



elector[®]

›Electrochemical Heating Water Conditioning

**The proven heating system protection
against rust and sludge**

Proven to prevent corrosion and sludge!

The electrochemical conditioning of the heating water allows best heating performance by ideal heating water quality.

VDI 2035 standard

Heating water in accordance with VDI 2035, Part 1 and 2, directive of the Association of German Engineers (VDI)

The VDI 2035 Part 2 directive applies to heating systems as per EN 12828 and provides information on reducing the risk of corrosion within a heating system. Part 1 looks at the system fill water with damage caused by scaling.

Who's using VDI 2035?

VDI 2035 is now the go to standard from the vast majority of manufactures in the HVAC industry.

Many of the world's top manufactures are entrusting their long warranty periods as they have the belief that the VDI2035 standard will protect their equipment.

These manufactures are from all sectors of our industry including boiler, pump, biomass, chillers and heat pump manufactures.

VDI 2035 facts in brief

It is well known and accepted that chemicals such as corrosion inhibitors, oxygen binders or hardness stabilisers are not necessary to prevent malfunctions and damage in heating systems or other closed water circuits. The VDI 2035 standard is built around creating an environment where corrosion is unlikely. The methods used are based on natural science rather than using chemical additives.

According to VDI 2035, Part 2, the addition of chemicals should be limited to exceptional cases.

What we know from VDI 2035 is that by reducing the level of electrical conductivity we can create an environment where the risk of corrosion has been greatly reduced.

If we raise the pH level between 8.2-9.5 metals within the system will build up their own natural levels of protection against corrosion. Even in the presences of oxygen the metals are able to withstand the effects of corrosion.

It is possible for the metals to build up their own natural layer of protection without the requirement for inhibitors.

The low salt operation can be achieved by the filling water heating systems by ion exchange is completely demineralised

Operation with low salt content requires demineralisation of the water to < 100 $\mu\text{S}/\text{cm}$

The VDI 2035 refers to correct system design, the system being commissioned correctly and having the correct maintenance regime in place.



Ideal heating water quality

Low salt and chemical free

Electrochemical water treatment by elector.








In addition to the overall hardness and electrical conductivity, the pH value, the dissolved and undissolved gases and circulating particles play an important role in terms of water quality.

With a low-salt filling water for heating systems according to European guidelines, it is indeed possible to act preventively against damage caused by limestone and corrosion, but during system operation the water quality is usually exposed to changes.

Impurities, old water residues, chemical pollution, general operating conditions and ingress of gases due to non-diffusion protected materials can cause this change of water quality.

Electrochemical water treatment with the elector reaction tanks is a tried and tested method of maintaining the heating water quality at an ideal level during operation, thus avoiding rust, sludge and loss of efficiency.

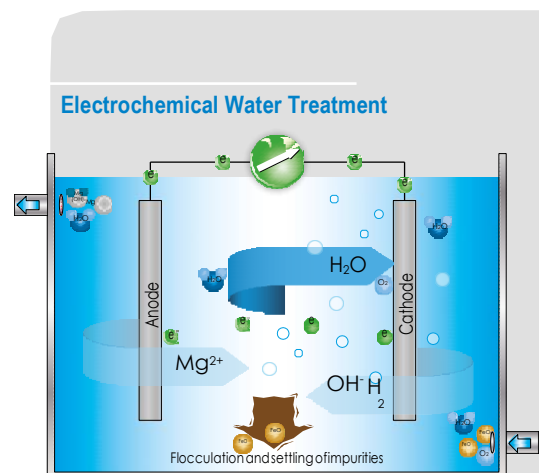
Be on the safe side with elector!

-  Stable pH>8.3 for the natural corrosion protection of metals, even in low temperature systems, without the use of chemicals.
-  Continuous deaeration and electrochemical consumption of dissolved gases, such as oxygen and free carbon dioxide.
-  Proven to avoid sludge in underfloor heating, even at installations with old non-diffusion protected plastic pipes.
-  System protection by separation of circulating magnetic particles and impurities.
-  Low-salt alkaline heating water in combination with deionised filling water, according to guideline recommendations.

Due to their design, the materials and the control units used, modern heating and cooling systems have become more efficient by reduced energy consumption.

In many cases, this increase in efficiency means smaller exchanger surfaces, thinner wall thicknesses for heaters and heat exchangers and the use of different materials.

The long-term preservation of such installations requires the best possible operating conditions, to which the quality of the heating water has a decisive influence.



Electrochemical water treatment is a proven method for heating water conditioning, which we have been using successfully for more than 25 years.

The method is based on the spontaneous formation of a galvanic element in the elector reaction tanks.

As a result of a series of chemical and physical reactions, the amount of dissolved oxygen in the heating water is reduced and the pH is stabilised.

In combination with deionised filling water, an elector enables the heating system to be protected with a low-salt alkaline heating water.

Type	max. Heating System Volume	Installation site	max. m³/h
electorXS5.....	0,5m³.....	Full Flow.....	2.4
electorS10-V.....	1.5m³.....	Full Flow.....	4.3
electorS10-B.....	1.5m³.....	Bypass.....	0.12
electorM25.....	5m³.....	Bypass.....	0.3
electorL60.....	10m³.....	Bypass.....	0.6
electorXL130.....	30m³.....	Bypass.....	1.2
electorXL+300.....	80m³.....	Bypass.....	3

