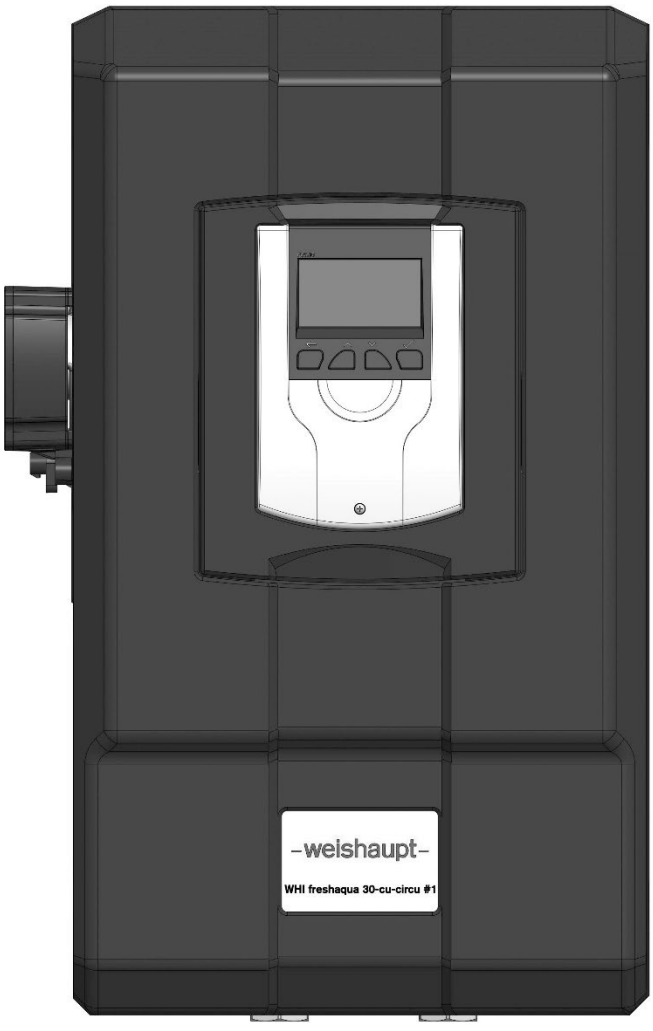
–weishaupt–

# manual

Installation and operation instructions




**Fresh water station WHI freshaqua 30**

83325502 · 1/2022-02

# 1 Information for the user

These installation and operation instructions form part of the device and must be stored at the place of use.

Carefully read these instructions before installation and commissioning.

## 1.1 User guidance

### 1.1.1 Symbols

| | |
|---|---|
|  DANGER | **Danger of high risk.**<br>Non-observance will result in serious injuries or death. |
|  WARNING | **Danger of medium risk.**<br>Non-observance may result in serious injuries or death. |
|  CAUTION | **Danger of low risk.**<br>Non-observance may result in slight to moderate injuries. |
|  NOTICE | Non-observance may result in material damage or environmental damage. |
|  | Important information |

### 1.1.2 Target group

This installation and operation manual is addressed to operators and qualified skilled personnel. It must be observed by anyone working on the machine.

Work on the machine may only be performed by persons that have received the required training or instruction.

Persons with restricted physical, sensory or mental abilities may work on the machine if supervised or instructed by an authorised person.

Children may not play with the machine.

## 1.2 Warranty and liability

Warranty and liability claims for personal and material damage are void if they are due to one or several of the following causes:
Use of the machine contrary to its designated use,
Non-observance of the installation and operation instructions,
Operation of the machine with non-operational safety or protective devices,
Continued use despite the presence of a defect,
Improper assembly, commissioning, operation and maintenance of the machine,
Unauthorised modification of the machine,
Installation of additional components that were not tested together with the machine,
Repairs carried out incorrectly,
Failure to use Weishaupt original parts,
Defects in the supply lines,
Force majeure.

# 2 Safety

## 2.1 Designated use

The fresh water station must be used in heating installations between the buffer tank and the domestic hot water circuit. Due to its design, the station must only be mounted and operated in a vertical position! The technical limit values specified in these instructions must be observed.

Use only original accessories in connection with the fresh water station.

Improper usage excludes any liability claims.

The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.

## 2.2 Safety instructions

The following must be observed during installation and commissioning:

- Relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

WARNING

**Danger of scalding due to hot water!**

Undesirable circulation of water in the primary circuit can cause the exit of water of up to 90 °C at the withdrawal point.

- ➢ External pumps must not be installed between the fresh water station and the buffer tank.
- ➢ The fresh water station must not be connected to a distribution manifold of a heating circuit.

CAUTION

**Risk of burns!**

The valves, fittings and pumps may heat up to more than 95 °C during operation.

- ➢ The insulating shell must remain closed during operation.

NOTICE

**Material damage due to mineral oils!**

Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost.
We cannot be held liable for damage caused by seals damaged in this way, and nor will we give warranty replacement for such parts.

- It is imperative to prevent the EPDM from making contact with substances containing mineral oils.
- Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

NOTICE

**Malfunction!**

- The fresh water station must be integrated in the potential equalisation of the electric installation. If this is not guaranteed by the connected pipe system, establish a potential equalisation connection to the main potential connection according to the regulations.

## 2.3 Safety measures

Immediately eliminate safety-relevant defects and replace safety-relevant components when they have reached the end of their service life due to their construction.

## 2.4 Electrical connection

When performing any work on live parts:
Observe the accident prevention regulations BGV A3 and local regulations,
Use tools according to EN 60900.

## 2.5 Structural modifications

Conversion measures are only allowed after prior approval in writing by the Max Weishaupt GmbH.
Additional components may only be installed if they were tested together with the machine.
Use only Weishaupt original parts.

## 2.6 Disposal

Dispose of the materials used properly and in an environmentally compatible manner.
In doing so, observe local regulations.

NOTICE

**Electrical and electronic devices must not be disposed of in the household waste.**

For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area.
The addresses can be obtained from your city or communal administration.
If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.

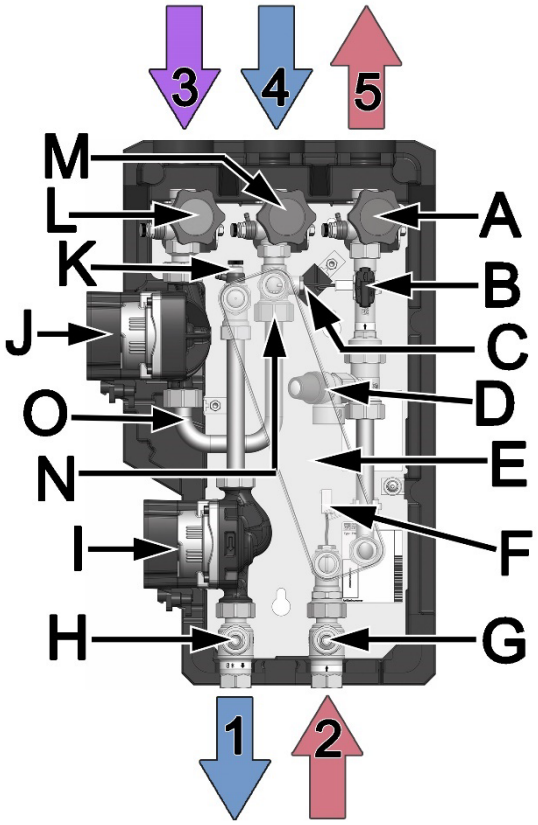
Batteries and rechargeable batteries must be removed prior to the disposal of the product.
Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.
Please observe the disposal symbols on the components.

# 3 Product description

The illustrations in these instructions show the station as the version with circulation and serve for demonstration purposes. Analogously, the illustrations can also be used for the version without circulation.

The fresh water station is a premounted group of fittings checked for tightness and used to transfer the heat between the buffer tank and the domestic hot water circuit.
It contains a preset controller and important valves and fittings and safety equipment to operate the unit:

- Ball valves in the primary circuit
- Piston valves in the secondary circuit
- Safety valve in the secondary circuit
- Premounted controller
- Temperature sensor at the cold water inlet
- Temperature sensor in the heating circuit flow line
- Flow meter at the domestic hot water outlet
- Primary and circulation pump, can be isolated
- Manual vent valve for venting the heat exchanger and the pump




*for version with circulation

**Connections**

| | |
|---|---|
| **1** | Primary side: Return to the buffer tank |
| **2** | Primary side: Flow from the buffer tank |
| **3*** | Secondary side: Hot water inlet circulation |
| **4** | Secondary side: Cold water inlet |
| **5** | Secondary side: Hot water outlet |

**Equipment**

| | |
|---|---|
| **A** | Piston valve with drain valve (hot water outlet) |
| **B** | Analogue flow rate temperature sensor VFS 2-40 l/min |
| **C** | Temperature sensor Pt1000, rapid |
| **D** | Safety valve. 10 bars - **only for protection of the module. Does not replace the safety valve that must be installed on-site.** |
| **E** | Heat exchanger |
| **F** | Temperature sensor Pt1000, rapid |
| **G** | Ball valve (Flow from the buffer tank) |
| **H** | Ball valve with check valve (Return to the buffer tank) |
| **I** | Primary pump |
| **J*** | Circulation pump |
| **K** | Manual vent valve |
| **L*** | Piston valve with drain valve (circulation) |
| **M** | Piston valve with drain valve (cold water inlet) |
| **N** | T-piece with check valve and temperature sensor Pt1000, rapid |
| **O*** | Stainless steel pipe circulation line |

## 3.1 Function

The fresh water stations WHI freshaqua heat potable water comfortably and hygienically operating on the principle of a flow-type water heater. Other than in conventional domestic hot water tanks, domestic water as food is not used for energy storage and is not stored as domestic hot water for hours or days. An efficient plate heat exchanger heats it when necessary. The energy for heating the domestic water comes from a buffer storage tank which can be heated by various systems: solar installations as well as solid combustibles, conventional oil or gas boilers or other systems.

