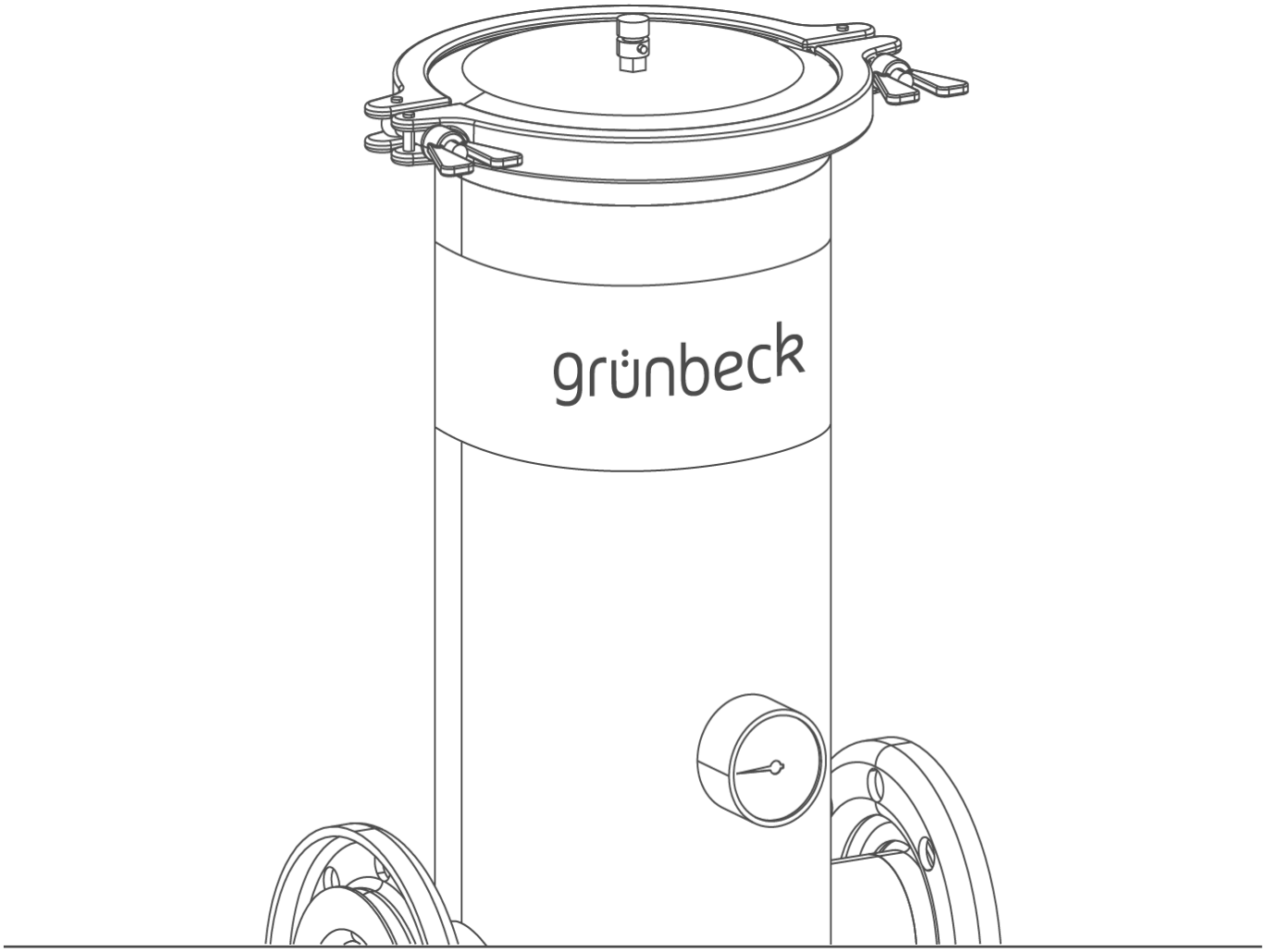
We understand water.



Filters | GENO-fine filters FME/FME-WW/FME-KW

Operation manual

grünbeck

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

Friday
7:00 am – 4:00 pm

Original operation manual
Edition: October 2024
Order no.: TD3-AF000en_064

Table of contents

1 About this manual

1.1 Other applicable documents

The following documents shall be deemed as applicable documents for the GENO-fine filters FME:

- The manuals of all accessories used.

1.2 Target group

This manual is intended for qualified specialists and owners/operators/operating companies.

1.3 Storage of documents

Keep this manual and all other applicable documents, so that they are available when needed. Make sure that your specialist installer enters the proper start-up and annual maintenance in the operation log in chapter 10.

1.4 Symbols used

This symbol identifies instructions that you must comply with for your personal safety as well as to avoid damage to property.

This symbol identifies information and instructions that you must comply with in order to avoid damage to property.

This symbol identifies important information about the product or its handling.

This symbol identifies work that is only allowed to be carried out by qualified specialists. In Germany, the installation company must be registered in an installation directory of a water supply company acc. to §12(2) AVB Wasser V (German Ordinance on General Conditions for the Supply of Water).

This symbol identifies work that must only be carried out by Grünbeck's technical service/authorised service company or by qualified specialists trained by Grünbeck.

1.5 Typographical conventions

The following typographical conventions are used in this manual:

Description	Depiction
Handling instruction one-step or chronological sequence of steps does not matter	▶ Action
Handling instruction multi-step and chronological sequence of action steps important	**1.** First action **a** first step **b** second step **2.** Second action
Result after a handling instruction	» Result
Lists	● List item • List sub-item
Menu paths	`Status level>Menu level>Submenu`
Display texts	Display text
Operating elements	Button/key

1.6 Validity of the manual

This manual applies to the following products:

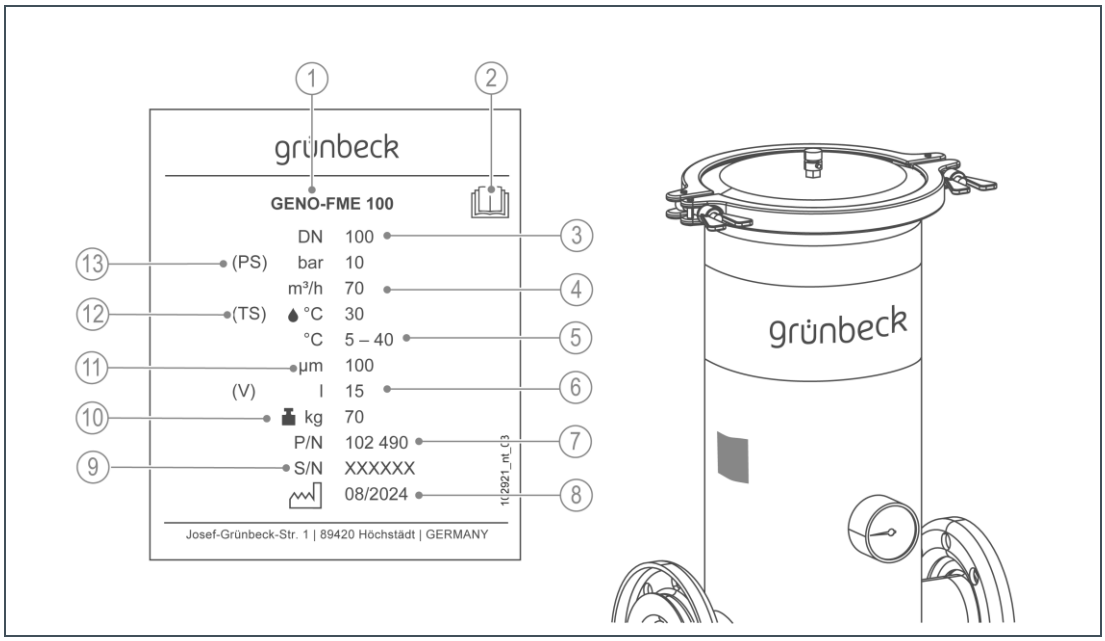
- GENO-fine filters FME/FME-WW/FME-KW 50
- GENO-fine filters FME/FME-WW/FME-KW 65
- GENO-fine filters FME/FME-WW/FME-KW 80
- GENO-fine filters FME/FME-WW/FME-KW 100

1.7 Type plate

The type plate is located on the side of the inlet pipe (raw water inlet).

Please specify the data shown on the type plate in order to speed up the processing of your enquiries or orders.

► Enter the necessary information in the table below to have it readily available whenever necessary.



Pos.	Bezeichnung	Pos.	Bezeichnung
1	Product designation	2	Observe the Operation Manual
3	Nominal connection diameter	4	Flow rate (at Δp 0.2 bar)
5	Ambient temperature	6	Pressure device volume
7	Order no.	8	Date of manufacture
9	Serial no.	10	Operating weight
11	Pore size	12	Max. water temperature
13	Max. permissible pressure		

- Product designation: GENO-fine filter_____
- Order no.: 102 _____
- Serial no.: _____

2 Safety

WARNING: Contamination of drinking water due to improper handling.

- Risk of infectious diseases.
- ► Have the installation, commissioning and annual maintenance carried out by qualified specialists only.

2.1 Safety measures

- Carefully read this manual before operating your product.
- Only operate the product if all components are installed properly.
- Only have persons working on your product who have read and understood this manual and that are qualified to do such work on account of their vocational training.
- Comply with the hygiene instructions in chapter 6. Failure to comply can result in a microbiological contamination of your drinking water system.
- Keep your product permanently connected to the water supply.
- Safety devices must never be removed, bridged, or otherwise tampered with.
- Comply with the maintenance intervals (refer to chapter 6.2). Failure to comply can result in a microbiological contamination of your drinking water system.
- Children must not play with the product.
- This product can be used by children over 8 years of age and persons with limited abilities or lack of experience if they are supervised or instructed in the safe use of the product and understand the resulting hazards.
- Cleaning and maintenance must not be carried out by children.

