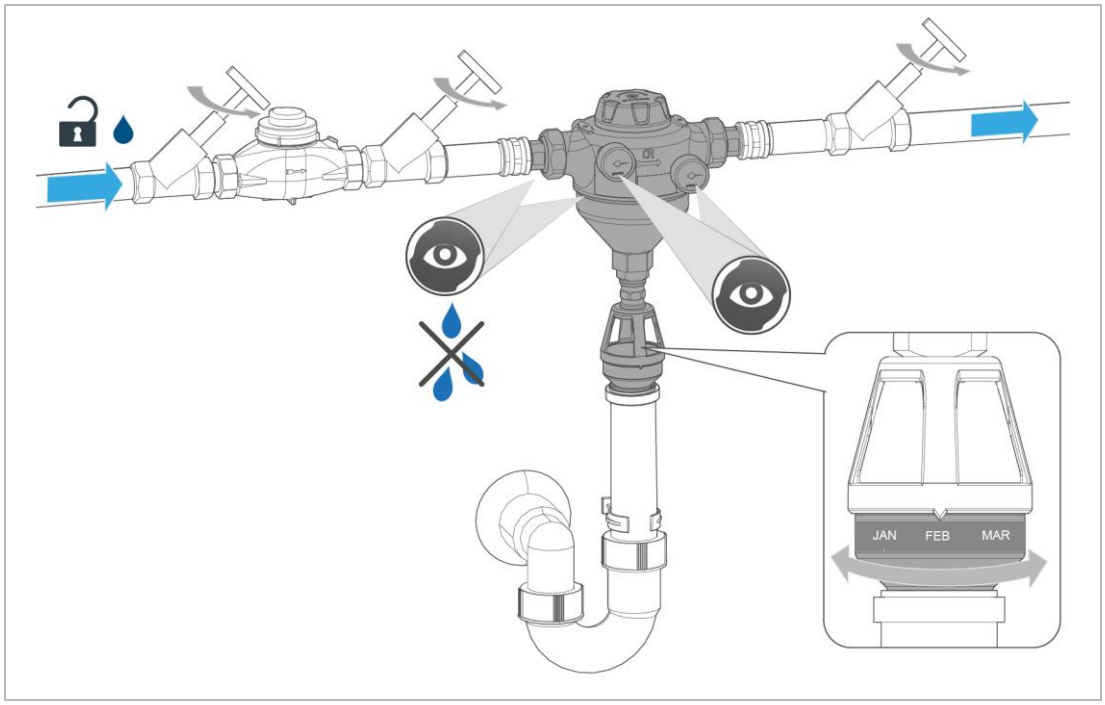


5. Screw the filter funnel onto the filter housing.



6. Check the tight fit of the flushing water connection and the double socket.
   a Clean the nozzle screw with citric acid if there are deposits and impurities.
7. Install the drain connection (if present).

8.4.2.4 Putting the filter back into operation



1. Check the tight fit of the filter in the pipe.
2. Open the shut-off valves on the inlet and the outlet.
3. Put the filter into operation (refer to chapter 6).
4. Set the maintenance ring to the month of the next maintenance (refer to chapter 6.3).
5. Record the maintenance in the operation log (refer to chapter 13.2).

8.5 Spare parts

For an overview of the spare parts, refer to our spare parts catalogue at www.gruenbeck.com.
You can obtain the spare parts from your local Grünbeck representative.

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 and can only be used after consultation with Grünbeck (refer to Accessories 3.4).

Designation	Order no.		
	1" / 1¼"	1½" / 2" / DN 65	DN 80 / DN 100
Filter element 100 µm	107 061	107 062	107 063

8.6 Wearing parts

Wearing parts are only allowed to be changed out by a qualified specialist.

Designation	Order no.		
	1" / 1¼"	1½" / 2" / DN 65	DN 80 / DN 100
Seal kit (O-rings)	107 755		
Suction nozzle bottom	107 021e		
Brush	107 860e		
(number required)	1 piece	2 pieces	3 pieces

- ► Have the seals replaced in the event of leaks, damage or distortions.
- ► Have defective or worn components replaced.

