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Siemens Mobility Services (SIMOS[™])

Reliable rail traffic – from the very first day

Test and Validation Center in Wegberg-Wildenrath

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The entire rail world in Wegberg-Wildenrath

Any customer. Any technology. Any system – any time.



As rail operators, you expect innovations that work properly from day one. But your customers – whether it's passengers or cargo – have the same expectation.

Our accredited and certified Test and Validation Center lets us meet this expectation. With our state-of-the-art infrastructure, highly qualified experts, and innovative testing services, we offer you customized solutions from a single source.

One of a kind, worldwide.

The Wegberg-Wildenrath location brings together expertise and technology. At the center we can perform standard railway tests on practically all standard-gauge and metergauge vehicles as well as systems and components – 24 hours a day, 365 days a year.

You set the agenda – because our service center is independent of public rail network operations.

Flexible testing areas for mass-transit, regional, mainline, and high-speed rolling stock

Special meter-gauge and standard-gauge test tracks allow a diverse range of tests to be performed, including movement through curves and on grades, leakage tests, and high-pressure sprinkling tests. This is where we find out whether your vehicles are ready for use in everyday urban and inter-urban service. Electric or diesel-powered – the Wegberg-Wildenrath Test and Validation Center is equipped to handle all rail systems and to simulate realistic situations on over 30 kilometers of track.



Concentrated testing expertise

Tested. Accredited. Experienced – every day.



Staying on track -

A 50-meter-long measurement track curve with a radius of 150 meters and two measurement fields is available for determining wheel support and guidance forces. It lets us assess the safety of vehicles against derailment in accordance with DIN EN 14363:2005.



Mastering all rotations -

Traveling through curves, over tops, and across dips can also be simulated at a standstill. Both standard-gauge and meter-gauge vehicles are tested on the turn-tilt table.



Getting the weight right -

Eight weighing elements are provided on a 52-meter-long, leveled, standardgauge track, and the distance between these elements can be varied. This lets us determine the exact weight of the vehicles.





Simulating travel while standing still -

A tilting device is available for measuring vehicle tilting behavior. The test stand is inclined to simulate the influence of lateral acceleration caused by factors such as centrifugal force or side winds.



Under voltage -

The impulse voltage test system can be used to perform lightning and switching impulse voltage tests, which ensures vehicle safety in an electric railway environment.



Limiting noise -

Vehicles can undergo a noise test at speeds of up to 160 kph on the acoustic measuring rig in accordance with TSI noise and DIN EN ISO 3095:2005. The condition of the track complies with strict European approval regulations and is regularly inspected.



"The authorities are extremely precise. If a rail vehicle is only one decibel louder than allowed, they withhold approval. Therefore, we conduct our measurements under controlled and comparable conditions, which would not be possible on the public network during normal operation.

Through oscillated grinding, the rail is brought to the exact value required by the European directive. Then the measurements can begin."

One of a kind, worldwide

Real operation, simulated extreme conditions – at one location.



Endurance test for door signals

A three-week door-signal endurance test was performed for the Taipei metro: pulling into the station, opening and closing the doors, pulling out again. We covered 5,000 kilometers, and everything was fine. Test successfully passed.

Wegberg-Wildenrath





Climate tests on the Desiro Classic, Bulgaria

How warm will it get inside? This question was answered in an endurance test performed on Bulgaria's Desiro Classic. The result: The air-conditioning keeps the vehicle interior at a constant temperature of 25° C even when it's 40° C outside.



Deformation behavior of the Velaro RUS

The strength of an automatic coupler is essential for safe rail operation. This was tested early on and in real-life conditions using a freight car as a crash element on a front module of the Velaro RUS. Once again: test successfully passed.

Extreme operating conditions

We're also well-equipped to meet unusual demands. Voltage gaps, sudden voltage changes, power supply failures, and short circuits are just a few examples of our multifaceted extreme testing program.

Everyday our rail experts are developing new tests and optimizing existing tests so that rail systems will be able to meet all requirements – today and into the future.

The Test and Validation Center's testing methods have been certified and accredited by independent bodies. Whether vehicles are stationary or dynamic, there is virtually no limit to the tests that can be performed at Wegberg-Wildenrath.

This knowledge not only helps us, it also helps future maintenance providers. With our standards-compliance testing service, we ensure that your maintenance facilities work according to established guidelines and standards so that your rail systems remain fully functional over the long term.

