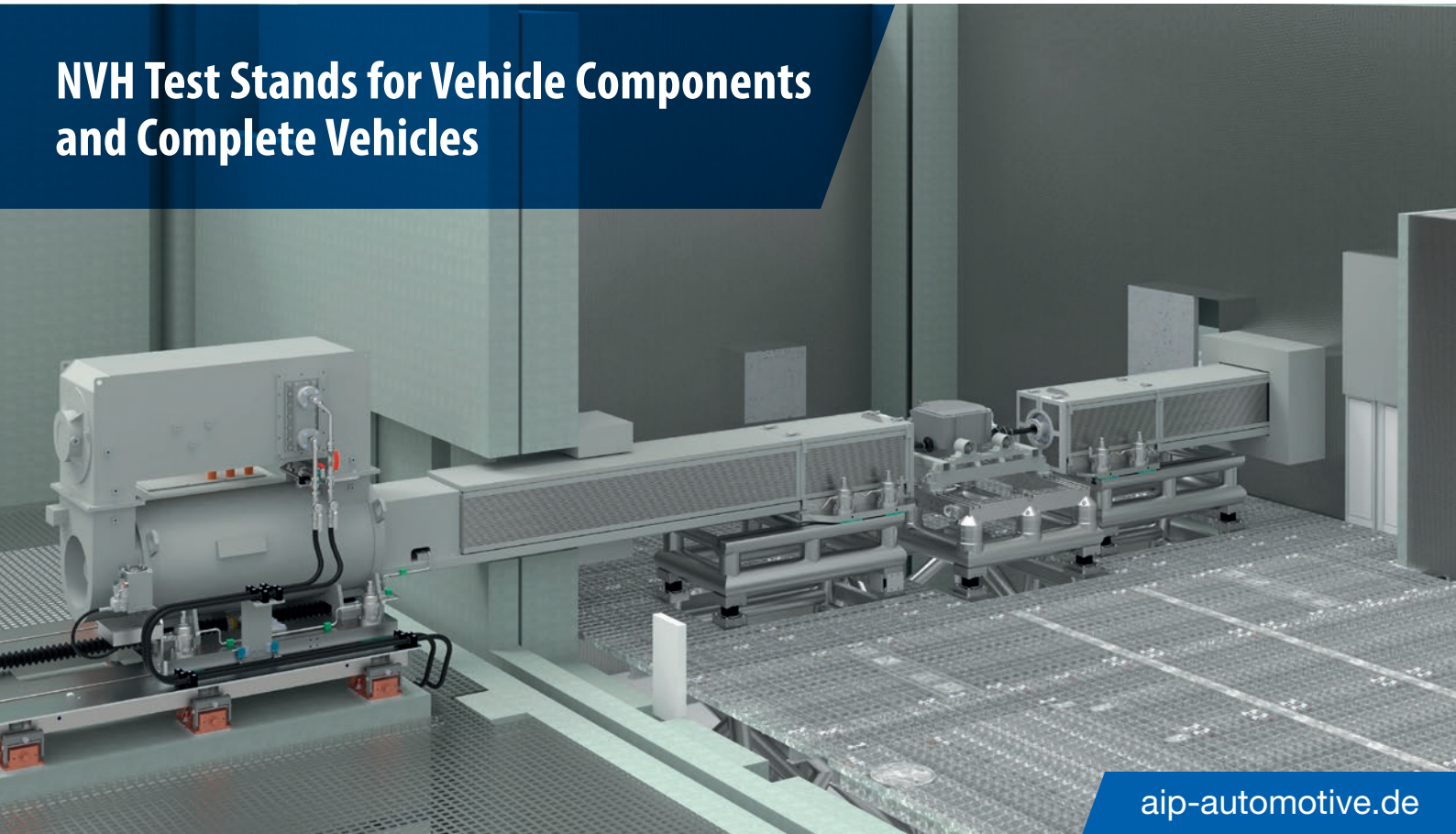


Test Systems for a Clean and Safe Environment



# NVH Test Stands for Vehicle Components and Complete Vehicles



[aip-automotive.de](http://aip-automotive.de)

# Innovative NVH-Test Systems for E-Mobility Challenges

- **External Noise** (Pass-by Measurement)
- **Internal Noise** (Comfort Measurement)
- **NVH E-Axle**
- **Full Cassis Dynamometers**
- **4-Motor Systems**
- **Road Surface Simulation Shells**

# New Groundbreaking Test Systems for E-Mobility

AIP plans and manufactures individual test systems for development and production centers for many of the well-known vehicle manufacturers in Germany and abroad. Our claim is technology- and service leadership in the field of vehicle testing technology.

State-of-the-art, environmentally friendly production techniques and the constant further development of our products and services create a prominent level of customer satisfaction and trust. We are in demand and valued internationally for this.

The recent development of many new products increasingly includes the areas of measurement technology and software development/automation in addition to classic mechanical and electrical engineering.

In particular, AIP supplies vehicle test stands (complete vehicles and components) for the realistic, reproducible simulation of road trips in laboratory operation, e.g. in the areas of emission measurement, endurance testing, measurement of electromagnetic compatibility, acoustic and vibration measurement.

AIP's innovative testing technologies are also used in the areas of E-Mobility, autonomous driving and in the development of driver assistance systems.

In addition to the vehicle test stands for road driving simulation, AIP has developed an extremely high level of awareness in the areas of measurement technology and flexible test stand automation worldwide.

