Complete system for distribution and hygiene of potable water

Product range

Awards:

Valves, controls + systems

Innovation + Quality

MADE IN GERMANY
Portable 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 Decree for Potable Water 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.
Potential risks in potable water systems

The living conditions for harmful microorganisms must be rendered as hostile as possible and bio films must be avoided in particular. Cell masses of algae, bacteria and fungi together with iron and lime deposits form a biofilm on inner pipe walls, in appliances and storage cylinders. Pathogenic germs, as well as the dangerous legionella (illust. 3), may multiply in these biofilms. 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 microorganisms. 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 is 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 pipe work for cold and hot potable water)
- DVGW work sheets "W 551" and "W 553" (dimensioning of the circulation pipes)
- VDI 6023 (hygienically safe design, realisation, operation and maintenance of potable water installations)
- Decree for Potable Water (decree regarding the quality of water for human consumption)

1 Potential risks within an unbalanced potable water system (using the example of a residential building)
2 Increase of legionella in potable water
3 Legionella
optional:
Cooling capacity via chiller
**Complete system for potable water installations**

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

The components of the potable water installation enable a technically perfect hot 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.

**Distribution system**

The Oventrop distribution system including circulation prevents stagnation in hot water installations.

A new cold water circulation (see page 16) with the corresponding circulation regulating valves “Aquastrom K” serves 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 water preparation**

The “Regumaq” stations prepare the hot 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.

**System illustration**

1. “Aquastrom F”
2. Circulation regulating valve
3. “Aquastrom UP-F”
4. “Aquastrom K”
5. “Aquastrom KF”
6. “Aquastrom KFR” + “Aquastrom P”
7. “Aquastrom F + Aquastrom P”
8. “Optibal TW”
10. “Aquastrom R”
11. Flushing device
12. Domestic water station
13. Bypass isolating valve
14. Station for hot water preparation “Regumaq XZ”
15. Cascade control set “Regumaq XK”
16. Three-way diverting valve/ Electromotive actuator “Aktor M”
17. Buffer storage cylinder “Hydrocor HP”

**PWH**

**PWH-C**

**PWH**

**Flow sensor**

**Master**

**Bus**

**PWH-C**

**Hot water**

**Cold water**

**Buffer storage cylinder**

**Hydrocor HP**
Thermostatic valve “Aquastrom VT” with presettable residual volume flow for circulation pipes

The bronze valve “Aquastrom VT” is a thermostatic and hydronic regulating valve with presetting for 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 0.1, 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. 420 55 92). The valve is lead lockable and is supplied with insulation shells (fire protection class B1).

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

1,2 “Aquastrom VT” with adjustable hand-wheel for temperature and residual volume flow, temperature indicator and insulation (extent of supply)
3 System illustration
4 Functional scheme and characteristic lines “Aquastrom VT” during operating and disinfection phase
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. However, a control range of 55°C to 60°C is recommended.

Once the temperature exceeds this presetting, the volume flow is limited to a fixed residual volume flow according to W 554.

**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 on the “Aquastrom T plus”, the residual volume flow is increased to the disinfection volume flow. As the temperature continues to increase to 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/ regulation of risers**

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 male threaded connection on both ports. The valve has no dead zone and complies to DVGW W 554.

- Fire protection class B 1
- Thermal conductivity = 0.04 W/m.K
- Max. temperature 90°C

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

1 The “Aquastrom T plus” is supplied complete with insulation (insulation = packaging)
2 “Aquastrom T plus” with sensor element PT 1000 for temperature control via centralised building control systems (accessories, item no. 420 55 92)
3 System illustration
4 Characteristic lines of temperature setting
Double regulating and commissioning valve “Aquastrom C”

Oventrop double regulating and commissioning valves “Aquastrom C” are installed in the circulation pipes of potable water systems and serve to achieve a hydronic balance between the various circuits.

The volume flows to be set at the “Aquastrom C” result from the calculation according to DVGW work sheet W 553.

The balance is achieved by a reproducible presetting. The valve is installed in the circulation risers.

When installing the thermostatic valves “Aquastrom VT” in the individual circulation risers, the double regulating and commissioning valve “Aquastrom C” should be installed in the furthest and thus hydraulically underprivileged risers. This is for safety reasons if the required temperature at the circulation point is not achieved and needs readjusting according to DVGW work sheet W 553.

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

Advantages:
- precise presetting of even very low volume flows
- simple installation and easy operation
- only one valve for five functions: presetting, isolation, temperature indication (20°C-100°C), draining, measuring (pressure test points see accessories)
- without dead zone
- DVGW, SVGW, KIWA and ASC certified

Models:
Pressure range PN 10 for potable water up to 95°C.