Bewährte Kompetenz

Proven competence

Akkreditiert

Accredited

Certified

Zertifiziert

Internationale Normen

International standards

Certification to ISO 9001, ISO 14001, and OHSAS 18001

Develops, sells, implements, provides test equipment and test and inspection services for railway systems and for the testing infrastructure of railway systems.

Certification to DIN EN ISO/IEC 17020

Inspection body for railway vehicles and their components in terms of geometrical, electrical, acoustical, running, and braking performance and verification of conformity with specified requirements; tests the suitability of maintenance workshops and verification of conformity with specified requirements.

Certification to DIN EN ISO/IEC 17025

Test laboratory for measurement- and braking-related testing of rail vehicles, for dynamic function tests of the PZB, for examining high-voltage power supply facilities in the railway sector, for acoustic testing of rail vehicles, and for measurement tests of the running behavior of rail vehicles.

Recognition as an Associate Partner of EB CERT

Performs a variety of activities for testing the EC conformity and EC suitability of interoperability components and performs EC tests on subsystems.

Real conditions

Mechanical and electrical – static and dynamic.

When it comes to the reliability of railway systems, the bar must be set especially high because millions of people throughout the world rely on the safety of public transportation every day. To guarantee this safety, we support you as a qualified partner every step of the way.

A state-of-the-art infrastructure and testing expertise under one roof – this unique combination makes us the ideal full-service partner for the testing, validation, and certification of rail systems. At the same time, we actively participate in the continuing development of new test methods and associated technology. The result: test schedules that are individually tailored to your rolling stock, systems, and components.

You can rely on our wide range of test options for highspeed, mainline, regional, and mass-transit systems.

Our facilities are ideally equipped to meet your unique requirements. With over 30 kilometers of track and special test equipment, it's no problem for us to test train operations under real-life conditions.





Roof-height work platforms: safe assembly

The 62-meter-long roof-height working platforms are designed to protect employees against electric shock and provide them optimal access to the vehicles. In addition to the fixed platforms, a variety of mobile roof-height work platforms is also available.



Crane systems: replacing roof-mounted components

Two crane systems have a lifting force of 20 tons each, making the replacement of large roof-mounted vehicle components fast and effortless.



Lifting jack equipment: controlled lifting

The train must be raised slowly to provide access to the drive units and bogies underneath. Numerous synchronized lifting jacks can be positioned as needed to perform this feat of strength, lifting 16 to 32 tons without tipping or tilting.

Guarded and illuminated core area of the facility									
Train formation hall 1 (with overhead contact line)									
4	at-grade standard-gauge tracks, some with work pits	220 m each							
2	elevated standard-gauge tracks, with work pits	220 m each							
2	elevated standard-gauge tracks, with work pits	75 m each							
1	elevated standard-gauge and meter-gauge track, with work pit	75 m							
3	roof-height working platforms	62 m							
Traiı	Train formation hall 2 (with overhead contact line)								
3	elevated standard-gauge tracks, with work pits	410 m each							
1	bogie changing device with 30-ton lifting and 80-ton load-bearing capacity	7 m							
1	crane with a load-carrying capacity of 20 tons								
1	diesel-gas extraction system	100 m							
Traiı	Train formation hall 3 (with overhead contact line)								
3	elevated standard-gauge tracks, with work pits	265 m each							
Workshop (not electrified)									
1	at-grade standard-gauge and meter-gauge track, with work pit	49 m							
1	bogie changing device with 30-ton lifting and 80-ton load-bearing capacity	7 m							
1	crane with 20-ton load-carrying capacity								
1	jacking system with a 4 x 32 ton and 4 x 16 ton capacity								
Stabling tracks (not electrified)									
9	tracks with external power supply	Total length 1,732 m							



Bogie changing devices: changing bogies

Each seven-meter platform has a combination of a rotatable scissor-type lifting table in the elevated track section and a removable platform in the parallel track. Both systems are designed for an 80-ton load-bearing capacity, can lift 30 tons, and permit fast, spacesaving changing of bogies.



Voltage systems: global rail power supply

The power supply in the two train formation halls is designed for all common European DC and AC voltages. Both halls are equipped with overhead contact wires.



