ASPHALT PRODUCT BROCHURE

EDITION 2025

Made in Germany

ABOUT APS ADAPTIVE SOLUTIONS

YOUR PARTNER SINCE 1990

APS Antriebs- Prüf- und Steuertechnik GmbH is a renowned German company recognized worldwide for its high-quality testing machines for soil, rock, asphalt and material testing. In the field of soil and rock testing equipment , our products are also marketed under the brand name “Wille Geotechnik®”.

All parts of planning, design, manufacturing, quality control and final testing are carried out by our own team of qualified experts at our factory in Germany.Our technical expertise and commitment to innovation have enabled us to expand globally, supplying research institutes and commercial laboratories with advanced testing solutions, from standard and routine applications to highly complex challenges.

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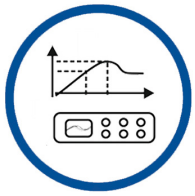
UNIVERSAL MODULAR DYNAMIC ASPHALT TESTING DEVICE

The modular design of our testing systems offers a wide range of testing capabilities.

Various configurations of load, strain, and displacement transducers, along with a broad selection of standardized testing jigs, meet all requirements for asphalt and material testing. In addition, numerous specialized solutions are available for advanced scientific research.



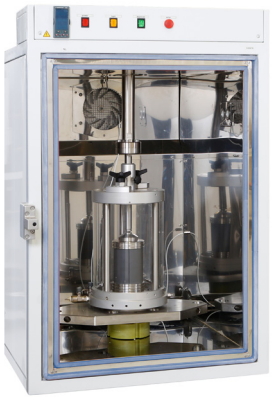
RELIABLE TEST RESULT

SAFETY

Low MAINTENANCE

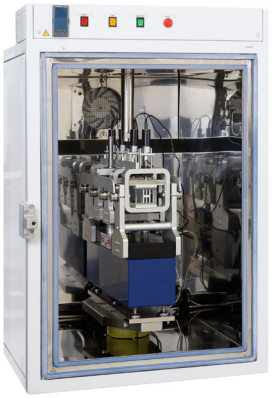
GENERAL TECHNCIAL SPECIFICATIONS

Load Type	Electromechanical	Servohydraulic
Dynamic Axial load	30kN	Up to 100 kN
Frequency	30Hz	Up to 100Hz
Temperature Testing ranges	from -40 °C up to +80 °C	

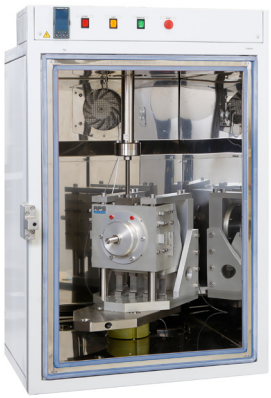


Dynamic triaxial compression test with static or dynamic confining pressure

Uniaxial Cyclic Thermal Stress Test



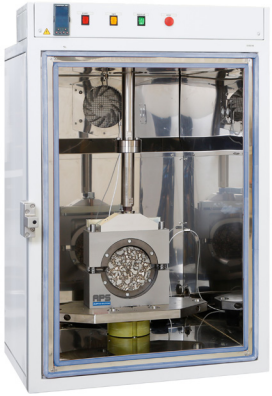
Four point bending test with mechanical or automatical clamping



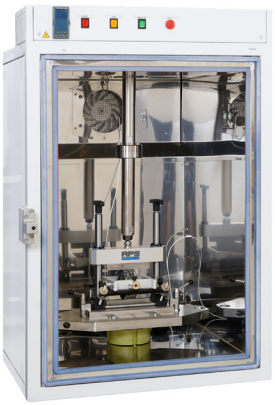
Dynamic shear test

Creep test and cyclic compression test

Uniaxial Thermal Stress and Strain Test
Thermal stress restrain specimen test



Shear test for pavement layers



Indirect tensile test

SINGLE STATION THERMAL ASPHALT TESTING SYSTEM

EN 12697-46 / ASSHTO TP10

This system has been specially developed to evaluate crack resistance and the performance of asphalt at low temperatures. It was created in collaboration with several leading research institutes. Dedicated software packages, along with freely programmable software solutions, allow for both standard and customized test procedures—meeting the highest requirements in research and development.

