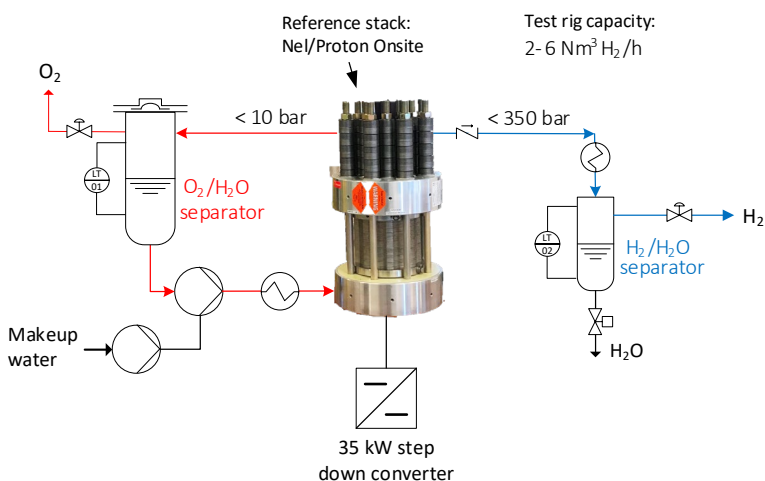




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# High Pressure PEM Water Electrolysis System Laboratory

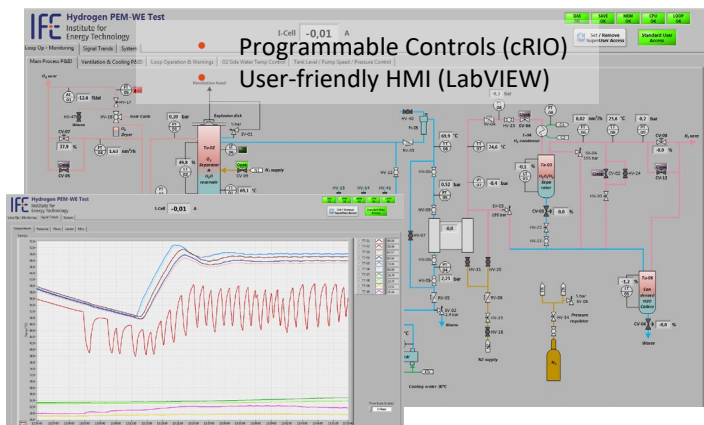
A small-scale water electrolyzer system test rig (6 Nm<sup>3</sup>/h, 60 kW) for testing of PEM-stacks (Proton Exchange Membrane) capable of operating at high pressures (upto 350 bar) has been built at the IFE Hynor Hydrogen Technology Center. The PEWWE Systems Laboratory can be used to test and characterize high-differential pressure stacks, emulate duty cycles (e.g. grid load profiles, solar and/or wind generation), test hybrid system configurations of water electrolyzers and batteries, and to perform R&D related to key components of the balance of plant (BoP).



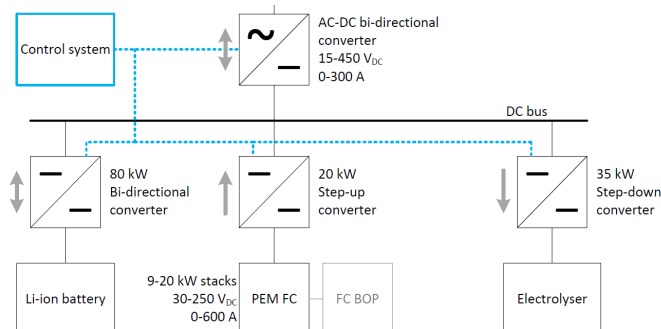
**Flexible BoP with adjustable hardware**  
Pressure vessels/tanks, coolers/dryer, filters/mix-beds all designed and built by IFE.

## Why High-Pressure Water Electrolysis?

- Possible to eliminate mechanical H<sub>2</sub>-compressor  
Compact and silent system with high up-time
- Reduced need to dry high-pressure H<sub>2</sub>-output  
Low amount of water in H<sub>2</sub>-output
- Thermodynamically favorable process  
Isothermal H<sub>2</sub>-compression



The AC/DC converter (Bitrode) can emulate different kinds of loads and power profiles.



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The Research Council of Norway is acknowledged for funding of the Norwegian Fuel Cell and Hydrogen Centre (project no. 245678).

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