



## High-Pressure Triaxial Cells

User: Gavin Hamilton, Chairman, Trilab Pty Ltd, Queensland

**Trilab** is an independent company, which has been providing specialised soil and rock mechanics testing, and calibration and instrumentation services to the Asia-Pacific mining and infrastructure industries, for over 17 years.

The Trilab name reflects the company's position as Australia's pre-eminent provider of triaxial strength tests and other specialised soil and rock mechanics tests, and the company's three major lines of service.

- Soil mechanics testing
- Rock mechanics testing
- Calibration and instrumentation services

Trilab is Asia-Pacific's leading independent supplier of specialised soil and rock mechanics testing and calibration services.

### Useful Links:

<http://www.trilab.com.au>

<http://www.trilab.com.au/soil-mechanics>

### GDS Instruments

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### The Problem

Triaxial testing is a fundamental service that Trilab offer their clients. Trilab's laboratories house a total of 18 triaxial frames, which cater for specimen diameters of 50, 63, 75, 85 and 100 mm. All 18 Triaxial units have automated data acquisition and pore-pressure measurement, can be run concurrently, and to a maximum confining pressure of 3,500 kPa. As Trilab have expanded over the years they have had to procure more apparatus, in particular triaxial cells, which are compatible with their existing equipment, at high pressure and with excellent reliability.

### The Solution

GDS Instruments triaxial cells were the choice of Trilab, and are currently used for the 2,000 triaxial tests performed each year within Trilab's laboratory. "Trilab prefers GDS triaxial cells due to their high machining precision, which is especially noticeable in the gliding operation of the internal ram" says Gavin Hamilton, Chairman.

GDS's range of triaxial cells include traditional load frame based triaxial cells, Bishop and Wesley Stress Path and high pressure triaxial cells, all of which can cater for a range of different sized specimens and pressure ranges. GDS also manufacture bespoke triaxial cells upon request.

Trilab's 18 triaxial units are used to measure the shear strength of soil and rock specimens, to aid in the engineering design associated with mining and infrastructure projects, including open-cut mine pitslope design, slope stability assessments of dams and road cuttings, and foundation design for buildings and bridges. The triaxial cells can also be used for measuring the 'permeability'

of soil and rock, which represents the rate of fluid infiltration. Trilab have 4 additional triaxial units dedicated to permeability testing.



Fig 1. 2 of GDS 14 triaxial cells at Trilab's Brisbane laboratory.

### Results / Testimonial

"With 14 high-pressure GDS triaxial cells in service and another 4 cells currently on order, the GDS cells make up an integral part of our triaxial test equipment. We are extremely happy with our GDS triaxial cells and would definitely recommend them" says Gavin Hamilton, Chairman of Trilab Pty Ltd.

### Testing Equipment Purchased

: 14 High-Pressure Triaxial Cells  
(4 more currently on order)