The WHI freshaqua modules are very well suited for an application in combination with a solar thermal system. The excellent cooling of heating water in the efficient plate heat exchanger improves the efficiency of the solar circuit as the cold return reduces the medium temperature of the solar circuit.

The fresh water stations WHI freshaqua must always ensure a constant outlet temperature at the hot water tap, even for important withdrawal differences.
High-efficiency, state-of-the-art EC pumps are speed-controlled by a powerful control, so that the heating flow rate is always optimally set according to the current withdrawal capacity.

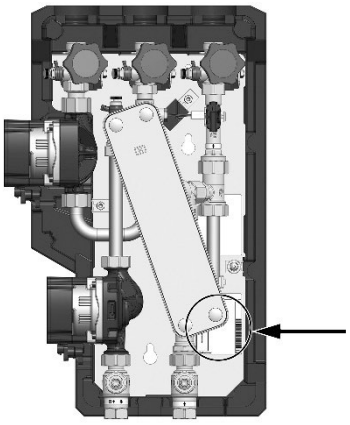
The control receives the required information to control the system via a flow rate sensor and extremely rapid temperature sensors, which immediately detect smallest temperature differences.

The WHI freshaqua can optionally be equipped with high-efficiency EC circulation pumps. The control can operate the pumps in different circulation modes, always adapted to the recent system and the needs of the customer.

You can set the circulation return temperature individually to the circulation system during commissioning, so that the DVGW 551 (German association for gas and water) requirements of a maximum circulation cooling of 5 K are met transparently and can be logged.

The WHI freshaqua modules offer a perfect comfort, optimum hygiene and a forward-looking energy saving operation.

## 3.2 Serial number



The serial number on the type plate clearly identifies each product. The serial number is necessary for the Weishaupt after-sales service. In case of a complaint, please send us the serial number of the product concerned and the completed commissioning report (see page 33). The serial number is placed in the lower right corner of the support sheet of the station.

**Serial number** _____

## 3.3 Technical Data Fresh water stations

| Dimensions | WHI freshaqua 30 #1 | WHI freshaqua 30-circu #1 |
|---|---|---|
| Total height | 539 mm | |
| Total width / without circulation | 345 mm / 309 mm | |
| Total depth | 324 mm (with controller) | |
| Centre distance top | 90 mm | |
| Centre distance bottom | 90 mm | |
| Pipe connection prim.<br>(storage tank circuit) | G ¾" female thread | |
| Pipe connection sec:<br>(WHI freshaqua) | G ¾" male thread, flat sealing | |
| Outlet of safety valve | Rp ¾" female thread | |
| **Operating data** | | |
| Max. admissible pressure | primary: 6 bars, secondary: 10 bars | |
| Min. flow rate | 2 l/min | |
| Operating temperature | 2 – 95 °C | |
| Max. power $Q_{max}$ | 103 kW at $SUP_{prim.}$ 75° / $DHW_{sec.}$ 60° / $DCW_{sec.}$ 10° | |
| Flow rate at $Q_{max}$ | primary: 1650 l/h, secondary: 30 l/min | |
| Operating temperature sensors | -25 °C to +120 °C | |
| **Equipment** | | |
| Safety valve | secondary: 10 bars, suitable for domestic water | |
| Primary pump | High-efficiency pump with PWM control, 2-60 W | |
| Secondary pump | — | High-efficiency pump with PWM control, 2-52 W |
| Heat exchanger | copper solder, 50 plates | full stainless steel, 50 plates |
| Flow rate sensor | secondary: 1 x VFS, measuring range: 2-40 l/min | |
| Temperature sensor | primary / secondary: 1 x Pt1000 each, rapid | |
| Check valve (in the ball valve) | primary: 1 x 200 mm wc, can be opened | |

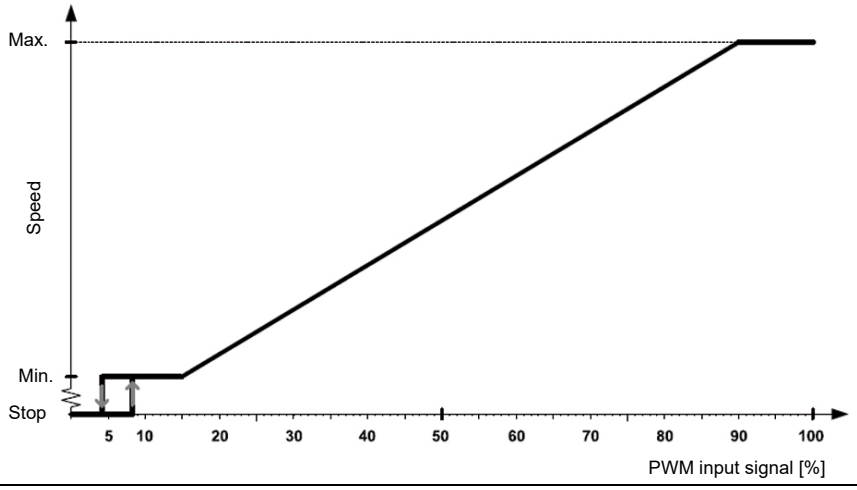
| Materials | |
|---|---|
| Valves and fittings | Brass |
| Seals: o-ring | EPDM |
| Flat sealings | AFM-34/2, asbestos-free |
| Check valve | Hostaform |
| Pipes | 1.4401 (AISI 316) |
| Insulation | EPP, $\lambda$ = 0.036 W/(m K), fire class B2 |
| Heat exchanger with copper soldering (WHI freshaqua 30-cu #1 and 30-cu-circu #1) | Plates + connecting pieces: 1.4404 (AISI 316L)<br>Solder: copper |
| Heat exchanger full stainless steel (WHI freshaqua 30-inox #1 and 30-inox-circu #1) | Plates + connecting pieces: 1.4404 (AISI 316L)<br>Solder: stainless steel |
| Admissible medium<br>(WHI freshaqua 30-cu #1 and 30-cu-circu #1) | prim: Heating water according to VDI 2035 / Ö-Norm H 5195-1<br>sec: Domestic water with max. chlorine content: ≤ 80 ppm |
| Admissible medium<br>(WHI freshaqua 30-inox #1 and 30-inox-circu #1) | prim: Heating water according to VDI 2035 / Ö-Norm H 5195-1<br>sec: Domestic water with max. chlorine content: ≤ 300 ppm |
| Authorisation | SVGW 1308-6180 |

## 3.4 Technical Data Pumps

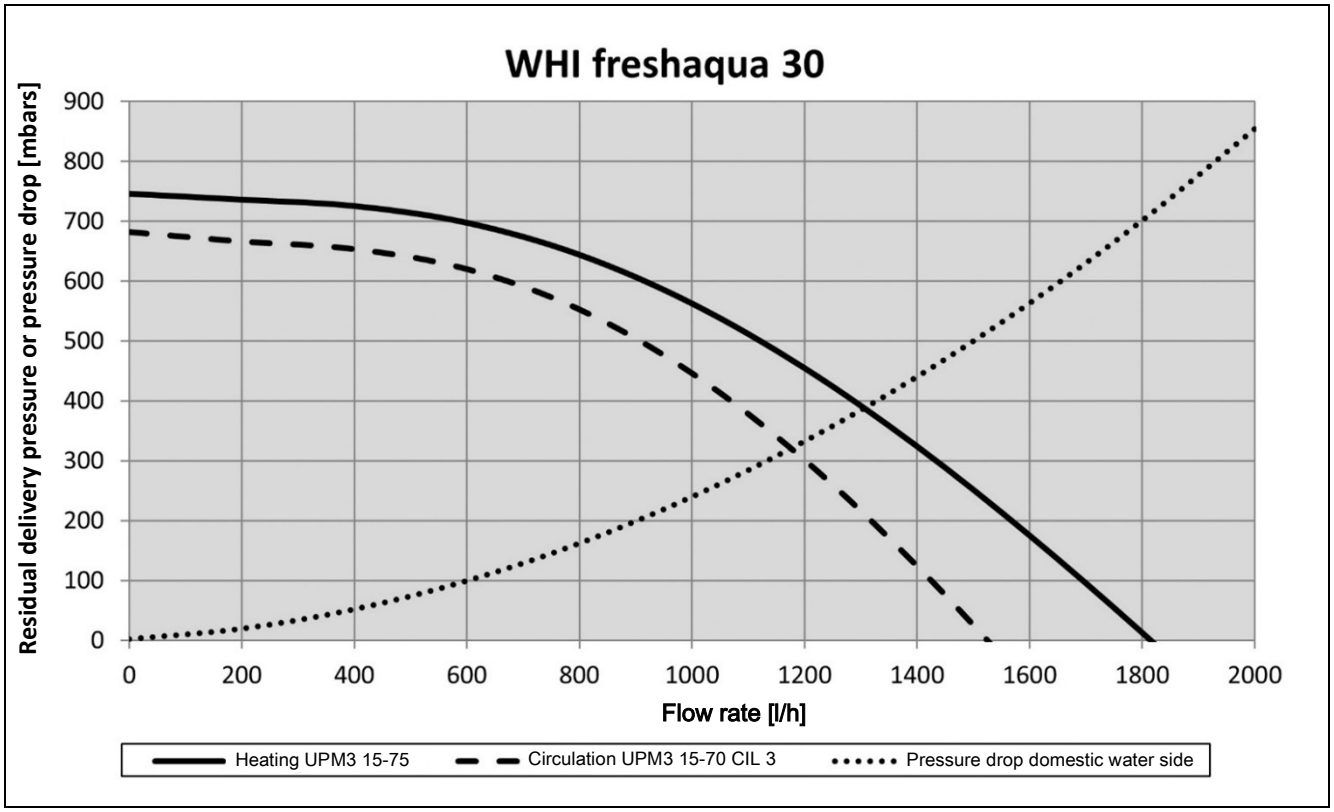
| | Grundfos UPM3 15-75 | Grundfos UPM3 15-70 CIL3 |
|---|---|---|
| **Length** | 130 mm | |
| **Connections** | 1" ext. thread | |
| **Protection class** | IP 44 | |
| **Maximum pressure** | 1.0 MPa (= 10 bars) | |
| **Maximum temperature** | 95 °C TF 95 | |
| **I (1/1)** | 0.04-0.58 A | 0.04-0.52 A |
| **P1** | 2-60 W | 2-52 W |
| **Use in:** | | |
| **WHI freshaqua 30-cu #1 and 30-inox #1** | Prim | Sec |
| **WHI freshaqua 30-cu-circu #1 and 30-inox-circu #1** | | |
| Prim = primary side (storage tank circuit) / Sec = secondary side (circulation) | | |

