



# **Battery Cycling - DC Testing Solution**

As the electric vehicle industry continues to grow, so does the demand for a more efficient and reliable production process. Today, manufacturers desire production-ready end-of-line testing equipment, and research and development test equipment. The Morrell Group Battery Cycling – DC Testing Solution provides clean DC voltage and highly dynamic current with a modular, future-proof design for your evolving testing needs. This custom solution utilizes industry-leading components from Bosch Rexroth to provide accurate DC voltage and current.



### **Modular Platform and Open Core Engineering**

The modular platform and open core engineering enable quick adaptation to changing application requirements, providing future cost-savings. The Morrell Group Battery Cycling – DC Testing Solution is flexible in its configuration, allowing communication to any testing equipment. It can also supply multiple battery cyclers, simulators and motor inverters by simply changing the power supply and adding inverters, which provides maximum flexibility while reducing spare parts and the power required over all leading to additional cost savings.



### **Turnkey Solution from Morrell Group**

Morrell Group's turnkey solution includes an intelligent cooling system and an isolation transformer. We offer several approved models according to CE and UL/CSA standards. All of our panels go through a hot test before shipment to ensure they meet our high quality and performance standards. Morrell Group also provides expert startup assistance and communications testing to ensure a smooth integration process.



# **Key Features and Benefits**

### **Best-in-class DC Converter Voltage and Current Accuracy**

Superior DC voltage control and DC current regulation is made possible by Bosch Rexroth's innovative ML drive technology in a custom package to fit your application. The Morrell Group Battery Cycling – DC Testing Solution is a high power density solution thanks to efficient cooling and high-quality filter components. High PWM frequency is standard in all standard sizes.

- Laminated bus bar technology keeps inductance extremely low
- Wide Voltage Range: 380-500 V AC = 780V DC; 501-690 V AC = 1100V DC
- Voltage ripple  $< \pm 0.03\%$
- Control Accuracy: Voltage <  $\pm$  0.05%; Current <  $\pm$  0.44%
- Current ripple  $< \pm 0.32$  Arms

### **High-Quality Components and Construction Provide Exceptional Performance**

The Morrell Group Battery Cycling – DC Testing Solution is an economical solution for simple, maximized performance for high-end servo applications. The innovative Bosch Rexroth components provide clean incoming power and superior DC bus voltage for common bussing of all axis. The choice between basic and advanced control units enables scalable performance and interface options.

- Reduced electrical noise thanks to high-quality windings
- Incredibly low EMC noise throughout the system
- Compact and thoughtful layout to optimize space and further reduce EMC noise
- Intelligent drive functions



#### **Compact and Powerful Solution**

The Morrell Group Battery Cycling – DC Testing Solution is the smallest high power drive package on the market, yet it is flexible and powerful enough to support an individual or multiple stations. In addition to the intelligently designed components being naturally smaller, users can further decrease size with our innovative cooling concepts. This testing solution also has the ability to support parallel power stacks, reducing the number of components required on the production floor.

- Supports a wide voltage range: 380 500 V AC and 501 690 V AC
- Cover a broad range of power supply needs up to 4 MW with standard components
- · Easily configurable for any application using standard industrial components
- Decreased size with optional liquid cooling for drives and chokes (air cooling also available)
- Universal inverter type used as motor inverter, power supply or DC converter



# **System Designed for Energy Savings**

### **DC-bus Coupling**

- Common DC bus for multiple axis coupling or the coupling of automation axis around a test system
- Energy exchange of drives, which operates in generator and motor modes
- Decrease size of the mains connection components, saving critical factory floor space
- Reduce energy consumption
- Connection with smaller drives possible





motors operate in generator and motor modes

# System Topology

### **EV** Powertrain Tester and Dynamometer

- Green power supply
- High dynamic drive
- Clean DC supply
- Modular power conversion
- Global AC grid supply
- High-performance load and battery simulation
- Open standard control
- Safe operation



## **Energy Recovery Back to the Mains**

- Regeneration of excessive energy in the mains supply
- High mains supply quality with least amount of harmonic distortion
- Decrease in energy consumption, especially in cases of long regenerating periods
- Energy savings from reduced consumption and reduced number of components









### **Battery Testing Unit**

- Identical power units
- Modular power conversion
- Global AC grid supply
- Open standard control
- Safe operation
- Industrial PC battery interface



#### Disclaimer

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