Testbed for Active and Passive Safety for Electric Vehicles

Facilitating development, testing and certification of safe electric vehicles

Karin Davidsson, Ingvar Karlson, Peter Janevik and Petra Andersson

SP Technical Research Institute of Sweden, www.sp.se

SP Technical Research Institute of Sweden

About SP

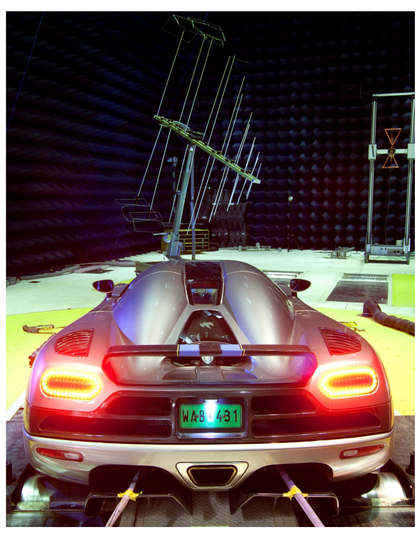
SP Technical Research Institute of Sweden belongs to the RISE group which is owned by the Swedish Government. SP is the national institute for technical evaluation, research, testing, certification, metrology and calibration and is co-operating globally with large and small companies, universities, institutes of technology and other organisations.

The SP group consists of nine technical units and eight subsidiary companies covering a wide technical range and employs around 1400 co-workers and bases the services on competence, efficiency, impartiality and international acceptance. SP's headquarters are located in Borås, close to Gothenburg in the western part of Sweden.

SP works in large scale with performance evaluation and safety concerning batteries, EVs, BEVs, HEVs and PHEVs concerning construction, production, transportation, use, abuse, service, crash, post-crash and recycling. This includes all aspects of safety and performance such as risk of fires and emission of gases. SP also performs dynamic engine tests for permanent magnet synchronous machines.

Research topics related to EVs, BEVs, HEVs and PHEVs include development of:

- Test methods for regulations like UNECE R100.
- Measuring methods for toxic gases emitted from batteries.
- Assessment methods for fire risks from abuse condition on batteries.
- Mitigation strategies for battery fire risks.
- Simulation models of electric drivelines for on or off road vehicles.
- Hybrid electric and hydraulic drivetrain concepts for working machines, for example articulated haulers, reachstackers and, tractors.
- Energy efficient vehicle components and sub systems.
- Methods for dynamic electric motor testing.
- Methods testing
  - Dependable systems
  - EMC
  - Environmental durability
  - Product safety



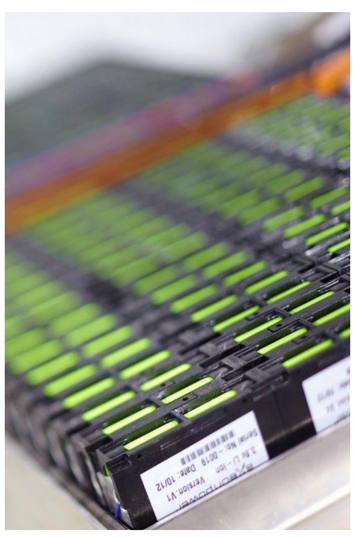
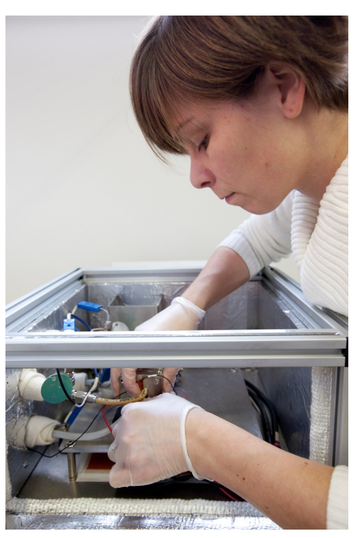


Foto: SmartBATT



AstaZero

AstaZero, the trademark of ASTA, Active Safety Test Area, is currently building a state-of-the-art proving ground for development and testing of active safety systems. AstaZero will be inaugurated on the 21st of August 2014. Sweden will then have a testbed for advanced active safety where almost any conceivable kind of test will be possible, whether to examine the functions of, for example, autonomous or connected vehicles, platooning or driver behaviour.

Core Services

- Unique environments to develop, test or certify new traffic safety solutions; making it possible to test literally all aspects of active safety in one place.
- Centre of Excellence in development of methods and test equipment.
- Proving ground cooperation.
- Simulation of the entire facility to run pre-tests or for the early stages of research and development.
- Demonstration facility and assistance with product launches, conferences and corporate events.

Construction measures

Total surface: About 2 000 000 square meters.
Paved surfaces: About 250 000 square meters.

Quality

AstaZero will be certified for ISO 9001:2000, ISO 14001 and ISO 17025.

For booking inquiries

+46 703 435 945 or bookings@astazero.com

Owners, financiers and industrial partners

The combination of the facilities offered at AstaZero and SP offers a unique possibility of developing active and passive safety measures for electric vehicles.