



Mustang Delivers Unique 4x4 Chassis Dynamometer To Lawrence Technological University's Automotive Engineering Institute For Advanced R&D Of Next-Generation Vehicles.

Mustang Advanced Engineering recently delivered a unique 4x4 vehicle chassis dynamometer to Lawrence Technological University's Automotive Engineering Institute. The dynamometer features individual wheel torque electronic controls of one, two, three, or all four drive wheels and speed capability of up to 100 mph. Four individual power absorbers provide 175-hp per wheel load capability for continuous operation and up to 350-hp intermittently. Wheelbase adjustment from 89 to 175 inches allows the dynamometer to test a wide range of AWD vehicles.

New Research Opportunities

Vehicle performance, particularly traction, is important and this new dyno allows the researchers at LTU to research optimum vehicle traction performance and vehicle efficiency by experimenting with power distribution to the tire/ground contact patches for each of the four wheels. It will be used to develop optimum driveline system hardware to accomplish top vehicle performance; open and limited slip differentials, locking differentials, viscous drive, traction control, and other mechanical and mechatronic driveline systems. Also, research wheel power balance to improve tire design.

With the installation of this dyno LTU researchers can also explore novel driveline arrangements with alternative next generation energy sources for fuel cell, electric, hybrid-electric, hydrogen, and hydraulically powered vehicles. The dynamometer can accommodate 4x4 full/part time and 4x2 vehicle arrangements. Develop optimum logic algorithms and electronic hardware to individually control power distributions to each of all the drive wheels.

Vehicle performance with regards to turnability/ride stability and acceleration/braking is key in research in the modern day automotive industry. LTU can evaluate vehicle turnability and ride stability on the basis of the lateral forces of each of the four wheels, including acceleration and yaw resisting and assisting moments. Improve ride stability systems and driveline systems to control vehicle oversteering and understeering. Researchers can also experiment with vehicle timing to test various types of acceleration/braking and distance runs and also evaluate the performance of vehicles with different driveline system arrangements.



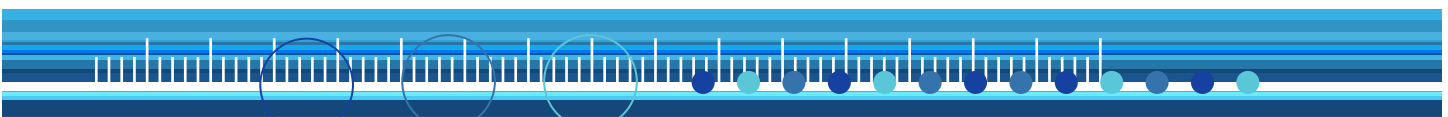
Depending on power distribution to the front and rear axles and to the left and right wheels, the same vehicle has different traction performance, energy efficiency/fuel consumption, and off-road mobility, turnability and ride stability.

Durability: Test vehicle driveline durability to improve the design and life of the hardware. Testing can include all powertrain components and can apply manually controlled loads and simulate proving ground test cycle loads.

Diagnostic Testing: Study total vehicle systems to diagnose system; subsystem; and components-level hardware issues and verify corrective actions for effectiveness.

NVH Development: Conduct experimental studies for all noise and vibration concerns on vehicle driveline systems with structure borne noise.

Fuel Economy Improvement: Improve vehicle energy efficiency and fuel economy by developing driveline systems based on optimum power flow distributions to each of the four drive wheels.





About MAE

Mustang Advanced Engineering is a leading provider of comprehensive testing solutions for the development and testing of engines, powertrain systems and complete vehicles. Founded in 1975, Mustang has long been a trusted source of expertise in measurement and testing technologies for the global industrial market. World-class product offerings, custom design support and technical assistance, backed by a dedicated factory service team, has positioned MAE among the global leaders in providing advanced testing solutions.

As a global leader in the design, manufacturing, and integration of advanced testing and measurement systems, MAE has delivered and continually supports literally thousands of test systems to virtually every corner of the globe.

Our mission is to achieve the highest possible level of customer satisfaction by providing innovative technical solutions and product designs and by striving to achieve perfection in product quality, delivery and service. At MAE, our customers are our highest priority - we do everything in our power to satisfy our customers. Our entire organization understands that the customer comes first and nothing else is more important.

To learn more about how MAE can help solve your most demanding testing challenges contact one of our sales engineers or visit www.mustangae.com.

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