Rock Polyaxial System (RPS-100)

- Independent control of $\sigma_1$, $\sigma_2$, $\sigma_3$ (where $\sigma_1 \neq \sigma_2 \neq \sigma_3$) or $\varepsilon_1$, $\varepsilon_2$, $\varepsilon_3$ or a combination of stress or strain control for each axis with 140 MPa (20,000 psi) maximum stress on a 100 mm cubical specimen
- Deformation sensors on each face to measure strains on the three principal directions
- One pore pressure intensifier to saturate the specimen and perform permeability tests
- Pore pressure ports on each face with control valves to select flow direction when measuring permeability
- Available P and S crystals on each loading face to measure sonic velocities on every principal direction
- Available heating jacket to control temperatures from ambient to 150 C
- Optional hydraulic fracturing platens available to perform wellbore stability tests
- GCTS also offers stand-alone, large-scale Polyaxial systems built to customer specifications

**DESCRIPTION**

The GCTS RPS-100 Rock Polyaxial System can be used to study the intermediate principal stress effect on rock engineering behavior and describe adequately the strength of rock under a general system of Polyaxial compressive stresses. Syringe pressure intensifiers are used to apply $\sigma_1$, $\sigma_2$ and $\sigma_3$ independently with measurement of volume/deformation change.

GCTS also offer semi-circular platens to test cylindrical specimens together with GCTS hydraulic fracturing fixtures and approximate the effects of anisotropic stress state on borehole stability. Even though the stress state applied with these semicircular loading jacks is not uniform, it is much easier to prepare and test cylindrical specimens.

Ultrasonic sensors can also be provided to study the effects anisotropic stress conditions on compression and shear wave velocities. Velocities for all three axes can easily be measured during Polyaxial tests with this option.

Please contact GCTS for details on the RPS-100.