www.gdsinstruments.com

World Leading Manufacturers of
Software Controlled Geotechnical
Testing Systems

GDSLAB SOFTWARE

FOR SOIL AND ROCK

GDSLAB v2026

Why Choose GDSLAB Software?

I am extremely pleased to introduce the latest version of **GDSLAB Software, v2026,** along with details of recent features and developments that make GDSLAB, in our opinion, the best geotechnical laboratory control software in the world.

We take great care in inviting users to feedback suggestions and pain points so that developments are truly 'user driven'. This latest version purposefully retains the familiar feel for all who have used GDS software in the past 25 years, but embraces newer technologies, features, and flow, so that we now have a software platform that customers can be confident will be supported and importantly supportable in the future.

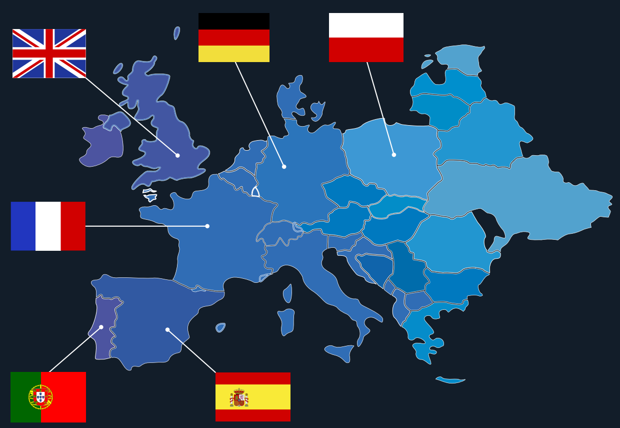
This brochure will highlight features that have been added since the re-development of the software in 2023, with two of the most notable releases being the consolidation analysis tool in 2024 and the bender element system integration in 2025. GDSLAB 2026 software is sold as a perpetual license.

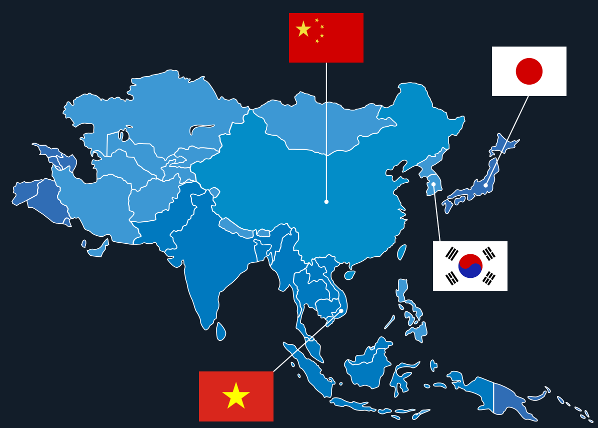
Thanks for reading.

Karl Snelling
CTO of GDS Instruments

Multiple Language User Interface

Language versions added so far:





SWITCH BETWEEN LANGUAGES
Multiple languages even in the same laboratory

SUPPORTING COLLEAGUES
Collaborate in preferred language

FACILITATING GLOBAL COLLABORATION
Removing Language Barriers

Evolution of GDSLAB Software

2001

GDS launched GDSLAB v1. The control and acquisition software allowed geotechnical testing systems to be configured using a range of different equipment, comprising of both GDS and other manufacturers hardware.

2004

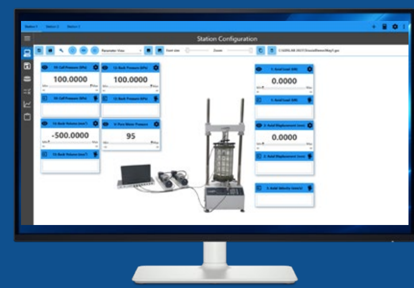
The next generation, GDSLAB v2 was launched with dynamic testing capabilities. This now established GDSLAB as the single software solution for all GDS systems with the unique functionality that equipment from other manufacturers could be controlled.

2023

In 2023, GDSLAB v2023 was released to selected commercial and research-focused users for beta testing. Their feedback was crucial for making changes to the software ahead of the full launch and for developing our three year roadmap.

2024

GDSLAB v2024 launched and available to all customers existing and new looking to take advantage of the advanced functionality and feature set available in the new software.



2025

March and September updates brought a variety of new features to GDSLAB software including integration with GDS Bender Element Software.

2026

GDSLAB v2 has reached the end of life meaning that end users will be able to continue using the software but updates will no longer be released by GDS. GDSLAB v2026 will continue to be updated, with some of the planned new features highlighted on Page 14.

