SOIL PRODUCT BROCHURE

EDITION 2025

Made in Germany

ABOUT WILLE GEOTECHNIK

YOUR PARTNER SINCE 1990

APS Antriebs- Prüf- und Steuertechnik GmbH is a highly regarded German enterprise due to its soil, rock, asphalt, and material testing machines, which are marketed under the brand name" Wille Geotechnik".

All parts of designing, construction, manufacturing, quality-control, and delivery tests are conducted by our own qualified experts in our factory in Germany. In the meantime, the company has grown into a globally expanding enterprise. With our expertise we help a range of users in standard, routine challenges to highly complex investigations.

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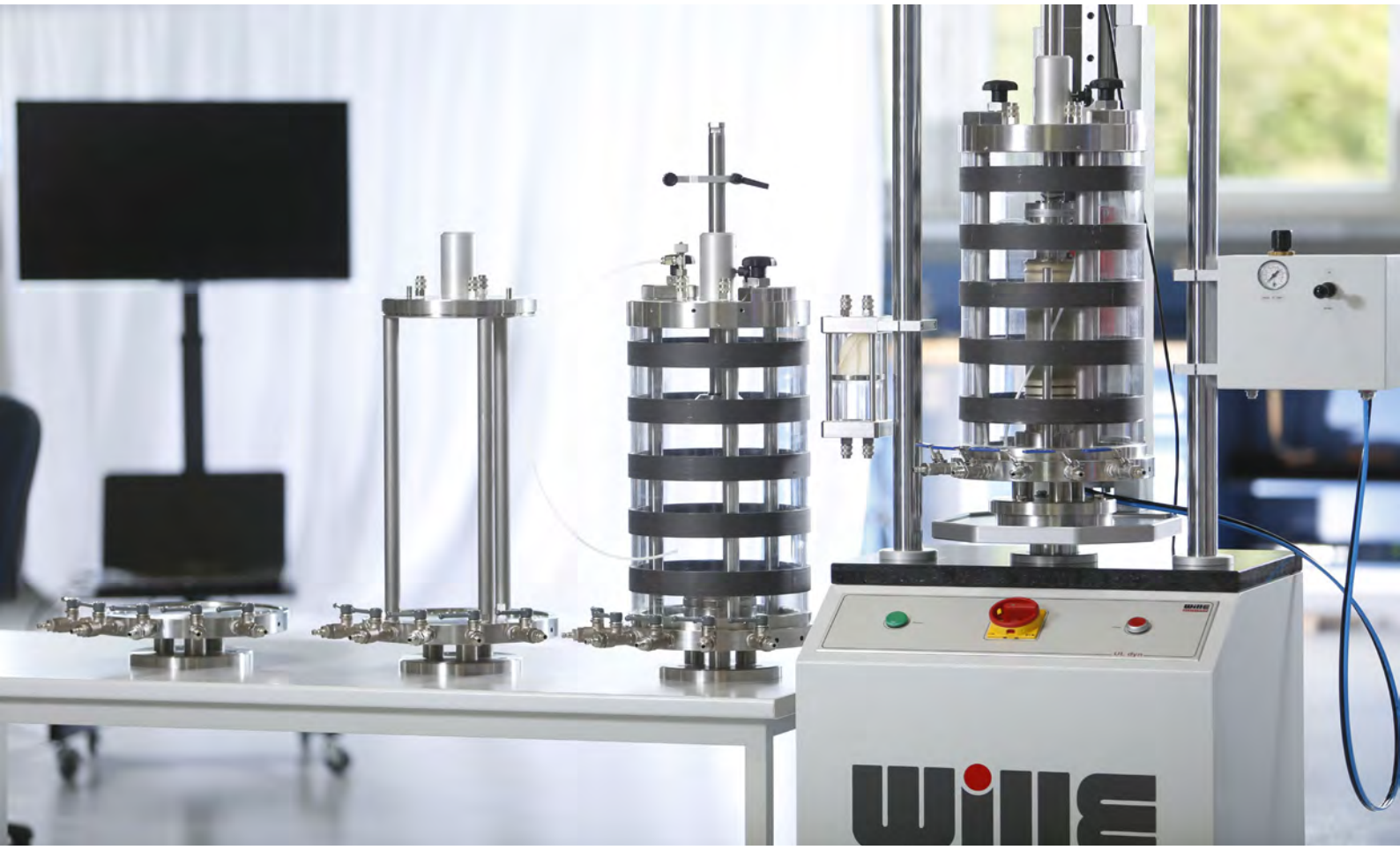
TRIAXIAL TEST SYSTEMS

This series of Triaxial testing systems are modular constructed and can be configured with a variety of sample adapters, triaxial cells, pressure plates, automatic pressure controlling units, automatic volume measuring device, controlling and data acquisition system with different transducers and variety of software modules.

- Static triaxial Test Systems
- Bishop & Wesley stress path triaxial Device
- Tabletop Cyclic triaxial Test system
- Advanced Cyclic triaxial test
- Servohydraulic high load/frequency Triaxial
- Large Scale Triaxial test System
- Resilient Modulus testing system
- True Triaxial
- High Pressure Triaxial test System
- Frozen Soil Cyclic Triaxial test Device

SCAN ME



READY FOR NEXT GENERATION?

Extreme Precision

We have gained years of experience from many successful installations and close cooperation with our customers. With this experiences , we deliver you the highest quality device with extreme precision.

customized devices

With many years of experience, we are able to tailor our products and services to your aims and needs. Our customized solutions can help you achieve unique and specific require-ments. We approach each project individually and openly, and would be proud to support you in achieving the desired labora¬tory testing system. We have the knowledge and experi-ence to help with a variety of testing systems. All company staff have a common aim, to ensure one hundred percent customer satisfaction.

First Choice for Reliable Test results

All our testing solutions are manu-factured to the highest quality and standards. This is something in which we pride ourselves and we strongly believe defines us as a company. We deliver advanced technological solu-tions and products of renowned qual-ity for our high range of low pressure, high pressure and THM devices.

SCAN ME

ECO FRIENDLY

STATIC TRIAXIAL TESTING SYSTEM

TABLETOP SERIES

This series of Static Triaxial testing system is modular constructed and can be configured with a variety of sample adapters, Triaxial cells, pressure plates, automatic pressure controlling units, automatic volume measuring device, controlling and data acquisition system with different transducers and variety of software modules.

The device includes a high-quality Triaxial cell made of stainless steel, equipped with 3 internal rods, a lifting mechanism for the cell wall, and an emergency stop button located in front of the device.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Load range	Up to 60 kN
Cell pressure	Up to 5000 kPa
Back pressure	Up to 5000 kPa
Sample Size (diameter)	Up to 150mm

LOW NOISE

STATIC TRIAXIAL TESTING SYSTEM

FLOOR TYPE SERIES

These high-quality stress path triaxial testing systems are consisting basically of a rigid 2 column Electromechanical universal load frame incorporates an extensive range of features making them ideal for perfor ming either complex or ordinary soil testing applications and are characterized by their robust, functional design.

High quality Siemens industrial controller with displayer and membrane , High quality Triaxial cell made of stainless steel material with 3 internal rods and Smooth Sliding mechanism for Triaxial Cell are some highlights of these series.

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 150 kN
Confining pressure	Up to 5000 kPa
Pore pressure	Up to 5000 kPa
Sample size(diameter)	30 mm to 150 mm

SCAN ME

SAFETY

STRESS PATH TRIAXIAL TESTING SYSTEM

CLASSIC BISHOP & WESLEY METHOD

This high-quality stress path triaxial system is a fully automatic system consisting basically of a Bishop & Wesley cell which controls stress directly on the sample,three volume pressure controller(VPC), internal submersible load cell to measure axial load, a pressure transducer to measure pore water pressure and a linear displacement transducer to measure vertical displacement.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	7kN / 25kN / 50kN
Confining pressure	2 MPa / 10 MPa/ 20 MPa
Max. Axial Load with Motorized version	50kN
Sample size(diameter)	38mm - 50mm / 70mm-100 mm

MADE IN GERMANY

READY FOR NEXT GENERATION?

X-RAY CT TRIAXIAL CELL

X-ray CT triaxial cell for sample sizes up to 50mm which enables the cell to be used inside a CT device to get higher quality image based on Classic Bishop & Wesley method.

