

POLYAXIAL TEST SYSTEM

This unique experimental testing system is a customized solution used to study the behaviour of rock under various dimensional and compressive stress regimes ($\sigma_1 \neq \sigma_2 \neq \sigma_3$). This fits to the research goals of geothermal energy researchers, hydrologists, petroleum reservoir engineers and researchers in the mining section, geophysics and geotechnical sectors. The systems are capable to test a wide range of materials from granite to mudstones and also for post-failure regime of high-strength brittle rocks.

Polyaxial rock testing systems are designed to induce stress on cubic samples via three independent controlled principal axes ($\sigma_1 \neq \sigma_2 \neq \sigma_3$) up to 600 MPa. The sample chamber can house cubic samples up to 300 mm and has the option to be equipped with a temperature control up to 200 °C as well as a pore pressure device up to 210 MPa and the ability to have continuous acoustic emission recording, acoustic velocity and permeability (transient or steady state) measurements.

FEATURES

- High stiffness stand alone construction design
- 6 hydraulic actuators for applying independent stresses ($\sigma_1 \neq \sigma_2 \neq \sigma_3$) capacity up to 600 MPa
- Cubical chamber for different sample sizes up to 300*300*300 mm
- High pressure platens are combined with a friction reduction system.
- 6 high precision displacement transducers to measure strains on each face
- Dynamic high speed closed-loop control of load, displacement, position and volume or flow
- Flexible controlling software for nearly unlimited test procedures of all polyaxial test applications
- The system is capable of applying different stress paths or strain rates
- Hydraulic power packs with high-quality noise protection, emergency functions
- Digital setting of PID parameters for test parameter optimization and tuning
- Real-time graphics software with zoom and freeze functions for printer output at any time
- Expandable real-time high resolution data acquisition and closed-loop control system
- Hydraulic fracturing test
- Permeability test
- Pore water pressure
- Unsaturated conditions
- System for measuring P- and S-wave in combination with acoustic emissions
- Temperature controlling up to 200 °C

SPECIFICATIONS

- **Type of Load Frame** : Servo-Hydraulic
- **Max Stress** : upto 600 MPa
- **Specimen Shape** : Cylindrical or cubic
- **Specimen Size** : 10 cm x 10 cm
- **Pore Fluid** : 150MPa
- **Temperature Control** : up to 200C
- **Permeability test** : Steady state or transient
- **Stroke of the actuator** : 100 mm

SOFTWARE

The complete system is fully automated and controlled by our flexible and programmable **GEOsys Software**.



Experiment : To study the effect of intermediate principle stress on the compressive strength of rock.

Year of Purchase: 2015

Cost : Euro 360250