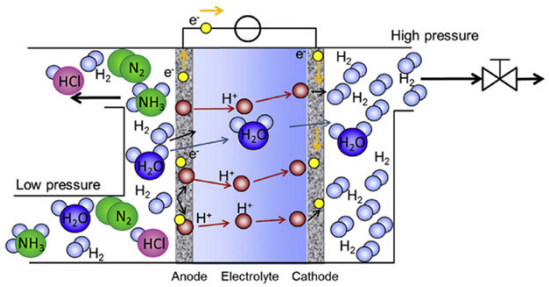
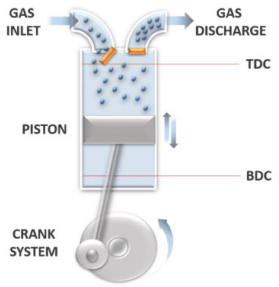
Compression Pathways for Buses and Automobiles



Schorer et al.: Membrane based purification of hydrogen system (MEMPHYS). International Journal of Hydrogen Energy (2019)



Sdanghi et al.: Review of the current technologies and performances of hydrogen compression for stationary and automotive applications. Renewable and Sustainable Energy Reviews (2019)

Description

In order to supply the fuel cell (FC) with sufficient hydrogen and to store it in a limited space, the low-density gas needs to be compressed up to a pressure of 350 bar for buses and 700 bar for cars. Today, mostly mechanical compressors such as reciprocating compressors and membrane compressors are in use. However, these exhibit various disadvantages such as low efficiency, fast material wear, and strong vibrations. In order to find innovative and more efficient strategies to compress hydrogen to pressures of up to 1.000 bar a simulation model will be developed which enables the prediction of the most efficient method for generating, compressing, and dispensing hydrogen.

Content

- Analysis of relevant compression pathways (1 month)
- Development of the simulation model for the prediction of the most efficient method (2,5 months)
- Concept for 350 and 700 bar hydrogen refuelling station (1,5 months)
- Creation of written master thesis in english or german (1 month)

Start from now on

Duration ca. 6 months

Paid Master Thesis

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