This high-quality stress path triaxial system is a fully automatic system consisting basically of a Bishop & Wesley cell which controls stress directly on the sample.

- constructed with low Z material to reduces noises on picturingnoises
- For sample Sizes up to 50mm diameter and 100mm height under cell pressure up to 2Mpa
- Direct operation of the device by a PC with controlling software (communication protocol is available for fully automated Triaxial test

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	7kN / 25kN
Confining pressure	2 MPa
Sample Size(diameter)	38mm - 50mm 70mm-100 mm

SCAN ME

SCAN ME

TABLE TOP CYCLIC TRIAXIAL TESTING SYSTEM

ELECTROMECHANICAL

The cyclic actuator is mounted on the upper traverse and features a dedicated dynamic controller capable of operating at up to 10 kHz with 24-bit resolution. This allows for the generation of all required cyclic loads for various applications. The machine operates without the need for air or oil pressure and is extremely quiet, making it an absolute low noise machine.

CERTIFIED ISO 9001

ISO 9001

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 15 kN
Cyclic axial load	Up to 10 kN
Frequency	Up to 10Hz
Confining pressure	Up to 5000 kPa
Pore pressure	Up to 5000 kPa
Sample size(diameter)	Up to 150 mm

SCAN ME

CYCLIC TRIAXIAL TESTING SYSTEM

ELECTROMECHANICAL

This system is composed of separate high static load and low cyclic load actuators, both of which are electromechanical ones. It employs a High speed dynamic controller up to 10KHz ,24 bits and runs the cyclic tests with user defined waveform.

NO AIR PRESSURE

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 150 kN
Cyclic axial load	Up to 10 kN
Frequency	Up to 10Hz
Confining pressure	Up to 5000 kPa
Pore pressure	Up to 5000 kPa
Sample size(diameter)	Up to 150 mm

SMARTER

ADVANCED PERFORMANCE

CYCLIC TRIAXIAL

The high-quality column-less loading system applies static and cyclic loads from the bottom of the Triaxial cell. The top of the cell is a free operating space to facilitate the installation of samples or local strain measuring devices. This device includes Compensated Ram technology.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Axial load	Up to 60 kN
Cyclic frequency	Up to 15 Hz
Confining pressure	Up to 5000 kPa
Sample Size(diameter)	Up to 300mm

CUSTOMIZABLE

SCAN ME

RESILIENT MODULUS TRIAXIAL TESTING SYSTEM

This electromechanical tabletop loading system features a high-speed dynamic controller capable of operating at up to 10 kHz with 24-bit resolution. It allows for the use of various waveform types, including user-defined waveforms. Additionally, the system can be equipped with different accessories to meet the requirements of AASHTO T 307 and AG:PT/T053S standards.

GENERAL TECHNICAL SPECIFICATIONS

Axial load	Up to 10 kN
Frequency	Up to 10 Hz
Confining pressure	Up to 2000 kPa
Sample Size(diameter)	38 mm to 150 mm

DESIGN FLEXIBILITY

DYNAMIC TRIAXIAL TESTING SYSTEM

SERVOHYDRAULIC

The testing system features a high stiffness construction and precision-aligned load frame, along with a double-acting, extremely low friction servo-hydraulic actuator that is suitable for high load and high-frequency tests.

Various upgrading options are available on request such as unsaturated, cyclic cell pressure, bender element, higher pressure cells, and more.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Static Axial load	Up to 250 kN
Dynamic Axial load	Up to 200 kN
Frequency	Up to 30Hz
Confining pressure	Up to 2000 kPa
Sample size(diameter)	Up to 300 mm

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 600mm. (The Ultra large Triaxial is available on request up to 1000mm sample size).

CUSTOMIZABLE

GENERAL TECHNICAL SPECIFICATIONS

Static Axial load	Up to 1000 kN
Dynamic Axial load	Up to 800 kN
Frequency	Up to 30Hz
Confining pressure	Up to 2000 kPa
Sample size(diameter)	Up to 600 mm

SCAN ME

ENVIRONMENTAL STATIC TRIAXIAL TESTING SYSTEM

HIGH PRESSURE SERIES

ISO 9001

The system is configured with an active Triaxial cell made of Stainless Steel, equipped with an Easy Lock Mechanism. It is capable of performing various Axial Loads ranging from 7kN up to 100kN on samples of different sizes. The system employs a special Heat transfer method suitable for low and high precision temperature applications.

Additionally, the device is equipped with a vertical lifting mechanism and a horizontal sliding mechanism, making it easy to handle the Triaxial cell.

GENERAL TECHNICAL SPECIFICATIONS

Axial load	25kN / 50kN / 100kN
Confining pressure	Up to 20MPa
Temperature range	-20°C up to +200°C
Sample Size(diameter)	Up to 70 mm

SCAN ME

Reliable Test Result

TRUE TRIAXIAL TESTING DEVICE

The True Triaxial test system is a fully automatic system used to study the behavior of soil under various compressive stress regimes on cubic samples via three independent controlled principal axes (σ1 ≠ σ2 ≠ σ3) under static or cyclic loading. The System applies vertical and horizontal independent loads by dynamic electromechanical or optionally servo-hydraulic actuators for axis 1 and axis 2 and the cell pressure is used for axis 3.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Axial load	Up to 25 kN
Frequency	Up to 10Hz
Confining pressure	Up to 2000 kPa
Sample Size	75 x 75 x 150mm

TEMPERATURE CONTROLLED TRIAXIAL TESTING SYSTEM

STATIC – DYNAMIC

This series of Soil triaxial testing systems are designed and manufactured to perform stress path triaxial testing on soil under different temperature conditions. It has dedicate technique for temperature controlling (3 D zone) and using special double wall Temperature cell (DWTC) which enables extreme precision in temperature controlling from -30 °C up to +200 C degree with minimum temperature gradient along of the length of sample. Optionally the temperature gradient test is available for this cells.

GENERAL TECHNICAL SPECIFICATIONS

Static Axial load	Up to 250 kN
Cyclic load	Up to 200 kN
Frequency	Up to 30Hz Cyclic
Confining pressure	Up to 5000kPa/10Hz
Sample size	38 mm to 100 mm
Temperature range	From -30°C up to 200°C

SCAN ME

HIGH PRESSURE TEMPERATURE CONTROLLED TRIAXIAL TESTING SYSTEM

STATIC – ELECTROMECHANICAL

This electromechanical system is constructed with high stiffness and features a precision-aligned load frame, making it suitable for high-load applications. The machine operates without the need for oil pressure and is extremely quiet, making it an absolute low noise machine. The system offers a choice of double wall or 3D temperature controlling techniques.

No OIL

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Static Axial load	Up to 250 kN
Type of Load	Electromechanical
Confining pressure	Up to 20MPa
Sample size	38 mm to 100 mm
Temperature range	From -30 °C up to 200 °C

ADVANCED SOIL TESTING TECHNIQUES

BEYOND TRADITIONAL TRIAXIAL TESTINGS

we manufacture the various tests and techniques used to analyze soil samples beyond traditional soil Triaxial testing. It employs advanced techniques and state-of-the-art components which can provide more detailed information about soil behavior and mechanical properties of soil sample.