Male threaded model:
- item no. 420 71 04 – 10

Female threaded model:
- item no. 420 81 04 – 10

1 “Aquastrom C”
- Female and male threaded model

2 System illustration
Balancing of a circulation system with static double regulating and commissioning valves “Aquastrom C”. Calculation of the circulation pipe according to the DVGW work sheet W 553

3 The “Aquastrom C” is supplied complete with insulation (insulation = packaging)
- Fire protection class B 1
- Thermal conductivity = 0.04 W/m.K
- Max. temperature 90°C

4 Installation example
Implementation of the Decree for Potable Water

The Decree for Potable Water 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 Decree for Potable Water 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)
- if required, an additional sampling point should be installed at the cold water entry point of the building

The water samples in the building can be taken at the usual draw off points. Water sampling valves are installed at the entry and exit of the hot water preparation. Therefore the requirements of the Decree for Potable Water with regard to the initial legionella examination are met by installing three water sampling valves.

Oventrop offers the water sampling valve “Aquastrom P” sized G 1/4 and G 3/8 to examine the potable water for germs and bacteria. The valve body is made of bronze and the discharge elbow of stainless steel. The valve with metal to metal seal 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.

For further questions regarding water sampling points and water sampling, please contact your local Public Health Authorities.

1 Water sampling points for initial examination according to DVGW work sheet W 551, cold water sampling point recommended by the Federal Environment Office.
2 Flame resistant water sampling valve “Aquastrom P” for hygienic-microbiologic examination according to DVGW W 551, Decree for Potable Water and VDI 6023.
3 Bronze double regulating and commissioning valve “Aquastrom C” with thermometer and insulation with “Aquastrom P”.
4 Bronze valve “Aquastrom KFR” as combination free-flow valve with non-return check valve and water sampling valve “Aquastrom P”.

Water sampling valve “Aquastrom P”
Implementation of the Decree for Potable Water
The free-flow valves as well as the 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 bonnet of the KFR valve features an integrated non-return function and can be replaced for maintenance purpose or be exchanged for a free-flow bonnet and vice versa without dismounting the pipe. The flow-supporting model is especially silent (sound absorbing as per DIN EN ISO 3822 standard, product group I). All functioning 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 remanufactured. The composition of the plastic (polyamide) is indicated on the inside of the handwheel.

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 (Popen, \( \geq 10 \) 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

Models:
- both ports female thread according to EN 10226
- both ports solder connection
- both ports press connection
- both ports male thread according to DIN ISO 228
- size DN 65 and above both ports male thread or flanged
- all models available with and without draining facility

Awards:
- Design Award Switzerland
- 1 KFR and free-flow valves “Aquastrom” both ports with female or male thread or solder connection
- 2 KFR and free-flow valves “Aquastrom” both ports with press connection
- 3,4 KFR and free-flow valves “Aquastrom” in large dimensions (DN 65-80)
- Models: Male thread according to DIN ISO 228 and round flanges according to DIN EN 1092
- 5 Installation example
- 6 System illustration
Non-return check valve “Aquastrom R” with test vents
Ball valves for potable water “Optibal TW”

1,2 Bronze non-return check valve “Aquastrom R” with test orifices according to DIN EN 13959, type EA. Due to low opening pressure ($P_{\text{open}} \geq 10$ mbar) also suitable for circulation pipes, without dead zone.
Plastic parts DVGW and SVGW certified.

3 System illustration

4,5 Ball valves for potable water “Optibal TW” made of bronze, with full flow (DN 15-80) according to DIN EN 13828, plugged draining orifices on both sides, without dead zone.
Also available with press connection for the direct connection of copper pipe according to EN 1057 and stainless steel pipes “Nirosan”.
DVGW certified.

6 System illustration

The flush-mounted valves “Aquastrom” (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:
- Flush-mounted F valves “Aquastrom UP-F” Application: Potable water installations PN 16, max. water temperature 90°C
- Flush-mounted KFR valves “Aquastrom UP-KFR” Application: Potable water installations PN 16, max. water temperature 90°C
- Flush-mounted circulation valves “Aquastrom UP-Therm” Application: Potable water installations PN 10 for circulation pipes according to work sheets W 551 and W 553

All models are available with:
- both ports female thread according to EN 10226-1
- both ports male thread according to DIN ISO 228
- both ports press connection system Sanha, Geberit, Viega

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 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.