9 Fault

WARNING Contaminated drinking water due to stagnation

- Infectious diseases

► Have malfunctions eliminated immediately.

9.1 Observations

Observation	Explanation	Remedy
Water pressure at withdrawal point too low, pressure loss too high, differential pressure exceeds 0.4 bar	Shut-off valves are not fully open	► Fully open shut-off valves
	Filter element is dirty	► Carry out backwash
Despite several backwash processes, the differential pressure does not decrease	Filter element is very dirty or clogged	► Check the filter element for persistent impurities ► Manually clean the filter element with a brush – pay attention to hygiene ► Replace the filter element, if necessary
Taste of the treated water negatively affected	Inappropriately long period of non-use (downtime)	► Withdraw water for several minutes ► Carry out backwash
Solids contained in the filtered water	Inappropriately high flow through the filter	► Check filter element for damage or leaks
	Filter element damaged or not installed correctly	► Replace defective filter element
Water loss in the system	Defective connections	► Check O-ring and seals for deformation or wear and tear ► Check filter housing and filter funnel for damage ► Check connection points (water meter screw connection or flange connection) for damage ► Have leaky components replaced by a qualified specialist
Water escaping via lower suction nozzle, drain nozzle cannot be closed via backwash handwheel	A particle got stuck between lower suction nozzle and filter funnel, Mechanical blockage in the filter	► Carry out several backwash processes ► If water continues to escape: Check the filter for foreign particles and damage to interior parts ► Have a qualified specialist enlarge the drain nozzle to Ø 7.5 mm
	Seal on lower suction nozzle is defective or worn	► Check the seal of the drain nozzle ► Have a qualified specialist replace the suction nozzle unit, if necessary

Observation	Explanation	Remedy
Backwash handwheel cannot be operated or is difficult to move	Mechanical blockage in the filter	► Check the filter for foreign particles and damage to interior parts ► Replace brush/es, if necessary
	Thread of suction nozzle is worn	► Check the thread of the suction nozzle for wear and tear ► Have a qualified specialist replace the suction nozzle unit, if necessary
Water leaking from backwash handwheel	O-ring seal of upper suction pipe nozzle is worn	► Remove the upper pipe nozzle and replace the O-ring
Low amount of water escaping during backwash	Sieve bottom is dirty or clogged	► Open the filter funnel and clean the sieve bottom

If a fault cannot be rectified, further measures can be taken by the technical service.

► Contact technical service (refer to inner cover sheet).

10 Decommissioning

It is not necessary to take your product out of operation.

In case of longer absences, e.g. holidays, precautionary hygiene measures according to VDI 3810-2 and VDI 6023-2 must be taken in order to maintain drinking water hygiene after periods of standstill.

10.1 Temporary standstill

► Perform the activities below if the drinking water system has not been used for a longer period of time:

After a downtime of ≤ 4 weeks

1. Open a water withdrawal point and completely flush the filter and the pipes.

After a downtime of > 4 weeks

1. Carry out a backwash.
2. Open a water withdrawal point and completely flush the filter and the pipes.

11 Dismantling and disposal

11.1 Dismantling

The following work must be carried out by qualified specialists only.

1. Close the shut-off valves upstream and downstream of the filter.
2. Open a water withdrawal point.

» The pressure in the pipe network is being relieved.

3. Close the water withdrawal point.
4. Carry out a backwash.

» The pressure in the filter is relieved.

5. Remove the filter.
6. Close the gap in the pipe of your drinking water system.

11.2 Disposal

► Comply with the applicable national regulations.

Packaging

NOTE Risk to the environment due to incorrect disposal

- Packaging materials are valuable raw materials and can be reused in many cases.
- Incorrect disposal can cause environmental hazards.

► Dispose of packaging material in an environmentally sound manner.
► Comply with locally applicable disposal regulations.
► If necessary, commission a specialist company with the disposal.

► Dispose of the filling material (foam) with the residual waste.

