

Zero Emissions. Limitless Possibilities.



It's time to move beyond diesel.

A fuel cell pioneer with over 25 years' experience powering many types and classes of vehicles, Nuvera is defining the next generation of power solutions.

Nuvera® E-Series Fuel Cell Engines provide high-performance zero-emission power solutions for buses, trucks, marine vessels, industrial trucks, and other off-road equipment.

Our aim is to provide products that surpass conventional diesel engines on every level:

Performance | Cost of Ownership | Ease of Use | Productivity

Nuvera Offers:

UNIQUE TECHNOLOGY at the core of integrated fuel cell engines

COMPACT ENGINES designed for EFFICIENCY, RELIABILITY, and EASE OF INTEGRATION

DESIGNED FOR RELIABILITY AND DURABILITY for versatile and tough applications

HIGH-EFFICIENCY fuel cell performance reduces fuel consumption and extends operating uptime

STATE-OF-THE-ART MANUFACTURING that yields high-quality products

EXPERIENCED APPLICATIONS ENGINEERING TEAM simplifies fuel cell integration into electric powertrains

COMPREHENSIVE AFTERMARKET SUPPORT provided worldwide

A COLLABORATIVE APPROACH focused on customer success

ENGINES FOR
THE MODERN AGE
AVAILABLE NOW.



Why Nuvera?

A passion for exceeding expectations.

Leadership in fuel cell efficiency and power density.

Attractive cost of ownership.

THAT'S NUVERA.

Let's move the world together.™

Learn more at www.nuvera.com or follow Nuvera Fuel Cells on LinkedIn.



USA | Headquarters
Billerica, Massachusetts

EUROPE | Offices and Test Facilities
Milan, Italy

CHINA | Sales and Customer Support
Hangzhou, PRC

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NUVERA E-Series Fuel Cell Engines

Designed for Efficiency, Reliability, and Ease of Integration



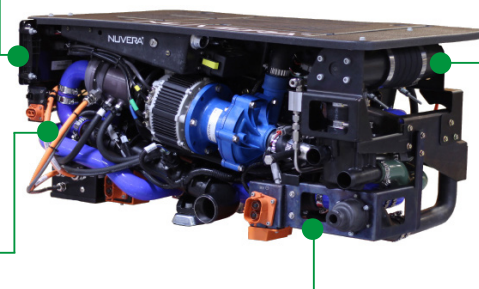
Unique Patented Controls

Optimized performance, self-protection, and maintenance of water balance under dynamic operating conditions



Compact Compressor

Fully integrated and low parasitic power



Hydrogen Ejector

100% passive fuel recirculation without power loss

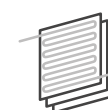
Nuvera® 8th Generation Fuel Cell Stack



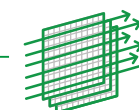
Nuvera's open flow field technology is 'free breathing.'

More reactants can reach the entire MEA providing greater power density and higher efficiency.

Conventional



Nuvera®



Metal Plates

Resistance to shock and vibration provides robustness and strength

E-Series Fuel Cell Engines Product Specifications

	Parameter	Specifications	
Nuvera [®] Fuel Cell Engine		E-45-HD	E-60-HD
Performance (Beginning of Life)	Gross output power*	53 kW	67 kW
	Net output power*	45 kW	59 kW **
	Operating voltage	170–290 VDC	175–290 VDC
	Maximum operating current	312.5 A	375 A
	Peak efficiency	58%	
Physical	Dimensions (L x W x H)	1000 x 600 x 500 mm	
	Mass	187 kg	190 kg
	Standard electrical and mechanical interfaces		
Operation	Ambient operating temperature	-30°C to 45°C	
	Coolant	De-ionized water or glycol mix	
	Oxidant	Air	
	Fuel quality	SAE J2719, ISO 14687-2	
	Air supply pressure	0.70–1.05 bara	
	Fuel supply pressure	12.5–15.0 bara	
	Input power for balance-of-plant	1.2 kW at 27 VDC 6.0 kW at 375 VDC	1.2 kW at 27 VDC 7.5 kW at 375 VDC
	Input power - 30 °C freeze start module***	3.5 kW	
	CAN 2.0B communication with vehicle		
Standards	Nuvera certifications	ISO-9001, ISO-14001, ISO- 45001	
	Regulatory conformance	2006/42/EC, 2011/65/EU, 2014/30/EU IEC 62282-2, GB/T 29838, GB/T 33978	
	Functional safety	ISO 13849-1:2015	

* ±5% tolerance on power measurements

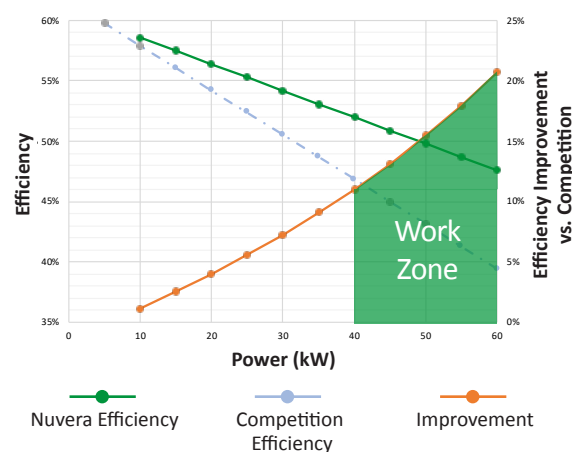
** Power and efficiency data verified by Shanghai Motor Vehicle Inspection Center

*** Power required during -30°C freeze prestart cycle only

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HIGH EFFICIENCY HIGH POWER PERFORMANCE DELIVERY TRUCK CASE STUDY

Efficiency Comparison Nuvera E-60-HD Fuel Cell Engine



With hydrogen accounting for 70% of cost of ownership for heavy-duty applications, saving fuel is critical.

Nuvera provides 20% efficiency benefit where it's needed most – in high-power **Work Zone** performance.