

CENTRAL DOMESTIC HOT WATER TECHNOLOGY (HIU)

WHAT DOES TACONOVA STAND FOR?

Taconova Group AG is a well-established Swiss company with over 60 years of experience in providing intelligent building services solutions.



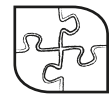
Experience

- More than 60 years of experience in providing building services solutions
- Development, manufacture and distribution of products and systems from one source
- Experience and innovative strength for maximum customer benefit



Expertise

- Our team of experts is on hand to answer your questions and will be pleased to help with the design of your own systems



Versatility

- From boiler room to roof: high quality, innovative systems and products in the areas of:
 - hydronic balancing
 - area heating systems
 - system technology
 - valves and accessories
 - pump technology



Quality

- Premium quality at the highest level, manufactured in compliance with both Swiss and international standards
- High quality materials and excellent product workmanship
- Durable, low-maintenance components developed in Switzerland

REFERENCES

Numerous products in the most varied building categories around the globe bear testimony to Taconova's expertise in domestic hot water technology.

Hotels and restaurants

Aquaturm, Radolfzell:
Commercial kitchen and
20 hotel rooms on 13 floors

School buildings and sports halls / sports facilities

Primary school in the municipality of Bellikon: 15 showers supplied simultaneously

Multiple dwelling units / multi-family housing estates

Living East, Nuremberg:
28 residential units



Apartments, apartment blocks, commercial and industrial buildings, industrial facilities

Osterwalder Tower Zürich:
More than 50 apartments and
100 workplaces

WHAT DO INTERNATIONAL STANDARDS SAY ABOUT DOMESTIC HOT WATER TECHNOLOGY?

Many European standards call for a reduction in the amount of DHW stored and the heating up only of the quantity actually required. Different countries have different regulations in relation to drinking water quality:

DIN 1988-200 (9.7.2.7)

"With regard to DHW hygiene, it is recommended not to store large amounts of DHW and not to stock alternative heat in preheating stages, but rather in a heating water buffer cylinder for the sake of higher effectiveness, among other reasons."

DVGW W551 (5.2.1)

Decentralised instantaneous DHW heaters can be used without additional measures if the output volume downstream of instantaneous DHW heater does not exceed 3 litres.

Energy should be stored in the heating water and NOT in DHW!

SIA 385/1 (3.2.6)

"The quantity of DHW to be stored shall be kept to a low level. SIA 385/2 rules shall be applied."

ÖNORM B 5019:2011 (5.7.3 and 5.8.3)

"Systems for heating DHW should be designed in as small a size as possible in line with engineering standards as per ÖNORM H 5151-1 to cover the demand for DHW. 5.7.3 and 5.8.3: During construction, instantaneous DHW heaters should ideally be used."

