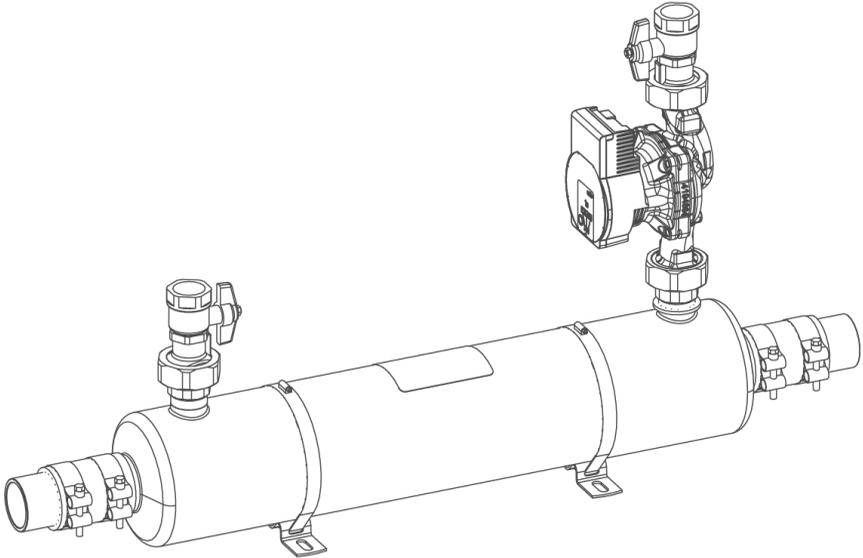


We understand water.



Accessories | Compact heat exchanger GENO-WT-K

Operation manual

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Original operation manual

Edition: June 2023

Order no.: 100228390000_en_025

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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

- Compact heat exchanger GENO-WT-K 42
- Compact heat exchanger GENO-WT-K 76
- Special designs that essentially correspond to the standard products given above.

1.2 Other applicable documents

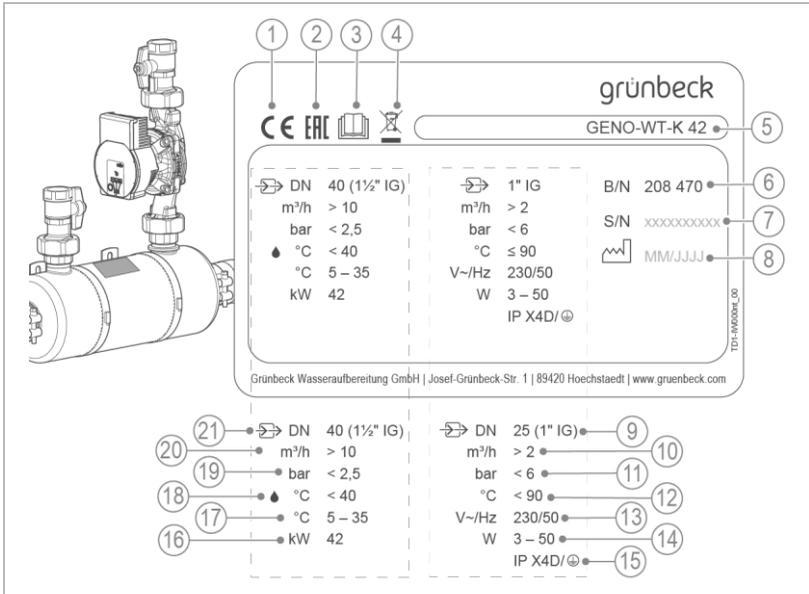
- Manuals for components from other manufacturers

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 housing.



Designation	
1	CE mark
2	EAC test mark
3	Obey the operation manual
4	Disposal information
5	Product designation
6	Order no.
7	Serial no.
8	Date of manufacture
9	Heating connection
10	Heating flow rate

Designation	
11	Heating pressure
12	Heating supply temperature
13	Power supply
14	Power input
15	Protection/protection class
16	Heat transfer capacity
17	Ambient temperature
18	Water temperature
19	Swimming pool pressure
20	Swimming pool flow rate

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Designation

- 21 Nominal connection diameter on heat exchanger

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
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
Installation and mounting			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 semi-annually			X	X
annually			X	X
Troubleshooting	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



Protective footwear



Protective overall



Safety goggles

2 Safety

2.1 Safety measures

- Only operate your product if all components are installed properly.
- Obey the local regulations on drinking water protection, accident prevention and occupational safety.
- Do not make any changes, alterations, extensions or program changes 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).

2.1.1 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- For all work on the system that cannot be carried out from the ground, use stable, safe and self-standing access aids (e.g. stepladders).
- Make sure that the system is set up in a way that it cannot tip over and that the stability of the system is guaranteed at all times.

2.1.2 Pressure-related hazards

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

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 lethal.
- Only have qualified electricians carry out electrical work on the system.
- 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 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 must be supervised to make sure that they do not play with the product.

2.2 Product-specific safety instructions



DANGER

Danger due to strong magnetic field in the circulation pump



- Cardiovascular problems
- Danger to health in case of metallic implants or pacemakers
- ▶ Never remove the motor of the circulation pump.



CAUTION

Thermal hazard due to contact with hot surfaces (up to 90 °C)



- Burns
- ▶ Do not touch the hot surfaces of the heat exchanger and of the components on the heating side.
You can touch the control module of the heating circulation pump.
- ▶ Sufficiently insulate the components on the heating side.
- ▶ Allow the components to cool down before carrying out any work.
- ▶ Use suitable protective gloves when working on the system.

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 leaking pool or heating water

1. De-energise the system.
2. Locate the leak.



CAUTION

Hot heating water (up to 90 °C)

- Scalding
 - ▶ Wear personal protective equipment.
3. Eliminate the cause of the leaking pool or heating water.
 4. Contact a qualified specialist or the technical service personnel, if necessary.

3 Product description

3.1 Intended use

- The compact heat exchanger GENO-WT-K is used for heating up the pool water (freshwater) in private or public swimming pools and whirlpools.

3.1.1 Application limits

The compact heat exchanger GENO-WT-K is designed for counter-flow operation in a dual-circuit system.

For its use, the following parameters apply as limit values for the approved substances contained in the water:

Parameters	Value	
pH value	-	> 6.8 - 7.8
Free chlorine	mg/l	< 1.3 (briefly < 20)
Chloride content	mg/l	< 500
Bromine	mg/l	≤ 6
Total hardness	°dH	< 14

On the heating side, only heating water according to VDI 2035 or water-glycol mixes with a maximum content of 50 % glycol must be pumped.

NOTE

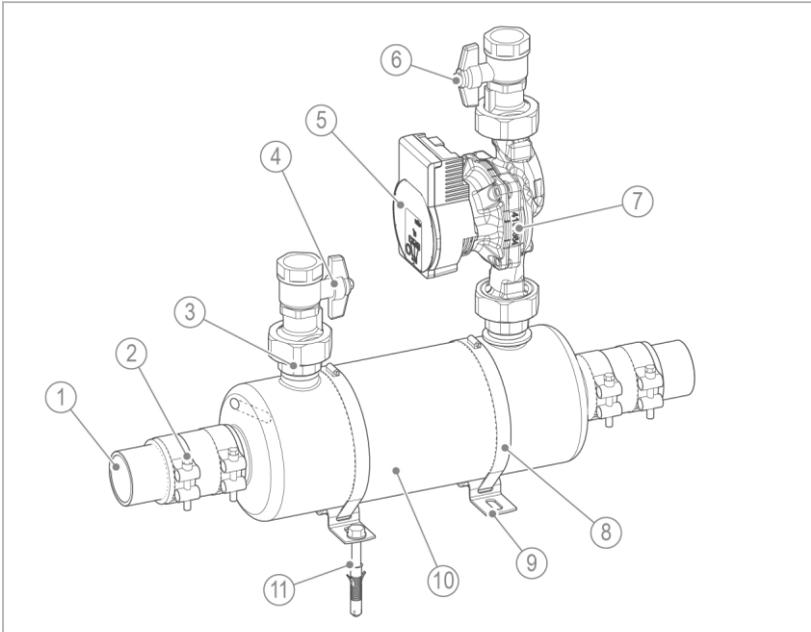
The heating circulation pump must not be used to mix the medium.

