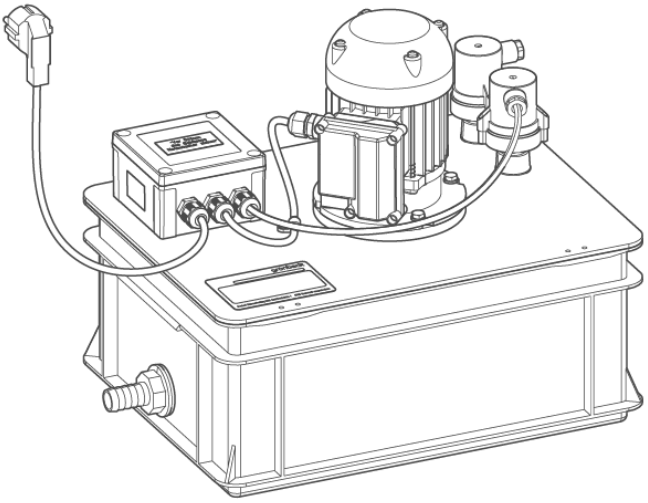
We understand water.



Waste water lifting system | AH-300

Operation manual

grünbeck

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

Friday
7:00 am - 4:00 pm

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Table of contents

1 Introduction

This manual is intended for owners/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:

- Waste water lifting system AH-300

1.2 Other applicable documents

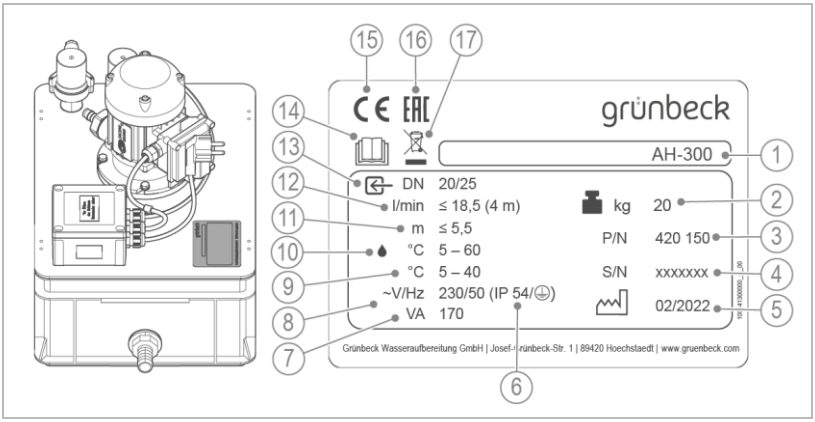
- Instructions of optional accessories

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 collection box.



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

	Designation
8	Condensate temperature
9	Maximum delivery head
10	Pump capacity
11	Nominal connection diameter
12	Obey the operation manual
13	CE mark
14	EAC test mark
15	Disposal information

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**	Personal injury	Death or serious injuries
	**WARNING**		Possible death or serious injuries
	**CAUTION**		Possible moderate or minor injuries
	NOTE	Damage to property	Possible damage to components, the product and/or its functions, or 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	• 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	• Product-specific expertise • Knowledge of statutory regulations on work safety and accident prevention
Qualified specialist • Electrical engineering • Sanitary engineering (HVAC and plumbing) • Transport	• Professional training • Knowledge of relevant standards and regulations • Knowledge of detection and prevention of potential hazards • Knowledge of statutory regulations on accident prevention

Personnel	Requirements
Technical service (Grünbeck's technical service/authorised service company)	• 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 in 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.
- Be aware of a possible risk of slipping due to leaking water on the floor.
- 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.

2.2 Product-specific safety instructions

2.2.1 Safety devices

- Delivery pump featuring a protective temperature limiter with automatic reset.
- The pump motor is switched off in the event of overheating and restarts automatically after it has sufficiently cooled down.
- Overflow warning switch

2.2.2 Signals and warning devices

Labels on the product

	Risk of electric shock		Hot surface

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

- ► Obey all warnings and safety instructions.
- ► Immediately replace illegible or damaged symbols and pictograms.

2.3 Conduct in emergencies

2.3.1 In case of water leaks

1. De-energise the system – unplug the mains plug.
2. Locate the leak.
3. Eliminate the cause of the water leak.

2.3.2 When coming into contact with condensate

WARNING Acidic condensate

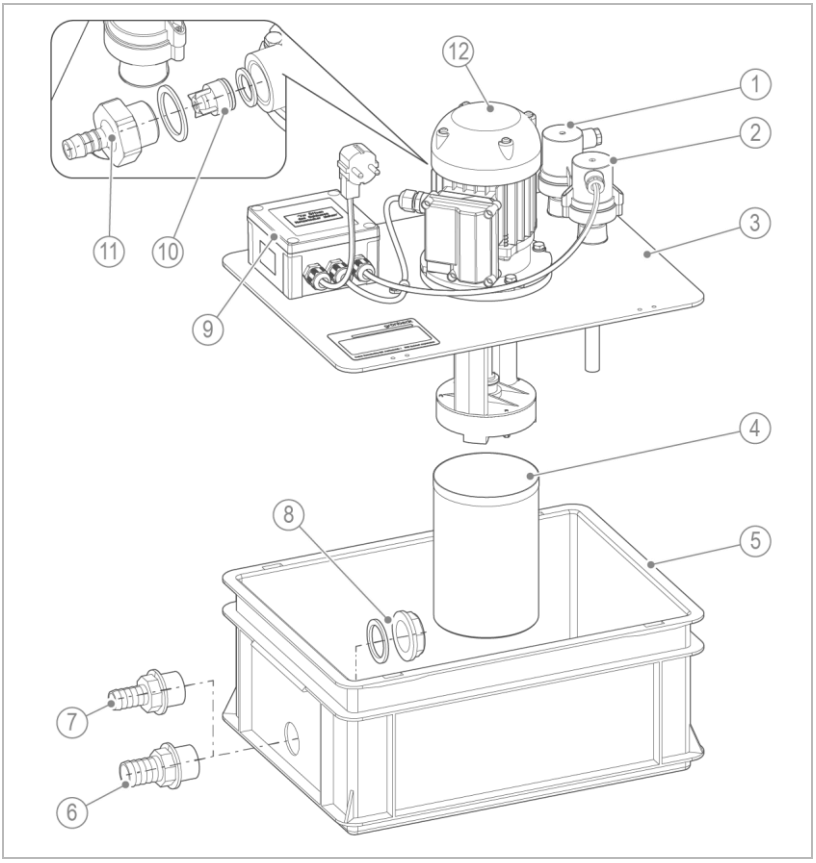
- Chemical burns of eyes and body parts
- ► Use personal protective equipment (refer to chapter 1.6.3).
- ► Thoroughly rinse your eyes with water if condensate gets into your eyes.
- ► Consult a physician, if necessary.

