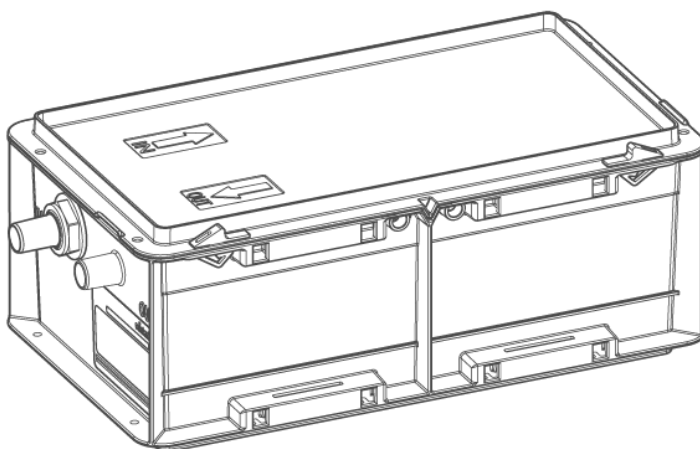




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We understand water.





Activated carbon filter | GENO AF-5

Operation manual

grünbeck

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1 Introduction

This manual is intended for owners/operators/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 included manuals on the components before you operate your product.
- Obey all safety 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 the product below:

- Activated carbon filter GENO AF-5

1.2 Other applicable documents

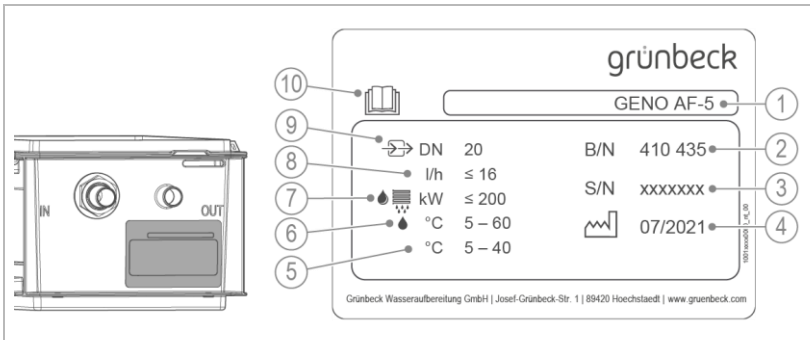
- Instructions of optional accessories
- Maintenance instructions for maintenance kit
Order no. 410 824
- Safety data sheet for activated carbon

1.3 Product identification

You can identify your product based on the product designation and the order no. indicated on the type plate.

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









The type plate is located on the narrow side of the activated carbon filter box.



Designation	
1	Product designation
2	Order no.
3	Serial no.
4	Date of manufacture
5	Ambient temperature

Designation	
6	Condensate temperature
7	Fuel: oil/condensing technology, max. boiler capacity
8	Filter capacity
9	Nominal connection diameter
10	Obey the operation manual

1.4 Symbols used

Symbol	Meaning
	Danger and risk
	Important information or requirement
	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 qualified electricians only
	Work that must be carried out by technical service personnel only

1.5 Depiction of warnings

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






SIGNAL WORD

Type and source of hazard

- Possible consequences
- Preventive measures

The signal words below are defined subject to the degree of danger and might be used in the present document:

Warning symbol and signal word		Consequences if the information/instructions are ignored	
	DANGER		Death or serious injuries
	WARNING	Personal injury	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 an object in its vicinity

1.6 Demands on personnel

During the individual life cycle phases of the product, different people carry out work on the product. This work requires different qualifications.

1.6.1 Qualification of personnel

Personnel	Requirements
User	<ul style="list-style-type: none"> • No special expertise required • Knowledge of the tasks assigned • Knowledge of possible dangers in case of incorrect behaviour • Knowledge of the required protective equipment and protective measures • Knowledge of residual risks
Owner/operator/ operating company	<ul style="list-style-type: none"> • Product-specific expertise • Knowledge of statutory regulations on work safety and accident prevention
Qualified specialist <ul style="list-style-type: none"> • Electrical engineering • Sanitary engineering (HVAC and plumbing) • Transport 	<ul style="list-style-type: none"> • Professional training • Knowledge of relevant standards and regulations • Knowledge of detection and prevention of potential hazards • Knowledge of statutory regulations on accident prevention

Personnel	Requirements
Technical service (Grünbeck's technical service/authorised ser- vice company)	<ul style="list-style-type: none"> • Extended product-specific expertise • Trained by Grünbeck

1.6.2 Authorisations of personnel

The table below describes which tasks may be carried out by whom.

	User	Owner/ operator/ operating company	Qualified specialist	Technical service
Transport and storage		X	X	X
Installation and mounting		X	X	X
Start-up/commissioning			X	X
Operation and handling	X	X	X	X
Cleaning	X	X	X	X
Inspection	X	X	X	X
Maintenance			X	X
Troubleshooting	X	X	X	X
Repair			X	X
Decommissioning and restart/recommissioning			X	X
Dismantling and disposal			X	X

1.6.3 Personal protective equipment

- As an owner/operator/operating company, make sure that the required personal protective equipment is available.

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



Protective gloves



Safety goggles

2 Safety

2.1 Safety measures

- Obey the local regulations on accident prevention and occupational safety.
- Obey the following regulations on the treatment and discharge of condensate originating from condensing boilers into the public sewer system:
 - Work sheet DWA-A 251:2011 "Condensates from condensing boilers"
 - DVGW VP 114 „Neutralisation systems for gas firing systems; requirements and testing“

2.1.1 Obligation to neutralise in accordance with DWA-A 251:2011

Excerpt from the standard

Nominal heat output	Neutralisation for firing systems and motors without catalytic converter is required for			
	GAS	Fuel oil DIN 51603-1 low on sulphur	Alternative fuels DIN 51603-6	Fuel oil DIN 51603-1
< 25 kW	No ^{1), 2)}	No ^{1), 2)}	No ^{1), 2)}	Yes
25 kW up to 200 kW	No ^{1), 2), 3)}	No ^{1), 2), 3)}	No ^{1), 2)}	Yes
> 200 kW	Yes	Yes	Yes	Yes

Neutralisation is nevertheless required:

¹⁾ If the domestic waste water is discharged into small sewage treatment plants,

²⁾ in case of buildings and lots whose drainage pipes do not meet the material requirements stipulated in paragraph 5.3,

³⁾ in case of buildings which do not meet the requirements for adequate mixing as per paragraph 4.1.1.

