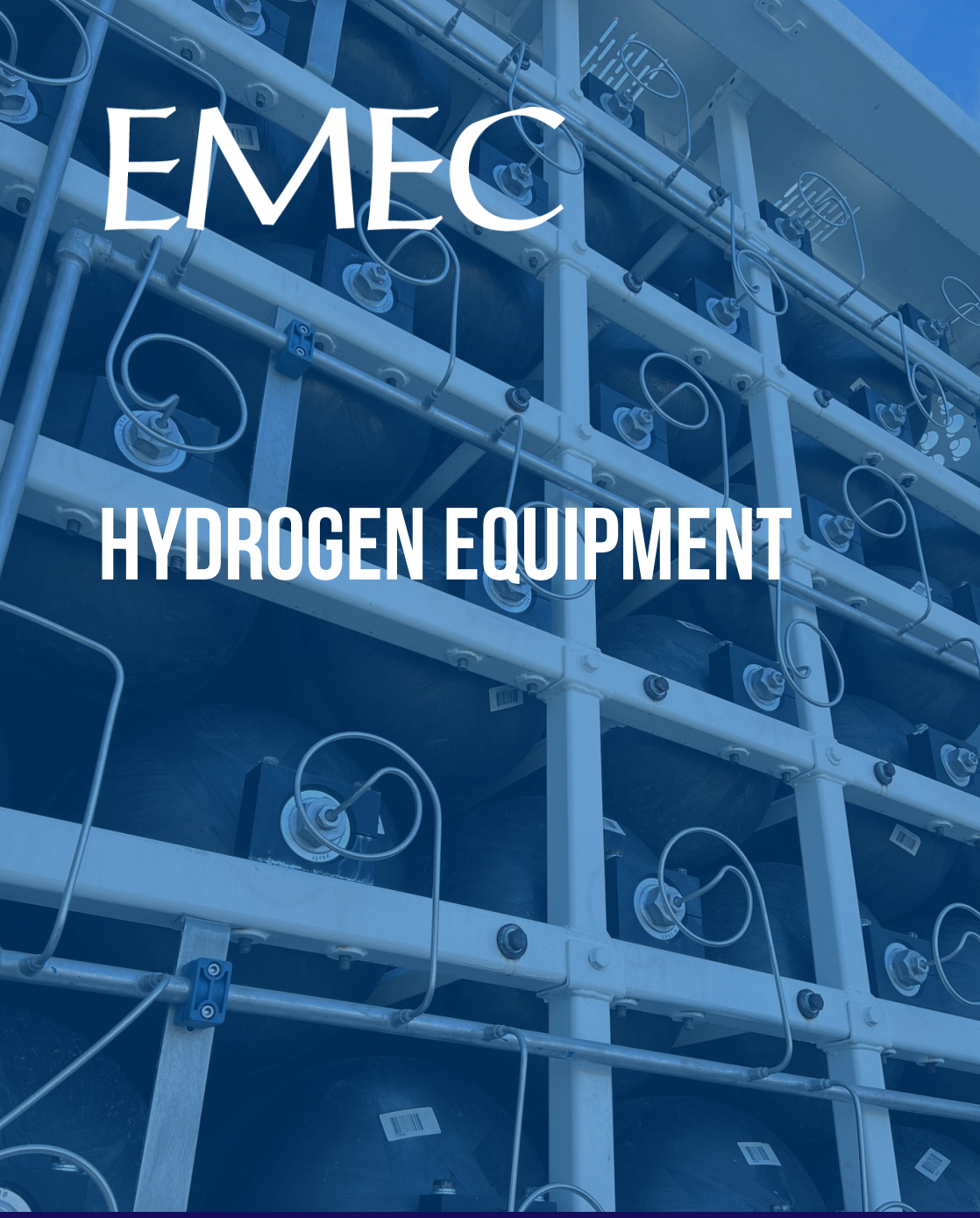

EMEC

HYDROGEN EQUIPMENT

Contact us

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WHO WE ARE

EMEC is an **innovation catalyst**, supporting the commercialisation of emerging technologies by reducing the time, cost and risk of demonstration and exploring new technologies, energy vectors and storage solutions to maximise the utilisation of renewables.

