



Dynamic Back Pressure Shearbox (DYNBPS)

Overview: The Dynamic Back Pressured Shearbox (DYNBPS) is used for static and dynamic direct shear testing on soil specimens with control of sample pore pressures. The control of pore pressure during direct shear testing allows real-world situations to be modelled in the laboratory.

This dynamic version of the device allows a landslide to be modelled as it quickly gains velocity after the initial moment of failure. Cyclic direct shear testing is also possible while still controlling and measuring pore pressure.

Key Features:

Benefits to the User:

Electro-mechanical actuators:	Designed for long life and highly accurate position control. Unlike pneumatic actuators this type of actuator is suitable for carrying out small strain testing, long term creep tests and dynamic tests up to 5Hz.
Realistic modelling:	The DYNBPS provides a realistic model of many real-world cyclic and seismic geotechnical problems, such as slope stability and earthquake loading.
Interchangeable internal load cells:	For increasing accuracy and resolution on soft soils.
Closed-loop control:	For shear force/displacement and normal force/displacement.
Shear gap:	Manually set-able from outside the pressure vessel whilst under pressure.
Balanced rams:	Allows cost effective static pressure controllers to be used for back pressure with minimal pressure fluctuations during dynamic tests.

Tests that can be Performed:

Back pressured static direct shear tests, back pressured cyclic shear load tests and back pressured cyclic shear displacement tests.

Upgrade Options:

Bender elements and small strain transducers.

Technical Specification:

Axial Force Resolution:	24bit (i.e. <0.4N for 10kN load cell, <1.5N for 40kN load cell)
Computer Interface:	USB
Data Acquisition:	24bit
Dimensions (mm):	1200(H) x 500(L) x 770(W)
Load Range (kN):	Normal force 25, Shear force 10
Operating Frequency (Hz):	5
Power:	3 phase
Pressure Range (MPa):	2
Resolution of Measurement and Control (MHz):	10
Sample Sizes (mm):	Square: 50, 75 (custom sizes available on request) Sample height: 20
Weight Approx (kg):	160

Tests that can be Performed:

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GDSLAB Control Software

GDSLAB is the control and data acquisition software for geotechnical laboratory applications. GDSLAB starts with a core application known as the kernel. The GDSLAB kernel allows for data acquisition from your hardware, but no test control. Simply add the appropriate module or modules to complete the test suite functionality you require. GDSLAB is compatible with all existing GDS equipment and furthermore key hardware from other manufacturers.

GDSLAB has the ability to be configured to your hardware of choice, no matter how unique the arrangement. A text file (*.ini) or initialisation file is created that describes the hardware connectivity to the PC. The hardware layout is available in graphical format via the GDSLAB 'object display'. This makes setting up the devices and checking the connectivity extremely simple.

