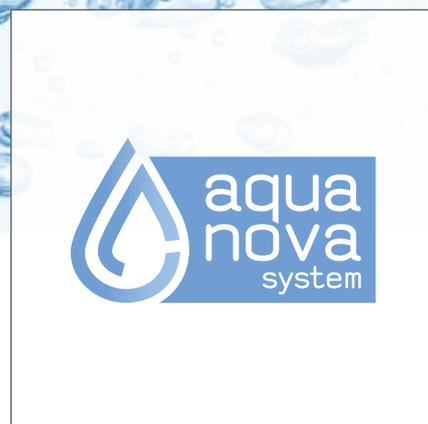


# oventrop

Potable water

“Aquanova-System”  
Distribution and hygiene of potable water



### Content

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### Potable water -the most important product for mankind

Potable water is the most important product for our nutrition. As it is subject to strict directions and controls, each consumer is supplied with high quality water.

However, behind the water meter, stagnant water, old or oversized storage cylinders as well as a badly isolated pipework support the development of noxious pathogenic germs.

#### The user is responsible for the observance of all instructions!

The Potable Water Ordinance attaches great importance to prevention. Settlement and development of micro-organisms have to be prevented by constructive measures during design and realisation of an installation. The specifying engineer and installer must prove and are responsible that the system was installed and put into operation according to approved rules of technology. Valid rules, guidelines and regulations must be adhered to.

### *Bronze* a sign of quality

Valves and controls for potable water installations are subjected to strict directions which are defined in the DIN 1988 standard. The material must not impair the water quality – not even long term. The emission of alloying constituents of bronze is defined in the German Potable Water Ordinance (TrinkwV).

The Oventrop potable water system is made of materials which meet these requirements. Especially bronze is used in many sectors.

Bronze is a material combining many particular characteristics and, amongst others, offers the following advantages:

- hygienically safe
- corrosion resistant
- non-ageing
- temperature resistant
- 100% recyclable

The millennium-old experience renders the use of this material safe which is historically proven.



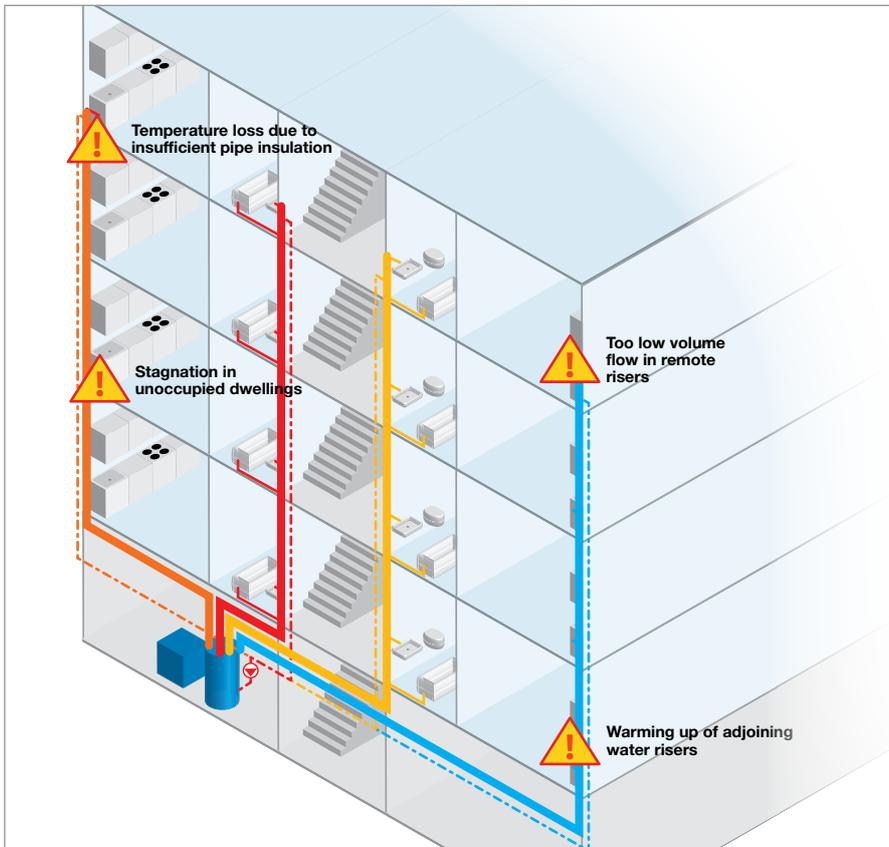
Approvals



Free-flow valves and "KFR" valves "Aquastron" made of bronze



Bronze water well  
Seen at the promenade in Düsseldorf



Potential risks within an unbalanced potable water system

**Potential risks in potable water systems**

The living conditions for harmful micro-organisms must be rendered as hostile as possible and bio films must be avoided in particular. Cell masses of algae, bacteria and fungus together with iron and lime deposits form a bio film on inner pipe walls, in appliances and storage cylinders. Pathogenic germs, as well as the dangerous legionella, may multiply in these bio films. The formation of these bio films is supported by stagnating water and low flow velocities.

Temperatures between 30-45°C (sometimes even lower temperatures) support the development of micro-organisms. An excessive heat loss in the system caused by low flow velocities or an insufficient insulation, dead pipe sections, temperature layers in hot water storage cylinders, cold water which is warmed up by adjoining hot water pipes – all this may support the increase of germs.

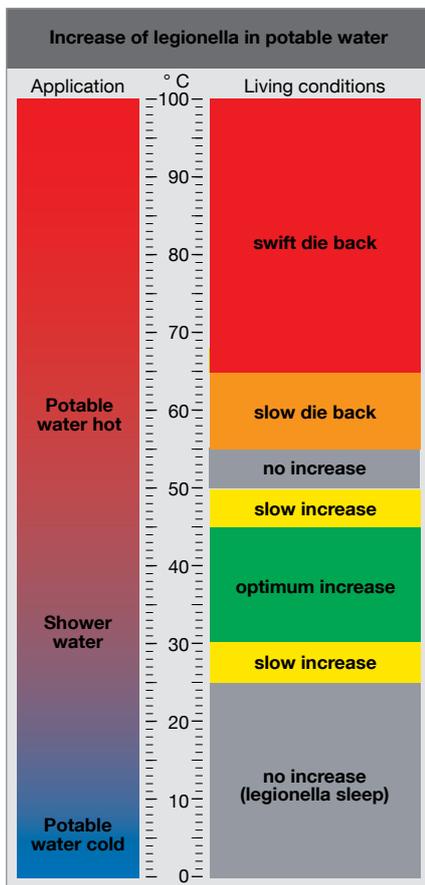
**Design**

During design and construction of potable water installations it must be ensured that

- a sufficient flow in all parts of the system is guaranteed
- the water volume is as low as possible and that the water is exchanged as often as possible
- the hot water temperature does not drop below 57°C at the draw off points, not below 55°C at the end of the circulation pipe and that it does not exceed 25°C in adjoining cold water pipes (pipe insulation, water exchange!)

Design and calculation of a hygienically safe potable water installation according to the approved rules of technology are based on the following standards and directives:

- DIN EN 806-3 (calculation of the inner pipe diameter)
- DIN 1988-300 (dimensioning of the pipework for cold and hot potable water)
- VDI 6023 (hygienically safe design, realisation, operation and maintenance of potable water installations)
- German Potable Water Ordinance (ordinance regarding the quality of water for human consumption)



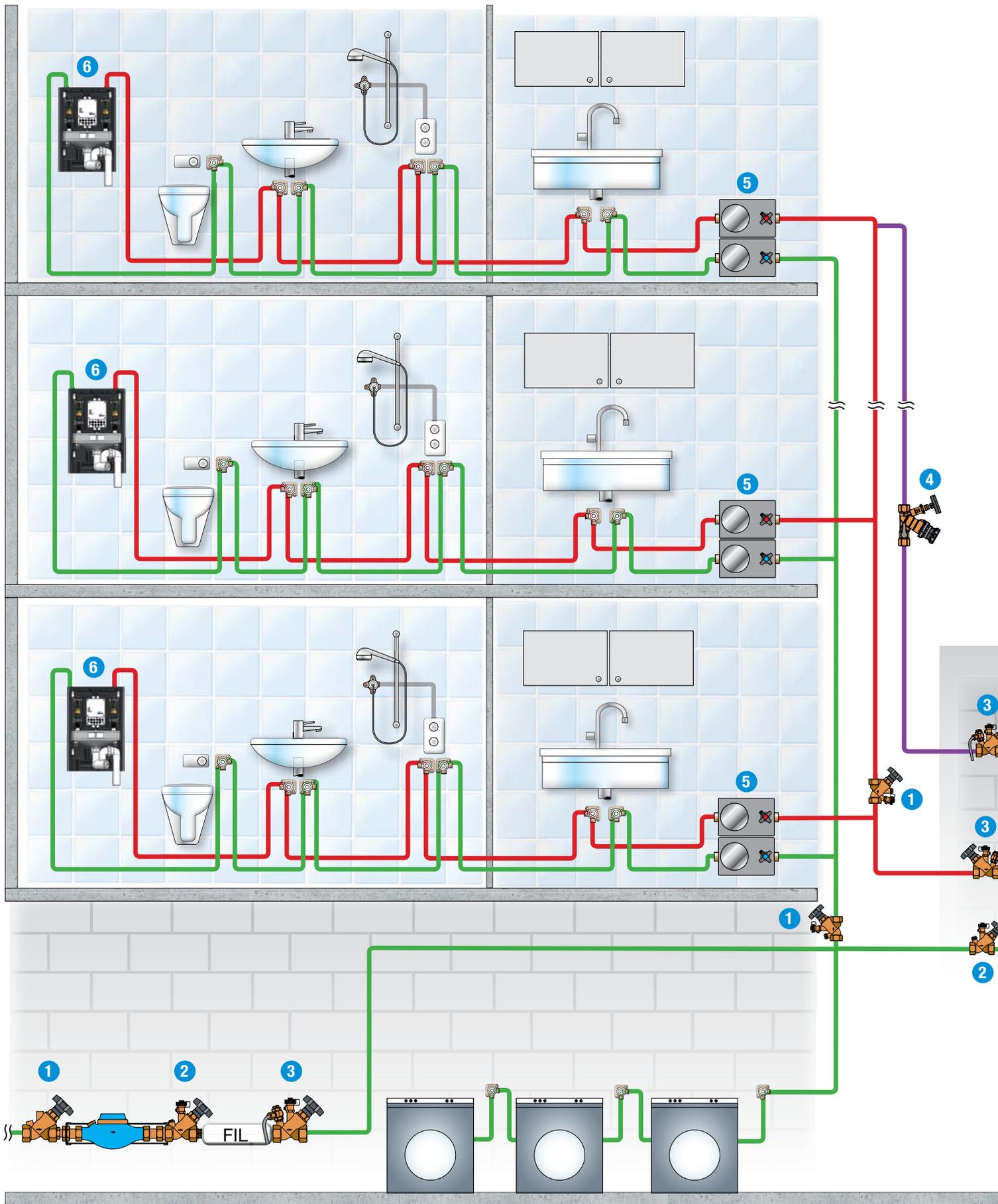
Increase of legionella in potable water



Legionella

**Software**

Oventrop offers the free design software "OVplan" for the calculation of a potable water pipework.



