



ENGINE DEVELOPMENT FROM CONCEPT TO PRODUCTION

## TEST BED AND ENGINEERING COMPETENCE

NOTIFIED TECHNICAL SERVICE AND HOLDER OF  
SIGNIFICANT ACCREDITATIONS

**AVL MTC, situated in Haninge, has been in the AVL-group since 2002. In 2008 we acquired SPEAB, the former GM Powertrain Engine Development Plant in Södertälje. AVL Scandinavia differentiates itself through its unique combination of**

- Long experience of engine development from concept to production
- In-house powertrain / engine control system
- Alternative fuel competence
- Local engineering capacity
- Local test beds, engine and vehicle integration workshops

### Skill Areas

- Alternative fuels & powertrains
- Engine design
- Powertrain development
- Simulation & analysis
- Controls
- Resident engineering
- Emission research
- Certification & Regulation Compliance

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<p><b>Light duty test beds up to 350 kW</b> Asynchronous dynamometer</p> <ul style="list-style-type: none"> <li>• up to 800 Nm</li> <li>• up to 10 000 rpm</li> </ul>	<p><b>Heavy duty test beds up to 660 kW</b> Asynchronous dynamometer</p> <ul style="list-style-type: none"> <li>• up to 4 400 Nm</li> <li>• up to 3 500 rpm</li> </ul>	<p><b>Chassis dynos</b> For application &amp; certification</p> <ul style="list-style-type: none"> <li>• LD chassis dynos (cold chambers)</li> <li>• HD chassis dyno</li> <li>• MC chassis dyno</li> </ul>
<p style="text-align: center;"><b>Emissions Measurement</b> <i>Pre- and post-catalyst raw gas analysis, diluted &amp; CVS bag emissions, Fast FID, on-board emission measurements, full and partial flow gravimetric particle measurement, particle number measurement (PMP), particle size distribution, FTIR, mass spectrometer, smokemeter, opacimeter, micro soot sensor ...</i></p> <p style="text-align: center;"><b>Measurement</b> <i>Air mass, flow, lambda, cylinder pressure, pressure, temperature, vibration, Blow-by, oil consumption and vibration measurements ...</i></p> <p style="text-align: center;"><b>Conditioning</b> <i>Combustion air, water, oil, fuel and charge-air conditioning Thermo shock &amp; intense cooling</i></p>		
<p style="text-align: center;"><b>Test bed automation</b> <i>Steady and high dynamic test beds equipped with e.g. PUMA, ISAC, CAMEO, INCA &amp; other ECU application software</i></p>		
<p style="text-align: center;"><b>Data analysis</b> CONCERTO</p>		

## SPECIAL COMPETENCE



### Alternative Fuels

Long experience in Flex fuel and Bi-fuel engineering

Successful rapid transfer from concept to serial production



### Controls

Over 15 years experience of implementing SW for engine management into serial production projects

Successful rapid transfer from concept to serial production



### Certification & Regulation Compliance

- EC tests
- Japan TRIAS tests
- In-service vehicles (IUC)
- Conformity of production
- Certification of components

## SPECIAL TEST BEDS



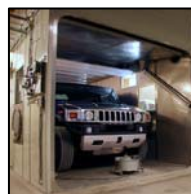
### Dynamic heavy duty transmission

Heavy duty transmission test bed with possibility to load 800 kW and 5500 Nm or maximum 21 kNm with reduction gear box



### Single cylinder test bed

Light duty single cylinder test bed with forced induction capability



### VT-Shed

For hot soak and diurnal tests