2.2 Technical safety instructions

This manual contains instructions that you must comply with for your personal safety as well as to avoid damage to property. The information and instructions are highlighted by a warning triangle and have the following structure:

CAUTION: Type and source of danger.

- Possible consequences
- ► Preventive measures

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

- **DANGER** means that death or serious injury will result.
- **WARNING** means that death or serious injury can result.
- **CAUTION** means that minor bodily injuries can occur.
- **NOTE** (without warning triangle) means that damage to property may occur.

2.3 Regulations

When installing and starting up the system, amongst others, comply with the following regulations and guidelines:

- statutory regulations on environmental protection
- regulations of the employers' liability insurance association
- DIN EN 806 Specifications for installations inside buildings conveying water for human consumption
- VDI 6023 Part 5 - 7 Specifications for installations inside buildings conveying water for human consumption

2.4 Responsibilities of the qualified specialist and/or the specialist company

Comply with the following instructions to ensure the proper and safe functioning of the product:

- Only perform activities described in this manual.
- Perform all activities in accordance with all applicable standards and regulations.
- Brief the owner/user on the function and operation of the product.
- Advise the owner/user of the maintenance of the product.
- Inform the owner/user about possible dangers that can arise during the operation of the product.
- Fill in the operation log (refer to chapter 10).

2.5 Responsibilities of the owner/operator/operating company

Comply with the following instructions to ensure the proper and safe functioning of the product:

- Arrange for a qualified specialist to carry out installation, start-up and maintenance.
- Have the product explained to you by a qualified specialist.
- Only perform activities described in this manual.
- Do not carry out any activities that are explicitly designated for a qualified specialist.
- Only use this product as intended.
- Make sure that the required inspection and maintenance work is carried out.
- Keep this manual.

2.6 Product-specific safety instructions

WARNING: If the intervals for inspection and replacement are not adhered to, excessive contamination of the filter elements occur.

- Health risk due to contamination of the drinking water.

► Adhere to the intervals and recommendations for inspection and replacement of the filter elements.

2.7 Packaging, shipping and storage

Transport

► Transport the filters only in their original packaging.

Storage

► Store the product protected from:

- Damp, moisture, environmental impacts such as wind, rain, snow, etc.
- Frost, direct sunlight, severe heat exposure
- Chemicals, dyes, solvents and their vapours

3 Product description

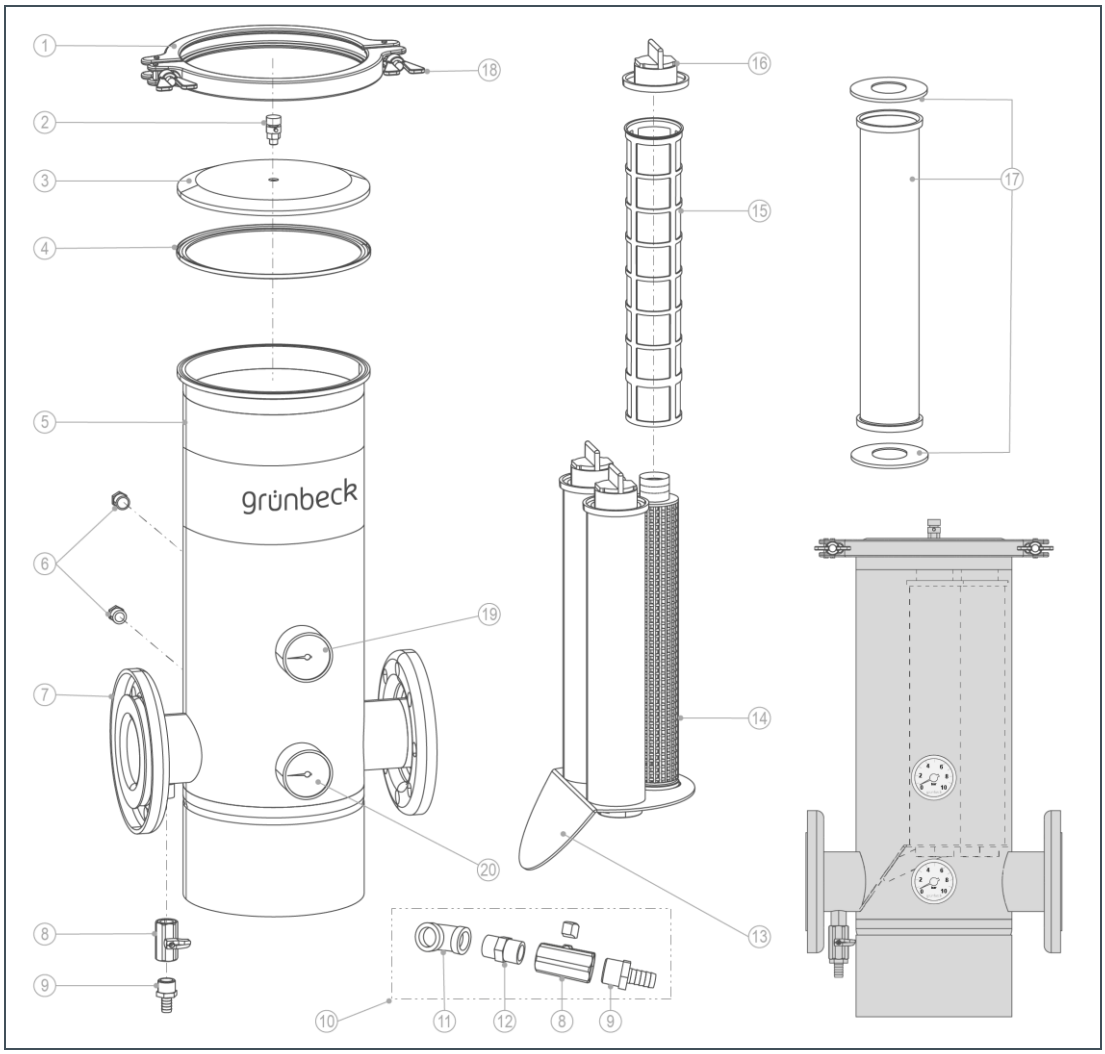
3.1 Intended use

- The GENO-fine filters FME are designed for the filtration of drinking and well water.
- The FME-WW filters as warm water filters are suitable for the filtration of process and boiler feed water – in partial flow only.
- The FME-KW filters are suitable for the filtration of cooling and air conditioning water – in partial flow only.
- The filters FME-WW and FME-KW are suitable for water temperatures up to 90 °C.
- The filters can be used for positive and negative pressure applications.
- The filters are designed according to the stipulations of DIN EN 13443-1 and DIN 19628 and are intended for installation into drinking water pipes according to DIN EN 806-2.
- 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.

3.2 Foreseeable misuse

- The filters are not suitable for circulation water that is treated with chemicals.
- The filters are neither suitable for oils, greases, solvents, soaps and other lubricating media, nor for the separation of water-soluble substances.
- The filters must not be installed in vertical water pipes.

3.3 Product components



Item	Designation	Item	Designation
1	Retaining clip	2	Air vent
3	Lid	4	Clamp gasket
5	Filter housing	6	Plug
7	Flange	8	Mini ball valve with handle
9	Hose fitting	10	Draining valve, angled (FME 100)
11	90° elbow	12	Double nipple
13	Retaining plate	14	Support mesh
15	Filter elements	16	Cap nut
17	Filter element for FME-KW (cooling water)	18	Wing nut
19	Pressure gauge inlet pressure	20	Pressure gauge for outlet pressure

3.4 Functional description

The unfiltered drinking water flows into the filter from the inlet side and then passes through the filter cartridges to the pure water outlet.

In the course of this process, foreign particles > 100 µm in size (standard) for FME/FME-WW and > 500 µm (standard) for FME-KW are retained.

Depending on their size and weight, the foreign particles either stick to the filter element or fall straight down where they accumulate at the lowest point of the filter.

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

If the differential pressure of 0.8 bar is exceeded at the flow rate of the filter, the filter elements must be replaced.

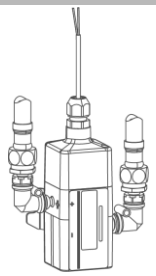
The locking system of the cover ensures the trouble-free and quick replacement of the filter elements without any tools.

3.5 Accessories

You can retrofit your product with additional accessories. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechstaedt for more details (refer to www.gruenbeck.com).

As per DIN EN 13433-1, filter elements of 5 µm, 50 µm and 500 µm are not permitted for drinking water installations.

