ADVANCED TRIAXIAL TEST SYSTEM (UU–CU–CD CAPABLE) AZA1296

The AZA LAB Advanced Triaxial Test System AZA1296 is a fully automated geotechnical laboratory testing system designed for accurate determination of soil shear strength and deformation characteristics under controlled stress and drainage conditions.The system supports all major triaxial compression testing modes including:

- Unconsolidated Undrained (UU)
- Consolidated Undrained (CU)
- Consolidated Drained (CD)

Engineered for high-precision geotechnical analysis, the AZA1296 replicates in-situ soil stress conditions to evaluate soil stability, strength behavior, pore pressure response, and failure mechanisms under axial loading.

TEST METHODS & COMPLIANCE

The AZA1296 fully complies with internationally recognized geotechnical testing standards including:

- ASTM D2850
- ASTM D4767
- BS 1377-7
- AASHTO T296
- AASHTO T297
- IS 2720 Part 11

PRINCIPLE OF OPERATION

The AZA1296 subjects cylindrical soil specimens to controlled confining pressure and axial loading to determine soil strength characteristics under simulated field stress conditions.

The system performs:

UU TEST (UNCONSOLIDATED UNDRAINED)

- No drainage permitted
- Rapid testing procedure
- Determines undrained shear strength

CU TEST (CONSOLIDATED UNDRAINED)

- Sample consolidated before loading
- Drainage allowed during consolidation only
- Pore pressure monitored during shear

CD TEST (CONSOLIDATED DRAINED)

- Full drainage permitted throughout test
- Slow strain rate testing
- Determines effective stress parameters

The automated system continuously records load, displacement, pore pressure, and volume change throughout the test cycle.

AUTOMATED CONTROL SYSTEM

The AZA1296 incorporates advanced automated control for highly accurate and repeatable testing.

Automation features include:

- Servo-controlled axial loading
- Automatic pressure regulation
- Programmable strain rate control
- Real-time feedback monitoring
- Automated test sequencing
- Live graphical plotting
- Automatic report generation
- Data export to Excel and PDF

LOAD FRAME & MEASUREMENT SYSTEM

The system features a high-stiffness load frame designed for precision geotechnical testing.

Measurement systems include:

- High-resolution load cell
- LVDT displacement transducer
- Pore pressure transducer
- Automatic pressure controllers
- Volume change measurement system

PRESSURE CONTROL SYSTEM

The advanced pressure control system supports accurate simulation of field stress conditions.

Features include:

- Dual or triple pressure channels
- Automatic cell pressure control
- Automatic back pressure regulation
- Pore pressure monitoring
- Pneumatic or hydraulic pressure generation
- Stable long-duration pressure holding

This enables accurate saturated and unsaturated soil testing.

SOFTWARE & DATA ACQUISITION

The AZA1296 includes advanced Windows-based control and analysis software.

Software functions include:

- Real-time graphical plotting
- Live stress-strain curves
- Pore pressure monitoring
- Automatic calculations
- Test parameter customization
- Data logging and storage
- Auto-generated reports
- Export to Excel and PDF

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Technical Specifications

PARAMETER	SPECIFICATION
Model	AZA1296
Product Type	Advanced Triaxial Test System
Test Modes	UU, CU, CD
Sample Types	Undisturbed & Remolded Cylindrical Soil Specimens
Specimen Diameter Range	38 mm to 100 mm
Axial Load Capacity	20–50 kN Typical
Optional Load Capacity	50 kN / 100 kN
Load Resolution	0.01 kN
Load Frame Type	Servo-Controlled High-Stiffness Frame
Pressure System	Pneumatic / Hydraulic Automatic Control
Pressure Channels	Dual / Triple Channel

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Technical Specifications

PARAMETER	SPECIFICATION
Measurement Sensors	Load Cell, LVDT, Pore Pressure Transducer
Volume Change Measurement	Integrated
Load Cell Accuracy	±0.1% of Full Scale
Data Acquisition	High-Resolution Multi-Channel System
Software	Windows-Based with Real-Time Plotting
Data Export	Excel & PDF
Frame Construction	Corrosion-Resistant Steel
Base Structure	Vibration Isolation Base
Power Supply	220–240 V AC, 50/60 Hz
Standards Compliance	ASTM D2850, ASTM D4767, BS 1377-7, AASHTO T296/T297, IS 2720 Part 11