

Empire Hydrogen Introduces the new 3-D Cell Design

April 4, 2023: Sidney, BC: Empire Hydrogen continues on our never-ending quest for technical advancement, this time culminating in the year long development of the “3-D Cell” design.

The 3-D electrolysis cell makes use of a proprietary design for the flow of electrons through the cell stack, doubling the production of hydrogen/oxygen gases with only a small increase in cell footprint. This development required very significant changes to the Fuel Enhancement System hardware design along with completely reworked control circuitry allowing for much greater power flow.

A very significant aspect of the 3-D cell design is in the control of heat generated in the electrolysis process. Empire has designed a cooling system that lowers system heat by twenty degrees Celsius. This returns the reservoir and cell combination into the temperature range optimal for hydrogen/oxygen gas production.

The 3-D Cell development will enable Empire to produce a single Fuel Enhancement System unit capable of up to six litres of hydrogen/oxygen output per minute, double the previous capacity. This gas volume is required as we move towards larger diesel engines including generators and marine vessels.

Empire Hydrogen’s investment in this, and other research projects, is backed with contributions of up to 55% from the Canadian Federal Government SRED Scientific Research & Experimental Development program. Each year Empire calculates the total expenditure on research and applies to the SRED program for a rebate of employee and contractor costs along with any material expenses incurred.

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Assembly Technician David Butcher fine tunes the power input on the new 3-D Cell