

Rock Polyaxial (True Triaxial) System (RPS-100)



SPECIFICATIONS

- Independent control of σ_1 , σ_2 , σ_3 (where $\sigma_1 \neq \sigma_2 \neq \sigma_3$) or ϵ_1 , ϵ_2 , ϵ_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
- Optional pore pressure intensifier to saturate the specimen and perform permeability tests
- P and S crystals are available on each loading face to measure ultrasonic velocities on every principal direction
- Heating jacket is available to control temperatures from ambient to 150°C
- Hydraulic fracturing platens are available to perform wellbore stability tests

DESCRIPTION

The GCTS RPS-100 Rock Polyaxial System can be used to study the effect of intermediate principal stress on rock behavior and adequately describe the strength of rocks under a general system of polyaxial compressive stresses. Syringe pressure intensifiers are used to apply the σ_1 , σ_2 and σ_3 stresses independently through computer control of the stress or strain on each plane. Therefore, any stress state can be tested using this device.

GCTS offers many upgrades for this system, making it possible to perform a wide variety of tests. A temperature control unit can provide complete computer control of the temperature of the system, enabling tests to be performed at up to 150°C. Hydraulic fracturing fixtures and semi-circular loading platens are available to approximate the effects of anisotropic stress states on borehole stability.

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