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
- DVGW certified

1 Flush-mounted valves “Aquastrom UP” for intermediate ceiling installation or under plaster, as lockshield model and circulation valve (UP-Therm) with isolating facility
2 Flush-mounted circulation valve “Aquastrom UP-Therm” for intermediate ceiling installation as thermal circulation regulating valve with isolating facility for the hydronic balancing in potable water circulation systems with floor to floor distribution
3 System illustration
Flush-mounted valves “Aquastrom”
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.

According to DIN 1988, the Oventrop water and backflush filters “Aquanova” secure the potable water quality 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 Decree for Potable Water. The filters without dead zone are DVGW and ACS certified and protected by patent.

Models:
- Water filter “Aquanova Compact” with female and male thread
- Water filter “Aquanova Compact E” with swivel connection piece for horizontal and vertical installation
- Water filter “Aquanova Magnum” with female and male thread

Award for “Aquanova Compact”:

The Oventrop backflush filters “Aquanova” are used in potable water installations according to DIN 1988. Maintenance is carried out by backflushing the filter insert (handwheel has to be turned several times). The used materials are hygienically safe and comply with the Decree for Potable Water. The backflush filters are DVGW certified and protected by patent.

Models:
- Backflush filter “Aquanova Compact R” with male thread
- Backflush filter “Aquanova Compact RE” with swivel connection piece for horizontal and vertical installation
- Backflush filter “Aquanova Meta R” with female or male thread with pressure gauges

The filter surface of the “Aquanova Compact RE + R” is drawn inwards. The contamination can be easily assessed with the help of the transparent plastic filter cup (Trogamit T). The construction of the filters is protected by patent. The backflush filters “Aquanova Meta R” have a brass filter cup.

1 System illustration
2 Water filter “Aquanova Compact”
3 Water filter “Aquanova Magnum”
4 Water filter “Aquanova Compact E”
5 Backflush filter “Aquanova Compact R”
6 Backflush filter “Aquanova Meta R”
7 Domestic water station – compact unit with backflush filter, pressure reducer, pressure gauge and male threaded connection. For vertical and horizontal installation, cleaning is carried out by backflushing the filter insert. DVGW certified, without dead zone.
**“Regumaq X-30 / XZ-30”**

**Stations for hot water preparation**

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**“Regumaq X-30”**

The Oventrop “Regumaq X-30” stations are electronically controlled product assemblies 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 an optimum realization of regenerative pipework concepts:

- The station is especially suitable for detached and semi-detached houses. It is connected to buffer storage cylinders which are heated up by solar energy, solid fuels, oil or gas.
- PN 10 (at 20°C) up to 120°C
- Depending on the temperature and the flow volume on the potable water side (secondary circuit), the circulation pump on the buffer side (primary circuit) is speed regulated. The plate heat exchanger can be flushed using the fill and drain cocks integrated in the primary and secondary circuit. Due to the turbulent flow, a good self-cleaning effect avoiding a contamination is achieved.
- The potable water circuit is protected by a 10 bar safety valve.
- The components of the heat exchanger system have flat sealing connections, are pre-assembled on a mounting board and leak tested.

**“Regumaq XZ-30”**

The Oventrop station “Regumaq XZ-30” for hot water preparation is identical to the station “Regumaq X-30” but the product assembly for the operation of circulation systems is additionally equipped with a circulation pump in the potable water circuit. For this reason, the station is especially suitable for large systems.

The controller is wired with the internal components and serves to control the following circulation functions:

- Operating mode “demand”: The circulation pump is activated if water is drawn off for a brief period
- Operating mode “cycle”: The circulation pump runs according to the set running and rest periods
- Operating mode “on”: The circulation pump runs permanently
- Operating mode “off”: The circulation pump is switched off
- The operating time can optionally be determined depending on the return temperature
- Three switching points within the corresponding operating mode can be programmed each day

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**Flow quantity, heating of potable water from 10°C to 60°C**

Example:

If a required temperature of 60°C is set at the controller, a draw off volume of 30 l/min. (Q secondary) can be reached with a water temperature of 75°C inside the buffer storage cylinder and a volume flow of 27 l/min. in the buffer circuit.

The primary volume flow is modified by the pump in the storage cylinder circuit which is activated by the controller.
Cascade control set “Regumaq XK”
consisting of:
Cascade control and actuators with ball valves for potable water supply.
The cascade control set allows to increase the discharge capacity of the “Regumaq XZ-30” stations up to 120 l/min.