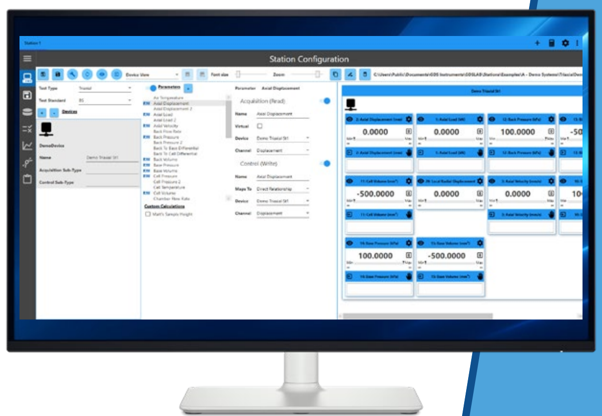
GDSLAB v2026 Key Features

GDSLAB has been designed with end users in mind. Driven by user feedback to create a system that is not only simpler and more intuitive to use, but also makes data collection and manipulation a faster, more accurate and more enjoyable experience.

Part of our promise to users is to maintain continued development of GDSLAB, supported by our annual licence model and ensure end user benefits, like those outlined here, are continuously added and improved on year by year.

Multiple Language User Interface

The ability to instantly switch between multiple languages. This ensures users can get support from their colleagues even if their preferred language is different – facilitating collaboration anywhere in the world.



Graphical System Builder

Configure your own setup and save valuable time. **No need for INI files.**

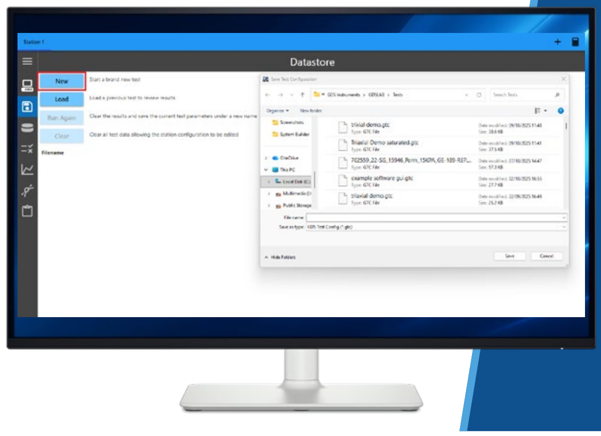
GDSLAB graphical system builder puts end users in control of setup changes, making them easy to do within the laboratory, without the need for technical assistance and knowledge.

The ability to make quick and easy changes, and the **removal of INI files** means GDSLAB puts power back in the hands of end users.

True Real Time Graphs for Dynamic Tests

With GDSLAB end users can view dynamic data in **true real time** even when testing at significant speed, exactly in sync with the test.

With our new dynamic data capture, end users no longer need to worry that data capture lag will continue after the test has been completed – saving valuable time and removing confusing data-lag information.



Datastore for Test Data

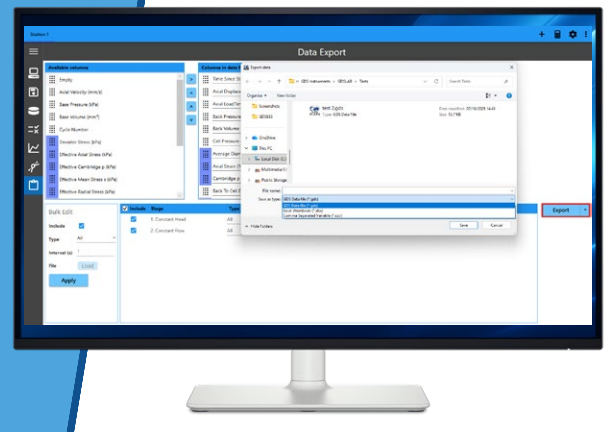
The **accuracy of test data** is a key reason our customers use GDS equipment and software.

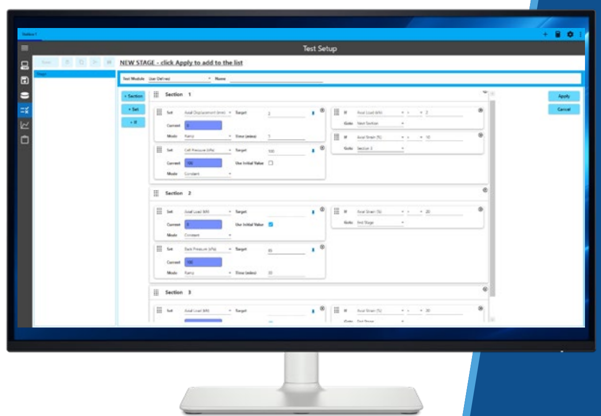
Data rates that are too slow can have a significant impact on the end users ability to gather vital information from a test. GDSLAB stores all the test data at the maximum rate according to the hardware selected.

End users can export data at the desired rate, with different chosen parameters as many times as required post test. **No data is ever missed** therefore no data is ever lost.

Generate Customisable Output Files (.gds)

Matching software output files to user's own data analysis eats away at valuable time and resource. GDSLAB allows user flexibility in formatting the layout of the export data, making it easier than ever to compare and analyse results.



