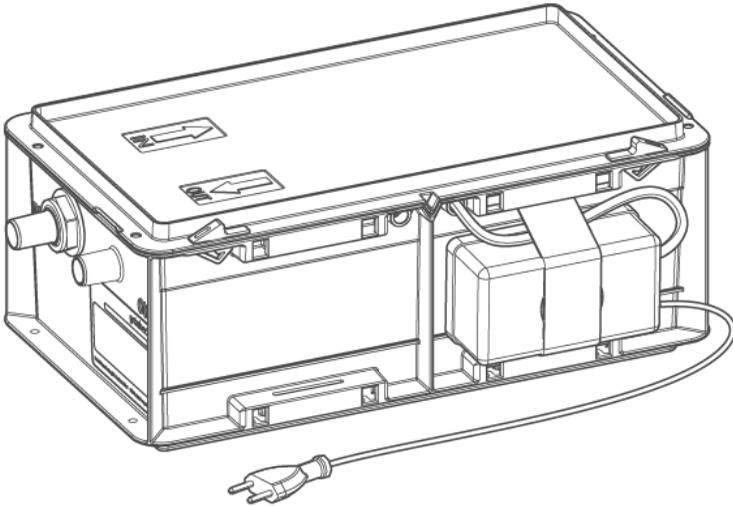


We understand water.



Neutralisation system | GENO-Neutra NO

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 products below:

- Neutralisation system GENO-Neutra NO-5
- Neutralisation system GENO-Neutra NO-12
- Neutralisation system GENO-Neutra NO-24

1.2 Other applicable documents

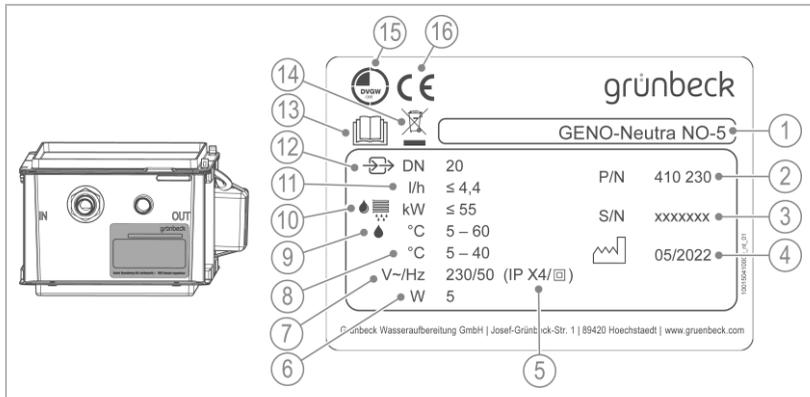
- Instructions of optional accessories
- Maintenance instructions of maintenance kit
- Safety data sheet of neutralisation granulate

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 front or side of the neutralisation box.



Designation	
1	Product designation
2	Order no.
3	Serial no.
4	Date of manufacture
5	Protection/protection class
6	Power input
7	Power supply
8	Ambient temperature
9	Condensate temperature

Designation	
10	Fuel, oil/condensing technology, boiler capacity
11	Neutralisation capacity
12	Nominal connection diameter
13	Obey the operation manual
14	Disposal information
15	DVGW test mark
16	CE mark

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 service 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 Electrical hazards

- There is an immediate danger of fatal injury from electric shock when touching live parts. Damage to the insulation or individual components can be life-threatening.
- Only have qualified electricians carry out electrical work on the product.
- In case of damage to live components, switch off the voltage supply immediately and arrange for repair.
- Switch off the supply voltage before working on electrical system parts. Discharge residual voltage.
- Never bridge electrical fuses. Do not disable fuses. Use the correct current ratings when replacing fuses.

- Keep moisture away from live parts. Moisture can cause short-circuits.

2.1.4 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.

2.1.5 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.

2.1.6 Neutralisation granulate (GENO-Neutralit Hz)

- The neutralisation granulate is not considered to be a hazardous substance in the sense of the German Ordinance on Hazardous Substances.
- Keep the neutralisation granulate away from children.
- Only the genuine GENO-Neutralit Hz of the manufacturer may be used for the neutralisation systems.
- The neutralisation granulate is alkaline and can cause chemical burns and irritation when coming into contact with the skin or the eyes. Avoid any skin/eye contact with the neutralisation granulate.
- Use personal protective equipment when working on the product.
- Neutralisation granulate may damage surfaces when covering them.

2.2 Product-specific safety instructions



WARNING

Life-threatening voltage

- Severe burns, cardiovascular failure, fatal electric shock
- ▶ Unplug the mains plug of the aeration pump prior to working on the system.
- ▶ Disconnect the voltage-free contacts, such as the overflow warning switch, from the power supply.

2.3 Conduct in emergencies

2.3.1 In case of water leaks

1. Switch off the heat generator.
2. Locate the leak.
3. Eliminate the cause of the water leak.

3 Product description

3.1 Intended use

- The neutralisation system GENO-Neutra NO is suitable for the neutralisation (increase of the pH-value to > 6.5) of oil condensate originating from oil-fired heat generators (condensing boilers) and/or exhaust systems made of stainless steel, plastic, glass, graphite and ceramics according to work sheets DWA-A 251:2011 and DVGW VP 114 up to the specified capacity.

3.1.1 Possible applications

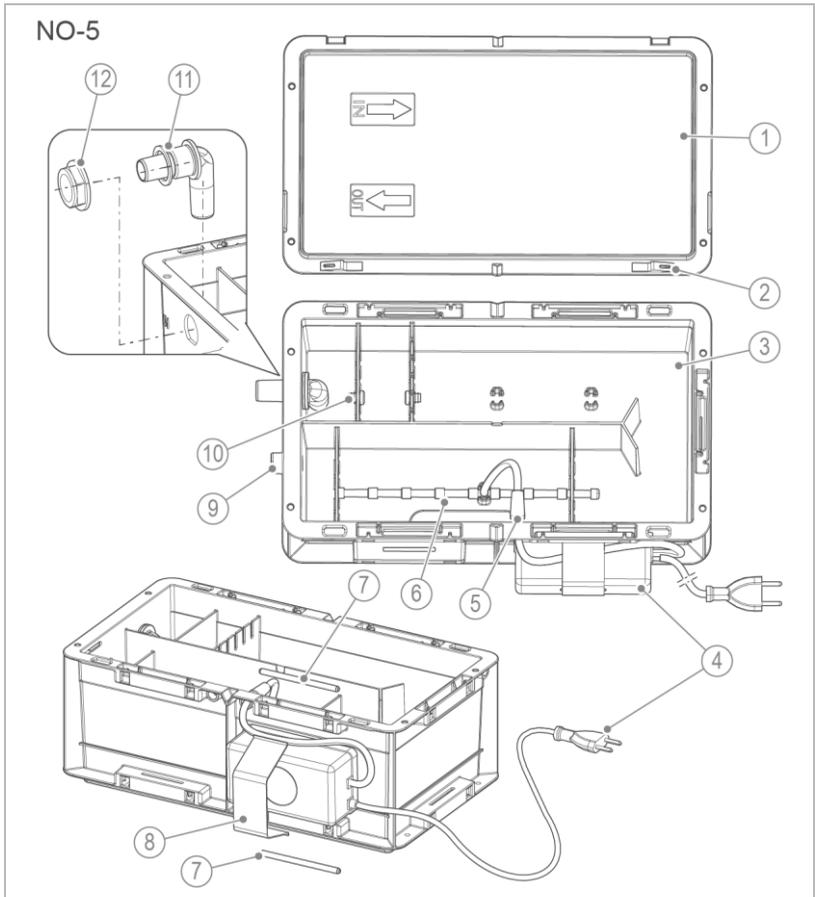
- The neutralisation system GENO-Neutra NO can be used for the neutralisation of condensate containing iron, manganese, aluminium and zinc particles. It is possible that the neutralisation granulate might clog and considerably impair the function of the neutralisation system. Suitability must be checked by own tests, if necessary, and regular cleaning of the neutralisation system with replacement of the granulate must be provided for.
- In case of condensate containing an extremely high amount of impurities, we recommend installing an activated carbon filter upstream. This increases the service life of the filter material of the neutralisation system.

The neutralisation system can be equipped with an optional overflow warning switch (refer to chapter 3.4).



In the event of a malfunction, this alarm device must clearly indicate the alarm and, if necessary by switching off the heat generator, prevent the system from overflowing and causing consequential damage.

3.2 Product components

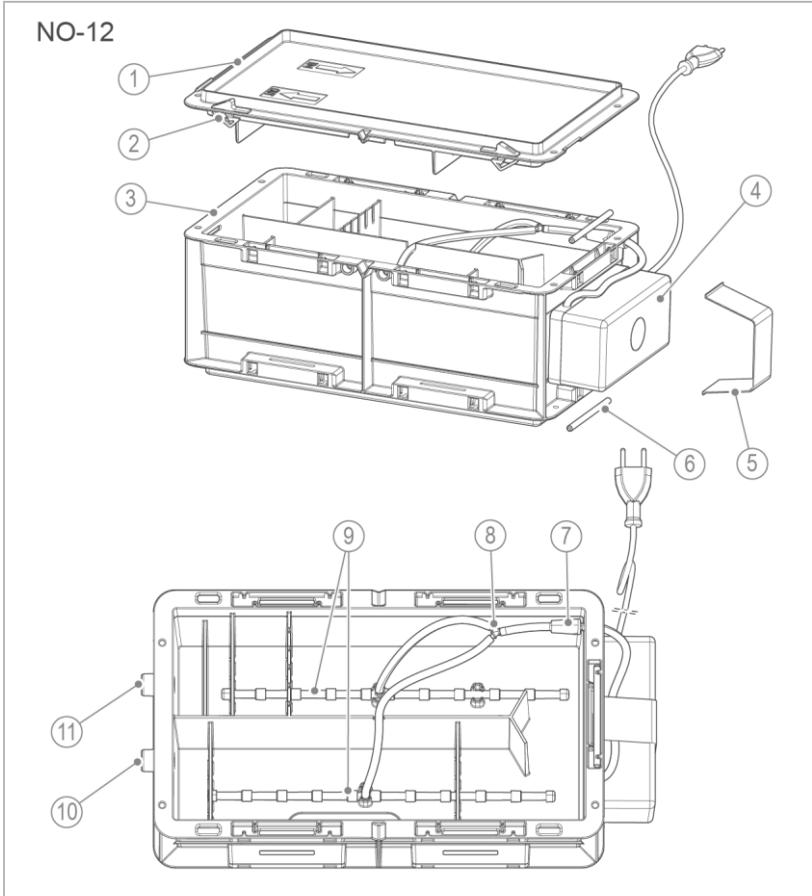


Designation

- 1 Lid
- 2 Snap lock
- 3 Neutralisation box
- 4 Aeration pump
- 5 Non-return valve
- 6 Air outlet system of NO-5

