

Low (1MPa and 3MPa) and High (20MPa) back pressure options

Low Pressure Cell – 1MPa, 3MPa

Maximum Load 50kN ✓

Cell sample sizes (1MPa and 3MPa Cell)

- | | |
|---------|---------|
| 38mm ✓ | 50mm ✓ |
| 70mm ✓ | 100mm ✓ |
| 150mm ✓ | |

High Pressure Cell - 20MPa

Maximum Load

100kN ✓

Cell sample sizes

- | | |
|--------|--------|
| 38mm ✓ | 50mm ✓ |
|--------|--------|

Unsaturated testing upgrade ✓

Bender elements upgrade ✓

Constant Rate of Strain Cell (CRS)



What is it?

The GDS Constant Rate of Strain Cell (CRS) is a load frame based one dimensional consolidation cell capable of applying back pressure and measuring pore pressures up to 1MPa and 3MPa (low pressure versions) or 20MPa (high pressure version). Coupled with GDS controllers and software the system will run the entire test from start to finish through a loading path specified by the user using constant rate of strain loading.

Overview

Instead of applying stress increments in stages as in a typical oedometer consolidation test the load can be gradually applied to the sample by increasing the axial displacement at a constant rate. Controlled back pressure (water) is applied to the sample and drainage is allowed through the base of the apparatus. The advantage of this method is that the time required to complete a consolidation test can be reduced significantly.

System elements

Typically, a GDS pressure controller is used to apply the back pressure. A standard load frame controls the vertical stress and

strain. A force transducer placed at the end of a piston measures the force and pore pressure is measured by a transducer connected to the base filter stone. The sample itself is confined between two porous plates in a loose steel ring, which prevents horizontal deformation, and reduces friction.



Fig. 1 High Pressure (GDSCRS) option

Technical specification – Low Pressure

- Construction Material – Anodised aluminum with Perspex outer cell.
- Pressure relief valve included.
- Designed to be used with an internal submersible load cell for greater accuracy of load measurement (can be used with an external load cell).

Technical specification – High Pressure

- Construction Material – All stainless steel construction.
- For use with external load cell only.

Due to continued development, specifications may change without notice.