Designation	Order no.			
Filter elements	**DN 50**	**DN 65**	**DN 80**	**DN 100**
100 µm		**103000020001**		
5 µm		**103 083**		
50 µm		**103 070**		
500 µm		**103 111**		

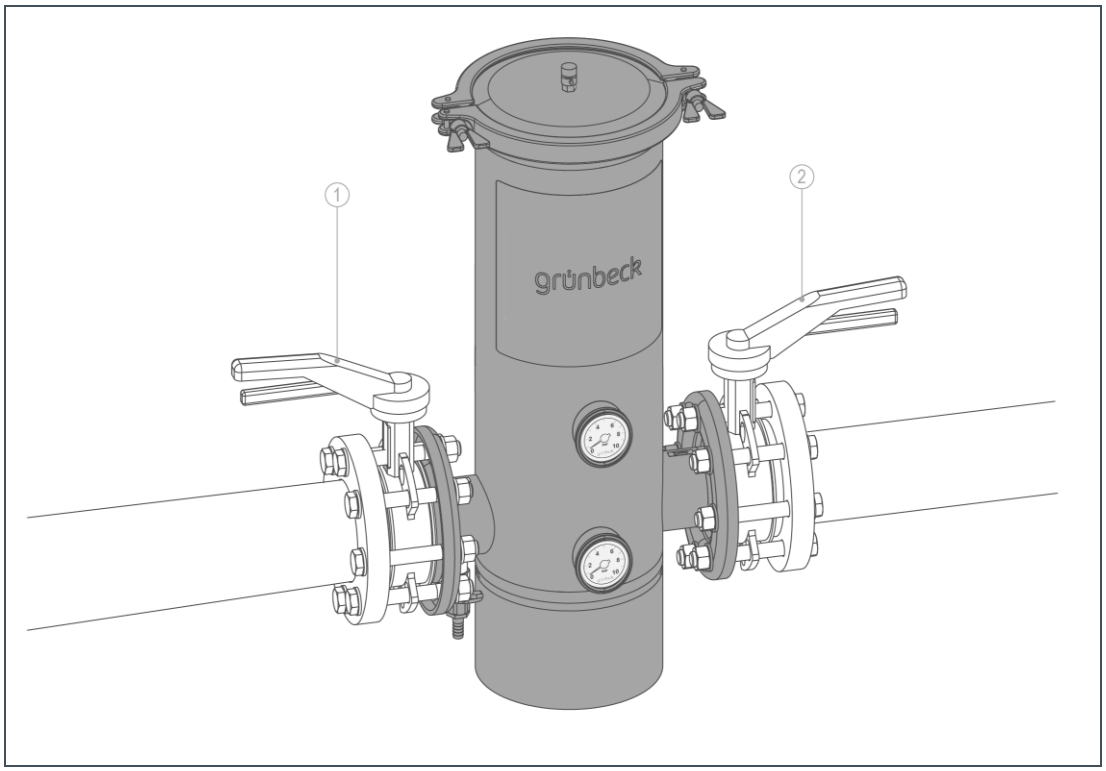
Illustration	Product	Order no.
	**Differential pressure switch** With electric contactor, continuously adjustable for visual or acoustic remote signal	**102 870**
	Hose extension kit for differential pressure switch	**102 850**
	Parallel piping of two GENO-fine filters	Subject to project

4 Installation

The installation of a filter represents a major intervention into the drinking water system and only a qualified specialist should install these systems.

Installation into the drinking water system

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

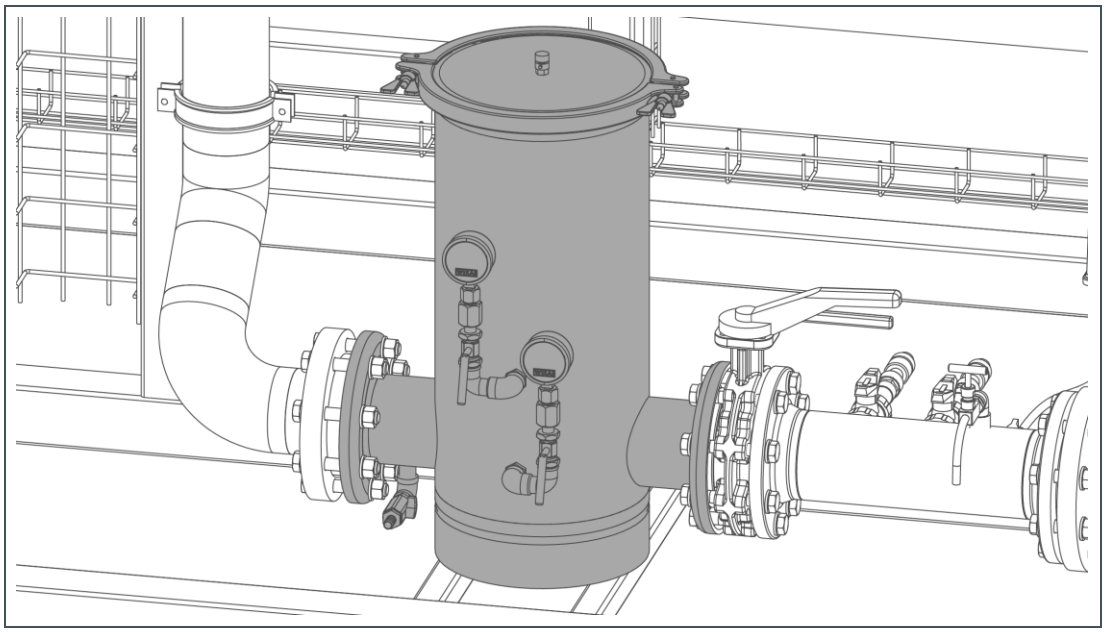


Item	Designation	Item	Designation
1	Inlet shut-off valve	2	Outlet shut-off valve

Install shut-off valves upstream and downstream of the filter.

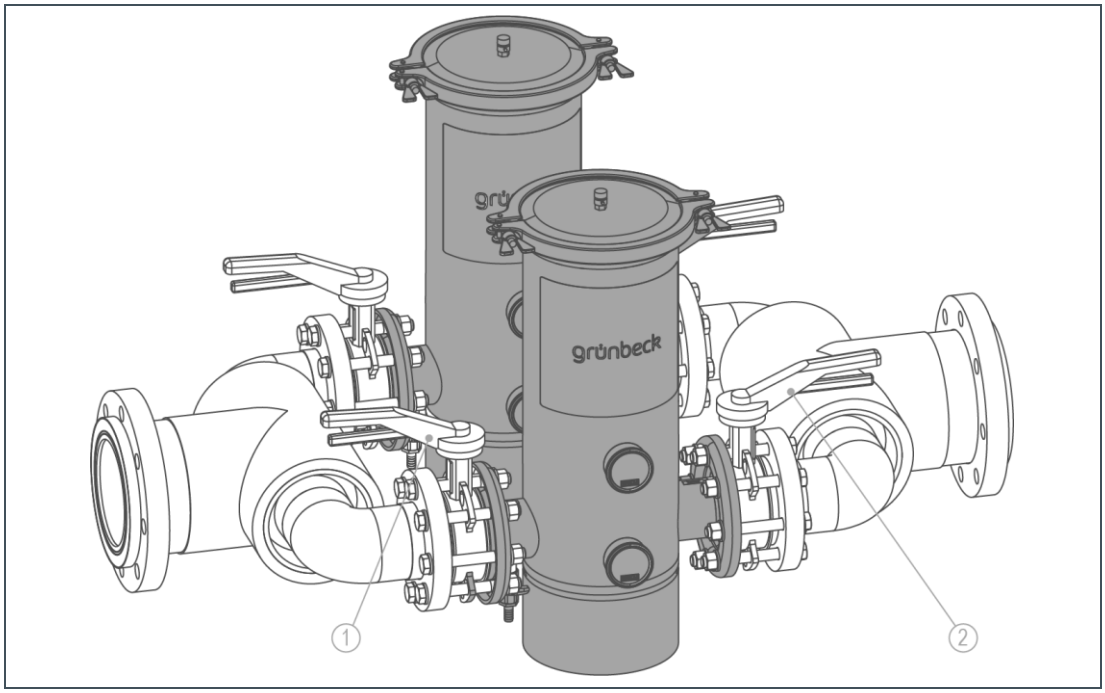
Installation into systems

It is possible to use the filter in the partial flow.



Parallel piping

Parallel piping of two GENO-fine filters for the filtration of process, boiler feed, cooling and air conditioning water in order to ensure an uninterrupted operation even during the replacement of filter elements.



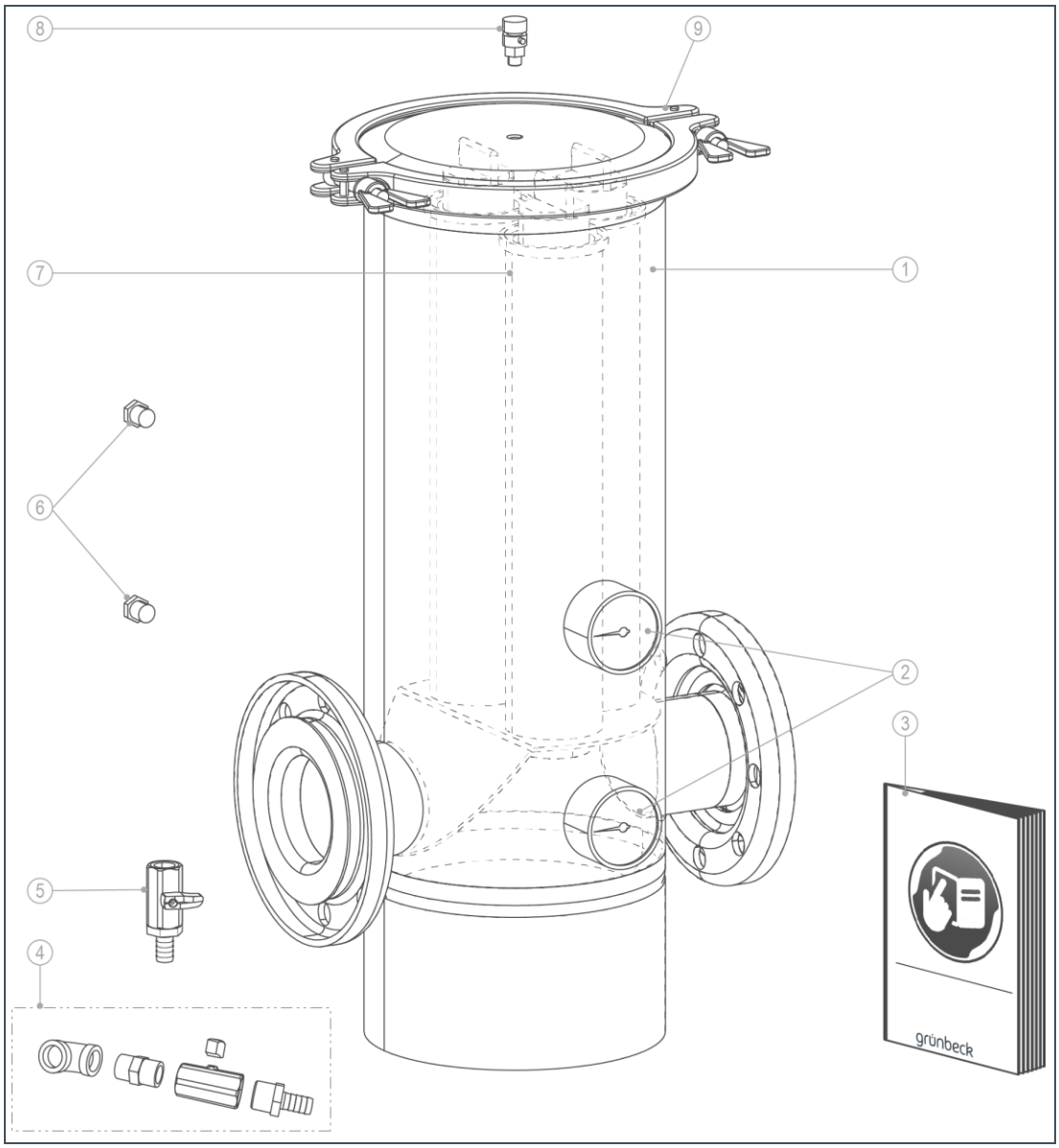
Item	Designation	Item	Designation
1	Inlet shut-off valve	2	Outlet shut-off valve

4.2 Requirements for the installation site

Obey the local installation directives, general guidelines and technical specifications.