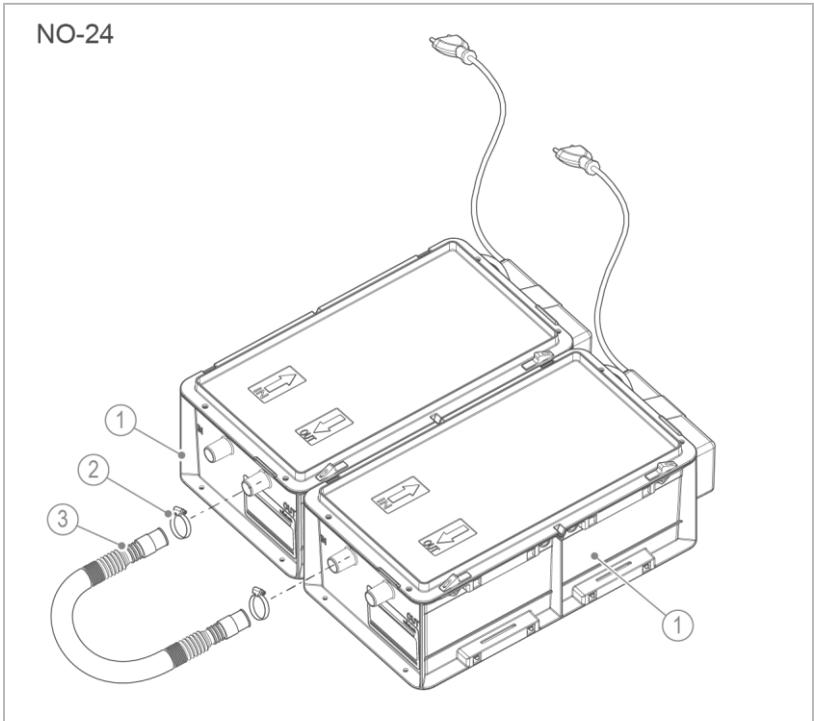
Designation

- 7 Clamping pin
- 8 Tension band
- 9 Hose connection DN 20 (outlet)
- 10 Plug
- 11 Angle grommet with seal DN 20 (inlet)
- 12 Locknut



Designation	
1	Lid
2	Snap lock
3	Neutralisation box
4	Aeration pump
5	Tension belt
6	Clamping pin

Designation	
7	Non-return valve
8	Y-piece
9	Air outlet system of NO-12
10	Hose connection DN 20 (outlet)
11	Connection DN 20 (inlet)



Designation

- 1 Compact system NO-12
- 2 Hose clamp

Designation

- 3 Connecting hose

3.3 Functional description

The condensate flows unpressurised into the settling area of the neutralisation system. The condensate is then distributed via the integrated dividers and, in flow direction, first flows through the activated carbon filling and then through the neutralisation granulate.

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

The neutralisation granulate is dissolved and the condensate neutralised. Afterwards, the condensate flows to the drain.

An overflow orifice allows the condensate to escape at a defined point if the condensate discharge to the drain is obstructed.

The amount of neutralisation granulate included in the scope of supply corresponds to the initial filling required for 12 months at maximum capacity (refer to Technical specifications).

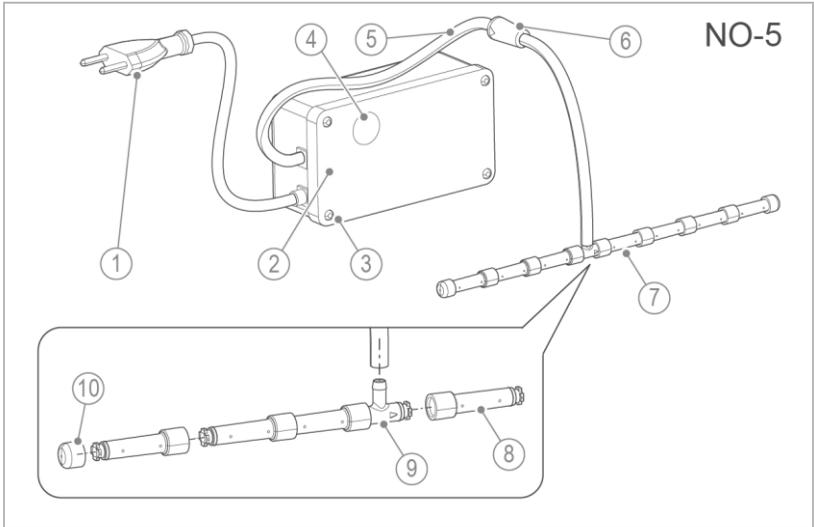
The pH value of the discharged condensate can be checked by means of pH indicator strips.

Neutralisation granulate should be refilled before the pH value falls below 6.5.

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

3.3.1 Aeration device

The aeration device as an additional regeneration system reduces deposits such as iron and the clogging of the granulate.

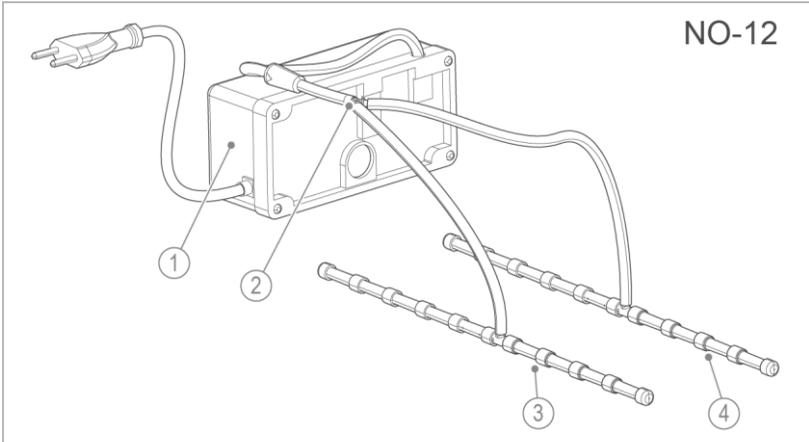


Designation		Designation	
1	Mains cable with Euro plug	6	Non-return valve
2	Aeration pump (air delivery rate 210 – 250 l/h)	7	Air outlet system
3	Feet	8	Segment
4	Air filter	9	T-piece
5	Air hose	10	End cap

The aeration pump, designed as a membrane pump, continuously pumps air into the air outlet system and thus loosens up the neutralisation granulate.

The air outlet system consists of several plugged segments which have holes. The segments are positioned accordingly in the neutralisation box.

The non-return valve as safety component prevents the condensate from being sucked into the air hose of the aeration pump.



Designation	
1	Aeration pump (air delivery rate 320 – 400 l/h)
2	Y-piece for distribution

Designation	
3	Air outlet system 1
4	Air outlet system 2

In the GENO-Neutra NO-12/NO-24, one air outlet system is provided per filling area.

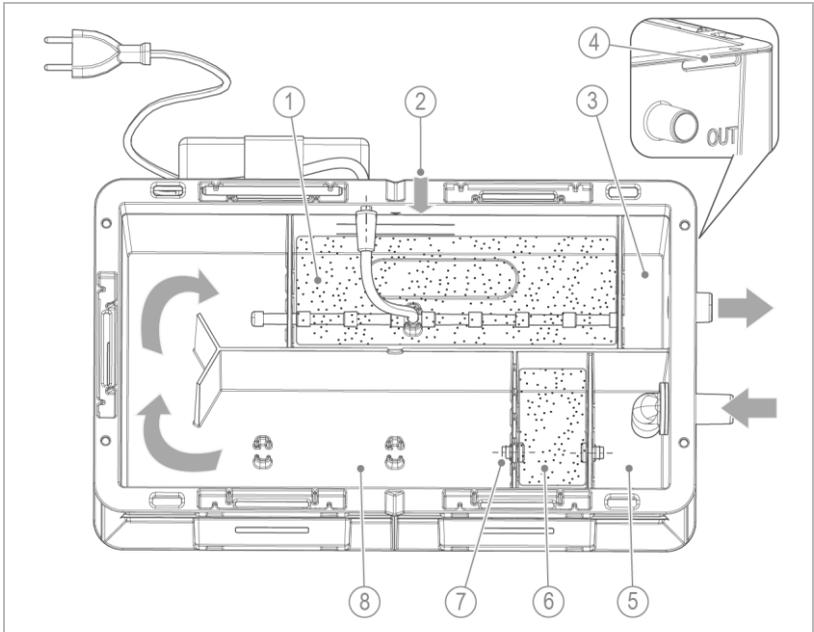
The diaphragm pump continuously pumps air into both air outlet systems and thus loosens up the neutralisation granulate.



The air outlet system might clog due to deposits and therefore requires regular cleaning (refer to chapter 8.4).

The aeration device and its components are wearing parts and must be replaced at regular intervals (refer to chapter 8.7).

GENO-Neutra NO-5



Designation

- 1 Filling area 1 with neutralisation granulate
- 2 Marking for max. filling level
- 3 Condensate collection area in the outlet
- 4 Overflow orifice

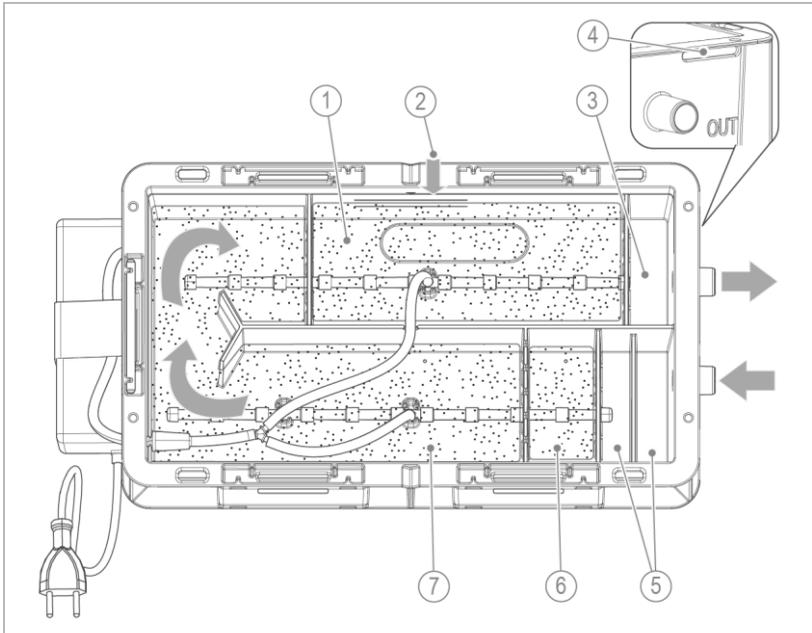
Designation

- 5 Settling area in the inlet, with siphon
- 6 Filling area in the inlet, with activated carbon
- 7 Plug
- 8 Filling area 2 without neutralisation granulate

The GENO-Neutra NO-5 features an integrated siphon with a barrier height of approx. 46 mm at the inlet connection.