## 3.5 PWM input signal (solar profile)

| PWM input signal [%] | Pump status |
|---|---|
| < 6 | Standby |
| 6-8 | Hysteresis |
| 9-15 | Min. speed |
| 16-90 | Linear increase in speed from rpm min. to rpm max. |
| 91-100 | Max. speed |



## 3.6 Hydraulic performance data



# 4 Dimensioning and planning

The WHI fresh aqua is a fresh water station operating on the principle of a flow-type water heater.

The fresh water station will only work flawlessly if the installation meets certain requirements. Please take some time to plan the assembly.

The WHI freshaqua modules constructively decrease the precipitation of chalk in the heat exchanger. For installations with an elevated total hardness of the potable water and/or high temperatures, a water treatment is recommended to avoid calcification.

WARNING

**Danger of scalding due to hot water!**

Undesirable circulation of water in the primary circuit can cause the exit of water of up to 90 °C at the withdrawal point.

- External pumps must not be installed between the fresh water station and the buffer tank.
- The fresh water station must not be connected to a distribution manifold of a heating circuit.

The WHI freshaqua modules in the following table differ in the soldering material used for the plate heat exchangers.

The choice of the heat exchanger depends on the requirements of the installation location. Depending on the chemical composition of the water on the installation location, an appropriate plate heat exchanger must be chosen.
Please observe the following table:

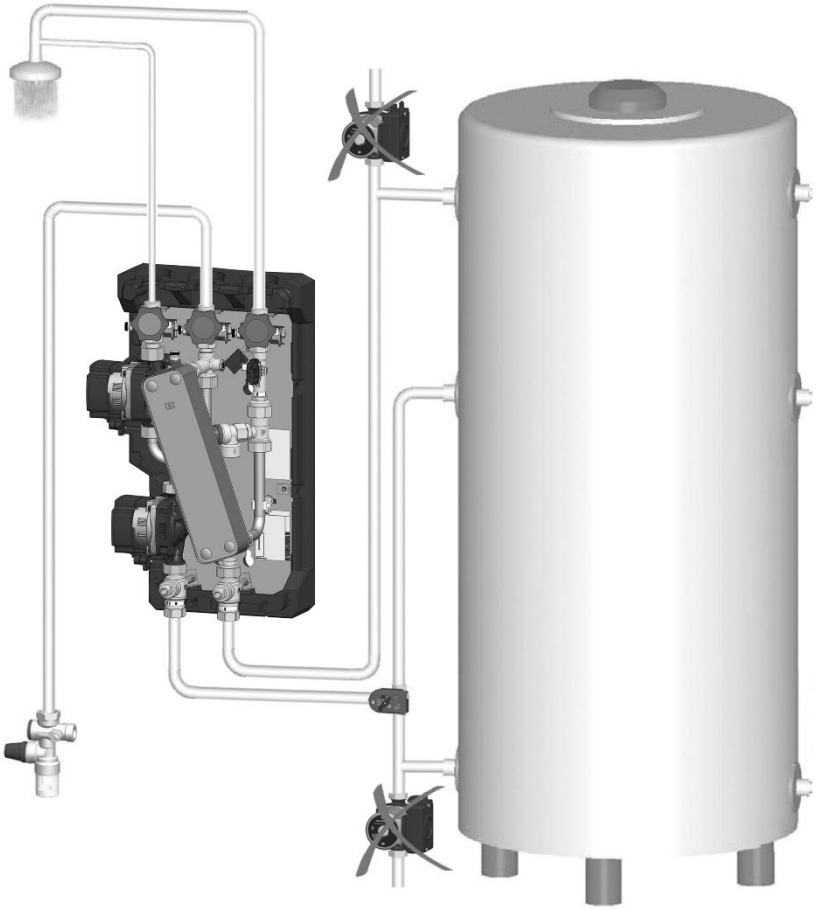
| | Heat exchanger with copper solder | Heat exchanger with full stainless steel |
|---|---|---|
| Maximum chloride content in the potable water | ≤ 80 ppm | ≤ 300 ppm |
| pH value | 7.0 - 9.0 | no restriction |
| Conductivity | ≤ 500 µS/cm | no restriction |
| Zinc-galvanised piping | unsuitable | suitable |
| Maximum pressure at 95 °C | 17 bars | 12 bars |
| Plate material | 1.4401 (AISI 316) | |

Overview of the WHI freshaqua stations and the integrated heat exchangers:

| Fresh water station | -w- Part number | Soldering material of the heat exchanger |
|---|---|---|
| WHI freshaqua 30-cu #1 | 40900031012 | Copper |
| WHI freshaqua 30-cu-circu #1 | 40900031022 | Copper |
| WHI freshaqua 30-inox #1 | 40900031032 | Full stainless steel |
| WHI freshaqua 30-inox-circu #1 | 40900031042 | Full stainless steel |

## 4 Dimensioning and planning

### Mounting example



Fresh water station WHI freshaqua 30 #1 with circulation set and with optional return distribution

In order to guarantee an optimal control, no hydraulic pressure losses should occur on the primary side (f. ex. due to the installation of a mud strainer, a strainer or a mixing valve).

NOTICE

**Malfunction!**

The fresh water station must be directly connected to the connections at the energy storage tank that are exclusively meant for this purpose. A connection via a distribution manifold or an integration of further hydraulic components via T-piece causes malfunction due to hydraulic influence.

Only in a WHI freshaqua cascade, multiple fresh water stations may be connected with a pipeline and connected to the connections at the energy storage tank that are exclusively meant for this purpose.

- In this case, the fresh water stations must be connected hydraulically equally (according to Tichelmann), both at the primary and the secondary side. Observe the instructions of the respective cascade set.

## 4.1 Dimensioning of the tank

The following table helps you to calculate the approximately necessary volume of the buffer tank.

| Temperature in the buffer tank | Domestic hot water temperature set at the controller | Required tank volume for one litre of hot water |
|---|---|---|
| 50 °C | 45 °C | 1.2 litre |
| 60 °C | 45 °C | 0.8 litre |
| | 50 °C | 1.0 litre |
| | 55 °C | 1.2 litre |
| 70 °C | 45 °C | 0.7 litre |
| | 50 °C | 0.8 litre |
| | 55 °C | 0.9 litre |
| 80 °C | 45 °C | 0.7 litre |
| | 50 °C | 0.7 litre |
| | 55 °C | 0.7 litre |

**Calculation example for the dimensioning of the buffer tank:**

Temperature in the buffer tank: 60 °C

Required withdrawal flow rate at the tap: 20 l/min

Domestic hot water temperature set at the controller: 45 °C

How large must be the tank to allow a continuous withdrawal during 20 minutes without post-heating?

20 l/min x 20 min = 400 l

400 l x 0.8 = 320 l

The heated part of the buffer tank must have a volume of 320 litres.

You will find a detailed dimensioning on page 26/27.

## 4.2 Circulation mode

The fresh water stations WHI freshaqua 30-cu-circu #1 and 30-inox-circu #1 are equipped with a circulation pump.

For the operation of the circulation pump, three possible operation modes are stored in the controller (see controller instructions, menu "Functions").

- **Pulse-controlled operation (depending on the demand / requirements):**

The short actuation of a hot water tap (tap pulse: ~2 sec.) starts the circulation pump. The circulation pump will then run for several minutes (adjustable).

