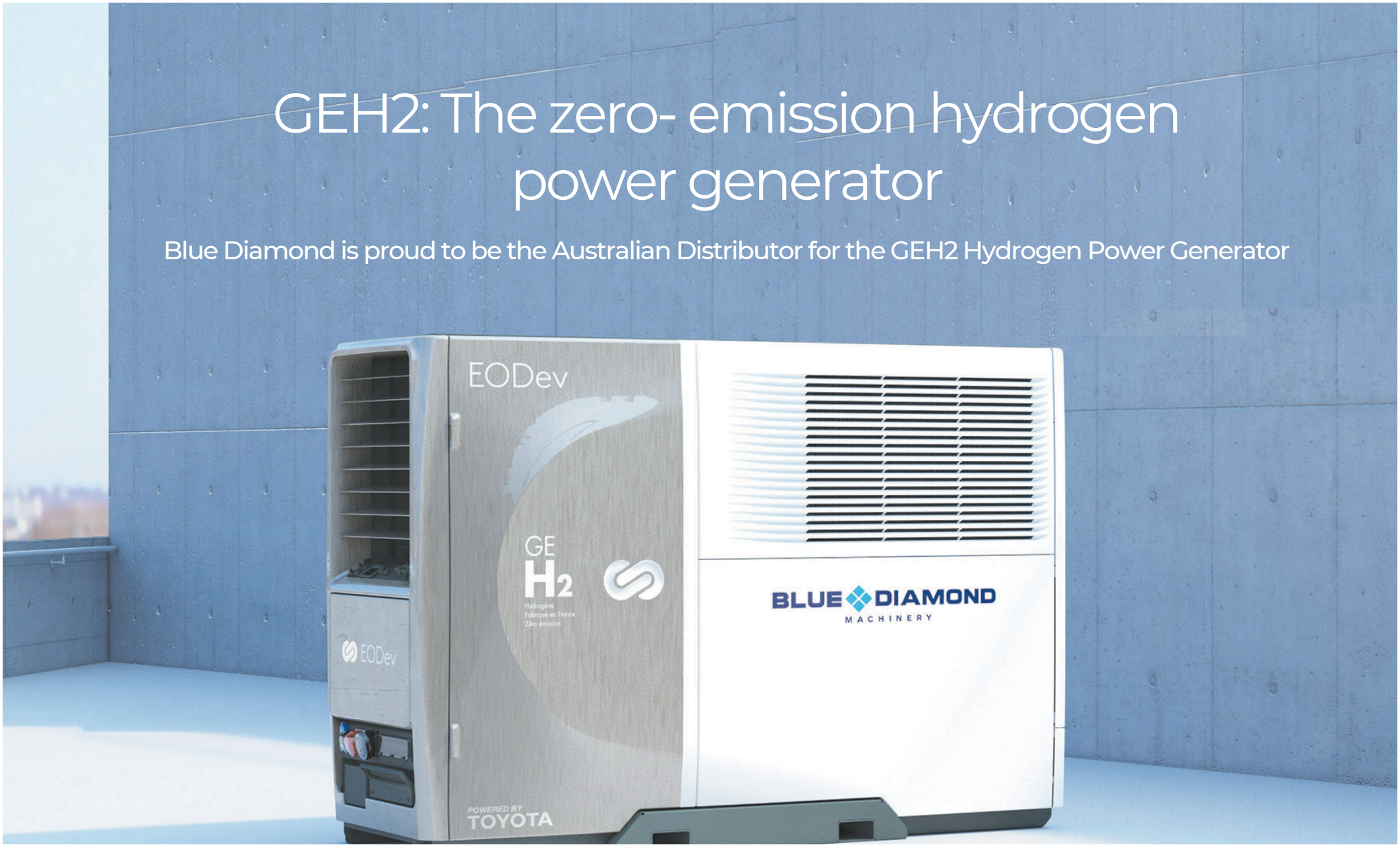
GEH2: The zero- emission hydrogen power generator

Blue Diamond is proud to be the Australian Distributor for the GEH2 Hydrogen Power Generator



BLUE DIAMOND
MACHINERY

"Blue Diamond is committed to being at the forefront of the energy transition and assisting in Australia's commitment to net zero carbon emissions in 2050."