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

GENO-Neutra NO-12



Designation

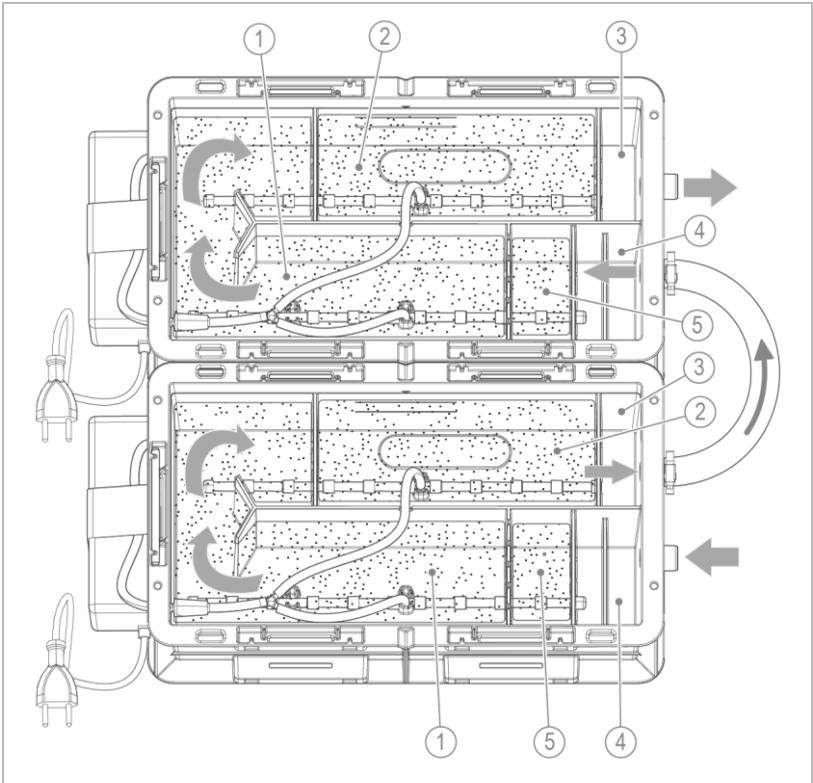
- 1 Filling area 1 with neutralisation granulate
- 2 Marking for max. filling level
- 3 Condensate collection area in the outlet
- 4 Overflow orifice

Designation

- 5 Settling area in the inlet
- 6 Filling area in the inlet, with activated carbon
- 7 Filling area 2 with neutralisation granulate

In case of GENO-Neutra NO-12, additional neutralisation granulate is filled into the filling area 2, thus increasing the neutralisation capacity.

GENO-Neutra NO-24



Designation

- 1 Filling area 1 with neutralisation granulate
- 2 Filling area 2 with neutralisation granulate
- 3 Condensate collection area in the outlet

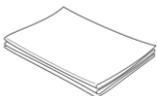
Designation

- 4 Settling area in the inlet
- 5 Filling area in the inlet, with activated carbon

The GENO-Neutra NO-24 consists of 2 GENO-Neutra NO-12 systems switched in series. The condensate flows through the systems one after the other. The neutralisation capacity doubles compared to the GENO-Neutra NO-12 system.

3.4 Accessories

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

Illustration	Product	Order no.
	Waste water lifting system AH-300 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.	420 150
	Overflow warning switch for GENO-Neutra Level switch with voltage-free changeover contact for generating a fault signal; for installation in the lid of the neutralisation box	410 680
	GENO-alarm delay relay To execute a delayed shut-off 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	410 285
	Hose DN 20 (5 m) To bridge distances of up to 5 m on the inlet and outlet side	410 764e
	Oil binding mats, 20 pcs Oil absorbing capacity of 100 ml/mat, water-repellent	410 585
	GENO-Neutralit Hz (8 kg) Refill pack for neutralisation	410 011

BA_100199090000_en_065_GENO-Neutra NO-5_NO-12_NO-24

Illustration	Product	Order no.									
	<p>pH indicator strips</p> <p>3 Strips to determine pH 4.5 – 10.0</p>	<p>170 173</p>									
<p>—</p>	<p>Maintenance kits for GENO-Neutra NO</p> <p>Foil bag to dispose of the used neutralisation granulate, bag containing activated carbon, 1 pack (3 strips) of pH indicator strips, filter felt and 4 pump feet, non-return valve</p> <table border="1" data-bbox="442 510 912 606"> <tbody> <tr> <td>1 Bag of GENO-Neutralit Hz, 3 kg</td> <td>NO-5</td> <td>410 805</td> </tr> <tr> <td>1 Bag of GENO-Neutralit Hz, 8 kg</td> <td>NO-12</td> <td>410 806</td> </tr> <tr> <td>2 Bags of GENO-Neutralit Hz, 8 kg</td> <td>NO-24</td> <td>410 807</td> </tr> </tbody> </table>	1 Bag of GENO-Neutralit Hz, 3 kg	NO-5	410 805	1 Bag of GENO-Neutralit Hz, 8 kg	NO-12	410 806	2 Bags of GENO-Neutralit Hz, 8 kg	NO-24	410 807	
1 Bag of GENO-Neutralit Hz, 3 kg	NO-5	410 805									
1 Bag of GENO-Neutralit Hz, 8 kg	NO-12	410 806									
2 Bags of GENO-Neutralit Hz, 8 kg	NO-24	410 807									

4 Transport, set-up and storage

4.1 Shipping/Delivery/Packaging

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

The neutralisation granulate and the activated carbon are enclosed in separate bags.

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

4.2 Transport/Set-up

- ▶ Transport the product in its original packaging only.
- ▶ The neutralisation granulate and the activated carbon are not considered to be dangerous goods in the sense of the regulation. Obey the current safety data sheet.

4.3 Storage

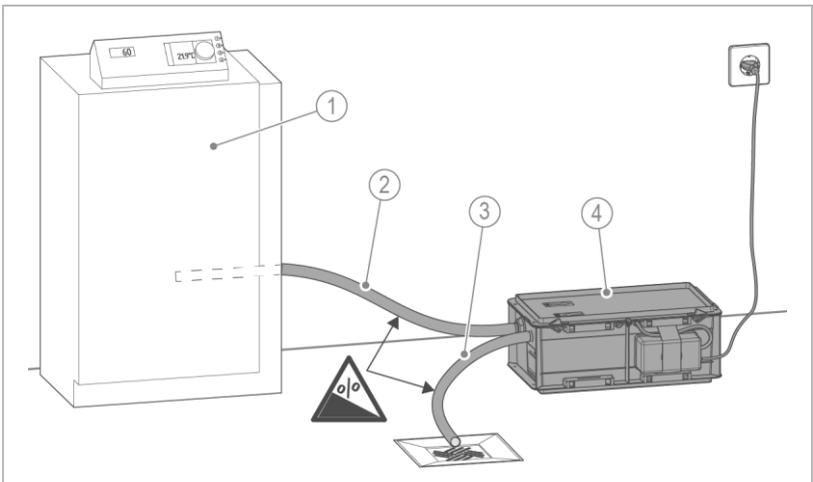
- ▶ Protect the product from the impacts below when storing it:
 - Dampness, moisture
 - Environmental impacts such as wind, rain, snow, etc.
 - Frost, direct sunlight, severe heat exposure
 - Chemicals, dyes, solvents and their vapours

5 Installation



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

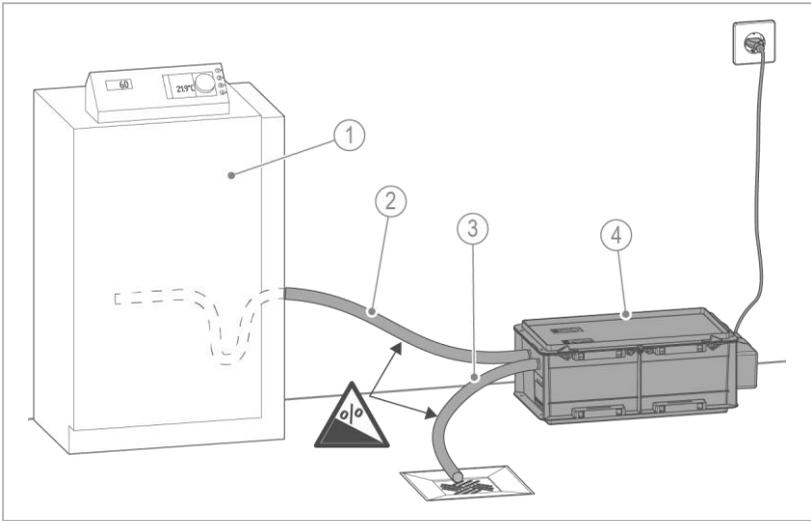
Installation example I (GENO-Neutra NO-5) (without siphon in the heat generator)



Designation	
1	Heat generator without siphon
2	Inlet hose

Designation	
3	Outlet hose
4	Neutralisation system GENO-Neutra NO-5

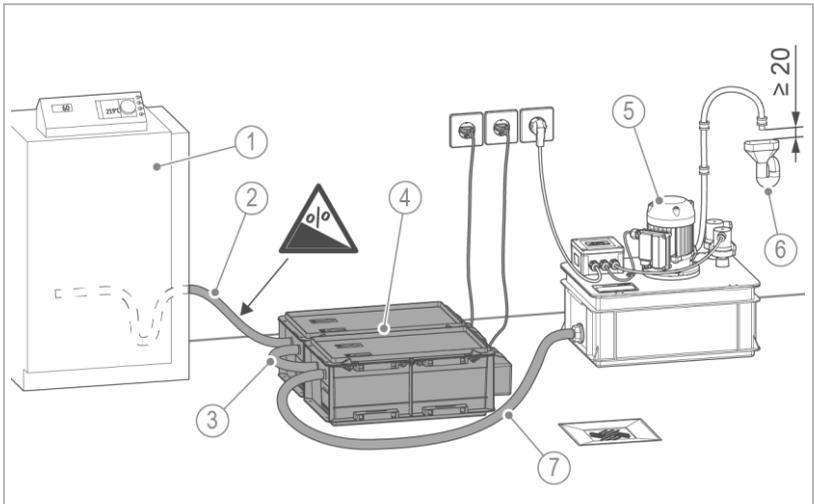
Installation example II (GENO-Neutra NO-12) (with siphon in the heat generator)