- **Time-dependent operation:**

The operation of the circulation pump can be set on a week clock within a freely selectable period of time. In this operation mode, the circulation is activated at the beginning of the selected period of time. The circulation will stop after the end of the selected period of time.

- **Temperature-dependent operation:**

In this operation mode, the circulation is only activated if the adjustable minimum temperature at the circulation temperature sensor is not reached during the period of operation. The circulation stops after the adjustable switch-off threshold 0 has been reached.

The operating modes can be combined with each other as wished, e.g. the time- and the temperature-dependent operating modes. The circulation is only activated if the temperature at the circulation temperature sensor falls below the required value and if the time window is active.

Outside the time slot, the circulation pump can be activated by a tap pulse if the pulse-controlled operation mode is additionally activated.

NOTICE

**Damage to property!**

When the fresh water station is delivered, the circulation is not activated (see controller instructions, menu: "Functions").
Once the circulation line mounted, it is mandatory to select and preset the operation mode. The revolution speed of the circulation pump must be defined via the PWM signal (factory setting: 100%).

NOTICE

**Impact on the control behaviour!**

In larger hot water distribution systems, there is the risk that the pipeline content considerably cools during the withdrawal breaks, which must be avoided particularly form a hygienic point of view. Here, we recommend the use of a circulation line.

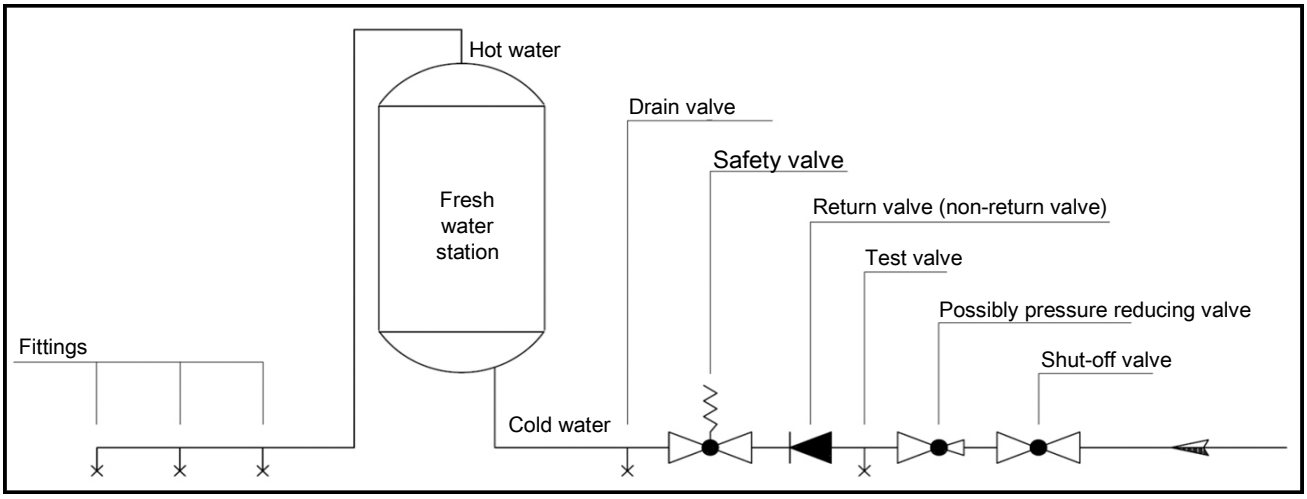
A circulation line guarantees that a very high hot water comfort is ensured even for extreme differences in the withdrawal quantities.

Therefore, we do not recommend an electric trace heating system. However, if an electric trace heating system should be mandatory, please observe the following:

- The fresh water station must not be heated by the electric trace heating system (-> installation of a thermosiphon).
- Activate the comfort function at the controller
  (-> Attention: not recommended in case of increased risk of limescale).
- Avoid short withdrawals as well as predominantly low load operation.
- The dimensioning of the fresh water station must correspond to the real user behaviour (-> no over-dimensioning).
- Instead of one single fresh water station, multiple small fresh water stations as a cascade installation should be preferred.

# 5 Installation

The domestic hot water connection must be carried out in accordance with the relevant norms (for example DIN 1988)!




NOTICE

**Damage to property!**

- The safety valve integrated in the station does not replace the safety groups of the potable water connection as per DIN 1988 or of the heating installation.
- The safety valve only protects the module from overpressures in case of servicing.

## 5.1 Installation

WARNING

**Risk to life and limb due to electric shock!**

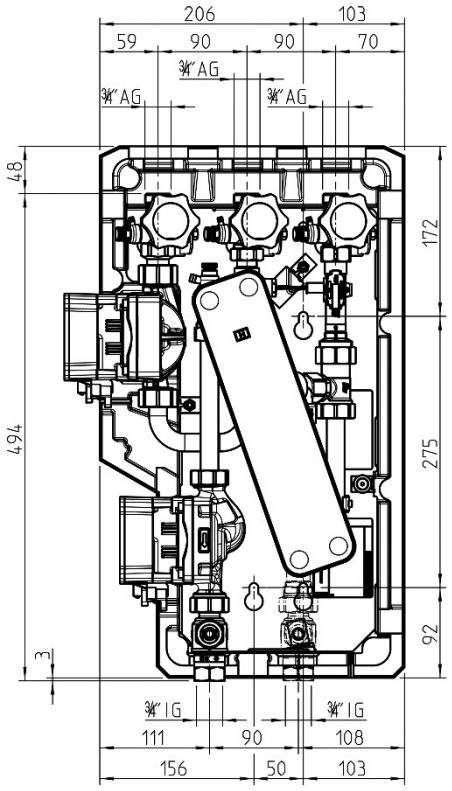
- Prior to performing electrical work on the controller, de-energise the system.

  For more information, see enclosed installation and operation instructions of the module controller.
- Connect the fresh water station to the power supply system (230 V, 50 Hz) only after completing all installation tasks, flushing and filling.
  This avoids an unintentional start of the motors.

NOTICE

**Damage to property!**

- The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation.
- Furthermore, access to the controller and safety equipment must be guaranteed at all times during operation!
- If there are water supplies that may cause pressure surges (for example flush valves, washing machines or dishwashers) connected to the same mains as the fresh water station, we recommend the installation of water hammer arresters close to the place where these pressure surges may be caused.

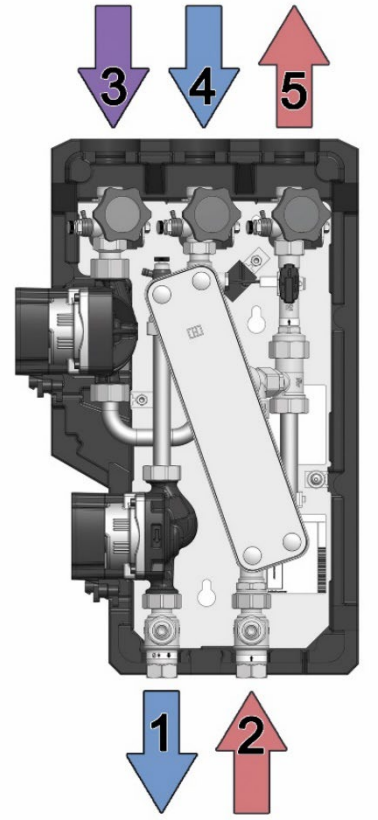



1. Determine the mounting location of the fresh water station near the buffer tank. In long pipes, the transmission performance may be reduced due to higher pressure losses.
2. Copy the measures for the mounting holes to the wall.
   You will find a corresponding drilling template on the carrying carton below the fresh water station.
3. Drill the holes and insert adequate wall plugs into the holes.
   Make sure that the ground has sufficient load-carrying capacity.
4. Turn the screws into the wall plugs in such a way that about 40 mm of each screw still stick out.
5. Remove the insulating front shell.
6. Put the fresh water station onto the screws. Tighten the screws, so that the sides of the insulation are flush to the wall.

## 5.2 Connection

Pipe the fresh water station with the installation according to the illustration below.

