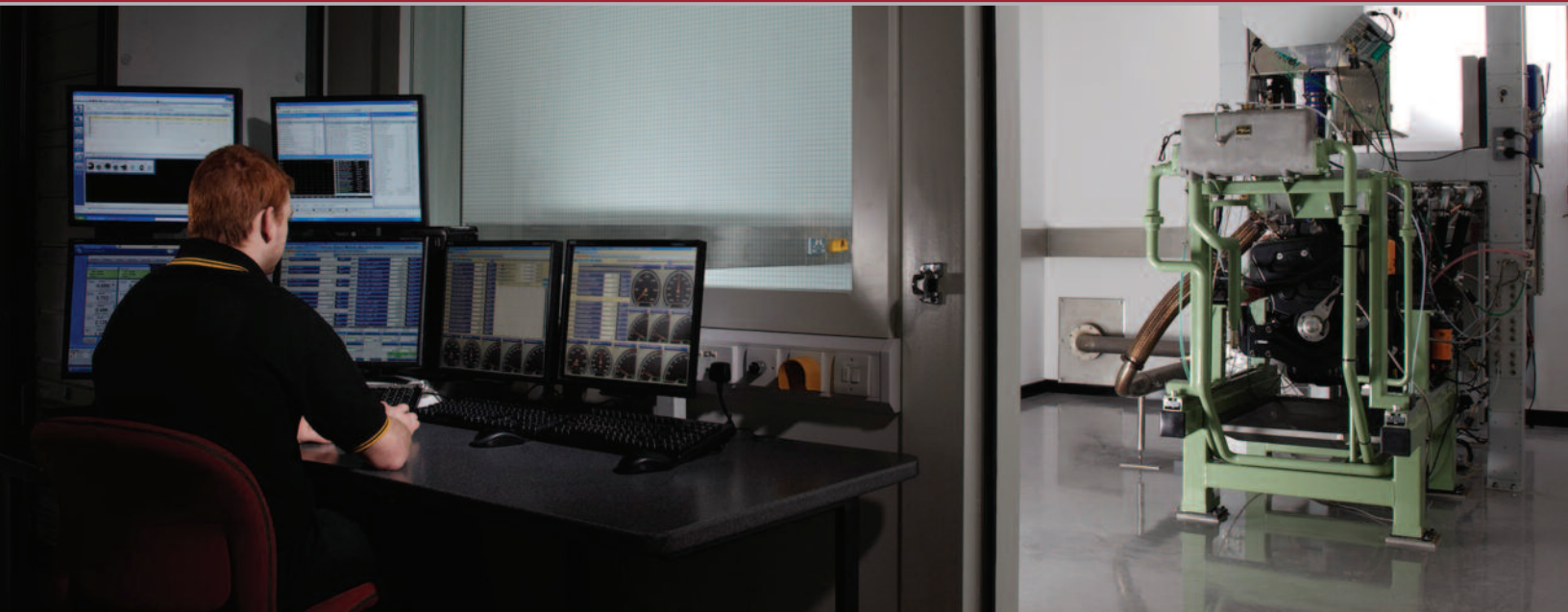


Flexibility.

Custom Solutions from Product to Turnkey YOU Choose.



Venture within

Sierra-CP and experience our passion for innovative engine and vehicle testing solutions, creative opportunity, entrepreneurial spirit, and team camaraderie.

Thirty years of successfully meeting tough customer challenges has taught us that the concept of "one solution fits all" just doesn't work in this industry. We work hard to assure an open atmosphere for client interaction that emphasizes individuality, respect, growth, and strong relationships. Our strategic approach to every project starts with a thorough understanding of client requirements prior to making any recommendations.

Whether upgrading existing test cells or planning new installations, we work in partnership with our clients to either develop custom products and systems, or provide complete turnkey solutions. We also match the requirements of today with tomorrow's needs to guarantee a solution that can expand with the test of time.

Diverse Experience

We cover the complete range of automotive test applications including engine, vehicle, powertrain, transmission, emissions, analytical and component testing. We take on technical challenges and deliver practical, no-compromise solutions. Our team of highly-skilled and experienced engineers thrives on solving diverse and complex testing problems – typically to tight deadlines and budgets.