Since 2016, EMEC has been at the **forefront of hydrogen R&D**, hosting pilot demonstrations integrating marine energy generation with novel hydrogen technology spanning hydrogen production, storage and transportation and end use.

Most of EMEC's work is experimental, putting early stage, pre-commercial technological solutions to the test. EMEC has taken part in R&D projects totalling £538 million for the development of the renewables industry.

HYDROGEN EQUIPMENT PURCHASE OPPORTUNITY

Due to some R&D demonstration projects coming to an end, EMEC is making a selection of hydrogen equipment available to purchase.

Through these demonstration projects, we have gained great insight into hydrogen's role in the future energy landscape, particularly in the Orkney Islands context where we operate.

As we progress our demonstration focus to hydrogen production as a feedstock for the creation of synthetic liquid fuels to support de-fossilisation of hard-to-electrify sectors like industry, aviation and maritime, we are making some of our existing hydrogen assets available to purchase. This will let us free up space at our sites to accommodate the demonstration of new technologies like direct air capture.

CONTACT US

For more detail on the asset specifications and prices, get in touch with **commercial@emec.org.uk**

MULTI ELEMENT GAS CONTAINERS

These Calvera-manufactured multi element gas container (MEGC) units are designed to store and dispense hydrogen. When mounted on a chassis, they can transport hydrogen from point of production to end-use applications.

Two units are available to purchase.

Each MEGC can store 250 kg of hydrogen and consists of 59 lightweight composite cylinders (Type-3) made of aluminium with a Kevlar wrap.

The MEGCs have been successfully used to supply hydrogen for demonstration projects on both the Orkney mainland and UK mainland.

TECHNICAL SPECIFICATIONS

2 x Calvera MEGC

Gross weight: 10360 kg

Storage: 250 kg hydrogen at 200 bar

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MODULAR HYDROGEN PRODUCTION SYSTEM

This re-deployable modular hydrogen production system, built by Fuel Cell Systems, can be used for on-site small scale hydrogen generation in locations with no fixed production infrastructure.

Housed in a 10ft container (pictured below), the unit consists of 10 stack anion exchange membrane (AEM) electrolyser technology with two gas dryer units from Enapter and a low-pressure buffer tank.

The 10 stack electrolyser is rated at 24 kW and generates high purity fuel cell grade (≥ 99.999%) hydrogen at 30 – 35 bar which is then stored in the low-pressure buffer tank (500 litre capacity).

TECHNICAL SPECIFICATIONS

10 stack Enapter AEM electrolyser

Hydrogen production at 35 bar at a rate of 500 litres per hour per electrolyser module (10 modules)

500 litre low pressure buffer tank

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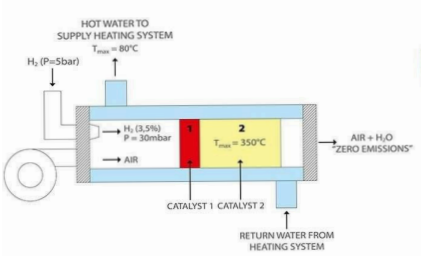
GIACOMINI H2 5KW BOILER

The CCF01-2018 hydrogen boiler is powered by pure hydrogen and designed for use in heating systems, particularly those with radiant heating that use low-temperature water (35-40°C).

The boiler operates with flameless combustion, thanks to internal catalysts and provides reliable heating.

It has a delivery temperature range of 30°C to 80°C. The system is designed for efficient thermal energy recovery, making it a cleaner option for heating.



TECHNICAL SPECIFICATIONS

Optimised for radiant heating systems with low-temperature water (35 - 40 °C)

Delivery temperature range: 30°C - 80°C

Internal temperature range: 250°C - 300°C

H2 concentration: Approx 3-4% inside the reaction canal

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LUXFER STORAGE CYLINDERS

12 Type-3 cylinders manufactured by Luxfer.

The cylinders have a combined capacity of 332 litres and a working pressure of 350 Bar at 15°C.