For example, the testing machine can be used for the following procedures in accordance with EN 12697-46:

- Uniaxial Tension Test (UTST)
- Thermal Stress Restrained Specimen Test (TSRST)
- Relaxation Test (RT)
- Tensile Creep Test (TCT)

ECO FRIENDLY

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Load range	10 Up to 30 kN
Temperature Testing ranges	from -40 °C up to +80 °C

MULTISTATION THERMAL ASPHALT TESTING SYSTEM

STATIC / CYCLIC

The Thermal Stress Restrained Specimen Test (TSRST) system is designed to evaluate the lowtemperature cracking resistance of asphalt concrete by simulating thermal stresses under controlled conditions.

- Modular system with up to three independently operated stations
- Users can easily create, modify, or replicate test protocols according to specific standards or research needs.
- Integrated temperature control via user-friendly software for precise thermal conditioning.
- Multi-station configurations enable simultaneous execution of TSRST tests across all stations.
- Temperature-resistant precision measuring rods designed to eliminate temperature-induced measurement deviations
- High-accuracy displacement sensors, positioned outside the temperature chamber to ensure accurate, temperature-independent measurement and control of deformation and positioning
- Backlash-free cardan joint mounting adapter, compatible with all testing procedures for reliable and precise force transmission

ECO FRIENDLY

GENERAL TECHNCIAL SPECIFICATIONS

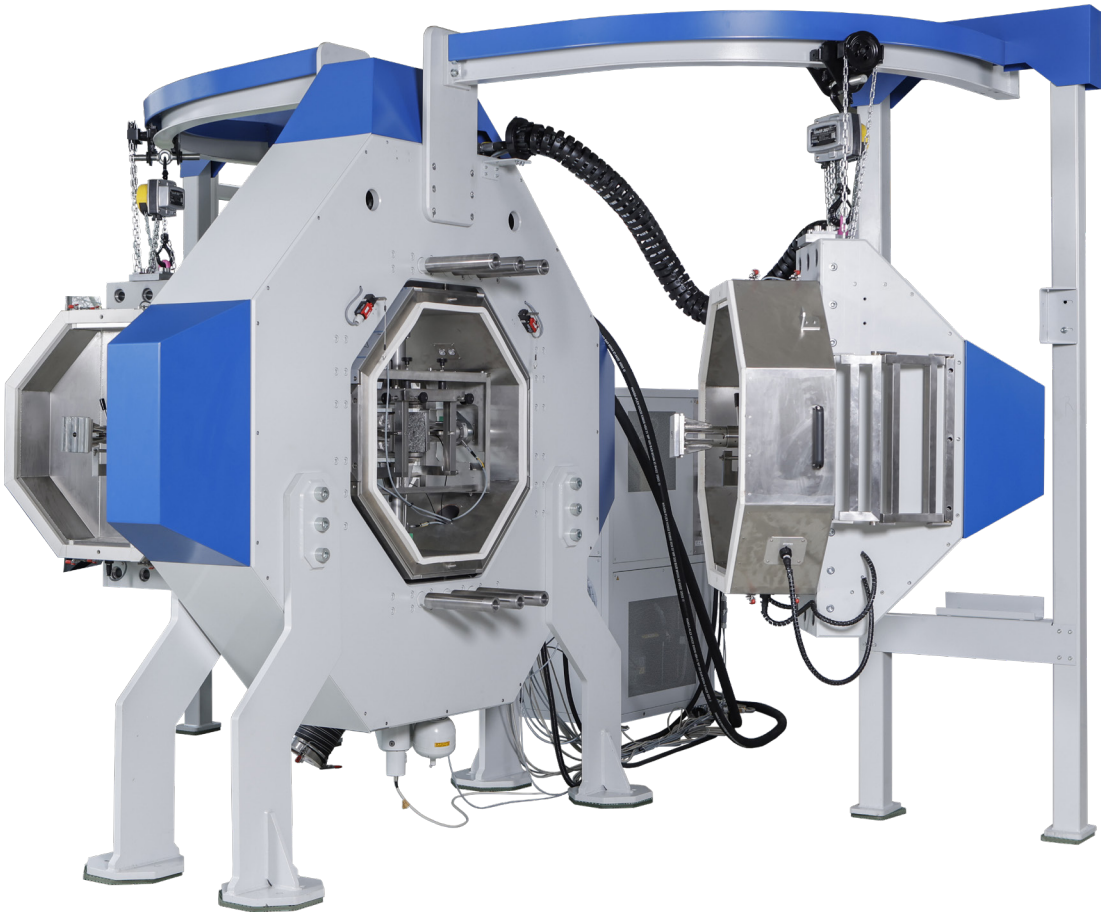
Load type	Electromechanical
Normal force	30 kN
Frequency	Up to 30 Hz
Temperature Testing ranges	from -40 °C up to +80 °C