Product

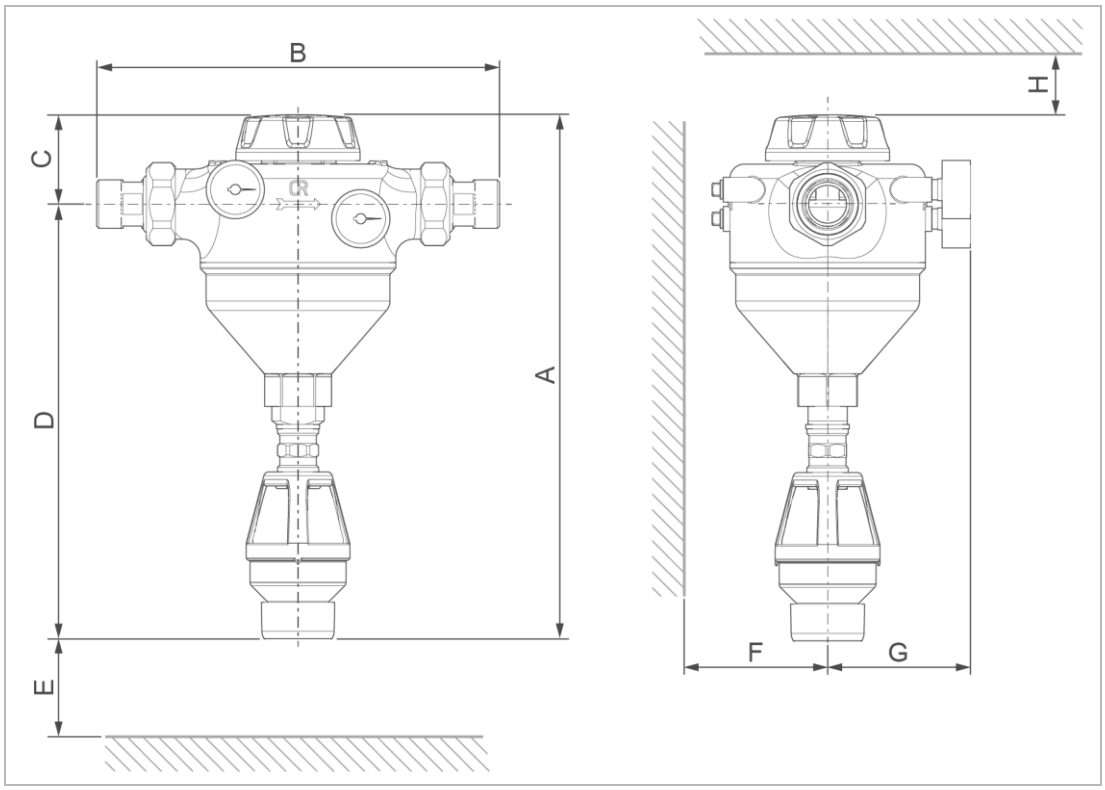
If this symbol (crossed-out wheelie bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

- ► Find out about local regulations on the separate collection of electrical and electronic products.
- ► Use the available collection points for the disposal of your product.
- ► If your product contains batteries or rechargeable batteries, dispose of them separately from your product.

For more information on take-back and disposal, go to www.gruenbeck.com.

12 Technical specifications

12.1 Backwash filters MR25/MR32



Dimensions and weights				MR25	MR32
A	Total height		mm	362	362
B	Installation length	with screw connection	mm	276	281
		without screw connection	mm	190	190
C	Overall height above centre of connection		mm	61	61
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