- Damage or failure of the heating circulation pump
- ▶ Add ready-made mixes only.

3.1.2 Foreseeable misuse

- Use in salt, sea or brine water is not permitted.

3.2 Product components

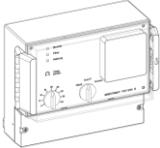


Designation	Function	
1	Hose connection	For pool water
2	Bolt clamps	To fix the hose connections
3	Insert with union nut	For connection to the heat exchanger
4	Return ball valve	Return of heating circuit, connection 1"
5	Control module	Of the heating circulation pump
6	Supply ball valve	Supply of heating circuit, connection 1"
7	Heating circulation pump	Wet rotor motor 230 V/50 Hz
8	Clamps	To fix the heat exchanger

	Designation	Function
9	Clamp holder	For wall or floor mounting
10	Heat exchanger incl. thermowell	For heat transfer and to house the temperature sensor
11	Fastening material	4x hexagon head screw, washer, dowel

3.3 Accessories

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

Illustration	Product	Order no.
	Control unit BWH-W 117/1 Is used for semi-automatic operation of the filter system by means of a timer and to control the temperature.	208 607
	Digital temperature controller Is required if the pool water controller does not feature a temperature control function.	208 693
	Thermostat 10 – 60 °C including stainless steel thermowell For use as maximum temperature limiter. Product to monitor the maximum pool water temperature and to protect the piping provided by the client on site.	208 625

4 Transport 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

- ▶ Transport the product in its original packaging only.

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

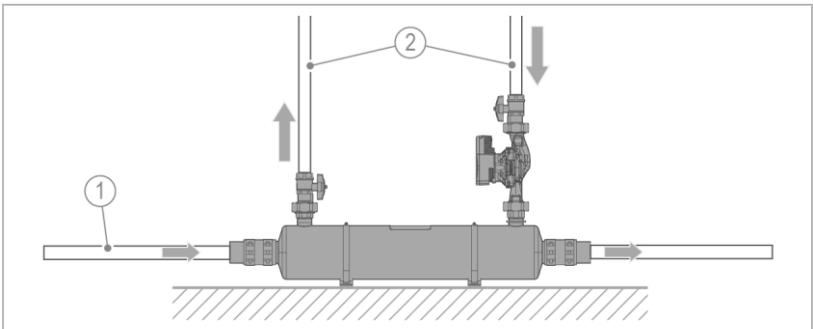


The installation of the system must be carried out by a qualified specialist only.

NOTE Leaks or system damage due to corrosion.

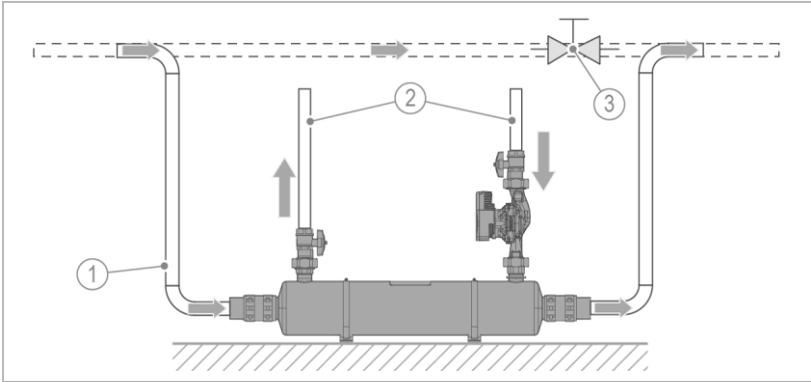
- Leaks, water loss, water damage, system failure.
- ▶ Position the dosing system for chemicals or the dosing points//injection points in the pipe downstream of the heat exchanger.

Installation example in full flow



Designation	Designation
1 Main line of pool water circuit	2 Heating circuit

Installation example in partial flow



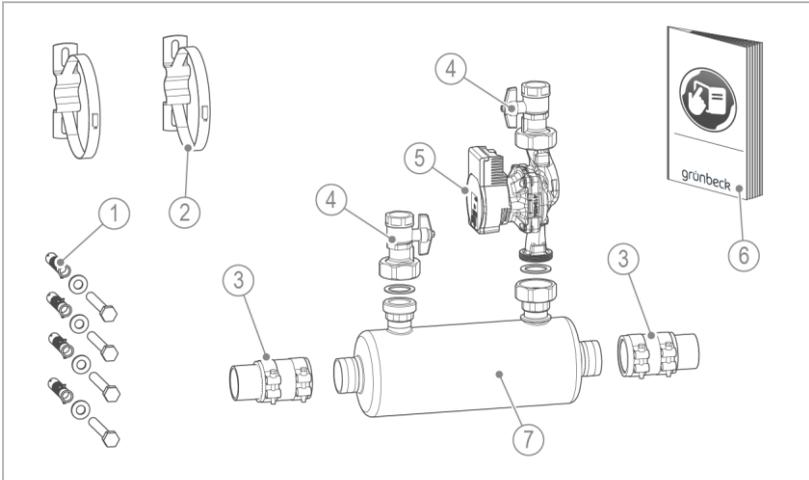
Designation	
1	Bypass line of pool water circuit
2	Heating circuit

Designation	
3	Shut-off valve provided by client on site in the main pipe of the pool water circuit

5.1 Requirements for the installation site

- The adequately dimensioned installation surface of the system must be level and provide sufficient strength and load-bearing capacity to support the operating weight of the system.
- The installation site must be frost-proof and ensure the system's protection from direct sunlight, chemicals, dyes, solvents and their vapours, etc.
- The installation site must have a chemical-resistant floor drain. If no floor drain is available, an appropriate safety device must be installed in order to prevent water damage.
- The installation site must be adequately illuminated and ventilated. It must not be at risk of flooding.
- The system must be easily accessible for maintenance and repair work. Therefore, a clearance of at least 1 metre is required in front of the system.
- It must be possible to shut off, depressurise and drain the system for maintenance and repair work. To do so, the client must provide suitable fittings on site.
- Disturbing influences and restrictions on site must be indicated by the client in advance and taken into account in the design of the system.
- The installation site should be located below the water level (pool level).
- If the installation site is above the water level (pool level), pipe loops must be provided on the pool water side.

5.2 Checking the scope of supply



Designation	
1	Fastening material
2	Fastening clamps
3	Hose connection with PVC-U nipple
4	Ball valves (heating side)

Designation	
5	Heating circulation pump with connection cable 2 m in length and pump plug
6	Operation manual
7	Heat exchanger

► Check the scope of supply for completeness and damage.

5.3 Installing the heat exchanger



An incorrect installation position can damage the circulation pump and cause system failure.

- ▶ Install the heat exchanger in a horizontal position only.

Installation below pool level

- ▶ Install the heat exchanger below pool level downstream of the filter system in the partial or full flow.

Installation above pool level (optional)



The heat exchanger must never run dry.

