



Your supplier of high pressure laboratory instruments

TTC-SERIES - TRUE TRIAXIAL CELL



The TTC true triaxial compression cell is designed for testing cubic rock specimens under fully independent X, Y, and Z stress control. It accurately reproduces complex anisotropic in-situ stress states. Optional temperature regulation allows simulation of deep subsurface environments. The cell enables precise measurement of principal stresses, strain evolution, and failure conditions under true triaxial loading. An optional ultrasonic system measures compressional P-waves and orthogonal shear waves S1 and S2 along all three axes. Velocity variations provide insight into elastic moduli evolution, crack closure, stress-induced anisotropy, and progressive damage. The system can also be configured for hydraulic fracturing tests with controlled fluid injection under true triaxial stress. Fracture initiation and propagation are monitored in real time using acoustic emission sensors, enabling detailed characterization of breakdown pressure and damage mechanisms. The cell must be installed within a load frame capable of applying up to 1000 kN along the Z-axis, while two independent hydraulic pressure pumps are used to generate and control the X and Y stresses on the specimen.

[Download True triaxial cell brochure.pdf](#)

Specifications

Specimen dimensions	Type 1: 1.5 x 1.5 x 3 inches Type 2: 50 x 50 x 100 mm (Additional dimensions available upon request)
Maximum X stress	70 MPa
Maximum Y stress	70 MPa
Maximum Z stress	Type 1: 689 Mpa Type 2: 400 Mpa
Temperature range	Ambient to 120°C (optional)
Connection ports	1/8 inch
Wetted part material	Stainless steel

Benefits

Realistic simulation of in-situ anisotropic stress conditions

Independent control of three principal stresses (X, Y, Z)

High stress capacity for testing strong rock materials

Advanced monitoring capabilities (strain, ultrasonic waves, acoustic emission)

Capability to perform hydraulic fracturing tests under controlled true triaxial stress conditions