

Protean partner

Leading global supplier delivers flexible solutions based on proven technologies



Left and below: Sierra CP has installed test equipment at Protean Electric's technical headquarters in the UK

▶ For many engineers that are associated with the further development of hybrid and electric motor technology, [Sierra-CP Engineering](#) may be a new name. But in truth the company has been actively engaged in providing advanced auto testing solutions and products to the industry for over 30 years. In late 2011 USA-based Sierra

Instruments, a world leader in flow measurement technology, greatly expanded its global capabilities with the acquisition of UK-based CP Engineering Systems. By merging Sierra-CP's Michigan-based emissions group with CP's technical centers in the UK, USA, China, and India, Sierra has been able to create a worldwide service and support platform for its newly expanded [automotive testing](#) division.

Sierra-CP continues to build on its international reputation by providing customers with innovative test system solutions that employ proven CP technologies to meet the exacting needs of global customers. With the broad range of clients that Sierra-CP works with, design flexibility is crucial. Custom solutions from product to turnkey are developed to meet present and future customer needs, but recognizing the realities of today's economically challenging times and its impact on investment decisions, without compromising quality, is a high priority for every project that Sierra-CP takes on.

An example of this approach is Sierra-CP's recent installation for Protean Electric at its technical

headquarters in the UK. As a leading global clean-technology company, the organization designed, developed and manufactured the Protean Drive. Winner of the World Economic Forum's prestigious 2012 Technology Pioneers Award, the Protean Drive is a fully integrated, seamless in-wheel motor and direct-drive solution.

As Protean's Mark Potter explains, "We didn't have the time to fully develop a detailed scope of supply document, so we needed to select a supplier that we could partner with, who had the experience to interpret the brief technical scope of requirements and the expertise to deliver a system that could meet our current and future testing needs. Sierra-CP gave us the confidence we needed to trust them with this critical project."

Sierra-CP initially looked at a conventional chassis dynamometer for this application, but after considering the aspects of location and client deadlines for operational use, chose to propose a powertrain system that could accept full vehicle installation by connecting to the test vehicle's wheel hubs.

Four fully independent AC dynamometers were incorporated to provide individual control of each wheel hub. This enables the client to test 2WD and 4WD test vehicles with adjustable track and wheel base for a wide range of vehicle sizes from compact to light-duty trucks. The overall system is controlled by Sierra-CP's CADET V14 test-automation software, which provides the platform for the system control, test scheduling, safety protection and data acquisition. This system is capable of steady-state operation for durability and key life evaluation. The transient dynamometers also provide the increased capability of simulating road load cycles for product development and benchmark evaluation against other more conventional vehicle systems. Additionally, this approach can provide the added benefit of increasing the level of discrimination by eliminating the potential test influences that testing on the tires introduces.

"Sierra-CP has met the scope of the brief and produced a test system that provides the ideal platform to enable Protean to develop and showcase its technologies for many years to come," concludes Potter. ☺



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