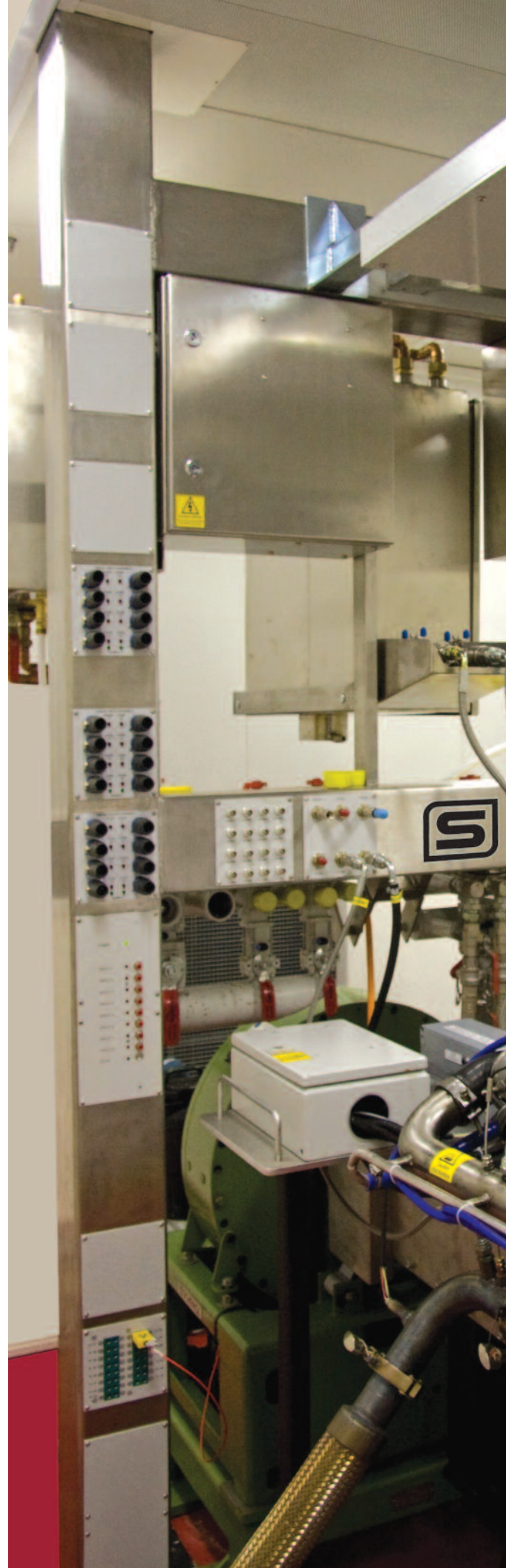
To help meet the challenges from a rapidly changing industry, we have developed advanced hardware and software solutions covering the complete scope of test applications. Open design and a common, easy-to-use interface allow us to integrate seamlessly with existing instrumentation and other manufacturers' equipment, or build turnkey systems designed to specific requirements.

Heart of Our Solutions

At the heart of our solutions is our proprietary CADET V14 test automation software which combines accurate multi-channel control and high-speed data acquisition. CADET V14 is the basic platform for all our solutions because it has great application flexibility and scalability. Because we develop our software in house, we have the ability to do rapid customization for clients no matter how complex the testing demands may be.

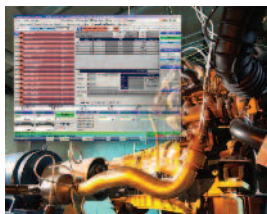
With a client portfolio that includes the most cutting-edge global automotive innovators, we push ourselves to rise to ever-changing challenges. Our software engineers pride themselves on packaging and adapting our various software modules to our clients' exacting specifications.

(right) Sierra-CP's innovative "H" frame provides maximum test cell flexibility



ENGINE TEST

From the upgrade of existing facilities to custom end-to-end solutions, Sierra-CP provides the most advanced tools available



for engine testing. Applications include emissions, endurance, performance development, climatic, calibration, NVH, production and quality audit.