- X-Ray Tomography Triaxial System
- Hollow Cylinder Test Device
- Resonant Column Test Device
- Plane Strain Test Device / Biaxial Test
- Gas Hydrate Triaxial Test Device

"SYNCHRO CT" TRIAXIAL TESTING SYSTEM

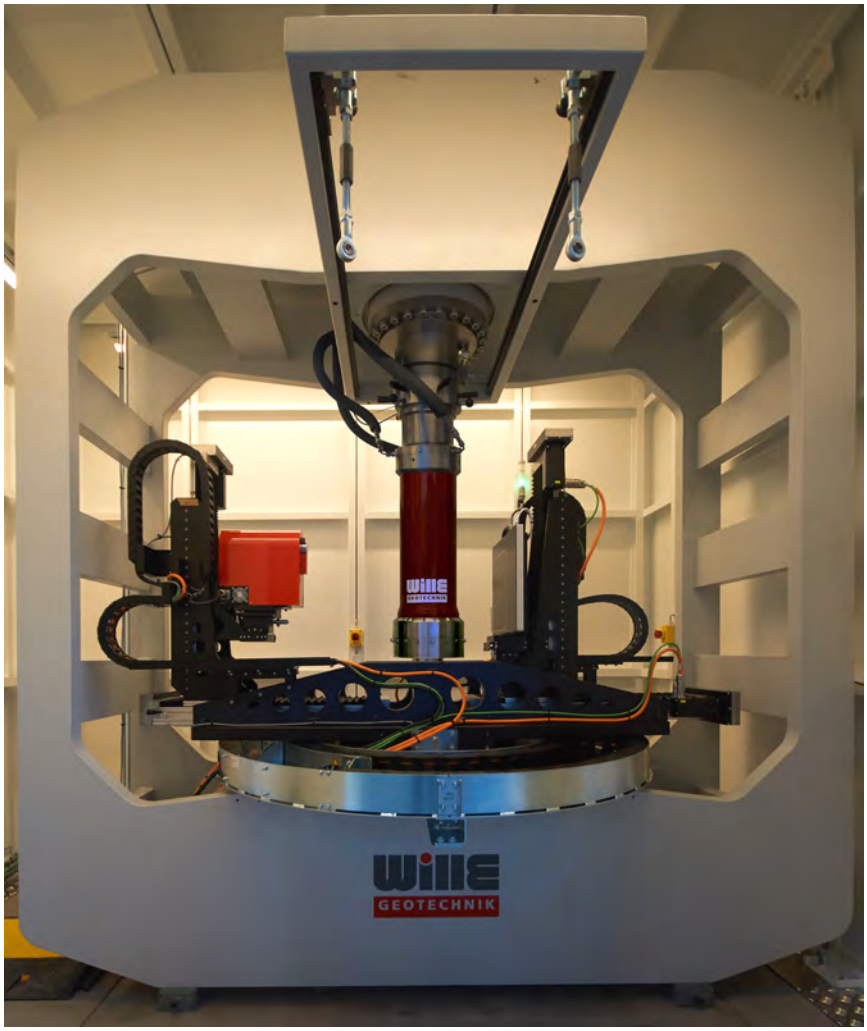
SIMULTANEOUS REAL-TIME CT TRIAXIAL TEST SYSTEM

X-ray transparent triaxial cell for low and high pressure tests

Sample's porosity, crystalliza-tion and dissolution, exchange of pore fluids, pre- and post-failure geometry, or even crack propagation can be now monitored in situ during testing, and also in a time-resolved manner.

Real time visualization of deformation of sample (consolidation, shear) and flow process (saturation, permeability) during test Two phase fluid flow (gas and liquid).

High potential for upgrades (visualization systems e.g. µ-CT, AE,ERT, custom made test jigs and environmental chambers etc.)



GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 5000 kN
Confining pressure	Up to 200 MPa
Pore media	Water, Salty water, CO2
Sample size	25 mm to 150 mm
Testing temperature	-20 °C up to +200 °C

SCAN ME

Reliable Test Result

RESONANT COLUMN TEST APPARATUS

This resonant column is equipped for isotropic and anisotropic tests using high quality electromechanical loading unit. Also this apparatus can be upgraded to perform experiments in unsaturated condition.

The device can work under two different boundary conditions, so called free-free and fix-free conditions and has an adjustable drive mechanism for soft soils up to 20mm settlement.

Dedicated Software to measure or calculate: Resonant Frequency(Hz): i) manually and ii)automatically /Shear stiffness (Strain dependent), G / Young's modulus (E) / Density (ρ) / Poisson's ratio (u) and Poisson's ratio (u) and Damping (D) using three methods(Lissajous Figure, bandwidth method and free vibration Decay Method).

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Axial Load Type	Isotopic or Anisotropic
Cell pressure	Up to 2000 kPa
Torsional Frequency	Up to 3000Hz
Sample Size(diameter)	38mm up to 100mm

RESONANT COLUMN TEST APPARATUS

LARGE SAMPLE SIZE

This device is a high-quality apparatus for measuring the low-shear Strain (less than 0.001%) or elastic modulus and damping properties of materials (e.g., wide variety of soils, rocks, Asphalt, etc.) for solid- or hollow cylindrical samples under confined condition. It is designed for large sample sizes from 150mm up to 250mm.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Axial Load Type	Isotopic or Anisotropic
Cell pressure	Up to 2000 kPa
Torsional Frequency	Up to 3000Hz
Sample Size	150mm up to 250mm

SMARTER

HOLLOW CYLINDER TEST APPARATUS

ELECTROMECHANICAL SERIES

The Hollow Cylinder Apparatus enables the operator to apply rotational displacement and torque to a hollow cylindrical or soil specimen of soil. It has a high stiffness load frame using electromechanical loading system.With lifting mechanism for Cell wall ,it gives an easy sample set up and handling of the test specimen. The High quality Triaxial cell is made of stainless steel material with 3 internal rods which gives possibility for easy installation of internal sensors.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load range	Up to 20 kN
Frequency	2Hz- 5Hz – 10Hz
Torque	100 Nm / 200Nm /400Nm
Sample Size(outer/inner)	100/60 mm or 150/100mm

SINCE 1991

HOLLOW CYLINDER TEST APPARATUS

SERVOHYDRAULIC SERIES

This series of Hollow Cylinder Apparatus is specifically designed to perform tests on larger sample sizes that require a higher dynamic load and torque range than electromechanical machines can provide. The wide column spacing allows for the accommodation of large cells, up to 300 or 500mm O.D., even with environmental chambers and furnaces.

GENERAL TECHNCIAL SPECIFICATIONS

Axial Load	Up to 200 kN
Frequency	Up to 30Hz
Torque	Up to 1000Nm
Sample size(Outer)	200mm up to 300 mm

SCAN ME

PLANE STRAIN TEST APPARATUS

UNSATURATED SOIL BIAXIAL TEST

This Plane strain apparatus is designed and manufactured to study mechanical properties and shear band failure of soil and generates and controls sophisticated stress/strain paths.

In the plane-strain state the deformation of the soil is considered to be approximately, zero in one direction for example the long dimension of the structure and the soil is free to deform in the other two directions.

One unique feature of this device is its linear bearing platform, which allows for the free lateral displacement of the lower part of the specimen once a shear band develops. This feature helps to accurately study the behavior of soil during shear failure.

SAFETY

GENERAL TECHNCIAL SPECIFICATIONS

Axial Load	Up to 200 kN
Confining pressure	2000kPa / 20MPa
Sample size	120x100x40mm (LxWxH)
Testing Temperature	-20 °C up to +100 °C

SCAN ME

GAS HYDRATE TRIAXIAL TESTING SYSTEM

This test system is designed to study mechanical properties of methane hydrate bearing sediments under triaxial test conditions at low temperature and high pressure conditions. It is possible to use different hydrate formation methods with this device e.g. Excess water method, Dissolved gas method or Excess Gas method. The system has special heating method to prevent blockages of the methane close to injection ports.

Reliable Test Result

SCAN ME

GENERAL TECHNICIAL SPECIFICATIONS

Static axial load	Up to 200 kN
Confining pressure	Up to 50MPa
Sample size(diameter)	38mm up to 100mm
Temperature	-20°C up to + 60 °C

SHEAR TESTING DEVICES

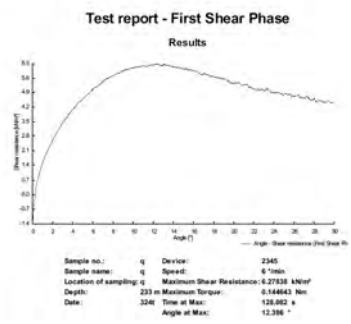
STATIC - CYCLIC

we manufacture various laboratory test devices and techniques used to determine the shear strength parameters of soil samples. All the devices are including of high-quality mechanic and electronic components which produces repeatable test results and the excellent quality makes it suitable for research and also usual test applications.