3 Product description

3.1 Intended use

- The waste water lifting system AH-300 is an automatically operating system for delivering the media below:
  - Neutralised condensate originating from condensing boilers
  - Gas condensate with a pH value > 3 originating from condensing boilers
  - Clear water or slightly polluted industrial water
- The waste water lifting system AH-300 is suitable for continuous operation.
- The waste water lifting system AH-300 is not suitable for the media below:
  - Salt water (e.g. from water softeners)
  - Water containing chlorine (e.g. swimming pool water)
  - Non-neutralised oil condensate originating from condensing boilers
  - Dirty water containing textile or paper particles
  - Aggressive liquids, chemicals
  - Corrosive, flammable, explosive or gassing liquids

3.2 Product components



	Designation
1	Overflow warning switch
2	Level switch
3	Lid
4	Filter cage
5	Collection box
6	Connection DN 25 (inlet)

	Designation
7	Hose connection DN 20 (alternative)
8	Locknut with flat seal
9	Electrical connection box
10	Non-return valve with flat seal
11	Hose nipple DN 12 with flat seal
12	Delivery pump

3.3 Functional description

The condensate flows into the collection box of the waste water lifting system and is pumped to the drain by means of the level-controlled delivery pump.

The delivery pump is a robust, seal-less centrifugal pump with the shaft being mounted in the motor, which is only immersed into the medium with the corrosion-resistant pumping unit. The delivery pump features a protective temperature limiter with automatic reset. The pump motor is switched off in the event of overheating and restarts automatically after it has cooled down sufficiently.

The delivery pump switches on at a level of about 80 mm and off again at a level of about 55 mm.

The integrated filter cage protects the delivery pump from coarse impurities.

The non-return valve prevents any backflow into the collection box when the delivery pump is off.

All electrical components are aligned on the lid and can be completely when comes to cleaning the collection box.

Level switch and overflow warning switch

The level switch for switching the pump on and off as well as the voltage-free overflow warning switch are actuated without contact via an air cushion. This operationally safe level detection prevents malfunctions caused by corrosion and deposits on mechanical components.

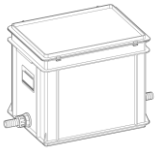
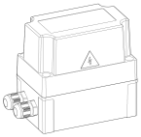
A second overflow warning switch with voltage-free changeover contact can be used for external fault signalling or for switching off the heat generator. The overflow warning switch switches at a level

of about 120 mm and is switched off again at a level of about 95 mm.

The optional alarm delay (refer to chapter 3.4) for connection to the overflow warning switch allows the heat generator to be switched off either in parallel with the fault signal, or with a time delay.

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.
	**Condensate prefiltration box DN 25**	**410 135**
	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 a condensate prefiltration box in the supply line to the neutralisation system.	
	**GENO-alarm delay relay**	**410 285**
	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.	
	**Safety package for caustic substances:**	**180 810**
	Consisting of the required PPE equipment and symbol signs necessary for the safe operation of dosing systems with caustic dosing agents.	
	**Hose DN 20 (5 m)**	**410 764e**
	To bridge distances of up to 5 m on the inlet and outlet side.	
	**Hose DN 25 (5 m)**	**410 774e**
	To bridge distances of up to 5 m on the inlet and outlet side.	

4 Transport, set-up and storage

4.1 Shipping/Delivery/Packaging

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

► Upon receipt, immediately check for completeness and transport damage.

4.2 Transport/Set-up

► Transport the product in its original packaging only.

► Place the product on a level and stable surface. Take the weight of the product into account.

4.3 Storage

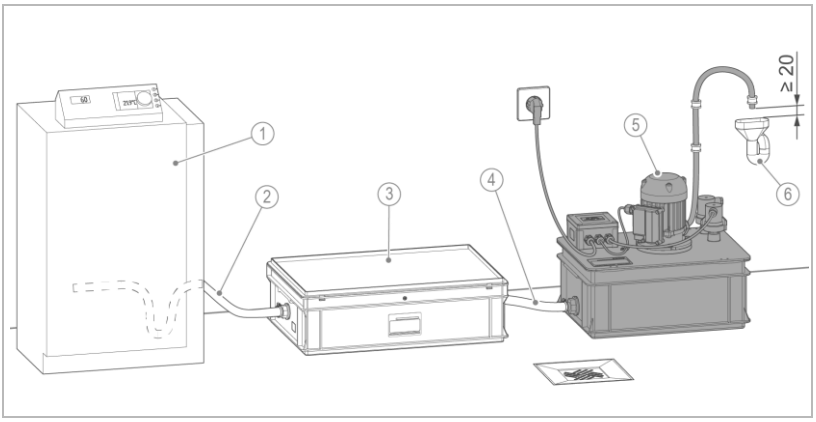
► Protect the product from the impacts below when storing it:

- 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



	Designation
1	Heat generator with siphon
2	Inlet hose
3	Neutralisation system GENO-Neutra N-210

	Designation
4	Connecting hose
5	Waste water lifting system AH-300
6	Drain connection

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 (≤ 40 °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

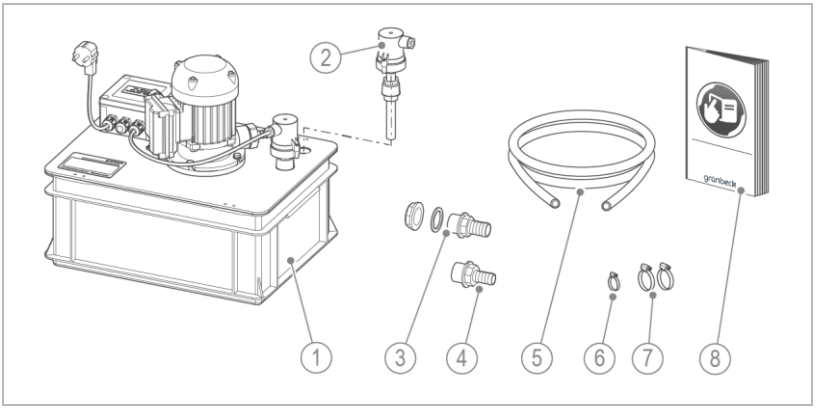
Space required

- There must be a clearance of at least 800 mm in front of the system for operation.
- Above the system, there must be a clearance of at least 600 mm for installation and maintenance work.

