

Overview

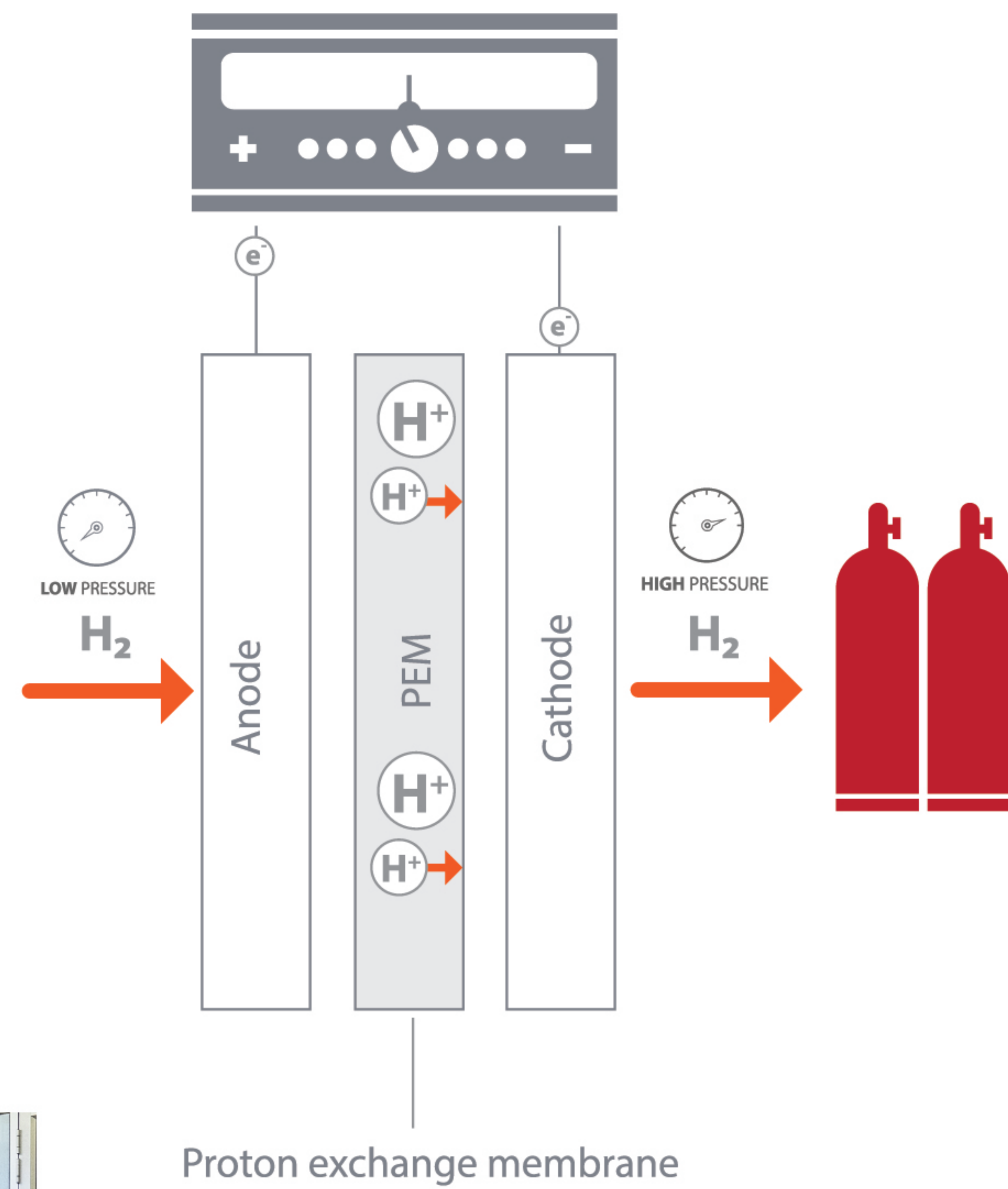
A promising possibility to utilize PGM as electro-catalysts is to electrochemically compress hydrogen to reduce hydrogen storage costs. The same principle can also be used for hydrogen purification.

Electrochemical compressor

An electrochemical compressor consists of three functional components:

Cathode
Anode
Membrane

- The anode and cathode is connected to a DC power source that controls the current.
- Low pressure hydrogen is fed to the anode, where the hydrogen is oxidized to produce protons and electrons.
- The proton passes through the membrane and the electrons move through the electric circuit.
- At the cathode, where they are rejoined by electrons to form molecules again. This process will continue until the supply of electricity or hydrogen is stopped.



Advantages

- No moving parts
- No energy losses due to friction
- Easier to eliminate product losses (easy to seal)
- Low noise level
- Suitable for small/medium scale
- Relative high efficiency
- Isothermal process
- Purifies hydrogen
- Hydrogen is not contaminated with oil
- Integrated speed control - No VSD required

SPECIFICATIONS	GEN 2 EHC	GEN 3 EHC	GEN 1 COMPACT
TOTAL CELL AREA (PER CELL)	86 cm ²	86 cm ²	85 cm ²
NUMBER OF CELLS	1	5	5
CURRENT RANGE	0 - 85 A	0 - 85 A	0 - 85 A
COMPRESSION RATE	0 - 683 mL _N /min	0 - 3085 mL _N /min	0 - 3085 mL _N /min
RATED PRESSURE	150 Barg	150 Barg	300 Barg