- Only operate your product if all components are installed properly.
- Do not make any changes, alterations or extensions on your product.
- Only use genuine spare parts for maintenance or repair.
- Keep the premises locked against unauthorised access to protect imperilled or untrained persons from residual risks.
- Comply with the maintenance intervals (refer to chapter 8.2).

2.1.2 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- Make sure that the product is set up in a way that it cannot tip over and that its stability is guaranteed at all times.

2.1.3 Danger due to condensate

- Non-neutralised condensate is acidic and can cause chemical burns and irritation when coming into contact with the skin or the eyes.
- Avoid any skin/eye contact with the condensate.
- Use personal protective equipment when working with condensate.
- The condensate can damage surfaces when covering them.

Cleaning/Disposal

- Immediately absorb leaked and non-neutralised condensate with disposable towels.
- Dispose of the absorbed condensate with residual waste in an environmentally sound manner.

2.1.4 Groups of persons requiring protection

- This product is not designed to be used by persons (including children) with reduced capabilities, lack of experience or lack of knowledge.
- Children should be supervised to make sure that they do not play with the product.

2.1.5 Activated carbon granulate

- The activated carbon is not considered to be a dangerous good in the sense of the German Dangerous Goods Regulation.
- Keep the activated carbon away from children.

2.2 Conduct in emergencies

2.2.1 In case of water leaks

1. Locate the leak.
2. Eliminate the cause of the water leak.

3 Product description

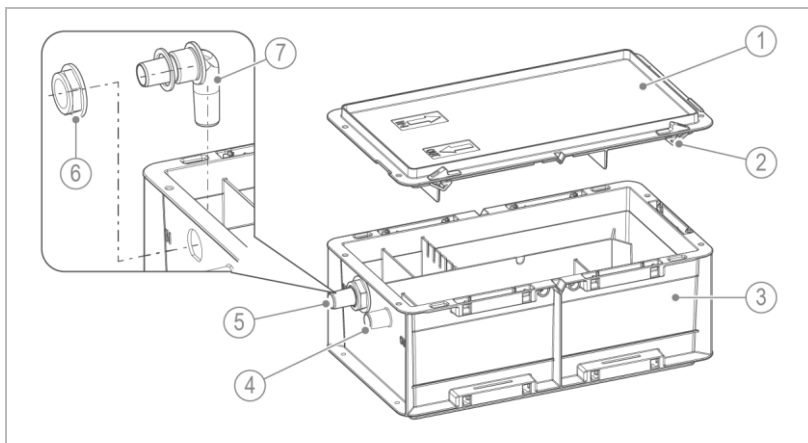
3.1 Intended use

- The activated carbon filter GENO AF-5 is suitable for the filtration of condensate from oil-fired heat generators (condensing boilers) and/or their exhaust systems according to worksheets DWA-A 251:2011 and DVGW VP 114 up to the specified capacity.

3.1.1 Possible applications

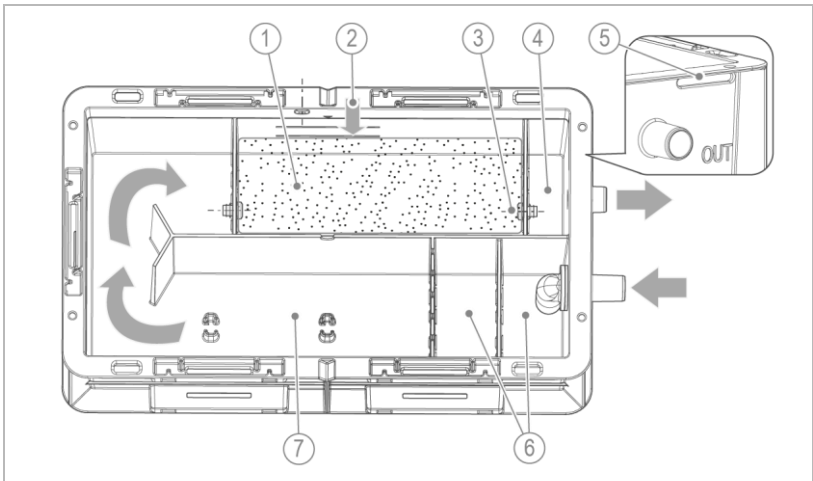
- The activated carbon filter GENO AF-5 can be used as a pre-filter upstream of a neutralisation system.
- Experience has shown that in case of gas/oil switch-over operation of a condensing boiler, the higher specific amount of condensate in case of gas (0.14 l/kWh with gas, 0.08 l/kWh with oil) cause the release of deposits and other components from the pipes when the condensing boiler is switched to gas and these can get into the neutralisation system.
- In case of gas/oil switchover operation of a condensing boiler or in case of an otherwise increased dirt content (e.g. impurities entering from the chimney), we recommend installing an activated carbon filter in the supply line to the neutralisation system.
- This increases the service life of the filter material of the neutralisation system.
- The activated carbon filter GENO AF-5 can also be used as sole filtration device for unburnt hydrocarbons.

3.2 Product components



Designation		Designation	
1	Cover	5	Hose connection DN 20 (inlet)
2	Snap lock	6	Locknut
3	Activated carbon filter box	7	Angle grommet with seal
4	Hose connection DN 20 (outlet)		

3.3 Functional description



Designation	
1	Filling area 1 with granulate filling
2	Marking for max. filling height
3	Plug
4	Condensate collection area in the outlet

Designation	
5	Overflow orifice
6	Settling area in the inlet, with siphon (barrier height approx. 46 mm)
7	Filling area 2 without granulate filling

The condensate flows into the settling area of the activated carbon filter unpressurised. The condensate is then distributed via the integrated filter plate and flows through the activated carbon filling.

The activated carbon filling retains impurities, combustion residues or unburnt hydrocarbons.

A siphon with a barrier height of approx. 46 mm is integrated at the inlet connection.

An overflow orifice is mounted above the outlet piece, so that the condensate can exit the system at a predefined location in case the

condensate outlet to the drain or to the neutralisation system is clogged.

The activated carbon filter can be equipped with an optional overflow warning switch as level switch (refer to chapter 3.4). When the maximum filling height is reached, a fault signal is triggered.

Furthermore, there is the option to increase the filling volume of activated carbon and thus extend the service life of the filter.



If there is an increased accumulation of dirt and visible dirt residue on the condensate surface in the inlet settling area, we recommend additionally equipping this area with an oil binding mat (refer to chapter 3.4).

The oil binding mat is water-repellent and floats on the condensate surface.

