

Advanced Engineering

Testing Solutions



Light Duty Emissions Dynamometer



Smarter By
Design



Light Duty Emissions Dynamometer

The MAE Light Duty Emissions Dynamometer system is designed to measure vehicle emissions and power while on the road as well as on a chassis dynamometer and then compare the emissions and power results from both test sequences. The test vehicle is instrumented with a Portable Emissions Measurement System (PEMS) and an on-road data acquisition system to measure vehicle emissions, performance and the driving data. The vehicle driving data is downloaded to the chassis dynamometer control system to reproduce the loads seen on the road, including grades and wind. Other environmental elements such as temperature and altitude are factored into real time compensation algorithms for both the emissions measurements and power corrections.



The latest emissions systems developed by MAE provide significant benefits including:

- Emission grade inertia simulation
- 2WD and AWD modes of operation
- Emission grade road simulation accuracy
- State of the art PowerDyne® dynamometer control and data acquisition
- PEMS, 5 Gas (ASM), or VMAS analyzer systems
- GPS based drive cycle acquisition
- OBDII scanner

Additional Options and Services

- Throttle actuator or robot driver
- Variable speed vehicle cooling fan
- Complete facilities planning and installation services
- Weather station providing temperature, humidity, and barometric pressure
- Axle weight scale
- Enhanced data acquisition packages



PEMS System



5 Gas Analyzer System



VMAS Mass Measurement System

Analyzer Systems

The Mustang 5 Gas Analyzer is BAR97 certified and is compliant with the updated EPA ASM specifications including accuracy, test procedures, response times, and self-audit functions.

Vehicle Mass Analysis System (VMAS) provides a low cost, reliable and accurate means of measuring the exhaust gas mass and with a 5 gas analyzer provides a highly accurate and repeatable system suitable for transient test procedures.

The PEMS system utilizes a miniaturized multi-chamber, and replaceable "Sensor Cartridge" (patents pending) design to obtain second-by-second PM/PN data from diesel engines. A new NOx/CO2 GasMOD™ Sensor Cartridge expands the testing capabilities on-road for Light and Heavy Duty Diesel.



MAE is widely regarded as a leading global provider of chassis dynamometer systems for a wide range of application that require accurate and repeatable road load simulation, speed control, force control or acceleration control. The dynamometer controller translates the data acquired from the on-road test to a speed trace for the driver to follow and the chassis dynamometer loading system will apply appropriate load to the vehicle's wheels as if the vehicle was driven on the road. This exacting chassis dynamometer vehicle speed and loading should force the vehicle to produce the same emissions on the chassis dynamometer as it does on the road.

In addition to creating drive cycle from the data obtained from on-road testing, the PowerDyne® system comes standard with a multitude of testing capabilities including:

- Manual loading
- Constant force
- Constant speed
- Vehicle simulation
- Power curves
- 1/4 mile simulation
- ASM 50/15 and 25/25
- Diesel lugdowns

Drivers Trace Suite

- FTP-75
- US06
- IM240
- UDDS (LA4)
- ECE EUC
- ECE EUDC
- Japan 10 Mode
- Japan 15 Mode



Emission Analyzers

- Small size and lightweight
- Low power consumption
- Simple to maintain and operate
- Fully automated software packages
- PEMS unit features opacity, scattering, ionization, sizing, speciation, NO, NO₂, and CO₂
- 5 gas analyzer features HC, CO, CO₂, O₂, and NO_x
- VMAS provides mass measurement (grams/mile)
- Extremely low maintenance and operating costs
- All systems manufactured by ISO certified processes

GPS/On-road Data

- Velocity
- Acceleration
- Distance
- Grade
- Wind direction (optional)
- Temperature, humidity, barometric pressure (optional)

OBDII Data

- Throttle position
- MAP sensor value
- Engine RPM
- Vehicle's calculated power
- Various other power related data

Chassis Dynamometer

- Low profile allows in-ground or above ground installations
- Calibration motor
- 2WD and AWD modes
- Emission and performance tests
- Low power requirements



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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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