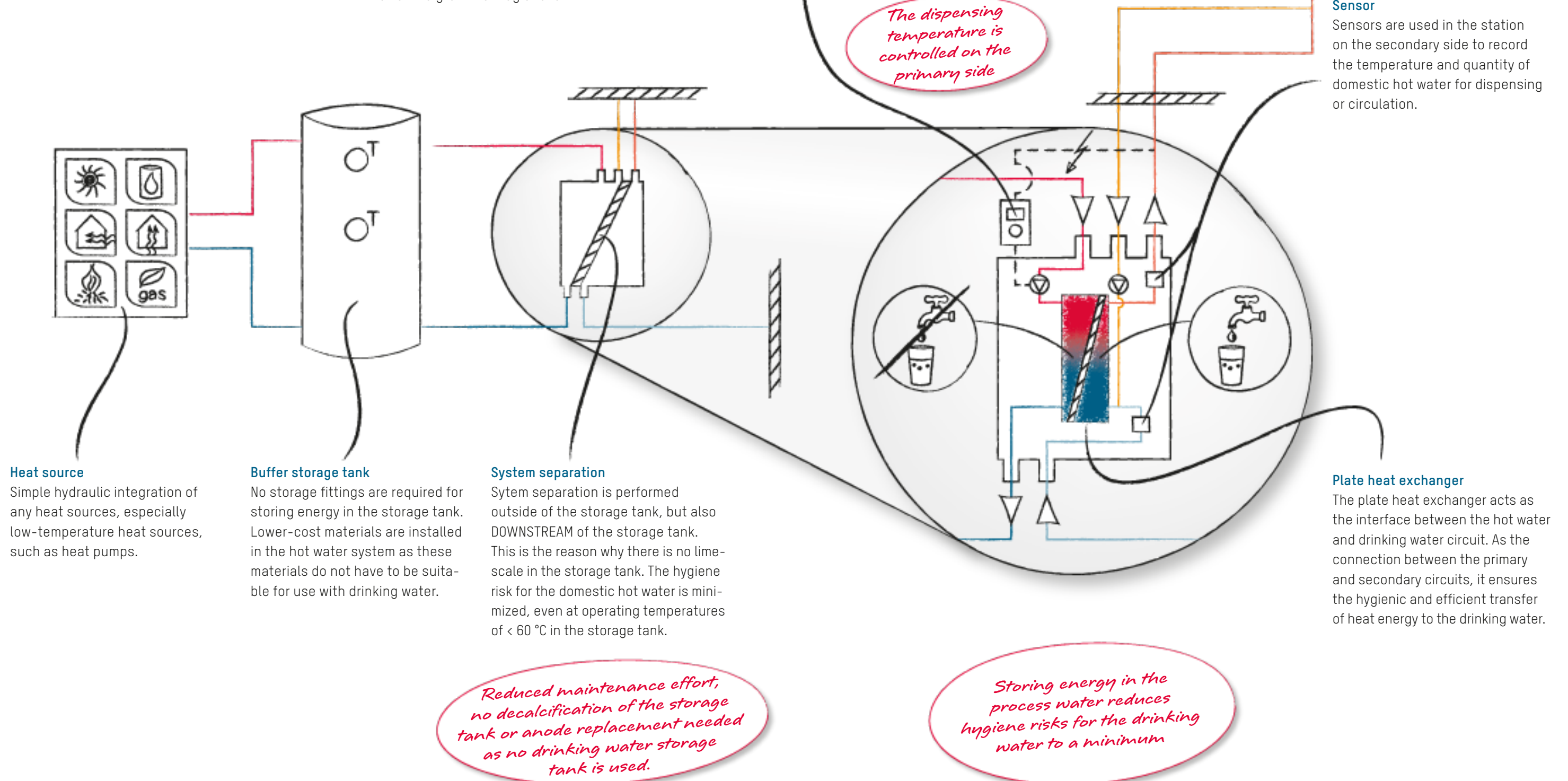
Minimised hygiene risk and monitoring with decentralised DHW heating using the flow principle.

HOW DOES DOMESTIC HOT WATER TECHNOLOGY WORK?

Storing domestic hot water is yesterday's news... state-of-the-art solutions eliminate the need for a domestic hot water storage tank.

The required energy for preparing domestic hot water is made available by domestic hot water technology in the form of treated heating water in a storage tank and supplied on demand to the domestic hot water station.

Domestic hot water stations heat the drinking water to the required temperature at the time of dispensing in accordance with the continuous flow principle. This eliminates the need to store domestic hot water in the tank and considerably reduces the associated risk of the growth of Legionella.