Pipe gap from the wall (secondary) = 72 mm




Pipe gap from the wall (primary) = 112 mm

1 **Primary side:**
return to the buffer tank,
G ¾" internal thread,
pipes
at least DN 20, 22 x 1 mm,
recommended DN 25, 28 x 1.5 mm

2 **Primary side:**
flow from the buffer tank,
G ¾" internal thread,
pipes
at least DN 20, 22 x 1 mm,
recommended DN 25, 28 x 1.5 mm

3 **Secondary side:**
inlet hot water circulation,
connection: ¾" external thread, flat sealing

4 **Secondary side:**
cold water inlet,
connection: ¾" external thread, flat sealing

5 **Secondary side:**
hot water outlet,
connection: ¾" external thread, flat sealing

## 5.3 Controller connection

WARNING

**Risk to life and limb due to electric shock!**

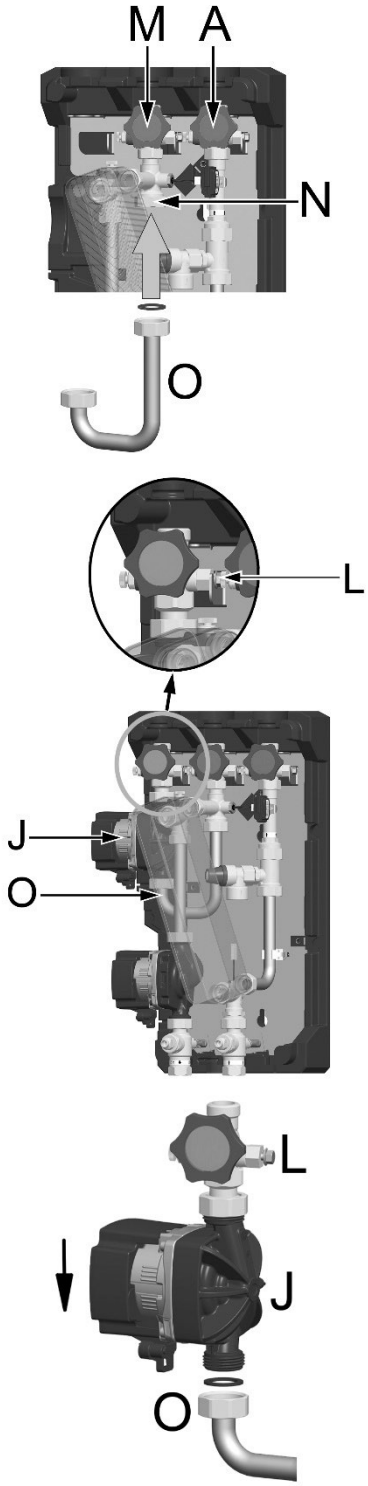
- Prior to performing electrical work on the controller, de-energise the system.

  For more information, see enclosed installation and operation instructions of the module controller.
- Connect the fresh water station to the power supply system (230 V, 50 Hz) only after completing all installation tasks, flushing and filling.
  This avoids an unintentional start of the motors.
- The plug-in pump lines are permanently supplied with a mains voltage of 230 V and cannot be switched off via the controller.

The fresh water station is prewired when it is delivered.

For the subsequent installation of a circulation pump, the connections cables and the mains plug (with closing cap) are already prepared when the station is delivered.

## 5.4 Subsequent installation of a circulation set




1. Remove the insulating front shell of the module. It is not necessary to remove the insulating shell of the heat exchanger on which the controller is mounted.
2. Close the piston valves [M|A] and depressurise the station by opening the drain valves at the piston valves.
3. Remove the cap from the T-piece [N] of the cold water inlet and, coming from the right, mount the pipe [O] with the long limb by using the enclosed seal at the T-piece.
   Tighten the thread connection manually.
4. Mount the pump [J] from the left side with the piston valve [L] at the short limb of the pipe [O] and observe the correct flow direction of the pump. Do not forget to insert the seal.
5. Make sure that the piston valve [L] of the circulation set is hung in the mounting plate.
6. Firmly tighten the thread connections by using the open-ended spanner.
   Hold the lower line in place when tightening the thread connection.
   Do not apply too much pressure as the thread connection of the pump housing is fragile.
7. Connect the piston valve [L] to the installation by using the pipes.
8. Fill and vent the circulation circuit by opening the piston valves [M|A].
9. Connect the sensor to the T-piece [N] of the cold water inlet again.

   For the commissioning of the controller, please proceed as described in the following chapter *5.5- Connection of the pump to the controller FC3.10.*

## 5.5 Connection of the pump to the controller FC3.10

NOTICE

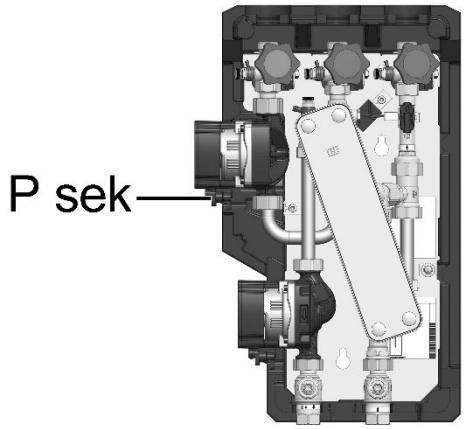
**Damage to property!**

When the fresh water station is delivered, the circulation is not activated (see controller instructions, menu: *Menu / Functions / Circulation*).

- Once the circulation line mounted, it is mandatory to select and preset the operation mode. The revolution speed of the circulation pump must be adapted via the PWM signal (factory setting: 100%).

For the operation of the circulation pump, three possible operation modes are stored in the controller which can be combined (see controller instructions).

The connection of the circulation pump to the controller is described in the following.




1. Disconnect the power supply of the system.
2. The pump cable is closed with a protective cap which protects against humidity.
   Remove the protective cap and plug the connector of the pre-mounted pump cable "P sec" into the circulation pump (right socket).
3. Plug the PWM2 cable to the circulation pump (left socket).
4. Reinsert the insulating front shell.
5. Set up the power supply of the installation and put the controller into operation according to the controller instructions.

   The system is now ready for operation.

## 6 Operation

A detailed description of the operation of the controller can be found in the enclosed controller manual.

Differing to the controller instructions, the access code for the extended area is ***0011.***

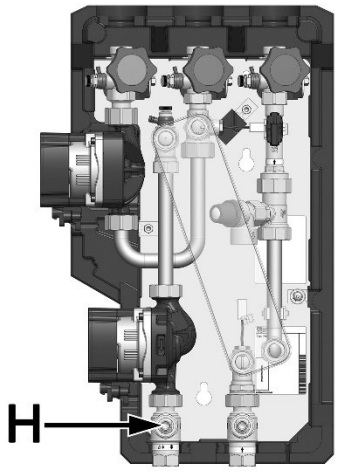
## 7 Commissioning

Observe the following safety instructions regarding the commissioning of the station:

NOTICE

**Pressure surges**

- Slowly open the valves in the pipes and in the module in order to prevent **pressure surges**.




**Function check valve**

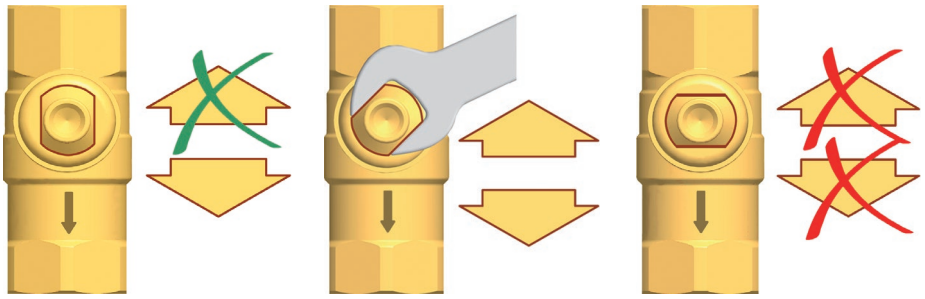
The primary circuit is equipped with a check valve in the ball valve (H), in order to avoid unwanted gravity circulation.

For venting and flushing the installation, the check valve must be open.
For this purpose, turn the ball valve into the position **45°**. The check valve is not operating.

For the operation of the installation, all (ball) valves must be **completely** open (position **0°**).

**Ball valve with integrated check valve**

(normal flow direction in the figure: downwards)



| 0° | 45° | 90° |
|---|---|---|
| Check valve is operating, **flow only in flow direction.** | Check valve is not operating, **flow in both directions.** | Ball valve closed, **no through-flow.** |

To actuate the ball valve, a handle is included in the delivery.

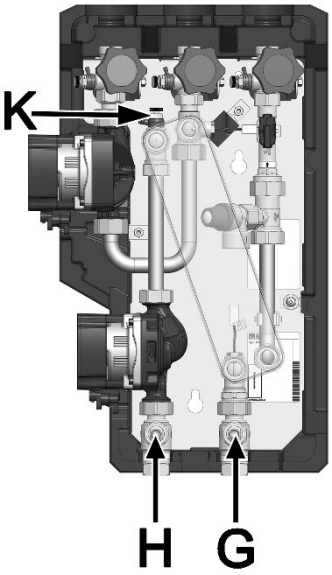
## 7.1 Filling the primary circuit

WARNING

**Danger of scalding due to hot water!**

The system is under pressure. By opening the vent valve, hot water with a temperature of up to 90 °C may exit and cause personal injury.

- Open the vent valve slowly and with sufficient distance.




**If the storage tank is (partly) filled**

1. Slowly open the check valve in ball valve (G) by turning it to position **0°**.
2. Fill the storage tank using the fill valves available on site until an operating pressure of about 1.5 bars* is reached.
   Use appropriate water according to VDI 2035 / ÖNorm H5195-1.
3. Manipulate the vent valve (K) cautiously to let the air escape.
4. Close the vent valve (K).
5. Close the ball valve (G) by turning it into position **90°.**
6. Slowly open the check valve in ball valve (H) by turning it to position **45°**.
7. Manipulate the vent valve (K) cautiously to let the air escape.
8. Close the vent valve (K).
9. Check the operating pressure of the storage tank after the venting and increase the pressure if necessary.
10. Open the ball valves (G) and (H) completely by turning them into position **0°**.