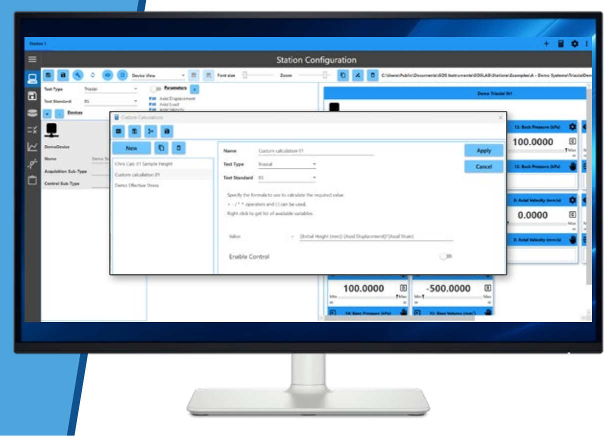


User Defined Test Scripting

Simple, powerful end user control enables non-standard tests and unique workflows.

Custom Defined Calculations

Combining user defined calculations with user defined test scripting opens up a world of possibilities and removes the normal constraints of testing software. This combination ensures end users can always control based on their user defined calculations; either from standards that have not been published or unique experimental research based tests outside the usual scope of geotechnical testing.



GDSLAB v2026 Software Tiers

GDSLAB is structured into a number of tiers, allowing you to choose exactly which functionality you need for your system. The tiers are **Core** (logging tests such as 1D consolidation), **Standard** (basic commercial and teaching type tests), **Advanced** (flexibility with all static advanced tests), **Dynamic** (all dynamic tests) and **Research** (which includes the user defined test module for ultimate flexibility), as described below. The higher level tiers include all of the modules of the previous tiers.

	Core	Standard	Advanced	Dynamic	Research
Logging (All)	●	●	●	●	●
Incremental Loading (Oedometer)	●	●	●	●	●
Swelling (Oedometer)	●	●	●	●	●
Monotonic Loading (Consolidometer)	●	●	●	●	●
Bender Elements* (**New for 2026**)	●	●	●	●	●
Saturation / Automatic Saturation (Triaxial)		●	●	●	●
B-Check (Triaxial)		●	●	●	●
Consolidation (Triaxial)		●	●	●	●
Monotonic Loading (Triaxial & Shear)		●	●	●	●
Custom Calculations			●	●	●
Unsaturated Testing			●	●	●
Advanced Loading (Triaxial)			●	●	●
Advanced Loading (Consolidometer)			●	●	●
Advanced Loading (Shear)			●	●	●
Advanced Loading (Hollow Cylinder)			●	●	●
Advanced Loading (True Triaxial)			●	●	●
Advanced Loading (VDDCSS)			●	●	●
Stress Paths (Triaxial & Hollow Cylinder)			●	●	●
K-zero Consolidation (Triaxial & Shear)			●	●	●
Permeability (Triaxial & Consolidometer)			●	●	●
Dynamic Cyclic Loading (Triaxial)				●	●
Dynamic Cyclic Loading (Shear)				●	●
Dynamic Cyclic Loading (Hollow Cylinder)				●	●
Dynamic Cyclic Loading (True Triaxial)				●	●
Dynamic Cyclic Loading (VDDCSS)				●	●
Dynamic Loading (Resilient Modulus)				●	●
Dynamic Cyclic Loading (Resilient Modulus)				●	●
User Defined (All)					●

