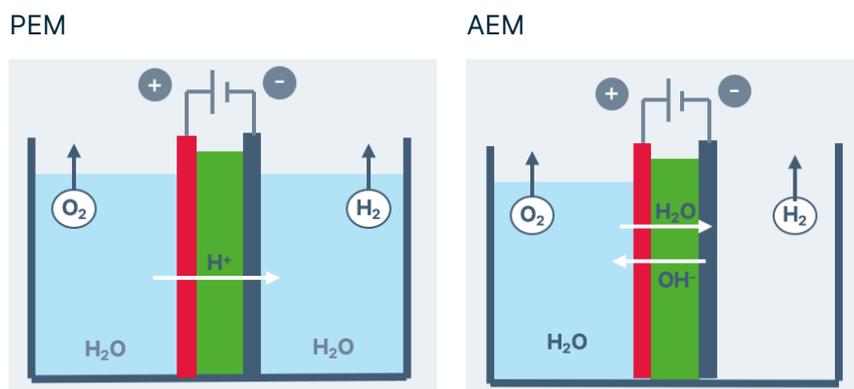


## Information: Electrolysis

One of the most common processes to produce hydrogen is electrolysis. However, there are different methods, whereby the basic principle is always the same. With the help of electricity, water is split into hydrogen and oxygen. This is referred to as green hydrogen, when renewable energies are used to generate electricity. So what are the differences between the different technologies?

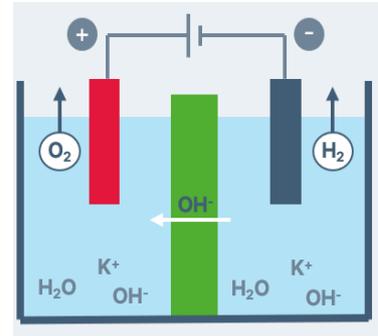
### PEM and AEM Electrolysis

In "Polymer Exchange Membrane" electrolysis, water is usually compressed to around 30 bar and then split into hydrogen and oxygen using electricity. The separated oxygen is either fed into further processes or discharged as a waste product. The separated hydrogen, on the other hand, is cleaned and then, if necessary, compressed again to a higher pressure. AEM electrolysis combines the advantages of PEM electrolysis with those of AEL electrolysis. This means that no separate electrolyte and no expensive catalyst is needed. In these two electrolysis processes, HEROSE valves find a wide range of applications - for small as well as larger electrolyzers. In smaller systems (up to 1 MW), our types 06011 and 06012 are the ideal protection for your system. The HEROSE types 06383 and 06440, on the other hand, are suitable for systems up to 100 MW. A high-pressure safety valve, such as our 06810, can be a good choice for the entire electrolysis system and especially for downstream compression. HEROSE offers a comprehensive range of straight-through valves for pure water intake.

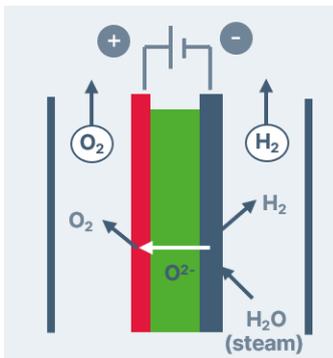


## AEL Electrolysis

In AEL electrolysis or alkaline electrolysis, water is dissolved in electrolyte (usually potassium hydroxide / caustic potash) and split into oxygen and hydrogen using electricity. The substances have to be separated from the electrolyte afterwards. Larger AEL electrolysis systems work at atmospheric pressure, with the newer systems already working with a pressure of 15 or 30 bar. This form of electrolysis is the one that has been used for the longest time. Here, too, HEROSE is already at the forefront. As with PEM electrolysis, our product types 06011 and 06012 reliably protect smaller systems and our types 06388 and 06440 are optimal for protecting larger systems.



## SOEC Electrolysis



In SOEC electrolysis, the use of steam and thus electrolysis at high temperatures is the basis for the process. Instead of water, steam is fed in at a temperature of 200 °C and under a pressure of 6 bar. This has the advantage that the need for electricity for the electrolysis decreases. This process is often used where heat-generating processes can be integrated, e.g. in ammonia production. We also offer you solutions for your system with this type of electrolysis. In our wide range of steam safety valves, with temperatures from 150 °C to 200 °C and pressures from 3 to 8 bar.



For more Information  
about HEROSE and our  
product portfolio visit our  
website.



## Contact

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