# System illustration

## Multiple dwelling with central hot potable water preparation

- 1 "Aquaström F" Free-flow valve
- 2 "Aquaström KFR" Valve
- 3 "Aquaström F" Free-flow valve + "Aquaström P" Water sampling valve
- 4 "Aquaström VT" Thermostatic valve
- 5 "Aquaström UP-MS Duo" Water meter installation set
- 6 "Regudrain" Flushing station
- 7 "Regumaq X-45" Station for hot potable water preparation
- 8 "Regumaq" Accessory set for return layering
- 9 "Hydrocor HP" Buffer storage cylinder

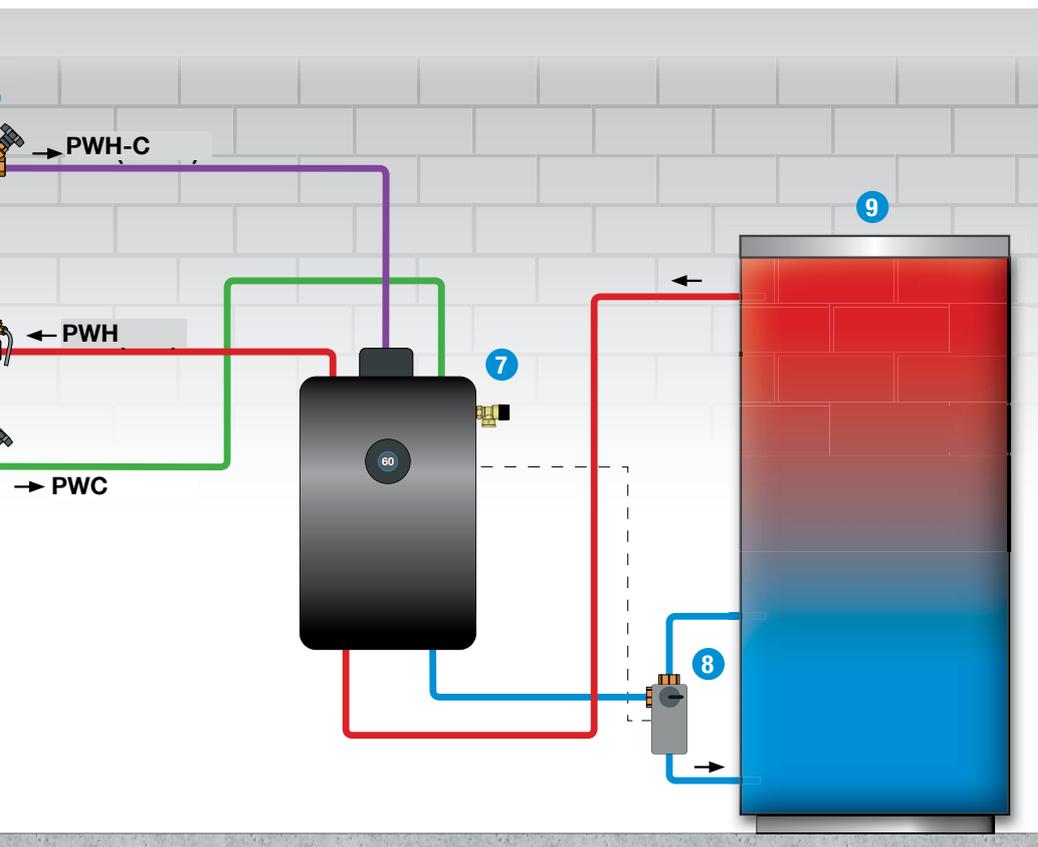
### System for potable water installations

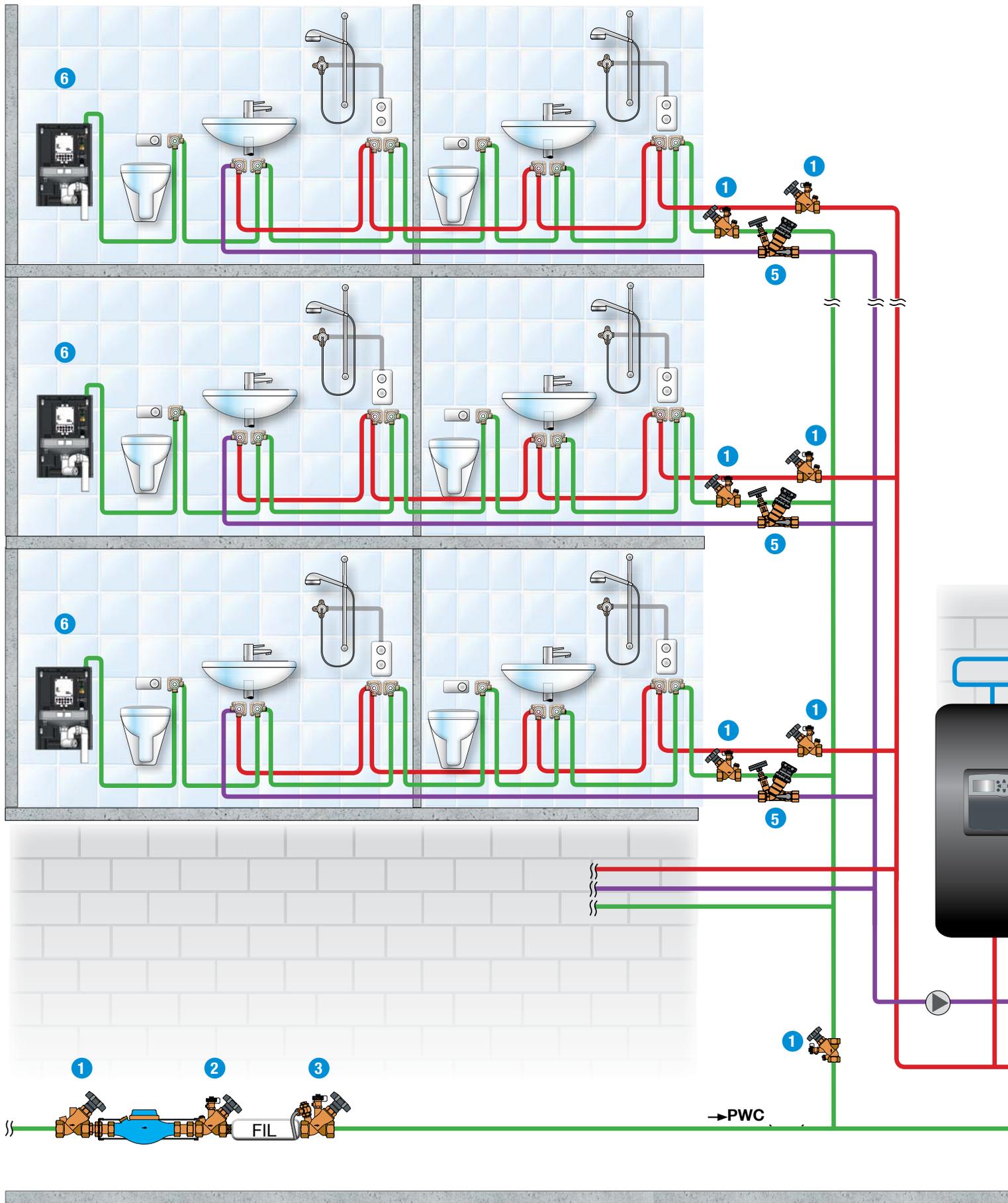
The Oventrop system for potable water installations is a co-ordinated system complying with the valid standards and the German Potable Water Ordinance.

The components of the potable water installation enable a technically perfect hot potable water preparation, an optimum potable water circulation with a correct flow and water sampling at the prescribed points of the potable water installation. Last but not least, the used materials guarantee a hygienically safe potable water quality.

### "Regudrain" Flushing station

The flushing station "Regudrain" prevents a stagnation of hot and cold potable water in pipe sections with insufficient flow, such as terminal pipes which are not connected to the circulation. The same applies for dwellings which are unoccupied for a longer period or bathrooms in the care sector which are not in use. A timed or temperature-dependent automatic flushing cycle can be launched. Programming and a query of the current status can be carried out via the station, the centralised building control system or the Internet. This way, the normal operation of a potable water system is guaranteed.





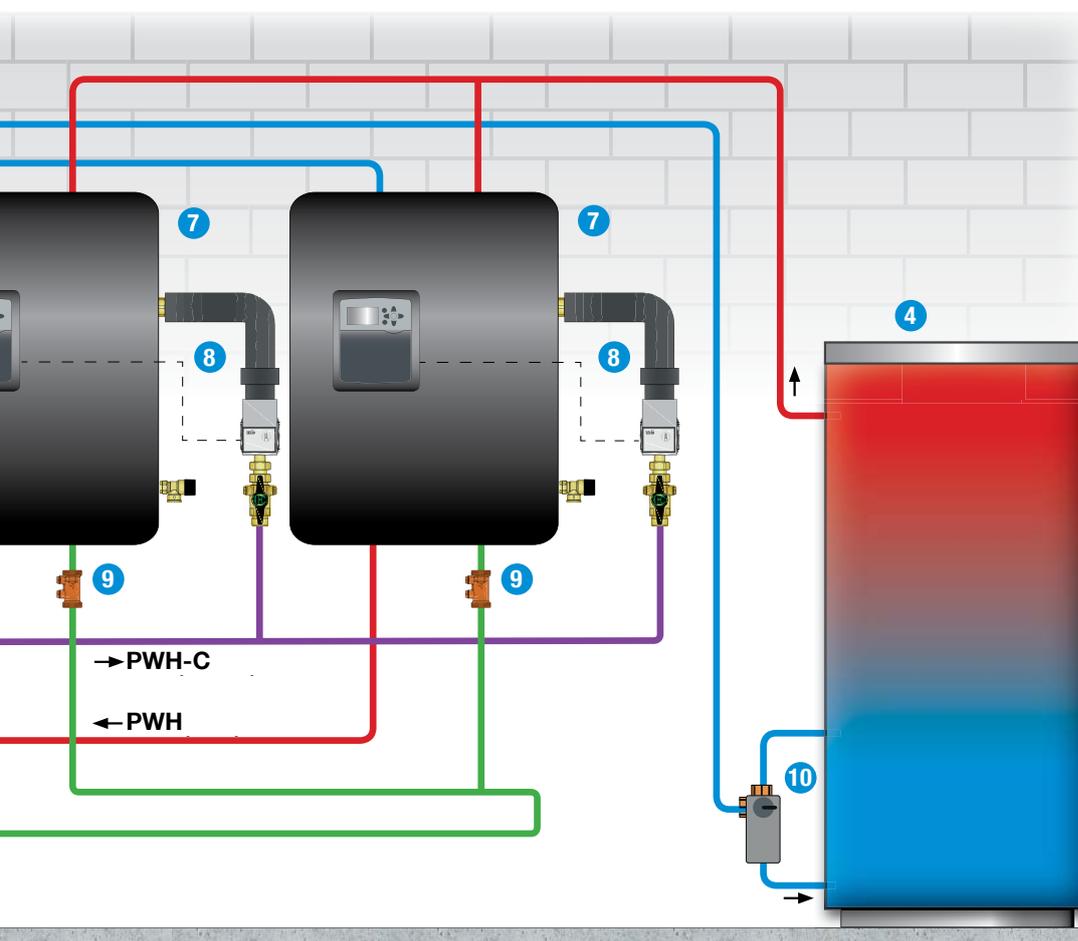
- 1 "Aquaström F" Free-flow valve
- 2 "Aquaström KFR" Valve
- 3 "Aquaström F" Free-flow valve + "Aquaström P" Water sampling valve
- 4 "Hydrocor HP" Buffer storage cylinder
- 5 "Aquaström VT" Thermostatic valve
- 6 "Regudrain Uno" Flushing station
- 7 "Regumaq X-80" Station for hot potable water preparation with electronic controller "Regtronic RQ"
- 8 "Regumaq X-80" Potable water circulation set
- 9 "Aquaström R" Non-return check valve