*Tests based on hardware available

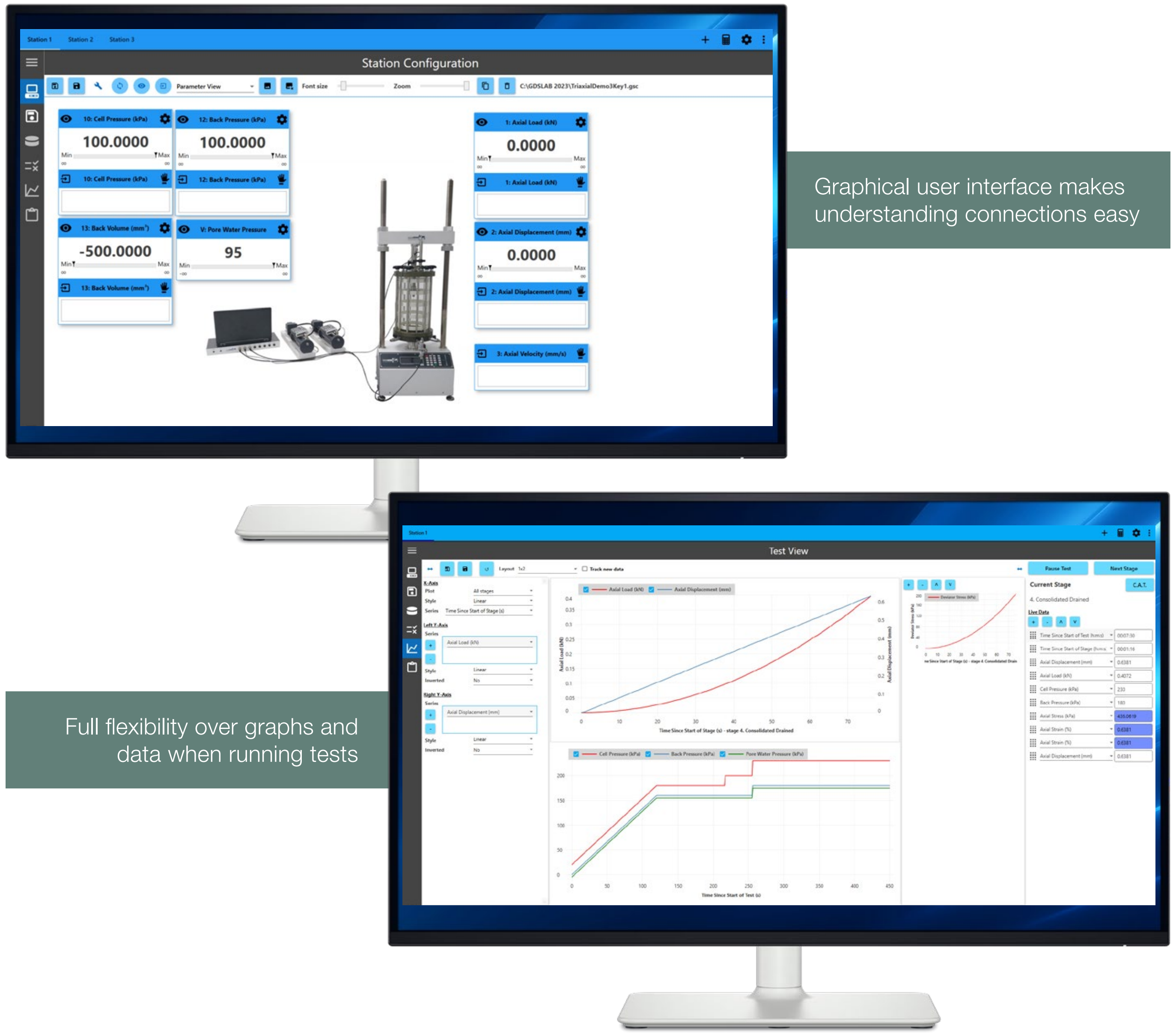
Tier 1: Core

Tier 1 has all of the powerful features of GDSLAB such as the ability to create and adjust station configurations, advanced graphing features and live data view (as shown below) and the ability to customise your output file.

Tier 1 is designed to cater for tests that require only basic logging, data acquisition and control. For systems such as automated or manual oedeometer testing and manual shear boxes.

MODULES:

- Logging (All)
- Incremental Loading (Oedometer)
- Swelling (Oedometer)
- Monotonic Loading (Consolidometer)
- Bender Elements* (**New for 2026**)



Graphical user interface makes understanding connections easy

Full flexibility over graphs and data when running tests

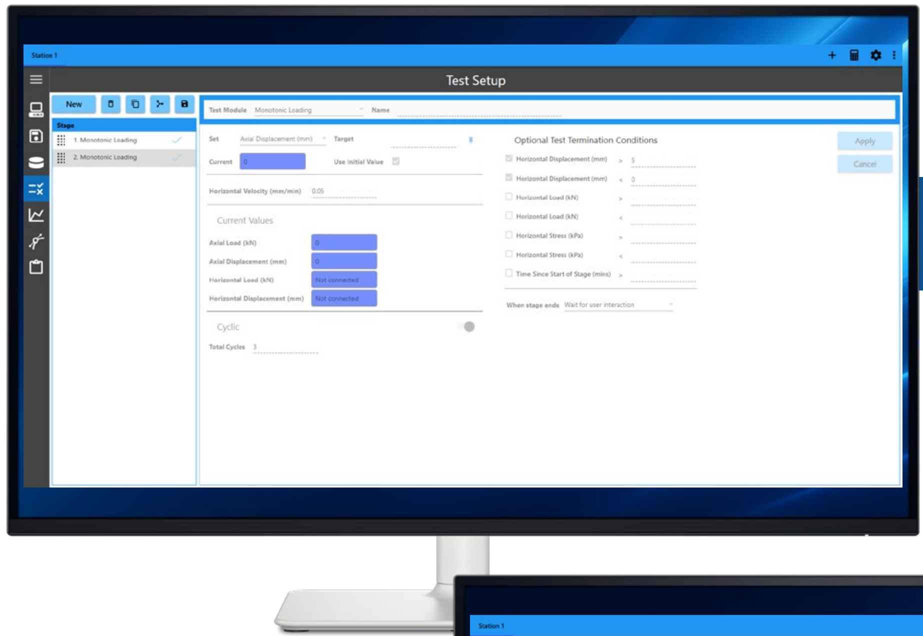
Tier 2: Standard

Tier 2 is for test control and acquisition of triaxial and shear box tests. Ideal for testing to national standards in a commercial laboratory, or for education establishments teaching in a soils laboratory. Saturation can be completed by means of a ramp, or by automated stepped B-check / equalisation stages. It is possible to run a triaxial or shear box test from start to finish without user interaction, using the built in array of user selectable termination conditions.

