



HBD-R Series

Battery Energy Storage System



Problem

Market Pain Points

- **Harsh environment:** High fuel cost & emissions from diesel-only systems; Noise pollution in residential or sensitive areas
- **Unstable or unavailable grid power:** Low energy efficiency & limited grid access
- **Mobile applications:** High operational costs for temporary power



Solution

HBD-R Series



Best partner of gensets

Highly mobile design

Sturdy structure design

Expert For Rental



Proactive grid forming capability

Smart energy management

Existing Alternatives



Other BESS suppliers



Diesel/Gas generators



Why Should Diesel Generators be used in parallel with Energy Storage?



Case 1

A construction site in the UK with no grid power. Concrete pouring starts in February. During the night, new concrete needs to be covered with electric blankets for curing (each blanket's power is 3.5 kW). Previously, diesel generators were used, but a noise ordinance was introduced, prohibiting generator operation from 5 PM to 7 AM and all day on Sundays. 6 units of 30kW/60kWh energy storage were deployed.

Case 2

A construction site in the UK with no grid power, currently using a 56kW diesel generator. Office load is 3-6kW (servers + night lighting), running 24/7, the diesel generator was oversized. After adding 30kW/60kWh energy storage and using a hybrid energy solution, fuel refill frequency dropped from every 2 days to every 7 days, and maintenance intervals increased from every 10 days to every 60 days.

Why Should Diesel Generators be used in parallel with Energy Storage?



Seven Pain Points of Temporary Electricity

1. Eliminate Generator Oversizing
2. Decrease Generator Maintenance Frequency
3. Silence Excessive Noise
4. Reduce CO₂ Emissions
5. Reduce Fuel Usage
6. Enhance Reliability with Backup BESS
7. Reduce refuelling in Remote Locations



Why does it save diesel fuel?



1500 RPM Engine Performance Parameters						
Output Power			Fuel Consumption			
%	bhp	kWm	lb/bhp.h	g/kWm.h	gal/h	l/h
Standby Power						
100	629	470	0.322	196	28.3	107.1
Prime Power						
100	550	411	0.321	195	24.6	93.2
75	413	308	0.321	195	18.4	69.9
50	275	206	0.337	205	12.9	49.0
25	138	103	0.401	244	7.7	29.2
Continuous Power						
100	495	370	0.321	195	22.1	83.9



Minimum load factor for long-term operation $\geq 30\%$ for diesel engines

By battery energy storage system, all low fuel efficiency operating conditions are optimized to high fuel efficiency operating conditions.

HBD R Series : Genset Mate



DSE
ComAp
Woodward
Smartgen
DEIF
CPG PCC
CAT EMCP

+ **HBD R Series** =

- ✓ Active grid-forming
- ✓ Diesel Gensets-BESS Paralleling
- ✓ Small load applications
- ✓ Peak shaving applications
- ✓ Uninterruptible Power Supply
- ✓ Backup Power
- ✓ Extend diesel engine life by 3 times
- ✓ Up to 75% fuel savings
- ✓ Reduce noise complaints
- ✓ Avoid high emission fines
- ✓ Environmental subsidies

Unique Value & Unfair Advantage



- **Specialized rental design;**
- **Easy for maintenance, lowering operation & maintenance cost by 50%**

- **22,000 m² smart factory with CNAS-certified testing.**
- **Integrated software (PLM, MES) for quality control.**

High-Level Concept



- Expert For Rental
- Best partner of gensets
- Global leader in distributed hybrid solutions & off-grid systems



Customer Segments



Segment	Use Case
Rental Companies	Temporary power for events/construction
Construction Firms	Off-grid site power
Small and medium-sized factories	Backup power solutions
PV Installers	Hybrid energy systems

Key Metrics



CE certification for whole product

Warranty

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Product Service

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Attestation of Conformity
No. E8A 127533 0005 Rev. 00

Holder of Attestation: MPMC POWERTECH CORP.
3rd floor Building 1, Powerlong City
Plaza, No. 2469 Anhua Rd., Pudong
201209 Shanghai
PEOPLE'S REPUBLIC OF CHINA

Name of Object: Energy Storage System
Battery Energy Storage System

This Attestation of Conformity is issued on a voluntary basis according to the Directive 2014/30/EU relating to electromagnetic compatibility. It confirms that the listed apparatus complies with the principal protection requirements of the directive and is based on the technical specifications applicable at the time of issuance. It refers only to the particular sample submitted for conformity assessment. For details see: www.tuvsud.com/cert

Test report no.: 4840624262700

Date: 2024-12-20

(Ming Gu)

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This Attestation does not replace the regulatory EU Declaration of Conformity (DoC) and does not allow for CE marking. After preparation of the necessary documentation and establishing compliance to requirements of all applicable directives, the manufacturer may sign a DoC and apply the CE marking. The DoC is issued under the sole responsibility of the manufacturer.

