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EMTS Series

Another Total Solution from HORIBA's Hybrid Team

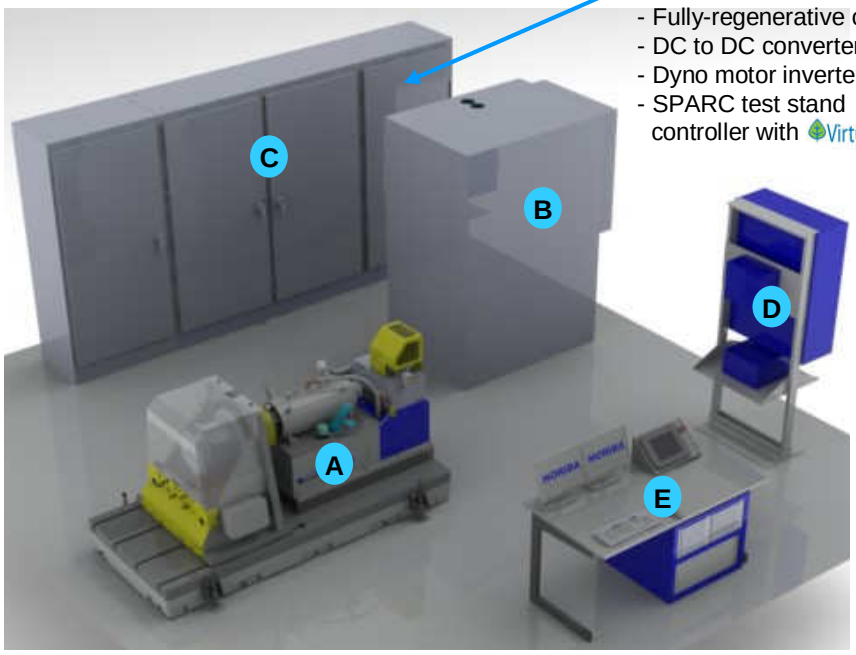
Comprehensive Test Stand Solution for Electric Motor Development, Validation, and Durability Testing

The EMTS (Electric Motor Test Stand) Series provide total solutions test stands for E-motor testing. The system has been optimized for current PHEV, HEV and Extended Range Electric Vehicles with built-in flexibility to accommodate the next generation of E-motor technology. Proven variations of this standard test stand have allowed users to pioneer advancements for high speed and high torque applications to meet industries' needs and validation of such items as: :

- Performance development of E-motor systems (motor + PCU)
- Accelerated life testing in realistic environments for E-motors
- Efficiency testing
- E-motor system influences on other components
- Thermal management development of the E-motor system

Variable Frequency Drive Contains Integrated:

- Fully-regenerative converter
- DC to DC converter
- Dyno motor inverter
- SPARC test stand controller with Virtual Battery



A AC Dynamometer, Headstand & Bedplate

B Fluid Conditioning Unit (Various configurations available depending on the cooling needs of your application)

C Variable Frequency Drive (VFD)

D Hybrid Power Interface and Safety Lockout System

- Provides easy instrument & power hook-up
- Supports E-motor inverter (PCU).
- Safety Monitoring system (Specimen)

E STARS Test Automation System

Superior Data Accuracy

- Low vibration characteristics (<**<0.2"/sec** peak) ensure data integrity
- High Quality DC power from battery simulator (integrated in VFD)
- Virtual Battery simulation provides exceptional fidelity to in-vehicle battery performance

Safe, Durable Design

- Power Distribution and Safety Lockout Enclosure provides a high level of safety when human interface is required within the test cell. Includes the added convenience of in-cell power and measurement connections and PCU support
- Low vibration design ensures physical integrity of system

Efficient Installation & Operation

- Graduated dynamometer rotor position lock-down device facilitates locked rotor testing
- Precise axial translation minimizes down time when exchanging E-motors, making shafting connections and performing system calibrations
- Feature-rich fixtures allow easy alignment and connection of E-motor specimen.
- Isolated bed plate system enables low-cost installation on to typical industrial floor
- Quiet operation for open test floor environments

Proven Application Solution

- High torque, low inertia dynamometers
- Full torque at zero speed capability
- High overload capability
- Complete vehicle and drivetrain subsystem simulation suite optionally available including Virtual Battery

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www.HORIBA.com - 800.346.7422

Electric Motor Test Stand

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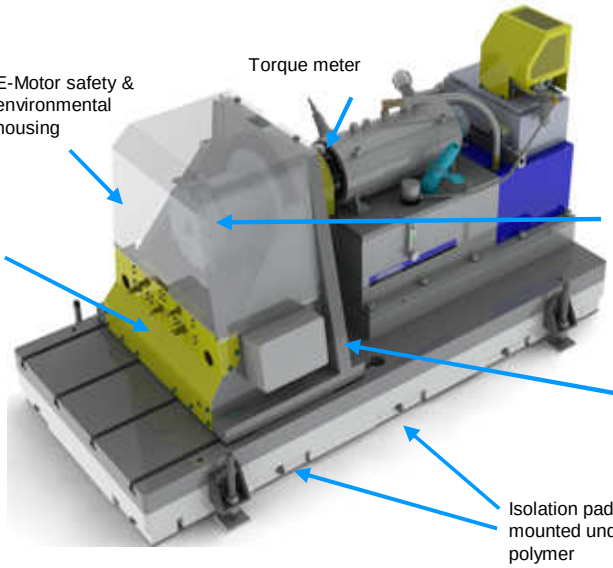
Cooling System Options Specially Designed for the Unique Demands of E-motor Testing

Choose the optimal size and configuration for your facility and test requirements

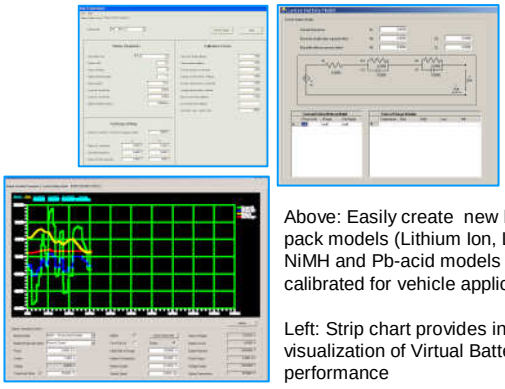
Optional Fluid Conditioning Unit designed with internal heating and cooling chambers for ultra-responsive transient testing



- Options for facility connection to Sylltherm®, glycol, or water
- Various thermal capacities available… from maintaining temperature during steady state heat loss, to transient temperature changes, or environmental influences during driving cycle simulation.
- Single or dual fluid options for E-motor cooling
- Options to control air environment inside housing
- Optional two port connection with independent flow, pressure, & temperature
- Flexible according to largest E-motor test specimen (20kW, 80kW, 160kW, or 300kW). Includes 200% momentary overload

Virtual Battery

Industry-Leading Fidelity to In-Vehicle Battery Performance



Above: Easily create new battery pack models (Lithium Ion, LiFePO4, NiMH and Pb-acid models specifically calibrated for vehicle applications)

Left: Strip chart provides instant visualization of Virtual Battery performance

Intuitive GUI Interface is available to any networked computer using a Web browser

Maximize your E-motor Testing Capabilities with Virtual Battery's Comprehensive, Cost-Effective Battery Simulation Solution

- Makes parallel development of E-motor systems, transmission, electronics, auxiliaries, and battery packs possible
- Enables simulation of stress and extreme environmental conditions on the DC power delivery performance of the vehicles battery to the PCU *for system level considerations of E-motor operation*
- Provides more realistic current (amps) and voltage cycle date for Battery pack development by using real E-motor system components.

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