Water installation

- Inlet hose with a downward slope
- 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
- Drain connection ≥ DN 40 with possibility of backflow-free discharge of the condensate
- The drain connection must allow for a resistance-free discharge of ≥ 41.5 l/min

5.2 Checking the scope of supply



	Designation
1	Waste water lifting system AH-300 as compact system (pre-assembled)
2	Overflow warning switch
3	Hose connection DN 25 with union nut and seal
4	Hose connection DN 20

	Designation
5	Outlet hose, 6 m in length (DN 12)
6	1 Hose clamp (12–20)
7	2 Hose clamps (20–32)
8	Operation manual

The small parts are located in the collection box.

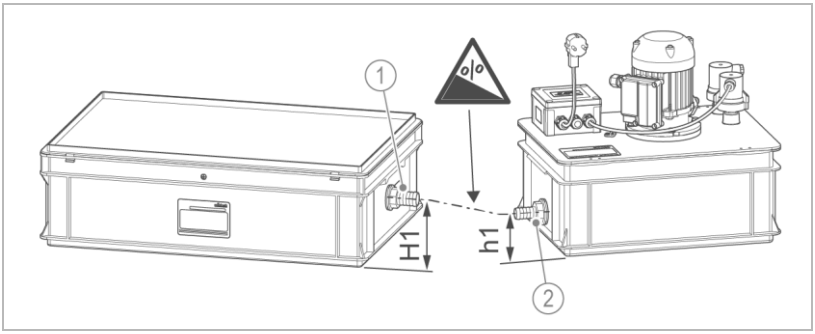
► Remove the lid and take out the small parts.

► Check the scope of supply for completeness and damage.

5.3 Water installation

5.3.1 Setting up the waste water lifting system

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



	Designation		Designation
1	Outlet connection of neutralisation system	2	Inlet connection of waste water lifting system

► Set up the waste water lifting system in a horizontal position close to the boiler and the neutralisation system – but away from traffic routes.

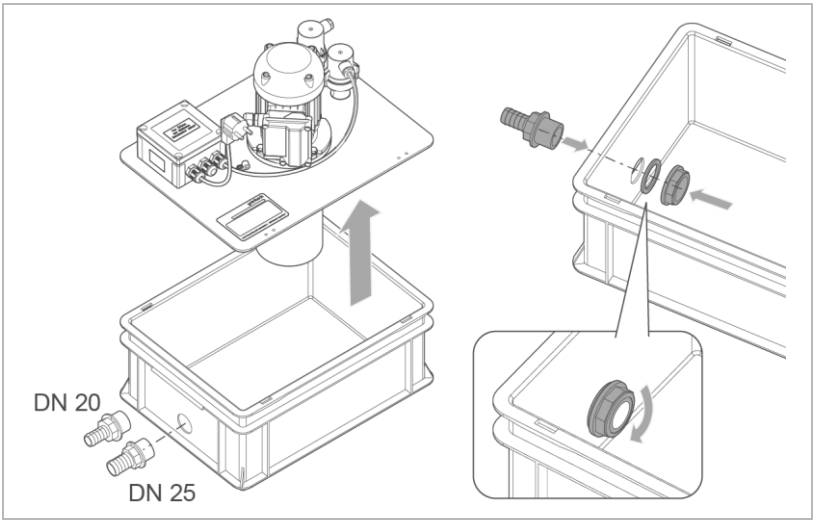
► Make sure that the outlet connection of the neutralisation system has a downward slope of approximately 3 % to the inlet connection on waste water lifting system.

5.3.2 Connecting the waste water lifting system

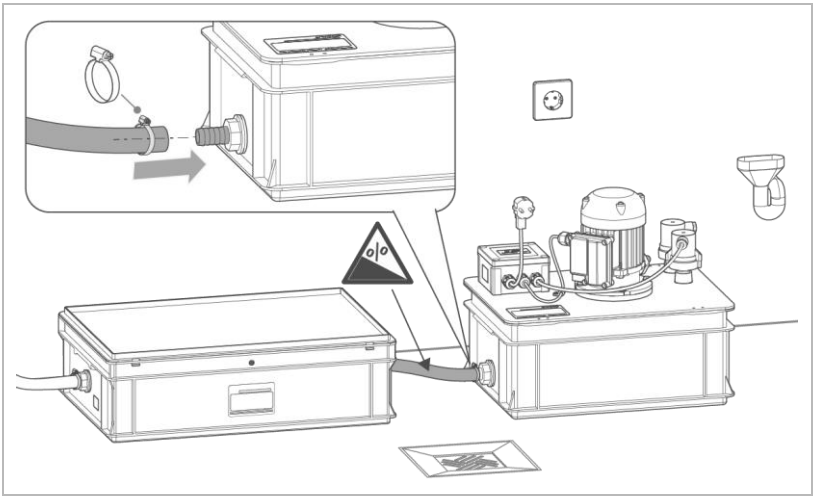
5.3.2.1 Installing the inlet connection

Determine which connection diameter, DN 20 or DN 25, is required – depending on the inlet hose of the neutralisation system.

The hose delivered with the neutralisation system can be used as inlet hose.



1. Remove the lid.
2. Install the matching connection.
3. Insert the seal from the inside and tighten the locknut firmly from the inside.



1. Shorten the inlet hose to the required length.
2. Connect the inlet hose to the neutralisation system.
3. Fix the inlet hose by means of the hose clamp.
4. Secure the inlet hose against mechanical damage, if necessary. Do not step on the inlet hose.

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.