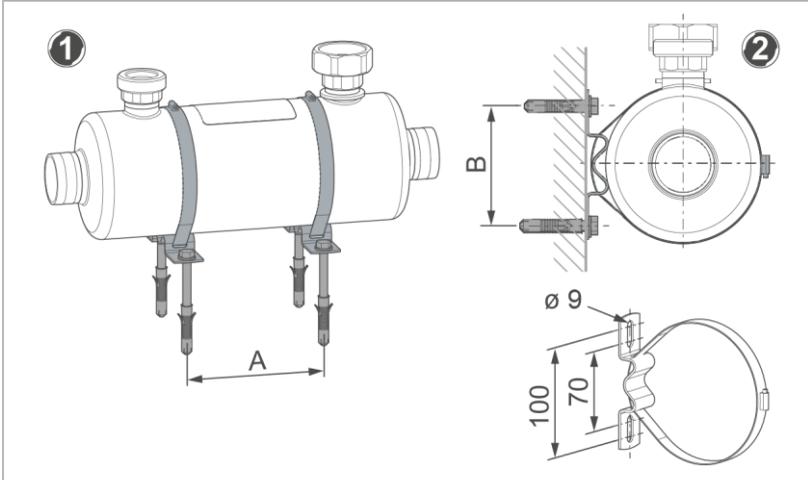
- ▶ Obey the following when installing the heat exchanger above pool level downstream of the filter system:
 1. Lay pipe loops on the pool water side.

5.3.1 Fastening the heat exchanger



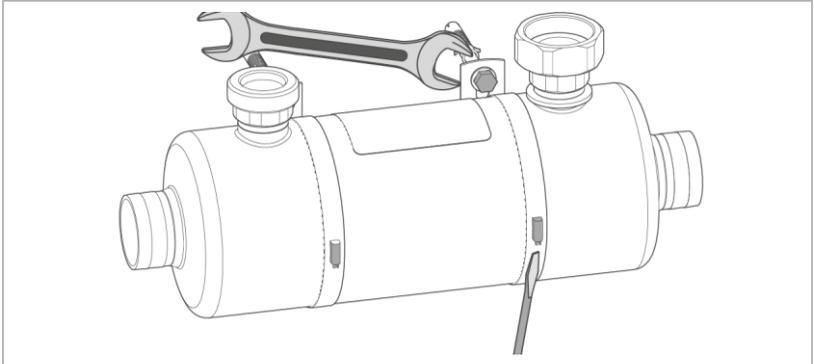
You can fasten the heat exchanger horizontally on the wall or on the floor.

- ▶ Recommendation: Use a wall bracket provided by the client on site for solid wall mounting.
- ▶ Check the installation situation on site for available space.
- ▶ For wall mounting, check the static condition of the masonry.



Designation	Designation
<p>1 Floor mounting</p>	<p>2 Wall mounting</p>

1. Determine the type of mounting: Wall or floor.
2. Determine distance **A** between the fastening clamps – as far apart as possible.
 - a Recommended distance A:
 GENO-WT-K 42 ~ **140** mm
 GENO-WT-K 76 ~ **300** mm
3. Determine distance **B**.
4. Securely fasten the product according to the conditions on site.

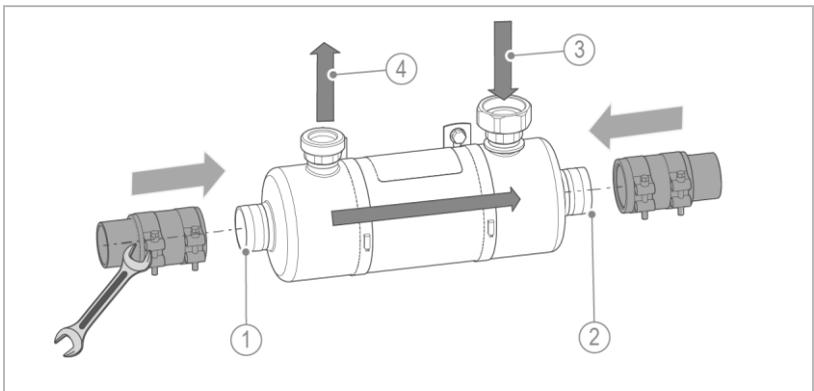


5. Insert the heat exchanger.
6. Firmly secure the heat exchanger – tighten the clamps.
 - a Make sure that the heating outlets point plumb upwards.
7. Check that all connections are secure.

5.3.2 Connecting the lines



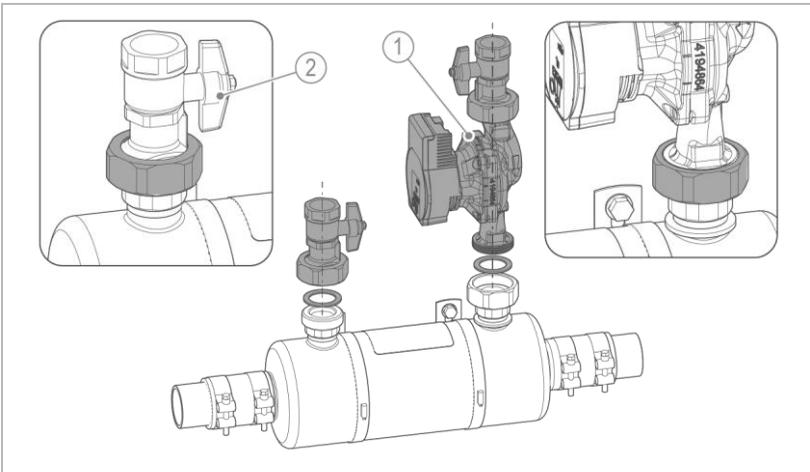
Obey the flow directions on the heating and pool water side.



Designation	Designation
1 Pool water inlet	3 Supply from the heating system
2 Outlet to the pool	4 Return to the heating system

1. Push the hose connections onto the connections on the right and left of the heat exchanger.
2. Tighten all bolt clamps hand-tight.

5.3.3 Connecting the heating



Designation	Designation
1 Heating supply fitting	2 Heating return fitting

1. Fasten the supply fitting.
 - a Insert the flat seal and tighten the union nut.
2. Fasten the return fitting.
 - a Insert the flat seal and tighten the union nut.

5.3.4 Installing components/water pipes provided by the client on site

NOTE

Temperature increase on the pool water side of the heat exchanger to more than 40 °C.

- Damage and failure of the system or of the PVC-U piping.
- ▶ Install a maximum temperature limiter downstream of the heat exchanger which switches off the heating circulation pump if the temperature is exceeded.

NOTE

Leaking water can damage the control module of the heating circulation pump.

- Failure of heating circulation pump
- ▶ Align the shut-off valves provided by the client on site in a way that leaking water cannot drip onto the control module.
- ▶ Dry the surfaces of the control module if splash water or leaking water gets on it.

5.4 Electrical installation



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



DANGER

Electrical voltage



- Severe burns, cardiovascular failure, fatal electric shock
- ▶ Never open the control module.
- ▶ Never remove the control elements.

NOTE

Pulsed mains voltage can cause damage to the electronics.

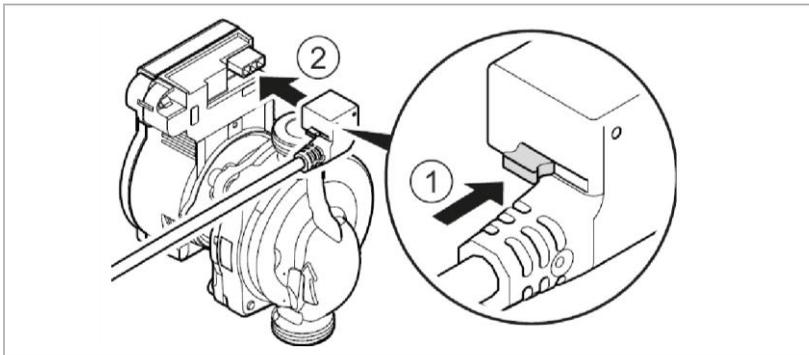
- ▶ Never connect the heating circulation pump with phase angle control.
- ▶ Only operate the heating circulation pump with sinusoidal AC voltage.