Designation	
1	Heat generator with siphon
2	Inlet hose without backwater loop

Designation	
3	Outlet hose
4	Neutralisation system GENO-Neutra NO-12

Installation example III (GENO-Neutra NO-24) (with drain connection and waste water lifting system)



Designation	Designation
1 Heat generator with siphon	5 Waste water lifting system AH-300
2 Inlet hose	6 Drain connection
3 Connecting hose	7 Outlet hose
4 Neutralisation system GENO-Neutra NO-24	

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

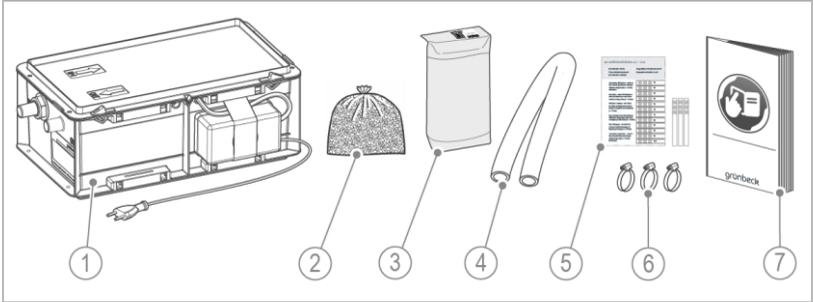
- Inlet hose with a downward slope, without a siphon in the heat generator (for NO-5)
- Inlet hose with a downward slope and a siphon in the heat generator (for NO-12/NO-24)
 - Alternatively with backwater loop
- Outlet hose with a downward slope to the floor drain
- Floor drain or an alarm device which, 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 DN 40 with possibility of backflow-free discharge of the condensate

Electrical installation

- Socket outlet at a max. distance of 1.5 m from the product (2 sockets required for NO-24)
 - The power supply must carry continuous current or be connected in parallel to the burner of the condensing boiler

5.2 Checking the scope of supply

5.2.1 GENO-Neutra NO-5



Designation

- 1 Neutralisation system
GENO-Neutra NO-5,
pre-assembled

- 2 Activated carbon filling

- 3 Neutralisation granulate
GENO-Neutralit Hz, 3 kg

Designation

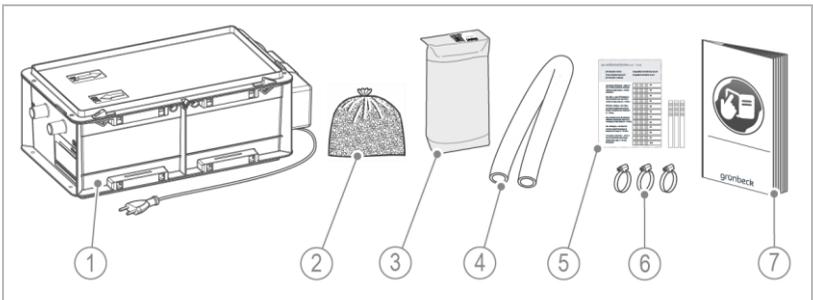
- 4 Hose, 5 m in length (DN 20)

- 5 1 Pack of pH indicator strips

- 6 3 Hose clamps

- 7 Operation manual

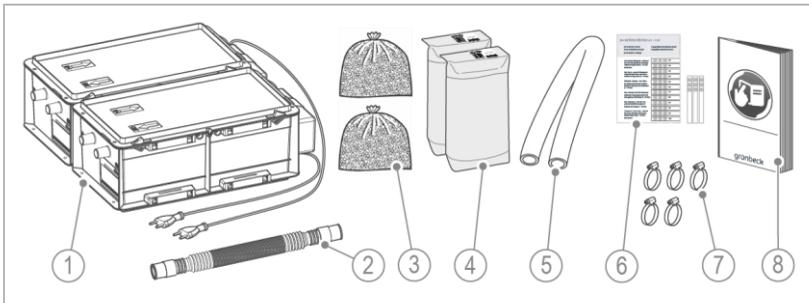
5.2.2 GENO-Neutra NO-12



Designation	
1	Neutralisation system GENO-Neutra NO-12, pre-assembled
2	Activated carbon filling
3	Neutralisation granulate GENO-Neutralit Hz, 8 kg

Designation	
4	Hose, 5 m in length (DN 20)
5	1 Pack of pH indicator strips
6	3 Hose clamps
7	Operation manual

5.2.3 GENO-Neutra NO-24



Designation	
1	Neutralisation system GENO-Neutra NO-24 (consisting of 2x NO-12), pre-assembled
2	Connecting hose
3	2x Activated carbon filling
4	Neutralisation granulate GENO-Neutralit Hz, 2x 8 kg

Designation	
5	Hose, 5 m in length (DN 20)
6	1 Pack of pH indicator strips
7	5 Hose clamps
8	Operation manual

► Check the scope of supply for completeness and damage.

5.3 Water installation

5.3.1 Setting up the neutralisation system

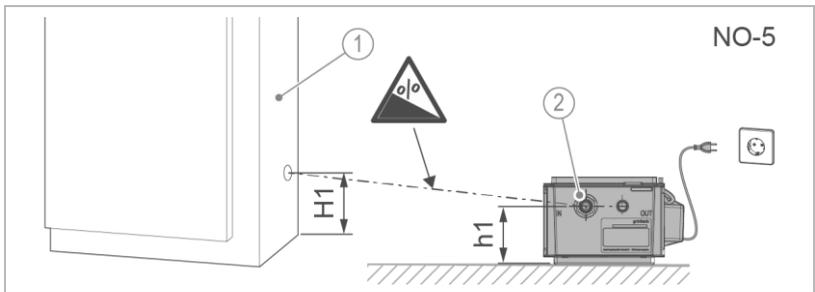


Take into consideration that in normal operation, the condensate accumulates up to the level of the outlet connection. If the condensate from the heat generator or the exhaust system is to drain off completely, the installation surfaces and the condensate outlets must be provided for accordingly.

5.3.1.1 GENO-Neutra NO-5



The neutralisation system GENO-Neutra NO-5 features an integrated siphon with a barrier height of 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.



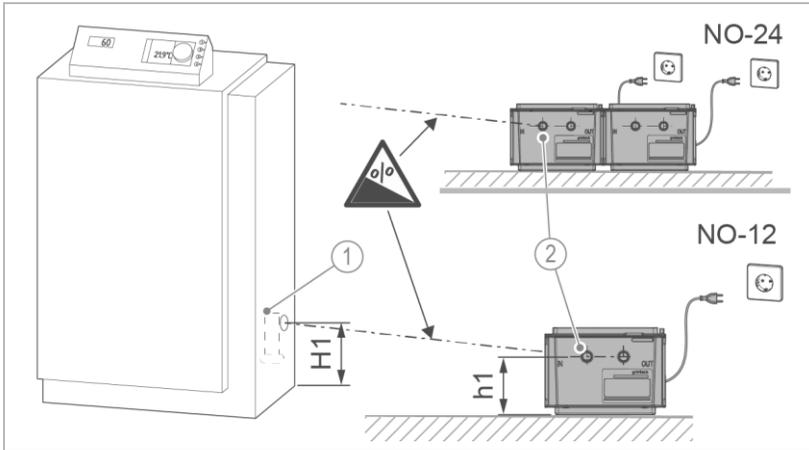
Designation	Designation
1 Heat generator	2 Inlet connection of neutralisation

5.3.1.2 GENO-Neutra NO-12/NO-24

The neutralisation systems GENO-Neutra NO-12/NO-24 do not have an integrated siphon at the inlet connection.



An additional siphon must therefore either be present on the heat generator or the inlet hose must be laid with a backwater loop. Avoid a double siphon design.



Designation	Designation
1 Siphon at the heat generator	2 Inlet connection of neutralisation

- ▶ Set up the neutralisation system in a horizontal position close to the boiler. Keep traffic routes free.



Select an installation site where the inlet and outlet hose 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 neutralisation system of approximately 3%.

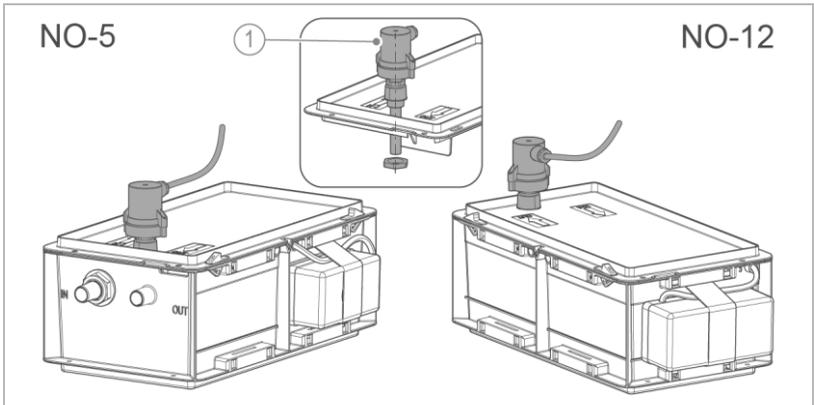
5.3.2 Connecting the neutralisation system

5.3.2.1 Installing the (optional) overflow warning switch



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

GENO-Neutra NO-5/NO-12

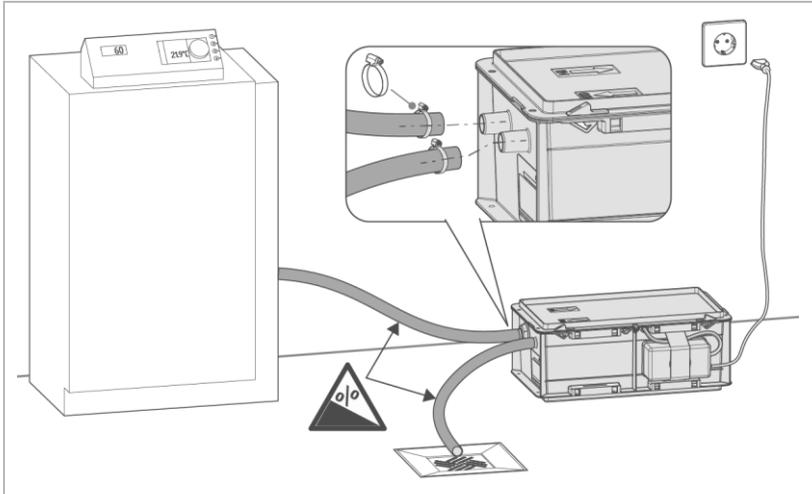


Designation

- 1 Overflow warning switch (optional)

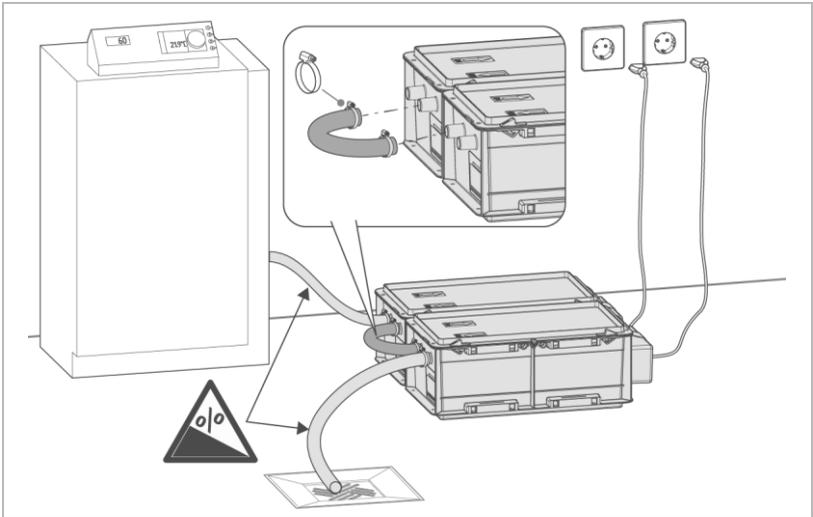
5.3.2.2 Connecting the inlet and outlet hose

Use the hose supplied with the system to connect the neutralisation system.