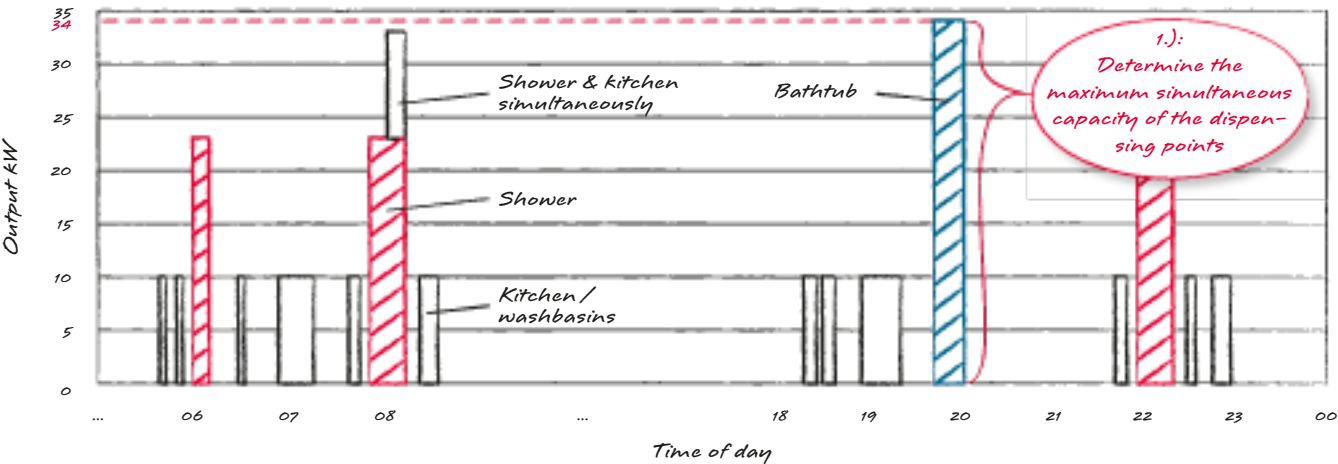


1. DETERMINE THE DAILY LOAD COURSE

The first step is to determine the maximum simultaneous capacity of an apartment.

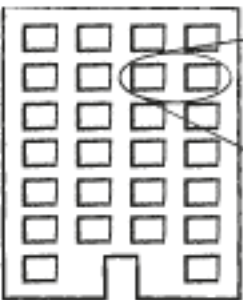
The example depicts a standard four-person family apartment, one to two of whom are in employment. The maximum simultaneous capacity required in this example is 34 kW based on the filling of a bathtub.

In the case of a luxury apartment on the other hand, two showers require 46 kW simultaneously and thus higher output.

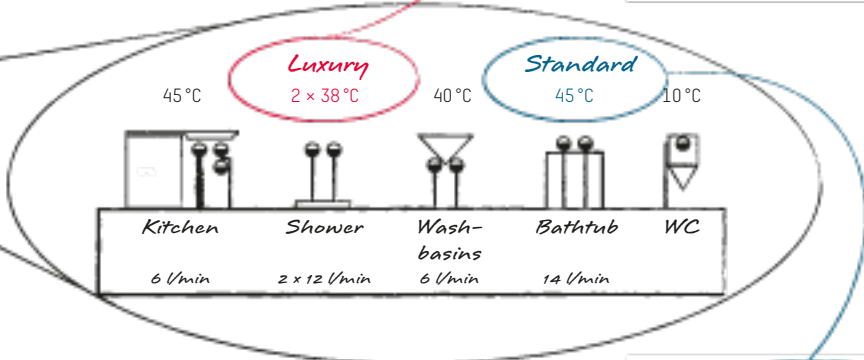


2. DETERMINE THE DOMESTIC HOT WATER DEMAND

In the second step, determine the domestic hot water demand of the building based on the simultaneity of the residential units.



Example:
10 residential units



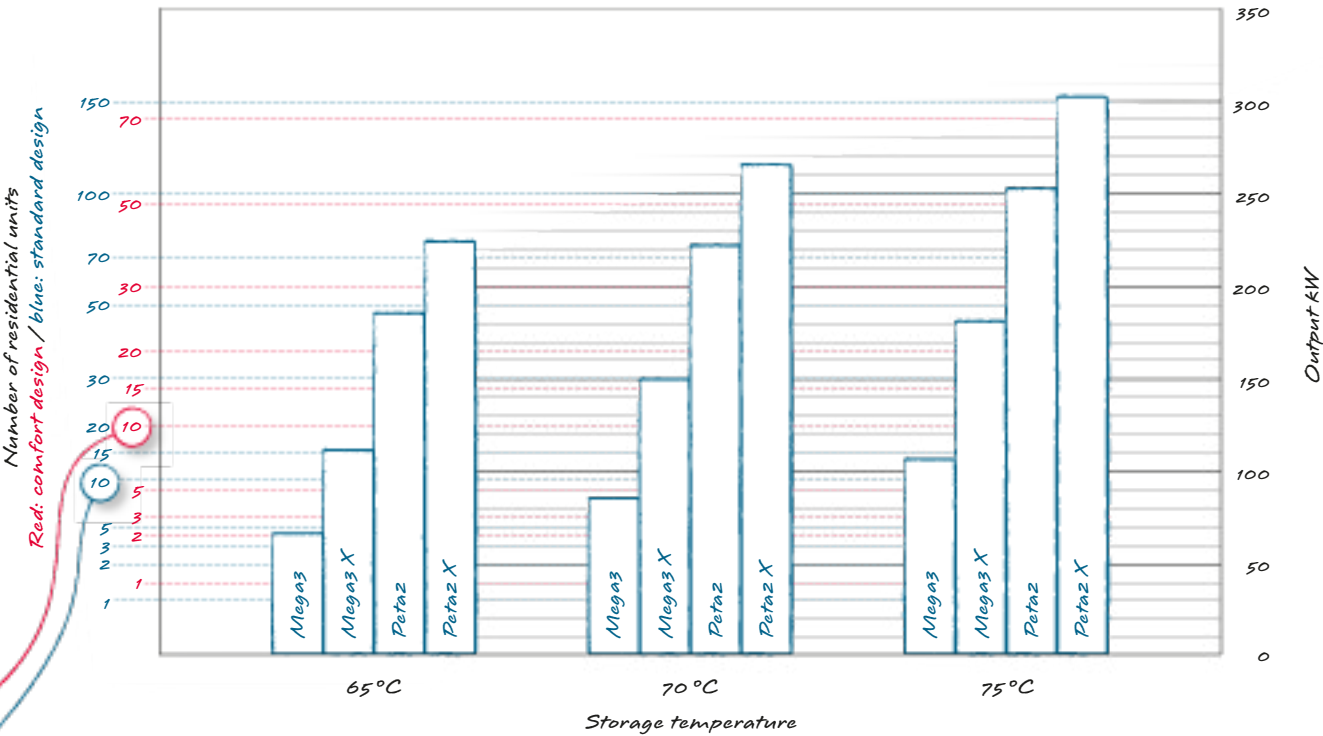
2a): Example
10 luxury apartments
at 46 kW
(2 x 12 l/min =
24 l/min à 38°C)