As such, we are heavily investing in alternative Power Solutions to the traditional diesel offerings.

We believe there will need to be a variety of solutions available to achieve this goal particularly, in relation to reducing carbon emissions from powering construction sites. Blue Diamond aims to be at the forefront of these solutions which include Hybrid Generators, Energy Storage Systems (ESS) and Hydrogen Powered Generators.

Justin Pitts, Director- Blue Diamond

In search of innovative solutions for alternative engines that reduce C02 emisions and our commitment to an environmental approach, Blue Diamond has partnered with French company EODev (Energy Observer Developments) to bring you an electro-hydrogen power generator - the EODev – GEH2®

The EODev – GEH2® was developed with the aim of easily integrating into all industries and environments. Companies like Europe's largest equipment rental company LOXAM have already embraced the use of this new technology.

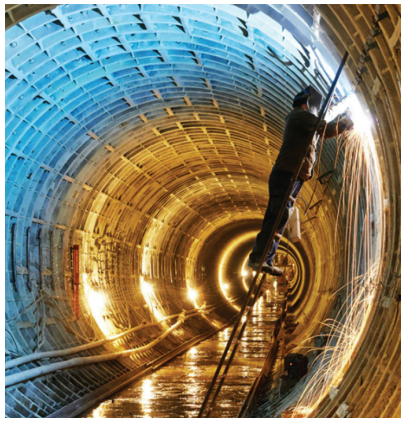
After more than a year of tests and obtaining certifications, EODev's GEH2® electro-hydrogen unit enables electricity to be produced without pollution and emissions of CO2.

The combined use of a fuel cell and a Lithium Ion Iron Phosphate battery massively reduces noise emissions and provides instant start-up. This combination of power enables the EODev – GEH2® to deliver nearly 80 kW of electricity and its double hydrogen supply system allows continuous operation.

Depending on the power requirements, communication boxes allow several GEH2® to be parallelised but also to associate them with diesel, gas, etc, as well as with the network to produce electricity in 'peak shaving' mode while reducing CO2 emissions.

Very easy to use, the EODev – GEH2® is equipped with event-driven electrical outlets, standardised frequency and voltage levels (230V / 400V - 50Hz & 60Hz) as well as remote control and data acquisition.

GEH2



In case of grid failure, or simply when the grid does not exist, the GEH2® electro-hydrogen generator brings you the energy you need, without CO2 emissions or fine particles. With the GEH2 and its record-breaking energy density, you benefit from instant power from 100kVA to 1MVA in an optimized volume.

GEH2

The ally of the energy transition... and of your sense of smell

No more noise and black fumes forcing you to wear earphones and anti-pollution mask. The GEH2 does not emit CO2, HC, NOx or other fine particles. Only hot water and filtered air. And with the heat dissipated by the fuel cell, you can realize cogeneration.

As we know, the energy transition will not happen overnight. That's why the GEH2 is also capable of connecting with diesel or gas generators, and even the grid. It is this flexibility in its implementation that makes the GEH2 the ideal partner for the supply of autonomous decarbonated energy.

Smart and connected power generator

Thanks to its on-board intelligence, the GEH2 informs you if the hydrogen level is low or if a maintenance operation is required. If you wish, it can even warn our technicians directly. Its 4G connection allows continuous online monitoring of your GEH2 fleet via the cloud (location, usage profile, hydrogen reserve status, etc.).

To offer you greater flexibility in your work, a remote interface complements the unit's touchscreen interface. This means that control and data acquisition are always at your fingertips.

PRODUCT INFORMATION SHEET

Hydrogen Power Generator GEH_2

GEH_2

100 kVA

THE ZERO-EMISSION HYDROGEN POWER GENERATOR

Produce your own emission-free electricity at an affordable cost.

