

Tap Water Production

1 Technical introduction

1.1 General function

Almost everywhere in Europe, water resources are being used sustainably, but in some regions the water may become scarce, especially when 60% of the water is used in agriculture alone.

National norms regulate the tap water quality (Norm DIN 1988-100 - *protection of drinking water*)

Legionella (bacterias) must be avoided:

- A domestic water heater must be at least 60°C hot.
- Central water heater with a high-water exchange need 50°C to avoid legionella.

1.2 Freshwater stations

Freshwater stations are an optimal way to hygienically heat up the tap water supply. They can save water and energy due to their efficient circled system.

Advantages

- Works with low temperatures
- Little space required
- Unlimited water supply
- Low risk of legionella
- But: costly installation

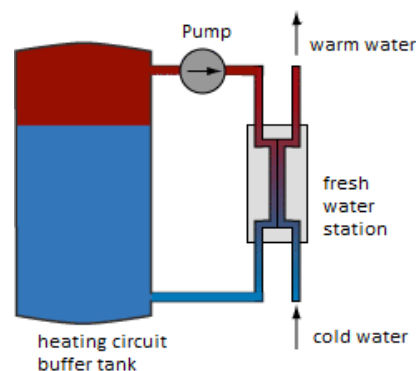


Figure 1: heating circuit buffer tank and fresh water station. Source: Energie Lexikon [1]

1.3 Ultrafiltration

Ultrafiltration is a simple procedure permitting the clarification and disinfection of water by using membranes filtering containments as small as 0,02 µm.

Advantages

- No legionella
- Works with low temperatures
- Needs very little space
- Automatic cleaning of the filter
- No maintenance needed

2 Implementation

Fresh water stations and ultrafiltration stations are already installed in various parts of Germany and the Baltic Sea Region. However, the use can definitely be expanded, especially during renovation processes.

3 Conclusion

From generating drinkable water to efficient and safe heating there are a lot of technologies that should be implemented in all countries and communities.

- Fresh water stations in buildings save energy and water and guarantee legionella free, drinkable tap water.
- Communities can encourage the implementation of ultrafiltration in transport pipes to ensure clean water for their inhabitants.
- As the climate changes, water scarcity might become a more widespread problem, so water should always be treated as efficiently as possible.

4. References

- [1] Energie Lexikon. Frischwasserstation. <https://www.energielexikon.info/frischwasserstation.html>
(last reviewed on 13.04.2021)