

Hydrogen GPU

DHM 090 Ground Power Unit



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Pioneering a cleaner future with hydrogenpowered ground support equipment.

"The best way to predict the future is to create it."

Peter Drucker

Dynell is dedicated to advancing innovation and sustainability in aviation ground support. Our Hydrogen Ground Power Unit (DHM 090) offers a pioneering solution for ground power supply, delivering consistent and reliable energy without the environmental impact of traditional systems. With its ability to refuel on-site, the DHM 090 minimizes downtime and operational

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disruptions, ensuring continuous power where it's needed most. This hydrogen-powered unit not only enhances operational efficiency but also supports the transition to a cleaner, more sustainable future for airports. Dynell is leading the way in modernizing ground operations with zero-emission solutions that set new standards in the industry.

Hydrogen GPU

The DHM 090 combines advanced battery design, solid-state technology, and high-efficiency fuel cells to deliver reliable 400 Hz and 28 VDC power. Hydrogen is converted into electricity, with water as the only byproduct, ensuring zero emissions. Operating seamlessly in non-electrified areas, it minimizes downtime and maximizes operational performance. With on-site refueling, our hydrogenpowered unit offers a robust, eco-friendly solution for modern ground support needs.





— Northvolt VPC batteries 02 —

The Voltpack Core leverages advanced Li-ion technology by means of high energy density, making it ideal for demanding industrial applications. Designed to meet the highest safety and quality standards, this battery pack is fully CE marked and manufactured in Europe.



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01 — DIM – Dynell Inverter Module

The Dynell Inverter Module (DIM) is a compact, maintenancefree, all-in-one system that integrates essential electronic components to convert DC voltage into a stable 400 Hz AC power output. Utilizing advanced semiconductor technology, it achieves an efficiency of up to 99%, ensuring reliable and energy-efficient performance



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zepp.solutions fuell cell system

The system features high efficiency and a robust design, ensuring reliable operation even in the most demanding conditions. Its advanced construction not only enhances performance but also significantly reduces operational costs, thereby improving overall cost-effectiveness and long-term sustainability.

Dynell

Ground Support

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Specifications

Hydrogen GPU DHM 090

Inverter – output		
Power	90 kVA	
Voltage	3 × 200/115 V	
Frequency	400 Hz > 97%	
Efficiency		
Load power factor	0.6 lagging/inductive to 0.95 leading/capacitive	
Fuel cell		
Fuel type	Hydrogen gas	
Hydrogen quality requirement	ISO 14687:2019, SAE J2719	
Hydrogen storage capacity (gross)	16.8 kg	
Rated tank pressure	350 bar	
Fuel cell system	zepp.Y50	
Useable energy		
In total (FCS and battery)	350 kWh	
Onboard charger		
Frequency	50/60 Hz +/- 5 %	
Voltage	3/N/PE AC 230/400 V (other voltage levels on request)	
Power	40 kW	
Efficiency	> 95.5 %	
Current	32/63/125 A	
Battery		
Installed energy	84.5 kWh	
Technology	Li-ion NMC	
Ambient conditions		
Operating temperatures	-20° C – +50° C (with discharge and charge power limitations)	
Relative humidity	Up to 95%	
Noise level	< 65 dB (A) at 1 m	
Standard features	Full rubber tyres and torsion trailer axles	
	7" touchscreen and up to five pushbuttons	
	Large cable trays and forklift pockets	
	Remote assistance	

Protection	
Protection class	IP 55 – electronic componen
Input/output	Short circuit protection
	Over and under voltage
	Overload protection
General	No break power transfer
	Over-temperature protection

ISO 6858:2017 EN 2282 EN 1915-1&2 DFS 400 MIL-STD-704F SAE ARP 5015 EN 12312-20 UN 38.3 EN 62619:2017 EN 62485-5:2021 EN 62485-6:2021 IEC 62282-2-100:2020 ISO 23273:2012

Characteristics of aircraft electrical supplies Spezification for 400 Hz aircraft ground power supply Certified battery system for transportation Safety requirements for batteries Fuel cell road vehicles - Safety specifications





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- Aircraft Ground support electrical supplies General requirements
- Aircraft ground support equipment General requirements
- Department of defense interface standard: Aircraft electric power characteristics
- Ground Equipment 400 Hz Ground Power Performance requirements
- Aircraft ground support equipment Specific requirements
- Safety requirements for secondary batteries and battery installations
- Safety requirements for secondary batteries and battery installations
- Fuel cell technologies Part 2-100: Fuel cell modules Safety
- EC79/2009 implementing measure 406/2010/EC (gas system)



All dimensions in mm and [inches]

Based on a balanced mix of knowledge, experience and innovation, we design, build, distribute and maintain aviation ground support and charging equipment. Our ground-breaking ideas generate the greatest possible customer value for future markets around the globe.

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