With the GEH_2 **and its record energy density, instantly get power from** 100kVA to 1MVA.

BLUE DIAMOND MACHINERY

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Engineered
for the Planet

A design optimized for the environment

↓

- Energy source: Hydrogen (H2)
- Zero emissions
- Compact design
- Same use as diesel generators
- Low noise pollution
- Eco-design
- Optimized logistics and Plug & Play

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GEH_2 Specifications

Performance

Output power	Cos phi = 1	Cos phi = 0.8
Prime Running Power (PRP)	80kW	100kVA
Emergency Stand-by Power (ESP) 1h	88kW	110kVA
Starting	Instant start	
Life span	15 000 hours	
Autonomy at 50% PRP (one V18 rack)	About 8 h	
Output voltage	230/400 V–50 Hz	
Neutral point	TT	

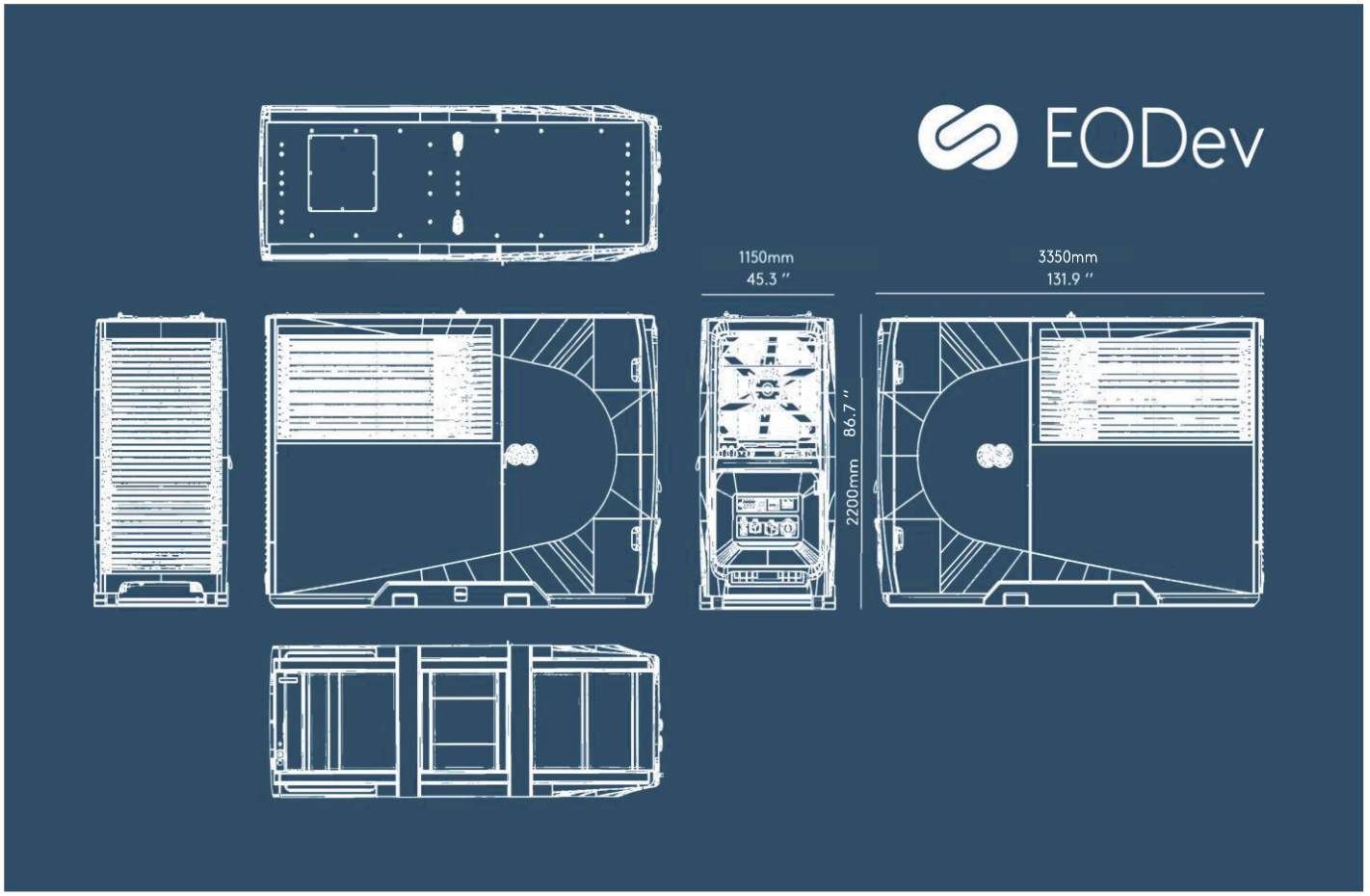
Easy to use

Connected and monitored	Included
Predictive maintenance and remote support	Included
HMI	Touch interface + optional remote interface
Operational continuity with double H_2 adduction	Possibility to switch from one storage to the other while in operation
Ingress Protection	IP43
Operating temperature	- 5 to + 45°C
Frost protection	Integrated 230V plug
Handling/Lifting	Lifting eyes + forklift space
Idling and low load operation	No minimum operating power required
Compliance	ISO/CE Standards

EODev

Data Sheet GEH2Æ

Details	Unit	Datas
Voltage	V	400V / 230V
Output current type		AC
Number of phases	Nb	3 / 1
Output frequency	Hz	48 to 63
Type of electrical power sockets	V / A	1x 400V / 125A
	V / A	1x 400V / 63A
	V / A	1x 400V / 32A
	V / A	1x 230V / 16A
	V / A	1x 230V / 16A