3.4 Accessories

You can retrofit your product with accessories. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechststadt/Germany for details.

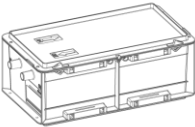
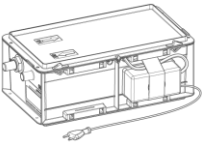
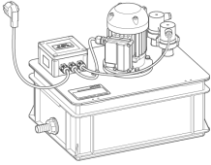
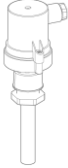
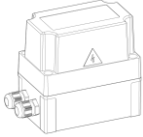

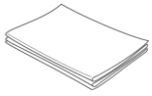
Illustration	Product	Order no.
	Neutralisation system GENO-Neutra N	
	For neutralisation of the gas condensate	N-14 410 440
	(Increase of pH value to > 6.5)	N-70 410 450
		N-210 410320
	Neutralisation system GENO-Neutra NO	
	For neutralisation of the oil condensate	NO-5 410 230
	(Increase of pH value to > 6.5)	NO-12 410 240
		NO-24 410250

Illustration	Product	Order no.
	Waste water lifting system AH-300	420 150
	Lifting system for condensates originating from neutralisation systems of gas or oil-fired condensing boilers as well as non-neutralised gas condensates > pH 3, clear water or slightly polluted industrial water	
	Overflow warning switch for GENO-Neutra	410 680
	Level switch with voltage-free changeover contact for generating a fault signal; for installation in the lid of the box.	
	GENO-alarm delay relay	410 285
	To execute a delayed shutdown of the boiler after an alarm signal has been triggered. With voltage-free fault signal output as normally open contact or changeover contact. The alarm delay can only be used in combination with the overflow warning switch.	
	Hose DN 20 (5 m)	410 764e
	For connection to the inlet and outlet of the activated carbon filter	
	Oil binding mats, 20 pcs	410 585
	The oil binding mats have an oil absorption capacity of 100 ml/mat and are water-repellent.	
—	Activated carbon filter filling, 3.5 l	410 590
	Additional activated carbon filling to increase the filling volume	
—	Maintenance kit for GENO AF-5	410 824
	2 l of activated carbon and 1 foil bag to dispose of the used activated carbon	

4 Transport, set-up and storage

4.1 Shipping/Delivery/Packaging

The product is packed in a cardboard box at the factory.

The activated carbon is included in a separately packed bag.

- ▶ Upon receipt, immediately check for completeness and transport damage.

4.2 Transport/Set-up

- ▶ Transport the product in its original packaging only.
- ▶ The activated carbon is not considered to be a dangerous good in the sense of the German Dangerous Goods Regulation. Obey the current safety data sheet.

4.3 Storage

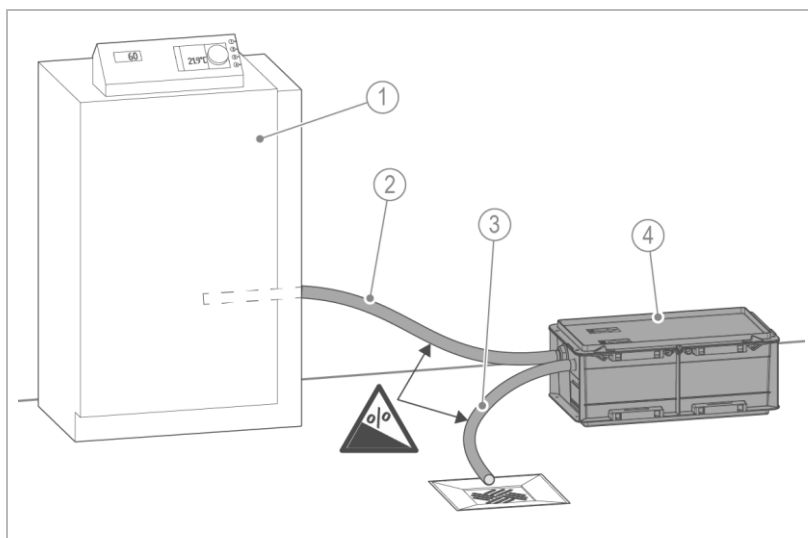
- ▶ Protect the product from the impacts below when storing it:
 - Dampness, moisture
 - Environmental impacts such as wind, rain, snow, etc.
 - Frost, direct sunlight, severe heat exposure
 - Chemicals, dyes, solvents and their vapours

5 Installation



The installation of the product must be carried out by a qualified specialist only.

Installation example (solo)



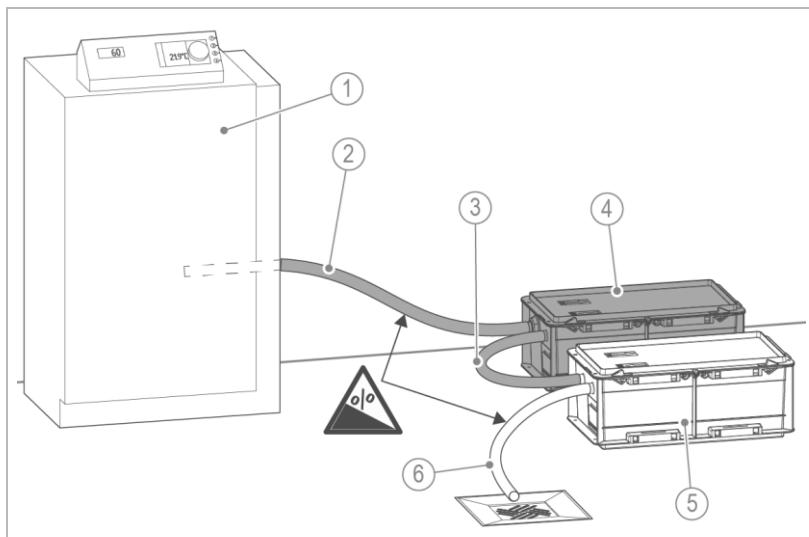
Designation

- 1 Heat generator
- 2 Inlet hose

Designation

- 3 Outlet hose
- 4 Activated carbon filter
GENO AF-5

Installation example (upstream of a neutralisation system)



Designation	
1	Heat generator
2	Inlet hose
3	Connecting hose
4	Activated carbon filter GENO AF-5

Designation	
5	Neutralisation system GENO-Neutra
6	Outlet hose

5.1 Requirements for the installation site

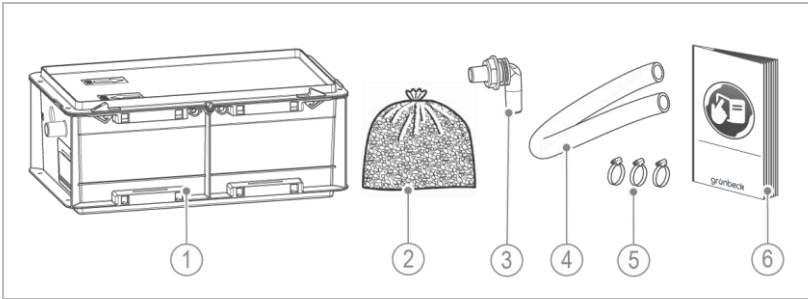
Obey the local installation directives, general guidelines and technical specifications.