### Distribution system

The Oventrop distribution system including circulation prevents stagnation in hot water installations. The regulating valves "Aquaström K" serve to prevent stagnation in a cold water pipework. Warming up of the cold water is reduced. Should the cold water temperature exceed the required temperature due to system related factors, the cold water installation may be chilled.

### Hot potable water preparation

The "Regumaq X" stations prepare hot potable water according to the continuous flow principle. The water is only heated when it is needed, i.e. "just in time". A potable water reserve is not necessary and hygienically safe conditions are guaranteed.



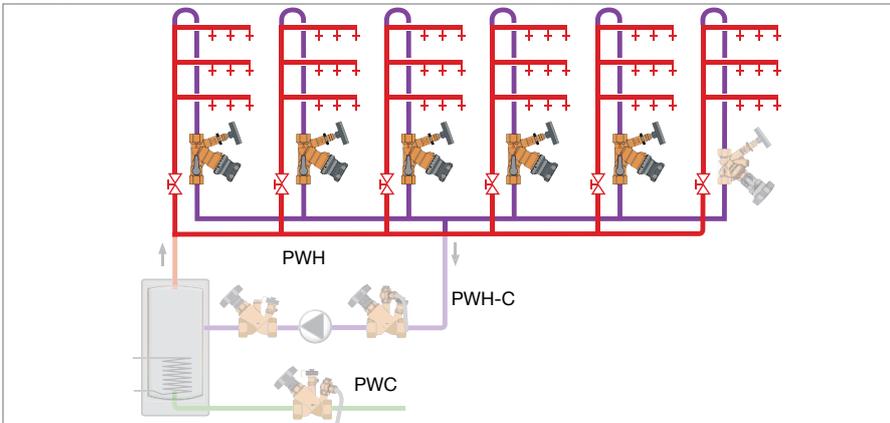
## “Aquastrom VT” Thermostatic valves with adjustable temperature control range and adjustable residual volume flow for circulation pipes



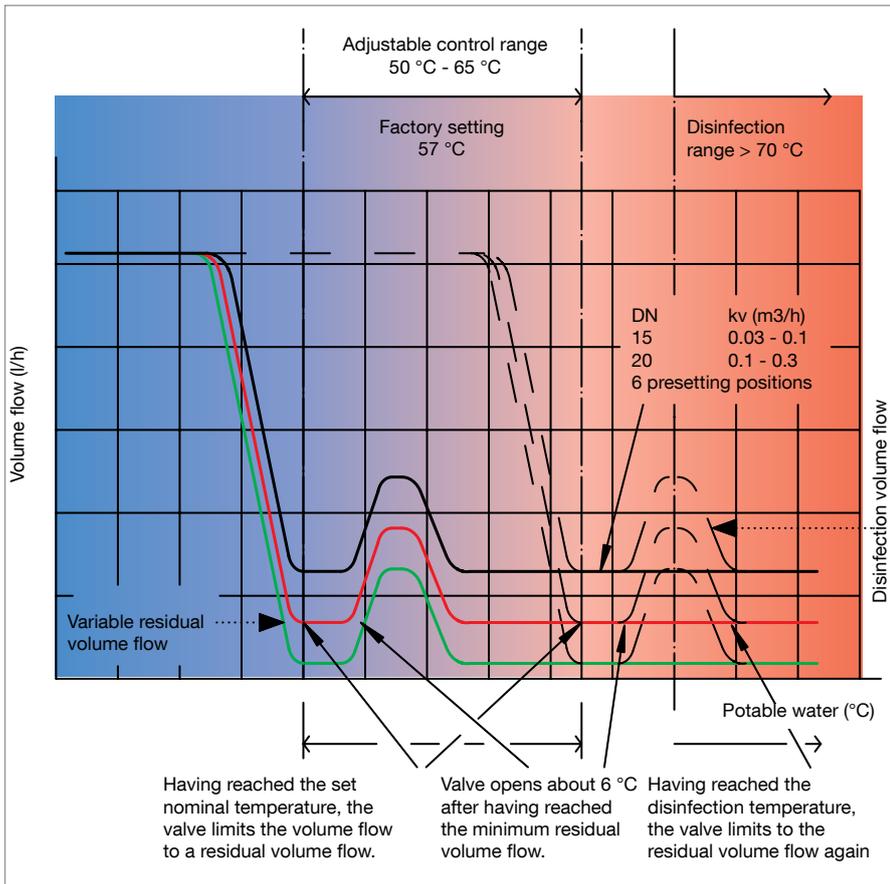
Thermostatic valve “Aquastrom VT”, including insulation



Thermostatic valve “Aquastrom VT” with thermometer



Circulation system with “Aquastrom VT” and “Aquastrom C”



Functional scheme and characteristic lines “Aquastrom VT”

The bronze valve “**Aquastrom VT**” is a **thermostatic and hydronic regulating valve** for presetting of the residual volume flow in potable water circulation pipes according to DVGW work sheets W 551/ W 553.

The valve combines two functions:

### Thermal control:

Max. control range: 50 °C up to 65 °C  
 Recommended control range:  
 55 °C up to 60 °C  
 Control accuracy: ± 1°C

Depending on the detected fluid temperature, the volume flow is adjusted in such a way that a presettable temperature (e.g. 57°C) is maintained at a constant level. Additionally, the valve supports thermal disinfection by a controlled increase or reduction of the residual volume flow.

### Hydronic balancing:

To ensure the required volume flow distribution in the circulation system, a hydronic balancing according to DVGW work sheet W 553 has to be carried out.

To meet the temperature requirements in each riser of the circulation system, the residual volume flow can be set at the “Aquastrom VT” in each circulation riser irrespective of the set temperature. The valve has 6 different presetting positions. The factory setting 6 (DN 15 kv 0.098, DN 20 kv 0.3) complies with the specifications of the test standard W 554.

The “Aquastrom VT” is equipped with an isolating ball valve with back chamber **always filled with water, without dead zone** and a thermometer for the control of the water temperature in the circulation riser. Moreover, the integration into an existing centralised building control system is possible with the help of a sensor element PT 1000 (accessory, item no. 4205592).

The valve is lead lockable and is supplied with insulation shells (fire protection class B1).

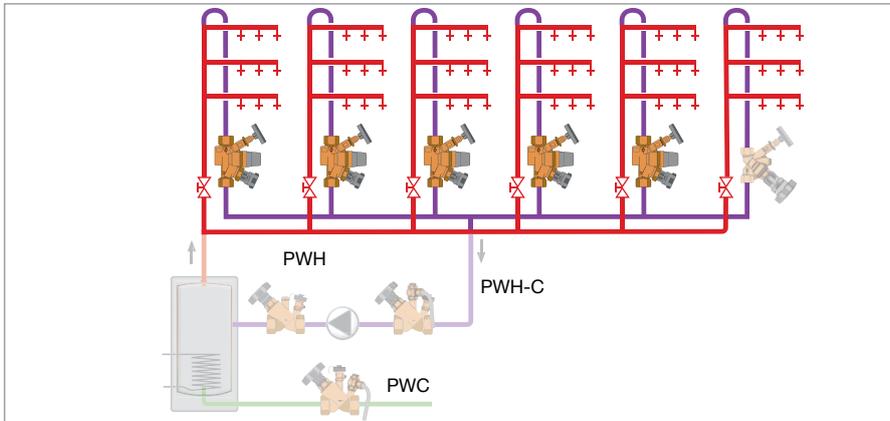
The valve is DVGW, KIWA, SVGW, WRAS, VA and WaterMark certified.



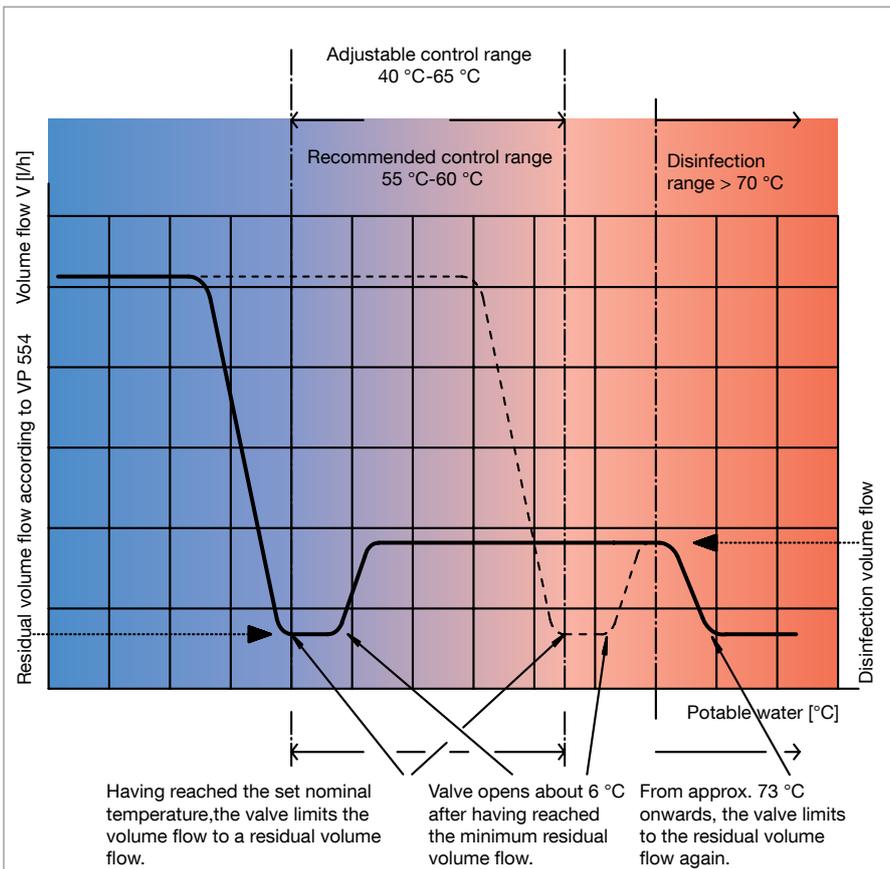
Thermostatic valve “Aquastrom T plus”, including insulation



Thermostatic valve “Aquastrom T plus” with sensor element PT 1000



Circulation system with “Aquastrom T plus” and “Aquastrom C”



Characteristic lines of temperature setting

The **thermostatic valve “Aquastrom T plus”** is preset at works to 57 °C and can in most cases be operated without any additional settings. Different circulation temperatures may, if necessary, be set within a control range of 40 °C to 65 °C.