1. Shorten the hose to the required length for inlet and outlet.
2. Connect the inlet hose to the inlet of the neutralisation box. Make sure that a downward slope is maintained from the heat generator to the neutralisation system.
3. Fix the inlet hose by means of the hose clamp.
4. Connect the outlet hose to the outlet of the neutralisation box (in case of NO-24 of the second neutralisation box)
5. Fix the inlet hose by means of the hose clamp.
6. Route 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 outlet hose.

Installing the connecting hose on GENO-Neutra NO-24



8. Connect the connecting hose to the outlet of the first neutralisation box and the inlet of the second neutralisation box.
9. Fix the connecting hose by means of the hose clamps.



The end of the outlet hose must be freely visible in order to be able to check the functioning of the neutralisation system 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 brass, copper or steel components.

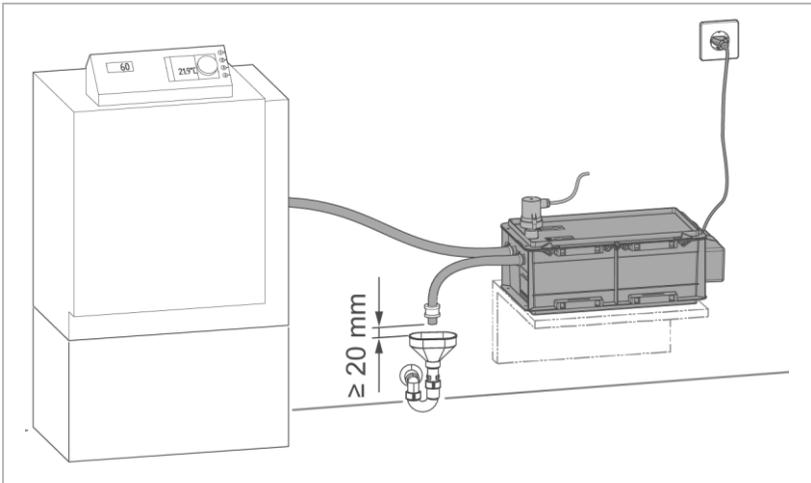


Additional condensing boilers or/and exhaust systems can be integrated up to the max. capacity of the neutralisation system .

5.3.2.3 Connecting the outlet to the drain connection

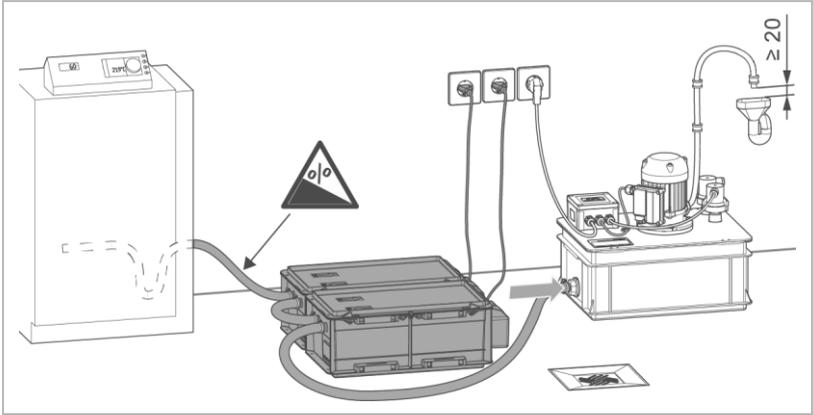
Comply with the following if you connect the outlet hose to the drain connection:

- 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 neutralisation box is securely set up and fastened.

GENO-Neutra NO-24 with waste water lifting system AH-300



- ▶ Connect the outlet hose to the waste water lifting system.



When installing the waste water lifting system AH-300, obey the operation manual of the waste water lifting system.

6 Start-up/commissioning



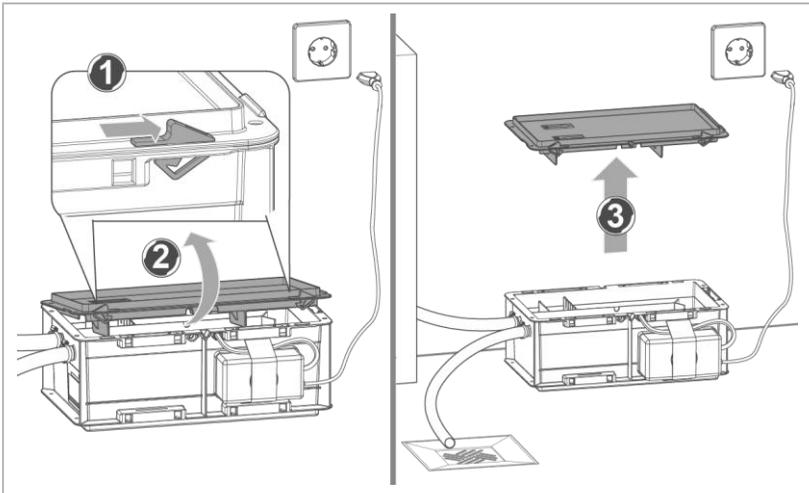
The initial start-up/commissioning of the product must be carried out by technical service personnel only.



WARNING Acidic condensate

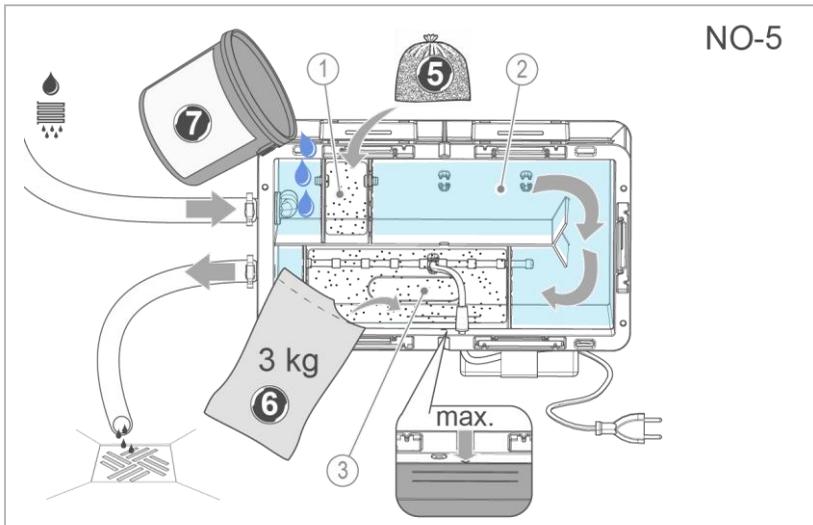
- Chemical burns of eyes and body parts
- ▶ Use personal protective equipment (refer to chapter 1.6.3).
- ▶ Avoid any skin and eye contact with the condensate.
- ▶ Thoroughly rinse your eyes with water if condensate gets into your eyes.

6.1 Filling the neutralisation 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 neutralisation box (e.g. cardboard packaging).

GENO-Neutra NO-5



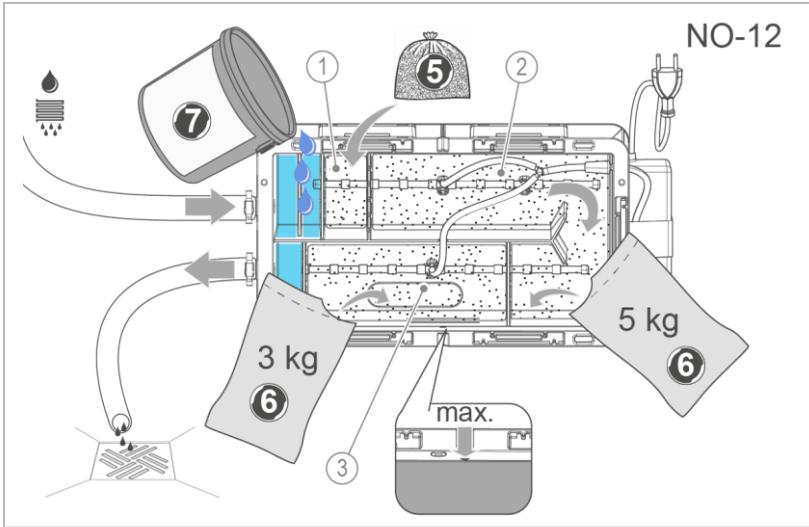
Designation

- 1 Filling area for activated carbon
- 2 Settling area without filling

Designation

- 3 Filling area for neutralisation granulate

GENO-Neutra NO-12/NO-24



Designation

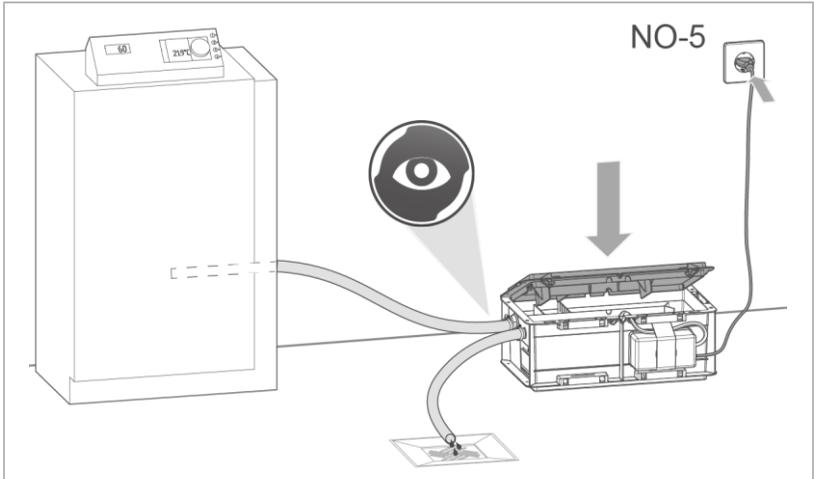
- 1 Filling area for activated carbon
- 2 Filling area 1 for neutralisation granulate