- Protection from frost, severe heat exposure and direct sunlight
- Protection from high radiation temperatures in the immediate vicinity ($\leq 40\text{ °C}$)
- Protection from chemicals, dyes, solvents and their vapours
- Access for maintenance work (take note of space required)
- Sufficiently illuminated as well as aerated and ventilated
- Horizontal installation surface with sufficient load-bearing capacity to support the operating weight of the product

Water installation

- Inlet hose with a downward slope and without siphon
- Outlet hose with a downward slope to the floor drain or
 - Outlet hose towards the neutralisation system
- Floor drain or an alarm device which, in the event of a malfunction, clearly indicates the alarm and switches off the heat generator, if necessary
- Waste water lifting system in case the drain connection is located at a higher level
- Drain connection $\geq \text{DN } 40$ with possibility of backflow-free discharge of the condensate

5.2 Checking the scope of supply



Designation	Designation
1 Activated carbon filter (partly pre-assembled)	4 Hose, 5 m in length (DN 20)
2 Activated carbon filling	5 3 Hose clamps
3 1 Angle-type inlet hose connection DN 20 with locknut and seal	6 Operation manual

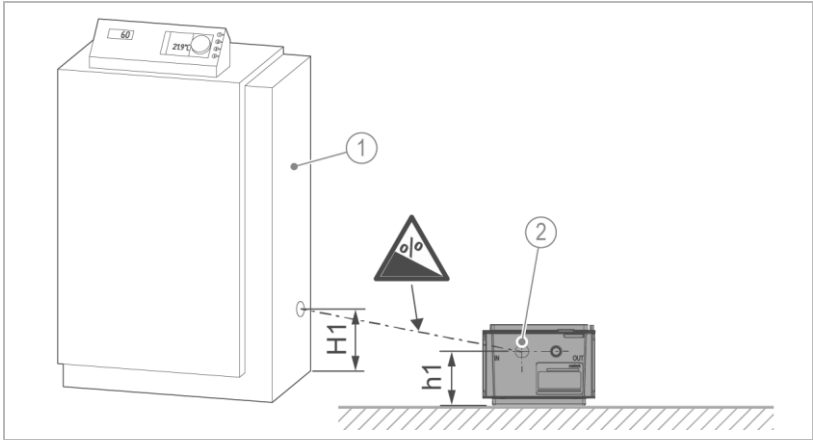
► Check the scope of supply for completeness and damage.

5.3 Water installation

5.3.1 Setting up the activated carbon filter



Take into consideration that in normal operation, the condensate accumulates up to a level of approx. the height of the outlet connection. If the condensate from the heat generator or the exhaust system is to drain off completely, the installation surfaces and the condensate outlets must be provided for accordingly.



Designation

1 Heat generator

Designation

2 Inlet connection

- Set up the activated carbon filter in a horizontal position close to the boiler – but away from traffic routes.



Select an installation site where the inlet and outlet hoses can be kept as short as possible.

- Check that the connection on the heat generator has a downward slope to the inlet connection on the activated carbon filter of approximately 3 %.



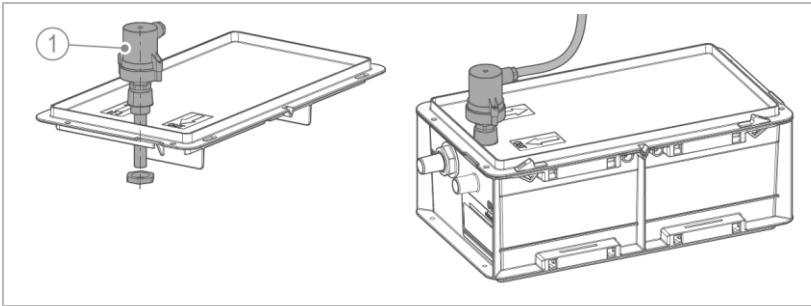
The activated carbon filter features an integrated siphon with a barrier height of approx. 46 mm at the inlet connection.

Therefore, there must be neither an additional siphon nor must the inlet hose be laid with a backwater loop.

5.3.2 Connecting the activated carbon filter



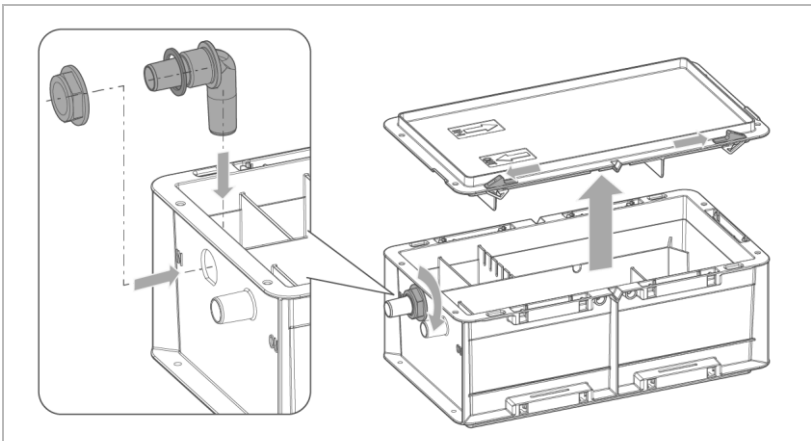
Obey the mounting instructions of the accessory Overflow warning switch (refer to chapter 3.4).