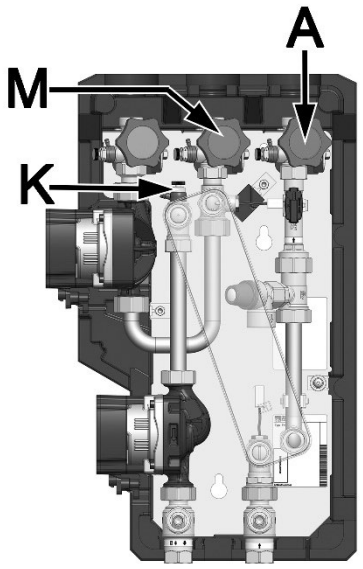
*1.5 bars in the primary circuit = recommended minimum value
The pressure depends on the individual system pressures and the components of the heating installation!

## 7.2 Commissioning of the controller

WARNING

**Risk to life and limb due to electric shock!**

- Check whether the sensors and pumps have been connected to the controller and the controller housing is closed.
  Do not apply voltage to the controller before that.




1. Connect the fresh water station to the mains (230 V, 50 Hz) by using the premounted connection cable.
2. Make sure that the integration of the fresh water station in the potential equalisation of the installation is correct.
3. Carry out the commissioning of the controller (see controller instructions, chapter *Commissioning*). After that, start the pump in the automatic/manual mode (PWM signal = 100 %, see controller instructions chapter *Automatic/manual mode*).
4. Let the pump run for several minutes to deaerate the fresh water station.
5. When the air noises do not stop, carefully manipulate the vent valve (K) while the pump is still running and let the air escape.
6. If the air noises have stopped, the pump can be switched off.
7. To do so, in the automatic/manual mode, set the pump to *Automatic*.
8. Slowly open the piston valves on the secondary side (A and M).
9. Open a withdrawal point for domestic hot water (for example a tap) with a flow rate of at least 10 l/min and let the water run for about 2 minutes to vent the secondary circuit. Close all withdrawal points of the secondary circuit afterwards.
10. Check the module for tightness.
11. The fresh water station is now ready for operation.
12. Set the desired domestic hot water temperature at the controller (see separate controller instructions, chapter ***8 Hot water***).
13. The station controller "learns" the installation specific control parameters during longer withdrawals. This "learning process" is constantly applied.
    After commissioning, water should be tapped at a number of different fittings for about 1 minute each to instantly obtain an optimal comfort.

## 7.3 Adjustment of the temperature

Set the desired (maximum) domestic hot water temperature at the controller in chapter *8 Hot water* (see separate controller instructions).

WARNING

**Danger of scalding due to hot water!**

- The maximum domestic hot water temperature must not exceed 60 °C in order to avoid scalding at the tap.

Recommendation for comfort optimisation: For high buffer tank temperatures (e.g. solar thermal system), the hot water temperature must be set as high as possible (max. 60 °C).

**Primary side**

The required temperature on the primary side in the buffer tank depends on the desired domestic hot water temperature and on the required tap quantity. The temperature in the buffer tank must be at least 5 K above the desired domestic hot water temperature.

**Secondary side:**

The possible withdrawal flow rate [l/min] at the tap depends on the domestic hot water temperature set at the controller and on the temperature available in the storage tank.

The recommended maximum domestic hot water flow rate through the fresh water station is ~38 l/min.

Due to the system, considerable modifications of the domestic water flow rate cause fluctuations of the hot water outlet temperature. These fluctuations are usually compensated by the piping network in the building or by adding cold water at the fittings.

## 7.4 Maximum withdrawal flow rate

The following table illustrates the correlation between the storage tank temperature and the maximum withdrawal flow rate at a water temperature of 45 °C at the tap (f. ex. single lever tap). If the domestic hot water temperature set at the controller is above 45 °C, the tap flow rate consists of a mixture of hot and cold water.

The indicated heat transfer capacity is necessary to heat up the water quantity of the withdrawal flow rate [l/min] from 10 °C to 45 °C.

| Temperature of the heating storage tank | Domestic hot water temperature set at the controller | Maximum output capacity from the station | Transmission performance | Tank volume required for one litre of hot water | For an inlet temperature of 10 °C (cold water temperature) - max. withdrawal quantity** at the mixing valve with | | | | Return temperature to the buffer tank, about |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 40 °C | **45 °C** | 50 °C | **55 °C** | |
| **45 °C** | 40 °C | 24 l/min | 50 kW | 1.1 litre | / | / | / | / | 18 °C |
| **50 °C** | 40 °C | 31 l/min | 65 kW | 0.9 litre | / | / | / | / | 16 °C |
| | **45 °C** | **23 l/min** | 56 kW | 1.2 litre | 26 l/min | / | / | / | 20 °C |
| **55 °C** | 40 °C | 36 l/min | 75 kW | 0.8 litre | / | / | / | / | 15 °C |
| | **45 °C** | **29 l/min** | 71 kW | 0.9 litre | 33 l/min | / | / | / | 18 °C |
| | **50 °C** | **22 l/min** | 61 kW | 1.2 litre | 29 l/min | **25 l/min** | / | / | 22 °C |
| **60 °C** | 40 °C | 37 l/min | 77 kW | 0.7 litre | / | / | / | / | 14 °C |
| | **45 °C** | **34 l/min** | 83 kW | 0.8 litre | 39 l/min | / | / | / | 16 °C |
| | **50 °C** | **28 l/min** | 78 kW | 1.0 litre | 37 l/min | **31 l/min** | / | / | 19 °C |
| | **55 °C** | **22 l/min** | 69 kW | 1.2 litre | 33 l/min | **28 l/min** | 24 l/min | / | 24 °C |
| **65 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 13 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | 15 °C |
| | **50 °C** | **32 l/min** | 89 kW | **0.9 litre** | **42 l/min** | **36 l/min** | / | / | 18 °C |
| | **55 °C** | **27 l/min** | 85 kW | 1.0 litre | 40 l/min | **34 l/min** | 30 l/min | / | 21 °C |
| | 60 °C | 21 l/min | 73 kW | 1.3 litre | 35 l/min | **29 l/min** | 26 l/min | **23 l/min** | 26 °C |
| **70 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 12 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | 14 °C |
| | **50 °C** | **35 l/min** | 98 kW | 0.8 litre | 46 l/min | **39 l/min** | / | / | 16 °C |
| | **55 °C** | **30 l/min** | 94 kW | 0.9 litre | 45 l/min | **38 l/min** | 33 l/min | / | 19 °C |
| | 60 °C | 26 l/min | 91 kW | 1.1 litre | 43 l/min | **37 l/min** | 32 l/min | **28 l/min** | 22 °C |
| **75 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 12 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | 13 °C |
| | **50 °C** | 37 l/min*** | 102 kW | 0.7 litre | 49 l/min | **42 l/min** | / | / | 15 °C |
| | **55 °C** | **35 l/min** | 108 kW | 0.8 litre | 52 l/min | **44 l/min** | 39 l/min | / | 18 °C |
| | 60 °C | 30 l/min | 103 kW | 0.9 litre | 50 l/min | **42 l/min** | 37 l/min | **33 l/min** | 21 °C |
| **80 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 12 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | 13 °C |
| | **50 °C** | 37 l/min*** | 103 kW | 0.7 litre | 49 l/min | **42 l/min** | / | / | 15 °C |
| | **55 °C** | 37 l/min*** | 116 kW | 0.7 litre | 55 l/min | **47 l/min** | 41 l/min | / | 17 °C |
| | 60 °C | 33 l/min | 115 kW | 0.8 litre | 55 l/min | **47 l/min** | 41 l/min | **36 l/min** | 19 °C |
| **85 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 11 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | 12 °C |
| | **50 °C** | 37 l/min*** | 103 kW | 0.7 litre | 49 l/min | **42 l/min** | / | / | 14 °C |
| | **55 °C** | 37 l/min*** | 116 kW | 0.7 litre | 55 l/min | **47 l/min** | 41 l/min | / | 16 °C |
| | 60 °C | 36 l/min | 125 kW | 0.8 litre | 60 l/min | **51 l/min** | 44 l/min | **39 l/min** | 18 °C |

| Temperature of the heating storage tank | Domestic hot water temperature set at the controller | Maximum output capacity from the station | Transfer capacity | Tank volume required for one litre of hot water | For an inlet temperature of 10 °C (cold water temperature) - max. withdrawal quantity** at the mixing valve with | | | | Return temperature to the buffer tank, about |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 40 °C | **45 °C** | 50 °C | **55 °C** | |
| **90 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 11 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | **12 °C** |
| | **50 °C** | 37 l/min*** | 103 kW | 0.7 litre | 49 l/min | **42 l/min** | / | / | **13 °C** |
| | **55 °C** | 37 l/min*** | 116 kW | 0.7 litre | 55 l/min | **47 l/min** | 41 l/min | / | **15 °C** |
| | 60 °C | 37 l/min*** | 129 kW | 0.7 litre | 61 l/min | **52 l/min** | 46 l/min | **41 l/min** | 17 °C |
| **95 °C** | 40 °C | 37 l/min*** | 77 kW | 0.7 litre | / | / | / | / | 11 °C |
| | **45 °C** | 37 l/min*** | 90 kW | 0.7 litre | 43 l/min | / | / | / | **12 °C** |
| | **50 °C** | 37 l/min*** | 103 kW | 0.7 litre | 49 l/min | **42 l/min** | / | / | **12 °C** |
| | **55 °C** | 37 l/min*** | 116 kW | 0.7 litre | 55 l/min | **47 l/min** | 41 l/min | / | **14 °C** |
| | 60 °C | 37 l/min*** | 129 kW | 0.7 litre | 61 l/min | **52 l/min** | 46 l/min | **41 l/min** | 16 °C |

**Post-heating not taken into account!**

*** The maximum output capacity depends on the pressure drop on the primary side.**

**** The maximum withdrawal quantity at the mixing valve depends on the length and the insulation of the pipes.**

***** Maximum flow rate: 37 l/min, with pressure drop of the module of 1000 mbars (for hydraulic reasons, higher values are only partly possible, measuring limit of the flow rate sensor ~40 l/min)**

**Example:**

The temperature in the heating storage tank (primary) is 65 °C and the hot water temperature set at the controller is 50 °C (secondary):

- With 65 °C in the heating buffer tank, a maximum of 32 litres of domestic water per minute can be heated to 50 °C.
- This withdrawal corresponds to a performance of 89 kW.
- In order to obtain 1 litre (or 100 litres) of hot water with a temperature of 50 °C, the heating buffer tank must contain 0.9 litres (or 90 litres) with a temperature of 65 °C.
- These 32 litres of hot water per minute with 50 °C can be mixed with cold water (10 °C) at the tap (mixing valve) to obtain 36 litres per minute with 45 °C.
- The primary return temperature for a withdrawal of 32 litres of domestic hot water/minute is 18 °C.