For the power supply to be provided by the client on site, a power outlet that has its own AC/DC sensitive ground fault circuit interrupter (30 mA) is required.

- ▶ Lay an on-site supply line for the electrical connection.
- ▶ Make sure that the connection line neither touches the pipes nor the circulation pump.
- ▶ Do not couple the power supply with switches or the like.

5.4.1 Connecting the mains plug



Designation

1 Locking knob

Designation

2 Connection of pump plug to control module

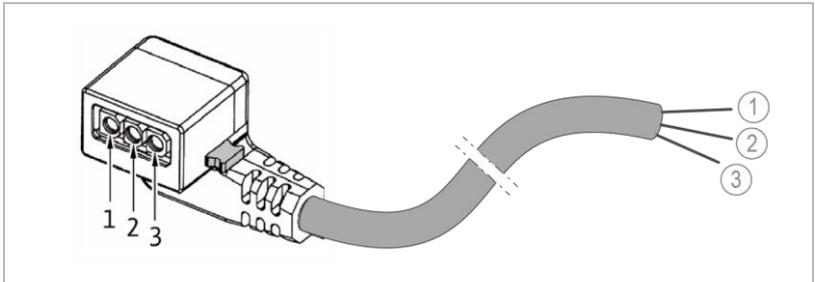
1. Press down the locking knob of the pump plug.

2. Connect the pump plug to the plug connector of the control module.
 - » The pump plug clicks into place.

Connection terminals on filter control units

Control unit	Terminal L (brown or black 1)	Terminal N (blue or black 2)	Terminal PE (yellow/green)
BW-tronic	17	18	free PE
BWH-W	4	3	free PE

Cable configuration



Designation

- 1 Yellow/green (PE)
- 2 Blue (N)

Designation

- 3 Brown (L)

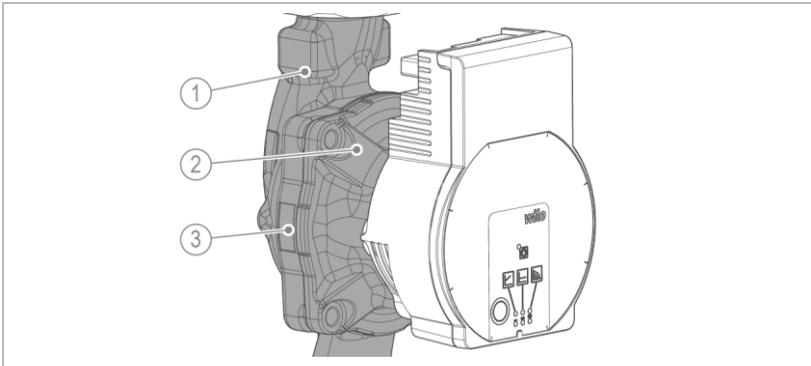
5.5 Thermal insulation of components

The components on the heating side must be thermally insulated.

NOTE

Insufficient heat dissipation and condensed water damage the control module and the wet rotor motor.

- System failure
- ▶ Do not thermally insulate the wet rotor motor.
- ▶ Keep all condensate outlet openings free.



Designation	Designation
1 Pump housing	3 Condensate outlet openings (4x around the circumference)
2 Wet rotor motor	

6 Start-up/commissioning



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

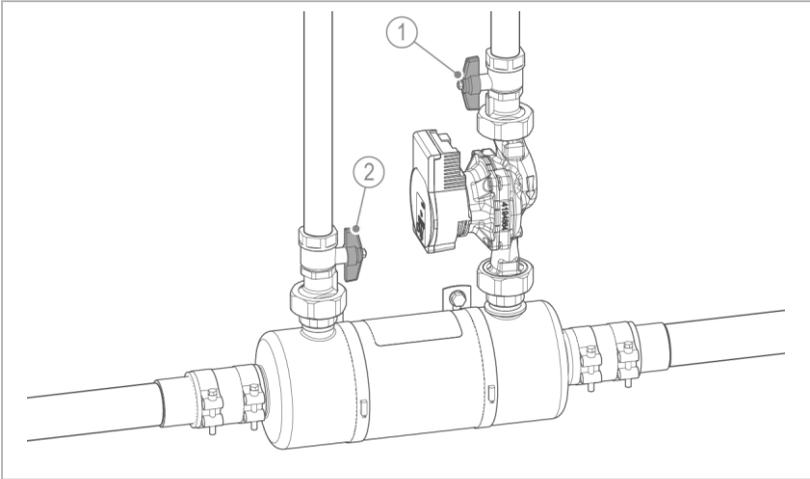


CAUTION

Thermal hazard due to contact with hot surfaces (up to 90 °C)

- Burns
- ▶ Do not touch the hot surfaces of the heat exchanger and of the components on the heating side.
You can touch the control module of the heating circulation pump.
- ▶ Sufficiently insulate the components on the heating side.
- ▶ Allow the components to cool down before carrying out any work.
- ▶ Use protective gloves.

6.1 Venting the system/checking for leaks



Designation

1 Shut-off valve of heating supply

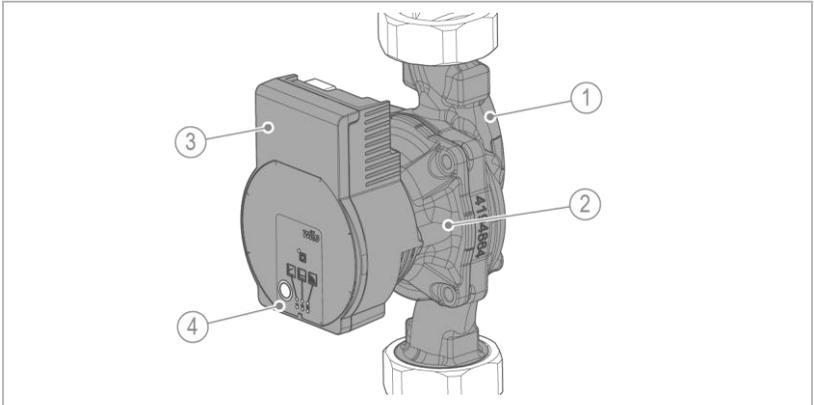
Designation

2 Shut-off valve of heating return

3. Open the shut-off valves.
4. Vent the pipes on the pool and heating side.
5. Visually check the installation for leaks.

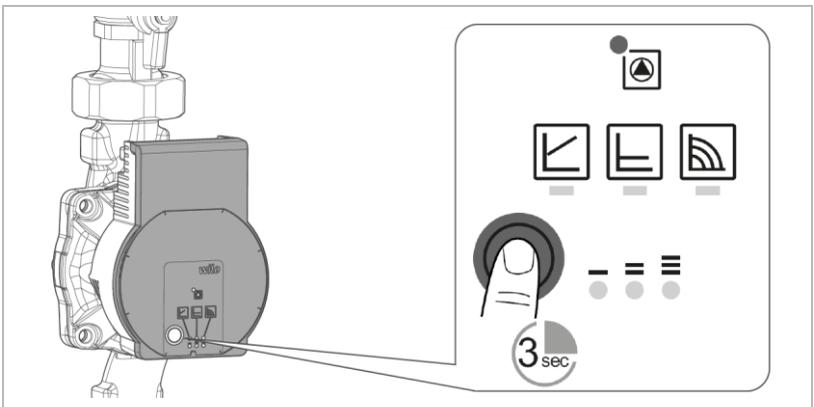
6.2 Setting the circulation pump

► For operation of circulation pump refer to chapter 7.1.