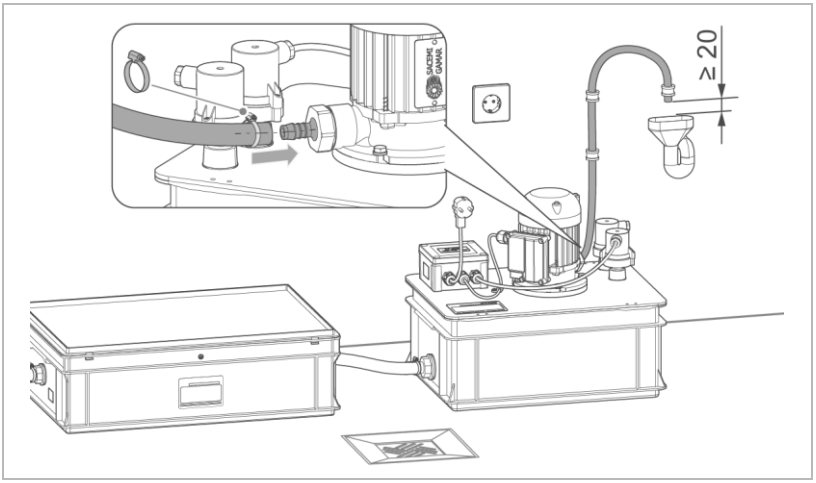
Incorporating additional condensing boilers and/or exhaust systems up to the max. capacity of the neutralisation system is possible by using corresponding T pieces.

5.3.2.2 Connecting the outlet hose to the drain connection

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

Comply with the following when connecting 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 the outlet hose is lengthened and/or narrowed by hose connectors, this results in a reduction in the flow rate/delivery head.



1. Shorten the outlet hose to the required length.
2. Fix the inlet hose by means of the hose clamp.
3. Fix the outlet hose at the drain connection with a distance of at least 20 mm.

5.4 Electrical installation

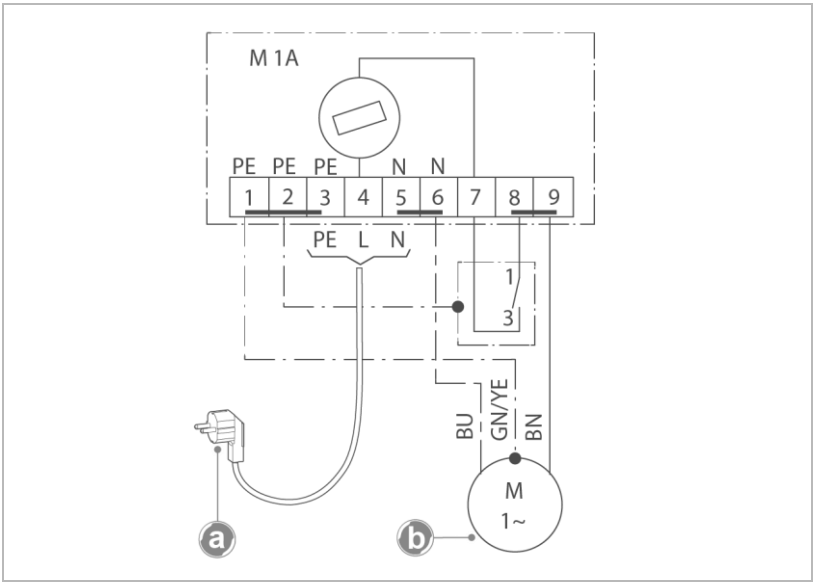
The electrical installation must be carried out by a qualified electrician only.

DANGER

Life-threatening voltage on the terminal connections in the electrical connection box

- Severe burns, cardiovascular failure, fatal electric shock
- ► Only have qualified electrics carry out electrical work on the product.

Terminal connections in electrical connection box



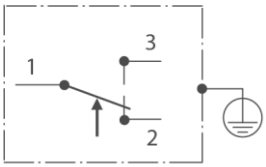
	Designation
a	Power supply 230 V/50 Hz
b	Delivery pump 230 V/50 Hz

The mains cable and the delivery pump are pre-wired in the electrical connection box at the factory.

Terminal connections of overflow warning switch

If required, you can connect the overflow warning switch with voltage-free changeover contact for external fault signalling or switching off the heat generator

The overflow warning switch switches at a level of about 120 mm and is switched off again at a level of about 95 mm.

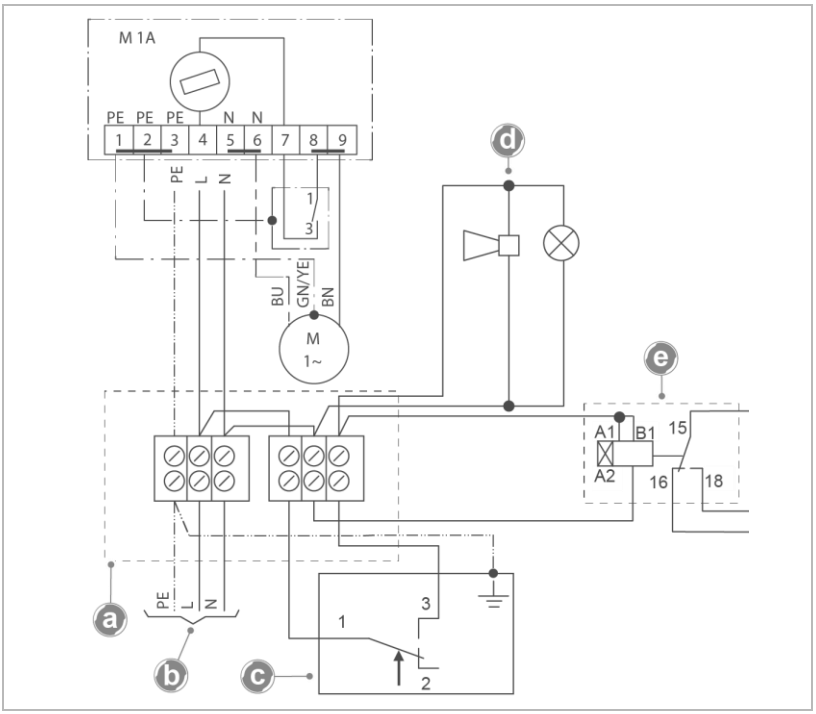


	Designation
	Switching power 250 V/6 A (resistive load) Power supply: blade receptacles 6.3 x 0.8 mm

► Connect the overflow warning switch with the blade receptacles enclosed in the cover cap.

Obey the mounting instructions of the accessory Overflow warning switch.