- The installation site must be frost-proof and ensure the filter's protection from chemicals, dyes, solvents and their vapours as well as from direct sunlight.
- The installation room must provide an adequately dimensioned floor drain. If no floor drain is available, an appropriate safety device must be installed in order to prevent water damage.
- The installation site must be easily accessible for maintenance purposes.

4.3 Checking the scope of supply



Item	Designation	Item	Designation
1	GENO-fine filter with flange connection according to DIN EN 1092-1	2	Pressure gauge
3	Operation manual	4	Draining valve, angled (FME 100)
5	Draining valve, straight (FME 50/65/80)	6	Plug
7	Filter elements	8	Air vent
9	Cover with wing nuts		

► Check the scope of supply for completeness and damage.

4.4 Installing the product

The filter is delivered with loose individual parts. These individual parts must be assembled on site according to the area of application.

► Check the flow direction prior to assembling the individual parts.

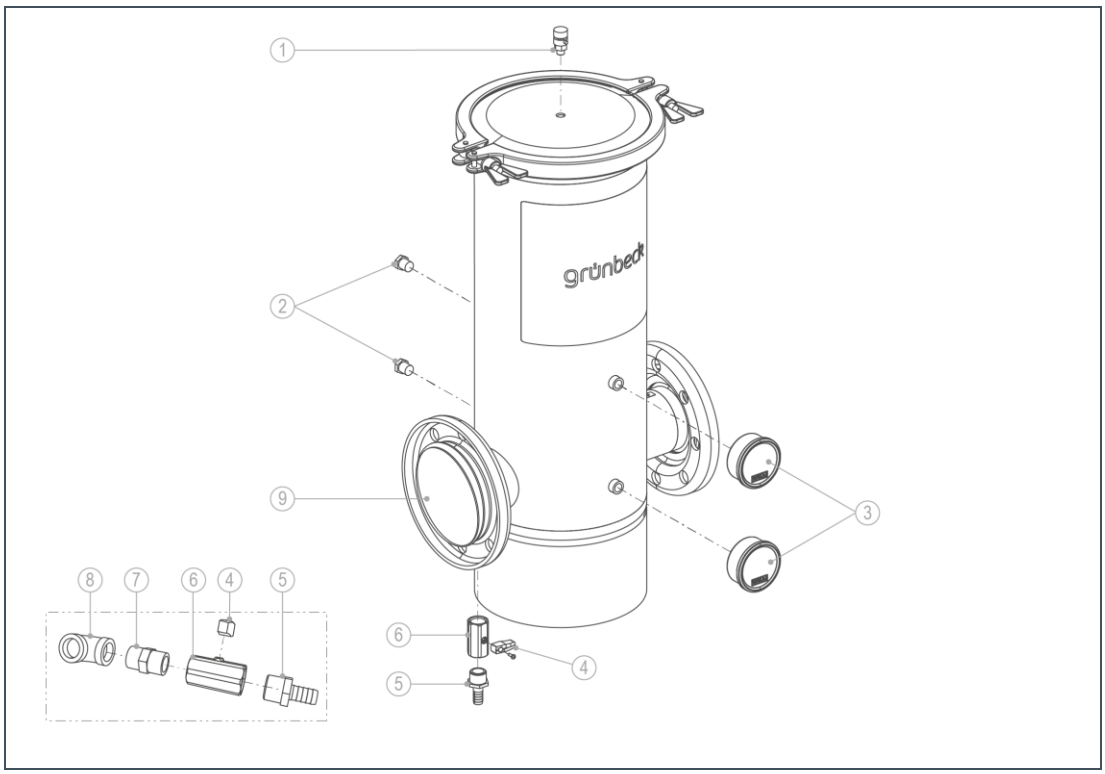
► Install the individual parts in accordance with the direction of flow.

NOTE: Seal loose parts during assembly.

- Leakage at the filter.

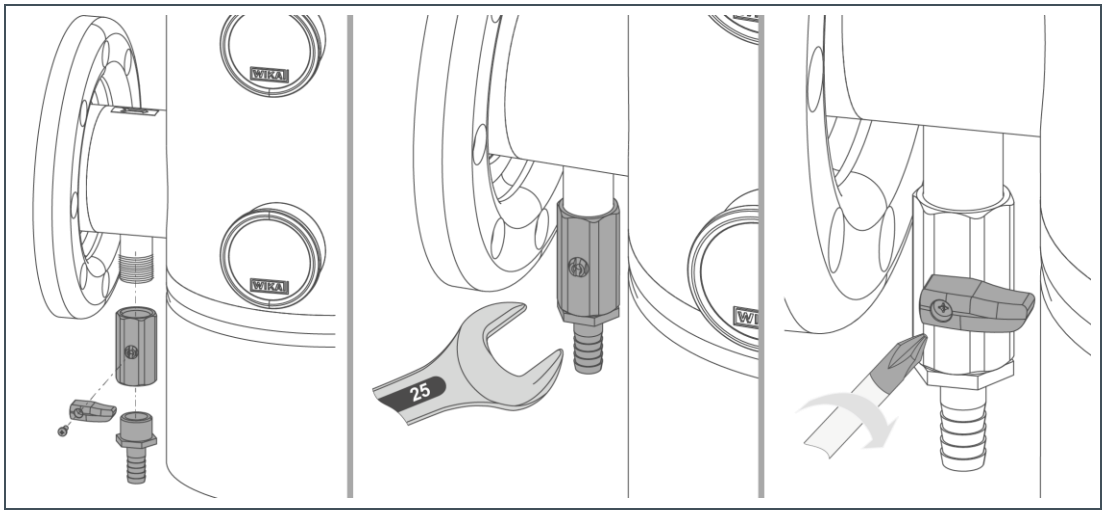
► Seal the components of the draining valve, pressure gauge, and air vent on site with e.g. hemp, Teflon tape.

Only install the GENO-fine filter FME horizontally and free of mechanical stress.



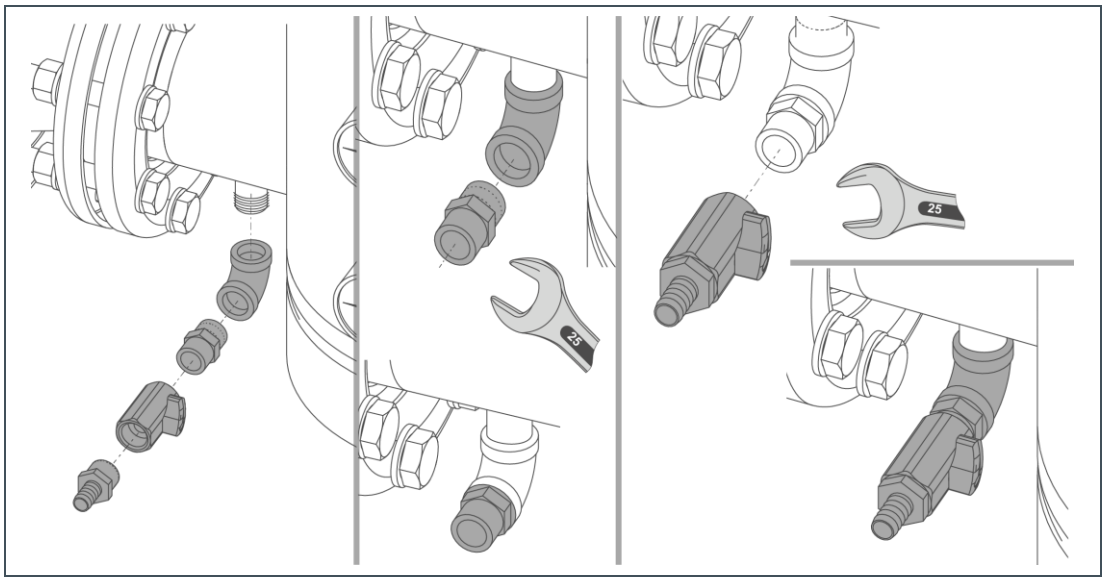
Item	Designation	Item	Designation
1	Air vent	2	Plug
3	Pressure gauge	4	Handle
5	Hose fitting	6	Mini ball valve
7	Double nipple	8	90° elbow
9	Self-adhesive flange disc		