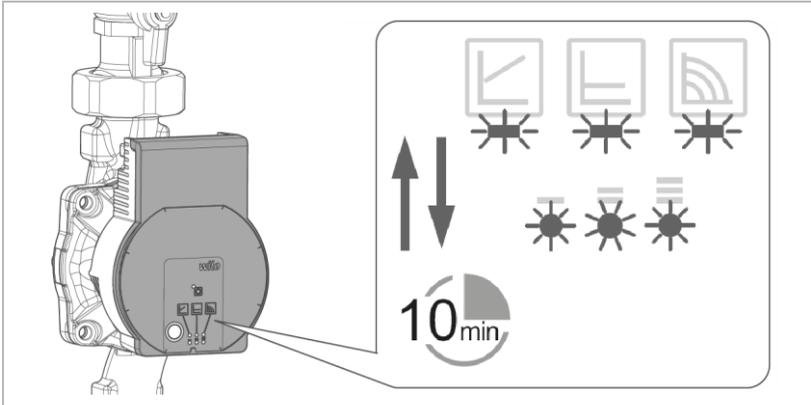


Designation	Designation
1 Pump housing	3 Control module
2 Wet rotor motor	4 Control panel

If the heating circulation pump does not vent automatically:



- ▶ Press the operating key for at least 3 seconds and then release it.
- » The venting function starts and takes about 10 minutes.



- » The upper and lower LED rows flash alternately at intervals of 1 second.
- » After venting, the LED display shows the previously set values.
- ▶ To abort, press and hold the operating key for 3 seconds.

6.2.1 Setting the control mode

- ▶ Adjust the heating flow rate at the heating circulation pump to the conditions on site.
- 1. Briefly press the operating key (~1 second).
 - » The LEDs indicate the respective control mode and characteristic curve that have been set in each case.

Control modes

Factory-setting: Constant speed, characteristic curve III

Function	
	<p>Variable differential pressure $\Delta p-v$ (I, II, III)</p> <p>If the volume flow in the pipe network decreases, the pump reduces the delivery head by half.</p>
	<p>Constant differential pressure $\Delta p-c$ (I, II, III)</p> <p>The control keeps the set delivery head constant regardless of the volume flow delivered.</p>
	<p>Constant speed (I, II, III)</p> <p>The pump runs at the three fixed speed levels that are preset.</p>

	LED display	Control mode	Characteristic curve
1.		Constant speed	II
2.		Constant speed	I
3.		Variable differential pressure $\Delta p - v$	III
4.		Variable differential pressure $\Delta p - v$	II
5.		Variable differential pressure $\Delta p - v$	I
6.		Constant differential pressure $\Delta p - c$	III
7.		Constant differential pressure $\Delta p - c$	II
8.		Constant differential pressure $\Delta p - c$	I
9.		Constant speed	III



The LED selection of the control modes and the associated characteristic curves is clockwise.

6.3 Checking the system for function

1. Check the heat input into the swimming pool
2. Check the locking of the heating circulation pump with the pool water circulation pump being switched off.
3. Activate the key lock of the circulation pump, if necessary (refer to chapter 7.2).

6.4 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.

7 Operation/handling



CAUTION

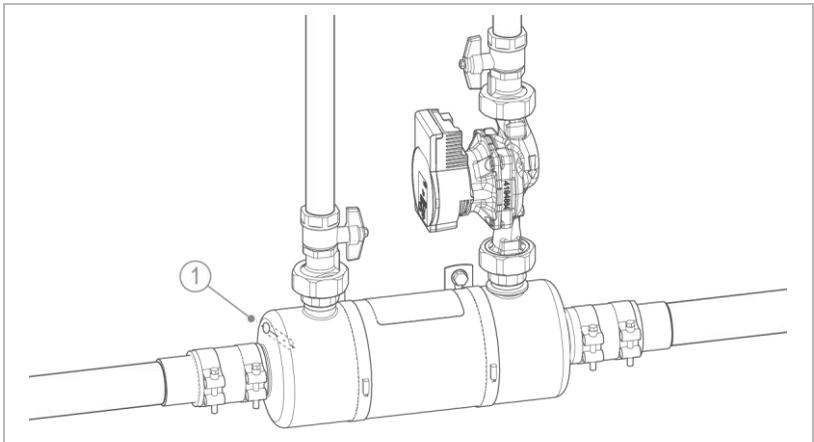
Maximum temperature exceeded

- System failure and risk of water damage
- ▶ Take measures in the control technology or by mechanical means to make sure that if the pool water circulation pump is at a standstill, the flow on the heating side is stopped or interrupted as well.



The heat exchanger features a thermowell.

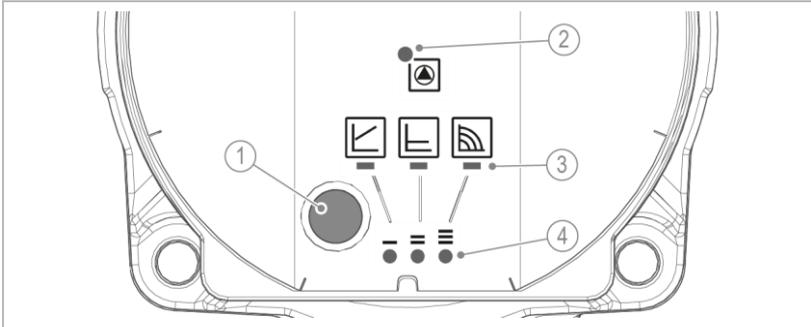
A temperature sensor provided by the client on site can be inserted into the thermowell. In combination with a controller, the pool water temperature can be measured via the temperature sensor.



Designation

- 1 Thermowell

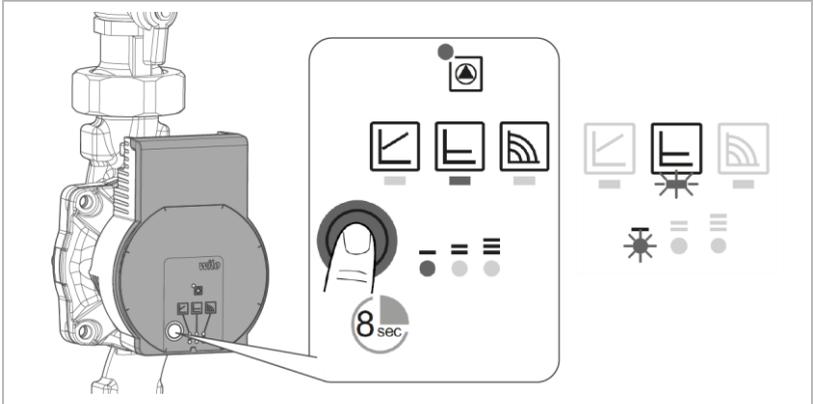
7.1 Operation of the circulation pump



Designation		Designation	
1	Operating key Operating/fault signal LED	3	Display of the selected control mode
2	lights up green: Normal operation	4	Display of the selected characteristic curve (I, II, III)
Pressing the operating key briefly		Pressing and holding the operating key	
Selecting the control mode		Activating the venting function (press for 3 s)	
Selecting the characteristic curve (I, II, III) within the control mode		Activating manual restart (press for 5 s)	
		Locking/unlocking key (press for 8 s)	

7.2 Locking/unlocking key

- ▶ Activate the key lock, if necessary, so that the settings of the heating circulation pump can no longer be changed.



1. Press and hold the operating key for 8 seconds until the LEDs of the selected setting flash briefly, then release the key.
 - » The LEDs flash permanently at intervals of 1 second.
 - » The key lock is activated.
- ▶ Deactivate the key lock in the same way, if necessary.



If the power supply is interrupted, all settings/displays remain stored.

7.3 Activating the factory settings

Proceed as follows to reset the circulation pump to factory setting:

1. Press and hold the operating key while switching off the circulation pump at the same time.
 - a Press and hold the operating key for at least 4 seconds.
 - » All LEDs flash for 1 second.
 - » The LEDs of the most recent setting flash for 1 second.

When the unit is switched on again, the circulation pump runs in the factory setting (as delivered).

