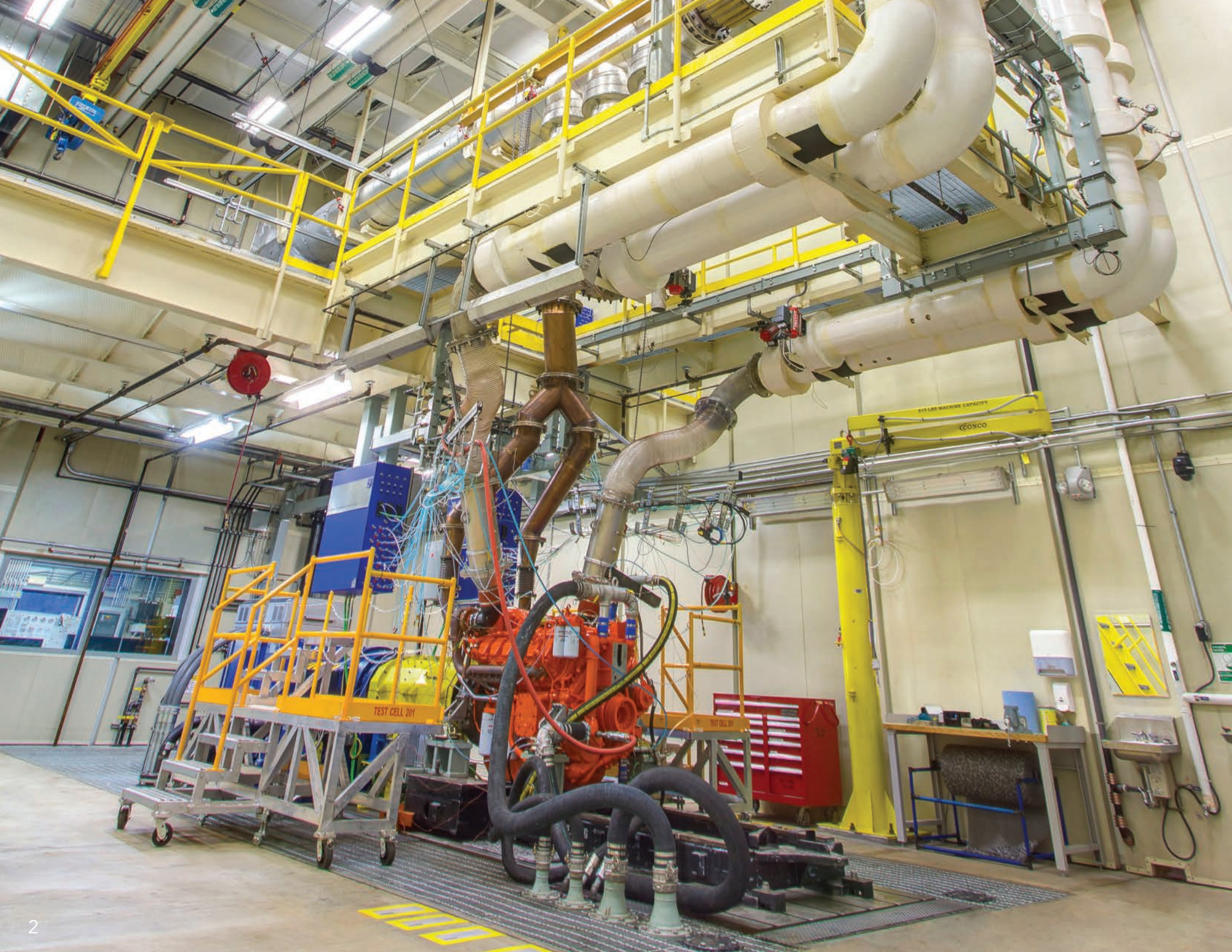




Bringing Vision and Performance Together



Aerodynamics • Hydraulic • Audit • Performance • Acoustics • Calibration • Fuel Economy • Climatic • NVH
POWERTRAIN DEVELOPMENT • Validation • Durability • Electrification • Emissions • Wind Tunnel • Audit
Quality • Mileage Accumulation • Autonomous • Thermal Dynamics • Fuel Economy • Warranty • End of Line
Hydraulic • Acoustics • Performance • **CHASSIS DYNAMOMETER** • EMC/RF • Altitude • Hardware-in-the-Loop
Durability • Altitude • Vibration • Emissions • Fuel Economy • Acoustics • Calibration • Warranty • Climatic
Development • Environmental • Certification • Pneumatic • Audit • Performance • **VEHICLE ELECTRIFICATION**
Electrification • Aerodynamics • Hydraulic • Climatic • Audit • Acoustics • NVH • Calibration • Fuel Economy
Climatic • **PRODUCTION VALIDATION** • Quality • Mileage Accumulation • Autonomous • Thermal Dynamics
Autonomous • Validation • Durability • Fuel Economy • Warranty • End of Line • Quality • Mileage Accumulation
NVH • Thermal Dynamics • **AUTOMOTIVE & COMMERCIAL VEHICLES TESTING SOLUTIONS** • Acoustics
Durability • Electrification • Vibration • Thermal Dynamics • Acoustics • Calibration • Fuel Economy • Climatic
Aerodynamics • Hydraulic • Audit • Performance • Climatic • NVH • Acoustics • Calibration • Fuel Economy



Decades of Test Cell Experience

ACS has an extensive portfolio documenting a long history of delivering test facility and equipment projects for the engine and vehicle development marketplace.

- **Over 400 Test Cells Built or Upgraded**
- **More than \$1.2 Billion in Projects Completed**
- **Hundreds of Clients Worldwide**

Single Source, Turnkey Partner

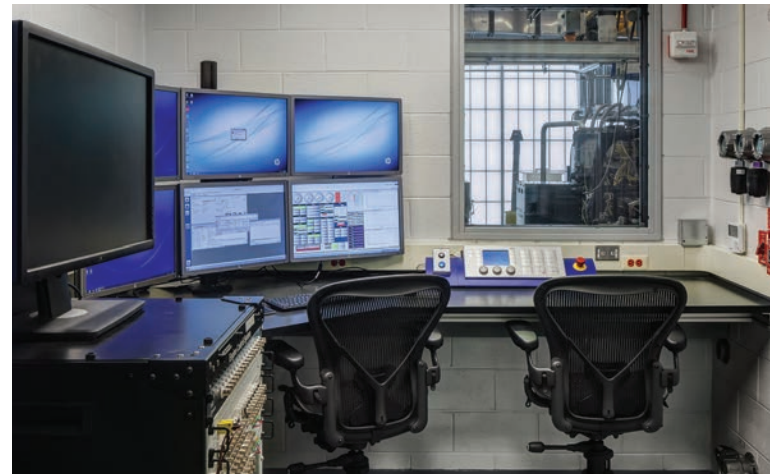
