

PRODUCT PORTFOLIO

PEMFC stack module NM12-twin

— GENERAL FUNCTION

EKPO develops and produces PEMFC stack modules that are based on patented designs for metallic bipolar plates as well as end plates and media supply assemblies, providing many benefits for integration into fuel cell systems. Low-temperature fuel cell stacks from EKPO have excellent power and durability characteristics and can be used for a very wide variety of vehicle categories. Due to a chemical reaction between oxygen and hydrogen, electrical energy is generated which, depending on system design, can directly supply an electric motor or charge battery modules in the vehicle. The NM12-twin PEMFC stack module is available with a cell count of 598 cells [2x 299 cells]. At 2.5 bar_a operating pressure it achieves a power output of up to 205 kW_{el}. The PEMFC stack module NM12-twin is designed for applications with high power requirements (>150 kW) in the heavy-duty, rail and marine sectors.

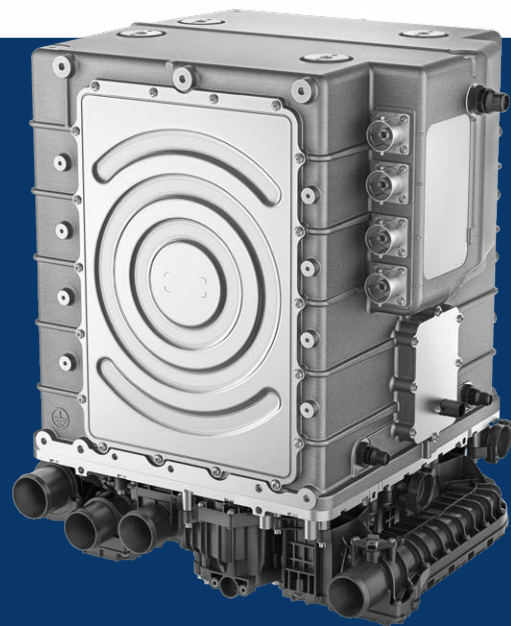
— TECHNOLOGY

Our established processes and experience in production technology have given us decisive advantages for series development and production in the field of fuel cells.

Automated, high-precision and interlinked production of metallic bipolar plates

Series-compatible development and manufacture of end plates and media modules made of plastic

Flexible and automated stacking operations as well as assembly of the stacks



— PARAMETERS

Customer-specific stack solutions with power levels up to 205 kW_{el}

Hydrogen-air operation

Liquid-cooled

Pressurized operation up to 2.5 bar_a

IP [6KX, X6K, X7] housing¹ with EMC shielding

Compact integrated cell voltage monitoring (CVM)

Integrated media control, water separators and media monitoring

Robust sensors and actuators acc. to automotive standards

Stack module validated acc. to IEC 62282 and GB/T 33978

Developed for compact stack and system design

¹ If HV-interface is connected according to stack manual

— BENEFITS

- High power density due to lightweight, compact stack design
- High dynamic response in power provisioning
- Robust component and stack design suitable for mass production, with long service life and minimal power degradation
- Proven cold-start performance and durability
- System simplification by integration of functions at the media supply assembly of the stack (sensors, actuators and valves)
- Metallic bipolar plates in patented designs



— SPECIFICATIONS

Cell Count	598 (2 x 299)
Rated stack power	205 kW
Power density stack ¹	4.0 kW/l
Power density cell block ²	6.2 kW/l
Rated stack voltage	359 V
Rated current ³	570 A (2.28 A/cm ²)
Max current	625 A (2.50 A/cm ²)
Rated operation pressure	2.5 bar _a
Active area	250 cm ²
Cell pitch	1.27 mm
Orientation	Cells horizontal
Dimension incl. housing	477 x 561 x 633 mm
Approximate weight	125 kg

¹ Value refers to cell row assembly including compression hardware

² Based on bipolar plate contour

³ Current at 0.6 V cell voltage

— EKPO – YOUR INDUSTRIAL FUEL CELL PARTNER

Components and stacks, from development to series production

— YOUR CONTACT

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