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.



WARNING

Mechanical hazards due to pressurised components

- Splashing by medium, startling, scalding in case of hot media
- ▶ Depressurise and drain the system before removing any components.



CAUTION

Thermal hazard due to unexpected supply of heating water when the heat exchanger or components are removed

- Escaping heating water with temperatures of up to 90 °C
- Scalding
- ▶ Close the shut-off and ball valves before removing any components.

8.1 Cleaning



WARNING

Damp cleaning of live components

- Risk of electric shock
- Sparking possible due to short circuit
- Switch off the voltage supply – as well as any external voltage – before starting the cleaning work.
 - ▶ Wait for 15 minutes and make sure that the components do not carry any voltage.
 - ▶ Do not use any high-pressure equipment for cleaning and do not blast electric/electronic devices with water.



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

- ▶ Use personal protective equipment.
- ▶ Only clean the outside of the system.
- ▶ Do not use any strong or abrasive cleaning agents.
- ▶ Clean the system at regular intervals to remove dirt and chemical residues.
- ▶ Only use a dry dust cloth for the heating circulation pump – do not use any liquids or aggressive cleaning agents.
- ▶ Wipe the remaining components with a damp cloth only.

8.2 Intervals



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

- ▶ As owner/operator/operating company determine which components must be inspected and maintained at which intervals (load-dependent). This is subject to the actual conditions such as: water condition, degree of contamination, environmental impacts, consumption, etc.

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

Task	Interval	Activities
Inspection	monthly	<ul style="list-style-type: none"> • Check the heat exchanger for function • Check the locking of the heating circulation pump with the pool water circulation pump being switched off • Check all components for leaks
Maintenance	semi-annually	<ul style="list-style-type: none"> • Check all product components for impurities and clean them, if necessary • Check all product components for function and leaks • Check the heating circulation pump for unusual noises or vibration • Check cables and connections for damage and a tight fit • Check the heat input into the pool • Check the locking of the heating circulation pump with the pool water circulation pump being switched off • Check the function of the maximum temperature limiter (optional accessory)
	annually	<ul style="list-style-type: none"> • Check the system for scale deposits
Repair	5 years	<ul style="list-style-type: none"> • Recommendation: replace wearing parts

8.3 Inspection

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

- ▶ Carry out an inspection at least once a month and proceed as follows when doing so:
 1. Check the heat exchanger for function.
 2. Check the locking of the heating circulation pump with the pool water circulation pump being switched off.
 3. Check all components for leaks.

8.4 Maintenance

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

8.4.1 Semi-annual maintenance

1. Check all product components for impurities and clean them, if necessary.
2. Check all product components for function and leaks.
3. Check the heating circulation pump for unusual noises or vibration.
4. Check all cables and connections for damage and a tight fit.
5. Check the heat input into the swimming pool.
6. Check the locking of the heating circulation pump with the pool water circulation pump being switched off.

7. Check the function of the maximum temperature limiter (optional accessory).
8. Record the data and work performed, including repairs, in the operation log (refer to chapter 13).

8.4.2 Annual maintenance



Annual maintenance work requires expert knowledge. This kind of maintenance work must only be carried out by Grünbeck's technical service or by qualified specialists trained by Grünbeck.

In addition to semi-annual maintenance, the work below must be carried out as well:

9. Check the system for scale deposits.

Checking the heat exchanger for scale deposits

The higher the heating temperatures and the total hardness of the pool water, the more scale precipitation in the heat exchanger.

Scale is a poor conductor of heat and even thin layers of scale must be removed.



In order to check the heat exchanger for scale deposits while it is installed, an access on the pool water side can be used, e.g. the hose connection on the pool water side.

1. De-energise the system.
2. Remove the hose connection on the pool water side.
3. Check the interior of the heat exchanger for scale deposits.
4. Clean the heat exchanger with scale remover when detecting scale deposits (refer to chapter 8.4.3).

5. Install the hose connection on the pool water side.
 - a Use a new hose, if necessary.
6. Establish the voltage supply.
7. Check all product components for function and leaks.

8.4.3 Cleaning with scale remover



Obey the safety and application instructions of the scale remover used.



The interior of the heat exchanger must only be cleaned while the heat exchanger is removed.

1. De-energise the system.
2. Remove the heat exchanger.
3. Clean the interior of the heat exchanger with a special scale remover.
4. Thoroughly rinse the heat exchanger with clear water.
The scale remover used must not get into the pool water.
5. Reinstall the cleaned heat exchanger.
 - a Use new hoses and seals, if necessary.
6. Establish the voltage supply.
7. Check all product components for function and leaks.

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.

The wearing parts are listed below:

- Moving parts: circulation pump, valves
- Seals, hoses

9 Troubleshooting

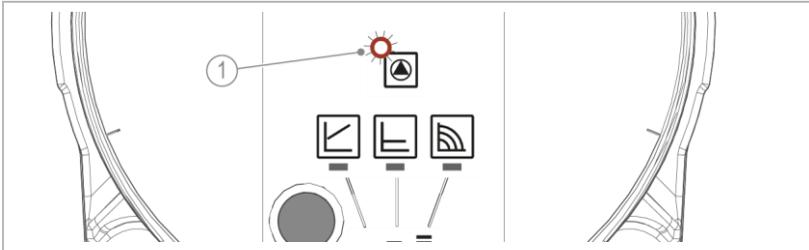


WARNING

Dangerous voltage on components

- Severe burns, cardiovascular failure, fatal electric shock
- ▶ Always disconnect the electrical power supply before installing or dismantling, or performing any intervention on the control unit, or carrying out any work on electrical components.

9.1 Messages



Designation	Function
1 Fault signal LED	In normal operation, the LED lights up green In the event of a malfunction, the LED lights up/ flashes

The fault signal LED indicates a malfunction.

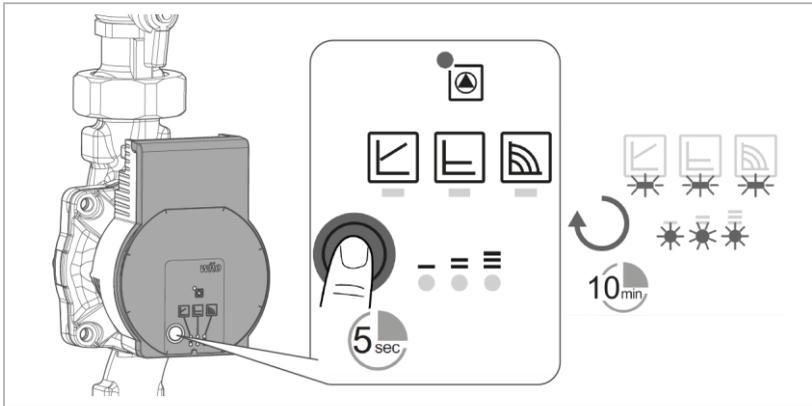
- » The heating circulation pump switches off (depending on the fault) and attempts cyclical restarts.
 1. Eliminate the fault (refer to fault table).
 2. Acknowledge the fault.
 3. Monitor the displays on the circulation pump

LED	Faults	Explanation	Remedy
Lights up red	Clogging	Rotor blocked	<ul style="list-style-type: none"> ▶ Activate manual restart ▶ Contact technical service
	Contacting / winding	Defective winding	
Flashes red	Undervoltage/ overvoltage	Voltage supply on mains side too low/high	<ul style="list-style-type: none"> ▶ Check mains voltage ▶ Check operational conditions ▶ Contact technical service
	Module over-temperature	Interior of module too warm	
	Short circuit	Motor current too high	
Flashes red/green	Generator operation	Pump hydraulics flown through, but pump has no mains voltage	<ul style="list-style-type: none"> ▶ Check mains voltage ▶ Check water volume/ pressure ▶ Check ambient conditions
	Dry run	Air present in the pump	
	Overload	Stiff motor; pump operated out of spec (e.g. module temperature too high) Speed lower than in normal operation	

9.1.2 Manual restart

The heating circulation pump automatically attempts a restart when blocking is detected.