4.4.1 Installing the straight draining valve (FME 50 - 80)



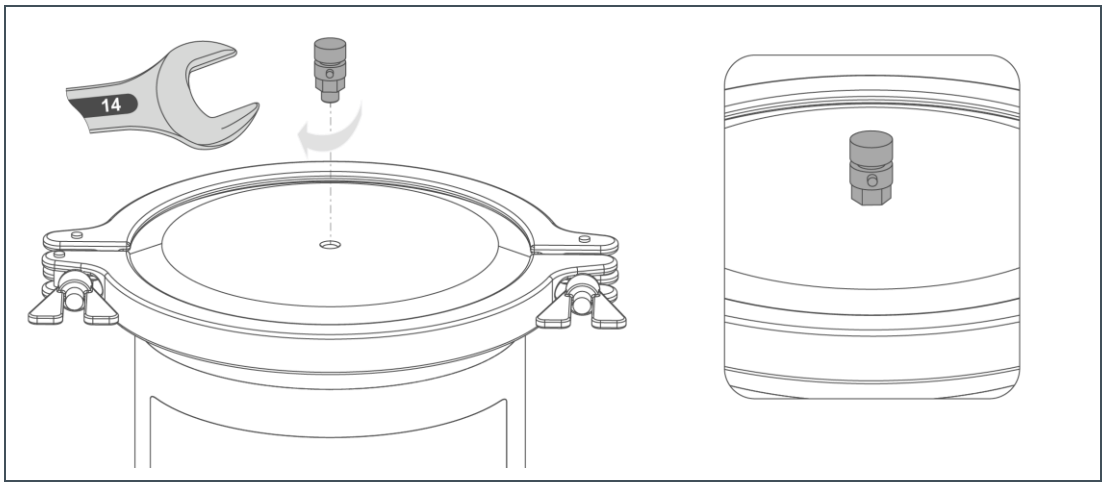
1. Screw the hose nozzle into the mini ball valve.
2. Install the mini ball valve on the filter connection.
3. Install the handle on the mini ball valve.

4.4.2 Installing the angled draining valve (FME 100)



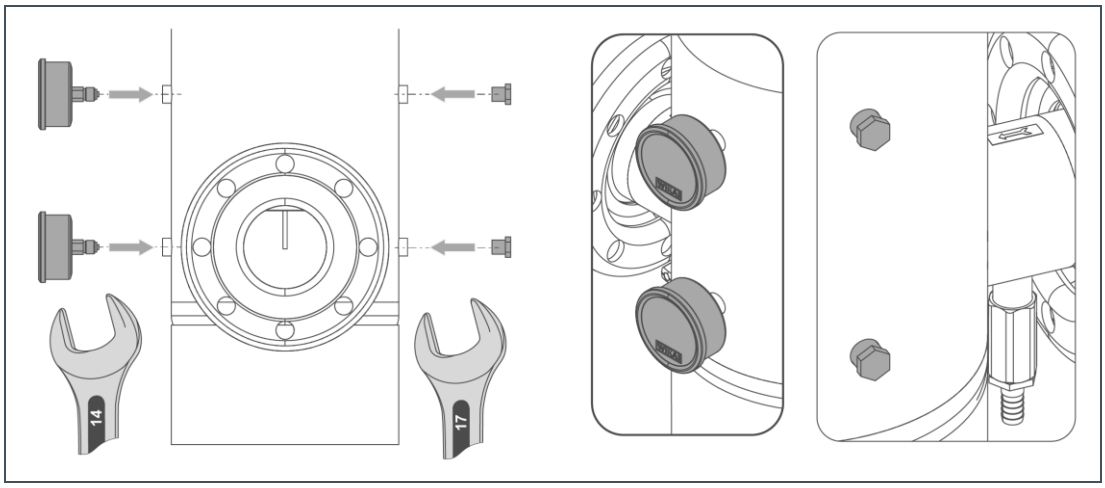
1. Screw the 90° elbow onto the filter connection.
2. Screw the double nipple onto the 90° elbow.
3. Screw the hose nozzle into the mini ball valve.
4. Screw the mini ball valve with hose nozzle onto the double nipple.

4.4.3 Installing the vent valve



1. Screw the air vent tightly onto the top of the cover.

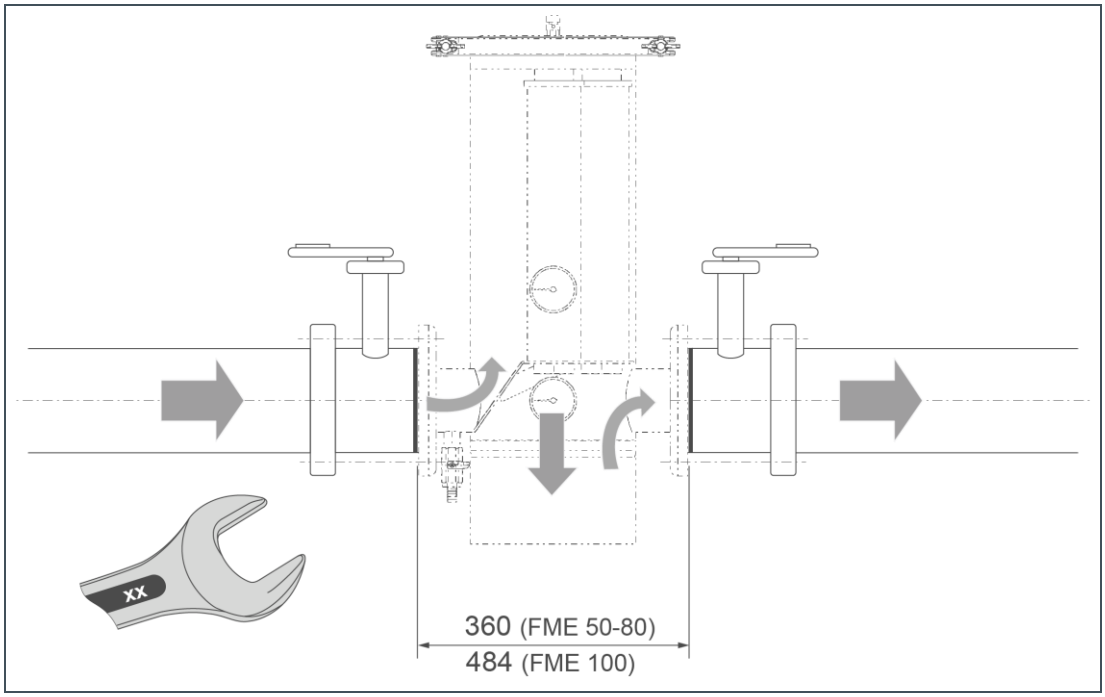
4.4.4 Installing the pressure gauges/plugs



1. Screw the pressure gauge tightly onto the front of the housing.
2. Screw the plugs tightly onto the rear of the housing.

4.4.5 Installing the filter in the pipe

► Remove the self-adhesive flange discs shortly before installing the filter in the pipe.



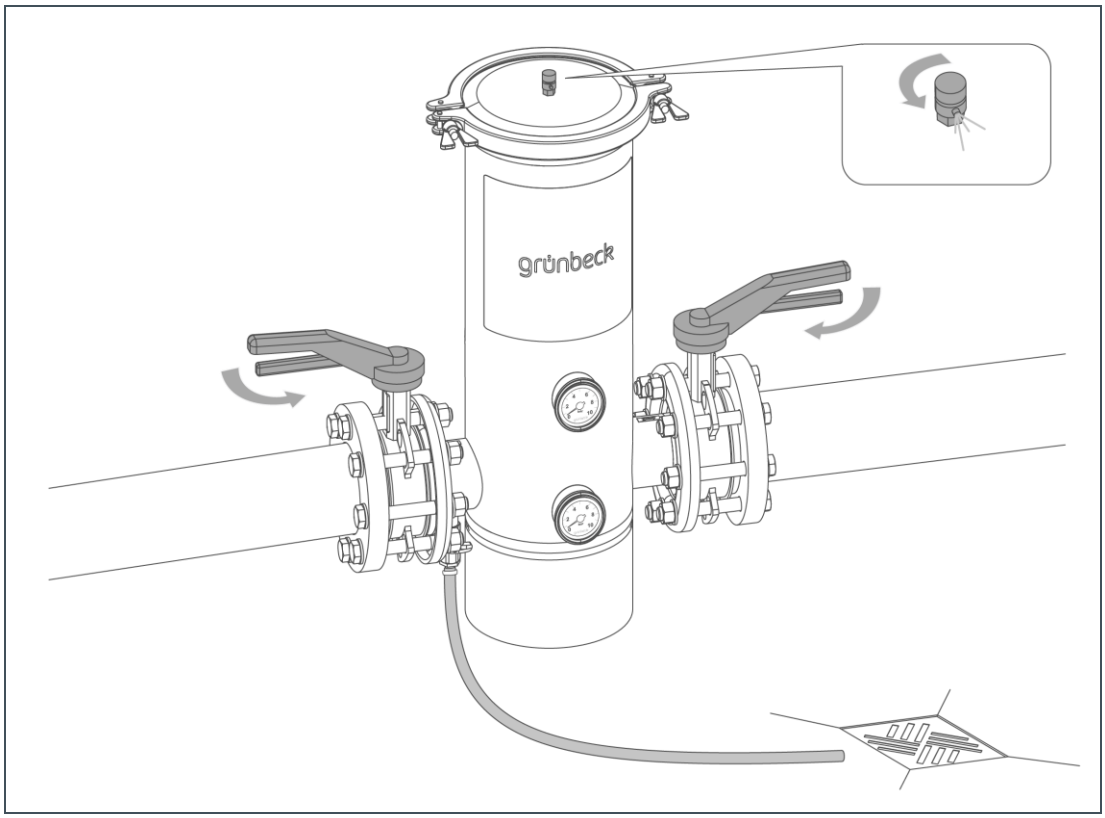
1. Prepare the pipe with flange connection according to DIN EN 1092-1 (the distance between the two seals must be 360 mm for filters FME 50 - 80 µm and 484 mm for filter FME 100).
2. Check the flow direction given on site.
3. By way of the screw connections, screw the filter to the flanges free of any mechanical stress.