2b): Example
10 standard apartments
at 35 kW
(1 x 14 l/min = 45°C)

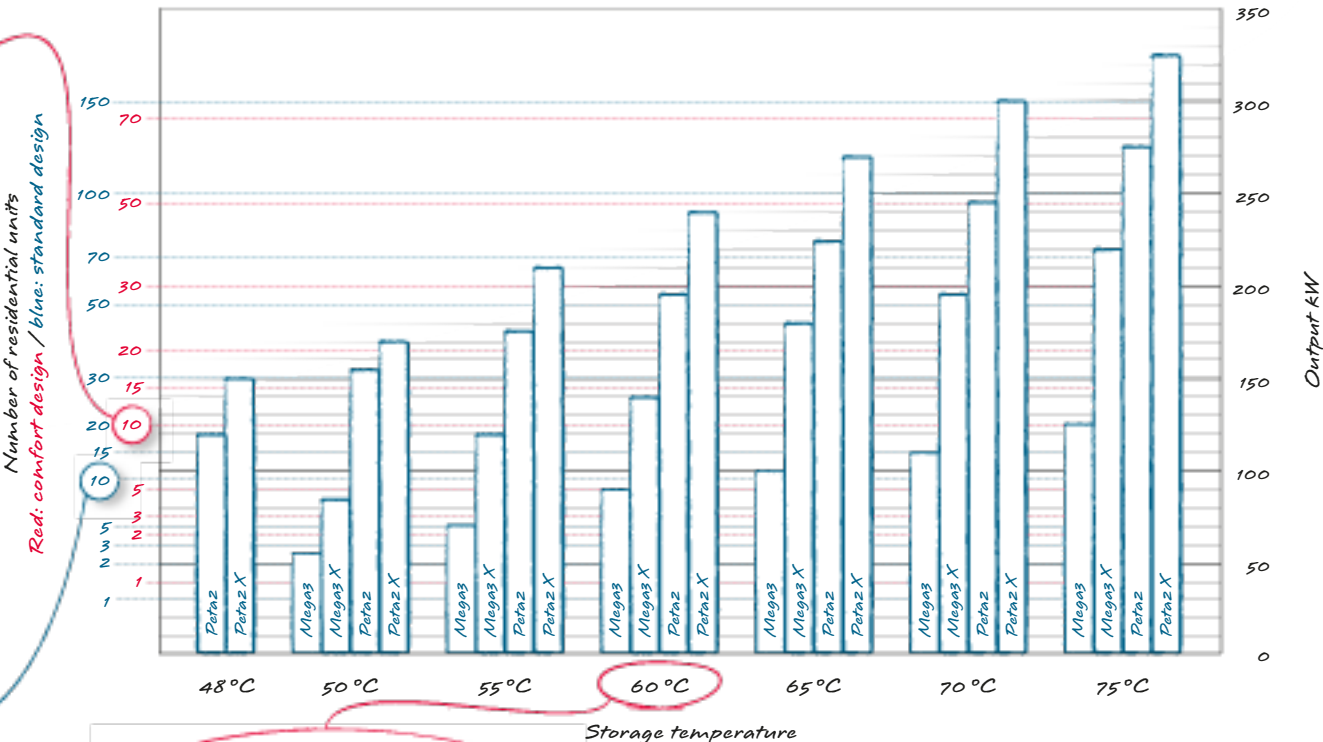
3. SELECT THE STATION

The hot water demand for the building is determined in the third step, taking account of the simultaneity of the apartments. This is how to find the domestic hot water HIU to suit your project.