If the heating circulation pump does not start again automatically, trigger a manual restart.



- ▶ Press and hold the operating key for 5 seconds and then release it.
- » The restart function is started and takes max. 10 minutes.
- » The LEDs flash one after the other in a clockwise sequence.
- » After rest, the LED display shows the previously set values.
- ▶ To abort, press and hold the operating key for 5 seconds.

9.2 Other observations

Observation	Explanation	Remedy
Pump does not run with power on	Electrical fuse defective	▶ Check fuses
	Pump has no voltage	▶ Eliminate voltage interruption
Pump makes noises	Cavitation due to insufficient supply pressure	▶ Increase system pressure within the admissible range
		▶ Check the setting of the delivery head and set lower delivery head, if necessary.
Water does not heat up	Heat output of heating surfaces too low	▶ Increase setpoint
		▶ Set control mode to Δp -c instead of Δp -v



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



The work below must be carried out by technical service personnel only.

10.1 Temporary standstill

If a longer standstill of the system is planned, the system must be decommissioned.

The tasks below must be carried out:

1. Flush the system with clear water to remove chlorine and salt residues.
2. Drain and clean the system completely.
3. Completely drain all lines that are at risk of freezing.
4. De-energise the components.
 - » The system is out of operation.

10.2 Restart/recommissioning

- ▶ Put the system into operation (refer to chapter 6).

11 Dismantling and disposal

11.1 Dismantling



The work described herein represents an intervention into your pool water and heating water installation.

- ▶ Have this work carried out by qualified specialists only.
- 4. Flush the system with clean pool water on the pool water side.
- 5. Disconnect the system from mains – discharge residual voltage.
- 6. Close the shut-off valves provided by the client on site (pool water and heating water).
- 7. Depressurise the system and drain it.
- 8. Disconnect the hydraulic connections of pool water and heating water installation.
- 9. Disconnect the electric connections.
- 10. Disconnect the potential equalisation (grounding) provided by client on site.
- 11. Remove individual components such as accessories, if necessary.
- 12. Transport the system secured in a suitable cardboard box or on a pallet.

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



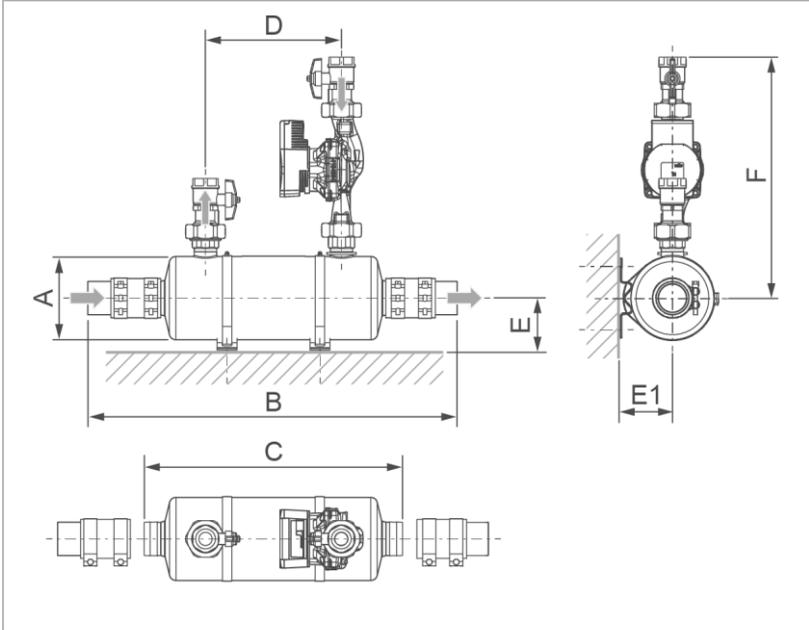
If this symbol (crossed-out wheellie bin) is on the product, it means that this product or its electrical and electronic components must not be disposed of as household waste.

- ▶ 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.



For information on collection points for your product contact your municipality, the public waste management authority, an authorised body for the disposal of electrical and electronic products or your waste disposal service.

12 Technical specifications



Dimensions and weights			WT-K 42	WT-K 76
A	Diameter	mm	125	125
B	Total length	mm	555	845
C	Housing length	mm	385	680
D	Distance to heating	mm	205	495
E	Distance to floor	mm	78	78
E1	Distance to wall	mm	78	78
F	Height	mm	~ 362	~ 367
	Weight	kg	~ 7.8	~ 10.4

Connection data		WT-K 42	WT-K 76
Nominal connection diameter PW (thread on heat exchanger)		DN 40 (1½" fem. thread)	DN 40 (1½" fem. thread)
Heating connection		1" female thread	
Swimming pool pressure	bar	< 2.5	
Heating pressure	bar	< 6	
Heating supply temperature	°C	≤ 90	
Power supply	V/Hz	230/50	
Protection/protection class		IPX4D⊕	
Floor drain		DN ≥ 100	

Performance data		WT-K 42	WT-K 76
Heat transfer capacity (supply 90 °C, BW 20 °C)	kW	42	84
Swimming pool flow rate	m³/h	> 10	> 12
Swimming pool pressure loss (at flow)	bar m³/h	~ 0.10 (10)	~ 0.22 (12)
Heating flow rate	m³/h	> 2	> 3
Heating pressure loss * (at flow)	bar m³/h	~ 0.18 (2)	~ 0.23 (3)
Heating surface	m²	0.17	0.35
Heating circulation pump			
Delivery head	bar	≤ 0.70	
Delivery rate	m³/h	≤ 3.3	
Inlet pressure at 95 °C	bar	≥ 0.5	
Power input	W	3 – 50	

* Heating pressure loss of HE without heating circulation pump and ball valves

General data		WT-K 42	WT-K 76
Housing material		1.4404	
Water temperature	°C	< 40	
Ambient temperature	°C	5 – 35	
Max. humidity of air (non-condensing)	%	≤ 90	
Order no.		208 470	208 475

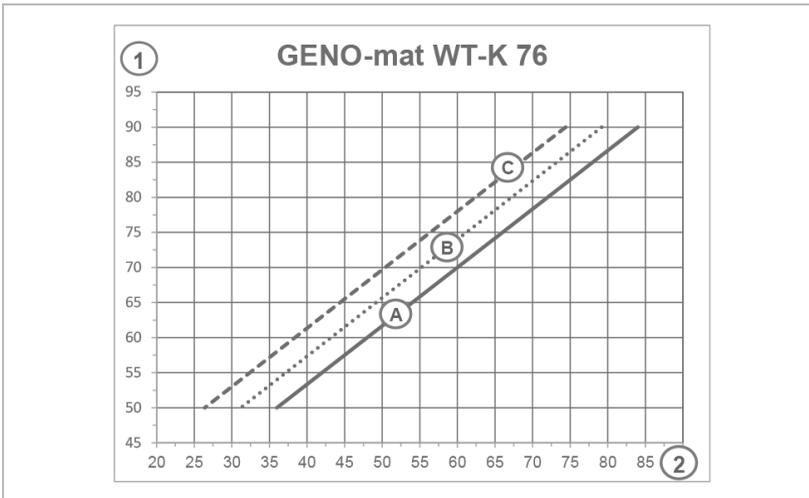
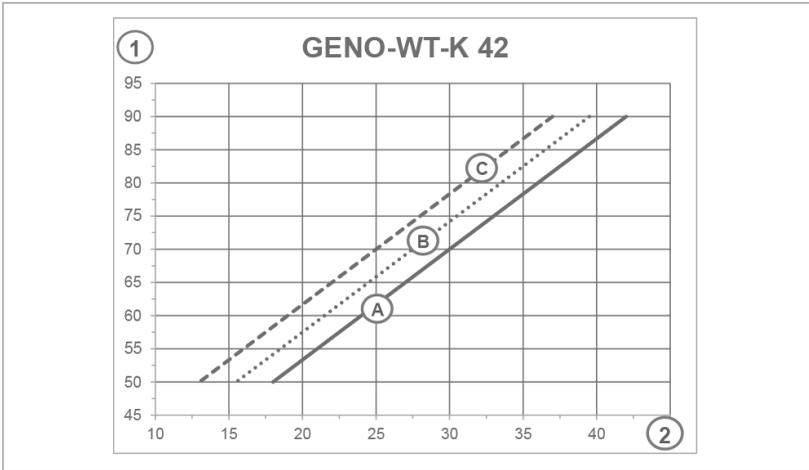
HE = Heat Exchanger

PW = Pool Water

12.1 Capacity curves of GENO-WT-K



The capacity of the heat exchanger in kW refers to the maximum possible transfer capacity at the minimum flow rates specified.