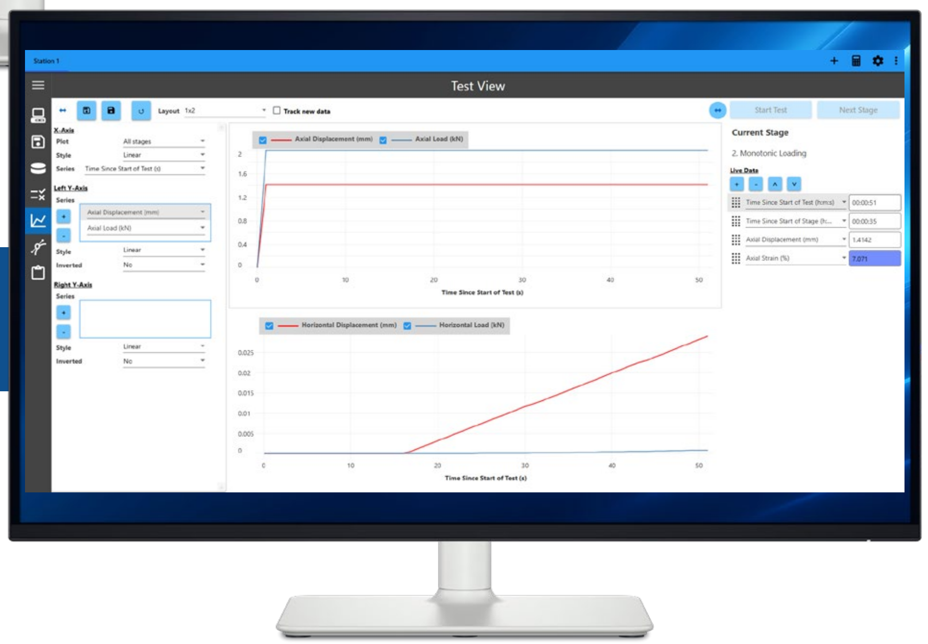
Includes all modules from Tier 1

MODULES:

- Saturation / Automatic Saturation (Triaxial)
- B-Check (Triaxial)
- Consolidation (Triaxial)
- Monotonic Loading (Triaxial & Shear)



Intuitive user interface for test setup



Graphs can be setup with reduced or increased complexity as appropriate for the test

Tier 3: Advanced

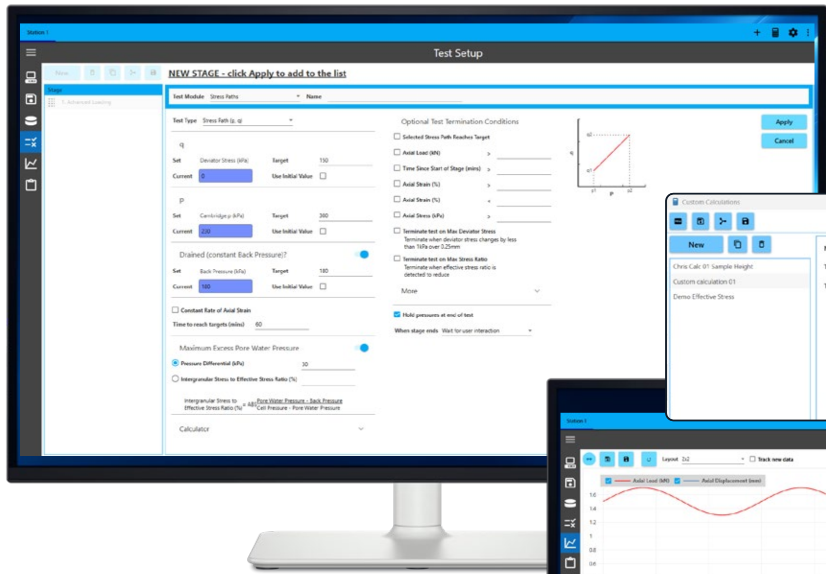
Tier 3 is for the control and acquisition of advanced soil and rock tests. Tests include stress path testing (in either p, q or s, t space), unsaturated testing, K0, and those advanced tests expected for complex systems such as the GDS True Triaxial Apparatus, Hollow Cylinder or Variable Direction Simple Shear.

Advanced allows for user-defined calculations. The user is able to define a custom test parameter, name this parameter, and supply a formula that includes read and calculated parameters as variables. This feature ensures GDSLAB is future proof to all national standards, as well as allowing research fellows the ultimate in flexibility to observe non-standard calculated parameters during a test.

