

PEMFC stack module NM20

— 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 wide range of applications. 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 NM20 PEMFC stack module achieves a power output of up to 400 kW_{el} at an operating pressure of 2.8 bar_a.

This module is designed for heavy-duty applications with high power and high efficiency requirements.

— TECHNOLOGY

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

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

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

— PARAMETERS

Hydrogen-air operation

Liquid-cooled

Pressurized operation up to 2.8 bar_a

Compact integrated cell voltage monitoring [CVM]

Integrated media control, water separators and media monitoring



Robust sensors and actuators acc. to automotive standards

System ready design: direct DC/DC connection and mechanical mounting points for compact BOP integration

IP6k9k / IP67 housing¹ with EMC shielding

¹ If HV-interface is connected according to stack manual

— BENEFITS

- Highest efficiency and durability
- Higher operating temperature to minimize cooling system
- Mass production technology enabling low costs
- Sustainable stack design offering high recycling rate
- Enhanced power density by more than 50 % in heavy-duty applications
- Freeze start ability below -30 °C



— SPECIFICATIONS¹

Rated stack power ²	Approx. 400 kW
Durability ²	> 25,000 h
Continuous operating temperature ²	Up to 95 °C
Efficiency [at rated power] ²	Approx. 57 %
Rated current ²	900 A
Rated operation pressure ²	Up to 2.8 bar _a
Cell pitch	< 1.1 mm
Module size ³	611 x 683 x 682 mm
SOP [series product]	2027

¹ Design targets for series product (available from 2027) — currently under validation

² Depending on fuel cell system design, operating conditions and operating strategy

³ Dimensions of prototype (A-sample), which is currently available

— EKPO – YOUR INDUSTRIAL FUEL CELL PARTNER

Full service partner from development to series production for components and stacks

— YOUR CONTACT

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