- Static Direct Shear Device
- Static Simple Shear Device
- Cyclic Simple Shear Device
- Device Direct Shear Test Device
- Large Direct Shear Device
- Pull out Test Device
- Back Pressure Shear Test Device
- Multi directional Shear Test Device(Bidrectional)
- Static and dynamic Ring Shear Device
- Bishop Ring Shear Device
- THM Static and dynamic Shear Device

SCAN ME

EXAMPLE OF TEST REPORTS


Test report - First Shear Phase

Results

FULLY AUTOMATIC VANE SHEAR TEST APPARATUS

The shear Vane testing is used to determine the total shear resistance of normally cohesive, un-drained soils (especially soft clays) by fast shearing and is mostly useful for soils with low shear strength. Undisturbed soil samples (e.g., core cutters) as well as treated samples (e.g., Proctor samples) or artificial mixtures can be tested for practical applications as well as for research purposes. Different Vane sizes from Vane A 12,7 x 12,7mm up to Vane G 25,4 x 50,8mm are available.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Sample diameter	50-200 mm
Torque	> 3 Nm
Resolution	0.001 Nm
Shear displacement	unlimited

LOW MAINTENANCE

DIRECT SHEAR TEST DEVICE

This robust apparatus with reversible electromechanical motor is used for direct shear tests and also residual strength test. The apparatus comes in two models, one is benchtop and another one is standalone unit. The bench type has a small footprint. Both are suitable for testing of shear parameters of soil e.g. Cohesion and the effective friction angle.

The floor type version with additional testing jigs can run Simple shear test and Consolidation test as well.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	10kN / 20kN
Shear force	5 kN / 10kN
Sample Shape	Square or Circular
Sample Size	Up to 100x100mm / Ø100mm

ECO FRIENDLY

STATIC SIMPLE SHEAR TEST DEVICE

The device gives the possibility to perform tests on different sample sizes up to 150mm.It applies vertical and horizontal independent loads by electromechanical actuators which enables each axis to be controlled in displacement (strain or velocity) mode as well as load control.

The main advantage of device is an accurate testing of soil parameters without tilting and friction between shear test components. The high quality and low friction double linear guides used to ensure strength and alignment without tilting in normal and shear directions.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	10kN / 20kN
Shear force	5 kN / 10kN
Sample Sizes	Up to Ø150mm
Accuracy class	0.1%

ASTM
BS
EN
STANDARD

CYCLIC SIMPLE SHEAR TEST APPARATUS(CSS)

The device performs cyclic tests under load controlled as well as displacement controlled through wave forms of Sinusoidal, Square, Triangular, Haversine, Saw Tooth, Inverted Saw Tooth, Rectangle, and User Defined wave forms.

The main advantage of device is an accurate testing of soil parameters without tilting and friction between shear test components. The high quality and low friction double linear guides used to ensure strength and alignment without tilting in normal and shear directions.

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	5kN
Shear force	5kN
Accuracy class	0.1%
Frequency	0.0001 up to 1 Hz
Circular Sample Sizes	Up to Ø150mm

SCAN ME

Reliable Test Result

DYNAMIC SIMPLE-DIRECT SHEAR TEST (DSS)

The new generation of dynamic simple-Direct shear test gives possibilities to get reliable test results better than previous ones.

Minimal rotation of Top cap during shearing by using double axial guide Peak target control function to keep constant stress when the stiffness of sample is changing during the test. Performs drained (constant load) and undrained (constant volume) tests Special designed shear and normal load measurement which is located exactly beneath of the sample to measure the shear load without any effects of bushing or bearing in between of load cell and sample.

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	5 / 10kN
Shear force	5 / 10kN
Accuracy class	0.1%
Frequency	5Hz / 10 Hz
Circular Sample Sizes	Up to Ø150mm

SCAN ME

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.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

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

PULL OUT - LARGE SHEAR TEST APPARATUS

GEOTEXTILE/ GEOSYNTHETIK TESTING

ECO FRIENDLY

The frictional characteristics of a soil geosynthetic interface can be determined by direct shear and pull-out tests while soil–geosynthetic interaction parameters and their determination play important role in the design of reinforced soil structures.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	60 / 100 / 125 kN
Shear force	60 / 100 / 125 kN
sample size	300x300mm

BACK PRESSURE CYCLIC SIMPLE SHEAR APPARATUS

CONFINED

In this device the sample is confined inside a high pressure chamber and the device has possibility to apply back pressure on sample to saturate the sample completely in the same way as a triaxial test therefor full effective stress control of test specimen is possible.

The device is also able to run unsaturated test on the specimen.

The normal stress and the shear stress are closed loop controlled by an electromechanical precision drive system.The device gives the possibility to perform tests on different sample sizes up to 150mm in diameter.

SAFETY

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	5 / 10 kN
Shear force	5 / 10 kN
Frequency	Up to 10 Hz
Confining Pressure	Up to 2000 kPa
Circular Sample Sizes	Up to Ø150mm

MULTI-DIRECTION DYNAMIC SIMPLE SHEAR APPARATUS

CONFINED-UNCONFINED

The Multi directional simple shear test enables biaxial static or dynamic simple shear testing on sample instead of the traditional uniaxial shear testing. This is accomplished by integrating a secondary independent shear actuator in addition to the primary one and operates perpendicular to the primary one. These two actuators enable the sample to be subjected to shear stresses in two perpendicular directions.

The device enables shear testing in any horizontal plane and allowing for tests with continuously changing shear planes and applied forces.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical	Servohydraulic
Normal force	5 / 10 kN	Up to 30 kN
Shear force	5 / 10kN	Up to 30 kN
Frequency	5Hz / 10 Hz	Up to 30 Hz
Circular Sample Sizes	UP to Ø150mm	UP to Ø300mm

MADE IN GERMANY

BISHOP RING SHEAR APPARATUS

STATIC

This stand-alone test apparatus is a robust construction device including of 2 high end electromechanical force actuator which are used for normal stress and shear stress. The device includes of additional stepper motor for gap control system of the ring shear box.

The Bishop's ring shear apparatus was designed to investigate the shear displacement and post-peak shear resistance of clayey soils, specifically in the context of slow landslides. The device is capable of determining the interface friction angles between Soil and displacement piles (ICP method).

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Axial Load	Up to 20 kN
Shear Torque	Up to 1100 N.m
Angle of rotation	Unlimited
Rotational rates	4500° – 0.00001°/min
Sample Size(Outer)	100 / 150 / 200mm

Reliable Test Result

RING SHEAR APPARATUS

STATIC-CYCLIC

Fully automatic electromechanical closed-loop controlled ring shear apparatus is a device which facilitate extended and virtually unlimited shear displacement tests on sample. It measures shear strength parameters at failure and residual shear strength using a constant shear plane and an unlimited angle of rotation or shear strain.

This development includes our experience in details of wall friction compensation and guidance of the shear boxes.

The shear box is made completely from stainless steel and is a modified Bromhead type which is based on our long term experience for wall friction compensation and guidance of the shear boxes.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Axial Load	Up to 20 kN
Shear Torque	Up to 1100 N.m
Frequency	Static / 5 / 10 Hz
Angle of rotation	Unlimited
Rotational rates	4500° – 0.00001°/min
Sample Size(Outer)	100 / 150 / 200mm

SINCE 1991

THM STATIC DIRECT SHEAR TEST APPARATUS

This robust and high stiff apparatus is including of high-quality mechanic and electronic components which produces repeatable test results, and the excellent quality makes it suitable for research and also usual test applications.

The temperature controlling system can control the temperature of sample in range of -20°C up to +200°C with minimum temperature gradient along of the sample.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	10 / 20 kN
Shear force	5 / 10kN
Temperature range	-20°C up to +200°C
Sample Sizes	Up to 100x100mm

ISO 9001

THM CYCLIC DIRECT SHEAR TEST APPARATUS

The THM Cyclic Direct shear apparatus is an automated apparatus with a very high stiffness and includes of two high quality servomotor drives for performing vertical and horizontal shear load (static and dynamic). The precision electromechanical drive with high resolution and closed loop control rate generates closed-loop strain and stress controlled static axial load and strain and in addition stress-controlled shear forces.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical
Normal force	5 / 10 / 20 kN
Shear force	5 / 10kN
Temperature range	-20°C up to +200°C
Frequency	5Hz / 10 Hz
Sample Sizes	Up to 100x100mm

CONSOLIDATION TESTING DEVICES

ONE-DIMENSIONAL TESTS

These devices are used for performing One-dimensional consolidation load tests on soil samples, which are also referred to as oedometer tests. They provide information to determine the rate and magnitude of consolidation of a soil specimen. Our company manufactures an extensive range of devices to meet the needs of each laboratory, whether for research or daily tests.