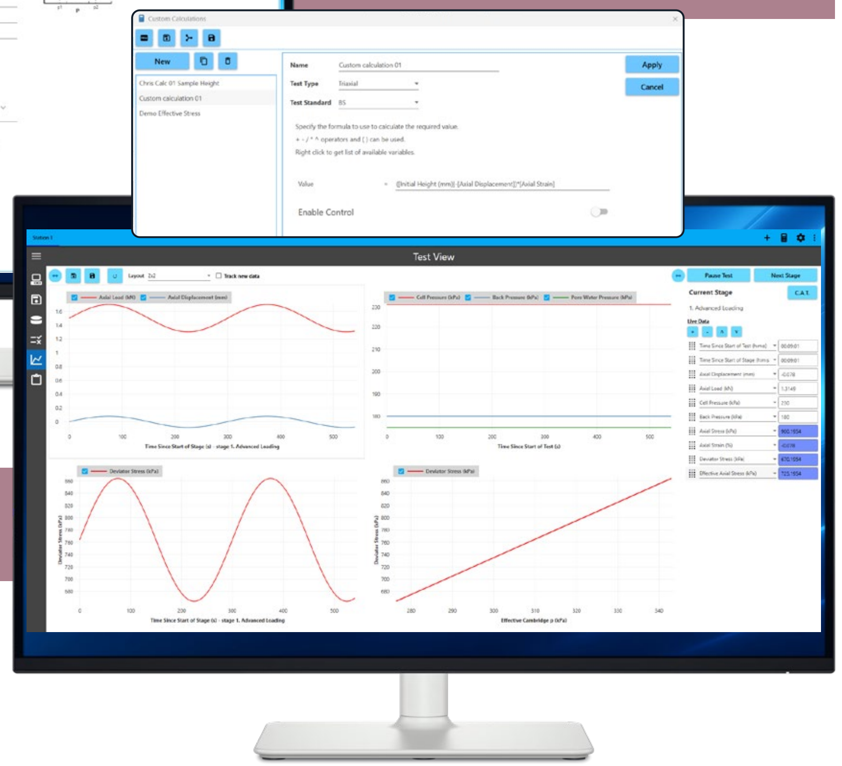
Includes all modules from Tier 1 & 2

MODULES:

- Custom Calculations
- Unsaturated Testing
- Advanced Loading (Triaxial)
- Advanced Loading (Consolidometer)
- Advanced Loading (Shear)
- Advanced Loading (Hollow Cylinder)
- Advanced Loading (True Triaxial)
- Advanced Loading (VDDCSS)
- Stress Paths (Triaxial & Hollow Cylinder)
- K0 Consolidation (Triaxial & Shear)
- Permeability (Triaxial & Consolidometer)



Advanced tests made easy with the consistent user interface across all tests (screen inset shows setting up of a custom calculation)



Graphical interface appropriate for advanced and standard tests

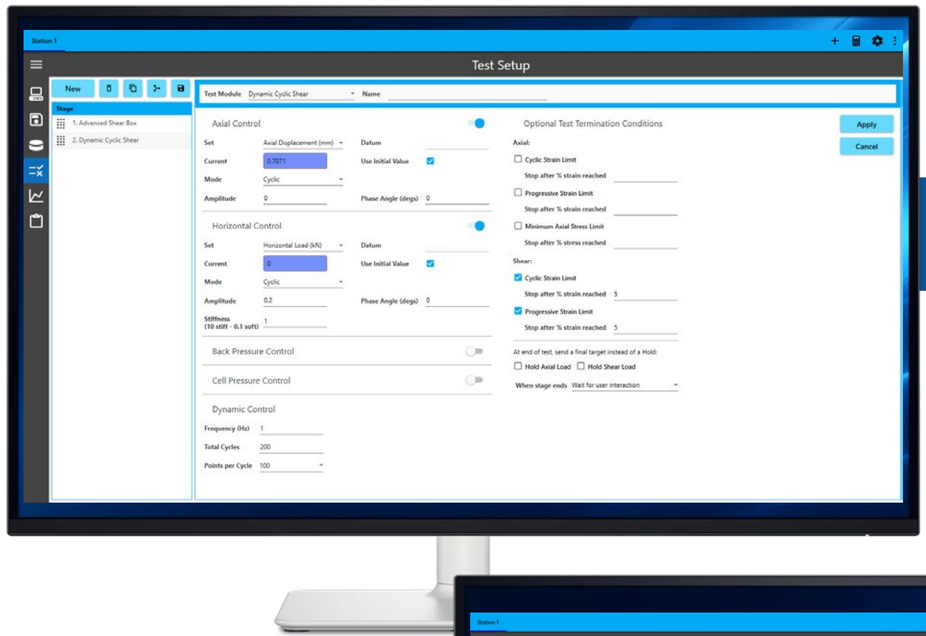
Tier 4: Dynamic

Tier 4 is for the control and acquisition of all GDS systems that are cyclic / dynamic. Graphs are displayed in real time as standard. This is the default software module for GDS' DYNTTS, ELDYN, TTA, VDDCSS and EMDCSS.

Includes all modules from Tier 1, 2 & 3

MODULES:

- Dynamic Cyclic Loading (Triaxial)
- Dynamic Cyclic Loading (Shear)
- Dynamic Cyclic Loading (Hollow Cylinder)
- Dynamic Cyclic Loading (True Triaxial)
- Dynamic Cyclic Loading (VDDCSS)
- Advanced Loading (Resilient Modulus)
- Dynamic Cyclic Loading (Resilient Modulus)