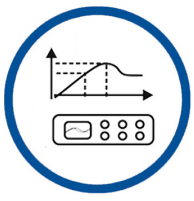
DYNAMIC ASPHALT TRUE TRIAXIAL TEST DEVICE

ASPHALT / CONCRETE / STEEL

The dynamic asphalt true triaxial test is an advanced laboratory method that evaluates asphalt mixtures under cyclic, multi-axial loading to simulate real-world traffic stresses. Unlike standard triaxial tests, it independently controls stresses in all three directions ($\sigma1 \neq \sigma2 \neq \sigma3$), applying cyclic loads (e.g., 0.1–50 Hz) to a cubic specimen, mimicking pavement conditions.

This test assesses critical properties like shear strength, rutting, fatigue cracking, and dynamic modulus across various temperatures, offering a realistic understanding of asphalt behavior under complex stress states.





RELIABLE TEST RESULT

GENERAL TECHNCIAL SPECIFICATIONS

Double-acting hydraulic cylinder	25 , 60, and 100 kN
Test frequency	up to 50 Hz
Specimen size	up to 150 x 150 x 150 mm
Specimen temperature ranges	-20 °C to +60 °C

FRICTION AFTER POLISHING TESTING DEVICE

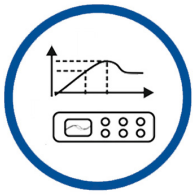
ACCORDING TO WEHNER / SCHULZE TEST PROCEDURE

STANDARD: EN 12697-49:2022

This newly developed, fully automatic laboratory device is designed for measuring the friction characteristics of asphalt, concrete, and other materials using the Wehner/Schulze method.

The system allows for testing representative samples of various geometries and sizes, accurately simulating the skid resistance behavior of vehicles on road surfaces.

- All components that come into contact with samples or fluids are made of corrosion resistant materials.
- Automatic carriage positioning - manual movement is no longer necessary.
- Instead of the double drilling machine columns used in the old machines, the polishing and testing heads were arranged together on a cross beam, thus avoiding measurement inaccuracies due to alignment problems or adjustment of both assemblies.
- A newly designed quartz flour container with a powerful agitator prevents the propeller from “baking” into the sediment and improves cleaning.



RELIABLE TEST RESULT

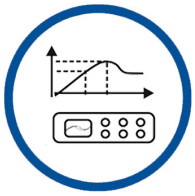
GENERAL TECHNCIAL SPECIFICATIONS

- Fully automatic test procedure
- Polishing Head Speed (typically): 500 rpm / variable
- Over rollings Number (typically): 90,000 / variable

LARGE WHEEL TRACKER TESTING SYSTEM

FOR THE RUTTING TEST

This specialized system is designed to assess the performance of unbound road construction layers and base courses under dynamic loading conditions. It allows for a detailed investigation of the effects of repeated loading and rutting behavior. Developed according to customer-specific requirements, the system is capable of applying very high shear forces, enabling the analysis of rut depths exceeding 200 mm.The speed-controlled and high test and load cycles are designed for a test setup. An automated loading mechanism allows the axial load to to be controlled in one driving direction or in both driving directions.