Terminal connections of GENO-alarm delay relay



	Designation
a	Terminal box provided by the client on site
b	Mains cable 230 V/50 Hz
c	Overflow warning switch
d	Display Brimful (250 V~ / max. 6 A resistive load)
e	GENO-alarm delay relay (accessories)
	Connections to switch off the boiler: 15 = Common root 16 = Opens in the event of an alarm 18 = Closes in the event of an alarm Depending on the boiler, the contacts 15/18 or 15/16 must be used.

Obey the mounting instructions of the accessory GENO-alarm delay relay (refer to chapter 3.4).

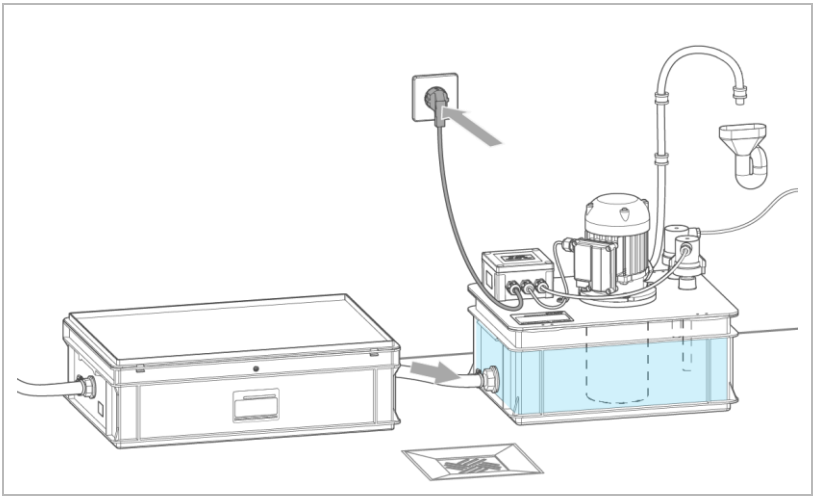
The optional alarm delay for connection to the overflow warning switch allows the heat generator to be switched off either in parallel with the fault signal, or with a time delay.

6 Start-up/commissioning

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

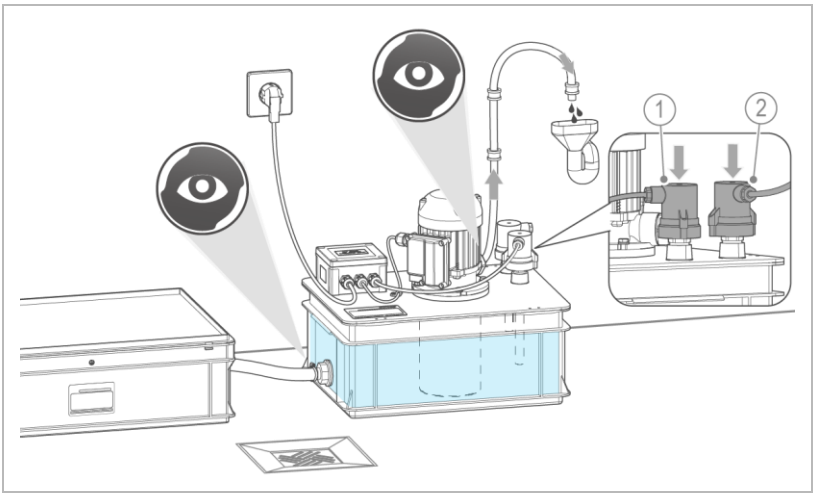
WARNING Acidic condensate

- 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.



1. Plug the mains plug into the socket.
2. Fill the system with water.

6.1 Checking the product



	Designation		Designation
1	Level switch	2	Overflow warning switch

1. Check the inlet and outlet hoses for leaks.
2. Check the entire installation for leaks.
3. Check the level switch and the optional overflow warning switch for function.

► Check the level switch and the overflow warning switch for a proper fit.

» Both switches must be fully inserted and rest on the compression fitting.

4. Make sure that the condensate flows to the drain freely.
5. Check the delivery rate in case of line extensions, or reductions in the cross sections of the outlet hose (e.g. due to hose connectors).

6. Record the start-up/commissioning in the operation log (refer to chapter 13).

6.2 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.

6.2.1 Disposal of packaging

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

6.2.2 Storage of accessories/consumables

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

7 Operation and 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.

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.

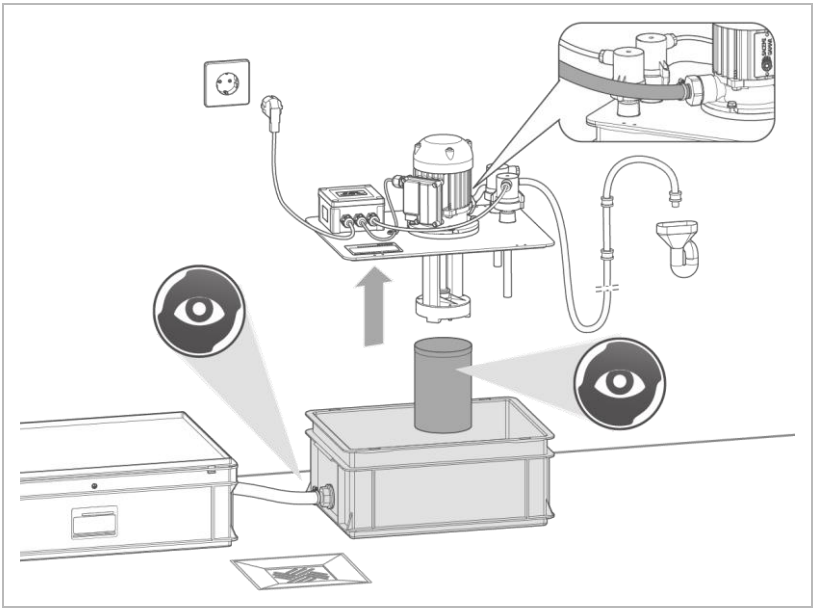
Task	Interval	Activities
Inspection	6 months	• Visual check of all components for damage and leaks • Check the inlet and outlet hoses for a tight fit • Check the filter cage and clean it, if necessary • Check the level switch and the overflow warning switch for a proper fit
Maintenance	annually	• Check the collection box and hoses for their condition and for leaks • Clean the delivery pump and the filter cage • Clean the non-return valve • Clean the inlet hose • Check the level switch and the overflow warning switch for function
	load-dependent	• Refer to “annually”
Repair	5 years	• 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.