Our success is built on our ability to be your single source, turnkey project partner and provide a collaborative, cross-disciplinary team of experienced professionals for planning, engineering design, construction, project management and integration.

We capitalize on upfront planning to identify project requirements and leverage our expertise to engineer and assemble a cost-effective and performance-driven solution. We know how to ask the right questions, identify key technical and commercial drivers, assess and refine the scope of the project and find ways to minimize risk.

Hands-on to Hand-over Resource

Serving engine and vehicle OEMs, Tier suppliers, engineering test facilities, national labs and universities, ACS is firmly committed to the quality of the deliverable. We will be your hands-on to hand-over resource—developing acceptance criteria early on during planning stages and never losing sight of your goals throughout the project.

Our specialized and complementary skills to engineer, integrate and build result in a consolidated and cohesive process which enables us to deliver flawless functionality and guarantee superior performance.





Our process is to understand your needs and act as an extension of your company



Our Approach

ACS has highly experienced specialty groups in-house offering comprehensive design, engineering, fabrication, construction management, systems and process integration, commissioning and ongoing support services. For your project, we assemble a team that identifies with your working philosophy and specific facility needs, and they work as an extension of your staff to ensure that every phase runs smoother, faster and more cost effectively.

The extent of our capabilities makes us different, while our core competencies are difference makers.

Setting ourselves apart –

As an equipment supplier, manufacturer, and integrator...

