



a schunk company



Around the world in 88 hours
With Weiss test technology

www.weiss.info

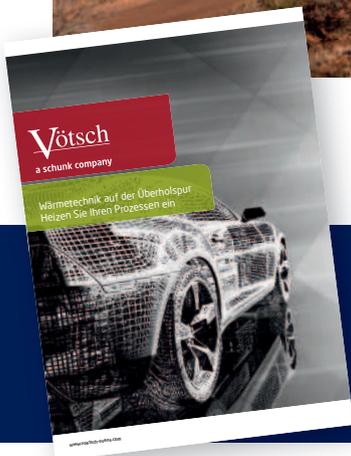
Send your vehicle into the desert... ... without even leaving the test site

No matter whether it's sun, rain, snow, road salt or sea air, at a standstill or driving flat out: your development will be weather-proof after the tests in our systems.

Before you put a vehicle on the road, you have to make sure that the materials and components in it will keep working and remain intact in all environmental conditions. That's exactly what our test chambers make possible. Our climate chambers can be used for comprehensive testing and simulating drives in a huge variety of conditions. Weiss Group test systems can simulate any climate on earth in the blink of an eye, no matter whether its the tropics, the Arctic or a

desert. Our high precision test systems also ensure that the test results are highly reproducible. That gives you security, shortens development processes and optimises quality and costs during product development. And that keeps you one step ahead of the competition. The shorter your time to market, the bigger your advantage.

Weiss - harder tests than nature to help you succeed.



Our solutions for heat technology in the automotive field can be found at:

www.voetsch-ovens.com

See what it's capable of

From airbag sensors through to the entire vehicle

Safety is priority number one when it comes to development and quality assurance.

Weiss test technology provides a comprehensive platform for high-speed simulation of all climate, road and driving conditions. This allows you to eliminate weaknesses from the very beginning - providing you with high-performance technology, reliability, a long service life and safety.

Weiss Umwelttechnik: Your specialist for standard test chambers through to customer-specific large-scale facilities.



Engines and power trains



Interior



Paintwork



Bodywork



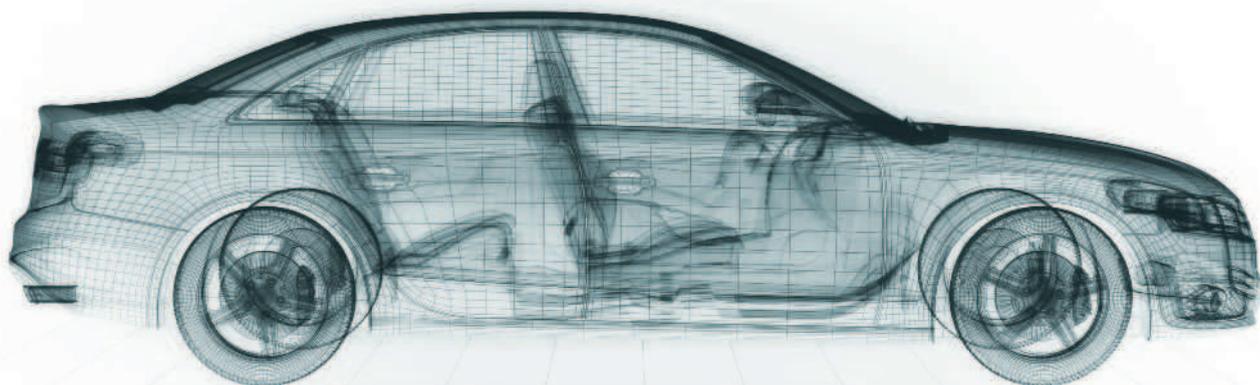
Safety systems



Braking system



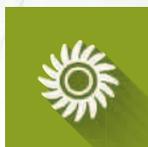
Glass/windows and mirrors



Lighting



Electronics



Gearboxes



Ball bearings



Exhaust system



Rims and tyres



Fuel system

We love extremes,
reproducible test results,
energy-efficient processes
and excellent service

And that's exactly what we provide.

