HFuel Product Overview

ITM POWER
Energy Storage | Clean Fuel

ITM Power is developing equipment to convert renewable energy to a clean fuel; storing the energy as green hydrogen for decarbonising transport, industrial and residential applications.

ITM Power is an AIM-listed company registered in England based in Sheffield. ITM has developed its own polymeric ion-conducting materials for hydrogen generation by water electrolysis.

HFuel

ITM Power's Transportable Hydrogen Refuelling Station (HFuel) is a self-contained module suitable for refuelling hydrogen-powered road vehicles and forklift trucks. It is well suited to small fleet and early "hydrogen highway" applications of both fuel cell and hydrogen engine vehicles (FCV and HICEV). It is based around a modular platform (standard freight containers) and can be expanded at any point after the initial installation enabling a staged roll out of hydrogen fuel.

HFuel generates hydrogen by electrolysis, compresses it, stores it and dispenses the gas on demand at high pressure (nominally 350 bar/35MPa). It requires an on-site water and electricity supply but is otherwise an autonomous solution for refuelling hydrogen-powered vehicles.

Zero-Carbon Fuel

Because HFuel is based on an electrolyser it is uniquely able to produce zero-carbon hydrogen if linked to a renewable power source or a supply of 'green' electricity. The fuel delivered to the vehicle is then carbon-free and no atmospheric carbon emissions result from its use. HFuel provides a pathway for eradicating emissions associated with light duty commercial vehicles and materials handling in warehouses and factories.

Unlike battery recharging stations HFuel enables the user to quickly recharge a vehicle to 100% capacity. This enables hydrogen to be used to decarbonise return-to-depot and shift work vehicles that have a higher daily mileage requirement.

HFuel Installation

HFuel has been designed on a modular platform to provide maximum flexibility for the customer; it contains a hydrogen production component (electrolysers) and a hydrogen storage component (compressed gas cylinders). As the hydrogen requirement grows, additional units containing production or storage can be deployed to suit the end user requirements. Designing a system in this way enables the staged expansion of a hydrogen network without the prohibitive capital outlay associated with stationary refuelling stations.

HFuel can be located conveniently at any commercial site or depot, within the constraints of health and safety guidelines. Installation-to-operation usually takes less than 3 days and does not require major civil works preparation. Subsequently if desired the HFuel module can be relocated and easily transported by road for installation at another site. This feature facilitates easier demonstration of hydrogen refuelling in a range of commercial and industrial settings and helps organisations to gain an early appreciation of the benefits of on-site hydrogen refuelling.

HFuel Operation and Performance

- Simple operation
- Industry standard connection nozzle to fit most vehicles.
- Ambient temperature operating range -10°C to 40°C
- Scalable production up to 50kg/day H_2
- 350 bar (35MPa) discharge pressure
- Typical vehicle refill period of 3 minutes
- Purity of gas configurable up to fuel cell grade

Key Features:

- On-site production of fuel – no logistics
- Zero carbon solution if powered by renewable energy
- Staged, scalable solution based on user requirements
- Rapid refuelling capability
- Minimal site preparation required

Site Requirements

- Potable tap water supply, 20 psi minimum pressure
- 3-phase 400V AC 50/60Hz power supply
- Flat site area capable of supporting freight containers
- H&S appraisal of intended site

HFuel Optional Features

- Upgradable to 700 bar (70MPa) refuelling
- Gas purity can be reduced for HICE vehicles (cost benefits)

ITM Power has designed hydrogen systems technology for integration into the built environment and transport to provide energy security and zero-carbon energy solutions for early adopters.

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