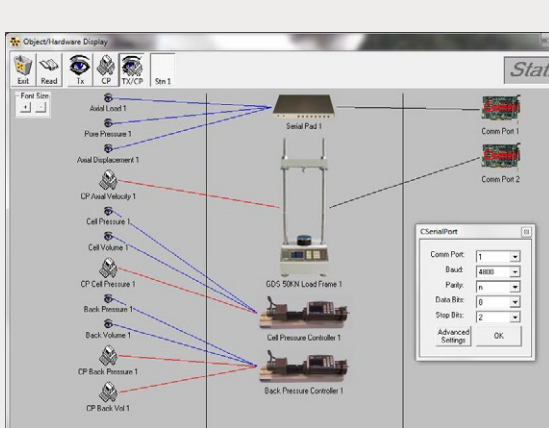


Fig. 1 Show a typical set-up screen in GDSLAB

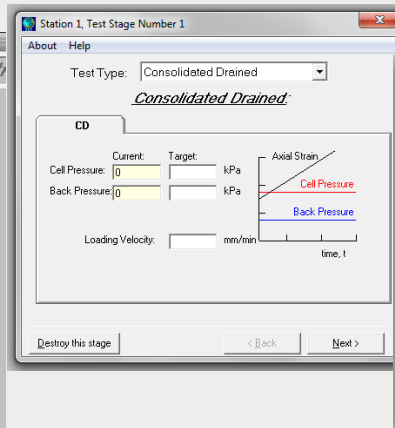


Fig. 2 Show a typical test stage in GDSLAB

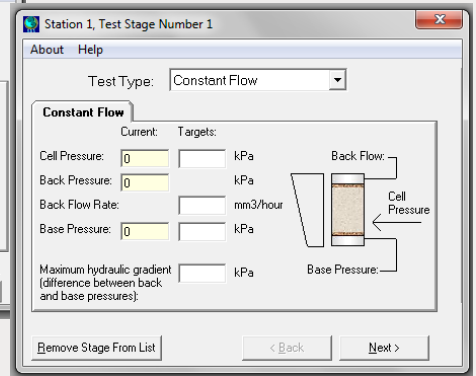


Fig. 3 Show a typical test stage in GDSLAB

Required Operating System: Windows 7 SP1 or higher (We strongly recommend that Windows is fully up to date and running the latest Service Pack/Version available). Recommended PC Specification: 2GHz processor, 4GB Ram, 64Bit Operating System and USB connectivity. Note: GDS software can run on lower spec PC's however; performance and processing of data may be affected.

Optional GDSLAB software modules for DYNBPS machines

Standard Shear Testing

- Stepped loading
- Constant loading
- Constant velocity shearing

Advanced Shear testing

- Independent control of Primary Control Parameters
- Constant
- Ramp
- Slow speed cyclic

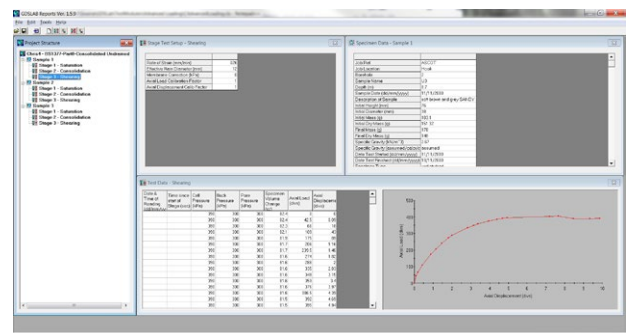


Fig. 4. This shows a screenshot from the GDSLAB reports software.

Why Buy GDS?

GDS have supplied equipment to over 86% of the world's top 50 Universities:

GDS have supplied equipment to over 86% of the world's top 50 Universities who specialise in Civil & Structural Engineering, according to the "QS World University Ranking 2020" report.

GDS also work with many commercial laboratories including BGC Canada, Fugro, GEO, Geolabs, Geoteko, Golder Associates, Inpijn Blokpoel, Klohn Crippen, MEG Consulting, Multiconsult, Statens Vegvesen, NGI, Ramboll, Russell Geotechnical Innovations Ltd, SA Geolabs, SGS, Wiertsema and Partners to name a few.

**TOP
50**

Would you recommend GDS equipment to your colleague, friend or associate?

100% of our customers answered "YES"

Results from our post-delivery survey asked customers for feedback on their delivery, installation (if applicable), supporting documentation, apparatus and overall satisfaction with GDS. The survey ran for two years.



Made in the UK:

All GDS products are designed, manufactured and assembled in the UK at our offices in Hook. All products are quality assured before they are dispatched.

GDS are an ISO9001:2015 accredited company. The scope of this certificate applies to the approved quality administration systems relating to the "Manufacture of Laboratory and Field Testing Equipment".

**40 YEARS OF
BRITISH
INNOVATION**



Extended Warranties:

All GDS apparatus are covered by a 12 month manufacturers warranty. In addition to the standard warranty, GDS offer comprehensive extended warranties for 12, 24 and 36 months, for peace of mind against any repairs in the future. The extended warranties can be purchased at any time during the first 12 months of ownership.



GDS Training & Installation:

All installations & training are carried out by qualified engineers. A GDS engineer is assigned to each order throughout the sales process. They will quality assure the apparatus prior to shipping, if installation has been purchased, install the apparatus on the customers site & provide the training.



Technical Support:

GDS understand the need for ongoing after sales support, so much so that they have their own dedicated customer support centre. Alongside their support centre GDS use a variety of additional support methods including remote PC support, product helpsheets, video tutorials, email and telephone support.

