

Fuel Cell Power Module for Heavy Duty Motive Applications

Description

Ballard's FCmove™-HD product is the next-generation heavy duty fuel cell power module for use in zero-emission motive applications. The hydrogen fuelled power module offers a durable, compact and easy installation solution for system integrators and vehicle OEMs, backed by Ballard's unmatched fuel cell expertise and experience.



Features

Lower Life Cycle Cost – with better fuel economy and fewer maintenance requirements, total cost of ownership is 35% lower than previous product generations.

Simplified Integration – this complete package, with all subsystems fully integrated, has interfaces located on one panel to provide easier access for connections as well as maintenance.

Robust Components – designed with a new generation of more robust balance of plant components to improve reliability.

System Integration Flexibility – reducing the volume by 40% and weight by 35% has produced a low-profile power module that enables greater flexibility in commercial vehicle design.

Freeze-Start Capability – freeze start from -25°C, with no need to plug in the vehicle or use special start procedures.

Humidification – integrated humidification system is maintenance free and provides maximum system performance and durability through a wide range of environmental conditions.

High Performance – robust PEM fuel cells deliver the power, range, and efficiency demanded by fleet operators.

Proven Reliability & Durability – demonstrated through exceptional fuel cell stack lifetime, with >30,000 hours of operation and 97% module availability in service.

Excursions to High Temperature Operation – permits a smaller cooling package for integration flexibility and generates HVAC heating, significantly improving overall vehicle fuel economy.

Climate Protection – IP56 - rated enclosure system guards against premature deterioration of key module components in extreme climates.

High Pressure System – offers better performance, fuel efficiency and durability by preventing degradation of the fuel cell power module.

Fuel Efficiency – two to three times more efficient than CNG/ diesel engines, fuel cell buses reduce overall fuel consumption.

Remote Diagnostics – direct or wireless connection allows customer to monitor performance data remotely, and anticipate preventative maintenance.

Safety Features – integrated safety system with ventilation fans, and hydrogen sensor built into the module to ensure highest safety and ease of installation.

Power to change the world®

PRODUCT SPECIFICATIONS

	FCmove™-HD*
Performance	
Net system power	72 ± 2 kW
Operating system current	20 - 240 A
Operating system voltage	250 - 500 V
Idle power	8 kW
Physical	
Dimensions (l x w x h) mm, excluding air filter	1496 x 850 x 367
Dimensions (l x w x h) mm, including air filter	1784 x 850 x 415
Weight	242 kg (including air filter)
Environmental protection	IP56
Operating temperature	-30°C – +50°C
Minimum start-up temperature	-25°C
Short-term storage temp	-40°C – +80°C
Reactants and Coolant	
Fuel Type	Gaseous hydrogen
Fuel purity	As per SAE J2719, ISO 14687:2019 grade D
Fuel supply pressure	8 barg nominal
Peak fuel efficiency	57%
Oxidant	Air
Coolant	Ethylene glycol 0% to 60% by volume, balance DI water
Radiator coolant outlet temperature	60°C nominal
Safety Compliance	
Certifications	ISO 6469-2:2009 ¹ ISO 6469-3:2011 ¹ ISO 23273:2013 ¹ SAE J2578 ¹ , UN ECE Reg 10, ECE/TRANS/180/Add.13 ¹ , REACH
Monitoring	
Control Interface	CANbus
Emissions	
Exhaust	Zero-emissions (no PM, NOx, SOx, CO or CO ₂)
¹ Specific clauses within each standard * Specifications are subject to change without notice	