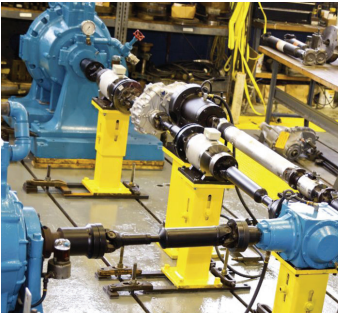


NTS MARKET SPOTLIGHT

# AUTOMOTIVE TRANSPORTATION



**Dynamometer testing expertise  
for practically every aspect of a  
drive train**



**Environmental test simulation  
including drive-in ability**

## ENGINEERING AND EVALUATION

NTS has provided automotive testing and certification services both domestically and internationally for over 20 years. The automotive testing services performed by NTS cover safety, reliability, longevity, durability and functionality. Our staff of experienced mechanical and electrical engineers deliver high quality results with fast turnaround at competitive prices. NTS laboratories are ISO/IEC 17025 accredited by A2LA and staffed by a team of expert engineers with a long history in the business.

## INDUSTRY SPECIFIC TESTING

With conveniently located laboratories providing multiple services for complex projects, NTS boasts some of the best-equipped automotive component testing labs in the country. We offer industry specific tests such as:

- Climatic Testing
- Dynamometer Testing
- EMI/EMC Testing
- Gravelometer Testing
- Mechanical Testing
- Pressure Impulse Testing
- Vibration Testing
- Hybrid and Electric Vehicle Testing

Recognizing the importance of this growing market segment, NTS has invested in the tools necessary to test hybrid and electric vehicle components. This includes a 400hp high speed regen dynamometer equipped with a 600V/600A battery simulator that can provide advanced powertrain testing. Our team also designs custom data acquisition and control systems, and we can develop a back-to-back dyno rig for thermal cycling and endurance testing. Whether you work with gas, diesel, EV/HEV or alternative fuel vehicles, we have the technical capabilities to provide advanced automotive engine testing and other services.

## ABOUT NTS

As one of the largest commercial test laboratory networks in North America, NTS offers test, inspection and certification services for environmental, dynamics, EMC, wireless, product safety, materials, ballistics and much more. Our client partners rely on NTS to bring quality products to market quickly and efficiently, and so can you.



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## HIGHLIGHTS AND PRIMARY SPECIFICATIONS

### *Climatic Simulation (Environmental)*

- Cyclic thermal shock chambers for large and small test samples
- HALT/HASS combined vibration thermal shock
- HAST high temp steam chambers
- Sand and dust
- Gravel bombardment
- Slurry and mud exposure for dynamic tests
- Altitude chambers for large samples and smaller high-vacuum tests
- Operational testing in salt fog and humidity
- Operational testing in cyclic and hi-flow corrosion chambers
- Chemical exposure
- High-pressure water spray
- Steam jet
- Rain exposure

### *Dynamometer*

- Motoring and absorbing at speeds to 15,000 RPM and torque over 6,000 ft-lb
- Automated control, monitoring, and data acquisition with torque/speed profile, backdrive and shift capability for transmissions, PTUs, gearboxes, axles, driveshafts, with rotating machinery analysis
- Simultaneous application of dynamic axial and/or radial loading to rotating components
- Environmental exposure to rotating components including temperature, slurry and salt spray on motors, alternators, U-joints and bearings



Our 65,000 sq. ft. Detroit lab is ready to meet your needs with a myriad of dynamometer motoring and absorbing test speeds

### *Electrical and Electronics*

- DC supplies to 1000V, current to 1000A, up to 150KW that can be programmed to deliver complex test profiles
- 200 channels of programmable load up to 24V and 40A per channel, and resistive load banks capable of absorbing up to 150KW

### *EMI/EMC*

- Component Level up to full vehicle testing
- On-road and off-road vehicles and components
- Emissions and Immunity
- Transient testing / battery simulation
- Testing to SAE, ISO, CISPR and JDQ standards

### *Hybrid and Electric Vehicle Systems*

- 400HP regen dyno for performance testing of EV/HEV powertrains in an environmental chamber, with DC supplied by a 600V/600A battery simulator
- Specialists in design and construction of high speed back-to-back dyno rigs and controls for EV and HEV motor endurance and thermal cycle testing
- NTS designs data acquisition and control systems tailored specifically for e-motor and inverter testing including interfaces for CAN/Fieldbus/TCP/IP devices

### *Mechanical and Fluid Dynamics*

- MTS control systems for programmable load profiles or field data simulation
- Cyclic torque and linear force
- Pressure cycling and impulse
- Fluid control systems at high flow rates
- Pneumatic actuation, cycling, flow, pressure and leakage
- Fluorinert gross leak and Helium mass spectrometer fine leak

### *Vibration and Sound*

- Electro-dynamic and servo-hydraulic vibration
- Design/fabrication of fixtures and automated equipment
- Data acquisition for acceleration, strain, load, torque, sound, pressure and voltage
- Exhaust system and sensor vibration testing with hot air pressure and flow

### *Additional Services*

- Energy efficiency, driverless technology, bluetooth technology, material and coating durability



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