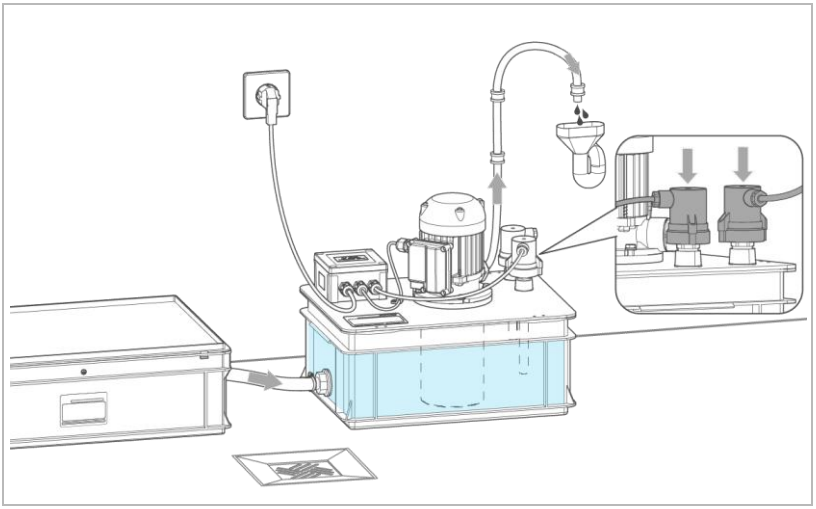
► Use personal protective equipment (refer to chapter 1.6.3).

► Carry out an inspection at least every 6 months.



1. Unplug the mains plug.
2. Open the lid of the system.
3. Check the filter cage for impurities.
4. Clean the filter cage, if necessary.

5. Check the fastening of the inlet hose and the outlet hose for a tight fit.



6. Close the lid of the system.
7. Plug the mains plug into the socket.
8. Check the level switch and the overflow warning switch for a proper fit.

» Both switches must be fully inserted and rest on the compression fitting.

9. Visually check all components for damage and leaks.
10. Put the system back into operation.
11. Record the maintenance carried out in the operation log (refer to chapter 13).

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.

► Have at least the following components at hand to perform maintenance:

- Non-return valve
- Filter cage for delivery pump
- Inlet hose

8.4.1.1 Preliminary work

DANGER Life-threatening voltage

- Severe burns, cardiovascular failure, fatal electric shock

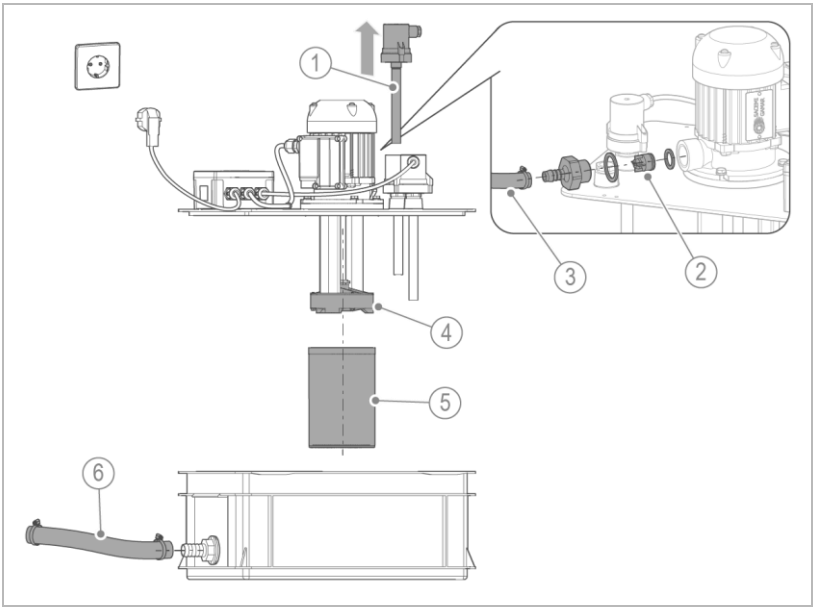
► Unplug the mains plug prior to working on the system.

► Disconnect the supply line of the voltage-free contacts from mains.

► Use personal protective equipment (refer to chapter 1.6.3).

1. Stop the inflow of condensate or divert it into a suitable collection vessel.
2. Unplug the mains plug.
3. Pull the overflow warning switch from the lid or de-energise the overflow warning switch.
4. Make sure that the system is de-energised.

8.4.1.2 Cleaning the components



	Designation
1	Overflow warning switch
2	Non-return valve
3	Outlet hose

	Designation
4	Impeller and nut of the delivery pump
5	Filter cage
6	Inlet hose

1. Detach the inlet and outlet hoses.
2. Clean the inlet hose – replace it, if necessary.

3. Remove the non-return valve and clean it - replace it, if necessary.
4. Open the lid of the system.
5. Clean the filter cage – replace it, if needed.
6. Clean the collection box, if necessary.

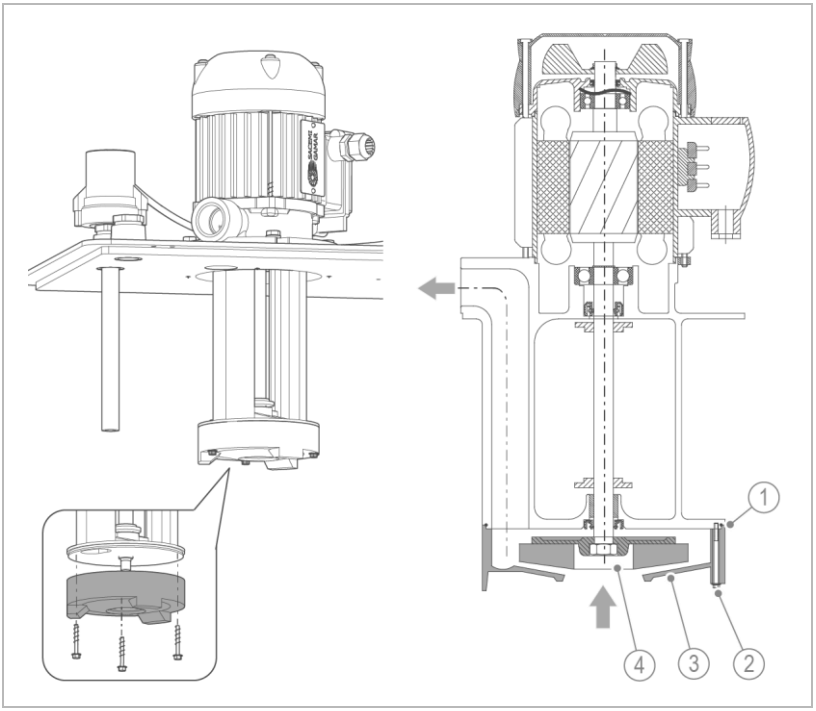
8.4.1.3 Cleaning the delivery pump

The delivery pump is maintenance-free when used as intended. Maintenance is limited to cleaning work and functional checks.