Designation

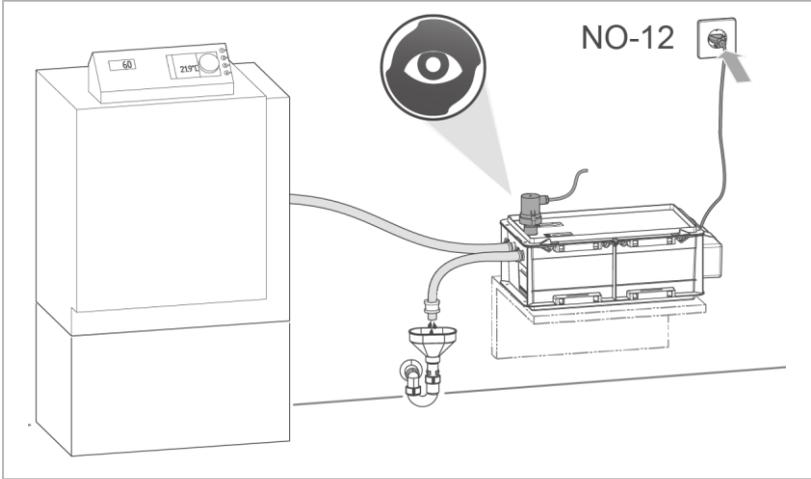
- 3 Filling area 2 for neutralisation granulate

5. Fill the activated carbon into the respective chamber.
6. Carefully fill the neutralisation granulate into the respective chamber.
7. Fill water into the settling area in the inlet.
 - a Respect the upper max. marking for the filling volume.

6.2 Electrically connecting and testing the product



1. Plug the mains plug of the aeration pump into the socket.
2. Check the inlet and outlet hoses for leaks.
3. Check aeration pump and the air outlet system for function.
4. Close the neutralisation box with the lid.
5. Put the heat generator into operation.
6. Check the entire installation for leaks.



7. Check the optional overflow warning switch for function (refer to the instructions of the accessories).
8. Check that the condensate flows freely into the drain or floor drain.

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/handling

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



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



WARNING Cleaning live components

- Risk of electric shock, sparking due to short-circuit
- ▶ Prior to starting the cleaning work, unplug the mains plugs and disconnect the voltage-free contacts, such as the overflow warning switch, from the power supply.
- ▶ Do not use any high-pressure equipment for cleaning and do not blast electrical/electronic devices with water.

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 the pH value at the condensate outlet • Check inlet and outlet hoses for deposits • Check the water level in the neutralisation box • Check the neutralisation box and the hoses for leaks • Check the condition of the aeration pump and check it for function
Maintenance	annually	<ul style="list-style-type: none"> • Check the neutralisation box and the hoses for their condition and for leaks • Clean the neutralisation box • Replace the neutralisation granulate and activated carbon • Check the condition of the aeration pump and check it for function • Replace the wearing parts of the aeration pump • Clean the air outlet system • Check the pH value at the condensate outlet • Check the optional accessories (overflow warning switch) for function
	load-dependent	<ul style="list-style-type: none"> • Refer to “annually”
Repair	5 years	Recommendation: <ul style="list-style-type: none"> • Replace wearing parts and the aeration pump

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.

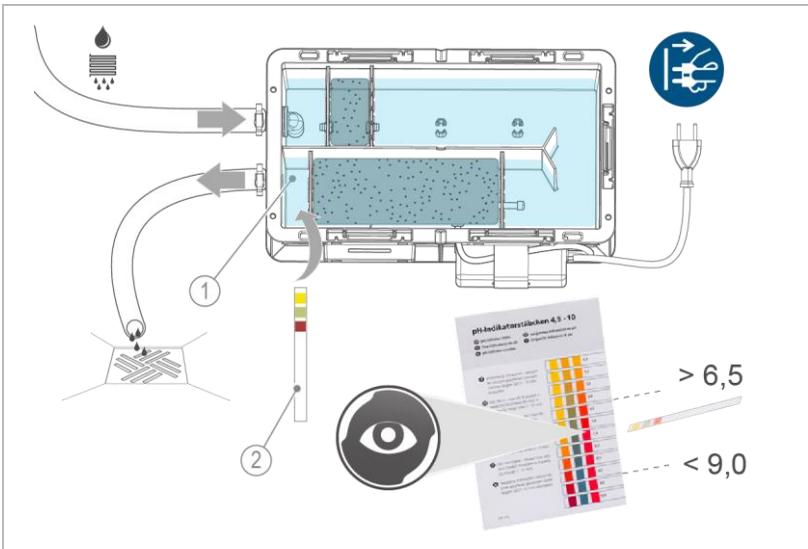


- ▶ Use personal protective equipment (refer to chapter 1.6.3).



WARNING Life-threatening voltage

- Severe burns, cardiovascular failure, fatal electric shock
 - ▶ Unplug the mains plug prior to working on the system.
 - ▶ Disconnect the voltage-free contacts, such as the overflow warning switch, from the power supply.
- ▶ Have at least the following components at hand to carry out an inspection:
- Air filter of the aeration pump
 - Oil binding mat
- ▶ Carry out an inspection at least every 6 months.
1. Unplug the mains plug of the aeration pump.



Designation
1 Condensate outlet

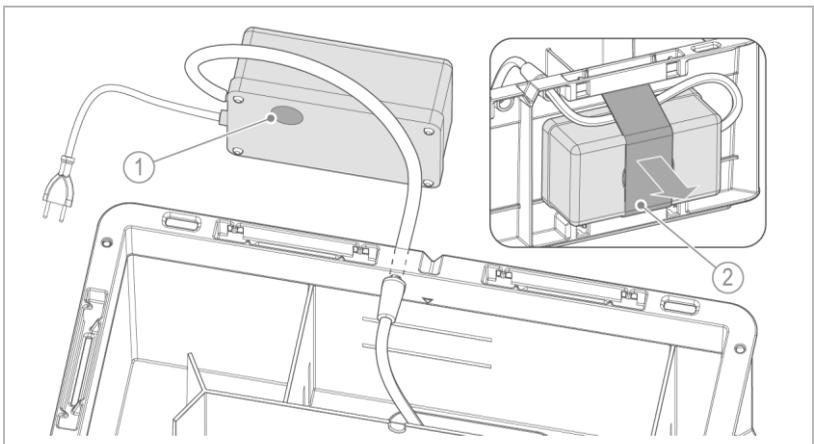
Designation
2 pH indicator strips

2. Open the lid of the neutralisation box.
 - a Disconnect the overflow warning switch (optional accessory) from the power supply and remove it together with the lid.
3. Check the pH value at the condensate outlet using the indicator strips.
 - » The pH value must be between 6.5 and 9.0.
4. Check whether there is an oil film on the water surface in the neutralisation box.
 - a Remove the oil film with the oil binding mat.
 - b Do not use any loose oil binding agents.



Contact the service personnel for condensing boilers if the oil film can be traced back to a boiler malfunction.

5. If you measure a pH value < 6.5 , refill neutralisation granulate.
6. Replace the neutralisation granulate, if needed.



Designation

1 Air filter

Designation

2 Tension band

7. Check the aeration pump for impurities.
 - a Lift the tension band and pull out the aeration pump.
 - b Check the air filter for impurities.
 - a Replace the air filter, if necessary.
8. Fasten the aeration pump using the tension band.
9. Check the inlet and outlet hoses for deposits.
 - a Clean the hoses, if necessary.
10. Check the water level in the neutralisation box.
 - a Refill the neutralisation box with water up to the outlet height, if necessary.
11. Check the neutralisation box and the hoses for leaks.
12. Reconnect the optional overflow warning switch to voltage.
13. Close and lock the neutralisation box with the lid.
 - a Check the overflow warning switch for function.
14. Record the maintenance 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.

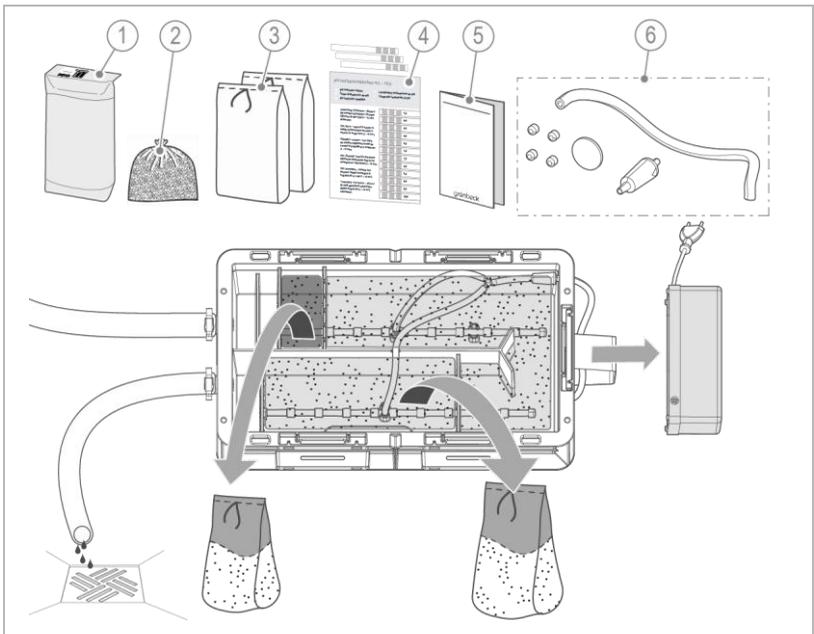
Maintenance must be carried out at regular intervals depending on the volume and the contamination of the condensate, but at least once a year.

8.4.1 Annual maintenance



Annual maintenance work requires expert knowledge. This kind of maintenance work must be carried out by technical service personnel only.

- Use the corresponding maintenance kit for GENO-Neutra NO-5/NO-12/NO-24 (refer to chapter 8.5).