13 Operation log



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

Compact heat exchanger GENO-WT-K _____

Serial no.: _____

13.1 Start-up/commissioning log

Customer		
Name		
Address		
Pool version		
Design	<input type="checkbox"/> Indoor pool	<input type="checkbox"/> Outdoor pool
Pool size	Volume in m ³	
Disinfectant	<input type="checkbox"/> Sodium hypochlorite GENO-Chlor A	
	<input type="checkbox"/> GENO-Brom	
	<input type="checkbox"/> Others	
Technology / mechanical room		
Below water level	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Floor drain available	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Installation/Accessories		
Installation type	<input type="checkbox"/> Partial flow	<input type="checkbox"/> Full flow
Maximum temperature limiter available	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Control unit used	<input type="checkbox"/> GENO-BW-tronic	<input type="checkbox"/> BWH-W

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Installation/Accessories	
	<input type="checkbox"/> Digital temperature controller <input type="checkbox"/> Others
Setting	
Control mode (refer to chapter 6.2.1).	
Pool water	
Water temperature	° C
Total water hardness	°dH
pH value	–
Conductivity	µS
Value of disinfectant in the pool (free chlorine, bromine, ...)	mg/l
Remarks	
Start-up/commissioning	
Company	
Service technician	
Work time certificate (no.)	
Date/signature	

Maintenance no.: _____



Enter the measured values and operating data.
Confirm the checks with **OK** or record any repairs carried out.

Operating values

Pool water	Before maintenance	After maintenance
Water temperature	°C	°C
Total water hardness	°dH	°dH
pH value	-	-
Conductivity	µS	µS
Value of disinfectant in the pool (free chlorine, bromine, ...)	mg/l	mg/l

Maintenance work

Preliminary maintenance work	OK
Product components checked for cleanliness, cleaned or replaced, if necessary.	<input type="checkbox"/>
Product components checked for function and leaks. Faulty components repaired.	<input type="checkbox"/>
Product components checked for unusual noises or vibration.	<input type="checkbox"/>
Cables and connections checked for damage and a tight fit. Faulty or worn components replaced. Loose connections retightened.	<input type="checkbox"/>
Heat input into the pool checked.	<input type="checkbox"/>
Heat exchanger checked for scale deposits and scale deposits removed, if necessary.	<input type="checkbox"/>
Locking of the heating circulation pump checked with the pool water circulation pump being switched off.	<input type="checkbox"/>
Function of maximum temperature limiter checked.	<input type="checkbox"/>

Remarks

Carried out by

Company:	
Service technician:	

Maintenance no.: _____



Enter the measured values and operating data.
Confirm the checks with **OK** or record any repairs carried out.

Operating values

Pool water	Before maintenance	After maintenance
Water temperature	°C	°C
Total water hardness	°dH	°dH
pH value	-	-
Conductivity	µS	µS
Value of disinfectant in the pool (free chlorine, bromine, ...)	mg/l	mg/l

Maintenance work

Preliminary maintenance work	OK
Product components checked for cleanliness, cleaned or replaced, if necessary.	<input type="checkbox"/>
Product components checked for function and leaks. Faulty components repaired.	<input type="checkbox"/>
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Cables and connections checked for damage and a tight fit. Faulty or worn components replaced. Loose connections retightened.	<input type="checkbox"/>
Heat input into the pool checked.	<input type="checkbox"/>
Heat exchanger checked for scale deposits and scale deposits removed, if necessary.	<input type="checkbox"/>
Locking of the heating circulation pump checked with the pool water circulation pump being switched off.	<input type="checkbox"/>
Function of maximum temperature limiter checked.	<input type="checkbox"/>

Remarks

Carried out by

Company:	
Service technician:	

Maintenance no.: _____



Enter the measured values and operating data.
Confirm the checks with **OK** or record any repairs carried out.

Operating values

Pool water	Before maintenance	After maintenance
Water temperature	°C	°C
Total water hardness	°dH	°dH
pH value	-	-
Conductivity	µS	µS
Value of disinfectant in the pool (free chlorine, bromine, ...)	mg/l	mg/l

Maintenance work

Preliminary maintenance work	OK
Product components checked for cleanliness, cleaned or replaced, if necessary.	<input type="checkbox"/>
Product components checked for function and leaks. Faulty components repaired.	<input type="checkbox"/>
Product components checked for unusual noises or vibration.	<input type="checkbox"/>
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Heat input into the pool checked.	<input type="checkbox"/>
Heat exchanger checked for scale deposits and scale deposits removed, if necessary.	<input type="checkbox"/>
Locking of the heating circulation pump checked with the pool water circulation pump being switched off.	<input type="checkbox"/>
Function of maximum temperature limiter checked.	<input type="checkbox"/>

Remarks

Carried out by

Company:	
Service technician:	

Maintenance no.: _____



Enter the measured values and operating data.
Confirm the checks with **OK** or record any repairs carried out.

Operating values

Pool water	Before maintenance	After maintenance
Water temperature	°C	°C
Total water hardness	°dH	°dH
pH value	-	-
Conductivity	µS	µS
Value of disinfectant in the pool (free chlorine, bromine, ...)	mg/l	mg/l

Maintenance work

Preliminary maintenance work	OK
Product components checked for cleanliness, cleaned or replaced, if necessary.	<input type="checkbox"/>
Product components checked for function and leaks. Faulty components repaired.	<input type="checkbox"/>
Product components checked for unusual noises or vibration.	<input type="checkbox"/>
Cables and connections checked for damage and a tight fit. Faulty or worn components replaced. Loose connections retightened.	<input type="checkbox"/>
Heat input into the pool checked.	<input type="checkbox"/>
Heat exchanger checked for scale deposits and scale deposits removed, if necessary.	<input type="checkbox"/>
Locking of the heating circulation pump checked with the pool water circulation pump being switched off.	<input type="checkbox"/>
Function of maximum temperature limiter checked.	<input type="checkbox"/>

Remarks

Carried out by

Company:	
Service technician:	

EU Declaration of Conformity

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



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.

Compact heat exchanger GENO-WT-K

Serial no.: Refer to type plate

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

- EMC (2014/30/EU)

The following harmonised standards have been applied:

- EN 61000-6-1:2007
- EN 61000-6-2:2005
- EN 61000-6-3+A1:2011
- EN 61000-6-4+A1:2011
- EN 60335-2-51:2003

Responsible for documentation:

Mirjam Müller

Manufacturer:

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

Hoechstaedt/Germany, 22.06.2021

A handwritten signature in blue ink, appearing to be 'DL', is written over a light blue circular stamp.

ppa. Dietmar Ladenburger
Technical Director
Member of the Executive Board

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