

Electric powertrain testers

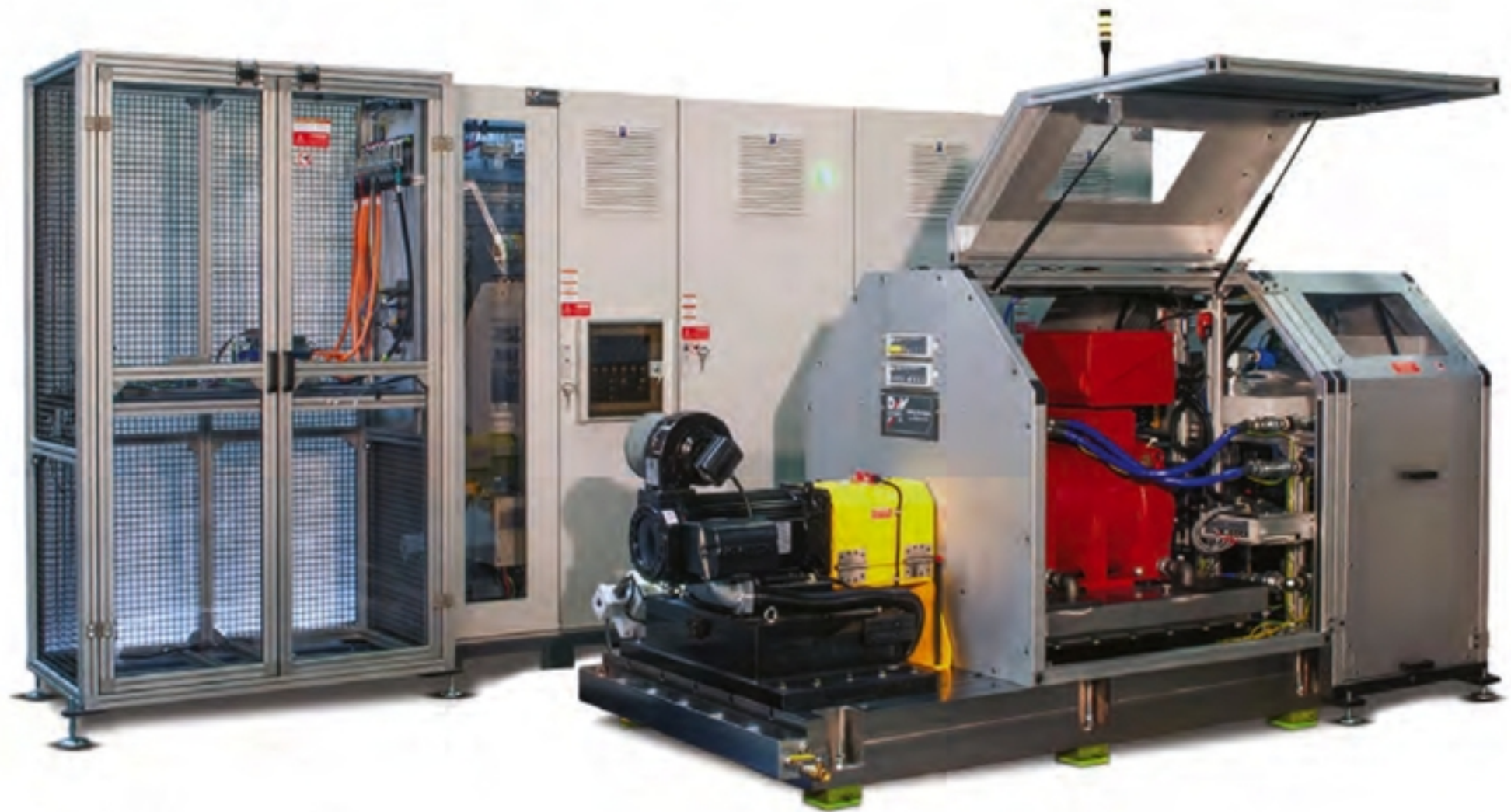
An advanced electric motor and inverter development test bench, tailored to R&D requirements, can enable research into future electric and hybrid drivetrain technologies

▶▶ Vehicle propulsion is currently undergoing a period of major change with the development of new technologies in electric and hybrid-electric powertrains. One of the latest forecasts from IHS is that, by 2021, eight million hybrid and electric vehicles will be produced every year. This changing landscape has resulted in universities and research laboratories approaching D&V Electronics for testing equipment to progress their development, research and innovation of electric motors and inverters.

In the highly competitive world of electric transportation, D&V was approached by one of Canada's major universities to join forces to work on an advanced electric motor and inverter development test bench that's capable of advancing research into electric and hybrid vehicles. The resulting EPT-150 is a fully integrated, high-accuracy e-motor and inverter development platform. Designed to support the university's automotive research program, the EPT-150 will enable investigation into new approaches to motor and drive design, development and control.

Innovation and technology are at the core of D&V's testing equipment, and specifications for the EPT-150 tester were closely tailored to the university's needs for advanced testing and research. As such, the modular design also accommodates a variety of optional auxiliary support devices, including DUT oil lubrication units, thermal chambers, expandable instrumentation as well as material-handling devices.

The dynamometer contains a 130kW load motor, a battery simulator and D&V's advanced Power Measuring Module (PMM). The battery simulator is an innovative bidirectional power supply, designed to accurately simulate the battery as well as



The EPT-150 is designed to be a high-accuracy development platform for comprehensive e-motor, inverter and battery pack testing

provide low-power operation through the coupled power system. D&V's new PMM is a precision measuring device that can be configured for testing the functions of hybrid motors, controllers and other such devices, synchronizing all data channels to within less than 100 nanoseconds.

D&V's tester software suite enables the engineer to fully customize the screens and controls with both manual and automatic interfaces, which are visible on dual LCD displays for an entire system view. Custom plotting for professional reports and a virtually unlimited number of user-customizable tests are just some of the hallmarks of the software platform.

The unique design of the EPT-150 tooling requires an initial alignment and all subsequent installations of the DUT can be carried out quickly and accurately with minimal effort, due to D&V's universal mounting fixture and connections. In addition, the inverter is mounted safely in a

caged area that ensures the safety of the researchers, without hindering the accessibility to the inverter that would certainly be required in a developmental environment. In order to minimize the impact at the university's testing facility, the EPT-150 does not require a specialized work environment, which means this solution can be dropped into place and powered up within a week.

The EPT-150 is just one of the latest examples of D&V's technology working with those in the industry and academia to help solve the many challenges of building electric transportation. The university's research into cutting-edge motor and inverter technologies will be used in efforts to create more efficient and reliable electric and hybrid vehicle components. ©



High-speed data acquisition can be achieved with D&V's real-time Power Measurement Module (PMM)

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