# 8 Maintenance/ failure

The WHI freshaqua modules are low in maintenance. However, as part of the annual inspection of the domestic water system, some items should be checked/observed:

We recommend concluding a maintenance agreement.

## 8.1 Optimal operation of the fresh water station

In order to guarantee an optimal control, no additional hydraulic pressure losses should occur on the primary side (f. ex. due to the installation of a mud strainer, a strainer or a mixing valve).

NOTICE

**Hygiene recommendation**

At temperatures below 60 °C, legionella bacteria can occur. After a longer downtime such as holidays, it is recommended to thoroughly flush all pipes for some minutes.

**Optical control**

It is recommended to visually check the fresh water station every two months to ensure its proper operation. If you notice any problems on the system, consult a specialist.

**Cleaning the station**

Clean the station with a damp cloth without any detergent.

## 8.2 Checklist maintenance domestic fresh water station

- Check the controller display for plausibility and possible error messages.
- Remove the heat insulation.
- Visually check the entire station for leaks and damage → resolve, if possible.
- Initiate the tapping process and check for noises (e.g. caused by trapped air).
  → Vent the station.
- Check the system pressure of the heating installation.
  → If applicable, increase the system pressure (observe manufacturer's instructions of the boiler / project planning specifications, VDI 2035). If the system pressure is too high, check the heat exchanger for tightness and inform the installation operator or replace heat exchanger.
- Do the controller settings still correspond to the project planning specifications (nominal temperatures, time)?
- Check the settings and the function of the post-heating → the buffer tank temperature should be about 10K higher than the DHW nominal temperature.
- Check the shut-off valves for mobility by opening and closing them.
- Check the correct operating direction of the return switch valve.
- Check the function or the tightness of the safety valves / safety devices.
- Check the siphon of the drain pipe; fill with water, if necessary.
- Check possibly existing water treatment system for function (observe the manufacturer's instructions).
- Mount the heat insulation and check for its correct position.

## 8.3 Checklist failure domestic fresh water station

| Failure | Cause | Solution |
|---|---|---|
| The domestic hot water flow rate at the withdrawal point is too low. | The heat exchanger has heavy limescale build-up. | Decalcify the heat exchanger. |
| | The cold water pressure is too low (pressure relief device is incorrectly set). | Check the setting of the pressure relief device and increase the setting, if applicable. |
| | High pressure loss caused by other additionally installed components (e.g. non-return valves, water softening system only in the drinking water inlet to the fresh water station). | Eliminate the pressure difference between the cold and hot water. |
| Pressure increase in the heating circuit (drinking water enters the heating circuit). This may activate the safety valve in the heating circuit. | Leak at the heat exchanger due to corrosion or overpressure. | Replace the heat exchanger.<br>The soldering material must be suitable for the drinking water or fill-up water quality. Check the water quality. Replace the heat exchanger. |
| Leak at the heat exchanger (externally). | | |
| For higher withdrawal quantities, the target temperature is not reached (anymore) or the hot water temperature drops at the withdrawal point(s). | The heating water temperature is not sufficient for the required target temperature. | Increase the heating water temperature in the buffer tank. If applicable, check the performance of the heat generator. The boiler circuit should be about 10K higher than the required DHW temperature. |
| | The heat exchanger is contaminated or has limescale build-up. | Clean the heat exchanger. |
| | The system components are not sufficiently dimensioned for the consumption. | Check the installation / system dimensioning and, if necessary, increase the storage tank capacity e.g. by increasing the temperature in the buffer tank. |
| For the operation with circulation, the water at the withdrawal point cools abruptly; or fluctuating withdrawal temperature. | Cold water flows directly into the circulation line instead into the heat exchanger. | Check / clean the function of the non-return valve of the circulation module and replace it, if necessary. |
| | The control parameters do not correspond to the conditions existing in the object. | Teach the controller to adjust the setting to the conditions in the heating system of the building (different withdrawals with constant flow rate >30s). |
| | The station is not grounded which causes errors at the flow rate measurement. | Establish grounding potential at the rear panel of the controller. |
| No heating of the domestic hot water (only cold water at withdrawal points). | The flow rate sensor is contaminated or defect. | Replace the flow rate sensor. |
| | The controller is not in operation (without tension). | Check the power supply of the controller and re-establish the power supply, if necessary. |
| | Trapped air in the heating circuit. | Vent the heating circuit. |
| | The strainer in the heating circuit is blocked. | Clean or replace the strainer. |
| | The pump does not pump. | Check the power supply, remove the blockade or replace, if necessary. |

| | | |
|---|---|---|
| Permanent high return temperature (without circulation), (>30°C at flow ~10) | The heat exchanger is contaminated or has limescale build-up. | Clean the heat exchanger. |
| Noises during withdrawal. | Air in the pipe system. | Vent. |
| The switch valve, cascade valve, circulation is not actuated correctly for cascade. | Missing communication between the controllers regarding the master station. | Mount both controllers with an identical software version. |

NOTICE

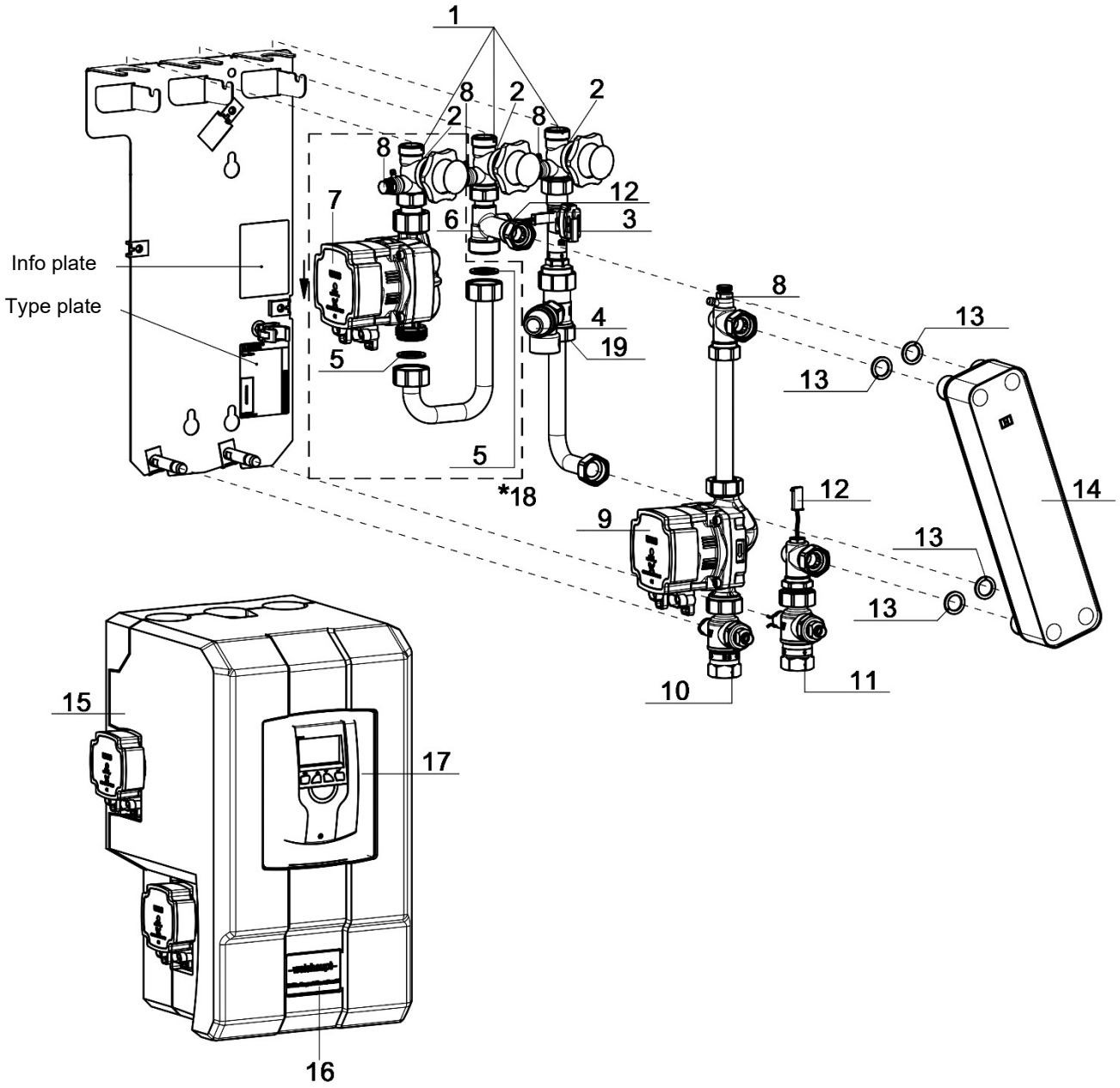
**Cleaning of the plate heat exchanger:**

Only clean the plate heat exchanger with a decalcifier with an authorisation according to DVGW, suitable for drinking water, stainless steel, copper and nickel.