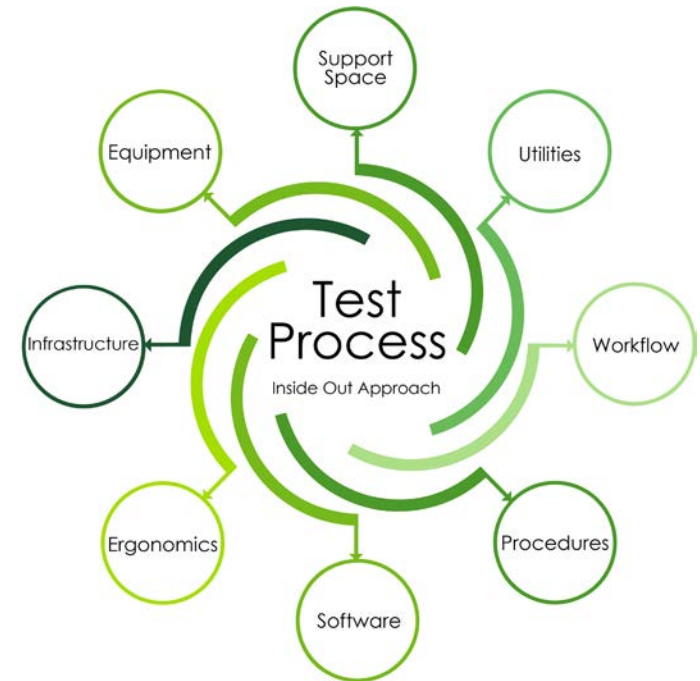
And an engineering and design firm...

And a construction management company...

We have experience in each of the disciplines required for turnkey test solutions and facilities.

Full service, single source-that's ACS!

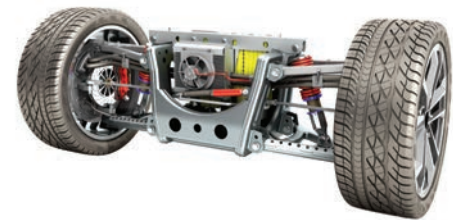
Our inside out approach begins with asking "What do you want your facility to do?" Our years of experience make us confident that we can define the desired functionality and convert it from an initial concept to an approved set of designs that meet functional, operational, safety and regulatory requirements. Then we can go ahead and build it, with the answer to our question delivered in the integration of equipment, controls and building systems.



ACS handles every facet of a project with a combination of process knowledge, subject matter expertise and integration experience, beginning with our Front End Planning (FEP) process with proven client benefits:

- ***Operational and performance requirements are established***
- ***Stakeholders are engaged and buy into the process***
- ***Acceptance criteria is confirmed***
- ***We take responsibility for contractors and equipment providers***
- ***Your team stays focused on core responsibilities***
- ***Integration of equipment and facility infrastructure is seamless***
- ***Your vision is validated***
- ***Performance is guaranteed***

Bringing Vision and Performance Together



A leader in the field of test equipment and test cell solutions



Markets Served

ACS is committed to the evolution of the engine and transportation industry. We have expertise in the regulatory and market requirements for both on- and off-highway vehicle applications. In addition to working with OEMs and Tier suppliers, we also serve independent automotive research labs, national labs, government labs and universities within the following market segments:

Passenger Vehicles:

- Autonomous
- Car/ Light Duty Truck
- Electric
- Hybrid
- Motorcycles

Commercial Non-Road:

- Agriculture
- Construction
- Defense
- Industrial
- Marine
- Mining
- Rail
- Stationary [Gensets]

On-Highway:

- Delivery/Last Mile
- Industrial/Vocational
- Medium/Heavy Duty Truck
- Over the Road/Short or Long Haul

Recreational/Consumer:

- ATV/UTV/Golf Carts
- Lawn/Garden
- Motor Homes/RVs
- Motorsports
- Snowmobiles

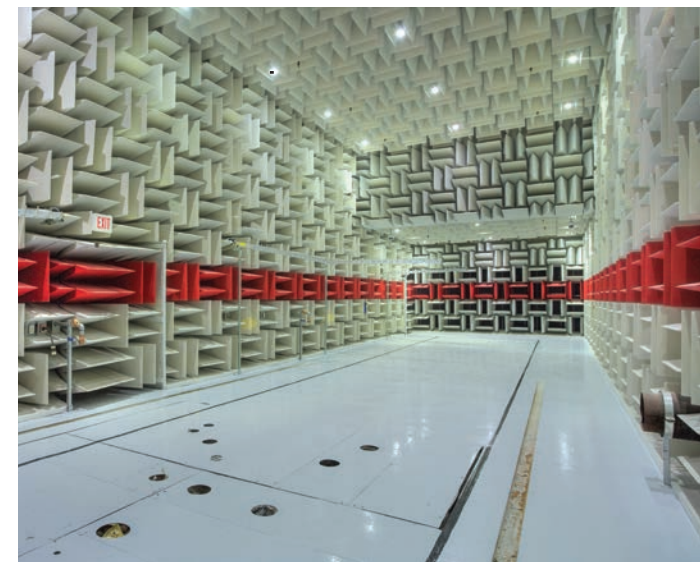


Whatever the project, ACS has the horsepower to deliver custom test equipment, systems and facilities that take into account your market, the test article and the test application.