Designation

- | | |
|---|--|
| 1 | Neutralisation granulate
GENO-Neutralit Hz |
| 2 | Activated carbon |
| 3 | 2 Foil bags to dispose of the
used neutralisation granulate
and the activated carbon |

Designation

- | | |
|---|-------------------------------|
| 4 | pH indicator strips |
| 5 | Maintenance instructions |
| 6 | Spare parts for aeration pump |

- ▶ Have at least the following components at hand to perform maintenance:
 - Maintenance kit
 - Air outlet system (recommendation)
 - Oil binding mat
- 1. Stop the inflow of condensate or divert it into a suitable collection vessel.
- 2. Unplug the mains plug of the aeration pump.
- 3. Disconnect the overflow warning switch (optional accessory) from the power supply.
- 4. Open the lid of the neutralisation box.
- 5. If necessary, collect hydroxide sludge separately in a suitable container.
- 6. Remove the aeration pump.
 - a Pull off the air hose from the aeration pump.
 - b Lift the tension band and pull out the aeration pump.
- 7. Remove the used condensate from the neutralisation box.
 - a Vacuum off the neutralisation granulate with a wet vacuum cleaner, for instance.
 - b Fill the used neutralisation granulate into the foil bag (included in the maintenance kit).
- 8. Remove the activated carbon from the neutralisation box.
 - a Vacuum off the activated carbon with a wet vacuum cleaner, for instance.
 - b Fill the used activated carbon into second the foil bag (included in the maintenance kit).
- 9. Dispose of the used neutralisation granulate and the used activated carbon (refer to chapter 11.2).

10. Remove the air outlet system and replace the components of the aeration device (refer to chapter 8.4.2).
11. Clean the neutralisation box.
12. Check the inlet and outlet hoses for deposits and clean them, if necessary.
13. Install the air outlet system and the aeration pump.
14. Fill new neutralisation granulate and new activated carbon into the neutralisation box (refer to chapter 6.1).
15. Fill the neutralisation box with water up to the outlet height.
16. Check the neutralisation box and the hoses for leaks.
17. Replace worn components, if necessary.
18. Close the neutralisation box with the lid.
19. Put the overflow warning switch (optional accessory) into operation and check the fault signal for function (refer to the operation manual of the accessory).
20. Put the system into operation and check the pH value at the condensate outlet using the indicator strips.
 - » The pH value must be between 6.5 and 9.0.
21. Record the maintenance carried out in the operation log (refer to chapter 13.2).

8.4.2 Aeration device

The proper function of the aeration pump depends on the ambient parameters (temperature, humidity, air pollution, etc.) while the components at risk of wear, tear and contamination must be replaced.

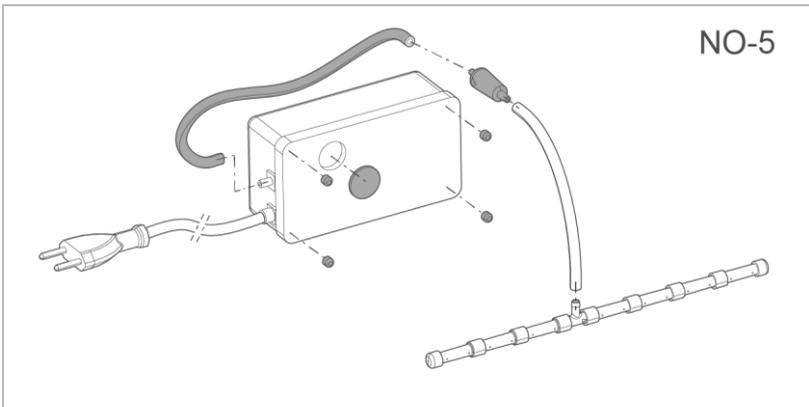
- Membrane
- Air filter

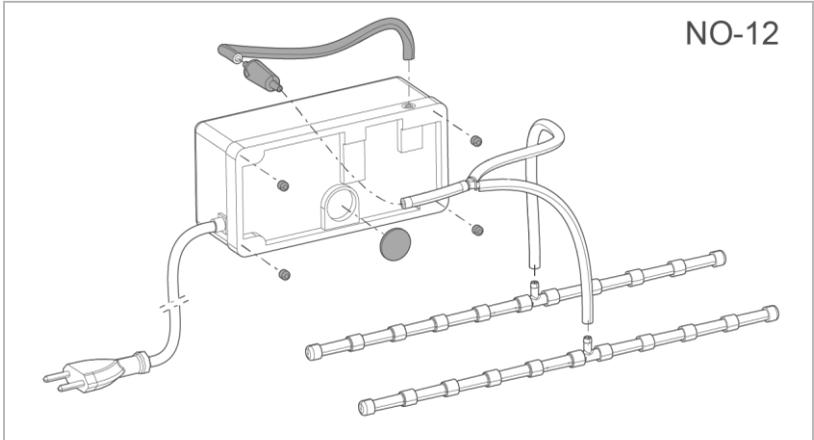
- Pump head
- Air hose



Since time-consuming and costly repairs are usually not advisable, we recommend replacing the entire aeration pump in the event of a malfunction.

- We basically recommend replacing the aeration pump every 4 – 5 years to prevent malfunctions.
1. Check the aeration pump for damage.
 2. Check the mains cable and the mains plug for damage.
 3. Remove the air outlet system from the neutralisation box.
 4. Clean the air outlet system.
 - a Replace the entire air outlet system, if necessary.
- » The air holes in the segments must be free from deposits.





► Replace the components below:

- Air hose (250 mm of the aeration pump)
- Air filter
- 4 Feet
- Non-return valve

8.5 Consumables



Depending on the operating conditions (season, operating hours of the burner, temperature of heat supply and return, ...), the consumption of neutralisation granulate can vary considerably.

This is normal and due to technical reasons.

Product	Quantity	Order no.
pH indicator strips (1 package)	3 strips	170 173
GENO-Neutralit Hz	8 kg	410 011
Maintenance kit for GENO-Neutra NO-5		410 805
Maintenance kit for GENO-Neutra NO-12		410 806
Maintenance kit for GENO-Neutra NO-24		410 807

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

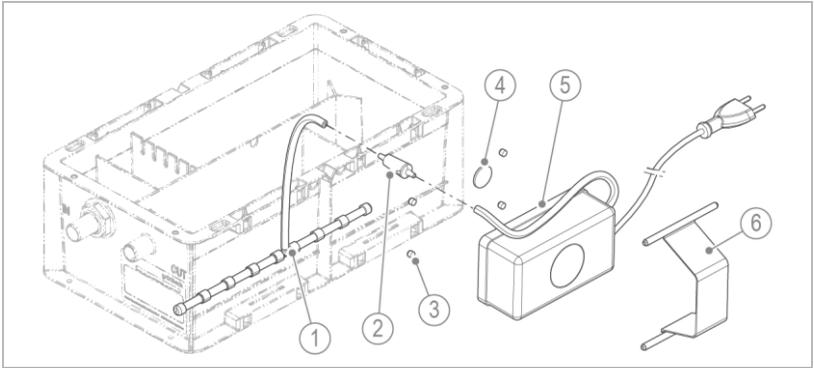


Wearing parts must be replaced by qualified specialists only.

Wearing parts are listed below:

- Seals

GENO-Neutra NO-5



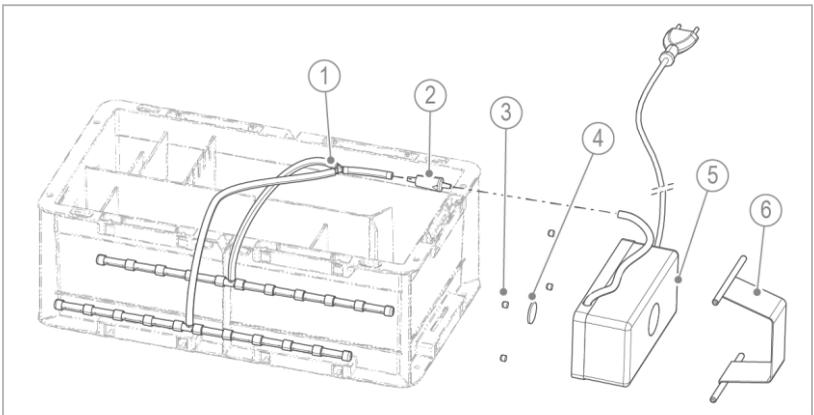
Designation

- 1 Air outlet system
- 2 Non-return valve
- 3 Feet of aeration pump

Designation

- 4 Air filter of aeration pump
- 5 Aeration pump
- 6 Tension band

GENO-Neutra NO-12



Designation

- 1 Air outlet system
- 2 Non-return valve
- 3 Feet of aeration pump

Designation

- 4 Air filter of aeration pump
- 5 Aeration pump
- 6 Tension belt

9 Troubleshooting

9.1 Observations

Observation	Explanation	Remedy
Deposits of condensate by-products on the surface of the condensate	Poor combustion in the condensing boiler	<ul style="list-style-type: none"> ▶ Clean the neutralisation box more frequently and replace the granulate filling ▶ Check the settings of the burner ▶ Inform the specialist for the condensing boiler
pH value at the outlet is briefly > 10	Longer period of standstill	<ul style="list-style-type: none"> ▶ No immediate action required ▶ Repeat the check of the pH value during a longer period of continuous operation
pH value at the outlet decreases to values < 6.5 after a longer period of operation	The neutralisation granulate is used up	<ul style="list-style-type: none"> ▶ Clean the neutralisation system in case of high amounts of sludge deposits ▶ Refill neutralisation granulate
	Divider plates dirty	▶ Clean the divider plates
	Air filter of aeration pump dirty	▶ Replace the air filter
	Air outlet system clogged	▶ Clean or replace the air outlet system
pH value at the outlet is permanently > 10 or < 6.5	<p>Boiler and exhaust systems can produce highly varying amounts of condensate, deviating from the design guide value</p> <hr/> <p>Size of the neutralisation unit dimensioned incorrectly</p>	▶ Adapt the system size to the condensate inflow volume

Observation	Explanation	Remedy
Neutralisation granulate stuck together or clogged Build-up on neutralisation granulate	Due to a large amount of deposits of condensate by-products	▶ Loosen up the neutralisation granulate by adding water
	Air outlet system clogged	▶ Clean or replace the air outlet system
	Air hose clogged	▶ Clean or replace the air hose
	Air filter of aeration pump dirty	▶ Replace the air filter
	Air flow rate of aeration pump too low	▶ Check the aeration pump for function
Neutralisation granulate is dried out or caked	Due to a longer period of standstill, e.g. during the summer months	▶ Loosen up the neutralisation granulate by adding water ▶ Carry out maintenance, if necessary
Condensate does not flow out	Neutralisation box or outlet hose clogged	▶ Check the neutralisation box for clogging ▶ Check the outlet hose for free outlet
	Optional overflow warning switch does not work	▶ Check the overflow warning switch for function
Aeration pump does not run	No mains voltage present	▶ Check the electrical connections
	Electrical connection defective	▶ Check the aeration pump and replace it, if necessary
	Aeration pump or membrane defective	

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 neutralisation system must be decommissioned.