RELIABLE TEST RESULT

GENERAL TECHNCIAL SPECIFICATIONS

Axial load	Up to 100kN
Test track	6.0 m / Customized
Max. setup height	1 m / Customized
Travel speed	0 - 1.2 m/s / Customized

SAMPLE PREPARATION DEVICES

We offer a versatile and high-quality range of equipment for asphalt sample preparation, including core drilling machines, trimming devices, and grinding systems. These machines are designed to ensure precise and efficient sample preparation for various asphalt testing procedures. Our solutions can be seamlessly integrated into any laboratory setup and are fully compatible with both our own testing systems and those from other manufacturers.

HIGH ACCURACY CORE DRILLING MACHINE

This specially developed high accuracy drilling machine is used in laboratories to cut cores from uniform and non-uniform hard samples, such as asphalt, natural stone and concrete.
The coring range of the machine is up to 250 mm diameter.

GRINDING MACHINE GR-100

This grinding machine has two electronic motors and is used for the vertical grinding and polishing of asphalt samples on two parallel sides. It can be used for working with natural stones, concrete, as well as ceramic and other materials.

LARGE SCALE TRIAXIAL TESTING SYSTEM

The large scale Triaxial testing systems are customized construction system which is configured based on the testing requirements of customer. It is used to perform static and dynamic tests on specimen with large particle sizes e.g. dam ballast, railway ballast, gravels and etc.

The loading frame can perform up to 1000kN load on samples with diameter up to 500mm. (The Ultra large Triaxial is available on request up to 1000mm sample size).

CUSTOMIZABLE

GENERAL TECHNCIAL SPECIFICATIONS

Static Axial load	Up to 1000 kN
Dynamic Axial load	Up to 800 kN
Frequency	Up to 100Hz
Confining pressure	Up to 4000 kPa
Sample size(diameter)	Up to 500 mm

LARGE DIRECT SHEAR TEST APPARATUS

The device determines the internal friction of construction materials e.g. soils, aggregates, gravels, geomembranes, geotextiles, GCL (Geosynthetic clay liner), recycling rubble Brick rubble, Colliery spoils, an industrial slag. The interface friction parameters between different construction material could be also determined by the device e.g. geotextile /soil, geotextile / concrete, asphalt/concrete, geogrid/soil and etc.

SAFETY

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	60 / 100 / 125 /200 / 250kN
Shear force	60 / 100 / 125 /200 / 250kN
sample size	300x300mm 500x500mm

GEOSYS TESTING SOFTWARE

GEOsys is a multi-functional and modular controlling and data acquisition software which is the result of close cooperation with software users in all around the world. It allows for the simple programming of complex user defined test sequences via structured Windows operations via a graphic user interface.

It is controlling and data acquisition software and also has different modules to run tests according to DIN, AASHTO, FGSV or other standards. ġt has a unique platform to address all testing needs, be it soil, asphalt, rock or construction related,both dynamically and statically.

- Data Acquisition, processing and device management (DPD) Module
- Dynamic Asphalt tests
- Wheel tracker Test
- Asphalt thermal tests(TSRST)
- Dynamic Asphalt True Triaxial test
- Large Direct Shear Test
- Triaxial Tests

SCAN ME

SERVICE DESK

We offer a full range of services for our products and systems, including procurement, commissioning and after installation services.Technical support covers all Wille Geotechik® products to new and older devices

Our networks of overseas representatives are there to help you with any enquiries in your native language during office hours. Local representatives are supported directly by our engineering department who can advise and help solve your problems. As a customer you are also able to have direct contact with the designers and manufacturers, as well as receiving all technical advice directly from experienced engineers in our company.