Electrical sockets type Powerlocks	Yes / No	Yes
Power terminal block	Yes / No	Yes
Power for ESP rating (ISO 8528-5)	kW	88
	kVA	110
	Cos Phi	0.8
Power for PRP rating (ISO 8528-5)	kW	80
	kVA	100
	Cos Phi	0.8
Power for COP rating (ISO 8528-5)	kW	60
	kVA	75
	Cos Phi	0.8
Brand Fuel Cell		Toyota
Type of Fuel Cell		PEM
Battery brand		EVE System
Battery type		LiFePO4
Battery capacity		44,2 kWh
Brand circuit breaker		Schneider
Performance class (ISO 8528-5)		G3
Acoustic pressure level at 1m 50Hz	dB(A)	Ongoing tests
Acoustic pressure level at 7m 50Hz	dB(A)	Ongoing tests
Consumption - power 60 kW	H2 kg/h	3.50 - 4.03
Hydrogen pressure at the entrance GEH2	bar	11-16
Hydrogen pressure in Fuel Cell	bar	2
Operating temperature	degrees C	-15◦C to 40◦C
Water temperature in exhaust (maximum)	degrees	50◦C
Temperature at cooling	degrees	62◦C
Standards & certifications of GEH2		CE
Display GEH2 & buttoms		Included
Remote display GEH2		Included
Number of security sensors and functions		Dedicated safety system integrating hydrogen sensors, accelerometer and fire sensors
Protection index of GEH2	IP	IP43
Length	mm / "	3350 mm / 131.9 "
Width	mm / "	1150 mm / 45.3 "
Height	mm / "	2200 mm / 86,7 "
Weight	kg / lbs	4200 kg / 9249 lbs



GEH_2 Applications

Isolated sites
(Scientific bases, living quarters, refuges, islands, relay antennas)

Protected and regulated areas
(Zero-emission zones)

Events
(Concerts and temporary or sporting events)

Sensitive or confined environments
(Tunnels, mines, confined spaces)

Construction
(Off-grid or in city centers)

Emergency applications
(Data centers, hospitals, airports, ports, banks)