### Thermal disinfection (anti-legionella function)

In general, thermal disinfection is initiated by raising the temperature of the potable water to above 70 °C within the complete system. At approximately 6 °C above the temperature set at the “Aquastrom T plus”, the residual volume flow is increased to the disinfection volume flow. When exceeding a temperature of approx. 73 °C, the volume flow is throttled again to the residual volume flow.

This way, the hydronic balance is also maintained during the disinfection phase.

The preset value may even be read off with the lockshield cap mounted.

### Limitation of the volume flow / riser regulation

The thermostatic valve “Aquastrom T plus” works automatically. The maximum flow can be limited with the help of a double regulating and commissioning valve in the last riser. The limit stop of the presetting is kept even if the double regulating and commissioning valve is closed for maintenance work. After having removed the thermometer, the isolated riser can easily be drained using the integrated drain valve with hose connection.

### Models:

The bronze thermostatic valve “Aquastrom T plus” for circulation pipes is available in size DN 15/DN 20/DN 25 with female or flat sealing male threaded connection on both ports and with press connections (Ø 15, 18, 22 and 28 mm) on both ports. The valve without dead zone complies to DVGW W 554.

- Fire protection class B1
- Thermal conductivity = 0.04 W/m.K
- Max. temperature: 90 °C

The valve is DVGW, KIWA, SVGW, WRAS, ACS and VA certified.



Double regulating and commissioning valve “Aquaström C” with female and male thread

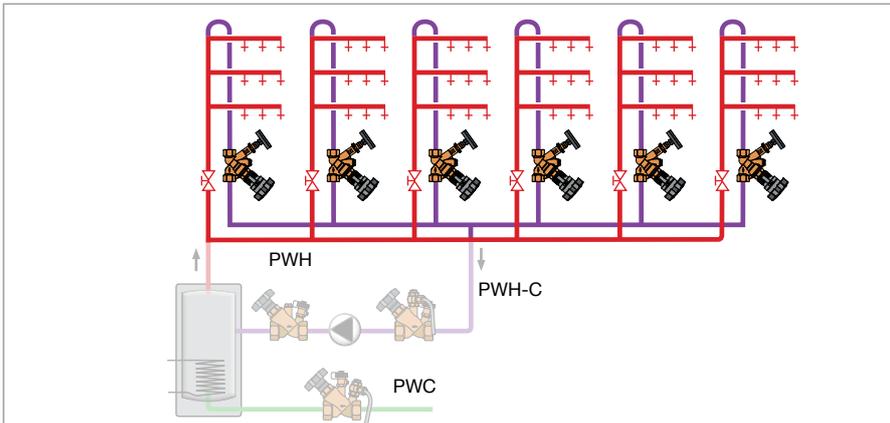
The **double regulating and commissioning valve “Aquaström C”** is installed in the circulation pipes of potable water systems and serves to achieve a hydronic balance between the various circuits of the system. The volume flows to be set at the “Aquaström C” result from the calculation according to the DVGW sheet 553. The balance is achieved by a presetting with memory lock.

The valve body is made of bronze, the stem and the disc are made of brass resistant to dezincification (DZR).

Pressure range PN 16, for potable water up to 90 °C.

**Advantages:**

- precise setting even of very low volume flows
- simple installation and easy operation
- only one valve for five functions:
  1. presetting
  2. isolation
  3. temperature display (20–100°C)
  4. draining
  5. measuring (pressure test points see accessories)
- without dead zone
- DVGW, SVGW, KIWA, ACS, VA and WaterMark certified including insulation



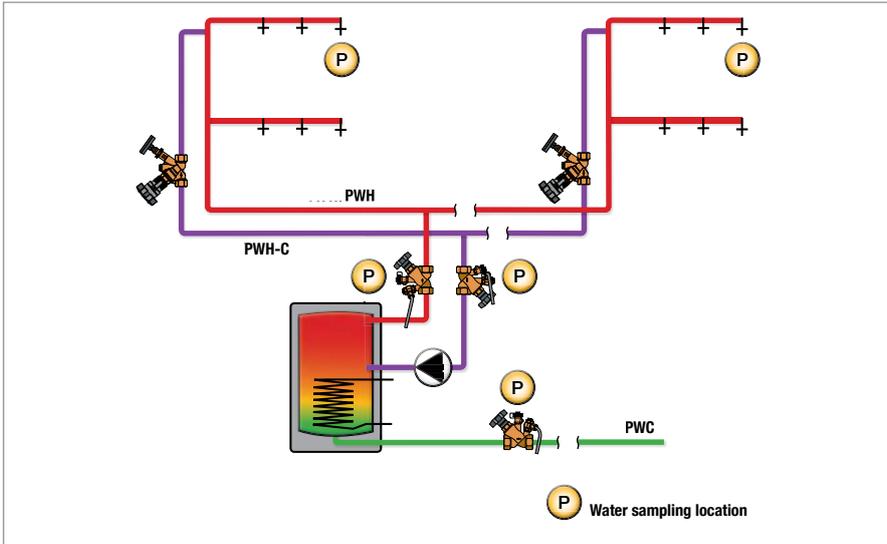
Circulation system hydronically balanced with the help of double regulating and commissioning valves “Aquaström C”



Double regulating and commissioning valve “Aquaström C” including insulation



Installation example



Water sampling points “Aquastrom P”



Water sampling valve “Aquastrom P”



Water sampling valve “Aquastrom P” for the connection to a wash basin angle valve



“Aquastrom KFR” valve with “Aquastrom P”



Double regulating and commissioning valve “Aquastrom “ with “Aquastrom P”

**Implementation of the German Potable Water Ordinance**

The German Potable Water Ordinance includes the obligation to examine the potable water for legionella. The operator of a public potable water installation or a large commercial installation in which aerosol develops (development of vapour) has to have the installation inspected at regular intervals (§ 14, paragraph 3). Almost all rented flats in multiple dwellings are subject to this inspection duty.

According to the DVGW work sheet W 551, large installations are defined as follows:

- Installations with a hot water storage cylinder content of more than 400 litres and/or
- Installations with a pipework content of more than 3 litres from the hot water preparation to the draw off point

The German Potable Water Ordinance refers to the DVGW work sheet W 551 which prescribes the following sampling points for an initial examination:

- one sampling point at the exit of the hot water preparation
- one sampling point at the re-entry of the circulation pipe
- one sampling point at the end of each riser (e.g. tap at the hand wash basin)
- as an option, an additional sampling point should be installed at the cold water entry point of the building

Oventrop offers the water sampling valve “Aquastrom P” to examine the potable water for germs and bacteria. The valve is flame-resistant and can thus be disinfected. All Oventrop free-flow, KFR and FR valves as well as ball valves and double regulating and commissioning valves for potable water can be equipped with water sampling valves.



Free-flow, FR and KFR valves “Aquastrom”

The **free-flow, FR and KFR valves “Aquastrom”** are used in potable water installations according to DIN 1988.

The free-flow valve F serves to isolate water pipes.

The FR valve is additionally equipped with a non-return check valve with a low opening pressure. These valves which open if a pressure of 10 mbar is exceeded, are especially suitable for use in circulation systems to prevent gravity circulation.

The KFR valve features a bonnet with integrated non-return function. The flow-supporting model is especially silent (sound absorbing as per DIN EN ISO 3822 standard, product group I).

All functional components are located on the handwheel side. As a result, the installed valves are easily accessible and allow an easy operation.

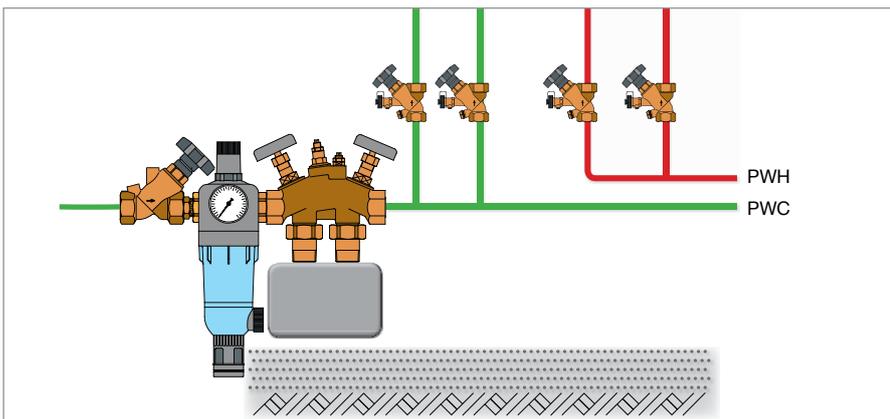
The used materials are recyclable. Bronze can be melted down and be re-manufactured. The composition of the plastic (polyamide) is indicated on the inside of the handwheel

Award:

design  
preis  
SCHWEIZ Design Award Switzerland



Installation example



System illustration



**Advantages:**

- easy operation due to the location of the test and draining orifice on the handwheel side
- valve and couplings made of corrosion-resistant bronze
- DVGW certified
- maintenance-free stem seal
- non-rising stem (on size DN 25 and above)
- size DN 65 and above: stroke index integrated in the handwheel, i.e. good optical display of the valve position if pipe guiding is unfavourable
- low height
- FR valves with low opening pressure ( $P_{open} \geq 10 \text{ mbar}$ )
- bonnet can subsequently be replaced, conversion of KFR valve to free-flow valve and vice versa is possible
- valves very silent in operation, sound insulation tested
- suitable up to PN 16