Food & Beverage • Laboratory/Research • Food & Beverage • Manufacturing • AEROSPACE INFORMATION CONTROLS • Research • Manufacturing • Automotive • Energy



ACS is at the forefront of integrated test cell design and delivery



Types of Applications

ACS provides tested and proven solutions for a broad range of test articles and testing applications. Our past experience and positive results equip us to confidently take on new challenges presented by a customer, application or test. In addition to being experts in test and measurement science, the ACS team understands the details that relate to your specific application, the critical support systems that will impact your test objectives and actions necessary to deliver repeatable and reliable data - whether undertaking a new, retrofit, upfit, renovation or greenfield site project.

We don't look at a test article or application in a vacuum. Our insight incorporates elements that will influence performance or require special consideration to meet the test requirements, such as infrastructure, layout and proximity to the unit under test. This helps tie the pieces together in building a complete test cell and delivering a total solution that anticipates the "what ifs".

Testimonial

"ACS always puts our company first, helping us get the best equipment and solutions we need to complete our task. The support they provided and the results we achieved from working with them are the reasons why we have continued to contract work with them.

The value provided by the ACS team was exceptional. I highly recommend their services."

*Senior Supervisor/R&D Testing
Kawasaki Motor Company*

Test Articles:

- Automated Driver Assistance Systems (ADAS)
- Components
- Electric/Hybrid Systems
- Electrical/Electronic Components
- Engines and Sub-systems
- Fuels & Lubricants
- Generator Sets
- Generators and Switchgear
- Mechanical Components
- Powertrain/Transmission – 2WD, 4WD, AWD
- Tires
- Turbines
- Vehicles

Test Applications:

- Acoustics & Vibration
- Aerodynamics
- Altitude
- Audit
- Autonomous
- Calibration Development
- Certification
- Climatic/Environmental
- Design Validation/ Production Validation (DV/PV)
- Durability
- Electrification
- End of Line (EOL)
- EMC/RF
- Emissions
- Fuel Economy
- Hardware-in-the-Loop (HiL)
- Hydraulic/Pneumatic
- Manufacturing Quality Audit
- Mechanical Development
- Mileage Accumulation
- Noise Vibration Harshness (NVH)
- Performance
- Product Development
- Quality Audit
- Thermal Dynamics & Management
- Warranty
- Wind Tunnel



Custom Equipment and Controls

Our custom products and engineered solutions range from single, stand-alone systems to multiple integrated systems. We manage and control the engineering design, manufacturing and factory acceptance testing in addition to onsite installation, commissioning and integration. With full machining capabilities, complete metal fabrication, space for facility mockups and UL listed electrical and control panel build shop, we are equipped to meet the schedule, budget and operational demands of the most challenging applications.

Our capabilities cover a broad scope of hardware, custom control panels, test stands and dynamometer solutions.

Designing and building custom test equipment and controls is a discipline that starts with a well-crafted discovery process to understand the intricacies of testing needs. After defining the desired functionality, initial concepts advance to approved designs meeting all requirements.

The combination of application experience, in-house equipment customization and integration expertise sets ACS apart from other test equipment and controls suppliers. We possess full manufacturing capability with design engineers and fabrication staff, including electricians, machinists and welders who are experts at creating custom components that precisely meet recommended specifications and tolerances.



We specialize in:

- Assembly and Material Handling
- Automation
- Controls and Software
- Custom Machines
- Data Acquisition Systems
- Dynamometer Systems
- Fluid and Air Handling
- Fuel Handling
- Mechanical Test Systems
- Process Systems
- Safety



Our Services

ACS has a wide range of internal knowledge and capabilities that enables us to undertake large, complex projects effortlessly, deliver small projects cost effectively and do both with the highest level of value. Using our flexible approach, it is our goal to deliver a solution that meets your schedule, cost and functional requirements by leveraging our expertise in engineering, equipment procurement, contract negotiation and management, construction, risk management and facility integration.