Heating of drinking water from 10°C to 60°C (ΔT 50 K) | 100 mbar residual pump head of primary pump



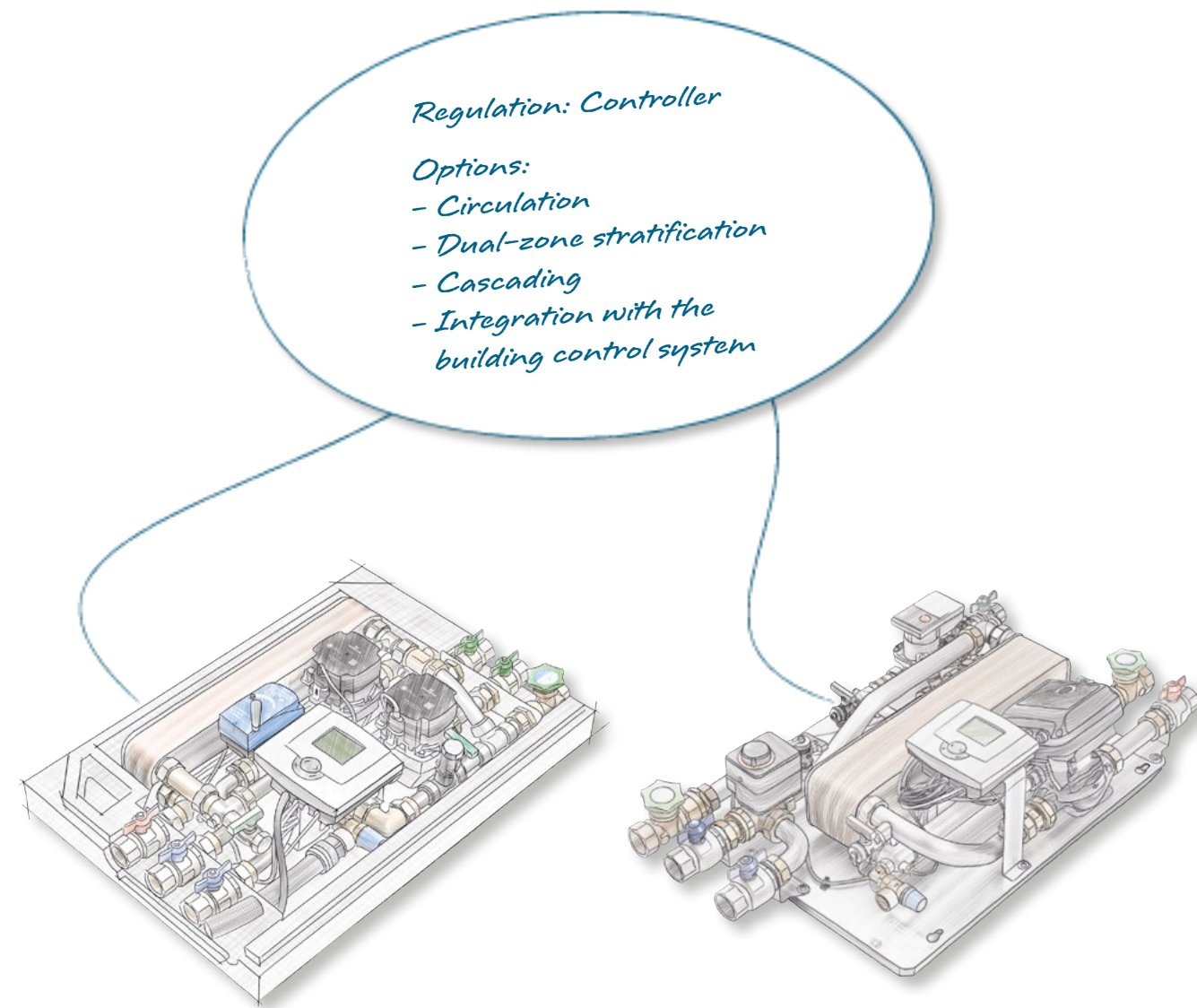
Heating of drinking water from 10°C to 45°C ΔT 35 K | 100 mbar residual pump head of primary pump



