GCTS TESTING SYSTEMS

Rock Polyaxial Series (RPS)

EXCEEDING TODAY'S STANDARDS, READY FOR TOMORROW'S CHALLENGES

- Independent control of σ_1, σ_2, and σ_3 (where $\sigma_1 \neq \sigma_2 \neq \sigma_3$) or ε_1, ε_2, ε_3, or a combination of stress and strain control on each axis
- Closed-loop servo control with independent axis management
- Measures strains in all three orthogonal directions
- Direct contact solid platens with hydraulic intensifiers for uniform stress application

Model	Maximum Specimen Size (mm)	Maximum Major Principal Stress (MPa)	Maximum Pore Pressure (MPa) (Optional)	Maximum Temperature (°C) (Optional)	Ultrasonic Sensors (Optional)	Hydraulic Fracturing (Optional)	Acoustic Emissions (Optional)
RPS-100	100	140	-	150	✓	✓	✓
RPS-200	200	100	100	300	✓	✓	✓
RPS-600	300	100	100	200	✓	✓	✓

* Higher stresses are possible by reducing speicmen size

PRODUCT ADVANTAGES

Independent Control of Three Principal Stresses:

- Enables true triaxial (poly-axial) loading with fully independent servo-controlled application of σ_1, σ_2, and σ_3 in orthogonal directions.
- Supports both stress-controlled and strain-controlled testing modes on each axis, allowing realistic simulation of complex in-situ stress conditions.
- Permits programmable stress paths, stress gradients, and any combination of principal stresses within the system's design limits.

Scalable Specimen Size and Load Capacity:

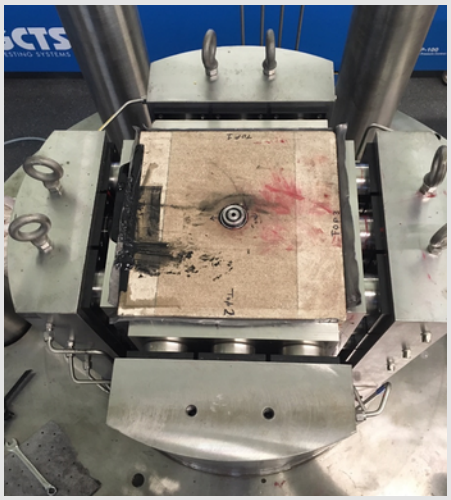
- Available in three models optimized for different specimen sizes: 100 mm cubes (RPS-100), 200 mm cubes (RPS-200), and 300 mm cubes (RPS-600), with optional taller specimens for the RPS-600.
- Delivers high maximum principal stresses (up to approximately 400 MPa on smaller specimens and 100 MPa on 300 mm specimens) while maintaining uniform loading.
- Multi-cylinder actuator designs (where applicable) and servo-controlled intensifiers ensure precise stress application across the full range of specimen dimensions with the possibility to do stress gradients on each face.

Advanced Acoustic Emission and Ultrasonic Monitoring:

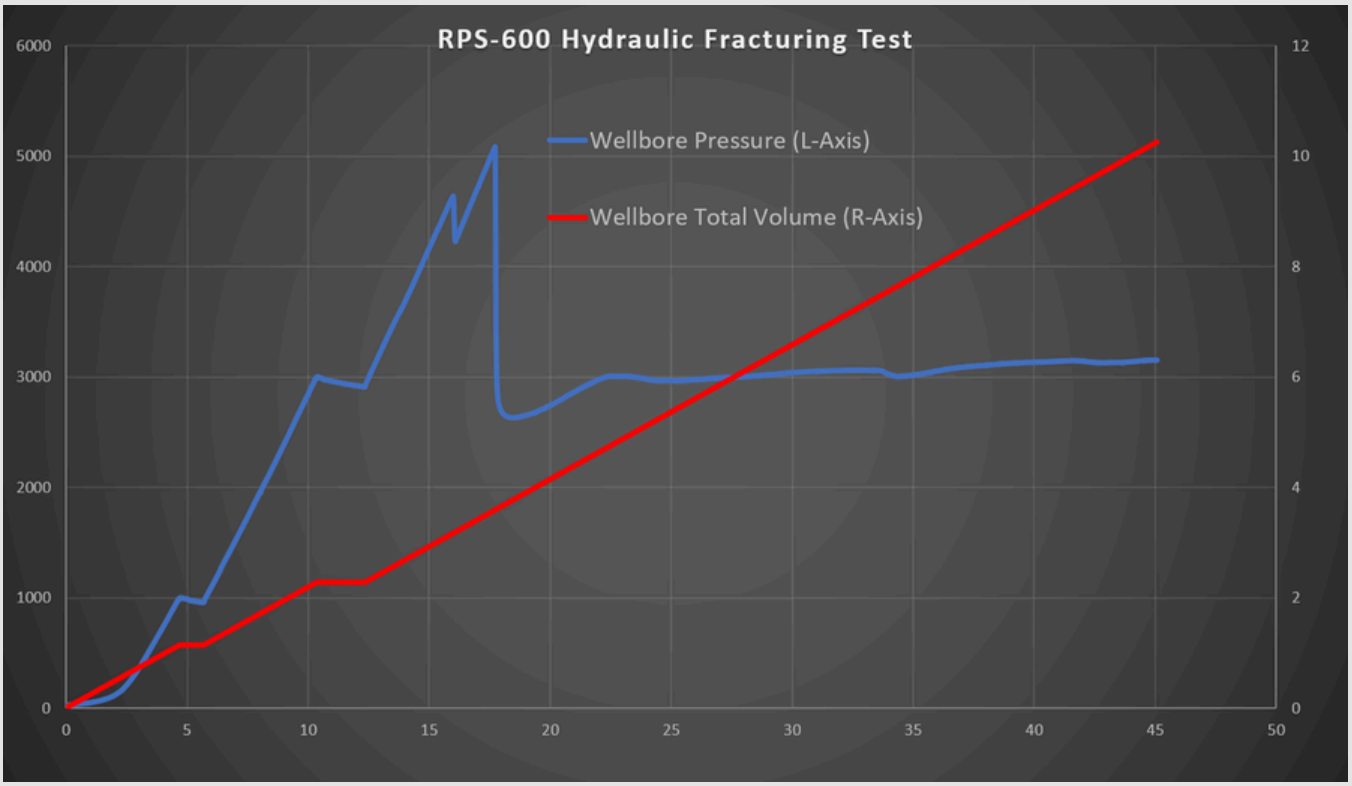
- Incorporates multiple acoustic emission (AE) sensors with 3-dimensional event location software to monitor fracture initiation and propagation in real time.
- Ultrasonic sensors and pulsers enable measurement of P- and S-wave velocities in any orthogonal direction under varying stress states.