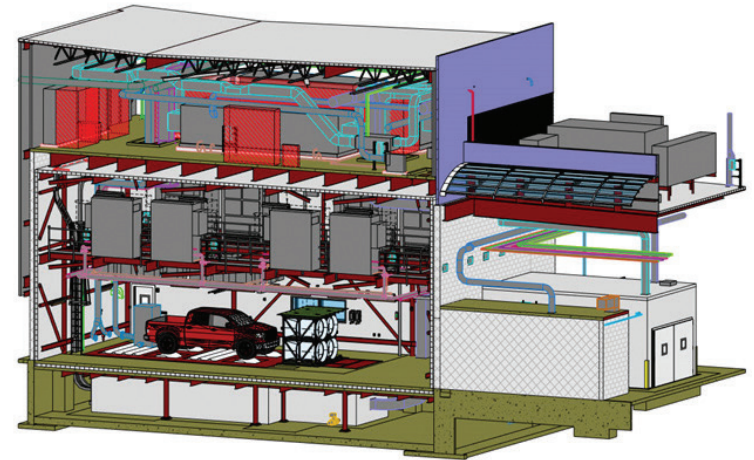
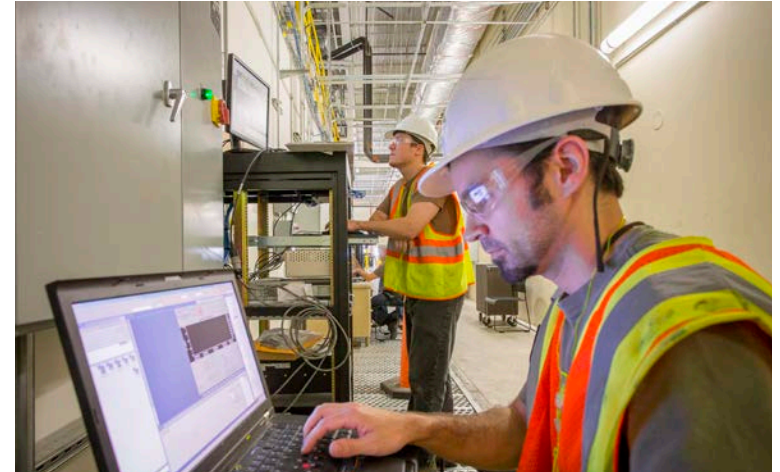
Depending on your needs and requirements, we can provide turnkey or individual deliverables encompassing:

- Front End Planning [FEP]
- Design & Engineering
- Systems Integration/3rd Party Equipment Integration
- Pre-construction and Construction Management
- Program Management/Project Management
- Acceptance Criteria
- Commissioning

Our experience runs the gamut of project types:

- Cell Renovations
- Controls
- Custom Software
- Equipment
- Facility Infrastructure
- Greenfield Design & Build
- Process Automation
- Scanning & 3D Modeling
- Studies
- Turnkey Projects

Our big picture understanding and wealth of knowledge covering the latest emissions measurement, data acquisition and dynamometer technologies is a distinct advantage. It enables us to offer insight in support of decisions directed at more effective methods of producing and reporting data that bolsters product development or production quality.





