

# 99 GDS Helpsheet



World Leaders in Computer Controlled Testing  
Systems for Geotechnical Engineers and Geologists

## Hardware

### Triaxial Testing Systems

#### Bishop & Wesley Stress Path Vs GDS Motorised Cell

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## 1. Introduction

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The principal difference between the motorised cell and the stress path cell is the method by which the axial loads and displacements are applied. Both cell types can accommodate samples of 38 and 50mm diameter and local strain transducers (in the case of the stress path cell an access ring is also required).

The Stress path cell is of the Bishop and Wesley type which utilises the pressure differential between the cell pressure and the lower chamber to apply load to the sample. Known displacements may be applied by pumping a known volume of water from a GDS pressure controller into the lower chamber, as the seal area of the piston is known the displacement is calculated by the software. The cell has a lift off type cell top where the cell closure bolt also provide structural stiffness.

The GDS motorised stress path cell (GDSCMC) is an advanced cell with a 7kN load capacity for test specimen diameters of 38 and 50mm. The Cell uses a direct screw drive to actuate the base pedestal through the bottom of the cell. In addition, the GDS cell has the top and base of the cell rigidly connected together by *internal* tie rods. The cell chamber can be easily raised and lowered over the test specimen with the help of a counter-weight.

The drive of the cell is interchangeable with the drive of the Standard 3MPa/200cc pressure/volume controller. By simply unscrewing the motor lead of the pressure controller and screwing in the motor lead of the GDSCMC the pressure controller becomes the axial force/displacement controller for the GDSCMC. There is also an optional control unit for use with the cell which allows the cell to be controlled manually or by using the computer interface (both RS232 and IEEE versions are available). This cell can be used in both the advanced and standard GDS triaxial testing systems.

By connecting the cell top and base together by rigid tie rods it allows the user to set up the test specimen with accurate alignment before the pressure chamber is lowered over the test specimen. The photograph above shows the cell with the pressure chamber in the raised position.