

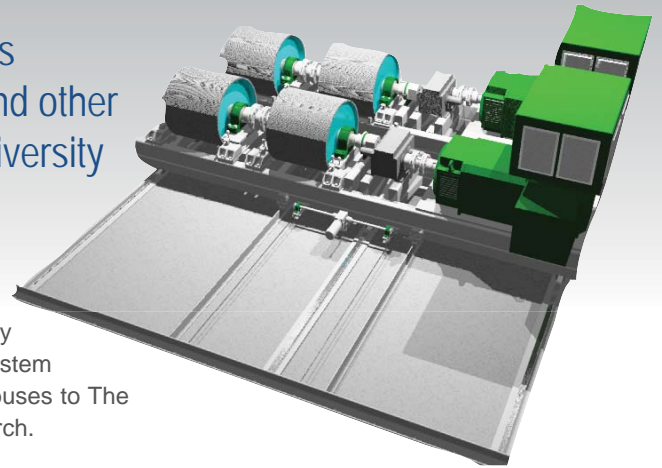
Project Spotlights

An MAE publication highlighting some of the latest advanced engineering projects.

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Mustang delivers a heavy duty electric motor chassis dynamometer system for testing hybrid truck, bus and other advanced powertrain vehicles to The Ohio State University Center For Automotive Research (OSU CAR).



April 2011 - Twinsburg, Ohio - Mustang Advanced Engineering recently delivered a heavy duty, electric motor, tandem axle chassis dynamometer system with a variable wheelbase system for testing Class 4 to Class 8 truck and buses to The Ohio State University Research Foundation's Center For Automotive Research.

The heavy duty chassis dynamometer consists of a dual axle roll set. Each axle roll set comprises a quantity of 2-48" rollers coupled to a 1,000-hp electric motor. While one of the 48" axle roll sets is fixed in place, a second, movable 48" axle roll set gives the system the ability to test varying vehicle wheelbases. The wheelbase movement system uses linear bearings to allow the moveable roll set to adjust to different wheelbase requirements. Since the test stand is being used for tandem and AWD vehicles, the dynamometer system provides a minimum wheelbase testing capability of 45" and maximum wheelbase of 472 1/2". The wheelbase system has a static locking brake to hold the movable axle in location and an electric gear motor connected to a power drive carriage with wheelbase distance transducer and display to precisely move the axle wheel base.

The primary use for the dynamometer is intended for hybrid electric vehicle testing and calibration. This application requires low speed (<70 mph/113kph), high wheel force testing (24,000lb/105,000N). This testing will be conducted to validate vehicle performance, efficiencies, and power electronics calibration on both on-road and off-road vehicles. The dynamometer will allow vehicles to accelerate with 8.3 mph/s acceleration rates or greater depending on inertia simulation range and dynamometer speed. Additionally the dynamometer will achieve inertia simulation in the range of 8,000 to 60,000 lb.

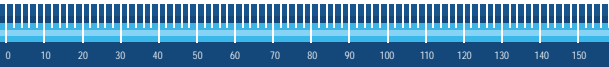
The system will be able to carry out performance testing of heavy duty wheel type vehicles with multiple drive axles including: 4 x 4, 4 x 2, 6 x 4, and 6 x 2.

As configured, the system can perform many different types of tests such as:

- Dynamic performance testing
- Electric or fuel economy performance testing
- Hybrid regenerative performance testing
- Vehicle simulation testing
- Lug down testing
- Scripted cycle testing from infield data
- Scripted cycle testing from imported engineering file

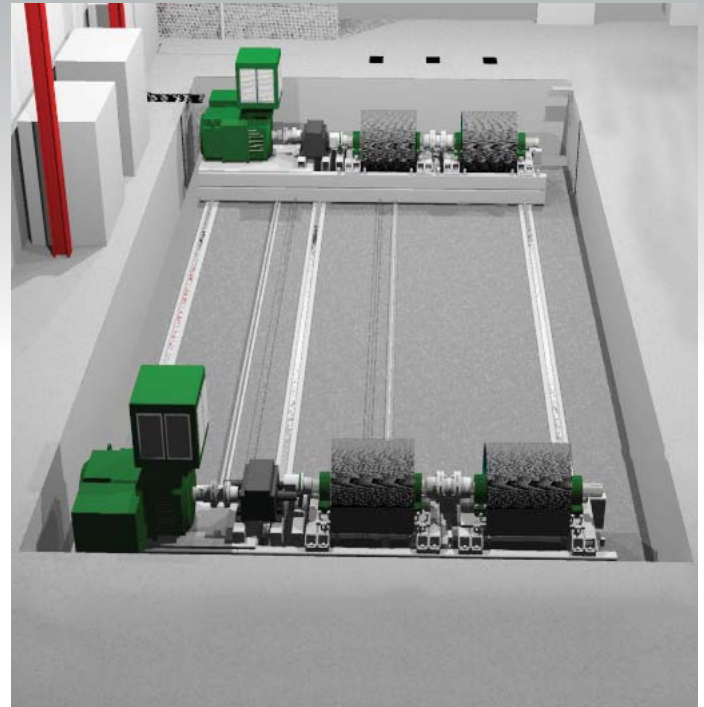


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“As part of our strategic plan, Mustang has developed a cost effective series of diesel, petroleum and hybrid certification grade dynamometer systems to address the needs of the global emissions and R&D market. There is a clear and present demand for full performance cost effective dynamometer systems that offer all of the capabilities and confidence of a certification system at a price point that makes it no longer cost-prohibitive for organizations to perform critical emissions studies, hybrid system calibration development, performance evaluation and other cutting edge research technologies. Researchers are in need of dynamometer systems to develop the next generation technologies which mimic the capabilities of the certification dyne requirements, but at a fraction of the cost of a true certification system. That is why we have developed this series of dynamometers and universities, OEM, tiers and suppliers are lining up for them”, said Executive Vice President, Donald Ganzhorn.

“This project provides yet another example of why Mustang is the supplier of choice for custom test stands to the R&D and university communities. Mustang’s size and speed, flexibility and experience with virtually every type of dynamometer technology put us in a great position to win this bid and our ability to integrate some existing hardware in order to meet Ohio State’s budget requirements for this project was key to the award of this contract”, said President and CEO, Dean Ganzhorn.



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.