Non-return check valve “Aquaström R”



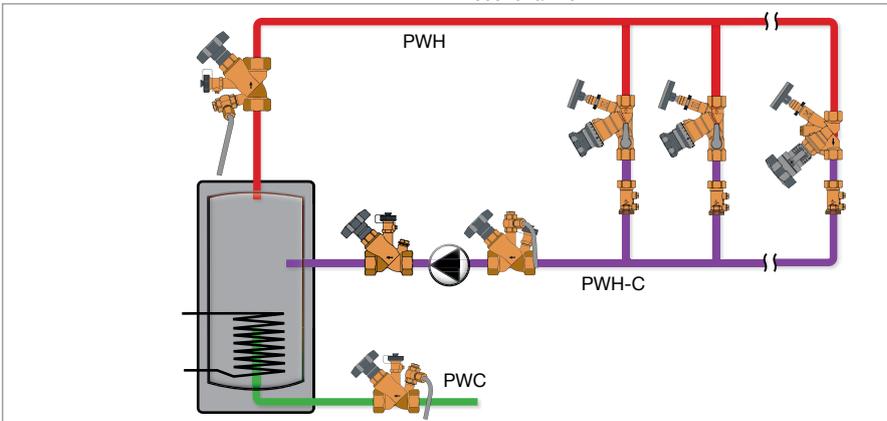
Non-return check valve “Aquaström R”,  
sectional view

Due to the low opening pressure ( $P_{open} \geq 10 \text{ mbar}$ ), the **bronze non-return check valves “Aquaström R”** with test orifices (according to DIN EN 13959) are also suitable for circulation pipes. They do not feature a dead zone. The valves are SVGW and DVGW certified.

The bronze ball valves for potable water “Optibal TW” with full flow (DN 15 - DN 80) comply with the DIN EN 13828 standard. They are equipped with plugged draining orifices on both sides. As the back chamber is always filled with water, it does not feature a dead zone.

For the direct connection of copper pipes according to EN1057 and stainless steel pipes “NiroSan”. The valve is also available with press connections on both sides.

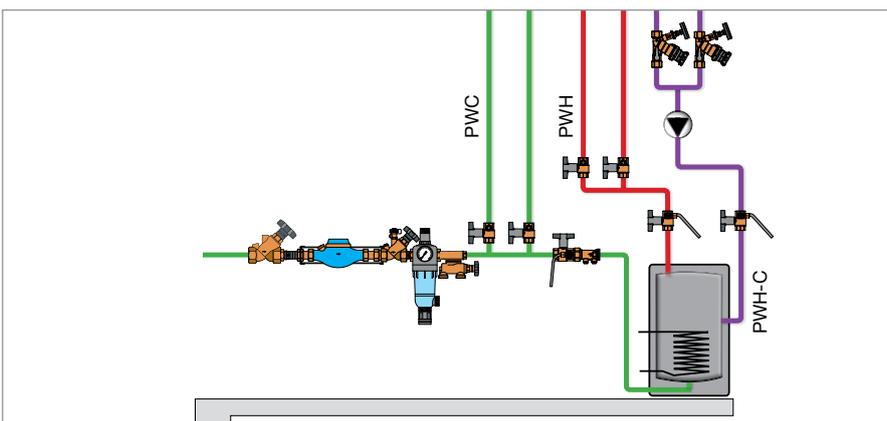
DVGW, GDV and VA certified.



System illustration



Ball valves for potable water “Optibal TW”



System illustration

## “Aquaström UP-F/UP-KFR” Flush-mounted valves “Aquaström UP-Therm” Flush-mounted circulation valves “Aquaström UP-MS” Water meter installation sets



Flush-mounted valves “Aquaström UP”

### The flush-mounted valves

“Aquaström UP” are used in potable water installations. The valves are suitable for multi-storey installation in cold, hot and circulation pipes for

- isolation
- protection with integrated non-return function
- regulation

### Models:

- “Aquaström UP-F”  
Flush-mounted free-flow valves
- “Aquaström UP-KFR”  
Flush mounted KFR valves
- “Aquaström UP-Therm”  
Flush-mounted circulation valves
- “Aquaström UP-MS”  
Water meter installation sets

Coloured marking of the bonnets:

- red: hot water
- green: cold water
- violet: hot water circulation

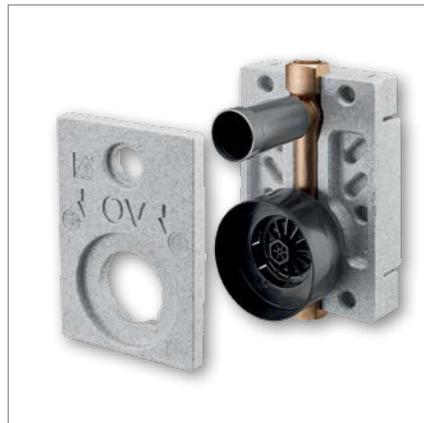
Due to their modular construction, the valves can be used for intermediate ceiling installation or under plaster. Front-wall installation is possible with the help of a mounting set which is available as accessory.

The Oventrop flush-mounted valves distinguish themselves by their valve body for universal application. Interchangeable valve inserts allow for an easy conversion of free-flow valves to KFR or circulation valves.

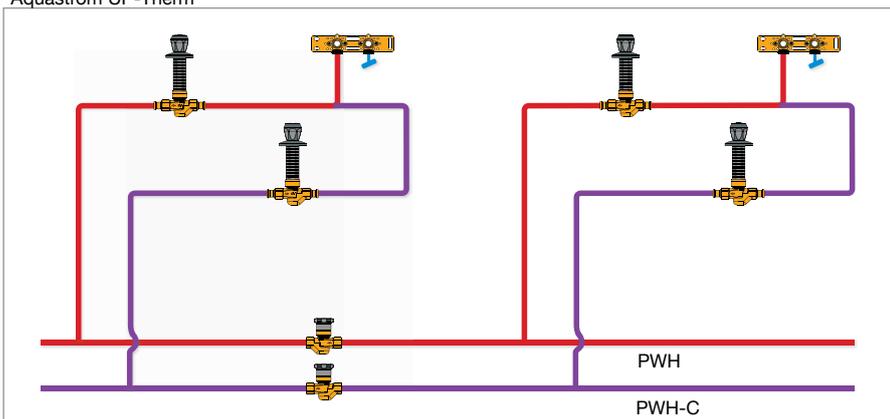
The flush-mounted valves are available with a chrome-plated standard handwheel or with a lockshield bonnet for use in public buildings. The chrome-plated protection cap prevents tampering. The valve can only be set with the help of a socket spanner (size 6) included in the delivery.



Flush-mounted circulation valve “Aquaström UP-Therm”



Water meter installation set “Aquaström UP-MS”



System illustration flush-mounted valves “Aquaström”

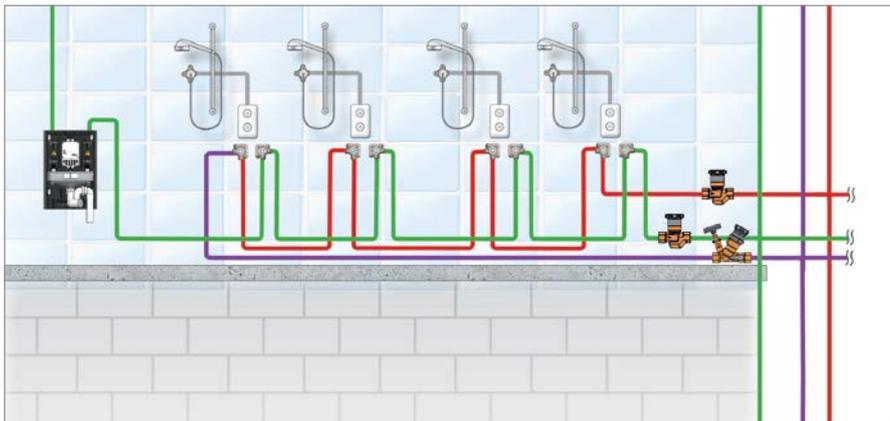
### Advantages:

- all components in contact with the fluid are made of bronze
- without dead zone
- non-rising stem
- the low hysteresis of the circulation modules induces a high sensitivity to temperature changes
- circulation module with isolating facility
- suitable up to PN 16
- “Aquaström UP-F” DVGW certified (DN 15 and DN 20); “Aquaström UP-Therm” DVGW and WRAS certified





Flushing station “Regudrain Duo”



System illustration

The Oventrop **flushing station “Regudrain”** serves the maintenance of normal operation in potable water systems, for instance during interruptions of use. The station is installed at the end of the riser or in ring installations.

Electronic control is carried out via the controller “Regtronic HS” for valve control. Individual programming via tablet, smartphone or PC. The station features a LAN port for the integration into the centralised building control system. Tamper-proof data recording (documentation function).

Exact setting of the flushing capacity via the integrated flow sensor.

DVGW certified according to W 540 and SVGW certified.

Application:

Potable water installations PN 10

Max. water temperature 90 °C

### Models:

- “Regudrain Duo” for the protection of two risers in a potable water installation
- “Regudrain Uno” as “Regudrain Duo” but for the protection of one riser (PWC or PWH) in a potable water installation

### Advantages

- pre-assembled and leak tested unit including insulation
- integrated controller “Regtronic HS” for flushing interval programming
- LAN and WLAN connection
- programming of flushing processes according to time, volume flow and temperature
- DVGW certified according to W 540 and SVGW certified





“Regumaq X-45”



“Regumaq X-25”

The stations for hot potable water preparation “Regumaq X-25” and “Regumaq X-45” feature a uniform and simple operating concept.

The “Regumaq X-25” is especially designed for detached houses and allows for an easy on-the-spot setting of the required system parameters with the help of DIP switches.

The “Regumaq X-45” features an intuitive touch display made of glass for the setting of numerous additional functions. A flashing colour ring calls for the operation by a qualified installer (expert mode).

The hydraulically optimised pipe guiding and a high-performance plate heat exchanger allow for very high discharge capacities. Furthermore, the discharge capacities and excess temperatures can be individually adapted to the system parameters. This way, a positive energy balance is achieved especially in low temperature systems, such as heat pump systems.

A quick-reacting and precise temperature control guaranteeing a high degree of comfort is achieved by the pump communication via Lin bus combined with a highly sensitive flow turbine.

The **heat exchanger** with optional innovative self-cleaning Sealix® protective layer provides additional safety at installation locations with critical water conditions and offers maximum reliability during hot potable water preparation.

A separate fixing plate allows for the installation of the station by one person.