5 Start-up

5.1 Putting the product into operation

► Carry out the following steps after installation and any maintenance.

In order to drain the filter, a ½" hose must be installed at the draining valve on site (hose nozzle Ø 11 mm).



► Make sure that the draining valve is closed.

1. Open the air vent.
2. Slowly open shut-off valve 1 (inlet).
3. Close the air vent when no more air is escaping.

» The filter is vented.

4. Slowly open shut-off valve 2 (outlet).
5. Check the filter for leaks.

» The filter is in operation.

5.2 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 safekeeping.
- ► Enter the initial start-up in the start-up log (refer to chapter 10.1).

6 Cleaning, inspection, maintenance

WARNING: Danger of contaminated drinking water if the work is not carried out properly.

- Risk of infectious diseases.
- ► Pay attention to hygiene when working on the product.

Inspection and maintenance of a filter is prescribed in the DIN EN 806-5 standard. Regular maintenance ensures trouble-free, hygienic operation.

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.

6.1 Cleaning

► Only clean the outside of the product.

► Do not use any strong or abrasive cleaning agents.

► Wipe the housing with a damp cloth.

NOTE: Do not clean the filter with cleaning agents that contain alcohol or solvents.

- These substances will damage components.
- ► Use a mild/pH-neutral soap solution.

6.2 Intervals

Activity	Interval	Execution
Inspection	2 months	Visual/functional check, read off the pressure
Maintenance	6 months	Replace the filter elements
	Annually	Check the clamp gasket for wear and tear, check for tight fit
Maintenance and repair	2 years	Recommendation: replace the clamp gasket

6.3 Inspection

According to DIN EN 806-5, the owner/operator/operating company must inspect the filters every 2 months.

To carry out an inspection, proceed as follows:

1. Check the installation for leaks.
2. Open several water withdrawal points (generate max. flow rate).
3. Read off the inlet and outlet pressure at the pressure gauges.
4. Calculate the differential pressure: inlet pressure (upper pressure gauge) - outlet pressure (lower pressure gauge) = differential pressure (max. 0.8 bar).
5. Replace the filter elements if the differential pressure is > 0.8 bar.
6. If the differential pressure of the device cannot be reduced by replacing the filter elements, there is a malfunction.

6.4 Maintenance

WARNING: If the intervals for inspection and replacement are not adhered to, excessive contamination of the filter elements occur.

- Health risk due to contamination of the drinking water.

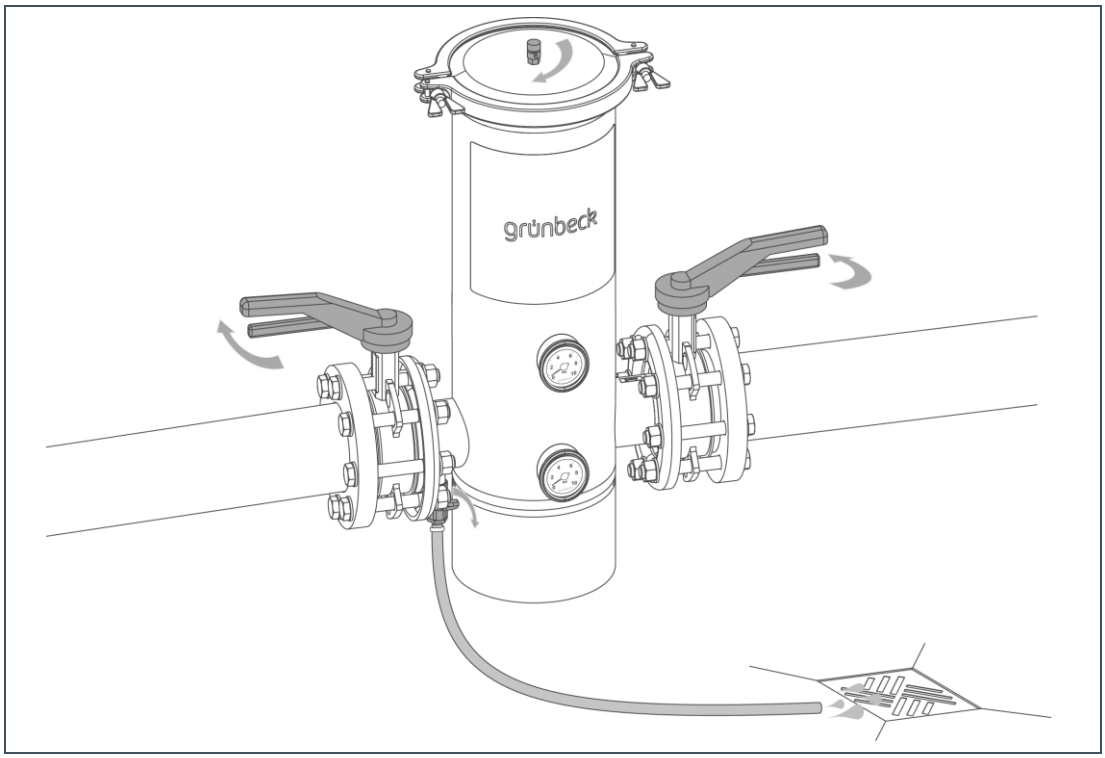
► Obey the intervals for inspection and replacement of the filter elements.

Some regular work is necessary in order to ensure the proper functioning of the product in the long term. DIN EN 806-5 recommends semi-annual and annual maintenance.

According to DIN EN 806-5, the filter elements must be replaced every 6 months for hygiene reasons. We recommend replacing the clamp gasket of the cover every 2 years.

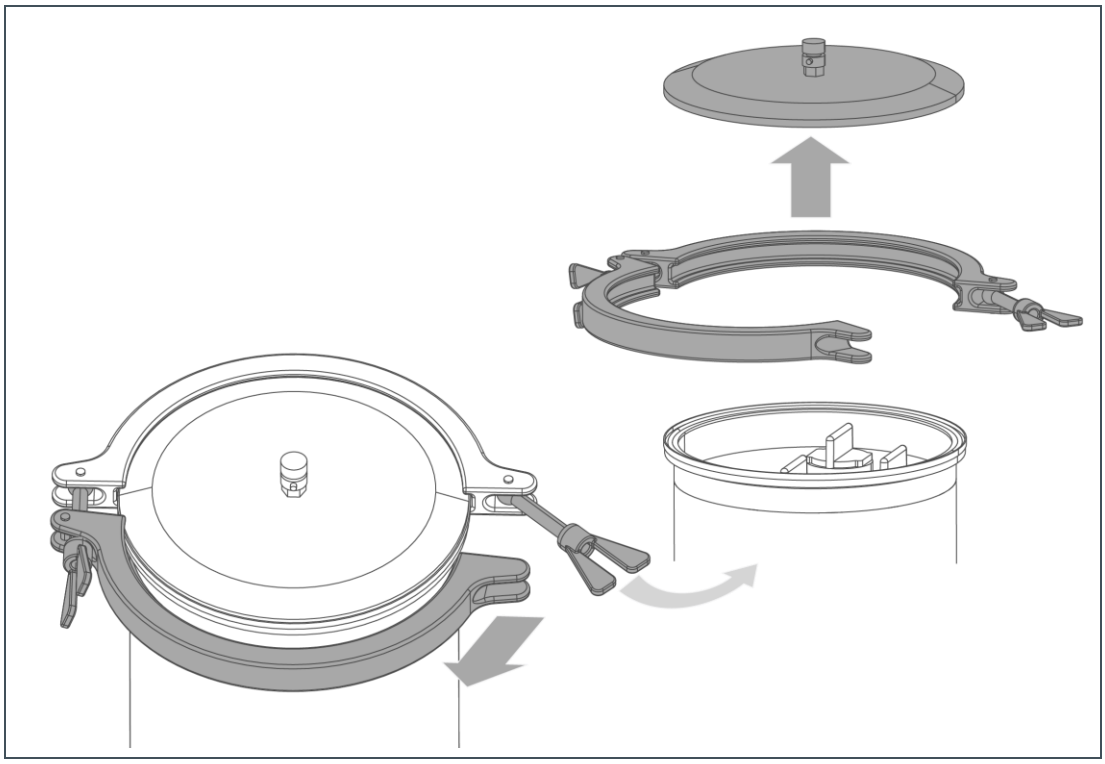
6.4.1 Semi-annual maintenance

Preparations for the replacement of the filter elements



1. Direct the waste water line towards the sewer.
2. Close shut-off valves 1 inlet and 2 outlet.
3. Open the air vent.
4. Open the handle of the draining valve and allow the water to drain completely.