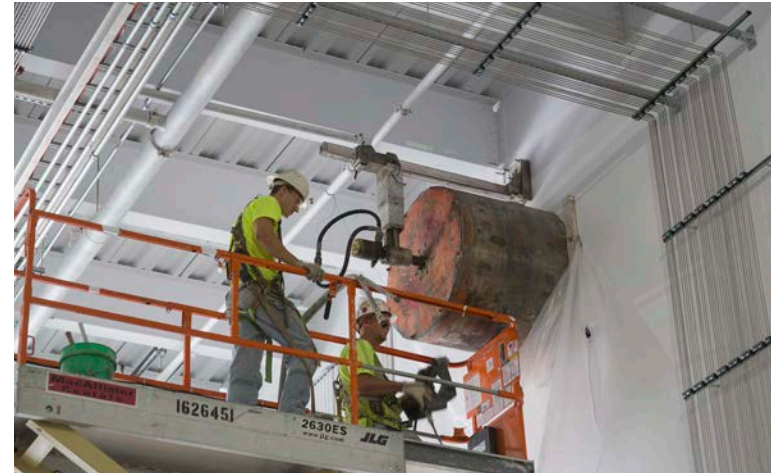
Flexible Delivery

From test equipment through a completely integrated engine and vehicle test facility, the ACS Flexible Delivery Model is a client-tested and proven approach that encompasses planning, engineering, custom equipment design and assembly, procurement, project management, commissioning and long-term operational support. It allows the entire process to be adapted to clients' in-house methods, procedures, documentation, reporting requirements and purchasing preferences, while aligning needs with client budgets, project schedules and internal resources.

From mechanical transport, controls and software to dynamometers and peripheral equipment, ACS can handle every facet of a project – purchasing, contracting, building or doing whatever is needed to meet your objectives and create your masterpiece.

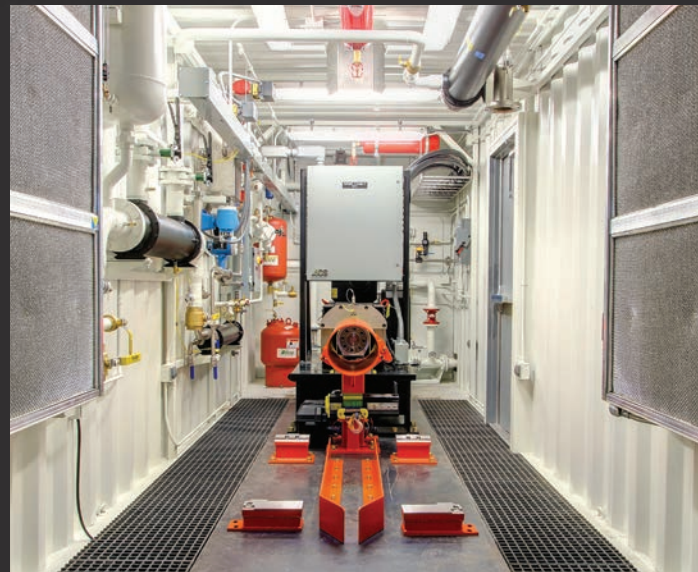
ACS is also vendor independent, to help specify, select and procure the best equipment for your needs. Our well-maintained bidder database can be supported by your local and preferred contractors and suppliers, including those that meet your company's diversity-related goals. When it comes to third-party equipment, we've been there, integrated that.

This unique approach enhances project value and aligns to client expectations, while enabling ACS to deliver a test solution that meets schedule, cost and functional requirements.



Storage • Laboratory/Research • Food & Beverage • ES • Food & Beverage • Co • Research • Manufacturing • Automotive • Energy

At ACS, it's our knowledge of building design and construction combined with expertise and understanding of equipment, testing, process systems, automation, and controls that enables us to guarantee performance.



Aerodynamics • Hydraulic • Audit • Performance • Acoustics • Calibration • Fuel Economy • Climatic • NVH
EMISSIONS CERTIFICATION • Validation • Durability • Electrification • Emissions • Wind Tunnel • Audit
Quality • Mileage Accumulation • Autonomous • Thermal Dynamics • Fuel Economy • Warranty • End of Line
Performance • End of Line • Quality • Altitude • EMC/RF • ENVIRONMENTAL SIMULATION • Aerodynamics
Quality • Mileage Accumulation • End of Line • Thermal Dynamics • Fuel Economy • Warranty • Autonomous
Certification • Climatic/Environmental • Autonomous • Durability • Dynamics • EMC/RF • Quality • Audit
The • Fuel Economy • DATA ACQUISITION AND MANAGEMENT • Calibration • Fuel Economy
Calibration • Autonomous • Performance • Aerodynamics • Hydraulic • Climatic • Audit • Acoustics • NVH
Autonomous • Thermal Dynamics • Fuel Economy • Warranty • End of Line • Quality • Mileage Accumulation
Simulation • Environmental • Certification • Pneumatic • Audit • Performance • Validation • Durability
Thermal Dynamics • COMPONENT DEVELOPMENT • Audit • Wind Tunnel
Vibration • Altitude • Acoustics • Calibration • Fuel Economy • Climatic • Mileage Accumulation
Environmental • Certification • Pneumatic • Audit • Performance • Validation • Durability



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