Elevated tracks: working under-floor

Every corner must be accessible during the commissioning and inspection of the bogie area. Work pits combined with elevated tracks facilitate work under the train, which can be performed quickly while standing in an upright position.

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Trackworks (*without overhead contact line)										
	Connecting track leading to the DB AG* railway network									
	Stabling tracks*									
	Test oval 1	T1	additional third rail (British type)	6,082 m	V _{max}	130/160	km/h			
	Test oval 2	T2	additional third rail (Berlin type)	2,485 m	V _{max}	80 / 100	km/h			
	Test track	Т3	additional third rail (Berlin type)	1,500 m	V _{max}	80	km/h			
	Test track	T4		553 m	Radius	50	m			
	Test track	Τ5		410 m	Gradient	40/70	‰			





The 6,082-meter-long test oval 1 is equipped with the ATB-EG, ETCS Levels 1 and 2, and PZB train protection systems and permits testing at speeds of up to 160 kph.



With a curve radius of 300 meters, test oval 2 is suitable for maximum speeds of up to 100 kph on standard-gauge and meter-gauge track. The 2,485 meter-long oval is also used for trams.



Test track T3

This straight and level track is especially suited for braking distance measurements. Over a distance of 1,500 meters, standard-gauge and meter-gauge vehicles reach speeds of up to 80 kph.

Test track T4

On a 553-meter-long track, the curve performance of vehicles can be tested in different radii on both standard-gauge and meter-gauge track.



Test track T5

The shortest test track is a 410-meterlong gradient track for standard-gauge and meter-gauge vehicles. The gradients are 40 ‰ and 70 ‰.

Ready for the future

Tradition. Evolution. Innovation – for the entire life of your rail system.

Comprehensive service packages, combined testing expertise, real-life conditions, customized and all from a single source: That's what the Wegberg-Wildenrath Test and Validation Center stands for: ensuring that only tested quality leaves our site. Our mission: We are and will continue to be on the cutting edge of technology, which qualifies us as the optimal test center for rail systems worldwide. Our experience makes us a solid partner who supports you every step of the way. With our customized offerings and all-inclusive, trouble-free service, we'll ensure that your rail systems remain fully functional during their daily operation.

Forum for rail technology

Our site is not just for testing: It's also a venue for introducing new technologies. We sponsor a number of collaborative and research projects working toward innovative solutions for the rail world of tomorrow.

Transportation to and from the Center

On request, we can organize the transfer of customer vehicles to and from the Test and Validation Center, which reduces our customers' coordination efforts and speeds up the approval of your rail systems.



At the Test and Validation Center, the future is already underway – and our pioneering work is ongoing.

With its balises and GSM-R radio towers, the large test oval already permits comprehensive testing of cross-border traffic.

A border crossing can be simulated on the large test oval every three minutes, making it possible to model realistic rail traffic across Europe – quickly and easily. Our Galileo project is also making us a pioneer. At our site, we simulate the Galileo signal so that you can test innovative future applications today. Alongside our project partners, we are implementing the railGATE project and investigating the advantages of Galileo applications in safety-critical areas of rail transport.

This combination of technology, innovation, expertise, and independence contributes to the uniqueness of the Test and Validation Center in the global rail world. We look forward to seeing you in Wegberg-Wildenrath.

SIEMENS

... into the future

Siemens Rail Services We keep the world running.

Investments in new rail concepts must pay long-term, sustainable dividends. This requires effective service concepts, which are the only way to guarantee the maximum reliability and availability of a transport system over its entire service life – and, in the best-case scenario, even longer.

You can rely on Siemens Rail Services as your ideal partner for innovative service concepts that will safeguard your investments.

You keep people and goods moving – and we do the same for rail transport

Our innovative technologies allow you to design maintenance processes that are consistently efficient. Examples include Remote Services and status-based maintenance. You can rely on our extensive expertise, which is based on many years of experience in maintaining track-bound transport systems of all kinds. As vehicle and system manufacturers, we're not only aware of the technical requirements, we also recognize the importance of rigorous obsolescence management and the optimization of your spare parts assets.

You expect customized service – and we have the solution

We offer a comprehensive range of flexible, individually tailored services. Our service experts are happy to work with you to develop fast, reliable solutions throughout the entire lifecycle of your trains and infrastructure.

And the Test and Validation Center is just one element in our extensive Rail Service portfolio.