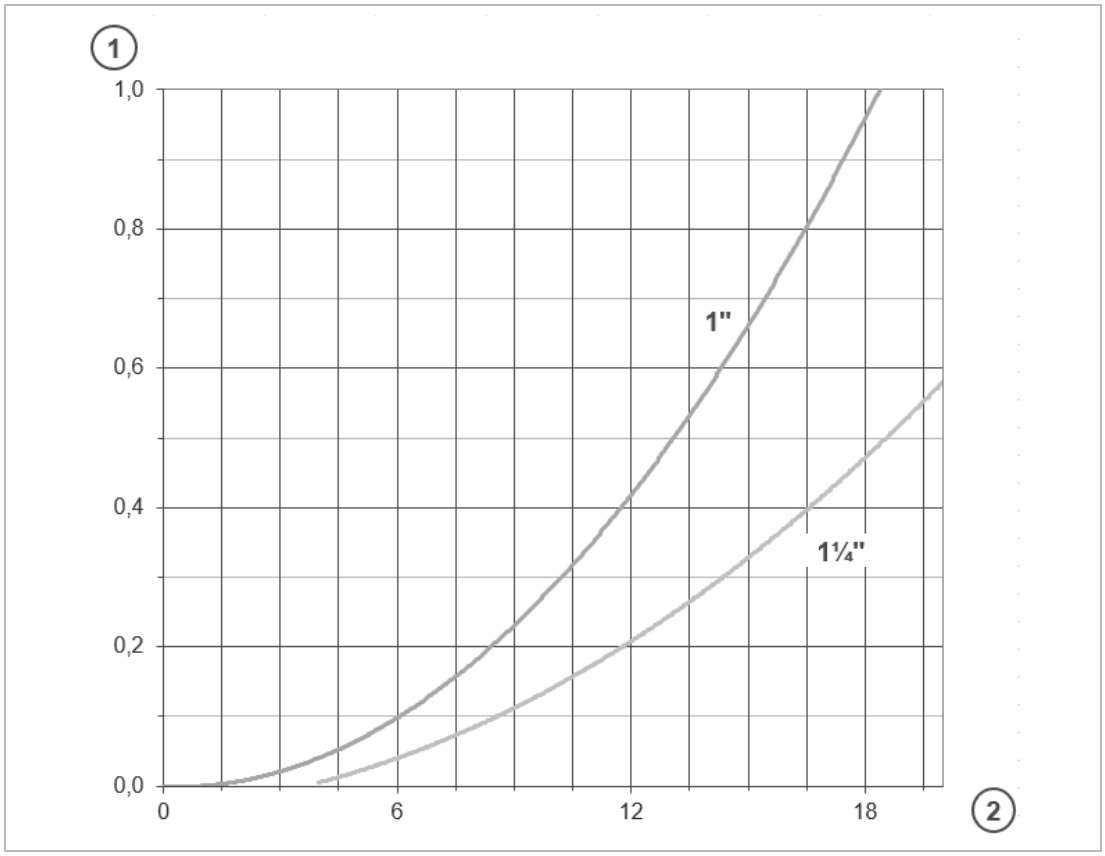
Connection data	MR25	MR32
Nominal connection diameter	DN 25	DN 32
Connection diameter	1"	1¼"
Drain connection	DN 50	

Performance data		MR25	MR32
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		MR25	MR32
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	
Allowable differential pressure	bar	0.4	

General data		MR25	MR32
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 *The Office of the Vienna Provincial Government – City of Vienna*		R-15.2.3-21-17496 R-15.2.1-22-17624	
Order no.		**107000010000**	**107000020000**