The application recommendations of the heat exchanger manufacturer must be observed.

# 9 Spare parts

## 9.1 Spare parts list WHI freshaqua 30




*18: Only for version with circulation

| Pos. number | Spare part - *Only for version with circulation | -w- item number |
|---|---|---|
| 1 | Piston valve DN 15 G¾ A with drainage | 40900015062 |
| 2 | Screw-in fitting ¼" ext. thread, self-sealing x M6 int. thread, wrench size 17, length 11 mm | 40900031157 |
| 3 | Flow rate sensor analogue VFS 2-40, 102 mm WHI freshaqua 30, complete | 40900031392 |
| | Flow rate sensor analogue, sensor element type VFS 2-40 l/min | 40900031397 |
| 4 | Safety valve ½", 10 bars | 40900015057 |
| 5 | Seal 21 x 30 x 2 (1") EPDM 90 | 40900015167 |
| 6 | T-piece, brass, cold water line WHI freshaqua, complete, with check valve | 40900031382 |
| 7 | *Circulation pump UPM3 15-75 CIL3 130 12H | 40900031322 |
| 8 | Manual vent valve with o-ring G¼A | 40900015097 |
| 9 | Circulation pump UPM3 15-75 130 12H flow estimation | 40900031282 |
| 10 | Return ball valve DN 20, 1" union nut x ¾" int. thread with check valve and banderole | 40900031267 |
| 11 | Flow ball valve DN 20, 1" union nut x ¾" int. thread with banderole | 40900031247 |
| 12 | Temperature sensor Pt1000-B G¼ A | 40900015117 |
| 13 | Seal 17 x 24 x 2 (¾") AFM-34/2 | 40900021107 |
| 14 | Plate heat exchanger XB05H-1-50-Cu ¾" ext. thread, 25 bars (for WHI freshaqua 30-cu #1 / 30-cu-circu #1) | 40900031237 |
| | Plate heat exchanger XB05H-1-50-StS ¾" ext. thread, 25 bars (for WHI freshaqua 30-inox #1 / 30-inox-circu #1) | 40900031287 |
| 15 | EPP insulating shell WHI freshaqua 30, complete | 40900031057 |
| 16 | Name plate WHI freshaqua 30-cu #1 | 40900031017 |
| | Name plate WHI freshaqua 30-cu-circu #1 | 40900031027 |
| | Name plate WHI freshaqua 30-inox #1 | 40900031037 |
| | Name plate WHI freshaqua 30-inox-circu #1 | 40900031047 |
| 17 | Domestic hot water controller FC3.10 | 40900031342 |
| 18 | Circulation set WHI freshaqua 30 | 40900031292 |
| 19 | O-ring 17.3 x 2.4 mm | 40900031227 |
| Not shown in illustration | Seal 21 x 30 x 2 (1") AFM-34/2 | 40900021117 |
| | Thermo handle -weishaupt- | 48002003132 |
| | Brass cap 1" | 40900031197 |
| | Plug cable for VFS sensor 650 mm | 40900015137 |
| | Mains connection 2500 mm + PE cable 500 mm for WHI freshaqua-FC3.10 | 40900031077 |
| | Plug cable temperature sensor 2500 mm | 40900015037 |
| | 2-fold pump cable superseal 3 x 0.75 1000 mm | 40900031097 |
| | Closing cap superseal 3-pin for pump plug | 40900031107 |
| | Connecting cable PWM to FC3.10, mini superseal 1000 mm | 40900031127 |
| | Jumper, 2-pins, 2.54 mm spacing, black | 735263 |
| | Closing plug with o-ring G¼A | 40900015107 |
| | Hose connector with nut ¾" | 40900015867 |
| | Drain hose G¾" x 1000 with o-ring | 51150202422 |

# 10 Commissioning report

| | | | | |
|---|---|---|---|---|
| System operator | | | | |
| Location of installation | | | | |
| Serial numbers: | | | | |
| WHI freshaqua 30 #1 / 30-circu #1 | | | | |
| Flow rate sensor | | | | |
| Controller | | | | |
| Software version | | | | |
| Pipes primary | ⌀ = | mm | l = | m |
| Pipes secondary | ⌀ = | mm | l = | m |
| Other additionally installed components | ☐ Circulation set | | Speed of the circulation pump: | |
| | ☐ Return distribution set | | | |
| | ☐ Others: | | | |

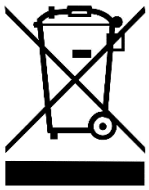
| | |
|---|---|
| Have both circuits been flushed and vented correctly? (no air noises in the pump) | ☐ Vented |
| Are all shut-off valves open in the cold water line? | ☐ Open |
| Is there a pressure of at least 1.5 bars on the primary side? | ☐ Checked |
| Is there a pressure of at least 2.5 bars on the secondary side? | ☐ Checked |
| Is there an error message on the display? | ☐ No message |

Installation company

Date, signature

# 11 Disposal

NOTICE



Electrical and electronic devices must not be disposed of in the household waste.

For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area. The addresses can be obtained from your city or communal administration.
If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.

Batteries and rechargeable batteries must be removed prior to the disposal of the product.
Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.
Please observe the disposal symbols on the components.

## 11 Disposal

–weishaupt–

Change of legal form from 22.11.2024: Max Weishaupt SE
**Max Weishaupt GmbH** · 88475 Schwendi

Weishaupt close by? Addresses, telephone numbers etc. can be found at www.weishaupt.de



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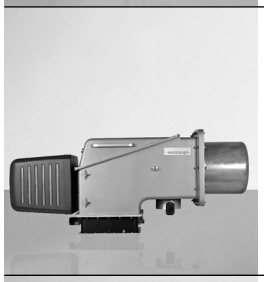
These legendary industrial burners are durable and versatile.
Numerous variations of oil, gas and dual fuel burners meet a wide range of applications and capacity requirements.

**WKmono 80 Burners** **up to 17,000 kW**

The WKmono 80 burners are the most powerful monoblock burners from Weishaupt. They are available as oil, gas or dual fuel burners and are designed for tough industrial application.



**WK Burners** **up to 32,000 kW**

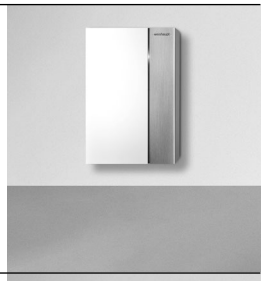
These industrial burners of modular construction are adaptable, robust and powerful.
Even on the toughest industrial applications these oil, gas and dual fuel burners operate reliably.

**MCR Technology / Building Automation from Neuberger**

From control panels to complete building management systems - at Weishaupt you can find the entire spectrum of modern control technology. Future orientated, economical and flexible.

**Service**

Weishaupt customers can be assured that specialist knowledge and tools are available whenever they are needed. Our service engineers are fully qualified and have extensive product knowledge, be it for burners, heat pumps, condensing boilers or solar collectors.



**Wall-hung condensing boilers for gas** **up to 800 kW**

The wall-hung condensing boilers WTC-GW have been developed to meet the highest demands in ease of operation and efficiency. Modulating operation means these units operate quietly and economically.

**Floor-standing condensing boilers for oil and gas** **up to 1,200 kW**

The floor-standing condensing boilers WTC-GB (up to 300 kW) and WTC-OB (up to 45 kW) are efficient, low in pollutants and versatile in use.
Even the largest capacities can be covered by cascading up to four gas condensing boilers.

**Solar systems**

The stylish flat-plate collectors are the ideal complement for any Weishaupt heating system. They are suitable for solar water heating and for combined heating support. With versions for on-roof, in-roof and flat roof installations, solar energy can be utilised on almost any roof.

**Water heaters/Energy storage**

The diverse program of potable water and energy storage for various heat sources includes storage volumes of 70 to 3,000 litres. In order to minimize storage losses, potable water cylinders from 140 to 500 litres are available with highly efficient insulation using vacuum insulation panels.

**Heat pumps** **up to 180 kW (Single device)**

The heat pump range offers solutions for the utilisation of heat from the air, the soil or ground water.
Some systems are also suitable for cooling buildings.

**Geothermal probe drilling**

With its daughter company, BauGrund Süd, Weishaupt also offers geothermal probe and well drilling. With the experience of more than 17,000 systems and more than 3.2 million meters of drilling, BauGrund Süd offers a comprehensive service program.