- Automatic Consolidation Device
- CRS /K0 Consolidation Test Device
- Rowe-Barden Consolidation Test Device
- Slurry Oedometer Test Device
- THM Slurry Oedometer Test Device
- Large Scale Consolidation Test Device
- THM Consolidation Test Device

SCAN ME

NO AIR PRESSURE

AUTOMATIC CONSOLIDATION TEST DEVICE

TABLETOP

This fully automatic high-precision electromechanical,microprocessor-controlled apparatus is used for performing incremental unconfined consolidation and one-dimensional swell tests as well as CRS tests which Pneumatic systems are not able to do it. This is an advanced replacement for Pneumatic oedometer test device or the traditional hanging weight one.

There are different types of oedometer cells which could be combined with the load frame to meet all your test requirements e.g fixed and floating type, KO cell, CRS cells and swelling pressure cell and etc.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type	Electromechanical - Tabletop
Axial laod	Up to 10 kN
Accuracy class	0.1%
Sample Sizes	Up to Ø112,8 mm

LOW MAINTENANCE

CRS/K0 CONSOLIDATION TEST DEVICE

WITH CONTROLLED BACK PRESSURE

This fully automatic electromechanical apparatus is designed to perform Constant Rate of Strain With Controlled Back Pressure which Pneumatic systems are not able to do it in addition to other consolidation tests such as K0 cell.

K0 CONSOLIDATION CELL :

This special made consolidation cell is built in a way which radial soil stress can be measured during the whole compression test (loading, unloading, reloading). All the parts made from stainless still and have a stiff construction.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Load type Normal	Electromechanical
force	Up to 100 kN
Max. back pressure	Up to 3 MPa
Accuracy class	0.1%
Range of Sample Size	Up to Ø112,8 mm

ISO 9001

LOW NOISE

ROWE BARDEN CONSOLIDATION DEVICE

This fully automatic consolidation test system is designed to apply the axial stress by hydraulic loading unit which gives accurate control of applied loads in a wide range of pressures and gives the possibility to test the samples without needs of load frame.

The consolidation system is used because of main advantages of it which mainly are the capability of performing tests on large samples, possibility of easy relocating of system and also the ability of the controlling the drainage precisely in this type of one directional consolidation cell. In addition, an accurate permeability test with this set up is possible as well.

SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Pressure Range	Up to 30 bar
Pressure Resolution	0.1 kPa
Pressure Accuracy	0.1% F.S
Range of Sample Size	Up to Ø150 mm
Customised size	Up to 300mm with 250mm height

SINCE 1991

SLURRY CONSOLIDATION TEST DEVICE

This fully automatic electromechanical consolidation apparatus is designed to perform tests on specimens which have a large settlement e.g. Very fine-grained clay , Tailing muds and mine waste, phosphatic clays, waste materials such as dredging, Sea muds or oozy muds, Harbor muds and etc.

The Slurry cell is a load frame-based cell and can be integrated to a load frame with large stroke. The cell has different connections at different levels in order to determine the pore-water pressure at different layers to observe and calculate effective stresses inside the material column.

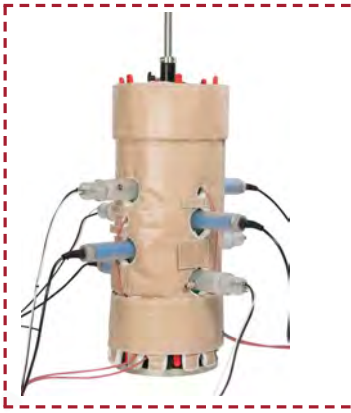
SCAN ME

GENERAL TECHNCIAL SPECIFICATIONS

Maximum axial load	10kN
Max. Pore pressure	Up to 300 kPa
Range of Sample size	150/200 mm 176/314 cm2
Max. settlement	200%
Sample Height	300 mm

THM SLURRY CONSOLIDATION DEVICE

LOW AND HIGH TEMPERATURE CONTROLLED



The slurry consolidation cell is used to investigate the swelling and settling behavior of sealing systems in tailings or sales pools in the mining industry.

The Slurry cell is a load frame-based cell and can be integrated to a load frame with large stroke. The temperature of the sample is controlled from -15 °C up to +80 °C. When using tempered material, the insulating jacket must be placed around the cell. The cell is manufactured with two load/normal stress measuring units, one for the measurement of applied stresses, and the other one at the bottom for the wall friction measurement.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Maximum axial load	10kN
Max. Pore pressure	Up to 300 kPa
Range of Sample size	150/200 mm 176/314 cm2
Max. settlement	200%
Sample Height	300 mm
Temperature range	-15 °C up to +80 °C

CONSOLIDATION CELLS

In all oedometer cells, the undisturbed soil specimen is cylindrical type which is placed in a confining ring made of stainless steel to prevent any lateral strain and provide a real one-dimensional test condition (the sample is allowed just to have vertical compress and swelling). Applied force is distributing over the entire of the specimen by using a pressure cap contacted to upper porous disc which is placed on top of the specimen. Two porous discs located at top and bottom of the specimen allow pore water to drain out of Specimen.

SCAN ME

COMBINED FIXED & FLOATING RING CELL

PERMEABILITY FIXED RING CELL

UNSATURATED OEDOMETER CELL

KO CONSOLIDATION CELL

for measuring radial stress

THM CONSOLIDATION CELL

THM CONSOLIDATION TEST DEVICE

LOW AND HIGH TEMPERATURE

This fully automatic electromechanical apparatus is designed to perform Constant Rate of Strain tests at different temperature ranges on a sample, while maintaining Controlled Back Pressure.

This advanced thermo-hydro-mechanical stainlesssteel temperature-controlled cell is a CRS cell which enables the user for simultaneous control of temperature, stress, strain and runs the test in a temperature range of -25 °C up to + 200 °C.

Additionally, it can perform back pressure and measure pore pressures, as well as stress and strain controlled oedometer tests such as CRS, CL, IL, or swelling pressure tests.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Maximum axial load	Up to 100 kN
Max. pressure	1 / 2 / 3 / 10 / 20 kPa
sample size(diameter)	50,47 to 112,8 mm
Sample Height	Up to 50 mm
Temperature range	-25 to + 200 °C

ASTM
BS
EN

STANDARD

LARGE CONSOLIDATION TEST DEVICE

This high quality fully automatic testing system is designed and manufactured to perform one dimensional consolidation tests for large and X-Large specimen sizes. The loading systems are universal loading frame and are suitable for variety material testing applications and comes with extensive range of loading capacities from 200kN to 5000kN.

The system is modular and gives the possibility to customize the testing area, load, size of specimen and other technical specifications to reach the desired testing requirements.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Maximum axial load	Up to 500 kN
Max. Pore pressure	Up to 2000 kPa
sample size(diameter)	150 / 300/ 500 mm
Max. settlement	20%
Sample Height	Customised

DESIGN FLEXIBILITY

CONSOLIDATION & BOREHOLE SIMULATION DEVICE

RADIAL STRESS MEASUREMENT, PERMEABILITY & ULTRASONIC TESTS

The High-Pressure Consolidation and Borehole Simulation Test System is a newly developed high-end apparatus designed for conducting laboratory experiments with measurement of mechanical and physical properties of large and hard samples like cemented soil samples. The testing equipment enables to perform a soil grouting procedure under geological stresses, drilling a bore in the sample, and simulate petroleum production processes.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Maximum axial load	Up to 5000 kN
Max. Pore pressure	Up to 2000 kPa
sample size(diameter)	300 / 500 mm
Max. settlement	20%
Sample Height	Up to 500 mm

THM TESTING DEVICES

TEMPERATURE CONTROLLED TESTINGS (FROZEN & HEATED CONDITIONS)

A temperature-controlled testing laboratory for soil can be used for a variety of purposes, such as studying the thermal properties of soil, conducting experiments on soil behavior at different temperatures, and testing the effects of temperature on soil properties.