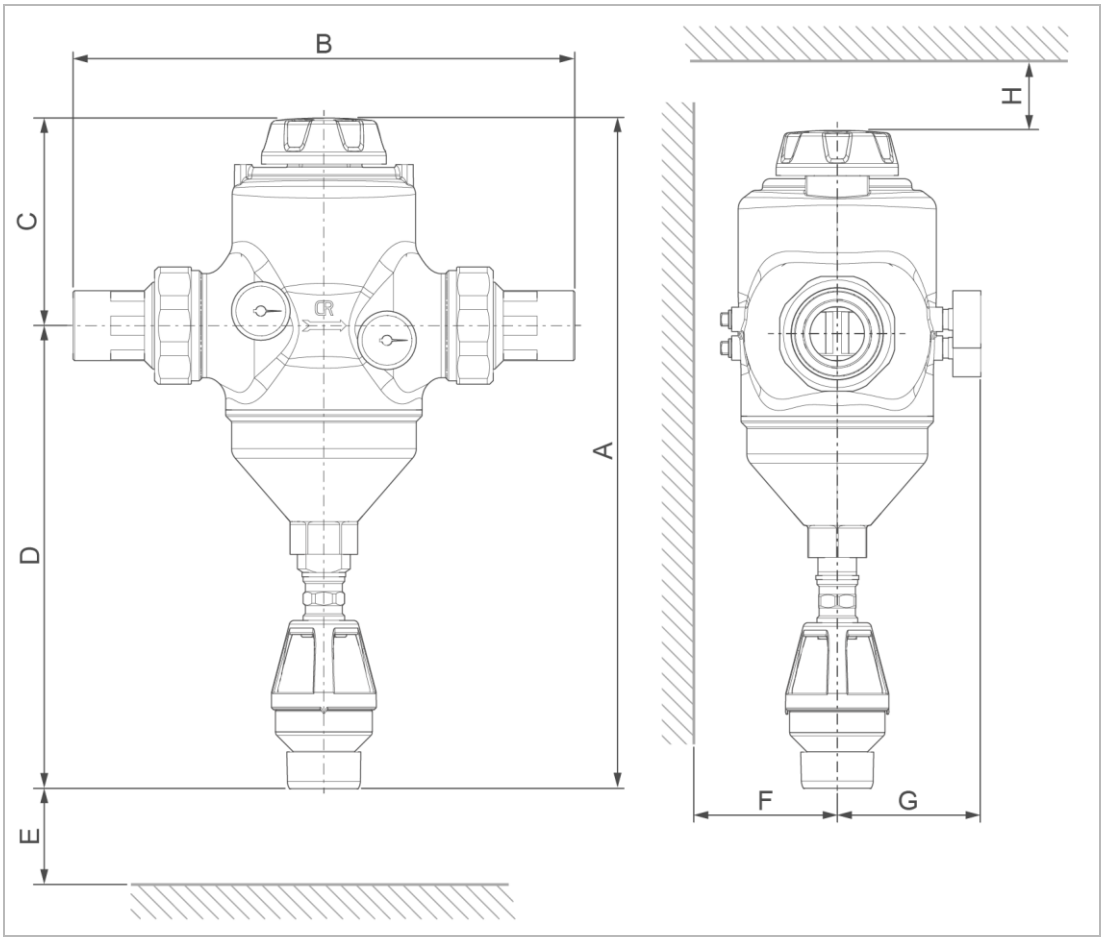
12.2 Pressure loss curves of MR25 (1") and MR32 (1¼")



	Designation
1	Pressure loss in bar

	Designation
2	Flow rate in m³/h

12.3 Backwash filters MR40/MR50



Dimensions and weights				MR40	MR50
A	Total height		mm	461	461
B	Installation length	with screw connection	mm	342	323
		without screw connection	mm	206	206
C	Overall height above centre of connection		mm	142	142
D	Overall height up to centre of connection		mm	319	319
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	~ 9.7	~ 9.7

Connection data	MR40	MR50
Nominal connection diameter	DN 40	DN 50
Connection diameter	1½"	2"
Drain connection	DN 50	