Dynamic test setup screen

Dynamic data viewed live and in real time

Tier 5: Research

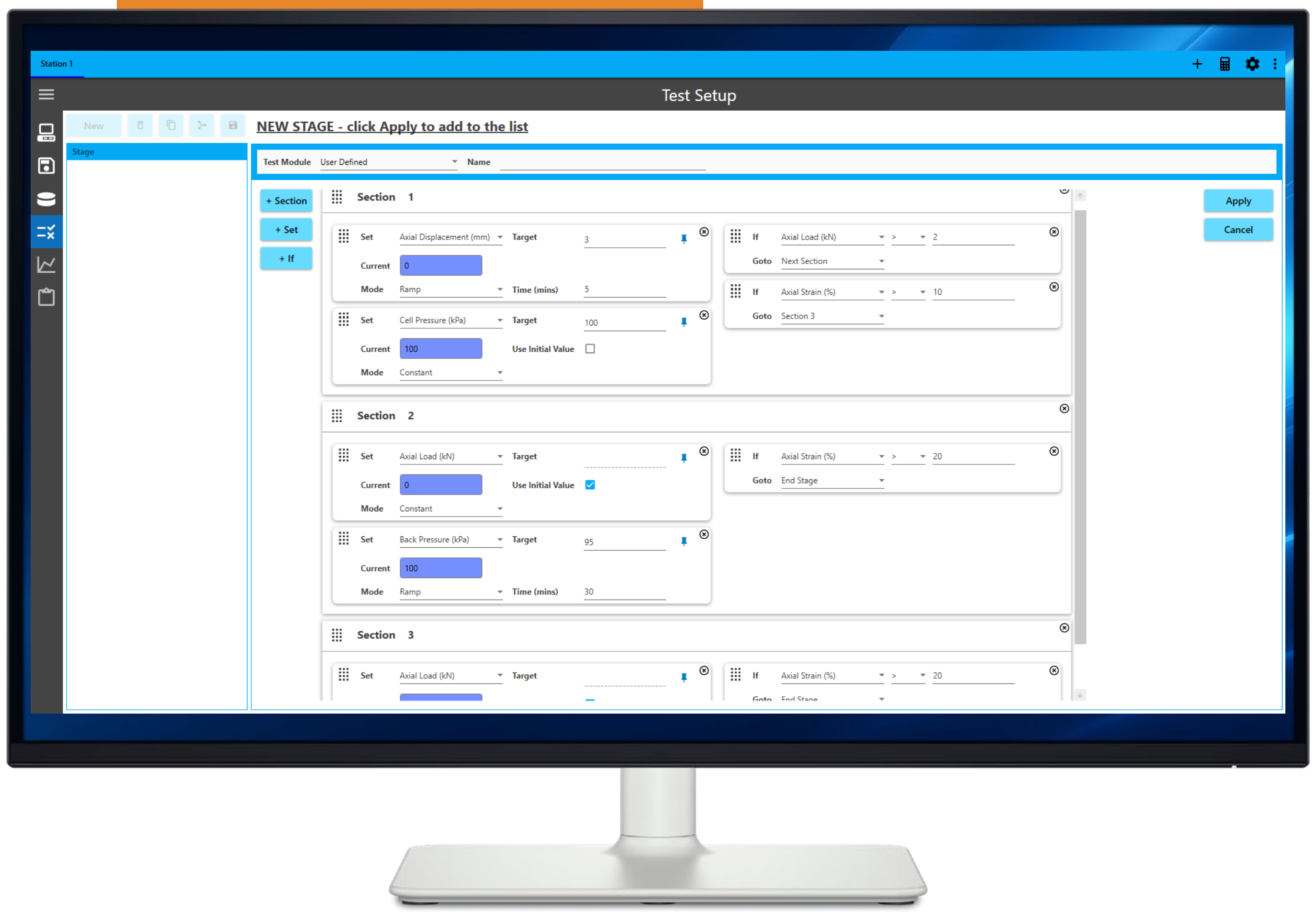
Tier 5 is designed for Researchers and includes the highest level of functionality. The User Defined Module allows you to create a custom script as the test procedure using any parameter that is read or calculated by the system, including user-defined custom calculations. Logic can also be programmed using If // Then statements to allow for a variety of branching test progression and termination conditions, depending on the reaction of your specimen.

Includes all modules from Tier 1, 2, 3 & 4

MODULES:

- User Defined (All)

User defined tests built up in sections allow for a truly unique test schedule to be created



Features Introduced in GDSLAB v2024

GDSLAB: The Latest Twice Yearly Update

Now we're taking things even further. Six key enhancements are now available – making testing even faster, smarter, and more intuitive – ensuring seamless integration, precision, and efficiency.

1 Integrated Consolidation Analysis Tool: Seamless Workflow, No Extra Data Handling

- Now fully integrated into GDSLAB, eliminating the need for external tools and extra data files.
- Automatic Shear Rate Calculation – The system calculates and transfers the maximum shearing rate directly to the next test phase.
- Smoother User Experience – Works seamlessly within the GDSLAB interface, following your language settings and storing results for easy retrieval.

Bottom Line: No more manual data transfers, fewer errors, and a streamlined workflow that saves time and effort.