Any contamination inside the delivery pump can result in a reduction in the pump capacity and in a functional failure of the delivery pump.

► Have any necessary repair work, which is required due to normal wear and tear or overloading of the delivery pump, carried out by authorised, qualified specialists.

1. Rinse the delivery pump with clear water to remove loose sludge.
2. Visually check the delivery pump for damage.
3. In the event of malfunctions or obstructions to the free running of the delivery pump, carry out the cleaning work below:



	Designation		Designation
1	Seal (O-ring)	3	Cover
2	Screws	4	Impeller

a Remove the cover of the impeller.

b Clean the inside of the impeller and the cover.

c Carefully clean the sealing surfaces.

d Properly put on the cover again with the seal in place – pressure chamber above pressure socket.

NOTE The cover must be mounted tightly

- Leaks at the cover of the impeller result in a reduction of the delivery pump's capacity.
- Large amounts of leakage directed into the collection box overload the pump's motor and result in a pump failure.

► Proceed as follows to tightly to screw on the cover:

e First, screw in the two screws near the pressure socket and tighten them, then the opposite ones and afterwards all the others.

- Make sure that the cover is mounted tightly.

» Drip formation is permitted.

8.4.1.4 Completing the system and checking it for function

1. Install the non-return valve and the outlet piece with seals inserted.
2. Put the filter cage onto the delivery pump.
3. Fill the collection box with water.
4. Close the lid of the system.
5. Install the inlet and outlet hoses.
6. Insert the overflow warning switch.
7. Plug the mains plug into the socket.
8. Check the collection box and the hoses for leaks.
9. Check the level switch and the overflow warning switch for a proper fit.

» Both switches must be fully inserted and rest on the compression fitting.

10. Check the delivery pump for function and check the delivery rate by gauging.
11. Check the function of the overflow warning switch for emission of a fault signal.
12. Put the system into operation.
13. Record the maintenance carried out in the operation log (refer to chapter 13).

8.5 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.

8.6 Wearing parts

Wearing parts must be replaced by qualified specialists only.

Wearing parts are listed below:

- Seals
- Delivery pump (centrifugal immersion pump SPV 18-170)
- Filter cage
- Non-return valve

9 Troubleshooting

WARNING Delivery pump overloaded

- Risk of burns on hot surfaces
- Overheating of pump motor and failure of delivery pump
- If the protective temperature limiter responds, this means that there is an irregularity that overloads and overheats the pump motor.
- Continued operation without eliminating the cause will destroy the protective temperature limiter and damage the pump motor.

► Eliminate the cause for overheating the pump motor.

9.1 Observations

Observation	Explanation	Remedy
Overflowing collection box or Fault signal from overflow warning switch (if connected)	Power supply without voltage	► Check mains connection
	Filter cage dirty	► Clean the component
	Non-return valve dirty	► Replace it, if necessary
	Defective fuse in control unit	► Replace the component
	Defective level switch	
	Defective delivery pump	
	The switching point of the level switch or the overflow warning switch is too high • The air cushion in the Pitot tube might have escaped	► Briefly remove the overflow warning switch to aerate the Pitot tube

Observation	Explanation	Remedy
	The condensate inflow exceeds the system capacity	► Check the delivery rate of the delivery pump by gauging ► Install a larger or an additional waste water lifting system, if necessary
	Delivery head at the outlet is too high	► Check the delivery rate and/or the delivery head
Delivery pump switches on repeatedly even though no condensate is flowing in	Non-return valve dirty or damaged, • thus causing the condensate to flow back	► Drain and unscrew the outlet hose. ► Pull out the non-return valve using pointed pliers and clean it ► Replace the non-return valve, if necessary
Pump motor is turning but there is no water flow in the outlet hose (to the drain)	Level in the collection box below the minimum limit	► Check the minimum level of liquid in the collection box ► Check the level switch for function
	Impeller damaged and/or clogged	► Clean or replace the impeller
	Suction orifice clogged	► Clean the suction orifice
	Pressure line clogged	► Clean the suction and pump chamber ► Clean the pressure line
Pump motor does not switch on – humming noise	Pump motor fault	► Request technical service
	Impeller/bearing blocked	
	Bushing/seal blocked	

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 and the neutralisation system, the waste water lifting system must be decommissioned.

10.1 Temporary standstill

If the heat generator and the neutralisation system are to be switched off temporarily (e.g. for 3 months in the summer), carry out the activities below:

1. Keep the waste water lifting system connected to mains.
2. Open the lid and check whether deposits have formed on the surfaces inside the collection box.
3. Remove deposits, if necessary, and clean the filter cage.
4. Refill the collection box with water, if necessary.
5. Close the collection box with the lid.

10.2 Restart/recommissioning

1. Check the state of the waste water lifting system.
2. Put the waste water lifting 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 by the neutralisation system.
2. Unplug the mains plug.
3. Disconnect the supply line of the voltage-free contacts from mains.
4. Detach the inlet and outlet hoses.
5. Remove the condensate from the collection box.
6. Remove the individual components and disconnect the electrical, hydraulic and mechanical components for disposal.

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.