Designation

- 1 Overflow warning switch (optional)

5.3.2.1 Mounting the angle-type hose connection

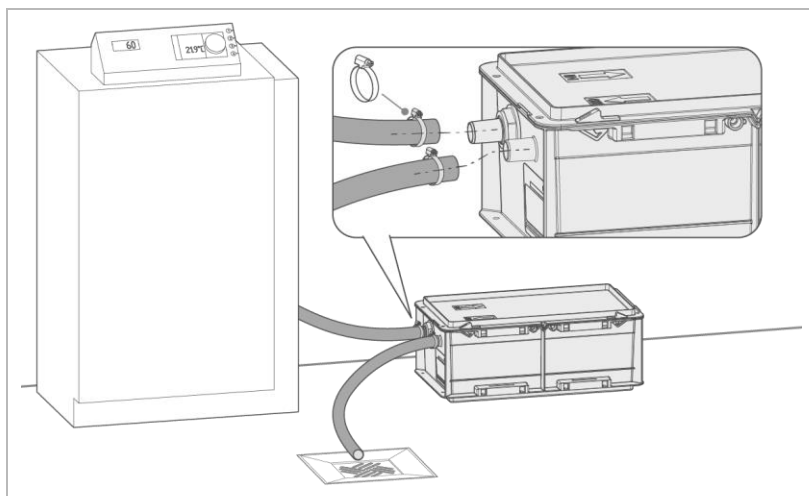


1. Unlock and open the lid.
2. Install the angle-type hose connection.

3. Insert the seal from the inside and tighten the locknut firmly from the outside.

5.3.2.2 Connecting the inlet and outlet hoses

Use the hose supplied with the system to connect the activated carbon filter.



1. Shorten the hose to the required length for inlet and outlet.
2. Connect the inlet hose to the inlet of the activated carbon filter box. Make sure that a downward slope is maintained from the heat generator to the activated carbon filter.
3. Fix the inlet hose by means of the hose clamp.
4. Connect the outlet hose to the outlet of the activated carbon filter box.
5. Fix the outlet hose by means of the hose clamp.
6. Lay the outlet hose with a downward slope to the floor drain – do not kink the hose.

7. Secure the outlet hose against mechanical damage, if necessary. Do not step on the hose.



The end of the outlet hose must be freely visible in order to be able to check the functioning of the activated carbon filter at any time.



Should additional hoses and fittings be needed, only approved, corrosion-resistant materials according to worksheet DWA-A 251:2011 (e.g. made of PP, PE, PVC) must be used. Do not use any brass, copper or steel components.

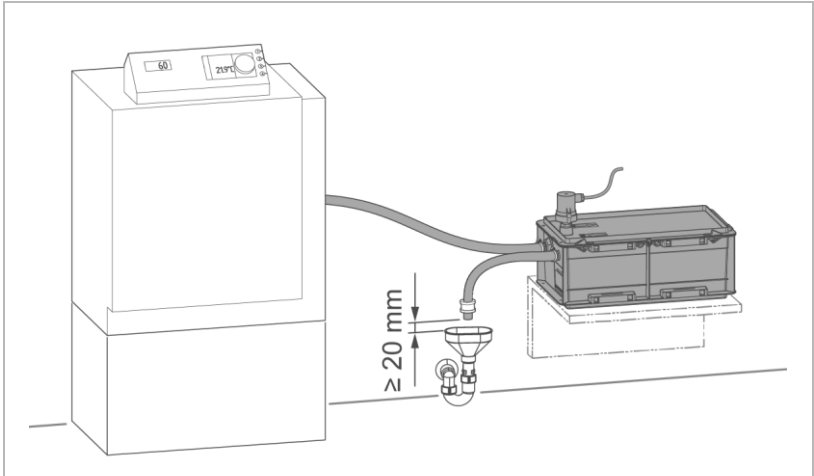


By using corresponding T pieces, additional condensing boilers or/and exhaust systems can be integrated up to the max. capacity of the activated carbon filter.

5.3.2.3 Connecting the outlet to the drain connection

Comply with the following if you connect the outlet hose to the drain connection:

- The drain connection must at least have a nominal diameter of DN 40. The drain connection must allow for backflow-free discharge.
- The outlet hose must not be connected directly to the drain pipe in order to prevent a retroactive bacterial contamination from the drain to the system.
- If no floor drain or drain connection close to the floor is available, a waste water lifting system can be installed downstream of the system (refer to chapter 3.4).



- Fix the outlet hose at the drain connection with a distance of at least 20 mm.
- Make sure that the activated carbon filter box is securely set up and fastened.

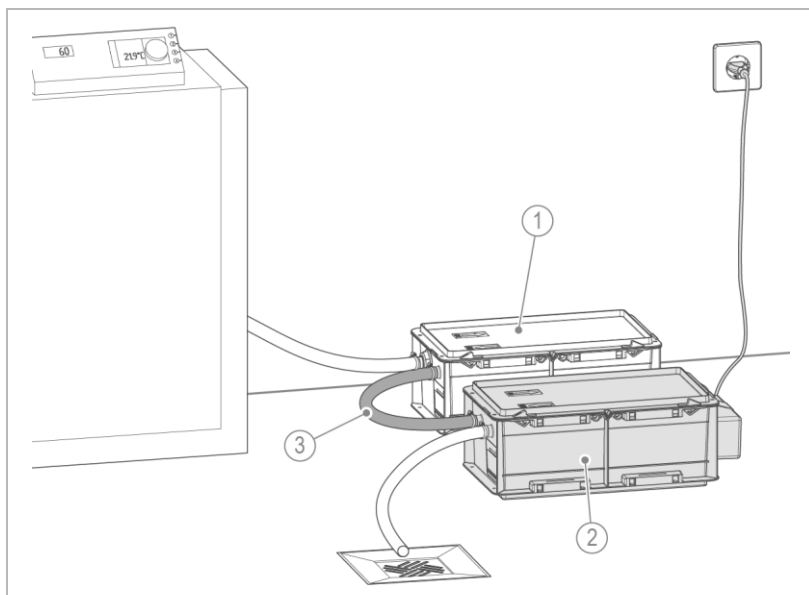
5.3.3 Connecting the activated carbon filter to the neutralisation system

- Carry out the following additional installation work if the activated carbon filter is used as a prefilter to a neutralisation system.



- Install the neutralisation system.

To do so, obey the operation manual of the neutralisation system GENO-Neutra.



Designation	Designation
1 Activated carbon filter	3 Connecting hose
2 Neutralisation system, e.g. GENO-Neutra NO	

1. Make a connection hose of the required length.
 - a Make sure that the hose connection is kept as short as possible and that the flow of the condensate is ensured.
2. Connect the two boxes using the connecting hose.
 - a Fix the connecting hose at the outlet of the activated carbon filter and the inlet of the neutralisation system by means of hose clamps.

6 Start-up/commissioning



The initial start-up/commissioning of the product must be carried out by technical service personnel only.

