HYDROGENICS
Advanced Hydrogen Solutions

HyPM™ HD 90

Heavy Duty Fuel Cell Power Module

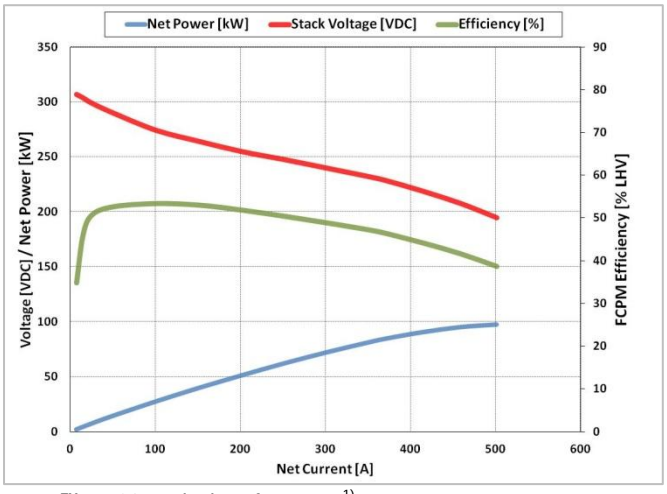
- *Liquid-cooled advanced MEA PEM stack*
- *Integral Balance of Plant*
- *Advanced onboard controls and diagnostics*
- *Comes with low pressure cathode air delivery*
- *-46°C sub-zero shutdown capability*

- *Rapid start-up and dynamic response*
- *Unlimited start-stop cycling*
- *Robust, rugged and reliable*
- *No water for humidification required*
- *No nitrogen required for shutdown*

Technical Data

Rated Electrical Power	99 kW continuous
Operating Current	0 to 500 A_{DC}
Operating Voltage	180 to 360 V_{DC}
Peak Efficiency	55%[1)]
Response	< 5 s from off to idle < 3 s from idle to rated power
Fuel	Hydrogen >99.98%
Oxidant	Ambient Air
Coolant	De-ionized water (DI H_2O) or 60% ethylene glycol / DI H_2O
Ambient Temperature	-10 to +55°C operating -40 to +65°C storage (<2°C with automated freeze shutdown feature)
Communication Interface	CAN v2.0A (standard 11 bit)

[1)] Efficiency based on LHV of H_2, 25°C, 101.3 kPa, including onboard parasitic loads, excluding radiator fan and water pump



HyPM™ HD90 Typical Performance[1)]

Physical

Dimensions L x W x H[2)]	955 x 1525 x 345 mm
Mass[3)]	327 kg
Volume[3)]	502 L

[2)] Excluding air delivery and optional water pump
[3)] Including air delivery and optional water pump

Includes

- Air delivery unit (low pressure blower)
- Integration and operation manual
- Product Warranty

Options

- Coolant pump
- Thermal management kit
- Diagnostics software
- Power electronics components

Applications

- Urban transit buses
- Heavy duty commercial fleet vehicles
- Industrial trucks
- Marine
- Aerospace

Actual delivered product may differ in appearance.
Specifications subject to change without prior notification.
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