Award for the “Regumaq X-45”:

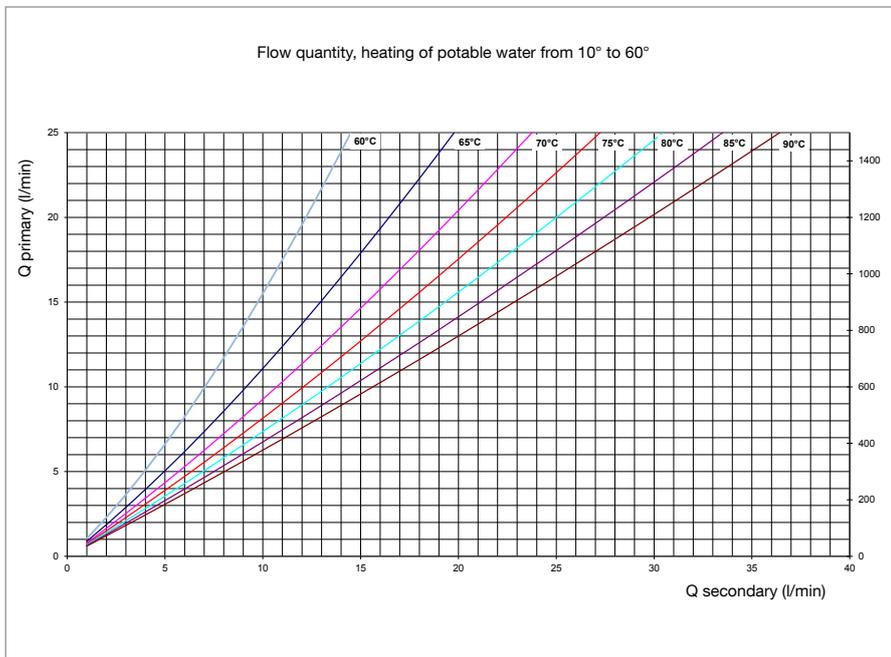
## DESIGN PLUS

powered by: **ISH**

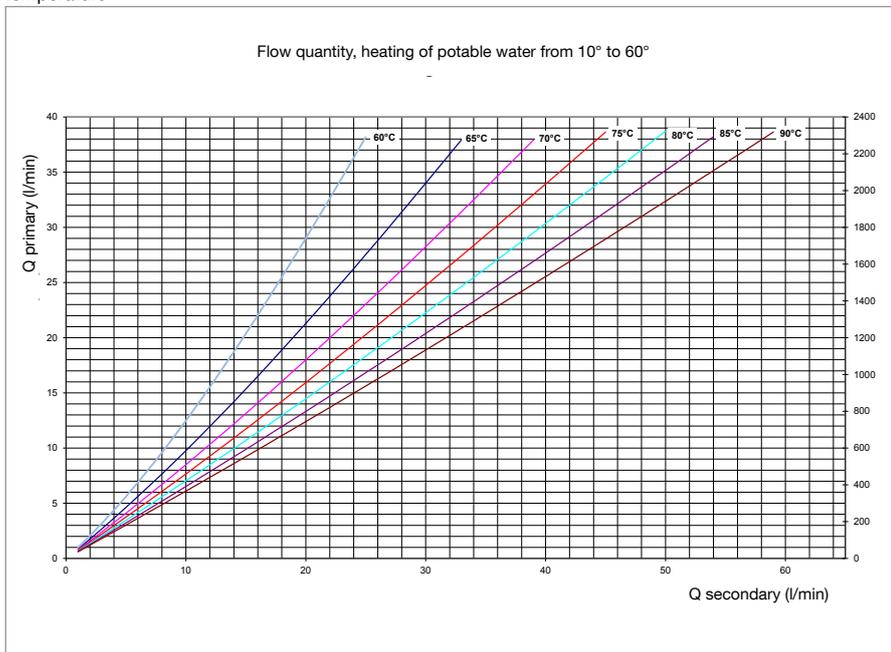
### Advantages

#### “Regumaq X-25/X-45

- compact and high-performing
- intuitive operation
- discharge capacity up to 50 l/min.
- low excess temperature 5K
- suitable for low temperature systems
- installation by one person

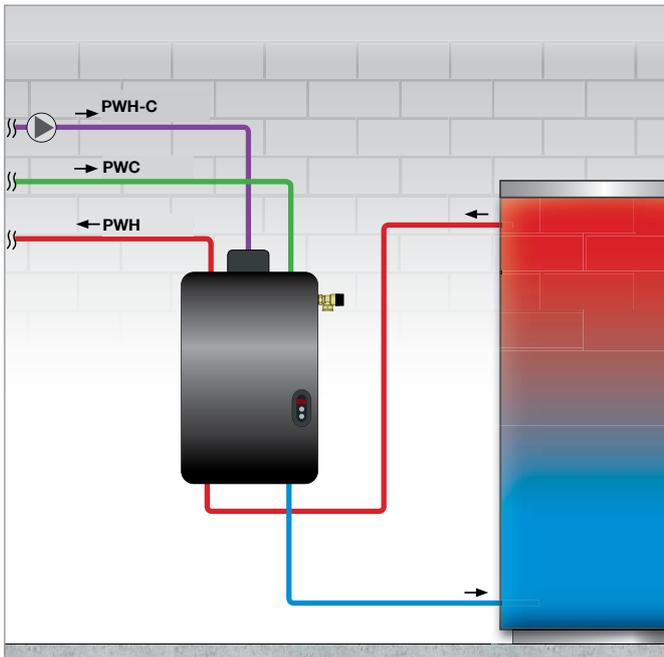


Draw off capacities (Q secondary) of the “Regumaq X-25” station depending on the buffer storage cylinder temperature

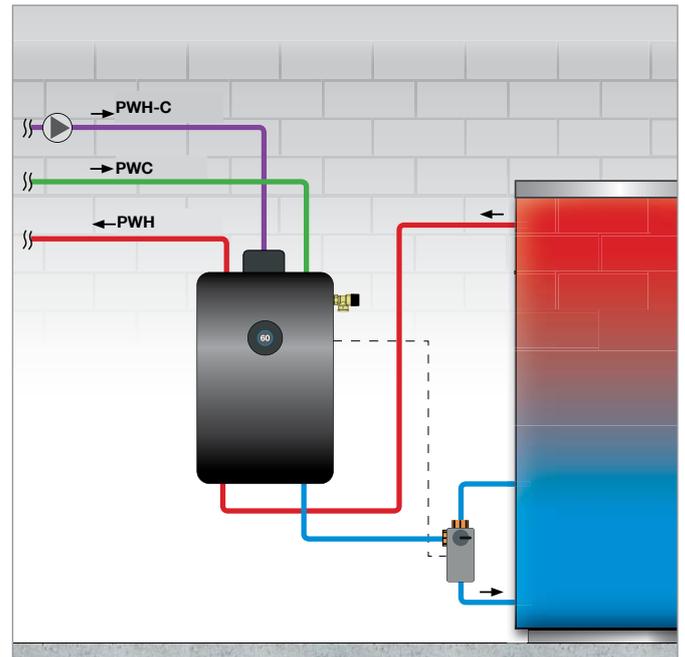


Draw off capacities (Q secondary) of the “Regumaq X-45” station depending on the buffer storage cylinder temperature

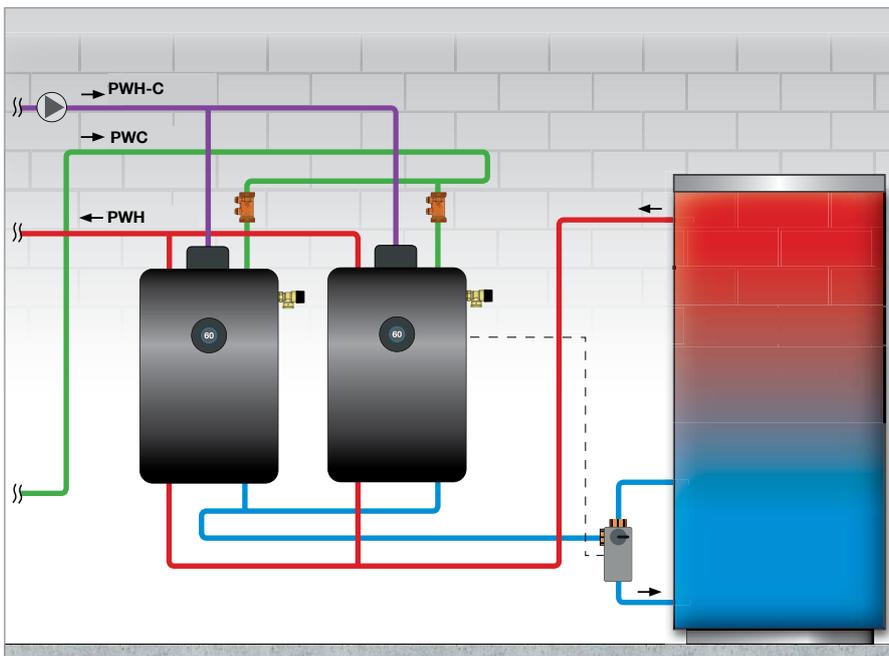
# “Regumaq X-25/X-45” Stations for hot potable water preparation



System illustration “Regumaq X-25”



System illustration “Regumaq X-45”



Cascade connection “Regumaq X-45”

## Cascade connection

Higher discharge capacities can be achieved by a cascade connection of the stations according to the Tichelman (reverse return) system. Operating safety of the installation is also increased.

To ensure potable water hygiene, the optional **potable water circulation set with or without high-efficiency pump** allows for the installation of a hot potable water circulation even where space is limited. Different operating modes can be set quickly with the help of the new operating concept.



Station with circulation

“Regumaq X-45”	Item no.
with copper brazed heat exchanger	1381140
fully sealed with Sealix®	1381142
“Regumaq X-25”	
with copper brazed heat exchanger	1381125
fully sealed with Sealix®	1381127
Potable water circulation set	
with high-efficiency pump	1381150
without pump	1381152



Station for hot potable water preparation “Regumaq X-80” with electronic controller “Regtronic RQ”

The station “Regumaq X-80” is an electronically controlled product assembly with heat exchanger for the hygienic heating of potable water on the flow principle. The potable water is only heated when it is needed, i.e. “just in time”. A potable water reserve is thus not necessary.