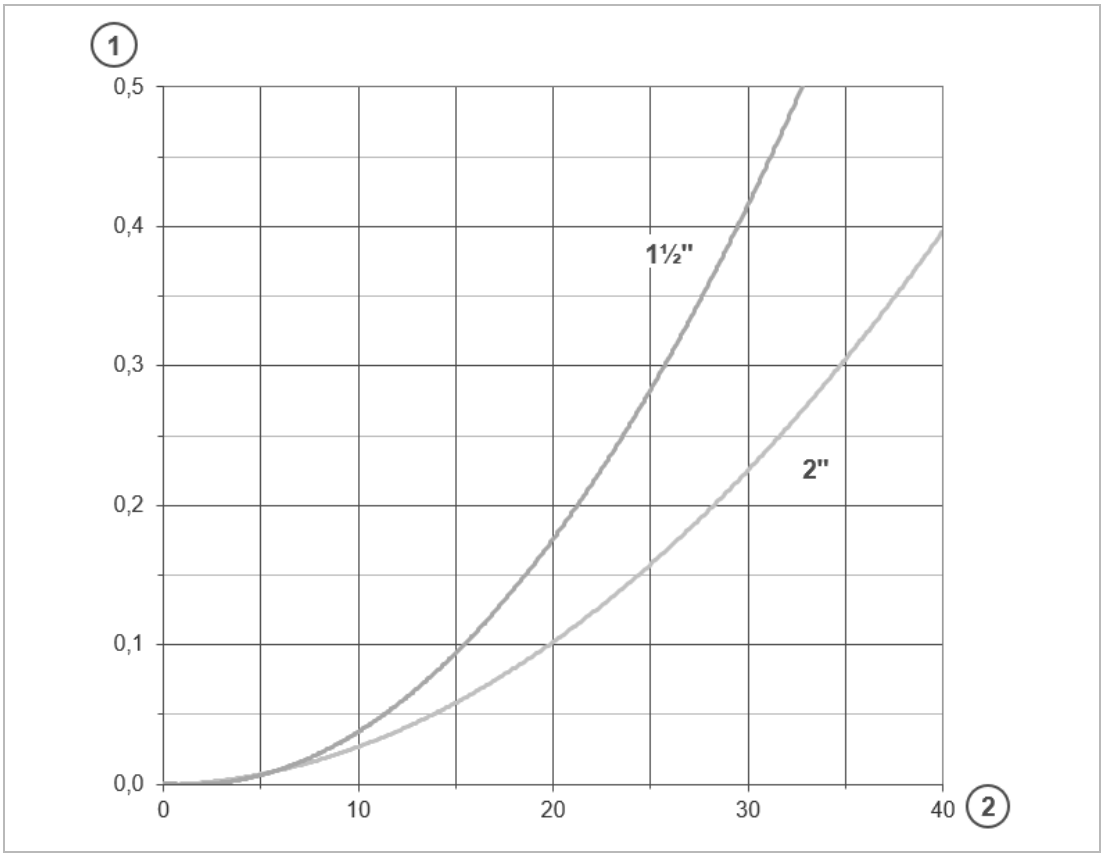
Performance data		MR40	MR50
Nominal flow at Δp 0.2 (0.5) bar	m³/h	22 (32.5)	28 (45)
Kv value	m³/h	46	56
Pore size	µm	100	
Largest/smallest pore size	µm	110/90	
Operating pressure	bar	2 – 16	
Operating pressure at a water temperature of 90°C	bar	≤ 10	

Performance data		MR40	MR50
Nominal pressure		PN 16	

Consumption data		MR40	MR50
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	m^3/h	~ 4.0	
Allowable differential pressure	bar	0.4	