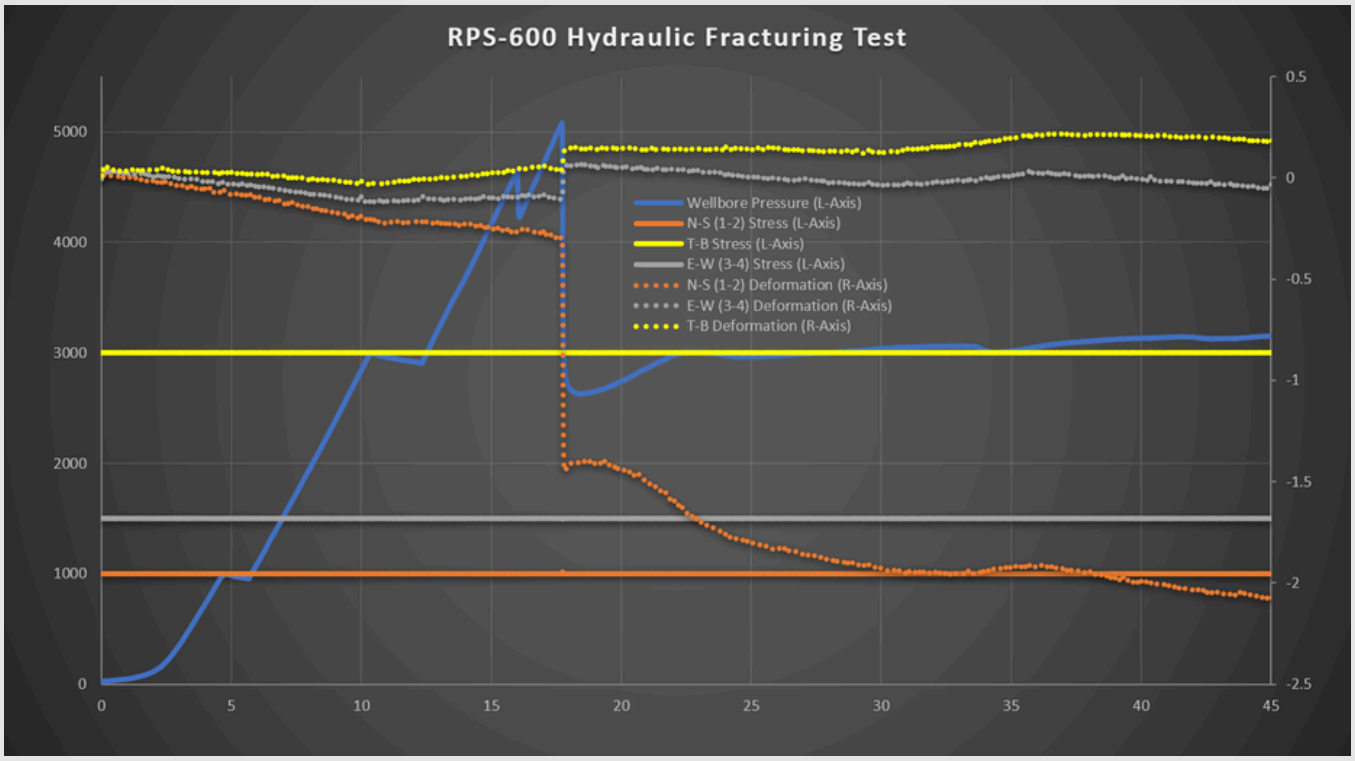
Integrated Hydraulic Fracturing and Pore Pressure Capabilities:

- Dedicated ports and pressure intensifiers allow simultaneous or sequential application of hydraulic fracturing pressures and pore pressures within the same specimen. (RPS-200 & RPS-600)



HYDRAULIC FRACTURING TEST





NEED A CUSTOM SOLUTION? LET OUR ENGINEERS HANDLE THAT

GCTS TESTING SYSTEMS

MADE IN USA

Rock Polyaxial Series (RPS)

Ready to Elevate Your Rock Testing Capabilities?

Contact GCTS today to discuss how the Rock Polyaxial Series can meet your specific laboratory requirements.

Quote Now!