10.1 Temporary standstill

If the heat generator is to be switched off temporarily (e.g. for three months in summer), carry out the following activities on the neutralisation system:

1. Open the neutralisation box.
2. Check whether deposits have formed on the surfaces in the neutralisation box.
3. Remove the deposits, if necessary.
4. Check that the neutralisation box is filled with enough water.
5. Refill water, if necessary.
6. Close the neutralisation box.
7. Keep the system connected to the power supply.

10.2 Restart/recommissioning

1. Check the state of the granulate filling. Loosen it up or replace it, if necessary (e.g. after a longer period of standstill)
2. Put the neutralisation system 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 neutralisation box.
- 3. Remove the granulate filling from the neutralisation box.
- 4. Remove optional accessories (such as the overflow warning switch).
- 5. Disconnect the neutralisation system from the water installation.
 - a 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.

Neutralisation granulate

- ▶ Dispose of the used neutralisation granulate via local waste disposal companies using waste code number 19 02 99. Do not dispose of it with residual waste or household waste.

Hydroxide sludge/used neutralisation granulate

During system cleaning, hydroxide sludge containing metal might be produced and must be disposed of as hazardous waste.

- ▶ Collect hydroxide sludge separately in a suitable container.
- ▶ Dispose of the hydroxide sludge and the neutralisation granulate contaminated with hydroxide sludge via local waste disposal companies using waste code number 10 01 21. 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 a used oil binding mat properly. Do not dispose of it 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.

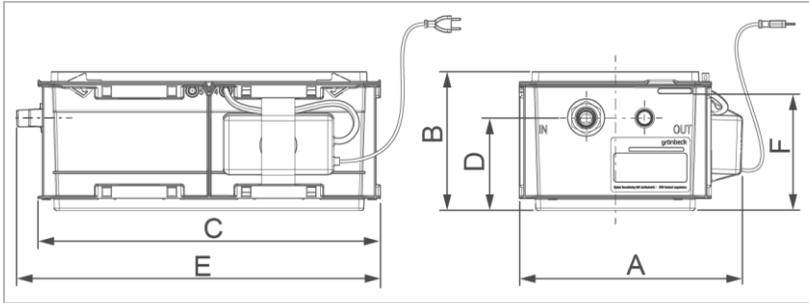
- ▶ Find out about the local regulations on the separate collection of electrical and electronic products.
- ▶ Make use of the collection points available to you for the disposal of your product.
- ▶ If your product contains batteries or rechargeable batteries, dispose of them separately from your product.



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

12 Technical specifications

12.1 GENO-Neutra NO-5

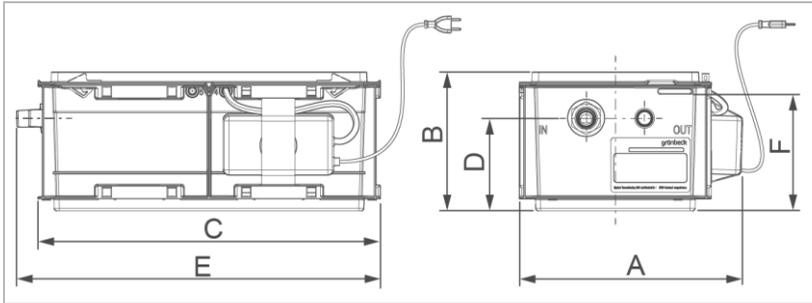


Dimensions and weights		NO-5	
A	Width	mm	268
B	Height	mm	165
C	Length	mm	410
D	Connection height of inlet and outlet	mm	110
E	Total length with connections	mm	435
F	Height of overflow/lower edge	mm	140
Operating weight		kg	~ 12
Empty weight		kg	~ 7.5

Connection data		NO-5	
Nominal connection diameter of inlet and outlet		DN 20	
Drain connection		≥ DN 40	
Power supply	V/Hz	230/50	
Mains cable with Euro flat plug	m	2.0	
Power input	W	5	
Protection/protection class		IP X4/☐	

Performance data		NO-5
Fuel/process (generation of condensate)		Oil/Condensing boiler technology
Neutralisation capacity	l/h	≤ 4.4
At 0.08 l/kWh, this corresponds to a boiler capacity of	kW	≤ 55
Filling volumes and consumption data		NO-5
Activated carbon granulate	l	0.5
Neutralisation granulate GENO-Neutralit Hz	kg	3.0
Service life in case of standard condensate as per DVGW VP 114, pH 3		12 months
Neutralisable condensate volume	m ³	2.9
This corresponds to ... hours of full use of the boiler	bVH	650
Service life in case of standard condensate, but at least pH 3.2		12 months
Neutralisable condensate volume	m ³	6.6
This corresponds to ... hours of full use of the boiler	bVH	1500
General data		NO-5
Condensate temperature	°C	5 – 60
Ambient temperature	°C	5 – 40
DVGW registration number		DG-4585CM0232
Order no.		410 230

12.2 GENO-Neutra NO-12

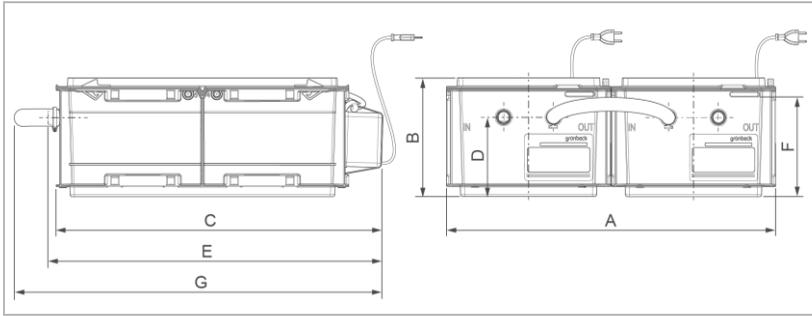


Dimensions and weights		NO-12
A	Width	mm 230
B	Height	mm 165
C	Length	mm 458
D	Connection height of inlet and outlet	mm 110
E	Total length with connections	mm 469
F	Height of overflow/lower edge	mm 140
	Operating weight	kg ~ 16
	Empty weight	kg ~ 14

Connection data		NO-12
Nominal connection diameter of inlet and outlet		DN 20
Drain connection		≥ DN 40
Power supply	V/Hz	230/50
Mains cable with Euro flat plug		m 2.0
Power input		W 5
Protection/protection class		IP X4/☐

Performance data		NO-12
Fuel/process (generation of condensate)		Oil/Condensing boiler technology
Neutralisation capacity	l/h	≤ 12.8
At 0.08 l/kWh, this corresponds to a boiler capacity of	kW	≤ 160
Filling volumes and consumption data		NO-12
Activated carbon granulate	l	0.5
Neutralisation granulate GENO-Neutralit Hz	kg	8.0
Service life in case of standard condensate as per DVGW VP 114, pH 3		12 months
Neutralisable condensate volume	m ³	8.3
This corresponds to ... hours of full use of the boiler	bVH	650
Service life in case of standard condensate, but at least pH 3.2		12 months
Neutralisable condensate volume	m ³	19.2
This corresponds to ... hours of full use of the boiler	bVH	1500
General data		NO-12
Condensate temperature	°C	5 – 60
Ambient temperature	°C	5 – 40
DVGW registration number		DG-4585CM0232
Order no.		410 240

12.3 GENO-Neutra NO-24



Dimensions and weights		NO-24
A	Width	mm 460
B	Height	mm 165
C	Length	mm 458
D	Connection height of inlet and outlet	mm 110
E	Total length with connections	mm 469
F	Height of overflow/lower edge	mm 140
G	Total length with connecting hose	mm ~ 600
	Operating weight	kg ~ 32
	Empty weight	kg ~ 28

Connection data		NO-24
Nominal connection diameter of inlet and outlet		DN 20
Drain connection		≥ DN 40
Power supply	V/Hz	230/50
Mains cable with Euro flat plug	m	2.0
Power input	W	10
Protection/protection class		IP X4/□

Performance data		NO-24
Fuel/process (generation of condensate)		Oil/Condensing boiler technology
Neutralisation capacity	l/h	≤ 25.6
At 0.08 l/kWh, this corresponds to a boiler capacity of	kW	≤ 320
Filling volumes and consumption data		NO-24
Activated carbon granulate	l	1.0
Neutralisation granulate GENO-Neutralit Hz	kg	16.0
Service life in case of standard condensate as per DVGW VP 114, pH 3		12 months
Neutralisable condensate volume	m ³	16.6
This corresponds to ... hours of full use of the boiler	bVH	650
Service life in case of standard condensate, but at least pH 3.2		12 months
Neutralisable condensate volume	m ³	38.4
This corresponds to ... hours of full use of the boiler	bVH	1500
General data		NO-24
Condensate temperature	°C	5 – 60
Ambient temperature	°C	5 – 40
DVGW registration number		DG-4585CM0232
Order no.		410 250

13 Operation log



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

Neutralisation system GENO-Neutra NO-_____

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:

BA_100199090000_en_065_GENO-Neutra NO-5_NO-12_NO-24

Work performed

Inspection

Maintenance

Repair

Description

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:

Work performed

Inspection

Maintenance

Repair

Description

Execution confirmed

Company:

Name:

Date:

Signature:

EU Declaration of Conformity

In accordance with the EU Low-Voltage Directive 2014/35/EU



This is to certify that the system designated below meets the safety and health protection requirements of the applicable EU guidelines in terms of its design, construction and execution.

This certificate becomes void if the system is modified in any way not approved by us.

Neutralisation system GENO-Neutra NO-5/NO-12/NO-24

Serial no.: Refer to type plate

The aforementioned system also complies with the following directives and provisions:

- EMC (2014/30/EU)
- Directive on the Restriction of Hazardous Substances RoHS (2011/65/EU)

The following harmonised standards have been applied:

- DIN EN 61000-6-2:2006-03
- DIN EN 61000-6-3:2011-09
- DIN EN 60335-1:2012-10
- DIN EN 62233:2008-11

The following national standards and regulations have been applied:

- DWA-A 251:2011-11
- DIN EN 60335-2-89:2018-10

Responsible for documentation:

Markus Poepperl

Manufacturer:

Grünbeck Wasseraufbereitung GmbH
Josef-Grünbeck-Str. 1
89420 Hoechstaedt/Germany

Hoechstaedt/Germany, 23.07.2019



By power of attorney Markus Pöpperl
Head of Technical Product Design

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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