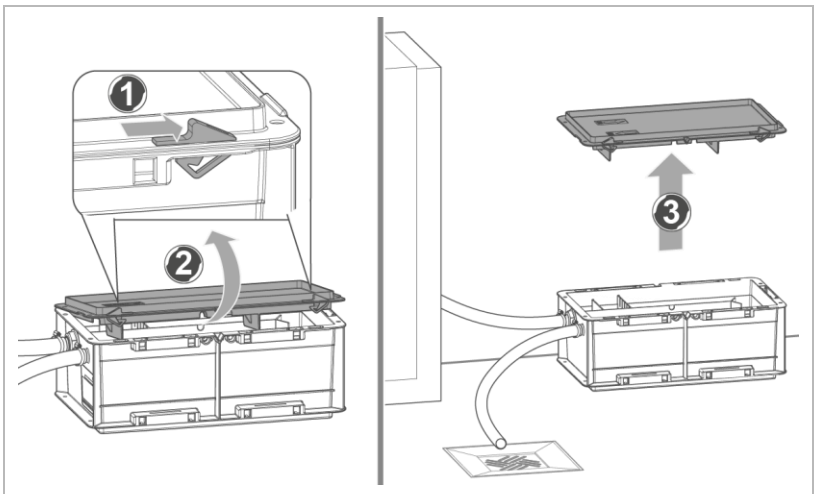


WARNING

Acidic condensate

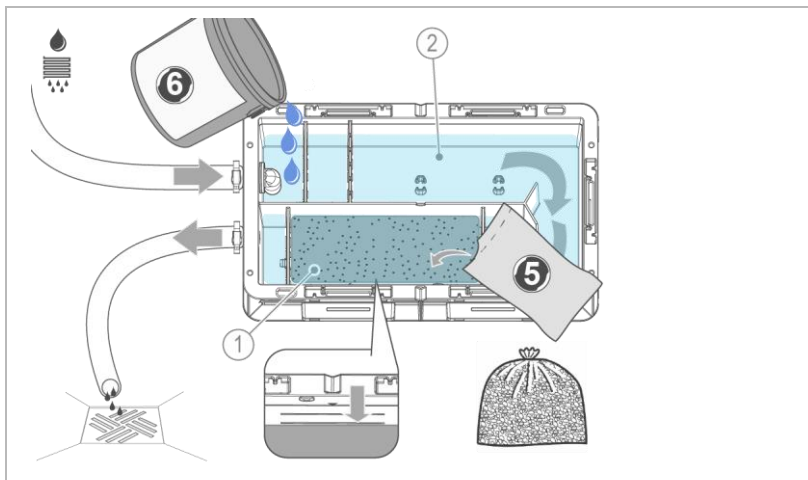
- Chemical burns of eyes and body parts
- ▶ Use personal protective equipment (refer to chapter 1.6.3).
- ▶ Avoid any skin and eye contact with the condensate.
- ▶ Thoroughly rinse your eyes with water if condensate gets into your eyes.

6.1 Filling the activated carbon filter box



1. Unlock the locks on both sides of the lid.
2. Lift the lid a little.

3. Remove the lid and place it safely away from damage.
4. Remove any transport protection from the activated carbon filter box (e.g. cardboard packaging).



Designation

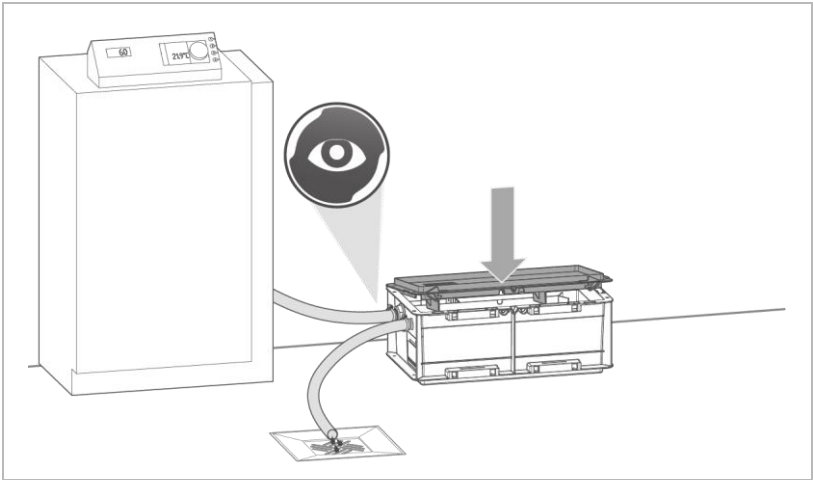
1 Activated carbon area

Designation

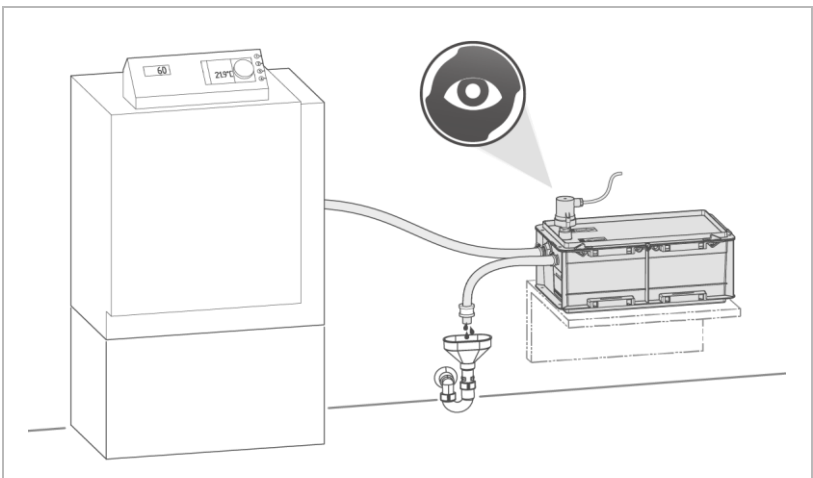
2 Condensate collection area

5. Carefully fill the activated carbon into the chamber for activated carbon.
6. Fill water into the settling area in the inlet – pay attention to the max. marking.

6.2 Checking the product



1. Check the inlet and outlet hoses for leaks.
2. Close the activated carbon filter box with the lid.
3. Put the heat generator into operation.
4. Check the entire installation for leaks.



5. Check the optional overflow warning switch for function (refer to the instructions of the accessory).
6. Check that the condensate flows freely into the drain or floor drain.