Product

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

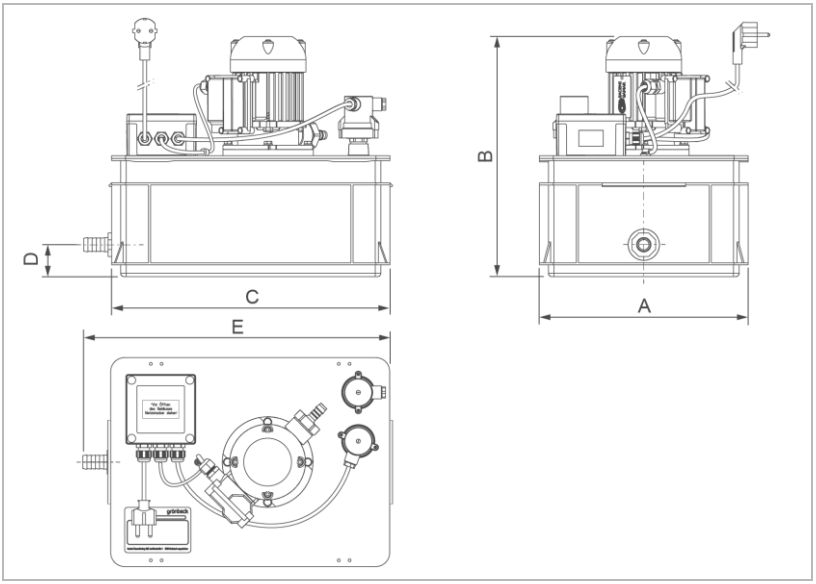
► Find out about the local regulations on the separate collection of electrical and electronic products.

► 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



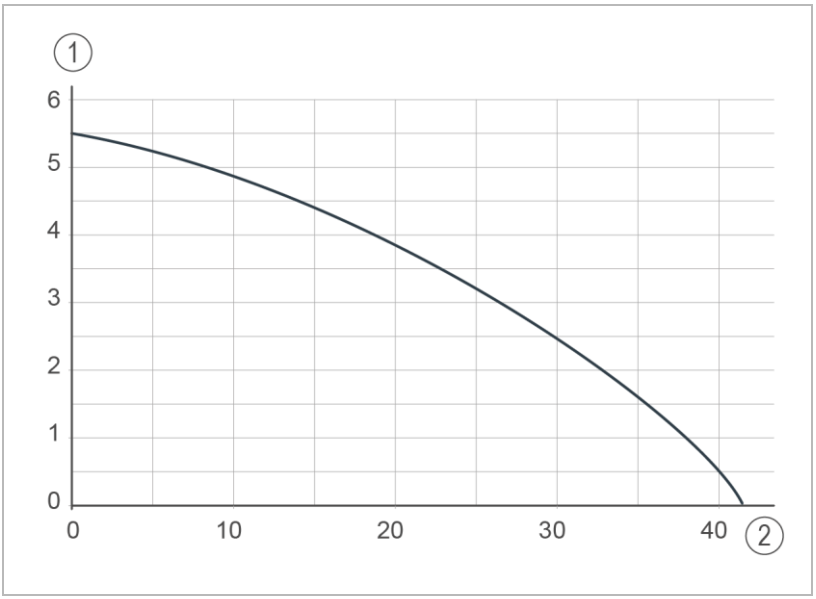
Dimensions and weights		AH-300
A Width	mm	300
B Height	mm	346
C Length	mm	400
D Inlet connection	mm	50
E Total length with connections	mm	440
Height of switch-on/switch-off level of delivery pump (condensate backwater height in normal operation)	mm	80/55
Height of switching point/reset point of overflow warning switch	mm	120/95
Operating weight (with condensate)	kg	~ 20.0
Empty weight	kg	~ 8.4

Connection data		AH-300
Nominal connection diameter of inlet		DN 20/DN 25
Nominal connection diameter of outlet hose to drain		DN 12
Drain connection provided by the client on site		≥ DN 40
with delivery rate	l/min	≥ 41.5
Power supply	V/Hz	230/50
Mains cable with Euro flat plug	m	2.0
Power input	VA	~ 170
Operating mode (suitable for continuous operation)		S1
Protection/protection class		IP 54/⏚
Voltage-free fault signal contact (overflow warning switch)		Changeover contact, switching capacity 250 V/6 A (resistive load); electrical connection: blade receptacles 6.3 x 0.8 mm

Performance data		AH-300
Nominal delivery rate (refer to characteristic curve of delivery pump)		4 m at 18.5 l/min = 1110 l/h
Delivery head	m	≤ 5.5
Delivery rate	l/min	≤ 41.5

General data		AH-300
Condensate temperature	°C	5 – 60
Ambient temperature	°C	5 – 40
Order no.		**420 150**

Characteristic curve of delivery pump



	Designation		Designation
1	Delivery head in m	**2**	Delivery rate in l/min

Note:

Pump capacity at a hose length of 6 m (line extensions and reductions in the cross sections of the outlet hose cause a decrease in performance).

13 Operation log

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

Waste water lifting system AH-300

Serial no.: _____

13.1 Start-up/commissioning log

Customer			
Name			
Address			
Installation/Accessories			
Neutralisation system	☐ Yes	☐ No	
Type of neutralisation system			
Amount of condensate produced	l/h		
Manufacturer of condensing boiler			
Type of condensing boiler			
Fuel	☐ Oil	☐ Gas	☐ Oil/Gas
Capacity of condensing boiler	kW		
Accessories			
Overflow warning switch (optional)	☐ Yes	☐ No	
Alarm delay (optional	☐ Yes	☐ No	
Materials			
Are there aluminium parts in contact with the condensate in the condensing boiler and/or the exhaust system	☐ Yes	☐ No	
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	

Maintenance no.____

Work performed		
☐ Inspection	☐ Maintenance	☐ Repair

Activities		
Non-return valve	☐ cleaned	☐ replaced
Inlet hose	☐ cleaned	☐ replaced
Delivery pump	☐ cleaned	☐ replaced
Filter cage on the delivery pump	☐ cleaned	☐ replaced
Check level switch and overflow warning switch for a proper fit		☐ done
Visual check of all components for damage and leaks		☐ done

Description of other work

Execution confirmed	
Company:	
Name:	
Date:	Signature:

EU Declaration of Conformity

In accordance with the EC Machinery Directive 2006/42/EC

CE

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.

Waste water lifting system AH-300

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 ISO 12100:2011-03

The following national standards and regulations have been applied:

- DWA-A 251:2011-11
- DVGW VP 114:1996-07

Responsible for documentation: Markus Poepperl

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

Hoechstaedt/Germany, 12.03.2019

By power of attorney Dipl. Ing. (FH) Markus Pöpperl
Head of Technical Product Design

grünbeck

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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