3.):
Reconciling the desired number of
residential units with the given
storage flow temperature

PRODUCT OVERVIEW OF TACOTHERM DOMESTIC HOT WATER STATIONS

Versatile and powerful: the central domestic hot water HIU ensure that you are optimally equipped for any configuration design.



TacoTherm Fresh Mega3
Output: 22 l/min*

TacoTherm Fresh Mega3 X
Output: 34 l/min*

TacoTherm Fresh Peta2
Output: 63.5 l/min*

TacoTherm Fresh Peta2 X
Output: 97 l/min*

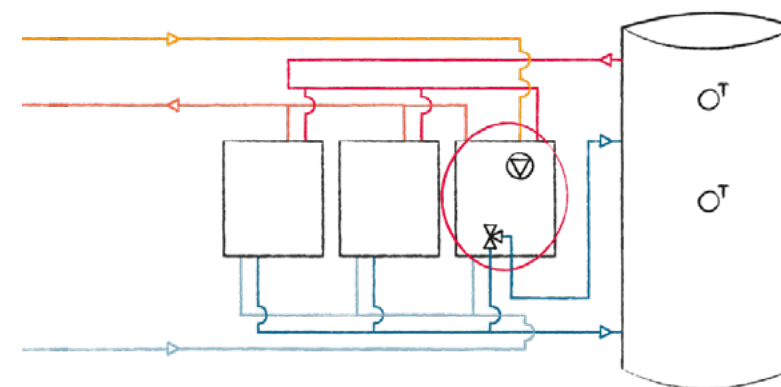
* Output details for 70 °C primary temperature and heating of drinking water from 10 °C to 60 °C.
Residual pump head of primary pump: 100 mbar

CASCADING

Flexible planning of domestic hot water demand based on capacity expansion of individual stations.

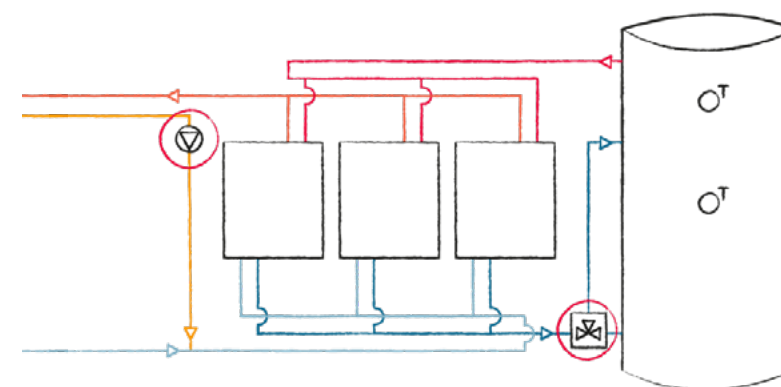
If the output capacity of an individual domestic hot water HIU is not sufficient, several stations from the same product series can be combined using a cascade pipework set. This hydraulic interconnection is used in systems with a very large domestic hot water

demand or where additional certainty of supply is to be provided by means of redundancy of several domestic hot water HIU. This also means that maintenance can be performed on individual stations without interrupting the supply of domestic hot water.