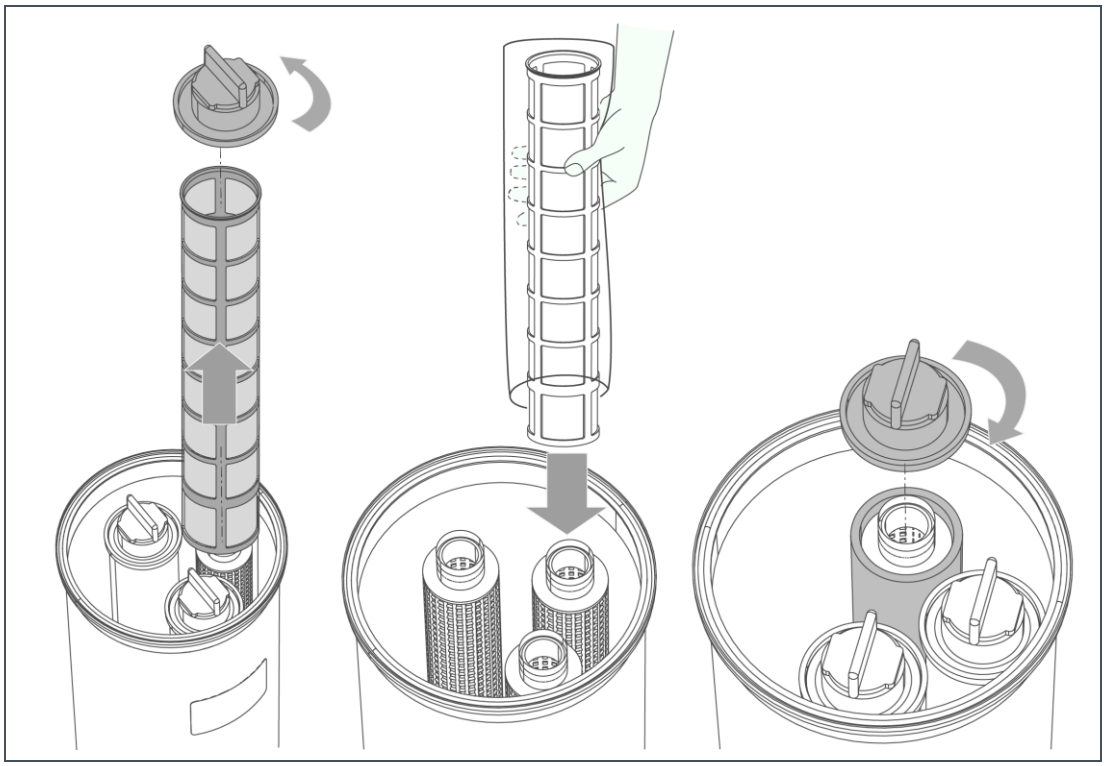
» The filter is drained.



5. Loosen the wing nuts.
6. Open the retainer clip.
7. Remove the cover.
8. Flush the sunk dirt particles from the filter housing via the draining valve.

» The filter is open and flushed.

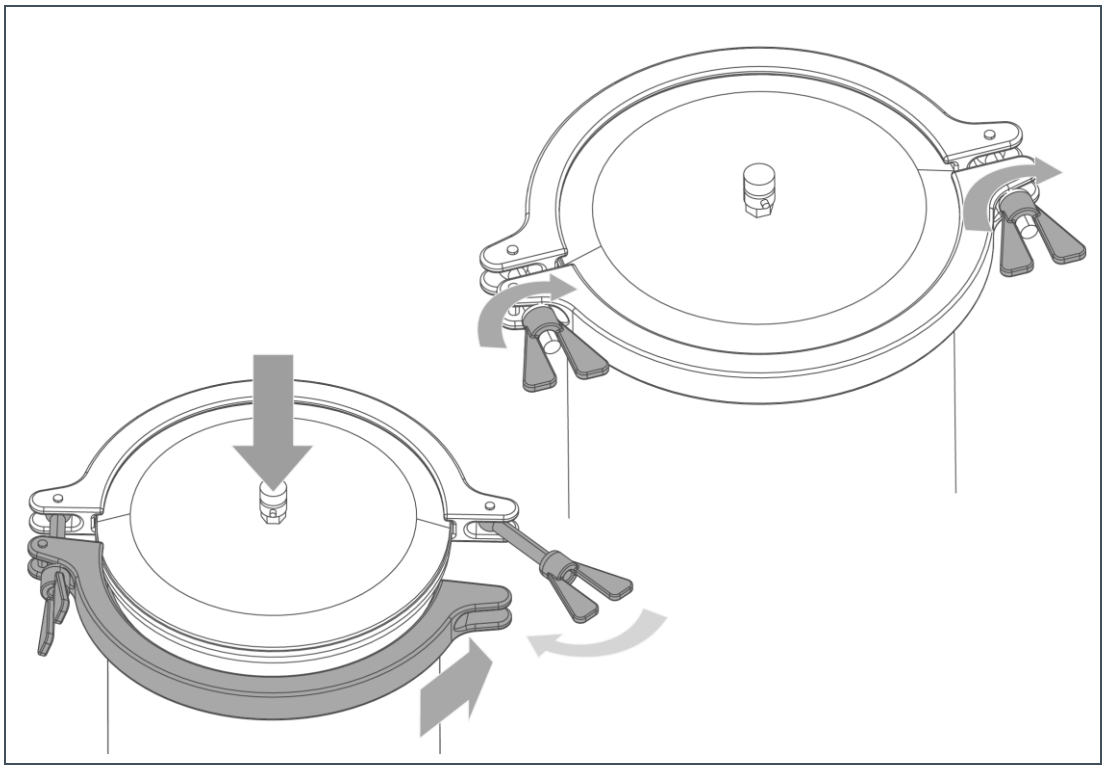
Hygienic replacement of the filter elements



1. Unscrew the cap nut.
2. Remove the dirty filter element from the support mesh.
3. Dispose of the used filter element in accordance with local regulations.

For hygienic reasons, do not touch the new filter element with bare hands.

4. Slide the new filter element in its foil packaging over the support mesh.
5. Pull off the foil without touching the filter element.
6. Repeat the process for all filter elements.
7. Screw the cap nuts back on again.
8. Check the sealing surfaces and the clamp gasket for cleanliness.



9. Put on the filter cover.

10. Install the retaining clip.

11. Tighten the wing nuts evenly.

» The cover is fully tightened.

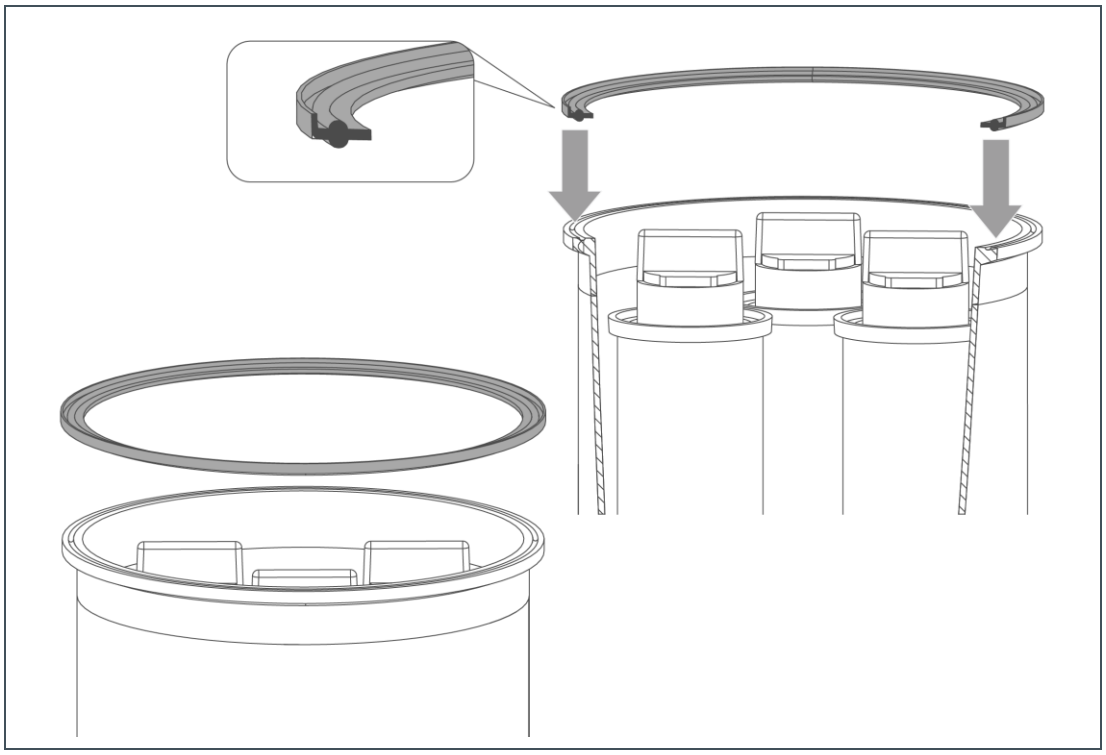
12. Put the filter into operation (refer to chapter 5).

» The filter is ready to use.

6.4.2 Annual maintenance

Carrying out annual maintenance work requires specialist knowledge. This kind of maintenance work must only be carried out by Grünbeck's technical service/authorised service company or by a qualified specialist trained by Grünbeck.

In addition to the semi-annual maintenance, the following work needs to be done:



1. Check the clamp gasket for wear and tear.
2. Check the filter for a tight fit and leaks.

6.5 Consumables

Designation	Order no.			
Filter elements		**DN 50/DN 65**	**DN 80**	**DN 100**
100 µm (Packing unit: 2 pcs)	**103000020001**	Required per filter: 2 pcs	Required per filter: 3 pcs	Required per filter: 5 pcs
5 µm (Packing unit: 2 pcs)	**103 083**	Required per filter: 2 pcs	Required per filter: 3 pcs	Required per filter: 5 pcs
50 µm (Packing unit: 2 pcs)	**103 070**	Required per filter: 2 pcs	Required per filter: 3 pcs	Required per filter: 5 pcs
500 µm (Packing unit: 2 pcs)	**103 111**	Required per filter: 2 pcs	Required per filter: 3 pcs	Required per filter: 5 pcs

Number of filter elements subject to size of filter.

6.6 Spare parts

For spare parts and consumables please contact your local Grünbeck representation which you may find on the internet at www.gruenbeck.com.

6.7 Wearing parts

Although these parts are wearing parts, we grant a limited warranty period of 6 months.

Wearing parts are listed below:

Designation	Order no.
Clamp gasket	**102 606e**

7 Fault

WARNING: Risk of contaminated drinking water due to stagnation.

- Risk of infectious diseases.

► Have malfunctions eliminated immediately.

► If malfunctions cannot be remedied by the instructions given below, contact Grünbeck's technical service/authorised service company.

► Keep your equipment data (refer to chapter 1.7) ready.

Troubleshooting is only allowed to be carried out by a qualified specialist.