- **One-stop shop:** we develop solutions for any test - from sensors through to complete vehicles, from a simple climatic test through to complex combinations of tests, from equipment through to full installation.
- **Calibration:** to make sure your test results are reproducible, we check each test stand before delivery and on a regular basis thereafter as part of our maintenance (DAkKS - Calibration by our subsidiary Vötsch Industrietechnik GmbH).
- **Integrated software:** Simpati - optimum control of test systems, saves time and easy to use for reliable test facility operation.
- **Green mode:** energy-efficient processes reduce costs and protect the climate, because the environment is more than just part of our name.
- **Global sales and service network:** we are everywhere you need us, so that you are always ready to go. We can be with you within 24 hours if necessary.





Double the benefit: Environmentally friendly environmental testing with Green Mode

Our Green Mode solutions reduce the amount of electrical energy required by 40%, decreasing CO2 emissions by several tonnes.



Weiss Umwelttechnik's impressive Green Mode solutions are extremely efficient to use. In addition to protecting the environment, they also reduce your operating costs. That's the double advantage of Green Mode.



Total Cost of Ownership

The total cost of owning the system over its service life is an important factor. This is particularly true for customer-specific systems. The higher initial investment required for Green Mode is quickly balanced out by the reduced energy costs. Decreased coolant usage, noise emissions and network loads also pay dividends.

Sophisticated measures

- **Hardware optimisation:** State of the art components for optimum energy efficiency
- **Intelligent software:** activation and deactivation of electrical units like heating systems, compressors or ventilators in line with actual demand
- **Customer-oriented systems design:** Sophisticated systems design, intelligent combination of components to create a system that is perfectly suited for the task at hand.

We can simulate day and night 365 times in 3 weeks Because time is money

We want your product's time to market to be as short as possible.



All of which help you to play it safe during development, quality assurance and production. That's why Weiss Umwelttechnik provides simulation systems for all climate, road and driving conditions. This allows you to eliminate weaknesses from the very beginning - providing you with high-performance technology, reliability, a long service life, safety and a good reputation.

We provide:

- Component test chambers for electronic, comfort and communication components.
- Explosion-proof test systems for lithium ion batteries and fuel tanks.

- Engine, performance and emissions test chambers.
- Combined test methods.
- A range of systems for testing corrosion resistance and durability.

Please get in touch if you can't find what you need in our comprehensive range of standard systems. We can also provide individual test systems tailored to your requirements in any size and for any test scenario.

Safety and comfort down to the last detail

Test stands for individual components

Vehicle components have to work perfectly in every situation - whether at a standstill or on the road, in winter or summer, at the coast, in the mountains or in the desert.

Weiss Umwelttechnik has developed a range of different tests in this area which can be run in combination or individually. A car is a high-tech piece of equipment which is only as safe as its electronic components, which are extremely sensitive. Only components that meet your demanding quality standards, are approved for daily exposure to dust, spray and splash water, and extreme temperature fluctuations. We record all of the relevant parameters in our test systems and combine them in a realistic manner.

Application examples

- Windscreen wiper motors
- Window regulators
- Sensors
- Rear view camera systems

No nasty surprises with Weiss Umwelttechnik!



Airbag testing system

Our airbag testing system combines a temperature conditioning chamber with a sliding test frame with runners. An automatically closing gate and a switch cabinet round the system off. The testing system is used to test performance at extreme temperatures between -40 °C and 120 °C while keeping temperature fluctuations within $\pm 1K$.



Dust testing system

Dust testing is used to check how well electronic components work in challenging environmental conditions.



Spray and splash water testing equipment

Used to determine the degree of protection which housings provide against water.



Combined vibration test systems

Simulation of mechanical and thermal/climatic factors which have an impact on components and equipment when the car is on the road.



Temperature shock test chambers

Simulate rapid changes in temperature in a test cabinet with two chambers.



For more details on features, please consult our technical specifications. **Feel free to get in touch.**



Headlight test stand

Our headlight test stand provides a unique combination of temperature and climate testing. They also include a fan unit, sprinkler unit and a vacuum unit. The addition of solar simulation makes the system a complete package which can be used to test headlights to any specifications.



Safely into the future

A boost for e-mobility

Explosion-proof test systems for lithium ion batteries and fuel cells.

Lithium batteries have established themselves as energy storage devices for mobile systems. Increasingly demanding applications require storage systems capable of storing an extremely large amount of energy and providing a lot of power.

Li-ion batteries go through a variety of tests in temperature and climate test chambers.