Models:
- Set for the control of 2 “Regumaq XZ-30” stations
  Discharge capacity: 60 l/min. with a hot potable water temperature of 60°C and a cold water temperature of 10°C
  1 actuator with ball valve
- Set for the control of 3 “Regumaq XZ-30” stations
  Discharge capacity: 90 l/min with a hot potable water temperature of 60°C and a cold water temperature of 10°C
  2 actuators with ball valve
- Set for the control of 4 “Regumaq XZ-30” stations
  Max. discharge capacity: 120 l/min. with a hot potable water temperature of 60°C and a cold water temperature of 10°C
  3 actuators with ball valve

1 “Regumaq XZ-30” with “Regumaq XK”
2 System illustration
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.

Chart: Warming up of potable water in the pipework during stagnation, fluid 15°C, insulation 100%

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.

For hygienic reasons, potable water should not stagnate and not reach/leave certain temperature ranges. In hot potable water systems, this is ensured through the circulation. Germs and micro-organisms may, however, develop in cold water systems too. A circulation which prevents stagnation and keeps the temperature below 25°C may also be installed in cold water systems but 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

"Aquastrom K"

Thermostatic cold water regulating valve "Aquastrom K" for thermal balance of cold water circulation pipes. The valve 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 "Aquastrom UP" product range, the valve can also be used for flush-mounting installation or in dry-build systems.

\( kv \min = 0.05 \)

Temperature range: 6°C – 18°C
Cold water circulation

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:
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
- Cool water circulation
- optional: Cooling capacity via chiller
"DynaTemp CW-BS" is a bus based system for automatic thermal balancing and thermal disinfection in potable water circulation systems according to DVGW work sheets W 551 and W 553.

The regulating valves "Aquastrom 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 stations.

Temperature detection is carried out by the Oventrop valve "Aquastrom DT" for potable water circulation systems. The sensor temperatures are transmitted to the control units via the bus based field module and the control demands for the "Aquastrom DT" are transmitted to the actuators by the "DynaTemp CW-BS" via the field module.

Thermal disinfection is also controlled via the control unit. 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 installation 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.

1 Control unit DDC “CW-BS” with bus technology for the connection of C-bus field modules, surface mounting, operating/bus current: 24 V / 50 Hz
2 Electromotive circulation valve "Aquastrom DT" for electronic regulation of the required residual volume flow in conjunction with the control unit DDC “CW-BS”, bronze, without dead zone, both ports male thread according to DIN ISO 228, flat sealing, temperature sensor PT 1000, steady electromotive actuator 24 V (0-10 V), including draining valve for hose connection in front of the control unit, non-return check valve and insulation shells made of EPV according to the Decree for Energy Saving, fire protection class B 1.
3 Potable water installations PN 10
Max. water temperature: 90°C

Not illustrated – Field module “CW Plus”
For the connection of sensors and pumps with C-bus communication, surface mounting, 24 V/50 Hz
3 System illustration “DynaTemp CW-BS”
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, Oventrop offers the compact station “Regucirc B”. The compact pump group with thermal insulation consists of a circulation valve “Aquastrom VT” for potable water pipes with control thermometer, a non-return check valve and an energy-saving high-efficiency pump (corresponds to the energy efficiency class A rating for circulation pumps).

For potable water circulation systems with bivalent storage cylinder, e.g. in multiple dwellings, Oventrop offers the compact station “Regucirc M”. 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 (corresponds to the energy efficiency class A rating for heating circulation pumps).

Dwelling station “Regudis W” for local hot potable water preparation

Thermostatic mixing valve “Brawa-Mix” made of bronze for an infinitely adjustable limitation of the domestic water temperature, without dead zone. The valve features an integrated fail-safe function, i.e. the hot water supply is closed automatically if the cold water supply is interrupted.

Award: universal design award

Bypass isolating valve, DN 25, PN 10 for use in potable water softening installations for industry, trade and domestic use. Body made of bronze. Without dead zone. 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.

Bypass mixing valve DN 25 – DN 50, PN 10 for use in potable water softening installations for industry, trade and domestic use. Body made of bronze. Without dead zone. 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.

Example of a domestic potable water installation
1. Screenshot of the current Oventrop programme “OVplan”.
2. Screenshot of the current Oventrop programme “OVplan”.
3. Oventrop/Wilo calculation slide: “Hydronic balancing of potable hot water circulation pipes” for a rapid, approximate design of circulation, regulating valves and pumps on site.

Further information can be found in our catalogue “Products” as well as on the internet under product range 2.

Subject to technical modifications.