- THM Triaxial Test Systems
- THM Shear Testing Devices
- THM Hollow Cylinder Test Device
- THM Plane Strain Test Device /Biaxial Test
- THM Consolidation Test System
- Freeze-thaw Test Device

SCAN ME

ENVIRONMENTAL STATIC TRIAXIAL TESTING SYSTEM

HIGH PRESSURE SERIES

CERTIFIED ISO 9001
ISO 9001

The system is configured with an active Triaxial cell made of Stainless Steel, equipped with an Easy Lock Mechanism. It is capable of performing various Axial Loads ranging from 7kN up to 100kN on samples of different sizes. The system employs a special Heat transfer method suitable for low and high precision temperature applications.

Additionally, the device is equipped with a vertical lifting mechanism and a horizontal sliding mechanism, making it easy to handle the Triaxial cell.

GENERAL TECHNICAL SPECIFICATIONS

Axial load	25kN / 50kN / 100kN
Confining pressure	Up to 20MPa
Temperature range	-20°C up to +200°C
Sample size(diameter)	Up to 70 mm

SCAN ME

HIGH PRESSURE TEMPERATURE CONTROLLED TRIAXIAL TESTING SYSTEM

STATIC – ELECTROMECHANICAL

This electromechanical system is constructed with high stiffness and features a precision-aligned load frame, making it suitable for high-load applications. The machine operates without the need for oil pressure and is extremely quiet, making it an absolute low noise machine. The system offers a choice of double wall or 3D temperature controlling techniques.

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 250 kN
Type of Load	Electromechanical
Confining pressure	Up to 32MPa
Sample size	38 mm to 100 mm
Temperature range	-30°C up to 200°C

SCAN ME

TEMPERATURE CONTROLLED TRIAXIAL TESTING SYSTEM

STATIC - DYNAMIC

This series of Soil triaxial testing systems are designed and manufactured to perform stress path triaxial testing on soil under different temperature conditions. It has dedicate technique for temperature controlling (3 D zone) and using special double wall Temperature cell (DWTC) which enables extreme precision in temperature controlling from -30 °C up to +200 C degree with minimum temperature gradient along of the length of sample. Optionally the temperature gradient test is available for this cells.

GENERAL TECHNICAL SPECIFICATIONS

Static axial load	Up to 250 kN
Cyclic load	Up to 200 kN
Frequency	Up to 30Hz Cyclic
Confining pressure	Up to 5000kPa/10Hz
Sample size	38 mm to 100 mm
Temperature range	-30°C up to 200°C

SCAN ME

THM TRIAXIAL TESTING SYSTEM

ELECTROMECHANICAL(STATIC – CYCLIC)

This series of electromechanical Soil triaxial testing systems are designed and manufactured to perform stress path triaxial testing on soil under different temperature conditions.

It has dedicate technique for temperature controlling (3 D zone) and using special double wall Temperature cell (DWTC) which enables extreme precision in temperature controlling from -30 °C up to +200 C degree with minimum temperature gradient along of the length of sample.

Optionally the temperature gradient test is available for this cells.

SCAN ME

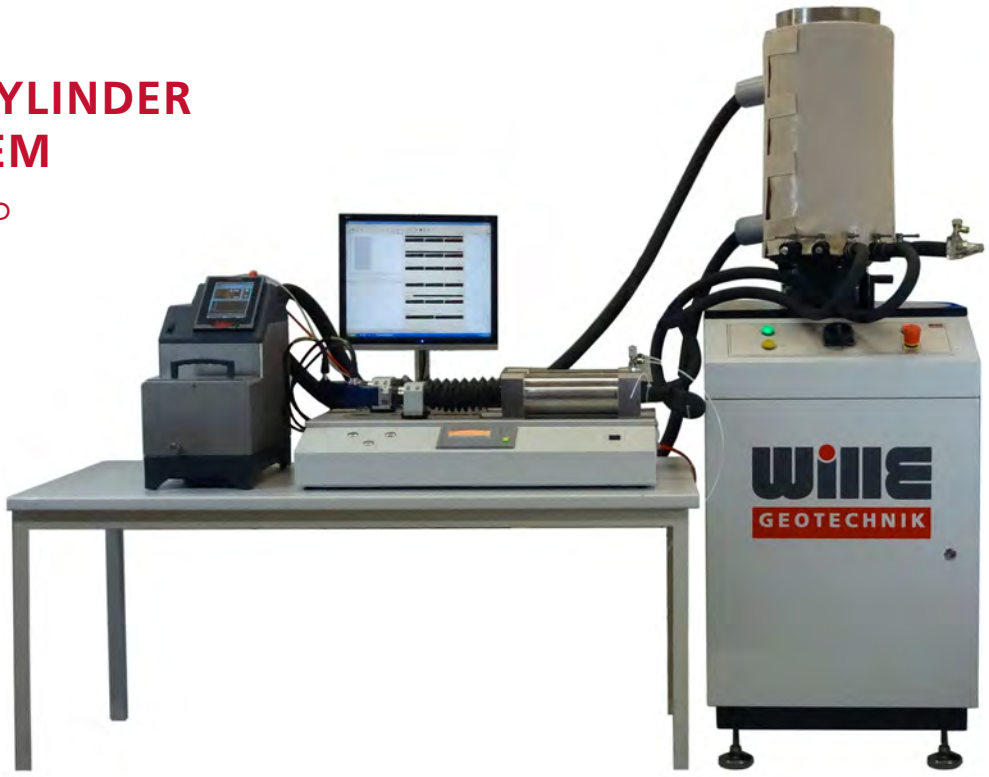
GENERAL TECHNICAL SPECIFICATIONS

Type of load	Electromechanical
Static axial load	Up to 150 kN
Cyclic Load	Up to 20 kN
Frequency	Up to 10Hz
Confining pressure	Up to 5000kPa
Sample size(diameter)	38 mm to 100 mm
Temperature range	-30°C up to 200°C

THM HOLLW CYLINDER TESTING SYSTEM

TEMPERATURE CONTROLLED

The Temperature Controlled Hollow Cylinder Apparatus enables the operator to apply rotational displacement and torque to a hollow cylindrical or soil specimen of soil under different temperature regime. The cell is fully made of stainless steel with dedicated temperature controlling technique (3 D zone) and using special double wall Temperature cell (DWTC) which enables extreme precision in temperature controlling from -30 °C up to +200 C degree with minimum temperature gradient along of the length of sample.



SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Load range	Up to 20 kN
Frequency	2Hz- 5Hz – 10Hz
Torque	100 Nm / 200Nm /250 Nm
Sample Size(outer/inner)	100/60 mm or 150/100mm
Temperature range	-30°C up to 200°C

THM CONSOLIDATION TEST DEVICE

LOW AND HIGH TEMPERATURE

This fully automatic electromechanical apparatus is designed to perform Constant Rate of Strain tests at different temperature ranges on a sample, while maintaining Controlled Back Pressure.

This advanced thermo-hydro-mechanical stainlesssteel temperature-controlled cell is a CRS cell which enables the user for simultaneous control of temperature, stress, strain and runs the test in a temperature range of -25 °C up to + 200 °C.

Additionally, it can perform back pressure and measure pore pressures, as well as stress and strain controlled oedometer tests such as CRS, CL, IL, or swelling pressure tests.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

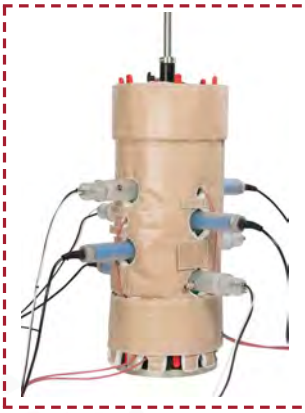
Maximum axial load	Up to 100 kN
Max. pressure	1 / 2 / 3 / 10 / 20 kPa
Sample size(diameter)	50,47 to 112,8 mm
Sample Height	up to 50 mm
Temperature range	-25 to + 200 °C

THM SLURRY CONSOLIDATION DEVICE

LOW AND HIGH TEMPERATURE CONTROLLED

The slurry consolidation cell is used to investigate the swelling and settling behavior of sealing systems in tailings or sales pools in the mining industry.

