



Czech

**Add value.
Inspire trust.**

Testing and Homologation of Buses and Coaches

Your challenges

Are you looking for a partner, who will support you within the whole development process of a new bus or coach, its systems, components and accessories? Namely from the early analyses, through the testing and assessment of the regulatory requirements to the national or international type approval and launch to the market. If yes, we are here for you.

How can we help you?

- Well instrumented tests according to global regulations, standards as well as the customer requirements
- Development, approval and COP tests in one package solution
- Expert support for business

Detailed service information can be found on the next page.

Your business benefits

- One-stop-shop from testing, certification to type approval
- Tailor-made services driven by customer satisfaction
- Expert capabilities, quality and safety from TÜV SÜD
- TÜV SÜD laboratories are ISO/IEC 17025 accredited and are accepted by the approval authorities as the responsible technical services
- Speed and flexibility in the automotive area
- Technical expertise, quality and safety Worldwide support through a network of specialized centers

Why choose TÜV SÜD?

TÜV SÜD has more than one hundred years of experience in safety, testing, and approvals in various areas including vehicles. Our extensive knowledge and international accreditations allow us to work as a partner with global customers, including the leading OEMs and automotive suppliers. Our cutting-edge testing facilities combined with our global network of technical experts can provide your company with a single-source solution to achieve compliance with all applicable legal requirements and standards, and internal regulations. As an innovative service provider, we participate in the development of safety regulations, standards, and develop effective solutions for testing future mobility technologies.

Add value. Inspire trust.

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, the company has remained committed to its founding principle of enabling progress by protecting people, the environment and assets from technology related risks. Through 25,000 employees across 1,000 locations, it adds tangible value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in the physical and digital world to create a safer and more sustainable future.

Our services

Bus Construction

- Stability test and full scale **rollover on the tilting platforms 3x13tonnes**
- Strength of superstructure and cabin **virtual simulation**

Seat Testing

- Static & dynamic strength of seats, belt anchorages, ISOFIX and wheelchair fixtures 3x60kN; 3x40kN quasistatic load +2x20kN
- **2,5MN sled catapult**
- Energy absorption **linear impactor** & pendulum

ADAS & Driving tests

- Driver assistance systems tests (AEBS, LDW, ACC, AES, ALKS) with **moving target and driving robots on proving ground**
- Braking, steering tests, ESC
- Service pit

Fire Resistance

- **Fire suppression system** tests
- metal and plastic **fuel tank** tests
- flammability material tests

New Powertrains

- Electromobility & **Battery testing**
- LPG, CNG, LNG
- Hydrogen installation tests

Emmissions

- RDE w/ heavy-duty
- **PEMS**
- Passive resistance analyses, coast-down tests
- CAN sampling
- Drive-by **SORT** tests
- Engine installation tests

EMC

- **EMC Immunity and emission** tests up to 6GHz
- CISPR 25 chamber, open area vehicle EMC measurements

Functional Safety SOTIF

- Trainings
- Reviews & Assessments (Impact Analyses-HARA-Safety Plan...)
- Analyses
- Certification

Cyber Security & OTA

- Trainings
- **CSMS; SUMS**
- **Penetration tests**
- Fuzz tests
- Jamming
- System architecture

Homologation & Approval

- **Whole vehicle type approvals WVTA**
- System approvals
- Assessments of autonomous shuttles (**AV Permit**)

Virtual Simulation

- FEM structural analyses
- Multi-Body systems
- ADAS / AD system tests

Standards

- ECE: 10, 13, 14, 16, 17, 29, 34, 49, 51, 66, 67, 79, 80, 100, 107, 110, 111, 118, 130, 131, 138, 140, 155, 156, 157
- DIN75220, PR306.5, PV1200, PV2005a, R303.5, TPJLR, WL
- SAE 1939, VECTO, EU 582/2011+RDE, UITP SORT
- ISO 26262, ISO 21448, ISO 21434 (EU) 2018/858

Related services

- Type approval
- ADAS – Advanced Driver Assistance Systems
- Vehicle testing
- Component testing