Model 3900
NVH Brake Dynamometer

[Image of Model 3900 NVH Brake Dynamometer]
Key Benefits

- Latest technology software and controls
- Proven components with low maintenance
- Controls and power cabinet Integrated onto machine
- Isolated test fixture from any machine vibrations
- Large test enclosure with free field properties
- In-line rotating torque sensor
- Suspension test fixtures
- Knuckle test fixtures
- Safety interlocks on all guard doors
- Compact pedestal workstation
- Calibration fixture for torque
- Video monitoring camera

Product Overview

The Model 3900 Dynamometer (Model 3900) is a full-sized machine specifically designed to evaluate Noise, Vibration, and Harshness (NVH) of brake systems for automotive and medium truck applications up to 11,300 Nm. This state-of-the-art machine incorporates a 186 kW motor capable of low speed brake drag protocols while utilizing a vehicle suspension fixture to accurately reproduce system NVH frequencies. To further duplicate on-road test conditions the suspension fixture is contained within a climatic controlled test enclosure. The test enclosure is designed as an acoustic free field chamber making the Model 3900 a perfect machine for research and development of brake system NVH.

Additionally, the Model 3900 is a multi-purpose dynamometer that allows for performance brake testing. The dynamometer is fully capable to conduct all of the standard brake performance test procedures. Having one dynamometer that is qualified to conduct both NVH and performance tests can be advantageous in brake development.
Optional Systems

- Low speed static torque drive system
- Water spray and brake soak system
- Max shaft speed of 3000 rpm
- Max brake torque 10,000 Nm
- Performance testing tailstock
- E-Caliper interface and power supply
- NI DIAdem data converter
- Mechanical parking brake apply
- Disc Thickness Variation (DTV) measurement
- AC Motor (brushless system)
- High accuracy secondary digital torque signal for off- brake drag
- Electric over Brake fluid apply system
- RegenSim for hybrid vehicle braking simulation

Key Features

- Tabular step-by-step test script generation
- Customizable brake engineer graphical data review software (RevDataPlus)
- Automated reporting tools through MS-Excel
- High accuracy electric inertia simulation (I-Sim)
- Servo brake profile control
- Precision sensors for measurement: noise, vibration, shaft speed, torque, pressure, fluid displacement, brake temperature, cooling air speed, air temperature, humidity
- Integrated solution to auxiliary systems (DTV measurement, water spray, park brake testing, etc.)
- Power brake bleed system
- Environmental conditioning capabilities
- Duct silencers
- NVH measurement system
# Specifications

<table>
<thead>
<tr>
<th></th>
<th>Model 3900 Dyno (standard)</th>
<th>Model 3900 Dyno (with enhanced options)</th>
<th>Model 3900-HS Dyno (with enhanced options)</th>
<th>Model 3900-HD Dyno (with enhanced options)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Software</td>
<td>ProLINK</td>
<td>ProLINK</td>
<td>ProLINK</td>
<td>ProLINK</td>
</tr>
<tr>
<td>Sample Rate</td>
<td>5000 samples/sec</td>
<td>5000 samples/sec</td>
<td>5000 samples/sec</td>
<td>5000 samples/sec</td>
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<tr>
<td>Drive Motor</td>
<td>186 kW (DC)</td>
<td>186 kW (DC)</td>
<td>186 kW (AC)</td>
<td>186 kW (AC)</td>
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<tr>
<td>Shaft Speed</td>
<td>0 - 2000 rpm</td>
<td>0 - 2500 rpm</td>
<td>0 - 3000 rpm</td>
<td>0 - 3000 rpm</td>
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<tr>
<td>Brake Torque</td>
<td>5650 Nm</td>
<td>5650 Nm</td>
<td>5650 Nm</td>
<td>10000 Nm</td>
</tr>
<tr>
<td>Drag Torque</td>
<td>n/a</td>
<td>100 Nm</td>
<td>100 Nm</td>
<td>100 Nm</td>
</tr>
<tr>
<td>Mechanical Inertia</td>
<td>34.6 - 184 kgm²</td>
<td>34.6 - 184 kgm²</td>
<td>3.7 - 152 kgm²</td>
<td>24.2 - 272 kgm²</td>
</tr>
<tr>
<td>Inertia Range with I-Sim</td>
<td>5 - 320 kgm²</td>
<td>5 - 320 kgm²</td>
<td>5 - 340 kgm²</td>
<td>5 - 450 kgm²</td>
</tr>
<tr>
<td>Brake Apply Pressure</td>
<td>206.8 bar</td>
<td>206.8 bar</td>
<td>206.8 bar</td>
<td>206.8 bar</td>
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<tr>
<td>Brake Apply Rate</td>
<td>689 bar/sec</td>
<td>1034 bar/sec</td>
<td>1034 bar/sec</td>
<td>1034 bar/sec</td>
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<tr>
<td>Temperature</td>
<td>-20 to +60 °C</td>
<td>-40 to +60 °C</td>
<td>-40 to +60 °C</td>
<td>-40 to +60 °C</td>
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<tr>
<td>Humidity</td>
<td>15 to 95% RH</td>
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<td>15 to 95% RH</td>
<td>15 to 95% RH</td>
</tr>
</tbody>
</table>

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