Temperature tests can overload batteries or cause them to malfunction and can even destroy the battery completely.

As storage capacity goes up, so does the impact of a malfunction and the potential for danger when testing lithium batteries. That's why keeping laboratory personnel safe is priority number one during tests like these.

To keep your laboratory safe during Li-ion battery tests, we provide test chambers with safety features which are tailored to provide protection against EUCAR hazard levels.



When you need precise measurements

Unique combination of climate and performance test

Test system with integrated measurement robotics.

The WK BM 1000 is the first all-in-one solution to combine measurement robotics with a climate test chamber. It is designed for function-dependent component testing under extreme climatic conditions (-40 °C to +85 °C) with rapid temperature changes during testing and manufacturing.

The WK BM 1000 will give you peace of mind that components like the touch panel for the on-board computer will be fully functional regardless of the environmental conditions.



For snoopers we take time

Tracking emissions

We combine tried and tested technology with environmental protection to help you to track down and reduce hazardous emissions.

Weiss Umwelttechnik provides SHED test chambers which are the standard method for measuring the hydrocarbon emissions of passenger vehicles, motorcycles and passenger vehicle components. Vehicle manufacturers are only approved if they demonstrate compliance with the emissions thresholds and testing procedures of various legislative bodies (EU, EPA, CARB). This can be done in SHED test chambers which are fitted with the required analysis

technology and test stand software for performing the tests and documenting the results.

Weiss Umwelttechnik provides complete test systems with test chambers of various sizes, all tailored to whatever you are testing - from the fuel hose all the way up to the entire vehicle.

So your customers don't get any smelly surprises!





Mini SHED chamber

Used for permeation tests in fuel tanks or for HC emission tests for vehicle components carrying fuel.



Fuel conditioning system

Used for refuelling tests for vehicles or tank systems and ORVR refuelling in compliance with legal regulations.

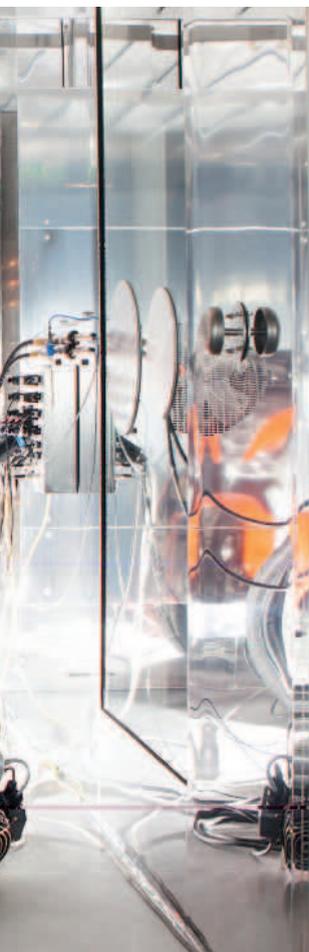


VOC test chamber E-WKI

For measuring volatile organic compounds (VOC) emitted by interior sources. Because it's not just fuel that smells unpleasant.



For more details on features, please consult our technical specifications. **Feel free to get in touch.**



RL-SHED Chamber

RL-SHED chambers are used for test runs to measure evaporative emissions during driving. With integrated dynamometer, driver instructor unit with ceiling mounted monitor, volume compensation unit, analyser, computer, software and wind fan.



VT SHED chamber

VT/VV SHED chambers are used to measure evaporative emissions for entire vehicles in accordance with EPA, CARB and EU regulations.

The key feature is volume compensation with a tedlar bag or movable ceiling. This makes it possible to set up temperature profiles in hermetically sealed chambers without creating a pressure differential.





On the road again

Realistic testing

Vehicles have to be tested under real-world conditions to determine how they behave. That's why Weiss Umwelttechnik provides test chambers for running cars.

Whether it's performance, emission levels, evaporation at various sunlight levels, susceptibility to corrosion in different weather conditions or the combination of factors that come into play on a bumpy road, a car really has to be running to see what it can do. Weiss Umwelttechnik combination test chambers provide a dynamometer, multi-axis vibration table or 4 poster system to simulate any conceivable condition which could affect a vehicle. Combine temperature and moisture, sunlight simulation and infrared

radiation, air pressure and airflow levels to your heart's content. Our years of experience and numerous reference systems around the world guarantee outstanding product quality and problem-free compatibility with all major dynamometer manufacturers.

