

NVH and emission chassis dynamometer

600 kW | 10dB (A) | 4×4 chassis dynamometer



- ✓ **Multidomain product optimization**
- ✓ **Accelerate development with cross-domain acoustic and vibration integration**
- ✓ **Effective understanding of acoustic and vibration phenomena through customized and reproducible measurement, analysis, and evaluation procedures**
- ✓ **Make emotions come to life with the tailored combination of sound, vibration, and product aims**
- ✓ **For automotive and non-automotive applications**

SCOPE OF SERVICES

Acoustics and vibration are key differentiators in terms of product quality and are strongly correlated with people's perception and product branding. Competing aims from different areas such as software, calibration, emissions, drivability, energy management, and noise, vibration, and harshness (NVH) need to be investigated simultaneously in many situations during vehicle development to achieve the desired performance. In these challenging situations, talented multi-domain specialists and the ability to test complete systems efficiently are key competencies to ensure a successful project with efficient use of the available resources.

As part of the test center, Bosch Engineering offers a state-of-the-art NVH chassis dynamometer on which vehicles with various powertrains can be tested (internal-combustion engines, including H₂, hybrid, electric, fuel cell, etc.). The integration of emission measurement technology, independent 4x4 control of the rollers, automation, and a very low background noise level down to 10 dB(A) enables the analysis of complex cross-system influences from hardware and software for many NVH as well as other topics. In combination with our many years of experience in powertrain development, the close collaboration with experts from various Bosch divisions, and our high quality and safety standards, we can support customers from conception to volume production to make the desired emotions for your product tangible.

NVH CHASSIS DYNAMOMETER

Asynchronous motors	<ul style="list-style-type: none"> ■ All-wheel drive (AWD) 600 kW (generative) ■ Rear-wheel drive (RWD) 450 kW / Front-wheel drive (FWD) 300 kW
Speed range	0–250 km/h
Rollers	Acoustically optimized 75"
Axle load	≤2,500 kg
Wheelbase	1,800–4,300 mm
Temperature range	18–32 °C
Lower cutoff frequency	50 Hz
Background noise level	10 dB(A)
Certifications	<ul style="list-style-type: none"> ■ ISO 26101:2017-04 (Class 1) ■ ISO 3745 (Class 1) ■ UNECE 138
Types of powertrain	Internal-combustion engine (including H ₂), electric, hybrid, and fuel cell
Vehicle types	Bicycles, motorcycles, passenger cars, and vans as well as non-automotive applications
NVH-optimized blower system	0–160 km/h

EXHAUST-GAS MEASUREMENT TECHNOLOGY

Constant volume sampler (CVS) dilution tunnel	Capacity 2 to 30 m ³ /min
Measurement principle	Bag and modal analysis
Particulate measurement	Gravimetric particulate mass, particulate count (10 and 23 nm)

CHARGING INFRASTRUCTURE

High-voltage charging	22 kW AC/DC charging infrastructure in soak area
-----------------------	--

NVH MEASUREMENT TECHNOLOGY

State-of-the-art NVH measurement technology	Airborne noise (incl. binaural), structure-borne noise, torsional vibration, modal analysis, sound power, and customer-specific measurements
---	--