

Demineralised heating water  
perfect for every system

# PUROTAP profi

Fulfills the new  
SWKI BT 102-01



fast  
professional  
safely monitored



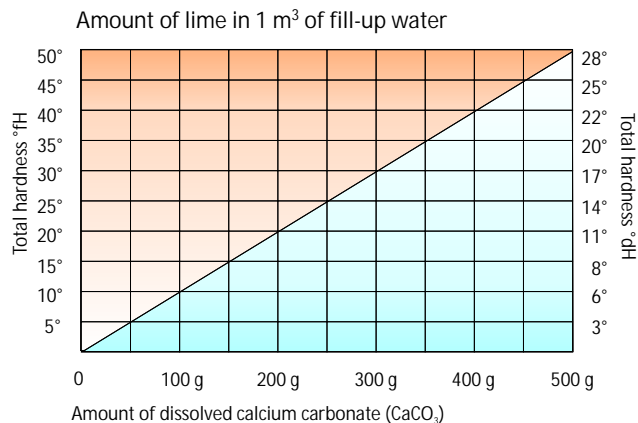
Minerals and salts in technical water circulations lead to corrosion and mineral deposits. PUROTAP filters aggressive materials out of the water and enables trouble-free operation.

# Combat lime precipitation in the boiler and heat exchanger



Completely desalinated water no longer contains any substances that can damage or settle in boilers and heat exchangers.

The following table shows the amount of lime that accumulates as a result of filling the heating system once with untreated water.



According to many manufacturer specifications and technical guidelines, fill-up water must normally be desalinated (demineralised) for heating systems. Practice has shown that modern devices such as wall-mounted gas boilers, heat pumps and solar systems are damaged by lime precipitation even at lower water hardness levels.

The larger the system capacity (e.g. storage tanks), the more lime is introduced with the fill-up water.

With a hardness of 17 °dH (and/or 30 °fH), 300g of lime accumulates per m<sup>3</sup> of water. This is still approx. 100 g for a single family dwelling with 350 l of system water content. This amount is more than enough to damage a modern high-capacity heat exchanger.

Fully desalinated = demineralised

Better than softened water

By replacing the calcium and magnesium ions with sodium ions during softening, the hardness components are removed from the water but the salt content remains high and unchanged. This is a disadvantage for modern systems with different metals in the system.

If guidelines recommend water softening, then this can be interpreted in such a way that more weight is attributed to the prevention of lime scale at a specific hardness than to the prevention of corrosion. This compromise is accepted because softened water is probably available locally in regions with critically high water hardness, whereas a complete desalination system is not.

There are no compromises with use of desalinated (demineralised) water when it comes to combating mineral deposits.

# Combat corrosion

Since corrosion processes in closed heating systems mainly involve electrochemical reactions, the electrical conductivity of the water plays a direct role in the rate of these reactions.

The salt content of the water determines the electrical conductivity. According to VDI guideline 2035, increasing amounts of oxygen are tolerated with reducing water salt content.

When ions are present that can take over the transporting of electrical currents in the water, the formation of galvanised elements that can lead to local corrosion (corrosion elements) is practically impossible.

Desalination also removes all neutral salts such as chloride, sulfate and nitrate that are known for causing corrosion above a certain concentration and in a specific interaction.

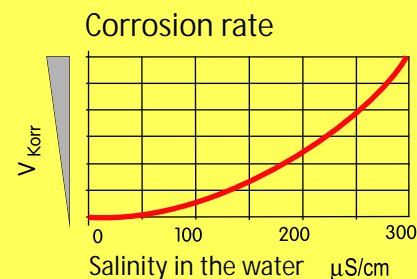
## According to current standards

Authority: VDI (German Associations of Engineers)	Guideline/Standard: 2035, Prevention of damage in water heating installations, corrosion in the water system.	Citation: [Sheet 2, Para. 8.5.] "Increasing amounts of oxygen are tolerated with reducing water salt content. When ions are present that can take over the transporting of electrical currents in the water, the formation of galvanised elements that can lead to local corrosion (corrosion elements) is practically impossible."  [Sheet 2, Para. 8.5.] When filling up larger warm water heating systems for the first time, it is recommended that desalinated water is used [...]
DIN German Institute for Standardisation	DIN 50930 Corrosion of metallic materials under corrosion load by water inside of tubes, tanks and apparatus	[Part 3, Para. 7.2] Chloride and sulfate ions stimulate the anodic partial reaction of metal corrosion. The corrosion probability for local corrosion can be reduced through selective anion exchange.
SWKI Swiss Society of Heating and Air Conditioning Engineers	BT102-01, Water quality for building services engineering systems	[Para. 4 ff] "Fill-up water and make-up water must be desalinated."  [d] "Demineralisation (complete desalination) is the best technical solution for water with high chloride or sulfate content."

