

PRODUCT PORTFOLIO

# PEMFC stack module NM5-evo

## — 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 NM5-evo PEMFC stack module is currently available with a cell count of up to 335 cells. At 2.5 bar<sub>a</sub> operating pressure it achieves a power output of up to 76 kW<sub>el</sub>.

The PEMFC stack module NM5-evo is designed for high volume automotive applications.

## — 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 76 kW<sub>el</sub>

Hydrogen-air operation

Liquid-cooled

Pressurized operation up to 2.5 bar<sub>a</sub>

IP [6KX, X6K, X7] housing<sup>1</sup> 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



<sup>1</sup> 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	335	215	119	71
Rated stack power	76 kW	49 kW	27 kW	16 kW
Power density stack <sup>1</sup>	3.6 kW/l	3.4 kW/l	3.0 kW/l	2.6 kW/l
Power density cell block <sup>2</sup>	4.6 kW/l	4.6 kW/l	4.6 kW/l	4.6 kW/l
Rated stack voltage	201 V	129 V	71.4 V	42.6 V
Rated current <sup>3</sup>	380 A [2.0 A/cm <sup>2</sup> ]	380 A [2.0 A/cm <sup>2</sup> ]	380 A [2.0 A/cm <sup>2</sup> ]	380 A [2.0 A/cm <sup>2</sup> ]
Rated operation pressure	2.5 bar <sub>a</sub>	2.5 bar <sub>a</sub>	2.5 bar <sub>a</sub>	2.5 bar <sub>a</sub>
Active area	190 cm <sup>2</sup>	190 cm <sup>2</sup>	190 cm <sup>2</sup>	190 cm <sup>2</sup>
Cell pitch	1.34 mm	1.34 mm	1.34 mm	1.34 mm
Orientation	Cells vertical	Cells vertical	Cells vertical	Cells vertical
Dimension incl. housing	329 x 225 x 687 mm	329 x 225 x 530 mm	329 x 225 x 401 mm	329 x 225 x 337 mm
Approximate weight	52 kg	40 kg	31 kg	25 kg

<sup>1</sup> Value refers to cell row assembly including compression hardware

<sup>2</sup> Based on bipolar plate contour

<sup>3</sup> 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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