The Slurry cell is a load frame-based cell and can be integrated to a load frame with large stroke. The temperature of the sample is controlled from -15 °C up to +80 °C. When using tempered material, the insulating jacket must be placed around the cell. The cell is manufactured with two load/normal stress measuring units, one for the measurement of applied stresses, and the other one at the bottom for the wall friction measurement.



SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Maximum axial load	10kN
Max. Pore pressure	Up to 300 kPa
Range of Sample size	150/200 mm 176/314 cm2
Max. settlement	200%
Sample Height	300 mm
Temperature range	-15 °C up to +80 °C

SINCE 1991

SINCE 1991

THM STATIC DIRECT SHEAR TEST APPARATUS

This robust and high stiff apparatus is including of high-quality mechanic and electronic components which produces repeatable test results, and the excellent quality makes it suitable for research and also usual test applications.

The temperature controlling system can control the temperature of sample in range of -20°C up to +200°C with minimum temperature gradient along of the sample.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Load type	Electromechanical
Normal force	10 / 20 kN
Shear force	5 / 10kN
Temperature range	-20°C up to +200°C
Sample Sizes	Up to 100x100mm

ISO 9001

THM CYCLIC DIRECT SHEAR TEST APPARATUS

The THM Cyclic Direct shear apparatus is an automated apparatus with a very high stiffness and includes of two high quality servomotor drives for performing vertical and horizontal shear load (static and dynamic). The precision electromechanical drive with high resolution and closed loop control rate generates closed-loop strain and stress controlled static axial load and strain and in addition stress-controlled shear forces.

GENERAL TECHNICAL SPECIFICATIONS

Load type	Electromechanical
Normal force	5 / 10 / 20 kN
Shear force	5 / 10kN
Temperature range	-20 °C up to +200 °C
Frequency	5Hz / 10 Hz
Sample Sizes	Up to 100x100mm

SCAN ME

THM PLANE STRAIN TESTING SYSTEM

TEMPERATURE CONTROLLED BIAXIAL TEST

This temperature controlled Plane strain apparatus is designed and manufactured to study mechanical properties and shear band failure of soil under variety range of temperature regimes.It generates and controls sophisticated stress/ strain paths. In the plane-strain state the deformation of the soil is considered to be approximately, zero in one direction for example the long dimension of the structure and the soil is free to deform in the other two directions.

GENERAL TECHNICAL SPECIFICATIONS

Axial load	Up to 200 kN
Confining pressure	2000kPa / 20MPa
Sample size	120x100x40mm (LxWxH)
Testing Temperature	-20 °C up to +150 °C

SCAN ME

FREEZE & THAW TESTING APPARATUS

ASTM D5918

The frost heave and thaw apparatus is especially designed for the ASTM Standard D5918. This standard describes the equipment, the procedure and the interpretation of the combined frost swelling test and the CBR test after the defrosting in the laboratory. The test is carried out in a special manufactured, high-strength, insulating and deformation resistant CBR mould, made of synthetic fiber. It is used for the determination of the following parameters:

- Maximum frost heaving
- Residual heave
- Frost heave coefficient
- CBR value after the defrosting (CBRFH)

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Height: approx	1500 mm
Width: approx	800 mm
Depth: approx	800 mm
Mariott´s bottle	1000 ml
Cooling aggregate	-10 to 100 C°

TESTING COMPONENTS

FOR EXTREME PRECISION AND RELIABLE TEST RESULTS

All our devices are equipped with various components and instruments to perform accurate and reliable tests. We employ state-of-the-art components which can provide more accurate information about soil behavior and mechanical properties of soil sample. Some of the key components of our products include:

- Bender Element Test System
- Pressure volume controller(VPC)
- Twin Pressure volume controller
- High Pressure Pressure volume controller
- Cyclic Pressure volume controller
- Permeability Test Devices

- Special designed set up of continuous syringe pumps for advanced gas hydrate triaxial test.

Reliable Test Result

BENDER ELEMENT TESTING SYSTEM

COMBINED P&S / FLAT TYPE

The bender element test system includes of the 2 piezo-ceramic elements, electronic box and software which allows to measure the maximum shear modulus of the soil sample (Gmax). It is designed for usage in different testing devices e.g., triaxial cells, consolidation cells, and shear devices. By measuring the velocities of shear waves in three different orientations, namely Svh, Shv, and Shh, it becomes possible to calculate Gmax (Gvh, Ghv, and Ghh) in Triaxial cells for different sample sizes.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Pressure Range	Up to 3,5 MPa
Sample Sizes	Up to 300mm
Temperature Range	-10 °C up to +60 °C (continuous)
Type of piezo-elements	S / P and combined
Connection	BNC Plug

UNSATURATED TEST PACKAGE

The axis translation technique is indeed the most commonly used method in unsaturated Triaxial testing. The main required components to run an unsaturated test are:

- High Air Entry Porous Disc
- Air Pressure Controller to apply
- pore air pressure (APC)
- Unsaturated Software Module for GEOsys

Our microprocessor closed-loop controlled Compact pressure controller (APC) generates precisely Air pressure with different pressure ranges up to 2000kPa for up to 3 independent pressure lines for different test applications (e.g. confining pressure, pore pressure and unsaturated tests).

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Pressure Range	1000 / 1600 /2000 kPa
Pressure accuracy	0.1% F.S
Pressure Resolution	0.1 kPa
Pressure outlets	1, 2 or 3 channels
Media	Air, Argon, Helium ,Nitrogen or any inert gases

UNSATURATED TESTING PACKAGE

MEASUREMENT METHODS OF THE TOTAL VOLUME CHANGE

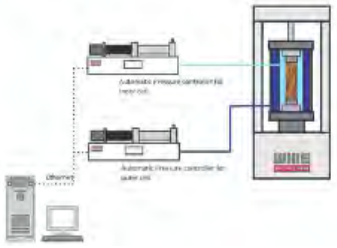
For unsaturated soils, the total volume change of the specimen is no longer equal to the pore-water volume change; therefore, the conventional method is no longer applicable. The total volume change generally comprises the volume of the air and changes in the volume of the water in the void spaces.

We offer different methods of measurement of the total volume change such as:

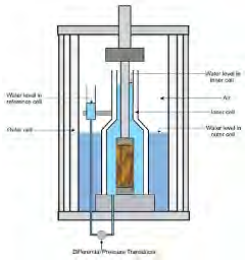
- On-sample strain measurement
- Double Wall Cell method
- Direct measurement of the pore-water and pore-air volume change with Volume Pressure controllers (VPC)
- Differential pressure transducer (DPT) method

SCAN ME

On-sample strain measurement



Double Wall Cell method



Differential Pressure Transducer Method

Direct volume measurement using VPC

MADE IN GERMANY

VOLUME PRESSURE CONTROLLER (SINGLE)

ELECTROMECHANICAL SYRINGE PUMP

Automatic Electromechanical pressure volume controllers made by Wille Geotechnik® are syringe pulse-less pumps which precisely generate and regulate pressure and provide flow control precisely in a variety range for different applications e.g. cell and back pressure in Triaxial tests.

The device consists of a solid pressure cylinder with integrated spindle drive which pressurizes directly water or fluid for the generation of pressures.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Pressure range	2.5 / 4.8 / 7,5 MPa
Volume range	314 / 500 / 1000 ml
Material Of cylinder	Stainless Steel
Pressure accuracy	0.1% F.S
Pressure Resolution	0.1 kPa
Volume Resolution	0.00009 ml for 314ml

SINCE 1991

VOLUME PRESSURE CONTROLLER(TWIN)

ELECTROMECHANICAL SYRINGE PUMP

Twin-Type Electromechanical pressure volume controllers includes of two single pumps with a front Touch-panel for standalone use and each pump works independently and generate hydrostatic pressure for different applications (cell pressure, back pressure, Permeability tests, etc).