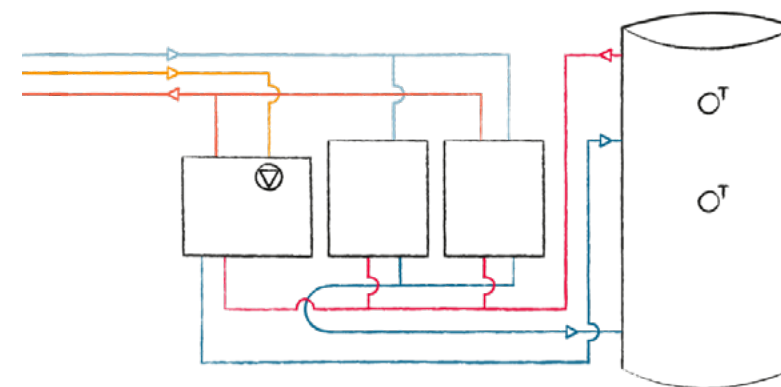
Cascading with integrated circulation and cylinder stratification

- + Low installation costs due to built-in circulation changeover
- No sequence switching serving as redundancy during service
- Higher load on the "master station" compared to the other modules
- Possible mixing in the cylinder during circulation



Cascading with external circulation and external cylinder stratification

- + Sequence switching serving as redundancy during service
- + Insignificantly higher load on all stations due to sequence switching
- Additional external installation of circulation and switching
- Possible mixing in the cylinder during circulation



Cascading with additional circulation module

- + Sequence switching serving as redundancy during service
- + Equal load on all stations due to sequence switching
- + No mixing in the cylinder during circulation, as the upper stratification of the buffer cylinder is continuously ensured
- Additional circulation module

WHAT ARE THE MOST IMPORTANT COMPONENTS IN A DOMESTIC HOT WATER HIU?

All Taconova domestic hot water HIU have the following components.

Primary pump

Responsible for the dispensing temperature

The heat energy added determines the temperature of the domestic hot water. The primary pump supplies the required hot water volume flow to the plate heat exchanger.

Flow rate and temperature sensors integrated in the station permanently record the current values, with the speed of the primary pump being adapted to the recorded values.

Switching valve

Optimum return temperature

Low-temperature systems, such as heat pumps, require low return temperatures to operate economically.

The integrated storage stratification ensures the return supply from the domestic hot water HIU is fed to the zones in the storage tank.

Plate heat exchanger

Heating drinking water in accordance with the counterflow principle

The plate heat exchanger is the interface between the heating and drinking water: the heating and drinking water circuit flow by each other in opposite directions in the exchanger. This operating mode allows the transfer of heat energy to the drinking water and ensures low return temperatures for the storage tank. The cold media are always at the top of the heat exchanger while the warm media are always integrated at the bottom. This ensures fast cooling of the heat exchanger during stoppages and reduces the lime-scale precipitation on the secondary side.

Size and material quality

The size of the plate heat exchanger (26 - 70 plates) is the decisive factor in determining the capacity of the domestic hot water HIU.

Stainless steel ensures suitability for drinking water both in the case of the plates and the connected pipe materials.

If the composition of the drinking water is not suitable for using copper-brazed heat exchangers, further heat exchanger variants are available.

Circulation pump

Reduced standby losses

When designing a heating system for drinking water, comfort and hygiene are important factors when dispensing hot water.