How to reach Service Desk Supports?

HELLO SERVICE

- Webpage supports
- Remote Access and support over the internet
- Email Support
- Telephone and Fax Support
- Onsite Support and Repairs

POST INSTALLATION SERVICES

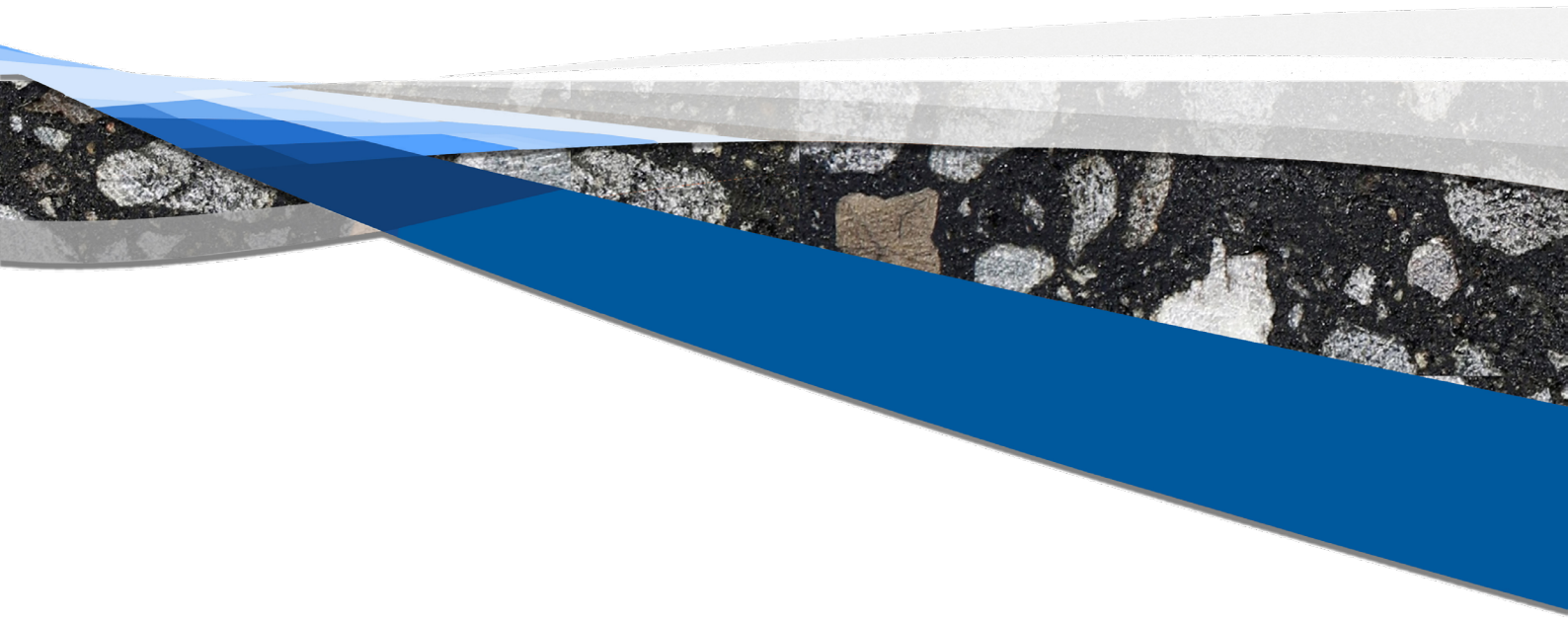
There are different available services to assist you in operating your testing system in best condition after final installation at your site.

- Calibration
- Maintenance and ġnspection
- Updates and upgrades
- Repairs and Spare Parts

WILLE GEOTECHNIK

APS ADAPTIVE SOLUTIONS

LABORATORY TESTING SYSTEMS
FOR SOIL / ROCK /ASPHALT



Made in Germany

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