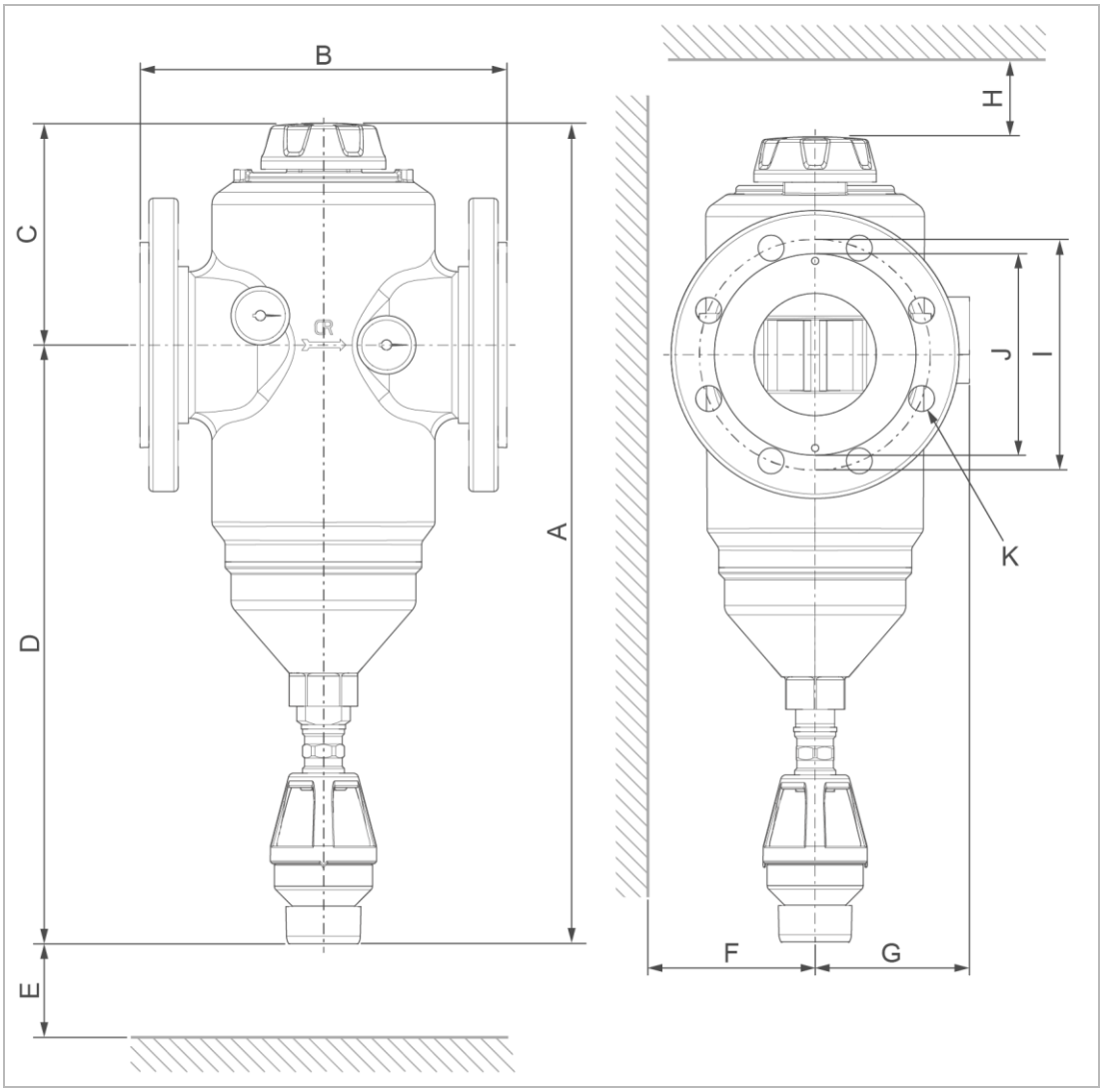
General data		MR40	MR50
Water temperature (drinking water applications)	°C	5 – 30	
Water temperature	°C	5 – 90	
Ambient temperature	°C	5 – 40	
DVGW registration number		NW-9301DO0260	
ÜA registration number *The Office of the Vienna Provincial Government – City of Vienna*		R-15.2.3-21-17496 R-15.2.1-22-17624	
Order no.		**107000030000**	**107000040000**

12.4 Pressure loss curves of MR40 (1½") and MR50 (2")



	Designation		Designation
1	Pressure loss in bar	**2**	Flow rate in m^3/h

12.5 Backwash filters MR65/MR80/MR100



Dimensions and weights			MR65	MR80	MR100
A	Total height	mm	461	560	560
B	Installation length without counter-flanges; flanges PN 16 acc. to DIN EN 1092-1	mm	220	250	250
C	Overall height above centre of connection	mm	142	151	151
D	Overall height up to centre of connection	mm	319	409	409
E	Clearance required for the replacement of the filter element	mm	≥ 215	≥ 315	≥ 315
F	Distance to wall	mm	≥ 95	≥ 105	≥ 105
G	Overall depth up to centre of connection	mm	98	105	105
H	Space above upper edge of filter	mm		≥ 80	
I	Bolt circle diameter of flange	mm	145	160	180
Y	Sealing surface	mm	≤ 122	≤ 140	≤ 158
K	Number of screws M16	pc(s)	4	8	8
	Empty weight	kg	~ 12.0	~ 16.0	~ 17.0