In case of installation as a prefilter to the neutralisation system

7. Check that the condensate is directed freely into the neutralisation system.

6.3 Handing over the product to the owner/operator/operating company

- ▶ Explain to the owner/operator/operating company how the product works.
- ▶ Use the manual to brief the owner/operator/operating company and answer any questions.
- ▶ Inform the owner/operator/operating company about the need for inspections and maintenance.
- ▶ Hand over all documents to the owner/operator/operating company for keeping.

6.3.1 Disposal of packaging

- ▶ Dispose of packaging material as soon as it is no longer needed (refer to chapter 11.2).

6.3.2 Storage of accessories/consumables

- ▶ Store accessories and consumables properly (refer to chapter 4.3).

7 Operation

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



WARNING

Acidic condensate

- Chemical burns of eyes and body parts
 - ▶ Use personal protective equipment (refer to chapter 1.6.3).
 - ▶ Avoid any skin and eye contact with the condensate.
 - ▶ Thoroughly rinse your eyes with water if condensate gets into your eyes.
-
- ▶ Inspect the product at regular intervals (refer to chapter 8.3).
 - ▶ Have maintenance work carried out in good time (refer to chapter 8.4).

8 Maintenance and repair

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



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



By concluding a maintenance contract you make sure that all maintenance work will be carried out on 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.
- ▶ Use personal protective equipment.
- ▶ 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 owner/operator/operating company determine which components must be inspected and maintained at which intervals (load-dependent). These intervals are subject to the actual conditions such as: degree of impurities, environmental impacts, consumption, etc.

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

Task	Interval	Activities
Inspection	6 months	<ul style="list-style-type: none"> • Check inlet and outlet hoses for deposits • Check the water level in the activated carbon filter box • Check the activated carbon filter box and the hoses for leaks
Maintenance	annually	<ul style="list-style-type: none"> • Check the activated carbon filter box and the hoses for their condition and for leaks • Clean the activated carbon filter box • Replace the activated carbon • Check the optional accessories (overflow warning switch) for function
	load-dependent	<ul style="list-style-type: none"> • Refer to “annually”
Repair	5 years	<ul style="list-style-type: none"> • Recommendation: Replace wearing parts

8.3 Inspection

You as owner/operator/operating company can do the regular inspections yourself. Initially, we recommend inspecting the product at shorter intervals and later on as required, but at least every 6 months.



- ▶ Use personal protective equipment (refer to chapter 1.6.3).
 - ▶ Carry out an inspection at least every six months.
1. Open the lid of the activated carbon filter box.
 2. Check whether there is an oil film on the water surface.
 - a Remove any oil film with an oil binding mat, if necessary – do not use any loose oil binding agents.
 - b Replace the activated carbon, if necessary.
 - c Inform the customer service of the condensing boiler about the oil film.
 3. Check the inlet and outlet hoses for deposits – clean them, if necessary.
 4. Check the water level in the activated carbon filter box – refill water up to the outlet height, if necessary.
 5. Check the activated carbon filter box and the hoses for leaks.
 6. Close and lock the activated carbon filter box with the lid.
 7. Record the inspection carried out in the operation log (refer to chapter 13.2).

8.4 Maintenance

Regular work is required in order to ensure the proper functioning of the product in the long term.

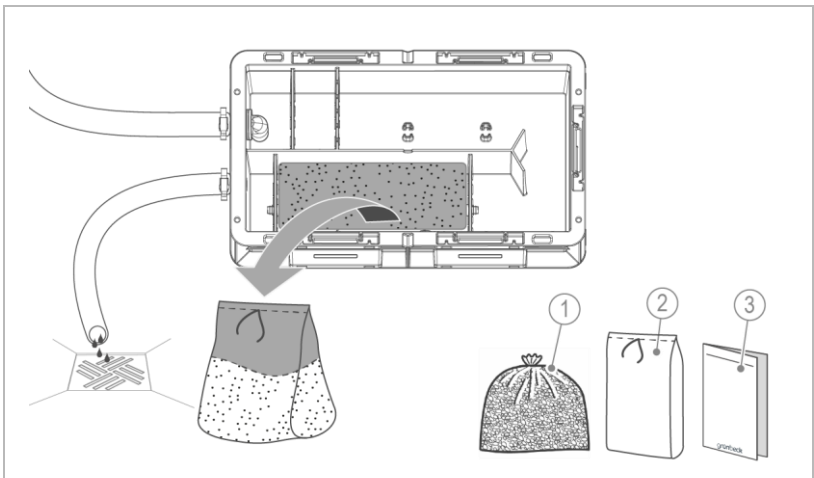
Maintenance must be carried out at regular intervals depending on the volume and the contamination of the condensate, but at least once a year.

8.4.1 Annual maintenance



Annual maintenance work requires expert knowledge. The work below must be carried out by qualified specialists only.

- Use the maintenance kit for GENO AF-5 (refer to chapter 8.5).



Designation

- 1 Activated carbon, 2 l
- 2 Foil bag to dispose of the used activated carbon

Designation

- 3 Maintenance instructions

- 1.** Stop the inflow of condensate or divert it into a suitable collection vessel.
- 2.** Disconnect the overflow warning switch (optional accessory) from the power supply.
- 3.** Open the lid of the activated carbon filter box.
- 4.** Check whether there is an oil film on the water surface.
 - a** Remove any oil film with an oil binding mat, if necessary – do not use any loose oil binding agents.
 - b** Inform the customer service of the condensing boiler about the oil film.
- 5.** Remove the used activated carbon from the activated carbon filter box – e.g. using a wet vacuum cleaner
 - a** Fill the used activated carbon into the foil bag (included in the maintenance kit).
 - b** Dispose of the used activated carbon (refer to chapter 11.2).
- 6.** Clean the activated carbon filter box.
- 7.** Check the inlet and outlet hoses for deposits – clean them, if necessary.
- 8.** Fill new activated carbon into the activated carbon filter box (refer to chapter 6.1).
- 9.** Fill the activated carbon filter box with water up to the outlet height.
- 10.** Check the activated carbon filter box and the hoses for leaks.
- 11.** Replace worn components, if necessary.
- 12.** Close the activated carbon filter box with the lid.

13. Put the overflow warning switch (optional accessory) into operation and check the fault signal for function (refer to the operation manual of the accessory).
14. Record the maintenance carried out in the operation log (refer to chapter 13.2).

8.5 Consumables

Product	Quantity	Order no.
Activated carbon filling	3.5 l	410 590
Oil binding mats	20 pieces	410 585
Maintenance kit for GENO AF-5	1 kit	410 824

8.6 Spare parts

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

8.7 Wearing parts



Wearing parts must be replaced by qualified specialists only.

