



PR No. 1000034095

Rfx No. 6100001446

Technical Specification for Upgradation of the Existing Rock Triaxial System

Upgradation of the existing rock triaxial test facility, the following components are sought.

1. High-pressure platens for specimen diameter 38mm Comprising which has to be added to existing High-pressure Triaxial cell (2 inches, 70 MPa) to enable triaxial and permeability tests on 38mm sample size including:
 - a) Hardened upper endcap with pore pressure port. Made of hardened steel (stress of 600MPa)
 - b) Hardened Lower platen with pore pressure port. Made of hardened steel (maximum stress of 600MPa)
 - c) Set of seals(O-rings) for sealing jacket to platens
 - d) Load piston and base adapter with connecting ports for pore pressure and permeability tests
 - e) One Rubber tubing of 38 mm diameter (for installation and training purposes)
 - f) Dummy specimen made of Stainless Steel (One number)
 - g) All items must have an Operational temperature: Up to a maximum operational temperature of 100C degrees and an operational Confining pressure rating: Up to maximum cell pressure of 70Mpa
 - h) Software upgrading for calculation of all parameters for 38mm sample size

2. High-pressure platens for specimen diameter 25.4 mm comprising which has to be added to existing High-pressure Triaxial cell (2 inches, 70 Mpa) to enable triaxial and permeability tests on 25.4 mm sample size including of:
 - a) Hardened upper endcap with pore pressure port. Made of hardened steel (stress of 600MPa)
 - b) Hardened Lower platen with pore pressure port. Made of hardened steel(maximum stress of 600MPa)
 - c) Set of seals(O-rings) for sealing jacket to platens
 - d) Load piston and base adapter with connecting ports for pore pressure and permeability tests
 - e) One Rubber tubing for 25.4 mm diameter(for installation and training purpose)



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- f) Dummy specimen made of Stainless Steel(One number)
 - g) All items must have an Operational temperature: Up to a maximum operational temperature of 100C degrees and operational Confining pressure rating: Up to maximum cell pressure of 70MPa
 - h) Software upgrading for calculation of all parameters for 25.4 mm sample size
3. Advanced compact ultrasonic transmission system for measurements of P- and S-wave velocities up to 1 MHz to be adapted with existing triaxial test device (70MPa)
- a) Including amplifier and data acquisition system and software for ultrasonic velocity measurement with the facility of waveform stacking, filtering, and power spectra analysis.
 - b) Set of non-corrosive adapter platens for Sample diameter of 38mm and 50.8mm for ultrasonic P& S wave measurements for HP-HT cell (working condition 70MPa-100C degree) Comprising of Hardened upper and lower endcaps, Set of seals, Connecting ports for pore pressure
 - c) Set of non-corrosive adapter platens for Sample diameter of 25.4 mm and 47.6mm for ultrasonic P& S wave measurements for HP-HT cell (working condition 70MPa-100C degree) Comprising of Hardened upper and lower endcaps, Set of seals, Connecting ports for pore pressure
 - d) High-pressure feed-throughs for existing Triaxial cell and the above-mentioned items
4. Upgrading of current triaxial cell in the laboratory for running triaxial tests under temperature control up to 100-degree C including all required components e.g., Ceramic isolation between the load piston, actuator, cell base and frame, Temperature sensor, High-pressure feed-throughs, Isolation package and temperature control software module which has to be integrated into current software of the device



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5. High accuracy Single Syringe pump, Table top version for Gas permeability tests appropriate to pass n.c. CO₂, N₂, CH₄ and Air
 - a) Max. pressure range: 70 MPa
 - b) Pressure resolution: 0.02 bar
 - c) Pressure accuracy: 0.1% F.S
 - d) Volume: 290 ml
 - e) Flow accuracy: 0.0002 ml/min
 - f) Software module for permeability test to be integrated into the current software of the device.
 - g) Required accessories to be connected to Triaxial cell, for example, pressure lines, valves, etc.

6. Warranty 18 months