**The devil is in the detail.
We drive him out!**



It drives and drives and drives For the entire life of the car

Corrosion resistance is one of the main quality features that drives purchases, so we put your test subject in extreme conditions to test its limits.

Moisture, cold, heat, road salt, corrosive gases and global radiation: motor vehicles are exposed to extreme environmental factors everywhere in every season. The combination of multiple environmental factors represents a particular challenge for almost any part of a vehicle.

At the same time, warranty and durability requirements are becoming more demanding. That's why all manufacturers need to be constantly reviewing and optimising their protective measures to provide better quality than the competition.

Weiss Umwelttechnik has a comprehensive range of systems and processes for performing short-term weather and corrosion tests as well as climate change and corrosive gas tests in accordance with general standards or customer-specific testing requirements.

So you know where the limits are.



Climate alternating corrosion test chamber

The climate alternating corrosion test chamber meets DIN 50 021/ DIN EN ISO 9227 standards and provides reliable alternating corrosion tests in accordance with VDA Test 621-415 B with frosts ("VDA New").





Walk-in salt spray chambers

Reproducible and accelerated corrosion tests that comply with relevant national and international standards.



Air pollutant test chamber

To test the resistance of technical products to corrosive gases.



For more details on features, please consult our technical specifications. **Feel free to get in touch.**



Circulating air corrosion test system

The salt fog chamber with climate extension can be used for salt spray fog and condensed water tests, cycles with controlled climate and drying/ventilation and combined/alternating tests.



Sunlight changes more than just your skin

That's why Weiss Umwelttechnik developed special test chambers to simulate how global solar radiation affects the ageing process of the materials in your product.

Global solar radiation and other climate variables like temperature and changes in humidity accelerate the typical signs of ageing, e.g. loss of shine, changes in colour, cracking and brittleness. In addition to being visually unappealing,

these issues also affect technical durability and must therefore be reduced to a minimum across the board.

We help you to find the right materials.

Global UV 200

The Global UV200 test system was developed in collaboration with the Federal Institute for Materials Research and Testing and makes it possible to realistically simulate outdoor exposure in a temperature range of -20 ... +80 °C up to a relative humidity level of 95 %.

The test system emits wavelengths between 290 nm and 450 nm to test how sensitive materials react to light in accordance with the relevant regulations.

Solar simulation chambers

The units in the SUN EVENT range are cutting edge test systems for simulating outdoor and indoor conditions. Parameters like global radiation, temperature and moisture can all be programmed individually in freely configurable test cycles. The chamber of the units was designed to provide an economical alternative to large-scale sunlight simulation systems.