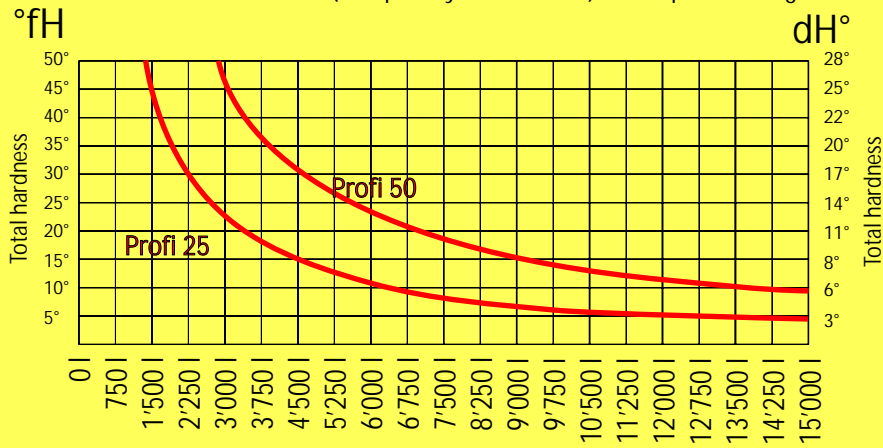
It has always been clear among experts that completely desalinated water is perfectly suitable for the fill-up water in heating systems and thus, the service life of all components is extended. Today this technology is very user-friendly and affordable with PUROTAP that it is ideal for practical application.



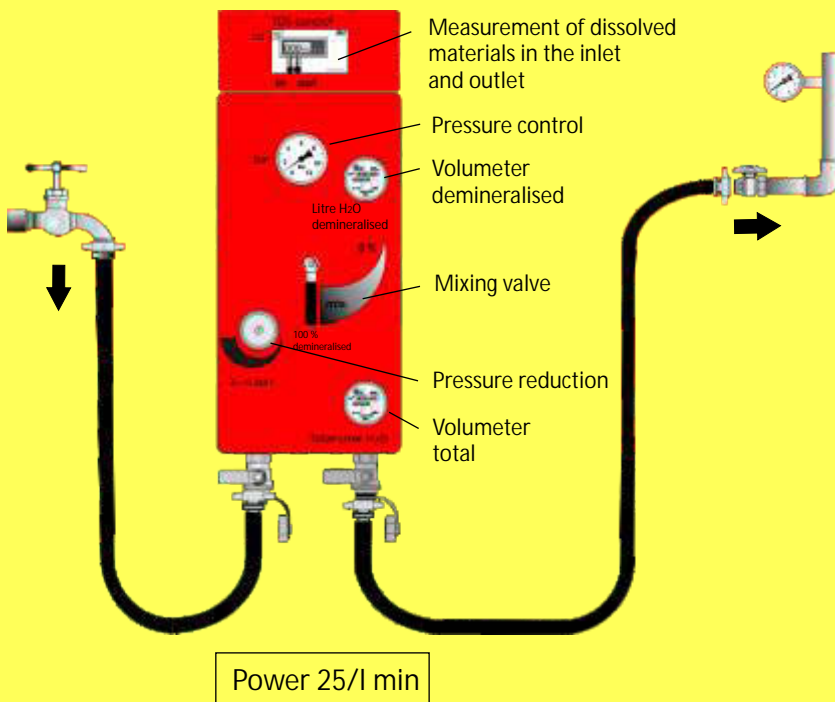
Localised corrosion for high levels of salt



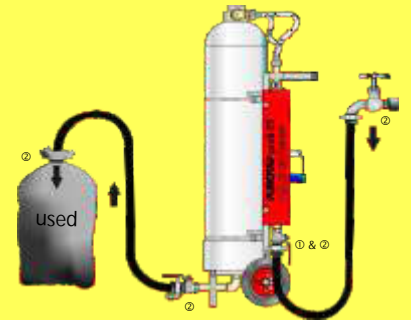
PUROTAP profi capacity  
Litres of demineralised (completely desalinated) water per cartridge



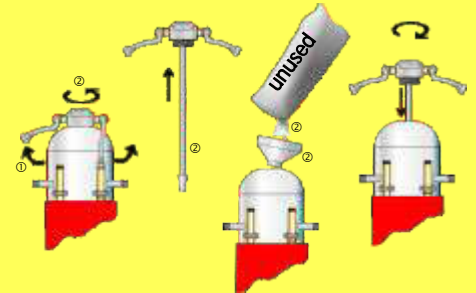
Operation



Empty used resin



Fill with new resin



Disposal:

The Purotap ion exchange resin can be disposed of with the household waste.

Protective measures:

The ion exchange resin in the cartridge must not enter the heating system. Check the fine sieve in the outlet regularly.

The cartridge may be loaded with a maximum 6 bar and 60 °C.

Completely desalinated water contains free oxygen and is slightly acidic (pH value 5-6).

In order to expel the dissolved gases from the system water, it is advantageous to run the system at operating temperature for a short period. After approx. one month of operation, we recommend that the system water quality and/or at least the pH value are checked.

6 good reasons

- to comply with VDI 2035 / SWKI BT 102-01
- no limescale in the boiler
- significantly less in the long term corrosion
- easy handling + measurable
- low cost - big win
- no recovery - local exchange resin