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Model(s): HBD-30-60

Description of Object:

Models	HBD-30-60
Nominal Voltage	DC 614.4 V
Voltage Range	DC 499.2 V ... 691.2 V
Nominal Capacity	100 Ah
Nominal Energy	60 kWh
Nominal Charging/Discharging Current	DC 50 A
AC-Output (Back-up)	
Nominal voltage	3/N/PE AC 230/400 V
Nominal Max. Output Current (PCS mode)	AC 43.3 A
Nominal Max. Output Power (PCS mode)	30 kW
Max. Output Current (GEN/Grid mode)	AC 129.9 A
Max. Output Power (GEN/Grid mode)	90kVA
Power Factor Range	-1 ... 1 adjustable
Nominal Frequency	50/60 Hz
AC-Input (Diesel Generator/Grid side)	
Nominal voltage	3/N/PE AC 230/400 V
Max. Input Current	AC 129.9 A
Max. Input Power	90kVA
Power Factor Range	-1 ... 1 adjustable
Nominal Frequency	50/60 Hz
System Parameter	
Operating Temperature	-20°C ... +50°C
IP Rating	IP54
Protection class	Class I

Tested according to: EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019

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2.1.1 Warranty period for the entire products

The quality warranty period for the HBD-R series products is 3 years or or upon reaching a cumulative energy throughput of 1.6 MWh per kWh of rated battery capacity, whichever occurs first.

2.1.2 Battery performance warranty

In the case that the products meet the basic operating environmental conditions stipulated in the manual, the warranty period for the products is 5 years from the date of delivery or upon reaching a cumulative energy throughput of 2.57 MWh per kWh of rated battery capacity, whichever occurs first. The end of life (EOL) of the battery is not less than 70%. The method to measure the capacity is shown in Appendix 1.

Financial Model

Cost Structure & Revenue Streams



The Profitability of Parallel Peak Shaving:

1. Fuel Cost Savings:

Reduced diesel consumption after integrating energy storage, lowering fuel expenses.

2. Lower Maintenance Costs:

Decreased wear on diesel generators results in reduced spending on spare parts and labor.

3. Grid Charging Advantage:

For backup power applications, charging energy storage systems with grid electricity is significantly more cost-effective than burning diesel.

4. Extended Gensets Lifespan:

The operational life of diesel generators is greatly prolonged due to reduced runtime and load fluctuations.



Financial Model

Cost Structure & Revenue Streams



The Profitability of Self-Generation and Self-Consumption:

1.Reduction in Utility Bills:

Replacing grid electricity with self-generated power lowers overall electricity expenses.

2.Solar Power Subsidies:

Some countries and regions offer incentives for photovoltaic (PV) power generation.

3.Energy Storage Subsidies:

In certain markets, subsidies are also available for energy storage systems.

4.Combined Incentives:

In select regions, both PV generation and energy storage are eligible for government subsidies, significantly enhancing the return on investment.

Case Study



Italy Rental

Total: 80kW-160kWh



Remote operation and maintenance:

With MPMC MORE POWER CLOUD monitoring, you can remotely operate and maintain your HBD R Series. This feature enables real-time monitoring, ensuring optimal performance and minimizing downtime.

Environmentally friendly:

By extending the lifespan of diesel gensets by three times and saving up to 75% on fuel consumption, the HBD R Series helps you reduce costs and minimize environmental impact.

Case Study



New Zealand Rental Total: 80kW-160kWh



HV system with high efficiency:

Up to 4C fast charging and discharging (fully charged in 15min-2h)

Easy for maintenance:

lowering operation & maintenance cost by 50%

Case Study



Australia Rental

Total: 560kW-920kWh



Equipped with a high-efficiency HV system : HBD R Series offers up to 4C fast charging and discharging. This means that the system can be fully charged in as little as 15 minutes to 2 hours, minimizing downtime and maximizing efficiency.



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