## TYPICAL HYDROGEN FUEL CELL

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STACK OF FUEL CELLS Fuel cells are arranged as a 'stack' consisting of a number of cells

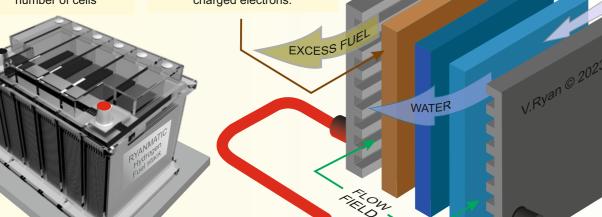
**HYDROGEN** 

**ANODE** 

**OXYGEN** 

**ANODE** - platinum catalyst divides the hydrogen gas into positive hydrogen ions and negatively charged electrons.

HOW THE HYDROGEN FUEL CELL WORKS



**ELECTRIC MOTOR** driven by the electrical generation from the hydrogen cell

**CATHODE** - electrons and positive charged hydrogen ions combines with oxygen to form water

ve PROTON

ve ELECTRON

**AIR** 

**CATHODE** 

POLYMER ELECTROLYTE **MEMBRANE** - allows positively charged ions to pass through to the cathode. They travel along the external circuit, as an

electrical current.

FLOW FIELD (Anode Side) hydrogen flows through the flow field. Excess hydrogen is recycled for further use.

(Cathode Side) - oxygen flows through the flow field. Water is the byproduct.

Hydrogen fuel cells are common in low power systems, such as security lighting. They provide a cost effective option, especially in areas where there is no electricity source. They are also silent, unlike those powered by a generator.

Hydrogen powered cars convert hydrogen gas into electricity, which provides the vehicles power and produce water as 'waste' from the exhaust system. A major advantage of hydrogen powered vehicles is that the only by-product is water. Hydrogen powered cars are as powerful as petrol / diesel equivalents and do not produce pollution.





## TYPICAL HYDROGEN POWERED CAR

DOWFREDBY 6 WATER / **EXHAUST HYDROGEN** LITHIUM-ION BATTERY **HYDROGEN HYDROGEN ELECTRIC CELL STACK FUEL TANK ENGINE / MOTOR FUEL INTAKE** 

**FIELD FIELD** FLOW FLOW OXYGEN / HYDROGEN 🐽 **HEAT EXCESS** WATER **HYDROGEN** AND

**POLYMER** 

**ELECTROLYTE MEMBRANE** 

1. HYDROGEN FUEL ADDED TO THE TANK.

2. HYDROGEN FLOWS FROM THE TANK, THROUGH FUEL CELL (3)

4. ELECTRICITY PRODUCED BY FUEL CELL STORED IN BATTERY AND ALSO FLOWS DIRECTLY TO THE ELECTRIC MOTOR (5), DRIVING THE CAR FORWARD. 6. WATER IS A BYPRODUCT - EXITS FROM THE EXHAUST