Fuel Cell Power for Medium Duty Applications

Ballard’s FCmove™-HD is the next-generation medium duty fuel cell power module for use in zero-emission motive applications. The FCmove™-HD offers a durable, compact and easy installation solution for system integrators and vehicle OEMs, backed by Ballard’s proven experience, unmatched product performance, and service quality promise.

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 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 >25,000 hours of operation and 97% module availability in service.

**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.

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## Product Specifications*

### Performance
- **Net system power**: 70kW
- **Operating system current**: 20 - 240 A
- **Operating system voltage**: 250 - 500 V
- **Idle power**: 8kW

### Physical
- **Dimensions (l x w x h) mm, excluding air filter**: 1495 x 822 x 368
- **Dimensions (l x w x h) mm, including air filter**: 1783 x 822 x 415
- **Weight**: 247 kg
- **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 specification J2719 or ISO 14687:2019 grade D
- **Fuel supply pressure**: 8 barg nominal
- **Peak fuel efficiency**: 57%
- **Oxidant**: Air
- **Coolant**: Ethylene glycol min 0% to max 60% by volume, balance DI water
- **Radiator coolant outlet temperature**: 60°C nominal

### Safety Compliance

### Monitoring
- **Control Interface**: CANbus

### Emissions
- **Exhaust**: Zero-emissions (no PM, NOx, SOx, CO or CO2)

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* Specific clauses within each standard  
* Specifications are subject to change without notice