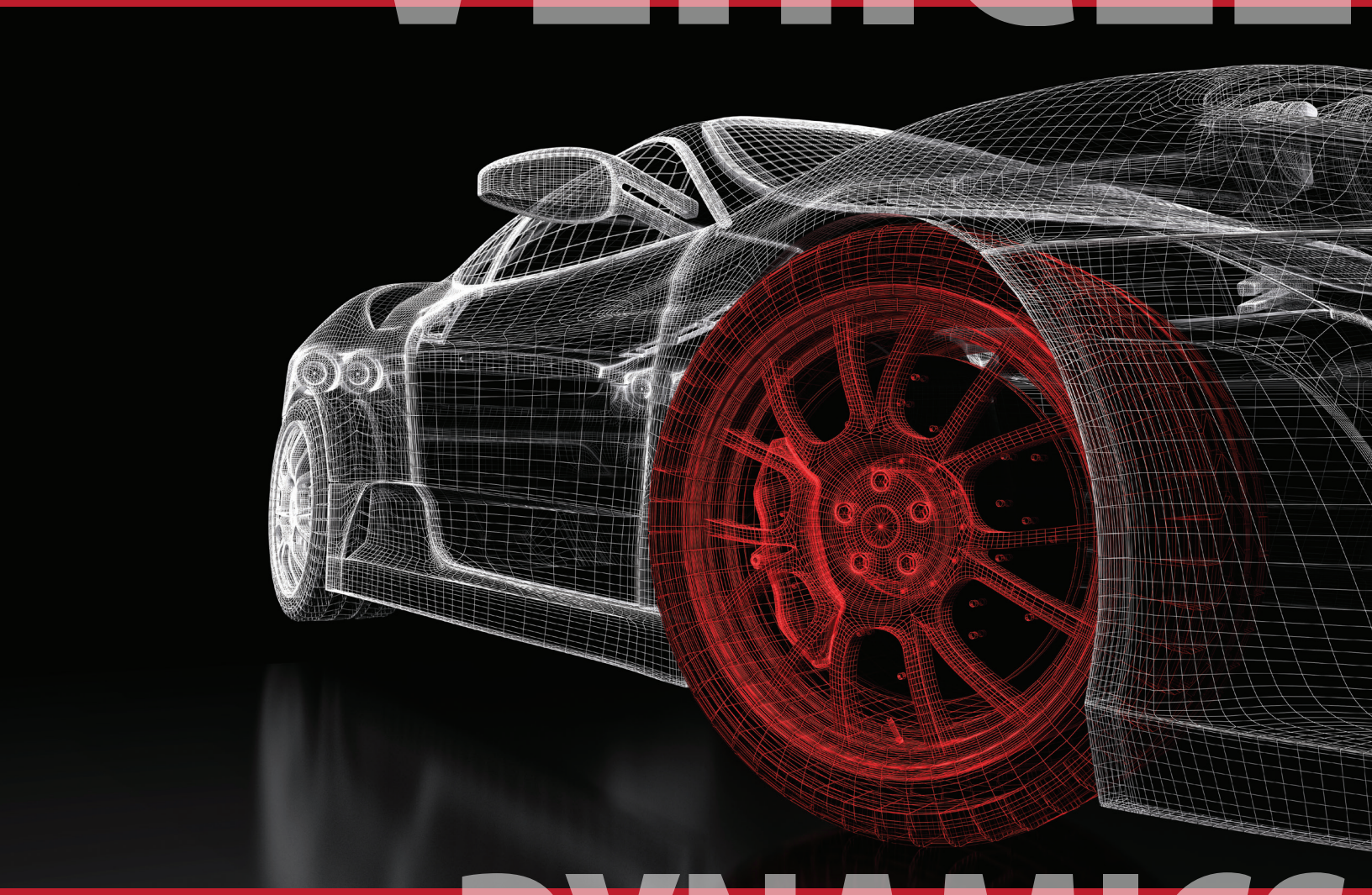
VEHICLE

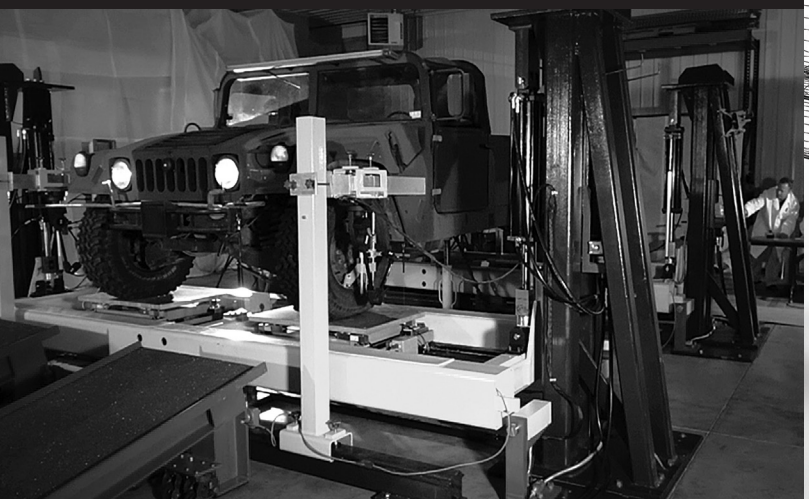


DYNAMICS

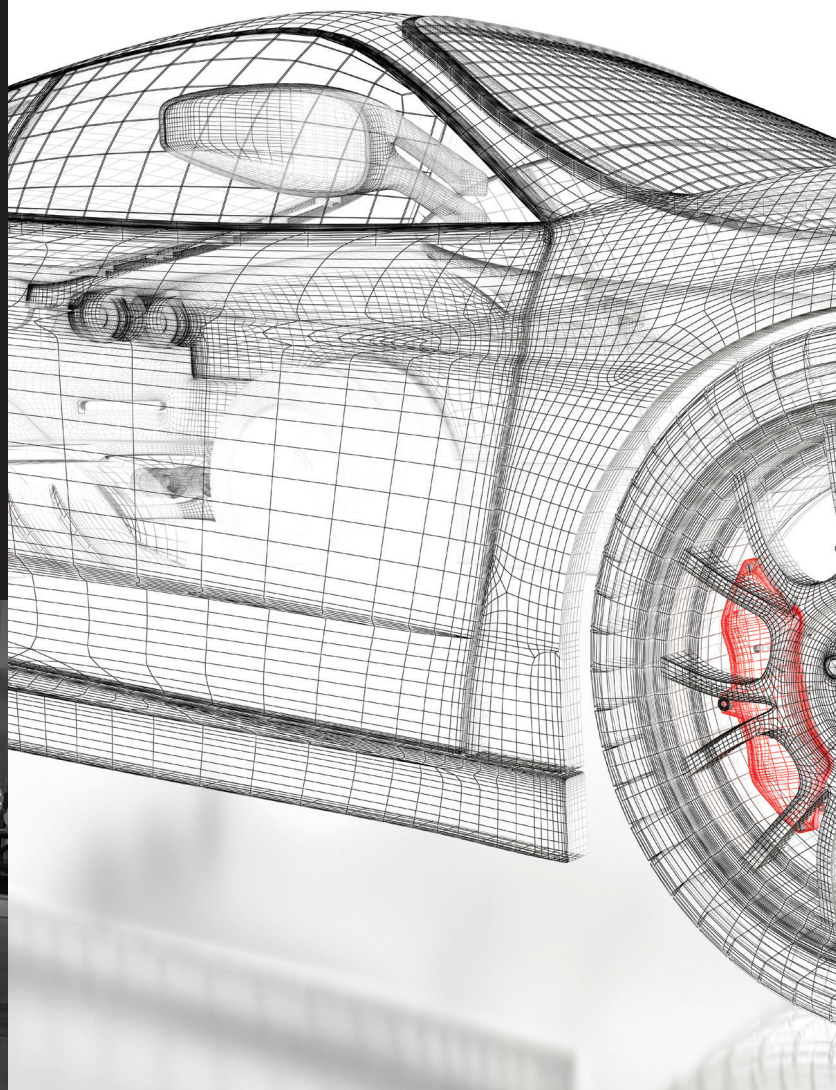
S-E-A™

The S-E-A **Vehicle Evaluation Center** is a state-of-the-art facility that provides a comprehensive suite of vehicle testing solutions. Whether you are trying to improve the dynamic handling of your vehicle, concerned with safety and regulatory compliance, or require post collision investigation, S-E-A has everything you need to evaluate your vehicle onsite.

S-E-A engineers built their first **Vehicle Suspension Measurement Facility (VSMF)** to measure suspension and steering system characteristics of cars and light trucks over 25 years ago. Since then, S-E-A has been designing and building custom suspension test facilities for its customers. The VSMF has been designed to accommodate a variety of wheel bases, axle quantities and mass. The VSMF can be used to test everything from ATVs and ROVs, to passenger vehicles, to large multi-axle vehicles weighing 45,000 kg.