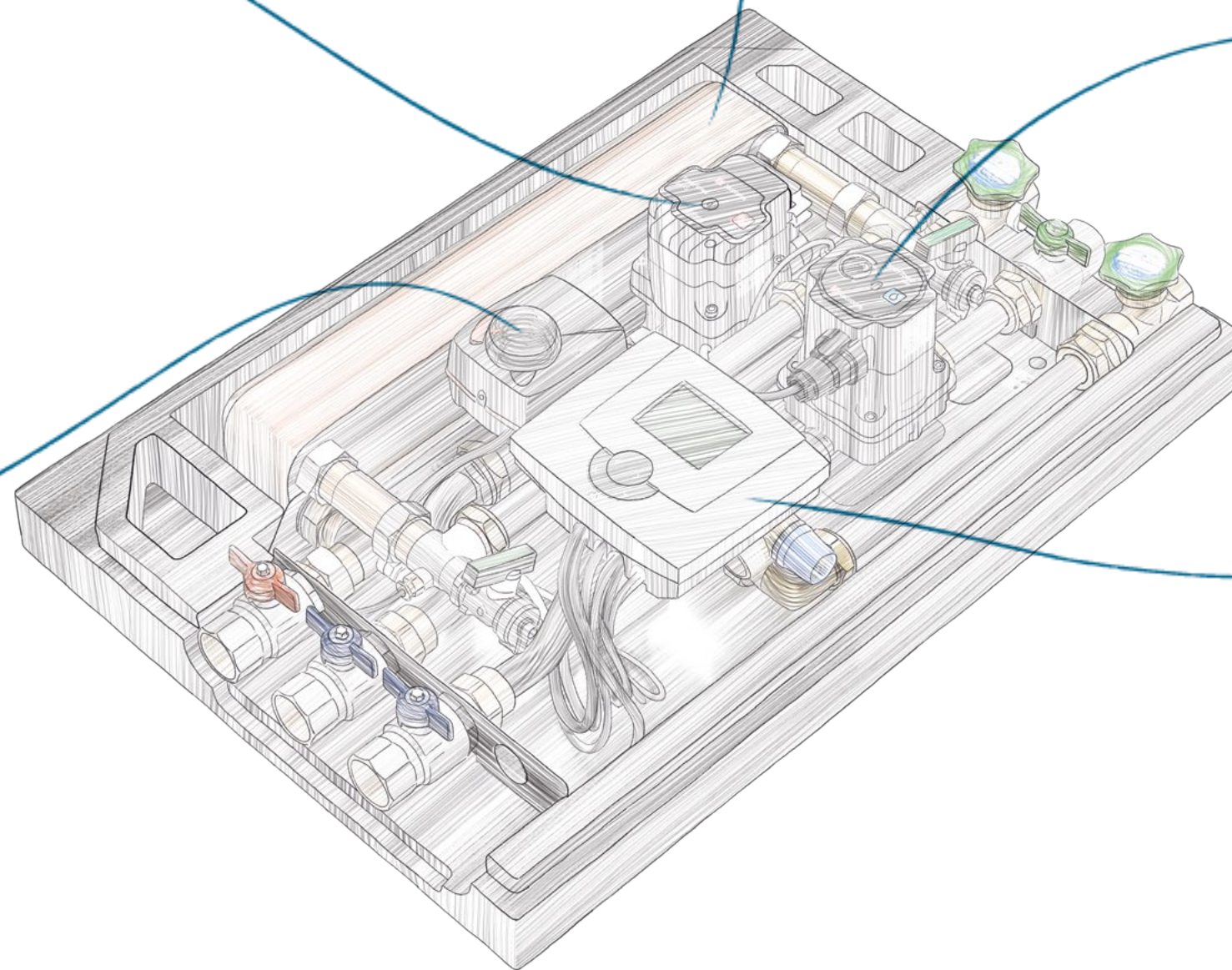
The integrated drinking water circulation pump ensures rapid availability of the heated drinking water at the dispensing points and avoids hygienically unsafe stagnation in the domestic hot water pipes.

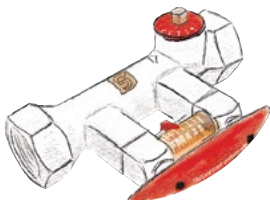
Regulation

The mastermind of the station

The pre-wired and connection-ready electronic controller connects latest generation pumps, sensors and switching valves.

It converts the required dispensing and return temperatures into control commands and ensures comfort for users. The display or optionally available ModBus RTU interface provides the system operator with permanent access to the operating data for the Mega3 and Peta2 domestic hot water HIU variants.

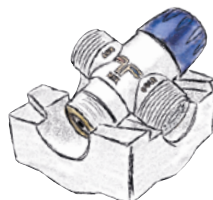




HYDRONIC BALANCING

Increased energy efficiency

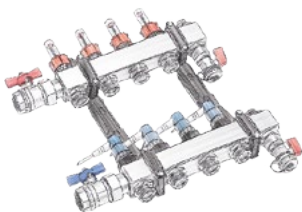
Heat distribution for any system, matched to demand.



VALVES AND ACCESSORIES

Compact aids

For safety, greater effectiveness and convenience.



AREA HEATING SYSTEMS

Perfect interaction

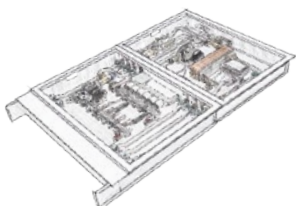
For a pleasant, individual room climate.



PUMP TECHNOLOGY

Upwardly efficient

For low operating costs and greater energy efficiency.



SYSTEM TECHNOLOGY

Intelligent units

For reliable operation, reduced maintenance and optimised energy costs.



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Further information

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