With our eddy-current and high-performance AC dynamometers, tests can be configured for steady-state, transient and dynamic operation. We also manufacture specialized equipment to precisely control the engine's environmental conditions for water and oil temperature, fuel conditioning, intercooler temperature, test cell air temperature, and the conditioned combustion air supply to the engine for temperature, humidity and pressure.

VEHICLE TEST

Driven by our CADET V14 CDS test automation software, our chassis dynamometers cover all certification, research and development requirements for cars, trucks, motorcycles, three-wheelers, off-road, and treaded vehicles. We also offer cost-effective upgrades to existing test stands (from other manufacturers), with new control and automation systems, thereby rejuvenating existing installations and prolonging useful operational life.



In addition, our range of chassis dynamometers has been extended to provide a cost-effective solution for testing motorcycles and scooters on a single roll set. We also offer a twin roller version for three-wheelers, quad-bikes and sub-compact city vehicles.

POWERTRAIN AND TRANSMISSION

By combining Sierra-CP's design expertise with specialty products, we are able to deliver advanced solutions for your powertrain and transmission testing applications suitable for conventional motive power units, e-motor and hybrid variations.



Solutions include a wide range of applications from durability and key life testing to NVH and performance development.

Powerful systems support 2wd and 4wd configurations and can be extended to allow road vehicles to be tested by connecting dynamometers directly to the hubs. In addition, our Gear Shift Force & Feel Analysis, as well as transmission Robot Driver solutions, provide accurate and repeatable performance, with the unique option of measuring and analyzing force and feel.

EMISSIONS

We manufacture a wide variety of emissions measurement solutions to meet nearly any engine and vehicle testing application. We specialize in Particulate Matter (PM) partial flow dilution sampling with our BG3 technology. We offer seamless integration and control of devices such as CVS and gaseous analysis via our flagship CADET V14 test automation software. It is our belief that this gives our customers the flexibility to choose from the many different emissions instruments on the

market, while still benefiting from our user-friendly software interface and test cell control.

Our BG3 Partial Flow Dilution technology is the global leader in particulate matter sampling. Working in tandem with the BG3, our SootTrak instrumentation measures real-time engine soot particle mass emissions and performs characterization of average soot agglomerate particle size, number, and surface area.



TEST RIGS

Traditional "in-house" component test rigs are becoming more difficult to construct due to time and resource constraints. Our test rig solutions are generally custom developed. The flexibility of our CADET V14 test automation software allows us to use our standard control and automation system on a scalable basis to ensure that our solutions are future-proof and can adapt as requirements develop over time.

Our FEAD (Front End Auxiliary Device) test rigs simulate the additional load that "bolt-on" accessories like power assist pumps and air conditioning units will have on the engine. This additional load alters such variables as fuel economy and overall engine power performance. We manufacture a flexible portable unit that is connected to any engine to simulate the switching in/out of such devices.

FLOW MEASUREMENT & CONTROL

We manufacture a comprehensive line of fuel flow meters with both gravimetric and transient capability. Our air mass flow meters are widely used for precision measurement engine intake air. In addition, our Flow Division, known simply as Sierra, designs and manufactures high-performance fluid flow measurement and control instrumentation for nearly any gas, liquid and steam application for global industries as diverse as scientific research, semiconductor, wastewater treatment, iron and steel, clean energy, aerospace and biotech. Our flow technologies include Thermal Mass, Transit-Time Ultrasonic, and Vortex Shedding.



SOFTWARE DEVELOPMENT / SYSTEMS INTEGRATION

For customers who require a field-proven test automation software platform at a predictable project cost and do not have the resources to develop and support an in-house solution, we offer many options. Our contract software development and systems integration solutions are enhancements and/or adaptations to our CADET V14 test automation software.



Our Test Lab Management (TLS) software is a good example of a customer driven software effort that integrates seamlessly with CADET V14 to upgrade capability by providing a complete solution for configuring and running tests, performing pre and post test data entry, doing emissions calculations, report generation, and much more.

GLOBAL LOCATIONS & INSTALLATIONS



Manufacturing & Support Centers in USA / UK / CHINA / INDIA / MALAYSIA



SIERRA[®]
CP ENGINEERING

www.sierra-cp.com