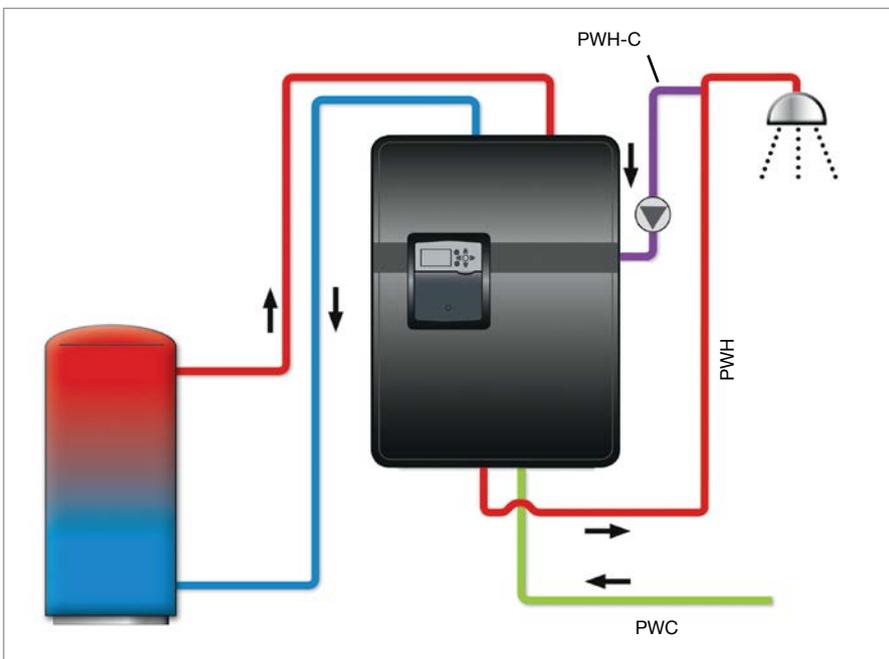
This product assembly allows for an optimum realization of regenerative pipework concepts and is especially suitable for semi-detached houses, hotels, hospitals, nursing homes and sports facilities. It is connected to buffer storage cylinders which are heated up by solar energy, solid fuels, oil or gas.

Depending on the temperature and the volume flow on the potable water side (secondary circuit), the circulation pump on the buffer side (primary circuit) is speed regulated.

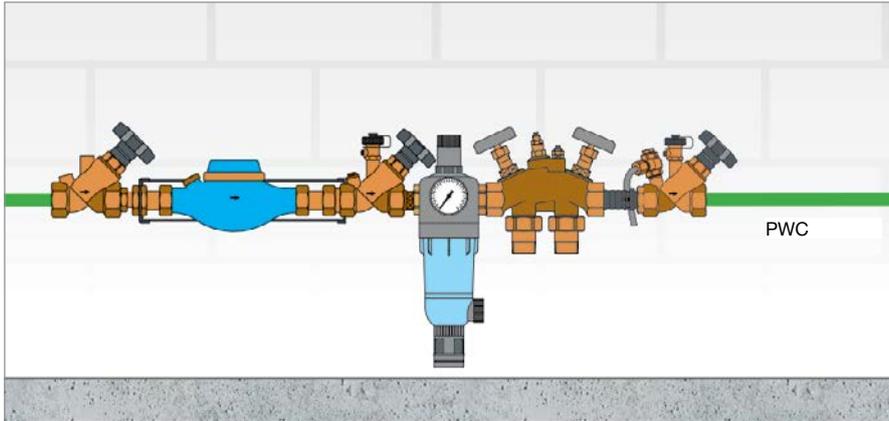
Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved.

The components of the heat exchanger system have flat sealing connections, are pre-assembled on a mounting board and leak tested.

The controller features a data bus (S-bus) for the connection to the data logger “CS-BS”.



System illustration



System illustration



Water filter “Aquanova Compact”



Water filter “Aquanova Magnum”



Domestic water station

On its way from the waterworks to the consumer, the potable water may be polluted by dirt particles which could lead to malfunctions of valves, shower heads, dishwashers, water heaters etc. as well as corrosion within domestic installations.

The Oventrop **water filters** “**Aquanova**” secure the potable water quality according to DIN 1988 and possible malfunctions within the domestic installation are avoided.

The Oventrop water filters “Aquanova” are equipped with a replaceable filter insert. The used materials are hygienically safe and comply with the German Potable Water Ordinance.

The filters “**Aquanova Compact**” and “**Aquanova Magnum**” without dead zone are DVGW and ACS certified.

Models:

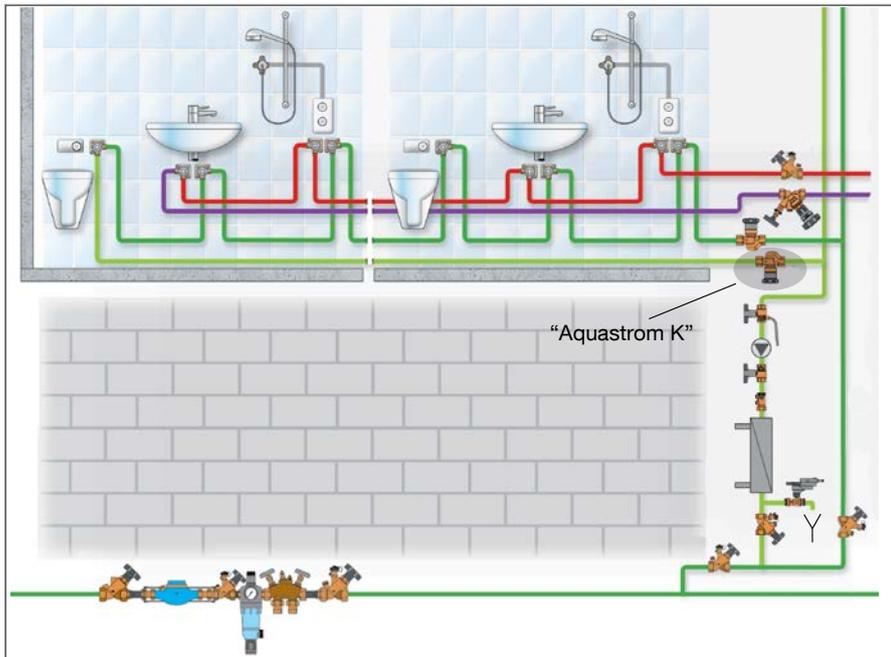
- Water filter “Aquanova Compact” with female threads or male threaded tailpipes
- Water filter “Aquanova Magnum” with female threads or male threaded tailpipes

Awards for “Aquanova Compact”

**ISH** “Design Plus”  
ISH Frankfurt  
Design Award Switzerland

The **domestic water station** features a backflush filter, a pressure reducer, a pressure gauge and a male threaded connection. It is suitable for vertical and horizontal installation. Cleaning is carried out by backflushing the filter insert.

The station is DVGW certified.



System illustration



Thermostatic cold water regulating valve  
"Aquaström K"

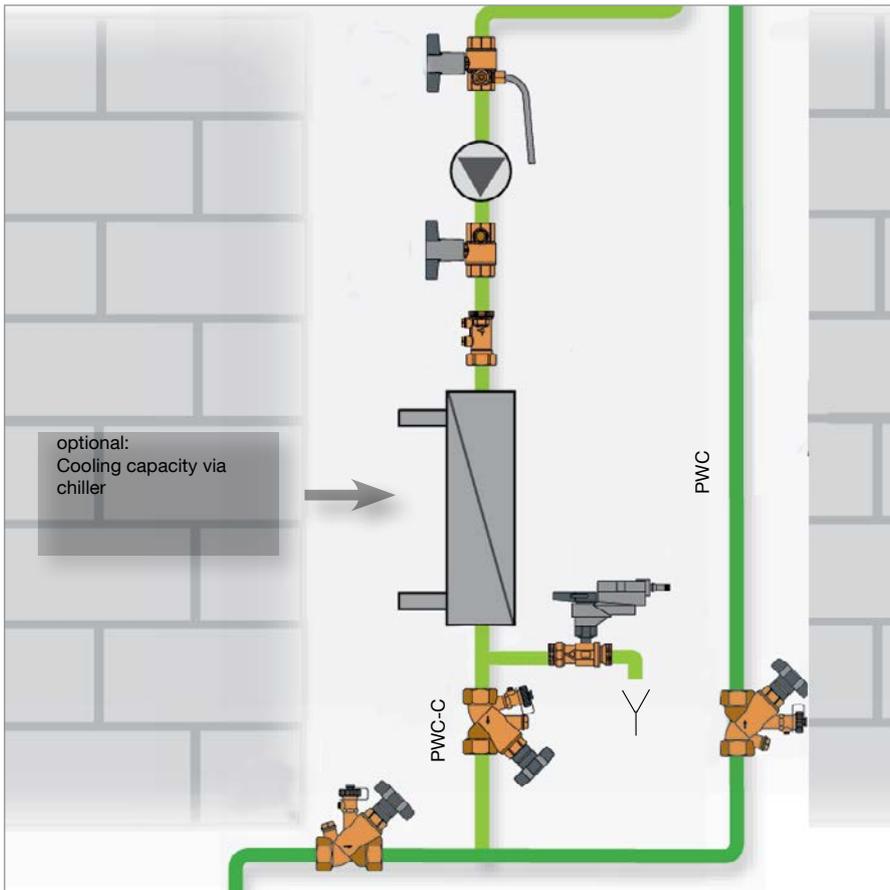
The **thermostatic cold water regulating valve "Aquaström K"** for thermal balancing of cold water circulation pipes features an isolating facility. If the valve is open, a minimum flow is guaranteed. If the set temperature is exceeded, the valve opens up to a larger flow rate. Using the accessories of the "Aquaström UP" product range, the valve can also be used for flush-mounting installation or in dry-build systems (kv min = 0.05).

A circulation of cold water contributes to hygiene in the system. Stagnation is avoided and the warming up of water is reduced, the required maximum temperature of 25°C might be maintained by circulation only. If required, further measures (like cooling or flushing) can be taken. In general, the cold potable water is not warmed up in the cellar and only slightly in floor levels as the ambient temperature at these locations lies below the required temperature of 25°C (cellar 15°C, storey 21°C). Cold water is warmed up in the technical centre (temperatures up to 30°C) and in the riser shaft where the cold water pipe is often laid next to heating, hot water and circulation pipes (temperatures of more than 30°C). Stagnating water warms up within a few hours, even if the insulation complies with the standards.

A cold water circulation prevents warming up of partitions. The energy produced during warming up spreads into the complete system. Each time water is drawn off somewhere in the system, cold water is supplied to the system again which is not only of benefit to parts of the system but to the complete installation. In cellar pipes, heat is emitted again by the water.