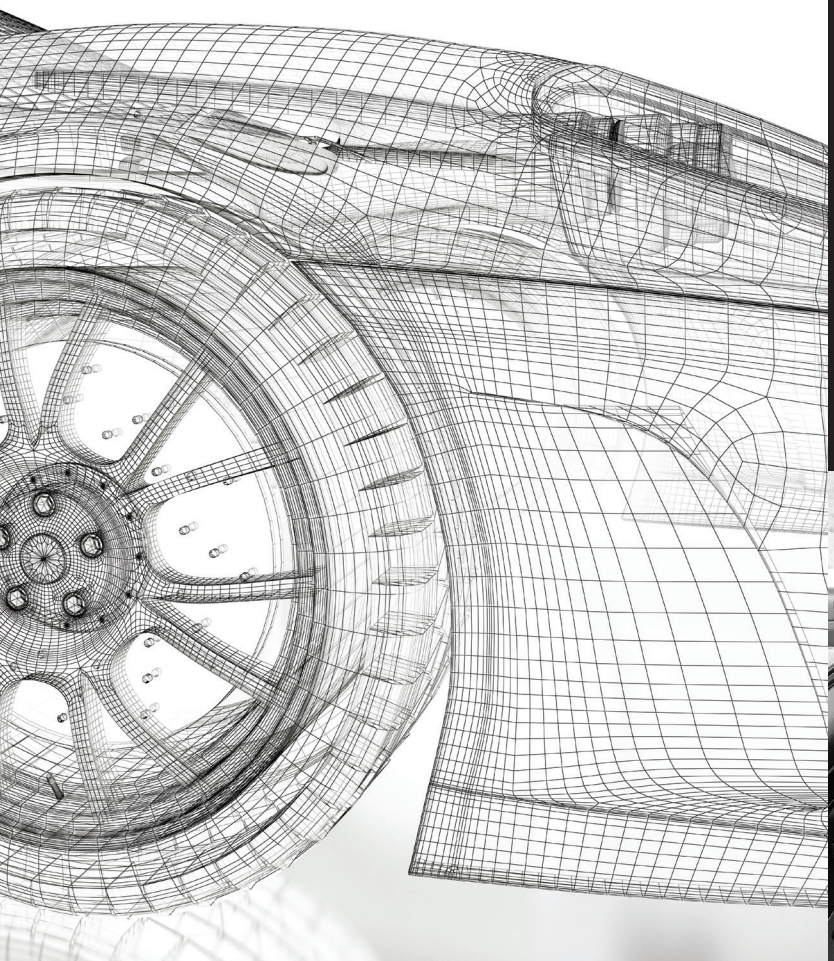


The **Vehicle Inertia Measurement Facility (VIMF)** is the premier system for measuring mass, center-of-gravity (CG) position and moments of inertia (MOI). Originally designed and built by S-E-A in 1994, the VIMF has remained the gold standard in the automotive industry since its inception. Over its nearly 25 years in production, the VIMF has been used to conduct over 30,000 tests for automobile manufacturers, race teams and design consultants worldwide. The U.S. National Highway Traffic Safety Administration (NHTSA) uses measurements taken by S-E-A's VIMF to provide Static Stability Factor (SSF) data to rank the rollover propensity as part of its New Car Assessment Program (NCAP). The VIMF technology has multiple configurations to accommodate small vehicle components, engines, passenger vehicles, large commercial and military vehicles, and anything in between. VIMF test facilities range from 450 to 45,000 kg capacities.



The Vehicle Evaluation Center also houses a **Test Sled** that can be used to simulate low speed impact scenarios up to 30 mph. This highly precise and repeatable device uses known and validated vehicle dynamics parameters as motion inputs, allowing high speed cameras and kinematic sensors to capture data. The on-staff biomechanical engineers at S-E-A are experienced in occupant kinematics and biomechanics. The combination of S-E-A's expertise and specialized technology enables complete analysis of any occupant excursion, including the related effects on the occupant in a variety of test configurations.

The **Roll Simulator** add-on to the Test Sled allows for vehicle rollover tests. With this simulator, multiple non-destructive rollover tests can be completed in a brief period, compared to in-field vehicle rollovers. The Roll Simulator is unique in its ability to provide coordinated translational acceleration and roll mode profiles to reproduce vehicle tip-over events with high fidelity.



S-E-A has extensive experience conducting **Dynamic Test Programs** for vehicle development, evaluation and regulation; and has done so for many automotive manufacturers and suppliers, as well as government agencies. S-E-A maintains asphalt and groomed dirt vehicle dynamics areas, as well as off-road trails. S-E-A's vehicle test drivers have experience driving a wide range of vehicles and proficiency with numerous standard testing protocols.

The Automated Test Driver (ATD) implements a user-friendly steering, brake and throttle robot. This quick and easy-to-install technology can perform full, repeatable, unmanned vehicle tests, including rollovers. Driving profiles can be selected from a list of stored maneuvers, or quickly programmed through a graphical user interface. Automated Test Drivers equipped with vehicle-to-vehicle (V2V) communications enable the system to maintain control of even the most complex test scenarios our clients require, including choreographed maneuvers of multiple vehicles.

Think Differently.
Think Dynamically.

Being known for experience and expertise begins with seeking these qualities in the professionals you engage. Our highly talented Vehicle Dynamics engineers are recognized internationally as leaders in vehicle testing, handling dynamics analysis, safety testing methodologies, computer simulation and modeling.

The 47-acre research campus at S-E-A marries time-tested methodologies with some of the most advanced techniques and groundbreaking innovations available for vehicle evaluation and analysis. The 110,000 sq. ft. building houses a Vehicle Evaluation Center, including confidential testing suites. Outdoors, on the campus, are asphalt and groomed dirt vehicle dynamics areas.

S-E-A Vehicle Dynamics is constantly listening to the demands of the market to respond with novel and improved testing methodologies. If you require best in class, innovative testing and don't have the expertise or capacity, S-E-A is ready to help.

S-E-A™

VEHICLE DYNAMICS

ENGINEERING • INNOVATION • PRECISION

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