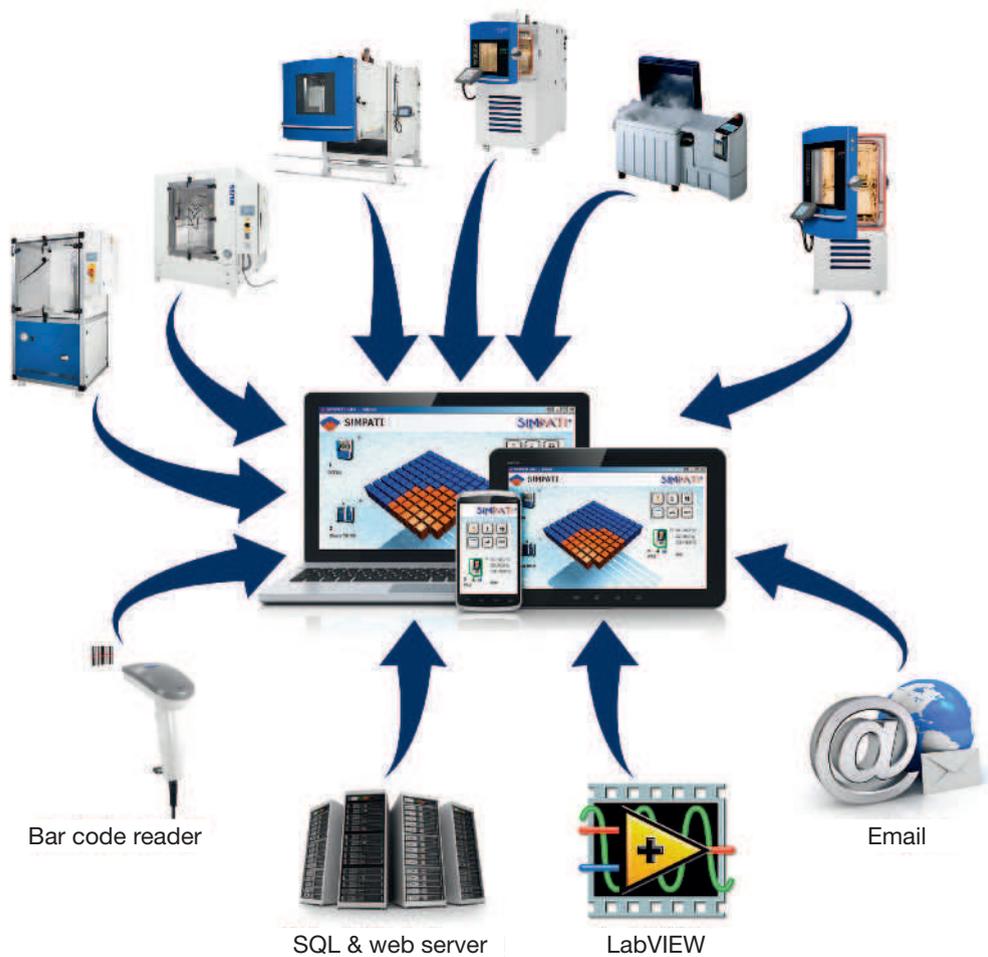
SIMPATI* makes testing easy

The software package for the perfect process

The software simulation package for test system integration. For smooth process management, documentation, integration and remote access.

Benefits of the software:

- Up to 99 installations can be networked together
- Programs for automatic processes
- Documentation, visualisation and management of process data
- Access via PC networks and Web browser
- Read-in of production data using bar code (option)
- Traceability of process data for watertight proof of quality



Service is our calling card

We are here for you 24 hours a day

Countless reasons to choose us - Weiss/Vötsch Service - we have a specialist in your area.

How our service benefits you:

- Central deployment
- Continuous training
- Service technician equipment
- Guaranteed supply of spare parts
- Available to be called in at any time
- Training programme for our customers



Service helpline:
+49 180 5666556

WEISS TECHNIK

WEISS TECHNIK is divided into the Environment Simulation and Air Solutions business units, leading experts in environmental simulation and heating and cooling technologies. Our solutions are used around the world in research, development, production, and quality assurance of a wide range of products.

With 22 locations in 14 countries, our experts stand ready with outstanding support services to ensure the optimal operational reliability of your systems.

WEISS TECHNIK is one of the most innovative and pre-eminent manufacturers of environmental simulation systems. With these test systems, all climatic conditions around the globe can be simulated in time-lapsed motion.

WEISSTECHNIK supplies systems for climate, temperature, weathering, temperature shock, corrosion, and long-term tests, in all sizes ranging from standard models to customised, process-integrated systems. The high-precision test systems guarantee extremely high reproducibility of the test results.

WEISS TECHNIK also offers reliable climate solutions wherever people and machinery require optimal climatic conditions. Our air-conditioning systems ensure the best ambient conditions for industrial production facilities, hospitals, mobile operating tents, and IT and telecommunications centres. As one of the leading providers of professional clean-room and climate solutions, we also deliver effective and energy-saving solutions for clean-room setup and air conditioning for your production areas and office workplaces. We will expertly guide you through your entire project, from planning to implementation.

Our subsidiary Vötsch Industrietechnik rounds out this product portfolio with heat technology. With an experienced team of engineers and designers, we develop, plan and produce high-quality and reliable heat technology systems for virtually any field of application. Products include heating and drying ovens, clean-room drying ovens, hot air sterilisers, microwave systems, infrared ovens, and through-flow oven systems. Here, too, we provide a sophisticated standard range, as well as customised solutions for individual production processes. Furthermore, Vötsch Industrietechnik GmbH is equipped with a laboratory accredited according to DIN EN ISO/IEC 17025 (DAkkS), which is certified for the calibration of temperature and relative humidity values.

U.S.A. Subsidiary

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