Made with a seamless 6061 aluminium liner, each cylinder is fully wrapped in a carbon fibre and epoxy-reinforced laminate for added strength.

TECHNICAL SPECIFICATIONS

Total capacity of 12 x cylinders: 332L

Working pressure of 350Bar at 15°C

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PIONEER 145 REFUELLER

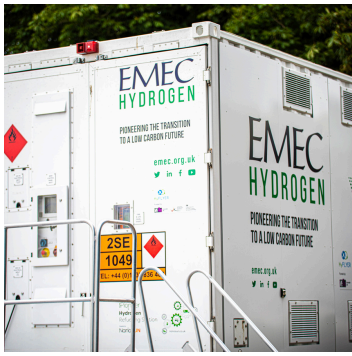
The Pioneer is a self contained, mobile hydrogen refuelling solution rated at 425bar with a storage capacity of 420kg.

Mounted on a triple-axle trailer, the unit is mobile, making it ideal for temporary deployments, pilot project or support in remote locations.

Previously used to support the refuelling of hydrogen-powered aircraft used in conjunction with the HyQube compressor for higher-pressure applications.*

The refueller can be reprogrammed to be compatible with other end applications.

*For higher pressure solutions, see HyQube asset listing.



TECHNICAL SPECIFICATIONS

9 x Type 4 fully composite cylinders

Refuelling ramp rate limit : <30 barg, max 0.33 bar/min

Housed in ISO-standard 20ft shipping container

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HYQUBE 500 REFUELLING STATION

The HyQube refuelling station is a compact, modular solution. Manufactured by Fuel Cell Systems Ltd, it enables flexible deployment and supports a range of refuelling needs across sectors. It dispenses gas at 350 bar, making it ideal for meeting small to medium sized refuelling requirements.

Please note: The HyQube does not include integrated hydrogen gas storage.

In previous use, it was paired with the Pioneer mobile refueller* for aircraft refuelling. In this set up, the compressor element of HyQube supported the Pioneer to reach maximum refuelling pressure requirements of the end use vehicle.

*For full system details, see the Pioneer 145 asset listing.

TECHNICAL SPECIFICATIONS

Air driven compressor

Electrical connection: 415 VAC

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PROTON MOTOR 75KW FUEL CELL

Fuel cell, manufactured by Proton Motor, provides 75 kW of power and 80 kW of heat output. 40 Sonnenschein PowerCycle batteries with 165 Ah each are used for buffering the energy.

Housed in a 20ft container, it is designed to replicate a vessel's engine room and can be used as a training rig for maritime professionals.

It was previously part of a pioneering MCA-approved hydrogen training course, aimed at equipping mariners with the skills and knowledge to work on hydrogen-powered vessels.

TECHNICAL SPECIFICATIONS

3 x fuel cell units each rated at 25kW

40 Sonnenschein PowerCycle batteries

Total power output: 75 kW

Total heat output: 80 kW

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HOFER COMPRESSOR

Compressor manufactured by Hofer, housed in a 20ft container.

This would be suitable for integration into a hydrogen production plant.

TECHNICAL SPECIFICATIONS

Suction capacity VN: 190 m³/h
Suction capacity: 36 kg/h
Suction pressure: 18 bar abs - 19 bar abs
Suction temperature: -2 °C up to +40 °C
Discharge pressure: 204 bar

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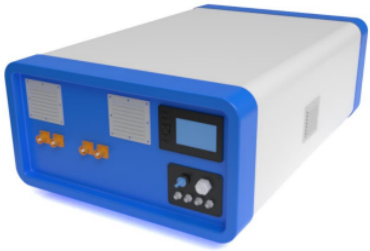
MARINE FUEL CELL POWER SYSTEM

The Marine Fuel Cell Power System includes:

- Genevos HPM-15 Hydrogen Power Module rated at 15 kW
- LiFePO4 48V 10.3 kWh single module battery
- CEM 030 Bronze self-priming pump (230V, 75 l/min)



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For detailed specifications and pricing, please contact:

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