Upgrade options:

- Continuous flow: The twin pumps can be upgraded by Automatic valve system to generate continuous pulse-free flow for long term tests.
- Temperature control of pressurized media
- Special version with high corrosion resistant pressure chamber

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Pressure range	2 / 4 / 6 MPa
Volume range	314 / 500 / 1000 ml
Material Of cylinder	Stainless Steel
Pressure accuracy	0.1% F.S
Pressure Resolution	0.1 kPa
Volume Resolution	0.00009 ml for 314ml

ECO FRIENDLY

VOLUME PRESSURE CONTROLLER

HIGH PRESSURE

This series of pumps are manufactured for medium pressure range in testing applications which the test requires precise pressure generation and flow control under pressure up to 33MPa with a high volume. The device consists of a solid pressure cylinder with integrated spindle drive which pressurizes directly water or fluid for the generation of pressures.

Special version with high corrosion resistant pressure chamber is also available on request.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Pressure range	10 / 15MPa	20 /33 MPa
Volume range	314 / 400 / 630 ml	
Material Of cylinder	Stainless Steel	
Pressure accuracy	0.1% F.S	
Pressure Resolution	0.5 kPa	1 kPa

LOW NOISE

CYCLIC VOLUME PRESSURE CONTROLLER

ELECTROMECHANICAL / SERVOHYDRAULIC

The Cyclic Volume Pressure Controller is a high accuracy advanced electromechanic or servo hydraulic Closed-loop controlled syringe pump which regulate Cyclic pressure up to 4000 kPa with volume change control up to 1000 ml with different range of working frequency up to 10 Hz.It provides flow control precisely in a variety range for different applications e.g. cell pressure or back pressure for cyclic Triaxial test system.

It also can be used to eliminate disturbance to constant cell pressure in dynamic test cells which use Triaxial cell without balanced ram.

GENERAL TECHNICAL SPECIFICATIONS

Max Pressure	2 MPa /4 MPa
Volume Capacity	500 or 1000ml
Frequency	5 / 10 Hz
Pressure accuracy	0.1% F.S
Pressure Resolution	0.1 kPa
Volume accuracy	0.1% F.S
Volume Resolution	0.01ml
Material Of cylinder	Stainless Steel

SCAN ME

LOW MAINTENANCE

PERMEABILITY TESTING DEVICE

Triaxial permeability control panel with digital pressure displays or pressure gauges and separate precision pressure regulators for each cell. The panel is suitable for one permeability cell and for any extra cell, additional panel could be connected to the main panel. It can be upgraded with Data acquisition system and Permeability software as well.

SCAN ME

GENERAL TECHNICAL SPECIFICATIONS

Max. working pressure	1000 kPa / 2000 kPa
Coeffi cient of permeability	10^{-7} to 10^{-12} m/sec
Burette standard	50 ml
Burette optional	10 / 100 / 150 / 200 ml
Digital pressure output	0 – 10 V

EXTREME PRECISION

We offer a diverse and comprehensive selection of sensors and transducers that are suitable for a variety of applications, both static and dynamic. These products are engineered to deliver high-precision measurements and can be used in conjunction with our own testing devices, as well as those manufactured by other companies.

TRANSDUCERS

By incorporating precision transducers in your device, you can greatly enhance the reliability and accuracy of your testing data. The range of these products are compatible with most soil testing devices. Below you will find a concise list of the available transducers:

- Force sensors/ Load cells (External/Submersible)
- Local Radial Strain Transducer
- Axial Strain Transducer
- Pore / cell pressure transducer
- Mid-height Pore water pressure transduucer
- Bender element
- Temperature sensors
- Ultra low range wet-wet transducer for unsaturated tests

SCAN ME

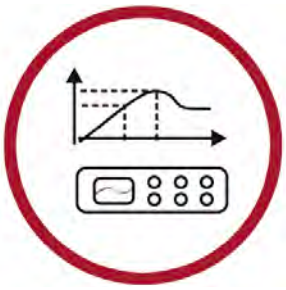
GEOSYS TESTING SOFTWARE

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.

- Static & Cyclic Triaxial Test Systems
- Hollow cylinder Test Device
- Resonant Column Test device
- Gas Hydrate Test System
- Static & Dynamic Shear testing Devices
- Consolidation testing Devices
- Rock Triaxial and Shear Testing systems
- Rock Polyaxial test System

SCAN ME

THE NEXT GENERATION OF GEOTECHNICAL SOFTWARE FOR LABORATORY TESTING



GEOsys utilizes a flexible, programmable system that controls test appliances that coordinate various test operations. The flexible operating panel provides tools to configure the appliance, editors to carry out load procedures, and functions for analysis, presentations and logs.

GEOsys is designed for closed-loop controlled static & Dynamic tests for all test applications in material testing, such as stress-controlled, strain-controlled, all stress paths, loops, any kind of waveforms like sine, rectangle, triangle, and predefined waves.It always provides you perfect solution whether you use it for static or dynamic test methods.

FREE PROGRAMMABLE VERSION

For all tests that goes beyond the regular Standard test procedure, an optional version is available which allows to edit test Sequence customised test procedure and parameterisation of the test according to the respective requirements.

SMARTER AND RELIABLE TEST RESULTS

Advanced Capability without complexity/ It is a multistage functional software which gives the user this possibility to define different test stages before and also during the tests. / Complete real-time data-acquisition and closed- loop control for each channel using real parallel configured channels

SAFER DATA EXPORTING

Data can be exported to:

- xml file which is directly compatible with excel, using tabs for each individual input parameter table and measurement tables.
- txt format for individual tables of parameter input and measurement data as tab-separated-variable or semicolon-separated-variables with UTF-8 encoding. These formats can be imported into excel or any other analytics software.

FLEXIBLE AND EFFICIENT

The software is designed to support a modular structure for the test environment so as to enable a flexible configuration and thus fulfill the specific requirements of the Users. Different control paramaters make the software ultra efficient for any type of the test either with simple or complicated test procedure. It is controlling and data acquisition software and also has different modules to run tests according to ASTM or BS ,ASHTO or other standards. Please note that maybe some tests will require additional hardware for a standard method and this has to be purchased by customer.

THE NEXT GENERATION OF GEOTECHNICAL SOFTWARE FOR LABORATORY TESTING

GEOsys is designed for closed-loop controlled static & Dynamic tests for all test applications in material testing, such as stress-controlled, strain-controlled, all stress paths, loops, any kind of waveforms like sine, rectangle, triangle, and predefined waves

TEST MODULES

It is controlling and data acquisition software and also has different modules to run tests according to ASTM or BS 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
- Triaxial tests(Static-Dynamic)
- Hollow Cylinder Test
- Resonant column test
- COnsolidation tests
- Shear Tests
- Temperature controlled tests

SCAN ME

SOFTWARE SERVICES

Software maintenance and upgrading

- Our dedication to customer service and satisfaction does not simply end when the purchased machinery is installed and under operation. Detailed and regular updates allow customers to benefit from the continuous development of our software,ensuring customers get the most out of our products.

Software customization

- Our expert software engineers are well trained and keen to provide efficient and professional programming in line with customer requests and requirements
- Specific testing needs are defined in close collaboration with the customer before implementation, ensuring the development of the most suitable product possible for the task at hand.
- Upon delivery, customers receive the finished test program along with the relevant documentation needed to operate their new piece of equipment efficiently.
- Our in-house software engineers are highly trained and have a great deal of experience and knowledge in this field. We pride ourselves on having well- trained and knowledgeable employees throughout our team. The answers to any questions that may arise are just a phone call away.

Software Training

- We feel it is our responsibility to offer customers comprehensive training on every aspect of our software. This training course may be held in-person at a customer's site or through an online session
- Software training is an important part of our service. Not only do we provide the testing system of the highest quality, we also offer continuous training courses to help customers use their devices to their full potential.

INSTALLATION & TRAINING

We have got over 30 years of experience in Geotechnical testing that we would like to share. We pride ourselves on our service and can guarantee smooth, successful commissioning immediately after the delivery of our testing systems. We have a great deal of experience having completed hundreds of successful installations. This success is partly due to our thorough and methodical work ethos.

This has in turn led to us implementing various tests throughout the production process, ensuring smooth installation and customer satisfaction.

- Factory acceptance test(FAT)
- Instruction Manual
- Training at Our company
- Onsite Installation and training (SAT)
- Virtual Training
- Video Training
- Machine operation after installation

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

GEOTECHNIK

LABORATORY TESTING SYSTEMS
FOR SOIL / ROCK /ASPHALT

Made in Germany

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