Innovative projects for e.g. VW Group, Porsche, BMW, Mercedes, Audi, TESLA as well as for leading suppliers from France, Sweden, and Asia emphasize our high-ranking expertise in this important future section.



# High-Performance Solutions for a Wide Range of Applications



The AIP comprehensive system solutions are modular in design and easily adaptable to various vehicle types and customer requirements.

- Mobile and stationary charging stations for E-Mobility
- Test stands for electromagnetic compliance (EMC)
- Vehicle component EMC test stands
- Fuel cell test systems
- Battery (cell) testers and simulators
- Testing technology for driver assistance systems ADAS
- Acoustic measurement (NVH)
- Endurance testing, COP
- Test stands for multiple emission and consumption measurement
- Performance measurement, e.g. in a wind tunnel
- Hydraulic road simulation testing (shaker / pulser)
- Functional testing, e.g., in climatic and altitude chambers
- Stationary and mobile exhaust gas measurement / RDE
- Test automation
- Robot driver
- Drivers aid systems



# NVH Chassis Dynamometer CDM 75L NVH

Noise, Vibration and Harshness (NVH) Measurements



For the measurement and analysis of exterior noise (pass-by measurement) and internal noise (comfort measurement)



## Features

- Roller diameter 75" (1,905 mm)
- 4-motor design
- Motor 'inline' principle
- Various road surface simulation shells for the simulation of different road surface conditions (e.g. rough asphalt, small cobbled streets, etc.)
- Soundproofed rolls for preventing the 'bell effect'
- Water-cooled drive motors
- Integrated service center pit with height adjustable service platform

## Advantages

- Special vehicle restraining systems (e.g. wheel hub fixation) available
- Drive motors, rolls and test stand decking are sound-absorbing insulated to reduce the noise to test e.g. 41 dB(A) at 50 km/h
- Test speed to 250 km/h
- Optional various performance and climatic packages available



## Applications



NVH

# Road Surface Simulation Shells

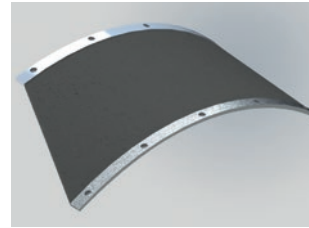
Simulation of Road Surfaces for Acoustic Measurements



## Available Surface Textures

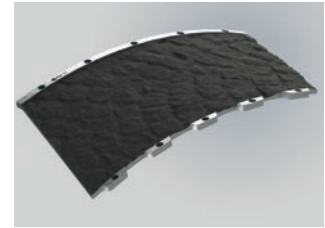
### ISO Rough Asphalt

(Reference: Heimerdingen)



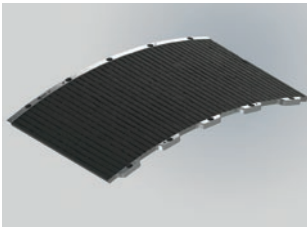
### Ingolstädter Cobblestone

(Reference: Test road Ehra)



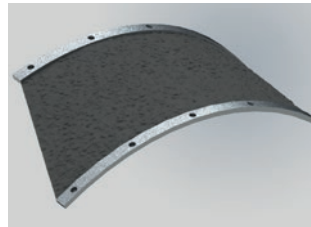
### Chinese Concrete Road

(Reference: China)



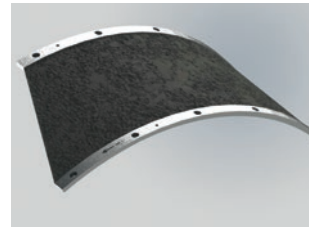
### Noise Road

(Reference: Test road Aschheim)



### Hot-Rolled-Road

(Reference: Test road Aschheim)







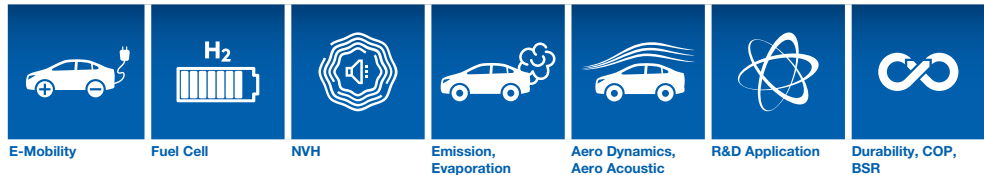
## Technical Specifications

Roll diameter (6 m circumference)	1,910	mm
Roll width	400 to 800	mm
Roller speed with surface plates	max. 120	km/h
Number of shells	5-8	pieces per roll
Shell thickness	25	mm
Tensile forces on the circumference	approx. 10	kN
Optional with basic support base plate (GFRP, CFRP)		

## Features

- Reproducible surface structures  
(ensure replacement after wear and tear or damage)
- Minimal gap dimensions between the roll surface plates  
(acoustically barely resolvable)
- Easy assembly

## Applications



# Our Headquarters in the Beautiful Allgäu



Our headquarters are located in Haldenwang in the Allgäu region (in the heart of Bavaria), approx. 120 km southwest of Munich.

For more than 25 years, AIP has been developing, testing, and manufacturing future oriented automotive testing technologies to promote a clean and safe environment.

The Allgäu is the southern region of Germany and one of the most popular tourist areas in the country. It is especially known for its intact and charming nature.



The famous Neuschwanstein Castle in the heart of the Allgäu region

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Test Bench  
Automation



Driving  
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Vehicle  
Cooling Fan