Fault	Explanation/Cause of fault	Troubleshooting
The differential pressure exceeds 0.8 bar at flow capacity.	The filter elements are dirty.	Replace the filter elements.
	The shut-off valves are not fully open.	Fully open the shut-off valves.
Water escapes at the screw connections of the filter housing.	The screw connections are leaky.	Have the screw connections at the filter housing replaced by a qualified specialist.
Water escapes at the cover.	The wing nuts have not been tightened enough.	Tighten the wing nuts.
	The clamp gasket has not been inserted into the groove correctly.	Completely/properly insert the clamp gasket into the groove.
Solids contained in the filtered water.	Inappropriately high flow through the filter.	Check the support mesh and the filter elements for damage or leaks.
	Filter element/support mesh damaged or not installed properly.	Check the installation of the filter elements / the support mesh and if necessary, replace them for new filter elements / support mesh / gaskets and seals.

8 Disposal

► Comply with the applicable national regulations.

Packaging

► Dispose of the packaging in an environmentally sound manner.

***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.

Filter elements

► Dispose of the used filter elements with your household 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.

► Dispose of electrical and electronic products or components in an environmentally sound manner.

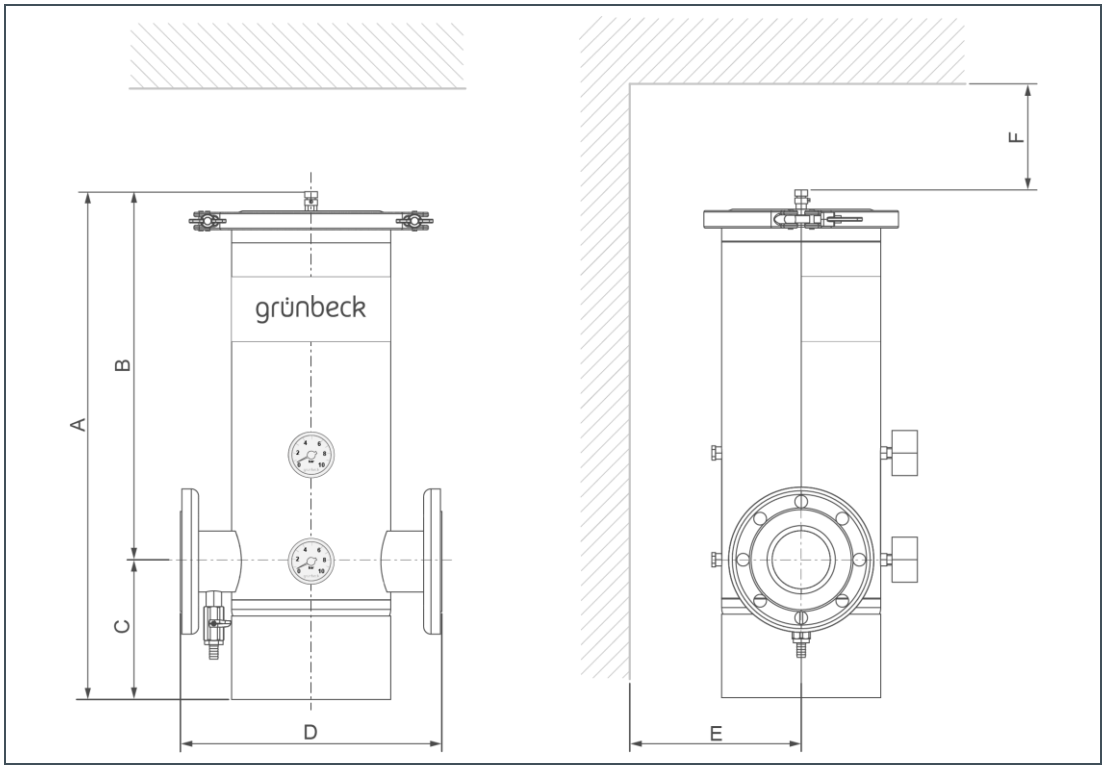
► Find out about local regulations on the separate collection of electrical and electronic products.

► Make use of the collection points available to you 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.

9 Technical specifications

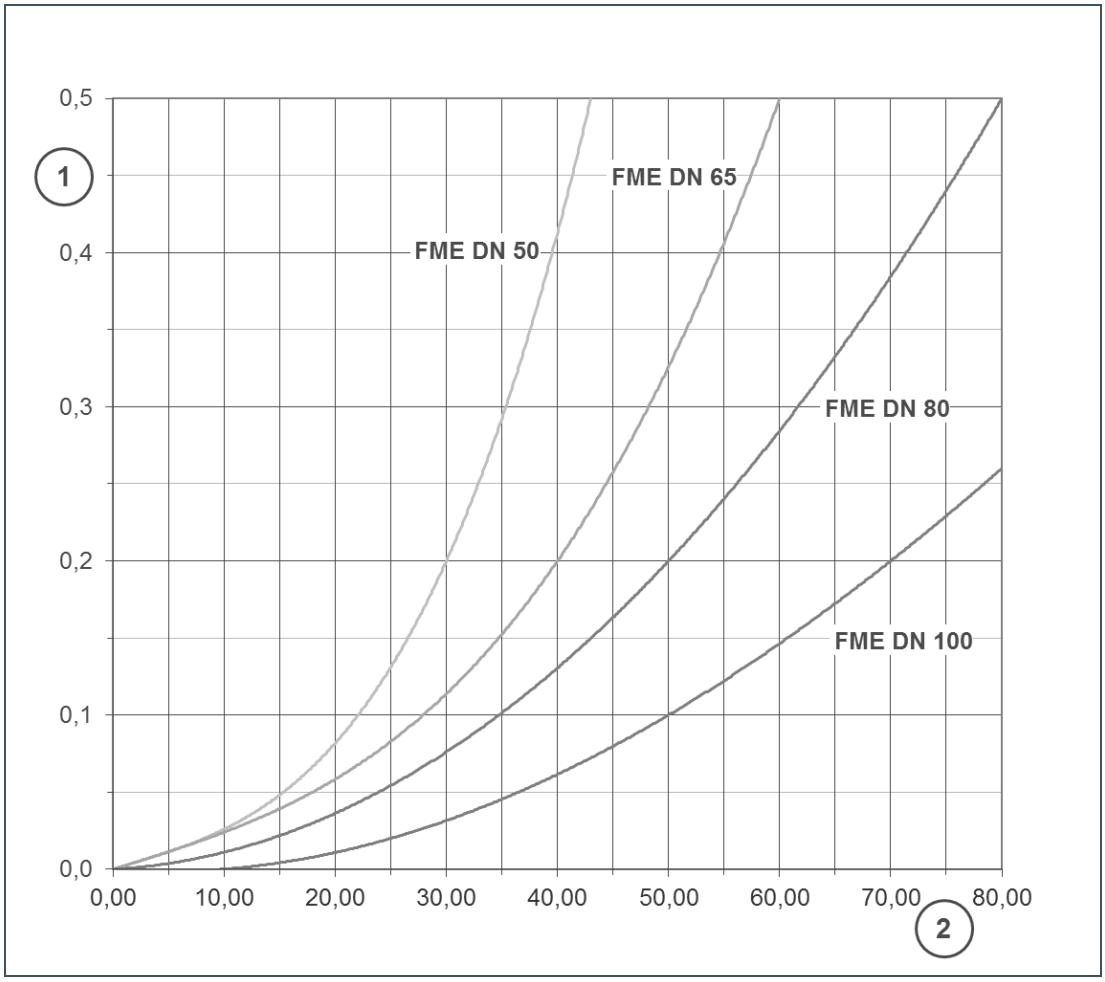


Dimensions and weights			FME/FME-WW/FME-KW			
Nominal connection diameter			DN 50	DN 65	DN 80	DN 100
A	Total height	mm	715	705		680
B	Overall height above centre of connection	mm	525	515		520
C	Overall height lower edge of filter to centre of connection	mm	190			160
D	Installation length without counter flanges acc. to DIN 2642	mm	360			485
E	Min. distance from wall to centre of connection	mm	175			205
F	Clearance required for replacement of filter element	mm	400			
	Filter elements, quantity	Piece	2		3	5
	Operating weight, approx.	kg	45	46	47	70
	Empty weight	kg	22	23	23.5	32.5

Performance data						
Flow rate at Δp 0.2 bar		m^3/h	30	40	50	70
Filter pore size Drinking water (FME)		µm	100			
Filter pore size Warm water (FME-WW)		µm	100			
Filter pore size Cooling water (FME-KW)		µm	500			
Max. permissible pressure (PS)	Drinking water (FME)	bar	10			
	Cooling water (FME-KW) Warm water (FME-WW)	bar	6			
Allowable differential pressure		bar	≤ 0.8			
Pressure device volume (V)		l	18	18	17	15

General data						
Water temperature (TS)	FME	°C	≤ 30			
Water temperature (TS)	FME-WW/FME-KW	°C	≤ 90			
Ambient temperature		°C	5 – 40			
Order no. (Drinking water)		**FME**	**102 190**	**102 290**	**102 390**	**102 490**
Order no. (Warm water)		**FME-WW**	**102 185**	**102 285**	**102 385**	**102 485**
Order no. (Cooling water)		**FME-KW**	**102 195**	**102 295**	**102 395**	**102 495**

9.1 Pressure loss curves



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

10 Operation log

Filters | GENO-fine filter_____

Serial no.: _____

10.1 Start-up log

Customer		
Name:		
Address:		

Installation/accessories		
Floor drain available	☐ Yes	☐ No
Safety device	☐ Yes	☐ No

Operating values		
Water pressure raw water inlet	bar	
Water pressure downstream of pressure reducer	bar	

Remarks

Start-up
Company:
Customer service technician:
Work time certificate (no.):
Date/signature:

10.2 Maintenance

Date	Work performed	Signature

Date	Work performed	Signature

Notes

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