Wearing parts are listed below:

- Seals

9 Troubleshooting

9.1 Observations

Observation	Explanation	Remedy
Oil residue on the condensate surface	Poor combustion in the condensing boiler	► Absorb the oil film using oil binding mats
		► Clean the activated carbon filter box more frequently and replace the activated carbon
		► Check the settings of the burner
		► Inform the specialist for the condensing boiler
Condensate flows from the overflow orifice or does not flow out at all	Activated carbon filter box or outlet hose clogged	► Check the activated carbon box for clogging ► Check the outlet hose for free outlet
	Filter capacity exceeded	► Check the condensate volume produced
	Optional overflow warning switch does not work	► Check the overflow warning switch for function



If a malfunction cannot be eliminated, the technical service personnel can take further measures.

- Contact technical service (refer to inner cover sheet for contact data).

10 Decommissioning

If a longer period of standstill is planned for the heat generator, the activated carbon filter must be decommissioned.

10.1 Temporary standstill

If the heat generator is to be switched off temporarily (e.g. for 3 months in summer), carry out the following activities on the activated carbon filter:

1. Open the activated carbon filter box.
2. Check whether deposits have formed on the surfaces in the activated carbon filter box.
3. Remove the deposits, if necessary.
4. Check that the activated carbon filter box is filled with enough water.
5. Refill water, if necessary.
6. Close the activated carbon filter box.

10.2 Restart/recommissioning

1. Check the state of the activated carbon filling – replace it, if necessary (e.g. after a longer period of standstill).
2. Put the activated carbon filter into operation again (refer to chapter 6).

11 Dismantling and disposal

11.1 Dismantling



► Have this work carried out by qualified specialists only.

1. Make sure that the heat generator is out of operation and no condensate is produced.
2. Remove the condensate from the activated carbon filter box.
3. Remove the activated carbon filling from the activated carbon filter box.
4. Remove optional accessories (such as the overflow warning switch).
5. Disconnect the activated carbon filter from the water installation – remove the inlet, outlet and connecting hoses.

11.2 Disposal

- ▶ Obey the applicable national regulations.

Packaging

- ▶ Dispose of the packaging in an environmentally sound manner.

NOTE

Danger to the environment due to incorrect disposal

- Packaging materials are valuable raw materials that can be reused in many cases.
- Incorrect disposal can cause hazards to the environment.
- ▶ Dispose of packaging materials in an environmentally sound manner.
- ▶ Obey the local disposal regulations.
- ▶ If necessary, commission a specialist company with the disposal.

Activated carbon

- ▶ Dispose of the used activated carbon filling via local waste disposal companies using waste code number 19 09 04 – do not dispose of it with residual waste or household waste.

Oil binding mat

Used oil binding mats are categorised as oil-contaminated operating materials and must be disposed of as hazardous waste.

- ▶ Dispose of used oil binding mats properly – do not dispose of them with residual waste or household waste.

Product



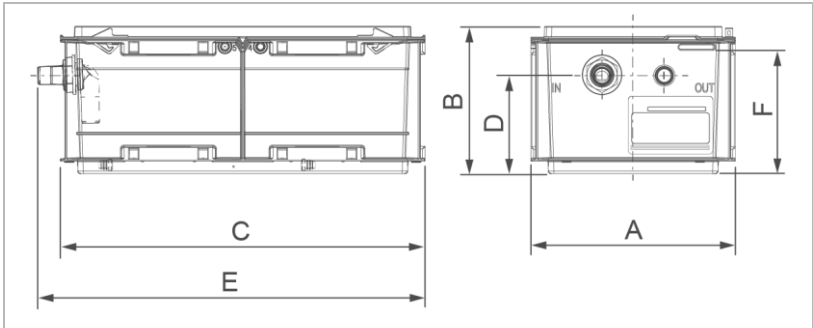
If this symbol (crossed-out wheellie bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

- ▶ Find out about the 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.de.

12 Technical specifications



Dimensions and weights		GENO AF-5
A	Width	mm
B	Height	mm
C	Length	mm
D	Connection height of inlet and outlet	mm
E	Total length with connections	mm
F	Height of overflow/lower edge	mm
Operating weight		kg
Empty weight		kg

Connection data		GENO AF-5
Nominal connection diameter of inlet and outlet		DN 20
Drain connection		≥ DN 40

Performance data		GENO AF-5
Fuel/process (generation of condensate)		Oil/Condensing boiler technology
Filter capacity	l/h	≤ 16
At 0.08 l/kWh, this corresponds to a boiler capacity of		kW
		≥ 200

Filling volumes and consumption data		GENO AF-5
Activated carbon granulate	l	2.0

General data		GENO AF-5
Condensate temperature	°C	5 – 60
Ambient temperature	°C	5 – 40
Order no.		410 435

13 Operation log



- Document the initial start-up/commissioning and all maintenance activities.

Activated carbon filter GENO AF-5

Serial no.: _____

13.1 Start-up/commissioning log

Customer		
Name		
Address		
Installation/Accessories		
Manufacturer of condensing boiler		
Type of condensing boiler		
Fuel		
Capacity of condensing boiler	kW	
Accessories		
Materials		
Material(s) of boiler		
Material(s) of heat exchanger		
Material(s) of exhaust system		
Remarks		
Start-up/commissioning		
Company		
Service technician		
Work time certificate (no.)		
Date/signature		

13.2 Maintenance

Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair

Description

Execution confirmed	
Company:	
Name:	
Date:	Signature:

Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair

Description

Execution confirmed	
Company:	
Name:	
Date:	Signature:

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Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair
Description		
<hr/>		
<hr/>		
<hr/>		
Execution confirmed		
Company:		
Name:		
Date:	Signature:	

Work performed		
<input type="checkbox"/> Inspection	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Repair
Description		
<hr/>		
<hr/>		
<hr/>		
Execution confirmed		
Company:		
Name:		
Date:	Signature:	

Work performed

☐ Inspection

☐ Maintenance

☐ Repair

Description

Execution confirmed

Company:

Name:

Date:

Signature:

Work performed

☐ Inspection

☐ Maintenance

☐ Repair

Description

Execution confirmed

Company:

Name:

Date:

Signature:


Publisher's information

Technical documentation

Should you have any questions or suggestions regarding this operation manual, please contact Grünbeck Wasseraufbereitung GmbH's Department for Technical Documentation directly.

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