2 Triaxial K0 Axial Ramp Control: A Customer-Requested Game Changer

- Enables Axial Stress-Strain ramp control, a long-awaited feature tested in real-world scenarios at Geo Denmark.
- Complements existing K0 testing with Radial Stress ramp control, giving users more flexibility.
- Backed by a case study collaboration with Geo Denmark for validation and insights.

Bottom Line: More control, more precision, and a feature designed directly in response to customer needs.

3 Automatic End of Primary Consolidation Detection: Faster Results, More Efficiency

- Uses Anova F statistical analysis to detect the End of Primary Consolidation automatically.
- Enables faster progression to the next test phase, saving time and reducing manual monitoring.
- Ensures accurate calculation of consolidation coefficient and max shearing rate.

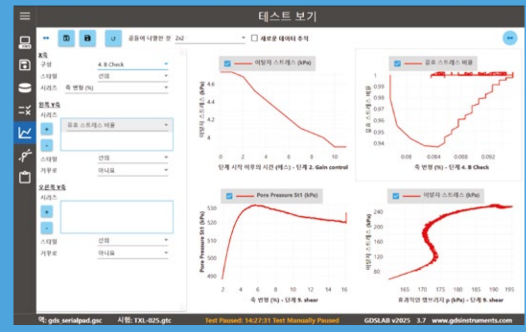
Bottom Line: Automating this process means less waiting, fewer errors, and increased efficiency in oedometer testing.

4 Windows Compatibility & Performance Boosts

- Critical updates ensure GDSLAB runs smoothly on Windows 10 & 11.
- Upgraded to .NET 8 & SciChart v8, improving performance, security and stability.
- Graph Plotting Optimization – Handles large datasets faster with better memory management, ideal for lower-spec PCs.

5 New Language Support

Korean (to add to the already introduced Chinese, French, German, Spanish, Polish and Japanese).



6 Strain Rate Input in %/hr for Consolidometer Tests – Eliminates Manual Conversion Errors

Now allows strain rate input in %/hr, preventing operator conversion mistakes and aligning with industry standards.

Features Introduced in GDSLAB v2025

Automated Bender Element Integration

For the first time, GDSLAB can now trigger GDSBES Bender Element tests automatically at selected points in a test. Results can be viewed directly with full peak-picking and review after the test.

Meaning users carrying out Bender Element Tests can now:

- Configure Bender Element stages just like other modules.
- Access full sweep (for automatic detection of resonance) and stacking functionality from within GDSLAB.
- Enjoy seamless workflows with results stored in the same environment.

This powerful integration comes alongside the launch of GDS' specific Bender Element testing software – GDSBES v2025, which adds:

- A modernised GUI in line with GDSLAB.
- Automatic specimen height transfer from GDSLAB.
- Greater control over file naming and test definitions (period or frequency).
- Signal filtering options.

Other Key Improvements

- One-click **Support Archive** for faster support.
- **CRS Pore Water Pressure Ratio Control** for automatic strain adjustment.
- **Customisable Station Tabs** for flexible organisation.
- **Updated drivers** for performance and reliability.
- **Datastore notifications** for version control.
- Improved **recovery of corrupt files.**
- Added support for the **GDS Infinite Volume Controller.**

THE EVOLUTION CONTINUES

Features Planned for 2026

- Enhanced resuming of a test after a shut-down (re-loading/appending prior to test continuation)
- Addition of 'Displacement 2' control option to allow control for an external displacement transducer
- Addition of Maximum Excess Pore Water Pressure pause functionality to Triaxial Monotonic Loading to slow pause control as necessary
- Customisable Specimen metadata
- Option to save Transducer Calibration and Device information to output file alongside the test data to enhance traceability of test results

Many of these new features are driven by direct user feedback – designed to make life in the lab easier and more productive.

Other changes that have already been made thanks to user suggestions...

- Multiple languages
- Customisable graphical user interface (colour / scaling)
- Station tabs can be shown in different windows or monitors
- Test stages can be given a user defined name for easy identification
- Graphs and UI have the capability to keep up with dynamic data in real-time
- Users can lock the station configuration from being modified
- Ability to assign custom names to parameters
- Test data and transducer details are saved in a datastore
- Custom user defined calculations
- Unlimited user definable live data boxes are displayed, ability to order live data boxes via drag and drop
- Ability to reload previous test datastore without needing system hardware present
- Ability for the user to graphically set up their own station
- Remember the transducer autoread state between sessions
- Custom user defined control based on a user defined calculation
- No hardware key so simpler licencing distribution

Continuous Development...

Year on Year Innovation

Year on Year product development from GDS ensures our customers always have the latest functionality and features needed in their lab.

Latest Product Features

New product features and enhancements are added every 6 months.

Technical Updates

Critical technical updates will be deployed as they become available .

Futureproofing

GDSLAB is built using modern architecture and the latest in software development tools, meaning we are able to deliver customer driven updates unencumbered by the restrictions of older platforms.

Technical & Software Support

Technical support is available to all of our customers, no matter which software version you are running or how long ago it was purchased. GDSLAB software is supplied on a continuous lifetime license (it never times out) with an automatic entitlement to 3 years of version updates.

LABORATORY SYSTEMS FOR SOIL & ROCK

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