With low consumption, the cold circulation water might have to be chilled. The system is flushed if not used (according to VDI 6023 for more than 3 days). Depending on the conditions in the system, the potable water hygiene is guaranteed by combining 2 or 3 measures:

- Circulation
- Cooling
- Flushing



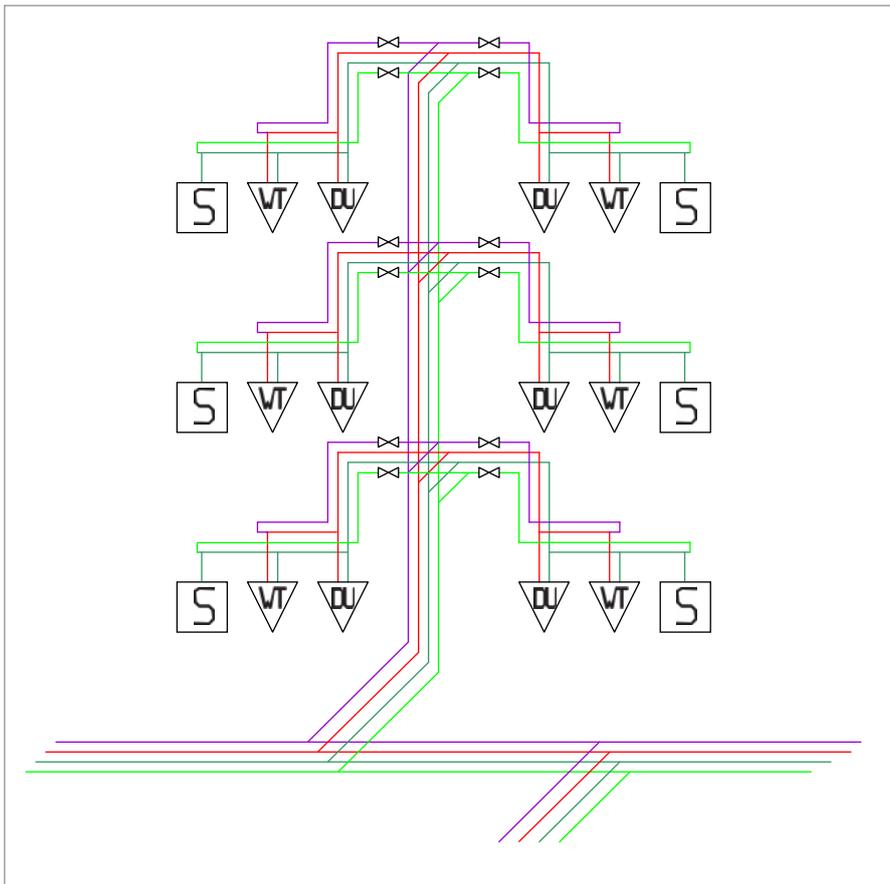
System illustration

### Cooling

If the cold water reaches the maximum permissible temperature, it is cooled down with the help of a chiller and a heat exchanger. As the temperature difference between the fluid and the surroundings is much lower in cold water systems than in hot water systems, less energy is required for cooling.

### Flushing

A cold water system with circulation can be flushed quite easily. Depending on the pipe lengths, the fresh water which is added to the system distributes quite evenly. Flushing (primary flushing operation) is carried out at a central location (not at each riser) of the circulation system. The valves have to be flushed, too (secondary flushing operation). In housing construction (circulation does not reach the storey), the individual dwelling has to be flushed when it is unoccupied as it is quite unlikely that the complete building is unoccupied.



Example of the application

### Example of the application:

Installation of a potable water system with cold water circulation in a retirement home with 60 rooms. If required, the circulating cold water is cooled down via a chiller with heat exchanger. A cold water circulation valve "Aquastrom K" is installed at the entry of each system. The pipework is insulated according to DIN 1988-200. The cooling capacity is only needed temporarily as the temperature is maintained at the required level by the normal drain off operations. Essentially, cooling is only carried out overnight. In this pipework with a cold water and circulation pipe of 1500 m, an average cooling capacity of 1 Watt per pipe meter is required. The required cooling capacity thus amounts to 1.5 kW. The required cooling energy amounts to about 9 kWh per day.

- Legend:
- PWH
  - PWH-C
  - PWC
  - PWC-C



Control unit DDC "CW-BS"



Circulation regulating valve "Aquaström DT"

The **control unit DDC "CW-BS"** is a bus based system for automatic balancing and thermal disinfection in potable water circulation systems according to DVGW work sheets W 551 and W 553. The regulating valves "Aquaström DT" with electromotive actuators are connected to the C-bus via the bus application field modules.

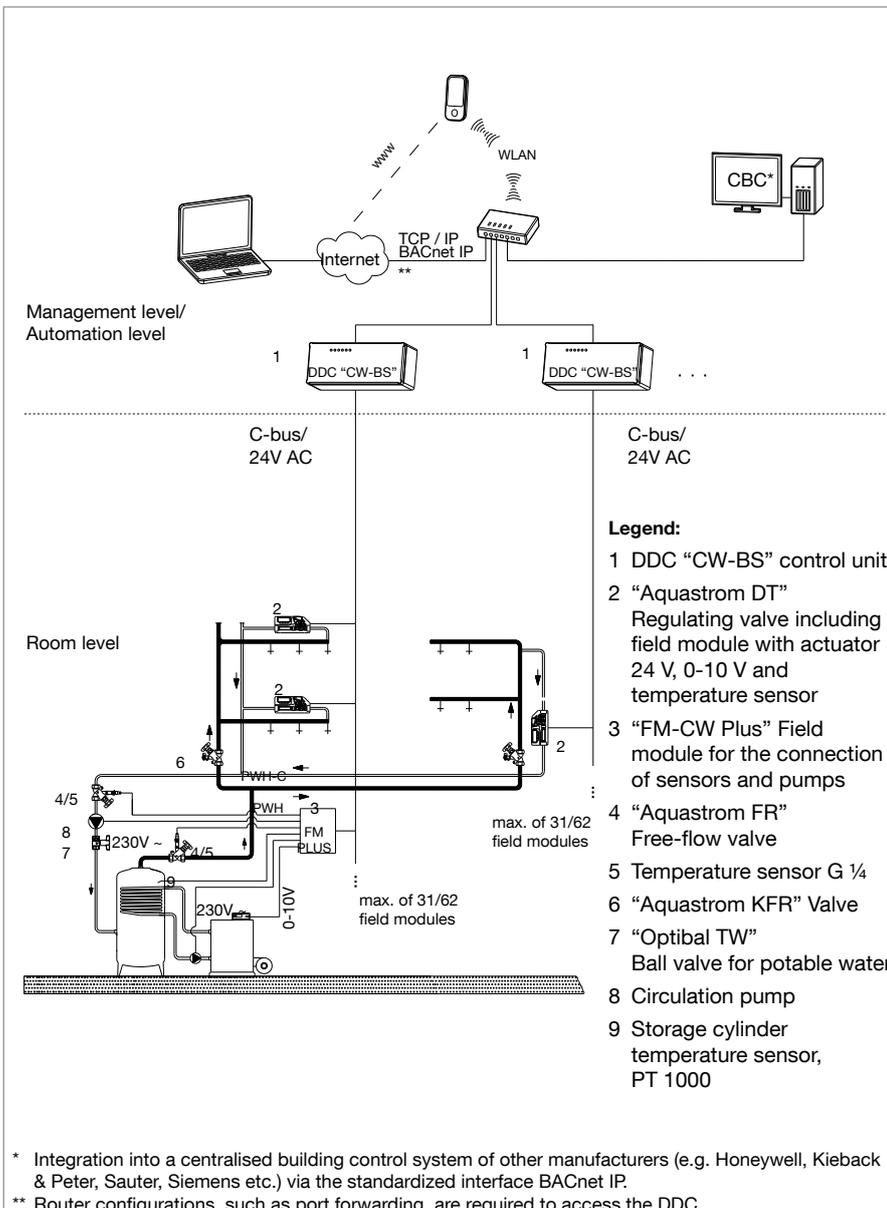
The integrated web server allows access to the system via a PC and a standard web browser. Settings of the installation parameters (e.g. time profiles) and queries of separation data, current status and disinfection records can be carried out via the menu.

An external 24 V transformer should be used for the power supply.

The installation hydraulics which governs the maintenance of an adequate potable water circulation temperature (according to DVGW 57 °C) is optimized by the control unit DDC "CW-BS".

Temperature detection is carried out by the „Aquaström DT" valve for hot potable water circulation systems. The sensor temperatures are transmitted to the control unit DDC "CW-BS" via the bus based field module and the control demands for the "Aquaström DT" are transmitted to the actuators by the control unit DDC "CW-BS".

Thermal disinfection is also controlled via the control unit DDC "CW-BS". The latter transmits a starting signal to the boiler control; the potable water temperature is increased and thermal disinfection of the risers of the circulation system is carried out. The control unit can be connected to the centralised building control system for monitoring and visualisation purposes. Warning messages can be transmitted via LAN, internet or mobiles.



\* Integration into a centralised building control system of other manufacturers (e.g. Honeywell, Kieback & Peter, Sauter, Siemens etc.) via the standardized interface BACnet IP.

\*\* Router configurations, such as port forwarding, are required to access the DDC.

System illustration "DynaTemp CW-BS"



Station "Regucirc B"



Station "Regucirc M"



Dwelling station "Regudis W-HTE" for local hot potable water preparation



Thermostatic mixing valve "Brawa-Mix" made of bronze



Bypass isolating valve for use in potable water softening installations



Bypass mixing valve for use in potable water softening installations

The station "**Regucirc B**" is suitable for small potable water circulation systems with **monovalent storage cylinder**, e.g. in detached and semi-detached houses as well as for statically balanced circulation systems with two risers. The compact pump group with thermal insulation consists of a circulation valve "Aquaström VT" for potable water pipes with control thermometer, a non-return check valve and an energy-saving high-efficiency pump .

The station "**Regucirc M**" is suitable for potable water circulation systems with bivalent storage cylinder, e.g. in detached and semi-detached houses. The pump group with thermal insulation consists of a thermostatic mixing valve (35°C – 65°C) with fail-safe function, a non-return check valve and isolating ball valves with integrated thermometers for potable water temperature control as well as an energy-saving high-efficiency pump.

The **thermostatic mixing valve "Brawa-Mix"** allows for an infinitely adjustable limitation of the domestic water. The valve without dead zone features an integrated fail-safe function, i.e. the hot water supply is closed automatically if the cold water supply is interrupted.

Awards "Brawa-Mix":



universal design award  
German Designer Club  
Good Design 08

The **bypass isolating valve** without dead zone is used in potable water softening installations for industry, trade and domestic use. The body is made of bronze. Two valves allowing the isolation of the inlet and outlet of the water softener, a bypass with isolation facility, a valve for water sampling as well as a plugged orifice for the connection of a drain valve are integrated in the bypass isolating valve.

The **bypass mixing valve** without dead zone is used in potable water softening installations for industry, trade and domestic use. The body is made of bronze. Once it has been set, the bypass mixing valve automatically maintains the hardness of the mixed water irrespective of consumption and pressure variations. The bypass mixing valve is installed parallel to the water softener.

Room climate

Hydronics

Stations  
Storage  
cylinders  
Pipes

Potable water

Oil  
Solar

Smart Home  
Smart Building

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