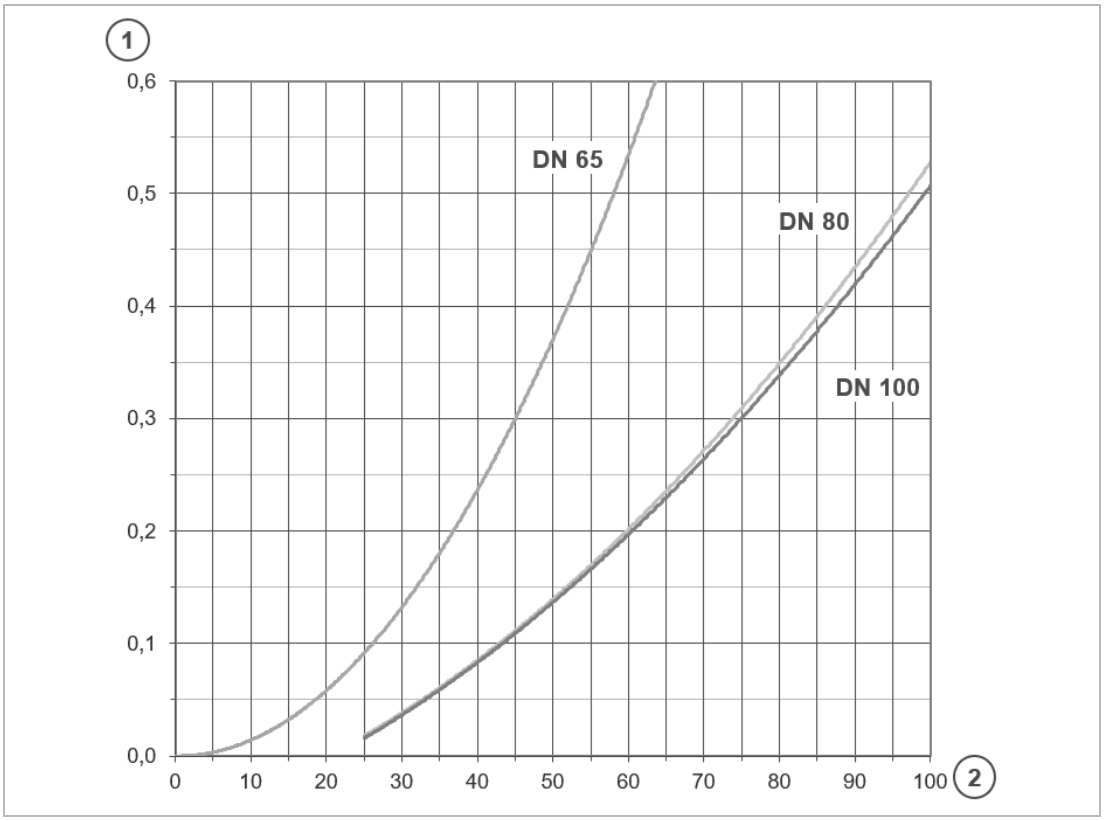
Connection data		MR65	MR80	MR100
Nominal connection diameter		DN 65	DN 80	DN 100
Drain connection			DN 50	

Performance data		MR65	MR80	MR100
Nominal flow at Δp 0.2 (0.5) bar	m³/h	37 (58)	60 (96.5)	60 (98)
Kv value	m³/h	69	124	138
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		MR65	MR80	MR100
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	
Allowable differential pressure	bar		0.4	

General data		MR65	MR80	MR100
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 *The Office of the Vienna Provincial Government – City of Vienna*			R-15.2.3-21-17496 R-15.2.1-22-17624	
Order no.		**107000050000**	**107000060000**	**107000070000**

12.6 Pressure loss curves of MR65/MR80/MR100



	Designation		Designation
1	Pressure loss in bar	2	Flow rate in m^3/h

13 Operation log

- ► Document the initial start-up and all maintenance activities.
- ► Copy the maintenance report.

Backwash filter MR _____

Serial no.: _____

13.1 Start-up log

Customer	
Name	
Address	

Installation/accessories		
Drain connection acc. to DIN EN 1717	☐ Yes	☐ No
Floor drain present	☐ Yes	☐ No
Safety device	☐ Yes	☐ No

Operating values		
Water pressure raw water inlet	bar	
Water pressure at pure water outlet	bar	
Residential water meter reading	m³	

Remarks

Start-up	
Company	
Service technician	
Work time certificate (no.)	
Date/signature	

13.2 Maintenance

Date	Work performed	Signature

Date	Work performed	Signature

Publisher's information

Technical documentation
If you have any questions or suggestions regarding this operation manual, please contact the Technical Documentation Department at Grünbeck Wasseraufbereitung GmbH

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